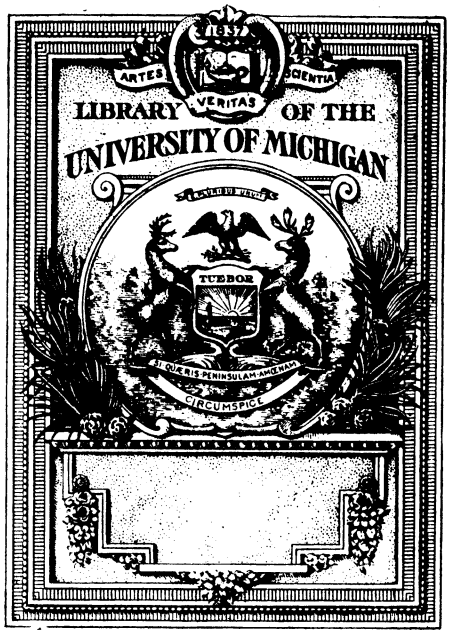
PHILIPPINE
WEATHER
BUREAU

BULLETIN
1918



Philippine Islands. Weather bureau

THE GOVERNMENT OF THE PHILIPPINE ISLANDS

WEATHER BUREAU

MANILA CENTRAL OBSERVATORY

MONTHLY BULLETIN, 1918

PREPARED UNDER THE DIRECTION OF

REV. JOSÉ ALGUÉ, S. J.

DIRECTOR OF THE WEATHER BUREAU

MANILA
BUREAU OF PRINTING
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INTRODUCTION.

The form of our Monthly Bulletin as adopted in 1907 and modified in 1914 will be retained. Unless otherwise stated, by daily rainfall in the Philippines we mean the amount of rainfall for 24 hours beginning 6 a. m. The time used is that of the one hundred and twentieth meridian east of Greenwich.

The following is a list of all the meteorological stations of the Weather Bureau together with the names of the respective observers, who are in a great measure responsible for the accuracy of the observations published in this Bulletin:

SECONDARY STATIONS AND OBSERVERS OF THE WEATHER BUREAU.

Station.	North latitude.	East longitude.	Observer.	Class.
	° ′	° ′		
Jolo	6 03	121 00	Rufino de la Cruz	III
Isabela, Basilan	6 42	121 58	Inocencio Rodriguez	IV
Zamboanga	6 54	122 05	Juan Lugod	II
Davao	7 01	125 35	Lamberto Garcia	III
Cotabato	7 13	124 15	Felix Manabat	III
Cagayan, Misamis	8 29	124 38	Juan Hernandez	III
Dapitan	8 40	123 25	Agaton Edmilao	IV
Butuan	8 56	125 32	Generoso Copin	III
Mambajao	9 14	124 43	Guillermo P. Cabriole	IV
Dumaguete	9 18	123 19	Matias Ordiales	III
Yap, W. Carolines	9 29	138 08	Prudencio Z. Urbiztondo	III
Tagbilaran	9 38	123 51	Francisco Burgos	II
Iwahig	9 44	118 38	Dionisio Crisanto	III
Surigao	9 48	125 29	Francisco Tiangco	II
Maasin	10 08	124 50	Aguedo Espina	III
Cebu	10 18	123 54	Domingo de los Angeles	I
Iloilo	10 42	122 34	Ricardo A. Luna	I
San Jose Buenavista	10 44	121 55	Teodoro Peñeiro	III
Cuyo	10 51	121 01	Roman Kabigting	III
Ormoc	11 00	124 36	Severo Bande	III
Guiuan	11 02	125 44	Patricio Yabao	III
Tacloban	11 15	125 00	Ezequiel Reinoso	II
Capiz	11 35	122 45	Pedro M. Asturias	II
Borongan	11 37	125 26	Godofredo Bacolo	III
Catbalogan	11 47	124 51	Clemente M. Letaba	III
Calbayog	12 04	124 36	Segundo Peñaflorida	II
Masbate	12 22	123 36	Vicente M. Sañano	IV
Romblon	12 35	122 16	Dolorito Contreras	III
Batag	12 40	125 04	Placido A. Edroso	IV
Sorsogon	12 55	124 08	Agustin Mendoza	III
Legaspi	13 09	123 45	Bernardino Costa	I
Sumay, Guam	13 24	144 38	William Pimley	III
Calapan	13 25	121 11	Aquilino Nokom	III
Virac	13 35	124 14	Eusebio Talion	III
Naga	13 37	123 11	Eduardo Ontengco	III
Batangas	13 45	121 03	Jose N. Cabrera	III
Lucena	13 56	121 37	Vicente Valderrama	III
Atimonan	14 00	121 55	Pedro Baltasar	I
Ambulong, Tanauan	14 07	121 04	Gregorio Peralta	II
Canlubang, Calamba	14 13	121 07	Nicolas Princena	IV
Paracale	14 17	122 47	Benito Pelaez	II
Santa Cruz, Laguna	14 18	121 25	Doroteo Eusebio	III
Antipolo	14 36	121 10	Valeriano Garcia	IV
Iba	15 20	119 58	Antonio Gaza	III
San Isidro	15 22	120 53	Bernardo Pecache	II
Tarlac	15 30	120 35	Valeriano Magat	IV
Baler	15 40	121 34	Santiago Palmero	IV
Dagupan	16 03	120 20	Jose M. Sison	I
Bolinao	16 24	119 53	Lorenzo Goli	III
Baguio	16 25	120 36	Pastor P. Daroy	I
San Fernando, Union	16 37	120 19	Estanislao F. Feraren	III
Echagüe	16 41	121 39	Benito Maramba	III
Candon	17 12	120 26	Luis Quismorio	IV
Vigan	17 34	120 23	Jose de Jesus	II
Tuguegarao	17 36	121 40	Jose C. de Leon	II
Laoag	18 12	120 35	Jose Saez	II
Aparri	18 22	121 38	Manuel Delgado	I
Cape Bojeador	18 31	120 36	Fabian Velazquez	IV
Santo Domingo, Batanes	20 28	121 59	Claudio Castillejos	III

The signs and symbols employed in this publication are the following:

Symbol.	Equal to—	Symbol.	Equal to—
Ci.	Cirrus.	o	Overcast.
Ci.-S.	Cirro-stratus.	p	Passing showers of rain.
Ci.-Cu.	Cirro-cumulus.	q	Squally weather.
A.-Cu.	Alto-cumulus.	u	Ugly or threatening.
A.-S.	Alto-stratus.	v	Visibility of distant objects.
S.-Cu.	Strato-cumulus.	w	Wet or heavy dew.
N.	Nimbus.	●	Rain.
Cu.	Cumulus.	≡	Fog or mist.
Cu.-N.	Cumulo-nimbus.	ϸ	Dew.
S.	Stratus.	⊕	Solar halo.
Fr.-Cu.	Fracto-cumulus.	⊟	Lunar halo.
Fr.-N.	Fracto-nimbus.	∪	Lunar corona.
Fr.-S.	Fracto-stratus.	⊖	Solar corona.
S.-cf.	Stratus-cumuliformis.	↯	Heat lightning.
N.-cf.	Nimbus-cumuliformis.	↯	Thunderstorm.
M.-Cu.	Mammato-cumulus.	⊢	Thunder without lightning.
b	Bright, clear sky.	↘	Strong wind.
c	Cloudy weather.	(	Rainbow.
d	Drizzling, light rain.	∞	Dry mist.
g	Gloomy or stormy-looking weather.		

NOTE.—A small ^{0} or ^{2} used as an exponent to the above symbols indicates, respectively, that the intensity of the meteor denoted by the symbols thus affected was small or very great.

INTRODUCCIÓN.

Conservaremos en esta publicación la misma forma adoptada en 1907, y modificada en 1914. Mientras no se diga lo contrario, por lluvia diaria en Filipinas entendemos la cantidad de lluvia en 24 horas empezando a 6 a. m. El tiempo usado es el del meridiano ciento veinte.

Damos en el texto inglés una lista de todas nuestras estaciones con los nombres respectivos de los observadores, los cuales son en gran parte responsables de las observaciones que se publican en estos boletines.

Los signos y símbolos usados en esta publicación son los siguientes:

Símbolos.	Significado.	Símbolos.	Significado.
Ci.	Cirrus.	o	Cubierto.
Ci.-S.	Cirro-stratus	p	Lluvia pasajera.
Ci.-Cu.	Cirro-cumulus.	q	Achubascado.
A.-Cu.	Alto-cumulus.	u	Tiempo feo o amenazador.
A.-S.	Alto-stratus.	v	Trasparencia del aire.
S.-Cu.	Strato-cumulus.	w	Húmedo.
N.	Nimbus.	●	Lluvia.
Cu.	Cumulus.	≡	Niebla o neblina.
Cu.-N.	Cumulo-nimbus.	⊕	Rocío.
S.	Stratus.	◎	Halo solar.
Fr.-Cu.	Fracto-cumulus.	◑	Halo lunar.
Fr.-N.	Fracto-nimbus.	☾	Corona lunar.
Fr.-S.	Fracto-stratus.	⊕	Corona solar.
S.-cf.	Stratus-cumuliformis.	↯	Relámpago sin trueno.
N.-cf.	Nimbus-cumuliformis.	↯	Tempestad de trueno.
M.-Cu.	Mammato-cumulus.	⊢	Trueno sin relámpago.
b	Despejado.	↘	Viento duro.
c	Nublado.	⌒	Arco-iris.
d	Llovizna o lluvia ligera.	∞	Niebla seca.
g	Mal cariz; tiempo cerrado, fosco.		

NOTA.—Un ° o un ² puestos como exponentes de los signos, indican respectivamente una muy débil o una muy fuerte intensidad en el meteoro que representan.

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METEOROLOGICAL BULLETIN FOR JANUARY, 1918.

By Rev. JOSÉ CORONAS, S. J.,
Chief, Meteorological Division of the Weather Bureau.

GENERAL WEATHER NOTES.

Pressure and temperature.—With the exception of a few stations in the northern part of Luzon, the mean atmospheric pressure of this month is somewhat lower than the January's normal. The highest pressures of the month were generally observed on the 8th or 9th, and the lowest on the 25th, 29th, or 30th.

The mean monthly temperature is remarkably below that of the preceding year and below the normal of this month, the differences being greater in northern Luzon. The absolute maximum and minimum temperatures for Manila were 30.4° C. on the 14th, and 15.7° C. on the 23d. The extreme temperatures for Baguio were 24.1° C., 8.3° C. on the top of Mirador, and 24.1° C. 8.1° C. in the valley.

PRESSURE AND TEMPERATURE AT THE FIRST AND SECOND CLASS STATIONS FOR JANUARY, 1918.

Station.	Pressure.							Temperature.						
	Mean.	Departure from Jan., 1917.	Departure from normal.	Highest mean.	Day.	Lowest mean.	Day.	Mean.	Departure from Jan., 1917.	Departure from normal.	Highest.	Day.	Lowest.	Day.
	mm.	*mm.*	*mm.*	*mm.*		*mm.*		°*C.*	°*C.*	°*C.*	°*C.*		°*C.*	
Zamboanga	757.89	−0.67	.....	759.12	4	756.01	25	25.8	−0.3	.....	32.8	8	21.6	7
Tagbilaran(a)	58.27	− .97	−1.28	59.53	11	56.76	24	24.6	− .6	−1.1	31.4	3	21	14
Surigao	58.32	− .97	−1.02	59.68	11	56.70	27	24.5	−1.2	−1.1	29.8	2	21	19
Cebu	58.57	− .79	−1.17	59.79	9	57.08	25	25.3	−1	− .7	30.5	2	22	26
Iloilo	58.81	− .53	− .92	60.34	9	57.43	25	24.2	−1.5	−1.4	29.4	19	20.9	9
Tacloban	58.95	− .72	−1.27	60.91	8	57.40	25	23.9	−1.6	−1.6	31	2	20.8	9
Capiz	59.60	− .56	−1	61.44	9	58.30	25	24.3	−1.5	−1.3	29.1	2,20	21.7	26
Calbayog	59.37	− .67	−1.03	61.19	8	57.84	25	23.6	−1.6	−1.2	31	20	20.5	9
Legaspi	60.16	− .30	− .53	62.32	8	58.81	25	23.8	−1.5	−1.8	27.9	12	21.1	9
Atimonan	61.17	+ .06	+ .02	63.30	9	59.84	30	23.3	−1.5	−1.9	26.4	3	19.8	9
Ambulong, Tanauan	60.14	+ .11	.....	61.89	9	58.96	30	23.4	−1.6	.....	30.4	2	19.3	9
Paracale	61.35	+ .14	.....	63.64	8	59.86	30	23.4	−1.4	.....	27.2	2	19.7	9
Manila	60.73	− .19	− .40	62.71	9	59.44	30	23.1	−1.6	−1.7	30.4	14	15.7	23
San Isidro	61.15	− .06	− .18	63.23	9	59.77	30	23	−1.7	−1.7	30.9	19	15.2	9,22
Dagupan	60.15	0	− .63	61.83	9	58.75	29	24.2	−1.7	−1.3	32.3	29	16.6	24
Baguio(b)	636.97	− .78	− .87	637.94	15	635.71	29	14.7	−1.7	−1.7	24.1	12	8.3	10
Vigan	760.55	+ .03	− .59	762.73	8	758.91	29	24.2	−1.9	−1.2	31.7	5	17	23
Tuguegarao	63.38	+ .41	+ .80	66.72	8	61.31	29	20.5	−2.2	−2.7	27.6	22	14.8	11
Laoag	60.96	+ .28	.....	63.87	8	58.92	29	22.9	−2.4	.....	.....	.....	13	10
Aparri	63.98	+ .57	+1.08	67.72	8	61.66	29	20.2	−1.8	−2.7	26.5	12	16	22

[a] 30 days of observation. [b] The barometric readings of this station are not reduced to sea level.

Rainfall.—Rains have been abundant during the month throughout the Visayas and Mindanao, the southern part of Panay excepted. The monthly total rainfall for the stations situated in those regions were both above that of January, 1917, and above the normal of this month, while in Luzon practically all the stations reported a total amount of rainfall below the normal and below the monthly total of the preceding year. In the rain-gauges of the Central Observatory at Manila only 3.2 mm. of water were collected during the month, an amount which is 23.3 mm. below the normal. In Baguio there were but two days of rain with a total amount of only 2.6 mm. which differs from the normal by −29.8 mm.

In the Eastern Visayas particularly the rains were so extraordinarily heavy that great damage done to the crops has been reported. We invite the attention of our readers to the following rainfall table and particularly to the total monthly rainfall for Borongan and Tacloban, which are above the normal of January by the remarkable amount of 1,556.1 mm. and 1,029.2 mm., respectively.

RAINFALL AT VARIOUS STATIONS OF THE WEATHER BUREAU DURING THE MONTH OF JANUARY, 1918.

Station.	Total.	Departure from Jan., 1917.	Departure from normal.	Days of rain.	Departure from Jan., 1917.	Greatest rainfall in a single day.	Day.	Station.	Total.	Departure from Jan., 1917.	Departure from normal.	Days of rain.	Departure from Jan., 1917.	Greatest rainfall in a single day.	Day.
	mm.	*mm.*	*mm.*			*mm.*			*mm.*	*mm.*	*mm.*			*mm.*	
Jolo	466.3	+ 295.5	+ 343.7	22	+ 3	150.6	17	Sumay, Guam	137	+ 60.6	+ 72.2	19	+ 3	39.4	22
Isabela, Basilan	243.9	+ 91.2	+ 159.3	20	+ 4	37.3	29	Calapan	195.3	+ 30.4	+ 77.5	23	— 3	47	7
Zamboanga	143.2	+ 61.4	+ 81.7	20	+ 8	32	16	Virac	283.3	—289.8	+ 53.3	19	— 9	58	1
Davao	124.3	— 71.1	— 14.4	7	— 6	45.4	9	Naga	105.2	—180.8	— 21.3	20	— 2	29	14
Cotabato	155.5		+ 68.8	18		56.1	21	Batangas	3.9	— 32.4	— 21.7	2	—12	3.6	13
Cagayan, Misamis	209.8	+ 164.8		22	+ 8	45	9	Lucena	64.8	—385.9		13	—12	16.3	13
Dapitan	609.4		+ 442.9	31		78	17	Atimonan	262.3	—437.5	+ 28.9	26	+ 3	52	13
Butuan	565.4	+ 209.4	+ 319	28	— 1	125.2	28	Ambulong, Tanauan	30	— 39.3		5	+ 2	12.2	4
Mambajao	1,056.9			27		104.1	16	Canlubang, Calamba	5.4	— 49.8		2	— 8	4.6	13
Dumaguete	200.3	+ 78.3		20	+ 2	41.7	30	Paracale	615.1	—484.1		28	+ 1	139.2	12
Yap, W. Carolines	262.5	+ 40.9	+ 103.4	29	+ 7	33.3	8	Santa Cruz, Laguna	15.1	— 81.3		7	—15	5.6	13
Tagbilaran[a]	201.8	+ 84	+ 113.5	18	+ 8	52	17	Manila	3.2	— 14.8	— 23.3	2	— 8	2.2	12
Iwahig	160.1	+ 44.3		13	+ 1	86.6	5	Antipolo	3.6	— 19.8		2	— 9	2.6	13
Surigao	1,183.9	+ 444.9	+ 722.3	30	+ 3	153.9	7	Iba	0	— .9	— 6.2	0	— 2	0	0
Maasin	774.4	+ 488.4	+ 552.1	23	+11	223.5	30	San Isidro	0	— 6	— 15.6	0	— 7	0	0
Cebu	223.8	+ 125.9	+ 125.8	18	+ 1	59.1	30	Tarlac	0	— 9.9	— 8.5	0	— 2	0	0
Iloilo	47.3	— 77.5	— 8.9	16	+ 3	10.9	14	Baler	7.7	—199.3	—236.8	2	—20	7.4	29
San Jose Buenavista	25.8	— 2.8	— 9.9	10	0	8.1	12	Dagupan	0	— 45.5	— 11.1	0	— 3	0	0
Cuyo	0	— 2	— 13.2	0	— 1	0	0	Bolinao	3.8	— 16	— 6.6	3	— 1	2.5	13
Ormoc	458.3	+ 345.7	+ 256.9	27	+ 9	70.7	7	Baguio	2.6	— 64.8	— 29.8	2	— 5	2.3	2
Guiuan	1,788.8	+1,410.6		30	+ 4	256	5	San Fernando, Union	0	— .3	— 8.7	0	— 1	0	0
Tacloban	1,385.1	+1,017.1	+1,029.2	30	+ 7	192.8	7	Echagüe	30.8	—120.1	— 25.3	15	— 7	5.8	13
Capiz	216.3	+ 71.8	+ 46.7	26	+ 1	35.9	30	Candon	0	0	— 5.6	0	0	0	0
Borongan	2,191.4	+1,403.7	+1,556.1	31	+ 5	229.3	4	Vigan	.1	+ .1	— .7	1	+ 1	.1	2
Catbalogan	913.9	+ 547.9		28	+ 2	148.6	15	Tuguegarao	4.5	— 28.4	— 25.1	3	— 1	2	31
Calbayog	690.8	+ 381.4	+ 480.6	30	+ 8	99	15	Laoag	3.5	+ 3.5	— 1.1	1	+ 1	3.5	31
Masbate	381.5	+ 76.5	+ 199.7	25	+ 2	64.3	1	Aparri	126.8	— 27.3	— 70.1	23	— 1	16.2	6
Romblon	113.3	— 156.9	— 8.5	20	— 8	27.4	12	Cape Bojeador	6.4	+ 1.4		1	— 1	6.4	13
Batag	835.9	— 8.2		30	0	88.9	3	Santo Domingo, Batanes	129	—257.3	—114.4	24	— 2	36.4	19
Sorsogon	1,020.4	— 239.5		29	+ 2	123	3								
Legaspi	389.5	— 399.1	— 2.9	22	— 5	66.5	3								

[a] 30 days of observation.

DEPRESSIONS AND TYPHOONS.

Prescinding from those depressions which we call continental depressions or which are formed in higher latitudes, there was no depression or typhoon during the month in the Far East at least near the Philippines. We may mention only a little depression which appeared in our weather maps east of the northern Loochoos at noon of the 13th and north of the Bonins in the morning of the 14th.

NOTAS GENERALES DEL TIEMPO.

Presión y temperatura.—A excepción de unas cuantas estaciones de la parte N de Luzón, la presión atmosférica media de este mes es algo menor que la normal de enero. Las presiones más altas del mes se observaron generalmente el día 8 ó 9, y las más bajas los días 25, 29 ó 30.

La temperatura media mensual es notablemente menor que la del año pasado y menor que la normal de este mes, siendo mayores las diferencias en el N de Luzón. Las temperaturas máxima y mínima absolutas de Manila fueron 30.4° C. y 15.7° C. observadas los días 14 y 23, respectivamente. Las temperaturas extremas de Baguio fueron 24.1° C., 8.3° C. en la cumbre del Mirador, y 24.1° C., 8.1° C. en el valle.

Precipitación acuosa.—Las lluvias han sido abundantes durante el mes en todo Visayas y Mindanao, excepción hecha de la parte meridional de Panay. La lluvia total del mes en las estaciones situadas en dichas regiones fué mayor que la de enero de 1917, y que la normal de este mes, al paso que en Luzón prácticamente todas las estaciones registraron una cantidad total de lluvia menor que la normal y menor también que la cantidad mensual del año pasado. En los pluviómetros del Observatorio Central de Manila sólo se recogieron 3.2 mm. de agua durante el mes, cantidad que es 23.3 mm. menor que la normal. En Baguio no hubo más que dos días de lluvia con una cantidad total de solos 2.6 mm., que difiere de la normal en —29.8 mm.

En las Visayas orientales en especial las lluvias han sido tan extraordinariamente copiosas que, según informes, han causado considerables daños a las cosechas. Invitamos la atención de nuestros lectores al cuadro de lluvias que va en el texto inglés, y particularmente a las lluvias totales de Borongan y de Tacloban que fueron mayores que la normal de enero en cantidades tan notables como 1,556.1 mm. y 1,029.2 mm., respectivamente.

DEPRESIONES Y TIFONES.

Prescindiendo de las depresiones que llamamos continentales o que se forman en altas latitudes, no hubo depresión o tifón durante este mes en el Extremo Oriente por lo menos cerca de Filipinas. Sólo mencionaremos una pequeña depresión que apareció en nuestro mapa del tiempo al E del norte de Loochoos a mediodía del 13, y al N de Bonins la mañana del 14.

METEOROLOGICAL DATA FOR MANILA CENTRAL OBSERVATORY.[a]

[$\phi = 14° 34' 41''$ N; $\lambda = 120° 58' 33''$ E; barometer above sea, 14.2 meters; gravity correction not applied, —1.72 mm.]

Day.	Pressure (mean).	Air temperature.[b] Mean.	Maximum.	Minimum.	Underground temperature. 0.25 meter. 8 a.m.	0.25 meter. 2 p.m.	0.50 meter. 8 a.m.	0.50 meter. 2 p.m.	1.50 meters. 8 a.m.	2.50 meters. 8 a.m.	Relative humidity (mean).	Vapor pressure (mean).	Radiation. Minimum on grass.	Radiation. Maximum in sun. Black bulb in vacuo.	Evaporation.[b] Free exposure (total).	Evaporation.[b] Shelter (total).
	mm.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	*Per ct.*	*mm.*	°C.	°C.	*mm.*	*mm.*
1	760.27	23.4	28	18.8	25.6	26.8	27	27.2	28.1	27.7	81.8	17.4	16.6	44.8	2.6	1.9
2	60.61	24.2	29.4	20.4	26	27.2	27	27.2	28	27.7	83.4	18.5	18.2	50	2.7	1.7
3	60.72	23.7	30	19.6	25.9	27.1	27.1	27.3	28	27.8	81.8	17.6	16.8	53.5	3	2.1
4	61.04	23.8	29	20.2	25.8	27	27	27.3	27.9	27.7	82.1	17.9	17.6	42.7	2.4	1.6
5	60.88	23.8	27.7	20.9	26.3	26.9	27.1	27.3	27.9	27.7	80.5	17.5	18.7	43	2.2	1.6
6	61.17	23.5	28.5	21	26.3	26.7	27.2	27.2	28.1	27.7	76.8	16.3	18.6	50.4	3	2.7
7	61.12	23.9	29.7	20.4	25.9	27	26.9	27	27.9	27.6	73.1	15.8	18.8	54	4.1	3.2
8	62.21	22.8	28	19.3	25.7	26.7	27.1	27.1	27.9	27.5	69	13.9	16.4	49.5	5.5	3.8
9	62.71	21	27	17.4	25	26.3	26.9	26.9	27.8	27.5	71.9	13	15.2	52.5	4.1	3.2
10	62.12	21.7	28	17.2	24.5	26.1	26.6	26.7	27.8	27.5	73	13.8	14	48	4.1	3
11	61.70	22.9	28.8	18.8	24.8	26.2	26.5	26.6	27.6	27.5	77.6	16	16.2	47	3.7	2.2
12	61.06	23	27.9	20	25.4	26.1	26.5	26.6	27.8	27.5	87	18.1	17.6	42.5	.9	1.2
13	60.54	23.6	27.6	21.1	25.5	26.5	26.5	26.8	27.7	27.5	85.6	18.5	19.4	44	1	1.2
14	60.71	23.8	30.4	20.4	25.6	26.5	26.8	26.8	27.6	27.6	79.4	17.1	19.1	50.9	2.8	2.1
15	61.44	23.2	29.1	18.8	25.3	26.3	26.7	26.8	27.5	27.5	77.6	16.2	16.3	45.2	3.5	2.5
16	61.57	22.2	26.3	18.9	25.2	25.9	26.6	26.7	27.4	27.5	80.3	15.9	16.3	39.5	2.1	1.6
17	60.87	22.5	29	18.2	25	26.1	26.5	26.5	27.5	27.5	75.5	15	16.2	50.5	2.9	2.2
18	60.05	22.6	28.9	17.1	24.6	26.3	26.2	26.5	27.4	27.6	79.9	16.1	14.7	53.5	3.3	2.3
19	59.80	24.1	29.1	19	25.3	26.5	26.4	26.6	27.4	27.6	80.2	17.7	16.6	47.8	3.4	2.1
20	60.42	24.5	30	20.2	25.5	26.7	26.7	26.8	27.4	27.6	74.1	16.6	17.6	54.5	5.3	3.4
21	60.70	22.9	27.5	18.4	25.5	26.5	26.7	26.7	27.4	27.6	74.4	15.2	15.2	46.8	3.2	2.3
22	61.38	21.5	28.7	16.7	24.5	26.2	26.5	26.6	27.3	27.5	76.5	14.3	13.6	50.5	3.7	2.4
23	60.77	22.1	28.6	15.7	24.5	26.1	26.3	26.6	27.3	27.5	72.4	13.8	12.2	52.2	4.3	2.8
24	59.83	22.5	28.6	18	24.8	26.1	26.3	26.4	27.3	27.5	78.6	15.8	15.2	50	2.9	2
25	59.46	23.4	29	19.3	24.8	26.3	26.2	26.4	27.3	27.5	72.4	15.3	16.7	47.2	4.8	3
26	60.34	23.3	28.7	20.1	25	26.1	26.2	26.4	27.3	27.5	71.5	15.2	17.7	49.2	3.3	2.4
27	60.18	22.8	27.9	18.5	24.9	26.3	26.2	26.4	27.3	27.3	74.7	15.3	15.5	44.5	4.1	2.8
28	59.73	22.9	27.8	19.7	25.1	25.9	26.2	26.5	27.3	27.3	77	15.8	16.7	52.7	3	2
29	59.54	22.6	28.7	18.6	25	26.1	26.2	26.4	27.3	27.2	78.1	15.8	15.8	46.5	3.4	2.5
30	59.44	23.2	28.1	17.6	24.5	26.2	26.1	26.4	27.3	27.2	79.4	16.6	14.2	50	3.5	2.3
31	60.18	23.7	27.4	21	25.5	26.1	26.3	26.5	27.3	27.3	78.1	17	19	44.7	2.9	2.2
Mean	760.73	23.1	28.5	19.1	25.3	26.4	26.6	26.7	27.6	27.5	77.5	16.1	16.5	48.3	3.3	2.3
Total															101.7	72.3
Departure from normal	—0.40	—1.7	—1.5	—1.3							—0.6	—2				

Day.	Wind. Prevailing direction.	Wind. Total movement.	Wind. Maximum hourly velocity.	Wind. Direction at the time of the maximum velocity.	Clouds. Amount (mean).	Clouds. Form and direction. Upper.	Clouds. Form and direction. Lower.	Sunshine.	Rain, 24 hours beginning 6 a.m. On the tower.	Rain, 24 hours beginning 6 a.m. In the park.	Miscellaneous.
		Km.	*Km.*		*0–10.*			*h.* *m.*	*mm.*	*mm.*	
1	NW quad.	129	13.5	WNW	9.3	A.-Cu. NE	Cu. E	2 10			
2	WSW	90	13	WSW	4.7	A.-Cu.	Cu. ENE	5 30			
3	W quad.	100.5	12.5	WSW	5.4	Ci.	Cu. ENE	5 50			
4	N quad.	127.5	11	WSW	9.1	A.-Cu. ENE	Cu. E	1 45			d° p.
5	NE quad.	103	12	E	9.2	A.-Cu. E	S.-Cu. ENE	0 20			
6	SW, WNW	92	11	WSW	9.7	A.-cu. SE, ESE	Cu. ENE	0 25			
7	NE, N	136	18.5	ENE	8.2	A.-cu. NE, ENE	Cu. NE	3 30			
8	NE	242	26	NE	5.8	A.-Cu. ENE	Cu. ENE	6 45			
9	NE	199	27.5	NE	7.4	Ci. NE	Cu. ENE	3 40			⊕ a.
10	N quad.	176	15	E	6.1	Ci. S	Cu. ENE	7 15			
11	W quad.	136.5	14	W	7.3	A.-Cu. SSW	Cu. E	5 25			
12	NE	63.5	10	ENE	9.7	A.-Cu. SSE	S.-Cu., N. ENE	0 00	2.2	2.3	●° p.
13	NE	91	6	SW, W	9.2	A.-Cu. NE	S.-Cu. E	0 40	1	1	d p.
14	NNE, NE	118.5	12	NNE	7.8	A.-cu. SE, ENE	Cu. ENE	2 50			d a.
15	W quad.	123.5	13	W, WSW	7.2	Ci.	Cu. E	5 25			
16	Variable	109	8.5	SW	8.2	ci., ci.-s. SSE	Cu. EbyN	0 00			◡° p.
17	NE quad.	91.5	9.5	E	7.3	ci.-s., ci. SSE	Cu. E	3 40			
18	N	132	12	SW	5.3	A.-cu. SSE, SE	Cu. EbyN	6 40			
19	NNE, WSW	120.5	14	SW	5.6	A.-Cu.	Cu. E	7 50			
20	NE	168.5	23	NE	4.4	A.-Cu.	Cu. NE	7 45			
21	NE quad.	139	12.5	NW	6.3	Ci.	Cu. E	5 10			
22	N, SW	168.5	12.5	SW	4.4	A.-Cu. SE	Cu. ENE	8 20			⊽ p.
23	NE, ENE	121	15	E	6.4	A.-Cu. SSE	Cu. E	6 40			
24	NE quad.	132	11	SSW	8.3	A.-Cu.	Cu. ENE	3 05			d° p.
25	NW quad.	162	14.5	WSW, SW	7.2	A.-cu. SE, ESE	Cu. ENE	5 05			
26	SW, W	152	12.5	SW	9.2	A.-Cu.	Cu. ENE	0 40			◡° p.
27	W quad.	129	12	WSW	8.3	A.-cu. S, SSW	Cu. ESE	1 15			
28	N quad.	108	14	SW	9	A.-Cu. ESE	Cu. E	2 10			
29	W quad.	130	12.5	WNW	7.4	A.-Cu. S	Cu. ENE	3 20			
30	W quad.	114.5	13	W, WNW	7.7	A.-Cu.	Cu. E	3 25			
31	W quad.	106	12.5	WbyN	10	A.-Cu. S	S.-Cu. ENE	0 00			
Mean		129.4	13.7		7.5			3 46			
Total		4,011.5						116 35	3.2	3.3	
Departure from normal		—1,228.4			+2			—66 59	—23.3		

[a] All the mean values given in this table are deduced from hourly observations.
[b] These values are taken from instruments mounted in the Observatory Park, 1.5 meters above ground.

METEOROLOGICAL DATA FOR MIRADOR OBSERVATORY, BAGUIO.[a]

[ϕ=16° 25′ N; λ=120° 36′ E; barometer above sea, 1,512.5 meters; gravity correction not applied, —1.65 mm.]

Day.	Pressure[b] (mean).	Air temperature at Mirador (on the top of the mountain).					Air temperature in the valley (near the city hall).				Relative humidity (mean).	Vapor pressure (mean).	Radiation.		Evaporation.	
		Mean.	Maximum.	Hour.	Minimum.	Hour.	Maximum.	Hour.	Minimum.	Hour.			Minimum on grass.	Maximum in sun. Black bulb in vacuo.[c]	Free exposure (total)	Shelter (total)
	mm.	*°C.*	*°C.*		*°C.*		*°C.*		*°C.*		*Per ct.*	*mm.*	*°C.*	*°C.*	*mm.*	*mm.*
1	636.87	16.2	20.9	11.35a.	12.1	0.05a.	21.9	0.25p.	12.4	0.05a.	81.7	11.2	9.9	51.7	2	1.3
2	37.63	15.6	21.4	0.15p.	12.8	12m. n.	22.4	1.05p.	13.2	12m. n.	92.3	12.2	13.1	53.2	1.5	1
3	37.40	15.7	21.5	2.30p.	12	12m. n.	22.4	1.20p.	11.6	12m. n.	77	10	12.2	56.2	5.6	3.5
4	37.57	15.6	21.6	Noon	11.6	3.30a.	23.6	2.05p.	10.6	5.05a.	78.5	10.4	10.3	51.1	3.3	2.2
5	37.32	15.3	21	11.00a.	11.9	6.40a.	20.4	11.40a.	12	5.10a.	81.2	10.4	10.2	50.8	3.6	2.2
6	37.30	14	20.8	1.10p.	11.3	12m. n.	20.5	0.50p.	11.3	11.25p.	84	10	11.4	53.9	2.7	1.6
7	37.22	14.9	21.6	11.35a.	10.7	12m. n.	21	0.20p.	10.7	1.05a.	73	9	10.3	52.2	6.6	3.3
8	37.76	12.8	19.2	0.30p.	9.3	12m. n.	19.5	1.05p.	9	12m. n.	71.8	7.7	9.6	46.9	6.8	3.6
9	37.48	12.1	19.5	0.25p.	8.4	4.30a.	19.2	0.35p.	8.1	6.40a.	73.2	7.7	7.6	48.4	5.4	3
10	37.37	12.8	20.3	0.20p.	8.3	4.40a.	20.3	1.35p.	7.9	5.10a.	69.8	7.6	7.5	49.9	6.2	3.7
11	37.73	15.4	22.5	1.20p.	10.4	2.00a.	23.1	1.40p.	11	1.30a.	74.2	9.7	7.3	50.5	5.7	3.5
12	37.74	16.2	24.1	11.20a.	13.2	3.35a.	24.1	0.05p.	12.3	6.00a.	82.2	11.2	12	54.2	2.8	1.8
13	37.41	15.8	21.3	11.00a.	12.9	4.10a.	21.5	11.00a.	12.7	3.20a.	89.5	11.8	11.9	54.2	1.3	.9
14	37.43	15.8	23.4	1.05p.	11.6	12m. n.	23	1.05p.	12	12m. n.	82.2	10.9	11.8	52	3.4	2.3
15	37.94	15.1	22.8	11.35a.	11	6.10a.	23.5	0.35p.	10.9	6.25a.	79.8	10.1	10	53	2.5	1.8
16	37.42	14.5	20.8	1.00p.	11.4	4.40a.	23.2	1.35p.	10.2	3.35a.	93	11.4	10.2	53	2.3	1.1
17	36.63	13.7	20.9	0.05p.	10.1	4.00a.	21	1.25p.	10.3	12m. n.	78.2	9.1	10	50.8	3.5	2.4
18	36.42	15.1	21.8	9.55a.	10.1	2.35a.	22,7	11.20a.	9.7	5.00a.	80.2	10.2	8.9	52	3.3	1.8
19	36.76	16.4	21.3	0.05p.	13.1	1.30a.	21.5	10.00a.	12.8	5.10a.	86.8	12	8.7	56	2.2	1
20	37.17	15.6	22.9	11.20a.	10.7	12m. n.	23	11.30a.	10.8	12m. n.	83	10.9	11.9	57.1	3.5	1.9
21	36.73	13.7	21.5	1.35p.	9.4	6.45a.	22.4	2.30p.	9.4	6.20a.	75.3	8.8	8.5	53.6	5	2.6
22	37.16	13.8	20.1	11.40a.	9	6.40a.	20.5	0.20p.	8.4	6.45a.	80.7	9.4	7.6	56.8	3.2	1.6
23	36.49	13.4	20.8	1.00p.	9	4.30a.	20.9	2.00p.	8.7	2.20a.	75.7	8.6	7.5	52	5.5	3
24	36.14	14.3	22.6	0.40p.	9.9	0.25a.	23.5	1.25p.	9.6	3.55a.	75.7	9.2	9.1	52.9	5	2.9
25	36.10	14.5	22.1	0.30p.	10.8	3.30a.	22.5	1.35p.	10	6.40a.	77.7	9.5	9.2	53	4.9	2.7
26	36.42	14.1	20.7	11.10a.	10.3	7.00a.	21.1	Noon	9.9	6.00a.	78.2	9.3	9.4	52.5	3.3	2
27	36.27	14	19.8	10.10a.	11.1	1.00a.	21.7	10.50a.	11	12m. n.	87.7	10.4	9.3	54.7	1.6	1
28	35.93	13.7	19.9	1.35p.	10.9	4.50a.	21.4	1.25p.	10.8	1.40a.	89	10.4	10.1	49.3	1.8	1
29	35.71	14.2	20.6	0.05p.	11	6.05a.	21.1	10.40a.	10	6.30a.	84.7	10.2	9.2	58	2.9	1.5
30	35.92	15.2	21.1	11.35a.	12.6	0.30a.	21.6	11.10a.	11.3	0.20a.	82.2	10.5	11	49.2	3.2	1.7
31	36.57	14.7	20	0.40p.	12.4	12m. n.	20.1	0.55p.	12.5	12m. n.	76.7	9.5	11	44.3	6	2.8
Mean	636.97	14.7	21.3		10.9		21.8		10.7		80.5	10	9.9	52.4	3.8	2.2
Total															116.6	66.7

Day.	Wind.				Clouds.			Sunshine.	Rain, 24 hours beginning 6 a. m.	Miscellaneous.
	Prevailing direction.[d]	Total movement.	Maximum hourly velocity.	Direction at the time of the maximum velocity.	Amount (mean).	Form and direction. Upper.	Lower.			
		Km.	*Km.*		*0–10.*			*h. m.*	*mm.*	
1	E	304.8	20.4	E	8.1	Ci., Ci.-S.	Cu.-N. ESE	3 55	0.3	☊° a. ≡° d p.
2	E quad.	253.7	16.1	SW	7.1	Ci.	Cu.-N. ESE	3 45	2.3	≡ a. ≡² ● p.
3	E	500.3	31.1	E	2.4	A.-Cu. ENE	Cu. SSW	8 05		
4	E	368.9	22.3	E	4.3	Ci., Ci.-S.	Cu. E	5 50		⊕ a. ≡² p.
5	E	368.8	23	E	5.6	Ci. WSW	Cu.-N. ESE	3 10		≡° p.
6	E	405.2	26	E	8.4	A.-Cu. ESE	Cu.-N. ESE	1 30		≡² p.
7	E	540.7	34.1	E	3.3	A.-Cu. E, ESE	Cu. E	7 25		☊° a. ↙° p.
8	E	615	33.3	SE	.3	Ci.-S. WSW	Cu.-N.	8 05		
9	E	498.6	27.4	E	1.7	Ci. SW	Cu.-N. ESE	4 50		☊° a.
10	E	542	36.2	E	.3	Ci.-S. E	Cu. ENE	6 50		
11	E	571.7	36.2	E	1.6	Ci. S	Cu.-N. ESE	7 30		
12	E	357.3	23.6	E	4.4	Ci.	Cu. ESE	5 15		≡² p.
13	E	207.7	13.7	E	9.4		Cu.-N.	1 45		d° ≡² p.
14	E	389.3	25.7	SE	3.4	Ci.-S. SSW	Variable	5 50		≡² p.
15	E	396.8	24.7	E	3.4	Ci.-S. SW by S	Cu.-N. ENE	5 15		≡° p.
16	SW, W	188.9	17.1	W	8.3	Ci.-S. SW	Cu.-N., S.	3 55		⊕ a. ≡² a. p.
17	E	294.5	18.8	E	7	Ci.-S.	Cu.	5 10		≡² p.
18	E	318.9	19.8	E	4.3	Ci.	Cu., S.	5 50		≡² p.
19	E	273.6	20.7	E	5.6	A.-Cu.	Variable	4 50		☊° a. ≡² p.
20	E	373.1	27.7	E	4.6	Ci.	Cu.-N. ESE	4 20		
21	E	473	28.7	E	1.7	Ci.	Cu. ENE	6 50		≡° p.
22	E	315.8	21.5	W	5.6	Ci.	Cu.-N. NE	4 35		≡² p.
23	E	374.5	25.9	E	1.9	Ci.	Cu. ESE	7 00		☊ a.
24	E	501.9	30.1	E	2.4	Ci.-S. WNW	Cu. E, SE	6 20		≡² p.
25	E	491.3	29.6	SE	1.6	Ci.	Cu. E	6 55		☊° a.
26	E	375.4	21.5	E	5.4	Ci.	S.-Cu., Cu.-N.	4 45		≡² d° p.
27	E	289.3	20.9	E	7.3	Ci., A.-Cu.	Cu.-N.	3 15		≡² a. p. d° p.
28	E quad.	260.2	19.3	E	9.7	Ci.-S., Ci.	Cu.-N.	1 55		≡² p.
29	E	274.5	18.5	E	7.7	Ci.	S.-Cu. SW	2 55		≡² p.
30	E	327.8	20.9	E	9.7	A.-Cu. SSW	S.-Cu., Cu.-N.	1 50		≡² p.
31	E	536.7	28.8	E	10		Cu.-N. ESE	0 40		d° p.
Mean		386.8	24.6		5			4 50		
Total		11,990.2						150 05	2.6	

[a] All the mean values given in this table are deduced from six daily observations taken at 2, 6, 10 a. m. and 2, 6, 10 p. m.
[b] The barometric readings of this station are not reduced to sea level.
[c] Maximum of hourly observations taken from 6 a. m. to 6 p. m.
[d] This element is based on hourly observations taken from a quadruple register, which gives only eight possible directions of the wind.

DAILY RAINFALL AT THE STATIONS OF THE WEATHER BUREAU, JANUARY, 1918.

Station.	Day of month.															
	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.
	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.
Jolo	------	------	20.6	18.5	33.3	0.3	0.5	------	------	1.5	0.8	2.5	------	10.2	2.8	18.1
Isabela, Basilan	------	------	13.5	21.5	.5	------	------	0.8	------	------	24.1	------	------	4.3	3.8	9.4
Basilan Plantation, Isabela (Basilan)[a]	------	------	25.2	37.1	3.8	------	------	------	------	18.3	------	------	------	4.9	3.8	12.2
Zamboanga	------	------	2.8	5.6	1.8	------	------	1.3	------	------	13.5	------	------	22.4	1.6	32
Davao	------	------	------	------	------	------	------	17	45.4	------	------	8.9	------	------	------	3.8
Cotabato	------	2.5	1.8	4.3	16.8	.3	------	5.1	6.4	------	5.3	1.3	------	.8	1.3	3
Cagayan, Misamis	------	6.1	------	7.4	5.1	2.5	------	7.4	45	6.9	5.1	------	5.1	2.3	------	19.6
Dapitan	4.3	27.4	65.8	31.7	40.7	4.1	5.7	10.9	40.1	9	4.9	.9	6.1	19.8	1.8	27.9
Butuan	------	3	7.1	16.3	1.6	2.8	2.5	17.5	103.2	3.9	42.4	.5	8.4	1.8	1	62.8
Mambajao	64	14.2	11.7	21.8	14.5	2.5	------	19.3	85.1	70.3	31.5	12.4	62.2	------	8.9	104.1
Dumaguete	------	12.2	1	14.5	20.8	1	2	------	------	2.8	2	1	1.3	.9	------	35.6
Yap, Western Carolines	13	------	26.7	8.4	1.3	.3	------	33.3	5.6	5.1	14.3	2.5	12	9.7	2.8	.8
Tagbilaran	(b)	8.4	21.5	9.4	11.2	------	2.8	------	4.3	5.2	------	------	2.5	2.3	------	2.6
Iwahig	3.4	.8	14.7	24.1	86.6	5.3	------	------	------	------	------	1.3	------	------	------	------
Surigao	8.9	3.3	21.6	15	87.6	3.1	153.9	81.8	52.4	36.8	95.6	23.8	14.7	47.2	14.2	90.9
Maasin	------	15	17.3	------	65	8.1	47.5	7.9	12.2	67.8	24.1	14	33	6.6	------	37.1
Cebu	8.4	27.7	------	1.8	------	8.9	.8	------	------	.5	------	1.5	7.9	55.1	------	1
Iloilo	.5	1	4.6	2.1	.6	3.3	10.4	------	------	------	------	------	------	10.9	.8	------
San Jose Buenavista	.6	------	6.1	5.3	------	.3	------	------	------	------	------	8.1	------	1.8	.3	------
Cuyo	6.1	2.5	.8	4.8	3.3	7.6	7.1	------	------	------	------	5.3	------	7.7	2.5	------
Lucena, Iloilo[a]	1.8	9.1	6.9	1.6	29.7	30.2	70.7	------	------	17.2	11.9	9.1	10.4	12.2	20	4.8
Ormoc	78.7	34	70.9	57.1	256	54.4	126.7	19.1	16.5	28.2	168.9	24.2	12.4	30	57.6	15.2
Guiuan	10.6	2	4.1	3.8	3.8	6.1	4.1	1.3	------	------	------	5.1	4	4.8	4.3	.3
Dueñas, Iloilo[a]	31.7	1.3	35	10.2	8.6	20.6	26.9	3.6	------	1	7.8	4.8	16.5	15	8.9	4.3
Bitaogan, Iloilo (Railroad Iloilo to Capiz)[a]	1.8	.3	5.1	2.8	.3	3.8	11.2	------	------	------	------	------	------	10.9	1	.3
Lapus, Iloilo (Railroad Iloilo to Capiz)[a]	28.7	2.8	87.1	40.9	105.1	98.8	192.8	2.8	.9	69.6	74.4	25.5	25.2	30.4	77.1	4.6
Tacloban	30.5	8.4	7.6	38.1	15.5	10.4	25.4	15.2	5.6	------	8.9	5.1	17.8	30.5	20.8	3.8
Dumarao, Capiz[a]	15.2	3	21.4	18.5	1.3	28.7	28.2	1.3	------	5.1	7.9	15.8	4.9	13.4	11	1.8
Dao, Capiz[a]	21.4	4.6	22.1	7.4	.8	26.4	5.3	2	------	4.6	3.8	2.6	------	26.7	7.4	.6
Capiz	44.2	56.9	134.7	229.3	167.4	86.3	121.7	8.1	37.4	53.3	102.9	90	20.4	42.1	159	16
Borongan	1.8	4.8	76.2	71.2	62.8	20.8	67.8	------	------	24.9	20.6	34.6	12	27.9	148.6	12
Catbalogan	13.9	------	77.6	54.3	20.3	35	45.7	.5	.5	5.5	2.6	69.8	7.8	32.9	99	3.1
Calbayog	64.3	1.3	59.7	6.4	.5	16.5	8.1	------	------	6.1	43	7.6	3.9	16	11.7	1
Masbate	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------
San Jose Estate, J. Abello D-13, Mindoro[a]	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------
San Jose Estate, Tamaraw Plantation, Mindoro[a]	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------
San Jose Estate, San Agustin, Mindoro[a]	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------
San Jose, Mindoro[a]	------	------	------	------	------	------	------	------	------	------	------	------	------	.8	------	------
San Jose Estate, Tunnel D-12, Mindoro[a]	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------
Romblon	9.6	12.4	1.8	1.9	------	2.8	1.8	------	------	3.6	8.1	27.4	1	15	4.8	.6
Batag	59.2	21.6	88.9	67.3	1.5	52	17.8	5.1	6.3	12.7	------	48.8	50.1	18.3	36	6.9
Sorsogon	36.5	24.9	123	53.3	25.2	49	42.9	5.6	18.1	17.5	9.9	33.5	43.2	91.2	65.1	25.4
Legaspi	33.6	5.3	66.5	55.6	1	1.3	6.6	2.5	------	6.1	12.2	31.3	20.6	22.3	------	.3
Sumay, Guam	14	12.7	------	1.3	------	2	1.5	------	------	------	5.3	.8	.8	.8	------	------
Calapan	1	------	.8	1	9.4	16	47	20.8	25.4	22.9	2.8	.3	------	1.5	2.3	------
Virac	58	15.2	26.2	53.1	------	------	------	5.3	------	1.3	5.6	7.9	30.2	4.1	------	------
Naga	1.5	17	3.3	8.2	.3	------	------	------	------	------	------	.8	2.3	29	------	2.3
Batangas	------	.3	------	------	------	------	------	------	------	------	------	------	3.6	------	------	------
Lucena	------	------	1.5	7.2	.8	2.5	10.2	3	3	------	8.9	3	16.3	4.8	------	------
Atimonan	30.7	3.8	14.7	14.9	2.5	10.2	11.2	14.7	5.3	4.8	15	17.7	52	18.1	1.8	------
Ambulong, Tanauan	------	------	------	12.2	.8	------	------	------	------	------	2.5	3.6	10.9	------	------	------
Canlubang, Calamba	------	------	------	------	------	------	------	------	------	------	------	.8	4.6	------	------	------
Paracale	23.6	12.4	70.4	29.5	4.6	5.9	11.7	15.7	2.3	2.3	31.1	139.2	63.5	22.1	------	------
Santa Cruz, Laguna	------	------	.5	------	.8	------	------	------	------	------	2.8	4.8	5.6	.3	------	------
Fort Mills, Corregidor[a c]	------	------	------	1.8	------	------	------	------	------	------	------	2	1.3	------	------	------
Alabang, Rizal[a]	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------
Lamao, Bataan[a]	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------
Manila	------	------	------	------	------	------	------	------	------	------	------	2.2	1	------	------	------
Antipolo	------	------	------	------	------	------	------	------	------	------	------	1	2.6	------	------	------
Bosoboso, Rizal[a]	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------
Montalban, Rizal[a]	------	------	------	------	------	------	------	------	------	------	------	4.3	.3	------	------	------
Hacienda Pintong Sapang, Santa Maria, Bulacan[a]	------	------	------	------	------	------	------	------	------	------	------	3	.3	------	------	------
Mabayuan Dam, Olongapo, Zambales[a]	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------
Iba	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------
San Isidro	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------
Hacienda Luisita, San Miguel, Tarlac[a]	------	------	------	------	------	------	------	------	------	------	------	------	.3	------	------	------
Hacienda Luisita, Luisita, Tarlac[a]	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------
Tarlac	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------
Baler	------	------	------	------	------	------	------	------	------	------	------	------	.3	------	------	------
Paniqui, Tarlac[a]	------	2.3	------	------	------	------	------	------	------	------	------	------	3.6	------	------	------
Dagupan	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------
Santo Tomas Mt., Mountain Province[a]	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------
Bolinao	.3	------	------	------	------	------	------	------	------	------	------	1	2.5	------	------	------
Baguio	.3	2.3	------	------	------	------	------	------	------	------	------	------	------	------	------	------
San Fernando, Union	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------
Echagüe	.3	2	------	------	3.8	1.6	1.6	------	1.5	------	------	------	5.8	------	------	------
Sagada, Mountain Province[a]	------	------	------	------	------	------	------	------	------	------	------	4.3	.3	------	------	------
Bontok, Mountain Province[a]	------	------	------	------	------	------	------	------	------	------	------	3.6	------	------	------	------
Candon	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------
Villavieja, Pilar, Abra[a]	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------
Vigan	------	.1	------	------	------	------	------	------	------	------	------	------	------	------	------	------
Tuguegarao	1	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------
La Paz, Abra[a]	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------
Laoag	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------
Aparri	4.8	13.7	7.2	.3	------	16.2	7.4	5.9	4.6	------	------	1.5	12.2	8.2	.3	------
Cape Bojeador	------	------	------	------	------	------	------	------	------	------	------	------	6.4	------	------	------
Santo Domingo, Batanes	------	9.1	2.7	------	3.4	10.2	1.5	4.3	5.1	.5	.5	1.3	1	.1	------	1.1

[a] Voluntary or coöperative station. (b) No observation. (c) Rain, 24 hours beginning 7 a. m.

Daily rainfall at the stations of the Weather Bureau, January, 1918—Continued.

Station.	Day of month.															
	17.	18.	19.	20.	21.	22.	23.	24.	25.	26.	27.	28.	29.	30.	31.	Total.
	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.
Jolo	150.6	------	------	3.3	------	6.9	8.2	3	51.6	1.3	5.1	59.2	60.4	7.6	------	466.3
Isabela, Basilan	1.8	0.8	3.3	------	------	9.1	6.1	14.2	17.5	------	33	16.5	37.3	9.7	16.7	243.9
Basilan Plantation, Isabela (Basilan)[a]	11.2	1.3	10.4	------	14.7	5.8	12.7	16	25.7	2.5	10.2	29.4	17.3	3.3	40.6	306.4
Zamboanga	.8	------	------	------	.3	1	2.3	2.8	15.5	.5	3	.3	11.9	23.3	.5	143.2
Davao	------	------	------	------	3.8	------	------	------	2.5	------	------	------	42.9	------	------	124.3
Cotabato	6.6	------	------	------	56.1	15.7	16.8	------	6.1	------	------	------	5.3	------	------	155.5
Cagayan, Misamis	6.1	------	------	------	3.8	17	17.3	------	6.9	2.5	3	21.6	1.3	16.5	1.3	209.8
Dapitan	78	23.4	1.1	2.3	63.5	23.6	5.3	34.8	5.1	1.5	6.4	7.1	.8	54.6	.8	609.4
Butuan	4.3	------	1	6.4	11.9	42.4	8.1	9.9	29.2	.8	13.5	125.2	10.4	27.5	------	565.4
Mambajao	10.2	3.8	------	------	65.3	95.2	23.9	49	103.6	72.9	57.6	24.4	9.4	2.3	16.8	1,056.9
Dumaguete	15	------	------	------	3.3	5.6	------	3.6	16	2.5	17.5	------	------	41.7	------	200.3
Yap, Western Carolines	2.8	6.7	18.5	6.6	.5	5.9	4.6	7.6	15.5	.5	1.8	1.3	20.6	32.3	1.5	262.5
Tagbilaran	52	42.2	------	19	------	9.3	------	1.3	1.7	------	------	------	------	3.8	2.3	201.8[d]
Iwahig	1.5	------	8.9	3.8	------	.3	------	------	------	------	------	5.1	------	------	4.3	160.1
Surigao	18.2	1.6	------	25.6	59.7	118.6	20.8	120.3	14.1	8.7	5.4	8.1	9.2	22.3	.5	1,183.9
Maasin	19.8	------	------	------	26.7	42.9	5.3	9.4	11.2	7.1	44.2	------	28.7	223.5	------	774.4
Cebu	5.9	------	------	------	2.6	13.5	------	9.7	7.3	3.1	9	------	------	59.1	------	223.8
Iloilo	.8	------	1.3	4.5	------	------	------	------	2.3	.3	------	------	------	2	1.9	47.3
San Jose Buenavista	1.5	------	------	1	------	------	------	------	------	------	------	------	------	.8	------	25.8
Cuyo	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	0
Lucena, Iloilo[a]	------	------	------	1.3	------	------	------	------	------	------	------	------	------	6.9	------	55.9
Ormoc	27.7	4.1	------	18	1.3	3.3	.3	19.5	47.5	16.8	42.6	------	.5	27.9	13.2	458.3
Guiuan	12.7	10.9	9.9	------	25.1	70.6	24.3	6.3	22.6	77.5	82	37.1	121.4	103.6	134.9	1,788.8
Dueñas, Iloilo[a]	7.6	------	2	6.4	------	.3	------	4.3	9.9	.5	1.3	------	------	9.1	------	95.7
Bitaogan, Iloilo (Railroad Iloilo to Capiz)[a]	6.6	3.3	5.1	12.7	.5	------	1	11.9	13	4.6	------	------	------	9.4	5.8	270.1
Lapus, Iloilo (Railroad Iloilo to Capiz)[a]	.8	------	.5	7.1	.5	------	------	------	2.5	.5	------	------	------	2.8	1.3	53.5
Tacloban	7.8	16.2	4.1	------	8.4	7	7.4	39.9	119.9	81.4	90.3	.8	.8	65	69.4	1,385.1
Dumarao, Capiz[a]	2.5	2.5	5.1	3.8	------	------	1.3	3.8	5.1	8.9	5.1	------	------	25.4	5.1	312.2
Dao, Capiz[a]	4.6	2.8	2.5	17.3	.8	------	1	10.1	18.8	11.6	3.8	------	2.3	35.6	6.8	295.5
Capiz	1.6	1.8	.8	16.2	------	------	.5	2.3	3.6	4.7	.5	------	.8	35.9	11.9	216.3
Borongan	35.9	35.3	12.4	2.8	18.8	30.5	70.8	47.5	125.7	163.1	124.2	27.2	21.3	32.5	73.7	2,191.4
Catbalogan	28	32.8	1.5	7.4	.5	6.9	1.8	26.1	36.6	50.6	41.1	------	.3	62.3	32	913.9
Calbayog	30.1	14.8	1.8	3.3	.8	2.3	1.8	30.8	41.9	10.7	14.9	2.1	.8	29.4	36.8	690.8
Masbate	.8	14.5	6.6	11.7	------	------	------	4.3	25.6	1.5	.3	.3	------	51.8	18	381.5
San Jose Estate, J. Abello D-13, Mindoro[a]	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	0
San Jose Estate, Tamaraw Plantation, Mindoro[a]	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	0
San Jose Estate, San Agustin, Mindoro[a]	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	0
San Jose, Mindoro[a]	1.5	------	------	.3	------	------	------	------	------	------	------	------	------	------	------	2.6
San Jose Estate, Tunnel D-12, Mindoro[a]	------	------	------	------	.8	------	------	------	------	------	------	------	------	------	------	.8
Romblon	2.1	1.3	8.4	.3	------	.8	------	------	------	------	------	------	------	.5	9.1	113.3
Batag	14.5	45.7	27	20.8	17.8	1.5	14.7	51.8	52.1	30.2	31.5	5.3	2.5	8.9	19.1	835.9
Sorsogon	47.5	44.7	31.8	46.5	19.9	------	13.5	50	23.4	21.3	13	------	4.6	13.5	26.4	1,020.4
Legaspi	4	6.8	36.4	2	------	------	------	------	1.3	1.8	------	------	------	24.5	47.5	389.5
Sumay, Guam	------	1.3	.8	.8	14	39.4	.8	------	------	------	------	10.2	.5	27	3	137
Calapan	1.3	2.8	------	------	.8	------	5.3	3.3	8.9	11.6	.8	------	5.3	------	4	195.3
Virac	8.6	1.3	28.2	20.1	------	------	------	.5	.3	------	1.1	------	------	7.9	8.4	283.3
Naga	2	.5	23.9	3	.5	------	1	3.8	1.5	2	------	------	------	1.3	1	105.2
Batangas	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	3.9
Lucena	------	------	------	------	------	------	------	------	------	------	------	------	------	1.8	1.8	64.8
Atimonan	------	2	22.4	4.6	------	------	2	1.3	1.3	1.6	1.3	1.8	------	2.3	4.3	262.3
Ambulong, Tanauan	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	30
Canlubang, Calamba	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	5.4
Paracale	3.1	23.9	56.9	14.2	1.3	.5	2.1	5.3	3.9	4.9	------	.8	1	49	13.9	615.1
Santa Cruz, Laguna	------	------	------	------	------	------	------	------	------	------	------	------	------	.3	------	15.1
Fort Mills, Corregidor[a c]	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	5.1
Alabang, Rizal[a]	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	0
Lamao, Bataan[a]	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	0
Manila	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	3.2
Antipolo	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	3.6
Bosoboso, Rizal[a]	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	0
Montalban, Rizal[a]	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	4.6
Hacienda Pintong Sapang, Santa Maria, Bulacan[a]	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	3.3
Mabayuan Dam, Olongapo, Zambales[a]	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	0
Iba	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	0
San Isidro	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	0
Hacienda Luisita, San Miguel, Tarlac[a]	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	.3
Hacienda Luisita, Luisita, Tarlac[a]	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	0
Tarlac	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	0
Baler	------	------	------	------	------	------	------	------	------	------	------	------	7.4	------	------	7.7
Paniqui, Tarlac[a]	------	------	------	------	------	------	------	------	------	------	------	------	------	.3	------	6.2
Dagupan	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	0
Santo Tomas Mt., Mountain Province[a]	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	0
Bolinao	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	3.8
Baguio	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	2.6
San Fernando, Union	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	0
Echagüe	------	------	2.8	2.3	------	------	2.3	1.8	------	.8	.3	------	------	3.6	.3	30.8
Sagada, Mountain Province[a]	------	------	------	------	------	------	------	------	------	------	------	------	------	------	4.1	8.7
Bontok, Mountain Province[a]	------	------	------	------	------	------	------	------	------	------	------	------	------	.8	4.1	8.5
Candon	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	0
Villavieja, Pilar, Abra[a]	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	0
Vigan	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	.1
Tuguegarao	------	------	------	------	------	------	------	------	------	------	------	------	------	1.5	2	4.5
La Paz, Abra[a]	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	0
Laoag	------	------	------	------	------	------	------	------	------	------	------	------	------	------	3.5	3.5
Aparri	------	------	1.3	9.6	1.3	------	5.9	5.9	1.8	1.3	1	------	.5	10	5.9	126.8
Cape Bojeador	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	6.4
Santo Domingo, Batanes	4.5	4.6	36.4	------	2.8	------	2.8	.7	10.9	------	4.8	4	8.6	8.1	------	129

[a] Voluntary or coöperative station. (c) Rain, 24 hours beginning 7 a. m. (d) 30 days of observation.

MAXIMUM AND MINIMUM TEMPERATURES AT THE STATIONS OF THE WEATHER BUREAU, JANUARY, 1918.

Day.	Jolo. [a]		Isabela, Basilan.		Zamboanga.		Davao.		Cotabato.		Cagayan, Misamis.		Dapitan.		Butuan.	
	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.
	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.
1	28.6	20.1	32.1	21.6	28.9	22.4	32	20.5	31.1	22.8	30.4	21.4	32.2	22.1	33.3	22
2	29.5	20.4	30.6	21.6	28.3	22.5	32.2	21.4	31	22.9	30.4	21.1	31.7	22.9	32.7	22
3	28	21.1	32.1	22.7	32	22.8	31.7	20.9	32	22	30.2	21.2	30.3	22.7	29.6	22.8
4	28.2	19.4	30.4	22.1	28	22.8	32.7	21	32.2	23	30.5	21.5	30.7	21.5	32.2	21.6
5	27.9	19.9	30.1	22.6	28.9	22.3	31.9	22.3	31.1	22.6	29.3	21.2	29.4	21.5	30.1	22.5
6	29	20.1	34.6	21.6	29.4	22.3	32.6	20.8	30.5	21.6	28.8	22.4	29.4	22	29.7	22.4
7	29.5	20.6	33.1	22.1	31.6	21.6	31.7	21.3	31.2	21.6	29.9	22.6	28.9	22.4	31.7	22
8	29.6	20.3	33.6	22.1	32.8	22.3	30.6	20.5	31.6	22.2	29.6	22.6	28.9	23.2	29.1	22.4
9	27.7	23.3	30.3	22.7	30.3	23.4	24.1	21	25.4	22.1	24.8	22.7	26.2	22.6	25.1	22.1
10	28.4	23.7	32.1	23.1	31.8	23.3	28.7	20.3	28.4	21.8	26	21.5	25.9	20.8	24.5	21.2
11	29	20.7	33.6	22.3	31.3	23.1	31.7	21.1	31.1	21.4	28.5	21	29	21.9	30.2	21.5
12	29.6	21.4	33.1	21.7	31	22.4	31.4	20.5	29.9	21.5	30.1	21	28.7	21.8	28.6	20.8
13	28.4	21.6	33.3	23.1	31.4	22.5	29.2	21.3	29.6	22	26.8	21.9	28.3	23	25.6	22.2
14	29	20.8	33.6	22.3	32	23	30.5	20.8	32.2	22	29.1	20.4	30.4	22.5	30.5	20.4
15	28.5	20?	32	22.6	30.8	22.6	29.1	21.5	32.4	22.6	28.8	21.5	28.8	23.2	28.1	22.2
16	27.9	20.5	33.6	22.8	28.7	22.9	30.6	21.3	31.6	22.2	29.8	21.5	29.8	23.8	30.1	21.9
17	25.4	------	31.1	22.1	26.2	21.8	30.6	21.5	30.4	22.6	29.4	22.3	28.7	22.2	28.6	21.9
18	27.8	18.7	29.6	20.6	29.5	21.7	30.9	20.3	29.5	21.4	29	20.4	29.9	21.6	31.1	21.6
19	29.8	18.8	29.9	21.6	27.8	22	31.7	20.1	31.5	22	29.4	20.6	31.3	22.4	32.5	21.3
20	28.5	20	31.6	21.4	31.5	22.3	31.5	21	30.2	22.8	29.7	22	29.4	21.3	29.7	22.2
21	29.4	21.4	33.6	22.1	31.3	23.2	30.6	22.2	31.9	22.1	28.5	22.8	29.5	22.6	28	23.2
22	27	21.9?	32.1	23.1	31.2	23	31.1	21	30.5	22.4	27.4	23.3	27.5	22.1	29.8	22.9
23	27.3	22.3	31.6	22.7	29.2	23.1	29.5	21.5	30.2	22.5	26.3	22.9	26.6	21.5	27	22.8
24	27.8	21.9?	31.1	22.1	29.5	22.7	29.2	21.4	30	21.7	28.5	21.5	30.1	22.6	27.4	22.4
25	28.4	22.2	32.7	23.1	31.5	22.4	30.7	21.9	32.1	22.6	29.7	22.5	31	22.1	28.2	21.9
26	28.3	20.9	33.1	22.1	31.3	22.3	30.2	21.8	31.7	22.5	28.1	22.4	27.8	23.1	29.1	21.4
27	27.4	22.5?	30.1	22.1	28	23.5	31.2	20.5	30.8	22	28.8	21	29.5	23.8	31	21.4
28	27.5	21.1	28.1	22.1	31.3	22.1	32	21.8	31.2	22.2	28	22.6	29.4	22.5	28.6	22.9
29	28.8	21.4	30.1	22.6	30.8	22.7	31.6	21.4	32	23.1	26.8	22.2	28.9	22.3	29.6	21.6
30	27.9	20.5	28.9	21.7	28.3	22.2	31	20.6	28	22.2	28.8	22.9	28.8	20.8	29.6	22.9
31	29.4	21.7	31.6	22.1	29.9	22.5	29.7	21.5	30	22.5	28.1	21.4	29.9	21.2	30.6	22.1
Mean	28.4	21	31.7	22.2	30.1	22.6	30.7	21.1	30.7	22.2	28.7	21.8	29.3	22.3	29.4	22

Day.	Mambajao.		Dumaguete.		Yap, Western Carolines.		Tagbilaran.		Iwahig.		Surigao.		Maasin.		Cebu.	
	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.
	°C.	°C.	°C.	°C.	°C.	°C	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.
1	29.1	23.2	29.8	22.9	33.7	23.6	------	------	28.6	21.4	28.3	22.3	30.2	22.9	28.7	23.7
2	30.3	22.2	29.9	22.5	33.5	23.7	31.2	21.8	31.7	21.8	29.8	22.6	29.8	22.5	30.5	23.7
3	28.6	23.9	29.4	24.1	33.5	24.5	31.4	22.4	30.3	21.2	27.8	23.7	29.2	22	29.2	24
4	28.5	24.3	30.2	24.6	27.2	23	30.3	22.8	23.7	21.9	28.1	23.6	30	22.6	28.9	23.8
5	28.3	23.5	29.6	22.8	29.7	22.9	30	22.4	26.9	20.4	27.4	22.8	29	22.2	28.5	23.5
6	27.2	23.2	27.8	22.2	33.4	23	27.1	22.4	26.8	21.9	26.3	23.1	29.8	21.8	26	23.4
7	28.2	24.2	28.7	23.7	33.4	23.3	29.3	22	30.2	20.2	27.5	22.2	29.5	21.8	26.8	23.4
8	25.6	23.7	28	23.5	33.2	21	28.8	22.5	27.3	22.4	25.9	22.3	30.2	21	27	23.4
9	25.1	23.1	27.6	23.6	33.5	21.5	26.6	22.5	28.8	20.3	25.3	22.8	29.8	21.2	27.5	22.2
10	25.1	21.5	26.3	22	32.2	24	24.1	21.2	29.6	19.9	24.9	22.2	29	21.4	24.7	22.4
11	26.2	23	28.3	23	33.3	23.6	28.2	21.4	29.7	21.6	25.7	21.3	28.5	21.5	27.3	22.5
12	26	22.1	27.6	22	32.8	24	27.3	21.5	30.7	20.6	26.7	21.4	28	21.8	26	22.3
13	25	22	27.6	23.8	32.6	24	25.5	21.6	30.9	20.3	25.9	23.2	27.5	22	24.7	22.5
14	27.5	21.3	29.7	22.8	33.7	25.1	30	21	30.8	20.9	26.9	22	27.6	22.2	29.5	22.3
15	27.2	23.8	28.8	24.1	33.7	24	28.6	22.3	29.6	22.5	25.8	22.9	28.8	22	27	22.9
16	27.1	23.4	28.4	23.8	32.8	25.1	30.6	21.7	30.2	22.1	27.4	23.1	30	21.6	28.5	24
17	28.1	22.4	28	22.3	33.3	24.5	29.2	21.5	27.6	22.5	26.9	22.8	29.8	21.2	29	23.6
18	28.4	21.9	29	23	30.8	24.1	29.4	21.4	28.6	21.8	27.9	22	29.5	21.4	28.8	22.9
19	28.5	23.1	29.3	23.5	33	24	30.5	21.4	30.9	21.6	28.9	21	31	20.8	29.3	23.2
20	27.8	25.4	30	24	32.2	23.2	29.3	22.6	30.5	20.5	26.7	22.8	32	22.5	29.7	22.9
21	26.2	23.7	29	23.2	32.7	23.3	30.3	23.2	30.3	21.5	26	22.5	30.8	20.8	28.4	23.7
22	25	22.9	26.3	22.8	33.1	24.8	25.3	22.3	30.9	19.6	25.2	21.9	29.5	20.4	25.2	22.7
23	25.2	23	25.9	22.3	33.7	25.1	27.9	22.5	29.6	21.5	25	23.2	30	20.6	27.4	23.2
24	26.2	23.2	28.5	22.8	32.1	24.2	30	22.6	29.9	20.2	26.3	22.8	29	21.5	29.5	22.9
25	27.1	23.2	29.6	23.5	30.7	23.6	29.4	22.7	29.6	21	28.4	22.8	29.2	21.6	28.4	22.5
26	25.5	24	27	22.4	32.7	23.6	27.3	22.4	29.6	22.7	26.8	23.3	28.8	21	25.8	22
27	26.2	23.3	27.6	23.5	32.8	24.5	27.4	22.4	29.1	21.4	27.8	23.2	30	21	27.6	23.2
28	26.6	23.1	28.4	23.2	32.8	24.5	30.5	23.2	29.8	20.9	26.4	23.3	30.1	22.4	28.4	23.9
29	25.4	23.1	26.6	23.2	31.8	24.5	26.7	22.8	29.3	19.8	24.9	23.3	28.2	21.6	27	23.5
30	27	23.1	27.4	23	31.7	23.4	28.9	21.7	27.3	20.5	27.3	23	30	22.2	29.4	23.2
31	28.5	22.1	28.4	22.8	34.3	23.6	29	22.4	25.8	21.2	28.4	23.4	31	21.2	28.5	22.6
Mean	27	23.1	28.3	23.1	32.6	23.8	28.7	22.2	29.2	21.2	26.9	22.7	29.5	21.6	27.8	23.1

[a] The minimum temperatures of this station seem to be too low.

Maximum and minimum temperature at the stations of the Weather Bureau, January, 1918—Continued.

Day.	Iloilo.		San Jose Buenavista.		Cuyo.		Ormoc.		Guiuan.		Tacloban.		Capiz.		Borongan.	
	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.
	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.
1	28	23.2	28.7	22.4	28.7	22.1	28.4	22.6	27.7	23.2	27	22.9	28.2	23.3	26.9	22.9
2	29.1	23	31.3	23	28.9	22	30.9	22.2	30.8	22.1	31	22.7	29.1	23.5	30.1	21.7
3	28.9	23.6	31.5	21.1	28	25.3	28.9	23.1	29.4	23.4	26.3	22.6	27.8	23.1	29	22.6
4	28.6	23.1	31.2	22.6	28.7	25.5	27	22.4	27.9	22.5	24.5	21.9	27.6	23	25.3	20.9
5	26.6	23	30.7	22.1	28.7	25.2	26.2	22.9	26.2	21.8	23.7	22.3	26.9	23.1	24.8	------
6	27.2	22.6	29.9	23.1	27.9	24.6	25.2	21.6	27	22	24.3	21.4	26.7	22.3	25.6	21.5
7	25.7	21.8	30.1	22.6	27.8	24.2	26.6	22.4	27.2	22.5	23.6	21.5	25.3	22.3	26.1	22.5
8	26.3	21.8	31.2	23.4	27.6	------	27	22	27.5	22.1	24.6	21.1	26.2	22.1	25.1	21.6
9	27.2	20.9	30.7	22	25.9	------	28.5	22.4	28.2	22.1	26.4	20.8	27.3	22.3	26.4	20.5
10	24.6	21.2	28.2	19.1	26.7	------	23.9	22.4	27.5	22.5	23.2	21.2	25.2	22.5	25.6	21
11	28.4	22.1	30.7	19.6	27.2	23.5	25	22	27.2	22.8	23.9	21.9	27.3	22.4	26.2	22.2
12	28.4	22.9	31.1	21.3	28.6	22.1	25.8	21.7	27	22.6	23.9	22.3	28.9	22.7	26.1	21.9
13	26.6	22.9	29.8	21	29	24.6	24.6	22.4	28.4	24.9	25.5	21.5	26.5	22.7	28	22.6
14	29.1	23.2	31.3	21.6	28.5	23	30.2	20.8	29	22.2	28	21.4	27.7	22.9	29.5	20.6
15	26.3	22.7	30.9	22.4	27.7	24.5	26.9	22.9	29.1	23.1	25.5	21.9	24.7	22.7	28.1	22.5
16	25.9	22.2	30.7	22.1	27	23.3	28.6	22.4	28.8	22.5	27	22.2	25.6	22.6	28	22.1
17	26.5	22.5	29.8	22	27.7	23.9	29.2	22.1	29.5	23.7	28.1	22.6	27.3	22.5	26.9	22.7
18	28.7	22	30.5	21.5	28.1	24	30.2	22.3	28.1	22.8	29	22.5	28.3	22.9	28.1	22.4
19	29.4	22.8	30.6	21	27.8	24.5	30.7	21.5	30.9	20.8	30.4	22.4	28.6	23.4	29.9	22.6
20	28.7	23.1	30.7	20.6	27.7	24.6	30.9	21.4	30	23.3	30	22.9	29.1	23.3	29.8	22.5
21	27	22.5	31.7	22	26.7	------	30.7	20.9	28.9	24.6	29	22.6	26.7	22.7	27.8	22.5
22	26.2	22.3	30.1	21.1	26.5	21?	25.7	22.6	26.3	23	25.9	21.6	26.4	23.3	26.3	22.5
23	26.2	22.3	29.6	20.7	26.5	22.6	26.8	21.9	26	22.6	24.7	21.4	25.8	23	24.9	21.2
24	26.2	22.4	29.7	21.9	26.3	20.9?	26.3	22.9	28.9	23.5	25.4	22.6	25.8	22.7	26.6	22.6
25	26.9	22.3	30.7	24	26.7	21.4?	29.6	22.2	29.4	23.1	25	21.9	25.7	21.9	25.6	22.9
26	24.5	21	28.6	22.1	26.3	21.4	24.9	22.4	26.1	22.6	23.9	21.9	23.9	21.7	24.8	22.4
27	26.6	22	29.7	21.5	25.9	------	25.2	22.6	25.8	23.5	23.9	22	25.8	22	24.8	22.5
28	27.5	21.9	30.7	23.1	26.2	22.7	28	22.8	27.4	23	26.7	22.3	26.1	22.8	26.3	22.5
29	27.4	21.5	29.7	21.1	26.9	23.2	26.4	22.8	25	22.8	24.5	22.3	27.6	22.7	24.2	21.7
30	27.7	21.9	29.6	21.4	25.9	23.6	29	22.2	29.9	23.6	27.1	22.1	27	22.4	26.1	22.2
31	27.1	22.3	30.3	22.3	26.9	24.2	28.9	23.1	28.9	23.1	28.5	22.5	25.7	22.6	28.1	22.5
Mean	27.2	22.4	30.3	21.8	27.4	23.4	27.6	22.3	28.1	22.8	26.1	22	26.8	22.7	26.8	22.1

Day.	Catbalogan.		Calbayog.		Masbate.		Romblon.		Batag.		Sorsogon.		Legaspi.		Sumay, Guam.	
	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.
	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.
1	27.5	22.5	28	22.9	26	22.6	31.1	23.3	24.8	22	27	19	27.5	23	29.4	22.9
2	30.6	21.7	29.7	22.4	28.8	23.2	32.3	23.3	28	22.1	27.5	20	27.3	22.7	28.9	24.4
3	27.3	22.1	27.3	22.7	26	23.5	32	22.9	24.5	21.9	25.5	20	25.3	23.1	29	21.7
4	23.3	21.6	23.6	22.1	25.2	22.4	28.5	22.9	24.1	21.4	25	19	24	22	27.8	25
5	24.1	20.7	23.7	21.7	25	23	28.5	23.2	25.8	21.5	25.2	20	25.3	22.6	28.6	23.9
6	25.3	20.7	24.4	21.6	25.6	23.2	30.5	22.2	24.4	21.8	25?	20	26	23.5	28.9	21.9?
7	22.8	21.7	23.2	21.9	25.8	22.4	30.4	21.9	25	22	25.2	19.8	25.3	21.7	28.3	23.9
8	25.8	20.8	26.4	21.3	25.6	22	30.9	23.2	24.1	21	25.5	20.1	25.3	21.7	28.9	22.8
9	26.3	19.5	26.3	20.5	25.8	22	30.5	20.4	24.1	19.9	27.5	20.5	25.1	21.1	28.9	23.3
10	24.5	20.6	25.4	21.4	26	21.8	29.8	22.1	24.5	21	25	20	25.8	21.3	28.3	23.3
11	24.8	20.9	25.4	21.4	27.6	22.2	30.5	22	25.6	21	27.3	19	25.8	22.1	25.6	23.3
12	24.8	21.9	23.9	22.4	28.4	22.2	31.8	22.5	25.8	22	27.5	20.5?	27.9	23	24.4	22.8
13	24.9	21.1	26.2	21.9	25.4	22.6	27.4	23.2	26.3	21.6	27.8	20.5	24.9	22.1	28	22.8
14	26.2	20.4	26.8	21.7	26.8	23.4	31.7	23.1	26.8	22	26	20.1?	26.8	22.7	28.3	23.8
15	26.6	22.1	26.7	22.5	24.8	22.6	28.5	21.9	24.8	21	25	20	25.4	22.7	28.9	22.2
16	27.3	21.7	27.8	22	26.4	22.4	28	21.9	25.3	22	27.5	20	25.8	22.5	28.9	22.2
17	27	21	28.4	22.3	27.4	22.2	28.9	21.9	25.2	21.9	27.2	20.5	26.8	22.4	28.9	23.9
18	26.8	21	29	22.1	27.4	22.6	28.1	21.9	27.6	22	27	20.6	26.3	22.4	27.8	22.8
19	29.6	21.1	30.1	22.2	28.6	23	29.5	22.9	28.8	22	27.5	20.6	25.4	23	28.9	23.3
20	28.7	21.4	31	22.6	26.6	23.4	32.3	22.8	28.7	22.8	25	20.1	27.5	22.3	28.9	23.9
21	28.2	21.6	28.3	22.4	26.8	23	31.9	22	24.9	21.3	25.5	20	26.1	22.9	28.9	23.9
22	27.6	21.7	26.9	21.4	26.8	23.4	29.7	21.1	24.6	21.5	26	20	26.3	22.2	28.9	22.2?
23	26.2	20.7	26.7	21.5	26.8	23	31	21.2	25.5	21.8	27.3	19.9	26.4	22.1	28.9	22.2
24	25.5	21.1	24.8	22.5	26.4	22.6	32.3	22.2	24	22	26.5	20	26.4	22.1	28.9	22.6
25	25.1	21.8	25.2	22.1	24.4	22.4	27.5	22.2	24.4	21.9	26	18.5	24.4	21.9	28.9	22.6
26	23.5	22	24.5	22.2	24.6	21.8	29.4	21.9	24.1	21.9	26.2	20	24.5	21.8	28.9	23.3
27	25.2	21.3	25.5	22.5	24.8	21.8	31.4	21.9	25.3	21	26.3	20.1	24.1	21.8	28.9	21.7
28	28.1	21.9	27.6	21.9	26.8	22.6	29	22.1	26	21.8	26.8	19.5	25.8	21.9	28.9	23.3
29	25.3	21	26.2	21.8	26.8	23	29.5	21.8	25.8	20.5	27.2	20.5?	25.5	22.3	27.2	22.8
30	26.3	21.7	27.7	22.4	27.6	23	30.4	21.3	25.6	20.6	25.8	21	27.7	22.2	27.2	22.8
31	27.5	22.3	26.7	22.6	27.8	22.2	27	22.3	24.5	21	25	20	24.2	22	28.9	22.8
Mean	26.2	21.3	26.6	22	26.4	22.6	30	22.2	25.4	21.6	26.3	20	25.8	22.3	28.4	23

Maximum and minimum temperatures at the stations of the Weather Bureau, January, 1918—Continued.

Day.	Calapan.		Virac.		Naga.		Batangas.		Lucena.		Atimonan.		Ambulong, Tanauan.		Canlubang, Calamba.	
	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.
	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.
1	29.5	21.5	29	21.5	27.8	20.1	30.6	19	27.3	21.2	25.6	21.3	29	21.8	29.9	20.8
2	31.5	23	27.5	20.3	27.9	20.6	29.8	20.3	28.4	22.3	25.9	22.6	30.4	22.2	29.8	20.9
3	31	23.1	26.7	21	25.9	20.4	28.7	19.5	26.2	22	26.4	22.4	28.3	22.4	29	21
4	32.1	23	25.8	21.3	24.5	20.2	28.8	22.9	25.5	21.7	24.4	21.9	27.6	22	28	21.2
5	30.9	22.5	-------	20.4	25.6	19.7	27.2	21.3	26.6	20.7	25.4	22.1	25.8	21.8	27	21.2
6	31.1	21	-------	-------	27	20.1	28.3	21.5	25.9	20.7	25.6	21.2	25.6	21.4	26.9	21.1
7	29	20.6	-------	-------	26.8	20.2	27.4	18.2	24.9	21	24.6	21.5	27.8	20.8	27	21.3
8	28.1	20.5	-------	-------	25.8	19.9	25.3	18.8	23.6	19.8	23.5	19.9	25.2	20.1	26.9	21.4
9	26	19.5	25.5	18.6	26.3	17.5	25.4	17.6	24.2	19.1	23.2	19.8	24.7	19.3	24.9	19.4
10	27.3	19	27.5	20	26.5	18	28.4	16.5	25.1	18.7	24	20.6	26.2	19.7	26.6	19.6
11	28.5	21	28.4	20.6	26.5	19.6	27.6	19.9	26.8	19.2	24.4	21.6	27.3	21.2	27.6	20.9
12	29.1	22.5	29.5	21.6	30.2	19.5	27.8	21.3	25.8	21	24.9	21.8	25.4	21.9	27.5	21.3
13	29.1	23	29.5	22	27.5	20.6	28.1	21.2	25.5	21.7	24.7	21.8	25.3	21.8	27.2	21.1
14	31.5	22.5	29.5	21.1	25.9	20.3	27.9	20.5	24.5	21.4	23.9	21.8	27.3	21.8	27.4	21
15	28.3	22.6	27.8	21	24.4	19.4	29.3	20.4	25.3	21.2	24.5	21	27.4	21.8	27.9	20.4
16	28.2	22.1	28	20.5	25.7	19.3	28.8	19.8	25.3	20.7	24.5	21.5	25.3	21.4	27.8	20.8
17	28	20.5	28.1	20	26.5	18.6	29.7	20.1	25.9	20.1	24.2	22	27.3	20.5	28	19.4
18	25	20.4	30.4	20	26.2	19.2	28.5	20.3	26.4	21	24.4	21.3	27.1	21.3	28.2	20.4
19	30.5	21	29.5	21	27.9	20.1	31	21.5	27.5	21.3	24.5	22	29.3	21.9	29.2	21.1
20	32.1	23.5	25.9	20.5	27.5	20.3	29.2	20.1	26.7	21.7	25.4	21.8	29.4	21.6	29.9	21.2
21	29	22	27.3	20.6	25.1	18.8	29.4	20.7	26.5	20.6	25	21.9	26.8	20.9	30	21
22	29	20.5	27.9	20.4	26.1	18.4	28	18.1	26.3	20.6	24.8	22.3	27	20.4	27.5	20.5
23	27	21	28	20	26.9	18.9	29.5	17	26.9	20.7	24.9	22.4	27.2	20.4	27.8	20
24	28.4	20.5	28	21.1	26.1	18.9	29	18.2	26.7	21	24.9	21.5	27	20.8	28.4	21.1
25	27.7	21	26.6	21	24.1	19.5	27.1	20.4	25.7	20.6	24.4	20.9	26.6	21.1	27.5	21.6?
26	26.1	20	25.7	20.4	24.9	18.5	26.7	19.5	25.5	19.5	24.3	20.5	24.6	20.7	27.1	20.4
27	26	19.5	26.8	20.2	25.4	18.3	27.5	19.9	25.3	20.9	24.2	21.4	26.3	20.4	26.8	20.4
28	-------	-------	27	21	26.5	19.5	27.2	18.2	26.5	20.9	24.7	21.7	26.3	20.5	27.2	20.1
29	27.5	20.4	27.5	21.1	25.5	19	29.2	17.5?	26.3	20.7	24.8	21.6	27.4	21.4	27.4	20.3
30	28.6	19.4	27	20.2	27.5	19.8	30.4	18	26.9	21.3	25.2	22.4	28.9	21.5	28.2	20
31	28.5	22.5	26.9	20.5	25	19.6	28	21.6	25.7	20.9	24.9	21.7	26.7	21.6	27.2	21
Mean	28.8	21.3	27.7	20.6	26.3	19.4	28.4	19.7	26	20.8	24.7	21.6	27	21.2	27.8	20.7

Day.	Paracale.		Santa Cruz, Laguna.		Manila.		Antipolo.		Iba.		San Isidro.		Tarlac.		Baler.	
	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.
	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.
1	26.8	22	28.1	21.9	28	18.8	28.2	18	29.6	20.5	28.8	18.3	31.5	19.8	26	20.2
2	27.2	23	28.6	22.3	29.4	20.4	29.7	19.5	30.5	20.7	30.5	19.4	31.8	19.5	29	19.9
3	26.3	22.4	26.9	22.2	30	19.6	30.4	18.2	29.8	19.6	30.1	19.1	32.5	19	28.3	18.5
4	25.8	22.5	26.4	21.6	29	20.2	30.5	18.2	30.2	20.8	29.4	18.4	32.4	18.4	27.7	20.1
5	24.8	21.9	-------	-------	27.7	20.9	28.7	20.2	29.7	23	27.9	19.6	31.8	18.6	27	22.9
6	26	21.4	-------	-------	28.5	21	28.7	20	29.9	22.7	27.7	19	28.5	21.2	25.7	20
7	25.2	21.8	-------	-------	29.7	20.4	29.3	20	29.4	20.7	29.5	17	31.2	19.5	27.2	18.7
8	23.9	19.9	23.9	20.9	28	19.3	27.1	19	29.9	20	27.6	16.3	30.4	19.2	26	21.1
9	25	19.7	24.2	19.4	27	17.4	26.3	17.8	29	19.5	26.6	15.2	31	19.2	24.6	15.7
10	26.3	21.5	25	19.4	28	17.2	28.2	16.1	29.9	19.5	28	15.4	29.9	19.7	26.9	15.4
11	25.2	22	26.1	21.4	28.8	18.8	30.7	18	29.5	19.5	29.6	16.3	33	19	27.5	18.1
12	26.4	22.3	27.1	21.8	27.9	20	26.7	19.2	29.4	19.8	30	18.6	33	17.8	27	20.2
13	25	21.6	26.6	21.7	27.6	21.1	27.7	19.7	29.4	19.2	27.9	20.4	31.4	20.2	26.3	20.9
14	25.6	22.5	26.3	21.6	30.4	20.4	29.7	20.5	29.7	21.4	30.6	20.8	33	21	28	20.5
15	25	22.3	26.2	21.9	29.1	18.8	29.6	18.5	29.4	20.4	29.4	17.6	32.8	20.4	26.8	21.5
16	24.8	22	25.6	21.5	26.3	18.9	28.2	18.3	29.4	20.7	28.1	17.4	31.8	18.8	27.6	21.5
17	25.3	21.9	26.4	20.3	29	18.2	28.8	17	30.4	21.5	28.2	16.6	31.4	17.4	27.1	21.1
18	25.2	21.8	27.3	20.8	28.9	17.1	29.3	17	29.3	19.6	30.1	16.6	32.5	17.3	27.5	17.8
19	26.2	22.5	27.9	21.9	29.1	19	30.7	18.2	29.9	19.2	30.9	19.4	32.4	19.4	28.7	20.1
20	26.8	21.3	27.9	21.8	30	20.2	30.9	19.3	30.4	20	30.2	19.7	33.6	19.3	29	20.5
21	24	21	25.1	21.7	27.5	18.4	27.9	20.2	29.3	20.6	29.4	16.3	33.4	17.5	27	20.1
22	25.2	21.4	25.5	21	28.7	16.7	28.6	15.7	29.1	19.7	29	15.2	31.8	17.4	27.2	16.4
23	25.7	22.2	26	20.6	28.6	15.7	28	16.3	29.8	18.8	29.1	16	31.2	16.8	28	17.2
24	24.8	21.1	27.2	21.4	28.6	18	30.2	16.8	29.8	16.5	30.4	16	33	17.3	27.8	19.3
25	24.8	21.2	25.8	21.8	29	19.3	29.2	18.2	29.8	18.9	29.3	17	33.2	16.8	27.2	19
26	24.2	20.5	24.4	20.6	28.7	20.1	28.8	19	30.2	21.5	29.1	17.4	33.4	19	26.1	21.4
27	24.5	20.5	25	21.1	27.9	18.5	28.8	17.6	29.7	21.6	28.7	18	33.2	19.4	27	18
28	25.2	22	26.1	20.5	27.8	19.7	29.6	18.3	29.2	20.5	29.6	18	32	18.2	26.5	19.8
29	26.5	22.8	26.1	21.3	28.7	18.6	29.2	17.4	30.9	19.2	28.9	17.7	31.2	18.5	27.3	20.3
30	24	21.8	27.5	20.4	28.1	17.6	29.3	17.2	28.9	20	29.2	17.5	31.2	19	27	19.3
31	24.6	21.6	26.2	21.1	27.4	21	28.7	19.7	28.9	21.8	28.5	19.5	31	19.4	25.4	20.3
Mean	25.4	21.7	26.3	21.2	28.5	19.1	29	18.4	29.7	20.2	29.1	17.7	32	18.8	27.1	19.5

Maximum and minimum temperatures at the stations of the Weather Bureau, January, 1918—Continued.

Day.	Dagupan.		Bolinao.		Baguio.		San Fernando, Union.		Echagüe.		Candon.	
	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.
	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.
1	29.8	20.3	30	21.4	20.9	12.1	29.3	19.1	24.2	18.1	32	21.5
2	29.4	22.4	29	24.3	21.4	12.8	29.5	21.5	25.2	19.9	31.5	23
3	32.1	20.9	31.8	23.2	21.5	12	29.8	20.3	25	18.3	32.7	22.1
4	32	19.2	31.2	20.2	21.6	11.6	29	19	26	17.8	31	21.5
5	31	21	31.3	21.4	21	11.9	29.3	20	26.2	18.5	31.5	21.5
6	29.9	20.7	30.8	22.4	20.8	11.3	30	21.6	23.5	18.2	31.2	21.5
7	30.7	20.4	32	21.5	21.6	10.7	29.5	20.7	21	18.3	31.7	21.9
8	29.4	18.5	30	19.7	19.2	9.3	30.1	18.7	20.4	16	30.5	19
9	29.2	17.8	29.4	18.5	19.5	8.4	28.1	16.5	22.4	15.3	30.9	18.5
10	30.3	17.8	30.1	19.2	20.3	8.3	28	15.9	23.6	15.7	29.5	18.1
11	30.5	17.9	31.5	19.5	22.5	10.4	28.5	17	25.6	17	30.1	18.9
12	31.7	19	31.5	19.4	24.1	13.2	29.9	19.5	25	19.4	31.5	21.5
13	29.5	20.8	27.9	21.5	21.3	12.9	30.1	20.8	26.4	19.8	32	23
14	28.8	21.5	28	22.9	23.4	11.6	29.6	21	23.9	17.8	31.8	21.4
15	31.5	19.7	30.3	20.2	22.8	11	28.9	19	24.8	17.3	31.9	19
16	30.5	19	31	19	20.8	11.4	29.5	19	25.8	18.3	31.5	19
17	30.2	19.8	30.4	21.7	20.9	10.1	28.7	19.8	26	17.7	30.1	21
18	29.7	17.5	30.5	17	21.8	10.1	29	17	25.6	15.3	31.6	19
19	29.4	19.1	31.3	19.9	21.3	13.1	29.5	19	26.8	18.3	31.5	21.5
20	30	20.9	30	23.9	22.9	10.7	30.1	19.5	21.9	19.1	32	20.6
21	30	19.1	30.2	16.4	21.5	9.4	28.6	18.5	22.4	16.8	31.2	19
22	29.6	17.1	30	17.8	20.1	9	28.6	16.1	25.6	16.7	31.4	19
23	28.6	18.1	29.7	17	20.8	9	29.1	17.5	23.8	17	31	19
24	28.5	16.6	30.4	16.9	22.6	9.9	29.6	16.1	24.4	17.8	31.7	19.3
25	30.5	17.6	31.3	18.8	22.1	10.8	30	17.4	22.6	17.9	33	18.9
26	30.6	19.9	31	20	20.7	10.3	28.5	17.6	23.1	17.2	31.5	20.5
27	29.6	21	30.1	21	19.8	11.1	29	21.1	25.5	16.8	31.4	21
28	29.1	20.8	30	22.6	19.9	10.9	29.5	20	25.5	17.3	30	20.5
29	32.3	19.1	30.9	20.2	20.6	11	29.5	19.4	25.8	18	31.5	21.8
30	29.6	20.5	30.3	22.6	21.1	12.6	28.9	21.3	23.1	17.7	32	23
31	30	22.4	29.2	22.9	20	12.4	28	22.5	21.9	17.8	29.5	22
Mean	30.1	19.6	30.4	20.4	21.3	10.9	29.2	19.1	24.3	17.6	31.3	20.6

Day.	Vigan.		Tuguegarao.		Laoag.[a]		Aparri.		Cape Bojeador.		Santo Domingo, Batanes.	
	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.
	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.
1	29.8	22	25	18	32.6	18.6	23.9	17.8	24.2	18.8	24.4	17.8
2	27.6	20.8	23.4	19.3	29.8	20.7	23.2	18.3	24	19.6	21.1	18.1
3	31	20.6	24.2	18.4	31.8	18.5	21.1	17.6	23	17.8	18.5	15.3
4	30.1	23.3	25.4	18.6	34.4	18.8	23.2	18.3	23.8	18.6	22	16.1
5	31.7	21.8	24.6	18.5	33	18.5	23.7	19.8	23	19	20.9	17.9
6	31.6	21.5	26	19	32.7	17.7	23.7	18.5	24.2?	19	19.8	17
7	30.5	20	22	17.3	29.9	18.5	20.9	17.6	20.6	17	19.4	16.8
8	28	18.6	21.4	16.4	27.4	18.7	19.2	16.3	19.5	15.8	17.4	13.5
9	27.7	19	23.9	15.5	29.3	14.4	21.2	16.2	21.6	15.6	18.4	13
10	29.4	20.1	24.2	14.9	30.5	13	24	16.3	24	16.8	20.9	15.4
11	29.8	18.5	26.8	14.8	32.3	13.6	24.5	17	27.2	18.4	23.7	15.4
12	29.7	19.3	25.8	19.4	34.5	17.9	26.5	19.3	26	20.4	23.9	18.4
13	27.2	20.6	26.9	19.6	29.7	20.5	22.8	19.4	22.6	19.6	21.8	18.5
14	26.6	19	25.1	18.3	30.5	18.5	20.6	17.8	21.6	17.2	21.8	16.9
15	28.7	18	26.3	17.8	33.5	14.6	22	17.3	22	16.6	19.9	15.7
16	29.6	20.5	26.1	18.1	32	13.8	25	18	25.4	18.4	22.5	17.4
17	28.9	21.5	25.6	17.6	33.1	14.9	23.8	18.2	23.8	18.8	19.8	17.3
18	30.1	21	25.4	16.4	31.7	14.3	26.3	17.4	26.8	18.6	21.5	17.4
19	29.4	20.5	26.8	19.8	33.3	17.2	25.9	19.1	24.8	20.4	19.5	17.5
20	28.3	19.4	22.5	17.8	30.6	19.5	21.5	17.8	22.4	17.4	19.6	16.3
21	28.7	17.7	22.8	16.6	29.8	15.8	20	17	22	16.2	19.6	15.5
22	28.6	18.4	27.6	14.9	32.9	13.1	25.2	16	24.2	17.8	21.7	16.4
23	30.1	17	24.5	17.5	30.4	13.3	23	17.3	24.2	18.4	19.6	17.4
24	28.5	18	25.3	18.2	31.4	14.1	23.2	19	23.2	18.4	20.6	17
25	30.6	18.5	24.8	18.2	30.9	19.6	24.2	19	23.8	17.8	20.6	15.9
26	31.1	20.8	22.7	18.3	31	16.6	21.6	18.8	23	17.8	20.6	16.5
27	28	17.6	25.3	16.4	31.9	15	24.2	17.8	23	17	22.8	16.5
28	28.1	17.9	26.8	16.3	32.4	17.5	25.3	17.8	23.4	18	20.3	16.9
29	29	20.5	24.4	18.5	34	15	24.4	18.3	25	18.6	19.9	17.3
30	29.4	21.6	24.2	18.9	33.5	19	21.7	18.8	23.2	18.6	18.3	16.4
31	25.8	21.8	20.6	18	24.9	19.9	20.3	18.2	20.5	17.6	19.6	15.9
Mean	29.1	19.9	24.7	17.7	31.5	16.8	23.1	17.9	23.4	18.1	20.7	16.3

[a] The maximum temperatures of this station are not very reliable: they seem to be too high.

SEISMOLOGICAL BULLETIN FOR JANUARY, 1918.

By Rev. MIGUEL SADERRA MASÓ, S. J.,
Chief, Seismic and Magnetic Divisions, Weather Bureau.

EARTHQUAKES FELT IN THE PHILIPPINES.[1]

2, $23^h\ 02^m$ [3, $7^h\ 02^m$]. **Cabo Bojeador** (NW Luzon). Earthquake shock of intensity IV, duration 6 seconds.

3, $13^h\ 09^m\ 06^s$ * [3, $21^h\ 09^m\ 06^s$]. **SW Luzon and Mindoro.** Earthquake of intensity V, felt through SW Luzon, Mindoro, Cuyo and Calamianes Islands, in a N–S extension of more than 500 kilometers. The origin lay at a distance of 160 kilometers from Manila probably between Mindoro and Busuanga Islands. It was recorded at Butuan, Mindanao, and Zikawei, China. Afterwards the seismographs of Manila registered twenty-seven disturbances originated at the same center. Fifteen on the said day 3d, ten on the 4th, one respectively on the 5th and on the 6th: not one of such aftershocks was reported as felt in Mindoro nor in Cuyo situated near to the origin.

4, $17^h\ 38^m\ 36^s$ * [5, $1^h\ 38^m\ 36^s$]. **Naga** (SE Luzon). Earthquake shock of intensity III, duration 5 seconds.

7, $18^h\ 49^m\ 07^s$ * [8, $2^h\ 49^m\ 07^s$]. **Ambos Camarines** (SE Luzon). Earthquake of intensity III, duration 3 seconds.

8, $6^h\ 39^m$ [8, $14^h\ 39^m$]. **Legaspi** (SE Luzon). Oscillatory earthquake of intensity II–III, duration 2 seconds.

9, $11^h\ 27^m$ [9, $19^h\ 27^m$]. **Cotabato** (SW Mindanao). Earthquake of intensity IV; recorded at Butuan. It originated east of Cotabato in the Pulangui river valley.

10, $12^h\ 42^m$ [10, $20^h\ 42^m$]. **Ormoc** (W Leyte). Oscillatory earthquake, intensity III, duration 6 seconds.

15, $19^h\ 22^m\ 01^s$ * [16, $3^h\ 22^m\ 01^s$]. **W Luzon.** Earthquake of intensity IV felt along the western part of Luzon comprising the provinces of Ilocos Norte and Sur, La Union and the western portion of Pangasinan. Its origin was under the China Sea. At $1^h\ 40^m\ 10^s$ * on the 16th [$9^h\ 40^m\ 10^s$] a repetition from the same origin was recorded at Manila and Baguio.

16, $6^h\ 00^m\ 36^s$ * [16, $14^h\ 00^m\ 36^s$]. **SE Luzon.** Earthquake of intensity IV–V felt in the Catanduanes Island and the provinces of Albay and Sorsogon. The origin lay north of the entrance of the San Bernardino Strait. Recorded at Manila and Butuan.

17, $14^h\ 05^m$ [17, $22^h\ 05^m$]. **Ormoc** (W Leyte). Oscillatory earthquake, direction W–E, intensity III, duration 7 seconds.

24, $3^h\ 02^m\ 05^s$ * [24, $11^h\ 02^m\ 05^s$]. **E Visayas and Mindanao.** Earthquake of intensity IV–V, in the islands of Samar and Leyte and the NE part of Mindanao. Origin in the Philippine Deep, near to the parallel 11° N. It was also recorded at Zikawei Observatory, China.

30, $9^h\ 13^m$ [30, $17^h\ 13^m$]. **Legaspi** (SE Luzon). Oscillatory earthquake, direction NW–SE, intensity III, duration 4 seconds.

[1] The intensity of earthquakes is given in the notation known as the Rossi-Forel scale. The time is that indicated by the seismographs at the Central Observatory whenever the disturbance has been registered by them. This fact is denoted by an asterisk (*). Otherwise the time is that noted by the observer who sent the report. All time indications are in Greenwich mean time (midnight=0^h), insular time being added in brackets for the convenience of Philippine readers.

RECORDS OF THE MICROSEISMOGRAPH.

[Time: Greenwich mean. Midnight=0h. Instrument: Wiechert seismograph; 1,000 kilograms. A_N: T_0=5.9, ϵ=2.340, $\frac{r}{T_0^2}$=0.024; A_E: T_0=5.3, ϵ=1.783, $\frac{r}{T_0^2}$=0.092. Alluvium. 2.40 meters above sea level.]

No.	Date.	Character.	Phase.	Hour.	Period.	Amplitude. A_N μ	Amplitude. A_E μ	Remarks.
				h. *m.* *s.*				
1	2	Iv	eP	23 01 58				
			F	04				
2	3	IIIv	eP	13 09 06				SW Luzon and Mindoro. Maxima and end lost by the force of the shock.
3	3	Iv	eP	13 26 42				Near Mindoro. From Vicentini seismograph.
			F	29				
4	3	Iv	eP	13 41 54				Near Mindoro. From Vicentini seismograph.
			F	45				
5	3	Iv	eP	14 01 03				From Vicentini seismograph.
			F	03				
6	3	Iv	eP	14 40 04				Near Mindoro. From Vicentini seismograph.
			F	43				
7	3	IIv	eP	15 06 40				Near Mindoro. From Vicentini seismograph.
			L	06 58				
			M_N	07 05	3	419		
			F	14				
8	3	Iv	eP	15 22 10				Near Mindoro. From Vicentini seismograph.
			F	24				
9	3	Iv	eP	16 08 25				Near Mindoro. From Vicentini seismograph.
			F	11				
10	3	Iv	eP	17 18 24				Near Mindoro. From Vicentini seismograph.
			F	21				
11	3	Iv	eP	17 48 32				Near Mindoro. From Vicentini seismograph.
			L	48 49				
			M_N	49 38	3	208		
			F	54				
12	3	Iv	eP	18 02 44				Near Mindoro. From Vicentini seismograph.
			F	05				
13	3	Iv	eP	18 45 10				Near Mindoro. From Vicentini seismograph.
			F	49				
14	3	Iv	eP	19 18 02				Near Mindoro. From Vicentini seismograph.
			F	20				
15	3	Iv	eP	20 19 01				Near Mindoro. From Vicentini seismograph.
			F	21				
16	3	IIv	eP	22 06 57				Near Mindoro. From Vicentini seismograph.
			L	07 15				
			M_N	07 27	3	782		
			M_E	07 33	3		704	
			F	16				
17	3	Iv	eP	22 31 02				Near Mindoro. From Vicentini seismograph.
			L	31 20				
			M_E	31 23	3		195	
			F	36				
18	3	Iv	eP	22 38 07				Near Mindoro. From Vicentini seismograph.
			F	41				
19	4	Iv	eP	1 19 12				Near Mindoro.
			F	21				
20	4	Iv	eP	1 48 39				Near Mindoro.
			F	51				
21	4	Iv	eP	3 41 25				Near Mindoro.
			F	44				
22	4	Iv	eP	6 13 03				Near Mindoro.
			F	15				
23	4	Iv	eP	6 22 20				Near Mindoro.
			F	25				
24	4	Iv	eP	7 11 00				Near Mindoro.
			F	13				
25	4	Iv	eP	7 58 22				Near Mindoro.
			F.	8 00				
26	4	Iv	eP	11 26 12				Near Mindoro.
			F	29				

Records of the microseismograph—Continued.

No.	Date.	Character.	Phase.	Hour.	Period.	Amplitude. A_N μ	Amplitude. A_E μ	Remarks.
				h. *m.* *s.*				
27	4	Iv	eP	14 49 21				Near Mindoro.
			F	51				
28	4	Ir	e	15 56 22				
			F	16 21				
29	4	Iv	eP	17 38 36				Naga (SE Luzon).
			F	42				
30	4	Iv	eP	19 58 33				Near Mindoro.
			L	58 51				
			M_N	58 55	3	65		
			F	20 02				
31	5	I	e	13 45				
			F	14 02				
32	5	Iv	eP	14 17 08				Near Mindoro.
			F	19				
33	5	Iv	eP	23 23 10				
			F	26				
34	6	Iv	eP	1 45 43				Near Mindoro.
			F	48				
35	7	Iv	eP	18 49 07				Ambos Camarines (SE Luzon).
			F	52				
36	10	Iv	eP	9 52 22				
			F	54				
37	10	Iv	eP	13 09 28				
			F	11				
38	12	Iv	eP	10 35 45				
			F	38				
39	12	Iv	eP	18 51 40				
			F	53				
40	12	Iv	eP	19 01 00				
			F	04				
41	15	Ir	eP	15 31 50				
			S	35 12				
			L	37 23				
			M_N	37 49	14	11		
			M_E	38 27	11		14	
			F	16 17				
42	15	IIv	eP	19 22 01				W Luzon. Maxima and end in E-W component lost by the force of the shock.
			L	22 32				
			M_N	22 35	3	545		
			F	37				
43	16	Iv	eP	1 40 10				
			L	40 41				
			M_N	40 46	3	80		
			F	47				
44	16	Iv	eP	2 37 08				
			F	45				
45	16	IIv	eP	6 00 36				SE Luzon.
			L	01 15				
			M_N	01 48	4	121		
			M_E	01 54	3		117	
			F	18				
46	16	Iv	eP	10 53 46				
			F	11 03				
47	16	Iv	eP	15 04 37				
			F	08				
48	17	Iv	eP	7 11 32				
			F	14				
49	18	Ir	e	10 40 36				
			L	42 52				
			F	11 03				
50	18	Iv	eP	15 50 51				
			F	53				
51	18	Iv	eP	20 02 38				
			F	05				

Records of the microseismograph—Continued.

No.	Date.	Character.	Phase.	Hour.	Period.	Amplitude. A_N μ	Amplitude. A_E μ	Remarks.
				h. *m.* *s.*				
52	19	Iv	eP	3 03 46				
			F	06				
53	21	Ir	eP	19 50 00				
			S	53 37				
			L	56 11				
			M_N	56 51	11	65		
			M_E	57 54	10		54	
			F	21 06				
54	22	Iv	eP	1 35 06				
			F	39				
55	22	Iv	eP	1 40 20				
			F	44				
56	23	Iv	eP	18 14 38				
			F	17				
57	24	Iv	eP	3 02 05				E Visayas and Mindanao.
			L	03 36				
			M_N	03 46	7	77		
			M_E	03 58	5		59	
			F	15				
58	25	Iv	eP	20 43 02				
			F	45				
59	27	Iv	eP	0 30 24				
			F	33				
60	29	Iv	eP	3 53 22				
			L	54 16				
			M_E	54 32	4		39	
			M_N	54 52	5	33		
			F	4 13				
61	29	Iv	eP	13 38 46				
			F	42				
62	30	IIIr	i	21 24 44				
			iS	29 44				
			iL	32 29				
			M_N	32 30	6	1,121		
			M_E	32 32	6		603	
			F	22 53				

TEMBLORES DE TIERRA SENTIDOS EN FILIPINAS.[1]

2, $23^h\ 02^m$ [3, $7^h\ 02^m$]. **Cabo Bojeador** (NW de Luzón). Temblor de tierra de intensidad IV, duración 6 segundos.

3, $13^h\ 09^m\ 06^s$ * [3, $21^h\ 09^m\ 06^s$]. **SW de Luzón y Mindoro.** Temblor de tierra de intensidad V, sentido en la parte SW de Luzón, en toda la Isla de Mindoro y en los grupos de Cuyo y Calamianes, que representan una extensión de más de 500 kilómetros en dirección N–S. El origen se hallaba a 160 kilómetros de Manila, probablemente entre las Islas de Mindoro y Busuanga. Registrólo el sismógrafo de Butúan (Mindanao) y el de Zikawei (China). Después de este temblor los sismógrafos de Manila registraron 27 réplicas originadas en el mismo centro; 15 de ellas durante dicho día 3, 10 el día 4, una el 5 y otra el 6; no se sabe que alguna de ellas fuese perceptible en las Islas de Mindoro y Cuyo más cercanas al epicentro.

4, $17^h\ 38^m\ 36^s$ * [5, $1^h\ 38^m\ 36^s$]. **Naga** (SE de Luzón). Temblor de tierra de intensidad III, duración 5 segundos.

7, $18^h\ 49^m\ 07^s$ * [8, $2^h\ 49^m\ 07^s$]. **Ambos Camarines** (SE de Luzón). Temblor de tierra de intensidad III, duración 3 segundos.

8, $6^h\ 39^m$ [8, $14^h\ 39^m$]. **Legaspi** (SE de Luzón). Temblor oscilatorio, intensidad II–III, duración 2 segundos.

9, $11^h\ 27^m$ [9, $19^h\ 27^m$]. **Cotabato** (SW de Mindanao). Temblor de tierra de intensidad IV; registrado en Butúan. El origen se hallaba hacia el E de Cotabato en el valle del río Pulangui.

10, $12^h\ 42^m$ [10, $20^h\ 42^m$]. **Ormoc** (W de Leyte). Temblor oscilatorio, intensidad III, duración 6 segundos.

15, $19^h\ 22^m\ 01^s$ * [16, $3^h\ 22^m\ 01^s$]. **W de Luzón.** Temblor de tierra de intensidad IV, sentido a lo largo de la parte occidental de Luzón que comprende las Provincias de Ilocos, La Unión y parte W de Pangasinán. El origen se hallaba en el Mar de la China. A $1^h\ 40^m\ 10^s$ * del 16 [$9^h\ 40^m\ 10^s$] los sismógrafos de Manila y de Baguio registraron una réplica originada en el mismo lugar.

16, $6^h\ 00^m\ 36^s$ * [16, $14^h\ 00^m\ 36^s$]. **SE de Luzón.** Temblor de tierra de intensidad IV en la Isla de Catanduanes y en las Provincias de Albay y Sorsogón; el epicentro se hallaba en la parte N de la entrada del Estrecho de San Bernardino. Registróse también en Butúan (Mindanao).

17, $14^h\ 05^m$ [17, $22^h\ 05^m$]. **Ormoc** (W de Leyte). Temblor oscilatorio, dirección W–E, intensidad III, duración 7 segundos.

24, $3^h\ 02^m\ 05^s$ * [24, $11^h\ 02^m\ 05^s$]. **E de Visayas y Mindanao.** Temblor de tierra de intensidad IV–V sentido en las Islas de Sámar, Leyte y parte NE de Mindanao, originóse en el Abismo del Pacífico cerca del paralelo 11° N. Registrado en el Observatorio de Zikawei (China).

30, $9^h\ 13^m$ [30, $17^h\ 13^m$]. **Legaspi** (SE de Luzón). Temblor oscilatorio, dirección NW–SE, intensidad III, duración 4 segundos.

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[1] **La intensidad de los terremotos se indica conforme a la conocida escala de Rossi-Forel. Cuanto a la hora de su ocurrencia, adoptamos la indicada por los sismógrafos de este Observatorio siempre que los hayan registrado, distinguiéndola por medio de un asterisco (*). En caso contrario copiamos la apuntada por los observadores que nos envían las notas. Todas las indicaciones del tiempo se refieren al tiempo medio de Greenwich (medianoche=0^h). Para conveniencia de los lectores de Filipinas se añade también el tiempo insular.**

THE GOVERNMENT OF THE PHILIPPINE ISLANDS

WEATHER BUREAU

MANILA CENTRAL OBSERVATORY

BULLETIN FOR FEBRUARY, 1918

PREPARED UNDER THE DIRECTION OF

REV. JOSÉ ALGUÉ, S. J.

DIRECTOR OF THE WEATHER BUREAU

MANILA
BUREAU OF PRINTING
1918

METEOROLOGICAL BULLETIN FOR FEBRUARY, 1918.

By Rev. JOSÉ CORONAS, S. J.,
Chief, Meteorological Division of the Weather Bureau.

GENERAL WEATHER NOTES.

Pressure and temperature.—The mean atmospheric pressure for this month is slightly higher than that of the preceding year, particularly in northern Luzon. Yet it is generally below the normal with the exception of a few stations in the northern part of Luzon. The highest pressures of the month were generally observed on the 24th, and the lowest on the 5th to 7th.

The mean monthly temperature is lower than the February's normal throughout the Philippines, the differences being greater than 1° C. in nine of our first and second class stations. The absolute maximum and minimum temperatures for Manila were 32.3° C. on the 4th, and 15.7° C. on the 24th. The extreme temperatures for Baguio were 25.2° C., 8.4° C. on the top of Mirador, and 25.8° C., 8.0° C. in the valley.

PRESSURE AND TEMPERATURE AT THE FIRST AND SECOND CLASS STATIONS FOR FEBRUARY, 1918.

Station.	Pressure.							Temperature.						
	Mean.	Departure from Feb., 1917.	Departure from normal.	Highest mean.	Day.	Lowest mean.	Day.	Mean.	Departure from Feb., 1917.	Departure from normal.	Highest.	Day.	Lowest.	Day.
	mm.	*mm.*	*mm.*	*mm.*		*mm.*		*°C.*	*°C.*	*°C.*	*°C.*		*°C.*	
Zamboanga	758.75	+0.09	------	760.69	24	756.90	7	25.4	—0.7	------	31.6	8	20.2	24
Tagbilaran	59.25	— .01	−0.56	61.53	24	57.25	7	25	— .1	−0.6	31.7	5	18.6	23
Surigao	59.43	+ .09	— .37	61.69	24	57.59	6,7	25	— .6	— .4	31.2	7	20.9	23
Cebu	59.48	+ .11	— .54	61.67	24	57.60	6	25.8	— .3	— .2	30.8	5,26	20.8	13
Iloilo	59.61	+ .37	— .38	61.94	24	57.51	6	24.8	— .8	— .9	32.7	6	20.2	24
Tacloban	59.83	+ .22	— .40	61.83	24	57.61	6	24.3	—1.1	—1.3	31.5	6	19.6	24
Capiz	60.21	+ .27	— .55	62.57	24	57.71	6	24.8	— .8	— .8	30.6	4	19.8	22
Calbayog	60.07	+ .13	— .23	62.02	24	57.74	6	23.8	—1	—1	31.4	27	17.4	23
Legaspi	60.72	+ .35	— .17	62.85	24	57.92	6	24.5	— .2	—1.1	30.2	6	19	22
Atimonan	61.40	+ .58	+ .17	63.67	24	58.12	6	23.5	—1.2	—1.7	29	5	19.5	19,20
Ambulong, Tanauan	60.45	+ .62	------	62.88	24	57.53	6	24.4	—1	------	34.3	15	17.5	22
Paracale	61.47	+ .43	------	63.68	24	58.25	6	23.7	— .7	------	28.8	14	19.6	19
Manila	60.93	+ .45	— .29	63.44	24	58.02	6	23.9	—1.1	—1.3	32.3	4	15.7	24
San Isidro	61.34	+ .56	+ .10	63.76	24	58.40	6	24.1	— .5	—1	34.1	15	15.5	24
Dagupan	60.31	+ .52	— .41	62.61	24	57.73	5	24.9	— .8	— .8	35.2	27	18	7
Baguio [a]	637.34	+ .06	— .23	638.98	27	635.22	7	15.4	—1	—1.3	25.2	27	8.4	19
Vigan	760.58	+ .40	— .27	762.62	24	758.28	5	25	— .4	— .6	32.2	16	18	19
Tuguegarao	62.76	+ .84	+ .83	65.26	18	58.23	5	21.8	—1.5	—2.2	33.8	4,27	14.6	23
Laoag	60.88	+ .44	------	63.17	18	58.44	5	24.2	— .4	------	------	------	12.5	24
Aparri	63.25	+ .81	+ .69	65.93	18	58.74	5	21.6	— .5	—1.5	31.5	4	14.8	20

[a] The barometric readings of this station are not reduced to sea level.

Rainfall.—The rains have continued being rather abundant this month in the Visayas and Mindanao, the monthly rainfall for those regions being both above the normal and above the monthly total for February, 1917. As for Luzon, the number of stations giving a total amount of rainfall greater than the normal almost equalls the number of those giving a smaller amount.

RAINFALL AT VARIOUS STATIONS OF THE WEATHER BUREAU DURING THE MONTH OF FEBRUARY, 1918.

Station.	Total.	Departure from Feb., 1917.	Departure from normal.	Days of rain.	Departure from Feb., 1917.	Greatest rainfall in a single day.	Day.	Station.	Total.	Departure from Feb., 1917.	Departure from normal.	Days of rain.	Departure from Feb., 1917.	Greatest rainfall in a single day.	Day.
	mm.	*mm.*	*mm.*			*mm.*			*mm.*	*mm.*	*mm.*			*mm.*	
Jolo	115	−83.6	+ 22.3	17	− 1	44.7	2	Sumay, Guam	197	+149.9	+110	12	+2	77.4	19
Isabela, Basilan	154.8	+ 2.8	+ 70.2	13	− 4	61.5	2	Calapan	77.5	− .9	− .2	16	−2	14.3	25
Zamboanga	55.8	− 44	+ 3.3	13	0	16.3	3	Virac	148.9	−333.5	− 73.5	19	−6	57.6	12
Davao	238.4	+193.2		12	+ 4	62	10	Naga	78.2	− 32.2	+ 2.1	15	−5	35.3	12
Cotabato	145.6		+ 61.4	11		46.5	4	Batangas	12.5	+ 10.2	− 7.3	5	+3	6.6	12
Cagayan, Misamis	124.1	+ 91		15	+ 5	34.5	2	Lucena	64.2	+ 4.8		8	−7	12.7	3
Dapitan	367.5		+231.7	22		114.6	12	Atimonan	171.9	− 13.2	+ 53.4	21	+4	22.6	12
Butuan	279	+ 85.8	+ 74.9	23	− 2	66.3	18	Ambulong, Tanauan	5.9	− 2.7		4	+1	3.1	25
Mambajao	179.4	+144.3		12		47.8	2	Canlubang, Calamba	9.5	+ 3.7		7	+2	3.8	5
Dumaguete	257.3	+176		15	+ 5	87.4	11	Paracale	295.4	−477.1		25	+2	45.7	14
Yap, W. Carolines	193.8	+ 86.5	+ 8.5	22	+ 2	27.2	26	Santa Cruz, Laguna	12.3	+ .6		6	0	5.6	16
Tagbilaran	42.5	− 49.2	− 54.6	9	− 3	13.7	11	Manila	1.8	− 5.2	− 8.5	2	−2	1.3	3
Iwahig	138.3	− 21.2		15	+ 1	34.7	14	Antipolo	13.4	− .4		3	−1	10.4	15
Surigao	415.5	+ 31.5	+ 61.8	20	− 5	103.6	10	Iba	1.3	+ .8	− 4.1	2	+1	.8	17
Maasin	197.7	+107.1	+ 39.6	8	+ 1	45.7	17	San Isidro	13	− 25.9	+ 6.1	2	−3	12.7	15
Cebu	98.5	− 3.7	+ 32.4	11	− 1	26.4	11	Tarlac	17.8	+ 17	+ 8	2	+1	17	14
Iloilo	58.1	− 66.8	+ 18	5	−10	31.4	12	Baler	63.6	− 86.8	− 75.5	11	−4	11.7	13
San Jose Buenavista	53.2	+ 19.1	+ 30.7	9	− 2	13.5	12	Dagupan	.8	− 22	− 18.7	1	−2	.8	17
Cuyo	11.3	− 6.1	− 7.5	4	+ 2	4.3	6	Bolinao	0	− 1.3	− 10.1	0	−2	0	0
Ormoc	286.9	+178	+177.3	14	− 7	59.4	9	Baguio	52.3	+ 39.6	+ 34.8	6	+2	27.9	16
Guiuan	751.3	+398.3		23	− 3	199.9	9	San Fernando, Union	3.3	+ 3.3	− 4.4	1	+1	3.3	17
Tacloban	453.4	+101.9	+232.7	22	− 3	132.1	9	Echagüe	44.6	− 13.5	+ 6.3	11	+3	13.5	15
Capiz	72.1	− 80.8	− 26	19	− 3	14	12	Candon	1.3		− 7.3	1		1.3	15
Borongan	914.3	+260.1	+487.6	22	− 4	142.7	9	Vigan	5.3	+ 2.5	+ .8	2	+1	4.8	1
Catbalogan	439.2	+213.3		22	− 5	82.5	9	Tuguegarao	28.1	+ 15.3	+ 8.1	4	+1	22.6	14
Calbayog	339.5	− 41.5	+ 162.3	22	− 2	64.7	9	Laoag	9.3	+ 9.3	+ 1.7	6	+6	4.1	5
Masbate	207.3	+ 21.4	+ 68	15	− 3	86.1	25	Aparri	92.3	− 20.7	− 4.7	15	+4	34.6	14
Romblon	176.2	− 82.1	+ 87.7	20	− 3	100.4	12	Cape Bojeador	7.9	− 10.4		1	−1	7.9	15
Batag	467.3	−427.2		20	− 4	73.7	17	Santo Domingo, Batanes	111.8	− 27.2	− 4.5	18	+2	24.4	13
Sorsogon	299.9	−653.5		21	− 1	45.7	12								
Legaspi	255.8	−481	− 29.3	18	− 6	49.3	25								

DEPRESSIONS AND TYPHOONS.

As it is always the case in February, the Philippines have been free from real cyclonic centers during the month. Only a very shallow depression or low-pressure area seems to have been noticed near the Balintang Channel on the 4th, moving eastward on the 4th and 5th, and then inclining northward on the 6th near 130° longitude E.

Farther to the N a low-pressure area appeared in our weather maps to the NE of Formosa on the 4th and 5th, moving eastward. While in the Pacific it developed into a real depression, its center passing to the N of the Bonins on the 6th moving ENE.

NOTAS GENERALES DEL TIEMPO.

Presión y temperatura.—La presión atmosférica media de este mes es algo mayor que la del año pasado, particularmente en el N de Luzón. Sin embargo, es generalmente inferior a la normal, a excepción de unas cuantas estaciones en la parte N de Luzón. Las presiones más altas del mes se observaron generalmente el día 24, y las más bajas del 5 al 7.

La temperatura media mensual es más baja que la normal de febrero en todo Filipinas, siendo las diferencias mayores de 1° C. en nueve de nuestras estaciones de primera y segunda clase. Las máximas y mínimas absolutas en Manila fueron 32.3° C. y 15.7° C. observadas los días 4 y 24 respectivamente. Las temperaturas extremas en Baguio fueron 25.2° C., 8.4° C. en la cumbre del Mirador, y 25.8° C., 8.0° C. en el valle.

Precipitación acuosa.—Las lluvias han continuado siendo abundantes este mes en Visayas y Mindanao, habiendo superado la lluvia mensual de dichas regiones tanto a la normal como al total mensual de febrero, 1917. Con respecto a la Isla de Luzón, el número de estaciones que dan un total de lluvia mayor que la normal casi es igual al número de las que arrojan una cantidad menor.

DEPRESIONES Y TIFONES.

Como suele ocurrir siempre en febrero, Filipinas se ha visto libre durante el mes de verdaderos centros ciclónicos. Solamente una depresión muy dilatada o área de baja presión pareció notarse el día 4 cerca del canal de Balintang, moviéndose hacia el E los días 4 y 5, e inclinándose luego al N el 6 en los alrededores de 130° longitud E.

Más al N apareció en nuestros mapas del tiempo otra área de baja presión al NE de Formosa los días 4 y 5, moviéndose al E. Una vez en el Pacífico se convirtió en verdadera depresión, pasando su centro al N de Bonins el día 6 en dirección al ENE.

METEOROLOGICAL DATA FOR MANILA CENTRAL OBSERVATORY.[a]

[$\phi = 14°\ 34'\ 41''$ N; $\lambda = 120°\ 58'\ 33''$ E; barometer above sea, 14.2 meters; gravity correction not applied, —1.72 mm.]

Day.	Pressure (mean).	Air temperature.[b] Mean.	Maximum.	Minimum.	Underground temperature. 0.25 meter. 8 a.m.	0.25 meter. 2 p.m.	0.50 meter. 8 a.m.	0.50 meter. 2 p.m.	1.50 meters. 8 a.m.	2.50 meters. 8 a.m.	Relative humidity (mean).	Vapor pressure (mean).	Radiation. Minimum on grass.	Radiation. Maximum in sun. Black bulb in vacuo.	Evaporation.[b] Free exposure (total).	Evaporation.[b] Shelter (total).
	mm.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	*Per ct.*	*mm.*	°C.	°C.	*mm.*	*mm.*
1	760.93	23.4	26.4	20.5	25.3	26	26.1	26.4	27.3	27.4	77	16.3	18.7	40.8	3	2.2
2	60.61	23.9	28.8	20.8	25.2	26.4	26.2	26.4	27.3	27.4	77	16.8	18.5	42.4	3.4	2.5
3	59.70	24.8	29.8	20.1	25.2	26.5	26.2	26.8	27.2	27.4	82	18.9	17.4	49.6	2.4	2
4	58.69	25.9	32.3	21.1	25.6	27.4	26.3	26.8	27.2	27.3	82.9	20.3	18.7	53.6	3.7	2.4
5	58.34	25.2	30.4	20.7	25.9	27.3	26.6	26.8	27.3	27.4	86	20.3	18.2	50.3	3.3	2
6	58.02	25.6	31.2	21.6	26	27.5	26.8	27.1	27.3	27.3	80.1	19.4	18.6	52.3	5.6	3.6
7	58.71	23.9	29.5	18.6	26.1	27.3	26.8	27	27.2	27.3	75.4	16.5	19	51.5	3.5	2.8
8	60.34	22.4	29	17.3	25.2	26.5	26.8	26.9	27.2	27.2	73.4	14.5	14.3	51.9	3.9	3
9	61.32	22.4	26.6	17.8	24.8	25.5	26.5	26.5	27.2	27.2	75.1	15	14.6	38.1	3.2	2.5
10	61.20	23.7	28.5	19.4	24.6	26.1	26.1	26.4	27.1	27.2	68.9	14.7	16.6	44.5	5.1	3.8
11	61.23	23.2	26.5	20	24.8	25.5	26.1	26.2	27.2	27.2	71.5	15.1	16.8	39.3	4.3	3.2
12	60.33	24.6	29.1	21.7	24.9	26.1	26.1	26.3	27.3	27.2	69.5	15.9	19.5	44	4.6	3.7
13	59.91	24.6	30.2	21.3	24.9	26.3	26.1	26.3	27.2	27.2	77.8	17.8	19.9	48.9	3.7	2.3
14	59.13	25.2	31.6	20	25	27.1	26.1	26.5	27.1	27.2	77.1	18.1	17.7	55.2	4.8	3.4
15	59.32	25.8	31.4	20.3	25.6	27.5	26.3	26.8	27.1	27.2	79	19.3	18.1	51.3	4.1	2.7
16	60.94	25.9	30.8	22.4	26.4	27.5	26.8	27	27.1	27.2	72.7	17.8	------	51.9	5.5	4
17	61.91	24.8	30	21.2	26.1	27.4	26.8	27	27	27.1	67.7	15.5	18.2	50.5	5.1	3.5
18	62.05	23.5	27.1	20.4	25.7	26.3	26.8	26.8	27.1	27.1	66	14.1	18.3	43.2	4.7	3.5
19	62.13	22.6	28.9	19.4	25.2	26.3	26.6	26.6	27.1	27	66.9	13.5	17.2	48.3	4.1	3.1
20	62.25	22.1	27.3	18.1	24.7	26	26.1	26.4	26.9	27	72.5	14.2	14.7	47	3.9	2.6
21	62.37	21.7	26.7	17	24.5	25.6	26.1	26.1	27.1	27	77	14.8	14.5	41.9	2.8	2
22	62.49	22.1	28	16.2	24	25.5	26	26	27.2	27.1	76.2	14.8	13.6	45	4	3.1
23	62.68	23.1	28.7	19.6	24.5	26.1	25.8	26.1	27	27.1	65.3	13.5	17.1	52.5	5.2	3.6
24	63.44	22.3	30	15.7	24.1	26.2	25.9	26.6	27.1	27.1	69.2	13.5	12.3	54.5	5	3.5
25	62.54	23.7	28.8	18	24.5	26.2	25.9	26.3	27.1	27.1	73.8	16	15.2	51.3	4.3	3
26	61.75	24.8	31.8	20.4	25.2	26.5	26.1	26.4	27	27.1	77.8	17.9	18.4	58.2	4.6	3.1
27	62.07	24.1	31.4	17.3	24.7	26.7	26.1	26.5	26.9	27	76.8	16.8	14.6	52	5.4	3.1
28	61.65	24.4	31.6	18.3	25.1	27	26.1	26.8	27	27	74.9	16.8	15.5	53.5	4.7	2.9
Mean	760.93	23.9	29.4	19.5	25.1	26.5	26.3	26.6	27.1	27.2	74.6	16.4	16.9	48.7	4.2	3
Total	------	------	------	------	------	------	------	------	------	------	------	------	------	------	117.9	83.1
Departure from normal	—0.29	—1.3	—1.4	—0.8	------	------	------	------	------	------	+0.6	—1.1	------	------	------	------

Day.	Wind. Prevailing direction.	Total movement.	Maximum hourly velocity.	Direction at the time of the maximum velocity.	Clouds. Amount (mean).	Clouds. Form and direction. Upper.	Clouds. Form and direction. Lower.	Sunshine.	Rain, 24 hours beginning 6 a.m. On the tower.	Rain, 24 hours beginning 6 a.m. In the park.	Miscellaneous.
		Km.	*Km.*		*0–10.*			*h. m.*	*mm.*	*mm.*	
1	W quad.	120.5	15	ENE	9.6	A.-Cu. ESE	Cu. E, ENE	0 25	------	------	
2	E	143	21.5	E	8.9	A.-Cu.	Cu. E	1 10	------	------	☊° a. d° a. p.
3	W quad.	97	11	W	8	A.-Cu. SE	Cu. E	5 10	1.3	1.1	d° a. d² p.
4	SE	160	15.5	ESE	4.5	A.-Cu.	Cu. ESE	8 15	------	------	d° a.
5	W, SW	149	16	W	5.8	A.-Cu. SW	Cu.	5 30	------	------	☊ a.
6	SW quad.	276	23	NW	4.8	A.-Cu. SW	Cu. NE	9 05	------	------	
7	NE quad.	196	13.5	WNW	5.6	Ci.	Cu. ENE	6 35	------	------	
8	NE, ENE	148.5	19	ENE	8	Ci. ESE	Cu. EbyN	4 45	------	------	☊ a.
9	N, NNE	137.5	17	NNE	9.8	A.-Cu. ESE	Cu. E	0 10	------	------	☊ a.
10	NE	213	32	NE	9.2	A.-Cu. E	S.-Cu. ENE	0 05	------	------	
11	NE	160	21.5	NE	10	A.-Cu. SE	S.-Cu. E	0 00	.5	.5	d a.
12	N, NNE	230	21	N	9.6	A.-cu. SE quad.	Cu. EbyN	0 15	------	------	d° p.
13	NE quad.	127	13	E	9	A.-Cu. S	S.-cu. EbyN	2 20	------	------	d° p.
14	SE	225	20	ESE	4.2	A.-Cu.	Cu. E	8 50	------	------	☊° a. ≲ p.
15	SW quad.	154.5	15	WSW, W	3.5	Ci.	Cu. E	10 10	------	------	☊ a. ≲ p.
16	NE quad.	176.5	25	NNE	7.4	A.-Cu. EbyS	Cu. ENE	3 05	------	------	☊° a. ⌣ p.
17	SW quad.	158	21	SW	7.6	A.-Cu. W	Cu. ENE	2 45	------	------	
18	N quad.	136	15	NE	9.3	A.-Cu. ESE	S.-Cu. ENE	0 30	------	------	
19	E, NNW	151.5	15	SE, E	10	Ci.-S., A.-Cu.	S.-Cu. ENE	1 00	------	------	
20	NW quad.	158.5	18	W	8.8	A.-Cu. W	Cu. E	3 05	------	------	⌣° p.
21	Variable	139	15	NW	9.8	A.-Cu. WSW	cu., S.-Cu. E	0 00	------	------	☊° a.
22	NNE, E	152	11.5	E	7.9	A.-cu. WSW, SW	Cu. E quad.	2 25	------	------	d° a.
23	E, ESE	167.5	20.5	WbyS	4.9	A.-Cu. SE	cu. NE, ENE	6 25	------	------	⌣° p.
24	E	157.5	17	ENE	4.5	Ci. SSE	Cu. ENE	8 05	------	------	
25	ESE, WSW	157	17	ESE	7.5	A.-Cu. E quad.	Cu. E	5 05	------	------	⌒ p.
26	SE quad.	218.5	20	ESE	5.5	A.-Cu.	Cu. E	8 10	------	------	
27	ESE	213.5	18	WSW, SSE	1.6	Ci.	Cu.	10 35	------	------	☊ ≡° a.
28	W, SE	157	15.5	W	3	Ci.	Cu. E	9 30	------	------	☊° ≡° a.
Mean	------	167.1	17.9	------	7.1	------	------	4 24	------	------	
Total	------	4,679.5	------	------	------	------	------	123 25	1.8	1.6	
Departure from normal	------	—677.1	------	------	+2.1	------	------	—71 49	—8.5	------	

[a] All the mean values given in this table are deduced from hourly observations.
[b] These values are taken from instruments mounted in the Observatory Park, 1.5 meters above ground.

METEOROLOGICAL DATA FOR MIRADOR OBSERVATORY, BAGUIO.[a]

[ϕ=16° 25′ N; λ=120° 36′ E; barometer above sea, 1,512.5 meters; gravity correction not applied, —1.65 mm.]

Day.	Pressure[b] (mean).	Air temperature at Mirador (on the top of the mountain).					Air temperature in the valley (near the city hall).				Relative humidity (mean).	Vapor pressure (mean).	Radiation.		Evaporation.	
		Mean.	Maximum.	Hour.	Minimum.	Hour.	Maximum.	Hour.	Minimum.	Hour.			Minimum on grass.	Maximum in sun. Black bulb in vacuo.[c]	Free exposure (total)	Shelter (total)
	mm.	°C.	°C.		°C.		°C.		°C.		*Per ct.*	*mm.*	°C.	°C.	*mm.*	*mm.*
1	636.99	13.9	18.1	0.05p.	11.6	5.40a.	18.9	Noon	11.7	5.40a.	75.5	8.9	10.9	48.3	6.4	3.1
2	37.14	15.7	21.1	0.20p.	12.6	2.00a.	22.5	1.40p.	12.6	2.20a.	69.8	9.2	10.7	52.8	9.9	5.1
3	37.02	17.8	25.1	Noon	14.5	4.20a.	24.6	Noon	13.3	6.20a.	68.2	10.3	13.2	54.6	5.5	3.2
4	36.36	17.9	22.7	10.00a.	14.5	2.55a.	23.9	11.55a.	14.1	2.00a.	80.3	12.1	13.2	58	2.3	1.3
5	35.82	16.6	23.3	2.00p.	14	6.35a.	24.2	2.00p.	13	12m.n.	88.2	12.3	12.7	56.1	2.4	1.4
6	35.49	16	22.3	11.20a.	12.5	12m.n.	22.4	3.10p.	10.5	11.35p.	74.2	10.1	11.1	58	4.8	2.8
7	35.22	14.8	22.3	0.55p.	10.4	6.20a.	21.5	0.15p.	9.3	3.00a.	75.2	9.4	7.7	55	4.7	2.7
8	36.34	14.6	20.4	11.00a.	10.4	7.10a.	20.3	11.35a.	9.4	3.20a.	72.3	8.8	7.7	57.3	4.9	2.8
9	37.39	14.5	21.8	0.05p.	9.9	3.00a.	22.8	0.20p.	10.2	4.00a.	77.7	9.4	9	53.4	5.8	3.5
10	37.58	16.3	22.8	9.55a.	11.7	3.30a.	22.9	0.20p.	11	5.20a.	72.5	9.8	9	58	4.4	2.4
11	37.78	16.2	20.8	3.20p.	12.6	6.25a.	21.6	2.40p.	12.1	6.40a.	78.7	10.6	11.5	54	4	2
12	37.22	16.5	22.3	10.40a.	13	9.30p.	24	11.35a.	13.4	9.20p.	72.7	10.1	11.4	58	7.5	3.8
13	37.04	16.5	20.5	1.05p.	14.1	6.00a.	21	2.10p.	14.4	0.45a.	76	10.6	12.7	40.7	4.2	2.3
14	36.41	16.5	23.3	11.10a.	14.3	6.00a.	22.9	Noon	14.1	0.20a.	90	12.5	12.7	61.6	1.8	.9
15	36.63	16.4	22.3	0.05p.	14.4	6.30a.	22.2	11.40a.	14.4	6.30a.	94.3	13.1	13.8	56.2	.4	.3
16	37.72	16.2	23.8	11.50a.	12.3	12m.n.	23.6	0.30p.	12.5	12m.n.	86.2	11.8	13.5	58.8	2.1	1.5
17	38.11	13.5	17.8	11.40a.	11.6	11.00p.	18.7	11.35a.	11.3	5.30a.	91.2	10.5	10.3	35.9	.4	.1
18	37.65	12.2	15.6	1.55p.	8.8	12m.n.	17.4	1.20p.	8.8	12m.n.	91	9.7	10.2	44.5	2.3	1
19	37.10	11.2	17.3	2.00p.	8.4	4.00a.	17.7	0.55p.	8.4	0.35a.	78.8	7.7	7.8	49	3.5	1.8
20	37.40	12.8	18.3	10.25a.	9.1	0.35a.	19.4	10.05a.	9.5	1.20a.	84.8	9.4	7.6	52	2.7	1
21	37.72	13.7	18.5	2.25p.	10.6	1.25a.	20.3	2.10p.	9.9	1.30a.	83	9.7	9.2	44.8	3.1	1.5
22	38.03	14	20.3	11.05a.	10.4	12m.n.	20.2	11.05a.	10	2.15a.	83.3	9.9	9.2	57	2.8	1.4
23	37.94	12.7	20	0.40p.	9.6	6.00a.	19.7	0.25p.	9.2	6.35a.	83.2	9.1	8.2	56.1	4.1	1.8
24	38.64	13.9	19.6	10.20a.	9.1	6.25a.	20.5	10.35a.	8	6.20a.	73	8.6	6.5	52.9	5	2.6
25	38.71	15.8	24.3	0.20p.	9.9	0.05a.	24.2	2.10p.	9.4	0.05a.	74.5	9.9	7.5	55	5.1	2.6
26	38.63	17.4	23.9	10.30a.	12.9	3.00a.	24.6	11.05a.	12.8	3.40a.	81	11.8	7.5	58.3	3.7	2.4
27	38.98	18.6	25.2	10.10a.	12.9	4.25a.	25.8	0.45p.	10.7	6.20a.	64.3	9.9	9.9	57	6.7	3.6
28	38.50	18	23.8	0.50p.	14.4	4.30a.	23.7	1.05p.	12.8	4.05a.	70.7	10.9	9.7	57.6	3.9	2.2
Mean	637.34	15.4	21.4		11.8		21.8		11.3		79	10.2	10.2	53.6	4.1	2.2
Total															114.4	61.1

Day.	Wind.				Clouds.			Sunshine.	Rain, 24 hours beginning 6 a. m.	Miscellaneous.
	Prevailing direction.[d]	Total movement.	Maximum hourly velocity.	Direction at the time of the maximum velocity.	Amount (mean).	Form and direction. Upper.	Lower.			
		Km.	*Km.*		*0–10.*			*h. m.*	*mm.*	
1	E	571.9	43.1	E	9.7	A.-Cu.	S.-Cu. WSW	0 30		↙° ⌒° p.
2	E	815.4	47.2	E	5.1	Ci.	Cu. E	5 30		↙° a.
3	E	426.4	28.8	SE	2.7	Ci.	Cu.	5 00		
4	E	403.6	31.2	E	5.9	Ci.	Cu.-N. ESE	4 10		Ω a.
5	W quad.	280.8	23.6	W	3.1	Ci.	Cu.-N. SE	4 30		Ω² a. ≡ a. p.
6	NW quad.	334.2	33.6	SW	1.7	Ci.	Cu. WNW	8 10		Ω² a.
7	E	319.3	28.2	E	1.7	Ci.	Cu. ESE	5 30		≡° p.
8	E	342.5	24.7	W	6.1	Ci.	Cu.-N. WSW	5 30		≡° a. p.
9	E	549.6	39.6	E	4.7	Ci.-S. SSW	Cu.	4 00		↙° a. ≡² p.
10	E	341.4	28.5	E	6.3	Ci.-S.	Cu.-N. E	4 05		≡° p.
11	E	323.5	22.2	E	7.7	A.-Cu. SSW	Cu.-N., S.-Cu.	1 05		d° a. p.
12	E	508.2	36.4	E	7.4	A.-Cu.	Cu.-N. ESE	3 35		d° a.
13	E	368.9	28.8	E	9.6		Cu.-N. ENE	0 00		d° a. p.
14	W quad.	314.8	23.8	SE	7.6	A.-Cu.	Cu. E	2 30	1	≡² a. p. ● ⌒° p.
15	W quad.	243.7	18.2	W	7.6	A.-Cu.	Cu.-N.	0 55	11.7	≡° a. p. ● ⌒° p.
16	E	411.7	23	E	5.6	A.-Cu.	S.-Cu. SSW	2 45	27.9	≡ ● ⌒° p.
17	E	298.2	21.4	E	9.7		Cu.-N.	0 00	10.6	≡² a. p. ● p.
18	E	369.3	29.5	E	8.7	A.-Cu.	Cu.-N., N.	0 55	.8	d² ≡° a. p.
19	E	431.4	27.1	E	10		Cu.-N. W	0 55		d° a. p. ≡² p.
20	E	291.2	20.3	E	8.7	A.-Cu. W	Cu.-N.	2 30		≡² d° p.
21	E	278.5	19.3	E	8.9	A.-Cu. W	Cu.-N. WNW	1 25		≡° p.
22	E quad.	288	25.5	E	6.6	Ci.	Cu.-N.	4 20	.3	d² ≡° p.
23	E	395.7	26.2	W	5.1	Ci.	Cu. NNW	3 15		d° p.
24	E	384.6	24.4	W	4.4	Ci.	Cu.-N. NE	3 50		
25	E	477.9	40.5	E	1.4	Ci.-S. S	Cu. SSE	7 15		↙° a.
26	E	300.2	23.1	W	3.9	A.-Cu.	Cu. E	5 50		Ω° a. ≡° p.
27	E	349.6	24.1	W	.7	Ci.	Cu.	8 35		∞ ≡ p.
28	Variable	330.8	27.2	W	2.7	Ci.	Cu. E	6 25		Ω° a. ∞ a. p. ≡° p.
Mean		384	28.2		5.8			3 41	52.3	
Total		10,751.3						103 00		

[a] All the mean values given in this table are deduced from six daily observations taken at 2, 6, 10 a. m. and 2, 6, 10 p. m.
[b] The barometric readings of this station are not reduced to sea level.
[c] Maximum of hourly observations taken from 6 a. m. to 6 p. m.
[d] This element is based on hourly observations taken from a quadruple register, which gives only eight possible directions of the wind.

DAILY RAINFALL AT THE STATIONS OF THE WEATHER BUREAU, FEBRUARY, 1918.

Station.	Day of month.														
	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.
	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.
Jolo	0.3	44.7	.....	6.9	7.1	1.3	.....	.....	1	9.7	18.3	1	.....	0.5	.....
Isabela, Basilan	9.1	61.5	14.2	.....	11.9	.....	.....	.....	.....	.....	.....	6.9	10.7	3.5	12.9
Basilan Plantation, Isabela (Basilan)[a]	25.9	25.9	12.7	12.7	17.5	.....	.....	.....	.....	.....	3.3	3.6	10.2	4.1	10.2
Zamboanga	5.1	.6	16.3	1.5	.....	.....	.....	7.9	.....	.....	.8	2.3	.3	.....	.....
Davao	12.4	.....	.....	.....	.....	.....	.....	15.7	27.9	62	19.3	19.6	2.5	.....	.....
Cotabato	.....	7.6	14	46.5	.....	.....	.....	1.5	3	5.6	.....	7.4	.8	.3	.....
Cagayan, Misamis	.....	34.5	1.3	.....	.....	.....	.....	1.3	1.8	17	9.7	5.6	.....	20.3	.....
Dapitan	5.9	39.4	.5	.....	.....	7.1	1.9	1	3	10.2	12.4	114.6	48.5	.6	.8
Ampayon, Butuan, Agusan[a]	4.6	3.8	3	.....	.....	.....	.....	7.4	30.7	38.6	7.1	21.9	.....	.....	.....
Butuan	5.1	5.1	16.2	3.1	.....	.....	.....	5.8	28.5	38.3	2.3	2.3	3.8	.3	1
Mambajao	.....	47.8	10.7	.....	.....	.....	.....	.....	22.6	35.8	5.8	2	.....	1.3	.....
Dumaguete	2.8	9	1.8	.....	6.9	.....	1.5	11.9	3	7.4	87.4	65.6	9.1	.....	30.5
Yap, Western Carolines	.3	9.9	.....	20.6	8.4	14.2	6.6	3.3	9.2	1.3	4.6	.8	.....	7.4	23.7
Tagbilaran	1.5	.....	.....	.....	.....	.....	.....	.....	.....	3.6	13.7	9.1	.....	5.7	.....
Iwahig	14.5	1.3	.3	6.3	9.9	1	.....	.....	.....	.1	.1	32.2	23.4	34.7	2.7
Surigao	66.6	8.9	3.3	.....	2	.....	.....	2.5	43.9	103.6	19	3.9	3	.....	15.2
Maasin	9.9	35.3	.....	.....	.....	.....	20.8	.....	26.7	22.9	.....	6.4	.....	.....	.....
Cebu	2.3	8.6	.....	.....	1.5	8.4	4.8	.....	5.1	9.9	26.4	9.4	.....	.....	.8
Iloilo	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	22.6	31.4	.....	.....	.....
San Jose Buenavista	.....	.....	9.7	7.4	.....	.....	.....	.....	.....	3.3	7.6	13.5	.6	.....	3.8
Cuyo	.....	.....	.....	.....	2.7	4.3	.....	.....	.....	1.8	.....	2.5	.....	.....	.....
Lucena, Iloilo[a]	.....	.....	.....	.....	.....	10.2	.....	.....	.....	2.5	15.2	35.3	.....	.....	7.4
Ormoc	5.6	4.6	1.8	.....	.....	.....	.....	.....	59.4	52.1	21.6	11.7	.....	27.9	8.1
Guiuan	91.9	65.8	3.8	7.4	.....	.....	1.5	.....	199.9	65.8	9.6	165.9	23.6	30.7	.5
Dueñas, Iloilo[a]	1	.....	12.7	1.5	.....	1.5	12.7	.....	.....	3.8	15.5	40.6	.....	.....	28.5
Bitaogan, Iloilo (Railroad Iloilo to Capiz)[a]	7.3	.....	.....	.....	9.4	.....	2.8	.....	.....	8.9	33	58.4	9.1	.....	28.2
Lapus, Iloilo (Railroad Iloilo to Capiz)[a]	.....	.....	.....	.....	.....	.....	1.8	.....	.....	1.8	33	20.6	.....	.....	.....
Tacloban	62.9	26.9	.6	2.1	.....	.....	2.8	.....	132.1	52.3	22.8	50.6	.5	4.9	7.5
Dumarao, Capiz[a]	2.5	.....	.....	.....	.....	.....	15.3	.....	.....	12.7	38.1	.....	.....	.....	.....
Dao, Capiz[a]	3.3	7.2	2.5	.....	.....	.....	50.8	.....	1.8	7.1	2.8	23.8	1	.....	.....
Capiz	4.1	5.9	2.1	.....	.....	1	.3	.....	3	7.7	3	14	.....	.....	.....
Borongan	98.5	110.5	39.9	8.1	.....	.....	7.6	.....	142.7	81	23.4	62.3	54.1	67.6	10.9
Catbalogan	22.4	32.5	4.1	.5	.....	.....	1	.....	82.5	72.1	27.5	63.3	5.3	10.2	1.5
Calbayog	4.9	21.1	9.1	.....	.....	3	2.6	.....	64.7	50.8	10.2	48.5	12.7	.....	.5
Masbate	2.8	3.3	8.9	.....	.....	.....	2	.....	15.5	38.4	8.9	29.7	2.3	2	.....
San Jose Estate, Tamaraw Plantation, Mindoro[a]	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	19.3	.....	.....	.....
San Jose, Mindoro[a]	.....	.....	1.3	.....	.....	.....	.....	.....	.....	.5	.....	20.3	.....	.....	.....
San Jose Estate, Tunnel D-12, Mindoro[a]	.....	.....	.....	.5	.....	.....	.....	.....	.....	.....	.....	16.8	.....	.....	.....
Romblon	1.8	4.8	6.9	.3	1.5	.5	.....	.....	.....	21.4	1.8	100.4	.8	.....	19.8
Batag	50.8	53.3	13.2	.....	.....	14	6.4	.....	6.1	64.7	15.2	36.1	19	24.4	1.8
Sorsogon	10.7	13.7	9.4	.....	.....	.....	4.8	7.4	5.6	19.3	13.5	45.7	16	37.3	.....
Legaspi	14.5	26.2	29.7	.....	.....	.....	.8	.....	.....	12.2	13.2	41.9	9.7	12.7	.....
Sumay, Guam	.....	.....	.....	4.3	1.3	.....	.....	.....	.....	25.4	12.7	.....	1.3	.....	.....
Calapan	2	.3	4.1	2	.....	.....	.....	5.1	4.6	.....	5.3	9.7	.....	.....	.....
Virac	1	13.4	6.4	.....	.....	.....	.....	.....	.....	11.2	3.3	57.6	.5	1	.....
Naga	.....	.3	9.9	1	.....	.....	.....	1.3	.3	2.5	.8	35.3	.....	2.3	.....
Batangas	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1.5	6.6	.....	.....	.....
Lucena	.....	.....	12.7	.....	.....	.....	.....	1.3	3.8	.....	8.4	7.6	.....	.....	.....
Atimonan	2.5	9.9	11	1	.....	.....	1.5	8.1	14.6	18.5	10.6	22.6	.....	5.3	1.8
Ambulong, Tanauan	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1.8	.5	.....	.....	.....
Canlubang, Calamba	.3	.5	.....	.....	3.8	.....	.....	.....	.....	.....	1.8	.....	.....	.....	.....
Paracale	8.6	4.3	6.4	22.4	.3	.....	.....	4.6	8.3	11.4	31.7	24.7	4.6	45.7	36.6
Santa Cruz, Laguna	.....	.8	.....	.....	.....	.....	.....	.....	.....	.....	.3	.....	2.8	.....	.....
Fort Mills, Corregidor [a b]	.....	.....	.....	2	.3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Manila	.....	.....	1.3	.....	.....	.....	.....	.....	.....	.....	.5	.....	.....	.....	.....
Antipolo	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2	1	.....	.....	10.4
Montalban, Rizal[a]	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Hacienda Pintong Sapang, Santa Maria, Bulacan[a]	.....	.....	.....	1.5	.3	.....	.....	.....	.....	.....	.....	.....	.....	.....	9.9
Mabayuan Dam, Olongapo, Zambales[a]	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.3	.....	.....	3.8
Iba	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
San Isidro	.....	.....	.....	.....	.3	.....	.....	.....	.....	.....	.....	.....	.....	.....	12.7
Hacienda Luisita, San Miguel, Tarlac[a]	.....	.....	.....	.....	3.8	.....	.....	.....	.....	.....	.....	.....	.....	16.5	.....
Hacienda Luisita, Luisita, Tarlac[a]	.....	.....	.....	.....	3	.....	.....	.....	.....	.....	.....	.....	.....	16	.....
Tarlac	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	17	.....
Baler	10	8.1	8.2	2.8	.....	.....	.....	.....	.1	.....	.....	3.8	11.7	6.4	.....
Paniqui, Tarlac[a]	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	10.2	.....
Dagupan	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Santo Tomas Mt., Mountain Province[a]	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.3	2.5
Bolinao	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Baguio	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	11.7
San Fernando, Union	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Echagüe	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	6.1	1.3	2.5	.6	13.5
Sagada, Mountain Province[a]	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1.3	.....	20.1	7.9	.5
Bontoc, Mountain Province[a]	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	18.3	.....	.....
Candon	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1.3
Villavieja, Pilar, Abra[a]	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1.5	.....
Vigan	4.8	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.5
Tuguegarao	1.5	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	22.6	3
La Paz, Abra[a]	9.4	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1.3
Laoag	.....	.....	.....	.....	4.1	.....	.....	.....	.....	.....	.....	.....	.8	.....	2.3
Aparri	2.8	1.7	.....	.....	.....	.....	.8	.....	.....	.....	.8	.8	1.5	34.6	12.5
Cape Bojeador	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	7.9
Santo Domingo, Batanes	3.4	.5	.....	1.8	.7	.2	.8	.7	.....	.....	.7	4.6	24.4	18	23.4

[a] Voluntary or coöperative station.
[b] Rain in 24 hours beginning 7 a. m.

Daily rainfall at the stations of the Weather Bureau, February, 1918—Continued.

Station.	Day of month.													
	16.	17.	18.	19.	20.	21.	22.	23.	24.	25.	26.	27.	28.	Total.
	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.
Jolo	2.5	------	3.8	0.3	5.6	3.3	------	------	------	------	------	0.3	8.4	115
Isabela, Basilan	------	------	2.3	3.8	16	1.5	------	------	------	------	0.5	------	------	154.8
Basilan Plantation, Isabela (Basilan)[a]	10.2	2.5	2	24.9	2.6	1.3	------	------	------	------	------	------	------	169.6
Zamboanga	------	------	.3	3.6	15.3	.3	------	------	------	1.5	------	------	------	55.8
Davao	42.2	2.5	------	------	2.3	------	------	------	------	28.2	------	3.8	------	238.4
Cotabato	------	------	------	------	34	24.9	------	------	------	------	------	------	------	145.6
Cagayan, Misamis	2	.8	20.3	4.1	2.3	------	------	------	------	------	2.3	.8	------	124.1
Dapitan	5.6	3.8	49.3	22.1	24.1	10.4	------	2.5	------	------	.8	3	------	367.5
Ampayon, Butuan, Agusan[a]	33.8	7.6	98.3	34.3	26.4	7.4	0.3	------	------	40.9	------	2.3	.3	368.7
Butuan	31.8	.6	66.3	24.2	5	------	------	.3	18.6	6.1	1.8	10.7	1.8	279
Mambajao	------	------	22.9	12	6.6	------	------	------	10.4	1.5	------	------	------	179.4
Dumaguete	------	8.4	------	6.9	5.1	------	------	------	------	------	------	------	------	257.3
Yap, Western Carolines	.8	------	9.2	11.5	3.6	------	2.5	------	------	.8	27.2	23.6	4.3	193.8
Tagbilaran	2.8	2.3	------	2.5	------	------	------	------	------	1.3	------	------	------	42.5
Iwahig	3.2	------	7.1	------	------	------	1.5	------	------	------	------	------	------	138.3
Surigao	7.9	5.1	7.7	53.4	13.8	------	------	------	31.2	20.1	.3	------	4.1	415.5
Maasin	------	45.7	------	------	------	------	------	------	30	------	------	------	------	197.7
Cebu	------	------	------	------	------	------	------	------	------	------	21.3	------	------	98.5
Iloilo	------	1.3	------	------	------	------	------	------	------	------	1.8	------	------	58.1
San Jose Buenavista	5.3	------	------	------	------	------	------	------	------	------	2	------	------	53.2
Cuyo	------	------	------	------	------	------	------	------	------	------	------	------	------	11.3
Lucena, Iloilo[a]	51.3	1.3	------	------	------	------	------	------	------	8.6	------	------	------	131.8
Ormoc	3.3	39.6	------	------	------	------	------	------	22.9	11.7	16.6	------	------	286.9
Guiuan	12.2	14.5	6.3	1	------	2	.8	------	31.2	1.5	3.5	4.3	7.6	751.3
Dueñas, Iloilo[a]	------	5.8	4.4	------	------	------	------	------	------	6.9	2.5	------	------	137.4
Bitaogan, Iloilo (Railroad Iloilo to Capiz)[a]	------	3.8	3.8	4.3	1	------	------	------	------	4.8	------	------	------	174.8
Lapus, Iloilo (Railroad Iloilo to Capiz)[a]	1.3	------	------	------	------	------	------	------	------	------	1.8	------	------	60.3
Tacloban	1.2	26.4	------	1.6	3.3	2.5	2	------	22.9	19.1	7.6	------	.8	453.4
Dumarao, Capiz[a]	3.8	50.8	3.8	2.5	1.3	------	------	------	------	5	7.6	------	------	143.4
Dao, Capiz[a]	15.7	6.4	4.6	5	2.8	------	1.3	------	8.4	------	2	------	------	146.5
Capiz	2.8	2.1	.8	3.1	1.1	.3	------	4.6	4.6	9.4	2.2	------	------	72.1
Borongan	10.7	96.5	22.9	22.4	1.8	3.8	5.1	------	28.7	7.7	8.1	------	------	914.3
Catbalogan	29.5	41.7	.3	.3	1.3	.5	3	------	6.9	29.7	3.1	------	------	439.2
Calbayog	16.5	45.4	1.3	1.3	.8	------	2.8	.3	17	22.6	1.8	------	1.6	339.5
Masbate	------	.8	------	1.8	------	------	.5	------	4.3	86.1	------	------	------	207.3
San Jose Estate, Tamaraw Plantation, Mindoro[a]	------	------	------	------	1	------	2.8	------	------	•	------	------	------	24.1
San Jose, Mindoro[a]	------	------	------	------	------	------	10.2	------	------	------	------	------	------	32.3
San Jose Estate, Tunnel D-12, Mindoro[a]	------	------	------	------	------	------	14.2	------	------	------	------	------	------	31.5
Romblon	.8	1	.8	------	.3	------	.8	------	------	9.2	.5	2.3	.5	176.2
Batag	20.3	73.7	11.4	19.1	2.8	------	------	------	14.2	11.7	------	------	9.1	467.3
Sorsogon	.5	28.1	14.2	10.9	5.1	4.1	7.1	------	18.2	29.5	------	3.8	------	299.9
Legaspi	8.6	13.7	1.6	------	------	.5	11.2	------	1.8	49.3	6.1	2.1	------	255.8
Sumay, Guam	------	2.5	50.8	77.4	1.3	------	------	------	8.9	3	8.1	------	------	197
Calapan	------	------	3.8	3.8	1.8	1	12.9	------	5.8	14.3	1	------	------	77.5
Virac	17	1.5	1.3	.5	------	.5	.3	.3	.5	20.6	------	11.7	.3	148.9
Naga	2.5	5.6	1.8	------	------	------	------	------	------	10.5	------	3.8	.3	78.2
Batangas	------	------	------	------	------	------	1.8	------	------	1.8	.8	------	------	12.5
Lucena	7.1	------	------	------	------	------	12.4	------	------	10.9	------	------	------	64.2
Atimonan	11.1	------	8.1	14	.3	------	6.8	.5	3.8	18.4	1.5	------	------	171.9
Ambulong, Tanauan	------	------	------	------	------	------	------	------	------	3.1	.5	------	------	5.9
Canlubang, Calamba	------	------	------	------	------	.3	------	------	------	2.3	.5	------	------	9.5
Paracale	37.8	1.1	2.6	5.8	1	2.3	2.6	2	2.6	21.8	------	2.3	3.9	295.4
Santa Cruz, Laguna	5.6	------	------	------	------	------	1.3	------	------	1.5	------	------	------	12.3
Fort Mills, Corregidor[a b]	------	------	------	------	------	------	------	------	------	------	------	------	------	2.3
Manila	------	------	------	------	------	------	------	------	------	------	------	------	------	1.8
Antipolo	------	------	------	------	------	------	------	------	------	------	------	------	------	13.4
Montalban, Rizal[a]	------	------	------	------	------	------	------	------	------	------	------	------	------	0
Hacienda Pintong Sapang, Santa Maria, Bulacan[a]	------	------	------	------	------	------	------	------	------	------	------	------	------	11.7
Mabayuan Dam, Olongapo, Zambales[a]	------	------	------	------	------	------	------	------	------	------	------	------	------	4.1
Iba	------	.8	.5	------	------	------	------	------	------	------	------	------	------	1.3
San Isidro	------	------	------	------	------	------	------	------	------	------	------	------	------	13
Hacienda Luisita, San Miguel, Tarlac[a]	------	------	------	------	------	------	------	------	------	------	------	------	------	20.3
Hacienda Luisita, Luisita, Tarlac[a]	------	------	------	------	------	------	------	------	------	------	------	------	------	19
Tarlac	------	------	.8	------	------	------	------	------	------	------	------	------	------	17.8
Baler	------	------	------	------	------	------	------	------	------	7.4	3.8	1.3	------	63.6
Paniqui, Tarlac[a]	------	------	------	------	------	------	------	------	------	------	------	------	------	10.2
Dagupan	------	.8	------	------	------	------	------	------	------	------	------	------	------	.8
Santo Tomas Mt., Mountain Province[a]	1.3	2.1	.3	.5	------	------	------	------	------	------	------	------	------	7
Bolinao	------	------	------	------	------	------	------	------	------	------	------	------	------	0
Baguio	27.9	10.6	.8	------	------	------	.3	------	------	------	------	------	------	52.3
San Fernando, Union	------	3.3	------	------	------	------	------	------	------	------	------	------	------	3.3
Echagüe	9.1	.8	6.6	------	------	.3	2.8	------	------	------	------	------	------	44.6
Sagada, Mountain Province[a]	------	------	1.8	------	1.8	1.8	------	------	------	------	------	------	------	35.2
Bontoc, Mountain Province[a]	------	1	------	------	------	------	------	------	------	------	------	------	------	20.3
Candon	------	------	------	------	------	------	------	------	------	------	------	------	------	1.3
Villavieja, Pilar, Abra[a]	------	------	------	------	------	------	------	------	------	------	------	------	------	1.5
Vigan	------	------	------	------	------	------	------	------	------	------	------	------	------	5.3
Tuguegarao	------	------	------	------	------	------	------	------	------	------	------	------	------	28.1
La Paz, Abra[a]	------	.3	------	------	------	------	------	------	------	------	------	------	------	11
Laoag	.3	.5	------	1.3	------	------	------	------	------	------	------	------	------	9.3
Aparri	14.7	2.5	9.8	5.6	------	3.6	.3	------	.3	------	------	------	------	92.3
Cape Bojeador	------	------	------	------	------	------	------	------	------	------	------	------	------	7.9
Santo Domingo, Batanes	1.3	21.8	3.5	------	------	------	------	3.2	------	------	------	1.4	1.4	111.8

[a] Voluntary or coöperative station.
[b] Rain in 24 hours beginning 7 a. m.

MAXIMUM AND MINIMUM TEMPERATURES AT THE STATIONS OF THE WEATHER BUREAU, FEBRUARY, 1918.

Day.	Jolo.[a]		Isabela, Basilan.		Zamboanga.		Davao.		Cotabato.		Cagayan, Misamis.		Dapitan.		Butuan.	
	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.
	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.
1	28.4	21.2	31.6	21.6	31	21.5	31.7	21.3	31.1	21.9	29.1	21.2	29.1	21.6	29.4	22.7
2	28.7	19.7	30.3	22.3	30.7	22.9	31.5	21.5	33	22.5	29.5	21.5	29.2	23.4	31.1	21.9
3	27.8	19.9	31.8	21.6	28.8	22.7	31.4	21.5	31.7	23	27.4	21.8	30.4	21.5	32.1	21.9
4	27.9	21.4	31.7	22.6	31.5	22.5	32	20.9	32.4	21.8	29.8	20.9	31.1	22.2	32	21.8
5	28.8	19.9	30.9	21.6	30	22.4	32.2	21.1	30.1	22	30	21	32.1	21.7	32.6	21.9
6	29.4	19.4	30.4	21.3	29.1	22.4	32.2	21.8	30.9	22.5	30.1	22.5	32.1	21	32.9	21.8
7	29.3	21.8?	30.6	22.3	30.6	22.6	32.1	21.5	32	22.7	29.7	21	30.7	22.4	32.2	21.5
8	29	23.4	32.9	21.3	31.6	22.5	28.7	21.9	29.5	22.7	28.5	22.2	29.9	22.9	30.9	22.2
9	28.3	23?	30.6	22.4	29.6	22.3	28.7	20	29.4	21.9	26.6	21.6	27.8	22.2	27.6	20.9
10	28.2	23.1	30.5	22.1	28	23.2	27.2	20	26.8	21.9	25.3	21.2	27	22.4	27.6	20.9
11	28.2	22.7	30.6	22.6	28.3	22	30.3	21	29.5	21.6	28	22.5	30.1	22.8	30.1	22.1
12	28.9	21	30.7	22.1	28.2	22	31.2	22	31.6	22.8	29	22	30.6	22	33.2	23.1
13	28.5	20.3	32.1	22.8	31	22.7	31.8	22.1	31.9	22.1	29.8	21.1	30.4	20.6	33.8	22.3
14	29.3	20.1	31.1	22.1	28.7	22.8	31.9	21.6	30.7	22	30.1	21.7	29.4	21.8	32.5	22.7
15	29.4	21	31.1	21.6	29.3	23.1	31.7	21.2	31	22	29.6	20.9	30.8	22	32.7	22.2
16	28.3	21.3	31.3	22.1	29.6	22.7	32.5	21.4	33	23	29.5	21.5	31	22	31.6	23.3
17	28.4	21.7	32.1	22.6	31.2	22.2	31.7	21.9	31.5	22.4	28.7	22.6	29.9	23	31.1	22.7
18	29.1	23.6	30.1	22.1	27.2	23	32.3	21.9	31.6	22.1	27.8	21.5	30.2	23.3	27.6	23.2
19	29	21.1	28.6	22.1	28.3	22.9	27.5	21.5	29.8	22.2	25	21.6	26.8	21.5	24.6	21.5
20	26.4	21.3	26.3	22.3	26.7	22	27.6	21.7	30.5	22	27.6	21	28.6	23	27.5	21.4
21	27.9	20.6	28.1	21.9	28	22	29.6	20.9	31	22	28.9	21.6	28.9	22	27.9	21.6
22	27.9	21.9	30.6	22.2	28.3	22.5	30.7	21.3	30	21	28.2	21.5	30.4	21	29.1	21.7
23	27.6	23.3	31.7	21.1	30.5	21.9	30.7	19.9	31.3	21.6	28.7	20.3	30.4	22.2	29.6	18.9
24	28.1	22.8	31.8	20.1	28	20.2	28.2	19.5	29.4	21.1	26.6	19.6	28.7	21.5	27.2	19.4
25	28.3	22.9	30.6	20.6	29	21.5	25	20.4	30.3	22.2	26.5	21	30	21.9	28.6	21.4
26	29	23.2	32.6	21.1	30.8	22.2	31.6	19	31	21.5	28.4	19.5	30.9	23.8	28.8	20.7
27	29.1	22.6?	32.1	21.6	31	22.6	32.4	20.4	31.5	22.1	30.2	20.6	31.3	23.1	31.4	21.3
28	27.9	21.7	31.6	22.6	28.5	22.5	28	21.5	29	22	30	22.6	29.5	22.1	28.4	21.8
Mean	28.5	21.6	30.9	21.9	29.4	22.4	30.4	21.1	30.8	22.1	28.5	21.4	29.9	22.2	30.1	21.7

Day.	Mambajao.		Dumaguete.		Yap, Western Carolines.		Tagbilaran.		Iwahig.		Surigao.		Maasin.		Cebu.	
	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.
	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.
1	27.1	23.2	28.6	23.6	33.2	23.8	29.5	22.5	25.2	22.2	25.9	22.9	29	22	28.2	23.2
2	28.2	23.5	29.2	23.2	33.7	23.6	30.8	22.4	27.3	22	29.3	22.8	29.9	21	28.4	23
3	28.6	22.5	28.6	22.7	33.7	24.5	29.3	23.1	29.3	22.7	28.5	22.8	31	22.2	27	23.7
4	28.7	23.6	29	24	33.8	24.3	29.9	22.7	28.3	22.3	30.4	22.4	31.5	23	29.6	23.9
5	29.4	21.6	28.5	22.8	33.2	22.6	31.7	22.5	29.5	20.6	30.4	22	32	22	30.8	23.4
6	29.1	22.2	28.6	22.2	29.7	23	30.8	22.4	30.8	20.1	28.9	22.5	32.2	22.8	30.1	23.2
7	29.1	23.2	30	22.5	33.2	22.8	30.6	21.7	30.5	20.9	31.2	22.1	32	22.5	29	23.1
8	28.6	24.4	27.9	23.3	33.2	23.4	29.7	21.7	29.7	19.4	26.8	23.9	31	22	28.3	22.3
9	24.3	22.7	27	23.1	34.1	24.7	26.9	21.4	29.5	19.1	25.3	21.8	29.1	21	26.7	21.8
10	25.3	22.3	27.1	23.4	34	24.2	26.8	22.7	27.7	19.9	25.3	22.2	27.8	20.8	26.5	23.2
11	27.6	22.8	28	23.3	33.8	24.5	30.5	22.5	31.5	20.8	26.8	22.8	29.4	21	28.8	22.2
12	28.6	23.3	27.7	22.1	33.1	24.5	29.3	21.2	28.4	20.7	29.4	23.8	31	22.4	26.2	23.2
13	28.4	22.7	28.9	21.6	33.2	23.6	29.2	20.5	29.6	20.9	29.9	23.2	32.4	21.8	29.5	20.8
14	29	24.2	29	23.7	33.3	23.6	30.4	21.7	27.7	22.3	28.4	22.8	32	22.3	30.2	23.2
15	29.1	22.2	28.4	23.7	29.7	23.5	29.7	22	30.6	21	27.9	22.7	31.5	21.8	30.2	23.8
16	29.2	24.2	29.4	23.5	33.1	23.5	31.3	22.4	31.1	22	28.7	23.3	32.5	22.6	29.5	23.8
17	29	24.5	29.6	24.5	31.9	23.5	29.6	22.5	29.9	21.6	29.4	23.6	29	21	29	23.5
18	27.3	24.2	29.7	23.8	32.1	24.1	30.6	22.5	30.2	20.1	27.9	23.4	29.3	21.4	29	24
19	24.8	21.4	27.1	22.8	28.6	23.1	27.5	21.9	27.7	20.5	24.9	22.3	30	22	28	22.5
20	25.2	21.9	27.7	21.6	31.2	23.7	28.5	21.6	28.8	20.1	25.5	22.9	32.2	21.5	28	22.7
21	27.1	23.1	27.9	21.2	30.7	24.3	28.9	22.4	28.9	20	26.1	22.2	33	20.4	27.5	22.8
22	28.1	22.3	28.9	22.7	32.4	25.1	30.7	21	30.4	19.6	28.5	22	31.5	20.8	28.9	21.9
23	28	23.2	28.4	21.3	33.2	25	29.4	18.6	29.3	18.8	27.7	20.9	31	18.8	28.9	21.4
24	27.2	21.2	28.5	22.2	33.1	25.2	29.7	19	29.1	17.5	26.6	22.1	31.6	18.5	29.5	21.7
25	27.3	21.6	28.4	23.1	33.7	24	28.6	22	30.6	18.3	27	22	31	21.5	27.9	22.5
26	28.6	23.2	29.9	23.2	33.8	23.8	31.5	21	30.4	21.3	29.6	22.8	32.5	21.6	30.8	23.5
27	29	22.6	30	23.1	33.3	23.6	30.9	21	30.1	19.9	28.7	25	32	21.8	30	22.6
28	26.7	23.7	28.5	23.6	33.1	24	29.8	21.5	30.3	17.5	26.2	22.8	31	22	29	23
Mean	27.8	22.9	28.6	22.9	32.7	23.9	29.7	21.7	29.4	20.4	27.9	22.7	31	21.5	28.8	22.9

[a] The minimum temperatures of this station seem to be too low.

Maximum and minimum temperatures at the stations of the Weather Bureau, February, 1918—Continued.

Day.	Iloilo.		San Jose Buenavista.		Cuyo.		Ormoc.		Guiuan.		Tacloban.		Capiz.		Borongan.	
	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.
	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.
1	28	22.6	30.9	22.3	27.3	23.9	26.7	22.8	26.3	22.5	24.4	21.6	25.9	22.6	26.8	22.2
2	29.7	22.8	31.7	21.8	28.4	24.3	27	23.2	25.5	23.1	23.9	22.4	27.9	22.7	25.6	22.2
3	28.8	22.9	32.7	21.4	28.9	24.4	28.4	23	30.8	22.9	27.4	22.3	29.1	23	26.1	22.1
4	31.5	23.5	31.1	22.1	29.4	24	30.9	22.2	30.5	21.8	29.9	20.9	30.6	23.2	29.8	21
5	32.1	22.5	31.1	21.5	28.3	24.1	31.6	20.4	32.3	21.6	30.6	22.4	30.5	22	30.1	21.7
6	32.7	23.2	31.2	21.5	30.8	22	31.6	20.4	30.4	20.6	31.5	20.8	30.4	22.6	29.3	20.4
7	28.9	22.7	30.3	21.5	28.9	24	30.4	20.3	29.8	22.2	27.6	22.4	27.1	23.6	27.1	21.2
8	29.4	21.7	31.7	20.5	27.6	23.6	30.8	19.9	29.2	22.5	27	21.5	28.3	23.3	28	21.3
9	28.8	21.3	29.6	18.4	26.8	23.2	30.2	19.6	26.9	22.5	26.1	21	27.9	22.6	27.6	19.9
10	26.5	23.4	29.3	23	25.7	23.7	27.9	21.9	27.5	22.2	25.9	21.5	25	22.8	25.4	22.5
11	26.7	22.8	31.3	22	26.1	23	31.5	22.5	28.7	23.2	28.8	22.4	27.4	23.5	27.3	22.6
12	27.7	22.1	28.8	22.9	25.9	24.1	31.9	23.9	27	22?	24.9	22.6	26.3	23.7	26.4	23.2
13	29.8	23.5	30.8	23.1	28.5	24.3	31.6	22.8	26.6	22.5	29	21.3	29.9	23.5	25.1	22.1
14	30.5	22.9	32	21.5	28.3	24.5	31	21.6	28.5	22.6	27.4	21.9	30	22.7	27.2	21.4
15	30	23.4	31.6	21.9	28.4	24.9	30.5	23.1	29.7	23	29.4	23.1	30	24	28.1	22
16	29.4	23.8	31.2	21.7	28.7	25.3	31	23.4	30.3	23.8	30.6	23	30.2	23.5	30.2	21
17	29.5	23	30.8	21.9	27.3	24.3	30.9	23.2	30.1	23.4	28.5	22.4	28.5	23.6	27	23
18	26.8	22.3	30.7	22.4	26.9	23.5	29.9	22.4	26.5	22.8	28	22.1	26.6	22.3	27.3	22.2
19	27	21.6	30.2	20	27.2	23.3	29.5	22.5	29.5	22.8	27.3	21.6	26.8	22	27.8	21.6
20	27.4	21	30.6	20.1	26.8	22.8	30	22.2	29	22.3	25.4	21.3	26.1	21.4	26.8	20.4
21	27.5	21.2	30.1	20.5	27.7	23	29.3	21.9	28.1	23.3	27.1	21.4	28.5	22.3	28.1	20.4
22	28.8	20.7	30.8	19.5	26.8	23.2	30	19.2	28.5	22.7	27.8	20.8	28.9	19.8	27.6	20.2
23	27.7	20.4	31.3	17.1	26.8	22.9	30.1	18	28.7	23	29.3	19.8	29.2	21.1	28.5	18
24	28.8	20.2	30.6	17	26.6	22.5	30.5	17.4	29.6	23.2	28.4	19.6	28.4	21.4	29.4	18
25	27.5	22.4	29.7	20.1	26.6	23.3	29.5	22.2	31.1	23.6	30.8	22	27.6	22.5	30.1	22.9
26	31	22.7	31.6	18.4	28.2	23.9	30.4	19.9	29.4	24.5	28.2	21.9	29.6	22.7	27.8	20.8
27	30.2	21.8	31.2	19.8	27.8	24.1	31.8	20.4	30	24.1	31.1	21.5	29.5	22.4	30	20.8
28	29.6	22.3	32.2	18.1	27.8	24	31.6	19.4	29.6	23.8	31.3	21.5	30.1	23.4	29.4	19.8
Mean	29	22.3	30.9	20.8	27.7	23.7	30.2	21.4	28.9	22.8	28.1	21.7	28.4	22.6	27.9	21.2

Day.	Catbalogan.		Calbayog.		Masbate.		Romblon.		Batag.		Sorsogon.[a]		Legaspi.		Sumay, Guam.	
	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.
	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.
1	25.6	21.6	26.8	22.1	27	22.8	27.7	21.7	24.4	21.5	25.5	20	25.3	22.3	28.9	22.2
2	25	22.2	27	22.7	27.6	22	30	22	25.8	22	27.7	20	26.9	22.4	28.6	22.2
3	27.9	22	26.2	22.6	28.6	23.2	29.9	22.9	26.1	22	28.4	20	27.4	22.6	27.8?	21.7
4	30.3	21.8	28.3	22.8	30	22.8	30	22.4	28.8	22.3	30	21	28.5	23.1	29.4	22.8
5	30	20.7	28.6	21.1	30	22.4	30.5	21.7	29.4	22.5	31.1	21.1	29.4	21.6	28.3	22.8
6	29.6	19.5	29.2	20.7	30	22	32	------	28.5	22	31	21.2	30.2	21.3	28.1	22.8
7	27.8	20.8	28.5	21.7	27	23.5	31.8	22.6	29.8	22	30	22	27.6	23.4	------	23.3
8	29.5	18.8	28.6	20.6	28.6	22.4	31.5	21.4	26.4	21.6	28.5	20.1	27.8	22.8	------	23.9
9	26.3	18.3	27.6	19.2	29.4	22.8	30.5	21.2	27.8	22	28.5	20.3	28	23	29.4	23.9
10	24.5	22.2	25	22.8	26	22.6	28.3	22.7	24.4	22.5	28	20.1	25.4	23.1	28.3	23.9
11	28.2	21.5	27.3	22.9	27	23.2	27.4	21.8	26.4	21.7	27.2	20.1	25.4	23	28.3	23.3
12	25.6	22.8	25.2	22.6	27	23.6	27.5	22.9	26.2	22.5	26.5	20	25.5	23.7	29.4?	23.3
13	25.4	21.5	25.4	22.4	28.6	22.6	29.4	22	25.8	21.3	26.7	19.5	25.3	23.6	28.3	23.9
14	26.3	20	29.2	21.2	29.6	23	32.4	22.7	25.3	22.4	27.5	20	26.8	23	27.8	22.8
15	28.3	22	28.9	22.4	29.8	23.6	32.7	22.8	26.7	22.2	27.9	20	28.8	22.9	28.4	22.4
16	29.6	20.3	31	21.4	30	23.6	32.9	22.1	29	22.8	29.8	20.6	29.8	23.5	29	25
17	27.6	22.2	26	22.7	26.6	23.8	30.7	22.4	24.5	22.5	26.2	20.2	26.1	22.5	29	23
18	28.2	21.7	26	21.6	27.6	22.2	31.5	21.9	25.6	21.6	26	19	25.1	21.3	29.4	25
19	27.3	20	26.2	20.7	25	21.2	30.3	20.3	24.3	20.3	24.5	------	24.3	21	29	23.6
20	28	20.2	26.7	20.6	27.4	20.5	30.9	20.4	26	20.3	25.5	------	26.3	20.5	30	23.5
21	27.7	18.5	27	19.8	28.8	21.6	29.7	21.4	27.3	20.4	26	------	27.1	21.4	30	24
22	27	18.3	26.6	18.6	29	21.8	30.4	19.3	26	21.6	26.5	------	26.1	19	30.8	24.6
23	28.3	16	28.1	17.4	28.8	21.8	31.9	21	27.2	21.4	27	------	26.9	21.9	30.2	23
24	27.7	15.5	29	17.7	29	22.2	30.7	20.5	27.3	21.7	27.3	20.1	27.2	21.4	29.6	24.6
25	28	21.4	26.9	22.7	24.4	21.6	27.4	22.2	27.9	22.3	28	------	24.7	22.7	29	24.2
26	28.3	19.5	28.3	21.1	29.4	21.6	30.5	22.2	27.8	23.3	28.5	20.2	28.4	23.1	28.8	24
27	29.2	18.8	31.4	20.4	28.8	22.8	30.8	21.8	28.8	22.8	28.8	20	28.8	22.9	29.8	23.5
28	28.5	17.8	31.2	19.4	31.4	22.6	32.4	21.9	28.6	22.6	28.8	21	28.9	23	30	25
Mean	27.7	20.2	27.7	21.1	28.3	22.5	30.4	21.8	26.9	21.9	27.8	20.3	27.1	22.4	29.1	23.5

[a] The minimum temperatures of this station seem to be too low.

Maximum and minimum temperatures at the stations of the Weather Bureau, February, 1918—Continued.

Day.	Calapan.		Virac.		Naga.		Batangas.		Lucena.		Atimonan.		Ambulong, Tanauan.		Canlubang, Calamba.	
	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.
	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.
1	26.5	22	27	21.2	25.1	19.1	27.2	21.5	25.8	20.7	23.9	21.5	26.3	21.5	26.8	20.6
2	30	21.5	28.7	21.5	30.3	19.6	30.3	22.4	28	21	25.9	22.7	29.1	22	28	20.4
3	30.5	22.5	28.8	21.3	27.5	20.6	30.8	21.8	27.5	21.9	24.9	22.2	30	22	29.4	20.9
4	30.1	22.5	29.8	22	31.3	20.4	31.4	22.5	31.2	22.2	27.4	22	31.8	21.6	30.2	21.3
5	30	20.9	30.7	19.5	32	17.6	31	20.9	31.2	19.9	29	20.5	31.8	21	31	20.2
6	30.5	21	30	19.7	31.8	19.7	31.2	20	31.2	20.9	28.2	21	32.3	21	31.9	20.2
7	31.1	23.6	30	20	28.6	20.4	31.2	21	31.9	21	24.9	22.7	29.3	21.8	29	20.4
8	29	21.5	30.7	20.3	28.5	18.4	30.2	19	26.8	19.7	24.3	21.4	28.3	21.2	27.8	19.6
9	26	20.5	29.7	19	27.7	18.4	26.2	16.5?	24.7	20.1	24.5	21.2	27.1	21	26.1	19.8
10	30	21.5	27.6	21.5	24.5	20.3	27.3	19.7	26.2	20.6	24.4	21.5	29.2	22.3	27	21.9
11	27	21	27.5	21.1	28.2	19.8	27	20.4	26	20.2	24	22	26.9	21.7	25.9	21
12	27.9	21.1	26.5	22	24.6	21	25.8	21	24	21.2	23.9	22.3	25.3	21.5	26.4	20.5
13	30.1	22.5	27.5	21.4	28.5	19.2	30.1	21.5	27.5	21.6	25.4	22.8	30.5	22	28.2	21.4
14	30.2	22.1	29.6	20.9	30.8	18	32.6	22.7	30.3	22.6	27.5	23.4	34.1	21	31	20.6
15	31	22.5	30.5	20.7	30.7	21.3	32	21	30.7	22.6	27	23	34.3	20.6	32	19.4
16	31	22.5	29.5	20.5	29.9	21	28.4	21.4	26.7	22.6	24.6	22.4	27.8	22.6	28.4	21.9
17	30	22.5	28.1	20.8	25.6	20.4	27.7	21.3	26	20.9	24.4	21.6	29.2	22	28	21.7
18	29.6	22.4	26	20.3	25.4	18.4	26.3	17.6	25.4	20.5	24	20.5	27.7	21	26.4	20.4
19	27.6	20	25	19	24.2	17.5	26.4	19.9	24.6	19.1	22.6	19.5	25	20.3	25.4	20
20	29.6	20	26.2	19.1	25.7	17.2	28	19	25.4	18.6	22.9	19.5	28.1	20	26.8	19.4
21	28.5	19.5	29	19.6	28.4	17.5	30.4	18	27.6	20.5	24.9	20.7	30	19.5	28.8	19.8
22	29.5	18.4	27.7	19.2	28.2	14.6	27.8	16	24.1	18.6	23.7	20.6	28.1	17.5	27.8	16.2
23	27.6	19	29	20	28.2	18	29	18.5	26.5	18.8	24.3	20.4	28.6	20.4	27.8	20.6
24	27.6	21	30	19.5	26.9	17.7	30.6	14.3	28	18.6	23.8	20.5	29	19.8	28.1	17.8
25	29.5	20.5	28	21.5	27.2	19.5	28.2	20.7	26.7	21.2	23.8	21.5	28.8	22	28.7	21
26	26.6	21.7	30	21.7	29.6	18.9	31.3	21.4	28.1	20.9	25.6	22.5	30.5	21.8	30	21.1
27	29.8	21	29.6	20	28.9	19	31.9	19.4	29.4	21	26	22.8	33.3	20.9	31.9	20.8
28	29.5	22.5	32	19.7	29.2	20.5	32.9	18.2	29.1	21.6	26.4	22.5	31.5	22.3	30.4	20.6
Mean	29.2	21.3	28.7	20.5	28.1	19.1	29.4	19.9	27.5	20.7	25.1	21.6	29.4	21.2	28.5	20.3

Day.	Paracale.		Santa Cruz, Laguna.		Manila.		Antipolo.		Iba.		San Isidro.		Tarlac.		Baler.	
	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.
	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.
1	24.3	21.8	25.8	21	26.4	20.5	29.2	20.3	30.3	21.8	26.8	18	29.9	20	25.1	20.2
2	28.2	23	27.3	21.7	28.8	20.8	28.6	21.3	30.3	19.5	30.4	20	31	19.2	27	20
3	25.4	23.1	28.2	22.2	29.8	20.1	31.3	20	30.8	20.6	31	20.7	34	19.4	25.3	20.8
4	27.5	22.6	30.1	22.2	32.3	21.1	32.3	20.1	31.4	19.2	31.2	20.7	33.6	20.6	26.9	21.9
5	28.7	21	30.9	20.4	30.4	20.7	32.2	19.3	30.4	22.2	32.9	21.9	34.8	20.2	30	20.9
6	28.7	20.9	31.9	20.7	31.2	21.6	32.9	20.6	31.3	18	31.9	22	33.2	21.4	29.3	21.5
7	25.2	23	26.9	21.5	29.5	18.6	30.3	19	29.1	13.2?	30.1	18.6	32.5	17	28	19.4
8	26.9	21.3	26.8	20.7	29	17.3	29.3	17.4	31.3	20	29.2	17	33.5	17.2	27.3	17.6
9	24.8	21.4	24.9	20.8	26.6	17.8	27.7	16.6	29.6	20.6	28	18.3	32.5	16.7	27.5	18.2
10	24.1	22.3	26.6	22.3	28.5	19.4	29.4	20.7	31	20.1	29.9	17.2	31.2	20.3	26.6	20.2
11	24.4	22.5	25.3	21.3	26.5	20	25.2	19.3	32.2	21.5	27.4	18.9	30.4	19.4	25.5	19.8
12	24.8	22.5	25.1	21.7	29.1	21.7	28.2	18.9	30.3	21.6	29	21.4	32.5	21.3	25	21
13	26.9	22.7	28.4	22.1	30.2	21.3	30.8	20.2	30.7	21.7	29.6	21.4	33	21.7	24.9	20.3
14	28.8	22.7	30.2	21.8	31.6	20	32.2	19.5	31.7	21.1	32.4	21.3	33.2	21.4	26.2	21.3
15	28.2	22.8	32	20.5	31.4	20.3	33	19.3	31.1	21	34.1	21.2	34.5	21.7	28.6	21.6
16	25.2	21.9	25.6	22.8	30.8	22.4	30.7	20.3	31.3	19.7	30.2	21.5	33	22	28.2	21.4
17	24.1	22	26.5	21.5	30	21.2	30.2	19.3	31.6	22.9	29.9	20.3	32.8	17.6	27.7	20.7
18	24.8	21	25.6	21.2	27.1	20.4	28.6	19.6	25.3	19	25.6	20.6	25.9	19.4	25.7	19.4
19	22.2	19.6	24.3	20.5	28.9	19.4	28.5	19.3	27.6	20.6	27.1	18.6	27.2	19.4	24.4	17.6
20	23.8	20.5	25.1	19.5	27.3	18.1	28.4	16.2	29.3	19.6	27.8	18	29.9	18.7	24.4	17.7
21	25.8	20.8	27.3	20.1	26.7	17	27.6	16.8	29.8	20	28.5	16.6	30	16.6	27.2	17.7
22	26.8	20	25.3	17.8	28	16.2	28.7	15.4	29.5	17.2	29.2	15.8	32.5	17	25.6	19.3
23	24.8	20.1	27.1	20.2	28.7	19.6	28.9	18	29.9	18	28.7	16.9	32.5	16.7	27.2	17.6
24	24.2	21.7	26.5	19.3	30	15.7	29.2	16.8	30.6	18.2	30.5	15.5	32.8	16.8	28	15.9
25	24.2	22	26.8	21.3	28.8	18	31.6	17.3	29.8	16.4	31	17.3	33	17.8	28.5	20
26	27.8	22.6	28.4	21.1	31.8	20.4	31.7	19.9	30.9	19.5	31.4	19.8	34.5	20	27.5	20.5
27	27.3	22.4	30.7	19.3	31.4	17.3	33.2	16.8	30.9	17	33.1	18.1	36.2	17.5	28.4	21.7
28	28.4	22.8	29.6	21.1	31.6	18.3	32.5	17.8	30.3	17.8	32	19.8	35.6	19.8	28.5	21.5
Mean	25.9	21.8	27.5	21	29.4	19.5	30.1	18.8	30.3	19.6	30	19.2	32.3	19.2	26.9	19.8

Maximum and minimum temperatures at the stations of the Weather Bureau, February, 1918—Continued.

Day.	Dagupan.		Bolinao.		Baguio.		San Fernando, Union.		Echagüe.		Candon.	
	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.
	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.
1	29.6	20.7	31.4	21.6	18.1	11.6	29.7	20.6	22.2	17.3	32.5	22
2	30	21	32.4	23.3	21.1	12.6	30	20.5	26.6	18.3	32.4	21.6
3	30.5	20.4	32.7	21.6	25.1	13.7	30.1	20	31.1	19.2	32	22
4	31.6	20.5	32.9	20	22.7	14.5	30.8	20	32	20.7	32.5	21.7
5	30	23.5	32.7	24.8	23.3	14	31.2	22	31.5	21.5	33	21
6	28.6	23.1	30.8	23.9	22.3	12.5	29.5	22	30	21	31.5	22
7	29.5	18	30.9	22	22.3	10.4	30.6	15.4	25	19	31.4	17.5
8	32.5	20	30.8	20.3	20.4	10.4	31.3	17.1	24.4	18.3	31.9	19.9
9	29	19.4	30.7	20.3	21.8	9.9	29.3	18	25.5	18	32	20
10	31	20.3	28.6	20	22.8	11.7	29	17.4	24.6	18.5	29.4	
11	29	20.1	30	20.9	20.8	12.6	29.5	19.5	21.5	18.3	31	20.6
12	34	22.1	30.9	22	22.3	13	31.4	21.5	24.4	18.7	33	20.5
13	31.6	23	33	23.2	20.5	14.1	30.8	22	24.4	18.8	31.6	23.2
14	32.9	22.5	32.3	23.2	23.3	14.3	31.4	23.5	29.4	20.3	31.5	24
15	30.4	23	31.5	24.6	22.3	14.4	30.5	21.3	31.2	20.6	32	23.5
16	34.4	22	31.6	24.5	23.8	12.3	31.1	21.3	24.4	18.9	33.9	23.6
17	27.5	21.7	30	23	17.8	11.6	31.6	21.1	23.6	17.4	32	23
18	29	19.6	29.9	20.5	16.6	8.8	28.5	20.5	20.5	16.9	32.4	21
19	28.5	18.9	29.4	17.7	17.3	8.4	27.3	18.5	20.6	15.1	30	20
20	29.4	19.3	30.2	19.6	18.3	9.1	27.8	18.8	22.9	15.8	30	20.1
21	30	18.5	31	20.2	18.5	10.6	28.1	17.3	25	16.9	30.9	21
22	29.1	18.1	30.5	21	20.3	10.4	30	18.1	24.9	17.8	30.5	20
23	32	19.5	31.3	18	20	9.6	28.9	16.6	26.4	17.3	31	19.9
24	32	18.6	31	20.5	19.6	9.1	29.2	16.5	28	14.2	32.4	19.5
25	31	18.1	31.5	17.4	24.3	9.9	29.7	17	27.5	19.1	32.5	19.9
26	32.5	20.3	33.9	19.3	23.9	12.9	31.1	20	32	19.5	32.5	20.5
27	35.2	19.7	32	21.5	25.2	12.9	32.5	18.3	32.7	18.7	32.6	21.5
28	35	20.9	31.9	20	23.8	14.4	30.9	19.5	31	20.5	32.5	22
Mean	30.9	20.5	31.3	21.2	21.4	11.8	30.1	19.4	26.5	18.4	31.8	21.2

Day.	Vigan.		Tuguegarao.		Laoag.[a]		Aparri.		Cape Bojeador.		Santo Domingo, Batanes.	
	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.
	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.
1	30.1	20	21.8	17.5	28.9	19.4	22	18	24.6	17.2	23.2	16.4
2	29.5	20.5	25.7	18.4	33.7	19.1	24.8	18.2	28	20.4	24.4	19
3	30.6	20	31.2	18.5	33.9	19	28.5	19.5	28.6	22.2	26.7	20.6
4	31.8	21.1	33.8	20.3	34.6	20.5	31.5	20.4	28.6	22.6	26.4	21.6
5	29.9	22.1	32.7	21.5	30.9	21.2	28.9	21.8	27.8	22.6	26.3	20.6
6	28.7	20.4	31	20.2	29.8	17.3	28.3	21.7	26.8	20.8	24.4	19.4
7	29.7	18.1	25.6	18.9	31	17	26.3	21	25.4	19.8	22.2	19
8	29.2	19.7	25.8	17.4	32.4	14.1	26.8	19.1	25	19.8	23.7	18.9
9	30.2	21.1	26.6	16.8	32.8	12.8	26.2	18.4	26.2	19.2	23.7	19
10	28.9	22.4	24	16.6	29.5	16	24.6	18	25.4	20.2	24.9	19.6
11	30.6	20.5	24.7	16.3	35	14.3	25.5	17.8	27.6	19.4	23.4	20.5
12	31.6	24	25.6	19.8	34.2	20.9	24.2	20.3	26	20.2	24.2	19.9
13	31.3	23.7	26	19.7	35.8	21.3	23.9	20	27	21.6	22.6	19.2
14	30.6	23.2	30.2	20.7	33.9	21	25.3	20.8	29.4	21.2	22.8	18.5
15	28.6	22.8	29.4	20.2	30.1	21.6	25	20	23.8	20.8	21.6	18.8
16	32.2	21.7	25.6	19	31	21.6	21.5	19	24	18.6	20.3	16.5
17	27.8	21	23.7	18.6	27.2	19.8	21.3	18.3	23.4	18	21.9	17.2
18	27.2	18.6	22	16.3	28.6	18.4	20.4	16.5	20.6	16.8	17.8	15.4
19	29.3	18	21.6	15.8	30	17.5	20.1	15.8	21.4	15.2	21.4	15.4
20	28.1	19.3	21.6	15.6	30	16.5	22.1	14.8	24.4	16.4	23	15.4
21	29.2	20	25.8	16.5	32.6	18.1	22.5	16.8	26.4	18.2	23.9	16.2
22	29.6	18.8	28.5	18	33.4	15.2	25.6	18.1	25.4	19.2	24.4	16.5
23	30.8	21.5	26.3	14.6	33.7	12.7	26	15.3	26.6	19.4	23.4	17.3
24	30.3	20.4	25.8	15	34.5	12.5	24.2	15	26	18.2	24.6	18.5
25	30.9	20.4	29.6	18.2	33.7	14.8	24.6	17.3	28.2	18.4	25	17.3
26	31	20.7	32.7	18.2	34.4	17.4	28.9	17.3	29.8	20.2	26.7	18.4
27	30.6	21	33.8	19.5	33.9	18.5	29.3	18	30.6	21.2	27	19.5
28	30.5	21.6	30.3	19.5	35.1	19.3	27.7	20.7	28.4	21.2	25.1	19.7
Mean	29.9	20.8	27.2	18.1	32.3	17.8	25.2	18.5	26.3	19.6	23.8	18.4

[a] The maximum temperatures of this station are not very reliable: they seem to be too high.

SEISMOLOGICAL BULLETIN FOR FEBRUARY, 1918.

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EARTHQUAKES FELT IN THE PHILIPPINES.[1]

1, $10^h\ 46^m$ [1, $18^h\ 46^m$]. **Surigao** (NE Mindanao). Oscillatory earthquake, direction W–E, intensity III, short duration. It was recorded at Butuan; the origin lay S of Leyte.

4, $3^h\ 34^m$ [4, $11^h\ 34^m$]. **Dapitan** (NW Mindanao). Oscillatory earthquake of intensity III. Recorded at Butuan. Presumably it originated inside of the district of Dapitan, because it was also felt at Tukuran about 80 kilometers distant to the SSE on the Illana Bay.

4, $16^h\ 55^m$ [5, $0^h\ 55^m$]. **Naga** (SE Luzon). Earthquake shock of intensity III, duration 4 seconds.

7, $5^h\ 22^m\ 44^s$ * [7, $13^h\ 22^m\ 44^s$]. **E Mindanao.** Earthquake of great extension and long duration. Its intensity reached degree VI–VII through the eastern portion of Mindanao corresponding to the districts of Agusan, Davao, the central and southern part of Surigao. Towards the west it was fairly perceptible as far as Dapitan about 400 kilometers distant from the eastern coast. The origin seems to have been in the Pacific Deep near to the parallel 8° N, at a distance of about 950 kilometers from Manila and 2,200 from Guam. It was a real macrosism recorded throughout the world.

13, $9^h\ 05^m\ 37^s$ * [13, $17^h\ 05^m\ 37^s$]. **Legaspi** (SE Luzon). Oscillatory earthquake, direction NE–SW, intensity III, duration 3 seconds.

15, $2^h\ 34^m\ 32^s$ * [15, $10^h\ 34^m\ 32^s$]. **Aparri** (NE Luzon). Earthquake shock of intensity III.

17, $8^h\ 07^m\ 20^s$ * [17, $16^h\ 07^m$ 20]. **Palanoc** (Masbate Island). Oscillatory earthquake, direction W–E, intensity III, duration 6 seconds, originated W of the island.

19, $6^h\ 09^m$ [19, $14^h\ 09^m$]. **Baguio** (W Luzon). Earthquake shock of intensity II–III.

22, $12^h\ 33^m$ [22, $20^h\ 33^m$]. **Samar Island.** Earthquake of intensity III–IV felt in the central part of the island and specially toward the Pacific coast. The records of Butuan place the origin at a distance of 280 kilometers, and show a light repetition from the same origin at $12^h\ 41^m$ [$20^h\ 41^m$].

23, $11^h\ 40^m$ [23, $20^h\ 40^m$]. **Yap** (Western Carolines). Earthquake of intensity III; with subterraneous rumbling, degree II Davison scale.

23, $13^h\ 30^m$ [23, $21^h\ 30^m$]. **Surigao** (NE Mindanao). Oscillatory earthquake of intensity II–III.

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[1] **The intensity of earthquakes is given in the notation known as the Rossi-Forel scale. The time is that indicated by the seismographs at the Central Observatory whenever the disturbance has been registered by them. This fact is denoted by an asterisk (*). Otherwise the time is that noted by the observer who sent the report. All time indications are in Greenwich mean time (midnight=0^h), insular time being added in brackets for the convenience of Philippine readers.**

24, 9h 02m 38s * [24, 17h 02m 38s]. **Cape Bojeador** (NW Luzon). Earthquake of intensity III, duration 5 seconds. Origin under the China Sea.

24, 11h 23m [24, 19h 23m]. **Dapitan** (NW Mindanao). Earthquake shock of intensity II–III.

24, 18h 30m [25, 2h 30m]. **Cuyo Island.** Oscillatory earthquake, direction E–W, intensity III–IV, duration 8 seconds.

25, 10h 30m [25, 19h 30m]. **Yap** (Western Carolines). Earthquake of intensity II–III.

27, 9h 54m 42s * [27, 17h 54m 42s]. **Mindanao.** Earthquake of intensity I–II recorded at Butuan and Mambajao and felt by few persons at rest. The origin lay at a distance of over 1,200 kilometers from Manila toward the S or SE of Mindanao.

27, 21h 35m [28, 5h 35]. **Butuan** (N Mindanao). Oscillatory earthquake, direction SW–NE, intensity III, duration 7 seconds.

28, 8h 49m [28, 16h 49m]. **Surigao** (NE Mindanao). Earthquake of intensity III. Recorded by the seismograph at Butuan; origin in the Pacific.

RECORDS OF THE MICROSEISMOGRAPH.

[Time: Greenwich mean. Midnight=0h. Instrument: Wiechert seismograph; 1,000 kilograms. A_N: T_o=5.9, ϵ=2.340, $\frac{r}{T_o^2}$=0.024; A_E: T_o=5.3, ϵ=1.783, $\frac{r}{T_o^2}$=0.092. Alluvium. 2.40 meters above sea level.]

No.	Date.	Character.	Phase.	Hour.	Period.	Amplitude. A_N μ	Amplitude. A_E μ	Remarks.
				h. m. s.				
63	2	Iv	eP	5 05 32				
			F	08				
64	4	I	e	18 07 22				
			F	36				
65	6	Iv	eP	17 58 36				
			F	18 03				
66	7	Iv	eP	2 00 35				
			L	00 47				
			M_N	00 52	3	109		
			M_E	00 52	3		98	
			F	06				
67	7	IIIv	iP	5 22 44				E Mindanao.
			iL	24 26				
			M_N	25 10	5	1,333		
			M_E	25 21	4		942	
			F	7 33				
68	7	Iv	eP	22 07 00				
			F	13				
69	8	Iv	eP	4 34 58				
			F	38				
70	9	Iv	eP	5 44 06				
			F	47				
71	9	Iv	eP	13 35 46				
			F	38				
72	9	Ir	e	20 51 48				
			F	21 22				
73	10	IIv	eP	10 30 24				
			L	32 30				
			M_E	32 37	4		205	
			M_N	32 42	4	101		
			F	11 03				
74	10	Iv	eP	18 12 06				
			F	15				
75	12	Ir	e	3 06 48				
			F	31				
76	12	Iv	eP	11 36 36				
			F	39				

Records of the microseismograph—Continued.

No.	Date.	Character.	Phase.	Hour.	Period.	Amplitude. A_N μ	Amplitude. A_E μ	Remarks.
				h. *m.* *s.*				
77	13	Ir	eP	2 37 28				
			S	42 40				
			L	46 44				
			M_E	48 46	14		18	
			M_N	50 42	14	21		
			F	3 34				
78	13	IIIr	eP	6 09 29				Swatow, China. L and maxima in both components lost by the force of the shocks, the pens being thrown out.
			S	11 50				
			F	8 20				
79	13	Ir	eP	8 29 54				China.
			S	32 02				
			L	33 50				
			M_E	34 00	13		27	
			M_N	34 34	13	32		
			F	57				
80	13	Iv	eP	9 05 37				Legaspi (SE Luzon).
			L	06 15				
			F	09				
81	13	IIr	eP	20 28 18				Swatow, China.
			S	30 38				
			L	31 54				
			M_E	32 28	15		87	
			M_N	32 57	14	151		
			F	21 19				
82	13	Ir	eP	22 04 38				
			S	07 02				
			L	09 00				
			F	40				
83	14	I	e	2 51 25				
			F	3 09				
84	14	Iv	eP	11 51 06				
			F	54				
85	15	Iv	eP	2 34 32				Aparri (NE Luzon).
			F	39				
86	16	Iv	eP	2 53 52				
			F	56				
87	17	Iv	eP	8 07 20				Palanoc (Masbate Island)..
			F	12				
88	18	Iv	eP	8 30 11				
			F	33				
89	18	Iv	eP	9 56 25				
			F	59				
90	19	Ir	e	16 30 00				
			F	17 10				
91	22	Iv	eP	16 42 34				
			F	44				
92	23	Iv	eP	6 07 06				
			F	10				
93	24	Iv	eP	9 02 38				Cape Bojeador (NW Luzon).
			F	05				
94	25	Iv	eP	11 05 18				
			F	08				
95	25	Iv	eP	11 18 56				
			L	19 14				
			M_N	19 15	3	30		
			F	23				
96	27	Iv	eP	9 48 38				
			F	53				
97	27	I	eP	9 54 42				S or SE Mindanao.
			S	57 02				
			M_N	59 38	13	17		
			F	10 40				

TEMBLORES DE TIERRA SENTIDOS EN FILIPINAS.[1]

1, $10^h\ 46^m$ [1, $18^h\ 46^m$]. **Surigao** (NE de Mindanao). Temblor oscilatorio, dirección W–E, intensidad III, duración corta. Registrado en Butúan, el origen se hallaba hacia el S de Leyte.

4, $3^h\ 34^m$ [4, $11^h\ 34^m$]. **Dapitan** (NW de Mindanao). Temblor oscilatorio de intensidad III. Registrado en Butúan. Es probable que se originó dentro del distrito de Dapitan, pues fué también sentido en Tukuran, unos 80 kilómetros al SSE en la bahía Illana.

4, $16^h\ 55^m$ [5, $0^h\ 55^m$]. **Naga** (SE de Luzón). Temblor de tierra de intensidad III, duración 4 segundos.

7, $5^h\ 22^m\ 44^s$ * [7, $13^h\ 22^m\ 44^s$]. **E de Mindanao.** Terremoto de grande extensión y duración. Llegó a intensidad VI–VII en toda la parte oriental de Mindanao comprendida por los distritos de Agusan y Dávao y la parte central y S de Surigao; hacia el W fué bien perceptible hasta el distrito de Dapitan distante sobre 400 kilómetros de la costa oriental. Originóse en el Abismo del Pacífico cerca del paralelo 8° N, a unos 950 kilómetros de Manila y 2,200 de Guam. Fué un verdadero macrosismo registrado en todo el globo.

13, $9^h\ 05^m\ 37^s$ * [13, $17^h\ 05^m\ 37^s$]. **Legaspi** (SE de Luzón). Temblor oscilatorio, dirección NE–SW, intensidad III, duración 3 segundos.

15, $2^h\ 34^m\ 32^s$ * [15, $10^h\ 34^m\ 32^s$]. **Aparri** (NE de Luzón). Temblor de tierra de intensidad III.

17, $8^h\ 07^m\ 20^s$ * [17, $16^h\ 07^m\ 20^s$]. **Palanoc** (Isla de Masbate). Temblor oscilatorio, dirección E–W, intensidad III, duración 6 segundos. Originado al W de la isla.

19, $6^h\ 09^m$ [19, $14^h\ 09^m$]. **Baguio** (W de Luzón). Temblor de tierra de intensidad II–III.

22, $12^h\ 33^m$ [22, $20^h\ 33^m$]. **Isla de Sámar.** Temblor de tierra de intensidad III–IV, sentido en la parte central de la isla principalmente cerca de la costa del Pacífico. Los registros de Butúan colocan el origen a unos 280 kilómetros de distancia y contienen una repetición débil del mismo origen a $12^h\ 41^m$ [$20^h\ 41^m$].

23, $11^h\ 40^m$ [23, $20^h\ 40^m$]. **Yap** (Carolinas Occidentales). Temblor de tierra de intensidad III. Con ruido subterráneo grado II de Davison.

23, $13^h\ 30^m$ [23, $21^h\ 30^m$]. **Surigao** (NE de Mindanao). Temblor oscilatorio de intensidad II–III.

24, $9^h\ 02^m\ 38^s$ * [24, $19^h\ 02^m\ 38^s$]. **Cabo Bojeador** (NW de Luzón). Temblor de tierra de intensidad III, duración 5 segundos. Originado en el Mar de la China.

24, $11^h\ 23^m$ [24, $19^h\ 23^m$]. **Dapitan** (NW de Mindanao). Temblor oscilatorio de intensidad II–III.

24, $18^h\ 30^m$ [25, $2^h\ 30^m$]. **Isla de Cuyo.** Temblor oscilatorio, dirección E–W, intensidad III–IV, duración 8 segundos.

25, $10^h\ 30^m$ [25, $19^h\ 30^m$]. **Yap** (Carolinas Occidentales). Temblor de tierra de intensidad II–III.

27, $9^h\ 54^m\ 42^s$ * [27, $17^h\ 54^m\ 42^s$]. **Mindanao.** Temblor de tierra de intensidad I–II, registrado y sentido por algunas pocas personas en reposo, de Butúan y de Mambajao. El origen de este temblor se hallaba a más de 1,200 kilómetros de distancia de Manila hacia el S o SE de Mindanao.

27, $21^h\ 35^m$ [28, $5^h\ 35^m$]. **Butúan** (N de Mindanao). Temblor oscilatorio dirección SW–NE, intensidad III, duración 7 segundos.

28, $8^h\ 49^m$ [28, $16^h\ 49^m$]. **Surigao** (NE de Mindanao). Temblor de tierra de intensidad III. Registrado por el sismógrafo de Butúan, origen en el Mar Pacífico.

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[1] La intensidad de los terremotos se indica conforme a la conocida escala de Rossi-Forel. Cuanto a la hora de su ocurrencia, adoptamos la indicada por los sismógrafos de esta Observatorio siempre que los hayan registrado, distinguiéndola por medio de un asterisco (*). En caso contrario copiamos la apuntada por los observadores que nos envían las notas. Todas las indicaciones del tiempo se refieren al tiempo medio de Greenwich (medianoche $=0^h$). Para conveniencia de los lectores de Filipinas se añade también el tiempo insular.

THE GOVERNMENT OF THE PHILIPPINE ISLANDS

WEATHER BUREAU

MANILA CENTRAL OBSERVATORY

BULLETIN FOR MARCH, 1918

PREPARED UNDER THE DIRECTION OF

REV. JOSÉ ALGUÉ, S. J.

DIRECTOR OF THE WEATHER BUREAU

MANILA
BUREAU OF PRINTING
1918

METEOROLOGICAL BULLETIN FOR MARCH, 1918.

By Rev. JOSÉ CORONAS, S. J.,
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GENERAL WEATHER NOTES.

Pressure and temperature.—The mean atmospheric pressure for this month in the Philippines is higher than that of the preceding year, although in most of our stations it is slightly below the March's normal. The highest pressures were generally observed on the 3d, while the lowest were observed on the 24th or on the 8th to 9th.

The mean monthly temperature was somewhat lower than both the normal of this month and the monthly mean for March, 1917. The highest and lowest temperatures of the month in Manila were 34.8° C. on the 26th, and 17.5° C. on the 4th. The extreme monthly temperatures for Baguio were 25.9° C., 11.7° C. on the top of Mirador, and 25.7° C., 10.4° C. in the valley.

PRESSURE AND TEMPERATURE AT THE FIRST AND SECOND CLASS STATIONS FOR MARCH, 1918.

Station.	Pressure.							Temperature.						
	Mean.	Departure from March, 1917.	Departure from normal.	Highest mean.	Day.	Lowest mean.	Day.	Mean.	Departure from March, 1917.	Departure from normal.	Highest.	Day.	Lowest.	Day.
	mm.	*mm.*	*mm.*	*mm.*		*mm.*		*°C.*	*°C.*	*°C.*	*°C.*		*°C.*	
Zamboanga	759.22	+1.22	-------	760.88	3	758.19	24	25.6	—1.0	-------	31.7	23	20.2	15
Tagbilaran	59.32	+ .54	—0.16	61.60	3	58.16	24	25.3	— .8	—1.0	32.2	22	20.5	19, 21
Surigao	59.47	+ .77	— .18	61.73	18	58.05	8	25.1	—1.3	— .8	31.3	13, 15	20.9	2, 28
Cebu	59.58	+ .85	— .16	61.67	3	58.15	8	26.2	—1	— .6	31	26	22	18
Iloilo	59.55	+1.09	+ .04	62.23	3	58.25	9	25.9	—1	— .8	32.7	14	21.3	21
Tacloban	59.67	+ .69	— .53	62.07	18	57.70	8	25.4	— .8	— .9	32.4	25	21.2	20
Capiz	60.01	+ .77	— .19	62.84	3	58.22	9	25.9	—1.2	— .7	32.4	26	21.3	19
Calbayog	59.89	+ .69	— .27	62.26	18	57.80	9	24.7	—1.1	— .8	32	28, 31	18.8	20
Legaspi	60.41	+ .90	— .07	63.52	3	57.71	9	25.4	— .9	—1.1	30.8	25, 26	18.7	1
Atimonan	60.81	+1.10	+ .21	64.37	3	58.89	24	24.8	—1.4	—1.6	31.1	26	19.6	22
Ambulong, Tanauan	59.93	+1.08	-------	63.09	3	58.02	24	26	—1.2	-------	34.9	27	18	19
Paracale	60.90	+ .87	-------	64.54	3	58.72	9	24.8	—1.3	-------	30.4	26	18.6	22
Manila	60.40	+ .88	— .11	63.63	3	58.40	24	25.2	— .8	—1.4	34.8	26	17.5	4
San Isidro	60.68	+1.08	+ .14	64.16	3	58.41	24	25.4	—1.2	—1.3	36	26	17.5	3, 8
Dagupan	59.75	+1	— .24	62.88	3	57.42	24	26.3	—1.2	— .8	35.1	6, 23	19.8	2, 18, 24
Baguio[a]	637.39	+ .35	— .20	639.65	3	635.89	24	17	— .8	— .8	25.9	25	11.7	4
Vigan	759.97	+ .83	— .32	762.95	3	757.78	24	26.2	—1	— .6	34.6	2	19	16
Tuguegarao	61.34	+ .70	+ .36	65.88	3	57.51	24	24.6	— .8	—1.4	37.5	25	17.3	8
Laoag	60.06	+ .90	-------	63.21	3	57.68	24	26.3	— .6	-------	-------	-------	15.7	7
Aparri	61.72	+ .56	+ .41	66.45	3	57.69	24	23.9	0	— .9	32.2	21, 29	18	1

[a] The barometric readings of this station are not reduced to sea level.

Rainfall.—With a few exceptions the total rainfall for this month has been greater than the March's normal, and in most of the stations greater also than that of the preceding year, the differences being very remarkable in northeastern Mindanao and the eastern Visayas. The attention of our readers is called particularly to the monthly rainfall of Surigao, Borongan, Tacloban, Guiuan and Maasin as shown in the following table:

RAINFALL AT VARIOUS STATIONS OF THE WEATHER BUREAU DURING THE MONTH OF MARCH, 1918.

Station.	Total.	Departure from Mar., 1917.	Departure from normal.	Days of rain.	Departure from Mar., 1917.	Greatest rainfall in a single day.	Day.	Station.	Total.	Departure from Mar., 1917.	Departure from normal.	Days of rain.	Departure from Mar., 1917.	Greatest rainfall in a single day.	Day.
	mm.	*mm.*	*mm.*			*mm.*			*mm.*	*mm.*	*mm.*			*mm.*	
Jolo	142.3	+ 47.3	+ 64.5	16	+ 2	50	5	Sumay, Guam	76.7	+ 34.7	— 2.5	14	+ 8	15.2	27
Isabela, Basilan	91.1	+ 13.8	+ 37.5	17	+ 7	20.8	24	Calapan	83	— 9	+ 7.8	13	— 5	55.1	15
Zamboanga	79.9	+ 4.4	+ 47.9	14	+ 4	26.9	27	Virac	200	— 78.5	+ 47.1	15	—11	65.8	9
Davao	150.4	+ 4.5	+ 4.3	12	+ 1	26.2	31	Naga	61.1	— 64.5	— 5	15	— 3	35.8	8
Cotabato	126.6	-------	+ 51.4	15	-----	26.9	26	Batangas	10.4	— 5.1	+ 3.1	3	0	7.1	9
Cagayan, Misamis	51.5	+ 47.6	-------	9	+ 6	14.2	3	Lucena	28.5	— 47.8	-------	7	— 6	8.1	13
Dapitan	164.2	-------	+ 86.3	19	-----	41.7	1	Atimonan	130	—100.9	+ 44.4	16	— 1	56.4	8
Butuan	226.8	+ 55.1	+ 59.9	20	— 2	74.2	3	Ambulong, Tanauan	11.5	— 6.5	-------	4	0	7.3	10
Mambajao	313.9	+269.1	-------	11	+ 3	78.7	2	Canlubang, Calamba	40.9	— 15.4	-------	9	0	24.1	10
Dumaguete	103.8	+ 66.4	-------	12	+10	24.6	28	Paracale	181.4	—157.6	-------	20	— 4	40.1	8
Yap, Western Carolines	104.4	— 68.7	— 52.4	22	+ 4	26	17	Santa Cruz, Laguna	25.3	— 59.8	-------	9	— 6	7.1	31
Tagbilaran	83.9	-------	+ 10.3	9	-----	41.4	29	Manila	27.8	— 19.8	+ 9	3	— 6	25.9	10
Iwahig	92.4	+ 48.1	-------	10	— 2	35.6	27	Antipolo	13.1	— 16	-------	4	— 5	6.9	10
Surigao	680	+439.4	+382.6	22	— 5	161.9	2	Iba	64.3	+ 13	+ 35.1	3	0	43.2	13
Maasin	495.4	+393.7	+361.8	10	+ 2	187.9	2	San Isidro	70.9	+ 27.8	+ 55.7	5	— 1	28.5	10
Cebu	106.9	+ 67.7	+ 50.2	13	+ 3	17	3	Tarlac	9.1	— 13.8	— 10.1	5	+ 1	4.8	11
Iloilo	30.7	+ 16.9	+ 1.1	10	+ 4	7.8	2	Baler	283.4	+ 18.9	+ 82	17	— 6	91.9	27
San Jose Buenavista	46.3	+ 41.2	+ 29.1	9	+ 4	21.6	13	Dagupan	51.5	+ 34.9	+ 23.5	3	0	27.4	11
Cuyo	24.7	+ 18.1	+ 21.2	6	+ 4	20.3	11	Bolinao	56.4	— 34.6	+ 38.9	5	0	20.8	30
Ormoc	289.4	+155.3	+197.1	20	+ 1	66.5	1	Baguio	54.4	— 95.2	+ 7.7	7	— 8	18.6	13
Guiuan	436.5	+133.6	-------	23	— 3	123.2	7	San Fernando, Union	2	— 11.2	— 6.6	1	0	2	14
Tacloban	561.5	+404.9	+405.8	24	— 3	96.1	22	Echagüe	160.3	+ 53.3	+108.7	10	— 6	86.9	26
Capiz	77.3	+ 50.3	+ 47.5	20	+ 9	16	3	Candon	0	— 8.9	— 10.8	0	— 3	0	0
Borongan	516.8	+ 99	+258.3	24	— 5	75	2	Vigan	53.8	+ 37.1	+ 46	1	— 1	53.8	10
Catbalogan	242.4	+ 83.5	-------	19	— 1	67	8	Tuguegarao	47	— 36.7	+ 15.5	4	— 6	18.8	13
Calbayog	429.3	+158.5	+295.1	19	— 2	216.8	8	Laoag	0	— 20.4	— 6	0	— 2	0	0
Masbate	127.9	+ 76.9	+ 72.3	13	+ 1	49	5	Aparri	40.9	—155.8	— 15.8	13	— 7	14.5	13
Romblon	47.5	— 9.3	— 2.4	15	0	14.5	15	Cape Bojeador	0	— 76	-------	0	— 4	0	0
Batag	317.9	+213.2	-------	16	— 5	66.5	8	Santo Domingo, Batanes	108.3	—113.1	— 12.3	10	—15	44.6	1
Sorsogon	405.6	—281.8	-------	14	—13	87.4	8								
Legaspi	207.4	—252.3	+ 29.9	16	—13	51.9	15								

DEPRESSIONS AND TYPHOONS.

There was only one small depression in the Philippines during this month, the track of which will be included in one of our bulletins for the next coming months. It appeared at 6 a. m. of the 8th to the north of Surigao and east of the southern part of Leyte; it moved NNW along the eastern coast of Leyte and the western coast of Samar, and then it recurved NE on the 9th near the eastern coast of southeastern Luzon and Catanduanes.

Of the depressions observed outside of the Philippines, we may mention two formed on the Eastern Sea on the 14th and 29th, respectively. Both moved ENE or NE and passed near or across the southeastern coast of Japan. That of the 14th developed into a quite important depression on the 16th and 17th.

NOTAS GENERALES DEL TIEMPO.

Presión y temperatura.—La presión atmosférica media de este mes en Filipinas es mayor que la del año pasado, aunque en la mayor parte de nuestras estaciones es ligeramente menor que la normal de marzo. Las presiones más altas del mes se observaron generalmente al día 3, al paso que las más bajas tuvieron lugar los días 24 u 8 y 9.

La temperatura media mensual fué algo menor que la normal de este mes y que la media mensual de marzo de 1917. Las temperaturas máxima y mínima del mes en Manila fueron 34.8° C. y 17.5° C. registradas los días 26 y 4, respectivamente. Las temperaturas extremas del mes en Baguio fueron 25.9° C., 11.7° C. en la cumbre del Mirador, y 25.7° C., 10.4° C. en el valle.

Precipitación acuosa.—Con pocas excepciones, la lluvia total de este mes ha sido mayor que la normal de marzo, y en la mayor parte de nuestras estaciones mayor también que la del año pasado, siendo muy notables las diferencias en el NE de Mindanao y en las Visayas orientales. Se llama particularmente la atención de nuestros lectores a la lluvia recogida durante el mes en Surigao, Borongan, Tacloban, Guiuan y Maasin, según aparece en el cuadro de lluvias que va en el texto inglés.

DEPRESIONES Y TIFONES.

Durante el mes no hubo más que una pequeña depresión en Filipinas, cuya trayectoria se incluirá en uno de nuestros boletines de los meses siguientes. Dicha depresión apareció a las 6 a. m. del día 8 al N de Surigao y E de la parte meridional de Leyte; se movió al NNW a lo largo de la costa oriental de Leyte y costa occidental de Sámar, y luego recurvó al NE el día 9 cerca de la costa oriental del SE de Luzón y Catanduanes.

Sobre las depresiones observadas fuera de Filipinas, podemos hacer mención de dos que se formaron en el Mar del Este los días 14 y 29, respectivamente. Ambas se movieron al ENE o NE y pasaron cerca o a través de la costa SE de Japón. La del día 14 llegó a desarrollarse como una verdadera depresión de importancia los días 16 y 17.

METEOROLOGICAL DATA FOR MANILA CENTRAL OBSERVATORY.[a]

[$\phi = 14°\ 34'\ 41''$ N; $\lambda = 120°\ 58'\ 33''$ E; barometer above sea, 14.2 meters; gravity correction not applied, —1.72 mm.]

Day.	Pressure (mean).	Air temperature.[b]			Underground temperature.						Relative humidity (mean)	Vapor pressure (mean)	Radiation.		Evaporation.[b]	
		Mean.	Maximum.	Minimum.	0.25 meter.		0.50 meter.		1.50 meters.	2.50 meters.			Minimum on grass	Maximum in sun. Black bulb in vacuo.	Free exposure (total)	Shelter (total).
					8 a.m.	2 p.m.	8 a.m.	2 p.m.	8 a. m.	8 a. m.						
	mm.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	*Per ct.*	*mm.*	°C.	°C.	*mm.*	*mm.*
1	761.41	24.4	31.6	17.8	25	26.8	26.3	26.5	26.8	27.1	76.8	17.1	14.8	56	4.4	2.7
2	62.66	24.6	31.8	19.7	25.3	27.3	26.5	26.8	26.8	27	68.3	15.1	16.9	56.1	6.9	5.2
3	63.63	24.1	30.6	18.8	25.1	26.7	26.6	26.8	27.1	27.1	71.4	15.7	16	50.7	5.2	3.8
4	62.81	24	30.8	17.5	24.9	26.8	26.4	26.7	27	27.1	74.6	16.3	14.5	49.6	4.5	2.9
5	62.07	24.9	33.4	19.3	25	27	26.5	26.8	27	27.1	71	16	16.4	56.2	5.6	4
6	61.91	24.4	31	19	25.2	26.7	26.4	26.7	26.9	27.1	71.3	16	16	47.2	4.2	3.1
7	61.47	24.1	29.4	19.7	25.1	26.3	26.4	26.6	27.1	27.1	72.8	16	17.2	54.3	3.8	2.8
8	60.20	24.1	30	18.7	24.7	26.2	26.3	26.5	27	27.1	74.8	16.4	16.2	47.1	4.1	2.7
9	58.96	25.2	30.7	21.1	25.1	27.1	26.3	26.7	27	27	80.8	19.1	17.8	55.8	3	2.1
10	59.15	25	29.7	21.6	25.9	27	26.6	26.8	27.1	27.2	84.1	19.7	19.4	57	2.6	2.2
11	59.80	24.6	29.9	21.8	25.8	26.9	26.6	26.9	26.8	27.1	84.2	19.3	20	46.7	3.3	2.5
12	59.67	25	30.9	21.2	26.1	26.9	26.7	27	27	26.9	77.9	18.1	19	53.5	3.4	2.3
13	59.36	24.7	31.1	20.2	25.7	26.9	26.8	27	26.9	27	81.2	18.6	18.1	55.5	2.7	2
14	59.32	25.6	30.3	21.2	26.2	27.5	26.8	27.2	26.9	27	81.2	19.6	18.9	51.4	4.5	2.8
15	59.57	26	30.9	22.2	26.5	28	27.1	27.6	26.9	27	78.4	19.4	19.9	52.7	5.4	3.2
16	60.68	25.2	30.3	21.6	26.9	28.3	27.3	27.7	27	27.1	76.1	18	20	55.4	4.8	2.8
17	61.54	24.5	31.6	19.2	26.5	28	27.5	27.7	27	27	75.1	16.9	16.8	53	5.2	3.6
18	62.01	24.7	31.6	18.5	26.3	28.2	27.5	27.8	27.1	27	73.4	16.6	15.9	53.6	5.3	3.2
19	61.50	24.7	31	18.8	26.5	28	27.6	27.6	27.3	27.1	74.7	17	16	51.8	5.2	3.6
20	60.32	25.1	31.3	19.9	26.7	28.3	27.5	27.8	27.2	27	70.2	16.2	17.2	52.3	6.2	4.2
21	59.39	24.7	31.6	18.6	26.5	28.1	27.6	27.8	27.3	27	68.1	15.4	16	53.6	5.9	4.6
22	59.71	24.4	31.2	18	26.3	28.1	27.5	27.8	27.2	27	73	16.2	15.3	50.9	6.5	3.9
23	59.06	25.4	32.3	18.9	26.5	28.2	27.5	27.8	27.3	27	68.2	16	16.1	53.2	7.1	4.4
24	58.40	26.2	33.8	18.8	26.5	28.5	27.6	27.9	27.5	27.1	72.2	17.7	16.3	54.3	6	4.2
25	58.82	27	33.8	21.2	27.2	29.4	27.8	28.2	27.4	27	75.3	19.4	18.5	56	6	3.6
26	59.28	27.2	34.8	21.5	27.5	29.5	28	28.5	27.3	27.1	78.7	19.3	19	55.1	6.3	3.7
27	60.13	26.8	33.3	21.5	27.7	29.5	28.3	28.7	27.4	27	71.6	18.4	18.8	56.7	6.2	4.3
28	59.82	26.4	33.1	21.3	27.5	29.1	28.3	28.5	27.5	27.1	69.6	17.5	18.5	53.4	5.8	4.2
29	59.79	26.4	33.1	21.7	27.5	29.4	28.1	28.6	27.4	27.1	68.6	17.3	19.1	56	6.9	4.9
30	59.74	26	32.6	19.6	27.4	29.4	28.4	28.7	27.6	27.2	70	17.2	16.8	51.8	6.6	5
31	60.15	27	33.6	22.5	27.7	29.6	28.4	28.4	27.5	27.1	66.8	17.2	19.2	51.2	6.7	4.9
Mean	760.40	25.2	31.6	20	26.2	27.9	27.2	27.5	27.1	27.1	74	17.4	17.4	53.2	5.2	3.5
Total															160.3	108.9
Departure from normal	—0.11	—1.4	—0.8	—1.3							+2.3	—0.7				

Day.	Wind.				Clouds.			Sunshine.		Rain, 24 hrs. beginning 6 a. m.		Miscellaneous.
	Prevailing direction.	Total movement.	Maximum hourly velocity.	Direction at the time of the maximum velocity.	Amount (mean).	Form and direction. Upper.	Lower.			On the tower.	In the park.	
		Km.	*Km.*		*0–10.*			*h.*	*m.*	*mm.*	*mm.*	
1	W quad.	153.5	16	WbyN	4.5	A.-Cu. SSE	Cu. E	6	00			☊ ≡° a.
2	ENE	219	25	ENE	5.8	Ci.	Cu. E	8	00			☊° ≡° a.
3	E	173	17	E	4.2	Ci.	Cu. ENE	5	30			
4	E	169	16.5	WbyS	5.4	Ci. SSE	Cu. E	6	55			
5	NE, ENE	150	18	ENE	5.7	A.-Cu. E	Cu. EbyN	6	40			
6	E quad.	131	16	SW	7.2	Ci.-S. ESE	Cu. E	3	50			
7	ENE	136	19	ENE	6	A.-Cu.	Cu. E	3	25			d° p.
8	NNE	101.5	12	NNE	7	A.-Cu.	Cu. E	2	00			
9	W quad.	122.5	15	WSW	8	A.-Cu.	S.-Cu. EbyN	3	30	0.6	0.9	d° a. ● p.
10	E quad.	150	17	NNW	8.8	Ci.-S.	Cu. NE	2	00	25.9	27.4	d° a. ● p.
11	W quad.	141	12	WSW	8.1	A.-Cu. NE	Cu.-N. ENE	4	15			●° a.
12	NE quad.	119	14.5	NE	6.6	A.-Cu.	Cu. EbyN	3	40			☊° a.
13	NE, W	107	13	W	7.3	A.-Cu. SE	Cu. E	4	25	1.3	1.3	☊ a. ●° a. p.
14	WSW	195	22.5	SW	3.3	Ci.-S.	Cu. NW	9	10			≡° a.
15	N quad.	271.5	21	SW	2.4	Ci.	Cu. NNW	9	50			☊ a.
16	E quad.	157.5	13.5	wsw, ssw	7.1	A.-Cu. ENE	Cu. E	5	40			
17	NE, ESE	203.5	20	SE	3.6	A.-Cu.	Cu. ENE	9	50			☊ a.
18	ESE, SE	227	19	SE	2.1	Ci.	Cu. E	10	50			☊ a.
19	E quad.	193	16.5	W	1.8	Ci.-Cu., Ci.	Cu. E	10	05			☊ a.
20	SE	239	22.5	SE	2.1	A.-Cu. E	Cu. EbyN	9	30			
21	E quad.	218.5	21	SE	.7	A.-Cu.	Cu. E	9	25			☊° a.
22	E, SE	220	20.5	SE	1.2		Cu. NE	8	45			☊ a.
23	ESE	237	20	SSE	.8	Ci. WSW	Cu.	9	20			☊° a.
24	ESE	219	19	ESE	1.8	A.-Cu.	Cu.	9	20			
25	ESE, SW	194	20	SW	1.5	Ci.	Cu.	9	40			
26	E quad.	170	17	ESE	3.1	Ci.	Cu.	8	30			⊤° ≤° p.
27	ESE	223	20	WNW, NE	7	Ci. WSW	Cu. EbyN	4	20			
28	ESE	220.5	21.5	ESE	7.3	Ci.-S. WSW	Cu. E	5	10			
29	SE	215.5	22	SE	6	A.-Cu. SW	Cu. E	5	55			☊° a.
30	ESE, SE	228	24	SE	4.2	Ci.-S., A.-Cu	Cu. E	9	05			
31	ESE	185	19	ESE	5.2	A.-Cu. E	Cu. E	7	25			
Mean		183.5	18.4		4.7			6	50			
Total		5,689.5						212	00	27.8	29.6	
Departure from normal		—1,108.8			+0.2			—23	21	+9		

[a] All the mean values given in this table are deduced from hourly observations.
[b] These values are taken from instruments mounted in the Observatory Park, 1.5 meters above ground.

METEOROLOGICAL DATA FOR MIRADOR OBSERVATORY, BAGUIO.[a]

[ϕ=16° 25′ N; λ=120° 36′ E; barometer above sea, 1,512.5 meters; gravity correction not applied, —1.65 mm.]

Day.	Pressure[b] (mean).	Air temperature at Mirador (on the top of the mountain).					Air temperature in the valley (near the city hall).				Relative humidity (mean).	Vapor pressure (mean).	Radiation.		Evaporation.	
		Mean.	Maximum.	Hour.	Minimum.	Hour.	Maximum.	Hour.	Minimum.	Hour.			Minimum on grass.	Maximum in sun. Black bulb in vacuo.[c]	Free exposure (total)	Shelter (total)
	mm.	°*C.*	°*C.*		°*C.*		°*C.*		°*C.*		*Per ct.*	*mm.*	°*C.*	°*C.*	*mm.*	*mm.*
1	638.12	16.9	23.8	10.35a.	13.3	6.05a.	24.7	10.25a.	12.6	6.00a.	82.8	11.6	11.6	55.1	3.9	1.8
2	38.58	16.2	22.8	10.20a.	12.2	11.45p.	24.4	1.00p.	10.7	5.50a.	74.2	10.2	9.7	59.8	5.8	3
3	39.65	16.5	23.8	11.35a.	11.9	6.00a.	24.4	0.15p.	10.9	6.20a.	75.7	10.4	10.3	54.4	4.9	2.5
4	39.15	16.6	23.9	11.25a.	11.7	4.50a.	24.4	Noon	11.3	6.35a.	80	11.1	10	54.8	5.2	2.8
5	38.69	16.8	23.8	Noon	12.4	6.00a.	25	Noon	11.2	4.30a.	82.8	11.6	10.5	57.1	2.7	1.6
6	38.61	17.6	24.8	9.40a.	12.3	4.20a.	24.6	10.35a.	10.4	6.00a.	72.2	10.6	9.3	55.3	7.9	4
7	38.02	17.6	25.1	11.00a.	12.8	12 m. n.	25.2	11.55a.	10.7	4.10a.	63.3	9.3	10.5	55	9.1	4.4
8	37.21	17.3	23.5	1.00p.	12	3.00a.	24.5	10.20a.	10.6	4.10a.	65	9.7	9.3	56	6.1	3.2
9	36.55	17.1	24.5	11.00a.	14.3	2.10a.	24.3	0.05p.	12.9	5.00a.	78.3	11.3	12.5	59.9	3.4	1.9
10	36.48	16.7	22.1	2.05p.	13.5	9.35p.	23.4	1.35p.	13.2	6.50a.	86.7	12.2	12	59.9	2.3	1.5
11	36.88	17.1	22.4	10.05a.	13.7	12 m. n.	24	10.40a.	12.5	5.35a.	81.7	11.7	11.8	54	2.5	1.4
12	36.85	15.8	22.1	0.25p.	12.6	5.40a.	22.1	3.50p.	11.7	6.50a.	90.5	12.1	11.6	57.2	1.4	1
13	36.45	16	21.7	10.05a.	13.3	4.25a.	21.3	10.00a.	12.4	6.20a.	88.8	11.9	11.6	56.7	1.4	.6
14	36.52	15.5	21.8	1.05p.	12.9	4.50a.	21.6	1.00p.	13.1	10.05p.	90.8	12	11.6	57.2	1.5	.8
15	36.42	15.8	21.3	0.40p.	12.6	12 m. n.	22	1.05p.	11	5.00a.	82.3	11	11.6	55.6	2.3	1.2
16	36.92	14.9	19.7	11.00a.	11.9	6.45a.	21.2	0.45p.	11.8	1.40a.	89.3	11.2	10.7	56.1	1.5	.8
17	37.57	15.6	21.3	0.20p.	12	6.30a.	22.4	11.40a.	12.4	6.30a.	86.8	11.3	11.5	57	2.4	1
18	38.45	16.6	22.6	2.25p.	12.1	6.00a.	23	2.00p.	12	6.00a.	80.5	11.2	11.2	56.4	4.3	1.8
19	38.18	16.3	23	2.00p.	12.3	6.05a.	22.9	1.20p.	10.9	6.35a.	86	11.7	10.2	55.7	2.5	1.3
20	37.28	17	23.9	10.25a.	13.2	5.30a.	23.9	0.50p.	11.5	6.15a.	81.3	11.3	10.2	55.8	3.5	1.9
21	36.55	17.4	24.9	11.20a.	12.9	6.30a.	25.1	11.35a.	10.9	6.05a.	84.2	12.2	11	55	3.5	1.9
22	36.96	17.8	24.3	2.00p.	12.9	5.20a.	24.6	2.45p.	12.4	5.40a.	84	12.6	11	61	3.8	1.7
23	36.26	18.1	24.5	2.00p.	13.3	6.00a.	25.4	-------	12.9	6.00a.	75	11.2	12.2	54.7	5.1	2.8
24	35.89	18.4	25	0.25p.	13.5	5.20a.	25.2	1.25p.	12.9	6.00a.	76.8	11.6	11.7	55	5.2	2.7
25	36.77	18.7	25.9	1.05p.	14.4	4.25a.	25.7	0.45p.	13.4	5.40a.	77.3	12.2	12.1	59	4.1	2.5
26	37.28	18.6	25.2	0.20p.	14.4	5.00a.	25.5	2.00p.	14	12 m. n.	81.3	12.9	12.2	58.6	4.3	2.4
27	37.72	17.1	23.8	1.00p.	14.3	5.00a.	23.3	3.00p.	13.4	6.25a.	79.8	11.6	12.3	57	2.3	1.7
28	37.22	17.3	23.5	11.00a.	13.4	6.20a.	24	11.55a.	13.4	3.30a.	85.3	12.4	12.3	61	3.4	1.5
29	37.34	17.5	23.3	2.20p.	13.4	6.00a.	24.2	Noon	12.9	6.00a.	89.2	13.2	12.2	58.8	1.6	.8
30	37.06	18.2	24.9	10.25a.	14.8	6.00a.	24.5	1.35p.	13.8	6.20a.	84	12.9	12.2	56.6	4.8	2.5
31	37.52	18	24.8	11.05a.	13.7	6.00a.	25.3	1.45p.	12.7	6.10a.	77.5	11.6	12.4	57.4	3.6	2.9
Mean	637.39	17	23.5	-------	13	-------	23.9	-------	12.1	-------	81.1	11.5	11.3	56.9	3.8	2
Total	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	116.3	61.9

Day.	Wind.				Clouds.			Sunshine.	Rain, 24 hours beginning 6 a. m.	Miscellaneous.
	Prevailing direction.[d]	Total movement.	Maximum hourly velocity.	Direction at the time of the maximum velocity.	Amount (mean).	Form and direction. Upper.	Lower.			
		Km.	*Km.*		*0–10.*			*h.* *m.*	*mm.*	
1	E quad.	366.2	28.5	E	5.6	Ci.	S.	5 55	-------	☁² ≡° a. ≡² p.
2	E	424.1	29.3	E	2.4	Ci.	Cu. ENE, E	5 45	-------	☁ a. ≡ p.
3	E	457.3	30.9	E	2.7	Ci.	Cu.	7 35	-------	∞ ≡° p.
4	E	382	26.8	E	1.1	Ci. SSE	Cu. ENE	8 10	-------	☁ a.
5	E, W	299.1	28.7	E	4.4	Ci.	Cu.	5 45	-------	☁ a. ≡² p.
6	NE, SW	334.2	25.9	W	.6	Ci.	Cu. E	9 25	-------	☁² a.
7	E, W	331.5	24.1	SE	.3	Ci.	Cu.	9 20	-------	∞ ≡° p.
8	E	402.8	32.2	E	3.7	Ci. SWbyW	Cu.-N. ESE	6 20	-------	≡ p.
9	E	350.1	25.5	E	5	Ci.	Cu. ESE	5 05	-------	≡² d p.
10	Variable	287.4	28.2	W	7	Ci.-S.	Cu.-N. NNW	0 45	9.4	☁² a. ● ≡° p.
11	E, W	314.7	23.9	W	5.3	Ci.	Cu.-N. WSW	0 05	-------	≡² d° p.
12	E	317.2	22.8	E	5.9	Ci.	Cu. ENE	3 40	1.5	☁²a.≡²a.p.●⌐⅄⌒²p
13	E	310.6	21.5	W	6.6	Ci.-S.	S.-Cu. ENE	2 25	18.6	d° ≡ a. ≡² ● ⌒° p.
14	N quad.	346.8	21.7	W	8.3	A.-Cu.	cu.-N. N, SSW	2 20	5.8	● ≡² p.
15	W quad.	311	23.9	W	4.3	Ci.	Cu.-N. WSW	7 05	-------	≡² d° p.
16	SE, W	306.7	22.5	W	6.9	Ci.	Cu.-N. SW quad.	3 15	-------	☁² ≡² a. ≡° p.
17	SE quad.	332.3	32.2	W	5	-------	cu.-N. S quad.	3 25	3.6	☁ ≡ a. ● p.
18	E, W	364.2	27.7	SW	1	Ci.	Cu. SE, SW	8 25	-------	-------
19	E, W	274.4	27.2	W	4.6	-------	cu., cu.-N. W	6 55	-------	☁² a. ≡² a. p.
20	E	291.9	26	W	4.1	-------	Cu.-N. ENE	6 10	-------	☁² ≡ a. ≡° p.
21	E quad.	261.3	26.4	SW	1.3	Ci.-S.	Cu.-N. SW	6 50	-------	☁² ≡² a.
22	E, SW	306	24.1	W	2.6	-------	Cu. WNW	9 05	-------	☁² ≡ a. ∞° p.
23	E, SE	455.5	32.2	W	.3	-------	Cu.	9 15	-------	☁² a.
24	E	388	34.9	SW	2.4	-------	Cu. W	8 45	-------	☁² ≡² a. ≡° p.
25	SE quad.	346.1	33.5	SW	2.4	Ci.	Cu.	7 35	-------	☁ a. ≡ a. p.
26	E	335.5	27.6	SW	3.9	Ci.	Cu. ESE	7 25	-------	☁² ≡ a. ⌐⅄° p.
27	E, W	347.2	25.1	E	5.9	Ci.	Cu.-N. SE	3 35	14.2	⌐⅄° ● ⌒ p.
28	E	339.9	24.4	W	5.4	A.-Cu. E	Cu.-N. SSE	4 40	-------	≡² p.
29	W quad.	233.3	24.3	W	6.3	Variable	cu.-N. swbys	3 35	-------	☁²a. ≡²a. p. ⌐⅄° p.
30	E quad.	298.6	27.2	E	5.1	Ci.-S., Ci.	Cu.-N. S	6 35	-------	☁° a. ≡² ⌐⅄ p.
31	E, W	413	23.1	SE	3.9	Ci.	Cu.	7 05	1.3	⌐⅄ ≡ ●° p.
Mean	-------	339.6	26.8	-------	4	-------	-------	5 53	-------	
Total	-------	10,528.9	-------	-------	-------	-------	-------	182 15	54.4	

[a] All the mean values given in this table are deduced from six daily observations taken at 2, 6, 10 a. m. and 2, 6, 10 p. m.
[b] The barometric readings of this station are not reduced to sea level.
[c] Maximum of hourly observations taken from 6 a. m. to 6 p. m.
[d] This element is based on hourly observations taken from a quadruple register, which gives only eight possible directions of the wind.

DAILY RAINFALL AT THE STATIONS OF THE WEATHER BUREAU, MARCH, 1918.

Station.	Day of month.															
	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.
	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.
Jolo					50	3.8	4.6	1			0.8	1				
Isabela, Basilan			2.8	0.5	1.5	1.3	10.4	3.3	5.8	8.4						
Basilan Plantation, Isabela (Basilan) [a]				3.6	1.8		17.8			17.3						
Zamboanga		8.4	5.1	5.8	9.1	.3			7.1			.8				
Davao	9.7		10.5	12.7			2.5					18		5.6		
Cotabato	4.8	1.8	11.9			6.1	14.2					3.8				
Cagayan, Misamis	4.2		14.2				10.7	6.4	1.3	9.1		1.8				
Dapitan	41.7	2.8	14				4.4	.3	3.8	1.8	4.1	5.3		1		
Ampayon, Butuan, Agusan [a]	12.7	29.5	65.5	4.8	.5	4.6	27.7	3.6	16.3	5.1						
Butuan	7.4	9.1	74.2	5.1		2.3	12.2	5.6	7.9	6.4						
Mambajao		78.7	72.7		19.8	11.4	25.4		6.1		14.2	3.8	48.8			
Dumaguete	7.6	1.3	9.7					9.4			18	1.3				8.1
Yap, Western Carolines	.3	1.5	7.1	2.5	2.8	1.3	8.9	3.8		.5	17.3			.3	0.5	8.8
Tagbilaran	18.3		5.1		1			1.8								
Iwahig								14.7		13.8	1.3		5.3			.3
Surigao	5.4	161.9	82	23.4	52.8	55	87.3	4.6	.3	.3	10.7					
Maasin	12.4	187.9	69.1	14.7	16		97.5	30.5								
Cebu		12.2	17	4.6	12.7	2.5	8.2	1.3				10.7				
Iloilo		7.8	4.3	1.8	2.3	6.3	4.1	1								
San Jose Buenavista		3.3	2	1.1			1.3	.5	15.7				21.6	.3		
Cuyo			.8							1	20.3				1.8	.3
Lucena, Iloilo [a]		10.2	6.1	6.4	1.3			14.5		8.9				8.9		
Ormoc	66.5	8.1	10.4	15	24.4	4.8	39.9	21.1	17.8	10.7	38.9	2.6	.5			
Guiuan	20.3	71.7	42.4	3.8	14.7	20.1	123.2	14.7				4.6	1.8	2.5	.8	10.2
Dueñas, Iloilo [a]		2.3	7.6	.8		2.5	7.9	6.9	78.7					31.5	6.1	1
Bitaogan, Iloilo (Railroad Iloilo to Capiz) [a]			2	21.8	9.7	10.7	20.5	5.3	2.8	45.2	2			47.2		
Lapus, Iloilo (Railroad Iloilo to Capiz) [a]		10.7	3.8	2.8	4.3	6.1	2.8	.8								
Tacloban	7.2	25.6	29.3	30.5	32	6.4	76	66.1	50.6	38.8			4.3	2.8		
Dumarao, Capiz [a]		2.5	7.6	7.6	15.2	7.6	10.2	11.4	7.6	15.2				10.2		
Dao, Capiz [a]	1.3	5.1	8.1	.8	6.6	6.1	11.7	13.2	9.9	17.8	5.6		1.3			
Capiz	3.1	1.9	16	1.3	10.7	3.1	3.1	3.9	1	2	2.8	.6	10		1.5	.5
Borongan	11.9	75	25.7	52.8	37.8	24.6	56.3	27.9	6.6	5.4	16.3	12.9	24.6	1.3		1.8
Catbalogan	2	9.1	15.2	4.5	57.2	12	28.2	67	1.3		13	7.4	7.1			
Calbayog	1	2.8	22.9	14.8	66.5	18.9	31.5	216.8	4.5	.5	2.8	.8	8.7			
Masbate	.3		3.6	1	49	6.4	16	34.8	4	5.1		.8	.3		4.1	
San Jose Estate, Tamaraw Plantation, Mindoro [a]								6.1	23.9	5.8						
San Jose, Mindoro [a]									15.4	16.2	.1					
San Miguel State, San Miguel Island, Tabaco, Albay [a b]	3.8		.5		11.4	1	.8	33.3	2	5.8	11.2	7.1	16.8		.8	.5
Romblon	1		.3		6.1	1.3	1.3	5.1	.3			.5		1.3	14.5	1
Batag	2.5	5.8		14.5	18	34.8	51.8	66.5	13.2	2.8	13.2		10.7		3.8	39.4
Sorsogon	22.1	3.8	1		36.1		46.7	87.4	16.3	67.8		5.1	36.8			7.4
Legaspi	.3		1.3		10.4	7.9	9.6	49.6	1.3	12	7.6	.8	15.2		51.9	2.6
Sumay, Guam	2.5		4.6	8.4		2.8	3.3				2.5	3.8				4.3
Calapan	4.1	4.3		.3	.8	2.3	3	2.8	4.6	.8		.8			55.1	3.6
Virac	.8				10.7	.5	.8	43.4	65.8	2	4.5	10.4	31	6.9		7.7
Naga		1.8	1.5		5.1	.3	2.3	25.8	2.5	1.8	.5	1.1	.5	1.5		
Batangas								1.3	7.1	2						
Lucena								4.1	4.1	.8	2.5	1.5	8.1			
Atimonan	.5	1.5			1.5	4	.5	56.4	17.9	10.4	2.5	1.6		.5	1.3	5.8
Ambulong, Tanauan								1.1	.8	7.3						
Canlubang, Calamba	.3	.5							2.8	24.1			1.5	3.3	.8	
Paracale	7.7	4.5	2.3	1.3	8.1	2.8	2.3	40.1	27.9	3.6	15.5	1.3	22.2	1	6.9	6.3
Santa Cruz, Laguna				.5	1.3				5.1		2.3	.3	1.3	.8		
Fort Mills, Corregidor [a c]										8.9	.8					
Manila									.6	25.9			1.3			
Antipolo										6.9			3.6		.3	
Bosoboso, Rizal [a]										10.2			3			
Montalban, Rizal [a]										11.9					.8	3.6
Hacienda Pintong Sapang, Santa Maria, Bulacan [a]	.3	.8								9.1			3.5			
Mabayuan Dam, Olongapo, Zambales [a]											6.4	34.3				2.8
Iba										9.9	11.2		43.2			
San Isidro										28.5	1.5			13.7		1.3
Hacienda Luisita, San Miguel, Tarlac [a]										38.6	17.5			1.5		
Hacienda Luisita, Luisita, Tarlac [a]										36.6	13.2			4.1		
Tarlac										1	4.8		.5			1.8
Baler				4.8				.1	19	12.2	5.3	2	38.1	.3	10.7	23.9
Paniqui, Tarlac [a]								1	3	105.4	4.6	.3			.5	1
Muñoz Agricultural School, Nueva Ecija [a]											13					
Dagupan											27.4		2.5			
Santo Tomas Mt., Mountain Province [a]										101.6			2.8	.8		
Bolinao													19.8	1.5	.8	
Baguio										9.4		1.5	18.6	5.8		
San Fernando, Union														2		
Echagüe					.3			3.3	3.8	22.9	5.1		29.5	5.4		1.8
Sagada, Mountain Province [a]									.5	19.8	22.4	1.3	6.4	.5		
Bontoc, Mountain Province [a]										.5	9.9	11.2	19.3			
Candon																
Villavieja, Pilar, Abra [a]										.3			7.9			
Vigan										53.8						
Tuguegarao											8.1	13	18.8			
La Paz, Abra [a]										51.3						
Laoag																
Aparri	2.6	2.3		.8				3.3	2.5	4.6	2.7	14.5	1.1	4.2	.3	
Cape Bojeador																
Santo Domingo, Batanes	44.6	14.7								8.1	20.3	.2	.2	15.9	1.3	

[a] Voluntary or coöperative station. [b] Rain in 24 hours beginning 8 a. m. [c] Rain in 24 hours beginning 7 a. m.

Daily rainfall at the stations of the Weather Bureau, March, 1918—Continued.

Station.	Day of month.															
	17.	18.	19.	20.	21.	22.	23.	24.	25.	26.	27.	28.	29.	30.	31.	Total.
	mm.	*mm.*	*mm.*	*mm.*	*mm.*	*mm.*	*mm.*	*mm.*	*mm.*	*mm.*	*mm.*	*mm.*	*mm.*	*mm.*	*mm.*	*mm.*
Jolo	.....	.....	4.6	5.3	8.6	7.1	16.3	10.2	.....	5.6	13.5	0.5	9.4	.....	.....	142.3
Isabela, Basilan	.....	.....	1.5	.5	.....	.....	.5	20.8	.....	17.8	4.1	.....	5.1	5.3	1.5	91.1
Basilan Plantation, Isabela (Basilan) [a]	.....	.....	1	3.8	.....	.....	.....	33.5	17.8	2.8	4.3	5.5	.....	2.3	.....	111.5
Zamboanga	.....	0.8	.....	.....	.....	.....	.....	.8	.....	9.6	26.9	.3	.....	1.3	3.6	79.9
Davao	24.9	.....	.....	.....	.....	4.1	.....	.....	.....	5.3	14.2	.....	.....	16.5	26.2	150.4
Cotabato	.....	3.3	.....	.....	1.3	7.6	.....	15.2	5.1	26.9	5.6	.....	.....	8.1	10.9	126.6
Cagayan, Misamis	.....	.....	.....	.....	.....	.....	.....	.....	.....	1.5	.....	2.3	.....	.....	.....	51.5
Dapitan	.....	.....	.....	.....	14	37.4	2	1	1	17.8	1.3	10.2	.3	.....	.....	164.2
Ampayon, Butuan, Agusan [a]	.....	.....	.....	.....	.....	.....	.....	3	6.4	8.4	15.5	1.3	6.4	4.6	3.3	219.2
Butuan	.....	16	.3	.....	.....	.....	.8	24.2	3.6	6.1	5	14.5	4.1	19.5	2.5	226.8
Mambajao	8.6	.....	.....	.....	.....	.....	.....	.....	.....	.....	24.4	.....	.....	.....	.....	313.9
Dumaguete	2.5	.....	.....	.....	.....	12.2	.....	1	.....	.....	8.1	24.6	.....	.....	.....	103.8
Yap, Western Carolines	26	.....	.3	.....	.....	.....	.....	3.3	2.5	.....	.8	5.1	3	3	4.8	104.4
Tagbilaran	.....	.....	.....	.....	.....	.....	.....	1	.....	2.3	.....	2.8	41.4	.....	10.2	83.9
Iwahig	.1	.....	.....	.....	.....	.....	.....	.....	.....	.....	35.6	.....	1	2.3	18	92.4
Surigao	9.4	9.1	.....	.....	.....	.....	23.1	13.8	4.6	11.9	71.7	21.6	11.8	16	3.3	680
Maasin	17.3	.....	.....	.....	.....	18.3	.....	.....	.....	.....	.....	31.7	.....	.....	.....	495.4
Cebu	6	12.7	.....	.....	.....	.....	.....	.....	.....	2	3.5	13.5	.....	.....	.....	106.9
Iloilo	.....	.....	.....	.....	.....	.5	.....	.....	.....	.....	2.1	.....	.....	.5	.....	30.7
San Jose Buenavista	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.5	.....	.....	.....	.....	46.3
Cuyo	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.5	.....	.....	.....	24.7
Lucena, Iloilo [a]	.....	.....	.....	8.9	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	65.2
Ormoc	.8	.....	.....	.....	.....	12.2	.....	2.5	.....	7.1	4.3	1	.....	.8	.....	289.4
Guiuan	11.9	.....	.....	.....	1	47.3	2.8	2.8	.....	9.4	4.9	.....	19	3	3.6	436.5
Dueñas, Iloilo [a]	.....	.....	.....	.....	.....	.....	.....	1.3	6.6	.....	.....	.....	.....	.....	.....	153.2
Bitaogan, Iloilo (Railroad Iloilo to Capiz) [a]	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1.3	.....	.....	.....	.....	168.5
Lapus, Iloilo (Railroad Iloilo to Capiz) [a]	.....	.....	.....	.....	.....	1.5	.....	.....	.....	.....	2.3	1	.....	1	.....	37.1
Tacloban	11.7	2	1	.....	.....	96.1	16.5	10	11.2	1.5	28.7	.5	.....	8.1	4.6	561.5
Dumarao, Capiz [a]	.....	.....	.....	.....	.....	5.6	.....	.....	.....	.....	.....	.....	.....	.....	.....	100.7
Dao, Capiz [a]	4.1	.....	.....	.....	.....	2	.....	.....	.....	.....	5.3	.....	.....	87.4	3.8	190.1
Capiz	2.3	.....	.....	.....	.....	9.7	.....	2	.....	.5	1.3	.....	.....	.....	.....	77.3
Borongan	33.3	1	.....	.....	.....	41.2	.....	7.9	.....	24.6	7.3	.....	7.9	3.6	9.1	516.8
Catbalogan	8.9	.5	.....	.....	.....	1	.....	.....	.....	.....	.3	.....	.3	3.1	4.3	242.4
Calbayog	1.8	.....	.....	.....	.....	1	.....	4.8	3.6	16.5	.....	.....	.....	9.1	.....	429.3
Masbate	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2.5	127.9
San Jose Estate, Tamaraw Plantation, Mindoro [a]	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	35.8
San Jose, Mindoro [a]	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	31.7
San Miguel State, San Miguel Island, Tabaco, Albay [ab]	1.5	1.8	.....	.....	1.3	.....	.....	.....	.....	.....	.....	7.6	3.8	5.1	7.6	123.7
Romblon	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.8	.....	3.3	9.7	47.5
Batag	36.1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2.5	.....	2.3	.....	317.9
Sorsogon	12.2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	50.8	12.1	405.6
Legaspi	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	5.1	.....	8.9	22.9	207.4
Sumay, Guam	.....	7.1	.....	.....	.....	.....	.....	.....	6.4	5.6	15.2	8.9	.....	.....	1.3	76.7
Calapan	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.5	83
Virac	.....	.3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	8.9	6.3	200
Naga	.....	.....	.....	.....	.....	.....	.....	.....	2.8	.....	.....	2.3	.....	.....	1.3	61.1
Batangas	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	10.4
Lucena	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	7.4	28.5
Atimonan	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	7.6	.....	6.1	11.9	130
Ambulong, Tanauan	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2.3	11.5
Canlubang, Calamba	.....	.....	.....	.....	.....	.....	.....	.....	2	.....	.....	5.6	.....	.....	.....	40.9
Paracale	8.6	.....	.....	.....	.....	.....	.....	.....	.....	.....	2	.....	.....	10.9	6.1	181.4
Santa Cruz, Laguna	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	6.6	.....	.....	7.1	25.3
Fort Mills, Corregidor [ac]	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	9.7
Manila	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	27.8
Antipolo	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2.3	13.1
Bosoboso, Rizal [a]	.....	.....	.....	.....	.....	.....	.....	.....	.....	10.4	.....	.....	.....	.....	.....	23.6
Montalban, Rizal [a]	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	16.3
Hacienda Pintong Sapang, Santa Maria, Bulacan [a]	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	13.7
Mabayuan Dam, Olongapo, Zambales [a]	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	43.5
Iba	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	64.3
San Isidro	.....	.....	.....	.....	.....	.....	.....	.....	.....	25.9	.....	.....	.....	.....	.....	70.9
Hacienda Luisita, San Miguel, Tarlac [a]	.....	.....	.....	.....	.....	.....	.....	.....	4.3	.....	.....	.....	.....	.....	.....	61.9
Hacienda Luisita, Luisita, Tarlac [a]	.....	.....	.....	.....	.....	.....	.....	.....	3.6	.....	.....	.....	.....	.....	.....	57.5
Tarlac	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	9.1
Baler	13.5	4.1	.....	.....	.....	32	.....	.....	.....	.....	91.9	9.2	.....	1.3	15	283.4
Paniqui, Tarlac [a]	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	115.8
Muñoz Agricultural School, Nueva Ecija [a]	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	13
Dagupan	21.6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	51.5
Santo Tomas Mt., Mountain Province [a]	.....	.....	.....	.5	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2.3	108
Bolinao	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	13.5	.....	20.8	.....	56.4
Baguio	3.6	.....	.....	.....	.....	.....	.....	.....	.....	.....	14.2	.....	.....	.....	1.3	54.4
San Fernando, Union	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2
Echagüe	.....	.....	.....	.....	.....	.....	.....	.....	.....	61.5	.....	1.3	.....	.....	.....	134.9
Sagada, Mountain Province [a]	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	13	63.9
Bontoc, Mountain Province [a]	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	5.6	.....	16.8	1.5	6.9	71.7
Candon	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0
Villavieja, Pilar, Abra [a]	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	8.2
Vigan	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	53.8
Tuguegarao	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	7.1	.....	.....	.....	47
La Paz, Abra [a]	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1.5	.....	.....	.....	1.3	54.1
Laoag	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0
Aparri	.....	.....	.....	.....	.....	.....	.....	.....	.....	.5	.....	1.5	.....	.....	.....	40.9
Cape Bojeador	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0
Santo Domingo, Batanes	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2	1	108.3

[a] Voluntary or coöperative station. [b] Rain in 24 hours beginning 8 a. m. [c] Rain in 24 hours beginning 7 a. m.

MAXIMUM AND MINIMUM TEMPERATURES AT THE STATIONS OF THE WEATHER BUREAU, MARCH, 1918.

Day.	Jolo.[a]		Isabela, Basilan.		Zamboanga.		Davao.		Cotabato.		Cagayan, Misamis.		Dapitan.		Butuan.	
	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.
	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.
1	27.6	22.3	31.1	21.6	28.5	23	32.7	20.1	31.6	22	26.8	22.5	32.4	21.1	29	22.5
2	28.4	23	34.1	22.1	31.4	21.7	31.5	19.9	29.5	21.8	28.2	22	28.9	21.5	27.9	21.6
3	28.2	22.1	33.1	22.6	29.5	22.5	32.5	20.5	30.8	22.1	27.2	22.7	27.3	22.4	26.4	22.6
4	27.9	22.8	33.1	22.4	31.3	23	30.5	21	31.5	21.5	28.9	22.4	31.5	21.9	28.1	21.4
5	27.4	20.6	32.6	22.1	30.8	22	29	21.9	30.1	22.2	28.8	21.8	29.7	23	29.2	21.6
6	27.8	19.5	32.1	21.1	28.5	21	29.1	21.8	30	23.1	30.5	22.2	31.5	22.4	32	21.4
7	29.2	20.6	32.6	22.1	28	23.1	30.7	20.6	31.8	21.8	29	21.6	29.6	23	26.6	22.5
8	27.8	21.1	29.6	22.6	28	22.7	30.4	20.5	28.6	22.3	28.3	22.4	30.6	21.8	31.9	22.4
9	29.7	20.7	31.1	21.6	30	22.4	32.2	21	30	21.9	30.4	21.3	31.3	21.3	32.6	22.4
10	29.1	22	31.9	22.3	28.7	23	32.5	21	28.1	22.9	29.6	21.3	29.5	21.8	32.6	21.8
11	29.4	21.5	30.3	21.6	28.8	21.7	32.2	20.8	30.8	22.4	30.6	20.9	31.4	20.8	31.6	22.7
12	28.8	23.1	30.1	22.4	31.2	22.5	32.6	21.8	30.6	23	30.4	21.4	33.1	22.4	31.6	22.2
13	29.3	22.9	30.6	22.6	29.6	22	32.8	21.5	32.5	22.6	30.2	22.2	34.1	22.5	33.1	22.9
14	29.6	23.1	31.3	22.6	29.4	21.2	33.2	21.7	31.4	22.5	31	21.6	31.7	22	32.8	22.9
15	28.9	21.4	32.1	21.1	29.4	20.2	33.7	21.6	31.9	22.5	30.2	21.2	33.1	20.7	33.1	22.2
16	29.2	20.8	31.6	21.6	31.3	20.8	32.2	21	31.9	21.5	30.7	21.1	33.6	20.8	31.9	22.1
17	28.8	21.3	33.6	20.6	30.4	21.4	32.5	21.8	32.6	21.5	29.9	20.2	31.4	20.7	32.8	21.7
18	29.7	21	33.1	21.1	28.5	22	32.5	20.5	31.7	22.4	29.7	22.4	30.9	24	32.6	21.4
19	29.4	21.3	30.3	22.1	27	23	32.7	21.3	32.6	21.9	31.1	21.2	31.4	24.4	31.6	20.9
20	27.9	22.2	32.1	21.7	29.7	22.5	29.6	21.6	30.3	22.9	30.5	22.1	31.3	24	32.3	21.3
21	28.9	21.8	32.6	20.6	30.4	22.4	32.6	21.8	33.1	22.6	30.5	21.1	31.1	22.1	32.6	20.7
22	29.6	21.2	31.7	22.1	29.5	22.8	32.9	21.5	31.9	22.5	30.8	22	31.6	22	33.2	22.3
23	28.7	22.8	32.3	22.1	31.7	22.7	32.9	21.1	33	22	31.2	21.4	30.4	21.9	33.6	22.3
24	28.6	21.2	31.4	21.6	29.7	23.1	31.7	21	33.5	22.3	30.4	21.4	31.3	23.6	32.9	21.9
25	29.2	21.5	31.6	22.1	28.8	23.2	32.8	21.5	33.5	22.5	31	20.5	31.8	23.5	31.1	22.7
26	29.6	23.6	32.1	22.6	31.5	23.2	30.5	21.5	33.5	22.6	32.4	21.2	31.1	24.9	30.9	22.7
27	27.2	20.3	28.6	21.1	27.2	22.2	30.5	21.5	30.4	20.4	32.3	21.6	30.1	23	29.1	22.4
28	29.8	22	29.8	22.6	29.9	22.2	27.7	21.5	28.5	22.6	27.8	22.4	29	22.6	26	21.8
29	28.1	21.6	32.2	22.4	29.3	23.1	32.2	20.5	31.4	21.5	30.8	21.1	29.9	23.5	31	21.2
30	30.2	20.7	34.1	21.1	30.4	22.3	30.2	21.8	33.5	22	31.1	21.3	30.4	23.9	29.9	21.4
31	28.4	22.3	32.1	22.6	28	22.9	30.6	21.7	32.5	21.6	31.6	22.3	31.3	24.4	31.8	22.4
Mean	28.8	21.7	31.8	21.9	29.6	22.3	31.6	21.2	31.4	22.2	30.1	21.6	31	22.5	31	22

Day.	Mambajao.		Dumaguete.		Yap, Western Carolines.		Tagbilaran.		Iwahig.		Surigao.		Maasin.		Cebu.	
	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.
	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.
1	28.5	22.8	30.2	23.2	33.2	23.6	30.7	20.8	30.6	18.5	25.6	22	30.2	22.1	29	23.6
2	28.4	23	28.6	22.1	33.1	24.7	27.5	21.3	30.6	19.9	25	20.9	29	20	29	23
3	25.2	22.7	27.7	23.5	32.2	24.1	28.4	22	30.6	19.4	25.4	22.4	29.5	21.6	29.9	23
4	28.2	22.2	29.6	22.7	33.6	24.5	30.3	21.8	31.1	19.9	29.9	22.3	30.6	22	29.5	22.5
5	26.7	23	27.9	23.2	33.2	23.6	28.4	22	30.9	19.2	28.8	22.4	29	22.3	27	23.3
6	28.6	22.7	29.9	23	33.7	24.5	31.2	22.1	31.5	19.4	29.4	21.9	31.4	22.5	30	22.5
7	25.8	23	28.1	24	33.2	25	29.3	22.5	30.6	21	25.4	22.5	28.2	22.2	26.8	22.7
8	30	22.2	30.1	22.8	33.2	24	28.6	21.5	30.8	20.4	29.7	22.8	28.4	22.1	27.3	22.5
9	31.6	23.6	30.8	21.2	34.1	23.3	29.4	22.3	30.8	20.1	30.3	22.8	30.8	23.8	28.6	23.8
10	30.4	22.9	29.4	21.4	33.2	23	30.1	22.9	30.2	19.5	29.9	23	32	23.8	28.8	23.1
11	31.6	23.9	29.4	21.5	31.7	22.7	29.8	21.7	31	21.4	29.4	22.6	31	22.1	29.2	22.9
12	31.2	22.2	29.3	22.3	32.8	23	30.1	21.7	32.1	19.2	29.9	22.3	32	22.1	30.2	23.7
13	29.3	22.6	30.2	23.8	34.5	22.5	30.6	21.5	32.3	18.4	31.3	22.4	33.4	22.2	29.5	22.5
14	30.6	23.4	30.1	22.1	33.7	23.3	31.3	22.7	31.5	18.4	30.8	23	33.6	22	30.7	23.5
15	30.5	21.9	30.2	20.7	33.6	24.5	31.5	22.5	31.3	18.1	31.3	22.3	34	22.4	30.8	22.9
16	31.5	20.5	29.7	22	33.5	24.6	31.5	21.6	31.5	17.8	29.2	22.1	34.8	22.1	30.5	23
17	29.1	23.2	28.9	23.3	29.4	24	30.7	21.6	30.8	21.4	29.8	22.9	32.6	22	29.4	22.7
18	28	23.6	29	23	34.7	23.5	30.6	21.4	30.8	19.4	28.8	22.2	33.2	22	28.4	22
19	28.5	24.2	29.4	23.4	35.2	22.3	29.7	20.5	31.5	19.8	29	21.2	33	21.2	29	22.8
20	29.3	23.5	29.4	23.5	34.7	23	30	21.2	30.8	19.8	28.3	21.3	32.8	21.5	29	22.5
21	29	22.2	30	22.8	35.3	23.1	29.9	20.5	30.6	19.5	29.9	21.2	34	21.4	28.7	22.3
22	29.7	25.2	30.1	23.3	35.5	24.2	32.2	22.2	31.6	20.8	29.9	23.5	31.6	21.3	30	24.5
23	29	23.5	29.4	21.8	34.7	24.2	31	22.1	31.3	20.2	29.9	24.1	32.8	22.8	30.5	24.4
24	30	24.3	30.2	23.9	34.8	24.7	31.3	22.1	31.6	20.4	29.4	23	31.2	23	30.9	24
25	29.6	23.4	29.9	24	33.7	24.4	31.2	22.5	32.4	20.6	30	23.4	33.4	23.1	30.5	25
26	30.2	24.5	30.4	25.8	34.7	24.2	31	22.2	32.7	20.3	29.1	23.4	33	22.7	31	24.9
27	28.2	23.6	29	24.6	33.8	24.7	31.2	22	32.5	21.2	26.9	22.9	29.5	23	28.6	22.3
28	26.7	22.7	27.5	22.6	33.8	24	27.6	22.1	30.2	21.1	24.9	20.9	32	22	26	22.5
29	28.4	24	30.4	22.9	32.8	23.5	30.1	21.9	31.6	21.1	28.5	22.2	30.8	22	30.2	23.9
30	31	24.5	30	22.6	32.5	24	30.6	22.1	28.4	20.7	29.9	22.8	34	23	29.8	24.5
31	29.7	24.4	29.2	24.2	33.5	23.1	30.6	21.7	25.8	21.9	29.7	22.3	33	22.6	30	24.2
Mean	29.2	23.2	29.5	22.9	33.6	23.8	30.2	21.8	31	20	28.9	22.4	31.8	22.2	29.3	23.3

[a] The minimum temperatures of this station seem to be too low.

Maximum and minimum temperatures at the stations of the Weather Bureau, March, 1918—Continued.

Day.	Iloilo.		San Jose Buenavista.		Cuyo.		Ormoc.		Guiuan.		Tacloban.		Capiz.		Borongan.	
	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.
	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.
1	30	22.6	31.7	21	27.7	24.1	31.5	22	30	22.8	27.7	22.5	29.4	23.3	28.8	22.4
2	29.2	22.4	31.8	20.5	27.2	24.2	26.5	19.9	29	23	25.8	21.8	28.8	22.6	26.8	20.4
3	28.7	21.7	32.7	22	28.1	23.9	30	22.8	27.9	23.4	28	22.4	29.4	22.3	27.6	22.6
4	29.7	22	33.8	22.1	26.8	22.9	31.2	22.8	29.5	23	30.8	22.5	29.4	22.5	28.9	22.3
5	26.9	23	31.7	22.1	27.8	24.3	30	22.8	29.5	23.8	28.6	22.4	27.2	23.5	29.3	23
6	30.1	22.7	32.6	20.6	27.5	24.2	32.4	22.2	31.1	23.1	31.5	22.5	28.7	22.8	30.2	22.4
7	27.2	22.8	30.8	22.5	27.8	23.7	30.2	23.3	28.4	22.4	25.6	22.5	27.5	23.2	27.3	23
8	29.2	22.7	29.8	22	27.1	23.9	25.4	22.7	26.7	23	24.6	22	29	23.2	25.6	22.9
9	29.5	22.2	29.7	21	30	23.9	30.1	23.9	31	22.5	30	23	29.4	22.8	31.7	22.9
10	30.2	22.6	30.6	22.1	29	23.1	30.6	23.4	31.9	25.2	30	23.1	29.1	23.5	29.8	22.9
11	31.6	22.2	30.7	21.5	28.4	22.2	30.7	23	29.8	24.6	30.3	23.1	28.8	23.6	32.6	22.2
12	31.7	23	30.7	21.6	30.1	24.6	30.2	23	31.6	23.6	30.3	23	29.8	23.7	29.6	22.8
13	30.8	22.7	30.7	21	29.3	24.2	30.3	22.4	30.5	22	30.4	22.8	30.5	23.8	29.4	23.1
14	32.7	23	30.7	22.4	32.2	24.4	30.6	22.8	31.5	22.4	30.4	22.7	30.2	23.8	30.2	22.5
15	31.5	21.5	30.8	20.6	31.7	24.5	31.8	21.2	31.8	20	31.4	21.8	30.7	21.6	31	21
16	31.5	21.8	30.3	20.9	29.1	23.3	31.9	20.5	30.1	23.5	31.6	22.5	29.9	23.9	30.4	21
17	30	22.5	30.7	20.9	28.5	24.6	31.4	19.9	29.3	22.6	31.2	22	30.2	23	28.1	21.5
18	30	22.4	31.2	20.5	30.7	24.5	31.6	22.6	30	22.9	29.2	22	29.1	22.9	28.1	22
19	29.5	22.3	31.2	19.7	28.3	------	30.9	21.2	30	23.5	30.6	21.4	29.5	21.3	29.5	19.8
20	29.9	21.5	30.7	21.1	28.8	24.2	31.2	20	30	23.8	31.2	21.2	29.7	22.4	29.4	19.4
21	29.5	21.3	30.7	20.4	28.7	24.3	31.2	19.6	30.2	21.7	32.1	21.5	30.2	21.6	30	19.3
22	32.2	22.8	31.8	21	29.1	24.4	31	23.8	29.8	23.4	31	21.8	29.7	23.1	29.6	23
23	31.1	22.8	31.5	21.2	29.7	24.9	31	21.6	30	22.9	29.3	22	30.1	23.1	29.8	21
24	32	22.5	32.3	21.5	31.9	23.9	31.5	21.8	31.5	25	30.8	22.6	31.1	22.8	30.4	23.2
25	32.5	23.4	32.2	22.1	31.4	23.9	31	22.1	31.8	24.5	32.4	22.9	31.9	24.5	30.2	23.8
26	32.1	24.3	33.7	22.5	31.8	23.9	33	21.6	31.3	25.5	31.8	22.3	32.4	23.8	31	24.6
27	30.7	23.5	34.4	22.4	30.7	26.4	33	22	30.5	23.1	29.6	22.5	31.2	23.8	30	22
28	28.5	23.8	32.4	23.2	30.7	26.1	29	22	31.8	23.8	30.7	23.5	31.2	24.4	30.1	24.7
29	30.6	23.8	33	21.5	30.2	26	29.7	21.8	30.5	25.5	28.4	23	31.3	24.6	30.2	23
30	30.9	23.8	33.8	21.1	29.8	26	31.4	22.4	30.4	23.3	32.3	23.5	30.8	23.4	30.3	23
31	32	23.8	34.2	21	30	25.7	32.9	21.9	31	23.5	32	22.8	31.4	24.5	30.5	22.9
Mean	30.4	22.7	31.7	21.4	29.4	24.3	30.7	22	30.3	23.3	30	22.4	29.9	23.2	29.6	22.3

Day.	Catbalogan.		Calbayog.		Masbate.		Romblon.		Batag.		Sorsogon.		Legaspi.		Sumay, Guam.	
	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.
	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.
1	28.5	20.7	28	22.2	28.8	23.4	32.1	21.7	26.8	22	28.5	------	26.1	18.7	30	24.2
2	26	18.7	27	20.5	29	23.6	32	21.2	26.4	21.9	29	------	27	23	28.2	24
3	29	21.3	29.6	22.4	30.8	22	33.9	22.1	27.8	22.2	27.5	------	27.2	22.9	28	25
4	30.1	20.8	30.5	22.7	31	22.5	32.5	22	28.4	22.8	28	------	29.5	23.2	27.4	24.3
5	29.1	21.2	28.8	22.9	27	22.8	30.5	22.3	28.3	22.5	28	------	25.8	23.2	29	23.8
6	28.8	22.1	29.7	22.7	28	22.6	32.7	23.1	27.7	23	27	------	27.7	23.4	29.2	24
7	27	21.6	26	22.7	28.4	23.4	31.5	22	25.6	22	27.8	------	28.3	22.9	29.2	23.4
8	24.8	22	26.2	22.5	27.6	22	31.5	21.8	24.6	21.9	27.5	------	26.9	23	29	24
9	29	22.8	25.7	23	28.4	22.6	29.9	22.9	26.2	22.5	27	------	27.8	22.7	29	24.2
10	29.6	22.8	28.2	22.5	27.8	23	31.4	22.8	30.4	22	27.2	------	29.4	21.5	28.4	24.6
11	29	24	27.9	23.4	28.4	23.4	33.4	22.9	29.4	22	29	------	29.8	22.8	29.4	24
12	28.7	22	29.4	21.4	28.8	23.4	30.9	22.9	------	22	29.5	------	29.4	23	29.6	22.4
13	29.7	21.5	28.2	22.1	30	23	32.3	22.6	------	------	29.5	------	29.2	23.6	28	22.8
14	30	22.2	28.1	22.4	28.6	23.4	31.6	21.9	29.3	22	30.2	------	29.6	22.6	29	22.8
15	30	21	28.6	21.2	29	22	32.6	20.9	28.8	21.6	31	------	30.3	21.8	29	22.6
16	29.7	19.5	29.2	21.9	30.8	22.2	31.8	22.3	27.4	21.4	32	------	29.4	22.1	29	24
17	28.5	20.3	29.1	21.8	29	22.6	31.9	23	24.8	21.5	29.5	------	28.5	22.3	30	22.4
18	29	21	29.2	22	29.6	22.6	31	22.9	27.9	22.2	27.5	------	27.9	22.6	30.2	22
19	29	18.7	30.5	19.9	30.2	20.8	30.9	20.6	28.4	21	30	------	28.9	22.3	30	24.2
20	29	18.2	30.3	18.8	29.6	22.2	31.5	20.4	28.4	21.5	28.5	------	29.3	22.4	30.8	23.4
21	30	18.2	31	19.1	30	21.6	30.8	20.4	29.2	22	29	------	29.3	22.6	31	22.6
22	29.8	22.5	30	22.3	29.8	21.6	32	20.6	28.8	22	28.5	------	28.8	20	31	22.4
23	30	21	29.5	21.7	29.8	22	31.9	21.4	28.4	21.3	29	------	29.3	23	31	23
24	29.9	20	29.9	21.4	31.6	21.8	32.5	22.6	29.8	22.3	30.5	------	30	22.4	31	22.6
25	31.8	21.5	29	22.3	32.4	24.2	33	21.6	29.9	24	31.5	------	30.8	25	29.8	24
26	31.7	22.7	30	21.9	32.6	24.2	33.4	22.6	29.9	24.6	32.5	------	30.8	24.8	30	24
27	31.2	21.4	31.7	21.7	32	25	32.8	23.4	29.8	24.1	30	------	30.6	24.5	29.4	23.6
28	31.5	22.3	32	22	31	24.2	32.6	24.2	29.3	23.8	29	------	28.7	24	28.4	24.4
29	30	21	28.6	22.9	31	24.8	33	24.2	28.3	23.4	29.8	------	29.8	24.5	28.8	24.4
30	31.7	20.5	31.1	22.6	30.8	24	32.3	24	29.3	23.6	29.5	------	29.9	24.2	29.2	24.8
31	32	20.5	32	21.9	32	23.6	33.4	24	29.3	23.3	29.5	------	29.5	23.5	29.4	24
Mean	29.5	21.1	29.2	21.9	29.8	22.9	32.1	22.3	28.2	22.4	29.1	------	28.9	22.9	29.4	23.6

Maximum and minimum temperatures at the stations of the Weather Bureau, March, 1918—Continued.

Day.	Calapan.		Virac.		Naga.		Batangas.[a]		Lucena.		Atimonan.		Ambulong, Tanauan.		Canlubang, Calamba.	
	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.
	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.
1	29.9	20.6	27.9	19.5	29	19	32.6	16.8	28.8	21.1	26	23	32	20	30.1	20.2
2	30	21.5	28.6	19.7	28.5	19.3	31.9	20.6	28.5	20.6	26	23.7	30.2	22	31.1	21.1
3	30	20.6	29.9	20.3	28.4	19.5	31.8	20.4	27.3	22.1	26.1	23	30	22.7	29.1	21.6
4	29	21	31.3	21.3	29.8	20	30.3	19.2	26.5	21.5	25.9	22.6	29.8	22	30.4	20.4
5	30	22	28.5	21.5	27.9	19	32	18.6	28	22.2	26.7	23.8	32.2	21.9	31.2	20.6
6	30.6	21.5	30.3	21.4	29.5	20.6	32.8	21.4	28	22.2	26.2	22.3	30.3	23	30	22.2
7	30	21.5	31.3	21	29.2	20.5	32.4	21.2	28.3	20.9	26.7	22.1	30.9	23	29.9	22.3
8	27.1	21.5	30	21.3	29	20.2	28	20.4	27.3	21	24.6	22.6	28.2	23	29	21.8
9	28.8	22.3	24.8	20.7	30.6	20.4	29.3	20.5	25.5	22	24.7	22	30.7	23	29	21.6
10	30.2	22	29.2	20.5	28.6	20.9	30.2	20.2	26.5	21.4	25.2	22.2	32.6	22.2	31	21
11	30.3	22.5	30.1	21.2	28	20.8	30	21.6	27.8	22.2	26.7	22.7	31.4	21.6	30.2	20.5
12	30	22.5	29.3	21	27.4	20.5	30.2	20.3	27.4	21.5	26.2	22.6	31.5	20.8	30.6	21.5
13	30	22	28.7	21.3	29.8	18.6	31.4	20.4	29.2	21.4	27.6	23	32.7	21.7	29.9	21
14	31	21.5	30.1	21.1	31	20.1	31.9	19.8	29.6	20.6	28	22.6	33	20	31	19.8
15	30.5	20.1	32	20	30.2	19.1	31.5	22.5	29.4	19.6	28.7	20.5	32.2	20.8	31.6	19.9
16	28.5	22.2	29	20.1	29.5	19.2	29.7	21.7	27.5	21.1	26.4	22.3	30	22	30.2	20.9
17	31	21.5	29.5	20	29.5	18.3	33.2	19.7	27.2	20.7	27	22.5	31.4	21.8	30.9	21.3
18	29	23	28.3	20	29.6	17.1	32.2	21.1	29.6	20.7	27	23	31.4	20.1	30.4	21.5
19	30	22	30.5	17	28.9	14.4	32.9	19.3	28.5	19.5	27.3	22.7	33	18	30.2	21
20	29	20	31.3	18	29.7	13.7	32.4	18.2	29.5	19.5	28.2	23.1	33.2	18.4	30.6	20
21	29	19	30.3	18.2	29.8	14.3	32.3	18.8	27.9	19.7	27.3	21.6	32.4	18.2	30.9	19.6
22	29.5	18.6	29.5	18	29.7	15.6	32.1	18.6	29.4	17.4	27.2	19.6	34.7	18.6	31.6	18?
23	29.5	19.9	29.5	18.3	29.8	15.4	33.2	19.3	29.9	17.4?	28.8	23.2	34.6	19.4	31.1	20.6
24	29.5	21	31	18.1	32.4	16.1	33.2	20.8	29.9	19.8	29.4	22	32	19.3	33	20.6
25	30.9	21.5	31.5	20.6	32.5	16	34.6	20.4	32	21	30.7	20.4	34	21	33.9	20
26	32	20.5	31.5	22	33.3	18.5	35.3	21	32	21	31.1	21.3	33.3	21.8	35	19.8
27	32	23.5	32.3	20	32.6	17.7	35.4	23.5	31	22.2	30.1	22.6	34.9	22.5	33	22.4
28	30.6	23	32.2	22.3	30.8	17	34.1	22	30	21.5	29.8	24.4	33.2	21.3	30.7	22
29	30.9	22	31.8	20.5	30.6	17.5	34.4	23.2	30.5	23.2	28.3	24.9	34	22.2	31.6	22.1
30	31	22	30.7	20.3	30.2	16.2	34.5	22.5	30.5	21.5	28.7	24.4	34	21.3	32.2	20.6
31	32	22.5	30.7	20.8	30.7	21.4	33.8	23.8	27.4	23.3	26.4	23.5	31.9	24	31.9	22.9
Mean	30.1	21.5	30.1	20.2	29.9	18.3	32.2	20.6	28.7	21	27.4	22.6	32.1	21.2	31	20.9

Day.	Paracale.		Santa Cruz, Laguna.		Manila.		Antipolo.		Iba.		San Isidro.		Tarlac.		Baler.	
	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.
	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.
1	24.6	23	29.6	20.2	31.6	17.8	32.2	17.5	30.6	18.6	31.4	18.2	35.4	19.4	29	19.2
2	27.1	23	29.2	21.9	31.8	19.7	30.8	18.4	31.3	20	30.9	18.5	34.4	19.5	27.2	21
3	26	22.2	28	22.8	30.6	18.8	31.2	19.2	33.3	19.6	31	17.5	34.2	19.5	27.5	20.2
4	27.7	22.9	27.6	20.7	30.8	17.5	31.1	17.3	31.7	18.4	31.9	18	34.5	17.5	29	17.4
5	28	23.3	30.1	21.6	33.4	19.3	32.7	19.1	31	17.9	32.1	19	35	17.7	28.3	21.5
6	27	22.8	27.8	23.2	31	19	32	19	31.2	18.8	32.4	17.8	35.5	18.2	29.5	19.5
7	27.9	22.5	28.6	22.6	29.4	19.7	31.7	19.6	31.4	19.3	31.5	18.6	36	19.2	29	19.9
8	25.6	22.2	27.3	21.7	30	18.7	31.2	18	30.9	17.5	32.1	17.5	36.5	19.8	29.3	20.1
9	27	22.1	27.4	22.4	30.7	21.1	31.3	20.5	31.9	19	32.9	20.3	35	20.7	27.9	21.7
10	27	22.7	29.7	21.8	29.7	21.6	30.2	20.5	31.1	20.9	33	21	35.5	21	27.7	21.6
11	26.3	23	30.3	21.4	29.9	21.8	30.1	20.1	30.8	20	31.4	21.5	35	21.3	29.1	20.8
12	28.2	22.6	29.6	21.9	30.9	21.2	31.9	19.5	30.9	20.5	31.4	19.5	34.5	20.7	29	20.7
13	26	23.1	29.8	21.6	31.1	20.2	31.2	19.3	30.8	20.4	30.6	20.5	34.2	20.3	26.9	21.6
14	28.8	22.3	33.6	20.2	30.3	21.2	32.8	19.5	30.1	20.1	32.6	20.4	34.2	20.5	28.1	20.8
15	27.6	22.2	32.1	20.8	30.9	22.2	32.7	19.4	30.4	19.1	32	21	34	20.6	30.5	20.4
16	25	22.2	29.1	21.4	30.3	21.6	32.8	19.3	29.7	20.3	30.5	20.6	33.6	20.3	27	20.7
17	26	22.1	29.4	21.6	31.6	19.2	31.8	18.2	29.6	20.4	30.4	20	33.2	19.8	25.8	19.7
18	27.8	21.5	29.4	20.8	31.6	18.5	33.6	17.9	30	19.8	31.4	18.5	34	19.3	27.5	19.5
19	28.5	19	30.5	19.6	31	18.8	32.6	17.5	30.4	19.1	32.4	19	35.2	19.7	28	21
20	28	19.3	30.2	19.5	31.3	19.9	33.6	17.3	29.9	19.2	32.1	19.1	34.8	20	28.1	20.6
21	28.4	19.4	30.1	19.1	31.6	18.6	34.1	17	30.4	19.2	33	19.9	35	19.4	28.6	17.7
22	28.5	18.6	31.2	18.4	31.2	18	32.9	17	30.4	18.2	33.4	18.8	35.5	19.8	28.8	17.3
23	29.5	19.8	30.9	20.2	32.3	18.9	33.8	20.2	30.3	19.5	33.1	19.6	36	20.5	27.9	21.7
24	29.4	19.8	33	20.8	33.8	18.8	34.1	18.2	30.7	18.1	34.4	19	36	20.6	29.5	18.7
25	30.2	21.3	35	21.6	33.8	21.2	36.1	20.5	30.9	20.5	35.6	21.2	36.5	20.6	30.8	19.4
26	30.4	22.2	35	21	34.8	21.5	36.5	20.7	31.8	19.5	36	22.4	37.3	21.6	31.2	20.7
27	29.4	22.9	32	22.8	33.3	21.5	35.6	21.3	31.9	20.9	30.6	22	35.5	21.4	29.2	24.2
28	29	24.5	30.1	23.1	33.1	21.3	34.8	20.7	34.8	19.7	31.5	21.1	34.6	21.4	28.7	21.9
29	29.3	22.4	30.8	23	33.1	21.7	34.8	20.9	32.8	20.9	32	20.7	36	20.5	28.1	22.2
30	29.5	21.2	32.3	20.4	32.6	19.6	35.7	19.2	31.1	21.3	32.1	20.5	36.2	21	29.7	20.5
31	28.3	24	28.4	23.5	33.6	22.5	33.8	23	32.3	20.5	32	20.9	36.2	20.4	29	20.5
Mean	27.8	21.9	30.3	21.3	31.6	20	32.9	19.2	31.1	19.6	32.2	19.8	35.1	20.1	28.6	20.4

[a] The maximum temperatures of this station seem to be too low.

Maximum and minimum temperatures at the stations of the Weather Bureau, March, 1918—Continued.

Day.	Dagupan.		Bolinao.		Baguio.		San Fernando, Union.		Echagüe.		Candon.	
	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.
	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.
1	33	20.1	33	21.3	23.8	13.3	30.3	20.3	30	19.7	32.4	22.5
2	33	19.8	32.9	20.7	22.8	12.2	30.5	20	28.5	20.3	32.5	21.5
3	33.7	20.4	32	21.7	23.8	11.9	30.5	19.3	26.6	18.5	32	20.7
4	34	21	33.9	21.9	23.9	11.7	31.5	20.3	30	17.1	32.5	22.2
5	31.8	20.1	32.7	21	23.8	12.4	31.1	20.5	28.4	18.8	32	22.8
6	35.1	20.4	34.2	22	24.8	12.3	31.3	19.2	31	16.7	32	21.5
7	33.5	20.1	32.1	21.9	25.1	12.8	30.6	20	30	17.5	32.7	22.2
8	30.8	20.2	32.4	19.6	23.5	12	30.6	18.8	31	17.4	32.5	21.2
9	31.1	20.6	33	20.8	24.5	14.3	31.3	20.5	29.7	20.1	32.5	21
10	34	22	32	22.2	22.1	13.5	34	21.7	30	21.2	33.1	23.1
11	32	21.2	33	22	22.4	13.7	32	21	29.5	21.4	32.6	22.2
12	31.6	20.6	32.1	21.1	22.1	12.6	31.5	20.7	28.8	20	32.4	22.9
13	33.9	21	32.7	21.6	21.7	13.3	33.3	20.9	24.8	20.3	32.5	22.1
14	31.1	22	31.7	22.5	21.8	12.9	32.1	22.9	29.9	20.1	32.9	24
15	29.1	23.5	30.6	24	21.3	12.6	30.7	21.1	29.6	20.3	32	21.5
16	29.2	22.6	30	23	19.7	11.9	30.8	18.3	29	19.2	31.5	20.5
17	33.7	20.9	31	22.6	21.3	12	31.6	20.7	28.1	18.2	32	21
18	33.8	19.8	32	21	22.6	12.1	32.1	20.1	31.5	18.3	32.6	23
19	31.7	20.1	31.8	21	23	12.3	31	19.1	32	18.8	32.7	20.2
20	34.3	20.5	32.4	24.2	23.9	13.2	32	19	32.6	18.6	32.1	20.2
21	34.4	21.6	31	24.3	24.9	12.9	31.5	21	32.6	19.7	32.5	21.4
22	30.8	20.6	31.2	23.6	24.3	12.9	31.8	20	31.5	19.5	32.6	21
23	35.1	21.5	31.9	21.2	24.5	13.3	33.5	20.6	33	19.9	33	21.5
24	35	19.8	33.7	22.3	25	13.5	35.1	20.6	34	19	33.2	23
25	35	21.5	32	23.3	25.9	14.4	35.5	21	37.5	19.6	33.4	23
26	31	22.9	32.2	22	25.2	14.4	33	21.1	33.5	22.2	33	23
27	33.1	22.5	34.1	21.9	23.8	14.3	33.4	21.8	31	20	33.4	23.5
28	34	22.8	35	24.1	23.5	13.4	33.8	22	31	22	33.2	23
29	33.8	22.8	32.9	22.9	23.3	13.4	33.4	23.9	32.5	19.8	33.4	25.1
30	34.2	22.7	31.3	23.1	24.9	14.8	33.9	25.5	32.4	20.5	33.7	24.6
31	34.7	23	34	21	24.8	13.7	33.1	21.5	31.5	20.6	33.6	24
Mean	33	21.2	32.4	22.1	23.5	13	32.2	20.8	30.7	19.5	32.7	22.2

Day.	Vigan.		Tuguegarao.		Laoag.[a]		Aparri.		Cape Bojeador.		Santo Domingo, Batanes.	
	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.
	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.
1	30.1	21.5	31.5	18.2	35	17.4	28	18	28.8	19.4	24	20.3
2	34.6	20.9	27.8	19.8	34.5	19.1	25.8	20.8	26	20.6	22.4	18.1
3	31.2	23	26.8	19.8	35.1	16.8	25.8	20.8	26.4	20	24	18.4
4	30.6	22.6	30.8	18.3	33.8	17	28.5	19.3	31.4	20.2	26.8	19.6
5	31.7	21.8	30.6	19.2	36.4	18	28.7	19.5	31.6	21	26.7	21.2
6	30	22.5	32	17.7	35.8	17.3	29	18.8	29.4	20.6	26.6	20.8
7	30.3	21.7	31.1	19.7	36.8	15.7	28	19.6	28.4	20.2	27.2	20.1
8	30.1	21.9	32.8	17.3	34.4	16	28.8	18.8	31.4	20.4	28.4	20.9
9	31.4	21	31.6	19.8	33.8	18.1	28.5	19.5	32	21	28.6	21.4
10	31.7	19.8	33.3	21.1	33.7	20.4	30	21.6	32.2	22.6	28.3	22
11	30.2	21.1	30.1	20.7	35.6	20	27.7	21.3	25.8	21.4	21	18.6
12	30	21.6	28	20.1	35.3	20.1	25.4	20.9	25.6	20	22	17.4
13	31	22.1	24.1	20.6	36.6	22.5	23.6	20.8	28.8	19.6	25.1	19.1
14	31.1	21.6	29	20.5	34.3	21.2	25.6	20	29.8	19.4	22.2	20.1
15	28.1	20	28.6	19.9	31.8	20.1	27.4	20.5	26.4	20.4	23.2	17.6
16	28.5	19	29.4	18.2	32.9	16.5	26.2	20.3	26.5	19.4	22	18
17	30.1	21.7	27.8	18.1	32.9	15.8	24.7	19.6	27.6	19.6	23.2	16.5
18	30.8	22.3	32.6	19.5	33.9	20	28.8	18.8	31	20.2	25.5	18.1
19	30.1	19.8	32.7	18.4	34.2	18.5	30.6	19.3	30.3	21.6	27	20.6
20	29.9	19.5	33.8	19.7	33.3	17.1	30.3	20.5	29.4	20.8	27.5	21.2
21	30	20.2	34.4	20.8	32.3	19	32.2	22	29.4	20.9	28.9	21.1
22	30.7	20	33	21.3	35.9	18	29.8	23.1	29.5	22.2	25.9	17.6
23	30.4	23	34.5	21	33.5	18.5	31.5	21.1	30.2	21.9	27.9	20.5
24	31.6	22.7	35.6	20	34.1	21.8	31.2	19.3	30.2	23.2	30.2	22.4
25	31.6	23.3	37.5	21.1	34.7	20.5	31.6	21.7	30.2	23.6	29.1	23
26	31.1	22	35.8	22.9	34.5	21	29.7	23.5	30.2	24	24	21.2
27	31.7	22.5	34.2	22.7	37	20.1	28.6	22.8	30	22.6	24.1	19.7
28	31.9	23.6	31.1	22.7	35.3	20.5	27.8	22.5	32.6	22.4	26	20.1
29	32	24.3	34.2	21.3	36.1	24.2	32.2	20.3	32.6	24.4	28.7	21.6
30	33.6	23.5	34.4	21.5	39.5	23	29.8	22	31	23.2	27.1	19.9
31	31.4	25.4	32.8	22.5	35.3	22.3	29.7	23.3	32.2	23.6	27	21.5
Mean	30.9	21.8	31.7	20.1	34.8	19.2	28.6	20.7	29.6	21.3	25.8	20

[a] The maximum temperatures of this station are not reliable: they seem to be too high.

SEISMOLOGICAL BULLETIN FOR MARCH, 1918.

By Rev. MIGUEL SADERRA MASÓ, S. J.,
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EARTHQUAKES FELT IN THE PHILIPPINES.[1]

2, $13^h\ 30^m\ 46^s$ * [2, $21^h\ 30^m\ 46^s$]. **Cuyo Island.** Oscillatory earthquake, direction N–S, intensity II–III, duration 3 seconds.

9, $8^h\ 17^m\ 10^s$ * [9, $16^h\ 17^m\ 10^s$]. **Samar, Leyte and NE Mindanao.** Earthquake of intensity VI–VII. From the reports received we deduce that the origin was within the island of Leyte, in its southern portion, where converge two seismo-tectonic lines.[2] The meizoseismic area where the shocks reached intensity VI–VII was rather small, but all the reports which came from towns placed in it give a duration of over 30 seconds. It was perceptible through the island of Samar and in the NE portion of Mindanao, at distances of 200 kilometers in the N–S direction. As there are not indications of it having been felt in Cebu and Bohol Islands, not so distant toward the W, it seems that the isoseisms had an elliptic form, the longer axis extraordinarily extended in the N–S direction, approximately corresponding with the configuration of the island of Leyte and its main tectonic lines. This shock was not recorded outside of our Archipelago.

At $8^h\ 29^m$ [$16^h\ 29^m$] occurred an aftershock felt within the meizoseismic area, and recorded only at Butuan. The seismograph of this station registered also a second lighter aftershock at $8^h\ 35^m$ [$16^h\ 35^m$].

9, $23^h\ 01^m$ [10, $7^h\ 01^m$]. **Butuan** (N Mindanao). Oscillatory earthquake of intensity III, duration 8 seconds.

10, $10^h\ 24^m$ [10, $18^h\ 24^m$]. **Basco** (Batanes Islands). Oscillatory earthquake, direction NW–SE, intensity IV, duration 6 seconds.

17, $1^h\ 54^m$ [17, $9^h\ 54^m$]. **Cape Bojeador** (NW Luzon). Earthquake shock of intensity II–III.

19, $5^h\ 53^m$ [19, $15^h\ 32^m$]. **Guam** (Mariana Islands). Earthquake of intensity III. This earthquake seems to be the one recorded at Sydney, Manila, Osaka and Ottawa, approximately on the same hour; the origin of which lay E of New Guinea.

20, $10^h\ 33^m\ 15^s$ * [20, $18^h\ 33^m\ 15^s$]. **Naga** (SE Luzon). Oscillatory earthquake, direction N–S, intensity IV, duration 7 seconds preceded by subterranean rumbling. It was also recorded at Butuan, Mindanao, its origin probably was somewhere to the NW of Masbate Island.

20, $11^h\ 50^m$ [20, $19^h\ 50^m$]. **Baguio** (W Luzon). Earthquake shock of intensity II–III. In the same place there occurred similar local shocks on the 23d at $1^h\ 21^m$ [$9^h\ 21^m$] and on the 28th at $21^h\ 18^m$ [29, $5^h\ 18^m$].

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[1] The intensity of earthquakes is given in the notation known as the Rossi-Forel scale. The time is that indicated by the seismographs at the Central Observatory whenever the disturbance has been registered by them. This fact is denoted by an asterisk (*). Otherwise the time is that noted by the observer who sent the report. All time indications are in Greenwich mean time (midnight=0^h), insular time being added in brackets for the convenience of Philippine readers.

[2] "The relation of seismic disturbances in the Philippines to the geologic structure," by M. Saderra Masó and Warren D. Smith.

RECORDS OF THE MICROSEISMOGRAPH.

[Time: Greenwich mean. Midnight=0h. Instrument: Wiechert seismograph; 1,000 kilograms. A_N: T_0=5.9, ϵ=2.340, $\frac{r}{T_0^2}$=0.024 A_E: T_0=5.3, ϵ=1.783, $\frac{r}{T_0^2}$=0.092. Alluvium. 240 meters above sea level.]

No.	Date.	Character.	Phase.	Hour.	Period.	Amplitude. A_N μ	Amplitude. A_E μ	Remarks.
				h. m. s.				
98	1	Iv	eP	13 19 18				
			F	22				
99	2	Iv	eP	2 35 32				
			F	38				
100	2	Iv	eP	13 30 46				Cuyo Island.
			F	34				
101	5	Iv	e	21 24				
			F	39				
102	6	Iv	eP	17 40 10				
			F	42				
103	8	Iv	eP	5 41 09				
			F	43				
104	9	Iv	eP	8 17 10				Samar, Leyte and NE Mindanao.
			L	18 14				
			M_N	19 15	6	18		
			F	29				
105	10	Iv	eP	14 28 08				
			F	32				
106	10	Iv	eP	14 37 04				
			F	43				
107	11	Iv	eP	6 28 56				
			F	31				
108	12	Iv	eP	12 45 49				
			F	48				
109	13	Iv	eP	12 27 32				
			F	32				
110	14	Iv	eP	10 14 48				
			F	17				
111	16	I	e	13 56 13				
			F	14 47				
112	16	Iv	eP	18 57 20				
			F	59				
113	19	Ir	e	6 04 22				
			F	42				
114	20	Ir	eP	1 20 16				
			L	27 20				
			M_N	27 49	6	12		
			F	58				
115	20	Iv	eP	2 54 07				
			F	57				
116	20	Iv	eP	10 33 15				Naga (SE Luzon).
			L	33 48				
			M_E	34 04	4		77	
			M_N	34 18	5	106		
			F	50				
117	22	Iv	eP	11 20 10				
			F	22				
118	22	Iv	eP	19 24 06				
			F	26				
119	23	Ir	e	0 20 09				
			L	25 13				
			F	49				
120	24	Iv	eP	1 06 42				
			L	07 12				
			M_N	07 14	3	185		
			M_E	07 20	3		167	
			F	18				
121	24	Iv	eP	5 18 42				
			F	25				

Records of the microseismograph—Continued.

No.	Date.	Character.	Phase.	Hour.	Period.	Amplitude. A_N μ	Amplitude. A_E μ	Remarks.
				h. *m.* *s.*				
122	24	Iv	eP	16 29 26				
			F	32				
123	25	Iv	eP	13 44 05				
			F	46				
124	26	Iv	eP	7 20 53				
			F	24				
125	27	Ir	e	3 55 00				
			S	58 48				
			L	4 00 24				
			M_N	01 03	8	23		
			M_E	01 06	7		19	
			F	46				
126	27	Ir	e	23 21 42				
			F	54				
127	29	Iv	eP	16 06 45				
			F	11				
128	30	Iv	eP	15 34 38				
			F	36				
129	31	Iv	eP	18 37 26				
			F	40				

TEMBLORES DE TIERRA SENTIDOS EN FILIPINAS.[1]

2, $13^h\ 30^m\ 46^s$ *[2, $21^h\ 30^m\ 46^s$]. **Isla de Cuyo.** Temblor oscilatorio, dirección N–S, intensidad II–III, duración 3^s.

9, $8^h\ 17^m\ 10^s$ * [9, $16^h\ 17^m\ 10^s$]. **Sámar, Leyte y NE de Mindanao.** Temblor de tierra de intensidad VI–VII. Según todos los datos recibidos tuvo su origen dentro de la parte S de la Isla de Leyte, donde se cruzan dos diferentes líneas sismotectónicas.[2] El área meizosísmica donde el temblor tuvo intensidad VI–VII fué muy reducida, más la duración se hace pasar de 30^s en los pueblos comprendidos dentro de ella. Fué perceptible en toda la Isla de Sámar y en la parte NE de Mindanao a distancias hacia el S y N de 200 kilómetros. Como no parece haberlo sido en Cebú ni en Bohol, que distan mucho menos por el W, es casi seguro que las isosismas tenían la forma de una elipse muy prolongada en la dirección N–S, que es precisamente la de la configuración de la isla y la de sus principales líneas tectónicas. Este temblor fué registrado solamente dentro del Archipiélago.

A $8^h\ 29^m$ [$16^h\ 29^m$] ocurrió una repetición perceptible dentro de la región meizosísmica y registrada tan solo por el sismógrafo de Butúan, el cual además registró otra muy débil a $8^h\ 35^m$ [$16^h\ 35^m$].

9, $23^h\ 01^m$ [10, $7^h\ 01^m$]. **Butúan** (N de Mindanao). Temblor oscilatorio de intensidad III, duración 8^s.

10, $10^h\ 24^m$ [10, $18^h\ 24^m$]. **Basco** (Islas Batanes). Temblor oscilatorio, dirección NW–SE, intensidad IV, duración 6^s.

17, $1^h\ 54^m$ [17, $9^h\ 54^m$]. **Cabo Bojeador** (NW de Luzón). Temblor de tierra de intensidad II–III.

19, $5^h\ 53^m$ [19, $15^h\ 32^m$]. **Guam** (Islas Marianas). Temblor de tierra de intensidad III. Este temblor parece ser el registrado en Sydney, Manila, Osaka y Ottawa cerca de la misma hora y cuyo origen se hallaba hacia el E de Nueva Guinea.

20, $10^h\ 33^m\ 15^s$ * [20, $18^h\ 33^m\ 15^s$]. **Naga** (SE de Luzón). Temblor oscilatorio, dirección NNE–SSW, intensidad IV, duración 8^s: precedido de ruido subterráneo. Fué registrado también en Butúan, su origen estaba probablemente al NW de la Isla de Masbate.

20, $11^h\ 50^m$ [20, $19^h\ 50^m$]. **Baguio** (W de Luzón). Temblor de tierra de intensidad II–III. En la misma localidad se sintieron además dos ligeros choques locales el día 23 a $1^h\ 21^m$ [$9^h\ 21^m$] y el 28 a $21^h\ 18^m$ [29, $5^h\ 18^m$].

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[1] La intensidad de los terremotos se indica conforme a la conocida escala de Rossi-Forel. Cuanto a la hora de su ocurrencia, adoptamos la indicada por los sismógrafos de esta Observatorio siempre que los hayan registrado, distinguiéndola por medio de un asterisco (*). En caso contrario copiamos la apuntada por los observadores que nos envían las notas. Todas las indicaciones del tiempo se refieren al tiempo medio de Greenwich (medianoche $=0^h$). Para conveniencia de los lectores de Filipinas se añade también el tiempo insular.

[2] "The relation of seismic disturbances in the Philippines to the geologic structure," by M. Saderra Masó and Warren D. Smith.

THE GOVERNMENT OF THE PHILIPPINE ISLANDS

WEATHER BUREAU

MANILA CENTRAL OBSERVATORY

BULLETIN FOR APRIL, 1918

PREPARED UNDER THE DIRECTION OF

REV. JOSÉ ALGUÉ, S. J.

DIRECTOR OF THE WEATHER BUREAU

MANILA
BUREAU OF PRINTING
1918

METEOROLOGICAL BULLETIN FOR APRIL, 1918.

By Rev. JOSÉ CORONAS, S. J.,
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GENERAL WEATHER NOTES.

Pressure and temperature.—The mean atmospheric pressure of this month for the Philippines is somewhat below the April's normal although it is higher than the monthly mean for April, 1917. The highest pressures were almost without exception observed on the 19th while the lowest pressures were recorded on the 12th in the Visayas and Mindanao, and on the 13th in Luzon.

The mean monthly temperature for all our stations is somewhat lower than that of the preceding year and than the normal for this month. The absolute maximum and minimum temperatures for the month in Manila were 35.4° C. on the 23d, and 18.3° C. on the 6th. The extreme monthly temperatures for Baguio were 26.2° C., 13.4 C. on the top of Mirador, and 27.2° C., 12.0° C. in the valley.

PRESSURE AND TEMPERATURE AT THE FIRST AND SECOND CLASS STATIONS FOR APRIL, 1918.

Station.	Pressure.							Temperature.						
	Mean.	Departure from April, 1917.	Departure from normal.	Highest mean.	Day.	Lowest mean.	Day.	Mean.	Departure from April, 1917.	Departure from normal.	Highest.	Day.	Lowest.	Day.
	mm.	*mm.*	*mm.*	*mm.*		*mm.*		°*C.*	°*C.*	°*C.*	°*C.*		°*C.*	
Zamboanga	758.28	+0.50	-------	759.62	19	756.66	12	25.8	—0.6	-------	32	29	20.5	13
Tagbilaran	58.17	+ .44	—0.59	60.05	19	55.80	12	25.9	— .7	—1.1	31.5	10	20.7	11
Surigao	58.31	+ .31	— .59	60.29	19	54.63	12	25.8	—1	— .8	31.8	27	21.3	15
Cebu	58.48	+ .78	— .41	60.23	19	55.80	12	27.6	— .6	— .1	32	8, 10, 21	23.5	11
Iloilo	58.31	+ .69	— .34	60.22	19	56.23	12	27.1	— .9	— .7	34	12	21.7	14
Tacloban	58.45	+ .35	— .80	60.43	19	54.50	12	26.3	—1.1	— .8	33	16, 19	21.4	22
Capiz	58.72	+ .56	— .58	60.76	19	56.38	12	27.1	— .6	— .5	32.6	27	22.2	17
Calbayog	58.68	+ .48	— .61	60.63	19	54.91	12	25.5	—1.1	— .7	33	8	20.6	18
Legaspi	59.05	+ .85	— .40	61.22	19	55.49	13	26.9	—1	— .6	31.8	22	20.6	11
Atimonan	59.36	+1.23	— .10	61.52	19	56.45	13	26.6	— .9	—1.1	32.3	14	21.1	8
Ambulong, Tanauan	58.45	+1.07	-------	60.57	19	56	13	27.6	— .9	-------	37.3	10	20	9
Paracale	59.50	+1.12	-------	61.70	19	56.29	13	26.5	— .7	-------	31.4	21	22	8
Manila	58.96	+1.03	— .40	60.88	19	56.48	13	26.9	—1	—1.2	35.4	23	18.3	6
San Isidro	59.14	+1.11	— .21	61.08	19	56.53	13	27.6	— .4	— .7	36.6	29	19.6	2
Dagupan	58.26	+ .98	— .55	60.04	19, 20	55.84	13	27.7	—1	— .8	36.5	21	21.5	2
Baguio [a]	636.77	+ .53	— .35	638.51	24	634.59	13	18.1	— .5	— .6	26.2	24	13.4	5, 6
Vigan	758.53	+ .95	— .57	760.41	19	755.92	13	27.6	— .7	— .6	34.1	27	21.6	15
Tuguegarao	59.42	+1.30	— .09	61.38	19	57.30	13	27.2	— .2	— .6	38.6	24	19.5	6
Laoag	58.50	+ .95	-------	60.18	20	56.06	13	27.8	— .5	-------	-------	-------	18.9	12
Aparri	59.65	+1.34	— .08	61.81	19	57.76	13	26.2	— .2	— .3	34.6?	8	20.1	20

[a] The barometric readings of this station are not reduced to sea level.

Rainfall.—The total amount of rainfall for this month is higher than that of April, 1917, and than the normal, in Mindanao and the Visayas; but it is lower in Luzon. The monthly rainfall for Manila is only 10.2 mm., an amount which differs from that of the preceding year by —47.9 mm. and from the April's normal by —23.9 mm.

RAINFALL AT VARIOUS STATIONS OF THE WEATHER BUREAU DURING THE MONTH OF APRIL, 1918.

Station.	Total.	Departure from April, 1917.	Departure from normal.	Days of rain.	Departure from April, 1917.	Greatest rainfall in a single day.	Day.	Station.	Total.	Departure from April, 1917.	Departure from normal.	Days of rain.	Departure from April, 1917.	Greatest rainfall in a single day.	Day.
	mm.	mm.	mm.			mm.			mm.	mm.	mm.			mm.	
Jolo	239.6	− 76.5	+116.2	13	− 7	84.6	24	Sumay, Guam	87.3	+ 54.2	+ 41.6	11	+7	19.8	10
Isabela, Basilan	88.5	− 30	+ 5.4	12	− 1	32.5	6	Calapan	103.9	+ 2.4	− 6.3	11	+1	37.8	15
Zamboanga	98.3	+ 53.2	+ 58.2	9	+ 2	30.2	3	Virac	128.7	+ 36.3	+ .3	14	−1	28.2	25
Davao	139.2	+ 32.2	− 21.7	13	+ 4	65.8	27	Naga	43.9	− 73.4	− 56.9	8	−1	12.7	12
Cotabato	276.3		+113.1	18		36.1	9	Batangas	14.2	− 6.7	− 14.6	2	−6	7.6	22
Cagayan, Misamis	54.7	+ 43.1		8	+ 4	16.8	27	Lucena	39	+ 22		6	+3	13.7	22
Dapitan	553.2		+400.7	17		210	26	Atimonan	36.1	− 48.4	− 54.4	6	−6	23.4	22
Butuan	246	+ 87.9	+113.2	20	+ 3	68.3	11	Ambulong, Tanauan	49.9	− 19.3		5	−1	17.8	22
Mambajao	18.6	+ 6.7		3	0	7.6	20	Canlubang, Calamba	47.5	− 75.3		8	+2	28.7	14
Dumaguete	26.1	− 40.7		7	+ 2	10.4	27	Paracale	132.3	+ 38.2		15	+5	61.9	24
Yap, W. Carolines	322.4	+252.3	+187.2	26	+10	76.2	2	Santa Cruz, Laguna	74.6	+ 32.2		9	+2	23.1	24
Tagbilaran	173.2	+135.1	− 5.8	11	+ 8	57.9	3	Manila	10.2	− 47.9	− 23.9	3	−5	4.5	25
Iwahig	59.4	− 18.6		10	+ 1	18	28	Antipolo	2	− 65.4		2	−5	1.5	26
Surigao	215.7	+136.8	− 28.2	22	+11	44.5	21	Iba	27.9	− 37.5	− 19.9	6	+2	16.5	22
Maasin	6.6	− 3.1	− 59.4	1	0	6.6	16	San Isidro	.6	− 76.4	− 38.8	2	−7	.3	24, 26
Cebu	35.5	+ 15.9	+ 1.2	8	+ 3	17.5	28	Tarlac	2.1	−100.8	− 64.6	2	−9	1.3	26
Iloilo	52.7	+ 28.7	+ 14.5	7	− 5	29	27	Baler	296.4	+189	+ 12.8	17	+2	72.9	22
San Jose Buenavista	120.9	+ 34.6	+ 66.8	9	− 2	68.3	28	Dagupan	260.4	+176.6	+174.4	11	−1	85.6	25
Cuyo	79.3	+ 39.6	+ 55.8	4	− 7	64	28	Bolinao	1	− 40.4	− 25.8	1	−4	1	24
Ormoc	154.6	+ 93.7	+ 76.9	23	+13	28.5	6	Baguio	119.6	− 48.3	+ 1.5	9	−9	35.3	27
Guiuan	240	+120.8		21	+ 9	40.2	12	San Fernando, Union	1.8	− 41.2	− 14.2	1	−2	1.8	22
Tacloban	135.4	+ 39.8	+ 2.5	21	+ 8	17.9	21	Echagüe	10.2	−108.3	− 58.8	5	−8	6.6	26
Capiz	74.9	− 14	+ 23.3	7	− 7	48.3	16	Candon	0	− 46.2	− 14.6	0	−3	0	0
Borongan	305.7	+187.4	+ 73.6	21	+ 5	53.1	22	Vigan	.8	− 59.5	− 19.4	1	−4	.8	1
Catbalogan	170.3	+ 44.6		19	+ 3	21.8	24	Tuguegarao	67.5	− 48.7	− 5.2	3	−6	53.3	27
Calbayog	164.9	+ 52.7	+ 48.9	20	+ 3	24.6	22	Laoag	0	− 50.8	− 10.3	0	−4	0	0
Masbate	17	− .5	− 19.9	6	+ 2	5.3	22, 24	Aparri	7.8	− 40.3	− 30.8	4	−7	3.3	14
Romblon	61.3	− 6.2	+ .6	6	− 6	38.1	26	Cape Bojeador	0	− 77.4		0	−3	0	0
Batag	185.2	+155.4		15	+ 9	71.1	12	Santo Domingo, Batanes	9.5	−191.6	−102.8	6	−9	3	12
Sorsogon	59.7	+ 14.8		9	0										
Legaspi	74.2	+ 10.1	− 73.5	16	+ 6	16.5	24								

DEPRESSIONS AND TYPHOONS.

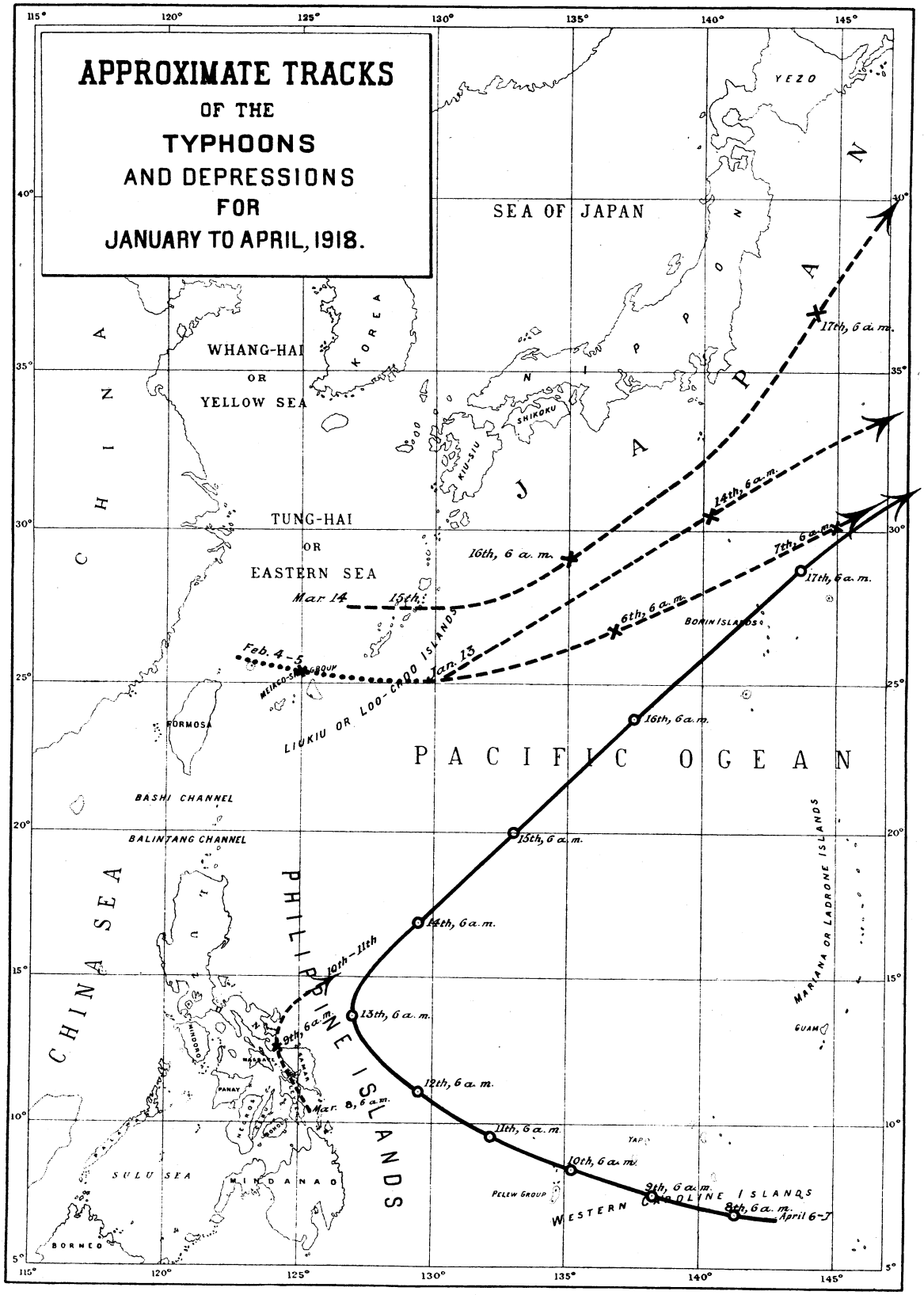
There was only one typhoon in the Far East during this month. Its track is given in Plate I together with a few depressions of the last two months. In the following table we publish some of the observations taken at Yap, Western Carolines, from the 5th to 12th:

METEOROLOGICAL OBSERVATIONS MADE AT YAP, WESTERN CAROLINES, APRIL 5 TO 11, 1918.

Date and hour.	Pressure.	Wind.		Rain, 24 hrs. beginning 6 a. m.	Date and hour.	Pressure.	Wind.		Rain, 24 hrs. beginning 6 a. m.
		Direction.	Force.				Direction.	Force.	
	mm.		0–12	mm.		mm.		0–12	mm.
April 5:					April 9:				
6 a. m	756.68	ENE	1		4 a. m	752.43	NE	4	
2 p. m	55.31	NE	2	1	6 a. m	52.92	NE	4	
April 6:					8 a. m	53.64	ENE	4	
6 a. m	55.64	Calm			10 a. m	53.82	ENE	4	
2 p. m	54.20	ENE	2	7.6	Noon	52.88	ENE	5	17
April 7:					1 p. m	52.55	ENE	5	
6 a. m	55.30	Calm			2 p. m	52.08	E	5	
2 p. m	53.78	ENE	2	25.2	3 p. m	51.50	E	6	
April 8:					4 p. m	51.95	E	5	
6 a. m	54.50	NEbyN	2		6 p. m	52.15	E	5	
Noon	54.13	NE	3	20.1	Midnight	53.87	E	4	
2 p. m	53.18	NE	4		April 10:				
4 p. m	53.44	NEbyE	3		6 a. m	54.38	ESE	3	
6 p. m	54.03	NE	2		2 p. m	55.69	SSE	2	47
9 p. m	54.38	NE	3		6 p. m	55.29	ESE	2	
Midnight	54.01	NE	3		April 11:				
April 9:					6 a. m	56.42	SSE	2	
2 a. m	52.85	NE	4		2 p. m	55.80	SSE	2	.3

According to these observations the typhoon was probably forming on the 6th to 7th to the ESE of Yap near 143° longitude E and 7° latitude N. Its center passed S of Yap on the 9th moving W by N. The track of the typhoon, however, was inclining more and more to the NW since that day until a complete recurving of the storm to the northeast took place on the 13th to the east of southern about 150 miles from Catanduanes Island. The center of the typhoon passed across or very near the Bonin Islands on the evening or night of 16th moving still northeastward. Manila Observatory was able to announce and follow the track of this typhoon from April 11 to 17.

Plate I.


APPROXIMATE TRACKS
OF THE
TYPHOONS
AND DEPRESSIONS
FOR
JANUARY TO APRIL, 1918.
YEZO
SEA OF JAPAN
JAPAN
WHANG-HAI
OR
YELLOW SEA
KOREA
CHINA
TUNG-HAI
OR
EASTERN SEA
KIU-SIU
SHIKOKU
17th, 6 a.m.
16th, 6 a.m.
14th, 6 a.m.
7th, 6 a.m.
17th, 6 a.m.
6th, 6 a.m.
Mar. 14
15th.
Jan. 13
Feb. 4–5
BORIN ISLANDS
LIUKIU OR LOO-CHOO ISLANDS
FORMOSA
16th, 6 a.m.
PACIFIC OCEAN
BASHI CHANNEL
BALINTANG CHANNEL
13th, 6 a.m.
CHINA SEA
PHILIPPINE ISLANDS
14th, 6 a.m.
10th–11th
13th, 6 a.m.
9th, 6 a.m.
MARIANA OR LADRONE ISLANDS
GUAM
12th, 6 a.m.
Mar. 8, 6 a.m.
11th, 6 a.m.
YAP
10th, 6 a.m.
SULU SEA
MINDANAO
PELEW GROUP
9th, 6 a.m.
8th, 6 a.m.
April 6–7
BORNEO
115°
120°
125°
130°
135°
140°
145°
40°
35°
30°
25°
20°
15°
10°
5°

NOTAS GENERALES DEL TIEMPO.

Presión y temperatura.—La presión atmosférica media de este mes en Filipinas es algo menor que la normal de abril, aunque es mayor que la media mensual de abril de 1917. Las presiones más altas del mes se observaron casi sin excepción el día 9, al paso que las más bajas tuvieron lugar el día 12 en las Visayas y Mindanao, y el 13 en Luzón.

La temperatura media mensual en todas nuestras estaciones es algo menor que la del año pasado y que la normal de este mes. Las temperaturas máxima y mínima absolutas del mes en Manila fueron 35.4° C. y 18.3° C. observadas los días 23 y 6, respectivamente. Las temperaturas extremas del mes en Baguio fueron 26.2° C., 13.4° C. en la cumbre del Mirador, y 27.2° C., 12.0° C. en el valle.

Precipitación acuosa.—La cantidad total de lluvia recogida durante este mes es mayor que la de abril de 1917 y que la normal de este mes en Mindanao y en las Visayas; pero es menor en Luzón. La lluvia mensual en Manila es sólo 10.2 mm., cantidad que difiere de la del año pasado en —47.9 mm., y de la normal de abril en —23.9 mm.

DEPRESIONES Y TIFONES.

Un solo tifón hubo durante este mes en el Extremo Oriente. Su trayectoria va en la Lámina I juntamente con unas cuantas depresiones de los dos últimos meses. En la tabla que va en el texto inglés publicamos algunas de las observaciones hechas en Yap, Carolinas Occidentales, desde el día 5 al 12.

Según estas observaciones, el tifón se formó probablemente los días 6 al 7 al ESE de Yap cerca de 143° longitud E y 7° latitud N. Su centro pasó por el S de Yap el día 9, moviéndose al W $\frac{1}{4}$ NW. La dirección del tifón, sin embargo, fué inclinándose más y más al NW desde dicho día hasta que tuvo lugar una recurva completa del baguio al NE el día 13 al E del sur de Luzón a unas 150 millas de la Isla de Catanduanes. El centro del tifón pasó a través o muy cerca de las Islas Bonins la tarde o noche del 16 moviéndose aún hacia el NE. Al Observatorio de Manila le fué posible anunciar y seguir la trayectoria de este tifón desde el 11 hasta el 17 de abril.

METEOROLOGICAL DATA FOR MANILA CENTRAL OBSERVATORY.[a]

[ϕ=14° 34′ 41″ N; λ=120° 58′ 33″ E; barometer above sea, 14.2 meters; gravity correction not applied, —1.72 mm.]

Day.	Pressure (mean).	Air temperature.[b] Mean.	Maximum.	Minimum.	Underground temperature. 0.25 meter. 8 a.m.	0.25 meter. 2 p.m.	0.50 meter. 8 a.m.	0.50 meter. 2 p.m.	1.50 meters. 8 a.m.	2.50 meters. 8 a.m.	Relative humidity (mean).	Vapor pressure (mean).	Radiation. Minimum on grass.	Maximum in sun. Black bulb in vacuo.	Evaporation.[b] Free exposure (total).	Shelter (total).
	mm.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	*Per ct.*	*mm.*	°C.	°C.	*mm.*	*mm.*
1	759.91	26.4	33.1	21.8	27.5	29	28.2	28.6	27.5	27.1	70.1	17.5	19.3	52.8	5.4	4.3
2	59.23	26	33.2	19.4	27.2	29.5	28.1	28.7	27.6	27.1	70.2	17.1	16.8	54.5	6.9	4.4
3	58.73	26.2	33.6	19.6	27.3	29.5	28.1	28.6	27.6	27.1	68	16.8	17	55.2	7.8	5.5
4	59.26	26.1	32.1	20	27.6	28.5	28.3	28.8	27.9	27.3	69.7	17.2	17.2	51.4	5.5	4.1
5	59.20	26.1	33.6	19.6	27.2	28.9	28.1	28.2	27.6	27.1	68.4	16.8	17	54.8	5.9	4.6
6	58.37	25.7	32.7	18.3	27	29.3	27.9	28.6	27.6	27.1	70	16.9	15.1	53	6.2	4.3
7	57.78	27.1	33.8	21.1	27.6	29.7	28.2	28.7	27.8	27.2	70	18.2	18.5	53.8	6.5	4.7
8	58.01	27.8	34.1	21.8	27.7	29.9	28.5	28.8	27.7	27.1	67.7	18.3	18.8	55	7.5	4.9
9	58.49	27.7	33.4	22.3	28.2	29.9	28.7	28.9	27.8	27.2	64.8	17.5	19.5	54	6.7	4.7
10	58.84	26.9	33.7	19.6	27.9	29.8	28.8	29.1	27.8	27.2	67.3	17.3	16.2	54	6.1	4.8
11	58.34	27.4	33.8	21.8	28.3	30.6	28.8	29.1	27.8	27.3	69	18.5	18.9	55.2	6.3	4.6
12	57.20	27	32.3	22.1	28.3	30	28.8	29.3	28	27.2	72.5	19.1	19.6	54.2	5.4	3.8
13	56.48	26.5	32	21.6	28.5	30.3	28.9	29.3	28	27.2	77.5	19.8	18.9	53.9	4.5	3.4
14	56.92	27.3	32.1	22.6	28.3	30.2	28.9	29.2	28	27.2	77.2	20.6	20.6	52	4.7	3.4
15	58	26.5	30.2	24.5	28.5	29.6	29	29.3	28.2	27.2	78.1	20.1	23	49	3.7	2.6
16	58.63	26.6	31.7	23.9	28.2	29.3	28.9	29.2	28.2	27.2	76.4	19.6	22.5	58	4.2	3.1
17	59.35	26.9	32.6	22.8	28	29.7	28.8	29.2	28.1	27.3	72.9	18.9	21	55.4	5.3	3.7
18	60.30	26.7	32.9	21.6	28.2	29.4	28.8	29.3	28.2	27.3	70.1	18	19	52.8	6.1	4.4
19	60.88	26.8	34.5	20.4	27.7	30.1	28.8	29.1	28.2	27.3	65.8	16.8	17.3	56.5	6.6	4.9
20	60.85	26.9	34.2	20.8	28	30.3	28.8	29.2	28.2	27.2	64.4	16.5	17.8	55.3	7.4	5.3
21	60.19	26.7	34	19.7	28.3	30.4	28.9	29.4	28.3	27.4	68.9	17.3	16.8	54.2	7.1	4.9
22	59.32	26.8	34.6	20.8	28.3	30.2	28.9	29.4	28.2	27.4	71.9	18.5	18	55.7	5.9	3.8
23	59.64	28.1	35.4	22.2	28.9	30.5	29.2	29.6	28.3	27.4	70.9	19.3	20.2	56	7	5.3
24	60.71	28.1	34.8	22.7	29	30.9	29.3	29.8	28.3	27.3	70.3	19.4	20.4	58.2	6.5	4.7
25	60.51	26.9	33.4	23.3	29.1	29.5	29.5	29.4	28.4	27.4	78.1	20.4	21.2	53.8	3.3	2.9
26	59.12	26.9	32.8	22.1	28.5	29.2	29.2	29.1	28.5	27.4	78.3	20.4	20.2	52.9	3.9	2.7
27	58.29	27.2	34.4	23.3	28.5	30.4	29.2	29.6	28.4	27.4	79.2	20.9	22.2	59.7	4.6	3
28	58.02	27.9	34.6	23.6	29	30.9	29.4	29.8	28.5	27.5	70.6	19.2	21.8	55.8	6.5	4.9
29	58.86	27.8	34.6	21.5	28.8	31	29.3	29.9	28.4	27.5	65.5	17.7	19	54	7.5	5
30	59.23	27.3	34.8	21.4	29.2	30.4	29.6	29.8	28.4	27.5	66.8	17.6	18.8	55.3	6.9	5.1
Mean	758.96	26.9	33.4	21.5	28.2	29.9	28.8	29.2	28	27.3	71	18.4	19.2	54.5	5.9	4.3
Total															177.9	127.8
Departure from normal	—0.40	—1.2	—0.5	—1.2							+1	—1				

Day.	Wind. Prevailing direction.	Total movement.	Maximum hourly velocity.	Direction at the time of the maximum velocity.	Clouds. Amount (mean).	Form and direction. Upper.	Lower.	Sunshine.	Rain, 24 hours beginning 6 a.m. On the tower.	In the park.	Miscellaneous.
		Km.	*Km.*		*0–10.*			*h. m.*	*mm.*	*mm.*	
1	E	212	19	ESE	5.8	A.-Cu. NE	Cu. ENE	7 45			☌° a.
2	ESE	185.5	17	WNW	3.8	Ci.-S., Ci.	Cu. EbyN	7 40			☊ a.
3	ESE	197	18	W, WNW	2.4	Ci.	Cu. ENE	8 45			☊ a.
4	ESE	217	22.5	W	4.8	A.-Cu.	Cu. E	7 25			☊° a.
5	E quad.	214	20	SSE	2.9	Ci.	Cu. EbyN	8 05			
6	SE	253	24	SE	2.1	Ci.-Cu.	Cu. E	10 00			
7	SE	220	18	SE	3	A.-Cu.	Cu. E	10 50			
8	SE	238	20	SE	2	Ci.	Cu. E	11 00			
9	E quad	211	15	S quad.	2.6	A.-Cu. NE	Cu. NNE, NE	8 30			
10	SW quad.	185	15	S	1.3	Ci.	Cu.	9 15			☊° a.
11	W quad.	185	16	WSW	5.2	Ci.	Cu. NE	8 00			⊕ p.
12	W, WSW	221.5	18	W	8.7	Ci.-S. NW	Cu. NE	2 50			◠° a.
13	WSW	273	28	WSW	8.8	Ci.-S.	Cu.	4 40			⊕ p.
14	WNW, SW	227.5	20	SW	5.8	A.-Cu. NNW	Cu. NEbyN	5 50	4.4	5.3	☊° a. ⊕° ●° p.
15	SE	205.5	17	SE	9.6	A.-Cu. ESE	Cu. SE	1 05			☌° a.
16	SE	164	18	SE	7.7	A.-Cu. SSE	Cu. SE	2 20			
17	ESE	193	17	SE	5.5	A.-Cu. E	Cu. ESE, SE	5 35			
18	SE	240	23	SE	4	A.-Cu. NbyE	Cu. EbyS	9 15			☊° a.
19	SE, ESE	190	16	E	2		Cu. E	10 20			☊° a.
20	ESE	242.5	21	SE	1.3		Cu. ENE	10 20			
21	SE	205.5	20	SE	2		Cu. E	9 40			☊² a.
22	W quad.	177	18	SSW	7.1	Ci.	Cu.-N. E	6 55			◪ ◠ p.
23	ESE, E	203	22	ESE	4.2	Ci.	Cu. E quad.	11 05			◡ p.
24	E quad.	149	18.5	E	6.2	A.-Cu. EbyS	Cu.	5 45			
25	E quad.	135	15	NW	6.8	A.-Cu.	Cu.-N. E	6 10	4.5	4.3	⊤ ◪ ●° p.
26	E quad.	173	15	W	7.1	Ci.	Cu.-N. E	8 30	1.3	1.3	p° ◪² ◟ p.
27	N quad.	141	14	SE, WbyN	8.8	A.-Cu. NNE	Cu.-N. E	4 20			◪² ◟² p.
28	ESE	200	23	ESE	4.7	A.-Cu.	Cu. E	9 20			
29	SE	209	18	SE	2.8	Ci.	Cu.	11 10			
30	E quad.	192	23.5	ESE	4	Ci.-Cu., Ci.	Cu.-N. E	9 55			
Mean		202	19		4.8			7 45			
Total		6,059						232 20	10.2	10.9	
Departure from normal		—812.8			+0.7			—28 28	—23.9		

[a] All the mean values given in this table are deduced from hourly observations.
[b] These values are taken from instruments mounted in the Observatory Park, 1.5 meters above ground.

METEOROLOGICAL DATA FOR MIRADOR OBSERVATORY, BAGUIO.[a]

[ϕ=16° 25′ N; λ=120° 86′ E; barometer above sea, 1,512.5 meters; gravity correction not applied, —1.65 mm.]

Day.	Pressure[b] (mean).	Air temperature at Mirador (on the top of the mountain).					Air temperature in the valley (near the city hall).				Relative humidity (mean).	Vapor pressure (mean).	Radiation.		Evaporation.	
		Mean.	Maximum.	Hour.	Minimum.	Hour.	Maximum.	Hour.	Minimum.	Hour.			Minimum on grass.	Maximum in sun. Black bulb in vacuo.[c]	Free exposure (total)	Shelter (total)
	mm.	*°C.*	*°C.*		*°C.*		*°C.*		*°C.*		*Per ct.*	*mm.*	*°C.*	*°C.*	*mm.*	*mm.*
1	637.30	17.6	24.1	10.05a.	14.1	6.05a.	25.2	11.00a.	13.5	6.00a.	83.5	12.3	12.3	56	3.1	1.6
2	36.76	16.7	23.5	9.35a.	14	6.00a.	22.5	9.45a.	13	6.00a.	90.8	12.9	12.4	57.3	1.2	.9
3	36.32	16.5	21.7	1.30p.	13.8	6.00a.	23.9	1.15p.	13.5	6.00a.	90.5	12.6	12.3	55	1.6	1.2
4	36.60	17.2	22.8	0.30p.	13.7	5.40a.	23.3	11.45a.	13.4	4.00a.	90.7	13.2	13.2	57.4	2.2	1.1
5	36.70	17.4	23.5	0.20p.	13.4	6.00a.	23.4	0.25p.	12.6	6.10a.	86.8	12.8	12.2	60.5	2.6	1.5
6	35.98	17.5	23.5	1.05p.	13.4	6.00a.	24.5	1.20p.	12.5	6.00a.	86.3	12.8	12	60	2.9	1.7
7	35.77	17.7	24.6	1.05p.	13.8	4.50a.	24.7	2.10p.	13	5.10a.	86.2	12.9	12	61.4	3	1.6
8	36.02	18	23.8	1.35p.	14.9	4.40a.	24.5	1.35p.	14	5.05a.	91.7	14	13.5	59	1.8	1
9	36.47	18.3	24.4	11.55a.	15.1	5.05a.	24.8	2.30p.	14.9	6.25a.	89.8	14.1	13.5	62.4	1.3	1.1
10	36.76	18.3	22.1	10.50a.	15.7	6.15a.	23.9	11.20a.	15.5	6.20a.	90	14	14.4	55.7	1.5	1
11	36.50	19.1	25.1	1.35p.	14.9	6.05a.	24.5	0.20p.	14.4	6.30a.	84.8	13.9	13.3	61.3	2.9	2
12	35.42	18	23.3	1.00p.	14.9	6.00a.	23.7	0.55p.	13.9	5.05a.	87.2	13.4	13.2	51.7	1.6	1.1
13	34.59	18.6	24.5	1.30p.	15.2	3.30a.	25	1.55p.	14.5	6.20a.	86.7	13.8	13.2	58.5	1.9	1
14	35.14	17.8	23.2	11.55a.	14.4	5.30a.	24.8	2.10p.	13.9	6.30a.	91.7	13.9	12.6	56	1.2	.8
15	35.57	18.2	24	0.50p.	14.9	5.50a.	24.4	1.20p.	13.9	6.00a.	89.3	13.8	12.6	57.9	2	1.1
16	36.19	17.8	23.8	2.35p.	15.2	6.00a.	24	1.50p.	15.4	6.00a.	90.2	13.6	14.6	57	1.5	.9
17	36.88	18.1	24	1.20p.	14	4.20a.	24.6	3.00p.	14.5	5.00a.	89.7	13.8	13.2	55.3	1.7	1.2
18	37.83	18	23.4	3.25p.	14.4	6.00a.	24.7	10.20a.	14.5	5.30a.	89.2	13.6	13.6	56.2	2.8	1.6
19	38.35	18.6	24.3	10.10a.	13.5	5.30a.	24.9	1.15p.	13.4	6.00a.	79.2	12.2	12.5	56.3	3	1.6
20	38.19	18.2	23.8	1.00p.	13.8	3.35a.	24.4	11.00a.	12	5.40a.	85.3	13.2	11.3	57.6	2.5	1.6
21	37.68	18.5	24.7	1.20p.	13.9	6.00a.	24.9	11.00a.	13.2	5.40a.	82.8	13	11.3	57.1	3.8	2.2
22	37.12	17.8	24.6	0.25p.	14.2	5.55a.	25.2	1.05p.	13.2	6.00a.	84.2	12.8	13.2	58	3.3	2.5
23	37.66	19.6	25.3	10.00a.	15.4	5.40a.	26.4	11.25a.	14.6	6.00a.	80	13.5	13.2	61.6	3.5	2.2
24	38.51	19.6	26.2	11.05a.	15.1	5.20a.	27.2	1.20p.	13.7	6.00a.	78.5	13	12.7	56.1	4.4	2.4
25	38.44	17.8	25.8	0.35p.	15.9	6.00p.	24.9	0.40p.	16	12m.n.	88	13.3	12.6	62.6	1.4	1
26	37.25	17.5	24.6	0.20p.	15.6	3.00a.	24	9.00a.	14.2	5.30a.	87	12.9	13.2	60.2	2.1	1.4
27	36.35	18.6	24.3	10.00a.	15.1	5.50a.	24.9	11.10a.	14.3	12m.n.	81.7	12.8	13	62.4	3.4	1.8
28	36.31	17.4	24.5	0.35p.	14.4	3.00a.	25	1.25p.	13.7	3.00a.	90.5	13.4	13.3	59.6	2.3	1.3
29	37.08	18.3	24.6	0.20p.	15	5.55a.	24.3	0.20p.	14.5	5.55a.	92.3	14.4	14.2	59.5	2.7	1.7
30	37.32	19.4	25.8	1.20p.	14.4	5.45a.	26.5	0.40p.	13.1	4.20a.	74.2	12.1	12.2	56.7	4.5	3.1
Mean	636.77	18.1	24.1		14.5		24.6		13.9		86.6	13.3	12.9	58.2	2.5	1.5
Total															73.7	45.2

Day.	Wind.				Clouds.			Sunshine.	Rain, 24 hours beginning 6 a. m.	Miscellaneous.
	Prevailing direction.[d]	Total movement.	Maximum hourly velocity.	Direction at the time of the maximum velocity.	Amount (mean).	Form and direction. Upper.	Lower.			
		Km.	*Km.*		*0–10.*			*h. m.*	*mm.*	
1	E	372.6	24.4	SW	5.4	A.-Cu.	Cu.-N. E	4 25	4.8	≡ ⌐◹ ● ◠ ◟ p.
2	E quad.	277.2	20.7	W	6.4	Ci.	Cu.-N. NNE	3 05	9.7	● ⌐◹ ◟ p.
3	E	426.8	22.2	E	5.9	Ci.	Cu.-N.	3 25	3.3	≡ a. ● ≡° ◠² ⌐◹ p.
4	E, W	376	22.3	E	5.9	Ci.	Cu.-N. S	4 55	.....	≡² p.
5	E, W	328.3	25.5	SW	5.6	Ci.	Cu.-N. W	5 20	.....	Ω² a. d° p.
6	E, SW	321.3	25.9	W	2.9	Ci.	Cu. ENE	6 50	.....	
7	E, W	282.9	27.2	W	4.9	.....	Cu.-N. E, WNW	6 50	.....	Ω° a.
8	Variable	236.7	21.4	W	7.3	.....	Cu.-N. E	3 40	.....	Ω ≡° a. ≡² d° p.
9	W quad.	218.6	23.9	W	9.1	.....	Cu.-N. NNE, WNW	2 25	.....	Ω a. ≡ p.
10	W, SE	232.1	23.1	SW	7.6	.....	Cu.-N. NNE, NE	2 45	.....	Ω° ≡ a. ⌐◹° ≡ p.
11	W	277.1	25.5	W	6	Ci.	Cu. NNW	7 30	.....	Ω° a.
12	W	286.6	22.8	W	8	Ci.-S. S	Cu.-N. ENE, NW	2 15	.....	Ω a. ≡² p.
13	W	304.1	25.4	W	7.6	Ci.-S.	Cu. N	5 50	.....	Ω a. ≡² d° p.
14	W	245.9	24.4	W	7.7	Ci., Ci.-S.	Cu.-N. NW, NNW	2 35	.....	Ω a. ≡² p.
15	W quad.	272.1	23.5	SW	6.9	Ci., Ci.-S.	Cu.-N. SE, W	5 10	.....	Ω a. ≡° p.
16	SW quad.	246.6	22.2	W	9.6	.....	Cu.-N.NW,NNW	2 55	.....	Ω a. ≡ a. p.
17	E	240.4	23	SW	9	.....	Cu.-N.WNW,NNE	4 50	.....	Ω² a. ≡° a. p.
18	E, SW	276.2	24.4	SW	6.3	Ci.	Cu.-N. ESE	1 05	.....	Ω ≡ a.
19	E quad.	349.4	25.1	W	5.6	Ci.	Cu.-N. E	6 55	.....	Ω² a.
20	Variable	265.8	26.6	W	5	Ci.	Cu.-N., Cu. ESE	6 25	.....	Ω a. ≡° p.
21	Variable	356	30.9	W	1.9	Ci.	Cu.-N. E	9 05	.....	Ω² a. ∞ ◟° p.
22	E quad.	391.2	26.4	SW	5.6	Ci.	Fr.-Cu. ESE	5 55	17	Ω² a. ● ⌐◹ ◠ p.
23	E quad.	327.9	24.1	W	5.7	Ci.	Cu.	6 30	.8	d° ⌐◹² ◠ p.
24	E, W	286.4	22.5	W, SE	3.7	Ci.	Cu. E	7 45	.....	⌐◹ p.
25	E	371.8	26.4	E	9	Ci.-S.	Cu.-N. ESE	1 25	1.5	d a. ⌐◹² ◠ d p.
26	E quad.	259.9	27.4	W	5.4	Ci.-S.	Cu.-N. NE	3 50	31.2	⌐◹° ● ◠ ◟ p.
27	E quad.	.....	.....	.....	7.4	A.-Cu. WbyS	Cu.-N. E	4 15	35.3	≡ ⌐◹² ● ◠² ◟° p.
28	E quad.	.....	.....	.....	5.7	A.-Cu., Ci.	Cu.-N. ESE	5 30	16	⌐◹² ● p.
29	Variable	.....	.....	.....	6	A.-Cu., Ci.	Cu.-N. E	5 45	.....	≡ p.
30	E, W	.....	.....	.....	3	Ci.	Cu.	9 05	.....	Ω a.
Mean		301.2	24.5		6.2			4 56	.....	
Total								148 15	119.6	

[a] All the mean values given in this table are deduced from six daily observations taken at 2, 6, 10 a. m. and 2, 6, 10 p. m.
[b] The barometric readings of this station are not reduced to sea level.
[c] Maximum of hourly observations taken from 6 a. m. to 6 p. m.
[d] This element is based on hourly observations taken from a quadruple register, which gives only eight possible directions of the wind.

DAILY RAINFALL AT THE STATIONS OF THE WEATHER BUREAU, APRIL, 1918.

Station.	Day of month.															
	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.
	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.
Jolo	8.9	.....	0.3	.....	0.3	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Isabela, Basilan	.....	.....	2.3	.....	.5	32.5	3.6	.....	.....	.....	.....	.....	.....	.....	.....	.....
Basilan Plantation, Isabela (Basilan)[a]	.....	.....	.....	10.9	1.8	38.6	5.1	.....	.....	.....	.....	.....	.....	.....	.....	.....
Zamboanga	.....	.....	30.2	.8	.....	1.5	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Davao	5.6	5.8	2.5	.....	17.8	15.7	10.7	2.5	1.5	.....	.....	.....	.....	.....	.....	.....
Cotabato	16.8	2.3	32	7.1	3.6	31.2	.....	33.5	36.1	.....	.....	.....	.....	.....	.....	.....
Cagayan, Misamis	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2.8	10.2	.....	.....	.....	.....
Dapitan	.....	1.7	2.8	24.9	.4	33	2.6	7.5	.....	.....	.....	.....	.....	.....	.....	.....
Ampayon, Butuan, Agusan[a]	13.2	5.8	5.3	13.2	2.5	.5	.3	6.6	4.3	5.3	259.9	.....	.....	.....	.....	.....
Butuan	1.8	.5	19.6	.....	10.7	9.4	.....	3.8	5.4	7.4	68.3	.....	.....	.....	.....	.....
Mambajao	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Dumaguete	.....	.....	9.4	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	1.5
Yap, Western Carolines	6.6	76.2	.3	.....	1	7.6	25.2	20.1	17	47	.3	1.5	46	0.3	.....	16.3
Tagbilaran	.....	24.3	57.9	.....	33.8	4	.....	.4	11.7	.....	.....	.....	.....	.....	.....	.....
Iwahig	.....	.....	12.4	.....	.....	.....	.....	.....	.....	.....	.....	.3	.....	3.6	.....	6.2
Surigao	7.1	2.3	21.4	6.1	20.4	.3	8.9	7.3	18.6	.....	1.3	3.5	.....	.....	.....	.....
Maasin	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	6.6
Cebu	.....	.....	.....	.....	.....	1.3	.....	.....	.....	.....	.8	.....	.....	.....	.....	.8
Iloilo	.....	3.8	3	.....	2.5	.....	.....	.....	.....	.....	.....	.....	.....	.....	3.3	.....
San Jose Buenavista	.....	.....	.....	.....	.....	8.6	1.8	.....	.....	.....	.....	.....	.....	.....	.....	2.8
Cuyo	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	10.7	.....
Lucena, Iloilo[a]	.....	.....	.....	.....	.....	6.1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Ormoc	.5	24.9	3.8	1.5	.3	28.5	4.6	14.5	.5	.....	.3	15	2.8	.....	.....	.....
Guiuan	4.6	29.5	16.2	14.2	5.6	.8	.....	1	1.3	.....	7.3	40.2	.....	.....	2.5	.....
Dueñas, Iloilo[a]	.....	.....	.....	.....	.....	2.5	.....	.....	.....	.....	.....	.....	.....	.....	.....	5.1
Bitaogan, Iloilo (Railroad Iloilo to Capiz)[a]	.....	1.8	1.3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Lapus, Iloilo (Railroad Iloilo to Capiz)[a]	.....	4.4	3	.5	2.5	.....	.....	.....	.....	.....	.....	.....	.....	.....	4.6	.....
Tacloban	10.4	13	8	.3	2.5	6.4	2.8	.....	.....	.....	5.4	2.9	.....	.....	.3	11.2
Dumarao, Capiz[a]	.....	.....	.....	5.1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	18.5	.....
Dao, Capiz[a]	.....	4.6	.8	.5	.8	16.3	4.8	.....	.....	.....	.....	.....	.....	.....	.8	3.3
Capiz	.....	2.3	2.8	.....	.3	.8	.....	.....	.....	.....	.....	.....	.....	.....	.....	48.3
Borongan	5.3	13.5	37.4	6.6	6.4	21.1	4.6	1	4.3	.....	7.7	48.6	.....	.....	1	.....
Catbalogan	4.6	14.4	2.3	.....	16	7.9	2	.....	1.8	.....	5.1	16	.8	.....	.....	.5
Calbayog	6.8	16.8	1.8	1.3	9.9	12.7	11.7	.....	.....	.....	6.9	4.3	2.8	.....	.....	.....
Masbate	.....	2.8	.3	.....	1.5	1.8	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
San Jose Estate, Tamaraw Plantation, Mindoro[a]	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1.5	2.5	.....
Romblon	5.6	6.4	.....	.....	.....	.....	.....	.....	.5	6.9	.....	.....	.....	.....	.....	.....
Batag	3	18.3	6.6	.....	4.6	.....	.....	.....	.....	13.2	.....	71.1	30	.....	.....	1.5
Sorsogon	5.3	.....	.....	.....	7.1	5.6	.....	.....	.....	.....	.....	.....	.....	.....	.....	3
Legaspi	8.3	7.1	.....	.....	6.9	8.6	.....	.....	.....	.....	.....	1.3	.5	3	.3	.....
San Miguel Estate, San Miguel Island, Tabaco, Albay[a b]	2	.3	.....	.....	3.8	20.3	.....	.....	2.3	.....	.....	10.2	.....	.....	.....	.....
Sumay, Guam	.....	.....	4.3	5.8	.....	.....	.....	3.8	11.5	19.8	.....	.....	.....	.....	8.1	3
Calapan	4.3	13.7	.....	.....	.....	1.5	.8	.....	.....	.....	.....	.....	.....	.....	37.8	.5
Virac	4.6	2.5	.....	.....	20.8	3.6	.....	.....	.....	.....	.....	9.9	20.3	.....	.....	5.6
Naga	.....	.....	.....	.....	.....	3.8	10.7	.....	.....	.....	.....	12.7	.3	.....	.....	.....
Batangas	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Lucena	.8	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2.5	.....	.....
Atimonan	1.8	.....	.....	.....	.....	5.3	.....	.....	.....	.....	.....	.....	.....	.....	.5	.8
Ambulong, Tanauan	.5	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Canlubang, Calamba	4.6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	28.7	1.5	.....
Paracale	3.8	.....	.....	.....	16.5	.8	.....	.....	.5	.....	.....	.....	.....	.5	3.8	.....
Santa Cruz, Laguna	.....	.....	.....	.....	.....	6.9	1.5	.....	.....	.....	.....	.....	.....	.....	19	.....
Fort Mills, Corregidor[a d]	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Manila	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	4.4	.....	.....
Antipolo	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Bosoboso, Rizal[a]	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.8	.....
Montalban, Rizal[a]	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	3	2.3	.....
Hacienda Pintong Sapang, San Jose, Bulacan[a]	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	4.6	2.5
Mabayuan Dam, Olongapo, Zambales[a]	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	7.6	.....
Iba	1.1	.....	.....	.....	.....	.....	1.3	.....	.....	.....	.....	.....	.....	.....	.....	.....
San Isidro	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Hacienda Luisita, San Miguel, Tarlac[a]	.....	.....	.....	.....	.....	.....	.....	.3	.....	.....	.....	.....	.....	.....	.....	.....
Hacienda Luisita, Luisita, Tarlac[a]	.....	.....	.....	.....	.....	.....	.....	1.3	.....	.....	.....	.....	.....	.....	.3	.....
Tarlac	.....	.....	.....	.....	.....	.....	.....	.8	.....	.....	.....	.....	.....	.....	.....	.....
Baler	.....	.....	10.9	9.9	5.1	.....	.....	9.1	.....	.....	.....	.....	.....	3.3	10.7	.....
Paniqui, Tarlac[a]	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Muños Agricultural School, Nueva Ecija[a]	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	4.8	.....	.....	.....	.....	.....
Dagupan	26.9	2.5	14.2	.....	.....	.....	.....	.....	.....	.....	.....	.....	4.3	.....	19.3	.....
Santo Tomas Mt., Mountain Province[a]	1.8	.3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Bolinao	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Baguio	4.8	9.7	3.3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
San Fernando, Union	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Echagüe	.....	.5	.8	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Sagada, Mountain Province[a]	16.3	27.2	.....	.....	.....	23.4	10.7	.....	.....	.....	.....	.....	.3	.....	.....	.....
Bontoc, Mountain Province[a]	4.8	2.3	.....	.....	.....	3	23.4	4.6	21.1	.3	.....	.....	.....	.....	.....	.....
Candon	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Villavieja, Pilar, Abra[a]	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Vigan	.8	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Tuguegarao	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
La Paz, Abra[a]	1.3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Laoag	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Aparri	.....	.3	.....	.....	.....	.....	.....	.....	.....	.....	2.8	.....	1.4	3.3	.....	.....
Cape Bojeador	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Santo Domingo, Batanes	1.5	.....	.....	.....	.....	.....	.....	.....	.....	.4	3	2.8	1.2	.....	.....	.....

[a] Voluntary or coöperative station. [b] Rain in 24 hours beginning 8 a. m. [d] Rain in 24 hours beginning 7 a. m.

Daily rainfall at the stations of the Weather Bureau, April, 1918—Continued.

Station.	Day of month.														
	17.	18.	19.	20.	21.	22.	23.	24.	25.	26.	27.	28.	29.	30.	Total.
	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.
Jolo	9.4					1	51.8	84.6	8.9	28.7	3.8	24.4		16.5	239.6
Isabela, Basilan		11.4			1.3	6.4	8.4	5.8	6.1	.5		9.7			88.5
Basilan Plantation, Isabela (Basilan)[a]		20.6			7.6	.5	17.3	42.6	1.8	3	2.5	3.8	7.6		163.7
Zamboanga					.3	28.1	1.9	10.4	3.5			21.6			98.3
Davao					4.3			2.8	2.4		65.8		1.8		139.2
Cotabato		13.7			9.7	9.1	4.3	2.8	19.3	18		33	3.3	.5	276.3
Cagayan, Misamis					3.6	2.5	1.8			15.5	16.8	1.5			54.7
Dapitan			6.2	30	16.8		2.3	32.5	180.4	210		.3	1.5	.3	553.2
Ampayon, Butuan, Agusan[a]				3.6	7.1	10.4	6.1	7.6	9.7	2.8	10.7		6.1		381
Butuan	.3			17	5.8	.3	17.8	1.1	14	52.8	4.9		4.1	1	246
Mambajao				7.6	4.6						6.4				18.6
Dumaguete	.5				.8	2.5					10.4				26.1
Yap, Western Carolines	1.3	.6	3.6	6.6	6.1	21.1	2.8	3.3	.8	10		.5	.3		322.4
Tagbilaran				3.5	19.3			13.4	1.5	3.4					173.2
Iwahig						.1		6.6		7.6	4.1	18		.5	59.4
Surigao			5.6	13.5	44.5	2.8	2	14	4.3		8.1	.5	.8	22.4	215.7
Maasin															6.6
Cebu	2.3	1.3				5.1					6.4	17.5			35.5
Iloilo				2						9.1	29				52.7
San Jose Buenavista						4.3	.3	4.1		29.9	.8	68.3			120.9
Cuyo						4.3		.3				64			79.3
Lucena, Iloilo[a]								3.8		48.3					58.2
Ormoc			1	15.5	18	5.1	2	.8	5.9	1.5	3.8		2	1.8	154.6
Guiuan				9.9	3.8	36.3		29.4	10.2	9.9	4.6	5.6	1.3	5.8	240
Dueñas, Iloilo[a]						5.1		5.1					8.4		26.2
Bitaogan, Iloilo (Railroad Iloilo to Capiz)[a]								1.8			5.1				10
Lapus, Iloilo (Railroad Iloilo to Capiz)[a]				1				.3		6.6	17.3				40.2
Tacloban			5.9	.5	17.9	12.8	5.3	4.4			2.8	7.1	15.2	.3	135.4
Dumarao, Capiz[a]					9.1			1.8					50.8		85.3
Dao, Capiz								29.7	1.8		2.5		1.3	.8	68
Capiz				.3									20.1		74.9
Borongan			8.9	2.1		53.1	8.9	27.1	5.9	21.6	11.2			9.4	305.7
Catbalogan	14			1.3	17.3	21.6	10.7	21.8			.3	11.9			170.3
Calbayog				5.1		24.6	5.8	1	23.4	5.6	2.8	1.8	9.7	10.1	164.9
Masbate						5.3		5.3							17
San Jose Estate, Tamaraw Plantation, Mindoro[a]													1.3		5.3
Romblon										38.1			3.8		61.3
Batag		1		2.8		16.5		5.8				5.8	2.5	2.5	185.2
Sorsogon						7.9		12.2		16.3[c]		2.3			59.7
Legaspi						5.1	3.3	16.5	7.9	.5	1.8		1.3	1.8	74.2
San Miguel Estate, San Miguel Island, Tabaco, Albay[a b]						7.1	18.8	3	31.7	45.2	17.5	38.1	.3		200.6
Sumay, Guam			15.2	1.8					7.6		6.4				87.3
Calapan						23.4	2.3	2.3		13.5	3.8				103 9
Virac						2.3	10.4	10.1	28.2	9.1	1		.3		128.7
Naga							5.4		5.6	2.8	2.6				43.9
Batangas						7.6				6.6					14.2
Lucena						13.7				12.4				8.6	39
Atimonan						23.4					4.3				36.1
Ambulong, Tanauan						17.8			7.2	11.9				12.5	49.9
Canlubang, Calamba						3	.8	1.3	2	5.6					47.5
Paracale	1.5					6.9	16.5	61.9	14.7	1.8	.3	.3	2.5		132.3
Santa Cruz, Laguna						2.5	12.2	23.1	2.3	6.1				1	74.6
Fort Mills, Corregidor[a d]						3.6				9.4	42.2				55.2
Manila									4.5	1.3					10.2
Antipolo								.5		1.5					2
Bosoboso, Rizal[a]						1.8				1.3					4.9
Montalban, Rizal[a]						10.4				.8					16.5
Hacienda Pintong Sapang, San Jose, Bulacan[a]						.5				3.8	1.5				12.9
Mabayuan Dam, Olongapo, Zambales[a]						.8			7.1	101.6	1.5				118.6
Iba						16.5			.8	7.9		.3			27.9
San Isidro								.3		.3					0.6
Hacienda Luisita, San Miguel, Tarlac[a]						5.8				4.8					10.9
Hacienda Luisita, Tarlac[a]						4.8				6.1					12.5
Tarlac										1.3					2.1
Baler	16.5	4.8	8.9	1.1		72.9	6.4	61.2	41.4	3.3	2.5	28.4			296.4
Paniqui, Tarlac[a]						5.3				5.6					10.9
Muñoz Agricultural School, Nueva Ecija[a]						16.5		7.9							29.2
Dagupan			21.8			5.6	21.3		85.6	11.4		47.5			260.4
Santo Tomas Mt., Mountain Province[a]							1.6					1.8			5.5
Bolinao								1							1
Baguio						17	.8		1.5	31.2	35.3	16			119.6
San Fernando, Union						1.8									1.8
Echagüe									1.8	6.6	.5				10.2
Sagada, Mountain Province[a]						22.9			7.1	6.7	12.4	13.2			140.2
Bontoc, Mountain Province[a]						9.1			2.5	21.1	40.1	22.1			154.4
Candon															0
Villavieja, Pilar, Abra[a]									24.1			.3			24.4
Vigan															0.8
Tuguegarao										.5	53.3		13.7		67.5
La Paz, Abra[a]						9.7	.3		17.8	17.3	53.3	12.2			111.9
Laoag															0
Aparri															7.8
Cape Bojeador															0
Santo Domingo, Batanes										.6					9.5

[a] Voluntary or coöperative station.
[b] Rain in 24 hours beginning 8 a. m.
[c] This amount corresponds to 25 and 26.
[d] Rain in 24 hours beginning 7 a. m.

MAXIMUM AND MINIMUM TEMPERATURES AT THE STATIONS OF THE WEATHER BUREAU, APRIL, 1918.

Day.	Jolo.		Isabela, Basilan.		Zamboanga.		Davao.		Cotabato.		Cagayan, Misamis.		Dapitan.		Butuan.	
	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.
	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C	°C.	°C.	°C.	°C.
1	29.4	20.9	32.6	22.4	30.5	23	31.4	20.8	32	21.5	31.4	20.1	31.2	24	31.4	21.2
2	28.1	21.1	30.6	21.4	28.5	22.6	32.1	20.4	31.3	21.5	30.6	21.6	31.6	23.4	32.4	22.7
3	29.4	21.6	31.5	22.3	28.9	22.8	31.9	21.3	31.5	22	31.2	22.1	31.7	23.4	31.1	22.2
4	28.9	23.6	32.1	22.6	28.7	21.6	30.9	21.5	31.5	21.4	31.7	21.3	31	23.6	30.9	20.9
5	29	24	32.6	22.1	31.6	22.2	31.7	22.1	30.7	21.9	30	23	30.9	22.1	28.7	22.7
6	29.5	23.5	31.9	22.3	30.5	23.2	31.7	21	31	22	30.5	21.5	31.3	23.2	31.6	22.5
7	29.9	21.2	30.6	21.6	28.6	23.2	32.4	21.8	32	21.8	30.8	21	30.9	22.2	32	21.3
8	29.8	21.5	32.6	21.4	28.9	22.5	32.8	21.4	31.7	22	31.3	21.4	31.1	22.6	33	22.6
9	30.5	21.8	31.3	21.6	29.1	23.5	32.2	21.6	31.5	22.2	31.5	22.5	31.4	23.3	31.2	22.9
10	29.5	23.8	31.3	22.1	30.3	23.3	32	21.8	30.6	22.5	32.2	22.1	32.1	23	31.1	22.4
11	29.4	24.2	31.6	23.6	30.5	21.5	30.7	22	30.7	23	30.4	22.8	31.4	21.8	29.8	23.3
12	(a)	23.2	30.1	23.1	29.7	21.6	31.8	21.4	31.1	22.6	29	22.7	29.9	22.1	27.6	23.7
13		20.3	31.1	22.1	28.7	20.5	31.5	21.4	30.2	21.6	31.4	21	31.2	21.8	31.6	21.8
14		21.7	31.1	22.5	28.1	21.6	32.4	19.5	31.5	21.7	31.5	19.8	31.9	20.6	32.3	21.4
15		20.3	31.6	20.1	28	21.4	32.6	20	31	21.9	31.1	20.6	32.3	20	32.5	20.3
16		20.3	32.1	22.1	28.3	21.2	32.7	21.5	31.2	21.5	31.5	22.1	32.6	21	33.9	21.1
17		20.3	33.1	20.6	28.5	22	31.7	21.2	31	22.6	31.7	21.2	32.1	20.9	32	22.5
18		20.6	32.5	21.6	30	23	32.9	22	32.2	23.2	32.2	22	32.1	22.6	33.2	22
19		20.7	33.6	22.1	30.3	23	33.2	22	32.5	23.1	32	22.3	31.7	23.2	31.2	21.8
20	30.7	21.8	32.6	21.6	31.2	22.1	34.2	22	32	23.6	31.5	21.4	31.8	23	33.4	21.7
21	31.4	23	31.9	22.6	29.9	22.5	34.2	22.6	32.2	23	31.4	23	31.7	22.3	30.9	22.9
22	29.7	23.2	32.1	22.1	28.8	22.7	30.7	22.1	31.3	22.2	30	22.4	31.1	23	31	22.8
23	30.7	23.1	32.1	21.1	31.5	22.2	28.1	21.6	31	22.3	31.4	21.5	31.5	22.3	30.4	21.8
24	29.2	22.8	31.6	23.1	31.3	23.2	32.2	21.4	31.9	21.8	32.3	20.6	31.5	23.3	32.6	22.2
25	29.5	22.3	31.9	22.6	28.9	23	32.2	22.5	32.2	23.6	32	22.8	30.9	22	31.4	23
26	28.3	22.1	32.1	21.6	28.9	22.4	31	22.2	31.6	20.6	32.9	22.2	25.9	21.8	31	22.8
27	29.4	21.9	31.6	22.6	28.7	23.3	31.1	21	31.2	22.3	31.6	21.6	31.6	21	31.8	22.4
28	29.9	21	31.3	21.7	31.2	22.8	31.9	20.8	33	22.4	31.2	21.5	32.1	22	33.4	22
29	30.3	22	31.6	22.1	32	22.4	31.8	21.2	32.4	21.8	31.2	21.6	31.8	21.3	33.8	21.7
30	29.4	21.8	33.1	21.1	31.1	23	31.7	19.8	32.9	22.3	31.4	20.9	31.7	23.3	33.1	21.4
Mean	29.6	22	31.9	22	29.7	22.4	31.9	21.4	31.6	22.2	31.3	21.7	31.3	22.3	31.7	22.1

Day.	Mambajao.		Dumaguete.		Yap, Western Carolines.		Tagbilaran.		Iwahig.		Surigao.		Maasin.		Cebu.	
	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.
	C	°C.	°C.	°C	°C.	°C.	°C.	°C	°C.	°C.	°C.	C.	°C.	°C.	°C.	°C.
1	30.2	23.6	30.2	22.8	32.3	23.4	31.2	21.4	28.6	20.1	29.3	23.1	33.2	22	31.5	24.3
2	29.6	24.3	30.9	24	33.3	22.7	29.2	21.5	31.3	20.1	28.8	22.8	33	23	30.5	24.5
3	30.2	25	30.9	24	32.7	22.5	29.9	22	31.7	21.5	28.8	23.1	32.8	22.8	30	23.8
4	29.8	23.1	30.1	23	32.2	24	31.4	21.1	30.6	20.6	29.4	22.1	32 5	22.5	30.5	24.2
5	29.3	24.1	30.5	24	33.2	24	30.1	22.4	30.8	19.5	26.9	23.3	31	21.8	30.6	24.5
6	29.6	22.8	30.9	23.7	32.8	23.1	30.1	22.1	31.6	20.3	28.9	22.8	31	21.5	29.8	23.9
7	29.7	23.4	29.7	24	28.1	23.1	30.4	21.4	31.6	20.6	30.4	21 8	33	22	31	24
8	30.1	24.9	29.8	23.5	29.7	23.2	30.3	21.7	32.2	20.1	30.4	22.8	32	22.7	32	24.6
9	29.7	23.9	31.4	22.8	28.7	23.1	30.6	22.5	31.4	19.8	27.7	23.3	31	22.9	31.2	24.1
10	30.4	22.7	31.5	23.8	28.3	22.5	31.5	22.1	32.6	19.5	28.7	22.2	32.1	21.8	32	24.5
11	32.1	23.6	32.6	24	31.7	22?	30.3	20.7	33.2	18.5	28.4	23.5	29.8	21.6	31	23.5
12	28.1	25.2	30.4	23.9	29.7	24.4	28.3	23.9	33.1	19.5	27.8	24	30	22	31	26
13	32.5	25.7	31.2	21.2	33.2	23.2	30.9	23	32.1	20.3	28.9	25.8	30	23	31	25.8
14	34.5	25.7	31	20 6	32.7	23	31.2	21.8	30.1	18	30.4	22.6	33.1	22.5	31.2	23.7
15	32.6	21.2	30.4	21.4	33	23	31	22	32.6	19.9	30.3	21.3	34.2	22	31.3	24
16	30.5	21.2	30	22.4	32.6	24	30.6	22.6	31.6	20.2	29.4	22.5	32	23	31.8	24.1
17	31.2	23.6	30.4	23.2	32	23	30.1	22	31.8	20.6	29.9	23.3	33.1	23.2	30.6	24.3
18	30.4	23.8	29.4	24.6	33.8	23.6	30.4	22	31.1	21.9	30.3	22.8	32.6	23.5	30.7	24.6
19	30.2	24.1	30.9	24.1	32.4	23.3	30.1	22	31.7	21.2	30.7	21.7	30.9	21.3	31	24.3
20	30	23.7	30.8	23.4	32.6	24.4	30.2	21.7	31.8	20.7	29.8	22.8	33.1	22.5	30.5	24.4
21	30.8	23.6	31.8	24.5	32.2	23	30.4	23.1	31.1	19.5	27.1	23.3	31	22.9	32	24.5
22	27.6	23.5	29.8	24	32.2	24	29	23	32.3	20.1	26.9	21.8	28.8	22.6	29.1	24.3
23	30.6	23.6	29.6	23.1	31.2	22.5	30.6	21.6	31.9	21.5	30	21.7	30.6	23.6	30.6	23.8
24	29.7	23.2	30.2	25.1	31.7	24	30.7	22.6	31.9	22.4	29.4	23.7	32	23.8	31.2	25.4
25	31.3	25.2	30	25.4	32.5	25.4	30.8	22.9	29.3	22.4	29.3	23.8	31.2	22.4	31	25.4
26	30.5	25.4	30.3	24.5	32.2	23.8	30.6	22.2	31.5	21.6	29.9	22.5	32	23.4	30.6	25.4
27	30	23.1	29	24.5	32.3	24.5	29.4	22.6	31.5	20.6	31.8	23	32	23.6	31.2	24.4
28	30.3	23.6	29.2	23.1	32.7	23.1	31.3	22.9	30.1	21.1	31	23.3	32.4	23.9	30.6	24.4
29	30.1	22.9	29.6	23	32.3	25	29.9	22.7	31.9	20.2	31.4	23	32.8	23.1	31	25.9
30	30.6	23.5	29.4	25.4	32.5	24.3	31.3	21.9	31.9	21.2	30.9	23.4	33	23.3	30.6	25.4
Mean	30 4	23.8	30.4	23.6	31.9	23.5	30.4	22.2	31.5	20.4	29.4	22.9	31.9	22.7	30.9	24.5

[a] The maximum thermometer was broken.

Maximum and minimum temperatures at the stations of the Weather Bureau, April, 1918—Continued.

Day.	Iloilo.		San Jose Buenavista.		Cuyo.		Ormoc.		Guiuan.		Tacloban.		Capiz.		Borongan.	
	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.
	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.
1	32.2	23.9	33.7	21	29.3	25.8	33	22	31.8	24.2	32.4	22.4	31.6	24.7	30.4	23.5
2	29.7	23.9	32.2	22.6	29.5	25.7	31.6	23.2	31	23.8	29.4	23.5	31.4	24.4	28.6	23.2
3	30.1	23.7	33.6	21.5	29.3	25.7	30.7	22.5	30.5	23.3	30.2	23.4	30.3	23.8	29	23.2
4	30.3	23.2	33.7	22	29.2	25.4	32.9	20.9	31.2	24.3	31.9	22.9	30.8	23.8	30.2	22.2
5	30.3	23.5	33.3	21.5	29.4	25.4	30.9	22.9	31.5	24.2	30.6	23.4	30.4	24.3	30.3	23
6	31.4	23.7	33.1	21.6	29.3	25.7	30.3	22	31.9	23.6	29.2	23.4	31.5	24.8	29.8	22.9
7	31.9	24	32.1	23	30.4	25.6	32.2	20.4	32	22.3	32.3	22.7	31.4	24.2	30.6	21
8	32	23.8	31.8	21.2	30.7	24.2	33.1	21.4	32	25	31.6	23	31.5	24.3	31	22.4
9	31.7	23.7	31.8	20.4	30.4	25.7	32.2	21.2	31.8	25	32	23.6	31.1	23	31	22
10	31.7	22.8	32.3	21	31.6	25.8	32.4	22	31.7	24.6	32.2	23.8	31.2	23.6	31.6	20.7
11	32.4	23.6	32.6	21.5	29.9	26	32.2	21.8	30.5	24.8	30.8	23.9	30.8	24.3	31.2	22.7
12	34	23.5	31.6	21	30.4	26.2	31	24.2	26.8	23	28.2	23.6	30.8	25.6	26	21
13	32.5	22.3	32.8	22	33.8	23.7	29.5	23.9	30.4	24.1	29.9	24.4	31.5	24	32	22.4
14	31.5	21.7	32.3	22.1	32.8	26.7	31.3	22.4	30.8	21.8	31	22.2	32.2	22.8	33.1	19.6
15	32.4	23.5	32.2	22.5	32.4	25.3	31.8	21.8	31.8	21.9	32.9	22	32.1	23.5	30.9	19.5
16	30.8	24.3	31.2	23.6	30.8	23.2	31.6	22.2	31.3	24.2	33	23.5	31.2	24.3	30.7	20.4
17	31	23.3	32.8	21.6	30	24.5	32	22.7	30.5	24.5	31	23.4	30.8	22.2	30	20
18	30.7	23.3	33.2	22	31.2	24.7	32	21.6	31.6	24.1	31.5	23.1	31.2	24.8	30.3	20
19	31	23	33.7	20.5	30.2	25.9	32.3	21.1	31.2	24.9	33	23.4	31.3	22.7	30.6	21
20	29.5	23.3	33.2	20.6	29.5	25.8	31.9	23.6	31.1	23.4	30.9	22.8	30.1	24.5	30.6	22.7
21	31.5	23.6	33.2	21	30.5	25.6	31.8	23.4	30.8	24.1	31.4	23.9	31.7	24.5	30.8	22.7
22	32.5	24.1	33.2	23.1	30.7	26.2	31.3	22	27.9	22.2	30.9	21.4	31.8	23.8	31	22
23	32	23	32.8	22	32.6	24	31.8	21	31.5	22.3	31.8	22.3	31.8	24	30.4	22.6
24	32.6	24.6	33.2	22.9	31.2	25.4	33	22.2	30.4	23.2	32.5	23.5	32.5	25.1	30.8	23
25	32.4	24.5	33.2	23.2	30.4	26.7	32.4	23.7	29.9	22.7	30.3	23.8	31.6	26.1	31.2	24.8
26	33	24.7	33.8	23.4	31.2	26.3	30.2	22.1	31.6	22.8	32	23.4	31.2	25.3	31	23.4
27	31.4	24.5	30.3	23.5	31.5	24.7	31	22	30	22.7	31.4	23.5	32.6	25	30	23.2
28	31.8	24.2	32.2	23	31.3	24	31.6	22.6	32	22	32	23.1	31.3	25.1	30.9	22.8
29	31.7	24	32.3	21.9	31.3	22.4	32.6	23	31.9	22.5	32.5	23.3	32.2	24.1	31.1	22.8
30	32.9	24.7	32.6	21.7	31	24.1	32.5	21.4	31.3	22.5	32.1	23.3	32.4	25	31.4	22.9
Mean	31.6	23.7	32.7	22	30.7	25.2	31.8	22.2	31	23.5	31.4	23.2	31.4	24.3	30.6	22.1

Day.	Catbalogan.		Calbayog.		Masbate.		Romblon.		Batag.		Legaspi.		Sumay, Guam.		Calapan.	
	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.
	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.
1	32.2	22	32	22.9	30.4	24.2	32.9	23.3	29.6	23.4	29.3	23.1	29.4	23.6	30.8	23.5
2	30.3	22.7	29	23	30.4	24.6	34	24.2	27.3	22.4	29.3	23.4	29.8	24.8	31	23
3	28	22.5	30.5	22.8	30.4	24.2	33	23.2	28.9	22	29.8	24.9	29.6	23.4	31	23
4	29.5	20	30.3	21.1	31.4	23.2	32.9	23.9	29.4	22.2	29.4	23.6	29.8	22.8	31	21.1
5	28.9	21.7	29.6	21.9	30.8	23.8	33	23.2	28.6	22.3	29.8	23.9	30.2	23.6	31	21.1
6	30.4	21.5	29.7	22.6	30.8	24.2	32.8	23.9	28.6	22.4	30.3	23.8	30	25	32	21.5
7	30.6	20.6	30	21.7	32.4	23.4	32.7	22.3	29.8	23.2	30.6	23.3	29.4	25	31.6	23
8	30.2	20.4	33	21.3	32.6	23.8	33.7	22.9	30.3	23.9	31.2	25.2	29.4	25	32.2	21.2
9	30.2	20.5	32.3	22.5	31.4	23	33.8	22.3	30.1	23.2	30.8	24.4	29.4	24.8	32.6	22
10	31	20.5	32.2	21.7	31.6	24.2	33	22.7	30.5	23.2	31.2	23.7	29.4	24.4	32.6	21.4
11	31.8	21.8	30.8	22.1	30.6	24	32.9	21.9	29.3	23.4	31.1	20.6	29	24.6	32	21
12	26.3	23.8	28.2	24.5	31.2	25.4	33.3	22.8	26.5	24	31.1	25.2	29.4	24.6	32	20.6
13	29.1	23.3	29.3	24.2	30.2	25.6	31.9	24.8	26.4	22.4	27.8	23	29.4	24.6	32	20.6
14	30	23.5	28.4	22.1	30	23.6	32.6	22.3	29.3	22.8	31.4	22.5	30	24.5	31	21.6
15	30.3	21.5	30	22.6	32.4	23.2	32.9	23.1	29.9	24.2	30.9	24	30.2	24	28	24
16	30.6	21.6	31.3	22.6	32.4	24.6	33.4	23.2	30.2	23.8	30.7	22.8	28.8	24.4	31.3	23
17	29.6	20.1	31.2	21.4	31.6	23.6	33	23.6	29	23	30.4	24.4	30	22.4	32	23.5
18	30.5	19.7	31.1	20.6	32.4	23.4	32.4	24.4	30	22.4	30.8	24.4	30.4	22.4	32.4	24.5
19	30.7	20.7	32	21.4	32.6	22.8	33	23	29.8	22.2	30.9	24.4	29.8	25	31.4	23.5
20	31.5	22.6	30.8	23.7	32.4	24.4	34.9	23.3	29.1	22.5	30.9	24.1	30	24.8	31.5	22.5
21	29.7	21.7	31.1	23.3	32.4	24.6	33.9	23.2	30.2	23.6	31.3	25	29.2?	25	31.5	23
22	28.8	21.1	30.6	21.8	32.8	24.2	34.4	22.8	29.4	23.3	31.8	22	30	25	32	22.1
23	29.8	20.4	29.8	21.2	32.8	22.6	33.8	22.9	30	23.3	30.8	24.9	30.2	25.4	32.5	22
24	32.1	22	31	22.2	33.2	24.8	33.8	23.2	30.1	23.5	29.4	25.2	30.8	24.6	32.5	24.5
25	32.5	23	29.5	23.2	32.8	24.4	34.3	23.8	30.1	23.5	30.2	24.5	28.8	24.4	32	24
26	32.3	21.9	30.3	22.5	32	24.8	33.9	25.5	30.2	24.2	30.3	24	30.2	24.4	32	24
27	30.1	22.5	28.5	22.8	32.8	24.5	34	23.2	30.2	23.7	30.4	24	30.6	23.6	32.5	22.5
28	30.7	22.5	29.8	22.4	32.8	24.8	32.9	------	30.1	23.3	31	25.5	30.6	23.2	31.5	23.2
29	30.6	21	30.5	22.2	33	25	32	24.3	30.3	23.5	31.4	25.4	------	24.4	31.5	22
30	32.3	21.3	29.7	22.4	33.6	24.8	32.9	24.8	29.8	23.6	31.3	25.1	30.4	24.2	33	24
Mean	30.4	21.6	30.4	22.4	31.9	24.1	33.3	23.4	29.4	23.1	30.5	24	29.8	24.3	31.7	22.6

Maximum and minimum temperatures at the stations of the Weather Bureau, April, 1918—Continued.

Day.	Virac.		Naga.		Batangas.		Lucena.		Atimonan.		Ambulong, Tanauan.		Canlubang, Calamba.		Paracale.	
	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.
	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.
1	32.5	21.1	32.1	20.5	33.6	------	30	22.1	27.4	22.7	32.2	23	31.8	21.8	29.9	23.8
2	30.3	20.5	31.1	20.5	34.8	------	30.5	22.5	28.4	24.6	34.8	23	32	20.9	29.3	24.4
3	31.5	21	31.1	21	35	------	30.7	23	27.9	24.8	34	23.6	31.4	21.6	29.5	24.7
4	31.8	20.1	31.1	17.6	34	------	30	21.8	28.4	24.6	32.8	20.4	31.6	21	29.5	24.4
5	32.6	20	31.2	17.1	35.1	------	30.2	21.9	28.2	24.6	33.2	20.8	31.6	20.8	30.2	24.4
6	31.7	21	30.6	18.2	34.1	------	29.6	22.5	27.5	23.8	34	23	32.6	20.2	29.5	24
7	32.3	20.2	32.5	19	34.2	------	32.3	22.6	29.3	23.3	34.2	21.7	33.8	22.4	30.1	24
8	31.8	20	32.9	18.5	35.1	------	32.7	22	30.6	21.1	36	21.3	34.4	21.8	29.7	22
9	32.3	20.4	31.2	17.3	35.3	------	32.5	21.6	29.8	21.9	36	20	84.8	20.8	30.2	22.3
10	31.9	20	32.2	18.3	34.5	------	32.7	21.4	30.3	25.2	37.3	21	35.9	20.4	30	22.8
11	34	20.6	32.1	19.1	33.9	------	32	20.6	28.7	25.2	36	22.2	34.4	20.3	29.6	22.5
12	32.5	21.3	31	18.8	33.5	------	31.8	23	29.4	25.4	35.3	22.8	34.2	22.2	30.2	25.6
13	27.7	21.5	29	21.6	32.8	------	31	21.8	31.5	23.3	33.2	20.7	35	20.2	30	23.3
14	31.5	21.3	33.2	18.2	33.1	------	30.6	21.6	32.3	22.4	32.5	22.3	35.2	22.4	30.1	23
15	30.8	21	31	21.7	30.8	------	29	23.6	28.4	24.8	29.2	24.7	26.6	22	29	23.8
16	30.1	21.2	31.6	21	33.8	------	30.6	23.1	29.6	25.3	33.7	22	31	22.3	29.5	23.8
17	29.5	21.2	32.6	19.3	33.9	------	32.5	22.8	29.2	24.5	35.2	22.4	33.1	22.8	29	23.2
18	30.5	19	33	17.2	34	------	32	22.2	30.2	25	34.8	23	32.8	22	30.8	24.1
19	31.2	20.3	32.3	16.6	33.4	------	32	21.5	29	25.2	34.6	21	32.8	22.3	30	25
20	31.8	20	32.1	16.8	35.4	------	32	22.1	28.8	25.1	34.2	23.8	32.9	21	30.5	25
21	30.7	20.6	32.1	18.4	35.6	------	32.4	21.9	29.9	25.3	34	22.7	32.6	21.6	31.4	22.3
22	32	20.4	34.1	19.6	36.3	------	33.5	21.4	30.8	21.8	34	21.3	35	21.4	31.2	22.9
23	31.6	20.2	33.8	18.9	34.6	------	32	21.7	30.6	21.7	34.7	22.1	34.2	21.8	31.2	22.2
24	32	21	32.9	19.7	35.1	------	30.9	23.7	28.4	25.9	33.4	25.4	34	22	29.5	24.8
25	29.7	20.7	32.2	20	34.6	------	31.8	24.2	29.7	25.5	31.8	25	31.2	23.6	28.9	24.8
26	30.5	21.1	31.4	20	33.5	------	27	23.5	30.6	25.7	34.9	23.4	34.2	23.2	30.6	24.3
27	31.6	20.6	33.8	20.6	34.9	------	31.7	23.1	30.6	24.2	34	24	33.3	22.8	30.8	24.5
28	31.8	20.1	33.9	18.5	34.4	------	32	23.2	31.4	23.1	35.2	23.5	34.6	22.6	31.3	24.5
29	32.3	20	33.9	19.5	35.6	------	32.9	23.1	30.9	25.8	34.2	21.9	34.9	22.7	31	24.8
30	32.5	21	35.3	20.2	35.5	------	27.2	23.8	31.1	26.3	35.4	23.7	33.3	23.4	30.5	25.2
Mean	31.4	20.6	32.2	19.1	34.3	------	31.2	22.4	30	24.3	34.2	22.5	33.2	21.8	30.1	23.9

Day.	Santa Cruz, Laguna.		Manila.		Antipolo.		Iba.		San Isidro.		Tarlac.		Baler.		Dagupan.	
	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.
	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.
1	30.9	22.4	33.1	21.8	34.7	21	33.6	20.7	32	20.4	36	20.7	28.7	22.2	36	23.2
2	31.3	21.5	33.2	19.4	35.6	19.5	32.4	19.3	32.4	19.6	36	20.6	29.4	21.1	35	21.5
3	31.3	22.6	33.6	19.6	35.2	19.7	32.3	20.6	31.6	20	35	20.7	28	22.4	33.3	21.9
4	30.6	21.3	32.1	20	33.7	20.5	33.3	21.6	31.9	21.3	35.2	21.2	29.4	22.3	33.6	23.3
5	30.8	21.7	33.6	19.6	34.7	20.5	32.3	19.2	32.5	21.3	36.6	21.5	29.2	22.1	34.5	22.5
6	30.4	20.6	32.7	18.3	35.5	19	31.9	21	34.6	20	37.2	20	28.8	21.5	35.5	22.6
7	31.6	22.5	33.8	21.1	35.9	20.5	32.3	20.7	35.1	21.1	37.3	21.2	30.9	21.8	35	22.5
8	32.4	21.2	34.1	21.8	37.3	21	32.1	24	35.5	23.5	37	23.6	29.8	22.3	34.6	24.1
9	32.8	21	33.4	22.3	35.7	20.8	32.4	21.7	35.2	23	37.4	23.1	30	22.7	35.5	23.5
10	33.9	20.4	33.7	19.6	35.9	18.9	32.8	21.3	36	22.6	39.2	22	31.4	21	31.7	23.6
11	33	20.9	33.8	21.8	37	20.4	33.1	21.4	35.2	22.2	37	24	30.8	21.3	32.1	25.3
12	32	22.4	32.3	22.1	34.8	20.6	31.9	22	35	22.9	37.2	22.3	31	22.5	33.5	24
13	34	20.7	32	21.6	33.7	20.3	32	20.3	34.8	22	36.6	23	32.5	20	32.5	23.1
14	35.6	22	32.1	22.6	35.5	21.7	32.5	22.9	35.2	24.7	35	24.8	32.7	22.7	31	24.4
15	27	23.1	30.2	24.5	31.3	23.8	32.9	22.7	34	24.1	34.4	23	30	23.4	30.6	25.1
16	30.6	23.7	31.7	23.9	32.1	23	31.6	22.9	34.4	24.8	35.3	24.2	29.3	22.9	34	24.1
17	31.3	22.9	32.6	22.8	34.7	22.2	32.3	22.7	34.5	23.5	36.2	23.4	29.5	22.7	34.5	24.1
18	31.1	22.9	32.9	21.6	35.4	20.9	32.9	21.5	33.1	22.7	36	23.4	30	22.7	36	24
19	31	23.3	34.5	20.4	35.2	21.2	34.1	20.2	33.5	21.1	36.7	21.3	29.9	22.5	35.1	23
20	31.3	20.3	34.2	20.8	35.7	20.4	32.4	21.5	34.4	21.6	36.4	21.6	29.8	22.6	34	22.2
21	31.4	20.4	34	19.7	36.3	21.5	34.9	21.4	33.5	20.9	36.2	21.4	30.2	21.9	36.5	22.9
22	33.3	21	34.6	20.8	34.8	20.5	32.5	20.8	36.4	21	35.8	22	30.7	20.2	34.4	22.5
23	32.7	22.2	35.4	22.2	35.7	21.9	32.6	21.5	33.8	21.1	35.8	22.1	30	21.1	36	22.4
24	30.1	23.6	34.8	22.7	34	23.3	33.4	22	34.4	21.8	37.2	22	30.4	20.1	35.5	23
25	30.1	23.7	33.4	23.3	36	22.5	33.3	22.5	33	23	35.8	23	28.1	22.9	36	23.3
26	31.9	23.8	32.8	22.1	34.7	21.5	33.4	22.7	35.4	22.6	35.4	22.1	30.7	23.4	34.1	22.3
27	32.6	22.5	34.4	23.3	35.2	22	32.5	22.5	32.9	23.2	34.8	23.3	29.9	22.7	34.5	22.5
28	32.6	23.6	34.6	23.6	35.5	22.3	32.9	22.4	35	22.5	35.4	22.5	30	23.1	36	22.8
29	32.5	22.5	34.6	21.5	37	20.2	32.5	21.6	36.6	21.2	38.4	21.5	30.4	20.8	34.9	22.8
30	31.4	23.2	34.8	21.4	35.2	22	33.8	22	34	21.2	35.6	21.6	31.5	20.2	35.8	22.6
Mean	31.7	22.1	33.4	21.5	35.1	21.1	32.8	21.6	34.2	22	36.3	22.2	30.1	22	34.4	23.2

Maximum and minimum temperatures at the stations of the Weather Bureau, April, 1918—Continued.

Day.	Bolinao.		Baguio.		San Fernando, Union.		Echagüe.		Candon.		Vigan.	
	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.
	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.
1	34.3	23.5	24.1	14.1	33.8	22.6	33	21.9	33.9	24	31.6	23.6
2	33.6	23.4	23.5	14	33	22	32.1	20.6	34.2	24.5	31.1	23.6
3	33.9	23.2	21.7	13.8	33.5	23	30.5	21.3	33.4	24	31.1	23.1
4	34.1	21.5	22.8	13.7	33.1	22.7	33	21	34	24	32.1	24.1
5	33.7	23.7	23.5	13.4	33.2	21	33.5	21.4	33.8	24.2	31.6	23.5
6	32.5	23.2	23.5	13.4	34.1	23	34.1	19.4	33.7	24.9	32.2	23.6
7	33	23.2	24.6	13.8	35	22.4	35.5	20.5	33.7	25	32	23
8	32.7	22.9	23.8	14.9	33.4	22	35	21.2	34.3	24.5	32.7	22.3
9	34.2	23.1	24.4	15.1	34.5	21.9	35.8	21.1	34.4	25.8	32.5	23.7
10	33.5	23.2	22.1	15.7	33.5	23.3	35.5	21.2	34.5	24	32.1	22.8
11	33.2	26.5	25.1	14.9	34.5	25.2	34	22.2	34.6	25.5	33.6	24.6
12	31.5	23.5	23.3	14.9	33.5	25.7	33.5	21.1	33.5	25	32.6	23.5
13	33.1	25.7	24.5	15.2	33	22.6	33	20.2	33	24.5	32.1	23.3
14	32	26.2	23.2	14.4	33	23.3	32.7	22.2	33.7	24.2	30.5	22.3
15	31.9	25.1	24	14.9	32.6	24	30.7	21.7	33.4	23.5	31.5	21.6
16	32.3	25.6	23.8	15.2	33.8	24.6	30.1	21	33.9	25.2	31.6	22.8
17	31.8	25.5	24	14	33.1	24	33	21.3	33	25	32.3	22.7
18	34.8	24	23.4	14.4	34.2	24.4	34.1	21.7	32.7	25.5	32.2	25
19	35.2	23.5	24.4	13.5	33.7	23.2	34.5	21	33.2	24.8	32.5	24.4
20	34	23.4	23.8	13.8	34.3	23.6	35	22.1	33.7	24.5	32.2	24.5
21	33.9	23.5	24.7	13.9	35.3	23.6	35.2	20.3	33.4	24	31.4	24
22	33.8	23.7	24.6	14.2	34.3	23	34	20.1	33.5	24.5	32.7	23.4
23	34.8	25.3	25.3	15.4	33.3	22	36.3	22.2	33.2	24	32.3	24.1
24	36.9	22.7	26.2	15.1	33.8	22.6	35.4	20.3	34.4	25.3	33.4	24.9
25	36.1	24.4	25.8	15.9	34.2	24.5	30.5	22.6	34	25.8	33.7	25
26	35.2	25.2	24.6	15.6	34.6	23	35.7	22.5	35	25.1	33.4	24.2
27	34.5	24.8	24.3	15.1	34.2	23.3	34.5	21.5	35	24.5	34.1	23.5
28	35.5	25.3	24.5	14.4	35	23	35.2	20.3	35	24	34	23.7
29	35.2	25	24.6	15	35.5	23	36.5	21	35	24.6	33.7	24.5
30	36.5	26	25.8	14.4	36.8	23.6	36.5	18.4	34.4	24.5	33.3	24.2
Mean	33.9	24.2	24.1	14.5	34	23.2	33.9	21.1	33.9	24.6	32.4	23.6

Day.	Tuguegarao.		Laoag.[a]		Aparri.		Cape Bojeador.		Santo Domingo, Batanes.		Sorsogon.[b]	
	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.
	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.
1	32.5	22.5	36.5	20.5	30.5	22.3	32.2	22.4	27	22.4	29.6	22
2	33.6	22.4	36.1	21	30.1	20.5	30.3	23.2	26.4	21.9	30	21
3	33.8	22.2	39	21	29.7	23.1	30.4	22.5	26.6	21.5	29.5	21.5
4	35.6	21.8	34.8	19.3	30.6	22.1	32.8	22.3	27	21.5	29.8	21.5
5	35.5	20.9	34.8	20.2	31	20.3	31.4	22.8	29.4	22.7	30.4	21
6	36.6	19.5	35	20.7	30.8	20.2	31.8	23.2	28.5	23.2	30.4	22.5
7	37	22.4	35.6	20	33.1	21.5	31.6	23.8	31	23.5	30.5	22
8	36.5	24.5	36.2	20.5	34.6?	23.3	31.6	23.4	31.6	23.8	30.5	21.5
9	38.2	23	35.5	21.5	32.7	22.3	31.8	23.5	31.6	23.8	30.9	21
10	36.8	23.7	35.1	21.3	32.8	23	32	23	31	24	30.5	21.5
11	36.5	22.2	38	22.6	31.5	25	31.2	24	27.8	23	31.7	20.1
12	34.3	21.7	34.5	18.9	29.6	23.8	32.6	23.4	27.5	21.5	31.4	20.1?
13	33.6	20.8	36	19.3	30.8	23.5	30	23.2	25.9	22.9	30.3	22
14	31	21.8	30.3	21.4	29.5	23	28.2	22.8	26.6	22.1	30.5	20.5
15	31.2	22.5	34.2	19.7	27	22.1	27.8	21.8	25	20.4	31.5	20.1?
16	31.7	21.5	33.9	23	27	22.8	28.7	21.6	26.7	21	31.2	21.5
17	31.8	22	33.1	22	27.8	22.8	29	21.4	26.4	19.5	30.7	22
18	35.1	22.1	33.9	22.2	30.2	21.5	32.2	22.1	26	20.2	30.5	20.8
19	36	21.4	33.7	21.5	30.6	22.2	32.8	22.8	27.5	23	30.9	21.5
20	36.7	21.8	34.1	20.4	31.1	20.1	32.9	22.2	30.2	23	30.6	21.5
21	37.4	22.5	33.6	21.5	31.8	21.2	33.2	22.7	29.1	22.7	31.5	21.7
22	37.5	21.6	34.1	21.6	32.4	20.5	33.8	24	30.5	23.6	32.5	21.8
23	38	22.7	34.1	22.8	32.7	22.7	32.8	24.8	31.9	24.9	31.2	21.5?
24	38.6	21.8	34.4	23.7	32.6	22.8	33.4	24.2	30.9	24.4	30	22
25	32.8	23.9	34.1	23.1	32.3	22.4	33.8	24.4	31	24	------	21.8
26	36.7	22.6	35.2	23.3	33.3	23	33.8	25.2	30.8	24.3	32.6	------
27	36.5	21.2	34.7	22.3	33.6	22	32.8	24.8	31	24.6	30.9	22
28	35	21.1	35.1	22.3	33.7	21.3	33.6	25.2	32	24.9	31.3	21.7
29	36.7	23.7	34.3	23.8	33.4	23.8	33.2	24.9	32	25.2	31.5	21.3
30	36.1	22.1	35.1	21.8	34.5	22.8	33.2	24.6	32.4	24.5	30.8	22
Mean	35.3	22.1	34.8	21.4	31.4	22.3	31.8	23.3	29	22.9	30.8	21.4

[a] The maximum temperatures of this station are not very reliable: they seem to be too high.
[b] Received late.

SEISMOLOGICAL BULLETIN FOR APRIL, 1918.

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EARTHQUAKES FELT IN THE PHILIPPINES.[1]

2, $5^h\ 06^m$ [2, $13^h\ 06^m$]. **Butuan** (N Mindanao). Oscillatory earthquake, intensity II–III.

2, $9^h\ 35^m$ [2, $17^h\ 35^m$]. **Nueva Vizcaya** (Central Luzon). Earthquake shocks of intensity III–IV.

4, $17^h\ 47^m\ 34^s$ * [5, $1^h\ 47^m\ 34^s$]. **Baguio** (W Luzon). Oscillatory earthquake of intensity II. Origin in the China Sea.

6, $4^h\ 25^m\ 49^s$ * [6, $12^h\ 25^m\ 49^s$]. **Butuan** (N Mindanao). Earthquake of intensity III. The origin of this earthquake lay in the Philippine Deep of the Pacific; it must have been lightly felt throughout the eastern part of Mindanao.

8, $17^h\ 35^m\ 53^s$ * [9, $1^h\ 35^m\ 53^s$]. **Central Luzon.** Earthquake of intensity III–IV felt in the provinces of Laguna, Rizal, Bulacan, Pampanga, Tarlac, Pangasinan, Nueva Ecija, Benguet, and Nueva Vizcaya; the shaken area measuring about 250 kilometers in the N–S direction and nearly the same amount from E to W. The epicenter was located in the Eastern Cordillera near to the parallel 16° N.

10, $21^h\ 09^m\ 50^s$ * [11, $5^h\ 09^m\ 50^s$]. **E Luzon.** Earthquake of intensity III, felt in the provinces of Laguna, Rizal, Bulacan, and Nueva Ecija. Originated in the Eastern Cordillera as the preceding one but further to the south.

14, $10^h\ 42^m$ [14, $18^h\ 42^m$]. **Cotabato** (SW Mindanao). Earthquake of intensity IV–V, felt through the whole district, and originated in the eastern part of the Rio Grande Valley: it was recorded at Butuan some 190 kilometers distant to the NE.

15, $19^h\ 50^m$ [16, $3^h\ 50^m$]. **Surigao** (NE Mindanao). Earthquake of intensity III: local origin.

24, $2^h\ 16^m\ 54^s$ * [24, $10^h\ 16^m\ 54^s$]. **SE Luzon.** Earthquake of intensity III–IV felt throughout the SE provinces of Luzon. The origin lay some distance in the Pacific, NE of Ambos Camarines. Slow undulations of over 10 seconds duration were observed. Recorded also by a seismograph at Butuan, N Mindanao.

28, $4^h\ 45^m$ [28, $12^h\ 45^m$]. **Surigao** (NE Mindanao). Earthquake shock of intensity II–III.

28, $14^h\ 29^m$ [28, $22^h\ 29^m$]. **Basco** (Batanes Islands). Oscillatory earthquake of intensity III, duration 4 seconds.

30, $1^h\ 25^m$ [30, $9^h\ 25^m$]. **Ormoc** (W Leyte). Oscillatory earthquake, direction S–N, intensity III, duration 8 seconds.

[1] The intensity of earthquakes is given in the notation known as the Rossi-Forel scale. The time is that indicated by the seismographs at the Central Observatory whenever the disturbance has been registered by them. This fact is denoted by an asterisk (*). Otherwise the time is that noted by the observer who sent the report. All time indications are in Greenwich mean time (midnight=0^h), insular time being added in brackets for the convenience of Philippine readers.

RECORDS OF THE MICROSEISMOGRAPH.

[Time: Greenwich mean. Midnight=0h. Instrument: Wiechert seismograph; 1,000 kilograms. A_N: T_o=5.9, ϵ=2.340, $\frac{r}{T_o^2}$=0.024; A_E: T_o=5.3, ϵ=1.783, $\frac{r}{T_o^2}$=0.092. Alluvium. 2.40 meters above sea level.]

No.	Date.	Character.	Phase.	Hour.	Period.	Amplitude. A_N μ	Amplitude. A_E μ	Remarks.
				h. m. s.				
130	1	Ir	eP	10 10 22				
			L	18 19				
			F	29				
131	3	Iv	eP	3 09 20				
			L	09 35				
			M_E	09 38	3		75	
			F	13				
132	4	Iv	eP	17 47 34				Baguio (W Luzon).
			L	47 57				
			M_N	48 06	3	35		
			F	54				
133	5	Iv	eP	10 28 51				
			F	32				
134	6	I	eP	4 25 49				Butuan (N Mindanao).
			F	40				
135	6	Iv	eP	19 41 32				
			F	44				
136	7	IIv	eP	13 29 17				
			L	29 38				
			M_N	29 50	3	341		
			F	48				
137	8	IIId	eP	17 35 53				Central Luzon. Maxima and end in both components lost by the force of the shocks.
			L	36 15				
138	10	IIr	eP	2 09 19				
			S	13 38				
			L	14 57				
			M_E	15 38	6		333	
			M_N	15 44	6	250		
			F	56				
139	10	IIId	eP	21 09 50				E Luzon.
			L	09 59				
			M_N	10 11	3	1,515		
			F	16				
140	11	Iv	eP	18 48 13				
			L	48 30				
			M_E	48 32	2		160	
			F	53				
141	12	Iv	eP	10 43 37				
			F	45				
142	12	Iv	eP	16 26 43				
			L	27 06				
			M_N	27 09	2	84		
			F	30				
143	13	Ir	e	0 59 16				
			F	1 53				
144	13	Iv	eP	18 22 45				
			L	23 06				
			M_E	23 08	2		56	
			F	30				
145	13	Iv	eP	19 57 24				
			F	20 00				
146	14	Iv	eP	7 05 03				
			L	05 33				
			M_E	05 41	3		35	
			M_N	05 50	3	37		
			F	11				
147	14	Iv	eP	8 32 24				
			F	35				
148	15	Iv	eP	18 31 09				
			F	34				
149	15	Iv	e	18 55				
			F	19 11				

Records of the microseismograph—Continued.

No.	Date.	Character.	Phase.	Hour.	Period.	Amplitude. A_N μ	Amplitude. A_E μ	Remarks.
				h. *m.* *s.*				
150	18	I_r	eP	20 06 20				
			F	32				
151	21	I_u	e	22 51 40				California.
			M_N	23 26 32	26	5		
			M_E	26 33	24		4	
	22		F	0 31				
152	23	I_r	eP	15 31 24				
			S	34 00				
			L	34 56				
			M_N	35 29	7	12		
			F	16 10				
153	24	II_v	eP	2 16 54				SE Luzon. Maxima and end in both components lost by the force of the shocks.
			L	17 33				
154	24	I_v	eP	20 36 24				
			L	36 37				
			M_N	36 39	2	76		
			F	41				
155	25	I_v	eP	16 32 11				
			F	35				
156	25	I	eP	22 50 27				
			F	23 12				
157	26	I	eP	13 17 38				
			F	53				
158	27	I_v	eP	3 19 20				
			F	22				
159	30	I_v	eP	7 14 49				
			F	20				

TEMBLORES DE TIERRA SENTIDOS EN FILIPINAS.[1]

2, 5^h 06^m [2, 13^h 06^m]. **Butúan** (N de Mindanao). Temblor oscilatorio, intensidad II–III.

2, 9^h 35^m [2, 17^h 35^m]. **Nueva Vizcaya** (Centro de Luzón). Temblor de tierra de intensidad III–IV.

4, 17^h 47^m 34^s * [5, 1^h 47^m 34^s]. **Baguio** (W de Luzón). Temblor de tierra de intensidad II. El origen se hallaba en el Mar de la China.

6, 4^h 25^m 49^s * [6, 12^h 25^m 49^s]. **Butúan** (N de Mindanao). Temblor de tierra de intensidad III. El origen de este temblor estaba en el Abismo de Filipinas en el Pacífico; debió sentirse débilmente en toda la parte más oriental de Mindanao.

8, 17^h 35^m 53^s * [9, 1^h 35^m 53^s]. **Centro de Luzón.** Temblor de tierra de intensidad III–IV, sentido en toda la parte central de Luzón comprendida por las Provincias de Laguna, Rizal, Bulacán, Pampanga, Tárlac, Nueva Écija, Pangasinán, Benguet y Nueva Vizcaya; en una extensión de 250 kilómetros de N a S y otros tantos de E–W. El origen se hallaba en la Cordillera Oriental cerca del paralelo 16° N.

10, 21^h 09^m 50^s * [11, 5^h 09^m 50^s]. **E de Luzón.** Temblor de tierra de intensidad III, sentido en las Provincias de Nueva Écija, Bulacán, Rizal y Laguna. Su origen debe colocarse también en la Cordillera Oriental pero mucho más al S que el precedente.

14, 10^h 42^m [14, 18^h 42^m]. **Cotabato** (SW de Mindanao). Temblor de tierra de intensidad IV–V sentido en todo el distrito y originado en la parte oriental del valle del Río Grande; registrado en Butúan 190 kilómetros distante al NE

15, 19^h 50^m [16, 3^h 50^m]. **Surigao.** (NE de Mindanao). Temblor de tierra de intensidad III; origen local.

24, 2^h 16^m 54^s * [24, 10^h 16^m 54^s]. **SE de Luzón.** Temblor de tierra de intensidad III–IV sentido en todas las provincias del SE de Luzón. Su origen se hallaba algo distante en el Pacífico, al NE de Camarines. Los movimientos ondulatorios observados eran lentos y duraron más de 10 segundos; fué también registrado en Butúan.

28, 4^h 45^m [28, 12^h 45^m]. **Surigao** (NE de Mindanao). Temblor de tierra de intensidad II–III.

28, 14^h 29^m [28, 22^h 29^m]. **Basco** (Islas Batanes). Temblor oscilatorio de intensidad III, duración 4 segundos.

30, 1^h 25^m [30, 9^h 25^m]. **Ormoc** (W de Leyte). Temblor oscilatorio, dirección S–N, intensidad III, duración 8 segundos.

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[1] **La intensidad de los terremotos se indica conforme a la conocida escala de Rossi-Forel. Cuanto a la hora de su ocurrencia, adoptamos la indicada por los sismógrafos de este Observatorio siempre que los hayan registrado, distinguiéndola por medio de un asterisco (*). En caso contrario copiamos la apuntada por los observadores que nos envían las notas. Todas las indicaciones del tiempo se refieren al tiempo medio de Greenwich (medianoche=0^h). Para conveniencia de los lectores de Filipinas se añade también el tiempo insular.**

THE GOVERNMENT OF THE PHILIPPINE ISLANDS

WEATHER BUREAU

MANILA CENTRAL OBSERVATORY

BULLETIN FOR MAY, 1918

PREPARED UNDER THE DIRECTION OF

REV. JOSÉ ALGUÉ, S. J.

DIRECTOR OF THE WEATHER BUREAU

MANILA
BUREAU OF PRINTING
1918

METEOROLOGICAL BULLETIN FOR MAY, 1918.

By REV. JOSE CORONAS, S. J.,
Chief, Meteorological Division of the Weather Bureau.

GENERAL WEATHER NOTES.

Pressure and temperature.—The mean atmospheric pressure for this month in the Philippines is slightly below that of the preceding year, and generally also below the normal for May. The highest pressures were generally observed on the 14th, and the lowest on the 8th.

The mean monthly temperature is somewhat higher than that of May, 1917, and than the normal for this month, in Luzon, while it is slightly lower in the majority of the stations of the Visayas and Mindanao. The monthly maximum and minimum temperatures for Manila, were 35.4° C. on the 19th and 20.6° C. on the 1st. In Baguio the extreme monthly temperatures were 26.1° C., 13.9° C. on the top of Mirador, and 26.4° C., 13.2° C. in the valley.

PRESSURE AND TEMPERATURE AT THE FIRST AND SECOND CLASS STATIONS FOR MAY, 1918.

Station.	Pressure.							Temperature.						
	Mean.	Departure from May, 1917.	Departure from normal.	Highest mean.	Day.	Lowest mean.	Day.	Mean.	Departure from May, 1917.	Departure from normal.	Highest.	Day.	Lowest.	Day.
	mm.	*mm.*	*mm.*	*mm.*		*mm.*		*°C.*	*°C.*	*°C.*	*°C.*		*°C.*	
Zamboanga	758.14	—0.46		759.74	27	756.93	8	26.1	—0.2		32.4	16	22.2	16
Tagbilaran	57.90	— .48	—0.29	59	30	56.62	8	26.7	— .2	—0.9	32.8	6	21.4	21
Surigao	58.09	— .37	— .32	59.18	14	56.69	8	26.4	— .6	— .6	33.1	29	21.9	24
Cebu	58.23	— .18	— .04	59.34	14	57.15	17	28.1	+ .2	0	32.8	23	23.2	2
Iloilo	57.89	— .48	— .18	58.99	27	56.66	17	27.9	+ .7	0	33.4	22, 23, 31	23.2	22
Tacloban	58.25	— .29	— .21	59.29	14	57.01	8	26.9	— .5	— .8	34.7	31	22	23, 24
Capiz	58.08	— .56	— .34	59.24	14	56.76	9	28.1	+1	+ .1	34.1	26	21.7	23
Calbayog	58.34	— .30	— .12	59.39	14	57.08	8	26	— .6	— .8	33.4	20	20.7	23
Legaspi	58.42	— .12	+ .03	59.79	14	57.16	8	28.2	+ .3	+ .1	34.8	24	20.2	22
Atimonan	58.39	— .03	+ .12	59.85	14	56.92	24	27.9	+ .5	— .3	34.7	28, 29	22.6	22
Ambulong, Tanauan	57.67	— .15		59.04	14	56.33	9	28.7	+1.3		37.2	7	22.8	22
Paracale	58.50	— .11		60	5	56.83	24	27.5	+ .2		34.6	26	22.5	22, 23
Manila	58.17	— .17	— .17	59.42	14	56.77	8	28.1	+ .2	— .3	35.4	19	20.6	1
San Isidro	58.37	— .10	+ .10	59.74	14	56.84	8	28.5	+ .8	+ .1	37.2	9	19.4	1
Dagupan	57.43	— .26	— .36	58.55	15	56	8	28.9	+ .8	+ .4	37.4	6	22.4	1
Baguio[a]	636.53	— .08	+ .07	637.56	14	635.26	8	18.9	+ .5	+ .1	26.1	14	13.9	26
Vigan	757.69	— .25	— .37	758.92	4	756.31	8	29.2	+ .9	+ .5	35.2	6	24	5, 17, 29
Tuguegarao	58.10	— .20	+ .01	59.95	5	56.13	25	29.1	+1.3	+ .6	40.1	28	20.8	1
Laoag	57.64	— .34		58.85	4, 14	56.48	9	28.6	+ .8		38.8	5	21.6	6
Aparri	58.14	— .33	— .02	60.19	5	56.29	24, 25	28.2	+1.3	+ .7	36.4?	12	21.3	1

[a] The barometric readings of this station are not reduced to sea level.

Rainfall.—The total rainfall of this month was almost without exception smaller than the May's normal in Luzon and the Visayas; but it was generally above the normal in Mindanao. The monthly rainfalls for Manila and Baguio are respectively 21.6 mm. and 197.0 mm. below the normal of this month.

RAINFALL AT VARIOUS STATIONS OF THE WEATHER BUREAU DURING THE MONTH OF MAY, 1918.

Station.	Total.	Departure from May, 1917.	Departure from normal.	Days of rain.	Departure from May, 1917.	Greatest rainfall in a single day.	Day.	Station.	Total.	Departure from May, 1917.	Departure from normal.	Days of rain.	Departure from May, 1917.	Greatest rainfall in a single day.	Day.
	mm.	*mm.*	*mm.*			*mm.*			*mm.*	*mm.*	*mm.*			*mm.*	
Jolo	111.3	−116.9	− 86.8	14	− 6	26.7	8	Sumay, Guam	101.6	+ 29.7	− 8.8	12	− 1	40.6	22
Isabela, Basilan	190.8	− 76.7	+ 51.8	21	0	53.6	30	Calapan	240.8	+ 79.1	+ 70.7	13		59.7	13
Zamboanga	84.8	− 22.4	+ 5.6	15	− 5	18.5	6	Virac	146.1	− 35.8	− 2.8	19	− 1	54.6	13
Davao	358.8	+154	+121.1	18	+ 4	75.7	20	Naga	61.3	−204.3	− 59.8	5	−12	17.3	26
Cotabato	149.7		− 70.2	18		30	25	Tigaon	61.9			12		23.1	13
Cagayan, Misamis	62.8	−132.4		13	− 7	9.9	12	Batangas	56.4	− 13.4	− 44	2	−12	35.8	30
Dapitan	212.8		+ 98.2	17		36.8	11	Lucena	73.6	− 15.2		10	− 2	21.1	18
Butuan	194.8	− 6	+ 38.4	19	− 3	45.7	11	Atimonan	84.9	+ 20.8	− 74.4	13	− 1	31.5	17
Mambajao	110.5	− 32.1		5	− 7	50.8	12	Ambulong, Tanauan	105.3	− 69.6		9	− 6	42.2	10
Dumaguete	201.1	− 60.4		11	− 2	63.2	11	Canlubang, Calamba	104.8	− 5.8		8	− 7	43.4	9
Yap, Western Carolines	93.5	−217.6	−195.1	23	+ 4	10.2	17	Paracale	223.4	+ 40		18	+ 3	75.4	7
Tagbilaran	53.5	− 88.8	− 50	12	+ 2	21.1	20	Santa Cruz, Laguna	103.8	− 76.5		9	− 2	46.5	13
Iwahig	128	−133		13	−11	31.7	23	Manila	83.3	+ 29.4	− 21.6	13	0	22.6	27
Surigao	225	+180.1	+ 84.6	14	+ 3	87.4	11	Antipolo	91.5	+ 26.9		12	0	29.2	9
Maasin	48.2	−251.3	− 86.7	3	− 5	20.8	12	Iba	86.5	−123.5	−147.3	8	− 7	28.7	28
Cebu	98	−147.2	− 1.8	8	−12	35	2	San Isidro	116.5	− 60.9	− 70.1	11	− 2	41.4	27
Iloilo	60.7	−147.1	−101.9	11	− 7	14.7	13	Tarlac	141.7	− 28.9	− 38	8	−13	46.5	4
San Jose Buenavista	226	+ 8.9	+ 51.2	20	− 2	41.4	30	Baler	144.6	−151.9	−132.3	11	− 5	58.7	9
Cuyo	101	− 72.1	− 66.1	11	− 7	37.6	10	Dagupan	51.9	−195.2	−200.9	13	− 8	14	8
Ormoc	56.6	− 61.8	− 30.9	12	− 3	13.2	16	Bolinao	113.2	−104.8	− 62.1	10	− 6	42.7	14
Guiuan	267.3	+ 55.8		19	− 1	57.9	8	Baguio	210.2	− 85.4	−197	14	− 8	94	9
Tacloban	104.1	− 81.6	− 51.3	18	+ 2	17.8	13	San Fernando, Union	121.8	− 99.7	− 71.3	6	− 6	64.8	14
Capiz	131	− 98.4	− 49.8	11	− 7	67.3	31	Echagüe	55	−169.9	−100.4	7	− 4	24.6	4
Borongan	158.4	+ 39.4	− 65.9	19	+ 7	18.8	13	Candon	121.1	− 27.5	− 81.3	9	− 7	80	21
Catbalogan	95.6	+ 15.7		15	− 1	17.8	10	Vigan	96.2	− 34.9	− 37.8	3	−11	43.2	17
Calbayog	161.1	+ 15.3	+ .7	18	+ 1	42.3	1	Tuguegarao	100.2	− 19.4	− 22.4	8	− 5	68.1	29
Masbate	12.4	− 83.8	− 66.7	5	−11	7.6	28	Laoag	68.8	− 70.5	−134.3	5	−10	52.8	17
Romblon	78.1	−146.3	− 49.7	10	− 8	26.4	18	Aparri	54.7	− 99	− 53.3	6	−12	26.2	25
Batag	110.4	− 70.5		13	+ 5	62.2	7	Cape Bojeador	69.9	+ 12.7		3	− 2	38.6	17
Sorsogon	190.3	+ 46.5						Santo Domingo, Batanes	27.1	−220.7	−209.4	9	− 9	9.1	20
Legaspi	30.5	− 33	−104.5	11	+ 1	8.2	13								

DEPRESSIONS AND TYPHOONS.

Only one really developed typhoon could be noticed in our weather maps during this month. It appeared to the SW of the Bonins in the afternoon of the 24th and passed very close to the N of those Islands, on the 25th, moving northeastward.

Another depression or typhoon was shown on our weather maps of the 23rd and 24th to the NE of Luzon and S of the Loochoos. It moved northeastward or northward and seems to have filled up on the 24th S of the Loochoos.

A third atmospheric disturbance made its appearance in the neighbourhood of Formosa in the early morning of the 9th. It moved northeastward across the Eastern Sea on the 9th, and across the Sea of Japan on the 10th.

The tracks of all these depressions and typhoons will be published in the next bulletin together with the depressions and typhoons for June.

NOTAS GENERALES DEL TIEMPO.

Presión y temperatura.—La presión atmosférica media de este mes en Filipinas es ligeramente menor que la del año pasado, y generalmente menor también que la normal de mayo. Las presiones más altas del mes se observaron generalmente el día 14, y las más bajas el día 8.

La temperatura media mensual es algo mayor que la de mayo de 1917 y que la normal de este mes en Luzón, al paso que es ligeramente menor en la mayor parte de nuestras estaciones de Visayas y Mindanao. Las temperaturas máxima y mínima del mes en Manila fueron 35.4° C. y 20.6° C. observadas los días 19 y 1, respectivamente. En Baguio las temperaturas extremas del mes fueron 26.1° C., 13.9° C. en la cumbre del Mirador, y 26.4° C., 13.2° C. en el valle.

Precipitación acuosa.—La cantidad total de lluvia de este mes ha sido, casi sin excepción, menor que la normal de mayo en Luzón y Visayas; pero fué generalmente mayor que la normal en Mindanao. Las lluvias totales del mes en Manila y en Baguio difieren de la normal en −21.6 mm. y −197.0 mm., respectivamente.

DEPRESIONES Y TIFONES.

Durante este mes no se echó de ver en nuestros mapas del tiempo más que un solo verdadero tifón bien desarrollado. Apareció al SW de Bonins la tarde del 24, y pasó muy cerca por el N de dichas Islas el 25, moviéndose al NE.

Otra depresión o tifón se notó en nuestros mapas del tiempo del 23 y 24 al NE de Luzón y S de Loochoos. Se movió hacia el NE o N, y parece haberse deshecho el 24 al S de Loochoos.

Una tercera perturbación atmosférica apareció en las cercanías de Formosa la madrugada del 9, moviéndose al NE a través del Mar del Este el 9, y a través del Mar del Japón el 10.

Las trayectorias de todas estas depresiones y tifones se publicarán en el siguiente boletín juntamente con las depresiones y tifones de junio.

METEOROLOGICAL DATA FOR MANILA CENTRAL OBSERVATORY.[a]

[ϕ=14° 34′ 41″ N; λ=120° 58′ 33″ E; barometer above sea, 14.2 meters; gravity correction not applied, —1.72 mm.]

Day.	Pressure (mean).	Air temperature.[b]			Underground temperature.						Relative humidity (mean).	Vapor pressure (mean).	Radiation.		Evaporation.[b]	
		Mean.	Maximum.	Minimum.	0.25 meter.		0.50 meter.		1.50 meters.	2.50 meters.			Minimum on grass.	Maximum in sun. Black bulb in vacuo.	Free exposure (total).	Shelter (total).
					8 a.m.	2 p.m.	8 a.m.	2 p.m.	8 a. m.	8 a. m.						
	mm.	°*C.*	°*C.*	°*C.*	°*C.*	°*C.*	°*C.*	°*C.*	°*C.*	°*C.*	*Per ct.*	*mm.*	°*C.*	°*C.*	*mm.*	*mm.*
1	758.82	27.5	34.3	20.6	28.5	30.5	29.5	29.6	28.5	27.5	66	17.6	18	55.2	6.8	5.3
2	58.21	27.6	33.7	22.3	28.8	30.8	29.4	29.9	28.5	27.5	69.5	18.8	19.9	50	7	4.9
3	58.62	27.2	33.4	22.1	28.6	29.5	29.4	29.4	28.7	27.5	70.7	18.7	19.7	56.5	5.2	3.6
4	59.08	28.5	35.2	22.5	28.5	30.3	29.1	29.6	28.6	27.5	68.1	19.2	20.2	54.8	7.9	5.5
5	59.28	28.3	34.9	22.7	28.9	30.8	29.3	29.7	28.6	27.5	68.6	19.2	20.5	57	7.5	5.3
6	58.39	28.4	35	22.9	29.2	30.5	29.5	29.8	28.6	27.6	65.6	18.3	20.4	56.2	7	5.1
7	57.72	27.8	35	21.5	29	30.9	29.5	29.8	28.5	27.6	71.2	19.4	19	56.2	5.7	4
8	56.77	28.7	35.2	22.8	29.3	31.3	29.7	30.1	28.6	27.6	70.5	20.1	20.5	55.5	6.4	4.6
9	56.88	28.2	35	23.8	29.5	31.8	29.8	30.3	28.6	27.6	77.6	21.7	21.7	57.6	4.6	3.1
10	58.06	27.6	34.3	24.1	29.8	31.5	29.9	30.4	28.6	27.6	82	22.1	22.9	55.5	3.9	2.5
11	58.49	28	34.4	23.4	29.7	30.9	30.1	30.3	28.8	27.7	76.6	21.2	21.9	52.3	4.5	3
12	58.56	26.5	32.3	22	29.2	29.9	29.9	30	28.7	27.7	80.8	20.6	19.4	55	2.5	2.3
13	58.84	26.8	31.4	22.5	28.5	29	29.7	29.8	28.8	27.7	80.2	20.8	21	48.6	4.5	2.9
14	59.42	28.4	34.6	25.2	28.7	30.3	29.5	29.9	28.9	27.7	72.7	20.7	24	52.9	5	3.5
15	59.28	27.8	34.2	22.7	28.8	30.1	29.5	29.8	28.8	27.7	76.6	21	20.6	57.3	4.1	3.4
16	58.03	28	34.2	23.1	28.9	30.6	29.6	29.9	29	27.7	72.6	20	21.2	53.5	6.3	4.5
17	57.28	28	34.2	21.7	29.3	30.9	29.8	30	28.9	27.7	71.2	19.6	19.2	55	5.5	4
18	57.78	27.7	34.2	23.8	29.5	31	29.8	30.3	29	27.8	78.5	21.5	21.9	54.4	3.4	2.7
19	57.91	28.9	35.4	23.1	29.5	31.4	29.9	30.1	29.1	27.8	72.5	21	21.2	54.3	5.7	4.3
20	57.92	28.4	34.3	23.2	29.6	31.2	29.9	30.3	29	27.8	73.5	20.5	21.3	56.2	5.5	4
21	57.60	28.2	35.1	21.9	29.5	31.5	29.9	30.4	29	27.8	69.6	19.3	19	54.5	6.3	4.7
22	58.02	28.6	34.6	23	30	31.6	30.2	30.6	29.1	27.8	71.3	20.4	20.7	53.3	6.7	4.5
23	57.66	28.8	33.7	25.2	30.5	32.4	30.5	30.9	29.1	27.8	75.2	21.8	23.7	53.9	5.4	3.5
24	57.07	28.6	33.2	25	30.5	32.2	30.6	31	29.2	27.8	76.1	21.8	22.5	52.4	5.3	3.5
25	57.26	28.4	33.7	24	30.6	32.5	30.8	31.2	29.3	27.9	74.2	20.9	21.7	53.6	6	4
26	57.77	27.6	32.8	24.3	31	32.6	31.1	31.5	29.2	27.8	82.1	22.4	22	51.4	3	2.4
27	58.30	28.2	32.3	25.4	29.3	31.5	30.9	31.1	29.5	28	83.2	23.6	24	52.5	3.8	2.5
28	58.20	28.5	33.3	24.7	30.5	31.6	30.8	31.1	29.3	27.9	79.4	22.7	23.2	51.3	4.1	2.8
29	58.30	28.7	33.3	25.7	30.7	31.8	30.9	31.2	29.3	27.9	81.6	23.6	24.6	56.8	3.9	2.8
30	58.92	27.9	33.4	23.8	30.7	31.7	31	31.2	29.3	27.9	81.8	22.5	22.5	53.7	4.3	3.2
31	58.88	28.1	34.1	23.9	30.6	31.9	30.9	31.2	29.3	27.9	77.4	21.4	22.7	52.8	4.4	3.2
Mean	758.17	28.1	34	23.3	29.5	31.1	30	30.3	28.9	27.7	74.7	20.7	21.3	54.2	5.2	3.7
Total															162.2	115.6
Departure from normal	—0.17	—0.3	+0.4	—0.6							—1.3	—0.9				

Day.	Wind.				Clouds.			Sunshine.	Rain, 24 hrs. beginning 6 a. m.		Miscellaneous.
	Prevailing direction.	Total movement.	Maximum hourly velocity.	Direction at the time of the maximum velocity.	Amount (mean).	Form and direction. Upper.	Lower.		On the tower.	In the park.	
		Km.	*Km.*		*0–10.*			*h. m.*	*mm.*	*mm.*	
1	ESE	231	21	SE	3.2	A.-Cu., Ci.	Cu. E	10 20			Ω² a.
2	SE, ESE	238	21.5	E	4.7	ci.-cu., A.-cu.	Cu. E	9 25			≤ p.
3	E quad.	178	18	EbyN	4.6	A.-cu., Ci.-cu.	cu., cu.-N. E	7 25			
4	SE	253.5	22	SE, ESE	3.5	Ci.-Cu.	Cu.-N. E	9 50			≤ p.
5	ESE	255	24	ESE	4.4	Ci.-S.	Cu. E	10 00			
6	ESE	221	20	ESE	4.8	A.-Cu. ESE	Cu. E	8 35			
7	ENE, ESE	180.5	20	WNW	3.8	Ci.-S.	Cu. E	10 20			Ω a. ≤° p.
8	SE	229.5	21	SE	5.4	Ci.-S. SW	Cu. E	9 20			Ω a.
9	SW	229.5	21	SW	7.2	Ci.-Cu. SSW	Cu.	7 45	19	19.8	≤ ● p.
10	NE, SE	143	19.5	SE	7.3	Ci.-Cu. WSW	Cu. E	6 30			⌐◪ d° p.
11	E, ESE	139.5	18	WNW	5.1	Ci.	Cu. E	7 35			Ω² a. ≤° p.
12	ENE, ESE	149	16	W	8.8	Ci.	Cu. E	2 00	11.5	10.3	● p.
13	E quad.	148	13	ESE	9.6	Ci.-S.	Cu. E	0 20	.3	.2	●° a. ⌐◪° d° p.
14	ESE	205.5	16.5	ESE, SE	8.8	A.-Cu. E	Cu. E	4 45			⌐◪° p.
15	SE	181	17	ESE	5.6	A.-Cu. ESE	Cu. E	6 45	.8	.8	●° ≤ p.
16	ESE, SE	212	23	SE	3.2	Ci.	Cu. E	9 40			d a.
17	E quad.	197	19	SE	2.8	Ci.	Cu. E	10 20	.5	.5	⌐◪ d² p.
18	E quad.	120	19	NE	7.5	A.-Cu.	Cu. E	4 10	3.6	3.8	⊤ p p.
19	SE	208	20	SE	4.8	Ci.	Cu. E	9 30	2.5	2.5	⌐◪° ● p.
20	SE	163.5	19	SE	3.8	Ci.	Cu. E	10 35			◠² d° ≤ p.
21	E quad.	194.5	15	SSW	2.2	Ci.-S.	Cu. E	10 15			∪ p.
22	WSW, SSW	240	24	SW	2.8	Ci.	Cu. ENE	8 55			≤ p.
23	W, SW	240	25	SW	2.8	Ci.	Cu.	8 25			
24	W quad.	212	23	SW	4.9	A.-Cu. S	Cu. W	7 45			d° ⊕ a.
25	WSW	258	26	WSW	3.7	Ci.-S. SE	Cu. W, NW	6 50			∪ p.
26	SW quad.	230	30	SSW	7.2	Ci.	Cu. SW	4 55	15	16.3	p°a. ⌐◪°◠●°p.
27	WSW, SW	345	35	W	8.7	Ci.	S.-Cu. WSW	5 40	22.6	22.3	● a. ⌐◪₂°° p.
28	SW	272	22	WSW	5.9	Ci. ENE	Cu. WSW	8 05	.8	.8	
29	WSW, SW	238	27	SSW	6.8	Ci.	Cu. SWbyW	7 25	3	3.3	●° a.
30	E quad.	197	17	W	6.6	Ci.	cu., cu.-N. SE	7 20	.3	.4	●° ⊕° a. ⌐◪p.
31	W	244	17	W	5.8	Ci. E	Cu.	9 30	3.4	3.6	d a. ⌐◪ ≤² ●° p.
Mean		211.4	21		5.4			7 45			
Total		6,553						240 15	83.3	84.6	
Departure from normal		—381.2			—0.3			+ 9 54	—21.6		

[a] All the mean values given in this table are deduced from hourly observations.
[b] These values are taken from instruments mounted in the Observatory Park, 1.5 meters above ground.

METEOROLOGICAL DATA FOR MIRADOR OBSERVATORY, BAGUIO.[a]

[ϕ=16° 25′ N; λ=120° 36′ E; barometer above sea, 1,512.5 meters; gravity correction not applied, —1.65 mm.]

Day.	Pressure[b] (mean).	Air temperature at Mirador (on the top of the mountain).					Air temperature in the valley (near the city hall).				Relative humidity (mean).	Vapor pressure (mean).	Radiation.		Evaporation.	
		Mean.	Maximum.	Hour.	Minimum.	Hour.	Maximum.	Hour.	Minimum.	Hour.			Minimum on grass.	Maximum in sun. Black bulb in vacuo.[c]	Free exposure (total)	Shelter (total)
	mm.	°C.	°C.		°C.		°C.		°C.		*Per ct.*	*mm.*	°C.	°C.	*mm.*	*mm.*
1	637.13	19.6	25.7	10.25a.	15.1	5.50a.	26.4	11.50a.	14.2	6.00a.	79.8	13.4	12.1	57	3.9	2.4
2	36.46	19.4	25.3	10.20a.	15.4	5.35a.	26	10.25a.	14.7	5.55a.	80.5	13.4	13.5	59.3	3.9	2.1
3	36.75	19	25.2	11.00a.	14.8	5.40a.	26.2	2.30p.	14.2	5.35a.	81.8	13.2	13.3	57.7	4.3	2.4
4	37.29	18.7	24.6	1.55p.	14.9	5.00a.	25.5	10.55a.	14.1	5.00a.	85	13.5	13.4	58	2.6	1.9
5	37.34	18.6	24.2	1.15p.	15.4	5.50a.	24.6	1.40p.	14.7	1.00a.	84.2	13.4	13.6	57.9	5.2	2.7
6	36.68	19.3	25.1	0.05p.	15.1	5.00a.	25.7	11.35a.	13.6	5.55a.	72	11.9	13.3	59.4	5.1	3.1
7	36.22	19	25	0.20p.	14.9	5.00a.	24.4	0.35p.	14.2	5.55a.	83.5	13.6	13	58.8	2.5	1.4
8	35.26	18.5	24.7	1.15p.	15.8	5.00a.	25.2	1.20p.	14.9	4.00a.	90	14.2	14.2	60.9	1.9	1.1
9	35.45	18.6	25.1	2.35p.	15.3	12 m. n.	25.7	3.00p.	15.4	12 m. n.	88.2	13.9	14.2	58	1.9	1.5
10	36.31	18.6	23.8	10.50a.	15.1	1.15a.	24.5	3.15p.	14.2	2.50a.	87.7	14	13.7	61.2	2.9	1.2
11	36.96	18.3	22.8	9.10a.	16.1	3.00a.	24.1	9.10a.	15.7	5.25a.	93.5	14.6	13.6	56.4	1.3	.8
12	36.91	19.8	25.2	10.50a.	15.2	4.25a.	25	11.00a.	14.9	5.30a.	81	13.5	14.2	59.7	3.9	1.9
13	36.87	19	24	3.00p.	15.7	5.00a.	25.7	3.35p.	15.5	5.20a.	87	14.2	14.2	57.9	4.1	2
14	37.56	19.3	26.1	11.00a.	16.7	5.30a.	26.2	11.55a.	16.8	4.00a.	81	13.4	16.4	58.9	2.9	2
15	37.52	18.7	24.1	9.55a.	16.4	6.00a.	25.5	10.25a.	16.8	6.00a.	92.8	14.8	16	60.5	1.3	.7
16	36.50	19.5	24.6	10.00a.	16.2	6.00a.	24.7	3.10p.	15.8	6.00a.	88	14.6	15	61	2	1.1
17	35.91	18.9	23.9	10.55a.	16	5.40a.	24.4	9.50a.	15.2	5.35a.	85.8	13.9	13.6	59.7	2.8	1.5
18	36.25	19.5	25.4	Noon	14.9	5.20a.	25.2	10.00a.	14.1	5.20a.	86	14.5	13.6	60.1	2.5	1.6
19	36.61	19.2	25.8	1.25p.	15.5	4.50a.	25.1	10.55a.	15.1	5.00a.	88.7	14.6	13.7	59.9	2.2	1.1
20	36.49	19.3	25.3	1.40p.	16.2	5.20a.	25.3	2.30p.	15.4	5.55a.	87	14.4	14.6	61.4	2.1	1.4
21	36.05	19	25.4	10.25a.	15.4	6.05a.	25.9	11.30a.	15.2	12 m. n.	83.3	13.3	14.6	61.5	2.5	1.6
22	36.40	18.5	23.8	0.40p.	15.4	4.55a.	25.2	0.20p.	13.2	4.35a.	89.5	14.1	13	59.7	1.8	1.1
23	36.12	18.7	24.2	1.30p.	15	5.50a.	24.9	1.40p.	13.2	5.55a.	89.5	14.3	12.9	57.4	2.5	1.4
24	35.56	18.4	23.9	0.35p.	16.1	2.00a.	25.3	1.40p.	15.4	2.40a.	84.8	13.4	15	58	1.9	1.3
25	35.45	18.3	25.2	1.00p.	14.7	12 m. n.	25.2	0.30p.	15	12 m. n.	89	13.9	13.7	60.5	3.2	1.9
26	36.10	19.2	25.7	1.10p.	13.9	3.35a.	26	2.05p.	13.2	4.30a.	79.5	13	12	56.7	3.4	2.2
27	36.58	19.3	25.8	11.45a.	16.1	3.25a.	25.6	0.30p.	14.8	6.00a.	89.7	14.8	12	61	2.5	1.1
28	36.62	19.2	25.6	1.35p.	16	5.30a.	25.7	1.35p.	15.2	5.20a.	91	15	14.8	62	1.9	1.1
29	36.67	18.4	25.6	0.05p.	15.9	6.10p.	25	0.20p.	15.4	4.00a.	93.8	14.8	14.7	62.9	1.4	.9
30	37.27	18.6	23.8	11.50a.	16	8.55p.	24.2	0.40p.	15.6	5.35a.	87.2	13.9	14.6	59.7	2.9	1.6
31	37.14	18.6	24.6	0.20p.	15.9	4.15a.	25.2	10.15a.	15	4.40a.	90.2	14.4	14.5	60.1	1.8	1.2
Mean	636.53	18.9	24.8		15.5		25.3		14.9		86.2	13.9	13.9	59.5	2.7	1.6
Total															85.1	49.3

Day.	Wind.				Clouds.			Sunshine.	Rain, 24 hours beginning 6 a. m.	Miscellaneous.
	Prevailing direction.[d]	Total movement.	Maximum hourly velocity.	Direction at the time of the maximum velocity.	Amount (mean).	Form and direction. Upper.	Lower.			
		Km.	*Km.*		*0–10.*			*h. m.*	*mm.*	
1	W, N	290.2	24.4	W	2.6	Ci.	Cu.-N. ESE	8 00		Ω² a.
2	E	329.3	24.1	SW	5.1	Ci.	Cu.-N. E	6 45	14.5	● ⌒ ⌐◪ p.
3	E, SE	390.2	25.5	W	3.9	Ci.	Cu.-N. E	7 40		⌐◪° ⌒ p.
4	E quad.	327.5	23	SW	5.6	Ci. SW	Cu.-N. WSW	5 20	10.4	Ω a. ⌐◪² ● ⌒ p.
5	E	330	22.5	E	6.7	Ci.-S.	Cu.-N. ESE	5 00		≡° p.
6	E quad.	425	26.2	W, SW	3.7	Ci.	Cu. SE	7 40		
7	W, E	292.6	23.3	W	5.7	Ci.	Cu.-N. SSE, WNW	5 10		Ω° a. ≡° ⌒ p.
8	Variable	318	23.9	SW	6.3	Ci.	Cu.-N. SSW	4 35	2.3	Ω a. ● ⌐◪ ≡² ⌒ p.
9	Variable	273.6	32.7	W	8.4	Ci.	Cu.-N. SSW	5 00	94	d²≡°a. ⌐◪²●²≡² ⌒ p.
10	W, E	294.5	25.1	W	5.3	Ci.-S. WSW	Cu. ENE	6 05		≡² ⌐◪° d² p.
11	E	299.4	18.8	SE	6.7	Ci.-S. WSW	Cu.-N. ESE	2 30	3.4	Ω ● a. ⌐◪ ≡² ●° ⌒ p.
12	E quad.	322.5	25.2	W	3.7	Ci. WSW, W	Cu.-N. ENE	7 40	.5	⌐◪ ●° ⌒ p.
13	Variable	338.7	26	E	6.7	Ci.-S. WSW, S	Cu.-N. E	5 45		≡ ⌐◪ ⌒ p.
14	E	356.4	31.9	E	6.4	Ci.-S.	Cu.-N. ENE	4 25	1	● ⌐◪ ⌒ p.
15	E, SW	242.2	24.9	W	6.3	Ci.	Cu.-N. SE	2 40	13.2	⌐◪ ● ≡² ⌒ p.
16	SE, E	232.7	17.4	W	7.4	Ci.	Cu.-N. ENE	3 45		≡° a. ≡² ⌐◪ p.
17	Variable	347	24.9	W	4.6	Ci.	Cu.-N. ESE	5 35		Ω a. ≡ ⌒° p.
18	E, W	299.2	25.7	W	5.6	Ci.	Cu.-N. ENE	5 55	2.8	Ω a. ≡ ● p.
19	W quad.	256.3	19.8	SW	5.7	Ci.	Cu.-N. S	5 00	4	●° ⌐◪ p.
20	W, E	299.2	23.1	W	5	Ci.	Cu. ESE	6 05		⌐◪ ●° p.
21	W, E	320.1	22.3	W	5.3	Ci.	Cu.-N. SE	6 25	.8	Ω a. ≡ a. p. d ⌐◪ p.
22	W	269.3	26.8	W	5	Ci., Ci.-S.	Cu. E, NNE	4 25		d a. d² ≡² ⌒° p.
23	W, N	317.5	24.1	W	6.6	Ci.	Cu.-N. WNW	4 05		Ω² a. ≡² d° p.
24	W	353	24.7	SW	7.3	A.-Cu. SSW	Cu.-N. WNW	3 40		d p.
25	W	329.4	25.1	SW	5	Ci.	Cu.-N. SW, SbyW	7 45		Ω a. ≡ p.
26	W	327.1	27.7	W	2.1	Ci.	Cu.-N. W	9 05?		Ω a. ≡° p.
27	W, SW	384.9	34.4	W	5.6	Ci.	Cu. NW	6 40	9.2	Ω a. ⌐◪² ● ⌒ᵛ° ≡ p.
28	W	243.5	24.7	W	6.1	Ci.	Cu.-N. ESE	7 10		≡ a. ●° ⌐◪ p.
29	W quad.	307.6	21.2	W	7.3	Ci.	Cu.-N. SSE, SE	4 00	52.1	Ω² ≡ a. ● ²≡² ⌒ ⌐◪ p.
30	NE quad.	357.3	28	W	6	Ci.-S.	Cu.-N. ENE	4 30		≡² ⌐◪ ⌒ d° p.
31	E, W	378	24.6	E	6.6	Ci.	Cu.-N. E	4 55	2	Ω° a. ●° ⌐◪ ⌒ ⌢ ≡ p.
Mean		317.8	24.9		5.6			5 35		
Total		9,852.2						173 15	210.2	

[a] All the mean values given in this table are deduced from six daily observations taken at 2, 6, 10 a. m. and 2, 6, 10 p. m.
[b] The barometric readings of this station are not reduced to sea level.
[c] Maximum of hourly observations taken from 6 a. m. to 6 p. m.
[d] This element is based on hourly observations taken from a quadruple register, which gives only eight possible directions of the wind.

DAILY RAINFALL AT THE STATIONS OF THE WEATHER BUREAU, MARCH, 1918.

Station.	Day of month.															
	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.
	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.
Jolo	-----	-----	2.3	1	-----	17.5	1.8	26.7	8.4	-----	-----	-----	-----	-----	-----	-----
Isabela, Basilan	-----	5.8	-----	.5	-----	29.5	14.7	2.8	5.6	-----	1.3	-----	8.9	6.9	8.9	-----
Basilan Plantation, Isabela (Basilan) [a]	3	-----	.5	3.5	27.4	19.4	18.2	8.7	4.6	3	7.4	18.3	14.5	6.6	-----	3.3
Zamboanga	-----	2	-----	2.8	.6	18.5	3.9	12.5	-----	-----	-----	13.2	5.1	2.5	16.8	-----
Davao	38.6	.5	13.7	1.8	-----	-----	-----	-----	-----	-----	1.1	1.8	4	-----	-----	-----
Cotabato	-----	7.4	4.3	4.1	4.6	-----	4.8	-----	4.1	-----	-----	-----	18.8	7.1	12.4	2
Camp Keithley, Lanao *	-----	-----	-----	-----	-----	-----	-----	-----	28.6	1.7	8.6	4.5	22.3	3	-----	-----
Cagayan, Misamis	-----	5.8	1.3	-----	-----	-----	3.8	-----	1.5	1.5	9.1	9.9	3	7.1	-----	-----
Dapitan	1	10.9	18	20.4	.1	33.5	3	-----	.5	-----	36.8	31.8	29.7	-----	.5	-----
Butuan	3.3	14.3	.8	13.3	-----	10.7	12.7	5.8	4.6	-----	45.7	3.1	11.7	2	-----	1
Mambajao	-----	-----	-----	-----	-----	-----	3.8	-----	8.9	-----	41.4	50.8	-----	5.6	-----	-----
Dumaguete	-----	-----	-----	-----	-----	-----	3.4	1	1.5	53.6	63.2	14.8	52	-----	-----	-----
Yap, Western Carolines	-----	1	.3	7.1	5.8	1.6	1.8	.8	7.9	7.1	7.2	-----	-----	-----	7.1	4.8
Tagbilaran	10.4	5.9	1.8	-----	-----	.5	-----	.5	-----	-----	8.1	2.6	-----	.6	-----	-----
Iwahig	8.4	10.2	8.2	3.9	-----	.5	-----	-----	-----	-----	-----	.5	-----	-----	-----	-----
Surigao	13.7	19.4	30.2	1.3	3.6	5.1	-----	7.4	1	-----	87.4	6.6	6.1	5.1	-----	-----
Maasin	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	16	20.8	11.4	-----	-----	-----
Cebu	-----	35	-----	-----	1.3	-----	1	24.4	-----	-----	3.8	5.1	-----	-----	-----	-----
Iloilo	-----	-----	-----	-----	-----	-----	1.3	2.5	-----	-----	11.4	1	14.7	.5	-----	-----
San Jose Buenavista	-----	.3	-----	-----	-----	-----	.3	25.1	31.5	7.6	2.3	3.3	35.8	.8	-----	-----
Cuyo	-----	-----	-----	-----	-----	-----	-----	1.3	2.5	37.6	-----	-----	9.9	-----	-----	-----
Lucena, Iloilo [a]	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	42.7	-----	-----	-----	-----	-----
Ormoc	12.7	2.3	-----	-----	-----	.5	-----	2.5	-----	-----	-----	7.6	4.8	-----	.3	13.2
Guiuan	3.1	33.3	1	1.8	-----	7.6	14.7	57.9	2.5	-----	26.7	34.8	28.2	4.6	11.4	1.8
Dueñas, Iloilo [a]	20.3	-----	-----	10.2	15.2	4.8	-----	-----	-----	7.6	-----	-----	-----	-----	-----	-----
Bitaogan, Iloilo (Railroad Iloilo to Capiz) [a]	3.8	11.2	-----	-----	2.5	-----	.8	6.9	24.8	5.1	-----	1.5	-----	-----	-----	-----
Lapus, Iloilo (Railroad Iloilo to Capiz) [a]	-----	-----	-----	-----	-----	-----	4.8	8.6	-----	-----	14	1.3	10.9	1	-----	-----
Tacloban	4.8	8.7	1	1.8	6.2	7	.3	17.6	2.8	-----	1.5	11.4	17.8	-----	8.1	5.8
Dumarao, Capiz [a]	-----	2.5	-----	-----	3.3	-----	1.5	1.3	4.6	-----	-----	1	-----	-----	-----	1.5
Dao, Capiz [a]	10.7	-----	-----	5.1	-----	14	-----	5.6	3.3	-----	-----	-----	-----	-----	-----	-----
Capiz	10.4	1.8	.3	-----	-----	-----	-----	2.8	28.8	.5	-----	3.3	.8	-----	-----	-----
Borongan	9.7	9.2	3.6	1.3	4.9	14.7	11.9	12.2	1	2.3	-----	12.2	18.8	3	15	6.4
Catbalogan	6.8	2.5	1	-----	.3	-----	7.9	-----	6.9	17.8	3.3	1.3	12.5	-----	9.1	13
Calbayog	42.3	-----	9.1	.5?	3.6	2	12.7	3	6.6	-----	10.1	6.9	8.6	1.3	16.1	10.9
Masbate	1	1	-----	-----	-----	-----	-----	-----	-----	-----	2.3	-----	-----	-----	-----	.5
San Jose Estate, J. Abello D-13, Mindoro [a]	-----	-----	-----	-----	-----	-----	-----	-----	-----	15.2	-----	-----	-----	-----	-----	-----
San Jose Estate, Tamaraw Plantation, Mindoro [a]	-----	-----	-----	-----	-----	-----	-----	-----	1.3	19.3	-----	-----	1	-----	-----	-----
San Jose Estate, San Agustin, Mindoro [a]	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
San Jose, Mindoro [a]	-----	-----	-----	3.8	-----	-----	-----	-----	13.5	19.3	-----	-----	-----	-----	-----	-----
San Jose Estate, Tunnel D-12, Mindoro [a]	-----	-----	-----	-----	-----	-----	-----	-----	15.5	11.9	-----	-----	1.5	-----	-----	-----
Romblon	-----	-----	-----	-----	-----	-----	5.6	3.8	7.1	.7	-----	.6	17	-----	-----	-----
Batag	-----	-----	5.3	-----	.8	6.4	62.2	8.9	-----	-----	-----	1.3	2.5	4.1	2.3	1.8
Sorsogon	16	-----	9.9	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Legaspi	.3	-----	-----	.3	-----	-----	1.3	1.5	-----	-----	4.8	-----	8.2	.3	4.1	-----
San Miguel Estate, San Miguel Island, Tabaco, Albay [ab]	.3	3.6	6.9	-----	5.6	2	4.6	7.6	.3	-----	17.3	.3	58.7	.5	-----	.5
Sumay, Guam	-----	-----	2.5	-----	-----	-----	1.5	-----	-----	1.8	-----	-----	3	-----	1	1.3
Calapan	3.8	-----	-----	43.2	-----	-----	3.8	-----	-----	-----	-----	.3	59.7	10.4	31.2	.5
Virac	3.3	16.5	2.6	.3	-----	1.5	14	6.1	4.3	-----	5.3	9.6	54.6	.5	-----	7.9
Naga	-----	-----	-----	-----	-----	-----	-----	-----	4.3	-----	-----	-----	15	-----	-----	-----
Tigaon	.1	.5	-----	-----	2	-----	-----	-----	8.2	-----	3.6	.8	23.1	.3	.3	-----
Batangas	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	20.6	-----	-----	-----
Lucena	1	-----	-----	-----	-----	-----	-----	.3	-----	-----	-----	1.3	10.2	1.3	8.6	-----
Atimonan	2.8	1	-----	.5	9.1	-----	-----	-----	-----	12.4	.8	-----	2.1	-----	-----	-----
Ambulong, Tanauan	.3	2.3	-----	-----	-----	-----	-----	-----	3	42.2	-----	12.7	.3	10.9	-----	-----
Canlubang, Calamba	-----	-----	-----	-----	-----	-----	-----	-----	43.4	-----	-----	-----	7.3	-----	-----	-----
Paracale	1.5	17.7	4.9	3	4	15.5	75.4	2.5	10.4	2.3	-----	.3	18.1	-----	.5	-----
Santa Cruz, Laguna	-----	14.2	15	-----	-----	-----	-----	-----	-----	6.6	-----	3.3	46.5	-----	-----	-----
Fort Mills, Corregidor [ac]	-----	-----	-----	-----	-----	-----	-----	-----	-----	2.8	-----	-----	-----	-----	-----	-----
Manila	-----	-----	-----	-----	-----	-----	-----	-----	19	-----	-----	11.5	.3	-----	.8	-----
Antipolo	-----	-----	.5	-----	-----	-----	-----	-----	29.2	-----	-----	10.7	3.3	-----	-----	-----
Bosoboso, Rizal [a]	-----	-----	-----	-----	-----	-----	-----	-----	29.7	-----	-----	1.3	.8	-----	-----	-----
Montalban, Rizal [a]	-----	-----	-----	-----	-----	-----	-----	-----	32	1.3	-----	3.6	7.9	-----	1.3	-----
Hacienda Pintong Sapang, San Jose, Bulacan [a]	-----	-----	3.8	-----	-----	-----	1.8	7.6	31.2	14.2	3.3	-----	-----	14.2	-----	-----
Mabayuan, Dam, Olongapo, Zambales [a]	-----	-----	-----	-----	-----	-----	-----	-----	-----	45.2	-----	-----	-----	-----	-----	-----
Iba	-----	-----	-----	1.5	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	1	-----
San Isidro	-----	-----	-----	-----	-----	-----	-----	.3	11.2	21.8	-----	-----	1.4	-----	-----	-----
Hacienda Luisita, San Miguel, Tarlac [a]	-----	-----	-----	-----	-----	-----	-----	3.8	-----	27.2	-----	-----	-----	-----	-----	-----
Hacienda Luisita, Luisita, Tarlac [a]	-----	-----	-----	-----	-----	-----	-----	2.3	-----	29.2	-----	-----	-----	-----	-----	-----
Tarlac	-----	-----	-----	46.5	-----	-----	-----	10.4	-----	24.9	-----	-----	-----	-----	-----	-----
Baler	.5	10.4	16.5	.3	-----	-----	-----	-----	58.7	3.8	.2	-----	30.8	1.3	-----	-----
Paniqui, Tarlac [a]	-----	-----	-----	2.3	-----	-----	-----	16.5	2.3	-----	-----	-----	-----	-----	-----	-----
C. L. A. S. Muños, Nueva Ecija [a]	-----	-----	-----	-----	-----	-----	-----	8.9	2	.5	4.1	-----	-----	-----	-----	-----
Dagupan	-----	8.1	2	-----	-----	-----	-----	14	.5	-----	-----	-----	-----	2.8	5.6	-----
Santo Tomas Mt., Mountain Province [a]	-----	-----	-----	-----	-----	-----	.5	1	-----	-----	-----	-----	-----	-----	-----	1.3
Bolinao	-----	-----	3	-----	-----	-----	-----	-----	15.7	-----	-----	-----	-----	42.7	-----	2.5
Baguio	-----	14.5	-----	10.4	-----	-----	-----	2.3	94	-----	3.4	.5	-----	1	13.2	-----
San Fernando, Union	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	64.8	9.6	-----
Echagüe	-----	-----	-----	24.6	-----	-----	-----	-----	11.9	-----	-----	-----	-----	-----	-----	-----
Sagada, Mountain Province [a]	-----	-----	-----	25.1	1	20.8	1	34.3	4.3	-----	19	30.5	-----	-----	-----	8.9
Bontoc, Mountain Province [a]	-----	-----	-----	7.6	-----	5.6	19.8	26.9	.5	18.8	14.5	19.3	2	.8	-----	2.3
Candon	-----	-----	9.1	1	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	6.4	-----
Villavieja, Pilar, Abra [a]	-----	-----	.5	-----	-----	-----	-----	-----	-----	-----	-----	-----	1.3	-----	7.1	-----
Vigan	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	12.4	-----
Tuguegarao	-----	-----	-----	-----	-----	-----	-----	4.1	16	5.8	-----	-----	-----	-----	-----	-----
La Paz, Abra [a]	-----	.5	-----	9.7	-----	-----	-----	-----	-----	-----	-----	2.5	2	66.6	.5	-----
Laoag	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Aparri	-----	-----	-----	-----	-----	-----	-----	.3	5.1	-----	-----	-----	-----	-----	-----	-----
Cape Bojeador	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Santo Domingo, Batanes	-----	-----	-----	.6	5.8	2.1	1	1.7	-----	1.3	-----	-----	-----	-----	-----	-----

[a] Voluntary or coöperative station.
[b] Rain in 24 hours beginning 8 a. m.
[c] Rain in 24 hours beginning 7 a. m.
* This station was opened on May 9, 1918.

Daily rainfall at the stations of the Weather Bureau, May, 1918—Continued.

Station.	Day of month.															
	17.	18.	19.	20.	21.	22.	23.	24.	25.	26.	27.	28.	29.	30.	31.	Total.
	mm.	*mm.*	*mm.*	*mm.*	*mm.*	*mm.*	*mm.*	*mm.*	*mm.*	*mm.*	*mm.*	*mm.*	*mm.*	*mm.*	*mm.*	*mm.*
Jolo	------	------	------	25.1	3.6	0.8	------	1.8	4.6	------	------	------	5.3	11.4	1	111.3
Isabela, Basilan	17	0.8	6.9	.5	14.2	------	------	8.6	.8	------	1.5	------	1.5	53.6	.5	190.8
Basilan Plantation, Isabela (Basilan) [a]	12.7	9.2	2.5	10.2	9.4	------	------	------	3.8	------	------	------	8.2	42.4	------	236.8
Zamboanga	------	.3	4.3	------	------	------	------	------	.5	------	.8	------	------	------	1	84.8
Davao	5.6	9.5	3.8	75.7	6.3	------	72.4	------	------	------	55.9	9.4	17	17.3	24.4	358.8
Cotabato	3.6	7.9	------	------	------	------	3.3	------	30	------	13	2.5	------	14.5	5.3	149.7
Camp Keithley, Lanao	3.7	24.4	5.3	------	1.5	2.6	------	2	16.4	1.3	26.3	------	13.2	18	3	186.4[d]
Cagayan, Misamis	------	6.6	------	3	------	------	------	------	8.9	------	------	------	------	1.3	------	62.8
Dapitan	------	------	1.5	.8	------	------	------	------	------	2	17.7	------	------	------	4.6	212.8
Butuan	------	18.8	------	------	------	------	------	------	------	------	28.4	4.3	12.7	1.1	.5	194.8
Mambajao	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	110.5
Dumaguete	2	6.6	------	------	------	------	------	------	1.5	------	------	------	------	------	1.5	201.1
Yap, Western Carolines	10.2	7.2	4.1	2.5	------	.8	------	2.1	------	6.6	.5	------	.8	.8	5.4	93.5
Tagbilaran	.4	------	1.1	21.1	------	------	------	------	------	------	------	------	------	------	.5	53.5
Iwahig	------	.5	.3	------	------	2.3	31.7	29.5	------	------	------	------	.8	31.2	------	128
Surigao	21.8	------	------	16.3	------	------	------	------	------	------	------	------	------	------	------	225
Maasin	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	48.2
Cebu	.3	------	------	------	------	------	------	------	------	------	------	24.4	------	------	------	95.3
Iloilo	12.7	8.1	------	------	------	------	------	------	1.8	4.1	------	------	2.6	------	------	60.7
San Jose Buenavista	3.8	9.4	2.5	6.9	4.8	------	------	------	2.5	11.9	25.7	------	1	41.4	9.1	226
Cuyo	4.3	13.5	------	.5	------	------	------	------	------	2	------	1	24.1	4.3	------	101
Lucena, Iloilo [a]	2.3	9.9	1	.8	------	------	------	------	------	------	------	------	29.2	------	------	85.9
Ormoc	2.3	9.1	------	------	------	------	------	------	------	.8	------	------	------	------	.5	56.6
Guiuan	4.1	.8	3.3	5.8	23.9	------	------	------	------	------	------	------	------	------	------	267.3
Dueñas, Iloilo [a]	5.1	9.7	7.6	4.3	------	------	------	------	------	------	.8	50.8	9.9	------	------	146.3
Bitaogan, Iloilo (Railroad Iloilo to Capiz) [a]	------	5.6	------	------	4.1	------	------	36.8	------	------	------	5.6	14	.8	2.8	126.3
Lapus, Iloilo (Railroad Iloilo to Capiz) [a]	14.2	11.2	------	------	------	------	------	------	1.8	2	------	------	5.6	------	------	75.4
Tacloban	------	7.7	------	------	------	------	------	------	------	1	.3	------	------	------	.3	104.1
Dumarao, Capiz [a]	------	------	1.3	13.7	7.1	------	------	------	5.1	------	1.3	------	49	------	------	93.2
Dao, Capiz [a]	44.4	2.3	35.1	------	------	------	------	------	------	------	17.5	------	.3	------	2.3	140.6
Capiz	14.7	------	.3	------	------	------	------	------	------	------	------	------	------	------	------	63.7
Borongan	6.1	9.4	9.6	7.1	------	------	------	------	------	------	------	------	------	------	------	158.4
Catbalogan	------	.5	5.3	------	------	------	------	------	------	------	------	------	------	------	7.4	95.6
Calbayog	7.4	5.3	4.5	------	------	------	------	------	------	------	10.2	------	------	------	------	161.1
Masbate	------	------	------	------	------	------	------	------	------	------	------	7.6	------	------	------	12.4
San Jose Estate, J. Abello D-13, Mindoro [a]	------	------	------	------	------	------	------	------	------	------	------	7.6	------	18.8	------	41.6
San Jose Estate, Tamaraw Plantation, Mindoro [a]	------	4.1	------	------	------	------	10.4	------	------	------	1.8	------	1	3.8	5.8	48.5
San Jose Estate, San Agustin, Mindoro [a]	------	3.3	------	------	------	------	------	------	1.1	------	30.2	------	------	13.7	------	48.3
San Jose, Mindoro [a]	------	4.8	------	------	------	------	2	------	.3	------	6.4	------	.3	38.1	.5	89
San Jose Estate, Tunnel D-12, Mindoro [a]	------	------	------	------	------	------	------	------	3	------	5.3	------	3.6	43.4	2.8	87
Romblon	13.5	26.4	------	------	------	------	------	------	------	------	------	------	------	1.9	1.5	78.1
Batag	.8	------	10.2	------	------	------	------	------	------	------	------	------	------	------	3.8	110.4
Sorsogon	------	------	153.7[e]	------	------	------	------	------	------	------	10.7	------	------	------	------	190.3
Legaspi	4.3	------	3.6	------	------	------	------	------	------	------	------	1.8	------	------	------	30.5
San Miguel Estate, San Miguel Island, Tabaco, Albay [ab]	15	10.9	------	------	------	------	------	------	------	------	------	8.1	------	------	10.4	152.6
Sumay, Guam	------	6.4	------	12.7	------	40.6	------	------	------	2	------	14	14.8	------	------	101.6
Calapan	3.8	5.6	.5	------	------	------	------	------	------	------	------	------	------	55.1	22.9	240.8
Virac	3.3	2	1	------	------	------	------	------	------	2.8	10.2	------	------	------	.3	146.1
Naga	------	16.3	------	------	------	------	------	------	------	17.3	8.4	------	------	------	------	61.3
Tigaon	21.9	------	.3	------	------	------	------	------	------	------	------	.8	------	------	------	61.9
Batangas	------	------	------	------	------	------	------	------	------	------	------	------	------	35.8	------	56.4
Lucena	1.8	21.1	11.5	------	------	------	------	------	------	16.5	------	------	------	------	------	73.6
Atimonan	31.5	9.7	------	.5	------	------	------	.8	------	8.9	------	------	4.8	------	------	84.9
Ambulong, Tanauan	9.7	------	------	------	------	------	------	------	------	------	------	------	------	23.9	------	105.3
Canlubang, Calamba	------	------	------	------	------	------	5.3	2	------	------	36.6	9.4	------	.3	.5	104.8
Paracale	38.6	.5	------	------	------	------	------	------	------	------	15.2	.8	------	------	12.2	223.4
Santa Cruz, Laguna	4.8	------	------	------	------	------	------	------	------	8.9	1.5	------	------	3	------	108.8
Fort Mills, Corregidor [ac]	------	------	------	------	------	------	------	------	------	.5	.8	------	------	.8	2	6.9
Manila	.5	3.6	2.5	------	------	9.9	.3	------	------	15	22.6	.8	3	.3	3.4	83.3
Antipolo	------	2	2	------	------	------	------	------	------	15	------	------	3.8	6.4	8.4	91.5
Bosoboso, Rizal [a]	------	------	------	------	------	25.1	15.7	------	------	22.9	1.3	------	49.5	37.3	18.5	202.1
Montalban, Rizal [a]	------	------	------	------	------	.8	46.2	------	------	20.8	.5	------	4.1	1.5	4.1	124.1
Hacienda Pintong Sapang, San Jose, Bulacan [a]	2.3	------	------	------	------	------	------	------	------	------	------	------	------	8.9	1.5	88.8
Mabayuan, Dam, Olongapo, Zambales [a]	------	------	.3	------	------	------	------	------	------	4.1	29.2	29.7	------	.3	15.2	124
Iba	1.3	15.7	1.5	21.6	------	------	------	------	------	------	15.2	28.7	------	------	------	86.5
San Isidro	------	------	------	------	------	------	3.6	4.3	------	8.4	41.4	------	19	4.8	.3	116.5
Hacienda Luisita, San Miguel, Tarlac [a]	.8	.5	30.5	------	------	------	------	7.6	------	------	------	------	------	25.9	------	96.3
Hacienda Luisita, Luisita, Tarlac [a]	1.8	.8	30	------	------	------	------	8.1	------	------	------	------	------	26.4	------	98.6
Tarlac	------	------	22.6	------	------	------	------	------	------	------	------	25.1	1	9.9	1.3	141.7
Baler	------	------	------	------	------	.5	------	------	------	------	------	------	------	21.6	------	144.6
Paniqui, Tarlac [a]	------	21.6	4.6	------	------	------	3	------	------	------	------	------	5.1	------	10.2	65.6
C. L. A. S. Muños, Nueva Ecija [a]	------	------	------	------	------	------	------	------	------	------	------	------	78.7	------	1.8	96
Dagupan	1.3	2	6.4	6.4	------	.5	------	------	------	------	1	------	1.3	------	------	51.9
Santo Tomas Mt., Mountain Province [a]	.3	1.6	------	------	1.8	------	------	1.8	.5	------	------	.8	------	------	------	9.6
Bolinao	8.4	------	11.2	------	------	------	------	1.5	------	------	------	------	9.7	15.7	2.8	113.2
Baguio	------	2.8	4	------	.8	------	------	------	------	------	9.2	------	52.1	------	2	210.2
San Fernando, Union	------	------	------	------	12.4	------	.5	------	------	------	9.1	------	25.4	------	------	121.8
Echagüe	------	------	------	------	------	------	3	3.3	------	------	2.8	------	8.9	.5	------	55
Sagada, Mountain Province [a]	2.3	37.3	------	6.4	------	17.8	------	------	3.3	------	------	------	8.1	43.2	------	263.3
Bontoc, Mountain Province [a]	------	------	------	.8	------	2.3	------	------	------	.8	------	3.6	6.4	1.5	------	133.5
Candon	------	------	------	------	80	3.8	------	2.5	------	------	5.6	------	9.7	3	------	121.1
Villavieja, Pilar, Abra [a]	------	5.1	------	------	------	------	------	------	------	4.6	------	------	10.7	.8	------	30.1
Vigan	43.2	------	------	------	------	------	------	------	------	------	------	------	40.6	------	------	96.2
Tuguegarao	------	.8	------	------	------	------	------	------	1.8	------	1.3	2.3	68.1	------	------	100.2
La Paz, Abra [a]	.5	5.1	------	------	24.9	------	------	------	------	------	------	7.1	.8	------	.8	121
Laoag	52.8	.8	3	------	------	------	------	------	5.3	------	6.9	------	------	------	------	68.8
Aparri	------	------	------	------	------	------	------	------	26.2	------	1	21.6	.5	------	------	54.7
Cape Bojeador	38.6	------	22.4	------	------	------	------	------	------	------	------	------	8.9	------	------	69.9
Santo Domingo, Batanes	------	------	------	9.1	------	------	.8	------	------	------	------	------	4.7	------	------	27.1

[a] Voluntary or coöperative station.
[b] Rain in 24 hours beginning 8 a. m.
[d] 23 days of observation.
[e] Amount rainfall corresponding from 7 to 19.

MAXIMUM AND MINIMUM TEMPERATURES AT THE STATIONS OF THE WEATHER BUREAU, MAY, 1918.

Day.	Jolo.		Isabela, Basilan.		Zamboanga.		Davao.		Cotabato.		Camp Keithley Lanao.		Cagayan, Misamis.		Dapitan.	
	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.
	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.
1	29.9	21.3	32.6	21.6	28.7	22.5	32.8	20.3	32.5	22.4	------	------	31.9	21.6	31.8	24.1
2	31.6	22.7	33.1	22.6	29.8	22.8	31.5	21.3	33.1	23	------	------	32.1	21.6	31	23.7
3	30.4	23.1	33.6	22.1	30	23.4	31.5	20.9	33	21.9	------	------	30.8	21.8	31.1	24.4
4	30.5	21.9	32.9	22.3	28.4	23	30.2	22.5	32.1	23.4	------	------	31.2	22.4	30.7	23.5
5	31.6	22.3	34.9	21.3	29	23.2	30.2	22	32.8	22.6	------	------	32.2	22.1	32.4	25.3
6	30.5	23.6	31.6	23.1	29.2	24.2	28.1	22.9	32.6	23	------	------	33.3	22	32.1	26.3
7	30.2	23.5	32.1	22.7	29.6	23.4	30.8	22.4	31.9	24	------	------	31.7	24	30.6	23.1
8	29.4	23.2	30.8	21.9	27.5	23.7	32	22.1	32.1	22.6	------	------	32	21.4	31.9	23.4
9	30.2	22.6	32.1	21.7	30	23.3	31	23	32.1	23.6	------	------	32.2	23.6	32.3	23.2
10	30	23.1	32.4	22.6	30.1	23.4	30.4	23.2	32	23	26.8	19.5	32.1	23	31.6	23.1
11	30.6	22.6	32.6	23.1	31	23.7	32.2	22.5	32.5	22.5	28.3	19.2	31.9	22	31.9	22.5
12	31.4	23	33.9	23.6	31.2	23.7	30.2	22.7	29.2	23.9	26.5	20	28.8	23	28.1	23.2
13	30.2	23.4	31.8	22.3	31.1	23.2	30.9	23.2	33.4	23.1	27.9	19.5	30.9	22.5	31.6	22.9
14	30.5	24.2	31.1	22.6	31.7	22.7	31.2	22.3	32.9	21	27.6	19.5	30.7	22.8	31.9	22.3
15	30	23.6	32.2	22.6	28.3	23.2	31.5	22	31	22.5	26.8	19.5	30.5	22.8	31.8	23.8
16	31	22.7	34.6	22.7	32.4	22.2	31.7	21.4	32.5	23.1	27.5	19.2	31.3	22.5	32.2	22.6
17	30.1	22.8	32.6	22.6	28.6	23.7	31.2	22	31.5	22.6	27.8	19.3	31.5	22.8	33.4	22.8
18	31.4	22.2	31.6	21.3	29.2	23.1	29.2	23.2	30.2	23.8	25.8	20.3	31.8	24.4	32.7	22.8
19	30.2	22.1	34.9	23.1	28.2	23.6	31	21.5	31	22.2	28	18.7	31.1	21.7	33.4	23
20	31.5	21.3	34.1	21.1	30	22.9	31	21	31.6	23.2	28	18.5	31.5	22.2	33	23.2
21	30.5	22.2	35.6	21.6	29.2	22.9	29.8	21.3	32	23.4	27.7	18.5	31.8	22.1	33	22.8
22	31.1	22.2	35.1	22.1	29.3	22.5	31	22.2	31.9	23	27.8	18.7	32.4	22.5	34.1	22
23	31.4	22.5	33.1	22.1	29.5	22.9	31.9	22.3	31.8	23.9	28.8	18.7	32.6	22	33.4	22
24	31.2	23.3	30.9	22.4	29.3	23.3	30.9	22.9	31.5	24.1	29.3	18.7	33.4	22.6	33.8	23
25	30.9	24.1	31	23.6	29.1	24	31.9	23.8	31.5	23.5	28.3	18.6	32.7	22.8	33.7	22.8
26	32.4	23.9	34.6	22.6	30.5	24	31.5	23	32	23.2	28.1	20	33	23.6	33.5	23.4
27	31.7	23.6	33.1	22.1	28.8	24.5	31.9	22.5	31.2	23.9	27.8	21	32.6	24.1	33.7	23.4
28	31.4	23.9	32.6	22.5	29.7	23.4	32.2	21	32.5	22.2	28.8	18.4	33.5	22.5	32.5	23.7
29	30.2	22.9	33.9	22.3	28.8	24	30.7	22.3	32.2	23.2	28.9	19.5	32.8	24.1	33.4	24
30	31.8	22.3	32.6	22.1	30	23.4	28.4	22.6	31	23.5	28.3	19.6	33.1	22.5	33.4	22.9
31	29.6	22.6	33.1	22.1	29.2	22.5	30.5	21.8	31.6	22.6	28.1	18.5	32.3	21.8	33.4	22.5
Mean	30.8	22.9	32.9	22.3	29.6	23.3	30.9	22.2	31.9	23	27.9	19.2	31.9	22.6	32.4	23.3

Day.	Butuan.		Mambajao.		Dumaguete.		Yap, Western Carolines.		Tagbilaran.		Iwahig.		Surigao.		Maasin.	
	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.
	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.
1	32.9	22	29.7	25.6	30.1	24.8	32.8	24.9	31.2	23	32.5	21.4	30.4	23.2	32.4	24
2	29.2	22.7	29.1	25.6	30.5	24.5	32.4	25.1	30.3	22.4	32	20.3	28.7	23	31	23.1
3	32	22.1	29.7	23.3	30.9	24.5	32.7	24.5	30.8	22	31.4	22.1	29.4	22.4	32.8	23.2
4	31.6	22.9	30.1	23.7	30.4	24.3	29.6	25.5	30.8	23.6	32.1	21.5	30.4	23.2	33	23.4
5	33.6	22.7	31.1	24.6	30	24.4	33.3	24	31.9	22.8	32	21.4	31.4	22.9	33	23.6
6	32.6	22.9	30.5	25.5	30.7	25.5	32.2	23.6	32.8	22.8	31.5	22	30.7	24.5	32.5	23.5
7	------	23.2	30.6	25.1	30.4	26.1	32.6	25	31.2	23.8	32.6	21.4	31.4	23.5	32.6	23.6
8	------	------	29.7	23.3	30.4	24.2	32.2	24.5	29.4	23.5	32.1	22.1	28.1	24.2	34	23.9
9	33	------	30.1	23.7	30.3	23.4	32.7	24.6	30.7	23.1	32.1	20.9	30.9	24.3	33.4	22.8
10	34.4	23.4	30	23.9	30.3	22.7	31.8	24	30.9	23.1	32.9	22	31.9	23.6	33.5	22.8
11	34.2	22.6	30.6	24.4	29.4	23	32.5	23.9	30.8	21.8	33.6	21.9	28.4	23.3	29.9	23.4
12	28.9	23.3	25.8	23.7	27.8	23.2	32.3	25	27.1	23.2	32.1	21.3	26.1	23.8	31.2	23.1
13	30.9	23.3	30.1	23.2	29	23.7	32.1	26	30.5	23	27.5	20.4	30.3	23.3	31.2	22.8
14	34	22.7	29.6	23.2	30	21.7	32.2	25.9	30.7	23.1	31.9	20.2	31.1	22.8	32.5	23.5
15	32.6	22.3	30.2	23.2	30.9	23.6	29.5	24.4	31.4	21.6	32.9	20.7	30.9	22.8	32.9	22.8
16	32.8	22.9	30.6	24.6	30.4	23.6	31	24	30.5	22.6	32.7	19.7	29.8	23.3	32.6	23.6
17	33.3	22.3	30.2	24.4	31	23.6	29	24.2	31.2	21.6	33.2	21.4	28.8	23.3	33	23
18	32	23.2	30	23.7	30	23.9	30.3	23.2	31.4	23.6	32.8	20.4	29.8	23.3	33	23.4
19	32.4	22.6	30.7	23.2	30.6	23.3	31.7	22.2	30.8	22.6	32.8	21	31.8	22.6	33.5	22.8
20	33.6	22.4	30.8	23.2	30.4	24.1	30.2	22.5	31.5	22.6	33.6	21.1	29.9	22.9	33.1	23.3
21	34.3	22.4	30.5	23.6	31.4	24?	31.7	24	31.7	21.4	33.6	21.1	30.3	22.8	34	23
22	34	23	31.5	22.2	30.9	23	31.7	25.8	32	22.5	32.7	20.9	30.9	22.5	33.8	23.3
23	34.6	22.8	32.2	22.6	31	22.5	31.2	25.1	31.9	23.1	33.1	20.9	31.8	22.7	35	22.5
24	34.7	22.3	32.3	23.2	31.3	23.2	31.6	25	31.4	23.3	31.7	20.6	31.9	21.9	35	22.4
25	35.1	22.8	32.9	22.2	31.3	22	33.7	24	32	23	32.8	20.4	31.4	22.9	35.2	23.2
26	35.1	23.6	34.2	25.2	30.7	23.6	31.5	25.3	32.6	24.3	31.8	20.4	31.9	23.9	34	24.2
27	33.9	23.3	32.7	23.6	32	23	31.3	24.7	32.5	23.1	33.3	20.4	32.1	23.6	34	24.2
28	33.9	22.7	32.1	24.7	31.3	23.1	31.3	25	31.4	23.7	32.6	20.4	32	23.8	33.6	24.6
29	34.1	23.4	30.5	23.6	31.8	24	31.7	25	31.4	23.3	32.8	21	33.1	23.8	34.6	24.4
30	33.1	22.9	31.6	24.6	30.5	24	33.1	24.7	31.6	23.3	32.9	21.1	31.9	24.3	34.4	24.2
31	33.3	22.6	30.5	23.5	30.7	22.5	31.4	24	32.1	22.4	31.4	20	32.4	22.9	34.6	23.6
Mean	33.1	22.8	30.7	23.9	30.5	23.6	31.7	24.5	31.2	22.9	32.4	21	30.6	23.3	33.2	23.4

Maximum and minimum temperatures at the stations of the Weather Bureau, May, 1918—Continued.

Day.	Cebu.		Iloilo.		San Jose Buenavista.		Cuyo.		Ormoc.		Guiuan.		Tacloban.		Capiz.	
	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.
	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.
1	32.1	25.5	32.4	24.8	32.7	21.9	30.8	25.8	32.4	21.9	31	23	30.3	23.5	32.2	25.4
2	31	23.2	31.6	24.8	34.1	22.6	31.2	26.7	30.3	22.5	30.9	24.4	28.9	22.4	32	25.2
3	30.6	23.8	32.3	24.5	33.3	22.4	30.9	25.9	31.3	21.9	31.9	22.8	31.9	22.3	33	24.2
4	31.5	25.3	32.1	25.1	33.7	22.6	31.7	26.4	32	22.8	31.8	23.9	32.8	23.6	32.8	24.5
5	31.4	25	33.2	24.6	33.3	22.9	31.4	26.6	32.4	23.1	31.9	23.7	32.9	23.8	32.3	25.3
6	30.9	25	33.1	24.5	33.7	22.6	31.2	26.5	33	23.4	32	26	32.6	23.7	33.1	25.6
7	31.8	25.8	32.3	25.5	33.7	22.8	30.7	27.1	32.6	23.6	32.1	23.4	32.1	23.6	32.6	25.7
8	29.3	24.3	31.7	24.7	31.7	24	31.1	26.7	32.5	22.9	29	23.5	30.9	24	31.7	25.6
9	32	24.8	33	24	31.5	23.1	30.8	24.4	32.8	23.6	31.4	23.9	31.2	24.2	31.5	24.3
10	32.7	25.6	30.4	24	30.8	23.6	29.8	24.2	31.6	21.9	32.5	22	32	22.8	31.3	23.8
11	31.7	25.3	31.6	24.5	32.1	22.1	31.7	24	32.4	21.8	31.2	22.6	31.5	23.5	32.1	23.8
12	27.7	24.7	30.5	23.8	31.9	23.1	32.8	27.2	32.4	23.2	27.5	24	27.5	23.5	32.1	25.4
13	30.2	24	31.7	24.2	31.6	23.5	32.4	26.7	29.4	23	30.7	23	26.6	23.2	32	24.9
14	31.5	24.9	31.6	24.3	32.2	23.5	30.2	24.6	32.2	22.9	31.9	22.1	32.5	22.9	32.9	23.8
15	32.2	25.3	32.1	24.7	32	22.3	31.7	24.2	32.3	21.4	32.2	23.1	31.5	23.2	32.7	24.9
16	31.8	25	31.7	25.1	32.4	23.5	32	25	31.4	21.4	31.3	23.1	31.4	23.6	32.5	25
17	32.3	25.1	33	24.6	32.5	21.8	33.2	------	31.6	21.2	30.7	23.4	32.4	23.4	33.1	24.9
18	31.1	25.5	32	24.4	30.8	23.6	30.8	24.6	31.6	22.4	32.3	25	30.6	23.9	32.6	25.2
19	31.9	25.3	32.3	24.4	32.7	23.1	32.8	24.6	32.6	21.4	32.4	23.2	32.3	23.9	32.9	25.9
20	32.6	25.4	32.7	24.4	32.2	22.2	32.9	24.7	32.6	21.8	32.2	23.1	33.5	23.9	33.3	25.5
21	32.3	24.5	32	24.7	32.2	22	32.8	24.3	32	21.4	31.5	23.3	33	23.9	33.2	23.7
22	32.5	24.1	33.4	23.2	32	22.5	32.2	24.1	31.9	20.2	32.1	22	33.6	23	33	22.2
23	32.8	24	33.4	23.5	32.1	22.9	33	23.4	32.3	19.8	32.5	21.6	32.9	22	32.6	21.7
24	32	25	32.5	23.8	32.2	23	33.4	23.4	32.5	19.7	32.4	22.2	34.2	22	33.3	23.1
25	32.5	26	32.5	24.5	32.3	23.1	32.4	24	32.9	21	33.3	23.1	33.2	23.3	33	25.1
26	31.5	26.7	31.6	24.7	31	24.6	31.2	25.4	33	22.4	32.4	26.5	33.8	23.5	34.1	24.9
27	31.5	25.5	31.4	25.8	31.2	24.1	29.8	26.6	33.4	22.9	33.4	24.3	33.2	24.1	33.6	25.3
28	31	26	32	23.7	31.8	23.4	32.3	24.4	33.4	23.8	33.9	24.2	33.5	23.5	33.6	24.6
29	32	25.8	33	24	32.3	23.5	31.9	24.6	33.2	23.4	33.3	22.3	33.1	23.6	34	24
30	32	25.3	33.1	24.1	32	24.5	31.7	23.6	33.3	20.9	33.7	21.3	33.6	23	33.6	24.6
31	32.3	25	33.4	24.2	32.2	22.2	31.7	23.6	32.9	20.4	33.4	22.1	34.7	23.8	33.9	24.5
Mean	31.6	25.1	32.2	24.4	32.3	23	31.7	25.1	32.3	22.1	31.9	23.3	32.1	23.4	32.8	24.6

Day.	Borongan.		Catbalogan.		Calbayog.		Masbate.		Romblon.		Batag.		Sorsogon.		Legaspi.	
	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.
	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.
1	30.8	23.5	30.9	21.3	31.1	22.8	33.8	24.2	33	25.1	29.6	24.8	31	21.3	32.1	25
2	31	25.8	32	21.8	31.9	22.7	32.8	24.4	32.5	25.3	30.3	23.9	30.8	21.5	31.8	25.5
3	31.2	23	32.5	21.9	30.9	22.3	34	24.8	33	24.9	30.4	24	30.4	22	31.7	25.9
4	31.6	23.7	32.8	22	30.5	22.5	33.6	24.6	33.4	26.1	30.5	24.1	30.8	22	31.8	25.6
5	31.6	22.8	33.1	21.9	30	22	33.6	25.2	33.5	25	31.2	24.6	30.9	22	32.1	25.6
6	31.7	26.8	32.1	22.5	32.3	23.6	34	25.8	33.4	26.3	31.2	24	30.9	21.9	32.2	26.8
7	31.1	22.8	31.5	22.7	30.5	23.4	34.4	24.5	34	26.1	30.4	23.8	------	22.3	32.1	25.4
8	29.1	23.4	30.9	22.5	29.4	23.3	34.4	24.5	33	25.4	29.3	22.6	------	------	31.3	25.6
9	31.1	23.9	30.9	23	29.4	23.4	32.8	24.5	31.9	25	30.4	24.3	------	------	31.8	25
10	31.8	22.7	32.3	22	30.2	22.5	33	25.6	31.7	24	30.5	24.3	------	------	31.8	25.4
11	31.6	23.9	31.8	22.4	31.6	22.6	34.6	25.4	32.9	23.9	30.9	24.8	------	------	32.3	26.6
12	28.4	24.4	28.3	22.8	28.6	24	32.8	24.8	34.4	25.3	30.3	25	------	------	32.5	25.3
13	31	22.3	27.5	22	28.5	22.3	33.6	25.2	32.7	24.9	30	24.5	------	------	31.8	24.5
14	31.1	22.5	31.2	21.8	29	22.8	34	25	32.4	24.7	31.4	24.5	------	------	31.8	24.7
15	31	23	31	22	29.7	22.8	34	25	32.5	25.3	31.1	23.5	------	------	31.5	25.7
16	31.3	22.4	29.7	21.5	31.3	22	34.4	25.2	32.9	24.6	31.3	24.1	------	------	32	23.3
17	31.6	23.6	31.3	21.2	29.7	22.6	34.8	25.2	33	25.3	31.1	24.1	------	------	32.3	25.5
18	31.8	24.4	32.7	22.4	29.9	23.4	34.8	26	33.7	24.1	32	24.2	------	------	31	25.4
19	31.6	22.5	31	22.2	29.6	22.4	33.6	25.6	33	24	31.1	24.3	------	------	32.1	23.9
20	31.7	23.4	31.6	21.7	33.4	22.5	34.6	25.2	32.9	24	30.8	22.6	32.5	20	31.8	25.8
21	31.5	22.9	31.3	20	32.7	22.1	34.4	25	33.5	24.6	31.4	23.4	32.5	20.3	32.1	23.9
22	31.6	21.3	31.2	18.5	30	21	33.4	23.6	33.6	22.3	31.8	22.4	32.1	21?	32.8	20.2
23	31.6	21	31.3	20.2	30.3	20.7	33.8	25	33.8	22.4	31.4	22.6	32.5	20.7	32.8	21.3
24	32.8	22	31.5	21	30	21.4	34.4	24.4	33.9	23.2	31.5	23	32.9	21.5	34.8	22.4
25	33.5	22.5	32.3	21.5	31	22.2	34.8	23.8	34.5	24.3	33.8	22.4	32	21.5	33.5	24.2
26	33.2	23	32.7	23.5	30.7	23.6	33.6	25.4	34.1	25.1	33.2	24	33.3	22	34.1	24
27	32.9	24.1	32.7	23.5	30.5	23.5	34.8	25.8	34.2	26.2	33.8	25	33.2	21.8	34.4	23.7
28	31.6?	23.3	32.8	23.3	31	23.5	36.4	26.4	34.9	25.5	32.6	24	33.1	21.9	34.6	24
29	32	24.4	33.1	23.6	31.4	23.6	34.6	25.2	34.9	24.3	31.9	23.4	34	21.4	32.9	23.4
30	32.2	21.5	32.2	22.4	30.7	23.6	34.6	25.5	34.5	24.4	32.1	23.5	33.5	21.8	32.6	24.2
31	32.1	23.4	31.5	21.8	30.5	22.5	35	24.6	34.4	23.7	31.8	24.2	33	22	32.8	21.9
Mean	31.5	23.2	31.5	22	30.5	22.7	34.1	25	33.4	24.7	31.3	23.9	32.2	21.5	32.4	24.5

Maximum and minimum temperatures at the stations of the Weather Bureau, May, 1918—Continued.

Day.	Sumay, Guam.		Calapan.		Virac.[a]		Naga.		Tigaon.		Batangas.		Lucena.		Atimonan.	
	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.
	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.
1	30.8	24.4	32	23	32.7	20.3	33.3	19	33.1	20.8	36.5	23.1	32.5	23.6	29.2	25.9
2	30.4	24.8	33	22	32.3	20.1	33.6	19.4	32.9	21.4	35.7	24.4	32.3	23.5	29.9	24.1
3	30.6	25.2	32.5	23	31	21.2	33.9	19.6	33.1	21.3	35.8	24.8	32.6	23.5	29.9	25.2
4	30.8	25.6	31.5	23.6	32.5	21	34.5	18.9	33	20.4	35.9	24.7	32.9	23.4	31.7	23.5
5	30.4	25.4	32.5	23.5	32.6	21.2	34.2	18.9	33.2	21.9	36.1	23.5	32.5	23.6	30.6	24.6
6	30	25.2	32.7	22.5	33	22	34.9	19.5	33.3	22.1	36.6	25.5	32.7	23.5	30.1	26.5
7	31	25.6	32	23.5	32.7	21.3	34.3	19.5	33.1	21.4	37.3	24.4	33.2	24	31.1	25.6
8	30.8	25.4	32.5	24.1	30.8	20.8	33.6	21	33.9	23.3	36	24.2	32	24.2	32	26.5
9	30.6	25.4	32.5	23	32	21.5	33.6	20.4	33.8	23.4	36.2	24.4	32.4	24	31.7	24.3
10	31.6	25.8	33	23.5	32	22.1	33.7	21.7	33.6	23.7	34.1	24.8	32	24.8	29.2	24
11	31.2	25.8	33	22.6	33.9	22	34.4	19.2	33.6	22.6	36.8	23.5	32.5	23.8	31.9	23.4
12	30	26.2	32.6	24.5	32.4	22.2	34	21.3	33.4	22.9	37.4	24.8	29	24.5	31.3	26.8
13	30.8	25.4	33.4	24.5	31	21.7	33.4	20.4	32.8	22.7	36	24.9	32.3	24.5	31.4	25.7
14	30.8	25.4	33	22.5	32.3	21.4	33.1	21	31.6	22.4	33.8	23.6	27.5	23.3	30.4	23.8
15	31.5	26	32.5	23.5	32.8	21	33.8	20.4	32.4	21.3	35.4	23.8	27.7	24	31.2	26.7
16	30.8	25	33	23.4	31	21	33.6	19.6	32.5	20.3	36.2	24.2	32.5	22.6	31.2	23.8
17	30.8	25.6	32.6	24	32.8	21.5	34.3	19.5	32.3	21.9	35.8	24.4	30.6	22.6	31.7	24.7
18	30.8	26.2	33	23.5	32.2	22.1	33.5	20.2	32.2	22.4	34.9	24	30.6	23.7	31.5	24.7
19	30.4	24	33.5	23.5	32.4	21.7	34.6	19.7	32.4	22.6	35.6	24.5	27.5	23.6	31.4	24.2
20	30.4	24.2	33.5	24	32.5	21.3	35	19.4	32.1	21.9	36.3	24.8	30.7	24.4	32.4	27.3
21	30.4	25	33.5	25	32.3	20.5	34.5	19	33	20.4	35.9	23.2	31.5	23	32.4	24.1
22	29.8	24.4	33.1	23	31.5	20	34.7	17.2	33.9	18.7	35.7	23	31.6	22	33.2	22.6
23	31	23.4	33.9	22.5	32.5	19	35.1	17.6	33.8	18.6	34.8	24.2	31.4	22	33.8	23.1
24	29.6?	23.2	32.5	22.4	35.5	20.2	35	20.1	35	20.6	34.4	26.2	31.7	23	33.7	24.1
25	31.4	24.2	32.1	23.5	34.3	21.5	34.5	21	34.7	21.4	35.5	24.1	31.5	21.6	34	22.9
26	31	24.6	33.5	24	33.3	22	35.1	21.5	34.6	23.1	35.4	24.4	32.5	23	34.4	24.3
27	30.4	24.2	33.5	23.1	33	22.5	33.9	22.5	34.8	22.9	34.9	------	31	22.9	34.2	24.5
28	30.8	24.4	32.9	22.9	32.8	21.9	34.4	21.5	34.1	22.2	34.5	23.5	32	22.1	34.7	23.4
29	30	24.4	34	23.5	33.6	23.5	35.5	21	33.6	21.9	34.8	24.4	32	21.8	34.7	24.2
30	30.2	23.8	33.5	23.4	32.4	21	35.4	21.1	33.1	23	34.7	25	32	22	31.8	23.4
31	30.2	25	32.9	21.5	33.8	21.5	36	20.1	33.8	20.7	32.1	22.5	31.7	21.6	32.1	24
Mean	30.6	24.9	32.9	23.3	32.6	21.3	34.3	20	33.3	21.7	35.5	24.2	31.4	23.2	31.9	24.6

Day.	Ambulong, Tanauan.		Canlubang, Calamba.		Paracale.		Santa Cruz, Laguna.		Manila.		Antipolo.		Iba.		San Isidro.	
	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.
	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.
1	35.7	23.8	35	21.8	30.8	25.7	32	22.6	34.3	20.6	36.3	19.7	33.8	19.4	35.5	19.4
2	34.2	24.8	33.8	23.3	31.4	24.6	31.6	23.7	33.7	22.3	36.5	21.5	34.6	21.8	35.1	22
3	35.3	24.7	33.6	22.4	28.3	24.4	31	22.9	33.4	22.1	34.7	21.1	34.3	21.4	35.1	21.2
4	36.2	24.6	34.8	22.8	30.7	25	31.8	23.4	35.2	22.5	36.2	23.2	33.8	21.5	36.4	22.5
5	35.4	24.9	33.5	22	30.6	24.3	31.6	23	34.9	22.7	36.2	22.1	33.5	23.6	35.3	22.5
6	35.7	25.9	33.2	23.3	31.2	24.2	31.6	24.2	35	22.9	35.6	23.4	34.8	20.5	34.4	22.3
7	37.2	24.9	34	22.2	30.2	23.5	32.3	23	35	21.5	36.2	21.3	33.6	21.9	36.8	21.5
8	35.2	24.6	34.1	22.4	30.8	24.6	31.9	23	35.2	22.8	36.9	22	33.8	23.2	36.4	24
9	35.7	23.5	33	22.3	31	24	32.9	22.9	35	23.8	36.2	22.4	33.1	22.7	37.2	24
10	34	24.5	33.2	22.4	29.7	24.3	32.1	23.8	34.3	24.1	34.2	23	34	23	35	23.5
11	35.2	23.3	33.4	22.8	31.4	23.8	32.6	23.8	34.4	23.4	36.6	22.5	34.4	22.9	34	23.1
12	33.5	24.8	32	23.2	30.8	26	31	23.9	32.3	22	33.3	22.3	34.5	22	34.5	22.5
13	31.3	25	31.6	23.2	30.9	24	29.8	23.9	31.4	22.5	31.7	22.2	34.4	22.5	33.6	23
14	34.1	25	32.8	23.3	30.6	24	31.7	23.6	34.6	25.2	34.7	23.5	37.3	25.1	33.8	24.6
15	35	24.8	34.2	22.2	31.2	24.3	32.3	23.4	34.2	22.7	36.2	22	34.4	23.9	35.4	24
16	35	24.4	34.5	23	31.4	23.3	32.6	23.3	34.2	23.1	37.2	22.2	33.8	23.7	35.6	24.1
17	35.1	24.2	34.4	23.2	31.2	22.8	32.5	23.6	34.2	21.7	36	21.5	34.2	21.8	35.8	22
18	35.1	24.9	34.5	23.2	31.6	22.8	32.6	23.4	34.2	23.8	35.2	23	34.5	23.4	35.1	24.6
19	34	25.4	34.8	23.4	31.5	24.8	32.9	23.7	35.4	23.1	35.5	21.8	33.8	24.2	36.2	23.5
20	35.8	24.5	35	23	31.6	24.2	33.3	23	34.3	23.2	36.5	21.8	33.8	23.7	36.4	24.5
21	34.2	24.3	35.4	23.1	31.7	23.5	33.7	22.4	35.1	21.9	35.8	21.4	32.9	24.2	36.4	23
22	37	22.8	36.4	22.9	32	22.5	35.7	22.2	34.6	23	35.7	21.7	33	22.8	36.6	24.2
23	34.5	24.5	34.8	22.8	32.2	22.5	35.7	23.6	33.7	25.2	35.2	23.8	33.4	22.4	36	24.6
24	35.4	24.4	34	23.1	34.4	23.8	35.5	25.1	33.2	25	35	23.5	33.5	23.9	36.4	24.8
25	34.7	23.6	34.5	23	33.7	24.5	34.9	22.9	33.7	24	35.5	22.5	32.8	21.6	35.9	24
26	35.1	25	34.4	22.4	34.6	25	35.7	22.9	32.8	24.3	34.2	22.8	32.4	23	35.1	22.5
27	33.2	25.2	33.6	22.2	33.7	25.6	34.8	23.3	32.3	25.4	32.1	23.2	32.5	24.1	32.5	24
28	35.4	23.7	32.6	23	33	24.2	34.2	22.7	33.3	24.7	33.3	23.5	30.8	22.6	34.5	23.1
29	36.3	24.8	33.3	23.8	32.5	23.2	35.9	24.5	33.3	25.7	35	24.8	32.8	23.5	35.9	24
30	36.6	23.2	33.2	23.2	32.2	24.4	34.4	24.2	33.4	23.8	34.6	22.6	32.7	24	34.2	22.8
31	34.6	23.8	34	22.7	32	23.5	35	22.9	34.1	23.9	34.2	22.1	32.5	23.8	34.4	23
Mean	35	24.4	33.9	22.8	31.6	24.1	33.1	23.4	34	23.3	35.2	22.4	33.7	22.8	35.3	23.2

[a] The maximum temperatures of this station are not very reliable: they seem to be too low.

Maximum and minimum temperatures at the stations of the Weather Bureau, May, 1918—Continued.

Day.	Tarlac.		Baler.		Dagupan.		Bolinao.		Baguio.		San Fernando, Union.		Echagüe.	
	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.
	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.
1	39	20.5	31.5	20.1	36.9	22.4	36.2	25.2	25.7	15.1	35.5	23	36.5	17
2	37.8	21.1	31.7	22.1	35.6	23.2	35.6	24	25.3	15.4	35.2	23.5	36.4	21.5
3	36.7	20.7	31	22.3	36	23	36.4	25.9	25.2	14.8	34.7	23.6	36.6	21.3
4	37.8	21.5	30.9	22.4	36.5	22.6	35.5	25.1	24.6	14.9	35.7	23.6	37	20.7
5	37.4	23.4	31.4	21.6	36.5	24.3	36.3	26.8	24.2	15.4	35.6	23.7	35	22.3
6	36.6	22.3	31.6	23.6	37.4	23.8	36.7	26	25.1	15.1	35.5	23	34.5	20.5
7	37.5	22	31.7	21.3	35.8	23.3	35.5	24.9	25	14.9	34.9	25.1	37.5	20
8	38	23.4	32.4	22.8	36.9	24.3	36.1	25	24.7	15.8	36.6	24.3	36.5	22
9	35.2	23.8	33.1	------	35.5	23.9	34.5	25.8	25.1	15.3	38.2	25.9	37	22.1
10	35.5	23.4	32.1	22.7	34	23.9	33.8	25	23.8	15.1	35	23.9	36	22.2
11	35.8	23.4	31.1	23.7	36.1	23.8	35.2	25.3	22.8	16.1	35	24.5	36.3	23
12	36.5	22.6	31.7	21.6	36.2	23.4	36.6	25.5	25.2	15.2	36	25	36.5	20.3
13	35.6	23.5	31.2	21.9	35.2	24	35	26.9	24	15.7	36	24.5	36.2	21
14	36	24	32.4	23	37	25.5	36.5	27	26.1	16.7	36.4	25.1	36	22
15	37.7	23	31.8	23.1	36.1	24.6	34.9	25.5	24.1	16.4	34.1	24	37.5	22.5
16	37.7	24.3	31.7	22.2	34.4	23.5	33.5	24.5	24.6	16.2	33.5	24	37.5	22.9
17	38.3	21.4	32.2	20.9	35	22.8	33.6	24.6	23.9	16	34.6	24.9	37.6	20.5
18	36.5	23.8	32.4	21.2	35.8	24.6	34	26	25.4	14.9	35.1	25.1	37.9	22.1
19	36.7	23.4	32	23.4	36.9	23.7	33.8	25.9	25.8	15.5	36.1	25.2	38	22.1
20	37.3	24	32.8	22.4	36.4	23.7	34.1	24.2	25.3	16.2	35.3	24.3	38.5	22.5
21	37.6	23.4	33.1	21.6	36.5	23.5	34.5	24.9	25.4	15.4	36.4	25.7	38	21.2
22	38.2	23.6	33.9	22.1	34.4	25	33.4	25	23.8	15.4	34	23	38.3	21
23	38	24.5	34	22.5	33.3	24.8	33.5	26	24.2	15	33.5	24.2	38.5	23.2
24	39	23.8	34.3	22.3	33	27.4	33.4	26.9	23.9	16.1	33.7	24.4	36.8	24
25	38.4	23.3	36.2	22.4	34.5	24	33.6	25	25.2	14.7	33.5	23.7	37.2	24.4
26	38.5	21	36	20.7	35	22.8	34	23.7	25.7	13.9	35	23	38	23.4
27	36.2	23	34.8	20.7?	35.5	24.4	33.9	25.3	25.8	16.1	35.8	24.4	39.5	23.6
28	36.5	23.3	36.7	23	35.3	24	34.1	25.3	25.6	16	35.5	24.2	38.6	23.5
29	38	22.7	36	23.7	35.8	24.7	34.4	25.4	25.6	15.9	35.9	25.1	38.6	23
30	35.6	22.7	33.6	22	35.4	23.4	32.3	25	23.8	16	33.6	22.5	37	22.3
31	36.2	23.2	32.6	24.4	35.5	24	32.1	25.4	24.6	15.9	33.6	25	38	23.3
Mean	37.2	22.9	32.8	22.3	35.6	23.9	34.6	25.4	24.8	15.5	35.1	24.2	37.2	22

Day.	Candon.		Vigan.		Tuguegarao.		Laoag.		Aparri.		Cape Bojeador.		Santo Domingo, Batanes.	
	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.
	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.
1	35	25.4	33.5	25.1	37	20.8	35.6	23	33.2	21.3	33.8	24.5	31.2	24.7
2	34.6	26	33	25.9	36.6	23.8	34.7	23.1	32	22.4	33.4	24.6	31.9	24.3
3	35.2	25.5	33.2	24.9	36.1	22.3	35.1	24.6	33.1	23	33.2	25.7	31.6	24.9
4	33.5	25	34.1	25	37.6	22.5	35.4	23.8	34.6	23.3	32.8	25.4	32.6	25.9
5	34.9	24.5	34.4	24	37.3	23.8	38.8	22.2	32.8	22.8	31.4	25	26.9	23
6	34	25.1	35.2	25.9	34.2	22.4	34.5	21.6	31.8	22.3	33.6	24.4	31	23.4
7	34.8	27.7	34	26	38.8	22.3	35.1	22.8	33.3	23.1	33.8	25.8	32.6	23.9
8	35	25.7	33.2	25	38.3	25.3	33.9	22.2	35.1	22.8	33.2	24.2	32.4	24.5
9	35.2	26.5	33.8	25.5	38.2	24.6	34.2	23	33.6	23.3	33.4	25.4	31.6	25.1
10	35.2	26.2	33.8	25	35.5	24	34.5	23.1	33.4	23.3	33.6	25.4	31.6	23.4
11	35.5	25.6	33.9	25	34.5	24.3	35.1	23	34.8	23.9	33.4	24.6	30.6	23.8
12	35.1	25.3	34	25.2	37.5	22.8	34.4	23	36.4?	23.6	33.8	26.2	32.7	25
13	35.7	25.6	34.4	25.3	37.2	23.6	38.7	23	34.6	22.6	33.8	25.2	32.9	25.3
14	36	26.5	34	26.3	37.6	22	35	22.8	33.5	22.9	34.2	25.3	31.5	24.4
15	35.9	26.5	34.5	24.5	37.9	24.5	34.7	23.1	33.8	23.6	34.2	25.2	33.1	23.7
16	35	24.6	33.8	24.6	38.3	25.5	34.4	22.5	34	24.1	34.5	25.6	33	26
17	35.6	27.4	34	24	38.3	22.8	34.4	22.9	35.6	23.4	32.3	25.7	34.3	25.9
18	35.5	26.2	33.7	24.8	38.5	25	32.5	22.5	33.9	24.3	32.8	24.4	34.3	25.8
19	35.8	26.5	33.5	25.7	38.8	23.7	32.8	23	35.3	23.5	33.6	25.2	34.8	25.2
20	35	26.1	33.7	25	38.5	24.1	34.9	22.9	34.2	24.3	32.2	24.6	34.8	23.6
21	35.5	26	34.6	25.7	39	24.9	34.6	23.9	34.4	23.5	32.6	25	33.2	24.5
22	34.6	25.2	34.1	25.3	39	24.1	34.4	23.1	33.9	24.3	31.8	25.1	34	24.4
23	33.5	26.1	33.5	26.1	38.6	23.8	34.2	24.5	34.7	24.2	32.8	25.8	33.7	23.8
24	33	26	33.8	25	38.3	24.8	34.8	23.6	35.1	24	32.6	25.2	33.6	25
25	35	26	34.3	25	39.2	25.2	33.4	23.8	34.3	24.1	32.6	25.4	33.8	24.9
26	35	26.4	35	26.1	35.7	25	34.5	25	31.3	24.3	32.8	26.4	33.2	25.7
27	34.2	25.8	34.5	25.9	39.2	23.5	35.2	23.8	34.9	24	33	26.4	33.8	25.2
28	33.4	26.4	34	26.9	40.1	24.6	34.4	25.2	36.1	24.8	32.8	26.4	33.6	25.7
29	33.4	27	34.7	24	37.5	23.1	34.2	25.4	34.6	23.5	32.8	26.8	32.8	26.4
30	33.1	25.6	33.4	25.2	36.5	23.6	34.9	24.1	35.3	23.8	32.2	23.6	33.4	24.5
31	33.5	23.8	32.8	24.5	38.1	24.5	33.1	22.3	35.3	24.1	32.8	25.2	33.6	25.5
Mean	34.7	25.9	33.9	25.2	37.7	23.8	34.7	23.3	34.2	23.5	33.1	25.3	32.7	24.8

[a] The maximum temperatures of this station are not reliable: they seem to be too high.

SEISMOLOGICAL BULLETIN FOR MAY, 1918.

By Rev. MIGUEL SADERRA MASÓ, S. J.,
Chief, Seismic and Magnetic Divisions, Weather Bureau.

EARTHQUAKES FELT IN THE PHILIPPINES.[1]

4, $5^h\ 48^m$ [4, $13^h\ 48^m$]. **Basco** (Batanes Islands). Oscillatory earthquake, direction NE–SW, intensity IV, duration 7 seconds.

6, $13^h\ 01^m$ [6, $21^h\ 01^m$]. **Naga** (SE Luzon). Earthquake of intensity IV, felt through the region of Isarog Mountain. A repetition with intensity III occurred at $21^h\ 10^m$ (insular time). Both lasted about 7 seconds and were preceded by the subterranean rumbling peculiar of nearly all the shocks felt in that region.[2]

7, $8^h\ 28^m$ [7, $16^h\ 28^m$]. **Butuan** (N Mindanao). Earthquake shock of intensity II–III.

8, $3^h\ 18^m$ [8, $11^h\ 18^m$]. **Basco** (Batanes Islands). Earthquake of intensity III, duration 4 seconds.

8, $8^h\ 37^m$ [8, $16^h\ 37^m$]. **Surigao** (NE Mindanao). Local shock of intensity II–III. It repeated at $21^h\ 12^m$ (insular time).

8, $20^h\ 19^m$ [9, $4^h\ 19^m$]. **Camiguin Island** (N of Mindanao). Earthquake of intensity III.

9, $4^h\ 23^m$ [9, $12^h\ 23^m$]. **Naga** (SE Luzon). Earthquake shock of intensity II–III, somewhat more strongly felt in the eastern part of Mount Isarog.

11, $17^h\ 41^m$ [12, $1^h\ 41^m$]. **Butuan** (N Mindanao). Oscillatory earthquake, direction E–W, intensity III, duration 4 seconds.

13, $3^h\ 46^m\ 49^s$ * [13, $11^h\ 46^m\ 49^s$]. **Davao** (SE Mindanao). Earthquake of intensity II–III. It was recorded at Manila and Butuan as a rather distant earthquake, probably originated in the eastern part of Celebes Sea.

13, $17^h\ 25^m$ [14, $1^h\ 25^m$]. **Lanao** (N Mindanao). Oscillatory earthquake, direction ESE–WNW, intensity IV, duration 5 seconds. Recorded at Butuan.

15, $16^h\ 05^m\ 34^s$ * [16, $0^h\ 05^m\ 34^s$]. **NW Luzon.** Earthquake of intensity IV felt through the Ilocos Norte Province. It repeated later at $9^h\ 38^m$ (insular time), with somewhat greater intensity and extension. The origin was located in the China Sea not far from the NW end of Luzon.

15, $17^h\ 44^m$ [16, $1^h\ 44^m$]. **Samar and Leyte.** Earthquake of intensity III, in the northern part of Leyte and SW of Samar. At $16^h\ 45^m$ occurred a similar shock. Very likely both originated in the volcanic region of Biliran Island, N of Leyte.

19, $9^h\ 43^m$ [19, $19^h\ 22^m$]. **Guam** (Mariana Islands). Earthquake of intensity III.

21, $19^h\ 10^m\ 40^s$ * [22, $3^h\ 10^m\ 40^s$]. **Samar, Leyte and E Mindanao.** Earthquake of intensity VI, originated in the Philippine Deep. It had its greatest intensity in the northeastern portion of Mindanao, where occurred an aftershock at $8^h\ 31^m$ (insular time).

[1] The intensity of earthquakes is given in the notation known as the Rossi-Forel scale. The time is that indicated by the seismographs at the Central Observatory whenever the disturbance has been registered by them. This fact is denoted by an asterisk (*). Otherwise the time is that noted by the observer who sent the report. All time indications are in Greenwich mean time (midnight=0^h), insular time being added in brackets for the convenience of Philippine readers.

[2] See Bulletin for October, 1917.

22, $20^h\ 05^m$ [23, $4^h\ 05^m$]. **Surigao** (NE Mindanao). Earthquake of intensity III. Origin in the Pacific.

26, $9^h\ 23^m$ [26, $17^h\ 23^m$]. **Surigao** (NE Mindanao). Earthquake shock of intensity II–III. It repeated with the same character at $15^h\ 31^m$ [$23^h\ 31^m$] and on the 27 at $8^h\ 42^m$ [$16^h\ 42^m$]. All these shocks with the principal occurred on the 21st seem to have originated in the vicinity of the deepest part of the Philippine Deep, east of Surigao.

27, $2^h\ 42^m$ [27, $10^h\ 42^m$]. **Tigaon** (SE Luzon). Earthquake of intensity II–III; it repeated at $2^h\ 53^m$ [$10^h\ 53^m$] with intensity III–IV. Originated in the Isarog Mountain but felt only in places very near to it.

30, $0^h\ 18^m\ 44^s$ * [30, $8^h\ 18^m\ 44^s$]. **N Luzon.** Earthquake of intensity V felt in the northernmost provinces of Luzon. It originated outside of the island toward the eastern part of the Babuyanes group.

31, $3^h\ 45^m$ [31, $11^h\ 45^m$]. **Surigao** (NE Mindanao). Earthquake shock of intensity II–III.

RECORDS OF THE MICROSEISMOGRAPH.

[Time: Greenwich mean. Midnight=0h. Instrument: Wiechert seismograph; 1,000 kilograms. A_N: T_o=5.6, ϵ=2.768, $\frac{r}{T_o^2}$=0.028; A_E: T_o=5.5, ϵ=2.032, $\frac{r}{T_{o2}}$=0.076. Alluvium. 2.40 meters above sea level.]

No.	Date.	Character.	Phase.	Hour.	Period.	Amplitude. A_N μ	Amplitude. A_E μ	Remarks.
				h. m. s.				
160	4	IIr	eP	6 07 44				
			S	09 53				
			L	10 26				
			M_N	10 46	4	517		
			M_E	11 16	5		391	
			F	7 20				
161	10	Iv	eP	17 29 11				
			L	29 28				
			M_N	29 32	2	75		
			M_E	29 35	2		70	
			F	35				
162	13	Ir	eP	3 46 49				Davao (SE Mindanao).
			L	48 44				
			F	4 05				
163	13	Iv	eP	14 10 11				
			L	10 26				
			M_N	10 42	2	101		
			F	15				
164	14	I	eP	19 21 47				
			F	37				
165	15	Iv	eP	4 08 36				
			F	17				
166	15	Iv	eP	16 05 34				NW Luzon.
			F	11				
167	16	IIv	eP	1 43 48				
			L	45 43				
			M_N	46 21	4	73		
			F	59				
168	16	Iv	eP	4 08 39				
			F	14				
169	19	Iv	eP	0 32 14				
			F	45				
170	19	I	eP	17 43 20				
			F	18 05				
171	20	IIu	e	14 55 57				La Serena (Chile).
			L	15 52 08				
			M_{E1}	52 54	24		8	
			M_{N1}	57 44	25	11		
			M_{N2}	58 58	25	10		
			M_{E2}	16 01 18	25		7	
			F	58				

Records of the microseismograph—Continued.

No.	Date.	Character.	Phase.	Hour.	Period.	Amplitude. A_N μ	Amplitude. A_E μ	Remarks.
				h. m. s.				
172	20	II_r	eP	18 09 41				
			S	15 38				
			L	20 39				
			M_N	21 47	7	147		
			M_E	24 30	8		74	
			F	20 01				
173	21	I	e	11 32 15				
			F	12 06				
174	21	I_r	ePS	19 10 40				Samar, Leyte and E Mindanao.
			L	13 12				
			M_N	13 54	8	92		
			M_E	13 58	8		59	
			F	51				
175	22	I_r	e	6 41 57				
			L	47 09				
			M_N	47 38	6	38		
			F	7 31				
176	23	I_u	e	12 27 09				
			S	36 41				
			L	51 32				
			M_N	55 36	24	.8		
			F	13 50				
177	25	I_r	e	19 49 12				
			S	53 00				
			L	55 13				
			M_N	56 19	9	23		
			F	20 55				
178	26	I_r	ePS	19 47 00				
			L	51 03				
			M_N	51 18	4	21		
			M_E	51 18	5		9	
			F	20 11				
179	30	I_v	eP	0 18 44				N Luzon.
			L	19 38				
			M_E	19 43	3		17	
			M_N	19 46	3	20		
			F	28				
180	31	I_v	eP	4 26 56				
			F	30				
181	31	I_r	e	8 53 48				
			L	59 46				
			F	9 11				

TEMBLORES DE TIERRA SENTIDOS EN FILIPINAS.[1]

4, $5^h\ 48^m$ [4, $13^h\ 48^m$]. **Basco** (Islas Batanes). Temblor oscilatorio, dirección NE–SW, intensidad IV, duración 7 segundos.

6, $13^h\ 01^m$ [6, $21^h\ 01^m$]. **Naga** (SE de Luzón). Temblor de tierra oscilatorio de intensidad IV, sentido en toda la región del monte Isarog. Repitió con intensidad III a $21^h\ 10^m$ (tiempo insular). Ambos duraron de 5 a 7 segundos y fueron precedidos del ruido subterráneo característico de los temblores de tierra de dicha región.[2]

7, $8^h\ 28^m$ [7, $16^h\ 28^m$]. **Butúan** (N de Mindanao). Temblor de tierra de intensidad II–III.

8, $3^h\ 18^m$ [8, $11^h\ 18^m$]. **Basco** (Islas Batanes). Temblor de tierra de intensidad III, duración 4 segundos.

8, $8^h\ 37^m$ [8, $16^h\ 37^m$]. **Surigao** (NE de Mindanao). Temblor de tierra local de intensidad II–III. Repitió con la misma intensidad a $21^h\ 12^m$ (tiempo insular).

8, $20^h\ 19^m$ [9, $4^h\ 19^m$]. **Isla de Camiguín** (N de Mindanao). Temblor de tierra de intensidad III.

9, $4^h\ 23^m$ [9, $12^h\ 23^m$]. **Naga** (SE de Luzón). Temblor de tierra de intensidad II–III, algo más perceptible en la parte E del Isarog.

11, $17^h\ 41^m$ [12, $1^h\ 41^m$]. **Butúan** (N de Mindanao). Temblor oscilatorio, dirección E–W, intensidad III, duración 4 segundos.

13, $3^h\ 46^m\ 49^s$ * [13, $11^h\ 46^m\ 49^s$]. **Dávao** (SE de Mindanao). Temblor de tierra de intensidad II–III. Registrado en Manila y Butúan, su epicentro parece se hallaba algo lejos al sur en la parte oriental del Mar de Célebes.

13, $17^h\ 25^m$ [14, $1^h\ 25^m$]. **Lanao** (N de Mindanao). Temblor oscilatorio, dirección ESE–WNW, intensidad IV, duración 5 segundos. Registrado en Butúan.

15, $16^h\ 05^m\ 34^s$ * [16, $0^h\ 05^m\ 34^s$]. **NW de Luzón.** Temblor de tierra de intensidad IV, sentido en toda la Provincia de Ilocos Norte. Horas después, a $9^h\ 38^m$ (tiempo insular), se sintió en la misma región otro de alguna mayor intensidad y extensión; ambos se originaron al parecer en el Mar de la China a poca distancia de la costa NW de Luzón.

15, $17^h\ 44^m$ [16, $1^h\ 44^m$]. **Sámar y Leyte.** Temblor de tierra de intensidad III sentido en la parte N de Leyte y SW de Sámar, originado al parecer en el centro volcánico de las Islas de Biliran, N de Leyte. El mismo día 16 a $16^h\ 45^m$ ocurrió otro de igual intensidad y carácter.

19, $9^h\ 43^m$ [19, $19^h\ 22^m$]. **Guam** (Islas Marianas). Temblor de tierra de intensidad III.

21, $19^h\ 10^m\ 40^s$ * [22, $3^h\ 10^m\ 40^s$]. **Sámar, Leyte y E de Mindanao.** Temblor de tierra de intensidad VI originado en el Abismo Filipino del Pacífico. Sintióse en la islas indicadas y en toda la porción oriental de Mindanao, principalmente al NE. A $8^h\ 31^m$ (tiempo insular) del mismo 22 ocurrió una repetición solamente sentida, con intensidad III, en la península de Surigao, que comprende la parte NE de la isla.

22, $20^h\ 05^m$ [23, $4^h\ 05^m$]. **Surigao** (NE de Mindanao). Temblor de tierra de intensidad III. Este temblor parece se originó también en el Abismo del Pacífico.

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[1] La intensidad de los terremotos se indica conforme a la conocida escala de Rossi-Forel. Cuanto a la hora de su ocurrencia, adoptamos la indicada por los sismógrafos de este Observatorio siempre que los hayan registrado, distinguiéndola por medio de un asterisco (*). En caso contrario copiamos la apuntada por los observadores que nos envían las notas. Todas las indicaciones del tiempo se refieren al tiempo medio de Greenwich (medianoche=0^h). Para conveniencia de los lectores de Filipinas se añade también el tiempo insular.

[2] Véase "Bulletin for October, 1917."

26, 9^h 23^m [26, 17^h 23^m]. **Surigao** (NE de Mindanao). Temblor de tierra de intensidad II–III. Repitió con el mismo carácter a 15^h 31^m [23^h 31^m] y a 8^h 42^m [16^h 42^m] del día 27. Todos estos pequeños temblores fueron probablemente réplicas del terremoto del 21, originadas cerca de la parte más profunda del Abismo del Pacífico situada al E de Surigao.

27, 2^h 42^m [27, 10^h 42^m]. **Tigaon** (SE de Luzón). Temblor de tierra de intensidad II–III. Repitió con intensidad III–IV a 2^h 53^m [10^h 53^m]. Originados en el Isarog y sentidos solamente en los sitios más próximos a la montaña.

30, 0^h 18^m 44^s * [30, 8^h 18^m 44^s]. **N de Luzón.** Temblor de tierra de intensidad V sentido en toda la parte más septentrional de Luzón. Su origen estaba fuera de la isla hacia la parte oriental del grupo de las Islas Babuyanes.

31, 3^h 45^m [31, 11^h 45^m]. **Surigao** (NE de Mindanao). Temblor de tierra de intensidad II–III.

THE GOVERNMENT OF THE PHILIPPINE ISLANDS

WEATHER BUREAU

MANILA CENTRAL OBSERVATORY

BULLETIN FOR JUNE, 1918

PREPARED UNDER THE DIRECTION OF

REV. JOSÉ ALGUÉ, S. J.

DIRECTOR OF THE WEATHER BUREAU

MANILA
BUREAU OF PRINTING
1918

METEOROLOGICAL BULLETIN FOR JUNE, 1918.

By Rev. JOSE CORONAS, S. J.,

Chief, Meteorological Division of the Weather Bureau.

GENERAL WEATHER NOTES.

Pressure and temperature.—The mean atmospheric pressure for this month is lower than that of the preceding year and lower also than the normal for June, especially in northern Luzon. The highest pressures were generally observed on the 1st or 9th, and the lowest on the 28th and 29th when a typhoon was passing to the east and north of Luzon.

The mean monthly temperature is slightly lower than the June's normal in almost all our stations. The absolute maximum and minimum temperatures of the month for Manila were 35.1° C. on the 18th, and 22.5° C. on the 9th and 25th. The extreme temperatures for Baguio were 26.5° C., 12.4° C. on the top of Mirador, and 26.3° C., 12.5° C. in the valley.

PRESSURE AND TEMPERATURE AT THE FIRST AND SECOND CLASS STATIONS FOR JUNE, 1918.

Station.	Pressure.							Temperature.						
	Mean.	Departure from June, 1917.	Departure from normal.	Highest mean.	Day.	Lowest mean.	Day.	Mean.	Departure from June, 1917.	Departure from normal.	Highest.	Day.	Lowest.	Day.
	mm.	*mm.*	*mm.*	*mm.*		*mm.*		°C.	°C.	°C.	°C.		°C.	
Zamboanga	758.42	+0.09	-------	759.70	9	755.80	28	26	— 0.2	-------	31.2	1	21.8	17
Tagbilaran	57.77	— .33	—0.26	59.64	8	53.81	28	26.3	— .1	—1.1	31.7	25,30	21.6	11
Surigao	57.71	— .42	— .39	59.67	9	52.50	27	26.4	— .1	— .8	33	16	22.4	3
Cebu	57.82	— .29	— .25	59.69	9	52.56	28	27.3	— .3	— .5	33.2	1	22.4	10
Iloilo	57.61	— .40	— .28	59.59	9	52.28	28	26.7	— .2	— .7	33.1	1	22.4	3
Tacloban	57.57	— .69	— .65	59.70	9	50.94	27	26.5	— .5	— .9	33.5	3,15	22	7,11
Capiz	57.41	— .87	— .67	59.38	9	50.78	28	26.7	— .2	— .8	33.3	13	22.7	1
Calbayog	57.57	— .74	— .62	59.66	8,9	50.45	27	25.7	— .4	—1	30.8	7,14	22	14
Legaspi	57.40	— .83	— .52	59.62	9	47.98	28	27	— .9	— .9	33	1	21.8	11
Atimonan	57.18	— .87	— .50	59.56	1	47.89	28	26.9	— .5	—1	34.2	13	22.9	24
Ambulong, Tanauan	56.69	— .82	-------	58.83	1	48.60	28	27.5	0	-------	36.2	2	21.9	9
Paracale	57.17	—1.05	-------	59.71	1	46.41	28	27	— .4	-------	34.1	12	22.6	3
Manila	57.10	— .87	— .79	59.43	1	47.79	28	27.2	— .6	— .7	35.1	18	22.5	9,24
San Isidro	57.26	— .96	— .54	59.74	1	47.66	29	27.5	+ .3	— .2	36.4	22	21.5	30
Dagupan	56.24	—1.05	—1	58.61	1	45.82	29	27.8	— .3	— .2	37	1	21.5	16
Baguio [a]	635.29	— .98	— .74	637.62	1	624.53	29	18.5	— .1	— .3	26.5	2	12.4	30
Vigan	756.23	—1.21	—1.15	759.06	1	742.56	29	27.9	— .4	— .2	34.3	27	21.5	30
Tuguegarao	56.38	—1.29	—1	59.38	19	38.45	29	29	+ .5	+ .2	39.6	13	21.4	19
Laoag	56.09	—1.34	-------	58.90	19	40.27	29	27.2	— .2	-------	35.4	1	21.9	12
Aparri	56.23	—1.50	— .94	59.28	19	34.08	29	28.5	+ .8	+ .5	37.4	7	21.4	17

[a] The barometric readings of this station are not reduced to sea level.

Rainfall.—The total amount of rainfall for this month in the Philippines is, with very few exceptions, greater than that of the preceding year and than the normal for June. Manila is one of these exceptions with a monthly rainfall which is 9.4 mm. below the normal of this month. The monthly rainfall for Baguio is 462.7 mm. and 329.9 mm. above that of the preceding year and above the June's normal, respectively.

RAINFALL AT VARIOUS STATIONS OF THE WEATHER BUREAU DURING THE MONTH OF JUNE, 1918.

Station.	Total.	Departure from June, 1917.	Departure from normal.	Days of rain.	Departure from June, 1917.	Greatest rainfall in a single day.	Day.	Station.	Total.	Departure from June, 1917.	Departure from normal.	Days of rain.	Departure from June, 1917.	Greatest rainfall in a single day.	Day.
	mm.	*mm.*	*mm.*			*mm.*			*mm.*	*mm.*	*mm.*			*mm.*	
Jolo	158.1	−231.1	− 47.2	15	−4	31.8	23	Sumay, Guam	177.2	+ 21.1	+ 42.5	16	0	36.9	23
Isabela, Basilan	239.3	− 21.9	+ 30.9	21	0	47.8	16	Calapan	336.9	+ 67.3	+ 94.2	21	+1	62.7	28
Zamboanga	136.7	+ 13.7	+ 33.4	19	+1	34.6	18	Virac	459.5	+279.4	+221	20	0	178.9	27
Davao	190.2	−129.9	− 61.9	13	−6	50.8	1	Naga	430.6	+244.2	+233.7	22	+8	112	26
Cotabato	444.3		+178.5	21		131.1	27	Tigaon	682.8			23		313.7	27
Camp Keithley, Lanao	348.9			28		46.9	18, 27	Batangas[a]	357.7	+186.1	+211	13	−7	160.5	28
Cagayan, Misamis	244.7	+ 71.8		21	−3	50.8	22	Lucena	244.2	+ 36.2		17	+3	112.3	28
Dapitan	394		+197.8	23		115	26	Atimonan	299.7	+130.2	+118.6	18	+1	109.3	28
Butuan	164.5	− 23.3	− 1.6	27	+3	21.1	17	Ambulong, Tanauan	320.7	+161.7		16	0	216.2	28
Mambajao	319.5	+121.9		14	+2	88.2	5	Canlubang, Calamba	260.6	+ 68.6		16	−4	67.6	28
Dumaguete	181	−112.2		12	−5	24.6	20	Paracale	415.8	+195.3		20	+6	119.8	27
Yap, W. Carolines	215.6	+ 15	− 39.5	26	+2	32	1	Santa Cruz, Laguna	289.3	+ 84.9		21	+3	115.6	28
Tagbilaran	230.8	+ 71.4	+ 64.6	19		64.1	4	Manila	224.7	− 46	− 9.4	17	+2	88.4	29
Iwahig	319.3	+216.3		21	+3	86.1	27	Antipolo	414.4	+222.5		17	0	171.2	28
Surigao	181.7	+ 99	+ 55.2	17	−3	57.9	6	Iba	548.4	+125.3	+ 95.1	26	+6	194.8	29
Maasin	227	+ 91.6	+ 68.6	8	+2	64	24	San Isidro	294.3	+ 61	+ 93.3	16	−6	106.6	29
Cebu	303	+ 49.9	+ 120.3	23	+4	60.2	10	Tarlac	166	+ 18.3	− 51.8	15	+1	53.3	29
Iloilo	406.2	+160	+167.7	19	−1	60.7	20	Baler	183.9	− 69.7	−101.2	20	−2	42.9	7
San Jose Buenavista	503.5	+311.1	+155.7	28	+4	82.3	10	Dagupan	391.5	+228.7	+ 89.3	22	+5	108.8	29
Cuyo	356.9	+ 83.2	+ 72.6	23	0	56.6	25	Bolinao	412.3	+238.9	+ 25.5	22	+4	106.7	29
Ormoc	388.6	+239.4	+187.7	24	+6	102.4	26	Baguio	784.4	+462.7	+329.9	26	+3	496.6	29
Guiuan	292	+ 28.3		21	−4	53.1	20	San Fernando, Union	344.4	+ 38.6	+ 54.7	20	0	112.3	29
Tacloban	252.4	+104.2	+ 52.5	21	−1	49.6	26	Echagüe	63.9	− 21.3	− 35.9	8	−1	23.2	27
Capiz	161.4	−156.9	−119	21		29.2	13	Candon	519.4	+142	+201.7	19	+4	181.6	29
Borongan	231.8	−137.5	− 23.4	20	−3	52.5	26	Vigan	579.3	+277.1	+279	22	+5	245.3	29
Catbalogan	418	+226		21	0	142.5	26	Tuguegarao	167.6	− 3.8	+ 37	9	−3	52.1	29
Calbayog	421.9	+140.2	+213.6	25	+4	119.9	27	Laoag	708.2	+170.4	+408.1	21	+1	334.8	29
Masbate	382.3	+265.2	+246.7	14	+3	170.1	27	Aparri	351	+174.1	+218.5	10	0	167.8	29
Romblon	339.1	+102.2	+123	24	+1	74.2	5	Cape Bojeador	272.1	+ 38.2		11	+2	119.1	29
Batag	388.6	+241.8		18	+3	148.5	26	Santo Domingo, Batanes	150.9	−113.3	− 9.9	11	−6	88.6	29
Sorsogon	418.7	+354.4		20	+7										
Legaspi	509.8	+404	+305.1	20	+5	125.9	27								

[a] 29 days of observation.

DEPRESSIONS AND TYPHOONS.

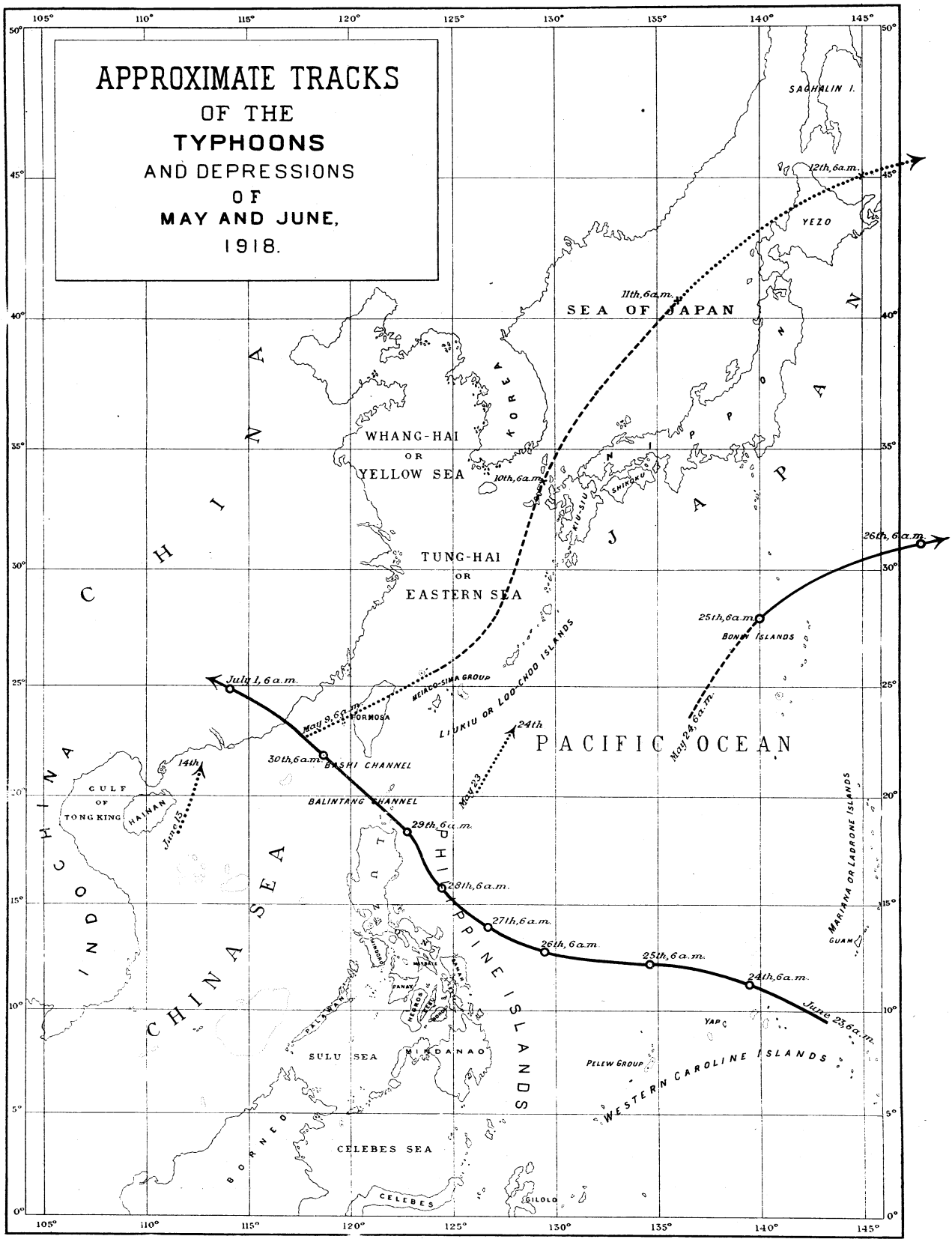
Besides a shallow depression which appeared to the east of Hainan on the 13th to 14th of this month, there has been only one real typhoon during this month in the Far East, its center having crossed the Philippines through the Babuyan Islands on the 29th. See the track of this typhoon on Plate II together with the depressions and typhoons for last May.

In the following table we publish some of the observations made at Guam and Yap during June 23 to 26. From these it would seem clear that the typhoon formed on the 23rd over the Western Carolines E of Yap and SSW of Guam, almost at the same distance from the two stations.

METEOROLOGICAL OBSERVATIONS FOR JUNE 23 TO 26, 1918.

Date and hour.	Guam, Ladrone Islands.				Yap, Western Carolines.			
	Pressure.	Wind.		Rain, 24 hrs. beginning 6 a. m.	Pressure.	Wind.		Rain, 24 hrs. beginning 6 a. m.
		Direction.	Force.			Direction.	Force.	
	mm.		*0-12.*	*mm.*	*mm.*		*0-12*	*mm.*
June 23:								
6 a. m	756.12	E	2		756.53	Calm		
2 p. m	56.02	E	2	36.9	55.52	NNW	1	21.6
10 p. m					55.56	NW	1	
June 24:								
4 a. m					52.68	WSW	2	
6 a. m	56.07	ESE	2		52.94	WSW	2	
8.20 a. m					53.34	WSW	2	
1 p. m					52.94	SW	3	
2 p. m	55.83	ESE	2	23.4	52.43	SW	3	20.1
4 p. m					52.26	SW	3	
10 p. m					54.01	S	2	
June 25:								
6 a. m	56.17	E	1		54.08	Calm		
2 p. m	56.68	SE	2	5.6	53.88	Calm		8.9
June 26:								
6 a. m	56.77	Calm			55.88	Calm		
2 p. m	56.50	E	2	2.5	56.08	SW	2	2.3

Plate II.


APPROXIMATE TRACKS
OF THE
TYPHOONS
AND DEPRESSIONS
OF
MAY AND JUNE,
1918.
SAGHALIN I.
12th, 6a.m.
YEZO
11th, 6a.m.
SEA OF JAPAN
WHANG-HAI
OR
YELLOW SEA
KOREA
10th, 6a.m.
KIU-SIU
SHIKOKU
TUNG-HAI
OR
EASTERN SEA
26th, 6a.m.
25th, 6a.m.
BONIN ISLANDS
July 1, 6a.m.
MEIACO-SIMA GROUP
LIUKIU OR LOO-CHOO ISLANDS
May 9, 6a.m.
FORMOSA
24th
May 24, 6a.m.
PACIFIC OCEAN
30th, 6a.m.
BASHI CHANNEL
14th
GULF
OF
TONG KING
HAINAN
BALINTANG CHANNEL
May 23
June 13
29th, 6a.m.
28th, 6a.m.
27th, 6a.m.
26th, 6a.m.
25th, 6a.m.
24th, 6a.m.
June 23, 6a.m.
MARIANA OR LADRONE ISLANDS
GUAM
YAP
PELEW GROUP
WESTERN CAROLINE ISLANDS
SULU SEA
MINDANAO
CELEBES SEA
BORNEO
CELEBES
GILOLO
CHINA SEA
INDO CHINA
PHILIPPINE ISLANDS
105°
110°
115°
120°
125°
130°
135°
140°
145°
50°
45°
40°
35°
30°
25°
20°
15°
10°
5°
0°

The typhoon was probably not so well developed on the 23rd to 26th as when it was near of over the Philippines from the 27th to the 29th.

Lack of telegraphic reports from Yap and Guam prevented Manila Observatory from announcing this typhoon until the 26th, when it began to influence the weather in the Philippines. The first warning issued at 9.30 a. m. of that day read as follows:

There are signs this morning of a depression or typhoon over the Pacific east of southern Luzon or of San Bernardino Strait; its actual direction cannot yet be ascertained.

Although we have no observations from the extended region of the Pacific between the Western Carolines and the Philippines, yet it seems that the typhoon moved almost due west on the 25th, WNW on the 26th, NW on the 27th, and then NNW and N on the 28th. It was remarkable in this typhoon that, with its center at a distance of over 200 miles, the winds would blow at Manila and in many other places even more distant from the center with sufficient force to cause considerable damage to light buildings, trees, electric wires, etc. The greatest velocities of the wind were recorded in Manila in the evening of the 28th and in the early hour of the 29th.

In the table below some observations are given from the stations of Aparri, Cape Bojeador, and Santo Domingo, while in Plate III we reproduce the barographic records from Aparri and Cape Bojeador together with the isobars for June 27, 6 a. m., June 29, 6 a. m., and June 30, 6 p. m.

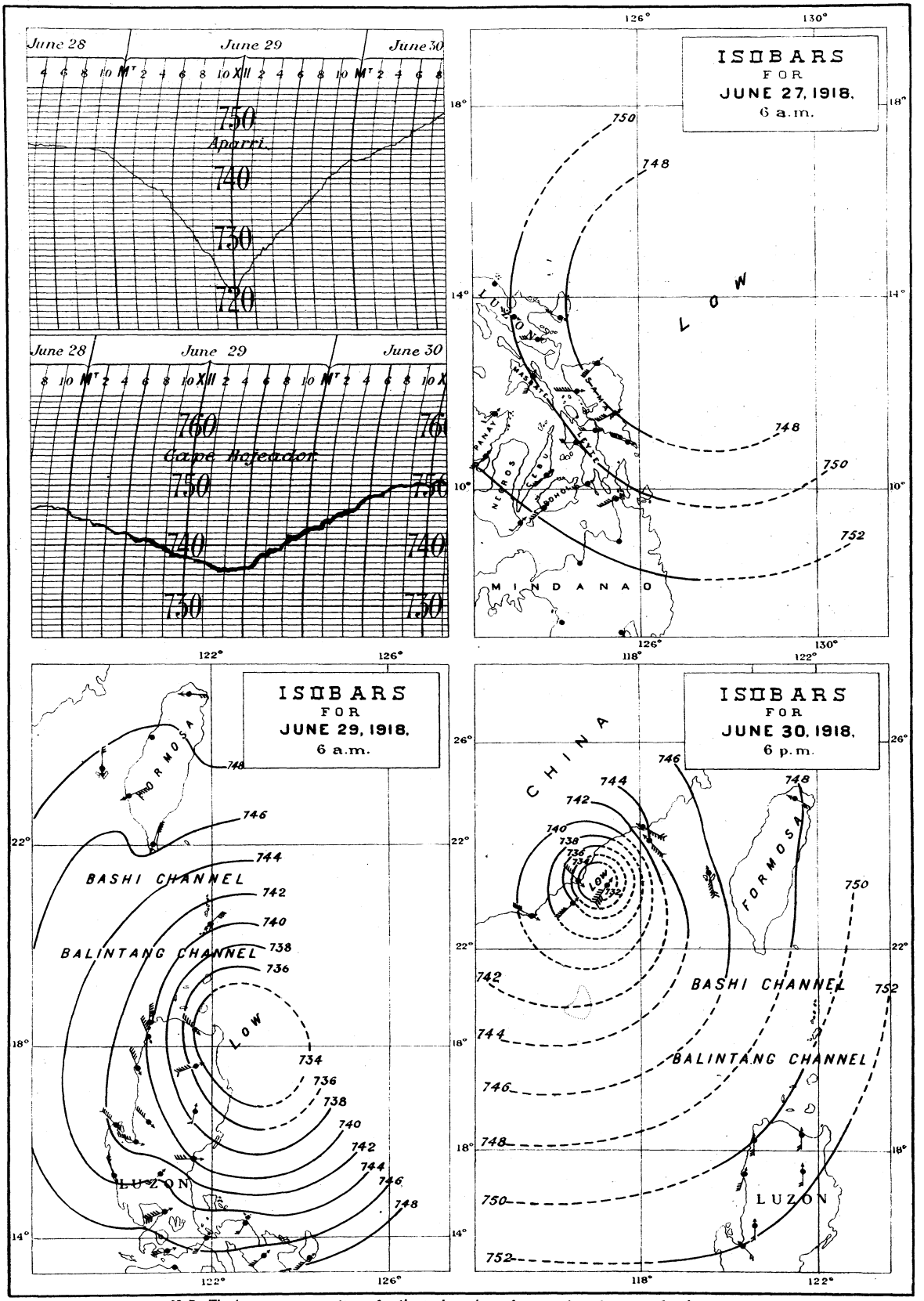
METEOROLOGICAL OBSERVATIONS FOR JUNE 27 TO 30, 1918.

Date and hour.	Aparri.					Cape Bojeador.					Santo Domingo.				
		Wind.					Wind.					Wind.			
	Pressure.	Direction.	Force.	Weather.	Rain every four hours.	Pressure.	Direction.	Force.	Weather.	Rain, 24 hours beginning 6 a. m.	Pressure.	Direction.	Force.	Weather.	Rainfall.
	mm.		*0-12*		*mm.*	*mm.*		*0-12*		*mm.*	*mm.*		*0-12*		*mm.*
June 27:															
6 a. m	754.14	Calm	----	o, p	10	753.85	NE	4	c	------	754.06	NEbyE	3	c	2.3
2 p. m	52.80	N	4	c, p	1.1	52.28	NNE	4	c	8.1	53.20	NEbyE	4	c	6.9
June 28:															
6 a. m	49.97	N	3	o, p	46.9	49.84	NNE	5	c	------	50.57	NE	5	c, q	6.1
10 a. m	49.15	NNE	4	o, q, r	3	------	------	----	------	------	50.08	NE	5	c, q	.8
12 noon	48.08	N	4	o, q, r	------	------	------	----	------	------	------	------	----	------	------
2 p. m	46.76	N	4	o, q, r	6.4	47.43	NNE	5	c	22.4	48.12	NEbyN	5	c, q	2.8
4 p. m	45.59	NNE	5	o, q, r	------	------	------	----	------	------	47.22	NEbyN	5	c, q	------
6 p. m	45.56	NNE	4	o, q, r	13.5	------	------	----	------	------	46.46	NE	6	c, q	3.3
10 p. m	44.65	N	5	o, q, r	8.1	------	------	----	------	------	46.40	NE	6	o, q, r	8.4
June 29:															
1 a. m	41.65	NW	5	o, q, r	------	------	------	----	------	------	44.14	NEbyE	6	o, q	6.6
2 a. m	40.34	NW	6	o, q	3	------	------	----	------	------	43.94	ENE	5	o, q, r	------
3 a. m	39.44	NW	6	o, q, r	------	------	------	----	------	------	43.39	ENE	5	o, q	.8
4 a. m	38.26	NW	6	o, q, r	------	------	------	----	------	------	42.57	ENE	6	o, q, r	1.5
5 a. m	36.85	NW	6	o, q	------	41.88	N	6	o, q	------	42.26	NE	7	o, q, r	5.1
6 a. m	35.48	NW	5	o, q, r	10.4	41.93	N	6	o, q	------	42.07	NE	4	o, q, r	2.5
7 a. m	33.55	NW	5	o, q, r	------	40.90	N	6	o, q	------	41.75	NE	3	o, r	11.9
8 a. m	31.60	NW	6	o, q, r	------	40.72	N	6	o, q	------	41.44	NE	5	o, q, r	6.4
9 a. m	28.80	NW	8	o, q, r	------	39.92	N	6	o, q	------	41.29	EbyN	6	o, q, r	15.1
10 a. m	26.70	NW	6	o, q, r	50.3	38.92	NNW	7	o, q	------	40.94	ENE	6	o, q, r	2.5
11 a. m	23.09	NW	10	o, q, r	------	38.27	NNW	7	o, q	------	40.08	ENE	6	o, q, r	3.3
11.30 a. m	22.65	NW	10	o, q, r	------	------	------	----	------	------	------	------	----	------	------
12 noon	22.44	W	10	o, q, r	------	37.82	NNW	7	o, q	119.1	39.44	EbyN	6	o, q, d	1
12.30 p. m	23.10	W	8	o, q, r	------	------	------	----	------	------	------	------	----	------	------
1 p. m	24.19	SW	8	o, q, r	------	37.62	NNW	7	o, q	------	38.87	EbyN	5	o, q, d	.5
2 p. m	26.60	SSW	10	o, q, r	30.5	37.17	NNW	7	o, q	------	37.92	E	6	o, q	.3
4 p. m	30.41	SSE	8	o, q, r	------	35.69	NNW	7	o, q	------	36.66	EbyS	8	o, q, r	------
6 p. m	34	S	6	o, q, r	------	36.19	NW	7	o, q	------	36.73	E	7	o, q, r	3.7
10 p. m	41.36	S	5	o, q, r	------	40.56	SW	8	o, q	------	37.59	EbyS	7	o, q, r	8.4
June 30:															
2 a. m	44.87	SE	4	o, r	7.9	43.96	SSW	8	o, q	------	40.41	ESE-SE	8	o, q, r	20.3
6 a. m	48.56	SE	4	o	1.3	47.98	S	7	o, q	------	45.62	SSE	5	o, q, d	15.3
2 p. m	50.85	S	3	o	------	49.98	S	6	c, q	------	50.38	S	3	o	.5

The center of the typhoon passed some 30 to 40 miles northeast of Aparri at about noon of the 29th, and it moved again northwestward since the early morning of that day. Hence it entered the China coast near Swatow in the afternoon of the 30th.

ISOBARS AND BAROGRAPHIC RECORDS
TYPHOON OF JUNE 23 TO JULY 1, 1918.

Plate III.



N. B.- The barometric readings for the isobars have been reduced to standard gravity.

NOTAS GENERALES DEL TIEMPO.

Presión y temperatura.—La presión atmosférica media de este mes en Filipinas es menor que la del año pasado y menor también que la normal de junio, especialmente en el N de Luzón. Las presiones más altas del mes se observaron generalmente el día 1 ó el 9, y las más bajas los días 28 y 29 cuando pasaba un tifón al E y N de Luzón.

La temperatura media mensual es ligeramente menor que la normal de junio en casi todas nuestras estaciones. Las temperaturas máxima y mínima absolutas del mes en Manila fueron 35.1° C., que tuvo lugar el día 18, y 22.5° C. registrada los días 9 y 25. Las temperaturas extremas del mes en Baguio fueron 26.5° C., 12.4° C. en la cumbre del Mirador, y 26.3° C., 12.5° C. en el valle.

Precipitación acuosa.—La cantidad total de lluvia de este mes en Filipinas es, con raras excepciones, mayor que la del año pasado y que la normal de junio. Manila es una de estas excepciones con una lluvia mensual que difiere de la normal de este mes en —9.4 mm. La lluvia mensual de Baguio es 462.7 mm. y 239.9 mm. mayor que la del año pasado y que la normal de junio, respectivamente.

DEPRESIONES Y TIFONES.

A excepción de una depresión dilatada que apareció al E de Hainán del 13 al 14, no hubo más que un solo verdadero tifón durante este mes en el Extremo Oriente, cuyo centro cruzó Filipinas a través de las Islas Babuyanes el día 29. Véase la trayectoria de este tifón en la Lámina II juntamente con las de las depresiones y tifones de mayo último.

En una table que va en el texto inglés publicamos algunas de las observaciones hechas en Guam y Yap del 23 al 26 de junio. De ellas parece deducirse claramente que el tifón se formó el día 23 en las Carolinas Occidentales al E de Yap y SSW de Guam, casi a igual distancia de ambas estaciones.

El tifón no estaba probablemente tan bien desarrollado del 23 al 26 como cuando se hallaba en, o cerca de, Filipinas los días 27, 28 y 29.

La falta de telegramas de observaciones de Yap y Guam impidió al Observatorio de Manila el anunciar este tifón hasta el 26, en que comenzó a influir en el tiempo de Filipinas. El primer aviso de tifón dado a las 9.30 a. m. de dicho día era de este tenor:

> Hay esta mañana indicios de una depresión o tifón en el Pacífico al E del sur de Luzón o del Estrecho de San Bernardino; su dirección actual no se puede aún precisar.

Aun cuando no tenemos observaciones de la extensa región del Pacífico entre las Carolinas Occidentales y las Filipinas, con todo parece que el tifón se movió casi directamente al W el día 25, al WNW el 26, al NW el 27, y luego al NNW y N el 28. Fué notable en este tifón que, hallándose su centro a una distancia de más de 200 millas, los vientos soplasen en Manila y en otros muchos lugares aún más distantes del centro con suficiente fuerza para causar considerable daño a las casas de materiales ligeros, a los árboles, líneas eléctricas, etc. Las máximas velocidades del viento se registraron en Manila la tarde del 28 y en las primeras horas del 29.

En otra tabla que va también en el texto inglés damos algunas observaciones hechas en Aparri, Cabo Bojeador y Santo Domingo, mientras que en la Lámina III reproducimos los registros barográficos de Aparri y Cabo Bojeador juntamente con las isobaras de 6 a. m. del 27 de junio, 6 a. m. del 29, y 6 p. m. del 30.

El centro del tifón pasó a unas 30 ó 40 millas al NE de Aparri hacia el mediodía del 29, y volvió a moverse de nuevo al NW desde la madrugada de dicho día. De ahí que penetrase en la costa de China cerca de Swatow la tarde del día 30.

METEOROLOGICAL DATA FOR MANILA CENTRAL OBSERVATORY.[a]

[$\phi = 14°\ 34'\ 41''$ N; $\lambda = 120°\ 58'\ 33''$ E; barometer above sea, 14.2 meters; gravity correction not applied, —1.72 mm.]

Day.	Air temperature.[b]			Underground temperature.						Relative humidity (mean).	Vapor pressure (mean).	Radiation.		Evaporation.[b]	
	Pressure (mean).	Mean.	Maximum.	Minimum.	0.25 meter.		0.50 meter.		1.50 meters.	2.50 meters.			Minimum on grass.	Maximum in sun. Black bulb in vacuo.	Free exposure (total).	Shelter (total).
					8 a.m.	2 p.m.	8 a.m.	2 p.m.	8 a.m.	8 a.m.						
	mm.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	*Per ct.*	*mm.*	°C.	°C.	*mm.*	*mm.*
1	759.43	27.7	33.2	23.2	30.5	31.7	30.9	31.3	29.4	27.9	78.3	21.4	21.4	54.5	4.2	3
2	58.92	26.7	33.5	23.4	30.3	30.8	30.9	30.9	29.7	27.9	81.9	21	20.8	56.5	2.4	2.1
3	58.13	27	33.7	22.6	29.8	31	30.8	31	29.5	27.9	82.4	21.5	21.1	54.1	3.4	2.2
4	57.47	28.2	34.1	23.5	29.8	31.1	30.6	30.8	29.6	27.9	76.2	21.4	22.5	56.7	4.6	3.3
5	56.76	26.8	33.3	24	30	31.3	30.8	30.8	29.6	27.9	82.8	21.5	22	55.1	2.1	1.8
6	55.85	26	30.8	23.2	29.5	30	30.6	30.3	29.6	27.9	88.2	21.9	21.5	48.4	1.2	1.2
7	56.70	27.4	32.6	23.6	29.5	30.2	30.2	30.4	29.6	27.9	81.2	21.7	22.3	54.5	4.5	3.4
8	58.93	26.5	31	23.9	29.8	30	30.3	30.3	29.7	28	85	21.8	22	53.2	.9	1.2
9	59.21	27.4	33	22.5	29.3	30.7	30.1	30.3	29.8	28.2	79.4	21.3	.....	54.6	4.1	2.7
10	58.30	27.2	32.2	23.9	29.8	31.1	30.3	30.5	29.7	28	84.3	22.4	22.2	55	2.7	2
11	57.39	26.5	30.8	24.3	30	30.8	30.5	30.9	29.7	28	87	22.3	23.5	53.5	2.2	1.8
12	58.02	27	32.5	23.3	29.6	30.6	30.3	30.5	29.7	28.1	84.5	22.2	22	56.4	2	2
13	58.96	27.5	32.7	23.9	30	31	30.5	30.8	29.7	28.1	83.5	22.6	22.2	55.8	3.2	2.3
14	58.99	27.9	34	24.1	30.3	31.3	30.6	30.8	29.8	28.2	81.7	22.5	22.6	56.2	3.5	2.5
15	58.80	27.8	33.8	23.9	30.4	31.5	30.8	31	29.9	28.2	81.9	22.5	22.2	54.5	3.6	2.7
16	58.94	28.3	34.7	23.8	30.5	31.5	30.8	30.9	29.8	28.3	77.7	22	22	57.3	4.6	3.3
17	59	27.8	32.4	24	30.3	31.2	30.8	30.9	29.8	28.2	80.2	22.2	22.5	52.5	3.6	2.5
18	58.73	27.4	35.1	22.8	30.2	31.8	30.8	31.1	29.8	28.2	79.4	21.2	20.8	60.5	4.1	2.9
19	59.15	27.3	33.1	23.6	30.2	31.3	30.8	31	29.9	28.2	81.4	21.8	21.4	57.5	3.6	2.5
20	59.20	27	33	23.7	29.7	30.9	30.7	30.8	29.9	28.2	83.2	21.9	21.8	50.8	2.9	2.1
21	58.48	27.4	33.7	22.9	29.5	31.3	30.6	30.8	29.9	28.2	80.5	21.6	20.6	55	4.1	3.1
22	57.88	27.4	32	23.4	29.7	31.1	30.7	30.8	29.9	28.2	82	22	21.3	54.5	3	2.5
23	57.61	28.3	34.5	23.2	30.2	31.5	30.6	30.8	30	28.3	79.4	22.3	20.9	54.7	4.1	3.5
24	57.34	27.4	34.8	22.5	29.8	31.6	30.6	30.8	29.8	28.3	82	21.8	20.6	54.8	4	2.7
25	56.56	28.1	33.1	24	30.4	31.8	30.8	31	29.8	28.3	79.2	22	22.2	52.8	4.8	3.7
26	55.24	27.4	32.2	24.5	30.5	31.5	30.8	31.1	29.9	28.4	84.1	22.6	22.5	50.8	1.6	2
27	52.74	26.5	28.6	24.5	29.8	30.2	30.8	30.8	29.8	28.3	87.6	22.4	22.8	38	1.2	1.9
28	47.79	26.8	29.1	25.1	29.5	29.7	30.3	30.8	30	28.3	91	23.9	24	43.5	.5	1.5
29	48.57	25.4	27.4	23.8	27.8	.....	29.6	29.5	30	28.1	89	21.5	23.4	28.7	.5	1.5
30	54.03	26.2	30	23.9	27	27.7	28.8	28.8	29.8	28.3	87.1	21.9	22.6	46	1.3	1.5
Mean	757.10	27.2	32.5	23.6	29.8	30.9	30.5	30.7	29.8	28.1	82.7	22	22	52.5	3	2.4
Total	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	88.5	71.4
Departure from normal	—0.79	—0.7	0	—0.3	.....	.....	.....	.....	.....	—	+1.9	—0.3	.....	.....	.....	.....

Day.	Wind.				Clouds.			Sunshine.	Rain, 24 hours beginning 6 a. m.		Miscellaneous.
	Prevailing direction.	Total movement.	Maximum hourly velocity.	Direction at the time of the maximum velocity.	Amount (mean).	Form and direction. Upper.	Lower.		On the tower.	In the park.	
		Km.	*Km.*		*0–10.*			*h. m.*	*mm.*	*mm.*	
1	E quad.	135	14.5	SE	6.5	Ci.-Cu.	Cu. E	5 50	.....	.....	☾ p.
2	NNE	147	16	W, NNE	4.9	Ci.-S. NE	Cu. E	7 15	11.9	12	☐☾² ● ☾° p.
3	E	147.5	18	NE	7.2	Ci.	Cu. E	6 05	.....	.....	☐☾ p.
4	E quad	163.5	16	SE	6.8	Ci.	Cu. E	8 00	.....	.....	☐☾ d° p.
5	NE quad.	134	15	WSW	9.2	Ci.-S. WNW	Cu. ESE	3 05	9.4	10.3	☐☾ ● ☾ p.
6	E quad.	111	11	E	8.4	A.-Cu. ESE	Cu. E	2 40	17.8	18.6	● a. p.
7	ESE	256.5	21	ESE, SE	6.8	Ci. NbyW	Cu. SE	6 40	.3	.2	●° a. d ☾ p.
8	SE quad.	152.5	17.5	SSW	8.8	Ci. SWbyS	N. S, SW	2 30	11.5	11.7	● a. p. ☾° p.
9	S quad.	150	18	SW	6.8	A.-Cu. E, S	Cu.-N. SSE	5 50	.....	.....	Ω a. ⊥ p.
10	SE, SSW	158	14	SSW, SW	8.2	Ci.-S. E	Cu. E	4 00	5.3	5.8	Ω° a. ☐☾ d° ☾ p.
11	SSW	264.5	25	SW	8.4	A.-Cu. S	Cu.-N. SW	3 35	2.3	2.5	●° ⊕° a. d p.
12	S quad.	179.5	17	SSW	8.4	Ci. ENE	Cu. SSW	4 20	8.7	9	d a. ● ☐☾² p.
13	SW quad.	183	21	SSW	8.2	Ci. N	cu. SW, ssw	6 30	.....	.....	☐☾ p.
14	E quad.	151	16	ESE, SW	6.7	Ci., Ci.-S.	Cu. SE	5 10	.6	.8	⊤ ☐☾° p° p.
15	E, NE	156.5	17.5	SW	7.3	Ci. SSE	cu. E quad.	5 55	.....	.....	Ω² a. ☐☾ ☾ p.
16	SE	169.5	18	SE	6.2	Ci.-S.	Cu., Cu.-N.	3 25	.....	.....	⊤° p.
17	NNE	146	14	NNW	8.5	Ci. NNE, NE	Cu.-N. E	3 25	.....	.....	☾ p.
18	N quad.	140	15	NNW	6.2	A.-Cu. S	Cu.-N. SSE	7 10	.....	.....	☐☾° p.
19	E quad.	154	15	NW	8	Ci.-S. NE	Cu. ESE	4 40	.....	.....	☾ p.
20	ESE	104.5	10	W	8.1	Ci.-S.	Cu. ESE	1 15	.....	.....	
21	ENE	136	9.5	W	6.8	Ci.-S. NE	Cu. ESE	5 50	.5	.5	●° ⊤ ☾ p.
22	NE quad	112.5	13.5	WNW	8.8	A.-Cu. ESE	Cu. E	2 40	.3	.2	⊕ a. ⊤ d p.
23	NE, ENE	154	15	SW	6.2	A.-Cu. SSE	Cu. ESE	6 30	4.2	4.4	⊤ ●° p.
24	E quad.	139	12	S	5.8	A.-Cu. E	Cu. ESE	7 05	.....	.....	●° a.
25	SW	195	20	SW	5.8	Ci. E	Cu.	7 20	.....	.....	
26	SW quad.	135	14	W	9.2	Ci.-S. SE	Cu. NWbyw	2 25	8.2	8.6	⊤ a. ●° ☾ p.
27	WNW	226.5	20	NW	10	Ci.-S.	N. WNW, NW	0 00	7.4	8.2	● a. ●° p.
28	SW	862.5	64	SWbyS	10	A.-Cu NWbyN	N. W quad.	0 00	35.6	42.6	d ↙°° a. ● ↙ ⊤ p.
29	WSW	1,179	67	WSW	10	Ci.-S.	Fr.-N. wsw	0 00	88.4	98.7	●² ↙² a. ● ↙ p.
30	S quad.	281	20.5	S	9.8	Ci.-S.	Cu. SW	0 05	12.3	14.3	● a p.
Mean	.....	220.8	19.5	.....	7.7	.....	.....	4 18	.....	.....	
Total	.....	6,624	.....	.....	.....	.....	.....	129 15	224.7	248.4	
Departure from normal	.....	—92.1	.....	.....	+0.7	.....	.....	—41 40	—9.4	.....	

[a] All the mean values given in this table are deduced from hourly observations.
[b] These values are taken from instruments mounted in the Observatory Park, 1.5 meters above ground.

METEOROLOGICAL DATA FOR MIRADOR OBSERVATORY, BAGUIO.[a]

[ϕ=16° 25′ N; λ=120° 36′ E; barometer above sea, 1,512.5 meters; gravity correction not applied, —1.65 mm.]

Day.	Pressure[b] (mean).	Air temperature at Mirador (on the top of the mountain).					Air temperature in the valley (near the city hall).				Relative humidity (mean).	Vapor pressure (mean).	Radiation.		Evaporation.	
		Mean.	Maximum.	Hour.	Minimum.	Hour.	Maximum.	Hour.	Minimum.	Hour.			Minimum on grass.	Maximum in sun. Black bulb in vacuo.[c]	Free exposure (total)	Shelter (total)
	mm.	*°C.*	*°C.*		*°C.*		*°C.*		*°C.*		*Per ct.*	*mm.*	*°C.*	*°C.*	*mm.*	*mm*
1	637.62	19.3	26.3	0.20p.	14.7	3.25a.	26.3	0.25p.	13.9	4.30a.	83.8	13.7	13.5	59.9	3.3	1.9
2	37.10	18.2	26.5	1.20p.	15.8	5.30a.	25.9	0.35p.	16	5.55a.	88.7	13.7	13.4	63.8	2.3	1.4
3	36.52	18.6	24.5	0.55p.	15.9	5.25a.	24.4	1.25p.	14.6	5.25a.	88.5	14.1	14.1	57.8	1.7	1.1
4	36.09	19	25.2	10.50a.	15.8	5.35a.	26.1	Noon	15.3	5.00a.	85.2	13.6	14.2	58	2.7	1.6
5	35.34	18.2	24.9	0.40p.	15.2	5.00a.	26	11.20a.	14.9	6.00a.	86.8	13.4	14.5	59.1	1.7	1.3
6	34.27	18.6	24.8	10.15a.	15	2.20a.	26.1	10.50a.	14.3	5.40a.	88.8	13.9	14.2	56.9	1.8	.9
7	34.69	18.6	23.3	1.45p.	15.6	6.25a.	24.2	2.35p.	15.2	5.10a.	88	14	15.5	56	3.9	2.4
8	36.30	18	23.6	1.25p.	15.5	4.00a.	24.7	0.30p.	15.5	4.00a.	87.5	13.3	15.2	57.5	3.2	2
9	36.83	19	24.7	1.35p.	15	3.10a.	24.9	Noon	15.2	4.00a.	83	13.4	14.5	56	4.2	2.6
10	36.24	18.4	23.4	0.30p.	15.4	5.35a.	23.7	0.15p.	15.9	5.20a.	92	14.5	14.5	58	1.2	.9
11	35.02	17.8	23.4	11.25a.	15.3	12 m. n.	23.9	11.30a.	15.8	11.40p.	94	14.2	16.4	62	.7	.7
12	35.43	18.1	23.4	2.10p.	15.2	5.20a.	22.9	2.00p.	15.4	4.30a.	89.3	13.6	14.9	57	2.1	1.5
13	36.70	18.6	24.3	0.40p.	15.5	2.30a.	24.4	2.25p.	16	3.20a.	86.3	13.5	15.4	57	4.2	2.3
14	37.14	19.3	25.3	3.00p.	15.9	3.00a.	25.5	1.55p.	15.9	3.40a.	82.5	13.5	15.1	56.6	6.2	2.5
15	37.12	19.2	24.8	11.05a.	15.3	5.10p.	25.7	10.50a.	15.6	5.10p.	83.3	13.6	15.5	58.1	2.3	1.2
16	37.34	19.6	26.2	0.20p.	16	4.35a.	26.3	Noon	15.5	5.40a.	84.7	14.3	13.9	57.2	3.2	1.8
17	37.30	18.3	26.1	0.40p.	14.7	9.15p.	25.9	1.00p.	14.7	11.20p.	89	13.9	15.1	60.9	3.6	2
18	36.94	19.1	24.6	10.25a.	15.4	4.50p.	25.1	Noon	14.5	3.20a.	79.8	13	13.7	56	3	1.8
19	37.40	18.9	25.3	0.10p.	14.2	3.40a.	25.3	0.50p.	14.9	3.20a.	83.2	13.5	13.5	56.7	3.5	2.1
20	37.42	19.1	25.3	11.20a.	15.4	4.00a.	25.5	11.50a.	14.1	5.55a.	83.7	13.8	13.4	61.8	2.7	1.9
21	36.82	18.9	24.6	10.35a.	15.6	5.35a.	25.3	0.10p.	14.8	5.30a.	84.7	13.6	14.1	59.3	2.2	1.4
22	36.23	18.8	25.4	11.05a.	15.4	5.20a.	24.9	11.50a.	15	5.30a.	85.8	13.8	13.7	59.2	2.3	1.6
23	36.03	18.1	23.8	10.50a.	15.9	5.55a.	25.7	11.00a.	15.5	3.05a.	90	13.8	14.6	56.3	1.7	1.1
24	35.64	18.4	23.2	9.20a.	15.2	3.00a.	23.9	10.10a.	15.1	4.30a.	89.5	14.1	14.3	55	.9	.7
25	35.13	19	23.8	3.25p.	15.4	5.00a.	24.8	2.00p.	15.5	6.00a.	92.2	15	15	57.6	1.2	.7
26	34.21	18.4	23.3	10.25a.	15.6	5.30a.	22.9	11.50a.	15.2	5.50a.	91.5	14.5	14.5	60.6	.9	.6
27	32.29	18.1	22.1	11.25a.	16.4	1.00a.	22.7	11.20a.	16	5.40a.	95.2	14.7	15.6	47	1.1	.7
28	27.64	18.9	22.9	10.40a.	16.7	2.55a.	23	10.40a.	16.2	5.55a.	90.7	14.7	13.6	57	1	.6
29	24.53	16.7	18.3	0.55p.	13.5	9.20p.	19.5	0.10p.	13.2	9.35p.	99.5	14.1	10.6	22.9	0	0
30	31.36	16.8	20.3	1.35p.	12.4	2.35a.	21	1.20p.	12.5	3.00a.	91	12.9	10	50.1	1.8	1.2
Mean	635.29	18.5	24.1		15.3		24.6		15.1		87.9	13.9	14.2	56.4	2.4	1.4
Total															70.6	42.5

Day.	Wind.				Clouds.			Sunshine.	Rain, 24 hours beginning 6 a. m.	Miscellaneous.
	Prevailing direction.[d]	Total movement.	Maximum hourly velocity.	Direction at the time of the maximum velocity.	Amount (mean).	Form and direction. Upper.	Lower.			
		Km.	*Km.*		*0–10.*			*h. m.*	*mm.*	
1	E, W	262.8	26.9	W	4	Ci., Ci.-S.	Fr.-Cu. NNW	6 30		⌐◹ d° p.
2	W quad.	287	30	SW	5.7	Ci., Ci.-S.	Cu. ENE	5 25		Ω a. ⌐◹ d² ↙° ◟ p.
3	E, W	259.4	22.3	W	5	Ci.	Cu. ESE	5 30	2.1	● ≡² p.
4	E quad.	291.1	24.3	W	4.6	Ci.	Cu.	5 45	8.2	≡ ● ⌐◹ p.
5	NE quad.	284.2	26.2	W	7.7	A.-Cu. WNW	Cu.-N.	5 05	1.1	d² ⌒ ⌐◹ p.
6	NE	257.7	31.2	W	5.7	Ci.	Cu.-N.	4 30	37.1	≡² ● ⌐◹² ↙° p.
7	E	613.6	38.8	E	5.3	Ci. NNW	Cu.-N. SE	4 25		↙° a. p. ●° ⌐◹° ⌒° ◟ p.
8	E, SE	631.9	42.4	SE	5.6	Ci., Ci.-S.	Cu.-N. SE	5 00	1.3	Ω² ↙° a. ⌐◹ ≡ ●° p.
9	E	419.4	36.4	E	4.3	Ci.-S.	Cu.-N. SE	6 05	1.5	↙° ● ◟ ⌐◹° p.
10	E, W	340.3	31.1	SE	8.4	Ci.-S.	Cu.-N. SE	2 15	5.1	≡ a. ● ≡² p.
11	SE quad.	271.8	20.1	SE	9.7	Ci.-S.	Cu.-N. SEbyE	1 55	8.2	d° a. ● ≡² p.
12	SE	352.8	19.9	SE	8.4	Ci.	Cu.-N. s quad.	5 00	3.3	≡² a. ● p.
13	E, SE	436.3	29.2	SE	5.3	Ci.	Cu.-N. sse, swbys	6 50	20.9	● ⌐◹ p.
14	E	377.6	28	E	4.1	A.-Cu., Ci.-S.	Cu. S, SE	7 15	.3	⊕ a. ⌐◹ ≡ d p.
15	E, SE	323.2	20.1	SE	5.1	Ci.	Cu.-N. S	3 40	10.7	Ω² a. ⌐◹ ● ↙° p.
16	E, SE	257	21.1	W	4.4	Ci.	Cu.-N. ESE	6 30	.8	≡° ⌐◹ d° p.
17	E quad.	312.3	21.4	NE	6.6	Ci.-S. SE	Cu.	4 00	33.1	● ≡² ⌐◹ ◟ p.
18	E	361.3	30.8	E	4.7	Ci. E	Cu. ESE	5 55	47.2	≡ ⌐◹ ●² p.
19	E	386.3	24.4	E	4	Ci. NWbyW	Cu. ESE	6 50	2.3	≡² ● ◟° ⌒ ⌐◹ p.
20	E	303.3	30.8	E	5.1	Ci.	Cu.-N. ESE	6 00	7.2	↙° a. ≡² a. p. ⌐◹ ● p.
21	E	233.5	17.9	W	5.3	Ci. ENE, NNW	Cu. ESE	5 30		≡² ⌐◹ ◟ p.
22	E	257.3	21.4	E	5.4	Ci.	Cu. SE	4 55	13.7	Ω² a. ≡° ●² ⌐◹ p.
23	E quad.	[e] 321.6	21.2	E	6.1	Ci.-S. WNW	Cu. NE	2 25	8.8	⊕ a. ≡² a. p. ⌐◹ ● p.
24		[f] 204	16.6?	W?	8.6	Ci.-S. ESE	Cu. ESE	3 00	5.8	d a. ≡² a. p. ●° ⌐◹ ◟° p.
25	W, E	214.7	16.4	W	6.9	Ci.	Cu.-N. ESE	2 55	3	≡° a. ≡² ● ⌐◹ ◟ p.
26	W quad.	244.8	23.9	W	6.9	Ci., Ci.-S.	Cu.-N. ENE	2 45	5	≡² ●° ◟° ⌐◹° p.
27	W quad.	267	19.8	W	8.9	Ci.-S. EbyN, E	Cu.-N. NNW	0 25	.8	● a. ≡² a. p. ●° ◟° p.
28	NW quad.	369.2	22.7	NW	8.6	Ci.-S. ESE, NE	N. NNE, NNW	3 05	9	◟° ⌒ d° a. d² ≡² ↙° p.
29	W	1,749.3	120.7	W	10		N.	0 00	496.6	≡² a. ↙² ●² a. p.
30	SW	801.8	75.3	SW	10	Ci.-S.	Cu.-N. SW quad	1 10	1.3	↙ ⊕ a. ● a. p.
Mean		389.8	30.4		6.3			4 21		
Total		11,692.5						130 35	734.4	

[a] All the mean values given in this table are deduced from six daily observations taken at 2, 6, 10 a. m. and 2, 6, 10 p. m.
[b] The barometric readings of this station are not reduced to sea level.
[c] Maximum of hourly observations taken from 6 a. m. to 6 p. m.
[d] This element is based on hourly observations taken from a quadruple register, which gives only eight possible directions of the wind.
[e] 1 hour missing.
[f] 6 hours missing.

DAILY RAINFALL AT THE STATIONS OF THE WEATHER BUREAU, JUNE, 1918.

Station.	Day of month.															
	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.
	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.
Jolo	.....	1.8	.....	0.5	18.5	4.8	17.8	.....	.....	.....	.....	.....	21.1	.....	8.7	11.7
Isabela, Basilan	5.6	.5	.....	15.2	6.4	25.7	.5	.....	.....	.....	1.3	.....	19	.....	19.3	47.8
Basilan Plantation, Isabela (Basilan)[a]	.....	.....	.....	15.2	5.3	9.1	.....	.....	.....	.....	11.2	.....	110	.....	21.1	55.9
Zamboanga	.....	.....	.....	24.6	5.1	1.6	5.1	.....	.....	9.7	.3	0.3	10.2	0.6	.....	17.3
Davao	50.8	.....	3.8	5.1	27.9	35.6	5.1	.....	2.5	.....	.....	.....	.....	6.4	.....	.....
Cotabato	6.6	10.4	.....	2.3	51.8	.....	.....	2	.....	29.2	4.6	.....	4.6	.....	9.1	8.6
Camp Keithley, Lanao	4.5	4.6	14.5	2	14.6	1.5	21.1	8.8	.....	.....	11.4	3.5	17.7	25.9	4.1	20.8
Cagayan, Misamis	2.3	8.9	.....	2.8	35	15.7	30	9.4	1	.....	1.5	3.8	5.6	1	.....	2.5
Dapitan	15.7	1	4.1	2.5	65.3	26.9	9.4	7.4	.....	.....	5.8	.....	17	.8	.....	.5
Ampayon, Butuan, Agusan[a]	*	*	*	*	*	*	*	*	*	*	*	*	6.8	5.3	.3	2.8
Butuan	.8	6.6	13.5	6.6	9.2	9.7	9.4	5.6	4.6	.....	.3	9.4	3	4	3.3	1.8
Mambajao	.....	.....	3	13	88.2	7.6	.....	.....	53.1	5.8	.....	4.1	.....	.....	.....	46.2
Dumaguete	10.2	6.6	.....	.....	19.3	.....	.....	2.8	.....	.....	.....	.....	19.8	.....	1.3	.....
Yap, Western Carolines	32	.3	.5	6.6	4.1	24.7	1.3	4.8	4.6	14.5	6.1	10.7	.....	.....	.5	11.5
Tagbilaran	.....	16.1	.3	64.1	23.4	.3	.6	1.8	1.6	21.9	.....	.....	26.4	.....	.....	3
Iwahig	.....	15.8	5.8	3.6	1.9	59.4	19.3	.....	.3	2.8	1.1	1.5	1	.....	3.3	.....
Surigao	15.2	.3	13.5	.....	.....	57.9	.....	3.3	6.4	.3	2.1	.....	.....	.....	.5	.....
Maasin	.....	.....	.....	.....	.....	27.4	.....	.....	.....	15	.....	.....	.....	.....	.....	.....
Cebu	.8	3.3	16.6	16.6	39.1	5.8	2.3	3.3	4.3	60.2	.....	.....	26.7	3.6	.....	.....
La Carlota, Oriental Negros[a]	15.8	33	.3	21.6	18.3	12.4	1.3	.....	51.6	45	1	.....	.3	3	2.3	17.3
Iloilo	.....	51.9	1.8	44.9	56.9	22.5	.....	.....	10.1	10.2	.....	.....	.....	.....	.....	.....
San Jose Buenavista	3.1	53.6	.8	5.1	49.8	45.8	5.3	.....	.3	82.3	32	.....	2	1.1	24.6	2.3
Cuyo	2.3	38.3	55.7	17.3	10.9	46.5	7.4	.....	.....	19.9	.....	.....	.....	.6	2.3	9.7
Lucena, Iloilo[a]	.....	29.2	2.3	2	42.7	18.3	.....	4.8	18.3	27.9	.....	.....	7.6	.....	.....	.....
Ormoc	16.6	.....	36.8	82.8	41.6	11.4	.....	1	2.8	2.8	2.3	.....	.....	2.5	.3	6.6
Guiuan	21.3	7.1	21.1	13.7	3.3	.....	1	31.7	17.8	2	.....	.....	.....	6.9	.5	1.3
Dueñas, Iloilo[a]	.....	11.5	29.4	9.7	25.4	2.5	.....	.....	34.3	14	.....	.....	.....	20.3	.....	7.4
Bitaogan, Iloilo (Railroad Iloilo to Capiz)[a]	1.3	36.3	4.8	24.9	5.8	1.5	.....	7.8	52.8	31.7	8.1	.....	.....	.....	.....	.....
Lapus, Iloilo (Railroad Iloilo to Capiz)[a]	.....	55.4	4.6	39.4	57.6	30.8	.....	.....	11.7	19.8	.....	.....	.5	.....	.....	.....
Tacloban	.8	7.2	.8	4.4	.3	.....	9.4	44.2	5.3	.....	.....	1	.....	3.3	20.4	.....
Dumarao, Capiz[a]	.....	3.8	.....	13.2	9.4	.....	.....	1.8	13.2	80.5	19	.....	33	16.5	5.1	3
Dao, Capiz[a]	.....	1	1.8	2.8	16.1	.....	.....	34.1	.8	19.1	6.6	1.3	3	.8	.....	.....
Capiz	.5	7.9	5.4	2	6.3	19	.....	6.4	.....	2.1	4.3	.....	29.2	9.4	.3	.....
Borongan	2.3	13.7	18.3	2.8	39.9	3.3	1.5	1	12.2	.....	.....	.....	.....	1.3	6.6	.....
Catbalogan	13.7	3.6	40.1	.....	4.1	.....	.....	24.6	4.9	.....	.....	.....	11.9	.....	.3	13.7
Calbayog	12.7	.....	18	11.8	8.2	.....	1	1	15	1.1	.8	.....	9.7	3.6	11.9	5.1
Masbate	.....	.5	.....	.5	41.1	.....	.3	3.5	.....	8.6	.5	1.3	30.7	.....	.....	.....
San Jose Estate, J. Abello D-13, Mindoro[a]	17	28.7	3.6	23.4	12.2	16.7	21.9	21.1	.....	.....	27.4	.....	.....	.....	.....	.....
San Jose Estate, Tamaraw Plantation, Mindoro[a]	1.3	35.6	5.1	35.8	4.9	39.4	28.4	11.5	8.9	13.2	9.6	2.1	.....	.....	5.3	9.1
San Jose Estate, San Agustin, Mindoro[a]	.....	10.2	7.4	2.5	7.6	50.3	24.6	2.5	.....	16	16.3	9.6	.....	.....	3.3	.....
San Jose, Mindoro[a]	.3	34.8	1.5	14.8	21.1	31.3	42.1	6.8	.....	20.8	13.7	.....	.....	.....	.5	.....
San Jose Estate, Tunnel D-12, Mindoro[a]	.....	24.9	.5	13.2	12.7	14.2	32.5	8.7	.....	35	5.4	.....	.....	.....	.....	.....
Romblon	16	14.5	11.7	.3	74.2	23.1	6.4	.....	6.3	23.1	2.8	.....	.....	17.3	2.3	.....
Batag	1.3	20.3	10.2	10.7	18.3	5.8	.....	.....	48.5	5.8	.....	1.5	.....	2.5	.....	.....
Sorsogon	16	16.2	14.8	21.1	12.7	.....	45.5	8.1	.....	3.8	.....	.....	15	8.6	.....	.....
Legaspi	8.6	59.5	29.6	11.4	12	.....	.....	.8	.....	31.8	1.3	.....	6.4	2.5	.....	.....
San Miguel Estate, San Miguel Island, Tabaco, Albay[a b]	.....	28.7	18.3	23.6	3.6	.....	.8	.....	.....	6.4	.....	.....	1	1.5	.....	.....
Sumay, Guam	6.4	5.1	6.4	3.8	7.1	.....	14.5	.....	3	.....	.....	2.5	27.2	.....	.....	.....
Calapan	30.7	6.9	2	.3	41.9	3.8	13.2	.....	.....	1.8	32.2	22.1	23.4	.....	.....	.....
Virac	.....	9.2	29	19	13.2	.....	.....	.....	.8	6.9	.....	.....	.3	.5	.8	.8
Naga	.....	12.7	16	4.6	21.4	.....	2	14.9	4.3	2	.8	.....	30.2	.....	3.8	2
Tigaon	.....	9.1	5.8	2.5	1	.3	20.1	.....	.3	8.1	.1	1.3	2	.....	.5	.....
Batangas	.....	35.1	.....	.....	19.6	.8	21.1	.....	.8	5.8	5.8	.....	.....	.....	.....	.....
Lucena	5.6	.5	.....	1.5	12	6.6	4.5	.....	.....	5.1	9.1	.....	3.3	.....	1.5	.....
Atimonan	.....	6.3	.....	10.1	9.4	5.9	.....	6.6	.8	2.6	.8	.....	.....	.....	28.4	.....
Ambulong, Tanauan	.....	.....	.....	.....	9.9	5.6	2	.....	2.3	6.6	1.8	.....	.....	.....	2.3	.....
Canlubang, Calamba	.....	.....	2.5	.....	10.2	.....	.....	.5	.....	37.4	1.5	2.8	17.2	19.6	8.6	.....
Paracale	1.3	37.4	26.7	2	.....	2.1	.....	12.2	.....	.5	.5	.5	25.6	.....	3.3	.....
Santa Cruz, Laguna	.....	.....	18.3	2	1.1	7.2	.....	3.8	3.5	6.9	8.4	5.9	.....	.....	.3	.....
Fort Mills, Corregidor[a c]	.....	10.7	.....	.....	2	.3	11.9	.3	.....	27.4	10.2	.3	.5	.....	7.4	.....
Manila	.....	11.9	.....	.....	9.4	17.8	.3	11.5	.....	5.3	2.3	8.7	.....	.6	.....	.....
Antipolo	.....	11.9	17.3	.....	19.8	35.8	.....	.....	.....	3.6	5.6	13.5	7.9	.8	.....	.....
Bosoboso, Rizal[a]	.....	.....	.....	.....	1.8	10.9	.....	6.9	1.8	24.9	27.2	.3	3.8	.....	.....	1.3
Montalban, Rizal[a]	1.5	.....	.....	3.3	.....	20.3	9.1	.8	22.9	2.3	6.4	33	3	22.4	8.9	10.7
Hacienda Pintong Sapang, San Jose, Bulacan[a]	.5	.....	9.4	.....	6.6	5.8	.....	4.6	26.9	11.4	10.2	7.6	2	.....	4.1	.....
Mabayuan Dam, Olongapo, Zambales[a]	.....	50.8	8.9	.5	2.5	25.4	13.2	13.2	8.1	13.2	32	4.6	6.4	17	.....	1
Iba	.....	1.8	33.8	.8	1	1.6	.3	4	1.7	3.3	13.5	8.6	3.6	.....	2.3	1
San Isidro	.....	.....	.....	.....	4.1	4.1	17	1	.....	1	3	.3	3.6	.8	.....	.....
Hacienda Luisita, Comillas, Tarlac[a]	.....	.....	.....	.....	.....	.....	57.6	.....	1.3	1.5	7.4	.....	.....	.....	19.6	.....
Hacienda Luisita, San Miguel, Tarlac[a]	.....	.....	.....	.....	12.7	10.4	10.9	.....	.....	.3	.....	.....	.....	.3	4.3	.....
Tarlac	.....	7.6	2	.....	9.1	11.2	16	.3	.....	.....	.....	.....	.....	.....	.....	13.7
Baler	.....	4.8	27.2	7.9	4.8	9.2	42.9	17.1	.....	.....	2.3	3	7.4	.....	.....	.....
Paniqui, Tarlac[a]	.....	18.5	13	11.2	29.5	6.4	21.6	.5	.....	4.6	1.3	.5	.....	.....	.....	22.1
C. L. A. S. Muñoz, Nueva Ecija[a]	.....	1	1.8	.....	9.1	1	.....	1.5	8.1	6.1	16.5	.....	.....	.....	20.8	.....
Dagupan	10.4	.....	.....	5.3	.....	20.6	.....	1.8	.....	.....	36.8	3.3	.5	.....	12.7	53.3
Santo Tomas Mt., Mountain Province[a]	.....	.....	.....	.....	1	4.6	2.3	1.5	.....	.....	1.3	1.3	.....	50.8	27.4	25.4
Bolinao	8.6	.....	5.3	54.6	.....	24.9	.....	20.1	.....	.....	4.8	8.1	1.5	.3	22.9	23.6
Baguio	.....	.....	2.1	8.2	1.1	37.1	.....	1.3	1.5	5.1	8.2	3.3	20.9	.3	10.7	.8
San Fernando, Union	.....	2.4	.....	51.3	.8	3	.3	.....	.....	.5	43.2	3.8	11.7	.....	6.7	7.8
Echagüe	.....	.....	.....	.....	.....	.....	.....	.....	16.5	.....	.....	.....	.....	.....	4.8	.....
Sagada, Mountain Province[a]	8.1	.....	.....	7.6	3	5.6	.....	.....	.....	5.1	3	6.1	23.6	13.2	15.5	22.6
Bontoc, Mountain Province[a]	4.1	9.1	.....	.....	13	8.9	.....	2.8	.....	.5	1.5	.....	20.3	1.3	6.1	14.7
Candon	.....	10.2	4.3	.....	4.8	50.8	59.7	1.3	.....	.....	22.9	.....	41.4	5.3	26.7	5.3
Villavieja, Pilar, Abra[a]	34.8	3.3	1.3	.5	7.6	13.5	27.9	6.4	1.3	19	7.6	41.9	26.7	5.1	8.1	.8
Vigan	6.1	.....	6.3	.....	.1	47	54.6	1.3	.1	.....	43.6	.6	24	10.1	4.1	.....
Tuguegarao	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.5	16
La Paz, Abra[a]	48	.....	.....	37.6	4.1	29.2	9.4	49.3	14.7	.....	21.6	9.4	9.9	3.6	34	6.4
Laoag	.....	.....	.....	.....	.....	5.4	2.8	8.1	6.1	.....	56.4	2.5	26.4	6.1	66	46.5
Aparri	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.8	.5	44.7	1	.....	13.5
Cape Bojeador	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	12.2	16	15	.....	35.6	4.6
Santo Domingo, Batanes	.....	.8	4.4	.....	.....	.....	.....	.....	.7	.....	.....	.....	8.1	.1	.....	.....

* No observation. [a] Voluntary or coöperative station. [b] Rain in 24 hours beginning 8 a. m. [c] Rain in 24 hours beginning 7 a. m.

Daily rainfall at the stations of the Weather Bureau, June, 1918—Continued.

Station.	Day of month.														
	17.	18.	19.	20.	21.	22.	23.	24.	25.	26.	27.	28.	29.	30.	Total.
	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.
Jolo	.....	6.1	.....	18.3	1	.....	31.8	2.8	8.4	.....	.....	4.8	.....	.....	158.1
Isabela, Basilan	.....	9.4	0.5	32	.5	.....	32.5	2.3	2.3	13.2	2	.8	.....	2.5	239.3
Basilan Plantation, Isabela (Basilan)[a]	.....	8.6	.....	22.9	.....	.....	55.6	.....	4.8	10.7	.....	5.1	.....	.....	335.5
Zamboanga	.....	34.6	.....	.3	.....	0.5	1	7.2	.3	14.2	3	.8	.....	.....	136.7
Davao	.....	2.5	.....	.....	.....	39.6	2.8	2.3	.....	5.8	.....	.....	.....	.....	190.2
Cotabato	8.9	11.4	.....	21.6	.....	6.4	4.3	13.2	12.2	78.3	131.1	21.1	.....	6.6	444.3
Camp Keithley, Lanao	10.8	46.9	16	1.5	.5	19.1	5.8	22.8	4.6	9.4	46.9	6.9	0.3	2.4	348.9
Cagayan, Misamis	.....	45.2	.....	.....	2.8	50.8	2.3	4.3	1.5	16.5	1.8	.....	.....	.....	244.7
Dapitan	1.5	2	.....	.....	.5	.....	34	9.1	30.4	115	34	8.6	2	.5	394
Ampayon, Butuan, Agusan[a]	10.2	1.3	.....	3.8	.....	9.1	10.2	.3	1.3	10.2[d]	.....	.....	1.5	.....	63.1[e]
Butuan	21.1	15.2	.8	1.3	.....	16	.3	.8	.....	7.9	4.1	.3	8.6	.3	164.5
Mambajao	.....	49	.....	.....	.....	.5	.....	15.7	.....	16.5	13.2	3.6	.....	.....	319.5
Dumaguete	19	.....	.....	24.6	.....	.....	.....	.....	.....	20.9	18.3	21.9	16.3	.....	181
Yap, Western Carolines	4.6	2.8	3.8	.8	2.8	.....	21.6	20.1	8.9	2.3	.....	.8	8.9	16	215.6
Tagbilaran	1	23.6	.....	.....	18.3	.4	.4	.....	.....	.3	20.9	6.4	.....	.....	230.8
Iwahig	.....	.....	.....	.....	30.2	11.5	1.5	3.3	4.1	14.5	86.1	40.4	11.9	.....	319.3
Surigao	.....	8.4	1.8	.....	7.3	.....	.....	3.8	8.1	41.4	9.6	1.8	.....	.....	181.7
Maasin	38.1	10.2	.....	.....	.....	.....	.....	64	6.1	44.9	21.3	.....	.....	.....	227
Cebu	13	.3	4.1	7.9	37.8	20.4	3.6	.....	1.3	13.7	12.5	.....	5.8	.....	303
La Carlota, Oriental Negros[a]	.5	5.3	.....	1.3	6.9	4.3	26.7	2.3	5.4	27.7	72.2	12.2	16.8	.....	404.8
Iloilo	1.5	5.8	9.7	60.7	11.5	3	.....	1.3	.....	14.7	28.9	26.8	39.1	4.9	406.2
San Jose Buenavista	1	19.6	.3	11.7	18.5	2.5	8.4	34.8	24.4	33.6	27.7	4.9	5.4	2.6	503.5
Cuyo	6.6	4.9	1.3	.....	1.5	.5	5.6	25.4	56.6	20.8	9.1	1	12.7	.....	356.9
Lucena, Iloilo[a]	7.9	7.9	.....	16	2.5	1.5	.....	.....	.....	7.4	50.1	9.7	48.8	5.3	310.2
Ormoc	30	2.8	3.3	1.8	1.5	9.1	.....	1.8	4.3	102.4	17	6.1	1	.....	388.6
Guiuan	.....	5.3	1.8	53.1	50.3	.....	4.1	.....	17.2	31.2	.8	.5	.....	.....	292
Dueñas, Iloilo[a]	5.1	5.1	2.3	.8	5	22.8	.....	50.8	1.8	6.9	41.7	5.6	1.5	.....	303.9
Bitaogan, Iloilo (Railroad Iloilo to Capiz)[a]	17	.....	6.1	10.4	11.2	17	.....	1.3	1.3	8.4	40.1	3.3	1.3	.....	292.4
Lapus, Iloilo (Railroad Iloilo to Capiz)[a]	4.1	3	16.3	70.6	22.4	4.3	.8	.....	.....	18.5	22.1	11.9	31.2	3	428
Tacloban	7.1	7.2	3.8	17.4	.3	.....	.5	20.6	5.8	49.6	43	.....	.....	.....	252.4
Dumarao, Capiz[a]	13.5	5.3	.....	18.3	3	9.1	.....	.....	.....	8.4	39.9	2.8	.....	.....	298.8
Dao, Capiz[a]	14.2	2.5	.....	11.2	52.1	2.3	.....	.....	2.8	17.8	24.1	1.8	.....	.....	216.2
Capiz	19.6	2.5	.6	1.9	3.6	16.2	.....	.....	.....	3.1	20.1	1	.....	.....	161.4
Borongan	6.4	6.9	1.8	25.4	10.2	.....	.....	.....	7.9	52.5	17.5	.3	.....	.....	231.8
Catbalogan	4	4.6	2.5	5.3	6.7	2.8	2	5.9	34.3	142.5	80.3	10.2	.....	.....	418
Calbayog	6.1	27.7	5.1	.3	5.3	13.7	.....	6.1	17.8	114.7	119.9	3.8	1.5	.....	421.9
Masbate	4.1	.....	.....	.....	.....	.....	.....	.....	22.3	71.6	170.1	27.2	.....	.....	382.3
San Jose Estate, J. Abello D-13, Mindoro[a]	.....	16.2	3.6	.....	.....	.....	.....	.....	9.1	49.3	92	94.2	26.6	10.4	473.4
San Jose Estate, Tamaraw Plantation, Mindoro[a]	8.9	.....	.....	.....	5.3	.....	.....	1.5	3	49.6	105.1	42.6	18.8	15.7	460.7
San Jose Estate, San Agustin, Mindoro[a]	.....	.....	6.4	7.4	.5	.....	.....	8.1	9.7	97.2	179.1	35.6	18.1	21.6	534
San Jose, Mindoro[a]	2.5	5.8	.....	.....	1	.....	.....	38.1	2	45.4	181.1	35	20.8	26.7	546.1
San Jose Estate, Tunnel D-12, Mindoro[a]	8.1	6.1	.....	.....	5.1	1	.....	7.9	3.8	16	225.8	50.8	30.2	30	531.9
Romblon	.5	2	25.4	12.2	.8	7.2	.3	.....	.....	7.9	50.1	12.8	21.6	.3	339.1
Batag	12.7	1.5	.....	5.3	10.7	.....	.....	.....	15.2	148.5	64.7	5.1	.....	.....	388.6
Sorsogon	3.8	6.1	10.7	2.3	2.3	.....	.....	.....	12.4	52.2	.....	.....	.....	167.1[f]	418.7
Legaspi	2	.....	2.3	10.4	5.9	.....	.....	.....	.3	97.6	125.9	74.5	14.3	12.7	509.8
San Miguel Estate, San Miguel Island, Tabaco, Albay[a b]	16	2	5.8	20.6	.3	1.3	.....	.....	.....	92.5	101.6	19	3.6	.....	346.6
Sumay, Guam	.....	.....	.....	.....	.....	16.5	36.9	23.4	5.6	2.5	5.6	.....	.....	10.7	177.2
Calapan	.....	13.2	8.9	14.8	18.3	2.5	.....	.....	.....	7.9	15.8	62.7	12.2	2.3	336.9
Virac	.....	1.8	.5	15.2	2.6	.....	.....	.....	9.1	102.5	178.9	60.8	7.1	.5	459.5
Naga	.6	.....	20.2	.....	2.3	.3	.....	15.7	.....	112	87.3	72.6	4.1	.8	430.6
Tigaon	3.6	2.5	3	4.3	.5	.....	.....	.....	7.9	106.7	313.7	187.2	1.8	.5	682.8
Batangas	1.5	2.8	.....	.....	.....	.....	.....	.....	.....	28.7	56.7	160.5	18.5?	*	357.7[g]
Lucena	.....	2.5	2.5	.....	1.3	.....	.....	.....	.....	13.7	33	112.3	29.2	.....	244.2
Atimonan	.....	2.8	1.8	.....	9.9	9.6	.....	1	.....	27.7	50.6	109.3	16.1	.....	299.7
Ambulong, Tanauan	.5	1.8	.....	2	11.7	.....	.....	.....	.....	2.8	18.8	216.2	34.9	1.5	320.7
Canlubang, Calamba	7.4	.....	.....	2	.....	.....	.....	.....	.....	3.8	19	67.6	58.7	1.8	260.6
Paracale	7.4	.....	13.5	11.7	.5	.....	2.5	.....	.....	84.4	119.8	62.3	1.6	.....	415.8
Santa Cruz, Laguna	1	1.8	.5	4.1	.8	.....	1.5	.....	.....	9.9	32.7	115.6	63.5	.5	289.3
Fort Mills, Corregidor[a c]	9.7	.....	.....	.....	.....	.....	2	26.7	.....	3.8	52.6	351.8	44.4	11.7	573.7
Manila	.....	.....	.....	.....	.5	.3	4.2	.....	.....	8.2	7.4	35.6	88.4	12.3	224.7
Antipolo	.....	.....	.5	.....	.8	2.3	.....	.....	.....	17.8	27.4	171.2	73.6	4.6	414.4
Bosoboso, Rizal[a]	1.3	.....	.3	.5	2	.8	1.5	.....	.....	10.2	13.5	51.6	50.8	.....	213.2
Montalban, Rizal[a]	1.3	.....	.....	.....	.....	.5	.....	3.6	2	.....	15.7	16.5	71.6	136.9	392.7
Hacienda Pintong Sapang, San Jose, Bulacan[a]	13.7	.....	.....	.....	.....	7.9	1	35.6	.....	19.8	.....	43.7	87.9	12.4	311.1
Mabayuan Dam, Olongapo, Zambales[a]	5.3	3.8	.....	.....	1.5	3.8	4.6	8.4	1.1	2.5	17.2	111.3	252.5	53.6	713.2
Iba	18.8	.....	7.9	.8	5.6	25.9	26.7	48.8	.....	6.1	10.7	99	194.8	26	548.4
San Isidro	.....	.....	.....	.....	.....	20.8	14	.....	.....	40.4	7.7	23	106.6	46.9	294.3
Hacienda Luisita, Comillas, Tarlac[a]	.....	.....	.....	.....	.....	1.3	27.9	.....	.....	2.5	4.3	.....	124.5[h]	.....	247.9
Hacienda Luisita, San Miguel, Tarlac[a]	7.4	1.5	.....	.....	.....	13.2	2.5	.....	.....	.....	5.1	20.1	73.4	12.4	174.5
Tarlac	.....	3.8	.....	.....	.....	.....	.....	.5	2.5	5.1	8.4	24.1	53.3	8.4	166
Baler	1.3	.3	2.3	6.6	.....	1.3	.....	.....	.....	3	6.1	14.5	17.8	4.1	183.9
Paniqui, Tarlac[a]	.....	.....	26.2	.....	10.2	48.3	17.8	24.1	13.5	1.3	5.6	8.6	95.8	21.3	401.9
C. L. A. S. Muñoz, Nueva Ecija[a]	2.3	.....	.....	.....	.....	.....	1	6.6	4.1	11.7	10.2	101.4	25.9	.....	229.1
Dagupan	23.1	4.1	20.8	3.8	6.4	.....	2.5	7.6	4.3	1	11.2	43.2	108.8	10	391.5
Santo Tomas Mt., Mountain Province[a]	28.2	1.3	279.4	228.6	30.5	1	25.9	26.2	2.3	1.6	1	1.3	1	48.3	792.2
Bolinao	11.4	1.5	.....	57.2	7.4	.....	21.1	3.3	.....	.8	7.6	.3	106.7	20.3	412.3
Baguio	33.1	47.2	2.3	7.2	.....	13.7	8.8	5.8	3	5	.8	9	496.6	1.3	734.4
San Fernando, Union	12.3	.5	.....	.....	.....	.....	1.8	.8	1	.....	22.9	29.3	112.3	32	344.4
Echagüe	.8	6.1	.....	.....	.....	.....	.....	.....	.....	2.5	23.2	2.6	7.9	.....	63.9
Sagada, Mountain Province[a]	17.5	5.8	20.8	4.8	.....	30	.....	25.6	1.5	83.6	245.1	55.9	128.5	2	734.5
Bontoc, Mountain Province[a]	31.2	.....	16	.....	2.3	2.8	18	.....	13.7	2	6.6	11.2	221	.....	407.1
Candon	.....	.....	7.9	1	.....	.....	7.6	10.9	.....	.....	54.6	10.4	181.6	12.7	519.4
Villavieja, Pilar, Abra[a]	1	8.9	.3	25.7	1.6	.....	23.9	1.3	2.3	.....	1.8	4.1	339.1	8.6	624.4
Vigan	.....	.....	4.5	29.2	1.1	2	5.1	38.4	.....	.....	5.4	15.3	245.3	35.1	579.3
Tuguegarao	19.6	20.3	.....	.....	2	.....	.....	2	.....	.....	8	47.1	52.1	.....	167.6
La Paz, Abra[a]	59.4	14.2	.....	59.7	25.4	13.5	12.2	5.8	6.4	.....	.....	.5	257.8	6.4	738.5
Laoag	4.8	4.1	4.8	52.3	10.9	.....	.8	9.4	.....	.....	.3	49.8	334.8	9.9	708.2
Aparri	20.3	.....	.....	.....	.....	.....	.....	.....	.....	10	48	44.4	167.8	.....	351
Cape Bojeador	.....	.....	.....	.....	.....	4.8	.....	33.5	.8	.....	8.1	22.4	119.1	.....	272.1
Santo Domingo, Batanes	.5	.....	.....	.....	.....	.....	.....	.....	.....	2.3	13	31.8	88.7	.5	150.9

* No observation.

[a] Voluntary or coöperative station.

[b] Rain in 24 hours beginning 8 a. m.

[c] Rain in 24 hours beginning 7 a. m.

[d] Amount of rainfall corresponding to 26 and 27.

[e] 18 days of observation.

[f] Amount of rainfall from 27 to 30.

[g] 29 days of observation.

[h] Amount of rainfall corresponding to 29 and 30.

MAXIMUM AND MINIMUM TEMPERATURES AT THE STATIONS OF THE WEATHER BUREAU, JUNE, 1918.

Day.	Jolo.		Isabela, Basilan.		Zamboanga.		Davao.		Cotabato.		Camp Keithley, Lanao.		Cagayan, Misamis.		Dapitan.	
	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.
	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.
1	30.5	23.4	31.6	22.1	31.2	23.1	30.9	21.9	30.7	22.5	27.3	19	31.6	21.6	33.8	22.8
2	30.7	23.8	32.7	22.3	29.5	23.5	29.5	21.3	30.4	22.6	27.1	19.6	31.8	22.4	32.1	22
3	30.7	23.7	30.1	22.5	29.5	23.4	29.7	21.1	30	22.4	27.3	18.6	31.8	22.6	31.8	23.2
4	30.9	23	31.6	21.1	28.9	22.6	29.2	21	27.9	22.7	25.3	19.5	31.3	22.2	32.3	22
5	29.9	24.3	29.3	22.6	30.5	22.5	29.9	21.8	29	23.1	25.3	20.5	32.2	22	31.7	22.3
6	30.6	23	31.3	21.1	28.7	22.5	29.9	21	31	21.6	26.4	19.6	31.3	22.2	31.1	21.5
7	26.5	22.7	32.1	22.6	29.3	22.8	29.7	21.5	30.4	22.6	27.1	20	31.8	22.3	32.8	22.5
8	30.1	21.5	32.7	22.6	29.2	22.1	30.5	21	31	23	26.8	18.6	31.1	21.5	32.2	22.7
9	30.7	22.1	31.1	21.1	29.3	22.2	27.2	21.8	28	23	25.8	18.9	28.9	22.1	30.1	22.2
10	30.6	22.5	34.1	23.1	28.2	22.4	30.7	21.5	31	22.7	27.6	17.7	31.8	20.7	31.2	22.1
11	30.6	22.8	32.1	22.6	28.5	23.4	30.2	21.8	30.6	22.4	27.1	19	31.3	22	31.5	21.9
12	31.1	23.5	34.6	22.5	28.7	23.5	30.3	21.5	32.3	22.4	27.3	18.5	32.2	21.5	32.5	22
13	31	23.5	32.6	22.2	29.8	24	30.2	21.6	31.5	22.7	27.3	18.5	31.4	21.5	33.5	22.3
14	31.5	23.9	32.9	22.6	31	22.5	28	22	31.5	22.6	27.5	19	30.5	22.8	32.2	23
15	29.9	23.6	34.1	22.1	29	23.5	30.2	22	31.2	23	27.3	18.5	31.2	22	32.1	23.3
16	30.2	21.9	32.5	22.1	28.6	22.9	30.5	21.8	31.5	23.2	27.3	19.5	31.8	21.6	32.4	22.6
17	30.7	23.2	32.1	21.1	29.7	21.8	30	21.5	31.2	23.5	27.3	18.9	31.5	21.5	32.6	22.7
18	30	22.1	31.3	21.6	28.5	22.5	30.9	21.5	31.1	21.9	26.9	18.4	31.7	22.4	31	23.2
19	30.8	22.1	33.9	22.1	31.1	23.5	29.7	21.6	30.6	21.7	26.4	18.8	31.2	21.2	32.6	22.8
20	30	22.3	32.1	21.7	29.5	23.3	30.8	21	31.6	22.6	27.8	18.4	31.5	21.6	33.5	23.3
21	30.3	22.2	32.3	22.6	28.6	23.8	30.2	21.6	31	22.6	27.3	18.4	32	21.9	31.6	25.5?
22	30.8	22.8	31.6	22.1	28.7	23	30.6	21.4	31	23.6	26.9	19.1	31.2	22.6	31	22.9
23	30.4	23.3	30.5	21.7	28.5	23.3	30.2	21.5	30.8	22.9	27.8	19	31.5	21.2	32.7	22.3
24	26.9	23	29.1	21.1	28.5	22.4	29.9	21.6	29.5	22.7	26.3	18.3	30.8	21.8	31.1	23.3
25	29	23	30.1	22.6	29.8	22.7	28.6	20.8	29.7	22.1	26.8	18.9	29.5	22.3	29.1	23.2
26	30.9	22.1	30.6	21.1	29.6	24.1	29.3	21.4	28.3	22.4	24	18.8	25.6	22.2	25.6	22
27	28.2	25.5	31.1	22.6	29.6	23.5	28.6	21.5	28.5	22	22.6	19.7	28	21.9	27.1	21.1
28	30.3	24	30.1	24.1	29.5	23.2	30.2	22.6	26.5	21.6	22.8	19.1	29.2	22.8	29.2	23
29	31.5	26.4	32.1	25.1	29.4	26	30.8	22.8	31.5	23	25.5	20.7	32.8	23.5	31.9	22.8
30	31.9	26.1	33.1	22.6	29.8	24	30.4	22.2	29.8	22.6	26.5	21.1	33.6	23	32.2	23
Mean	30.2	23.2	31.8	22.2	29.4	23.1	29.9	21.6	30.3	22.6	26.5	19.1	31.1	22	31.5	22.6

Day.	Butuan.		Mambajao.		Dumaguete.		Yap, Western Carolines.		Tagbilaran.		Iwahig.		Surigao.		Maasin.	
	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.
	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C	°C.	°C.	°C.	°C.	°C.
1	28	21.9	29.6	23.3			26.4	23.4	31.5	22.8	32.2	20.7	30	22.8	33.6	23
2	31.7	23	29.2	22.8	29.6	23.8	31.7	24	30.6	23	32.7	20.8	28.8	23	34	23.2
3	32.8	22.4	30.1	22.6	30	22.2	31.2	24.5	30.6	22.6	31.7	19.8	30.4	22.4	33.1	23.8
4	31.8	22.2	29.7	23.3	30.6	22.1	32.4	24.3	28.8	23	32.1	19.9	28.5	22.8	32	23
5	31.9	22	30.1	23.2	30.7	23.2	33.4	23	29.4	22.8	30.6	20.5	30.4	23.5	31.8	23.4
6	32.6	22.5	31.6	22.6	29.5	21.8	32.8	23.6	30	23.2	31.1	21.9	30.8	22.8	33.5	22.8
7	32	22.6	30.6	23.2	30	22.8	30.7	23.5	30.6	23.7	29.9	20.5	31.4	22.5	33.8	23
8	30.8	22.2	31.5	22.6	30.6	22.4	30.2	24.5	31.4	22	30.6	20.5	29.8	22.8	29	22.8
9	25.7	22.4	26.6	23.6	28.9	22.2	31.8	23.2	27.2	22	31.1	20	26.4	23.8	32	22.5
10	31.8	21.4	31	21.9	30	22.6	31.2	24	30	22.4	32.5	20.9	30.4	23.1	31	22
11	31.6	22.2	31.4	22.8	29.9	21.7	32.7	23.3	30.5	21.6	29.1	20.9	30.4	23.4	33.5	22
12	33.3	22.5	30.1	23.6	30.9	23.7	28.7	23.5	30.4	23.9	31.3	19.9	32.1	23.2	33.8	22.4
13	31.9	22.1	30	22.3	30.9	22.2	31	23.5	31.2	23.7	31.6	21.1	31.2	22.8	34	23
14	31.9	21.8	30	23.6	29.8	23.7	32.2	24	30.4	22.4	31.6	20.9	31	22.8	34.2	22.8
15	33.6	22.5	30.1	23.6	30.9	24.7	33.2	24	31.4	22.7	32.3	20.6	31.9	23.6	33	21.4?
16	34.2	22.8	31.3	23.5	31.3	23.8	31.2	24.5	30.6	23.4	31.5	20.7	33	22.9	33.3	23.1
17	32.7	22.5	30.6	22.8	30.9	23.5	29.7	23.7	30.7	22.9	32.3	21.1	31.8	23.1	31	21.1
18	33.3	22.3	30.1	24.2	29.8	21.8	31.7	24	29.8	22	32.1	20.1	30.5	23.8	34	22.8
19	31.1	22.2	30.7	23.1	30.6	23	31.7	23.7	30.1	22.1	32.1	21.1	31.3	23.6	33.5	22.2
20	33.2	22.2	30.8	24.2	30.2	22.6	31.8	23.5	30.2	22.6	31.9	20.8	32.2	23.3	31.8	22
21	32.1	22.7	29.9	23.4	29.4	23.4	32.2	25	30.2	23	32.6	20.4	31.4	23.9	34	22.8
22	34.5	23	30.7	23.5	29.5	23.5	32.2	23.3	30.8	23.1	31.3	20.4	31.4	23.8	34.4	23
23	34.1	22.5	31.2	22.4	30	22.7	32.7	24	31.6	22.8	30.9	19.8	32.3	22.7	33.5	22
24	32.7	22.5	31.5	23.1	30.5	21.7	29.2	22.5	30.9	22.9	29.9	21.4	30.4	22.7	34	22.5
25	31.7	22.4	29.7	23.7	32.9	23	27.7	23.5	31.7	23.8	31.3	21.4	29.3	24.3	33.4	22.4
26	28.4	23.5	27.6	24.2	29.9	23.7	30.7	23.5	28.6	24.9	29.2	21.2	27.1	24.8	26.4	21
27	29.1	22.3	28.1	23.3	28.8	22.1	29.2	24	26.7	23.5	25.7	21.4	27.8	24.8	27.5	23.5
28	30.3	22.3	29.2	23.2	27.8	22.7	32.9	24.5	27.7	23.6	28.3	20.7	28.9	24.8	28.8	23.4
29	32.7	23.3	31.8	24.5	30.9	23.6	31.8	24.5	30.3	23.8	28.6	21.9	32.3	24.2	30	23.8
30	33.6	23.1	32.5	24.2	32.7	22.9	31.9	23.7	31.7	23	31.2	21.8	32.1	23.2	31	23.2
Mean	31.8	22.4	30.2	23.3	30.3	22.9	31.2	23.8	30.2	23	31	20.8	30.5	23.4	32.3	22.7

Maximum and minimum temperatures at the stations of the Weather Bureau, June, 1918—Continued.

Day.	Cebu.		Iloilo.		San Jose Buenavista.		Cuyo.		Ormoc.		Guiuan.		Tacloban.		Capiz.	
	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.
	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.
1	33.2	25.9	33.1	24.7	30.6	23	30.8	23.8	32.3	21.8	31.1	22.8	31.4	24	32.3	22.7
2	30.8	24.2	31.4	23	31.3	22.8	31.4	24.9	29.8	22.5	29.4	24.5	30.4	23.5	31.5	24.8
3	31	23.7	32.7	22.4	31.2	21.7	30.7	23.3	32.2	21.9	32.3	21.9	33.5	23	32.8	23.9
4	28.5	23.7	30.5	24	30.8	23.6	30.3	23.6	31.5	22.4	27.5	23.4	30.6	23.7	32.5	24.1
5	28	23.2	28.4	23.5	29.2	22.6	29.3	24.6	30.9	21.7	32.6	22.4?	30.7	22.7	26.9	24.2
6	30.2	23.3	27.9	23	27.2	22.8	27.4	24	31.3	22.9	32.7	23.9	31.9	23	31.7	24.2
7	30.4	23.8	29.9	23.2	30.6	22.6	28.1	23.8	31.8	22.8	33.2	25.7	33.1	22	32.6	23.1
8	30.6	23	30.6	24.2	31.2	22.6	30.3	25.1	32.5	22.3	31.1	22	31.5	23.2	32.5	23
9	29	24	30.5	23.4	31.6	22.6	31.3	23.3	28.3	22.8	26.6	22.2	26.6	23.4	32.1	22.9
10	29.6	22.4	31	23.3	32.2	23.1	29.6	25.6	30	22.6	29.9	22.2	30.1	22.5	30.6	23.2
11	29.4	22.7	29.6	23.3	29.1	22.4	28.4	23.1	31.3	20.8	30.8	23.4	31	22	30.7	23.3
12	30.2	24.3	30.5	23.9	31.4	21.9	31.1	26.1	32.2	22.4	33.1	26.4	33.1	23.5	32.5	23.2
13	31.3	25.3	30.8	24.1	32.2	23.6	30.8	24.5	32.5	22.9	33.5	25	32.7	24.3	33.3	23
14	32.5	22.7	32.1	23.6	33.2	22.6	31.1	24.3	32.4	22.7	32.5	22	33.4	24	33	23.1
15	32.3	25	32	24.4	33.7	23.5	32.8	24.3	32.9	22.4	33.5	24.2	33.5	23.7	32.8	23.5
16	31.1	25.7	32.2	24.8	31.7	23.6	30.8	24.9	33.5	21.9	32.9	23.7	33	24	32	24.5
17	32.7	23.1	31.6	24.2	32.2	23	31.7	24.9	32.4	21.9	33.3	23.2	33.4	23.4	32.4	24.4
18	31.8	23.7	30.6	24.1	31.2	23.9	29.3	23.8	32	22.3	32.5	23	32.7	23.2	29.1	23.6
19	32	24.3	32.5	23.8	32.8	22	31.9	24	32.2	22.4	33.1	22.3	32.2	22.9	33.2	23.9
20	31.3	24.8	31.9	24	32.2	23.6	29.9	24.3	31.5	23.2	30.9	24.2	31.9	23	31.7	24.4
21	31.6	23.2	30.6	23.1	32.2	23.6	30.7	24.7	32.6	22.9	26.6	22.5	28.6	22.8	32.2	24.5
22	31.3	23.8	31.5	23.4	31.7	22.9	30.3	------	32.1	22.4	34	22.9	32.9	23.5	31.6	24.3
23	31.6	23.4	31.8	23.6	32	23.1	31.8	24.4	33.3	21.2	33.6	21.9	33.2	23	32.8	24
24	31.4	23.3	32.6	24.2	31.6	23.4	31.9	24.3	33.4	21.4	33.2	22.6	32.9	23.9	33.2	23.5
25	31	26.1	31.4	24.4	31.7	23.1	30.7	24.7	32.5	22.4	31.7	23.5	30.5	23.8	32.1	23.4
26	27.9	24.9	28.1	24	29.5	23.6	28.4	23.2	31.3	24.4	28.5	24.6	27.5	23.4	29.1	23.6
27	26.6	23.1	26.8	24	27.8	22.7?	27.7	23.3	27.2	23	28.5	24.3	26.2	22.6	26.5	23.4
28	29	24.3	28	23.2	28.7	24.2	27.8	24.2	28.4	23.4	29.2	25.2	28.1	23.6	27.1	22.8
29	29.5	23.9	28.4	23.7	29.7	24.4	28.3	25	30.5	25.4	30.5	26.6	31.8	24.7	30	24.7
30	29.7	24.2	29	24.7	30.2	25.4	28.5	23.7	32	24	31.1	26.6	31.9	23.4	32.1	24.8
Mean	30.5	24	30.6	23.8	31	23.1	30.1	24.3	31.6	22.6	31.3	23.6	31.3	23.3	31.4	23.7

Day.	Borongan.		Catbalogan.		Calbayog.		Masbate.		Romblon.		Batag.		Sorsogon.		Legaspi.	
	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.
	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.
1	32.2	23.3	30	22.1	30	23.3	35.6	26.2	32.8	23.7	31.5	24	33.5	21.8	33	24.5
2	30.4	23.2	28.2	22	27.8	22.4	32	26.6	32.9	23.4	31	23.5	32.5	21	28.8	23.2
3	31.4	22.5	31.6	21.9	30.2	22.8	35.6	24.8	32.5	23.2	30.5	22.6	31	21	31.8	23.1
4	27.9	23.5	29.5	22.7	30	22.9	34.8	25.5	33.8	23.5	29.2	22.4	30.3	20	30.7	23.4
5	32.2	21.7	30.5	22.1	29.2	22.8	31.8	24.5	30.4	23.6	28.5	23	29.5	22	28.8	22.9
6	33	22.2	32.3	22.4	30.2	22.8	31.4	22.6	31.3	23.3	29.8	22.2	31.5	21.7	31.3	23.6
7	32.2	21.9	32.6	22.5	30.8	23	33.4	24	32.4	23.3	31.3	23	32.5	22	32.5	23.6
8	31.1	22.3	31.2	22.8	29.5	22.9	33.4	24	32.7	22.9	30.1	22.5	30	21.3	32.2	23.2
9	27.9	23	27.9	22.7	28.6	23.3	32.4	24.6	31.5	23.2	29.3	23.5	31.3	21.3	30.8	23.1
10	28.9	23	28.2	23.6	27.8	23.4	30	25	30.1	23.6	25.3	22.3	27.8	21.2?	27.1	22.5
11	31.9	22.4	30.6	22	28.5	22.7	31	23.8	31	21.3	29.3	22.8	29.5	20.8	29.3	21.8
12	32.9	21.5	32.7	22.8	30.1	23.2	32.8	24.6	32.9	24	31.9	23.2	32	21.8	32.9	23.5
13	31.9	23.9	32	22.8	30.7	22.8	31.6	24.6	33.4	22.7	31.1	22.3	32.5	22	31.2	24.2
14	31.4	23.4	31.7	22	30.8	22	33	24	33.4	23.8	31.7	22.5	32.8	22	32.2	23.7
15	32.4	23.6	33.5	23	30.6	23.4	32.8	26.4	33	23.3	31.4	24.6	32.4	21.8	31.8	25.9
16	31.5	23.5	31.5	22.5	30.6	22.9	33	26	33.4	24	31.3	24.8	32.7	22	32.4	24.6
17	32	23	31.5	22	30.1	22.7	34	25.5	33.8	23.8	31.4	24.1	32.6	22	32.8	23.6
18	31.7	22.7	32.5	22	29.6	22.5	33.6	24.8	30.6	23.9	30.5	23.8	31.9	22	31.8	24.9
19	31.6	22.6	31.1	22.4	29.7	22.7	32.4	25.6	33	24	30.8	24	32.6	22.3	32.7	24.8
20	31.9	23.9	30.1	22.1	30.2	22.4	33.6	26	33.1	23.3	31	25.4	32.5	22.3	31.6	25.3
21	29	23	30	22.5	30.1	22.5	33.4	25.6	32.9	22.8	30.1	23.5	30.5	22.3	30.3	24.2
22	31.6	22	31.5	21.5	30.2	22.7	33.6	25.8	30.7	23.7	30.6	23.4	32.7	22.5	32.3	24.6
23	31.9	22	31.8	22.3	30.3	22.5	32.6	26	32.4	23	30.9	24.2	33	22.8	32.9	23.6
24	32	23	31.5	21.7	29.7	22.2	35	25.6	33.3	23.1	31.4	24.1	32.4	22.3	32.8	23.8
25	33	22.8	31	23	30	23.1	32	25.4	33.5	23	30.5	23.4	31.3	22.5	32.3	22.9
26	25.7	23.3	25.6	23.4	25.9	23.3	28.6	23.6	30.5	22.9	24.8	22	27	20.4	25.4	22.9
27	26.2	22.6	26.1	23.7	25.7	22.9	28.6	23.5	27.1	23.6	26.8	21.8	27	20	25.8	23.5
28	28.3	24	28.4	24.2	27.8	24.2	28.8	23.8	27.9	23.8	28.4	22.5	------	------	26.5	23.5
29	31.6	26	31.2	25	28.9	25.9	30.6	26	28	23.7	29.9	22.2	------	------	28.8	24.5
30	34.4	22.6	32.3	23.5	29.2	24.2	30.4	26.6	30.5	23.8	30.6	23.5	------	21.5	29.6	24.5
Mean	31	22.9	30.6	22.6	29.4	23	32.4	25	31.8	23.4	30	23.2	31.3	21.7	30.7	23.8

Maximum and minimum temperatures at the stations of the Weather Bureau, June, 1918—Continued.

Day.	Sumay, Guam.		Calapan.		Virac.[a]		Naga.		Tigaon.		Batangas.		Lucena.		Atimonan.	
	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.
	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.
1	29.6	25.2	32	21.2	33.6	22.1	34.5	20.4	33.7	22.5	34.3	24.4	31.4	24.5	31.7	24.9
2	30	24.2	33.5	23	33.1	22	32.1	20.6	31.9	21.6	33.5	23	28.8	22.7	30.9	23.5
3	29.6	24.2	32.6	23	32.8	21.2	33.4	19	31.2	21.2	33.1	23.1	30.9	23.4	32.4	23.8
4	29.8	25.6	32.5	23.5	29.2	21.5	33	20.6	30.4	22.4	34.6	23.3	32.4	23.4	32.2	23.8
5	30.2?	25.4	32.9	23.5	31	21.6	31	20	29.9	21.1	32.4	23.3	31	23.5	31.7	24.6
6	29.8	25.6	30.6	23.5	31.6	21.8	32.5	20.5	31.4	21.9	29.9	23.2	30.2	22.6	28.9	23.8
7	31	26	32.5	22.5	31.8	21.2	33.2	21.3	32.2	23.2	31.9	23.6	30.4	23.6	32.1	23.4
8	30.6	24.4	32.4	22.8	32.2	21.8	34.1	20.8	31.4	21.4	31.8	23.6	31	25.5	32.6	24.3
9	30.2	23.4	32.5	22	32.6	21.3	33	20	31.6	20.4	32.8	22.4	32	23	30.3	23.2
10	31	24.6	32	23.6	28.3	21.5	30.3	21.2	27.8	22.3	32.4	24.8	32	23.2	31.2	23.4
11	30.8	24.2	32	22.5	30.5	21	32.3	20.4	29.7	21.2	31.4	23.8	30.3	21.9	30.6	23.5
12	31	25.8	32	22	32.4	21.4	33.7	21.7	31.8	22.6	31.8	22.4	30.6	22	32.7	23.2
13	31	24.8	32	22	33.3	23	33.8	22.2	31	22.1	31.8	23.3	32	23.7	34.2	23.8
14	31	24.4	32	22.4	32.7	21.6	34.2	20	32.1	22.1	34.5	23.8	30	24	32.7	23.9
15	31	23.6	32.3	23.5	33.5	21.7	34.9	21.5	31.8	22.7	33.8	24.1	28.5	23.5	31.8	23.9
16	31.2	23.6	33	23.5	33.3	21.6	34.5	20.9	32.5	23.1	33.5	23.6	34.5	23.3	31.9	24
17	30.6	26	31.6	23.3	32.8	22.3	34	20.1	32.6	22.3	32.9	24.8	32.2	23.2	32.5	23.9
18	30.6?	26	33	24	33.6	21.2	34.5	20.7	31.6	22.5	33.5	24.2	34	23.4	31.3	24
19	31.4	25.8	32.6	24.1	33.5	21.8	35.4	20.5	31.4	23.2	34.2	24.3	32	23.4	32.7	23.1
20	31?	26.2	32.5	23.5	33.5	22	34.1	20.4	31.4	22.6	33.6	24.2	32	24.1	32.4	24.1
21	31	25.8	32.6	23.5	30.8	21	33	20.6	31.4	22.1	33.7	23.4	27.5	23.6	31.4	23.9
22	31.2	25.4	30.2	23	32.5	21.3	34.1	21	33.2	22.4	32.2	23.7	28.5	23.8	28.8	23.7
23	31	23	32.8	23	32.3	21	34	20.1	32.1	22.3	34.2	22.9	31.6	23.3	32.8	23.2
24	30	23.6	32.5	22.5	32.8	20.8	35.4	19.6	32.8	21.5	35.2	22.8	32.2	22.6	32.4	22.9
25	30	23.8	33.1	22.1	33.2	20.6	34	20.4	32.8	19.9	33.2	23	33.8	22.4	33.3	23.2
26	29.6	23.4	31.4	22.7	26.8	21	25.5	19.6	28.4	20.1	32.7	22.7	26.7	22.7	29.8	23.6
27	29.6	24	32.5	23	27	21.2	27.2	21.1	27.4	21.8	27.5	25	27.4	23.1	28.7	23.6
28	30.4	25	29	24.1	26.6	21	27.5	22	25.8	21	27.4	24.1	24.4	23.6	26.6	23.2
29	30.2	24.8	27.9	23	29.5	21.3	28	22.7	27.4	23.3	.....	23.9	24.8	23.5	25.7	23.6
30	30.4	24.6	30.6	22.1	30.4	22	30.1	22.6	29.1	23.5	.....	.....	28.9	22.2	29.9	24.2
Mean	30.5	24.7	32	22.9	31.6	21.5	32.6	20.8	30.9	22	32.6	23.6	30.4	23.3	31.2	23.7

Day.	Ambulong, Tanauan.		Canlubang, Calamba.		Paracale.		Santa Cruz, Laguna.		Manila.		Antipolo.		Iba.		San Isidro.	
	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.
	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.
1	34	24.9	31.9	23.2	31.2	23	33	23.2	33.2	23.2	34.2	21.5	33.3	23.9	34.1	23.7
2	36.2	23.8	34	22.2	31.4	23.2	34.3	23	33.5	23.4	33.5	21.6	33.3	23.9	35	23
3	35.3	24	33.4	22.3	31.2	22.6	33.3	23.2	33.7	22.6	34.3	21.8	32.9	22.3	34.6	23
4	35.3	25	32.2	23.2	31.2	24.7	32.1	23.1	34.1	23.5	35.6	22	33.1	22.8	34.4	24.3
5	35	24.3	33	23	31.8	24	32.1	23.4	33.3	24	33	22.5	31.8	23.9	33.6	23.3
6	31.2	23.2	31.9	22.6	30.9	24	30.3	22.8	30.8	23.2	30.2	22	32.4	22.2	33	22.5
7	30.8	23.9	32	22.5	31.3	23.8	33	23.3	32.6	23.6	32.6	22.3	31.9	24	33.2	23.5
8	31.7	24	33.3	23.6	31.3	23.5	32.8	23.5	31	23.9	30.8	22.5	30.4	24	32.2	24.4
9	34.2	21.9	33.6	22.2	31	23.2	32.8	22	33	22.5	34.6	21.1	32.3	23.2	33.5	22.8
10	30.4	24	32.9	22.9	30.8	24	33.1	23	32.2	23.9	31.7	22.9	30.8	23.6	33.4	23.8
11	31.2	23.9	31.7	23.2	31.2	23.5	32	23.2	30.8	24.3	30	23	30.2	24.1	31.8	23.6
12	32.6	23.4	32	22.5	34.1	23.3	33.1	22.6	32.5	23.3	32.3	22.4	31.1	23	32.4	23.4
13	33.1	23.7	31.4	22.7	32.6	24.4	34.6	22.8	32.7	23.9	34	22.7	31.2	23.6	34.8	23.6
14	34.3	24.4	34.4	23	22	23.4	33.9	23.5	34	24.1	33	23	31.9	23.2	34	23.6
15	33	24	31.9	23	31.5	24.5	32.6	23.7	33.8	23.9	34.3	22.5	32.3	22.5	34.8	24
16	36	24	33.4	22.8	32	24.3	33.4	23.5	34.7	23.8	34.9	22.4	32.7	23	35.6	23.4
17	34.2	24.9	33.2	22.6	32.5	24	33.6	24	32.4	24	32.6	23	32.4	23.5	34	22.6
18	35.3	24	33.3	22.4	32	24.4	33.3	22.3	35.1	22.8	36.3	22	31.7	22	34.6	22.3
19	34.9	24.1	33.5	22.8	32.2	23.8	33.6	22.9	33.1	23.6	34.8	22.1	32.6	22.7	35.1	23.2
20	32.1	24.9	33.4	23	32.2	24.2	32.3	24.4	33	23.7	33.2	22.7	33.2	22.5	33.9	22.5
21	34.2	24	32.6	22.9	31.2	24.1	31.7	23.6	33.7	22.9	34.7	22.2	33	23.4	34.9	22.8
22	32.4	23.9	32	23.1	31.5	24	31.6	23.6	32	23.4	32.5	22.5	32.6	23.1	36.4	22.4
23	34	23.9	33.8	23.8	32.6	23.9	34.6	23	34.5	23.2	34.8	21.8	32.4	23.6	35.5	23.6
24	32	23.7	33.9	22.3	32	23.5	34.1	22.1	34.8	22.5	35.3	22.5	31.5	22.7	34.6	23.1
25	34.8	23.3	34.1	21.9	31.8	23.8	35.1	22.4	33.1	24	35.2	22	31.4	23.1	34.5	23.5
26	32.7	23.9	31.8	22.3	28	23.5	32.7	22.8	32.2	24.5	32.7	23.1	32.2	22.7	34.1	23.4
27	28.8	24.2	29.2	22.8	26.8	24.5	29	23.8	28.6	24.5	26.3	23	29.5	24.2	27.4	23.9
28	28.5	24	28.8	23.8	25.7	24	26.8	24	29.1	25.1	26.7	23.3	31.9	24	30	24.3
29	26	24.3	26.2	22.8	26 .	23.9	25.5	23	27.4	23.8	24.8	21.7	26.8	23.6	26	22
30	27.7	24.3	29.1	23.3	31.8	24.7	30.1	23	30	23.9	28.8	21.5	29.4	21.5	26.5	21.5
Mean	32.7	24	32.3	22.8	31.1	23.9	32.3	23.2	32.5	23.6	32.6	22.3	31.7	23.2	33.3	23.2

[a] The minimum temperatures of this station are not very reliable: they seem to be too low.

Maximum and minimum temperatures at the stations of the Weather Bureau, June, 1918—Continued.

Day.	Tarlac.		Baler.		Dagupan.		Bolinao.		Baguio.		San Fernando, Union.		Echagüe.	
	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.
	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.
1	36	23.7	33.5	21.6	37	23.8	35	24.4	26.3	14.7	34.3	24	37.9	20.5
2	37.2	22.5	33.5	21.7	33.1	23.6	33.5	23.5	26.5	15.8	33.7	24.8	37.3	22
3	36.6	23.4	32.7	22.6	35.5	23.2	34	23.6	24.5	15.9	34.4	23.2	37.8	22.4
4	35.5	23.5	32.8	23.1	36.6	22.5	33.9	24.9	25.2	15.8	36	24.2	38	22.5
5	34.6	23.8	31.8	22.6	34.4	24	32.8	22.5	24.9	15.2	33	23.5	37.3	22.2
6	35.6	23.3	31	22.6	33.9	23.2	33.9	24.8	24.8	15	33.9	23.3	36.5	21.6
7	32.6	22.8	31.5	22.7	34.7	24	34.1	24.5	23.3	15.6	34.2	23.8	36.5	22.5
8	32	23.5	31.9	23.5	34	24.4	32	25.3	23.6	15.5	35	23.5	37.2	23
9	34.2	22	32.3	21.9	36	23.2	34	24.5	24.7	15	34.8	23.5	37.6	23.2
10	34.6	23.7	32.5	22.8	33.3	24	32	24.9	23.4	15.4	33.1	24.9	37	22.2
11	34.3	24	31.8	23.4	33.2	23.9	31.6	24.9	23.4	15.3	33	25	35.6	23
12	33.4	23.3	33.2	22.7	33.1	23.7	31	23.6	23.4	15.2	33.5	23.4	37.1	22.2
13	34.6	23.5	33.4	23.4	35.6	23.8	32.4	24.3	24.3	15.5	35	25	37.1	23.8
14	34.7	23.2	32.1	24.5	35.8	23.6	33.5	24.5	25.3	15.9	34	23.8	36.7	23.5
15	36.2	23.7	32.7	22.3	36.9	24.3	33.3	24.1	24.8	15.3	33.5	23.6	38.3	23.1
16	36.2	23.5	33.1	22.1	36.4	21.5	33.7	22.5	26.2	16	33	23	38.5	23
17	35	22.5	32.4	22.7	35	23	32.3	22.3	26.1	14.7	33	24.3	37.7	22.6
18	34.4	22	32.6	22.8	35	22.5	33	23.5	24.6	15.4	32.9	22.3	37.9	21.8
19	35.6	23	33.4	22.7	35.6	23.2	34.4	24.3	25.3	14.2	33.5	23.3	38.5	21.5
20	35.4	23.1	32	23.6	35.3	22.5	33.6	24.8	25.3	15.4	33.7	23.3	37.9	22.1
21	36.5	23	32.6	21.7	35.7	23.8	33.7	23.6	24.6	15.6	33.9	24.8	38	21.4
22	36.4	23.4	32.9	21.9	35.6	23.5	33.2	24.5	25.4	15.4	34.1	23.9	39.1	22
23	35.4	23.8	32.9	23.5	34.9	24.5	32.7	25	23.8	15.9	33.6	23.5	39	22.4
24	35.7	23	32.7	22.7	34.6	24	------	------	23.2	15.2	33.3	23.6	38	23
25	35.5	23.6	32.9	22.1	35.2	23.9	------	------	23.8	15.4	34.1	23	39	22.6
26	35.7	23	33	22.3	34	24.1	------	------	23.3	15.6	33.8	23.6	37.1	25
27	30.2	24	30.9	24	31.2	24.8	32	26	22.1	16.4	32.4	24.9	31.6	24.4
28	32.6	23.4	30.1	24.1	32.1	25.2	31.9	25.6	22.9	16.7	34	24.2	31.5	24.1
29	25.4	23.2	28.5	24.9	28	23	29	22.5?	18.3	13.5	31.5	24.5	29.6	23.7
30	28.4	22.2	29.6	22.4	29.7	22.1	30.6	23	20.3	12.4	32	20	32.3	22
Mean	34.4	23.2	32.2	22.8	34.4	23.6	32.9	24.1	24.1	15.3	33.7	23.7	36.8	22.6

Day.	Candon.		Vigan.		Tuguegarao.		Laoag.		Aparri.		Cape Bojeador.		Santo Domingo, Batanes.	
	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.
	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.
1	35	25.5	33.8	22.7	38.2	24	35.4	23.9	34.3	23.2	33.2	25.4	34.2	24.5
2	35.5	24.8	33.7	24.3	38.8	23.7	35.1	24.6	34.3	24.3	33.6	25.8	34.6	25.1
3	33	24.5	32.6	25	38.5	24.3	34.8	23.8	34.5	24	33.5	25.4	34.1	24.6
4	33.2	25.1	33.3	24.8	38.5	24.5	35	23	35.5	24.3	33.8	25.6	33.5	25.5
5	33.6	25.2	33	24	39.2	23.8	34.2	23.9	34.8	24.5	33.6	24.4	32.7	25.4
6	33.1	23.9	32.5	23.8	36.7	24.4	34.2	23.2	35.1	24.1	33.2	25.4	33.6	25.8
7	32.5	24.5	31.9	21.8	37.6	24.4	34.1	23	37.4	25	33.6	25.4	34.3	26
8	32.6	25.6	32.8	23.1	38	24.6	33.7	23	36	24.4	33.8	25.3	34	26.4
9	33.4	24.6	32.1	24.5	39.2	24.1	33.3	23	35.3	24.8	33.8	26	34.6	26.4
10	33.5	25.5	31.8	25.5	37.2	23.5	33.9	24	35.1	24.5	33.6	25.6	34.4	26.3
11	33.4	26.2	31.6	23.3	38	24.5	32.4	22.6	33.8	23.5	33.2	25.5	33.2	26.6
12	33.5	23.8	32.2	23.3	38.1	25.1	32.3	21.9	35.8	24.2	32.8	23.5	34.1	24.8
13	33.7	25.5	33	23.3	39.6	25.3	33.8	23.8	35.5	23.5	33.4	24.6	34.7	25.8
14	32	24.6	32	24.5	38.5	24.4	31.9	23	32.8	23.3	31.5	23.4	33.9	24.9
15	33.6	24.9	32.5	24.6	39.3	23.7	33.2	22.8	34.7	23	33.6	25.5	34.2	24.6
16	32.9	24.1	32.5	23.8	38.3	22	32.1	23.1	32.8	21.5	32.7	23	34.5	24.8
17	32.7	26.2	33.3	24.9	37.3	22.5	32.1	24	33.3	21.4	32.3	23	34.7	25.4
18	32.4	24	33.6	22.9	36	21.8	32.1	22.1	33.8	22.3	33	24.4	35	25
19	33.6	24.8	33.8	24.3	36	21.4	32.6	22.9	35.1	22	33.2	26	35.2	26
20	32.6	24.9	32.8	23	37.4	23.6	32.2	22.2	35.1	24	32.8	25.4	34.8	26.1
21	32.9	25.3	32.6	23.9	37.7	23.4	32.3	22	35.3	24.3	32.2	25.4	35.2	26.5
22	33.9	25.5	32.6	24.4	37.5	23.2	32.8	23.1	35.1	24.3	33.2	26	35.2	27
23	34	25	33.1	24	37.7	25.4	32.6	23	35	25.1	33.4	25.6	35.4	26.7
24	33.1	24.8	32.6	24.3	37.3	23.7	31.8	23.1	35	23.7	33.4	25.2	35	26.5
25	32.5	25.4	32.6	24.8	38	24.4	32.1	24	35	24.8	31.5	24.8	35	27
26	32.9	24.9	32.8	24.6	37.3	23.7	34	22.4	34.6	24	33.2	24.6	35.1	24.3
27	34.5	26.5	34.3	26	33.2	24.5	35	24	32.5	24.5	32.9	26.4	32.7	26.7
28	33	25.5	32.6	25.5	29.4	24.5	33.1	25	31	24.7	30.6	24	30.5	25.6
29	31	26.5	27.5	22.1	25.5	23.5	26.6	22.3	27.8	23.3	27	22.5	28.4	25.4
30	30.5	23.4	29.8	21.5	32.1	22.7	30.4	22	30.6	22.3	29.8	20	28.7	24.8
Mean	33.1	25	32.5	24	36.9	23.8	33	23.2	34.2	23.8	32.7	24.8	33.8	25.7

SEISMOLOGICAL BULLETIN FOR JUNE, 1918.

By Rev. MIGUEL SADERRA MASÓ, S. J.,
Chief, Seismic and Magnetic Divisions, Weather Bureau.

EARTHQUAKES FELT IN THE PHILIPPINES.[1]

2, $0^h\ 02^m$ [2, $8^h\ 02^m$]. **Surigao** (NE Mindanao). Earthquake of intensity III. It repeated with the same intensity at $7^h\ 09^m$ [$15^h\ 09^m$].

7, $11^h\ 41^m$ [7, $19^h\ 41^m$]. **Butuan** (N Mindanao). Oscillatory earthquake of intensity II–III, duration 6 seconds.

8, $1^h\ 40^m$ [8, $10^h\ 40^m$]. **Yap** (Western Carolines). Oscillatory earthquake, direction E–W, intensity IV, duration 8 seconds.

8, $20^h\ 16^m\ 06^s$ * [9, $4^h\ 16^m\ 06^s$]. **Central Mindanao.** Earthquake of intensity IV–V felt in the districts of Cotabato, Lanao and Davao. The origin lay in the Celebes Sea, off the S coast of Mindanao.

11, $6^h\ 47^m\ 36^s$ * [11, $14^h\ 47^m\ 36^s$]. **Aparri** (NE Luzon.) Oscillatory earthquake, direction N–S, intensity IV, duration 7 seconds.

12, $7^h\ 47^m\ 11^s$ * [12, $15^h\ 47^m\ 11^s$]. **Ambos Camarines** (SE Luzon). Earthquake of intensity VI–VII felt chiefly in the eastern region of the Isarog Mountain. At $7^h\ 50^m$ [$15^h\ 50^m$] occurred a strong aftershock felt only at distances of about 20 kilometers. Minor aftershocks were frequent during the afternoon and the following night, in the town of Tigaon and the barrios situated on the eastern slopes. At Libod 32 perceptible shocks were noticed. All the shocks had the same character as those felt in October 1917; great intensity, very small extension and a rumbling noise preceding each one. From the barrios of Libod and Lapoc many landslides and cracks were reported; both are situated in the area limited in the south by the Rangas course and in the north by the Malsom, two rivers which very likely run along two old crevices. The Rangas starts from the very bottom of the crater through a great breach of the volcano, while the Malsom begins in a hot spring and solfatara placed at the bottom of a crevice running to the ENE.

It is certain that the origin of the shocks lies in the old volcano: a seismograph located in the town of Tigaon, some 10 kilometers E of it, was disabled during the earthquake of the 12th by shocks evidently coming from the W or from the mountain. The same instrument had recorded nineteen local similar but light shocks during the month of May and six the first eleven days of June.

The cause of so many shocks originated in the eastern side of the mountain probably lies in a readjustment which takes place in the breaks and faults there existing. Such faults could be produced by some lateral eruption or perhaps by a posterior abortive strain which fractured and ruined the oriental section of the volcanic cone.

[1] **The intensity of earthquakes is given in the notation known as the Rossi-Forel scale. The time is that indicated by the seismographs at the Central Observatory whenever the disturbance has been registered by them. This fact is denoted by an asterisk (*). Otherwise the time is that noted by the observer who sent the report. All time indications are in Greenwich mean time (midnight=0^h), insular time being added in brackets for the convenience of Philippine readers.**

At present the only remnants of volcanic action are many hot springs situated near the base of the cone, and a solfatara with some little activity. This issues in the bottom of a deep crevice situated north of the breach of the volcano. In former times it must have been very active to account for the thick layers of sulphur seen specially in the western side of the chasm. Close to the sulfataric vents issues and abundant hot spring very sulphuric, of a high acid taste, which forms the headwaters of the Malsom river.

This crevice and the principal breach have certainly all the appearances of fractures; their direction and starting point show also an accidental origin. While the other water courses start near the top of the cone and follow a radial direction these two have a rather transverse or tangential course.

21, 3h 31m [21, 11h 31m]. **Naga** (SE Luzon). Earthquake of intensity III, duration 4 seconds; preceded by rumbling noise.

21, 15h 29m 23s * [21, 23h 29m 23s]. **E Mindanao.** Earthquake of intensity V–VI, felt in the eastern part of Mindanao. The origin and epicenter seems to have been in the Agusan Valley. It was perceptible within a radius of about 200 kilometers.

22, 18h 07m [23, 2h 07m]. **Basco** (Batan Islands). Earthquake of intensity III, duration 4 seconds.

29, 8h 15m [29, 16h 15m]. **Naga** (SE Luzon). Oscillatory earthquake, direction NE–SW, intensity III, duration 6 seconds.

29, 21h 30m [30, 5h 30m]. **Butuan** (N Mindanao). Earthquake of intensity II–III, duration 9 seconds.

RECORDS OF THE MICROSEISMOGRAPH.

[Time: Greenwich mean. Midnight=0h. Instrument: Wiechert seismograph; 1,000 kilograms. A_N: T_o=6.62, ϵ=2.726, $\frac{r}{T_o^2}$=0.021; A_E: T_o=6.03, ϵ=2.378, $\frac{r}{T_o^2}$=0.037. Alluvium. 2.40 meters above sea level.]

No.	Date.	Character.	Phase.	Hour.	Period.	Amplitude. A_N μ	Amplitude. A_E μ	Remarks.
				h. m. s.				
182	4	Ir	eP	4 10 20				
			L	17 45				
			F	56				
183	4	I	e	17 22 58				
			F	18 16				
184	5	Iv	eP	6 44 12				
			L	44 34				
			M_E	44 36	3		97	
			M_N	44 44	3	134		
			F	52				
185	5	I	e	22 40				
			F	23 13				
186	7	I	e	4 57 38				
			F	5 07				
187	7	I	e	14 44 29				
			F	15 09				
188	8	Iv	eP	15 07 24				
			F	10				
189	8	Ir	eP	20 16 06				Off the south coast of Mindanao.
			S	19 12				
			L	20 50				
			M_E	22 32	10		16	
			M_N	22 41	11	23		
			F	21 37				
190	9	Iv	eP	18 49 12				
			F	52				
191	10	I	e	15 42 33				
			F	16 12				
192	10	Iv	eP	22 49 41				
			F	53				

Records of the microseismograph—Continued.

No.	Date.	Character.	Phase.	Hour.	Period.	Amplitude. A_N μ	Amplitude. A_E μ	Remarks.
				h. *m.* *s.*				
193	11	Iv	eP	6 47 36				Aparri (NE Luzon).
			F	52				
194	11	Iv	eP	19 48 23				
			F	51				
195	12	IIv	eP	7 47 11				SE Luzon.
			L	47 49				
			M_N	48 07	2	766		
			M_E	48 13	2		385	
			F	8 02				
196	15	Iv	eP	5 50 33				
			L	50 57				
			M_E	51 07	4		108	
			M_N	51 28	4	109		
			F	6 00				
197	15	IIv	eP	10 21 44				
			L	22 05				
			M_E	22 17	4		580	
			M_N	22 26	4	531		
			F	39				
198	16	Ir	eP	5 18 58				
			L	21 00				
			F	56				
199	18	Iv	eP	0 54 31				
			F	57				
200	18	Iv	eP	16 55 55				
			L	56 07				
			M_E	56 10	3		47	
			M_N	56 16	3	43		
			F	17 01				
201	19	Iv	eP	1 00 45				
			F	03				
202	19	Iv	eP	6 39 46				
			F	42				
203	19	Iv	eP	20 39 52				
			F	51				
204	20	Iv	eP	5 17 31				
			F	21				
205	20	Iv	eP	7 05 56				
			F	09				
206	21	Ir	eP	5 59 49				
			S	6 03 53				
			L	04 32				
			M_N	05 00	6	37		
			M_E	05 10	6		14	
			F	45				
207	21	Iv	eP	14 30 30				
			F	35				
208	21	IIv	eP	15 29 23				E Mindanao.
			L	31 16				
			M_E	31 22	6		158	
			M_N	32 18	6	171		
			F	16 25				
209	22	Iv	eP	10 52 21				
			F	56				
210	22	I	e	22 25 20				
			F	40				
211	23	I	e	0 45 42				
			F	1 03				
212	23	Iv	eP	23 11 19				
			F	15				
213	24	Iv	eP	2 58 40				End overtaken by following earthquake.
			L	59 06				
			M_E	59 15	3		26	
214	24	Iv	eP	3 01 00				
			L	01 47				
			M_N	02 08	3	21		
			F	13				

Records of the microseismograph—Continued.

No.	Date.	Character.	Phase.	Hour.	Period.	Amplitude. A_N μ	Amplitude. A_E μ	Remarks.
				h. *m.* *s.*				
215	24	I_F	e	14 54 12				
			S	59 10				
			L	15 02 38				
			M_N	03 00	8	16		
			M_E	03 22	8		12	
			F	40				
216	29	I_V	eP	1 32 12				
			F	36				
217	29	I_V	eP	8 04 31				
			L	04 51				
			F	09				
218	30	I_V	eP	8 39 11				
			F	42				

TEMBLORES DE TIERRA SENTIDOS EN FILIPINAS.[1]

2, $0^h\ 02^m$ [2, $8^h\ 02^m$]. **Surigao** (NE de Mindanao). Temblor de tierra de intensidad III. Repitió con la misma intensidad a $7^h\ 09^m$ [$15^h\ 09^m$].

7, $11^h\ 41^m$ [7, $19^h\ 41^m$]. **Butúan** (N de Mindanao). Temblor oscilatorio de intensidad II–III, duración 6 segundos.

8, $1^h\ 40^m$ [8, $10^h\ 40^m$]. **Yap** (Carolinas Occidentales). Temblor oscilatorio, dirección E–W, intensidad IV, duración 8 segundos.

8, $20^h\ 16^m\ 06^s$ * [9, $4^h\ 16^m\ 06^s$]. **Centro de Mindanao.** Temblor de tierra de intensidad IV–V sentido en los distritos de Lanao, Cotabato y Dávao. El origen se hallaba al S de la isla en el mar de Célebes.

11, $6^h\ 47^m\ 36^s$ * [11, $14^h\ 47^m\ 36^s$]. **Aparri** (NE de Luzón). Temblor oscilatorio, dirección N–S, intensidad IV, duración 7 segundos.

12, $7^h\ 47^m\ 11^s$ * [12, $15^h\ 47^m\ 11^s$]. **Ambos Camarines** (SE de Luzón). Temblor de tierra de intensidad VI–VII sentido principalmente en la región oriental del Isarog. A $7^h\ 50^m$ [$15^h\ 50^m$] ocurrió una réplica de intensidad IV sentida sólo a distancias de 20 kilómetros. Durante la tarde y noche siguientes continuaron siendo frecuentes en Tigaon y en los barrios de las laderas orientales del Isarog; así por ejemplo en Libod se contaron hasta 32 diferentes repeticiones. En este barrio y en el de Lapoc, se produjeron numerosas grietas y resbalones de terreno en los sitios pendientes y escarpados; ambos barrios están situados en el bloque o sección comprendida entre dos roturas o grietas representadas por los cauces de los ríos Rangas, que nace en el fondo del cráter o brecha oriental del volcán, y Malsom que tiene su origen en unas termas y solfataras situadas algo más al N. Tanto el temblor de tierra principal como las réplicas que le siguieron presentaban el mismo carácter de los temblores de octubre de 1917; grande intensidad y muy poca extensión, con ruido subterráneo sordo que precedía a las sacudidas del suelo.

Parece indudable que el origen de estos temblores se halla en el antiguo volcán pues en la nueva estación sísmica del pueblo de Tigaon, situado al E a unos 10 kilómetros de distancia, el sismógrafo quedó descentrado y desnivelado por impulsos procedentes del W, o sea del monte. Conviene hacer notar que dicho sismógrafo desde que se montó a fines de abril hasta que quedó inutilizado por el primer temblor del 12 de junio había registrado veinticinco choques débiles del mismo origen; diez y nueve durante el mes de mayo y seis los primeros once días de junio.

La causa de estos repetidos temblores de carácter tan local es casi seguro que está en movimientos de ajuste muy superficiales que tienen lugar en las quiebras o grietas producidas por alguna erupción o quizá por un conato de erupción lateral que causó la rotura de la sección oriental del cono volcánico, dando lugar a que se desmoronase y resultase la inmensa brecha que hoy presenta.

Los actuales restos de actividad volcánica quedan reducidos a unos pocos manantiales termales situados en diferentes sitios al rededor del Isarog, y a una solfatara que emite ya muy pocos vapores, pero que debió ser muy activa en tiempos anteriores a juzgar por los potentes bancos de azufre de sus cercanías. Está situada en el fondo de un barranco, y muy cerca de la misma y de entre los bancos de azufre surge un manantial de aguas sulfúricas, fuertemente aciduladas y de alta temperatura. También este barranco como se dijo de la brecha del volcán, parece deber su origen a una rotura o falla, pues además

[1] **La intensidad de los terremotos se indica conforme a la conocida escala de Rossi-Forel. Cuanto a la hora de su ocurrencia, adoptamos la indicada por los sismógrafos de este Observatorio siempre que los hayan registrado, distinguiéndola por medio** de un asterisco (*). **En caso contrario copiamos la apuntada por los observadores que nos envían las notas. Todas las indicaciones del tiempo se refieren al tiempo medio de Greenwich (medianoche=0^h). Para conveniencia de los lectores de Filipinas se añade también el tiempo insular.**

de su extraordinaria profundidad y angostura tiene también al igual de la brecha una dirección mas bien tangencial que radial con respecto al centro del volcán, cosa que no sucede en los otros numerosos barrancos abiertos por las aguas torrenciales.

21, 3^h 31^m [21, 11^h 31^m]. **Naga** (SE de Luzón). Temblor de tierra de intensidad III, duración 4 segundos; precedido de ruido subterráneo.

21, 15^h 29^m 23^s * [21, 23^h 29^m 23^s]. **E de Mindanao.** Temblor de tierra de intensidad V–VI sentido en toda la parte oriental de Mindanao. Su origen y epicentro se hallaba al parecer en el valle del Agusan. Fué perceptible en un radio de 200 kilómetros.

22, 18^h 07^m [23, 2^h 07^m]. **Basco** (Islas Batanes). Temblor de tierra de intensidad III, duración 4 segundos.

29, 8^h 15^m [29, 16^h 15^m]. **Naga** (SE de Luzón). Temblor oscilatorio, dirección NE–SW, intensidad III, duración 6 segundos.

29, 21^h 30^m [30, 5^h 30^m]. **Butúan** (N de Mindanao). Temblor de tierra de intensidad II–III, duración 9 segundos.

THE GOVERNMENT OF THE PHILIPPINE ISLANDS

WEATHER BUREAU

MANILA CENTRAL OBSERVATORY

BULLETIN FOR JULY, 1918

PREPARED UNDER THE DIRECTION OF

REV. JOSÉ ALGUÉ, S. J.

DIRECTOR OF THE WEATHER BUREAU

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1918

METEOROLOGICAL BULLETIN FOR JULY, 1918.

By REV. JOSE CORONAS, S. J.,
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GENERAL WEATHER NOTES.

Pressure and temperature.—With a few exceptions in the Visayas and Mindanao, the mean atmospheric pressure for this month in the Philippines is somewhat lower than the July's normal, the differences being much greater in the northern part of Luzon. The highest pressures were registered on the 31st, while the lowest took place on the 10th or 11th in northern Luzon, and on the 5th or 6th in the rest of the Archipelago.

The mean monthly temperature is slightly below the normal for this month in almost all the stations in central and northern Luzon: but it is slightly higher in southern Luzon, the Visayas and Mindañao. The extreme monthly temperatures for Manila were 33.2° C. and 22.5° C.: they were recorded on the 31st and 4th, respectively. The absolute maximum and minimum temperatures for Baguio were 24.1° C., 14.1° C. on the top of Mirador, and 24.8° C., 14.1° C. in the valley.

PRESSURE AND TEMPERATURE AT THE FIRST AND SECOND CLASS STATIONS FOR JULY, 1918.

Station.	Pressure.							Temperature.						
	Mean.	Departure from July, 1917.	Departure from normal.	Highest mean.	Day.	Lowest mean.	Day.	Mean.	Departure from July, 1917.	Departure from normal.	Highest.	Day.	Lowest.	Day.
	mm.	*mm.*	*mm.*	*mm.*		*mm.*		°*C.*	°*C.*	°*C.*	°*C.*		°*C.*	
Zamboanga	758.83	+0.75	-------	760.22	31	757.20	5	26.7	+0.5	-------	31.2	17	22	22
Tagbilaran	57.81	-------	+0.13	59.90	31	56.06	5	27.8	-------	+0.4	33.8	22	22.3	20
Surigao	57.54	+ .20	— .04	59.81	31	55.36	5	27.9	+1.2	+ .5	34.2	12	23	31
Cebu	57.68	+ .17	+ .11	59.85	31	55.56	5	28	+ .4	+ .6	32.5	2	23	7
Iloilo	57.70	+ .33	+ .25	59.99	31	55.63	5	27.1	+ .2	+ .3	31.5	2	21.8	7
Tacloban	57.18	+ .07	— .36	59.77	31	54.78	5	27.5	+ .3	+ .2	35.4	22	21.5	14
Capiz	57.19	-------	— .20	59.89	31	55.18	6	27.4	-------	+ .3	34.9	14	22.4	6
Calbayog	57.21	+ .03	— .29	59.89	31	54.80	5	27.5	+ .3	+ .5	31	28,31	22.4	2
Legaspi	56.70	— .05	— .26	59.99	31	54.52	5	27.4	+ .4	+ .1	33.1	23	22.6	5
Atimonan	56.26	— .18	— .43	59.84	31	53.96	6	27.7	+ .7	+ .3	34.5	23,24	22.8	4
Ambulong, Tanauan	56.10	— .38	-------	59.11	31	53.85	6	27	+ .4	-------	33.4	30	23	30
Paracale	56.17	— .25	-------	60.02	31	53.87	6	27.8	+ .8	-------	35	21	23	31
Manila	56.48	— .32	— .73	59.64	31	54.20	6	26.9	+ .8	— .1	33.2	31	22.5	4
San Isidro	56.61	— .26	— .24	59.78	31	54.55	6	26.3	+ .9	— .2	33.5	3	21.8	3
Dagupan	55.43	— .48	— .83	58.40	31	53.17	6	26.7	+ .8	— .3	35	2	22.4	22
Baguio[a]	634.35	— .19	— .43	637.29	31	632.02	11	17.3	+ .2	— .7	24.1	2	14.1	24
Vigan	755.13	— .45	—1.07	758.46	31	752.79	11	26.8	+ .4	— .4	32.6	2	21.5	22
Tuguegarao	54.85	— .62	—1.11	59.04	31	52.26	10	27.7	+ .7	— .1	36.7	9	21.3	23
Laoag	54.99	— .49	-------	58.58	31	52.56	11	26.5	+ .4	-------	32.9	3	22.6	22
Aparri	54.68	— .80	—1.21	59.26	31	51.89	10	28.1	+1.6	+ .4	34.1	18	23.2	23

[a] The barometric readings of this station are not reduced to sea level.

Rainfall.—The total amount of rainfall for this month is smaller than that of the preceding year and than the July's normal in practically all our stations of southern Luzon, the Visayas and Mindanao, although it is generally greater in central and northern Luzon. The monthly rainfall for Manila 621.9 mm. is 15.9 mm. above that of July, 1917,

and 218.5 mm. above the normal. Not less than 2,202.1 mm. of water were collected during this month in the gauges of Mirador, Baguio, an amount which is 1,167.8 mm. above the normal, and 1,022.2 mm. above the total rainfall for July, 1917.

RAINFALL AT VARIOUS STATIONS OF THE WEATHER BUREAU DURING THE MONTH OF JULY, 1918.

Station.	Total.	Departure from July, 1917.	Departure from normal.	Days of rain.	Departure from July, 1917.	Greatest rainfall in a single day.	Day.	Station.	Total.	Departure from July, 1917.	Departure from normal.	Days of rain.	Departure from July, 1917.	Greatest rainfall in a single day.	Day.
	mm.	mm.	mm.			mm.			mm.	mm.	mm.			mm.	
Jolo	12.9	—182.8	—150.4	4	—15	7.1	18	Sumay, Guam	680.5	+333.5	+325.7	18	— 6	266.7	6
Isabela, Basilan	73.6	—120.8	—123.8	10	— 8	33.5	4	Calapan	120.1	+ 27.5	—107	13	— 4	45.7	30
Zamboanga	86.3	— 10.6	— 19.9	7	— 8	51.1	5	Virac	24.3	—112.2	—217.7	8	— 7	11.6	4
Davao	50.4	—215.2	—146.1	7	—13	23.6	19	Naga	106.6	—174.4	—133.8	10	—18	36	28
Cotabato	180.3		—102.1	9		55.8	7	Tigaon	264.9			17		171	25
Camp Keithley, Lanao	73.7			12		25.4	23	Lucena	75.7	—134.4		11	—11	16.3	10
Cagayan, Misamis	75.6	—160.5		10	—11	19.8	7	Atimonan	67.9	— 96.9	—149.7	11	— 8	32.5	3
Dapitan	219.4		+ 57.2	11		76.7	5	Ambulong, Tanauan	248.7	— 44.1		21	+ 2	71.2	9
Butuan	27.1	—126.6	— 96.2	5	—13	19.3	3	Canlubang, Calamba	174.5	—277.6		21	— 4	30.2	28
Mambajao	176.1	— 19		5	— 6	149.9	3	Paracale	102	—242.9		9	—12	62	7
Dumaguete	132.9	+ 39		11	0	49.2	5	Santa Cruz, Laguna	198	— 32.1		23	— 3	59.2	9
Yap, Western Carolines	496.9	+144.6	+104.7	18	— 6	128	3	Manila	621.9	+ 15.9	+218.5	25	— 4	271.5	9
Tagbilaran	27.2		—222.5	4		15.4	5	Antipolo	714.8	+ 3.2		25	— 6	232.2	9
Iwahig	263	— 80.3		14	— 8	127.5	5	Iba	1,016.2	—164.1	+ 22.8	28	— 3	192.5	27
Surigao	37.6	— 82.8	—101.8	8	— 3	12.7	2	San Isidro	608.1	+ 4.9	+242.4	29	— 1	100.4	10
Maasin	162.9	—111.9	— 88.3	9	— 1	39.9	4	Tarlac	479.4	— 81.2	+ 63	28	— 1	49.8	22
Cebu	66.5	—115.6	—100.6	8	— 4	16.5	2	Baler	214.3	— 66.3	— 79	13	— 1	61.2	5
Iloilo	428.7	+204.9	+ 1.8	21	+ 3	70.8	26	Dagupan	904.3	+169.8	+344.7	29	+ 3	213.6	10
San Jose Buenavista	592.4	— 8.2	+ 25.2	21	— 6	152.4	4	Bolinao	719.8	— 19.8	+ 62.4	26	+ 2	118.9	9
Cuyo	206.6	— 7.1	—180.1	18	— 1	50	27	Baguio	2,202.1	+1,022.2	+1,167.8	30	+ 1	254.3	10
Ormoc	50.5	—386.4	—237.1	9	—16	25.9	3	San Fernando, Union	961.6	+151.1	+359.4	29	— 1	152.1	22
Guiuan	64.4	—105.4		7	— 7	40.9	26	Echagüe	138.9	—146.4	— 63.1	14	— 5	49.5	25
Tacloban	48	— 63	—125.7	11	— 5	15.8	3	Candon	1,431.2	+1,052.9	+759.4	27		280.6	21
Capiz	82		—247.7	10		20.9	7	Vigan	1,245.2	+181.9	+557.2	26	— 3	176.1	22
Borongan	49.3	—149.9	—142.3	6	—15	25.1	4	Tuguegarao	132.7	—109.8	— 84.5	14	0	47.3	17
Catbalogan	124	— 66		8	—11	49.6	4	Laoag	1,294	+539.2	+603.5	25	— 1	187	21
Calbayog	163.3	—232.6	— 52.8	10	—12	72.2	4	Aparri	180	— 33.2	+ 10.7	15	— 7	50.2	28
Masbate	108.3	— 21.2	— 81	10	— 8	85.6	4	Cape Bojeador	657.5	+209.9		22	+ 7	143	21
Romblon	55.7	—145.1	—216.6	11	—10	40.4	28	Santo Domingo, Batanes							
Batag	13.4	— 97.3		3	— 8	8.9	4								
Legaspi	113.4	— 87.5	—121.8	12	—12	38.4	27								

DEPRESSIONS AND TYPHOONS.

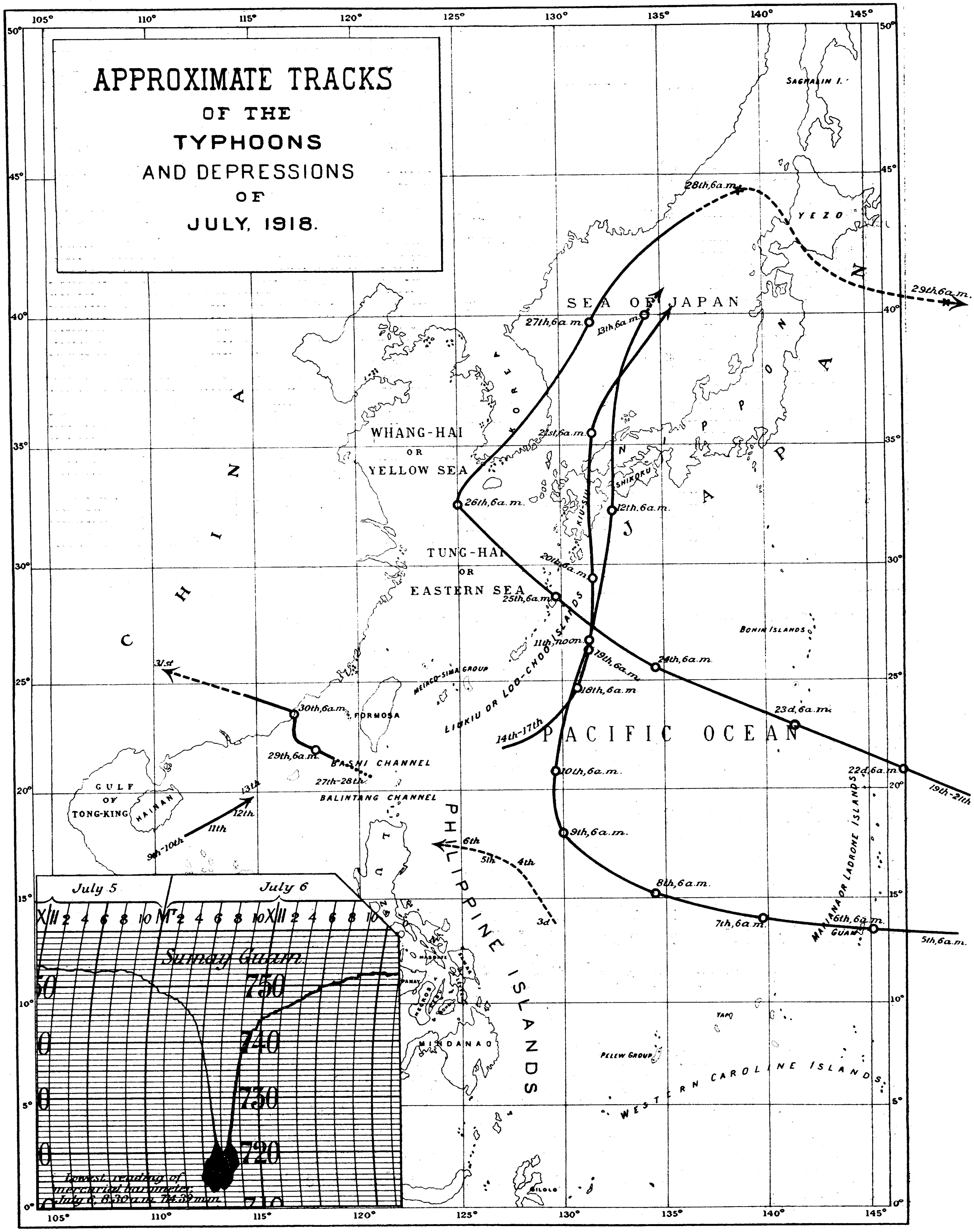
There were no less than six typhoons in the Far East during this month, none of which, however, crossed the Philippine Islands. Their tracks my be seen in Plate IV.

THE GUAM TYPHOON: JULY 5 TO 15, 1918.

We begin with the typhoon that struck Guam in the morning of the 6th as we consider it the most important. The first signs of this typhoon were given by our observations of Guam in the early morning of the 5th, when the cyclonic center was probably situated near 150° longitude E and 13° latitude N. As the typhoon was then well developed already, we have no means to ascertain the region where its origin took place.

The following table contains some of the observations taken at our stations of Sumay, Guam, and Yap, Western Carolines, on the 4th to 8th of this month.

Plate IV.


APPROXIMATE TRACKS
OF THE
TYPHOONS
AND DEPRESSIONS
OF
JULY, 1918.
SEA OF JAPAN
WHANG-HAI
OR
YELLOW SEA
TUNG-HAI
OR
EASTERN SEA
PACIFIC OCEAN
CHINA
JAPAN
KOREA
PHILIPPINE ISLANDS
FORMOSA
BASHI CHANNEL
BALINTANG CHANNEL
GULF OF TONG-KING
HAINAN
MINDANAO
LIUKIU OR LOO-CHOO ISLANDS
MEIACO-SIMA GROUP
BONIN ISLANDS
MARIANA OR LADRONE ISLANDS
GUAM
YAP
PELEW GROUP
WESTERN CAROLINE ISLANDS
SAGHALIN I.
YEZO
SHIKOKU
KIU-SIU
July 5
July 6
Sumay, Guam.
750
740
730
720
Lowest reading of mercurial barometer, July 6, 8.30 a.m. 714.39 mm.

METEOROLOGICAL OBSERVATIONS FOR JULY 4 TO 8, 1918.

Date and hour.	Sumay, Guam, Ladrone Islands.					Yap, Western Carolines.				
	Pressure.	Wind.		State of the sea.	Rain, 24 hrs. beginning 6 a. m.	Pressure.	Wind.		State of the sea.	Rain, 24 hrs. beginning 6 a. m.
		Direction.	Force.				Direction.	Force.		
	mm.		*0-12.*		*mm.*	*mm.*		*0-12.*		*mm.*
July 4:										
6 a. m	756.15	E	1	Calm		755.94	SW	3	Slight	
2 p. m	55.30	E	1	Calm		55.47	SW	3	do	42.7
July 5:										
6 a. m	54.10	N	1	Calm		55.24	SW	4	Slight	
2 p. m	53.17	N	1	Calm	59.7	54.51	WSW	3	do	65.1
July 6:										
6 a. m	41.89	NW	9	Very rough		55.42	W	3	Slight	
7 a. m	29.65	NW	12	do						
7.40 a. m	22.34	S	12	do						
8.10 a. m	19.09	S	12	do						
8.20 a. m	15.39	S	12	do						
8.30 a. m	14.39	S	12	do						
9.20 a. m	28.32	S	12	do						
10 a. m	34.30	S	12	do						
10.40 a. m	38.28	S	12	do						
11.20 a. m	43.26	S	12	do						
2 p. m	45.76	S	10	do	266.7	54.83	W	4	Moderate	61.5
4 p. m	50.24?	S	3	do						
6.30 p. m	53.10?	S	1	do						
July 7:										
6 a. m	53.14	SE	1	Rough		53.25	WSW	5	Moderate	
7.36 a. m						53.45	WSW	4	do	
8.32 a. m						54.10	WSW	6	do	
9 a. m						54.21	WSW	5	do	
11 a. m						53.22	WSW	5	do	
1 p. m						52.36	WSW	5	do	
2 p. m	54.32	SE	2	Rough	111.8	51.73	WSW	5	do	20.1
3.13 p. m						51.71	WSW	5	do	
4 p. m						51.89	WSW	6	do	
5.15 p. m						51.74	WSW	6	do	
6.30 p. m						51.94	WSW	6	do	
8.25 p. m						53.00	WSW	5		
July 8:										
6 a. m	57.29	S	3	Rough		53.14	SW	5	Moderate	
2 p. m	58.12	SSE	1	do	30.5	54.51	SW	5		23.9

It is clear from the observations of Guam that the vortex of the typhoon passed very close to the north of that station, where the barometric minimum observed was as low as 714.39 mm. at 8.30 a. m. of the 6th. The barometer fell about thirty millimeters in three hours. The winds blew with full hurricane force for over five or six hours causing great damage to the buildings, roads, trees, etc. It is considered as one of the most violent storms that have visited Guam for many years.

The observation taken at Yap at 6 a. m. of the 7th as compared with that of Guam of the same day and hour tend to show clearly that the typhoon had been moving on the 6th almost due west with a very slight inclination to the north. The center could be situated at that time in about 140° longitude E and 14° latitude N. It was fortunate for the Philippines that the typhoon began to incline slightly to the north on the 7th, the inclination becoming more remarkable on the 8th until it moved decidedly northward on the 9th. Thus the Manila Observatory was able to say on the morning of the 10th that all danger for Luzon had disappeared in the following words:

July 10, 11.50 a. m.—Owing to lack of sufficient observations, particularly from Japan and the Loochoos, it is impossible as yet to give the exact position of the typhoon this morning, although it seems certain that it has reached already latitude 20° N, thus disappearing any danger of striking Luzon.

The typhoon moved NNE and N after the 10th until it struck the southwestern part of Japan on the 12th, moving northward. The violence of the storm over southwestern Japan seems to have been as great as when the typhoon passed over Guam. Its rate of progress had been more than doubled since the eighth and ninth. Yet, strange as it may seem, it is out of question that, on reaching the central part of the Sea of Japan, the typhoon stopped suddenly, remaining stationary for about two days until it finally filled up on the spot.

In Plate V our readers may see the isobars and position of the center of the typhoon for 6 a. m. of the 6th, 2 p. m. of the 7th, 6 p. m. of the 10th, noon of the 11th, 6 a. m. of the 12th, and 6 a. m. of the 13th. The barographic record obtained at Sumay, Guam, is included in Plate IV.

THE TYPHOON OF THE NORTHERN LOOCHOOS AND KOREA: JULY 19 TO 29, 1918.

Judging from the observations of Guam and the Bonins, it would seem that this typhoon, the second in importance of this month, formed on the 19th to 21st to the NNE of Guam near 20° latitude N and 150° longitude E. It moved WNW, its center being situated at 6 a. m. of the 23rd about 200 or 250 miles south of the Bonins, where the barometer had fallen to 746.5 mm. with winds from the NE.

At 6 a. m. of the 25th the cyclonic vortex was over the northern part of the Loochoos, the barometer of Oshima being as low as 729.5 mm. The typhoon was then moving NW, and it kept this direction until the 26th when it recurved northeast toward the southern part of Korea and the Sea of Japan.

OTHER TYPHOONS OR DEPRESSIONS OF LESS IMPORTANCE.

A depression or typhoon appeared on the 3rd of this month to the east of southern Luzon near 129° or 130° longitude E and 14° latitude N. It probably moved northwestward on the 3rd, and after remaining almost stationary for two or three days it finally filled up on the 6th to the east of northern Luzon.

Another typhoon formed on the 9th to 10th near and to the northwest of the Paracels; it moved northeastward very slowly on the 11th and 12th, and seems to have filled up on the 13th near 114° or 115° longitude E and 19° or 20° latitude N.

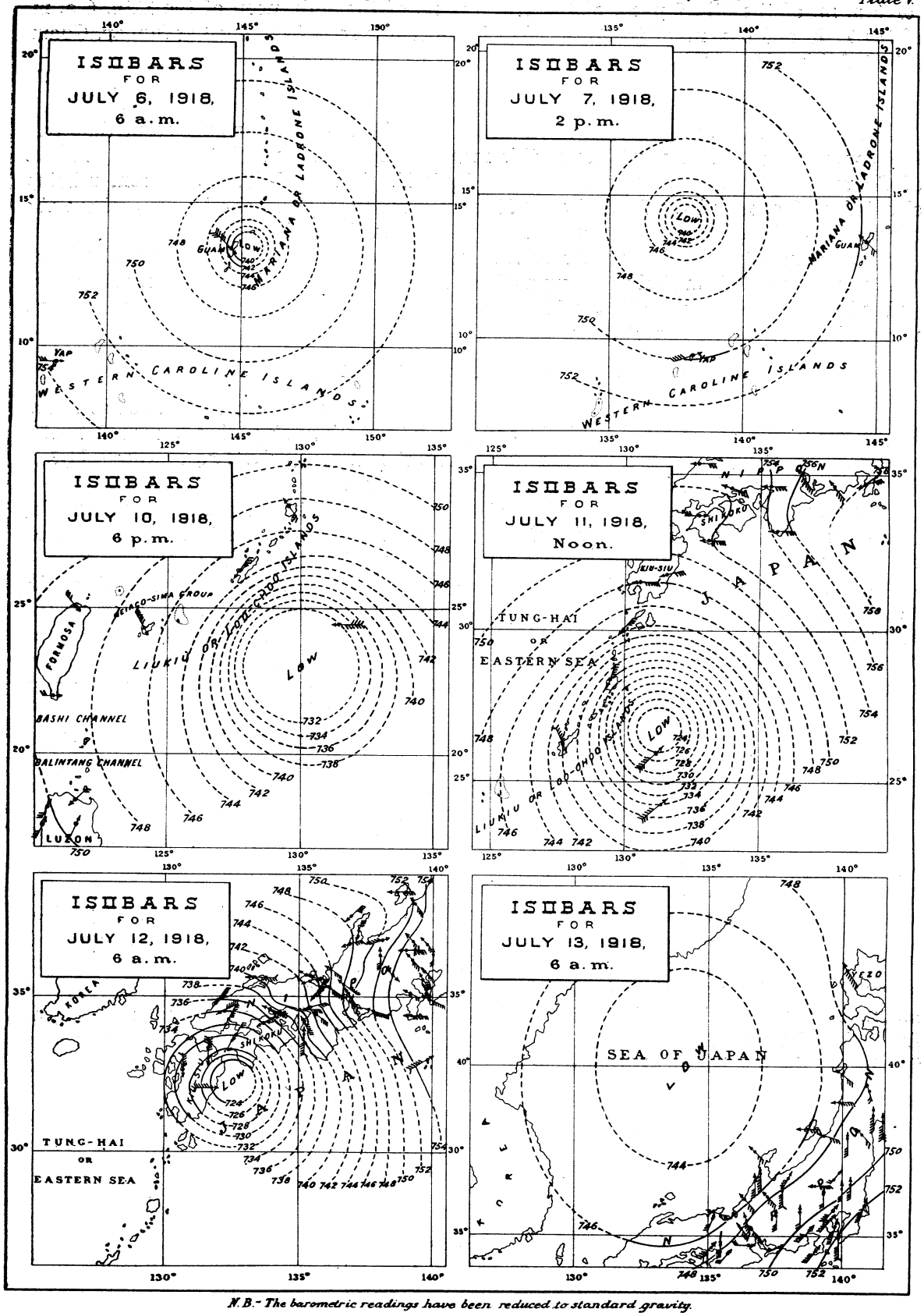
On the 14th to 17th a typhoon of no great importance developed to the south of the Loochoos near 22° or 23° latitude N and 127° or 128° longitude E. At 6 a. m. of the 18th the center was situated near 25° latitude N and 131° longitude E. Since that day the typhoon moved northward crossing the southwestern part of Japan during the afternoon and night of the 20th, and filling up in the evening or night of the 21st over the Sea of Japan near 40° latitude N and 135° longitude E.

After the preceding typhoon reached Japan on the 20th the atmospheric pressure remained considerably low for two or three days to the northeast of Luzon and south of the Loochoos. The observations at hand, however, are so scanty that it is impossible for us to draw the track of any depression or typhoon.

The last typhoon of the month was probably formed on the 27th to 28th to the south of Formosa between 120° and 121° longitude E, and between 20° and 21° latitude N. It is much to be regretted that no observations have been received as yet from Santo Domingo, Batanes Islands, at the time we are writing these notes. Hence the first part of the track of this typhoon is given only as probable in Plate IV. At 6 a. m. of the 29th the typhoon was situated near 118° longitude E and 22° latitude N moving WNW. It kept this direction until the afternoon of the same day when it began to move northwest and north, thus entering China close and to the north of Swatow in the early morning of the 30th. Once in China the typhoon moved again WNW until it probably filled up on the 31st to the northwest of Hongkong.

ISOBARS FOR THE TYPHOON OF JULY 5 TO 13, 1918.

Plate V.



N.B.- The barometric readings have been reduced to standard gravity.

NOTAS GENERALES DEL TIEMPO.

Presión y temperatura.—Con pocas excepciones de Visayas y Mindanao, la presión atmosférica media de este mes en Filipinas es algo menor que la normal de julio, siendo mayores las diferencias en la parte N de Luzón. Las presiones más altas se observaron el día 31, al paso que las más bajas tuvieron lugar el 10 u 11 en el N de Luzón, y el 5 ó 6 en el resto del Archipiélago.

La temperatura media de este mes es ligeramente menor que la normal de julio en casi todas las estaciones del centro y N de Luzón; pero es algo mayor en el S de Luzón, en Visayas y Mindanao. Las temperaturas extremas del mes en Manila fueron 33.2° C. y 22.5° C. que se registraron los días 31 y 4, respectivamente. Las temperaturas máxima y mínima absolutas del mes en Baguio fueron 24.1° C., 14.1° C. en la cumbre del Mirador, y 24.8° C., 14.1° C. en el valle.

Precipitación acuosa.—La cantidad total de lluvia de este mes es menor que la del año pasado y que la normal de julio en casi todas nuestras estaciones del S de Luzón, de Visayas y Mindanao, aunque es generalmente mayor en el centro y N de Luzón. La lluvia total del mes en Manila 621.9 mm. difiere de la de julio de 1917 en +15.9 mm., y de la normal de este mes en +218.5 mm. No menos de 2,202.1 mm. de agua se recogieron en los pluviómetros de Mirador, Baguio, cantidad que excede a la normal de este mes en 1,167.8 mm., y a la lluvia total de julio de 1917 en 1,022.2 mm.

DEPRESIONES Y TIFONES.

Durante este mes hubo en el Extremo Oriente no menos de seis tifones, ninguno de los cuales, sin embargo, cruzó las Islas Filipinas. Sus trayectorias pueden verse en la Lámina IV.

EL TIFÓN GUAM: JULIO 5 AL 15, 1918.

Empezamos por el tifón que desfogó en Guam la mañana del día 6, por considerarlo el más importante. Los primeros indicios de este tifón los dieron nuestras observaciones de Guam hechas la madrugada del 5, cuando el centro ciclónico se hallaba probablemente cerca de 150° longitud E y 13° latitud N. Como el tifón se hallaba ya entonces bien desarrollado, no nos es posible determinar la región en que tuvo lugar su origen.

En el texto inglés damos algunas de las observaciones hechas en nuestras estaciones de Sumay, Guam, y Yap, Carolinas Occidentales, del 4 al 8 de este mes.

De las observaciones de Guam resulta evidente que el vórtice del tifón pasó muy cerca por el N de dicha estación en que la mínima barométrica fué 714.39 mm., observada a las 8.30 a. m. del día 6. El barómetro bajó unos treinta milímetros en tres horas. Los vientos soplaron con fuerza de pleno huracán durante más de cinco o seis horas causando grandes daños a los edificios, caminos, árboles, etc. Se le considera como uno de los baguios más violentos que se han dejado sentir en Guam en muchos años.

La observación hecha en Yap a las 6 a. m. del día 7, si se compara con la de Guam del mismo día y hora, demuestra claramente que el tifón se había movido el día 6 casi directamente al W con una muy ligera inclinación al N. El centro pudo situarse en aquella hora en los alrededores de 140° longitud E y 14° latitud N. Afortunadamente para Filipinas el tifón empezó a inclinarse ligeramente al N el día 7, inclinación que llegó a ser más notable el día 8, hasta que se movió decididamente al N el día 9. Así fué posible para el Observatorio de Manila anunciar la mañana del día 10 que había desaparecido todo peligro para Luzón, en los siguientes términos:

Julio 10, 11.50 a. m.—Debido a la falta de suficientes observaciones, especialmente de Japón e Islas Loochoos, es imposible por ahora dar la posición exacta del tifón esta mañana, aunque parece

seguro que ya ha alcanzado el paralelo 20° N, desapareciendo por tanto todo peligro de atravesar la Isla de Luzón.

El tifón se movió al NNE y N después del día 10 hasta que llegó a la parte SW de Japón el día 12 moviéndose al N. La violencia del temporal en el SW de Japón parece haber sido tanta como la que tuvo cuando pasó por Guam. Su velocidad de traslación se había más que duplicado desde los días 8 y 9. Con todo, extraño como parece, está fuera de duda que en cuanto llegó a la parte central del Mar de Japón, el tifón se detuvo súbitamente, permaneciendo estacionario por unos dos días hasta que por fin se deshizo sin seguir más adelante.

En la Lámina V pueden nuestros lectores ver las isobaras y la posición del centro de este tifón a las 6 a. m. del día 6, 2 p. m. del 7, 6 p. m. del 10, mediodía del 11, 6 a. m. del 12 y 6 a. m. del 13. El registro barográfico obtenido en Sumay, Guam, va incluído en la Lámina IV.

EL TIFÓN DEL N DE LOOCHOOS Y DE KOREA: JULIO 19 AL 29, 1918.

A juzgar por las observaciones de Guam y de Bonins, parece que este tifón, el segundo en importancia de este mes, se formó del 19 al 21 al NNE de Guam cerca de 20° latitud N y 150° longitud E. Se movió al WNW, hallándose su centro a las 6 a. m. del 23 a unas 200 ó 250 millas al S de Bonins, en donde el barómetro había bajado a 746.5 mm. con vientos del NE.

A las 6 a. m. del 25 el vórtice ciclónico se hallaba en la parte N de Loochoos, habiendo bajado el barómetro de Oshima a 729.5 mm. El tifón se movía entonces al NW, y conservó esta dirección hasta el día 26 en que recurvó al NE dirigiéndose a la parte meridional de Korea y al Mar de Japón.

OTROS TIFONES O DEPRESIONES DE MENOS IMPORTANCIA.

Una depresión o tifón apareció el día 3 de este mes al E del sur de Luzón cerca de 129° ó 130° longitud E y 14° latitud N. Se movió probablemente hacia el NW el día 3, y después de haber permanecido casi estacionario durante dos o tres días, acabó por deshacerse el día 6 al E del norte de Luzón.

Otro tifón se formó del 9 al 10 cerca y al NW de Paracels; se movió al NE muy lentamente los días 11 y 12, y parece haberse deshecho el 13 cerca de 114° ó 115° longitud E y 19° ó 20° latitud N.

Del 14 al 17 se desarrolló un tifón de poca importancia al S de Loochoos cerca de 22° ó 23° latitud N y 127° ó 128° longitud E. A las 6 a. m. del 18 el centro se hallaba cerca de 25° latitud N y 131° longitud E. A partir de este día el tifón se movió al N atravesando la parte SW de Japón el día 20, y deshaciéndose la tarde o noche del 21 en el Mar de Japón, cerca de 40° latitud N y 135° longitud E.

Después que el tifón anterior llegó a Japón el día 20, la presión atmosférica permaneció considerablemente baja por dos o tres días al NE de Luzón y S de Loochoos. Las observaciones que poseemos, sin embargo, son tan escasas, que nos es imposible dar para estos días la trayectoria de ninguna depresión o tifón.

El último tifón del mes se formó probablemente del 27 al 28 al S de Formosa entre 120° y 121° longitud E, y entre 20° y 21° latitud N. Es mucho de sentir que las observaciones de Santo Domingo, Islas Batanes, no se hayan recibido aún cuando escribimos estas notas. De ahí que la primera parte de la trayectoria de este tifón se dé sólo como probable en la Lámina IV. A las 6 a. m. del 29 el tifón se hallaba cerca de 118° longitud E y 22° latitud N, moviéndose al WNW. Siguió esta dirección hasta la tarde del mismo día en que empezó a moverse al NW y N, penetrando así en China cerca y por el N de Swatow la madrugada del 30. Una vez en China el tifón volvió a moverse al WNW hasta que probablemente se deshizo el día 31 al NW de Hongkong.

METEOROLOGICAL DATA FOR MANILA CENTRAL OBSERVATORY.[a]

[ϕ=14° 34′ 41″ N; λ=120° 58′ 33″ E; barometer above sea, 14.2 meters; gravity correction not applied, —1.72 mm.]

Day.	Pressure (mean).	Air temperature.[b] Mean.	Maximum.	Minimum.	Underground temperature. 0.25 meter. 8 a.m.	0.25 meter. 2 p.m.	0.50 meter. 8 a.m.	0.50 meter. 2 p.m.	1.50 meters. 8 a. m.	2.50 meters. 8 a. m.	Relative humidity (mean).	Vapor pressure (mean).	Radiation. Minimum on grass.	Radiation. Maximum in sun. Black bulb in vacuo.	Evaporation.[b] Free exposure (total).	Evaporation.[b] Shelter (total).
	mm.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	*Per ct.*	*mm.*	°C.	°C.	*mm.*	*mm.*
1	757.22	27.4	33	23.6	27.6	29.2	28.7	28.8	30	28.3	84.8	22.7	22.2	51	3.6	2.5
2	58.40	27.5	32.3	23.7	28.8	30	29.3	29.3	29.9	28.5	84.4	22.7	22	53.1	3.6	2.7
3	57.99	26.9	32.2	23.2	29.2	29.7	29.6	29.8	29.9	28.4	86.4	22.6	22.6	52.6	3.2	2
4	56.55	26.5	31.1	22.5	28.9	30.1	29.8	29.8	29.7	28.4	87.5	22.4	21.4	52.5	2.8	2.2
5	54.85	26.3	29	24.2	29.2	29.8	29.9	29.8	29.7	28.3	88.5	22.4	23.1	40.3	2.3	1.9
6	54.20	26.4	30.1	23.5	28.7	29.6	29.6	29.8	29.8	28.3	84.9	21.7	22.3	47.3	2.2	2
7	55.92	26.7	31	23.5	28.9	29.7	29.5	29.7	29.6	28.3	84	21.8	22	51.6	2.8	2.7
8	56.95	26.9	30.1	24.5	29	29.8	29.7	29.7	29.6	28.2	82.2	21.7	23.7	55	3.4	2.7
9	55.88	25	26.1	23.6	28.5	28.3	29.6	29.4	29.4	28.1	93.7	22	22.6	29.5	0	.5
10	54.28	25.5	27.4	23.5	25.5	25.5	26.3	26	29.3	28.1	91.8	22.2	22.5	30.5	.5	2
11	54.79	26.9	29.7	24.3	25.5	26.1	26.6	26.6	29.3	28.2	84.7	22.2	23.2	50.5	3.5	3.1
12	56.27	27.3	31	24.6	26.3	26.8	26.8	27	29.3	28.3	80.9	21.7	23.5	53.4	2.9	2.6
13	56.79	27.3	31	24.9	26.7	27.7	27.1	27.3	29.2	28.5	84.6	22.8	23.7	46.7	2.9	3.1
14	56.46	26.9	28.4	24.2	26.9	27.3	27.6	27.6	28.9	28.2	88.5	23.2	23.2	46.5	1.8	1.9
15	56	26.9	29.4	25	26.8	27.4	27.5	27.7	28.6	28.2	88.3	23.2	23.6	40.7	2.1	1.9
16	56.97	27.8	31.1	24.6	27.4	28.1	27.8	27.8	29	28.4	83.7	23.1	23.3	53.6	4	2.7
17	57.54	27.7	31.6	25.6	27.9	28.6	28.1	28.2	28.9	28.3	84.7	23.3	24.5	52.5	2.2	2
18	57.41	27.7	31.2	25.3	28.2	28.9	28.4	28.4	28.9	28.4	85.4	23.5	24.2	51.6	3.6	2.4
19	57.54	28.2	31.3	26.1	28.5	29.2	28.6	28.8	28.8	28.3	83.1	23.6	25	53.9	4.6	2.8
20	57.44	27.8	31.5	26	28.7	29.2	28.9	28.8	28.7	28.3	83.7	23.2	24.7	48.4	5.1	3
21	57.53	28	31.4	25.4	28.7	29.5	28.9	29.1	28.8	28.3	82.1	23	23.5	51.5	5.2	3.3
22	55.79	26.7	30.3	24.6	28.7	29.2	29.1	29.1	28.7	28.2	90.2	23.4	24.2	45.1?	1.3	1.3
23	55.72	27.3	30.8	24	28.4	28.9	29	29.1	28.6	28.1	88.2	23.6	23.4	49	3.7	2.5
24	55.38	28.3	31	25.3	28.5	29.5	28.9	29.2	28.6	28.2	85	24.2	23.8	50.6	4	2.5
25	55.39	27.8	32.1	24.5	29	30	29.1	29.4	28.6	28.2	87.2	24.1	24.8	54.7	3	2.1
26	56.09	26.5	29.9	24.2	28.8	29.5	29.3	29.4	28.8	28.2	87.5	22.4	23.2	51.5	2.6	1.7
27	55.94	25.6	29.8	23.8	28.5	29.3	29.3	29.3	28.8	28.2	91	22.1	23.2	50.6	1.5	1.3
28	55.24	25.2	26.6	23.5	28.4	28.2	29.2	29.1	29	28.3	91.1	21.6	22	39	.2	.9
29	56.59	26.1	31	23	27.7	28.7	28.8	29	28.9	28.2	89.2	22.2	21.3	51.2	1.5	1.3
30	58.11	26.8	32.5	23.8	28.2	29.4	28.8	29	29	28.2	88.8	23.1	22.6	54	2.5	1.8
31	59.64	27.4	33.2	23.8	28.6	29.6	28.9	29.1	29	28.2	83.5	22.2	22	55.8	4.2	2.8
Mean	756.48	26.9	30.6	24.3	28.1	28.8	28.7	28.7	29.1	28.3	86.4	22.7	23.1	48.8	2.8	2.2
Total															86.8	68.2
Departure from normal	—0.73	—0.1	+0.4	+0.6							+1.5	+0.3				

Day.	Wind. Prevailing direction.	Total movement.	Maximum hourly velocity.	Direction at the time of the maximum velocity.	Clouds. Amount (mean).	Clouds. Form and direction. Upper.	Clouds. Form and direction. Lower.	Sunshine.	Rain, 24 hrs. beginning 6 a. m. On the tower.	Rain, 24 hrs. beginning 6 a. m. In the park.	Miscellaneous.
		Km.	*Km.*		*0–10.*			*h. m.*	*mm.*	*mm.*	
1	ESE	240	28	W	7.2	A.-Cu. SSW	Cu. SSE	6 05			◠ p.
2	E	168.5	22	WSW	5.9	Ci.	Cu. SEbyS	7 20			Ω a. ⌐◹ p.
3	E, WSW	223	25	WSW	5.6	Ci.	Cu. W	7 15	22.9	23.9	Ω2 a. ⌐◹° ● p.
4	N quad.	203.5	24.5	SW	8.4	Ci.-S. E	Cu. W	4 00	2	2.1	≡° a. ⊕ ●° p.
5	SW	237	30	WSW	10	Ci.-S.	N. WSW	0 00	.3	.3	d a. d° p.
6	SW quad.	251	20	SW	9.8	Ci.-S.	S.-Cu. ESE	0 05			d° a.
7	SSE, SSW	254	24	SW	7.8	A.-Cu. WSW	N. SW	4 35	3.7	4.3	Ω2 a. ●° a. p. ↙° p.
8	SW	498.5	35.5	WSW	9.3	A.-Cu. WSW	Cu. SW	1 45	8	9.5	p° a. ↙° a. p. d p.
9	WSW, SW	425.5	35.5	W	10		N. W	0 00	271.5	291.3	↙° a. ●2 a.p. ⌐◹ ↙° p.
10	SW, SSW	510	39	SW	10	Ci.-S.	N. WSW	0 00	99.6	106	⌐◹2 ●2 a. ●↙ a.p. ⌐
11	SSW	646	37	SSW	9.2	A.-Cu. WSW	S.-Cu. SW	1 05	11.9	14	↙ a. ● a. p.
12	SSW	484	31	SW	8.5	A.-Cu. WSW	S.-Cu. WSW	2 10	2.5	2.8	d ↙ a. ● p.
13	SW	593	39	WSW	8.7	A.-Cu.	Cu.-N. WSW	4 00	3.3	3.7	⊕° a. ●° ↙° p.
14	SW	709	42	SW	9.9	Ci.-S.	Cu.-N. WSW	0 00	51.2	54.7	●2 a. ↙° ●° p.
15	SW	661	38	WSW	9.7	Ci.-S.	N. WSW	0 00	11.2	11.7	↙° a. ●° a. p.
16	SW	479	31	SW	7.3	A.-Cu.	Cu. WSW	7 30	.1	.1	d° p.
17	SW	431	35	SW	8.7	A.-Cu. wbys	Cu. W quad.	4 00	4.4	4.9	↙° ●° ᗢ p.
18	SW	486	31	SW	7.2	A.-Cu.	Cu. W	4 30	.4	.5	d2 a. ↙ d p.
19	SW	553.5	33	SW	6.1	A.-Cu. W	Cu. SW	7 25			
20	SSW, SW	500.5	32	WSW	8.4	A.-Cu. wbys	Cu. WSW	3 35			
21	SW	534	36	SW	8.7	Ci.-S. ENE	Cu. WSW	4 55	5.7	6.4	⊕ a. p.
22	SW	531	38	SW	9.8	A.-Cu.	Cu. WSW	0 25	32.5	33.2	● ↙° a. p.
23	WSW	553	40	WSW	5.8	A.-Cu. NW	Cu. W	6 45	3.4	3.6	≡° ●° a. ↙° a. p.
24	WSW	596	41	SW	6.5	Ci.	Cu. W	7 35	.8	.6	≡° ●° a. ↙° p.
25	WSW	404.5	34	SW	8.7	A.-Cu.	Cu. W	4 15	14.2	17.5	d° a. ⌐ ● p.
26	SW	392.5	33	SW	9	A.-Cu.	Cu. WSW	2 30	36.1	34.5	● p.
27	SW, SSW	373	29	SW	9.7	A.-Cu.	S.-Cu. WSW	1 25	26.7	26.4	● a. p. ↙° p.
28	SSW	380	30	SSW	9.9	Ci.-S.	N. WSW, SW	0 00	7.4	7.5	●° a. p.
29	SE, SW	179.5	28	SW	9.8	Ci.-S. NW	S.-Cu. SSW, SW	2 05	.3	.8	Ω2 a. d a. p.
30	SE	166.5	16	SE	7.8	Ci.	Cu. SSE	5 20	1.8	1.8	⌐◹° ●° p.
31	SE	211	22	WSW	7.2	Ci. ENE	Cu.	7 05			⌐◹ p.
Mean		415.3	31.6		8.4			3 28			
Total		12,875						107 40	621.9	662.1	
Departure from normal		+4,498.8			+0.6			—35 01	+218.5		

[a] All the mean values given in this table are deduced from hourly observations.
[b] These values are taken from instruments mounted in the Observatory Park, 1.5 meters above ground.

METEOROLOGICAL DATA FOR MIRADOR OBSERVATORY, BAGUIO.[a]

[$\phi = 16° 25'$ N; $\lambda = 120° 36'$ E; barometer above sea, 1,512.6 meters; gravity correction not applied, —1.65 mm.]

Day.	Pressure[b] (mean).	Air temperature at Mirador (on the top of the mountain). Mean.	Maximum.	Hour.	Minimum.	Hour.	Air temperature in the valley (near the city hall). Maximum.	Hour.	Minimum.	Hour.	Relative humidity (mean).	Vapor pressure (mean).	Radiation. Minimum on grass.	Maximum in sun. Black bulb in vacuo.[c]	Evaporation. Free exposure (total)	Shelter (total)
	mm.	°C.	°C.		°C.		°C.		°C.		*Per ct.*	*mm.*	°C.	°C.	*mm.*	*mm.*
1	635.07	17.5	20.4	0.35p.	16.1	3.20a.	21.2	0.40p.	16.2	12 m. n.	97.5	14.5	15.9	56.9	0	0
2	36.46	18.9	24.1	1.35p.	15.6	5.20a.	24.8	2.20p.	16	6.00a.	88.8	14.3	15.6	55.8	2.1	1.1
3	36.36	18	23.8	1.20p.	15.8	8.30p.	24.6	1.25p.	15.7	4.20a.	93.7	14.4	15.2	58.2	1.3	.5
4	34.91	17.2	23.1	0.25p.	14.8	5.25a.	23.8	0.50p.	15	6.00a.	93.3	13.7	11.7	58.2	1.6	.8
5	33.29	17.8	21	9.50a.	15.4	5.30a.	22.1	2.25p.	15.5	4.35a.	93.2	14.1	15	45	.6	0
6	32.47	18.3	21.7	9.25a.	16.3	5.30a.	21.2	10.05a.	16.5	5.45a.	97.7	15.3	15	52.3	0	0
7	33.60	18.3	22.6	1.00p.	16.2	12 m. n.	23.5	0.55p.	16.5	12 m. n.	93.7	14.6	16.5	55.2	2.2	1.1
8	34.59	17.6	22.1	1.35p.	15.3	6.00a.	22.1	11.05a.	15.5	5.00a.	93	13.9	14.7	57.3	.6	.5
9	33.76	17.4	22	1.40p.	15.2	2.50a.	21.4	1.40p.	15.4	1.00a.	95.2	14.1	14.5	58.8	.6	.4
10	32.61	16.7	17.3	1.30p.	15.6	10.10a.	18	11.00p.	16	10.10a.	99.5	14.1	14.5	24.5	0	0
11	32.02	17.4	17.8	3.25p.	16.5	0.50a.	18.4	2.15p.	16.4	1.00a.	99	14.6	16	25.2	0	0
12	33.63	17.3	17.9	2.00p.	16.2	10.25a.	18.3	1.55p.	16.9	4.50a.	99.3	14.6	16	34.5	0	0
13	34.03	17.5	18.1	4.35p.	16.4	--------	18.8	2.25p.	16.4	8.00a.	99.5	14.8	16.5	34.4	0	0
14	34.22	17.4	17.8	0.05a.	16	1.30p.	18.4	0.05a.	16.3	1.40p.	99	14.6	17	23	0	0
15	33.89	17.3	18.1	0.20p.	16.5	1.50a.	18.7	1.40p.	16.2	6.30a.	98.5	14.4	16.5	37	0	0
16	34.58	17	18.3	1.00p.	15.9	10.00a.	18.6	1.00p.	16.4	10.00a.	98.8	14.2	16.4	38	0	0
17	35.25	17.1	17.8	4.00p.	15.9	6.00a.	18.4	4.00p.	16.2	2.00a.	98.7	14.3	16	27.7	0	0
18	35.30	17.1	17.8	4.00p.	15.7	6.45a.	18.9	Noon	16.1	8.00a.	98.5	14.3	16.2	39.4	0	0
19	35.35	17	18.5	0.40p.	15.9	10.25p.	19.4	0.40p.	16	10.50p.	98.5	14.2	16.6	42.9	0	0
20	35.22	16.8	17.9	2.30p.	15.6	10.05p.	18.5	2.10p.	15.8	10.10p.	99	14.1	16	31	0	0
21	35.06	16.5	17.4	12 m. n.	15.4	3.45p.	18.2	12 m. n.	15.7	7.00p.	99.5	13.9	15.9	30	0	0
22	33.52	16.7	17.6	1.20p.	14.6	8.00p.	18.5	3.00p.	15.5	8.50a.	99.2	14.1	15.7	19.4	0	0
23	34.07	16.8	18.2	Noon	14.6	12 m. n.	19.4	0.30p.	14.3	12 m. n.	99.5	14.2	15.1	41.5	0	0
24	33.98	16.4	17.8	11.10a.	14.1	3.00a.	18.7	0.20p.	14.1	3.00a.	98.8	13.8	14.5	35.1	0	0
25	33.84	17	20.2	11.25a.	15.5	11.40p.	21	0.20p.	16	12 m. n.	99.2	14.3	16.2	51.2	0	0
26	34.26	16.8	19.5	10.35a.	15.1	11.05p.	20	10.50a.	15.5	12 m. n.	98.5	14.1	14.7	37.8	0	0
27	33.66	16.8	20.3	1.20p.	15.1	1.30a.	20.7	1.20p.	15.3	1.20a.	98.5	14.1	15	45.1	0	0
28	32.68	16.6	18.9	11.20a.	14.9	4.00a.	19.6	Noon	15.5	4.00a.	99	14	14.7	41.8	0	0
29	34.07	16.2	17	8.05a.	14.8	11.35a.	18	11.50a.	15.2	2.00p.	95.7	13	15	41.7	0	0
30	35.82	17.3	19.3	2.05p.	15.3	2.20a.	20.2	4.50p.	15.6	0.50a.	87.8	12.9	15	50.3	4.2	1.8
31	37.29	18.1	21.3	--------	15.6	11.05p.	22.5	3.10p.	16	7.50a.	81	12.4	15.1	51.1	4.9	2
Mean	634.35	17.3	19.5	--------	15.5	--------	20.2	--------	15.8	--------	96.5	14.1	15.4	41.9	0.6	0.3
Total	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	18.1	8.2

Day.	Wind. Prevailing direction.[d]	Total movement.	Maximum hourly velocity.	Direction at the time of the maximum velocity.	Clouds. Amount (mean).	Form and direction. Upper.	Lower.	Sunshine.	Rain, 24 hours beginning 6 a. m.	Miscellaneous.
		Km.	*Km.*		*0–10.*			*h.* *m.*	*mm.*	
1	E	395.4	27.9	SE	10		N.	1 15	0.9	d² ≡² a. d° ◟° p.
2	SE quad.	396.2	39.2	SE	6.9	Ci. NE	Cu.-N. E quad.	4 20	10.7	≡° ◞° a. ≡ ● ⌐◟ ◟° p.
3	W quad.	238.1	20.1	W	9.9		Cu.-N. NE, NNE	2 50	21.6	≡² a. p. ●² ⌐◟° p.
4	W	288.3	20.9	W	7.1	Ci.	Cu.-N. NNW, NW	3 55	13.5	● ≡² p.
5	W, N	248.5	14.2	W	9.9	Ci.-S.	Cu.-N. NW, NNW	0 30	14.8	● p.
6	W quad.	259	29	E	10		Cu.-N. ENE	0 50	26.2	●° ≡² a. ◟° ≡² ●° p.
7	E, SE	472.3	30	E	9.1	Ci.-S.	Cu.-N. SE	4 40	2.3	≡ d° a. ◞° d² ≡² p.
8	SE, SW	338	36.4	SW	9.7	A.-Cu.	Cu.-N. S quad.	2 45	9.7	≡ ●° a. ◞° ≡² ● p.
9	W, SW	347	26.8	SW	9.7	A.-Cu.	Cu.-N. SW	1 30	27.4	≡ d° a. ≡² ●° p.
10	W	750.3	49.9	W	10		N.	0 00	254.3	◞° a. ●² ≡² a. p. ◞ ⌐◟ p.
11	SW	1,617.8	80.8	SW	10		N.	0 00	224.8	◞ ●² ≡² a. p.
12	SW	1,422.8	70.2	SW	10		N.	0 00	119.4	◞² a. ◞ ≡² ●² a. p.
13	SW	1,497.9	78.7	SW	10		N.	0 00	214.5	◞ ●² ≡² a. p.
14	SW	1,368.2	65.7	SW	10		N.	0 00	245.2	◞ ≡² ●² a. p.
15	SW	1,189.6	61.4	SW	10		Cu.-N.	0 00	101.1	◞° a. ●² ≡² a. p. ◞ p.
16	SW	1,157.6	57.1	SW	10		Cu.-N.	0 00	45.8	◞° a. ◞ ● ≡² a. p.
17	SW	1,024.7	56.8	SW	10		N.	0 00	91.4	◞ ●a. ≡² a. p. ◞° ●² p.
18	SW	780.1	46.4	SW	10		Cu.-N.	0 00	61.7	● ≡² ◞° a. p.
19	SW	808.1	41.8	SW	10		N.	0 00	34.5	≡² ● a. p. ◞° p.
20	SW	863.4	50.4	SW	10		N.	0 00	52.9	≡² ● ◞° a. p.
21	SW	764.6	57.6	SW	10		Cu.-N. SW	0 00	156.4	⌐◟ a. ●² ≡² a. p. ◞ p.
22	SW[e]	e1,059.5	76.6	W	10		N.	0 00	179	●² ≡² ◞ ⌐◟ a. p. ⌐◟² p.
23	----------	----------	----------	----------	10		N. SW	0 00	37.8	≡² ● a. p. ◞° p.
24	W	635.2	38.6	W	10		N.	0 00	88	◞° a. ● ≡² a. p.
25	W	546.2	37.6	W	9.9		Cu.-N. SW	0 00	17.5	≡² ● a. p. ◟ p.
26	W	336.4	24.7	W	10		N.	0 00	76	≡² ● a. p.
27	W	319.3	20.1	W	10		N.	0 00	16.2	d a. ≡² a. p. ●° p.
28	W	423.6	30.1	SW	10		N.	0 00	16.9	●° ≡² a. p. ● p.
29	S quad.	362.8	25.7	SW	10	Ci.-S.	N. SW	0 00	40.8	● ≡² a. d² p.
30	SE	620.1	39.2	SE	10	Ci.-S.	Cu.-N. S	0 00	--------	d° a. ◟ ◞° p.
31	SE, E	519.8	39.9	E	9.6	Ci.-S. N	Cu.-N. SEbyE, S	2 00	.8	◞° ⌐◟° ●° p.
Mean	----------	701.7	43.1	----------	9.7	----------	----------	0 48	----------	
Total	----------	----------	----------	----------	----------	----------	----------	24 35	2,202.1	

[a] All the mean values given in this table are deduced from six daily observations taken at 2, 6, 10 a. m. and 2, 6, 10 p. m.
[b] The barometric readings of this station are not reduced to sea level.
[c] Maximum of hourly observations taken from 6 a. m. to 6 p. m.
[d] This element is based on hourly observations taken from a quadruple register, which gives only eight possible directions of the wind.
[e] 5 hours missing.

DAILY RAINFALL AT THE STATIONS OF THE WEATHER BUREAU, JULY 1918.

Station.	Day of month.															
	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.
	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.
Jolo	2															
Isabela, Basilan		4.8	0.5	33.5	1	22.9	3.8									
Zamboanga	.5	.8	10.2	22.6	51.1	.3	.8									
Davao		3.8			2.5											
Cotabato				33.5	24.9	37.1	55.8	1.8								
Camp Keithley, Lanao	1.4		8.7	1.6	6.9	16.6	3.5								0.8	2.3
Cagayan, Misamis			12.7		6.6	1.5	19.8						3.6			
Dapitan			3.3	5.6	76.7	40.1	20.3								29.2	8.9
Ampayon, Butuan, Agusan[a]			10.9		9.7	5.9	.5									
Butuan			19.3		4.9	1.5	.6									
Mambajao			149.9	5.8	10.7	6.1	3.6									
Dumaguete	2.5	5.3	5.1	18.3	49.2	9	12.7									
Yap, Western Carolines	61	.5	128	42.7	65.1	61.5	20.1	23.9								11.2
Tagbilaran		1.8			15.4	3.8	6.2									
Iwahig	1.8	.6		2.8	127.5	64.5	5.1									.1
Surigao		12.7	3.3			2.8	6.8									5.1
Maasin		16.8		39.9	7.6		22.4									
Cebu		16.5	15	6.4	.8	7.7	8.1							*	.3	
La Carlota, Occidental Negros[a]		9.1	10.2	20.1	24.4	74	43.5		3.8			11.2	2.8	1.8		
Iloilo				.8		69.6	46.5	3.3	22.8	12.7	4.3	3	40.9	1.5	19.1	2.5
San Jose Buenavista			26.7	152.4	18.5	35.9	45	.6	.3	4.8		27.4	35.9		31.5	.8
Cuyo			12.7	14	19.8		17.5	.5			.8	.8	.5			27.7
Lucena, Iloilo[a]		16.5	12.2		1	6.6				5.1	23.1	3.3			9.7	22.6
Ormoc		1.5	25.9	1		1.5	9.4									
Guiuan	4.6		7.1	.3		.3	9.7									
Dueñas, Iloilo[a]			7.6				19									6.4
Bitaogan, Iloilo (Railroad Iloilo to Capiz)[a]	5.8		1.8	4.6		.5	3									
Lapus, Iloilo (Railroad Iloilo to Capiz)[a]				.8		62.7	50.3	5.1	29.5	18.8		3.3	51.3		20.3	2.3
Tacloban			15.8	5.6	.5	.3	11.2	.3					2.1			
Dumarao, Capiz[a]	16.8		27.2	4.8	5.1		26.4									
Dao, Capiz[a]	19.8			43.7	7.1		25.4								2.8	
Capiz	1.5		.8		6.1	6.4	20.9								2.8	4.1
Borongan			15.7	25.1	1.3	1.3	5.6									
Catbalogan		12.2	34.3	49.6	6.1	3	1.8									
Calbayog		7.6	24.6	72.2	14.2	25.1	13.8									1
Masbate		.5	5.3	85.6	2.8	4.1	3.3	1								
San Jose Estate, J. Abello D-13, Mindoro[a]	8.9			31.2	52	53.8	34.3	19.3	28.2	16.8				3.3	6.4	13.3
San Jose Estate, Tamaraw Plantation, Mindoro[a]				26.4	44.2	23.9	92.2	18.3	17.3	21.6	2					
San Jose Estate, San Agustin, Mindoro[a]			15	61.5	70.6	25.7	62.5	6.4	7.9	13.2		2.8		1.5		
San Jose. Mindoro[a]			.5	33.8	58.7	25.4	82.8	6.1	10.2	25.2		7.4	9.7	14.8	21.9	
San Jose Estate, Tunnel D-12, Mindoro[a]				35.1	59.5	19.1	91.9	9.4	15.7	41.9		5.8		41.7	2.3	
Romblon			.3			.4	7.1	1.3	2.5		1					
Batag			3	8.9		1.5										
Sorsogon			8.4	24.3	19.3		6.4		*	*	*	*				
Legaspi		2	8.9	15.8	7.8	5.7	6.3		3.3							
San Miguel Estate, San Miguel Island, Tabaco, Albay[ab]				1.3		.3				1.3						
Sumay, Guam	12.7		2.5		59.7	266.7	111.8	30.5	10.7					15.2		
Calapan				.3	21.6	7.6	15	4.9	1.8	6.1						
Virac			.8	11.6	2.6	1	2.8		2.5							
Naga		11.2		29.6	.3	7.1				.3	14.5					
Tigaon				5.6	1	2.8	1.8	1	6.6	1.6	7.9	1.3		.5		
Lucena			4.8	.5	1.3	15.2	5.4		11.9	16.3	5.3					
Atimonan			32.5	2.5	.5	3.1			7.6	7.9	1.5			.3		
Ambulong, Tanauan		15.2	2.3	.8	13.2		5.3	3.3	71.2	30.6	.5	3	.5	5.6	10.6	
Canlubang, Calamba		13.7	4	1.8	7.6	2.8	4.1	1.8	29.5	17	2.5	.3	.8	13	17	
Paracale				18.5	7.2		62		2.1					.5		
Santa Cruz, Laguna	.3	2.3		3.6	2.3	.6	1.8	.3	59.2	39.8	4.9	2	.5	6.1	9.4	
Fort Mills, Corregidor[ac]		.8		1.8	52.1	9.4	7.4	27.9	71.1	53.6	22.9	14	18.6	24.9	6.6	.8
Alabang, Rizal[a]		5.1	2.5	5.1	4.6			11.7	80.5	36.3	5.6	6.6	1.3		8.9	
Lamao, Bataan[a]			.8	2.1		3.8	15	53.1	130	83.1	67.6	19.5	68.5	37.5	22.1	31.8
Manila			22.9	2	.3		3.7	8	271.5	99.6	11.9	2.5	3.3	51.2	11.2	.1
Antipolo		4.3	15.5	5.8	3.3	49.8	9.9	16.3	232.2	78.5	16.8	5.6	5.1	42.4	15.7	8.9
Bosoboso, Rizal[a]		29	5.3	10.2	17.8	27.9	34.5	21.3	194.6	90.7	22.9	4.6	15.7	49	17.8	8.1
Montalban, Rizal[a]	8.1		4.1	27.9	14.2	1	23.4	27.9	28.4	353.1	261.6	33.8	7.4	20.8	29.5	25.4
Hacienda Pintong Sapang, San Jose, Bulacan[a]					9.1	12.2	14.2	97	109.2	238.8	58.9	12.5	16.2	18.5	11.5	
Mabayuan, Dam, Olongapo, Zambales[a]	3.5		18	28.4	11.7	36	50.8	145.3	259	224.2	85.6	118.6	155.9	46.8	30	51.5
Iba	6.9	.3		43.4	25.1	31.2	16.7	79	124	79.8	35.5	15	11.5	10.2	13.7	12.7
San Isidro	.8		65.5	14.2	38.1	13	10.7	3.8	84.4	100.4	40.5	24.6	24.8	17	.5	.5
Hacienda Luisita, Comillas, Tarlac[a]			75.7	13.7	32	11.9	2.3	8.9		241.3	17.6	3.6	19.3	7.4	4.1	.3
Hacienda Luisita, San Miguel, Tarlac[a]			76.7	5.6	31.5	11.4	5.1	2.5	101.1	163.8	26.7	15	5.6	1.5	3.8	3.3
Tarlac		8.1	30.5	6.1	27.9	20.6	3.3	4.6	43.4	47.4	37.4	9.9	8.4	27.9	4	4.6
Baler			14.5	6.4	61.2	14.2	10.9			34.3	6.3	1.8				
Paniqui, Tarlac[a]			5.6	3.8	31	43.7	8.6		64.8	79	13.8	3				
C. L. A. S. Muñoz, Nueva Ecija[a]		1.3	7.9	3.6	45.2	5.1	3	1	65.8	106.2	32.7	13.5	5.1	13	15.3	6.6
Dagupan	.8	1.5	4.4	6.1	68.3	24.6	11.7	17.8	95.5	213.6	27.2	14.7	36.5	18	7.1	4
Bolinao		7.1		1.3	23.6	60.7	9.1	16.2	118.9	101.4	15.2	11.2	9.1	16	13.7	2.3
Baguio	.9	10.7	21.6	13.5	14.8	26.2	2.3	9.7	27.4	254.3	224.8	119.4	214.5	245.2	101.1	45.8
San Fernando, Union		17.8	4.1	1.4	4.6	4.3	1.5	1.8	33.3	127.9	49.8	23.7	18.5	17.1	13.3	17.3
Echagüe		8.6		3.1	10.4	3.1	1.1			.3						
Sagada, Mountain Province[a]	2.8	2	14	1.3	7.4	5.3	9.9	2.8	31.7	52.1	50	74.6	32.6	37.8	15.5	6.8
Bontoc, Mountain Province[a]	1.8	11.7	12.4	39.6	6.1	5.1	17.6	15.7		15.5	30	4.8	30.5	14.3	8.2	.8
Candon	1.3	19.8	1.3			4.3	15		3.8	52.3	69.8	69.6	14.2	87.4	50.3	30.3
Villavieja, Pilar, Abra[a]	43.9	30.2	3.3	1.5	1	1.3	27.9	1	25.7	52.3	52	38.1	72.4	198.1	112.8	33.5
Vigan	1	6			.3	1.9	22.8			122.4	35	25	36.1	22	50.1	18.8
Tuguegarao						5.4			1.5			3.3	.5	.5		3.6
La Paz, Abra[a]	3.3	2		.5	5.6			4.3		106.7	104.2	74.4	57.1	154.4	196.1	19.1
Laoag	7.1				20.1		15.7	3.3		61.8	63.3	44.1	48.3	30.4	173.7	104.8
Aparri	38.6			.5	.5	1.5		12.7		.5	1.5		1		7.8	
Cape Bojeador	5.6					6.6	4.3	11.2		34	35.5	17	2.3	1.5	22.6	38.9

[a] Voluntary or coöperative station.
[b] Rain in 24 hours beginning 8 a. m.
[c] Rain in 24 hours beginning 7 a. m.
* No observation.

Daily rainfall at the stations of the Weather Bureau, July, 1918—Continued.

Station.	Day of month.															
	17.	18.	19.	20.	21.	22.	23.	24.	25.	26.	27.	28.	29.	30.	31.	Total.
	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.
Jolo	.....	7.1	.....	.....	.....	1.3	2.5	.....	.....	.....	.....	.....	.....	.....	.....	12.9
Isabela, Basilan	.....	.8	.....	2.8	.....	.....	.....	.....	.....	.....	.....	3	.....	0.5	.....	73.6
Zamboanga	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	86.3
Davao	3.8	.....	23.6	2.5	1.5	.....	.....	.....	.....	.....	.....	.....	12.7	.....	.....	50.4
Cotabato	.....	.....	.....	.....	.....	.....	8.6	13	0.5	.....	5.1	.....	.....	.....	.....	180.3
Camp Keithley, Lanao	.....	.....	.....	.....	.....	.....	25.4	.....	.....	1.4	.....	.....	.....	4.6	0.5	73.7
Cagayan, Misamis	.....	.....	.....	3.8	.....	.....	.....	.....	.....	13.7	.....	.....	2.5	2.5	8.9	75.6
Dapitan	.....	6.1	.....	.....	.....	.....	.....	.....	.....	.....	8.6	.....	14.5	6.1	.....	219.4
Ampayon, Butuan, Agusan[a]	.....	.....	.....	.....	.....	.....	.....	.....	.....	1.8	.5	.....	.....	.3	.....	29.6
Butuan	.....	.....	.....	.....	.....	.....	.....	.....	.....	.8	.....	.....	.....	.....	.....	27.1
Mambajao	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	176.1
Dumaguete	.....	.....	.....	.....	.....	.....	.....	5.1	13.5	.....	.....	.....	.....	9.7	2.5	132.9
Yap, Western Carolines	.5	23.9	9.1	29.2	4	9.7	1.3	4.9	.3	.....	.....	.....	.....	.....	.....	496.9
Tagbilaran	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	27.2
Iwahig	.3	.3	20.5	.....	.....	.....	.....	.....	.....	.....	1.1	27.4	10.7	.3	.....	263
Surigao	.....	.....	.....	.....	.....	.....	3.8	.....	.....	.....	2.8	.....	.3	.....	.....	37.6
Maasin	.....	.....	.....	8.4	.....	.....	17.3	.....	.....	18.3	.....	27.4	4.8	.....	.....	162.9
Cebu	.....	.....	.....	.....	.....	.....	.....	11.7	.....	.....	.....	.....	.....	.....	.....	66.5[d]
La Carlota, Occidental Negros[a]	.....	.....	.....	.....	.....	.5	9.6	55.1	13.5	21.5	.3	11.2	.....	3.6	.....	316.2
Iloilo	1	.....	2	.....	.....	5.6	18.5	15.2	54.3	70.8	3.8	30.5	.....	.....	.....	428.7
San Jose Buenavista	.....	.....	.....	.....	1.5	5.8	14.2	51.6	50.2	49.8	23.2	15	1.3	.....	.....	592.4
Cuyo	.....	.....	1.3	1	.....	.....	7.6	1.8	3.3	23.1	50	14	10.2	.....	.....	206.6
Lucena, Iloilo[a]	.....	.....	.....	.....	.....	.....	.....	.....	14.5	31.2	3.3	36.1	.....	.....	.....	185.2
Ormoc	.....	.....	.....	.8	.....	.....	.....	.5	.5	.....	.....	9.4	.....	.....	.....	50.5
Guiuan	.....	.....	.....	.....	.....	.....	.....	1.5	.....	40.9	.....	.....	.....	.....	.....	64.4
Dueñas, Iloilo[a]	.....	.....	.....	.....	.....	.....	.....	.....	.....	12.4	.....	8.9	.....	.....	.....	54.3
Bitaogan, Iloilo (Railroad Iloilo to Capiz)[a]	.....	.....	.....	.....	.....	.....	.....	.....	.....	21.4	2.5	3.3	.....	.....	.....	42.9
Lapus, Iloilo (Railroad Iloilo to Capiz)[a]	.....	.....	5.1	.....	.....	4.3	18.3	14.7	53.6	49.7	4.3	39.6	.....	.....	.....	434
Tacloban	.....	.....	.....	.....	.....	.....	.....	.9	8.4	1.3	.....	.....	1.6	.....	.....	48
Dumarao, Capiz[a]	.....	.....	.....	.....	.....	.....	.....	.....	.....	16.5	1.8	.....	.....	.....	9.1	107.7
Dao, Capiz[a]	.....	5.6	.....	2.5	.5	.....	.....	3	1.3	1.3	2.3	.....	.....	.....	.....	115.3
Capiz	.....	.....	.....	.....	.....	.....	.....	.....	11.7	18.8	8.9	.....	.....	.....	.....	82
Borongan	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.3	.....	.....	.....	.....	49.3
Catbalogan	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	15.5	.....	.....	1.5	124
Calbayog	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2	.5	2.3	.....	.....	163.3
Masbate	.....	.....	.....	.....	.....	.....	.....	.3	.....	5.1	.....	.3	.....	.....	.....	108.3
San Jose Estate, J. Abello D-13, Mindoro[a]	.....	3.8	.....	3.3	3	2.5	2.3	16	21.3	20.4	26.5	30.5	22.8	.....	.....	419.9
San Jose Estate, Tamaraw Plantation, Mindoro[a]	27.7	.....	.....	.....	.....	9.7	12.2	.....	24.9	12.2	52.5	74.2	26.1	4.6	.....	490
San Jose Estate, San Agustin, Mindoro[a]	.....	.....	.....	.....	.....	.....	3.8	6.4	7.9	1.8	34.3	53.3	34.8	.....	.....	409.4
San Jose, Mindoro[a]	12.2	.5	.....	11.9	.....	.....	1.8	10.9	6.9	8.1	46.7	43.1	55.3	.3	.....	494.2
San Jose Estate, Tunnel D-12, Mindoro[a]	.....	7.4	.....	6.4	.....	.....	10.4	15.2	2.6	49	54.3	56.3	2.5	.....	.....	526.5
Romblon	.....	.....	.....	.8	1.3	.....	.....	.....	.3	.....	.3	40.4	.....	.....	.....	55.7
Batag	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	13.4
Sorsogon	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	3.6	.....	6.1	.....	68.1[e]
Legaspi	.....	.....	.....	.....	.....	.....	.....	.8	12.9	5.6	38.4	5.9	.....	.....	.....	118.4
San Miguel Estate, San Miguel Island, Tabaco, Albay[ab]	.....	.....	.....	.....	.....	.....	.....	.....	1.5	.....	6.1	8.4	.....	.....	.....	18.9
Sumay, Guam	86.4	11.4	.....	.....	10.2	.....	20.3	14	15.7	2.5	5.1	.....	3.8	1.3	.....	680.5
Calapan	.....	.....	.....	.....	.....	.....	.....	.....	.5	.3	1.3	11.2	.....	45.7	3.8	120.1
Virac	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.5	.....	2.5	.....	.....	24.3
Naga	.....	.....	.....	.....	.....	.....	.....	.....	.....	.5	5.8	1.3	36	.....	.....	106.6
Tigaon	.....	.....	.....	.....	.....	6.4	.....	1	171	17.3	31.2	6.9	1	.....	.....	264.9
Lucena	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	6.1	4.3	4.6	.....	.....	75.7
Atimonan	.....	.....	.....	.....	.....	.....	.....	.....	.....	3	6.4	2.6	.....	.....	.....	67.9
Ambulong, Tanauan	.....	2.3	.....	.....	.....	5.3	2	.....	21.8	.8	6.6	33.3	.....	14.5	.....	248.7
Canlubang, Calamba	.5	3.3	.....	.....	.....	7.1	.....	.....	4.8	.8	11.9	30.2	.....	.....	.....	174.5
Paracale	.....	.....	.....	.....	.....	.3	.....	.....	.3	.....	1.5	9.6	.....	.....	.....	102
Santa Cruz, Laguna	.....	2	.....	.....	.....	1.8	1.3	.8	8.4	1.3	25.4	23.1	.8	.....	.....	198
Fort Mills, Corregidor[ac]	5.8	6.6	.5	.....	9.7	16	9.2	.3	31.8	11.5	124.5	41.1	8.4	.....	.....	577.3
Alabang, Rizal[a]	1.8	.8	.....	.....	1.3	10.2	5.1	.....	.....	30.5	22.9	17.8	8.9	.....	.....	267.5
Lamao, Bataan[a]	31	5	22.1	3.8	118.2	87.1	4.8	23.3	.8	8.9	92.4	14.7	10.2	.....	.....	957.2
Manila	4.4	.4	.....	.....	5.7	32.5	3.4	.8	14.2	36.1	26.7	7.4	.3	1.8	.....	621.9
Antipolo	2.5	.....	.....	.....	6.1	81.8	14.7	5.6	36.3	19.3	26.7	5.9	5.8	.....	.....	714.8
Bosoboso, Rizal[a]	3.6	.....	1.8	.....	8.4	85.6	54.9	19	54.6	12.4	38.1	15	.....	.....	.....	842.8
Montalban, Rizal[a]	10.2	4.6	7.6	.....	.....	5.1	46.2	8.1	4.6	28.4	16	30.2	21.1	21.6	.....	1,070.3
Hacienda Pintong Sapang, San Jose, Bulacan[a]	3.8	2.5	.....	.....	.....	34	.....	.....	31.7	41.7	28.2	5.6	6.9	.....	.....	752.5
Mabayuan Dam, Olongapo, Zambales[a]	56.6	20.8	35.5	31.3	102.9	61.3	12.7	5.6	58.4	26.2	69.6	41.6	76.9	1.6	.....	1,866.3
Iba	9.7	5	13.2	7.8	40.3	2.6	3.6	.3	51.5	35	192.5	67.4	82.3	.....	.....	1,016.2
San Isidro	.3	20.1	1.5	11.2	1	43	.5	1.5	17.3	36.3	6.6	11.4	14.5	.....	4.1	608.1
Hacienda Luisita, Comillas, Tarlac[a]	2.3	.....	.....	.....	1.8	51.8	2.5	.....	.8	.....	56.8	19.6	13.5	.....	.....	587.2
Hacienda Luisita, San Miguel, Tarlac[a]	4	.3	2.5	3.3	11.2	60.4	.8	9.4	2	11.2	62.5	12.2	10.2	.3	.....	643.9
Tarlac	5.9	3.8	8.8	4.8	25.4	49.8	.5	13.5	4.3	2	33	29.7	13.8	.....	.....	479.4
Baler	.....	.....	.....	.....	.....	26.4	.....	.....	.....	2.5	.....	8.9	14.2	12.7	.....	214.3
Paniqui, Tarlac[a]	.....	.....	20.3	5.3	9.9	57.4	.....	.....	.....	46.7	49	13.5	11.4	.....	.....	471.8
C. L. A. S. Muñoz, Nueva Ecija[a]	52.1	2.8	.....	77.9	26.2	2.8	.....	8.1	60.7	13.5	202.7	13.5	.....	7.6	.5	793.7
Dagupan	14.8	9.7	10.7	10.1	75	60.5	1.8	18.3	39.1	31.1	22.4	20.6	38.4	.....	.....	904.3
Bolinao	.5	.....	13.2	30.5	12.2	33.8	.....	.8	31	45	60.9	60.5	25.1	.5	.....	719.8
Baguio	91.4	61.7	34.5	52.9	156.4	179	37.8	88	17.5	76	16.2	16.9	40.9	.....	.8	2,202.2
San Fernando, Union	38	5.1	14.6	99.4	138	152.1	2.6	30.4	24.6	61	31.3	14.8	16	.....	2.3	961.6
Echagüe	.....	.....	.....	.....	1.5	14.7	1.3	.8	49.5	37.1	6.4	.....	1	.....	.....	138.9
Sagada, Mountain Province[a]	7.1	15.5	16.8	33.8	131.1	128.5	.8	10.7	4.6	23.9	3	5.6	1.5	.....	7.9	737.9
Bontoc, Mountain Province[a]	.....	1	5.8	64.5	106.1	.....	1.5	.....	.....	31.8	9.1	1.8	4.6	.....	1.3	441.6
Candon	23.6	34.8	101.1	178.8	280.6	230.6	3.3	3.8	6.1	27.7	66	47.3	3.8	.....	2.8	1,431.2
Villavieja, Pilar, Abra[a]	37.9	53.8	69.3	71.1	191.5	151.9	9.4	42.6	4.3	68	21	24.1	2.3	.2	10.7	1,454.6
Vigan	57.3	29.9	44.4	87.3	116.3	176.1	12.4	24.8	1.3	83.6	151.9	105.7	7.1	.....	5.7	1,245.2
Tuguegarao	47.3	.....	.3	.3	12.5	2.8	.....	.....	45	7.4	2.3	.....	.....	.....	.....	132.7
La Paz, Abra[a]	131.4	9.7	140.7	108.7	227.1	39.4	2.1	30.8	7.4	41.1	52.6	49.5	3.3	17.3	53.3	1,642.1
Laoag	46	34.2	66.1	93.4	187	38.3	5.8	2.8	.....	5.8	20.4	135.4	17	31	38.2	1,294
Aparri	.....	.....	.....	.....	27.8	2.1	.....	.....	.....	.5	34.3	50.2	.....	.....	.5	180
Cape Bojeador	24.9	5.3	18	46.7	143	16.5	67	.....	.....	.....	33.8	118.8	.....	2	2	657.5

[a] Voluntary or coöperative station.
[b] Rain in 24 hours beginning 8 a. m.
[c] Rain in 24 hours beginning 7 a. m.
[d] 30 days of observation.
[e] 27 days of observation.

BULLETIN FOR JULY, 1918.

MAXIMUM AND MINIMUM TEMPERATURES AT THE STATIONS OF THE WEATHER BUREAU, JULY 1918.

Day.	Jolo.		Isabela, Basilan.		Zamboanga.		Davao.		Cotabato.		Camp Keithley, Lanao.		Cagayan, Misamis.		Dapitan.	
	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.
	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.
1	31.5	24.9	33.6	22.5	28.8	23.4	28.7	22.5	30.5	24.1	27.5	20.4	32.2	23.9	32.6	22.4
2	30.6	23.4	32.6	23.1	29	23.5	30.2	22.5	30.5	24.8	27.5	20.4	32.8	24	33.1	23.5
3	30.9	23.5	30.6	23.1	28.5	23.5	30.5	21.5	30.7	22.8	25.9	20	30.6	23.4	30.9	23.5
4	30.7	23.7	30.8	22.1	28	22.6	30.2	21.7	27.9	22.6	26.2	18.6	31.2	21.9	28.7	23.4
5	31.5	23.4	31.3	22.3	28.9	22.5	30.4	20.6	29.8	23	25.7	20.5	31.3	22.3	29	22
6	29.8	25.2	31.1	23.1	28.5	23.5	29.2	21.5	28	22.2	25.2	19.4	28.3	22.2	26.1	22.1
7	30.2	26.6	30.1	21.6	28.7	23.5	27.9	21.5	26.5	22.3	24.4	19.8	32.1	22.9	30.6	22
8	32.4	25.5	32.1	22.6	29	24.5	29.2	21.7	28.5	20.8	25.4	18.5	31.9	22.1	31.6	21.5
9	32.3	25.5	32.1	21.7	30	24.9	31.1	20.5	30	23.1	26.9	20.5	33.7	23.4	32	23.9
10	32.1	25	32.6	21.7	29.5	24.6	30.1	21.2	31.8	23.1	26.4	20.4	34.8	22.5	33.2	22.6
11	31.7	25.5	34.1	21.1	30	23.4	31.1	20.8	31.4	23	27	21	35.4	22.6	33.5	23
12	32.1	23.2	36.6	21.6	30	24.2	30.9	21.8	31.1	23.2	27.9	19.5	34	21.6	34.5	23.5
13	31.7	24	35.3	21.1	29.5	24	30.5	22	30.9	23.1	27.4	19.5	33.6	20.3	34.2	23.4
14	31.9	24	34.9	21.1	29	23.4	31.2	22.6	31	23.6	27.8	20.3	34.1	21.6	34.5	23.3
15	32.1	24.5	34.1	22.1	29.1	23.8	31.5	22.4	30.9	23.1	27.4	21.1	32.8	22	34.3	23.1
16	32.1	25.2	32.8	22.6	29.5	23.8	31.5	23.3	30.7	23	26.6	20.4	32.6	23	32.5?	24
17	32.9	24.1	36.1	22.1	31.2	23.8	31.5	22.1	31.2	24	27.9	19.6	33.5	22.2	33.5	22.6
18	31.9	23	36.1	21.6	29.5	23.4	30.8	22.7	31.2	22.8	28.1	18.4	33.2	22.2	33.2	22.4
19	32.9	22.5	34.6	20.2	30.6	23.6	30.5	23.9	31.2	22.8	27.4	20.4	33	23.3	32.6	23.4
20	32.7	24.7	33.1	22.6	30	23.7	29.3	23	30.5	22.7	26.5	20	34	22	33.2	22.1
21	32.3	23.3	33.7	21.1	29.5	23.7	30.4	22.5	31.1	23.2	27.9	19.6	33.2	21.5	33.4	22.6
22	31.5	23	34.3	20.1	29.3	22	30.2	21.9	31.3	22.6	28.1	20	33.1	22.5	33.7	23.1
23	32	24.1	33.6	21.1	29.2	22.4	30.6	21.9	31.4	23.4	27.8	18.6	33.6	22.6	34.1	22.1
24	31.5	24.6	33.5	22.6	29.1	25.8	32.2	22	30.7	23.6	26.9	18.7	33.5	22.5	34	23.1?
25	32.3	24.5	33.3	22.1	29.4	24.1	32.9	22	30.8	22.5	27.4	20.5	34	22.1	32.2	23.8
26	32	24.5	32.7	22.6	30	24	33.3	22.5	31	23.7	27.3	20.3	33.9	22.8	34.5	22.4
27	31.9	25	33.1	22.8	29	24.8	32.5	22.3	29.8	23	25.5	19.5	30	22.8	32.4	23.8
28	32	23.6	32.4	22.1	28.6	24	33.1	22.5	31	22.6	27.3	19	31.2	21.6	33	22.5
29	31.8	24.1	33.6	22.1	29	24.2	32.6	22.2	30.9	23	27.2	19.7	31.8	22.5	33.2	23.6
30	32	22.5	33.1	21.1	31	22.5	31.4	21.9	31.2	22.7	27.5	19.5	32.1	21.8	32.4	22.7
31	32.1	21.6	34.6	21.6	29.4	24	33.4	22	31.1	22.6	29.5	19.1	31.9	22	33.2	22.6
Mean	31.8	24.1	33.3	21.9	29.4	23.7	30.9	22	30.5	23	27	19.8	32.7	22.4	32.6	22.9

Day.	Butuan.		Mambajao.		Dumaguete.		Yap, Western Carolines.		Tagbilaran.		Iwahig.		Surigao.		Maasin.	
	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.
	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.
1	32.8	23.8	32.7	25.5	30.7	21.6	30.1	24.1	30.9	22.8	31.1	20.1	31.9	24.3	33	23.2
2	33.3	23.6	33	24.1	31.7	21.8	31.1	22.7	32	23.5	30.6	21.9	31	23.8	32.6	23
3	32.6	23.2	29.6	22.7	30.4	23.2	30.3	25	31.3	22.9	32.9	20.1	30.7	23.4	32	23
4	33.3	22.3	30.5	21.5	31	22.8	30.7	22	31.6	22.8	31.5	21.4	30.4	24.1	30.5	22.4
5	34.2	22.2	30.6	23.1	28.8	21.4	30.5	23.8	30	23	26.1	21.5	30.8	24.8	29.8	23
6	29.2	22.5	28.6	22.7	27.7	21.7	28	22.1	28.8	22.9	27.3	19.7	29.4	25	29.2	23.6
7	31	22.4	31.2	23.2	28.9	23	29.2	22.5	29.5	23	30.1	20.7	29.4	23.7	31	24
8	30.9	23.9	31.6	22.2	32.2	22	30.1	24	31.7	23.6	32.5	19.8	29.4	24.2	30.5	22.2
9	33.2	23.3	32.2	25.2	30.9	24.6	30.3	25.1	30.7	24.8	33.6	20.1	30.6	27.1	29?	25
10	35.4	22.7	33.1	26.6	32.2	24.7	31.7	26	31.9	25.3	33.6	19.5?	32.3	27	32	23.6
11	35.6	23.2	34.2	26.6	32.8	25	31.7	24.4	31.4	23.8	32.1	19.4	33.2	24.7	30.6	24.9
12	36.5	23.3	35.2	25.2	33.4	22.6	33.3	24.3	31.5	23.1	32.1	21.9	34.2	23.5	31	24.1
13	35.9	23.5	34.2	25.7	35	23.7	32.8	24.5	33.5	24	34.1	19.6	33.9	23.8	30.5	24.2
14	35.1	23.7	34.2	26.2	34.6	23.4	31.7	24.8	33.6	24.2	33.9	18.8	33.6	26.5	31.4	23.5
15	35	23.3	34.1	26.2	33.8	21.7	32.8	24.2	32.5	24.3	33.8	19.1	33	26.3	32	23.4
16	33.4	24	33.1	25.6	34.1	23.7	33.3	24.7	31	24.2	32.6	20.3	33	24.9	32.5	23.8
17	34.6	23.3	34.7	25	33.9	21.8	31.7	24	31.9	23.6	32.6	19.4	33.4	24.8	34	23.7
18	36.7	23.1	33.5	24	33.9	21	30.7	24	32.1	22.6	32.6	20.3	33.3	24	34.2	23.6
19	36.4	23.3	33.5	25.7	33	21	30.8	23	32.1	22.6	33.6	19.9	32.9	23.3	34	23.5
20	35.6	23	33.7	24.2	34.2	21	31.8	22.5	32	22.3	32.2	20	33.2	23.9	33.4	23.4
21	34.1	22.4	34.6	24	35.1	20.3	31.7	22.5	33.3	23.3	33.3	19.9	33.1	23.6	34	24.2
22	35.1	23	34.3	25.1	32.8	21.2	31	23.5	33.8	22.9	32.5	19.1	32.9	26.9	33.4	24.8
23	35.7	22.7	35.7	26.3	34.7	21.3	30.4	23.5	33.6	25	33.1	19.6	32.9	26	34	24
24	34.7	23.7	34.2	27	32.3	22.7	30.9	23.5	32.9	25.5	32.8	20.7	32.1	26.9	31.4	23.5
25	35.8	23.2	33.2	26.9	27.6	22.6	31.2	23	31	24.4	32.2	22.9	32.1	26.9	30	25
26	34.8	23.3	35.2	26.7	32.4	21.6	31.2	24.5	32.7	24.9	31.6	21.4	32.8	25.8	32.6	23.4
27	34.2	23.4	31.9	27.1	32.4	23	30.3	24	32.7	25.8	31.9	20.1	32.1	24.7	31	25
28	32.2	22.5	30.6	23.3	33.2	22.2	32.7	23.1	32.3	25	31.5	19.9	30.9	23.8	32.5	24
29	34.6	22.5	31.6	23.5	31.4	23.2	33.7	24	32.2	25.1	28.1	20.1	31.1	23.5	33	23.8
30	34.4	22.2	32.4	23.2	30.8	24	33.8	24.5	32	24.5	30	22.6	31.9	23.7	34	23.3
31	33.8	22.4	32.6	22.6	30.4	22.4	33	24	32.6	23.2	31.5	20.6	31.5	23	34.8	23.4
Mean	34.2	23.1	32.9	24.7	32.1	22.5	31.4	23.8	31.9	23.8	31.9	20.3	32	24.8	32	23.7

Maximum and minimum temperatures at the stations of the Weather Bureau, July, 1918—Continued.

Day.	Cebu.		Iloilo.		San Jose Buenavista.		Cuyo.		Ormoc.		Guiuan.		Tacloban.		Capiz.	
	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.
	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.
1	31	24	31.2	24.2	31.9	23	30.6	26.1	32.8	22.1	33	26	32.9	23.4	32.5	23.8
2	32.5	24.9	31.5	24.8	33.4	23.4	31.4	23.9	32.9	21.9	33.5	23.1	32.9	23.6	32.3	22.8
3	30.4	23.6	31	24.5	32.1	23.5	31.7	24.7	31.9	22.2	31.9	24.1	31	23.4	32.8	23.9
4	29.5	24.2	30	23.5	29.8	22.1	28.4	23.8	31.8	21.6	30.3	23.4	30.8	23.7	32.7	24.2
5	28.7	24.5	28.5	23.6	26.7	21.1	27.3	22.9	31.1	23.5	31.4	25.1	30.7	23.1	31	23.2
6	29.6	24	30.3	22.6	29.9	22.5	28.3	25.2	31.2	24.5	30.1	25.1	32.1	22	31.7	22.4
7	28.8	23	28.4	21.8	29.8	23.3	28.8	24.7	30.9	25.8	30.4	26.9	31.9	23.4	32.2	22.6
8	31	24.5	29.4	23.8	30.2	22	28.9	23.2	30.3	23.6	28.6	24.3	29	23.5	31.6	22.5
9	30.9	26.5	29.6	26.1	30.2	26.1	29.3	25.4	30.6	23.9	30.2	27	31.4	23	34.2	24.7
10	31.2	26.4	30	23.2	30.6	25.5	29.3	27.2	31	23.9	30.3	27.5	33.1	24.4	33.9	24.1
11	29.6	26.2	30	24.6	30.7	26	29.6	26.8	31.8	27.3	30.8	27	33.5	23.6	34.2	24.8
12	30.5	25.9	30.6	24.3	31	25.5	29.4	25.2	32.4	25.8	31.5	27.1	35	22.6	34	25.7
13	30.4	27.3	28.2	22.8	29.5	23	29.9	25.2	32.4	23.4	32	27.1	33.1	22.9	33.3	24.9
14	31.3	26.3	30.3	24.8	30.9	24.1	30.2	25.1	32	23.9	32.2	27.3	33.8	21.5	34.9	24.5
15	30.1	26.6	28.4	23	29.9	23.5	29.9	26.8	31.7	23.4	31.9	27.3	34.4	22.2	32.6	23.9
16	30	26.6	30.3	23.9	31.1	22.5	28.4	23	32.6	22.9	31.1	27.3	34	22.4	33.2	23.1
17	30.2	26.3	30.3	26.6	31.4	23.4	30	25.6	32.9	24	31	27.5	34	23.7	33.4	22.7
18	30	26	30.4	25.7	31.2	24.2	30.2	26.3	33.2	22.9	32	27.4	34.5	23	34.1	24.8
19	30	26.3	30.5	26.5	31.3	24.6	30.5	26.6	33.3	22.7	32.2	27.2	34	22.9	33.6	24.5
20	30	26.2	30.5	25.6	31.5	24.3	30.3	26.1	33.1	22.9	32	25.7	34.2	23	32.7	24.1
21	30.4	25.1	30.7	25.9	31.9	23.7	30.2	27.1	33.2	23.5	32.3	26.2	34.5	23.4	33.7	23.6
22	29.7	25.2	30.1	25	31.8	22.5	30.1	24.3	33	22.4	32	27.6	35.4	23.5	34.1	23.5
23	30.9	26	30.9	26	31.6	24.8	30.4	25.6	33.6	22.9	32.8	26.2	34.5	23.5	34.3	24.5
24	29.3	23.7	30.7	25	32.2	24	30.2	24.6	33.4	23.5	31.7	27.2	34	23.5	34.3	24.7
25	29.6	25.9	28.1	24.2	27.9	23.5	29.8	26.7	31.8	23.9	31.1	26.6	32.1	23.6	32.8	25.2
26	30	26	29.6	22.8	29.3	24	27.8	24.8	32.8	25.4	31.4	27.4	33.4	23	32.4	23.6
27	29.6	26.4	28.5	24.2	29.7	22.5	28.8	23.3	32.8	24.7	30.7	23.5	32.4	24.1	32.2	23.7
28	30.6	26.2	28.3	23.1	28.7	22.3	29.3	23.7	32.5	25.8	32	26.6	33.2	23.4	32.5	23.5
29	30	24.9	29.8	24.5	30.6	23.4	29.6	23.9	33	23.9	33.6	27	34	23.1	33.1	23.5
30	31	23.9	29.8	25.2	31.8	22.8	30.7	25.3	33.4	23.1	33.5	26.7	34	23.6	33.9	24.1
31	32	25.5	30.6	23.7	31.2	21.8	30.7	24.7	33.4	22.4	33.7	25	34.6	23.9	32.2	24.2
Mean	30.3	25.4	29.9	24.4	30.6	23.5	29.7	25.1	32.3	23.7	31.7	26.2	33.2	23.2	33.1	23.9

Day.	Borongan.		Catbalogan.		Calbayog.		Masbate.		Romblon.		Batag.		Sorsogon.		Legaspi.	
	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.
	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.
1	32	23.3	31.2	22.5	30.5	22.9	32.6	25.2	32.5	25.2	31.8	23.5	32.5	-------	32.8	23.4
2	32.2	22.4	31	21.5	30.8	22.4	34	25	32.6	23.4	32	22.7	33	-------	32.2	23.2
3	31.6	22.4	30.3	22	30.8	22.6	31.6	25.6?	33.4	23	31.2	24	32.5	-------	31.3	22.9
4	32.1	23.7	29.4	22	28	22.8	30.4	24.8	33	23.4	27.3	23.8	32.5	-------	29.8	23.6
5	31.4	22.9	29.2	23.2	29	23.2	30.4	22.4	30.6	24.5	28.4	22.4	30.5	-------	28.3	22.6
6	32.7	24.5	31.2	23	29.5	23.7	31.2	25.2	30.1	23.1	30.3	22.8	30.8	-------	30.8	23.6
7	31.6	23	31.6	26.5	28.6	24.2	30.2	24.2	28.9	24	30.8	23.1	30.5	-------	30.1	23.7
8	30.3	23.6	30.5	24	28.1	25.5	30.8	24.2	29.7	23.8	29	23	30.6	-------	30.3	24.3
9	30.4	25.5	30.5	27	28.9	27.2	31	27.4	31.8	25.2	29.5	24.4	-------	-------	30.8	25.5
10	33.9	23	32.1	27	29.2	27.3	33	26.4	31.4	24.4	31.3	24	-------	-------	30.8	25
11	33.2	23.4	32.3	26.9	29.4	27.4	32	26.8	32	26.3	31.4	23.8	-------	-------	31.8	26.2
12	34	22.6	32.8	23.7	29.9	27.4	32	26.8	32	25.2	33	23.7	31.8	-------	31.9	25.6
13	34.2	23.8	32.5	23.5	29.4	27.4	32.2	26.2	32.8	26.4	33.4	24	30.7	-------	31.8	25
14	34.3	21.9	32.2	23	29.4	27.3	32	26.2	32	26.4	32.5	23.8	30.9	-------	31.5	25
15	33.7	21	32.3	24.7	29.7	26.9	31.4	25.2	33	25.6	31.2	24.4	30.7	-------	31.2	25.6
16	34.2	23.2	32.7	22.6	29.6	26.7	32.4	25.5	32.8	26.3	32.3	23.8	31.5	-------	31.9	24.5
17	34.1	22.9	33	22.7	30.1	25.4	32	25.6	31.9	26.2	31.8	23.7	30.5	-------	32.4	24.5
18	35.2	22.9	33	22.2	30.6	26.8	32.2	26.2	32	26.3	32.2	23.8	31	-------	32.3	25.1
19	35.2	22.6	32.7	23.9	29.9	25	32.2	25.8	33	26.2	33.4	23.6	31.3	-------	32.8	25
20	35.8	22.4	33	23.2	30.1	25	32.4	27.2?	33.4	25.4	33.3	23.8	32.9	-------	32.8	24.9
21	36	22.7	32.6	22.8	30	26.8	32.6	27.2?	32.4	24.7	32.6	24	31.7	-------	32.9	25
22	36	22.1	33.2	26.9	29.5	27.5	32.8	27.4?	33.9	25.9	33.1	24	31.5	-------	32.3	25
23	36.2	22.5	32.8	23.8	30.1	26.6	32.6	27.2?	34.3	26.2	32.4	24.6	31.5	-------	33.1	25.8
24	36.3	24.6	33	25.8	29.2	27.4	32.2	28?	34	26.7	33	25	31	-------	32.1	25.3
25	34.6	25.2	32.2	25.5	29	27.6	32.8	27.2	32.5	26.6	31.4	24.8	30.7	-------	31.2	25.4
26	33.8	24.1	33.6	24.2	29.3	27.4	29.8	26.6	32	25.3	30.9	25	31.7	-------	31.2	25.3
27	35	24	32.6	26	28.9	26.5	30.4	26.2	28.8	24	29.9	24.4	31.8	-------	28.4	23.3
28	34.2	23	33.7	24.7	31	25.1	30.8	26.6	30	23.6	34.6	23.8	31.9	-------	30.4	24.8
29	33.3	23	33	23	30.9	23.7	32	26.6	32	22.8	32.3	22	32.6	-------	32.6	23.8
30	33	22.8	33.2	23.4	30.6	23.7	31.5	25.2	30	23.8	32.9	24	33.2	-------	32.8	24.4
31	32.6	22.4	32.2	22.9	31	22.5	31.5	25.6	33.4	22.4	32.8	23.5	33.1	-------	32.2	23.7
Mean	33.6	23.1	32.1	24	29.7	25.5	31.8	26	32	24.9	31.7	23.8	31.6	-------	31.5	24.5

Maximum and minimum temperatures at the stations of the Weather Bureau, July, 1918—Continued.

Day.	Calapan.		Virac.[a]		Naga.		Tigaon.		Lucena.		Atimonan.		Ambulong, Tanauan.		Canlubang, Calamba.	
	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.
	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.
1	33.5	23.1	32.2	21.7	33.5	21.9	33.1	21	30	23.4	31.7	24.8	32	24	32	22.8
2	33.4	22.2	32.6	21.1	34.6	20.5	33.1	22.1	31	23.1	33	23.3	32.3	23.4	32.6	21.4
3	32.6	22.5	33.8	21	33.1	20.6	32.5	19.9?	31.7	22.4	33.3	23.1	32	23.8	31.8	22.2
4	33	22.1	29	22.1	33.1	21.9	29.4	22.3	30.9	22.2	31.1	22.8	30.1	23.3	31	22
5	31.8	24	29.5	21.3	28.8	20.6	28.1	21.6	28	23.6	27.8	23.8	29.1	23.8	28.6	22.4
6	32.5	22.5	31.5	21.4	31.8	21.6	29.8	23.2	30.2	23.5	31	23.4	28.9	24	29.4	22.4
7	31	22.5	31	21.6	31.4	22.8	30.2	23.9	30.5	22	31.5	23.1	29	23.5	30.6	22.6
8	29	23	31	21.9	32.5	22.9	31.1	23.8	27.7	24	29.8	24.4	27.3	24.2	29.2	23
9	29	23.5	31.3	22.3	31.9	22.4?	30.3	24.6	28.5	24.2	30.1	24.6	27	24.1	26.5	22.4
10	29.5	23	30	22.2	29.8	22.7?	28.3	23.8	27	23.4	27.1	24.2	27.4	24.2	28.8	22.8
11	32	23.5	32	22.4	31.6	22.6	30	23.4	26.5	23.1	29.6	23.8	28.5	25.5	30.4	23.2
12	33.5	23	33.6	22	32.1	24.2	31.1	25.3	31.7	25.2	32.8	23.3	29.8	26	31.6	23.8
13	33.5	23.5	33.8	22.5	32	24.2	31.1	25.1	32	25	32.2	25	29.6	25.1	32.2	24
14	34.1	23.4	33.5	22.6	31.9	23.9	30.8	24.9	31.5	25.8	31.5	26.8	28.4	25.7	30.8	23.9
15	33.5	24	32.2	23	31.1	23.8	30.4	25	30.9	25.4	31.7	26.4	28.2	24.4	30.4	23.6
16	34	22.3	32.8	22.7	31.7	23.2	30.9	24.9	31.5	24.4	32.3	26.4	29.6	26.6	32.6	23.4
17	34	24	33.5	22.5	31.9	23	31.4	24.7	30.9	25	33.2	25.8	29.5	26.6	32.2	23
18	33.4	23	33.5	22	32	22.8	31	25.3	32.9	24.2	32.6	26.1	30	25.7	32.1	23
19	33.5	22.6	35	22	32.6	22.3	31.6	25.1	33	25	33.1	26.2	30.2	26.2	32.8	22.8
20	33.6	22.1	35.2	21.8	32.6	21.7	31.6	24.5	33	24.5	32.6	26.1	30	26.5	33.1	22.4
21	33.9	22.1	35	22	32.8	22.3	31.5	24.9	33	24.9	33.4	25.2	30.4	26.4	33	22.3
22	35	22.5	34.5	21.7	33.4	22.1	31.7	24.8	32.8	24.9	33.7	26.7	29.3	26.7	33.2	23.6
23	34	22.5	35.5	21.1	34	23.6	31.8	24.7	32.9	25.6	34.5	26.7	31.2	25.2	32.2	22.8
24	33.5	22.5	30.4	22.1	33.4	22.6	31.7	24.7	32.7	25.9	34.5	26.2	30.8	26.4	32.6	22.7
25	33	23.5	32.5	22.3	33.2	23.3	30.5	24.7	30.9	26.2	33	24.5	30.7	24.2	32.8	24.1
26	33.5	23.9	32	23.2	31	22.9	29.3	24.1	31	24.4	32.6	24.7	29.1	23.6	30.9	22.5
27	31.6	23.2	30.5	22.4	30.5	23	28.3	23.9	28.8	23.9	28.9	23.3	27.3	23.6	29	22.6
28	28	23	32.6	22.3	30.4	22.5	29.9	23.5	26.7	23.6	28.1	24.6	25.2	24	25.6	22.5
29	30.5	23	33.3	22.3	33.6	21.4	31.5	22.7	28.5	23.7	29.9	25	30.2	23.2	32	22
30	32	23	33.2	22.9	33.5	22.2	30.6	22.2	32	24.5	32.7	24.5	33.4	23	32.4	23
31	32.1	21.5	32.7	22.1	35.4	20.5	33	21.2	32.3	24	33.6	23.2	32.3	23.5	33	22.9
Mean	32.5	22.9	32.6	22.1	32.3	22.5	30.8	23.6	30.7	24.2	31.7	24.8	29.6	24.7	31.1	22.8

Day.	Paracale.		Santa Cruz, Laguna.		Manila.		Antipolo.		Iba.		San Isidro.		Tarlac.		Baler.	
	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.
	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.
1	33.8	24.3	33.5	23.2	33	23.6	32.4	22.8	29.9	23.2	31.6	23.6	32.4	22.7	32.3	22.9
2	31.8	23.2	33.9	22.9	32.3	23.7	33	22.6	31.1	24	33	24.2	34.2	23.5	31.4	24.4
3	31.3	23.6	33.1	23.5	32.2	23.2	31.5	23.3	31.9	23.4	33.5	21.8	35.5	24.4	32.7	22.3
4	29.6	23.2	32.4	22.6	31.1	22.5	30.2	20.9	30.8	23.2	31.1	22.5	32.4	22.3	32.5	22.1
5	26.2	23.1	29.1	23.5	29	24.2	27.8	21	30.3	22.5	28.1	23.2	29.8	22.4	27.9	23.3
6	31.8	24	31.6	23.9	30.1	23.5	29.2	22	28.9	22.6	26.5	22.6	29.4	23	31.4	23.2
7	32	24	31.3	23.1	31	23 5	29.6	21.8	30	23	29.4	23.6	31.2	23.3	31	23.8
8	31	23.8	29.3	23	30.1	24.5	28.4	22.8	28.5	23	30.3	23.6	31.6	23.2	33.1	22.3
9	31.8	24	26.8	24	26.1	23.6	24.5	22.2	27.1	22.5	27.5	23.6	28.6	23.1	32.7	24.7
10	28.2	24.3	26.9	23.1	27.4	23.5	25.6	22	27.1	22.3	24.5	23.4	24.6	23	29.2	24.1
11	31.6	25.9	29.9	23.8	29.7	24.3	27.1	22	29	23	29.5	23.7	28.6	23.4	31.2	23.4
12	32.8	26	32	25.6	31	24.6	28.5	22.8	29.5	23.9	27.9	24.3	30.2	23.7	31	24
13	33	25.5	32.1	24.1	31	24.9	29.8	23	29.5	24.8	27.1	24.8	31	23.8	31.1	22.8
14	32.2	25.5	30.8	24.9	28.4	24.2	26.7	23	29.9	24.8	30	24.6	30.8	23.2	32.8	24.4
15	33.2	24.9	29.9	23.8	29.4	25	27.6	23	30.4	25.7	30.5	24.4	32	23.5	33	25.2
16	32.6	24.5	32	24	31.1	24.6	29.7	23.3	31	24.9	31.5	25.4	32.2	24.1	33.7	24.9
17	33.7	24.7	32.3	23.4	31.6	25.6	30	23.7	30	24.5	30.8	24.8	31.8	24	33.8	25.4
18	33.8	25	32.5	23.1	31.2	25.3	29.7	23.5	31	25.3	31	25	31.3	24	33.9	25.8
19	33.8	25.5	32.5	22.4	31.3	26.1	30.2	23.8	30.4	25.4	30.3	25	30.2	23.6	34.2	25.8
20	34.6	24.5	32.7	22.5	31.5	26	29.7	22.6	30.3	25	31.5	24.8	31.6	23.5	34	25.6
21	35	24.9	32.9	22	31.4	25.4	30.2	22.7	29.3	24.5	30.4	24.9	30.1	23.6	32.4	25.6
22	34.5	24.6	31.6	24	30.3	24.6	27.6	23.3	28.6	24.9	28.1	22.7	26.2	23.2	31.7	23.2
23	34.2	25.6	33.3	23.9	30.8	24	29.2	22.8	31.4	25.9	31.9	23.7	33	23	33.5	23.5
24	33.7	25.2	33.2	24.2	31	25.3	29.2	23	31.4	25.2	32.1	24.5	32.4	23.6	34.4	24.6
25	33.8	25.5	32.5	24.7	32.1	24.5	30.2	24	31.5	26.4	30.6	24.6	31.8	23	34.5	24.7
26	34.5	26	32	23.8	29.9	24.2	28.8	22	28.8	22.2	30.8	23.4	32.6	23	33.7	25
27	31.5	25.3	28.4	23.2	29.8	23.8	27.3	21.8	28.4	22.7	30.7	23.4	31.4	23.4	32.9	24
28	29.7	25	27.2	23	26.6	23.5	25	21.8	26.1	22.2	27.4	23.5	31.8	22.5	30.9	24.7
29	32.2	24.8	31.2	22.2	31	23	31.2	21.7	25.5	22.1	29.3	23.6	27.2	23	30.5	22.9
30	34.3	24.3	33.5	23.5	32.5	23.8	32.7	22.4	32.3	23.5	32.5	23	31.5	22.8	31.1	22.2
31	31.5	23	33.1	22.4	33.2	23.8	33.2	20.8	31.7	24.3	32.6	24.1	32.6	23.1	30.9	22.7
Mean	32.4	24.6	31.4	23.5	30.6	24.3	29.2	22.5	29.7	23.9	30.1	23.9	31	23.3	32.2	24

[a] The minimum temperatures of this station are not reliable: they seem to be too low.

Maximum and minimum temperatures at the stations of the Weather Bureau, July, 1918—Continued.

Day.	Dagupan.		Bolinao.		Baguio.		San Fernando, Union.		Echagüe.		Candon.	
	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.
	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.
1	31.2	24	31	24.5	20.4	16.1	33.3	24.7	35	23.5	32	25
2	35	24	33.4	24.5	24.1	15.6	34	23.7	34.5	22.7	32.6	25.5
3	34.4	24	31.9	24.9	23.8	15.8	33.1	23.2	33.6	22.8	32.6	25.4
4	32.3	23.5	31.9	25	23.1	14.8	33.3	23	32.5	22.5	32.6	24.4
5	31.6	24	31	24.2	21	15.4	32.1	24	29.5	21	31.5	26
6	29.9	23.5	30.8	24.1	21.7	16.3	30.8	24.4	31	24.1	32	26
7	32	24	31.1	24.3	22.6	16.2	33.4	24.4	34	24	33	25.8
8	31.4	24.1	31.2	24	22.1	15.3	33.3	24.5	35.6	22.7	32.4	25.5
9	29.6	23.5	28	23.6	22	15.2	32.1	24.5	36	22.9	32.4	25.5
10	24.4	23.1	27.8	23.7	17.3	15.6	26.5	23.2	31.5	23.3	29.5	25.4
11	29.5	23.2	31.3	23.7	17.8	16.5	30.5	23.6	35	23.3	29.5	25.2
12	31.5	24.5	31.4	25	17.9	16.2	31	24.5	35.1	23.6	29.8	25.5
13	30.6	24.9	31	25.8	18.1	16.4	31	25	36.5	23.6	31.6	25.2
14	28.3	25	29.7	25.1	17.8	16	29	25.1	34.5	23.6	30	26.6
15	31.4	25.2	32	26.2	18.1	16.5	32.4	24.5	38.1	23.4	29	25.2
16	32.6	24.5	32.1	25.7	18.3	15.9	31.4	25	37.5	24.1	29.7	25.4
17	30.5	25	31.2	25.1	17.8	15.9	30.5	24.6	37.6	22.7	31	25.6
18	31.6	24.9	31.4	25.5	17.8	15.7	30.4	24.9	38.6	22.3	31.2	25.6
19	31.4	25.5	31.7	26	18.5	15.9	31.4	25.5	39.5	22.4	31	26.4
20	31.6	25	31.8	25.5	17.9	15.6	30	25	37.7	22.5	29	25.4
21	26.8	24.4	29.9	24.5	17.4	15.4	26.6	23.1	33.4	23.9	30	25
22	25	22.4	29	25.5	17.6	14.6	27.4	21.3?	25.5	22.5	28.4	23.9
23	32.4	22.6	31.2	24	18.2	14.6	32.2	22.7	35.2	21	30.7	22.5
24	32.2	25.3	31.3	25.1	17.8	14.1	32	23.7	36.5	21.4	30.9	24.8
25	31.7	24.2	30.9	25.9	20.2	15.5	31.9	24.6	37.5	23.3	31	25.5
26	30.6	23.2	30.4	24	19.5	15.1	31.6	23.7	31.5	22.5	30	25
27	31.3	23.2	29.1	23.5	20.3	15.1	31	22.9	30.5	22.8	29.6	24.5
28	28.6	23.3	28.5	23.2	18.9	14.9	28.9	22.7	30.6	23.6	28.5	24
29	26	23.4	28	23.5	17	14.8	28.7	23.3	31.5	22.4	28.2	24
30	31.7	23.4	32.2	24	19.3	15.3	33.1	24.6	33.6	23	33	23.9
31	32.5	25	32	25.2	21.3	15.6	32.1	25.3	35	23.3	30.8	25.8
Mean	30.6	24.1	30.8	24.7	19.5	15.5	31.1	24	34.3	22.9	30.8	25.1

Day.	Vigan.		Tuguegarao.		Laoag.		Aparri.		Cape Bojeador.	
	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.
	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.
1	31.6	24.5	34.3	23.2	31.9	22.9	32.5	23.5	30.5	25.4
2	32.6	24.4	36.2	22.6	31.5	23.9	30	24.2	32.6	23.6
3	32.5	24.2	35.5	24	32.9	24.7	30.5	25	32.4	24.5
4	32.4	24.3	35.6	23.8	31.9	23.1	31.4	25.3	30.8	24.4
5	30.9	24.5	33.3	24.3	32.6	23	31	25.1	31.8	25
6	30	24.5	32.4	24.5	31.8	23.2	31	26.2	30.3	24.9
7	31.7	25.3	35.4	24.6	31.3	24.8	32.8	25.8	31.4	25.2
8	31.4	24.3	35.8	23.4	32.1	24	31.5	25.5	31.8	24.8
9	30.9	25.4	36.7	24.5	32.1	23.7	31.3	25.3	30.4	24.2
10	29.5	24.1	35	23.9	30.9	24.2	31.8	24.5	29.3	25.3
11	29.1	24	30.7	24.7	27	23.8	29.6	25.3	28.3	23.4
12	30.8	24.8	34.7	24.5	30.5	24.9	32.2	25.6	30.3	24.4
13	30	25.1	35.9	24.5	29.9	25.1	33.5	26.2	29.4	24
14	28.1	25	32.7	25.2	28.2	25.5	32	26.8	29.4	24.8
15	27.5	24.4	33.4	25.8	27.2	24.4	32.5	26.1	28.8	25.5
16	29.7	24.6	33.6	25.1	29.8	23.9	32.1	25.8	28.8	24.1
17	27.8	24.3	36	23.7	29	23.9	33.4	26.3	28.1	22.4
18	28.1	24.6	33.5	23.8	29.5	24.9	34.1	26.2	29.2	24.2
19	30	25.1	36.1	25.1	30.5	25.1	32.2	26.5	29.8	25.2
20	28.3	23.2	31.3	25.1	27.7	23.6	30.8	25.8	27.7	23.6
21	26.9	23.1	32.2	24.1	26	22.7	30.8	24.7	26.3	23.2
22	25.5	21.5	25.4	22.2	26.8	22.6	29.3	23.6	27.8	22.4
23	30.3	23.2	34.8	21.3	30.1	24	31.2	23.2	28.6	23.1
24	29.5	24.3	34.7	23.7	31	24	31.7	24.3	29.8	24.2
25	30.6	24.1	34.8	22.4	32.1	24.8	32.5	24.8	30.3	25.2
26	29.9	22.5	29.8	22.8	32	24.3	30	23.9	28.8	25
27	26.7	22.8	27.3	23.4	28.5	24.1	27.2	23.6	27	24.3
28	25.4	22.5	28	23.6	24.8	23.2	25.8	23.3	23.9	22.6
29	26.6	22.6	30.1	23.8	27.2	23	28.2	23.8	26.2	22.5
30	32	24	31.2	23.8	32.8	23.5	30.7	23.8	30.8	24.4
31	29.8	23.4	32.6	24	30.1	23.1	30.4	24.8	29.8	22.8
Mean	29.6	24	33.2	23.9	30	23.9	31.1	25	29.4	24.1

SEISMOLOGICAL BULLETIN FOR JULY, 1918.

By Rev. MIGUEL SADERRA MASÓ, S. J.,
Chief, Seismic and Magnetic Divisions, Weather Bureau.

EARTHQUAKES FELT IN THE PHILIPPINES.[1]

1, $6^h\ 10^m\ 24^s$ * [1, $14^h\ 10^m\ 24^s$]. **Eastern Visayas and Mindanao.** Earthquake of intensity VI and great extension. It was felt through the central and eastern Mindanao, the islands of Samar and Leyte and SE Luzon, an extension of about 1,000 kilometers in the SSE–NNW direction. The origin lay in the Pacific in the Philippine Deep, near to the 127th east meridian and the 9° N parallel. The shape of the epicenter seems to have been unusually elongated in the same direction of the Deep, SSE–NNW, because it did not propagate very far towards the W, in the Visayan islands of Bohol and Cebu. It was recorded in the Far East and America.

2, $17^h\ 57^m\ 23^s$ * [3, $1^h\ 57^m\ 23^s$]. **Butuan** (N Mindanao). Earthquake of intensity III–IV.

2, $23^h\ 09^m$ [3, $7^h\ 09^m$]. **N Mindanao.** Earthquake of intensity III, felt in the northern part of the Agusan Valley and westwards as far as the Camiguin volcanic island.

4, $12^h\ 10^m$ [4, $20^h\ 10^m$]. **Tigaon** (SE Luzon). Earthquake of intensity II–III; origin in the Isarog Mountain.

5, $4^h\ 24^m$ [5, $12^h\ 24^m$]. **Basco** (Batan Island). Subsultory earthquake, intensity III, duration 4 seconds. Repetition on the 6th at $3^h\ 30^m$ [$11^h\ 30^m$] with rumbling.

8, $15^h\ 17^m\ 24^s$ * [8, $23^h\ 17^m\ 24^s$]. **Butuan** (N Mindanao). Oscillatory earthquake, direction NE–SW, intensity III, duration 8 seconds. During the following 5 minutes occurred two light aftershocks.

9, $1^h\ 58^m\ 09^s$ * [9, $9^h\ 58^m\ 09^s$]. **NE Mindanao, Samar and Leyte.** Earthquake of intensity III. Repeated with the same intensity at $2^h\ 06^m$ and $3^h\ 07^m$ [$10^h\ 06^m$, $11^h\ 07^m$]. The origin of these shocks apparently was in the Pacific some distance from the affected coasts.

10, $14^h\ 20^m$ [10, $22^h\ 20^m$]. **Aparri** (NE Luzon). Oscillatory earthquake, intensity IV, duration 10 seconds.

11, $1^h\ 49^m$ [11, $9^h\ 49^m$]. **Lanao, Camp Keithley** (N Mindanao). Oscillatory earthquake, direction ESE–WNW, intensity III, duration 4 seconds.

11, $7^h\ 16^m$ [11, $15^h\ 16^m$]. **Butuan** (N Mindanao). Earthquake of intensity III, duration 2 seconds.

12, $2^h\ 26^m$ [12, $10^h\ 26^m$]. **Surigao** (NE Mindanao). Earthquake shock of intensity III, duration 3 seconds.

15, $16^h\ 21^m\ 15^s$ * [16, $0^h\ 21^m\ 15^s$]. **NW Luzon.** Oscillatory earthquake of intensity

[1] The intensity of earthquakes is given in the notation known as the Rossi-Forel scale. The time is that indicated by the seismographs at the Central Observatory whenever the disturbance has been registered by them. This fact is denoted by an asterisk (*). Otherwise the time is that noted by the observer who sent the report. All time indications are in Greenwich mean time (midnight=0^h), insular time being added in brackets for the convenience of Philippine readers.

III–IV felt in the province of Ilocos Norte, duration about 8 seconds. Apparently the epicenter was in the China Sea, off the coast of Ilocos.

15, $20^h\ 27^m$ [16, $4^h\ 27^m$]. **Naga** (SE Luzon). Earthquake of intensity III, duration 3 seconds.

18, $4^h\ 11^m$ [18, $12^h\ 11^m$]. **Surigao** (NE Mindanao). Earthquake of intensity III, duration 6 seconds.

31, $4^h\ 53^m\ 38^s$ * [31, $12^h\ 53^m\ 38^s$]. **Naga** (SE Luzon). Oscillatory earthquake, direction NNE–SSW, intensity IV, duration 10 seconds: preceded by rumbling. It was felt through the central and oriental portion of Ambos Camarines; the origin was some distance N of the province in the Pacific. Six minutes later occurred an aftershock of intensity II–III.

31, $13^h\ 34^m$ [31, $21^h\ 34^m$]. **Lanao, Camp Keithley** (N Mindanao). Oscillatory earthquake, direction SW–NE, intensity IV, duration 6 seconds. Recorded at Butuan.

RECORDS OF THE MICROSEISMOGRAPH.

[Time: Greenwich mean. Midnight=0h. Instrument: Wiechert seismograph; 1,000 kilograms. A_N: T_o=6.62, ϵ=2.726, $\frac{r}{T_o^2}$=0.021; A_E: T_o=6.03, ϵ=2.378, $\frac{r}{T_o^2}$=0.037. Alluvium. 2.40 meters above sea level.]

No.	Date.	Character.	Phase.	Hour.	Period.	Amplitude. A_N μ	Amplitude. A_E μ	Remarks.
				h. m. s.				
219	1	III$_V$	iP	6 10 24				Eastern Visayas and Mindanao.
			L	12 16				
			M_{E1}	12 28	6		703	
			M_{N1}	12 47	6	1,143		
			M_{E2}	13 43	6		829	
			M_{N2}	13 45	6	1,229		
			M_{N3}	14 48	6	1,129		
			M_{E3}	15 30	6		788	
			F	8 10				
220	2	I$_V$	e	17 16 22				
			S	20 28				
			L	23 04				
			F	55				
221	2	I$_V$	eP	17 57 23				Butuan (N Mindanao).
			L	58 52				
			M_N	59 16	6	16		
			F	18 11				
222	2	I$_V$	eP	19 17 53				
			F	25				
223	2	I$_V$	eP	23 09 23				
			F	28				
224	3	III$_V$	eP	6 58 00				
			iS	7 02 24				
			iL	04 28				
			M_{E1}	06 12	8		788	
			M_{N1}	06 13	10	1,107		
			M_{N2}	07 39	8	1,167		
			M_{E2}	07 52	11		897	
			M_{N3}	09 00	10	1,064		
			M_{E3}	12 15	11		849	
			C	8 08 38				
			F	10 22				
225	3	I	e	14 55 51				
			F	15 22				
226	3	I$_V$	eP	17 24 00				
			L	24 15				
			M_N	24 18	3	129		
			F	30				
227	3	I$_V$	eP	19 12 44				
			F	17				
228	5	I$_V$	eP	23 31 28				
			F	33				
229	6	I$_V$	e	14 34				
			F	46				

Records of the microseismograph—Continued.

No.	Date.	Character.	Phase.	Hour.	Period.	Amplitude. A_N μ	Amplitude. A_E μ	Remarks.
				h. *m.* *s.*				
230	6	Iv	e	20 19				
			F	42				
231	7	Iv	eP	12 03 28				
			L	03 46				
			M_E	03 48	2		126	
			M_N	03 49	2	156		
			F	07				
232	7	Iv	eP	13 37 14				
			F	39				
233	8	IIr	e	10 28 16				
			iE_1	30 35	5		390	
			iN_1	30 50	6	357		
			iE_2	31 22	6		349	
			iN_2	33 28	7	471		
			iS	33 39				
			iN_3	35 53	8	658		
			iE_3	36 22	8		534	
			L	37 00				
			M_{E1}	41 11	13		685	
			M_{N1}	41 58	11	1,049		
			M_{E2}	42 44	11		678	
			M_{N2}	43 07	10	1,009		
			C	11 14 29				
			F	53				
234	8	Iv	eP	15 17 24				Butuan (N Mindanao).
			F	26				
235	9	Ir	eP	1 58 09				NE Mindanao, Samar and Leyte.
			S	2 00 12				
			L	00 50				
			M_E	01 03	6		209	
			M_N	01 11	9	230		
			F	20				
236	9	Iv	eP	3 07 24				
			F	20				
237	10	Iv	eP	2 09 39				
			L	09 56				
			M_N	09 57	4	350		
			M_E	10 22	3		182	
			F	17				
238	10	Iv	eP	21 45 43				
			L	45 55				
			M_E	46 04	3		114	
			F	50				
239	15	I	e	0 46 28				
			F	1 33				
240	15	IIr	eP	16 21 15				Off the western coast of Ilocos.
			S	23 21				
			L	23 53				
			M_N	24 51	6	328		
			M_E	25 02	7		264	
			F	53				
241	16	I	M_N	20 26 35	6	27		
			F	43				
242	17	Iv	eP	0 09 37				
			F	12				
243	17	Iv	eP	13 56 16				
			L	57 46				
			M_N	58 10	6	109		
			M_E	58 12	6		118	
			F	14 31				
244	17	Iv	eP	16 41 00				
			F	44				
245	18	Iv	e	2 11 18				
			F	24				
246	18	Iv	e	10 13 15				
			F	27				
247	18	Iv	e	22 44 22				
			F	54				

Records of the microseismograph—Continued.

No.	Date.	Character.	Phase.	Hour.	Period.	Amplitude. A_N μ	Amplitude. A_E μ	Remarks.
				h. *m.* *s.*				
248	20	Ir	e	12 45 51				
			L	49 21				
			M_N	49 47	8	23		
			M_E	50 21	8		18	
			F	13 07				
249	20	Iv	eP	13 32 21				
			L	34 18				
			M_E	35 06	5		26	
			M_N	35 53	8	36		
			F	58				
250	20	Iv	eP	15 20 52				
			F	29				
251	20	Iv	eP	15 56 52				
			F	16 10				
252	20	I	e	17 39 32				
			F	54				
253	21	IIr	e	6 17 23				
			S	22 29				
			L	23 38				
			M_{E1}	24 28	6		77	
			M_{N1}	24 39	5	79		
			M_{N2}	25 19	7	96		
			M_{E2}	25 44	7		84	
			C	7 18				
			F	8 21				
254	21	Ir	eP	9 52 21				
			L	59 18				
			F	10 55				
255	21	Iv	eP	23 32 13				
			F	35				
256	22	Iv	eP	4 15 18				
			L	15 38				
			M_E	15 42	2		64	
			M_N	15 46	2	63		
			F	19				
257	22	Iv	eP	4 19 40				
			F	23				
258	23	Ir	e	13 35 17				
			M_E	41 26	20		7	
			M_N	41 34	18	10		
			F	58				
259	25	Ir	e	20 57 52				
			S	21 04 09				
			L	10 08				
			M_N	11 12	17	5		
			M_E	13 01	16		11	
			F	40				
260	26	Iv	eP	23 05 51				
			L	06 11				
			M_N	06 12	2	213		
			M_E	06 12	2		156	
			F	12				
261	27	Iv	eP	16 18 43				
			F	21				
262	29	Iv	eP	9 46 34				
			L	47 48				
			F	55				
263	29	Iv	e	11 27				
			F	46				
264	29	IIr	eP	16 56 14				
			iS	17 01 06				
			iL	03 50				
			M_{N1}	04 38	11	136		
			M_{E1}	05 05	8		103	
			M_{N2}	05 49	10	177		
			M_{E2}	07 58	10		82	
			C	51 19				
			F	18 50				

Records of the microseismograph—Continued.

No.	Date.	Character.	Phase.	Hour.	Period.	Amplitude. A_N μ	Amplitude. A_E μ	Remarks.
				h. m. s.				
265	31	Iv	eP	4 53 38				Naga (SE Luzon).
			L	54 07				
			M_E	54 09	3		22	
			F	5 02				
266	31	Iv	eP	9 17 42				
			L	17 45				
			M_N	17 46	2	58		
			M_E	17 46	2		93	
			F	20				
267	31	Iv	eP	13 18 17				
			F	20				
268	31	Iv	eP	14 56 37				
			F	15 20				
269	31	Ir	eP	22 07 30				
			F	40				

TEMBLORES DE TIERRA SENTIDOS EN FILIPINAS.[1]

1, $6^h\ 10^m\ 24^s$ * [1, $14^h\ 10^m\ 24^s$]. **Este de Visayas y Mindanao.** Temblor de tierra de intensidad VI y de grande extensión. Sintióse en toda la parte central y oriental de Mindanao, en las Islas de Sámar y Leyte y en la parte SE de Luzón, o sea en una extensión de 900 a 1,000 kilómetros en dirección SSE–NNW. El origen se hallaba en el Pacífico en el Abismo de Filipinas cerca del meridiano 127° E y del paralelo 9° N; el epicentro parece tenía una forma muy prolongada en la dirección del Abismo, SSE–NNW, puesto que no se sintió a iguales distancias hacia el W, en las Islas Visayas de Bohol y de Cebú. Fué registrado en el Extremo Oriente y en América.

2, $17^h\ 57^m\ 23^s$ * [3, $1^h\ 57^m\ 23^s$]. **Butúan** (N de Mindanao). Temblor de tierra de intensidad III–IV.

2, $23^h\ 09^m$ [3, $7^h\ 09^m$]. **N de Mindanao.** Temblor de tierra de intensidad III, sentido en la parte N del Agusan y en la isla volcánica de Camiguín.

4, $12^h\ 10^m$ [4, $20^h\ 10^m$]. **Tigaon** (SE de Luzón). Temblor de tierra de intensidad II–III, origen en el Isarog.

5, $4^h\ 24^m$ [5, $12^h\ 24^m$]. **Basco** (Islas Batanes). Temblor de tierra subsultorio, intensidad III, duración 4 segundos. Repitió el día 6 a $3^h\ 30^m$ [$11^h\ 30^m$] con ruido subterráneo.

8, $15^h\ 17^m\ 24^s$ * [8, $23^h\ 17^m\ 24^s$]. **Butúan** (N de Mindanao). Temblor oscilatorio, dirección NE–SW, intensidad III, duración 8 segundos. Percibiéronse dos ligeras réplicas durante los 5 minutos siguientes.

9, $1^h\ 58^m\ 09^s$ * [9, $9^h\ 58^m\ 09^s$]. **NE de Mindanao, Sámar y Leyte.** Temblor de tierra de intensidad III. Repitió con la misma intensidad a $2^h\ 06^m$ y a $3^h\ 07^m$ [$10^h\ 06^m\ 11^h\ 07^m$]. El origen de todos estos temblores parece se hallaba algo lejos dentro del Mar Pacífico.

10, $14^h\ 20^m$ [10, $22^h\ 20^m$]. **Aparri** (NE de Luzón). Temblor oscilatorio de intensidad IV, duración 10 segundos.

11, $1^h\ 49^m$ [11, $9^h\ 49^m$]. **Lanao, Camp Keithley** (N de Mindanao). Temblor oscilatorio, dirección ESE–WNW, intensidad III, duración 4 segundos.

11, $7^h\ 16^m$ [11, $15^h\ 16^m$]. **Butúan** (N de Mindanao). Temblor oscilatorio, intensidad III, duración 2 segundos.

12, $2^h\ 26^m$ [12, $10^h\ 26^m$]. **Surigao** (NE de Mindanao). Temblor de tierra de intensidad III, duración 3 segundos.

15, $16^h\ 21^m\ 15^s$ * [16, $0^h\ 21^m\ 15^s$]. **NW de Luzón.** Temblor de tierra oscilatorio, de intensidad III–IV, sentido en la Provincia de Ilocos Norte, duración 8 segundos. Su epicentro se hallaba al parecer en el Mar de la China algo lejos hacia el W.

15, $20^h\ 27^m$ [16, $4^h\ 27^m$]. **Naga** (SE de Luzón). Temblor de tierra de intensidad III, duración 3 segundos.

18, $4^h\ 11^m$ [18, $12^h\ 11^m$]. **Surigao** (NE de Mindanao). Temblor de tierra de intensidad III, duración 6 segundos.

31, $4^h\ 53^m\ 38^s$ * [31, $12^h\ 53^m\ 38^s$]. **Naga** (SE de Luzón). Temblor oscilatorio, dirección NNE–SSW, intensidad IV, duración 10 segundos; precedido de ruido subterráneo. Este temblor fué perceptible en toda la parte central y oriental de la Provincia de Ambos Camarines, su epicentro parece se hallaba al N en el Mar Pacífico; 6 minutos después hubo una réplica de intensidad II–III.

31, $13^h\ 34^m$ [31, $21^h\ 34^m$]. **Lanao, Camp Keithley** (N de Mindanao). Temblor oscilatorio, dirección SW–NE, intensidad IV, duración 6 segundos. Registrado en Butúan.

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[1] **La intensidad de los terremotos se indica conforme a la conocida escala de Rossi-Forel. Cuanto a la hora de su ocurrencia, adoptamos la indicada por los sismógrafos de este Observatorio siempre que los hayan registrado, distinguiéndola por medio** de un asterisco (*). **En caso contrario copiamos la apuntada por los observadores que nos envían las notas. Todas las indicaciones del tiempo se refieren al tiempo medio de Greenwich (medianoche=0^h). Para conveniencia de los lectores de Filipinas se añade también el tiempo insular.**

THE GOVERNMENT OF THE PHILIPPINE ISLANDS

WEATHER BUREAU

MANILA CENTRAL OBSERVATORY

BULLETIN FOR AUGUST, 1918

PREPARED UNDER THE DIRECTION OF

REV. JOSÉ ALGUÉ, S. J.

DIRECTOR OF THE WEATHER BUREAU

MANILA
BUREAU OF PRINTING
1918

METEOROLOGICAL BULLETIN FOR AUGUST, 1918.

By Rev. JOSÉ CORONAS, S. J.,
Chief, Meteorological Division of the Weather Bureau.

GENERAL WEATHER NOTES.

Pressure and temperature.—The mean atmospheric pressure for this month is in all our stations somewhat higher than that of the preceding year and than the normal for August. The highest pressures were recorded on the 1st in Luzon, and on the 1st or 4th in the Visayas and Mindanao.

The mean monthly temperature is, with very few exceptions, slightly below the normal and the mean for August, 1917. The highest and lowest monthly temperatures for Manila were 32.4° C. and 22.2° C.: they were registered on the 2nd and 16th, respectively. The extreme monthly temperatures for Baguio were 24.8° C., 13.2° C. on the top of Mirador, and 25.9° C., 13.0° C. in the valley.

PRESSURE AND TEMPERATURE AT THE FIRST AND SECOND CLASS STATIONS FOR AUGUST, 1918.

Station.	Pressure.							Temperature.						
	Mean.	Departure from Aug., 1917.	Departure from normal.	Highest mean.	Day.	Lowest mean.	Day.	Mean.	Departure from Aug., 1917.	Departure from normal.	Highest.	Day.	Lowest.	Day.
	mm.	*mm.*	*mm.*	*mm.*		*mm.*		°*C.*	°*C.*	°*C.*	°*C.*		°*C.*	
Zamboanga	759.56	+1.27	.....	760.87	4	758.48	25	26.1	—0.2	.....	30.8	25	21.5	19,20
Tagbilaran	58.54	+ .77	+0.50	59.82	4	57.21	24	27	+ .1	—0.5	33.5	31	21.9	10
Surigao	58.29	+ .57	+ .48	59.66	4	56.88	24	27.4	+ .4	— .3	33 3	12	22.8	8
Cebu	58.49	+ .57	+ .69	59.87	4	56.98	24	27.6	— .1	+ .1	32.1	1	22.5	11
Iloilo	58.48	+ .73	+ .76	59.73	4	57.12	24	26.5	— .5	— .4	32.1	8	21.5	11
Tacloban	58.09	+ .46	+ .44	59.56	1	56.49	24	26.9	— .4	— .7	34.6	25,31	21.6	12
Capiz	58.20	+ .73	+ .60	59.69	4	56.56	24	26.6	— .5	— .4	33.5	8	22.3	5
Calbayog	58.12	+ .43	+ .50	59.58	1	56.54	24	26.5	— .5	— .9	31.6	3	22.2	3
Legaspi	57.83	+ .46	+ .70	59.71	1	55.90	24	26.6	— .8	— .7	33.4	5	21.8	3
Atimonan	57.67	+ .52	+ .90	59.67	1	55.29	24	26.5	—1.3	—1	34	8	21.4	6
Ambulong, Tanauan	57.49	+ .69	.....	59.27	1	55.13	12	26.2	—1.2	.....	33	8	22.2	15
Paracale	57.59	+ .43	.....	59.76	1	55.01	24	26.7	—1.2	.....	35.8	7	23	1
Manila	57.89	+ .60	+ .55	59.73	1	55.17	12	26.5	— .4	— .5	32.4	2	22.2	16
San Isidro	58.03	+ .66	+ .95	59.95	1	55.06	12	26.3	— .6	— .3	33.2	8	22.3	13
Dagupan	56.93	+ .42	+ .38	58.84	1	53.78	12	26.9	— .8	0	34	4	22.8	13
Baguio [a]	635.61	+ .19	+ .53	637.50	1	632.44	12	17.4	— .6	— .3	24.8	8,26	13.2	6
Vigan	756.82	+ .29	+ .39	759.02	1	753.07	12	26.9	— .3	+ .1	32	30	22.3	13
Tuguegarao	56.77	+ .54	+ .81	59.75	1	52.55	12	27.1	— .3	— .4	37.6	7	21.7	2
Laoag	56.74	+ .35	.....	59.11	1	52.82	12	26.1	— .7	.....	33.1	17	21.8	30
Aparri	56.91	+ .71	+ .99	60.05	1	51.90	12	27.4	— .1	0	33	7	22.6	2

[a] The barometric readings of this station are not reduced to sea level.

Rainfall.—While the monthly amount of rainfall for Mindanao and for a few stations of Luzon and the Visayas was smaller than the normal and than the total amount for August, 1917, it was greater in the great majority of our stations throughout Luzon and the Visayas. The total monthly rainfall for Manila was 483.7 mm., an amount which differs from that of the preceding year by +124.3 mm., and from August's normal by +120.3 mm. Baguio was one of the few exceptions for Luzon; it reported only 544.0 mm. for the month, the differences from the normal and from the monthly total of August, 1917, being —545.6 mm. and —133.4 mm., respectively.

RAINFALL AT VARIOUS STATIONS OF THE WEATHER BUREAU DURING THE MONTH OF AUGUST, 1918.

Station.	Total.	Departure from Aug., 1917.	Departure from normal.	Days of rain.	Departure from Aug., 1917.	Greatest rainfall in a single day.	Day.	Station.	Total.	Departure from Aug., 1917.	Departure from normal.	Days of rain.	Departure from Aug., 1917.	Greatest rainfall in a single day.	Day.
	mm.	mm.	mm.			mm.			mm.	mm.	mm.			mm.	
Jolo	117	−316.4	− 63.2	13	−15	43.7	14	Sorsogon	555.2	+369.8		19	+ 4	85.6	23
Isabela, Basilan	80.5	−316	−123.7	10	−18	22.3	10	Legaspi	234.9	+122.5	+ 65.7	21	+ 6	43.7	10
Zamboanga	65.5	− 68.5	− 26.1	11	− 8	17.5	19	Sumay, Guam	216.6	−253.5	−155	14	− 9	25.4	27
Davao	104.3	− 18.8	− 87.9	9	− 5	39.4	6	Calapan	99.4	− 10.7	− 1.8	14	+ 4	21.8	13
Cotabato	215.4	− 42.2	− 35.5	20	+ 3	27.2	19	Virac	183.2	+ 2.6	+ 54.7	23	+11	40.1	22
Camp Keithley, Lanao	197.5			23		34.5	9	Naga	267.3	+121.2	+109.2	23	+ 6	48.8	19
Cagayan, Misamis	138.6	−111.6		11	− 6	40.6	10	Tigaon	289.3			23		66.1	23
Dapitan	274.5		+165.4	15		78	15	Batangas	253.8	+150.7	+103.6	20	+ 3	68.6	1
Butuan	100.9	− 68.9	− 5.4	10	−10	43.4	13	Lucena	123.8	+ 22.4		16	+ 1	72.1	26
Mambajao	58.2	− 69.4		8	− 6	14	19	Atimonan	181.3	+ 51.4	+ 35.3	20	+ 9	41.8	16
Dumaguete	75.4	− 36.8		14	+ 6	13.5	27	Ambulong, Tanauan	210.9	+149.3		19	+ 3	30.5	12
Yap, W. Carolines	453.8	+224.8	+ 63.4	27	+ 2	76.2	18	Canlubang, Calamba	459.5	+343.6		23	+ 4	70.4	23
Tagbilaran	74.6	− 98.2	− 50.8	12	+ 4	20.9	14	Paracale	213.7	+ 86.9		20	+10	50.7	10
Iwahig	122.3	− 73.2		20	+ 2	34.3	17	Santa Cruz, Laguna	254.7	+169.4		23	+ 6	46.3	10
Surigao	150.9	+ 34.7	+ 56.1	19	+ 9	61.2	27	Manila	483.7	+124.3	+120.3	21	− 3	135.7	11
Maasin	307.4	+100	+ 94.4	11	+ 2	74.2	18	Antipolo	529.1	+223.4		26	+ 1	117.1	11
Cebu	148.7	+ 8.3	− 1.1	17	+ 2	20.1	27	Iba	702.1	+146.1	−215.1	28	+ 7	160.3	31
Iloilo	303.5	− 71.8	− 25	18	+ 3	99.2	11	San Isidro	376.6	+125.2	+ 86.7	25	+ 5	64.2	12
San Jose Buenavista	920.6	+534.2	+411.4	26	+ 5	111.5	23	Tarlac	400.6	+154.8	+ 49.1	20	− 6	57.7	12
Cuyo	711.1	+437.8	+324.4	24	+ 6	156.2	13	Baler	366	+267.1	+212.7	17	+ 1	38.6	18
Ormoc	227.3	+ 68.3	− 36	20	+ 3	38.4	15	Dagupan	509.5	+278.6	+ 35	25	+ 6	112.5	12
Guiuan	161.9	+118.3		18	+ 9	35.3	16	Bolinao	492.9	+138.4	− 64.7	22	+ 1	102.4	12
Tacloban	114.8	− 1.1	− 22	18	+ 1	25.7	15	Baguio	544	−133.4	−545.6	26	+ 1	80.6	12
Capiz	53.1	−114	−192.3	12	− 6	17.1	14	San Fernando, Union	551.8	+233	−122.4	19	+ 2	145.1	12
Borongan	202.3	+ 20.2	+ 66.5	19	+ 2	50.8	23	Echagüe	365.5	+165.4	+156.9	21	+ 7	82.3	17
Catbalogan	358.6	+221.8		18	+ 5	124.2	10	Candon	410.4	− 3.9	−278.1	17	+ 2	131	12
Calbayog	316.3	+ 78.8	+131.2	24	+ 5	57.8	17	Vigan	383.6	−162	−360	24	+ 9	65.3	12
Masbate	344.7	+165.2	+181.9	25	+11	71.9	10	Tuguegarao	166	−110.4	− 25.8	11	− 3	49	31
Romblon	123.5		− 31.6	15		34.8	12	Laoag	691	−183.6	−143.1	20	+ 4	205.4	12
Batag[a]	235.4			13		63.5	9	Aparri	251.9	+ .1	+ 22.3	17	+ 1	79.8	12
								Cape Bojeador	217.9	+ 36.4		10	+ 1	50.8	2

[a] 30 days of observation.

DEPRESSIONS AND TYPHOONS.

There were six typhoons in the Far East during this month, only one of which crossed the Philippine Islands through the Balintang Channel. Their tracks are given in Plate VI.

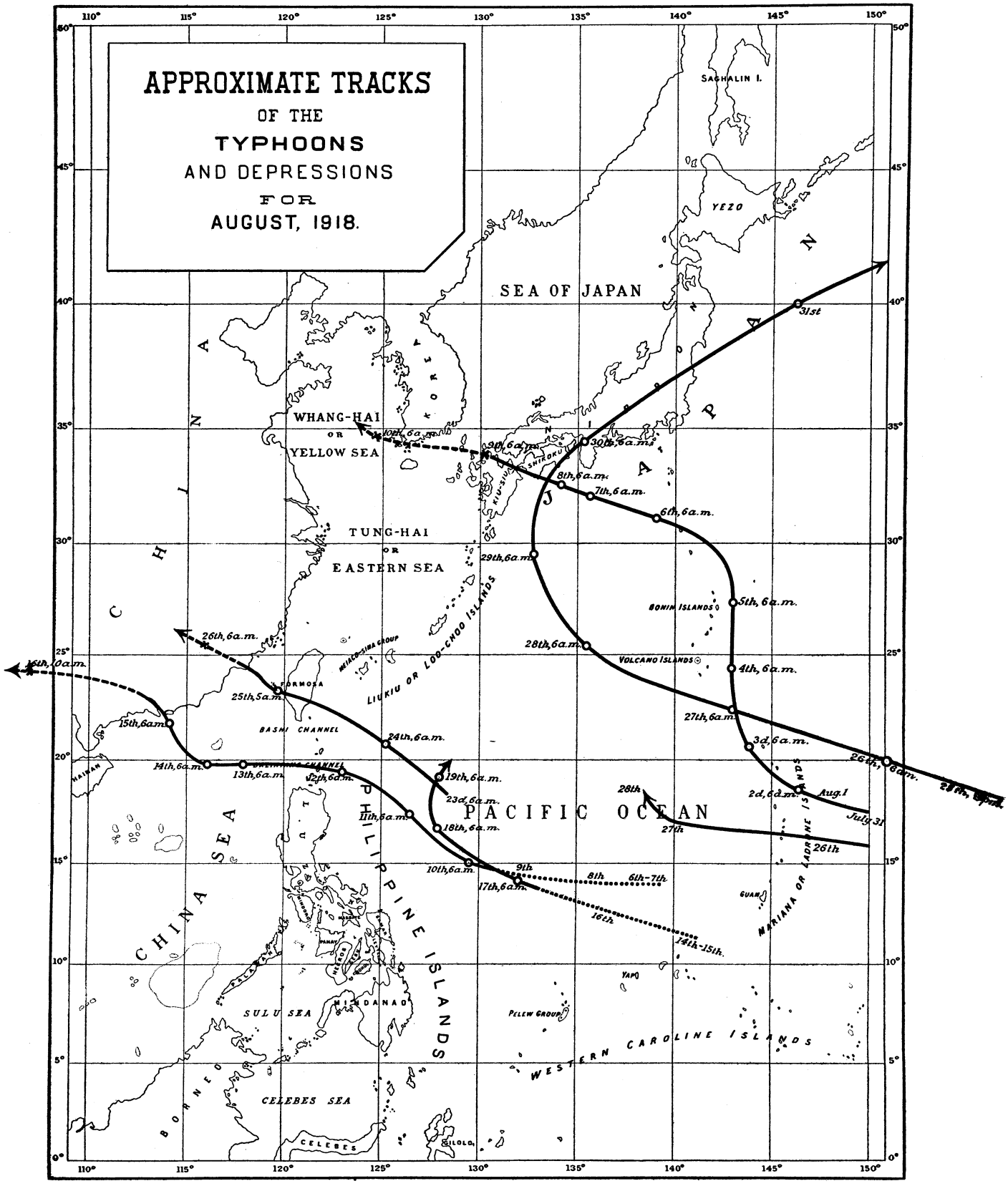
TYPHOON OF JULY 31 TO AUGUST 10, 1918.

This was a very well developed typhoon which appeared to the northeast of Guam on July 31, near 150° longitude E and 17° or 18° latitude N. It moved WNW until the morning of the 2nd when it began to incline nortward. Since the morning of the 3rd until the afternoon of the 5th the typhoon moved almost due north to the east of the Volcano and Bonin Islands near 143° longitude E. It moved again WNW since the afternoon of the 5th, and thus reached the southwestern part of Japan on the 8th.

TYPHOON OF BALINTANG CHANNEL AUGUST 6 TO 16, 1918.

The first part of the track of this typhoon up to 6 a. m. of the 10th is given only as probable being as it is based only on slight indications noticed in the observations of Yap and Guam for the 6th to 8th of this month. The center of the typhoon was situated at 6 a. m. of the 10th near 15° latitude N and 130° longitude E, and its direction was then NW. In the afternoon of the 11th the typhoon inclined westward, the Balintang Channel being traversed by the cyclonic center on the 12th in a direction almost due west. It would seem that this direction was kept up to the 14th when, the center being situated near 20° latitude N and 116° longitude E, the typhoon inclined suddenly NW and NNW thus going to pass quite unexpectedly near Hongkong in the morning of the 15th.

Plate VI.


APPROXIMATE TRACKS
OF THE
TYPHOONS
AND DEPRESSIONS
FOR
AUGUST, 1918.
SAGHALIN I.
YEZO
SEA OF JAPAN
JAPAN
CHINA
KOREA
WHANG-HAI
OR
YELLOW SEA
TUNG-HAI
OR
EASTERN SEA
KIU-SIU
SHIKOKU
HONSHU
BONIN ISLANDS
VOLCANO ISLANDS
LIUKIU OR LOO-CHOO ISLANDS
MIYAKO-SIMA GROUP
FORMOSA
BASHI CHANNEL
HAINAN
CHINA SEA
PACIFIC OCEAN
PHILIPPINE ISLANDS
LUZON
MINDANAO
SULU SEA
CELEBES SEA
BORNEO
CELEBES
SILOLO
PELEW GROUP
YAPO
GUAM
MARIANA OR LADRONE ISLANDS
WESTERN CAROLINE ISLANDS
31st
30th, 6a.m.
29th, 6a.m.
8th, 6a.m.
7th, 6a.m.
6th, 6a.m.
5th, 6a.m.
4th, 6a.m.
3d, 6a.m.
2d, 6a.m.
Aug. 1
July 31
29th, 6a.m.
28th, 6a.m.
27th, 6a.m.
26th, 6a.m.
25th, 5a.m.
24th, 6a.m.
23d, 6a.m.
19th, 6a.m.
18th, 6a.m.
17th, 6a.m.
16th, 10a.m.
15th, 6a.m.
14th, 6a.m.
13th, 6a.m.
12th, 6a.m.
11th, 6a.m.
10th, 6a.m.
9th
8th
6th-7th
16th
14th-15th
28th
27th
26th
110°
115°
120°
125°
130°
135°
140°
145°
150°
50°
45°
40°
35°
30°
25°
20°
15°
10°
5°
0°

DEPRESSION OR TYPHOON OF AUGUST 14 TO 19, 1918.

The observations from Yap and Guam seem to show this depression or typhoon as forming on the 14th between the two stations, near 141° longitude E and 11° or 12° latitude N. Very probably it moved WNW until the 17th when it began to recurve northward about 500 miles to the east of Luzon. The typhoon, after having recurved northeastward, seems to have filled up on the 19th or 20th near 20° latitude N and 128° longitude E.

TYPHOON OF FORMOSA AUGUST 23 TO 26, 1918.

The existence of this typhoon about 400 miles to the east of the northernmost part of Luzon was shown by the observations made on the 23rd in the Loochoos and the Philippines. The storm moved in a NW direction on the 23rd, and WNW on the 24th, crossing the southern part of Formosa during the night of the latter day. According to a report received from the Director of Taihoku Observatory, although the barometric minimum for several stations of Formosa was below 740 mm., yet "the damage done was relatively small as the rainfall was not heavy." The typhoon entered China very close to the south of Amoy in the evening of the 25th.

TWO TYPHOONS, AUGUST 23 TO 31 AND 26 TO 28, 1918.

According to a report received from the Commanding Officer of the U. S. S. Caesar, the first of these typhoons was probably formed already on the 23rd, between 160° and 165° longitude E and between 15° and 20° latitude N. At 2 p. m. of the 25th the center of this typhoon was situated in about 18° or 19° latitude N and 156° or 155° longitude E. The observations of Guam can hardly agree with those of the Bonins unless we admit that simultaneously with this typhoon a secondary depression or typhoon was formed on the 26th to the northeast of Guam near 150° longitude E and 16° latitude N, as it is shown in Plate VI. This secondary typhoon passed about 200 or 250 miles to the north of Guam on the 26th and probably filled up on the 28th near 18° latitude N and 138° or 139° longitude E, while the other was 300 miles to the south of the Bonins on the 27th moving WNW, then recurved northeastward on the 28th and 29th between 132° and 133° longitude E, and crossed the central part of Japan moving NE on the 30th.

NOTAS GENERALES DEL TIEMPO.

Presión y temperatura.—La presión atmosférica media de este mes es para todas nuestras estaciones algo mayor que la del año pasado y que la normal de agosto. Las presiones más altas se registraron el día 1 en Luzón, y el 1 ó 4 en Visayas y Mindanao.

La temperatura media mensual es, con muy raras excepciones, ligeramente menor que la normal y que la media de agosto de 1917. Las temperaturas máxima y mínima del mes en Manila fueron 32.4° C. y 22.2° C., las cuales se observaron los días 2 y 6, respectivamente. Las temperaturas extremas del mes en Baguio fueron 24.8° C., 13.2° C. en la cumbre del Mirador, y 25.9° C., 13.0° C. en el valle.

Precipitación acuosa.—La cantidad mensual de lluvia fué menor que la normal y que la lluvia total de agosto de 1917, en Mindanao y en unas pocas estaciones de Luzón y Visayas, pero fué mayor en la gran mayoría de nuestras estaciones de Luzón y Visayas. La lluvia total del mes en Manila fué 483.7 mm., cantidad que difiere de la del año pasado en +124.3 mm. y de la normal de agosto en +120.3 mm. Baguio fué una de las pocas excepciones en Luzón; sólo recogió durante el mes 544.0 mm., cantidad que es menor que la normal de este mes en 545.6 mm. y menor también que la lluvia total de agosto de 1917, en 133.4 mm.

DEPRESIONES Y TIFONES.

Durante este mes hubo en el Extremo Oriente seis tifones, de los cuales uno solo cruzó las Islas Filipinas a través del Canal de Balintang. Damos sus trayectorias en la Lámina VI.

EL TIFÓN DE 31 DE JULIO A 10 DE AGOSTO, 1918.

Este fué un tifón bien desarrollado que apareció al NE de Guam el 31 de julio, cerca de 150° longitud E y 17° ó 18° latitud N. Se movió al WNW hasta la mañana del día 2 en que empezó a inclinarse al N. Desde la tarde del 3 hasta la del 5 el tifón se movió casi directamente al N por el E de las Islas Volcano y Bonin, no lejos de 143° longitud E. Volvió a moverse al WNW desde la tarde del día 5, y así llegó a la parte SW de Japón el día 8.

EL TIFÓN DEL CANAL DE BALINTANG: AGOSTO 6 AL 16, 1918.

La primera parte de la trayectoria de este tifón hasta las 6 a. m. del día 10 se da sólo como probable, pues se funda únicamente en ligeras indicaciones que se echan de ver en las observaciones de Yap y Guam correspondientes a los días 6, 7 y 8 de este mes. El centro del tifón se hallaba a las 6 a. m. del día 10 cerca de 15° latitud N y 130° longitud E, moviéndose entonces en dirección al NW. La tarde del 11 el tifón se inclinó al W, atravesando el Canal de Balintang el día 12 en dirección casi exactamente W. Parece que el tifón conservó esta dirección hasta el 14, cuando, hallándose el centro cerca de 20° latitud N y 116° longitud E, se inclinó súbitamente al NW y NNW, yendo así a pasar muy inesperadamente cerca de Hongkong la mañana del 15.

LA DEPRESIÓN O TIFÓN DEL 14 AL 19 DE AGOSTO, 1918.

Las observaciones de Yap y Guam parecen indicar que esta depresión o tifón se estuvo formando el día 14 entre estas dos estaciones cerca de 141° longitud E y 11° ó 12° latitud N. Muy probablemente se movió al WNW hasta el 17 en que empezó a recurvar al N a unas 500 millas al E de Luzón. El tifón, después de haber recurvado al NE, parece haberse deshecho el 19 ó 20 cerca de 20° latitud N y 128° longitud E.

EL TIFÓN DE FORMOSA, AGOSTO 23 AL 26, 1918.

Las observaciones de Loochoos y Filipinas del día 23 señalaban claramente la existencia de este tifón a unas 400 millas al E del extremo septentrional de Luzón. El temporal se movió en dirección al NW el 23, y al WNW el 24, atravesando la parte meridional de Formosa durante la noche de este último día. Según una nota recibida del Director del Observatorio de Taihoku, aunque la mínima barométrica en varias estaciones de Formosa fué menor de 740 mm., con todo "el daño causado fué relativamente poco, pues la lluvia no fué abundante." El tifón penetró en China muy cerca y por el S de Amoy la noche del 25.

DOS TIFONES DE AGOSTO 23 AL 31 Y 26 AL 28, 1918.

Según las observaciones recibidas del Comandante del vapor americano Caesar, el primero de estos tifones ya estaba formado probablemente el día 23, entre 160° y 165° longitud E y entre 15° y 20° latitud N. El centro del tifón se hallaba a las 2 p. m. del 25 en los alrededores de 18° ó 19° latitud N y de 156° ó 155° longitud E. Los observaciones de Guam apenas concuerdan con las de Bonins si no se admite la existencia simultánea con este tifón de otra depresión o tifón secundario que se formó el 26 al NE de Guam cerca de 150° longitud E y 16° latitud N, como se ve en la Lámina VI. Este último pasó a unas 200 ó 250 millas al N de Guam el 26 y se deshizo probablemente el 28 cerca de 18° latitud N y 138° ó 139° longitud E, al paso que el otro pasó a unas 300 millas al S de Bonins el 27 moviéndose al WNW, recurvó luego al NE el 28 y 29 entre 132° y 133° longitud E, y cruzó la parte central de Japón moviéndose al NE el día 30.

METEOROLOGICAL DATA FOR MANILA CENTRAL OBSERVATORY.[a]

[ϕ=14° 34′ 41″ N; λ=120° 58′ 33″ E; barometer above sea, 14.2 meters; gravity correction not applied, —1.72 mm.]

Day.	Pressure (mean).	Air temperature.[b] Mean.	Maximum.	Minimum.	Underground temperature. 0.25 meter. 8 a.m.	0.25 meter. 2 p.m.	0.50 meter. 8 a.m.	0.50 meter. 2 p.m.	1.50 meters. 8 a.m.	2.50 meters. 8 a.m.	Relative humidity (mean).	Vapor pressure (mean).	Radiation. Minimum on grass.	Radiation. Maximum in sun. Black bulb in vacuo.	Evaporation.[b] Free exposure (total).	Shelter (total).
	mm.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	*Per ct.*	*mm.*	°C.	°C.	*mm.*	*mm.*
1	759.73	26.7	31.8	23	28.9	29.7	29.2	29.3	29.1	28.2	85.4	21.9	21.2	49.6	5.1	2.1
2	59.19	26.7	32.4	22.6	28.9	29.9	29.2	29.4	29	28.2	85.9	22.2	20.6	53.5	3.6	2
3	59.25	27.5	31.9	23.3	29.3	30.2	29.5	29.5	29	28.2	83.3	22.6	21.7	53.6	4.4	2.6
4	59.52	27.9	31.7	23.4	29.3	30.5	29.6	29.8	29	28.3	81.1	22.4	21.3	51.5	4.8	3.1
5	59.11	27.6	31.6	23.7	29.6	30.4	29.9	29.8	29	28.3	82	22.3	22.2	52.4	4.5	3
6	58.59	27.6	31.5	23.7	29.5	30.5	29.8	30.1	29	28.2	81.6	22.2	22.2	53	5	3.3
7	58.36	28.3	32	24.9	29.5	30.7	29.8	30.1	29.1	28.2	79.6	22.7	23.2	53.5	5.2	3
8	58.40	28.2	31.6	24.7	29.8	30.7	30.2	30.2	29.3	28.2	81.9	23.2	23.8	52.6	4.7	2.9
9	58.25	27.2	31.3	24.5	29.7	30.5	30.1	30.2	29.3	28.2	86.2	23	23.6	55.2	2.3	1.8
10	57.45	25.4	30.2	22.4	29.6	30.1	30.1	30.2	29.3	28.3	91.5	22	23	45.8	1.1	1
11	56.47	24.1	26.1	22.5	28.5	28.8	29.8	29.3	29.3	28.1	95.5	21.2	21.6	33.4	.3	.8
12	55.17	25.3	28.8	23.5	26.9	27.5	28.1	28.2	29.3	28.2	90	21.5	22.4	48.8	1.6	1.8
13	56.29	24.3	26.3	23	27.2	27.3	28.1	28	29.4	28	93.7	21.1	22.3	38.4	.4	.9
14	57.80	26.4	30.3	23.5	27	27.8	28.2	28.2	29.4	28.3	86.3	21.9	21.9	48	2.5	1.5
15	58.92	26.1	31.5	22.3	27.5	28.4	28.3	28.5	29.3	28.2	86.8	21.6	20.9	52.9	2.1	1.5
16	59.36	25.9	31.3	22.2	27.9	28.7	28.6	28.8	29.3	28.3	88.8	21.9	20.6	51.4	2	1.3
17	58.94	26.4	31	24	28.2	28.9	28.8	29.1	29.3	28.2	88.9	22.6	22.8	51	2	1.5
18	57.25	26.9	31	23.2	28.4	29.2	29.3	29.2	29.2	28.4	87.8	23	22	53.5	3.8	2.5
19	57.17	26.8	31.5	24.5	28.8	29.6	29.3	29.5	29.2	28.3	88.6	23.1	24	54.5	3.4	1.7
20	57.89	26.1	29.9	23.9	28.5	29.3	29.4	29.5	29.2	28.2	90.1	22.5	23.2	53.5	2.2	1.8
21	58.17	25.9	29.7	22.5	28.3	28.8	29.2	29.2	29.3	28.4	90.9	22.4	21.7	52.7	1.9	1.5
22	58.27	26.6	30.1	24.1	28.5	29.4	29.2	29.5	29.4	28.2	88.8	22.8	23.4	54.2	2.6	1.6
23	57.41	26.4	30	23.5	28.5	29.1	29.4	29.5	29.3	28.3	88.3	22.5	22.6	55	3.2	2
24	55.44	26.9	30.2	25.1	28.5	29.2	29.4	29.4	29.3	28.3	87.5	22.9	24	53.4	2.9	1.8
25	55.88	27	30.7	24.9	29	29.5	29.5	29.7	29.2	28.3	87.1	22.9	24.2	54	2	1.7
26	57.42	25.6	30.5	23.6	29.1	29.4	29.7	29.7	29.3	28.4	92	22.4	23.8	56	1.4	.9
27	57.35	26.2	31	23.5	28.9	29.5	29.5	29.8	29.3	28.2	88.9	22.3	22.7	56.2	2.1	1.4
28	57.04	25.9	29.7	23.2	28.6	29.1	29.5	29.7	29.4	28.1	90.5	22.4	22.7	52.3	1.7	1.2
29	57.95	26.5	31	24.1	28.6	29.5	29.5	29.6	29.3	28.3	86.4	22.1	23.4	52.5	3.9	1.8
30	58.45	25.8	30.6	23.3	28.8	29.4	29.7	29.7	29.3	28.3	88.8	21.9	21.9	56	2	1.7
31	58.24	25.8	29.5	22.8	28.6	29	29.6	29.7	29.3	28.1	87.5	21.5	22.2	45.7	2	1.4
Mean	757.89	26.5	30.5	23.5	28.7	29.4	29.3	29.4	29.2	28.2	87.5	22.3	22.5	51.4	2.8	1.8
Total															86.7	57.1
Departure from normal	+0.55	—0.5	—0.3	—0.2							+2.4	—0.1				

Day.	Wind. Prevailing direction.	Total movement.	Maximum hourly velocity.	Direction at the time of the maximum velocity.	Clouds. Amount (mean).	Form and direction. Upper.	Lower.	Sunshine.	Rain, 24 hours beginning 6 a.m. On the tower.	In the park.	Miscellaneous.
		Km.	*Km.*		*0–10.*			*h.* *m.*	*mm.*	*mm.*	
1	SE	138.5	11.5	W	8.8	ci., Ci.-S. NE	S.-Cu., Cu. E	2 55			⌐◪ p.
2	E quad.	143.5	18	W	6.6	A.-Cu., Ci.-S.	Cu., Cu.-N. ESE	8 50			⌒° p.
3	WSW	253	23.5	WSW	7.1	Ci. ENE	Cu.	8 00			
4	SW	342	26	WSW	2.4	Ci.	Cu.	10 35			
5	WSW	356	26	SW	5.6	Ci.	Cu. W	9 35			p° a.
6	SW	367.5	31	SW	7	Ci. ENE	Cu. WSW	10 00			Ω° a.
7	SW	408.5	30	SW	7.1	A.-Cu. E quad.	Cu. WSW	8 05	6.9	7.4	
8	SW	348	28	WSW	5.7	Ci.	Cu. WSW	10 10	3	3	● a.
9	SW quad.	192	20	WSW	9.3	Ci.-Cu. NE	Cu. W	2 55	3.8	3.9	●° a. p. ⌐◪ p.
10	SW quad.	209	21.5	SW	9.8	Ci.-S.	Cu., N. W quad.	0 30	55.7	63	d a. ●² p.
11	SSW, SW	303	33	SW	10		N. WSW	0 00	135.7	140.4	●² a. ● a. p. ⌐°° p.
12	SSW	477	34	SSW	10	Ci.-S.	N. WSW	0 25	13.7	13.7	● a. d p.
13	SE quad.	253	28	SW	10	Ci.-S.	Fr.-N. WSW	0 00	18.3	17.3	● a. ●° p.
14	SE quad.	152	18	SSW	10	Ci.-S.	Cu., S.-Cu. SW	0 00			
15	E quad.	66	8.5	WSW	9.2	Ci.-S. W	Cu. SSW	3 45			Ω² ⊕° a. ⊕ p.
16	NE, WSW	89	15	NW	8.4	Ci.-S. SE	s.-cu., cu.-N. ESE	5 05	.1	.1	Ω² ⊕ a. d° p.
17	W quad.	162.5	16.5	SW	9.4	A.-Cu. E	Cu.-N. ENE	2 45	1.7	1.7	d° a. ⌐◪ d² p.
18	SW	291.5	27	WSW	7.9	A.-Cu. WNW	Cu.-N. WNW	6 00			Ω² a. ⌒ p.
19	SW	260	27.5	SW	7.3	A.-Cu., Ci.	Cu. WNW	8 25	80.5	83.9	●² p.
20	SW	285.5	25	SW	8.8	Ci.-Cu. ENE	Cu. WbyS	4 30	44.9	47	d a. p.
21	SW	274	20.5	SW	8.4	A.-Cu. E, W	Cu. W	4 25	8.4	8.6	●² a.
22	SW quad.	236.5	31	SW	8.7	A.-Cu. SE	Cu. W	5 50	44.9	45.7	d a. ⌒ ⌐◪ ●° p.
23	SW	267	23	SW	8.7	Ci.	Cu. WSW	3 15			●² ⌒ a.
24	SW	457	30	SW	7.8	A.-Cu.	cu., cu.-N. WbyS	6 25	1	1.1	d a. p. ⌐ p.
25	SSW, SW	295	24	SW	7.8	A.-Cu.	Cu. WSW	6 25	4.3	4.8	d° a. ⌐° p d p.
26	SW	208	24	SW	9.7	Ci.-S.	Cu. E, ESE	2 20	3.9	3.7	Ω² a. ●° p.
27	SW	172	25	SW	8.7	Ci. ENE	Cu., Cu.-N. NW	2 55	26.4	25.3	Ω² d° a. d² p.
28	SW	125	18	SW	9.3	Ci.-S.	Cu.-N. WSW	1 30	14.2	13.3	●² a. d p.
29	SW	237.5	25	SW	7.3	Ci.	Cu. W, WSW	6 15	2.3	2.3	●° a. ⌐°° d° p.
30	SE, SW	294.5	39	SW	7.8	A.-Cu.	Cu. WSW	5 30	6.4	6.6	Ω² ⌐° d a. ● ⌐°° p.
31	SW	310	33	WSW	9.7	A.-Cu.	Cu. SW	0 30	7.6	7.9	d a. ●° p.
Mean		257.2	24.5		8.2			4 46			
Total		7,974						147 50	483.7	500.7	
Departure from normal		—1,476.2			+0.3			+5 59	+120.3		

[a] All the mean values given in this table are deduced from hourly observations.
[b] These values are taken from instruments mounted in the Observatory Park, 1.5 meters above ground.

METEOROLOGICAL DATA FOR MIRADOR OBSERVATORY, BAGUIO.[a]

[ϕ=16° 25′ N; λ=120° 36′ E; barometer above sea, 1,512.5 meters; gravity correction not applied, —1.65 mm.]

Day.	Pressure[b] (mean).	Air temperature at Mirador (on the top of the mountain).					Air temperature in the valley (near the city hall).				Relative humidity (mean).	Vapor pressure (mean).	Radiation.		Evaporation.	
		Mean.	Maximum.	Hour.	Minimum.	Hour.	Maximum.	Hour.	Minimum.	Hour.			Minimum on grass.	Maximum in sun. Black bulb in vacuo.[c]	Free exposure (total)	Shelter (total)
	mm.	°C.	°C.		°C.		°C.		°C.		*Per ct.*	*mm.*	°C.	°C.	*mm.*	*mm.*
1	637.50	17.4	22.7	0.50p.	15.2	11.00p.	22.9	3.10p.	15.5	8.00a.	88.3	13	14.5	51.2	2.5	1.4
2	36.73	17.1	20.8	1.55p.	15.1	4.45a.	21.4	4.00p.	14.6	8.00a.	84	12.1	13.6	43	3.8	1.9
3	36.68	17.5	21.9	Noon	14.8	6.00a.	22.3	2.50p.	15	6.10a.	83.7	12.4	13.6	50.7	3.1	1.7
4	37.11	17.8	22.9	Noon	14.5	5.40a.	23.4	2.00p.	14.7	7.35a.	85	12.8	13.5	56.6	3.3	1.5
5	37.06	17.6	23.5	1.05p.	14.6	4.00a.	23.5	2.45p.	14	5.30a.	87.8	13	13	58.6	3	1.6
6	36.49	17.3	22.6	Noon	13.2	5.55a.	23.5	0.40p.	13	5.15a.	86	12.7	11.1	58.4	2	1
7	36.38	17.3	22.3	11.35a.	14	4.25a.	22.4	0.05p.	13.7	0.05a.	91.8	13.4	11.1	56.1	.7	.5
8	36.51	18.2	24.8	1.50p.	14.6	5.40a.	24.7	0.25p.	14.6	5.55a.	90.5	13.9	13.8	57.3	2	.7
9	36.35	18	23.5	1.25p.	15.8	7.20p.	23.6	1.00p.	16	12 m. n.	93	14.3	13.7	57.5	1.1	.6
10	35.33	16.8	22.8	0.40p.	15.2	6.30a.	21.8	1.00p.	15.3	10.45p.	94.3	13.5	15.2	61.2	0	0
11	34.10	16.7	20	2.00p.	14.9	5.40a.	21.2	1.55p.	15	4.20a.	97.2	13.8	13.7	45.5	0	0
12	32.44	16.3	17.3	10.00a.	15	0.05a.	19	10.55a.	15	3.00a.	98.8	13.6	14.9	46.5	0	0
13	32.86	16.2	17.7	3.25p.	15.4	11.25a.	18	3.30p.	15.6	5.35a.	97.2	13.2	15	41.2	0	.5
14	34.98	16.4	17.2	5.10p.	15.3	10.00p.	18.3	1.35p.	15.7	6.30a.	96.7	13.4	15	41.4	0	0
15	36.60	18	22.8	2.05p.	15	5.20a.	23	3.40p.	15.5	5.25a.	91	13.8	14.6	55.5	1.9	1.2
16	37.25	18.3	23.3	10.25a.	14.7	5.20a.	24.2	10.40a.	14.5	6.00a.	88	13.7	12.5	60.7	2	.7
17	36.83	17.8	22.1	1.40p.	15.5	11.20p.	23.4	1.15p.	15.2	12 m. n.	93.7	14.2	12.3	51.3	1.3	.6
18	35.12	17.2	22.7	1.20p.	14.9	4.25a.	23.6	Noon	14.5	5.15a.	96.3	14	13.4	56.1	0	0
19	35.06	16.8	20.8	0.05p.	14.8	3.50a.	20.6	0.45p.	15.2	4.10a.	99.2	14.2	13.3	50.5	0	0
20	35.31	17.1	22.9	0.20p.	15.5	1.40a.	22.7	1.05p.	15.8	2.00a.	96.5	14	14.4	60	.7	.5
21	35.89	17.8	22.3	10.35a.	15.4	5.00a.	23.6	10.35a.	15.8	1.10a.	92.7	14	14.6	60.6	.7	.5
22	36.01	17.6	22.3	1.55p.	15	4.10a.	23	0.50p.	14.9	4.40a.	94.7	14.2	13.8	56	.5	0
23	35.43	17.6	22	1.30p.	15.4	4.00a.	22.6	1.50p.	15	3.10a.	96.8	14.5	13.7	54.4	0	.4
24	33.64	17.6	23.1	0.10p.	15.1	5.40a.	23.7	1.05p.	14.3	12 m. n.	92.3	13.8	14.4	60.7	1.9	1
25	34.07	18.4	23.6	0.40p.	14.5	5.00a.	24.1	11.20a.	14.2	6.00a.	87.7	13.7	12.3	56.7	2.7	1.1
26	35.28	18.3	24.8	11.35a.	16	5.00a.	25.9	0.20p.	15.9	5.25a.	91.2	14.1	15	64.1	2	1.1
27	35.33	17.8	22	11.05a.	15.8	5.55a.	22.4	11.00a.	15.8	6.05a.	93.2	14.1	14.5	49.4	.4	.3
28	34.80	18.1	23.8	1.00p.	15.7	5.55a.	24.6	1.40p.	15	6.00a.	91.2	14.1	14.2	60.1	2.2	1
29	35.24	17.4	22.3	0.20p.	16.2	6.35a.	22.8	1.00p.	16.2	12 m. n.	95	14	15	60.4	.8	.3
30	35.78	17.4	22.5	10.35a.	15.3	6.00a.	23.7	0.20p.	15.4	6.20a.	92.8	13.7	14.2	56.5	.9	.5
31	35.66	17	20.9	10.30a.	15.7	12 m. n.	21.5	10.30a.	15.8	5.55a.	96.3	13.9	14.1	55.2	.1	.3
Mean	635.61	17.4	22.1		15.1		22.6		15.1		92.4	13.6	13.8	54.6	1.3	0.7
Total															39.6	20.9

Day.	Wind.				Clouds.			Sunshine.	Rain, 24 hours beginning 6 a. m.	Miscellaneous.
	Prevailing direction.[d]	Total movement.	Maximum hourly velocity.	Direction at the time of the maximum velocity.	Amount (mean).	Form and direction. Upper.	Lower.			
		Km.	*Km.*		*0–10.*			*h. m.*	*mm.*	
1	E, SE	208.4	16.4	E	9.9	Ci.-S.	Cu.-N. ESE	2 20	33	⊕ ● ⌐◹ p.
2	SE	224.7	14.7	E	9.4	Ci.-S.	Cu.-N. SSW	0 40	-------	d° a.
3	SW	306.2	22	SW	9.7	Ci.-S.	Cu.-N. SSW	2 20	11.4	⌓° a. ⌐◹ ● p.
4	W, SW	501.8	34.9	W	5.6	Ci.-S. ESE	Cu.-N. SSW	8 25	-------	≡ p.
5	W	426.6	25.9	W	4.3	Ci.	Cu.-N. WSW	6 55	-------	⌓² a. d° ◟° p.
6	W	348.1	24.4	W	6.6	Ci. EbyN	Cu.-N. W	5 25	2.5	● ≡² p.
7	W	e228.2	-------	-------	9	Ci.-S., Ci.	Cu.-N. WbyN	2 30	1.3	d° ≡° a. ●° ≡² p.
8	W	303.1	23.8	W	5.7	Ci.	Cu.-N. WSW, WSW	6 25?	2.8	≡² ● ⌐◹° p.
9	W	278.9	24.6	W	9.1	Ci. E	Cu.-N. WNW	4 15	7.1	● ≡² a. ●° ≡ ⌐◹ ◟° p.
10	W	270	20.4	W	10	-------	Cu.-N. WNW	2 00	17.3	≡² ● a. p. ◟° p.
11	W	395.2	23.8	W	10	-------	Cu.-N. WNW	0 25	71.5	d° ≡² a. ● ≡ p.
12	SW, W	498.6	36.4	SW	10	-------	N.	0 00	80.6	≡² ◞° ●° a. p. ●² p.
13	SW, S	375.4	28.5	SW	10	-------	Cu.-N. WSW	0 00	43.4	≡° ●² a. ● ≡ ◞° p.
14	SE	575.8	32.4	SW	10	Ci.-S.	Cu.-N. S	0 00	2.6	◞° ≡² d° a. d p.
15	SE	400.6	42.4	SE	8.4	Ci.-S.	Cu.-N. SE quad.	4 45	1.3	◞° ≡² a. ≡° ● p.
16	E, W	250.1	22	E	5.9	Ci.	Cu. ESE	5 30	18.5	≡ a. p. ● p.
17	W quad.	226.9	29.8	SW	8	Ci.-S.	Cu. NE	2 40	5.2	≡° a. ≡ ⌐◹ ●° ◟ p.
18	W	315.3	30.3	W	8.3	Ci.-S.	Cu.-N. NNE	2 35	74.2	d a. ≡² ●² ⌐◹ p.
19	W	308.2	25.9	W	9.9	Ci.-S.	Cu.-N.	1 25	27.7	● ≡² a. p.
20	W	239.4	25.4	SW	9.1	Ci., Ci.-S.	Cu.-N. WSW, NE	1 50	12.2	d° a. ≡² a. p. ● p.
21	NE, W	175.8	14.2	W	8.9	Ci.	Cu. ENE, Ebys	4 10	4.8	≡° ◠² a. ● a. p. ≡² p.
22	W, E	192.1	19.8	W	8.3	Ci.	Cu.-N. ENE	3 40	31.3	●° a. ≡² a. p. ⌐◹° ● p.
23	W, NW	187.2	15.9	NW	8.7	Ci.-S.	Cu.-N. NbyE, ENE	1 55	3.1	≡ a. ●° a. p. ≡° p.
24	W, NW	349.2	21.9	SW	6.9	Ci.-S. NNW	Cu.-N. NW, WNW	6 00	-------	≡² a. d° ≡ ◟° ⊅ p.
25	W quad.	237.9	18	W	3.3	Ci.-S.	Cu. W	6 30	-------	⌓ a. d° p.
26	E	240.8	15.6	SE	7.9	Ci.-S.	Cu. ESE	4 55	25.2	≡² ● p.
27	E	197.4	21.2	E	9.3	A.-Cu. NE	N.	1 25	6.4	d° a. ⌐◹ ≡² ● p.
28	E	345.8	21.7	SE	7.1	A.-Cu. ENE	Cu.-N. ESE	5 10	20.4	● ≡° ⌐◹° p.
29	SE, E	339	22	E	8.4	A.-Cu.	Cu.-N. SE, SSE	2 20?	3.8	≡ d a. ● ≡² p.
30	SE	274.9	24.7	SE	8.3	Ci., A.-Cu.	Cu.-N. SSE, ESE	2 10	21.9	● p.
31	SW, W	278.6	28.5	SW	9.9	Ci.-S.	Cu.-N. SE, SSW	1 20	14.5	≡° ● a. ≡² d° p.
Mean		306.5	24.2		8.3			3 14		
Total		9,500.2						100 00	544	

[a] All the mean values given in this table are deduced from six daily observations taken at 2, 6, 10 a. m. and 2, 6, 10 p. m.
[b] The barometric readings of this station are not reduced to sea level.
[c] Maximum of hourly observations taken from 6 a. m. to 6 p. m.
[d] This element is based on hourly observations taken from a quadruple register, which gives only eight possible directions of the wind.
[e] 4 hours missing.

DAILY RAINFALL AT THE STATIONS OF THE WEATHER BUREAU, AUGUST, 1918.

Station.	Day of month.															
	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.
	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.
Jolo	8.6	8.2	.....	2.5	.....	.....	.....	.....	.....	.....	1.3	1.5	15.2	43.7	0.5	3
Isabela, Basilan	.....	.....	.....	.....	.....	.....	.....	.....	2.8	22.3	4.1	2	.....	5.6	.....	.....
Basilan Plantation, Isabela (Basilan) Office[a]	.....	.....	.....	.....	.....	.....	.....	.....	.....	20.3	5.1	7.6	.....	7.6	.....	.....
Zamboanga	.....	.....	.....	.....	.....	.....	.....	.....	1.8	2.5	.....	1.1	13.7	1.8	.....	.....
Davao	.....	.....	.....	.....	7.6	39.4	.....	3.8	1.3	.....	8.1	31.7	2.5	3.8	.....	.....
Cotabato	14.9	.....	.....	.....	8.6	.....	.....	.....	18.5	19.8	3.3	.....	.....	.....	9.7	6.6
Camp Keithley, Lanao	.5	2.8	30	1.3	1.8	.....	16	5.3	34.5	1.8	6.9	.....	.....	14.2	13	3
Cagayan, Misamis	.....	.....	.....	.....	.....	.....	.....	.....	.....	40.6	5.3	.....	.....	.....	6.4	.....
Dapitan	.....	.....	.....	.....	10.2	.....	.....	.....	.....	28.9	.....	24.4	7.1	.....	78	2
Ampayon, Butuan, Agusan[a]	.....	1	.3	.....	.5	.....	3.8	3	1.3	.....	7.1	39.1	58.2	13	1.3	.....
Butuan	.....	.3	.....	.....	.....	.....	9.7	.....	2.8	.....	10.1	26.2	43.4	5.1	1	.....
Mambajao	.....	.....	.....	.....	.....	.....	.....	.....	.....	7.6	.....	.....	3.8	9.9	1.3	.....
Dumaguete	.....	.....	2.8	.....	1.3	.....	.....	.....	5.6	7.3	8.1	.....	.....	.....	10.7	.....
Yap, Western Carolines	6.9	3.3	2.5	.....	7.4	56.4	19.6	15.5	.3	.5	16.8	26	34.5	1	1.5	.....
Tagbilaran	.....	.....	7.4	.....	.....	.....	1.7	5.3	10.7	.....	.....	.....	1.3	20.9	8.2	15.4
Iwahig	6.1	15.7	.....	2.1	10.8	.....	.....	.....	.....	.7	.5	8.4	1.5	.....	.....	18.5
Surigao	.....	1.5	1.8	.....	.....	2.5	.5	19.3	4.3	.3	.....	2.1	.....	1.3	11.9	.5
Maasin	4.8	.....	16.5	.....	.....	.....	.....	.....	.....	41.2	19.8	34	.....	.....	.....	.....
Cebu	9.1	.....	2.5	.....	.....	.....	13.2	6.6	18	.5	13	6.6	.....	10.2	15.8	2
La Carlota, Occidental Negros[a]	.....	2	.....	.....	.....	.5	.....	14.7	27.9	35.5	39.1	3.3	.5	8.1	5.4	2.6
Iloilo	.....	.....	.....	.....	.....	.....	.....	2.3	4.6	.....	99.2	25.1	3.8	1	3.3	.....
San Jose Buenavista	.....	.....	.....	.....	.....	.3	1	.8	15.7	22.9	107.7	43.4	111	8.9	6.1	14.5
Cuyo	.....	.....	.....	.....	.....	5.6	.....	4.6	14	55.9	105.4	62.2	156.2	22.9	.5	8.4
Lucena, Iloilo[a]	.....	.....	.....	.....	.....	.....	5.6	6.9	8.9	.....	27.2	92.7	2.8	.....	52.8	25.4
Ormoc	1.3	.3	.....	.....	.....	.....	.....	9.4	13.2	22.6	29.7	17.3	.....	7.4	38.4	3.5
Guiuan	.8	.....	4.1	.....	.....	.....	8.1	1.8	17	16.8	14.2	.....	.....	11.1	15.8	35.3
Dueñas, Iloilo[a]	.....	.....	.....	.....	1.3	2.5	.....	.8	7.6	.....	24.1	40.9	33.5	.....	21.9	1
Bitaogan, Iloilo (Railroad Iloilo to Capiz)[a]	.....	.8	.....	4.1	7.4	13.5	.....	2	1.8	1	20.3	10.1	12.9	.....	57.9	.....
Lapus, Iloilo (Railroad Iloilo to Capiz)[a]	.....	.....	.....	.....	.....	.....	.....	2	2.8	.....	75.7	15.2	1.8	.5	3.8	.....
Tacloban	.....	10.2	.....	.....	.....	.....	.3	.....	2.3	19.9	6.1	1.5	.....	1	25.7	.....
Dumarao, Capiz[a]	.....	51.1	36.6	9.1	1	1.3	.....	.....	4.6	10.2	16.8	13.2	7.1	2.5	52.1	11.9
Dao, Capiz[a]	.....	.....	27.9	3	.....	.....	.....	.....	1.3	4.3	7.6	5.1	1.5	12.7	12.2	2.8
Capiz	.....	.....	.....	.....	.....	.....	.....	.....	.....	.3	6.9	2.3	1.1	17.1	2.8	.....
Borongan	2	.8	.....	.....	.....	.....	2.3	1.8	17.6	13	9.7	.3	.....	30	12.2	27.4
Catbalogan	10.6	.....	19.8	.....	.....	.....	.....	32.2	.....	124.2	.....	.....	.....	1	22.3	3.6
Calbayog	18.3	1.3	.....	.....	.....	.....	.....	1	3.5	17.4	22.1	23.9	.....	2.5	24.1	16.8
Masbate	51.1	.....	23.9	4.8	15.2	.....	.....	14.8	10.7	71.9	8.9	2	11.2	31.5	12.4	5.8
San Jose Estate, J. Abello D-13, Mindoro[a]	.....	.....	.....	.....	.....	.....	.....	.....	2	19.1	28.4	49.5	73.4	12.7	.....	.....
San Jose Estate, Tamaraw Plantation, Mindoro[a]	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	42.9	96.5	55.9	31.5	.....	.....
San Jose Estate, San Agustin, Mindoro[a]	.....	.....	.....	.....	.....	.....	.....	5.1	7.6	16.5	.....	92.9	49.8	20.5	.....	.....
San Jose, Mindoro[a]	.....	.5	.....	.....	.....	.....	.....	2.5	.....	22.4	16.5	72.9	53.8	16.8	.....	4.8
San Jose Estate, Tunnel D-12, Mindoro[a]	.....	.....	.....	.....	.....	.....	.....	10.2	1.3	25.1	20.1	73.7	57.1	14.7	.....	15.7
Romblon	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	3.6	34.8	3.2	.....	2	14
Batag	9.4	.....	.....	.....	.....	.....	.....	.....	63.5	23.6	17.8	2.8	.....	22.1	34	25.9
Sorsogon	.....	.....	.....	.....	.....	.....	.....	9.9	.....	51.1	32.3	13.5	8.4	2.3	8.1	.....
Legaspi	.....	.....	.....	.....	.....	.....	.....	.5	15.2	43.7	12.3	23.3	4.1	.....	2	9.9
San Miguel Estate, San Miguel Island, Tabaco, Albay[a b]	.....	.....	.....	.....	.....	.....	.....	3.3	14.2	10.4	23.9	14.2	1	9.1	4.8	.8
Sumay, Guam	22.9	15.2	7.6	8.1	.....	.....	.....	19.3	.....	.....	.....	.....	.....	11.4	.....	.....
Calapan	.....	.....	.....	.....	.....	.....	.....	.....	.....	4.1	5.1	17.2	21.8	.....	.....	.5
Virac	.5	3.6	10.4	.....	.....	.....	.....	15.7	11.7	11	6.4	8.1	2.5	5.3	7.6	7.6
Naga	.....	26.7	.....	.....	.....	.....	.....	.....	13.8	15.5	8.1	17.6	4.4	.5	4.3	35.3
Tigaon	.3	5.6	57.7	.....	.....	.....	.....	.3	11.9	12.7	9.4	8.4	2.8	4.1	8.1	.....
Batangas	68.6	.....	.....	.....	.....	1.3	.....	.....	1	6.6	19.8	15.2	23.7	.5	.....	1.5
Lucena	.....	.....	.....	.....	.....	.....	.....	.3	.....	10.4	4.3	5.3	2	1.3	.....	2.8
Atimonan	.....	1.3	.....	.....	1	.....	.....	.....	2.3	8.9	6.5	5.8	5.7	.8	.....	41.8
Ambulong, Tanauan	.....	.....	.....	.....	.....	.....	.....	5.1	12.7	11.4	30.3	30.5	25.2	.5	.....	23.6
Canlubang, Calamba	8.6	.....	27.7	.....	.....	.....	.....	2.5	7.9	18.5	32.3	7.6	21.3	.....	6.6	6.6
Paracale	.....	15.2	.....	.....	.....	.....	.....	.....	2.8	50.7	12.8	10.7	3.8	.....	.....	22.9
Santa Cruz, Laguna	23.6	.....	.....	.....	.....	.....	.....	20.1	11.7	46.3	44.7	9.6	5.1	.....	.8	5.6
Fort Mills, Corregidor[a c]	.....	.....	.....	.....	.....	.....	.....	.....	.8	7.1	135.6	53.1	49.3	1.5	.....	.....
Alabang, Rizal[a]	43.7	9.2	.....	.....	.....	.....	.....	25.4	27.4	24.6	59.2	7.1	17.3	.....	.....	.....
Lamao, Bataan[a]	.....	1.3	.....	2.3	.....	.....	.....	.....	.....	156.7	88.7	151.4	35.5	2.5	.....	.....
Manila	.....	.....	.....	.....	.....	.....	6.9	3	3.8	55.7	135.7	13.7	18.3	.....	.....	.1
Antipolo	6.6	18.8	.....	.....	.....	1.3	2.5	21.6	3.1	53.9	117.1	9.4	7.9	.....	.....	36.1
Bosoboso, Rizal[a]	.....	3.6	5.1	.....	.....	3.6	40.6	10.9	2	101.6	71.1	12.4	6.4	.....	.....	27.9
Montalban, Rizal[a]	.....	.....	28.7	.....	.....	.....	.....	.8	.....	15.5	79.5	62.2	15.7	4.8	.8	8.9
Hacienda Pintong Sapang, San Jose, Bulacan[a]	.....	.....	.....	.....	.....	.....	.....	.....	.....	49.5	96.5	81.3	57.1	.....	6.9	.....
Mabayuan Dam, Olongapo, Zambales[a]	.....	5.8	10.7	.5	.....	.....	.5	2.5	6.4	29.3	109	300.5	54.6	16.7	.....	1
Iba	.....	4.3	8.1	.9	.....	1.3	1.6	3.1	3.3	17.8	65.5	79.5	113.5	4.6	.....	2.3
San Isidro	.....	.....	.....	.....	.....	1.3	1.5	.8	15.5	41.4	2.1	64.2	52.1	.8	.....	9.1
Hacienda Luisita, Comillas, Tarlac[a]	3.6	.....	4.8	.....	.....	.....	.....	.....	8.9	14.2	39.1	70.9	16.5	.....	.....	11.9
Hacienda Luisita, San Miguel, Tarlac[a]	.....	.....	.....	.....	.....	.....	5.6	.3	2.8	19	13.2	59.5	26.7	1.3	.....	27.7
Tarlac	.....	.....	.....	.....	.....	.....	.....	.....	.....	12.7	33.3	57.7	27.6	1.3	15.7	41.7
Baler	36.3	6.4	2	.....	.....	.....	.....	.....	37.1	15	10.2	37.6	2.5	.....	.....	17.3
Paniqui, Tarlac[a]	1.3	.....	.....	.....	.....	.....	.....	15.7	.....	24.1	4.3	61.5	24.6	1.5	.....	49.3
C. L. A. S. Muñoz, Nueva Ecija[a]	2.8	.....	.....	.5	.....	.....	.....	.....	2	12.7	52.8	33.6	1.5	.....	1	.....
Dagupan	1.5	5.6	1.3	.....	.....	.....	.8	.....	4.6	24.4	21.9	112.5	50.2	2.3	.....	20.3
Santo Tomas Mt., Mountain Province[a]	1	41.4	83.8	162.6	76.2	76.2	83.8	83.8	81.3	27.2	81.3	50.3	91.4	1	1.3	3.3
Bolinao	.....	3.8	1.8	.....	.....	.8	.....	.8	8.2	59.4	23.6	102.4	76.5	11.4	.....	53.1
Baguio	33	.....	11.4	.....	.....	2.5	1.3	2.8	7.1	17.3	71.5	80.6	43.4	2.6	1.3	18.5
San Fernando, Union	.5	.....	.....	.....	.....	.....	.....	4.1	12.2	1	91.7	145.1	67.1	.....	.....	5.8
Echagüe	17.8	5.6	.....	.....	.....	.....	.....	18.8	79.5	.....	31	8.9	.5	.....	.....	1.3
Sagada, Mountain Province[a]	28.4	4.9	.....	.....	.....	.....	.....	.....	.....	15	25.9	24.4	8.1	.....	.....	2
Bontoc, Mountain Province[a]	14.2	3.6	.....	.....	.....	.....	.....	.....	.....	9.7	22.3	11.9	14.5	.....	.....	9.9
Candon	11.9	1	.....	.....	.....	.....	.....	.....	25.4	10.2	71.9	131	15.8	.....	.....	29.7
Villavieja, Pilar, Abra[a]	24.1	2.8	.....	.....	.....	.3	.....	3	3.8	4	68.6	57.1	8.9	.....	.....	29.2
Vigan	4.1	6.5	.1	.....	.....	.....	5.1	.9	20.9	.9	40.4	65.3	9.1	.....	2	.....
Tuguegarao	7.1	.....	.....	.....	.....	.....	.....	.....	.....	4.3	17.5	27	.....	.....	.....	.....
Laoag	51.8	76.1	25.9	.....	.....	.....	4.1	6.4	2.8	.....	42.2	205.4	36	9.1	.....	.....
Aparri	25.1	3.6	2	.....	.....	.....	.....	.....	24.4	.8	58.7	79.8	2.6	.....	.....	23.1
Cape Bojeador	.....	50.8	25.9	.....	.....	.....	.....	.....	.....	.....	24.1	33.3	.....	.....	.....	.....

[a] Voluntary or coöperative station. [b] Rain in 24 hours beginning 8 a. m. [c] Rain in 24 hours beginning 7 a. m.

Daily rainfall at the stations of the Weather Bureau, August, 1918—Continued.

Station.	Day of month.															
	17.	18.	19.	20.	21.	22.	23.	24.	25.	26.	27.	28.	29.	30.	31.	Total.
	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.
Jolo	------	1	3.8	------	------	3.6	------	------	------	------	------	24.1	------	------	------	117
Isabela, Basilan	------	1.8	8.9	------	------	------	------	0.5	------	------	------	16.8	------	15.7	------	80.5
Basilan Plantation, Isabela (Basilan) Office[a]	------	------	19	------	------	------	------	------	------	------	------	16.8	6.1	------	------	82.5
Zamboanga	0.8	16.5	17.5	1.3	------	------	------	------	------	------	------	1.8	6.7	------	------	65.5
Davao	------	------	------	------	------	------	------	------	------	6.1	------	------	------	------	------	104.3
Cotabato	5.8	11.1	27.2	3.3	6.1	16.3	3.3	15.7	3.6	------	------	23.1	4.8	3	10.7	215.4
Camp Keithley, Lanao	5.1	1.1	6	------	------	------	------	------	.3	2.3	3.8	32.5	11.5	2.5	1.3	197.5
Cagayan, Misamis	------	33	15.2	2.8	8.9	------	------	1.5	------	------	------	18.8	------	2.3	3.8	138.6
Dapitan	7.1	22.1	36.6?	9.4	------	------	.5	------	------	6.9	------	10.9	7.3	23.1	------	274.5
Ampayon, Butuan, Agusan[a]	------	.3	------	------	------	------	------	------	------	------	------	------	------	------	------	128.9
Butuan	------	.5	------	------	------	------	1.8	------	------	------	------	------	------	------	------	100.9
Mambajao	8.1	------	14	9.7	------	------	------	------	------	3.8	------	------	------	------	------	58.2
Dumaguete	------	------	8.6	6.1	2	1.5	3	------	------	3.6	13.5	1.3	------	------	------	75.4
Yap, Western Carolines	8.9	76.2	24.4	4.8	------	------	38.6	39.4	16	1.3	.5	5.6	6.8	15.7	23.4	453.8
Tagbilaran	.8	------	.3	------	1.8	.8	------	------	------	------	------	------	------	------	------	74.6
Iwahig	34.3	.3	1.3	.1	1.3	.3	------	13	3.6	------	1	1	------	1.8	------	122.3
Surigao	17	.8	6.6	------	------	------	------	------	------	2.5	61.2	10.7	------	.5	5.6	150.9
Maasin	19.6	74.2	13.2	------	7.1	61.5	------	------	------	------	------	------	------	------	15.5	307.4
Cebu	3.8	------	------	------	1.3	3.8	------	------	15.3	------	20.1	------	------	6.9	------	148.7
La Carlota, Occidental Negros[a]	8.2	23.9	65.6	13	5.3	16.5	27.4	11.5	36.8	2.3	6.9	2.5	10.7	5.8	10.4	386.4
Iloilo	.5	------	.8	2.4	37.8	.5	19.6	7.4	30.7	33.3	------	2.5	------	------	28.7	303.5
San Jose Buenavista	70.9	34	29.4	42.2	11.7	19.3	111.5	25.2	37.1	45.2	77.7	55.8	8.9	5.9	13.5	920.6
Cuyo	------	5.9	3	32.5	13.5	19	24.1	6.6	52.1	36.1	33	10.5	8.6	13.5	17	711.1
Lucena, Iloilo[a]	------	------	------	------	------	------	3.6	10.2	45.5	------	------	------	2.3	7.4	------	291.3
Ormoc	10.7	7.6	4.8	2.3	18.3	12.7	------	------	------	------	6.1	20.1	------	1.3	.3	227.3
Guiuan	1.3	8.4	7.1	------	------	2.1	------	------	------	3.3	1	11.7	------	------	2	161.9
Dueñas, Iloilo[a]	8.6	------	1.3	------	------	------	1.3	3	12.4	2.1	21.3	------	1.8	6.9	5.1	197.4
Bitaogan, Iloilo (Railroad Iloilo to Capiz)[a]	5.8	8.6	------	.5	------	------	3.3	4.8	4.8	27.7	------	36.6	14.7	------	.5	239.1
Lapus, Iloilo (Railroad Iloilo to Capiz)[a]	.5	------	.5	1.3	35.3	.3	23.1	6.4	33.3	24.1	------	2.8	------	------	21.3	250.7
Tacloban	------	.3	------	12.2	2.1	1.5	.5	------	5.6	------	1	5.3	------	3.6	15.7	114.8
Dumarao, Capiz[a]	------	10.9	------	5.6	15.5	1.5	------	2.8	------	9.4	43.2	19	54.6	------	3.8	383.8
Dao, Capiz[a]	3.6	5.3	.8	------	15.5	------	7.6	2.8	------	14	4.3	3	.8	------	------	136.1
Capiz	.3	------	11.4	3.6	------	------	------	------	5.3	------	------	1	------	------	1	53.1
Borongan	------	------	6.4	------	7.6	.3	50.8	------	5.3	------	.5	------	------	.8	13.5	202.3
Catbalogan	38.4	.5	15.2	10.4	------	11.1	30	3.6	25.7	1.5	7.2	------	------	1.3	------	358.6
Calbayog	57.8	13.2	3	3.8	7.9	5.1	13.9	33	21.6	.3	4.9	5.1	15.5	.3	------	316.3
Masbate	7.1	10.6	16.3	1	15.5	6.6	2	------	13.2	1.5	2.1	4.3	------	------	.3	344.7
San Jose Estate, J. Abello D-13, Mindoro[a]	------	------	27.7	9.1	32	------	49	42.4	64.7	25.7	9.1	6.6	19.8	6.8	------	478
San Jose Estate, Tamaraw Plantation, Mindoro[a]	------	4.8	16.5	15.7	49.1	------	57.2	62.2	86.6	24.7	10.2	------	33.8	6.6	7.4	601.6
San Jose Estate, San Agustin, Mindoro[a]	7.6	8.4	48.5	12.2	22.6	------	81.8	67.8	43.7	23.7	11.7	------	42.4	8.9	21.8	593.5
San Jose, Mindoro[a]	5.6	3.6	30.2	5.8	27.2	.3	83.8	30	84	42.2	20.8	1.3	44.7	2.3	6.6	578.6
San Jose Estate, Tunnel D-12, Mindoro[a]	3.8	------	21.3	9.4	23.4	------	103.6	41.4	97.8	30.2	17	4.1	47.7	1.5	6.6	625.7
Romblon	8.4	------	11.4	------	.4	------	1.5	2.8	13.2	.4	.1	18.8	8.9	------	------	123.5
Batag	------	3.6	------	3.8	2	------	6.1	------	------	------	20.8	------	------	------	------	235.4
Sorsogon	8.1	50.8	1.5	57.9	36.3	70.6	85.6	27.4	------	------	11.7	15.7	54.1	------	9.9	555.2
Legaspi	9.6	2.1	6.1	38.8	7.3	21.4	13.2	.8	.5	------	.5	2	1	------	20.6	234.9
San Miguel Estate, San Miguel Island, Tabaco, Albay[a b]	.5	.5	.8	.8	3.6	13.5	14.5	------	------	------	28.4	.3	27.9	------	------	172.5
Sumay, Guam	19	21.6	------	------	19	------	------	------	6.4	------	25.4	------	17.8	12.7	10.2	216.6
Calapan	.3	------	------	------	4.4	------	4	.8	19	8.1	------	13	------	.5	.6	99.4
Virac	12.2	1.8	5.6	1.3	.5	40.1	1.3	------	------	------	15.8	.5	13.2	.5	------	183.2
Naga	.3	2.3	48.8	9.1	.5	15	13.7	1	12.5	19	11.2	2.3	2.5	------	2.8	267.2
Tigaon	------	3.9	30.7	34.5	3.8	5.4	66.1	1	5.1	2.5	5.8	4.1	5.1	------	------	289.3
Batangas	10.2	17.7	13	2.5	------	18.5	18	14	5.1	------	5.1	7.9	------	------	3.6	253.8
Lucena	1	------	------	7.6	------	2.8	.3	------	3	72.1	1.5	2	------	------	7.1	123.8
Atimonan	1.8	13	9.7	1.8	4.1	14.3	32	------	------	6.1	18.6	3	------	------	2.8	181.3
Ambulong, Tanauan	2.3	2.8	10.4	22.9	------	1	10.1	8.4	------	------	1.5	6.1	------	2.8	3.3	210.9
Canlubang, Calamba	1	.8	25.1	42.9	44.2	30.5	70.4	1.5	------	53.8	12.9	34.5	------	1.5	.8	459.5
Paracale	14.2	------	1.3	10.9	2.5	.8	8.4	.5	------	1.5	7.6	6.4	.8	8.9	31	213.7
Santa Cruz, Laguna	4.6	------	1.8	1	9.4	6.9	2.8	20	1	19.5	11	5.1	.8	1	2.3	254.7
Fort Mills, Corregidor[a c]	.5	16.8	77.7	75.7	46.2	2.8	17	36.3	7.6	.8	2	14.7	11.7	56.1	20.6	633.9
Alabang, Rizal[a]	------	27.7	9.1	------	4.6	------	3.8	4.8	------	------	------	12.7	3.6	2.5	15.2	297.9
Lamao, Bataan[a]	------	2.8	2.5	65.1	11.4	.8	35.3	30.2	61.2	10.7	6.6	2	17	40.2	18.5	742.7
Manila	1.7	------	80.5	44.9	8.4	44.9	------	1	4.3	3.9	26.4	14.2	2.3	6.4	7.6	483.7
Antipolo	4.1	19.8	21.3	62.7	.5	19	14.7	2	2.6	13	9.1	6.6	16	26.1	33.3	529.1
Bosoboso, Rizal[a]	8.1	34.3	34	38.1	7.6	27.2	15.2	3.8	17.8	22.9	14.7	2.5	17.5	35.1	23.6	587.6
Montalban, Rizal[a]	30.5	10.7	30.5	29.2	10.9	20.6	13.2	14.2	6.4	16.5	47	92.7	16.5	3	8.1	566.9
Hacienda Pintong Sapang, San Jose, Bulacan[a]	------	8.4	3.8	24.2	45.5	41.9	16.8	13.5	4.1	93.5	23.1	16.3	.8	23.3	15.7	622.2
Mabayuan Dam, Olongapo, Zambales[a]	5.3	27.2	35	101.6	27.2	2.5	2.8	10.2	17.5	49.1	2	13.5	44.5	------	50.8	926.7
Iba	9.9	44.7	4.6	4.1	10.9	3.3	.7	1.8	2.5	41.2	1.8	18	10.2	82.3	160.3	702.1
San Isidro	3	4.8	34.6	4.3	3.8	57.1	10.2	7.6	1.3	7.5	43.4	7.9	1	.8	.5	376.6
Hacienda Luisita, Comillas, Tarlac[a]	12.2	16	73.6	12.2	6.1	51.8	2.5	3	10.2	57.2	18	.8	24.9	15	6.4	479.8
Hacienda Luisita, San Miguel, Tarlac[a]	1.3	20.1	12.2	------	65.1	16	6.6	1.8	22.4	18.5	13	.5	1.5	2.3	5.1	342.5
Tarlac	3.6	17.8	14.5	14	48.3	21.3	38.1	14.7	7.6	8.1	12.4	.5	------	------	9.7	400.6
Baler	4.8	38.6	5.3	------	------	36.6	------	------	31.7	27.7	20.6	------	36.3	------	------	366
Paniqui, Tarlac[a]	2.5	50.8	------	12.2	13.7	15.5	.3	------	38.4	37.3	------	------	------	1	------	354
C. L. A. S. Muñoz, Nueva Ecija[a]	12.2	9.7	------	69.1	43.9	19.3	------	------	1.5	11.4	6.9	------	11.9	15	13	320.8
Dagupan	2.6	10.4	49.4	54.1	9.7	5.6	------	.3	2.3	88.9	24.7	1	2.8	10	2.3	509.5
Santo Tomas Mt., Mountain Province[a]	.5	55.9	25.9	34.3	1.6	1.3	.6	50.8	------	47	2.5	2.8	.5	.8	25.9	1,196.3
Bolinao	------	20.3	22.6	15.7	4.3	3.8	------	------	.5	31.5	34.3	------	2.1	12.9	3.1	492.9
Baguio	5.2	74.2	27.7	12.2	4.8	31.3	3.1	------	------	25.2	6.4	20.4	3.8	21.9	14.5	544
San Fernando, Union	1.5	56.4	27.4	18	17.9	5.1	------	------	2.5	14.3	13.9	64.5	------	------	2.8	551.8
Echagüe	82.3	.3	7.1	2.5	.5	17.8	------	------	6.4	.5	29.5	.8	.8	45.2	8.4	365.5
Sagada, Mountain Province[a]	------	9.9	18.3	35.1	20.8	7.1	------	------	7.1	1.3	14.2	2.5	34.8	25.9	19.8	305.5
Bontoc, Mountain Province[a]	1.8	------	1	36.1	4.6	16.3	------	------	1	26.7	12.2	7.9	53.3	27	22.1	296.1
Candon	20.3	10.2	1.8	6.1	------	5.8	------	------	------	54.1	9.4	1.5	------	4.3	------	410.4
Villavieja, Pilar, Abra[a]	2.6	1	5.1	31.2	------	13.2	------	------	.5	10.2	17.3	4.1	16	11.7	3	317.7
Vigan	2.4	22.6	9.4	24.9	3.8	6.4	------	10	------	7.6	59.5	5.5	1.3	1.9	3	313.6
Tuguegarao	------	------	------	------	3	------	------	------	------	15.2	6.4	30.2	5.6	1.3	49	166.6
Laoag	------	------	------	7.1	------	9.9	------	115.1	3.8	15.5	11.2	4.8	22.6	20.4	20.8	691
Aparri	7.2	1	------	------	14.7	1.8	------	------	------	1.8	.5	------	.5	------	4.3	251.9
Cape Bojeador	------	------	3.3	------	------	------	------	40.1	------	9.7	7.1	------	14.2	9.4	------	217.9

[a] Voluntary co-operative station. [b] Rain in 24 hours beginning [illegible]. [c] Rainfall 24 hours ending [illegible].

MAXIMUM AND MINIMUM TEMPERATURES AT THE STATIONS OF THE WEATHER BUREAU, AUGUST, 1918.

Day.	Jolo.		Isabela, Basilan.		Zamboanga.		Davao.		Cotabato.		Camp Keithley, Lanao.		Cagayan, Misamis.		Dapitan.	
	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.
	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.
1	30.8	22.4	36.1?	21.6	28.8	23.3	32	21.9	30.6	22.7	29	17.8	31.8	22.2	33.2	23.5
2	30.1	22	34.6	21.5	30	23.2	34	20.4	31.5	22.5	28.7	17.8	32.2	21.8	33.2	23.8
3	30.9	21.9	33.1	20.1	29	22.3	32.2	21	30.9	23.5	27	17.9	32.6	21.6	33	22.5
4	30	22	32.1	22.1	28.8	23	33	20.8	31.2	23.2	28.8	19	33.2	23	33.5	22.3
5	31.5	21	33.8	20.1	29	23	32.2	20	31.5	23.2	27.8	18.9	32.6	22.1	33	22.7
6	31	21.6	35.1	21.6	29	23.6	32.5	19.9	30.5	22.2	28.6	18.3	33.2	21.6	33.6	23.1
7	30.6	22.1	33.6	21.6	29.1	23.1	29.2	18.5	30.4	22.4	26.2	18.3	32.2	21.4	33.2	22.3
8	31.4	22.5	32.1	22.6	29.5	23	32.3	21.1	30.2	22.2	26.8	19.2	32.4	22.6	32.6	22.7
9	30.5	22.4	31.3	22.1	28.6	23.7	32.5	21.4	30.9	22.7	26.8	18.2	33.1	22.5	32.8	22.6
10	31.3	22.4	30.6	22.6	28.3	22	32.2	21.9	28.2	22.6	26.2	19	32.7	22.8	33	22.4
11	31.5	24.7	32.6	21.1	29.6	23.5	31.9	21.1	29	22.4	25.9	19	31.6	21.8	29	22.3
12	28.8	24.6	29.8	21.3	28.3	22.5	31.2	20.6	30	22.5	26.8	19.9	32.4	22	31.2	22.8
13	30.5	25.5	33.3	21.1	29.5	23.5	31.2	19.8	30.8	22.4	27.6	20	32.6	22.6	32.2	22.6
14	31.2	22.5	33.7	21.6	30.1	23.6	31.1	21.5	30.2	22.8	27.8	20	32.3	22.1	33.4	22.3
15	30.2	22	32.8	21.1	30	22.5	29.2	21	30.3	22.2	25.8	18.5	31.5	22.6	32.6	23.1
16	30.4	22.5	32.6	22.1	29.1	22.7	31.2	19.6	30	22	27.6	18.4	31.1	22.2	31.4	21.3
17	30.2	22.3	31.5	22.1	29	22.4	33.3	20.5	30.3	21.9	26	19	31.4	23	30	23.4
18	30.1	22.7	32.6	22.6	29	23.1	33.2	21.5	29.2	23.1	26.5	19.5	32.1	22.2	29	22.1
19	31	22.3	32.1	23.1	28.8	21.5	32.3	20.7	29.3	22.2	25.7	20	31.1	22	30.5	22.2
20	30.9	22.7	33.1	22.1	29	21.5	32.9	21.1	28.3	21.9	24.8	20	28.1	22.8	30.4	21.9
21	32.8	24.7	33.6	21.6	29.3	23	31.9	20.1	30.1	21.8	27.3	18.4	32.1	21.1	27.1	21.1
22	30.8	23.5	32.1	21.1	29.4	23.5	34.1	20	30	22.9	26.8	18.6	32	21.4	32.4	22.1
23	32.4	23.2	32.6	21.6	29.5	23.9	32.9	20.8	30.1	23.1	27.3	20	32.4	21.2	31.8	22.5
24	31.1	24.4	33.1	22.1	29.6	25.2	31.7	20.9	29.6	23.2	26.1	20.7	32.4	21.2	33.1	22.4
25	31.7	23.9	33.1	22.1	30.8	24.3	32.9	21.3	29.6	22.4	27.3	20.9	32.9	21.5	32.8	22.6
26	32	22.8	35.1	21.1	29.5	23	32.6	20.2	31.1	22.6	27.3	20	32.8	21.9	34.1	22.7
27	30.8	22.8	33.1	21.6	28.8	23.2	32.3	21.7	30	23	26.3	18.5	31.6	22.6	33.5	23.5
28	31.2	23.5	31.6	22.6	28.7	23.4	32.7	22.5	30.1	23	26.3	18.2	31.6	23	32.4	23.1
29	29.8	23.2	31.7	22.6	28.2	22.2	32.5	22.5	28.8	22	26.9	19	31.7	23	30.2	23.2
30	31.3	23.7	34.6	22.1	29	23.4	33	21.9	30	23	27.3	19.2	31.3	22.7	30.1	22.5
31	31.8	23.6	33.6	21.1	29	24.5	32.5	22.6	30	23.5	27.8	19.2	32.2	22.5	-------	21.8
Mean	30.9	22.9	32.9	21.7	29.2	23.1	32.2	20.9	30.1	22.6	27	19.1	32	22.2	31.9	22.6

Day.	Butuan.		Mambajao.		Dumaguete.		Yap, Western Carolines.		Tagbilaran.		Iwahig.		Surigao.		Maasin.	
	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.
	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.
1	35.4	23.1	33.5	22.8	31.8	22.4	32.7	24.2	31.1	22.9	31.6	21.5	31.9	23.1	34.5	24
2	34.4	23	32.7	23.2	32.6	23.8	31.7	23	32	22.5	31.6	19.6	31.5	23.4	32.8	23.2
3	33.5	22.5	33	23	32.8	21.8	30.7	25.5	30	22.2	31.9	19.4	31.4	23.9	32.4	24.1
4	34.4	22.5	32.1	23.2	32.4	21.5	32.3	23.5	31.5	22.6	32.1	19.5	32.9	23.9	35	23.4
5	34.7	22	34.3	24.2	31.4	20.6	31.9	25	32.3	22.5	32.6	19.1	32.3	23.3	35.8	24.2
6	33.6	22.2	34.6	24.1	31.4	21.2	31.6	24	32.7	22.6	32.2	19.5	31.3	25.4	33	23.4
7	31.3	22.1	32.7	26.7	32.9	22	27.8	23.7	32.4	23.4	33.1	18.8	30.4	23.4	33.4	24.2
8	33.2	-------	33.4	25.4	31.1	22.3	28.4	23	31.6	23.7	33.6	19.2	29.4	22.8	32	23.8
9	32.9	-------	33.5	25.6	31.4	22.2	32.2	23	32.6	22.4	33.5	19.4	30.3	23.5	32.4	23.4
10	34.6	21.7	32.3	22.2	30.3	21.9	33.2	24.1	31.8	21.9	32.6	21	30.8	23.7	29.2	22
11	35.4	23.2	33	23.5	29.8	-------	31.1	25	31.2	24.4	31.3	21.9	31.4	25.3	29	22.8
12	33.7	22.4	33.9	25.9	32.2	-------	31.8	23.1	31.2	24.9	30.7	20.7	33.3	23.4	31	22.6
13	34.2	22.2	33.2	24	32	-------	30.7	23.5	31.7	22.7	29.1	20.8	31.4	23.2	33.5	23.6
14	32.6	21.4	30.1	23	31.1	-------	31.3	23.7	31.8	22	29.1	20.4	31.8	23.5	33.3	23.7
15	29	22.2	28.8	22	29.9	-------	31.2	24	28.2	22.2	30.9	20.9	28.8	22.9	32.4	23.5
16	32.1	22.4	31.1	23.3	30.4	-------	32.2	23.4	30.1	22	31.6	20.6	30.4	23.2	31.8	22.8
17	31.4	22.5	31.2	23.6	30.4	-------	32.4	24	30.2	23	30.8	19.1	30.3	23.5	31.2	22.8
18	33.2	22	31.7	25.2	30.4	-------	28.7	23	31.6	23.7	31.4	20.4	30	25.2	31	22.5
19	31.6	22.2	31.6	23.9	30.5	-------	30	22.5	32.7	24.2	27.6	20.9	30.3	24.9	30.9	22.4
20	30.4	22.9	28.5	22.8	27.9	23.3	31.9	22	28.9	24.3	30.6	23.1	27.9	25.5	32	22
21	33.6	22.5	31.6	25	28.7	21.8	31.9	22.5	30.8	22.5	31.9	19.6	31.9	25.6	31.9	22.5
22	33.7	22.7	31.2	24.5	29.6	22.4	32.2	24.4	31	22.4	31.8	21.1	30.5	26.8	31	23
23	34	22.3	32.7	24.9	30.1	22.2	29.6	25.6	31	23	31.2	20.2	30.9	26.8	32	23.4
24	32.9	23.8	33.6	26.5	33	22.6	29.2	23	32.4	23.5	33.3	19.9	31.3	27.2	31.6	23.5
25	35.1	22.8	34.8	25	32.4	22.7	30.8	22.5	32.8	25.1	30.8	21.1	32.9	25.4	32.4	23
26	33.6	22.6	33.6	25.4	32	22.2	31.1	-------	31.3	23.3	32.6	20.4	30.9	25.4	32.8	23.5
27	34.6	23.7	33.2	23.6	30.5	23.2	32.3	24.2	32.4	25.4	33.2	20.5	31.6	24.1	32.4	23.3
28	34	23.6	31.5	25.7	30.6	23.1	31.5	24.9	32.3	25.1	28.3	22.2	30.9	23.8	32.8	23.8
29	32.3	23.9	33	25.5	30.3	24.1	30.7	24.3	30.9	24	33.1	22.1	30.9	25.8	32.2	23.4
30	30.1	23.2	32.2	25.2	32	23.6	31.3	24	31.5	23.7	32.1	20.9	30.4	26.1	33	23.5
31	31.1	23.9	33.2	25.6	32.3	23.4	28.6	23.6	33.5	23.6	30.6	19.9	31.6	25	33.2	23.4
Mean	33.1	22.7	32.4	24.3	31.1	22.5	31.1	23.7	31.5	23.3	31.5	20.4	31	24.5	32.3	23.2

Maximum and minimum temperatures at the stations of the Weather Bureau, August, 1918—Continued.

Day.	Cebu.		Iloilo.		San Jose Buenavista.		Cuyo.		Ormoc.		Guiuan.		Tacloban.		Capiz.	
	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.
	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.
1	32.1	23.2	32	24.2	31.7	22.4	30.7	23.5	31.9	22.1	32.2	22.2	33	23.3	32.5	23.7
2	32	24	30.4	23.2	31.8	22.6	30.4	23.6	32.8	22	32	22	34	22.6	32	22.9
3	31.9	24.4	30.6	23	31.9	22	31.7	24.9	32.5	22.3	33.2	22	34.2	22.9	32.3	22.6
4	31.5	24.3	30.7	23.5	31.7	22.5	30.9	23.7	32.5	22.1	33.6	22.5	33.8	22.6	32.8	22.5
5	31.6	25.5	30.9	22.5	32.7	22.2	30.8	23.8	32.8	22.4	33.6	22.8	34.3	22.5	33.3	22.3
6	31.2	26.7	31	23.1	32.3	23.1	30.6	25.9	32.8	22.9	31	23.1	32.5	23.6	32.9	23.3
7	30.5	25 1	31.5	20.7	32.6	23	30.8	23.5	32.8	23.3	30.9	23.5	32.1	24	33.2	23.5
8	29.6	24.7	32.1	23.7	32.7	22.6	31.8	24.3	32.8	23.4	29.1	22.5	30.5	24.7	33.5	24.3
9	29	23.6	31.4	23.1	31.7	23.1	31.7	23.3	30	22.7	31.4	22.5	31.3	23.9	30.4	23.7
10	31.1	23.2	29.5	24.1	29.9	21.8	28.9	23.4	32.1	22.2	30.1	23.5	29.4	22.7	31.5	23.8
11	28.6	22.5	26.9	21.5	26.8	21.6	29.1	22.8	32.2	23.2	32	23.5	32.4	21.9	30.7	22.8
12	29	25.2	27.2	22.5	27.7	21.6	28.8	23.1	30.9	22.6	31	23	32	21.6	30.5	22.8
13	30.4	24.5	29.3	23.1	29.3	22.1	26.8	22.5	33.4	23.6	33.5	26.3	32.2	22.6	30.5	23
14	31.8	23.5	30.6	23	30.8	22	28.7	22.1	33.4	23.4	32.8	24	32.3	23.6	32.2	23
15	28.7	22.6	30.1	23.9	30.2	23	30.3	22.1	31.9	23	30.9	23.6	31.4	23	31.9	23.1
16	31.2	23.5	29.2	23	30.7	21.8	29.3	23.5	31.9	23.1	31.6	23.2	32	23.4	31.7	23
17	30.3	24.2	29.2	24.2	30.2	22.6	30.4	24.9	30	23.2	31.3	23	30.9	23	27.6	23.4
18	30.5	25.2	30	24.5	30.3	22.5	28.6	24.8	31.2	23.1	31	25	31.5	23.9	31.6	23.3
19	30.5	25.9	29.6	24.2	30.8	22	28.4	24.9	32.4	22.9	31.8	25.6	32.6	22.2	32.8	23.5
20	28.9	24.7	29.1	24.5	29.3	22.7	27.3	23.1	32.6	23.4	29.7	23.8	30.3	23.5	29.9	23.4
21	29.5	24.4	30.3	23.2	31.7	22.5	29.5	22.7	32	23.6	31.6	25.2	31.3	23.5	31.4	23.3
22	30.1	25.4	30.6	25.2	31.2	22.5	30.1	22.7	32.2	23.6	30.6	25.2	31.5	24.3	31.8	23.7
23	30.5	23.7	30	24.1	29.8	22.5	30.1	23.1	32.3	23.7	31.3	26.1	29.9	23.7	33	23.5
24	30.2	26.2	30.4	22.7	30.2	22.1	29.4	23.8	32.2	24	31.9	26.5	33.3	23.4	32.7	23.8
25	29.5	24.4	30.4	22.5	31.2	22.6	29.3	24.7	32.8	24.6	32	26.9	34.6	23.1	32.6	23.8
26	29.7	23.8	30.5	22.3	30.8	23.1	28.9	23.5	32.9	23.9	32	27	32.5	23.9	31.8	23.2
27	30.1	24.2	30.4	23.4	31.2	22.5	29.7	23.8	32.5	24	32.2	24.5	33.9	24	33.4	23.2
28	30	26	30.1	24.9	29.7	23	28.5	23.8	32.2	23.5	32.1	25.7	32.9	23.5	32.2	23.5
29	30.6	25	30.3	24.5	31.7	20.9	30.7	22.9	31.8	23.6	31.7	23.4	32	23.7	32.5	24.3
30	30.2	25.2	30.4	24.5	31.4	23.6	30.6	23.8	32.4	24.4	32.3	26	33.6	24.8	32.8	24.1
31	30.8	25.6	30.3	22.8	30.8	22.7	29	23.9	33.1	23	31.8	25.6	34.6	24.5	32.8	23.1
Mean	30.4	24.5	30.2	23.6	30.8	22.4	29.7	23.6	32.2	23.2	31.7	24.2	32.3	23.4	32	23.3

Day.	Borongan.		Catbalogan.		Calbayog.		Masbate.		Romblon.		Batag.		Sorsogon.		Legaspi.	
	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.
	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.
1	32.9	22	31.7	22.1	29.7	22.8	32.2	25.8	33	21.3	32.8	23.1	33.4	.....	32.8	22.5
2	33	21.4	31	21.3	30	22.6	31.5	.....	33.3	22.2	31.9	23	33	.....	32.7	22.8
3	33.1	21.5	31.8	21.2	31.6	22.2	31	24	33.4	22.4	32.7	23.4	32.4	.....	32.2	21.8
4	32.8	22.6	31.8	22.1	30.1	23	32	25.2	32.7	24.3	33.1	23.6	33	.....	33	23.4
5	33.5	22	32.3	22.5	29.9	23.5	31	26.2	33.5	23.2	32.9	23.6	33	.....	33.4	24.9
6	35.5	22.5	32.5	24.7	30	24.7	32.4	26.4	33.6	22.7	32.5	24.6	32.5	.....	33.2	25
7	34.4	22	31.2	26.6	29.8	24.6	32.8	26.6	33.8	24.3	32	24.2	32.9	.....	32.9	24.1
8	30	23.5	29	25	28.9	23.7	30.8	23.6?	33.7	25.3	28.4	25.1	31.3	.....	32.2	24.2
9	33	22	30.3	23.4	30	23.3	28.5	22.5?	30	24.3	29.5	23.5	31.5	.....	27.8	22.7
10	27.3	22.8	26.3	23.6	27.5	23.6	28.6	22.5	32.5	24.4	25.6	21.6	28.5	.....	26	23.5
11	32.8	23	31.7	23	28.4	22.6	29	23.6	29.9	24.4	29	21.4	27.9	.....	27.5	23.2
12	33.5	21	31.3	23	29	23.2	30.4	23.8	28.5	23.4	30	22.7	30	.....	29.8	22.8
13	32.1	22.9	32.2	23.5	30.7	22.6	31.4	23.5	29.1	22.6	31.8	22.3	32.9	.....	30.3	23
14	31.8	23.3	31.5	23.1	29.9	23.7	32	23.6	31.5	23.3	31.7	24.2	31.8	.....	32.3	22.3
15	31.4	22.5	29.4	22.5	29.4	22.7	31.4	22.4	32.9	23	30.5	21.4	32.3	.....	31.8	23.5
16	31.3	23.5	30.2	22.7	30.4	22.7	31	23.4	31.9	23.2	26.8	22.5	32.1	.....	31.6	23.8
17	34	22.5	30.2	22.4	29	23	30.4	24.2	29.2	23.2	29.4	23.1	32.5	.....	30.4	23.4
18	33.2	24.6	31	23.4	29.9	23.2	30	23.6	32.5	23.2	30.2	23.5	31	.....	30.5	23.7
19	33.5	23	31.2	24.2	30.1	26.9	30.6	25.2	32.9	24.2	30.9	23.2	30.5	.....	29.8	24.5
20	31.1	25	29	23.9	28.7	23.8	29	23.4	31	23.9	29.9	24.2	30	.....	29.3	23.1
21	31.6	23	31.2	23.2	29	24.4	30.4	25.6	30.3	24.3	.....	23.8	29.5	.....	29.4	24.2
22	32.1	23.6	30.2	24.3	28.7	25.1	30.8	24.4	33.5	23.4	.....	.....	30.8	.....	31.5	23.4
23	28.6	23.6	28.6	24.4	28.6	24.9	31	24.6	32.9	23.7	.....	.....	30	.....	29.8	24.3
24	32.8	22.8	31.5	23.8	28.9	25	31.4	26	31.3	24	31.4	22.8	30	.....	31	24.3
25	34.9	22.6	32.6	22.7	30	24.3	31.4	25	30.4	24.1	32.2	23.7	31.5	.....	31.1	24.4
26	33.3	23	31	23.5	29.3	24.4	30.4	24.5	30.9	23.7	31.8	23.8	32	.....	31.2	24
27	33.2	23.8	31.3	24	29.6	24.5	31.4	25	32.4	22.6	30.7	23	30.5	.....	30.8	24.2
28	34.1	22.6	31.3	24.2	29.9	24.5	30	25.2	31.4	23.6	30.2	23.5	30	.....	28.4	24
29	32.7	23.6	31.2	25	30.1	24.4	30.4	25.8	32.5	23.7	30.7	23.9	30.5	.....	30 8	24.4
30	32.7	23.4	32	23.5	29.7	24.2	31.6	25.2	31.4	23.3	31.4	23 3	31	.....	32.3	24.6
31	32.5	23	32	23.5	29.8	24.7	31.6	25.2	31.9	25	31.5	23.5	31	.....	31.1	24.3
Mean	32.5	22.9	30.9	23.4	29.6	23.8	30.9	24.5	31.9	23.6	30.8	23.3	31.3	.....	30.9	23.7

Maximum and minimum temperatures at the stations of the Weather Bureau, August, 1918—Continued.

Day.	Sumay, Guam.[a]		Calapan.		Virac.[b]		Naga.		Tigaon.		Batangas.		Lucena.		Atimonan.	
	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.
	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.
1	------	------	32.2	21.6	32.1	21.5	34	20.4	31.6	20.5	32.2	22.6	32.4	21.2	32.7	22.7
2	------	------	32.2	21.6	32.4	21	34.4	20.1	32.7	20	30.7	21.5	31.5	22.7	32.3	23.3
3	------	------	33.1	21.5	32	20.6	33.9	19.5	31.8	19.5	32.4	22	32	22	33	22.3
4	------	------	32.9	21.6	33.7	21	33.3	21	31.8	19.9	32.5	22.1	31.5	21.4	33.6	22.6
5	------	------	33	21.5	35	21.5	34	21.2	32.3	20.7	32.1	22.4	33.6	20.6	33.4	22
6	------	------	32.5	22	34.5	21.2	33.5	21.1	32.3	20.9	32	23.3	33.4	20.2	33.5	21.4
7	------	------	32.4	21.2	35.7	21	34	20.7	32.5	19.7	32.2	22.6	34.2	22.3	33.6	22.6
8	------	------	32	22	35.2	22.3?	34.6	22.5	33.3	23.2	32.3	24	33.6	22.6	34	22.4
9	------	------	32	22	29.5	21.1	29.5	21	30.1	22.3	30.8	25.2	30.6	23	31.4	23.8
10	------	------	30.5	23.5	26.5	21.3	26.8	21.1	27.5	22.3	28.8	23.7	28.6	23.6	28.6	23.7
11	------	------	27.5	23	30.3	21.2	27	21.1	26.7	21.9	26.8	23.3	25.5	22.2	25.5	23
12	------	------	27	22.4	31	21.6	29.8	21.6	28.3	22.8	28.8	22 6	28.2	23	28.7	24
13	------	------	26	22.3	31.4	21.5	30.6	21	30	22.4	25.7	22.2	26.6	22.4	26.9	23.8
14	------	------	29	22.5	32	22	32.1	21	31.9	21.9	29.9	22.7	29	23	30.6	24
15	30	25	31.6	22	32	21.1	33	21.3	32.5	21.6	31.3	21.3	30.3	22.3	31.5	23.4
16	31.1	24.6	32	22.4	31	21	32.5	21.3	31	21.7	31	22.1	29	22.3	30.5	23.3
17	31.2	24	32.5	24.5	30.5	21.4	31	21.7	32.3	22.2	32	23.2	30	23.4	30.8	23.2
18	31	24	32.1	21	32.6	21.5	33.5	21.1	30.9	22.2	29.7	23.2	29.7	21.9	32	22.7
19	30.8	24	31.6	22	33.6	21.8	32	22.1	30.4	22.5	30.8	23.2	31	23.6	31.5	23
20	29.2	24.2	32	23	31.5	21.5	32	20.9	30.6	22	30.8	23	29	23.5	30.5	23
21	29	23.4	31.5	22.1	31.5	21.6	31.6	21.1	30.4	21.8	30.6	23	28.5	21.9	31.1	22.1
22	30.8	23.4	30.5	21.8	31.7	21.8	32.7	21.1	31.4	22.6	30.3	23.5	32.6	21.6	31.8	22.7
23	31	23.4	32.5	22.2	32.3	21	32	21	30	22	31.3	22.1	30.5	22.1	31.1	22.5
24	31.2	25	31.5	22.9	32.3	22.1	31.9	21.7	30.4	22.5	31	23.2	30.8	21.5?	31	23.8
25	31	24.8	31.5	23	32.7	22.6	32	22.9	31	23.5	31.2	24.1	31.5	23.9	33.1	24.8
26	31.4	24.6	29.9	22.2	32.3	22	29	21.7	31.2	23.2	30.2	22.8	30.2	23	30.5	24.2
27	30.8	24.8	30.8	21.7	31.3	21.6	30.6	21.3	31.5	21.6	30.5	23.3	29.7	22	29.6	23.2
28	30.8	24.8	31.5	23.5	32.9	21.3	32	22	30.6	22.4	31	22.5	30	23	28.7	23.7
29	28.6	23.2	32	23	32.5	21.4	32.1	21.8	31.4	21.8	31.5	23.6	31	23.4	31.3	23.6
30	30	23.6	32.7	22.6	32.9	21.1	32.4	22.5	31.3	23.1	31.3	23.2	31.2	24.3	32.3	23.7
31	30.2	24.2	32	22.5	33.5	22	32.5	21.9	31.2	22.9	31.5	------	28	22.8	31.8	22.9
Mean	30.5	24.2	31.3	22.3	32.2	21.5	31.9	21.3	31	21.9	30.7	22.9	30.4	22.5	31.2	23.1

Day.	Ambulong, Tanauan.		Canlubang, Calamba.		Paracale.		Santa Cruz, Laguna.		Manila.		Antipolo.		Iba.		San Isidro.	
	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.
	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.
1	32 9	22.5	33.4	21	31.6	23	33.7	21.9	31.8	23	33.5	21.3	31.5	23.5	30.6	23.6
2	32.2	22.3	32.4	21.5	30	23.4	33.3	22.5	32.4	22.6	32.2	20.7	30.8	23.1	31.8	23.5
3	31.9	22.6	31.8	20.8	31.4	23.4	33.6	22.1	31.9	23.3	31	21.8	30.9	22.7	31.7	23.5
4	31.8	22.8	32.1	20.7	31.7	23.8	33.8	22	31.7	23.4	31.1	22	30.9	23.7	32.4	23.5
5	32.1	23.2	33.3	21	34.2	23.8	33.3	22.6	31.6	23.7	30.3	22.3	31	23.7	32.8	23.5
6	32.3	22.7	33.4	21.8	34.3	23.6	33.2	22.1	31.5	23.7	31.3	22.2	31	22.8	32.3	23.1
7	32.1	22.9	34	21.4	35.8	23.8	33.5	22.2	32	24.9	30.7	22.8	31.3	23.2	32.8	23.3
8	33	23.4	33.8	22.8	34	24.7	33.6	24	31.6	24.7	31.5	22.7	31.1	23.5	33.2	23.9
9	29.8	24.7	32	23.8	31	25.4	30.7	23.5	31.3	24.5	30.8	22.7	31	23.6	32.9	24
10	28.2	23.4	31.2	22.4	26	23.2	28.1	23.1	30.2	22.4	29.5	22.5	29.9	23.5	30.7	23
11	25.3	23.2	26.2	22.3	24.8	23.3	25.1	22.1	26.1	22.5	24.2	21	28.2	22.2	27.4	23.3
12	26.5	23.4	28.6	22	28.5	23.5	27.8	22.4	28.8	23.5	27.2	21	26.6	22.8	27.6	23
13	25.5	23	26.2	22.2	28.8	23.8	26.1	22.2	26.3	23	25.8	21	25.7	22.4	25.9	22.3
14	31	22.8	31.6	22.4	33.2	23.3	33.3	22.1	30.3	23.5	31.6	22	28.9	22.2	28.8	23
15	31.8	22.2	32	20.8	31.4	23.7	32	22.2	31.5	22.3	31.7	20.8	31.4	23.2	31.4	22.7
16	31.8	23	32.1	21.8	31	23.4	31.8	22.2	31.3	22.2	30.6	20.3	30.4	21.6	32.4	23
17	32	23.4	31.6	22.3	27.3	23.8	32	23.5	31	24	31.2	22.2	31.1	22.7	31	24.4
18	28.1	23.8	30.9	22.6	31.7	23.5	31.4	24.1	31	23.2	30	21.2	30.8	23.2	31.6	23.5
19	28.5	23.8	31	22.4	32.2	24	32.1	23.9	31.5	24.5	30.5	23	27.9	23	30.9	23.5
20	29.3	23.5	30.6	22.6	31.5	23.9	31.3	23.6	29.9	23.9	28.7	22.6	29.7	22.8	31.5	23.9
21	30.3	23.4	29.5	21.6	31.2	23.5	32	23.3	29.7	22.5	30.2	22	28.8	23.8	30.1	23.5
22	30	23.8	30.4	22.4	29.6	23.7	31.6	23.4	30.1	24.1	29.7	22.7	29.3	23.3	31.2	23.5
23	30.8	23.5	29	22.2	31.6	24	30.2	22.8	30	23.5	29.5	22	30.8	22.4	30.5	23
24	29.9	24.3	30.9	22.1	32.5	24.1	28.8	23.5	30.2	25.1	29.2	22.3	30.8	23.2	31.5	24.4
25	30.4	24.9	32	22.6	34	24.6	32.8	24	30.7	24.9	30.6	22.9	30.3	22.2	31.3	24.5
26	30	24.7	32.2	23.2	29.6	24.5	32.3	24.1	30.5	23.6	27.5	23	28.2	23.5	29.6	23.7
27	29.9	24.6	28.9	22.3	30.5	24.7	30	23.3	31	23.5	30.2	21.3	28.3	22.7	29	23.6
28	30.8	24	29.2	22.4	30.5	24	29.1	23.4	29.7	23.2	30.2	22.5	29.9	23	29	23.4
29	31.5	24.7	32.4	22.3	31.2	23.7	31.8	23.4	31	24.1	29.7	22.4	30.1	23	31.2	23.6
30	30.8	23.9	31.8	21.4	31.2	24	32.9	22.8	30.6	23.3	30.5	21.5	27.9	23.5	29.6	23.6
31	29.8	23.7	30.9	21.1	32.8	23.1	32	22.6	29.5	22.8	29.2	21.8	27.4	22.5	28.5	23.9
Mean	30.3	23.5	31.1	22	31.1	23.8	31.4	22.9	30.5	23.5	30	22	29.7	23	30.7	23.5

[a] The thermometer shelter of this station was blown down during a typhoon of July 6.
[b] The minimum temperatures of this station are not reliable; they seem to be too low.

Maximum and minimum temperatures at the stations of the Weather Bureau, August, 1918—Continued.

Day.	Tarlac.		Baler.		Dagupan.		Bolinao.		Baguio.		San Fernando, Union.		Echagüe.	
	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.
	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.
1	32.2	23.4	31.4	22.1	31.8	24.4	32.5	24.7	22.7	15.2	31.9	24	31.2	22
2	32.4	22.5	30.9	22	31.8	23.5	30	23.9	20.8	15.1	30.7	23.2	29	21.3
3	32.5	23	31.5	21.7	32	23.5	32.3	24.3	21.9	14.8	32.5	24.7	30	22.4
4	33.6	23	33.2	21 7	34	23.8	32.4	23.7	22 9	14.5	34.1	24.4	35	22.2
5	35	23	34	23.5	33	24.1	32.8	24.3	23.5	14.6	34	24.5	35.2	22.2
6	35.6	22	33.4	22.2	32.6	23.5	31.9	23.6	22.6	13.2	33	22.8	35.1	21.8
7	35.8	22	35.1	24	31.7	23.6	31.7	24	22.3	14	32.3	23.6	35.6	22.3
8	36	23.1	34.4	24.1	33.4	24.4	31.8	24	24.8	14.6	33.5	24.5	35.5	23
9	35.8	23.8	34.3	22.9	32.8	25	31.9	24.3	23.5	15.8	32.5	24.5	34.5	21.9
10	33.7	23.7	31.4	23.4	31.6	23.5	31.2	24.4	22.8	15.2	33	24	31.6	21.8
11	32.2	22.5	28.7	23.6	32	23.2	30.6	23.4	20	14.9	32	23.5	29.5	23
12	28.7	23	29.4	23.2	27	23.3	30.4	24.4	17.3	15	28.1	23.2	25	22.5
13	28.6	22.8	28.2	23	27	22.8	27	22.5	17.7	15.4	29.4	22	29.6	22.5
14	28.7	22.8	30.4	23	29.7	23	29	22.1	17.2	15.3	32.5	22.5	31	22.8
15	31.6	22.7	32.1	22.6	33.4	23.2	31.9	23.9	22.8	15	33	24	34	23
16	35	22.7	32.7	22.3	32.8	23.8	31.1	22.9	23.3	14.7	32.6	23.6	34.5	21.7
17	33.5	22.7	31.4	23.2	32.5	24.1	30.9	23.5	22.1	15.5	32.1	24	33.7	23.9
18	33.3	23	33.3	21.9	31	24	30.7	23.9	22.7	14.9	32.4	23.5	34.4	23.5
19	32.3	23.5	33	22.7	30.9	23.5	30	24.4	20.8	14.8	27.5	23.3	33.7	23
20	32.4	23.2	31.5	23.5	32.4	23	31.6	23.4	22.9	15.5	32.3	23.4	33	23.2
21	33.3	24	32.4	23.1	32.5	23.6	31.7	23.9	22.3	15.4	32.6	23	33	23.9
22	33	23.3	32.7	23.1	32.2	24.2	31.9	24.5	22.3	15	32	23.6	34.5	24
23	32.7	23.1	33.5	23	30.7	24	30.4	24.1	22	15.4	30.5	24	33	23.4
24	32.7	23	33.5	23.6	32	24.4	30.6	23.5	23.1	15.1	32.4	23.5	35.5	23
25	32.8	23.1	34	24.4	33.5	24	32.9	24	23.6	14.5	32.4	24	34.5	22
26	32.2	23.9	31.5	23.1	31	23.8	30.5	24.1	24.8	16	32	35	32.5	24
27	30	23.5	30	23.7	30.6	24	30.4	22.6	22	15.8	30.5	23	32.2	24.3
28	30.2	23.8	29.7	23.1	32.2	23.8	32.2	23.1	23.8	15.7	31.4	22.5	32.1	23.5
29	30.5	23.8	30.4	23.5	32	24.4	30.6	24.5	22.3	16.2	32.5	22.9	34	22.8
30	32.7	24	32.5	22.2	31.7	23.9	30.5	24.4	22.5	15.3	32.7	23.5	34.5	22.7
31	30	23.8	32.2	22.3	31.5	24	30.7	23.9	20.9	15.7	31	24.3	33.6	21.8
Mean	32.5	23.2	32	23	31.7	23.8	31.1	23.8	22.1	15.1	31.9	23.6	32.9	22.8

Day.	Candon.		Vigan.		Tuguegarao.		Laoag.		Aparri.		Cape Bojeador.	
	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.
	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.
1	31.1	24.7	30.7	22.8	29.5	22	30.9	23.1	28	24	30.4	22.8
2	28.4	24.3	26.4	23.5	26.2	21.7	26.1	23	25.1	22.6	24.9	23
3	31.5	24.8	29.8	24.5	29.8	22.6	28.3	23	27.7	23.1	26.4	21.5
4	32	25	30.8	25.5	34.2	23.4	30.9	24	30.5	23.8	27.5	24.5
5	32	25.6	31.5	25	36.9	24	32.1	24	32	24.8	29.2	24.6
6	32.1	24.5	30.8	24.8	36.9	24	31.1	22.4	32.6	24.4	29.5	24.4
7	32.2	25.5	30.7	25	37.6	24.2	31.3	23	33	25.1	29.8	24.6
8	32.6	26	31.5	24.7	37.4	24	31.8	23	32.6	25.8	30	24.3
9	32.4	26.4	31.1	24.1	36	23.1	31.6	23.8	31.8	24.4	30.5	24.4
10	31.6	25.1	31.5	23.8	33.7	23.3	31.5	23	31.5	24	30.3	24.6
11	32.1	25.5	31.6	24	30.8	22.1	30.9	22.9	31	23.5	31.4	23.4
12	27.6	25	25.1	23	24.6	23	23.8	22.4	25.9	23	25.2	23.3
13	28	23.4	27.6	22.3	31.5	23.2	29	22	29.9	22.8	28.6	22.4
14	30.9	24	30.8	22.6	30.9	23.8	30	22.2	30.5	23.5	28.8	22.6
15	32	24.8	31.2	24.3	35	23.7	31.4	22.4	31.4	24.8	30.3	24.1
16	31.4	24.6	31.8	23.6	35.8	23.5	30.9	22.1	31	24.8	31.8	24.1
17	32	25.6	31.2	24.2	36	23.5	33.1	23	29.6	24.7	30	24
18	31.9	24.8	30.6	23.9	34.5	23.9	30.7	23.5	30.4	24.8	30.8	24.4
19	31.1	25.2	30.5	23.5	35.5	24.5	30.1	23.5	30.8	24.5	30	24.4
20	32	25.1	30.6	23.9	35.8	24	31.8	23	31	24.3	30.2	23.6
21	31	24.5	30.5	23.5	36.6	24	30.4	22.4	31.2	24.8	30.8	23.8
22	32	25.9	30.9	23.9	34.6	24.3	30.1	22.1	30.9	25.1	30.1	24
23	31.5	25.4	31	23.8	34.5	23.7	32	22.5	31.2	25	31.4	24.1
24	32	25.2	31.9	23.9	35.7	23	30	21.9	32.6	23.8	28.8	24.4
25	32.2	25 4	31	24.2	36.6	23.2	30.8	22	32.9	25.8	29.2	23.4
26	32	26	31.8	24.1	33.6	24.6	30.4	23.6	32	26.4	30	24.5
27	30.4	24.5	29.6	22.5	30.1	24.1	30.2	22.9	30.1	25.4	29.2	24
28	31.4	24.5	31.1	22.5	30.2	23.8	30.1	22.4	31.6	24	30.3	23.3
29	31	24.6	31.6	23.5	33.2	22.7	30.8	22.8	31.3	24.5	31	24.7
30	31.6	24.5	32	23.4	34.2	22.5	31.8	21.8	32	24.3	31.2	23.2
31	32	24.2	30.2	23.8	34.6	22.4	30.9	22.4	31.5	23.3	30	23.4
Mean	31.4	25	30.6	23.8	33.6	23.4	30.5	22.8	30.8	24.4	29.6	23.8

SEISMOLOGICAL BULLETIN FOR AUGUST, 1918.

By Rev. MIGUEL SADERRA MASÓ, S. J.,
Chief, Seismic and Magnetic Divisions, Weather Bureau.

EARTHQUAKES FELT IN THE PHILIPPINES.[1]

2, $3^h\ 02^m$ [2, $11^h\ 02^m$]. **Tigaon** (SE Luzon). Earthquake of intensity III, short duration.

2, $18^h\ 07^m$ [3, $2^h\ 07^m$]. **Butuan** (N Mindanao). Oscillatory earthquake, direction SE–NW, intensity III, duration 4 seconds.

7, $6^h\ 44^m\ 29^s$ * [7, $14^h\ 44^m\ 29^s$]. **Tigaon** (SE Luzon). Earthquake of intensity III, with subterraneous rumbling.

11, $13^h\ 20^m$ [11, $21^h\ 20^m$]. **Surigao** (NE Mindanao). Earthquake shock of intensity II–III.

11, $23^h\ 30^m\ 24^s$ * [12, $7^h\ 30^m\ 24^s$]. **Antique** (SW Panay). Earthquake of intensity IV, duration 5 seconds. It repeated 10 minutes later with less intensity. The origin seems to have been in the Sulu Sea, it was also recorded by the seismographs at Mambajao and Butuan.

13, $15^h\ 04^m$ [13, $23^h\ 04^m$]. **Tigaon** (SE Luzon). Earthquake of intensity III.

14, $5^h\ 46^m$ [14, $13^h\ 46^m$]. **Butuan** (N Mindanao). Oscillatory earthquake of intensity III, duration 6 seconds.

14, $7^h\ 15^m$ [14, $15^h\ 15^m$]. **Ambos Camarines** (SE Luzon). Earthquake of intensity III felt in the central part of the province, originated very likely in the Isarog.

14, $9^h\ 19^m\ 38^s$ * [14, $17^h\ 19^m\ 38^s$]. **Baguio** (W Luzon). Earthquake shocks of intensity II–III: the epicenter was towards the SE in Nueva Vizcaya.

18, $22^h\ 13^m\ 00^s$ * [19, $6^h\ 13^m\ 00^s$]. **Tigaon** (SE Luzon). Earthquake shock of intensity II–III: the origin lay far away in the Pacific.

22, $13^h\ 01^m$ [22, $22^h\ 30^m$]. **Sumay** (Guam). Earthquake shock of intensity III.

28, $11^h\ 12^m$ [28, $19^h\ 12^m$]. **Laoag** (NW Luzon). Oscillatory earthquake of intensity III.

29, $4^h\ 05^m$ [29, $12^h\ 05^m$]. **Masbate Island.** Oscillatory earthquake, direction SW–NE, intensity III–IV, duration 8 seconds. Repeated 30 minutes later with the same intensity and direction.

THE EARTHQUAKE OF SOUTHERN MINDANAO, AUGUST 15TH, 1918.

On the 15th of August at $12^h\ 20^m\ 28^s$ * [15, $20^h\ 20^m\ 28^s$] the whole Island of Mindanao was violently shaken by a violent and long earthquake. The meizoseismic area comprised the southern coasts of the Cotabato District facing Celebes Sea where the intensity of the shocks reached intensity IX. All the houses were either destroyed or

[1] The intensity of earthquakes is given in the notation known as the Rossi-Forel scale. The time is that indicated by the seismographs at the Central Observatory whenever the disturbance has been registered by them. This fact is denoted by an asterisk (*). Otherwise the time is that noted by the observer who sent the report. All time indications are in Greenwich mean time (midnight=0^h), insular time being added in brackets for the convenience of Philippine readers.

badly shaken, cracks were produced in the ground and landslides on the mountains, causing the death of about fifty persons in the civil settlements from which reports have been received. As the greatest part of the most affected region is inhabited by Moros and wild tribes, it is not known and will possibly never be known the amount of damage and the total number of casualties.

The origin of this great earthquake was in the sea, probably between the meridians 124° and 125° E and the parallels 5° and 6° N. Shortly after the earthquake a wave tide, estimated at some places twenty-four feet high, invaded the coast in an extension of about 150 kilometers, from near Port Lebak to Glan, drowning and carrying away many persons and animals. The small islands of Sarangani and Balut placed at the eastern end of the epicentral region sustained similar damages from the shocks and tide. As it occurred at night no particulars are given about the wave: as, for instance, if the sea receded before invading the coast, and about the time elapsed between the biggest shocks and the rising of the sea.

An extraordinary duration of several minutes is given to the principal earthquake, even by those living in the southern coast nearest to the epicenter. May be that such long duration comprises many different shocks: practically the earth continued trembling during that night and the following day. A Wiechert seismograph, placed at Butuan, some 330 kilometers distant from the coast, recorded ninety-six strong aftershocks up to $6^h\ 50^m$ of the following morning; a hundred and sixty during the 16th and the seven first hours of the 17th. To the end of the month it recorded three hundred and twelve shocks, 80 per cent of which were aftershocks of the great earthquake. The following month of September gave two hundred and eighty records, with at least 75 per cent originated in the Celebes Sea.

We owe the following report to the Honorable Governor of Mindanao Frank W. Carpenter:

> Captain Malone of the Philippine Constabulary stationed at Glan, Cotabato, reports that the earthquake which occurred on the night of August 15, last, destroyed all houses in Sarangani Bay and so far as known killed forty-six people. He reports that the earthquake lasted for three minutes and ten seconds and was later followed by a tidal wave reaching as high as 24 feet at some points and at the Constabulary station at Glan to a height of 18 feet, thereby destroying all of the houses that had been shaken down by the shock and drowning a number of people, cattle, horses and other domestic animals and destroying all of the food supply of those living near the beach and all of the crops on the low lands. All native vintas were either destroyed or taken out to sea. Large rivers were completely obliterated and new ones created. He further reports that a slide occurred on one of the large mountains adjacent to Sarangani Bay and it is his opinion that a number of wild people living at the foot of the mountain were buried, but as yet no definite reports have come in.
>
> L. B. Kidwell, who has a saw-mill at Port Lebak, reports that the tidal wave at his place was between 6 and 8 feet, killing six people and carrying a number of logs quite a distance inland. Light earthquakes have been almost continuous since August 15 both at Sarangani, Lebak and Cotabato, but no further damage has been done.

Another private report adds:

> To the south of Port Lebak far some forty miles there was a tidal wave variously estimated at from 20 to 25 feet. Several Moros were drowned.

The part of the Celebes Sea where this earthquake originated seems to be a very unstable region and naturally exposed to such cataclysms. Some geologists, among them the illustrious Lapparent, extend the geosynclinal called mediterranean to this region where it joints to the circumpacific geosynclinal. During the last six years not less than three submarine and very extensive earthquakes had originated in the same NE part of the Celebes Sea, the epicenter shifting sometimes towards the east at other times to the west, but always within the tract lying between Mindanao and the Archipelagos of Sanguir and Talaut and limited by the meridians 124° and 126° E, and the parallels 4°

and 6° N. One occurred on the 17th of August 1912 just one hour and twenty-six minutes after another big submarine earthquake originated farther east near to the 127° E meridian. Fifty-five minutes before a second earthquake had also occurred with its epicenter in the eastern part of Mindanao close to the 8° N parallel, this second shook the whole Agusan region and the eastern coasts. On the 14th of March 1913, took place a second very extensive and violent earthquake which shook the whole Island of Mindanao, and the Visayas placed N of it. Very recently on the 31st of January 1917, a third earthquake caused great damage and many victims in the Sarangani Bay and the near coasts. None of these three earthquakes had been followed by any noticeable tide in the southern coast of Mindanao, included always in their meizoseismic area.

The recent tide wave or tsunami caused by the earthquake of August 15th is the second modern case reported from the Island of Mindanao. The first followed a great earthquake in the Sulu Sea on the 21st of September 1897: the tidal wave swept the western coasts of Mindanao and the Zamboanga Strait, Basilan Island, Jolo Archipelago and Borneo coasts. Both tsunamis invaded coasts of Mindanao considered as safe from such cataclysms in the general and most elaborate catalogue of Rudolph.

RECORDS OF THE MICROSEISMOGRAPH.

[Time: Greenwich mean. Midnight=0h. Instrument: Wiechert seismograph; 1,000 kilograms. A_N: T_o=6.62, ϵ=2.726, $\frac{r}{T_o^2}$=0.021; A_E: T_o=6.03, ϵ=2.378, $\frac{r}{T_o^2}$=0.037. Alluvium. 2.40 meters above sea level.]

No.	Date.	Character.	Phase.	Hour.	Period.	Amplitude. A_N μ	Amplitude. A_E μ	Remarks.
				h. *m.* *s.*				
270	5	Iv	eP	21 48 22				
			L	48 29				
			M_N	48 31	2	90		
			M_E	48 31	2		51	
			F	51				
271	6	Iv	eP	4 00 21				
			F	04				
272	6	Iv	eP	11 19 52				
			F	22				
273	7	Iv	eP	6 44 29				Tigaon (SE Luzon).
			L	45 08				
			M_N	45 23	6	88		
			M_E	45 27	4		97	
			F	59				
274	7	Iv	eP	7 01 32				
			F	03				
275	7	IIv	eP	9 30 32				
			L	30 51				
			M_N	30 55	2	714		
			F	43				
276	7	Iv	eP	9 44 16				
			F	47				
277	7	Iv	eP	17 11 42				
			F	14				
278	8	Ir	e	9 55 28				
			S	10 01 16				
			L	07 54				
			M_E	08 42	19		34	
			F	11 04				
279	8	Iv	eP	12 42 12				
			F	13 02				
280	9	Iv	eP	15 27 38				
			F	30				
281	9	I	eP	19 56 00				
			F	20 39				
282	10	Iv	eP	18 39 00				
			F	41				

Records of the microseismograph—Continued.

No.	Date.	Character.	Phase.	Hour.	Period.	Amplitude. A_N μ	Amplitude. A_E μ	Remarks.
				h. *m.* *s.*				
283	11	Ir	eP	23 30 24				Sulu Sea.
			S	33 02				
			L	34 00				
			M_N	34 36	14	36		
			M_E	35 16	13		51	
	12		F	0 13				
284	12	Ir	eP	5 04 16				
			M_E	09 22	9		15	
			M_N	09 56	9	17		
			F	37				
285	14	Iv	eP	9 19 38				Baguio (W Luzon). End overtaken by following earthquake.
286	14	Iv	eP	9 20 33				
			L	21 32				
			F	25				
287	15	I	eP	2 40 30				
			F	3 02				
288	15	IIIr	eP	12 20 28				Celebes Sea. End overtaken by following earthquake.
289	15	IIr	eP	13 02 48				Celebes Sea. End overtaken by following earthquake.
290	15	IIr	eP	15 28 40				Celebes Sea.
			F	16 58				
291	15	IIr	eP	17 32 43				Celebes Sea.
			F	19 23				
292	15	Ir	eP	19 52 36				Celebes Sea.
			F	20 06				
293	15	Ir	eP	20 08 56				Celebes Sea.
			F	32				
294	15	Ir	eP	20 36 13				Celebes Sea.
			L	38 00				
			F	21 20				
295	15	Ir	eP	22 45 38				Celebes Sea.
			F	23 12				
296	15	Ir	eP	23 23 50				Celebes Sea.
			F	37				
297	15	Ir	eP	23 42 49				Celebes Sea.
			F	59				
298	16	Ir	eP	0 02 06				Celebes Sea.
			F	33				
299	16	Ir	eP	1 58 00				Celebes Sea.
			F	2 22				
300	16	IIr	eP	3 28 08				Celebes Sea. End overtaken by following earthquake.
			S	29 48				
			L	30 53				
			M_{N1}	31 10	7	143		
			M_{E1}	32 47	11		114	
			M_{N2}	33 17	9	264		
			M_{E2}	34 43	9		181	
			M_{E3}	35 48	10		182	
			M_{N3}	36 07	10	393		
301	16	Ir	eP	4 26 21				Celebes Sea. End overtaken by following earthquake.
302	16	Ir	eP	4 50 00				Celebes Sea.
			F	5 22				
303	16	Ir	ePS	7 25 22				Celebes Sea.
			L	28 12				
			F	8 23				
304	16	IIr	eP	8 38 17				Celebes Sea. End overtaken by following earthquake.
			L	40 00				
			M_N	41 49	14	389		
			M_E	42 10	12		247	
305	16	Ir	eP	9 27 43				Celebes Sea. End overtaken by following earthquake.
306	16	Ir	eP	10 01 00				Celebes Sea.
			F	36				

Records of the microseismograph—Continued.

No.	Date.	Character.	Phase.	Hour.	Period.	Amplitude. A_N μ	Amplitude. A_E μ	Remarks.
				h. *m.* *s.*				
307	16	Ir	eP	10 38 39				Celebes Sea. End overtaken by following earthquake.
308	16	Ir	eP	11 09 29				Celebes Sea.
			F	49				
309	16	Ir	eP	16 56 29				Celebes Sea.
			F	18 05				
310	16	Ir	eP	22 48 20				Celebes Sea.
			F	23 09				
311	17	Ir	eP	3 34 15				Celebes Sea.
			F	51				
312	17	Ir	eP	4 46 42				Celebes Sea.
			F	5 15				
313	17	Ir	eP	7 13 38				Celebes Sea.
			F	52				
314	17	Ir	eP	8 29 27				Celebes Sea.
			F	58				
315	17	Ir	eP	18 54 00				Celebes Sea.
			F	19 08				
316	18	Ir	eP	3 53 00				Celebes Sea.
			F	4 36				
317	18	Ir	eP	6 07 44				Celebes Sea.
			S	09 55				
			L	10 38				
			M_N	12 08	8	143		
			F	7 21				
318	18	Ir	eP	8 10 54				Celebes Sea.
			F	27				
319	18	Ir	eP	9 14 29				Celebes Sea.
			F	31				
320	18	Iv	eP	22 13 00				Tigaon (SE Luzon).
			F	27				
321	19	Ir	eP	1 19 06				Celebes Sea.
			F	38				
322	19	Ir	eP	4 20 05				
			F	25				
323	19	Ir	eP	7 14 34				Celebes Sea.
			F	37				
324	19	Ir	eP	17 11 00				Celebes Sea.
			F	26				
325	19	Ir	eP	17 30 30				Celebes Sea.
			L	32 06				
			M_E	33 17	9		36	
			M_N	33 32	6	57		
			F	18 22				
326	19	Ir	eP	18 52 16				Celebes Sea.
			F	19 09				
327	20	Ir	eP	0 00 30				Celebes Sea.
			S	02 16				
			L	04 02				
			M_N	04 22	6	74		
			M_E	04 22	5		55	
			F	1 20				
328	20	Ir	eP	2 50 00				Celebes Sea.
			F	3 12				
329	20	Ir	eP	7 24 08				Celebes Sea.
			F	43				
330	20	Ir	eP	12 55 48				Celebes Sea.
			F	13 38				
331	21	Ir	eP	0 20 53				Celebes Sea.
			F	1 02				
332	21	Ir	eP	14 39 40				Celebes Sea.
			F	58				

Records of the microseismograph—Continued.

No.	Date.	Character.	Phase.	Hour.	Period.	Amplitude. A_N μ	Amplitude. A_E μ	Remarks.
				h. *m.* *s.*				
333	21	Iv	eP	21 57 17				
			F	22 08				
334	22	Ir	eP	19 47 19				Celebes Sea.
			F	20 10				
335	22	Ir	eP	23 02 50				Celebes Sea.
			F	12				
336	23	IIr	e	6 45 41				
			S	53 05				
			L	7 02 32				
			M_{N1}	03 38	15	53		
			M_{E1}	04 14	19		49	
			M_{E2}	09 52	15		31	
			M_{N2}	13 27	15	40		
			C	42 36				
			F	8 26				
337	23	Ir	eP	17 01 12				Celebes Sea.
			F	16				
338	23	Ir	eP	22 40 44				
			F	23 19				
339	25	Ir	eP	0 31 47				Celebes Sea.
			L	33 48				
			M_N	34 05	7	47		
			M_E	34 11	6		45	
			F	1 43				
340	25	Iv	eP	2 50 02				
			F	54				
341	25	Iv	eP	12 55 24				
			F	13 06				
342	26	Ir	eP	6 10 29				Celebes Sea.
			F	21				
343	26	Ir	eP	8 54 13				Celebes Sea.
			F	9 06				
344	26	Iv	eP	11 46 18				
			F	12 00				
345	26	Iv	eP	19 11 24				
			F	14				
346	26	Iv	eP	21 11 15				
			F	13				
347	27	Iv	eP	1 54 50				
			F	2 05				
348	27	Iv	eP	20 02 12				
			F	23				
349	31	Iv	eP	1 46 10				
			F	58				
350	31	Ir	eP	21 59 09				Celebes Sea.
			F	22 40				

TEMBLORES DE TIERRA SENTIDOS EN FILIPINAS.[1]

2, $3^h\ 02^m$ [2, $11^h\ 02^m$]. **Tigaon** (SE de Luzón). Temblor de tierra de intensidad III, duración corta.

2, $18^h\ 07^m$ [3, $2^h\ 07^m$]. **Butúan** (N de Mindanao). Temblor oscilatorio, dirección SE–NW, intensidad III, duración 4 segundos.

7, $6^h\ 44^m\ 29^s$ * [7, $14^h\ 44^m\ 29^s$]. **Tigaon** (SE de Luzón). Temblor de tierra de intensidad III, acompañado de ruido subterráneo.

11, $13^h\ 20^m$ [11, $21^h\ 20^m$]. **Surigao** (NE de Mindanao). Temblor de tierra de intensidad II–III.

11, $23^h\ 30^m\ 24^s$ * [12, $7^h\ 30^m\ 24^s$]. **Antique** (SW de Panay). Temblor oscilatorio de intensidad IV, duración 5 segundos. Repitió 10 minutos después con menor intensidad. El origen de estos choques parece se hallaba en el Mar de Joló; fué registrado también por los sismógrafos de Mambajao y Butúan.

13, $15^h\ 04^m$ [13, $23^h\ 04^m$]. **Tigaon** (SE de Luzón). Temblor de tierra de intensidad III.

14, $5^h\ 46^m$ [14, $13^h\ 46^m$]. **Butúan** (N de Mindanao). Temblor oscilatorio de intensidad III, duración 3 segundos.

14, $7^h\ 15^m$ [14, $15^h\ 15^m$]. **Ambos Camarines** (SE de Luzón). Temblor de tierra de intensidad III sentido en la parte central de la provincia y originado al parecer en el Isarog.

14, $9^h\ 19^m\ 38^s$ * [14, $17^h\ 19^m\ 38^s$]. **Baguio** (W de Luzón). Temblor de tierra de intensidad II–III; el epicentro se hallaba al SE, hacia Nueva Vizcaya.

18, $22^h\ 13^m\ 00^s$ * [19, $6^h\ 13^m\ 00^s$]. **Tigaon** (SE de Luzón). Temblor de tierra de intensidad II–III; su origen parece se hallaba lejos en el Mar Pacífico.

22, $13^h\ 01^m$ [22, $22^h\ 30^m$]. **Sumay** (Guam). Temblor de tierra de intensidad III.

28, $11^h\ 12^m$ [28, $19^h\ 12^m$]. **Laoag** (NW de Luzón). Temblor oscilatorio de intensidad III.

29, $4^h\ 05^m$ [29, $12^h\ 05^m$]. **Isla de Masbate.** Temblor oscilatorio, dirección SW–NE, intensidad III–IV, duración 8 segundos. Repitió 30 minutos más tarde con la misma intensidad y duración.

EL TERREMOTO DEL SUR DE MINDANAO, 15 DE AGOSTO DE 1918.

El día 15 de agosto a $12^h\ 20^m\ 28^s$ * [15, $20^h\ 20^m\ 28^s$] toda la Isla de Mindanao fué sacudida por un violento y largo terremoto. El área meizosísmica comprendía las costas sur del distrito de Cotabato que miran al Mar de Célebes, donde la intensidad de los movimientos llegó al grado IX. Destruyó o causó graves desperfectos en todas las casas, abrió grietas en la tierra con derrumbamientos en los montes, resultando la muerte de unas cincuenta personas en los pueblos civiles de donde se tiene noticia. De la mayor parte de la región más afectada, habitada por moros y tribus salvajes, ni se tienen noticias completas de los daños y desgracias personales causadas ni tal vez se tendrán nunca.

Parece indudable que el origen o epicentro estaba en el mar entre los meridianos 124° y 125° E y los paralelos 5° y 6° N. Al terremoto sucedió una ola o marea colosal,

[1] La intensidad de los terremotos se indica conforme a la conocida escala de Rossi-Forel. Cuanto a la hora de su ocurrencia, adoptamos la indicada por los sismógrafos de este Observatorio siempre que los hayan registrado, distinguiéndola por medio de un asterisco (*). En caso contrario copiamos la apuntada por los observadores que nos envían las notas. Todas las indicaciones del tiempo se refieren al tiempo medio de Greenwich (medianoche $=0^h$). Para conveniencia de los lectores de Filipinas se añade también el tiempo insular.

que en algunas partes se calculó llegaría a unos 7 metros de altura, la cual invadió la costa en una extensión de más de 150 kilómetros o sea desde cerca de Lebak hasta Glan, y ahogó y arrastró muchas personas y animales. Las Islas de Balut y Sarangani situadas al extremo oriental de la región epicéntrica fueron igualmente devastadas por el terremoto y la ola. Como este fenómeno ocurrió de noche no existen pormenores acerca del carácter de la ola: de si el mar retrocedió antes, ni del tiempo que tardó en sobrevenir la subida del agua después del terremoto. Este aun en los sitios de la costa más cercanos al epicentro tuvo una duración extraordinaria, todos los informes le dan varios minutos; es posible que se comprendan en la duración varios temblores, pues la tierra continuó prácticamente temblando toda aquella noche y el día siguiente. Un sismógrafo Wiechert, que funciona en Butúan, a una distancia de 330 kilómetros de la costa, registró 96 repeticiones desde la hora del terremoto principal hasta las 6^h 50^m del día 16, y 160 entre esta hora y las 7^h 14^m de la mañana del 17. Los días siguientes hasta el 1.° de septiembre el mismo aparato registró 312 sismos, 80 por ciento de los cuales eran réplicas del gran terremoto. Durante el mes de septiembre el número de registros llegó a 280, de los cuales unas dos terceras partes se originaron también en el Mar de Célebes.

A continuación traducimos el informe recibido del Honorable Gobernador de Mindanao, Mr. Frank W. Carpenter:

El Capitán Malone de la Constabularia Filipina estacionado en Glan, Cotabato, informa que el terremoto ocurrido la noche del 15 de agosto destruyó todas las casas en la bahía de Sarangani, y en cuanto se sabe causó la muerte de cuarenta y seis personas. Añade que el terremoto duró tres minutos y diez segundos, y que fué al poco rato seguido de una marea o subida del mar de 24 pies en algunos sitios y de solos 18 pies en la estación de Glan, la cual destruyó todas las casas desbaratadas por el terremoto y ahogó buen número de personas, ganado, caballos y animales domésticos, inutilizó todas las vituallas existentes en las casas cercanas al mar, e inundó y destruyó las hortalizas y otros productos de las tierras bajas. Todas las vintas (canoas) de los naturales fueron destruídas o llevadas mar adentro al retroceder la ola. Las bocas de grandes ríos quedaron obstruídas y se abrieron otras nuevas. Además informa que en una de las montañas cercanas a la bahía, se produjo un grande desmoronamiento de terreno y se teme que algunos salvajes que tenían sus viviendas al pie de la montaña desmoronada hayan quedado enterrados.

L. B. Kidwell que posee una aserradora en puerto Lebak, dice que allí la subida del mar alcanzó una altura de 6 a 8 pies solamente, causó la muerte de seis personas y llevó buen número de troncos muy tierra adentro.

Otro informante añade que:

A unas 40 millas al SE. de Lebak, el agua llegó a una altura de 20 a 25 pies y se ahogaron varios moros.

La parte oriental o NE del Mar de Célebes donde se originó el terremoto parece ser una región muy inestable y por consiguiente sujeta a semejantes cataclismos. Algunos geólogos, entre ellos el ilustre Lapparent, extienden hasta esta parte el geosinclinal llamado mediterráneo y en ella se junta con el correspondiente circumpacífico. Durante los últimos seis años habían tenido lugar en la misma región otros tres grandes terremotos submarinos originados unas veces algo más al este, otras al oeste, pero siempre en la parte NE del Mar de Célebes, entre Mindanao y los Archipiélagos de Sanguir y de Talaut, limitada por los meridianos 124° y 126° E y los paralelos 4° y 6° N.

Uno ocurrió el 17 de agosto de 1912, una hora y veintiséis minutos más tarde que otro gran terremoto originado más al este, cerca del meridiano 127°, y 55 minutos después de un segundo terremoto que tuvo su origen en la parte oriental de Mindanao cerca del paralelo 8° N y sacudió todo el valle del Agusan y las costas orientales. El 14 de marzo de 1913 tuvo lugar otro de una extensión inmensa el cual sacudió toda la Isla de Mindanao y las Islas Visayas que están al N. Muy recientemente, el 31 de enero de 1917,

otro causó gran destrucción y algunas víctimas en la bahía de Sarangani y en las vecinas costas. Ninguno sin embargo de estos tres terremotos produjo en las costas sur de Mindanao, incluídas siempre dentro de su área meizosísmica, oleaje apreciable.

El oleaje o tsunami producido por el del 15 de agosto último es el segundo caso que en los tiempos modernos registra la Isla de Mindanao. El primero ocurrió con el terremoto del 21 de septiembre de 1897 en el Mar de Joló; el oleaje producido hizo sentir sus efectos destructores en la península de Zamboanga y en las costas de Basilan, del Archipiélago de Joló y de la Isla de Borneo. Dos olas sísmicas o tsunamis que en un intervalo de veintiun años invadieron las costas de Mindanao a pesar de no estar citadas como expuestas a tales fenómenos en el completísimo catálogo general de Rudolph.

THE GOVERNMENT OF THE PHILIPPINE ISLANDS

WEATHER BUREAU

MANILA CENTRAL OBSERVATORY

BULLETIN FOR SEPTEMBER, 1918

PREPARED UNDER THE DIRECTION OF

REV. JOSÉ ALGUÉ, S. J.

DIRECTOR OF THE WEATHER BUREAU

MANILA
BUREAU OF PRINTING
1918

METEOROLOGICAL BULLETIN FOR SEPTEMBER, 1918.

By Rev. Jose Coronas, S. J.,
Chief, Meteorological Division of the Weather Bureau.

GENERAL WEATHER NOTES.

Pressure and temperature.—The mean atmospheric pressure of this month is somewhat higher than that of the preceding year and than the normal for September. The highest pressures were generally observed on the 26th in Luzon, and on the 19th in the Visayas and Mindanao. The lowest pressures were recorded in all our stations on the 5th when a typhoon was situated over the Pacific to the east of Balintang Channel.

With a very few exceptions the mean monthly temperature was also slightly higher than that of September 1917 and than the normal of this month. The absolute maximum and minimum temperatures for Manila were 32.3° C. and 22.9° C: they were registered on the 25th and 2nd, respectively. The extreme temperatures for Baguio were 24.9° C., 14.2° C. on the top of Mirador, and 26.2° C., 13.9° C. in the valley.

PRESSURE AND TEMPERATURE AT THE FIRST AND SECOND CLASS STATIONS FOR SEPTEMBER, 1918.

Station.	Pressure.							Temperature.						
	Mean.	Departure from Sept., 1917.	Departure from normal.	Highest mean.	Day.	Lowest mean.	Day.	Mean.	Departure from Sept., 1917.	Departure from normal.	Highest.	Day.	Lowest.	Day.
	mm.	mm.	mm.	mm.		mm.		°C.	°C.	°C.	°C.		°C.	
Zamboanga	759.80	+1.39	-------	761.12	19	758.09	5	26.4	+0.3	-------	30.5	5, 10, 12	22.2	3, 29
Tagbilaran	58.68	+ .82	+0.80	60.25	19	56.50	5	27.7	+1	+0.4	33.7	16	22.5	20
Surigao	58.42	+ .48	+ .59	60.16	19	55.91	5	27.8	+1.3	+ .4	33.1	10	22.8	17
Cebu	58.54	+ .53	+ .70	60.40	19	55.71	5	28.2	+ .8	+ .9	32.6	25	23.2	1
Iloilo	58.58	+ .68	+ .83	60.27	19	55.67	5	27.2	+ .6	+ .6	31.8	25	22.2	14
Tacloban	58.10	+ .28	+ .45	60.02	25	55.23	5	27.6	+ .9	+ .2	36	11	22	21
Capiz	58.24	+ .59	+ .52	60.09	19	54.52	5	27.1	+ .8	+ .4	34.4	4	22.6	19
Calbayog	58.13	+ .20	+ .56	60.01	18	55	5	27.1	+ .6	0	32.7	27	22	21
Legaspi	57.80	+ .22	+ .54	60.21	26	54.10	5	27.2	+ .6	+ .2	33.2	18	21.8	21
Atimonan	57.79	+ .33	+ .71	60.48	26	53.27	5	27.2	+ .5	+ .2	32.9	22	22.6	22
Ambulong, Tanauan	57.61	+ .57	-------	59.90	26	53.15	5	26.5	0	-------	33	28	22.8	22, 29
Paracale	57.58	+ .13	-------	60.44	26	53.10	5	27.5	+ .8	-------	34.9	14	23	1
Manila	58.03	+ .48	+ .59	60.42	19	53.07	5	26.8	+ .3	0	32.3	25	22.9	2
San Isdro	58.27	+ .63	+ .98	60.90	26	53.44	5	26.4	+ .3	− .1	33	24, 28	22.7	15
Dagupan	57.25	+ .49	+ .47	59.83	26	52.22	5	27.1	+ .1	+ .2	34.5	26	23.2	15, 16
Baguio[a]	635.92	+ .37	+ .89	638.30	26	631.64	5	17.4	− .4	− .3	24.9	24	14.2	14
Vigan	757.30	+ .49	+ .55	760.08	26	752.42	5	26.9	− .4	0	34.4	28	22.5	13
Tuguegarao	57.08	+ .03	+ .66	60.59	26	52.66	5	26.9	+ .1	− .3	36.2	9	22	21, 29
Laoag	57.24	+ .42	-------	59.95	26	52.59	5	26.7	0	-------	32.5	27, 29	22	21, 29
Aparri	57.36	+ .26	+ .64	60.86	27	52.82	5	27.3	+ .1	+ .2	35.5	12	22.8	16

[a] The barometric readings of this station are not reduced to sea level.

Rainfall.—The total amount of rainfall for this month was generally below the normal, and also below the monthly total of September, 1917, in our stations throughout the Visayas and Mindanao. Our stations of Luzon have reported a monthly total which is generally above that of the preceding year, but below the normal for September. Thus the total rainfalls for Manila and Baguio differ respectively from that of September, 1917, by + 75.1 mm. and + 51.3 mm., while they are 31.5 mm., and 154.1 mm. below the normal.

RAINFALL AT VARIOUS STATIONS OF THE WEATHER BUREAU DURING THE MONTH OF SEPTEMBER, 1918.

Station.	Total.	Departure from Sept., 1917.	Departure from normal.	Days of rain.	Departure from Sept., 1917.	Greatest rainfall in a single day.	Day.	Station.	Total.	Departure from Sept., 1917.	Departure from normal.	Days of rain.	Departure from Sept., 1917.	Greatest rainfall in a single day.	Day.
	mm.	mm.	mm.			mm.			mm.	mm.	mm.			mm.	
Jolo	130.1	— 83.2	— 39.5	13	—11	40.6	18	Sorsogon	421.9	+187.2		14	— 3	71.6	30
Isabela, Basilan	168.4	— 22.6	— 29.5	14	— 5	83.5	29	Legaspi	92.2	—259.2	—158.1	17	— 6	21.1	5
Zamboanga	92.1	+ 4.5	— 4.8	15	— 5	23.6	29	Calapan	145.6	— 75?	— 89.8	10		71.9	4
Davao	163.2	— 13.6	— 24.5	11	— 3	64	1	Virac	118	— 86.8	— 45.6	11	— 7	35.7	5
Cotabato	182.9	+ 50.7	— 49.1	13	— 3	53.6	20	Naga	128	—351.5	—133.8	15	— 7	36.5	5
Camp Keithley, Lanao	267.7			21		50.8	17	Tigaon	213.7			18		48.5	5
Cagayan, Misamis	57.3	—140.7		7	—11	14.2	12	Batangas	308.5	+177.8	— 4	18	— 7	116.8	4
Dapitan	40.7			6		14.2	22	Lucena	178	+ 39.2		11	— 6	57.7	5
Butuan	5.1	—182.6	—137.8	4	—17	2	27	Atimonan	210.3	+ 9.7	— 59.7	11	—12	69	5
Mambajao	116.1	— 48.1		4	— 7	98	20	Ambulong, Tanauan	264.5	+ 49.5		14	— 9	98.9	4
Dumaguete	61.8	—158.7		8	— 6	13.5	30	Canlubang, Calamba	263.2	+ 30.7		22	— 4	66.8	4
Yap, Western Carolines	204.4	—241.3	—118.6	20	— 4	37.8	2	Paracale	187.2	—243.4		17	— 5	36.8	23
Tagbilaran	79.4	— 81.3	— 93.9	8	— 3	25.5	20	Santa Cruz, Laguna	283.2	+ 54.2		25	— 2	70.6	5
Iwahig	127.8	—160.8		20	— 2	35.3	16	Manila	338.3	+ 75.1	— 31.5	24	+ 1	66.3	11
Surigao	78.1	+ 13.9	— 66.4	12	0	36.1	27	Antipolo	492.1	+233.1		26	— 2	62.2	5
Maasin	205.1	—101.2	— 65.1	11	— 1	48.3	1	Iba	846.1	+346.4	+ 30.3	25	+ 1	114	5
Cebu	102.8	—198.9	— 75	16	— 3	35.3	25	San Isidro	342.7	+177.5	+ 20.8	23	+ 2	41.9	5
Iloilo	205.4	— 56.9	—112.9	11	— 7	64.5	10	Tarlac	313.6	+ 42.7	— 29.1	23	+ 1	57.1	25
San Jose Buenavista	276.4	— 26	—226.5	21	— 3	41.1	21	Baler	194.9	— 76.3	—118.3	16	— 5	48.5	19
Cuyo	150.2	—180.6	—217.9	20	— 6	25.4	22	Dagupan	478	+113.4	+ 11.9	23	+ 3	132.4	5
Ormoc	198.2	+ 6.7	— 74.2	16	— 5	46.7	29	Bolinao	390	+ 31.1	—155.1	21	+ 2	55.9	26
Guiuan	49	—167.6		12	—10	10.2	28	Baguio	676.8	+ 51.3	—154.1	28	+ 1	99.8	9
Tacloban	105.4	— 69.6	— 44.9	10	—10	34.5	22	San Fernando, Union	428.6	— 83.5	— 22.4	25	+ 4	74.4	16
Capiz	125.3	— 95.5	—157.6	15	— 9	54.9	11	Echagüe	414.7	+290.6	+209.4	22	+ 5	101.6	15
Borongan	47.9	— 90.1	—139.1	10	— 9	20.1	16	Candon	240.6	—228.7	—226.7	19	— 1	67.8	8
Catbalogan	150.8	—130.7		15	— 8	39.6	29	Vigan	496.1	+197.1	— 21.9	21	— 3	95.1	14
Calbayog	198	— 50.7	— 74.7	20	— 6	54.6	19	Tuguegarao	232	— 67.8	— 36.4	9	+ 2	52.8	5
Masbate	114.8	— 98.5	— 70.9	12	— 8	48.5	19	Laoag	910.2	— 26	+193.2	21	— 1	143.7	11
Romblon	184.2	— 39.8	— 34.6	12	— 9	46	7	Aparri	97.5	—139.7	—181.2	14	— 4	40.7	19
Estag	236.8	+107.4		16	— 4	111.8	19	Cape Bojeador	345.3	+ 31.2		15	+ 4	95	11

DEPRESSIONS AND TYPHOONS.

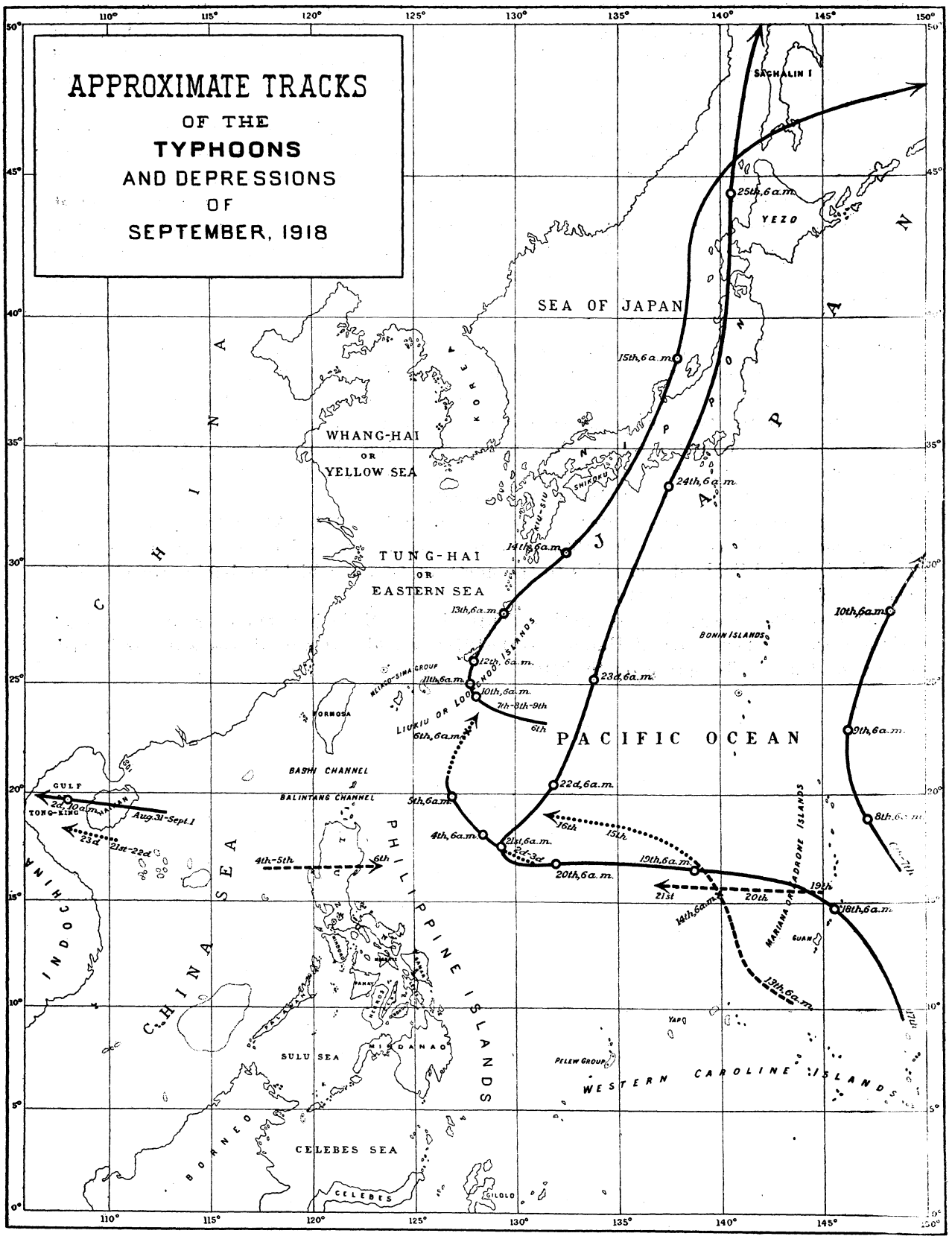
There were in all nine depressions or typhoons in the Far East during the month, although not a single one traversed our Archipelago. The last one will be taken up in our bulletin for October. The tracks of the other eight may be seen in Plate VII.

One typhoon in Hainan, August 31 to September 2, 1918.—This typhoon appeared on August 31 to the east of Hainan and north of the Paracels. It moved westward, crossing Hainan during the night of September 1, and seems to have filled up on the 2d in the Gulf of Tongking. The barometer of Lamko light Station in Hainan was as low as 745.6 mm. at 9 p. m. of the 1st.

Three depressions or typhoons in the Pacific, September 2 to 16, 1918.—On the 2d and 3d there were signs in the Philippines of a typhoon about 500 miles to the east of Luzon near 16° or 17° latitude N and 131° longitude E. It moved northwestward until the 5th when its center could be situated to the east of Balintang Channel in about 20° latitude N and 127° longitude E. The atmospheric conditions in the Pacific to the northeast of Luzon became very much complicated after the 5th. With the observations on hand it is very difficult to decide whether there were two typhoons, as it is supposed in Plate VII, one which recurved northeast on the 5th and filled up on the 6th south of the Loochoos, and another which appeared on the 6th southeast of the Loochoos moving WNW; or whether there was rather only one typhoon which after recurving northeastward on the 5th inclined again westward on the 6th. This latter supposition does not seem as probable as the former one which agrees far better with our weather maps of those days. We may mention here also that in the afternoon of the 4th a secondary center was shown in our weather maps over the China Sea west of Luzon. It moved eastward and spread over Luzon in the afternoon of the 5th in the form of a shallow depression.

On the 6th and 7th there were signs of another typhoon to the northeast of Guam in

Plate VII.


APPROXIMATE TRACKS
OF THE
TYPHOONS
AND DEPRESSIONS
OF
SEPTEMBER, 1918
SAGHALIN I
YEZO
SEA OF JAPAN
JAPAN
CHINA
KOREA
WHANG-HAI
OR
YELLOW SEA
TUNG-HAI
OR
EASTERN SEA
LIUKIU OR LOOCHOO ISLANDS
MIYAKO-SIMA GROUP
FORMOSA
BASHI CHANNEL
BALINTANG CHANNEL
PACIFIC OCEAN
BONIN ISLANDS
MARIANA OR LADRONE ISLANDS
GUAM
YAP
PELEW GROUP
WESTERN CAROLINE ISLANDS
PHILIPPINE ISLANDS
SULU SEA
MINDANAO
CELEBES SEA
BORNEO
CELEBES
GILOLO
GULF
TONG-KING
INDO-CHINA
SEA OF CHINA
25th, 6 a.m.
15th, 6 a.m.
24th, 6 a.m.
14th, 6 a.m.
13th, 6 a.m.
12th, 6 a.m.
11th, 6 a.m.
10th, 6 a.m.
7th-8th-9th
6th
5th, 6 a.m.
4th, 6 a.m.
23d, 6 a.m.
22d, 6 a.m.
21st, 6 a.m.
20th, 6 a.m.
19th, 6 a.m.
18th, 6 a.m.
17th
16th
15th
14th, 6 a.m.
13th, 6 a.m.
10th, 6 a.m.
9th, 6 a.m.
8th, 6 a.m.
2d, 10 a.m.
Aug. 31-Sept. 1
23d
21st-22d
4th-5th
6th
110°
115°
120°
125°
130°
135°
140°
145°
150°
50°
45°
40°
35°
30°
25°
20°
15°
10°
5°
0°

about 16° or 17° latitude N and 148° or 149° longitude E. It moved NNW until the afternoon of the 8th when it recurved NNE near 21° latitude N and 146° longitude E.

On the 13th a depression or typhoon seemed to be situated to the south-southwest of Guam in 10° latitude N and 143° or 144° longitude E. It probably moved first NW and then NNW or N by W, but inclined again westward on the 14th, and filled up on the 16th in about 19° latitude N and 132° longitude E.

Two typhoons over Japan, September 6 to 16 and 17 to 25, 1918.—The first of these typhoons is the one mentioned above which we suppose to have appeared on the 6th southeast of the Loochoos while another one was filling up south of the same Islands. This typhoon seems to have been moving WNW on the 6th, and then remained almost stationary or moved very slowly on the 7th to 11th while recurving northward. On the 12th the typhoon was near Naha and began to move northeastward. It crossed the southern part of Japan on the 14th, and the eastern part of the Sea of Japan on the 15th.

The other typhoon appeared in our weather map of 6 a. m. of the 17th to the southeast of Guam near 9° latitude N and 149° longitude E. After moving NNW the whole day, it inclined westward so decidedly on the 18th, that the direction of its track up to the afternoon of the 20th was practically due west. Fortunately, however, for the Philippines the typhoon recurved northeastward in the afternoon and night of the 20th. The cyclonic center was at the time of recurving about 400 miles to the east of northern Luzon. The direction of the track was NNE after the 22d, and the typhoon traversed the central part of Japan on the 24th.

Two depressions of less importance, September 19 to 23, 1918.—After the preceding typhoon had moved away on the 19th it seems that a depression or secondary center remained behind it about 100 miles to the north of Guam, which probably moved westward and filled up on the 21st.

Our weather maps showed another depression of little importance near the Paracels and the southern part of Hainan on the 21st to 23d. It moved westward and filled up in the Gulf of Tongking on the 24th.

NOTAS GENERALES DEL TIEMPO.

Presión y temperatura.—La presión atmosférica media de este mes en Filipinas es algo mayor que la del año pasado y que la normal de septiembre. Las presiones más altas se observaron generalmente el día 26 en Luzón, y el 19 en Visayas y Mindanao. Las presiones más bajas se registraron en todas nuestras estaciones el día 5 cuando se hallaba un tifón en el Pacífico al E del Canal de Balintang.

Con muy raras excepciones la temperatura media mensual fué también algo mayor que la de septiembre de 1917 y que la normal de este mes. Las temperaturas máxima y mínima absolutas de Manila fueron 32.3° C. y 22.9° C. observadas los días 25 y 2, respectivamente. Las temperaturas extremas de Baguio fueron 24.9° C., 14.2° C. en la cumbre del Mirador, y 26.2° C., 13.9° C. en el valle.

Precipitación acuosa.—La cantidad total de lluvia caída durante este mes ha sido generalmente menor que la normal, y menor también que la lluvia total de septiembre de 1917 en todas nuestras estaciones de Visayas y Mindanao. Nuestras estaciones de Luzón registraron una cantidad total de lluvia del mes que es generalmente mayor que la del año pasado, pero menor que la normal de septiembre. Así las lluvias totales de Manila y Baguio difieren respectivamente de la de septiembre de 1917, en + 75.1 mm. y + 51.3 mm., al paso que son menores que la normal en 31.5 mm. y 154.1 mm.

DEPRESIONES Y TIFONES.

Nueve han sido las depresiones o tifones observados en el Extremo Oriente durante este mes, aunque ninguno de ellos ha atravesado nuestro Archipiélago. De la última de dichas depresiones o tifones hablaremos en nuestro boletín de octubre. Las trayectorias de los otros ocho pueden verse en la Lámina VII.

Un tifón en Hainán, 31 de agosto al 2 de septiembre de 1918.—Este tifón apareció el 31 de agosto al E de Hainán y N de Paracels. Se movió al W, atravesando Hainán durante la noche del 1 de septiembre, y parece haberse deshecho el día 2 en el Golfo de Tongking. El barómetro en la Estación del Faro de Lamko en Hainán llegó a bajar a 745.6 mm. a las 9 p. m. del día 1.

Tres depresiones o tifones en el Pacífico, 2 al 16 de septiembre de 1918.—Los días 2 y 3 hubo en Filipinas indicios de un tifón situado a unas 500 millas al E de Luzón cerca de 16° o 17° latitud N y 131° longitud E. Se movió al NW hasta el día 5 en que su centro se hallaba probablemente al E del Canal de Balintang en los alrededores de 20° latitud N y 127° longitud E. Las condiciones atmosféricas en el Pacífico al NE de Luzón llegaron a ser muy complicadas después del día 5. Con las observaciones que poseemos es muy difícil determinar si hubo dos tifones, como se supone en la Lámina VII, uno que recurvó al NE el día 5 y se deshizo el 6 al S de Loochoos, y otro que apareció el día 6 al SE de Loochoos moviéndose al WNW; o más bien hubo un solo tifón que, después de recurvar al NE el día 5, se inclinó de nuevo al W el día 6. Esta última suposición no parece tan probable como la primera, la cual se conforma mejor con nuestros mapas del tiempo de aquellos días. También podemos mencionar aquí que la tarde del día 4 se echó de ver en nuestros mapas del tiempo un centro secundario en el Mar de China al W de Luzón. Se movió al E y se extendió sobre Luzón la tarde del 5 en forma de una depresión dilatada.

Los días 6 y 7 hubo indicios de otro tifón al NE de Guam en los alrededores de 16° ó 17° latitud N y 148° ó 149° longitud E. Se movió al NNW hasta la tarde del 8 en que recurvó al NNE cerca de 21° latitud N y 146° longitud. E.

El día 13 una depresión o tifón parecía hallarse al SSW de Guam cerca de 10° latitud N y 143° ó 144° longitud E. Probablemente se movió al principio al NW y

luego al NNW o N¼NW, pero se inclinó de nuevo al W el día 14, y se deshizo el día 16 en los alrededores de 19° latitud N y 132° longitud E.

Dos tifones en Japón, 6 al 16 y 17 al 25 de septiembre de 1918.—El primero de estos tifones es el que se mencionó arriba, el cual suponemos haber aparecido el día 6 al SE de Loochoos mientras otro se estaba deshaciendo al S de las mismas Islas. Este tifón parece haberse movido al WNW el día 6, y luego permaneció casi estacionario o se movió muy lentamente desde el día 7 al 11, mientras recurvaba al N. El día 12 el tifón estaba cerca de Naha y comenzó a moverse al NE. Atravezó la parte meridional de Japón el día 14 y la parte oriental del Mar de Japón el 15.

El otro tifón apareció en nuestro mapa del tiempo de 6 a. m. del 17 al SE de Guam cerca de 9° latitud N y 149° longitud E. Después de moverse al NNW durante todo el día, se inclinó al W tan decididamente el 18, que la dirección de su trayectoria hasta la tarde del 20 fué casi directamente al W. Afortunadamente, sin embargo, para Filipinas el tifón recurvó al NE la tarde y noche del día 20. El centro ciclónico se hallaba al tiempo de la recurva a unas 400 millas al E del norte de Luzón. La dirección de la trayectoria fué NNE después del día 22, y el tifón atravesó la parte central de Japón el 24.

Dos depresiones de poca importancia, 19 al 23 de septiembre de 1918.—Después que el tifón anterior se había alejado el día 19, parece que una depresión o un centro secundario quedó detrás de él a unas 100 millas al N de Guam, el cual se movió probablemente al W y se deshizo el 21.

Nuestros mapas del tiempo indicaron otra depresión de poca importancia cerca de Paracels y la parte meridional de Hainán del 21 al 23. Se movió al W y se deshizo en el Golfo de Tongking el día 24.

METEOROLOGICAL DATA FOR MANILA CENTRAL OBSERVATORY.[a]

[$\phi = 14°\ 34'\ 41''$ N; $\lambda = 120°\ 58'\ 33''$ E; barometer above sea, 14.2 meters; gravity correction not applied, —1.72 mm.]

Day.	Pressure (mean).	Air temperature.[b]			Underground temperature.						Relative humidity (mean).	Vapor pressure (mean).	Radiation.		Evaporation.[b]	
		Mean.	Maximum.	Minimum.	0.25 meter.		0.50 meter.		1.50 meters.	2.50 meters.			Minimum on grass.	Maximum in sun. Black bulb in vacuo.	Free exposure (total).	Shelter (total).
					8 a.m.	2 p.m.	8 a.m.	2 p.m.	8 a. m.	8 a. m.						
	mm.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	*Per ct.*	*mm.*	°C.	°C.	*mm.*	*mm.*
1	758.57	26.1	31.1	23	28.5	29.5	29.5	29.8	29.3	28.2	87.5	21.9	22.3	55.7	2.5	1.8
2	58.74	25.9	30.2	22.9	28.5	29	29.5	29.6	29.3	28.2	89.2	22	22.1	52.3	1.7	1.5
3	57.69	25.5	27.3	24.4	28.5	28.5	29.4	29.4	29.3	28.2	92.1	22.3	23.6	40.7	.4	1
4	55.46	25	28.1	23.7	28.2	28.5	29.3	29.3	29.4	28.3	93.4	22	23.9	38.7	.3	.5
5	53.07	25.1	26.5	23.5	27.6	27.7	28.6	28.7	29.3	28.1	93.2	22.1	23	34.5	0	.7
6	55.04	26.4	29.7	23.5	27.3	27.9	28.3	28.5	29.3	28.2	89	22.7	22.8	45	2.3	
7	55.58	27.6	31	23.4	27.7	28.9	28.6	28.7	29.3	28.4	83.9	22.8	21.7	52.2	3.9	2.5
8	55.72	27.2	29.6	24.5	28.4	29	28.8	28.9	29.3	28.3	83.8	22.3	23.6	48.2	3.7	2.3
9	56.46	28	30.7	25.5	28.5	29.5	29	29.1	29.3	28.2	82.8	23.2	23.6	52.4	4	2.6
10	56.88	27.5	30.6	25.5	28.8	29.8	29.1	29.3	29.3	28.3	86	23.4	24.1	51.7	3.3	2.3
11	57.58	27	30.6	24.7	29	29.7	29.6	29.6	29.3	28.3	87.7	23.2	24.8	46.7	1.8	1.5
12	58.73	27.2	30.9	23.8	28.6	29.2	29	29.2	29.3	28.3	87.3	23.2	23	50.2	2.6	2
13	59.44	27.5	30.4	25	28.6	29.4	29.3	29.4	29.3	28.4	86.9	23.7	23.9	52.7	2.9	2
14	59.97	26.6	30.4	24	28.9	29.4	29.4	29.5	29.3	28.3	88.5	22.9	24.5	54.2	1.6	1.3
15	59.70	26.4	30.1	23.4	28.3	29.5	29.5	29.4	29.2	28.4	87.2	22.2	22.8	53	2.8	1.8
16	59.64	26.3	29.6	23.7	28.6	29.5	29.4	29.5	29.3	28.3	87.1	22	23.2	54.4	2.7	1.8
17	59.74	27.1	30.8	24.2	29	29.8	29.6	29.6	29.3	28.5	83.9	22.2	22.8	54.5	3.6	2.3
18	59.84	27.3	30.6	24.3	29	29.9	29.7	29.8	29.3	28.2	83.7	22.4	23.3	56.8	3.8	2.3
19	60.42	26.7	30.7	23.5	29.3	30.3	29.8	29.8	29.3	28.5	85.4	22	22.5	52.5	2.9	2.1
20	59	26.6	31.3	23.6	29.3	30.3	29.9	30	29.3	28.3	86.5	22.1	22.6	54.8	2.9	1.8
21	57.48	27	31	23.3	29.5	30.3	30	30	29.4	28.3	84.9	22.3	22.1	52.5	3.2	2
22	57.62	27.1	31.1	23.4	29.5	30.3	30.1	30.2	29.4	28.5	83.7	22.1	21.8	51.8	3.6	2.2
23	57.73	27.3	31.5	23.7	29.6	30.4	30.2	30.2	29.4	28.4	85.3	22.8	22.6	51.8	3.3	2.1
24	59	26.8	32.1	24.1	29.8	30.4	30.2	30.3	29.5	28.4	88.5	23	24	57.6	2	1.2
25	60.14	26.6	32.3	24.1	29.1	30.3	30	30.2	29.5	28.3	88.9	22.9	23.4	58.5	2	1.2
26	60.37	26.9	31.7	23.8	29.3	30.1	30	30.1	29.4	28.4	86.4	22.6	23.2	54.4	2.2	1.4
27	60.09	27.1	31.8	23.8	29.4	30.3	30.1	30.1	29.5	28.4	86.6	23	22.7	55.8	2.3	1.6
28	58.89	27.2	32.2	23	29.3	30.5	30.1	30.1	29.5	28.4	82.3	21.8	21.6	54	3.4	2.3
29	56.71	27	32.2	23.4	29.5	30.7	30.1	30.3	29.3	28.3	84.8	22.4	22.3	55.1	2.5	2
30	55.66	27.4	31 7	23.2	29.8	30.8	30.2	30.3	29.7	28.4	85.4	23.1	22.4	53.8	3.2	2.3
Mean	758.03	26.8	30.6	23.9	28.8	29.6	29.5	29.6	29.4	28.3	86.7	22.6	23	51.6	2.6	1.8
Total															77.4	52.4
Departure from normal	+0.59	0	−0.1	+0.2							+0.9	+0.2				

Day.	Wind.				Clouds.			Sunshine.	Rain, 24 hrs. beginning 6 a. m.		Miscellaneous.
	Prevailing direction.	Total movement.	Maximum hourly velocity.	Direction at the time of the maximum velocity.	Amount (mean).	Form and direction. Upper.	Lower.		On the tower.	In the park.	
		Km.	*Km.*		*0–10.*			*h. m.*	*mm.*	*mm.*	
1	SW	278	37.5	SWbyW	8.9	A.-Cu. WSW	Cu. WSW	3 50	10.8	10.8	d a. ↙° ●° p.
2	WSW	248	29	SW	8.6	A.-Cu. NW	Cu. WSW	2 35	30 1	31.8	≡ ● a. ●² p.
3	SW, WSW	427	29	WSW	10		N. WSW	0 00	13.2	14.4	● a. ●° p.
4	SW quad.	221	17.5	SW	10		N. WSW	0 00	50.1	54.6	● a. ● p.
5	SW quad.	333.5	25.5	W	10	Ci.-S.	N. WSW	0 00	37.8	40.1	● a. p. ↙° p.
6	WSW	299.5	28	SW	9	Ci.-S.	Cu. W	1 00			d a.
7	SW, WSW	418	31	SWbyW	2	Ci.	Cu.	10 25	11.2	11.7	Ω a.
8	WSW	560.5	32	WSW	9.3	A.-Cu.	Cu.-N. W	0 25	.3	.4	● a.
9	WSW	467	32	WSW	5.7	Ci. NW	Cu. W	7 20			
10	SWbyW	414.5	30	SWbyW	8.9	Ci.-S.	Cu. W	1 00	3.3	3.6	↙° ●° p.
11	SW	470.5	33	WSW	9.8	Ci.-S.	Cu. W	1 45	66.3	69.3	●² p.
12	WSW	377	30	WSW	9.8	Ci.-S.	Cu. WSW	0 10	2.5	3.2	●² a. ⊕ ↙° ●° p.
13	SW	431.5	27	WSW	9	Ci.-S.	Cu. W	3 05	29.5	29.9	●² a.
14	SW, WSW	415	27	WNW	9.3	Ci.-S.	Cu., Cu.-N. W	2 25	1.1	1.5	● a. d ⊤ ⌐⌍° p.
15	SW	209.5	20.5	SW	8.9	A.-Cu. WNW	Cu. W	3 45	7.1	6.6	d a.
16	SW, WSW	350	22.5	WSW	8.7	A.-Cu.	Cu. W	4 10	6.6	7	● a. d° ↙° p.
17	SW, WSW	379	30	WSW	5.8	A.-Cu. ESE	Cu. W	7 50			d² a.
18	SW	361	25	SW	5	A.-Cu. W	Cu. W	8 00	5.4	5.6	● a.
19	W quad.	200	27	SWbyW	5.4	Ci. NE, ENE	Cu.-N. WNW	9 05	4.3	4.1	⌐⌍ ↙² ●° p.
20	SW quad.	141.5	18	SW	4.8	A.-Cu.	Cu. N	7 30	3.6	4.1	⊤° p° d p.
21	SW	200.5	22	SW	5	A.-Cu. W	Cu. NNE	8 40			
22	WSW	193	21	WSW	5.6	A.-Cu. W	Cu. NNE	8 05	5.3	5.3	⊕° a. ● p.
23	SW	195	21	SW	5.2	Ci. NE	Cu. NNE	7 05	.3	.3	d a. ⊤ ↙² p.
24	E quad.	119	16	SSW	8.1	Ci.-S.	Cu.-N. ENE	3 35	45.4	48.3	⊤ ⌒ ●² p.
25	E quad.	58	10.5	WSW	7.8	Ci.	Cu.-N. E	4 50	.3	.3	d ⌒ a. ⌐⌍ ⊤ p.
26	E quad.	43	8	ENE	8.5	A.-Cu. ENE	Cu. E	2 50			d a.
27	NE quad.	106.5	17	WSW	5.5	Ci.	Cu. E	6 20	.5	.5	Ω a. ⌐⌍ p° ↙ p.
28	E, WSW	115.5	12	WSW	3.6	Ci.	Cu. E	10 10	.3	.5	
29	NE quad.	178	17.5	NE	4.7	A.-Cu. ENE	Cu. N	8 45	3	4.3	d a. ●° ⌐⌍ p.
30	SW	215	28	SW	8.8	Ci.-S. NE	Cu. WNW	5 25			⊕ ↙° p.
Mean		280.8	24.2		7.4			4 40			
Total		8,425.5						140 05	338.3	358.2	
Departure from normal		+555.6			−0.4			+5 46	−31.5		

[a] All the mean values given in this table are deduced from hourly observations.
[b] These values are taken from instruments mounted in the Observatory Park, 1.5 meters above ground.

METEOROLOGICAL DATA FOR MIRADOR OBSERVATORY, BAGUIO.[a]

[ϕ=16° 25′ N; λ=120° 36′ E; barometer above sea, 1,512.6 meters; gravity correction not applied, —1.65 mm.]

Day.	Pressure[b] (mean).	Air temperature at Mirador (on the top of the mountain).					Air temperature in the valley (near the city hall).				Relative humidity (mean).	Vapor pressure (mean).	Radiation.		Evaporation.	
		Mean.	Maximum.	Hour.	Minimum.	Hour.	Maximum.	Hour.	Minimum.	Hour.			Minimum on grass.	Maximum in sun. Black bulb in vacuo.[c]	Free exposure (total)	Shelter (total)
	mm.	°C.	°C.		°C.		°C.		°C.		Per ct.	mm.	°C.	°C.	mm.	mm.
1	636.03	17.2	22.2	11.55a.	15.5	6.00a.	22.3	Noon	16	6.10a.	95	13.8	14.7	59.7	0.5	0.3
2	36.31	17.8	22.7	0.05p.	15.4	6.20a.	22.2	1.15p.	15.6	5.20a.	93.8	14.2	14.2	55.2	.7	.5
3	35.35	17.2	22	11.50a.	15.7	3.35a.	21.8	0.25p.	15.7	6.05a.	95.8	14	14.6	60.5	0	0
4	33.40	17.3	22	0.25p.	15.1	5.00a.	22	0.15p.	15.2	6.00a.	94.2	13.9	13.5	55	.6	.6
5	31.64	18	22.3	11.10a.	15.5	5.25a.	24.4	11.05a.	15.5	6.20a.	95.2	14.6	14.4	59	.7	.3
6	33.34	17.6	21.5	10.50a.	16.3	12 m. n.	22.6	10.25a.	16.1	12 m. n.	95	14.2	14.3	54	.3	.1
7	33.90	17.1	20	Noon	15.8	10.50p.	20.9	Noon	15.9	10.40p.	98.7	14.4	15.4	44.7	0	0
8	33.89	16.9	20.9	10.40a.	15	5.20a.	21.2	11.20a.	14.8	6.05a.	94	13.4	14.1	53.5	.9	.5
9	34.38	16.6	17.4	Noon	15.7	12 m. n.	18.8	1.10p.	15.9	12 m. n.	99.3	13.9	15.5	30	0	0
10	34.95	16.7	18.8	2.00p.	15.4	12 m. n.	20.4	1.50p.	15.5	12 m. n.	99	14	16.6	42.5	0	0
11	35.22	16.7	19.1	10.25a.	15.4	5.35a.	19.7	11.05a.	15.1	3.20a.	97.8	13.8	14.7	38	0	0
12	36.39	16.8	18.5	10.30a.	15.7	5.55a.	19.1	0.25p.	15.6	6.05a.	99.2	14.2	14.6	40.8	0	0
13	37.10	17.2	18.4	2.40p.	16.2	0.40a.	19	11.10a.	16.2	0.05a.	99.5	14.5	15.5	35.8	0	0
14	37.29	16 6	17.8	9.50a.	14.2	9.00p.	18.5	10.25a.	14.2	9.30p.	99.5	14	15.5	34.6	0	0
15	36.98	16.7	21.2	11.30a.	14.7	3.40a.	20.7	11.30a.	14.3	5.50a.	94	13.3	14.2	50	.7	.3
16	36.71	16.9	20.7	0.40p.	15.4	4.40a.	21.9	1.50p.	15.5	4.30a.	98.2	14.1	14.2	55.3	.1	0
17	36.95	17.5	20.9	1.25p.	15.7	5.05a.	21.7	1.20p.	15.7	6.00a.	96.7	14.5	14.5	53	0	0
18	37.22	17.1	23.4	0.35p.	15.1	12 m. n.	23.4	1.20p.	15.2	4.35a	96.8	14	14.4	58.3	.8	.3
19	37.88	17.1	22.6	10.40a.	15.1	0.05a.	23.2	9.50a.	15.4	1.00a.	95.2	13.9	15	59.1	.8	.5
20	36.90	17.7	22.4	11.40a.	14.9	3.55a.	23.3	0.35p.	13.9	6.10a.	85.2	12.8	12.8	57.4	1.9	1
21	35.64	17	21.5	10.20a.	15.1	6.00a.	21.9	9.05a.	13.9	6.00a.	94.8	13.8	13	57.1	.8	.3
22	35.76	17.7	22.6	0.50p.	15.3	5.00a.	22.3	11.35a.	14.3	5.00a.	92	13.8	13	61.2	1.7	.9
23	35.86	18.2	23.8	11.40a.	14.9	1.00a.	24.5	1.20p.	14.2	3.00a.	89.7	13.8	13.4	62	1.8	.9
24	36.97	18.6	24.9	0.35p.	15.4	2.40a.	24.4	10.45a.	14.9	6.00a.	89.8	14.3	13.3	62.7	1.9	.9
25	37.83	17.9	23.5	9.35a.	15.5	3.10a.	26.2	11.25a.	15.4	6.00a.	93.2	14.2	14.6	58.6	1.2	.7
26	38.30	17.8	24.4	11.50a.	15.3	4.25a.	26	0.35p.	15.4	4.20a.	91.5	13.8	14.5	57.5	2.7	1.1
27	38.27	17.7	23.2	1.35p.	15.7	2.20a.	23.5	11.25a.	15	12 m. n.	89.3	13.5	14.7	56.8	1.8	1
28	37.40	18.9	23.8	0.40p.	16.2	1.55a.	24.3	Noon	14.8	6.00a.	85.3	14	13.2	59.5	1.8	1.1
29	35.33	18.5	23.4	1.45p.	15.6	5.50a.	24.6	11.25a.	14.2	5.10a.	91.8	14.6	13.6	60.3	1.9	.8
30	34.26	18.3	23.8	0.30p.	16.1	4.20a.	24.6	0.30p.	15.2	6.20a.	90.8	14.2	13.6	58.8	1.7	.8
Mean	635.92	17.4	21.7		15.4		22.3		15.2		94.3	14	14.3	53	0.8	0.4
Total															25.3	12.9

Day.	Wind.				Clouds.			Sunshine.	Rain, 24 hours beginning 6 a. m.	Miscellaneous.
	Prevailing direction.[d]	Total movement.	Maximum hourly velocity.	Direction at the time of the maximum velocity.	Amount (mean).	Form and direction. Upper.	Lower.			
		Km.	Km.		0–10.			h. m.	mm.	
1	SW quad.	190.5	19.9	SW	9.9	A.-Cu., Ci.-S.	Cu.-N. ESE	0 45	44	d° a. ● p.
2	W	281.3	26	SW	8.9	Ci., Ci.-S.	Cu.-N. SW, WSW	2 30	2.9	≡° d² a. ≡² ●° p.
3	W	287.1	34.3	SW	9.3	A.-Cu. SW	N.	2 00	40.1	≡ ●° a. ≡² ✓° ● p.
4	E, W	274.4	24.1	W	9.1	Ci.-S.	Cu.-N.	2 00	7.4	≡° d a. ≡² ● p.
5	Variable	226.7	17.4	W	8.6	Ci.-S. ESE	Cu.-N. ENE	3 35	4.4	≡² d° a. p. ●° ⌐° p.
6	NW	357.2	24.7	W	9.6	Ci.-S.	Cu.-N. WNW	1 20	47.7	≡² a. ● a. p. ≡ p.
7	W	417.4	35.1	W	9.9		Cu.-N. NWbyN	0 15	25.9	●° a. ≡² a. p. ✓° ● p.
8	NW	499.7	28.8	NW	7.9	Ci.-S.	Cu.-N. NNW	3 25	56.6	● a. p. ≡² ✓° p.
9	NW	719.7	47.7	W	10		Cu.-N.	0 05	99.8	✓° ≡² ● a. p. ●² ✓ p.
10	W, NW	529.5	36.5	W	10		Cu.-N. WNW	0 10	15	✓° ● ≡² a. p.
11	W	583.5	38.9	W	10		Cu.-N.	0 00	54.3	≡² d a. p. ●✓° p.
12	W	661.4	41.5	W	10	Ci.-S.	Cu.-N.	0 00	44.1	●² a. ≡² ● ✓° a. p.
13	W	530.6	34.1	W	10		N.	0 00	26.5	≡² ● a. p.
14	W	598.4	45.9	W	10		Cu.-N. WNW	0 00	62.3	✓° a. ≡² ●² a. p.
15	W, NW	354.3	23.5	NW	9.1	A.-Cu. ESE	Cu.-N. E	1 30	16.8	≡° a. ≡² ● p.
16	W	282.7	29	W	9.7	Ci., Ci.-S.	Cu.-N. SE	1 45	7.9	≡² d° a. p. ● p.
17	W	274.4	23.9	W	8.4	Ci.-S. NE	Cu.-N.	1 25	14	≡² ● a. p.
18	W	295	35.2	W	8.7	Ci.-S.	Cu.-N. swbyw, sw	2 10	20.1	≡² d a. ≡² ● p.
19	W	305.3	21.5	W	8.3	Ci.-S. E	Cu.-N. SW	3 05	2.9	● a. p. ≡² p.
20	W	255.9	20.6	W	5.1	Ci.	Cu.-N. NW	5 55	3.1	≡ a. p. d² ⌒° p.
21	W	225.6	20.1	W	6.1	Ci. NEbyE	cu.-N. E, WNW	4 05	10.4	d° ≡ a. ● ≡² ⸜° p.
22	W, N	261.2	20.7	W	6	Ci. NE	Cu.-N. WbyS	5 25	.8	≡² d p.
23	W quad.	267.8	20.9	NW	4.9	Ci. NNE	Cu. ESE	5 50	3.5	≡² ● p.
24	Variable	185.2	17.1	SW	6.3	A.-Cu. EbyN	Cu. SE	6 20	8.9	● ⌐ ≡ p.
25	E	214	15.8	N	7	Ci.-S. ESE	Cu. SSE	2 50	48	≡² a. p. ● ⌐ p.
26	NE quad.	203.6	19.5	E	6.9	A.-cu. E, sbyw	Cu.-N.	3 50	1.8	● ⌐ p.
27	E, W	231.5	15.1	E, W	5.9	Ci.-S.	Cu.-N. ESE	4 15	6.8	≡° a. ● ⌐ ⌒° p.
28	E, SW	227.8	19.8	SW	4.7	Ci.	Cu. NW	7 15	.8	≡ d² ⌒ p.
29	W quad.	227	18.7	SW	5.6	Ci.	Cu.-N. WNW	7 05	-------	Ω² a. ≡² d° ⸜° p.
30	NW	270.7	19.6	W	6.7	Ci. SE	Cu.-N. NNW	5 00	-------	Ω ⊕ a. ≡ p.
Mean		339.6	26.5		8.1			2 48	-------	
Total		10,189.4						83 50	676.8	

[a] All the mean values given in this table are deduced from six daily observations taken at 2, 6, 10 a. m. and 2, 6, 10 p. m.
[b] The barometric readings of this station are not reduced to sea level.
[c] Maximum of hourly observations taken from 6 a. m. to 6 p. m.
[d] This element is based on hourly observations taken from a quadruple register, which gives only eight possible directions of the wind.

DAILY RAINFALL AT THE STATIONS OF THE WEATHER BUREAU, SEPTEMBER, 1918.

Station.	Day of month.															
	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.
	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.
Jolo						3.3					9.9	0.8		2.5	16	
Isabela, Basilan					1		7.4		1.8				0.8	24.6	4.1	7.4
Basilan Plantation, Isabela (Basilan) Office[a]								15.2					1.3	63.5	27.9	5.8
Zamboanga					5.1		.3	5.3					6.1	5.1		
Davao	64						2.8	5.3					14.7		19.6	19
Cotabato							2		5.8				10.7		6.9	1.8
Camp Keithley, Lanao	2		17.8	1	7.1				3.3			2.8	2	11.7	18.8	18
Cagayan, Misamis							8.9					14.2				
Dapitan									6.4							
Ampayon, Butuan, Agusan[a]																
Butuan																
Mambajao																
Dumaguete			12					2.5	5.1							
Yap, Western Carolines	26.6	37.8	.5	1									17	7.6	3.3	
Tagbilaran			8.9			2			1.3							
Iwahig					2.5			.5	6.9	3	19.9	2.5		2	.5	35.3
Surigao	.5		.3											.3		
Masin	48.3						21.6		5.6					7.9		
Cebu	6.6					1.6	7.9	3.4	12.2						.3	10.7
La Carlota, Occidental Negros[a]	25.4	31.7			10.2	49.3	2.5	25.9	26.2	7.4						
Iloilo				35.3	33.8	10.4			18	64.5	3.8					
San Jose Buenavista	1.3	31.2	13.7		26.7	7.9	2.5	14.2	18	5.9	4.3					
Cuyo	14.5	7.6	2.5		11.4	5.4		19.5	2.5	5.1						
Lucena, Iloilo[a]			20.3						7.6		4.6					
Ormoc		6.4	6.9			3.3									.3	.3
Guiuan	7.4															
Dueñas, Iloilo[a]					2.5	6.9			1.3	1.8			15.7			
Bitaogan, Iloilo (Railroad Iloilo to Capiz)[a]		12.7				5.1			1.3	5	13					15
Lapus, Iloilo (Railroad Iloilo to Capiz)[a]				32.8	36.3	9.4	.5	8.4	18.3	65.3	1.3					
Tacloban						1.3										11.2
Dumarao, Capiz[a]	1.8	29.2			4.3	3.6							5.1		22.9	25.4
Dao, Capiz[a]	18.3	1			15.2	3			1.3			13.2	3.6			7.6
Capiz	5.1			.5	6.7	1.8			.3		54.9	.8				
Borongan						2.8										20.1
Catbalogan					8.1	2.1			1.8							
Calbayog			4.4	2.3	14.2	31		.8	.8	1.3						1.8
Masbate				.3	16.5	23.7										
San Jose Estate, J. Abello D-13, Mindoro[a]	28.7	18.8	20.3	29.2	31.7	63.3	22.4	17.2	2						4.6	
San Jose Estate, Tamaraw Plantation, Mindoro[a]	18.8	8.4	8.9	43.6	34.5	66.1	45.7	14	13.5		9.9				.8	
San Jose Estate, San Agustin, Mindoro[a]	38.1	9.9	5.1	49.8	28.2	76.4	25.7	13.2						5.1		
San Jose, Mindoro[a]	30.5	3.6	14.2	59.9	46.2	62.5	39.6	24.1	15.2		1.3					
San Jose Estate, Tunnel D-12, Mindoro[a]	13		30.5	84.8	45.2	56.3	76	16.6	24.6		3.6					
Romblon	2			37.6	32.6	33.6	46				3.6					
Batag					1											
Sorsogon			7.1	9.9	55.3	62.4	22.6	34.3	40.7							25.9
Legaspi		1.8	4.8	13	21.1	10.5	3.3			1.8					.8	11.2
San Miguel Estate, San Miguel Island, Tabaco, Albay[a b]				22.9	19.6	6.9					1					6.4
Calapan			1.3	71.9	47	2.8	3.3					4.3		.8		
Virac				22.4	35.7	1.3									28.4	.5
Naga	.8			11.7	36.5	3				.8	.5					15.7
Tigaon	1.6		4.9	38.3	48.5	9.4	.1			41.9	2				1.5	2
Batangas			17.5	116.8	72.8	2.5	1.3	10.2	1.5	15.5	2.5			2.5		
Lucena				43.7	57.7	.3				3.8						
Atimonan				18.4	69		8.9								5.6	
Ambulong, Tanauan		2.3	30.1	98.9	41.1	3.1		13.2		14.2	4.6			1.8	1.3	.8
Canlubang, Calamba	5.6	1.8	23.3	66.3	45	.8		2.6		13	3.8	.5		4.1		5.3
Paracale	3.3			2.1	11						1.3				3	20.1
Santa Cruz, Laguna		39.1	10.7	50.8	70.6	.3		4.1		2.3	7.1		3.8	.8	2.8	12
Fort Mills, Corregidor[a c]	18.5	52.6	38.4	33.5	56.4	11.9	1	53.3	1.5	7.8	12.2	10.9	.8	10.9	42.9	9.6
Alabang, Rizal[a]	6.4	25.4	49.5	22.4	66		5.1			3.8	8.9			35.1	16	
Lamao, Bataan[a]			46.2	35.6	60	2.8	1.3	37.1	1	3.3	3.3	27.7	2.1	1.3	8.1	12.7
Manila	10.8	30.1	13.2	50.1	37.8		11.2	.3		3.3	66.3	2.5	29.5	1.1	7.1	6.6
Antipolo	10.9	37.6	23.6	43.5	62.2	1			1.3	4.6	59.4	13.5	7.2	24.1	50.8	9.4
Bosoboso, Rizal[a]	10.7	46.2	16.3	47	41.9	2.5			1.8	6.1	50.8	19	20.3	21.6	50.8	15.5
Montalban, Rizal[a]	24.1	13.2	9.9	23.6	24.4	31.7	1.3			.8		22.9	5.8	38.1	54.6	41.9
Hacienda Pintong Sapang, San Jose, Bulacan[a]	7.1	2.5	10.5	30.2	40.6	1.8			4.8	.3	6.4	1.8	16.8	7.6	22.9	21.3
Mabayuan Dam, Olongapo, Zambales[a]	114.6	53.1	35.1	76.2	91.7		14.7	20	10.9	6.3	17.3	17.7	2.8	41.4	3.5	7.6
Iba	88.1	59.7	44.2	22.8	114	.3	36.1	39.4	40.4	5.3	38.6	11.9	94.2	99.6	103.6	6.6
San Isidro	33.8	.8	.8	2.5	41.9	3.6		1	6.6	18	14.8	34.9	23.4	17.2	3.4	22.4
Hacienda Luisita, Comillas, Tarlac[a]	4.6	22.1	1.3	4.3				11.7	38.4	4.6	3.8	10.2	25.4	21.6	7.4	3.8
Hacienda Luisita, San Miguel, Tarlac[a]	33.8	31.7	.8	2.5	22.3	3	61		11.9	5.1	6.7	1.8	5.4	119.6	11.4	3.8
Tarlac	32.3	2.8	1	.5	10.2	12.7	.8			2	3.3	8.8	53.8	11.4	4.3	5.1
Baler			7.1	.1	23.4							.1		2.3	38.1	4.8
Paniqui, Tarlac[a]	18	.8		3.6	48.3	.8						3.8			28.9	58.6
C. L. A. S. Muñoz, Nueva Ecija[a]	48.5	1.3	6.9	6.6	10.4				3.8		9.9	4.3	7.4		26.9	14.7
Dagupan	2.1	11.7	47.8	34.3	132.4	23.6	19.9	6.8	5.8		19.1	25.4	25.9	21.7	15.5	17.8
Santo Tomas Mt., Mountain Province[a]	1	2.3	27.2	27.7	51.3	3.1	51.6	26.4	1.8	.5	25.4	50.8	.5	32	1.3	1.3
Bolinao	9.4	4.8	3.3	27.1	7.1	40.8	11.2	3.8	2.6	2.5	33	25.1	12	37.6	48.3	5.6
Baguio	44	2.9	40.1	7.4	4.4	47.7	25.9	56.6	99.8	15	54.3	44.1	26.5	62.3	16.8	7.9
San Fernando, Union	.3	11.2	.5	8.4	21.8	4.1	3	42.6	11.7	6.4	64.6	7.9	28.3	23.6	26.2	74.4
Echagüe	3.8	9.1	92.2		9.9	17.5	.8					11.7	23.9	11.7	101.6	12.7
Sagada, Mountain Province[a]	25.4	25.9	12.2	13.7	3.8	15.5	2.8	32.5	32.5	5.1	10.9	2.8	12	6.3	11.9	23.9
Bontoc, Mountain Province[a]	20.8	25.4	18.3	22.1	2.8	6.1		3.6	.8		.3		12.4	.8	14.2	19.8
Candon	3.6	12.7	21.1	11.4	1.8	1	4.1	67.8	26.4	7.4	13.4	3.6	4.8	25.9	8.1	7.9
Villavieja, Pilar, Abra[a]	10.5	15.7	15.2	51.3	8.4	4.3	14.7	51.3	33	20.8	4.1	4.8	10.9	14.8	6.4	12.2
Vigan	8	14.5	83.6	.3	3.5	3.5	8.9	5.8	5.1	39.3	26.9	48.2	84.4	95.1	3.2	15.4
Tuguegarao		3			52.3							26.7		21.6	15.2	
La Paz, Abra[a]	20.1	11.7	30	6.4			36.3									
Laoag	28.2	12.4	126.2	2.3	14.7	138.2	94	14.8	3	86.8	143.7	48.5	34.8	91.6	10.9	9.1
Aparri			.5		2.8	4.5				1				.8	11.2	.3
Cape Bojeador	35.1	19.8	7.1	5.6	4.1		11.7			47.5	95	10.7	4.8	37.3	26.2	7.1

[a] Voluntary or coöperative station. [b] Rain in 24 hours beginning 8 a. m. [c] Rain in 24 hours beginning 7 a. m.

Daily rainfall at the stations of the Weather Bureau, September, 1918—Continued.

Station.	Day of month.														
	17.	18.	19.	20.	21.	22.	23.	24.	25.	26.	27.	28.	29.	30.	Total.
	mm.	*mm.*	*mm.*	*mm.*	*mm.*	*mm.*	*mm.*	*mm.*	*mm.*	*mm.*	*mm.*	*mm.*	*mm.*	*mm.*	*mm.*
Jolo	2.3	40.6	3	2.3	1.5	.....	.....	.....	30.7	.....	.....	8.6	8.6	.....	130.1
Isabela, Basilan	.....	.5	.....	16.5	.....	2.5	.....	.....	.....	.....	10.9	1.3	83.5	6.1	168.4
Basilan Plantation, Isabela (Basilan) Office[a]	3.8	3	.....	33.8	1.8	.....	.....	.....	.....	.....	47	.....	109.7	6.1	318.9
Zamboanga	2	1.3	.3	12.3	.6	.3	.....	.....	.....	.....	.5	22.7	23.6	6.6	92.1
Davao	.....	3.8	3.3	.....	.....	.....	.....	.....	.....	11.9	5.1	.....	13.7	.....	163.2
Cotabato	.....	.....	.....	53.6	1	.....	.....	.....	22.6	3.6	4.8	7.1	18.3	44.7	182.9
Camp Keithley, Lanao	50.8	17.5	31.3	2.2	10	2.4	3	.....	13.7	.....	.1	.....	29.7	22.5	267.7
Cagayan, Misamis	.....	.....	.....	.....	.....	12.7	.....	2.5	3	.....	4.3	.....	.....	11.7	57.3
Dapitan	.....	.....	10.7	3.3	.....	14.2	2.3	.....	.....	.....	.....	3.8	.....	.....	40.7
Ampayon, Butuan, Agusan[a]	.....	.....	.....	.3	.....	.....	.....	2.3	2.3	.....	21.6	.....	.3	.....	26.8
Butuan	.....	.....	.....	1.3	.....	.....	.....	.3	.....	.....	2	.....	1.5	.....	5.1
Mamoajao	.....	.....	.....	98	.....	.....	6.9	.....	.....	.....	.....	3.8	7.4	.....	116.1
Dumaguete	.....	.....	.....	12.2	6.1	7.6	2.8	.....	.....	.....	.....	.....	.....	13.5	61.8
Yap, Western Carolines	9.4	7.9	20.3	1.5	36.1	5.1	.8	1	1	14	2	1.8	9.7	.....	204.4
Tagbilaran	.....	.....	1	25.5	.....	.....	.....	.....	.....	.....	16.9	.....	23.5	.3	79.4
Iwahig	.3	8.9	8.4	7.9	1.6	7.9	.....	10.5	1.8	5.1	1	.....	1.3	.....	127.8
Surigao	.....	.....	.8	22.4	2.3	.....	1.5	.5	.....	9.9	36.1	2	1.5	.....	78.1
Maasin	35.8	.....	11.2	19.6	19	.....	.....	.....	.....	8.4	14.7	.....	13	.....	205.1
Cebu	.....	.5	5.6	.5	1	.....	.....	.3	35.3	.....	2	5	9.9	.....	102.8
La Carlota, Occidental Negros[a]	.....	.....	8.9	18.5	22.6	2	.3	.....	37.1	31	6.6	5.8	7.1	33	351.5
Iloilo	.....	.....	.....	3.8	.....	.....	7.6	.....	.....	3.3	.....	.....	3.3	21.6	205.4
San Jose Buenavista	11.7	7.1	13.7	12	41.1	17.3	.3	.....	.3	.....	3.8	.....	15.2	28.2	276.4
Cuyo	.....	1.8	15.5	4.3	5.6	25.4	4.5	1.8	10.9	.5	3	.....	7.1	1.3	150.2
Lucena, Iloilo[a]	.....	.....	.....	45.7	.....	3.8	.....	.....	1.8	.....	17.8	2	24.6	.....	128.2
Ormoc	.....	.....	3	30	25.9	5.6	20.1	15.2	.5	.5	16.5	17	46.7	.....	198.2
Guiuan	7.6	.....	.....	1.8	3	.5	.8	9.4	2	.5	5.3	10.2	.5	.....	49
Dueñas, Iloilo[a]	.....	.8	2.5	.....	27.9	2.3	31.7	15.2	3.8	10.2	12.4	15.2	17.8	6.4	174.4
Bitaogan, Iloilo (Railroad Iloilo to Capiz)[a]	.....	23.6	30.2	1.3	28.2	31	3.6	2.3	8.4	.....	.....	8.1	1.3	3.3	193.4
Lapus, Iloilo (Railroad Iloilo to Capiz)[a]	.....	2.5	.....	6.6	.....	.....	8.9	.....	1	6.1	.6	1.8	1	15	215.8
Tacloban	.....	28.2	5.8	8.3	.....	34.5	1.8	.....	.....	.....	5.6	5.7	3	.....	105.4
Dumarao, Capiz[a]	3.8	.....	50.8	.....	15.2	15.2	10.2	15.2	11.4	10.2	.....	.....	3.8	.....	228.1
Dao, Capiz[a]	28.7	.....	.....	.....	.....	.....	7.6	.....	.....	5.1	.....	18.6	.....	.....	123.2
Capiz	.5	.....	.....	8.1	.....	.....	3.3	6.4	9.4	.....	1.3	23.2	3	.....	125.3
Borongan	.....	4.6	.3	.3	.....	.....	.....	.....	4.3	2.5	.8	2	10.2	.....	47.9
Catbalogan	.....	5.3	16	3	18.3	7.4	32.8	3.3	.3	3.9	.5	7.9	39.6	.....	150.3
Calbayog	1.6	4.3	54.6	3.6	.8	4.8	3	.....	4.6	20.3	.....	20.9	22.6	.3	198
Masbate	2.3	5.8	48.5	4.3	2	1	1	5.6	.....	.....	.....	.....	3.8	.....	114.8
San Jose Estate, J. Abello D-13, Mindoro[a]	11.9	12.4	.....	3.3	54.9	.....	3.6	.8	1.3	.....	3.3	1.5	4.1	.....	335.3
San Jose Estate, Tamaraw Plantation, Mindoro[a]	17.3	1.5	.8	3.3	30.2	.....	8.9	3.3	2	1	7.1	15.7	2.5	1	358.8
San Jose Estate, San Agustin, Mindoro[a]	17.8	4.1	.....	3.8	39.9	.....	16.3	23.1	1	.....	3.8	.....	.....	.....	361.3
San Jose, Mindoro[a]	5.3	10.7	.....	2.8	29.2	.8	6.6	10.7	.8	.....	22.9	3	3.8	.....	393.7
San Jose Estate, Tunnel D-12, Mindoro[a]	.....	.....	.....	3.6	16.8	.....	2.5	4.8	4.8	.....	2.3	14	42.7	.....	442.1
Romblon	.....	.....	.....	4.6	4.6	.....	.....	.....	3.3	8.4	6.9	1	.....	.....	184.2
Batag	.....	.....	111.8	21.6	29	2.8	.....	3	.....	4.6	4.6	25.9	32.5	.....	236.8
Sorsogon	.....	.....	46.7	.....	.....	12.4	.....	.....	.....	27.4	2.3	.....	3.3	71.6	421.9
Legaspi	.....	.....	5.1	.....	.3	4.1	.....	.....	2	.....	1.1	5.8	1.5	4	92.2
San Miguel Estate, San Miguel Island, Tabaco, Albay[a b]	.....	.....	2.8	.....	.....	8.1	.....	2.5	1	12.2	5.8	3.8	.3	5.8	99.1
Calapan	.....	.....	.....	6.4	.....	.....	2.5	.....	5.3	.....	.....	.....	.....	.....	145.6
Virac	.....	.....	2.3	.....	.....	.....	9.7	.....	.....	1.8	.....	.5	14.8	.6	118
Naga	.....	.....	7.4	.....	14.7	.....	.....	6.4	.....	1.3	1.8	16	3.3	8.1	128
Tigaon	1.3	.....	10.2	.....	.....	.....	.....	19	6.4	2	.....	2.8	9.4	12.4	213.7
Batangas	.....	.....	.....	9.4	.....	.....	4.8	.8	5.4	.....	16	6.4	2.1	20.5	308.5
Lucena	.....	.....	.8	20.3	1.3	7.9	.....	38.1	.....	.8	.....	.....	3.3	.....	178
Atimonan	.....	.....	25.2	1.3	.....	.....	1.3	.8	61.5	16.8	.....	1.5	.....	.....	210.3
Ambulong, Tanauan	.....	.....	.....	10.9	.....	.....	.....	35.3	.....	.....	.....	.....	6.9	.....	264.5
Canlubang, Calamba	8.9	26.4	2	14	5.1	4.3	.....	14.5	7.6	1.3	.....	.....	1	.....	263.2
Paracale	18.3	.5	6.3	2.3	1.5	.....	36.8	5.8	9.7	.....	.....	5.9	26.6	32.7	187.2
Santa Cruz, Laguna	.5	.5	.5	4.1	.5	23.4	1.3	19.8	2.8	.8	2	.....	14.2	8.4	283.2
Fort Mills, Corregidor[a c]	1.8	25.7	.8	.....	.....	6.9	15.2	63.5	.....	.....	4.8	.....	.....	.....	580.9
Alabang, Rizal[a]	.....	.....	7.6	.....	.....	.....	.....	39.1	.....	.....	.....	.....	.....	.....	285.3
Lamao, Bataan[a]	5.6	.8	6.4	.....	.....	35.3	41.9	53.3	5.8	.....	.....	.....	3.3	.....	444.9
Manila	.....	5.4	4.3	3.6	.....	5.3	.3	45.4	.3	.....	.5	.3	3	.....	338.3
Antipolo	2.3	.....	23.1	6.6	1.8	2	26.2	1	.....	19.8	9.7	7.4	35.8	2.3	492.1
Bosoboso, Rizal[a]	.....	.....	32.3	8.4	1.3	.....	10.7	1.8	32.5	.....	.....	.....	.....	48.3	485.8
Montalban, Rizal[a]	7.6	.....	12.4	33	21.8	18.8	.....	20.8	19.8	5.3	.....	.5	.....	24.1	456.4
Hacienda Pintong Sapang, San Jose, Bulacan[a]	9.7	6.4	31.7	3	7.6	.....	2.5	50.8	18.5	9.1	.5	.....	.....	60.4	374.8
Mabayuan Dam, Olongapo, Zambales[a]	1.8	.5	10.7	1.5	3.3	5.9	.....	2.5	1.8	.....	3.8	2.3	.3	.....	547.3
Iba	14.2	2.8	.....	.....	.5	.....	13.2	1.8	.4	2	.....	.....	3.9	2.5	846.1
San Isidro	9.9	5.1	16.5	.5	.....	.....	1.3	.....	34.8	.....	.....	.....	27.9	21.6	342.7
Hacienda Luisita, Comillas, Tarlac[a]	.....	14.2	33.8	.....	.....	.....	.....	15	18.3	.....	4.1	.....	.....	.....	244.6
Hacienda Luisita, San Miguel, Tarlac[a]	.....	25.4	13.2	6.4	4.3	.....	.....	25.4	26.7	3.3	1.3	.....	.....	.....	426.8
Tarlac	.....	19.8	21.3	14.2	4.6	1.8	.8	44.2	57.1	.8	.....	.....	.....	.....	313.6
Baler	.2	20.8	48.5	11.4	.....	.....	4.3	24.1	1	8.4	.....	.....	.3	.....	194.9
Paniqui, Tarlac[a]	14	21.6	5.1	.....	.....	.....	.....	25.4	5.1	1.8	11.7	.....	.....	.....	257.5
C. L. A. S. Muñoz, Nueva Ecija[a]	4.3	22.1	5.8	1.3	.....	.....	.....	9.9	6.4	.....	.....	.....	.....	.....	190.5
Dagupan	6.3	5.6	1	.....	.....	27.9	.....	8.9	8.6	8.4	.....	.....	1.5	.....	478
Santo Tomas Mt., Mountain Province[a]	57.1	47	.....	.....	.....	.5	.....	50.8	1	25.4	45.7	38.1	.....	.....	569.8
Bolinao	.....	.....	.....	4.3	2	.....	.....	.....	50	55.9	.....	.....	3.6	.....	390
Baguio	14	20.1	2.9	3.1	10.4	.8	3.5	8.9	48	1.8	6.8	.8	.....	.....	676.8
San Fernando, Union	24.9	3.3	.8	.....	7.1	.....	4.8	7	1.5	40.4	.....	.....	3.8	.....	428.6
Echagüe	.3	40.1	15.7	9.7	.....	6.1	23.9	7.4	1.3	.....	3.6	.....	10.7	1	414.7
Sagada, Mountain Province[a]	18	2.5	.....	3.6	.....	.....	.....	11.2	29.7	35.8	.....	.....	.....	.....	338
Bontoc, Mountain Province[a]	41.7	49.3	6.1	19	.....	.....	.....	4.1	19.8	52.6	.....	.....	.....	.....	340
Candon	11.2	3.8	.....	.....	4.6	.....	.....	.....	.....	.....	.....	.....	.....	.....	240.6
Villavieja, Pilar, Abra[a]	13.2	2.5	.....	.....	.....	2.5	.....	.....	.....	12.7	.....	.....	.....	.....	309.3
Vigan	21.8	15.6	.....	.....	.3	.....	.....	.....	.....	1.1	11.6	.....	.....	.....	496.1
Tuguegarao	.....	.....	.....	.....	.....	6.4	.....	21.1	.....	36.6	.....	.....	.....	49.1	232
La Paz, Abra[a]	.....	.....	201.9[d]	.....	.....	.....	.....	9.9	54.4	39.1	55.9	.....	.....	.....	465.7
Laoag	28.2	3	.....	12.2	.....	.....	.....	.....	.....	.....	4.6	.....	.....	3	910.2
Aparri	.....	2.8	40.7	.....	.....	.....	15.5	3.9	.....	1.1	.....	.....	2	10.4	97.5
Cape Bojeador	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	26.7	.....	.....	6.6	345.3

[a] Voluntary or coöperative station.
[b] Rain in 24 hours beginning 8 a. m.
[c] Rain in 24 hours beginning 7 a. m.
[d] Amount of rainfall from 9 to 19.

MAXIMUM AND MINIMUM TEMPERATURES AT THE STATIONS OF THE WEATHER BUREAU, SEPTEMBER 1918.

Day.	Jolo.		Isabela, Basilan.		Zamboanga.		Davao.		Cotabato.		Camp Keithley, Lanao.		Cagayan, Misamis.		Dapitan.	
	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.
	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C	°C.
1	31.1	23.6	32.2	22.1	29.3	23.9	33.2	21.8	31	23.4	29.1	19.5	31.7	22	32.5	21.7
2	31.1	22.3	34.3	21.6	29.8	23.7	32.4	21	31	22.5	27.8	18.6	32.9	22	------	21.9
3	32.5	24.1	33.9	20.1	30.3	22.2	32.5	22.1	31	22.6	26.6	19.2	31.5	22.4	33.4	22.8
4	33.6	24.8	34.4	21.7	30.2	24.5	32.1	22	31.3	23.1	27	20.3	34	21.9	------	22.3
5	32.5	25.3	34.6	22.1	30.5	22.5	32.8	22	32.2	23.5	27.3	21.6	35.6	23	33	------
6	31.1	25.1	33.1	23.1	30.2	25.5	33.9	22	31	23.6	26.2	20.9	33.5	24	32.8	------
7	31.4	25.6	34.1	21.6	30.2	23.5	32.7	22.5	31.5	23.6	27.8	21	34.2	22.8	34.2	23.5
8	29.5	25.2	32.6	22.6	28.7	22.4	32	22	29.6	23.6	27.8	21.2	34.3	23	34	24.2
9	32.7	23.3	33.3	23.1	30	24.8	33	21.5	31.5	23	28.1	19.5	33.2	22.3	32.4	24.3
10	31.1	23.2	34.6	22.1	30.5	23.1	32.4	21.7	31.2	22.7	27.4	20.2	34.4	22.6	33.1	22.4
11	31	24.2	32.9	21.6	30	23.5	32.6	21.6	31.5	21.8	28.1	20	33.6	23	33.5	23.1
12	32.8	23	34.5	21.5	30.5	24.1	32.7	22.1	32	22.1	28.9	18.4	33.4	22	34.1	22.8
13	33.1	22.6	33.6	21.6	30.2	24.2	32.4	22.2	32.2	23.1	29.2	19.5	32.4	23.2	34.2	23.6
14	32.1	23.9	30.6	22.1	28.5	23.5	32.4	21.5	31	22.8	28.5	19.1	32.6	22.8	34	23.7
15	31.5	22	32.1	20.6	29.2	23.5	33.2	20.5	32	22.6	28.3	18.9	32.5	22.6	33.1	23.1
16	30	21.6	32.4	21.3	29	23.3	32.2	20.9	30.3	22.5	28	19.2	32.9	21.6	34	22.5
17	30.1	22.8	30.6	22.6	28.9	23.8	32.1	20.5	32	22.6	28.8	18.5	33.9	21.6	34.4	22.6
18	29.2	23.5	31.6	22.1	28.7	23.5	32.3	21.9	30.8	23.6	27.8	20	32.2	23.6	33.4	23.1
19	29.3	21.4	31.1	22.3	29.4	23.1	32.6	20.9	31.5	22.8	27.9	19	33.4	22	34	22.6
20	29.8	21.8	32.3	21.6	28.1	22.7	32.8	21	30	22.6	27.2	18.5	32.9	21.6	30.8	22.1
21	28.8	22.6	32.4	22.1	28.6	23	32.8	21.4	30.1	22.5	27.4	20.1	31.4	23.2	30.6	22.3
22	29.8	22.7	30.1	22.6	28.7	22.9	33	22	30.5	22.5	24.8	19.3	31.9	22	31.2	22.8
23	30.3	22.3	30.5	22.1	29.5	22.8	31	21.2	31	22.9	27.6	19	32.4	21.9	31.2	22.3
24	28.4	22.2	32.6	21.1	29.5	22.5	33.2	21.5	31	22.5	28.4	19.3	32.2	21.6	34	22.5
25	30	22	33.1	22.6	29.5	23.3	32.7	21.1	31.9	22.8	28.1	19	32	21.5	32.6	23.6
26	30.3	23	31.6	22.9	28.6	23.8	33.7	21.8	31.9	22.5	27.5	18	32.1	21.9	33	23.4
27	30.5	23.1	30.6	23.1	29.2	23.7	34.1	21.8	31.1	22.9	27.8	18.5	31.7	22.2	34	23.7
28	30	23	30	22.6	28.5	23.6	34.1	21.3	31.3	23.1	28.1	18.4	32.8	22.5	33.2	23.1
29	29.9	23.5	27.9	23.3	27.8	22.2	33.2	21.1	30	23.4	28.3	19.4	32.6	22.9	33.6	23.2
30	31.2	23.1	31.6	22.7	29.3	24.2	32.5	21.9	26.1	22.8	25.8	20	34.4	23	33.2	23.3
Mean	30.8	23.2	32.3	22.1	29.4	23.4	32.8	21.6	31	22.9	27.7	19.5	33	22.4	33.1	22.9

Day.	Butuan.		Mambajao.		Dumaguete.		Yap, Western Carolines.		Tagbilaran.		Iwahig.		Surigao.		Maasin.	
	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.
	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.
1	33.6	22.3	33.3	24.6	33.8	23.3	31.2	24.3	33.2	23.7	33.8	21.1	31.8	24.7	33.5	23.6
2	34.1	22.9	34.7	25.6	32.9	22.6	31.8	24.2	33.3	24.1	33.1	21.5	32	25.3	33	23.5
3	34.2	22.8	34.2	26.6	31.1	22.7	30.3	23.3	32.7	23.9	33.5	19.5	31.8	26.4	33.2	23.7
4	34.9	23	33	26.4	32.4	22.2	31.7	25.6	31.9	24.6	33.7	19	31.9	26.9	32.6	23.9
5	35.4	23.8	33.5	26	32.4	25.6	31.7	25.7	31.8	26.3	33.1	26.3	32.4	27.8	32	24
6	33.3	24.2	33.6	26.9	32.8	24.9	32.2	25.2	32.7	26.3	32.8	22.9	31.9	27.9	32	24.8
7	35.1	23.5	34.1	25.9	33	24.8	31.7	25.5	33.3	25.8	33.1	21.2	32.9	27.2	31.9	23
8	35.5	24.4	34.2	26.7	34.9	23.6	31.7	25	33.4	24.6	32.7	21.4	32.4	27.7	32.6	23.4
9	34.5	23.9	34.1	26.1	29.8	23.8	31.7	25.4	31.4	25.4	30.6	21.3	32.4	27	32.5	23.8
10	35.1	24	34.6	25.3	34.4	22.9	33.3	25	33.6	25.5	31.7	21.6	33.1	26.9	32.5	24.5
11	36.3	23.4	35.2	26.5	33.8	22.2	33.2	25	33.4	24.3	32	20.4	32.8	24.6	32.8	23.7
12	36.2	23.2	33.8	23.6	32.4	21.6	33.7	24.5	32.9	23.5	30.6	19.7	32.9	23.2	32.2	23.4
13	37.7	23	34.2	23.4	32	22.5	27.7	24.5	32.8	22.9	32.9	19.4	32.9	23.5	33	23.8
14	36.1	22	34.2	25	32.9	23	32.3	23.5	33.5	23.1	32.9	19.2	32.7	24.2	33.2	23.5
15	34.5	21.9	34.6	25.6	32.4	23.3	32.3	23.5	32.6	25.1	31.1	20.6	32.3	24.1	34	24
16	34.1	22.8	32.7	24.2	33.2	22	32.9	24.5	33.7	23.4	32.3	18.9	32.7	23.3	32.6	24.2
17	35.9	22.9	33.5	23.6	32.7	22.5	32.7	24.5	32.3	23.9	31.7	19.9	31.8	22.8	33.4	23.8
18	34	22.8	33.3	23.7	32.5	22.6	31.7	24	32.3	22.6	32.1	19.3	31.3	24	32.8	24
19	34.1	22.3	35.1	23.8	32.4	22.3	30.5	23	32.1	24.2	31.3	19.9	32.3	23.5	32	23
20	34.5	23.2	34.1	24.2	31.4	22.6	29.2	22.8	32.8	22.5	32.8	19.2	30.3	23.7	33	21.8
21	34.7	23.4	32.2	22.3	31.5	22.4	29.1	23.1	32.6	22.6	30.2	21	30	23.6	31.5	23
22	36.3	22.4	32.1	25.7	30.9	22.5	30.7	23	31.8	24.3	32.1	20.2	31.3	26.2	32.2	23.5
23	34.6	23.3	33	25.7	32.1	23.2	31.9	23.2	32.7	24.6	32.1	20.9	32	25.4	31.4	23.6
24	35.5	22.6	31.1	23.5	30.8	22	32.5	24	31.6	24.4	31.6	20.7	31.8	23.9	32.5	23.4
25	35.2	22.4	31.4	23.2	30.8	22.4	33.4	24.7	31.9	23.2	31.6	19.8	31.2	23.1	33	23.3
26	34.5	23.2	31	23.2	30	23.7	33.8	24.5	31.5	23.4	32	19.4	31	23.8	34	23
27	33.5	22.7	30.5	24.2	32	23.8	31.8	24	29.7	23	32.2	19.8	28.3	23.4	31	23
28	33.6	22.3	34.1	23.6	32.4	24.2	31.7	25.6	31.5	23.3	32.6	19.8	30.9	23.3	33	23.6
29	32.6	23.1	31.6	23.5	33.2	22.5	32.5	24.2	33.1	23.3	32.4	20.3	30.1	24.7	33	23
30	35.4	22.5	31.6	23.2	30.3	24.1	33.2	23.2	31.6	24.4	32.5	20.7	30.3	25.7	33.2	23.4
Mean	34.8	23	33.3	24.7	32.2	23.1	31.8	24.3	32.5	24.1	32.2	20.5	31.7	24.9	32.7	23.5

Maximum and minimum temperatures at the stations of the Weather Bureau, September, 1918.—Cont.

Day.	Cebu.		Iloilo.		San Jose Buenavista.		Cuyo.		Ormoc.		Guiuan.		Tacloban.		Capiz.	
	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.
	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.
1	31	23.2	30	24.7	30.2	22.3	29.1	23.8	32.6	23.1	31.7	24.7	33.8	22.9	31.8	22.9
2	30.5	25.8	30.2	24.9	31.6	21.5	29.7	23.7	33.1	23	31.6	23.8	33.1	23.3	33	22.8
3	30	26.3	30.7	25.7	30.6	23.1	29.4	24.5	33.2	24	31.9	27.2	32.4	24	33.3	23.7
4	30	26.5	30.7	25.5	31	24.9	30.2	27.2	33	24.1	31.2	27.2	32.4	23	34.4	23.9
5	30.6	27.2	30.6	22.8	31.5	27.4	30.1	25.3	32	27.8	31.7	27.5	35.1	26.2	34	23.1
6	31.8	27.3	28.8	23.5	30.5	22.9	29.2	24.3	31.9	28.1	32.5	28	34.5	24.5	28	23.9
7	30.4	23.3	30.2	26.2	32.6	22.9	29.8	24.7	33.6	24.4	32.8	27.8	34.9	23.9	31	23.5
8	31.8	25.7	30.7	25.8	30.8	22.8	29.3	24.2	34	27.6	32.1	27.3	34.9	24	32	24.4
9	29.4	23.5	30	23.4	31.9	23.7	28.9	23.8	32.2	26.4	32.5	27	34.4	23.6	32.8	24.1
10	31.8	25	29.2	24.2	30.8	24.6	29.7	24.9	33	26.6	31.7	27.8	34.9	24.7	33.6	24.2
11	30.3	26.5	30	22.3	31.3	24.6	29.8	25.1	32.7	27.2	32.1	27.6	36	24.9	33.1	23
12	30.3	25.6	30.5	25.9	31.7	23.4	30.4	27.1	33.2	23.4	32.6	27.5	34.6	23.6	32.6	23.3
13	31.2	24.8	30.6	24.9	32.3	23.6	30.4	24.3	33.8	22.4	33.5	27.1	35.1	22.4	32.3	24.1
14	30.6	25.8	30.8	22.2	32.6	21.5	30.6	23.7	34	22.2	32	25.6	34.9	22.4	32.8	23.2
15	31.2	24.8	30.9	22.9	32.2	22.6	30.3	24.4	32.9	22.8	32.5	24.5	34.9	23.5	32.7	23
16	30.9	25	31.5	24.8	32.7	23.1	31.2	25	33.6	23.5	32.5	25.9	34.1	23.1	32.8	23.3
17	32	24.2	30.7	24.4	32.7	23.2	32.2	24.1	32.9	23.2	33.5	23.7	34.4	23.4	33.1	23.5
18	30.4	24.8	31	23.6	32.3	22.5	31.4	24.4	33.3	23.4	32.1	23.1	34.6	23.4	33.4	23.3
19	30.8	23.7	31.1	24	31.4	22.9	31.7	23.7	33.1	22.6	32.1	24.6	33	22.4	32.9	22.6
20	30.8	24.8	30.6	23.2	30.3	22.8	30.8	24.5	31.6	22.9	31.3	24.1	31.5	23.3	31.3	23
21	31.3	24.3	30	23.6	30.7	22.8	29.6	25.4	31.7	22.8	31.4	22.9	32.2	22	32.3	22.7
22	29.7	25.5	31	23.7	30.7	23.2	29.6	24.6	33	23.3	31.1	24.2	32.8	23.4	32.5	23.4
23	30	25.8	30.4	25.5	30.3	22.7	28.6	25.1	33.1	24	32.8	24.8	32.4	22.9	32.6	23.6
24	30.6	25.2	30.7	24	31.7	22.8	31.3	23.9	32.5	23.8	29.8	24.2	31.3	23.9	32.4	23.4
25	32.6	25 3	31.8	23.7	32.1	23	31.4	24	32.8	22.4	32.5	22.7	33.5	23	32.1	23.6
26	32.3	23.3	31	24	32.2	22.7	31.3	23.8	33	22.2	32.9	23	34.6	23.4	32.4	24.1
27	32.3	25.1	31.5	24.3	31.7	23.4	30.9	24.9	33.6	23.2	32.2	23.9	33	24.4	32.9	23.1
28	32.2	25.2	30.9	24.6	31.7	22.6	31	25.7	32.6	22	32.8	24.7	32	24	32.4	25.1
29	30.2	23.9	31	23.9	32.2	23	30.9	25.7	32.2	22.4	29.9	25.2	30.7	24.4	32.2	24.9
30	30.4	26.9	30.1	23.8	28.9	22.6	29.1	24.4	31.4	23	32.4	25.4	32	24.4	33.7	24.7
Mean	30.9	25.1	30.6	24.2	31.4	23.2	30.3	24.7	32.9	23.9	32.1	25.4	33.6	23.6	32.5	23.7

Day.	Borongan.		Catbalogan.		Calbayog.		Masbate.		Romblon.		Batag.		Sorsogon.		Legaspi.	
	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.
	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.
1	34.5	23.7	31.6	24	30	26.1	31.6	24.4	32	24.5	31.7	23.4	30.8	23.8	31.9	23.5
2	34.4	22.6	31.5	24.9	29.9	25.2	31.6	25.2	32.4	23.9	32.4	24	30.7	24	32.4	24.4
3	33.6	24.5	31.2	27.2	30	26.7	31	26.2	33	23.8	31.4	24.6	30.5	25	30.8	25
4	33.7	24.2	32.2	26.8	29.2	25.7	30.8	26.6	29.5	24.2	29	25.1	28.3?	24	28.8	23.9
5	34.5	23.7	32.7	27.5	30.1	24.5	31	25.2	29	24.2	31.9	25.3	28.1	23	27.8	24.4
6	34.8	26.5	31.8	24.5	28.8	25	29	23.6	29.3	23.9	29.3	23.6	29.5	23	27.8	23.8
7	34.9	25	32.6	25.9	29.3	27.4	32.4	25.8	29	24.9	33	24.6	29.7	23	29.9	24.6
8	34.2	25.4	33	26	29.2	26.6	30.8	26.8	31.9	23.4	32.5	24.5	30.3	23	31.1	25.1
9	34.3	24.1	31.9	25.9	29.2	26.4	31.4	26.6	31.9	26	32.4	24.8	30	23.5	32.1	25.5
10	34.4	25.5	32.3	24.8	29.4	27	30.8	26.8	32.6	26.4	32.2	24.8	30.3	23?	31.3	25.9
11	34.8	23.1	32.3	26.8	29.6	25.6	31.4	26.2	30.5	25.4	32.3	24.8	30.8	25	31.6	25.4
12	35.3	22.5	32.3	23.1	31	24.1	32	24.5	32.5	25.4	32.9	23.6	31.8	24.8	31.9	25.1
13	33.3	21.7	32.4	22.7	31.4	23.4	32.8	25.6	33.4	24.7	32	23 3	31.7	24	32.9	24.5
14	34.7	22.8	32	23	30.4	23.4	32	25.5	31.5	25.2	31.4	23.4	31.3	24	32	24.9
15	35.5	22	32.5	23.8	30.1	24	32.4	26.4	32.8	22.7	32.3	24.8	31.5	25.3	32	24.9
16	34.2	21.5	32.2	23.6	29.9	24.9	32.4	25.6	32.5	25.2	32.1	24.6	31.8	25?	30.7	24.6
17	32.2	22.6	32.4	22.5	30	23.7	32.6	25.5	32.9	23.4	32.5	23.4	31.8	24.3	32.8	23.8
18	32	22.8	31.6	23	30	23.3	31.8	25.2	33.3	23.8	32.8	23.8	33	-------	33.2	24.3
19	34	22.3	32	22.8	29.8	23.8	31.6	24	33.9	24.2	32	23.2	31.8	23.4	32.8	24.7
20	33.3	23.5	30.6	23.4	30.4	23.7	30	22.8	32.5	24	29.9	21.7	30	21.8	31.8	23.4
21	34.9	22	31.1	20.6	29.9	22	31.8	24.5	32.9	23.7	29.2	23.3	31	20	31.9	21.8
22	33.8	23	30.7	23.5	29.1	23	31.4	24.2	32.4	23.9	31	22.8	31.8	20	32.8	22.7
23	34.1	22.1	31.5	23	29.9	24.7	32	24.2	32.5	24.7	31.2	22.5	32.5	22.4	32.3	23.4
24	28.8	22.2	30.2	23.6	29.8	24.4	31.4	25.2	32.7	24.3	31	23.2	32.8	22.2	31 3	23.7
25	31.9	22	31.7	22.5	30.8	23.1	31.8	25.2	32.4	23.1	30.8	22.9	32.9	22.3	32.2	22.7
26	31.9	22.5	31.3	22.5	30.8	23.2	32.4	25.6	32.8	23.6	31.6	23.7	32.7	22.8?	30.7	25.4
27	32.4	22.9	31	21.8	32.7	23.3	32.4	26.2	32.4	24.6	31	24.3	31.8	23	32.7	23.1
28	34.5	24.2	31.2	21.4	32.2	23.1	32	26.2	32.4	23.8	31.1	23.7	32.4	23	32.4	24
29	33	23.7	30.7	24	30.7	24.1	32	26.6	32.9	25.4	29.9	24.4	32	23.2	31.9	23.8
30	32.6	24	31.4	24.1	29.6	25.5	31.4	24.8	32.8	24.2	29.2	23.8	29.8	22.6	29.4	24.6
Mean	33.7	23.3	31.7	24	30.1	24.6	31.6	25.4	32.1	24.4	31.4	23.8	31.1	23.3	31.4	24.2

Maximum and minimum temperatures at the stations of the Weather Bureau, September, 1918—Cont.

Day.	Sumay, Guam.[a]		Calapan.		Virac.		Naga.		Tigaon.		Batangas.		Lucena.		Atimonan.	
	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.
	°C	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.
1	30	24.4	31.5	23	33.6	21.5	32.7	20.9	31.7	21.9	31	-------	30.5	23.9	32	23.1
2	30	24.2	33	23.4	34	21.7	33.2	21.4	32.3	22.9	31.6	-------	31.7	24.4	31.7	22.9
3	30	24.2	31.5	23	32.2	22.3	32.9	22.2	30.6	22.3	27.8	-------	28.2	25.1	31.2	23.2
4	30	24	28	23.5	29.7	23	28.5	21.9	29.3	23	26.7	-------	26.5	24.4	27.1	23.3
5	30	24	27.5	23	28.5	22.7	28	21.5	28.5	23.2	26.8	-------	25.8	22.5	26.1	23.2
6	29.4	24	29.5	22.6	30.5	22.2	31.7	-------	30.3	22.4	29.1	-------	29.7	22.3	30.7	23.5
7	29	24.6	29.6	23	32.2	22.4	32.1	22.1	30.3	23.9	31.2	-------	31.7	23.1	31.5	25.4
8	30.2	24	31	21	32.7	22	32.5	22.5	30.5	24.4	30.9	-------	29.4	24.5	31.7	25
9	30	25	32.2	22.1	33.5	22.6	32.5	23	30.9	24.7	30.8	-------	31.7	25.4	32.8	26
10	30.6	24.4	-------	-------	33.5	22.8	32.5	22.8	30.7	25	30.7	-------	31.3	25.3	32.3	25.6
11	30.6	26	-------	-------	32.5	23.1	31.5	23.8	30.3	23.4	28.5	-------	29	23.4	30.4	25.4
12	29.2	23	-------	-------	34.1	22.3	32.7	23.1	30.27	24.6	30.6	-------	29.5	24.4	30.6	25.5
13	30.2	23.6	32.6	22.6	34	21.5	33.5	22.3	30.47	24.5	31.6	-------	31.5	24	32	24.8
14	30.2	24.4	33.1	22	33.8	21.6	32.8	22.1	31.6	24.3	31.3	-------	31.7	22.7	32.5	23.4
15	30.2	25.4	32.1	23	34	22	33.6	22.2	31.6	23.7	31	-------	31.5	23	31.2	23.5
16	-------	-------	32.5	22.9	33	21.6	32.4	21.9	31.5	21.9	30.6	-------	31.3	23.5	31.6	23.1
17	-------	-------	32.6	23	33.5	21.5	33.4	21.3	32.6	22.4	32	-------	31.9	23	32.4	23.3
18	-------	-------	32.6	22.5	35	21.5	33.7	21.5	32.2	22 2	32	-------	31.5	22.6	32.6	23.2
19	-------	-------	31.5	22.1	34.4	22	34.5	22.2	32.2	22.3	30.6	-------	32	22.1	32.4	22.8
20	-------	-------	31.5	23	34.5	22	33.1	21.1	31.6	22.1	31.5	-------	32.4	23.3	31.9	23.1
21	-------	-------	32.5	23	34.5	21.5	33.6	21	32.6	20	31.4	-------	31	22.2	31.9	23.4
22	-------	-------	31.5	22	35.2	21.3	34.4	20.7	33.4	20.4	31.6	-------	31	21.3	32.9	22.6
23	-------	-------	33	22.5	36	21	34.2	20.8	32.8	20.5	31.8	-------	30.8	22.6	32 7	23.4
24	-------	-------	32.5	22.5	32.7	22.3	33.1	20.67	32.1	20.6	31.5	-------	31.4	22.2	31.6	24
25	-------	-------	32.6	22.9	33.2	21.9	34.4	20.8	31.8	20.5	31.9	-------	31.5	22.9	30.6	23.7
26	-------	-------	32	23	32.6	21.6	33.2	21.7	32	21.1	32.3	-------	31	23.8	30.1	23.9
27	-------	-------	33	23	33.7	21.3	33.4	20.37	33	21	33.7	-------	30.5	23.4	30.1	25.5
28	-------	-------	33.1	24	34.2	21.2	32.9	22.2	32.6	23.2	32.7	-------	31.1	24.2	30.2	27
29	-------	-------	32.5	22.5	32.8	22.3	31.6	22.1	32.1	23.2	31.8	-------	28.3	22.4	32.1	24.7
30	-------	-------	32.7	23.6	30.8	22	31.6	21.4	30.4	22.5	31.7	-------	29.5	23	31.2	23.8
Mean	-------	-------	31.8	22.8	33.2	22	32.7	21.8	31.4	22.6	30.9	-------	30.5	23.4	31.8	24

Day.	Ambulong, Tanauan.		Canlubang, Calamba.		Paracale.		Santa Cruz, Laguna.		Manila.		Antipolo.		Iba.		San Isidro.	
	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.
	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.
1	30.5	22.9	31.6	21.6	32.2	23	32.4	23.2	31.1	23	30.5	21	26	22.5	29.8	23
2	30.8	24	32	21.7	32.2	24	29.2	23	30.2	22.9	29.5	21.3	28.8	22.5	30.8	23
3	26.2	24.5	26.8	23	31.6	24.4	27.9	23.8	27.3	24.4	25.7	22.6	27.4	23	30.1	24.4
4	26.3	24	27.2	22.8	29	25	27.7	24	28.1	23.7	26.1	22.9	28.4	23.3	28.5	24
5	26	23.2	28.2	22.4	27.3	24	27.1	23	26.5	23.5	26	22.3	29	23.2	28.4	23.6
6	29.1	23.4	32	22.2	31.6	24	30.1	23.1	29.7	23.5	27.9	22.5	30.3	22.3	29.7	23.9
7	30.3	24.1	32.4	22.3	34	25.1	32.6	23	31	23.4	30.5	22.2	30.8	21.5	31.1	23
8	28	24.8	29.4	23	32.6	25	29.8	23.2	29.6	24.5	28.8	23.5	30.5	22.9	31.4	24.1
9	28.7	25	32	23.1	34	25.5	32	23.9	30.7	25.5	29.9	23.3	30.9	24.2	31.5	23.8
10	30	23.4	32.1	23.4	33	25.4	31.5	24.4	30.6	25.5	29.2	22.8	31.3	23.5	30.1	23.7
11	27.5	24.7	30.6	23.2	32 8	25.6	30.9	24.1	30.6	24.7	28.5	23.1	28.1	23.9	31	24.4
12	29.3	25.2	31	22.4	32.8	24.8	31.1	24	30.9	23.8	29	22.4	28.4	24	31	24.3
13	30.4	24.7	32	22	33	24.6	32.1	23.1	30.4	25	28.8	23	27.4	24	31.1	24
14	29.6	23.7	32.2	22.3	34.9	24.7	32.3	23.1	30.4	24	28.7	22.9	29.3	23	30.6	23.7
15	30.3	23.1	31.6	22.4	33	24.3	31.9	23.6	30.1	23.4	29.3	21	29.1	21.8	30.5	22.7
16	29.6	23.9	31.8	22.2	31.8	24.3	30.9	23.5	29.6	23.7	28.8	21.5	28.6	21.6	30.1	22.9
17	31.9	23.8	30.6	22.3	32.2	23.5	32	23	30.8	24.2	30.6	21.6	30.4	22.2	31.1	22.9
18	31.4	23.5	30	22.4	32.6	24	31.8	23.3	30.6	24.3	30.3	21.5	30.5	23	31.8	23.8
19	30.8	23.2	32.2	21.4	32.2	24.3	32.6	23.1	30.7	23.5	31	22	30.4	22.4	31.7	22.8
20	30.6	23.5	32.3	22.4	30.4	24.3	32.1	23.5	31.3	23.6	31.1	21.9	30.9	22.2	31.6	23.6
21	30.5	23.3	32.4	22.1	30.8	23.8	33.1	23	31	23.3	31.6	21.8	30.9	22.1	31.9	23.5
22	31	22.8	31.8	22	31.5	23.5	32.7	23.8	31.1	23.4	31.7	21.3	30.9	21.5	32	24.3
23	32	23.6	32	22.1	30.9	23.3	33.2	23.2	31.5	23.7	32.5	22	31.8	22.2	32.6	24.2
24	31.3	24	31.2	23	31.3	23.5	32.9	23 9	32.1	24.1	32.2	23.2	31.5	22.7	33	24.8
25	31.2	23.6	32.2	22.3	30.9	23.9	31.9	23.9	32.3	24.1	32.3	23.1	31	23.9	32.1	23.8
26	30.7	23.2	31.8	22.4	31	24.2	31.3	23.7	31.7	23.8	32.2	22	31.7	22.8	31.6	23.1
27	32.3	23.8	32.8	23.2	30.8	24.7	32	23.8	31.8	23.8	31.8	22.2	32.1	22.1	32.8	23.5
28	33	23.5	32.6	22.4	31.6	25.7	32.2	23.2	32.2	23	32.3	21.3	32.3	22.9	33	24.5
29	31.8	22.8	33.8	21.4	31	24.2	33	22.5	32.2	23.4	31.4	21.2	32.2	22.4	32.3	23.7
30	31	23.7	32.2	22.8	30.8	24.2	32.3	23.1	31.7	23.2	30.4	21.5	32.4	22.1	31.8	23.5
Mean	30.1	23.3	31.4	22.4	31.8	24.4	31.4	23.4	30.6	23.9	30	22.2	30.1	22.7	31.2	23.7

[a] The observations of this station from September 16 to October 15 were lost with the wreck of the Dumaru.

Maximum and minimum temperatures at the stations of the Weather Bureau, September, 1918—Cont.

Day.	Tarlac.		Baler.		Dagupan.		Bolinao.		Baguio.		San Fernando, Union.		Echagüe.	
	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.
	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.
1	30.7	23.6	33	24.1	31.5	23.8	31.4	23.5	22.2	15.5	31.3	23.2	32.6	23.5
2	31.5	23.4	34.5	24.2	32	23.6	31.5	23	22.7	15.4	32.5	23.9	32.6	23.2
3	30.8	23.6	33.6	23.6	30.3	24.4	30	24.2	22	15.7	31.9	24	33.5	23.3
4	30.1	24.2	31	23	31.6	24.4	30.1	24	22	15.1	31.5	23	31.4	22.3
5	30.5	23.8	32.3	24.4	31.5	23.6	30.8	24.5	22.3	15.5	32.3	23.5	33	23.4
6	32.8	23.4	32.9	23.8	29.2	23.6	30.7	26.7	21.5	16.3	32.6	25	33.6	23.6
7	33	21	33.2	25.2	31.2	24.2	30.8	24.7	20	15.8	31.5	24.5	34.5	21.6
8	33.2	23	34	25.6	30	23.9	30.3	24.9	20.9	15	31.7	23.4	34	22.8
9	34	23.4	33.8	25.9	30	25.8	30.7	24.9	17.4	15.7	31.8	23.8	35	22.5
10	34.2	23.4	33.9	25.9	31.7	24.7	31.1	26	18.8	15.4	31.5	23.8	35	24
11	31.5	23.4	32	25.7	31.2	24.6	31.4	24.9	19.1	15.4	30.7	23.3	34	23
12	31.5	24.3	33.7	25.5	30.5	24.4	30	24.1	18.5	15.7	31.4	23.6	34.6	23.6
13	31.6	24.1	33.9	24.5	30.3	24.2	30.9	24.2	18.4	16.2	31.4	24.3	33.5	23.6
14	31	23	34	24.9	29.3	23.4	27	24	17.8	14.2	28.4	23.5	33.2	22.3
15	31.6	22.9	32.5	23.2	31.6	23.2	30.6	22.9	21.2	14.7	31.9	22.5	32.4	22.7
16	31.8	23.3	32 3	22.6	31.8	23.2	29.8	22.8	20.7	15.4	32	23.4	32.5	22.8
17	33.2	23.3	31.7	23	32	23.7	32.2	23.7	20.9	15.7	31.8	23.2	32.6	23.5
18	33.5	23.4	33.6	22.6	32.8	24.5	31.2	23.5	23.4	15.1	32.3	23.3	34	23.3
19	33.7	23.7	33.7	22.2	32.9	24.3	30.7	23.9	22.6	15.1	31.5	24	33.4	21.3
20	34	23.7	32.2	21.8	32.4	24.4	31	23.8	22.4	14.9	31.5	23.6	33	22.5
21	34.2	23.5	32.5	22	33.4	24.5	31.1	23.1	21.5	15.1	32.1	23	33.4	22.7
22	34.2	23.5	32.9	22.2	32.8	24.4	30.9	23.7	22.6	15.3	31.7	23	33.5	23
23	34.5	22.5	32.3	24	33.9	23.9	31.4	23.3	23.8	14.9	32.5	22.6	33.2	23.3
24	35	24	31.1	24	34.3	24.5	31.6	23	24.9	15.4	32.5	23.4	32	22.1
25	35	24	30.9	23.7	34.4	23.9	32	24.5	23.5	15.5	32.6	23.5	32.7	23
26	33.5	23.1	31.1	23.9	34.5	23.7	33.2	24.6	24.4	15.3	32.5	23.6	33.9	23.5
27	35	23.3	32	22.4	33.6	23.9	33.5	23.2	23.2	15.7	32.8	23.2	33.5	23
28	34.6	23.1	31.9	22.4	33.6	24.5	31.9	24.7	23.8	16.2	32.5	22.5	34	23.2
29	33.2	23.4	32.9	22.5	33.3	24.8	31.8	23.5	23.4	15.6	32.6	22.4	32.5	22.3
30	35.2	23.2	32.7	23.3	32.4	25	31.2	25.5	23.8	16.1	32.7	23.9	32	23
Mean	33	23.4	32.7	23.7	32	24.2	31	24.1	21.7	15.4	31.9	23.5	33.3	22.9

Day.	Candon.		Vigan.		Tuguegarao.		Laoag.		Aparri.		Cape Bojeador.	
	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.
	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.
1	32	24.9	30.1	23.8	31.9	24	29.9	22.2	29.8	24.3	30	23.2
2	31.6	25.5	30.5	23.9	34	23.4	31.2	23	31	24.6	30.1	23
3	31.5	25	29.8	23.4	33.8	24	31	23.1	30.8	24.3	29.5	23.2
4	31	24.4	30.7	23.3	34.7	24	31	22.1	31.7	24.2	30.4	22.8
5	31	23.8	31.5	23.6	33	24.6	32.4	24	31.2	25.7	29.7	24
6	31.7	25.2	30.3	24.2	33.2	23.1	29.2	23	31.3	25.2	29.5	24.6
7	32	26	31.9	24.6	36	22.5	31	24	31.8	23.5	29	24.6
8	31	25.5	31.6	24.5	35.6	24.6	31.1	24	34.6	24.3	29.5	24.6
9	31.8	25	31.4	25.2	36.2	23.4	31 3	26.4	32.8	23.3	29.8	25.5
10	31.5	25.5	29	24	35.4	24.5	31.6	25	34.2?	24.9	29.5	26
11	31	25	29.6	23.6	34	24.6	30.4	24	31.5	24.5	28.7	23
12	31	25.1	26.5	23.5	36	25	28.6	24	35.5	24.6	29.2	23.5
13	30	25.6	26.5	22.5	32	24.1	28.8	23.9	32	24.6	27	23.4
14	29	26	26.1	23	32	23.2	27	23.5	30	24.3	26.8	23
15	31	24.4	30.2	23	32.6	22.8	30.2	23	30.5	23	27.8	22.8
16	30.5	24.8	30.4	23.5	33.8	22.8	30.4	22.5	30.8	22.8	29.8	22.4
17	30.8	24.3	30.7	23	32	23.4	31.2	22.9	32.2	23.5	29.2	22.8
18	31	24.5	31	23.3	35.7	24.4	31.7	23	32.4	23.3	29.4	23.4
19	30.9	25	30.7	23.5	34.2	23.6	32	23.9	32.5	23.9	30.2	23
20	31.8	24.8	32.1	23.4	34.6	23.2	31.5	22.8	31.5	23.1	29.7	24.4
21	31.8	24.5	31.4	23.2	33.2	22	31.4	22	32.3	23.4	30.7	22.8
22	30.7	24.5	32.3	23.5	35.1	23.2	31.2	22.9	32.3	23	31.8	23.4
23	31.9	24.2	33.5	23	33.8	23	31.2	22.3	32	23.2	30.6	23
24	32	24.7	33.5	24.1	32.6	23.4	31.7	22.5	31	23	30.8	23.5
25	32.7	25.4	33.4	24	31	23	32.4	24	31.1	23	30.5	24.1
26	31.6	25	33.3	23.9	33	23	32.1	23.4	31.5	23.7	31.4	23.8
27	32.4	24.6	33.1	24.3	32.4	22.1	32.5	23.2	31.8	23	32.2	24.2
28	32	24.9	34.4	23.6	34	22.3	32.2	22.9	32.2	23	31.8	23
29	33	25	34	23.5	32.8	22	32.5	22	31.6	23.3	30.4	22.8
30	32.9	25.6	33.2	24	30.2?	23.5	32.2	22.9	32.5	24.5	29.4	24
Mean	31.4	25	31.1	23.7	33.6	23.4	31.4	23.3	31.9	23.8	29.8	23.6

SEISMOLOGICAL BULLETIN FOR SEPTEMBER, 1918.

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EARTHQUAKES FELT IN THE PHILIPPINES.[1]

1, $20^h\ 01^m\ 24^s$* [2, $4^h\ 01^m\ 24^s$]. **S Mindanao.** Earthquake of intensity V–VI, originated in the Celebes Sea, felt through the southern part of the island, principally in the districts of Cotabato and Davao.

4, $17^h\ 20^m\ 18^s$* [5, $1^h\ 20^m\ 18^s$]. **S Mindanao.** Earthquake of intensity IV–V, originated in the Celebes Sea and felt over the greatest portion of the island. On the 5th it repeated with less intensity at $2^h\ 55^m$ [$10^h\ 55^m$] and again with intensity IV at $7^h\ 07^m\ 57^s$* [$15^h\ 07^m\ 57^s$].

6, $3^h\ 16^m\ 57^s$* [6, $11^h\ 16^m\ 57^s$]. **Baguio** (W Luzon). Earthquake of intensity III: origin S of the Benguet Province.

8, $2^h\ 38^m\ 43^s$* [8, $10^h\ 38^m\ 43^s$]. **W Luzon.** Oscillatory earthquake, direction W–E, intensity III–IV, felt in the provinces of Pangasinan, La Union, Bontoc and Benguet: origin in the China Sea.

11, $4^h\ 08^m\ 39^s$* [11, $12^h\ 08^m\ 39^s$]. **Central Mindanao.** Earthquake of intensity IV felt in the provinces of Cagayan, Lanao, Cotabato, Bukidnon, Agusan and Davao. It probably originated SE of Lanao Lake. Recorded at Taihoku, Formosa.

15, $13^h\ 31^m$ [15, $21^h\ 31^m$]. **Butuan** [N Mindanao]. Earthquake shocks of intensity III, duration 10 seconds.

17, $4^h\ 30^m$ [17, $12^h\ 30^m$]. **Butuan** (N Mindanao). Oscillatory earthquake, direction ESE–WNW, intensity IV, duration 12 seconds. After shock of intensity II–III at $10^h\ 41^m$ [$18^h\ 41^m$].

24, $6^h\ 38^m\ 42^s$* [24, $14^h\ 38^m\ 42^s$]. **Iba** (W Luzon). Earthquake shock of intensity III.

26, $6^h\ 15^m$ [26, $14^h\ 15^m$]. **Ambos Camarines** (SE Luzon). Earthquake of intensity III felt in the region circling mount Isarog.

27, $18^h\ 10^m$ [28, $2^h\ 10^m$]. **Legaspi** (SE Luzon). Oscillatory earthquake, direction NW–SE, intensity III, duration 12 seconds.

EARTHQUAKES OF BATANES ISLANDS, SEPTEMBER 13, 1918.

On the 13th of September at $6^h\ 55^m\ 44^s$* [$14^h\ 55^m\ 44^s$] a violent earthquake of intensity VII–VIII shook the islands of Batanes, situated between Luzon and Formosa, causing some damage in the towns of Ivana and Sabtan. The earth continued to tremble until $11^h\ 04^m\ 50^s$* [$19^h\ 04^m\ 50^s$] when a stronger earthquake entirely destroyed the aforesaid towns. In the other towns of the two islands Batan and Sabtan the shocks

[1] The intensity of earthquakes is given in the notation known as the Rossi-Forel scale. The time is that indicated by the seismographs at the Central Observatory whenever the disturbance has been registered by them. This fact is denoted by an asterisk (*). Otherwise the time is that noted by the observer who sent the report. All time indications are in Greenwich mean time (midnight=0^h), insular time being added in brackets for the convenience of Philippine readers.

produced only some cracks in the thiner walls and the interior partitions of the buildings. Owing to the scarcity of lumber, bamboo and other light materials, the houses in those islands are constructed of stone and lime: all, excepting the churches, convents and some other public buildings, are very small and low structures, consisting of four walls, some 2 to 4 meters high, roofed with a heavy and badly connected wooden frame and a thick cover of grass.

The town of Ivana is situated on the western coast of Batan Island, while Sabtan lies on the eastern coast of Sabtan Island, separated by a deep channel about 4 kilometers wide; the two towns are nearly facing themselves. Both are located on the shore on a narrow and steep stripe of land partially deposited by water courses and fallen from the next heights. Their location is consequently very bad, this being one of the reasons why they were so exceptionally damaged by the last shocks and had also been badly shaken by those occurred in May and July, 1915. On examining the ruins it is found that the construction of the houses was very defective, on account of the very poor composition of the masonry work and of the great weight and faulty construction of the roof. The earthquake ruined the small houses as well as the great buildings, churches and convents, because in all prevailed the same construction.

The ground was nearly undisturbed, neither cracks nor landslides of consideration being caused by the shocks; old bridges of one and even three arches were entirely spared. The great contrast exhibited by the complete destruction of Ivana and its barrio San Vicente in comparison with the undamaged condition of the town of San Carlos, but 4 kilometers distant to the north, seems to be due to the different location; San Carlos being built on level ground some distance from the sea shore in a small valley.

As to the origin of the shocks it seems to be rather shallow: they were recorded only at Manila, Taihoku and Zikawei. Their direction taken from the projection of fallen ruins apparently was from the sea lying between the two islands Batan and Sabtan. It is very probable, as it was said in other places,[1] that there exists a fault which extends also southwards and crosses part of the Archipelago close to the 122d meridian E. The extension of the central area, where the aftershocks were nearly continuous during the afternoon and the night of the 13th of September and very frequent on the following days to the beginning of October, did not exceed 8 to 10 kilometers in the E–W direction. In the N–S direction it was seemingly larger but not very much, because in the small island of Itbayat, some 40 kilometers to the north of the center or line joining the two ruined towns, the principal shocks of the 13th did not call very much the attention by their intensity and none of the numerous aftershocks was felt. In the capital town of Batanes Islands, Santo Domingo de Basco, situated on the island of Batan some 14 kilometers N of the epicenter and only 10 from Ivana, the principal shocks had intensity VII and about forty aftershocks were felt between the 13th and the end of September. Generally the shocks were accompanied by deep subterranean noises similar to distant detonations which were heard in the two ruined towns, at Santo Domingo and other places, but unnoticed in some others.

[1] Earthquakes of Batanes Islands and southern Formosa: Bulletin of March 1909. The relation of seismic disturbances in the Philippines to the geologic structure: *The Philippine Journal of Science*, August, 1913. Earthquakes in the Batanes Islands, May, July, 1915. Bulletin of July, 1915.

RECORDS OF THE MICROSEISMOGRAPH.

[Time: Greenwich mean. Midnight=0h. Instrument: Wiechert seismograph; 1,000 kilograms. A_N: T_o=6.62, ϵ=2.726, $\frac{r}{T_o^2}$=0.021; A_E: T_o=6.03, ϵ=2.378, $\frac{r}{T_o^2}$=0.037. Alluvium. 2.40 meters above sea level.]

No.	Date.	Character.	Phase.	Hour.	Period.	Amplitude. A_N μ	Amplitude. A_E μ	Remarks.
				h. *m.* *s.*				
351	1	Ir	eP	20 01 24				Celebes Sea.
			L	05 00				
			M_N	05 31	8	31		
			M_E	06 03	7		25	
			F	41				
352	2	Iv	eP	2 34 12				
			F	52				
353	2	Ir	e	14 21 18				
			S	26 00				
			L	29 00				
			M_N	30 05	11	37		
			M_E	32 16	8		29	
			F	15 41				
354	3	Ir	eP	15 11 18				
			L	15 54				
			F	16 17				
355	4	Iv	eP	1 51 32				
			F	2 01				
356	4	Iv	eP	17 20 18				Celebes Sea.
			L	23 40				
			F	47				
357	5	IIr	e	7 07 57				
			S	09 49				
			L	11 41				
			M_N	12 17	9	349		
			M_E	13 05	9		226	
			F	8 08				
358	6	Iv	eP	3 16 57				Baguio (W Luzon).
			F	21				
359	7	Ir	e	7 17 44				
			L	21 45				
			M_N	22 35	10	94		
			M_E	23 28	11		62	
			F	8 23				
360	7	IIIr	eP	17 24 00				Maxima and end in N-S component lost by the force of the shock.
			S	30 36				
			L	36 04				
			M_{E1}	41 17	15		555	
			M_{E2}	46 25	17		836	
			M_{E3}	48 00	17		1,024	
			M_{E4}	49 28	17		932	
			M_{E5}	53 18	15		858	
			F	21 48				
361	8	I	eL	0 35				
			F	49				
362	8	Iv	eP	2 38 43				W Luzon.
			F	44				
363	8	Ir	e	5 50 22				
			F	6 21				
364	8	Iv	eP	13 16 28				
			F	18				
365	8	Ir	eP	22 29 54				
			F	23 18				
366	9	Ir	e	12 11 40				
			F	49				
367	9	Ir	e	14 26 44				
			F	15 21				
368	9	Iv	eP	21 56 20				
			F	22 02				
369	10	Iv	eP	15 50 35				
			F	54				

Records of the microseismograph—Continued.

No.	Date.	Character.	Phase.	Hour.	Period.	Amplitude. A_N μ	Amplitude. A_E μ	Remarks.
				h. m. s.				
370	10	Iv	eP	21 46 42				
			L	47 05				
			M_E	47 07	3		178	
			F	52				
371	11	IIv	eP	4 08 39				Central Mindanao.
			L	11 44				
			M_E	12 32	8		390	
			M_N	13 00	11	550		
			F	5 08				
372	11	Iv	eP	6 01 06				
			F	03				
373	12	Iv	eP	9 55 00				
			F	10 03				
374	13	IIv	eP	6 55 44				Batanes Islands. End overtaken by following earthquake.
			L	57 45				
375	13	Iv	eP	7 09 30				Batanes Islands. Aftershock.
			F	47				
376	13	IIv	eP	7 51 52				Batanes Islands. Aftershock.
			L	54 08				
			M_N	55 07	5	453		
			M_E	55 31	5		482	
			F	8 42				
377	13	IIv	eP	11 04 50				Batanes Islands. Aftershock.
			L	06 52				
			F	12 08				
378	14	Ir	e	17 12 48				
			S	18 42				
			L	20 00				
			M_N	20 02	6	30		
			M_E	20 27	7		56	
			F	18 16				
379	15	Iv	eP	6 07 28				Batanes Islands. Aftershock.
			F	24				
380	15	Ir	e	18 05 30				
			L	10 50				
			F	49				
381	16	Iv	eP	5 57 16				Batanes Islands. Aftershock.
			L	58 52				
			M_N	59 17	5	210		
			M_E	6 00 39	5		223	
			F	31				
382	17	Iv	eP	13 53 42				
			F	14 00				
383	18	Iv	eP	22 20 06				Batanes Islands. Aftershock.
			L	21 41				
			M_E	22 10	4		109	
			M_N	22 37	5	124		
			F	23 14				
384	19	Iv	eP	2 20 49				
			F	35				
385	19	Iv	eP	2 39 32				
			F	43				
386	20	Iv	eP	3 27 44				
			F	30				
387	22	Iv	eP	9 02 58				
			L	03 11				
			M_E	03 12	3		96	
			M_N	03 13	4	119		
			F	07				
388	22	Ir	e	10 00 36				
			L	05 00				
			F	42				
389	23	Iv	eP	1 19 44				
			F	23				
390	24	Iv	e	0 07 20				
			F	24				

Records of the microseismograph—Continued.

No.	Date.	Character.	Phase.	Hour.	Period.	Amplitude. A_N μ	Amplitude. A_E μ	Remarks.
				h. m. s.				
391	24	I_V	eP	6 38 42				Iba (W Luzon).
			F	44				
392	29	I_r	e	12 19 36				
			S	25 12				
			L	29 05				
			M_N	29 10	7	31		
			M_E	29 28	7		19	
			F	13 18				
393	30	I	eP	13 51 44				
			L	54 04				
			F	14 05				
394	30	I_r	e	18 02 12				
			S	07 24				
			L	10 38				
			M_N	11 15	8	39		
			M_E	11 15	6		26	
			F	41				
395	30	I_r	e	18 44 52				
			S	49 50				
			L	52 38				
			M_N	52 59	7	34		
			M_E	53 27	7		21	
			F	19 42				

TEMBLORES DE TIERRA SENTIDOS EN FILIPINAS.[1]

1, $20^h\ 01^m\ 24^s$* [2, $4^h\ 01^m\ 24^s$]. **S de Mindanao.** Temblor de tierra de intensidad V–VI originado en el Mar de Célebes y sentido en toda la parte S de la isla principalmente en los distritos de Cotabato y Dávao.

4, $17^h\ 20^m\ 18^s$* [5, $1^h\ 20^m\ 18^s$]. **S de Mindanao.** Temblor de tierra de intensidad IV–V originado en el Mar de Célebes y sentido en gran parte de la isla. Repitió el día 5 con intensidad III a $2^h\ 55^m$ [$10^h\ 55^m$] y con intensidad IV a $7^h\ 07^m\ 57^s$* [$15^h\ 07^m\ 57^s$].

6, $3^h\ 16^m\ 57^s$* [6, $11^h\ 16^m\ 57^s$]. **Baguio** (W de Luzón). Temblor de tierra de intensidad III, originado al S de la Provincia de Benguet.

8, $2^h\ 38^m\ 43^s$* [8, $10^h\ 38^m\ 43^s$]. **W de Luzón.** Temblor oscilatorio, dirección W–E, intensidad III–IV, sentido en las Provincias de Pangasinán, Benguet, Bontoc y La Unión; originado en el Mar de la China.

11, $4^h\ 08^m\ 39^s$* [11, $12^h\ 08^m\ 39^s$]. **Centro de Mindanao.** Temblor de tierra de intensidad IV, sentido en las Provincias de Cagayán, Lánao, Cotabato, Dávao, Bukidnon y Agusan; originado al parecer en la parte SE del lago Lánao. Registrado en Taihoku, Formosa.

15, $13^h\ 31^m$ [15, $21^h\ 31^m$]. **Butúan** (N de Mindanao). Temblor de intensidad III, duración 10^s.

17, $4^h\ 30^m$ [17, $12^h\ 30^m$]. **Butúan** (N de Mindanao). Temblor oscilatorio, dirección ESE–WNW, intensidad IV, duración 12^s. Repitió con intensidad II–III a $10^h\ 41^m$ [$18^h\ 41^m$].

24, $6^h\ 38^m\ 42^s$* [24, $14^h\ 38^m\ 42^s$]. **Iba** (W de Luzón). Temblor de tierra de intensidad III.

26, $6^h\ 15^m$ [26, $14^h\ 15^m$]. **Ambos Camarines** (SE de Luzón). Temblor de tierra de intensidad III sentido en la región que rodea el monte Isarog.

27, $18^h\ 10^m$ [28, $2^h\ 10^m$]. **Legaspi** (SE de Luzón). Temblor oscilatorio, dirección NW–SE, intensidad III, duración 12^s.

LOS TERREMOTOS DE BATANES, SEPTIEMPRE 13, 1918.

El día 13 de septiembre a $6^h\ 55^m\ 44^s$* [$14^h\ 55^m\ 44^s$] un violento terremoto de intensidad VII–VIII sacudió las Islas Batanes situadas entre Luzón y Formosa causando algunas ruinas en los pueblos de Ivaná y de Sabtan. Siguiéronse casi continuas sacudidas hasta que a $11^h\ 04^m\ 50^s$* [$19^h\ 04^m\ 50^s$] otro terremoto más violento que el primero dejó a los dos citados pueblos prácticamente destruídos del todo. La destrucción en los demás pueblos de las dos Islas de Batán y Sabtan consistió en algunas grietas en las paredes, principalmente en las divisorias interiores y de menos espesor. En las expresadas islas por carecerse de abundancia de madera, caña y otros materiales, se edifican las casas de mampostería. Todas, excepto las iglesias y pocos edificios públicos, son construccio-

[1] La intensidad de los terremotos se indica conforme a la conocida escala de Rossi-Forel. Cuanto a la hora de su ocurrencia, adoptamos la indicada por los sismógrafos de este Observatorio siempre que los hayan registrado, distinguiéndola por medio de un asterisco (*). En caso contrario copiamos la apuntada por los observadores que nos envían las notas. Todas las indicaciones del tiempo se refieren al tiempo medio de Greenwich (medianoche $=0^h$). Para conveniencia de los lectores de Filipinas se añade también el tiempo insular.

nes muy pequeñas y bajas, consistiendo en cuatro paredes de 2 a 3 metros de altura, con tejado compuesto de un armazón de madera y cubierta de cogon o paja.

Los dos pueblos de Ivaná y Sabtan destruídos por los terremotos se hallan casi uno enfrente del otro, el primero al W de la grande Isla de Batán y el segundo al E de la de Sabtan, separadas por un estrecho profundo de unos 4 kilómetros de anchura. Ambos están situados a la orilla del mar en un estrecho rellano o escalón formado por terreno acarreado por torrentes o desprendido de las cercanas alturas. Su situación por consiguiente es muy mala, siendo probablemente una de las causas porque han sido tan excepcionalmente castigados por los últimos terremotos y lo fueron ya por los ocurridos en mayo y julio de 1915. Además al examinar las ruinas se ve que la construcción de las casas era muy defectuosa, tanto por la composición de la mampostería empleada, como por el gran peso de los tejados y la falta de trabazón entre las maderas que los forman. El terremoto no perdonó ni las pequeñas chozas ni los grandes edificios, iglesias y conventos, pero en todos ayudaron a la destrucción las malas condiciones indicadas.

No se produjeron en el suelo grietas ni derrumbes de consideración y algunos puentes de un ojo y aun de tres, muy antiguos, quedaron completamente intactos. La gran destrucción de Ivaná y de su barrio San Vicente contrasta con el casi ningún daño sufrido por el pueblo de San Carlos distante solos 4 kilómetros al norte, debido sin duda a la situación de este último algo más lejos de la playa del mar, en un pequeño valle llano.

El origen de los terremotos parece ser muy superficial, puesto que no se registraron sino en Manila, Formosa y Zikawei. La dirección de los movimientos principales en Ivaná, deducida de la proyección de algunas masas, parece haber sido de la parte del mar que separa las dos Islas de Batán y de Sabtan, hacia donde, según indicamos en otras ocasiones,[1] se extiende una falla o línea sismotectónica que cruza parte del Archipiélago cerca del meridiano 122° E. La extensión del área pleistoceista, donde las réplicas fueron casi continuas durante la tarde y noche del 13 y frecuentísimas los días siguientes hasta principios del mes de octubre, abarcaba una superficie que no pasaría de 8 a 10 kilómetros en dirección E–W. En dirección N–S, que es la misma de la falla se extendería seguramente algo más, pero no mucho toda vez que en la islita de Itbayat situada a cosa de 40 kilómetros al N del epicentro o de la línea que une los dos pueblos destruídos, los principales choques del día 13 no llamaron extraordinariamente la atención por su intensidad ni se sintieron las numerosas réplicas que los siguieron. En la capital de las Islas Batanes, Santo Domingo de Basco, situada a unos 14 kilómetros al NE del epicentro y 10 kilómetros al NNE del pueblo destruído de Ivaná, los terremotos principales llegaron a intensidad VII y se sintieron unas 40 réplicas desde el 13 al fin de septiembre. Tanto en Santo Domingo como en los pueblos destruídos los movimientos del suelo iban acompañados de ruídos subterráneos semejantes a detonaciones lejanas, en cambio en otros sitios ningún ruido se oyó.

[1] Earthquakes of Batanes Islands and southern Formosa: Bulletin, March, 1909. The relation of seismic disturbances in the Philippines to the geologic structure: *The Philippine Journal of Science*, August 1913. Earthquakes in the Batanes Islands, May, July, 1915: Bulletin, July, 1915.

THE GOVERNMENT OF THE PHILIPPINE ISLANDS

WEATHER BUREAU

MANILA CENTRAL OBSERVATORY

BULLETIN FOR OCTOBER, 1918.

PREPARED UNDER THE DIRECTION OF

REV. JOSÉ ALGUÉ, S. J.

DIRECTOR OF THE WEATHER BUREAU

MANILA
BUREAU OF PRINTING
1919

METEOROLOGICAL BULLETIN FOR OCTOBER, 1918.

By Rev. José Coronas, S. J.,
Chief, Meteorological Division of the Weather Bureau.

GENERAL WEATHER NOTES.

Pressure and temperature.—With the exception of a few stations in northern Luzon, the mean atmospheric pressure of this month in the Philippines is higher than that of the preceding year, although it is below the normal throughout Luzon and in the northern part of the Visayas. The highest pressures were recorded on the 27th, and the lowest on the 15th and 16th.

The mean monthly temperature is slightly higher than that of October, 1917, and than the normal of this month, in southern Luzon, the Visayas and Mindanao, whilst it is slightly lower in northern Luzon. The extreme monthly temperatures for Manila were 32.9° C. and 21.2° C.: they were registered on the 27th and 17th, respectively. The absolute maximum and minimum temperatures for Baguio were 24.8° C., 13.8° C. on the top of Mirador, and 25.8° C., 12.9° C. in the valley.

PRESSURE AND TEMPERATURE AT THE FIRST AND SECOND CLASS STATIONS FOR OCTOBER, 1918.

Station.	Pressure.							Temperature.						
	Mean.	Departure from Oct., 1917.	Departure from normal.	Highest mean.	Day.	Lowest mean.	Day.	Mean.	Departure from Oct., 1917.	Departure from normal.	Highest.	Day.	Lowest.	Day.
	mm.	*mm.*	*mm.*	*mm.*		*mm.*		°*C.*	°*C.*	°*C.*	°*C.*		°*C.*	
Zamboanga	759.16	+1.08	.....	760.41	5	757.85	16	26.4	+0.6	.....	32.4	27	21	2
Tagbilaran [a]	58.42	+ .93	+0.32	60.13	27	56.22	15	26.9	+ .8	0	33.8	27	22.3	19, 25
Surigao	58.36	+ .80	+ .23	60.68	27	55.84	15	27.2	+ .8	+ .2	33.3	17	23.2	14
Cebu	58.47	+ .87	+ .17	60.63	27	55.73	15	28	+ .7	+ .9	33.2	7	23.8	11, 12
Iloilo	58.41	+ .94	+ .22	60.40	27	55.76	15	26.7	+ .2	0	32	8	22.5	16, 17
Tacloban	58.21	+ .75	— .13	61.08	27	54.91	15	27.2	+ .8	+ .3	35.4	7	22.5	17, 25
Capiz	58.17	+ .84	— .27	60.94	27	54.92	15	26.9	+ .5	+ .1	33.4	1	22.7	15
Calbayog	58.17	+ .63	— .27	61.24	27	54.56	15	26.7	+ .6	+ .5	33.6	30	22.4	14
Legaspi	58.05	+ .71	— .20	61.91	27	53.77	15	27.1	+ .5	+ .1	33	25	21.4	12
Atimonan	57.99	+ .44	— .46	62.28	27	52.91	16	27	+ .6	+ .1	34.2	6	22.2	25
Ambulong, Tanauan	57.53	+ .54	.....	61.55	27	51.77	16	26.1	— .4	.....	32.3	6	21	17
Paracale	57.90	+ .39	.....	62.50	27	53.10	2	27	+ .6	.....	33.2	24, 25	22	15
Manila	57.98	+ .49	— .62	62.07	27	52.11	16	26.4	+ .3	— .2	32.9	27	21.2	17
San Isidro	58.36	+ .73	— .11	62.55	27	52.30	16	26.2	— .3	— .2	32.8	8	22.2	17, 29
Dagupan	57.12	+ .29	— .89	61.31	27	50.56	16	26.9	— .4	— .3	33.6	31	21.9	28
Baguio [b]	635.75	+ .04	— .51	639.65	27	630.31	16	17.4	— .8	— .6	24.8	28	13.8	17
Vigan	757.15	+ .12	—1	761.40	27	750.48	16	26.7	— .8	— .6	34	20	20.5	14
Tuguegarao	57.60	— .15	—1.02	63.05	28	51.67?	22	25.7	— .6	— .3	34.2	24	20.8	30
Laoag	57.16	— .44?	.....	61.47	27	51.02	16	26.1	— .3	.....	34.1	16, 27	20	26
Aparri	57.97	— .01	—1.02	63.87	27	51.61	22	26.2	— .3	— .1	33.1	24	22.3	30

[a] 28 days of observation.

[b] The barometric readings of this station are not reduced to sea level

Rainfall.—The total monthly rainfall is generally below that of last year and below the October's normal in our stations of the Visayas, whilst in a great majority of our stations of Mindanao it was above the normal, but below the total rainfall of October, 1917. As for Luzon, the following table shows that the number of stations reporting a total rainfall higher than the normal, almost equals the number of stations giving a lower amount.

RAINFALL AT VARIOUS STATIONS OF THE WEATHER BUREAU DURING THE MONTH OF OCTOBER, 1918.

Station.	Total.	Departure from Oct., 1917.	Departure from normal.	Days of rain.	Departure from Oct., 1917.	Greatest rainfall in a single day.	Day.	Station.	Total.	Departure from Oct., 1917.	Departure from normal.	Days of rain.	Departure from Oct., 1917.	Greatest rainfall in a single day.	Day.
	mm.	*mm.*	*mm.*			*mm.*			*mm.*	*mm.*	*mm.*			*mm.*	
Jolo	256.8	+ 61.3	+ 40.6	18	— 4	55.8	22	Sorsogon	234.2	—190.6		13	— 9	36.8	15,21,30
Isabela, Basilan	133.5	—241.3	—125.1	17	— 8	19.3	31	Legaspi	114	—287.9	—215.3	16	— 7	25.7	30
Zamboanga	129.4	—107.1	+ 13.4	15	— 6	31	27	Calapan	106	—127.8	—146.2	15	—11	54.9	15
Davao	260.5	+144	+ 13.5	18	+ 6	95.5	8	Virac	220.2	—174.5	— 99	19	— 7	66.1	21
Cotabato	357.4	— 46.8	+ 93.2	21	— 3	43.7	14	Naga	134.1	—210.8	—114	19	— 4	37.5	15
Camp Keithley, Lanao	184.1			27		29.2	29	Tigaon	134.1			20		32.6	15
Cagayan, Misamis	149.7	— 19.5		12	— 6	50.8	11	Batangas	241	+ 1.8	+ 25.7	14	— 9	100.3	15
Dapitan	286.6		+ 51	23		50.8	30	Lucena	239.9	+ 8.4		13	— 5	123.5	15
Butuan	153.2	— 41.5	— 8.4	15	—10	46.8	10	Atimonan	254.5	— 82.8	—112.2	19	— 5	103.7	15
Mambajao	109	—195.6		8	— 8	43.2	13	Ambulong, Tanauan	260.6	+ 41.8		13	— 7	97.6	15
Dumaguete	162.3	—197.6		13	—14	44	15	Canlubang, Calamba	348	+141.8		21	+ 1	186.7	15
Yap, W. Carolines	221	+ 11.3	— 33.2	19	— 9	57.4	10	Paracale	193.7	—642.1		19	— 6	78.7	15
Tagbilaran	189.4?	— 26.3	— 72.1	15	0	55.7	11	Santa Cruz, Laguna	218.9	— 64.7		21	— 7	70.6	19
Iwahig	169.6	—111.3		20	+ 1	45.5	14	Manila	323.5	— 17.1	+133.4	18	— 4	194.3	15
Surigao	333.7	+186.3	+ 98.5	17	— 8	76.7	19	Antipolo	421.6	+ 9.4		22	— 3	245.3	15
Masin	132	— 36.9	— 89.8	6	— 5	35.8	20	Iba	256	+ 28.8	+ 76.4	16	— 4	53.8	22
Cebu	43.7	—228.8	—164.8	14	+ 6	13	29	San Isidro	248.6	+ 78.5	+ 67.2	18	— 3	76	22
Iloilo	317.8	— 38.7	+ 56.1	24	+ 5	69.8	16	Tarlac	138.5	— 41.5	— 34.6	11	— 5	48.5	15
San Jose Buenavista	350.1	—132.9	— 4.1	21	— 5	90.2	16	Baler	619.8	+284.6	+237.1	18	— 4	229.3	17
Cuyo	77.4	—343.2	—174.4	16	— 9	17.8	22	Dagupan	173.4	—114.2	— 28.5	19	+ 3	35.3	22
Ormoc	174	— 41.2	— 60.6	14	—11	43.9	20	Bolinao	119	— 20.3	— 62.5	14	— 6	36.9	23
Guiuan	136.3	—195.5		14	—11	39.2	29	Baguio	293.9	+ 82	—126	23	+ 1	78.5	22
Tacloban	103.4	—128.6	— 98.8	14	—11	33.8	17	San Fernando, Union	126.9	— 72.6	— 36.6	16		26.4	4
Capiz	206.6	—282.8	—227.5	20	— 7	78.4	9	Echagüe	214	+ 11.2	— 1.9	24	+ 4	43	17
Borongan	98.9	—208	—209.9	14	—11	15	25	Candon	189.4	+ 47.6	— 7.2	13	0	59.7	22
Catbalogan	118.7	—306.2		16	— 7	40.4	20	Vigan	201.5	+ 80.7	+ 26.1	12	+ 1	61.1	22
Calbayog	62	—283.3	—195.8	17	— 7	13	28	Tuguegarao	476.3	+347	+196.5	13	+ 1	153.8	1
Masbate	62.7	—216.8	— 80.6	14	— 9	12.4	16	Laoag	496.1	+432.9	+224	15	+ 3	147.9	24
Romblon	173.1	—151.3	—126.4	16	—12	69.6	10	Aparri	369.1	+ 80.7	+ 67	24	+ 5	78.5	22
Batag	150.7	—252.3		14	— 6	26.2	28	Cape Bojeador	134.2	— 3.1		11	+ 4	49	22

DEPRESSIONS AND TYPHOONS.

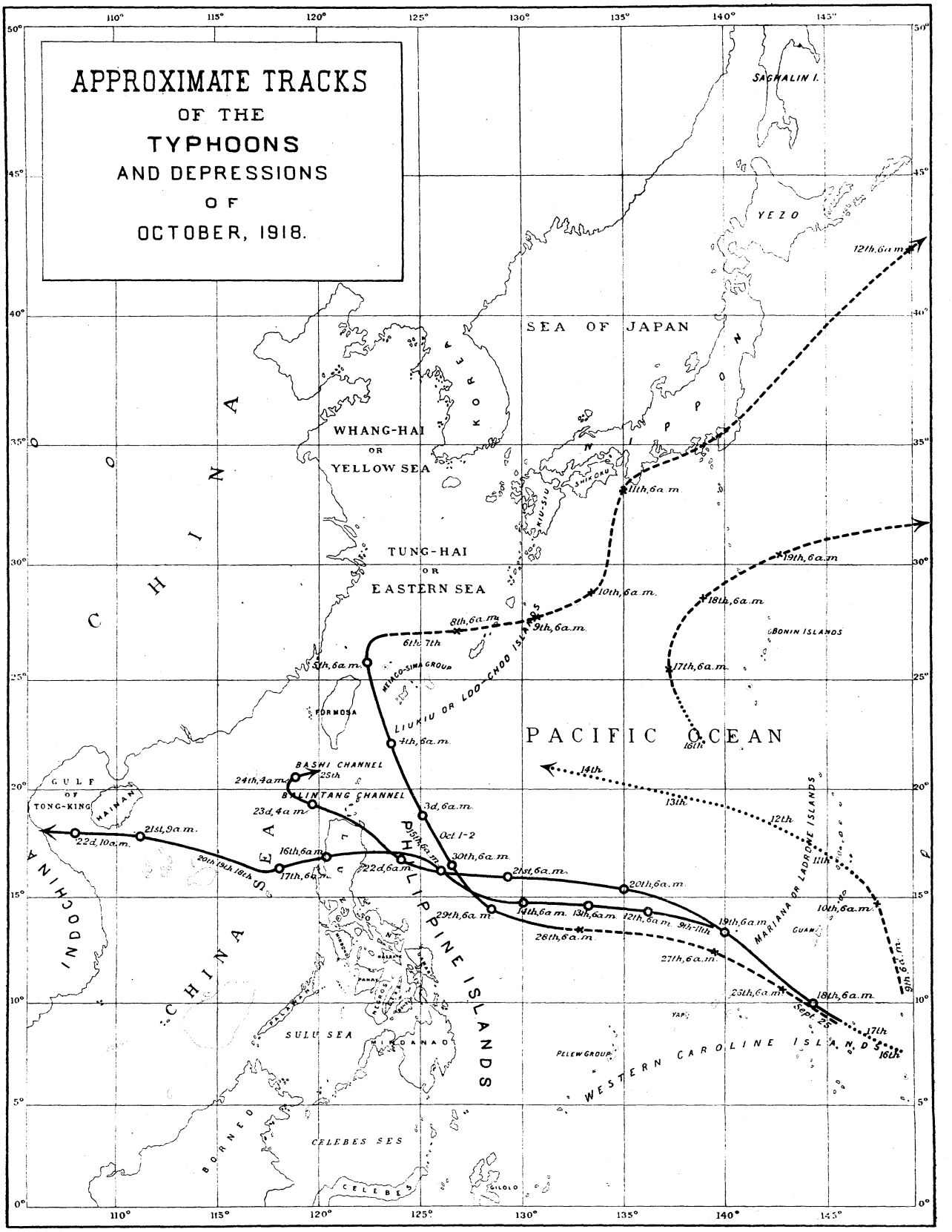
Four or five depressions or typhoons were observed during this month in the Far East. Their tracks may be seen in Plate VIII.

Typhoon of September 25 to October 12, 1918.—This atmospheric disturbance appeared on September 25 to the south of Guam, near 9° latitude N and 145° or 146° longitude E, and it passed between Guam and Yap moving WNW or NW by W on the 26th. On the 27th and 28th the depression moved westward while it was probably increasing in intensity and developing into a real typhoon. On the 29th the typhoon inclined northward to the east of Luzon moving NNW until October 5th when it recurved eastward to the NE of Formosa. After the 5th it appeared only as a depression of little importance.

Two typhoons over northern Luzon, October 9 to 22 and 16 to 24, 1918.—The first of these two typhoons was of no great intensity, at least while crossing Luzon. It seems to have formed on the 9th to 11th to the west of Guam and north of Yap, between 13° and 14° latitude N, and in about 139° longitude E, and it traversed Luzon moving westward during the night of the 15th and the early morning of the 16th. In the China Sea the typhoon moved very slowly for about three days to the east of the Paracels; then it continued moving westward, and finally filled up on the 22d over the southern part of the Gulf of Tongking. Although this typhoon, as stated above, was of no great importance for the Philippines, yet some damage was done by rains and consequent floods in several places of southern Luzon and northern Mindoro.

The other typhoon, although well developed and intense, touched only the northeasternmost part of Luzon, passing to the south of San Vicente, Cabo Engaño, and to the north of Aparri, in the afternoon of the 22d. The barometric minimum at San Vicente was 745.5 mm. with strong squalls and winds veering from NE to E and SE, while the barometric minimum at Aparri was 745.6 mm. with strong winds backing from NNW to

Plate VIII.


APPROXIMATE TRACKS
OF THE
TYPHOONS
AND DEPRESSIONS
OF
OCTOBER, 1918.
SAGHALIN I.
YEZO
SEA OF JAPAN
JAPAN
KOREA
WHANG-HAI
OR
YELLOW SEA
CHINA
TUNG-HAI
OR
EASTERN SEA
PACIFIC OCEAN
FORMOSA
LIUKIU OR LOO-CHOO ISLANDS
MEIACO-SIMA GROUP
BASHI CHANNEL
BALINTANG CHANNEL
GULF OF TONG-KING
HAINAN
CHINA SEA
PHILIPPINE ISLANDS
INDO CHINA
SULU SEA
MINDANAO
BORNEO
CELEBES SES
CELEBES
GILOLO
PELEW GROUP
WESTERN CAROLINE ISLANDS
YAP
GUAM
MARIANA OR LADRONE ISLANDS
BONIN ISLANDS
12th, 6a.m.
11th, 6a.m.
10th, 6a.m.
9th, 6a.m.
8th, 6a.m.
6th, 7th
5th, 6a.m.
4th, 6a.m.
19th, 6a.m.
18th, 6a.m.
17th, 6a.m.
16th
14th
13th
12th
11th
10th, 6a.m.
9th, 6a.m.
24th, 4a.m.
25th
23d, 4a.m.
3d, 6a.m.
Oct 1-2
30th, 6a.m.
21st, 6a.m.
20th, 6a.m.
29th, 6a.m.
14th, 6a.m.
13th, 6a.m.
12th, 6a.m.
9th-11th
19th, 6a.m.
28th, 6a.m.
27th, 6a.m.
25th, 6a.m.
18th, 6a.m.
Sept 15
17th
16th
22d, 10a.m.
21st, 9a.m.
20th
19th
18th
17th, 6a.m.
16th, 6a.m.
22d, 6a.m.
15th, 6a.m.

W and SW. The observations at San Vicente were made on board the steamship *Isidoro Pons* by Captain Gerardo Rosés. The existence of this typhoon over the Pacific was clearly shown by the observations of Guam and Yap as early as the afternoon of the 17th, its center being then situated south of Guam near 9° latitude N and 146° longitude E. The typhoon moved northwestward on the 17th and 18th, but inclined decidedly westward on the 19th, and moved almost due west on the 20th and 21st. On the 22d it took again a northwest, and then a westnorthwest direction, until finally it recurved ENE to the west of Balintang Channel on the 23d to 24th, and gradually filled up on the 25th near Bashi Channel. The observations taken on board the steamship *Ecuador* near the center of this typhoon west of the Balintang Channel may be interest to our readers. They are embodied in the following table:

METEOROLOGICAL OBSERVATIONS MADE ON BOARD THE STEAMER "ECUADOR," OCTOBER 22 TO 24, 1918.

[Captain NELSON.]

Date and hour.	Position.		Pressure.	Wind.		Date and hour.	Position.		Pressure.	Wind.	
	Latitude north.	Longitude east.		Direction.	Force.		Latitude north.	Longitude east.		Direction.	Force.
	° ′	° ′	*mm.*		*0–12.*		° ′	° ′	*mm.*		*0–12.*
October 22:						October 23:					
7.10 p. m			755.38			8 p. m			747.25	SSE	12
9.25 p. m			54.37			12 midnight			46.75	SSE	12
12 midnight	20 30	119 22	51.32	NNE	6	October 24:					
October 23:						4 a. m			46.24	S	12
12.30 a. m			48.78	NE	11	8 a. m			47	SWbyS	12
4 a. m			45.48	NE	11	Noon	19 42	119 21	46.24	SWbyW	12
8 a. m			47	ENE	11	4 p. m			46.75	WSW	12
Noon	20 22	119 34	46.75	ESE	11	5 p. m			Raising		
4 p. m			44.71	SSE	12	12 midnight			56.40		

Two depressions or typhoons over the Pacific, October 9 to 19, 1918.—Lack of sufficient information from the Pacific prevents us from giving as certain the tracks of these two depressions or typhoons. There is not even a possibility to ascertain whether there were two depressions, as it is supposed in Plate VIII, or only one that recurved northeastward to the southeast of the Loochoos.

NOTAS GENERALES DEL TIEMPO.

Presión y temperatura.—A excepción de unas cuantas estaciones en el N de Luzón, la presión atmosférica media de este mes en Filipinas es mayor que la del año pasado, aunque es menor que la normal en todo Luzón y en la parte septentrional de Visayas. Las presiones más altas se registraron el día 27, y las más bajas el 15 y 16.

La temperatura media mensual es ligeramente mayor que la de octubre de 1917 y que la normal de este mes en el S de Luzón, en Visayas y Mindanao, al paso que es ligeramente menor en el N de Luzón. Las temperaturas extremas del mes en Manila fueron 32.9° C. y 21.2° C., observadas los días 27 y 17, respectivamente. Las temperaturas máxima y mínima absolutas en Baguio fueron 24.8° C., 13.8° C. en la cumbre del Mirador, y 25.8° C., 12.9° C. en el valle.

Precipitación acuosa.—La lluvia total del mes es generalmente menor que la del año pasado, y menor también que la normal de octubre en nuestras estaciones de Visayas, mientras que en una gran mayoría de nuestras estaciones de Mindanao fué mayor que la normal, pero menor que la lluvia total de octubre de 1917. En cuanto a Luzón, la tabla que publicamos en el texto inglés demuestra que el número de estaciones que registraron una cantidad total de lluvia mayor que la normal es casi igual al número de estaciones que dieron menor cantidad de agua.

DEPRESIONES Y TIFONES.

Cuatro o cinco depresiones o tifones se observaron durante este mes en el Extremo Oriente. Sus trayectorias pueden verse en la Lámina VIII.

Tifón de 25 de septiembre a 12 de octubre de 1918.—Esta perturbación atmosférica apareció el 25 de septiembre al S de Guam, cerca de 9° latitud N y 145° ó 146° longitud E, y pasó entre Guam y Yap, moviéndose al WNW o NW¼W el día 26. El 27 y 28 la depresión se movió al W á medida que iba probablemente aumentando en intensidad y adquiriendo el desarrollo de un verdadero tifón. El 29 el tifón se inclinó al N cuando se hallaba al E de Luzón, moviéndose al NNW hasta el 5 de octubre en que recurvó al E en dirección a las Islas Loochoos. Después del 5 apareció solo como una depresión de poca importancia.

Dos tifones en el N de Luzón, octubre 9 al 22 y 16 al 24, 1918.—El primero de estos dos tifones fué de no mucha intensidad, al menos mientras cruzaba Luzón. Parece haberse formado del 9 al 11 al W de Guam y N de Yap, entre 13° y 14° latitud N, y en los alrededores de 139° longitud E, y atravesó Luzón, moviéndose al W, durante la noche del 15 y la madrugada del 16. En el Mar de China el tifón se movió muy lentamente durante unos tres días al E de Paracels; luego continuó moviéndose al W y finalmente se deshizo el 22 en la parte meridional del Golfo de Tongking. Aunque este tifón, como se ha dicho arriba, fué de poca importancia para Filipinas, con todo causó algunos daños en varias partes del S Luzón y N de Mindoro, por las lluvias que ocasionó y las consiguientes inundaciones.

El otro tifón, aunque bien desarrollado e intenso, sólo llegó a tocar el extremo NE de Luzón, pasando por el S de San Vicente, Cabo Engaño, y por el N de Aparri, la tarde del día 22. La mínima barométrica en San Vicente fué 745.5 mm. con fuertes chubascos y vientos que rolaron del NE al E y SE, al paso que la mínima barométrica en Aparri fué 745.6 mm. con vientos fuertes que rolaron del NW al W y SW. Las observaciones en San Vicente se hicieron a bordo del vapor *Isidoro Pons* por el capitán Gerardo Rosés. La existencia de este tifón en el Pacífico se echó de ver claramente por las observaciones de Guam y Yap del día 17, hallándose entonces su centro al S de Guam cerca de 9° latitud N y 146° longitud E. El tifón se movió al NW el 17 y 18, pero se

inclinó decididamente al W el 19 y se movió casi directamente al W el 20 y 21. El 22 volvió a dirigirse al NW, luego al WNW, hasta que por fin recurvó al ENE por el W del Canal de Balintang los días 23 y 24, y se deshizo gradualmente el 25 cerca del Canal de Bashi. Las observaciones hechas a bordo del vapor *Ecuador* cerca del centro de este tifón al W del Canal de Balintang podrán ser de interés para nuestros lectores, y así las insertamos en el texto inglés.

Dos depresiones o tifones en el Pacífico, octubre 9 al 19, 1918.—La falta de suficiente información del Pacífico nos impide dar como ciertas las trayectorias de estas dos depresiones o tifones. Ni aun posibilidad hay para determinar con certeza si hubo dos depresiones, como se supone en la Lámina VIII, o más bien una sola que recurvó al NE por el SE de Loochoos.

METEOROLOGICAL DATA FOR MANILA CENTRAL OBSERVATORY.[a]

[ϕ=14° 34′ 41″ N; λ=120° 58′ 33″ E; barometer above sea, 14.2 meters; gravity correction not applied, —1.72 mm.]

Day.	Pressure (mean).	Air temperature.[b] Mean.	Maximum.	Minimum.	Underground temperature. 0.25 meter. 8 a.m.	0.25 meter. 2 p.m.	0.50 meter. 8 a.m.	0.50 meter. 2 p.m.	1.50 meters. 8 a.m.	2.50 meters. 8 a.m.	Relative humidity (mean).	Vapor pressure (mean).	Radiation. Minimum on grass.	Radiation. Maximum in sun. Black bulb in vacuo.	Evaporation.[b] Free exposure (total).	Shelter (total).
	mm.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	*Per ct.*	*mm.*	°C.	°C.	*mm.*	*mm.*
1	755.57	27.6	30.4	24.4	29.8	30.2	30.4	30.3	29.5	28.3	81.1	22.1	23.3	46	5.6	4.3
2	54.47	28.9	31.9	27.1	29.2	30.5	30.2	30.2	29.6	28.3	75.2	22.2	25.9	56.6	6.7	4.5
3	54.31	28.4	31.5	26.2	29.5	30.4	30.1	30.4	29.6	28.3	75.9	21.8	25.8	55.1	4	2.7
4	56.89	27.2	30.7	24.8	29.5	30.4	30.1	30.1	29.6	28.4	85.2	22.7	24.5	51.2	2.1	1.7
5	59.32	26.3	29.7	24.2	29.3	29.8	30	30.1	29.5	28.3	88.8	22.5	23.6	51.4	1.8	1.4
6	59.70	27.1	31.5	23.5	29.1	30.3	30	30	29.5	28.5	86.6	22.8	22	53.3	3.1	2
7	58.94	27.4	31.6	24	29.5	30.5	30	30.1	29.6	28.4	85.6	23	22.5	56	3.2	1.8
8	59.31	26.7	31.6	24.1	29.6	30.7	30.1	30.3	29.6	28.5	87.2	22.6	22.8	54	2.2	1.4
9	59.55	26.1	31.6	22.7	29.4	30.3	30.1	30.2	29.6	28.4	86.6	21.6	21.2	56.3	2.4	1.6
10	59.46	24.9	27.2	23	29.3	29.5	30	30	29.5	28.4	91.8	21.5	22	------	.2	.5
11	59.19	25.2	31.4	22.2	28.5	29.7	29.8	29.8	29.5	28.4	89	21.1	21	55	2.2	1.3
12	59.39	25.7	30.4	23.2	29	29.5	29.9	29.8	29.7	28.4	88.4	21.5	22	57	1.7	1.9
13	58.94	25.9	29.7	22.9	29.1	29.5	29.7	29.9	29.6	28.5	85.9	21.2	21.4	49.8	2.2	1.7
14	57.22	26.5	31.5	23	28.9	29.9	29.8	29.8	29.7	28.5	84.4	21.6	21.3	50.3	3.4	3
15	53.62	24.7	27.3	23.5	28.8	28.9	29.8	29.7	29.6	28.4	92.6	21.5	22.1	28.7	.3	.6
16	52.11	25.5	28.3	23	27.1	27.4	28.2	28.3	29.6	28.4	85.6	20.8	22.3	39.4	2.1	1.9
17	55.09	24.8	28.2	21.2	26.7	27.2	28.2	28.4	29.5	28.3	92.4	21.5	20.3	40.4	.4	.8
18	56.11	26.3	28.7	24.4	27	27.6	28.1	28.2	29.5	28.5	91.4	23.2	23.3	40.2	.7	.5
19	57.23	25.6	31.3	23.9	27.6	27.8	28.4	28.1	29.5	28.5	92.9	22.5	23.8	53.1	.6	.5
20	58.03	26.6	31.3	23.5	27.5	28.4	28.4	28.5	29.5	28.5	87.7	22.6	22.1	55.8	2.3	1.5
21	56.94	27.3	31.7	24	28.2	28.9	28.6	28.8	29.4	28.5	85	22.7	23.1	55.3	3.5	2.5
22	54.51	26.5	30.6	24.8	28.5	28.9	29	29	29.4	28.4	87.1	22.4	23.6	52.5	1.5	1.9
23	58.01	26.1	30.9	23.3	28	28.8	29	29	29.4	28.5	87.1	21.9	22.2	55.7	1.9	1.2
24	59.18	26.6	30.8	22.8	28.1	29.1	29	28.9	29.5	28.5	87.9	22.7	21.2	52	3.1	1.7
25	59.22	26.8	31.3	23.5	28.5	29.3	29	29.1	29.3	28.4	85.4	22.2	------	56.2	3.2	1.9
26	60.55	27.2	32.8	23.1	28.5	29.5	29.2	29.4	29.4	28.5	82.7	21.8	21.7	53.8	3.7	2.2
27	62.07	26.6	32.9	22.3	28.9	29.7	29.4	29.5	29.3	28.5	82.9	21.1	19	54.5	4.1	3
28	61.94	25.9	31.4	23	28.7	29.4	29.5	29.4	29.3	28.5	86.3	21.2	20.8	51.3	2.2	1.7
29	60.50	26	32.6	22.1	28.5	29.4	29.4	29.6	29.3	28.5	80.8	19.8	20	54.8	4.6	2.9
30	59.60	26.1	31.7	21.5	28.3	29	29.3	29.5	29.3	28.4	85	21.3	19.7	56.5	2.8	1.9
31	60.28	26.2	31.2	22.8	28	29.1	29.2	29.4	29.3	28.4	87.5	22	21	48.3	1.7	1.5
Mean	757.98	26.4	30.8	23.5	28.6	29.3	29.4	29.5	29.5	28.4	86.2	21.9	22.2	51.4	2.6	1.9
Total	------	------	------	------	------	------	------	------	------	------	------	------	------	------	79.5	58
Departure from normal	—0.62	—0.2	—0.3	+0.4	------	------	------	------	------	------	+2.3	+0.3	------	------	------	------

Day.	Wind. Prevailing direction.	Total movement.	Maximum hourly velocity.	Direction at the time of the maximum velocity.	Clouds. Amount (mean).	Form and direction. Upper.	Lower.	Sunshine.	Rain, 24 hours beginning 6 a.m. On the tower.	In the park.	Miscellaneous.
		Km.	*Km.*		*0–10.*			*h.* *m.*	*mm.*	*mm.*	
1	W	370.5	28.5	W, WbyN	9.9	A.-Cu. NW	Cu. WNW	0 00	------	------	↙° p.
2	W, WNW	528.5	28	W, WSW	8.6	Ci.-S. NNE	Cu. NW	6 05	------	------	┼ p.
3	SW	515.5	28.5	WbyN	7.8	Ci.-S. NE	Cu. NW	3 35	1.5	1.8	↙° a.
4	SSW	367.5	25	SW	9.2	Ci.-S.	Cu. WSW	1 25	5.9	6.1	●° a. ● p.
5	SW quad.	243	29	WSW	10	Ci.-S.	S.-Cu. WSW	0 00	6.8	6.9	┼° ● a. ↙° p.
6	WSW	206.5	26	SWbyW	4.8	Ci.	Cu. W	10 15	------	------	
7	SW	141	13.5	SW	8.3	Ci.-S. NE	Cu. WNW	4 40	------	------	⊕ a.
8	E quad.	94.5	15	SSW	8.4	Ci.	Cu. EbyN	5 45	------	------	┼ ⌐ d° p.
9	E quad.	100	13	WNW	7.2	Ci.	Cu.-N. ESE	6 00	------	------	⌐ p.
10	NE	67.5	6	NE	9.9	Ci.-S.	N. ESE	0 00	2.1	2	d a. p. ◠° p.
11	E quad.	121.5	13.5	SW, ESE	6	Ci.	Cu. NE	6 30	3.9	4.1	d a. ● ⌐ ◠ p.
12	SW quad.	76	12	WSW	8.1	A.-Cu. NE	Cu. E	4 15	14.5	13.9	≡° a. p ●² p.
13	WSW	83.5	11	WSW	8.9	Ci.-S.	Cu., Cu.-N. NW	1 55	.5	.9	⊕ a. p.
14	SW quad.	180.5	17.5	WSW	6.4	A.-Cu. ENE	Cu. NE	7 20	------	------	d a.
15	SW quad.	258	30	W	10	Ci.-S.	N. SW	0 00	194.3	195.1	● a. ●² ≤ p.
16	SE	255	21	E	10	Ci.-S.	Cu. SSE	0 00	6.4	6.4	●² a. d° p.
17	ESE, SE	294	26	ESE	10	Ci.-S.	N. SW, SSE	0 00	25.6	26.5	● a. p.
18	ESE	121	11	SE	10	Ci.-S.	N.-cf. SSW, SW	0 00	2	2.1	●° a. d p.
19	E quad.	113	21.5	SSW	9.3	A.-Cu. E	Cu. SSW	2 40	27.2	26.7	● ⌐ a. ●² p.
20	W quad.	91	12.5	WbyS	6.8	Ci.-S.	Fr.-S. WSW	5 30	3.3	2.2	≡° d ⊕° a.
21	NW, NNW	223	22	SW	6.7	A.-Cu. E	Cu. NNE	7 55	------	------	●° a.
22	SW	528	47	SW	9.6	A.-Cu. N, NW	Cu. W, WSW	1 20	18.2	18.8	● ↙ p.
23	SW quad.	371	31	SWbyW	9.1	A.-Cu.	Cu. SW	2 45	5.8	6.1	●° a. ● p.
24	SW quad.	206	21	SW	3.1	A.-Cu.	Fr.-Cu. SW	10 05	.3	.3	d ◠ a. ≤ p.
25	WSW	145	16	WSW	7.3	A.-Cu. ENE	Cu. W	6 05	------	------	Ω a.
26	SE	123.5	14.5	SE	4.5	Ci.	Cu. ENE	8 30	------	------	Ω a. ≤° p.
27	NE	138.5	16	ENE	4.1	Ci.	Cu. ENE	9 05	------	------	
28	NE quad.	99.5	9.5	N	6.2	Ci.	Cu. E	7 40	2.6	3	d° a. ●° ≤ p.
29	NE	111.5	14	NE	3.2	Ci.	Cu. E	9 00	------	------	
30	NE	103	13.5	W	5.6	Ci.-Cu. ESE	Cu. E	7 20	------	------	
31	NW quad.	71.5	9	ESE	7.2	Ci.	Cu. E	4 35	2.6	3	Ω°≡°a. ●°a.p. ⌐
Mean	------	204.8	19.4	------	7.6	------	------	4 31	------	------	
Total	------	6,348.5	------	------	------	------	------	140 15	323.5	325.9	
Departure from normal	------	+869.8	------	------	+0.8	------	------	—25 17	+133.4	------	

[a] All the mean values given in this table are deduced from hourly observations.
[b] These values are taken from instruments mounted in the Observatory Park, 1.5 meters above ground.

METEOROLOGICAL DATA FOR MIRADOR OBSERVATORY, BAGUIO.[a]

[ϕ=16° 25′ N; λ=120° 36′ E; barometer above sea, 1,512.5 meters; gravity correction not applied, —1.65 mm.]

Day.	Pressure[b] (mean).	Air temperature at Mirador (on the top of the mountain).					Air temperature in the valley (near the city hall).				Relative humidity (mean).	Vapor pressure (mean).	Radiation.		Evaporation.	
		Mean.	Maximum.	Hour.	Minimum.	Hour.	Maximum.	Hour.	Minimum.	Hour.			Minimum on grass.	Maximum in sun. Black bulb in vacuo.[c]	Free exposure (total)	Shelter (total)
	mm.	*°C.*	*°C.*		*°C.*		*°C.*		*°C.*		*Per ct.*	*mm.*	*°C.*	*°C.*	*mm.*	*mm.*
1	633.78	17.8	21.8	0.05p.	15.7	4.00a.	23.3	11.00a.	15.8	6.00a.	92.3	14	15	51.7	1.5	0.9
2	32.85	17.4	22.1	11.20a.	15.7	6.00a.	22.4	11.05a.	15.7	3.00a.	93.3	13.8	14.6	57.8	1	.6
3	32.27	16.9	19.3	Noon	16	4.00a.	20.5	11.35a.	16.2	4.20a.	98	14	16	39.6	0	0
4	34.41	17.3	19.8	0.25p.	15.8	3.20a.	20.5	10.40a.	15.8	3.00a.	99.3	14.6	15.2	47.8	0	0
5	36.69	17	20.2	1.05p.	16	11.25p.	21.2	1.05p.	16.2	12 m. n.	98.3	14.2	16.2	47.9	0	0
6	37.44	17.9	21.9	10.30a.	15.9	3.00a.	22.6	10.55a.	15.6	3.25a.	94.5	14.4	14.5	57.1	.3	.2
7	36.86	17.9	22.1	10.40a.	16.2	12 m. n.	23	1.15p.	15.8	12 m. n.	96.2	14.7	15	56.9	.8	.3
8	37.10	17.6	23.4	1.40p.	15.3	11.40p.	23.7	1.25p.	14.4	11.20p.	94.5	14.1	14.3	60	1.3	.9
9	37.26	17.6	23.2	0.40p.	15.4	0.50a.	24.2	1.10p.	14.2	2.20a.	91	13.7	13	58.2	1.5	.7
10	36.97	17	23.2	0.05p.	14.9	6.00a.	23.6	1.30p.	14.5	6.05a.	93.2	13.4	13	62	1.2	.7
11	36.64	17.5	22.9	1.30p.	14.4	6.00a.	24	1.00p.	13.3	5.10a.	91.2	13.6	12.8	59	1.6	.9
12	36.98	16.3	20.4	9.00a.	14.9	5.40a.	21.6	0.55p.	14.5	6.25a.	95	13.1	12.3	46.1	.4	.3
13	36.58	17.2	22.6	0.35p.	14.4	6.10a.	23.5	2.30p.	13.2	6.00a.	91.8	13.4	12.6	62	1.5	.8
14	35.31	16.8	21.4	11.40a.	13.9	6.00a.	23.2	1.20p.	13.2	6.00a.	90.2	12.8	11.1	58.5	1.9	1.1
15	32.03	17.4	21.1	8.50a.	14.3	2.55a.	20.7	10.35a.	13.9	5.55a.	93.8	13.9	13.6	55.1	.5	.2
16	30.31	17.4	19.3	2.25p.	14.9	12 m. n.	20.4	2.35p.	15.2	12 m. n.	94.2	13.9	13.6	45.1	2.5	1.3
17	32.39	15.5	16.8	11.20p.	13.8	5.00a.	18.1	11.40p.	14.1	5.20a.	97.8	12.8	13.7	29.4	0	0
18	33.85	16.9	17.8	1.25p.	15.9	1.00a.	18.9	1.40p.	15.6	2.00a.	98.3	14.1	13.3	30.4	1	.2
19	35.37	17.3	18.5	2.00p.	16.2	11.20p.	19.4	3.40p.	16	12 m. n.	97.2	14.3	16	32.7	1.4	.6
20	36.18	18.4	23.3	1.20p.	16.3	0.10a.	23.4	1.40p.	15.2	4.30a.	89.5	14.2	14.7	54.2	1.5	1
21	35.55	18.2	23.5	Noon	15.7	5.55a.	24.1	Noon	14.7	6.30a.	91.3	14.2	13	58.4	1.5	.8
22	32.26	18.3	23.3	11.35a.	16	6.25a.	23.4	10.20a.	16.1	2.20a.	93.3	14.6	14.2	59.6	1.1	.5
23	34.75	16.6	17.9	1.30p.	15.5	12 m. n.	19.2	9.40a.	15.7	12 m. n.	97.3	13.7	16	36	.7	.3
24	36.69	16.1	18.1	2.45p.	14.9	4.10a.	19.4	1.35p.	15.2	5.00a.	97.2	13.2	14.2	34.5	0	0
25	36.50	16.3	19.3	10.25a.	15.1	11.25p.	20.3	10.35a.	15.2	6.00a.	95.2	13.1	15	51.7	.7	.6
26	38.10	17.5	23.3	2.40p.	14.4	6.00a.	24.4	2.50p.	14.9	6.00a.	85.7	12.6	13	52.7	5.3	2.6
27	39.65	18.9	24.3	0.40p.	16	5.40a.	25.2	11.30a.	15	12 m. n.	76	12.2	13.2	57	6.7	3.1
28	39.37	18.8	24.8	10.55a.	15	4.05a.	25	11.20a.	13.4	5.35a.	70.5	11.3	10.7	59.2	6.5	3.4
29	38.18	18.2	24.3	10.20a.	14.5	2.05a.	25.8	0.05p.	13.4	5.10a.	73.2	11.4	11.5	55.3	5	5
30	37.72	18.4	22.5	10.05a.	14.6	1.10a.	24.5	10.50a.	12.9	3.10a.	77.5	12.2	11	53.6	6.8	3.2
31	38.22	18.3	24.4	0.10p.	16	4.40a.	25.5	0.20p.	15	12 m. n.	80.7	12.5	13.9	55	4.5	2.2
Mean	635.75	17.4	21.5		15.3		22.4		14.8		91.2	13.5	13.7	51.1	1.9	0.9
Total															58.7	29.4

Day.	Wind.				Clouds.			Sunshine.	Rain, 24 hours beginning 6 a. m.	Miscellaneous.
	Prevailing direction.[d]	Total movement.	Maximum hourly velocity.	Direction at the time of the maximum velocity.	Amount (mean).	Form and direction. Upper.	Lower.			
		Km.	*Km.*		*0–10.*			*h. m.*	*mm.*	
1	W, NW	461.6	34.1	NE	8.1	Ci.-S.	Cu.-N. NbyW	3 20	6.3	≡° a. ⌒° ● ≡² p.
2	NW	587.7	34.8	N	8.3	Ci. NNE	Cu.-N. NbyW	3 35	11.9	● ≡² p.
3	NW	465.4	26	NW	10		Cu.-N. NNW	0 00	16.8	≡² ● a. p.
4	W, SW	396.7	30.1	SW	10		N.	1 10	15.5	● a. ≡² a. p. ●° p.
5	W	326.2	28	SW	10	Ci.-S.	Cu.-N. SbyW	0 10	7.2	d° a. ≡² a. p. ● p.
6	W	163	15	NW	9.4	Ci.-S.	Cu.-N. SW	1 00	10.7	d ≡ a. ● ≡² p.
7	W quad.	211.2	18	W	7.4	Ci., Ci.-S.	Cu.-N. W	2 50	4.4	≡ d° a. ● ≡² p.
8	E, W	264.9	19.3	W	7	Ci.	Cu.-N. SE	4 55	27.9	≡² a. ≡ ● d p.
9	Variable	212.5	18.2	E	6	Ci.	Cu. SE	3 45		≡° a. p. ⌐ d p.
10	N quad.	204.9	18.8	W	6.9	Ci.	Cu.-N. NNE	5 35	1.3	Ω² a. ●° ≡ p.
11	SW, NE	211.2	16.1	SW	6.6	Ci.	Cu.-N. SE	6 35	15.5	Ω ≡° a. ● ≡² p.
12	Variable	161.7	14.7	W	8.6	Ci.-S.	Cu.-N. NE	0 55	.6	≡ a. ⌐ ≡² d ⌒² p.
13	W quad.	196	17.1	W	6	Ci. WNW	Cu.-N. NE, NWbyN	6 50		
14	W quad.	206.7	17.2	SW, W	5.3	Ci. ENE	Cu.-N. WNW, WSW	6 15		Ω² a. ≡° p.
15	NW quad.	326.5	27.9	NW	9.3	Ci.-S.	Cu.-N. WNW	1 00	8.7	Ω ≡° a. ●° ≡² p.
16	E	728.1	65	E	9	Ci.-S.	cu.-N. variable	1 00	12.9	↙ ● ≡² ↙° a. ↙ p.
17	E	1,085.5	57.4	E	9.9	Ci.-S.	N. E, SbyE	0 00	24.9	↙ d² a. ↙° ● ≡² p.
18	E, SE	813.1	44.8	E	9.6	Ci.-S.	N.	0 00	9.6	● ↙° ≡² a. ⌒ ≡ d p.
19	E	600.9	40	SE	10	Ci.-S.	N. SSE	0 00	4.6	●° ≡° a. ● ≡ p.
20	SE, W	284.8	24.3	SE	8.6	Ci.-S.	Cu.-N. SE	1 55	1.3	d a. ●° ≡² p.
21	W quad.	224.2	16.6	W	6.6	Ci.-S.	Cu.-N. NEbyN	5 15	3.6	Ω ≡° a. ≡² p.
22	W	344.9	25.5	W	8.9	A.-Cu.	Cu.-N. N quad.	2 45	78.5	● ≡² a. p.
23	SW	463.9	33	W	10		N. SSW	0 00	8.5	≡ a. ↙° ● a. p. ≡² p.
24	W	552.4	31.2	W	9.9		Cu.-N. W, SSW	0 00	21.4	↙° ●° ≡² a. ● ≡ p.
25	W	406.5	26.6	W	9.3	Ci.-Cu., A.-Cu.	Cu.-N. WSW	0 55	1.5	●° a. ≡² a. p.
26	E	589.2	31.1	E	1.6	Ci.	Cu.-N. SSE	6 35	.3	Ω a. ●° ⌐ p.
27	SE, E	293.7	30	E	1.6	Ci.	Cu. SE, E	8 00		
28	SE, E	282.7	24.1	E	4	Ci.	Cu. E	6 35		Ω° a. ≡° d° ⌐ p.
29	E	335.5	23.6	E	2.9	Ci.	Cu. SE	7 20		≡² p.
30	E	404.6	31.6	E	1.4	Ci.	Cu. E	5 00		Ω a.
31	E	313.7	27.2	E	3.1	Ci.	Cu. E	4 30		⌐ p.
Mean		391	28		7.3			3 09		
Total		12,119.9						97 45	293.9	

[a] All the mean values given in this table are deduced from six daily observations taken at 2, 6, 10 a. m. and 2, 6, 10 p. m.
[b] The barometric readings of this station are not reduced to sea level.
[c] Maximum of hourly observations taken from 6 a. m. to 6 p. m.
[d] This element is based on hourly observations taken from a quadruple register, which gives only eight possible directions of the wind.

DAILY RAINFALL AT THE STATIONS OF THE WEATHER BUREAU, OCTOBER, 1918.

Station.	Day of month.															
	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.
	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.
Jolo	1.8	.....	.....	4.8	49.8	.....	.....	.....	.....	5.3	4	.....	3	6.9	.....	.....
Isabela, Basilan	12.7	6.3	.....	.....	1	.....	0.5	.....	.....	13.9	8.6	6.1	1.3	10.2	1.5	.....
Basilan Plantation, Isabela (Basilan) Office[a]	12.7	9.1	.....	.....	.....	.....	.....	.....	.....	26.4	10.4	.....	.....	17.3	.....	.....
Zamboanga	9.7	2.8	.....	.....	.....	4.3	.....	.....	.....	19.3	4.3	.3	6.1	12.8	15	3.8
Davao	.....	.....	7.1	.....	.....	8.6	20.8	95.5	6.6	13.2	5.8	.....	.....	.....	2.5	.....
Cotabato	31.2	42.6	.....	.....	.....	.....	.....	10.9	5.1	22.9	12.2	37.8	31	43.7	25.6	31
Camp Keithley, Lanao	21.3	4.3	.4	.....	.5	.....	.....	1.3	.3	.3	9.9	19.6	7.4	3.7	12.2	12.4
Cagayan, Misamis	1.3	1.3	.....	.....	.....	3	.8	32	.....	26.4	50.8	4.8	6.4	3.8	.....	.....
Dapitan	13.2	8.6	.....	.....	7.9	.....	2.5	.....	.....	6.1	7.1	5.6	20.1	31.5	8.9	1.5
Butuan	1.3	.....	.....	.....	31.7	.....	.....	2	7.6	46.8	40.6	.....	1.8	.....	.3	.....
Mambajao	5.6	2.5	.....	.....	.....	.....	6.1	2	.....	29.2	4.1	.....	43.2	.....	.....	.....
Dumaguete	21.3	11.6	2	.....	.....	.....	.....	.....	.....	12.4	15.5	25.7	.....	11.4	44	9.1
Yap, Western Carolines	.....	.....	.....	.....	7.6	.....	1.5	.....	7.9	57.4	22.6	7.1	.....	24.2	.5	1
Tagbilaran	3.8	2.7	1.1	.....	.....	.....	.....	.....	.....	.4	55.7	5.9	39.2	.....	3	3.9
Iwahig	5.3	16.2	10.7	8.2	.....	.....	.....	1.8	.5	.5	.3	.5	3.3	45.5	19	11.1
Surigao	.....	.....	.....	.....	.....	.....	.....	.....	.8	17.1	7.9	47.2	57.4	10.7	.8	.....
Maasin	.....	.....	.....	.....	.....	.....	.....	.....	.....	16.3	14	.....	29.5	.....	.....	19.6
Cebu	.....	.....	.....	.....	.....	.....	.....	3.1	5.6	2.8	2.4	3	.....	.....	.3	.5
La Carlota, Occidental Negros[a]	24.7	41.2	9.4	.....	.....	.....	.....	4.1	1	.....	23.1	.....	7.4	3.6	17.3	7.6
Iloilo	12.5	18.8	41.2	16.5	.....	.....	.....	.8	.....	8.4	4.1	13.7	1	.5	.3	69.8
San Jose Buenavista	3.8	30.3	63.2	12.5	1.5	.....	.3	.....	.....	5.3	.5	.....	1.8	19.3	2.1	90.2
Cuyo	.....	2.6	2.3	.5	.....	.....	.....	1.3	.....	1.8	.8	5.1	5.1	11.4	1	3
Lucena, Iloilo[a]	4.8	5.3	64	23.1	.....	.....	.....	.....	.....	.....	17.5	27.7	.....	.....	.....	147
Ormoc	.8	.....	.....	.....	.....	.....	15.2	8.9	.....	.....	13	.....	1.3	13.2	.....	1.3
Guiuan	.....	.....	.....	.....	.....	.....	.....	.....	3.3	3.8	9.7	11.7	.....	12.7	.....	.....
Dueñas, Iloilo[a]	1.3	6.4	15.7	18.3	.....	.....	7.1	.....	2.5	.....	11.4	2.5	.....	5.8	.....	50.8
Bitaogan, Iloilo (Railroad Iloilo to Capiz)[a]	.....	2	13.2	3.3	.....	.....	.....	13.2	.....	6.9	25.9	6.1	.....	.8	.....	45.2
Lapus, Iloilo (Railroad Iloilo to Capiz)[a]	21.6	21.1	114.1	5.1	.....	.....	.....	.3	7.1	6.6	16.8	1.3	.5	1	114.3	1
Tacloban	.....	.....	.....	.....	.....	.....	.....	1.8	2	3.5	2.6	.....	3	.3	.....	.....
Dumarao, Capiz[a]	.....	.....	6.1	2.5	.....	2.5	.....	.....	.....	5.1	.....	7.6	.....	.....	.....	25.4
Dao, Capiz[a]	.....	2.3	.8	.8	.....	.....	.....	2.5	3	10.1	3.8	9.4	7.6	7.4	.....	12.2
Capiz	.....	2.8	.3	.3	.....	.....	.....	.5	78.4	44.4	3.6	.8	2.3	.....	.....	12.6
Borongan	.....	.....	.....	.....	.....	.....	.....	.....	8.1	7.4	.....	8.4	.....	.....	.....	.....
Catbalogan	1.5	.....	.....	.....	.....	.....	.....	14	.5	2.8	3.8	1	.....	.....	.....	.....
Calbayog	.....	9.7	.8	.....	.....	.....	.....	.....	.....	2.6	.....	.5	2.3	.....	.....	1.8
Masbate	.....	.....	.....	3.3	.....	.....	.5	.....	.....	8.4	.3	.....	.....	.....	.8	12.4
San Jose Estate, J. Abello D-13, Mindoro[a]	.....	68.3	143.8	5.3	.....	.....	.....	.....	.....	.....	4.8	22.4	16.8	2	43.7	57.4
San Jose Estate, Tamaraw Plantation, Mindoro[a]	69.8	102.2	94.2	15.5	9.9	1.5	.....	.....	.....	1.8	4.3	28.4	8.4	1	33	72.9
San Jose Estate, San Agustin, Mindoro[a]	78	74.2	63.8	8.9	2	.....	.....	.....	.....	.....	1.3	33.8	42.9	.....	40.6	55.1
San Jose, Mindoro[a]	39.1	79.3	76.7	10.4	3.8	.3	.....	.....	.....	3.3	4.6	53.3	2.8	.5	33	53.6
San Jose Estate, Tunnel D-12, Mindoro[a]	30.5	69	79.5	10.7	.....	.....	.....	.....	.....	18.3	4.1	25.1	2.5	.....	37.1	57.4
Romblon	.....	.....	4.6	9.7	.....	.....	.....	11.2	.....	69.6	3.3	4.3	.5	10.9	10.7	22.9
Batag	.....	.....	.....	.....	.....	.....	.....	.....	15.5	13.9	.8	.....	4.1	3	.....	.....
Sorsogon	14.7	.....	.....	.....	.....	.....	8.1	8.1	.....	10.7	.....	.....	.....	.....	36.8	.....
Legaspi	.....	3.1	10.4	5.1	.....	.....	6.1	.....	.....	.....	.....	.....	.....	.....	3.8	.5
San Miguel Estate, San Miguel Island, Tabaco, Albay[a b]	2.8	.....	6.4	.....	.....	.....	2.5	.....	.....	1.8	.....	.....	.5	.3	12.7	3.6
Calapan	.....	.....	.....	3	.....	.....	.....	.....	.....	.3	1	1.8	.....	.....	54.9	17.2
Virac	.....	.....	.....	.....	.....	.....	8.4	6.1	.....	2.5	4.8	6.9	.....	18.8	23.4	.....
Naga	.1	1.5	5.3	7.6	.....	.....	.8	7.4	.....	1.3	.....	.....	12.7	.....	37.5	15.7
Tigaon	.8	12.7	3.8	.3	.....	.....	12.7	.3	2.8	2.3	.....	1	.....	.....	32.6	16
Batangas	38.9	1	.....	8.4	.....	.....	.....	10.2	21.6	11.4	4.8	6.4	.....	.....	100.3	5.8
Lucena	.....	.....	.....	3.8	.....	.....	.....	.....	1.5	20.9	11.7	4.1	.....	.....	123.5	4.8
Atimonan	.....	.....	.....	.....	.....	.8	.5	14	13.2	55.9	24	3.5	8.9	.....	103.7	1.5
Ambulong, Tanauan	.....	.....	.....	5.6	.....	.....	.3	6.8	7.6	.....	.....	.....	.....	.....	97.6	1.5
Canlubang, Calamba	.....	.....	.....	3	.5	13.2	35.3	3	6.9	4.1	1.5	.....	.....	.....	186.7	4.3
Paracale	2.1	.....	.....	.....	.....	.....	.....	5.8	19.1	.....	5.8	.....	5.9	1.3	78.7	8.9
Santa Cruz, Laguna	.....	.....	8.7	4.4	.....	4.8	.....	.....	.....	6.4	4.5	13.2	1.5	.....	69.4	3.3
Fort Mills, Corregidor[a c]	4.8	.....	5.3	35.6	7.9	.....	.....	.....	.....	8.9	29.2	.....	6.4	.....	148.4	9.4
Alabang, Rizal[a]	.....	.....	.....	6.4	.....	.....	.....	15.2	2	.....	1.8	.....	.....	.....	15.2	.....
Lamao, Bataan[a]	.....	.....	.3	13.5	12	.3	1.3	7.6	15.3	1.5	15.5	20.3	.....	1.8	139.7	16.5
Manila	.....	.....	1.5	5.9	6.8	.....	.....	.....	.....	2.1	3.9	14.5	.5	.....	194.3	6.4
Antipolo	.....	13.7	2.5	8.1	1	.....	.....	3.3	14.5	4.3	39.1	10.9	5.3	2.8	245.3	5.8
Bosoboso, Rizal[a]	.....	1.3	12.7	9.1	2.5	.....	.....	16	14	10.2	3.6	.....	5.1	.....	50.8	6.4
Montalban, Rizal[a]	.....	.....	.....	1.8	10.7	6.4	3.8	.....	27.9	29.2	19	2.3	.....	2.5	.....	184.2
Hacienda Pintong Sapang, San Jose, Bulacan[a]	10.7	.....	.....	28.4	9.2	17.8	.3	19.3	21.9	16	.8	.....	.....	5.8	130.3	5.1
Mabayuan, Dam, Olongapo, Zambales[a]	2.5	.....	2	48.2	12.9	31	.....	4.1	2.8	32	3.8	41.1	11.2	.....	51.8	20
Iba	12.7	2.2	22.6	8.6	.3	28	.....	.....	1.3	.....	.....	.....	.....	.....	48.3	2.4
San Isidro	.....	.....	1.3	.5	.5	5.1	.3	15.7	13.5	.....	.....	1.8	.5	.....	67.1	2
Hacienda Luisita, San Miguel, Tarlac[a]	.....	.8	8.2	1.5	2.1	.....	12.7	.....	.....	.....	.....	6.4	.....	.....	27.1	4.1
Hacienda Luisita, Comillas, Tarlac[a]	.....	4.6	3.8	8.4	9.4	13.7	21.8	.....	.....	.....	.....	5.1	6.6	5.8	27.7	18.3
Tarlac	.....	.....	7.1	.5	.....	11.5	.....	.....	.....	.....	.....	7.9	.....	.....	48.5	3.8
Baler	.....	8.4	.....	.....	.....	.....	16.3	.5	15.2	.1	.....	.....	.....	.....	36.8	10.7
Paniqui, Tarlac[a]	.....	10.2	.....	7.6	11.4	.....	.....	20.3	14	8.4	7.1	.....	.....	.....	14.5	16.5
C. L. A. S. Muñoz, Nueva Ecija[a]	.....	.....	.....	26.2	.....	.5	4.6	43.4	38.1	4.1	.....	39.1	.....	2.3	14.5	1
Dagupan	.....	17.3	8.4	17.8	2.8	1.3	.....	23.6	2	2.3	.....	.....	4.1	.....	12.5	1
Santo Tomas Mt., Mountain Province[a]	1	1.5	2.5	52.6	2.6	26.2	1.8	8	27.2	51.3	1.1	.....	.....	.....	.5	1.5
Bolinao	1.3	15.2	3.1	3	5.1	10.2	.....	.....	1	.....	.....	.....	.....	.....	4.1	.....
Baguio	6.3	11.9	16.8	15.5	7.2	10.7	4.4	27.9	.....	1.3	15.5	.6	.....	.....	8.7	12.9
San Fernando, Union	3	11.4	20.8	26.4	1.5	.....	.....	.....	.....	.....	.....	.....	.....	.....	6.9	.....
Echagüe	2.6	1	1.3	.....	3.8	1.8	22.4	3	22.6	2	22	6.9	.3	.3	11.8	8.1
Sagada, Mountain Province[a]	17.8	19.8	24.1	12.2	8.6	1	.....	.....	10.9	7.1	2	.8	.....	.....	8.6	16.2
Bontoc, Mountain Province[a]	.....	.....	9.7	.....	11.7	.....	.....	7.4	1.5	.8	.....	.....	.....	9.7	5.6	10.9
Candon	.....	6.1	15.3	23.2	3.8	.....	.....	.....	.....	.....	.....	.....	.....	.....	4.5	.....
Vigan	.....	21.5	9.6	5.3	41.8	.....	.....	.....	.....	.....	.....	.....	.....	.....	4.5	.....
Tuguegarao	153.8	49.6	.....	29.2	.....	5.6	11.2	.....	.....	.....	.....	.....	.....	18.3	35.6	.....
La Paz, Abra[a]	6.9	10.6	24	5.2	7	.3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Laoag	22.1	41.9	28.7	7.9	3.3	27.1	.....	.....	18.3	.....	.....	.....	.....	11.5	16.6	.....
Aparri	44.7	5.3	4.4	9.2	4.6	.....	4.5	1.5	.....	1	15.6	6.4	2.4	11.9	11.3	.3
Cape Bojeador	5.1	14	.....	.....	5.3	6.1	.....	.....	.....	.....	.....	.....	.....	5.1	8.6	.....

[a] Voluntary or coöperative station. [b] Rain in 24 hours beginning 8 a. m. [c] Rain in 24 hours beginning 7 a. m.

Daily rainfall at the stations of the Weather Bureau, October, 1918—Continued.

Station.	Day of month.															
	17.	18.	19.	20.	21.	22.	23.	24.	25.	26.	27.	28.	29.	30.	31.	Total.
	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.
Jolo	6.4	0.8	.....	.....	.....	55.8	18.5	9.9	.....	9.7	29.5	17.8	16.5	6.6	9.7	256.8
Isabela, Basilan	6.9	.....	.....	.....	12.4	14.5	9.4	.....	.....	.....	7.1	1.8	.....	.....	19.8	133.5
Basilan Plantation, Isabela (Basilan) Office[a]	14.2	.....	.....	.....	4.6	28.4	3.8	.....	.....	.....	.....	.....	5.1	.....	18.8	150.8
Zamboanga	3.8	.....	.....	.....	.....	.....	.....	.....	.....	.....	31	.5	.8	.....	14.9	129.4
Davao	.....	6.1	.....	2.3	3	24.6	8.1	9.1	2.5	6.4	31.2	.....	.....	.....	7.1	260.5
Cotabato	.8	.....	.....	5.8	7.6	.....	.....	.....	1.3	1.5	4.8	4.1	17	15.2	5.3	357.4
Camp Keithley, Lanao	.1	.8	0.8	.4	12.7	.....	.5	13	4.3	3	17.5	1	29.2	2.3	4.9	184.1
Cagayan, Misamis	8.9	.....	.....	.....	.....	.....	.....	.....	10.2	.....	.....	.....	.....	.....	.....	149.7
Dapitan	2	.....	.....	23.6	3	1	1	.8	7.1	.....	.5	2.3	36.8	50.8	44.7	286.6
Butuan	.....	.....	.....	.....	.....	.....	.....	1.5	7.6	.....	2.3	.5	.5	2.6	6.1	153.2
Mambajao	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	16.3	109
Dumaguete	1.5	.....	.....	.....	2	4.3	.....	.....	.....	.....	.....	.....	.....	1.5	.....	162.3
Yap, Western Carolines	51.8	16.5	13.7	2	1.8	.....	3.8	.....	.....	.....	.3	.....	.3	.5	.5	221
Tagbilaran	.....	.....	.....	.....	.3	.....	.....	.....	5.2	7.2	.....	.....	.....	28.7d	32.3?	189.4?
Iwahig	1.5	2.5	.8	2.8	1.5	.....	.....	.....	.....	.....	.....	.....	.....	14.7	22.9	169.6
Surigao	1.3	.....	76.7	55.1	.8	.....	.....	.....	.....	7	2.9	5.9	13.9	7.2	21	333.7
Maasin	.....	.....	.....	35.8	16.8	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	132
Cebu	.....	.....	.....	2.8	2.1	.....	.....	.....	.....	.8	2	.5	13	.....	4.8	43.7
La Carlota, Occidental Negros[a]	.5	.....	15.2	5.1	39.9	7.1	.....	.....	7.1	.....	.5	.....	1	.5	.....	216.3
Iloilo	1	1	63.8	.8	14.7	5.6	3.8	.....	.....	2.5	2.5	16.8	15.2	2.5	.....	317.8
San Jose Buenavista	2	5.1	69.6	17.8	10.2	7.7	1.3	.....	.....	.....	.....	.....	.8	.....	4.8	350.1
Cuyo	8.9	14.5	.....	.....	1	17.8	.3	.....	.....	.....	.....	.....	.....	.....	.....	77.4
Lucena, Iloilo[a]	13.5	2.3	.....	13	1.3	2.3	10.7	.....	.....	.....	.....	.....	2.8	.....	.....	335.3
Ormoc	.....	.....	.....	43.9	32	.....	.....	.....	.....	.....	8.6	2.5	30.2	1.8	1.3	174
Guiuan	.....	.....	6.4	16.5	.5	.5	.....	.....	.....	.....	3.3	16	39.2	6.4	6.3	136.3
Dueñas, Iloilo[a]	29.2	.....	7.6	2.5	.....	.....	.....	10.2	8.1	3.6	8.1	5.6	6.4	.....	.....	203.1
Bitaogan, Iloilo (Railroad Iloilo to Capiz)[a]	3.8	7.4	19	12.5	.....	.....	.....	19.3	1.3	.....	.....	.....	5.6	1	.....	186.5
Lapus, Iloilo (Railroad Iloilo to Capiz)[a]	2.5	84.8	5.8	18	15.8	10.4	.....	.3	2	2.8	25.7	20.1	1.5	.....	.....	500.5
Tacloban	33.8	.....	.....	11.4	1	.....	.....	.....	.....	.....	10.2	11.2	12.7	.5	9.4	103.4
Dumarao, Capiz[a]	.....	.....	5.1	13.2	.....	.....	.....	5.1	.....	.....	.....	2.5	3.6	.....	.....	78.7
Dao, Capiz[a]	5.1	3.8	48.2	1.3	.....	.....	.....	.....	.....	.....	7.1	7.6	5.1	4.8	2.3	145.2
Capiz	1	4.8	3.6	.8	3.6	.....	34.5	.....	.....	1.5	.3	2.3	8.2	.....	.....	206.6
Borongan	.....	.....	4.6	.....	.3	.3	11.6	.....	15	6.6	14.5	14.5	5	1.1	1.5	98.9
Catbalogan	4.6	.....	19.3	40.4	2	.....	.....	1.8	.....	.....	8.4	5.1	.3	1.3	11.9	118.7
Calbayog	6.4	3.6	2.5	1.3	1.8	1.3	.....	.....	.....	3.5	2.3	13	3.8	.....	4.8	62
Masbate	10.1	.....	.....	.....	1.5	3	.....	.....	.....	1.3	1.8	11.2	5.3	2.8	.....	62.7
San Jose Estate, J. Abello D-13, Mindoro[a]	98	.....	14.2	.....	.....	9.9	.....	.....	.....	.....	.....	.....	.....	.....	.....	486.6
San Jose Estate, Tamaraw Plantation, Mindoro[a]	55.6	59.7	3.8	1	.....	30.5	.....	.....	.....	.....	.....	.....	.....	.....	.....	593.5
San Jose Estate, San Agustin, Mindoro[a]	60.4	46.5	6.6	.....	3	7.9	.....	.....	.....	2.5	.....	.....	.....	.....	.....	527.5
San Jose, Mindoro[a]	56.6	52.5	8.6	.3	.....	38.1	.....	.....	.....	.....	.....	.....	.....	.....	.....	516.8
San Jose Estate, Tunnel D-12, Mindoro[a]	55.9	64.2	10.6	.....	.....	32.8	.....	.....	.....	.....	.....	.....	.....	.....	.....	497.7
Romblon	.5	2	.....	.....	.....	.....	.....	.....	.....	.....	11.2	3.3	6.1	2.3	.....	173.1
Batag	11.4	.....	19.6	3.6	8.1	.....	.....	.....	1.3	23.9	.....	26.2	10.4	8.9	.....	150.7
Sorsogon	1.5	.....	.....	12.4	36.8	20.4	.....	.....	.....	.....	8.1	17.2	22.6	36.8	.....	234.2
Legaspi	10.7	.....	.....	5.8	1.8	.5	.....	.....	.....	6.3	6.4	15.3	1.5	25.7	11	114
San Miguel Estate, San Miguel Island, Tabaco, Albay[a b]	7.4	.....	6.4	.....	40.1	8.9	.....	21.1	9.7	4.3	4.1	.8	4.1	30.5	4.6	172.6
Calapan	.....	5.6	3.5	.....	.....	.6	.....	.....	.....	3	4.1	1.3	1.5	3.6	4.6	106
Virac	.8	.....	10.2	1.5	66.1	21.2	.....	.....	3.6	3.8	4.8	2	5.6	13.5	16.2	220.2
Naga	3.3	5.1	.....	.3	8.9	.1	.....	.....	.....	8.9	3.1	.....	.....	11.2	3.3	134.1
Tigaon	1.3	.....	.3	13.2	11.7	.3	.....	.....	.....	3	1.5	.....	.....	3.8	13.7	134.1
Batangas	3.6	5.3	1.5	.....	.....	21.8	.....	.....	.....	.....	.....	.....	.....	.....	.....	241
Lucena	.....	.....	30.7	19.3	.....	5.3	.....	.....	.....	4.1	1.8	.....	.....	8.4	.....	239.9
Atimonan	.....	.....	4.6	5.7	1	1.3	.....	.....	.....	3.8	2	4.8	4.8	.5	.....	254.5
Ambulong, Tanauan	25.4	8.1	26.7	5.6	.....	34.5	.....	.....	.....	.....	.....	3.3	.....	.....	37.6	260.6
Canlubang, Calamba	10.2	3.8	26.1	.....	.....	13.7	2.5	.....	9.4	.....	1.5	2.5	1	2.5	16.3	348
Paracale	1.3	.....	1.3	4.9	3.3	.3	.....	4.1	.....	.....	6.5	.5	6.4	11.5	26	193.7
Santa Cruz, Laguna	.3	1.3	70.6	.....	.3	1.8	.8	.....	.....	.3	1	2	2.5	5.3	16.5	218.9
Fort Mills, Corregidor[a c]	30	14.3	11.4	.....	.....	79.2	11.9	.....	.....	.....	.....	.3	.....	.....	.....	403
Alabang, Rizal[a]	.....	.....	.....	.....	.....	15.7	.....	7.1	.....	.....	.....	.....	.....	.....	.....	63.4
Lamao, Bataan[a]	39.4	16	20.3	5.6	.....	73.2	4.4	.....	.....	.....	.....	.....	.....	.....	.....	404.5
Manila	25.6	2	27.2	3.3	.....	18.2	5.8	.3	.....	.....	.....	2.6	.....	.....	2.6	323.5
Antipolo	19	1.5	13.4	1.3	.5	16.8	10.4	.....	.....	.....	.....	.8	.....	.....	1.3	421.6
Bosoboso, Rizal[a]	30.2	6.1	16.5	4.3	.....	5.3	1.8	.....	.....	.....	.....	.....	.....	.....	.....	195.9
Montalban, Rizal[a]	3.8	11.4	1.3	42.9	3.8	.....	29	2.5	.....	.....	.....	1.3	1	.....	.....	384.8
Hacienda Pintong Sapang, San Jose, Bulacan[a]	8.9	5.6	3.8	.....	.....	29.5	.....	.....	.....	.....	.5	1.3	.....	.....	.....	315.2
Mabayuan, Dam, Olongapo, Zambales[a]	90.7	9.1	.....	6.6	39.4	220.3	4.8	3	1.5	.....	.....	2.8	.....	.....	.....	641.6
Iba	38.9	19.8	5.2	.....	.....	53.8	9.1	2.5	.....	.....	.....	.3	.....	.....	.....	256
San Isidro	13.2	.3	46.5	.5	.....	76	3	.....	.....	.8	.....	.....	.....	.....	.....	248.6
Hacienda Luisita, San Miguel, Tarlac[a]	29.5	6.6	5.3	2.3	.....	100.8	4.1	.....	.....	.....	.....	.....	.....	.....	.....	211.5
Hacienda Luisita, Comillas, Tarlac[a]	9.7	13	6.4	.....	.....	55.9	4.1	3.3	.....	.....	.....	.....	.....	.....	.....	217.6
Tarlac	34.3	.....	20.3	2.8	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.8	138.5
Baler	229.3	56.9	129	7.3	1	41.9	.3	.....	.....	40.2	.....	3	.....	9.4	13.5	619.8
Paniqui, Tarlac[a]	15.8	17.8	3.8	3	.....	80.5	3	.....	.....	.....	.....	.....	.....	.....	.....	233.9
C. L. A. S. Muñoz, Nueva Ecija[a]	12.7	.5	1.5	21.6	.....	110.5	41.1	1.3	.....	.....	.....	.....	.....	.....	.....	363
Dagupan	15	5.3	1.8	.....	.5	35.3	20.6	.8	.....	.....	1	.....	.....	.....	.....	173.4
Santo Tomas Mt., Mountain Province[a]	1.8	2	.5	.5	.5	76.7	2	1.8	.....	.3	.....	.....	.....	.....	.....	283.9
Bolinao	31.2	.8	.....	5.3	.....	.....	36.9	.5	1.3	.....	.....	.....	.....	.....	.....	119
Baguio	24.9	9.6	4.6	1.3	3.6	78.5	8.5	21.4	1.5	.3	.....	.....	.....	.....	.....	293.9
San Fernando, Union	12.7	3.1	.5	.....	3	2	7.1	26.1	.3	.3	.....	.....	.....	.....	1.8	126.9
Echagüe	43	36.1	10.1	.8	3.8	4.3	.....	.....	.....	.....	.....	3.9	.3	.....	1.8	214
Sagada, Mountain Province[a]	7.6	15.2	.....	.....	7.6	41.9	4.6	5.1	.....	.....	.....	.....	.....	.....	.....	211.1
Bontoc, Mountain Province[a]	7.9	19.6	4.1	.....	15	.....	1	.....	.....	.....	.....	1.5	.....	.....	.....	106.4
Candon	3.8	.....	2.5	5.6	1.5	59.7	43.4	16.7	3.3	.....	.....	.....	.....	.....	.....	189.4
Vigan	1.5	3.7	.....	.....	2.8	61.1	22.5	24.7	2.5	.....	.....	.....	.....	.....	.....	201.5
Tuguegarao	16.3	18.3	37.2	.....	3.6	84.6	.....	.....	.....	13	.....	.....	.....	.....	.....	476.3
La Paz, Abra[a]	.....	.....	20.1	3	.....	.....	184.6	11.6	.5	.....	.....	.....	.....	.....	.....	242.1
Laoag	7.6	6.6	.....	.....	8.7	81.6	32.7	147.9	51.9	.....	.....	.....	.....	.....	.....	496.1
Aparri	22.1	72.5	39.9	.5	22.9	78.5	6.4	.....	.....	2.1	.8	.....	.....	.....	.3	369.1
Cape Bojeador	3.6	.....	.....	.....	14	49	9.7	13.7	.....	.....	.....	.....	.....	.....	.....	134.2

[a] Voluntary or coöperative station.

[c] Rain in 24 hours beginning 7. a. m.

MAXIMUM AND MINIMUM TEMPERATURES AT THE STATIONS OF THE WEATHER BUREAU, OCTOBER, 1918.

Day.	Jolo.		Isabela, Basilan.		Zamboanga.		Davao.		Cotabato.		Camp Keithley, Lanao.		Cagayan, Misamis.		Dapitan.	
	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.
	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.
1	30.5	24.4	30.4	22.1	30.5	22.2	33.4	21.1	30.5	22.4	25.8	20.1	32.4	22.4	31.6	23.6
2	30.8	24	29.3	22.6	29	21	32.7	21.4	25.5	21.7	25.4	19.1	32.5	22.5	30.2	22.7
3	31.1	24.7	31.6	21.6	29.5	23.8	32.7	21	29.2	21.9	25.8	20.5	33.2	22.1	33.2	22.2
4	30.4	24	32.6	22.1	29.8	23.3	31.7	20.8	31	22.1	27.5	20.5	33.3	22.2	33.1	23.1
5	30.3	22.7	33.1	21.3	31	23.1	33.5	21.9	32.4	21.1	29.3	17.6	33.2	21.4	32.7	21.6
6	30.9	21.5	33.1	22.6	29	23	33.7	22	32.1	23.1	28.8	17.7	32.6	21.6	33.6	22.8
7	30.3	21.9	31.4	23.1	29	21.9	32.5	22.8	32	24	29.9	18	32.8	22.5	33.9	23.7
8	29.7	22.7	31.7	23.1	29	23.5	34.1	21.1	31.7	24	29.3	18.7	32.5	22.2	33.7	24.5
9	30.6	23.1	31.1	22.8	29.1	24	33.5	21	31	22.5	28	20.7	30.4	23.5	32	23.8
10	30.6	22.9	31.1	23.1	28.7	23.1	31.5	20.7	28.9	23	25.3	19.4	26.5	22.9	29.1	23.4
11	28.5	23.6	29.6	22.6	28.6	21.8	32.2	21.5	30.3	23	26.5	19.2	30.4	22.6	29.2	23.1
12	31	22.8	30.1	23.1	29	23	31.8	19.9	29	22	26.7	18.5	31.4	21.6	31.4	22.5
13	31.1	22.2	31.6	22.6	29.6	23.4	32.6	20.6	30.3	21.8	26.8	18.4	28.4	21.9	29.5	22.6
14	29	23.7	29.9	23.1	29.7	22.9	32.6	22	29.5	22.9	26.7	18.4	30.4	23	27.6	22.5
15	30.6	24	31.6	23.3	29	22.5	32.5	21.5	29.1	23.2	26.8	19.9	31.4	22.6	28.8	22.5
16	32.7	24.5	33.1	23.7	30.3	23.5	33.2	21.4	26	22.6	23.6	20.5	29.8	23.6	32.1	23.5
17	30.7	26.2	32.6	22.1	30.4	22.5	33.6	22	30.9	22.6	28.2	20.4	33.8	22.6	32.9	23
18	31.7	24	32.6	22.6	30	23	33.9	22.9	30.7	23.3	28.6	21	33.3	22.4	32.7	22
19	32.1	24.3	33.5	22.1	30.2	23.5	33	19.2?	29.5	23.4	28.8	18.6	32.5	22.1	33.7	21.6
20	31.3	22.7	32.3	22.4?	29	23.5	33.6	21.5	31	22.4	27.7	18.2	32.6	22.4	33.8	23.1
21	30.5	23.6	31.1	23.6	29.2	23.5	32.8	21.4	30.5	23.2	25.9	19.1	31.7	23.6	31.6	23.1
22	30.8	23	31.7	22.1	29.5	23.9	32.4	22	30.9	23.6	27.3	21.2	32	22.4	31.5	23
23	29.8	23.4	32.1	22.5	29.7	24.5	32.9	21.9	32	23	28.6	19.5	31.8	22.6	32.2	22.5
24	30.9	22.4	32.1	22.3	29.8	23.5	33.3	21.9	32.1	23.2	28.5	18.6	31.3	22	32.2	23.3
25	30.3	23	33.1	22.7	29.7	23.4	33.9	21.5	32	23.8	29	19	31.6	22.8	33	22.3
26	31.3	23.1	34.1	22.8	32.3	23	34.2	21.4	33.5	23.4	28.2	19.1	31.9	21.7	32.5	23.5
27	30.5	23.1	33.6	23.1	32.4	22.2	32	21.5	33	23.5	27.9	17.6	32.2	22.4	31.2	26.5
28	29.7	23.4	33.8	23.3	29.7	22	33.1	20.5	32.5	22.7	27.3	17.5	32.2	21.6	32.2	26.1
29	31	22.9	33.6	23.6	30.5	23.8	32.8	20.5	31.5	21.9	28.5	17.5	31.4	21.6	31.2	25
30	29.6	22.8	33.7	23.7	30.2	23.9	33.6	21.7	32.5	21.2	27.9	18.9	32.8	22.1	29.2	23.6
31	32.1	23	33.6	21.6	30.5	23.3	32.9	21.6	32.7	23.2	26.8	17.9	31.1	22	30.9	23.8
Mean	30.7	23.3	32.1	22.7	29.8	23.1	33	21.4	30.8	22.8	27.5	19.1	31.7	22.4	31.7	23.2

Day.	Butuan.		Mambajao.		Dumaguete.		Yap, Western Carolines.		Tagbilaran.		Iwahig.		Surigao.		Maasin.	
	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.
	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.
1	34.6	22.8	31.4	25.3	27.8	23.3	33.9	25	28.3	23.9	32.2	21.5	30.3	26.7	31.2	23.8
2	33.9	23	30	24.5	29.9	23.2	33.2	25	29.5	22.9	30.7	21.2	29.5	27.2	31.8	25.1
3	34.9	22.7	32.7	25.4	33.4	23.9	33.2	24.9	31.2	23.3	28.9	21.4	32.8	27	32	25
4	36.4	22.7	33.7	26.4	32.1	24.3	33.4	25.5	32.7	24.3	30.6	20.9	31.6	23.9	32	25.1
5	35.7	23.2	30.7	22.9	30.4	22.2	30.8	24	31.2	23	31.8	19.8	32.7	23.4	33	23.2
6	33.6	22.5	32.1	24.1	31	22.2	31.3	24.5	31.8	23.3	31.8	18.9	31.7	23.8	33.4	23.2
7	35	23.4	32.4	23.5	31.6	22.6	30.8	24	32.5	23.2	32.6	19.5	31.2	23.6	32.6	23.6
8	33.9	23.6	32	23	31.8	24.3	32.7	24.2	31.7	23.2	32.6	19.3	32.5	23.7	33.1	23.4
9	32.3	22.9	30.6	23.2	31	23.4	33.7	25	31	23.4	32.6	19.4	30.3	24.1	31	23
10	31.9	23	25.7	23.4	29.8	23.2	28.7	23	29.5	23.6	32.5	19.9	26.6	23.4	32	23
11	31.1	22.4	32.7	23.2	30	23.1	29.4	22	30.3	22.5	30.1	20.4	29.8	23.4	30.7	22.5
12	31.2	22.8	31.5	24	30.4	22.3	31.6	22.5	31.5	23	31.6	19.3	29	24.4	31.6	22.8
13	31.1	22.4	31.4	23.9	30.8	23.2	32.4	23.3	31.6	23.3	32.7	18.9	29.8	23.5	31.8	22.7
14	31.6	23.1	30.6	23.1	29.8	23.3	32.3	25	30.4	22.5	29.7	21.1	28.3	23.2	31.4	23
15	31.2	22.6	29.7	25	27.4	23.2	32	23.5	29.7	24.2	28.4	21.6	28.3	26	29	23.6
16	33.5	23.5	30.1	25.9	29.4	23.5	32.4	25.8	29.9	24	28.2	21.5	32.8	24.4	31.2	23.8
17	36.1	24	31.6	24	32.4	25.1	30.4	25.2	31.5	25	32.2	21.7	33.3	24.2	32.4	24
18	34.6	22.9	33.1	24.1	34	22.2	28.3	22	32.7	24	32.9	21.4	32.6	24.2	33	22.6
19	33.2	22.9	33.3	24.7	31.7	21.8	32.6	21	31.9	22.3	32.6	21.5	31.8	26.8	33.1	23
20	33.9	22.9	33	25.6	31.9	23.4	31.2	20.6	32.1	24.8	31.5	20.9	30.5	23.5	32.4	23.8
21	33.3	23.2	32.2	26.8	29.9	23.7	30.7	22	32.4	24.7	32.6	19.9	29.7	23.6	30	22.3
22	35.1	23.8	33.1	26.2	30.9	23.4	32.7	24.5	32	25.5	32.2	19.8	31.6	24.7	32.2	23.6
23	34.9	23.3	31.2	22.9	31.9	22.6	31.4	24.5	31.7	23.6	32.2	19.5	31.1	24.3	32.4	24
24	34.4	21.9	31.3	23.1	31.4	23.4	32.2	23.6	32	23.2	31.6	20.3	32.5	23.7	32.6	23.2
25	33	22.5	31.2	23.6	30.7	23.3	31.8	24	31.4	22.3	32.1	20.2	32.2	23.5	33.8	23.5
26	31.5	22.9	31	24.2	30.4	24.7	32.1	24.3	32.7	23.1	32.1	19.9	30	24.2	32	22.7
27	33.6	23.3	31.7	24.7	31	26.3	32	24.8	33.8	23.1	32.3	19.8	31.5	23.7	33.5	23
28	33.9	23.1	31	24.2	31.4	26.8	32.5	25	31.9	23.5	32.3	21.3	30.3	24	33.8	23.1
29	36.5	22.2	29.6	26.1	31.4	25	32.3	24.3	------	------	32.7	20.2	28.8	24.5	33.3	23.7
30	30.2	23.3	31.2	24.6	30.4	24.7	32.7	24	------	------	32.1	20.6	30.8	23.9	33.4	23.8
31	29.7	23	30.5	25.6	30.4	26	33	24.5	------	------	29.2	20.2	30.4	24.1	32.6	23
Mean	33.4	23	31.4	24.4	30.9	23.7	31.9	23.9	31.4	23.5	31.5	20.4	30.8	24.3	32.2	23.4

Maximum and minimum temperatures at the stations of the Weather Bureau, October, 1918—Continued.

Day.	Cebu.		Iloilo.		San Jose Buenavista.		Cuyo.		Ormoc.		Guiuan.		Tacloban.		Capiz.	
	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.
	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.
1	28.6	26	27.3	23.2	31.1	23	29.3	25.3	31	23.7	31.2	27.2	32.6	25.2	33.4	24
2	28.7	26.2	29	24.5	30.8	25.1	28.8	25.5	29.7	26.9	31.2	27.2	31.5	25.5	30.8	23.5
3	30.5	26.3	27.7	22.8	28.2	23.2	29.2	24.8	31.8	26.9	31.4	26.7	32	23.6	31.2	23.8
4	30	25.9	29.9	23	30	23.4	28.4	25.1	32.6	26.9	33	27.6	34.4	23.8	31.6	25.4
5	31.2	24	29.5	25.4	31.3	22.8	30	24.7	32.7	23.2	33.9	26.8	32.5	23	32	24
6	32.2	24.5	30.5	23.3	31.7	22.4	31.3	23.7	33.4	21.9	34.2	23.2	34.7	23	33	22.8
7	33.2	24.6	31	23.8	32	23.1	31.6	23.8	33.5	22.3	34.4	22.4	35.4	23.4	32.2	24
8	31.6	25	32	24.2	32.5	22.9	32.3	25.1	33.4	22.5	34.4	23.2	35	23.9	33.1	24
9	30.3	24.6	31.9	23.9	32.2	22.5	32.3	25.1	33.4	22.6	31.9	23.5	33.7	23.4	32	23.6
10	29	24.5	29.2	23.5	31.7	23	31	24.2	31.9	22.9	30	24.2	29.9	23.9	30.2	22.9
11	29.8	23.8	28.6	23.2	30.8	22.2	31.2	24.3	31.2	22.8	31.2	24.1	30.9	23.8	31.4	23.3
12	31.8	23.8	30.2	22.7	31.2	22.1	30.8	23.4	30.9	22.9	31.1	23.7	31	22.6	31.2	23.4
13	31.7	24.2	30.5	23.1	31.2	22.5	30.6	23.8	32	22.9	32	23.1	32	24.2	32.2	23.5
14	29.9	24.8	29.7	24.2	30.8	23.1	30.4	24	31.2	22.4	29.8	23	29.8	23.9	31.2	23.7
15	29.7	25.4	30.7	25.6	31.6	23.5	29.9	25.6	30.7	23.4	29.9	25.9	30.9	24.4	30.6	22.7
16	28.9	25	28.5	22.5	29.7	24.5	28.4	26.7	30.4	23.9	31.1	26	31.7	23.7	31.5	23.4
17	31	25.8	30	22.5	28.3	23.3	28	24.8	33.4	25.9	33.2	25.8	33.1	22.5	30.3	23.7
18	30.8	25.5	30.2	25.5	30.7	26.8	29.8	24.4	33.4	25.2	34	26.6	33.1	23.4	32.3	24.3
19	30.4	24.6	28.6	23.3	31.8	25	30.4	24.9	33.4	22.9	32.7	24.2	34.2	23.9	31.2	24
20	30.6	26.1	30.5	23.4	31.2	22.6	30.7	25.2	32.9	23.3	32.2	24	32.3	24.2	31.4	24.1
21	29.4	26.2	28.5	23.5	30.5	23	31.9	24.7	32.4	22.6	29	23.4	28.4	24.4	29.4	24.4
22	30	26.2	29.3	23.8	31.1	24.1	29.9	25.1	32.1	23.4	31.4	26.9	32	24.2	32.8	24.9
23	31.2	24.8	30	24.7	31.6	23.4	30.2	23.7	33.2	26.2	33.4	24	33.8	24.4	31.9	24.1
24	32.1	25	30.2	23.4	32.2	22.5	31.1	24.1	33.6	22.8	33.6	25.2	34.4	23.2	31.4	23.3
25	31.9	24.5	31.8	24.1	32.3	23.4	31.2	23.7	33.2	21.4	33.7	23	34	22.5	31.8	23.3
26	31.2	25.8	31.5	24	32.6	22.6	31.1	26.1	33.8	21.4	32.4	24	33	24	32.3	23.6
27	30.6	25.3	31	24.7	33.8	22.5	31.7	26.6	33.2	22.6	32.2	25.2	32.4	24	31.4	25.7
28	31.5	24.2	30.5	24.1	33.3	23	30.7	26.6	32.4	22.9	32.1	24.8	33.1	23.4	31.9	25.9
29	30.8	24.9	30.3	24.4	32.8	23.5	29.9	26.4	32.3	22.5	32	24.2	33.5	23.8	31.4	25.3
30	30.5	24.8	30.1	24.2	33.2	23	30.7	26.9	30.9	22.9	32	24.1	31.4	23.9	31.6	25.3
31	30.8	25.4	31.2	24.5	33.2	22.4	31	26.1	31.7	23	30.9	24.8	30	24	32.3	23.3
Mean	30.6	25.1	30	23.8	31.5	23.2	30.4	25	32.3	23.5	32.1	24.8	32.5	23.8	31.6	24

Day.	Borongan.		Catbalogan.		Calbayog.		Masbate.		Romblon.		Batag.		Sorsogon.		Legaspi.	
	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.
	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.
1	32.3	24.8	30.2	27	28.8	27.2	31.6	27.2	30.9	26.7	30	25.4	29.5	.....	28.9	25.5
2	30.7	25.4	30.2	26.9	28.8	25.6	31.4	26.2	32.3	26.7	29.3	25.7	29	.....	29.9	26.3
3	32.7	23.2	30.8	25.7	28.8	26.2	31.4	26	30.4	24.7	30.5	24.7	31	.....	28.4	25
4	34.6	22.3	32.7	23.9	30.1	27.5	30.6	25.5	30.4	24.9	31.9	23.8	30	.....	30.8	25.2
5	31.7	22.6	32	23.9	30	24.1	32.2	24.8	31.5	24.6	30.6	24.2	31	.....	32.4	24.7
6	32.6	22.4	32.3	22.7	30.8	22.5	31.6	23.6	32.9	24.9	32.5	24.3	32	.....	32.9	23.6
7	32.2	22.5	32.2	22.8	30.4	23.3	31.8	23.6	33.4	22.8	31.6	23.6	32.3	.....	32.3	23.6
8	32.5	23.1	32.4	22.7	31.8	23.6	31.8	25.8	32.3	23.7	31.9	23.2	31.9	.....	32.1	23.7
9	33.3	21.7	30.5	21.7	31.9	22.8	31.8	25.2	32.8	23.7	32	24.8	32.2	.....	32.3	22.4
10	30.6	23.2	30	23.5	30	23.7	31	25.6	28.3	23.2	27.2	22.3	28.9	.....	28.9	22.9
11	31.8	22.4	30.2	22.4	31.9	23.5	31	25.2	31.4	22.8	30.4	23.9	31	.....	30.8	23.4
12	32.6	21.5	31.3	21.9	31.4	22.6	30.8	24.8	31.9	23.7	30.3	24.6	31.8	.....	31	21.4
13	33.4	22.5	31.2	23.3	32	22.6	30.4	25.4	30.7	22.7	29.6	24.4	30.7	.....	31.1	22.6
14	31.2	22	29.8	23	30	22.4	30.4	25.6	31.5	23.2	28	24.2	30.5	.....	30.8	22.8
15	31.2	25.4	30.1	27	28.8	26.7	29.4	26.4	29	23.4	27.3	23.5	29	.....	25.9	23
16	33.1	22.5	30.5	24	29.8	23.7	31.4	24.6	28.9	22.7	31.4	23.8	30.5	.....	31.1	22.9
17	31.6	23	33.2	23.2	31	22.8	32.6	25.2	30.5	22.4	30.5	24.3	32.2	.....	31.8	24.3
18	32.2	22.7	32.1	22.5	30.8	23.3	31.6	25	31.4	26.1	31.3	23.6	31.5	.....	32	23.9
19	33	22.6	32	22	30.3	23.3	33	25	30.5	23.7	32.4	23.5	32.4	.....	32.9	25
20	33.5	23	30.5	24.2	29.2	24.7	31.5	26	33.9	23.8	30.6	23.2	32	.....	31.4	24
21	28.9	24.2	27.8	24.8	28.3	24.5	29.8	.....	31.4	24.1	26.2	24.5	27.8	.....	27.8	23.5
22	33.1	23.6	30.6	24.6	29	26.3	29.4	26.5	31.5	25.6	29.4	23.7	28.5	.....	29.8	24.1
23	31.8	23.5	32.5	24.9	31	24	31.6	24.4	31.9	26	32.8	24.3	31.5	.....	32.1	24.2
24	31.9	22.5	32.2	23	30.2	23.1	31.4	24.6	33.4	23.7	31.6	23.5	31.7	.....	32.5	23.5
25	31.8	22.6	32	22.3	30.8	22.7	32.8	24.2	32.7	23.1	31.6	23.5	32.5	.....	33	23
26	31.9	23.9	32.2	22.7	31.5	22.8	31.6	25	32.4	23.2	29	23.4	.....	.....	30.8	26.5
27	31.3	24.1	31.5	22	32.3	22.9	31.6	25.2	31.9	25.9	30	23.5	30.5	.....	30	25
28	31.4	25.5	31.2	24.2	31.4	23	31.8	23.6	31.9	25.2	29.3	24.8	29.8	.....	31.4	25
29	31.3	23.5	31	22.1	30.9	23.4	31.6	22	31.5	24.8	30.3	24.3	30.5	.....	30.4	24.3
30	30.7	25.3	32	22.8	33.6	23.2	32	24.5	32	24.8	30.8	23.2	32.4	.....	31.7	25.7
31	31	24.5	30.7	23.1	30.7	23.8	31	25.2	30.4	25.5	30.6	23.6	29.8	.....	28.3	23.5
Mean	32	23.3	31.2	23.6	30.5	23.9	31.4	25.1	31.5	24.3	30.4	24	30.8	.....	30.8	24

Maximum and minimum temperatures at the stations of the Weather Bureau, October, 1918—Continued.

Day.	Sumay, Guam.		Calapan.		Virac.		Naga.		Tigaon.		Batangas.		Lucena.		Atimonan.	
	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.
	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.
1			32	24.1	29.7	23.3	28.9	22.1	28.9	23.6	29.7	24.8	29.7	23	30.2	25.4
2			32	23.5	30.5	23.6	30.4	23.5	28	23.4	30.4	24.4	30.5	24.9	32.2	25
3			33.5	23.5	33	23.5	31.8	22.9	30.1	24.1	31.5	24.8	30	24.5	32.1	26
4			32	24	32.7	23.7	29.4	22.4	29.4	23.9	28.8	24.2	27.8	24	31.7	25.3
5			32.5	23.5	32.6	22.7	32.2	22.4	31.1	24.3		24.3	30.2	23.7	32.2	24.3
6			33	22.6	33.5	22	34	21.6	31.9	21.3	32.1	24.7	31.2	22.4	34.2	23.4
7			32	22.6	32.2	22.6	34.4	21	33.4	21.3	31.7	23.8	28.4	22	33	23.4
8			32.3	23	31.7	21.5	34.9	21.5	32	21.4	31.8	22.9	28.8?	23	32.1	24
9			33	23	32	21.1	32.5	20.3	31.6	20.4	31.8	22.4	30		29.7	23.4
10			30.2	23.5	28.5	21.5	32.1	20.1	29.7	20.8	29.4	22.1	26.5	22.6	26.9	23.4
11			32.6	22.1	31.5	20.5	32.7	20.6	31	21.5	30.7	21.6	28.6	21.4	28.3	23.4
12			30.5	22.5	30.5	20.6	31.5	19.6	31.3	19.8	29.8	22.6	29.5	22.3	28.6	22.7
13			32.5	23	30.3	21	29.5	20.9	29.6	21.2	30.7	22.5	28.9	22.7	29.1	24.8
14			32	22	30	21.5	31.5	21.1	30.4	23	31.6	22.5	29.9	22.2	31.2	23.4
15			32.1	18.4	26.5	21.7	25	21.1	28.8	21.9	27.5	21.6	24.7	21.8	25.2	23
16	30.6	25.2	25	22	30.8	22	29.5	20.7	28.7	21.4	26.2	21.8	27.5	21.9	28.1	22.4
17	29	24	30.5	21.5	32	23.5	31.1	19.5	30.3	21.4	30.2	20.6	29	22	29.9	23.4
18	30.4	25.6	30	23.5	32	23	32.5	21.6	31.8	22.4	29.2	23.7	29	23.5	30.5	26
19	30.4	24.4	31.4	23.5	32.3	22.5	34.5	21.7	31.8	21.2	29.6	24.3	29.2	21.7?	31.7	24.6
20	27.2	24.6	32	24	31.6	22.4	33.5	22	31.2	21.9	31.5	23	30.2	22.1	30.6	24.2
21	29	24	32.1	23.2	27.7	22.2	28.4	21.7	29.7	23.9	31.2	23.6	29	23	30.7	23.8
22	30.2	24	32.1	23.6	28.5	22.6	30.9	22.4	29.3	23.6	27.2	24.4	26.5	23	29.3	24
23	30.2	24	31.5	23	31.7	24	33	22.4	32	23.5	30.4	24	30	23.5	31.6	24
24	30	23.2	31	22.2	32.6	22.5	34.5	20.5	31.7	20.4	31.5	22.3	30.9	22	32.6	23.1
25	30.6	25	30.5	21.5	31.9	22.1	34.8	20.6	31.8	20	30.9	22.6	30.6	21.4	32.4	22.2
26	30.4	25	32	22.5	31	22.7	33.2	20.8	30.8	22.9	32.5	22.4	30.5	22.2	31.1	22.8
27	31.2	25.4	31.6	23	32.7	22.6	33	19.2	32	21.3	31.6	23.3	29.4	22.9	29.6	26.2
28	30.2	25.2	31.5?	22.6	32.2	23.4	35	20	32.2	21.4	32.7	23.5		23.3	31.4	25.1
29	29	23.4	31.8	25	32.4	22.7	31.7	20.5	31.7	21.8	33	22			29.4	25.7
30	30.6	25.2	32.1	24	31.5	23.2	34.4	20.8	32	22	33.1	23	31.5		31.2	25.7
31	29.6	25.2	32?	25.5	29.5	23	28.6	21.4	30	23.1	33	23.9	31.5	23.9	31.1	26.1
Mean	29.9	24.6	31.6	23	31.1	22.4	31.9	21.2	30.8	22.1	30.7	23.1	29.3	22.7	30.6	24.2

Day.	Ambulong, Tanauan.		Canlubang, Calamba.		Paracale.		Santa Cruz, Laguna.		Manila.		Antipolo.		Iba.		San Isidro.	
	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.
	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.
1	29.3	25.8	31.2	23.8	28.2	25	30.4	25.1	30.4	24.4	28.5	23	30.6	21.9?	30.2	24.6
2	30.4	25.8	32.8	23.4	31.5	25	33	25.6	31.9	27.1	31.1	23.7	31.3	23.1	31.5	24.6
3	29.6	25.7	32.7	24.1	32.8	26	32	25	31.5	26.2	30.2	23.5	29.2	22.6	30.9	24.6
4	28.3	24.9	30.6	22.9	31.8	25.6	30.1	24.2	30.7	24.8	28.9	23.1	30.9	22.8	30.1	24.4
5	31.2	23.8	32.8	23.4	32.6	24.7	32.4	23.3	29.7	24.2	29.3	23.2	30.3	22.8	28.1	24.4
6	32.3	22.9	32.2	21.8	30.6	24.5	33.1	22.8	31.5	23.5	31	21.8	30.3	23.5	32.1	24,2
7	31.1	23	31	21.6	31.2	24	32.1	23.4	31.6	24	31.2	22.9	31.2	22.1	32	24.7
8	31.2	23	33	22.5	32	24.1	32.6	23.4	31.6	24.1	31.5	22.2	31.8	22	32.8	23.2
9	31.2	22.7	32	21.6	31	23.2	31.3	22.9	31.6	22.7	31.7	20.5	31.6	21.7	31.6	22.6
10	28.1	22.4	32.2	21.7	30.2	24.2	27	23.7	27.2	23	26.5	20.5	31.2	22	27	23.1
11	32.1	22	32	21.2	30.6	24	31.3	22.1	31.4	22.2	29.6	20.6	31.5	20.8	31.4	22.8
12	30.6	22.7	30.8	21.6	30.5	24	30.2	22.5	30.4	23.2	30.3	20.7	31.7	22.2	31.4	22.4
13	31.8	22.5	31.2	21.7	30	24	31.3	22.7	29.7	22.9	29.7	21.5	31.1	21.6	30.6	22.6
14	31.3	22.2	31.9	21.5	30.2	24.9	32	22.7	31.5	23	31.7	21.3	30.7	20.4	31	23.5
15	25.8	22.5	26.1	21.3	25.2	22	26	23	27.3	23.5	25.2	21.7	27.1	20	25.6	22.6
16	25.5	21.6	28.6	21.6	29.7	22.7	28.5	22.2	28.3	23	29	21.3	29.7	24.1	28.9	23.2
17	28.5	21	29.8	20.4	30.6	23	30.9	22.2	28.2	21.2	27.5	20	26.2	21.4	27	22.2
18	28	24	29.4	20.2?	32.3	24	30.5	24.4	28.7	24.4	29.3	22.9	26.8	23.1	28.5	23.6
19	29.9	23.3	29.8	23.2	33	24	30.6	22.3	31.3	23.9	32.5	23	30.9	23.5	30.9	24
20	29.3	22.7	30.8	21.5	31	23.5	32.2	22.5	31.3	23.5	31	21.5	30.7	23.2	30.5	23.5
21	30	23.1	31.8	21.6	28.9	23.9	32.1	23.8	31.7	24	32.2	21.7	31	22.2	30.4	23.7
22	26.4	24	29.9	21.7	31.8	25	28.9	24.9	30.6	24.8	29.1	23	31.4	22.2	30.6	23.8
23	29.1	23.4	31	22.1	32.7	24.7	31	23.7	30.9	23.3	30.4	21.7	27.8	22.9	28	23.5
24	30.9	22.8	32.8	20.6	33.2	23.8	31.8	22.3	30.8	22.8	30.5	21.5	30.5	22.2	30.6	22.7
25	30.2	22.4	30.6	22.1	33.2	23.8	31.1	21.6	31.3	23.5	30.6	22	30.4	22	29.8	23.4
26	31.4	22.6	31.9	21.6	31.6	23.8	32.8	22.4	32.8	23.1	33.1	21.6			32.2	22.8
27	30.5	23.4	31.4	21.7	30.8	25.7	30.6	22.8	32.9	22.3	32.2	20.8	31.4	22.3	31.9	23
28	30	24	30.6	21.5	31.2	25	30.6	23.8	31.4	23	32	20.9	31.1	21.1	31	22.8
29	31.1	23.8	31	22.4	30.5	25.8	30.8	22.7	32.6	22.1	33.1	20.8	31.3	19	31.5	22.2
30	31.7	24	31.4	22.5	30.8	25.3	31.6	23.5	31.7	21.5	32.7	20.5	32.1	21.7	30.6	22.5
31	32.2	25	31.6	22.7	27.4	24	30.4	24.2	31.2	22.8	33.6	21.9	32.3	21.5	31.4	22.8
Mean	30	23.3	31.1	22	30.9	24.3	30.9	23.3	30.8	23.5	30.5	21.8	30.5	22.1	30.3	23.4

Maximum and minimum temperatures at the stations of the Weather Bureau, October, 1918—Continued.

Day.	Tarlac.		Baler.		Dagupan.		Bolinao.		Baguio.		San Fernando, Union.		Echagüe.	
	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.
	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.
1	33	24.6	31.7	24.6	31	27.1	30.9	26.5	21.8	15.7	32.3	24.7	28.4	22.8
2	33.6	24.6	33	24.9	30.8	25.2	30.8	26.7	22.1	15.7	31.5	25	31.5	22.4
3	31.2	24	32.2	25.2	29.4	25	30.7	26	19.3	16	28.4	24.4	31.5	23.4
4	32.2	23.5	32.7	25.6	30.7	24.8	31	24	19.8	15.8	30	24	32	23.1
5	30.6	23.8	31.4	24	30.4	24.4	29.4	23.6	20.2	16	30.2	24	34.5	24.1
6	30.6	23.6	33.6	23.1	32.5	24.2	31.2	24.2	21.9	15.9	31.1	23.3	33	23.3
7	34.2	24.3	31.4	23.6	32	24.7	31.2	23.4	22.1	16.2	32.3	23.2	33.4	23.5
8	33.2	23.5	31.1	23.7	32.3	23.8	30.8	24.5	23.4	15.3	32.2	22.7	30.6	22.4
9	34.3	22.2	31.2	22.8	33.4	23.2	32.2	23.6	23.2	15.4	31.6	22.8	33	23
10	33.8	22.3	28.5	22.8	32.4	23.6	31.4	22.7	23.2	14.9	32.4	22.5	30	22.4
11	34.7	22.2	31.2	21.1	32.2	22.9	31.2	23.7	22.9	14.4	31.7	22.2	30	22.3
12	34.2	23.1	30.9	22	32.8	23.3	31	23.4	20.4	14.9	31.9	22.2	31	21.7
13	34.5	22.2	30.9	21.1	32	23.5	30.3	23.8	22.6	14.4	32.1	22.8	30	21.5
14	33.7	23.1	31.7	20.4	30.5	23.8	30	25.3	21.4	13.9	31	21.5	28	20.6
15	26.8	23.2	29	22.7	28.4	25.3	29	25.5	21.1	14.3	31.2	23.2	27	22.3
16	28.4	23	29.1	23.3	31.6	23.9	32.2	25.5	19.3	14.9	33.4	24.5	31	24
17	25.5	20.7	29	22.9	26.3	22.4	26.7	24	16.8	13.8	31.1	23.4	27.4	22.5
18	28.6	23.4	27.2	23.5	28	23.8	28.9	23.9	17.8	15.9	31.8	24	27	23
19	31	23.1	27.4	23.4	31.2	23.8	31.3	24.6	18.5	16.2	31	24	27.1	23.3
20	31.8	23.5	28.9	22.4	32.1	23.4	31.5	24.5	23.3	16.3	30.9	23.2	32	23.3
21	33.2	23.8	30.4	21.9	30.7	24.8	30.6	24.4	23.5	15.7	32.3	24.6	31	23.3
22	33.4	23.4	30.6	24.4	30.6	25.6	29.8	26.4	23.3	16	32.5	23.5	29.5	23.8
23	33.5	23	29.5	23.4	27	23.4	27.7	24.9	17.9	15.5	29.4	24.5	29.5	23.3
24	33.2	22.7	31.3	22.3	31.7	23.5	30.5	23.6	18.1	14.9	32	24.5	34.1	22.7
25	33	23.1	31.3	22	29.5	23.4	28.3	25.1	19.3	15.1	29.8	23.2	31.6	21.4
26	33.2	22.8	28.5	21.8	33.4	22.5	33	22.5	23.3	14.4	31.3	23	-----	21.3
27	33.6	23.2	30.9	23.5	32.5	23	32.3	23	24.3	16	31.7	22.1	30.9	22.6
28	33.8	23.1	29.2	22.3	32.7	21.9	31.5	23.2	24.8	15	32	22.3	29	21.6
29	33.8	23	31	21.2	32.6	22.1	31.7	22.2	24.3	14.5	31.4	22.2	32.8	21.6
30	33.5	23.1	29.5	22.3	33.1	22.1	31.8	22.4	22.5	14.6	31.8	22	31.2	20.3
31	31.5	23.4	27.7	23.4	33.6	23.4	32.7	22.6	24.4	16	31.6	22.2	31.5	22.8
Mean	32.3	23.2	30.4	23	31.2	23.8	30.7	24.2	21.5	15.3	31.4	23.3	30.6	22.6

Day.	Candon.		Vigan.		Tuguegarao.		Laoag.		Aparri.		Cape Bojeador.	
	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.
	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.
1	32.4	25.3	31.5	23.7	26.2	22.6	31.4	22.9	30.1	24.5	29.4	22.8
2	31	25	29.3	24.5	29.5	23	29.1	24	30.5	24.7	27.4	23
3	30.2	25.7	28.9	23.7	29.4	23	29.4	24.3	28.4	24.8	28	23.8
4	30	25.6	29.3	23.9	32.5	23.4	29.8	24.3	31.6	23.7	27.8	24.8
5	29.7	24.9	28.6	23	31.4	23.3	29.4	23.4	32.9	23.4	29.2	23
6	31	24.2	30	23.5	30	23.3	29.4	23	30.7	23.3	27.8	23.4
7	31.5	25	31.3	23.6	32.8	22.6	30.1	22.5	31.3	23.3	28.8	24
8	30.8	24.2	32.4	22.2	32.6	21.3	31.3	21.1	30.7	23.2	31.2	22.6
9	31.5	24.7	31.8	22.8	31.6	23.4	33.2	22	30.8	24.2	28.8	23.5
10	31.5	24.8	32.8	24.3	30.6	22.3	32.6	22.2	30.8	24.4	28.6	23.4
11	32.1	24.5	33.1	22.6	27.8	22.1	28.9	21.9	26	22.5	25.5	23.1
12	32.5	25.4	32.4	24.2	31.3	22	33.1	21.6	29.8	23.2	28.2	23.2
13	32.6	23.7	31.8	22.1	30.5	21.7	30.2	22.6	28.6	23	28.2	22.8
14	31.7	22.2	30.6	20.5	27	21.4	30.1	21.5	28	23.4	28.2	22.8
15	31.6	23.2	28.6	23	26.4	22.5	26.8	22.5	27.8	23.8	25.6	23
16	32	24.7	31.6	24.8	33.5	24.1	34.1	25	31.4	24.2	28.9	24
17	29.4	25.5	29.2	24.4	29	23.3	29.6	23.9	29	23.3	25.5	23.6
18	31.6	24.2	33.2	23.5	28	23.4	31.2	23.3	27.5	22.8	29.9	23.2
19	30.5	24.5	32.6	23.6	30	23.2	31.3	23	28.8	23.3	30.2	23.6
20	31.5	25.5	34	24.3	31.8	23.1	31.1	23.7	29.8	22.5	30.2	23.4
21	31.5	25	32.6	22.8	30.5	23	33.2	21	29.4	23.2	28.7	23.3
22	31.5	24.8	30.2	23.5	27.2	23.1	30.2	23	27.6	23.3	27.7	23.7
23	29.4	25	27.3	23	31.3	23.8	28.4	23.4	31.8	23.8	27.8	23.5
24	30	24.8	29.3	23.8	34.2	23	29	23.5	33.1	23.3	27.8	23.2
25	28	24.5	27.7	22.5	29.4	23.3	27.1	21.8	27.5	23.8	27.2	21.8
26	30.3	22.5	30.1	21.9	32	23	29.6	20	30.3	22.5	30.2	23
27	31.7	23.7	32.5	22.5	32.5	22.4	34.1	22.4	30.6	23.1	28.8	23.8
28	31	24	32.7	23	32.3	21.5	33.9	21.5	31.3	22.9	29	24.2
29	30.8	23.8	32.7	22.3	33	22	33.1	20.3	30.4	22.8	29.8	23.2
30	31.5	23.5	33.7	22.6	33.2	20.8	31	20.6	32	22.3	29.8	23.6
31	31.4	24	33.9	23	31.6	22.5	32.1	21.7	31.8	22.8	31.6	23.8
Mean	31	24.5	31.2	23.2	30.6	22.7	30.8	22.5	30	23.4	28.6	23.4

SEISMOLOGICAL BULLETIN FOR OCTOBER, 1918.

By REV. MIGUEL SADERRA MASÓ, S. J.,
Chief, Seismic and Magnetic Divisions, Weather Bureau.

EARTHQUAKES FELT IN THE PHILIPPINES.[1]

2, $13^h\ 23^m\ 14^s$* [2, $21^h\ 23^m\ 14^s$]. **S Luzon.** Earthquake of intensity III–IV felt in the provinces of Manila (Rizal) and Laguna: origin near to the eastern coast.

8, $4^h\ 17^m$ [8, $12^h\ 17^m$]. **Batanes Islands.** Earthquake shocks of intensity V, duration 7 seconds.

10, $21^h\ 8^m\ 8^s$* [11, $5^h\ 8^m\ 8^s$]. **NW Luzon.** Oscillatory earthquake, direction W–E, intensity IV, duration 5 seconds, originated close to the NW end of Luzon and felt only in the province of Ilocos Norte.

17, $7^h\ 18^m$ [17, $15^h\ 18^m$]. **Ambos Camarines.** Earthquake of intensity III, felt in the Isarog region.

19, $11^h\ 7^m\ 22^s$* [19, $19^h\ 7^m\ 22^s$]. **NW Luzon and Batanes.** Earthquake of intensity III–IV: origin in the China Sea, NW of Babuyanes Islands.

22, $8^h\ 11^m\ 0^s$* [22, $16^h\ 11^m\ 0^s$]. **Butuan** (N Mindanao). Oscillatory earthquake, intensity III–IV: its origin probably lay in the Pacific.

24, $7^h\ 30^m\ 29^s$* [24, $15^h\ 30^m\ 29^s$]. **SE Luzon.** Earthquake of intensity IV felt through the southeastern part of Luzon and the adjacent islands of Masbate, Ticao, Burias and Romblon; its epicenter lay under the sea, W of Masbate. At $10^h\ 44^m\ 20^s$* [$18^h\ 44^m\ 20^s$] occurred a second shock of the same intensity but of less extended area and felt chiefly in Romblon Island.

25, $2^h\ 45^m$ [25, $10^h\ 45^m$]. **Tigaon** (SE Luzon). Subsultory earthquake of intensity III.

25, $19^h\ 6^m\ 16^s$* [26, $3^h\ 6^m\ 16^s$]. **Southern Mindanao.** Earthquake of intensity IV–V, felt through the southern districts of the island, Zamboanga, S Lanao, Cotabato and Davao. The origin lay in the Celebes Sea.

26, $17^h\ 1^m\ 16^s$* [27, $1^h\ 1^m\ 16^s$]. **Central Mindanao.** Extensive earthquake of intensity V–VI: it was felt throughout the whole island. The epicenter probably was located some distance W of the Agusan Valley in the Bukidnon subprovince.

28, $8^h\ 33^m$ [28, $16^h\ 33^m$]. **Batanes Islands.** Earthquake of intensity IV, duration 4 seconds.

29, $17^h\ 38^m\ 50^s$* [30, $1^h\ 38^m\ 50^s$]. **Surigao** (NE Mindanao). Oscillatory earthquake, intensity III, duration 6 seconds. Origin towards the E in the Pacific.

29, $18^h\ 3^m$ [30, $2^h\ 3^m$]. **Basco** (Batanes Islands). Earthquake of intensity V–VI. Aftershock at $22^h\ 0^m$ and again on the 30th at $11^h\ 10^m$. All these shocks as well as those on the 8th and 28th must be considered as aftershocks of the earthquakes of September 13th; in fact all were chiefly felt in the destroyed towns of Ivana and Sabatan.[2]

[1] The intensity of earthquakes is given in the notation known as the Rossi-Forel scale. The time is that indicated by the seismographs at the Central Observatory whenever the disturbance has been registered by them. This fact is denoted by an asterisk (*). Otherwise the time is that noted by the observer who sent the report. All time indications are in Greenwich mean time (midnight=0^h), insular time being added in brackets for the convenience of Philippine readers.

[2] See Monthly Bulletin for September.

RECORDS OF THE MICROSEISMOGRAPH.

[Time: Greenwich mean. Midnight=0h. Instrument: Wiechert seismograph; 1,000 kilograms. A_N: T_o=6.62, ϵ=2.726, $\frac{r}{T_o^2}$=0.021; A_E: T_o=6.03, ϵ=2.378, $\frac{r}{T_o^2}$=0.037. Alluvium. 2.40 meters above sea level.]

No.	Date.	Character.	Phase.	Hour.	Period.	Amplitude. A_N μ	Amplitude. A_E μ	Remarks.
				h. m. s.				
396	2	IIId	iP	13 23 14				S Luzon. The maxima lost by the force of the shock.
			F	39				
397	3	Iv	eP	14 05 06				
			F	07				
398	6	Iv	eP	12 51 14				
			L	51 33				
			M_E	51 39	3		82	
			M_N	51 42	3	78		
			F	58				
399	7	Iv	eP	10 11 23				
			F	13				
400	9	IIr	eP	9 22 54				
			S	27 00				
			L	28 02				
			M_E	28 11	7		226	
			M_N	28 18	8	180		
			F	10 18				
401	10	I	e	2 00				
			F	11				
402	10	Iv	eP	21 08 08				NW Luzon.
			F	15				
403	11	IIr	e	14 34 22				Porto Rico.
			S	48 52				
			L	15 23 06				
			M_{E1}	34 18	26		20	
			M_{N1}	37 27	25	29		
			M_{N2}	45 07	18	37		
			M_{E2}	46 22	22		27	
			M_{N3}	54 00	17	57		
			M_{E3}	16 04 16	19		28	
			C	31 05				
			F	17 17				
404	11	Iv	eP	17 24 00				
			F	29				
405	13	I	e	12 52				
			F	13 22				
406	13	IIIv	eP	14 30 15				
			L	30 34				
			M_N	30 45	3	921		
			F	51				
407	14	Iv	eP	10 37 35				
			L	37 53				
			M_N	37 55	3	94		
			F	41				
408	14	Ir	e	12 11 54				
			S	17 22				
			L	21 11				
			M_E	22 09	8		34	
			M_N	22 45	8	40		
			F	56				
409	16	Iv	eP	20 10 05				
			L	10 40				
			M_E	10 46	5		171	
			M_N	10 48	6	246		
			F	32				
410	18	Iv	eP	10 33 47				
			F	36				
411	19	Ir	e	3 42 28				
			F	4 12				
412	19	Iv	eP	5 41 22				
			F	44				
413	19	Iv	eP	11 07 22				NW Luzon and Batanes Islands.
			F	12				

Records of the microseismograph—Continued.

No.	Date.	Character.	Phase.	Hour.	Period.	Amplitude. A_N μ	Amplitude. A_E μ	Remarks.
				h. m. s.				
414	22	Iv	eP	8 11 00				Butuan (N Mindanao).
			L	13 36				
			M_E	13 42	6		167	
			M_N	13 48	6	299		
			F	33				
415	24	Iv	eP	7 30 29				SE Luzon.
			L	31 05				
			M_E	31 17	44		123	
			M_N	31 18	44	143		
			F	33				
416	24	Iv	eP	9 58 08				
			F	10 01				
417	24	Iv	eP	10 44 20				Romblon Island.
			L	44 48				
			M_E	44 52	3		137	
			M_N	44 54	3	126		
			F	50				
418	24	Iv	eP	19 14 30				
			F	16				
419	24	Ir	eP	19 22 38				
			M_N	24 55	6	41		
			M_E	25 11	5		32	
			F	42				
420	24	Iv	eP	21 04 38				
			F	06				
421	25	Iv	eP	4 02 40				
			F	08				
422	25	Ir	eP	19 06 16				S Mindanao.
			L	09 44				
			M_N	10 35	11	136		
			M_E	10 57	11		104	
			F	29				
423	26	Iv	eP	17 01 16				Central Mindanao.
			S	02 42				
			L	03 36				
			M_N	05 22	8	59		
			M_E	06 14	8		36	
			F	26				
424	26	Iv	eP	18 46 51				
			S	47 52				
			L	48 45				
			F	19 00				
425	27	Ir	e	15 36 07				
			S	42 36				
			L	48 00				
			M_E	48 12	13		70	
			M_N	49 04	13	36		
			F	17 07				
426	27	IIr	e	17 13 17				
			S	18 38				
			L	21 26				
			M_{N1}	24 36	10	707		
			M_{E1}	25 26	8		719	
			M_{N2}	31 21	9	746		
			M_{E2}	33 28	10		675	
			C	19 06 30				
			F	20 11				
427	28	Iv	eP	13 19 00				
			F	21				
428	28	Iv	eP	14 28 49				
			F	40				
429	29	Iv	eP	17 38 50				Surigao (NE Mindanao).
			F	51				

TEMBLORES DE TIERRA SENTIDOS EN FILIPINAS.[1]

2, $13^h\ 23^m\ 14^s$* [2, $21^h\ 23^m\ 14^s$]. **S de Luzón.** Temblor de intensidad III–IV sentido en las provincias de Manila (Rizal) y Laguna; originado cerca de la costa oriental.

8, $4^h\ 17^m$ [8, $12^h\ 17^m$]. **Islas Batanes.** Temblor de tierra de intensidad V, duración 7 segundos.

10, $21^h\ 8^m\ 8^s$* [11, $5^h\ 8^m\ 8^s$]. **NW de Luzón.** Temblor oscilatorio, dirección W–E, intensidad IV, duración 5 segundos; originado en el extremo NW de la isla de Luzón y sentido solamente en la Provincia de Ilocos Norte.

17, $7^h\ 18^m$ [17, $15^h\ 18^m$]. **Ambos Camarines.** Temblor de tierra de intensidad III sentido en la región del Isarog.

19, $11^h\ 7^m\ 22^s$* [19, $19^h\ 7^m\ 22^s$]. **NW de Luzón y Batanes.** Temblor de tierra de intensidad III-IV, originado en el Mar de la China al NW de las Islas Babuyanes.

22, $8^h\ 11^m\ 0^s$* [22, $16^h\ 11^m\ 0^s$]. **Butúan** (N de Mindanao). Temblor oscilatorio, intensidad III–IV, su origen probablemente se hallaba en el Pacífico.

24, $7^h\ 30^m\ 29^s$* [24, $15^h\ 30^m\ 29^s$]. **SE de Luzón.** Temblor de tierra de intensidad IV sentido en toda la parte SE de Luzón y en las islas adyacentes de Masbate, Ticao, Burias y Romblón, su epicentro se hallaba en el mar al W de la Isla de Masbate. A $10^h\ 44^m\ 20^s$* [$18^h\ 44^m\ 20^s$] repitió con la misma intensidad pero tuvo menos extensión, sintiéndose principalmente hacia el W en la Isla de Romblón.

25, $2^h\ 45^m$ [25, $10^h\ 45^m$]. **Tigaon** (SE de Luzón). Temblor de tierra susultorio, intensidad III.

25, $19^h\ 6^m\ 16^s$* [26, $3^h\ 6^m\ 16^s$]. **Sur de Mindanao.** Temblor de tierra de intensidad IV–V sentido en toda la parte meridional de Mindanao comprendida por los distritos de Zamboanga, parte sur de Lanao, Cotabato y Davao. Su origen se hallaba en el Mar de Célebes.

26, $17^h\ 1^m\ 16^s$* [27, $1^h\ 1^m\ 16^s$]. **Centro de Mindanao.** Temblor de tierra de grande extensión y de intensidad V–VI; sintióse en toda la isla. El epicentro parece se hallaba al W del valle del Agusan, en la subprovincia de Bukidnon.

28, $8^h\ 33^m$ [28, $16^h\ 33^m$]. **Islas Batanes.** Temblor de tierra de intensidad IV, duración 4 segundos.

29, $17^h\ 38^m\ 50^s$* [30, $1^h\ 38^m\ 50^s$]. **Surigao** (NE de Mindanao). Temblor oscilatorio de intensidad III, duración 6 segundos. Origen al E en el Pacífico.

29, $18^h\ 3^m$ [30, $2^h\ 3^m$]. **Basco** (Islas Batanes.) Temblor de tierra de intensidad V–VI. Repitió a $22^h\ 0^m$ y otra vez a $11^h\ 10^m$ del día 30. Todos estos temblores así como los de los días 8 y 28 eran réplicas de los terremotos del 13 de septiembre, y se sintieron principalmente en los pueblos de Ivana y Sabatan.[2]

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[1] La intensidad de los terremotos se indica conforme a la conocida escala de Rossi-Forel. Cuanto a la hora de su ocurrencia, adoptamos la indicada por los sismógrafos de este Observatorio siempre que los hayan registrado, distinguiéndola por medio de un asterisco (*). En caso contrario copiamos la apuntada por los observadores que nos envían las notas. Todas las indicaciones del tiempo se refieren al tiempo medio de Greenwich (medianoche=0^h). Para conveniencia de los lectores de Filipinas se añade también el tiempo insular.

[2] Véase el Boletín de septiembre.

THE GOVERNMENT OF THE PHILIPPINE ISLANDS

WEATHER BUREAU

MANILA CENTRAL OBSERVATORY

BULLETIN FOR NOVEMBER, 1918

PREPARED UNDER THE DIRECTION OF

REV. JOSÉ ALGUÉ, S. J.

DIRECTOR OF THE WEATHER BUREAU

MANILA
BUREAU OF PRINTING
1919

METEOROLOGICAL BULLETIN FOR NOVEMBER, 1918.

By REV. JOSE CORONAS, S. J.,
Chief, Meteorological Division of the Weather Bureau.

GENERAL WEATHER NOTES.

Pressure and temperature.—The mean atmospheric pressure of this month in the Philippines is somewhat higher than that of the preceding year and than the normal for November. The lowest pressures were generally observed on the 2nd or 4th. There was no barometric falling of importance during the month owing to lack of depressions near the Philippines.

The mean monthly temperature is, with a few exceptions, slightly higher than that of November, 1917, and than the normal of this month. The extreme monthly temperatures for Manila were 33° C. and 18.7° C.: they were registered on the 6th and 21st respectively. The absolute maximum and minimum temperatures for Baguio were 26.2° C., 12° C. on the top of Mirador, and 27.3° C., 10.7° C. in the valley.

PRESSURE AND TEMPERATURE AT THE FIRST AND SECOND CLASS STATIONS FOR NOVEMBER, 1918.

Station.	Pressure.							Temperature.						
	Mean.	Departure from Nov., 1917.	Departure from normal.	Highest mean.	Day.	Lowest mean.	Day.	Mean.	Departure from Nov., 1917.	Departure from normal.	Highest.	Day.	Lowest.	Day.
	mm.	*mm.*	*mm.*	*mm.*		*mm.*		°C.	°C.	°C.	°C.		°C.	
Zamboanga	758.94	+1.12		759.52	13, 23	758.04	4	26.4	+0.5		33.1	28	22.4	22
Tagbilaran[a]	59.07	+1.58	+0.95	59.77	20	58.24	3	26.1	+ .1	−0.4	33.3	8	20.7	18, 21
Surigao	59.34	+1.63	+1.05	60.12	20	58.51	2	26	+ .3	− .4	31.3	7	22.3	18, 21
Cebu	59.48	+1.66	+1.08	60.18	20	58.69	2	27.4	+ .5	+ .6	31.8	28, 29	23.1	16
Iloilo	59.40	+1.79	+1.05	59.96	11	58.51	2	26.6	+ .4	+ .2	31.6	5	22.5	17
Capiz[b]	59.88	+2.07	+1.04	60.51	14			27	+ .6	+ .3	32.3	23	22.1	19
Calbayog	59.94	+1.89	+1.31	60.57	11	59.16	2	25.8	+ .3	+ .1	33	6	20.6	19
Legaspi	60.42	+2.15	+1.56	61.19	14	59.57	4	27	+ .6	+ .4	32.3	6	23	27
Atimonan	60.84	+2.15	+1.47	61.79	14	59.91	2	27.2	+1	+ .7	31	2	21	20
Ambulong, Tanauan	60.02	+1.99		60.88	15	59.12	2	26.2	+ .1		32.7	26	21.3	20
Paracale	60.94	+2.12		61.99	11	60.02	2	26.9	+ .9		31.4	27	21.3	20
Manila	60.71	+2.06	+1.33	61.78	11	59.90	2	25.2	− .2	− .7	33	6	18.7	21
San Isidro[b]	61.44	+2.51	+2.10	62.56	11	60.46	2	25.7	+ .4	0	32.9	17	18.6	19
Dagupan	60.11	+2.11	+1.12	61.06	10	59.36	2	26.7	0	+ .1	34.6	8	19.2	17
Baguio[c]	638.18	+1.63	+1.29	639.13	14	637.39	4	17.9	0	0	26.2	6	12	4
Vigan	760.26	+1.99	+ .95	761.33	10	759.46	2, 4	27.1	− .2	+ .3	34.8	15	21	17
Tuguegarao	61.67	+1.40	+1.19	63.66	11	59.80	26	25.1	+ .9	+ .1	34.6	6	17.8	19
Laoag[a]	60.68	+2.02		61.75	10	59.55	4	25.7	+ .2		34.3	29	17.2	19
Aparri	62.05	+1.24	+1.16	64.07	11	59.95	26	25.4	+ .7	+ .3	33	26	20.3	19

[a] 29 days of observation.
[b] 28 days of observation.
[c] The barometric readings of this station are not reduced to sea level.

Rainfall.—There was an evident lack of rain during this month in the Philippines, only one station in Mindanao and one in the Visayas giving a monthly amount greater than the normal for November. The differences from the normal are particularly remarkable in a good number of stations of Luzon. The total monthly rainfalls for Manila and Baguio differ from the normal of November by −116.2 mm. and −76.6 mm. respectively.

RAINFALL AT VARIOUS STATIONS OF THE WEATHER BUREAU DURING THE MONTH OF NOVEMBER, 1918.

Station.	Total.	Departure from Nov., 1917.	Departure from normal.	Days of rain.	Departure from Nov., 1917.	Greatest rainfall in a single day.	Day.	Station.	Total.	Departure from Nov., 1917.	Departure from normal.	Days of rain.	Departure from Nov., 1917.	Greatest rainfall in a single day.	Day.
	mm.	*mm.*	*mm.*			*mm.*			*mm.*	*mm.*	*mm.*			*mm.*	
Jolo	115.8	—218.5	— 67	13	— 5	24.4	9	Legaspi	265	—212.8	— 73.4	20	— 4	43.3	7
Isabela, Basilan	86.5	— 90.4	— 66.5	16	— 1	23.4	9	Sumay, Guam	116.9	— 11.4	—105.2	14	— 5	26.7	30
Zamboanga	63	— 96.1	— 36.3	13	— 4	16.3	9	Calapan	58.2	—689.2	—252.3	20	— 7	10.4	21, 30
Davao	92.4	— 2.3	— 62.8	10	— 1	31.5	9	Virac	161.8	—392.1	—207	18	— 8	43.7	12
Cotabato	122.5		— 82.1	14	+ 2	34.5	11	Naga	66.6	—222.9	—179.6	11	—12	19.3	30
Camp Keithley, Lanao	151.8			20		26.2	9	Tigaon	129			15		24.6	10
Cagayan, Misamis	11.8	— 44.1		4	— 6	3.3	12	Batangas	13	—107.6	—151.8	7	—12	4.6	27
Butuan	197.9	+ 21.8	— 52.4	27	+ 5	45.7	3	Lucena	87	—196.4		18	— 1	38.1	11
Dumaguete	62.6	—195.7		16	0	18.3	24	Atimonan	127.1	—314.5	—312.4	20	— 6	37.8	29
Yap, Western Carolines	195.5	—102.1	— 19.5					Ambulong, Tanauan	26	—147.2		9	—13	7.4	7
Tagbilaran	109.6?	—142	— 60.6	19	+ 5	18.1	30	Canlubang, Calamba	53.7	—161.4		16	— 3	12.4	7
Iwahig	45.5	—990.4		3	—22	35.1	13	Paracale	161.8	—933.8		25	— 5	33.3	22
Surigao	461.7	+121.8	+ 67	27	+ 4	86.1	3	Santa Cruz, Laguna	64.2	—320.1		19	— 5	22.6	7
Maasin	213.6	—158.5	— 88.9	7	— 3	64.5	12	Manila	11.8	—217.4	—116.2	10	— 8	4.5	15
Cebu	81.6	—118.5	— 65.7	19	0	21.3	15	Antipolo	8.3	—274.1		5	—19	2.5	13, 24
Iloilo	109.7	— 79.1	— 59.4	16	— 2	27.9	11	Iba	0	— 54.6	— 43.7	0	—16	0	0
San Jose Buenavista	6.5		—153.5	5		3.6	11	San Isidro	6.4	—182.4	— 84	4	—12	4.8	13
Cuyo	2.3	—190.6	—119.7	1	—21	2.3	10	Tarlac	3.2	—118	— 75	5	— 7	1.8	13
Ormoc	85.8	— 61.2	—116.6	20	— 3	28.1	11	Baler	118.2	—645.9	—232.7	11	— 6	58.7	23
Guiuan	322.1	—341.9		25	— 3	158.7	11	Dagupan	18.4	— 8.7	— 40.9	2	— 7	13.8	24
Tacloban	283.3	— 43.6	+ 8.2	24	— 2	91.1	11	Bolinao	.3	— 11.1	— 44	1	— 2	.3	2
Capiz	135.5	—335.2	—136.2	13	—12	26.9	7	Baguio	8.6	— 58.1	— 76.6	4	— 8	5.3	24
Borongan	348	—383.3	—140.4	27	+ 2	92.4	11	San Fernando, Union	0	— 68	— 40.3	0	— 7	0	0
Catbalogan	215.5	— 85.1		25	+ 2	59.7	11	Echagüe	29.4	—416.8	—193.8	9	—16	6.9	19
Calbayog	240.3	+ 19.1	— 16	21	— 3	69.4	11	Candon	0	— 33.1	— 42.7	0	— 6	0	0
Masbate	169.3	— 31.9	— 14.2	18	— 3	37.8	11	Vigan	0	— 6.7	— 35.5	0	— 3	0	0
Romblon	194.7	—348.9	— 94.3	23	— 2	62.7	12	Tuguegarao	21.1	—365.4	—244.1	4	—13	9.2	24
Batag	243.6	—422.4		27	+ 3	35.1	17	Laoag	.8	— 50.4	— 35.5	1	— 6	.8	26
Sorsogon[a]	560.3	+157.3		15	— 6	85.3	17	Aparri	38.6	—361.3	—240.7	11	—14	13.8	10
								Cape Bojeador	13.7			2		9.1	20

[a] 28 days of observation.

DEPRESSIONS AND TYPHOONS.

There was not a single depression or typhoon of any importance during this month near the Philippines. And even in the whole Far East there were only three depressions observed in the neighbourhood of the Bonins: one moving northeast to the southeast of the Bonins on the 19th; another recurving northeastward on the 18th to the northwest of the same islands; and the third one moving eastward from 140° to 150° longitude E near 30° latitude N on the 27th to 28th. The approximate tracks of these depressions will be published in the next Bulletin together with the depressions and typhoons for December.

NOTAS GENERALES DEL TIEMPO.

Presión y temperatura.—La presión atmosférica media de este mes en Filipinas es algo mayor que la del año pasado y que la normal de noviembre. Las presiones más bajas se observaron generalmente el día 2 ó 4. No hubo descensos barométricos de importancia durante el mes debido a la ausencia de depresiones en las cercanías de Filipinas.

La temperatura media mensual es, con pocas excepciones, ligeramente mayor que la de noviembre, 1917, y que la normal de este mes. Las temperaturas extremas del mes en Manila fueron 33° C. y 18.7° C., registradas los días 6 y 21 respectivamente. Las temperaturas máxima y mínima absolutas de Baguio fueron 26.2° C., 12.2° C. en la cumbre del Mirador, y 27.3° C., 10.7° C. en el valle.

Precipitación acuosa.—Hubo verdadera escasez de lluvia durante este mes en Filipinas, no siendo más que dos, una en Mindanao y otra en Visayas, las estaciones que dan una cantidad mensual mayor que la normal de noviembre. Las diferencias de la normal son particularmente notables en un buen número de estaciones de Luzón. Los totales de lluvia del mes para Manila y Baguio se diferencian de la normal de noviembre en —116.2 mm. y —76.6 mm., respectivamente.

DEPRESIONES Y TIFONES.

No hubo ni una sola depresión o tifón de alguna importancia durante el mes cerca de Filipinas. Y aun en todo el Extremo Oriente solamente hubo tres depresiones en los alrededores de Bonins una que se movió hacia el NE por el SE de aquellas islas el día 19, otra que recurvó al NE por el NW de las mismas islas el 18, y la última que se dirigió el E desde 140° hasta 150° longitud E y cerca de 30° latitud N del 27 al 28. Las trayectorias aproximadas de dichas depresiones se publicarán en el siguiente Boletín juntamente con las depresiones y tifones de diciembre.

METEOROLOGICAL DATA FOR MANILA CENTRAL OBSERVATORY.[a]

[$\phi = 14°\ 34'\ 41''$ N; $\lambda = 120°\ 58'\ 33''$ E; barometer above sea, 14.2 meters; gravity correction not applied, —1.72 mm.]

Day.	Pressure (mean).	Air temperature.[b]			Underground temperature.						Relative humidity (mean).	Vapor pressure (mean).	Radiation.		Evaporation.[b]	
		Mean.	Maximum.	Minimum.	0.25 meter.		0.50 meter.		1.50 meters.	2.50 meters.			Minimum on grass.	Maximum in sun. Black bulb in vacuo.	Free exposure (total).	Shelter (total).
					8 a.m.	2 p.m.	8 a.m.	2 p.m.	8 a. m.	8 a. m.						
	mm.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	*Per ct.*	*mm.*	°C.	°C.	*mm.*	*mm.*
1	760.20	26	31.5	21.8	28	29.4	29.2	29.3	29.3	28.4	85	21	21		3.1	2
2	59.90	25	30.7	20.8	27.8	29.1	29.1	29.2	29.3	28.4	87.1	20.4	19		2.3	1.6
3	60	25.5	32.2	21.4	27.8	29.6	29	29.3	29.1	28.3	79.9	19	19		3.9	2.9
4	59.91	24.9	30.4	20.2	27.8	28.8	28.9	29.2	29.2	28.3	84.9	19.7	18.1		2.4	1.8
5	60.14	25.4	31.4	21.2	27.5	29	28.8	29	29.2	28.3	85.2	20.4	19		2.5	1.8
6	60.23	26.6	33	22	27.8	29.5	28.9	29.3	29.2	28.3	79.6	20.2	20.1		4.1	2.8
7	60.63	26	31.7	21.9	28.2	29.3	28.9	29.2	29.2	28.3	82.4	20.4	20		2.4	1.9
8	60.99	26.4	32.5	22.1	28.3	29.6	29	29.4	29.2	28.3	81.9	20.7	21.4		3.4	2.2
9	61.32	25.1	30.9	21.2	28	29	29.1	29.3	29.1	28.3	84.9	19.9	19.1		3.2	1.7
10	61.63	24.8	30.8	21.3	27.6	28.8	28.9	29	29.2	28.5	80.5	18.5			3.8	3.1
11	61.78	25.7	31.6	22.2	27.5	29.1	28.9	29	29.1	28.3	75	18.2	20		3.9	3
12	61.31	25	30.6	21.6	27.6	28.9	28.9	28.9	29.1	28.3	84.1	19.6	19.5		2.4	1.8
13	61.53	25.5	32.7	20.5	27.4	28.9	28.8	28.8	29.1	28.3	81.4	19.4	18.2		2.8	2.5
14	61.56	25.4	29.9	22.8	27.7	28.5	28.8	28.8	29.3	28.3	88.2	21.2	19		1.5	1.2
15	61.56	24.6	30.6	20.7	27.5	28.3	28.6	28.7	29.1	28.4	85.6	19.5	20.1		2.2	2
16	60.89	25.1	32.2	20.2	26.8	28.4	28.5	28.6	29	28.3	77.1	17.9	18		4.2	3.4
17	60.69	24.2	30.7	20.5	26.7	27.9	28.4	28.2	29	28.3	85.1	19	18.4		1.6	1.5
18	60.67	24.2	30.6	19	26.5	28.2	28	28.3	29	28.2	80.8	17.8	17.1		3.9	2.7
19	60.74	23.8	28.9	18.8	26.5	27.5	28.1	28.1	29	28.2	84.9	18.5	16.6		1.5	1.3
20	61.11	24.4	31	19.4	26.5	28	27.9	28.2	28.9	28.2	82.3	18.4	17.2		3.5	1.4
21	60.57	24.4	31.2	18.7	26.5	28	27.9	28.4	28.9	28.2	82	18.4	16.1		3.8	3
22	60.38	25.5	30.7	20.8	26.8	28.2	27.9	28.2	28.8	28.3	82.3	19.8	18.6		3.4	1.9
23	60.20	25.5	31.2	21.3	27.2	28.5	28	28.6	28.7	28.2	87.4	21	19.5		2.8	1.7
24	60.38	25.7	31.2	21.9	27.5	28.5	28.3	28.5	28.9	28.4	86.6	21.1	20.2		2.4	1.5
25	60.14	25.6	31.8	21.8	27.3	28.6	28.3	28.6	28.8	28.3	85.8	20.7	20.2		3.6	1.8
26	60.11	25.4	31.4	20.8	27.2	28.7	28.4	28.5	28.8	28.3	82.6	19.7	18.5		2.9	1.9
27	60.46	26.2	31.5	21.4	27.4	28.7	28.3	28.6	28.8	28.4	81.9	20.4	19.4		3	2.1
28	60.24	25.2	32	21.3	27.3	28.5	28.4	28.7	28.8	28.5	87.1	20.6	19.2		2.3	1.9
29	60.87	25.1	31.2	21.3	27.2	28.2	28.5	28.5	28.7	28.2	83.7	19.6	19.7		2.4	2
30	61.04	24.5	30.5	20.7	26.9	27.8	28.1	28.3	28.8	28.3	81.6	18.5	19		2.8	1.9
Mean	760.71	25.2	31.2	21	27.4	28.6	28.6	28.8	29	28.3	83.2	19.6	19		2.9	2.1
Total															88	62.3
Departure from normal	+1.33	—0.7	+0.8	—1.1							+0.6	—0.7				

Day.	Wind.				Clouds.			Sunshine.	Rain, 24 hrs. beginning 6 a. m.		Miscellaneous.
	Prevailing direction.	Total movement.	Maximum hourly velocity.	Direction at the time of the maximum velocity.	Amount (mean).	Form and direction. Upper.	Lower.		On the tower.	In the park.	
		Km.	*Km.*		*0-10.*			*h. m.*	*mm.*	*mm.*	
1	NE quad.	90.5	15.5	WbyS	2.8	A.-Cu. SE	Cu. E	8 35			d ☊ ☰° a.
2	W quad.	70.5	9	WNW	6.2	A.-Cu., Ci.	Cu. E	6 20			☊ a. p° p.
3	E	123.5	14	E	3.2	A.-Cu., Ci.	Cu. E	9 35			☊ a.
4	NE quad.	83	9	WSW, NNW	7.1	Ci.	Cu. E	5 50			☊° a.
5	NE quad.	80.5	16	WNW	3.8	Ci.	Cu. E	9 05	0.6	0.7	☊° a. p° p.
6	E quad.	132	17.5	SE	4	Ci.	Cu. E	9 30			
7	NE	86.5	13.5	NNE	5.8	Ci.	Cu. E	6 40	1.5	1.7	d° a. p p.
8	E quad.	118	17.5	ESE	4.2	Ci.	Cu. E	8 40			d a.
9	NNE	118.5	12	NE	4.2	Ci.	Cu. E	6 25	.3	.3	☰° a. d° p.
10	NNE, NE	192.5	25	NNE	5	Ci.	Cu. E	7 10	1.3	1.5	☰° ● a. d p.
11	NNE	229	18	NNE	3.8	Ci.	Cu. E	8 25			
12	NE	105.5	13.5	ENE	5.8	A.-Cu.	Cu. E	5 40			d° a.
13	NNE, E	155.5	21.5	E	4.1	A.-Cu., Ci.	Cu. E	8 05	.4	.5	d² p.
14	NNE	146.5	22.5	NW	8.8	A.-Cu., Ci.	Cu. E	3 15	1	1.2	d p.
15	ENE	140	15.5	ENE	4.8		Cu. E	5 10	4.5	4.3	●° a. ● p.
16	NNE	171	16	EbyS	3.1		Cu. ENE	7 45			
17	NNE, ESE	132.5	13	SE	6.4	A.-Cu.	Cu. ENE	3 35	.9	1.2	●° a. p p.
18	E quad.	138	14.5	WSW	1.8		Cu. E	9 15			☊ ☰° a.
19	E quad.	120.5	14	NW	5.7	A.-Cu. E	Cu. E	5 35	.8	.8	d° a. ●° p.
20	NNE, E	131.5	13	W	3.8	Ci., A.-Cu.	Cu. E	9 05			☊ ☰° a.
21	E quad.	175	15.5	WSW	2.1	Ci.	Cu. E	9 10			☊ ☰° a.
22	W, N	135	15.5	WbyS	5	A.-Cu. NE	Cu. E	7 35			
23	W quad.	102.5	13	W	4.2	Ci.	Cu. E	8 20			☰° a. ⊤° p.
24	E quad.	106.5	11	W, NW	6.9	Ci.	Cu. ENE	5 20			☰° d° a.
25	E quad.	113.5	12	WSW	5.9	A.-Cu. ENE	Cu. E	6 20			
26	NE	113	13	WSW	1.2		Cu.	7 55			
27	NNE	129	15.5	W	2.7	Ci.	Cu. E	8 05			
28	NE, E	118.5	15	WNW	4.5	Ci.	Cu. ENE	6 25	.5	.5	d° a. d p.
29	NE	101.5	11.5	ENE	4.8		Cu. E	4 20			
30	E quad.	88.5	10	ENE	5.6	A.-Cu. NE	Cu. E	3 25			
Mean		125	14.8		4.6			7 01			
Total		3,748.5						210 35	11.8	12.7	
Departure from normal		—1,155.4			—1.7			+47 19	—116.2		

[a] All the mean values given in this table are deduced from hourly observations.
[b] These values are taken from instruments mounted in the Observatory Park, 1.5 meters above ground.

METEOROLOGICAL DATA FOR MIRADOR OBSERVATORY, BAGUIO.[a]

[ϕ=16° 25′ N; λ=120° 36′ E; barometer above sea, 1,512.5 meters; gravity correction not applied, —1.65 mm.]

Day.	Pressure[b] (mean).	Air temperature at Mirador (on the top of the mountain).					Air temperature in the valley (near the city hall).				Relative humidity (mean).	Vapor pressure (mean).	Radiation.		Evaporation.	
		Mean.	Maximum.	Hour.	Minimum.	Hour.	Maximum.	Hour.	Minimum.	Hour.			Minimum on grass.	Maximum in sun. Black bulb in vacuo.[c]	Free exposure (total)	Shelter (total)
	mm.	°C.	°C.		°C.		°C.		°C.		*Per ct.*	*mm.*	°C.	°C.	*mm.*	*mm.*
1	638.11	18.5	25.4	1.25p.	15.1	4.00a.	25.9	Noon	13.2	5.50a.	79.5	12.4	9.7	59	3.9	2.1
2	37.66	18	24	10.40a.	14.7	5.00a.	25	11.40a.	13.2	5.55a.	77	11.8	11.5	57	3.8	1.9
3	37.64	18	24.8	11.35a.	14	6.00a.	25	0.50p.	13.4	6.10a.	76.2	11.5	11.5	56.6	6	3.4
4	37.39	17.9	24.5	11.20a.	12	5.35a.	25.5	0.55p.	10.9	2.50a.	67.5	10.4	7	58.8	6.6	3.4
5	37.97	19.2	25.6	Noon	14.8	1.00a.	26.4	0.35p.	13	2.20a.	69.8	11.4	7.1	54.8	9	3.8
6	38.15	19.8	26.2	11.00a.	15.7	1.15a.	27.3	1.00p.	14.7	1.40a.	71	12.1	12.5	55.2	5.5	2.5
7	38.46	18.5	25.1	11.20a.	14.4	6.00a.	26.3	Noon	12.8	6.00a.	79.8	12.5	9.7	55	4.7	1.8
8	38.70	18.4	24.2	10.20a.	14.1	12 m. n.	25.5	11.20a.	13.2	4.05a.	77.8	12.2	10.6	55	4.8	2
9	38.89	18.6	25.8	11.00a.	14.2	0.05a.	25.9	11.40a.	13.3	12 m. n.	73	11.3	10.7	55.6	6.8	2.3
10	38.95	18	25	1.00p.	14	2.00a.	25.8	Noon	12.9	6.00a.	59.7	9.2	9	54.8	8	2.6
11	38.84	17.7	23.8	10.45a.	14	11.00p.	24.8	11.50a.	12.4	8.55p.	51.7	7.9	13.2	53.1	12.5	3.3
12	38.40	17.4	23.3	0.30p.	14	4.30a.	24.7	Noon	12.3	5.50a.	57.2	8.5	8	52.1	12.5	2.5
13	38.93	17.4	23.1	1.00p.	14	6.00a.	24.5	11.00a.	11.7	4.35a.	66	9.8	13	53.3	11.5	1.9
14	39.13	18.8	23.8	0.40p.	14.8	4.10a.	24.8	1.00p.	14.6	6.00a.	71.7	11.3	11.5	52.8	6.4	1.6
15	38.83	17.6	24.1	11.50a.	14	12 m. n.	24.4	1.05p.	12.4	12 m. n.	56.7	8.4	12.4	56.8	10.9	3.6
16	38.28	17.8	25	11.10a.	13.4	2.40a.	25.6	1.30p.	10.7	6.00a.	48.8	7	6.5	55	11.8	6.4
17	38.19	17.9	25.3	0.40p.	12.6	4.15a.	26.4	0.25p.	11	4.25a.	64.2	9.8	10.4	54.2	6	3.5
18	37.74	17.1	24.8	0.05p.	13.2	6.00a.	26.5	1.00p.	11.3	6.00a.	70	10	6.2	53.3	4.9	3
19	37.69	16.6	24.3	11.40a.	12.4	5.45a.	25.6	0.10p.	11	6.30a.	77.7	10.7	6	53.9	4.3	2.5
20	38.10	16.7	22.8	2.05p.	13.4	6.00a.	24	1.55p.	12.1	5.50a.	85.3	12	8.5	60	3	1.4
21	37.80	17.6	24.8	11.05a.	14.1	4.15a.	25.4	11.40a.	12.5	6.00a.	80.8	12	8.5	54.6	3.3	2.2
22	37.81	16.9	23	9.30a.	13.4	6.00a.	25.1	1.00p.	11	5.55a.	85.5	12.2	7.4	53.4	3	2
23	37.68	17.6	24.6	10.35a.	14.4	4.00a.	25.1	10.10a.	13.6	6.00a.	86.5	12.8	7.4	58.8	1.7	1.1
24	37.78	17.8	25.1	10.35a.	15.2	6.40a.	26.2	11.45a.	14.5	5.55a.	89.8	13.4	7.4	58	2.4	1.3
25	37.64	17.6	23.7	0.30p.	14.6	2.30a.	24.6	2.40p.	14	6.15a.	88.5	13.3	12.7	59.4	1.7	1
26	37.81	17.8	24.1	1.20p.	15	4.55a.	25.2	2.20p.	13.5	6.40a.	85.8	13	10.3	56	2.8	1.7
27	38.05	18.2	24.1	0.40p.	14.5	5.40a.	25.6	Noon	12.7	6.00a.	85.3	13.2	9.1	54.7	2.2	1.3
28	37.85	17.8	24	10.10a.	14	4.40a.	25.8	11.05a.	13.9	4.45a.	88.3	13.2	12.9	57.2	2.1	1.2
29	38.39	18	24.7	11.25a.	14.4	6.05a.	25.6	0.05p.	13.1	4.00a.	83.2	12.7	9.7	55.4	3.5	1.9
30	38.52	18.2	24.5	10.50a.	14.3	5.35a.	26.1	11.40a.	12.9	5.55a.	83.5	12.8	11.2	55.9	2.8	1.4
Mean	638.18	17.9	24.4		14.1		25.5		12.7		74.6	11.3	9.7	55.7	5.6	2.4
Total															168.4	70.6

Day.	Wind.				Clouds.			Sunshine.	Rain, 24 hours beginning 6 a. m.	Miscellaneous.
	Prevailing direction.[d]	Total movement.	Maximum hourly velocity.	Direction at the time of the maximum velocity.	Amount (mean).	Form and direction. Upper.	Lower.			
		Km.	*Km.*		*0–10.*			*h. m.*	*mm.*	
1	E	212	20.1	E	4.1	A.-Cu.	Cu.-N. SE	7 00	1.3	☊ a. ≡ d° p.
2	E, SW	308.6	28.7	E	4.9	Ci.	Cu.-N. ESE	5 50		≡² p.
3	E	284.8	19.5	E	1.4	Ci.	Cu.	7 50		☊ a. ≡° p.
4	E	[e]277.4	27.4	E	.3	Ci.	Cu. ESE	7 35		☊° a.
5	[f]E, SE				1	Ci.	Cu. ESE	8 10		☊° a.
6	E, SE	305.1	23.5	E	1.9	Ci.	Cu. SE	7 25		
7	E	233.7	16.1	E	4.4	Ci. NE	Cu.-N. E	5 35		☊ a. ≡ p.
8	E	279.9	22.2	E	5.4		Cu.-N. ESE	3 25		☊ a. ≡² p.
9	E	333.6	26.4	E	2.9	Ci.	Cu. E	7 05		☊° a. ≡° p.
10					.9	Ci.	Cu. SE	8 20		≡ p.
11	E?		19.5?	E?	.1	Ci.	Cu. SE	8 05		
12	E	494	34.9	E	.4		Cu.	6 40		
13	E	650.7	61.4	E	1.4	A.-Cu.	Cu. E	7 15		☾° a.
14	E	424.8	28.2	E	6.6	Ci.-S.	Cu.-N. ESE	4 50		d° a. ⊕ ◠° p.
15	E	463.4	35.2	E	.7	A.-Cu. SE	S.-Cu. ESE	7 50		
16	SE quad.	238.1	22.7	E	0		Cu.	9 35		☊ a.
17	E quad.	313.8	26.2	SE	1.4	Ci., A.-Cu.	Cu. SSE	8 50?		☊° a.
18	E	242.8	19.1	E	.6		Cu.	8 50		☊ a. ≡ p.
19	E quad.	233.3	18.5	SW	3.4		Cu.-N. E	6 55		☊² a. ≡ p.
20	E quad.	271.4	22.5	E	4.4	Ci.	Cu.-N. SE	3 25		☊ a. ≡² p.
21	E	310.4	23.6	SE	2.7	Ci.	Cu. ESE	5 50		☊ a. ≡° p.
22	E, SW	232.1	17.1	W	4.3	Ci.	Cu.-N. W	6 55		☊² a. ≡² p.
23	Variable	273.9	20.4	E	5.4	Ci.	Cu.-N. SE	4 55	.5	☊² ≡ a. ≡² d² p.
24	E	286.8	20.7	E	4.1	Ci.	Cu.-N. ESE	4 10	5.3	≡ ● ↘ p.
25	E, SW	261.9	20.4	E	3.3	Ci.	Cu. ESE	4 45		≡° p.
26	E, SW	231.8	17.4	W	2.1	Ci.	Cu. Variable	8 45		☊ a. ≡ p.
27	SW quad.	211.7	17.2	SW	2.7	Ci.	Cu. ESE, E	7 00		☊² a. ≡² p.
28	E	299.5	22.5	E	4.9		Cu. ESE	5 05	1.5	☊² a. ≡² a. p. ●° ◠° p.
29	E	307.4	21.4	E	3.1	Ci.	Cu. ESE, ENE	5 35		☊ a. ≡° p.
30	E	269.2	17.2	E	5	Ci.-Cu., Ci.-S.	Cu. E	5 00		☊ a. ≡ d° p.
Mean		305.6	23.9		2.8			6 37		
Total								198 30	8.6	

[a] All the mean values given in this table are deduced from six daily observations taken at 2, 6, 10 a. m. and 2, 6, 10 p. m.
[b] The barometric readings of this station are not reduced to sea level.
[c] Maximum of hourly observations taken from 6 a. m. to 6 p. m.
[d] This element is based on hourly observations taken from a quadruple register, which gives only eight possible directions of the wind.
[e] 1 hour missing.
[f] Deduced from 19 observations only.

DAILY RAINFALL AT THE STATIONS OF THE WEATHER BUREAU, NOVEMBER, 1918.

Station.	Day of month.															
	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.
	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.
Jolo	9.1	17	1.3	23.1	.....	7.1	.....	.....	24.4	7.6	1.8	3	.....	.....	.....	.....
Isabela, Basilan	6.6	2	.....	2.5	3.3	.....	.....	1.5	23.4	15.2	13.7	.5	2.3	0.8	1.3	.....
Basilan Plantation, Isabela (Basilan) Office[a]	14.2	.....	.....	6.4	4.3	.....	.....	.....	33.3	6.4	22.3	2.5	4.6	1.3	.....	.....
Zamboanga	8.1	1.1	.....	1.6	2	14.5	.....	.....	16.3	4.1	2.5	.3	7.4	.....	.....	.....
Davao	3.3	24.4	3.3	.....	.....	.....	.....	8.6	31.5	2.8	.....	5.3	.....	.....	.....	.....
Cotabato	10.9	17	15.5	3.3	4.3	.....	.....	.....	1.5	.....	34.5	5.8	1.5	1.8	.....	.....
Camp Keithley, Lanao	4.1	2.1	10.8	3	18.6	7.8	.....	4.3	26.2	.3	5.3	15.8	4.3	.6	.....	1.8
Cagayan, Misamis	.....	.....	.....	3	.....	.....	.....	.....	3	.....	2.5	3.3	.....	.....	.....	.....
Butuan	35.3	2.3	45.7	18	1.8	.....	0.3	2.3	5.6	21.3	.5	9.4	1.8	1.3	1.5	.8
Dumaguete	.5	10.2	17.8	1.5	1.8	.....	.....	.....	1.4	1.3	.....	.8	4.1	.5	1.3	.8
Yap, Western Carolines	.....	.....	12.7	1.8	.5	4.6	5.1	1.3	4.3	10.9	5.6	.....	.....	.....	.....	.....
Tagbilaran	.....	8.7	1.4	.5	7.3	.....	11.4	.....	1.8	8.2	3.8	11.2	7.7	6.2	.8	.....
Iwahig	8.1	.....	.....	.....	.....	.....	.....	.....	2.3	.....	.....	.....	35.1	.....	.....	.....
Surigao	19	53	86.1	32.2	18.8	.3	8.4	4.9	5.1	10	27.5	17.2	38.7	7.6	32.9	7.9
Maasin	.....	.....	26.7	7.6	.....	.....	.....	14.7	.....	31	42.7	64.5	.....	.....	.....	.....
Cebu	.....	.3	3	12.5	.8	.....	.....	2.1	2.3	4.3	4.8	9.2	3.8	2.3	21.3	1.5
La Carlota, Occidental Negros[a]	.....	.....	.....	.8	5.1	.....	.....	.....	.....	.....	2.5	1	.3	.....	.....	.....
Iloilo	.....	7.1	.5	.5	1	4.6	.....	1.5	.8	23.6	27.9	13.5	.3	.....	11.4	9.9
San Jose Buenavista	.....	.....	.....	.....	.....	.....	.....	.....	.3	1.8	3.6	.3	.....	.....	.....	.5
Cuyo	.....	.....	.....	.....	.....	.....	.....	.....	.....	2.3	.....	.....	.....	.....	.....	.....
Lucena, Iloilo[a]	.....	.....	.....	.....	.....	6.1	.....	.....	.....	15.5	12.7	.....	.....	.....	.....	.....
Ormoc	.....	4.1	.....	3.3	7.9	2.8	.....	2.8	1.8	12.7	23.1	3.6	.....	.....	3.8	1.8
Guiuan	1.5	.....	6.3	8.6	10.6	32.7	1.5	7.4	2.6	2.3	158.7	5.8	3.3	3.3	.8	14.5
Dueñas, Iloilo[a]	.....	.....	.....	.....	.....	.....	.....	.....	10.2	9.7	10.9	12.2	1.8	.....	.....	8.1
Bitaogan, Iloilo (Railroad Iloilo to Capiz)[a]	.....	.....	.....	.....	.....	.....	7.1	1	5	2	8.7	12.4	6.4	4.3	1.5	4.3
Lapus, Iloilo (Railroad Iloilo to Capiz)[a]	.....	9.1	.5	.8	2.3	4.1	.....	2	1.5	26.9	31.5	14.7	.....	.....	9.9	14.3
Tacloban	1.5	18.3	.....	14	7.4	2.6	2.4	1.3	8.9	24.2	91.1	38.4	6.4	1.5	7.4	16.7
Dumarao, Capiz[a]	.....	.....	5.1	.....	.....	3.8	.....	.....	12.7	38.1	17.8	17.7	.....	.....	5.1	.....
Dao, Capiz[a]	.....	5.3	4.8	.6	3.3	.8	3.5	1	14.7	10.7	44.5	11.9	17.5	1.5	6.6	2.3
Capiz	.....	8.6	.....	.5	.....	.....	26.9	.....	12.2	8.6	21.1	10.2	2.5	.....	7.3	9.4
Borongan	9.7	26.6	.8	7.1	1.3	10.2	1.3	1	12.4	14	92.4	7.6	5.8	1.8	5.9	20.3
Catbalogan	.....	13.7	.....	18.8	3.6	4.8	9.9	3.3	19	21.3	59.7	6.4	10.4	.....	4.8	5.1
Calbayog	.....	1	.....	23.1	1	1.8	9.7	.....	1.5	14.2	69.4	10.9	.8	.....	2.5	12.3
Masbate	2	.....	.....	.....	.....	4.8	5.1	14.2	18.8	9.2	37.8	20.1	9.4	2.3	17.3	8.6
San Jose Estate, J. Abello D-13, Mindoro[a]	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
San Jose Estate, Tamaraw Plantation, Mindoro[a]	.....	.....	3	.....	.....	.....	.....	.....	.....	.....	.....	4.8	5.1	.....	.....	.....
San Jose Estate, San Agustin, Mindoro[a]	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	6.9	.....	.....	.....	.....
San Jose, Mindoro[a]	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	5.1	.....	2.8	.3	.....	.....
San Jose Estate, Tunnel D-12, Mindoro[a]	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	6.1	.....	.....	.....	.....
Romblon	1.5	.....	.....	.....	.....	4.3	2.3	.....	10.6	3.3	11.7	62.7	2.6	.3	7.7	.5
Batag	5.6	5.1	3.8	22.1	4.3	2.3	6.1	5.8	7.4	2.5	4.3	17.3	15	.....	21.6	6.6
Sorsogon	34	.....	.....	.....	.....	38.4	51.6	37.3	74.7	51.6	52.1	5.1	.....	.....	.....	43.9
Legaspi	.....	1	1.3	3.6	.....	17	43.3	7.3	15.3	6.9	18.8	24.3	8.6	.8	9.6	10.5
San Miguel Estate, San Miguel Island, Tabaco, Albay[a b]	.....	.....	1.5	.....	2.5	1.8	19.6	8.1	1.5	3.3	.3	8.6	1.8	.....	6.9	7.1
Sumay, Guam	3.8	.....	.....	5.1	.....	.....	.....	.....	5.1	2.5	.....	5.1	.....	5.1	16.5	5.1
Calapan	.3	.....	1.3	1	.....	.....	.3	1	.....	4.3	6.6	.....	2.3	.....	4.3	3.8
Virac	6.6	.6	.....	1.5	.....	.....	11.2	.3	1.3	4.1	.....	43.7	4.3	3.1	9.9	6.9
Naga	.....	.....	.....	.....	.....	.....	6.1	.....	.....	6.6	.....	.3	1.5	3.6	5.8	5.3
Tigaon	.....	5.3	.....	1	6.6	.....	14	.....	3.6	24.6	1	7.1	.3	.....	2	11.2
Batangas	.....	.....	.....	.3	.....	.....	.....	.....	.....	.....	2.8	.....	2	1.3	1	.....
Lucena	.....	.....	.8	.5	.....	1.8	3.8	.....	1.3	3.3	38.1	.....	1.3	1	9.9	7.1
Atimonan	.....	.....	.....	3.3	1	2.5	6.3	.....	2.1	3.1	9.7	.....	2.3	7.9	12.3	4.6
Ambulong, Tanauan	1.3	.....	.....	.....	.....	.....	7.4	.....	.....	2.5	4.3	.....	1.3	4.8	2.8	.....
Canlubang, Calamba	1	1	.....	5.3	1	.8	12.4	.5	1.5	2.8	3.6	6.1	3.3	9.9	2.5	.....
Paracale	6.2	.....	1.3	1.8	13.2	10.1	10.9	5.3	3	5.4	8.6	2.5	13	3.5	10.7	1.3
Santa Cruz, Laguna	.8	1.5	.....	3.8	.3	.3	22.6	1.3	1.8	3.5	2.3	7.1	1.5	.....	11.2[d]	.5
Fort Mills, Corregidor[a c]	.....	.....	.....	.....	.....	.....	4.3	.....	.....	.....	.....	1.5	.....	6.1	2	.....
Alabang, Rizal[a]	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Lamao, Bataan[a]	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Manila	.....	.....	.....	.....	.6	.....	1.5	.....	.3	1.3	.....	.....	.4	1	4.5	.....
Antipolo	.....	1	.....	.....	.....	.....	.....	.....	.....	1.3	.....	.....	2.5	.....	.....	.....
Bosoboso, Rizal[a]	.....	1	.....	.....	.....	.....	.5	.....	.....	.....	.....	.....	.8	1.5	.....	.....
Montalban, Rizal[a]	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.8	.5	.....	1.5	1.8	.....
Hacienda Pintong Sapang, San Jose, Bulacan[a]	5.1	.....	.....	.....	.....	.....	.....	.....	.....	.5	.....	.....	.....	1.5	2	.....
Mabayuan Dam, Olongapo, Zambales[a]	.....	.....	.....	.....	.....	.....	.5	.3	.....	.....	.....	.....	6.1	12.2	.5	.5
Iba	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
San Isidro	.....	.....	.....	.....	.....	.....	.8	.....	.....	.....	.....	.....	4.8	.....	.....	.....
Hacienda Luisita, San Miguel, Tarlac[a]	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Hacienda Luisita, Comillas, Tarlac[a]	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Tarlac	.....	.3	.....	.....	.....	.....	.....	.3	.....	.....	.....	.....	1.8	.5	.....	.....
Baler	.....	.....	.....	.....	.....	.....	.5	1	5.1	.....	.....	.....	6.1	10.7	.....	.....
Paniqui, Tarlac[a]	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
C. L. A. S. Muñoz, Nueva Ecija[a]	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Dagupan	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Santo Tomas Mt., Mountain Province[a]	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Bolinao	.....	.3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Baguio	1.3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
San Fernando, Union	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Echagüe	.....	.....	1	.....	.....	.....	.....	.3	.....	.....	.....	1.5	1.6	5.9	.....	.....
Sagada, Mountain Province[a]	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1.8	.....	.....
Bontoc, Mountain Province[a]	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1.5	.....	.....	.....
Candon	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Villavieja, Pilar, Abra[a]	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Vigan	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Tuguegarao	.....	.....	.....	.....	.....	2.8	.....	.....	.....	.....	.....	.....	.....	3.8	.....	.....
La Paz, Abra[a]	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Laoag	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Aparri	.....	.....	.....	.....	.....	.....	.....	.3	.....	13.8	.8	1	.....	1	1.2	.....
Cape Bojeador	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

[a] Voluntary or coöperative station.
[b] Rain in 24 hours beginning 8 a. m.
[c] Rain in 24 hours beginning 7 a. m.
[d] Amount of rainfall corresponding to 14 and 15.

Daily rainfall at the stations of the Weather Bureau, November, 1918—Continued.

Station.	Day of month.														
	17.	18.	19.	20.	21.	22.	23.	24.	25.	26.	27.	28.	29.	30.	Total.
	mm.	*mm.*	*mm.*	*mm.*	*mm.*	*mm.*	*mm.*	*mm.*	*mm.*	*mm.*	*mm.*	*mm.*	*mm.*	*mm.*	*mm.*
Jolo	8.4	.....	1.3	.....	.....	.....	.....	.....	.....	10.4	1.3	.....	.....	.....	115.8
Isabela, Basilan	.....	5.8	1.5	.....	.....	.....	.....	.....	.....	5.6	.....	0.5	.....	.....	86.5
Basilan Plantation, Isabela (Basilan) Office[a]	.....	.....	.....	.....	.....	.....	.....	.....	.....	17	.....	.....	.....	.....	112.3
Zamboanga	.....	.....	2.5	2.3	0.3	.....	.....	.....	.....	.....	.....	.....	.....	.....	63
Davao	.....	.....	.....	.....	.....	.....	8.1	.....	1.3	.....	.....	.....	3.8	.....	92.4
Cotabato	.....	.....	.....	.....	.....	.....	3.8	10.7	6.6	5.3	.....	.....	.....	.....	122.5
Camp Keithley, Lanao	10.9	.....	.....	.....	19.1	.....	.....	.....	6.4	6.4	2.5	.....	1.5	.....	151.8
Cagayan, Misamis	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	11.8
Butuan	.....	1.8	.3	2.6	12.2	0.3	1.3	.5	.5	9.6	3.6	.....	16.8	0.5	197.9
Dumaguete	.....	.....	.....	.....	.....	.5	.....	18.3	.....	.....	.....	.....	.5	1.3	62.6
Yap, Western Carolines	.....	54.9[d]	16.3	.3	.....	2	.3	1.3	2.5	.8	2.5	26.7	31.7	9.4	195.5
Tagbilaran	.....	7.9	.....	6.4	.....	.....	1	.3	.....	.....	4.6	.....	2.3	18.1	109.6?
Iwahig	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	45.5
Surigao	2.8	.3	3.6	21.1	.5	.....	14.9	2.6	9.4	.....	.....	17.3	17.6	2	461.7
Maasin	.....	.....	.....	.....	.....	.....	.....	26.4	.....	.....	.....	.....	.....	.....	213.6
Cebu	.....	.....	.5	.....	.....	.....	.5	9.7	.....	.....	.....	.3	.8	1.6	81.6
La Carlota, Occidental Negros[a]	.....	.....	.....	.....	.....	1.3	1.5	1.3	.....	.....	6.6	.....	.5	.....	20.9
Iloilo	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	5.6	.5	.....	109.7
San Jose Buenavista	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	6.5
Cuyo	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2.3
Lucena, Iloilo[a]	1	.....	.....	.....	.....	.....	.....	8.6	.....	.....	.....	3.6	.....	3.6	51.1
Ormoc	.....	2.3	2.3	.3	.....	.....	4.3	1.3	3	.8	.....	.....	.5	3.3	85.8
Guiuan	.....	16	1.3	3	6.9	.5	.....	7.1	.....	.....	.5	10.9	14.5	1.5	322.1
Dueñas, Iloilo[a]	.8	.....	.....	.....	.....	.....	.....	.....	.....	.....	5.1	.....	5.1	.....	63.9
Bitaogan, Iloilo (Railroad Iloilo to Capiz)[a]	1.3	.....	.....	.....	5.3	.....	.....	.....	.....	.....	5.1	.....	.....	12.9	77.3
Lapus, Iloilo (Railroad Iloilo to Capiz)[a]	.....	2	.....	3.8	.....	.....	.....	.....	.....	.....	.....	5.8	.6	.....	129.8
Tacloban	.....	8.1	.....	1.3	5.3	.....	3.6	7.6	.....	1	.....	3.6	5.6	5.1	283.3
Dumarao, Capiz[a]	21.6	.....	.....	.....	.....	.....	.....	.....	.....	.....	1.3	5.1	6.4	12.7	147.4
Dao, Capiz[a]	18.8	1.5	.....	1.3	1	.....	5.1	6.3	.....	4.3	1.3	.8	8.9	6.8	185.1
Capiz	12.4	.....	.....	.....	1.3	.....	.....	.....	.....	.....	.....	.....	.....	14.5	135.5
Borongan	.....	19	.....	13.7	10.2	8.4	2.6	21.1	6.6	3.6	.....	20.5	16	8.1	348
Catbalogan	.5	1.3	1	.8	8.1	.....	7.9	6.1	5.3	.3	.....	1	2.1	.3	215.5
Calbayog	40.3	4.8	1.3	.5	20.1	.....	13.7	.....	.....	6.1	.....	.....	2.5	2.8	240.3
Masbate	13.9	.....	.5	.....	1	.....	.....	.....	.....	.....	.....	.5	.5	3.3	169.3
San Jose Estate, J. Abello D-13, Mindoro[a]	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0
San Jose Estate, Tamaraw Plantation, Mindoro[a]	3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	15.9
San Jose Estate, San Agustin, Mindoro[a]	2.5	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	9.4
San Jose, Mindoro[a]	3.6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.3	12.1
San Jose Estate, Tunnel D-12, Mindoro[a]	3.8	.....	.....	.....	.....	3.3	.....	.....	.....	.....	.....	.....	.....	.....	13.2
Romblon	17	4.1	3	2	15.5	1.3	.3	20.8	.....	.3	.....	7.4	2.5	13	194.7
Batag	35.1	11.7	.....	2.5	19.3	5.4	.....	5.8	1.3	2.5	7.1	9.9	3.3	9.9	243.6
Sorsogon	85.3	24.9	.....	2	44.2	.....	2	.....	13.2	.....	.....	*	*	.....	560.3[f]
Legaspi	27.4	.....	.....	.....	9.1	.....	.....	.....	.....	.....	4.1	14.2	9.1	32.8	265
San Miguel Estate, San Miguel Island, Tabaco, Albay[a b]	22.9	.....	.....	.....	17.8	1.3	62.7	.....	.3	.....	8.1	9.9	4.1	3.6	193.7
Sumay, Guam	.....	.....	2.5	.....	.....	.....	11.4	1.3	.....	6.4	.....	.....	20.3	26.7	116.9
Calapan	4	1	.....	.....	10.4	2	1	.5	1.8	.....	.....	1.3	.6	10.4	58.2
Virac	25.7	2.5	.....	.....	1.5	.....	.....	.....	.....	.....	.....	38.6[e]	.....	.....	161.8
Naga	8.4	.....	.....	.....	6.9	.....	.....	.....	.....	.....	.....	.....	2.8	19.3	66.6
Tigaon	15	.....	.....	.....	11.9	.....	.....	.....	.....	.....	.....	.....	10.4	15	129
Batangas	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	4.6	.....	1	.....	13
Lucena	1.5	.3	.....	.....	.....	1.3	1.8	.....	.....	.....	.....	1.8	9.9	1.5	87
Atimonan	8.8	.....	.....	.....	.....	1.3	3.6	5.1	.8	2.3	.....	9.2	37.8	3.1	127.1
Ambulong, Tanauan	.8	.8	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	26
Canlubang, Calamba	.....	.....	.....	.5	.....	1.5	.....	.....	.....	.....	.....	.....	.....	.....	53.7
Paracale	12.4	.5	.....	.....	.8	33.3	4.1	1	.....	.8	3.6	6	2.5	.....	161.8
Santa Cruz, Laguna	.3	.....	.....	.....	.....	1.8	.....	1.8	.....	.....	.....	.....	1.8	.....	64.2
Fort Mills, Corregidor[a c]	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	13.9
Alabang, Rizal[a]	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0
Lamao, Bataan[a]	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0
Manila	.9	.....	.8	.....	.....	.....	.....	.....	.....	.....	.....	.5	.....	.....	11.8
Antipolo	.....	.....	.....	.....	.....	1	.....	2.5	.....	.....	.....	.....	.....	.....	8.3
Bosoboso, Rizal[a]	.....	.....	.....	.....	.....	.....	30.7	.....	1.8	.....	.....	.....	.....	.....	36.3
Montalban, Rizal[a]	.....	.....	.....	.5	.....	.....	.8	.....	.....	.....	.....	7.6	.5	.....	14
Hacienda Pintong Sapang, San Jose, Bulacan[a]	.8	.....	.....	.....	.....	.....	.....	.....	.....	.....	3	35.6	.....	.....	48.5
Mabayuan Dam, Olongapo, Zambales[a]	.8	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	20.9
Iba	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0
San Isidro	.....	.....	.....	.....	.....	.....	.3	.....	.5	.....	.....	.....	.....	.....	6.4
Hacienda Luisita, San Miguel, Tarlac[a]	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0
Hacienda Luisita, Comillas, Tarlac[a]	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0
Tarlac	.....	.....	.....	.....	.....	.....	.....	.3	.....	.....	.....	.....	.....	.....	3.2
Baler	.....	.....	11.2	.....	.....	14	58.7	3.3	.....	.....	.....	5.6	2	.....	118.2
Paniqui, Tarlac[a]	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	1
C. L. A. S. Muñoz, Nueva Ecija[a]	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.3	.....	.....	.....	.3
Dagupan	.....	.....	.....	.....	.....	.....	.....	13.8	4.6	.....	.....	.....	.....	.....	18.4
Santo Tomas Mt., Mountain Province[a]	.....	.....	.....	.....	.....	.....	.....	.5	.....	.....	.....	.....	.....	.....	.5
Bolinao	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.3
Baguio	.....	.....	.....	.....	.....	.....	.5	5.3	.....	.....	.....	1.5	.....	.....	8.6
San Fernando, Union	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0
Echagüe	.....	.....	6.9	2.5	.....	.....	.....	5.1	.....	.....	.....	.....	4.6	.....	29.4
Sagada, Mountain Province[a]	.....	.....	.....	.....	.....	.....	.....	.....	2.8	.....	.....	4.1	.....	.....	8.7
Bontoc, Mountain Province[a]	.....	.....	.....	.....	.....	.....	19.6	.....	.....	.....	1	.....	1.8	.....	23.9
Candon	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0
Villavieja, Pilar, Abra[a]	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0
Vigan	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0
Tuguegarao	.....	.....	.....	.....	.....	.....	.....	9.2	.....	.....	.....	.....	5.3	.....	21.1
La Paz, Abra[a]	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0
Laoag	.....	.....	.....	.....	.....	.....	.....	.....	.....	.8	.....	.....	.....	.....	.8
Aparri	.....	.....	.5	.....	.....	.....	1.6	.....	.....	.....	.....	8.7	9.2	.5	38.6
Cape Bojeador	.....	.....	4.6	9.1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	13.7

* No observation.
[a] Voluntary or coöperative station.
[b] Rain in 24 hours beginning 8 a. m.
[c] Rain in 24 hours beginning 7 a. m.
[d] Amount of rainfall from 13 to 18.
[e] Amount of rainfall from 22 to 28.
[f] 28 days of observation.

MAXIMUM AND MINIMUM TEMPERATURES AT THE STATIONS OF THE WEATHER BUREAU, NOVEMBER, 1918.

Day.	Jolo.		Isabela, Basilan.		Zamboanga.		Davao.		Cotabato.		Camp Keithley, Lanao.		Cagayan, Misamis.		Butuan.	
	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.
	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.
1	30.8	22	32.6	23.1	30.9	23.2	34.2	21.5	32	23.2	26.8	18	31.4	22	31.5	22.5
2	28.7	22.6	31.1	22.7	28.2	23.7	33.4	20.8	32	22.7	27.3	18.7	31.8	21.8	30.8	22.3
3	30.6	22.3	33.1	22.6	32.2	23	33.7	21.1	32.5	21.6	26.8	17.9	31.9	21.6	30.5	21.9
4	29.8	22	31.6	22.6	32.1	23.5	33.3	22	32	22.8	26.8	18.4	27.8	22.6	26.5	22.9
5	30.3	22.1	32.6	21.6	29.2	23.5	33.6	21.4	31	22.6	26.7	17.5	31.4	21	32.1	21.3
6	32.2	24	34.1	23.1	32.3	23.5	28.3	22	30	23.6	26.8	20.2	32.8	22.5	32.7	21.2
7	30	23.1	35.6	23.1	32.1	23	33.1	19.5	32.4	22.2	26.7	17.8	32.4	20.5	34.7	20.9
8	30.9	22.8	33.6	22.7	30.5	24	29.7	22.4	29.3	22.5	26.9	18.3	33.8	21.8	31.9	21.8
9	29.9	23.8	34.6	23.6	28.7	23.3	27.8	21.9	29	23	26.9	19	29	22.6	28.2	-------
10	31.5	22.3	33.7	22.1	32.7	23	28.8	21	28.7	22.5	26.5	18.5	30.7	21	30.3	-------
11	30.7	23	31.1	22.6	29	23.3	33.1	21.6	30.2	23.3	26.9	18.5	31.7	22.5	32.7	21
12	31	23.2	31.6	22.3	31.2	23.2	32.8	21.1	31	21.5	27.1	19.5	31.6	22.9	32.8	22.8
13	30.4	22.5	32.9	23.6	32	23.2	31.5	21	29.7	22.7	27	17.7	31.6	21.2	29.1	22.2
14	29.7	23.1	34.1	22.1	31.3	22.8	32.6	19.9	31.5	22.2	26.8	16.5	31.8	20	32.1	21.8
15	31.5	22.6	34.6	23.1	32.7	23.2	32.6	21.4	30.6	22	26.7	18.2	32.2	21.8	33.3	22
16	30.6	22.5	33.6	22.1	29.3	23.5	33.7	19.9	30.5	21.8	26.1	17.3	31.4	21	30.4	22.2
17	30.1	22.4	33.9	22.6	31.2	23.4	34	19.7	32	21	27.8	18	31.5	20.9	32.4	21.8
18	30.5	21.7	33.1	22.1	31.5	23.4	33.7	20.5	31.7	23.5	26.4	19.5	31.5	21.3	31.6	20.3
19	31.2	21.5	34.6	22.6	32.2	23.4	33.2	20.2	31	22.2	26.5	18	32.1	21.3	30.6	21.5
20	30.7	22.1	33.3	21.6	32.5	22.8	33.7	21.9	32	23.3	26.4	18	32	21.5	30.4	22.6
21	32	22.4	33.1	23.1	31.3	23.2	33.7	21.3	32	23.2	27.3	17.4	32	21.4	31.6	22.8
22	29.8	21.8	33.3	22.3	29.4	22.4	33.3	20.7	32.1	23.1	27.4	18.3	31.8	22	33.1	22
23	30.5	22.2	33.6	24.1	30.4	22.9	33.7	21.2	32	23.1	27.4	18	32.1	22	33.3	22.3
24	31	23.4	32.6	22.6	29.1	23.4	34.1	21.4	32.5	21.2	27.3	20	33	22.8	33.1	21.8
25	30.8	22.9	31.1	22.1	29.9	23.2	33.5	20.7	32.5	23.3	27.6	18.6	32.1	23	33.2	23.4
26	29.2	21.8	31.6	22.3	28.6	24.2	34	20.2	31.7	22.5	27.4	18.2	32.2	21.4	32.9	22.4
27	30.3	21.8	32.6	22.6	30.9	23.2	34.7	22.3	31.5	23.7	26.8	18.2	32.2	22.2	33.6	21.5
28	29.8	23.1	33.6	23.1	33.1	23	33.7	20.5	32.5	22.7	26.9	18.1	32	21.5	33.4	21.5
29	31.6	21.8	33.6	22.1	30.5	23	34.2	20.9	-------	-------	27.5	17.4	31.4	21	32.9	22.7
30	29.8	24.7	32.3	21.6	31.7	23.8	29.5	21.2	-------	-------	27.3	19.8	32.2	23.9	33.6	22.9
Mean	30.5	22.6	33.1	22.6	30.9	23.3	32.7	21	31.3	22.6	27	18.3	31.7	21.8	31.8	22

Day.	Mambajao.		Dumaguete.		Yap, Western Carolines.		Tagbilaran.		Iwahig.		Surigao.		Maasin.		Cebu.	
	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.
	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.
1	29.8	24.4	29.8	26	33.2	24.5	-------	-------	30.1	21.7	29.2	23.5	32.4	22.8	31	24
2	29.9	23.8	31.8	25.8	32.7	24.8	32.3	22.4	31.8	19.5	29.8	22.8	32	22.2	31.1	25.6
3	28.4	23.9	29.9	24.8	33.1	24.7	31.7	23	31.8	19.9	26.3	23.6	32	22.8	30.1	24.3
4	25.5	23.3	28	23.3	32.7	25	25.8	22.5	31.5	20.1	25.6	23.3	30	22.5	27	23.6
5	29.8	24	30.5	24	32.4	26	31.4	22.7	32.1	20.4	28.5	22.8	32.1	22.4	30.6	24.1
6	31	25.5	31.4	25.8	32.7	25.2	32.6	22.5	32.1	20.5	31	23.7	32.4	22.2	30.3	24.7
7	29.6	24.6	30.4	24.2	32.9	25.6	31.7	23	32.1	19.5	31.3	23.5	33	22.2	31.2	25.8
8	30.6	25.3	30.9	26.8	31.8	25	33.3	22.5	32.1	20.6	30.9	23.8	32	23.7	31.1	25.6
9	29.7	23.4	29.8	25.2	33.3	26	31.7	22.3	32.3	20.1	30.6	24.1	32.4	22.5	29.5	24.3
10	29.8	23.5	31.5	23.8	31.2	25	31.8	22.8	32.1	21.1	29.6	24	31	23.6	30.4	24.7
11	-------	23	31	23.1	31.2	24.5	31.3	22.8	32.1	20.4	28	23.5	32.4	23	29.4	23.7
12	-------	-------	29.6	24.4	32	24.5	31.2	23.1	31.6	20.9	30.7	23.4	32.5	22.5	31	23.6
13	-------	-------	29.8	24.6	-------	-------	29.1	22.5	28.6	20.9	28.3	23.4	30.9	22.1	29.8	23.8
14	-------	-------	29.5	24	-------	-------	30.2	22.3	31.5	19.9	29	22.5	30.5	22	31.4	24.3
15	-------	-------	31.9	24.4	-------	-------	31.7	21.6	31.2	20.4	30.1	23.4	32.1	22.2	31.3	24.5
16	-------	-------	31.4	24	-------	-------	32.5	22.5	31.1	20.3	29.1	23.6	31.2	22.2	30.4	23.1
17	-------	-------	30.8	24.6	-------	-------	31.4	22.4	31.7	19.9	29.7	22.7	32.4	22.6	31.3	23.9
18	-------	-------	31.4	23.5	31.2	24.2	31.7	20.7	30.7	18.5	29.6	22.3	31.5	22.1	30.3	24.4
19	-------	-------	30.9	24	31.3	24	30.9	21.1	31.3	18.9	30.5	23.8	32	20	30	23.8
20	-------	-------	30.1	23.3	32.3	23.5	30.2	21	31.5	18.2	29.4	23.3	31.4	20.8	31	23.8
21	-------	-------	29.9	24	32.7	24.6	31.1	20.7	31.1	19.9	30	22.3	31.6	21	30.3	24.4
22	-------	-------	29.9	23.3	32.8	24	31.2	22	32.5	20.5	29.1	23	32.1	22	31.2	25
23	-------	-------	31.4	24	31.3	24.6	30.8	22.8	31.5	19.9	28.6	24.3	32	22.2	31.4	24.8
24	-------	-------	30.5	24.3	32.7	24.7	32.4	22.4	32.5	19.6	29.3	23.7	32.8	22.5	30.9	24.5
25	-------	-------	30.4	23.3	32.7	24	31.4	22.9	32	19.8	30.1	24.3	32.9	23	30.8	23.6
26	-------	-------	30	23.8	32.3	24.5	31.3	21.9	32.3	19.9	29.7	23.5	33	22.6	31.2	23.8
27	-------	-------	29.9	23.7	32.8	24.3	32.3	23.1	33.1	18.9	30.7	23.5	32.5	22.3	31.3	24.5
28	-------	-------	30.9	25	32.3	24.6	31.7	21	32.2	18.9	30.8	23.5	32.3	22.7	31.8	24.8
29	-------	-------	31.4	25.7	32.1	23.5	31.8	23.4	32.1	19.4	29.2	23.3	31.8	22.5	31.8	25.2
30	-------	-------	31.4	24.6	29.8	23.5	30.9	22.8	32.1	19.2	30.7	23.9	32.2	22.6	30.3	24.6
Mean	-------	-------	30.5	24.4	32.2	24.6	31.3	22.3	31.7	19.9	29.5	23.4	32	22.3	30.6	24.4

Maximum and minimum temperatures ot the stations of the Weather Bureau, November, 1918.—Cont.

Day.	Iloilo.		San Jose Buenavista.		Cuyo.		Ormoc.		Guiuan.		Tacloban.		Capiz.		Borongan.	
	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.
	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.
1	30.7	24.7	33.3	21.7	30.5	26.2	33	22.6	31.5	23.6	34	23.5	31.9	25.4	31.5	23.6
2	30.8	23.6	32.7	21.6	30.4	26.5	33.2	22.3	32	25.4	30.4	22.8	------	------	30.7	23.6
3	30.2	24	32.7	22.4	31.2	26.3	32.6	22	32	25.5	32.8	23	------	------	31.3	23.3
4	29.2	24.2	32.8	21.5	30.1	26.3	32	22.9	32.1	24	32.8	24.1	31.5	24.1	31.6	22.6
5	31.6	24.6	32.7	21.6	30.4	26.5	32	22.6	32.2	24.2	33	24.4	31.6	25.7	31.3	23.7
6	31	24	34.2	22.4	30.8	26.6	32.3	22.2	31.7	24.8	32.4	22.4	32.1	25.5	31.6	23
7	31	24.2	32.6	22.5	30.7	26.9	32.6	22.9	32.2	23.6	32.5	24	31.7	25.4	31.8	23.5
8	31.5	24.9	32.6	22	30.7	26.5	32.6	23.3	32.4	24.7	33.3	23.5	32	25.5	31.2	26
9	31	24.6	32.8	21.5	30.2	26.6	31.7	22.9	32	23.9	32	24	31.4	24.7	31.7	24.3
10	31	23.9	32.3	21.6	29.7	26.5	32	22.9	31	25.2	31	24.1	30.6	25.4	30.4	24.8
11	30.3	23	33.2	22	30.2	24.8	30.6	23.2	27.2	23	26.6	21.7	31.1	23.2	30	23.6
12	30.5	23	31.7	22.6	30.2	26.1	31.6	22.8	30.6	22.6	28.4	22.4	30.2	23.4	30.3	25.5
13	30.2	23.8	33.7	23.1	30.9	25.7	32.6	23.3	31.1	23.3	32.5	22.9	31.8	24.9	30.9	24.9
14	30.9	24	32.7	21.1	29.9	26.1	33	22.7	31.3	23.7	32.9	22.9	31.6	24.9	30.9	24.9
15	31	23.7	34.3	19.6	30.2	24.9	32.6	22.9	31.2	24.1	32.5	23.4	31.4	24	30.5	24
16	30.3	23.3	33.2	21.1	30	25.4	32.2	22.4	31.8	25.1	30.1	23.1	31.2	23.3	30.2	24
17	30.9	22.5	33.2	22.8	29.4	25.6	32.6	23.1	32	22.8	------	------	30.9	23.9	31.2	22.5
18	27.2	23.3	32.2	21.6	29.8	25.3	32.3	20.9	29.9	23	------	------	30.7	22.9	28.1	22.7
19	29.5	22.8	31.8	19.1	29.8	25.7	31.8	19.1	31.1	22.5	------	------	30.2	22.1	30.3	21.5
20	30.4	23.6	31.3	20.7	30.1	25.8	31.8	19.6	32	23.2	------	------	30.8	23.8	30.8	21.5
21	30.6	23.8	32.6	20.6	30.2	25.9	31.8	20.4	31.1	24	------	------	30.7	24.5	30.4	22.7
22	30.9	23.7	32.3	21.5	30.4	25.4	33.2	22.1	31.8	23	------	------	30.8	23.8	31.5	23
23	31.1	23.7	32.2	21.9	30.5	25.6	32.7	21.8	32.4	23.2	------	------	32.3	23.8	31.1	23.5
24	30.4	23.5	32.7	21.9	30.4	26.3	32.8	21.5	32.2	23	------	------	31.7	24.8	31.3	22.7
25	30.2	24.2	31.7	21	30.9	26	32.7	22	31.3	23.6	------	------	29.8	24.5	30.6	23.9
26	31.1	23.7	32.2	20.7	30.2	25.2	32.8	21.7	31.9	22.8	------	------	31.4	24.9	31.1	22.5
27	30.7	23.4	32.5	22.2	30.8	26.7	33.1	21.9	32	22.8	------	------	31.9	24.1	31.2	23.2
28	30.9	24.2	33.2	21.1	30.2	26.7	33.2	21.2	31.1	22.5	------	------	31.7	24.3	30.8	21.6
29	30.9	24.3	32.8	21.5	30.8	26.5	33	22.2	31.2	23.6	------	------	31.4	24.7	30.5	23.5
30	30.3	23.7	33.7	21.1	29.7	26.6	31.6	23.4	31	23.4	------	------	30.3	24.5	30.7	23.2
Mean	30.5	23.8	32.7	21.5	30.3	26	32.4	22.2	31.4	23.7	------	------	31.2	24.4	30.8	23.4

Day.	Catbalogan.		Calbayog.		Masbate.		Romblon.		Batag.		Sorsogon.		Legaspi.		Sumay, Guam.	
	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.
	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.
1	32.5	21.6	32.2	22.2	31.4	24.8	31.9	25.7	29.8	24	30.5	23	31	25.5	29.4	25.2
2	30.5	22.5	31.1	22.8	31.6	24.6	31.9	25.2	29.4	23.8	30.5	23	30.8	25.2	30.4	25.2
3	32.5	22.9	32.3	22	30.8	24.8	31.9	24.7	29.9	23.6	30.5	23.4	30.9	26	30.4	24
4	30.2	20.8	32.3	22.1	31.6	24.6	32	25	29.8	24.4	31	23.5	30.7	25.9	30	25.6
5	31.3	22	32.1	23.6	31.8	25.2	32.1	25	30.6	23.8	31.6	24.1	31.1	26	30.4	25.2
6	32.4	21.8	33	22.6	31.8	25.2	32.4	25.4	30.6	24	31	23.4	32.3	25.1	30.2	25
7	31	22.5	32.7	24.1	30.6	24.6	31.9	25.4	30	24.4	29.8	23	29.4	24.8	30.4	25.4
8	31.6	23.4	32.3	23	31.6	25.5	32.4	25.3	30	24.7	31.3	23.8	30.8	24.9	29.6	25.2
9	31.3	23.5	32.1	23.9	30.8	22.8	31	24.3	29.6	23.8	30	23	30	24.7	30	25.2
10	31.8	22.5	32	23.3	30	24	31.4	24.1	29.6	23	30.5	22.8	30	24.5	29.8	26
11	29	23	28.7	23.5	31	24	31.6	24.7	29.6	24.3	29.4	23.2	30.4	24	30.2	24.6
12	30.8	22.5	30.1	22.9	30.6	23.2	31.4	23.2	29.4	23.4	30	22.4	29.8	23.5	29.4	25
13	32	23.7	32.1	23.2	30.6	23.2	30.3	23	29.8	23.4	30	21.3	29.3	24.5	28.8	23.8
14	31.6	21.8	31.7	22.7	30.6	22.4	31.6	24.6	29.6	23	30.1	22	30.9	23.8	29	24.4
15	30.6	21.3	30	22.6	28.8	23.8	31.4	24.2	28.8	23.4	30.5	23	28.6	24.3	29.2	24.6
16	30.2	21.4	30.3	23.4	30.6	22.4	31.5	23.2	28.8	22.4	30	23	29.2	24.7	29.6	23.6
17	30	20.5	30	22.9	28.6	23.6	28.4	24.2	29.5	24	28.8	20.8?	28.6	23.4	30	23.4
18	30.4	21.2	30.2	22.1	30	23.8	30.6	23.4	28.9	22.2	30.5	22.8	29.2	24.7	30.6	23.6
19	30	19.3	30.1	20.6	29.2	24.2	31	21	29.6	22.6	30	22.2	30.1	23.2	30.4	23
20	31.8	20.5	31.8	21.7	30	23.6	30.5	21.5	29.4	22.9	30.5	21.9	29.8	24.9	30.2	23.6
21	30.5	22	29.1	22.4	30.4	24.4	31	23	29.4	23.2	29	22.4	28.3	24.2	30.4	25
22	31	21.9	29.5	22.1	30.4	24.4	31.4	23.9	30.3	23	30.6	21.8	30.5	23.4	30.6	24.8
23	30.3	21.5	30.2	22.4	31	24.5	31.4	23.2	29.8	23	31.5	22	30.3	25	30	24.6
24	31	22.2	32	23	30.6	25.2	31.4	23.6	30	23.1	30.5	23.2	30.9	24.8	30.6	23.4
25	31.8	23	29.9	23.7	30.2	24.8	30.9	23.6	29.6	24.2	30.5	23.2	31.1	25.3	30.6	25.2
26	31	21.3	31	22.8	30.2	24.4	31.9	23.7	29.9	24	32.4	22.8	31.1	24.4	31	25.4
27	31.5	22	31.1	22.9	31.2	24.4	31.9	22.3	30.5	23.6	30.9	23	30.8	23	30.2	25
28	30.3	21.6	29.6	23.8	30.4	24.5	31.4	24.1	30	23.5	------	------	27.6	24.2	29.4	25.4
29	30.8	22.3	32.1	22.8	31	24.6	31.5	24.3	30	23.4	------	------	30.3	24.2	28.8	23.6
30	31.1	21.7	30.9	22.8	29.2	24.8	28.4	24.3	29	24	------	------	27.4	24.4	28.6	23.2
Mean	31	21.9	31.1	22.8	30.6	24.2	31.3	24	29.7	23.5	30.4	22.7	30	24.6	29.9	24.6

Maximum and minimum temperatures at the stations of the Weather Bureau, November, 1918—Cont.

Day.	Calapan.		Virac.		Naga.		Tigaon.		Batangas.		Lucena.		Atimonan.		Ambulong, Tanauan.	
	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.
	°C	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.
1	------	24.5	32.6	22	32	19.5	31.6?	20.6	33.1	24	30.5	23.6	30.2	26.2	30.3	23.7
2	31.5	24.4	31.2	22.1	33.5	19	30.9?	21.1	32.9	23.2	30	23	31	26.1	30.4	23.2
3	31	24.5	31.8	22.4	32.4	17.5	31.9	19.2	32.7	23.1	30.5	22.7	30.4	25.7	30.9	23.3
4	31.8	23	32.7	21.6	32.1	17.4	31.3	20.2	31.6	20.8	29.3	22.7	29	24.9	29.8	22.4
5	32	24.2	32.7	21 5	32.7	19?	31.9	20.4	33.6	22.6	30.3	23	29.9	26.6	30.7	23.2
6	32.5	25	32.5	21.3	34.3	19	32.3	19.9	33	23.3	30.7	23.5	30	25.9	31.2	24
7	32	25.5	31.4	23.1	32.1	20.3	30.4	21.7	32.3	23.5	30.4	23.9	29.7	23.3	30.4	24
8	32	24.5	31.5	23.2	33.5	19.7	32	21.6	33.5	24.2	30.9	23.5	29.9	24.6	31.8	23.8
9	31.7	25.5	32.2	22.7	32.6	18.5?	32.4	20	32.8	22.2	30.5	20.5	29.8	25.9	30.7	24
10	32.4	24	32.4	22.5	30.8	20.8	31.9	21.8	31.4	22	27.5	21	28.9	24.2	29.9	24
11	31.5	24	22.6	22.3	32.1	20.8	31.4	22.4	------	23	29.2	23.1	28.7	23.8	29.9	22.8
12	32	24	31.9	23.2	32.7	21.1	31.3	22.4	31.2	22.6	29	22.6	28.7	24.1	28.4	23.4
13	31.5	26.2	31.6	22.9	32.5	20.6	31.3	22.4	32.3	23.6	30	24.1	29.4	25.4	32	24
14	32	24	32.1	23.1	32.4	19.2	32.1	20.7	33	22.4	28	22.5	29.3	24.3	31	23.5
15	32.4	23.5	30.5	23.3	30.1	20.2	30.5	21.1	30.1	21.8	28.1	22.9	27.9	24.7	27.8	22.7
16	31.8	23.6	31.7	23.1	31.1	21.2	31.6	22.1	31.8	22.6	29.4	22.6	28.7	23.5	30.2	23.2
17	30.5	23	30.7	22	26.6	20.4	29.4	22.2	31.6	22	27.6	23.3	28.1	23.6	30.1	24.2
18	30	22.5	30.5	20.8	30.6	19.5	30.3	21.2	32.8	20.2	29	22.7	28.3	25.4	30.2	22.1
19	31	21.4	31.1	21	32.3	16.5	31	18.9	31.8	21.3	29.4	21.7	28.8	24.1	29.6	21.8
20	31.1	19.6	31.5	20.5	32.6	15.6	31.1	18.9	31.8	20.7	29.5	20.9	28.9	21	30.3	21.3
21	31.1	24.9	------	20.3	32	17	31.4	18.1	32	21.5	29.8	20.6	29.1	25.8	30.4	23
22	31.5	22.9	------	------	31.6	19.1	30.3	21.2	31	23.4	31	22.6	30.1	25.2	32	23
23	31.4?	23	------	------	32.5	19.7	31.5	20.5	33.5	21	30	23	30.2	24	31.4	22.3
24	29.8?	23.5	------	------	31.9	20.1	31.3	21.7	33.4	21.1	30	21.3	29.1	24.7	31	22.2
25	30	23.6	------	------	33.6	18.7	30.8	19.6	33.1	22	30.5	22.1	29.2	22.4	32	22.2
26	------	22.5	------	------	33.5	18.2	31.3	19.6	33	21	31.1	22	30.1	23.2	32.7	21.8
27	31.4?	21.6	------	------	33.2	18.5	31.5	19.6	32	20.8	31.1	21.4	29.8	22.7	32.4	22.5
28	31.5	23	------	------	32	19.2	30	19.7	33.3	21.4	30.5	23.1	29.4	25.8	31.8	23
29	30	24.5	------	------	30.8	20.3	31.1	21.4	31	23	29.3	22.2	28.4	23.4	30.5	23.8
30	31.5	23.8	------	------	28.9	21.6	30.2	22.1	32.2	22.3	30	23.1	28.4	23.4	30.9	23.7
Mean	31.4	23.7	31.8	22.1	32	19.3	31.2	20.7	32.3	22.2	29.8	22.5	29.3	24.5	30.7	23.1

Day.	Canlubang, Calamba.		Paracale.		Santa Cruz, Laguna.		Manila.		Antipolo.		Iba.		San Isidro.		Tarlac.	
	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.
	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C	°C.	°C.
1	31	23	30.6	25.5	30.3	23.7	31.5	21.8	33.5	20.7	30.7	20.2	31.5	21.4	33.5	20.8
2	30.9	22	30.8	24	30.5	22.9	30.7	20.8	30.9	20	31.3	20.1	29.8	21	33.4	21.2
3	31.4	22.1	30.4	25.5	30.5	23.1	32.2	21.4	32.7	20.3	32.6	21	------	------	33	21.2
4	31.6	21.4	30.2	25.2	29.7	21.6	30.4	20.2	32.7	19.1	31.6	21.1	------	------	33.4	19.6
5	31.8	21.5	30.7	25.2	30.4	22.4	31.4	21.2	32.5	20.1	32.5	20.6	32	20.1	34	20.1
6	32	23.2	30.5	25.1	30.9	23	33	22	33.1	20.5	32.4	20.6	32.1	20.7	34.2	21.1
7	31.8	23	30.4	24.9	30.5	23.6	31.7	21.9	33.7	20.8	32.3	20.4	30.6	21.5	33	21.2
8	31.2	22.8	30.7	26	30.8	23.4	32.5	22.1	33	21.7	32.6	23.1	32.1	22.7	34.6	20.6
9	31.6	22.2	30.6	24.5	30.7	22.7	30.9	21.2	32.7	20	32	21.1	32	21.2	34.5	22
10	30.2	21.2	28.9	24.3	29.5	23	30.8	21.3	31.1	19.6	32.4	20.9	32	21	33.5	21.2
11	31.5	21.2	29.2	24	29.6	22.9	31.6	22.2	32.2	21	32.1	21.1	31.7	21.5	33	21.5
12	31.7	22.3	29.8	23.7	29	23	30.6	21.6	32	20.8	31.8	22.2	31	21.5	33.5	21
13	31.6	22.2	30.2	24	30.5	23.5	32.7	20.5	32.8	20.8	32.9	21.9	31.6	21	34.7	20.5
14	31.4	22.5	29.6	24.8	------	------	29.9	22.8	33.2	21.6	33	23.5	30.5	22.6	33	22
15	29.1	21.6	28.6	25.5	------	------	30.6	20.7	30.8	20.7	32.9	21.9	31.4	20.7	32.7	21.1
16	31	21.6	29.6	24	------	------	32.2	20.2	32.6	19.7	31.9	21.4	31	19	33.7	19.5
17	30	22.1	27.8	24.2	29.5	22.2	30.7	20.5	32.2	20.3	32.1	18.5	32.9	19.8	34.6	20
18	30.2	21.2	29.6	25.5	29.6	21.2	30.6	19	33.2	18.7	30.6	18.7	31.4	19	34.7	19.7
19	30.6	19.6	29.2	23.5	29.6	20.7	28.9	18.8	32.1	18	30.9	17.4	29.1	18.6	33.4	19.8
20	31	19.2	29.6	21.3	30.2	21.1	31	19.4	33.1	18.5	30.6	19.4	30.8	21	33.4	20.9
21	31.4	17.6	29.9	23.5	30.5	21.7	31.2	18.7	33.7	18	30.4	17.4	31.4	19	33.5	19
22	31.6	20.2	29.8	22.5	31.6	21.4	30.7	20.8	32	20.3	31.2	19.3	31	19	34.5	19.1
23	31.4	20.6	29.6	23.9	31.6	22	31.2	21.3	31.5	20.5	30.6	20.4	31.8	21.4	34.5	21
24	30.8	20.7	29.8	23.8	30.9	21.6	31.2	21.9	32.8	20.6	31.1	21.9	32.4	21.7	34.6	20.8
25	31.6	20.6	30.6	23	31.1	22.7	31.8	21.8	33.2	20.8	31.5	21	30.5	20.8	33.6	21
26	32.1	20.2	30.5	23	32.4	21.7	31.4	20.8	32.7	19.4	31	20.9	32.6	21	35	20.5
27	32.2	21.1	31.4	23.5	32	21.7	31.5	21.4	32.2	21	31.6	18.4	32	23	33.6	21.1
28	32.5	20.6	30	24.6	31	20.7	32	21.3	33.1	20.3	30.4	20.5	32.5	20.7	35	21
29	32.6	23	28.8	24.3	29.6	23.7	31.2	21.3	32.5	20	30.5	20.7	32	20.6	34.4	21.2
30	31.4	22.2	29	24.5	29.8	22.1	30.5	20.7	32	19.9	31.8	20.5	32.6	22	34.6	21
Mean	31.3	21.4	29.9	24.2	30.5	22.3	31.2	21	32.5	20.1	31.7	20.5	31.5	20.8	33.9	20.7

Maximum and minimum temperatures at the stations of the Weather Bureau, November, 1918—Cont.

Day.	Baler.		Dagupan.		Bolinao.		Baguio.		San Fernando, Union.		Echagüe.	
	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.
	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.
1	30.8	20.9	34.1	22	32.8	22.8	25.4	15.1	32.1	21.3	31.5	21
2	30.7	21.1	32.6	22	31.6	21.9	24	14.7	32.2	21.4	30.7	20.1
3	31	21	33.7	22.5	31.9	22.6	24.8	14	31.7	22	31	20.4
4	31	20.3	32.4	20.5	30.8	22	24.5	12	31.8	21.5	31.6	20
5	31.3	21	34.3	21.6	32.3	21.3	25.6	14.8	32.2	20	33	19.7
6	31.5	20.7	33.4	22	32.3	21.9	26.2	15.7	31.8	21	32	21.5
7	30.8	21.7	34	22.5	31.1	21.8	25.1	14.4	32.2	22.5	32	20.3
8	28.4	22.7	34.6	22.5	32.8	22.8	24.2	14.1	------	------	29.5	22
9	29.7	21.7	33.6	21.6	31.8	23.1	25.8	14.2	------	------	32	21.2
10	31.4	21.4	32.3	21.5	30.5	22.5	25	14	------	------	31	19.5
11	32.4	21.4	33.8	21.2	32.4	21.3	23.8	14	------	------	30.8	19.1
12	31.5	21.4	32	21.5	30.1	21.2	23.3	14	32	19.3	30.5	18.8
13	28.9	25	33.6	20.4	33	20.5	23.1	14	------	------	28.6	18.3
14	29.1	23.7	33.6	22.5	33.1	21.6	23.8	14.8	------	------	28.5	21.4
15	30.3	23.3	33.6	22.7	------	21.7	24.1	14	------	------	30.1	21.9
16	30.7	20.7	32.3	19.8	------	------	25	13.4	------	------	31.6	18.3
17	30.5	20.1	31	19.2	30.2	19.5	25.3	12.6	31.2	18	30.6	19.6
18	30.8	20.7	33.2	20.2	31	19.5	24.8	13.2	31.6	19.3	32.3	19.5
19	29.9	19.6	31.1	20	31.8	20.4	24.3	12.4	31.5	20	32	18.1
20	28.9	21.4	32.8	21.9	31.7	21.8	22.8	13.4	31.8	20.1	31.1	21.3
21	29.5	19.5	33.5	22	32.5	22.5	24.8	14.1	31.2	20.2	31.4	20.4
22	30.6	20	30.9	20.5	31.5	23	23	13.4	32.3	20.5	32.5	18.3
23	30	22.3	33.1	21.4	30.4	22.2	24.6	14.4	32.5	20.8	31.5	19.5
24	30	22.5	34.5	22.8	32.7	22.8	25.1	15.2	32.8	21.3	26.5	19.8
25	29	22.1	33.1	21.8	32.1	22.9	23.7	14.6	32.3	21	30.8	20.9
26	30.1	22	32.7	21.9	31.9	23.5	24.1	15	31.7	22	33.1	20.3
27	30	22.3	31.1	22.9	30.6	23.9	24.1	14.5	31.5	20.5	33	21.3
28	30.6	20.9	32.5	22.2	30.5	25	24	14	32	22	31.8	22.2
29	30.8	20.9	33.3	22.4	32.3	22.8	24.7	14.4	31.5	22.2	31.8	21.4
30	30	22.9	33.4	22.3	32	22.9	24.5	14.3	31.6	22.1	30.6	21.7
Mean	30.3	21.5	33	21.6	31.7	22.1	24.4	14.1	31.9	20.9	31.1	20.3

Day.	Candon.		Vigan.		Tuguegarao.		Laoag.		Aparri.		Cape Bojeador.	
	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.
	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.
1	30.9	23.8	34.4	23.6	33	20.4	31.6	22.1	32.5	22	30.6	24.4
2	31.1	23.8	33.2	22.9	33.5	20.7	31.1	20.3	31	22	29.8	23.2
3	31.1	24	31.7	23	32.3	21	32.1	20.4	30.8	22.3	30.2	23
4	31	21.6	31.8	21.1	32.8	20.4	31.4	18.3	32.2	21	30.8	22
5	31.7	22.4	32.8	22.4	33.6	19	31.1	18.5	31	20.6	30.4	23.4
6	31	23	32.2	22.6	34.6	22.4	31.2	20.9	31.6	22	31.8	23.2
7	31	24.2	33	23.6	34.4	20.6	32.7	20.9	31.5	21.8	30.2	22.8
8	30.5	23	33.1	22	30	21.4	33.4	18	29	22.1	31.4	22.4
9	31.6	23.8	32.9	23.8	33.5	20.7	31.9	21.1	31.7	21.3	31.4	23.8
10	32	21.7	34.3	21.5	32.7	19.5	32.8	18	29.1	21.5	28.3	22.5
11	32	21.5	34	24.2	32.5	18.6	33.1	19.5	29.3	20.5	28.4	23.5
12	31	20.2	32.7	22	33.6	19.5	33.3	17.4	30	21	30.6	22.4
13	31	20.5	34.7	21.4	31.4	21	34.2	18.7	31.1	20.8	31.2	23.2
14	30.2	22.2	33.8	22.7	32	21.8	32.6	19.9	31	21.6	28.2	23.8
15	32	22.5	34.8	24	33.6	21.4	33.4	22.3	30.6	22.5	28.6	23.5
16	31.7	20	34.7	22.5	33	20.4	33.4	19.3	31	20.9	29.2	22.4
17	31.2	20.3	30.8	21	32	20.4	31.6	17.3	30.3	21.3	29.6	21.5
18	30.5	21.8	31.2	21.5	31.7	19	------	------	30.3	20.8	29.6	22.4
19	30.5	22	32.6	22	32.4	17.8	30.9	17.2	29.5	20.3	29.2	21.4
20	30	22	31.8	21.6	32.3	22.2	31.3	18.7	29.6	21.1	25.8	21.8
21	31.1	22.5	32.2	22.3	32	21.6	30.9	18.7	30.6	20.6	28.2	21.6
22	31.1	23.8	30.6	21.8	33.1	19	31.1	21.8	31.5	21.3	29.2	23.4
23	30.5	22.5	31.5	21.5	32.7	21.4	31.4	19.3	30.3	22.2	26.2	22.7
24	31	23	32.2	21.5	27	22.4	33	20.2	29.1	23	26.7	22.4
25	31.6	23	32.6	23.5	30.2	21.8	31.3	19.5	30.1	22	29.2	22.4
26	31	23	32.3	23	33	21.7	31.5	20	33	21.3	29	23.1
27	30.5	22.5	31.5	22.1	33.6	22.1	30.2	21.6	30.5	21.3	28.8	22.9
28	31.5	23.4	30.9	21.5	32.8	22.7	31.8	18.9	28.7	23.3	26.2	23
29	31.2	22.9	32.2	22	31.5	22.6	34.3	19.9	28.6	23	26.6	23
30	31.2	23.5	33.8	23.5	29	20.9	34	21.2	29	21.5	27.2	22.6
Mean	31.1	22.5	32.7	22.4	32.3	20.8	32.2	19.7	30.5	21.6	29.1	22.8

SEISMOLOGICAL BULLETIN FOR NOVEMBER, 1918.

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EARTHQUAKES FELT IN THE PHILIPPINES.[1]

1, $2^h\ 0^m\ 2^s$* [1, $10^h\ 0^m\ 2^s$]. **Aparri** (NE Luzon). Oscillatory earthquake, direction E–W, intensity III–IV, duration 10 seconds.

1, $15^h\ 0^m$ [1, $23^h\ 0^m$]. **Batanes Islands.** Earthquake of intensity VI. It was chiefly felt in the towns of Ivana and Sabtan, pulling down some walls damaged by the earthquake shocks occurred in September.

2, $1^h\ 5^m$ [2, $9^h\ 5^m$]. **Butuan** (N Mindanao). Oscillatory earthquake of intensity III, duration 8 seconds.

3, $9^h\ 42^m$ [3, $17^h\ 42^m$]. **Tigaon** (SE Luzon). Earthquake shocks of intensity II–III. Aftershock at $15^h\ 0^m$ [$23^h\ 0^m$].

3, $18^h\ 16^m$ [4, $2^h\ 16^m$]. **Batanes Islands.** Earthquake of intensity IV, duration 5 seconds.

7, $14^h\ 55^m$ [7, $22^h\ 55^m$]. **Tigaon** (SE Luzon). Oscillatory and subsultory shocks of intensity IV, felt in the eastern part of the Isarog region.

8, $15^h\ 15^m$ [8, $23^h\ 15^m$]. **Tigaon** (SE Luzon). Oscillatory earthquake, direction W–E, intensity III, short duration.

9, $19^h\ 27^m\ 46^s$* [10, $3^h\ 27^m\ 46^s$]. **SW. Mindanao.** Earthquake of intensity III originated in the Celebes Sea and felt on the coasts of Zamboanga, Lanao and Cotabato. A repetition of minor intensity occurred on the 10th at $6^h\ 10^m$ [$14^h\ 10^m$].

11, $11^h\ 25^m$ [11, $19^h\ 25^m$]. **Tigaon** (SE Luzon). Subsultory earthquake of intensity III. It repeated two hours later with the same intensity. Both were preceded by rumbling sounds apparently from the Isarog mountain.

18, $18^h\ 46^m\ 46^s$* [19, $2^h\ 46^m\ 46^s$]. **Tigaon** (SE Luzon). Oscillatory earthquake of intensity II–III and long duration. The origin lay far off in the Pacific. Recorded also at Taihoku, Formosa.

20, $1^h\ 14^m\ 36^s$* [20, $9^h\ 14^m\ 36^s$]. **Samar Island.** Earthquake of intensity III felt chiefly in northern Samar and the SE end of Luzon. Origin in the Pacific Deep, E of San Bernardino Strait.

21, $0^h\ 35^m\ 50^s$* [21, $8^h\ 35^m\ 50^s$]. **Samar Island.** Extensive earthquake of intensity V–VI in the northern part of Samar. Origin near to the same place of the preceding shock. It was also perceptible in SE Luzon, Leyte and NE Mindanao, an extension of about 700 kilometers in the NNW–SSE direction.

22, $22^h\ 21^m\ 23^s$* [23, $6^h\ 21^m\ 23^s$]. **Butuan** (N Mindanao). Oscillatory earthquake of intensity II–III. Distant origin in the Pacific.

[1] The intensity of earthquakes is given in the notation known as the Rossi-Forel scale. The time is that indicated by the seismographs at the Central Observatory whenever the disturbance has been registered by them. This fact is denoted by an asterisk (*). Otherwise the time is that noted by the observer who sent the report. All time indications are in Greenwich mean time (midnight=0^h), insular time being added in brackets for the convenience of Philippine readers.

23, $1^h\ 53^m\ 22^s$* [23, $9^h\ 53^m\ 22^s$]. **Ambos Camarines** (SE Luzon). Earthquake of intensity IV–V, felt in the central part of the province circling Mount Isarog. Aftershocks at $1^h\ 56^m$, $2^h\ 39^m$ and $9^h\ 18^m$.

24, $17^h\ 26^m\ 44^s$* [25, $1^h\ 26^m\ 44^s$]. **Davao** (SE Mindanao). Oscillatory earthquake of intensity IV and long duration. The origin lay far off in the Pacific.

25, $12^h\ 8^m\ 12^s$* [25, $20^h\ 8^m\ 12^s$]. **N Luzon.** Earthquake of intensity IV–V felt through the northernmost provinces of Luzon and chiefly in the NW. It originated in the China Sea, W of Babuyanes Islands.

25, $19^h\ 30^m$ [26, $3^h\ 30^m$]. **Samar and Leyte.** Earthquake of intensity III felt in the southern part of Samar and NE of Leyte.

26, $5^h\ 48^m$ [26, $13^h\ 48^m$]. **NW Luzon.** Earthquake of intensity III; origin the same of the one felt on the 25th.

28, $14^h\ 25^m$ [28, $22^h\ 25^m$]. **Davao** (SE Mindanao). Earthquake of intensity III.

28, $21^h\ 30^m$ [29, $5^h\ 30^m$]. **Ormoc** (W Leyte). Oscillatory earthquake of intensity III.

29, $7^h\ 0^m\ 29^s$* [29, $15^h\ 0^m\ 29^s$]. **W Luzon.** Oscillatory earthquake felt in the provinces of Pangasinan, La Union and Benguet. Its intensity reached degree IV; origin in the China Sea, close to the coasts of La Union.

30, $11^h\ 30^m$ [30, $19^h\ 30^m$]. **Davao** (SE Mindanao). oscillatory earthquake, intensity III.

RECORDS OF THE MICROSEISMOGRAPH.

[Time: Greenwich mean. Midnight=0h. Instrument: Wiechert seismograph; 1,000 kilograms. A_N: T_o=6.62, ϵ=2.726, $\frac{r}{T_o^2}$=0.021; A_E: T_o=6.03, ϵ=2.378, $\frac{r}{T_o^2}$=0.037. Alluvium. 2.40 meters above sea level.]

No.	Date.	Character.	Phase.	Hour.	Period.	Amplitude. A_N μ	Amplitude. A_E μ	Remarks.
				h. m. s.				
430	1	Iv	eP	2 00 02				Aparri (NE Luzon).
			L	00 48				
			M_E	01 05	3		42	
			M_N	01 09	3	44		
			F	22				
431	1	Iv	eP	18 10 29				
			L	11 00				
			M_N	11 17	3	197		
			M_E	11 20	4		207	
			F	31				
432	2	Iv	eP	3 13 10				S Formosa.
			F	38				
433	2	Iv	eP	7 50 42				
			F	56				
434	2	I	eP	10 13 26				
			F	36				
435	2	Iv	eP	20 34 36				
			F	45				
436	3	Iu	e	11 25 35				
			F	12 32				
437	3	Iv	eP	12 35 00				
			F	42				
438	3	Iv	eP	12 50 00				
			F	59				
439	5	Iv	eP	1 49 57				
			F	57				
440	5	Iv	eP	5 16 32				
			F	22				
441	6	Iv	eP	22 11 38				
			F	20				
442	7	Iv	eP	1 43 28				
			F	55				
443	7	Iv	eP	17 36 18				
			F	42				

Records of the microseismograph—Continued.

No.	Date.	Character.	Phase.	Hour.	Period.	Amplitude. A_N μ	Amplitude. A_E μ	Remarks.
				h. m. s.				
444	7	Iv	eP	17 44 42				
			L	44 56				
			M_N	45 30	3	186		
			M_E	45 40	3		190	
			F	18 02				
445	7	Iv	eP	20 08 58				
			F	13				
446	8	IIr	eP	4 45 38				
			iN	47 48	5			
			iE	48 06	5			
			iN	48 37	5			
			iE	48 45	5			
			iN	49 35	5			
			iE	49 48	6			
			iE	50 31	6			
			iN	50 36	6			
			iS	52 00				
			iN	53 18	7			
			iE	54 24	7			
			iE	54 49	7			
			iN	55 08	7			
			L	57 58				
			M_{N1}	58 10	11	464		
			M_{E1}	59 48	9		295	
			M_{N2}	5 01 12	13	390		
			M_{E2}	06 01	17		219	
			M_{N3}	08 11	17	230		
			M_{E3}	08 31	18		259	
			C	7 03 24				
			F	8 36				
447	9	Iv	eP	19 27 46				SW Mindanao.
			L	30 00				
			F	57				
448	9	Iv	eP	20 43 00				
			L	44 12				
			F	21 02				
449	10	Ir	e	16 54				N Formosa.
			F	17 18				
450	11	Ir	e	4 34 48				N Formosa.
			F	45				
451	11	Ir	e	7 09 14				
			S	13 12				
			L	14 57				
			M_E	16 06	9		34	
			M_N	16 21	8	29		
			F	58				
452	11	Ir	e	13 24 37				
			L	27 40				
			M_N	28 00	7	44		
			F	37				
453	11	Iv	eP	21 31 37				
			L	31 55				
			M_E	31 57	2		144	
			M_N	31 58	2	84		
			F	36				
454	12	Iv	eP	22 04 38				
			F	12				
455	18	Iv	eP	1 29 39				
			L	30 14				
			M_N	30 34	3	113		
			M_E	30 39	3		123	
			F	39				
456	18	IIIr	iP	18 46 46				Maxima and end lost by the force of the shock.
			iS	51 32				
457	19	Ir	e	5 28 22				
			F	44				
458	19	Iv	eP	8 32 22				
			L	32 38				
			M_E	32 40	2		95	
			F	35				
459	20	Iv	eP	1 14 36				Samar Island.
			F	22				

Records of the microseismograph—Continued.

No.	Date.	Character.	Phase.	Hour.	Period.	Amplitude. A_N μ	Amplitude. A_E μ	Remarks.
				h. *m.* *s.*				
460	21	IIv	eP	0 35 50				Samar, Leyte and NE Mindanao.
			L	36 42				
			M_E	37 06	5		233	
			M_N	37 12	5	330		
			F	1 09				
461	21	Iv	eP	3 33 02				
			F	38				
462	21	Iv	eP	3 46 33				
			F	49				
463	22	Ir	e	15 56 20				
			F	16 42				
464	22	I	e	22 21 23				Butuan (N Mindanao).
			L	24 00				
			F	23 08				
465	23	I	e	0 38				
			F	1 14				
466	23	Iv	eP	1 53 22				Ambos Camarines (SE Luzon).
			L	53 53				
			M_E	54 03	2		73	
			F	2 04				
467	23	IIIr	iE	23 02 46				
			iE	03 20	6		233	
			iN	03 48	6	423		
			iE	04 47	7		541	
			iN	05 04	7	430		
			iS	05 54				
			iL	06 54				
			M_{E1}	06 57	7		1,185	
			M_{N1}	06 58	7	1,107		
			M_{N2}	07 43	8	1,129		
			M_{E2}	08 44	8		1,028	
			C	53 09				
	24		F	0 44				
468	24	Iv	eP	11 34 17				
			F	36				
469	24	Ir	eP	17 26 44				Davao (SE Mindanao).
			L	28 50				
			F	18 07				
470	25	Iv	eP	12 08 12				N Luzon.
			L	08 58				
			M_E	09 38	3		102	
			M_N	09 46	3	117		
			F	22				
471	28	Ir	eP	5 32 46				End overtaken by following earthquake.
			M_N	41 38				
472	28	Iv	eP	5 54 07				
			L	54 28				
			M_E	54 34	2		138	
			M_N	54 39	2	150		
			F	6 17				
473	29	Iv	eP	7 00 29				W Luzon.
			L	00 48				
			M_N	01 35	4	120		
			M_E	01 44	5		108	
			F	10				
474	29	Ir	e	10 56				
			L	11 07 18				
			M_E	08 52	14		7	
			F	33				
475	30	I	e	1 40				
			F	59				
476	30	Ir	e	7 13				
			F	53				
477	30	Iv	eP	9 19 33				
			L	20 05				
			M_N	20 07	2	86		
			M_E	20 09	2		55	
			F	25				

TEMBLORES DE TIERRA SENTIDOS EN FILIPINAS.[1]

1, $2^h\ 0^m\ 2^s$* [1, $10^h\ 0^m\ 2^s$]. **Aparri** (NE de Luzón). Temblor oscilatorio, dirección E–W, intensidad III–IV, duración 10 segundos.

1, $15^h\ 0^m$ [1, $23^h\ 0^m$]. **Islas Batanes.** Temblor de tierra de intensidad VI. Sintióse principalmente en los pueblos de Ivana y Sabtan, derribando algunas paredes ya ruinosas por los terremotos de septiembre.

2, $1^h\ 5^m$ [2, $9^h\ 5^m$]. **Butúan (N de Mindanao).** Temblor oscilatorio de intensidad III, duración 8 segundos.

3, $9^h\ 42^m$ [3, $17^h\ 42^m$]. **Tigaon** (SE de Luzón). Temblor de tierra de intensidad II–III. Repitió a $15^h\ 0^m$ [$23^h\ 0^m$].

3, $18^h\ 16^m$ [4, $2^h\ 16^m$]. **Islas Batanes.** Temblor de tierra de intensidad IV, duración 5 segundos.

7, $14^h\ 55^m$ [7, $22^h\ 55^m$]. **Tigaon (SE de Luzón).** Temblor oscilatorio y susultorio de intensidad IV sentido en toda la región oriental del Isarog.

8, $15^h\ 15^m$ [8, $23^h\ 15^m$]. **Tigaon** (SE de Luzón). Temblor oscilatorio, dirección W–E, intensidad III, duración corta.

9, $19^h\ 27^m\ 46^s$* [10, $3^h\ 27^m\ 46^s$]. **SW de Mindanao.** Temblor de tierra de intensidad III, originado en el Mar de Célebes y sentido en las costas de Zamboanga, Lanao y Cotabato. Repitió con menos intensidad a $6^h\ 10^m$ [$14^h\ 10^m$] del 10.

11, $11^h\ 25^m$ [11, $19^h\ 25^m$]. **Tigaon** (SE de Luzón). Temblor de tierra susultorio, intensidad II–III. Repitió dos horas más tarde con la misma intensidad; ambos fueron precedidos de ruido subterráneo procedente al parecer del Isarog.

18, $18^h\ 46^m\ 46^s$* [19, $2^h\ 46^m\ 46^s$]. **Tigaon** (SE de Luzón). Temblor de tierra de intensidad II–III, larga duración. Su origen se hallaba algo lejos hacia el NE en el Pacífico. Registrado en Taihoku, Formosa.

20, $1^h\ 14^m\ 36^s$* [20, $9^h\ 14^m\ 36^s$]. **Isla de Sámar.** Temblor de tierra de intensidad III sentido en la parte SE de Luzón y en la Isla de Sámar. El origen estaba en el Pacífico al E del Estrecho de San Bernardino.

21, $0^h\ 35^m\ 50^s$* [21, $8^h\ 35^m\ 50^s$]. **Isla de Sámar.** Temblor de tierra de intensidad V–VI en la parte NE de Sámar. Originado en el Pacífico, probablemente en la misma región que el precedente. Tuvo grande extensión siendo perceptible en el SE de Luzón, en las Islas de Sámar y Leyte y en la parte NE de Mindanao, una extensión de más de 700 kilómetros en la dirección NNW–SSE.

22, $22^h\ 21^m\ 23^s$* [23, $6^h\ 21^m\ 23^s$]. **Butúan** (N de Mindanao). Temblor oscilatorio de intensidad II–III. El origen se hallaba muy distante en el Pacífico.

23, $1^h\ 53^m\ 22^s$* [23, $9^h\ 53^m\ 22^s$]. **Ambos Camarines** (SE de Luzón). Temblor de tierra de intensidad IV–V sentido en toda la región que rodea el Isarog. Repitió con menos intensidad a $1^h\ 56^m$ $2^h\ 39^m$ y $9^h\ 18^m$.

24, $17^h\ 26^m\ 44^s$* [25, $1^h\ 26^m\ 44^s$]. **Dávao** (SE de Mindanao). Temblor oscilatorio de intensidad IV, larga duración. Su origen se hallaba muy lejos en el Mar Pacífico.

25, $12^h\ 8^m\ 12^s$* [25, $20^h\ 8^m\ 12^s$]. **N de Luzón.** Temblor de tierra de intensidad IV–V sentido en todas las provincias más septentrionales de Luzón, pero principalmente al NW. El origen se hallaba en el Mar de la China al W de las Islas Babuyanes.

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[1] La intensidad de los terremotos se indica conforme a la conocida escala de Rossi-Forel. Cuanto a la hora de su ocurrencia, adoptamos la indicada por los sismógrafos de este Observatorio siempre que los hayan registrado, distinguiéndola por medio de un asterisco (*). En caso contrario copiamos la apuntada por los observadores que nos envían las notas. Todas las indicaciones del tiempo se refieren al tiempo medio de Greenwich (medianoche $=0^h$). Para conveniencia de los lectores de Filipinas se añade también el tiempo insular.

25, 19h 30m [26, 3h 30m]. **Sámar y Leyte.** Temblor de tierra de intensidad III sentido en la parte sur de Sámar y NE de Leyte.

26, 5h 48m [26, 13h 48m]. **NW de Luzón.** Temblor de tierra de intensidad III, originado en el mismo centro que el del día 25.

28, 14h 25m [28, 22h 25m]. **Dávao** (SE de Mindanao). Temblor de tierra de intensidad III.

28, 21h 30m [29, 5h 30m]. **Ormoc** (W de Leyte). Temblor oscilatorio de intensidad III.

29, 7h 0m 29s* [29, 15h 0m 29s]. **W de Luzón.** Temblor oscilatorio sentido en las provincias occidentales de Pangasinán, La Unión y Benguet. Tuvo intensidad III–IV y se originó en el Mar de la China cerca de las costas de La Unión.

30, 11h 30m [30, 19h 30m]. **Dávao** (SE de Mindanao). Temblor oscilatorio, intensidad III.

THE GOVERNMENT OF THE PHILIPPINE ISLANDS

WEATHER BUREAU

MANILA CENTRAL OBSERVATORY

BULLETIN FOR DECEMBER, 1918.

PREPARED UNDER THE DIRECTION OF

REV. JOSÉ ALGUÉ, S. J.

DIRECTOR OF THE WEATHER BUREAU

MANILA
BUREAU OF PRINTING
1919

METEOROLOGICAL BULLETIN FOR DECEMBER, 1918.

By Rev. JOSÉ CORONAS, S. J.,
Chief, Meteorological Division of the Weather Bureau.

GENERAL WEATHER NOTES.

Pressure and temperature.—The mean atmospheric pressure for this month is moderately above that of the preceding year, and slightly above the normal for December. The highest pressures were generally observed either on the 6th to 8th or on the 19th. The lowest pressures were recorded on the 25th and 26th when a typhoon was crossing the central part of the Philippines.

The mean monthly temperature is, with a few exceptions, very slightly below the December's normal in our stations throughout the Archipelago. The extreme temperatures of the month for Manila were 32.3° C. on the 5th and 10th, and 17.2° C. on the 24th. The absolute maximum and minimum temperatures for Baguio were 25.9° C., 12.1° C. on the top of Mirador, and 26.6° C., 9.5° C. in the valley.

PRESSURE AND TEMPERATURE AT THE FIRST AND SECOND CLASS STATIONS FOR DECEMBER, 1918.

Station.	Pressure.							Temperature.						
	Mean.	Departure from Dec., 1917.	Departure from normal.	Highest mean.	Day.	Lowest mean.	Day.	Mean.	Departure from Dec., 1917.	Departure from normal.	Highest.	Day.	Lowest.	Day.
	mm.	*mm.*	*mm.*	*mm.*		*mm.*		°C.	°C.	°C.	°C.		°C.	
Zamboanga	759.02	+1.64		760.03	19	757.82	13	25.8	0		33.3	1	20	27
Tagbilaran	59.15	+1.93	+0.69	60.65	19	56.32	25	25.4	—0.1	—0.7	31.7	1	19.7	31
Surigao	59.21	+1.88	+ .66	60.61	31	56.16	25	25.7	— .1	— .2	31	26	21.4	28
Cebu	59.48	+2.05	+ .78	61.08	19	55.73	25	26.6	— .4	+ .1	31.6	15	21	12
Iloilo	59.48	+2.10	+ .87	61.08	19	55.40	25	25.6	— .6	— .5	30.8	27	20.6	27
Tacloban[a]	59.42	+1.88	+ .36	61.04	19	54	25	25.6	— .6	— .4	32.6	15	20.7	29
Capiz	59.79	+2.16	+ .52	61.51	19	53.22	25	26.1	— .3	— .3	31.3	10	21.2	28
Calbayog	59.72	+1.94	+ .74	61.33	7	51.35	25	25	— .4	— .3	32.1	14	19.7	8,31
Legaspi	59.94	+1.82	+ .48	61.84	6,7	45.88	25	[b]26.2						
Atimonan	60.89	+2.21	+ .83	62.48	6	55.98	25	26.2	+ .8	+ .4	29.4	27	21	16
Ambulong, Tanauan	59.95	+1.94		61.58	8	55.91	25	25.4	0		32	24	18.2	24
Paracale	60.88	+2.13		62.58	6	55.19	25	26.2	+1		30.1	19	22.2	27
Manila	60.72	+2.10	+ .41	62.18	6,8	57.43	25	24.5	— .3	— .6	32.3	5,10	17.2	24
San Isidro	61.47	+2.58	+1.27	62.98	6	58.26	26	25.1	+ .2	—1.1	33.9	29	15.5	24
Dagupan	60.08	+2.01	+ .47	61.51	19	56.43	26	25.7	— .3	— .3	34	5	17.5	24
Baguio[c]	637.89	+1.70	+ .74	638.92	6	635.25	26	17.7	+ .8	+ .3	25.9	5	12.1	24
Vigan	760.22	+1.78	+ .32	761.75	19	756.40	26	26.2	+ .6	0	33.8	3	18.5	13
Tuguegarao	61.93	+1.44	+ .55	63.46	6	59.31	26	24.1	+1.4	+ .2	33.2	17	16.8	7
Laoag	60.56	+1.73		62.17	8	56.59	26	25			35.9	26	14	24
Aparri	62.27	+1.12	+ .41	63.76	29	59.62	26	24.3	+1.9	+ .5	31.8	11	17.5	22,23

[a] 29 days of observation. [b] 28 days of observation. [c] The barometric readings of this station are not reduced to sea level.

Rainfall.—Owing to the typhoon which on Christmas day crossed the northern Visayas near Romblon, the monthly amount of rainfall for the Visayas is generally above that of the preceding year, although if compared with the normal of December, only one half of the Visayan stations reported a monthly total higher than it. As to Luzon and Mindanao, almost all the stations show a lack of rain with a monthly total below that of December, 1917, and below the normal of this month. In Manila only 29.1 mm. were collected in the rain-gauges, an amount lower than the normal by 32.9 mm. Baguio reported only 0.5 mm. of monthly rainfall, while the normal of December for that place is 54.4 mm.

RAINFALL AT VARIOUS STATIONS OF THE WEATHER BUREAU DURING THE MONTH OF DECEMBER, 1918.

Station.	Total.	Departure from Dec., 1917.	Departure from normal.	Days of rain.	Departure from Dec., 1917.	Greatest rainfall in a single day.	Day.	Station.	Total.	Departure from Dec., 1917.	Departure from normal.	Days of rain.	Departure from Dec., 1917.	Greatest rainfall in a single day.	Day.
	mm.	*mm.*	*mm.*			*mm.*			*mm.*	*mm.*	*mm.*			*mm.*	
Jolo	141.5	— 92.1	— 24.3	7	—15	86.6	5	Sumay, Guam	59.2	—61. 5	— 84.5	10	— 9	14	21
Isabela, Basilan	84.2	— 68	— 68.5	10	— 7	29.4	15	Calapan	173.6	— 32.3	— 31.4	16	— 8	102	25
Zamboanga	33.2	—186.2	— 79.9	10	— 7	14.2	5	Virac	424	— 5.1	— 16.4	22	— 4	148.8	25
Davao	90.7	+ 8.5	—100	7	— 5	48	6	Naga	274	+ 89	— 13.1	12	— 6	161.8	25
Cotabato	64	— 40.3	— 56.2	6	—10	27.9	9	Tigaon	425.4			17		162.6	25
Camp Keithley, Lanao	168.6			22		31	5	Batangas	65.4	— 69.9	— 45.7	4	— 4	50.8	25
Cagayan, Misamis	122.1	+ 31.2		11	— 5	50.8	26	Lucena	161.3	—147.9		18	— 1	108.8	25
Butuan	405	+184.9	+104.2	25	0	110.5	19	Atimonan	224.5	—257.1	—163.8	23	— 3	79.9	25
Mambajao	384.6	+149.4		17	+ 1	91.7	19	Ambulong, Tanauan	93.5	+ 46.6		4	— 5	69.9	25
Dumaguete	46.7	—163.3		13	— 5	10.2	6, 13	Canlubang, Calamba	76	— 42.4		7	— 5	51.1	25
Yap, Western Carolines	150.9	— 87.5	— 46.3	24	+ 2	46.5	20	Paracale	275.5	—474.1		22	— 7	134.8	25
Tagbilaran	120	— 99.5	— 35.8	14	0	25.7	15	Santa Cruz, Laguna	82.7	— 97.5		14	— 4	42.2	25
Iwahig	41.2	—319		5	—15	29.7	26	Manila	29.1	— 46.6	— 32.9	8	— 8	17.7	26
Surigao	687.1	+356.4	+156.2	23	— 2	136.8	16	Antipolo	62.8	—153		6	—16	41.4	26
Masin	602.7	+435.3	+283.7	10	0	224.7	3	Iba	0	— 64	— 28	0	—12	0	0
Cebu	194.6	+ 91.6	+ 46.7	16	— 1	42.6	5	San Isidro	2.7	— 38.2	— 43.4	4	— 7	1	26
Iloilo	148.2	+ 75.5	+ 33	12	— 1	31.4	5	Tarlac	1.3	— 34.6	— 36.3	2	— 7	1	30
San Jose Buenavista	28.5		— 29.3	7		12.3	26	Baler	300.5	—162.4	— 64.5	12	— 4	121.6	31
Cuyo	40.6	— 97.6	— 16.1	6	— 4	20.3	13	Dagupan	6.1	— 79	— 12.9	1	— 6	6.1	30
Ormoc	189.3	+ 79.1	— 4.9	18	— 4	35.3	3	Bolinao	0	— 1	— 12	0	— 1	0	0
Guiuan	401.5	— 22.2		23	— 4	92.5	3	Baguio	.5	—145.8	— 53.9	1	—13	.5	30
Tacloban	260.1	+ 43.8	— 90.6	22	0	32.9	19	San Fernando, Union	0	— 17.3	— 8.4	0	— 5	0	0
Capiz	169.7	—381.2	— 79.7	14	— 8	52.8	25	Echagüe	53.1	—209.5	—104.5	18	— 7	23.4	28
Borongan	320.8	—499.8	—284.2	24	— 1	81.5	19	Candon	0	— 4.6	— 10.5	0	— 1	0	0
Catbalogan	209.8	+ 10.7		18	— 5	36	24	Vigan	0	0	— 6.8	0	0	0	0
Calbayog	357.8	+125.1	+ 79	20	— 6	71.8	25	Tuguegarao	44.8	—121.4	—106.3	6	— 5	25.2	29
Masbate	443	+235.3	+222.5	18	+ 1	328.4	25	Laoag	0	— .8	— 22.7	0	— 1	0	0
Romblon	281.4	+ 50.9	+ 51.5	14	— 7	236.3	25	Aparri	42	—231.8	—209.2	9	—18	22.2	26
Batag	371.2	—261.9		19	+ 1	123.2	25	Cape Bojeador	6.1	— 16.3		1	— 2	6.1	28
Legaspi	320.6	—227.9	—156.1	21	— 3	72.1	25	Santo Domingo, Batanes	187.8	—348.5	—191	21	— 9	35.6	27

DEPRESSIONS AND TYPHOONS.

During this month there was only one depression in higher latitudes which developed into a typhoon near the southern coast of Japan on the 11th, and one typhoon in the central part of the Philippines. (See the tracks of both in Plate IX.)

The typhoon of the Philippines is called the *Quantico* typhoon as it caused the total wreck of a large steamer bearing this name on the northern coast of Tablas Island, and also the Christmas typhoon of 1918 because it came to strike the Philippines on Christmas day of 1918. For full details and information on this typhoon we refer our readers to a pamphlet just published as an extraordinary publication of this Bureau. We will only say here that the typhoon followed a very unusual and abnormal track. It formed over the Western Carolines to the southeast of Yap on the 17th to 18th of December moving first W by N until the 22nd, when it inclined northward; then suddenly on the 24th, instead of continuing recurving northeastward, as it was to be expected, it recurved back to W and WSW toward the southernmost part of Luzon.

The cyclonic center traversed the Province of Sorsogon at about noon of Christmas day, it passed very close to Romblon at about 9 p. m. of the same day, and entered the China Sea in the morning of the 26th. The observations made in Indochina on the 29th and 30th show clearly the passing of the typhoon some 150 miles south of Saigon. Hence it follows that the typhoon continued moving WSW while traversing the China Sea from the 26th to the 30th of December.

NOTAS GENERALES DEL TIEMPO.

Presión y temperatura.—La presión atmosférica media de este mes es moderadamente mayor que la del año pasado y ligeramente mayor también que la normal de diciembre. Las presiones más altas se observaron generalmente del 6 al 8 o bien el día 19. Las presiones más bajas se registraron los días 25 y 26 cuando un tifón atravesaba la parte central de Filipinas.

La temperatura media mensual es con pocas excepciones, muy ligeramente menor que la normal de diciembre. Las temperaturas extremas del mes en Manila fueron 32.3° C. observada los días 5 y 10, y 17.2° C. registrada el día 24. Las temperaturas máxima y mínima absolutas de Baguio fueron 25.9° C., 12.1° C. en la cumbre del Mirador, y 26.6° C., 9.5° C. en el valle.

Precipitación acuosa.—Debido al tifón que el día de Navidad atravesó las Visayas septentrionales cerca de Romblón, la cantidad de lluvia mensual para Visayas es generalmente mayor que la del año pasado; aunque comparada con la normal de diciembre, solo una mitad de las estaciones de Visayas da para este mes una cantidad superior a la misma. Cuanto a Luzón y Mindanao, casi todas las estaciones experimentaron escasez de lluvia con un total mensual menor que la de diciembre de 1917, y menor que la normal de este mes. En Manila no recogieron los pluviómetros más que 29.1 mm. de agua, cantidad que difiere de la normal en —32.9 mm. Baguio sólo registró 0.5 mm. de lluvia durante el mes, siendo así que la normal de diciembre para dicha estación es 54.4 mm.

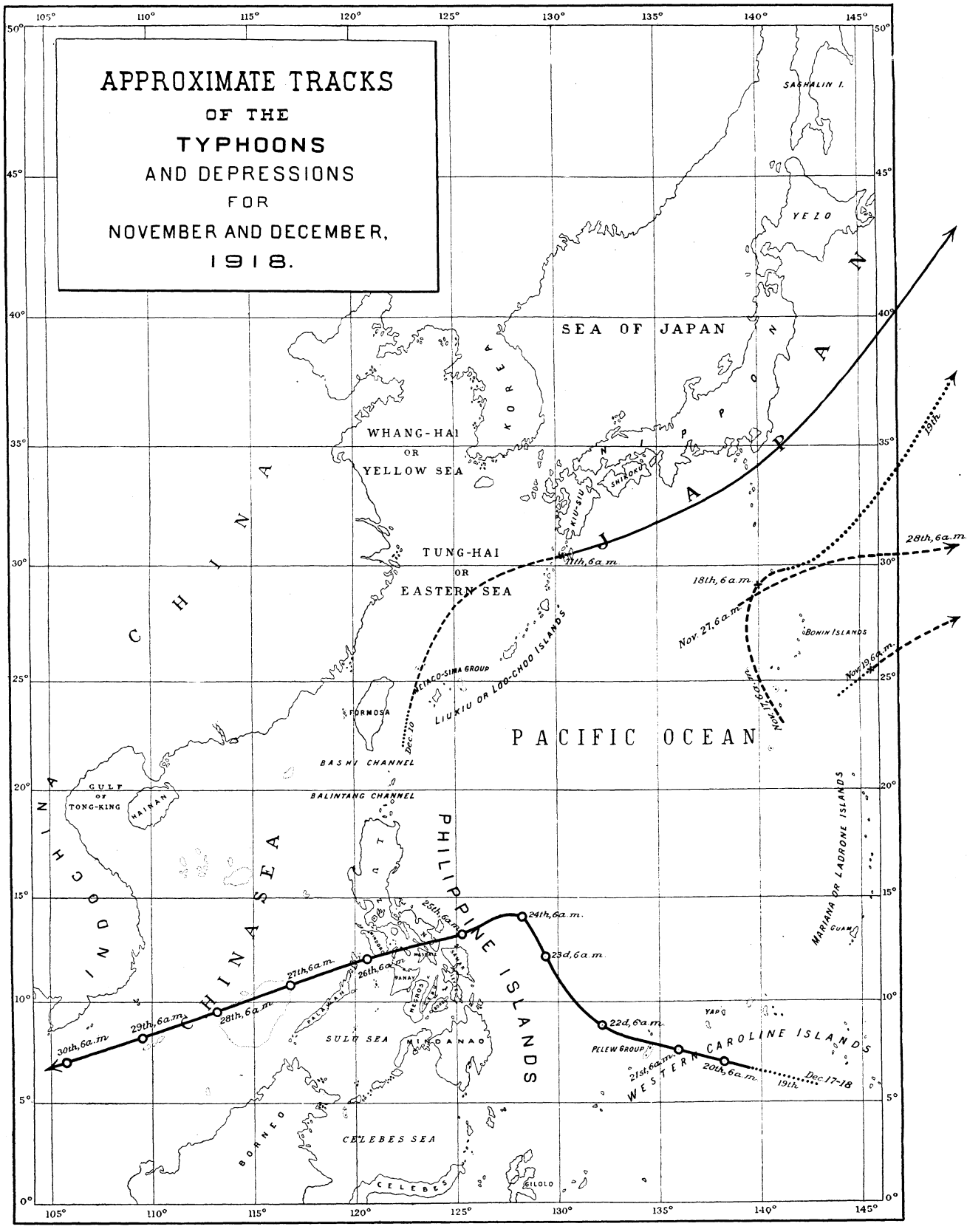
DEPRESIONES Y TIFONES.

Durante el mes hubo una sola depresión en altas latitudes, que se desarrolló en un verdadero tifón cerca de la costa meridional de Japón el día 11, y un tifón en la parte central de Filipinas. (Véanse las trayectorias de ambos en la Lámina IX.)

El tifón de Filipinas es conocido por el tifón del *Quantico* por haber causado el total naufragio de un gran barco de este nombre junto a la costa septentrional de la Isla de Tablas. También se le distingue con el nombre de "El baguio de Navidad de 1918" por haber cruzado las Filipinas el 25 de diciembre de dicho año. Para mayores detalles y más completa información sobre este tifón remitimos a nuestros lectores a un folleto recientemente dado a luz como extraordinaria publicación de esta Oficina. Aquí diremos solamente que el tifón siguió una trayectoria muy extraordinaria y anormal. Se formó en las Carolinas Occidentales al SE de Yap del 17 al 18 de diciembre, moviéndose primero al W¼NW hasta el día 22, en que se inclinó hacia el N; luego súbitamente el día 24, en vez de continuar recurvando al NE, como era de esperar, retrocedió recurvando al W y WSW en dirección al extremo meridional de Luzón.

El centro ciclónico atravesó la Provincia de Sorsogón hacia el mediodía de Navidad; pasó muy cerca de Romblón hacia las 9 p. m. del mismo día, y penetró en el Mar de China la mañana del 26. Las observacions hechas en Indochina los días 29 y 30 demuestran claramente el paso del tifón a unas 150 millas por el S de Saigón. De donde se sigue que el tifón continuó moviéndose al WSW mientras atravesaba el Mar de China del 26 al 30 de diciembre.

Plate IX.


APPROXIMATE TRACKS
OF THE
TYPHOONS
AND DEPRESSIONS
FOR
NOVEMBER AND DECEMBER,
1918.
SAGHALIN I.
YEZO
SEA OF JAPAN
JAPAN
KOREA
WHANG-HAI
OR
YELLOW SEA
CHINA
KIU-SIUS
NIPPON
SHIKOKU
TUNG-HAI
OR
EASTERN SEA
11th, 6a.m.
18th, 6a.m.
Nov. 27, 6a.m.
28th, 6a.m.
19th
Nov. 19, 6a.m.
BONIN ISLANDS
MEIACO-SIMA GROUP
LIUKIU OR LOO-CHOO ISLANDS
Dec. 10
FORMOSA
PACIFIC OCEAN
BASHI CHANNEL
BALINTANG CHANNEL
GULF OF TONG-KING
HAINAN
INDO CHINA
CHINA SEA
PHILIPPINE ISLANDS
MARIANA OR LADRONE ISLANDS
GUAM
24th, 6a.m.
25th, 6a.m.
23d, 6a.m.
27th, 6a.m.
26th, 6a.m.
22d, 6a.m.
YAP G.
30th, 6a.m.
29th, 6a.m.
28th, 6a.m.
SULU SEA
MINDANAO
PELEW GROUP
21st, 6a.m.
20th, 6a.m.
WESTERN CAROLINE ISLANDS
19th
Dec. 17-18
BORNEO
CELEBES SEA
CELEBES
GILOLO
105°
110°
115°
120°
125°
130°
135°
140°
145°
50°
45°
40°
35°
30°
25°
20°
15°
10°
5°
0°

METEOROLOGICAL DATA FOR MANILA CENTRAL OBSERVATORY.[a]

[ϕ=14° 34′ 41″ N; λ=120° 58′ 33″ E; barometer above sea, 14.2 meters; gravity correction not applied, —1.72 mm.]

Day.	Pressure (mean).	Air temperature.[b] Mean.	Maximum.	Minimum.	Underground temperature. 0.25 meter. 8 a.m.	0.25 meter. 2 p.m.	0.50 meter. 8 a.m.	0.50 meter. 2 p.m.	1.50 meters. 8 a.m.	2.50 meters. 8 a.m.	Relative humidity (mean).	Vapor pressure (mean).	Radiation. Minimum on grass.	Radiation. Maximum in sun. Black bulb in vacuo.	Evaporation.[b] Free exposure (total).	Evaporation.[b] Shelter (total).
	mm.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	*Per ct.*	*mm.*	°C.	°C.	*mm.*	*mm.*
1	760.85	24.1	31.1	18.5	26.5	27.9	27.8	28.1	28.6	28.2	79	17.3	16.3		3.9	2.5
2	60.78	24.6	30.5	19.7	26.5	27.9	27.8	28	28.6	28.2	80.8	18.5	17.3		3.1	2.2
3	60.66	24.9	31.6	20.1	26.8	28.1	27.8	28.3	28.5	28.3	79.6	18.3	19.4		3.1	2.5
4	60.77	23.8	30.6	18.6	26.3	27.5	27.8	27.9	28.5	28.2	79.4	17.1	16.2		3.2	2.2
5	61.11	24.9	32.3	20.7	26.4	28.1	27.8	28.2	28.5	28.2	77.5	17.8	18.7		4.3	3.2
6	62.18	23.9	30.8	18.7	26.1	27.4	27.7	27.8	28.5	28.2	79.5	17.3	16.3		3.1	2.4
7	62.12	23.7	30.8	19	25.8	27.4	27.5	28.1	28.4	28.2	79.2	16.8	16.6		3.4	2.7
8	62.18	24	31.2	18.7	25.9	27.2	27.4	27.6	28.6	28.2	77.9	17.1	16		3.3	2.6
9	61.28	24.4	30.4	19.4	25.8	27.4	27.1	27.5	28.4	28.2	79.7	17.9	16.9		3.1	2.2
10	61.12	24.7	32.3	19.7	26.1	27.5	27.3	27.6	28.3	28.2	79.1	17.9	18.1		4.4	3.2
11	60.30	23.8	30.5	17.9	25.5	27	27.1	27.6	28.3	28.2	83.2	18.1	15.5		3.1	2.2
12	60.02	24.8	31.3	19.6	25.6	27.4	27.1	27.5	28.3	28.1	79.7	18.3	17		3.9	2.6
13	60.23	25	29.7	21.8	26.2	27.2	27.1	27.4	28.3	28.2	82.5	19.2	19.4		2.5	1.7
14	60.18	25.2	31.9	20.5	26.1	27.7	27.3	27.4	28.3	28.2	84	19.8	18		2.9	1.8
15	60.75	24.8	30.4	20.5	26.9	27.5	27.6	27.8	28.2	27.9	84.8	19.6	18.2		2.5	1.9
16	61.20	24	30.4	18.8	25.6	27.2	27.2	27.4	28.2	28	84.1	18.4	16.2		2.5	1.9
17	61.44	24.5	32.1	18.5	25.4	27.7	27.1	27.5	28.1	28.1	78.1	17.4	16.1		4	2.8
18	61.69	24.3	32	19	25.5	27.8	27.1	27.4	28.1	28.1	78.5	17.4	16.9		4.1	2.9
19	62.16	24.3	30.5	19.5	25.8	26.5	27.1	27.6	28.1	28	79.7	17.7	17.2		4.1	2.8
20	61.84	25.1	32.2	20	25.8	28.2	27.1	27.6	28.1	28	80.6	18.7	47.7		4	3
21	60.99	24.7	31.3	20.9	26.4	28	27.2	27.6	28.1	28	81.9	18.7	18.7		3	2.4
22	60.38	23.6	29.6	19.7	25.7	27.4	27.2	27.4	28.1	28.1	84.1	18.1	17.3		2.4	1.9
23	60.11	23.2	29.3	18.1	25.3	27.1	27	27.3	28	27.9	84	17.6	15.2		3.1	2.1
24	59.83	23	30.1	17.2	25.3	27.4	27	27.5	28	28.1	75.4	15.4	14.4		4.3	3
25	57.43	25.4	30	19.9	25.7	26.8	26.9	27.1	28	27.9	70.1	16.9	17.2		4.7	4
26	57.44	23.5	26	21.6	26.1	26.2	27	27	28	28	93.4	20.1	22.6		0	.6
27	59.30	26.3	32	21.2	25.5	24.7	26.8	27.1	28	27.9	78	19.4	19.2		4.8	3.2
28	60.58	24.7	29.3	21.1	26.1	27.1	27	27.2	27.9	27.9	89.1	20.5	18.8		1	.8
29	60.61	25.8	31	23	26.4	27.5	27.1	27.3	28.2	28	82.1	20.1	20.7		3.8	3.1
30	61.22	25.5	30.3	21.3	26.7	27.7	26.8	27.5	28.4	27.9	82.8	19.9	20.2		2.5	1.6
31	61.66	25.1	30.4	22	26.6	28	27.3	27.6	27.9	27.9	82.5	19.5	21		2.7	2
Mean	760.72	24.5	30.7	19.8	26	27.4	27.3	27.6	28.2	28.1	81	18.3	17.7		3.3	2.4
Total															100.8	74
Departure from normal	+0.41	—0.6	+0.7	—1.4							—0.4	—0.9				

Day.	Wind. Prevailing direction.	Total movement.	Maximum hourly velocity.	Direction at the time of the maximum velocity.	Clouds. Amount. (mean).	Form and direction. Upper.	Lower.	Sunshine.	Rain, 24 hours beginning 6 a.m. On the tower.	In the park.	Miscellaneous.
		Km.	*Km.*		*0–10.*			*h.* *m.*	*mm.*	*mm.*	
1	NE quad.	111	14	WSW	3.8	Ci.	Cu. E	8 20			☊[2] a.
2	NE	135	15	W	5.8	Ci.	Cu. E	5 55			d° p.
3	NE	116.5	19	NE	6.3	Ci.	Cu. E	4 45			
4	NE quad.	96	13	SE	8.6	Ci.-S.	Cu. E	1 00			
5	E	161.5	25	E	5.1	Ci. SE	Cu. E	8 05			
6	NE quad.	128	18	E	5.4	Ci.-S. E	Cu. E	5 40			
7	NE quad.	123	16	E	4.6	A.-Cu. E	Cu. E	6 45			
8	NE, E	111	10.5	W	5.7	A.-Cu. E	Cu. E	6 30			
9	NE quad.	117	12	WSW	6.5	Ci. E	Cu. E	6 15			
10	NE	162.5	21	E	3.5	Ci. E	Cu. E	7 15			
11	NE, W	132.5	15	W	4.7	Ci.	Cu. E	6 10			
12	NE quad.	164	13	WSW	3	Ci.	Cu. E	9 05			
13	NE quad.	133.5	18.5	NNE	8.1	A.-Cu. E	S.-Cu. E	2 15	0.3	0.4	d° a. d p.
14	NE	133.5	15	W	5.5	Ci. E	Cu. E	6 30	.1	.2	☰ a. d° p.
15	E quad.	117	11	SE	6.2	A.-Cu. EbyN	Cu. E	4 45			☰° d ° a.
16	NE, ESE	127.5	17.5	NE by E	5.3	Ci.	Cu. E	6 15	3	.3	d° a. ●° p.
17	NE, ENE	136	13.5	W	3.9	Ci. ENE	Cu. E	7 25			☰° a.
18	NE quad.	123.5	17	E	6.7	Ci. ENE	Cu. E	5 05			☰° a. ◟° p.
19	E	145	17	WSW	3.2	Ci. S	Cu. E	7 45			
20	NE quad.	134.5	14	WSW	7.2	Ci. NE	Cu. E	6 30			
21	E quad.	119.5	12	WSW, NE	7.1	Ci.-S. SE	Cu., S.-Cu. E	4 20			☰° a.
22	NNE, NE	118	10	WSW	7.7	Ci.-S.	Cu. E	0 35			
23	WSW, SW	129.5	16	WSW	2.4	Ci.	Cu. E	8 10			☰o a.
24	NE quad.	180.5	22	W	4.3	Ci. ESE	Cu.	7 55			☊ a.
25	N, NNW	379	35	N	9	Ci.-S.	Cu. NE	1 50	7.6	7.4	◞° ●° p.
26	NE quad.	220	18	ENE	10	Ci.-S.	Cu.-N. ESE	0 00	17.7	15.9	● a. p.
27	SE	276.5	21.5	E	3.5	A.-Cu. SE	Cu. SE, ESE	8 30			
28	Variable	81.5	9	W	5.6	Ci.-S. EbyN	Cu. ESE	3 35	1	1	☊° a. ●° p.
29	Variable	98.5	12	S, SW	4.7	A.-Cu. E	Cu. ENE	4 05	1.8	1.8	d° p.
30	E quad.	101.5	9	SE	7.5	A.-Cu. ENE	Cu. ENE	4 25	.3	.3	●° a. d p.
31	E quad.	140	15	E by S, E	6.6	A.-Cu.	Cu. E	5 05			p° a. d° p.
Mean		143.6	16		5.7			5 30			
Total		4,453						170 45	29.1	27.3	
Departure from normal		—413.2			—0.5			+15 13	—32.9		

[a] All the mean values given in this table are deduced from hourly observations.
[b] These values are taken from instruments mounted in the Observatory Park, 1.5 meters above ground.

METEOROLOGICAL DATA FOR MIRADOR OBSERVATORY, BAGUIO.[a]

[$\phi = 16° 25'$ N; $\lambda = 120° 36'$ E; barometer above sea, 1,512.5 meters; gravity correction not applied, −1.65 mm.]

Day.	Pressure[b] (mean).	Air temperature at Mirador (on the top of the mountain). Mean.	Maximum.	Hour.	Minimum.	Hour.	Air temperature in the valley (near the city hall). Maximum.	Hour.	Minimum.	Hour.	Relative humidity (mean).	Vapor pressure (mean).	Radiation. Minimum on grass.	Maximum in sun. Black bulb in vacuo.[c]	Evaporation. Free exposure (total)	Shelter (total)
	mm.	°C.	°C.		°C.		°C.		°C.		*Per ct.*	*mm.*	°C.	°C.	*mm.*	*mm.*
1	638.17	17.5	23.5	1.00p.	13.9	6.10a.	25.4	10.45a.	12.8	6.00a.	86.5	12.8	12.9	55	3	1.6
2	38.10	17.8	24.4	1.20p.	13.9	5.55a.	25.6	0.10p.	11.1	6.05a.	69.2	10.3	12.9	55	4.6	2.9
3	38.01	18.2	25.4	2.00p.	13.4	3.45a.	24.5	10.30a.	12.9	5.20a.	80.3	12.3	11.3	62.4	4.2	3.4
4	37.76	16.7	25.2	1.00p.	12.6	6.05a.	25.1	1.05p.	11.4	6.40a.	70.7	9.8	11.5	54.1	8.4	6.9
5	38.15	18.2	25.9	2.05p.	14.3	12 m. n.	25.3	2.00p.	13.7	1.20a.	70.3	10.8	12.4	53	6.5	4.9
6	38.92	17.3	24.9	11.25a.	13.3	6.00a.	26.4	0.05p.	11.8	12 m. n.	77	11.2	11.7	54.3	7.1	4.2
7	38.75	16.7	24.3	11.55a.	12.2	3.00a.	26	1.00p.	9.5	4.40a.	67.3	9.1	11.2	54.3	10.2	6.5
8	38.54	16.6	21.8	9.05a.	12.5	12 m. n.	24.8	0.50p.	9.8	6.00a.	79.2	11	11.2	53.3	5.5	3.4
9	38.14	17.5	25	1.50p.	12.2	3.05a.	25.7	1.25p.	10.2	3.25a.	57.3	8.1	10.8	53.3	10.6	5.9
10	38.28	18.1	24.6	1.00p.	14.2	12 m. n.	25.5	2.20p.	12.2	12 m. n.	79.3	12.2	13.8	55.9	3.3	2.4
11	37.63	17	23.5	0.40p.	12.3	4.30a.	26.4	2.20p.	9.6	6.05a.	76.7	11	10.8	53.7	6.4	3.1
12	37.47	17.8	24.3	9.55a.	13.3	0.05a.	25.6	11.40a.	10.2	6.20a.	64.3	9.8	11.6	56	10.3	6.2
13	37.38	18.4	24.8	0.40p.	14.5	0.50a.	26.5	2.00p.	12.8	3.20a.	47.2	7.5	13	59.2	11.7	6.6
14	37.78	19	25.2	10.55a.	15.5	12 m. n.	26.2	0.35p.	13.6	5.00a.	69.3	11.2	13.7	55.6	5.7	3.3
15	38.21	18.5	25.5	1.05p.	14.5	3.20a.	26.6	Noon	12.4	6.05a.	72.5	11.4	12.3	54.6	6.2	3.7
16	38.45	17.9	23.8	1.35p.	14.7	3.00a.	25.2	1.00p.	13.5	6.50a.	82.5	12.5	13.8	59	3.4	1.7
17	38.62	17.9	24.8	0.20p.	14.3	6.25a.	25.5	0.35p.	13.2	6.40a.	78.7	11.8	13.2	54	5.8	3.4
18	38.41	16.6	23.3	1.50p.	13.1	12 m. n.	23.9	2.00p.	11.4	6.00a.	64.3	9	12.2	52	8.9	5.2
19	38.91	16.8	23.8	11.50a.	12.2	6.20a.	25	0.30p.	11.2	5.55a.	66.7	9.4	10.6	54.7	8.9	4.8
20	38.70	17.7	24.3	0.40p.	13.6	0.10a.	24.8	2.00p.	11.4	5.00a.	61	9.2	12.3	54	8.7	4.9
21	38.05	17.6	25	0.20p.	13.4	6.30a.	25.6	1.00p.	12.1	6.30a.	74.8	11	12	57	5.2	2.5
22	37.43	16.5	22.5	2.20p.	12.9	6.50a.	24.2	2.10p.	10.9	7.05a.	84.5	11.7	11.4	55.7	2.9	2
23	36.96	16.9	22.4	1.20p.	12.4	6.50a.	24	1.05p.	10.1	4.30a.	69	10	11	54.4	4.4	2.5
24	36.79	17.1	23.2	11.20a.	12.1	5.00a.	25.1	11.50a.	9.7	5.30a.	63.7	9.2	11	54.9	7.4	4.1
25	35.96	19.1	25.3	11.50a.	14.7	5.00a.	26.6	11.55a.	12.2	6.20a.	49.5	8.1	12	57	8.9	5
26	35.25	18	19.3	0.05a.	16	7.00p.	20.4	2.10p.	16	7.40p.	65.8	10.1	15	36.7	14.9	6.6
27	36.76	18.1	25.1	1.00p.	15.6	5.10a.	24.6	2.40p.	15.4	5.00a.	69.5	10.6	14.4	57	8.4	4.6
28	37.94	18.8	25	0.40p.	13.9	4.50a.	25.9	Noon	12.7	5.00a.	70.2	11.3	11.9	59.9	5.1	2.8
29	38.29	18.4	24.8	11.00a.	14.9	5.25a.	25.6	11.25a.	12.9	6.40a.	76.2	12	13	57	4.3	2.3
30	38.46	17.1	21.5	9.40a.	15	2.40a.	24.2	0.40p.	13.5	2.10a.	90.7	13.2	13	52	1.5	.9
31	38.46	17.8	23.8	11.35a.	14.5	6.35a.	25.4	0.40p.	13.4	4.20a.	78.2	11.6	13	56.7	8.5	4.3
Mean	637.89	17.7	24.1		13.7		25.2		12.1		71.4	10.6	12.3	54.9	6.8	4.0
Total															210.9	122.6

Day.	Wind. Prevailing direction.[d]	Total movement.	Maximum hourly velocity.	Direction at the time of the maximum velocity.	Clouds. Amount (mean).	Form and direction. Upper.	Lower.	Sunshine.	Rain, 24 hours beginning 6 a. m.	Miscellaneous.
		Km.	*Km.*		*0–10.*			*h. m.*	*mm.*	
1	E	251.3	17.7	SW	4.3	Ci.	Cu. E	6 30	.....	☊ ☰° a. ☰² p.
2	E	267.6	15.8	SW	2.6	Ci.	Cu. E	7 00	.....	☰² p.
3	E quad.	276.1	18.5	E	4.1	Ci., Ci.-S.	Cu. E	6 15	.....	☰² p.
4	E	369.2	24.4	E	3.6	Ci.	Cu.	6 20	.....	
5	E	498.3	37.3	E	.6	Ci.	Cu. NE	8 00	.....	
6	E	349.1	21.7	E	2.1	Ci.	Cu. E	7 20	.....	
7	E	361.5	25.5	E	0	Ci.	Cu.	8 35	.....	
8	E quad.	252.9	17.7	E	.6	Ci.	Cu. SE	7 10	.....	☰ p.
9	E	[e]274.1			0	Ci.	Cu.	8 50	.....	
10	E, SE	340.3	26.8	E	2.7	Ci.	Cu. E quad.	6 10	.....	☊ a. ☰² p.
11	E, SW	320.3	20.4	E	1.3	Ci.	Cu. E, ENE	7 30	.....	☊ a. ☰ p.
12	E quad.	372.3	37	E	1.1	Ci.	Cu. E	5 50?	.....	☰ p.
13	E, SE	528.2	34.9	SE	5.4	A.-Cu. E, sbyW	Cu. SSE	3 35?	.....	
14	E	378.6	23.8	E	2.4	Ci. SSE	Cu. E	5 55	.....	☰ p.
15	E	376.2	45.1	E	2.6	Ci.	Cu. E	6 10	.....	☊ a. ☂ p.
16	E	386.2	35.2	E	6.4	Ci.-S , A.-Cu.	Cu. E	1 55	.....	☊ d° a. ☰² p.
17	E, SE	307.2	25.2	SE	2.4	Ci.	Cu. SE	7 10	.....	☊² ☰° a. ☌ ☰ p.
18	E	448.3	31.9	E	2.7	Ci. ESE	Cu. E	6 35	.....	
19	E	455.4	28.5	E	1.4	Ci. E	Cu. E	7 00	.....	
20	E	536.6	32.2	SE	.6	Ci. SSE	Cu. SE	7 40	.....	
21	E	343.5	29.5	E	3.4	Ci. SSE	Cu.	6 40	.....	☰° p.
22	Variable	241.6	18.7	SW	6.7	Ci.-S. SE	Cu. E, SE	6 10	.....	☊² a. ☰° p.
23	Variable	241.1	22	SW	0	Ci.	Cu.	6 25	.....	☊ a. ☌ p.
24	E, W	256.5	19.5	SW	0	Ci. SSE	Cu. SE	7 35	.....	☊ a. ☌ p.
25	W quad.	274.4	22.5	E	5.9	Ci.-S. SSE, SE	Cu. E	5 15	.....	
26	E	951.7	63.1	E	8.1	Ci.-S.	Cu.-N. ENE, SE	0 00	.....	☇ a. ☇° p.
27	E	677.2	48	E	5.9	Ci.-S.	Cu.-N. ESE	3 10	.....	☇ a. ☇° p.
28	E	288.4	23.5	E	2.4	Ci.	Cu. ESE	6 05	.....	☰ p.
29	E	284.5	23.6	E	2.3	Ci., Ci.-S.	Cu. E	6 15	.....	☰ p.
30	Variable	184.6	17.1	E	8.9	Ci.-S.	Cu. E	1 00	0.5	☊ a. ☰ a. p. ● p.
31	E	400.9	45.1	E	6.9	Ci.-S.	Cu.-N. E	5 40	.....	☇° p.
Mean		370.8	28.4		3.1			6 00	.....	
Total		11,494.1						185 45	0.5	

[a] All the mean values given in this table are deduced from six daily observations taken at 2, 6, 10 a. m. and 2, 6, 10 p. m.
[b] The barometric readings of this station are not reduced to sea level.
[c] Maximum of hourly observations taken from 6 a. m. to 6 p. m.
[d] This element is based on hourly observations taken from a quadruple register, which gives only eight possible directions of the wind.
[e] 12 hours missing.

DAILY RAINFALL AT THE STATIONS OF THE WEATHER BUREAU, DECEMBER, 1918.

Station.	Day of month.															
	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.
	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.
Jolo	.....	10.7	5.4	16.5	86.6	1.3	.....	.....	.....	.....	.....	.....	.....	2	19	.....
Isabela, Basilan	6.1	.5	2	27.9	11.4	.....	.....	.....	.....	.....	2.8	.....	.....	2	29.4	1.3
Basilan Plantation, Isabela (Basilan) Office[a]	.....	.....	6.9	30.7	12.4	.....	2.5	.....	.....	.....	1.8	.....	.....	.....	51.3	8.6
Zamboanga	.....	.....	2.8	3.3	14.2	1.6	.....	.....	.....	3.1	2.8	0.8	.....	2.5	.....	1.6
Davao	.....	.....	.....	.....	.....	48	.....	6.1	5.6	.....	4.1	.....	.....	3.8	.....	18
Cotabato	.....	.....	.....	.....	.....	.....	.....	.....	[d]27.9	10.2	3.3	.....	.....	.....	11.2	9.9
Camp Keithley, Lanao	.8	2.2	15.2	5.9	31	6.9	.....	1.8	1.6	12.7	4.3	1.8	0.4	2	.8	23.6
Cagayan, Misamis	.....	8.6	3.8	.....	3	1.8	.....	.....	4.1	8.9	1.5	.....	6.4	.....	.....	19
Butuan	3.3	49.8	20.6	5.6	6.4	13.2	6.9	.3	26.9	21.3	9.6	9.1	31.3	6.1	1	43.7
Mambajao	11.5	5.1	34	.....	9.1	34.8	2.8	.....	23.6	28.2	19.8	6.4	14	.....	.....	32
Dumaguete	.....	.....	2.5	.....	2	10.2	.....	.....	.....	3	2	1.3	10.2	.....	1.8	2.5
Yap, Western Carolines	30.2	1.3	3	.5	3.8	1.6	.....	3.3	1	1.5	.....	1.3	.8	3.5	.3	1
Tagbilaran	.....	.....	16.9	.....	12.7	.....	.....	.....	.....	4.9	22.4	1.3	7.1	1.3	25.7	18.1
Iwahig	.....	.....	.....	.....	5.3	.....	.....	.....	.....	.....	.....	.....	.....	.....	2.3	.....
Surigao	13.5	51.3	50.6	6.1	32.2	8.4	1	.....	24.6	28.5	103.1	19.6	41.6	6.6	7.9	136.8
Maasin	.....	.....	224.7	7.1	35.6	.....	.....	.....	.....	9.4	92.7	91.2	11.2	.....	.....	78.5
Cebu	.....	.....	41.7	.8	42.6	.....	.....	.....	.8	5.6	22	2.5	3.1	2.3	.....	36.1
La Carlota, Occidental Negros[a]	.....	.....	19.8	.....	18.2	.....	.....	.....	.....	.....	.....	2.6	4.1	.....	.....	4.8
Iloilo	.....	.....	6.4	.....	31.4	.....	.....	.....	.....	.....	.3	.8	1.3	.....	.....	.5
San Jose Buenavista	.....	.....	.3	.....	5.6	.....	.....	.....	.....	.....	.....	.....	.5	.....	.....	.....
Cuyo	.....	.....	.....	.....	.5	.....	.....	.....	.....	.....	.....	.....	20.3	.....	.....	.....
Lucena, Iloilo[a]	.....	.....	8.6	.....	8.4	.....	.....	.....	.....	.....	.....	4.8	7.4	.....	.....	.....
Ormoc	.....	.....	35.3	4.6	21.1	.....	.....	.....	.....	3.3	9.9	28.7	1.3	11.5	.....	3.8
Guiuan	.....	38.1	92.5	23.7	29.7	.....	.....	.....	.3	23.1	26.6	7.4	16	5.4	3	49.3
Dueñas, Iloilo[a]	.....	.....	8.9	.....	9.1	.....	.....	.....	.....	.....	.....	.....	3.6	.....	.....	.....
Bitaogan, Iloilo (Railroad Iloilo to Capiz)[a]	.....	.....	8.4	.....	9.7	.....	.....	.....	.....	.....	6.4	.8	7.6	.....	4.6	.....
Lapus, Iloilo (Railroad Iloilo to Capiz)[a]	.....	.....	7.1	.....	59.5	.....	.....	.....	.....	.....	.....	.....	4.6	.....	.....	1.5
Tacloban	.....	.....	22.4	19.4	18.1	.5	.....	.6	.....	15.5	29.7	27.2	3.1	4.4	.....	31.6
Dumarao, Capiz[a]	.....	.....	14.7	.....	7.6	.....	.....	.....	.....	.....	.....	.....	15.2	.....	.....	.....
Dao, Capiz[a]	11.2	.5	5.1	8.9	15.7	.....	.....	.....	.....	.....	1	1.8	1.8	.3	.....	.....
Capiz	4.1	.....	2	.....	12.5	.....	.....	.....	.....	.....	.....	7.2	4.1	.....	.....	.....
Borongan	.....	3	29.5	37.3	.5	.....	.....	8.6	.....	11.2	4.6	13	4.3	15.7	3.5	25.1
Catbalogan	.....	.....	34.8	22.6	.....	.....	.....	.....	.....	.5	7.9	4.8	1.8	5.8	.....	4.1
Calbayog	.....	.....	36.8	40.2	.8	.....	.....	.....	.....	.3	.5	.3	2.3	.....	.....	3.1
Masbate	1.5	.....	.....	18.8	4.3	3.3	.....	.....	.....	.....	.....	9.7	4.6	1	.....	2.3
San Jose Estate, J. Abello D-13, Mindoro[a]	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
San Jose Estate, Tamaraw Plantation, Mindoro[a]	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
San Jose Estate, San Agustin, Mindoro[a]	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
San Jose, Mindoro[a]	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
San Jose Estate, Tunnel D-12, Mindoro[a]	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Romblon	.5	.....	.....	12.7	14.2	.3	.....	.....	.....	.....	2	4.6	.8	2.3	.....	.....
Batag	.....	.....	22.1	45.8	.....	.....	.....	.....	.....	2.5	3.6	3.8	6.9	2.8	.....	8.4
Legaspi	15.3	.....	.....	22.9	3.3	.....	.....	.....	.....	2	2.3	19	14.9	10.7	.5	.8
San Miguel Estate, San Miguel Island, Tabaco, Albay[a b]	28.2	5.1	.....	12.2	1	2	.....	.....	4.3	.....	5.1	40.6	10.7	6.4	.....	27.9
Sumay, Guam	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	6.4	.....	6.4
Calapan	.....	1	.8	2	.....	.....	.....	.....	1.3	.....	.....	4.6	5.3	1.3	.....	.....
Virac	.....	1	.....	20.4	.8	.3	.....	.3	.....	1.3	.....	14.2	11.2	5.3	.5	.....
Naga	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	8.4	7.9	.....	.....	.....
Tigaon	.....	3.6	.3	4.3	1	.....	.....	.....	.....	.....	.....	15.2	9.6	.....	.....	.....
Batangas	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Lucena	6.4	4.3	.....	1.8	.....	.....	.....	.....	1.5	.....	1.8	3.8	15	2.6	.....	.....
Atimonan	4.4	20.3	1	10.2	2.1	.....	1.3	.8	1.5	.....	.....	13.6	26.4	5.3	.....	.3
Ambulong, Tanauan	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	13.7	.....	.....	.....
Canlubang, Calamba	.....	.....	.....	.....	.....	.....	.....	.....	1.5	.....	.....	.5	8.9	.....	.....	.....
Paracale	.....	26.9	.8	15.7	.....	.....	.....	2.5	.3	.....	4.1	31.3	16.3	1.5	.5	1.3
Santa Cruz, Laguna	.....	.8	.....	.....	.....	.....	.....	.....	.8	.5	.....	.....	3.6	1.3	.....	1.3
Fort Mills, Corregidor[a c]	.....	.....	.....	.....	.....	.....	.....	.....	1.3	.....	.....	.....	2.3	.....	.....	.....
Alabang, Rizal[a]	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Lamao, Bataan[a]	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Manila	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.3	.1	.....	.3
Antipolo	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.5	.....	.....	.....
Bosoboso, Rizal[a]	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Montalban, Rizal[a]	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Hacienda Pintong Sapang, San Jose, Bulacan[a]	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.5
Mabayuan Dam, Olongapo, Zambales[a]	.....	.....	.....	.....	.....	.....	.....	.....	.5	.8	.....	.....	.3	.8	.....	2.1
Iba	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
San Isidro	.....	.....	.....	.....	.....	.....	.....	.....	.6	.....	.....	.....	.3	.....	.....	.....
Hacienda Luisita, Comillas, Tarlac[a]	.....	.....	.....	.....	.....	.....	.....	.....	.8	.....	.....	.....	.....	.....	.....	.....
Hacienda Luisita, San Miguel, Tarlac[a]	.....	.....	.....	.....	.....	.....	.....	.....	3.6	.....	.....	.....	.....	.....	.....	.....
Tarlac	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.3	.....
Baler	.....	.....	1.8	.....	4.6	.....	.....	.....	4.8	.....	.....	.....	.....	.3	75.7	40.3
Paniqui, Tarlac[a]	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
C. L. A. S. Muñoz, Nueva Ecija[a]	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Dagupan	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Santo Tomas Mt., Mountain Province[a]	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Bolinao	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Baguio	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
San Fernando, Union	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Echagüe	.....	.....	2.3	.....	.....	.1	.1	.....	1	1.1	.1	.....	.....	.1	.8	.....
Sagada, Mountain Province[a]	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2.5	.....
Bontoc, Mountain Province[a]	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2.8	.....
Candon	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Villavieja, Pilar, Abra[a]	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.8	.....
Vigan	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Tuguegarao	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
La Paz, Abra[a]	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Laoag	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Aparri	.....	.....	.....	.....	1	.....	.....	.....	.8	.....	.....	.....	.....	.....	.....	.....
Cape Bojeador	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Santo Domingo, Batanes	17.6	3	.....	.8	5.1	.....	.....	5.1	2.5	2	.....	3.6	.....	13.2	.....	.....

[a] Voluntary or coöperative station.

[c] Rain in 24 hours beginning 7 a. m.

[d] Amount of rainfall from 6 to 9

Daily rainfall at the stations of the Weather Bureau, December, 1918—Continued.

Stations.	Day of month.															
	17.	18.	19.	20.	21.	22.	23.	24.	25.	26.	27.	28.	29.	30.	31.	Total.
	mm.	*mm.*	*mm.*	*mm.*	*mm.*	*mm.*	*mm.*	*mm.*	*mm.*	*mm.*	*mm.*	*mm.*	*mm.*	*mm.*	*mm.*	**mm.**
Jolo																141.
Isabela, Basilan	0.8															84.
Basilan Plantation, Isabela (Basilan) Office[a]	1.5	1.5														117.2
Zamboanga	.5															33.2
Davao											5.1					90.7
Cotabato	1.5															64.
Camp Keithley, Lanao	27.2	.5	22.1	0.5	6.9	0.3								0.1		168.6
Cagayan, Misamis			14.2							50.8						122.1
Butuan	2.3	2	110.5		19.5	1.3				10.2	2.6		1	.5		405.
Mambajao	8.1	41.1	91.7		10.7							11.7				384.6
Dumaguete			6.6		1.3							1.5	1.8			46.7
Yap, Western Carolines	.3	1.3	12.2	46.5	15.3	13.5					2.8	.3	1.3	4.3		150.9
Tagbilaran	1.6	.3	4.4		2				1.3							120
Iwahig										29.7	1.1		1.8			41.2
Surigao	14.5	21.1	81.6	8.1	9.4								5.8	2.1	12.7	687.1
Maasin			27.4					24.9								602.7
Cebu	2.3	1.3	26			1.6			5.1						.8	194.6
La Carlota, Occidental Negros[a]		.5	23.9				0.5	.5	12.4	2						89.3
Iloilo	27.9		16.8	.3					25.7	20.8		16				148.2
San Jose Buenavista			.3						9.2	12.3			.3			28.5
Cuyo									7.1	6.1		2.5	4.1			40.6
Lucena, Iloilo[a]	6.4		8.1						9.7	20.6		2				76
Ormoc		5.6	27.9	2.5	.5	.5	1.3	24.6	6.4	.5						189.3
Guiuan	2.5	1.2	39.3	8.4	7.1	.8		3.9	.5	8.4				.5	3.8	401.5
Dueñas, Iloilo[a]			27.9	2					25.2			7.9			5.1	89.7
Bitaogan, Iloilo (Railroad Iloilo to Capiz)[a]	7.4		8.1	10.7					30.7	5.3		88.9				188.6
Lapus, Iloilo (Railroad Iloilo to Capiz)[a]	60	15							26.9	18		14.5				207.1
Tacloban	2.3	12.7	32.9	15	.5	1.3		8.9	8.1	3.8		1.3			.8	260.1
Dumarao, Capiz[a]			20.3	12.7					27.9	50.8						149.2
Dao, Capiz[a]	36.8		14	6.9		.5	.8		37.1	1		7.6	24.6		3.8	179.4
Capiz	2		2	.5			.3		52.8	1		34.5	44.4		2.3	169.7
Borongan	9.2	13.7	81.5	5.3	2			11.4	5.8	12		3	12.2	.8	7.6	320.8
Catbalogan	3	6.9	19.6	6.1		.8	4.6	36	26.7	15.7		8.1				209.8
Calbayog	34.1	1	11.1	3		1.5	.3	59.9	71.8	64.3	1	23.4			2.1	357.8
Masbate	22.6		1	1.8		.5		17	328.4	6.6		10.9	6.4		2.3	443
San Jose Estate, J. Abello D-13, Mindoro[a]									22.9	75						97.9
San Jose Estate, Tamaraw Plantation, Mindoro[a]	4.3								63.5	24.1						91.9
San Jose Estate, San Agustin, Mindoro[a]									76.2							76.2
San Jose, Mindoro[a]	.3								46.2	45.7			.8			93
San Jose Estate, Tunnel D-12, Mindoro[a]	2.3								63.5	67.3			5.3			138.4
Romblon	.8		2.8	.5		1			236.3				2.6			281.4
Batag	13.7	10.9	1	23.4		7.1	30.5	36.3	123.2	18.8			1.3		9.1	371.2
Legaspi	39.9		3.3	6		.5		29.5	72.1	54.6		8.6	7.3	1	6.1	320.6
San Miguel Estate, San Miguel Island, Tabaco, Albay[a b]	17.8	12.7			4.3	12.7	10.2	25.1	4.8		11.4	7.6	7.1	10.2		267.4
Sumay, Guam	2.5		5.1	4.5	14		3.8		7.6				6.4	2.5		59.2
Calapan	10.2	2.5	.5	.3	1				102	35.5			2.5	2.8		173.6
Virac	41.1	.8	1.5	4.6			2.6	98.8	148.8	8.9		52.3	1.5	2	5.8	424
Naga	2.8		.5		.8		7.6	11.2	161.8	35.6	.3	30.7	6.4			274
Tigaon	54.6		3.3			.5	2.8	72.4	162.6	29	2.8	46.2	15.2		2	425.4
Batangas									50.8	12.2		.8	1.6			65.4
Lucena	2	1.5		1.3		1.3			108.8	.3		1.5	4.1	3	.3	161.3
Atimonan	12.7			2.8		1.8		1	79.9	7.6	4.4	6.2	5.1	14.3	1.5	224.5
Ambulong, Tanauan									69.9	7.1		2.8				93.5
Canlubang, Calamba									51.1	10.5	2			1.5		76
Paracale		3		2.3	1			4.1	134.8	5.3	1.8	2.8	9.1	7.8	2.3	275.5
Santa Cruz, Laguna		.3		.5					42.2	10.6	12.2		4.1	2.5	2	82.7
Fort Mills, Corregidor[a c]									10.7	7.6	.8					22.7
Alabang, Rizal[a]									25.4	8.9	1.3		.8	8.9		45.3
Lamao, Bataan[a]									19	3.8				12.7		35.5
Manila									7.6	17.7		1	1.8	.3		29.1
Antipolo									16.3	41.4		1.3	3		.3	62.8
Bosoboso, Rizal[a]									33	38.1			2.3			73.4
Montalban, Rizal[a]										43.9	11.4			3		58.3
Hacienda Pintong Sapang, San Jose, Bulacan[a]										41.7	16.5	.5				59.2
Mabayuan Dam, Olongapo, Zambales[a]									2	6.8						13.3
Iba																0
San Isidro									.8	1						2.7
Hacienda Luisita, Comillas, Tarlac[a]																0.8
Hacienda Luisita, San Miguel, Tarlac[a]																3.6
Tarlac														1		1.3
Baler			30						5.1	10.5	1.5			4.3	121.6	300.5
Paniqui, Tarlac[a]																0
C. L. A. S. Muñoz, Nueva Ecija[a]																0
Dagupan														6.1		6.1
Santo Tomas Mt., Mountain Province[a]																0
Bolinao																0
Baguio														.5		0.5
San Fernando, Union																0
Echagüe	.1			.1				.8	5.6	2.6	2.6	23.4	3.4	2.8	6.1	53.1
Sagada, Mountain Province[a]															7.9	10.4
Bontoc, Mountain Province[a]									1.5							4.3
Candon																0
Villavieja, Pilar, Abra[a]																0.8
Vigan																0
Tuguegarao									1.8	3.3		5.6	25.2	6.9	2	44.8
La Paz, Abra[a]																0
Laoag																0
Aparri								2	2.4	22.2	2.8	2.2	8.1	.5		42
Cape Bojeador												6.1				6.1
Santo Domingo, Batanes		.5	.5	7.6	2.8		27.7	2.8	3.6	9.4	35.6	17.3	8	19.1		187.8

[a] Voluntary or coöperative station. [b] Rain in 24 hours beginning 8 a. m. [c] Rain in 24 hours beginning 7 a. m.

MAXIMUM AND MINIMUM TEMPERATURES AT THE STATIONS OF THE WEATHER BUREAU, DECEMBER, 1918.

Day.	Jolo.		Isabela, Basilan.		Zamboanga.		Davao.[a]		Cotabato.		Camp Keithley, Lanao.		Cagayan, Misamis.		Butuan.	
	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.
	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.
1	30.6	25.3	33.1	22.7	33.3	23	32.8	21.3	------	------	25.3	18.7	31.4	21.3	31.4	21.6
2	30.5	23.2	33.6	23.1	32	23.8	32.7	21.6	------	------	23.3	20.2	28.3	24	30.3	23.3
3	29.6	23.6	32.6	23.6	29.5	24	33.5	21.5	------	------	24.6	19.6	30.2	21.6	31	23.1
4	28.8	23.5	33.1	23.3	32.7	23.8	33.9	21.7	------	------	27.8	19.4	30.5	21.9	31.9	22.7
5	30.3	22.7	31.6	23.1	30	23.6	31.7	21.5	------	------	26.5	18.7	31.5	22.2	31.9	23
6	30	22	32.1	22.6	29.7	23	33.9	20.8	------	------	25.4	17.5	28.2	21	28.2	22.1
7	30.1	24.5	33.1	22.1	32.1	23.5	30.6	20.2	------	------	25.8	18.6	30.6	22	31.4	21.8
8	29.5	24.1	33.6	22.6	31	23.4	31.2	22	------	------	23.9	19	30	23	29.1	22.5
9	29.8	25.5	32.6	22.1	31.5	23.	30.9	20.8	------	------	23.5	18.5	30.1	21.6	28.9	22.3
10	29.5	23	32.1	23.1	31.5	23.9	33.2	18.9	30.5	------	25.8	18.7	29	22.6	29.3	22.5
11	28.9	25.5	31.6	22.6	31	23.7	29.2	18.9	28.9	22.6	24.1	18.6	28	22.6	28.4	22.7
12	29.6	23.7	32.6	23.1	27.8	23.7	27.5	20.2	28.8	21.6	23.3	18.5	27.2	21.6	25.2	22.3
13	29.1	23.4	31.4?	22.6	30.7	22.9	27.6	20.1	27.5	22.5	21.3	19.1	25.8	22.4	26.2	22
14	29.3	22.2	32.6	22.6	28.5	23.5	31.9	21	30.2	22.7	27.3	19	30.1	21.8	29.5	21.8
15	30.2	23.2	31.6	21.6	29.5	23	33	21.5	31	23	27.5	18	31	21.4	31.7	22.5
16	29.7	21.7	32.6	21.1	31	21.8	32.7	------	30.2	22	26	17.8	29.8	21	29.6	22.7
17	30	23.2	32.1	22.6	28.1	23.3	32.6	21.7	28.9	22.4	25.9	19.5	28.1	22.5	29.9	21.9
18	30.5	22	32.6	21.6	28.7	23	32.6	21.5	31.2	22.7	25.8	16.3	30.4	20.3	28.6	21.6
19	30	22.1	33.1	22.1	29.5	22.1	32.5	21.1	28.3	21.5	23.8	19	28	21.2	27.3	22.4
20	30.6	22.9	32.1	20.3	30.7	24	32.3	21.5	31.5	23.2	24.9	18.9	29.8	22.5	30.6	21.4
21	30.1	24.1	33.1	21.4	30.7	22.4	33	21	30.5	22.8	26.2	18.9	29.5	21.8	27.7	22.4
22	29.5	24.5	32.6	21.7	28.5	22.2	31.8	21	30	23.1	24.8	18	30	23.1	28.6	21.9
23	29.7	22.1	31.1	22.1	29.8	21.4	30.7	20.1	30	20.9	25.9	15.7	30.6	19.8	29.9	21.8
24	30.5	21?	30.6	20.1	30.4	20.5	31.2	16.2	30	20	26.6	16.6	29.8	20.3	28.6	23.6
25	29.5	25	30.6	21.7	28.1	20.2	32.7	17.6	29	21.5	26.3	16.5	30	20.4	33.1	21.7
26	30.6	------	35.1	21.6	27.5	21.6	32.8	18.5	30	21.5	26.5	20.1	31	21.2	33.9	22.5
27	29.8	20.5	32.1	20.1	28.3	20	33.8	19.6	30	19.3	26.8	18	30	22.1	32.1	22.8
28	29.9	20	32.1	20.3	29.3	20.5	32.7	20.6	31.2	20.5	26.3	16.5	29.6	20.3	32.2	21.9
29	29.9	20.5	31.1	22.1	29	21.5	33.4	20.7	31.3	22	27.5	17	30.1	20.6	33	21.5
30	29.9	21.4	32.7	20.6	29	22	32.5	20?	31.1	21.6	27.4	16.9	30.2	21.1	32.2	21.4
31	30.5	23.7	34.6	22.6	32.9	22	33.1	19.9	31	21.6	25.3	16.8	30.6	20.5	32.7	20.3
Mean	29.9	23	32.4	22	30.1	22.6	32.1	20.4	30	21.9	25.5	18.2	29.7	21.6	30.1	22.1

Day.	Mambajao.		Dumaguete.		Yap, Western Carolines.		Tagbilaran.		Iwahig.		Surigao.		Maasin.		Cebu.	
	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.
	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.
1	29.2	23.5	30.4	23.6	31.7	24	31.7	22.4	31.6	20.4	29.7	24.3	33	21.8	30.4	23.5
2	27.3	24.4	30.9	23.7	31.2	24.5	31	22.1	31.6	19.4	28.5	23.9	32.8	22.2	31.2	24.5
3	25.9	23.6	30.2	24.7	32.7	25	28.7	22	32.1	18.1	27.1	24.4	------	22.5	29.2	22.3
4	29	24.2	30.5	23.3	32.7	24.5	29.9	22	32.1	19.6	30	24.2	31	22.6	30.8	22.6
5	29	25	29.9	24.6	31.3	24.5	29.2	22.9	32.4	21.9	28.6	24.9	30.6	22	28.2	21.9
6	26.4	23	28.8	23.6	31.7	24.3	29.4	22.5	31.1	21.4	28.3	24.3	32.8	20.8	30	23.2
7	28.2	22.8	29.9	23.6	33.2	24.5	30.4	21.9	30.3	19.4	28.3	24.5	33	21.8	30	24.6
8	26.8	25.4	30.4	23.8	32.2	25	30.5	20.9	31.1	18?	29.3	25.8	31.4	21	29.5	23.7
9	27.9	25.3	30.4	23	31.7	24.7	30.2	22.1	31.2	17.3	28.8	24	32.9	21	29.6	23.4
10	25.9	22.8	28.9	23.8	31.7	26	28.3	22.4	30.6	17.4?	28.2	24.1	30	22.5	29.2	24
11	27	23	29.4	23.1	31.7	25.5	29.9	21.5	31.6	18.5	27.8	23.2	31	20	29.3	22.6
12	25.5	22.4	28.9	23.8	31.8	25	27.7	21.3	32.1	19.8	25.3	22.7	29.6	19.8?	27.3	21
13	27	23.3	29.6	22.6	32.7	24	28.5	21.2	32.6	19.3	28.5	23.1	29.8	19.8?	28	23.2
14	28.2	22.4	29.9	23.5	32.2	24.5	30.6	22.5	31.2	20.6	28.4	23.8	31	21.1	29.2	24.7
15	29.1	24.2	29.9	25.3	33.1	24	30.3	21.4	30.7	21.9	27.6	22.9	31.5	21.6	31.6	25
16	27.4	23.8	29.9	23.6	32.7	25.4	30.6	21.3	31.2	22.3?	25.9	22.9	31.4	20.5	29.7	23.7
17	27.8	22.8	30.9	23.8	32.4	25	29.9	22	30.6	18.9	28.1	22.2	31.8	20.8	30.7	22.9
18	28.3	22.9	29.4	25.1	32.5	25	30.9	21.1	31.4	19.5	28	22.7	32	21	29.2	23.8
19	27	21.8	30.3	23.6	30.2	25	28.5	21.6	31.2	19.1	26.3	21.7	30.7	21.2	30.4	22.3
20	27.4	21.1	28.6	23.2	30.3	23	29.2	22	31.9	19.9	27.6	22.2	30.2	19.6	28	21.6
21	25.5	23.4	29.4	23.2	29.8	21	27.1	22.2	30.5	18.5	25.8	23	31	20.5	28.6	23.6
22	28.8	21.5	29.1	23.2	30.2	22.6	29.9	21.4	31.9	18.4	27.3	23.7	30.8	19	29.4	23.2
23	29.7	21.9	30.3	20.8	30.8	25.2	29.4	20.9	32.2	17	28	25.1	29.6	------	30.9	23.3
24	30	24.4	29.4	20.1	31.7	24.6	30.3	21	30.6	17.3	28.5	25.5	29	20.1	30.8	24.2
25	29.3	25.3	32.4	23.3	32.3	23	28.4	24.6	31.1	15.3	28.5	24.7	31	21.5	28.3	25
26	31.6	22.3	30.7	24.1	32.7	23.7	31	23.8	28.1	21.7	31	23.5	32.4	21.8	29.5	22.8
27	30	22.4	33.3	21.8	32.2	23.8	30.8	22.2	29.5	20.5	30.1	22.7	32.5	22	30.9	23.9
28	29.9	21.6	30.2	23.3	31.6	23	30.2	21.4	30.7	19.1	29.8	21.4	32.8	21	30.2	22.5
29	28.5	22.9	28.9	22.1	32.3	24.5	30.2	20.7	30.1	16.2	30.1	21.5	33.2	20.5	30.2	23.5
30	28.9	24.9	29.6	23	31.9	23.2	30.8	21.9	31.5	19.8	29.5	22.3	33	22	30.6	24.2
31	27.9	24.4	29.2	23.7	31.8	24.2	30.3	19.7	30.6	17.7	28.4	21.7	31.6	19.4	30.7	23
Mean	28.1	23.3	30	23.4	31.8	24.3	29.8	21.8	31.1	19.2	28.3	23.4	31.4	21	29.7	23.3

[a] The minimum temperatures of this station are not reliable, they are lower of about 0.7°C.

Maximum and minimum temperatures at the stations of the Weather Bureau, December, 1918.—Cont.

Day.	Iloilo.		San Jose Buenavista.		Cuyo.		Ormoc.		Guiuan.		Tacloban.		Capiz.		Borongan.	
	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.
	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.
1	30.3	23.5	31.6	19.6	29.7	25.6	32.9	21.4	31.6	25	------	------	30.1	23.8	31	22.5
2	30.5	23.8	32.7	19.6	29.4	25.9	32.4	21	31.7	25.4	------	------	30.3	24.2	31	22.9
3	30.2	23.9	33.7	21.5	29	26.4	32.4	21.8	29.1	24.4	29.6	24.5	31	24.5	28.9	24.4
4	28.4	22.8	32.2	22.6	28.4	26.1	32	22.4	31.2	24	30.9	23	28.4	23.5	30.6	23.6
5	28.1	24	30.7	22.1	29.4	25.5	32.2	23.4	31.1	24.1	30.1	24.3	26.8	24.7	30.1	23.6
6	30	23.5	34.7	20.1	28.6	25.7	31.4	22.5	30.7	23.6	30.7	24.2	30.4	24.4	30.1	26
7	30.2	22.9	33.7	19.6	29.1	25.6	32.4	20.9	30.8	25.1	31.7	22.7	30.9	24.2	30.1	24.2
8	29.4	22.1	32.2	18.3	29.2	25.3	32	20.6	30.9	24.5	32.2	22.3	30.7	23	30.5	21.6
9	28.8	21.7	32.2	19.5	28.9	25.1	31.8	20.8	31	24.2	31.9	21.7	30.1	23.7	30.4	21.9
10	30.3	23	34.3	20	29.3	25.6	31.2	21	30.7	25.1	30.3	21.3	31.3	24.2	30.4	25.3
11	28.4	22.8	29.8	18.5	29.9	25.6	30.6	21.3	28.4	23.1	28.4	22.4	29.5	24	30.7	22.8
12	28.3	24	34.3	22	29.3	25.9	29.4	22.8	29.4	23.7	27.3	23.5	30.1	24.3	30.3	23.5
13	28.9	23.8	31.2	21.6	29.2	25.7	29.8	22	30.7	24.2	31.2	23.1	30	23.8	30.6	24.4
14	30.2	23.7	32.8	22.1	29.8	24.3	31	23.2	30.9	23.7	30.2	23.2	30.7	23.5	30.7	25.5
15	30.5	24.5	32.6	22.4	30.3	25.6	32.2	22.8	31.2	23.6	32.6	23.1	31.1	24.7	30.5	23
16	30.1	22.8	33.7	19.9	30.5	25	32	20.9	28.2	23.3	29	22.9	30.6	23	30	22.3
17	28.8	22.3	31.2	22.6	28.8	25.8	30.8	21.2	31.5	24	31.3	23.2	28.3	24.6	30.3	23.2
18	29.4	22.5	34.7	21.7	30.2	25.4	31.6	21.8	31	23.8	31.1	22.5	30.4	24.4	30	22.1
19	27.7	22.5	31.2	20.1	29.3	24.7	30.4	21.9	30.2	23.6	27.8	21.6	28.6	23.1	29.5	23.4
20	28.4	22	31.7	22.1	28.8	25.7	29.2	21.2	30.6	22.6	29.7	22.5	29.3	23.6	29.4	22.1
21	29.3	23.5	32.7	21.5	28.9	25.4	29.9	21.6	29.4	23.8	29	23.2	29.3	23.6	29.3	24.6
22	29.8	22	32.2	18.7	29	25.6	29.9	20.2	28.6	22.9	28.5	22.7	30.6	24.1	29.2	22.5
23	30.3	21	31.2	19.4	28.8	25.3	28.7	20.4	28	24.4	27.8	23.2	29.7	24.7	28.2	24
24	30.7	22	31.2	20.4	31.5	22	28.1	23.4	28.8	23.8	27.4	22.5	30.1	24.5	29.2	23.9
25	28.2	23.5	28.3	25.4	29.5	25.4	26.7	23.7	28.9	24.8	26	22.5	26.7	23.2	27.5	23.5
26	27.2	21.9	28.2	23.5	27.3	23.9	31.4	24.2	31.8	23.9	30.8	24	28	21.6	29.6	23.5
27	30.8	20.6	31.7	20.6	29.7	24.6	31.9	22	31.4	21.1	30.9	22.1	29.4	21.4	30	21
28	30.5	22.1	30.3	19.8	29.8	22.7	32.2	20.4	31.4	20.7	31.5	22.4	30.4	21.2	30.1	20.3
29	30.2	23.2	30.4	22.5	28.6	24.1	31.9	20.8	30.5	19.6	30.7	20.7	30	23.9	30.4	21.2
30	29.8	22.7	31.3	19.2	29.1	25.8	32.3	21.4	30.9	21.6	32	22.2	30.4	23.8	30.2	21.3
31	29.3	22.7	31.8	20	29.4	24.7	31.5	18.8	30.1	21.4	32	21.4	29.8	23	29.8	20.2
Mean	29.5	22.8	32	20.9	29.3	25.1	31	21.7	30.3	23.5	30.1	22.7	29.8	23.7	30	23

Day.	Catbalogan.		Calbayog.		Masbate.		Romblon.		Batag.		Legaspi.		Sumay, Guam.		Calapan.	
	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.
	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.
1	31	20.5	31	22.1	29.6	23.6	30.9	22.7	29.4	23.9	27.6	24.3	30.4	23	30.5	23.5?
2	31.2	20.5	30.4	21.6	30	24.8	30.9	24.4	29.1	24.5	30.8	24	30.4	23.6	31.5	22.8
3	31.2	20.4	30.7	22.4	30	25	31.4	23.7	29.5	24.5	30.2	24.9	30.4	24.8	29.5	23.5
4	29.5	23.2	30	23.6	27.8	23	29	24.7	27.6	23.6	26.4	23.8	30	25.2	30.5	22.6
5	30.7	24.2	30	22.5	29.8	23.8	28.6	24.2	28.4	23.8	28.4	25	29.4	25	30.5	22.4
6	31	20.8	30.5	22.1	30.4	25.4	31.3	24.1	28.6	23.5	28.9	24.6	29	24.8	30.5	22.6
7	31.2	19.5	30.9	21.1	29.6	23.2	31	23.9	29.3	22.8	28.6	24.6	29	24.6	31	23.1
8	30.8	18	29.9	19.7	30	24.5	31	24.2	28.8	23.4	30.4	23.9	28.8	25.2	31	23
9	31	19.4	31	20.8	28.8	24.2	31	21.7	29.1	23.7	29.6	24	28.4	24	31	22.7
10	30.8	19.3	30.8	20.3	30.4	23	30.9	22.4	29.4	24.5	30.3	24.3	28.8	25	31.1	23
11	30	21	31.2	21.9	29.6	24.5	30.9	22.2	28.9	23.7	29.8	24.6	29	25.2	31.5	22
12	28.7	22.5	28.6	22.7	29	25.2	30.8	23.3	27.2	23.4	28.6	24.2	30.2	25.2	31.5	23.5
13	30.5	22.4	30.9	23	29.4	22.6	29.7	24.2	28.6	23.9	28.2	24.1	29.4	24	29.6	23.5
14	31.2	22.2	32.1	22.5	29.4	23.4	30.4	24.2	29.5	23.4	29.4	24.2	29.2	24.6	30.5	23.1
15	31.3	21.8	31.9	22.4	29.5	24.4	30.7	24.6	29.2	23.3	30	24.4	29.2	24.6	30.5	25
16	31.2	20	31.5	21.1	29.4	24.2	31.9	24	29.4	24.3	30	25	29	24.6	------	21.6
17	29.5	22.5	29.1	23	25.6	23.6	29.3	23.2	28.2	22.4	27.8	23.6	28	24.2	30.5	25
18	30.7	20.6	29.8	21.6	28.2	23.6	30.5	24.2	28	22.8	29.2	24.4	28.6	24.2	30.6	22.5
19	28	20.3	29.3	21.7	27.2	23.2	29.9	22.5	29.4	22.2	28.1	23.7	28.6	23.8	29.5	22
20	28.5	20.7	28.6	22.1	27.6	22.6	29.5	22.7	27.2	24	26.2	23	28.6	25	30	22
21	30.2	21.9	29.8	23.1	29.6	24.2	30.6	23	28.7	23.2	28.8	24	29.8	24.4	31	22.5
22	28	20	28.3	21.3	28.6	24.4	31.3	22	27.9	23.6	30	23.9	29.4	24	------	21.6
23	26.5	23.2	27.3	22.7	28.6	23.8	30.8	21.8	26.5	23.6	30	22.6	28.8	24	29.4	19.6
24	25.5	23.9	26.8	23.4	29.4	24.6	27.9	24.6	------	23.4	29.8	24.9	29.6	23	------	18
25	25.9	24	25	23	27.8	23.2	------	22.9	------	------	------	------	28	24.2	29	------
26	30.7	24.3	28.6	22.6	30.8	24	------	------	29.2	23.3	------	------	28.8	25	27.5	------
27	30	20	27.8	21	29.8	22.6	------	------	29.4	23.3	------	------	29.6	24.6	29.2	------
28	28.5	19.3	27.1	20.8	28.8	22.8	------	------	29.5	22.5	------	------	28.8	24.6	30.5	21
29	31	22.7	28.7	23.4	29	24.2	28.5	23.8	28.3	22.8	------	------	28.8	24.8	29.5	23.6
30	29.5	20.4	30.7	21.5	29.6	24	30	22.9	29.5	23	------	------	28.6	24	30	23
31	29	18.4	29.2	19.7	29.6	22.6	30.2	22.6	28.3	21.4	------	------	30	24.4	29	23
Mean	29.8	21.2	29.6	22	29.1	23.8	30.3	23.4	28.7	23.4	29	24.2	29.2	24.4	30.2	22.6

[a] The thermometer shelter of this station was destroyed during a typhoon on December 24, 1918.

Maximum and minimum temperatures at the stations of the Weather Bureau, December, 1918—**Cont.**

Day.	Virac.		Naga.[a]		Tigaon.		Batangas.		Lucena.		Atimonan.		Ambulong, Tanauan.		Canlubang, Calamba.	
	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.
	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.
1	31.9	21	30.8	20.1	31.2	20.6	32.3	19.5	29.6	23.6	28.3	25.5	31.2	22.4	31.5	22
2	32.3	20.5	30	17.5	31.1	19.3	33.1	20.4	29	22.2	27.6	22.4	30.4	22.5	31.6	20.6
3	31.7	21.8	31	21.8	30.8	22.6	31.7	22.6	29	22.8	27.9	23.4	30	23.1	31.5	22.4
4	27.9	21.9	29.5	20.9	30	21.9	31.1	20.2	28	23	27.4	24.5	28.4	23	29.9	21.5
5	29.8	22.3	28.8	22	29.4	22.9	30.1	22.8	27.2	22.8	26.8	23.5	29.9	22.3	30.1	21.4
6	31	21	31	19.6	31.3	21.4	31.3	21.6	29.5	21.8	28.1	24.9	30.2	22.7	30	21.3
7	30.9	20.8	30.6	16.1	30.5	18.4	31.5	19.8	28.9	21.2	27.8	25.4	30	21.9	30.1	19.4
8	30.8	20.9	31.1	17.5	30.6	21.3	31.8	19.8	29.2	21.2	28.1	24	29.9	21	30.6	19
9	31.3	20.2	31.1	15.9	30.9	19.2	32	20.8	29	21.6	27.8	24.4	30.2	21	30.5	20.1?
10	31.2	21.7	32	16.8	31.2	19.1	32	20.8	29.4	21.8	28.6	24.7	30.3	22.4	30.8	20.4
11	32.3	21.8	31.1	17.4	31.5	20	32.2	20.3	28.6	20.6	27.8	23.8	30.5	21.8	30.9	19
12	30.3	21.4	31.4	18.6	30.7	19.9	33.2	21.8	30	22.9	28.3	23.8	31.2	23.1	31.4	18.9?
13	30	22.2	30	------	29.4	22.5	28.8	22.1	26.4	22.1	26.4	23.4	27.8	23.3	29	22.4
14	31.7	23	33.1	18.6	30.4	20.6	32.7	22.1	29.5	22.8	29.1	24.6	29.5	23.3	31	21
15	30.7	22.5	32.5	18.5	30.9	20.4	33.1	22.2	29.5	22.5	28.6	24.7	31	23.2	31.2	22
16	30.6	22.4	33.5	17	30.6	20.4	32	21.7	30	21.3	29	21	30.4	21.6	30.8	19.8
17	30.3	22.9	30	17.4	31.1	20.3	32.3	21?	28.3	22	27.4	24	30.2	22.7	30.7	19.9
18	29.7	21.2	31	18.6	30.1	19.6	31.2	23	29	22	27.9	23.4	29.9	23	30.9	18.8?
19	30.5	20.4	29.5	16	29	17.9	32.7	22.2	29	20.4	27.8	24.7	30	22.7	30.8	21
20	29.2	21.4	27.5	16.4	28.8	18.7	32.5	20.6	29	21.7	27.5	24.2	30.3	22.1	31	19.4
21	29.6	21.7	31.5	18.6	30.4	20.3	32.3	22.3	28.8	22.6	27.5	24.6	29.8	21.9	30.9	20.2
22	31.4	20.4	30.6	19.2	29.2	19.6	32.2	19.4	28.1	21.7	27.9	22.8	30.7	20.9	31	19.5
23	28.8	21.3	29.1	18.7	29.4	22	30.3	18	29.3	20.1	27.4	25.1	30.6	18.7	31.1	17.8
24	28.5	22.1	27.9	21.4	29	22.6	31.8	16.7	30.5	19.1	28.1	25.1	32	18.2	31.3	16.6
25	------	------	26.6	21.4?	27.8	22.1	28.5	19.8?	25.9	22	26.6	24.2	28.1	20.6	29.8	------
26	29.5	------	30	21?	28.9	22	26.6	23.8	27.5	24.7	27.8	23.3	27.4	23.1	28.2	------
27	30.3	23.2	31	19.2	30	20.8	30.5	23	30	22.7	29.4	22.2	30.2	23	30	21
28	29.4	21.1	30.1	19.6	30.3	19.8	30.8	21.6	28.5	22.2	27.4	22.8	28.9	22.2	30.1	21.6
29	29.4	21.5	27.9	21.7	29.4	22.6	30.3	22.7	28.2	24.5	27.4	23.8	28.5	24.7	30.4	22.5
30	30.4	20.4	30	18.1	30.6	19.6	32.6	22.9	28.9	21.9	27	23.2	30	23.2	30.3	22
31	30.3	20	32	18.2	30.5	19.2	31.2	22.3	28.3	22.7	27.6	23.4	28.7	22.9	30.5	21.8
Mean	30.4	21.5	30.4	18.8	30.2	20.6	31.4	21.2	28.8	22.1	27.8	23.9	29.9	22.2	30.6	20.5

Day.	Paracale.		Santa Cruz, Laguna.		Manila.		Antipolo.		Iba.		San Isidro.		Tarlac.		Baler.	
	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.
	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C	°C.
1	29.3	25.8	30.4	21	31.1	18.5	33.2	18.9	31.5	20.2	32.4	20.4	34.5	20.6	30.4	20
2	27.8	24.1	30	21.6	30.5	19.7	32.9	19.3	30.6	19.6	32.4	19	35	18.8	29.7	19.6
3	29.2	24	29.5	22.9	31.6	20.1	32.2	20.8	31.2	21.1	31.6	21.4	33.8	22.2	29.8	22.9
4	27.9	24.5	29.6	23	30.6	18.6	31.7	19.7	32.1	22.5	30	20.6	31.8	16.5	30.1	20.4
5	28.2	24.2	29.4	22.6	32.3	20.7	32.2	20	31.4	22.4	30.9	19.5	33	21.2	26	21
6	29.3	24.7	29.5	21.9	30.8	18.7	32.7	19.9	33.6	23.6	30.4	19	32.8	21	29.5	21.4
7	29.2	25.2	29.6	20.2	30.8	19	31.5	19	32	20.4	31	18.2	33.2	18.7	29.8	19.4
8	29.8	23.9	30	21.3	31.2	18.7	32.5	18	31.1	17.2	31.5	17.4	33.5	17	30.6	18.3
9	29.4	23.8	29.8	20.2	30.4	19.4	31.8	18.1	30.4	17.4	32	18.4	33.7	17.1	30.5	20.7
10	29.6	23.8	30	20.9	32.3	19.7	32.6	18.6	33.7	20.6	31.4	20.9	34.2	21.3	29.5	22.3
11	29.8	23.8	29.6	19.8	30.5	17.9	32.7	18.3	31.4	17.7	32.6	17.9	34.5	21.1	30	19.1
12	29.7	25	30.5	21.7	31.3	19.6	33.6	19.1	31.4	17.5	31.8	18.5	36	19.5	31.1	19.1
13	27.5	23.8	28.3	23.5	29.7	21.8	30.8	21	30.4	18.5	30.9	21.2	36.2	20.5	30.4	20.8
14	30	25.5	30.3	21.8	31.9	20.5	33.2	20	30.8	19.9	32	22.1	35.2	21	28.7	22.4
15	29.6	24.5	30.3	22.3	30.4	20.5	32.2	20	31.3	19.5	32.2	20	33	20	26.8	20.4
16	29.6	23.3	30.6	21.2	30.4	18.8	31.8	18	30.9	20.6	31.6	20.6	33.3	20.4	29	22.3
17	28.6	24.5	29.7	20.8	32.1	18.5	32.9	18	31.9	21.8	32	20	34.5	20	29.6	21
18	28.5	24.6	29.6	22.8	32	19	31.7	19.3	34.2	17.5	29.6	18.6	34	18.5	28	20.1
19	30.1	23.2	30.4	22.2	30.5	19.5	33.5	19.3	31.1	18.3	31.1	19	------	------	30.1	20.4
20	28	24	29.8	20.6	32.2	20	32.7	19.8	30.6	17.9	32	19.4	34.2	------	29	20.7
21	29.3	25	29.3	22.1	31.3	20.9	32.2	20	31.3	19.2	31.9	19.8	34.6	19.7	29.7	20
22	29.7	22.6	30.5	20.1	29.6	19.7	32.5	18.5	31.1	18	30.5	18.8	33.2	18.4	28	19.5
23	29.8	24.6	30.6	18.2	29.3	18.1	32.2	17	31.1	15.9	31.8	17.2	33.7	18	29.8	17.7
24	27	24	31.5	16.5	30.1	17.2	33	16.8	30.4	15.6	31.9	15.5	33.2	18.2	30.6	17.9
25	26.2	23.9	27.1	21.4	30	19.9	29.2	20	31	17.2	31.9	19	34	18	30.2	20.7
26	26.5	23.6	27.4	23.3	26	21.6	26.5	22	28.1	23.4	28.4	22.7	34.2	23.6	29.5	24.2
27	28.6	22.2	30.3	22.2	32	21.2	31.2	20.5	33.5	25.1	32.1	21.8	33.7	22.1	29	24.3
28	28.6	23.7	29.8	21.9	29.3	21.1	30.3	20.2	32.6	20	32.4	20.2	34.6	21	30.1	21.9
29	27.4	24	29.5	23.9	31	23	33.1	21.2	31.9	21.1	33.9	21.6	35.2	21.2	30.5	22.7
30	29.2	22.6	29.5	22.4	30.3	21.3	30.5	20.4	31.4	20.3	31.8	21.4	34.4	20	30.1	22.4
31	28.8	22.6	28.2	22	30.4	22	30.8	21	31.1	21.9	31.5	22.3	31.2	18.7?	26.8	21.7
Mean	28.8	24	29.7	21.5	30.7	19.8	31.9	19.4	31.5	19.7	31.5	19.8	33.9	19.8	29.4	20.8

[a] The minimum temperatures of this station are not reliable; they seem to be too low.

Maximum and minimum temperatures at the stations of the Weather Bureau, December, 1918—Cont.

Day.	Dagupan.		Bolinao.		Baguio.		San Fernando, Union.		Echagüe.		Candon.	
	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.
	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.
1	32.5	22.8	31	22.4	23.5	13.9	32.3	22.4	30.8	19.8	31.5	23.5
2	31.6	20.8	30.3	22.6	24.4	13.9	31.3	21.8	30.7	19.4	30.9	22
3	33.5	22.2	30.4	22.2	25.4	13.4	32.3	20.5	28	21	31.1	22
4	32.8	21.5	31.2	22.8	25.2	12.6	30.7	21	28.4	19	31.7	22
5	34	20.5	32.1	21.1	25.9	14.3	31.8	20.5	29	20.5	31	22.2
6	33.6	21.9	31.4	22.8	24.9	13.3	30.7	20.4	31.4	19.5	31.8	22.5
7	33.5	20.9	31.8	21.5	24.3	12.2	31.1	19.5	30.9	17.2	30.8	21.4
8	31.9	19	31.2	20.6	21.8	12.5	30.5	18	30.4	15.9	31	20.5
9	31.4	18.5	30.4	20.6	25	12.2	30.5	18.5	31.1	19.8	30	20.6
10	33.6	20.9	31.7	20.6	24.6	14.2	30.7	19	30.2	21.2	30.5	20.9
11	31.5	18.8	29.8	20.2	23.5	12.3	31.1	19.5	32.3	18.4	31.2	22
12	30.7	19.1	29.8	20.5	24.3	13.3	31.4	17.8	32.5	17.3	31.5	21.4
13	30.7	20.6	30.1	19.5	24.8	14.5	30.5	18.9	30.9	17.2	31	20.4
14	31	21	32.2	19.9	25.2	15.5	31.1	18.5	32.3	20.2	31.6	21
15	32.9	20	32.5	21.6	25.5	14.5	30.6	19.6	29.3	20.8	32	21.5
16	33.2	22.2	31.8	23	23.8	14.7	31.4	20.9	30.9	21.5	31	23.4
17	33.4	22.5	32.1	22.2	24.8	14.3	30.8	20.9	32	20	32	23
18	32.8	19.3	33.2	20.8	23.3	13.1	31.1	18.6	30.1	17.5	31.1	22.5
19	32.7	19.5	30.8	19.5	23.8	12.2	30.6	19.2	31.6	18.4	31.8	20.4
20	32.4	19.3	31.4	20.4	24.3	13.6	30.7	18.4	29.5	19.1	31	20
21	32.5	20.4	31.3	20.6	25	13.4	30.4	20	30.5	18.3	30.5	21
22	31	20	30.8	19.7	22.5	12.9	30.3	20	29.7	17	31.5	21
23	29.6	18.5	29.4	19.8	22.4	12.4	30.6	19.5	29.7	16.5	31.4	21
24	31.8	17.5	30.2	19.7	23.2	12.1	30.4	17.6	29.9	15.3	31	19.5
25	29.9	19.5	30.1	19	25.3	14.7	31	18.5	29	21	32.6	19
26	29.9	23	31.4	22.9	19.3	16	30.5	21	29.9	22.3	31	22
27	32.6	22.2	30.9	23.6	25.1	15.6	31.1	21	30.1	22	31.7	22
28	31.2	21	29.9	21.4	25	13.9	31.1	19.6	31.1	20	32	22.5
29	32.4	21.8	30.2	23.4	24.8	14.9	31.3	21.4	28.4	21.3	32.5	22.5
30	33	21.4	32.5	23.8	21.5	15	31.2	23.4	27.9	21	32.6	25
31	33	22.2	32.4	22.5	23.8	14.5	30.7	21.7	25.6	20.7	31.5	23.4
Mean	32.1	20.6	31.1	21.3	24.1	13.7	31	19.9	30.1	19.3	31.4	21.7

Day.	Vigan.		Tuguegarao.		Laoag.		Aparri.		Cape Bojeador.		Santo Domingo Batanes	
	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.
	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.	°C.
1	30.9	23	30.8	18.9	32	17.9	29.1	19.5	27.8	21.6	25.2	21.6
2	31	21.6	31.7	20	27.1	17.2	29.3	21.3	27.4	22.4	28.2	21.6
3	33.8	20.8	31.5	19.5	32.4	17.9	30.8	21	27.8	22.6	27.2	22.4
4	32.4	23.2	29.9	18.2	31.1	15	29.5	18.5	28.2	20.9	------	22.5
5	31	22	30.4	20.7	35.3	20	28.5	22	30.8	21.6	28.4	21.6?
6	30.8	22	32	18.9	34.4	21	31.3	20.2	29.4	23.4	28.8	22.5
7	31.2	21.7	32	16.8	33.2	19	30.1	19.3	30.4	22.2	28.4	21
8	30.7	20.1	30.8	17.5	33.6	17.7	29.5	18.5	29.2	20.6	28.7	21.4
9	30.7	19.7	32	19.6	31.5	17.8	29.5	20.5	29.4	21.2	28.3	21.5
10	31.1	20.4	31.4	21.2	31.1	18.3	31.1	21.5	28.8	22.2	29.6	22.9
11	30.8	22.3	32.6	19	31.3	20.1	31.8	20.5	29.4	23.6	29.7	24.5
12	31.2	21.4	32.7	18	30.7	17.7	29.2	19.8	28.6	21.4	25.7	21.9
13	30.1	18.5	31.7	19	32	15.8	29.8	18	28.4	21.2	29.2	20.4
14	31.3	20.6	31.6	19.5	31.1	17.5	30.1	20.3	29.8	22	29.4	19.9
15	31	21.5	28	21.2	32.5	19.4	29.7	22	29	22.4	29.2	22.2
16	32.3	22.9	33	22	32	20.7	31.7	20.8	30.6	23.8	28.9	23.4
17	31.2	22.6	33.2	21.5	31.1	19.5	30.3	21.3	30.2	23.2	28.6	24.7
18	32.7	22	31	19	31.4	19	30.3	18	29.8	21.6	27.8	23.7
19	31	21.3	31.7	18.7	31.9	17.5	30.1	19.5	29.8	21.8	28.4	23.4
20	31.8	21.3	30	19.5	31.9	17	30.3	20	28.6	22	28.2	23.4
21	32.3	21.1	31	19.5	32.1	16.9	30.3	20	30.6	22.4	28.6	22.4
22	31.2	21.4	31.2	17.4	31	17.6	30.1	17.5	29.8	22.4	28.6	23
23	30.8	21.1	30.6	17.4	32.9	17.6	30	17.5	27.6	21.2	27.3	17.9
24	30.6	19.1	31	17.5	33.1	14	29.3	19	27	22.8	24.4	20.9
25	30.8	20.6	31	22.4	32.5	17.9	27.3	22.3	26	22.6	25.8	20.8
26	33.3	23.7	25.6	22.8	35.9	22.9	29.1	22.7	27.2	23	26.4	22.5
27	31.4	22.1	32	22.3	32.7	21.9	28.8	21.9	29.8	22.6	27.5	22.4
28	30	22.4	29.7	21.7	30.2	20.6	26.1	22.5	23.6	21.6	23.5	19.8
29	30.7	21.7	26.1	21.8	31	24.1	25.2	21.5	23.4	20.6	22.8	19.5
30	29.8	22.2	26.6	21.6	31.1	21.2	26.2	21.8	24.8	20.6	21.8	19.7
31	30.8	22.5	28.4	21.3	33.9	20.4	29	21.6	26.2	20.8	26.3	19.8
Mean	31.2	21.5	30.7	19.8	32.1	18.7	29.5	20.3	28.4	22.2	27.3	21.8

SEISMOLOGICAL BULLETIN FOR DECEMBER, 1918.

By Rev. MIGUEL SADERRA MASÓ, S. J.,
Chief, Seismic and Magnetic Divisions, Weather Bureau.

EARTHQUAKES FELT IN THE PHILIPPINES.[1]

2, $8^h\ 59^m\ 47^s$* [2, $16^h\ 59^m\ 47^s$]. **Ambos Camarines** (SE Luzon). Earthquake of intensity III.

2, $10^h\ 34^m\ 28^s$* [2, $18^h\ 34^m\ 28^s$]. **SE Luzon.** Earthquake of intensity IV–V, felt through the provinces of Ambos Camarines and Albay. The epicenter seems to have been in the Pacific, NE of the said provinces.

2, $21^h\ 7^m$ [3, $5^h\ 7^m$]. **Tigaon** (SE Luzon). Earthquake shocks of intensity II–III.

4, $4^h\ 27^m\ 38^s$* [4, $12^h\ 27^m\ 38^s$]. **SE Luzon.** Earthquake of intensity III, originated in the same region of the one felt on the 2nd, but felt only through the eastern part of Camarines and Albay.

6, $16^h\ 57^m$ [7, $0^h\ 57^m$]. **Butuan** (N Mindanao). Oscillatory earthquake of intensity III.

8, $13^h\ 9^m$ [8, $21^h\ 9^m$]. **Naga** (SE Luzon). Earthquake of intensity III, duration 4 seconds.

13, $1^h\ 47^m$ [13, $9^h\ 47^m$]. **Ambos Camarines** (SE Luzon). Earthquake of intensity III–IV felt only in the Isarog region.

13, $22^h\ 20^m\ 14^s$* [14, $6^h\ 20^m\ 14^s$]. **Samar Island.** Earthquake shocks of intensity III, felt in the northern and central portion of the Island and originated in the Philippine Deep.

15, $8^h\ 45^m\ 0^s$* [15, $16^h\ 45^m\ 0^s$]. **Legaspi** (SE Luzon). Oscillatory earthquake, direction E–W, intensity III, duration 8 seconds. Origin E of San Bernardino Strait.

18, $10^h\ 32^m$ [18, $18^h\ 32^m$]. **NE Mindanao.** Earthquake of intensity III–IV, felt through the peninsula of Surigao and N portion of the Agusan Valley.

19, $12^h\ 1^m\ 8^s$* [19, $20^h\ 1^m\ 8^s$]. **Legaspi** (SE Luzon). Oscillatory earthquake of intensity III, duration 6 seconds.

21, $19^h\ 55^m\ 0^s$* [22, $3^h\ 55^m\ 0^s$]. **W. Mindanao.** Extensive earthquake of intensity III–IV felt through the Provinces of Mindanao, Zamboanga, Lanao and Cotabato. The origin was in the Celebes sea, SW of Illana Bay.

22, $5^h\ 21^m$ [22, $13^h\ 21^m$]. **Aparri** (NE Luzon). Oscillatory earthquake, direction N–S, intensity III–IV, duration 5 seconds.

23, $3^h\ 13^m\ 46^s$* [23, $11^h\ 13^m\ 46^s$]. **W. Mindanao.** Earthquake of intensity III, felt only in the province of Zamboanga. Aftershock at $4^h\ 3^m$ [$12^h\ 3^m$]. Originated probably SW of Illana Bay.

31, $19^h\ 50^m$ [Jan. 1, $3^h\ 50^m$]. **Davao** (SE Mindanao). Oscillatory earthquake of intensity III.

[1] The intensity of earthquakes is given in the notation known as the Rossi-Forel scale. The time is that indicated by the seismographs at the Central Observatory whenever the disturbance has been registered by them. This fact is denoted by an asterisk (*). Otherwise the time is that noted by the observer who sent the report. All time indications are in Greenwich mean time (midnight=0^h), insular time being added in brackets for the convenience of Philippine readers.

RECORDS OF THE MICROSEISMOGRAPH.

[Time: Greenwich mean. Midnight=0h. Instrument: Wiechert seismograph; 1,000 kilograms. A_N: T_o=6.62, ϵ=2.726, $\frac{r}{T_o^2}$=0.021; A_E: T_o=6.03, ϵ=2.378, $\frac{r}{T_o^2}$=0.037. Alluvium. 2.40 meters above sea level.]

No.	Date.	Character.	Phase.	Hour.	Period.	Amplitude. A_N μ	Amplitude. A_E μ	Remarks.
				h. *m.* *s.*				
478	1	Iv	eP	1 04 00				
			L	04 30				
			M_E	04 47	3		99	
			M_N	04 50	4	111		
			F	13				
479	1	Ir	e	2 43 56				
			S	49 22				
			L	53 30				
			M_{E1}	55 00	9		42	
			M_{N1}	55 26	9	56		
			M_{N2}	57 07	8	34		
			M_{E2}	57 40	7		25	
			F	3 53				
480	1	Iv	eP	3 34 16				Merged into the preceding quake.
			F	38				
481	1	Iv	eP	10 43 44				
			L	44 04				
			M_E	44 06	2		110	
			F	48				
482	2	Iv	eP	8 59 47				SE Luzon.
			F	9 04				
483	2	Ir	eP	10 07 30				F on next record.
484	2	Iv	e	10 34 28				SE Luzon. End overtaken by following earthquake.
			L	35 09				
			M_E	35 26	3		277	
			M_N	35 34	3	193		
485	2	Iv	eP	10 42 12				F not discernible.
			L	42 41				
486	2	Iu	e?	10 51				
			M_{E1}	11 12 44	24		23	
			M_{N1}	14 22	17	34		
			M_{E2}	14 23	19		26	
			M_{N2}	15 38	19	34		
			F	12 04				
487	3	Iv	eP	12 27 28				
			F	35				
488	3	Iv	eP	17 54 35				
			L	56 00				
			F	18 22				
489	3	Ir	e	23 12 46				
			F	58				
490	4	Iv	eP	4 27 38				SE Luzon.
			L	28 25				
			M_N	28 39	4	144		
			M_E	28 44	4		158	
			F	45				
491	4	IIu	eP	12 08 04				Chile.
			iE	10 04				
			iN	11 03				
			eS	24 20				
			eL	13 05 12				
			M_{E1}	09 16	24		42	
			M_{N1}	09 34	26	36		
			M_{E2}	11 00	22		41	
			M_{N2}	11 23	23	50		
			M_{E3}	12 15	20		62	
			M_{N3}	12 48	20	41		
			C	14 22 11				
			F	15 02				
492	4	Ir	e	18 02				
			F	38				

Records of the microseismograph—Continued.

No.	Date.	Character	Phase.	Hour.	Period.	Amplitude. A_N μ	Amplitude. A_E μ	Remarks.
				h. *m.* *s.*				
493	5	I_V	eP	9 52 44				
			L	53 12				
			M_N	53 37	4	44		
			F	10 00				
494	6	I_r	e	7 42				
			F	8 11				
495	6	I_u	e	8 54				
			F	10 15				
496	6	I_V	eP	21 11 32				
			F	14				
497	6	I_V	eP	21 55 32				
			L	55 46				
			M_N	55 53	2	186		
			F	22 02				
498	7	I_r	e	12 04 39				
			F	46				
499	7	I_V	eP	22 26 28				
			F	41				
500	9	I_r	eP	4 15 49				
			F	55				
501	9	I_r	e	18 14 04				End overtaken by following earthquake.
			L	22 08				
502	9	I_r	e	19 02 50				
			L	11 12				
			M_E	12 46	7		22	
			M_N	13 05	7	23		
			F	20 18				
503	9	I_V	eP	20 47 04				
			F	53				
504	10	Ir	e	17 08 31				
			F	46				
505	11	I_V	eP	10 04 21				
			L	05 51				
			M_E	06 39	9		33	
			F	24				
506	11	I_V	eP	14 56 16				
			F	15 11				
507	12	II_V	eP	16 38 57				
			L	39 40				
			M_E	40 41	5		1,260	
			M_N	40 48	5	686		
			F	57				
508	13	I_V	e	19 38 52				
			F	57				
509	13	I_V	eP	22 20 14				Samar Island.
			F	33				
510	14	I_V	eP	16 01 26				
			F	25				
511	14	I_r	e	18 48 26				
			L	55 42				
			M_E	56 18	6		96	
			F	19 32				
512	15	I_V	eP	8 45 00				SE Luzon.
			F	51				
513	16	I_r	e	3 14 23				
			F	51				
514	16	I_r	e	10 14 17				N Formosa.
			F	28				
515	16	I_r	e	21 24 00				
			F	49				
516	18	I_V	eP	15 17 15				
			F	20				

Records of the microseismograph—Continued.

No.	Date.	Character.	Phase.	Hour.	Period.	Amplitude. A_N μ	Amplitude. A_E μ	Remarks.
				h. m. s.				
517	18	Iv	eP	17 18 24				
			L	20 08				
			M_N	20 38	7	41		
			F	41				
518	18	Ir	e	21 41				
			F	22 14				
519	19	Iv	eP	12 01 08				Legaspi (SE Luzon).
			F	09				
520	20	Iv	eP	0 36 42				
			F	41				
521	21	Iv	eP	4 41 32				
			F	55				
522	21	Iv	eP	19 55 00				W Mindanao.
			F	20 06				
523	22	Iv	eP	17 26 38				
			F	29				
524	23	Iv	eP	3 13 46				W Mindanao.
			L	15 08				
			M_N	15 13	4	53		
			M_E	15 15	4		34	
			F	26				
525	23	Iv	eP	3 55 46				
			F	59				
526	23	Iv	eP	4 42 52				
			F	48				
527	25	Ir	e	10 28				
			F	48				
528	28	Iv	eP	8 10 18				
			F	21				
529	30	Ir	e	7 25				
			F	49				
530	31	Iv	eP	22 07 20				
			F	14				

TEMBLORES DE TIERRA SENTIDOS EN FILIPINAS.[1]

2, $8^h\ 59^m\ 47^s$* [2, $16^h\ 59^m\ 47^s$]. **Ambos Camarines** (SE de Luzón). Temblor de tierra de intensidad III.

2, $10^h\ 34^m\ 28^s$* [2, $18^h\ 34^m\ 28^s$]. **SE de Luzón.** Temblor de tierra de intensidad IV–V, sentido en toda la Provincia de Camarines y en la de Albay. Su epicentro se hallaba al parecer en el Pacífico al NE de las expresadas provincias.

2, $21^h\ 7^m$ [3, $5^h\ 7^m$]. **Tigaon** (SE de Luzón). Temblor de tierra de intensidad II–III.

4, $4^h\ 27^m\ 38^s$* [4, $12^h\ 27^m\ 38^s$]. **SE de Luzón.** Temblor de intensidad III, originado en la misma región que el del día 2 y sentido tan sólo en la parte más oriental de Camarines y Albay.

6, $16^h\ 57^m$ [7, $0^h\ 57^m$]. **Butúan** (N de Mindanao). Temblor oscilatorio de intensidad III.

8, $13^h\ 9^m$ [8, $21^h\ 9^m$]. **Naga** (SE de Luzón). Temblor de tierra de intensidad III, duración 4 segundos.

13, $1^h\ 47^m$ [13, $9^h\ 47^m$]. **Ambos Camarines** (SE de Luzón). Temblor de tierra de intensidad III–IV sentido solamente en la región del Isarog.

13, $22^h\ 20^m\ 14^s$* [14, $6^h\ 20^m\ 14^s$]. **Isla de Sámar.** Temblor de tierra de intensidad III, originado en el Abismo de Filipinas y sentido en la parte N y central de la isla.

15, $8^h\ 45^m\ 0^s$* [15, $16^h\ 45^m\ 0^s$]. **Legaspi** (SE de Luzón). Temblor oscilatorio, dirección E–W, intensidad III, duración 8 segundos. Originado al E del Estrecho de San Bernardino.

18, $10^h\ 32^m$ [18, $18^h\ 32^m$]. **NE de Mindanao.** Temblor de tierra de intensidad III–IV sentido en toda la península de Surigao y en la parte N del Valle del Agusan.

19, $12^h\ 1^m\ 8^s$* [19, $20^h\ 1^m\ 8^s$]. **Legaspi** (SE de Luzón). Temblor oscilatorio, intensidad III, duración 6 segundos.

21, $19^h\ 55^m\ 0^s$* [22, $3^h\ 55^m\ 0^s$]. **W de Mindanao.** Temblor de tierra de intensidad III–IV en toda la parte de Mindanao comprendida por los distritos de Zamboanga, Lanao y Cotabato. Su epicentro se hallaba en el mar de Célebes al SW de la Bahía Illana.

22, $5^h\ 21^m$ [22, $13^h\ 21^m$]. **Aparri** (NE de Luzón). Temblor oscilatorio, dirección N–S, intensidad III–IV, duración 5 segundos.

23, $3^h\ 13^m\ 46^s$* [2^h, $11^m\ 13^m\ 46^s$]. **W de Mindanao.** Temblor de tierra de intensidad III sentido solamente en el distrito de Zamboanga. Repitió con menos intensidad a $4^h\ 3^m$ [$12^h\ 3^m$]. Probablemente el origen se hallaba también en el mar como el del día 21.

31, $19^h\ 50^m$ [Enero 1, $3^h\ 50^m$]. **Davao** (SE de Mindanao). Temblor oscilatorio de intensidad III.

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[1] La intensidad de los terremotos se indica conforme a la conocida escala de Rossi-Forel. Cuanto a la hora de su ocurrencia, adoptamos la indicada por los sismógrafos de este Observatorio siempre que los hayan registrado, distinguiéndola por medio de un asterisco (*). En caso contrario copiamos la apuntada por los observadores que nos envían las notas. Todas las indicaciones del tiempo se refieren al tiempo medio de Greenwich (medianoche=0^h). Para conveniencia de los lectores de Filipinas se añade también el tiempo insular.

APPENDIX TO THE MONTHLY BULLETINS FOR 1918.

ANNUAL SUMMARY OF METEOROLOGICAL DATA FOR MANILA DEDUCTED FROM TWENTY-FOUR DAILY OBSERVATIONS DURING THE YEAR 1918.

Month.	Pressure.		Air temperature.									
	Mean.	Departure from normal.	Mean.	Departure from normal.	Mean maximum.	Departure from normal.	Mean minimum.	Departure from normal.	Absolute maximum.	Day.	Absolute minimum.	Day.
	mm.	*mm.*	°*C.*	°*C.*	°*C.*	°*C.*	°*C.*	°*C.*	°*C.*		°*C*	
January	760.73	−0.40	23.1	−1.7	28.5	−1.5	19.1	−1.3	30.4	14	15.7	23
February	60.93	− .29	23.9	−1.3	29.4	−1.4	19.5	− .8	32.3	4	15.7	24
March	60.40	− .11	25.2	−1.4	31.6	− .8	20	−1.3	34.8	26	17.5	4
April	58.96	− .40	26.9	−1.2	33.4	− .5	21.5	−1 2	35.4	23	18.3	6
May	58.17	− .17	28.1	− .3	34	+ .4	23.3	− .6	35.4	19	20.6	1
June	57.10	− .79	27.2	− .7	32.5	0	23.6	− .3	35.1	18	22.5	9, 24
July	56.48	− .73	26.9	− .1	30.6	− .4	24.3	+ .6	33.2	31	22.5	4
August	57.89	+ .55	26.5	− .5	30.5	− .3	23.5	− .2	32.4	2	22.2	16
September	58.03	+ .59	26.8	0	30.6	− .1	23.9	+ .2	32.3	25	22.9	2
October	57.98	− .62	26.4	− .2	30.8	− .3	23.5	+ .4	32.9	27	21.2	17
November	60.71	+1.33	25.2	− .7	31.2	+ .8	21	−1.1	33.0	6	18.7	21
December	60.72	+ .41	24.5	− .6	30.7	+ .7	19.8	−1.4	32.3	5, 10	17.2	24
Annual	759.01	−0.05	25.9	−0.7	31.1	−0.3	21.9	−0.6	35.4	{IV, 23 V, 19	15.7	{I, 23 II, 24

Month.	Wind.					Relative humidity.		Vapor pressure.		Cloudiness.	
	Prevailing direction.	Velocity. Total.	Velocity. Departure from normal.	Velocity. Hourly maximum.	Direction at the time of the maximum velocity.	Mean.	Departure from normal.	Mean.	Departure from normal.	Mean.	Departure from normal.
		Km.	*Km.*	*Km.*		*P. ct.*	*P. ct.*	*mm.*	*mm.*	*0–10.*	*0–10.*
January	NE quadrant.	4,011.5	−1,228.4	27.5	NE	77.5	−0.6	16.1	−2.0	7.5	+2.0
February	NE quadrant.	4,679.5	− 677.1	32	NE	74.6	+ .6	16.4	−1.1	7.1	+2.1
March	E quadrant.	5,689.5	−1,108.8	25	ENE	74	+2.3	17.4	− .7	4.7	+ .2
April	SE	6,059	− 812.8	28	WSW	71	+1	18.4	−1	4.8	+ .7
May	ESE	6,553	− 381.2	35	W	74.7	−1.3	20.7	− .9	5.4	− .3
June	E quadrant.	6,624	− 92.1	67	WSW	82.7	+1.9	22	− .3	7.7	+ .7
July	SW	12,875	+4,498.8	42	SW	86.4	+1.5	22.7	+ .3	8.4	+ .6
August	SW	7,974	−1,476.2	39	SW	87.5	+2.4	22.3	− .1	8.2	+ .3
September	SW	8,425.5	+ 555.6	37.5	SWbyW	86.7	+ .9	22.6	+ .2	7.4	− .4
October	SW quadrant.	6,348.5	+ 869.8	47	SW	86.2	+2.3	21.9	+ .3	7.6	+ .8
November	NE quadrant.	3,748.5	−1,155.4	25	NNE	83.2	+ .6	19.6	− .7	4.6	−1.7
December	NE quadrant.	4,453	− 413.2	35	N	81	− .4	18.3	− .9	5.7	− .5
Annual		77,441.0	−1,421.0	67		80.5	+0.9	19.9	−0.6	6.6	−0.4

Month.	Evaporation.		Sunshine.		Rainfall.					
	Free exposure, total.	Under shelter, total.	Total.	Departure from normal.	Total.	Departure from normal.	Greatest in a single day.	Day.	Rainy days.	Departure from normal.
	mm.	*mm.*	*h. m.*	*h. m.*	*mm.*	*mm.*				
January	101.7	72.3	116 35	−66 59	3.2	− 23.3	2.2	12	2	−3
February	117.9	83.1	123 25	−71 49	1.8	− 8.5	1.3	3	2	−1
March	160.3	108.9	212	−23 21	27.8	+ 9	25.9	10	3	0
April	177.9	127.8	232 20	−28 28	10.2	− 23.9	4.5	25	3	−1
May	162.2	115.6	240 15	+ 9 54	83.3	− 21.6	22.6	27	13	+3
June	88.5	71.4	129 15	−41 40	224.7	− 9.4	88.4	29	17	+1
July	86.8	68.2	107 40	−35 01	621.9	+218.5	271.5	9	25	+4
August	86.7	57.1	147 50	+ 5 59	483.7	+120.3	135.7	11	21	−1
September	77.4	52.4	140 05	+ 5 46	338.3	− 31.5	66.3	11	24	+3
October	79.5	58	140 15	−25 17	323.5	+133.4	194.3	15	18	+1
November	88	62.3	210 35	+47 19	11.8	−116.2	4.5	15	10	−2
December	100.8	74	170 45	+15 13	29.1	− 32.9	17.7	26	8	−1
Annual	1,327.7	951.1	1,971 00	−208 24	2,159.3	+213.9	271.5	VII, 9	146	+3

CATALOGUE OF PHILIPPINE EARTHQUAKES, 1918. [a]

Date.	Time of occurrence. (Greenwich mean time.)	Place.	Probable origin or epicenter.		Approximate extension of the shaken area.		Intensity (Rossi-Forel.)	Remarks.
			ϕ	λ	Longer axis.	Shorter axis.		
	h. m.		°	°	*Km.*	*Km.*		
Jan. 2	23 02	Cape Bojeador (NW Luzon)					IV	
3	13 09	S Luzon and Mindoro	12.5 N	120.5 E	500	300	V	Registered in the Far East. Many aftershocks on the 3d and 4th.
4	17 39	Camarines (SE Luzon)					III	Registered at Manila.
7	18 49	Camarines (SE Luzon)					III	Registered at Manila.
8	6 39	Legaspi (SE Luzon)					II-III	
9	11 27	Cotabato (SW Mindanao)	7.4 N	124.5 E			IV	
10	12 42	Ormoc (W Leyte)					III	
15	19 22	W Luzon	17.3 N	120.0 E	400	150	IV	Registered at Manila.
16	6 01	SE Luzon	13.5 N	124.5 E	200		IV	Registered at Manila.
17	14 05	Ormoc (W Leyte)					III	
24	3 02	E Visayas and Mindanao	11.0 N	126.5 E	600		IV-V	Registered in the Far East.
30	9 13	Legaspi (SE Luzon)					III	
Feb. 1	10 46	Surigao (NE Mindanao)					III	
4	3 34	Dapitan (NW Mindanao)					III	
4	16 55	Naga (SE Luzon)					III	
7	5 23	E Mindanao	8.0 N	127.0 E	600	400	VI-VII	Registered all over the world.
13	9 06	Legaspi (SE Luzon)					III	Registered at Manila.
15	2 34	Aparri (NE Luzon)					III	Registered at Manila.
17	8 07	Masbate Island	12.8 N	123.0 E			III	Registered at Manila.
19	6 09	Baguio (W Luzon)					II-III	
22	12 33	Samar Island					III-IV	
23	11 40	Yap (Western Carolines)					III	
23	13 30	Surigao (NE Mindanao)					II-III	
24	9 03	Cape Bojeador (NW Luzon)					III	Registered at Manila.
24	11 23	Dapitan (NW Mindanao)					II-III	
24	18 30	Cuyo Island					III-IV	
25	10 30	Yap (Western Carolines)					II-III	
27	21 35	Butuan (N Mindanao)					III	
28	8 49	Surigao (NE Mindanao)					III	
Mar. 2	13 31	Cuyo Island					II-III	Registered at Manila.
9	8 17	Samar, Leyte and NE Mindanao	10.4 N	125.0 E	400	200	VI-VII	Registered at Manila. Aftershocks at $8^h\ 29^m$ and $8^h\ 35^m$.
9	23 01	Butuan (N Mindanao)					III	
10	10 24	Basco (Batanes Islands)					IV	
17	1 54	Cape Bojeador (NW Luzon)					II-III	
19	5 53	Guam (Mariana Islands)					III	
20	10 33	Camarines (SE Luzon)	12.8 N	123.0 E			IV	Registered at Manila.
20	11 50	Baguio (W Luzon)					II-III	
Apr. 2	5 06	Butuan (N Mindanao)					II-III	
2	9 35	Nueva Vizcaya (Central Luzon)					III-IV	
4	17 47	Baguio (W Luzon)					II-III	Registered at Manila.
6	4 26	E Mindanao					III	Registered at Manila. Origin, Philippine Deep.
8	17 36	Central Luzon	15.8 N	121.3 E	300	200	III-IV	
10	21 10	E Luzon	15.4 N	121.3 E	200	150	III	
14	10 42	Cotabato (SW Mindanao)	7.4 N	124.5 E			IV-V	
15	19 50	Surigao (NE Mindanao)					III	
24	2 17	SE Luzon	14.8 N	124.0 E			III-IV	Registered at Manila.
28	4 45	Surigao (NE Mindanao)					II-III	
28	14 29	Basco (Batanes Islands)					III	
30	1 25	Ormoc (W Leyte)					III	
May 4	5 48	Basco (Batanes Islands)					IV	
6	13 01	Camarines (SE Luzon)					IV	Aftershock at $13^h\ 10^m$. Origin, Isarog Volcano.
7	8 28	Butuan (N Mindanao)					II-III	
8	3 18	Basco (Batanes Islands)					III	
8	8 37	Surigao (NE Mindanao)					II-III	Aftershock at $13^h\ 12^m$.
8	20 19	Camiguin Island (N of Mindanao.					III	
9	4 23	Camarines (SE Luzon)					II-III	Origin, Isarog Volcano.
11	17 41	Butuan (N Mindanao)					III	
13	3 47	Davao (SE Mindanao)	5.0 N	125.0 E			II-III	Registered at Manila.
13	17 25	Lanao (N Mindanao)					IV	
15	16 06	NW Luzon	18.5 N	120.2 E			IV	Repeated with intensity IV-V on the 16th at $1^h\ 38^m$.
15	17 44	Samar and Leyte Islands	11.6 N	124.5 E			III	Repeated on the 16th at $8^h\ 45^m$.
19	9 43	Guam (Mariana Islands)					III	
21	19 11	Samar, Leyte and E Mindanao	10.4 N	126.5 E	800	300	VI	Aftershock on the 22d at $0^h\ 31^m$. Registered at Manila.
22	20 05	NE Mindanao	10.4 N	126.5 E			III	
26	9 23	Surigao (NE Mindanao)	10.4 N	126.5 E			III	Repeated at $15^h\ 31^m$ and on the 27th at $8^h\ 42^m$.
27	2 42	Camarines (SE Luzon)	13.7 N	123.4 E			II-III	Repeated with intensity III-IV at $2^h\ 53^m$. Origin, Isarog Volcano.
30	0 19	N Luzon	18.8 N	121.0 E	200	100	V	Registered at Manila.
31	3 45	Surigao (NE Mindanao)					II-III	
June 2	0 02	Surigao (NE Mindanao)					III	Aftershock at $7^h\ 09^m$.
7	11 41	Butuan (N Mindanao)					II-III	

[a] See explanation in Monthly Bulletin of the Weathr B ureau for December, 1910, page 445.

Catalogue of Philippine earthquakes—Continued.

Date.	Time of occurrence (Greenwich mean time.	Place.	Probable origin or epicenter.		Approximate extension of the shaken area.		Intensity (Rossi-Forel.	Remarks.
			ϕ	λ	Longer axis.	Shorter xais.		
			°	°	*Km.*	*Km.*		
June 8	1 40	Yap (Western Carolines)					IV	
8	20 16	Central Mindanao	5.8 N	124.5 E	250	250	IV-V	Registered at Manila.
11	6 47	Aparri (NE Luzon)					IV	Registered at Manila.
12	7 47	Camarines (SE Luzon)			150	100	VI-VII	Repetition with intensity IV at 7h 50m. Rockfall character. Numerous aftershocks.
21	3 31	Naga (SE Luzon)					III	
21	15 29	E Mindanao	8.0 N	125.6 E	400	350	V-VI	Registered at Manila.
22	18 07	Basco (Batanes Islands)					III	
29	8 15	Naga (SE Luzon)					III	
29	21 30	Butuan (N Mindanao)					II-III	
July 1	6 10	E Visayas and Mindanao	9.0 N	127.0 E	1,000	600	VI-VII	Registered all over the world.
2	17 57	Butuan (N Mindanao)	8.0 N	125.6 E			III-IV	Registered at Manila.
2	23 09	N Mindanao	9.2 N	125.1 E			III	
4	12 10	Tigaon (SE Luzon)					II-III	Origin, Isarog Volcano.
5	4 24	Basco (Batanes Islands)					III	Repeated next day at 3h 30m.
8	15 17	Agusan Valley (E Mindanao)	8.0 N	125.6 E			III	Registered at Manila. Light aftershocks.
9	1 58	NE Mindanao, Samar and Leyte					III	Origin in the Pacific. Aftershocks at 2h 06m and 3h 07m. Registered at Manila.
10	14 20	Aparri (NE Luzon)					IV	
11	1 49	Lanao (N Mindanao)					III	
11	7 16	Butuan (N Mindanao)					III	
12	2 26	Surigao (NE Mindanao)					III	
15	16 21	NW Luzon					III-IV	Registered at Manila.
15	20 27	Naga (SE Luzon)					III	
18	4 11	Surigao (NE Mindanao)					III	
31	4 54	Camarines (SE Luzon)	14.1 N	123.5 E			IV	Registered at Manila. Aftershock at 4h 59m.
31	13 34	Lanao (N Mindanao)					IV	
Aug. 2	3 02	Tigaon (SE Luzon)					III	
2	18 07	Butuan (N Mindanao)					III	
7	6 44	Tigaon (SE Luzon)					III	Registered at Manila.
11	13 20	Surigao (NE Mindanao)					II-III	
11	23 30	Antique (SW Panay)					IV	Registered at Manila. Origin in the Sulu Sea.
13	15 04	Tigaon (SE Luzon)					III	
14	5 46	Butuan (N Mindanao)					III	
14	7 15	Camarines (SE Luzon)					III	Origin in the Isarog Volcano.
14	9 20	Baguio (W Luzon)					II-III	Registered at Manila.
15	12 20	Southern Mindanao	5.5 N	124.5 E	800	700	X	Thousands of aftershocks some of intensity VII and VIII during August, September and October. A tide wave invaded the southern coasts of Cotabato causing great damage and many victims. Registered all over the world.
18	22 13	Tigaon (SE Luzon)					II-III	Origin in the Pacific.
22	13 01	Guam (Mariana Islands)					III	
28	11 12	Laoag (NW Luzon)					III	
29	4 05	Masbate Island					III-IV	Aftershock 30m later.
Sept. 1	20 01	S Mindanao	5.5 N	124.5 E			V-VI	Registered at Manila.
4	17 20	S Mindanao	5.5 N	124.5 E			IV-V	Registered at Manila.
6	3 17	Baguio (W Luzon)					III	
8	2 39	W Luzon					III-IV	Registered at Manila. Origin, China Sea.
11	4 09	Central Mindanao	7.7 N	124.5 E	450	300	IV	Registered in the Far East.
13	6 56	Batanes Islands	20.4 N	121.9 E			VIII	Repeated at 11h 05m with intensity IX destroying the two towns of Sabtan and Ivana. Registered in the Far East. Numerous aftershocks during September.
15	13 31	Butuan (N Mindanao)					III	
17	4 30	Butuan (N Mindanao)					IV	Aftershock at 10h 41m.
24	6 39	Iba (W Luzon)					III	
26	6 15	Camarines (SE Luzon)					III	Origin, Isarog Volcano.
27	18 10	Legaspi (SE Luzon)					III	
Oct. 2	13 23	S Luzon	14.5 N	121.6 E			III-IV	
8	4 17	Batanes Islands					V	
10	21 08	NW Luzon	18.5 N	120.2 E			IV	Registered at Manila.
17	7 18	Camarines (SE Luzon)					III	Origin, Isarog Volcano.
19	11 07	NW Luzon and Batanes Islands	19.5 N	120.6 E			III-IV	Registered at Manila.
22	8 11	Butuan (N Mindanao)					III-IV	Registered at Manila.
24	7 30	SE Luzon	12.8 N	123.0 E	300	300	IV	Repeated at 10h 44m. Registered at Manila.
25	2 45	Tigaon (SE Luzon)					III	Origin, Isarog Volcano.
25	19 06	S Mindanao			600	250	IV-V	Origin in the Celebes Sea. Registered at Manila.
26	17 01	Central Mindanao	7.8 N	125.0 E	600	600	V-V1	Registered at Manila.
28	8 33	Batanes Islands					IV	
29	17 39	Surigao (NE Mindanao)					III	Origin in the Philippine Deep. Registered at Manila.
29	18 03	Batanes Islands					V-VI	Repeated at 22h 00m.

Catalogue of Philippine earthquakes—Continued.

Date.	Time of occurrence. (Greenwich mean time.)	Place.	Probable origin or epicenter.		Approximate extension of the shaken area.		Intensity (Rossi-Forcel.)	Remarks.
			ϕ	λ	Longer axis.	Shorter axis.		
			°	°	*Km.*	*Km.*		
Nov. 1	2 00	Aparri (NE Luzon)					III-IV	Registered at Manila.
1	15 00	Batanes Islands					VI	
2	1 05	Butuan (N Mindanao)					III	
3	9 42	Tigaon (SE Luzon)					II-III	Repeated at 15h 00m. Origin, Isarog Volcano.
3	18 16	Batanes Islands					IV	
7	14 55	Tigaon (SE Luzon)					IV	Origin, Isarog Volcano.
8	15 15	Tigaon (SE Luzon)					III	Origin, Isarog Volcano.
9	19 28	SW Mindanao					III	Origin in the Celebes Sea. Registered at Manila. Aftershock, following day, at 6h 10m.
11	11 25	Tigaon (SE Luzon)					II-III	Repeated at 13h 15m. Origin, Isarog Volcano.
18	18 47	Camarines (SE Luzon)	14.8 N	124.5 E			II-III	Registered in the Far East.
20	1 15	Samar Island and SE Luzon	13.0 N	126.0 E			III	
21	0 36	Samar Island and NE Mindanao	13.0 N	126.0 E	700	400	V-VI	Registered at Manila.
22	22 21	Butuan (N Mindanao)					II-III	Distant origin in the Philippine Deep. Registered in Manila.
23	1 53	Camarines (SE Luzon)					IV-V	Origin, Isarog Volcano. Registered at Manila. Aftershocks at 1h 56m, 2h 39m and 9h 18m.
24	17 27	Davao (SW Mindanao)					IV	Registered at Manila. Distant origin in the sea.
25	12 08	N Luzon	19.0 N	120.5 E			IV-V	Registered at Manila.
25	19 30	Samar and Leyte Islands			150	100	III	
26	5 48	NW Luzon					III	
28	21 30	Ormoc (W Leyte)					III	
29	7 00	W Luzon	16.4 N	120.2 E			III-IV	Registered at Manila.
Dec. 2	9 00	Camarines (SE Luzon)					III	Registered at Manila.
2	10 34	SE Luzon	14.5 N	124.7 E			III-IV	
2	21 07	Tigaon (SE Luzon)					II-III	Origin, Isarog Volcano.
4	4 28	SE Luzon	14.5 N	124.7 E			III	Registered at Manila.
6	16 57	Butuan (N Mindanao)					III	
8	13 09	Naga (SE Luzon)					III	
13	1 47	Camarines (SE Luzon)					III-IV	Origin, Isarog Volcano. Registered at Manila.
13	22 20	Samar Island	12.8 N	126.0 E			III	Registered at Manila.
15	8 45	Legaspi (SE Luzon)	13.9 N	125.0 E			III	Registered at Manila.
18	10 32	NE Mindanao	9.2 N	125.4 E			III-IV	
19	12 01	Legaspi (SE Luzon)					III	
21	19 55	W Mindanao	7.0 N	123.1 E			III-IV	Registered at Manila.
22	5 21	Aparri (NE Luzon)					III-IV	
23	3 14	W Mindanao	7.0 N	123.1 E			III	Registered at Manila. Aftershock at 4h 03m.

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