No. 29. 1934.

Geodætisk Institut

Proviantgaarden, Copenhagen, Denmark.

Bulletin

of the seismological station

KØBENHAVN

$\varphi = 55°41'$ N. $\lambda = 12°27'$ E. $h = 13$ m.

Lithologic foundation: chalk.

No. 29. Jan.—March 1934.

Instruments:

Galitzin pendulums with galvanometric registration.

Constants:

Component	l	T_1	A_1		μ^2	T	k
	cm	sec	cm			sec	
N	12.5	12.61	100		— 0.1	12.1	103
E	12.5	12.65	100		0.0	12.4	100
Z	14.5	10.02	100	$^1/_1$—$^{15}/_2$	— 0.2	10	100
				$^{15}/_2$—$^{31}/_3$	0.2	11	100

Wiechert 1000 kg. horizontal seismograph.

Wiechert 1300 kg. vertical seismograph.

Constants:

Component	T	ν	ϱ	V
	sec		mm	
N	9.6	4.1	0.6	215
E	9.6	4.1	0.8	195
Z	5.4	4	0.2	165

Milne-Shaw seismograph, E component, with the approximate constants $T = 12^s$ $\nu = 20$ $V = 300$.

København.

No.	Date	Hour	Forerunners P	Forerunners S	Forerunners	Forerunners	L	Un-defined	△	Remarks
	1934 Jan.		m s	m s	h m s	m s	h m	h m	°	
1	1	7					.2			
2	2	21			9.8		.3			Masked by strong microseisms.
3*	3*	9	*i* 52 57							Kamtchatka.
4	11	11					.0			
5	12	14					.1			
6*	15*	8	53 28	61 35					59	North Bihar, India.
7	16	5					.5			
8	16	18			57 20	63 57*	1.5			
9	19	10					.7			
10	19	13					.1			
11	20	18					.5			Very strong microseisms.
12	20	23					.6			» » »
13	21	7						.7		
14	28	14			56.1		63			Small preceding movement.
15*	28*	19	22 56		*i* 26 23	33 40	.8			Mexico.
16	29	2					.3			Faint.
17	29	13					.3			
18	30	29					.9			Strong microseisms.
19	31	11					.3			» »
	Febr.									
20	2	15					1.0			Preceding movement masked by strong microseisms.
21	3	15			3.4		.5			Masked by strong microseisms.
22	4	9					43			
23	4	13	34 29	40 14					37	Persia.
24	4	22					,9			
25	9	9			59		1.5			
26	9	12					22			
27	12	7					.5			Faint.
28	12	11		52 0			69			Siam.
29	13	9	*i* 56 11	59 50			61		20	Greenland Sea. *P* exceptionally large; *S* quite small.
30*	14*	4	*i* 12 12		22 45	23 40				Luzon.
31	14	18					0			
32	14	23					.1			
33	16	7					.4			Small preceding movement.
34	19	11					.4			
35	21	0					.9			Mediterranean Sea.
36	21	11	42 13	46.4			50		24	» »
37	22	8	13 6	*i* 17 46					27	Persia. *P* small, uncertain.
38	24	1					10			
39*	24*	6	*i* 36 49		40 28	47 48				Marianne Islands.
40	25	17					.1			
41	27	22					.5			Small preceding movement.
42*	28*	14			41 49	52 10	1.3			New Guinea region.
	March									
43	1	4					.9			

København.

No.	Date	Hour	Forerunners P	Forerunners S	Forerunners	Forerunners	L	Un-defined	△	Remarks
	1934 March		m s	m s	h m s	m s	h m	h m	°	
44	1	20			4.5	11 29				*e* 18m.3. Pacific Ocean.
45*	1*	22			5 40	10 52				Chile.
46	4	6					1.0			Small preceding movement.
47	4	11		37 11			47			Bering Sea. No G. Z record.
48	5	2					.0			
49*	5*	12			6 14	7.0				New Zealand.
50	6	15					.2			
51	7	23			4 51		.3			
52	8	3			.1		.2			
53	9	14					.5			
54	10	9					.5			Faint.
55	10	15						.9		»
56	11	19						39		»
57	12	15	17 8	26 38	27 19	31.1	.6		74	Near Great Salt Lake, Utah.
58	12	18	*i* 31 42				.9			After-shock.
59	13	13			33 22	34 33	1.1			*e* 41m13s.
60	15	12					.3			Strong microseisms.
61	16	10					24			
62	16	14						.7		Faint.
63	16	17					.8			»
64	18	4			53 30	62.2	68			
65	19	3					.9			Faint.
66	20	3			8	19.3	.6			
67	21	1					.6			
68	21	4					.4			
69	21	6					.3			
70	22	20					.9			
71*	24*	12			23 42	*i* 25 47				Salomon Islands region.
72	25	13					.1			
73*	29*	20	*i* 9 51				13			Balkans.

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NOTES

No. 3. Jan. 3. 9^h. Kamtchatka. Deep focus. i_Z 54^m6^s; i_Z 54^m40^s; $i_{N,Z}$ 55^m30^s. $i_{N,E}$ 61^m32^s; e_N 62^m22^s; e_N i_E 63^m33^s.

No. 6. Jan. 15. 8^h. North Bihar, India. Very strong records. Beginning lost on Wiechert *N* and *E*. Galitzin records difficult to read. iP 53^m28^s, condensation, preceded by small movement, uncertain whether due to shock or to microseisms. i 53^m33^s; i 53^m43^s very large. Strong oscillatory movement continues. *PPP* 57^m20^s very large. iS_N 61^m34^s, S_E 61^m39^s; very large, increasing oscillations on *N*. i_E 62^m19^s, very large. e_N $63^m.5$. e_E 65^m28^s; i_N 65^m53^s. e_N $68^m.2$. *L* very large, beginning not certain.

No. 15. Jan. 28. 19^h. Mexico; $\triangle$ = ca. 90°. e_Z 24^m46^s, $i_{E,Z}$ *PP* 26^m23^s. e_N $33^m.0$; $e_{N,E}$ 33^m40^s; $e_{N,Z}$ 34^m3^s, followed by several oscillations. *SS* $39^m.4$.

No. 30. Febr. 14. 4^h. Luzon; $\triangle$ = ca. 85°. iP, condensation, very large. e_Z 15^m0^s; *PP* 15^m27^s. $(\overline{S_cP_cS})_N$ 22^m38^s. $(S)_{N,E}$ 22^m45^s. *PS* 23^m40^s; *SS* 28^m27^s. e_E $32^m.9$; e_N $33^m.9$; e_E $34^m.7$.

No. 39. Febr. 24. 6^h. Marianne Islands region; $\triangle$ = ca. 90°. iP_Z, condensation. e_Z 37^m30^s. i 40^m28^s, large; 41^m13^s. e 47^m20^s; i 47^m48^s; 48^m56^s. e_E $51^m.4$. 53^m49^s large. 55^m48^s; $57^m.5$.

No. 42. Febr. 28. 14^h. New Guinea region; $\triangle$ = ca. 120°. No. *G.Z* record. *PP* 41^m49^s read on Wiechert *Z*; e_E 42^m21^s. $\overline{S_cP_cS}$ $48^m.0$. *PS* 52^m10^s; *PPS* 53^m42^s. *SS* $59^m.2$; *SSS* $63^m.5$. *L* regular.

No. 45. March. 1. 22^h. Chile; $\triangle$ = ca. 115° Focus rather deep. No *G.Z* record. *PP* 5^m40^s clearly marked on Wiechert *Z*; small preceding movement. $e_{E,Z}$ $8^m.0$. $e_{E,N}$ 10^m52^s; e_E 11^m49^s. $i_{N,E}$ 12^m23^s; $e_{N,E}$ 13^m15^s; e_N 14^m12^s; $e_{N,E}$ $15^m.3$. *SS* 21^m34^s.

No. 49. March 5. 12^h. New Zealand; $\triangle$ = ca. 160°. P_1' 6^m14^s; P_2' $7^m.0$. *PP* 10^m31^s. e $13^m.8$; $15^m.2$. $(\overline{S_cP_cS})$ 17^m19^s. $\overline{S_cP_cS}$ *P* 21^m6^s, clearly marked on *N*; e 21^m51^s. PPS_E $24^m.1$. *SS* $30^m.8$, large.

No. 71. March 24. 12^h. Salomon Islands region; $\triangle$ = ca. 130°. *P'* 23^m 42^s small, but clearly marked on *Z*. iPP_Z 25^m47^s; $26^m.1$ also on *N* and *E*. $\overline{P_cP_cS}$ 27^m3^s (in time-mark). e_N 32^m18^s; $(\overline{S_cP_cP_cS})$ 32^m40^s. *PPS* $37^m.3$. *SS* $43^m.0$. *L* regular, of long duration.

No. 73. March 29. 20^h. Balkans. Strong oscillatory movement in forerunners. *S* not clearly marked, e $12^m.3$, 12^m38^s. *L* not large.

BIANCO LUNOS BOGTRYKKERI A/S
KØBENHAVN

No. 30. **1934.**

Geodætisk Institut

Proviantgaarden, Copenhagen, Denmark.

Bulletin

of the seismological station

KØBENHAVN

φ = 55°41′ N. λ = 12°27′ E. h = 13 m.

Lithologic foundation: chalk.

No. 30. April—June 1934.

Instruments:

Galitzin pendulums with galvanometric registration.

Constants:

Component	l	T_1	A_1	μ^2	T	k
	cm	sec	cm		sec	
N	12.5	12.61	100	— 0.1	12.1	102
E	12.5	12.65	100	0.1	12.4	100
Z	14.5	10.02	100	0.2	11	100

Wiechert 1000 kg. horizontal seismograph.

Wiechert 1300 kg. vertical seismograph.

Constants:

Component	T	ν	ϱ	V
	sec		mm	
N	9.7	4.3	0.6	215
E	9.7	4.3	0.8	195
Z	5.5	4.4	0.2	165

Milne-Shaw seismograph, *E* component, with the approximate constants $T = 12^s$ $\nu = 20$ $V = 300$.

København.

No.	Date	Hour	Forerunners P	Forerunners S			L	Un-defined	△	Remarks
	1934 April		m s	m s	h m s	m s	h m	h m	°	
1	1	22					.7			
2	2	5			.4		.8			
3	3	7			59 53					
4	3	11						.8		Faint.
5	3	18					.5			
6	3	22			55.1		1.3			
7	6	11					.5			
8	6	19	*i*21 25	*i*31 8	35.7	39.6			76	Japan.
9	9	15			51.9		1.5			
10	10	5			51		1.4			
11	10	10			41 18	48 11	75			48m48s; 51m8s; 56m.0. Java.
12	11	21			31 11	*i*34 31				e_N 34m50s. *SS* 52m.5. Deep focus.
13	12	4					.1			No *G.Z* record.
14	12	9					46			
15	14	4					.0			
16*	15*	22	28 47		39 32	42 0	1.0			Mindanao.
17	16	4					.8			
18	16	14					.4			
19	17	2					.9			
20	18	13					.1			
21	19	16	*i*25 12	34 49	37	40				Japan. Deep focus.
22	19	22						45		Seismic?
23	20	15					.4			
24	24	2					.9			
25	24	18					.7			Small preceding movement.
26	26	5			51 25		1.8			
27	26	8					1.2			Forerunners disturbed. No Galitzin records.
28	26	14					.5			Forerunners disturbed.
29	26	21			19 40	23 38	1.0			23m.1. New Hebrides.
30	27	10					.0			
31	27	21			6 32		1.0			New Caledonia. Phases not clearly marked.
32	28	15			28		1.1			
33	28	18			31		1.0			
34	29	0					.1			
35	30	16					.1			Faint.
	May									
36	1	3			51		69			
37	1	7	*i*17 16	*i*27 27	28.1				81	Sumatra. *L* small.
38	3	1			54 32		77			
39*	4*	4	*i*46 26	*i*54 51			1.0		62	Alaska.
40	4	14						2		Small.
41	5	2					.1			Small preceding movement.
42	5	14			52 38		1.8			
43	7	2					.8			
44	7	5					.0			
45	8	19			34.0		1.8			
46	9	16	25 2*	34.7			51		76	Kurile Islands.

København.

No.	Date	Hour	Forerunners P	Forerunners S			L	Un-defined	△	Remarks
	1934 May		m s	m s	h m s	m s	h m	h m	°	
47	9	19					.1			
48	13	9			22 15	32 12	.9			*e* 38m.0. Pacific Ocean.
49	13	17					.8			
50	14	13					.9			
51	14	22	*i*23 34	*i*32 20	23 49	32 38	.7			*e* 33m37s. Alaska. Deep focus. *L* small.
52	15	12						.2		Seismic?
53	19	11			10.5					
54	20	19			9					
55	21	5					.3			
56	21	10	11 20				15			*S* quite small, uncertain. Greenland [Sea.
57	22	2					.2			
58	22	11			21 20		.5			
59	27	9			57.5		1.0			
60	28	6					.0			
61	30	12					.5			
62	30	23			25 37		.8			
63	31	13			32.4		.6			
	June									
64	2	6	5 6	*i*13 44	5 39	14 43				*e* 18m.0. Burma. Deep focus.
65*	2*	13	46 50				51			Iceland.
66	2	16	55 55	64.1			1.3		60	Alaska.
67	2	21	7 20	16.1			.5		66	Kamtchatka.
68	3	21			37		1.0			
69	5	13					.6			
70	5	23					53			
71	6	4			3		.7			
72	6	6	35 29	45.0			62		74	Kurile Islands.
73	6	11					.5			
74	6	12					.4			
75	6	17					.3			
76	6	22					.1			Faint.
77	7	16			19 39	29	.8			
78	8	2			17					
79	8	3					22			
80	8	5			10.0		.4			
81	9	3					.2			
82*	9*	13			18 44		.9			New Guinea.
83	10	19			59 47		1.9			
84	12	9	45 13		55.8		1.3			Mexico.
85*	13*	2	*i* 2 20	11 41					72	Kurile Islands.
86	13	9			11.8					
87*	13*	22	*i*18 38	*i*25 15	20 25	28 31	33		45	Afghanistan.
88	14	20					.0			
89	15	3			12.4	22.0	.8			
90	15	6			47		.9			
91	15	13					.4			
92	15	22					.3			
93	16	3					58			Faint.

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No.	Date	Hour	Forerunners P	Forerunners S			L	Un-defined	△	Remarks
	1934 June		m s	m s	h m s	m s	h m	h m	°	
94	16	5	22 40	32.0			.8		72	Kurile Islands region.
95	16	19					.3			
96	17	14			27.3		1.2			
97*	18*	9	24 10	32 41	33 15		.8		63	Alaska.
98	19	3					.5			
99	19	4					.6			
100	19	16			8 18		.6			
101	19	18	48 5*	51 54			55		21	Asia Minor.
102	21	19					.5			
103	22	18					.9			Small preceding movement.
104	22	19					.4			
105	23	5		37.8	42		.8			Tibet.
106	24	2			8		.5			
107	24	3					1.6			Small preceding movement.
108*	24*	6	13 27				.7			Chile.
109	25	15			33		35			
110	26	21					.3			
111	27	12					.2			
112	28	1			17.7	22.5	1.0			Pacific Ocean.
113*	29*	8	38 26							
114	29	12			57 28	58 13				$e_{E,Z}$ 60m25s.
115	30	10			36 25		43			No Galitzin records.
116	30	12			16 50		23			» » »
117	30	13					.4			» » »
118	30	17					.9			» » »
119	30	21					.1			» » »

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NOTES

No. 16. April 15. 22h. Mindanao; △ = ca. 100°. Additional readings: *e* 32m.2; 32m.6. S_cP_cS 39m32s. 39m45s. *PS* 42m0s. *SS* 47m.3.

No. 39. May 4. 4h. Alaska. *P* and *S* very clearly marked, other phases not so well defined, much oscillatory movement. *e* 46m.7; 48m.7. 56m.3. *L* not large.

Nr. 65. June 2. 13h. Iceland. *P* large. *S* somewhat uncertain: e_E 50m12s, e_N 50m17s; 50m23s, large oscillations on *N* and *E*. e_Z 50m37s. *L* regular.

No. 82. June 9. 13h. New Guinea; △ = ca. 120°. *PP* 18m44s, preceded by small movement. *e* 19m11s, 19m28s. S_cP_cS 24m.1. 25m28s; 26m18s; 27m.3; e_Z 28m.3. *SS* 34m.8.

No. 85. June 13. 2h. Kurile Islands. Focus rather deep. *iP*, condensation; *i* 2m24s very large on *Z*; followed by several oscillations. *S* clearly marked. *e* 12m.2; 12m.9. *L* not large.

No. 87. June 13. 22h. Afghanistan. *P*, condensation, followed by several oscillations; e_Z 18m56s; *PP* 20m25s. (P_cS) 24m9s, clearly marked on *Z*. *S* very large on *E*; *PS* 25m34s. *SS* 28m29s; 29m.0. *L* not large; depth of focus possibly greater than normal.

No. 97. June 18. 9h. Alaska. Focus deeper than normal. *P* quite small, *e* 24m28s larger. *S* 32m41s; *e* 33m15s larger. *e* 34m.0. e_E 34m39s.

No. 108. June 24. 6h. Chile; △ = ca. 105°. Focus deeper than normal. *P* small, dilatation; *e* 13m51s larger. $e_{E,Z}$ 17m43s; 18m12s, 18m36s. *i* S_cP_cS 24m2s. 24m44s large on *E*; 25m11s large on *N*. PS_Z 26m45s. *SS* 32m.0. *L* not large, but of long duration.

No. 113. June 29. 8h. According to *J.S.A.* epicentre 6°.2 S 123°.3 E, depth 700 km. △ = ca. 105°. Forerunners somewhat disturbed by change of sheets. *P*, dilatation, and *PP* 43m5s, not large; *PPP* 45m10s larger. e_E (S_cP_cS) 48m32s, e_E 48m57s larger; $e_{N,E}$ 49m33s. $e_{E,Z}$ 51m13s and $e_{E,Z}$ 52m20s large. *e* 55m.5. *SS* 57m.5; *e* 61m.9. *L* small.

No. 31. 1934.

Geodætisk Institut
Proviantgaarden, Copenhagen, Denmark.

Bulletin
of the seismological station

KØBENHAVN

$\varphi = 55°41'$ N. $\lambda = 12°27'$ E. $h = 13$ m.

Lithologic foundation: chalk.

No. 31. July—Sept. 1934.

Instruments:

Galitzin pendulums with galvanometric registration.

Constants:

Component	l	T_1	A_1		μ^2	T	k
	cm	sec	cm			sec	
N	12.5	12.61	100		— 0.1	12.1	103
E	12.5	12.65	100		0.1	12.3	101
Z	14.5	10.02	100	$^1/_7$—$^{10}/_8$	0.3	11	100
				$^{10}/_8$—$^{30}/_9$	0.0	11	100

Wiechert 1000 kg. horizontal seismograph.

Wiechert 1300 kg. vertical seismograph.

Constants:

Component	T	ν	ϱ	V
	sec		mm	
N	9.8	4.5	0.6	215
E	9.8	4.5	0.8	195
Z	5.8	4.5	0.1	160

Milne-Shaw seismograph, E component, with the approximate constants $T = 12^s$ $\nu = 20$ $V = 300$.

København.

No.	Date	Hour	Forerunners P	Forerunners S			L	Un-defined	△	Remarks
	1934 July		m s	m s	h m s	m s	h m	h m	°	
1	1	20					.9			
2	3	4					.5			Phases in forerunners not clearly [marked.
3	4	2			4		.6			
4	6	19					.4			
5	6	23	0 51	10 40	10 45	15.6	.4		77	California.
6	8	14					.7			
7	10	1	14.0	23 40			.6		76	
8	10	21			34.6		1.4			
9	12	1					.9			Seismic?
10	12	10		13 30	6 39		.5			Pacific Ocean. *P* uncertain owing to microseismic disturbance.
11	12	13			20		22			
12	12	14			43.0		1.4			
13	13	11					.3			Faint.
14	14	5			48.4		51			
15	15	8					.6			
16	16	8			35 22	42.5	1.0			
17	16	18			6.1					
18*	18*	1	*i* 49 7	59 41	52.5	65.4				Panama.
19	18	4	13 22	23.9						Aftershock.
20	18	6	48 15							»
21	18	11			57.8		1.1			
22	18	13			26 16					
23	18	13			56		1.1			
24	18	16	22 34		33 12		.8			
25*	18*	17	*i* 12 24	23 2	15.9	28.7				Panama.
26*	18*	19	56.5		59 53	61 56				New Hebrides region.
27*	19*	0			26 4	28 26				Salomon Islands region.
28	19	1			45.0	46.3	1.3			New Guinea region.
29	19	6			4.6	7.1				*e* 8m.0.
30	19	7			56 12	58 44				*e* 59m 43s; 60m 11s.
31	19	12			22.1		1.3			
32	19	15						.6		
33	19	23			20					
34	20	2	22 15	32.0			.8		76	Aleutian Islands region.
35	20	4			12					
36	20	13			40.0		1.3			
37	20	17			7 36	10 0				*e* 11m 5s.
38	20	18			31.9	33.0				
39	20	19			8.1	11.4				
40	21	5					20			
41*	21*	6			37 30	40.3				New Hebrides region.
42*	21*	10	*i* 51 50		55 12	68.4				Panama.
43	21	13			32	42.7				
44	21	18			56		1.8			
45	21	20			33		1.3			
46	22	3			17 5	19 28	1.0			*e* 20m 34s.
47	22	13			.6					
48	22	14					.8			

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No.	Date	Hour	Forerunners P	Forerunners S			L	Un-defined	△	Remarks
	1934 July		m s	m s	h m s	m s	h m	h m	°	
49	22	19					.4			
50*	22*	20	*i* 4 39	10 52					41	Afghanistan.
51	23	18	31 45	40 3	41.7		49		61	Atlantic Ocean.
52	24	3			10.8		.6			No *G.Z* record.
53	24	15					.5			Faint.
54	25	1						56		»
55	25	12					.0			Disturbed.
56	25	15					1.7			Small preceding movement.
57	27	2			48 49	49 25	1.1			
58	27	13					.7			
59	28	2	14.6	21 16	16.4		.5		45	*P* quite small, somewhat uncertain.
60	28	16					20			[Alaï Mountains.
61	28	18					.5			Faint.
62*	28*	21	48 2	57 8	50 41		1.1		69	Alaska.
63	30	2					28			
64	30	3					17			
65	30	3			58		1.7			
66	31	6	11 23	21.8			.7		84	Luzon.
67	31	11	11.5	21.6	22.0					*P* and *S* quite small, Sumatra.
68	31	12	1 47	12 2			.5			Sumatra.
69	31	15						33		
70	Aug. 1	12					.4			
71	1	23					52			
72	2	7	23 30	31 55	33 19		.7		62	Alaska.
73	3	10					15			
74	3	19			53.1		1.2			
75	4	13			27 56		1.0			
76	6	12	19 59		30 27	30 40	.9			
77	6	16					.8			Faint.
78	6	17						25		
79*	7*	3			59 22	61 50	1.7			Pacific Ocean.
80	7	11	58 39	65 34	60.5	69.0	1.2		48	Tien Shan Mountains. No *G.Z* record.
81	8	22					.6			
82	9	6					.6			Faint preceding movement.
83	9	14					.4			
84	9	19					1.6			Some preceding movement. Phases
85	10	3					.9			[not clearly marked.
86	10	23					27			
87	11	8		40 42			1.0			Some preceding movement. No *Z*
88	11	12			23 29	27.9	1.0			[record. Recording interrupted
89	11	15					.6			[44m—54m.
90	12	14			21					
91*	13*	0	2 52		6 49	13 42				Mindanao.
92	13	11			5.5		.8			
93	14	9			11.8	12.4	.9			Recording interrupted 2m—10m.
94	15	5						14		
95	15	11	16 54		27 21	28.7	.8			

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No.	Date	Hour	Forerunners P	Forerunners S			L	Un-defined	△	Remarks
	1934 Aug.		m s	m s	h m s	m s	h m	h m	°	
96	16	14			54	64				
97	18	3			0.5		.3			
98	19	23		42			45			
99	21	19	39 15	49 45	50.5		1.2		85	Sumatra.
100	22	7						23		
101	22	8					.1			
102	22	8					.6			
103	22	11					.1			
104	22	19					.6			
105	23	23					.3			
106	23	23			49.7	53.1				e_Z 52m.3.
107	24	0			8 2*	11 33				e_Z 10m.6.
108	24	9					.7			
109	25	5					52			
110	25	19					49			
111	26	1			55 2*		74			
112	26	10					.0			Preceding movement disturbed.
113	28	12					.2			
114	29	4					.3			Faint.
115	30	22					.7			»
116	31	1					.0			
117*	31*	5	9 50	15 27	11 6	18.0			35	Baffin Bay.
118	31	15	5 38	11 51	7 18	14.5			41	Afghanistan. *PP* much larger than *P*.
119	31	18					.1			[e_E 12m24s.
	Sept.									
120	1	7			15 11	20 28	1.0			*e* 42m.0.
121	1	9					.4			Disturbed.
122	1	11			49.6		1.1			Beginning quite small, uncertain.
123	1	12						52		
124	2	10					.0			
125	2	12					.1			
126	3	3					.2			
127	3	10					.7			
128	4	1			30 41		32			Eastern Alps.
129	4	16			54 7	57.9	1.7			Loyalty Islands region. No *G.Z* record.
130	5	2			37.3		.8			
131	5	10					.7			
132	6	0						57		Faint.
133	6	2			30.0	34.1				40m28s. Mindanao.
134	6	19					.6			
135	7	3	44 6	47.9			50		21	Algeria.
136	7	20			33.3		35			
137	7	23			33.6		37			
138	8	6			54.6	62.5	1.1			Tien Shan Mts.
139	8	11			34		1.5			
140	8	20					21			
141	9	5					.4			
142	11	1			24.2		30			

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No.	Date	Hour	Forerunners P	Forerunners S			L	Un-defined	△	Remarks
	1934 Sept.		m s	m s	h m s	m s	h m	h m	°	
143	11	7						3		
144	11	9					.3			Disturbed.
145	11	14						30		
146	12	14				.9		67		
147	12	16					.3			
148	12	18					.4			
149	13	3					.8			
150	13	11					.0			Faint.
151	13	15					.0			
152	13	23					.7			Faint.
153	14	4					.9			
154	14	10					.1			
155	14	15					.9			
156	15	0				19.2	1.1			
157	15	7	9.8			13.1	20.1	.6		Mexico. *P* quite small, somewhat
158	15	13						.9		[uncertain.
159	16	13						58		Some preceding movement.
160	16	19						.9		
161	17	14						.4		
162	17	19						16		
163	18	7							31	
164	18	19						9		
165	20	20						.1		
166*	21*	12	*i*51 33			*i*52 5	61 50			Sumatra.
167	21	18							40	Faint.
168	22	7							54	
169	22	12						.4		
170	23	1						.8		
171	23	8				18.8		1.3		Disturbed by change of sheets.
172	23	22						.4		
173	24	10				49 23				
174	25	19				34.5	36.3	1.2		Readings uncertain owing to irregu-
175	25	23						.9		[lar microseismic disturbance.
176	26	1				15		.4		
177	26	7	37 53	46 26		47 28		56	64	Atlantic Ocean.
178	27	23						.2		

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NOTES

No. 18. July 18. 1^h. Panama, $\triangle$ = ca. 85°. Focus below normal. iP_Z, condensation, followed by large oscillations; e_N $50^m.2$. PP $52^m.5$; PPP_Z $54^m.4$. Some increase of movement on E $58^m.8$. e_N $59^m.3$. S 59^m41^s, clearly marked on E, followed by large oscillations; e_N 59^m51^s. On E, a second groupe of large oscillations, maximum $61^m.0$, no definite beginning. SS $65^m.4$, large. L not very large; regular, of long duration.

No. 25. July 18. 17^h. Panama, $\triangle$ = ca. 85°. Focus below normal. iP 12^m24^s, condensation; 12^m34^s, larger. PP $15^m.9$. S 23^m2^s, large on E; e_E 23^m22^s, larger. e_N $23^m.7$. e_E $24^m.2$, large; e_E $25^m.7$. SS $28^m.7$. L not very large; regular, of long duration.

No. 26. July 18. 19^h. New Hebrides region; $\triangle$ = ca. 135°. Strong record. P small, on Z only, somewhat uncertain, being superposed on L of preceding shock. P' 59^m53^s, on Z clearly marked and followed by several rather large oscillations; small on N and E. PP 61^m56^s large, increase of movement $62^m.5$. $\overline{P_cP_cS}$ 63^m2^s, large; $63^m.4$ very large oscillations; e $64^m.3$. (PPS) $74^m.9$ large. SS $80^m.0$; e_E $81^m.0$. SSS $85^m.0$. The beginning of L uncertain, about $20^h.6$. M rather large, regular. L of long duration.

No. 27. July 19. 0^h. Salomon Islands region, $\triangle$ = ca. 135°. P' 26^m4^s clearly marked on Z, quite small on N and E. PP 28^m26^s. $\overline{P_cP_cS}$ 29^m32^s, rather large oscillations on N and E. Later phases not clearly marked.

No. 41. July 21. 6^h. New Hebrides region, $\triangle$ = ca. 135°. P_Z 37^m30^s preceded by quite small movement. PP $40^m.3$, large on Z; $\overline{P_cP_cS}$ $41^m.4$, large on N and E. e $42^m.6$; $46^m.0$; $52^m.0$; $53^m.2$. SS $57^m.6$, increase of movement $58^m.0$. Oscillations of very long period in first part of L.

No. 42. July 21. 10^h. Panama, $\triangle$ = ca. 85°. iP, condensation. PP 55^m12^s. $e(S)$ $62^m.4$, e_E 62^m36^s, large. e $63^m.5$, large. SS $68^m.4$.

No. 50. July 22. 20^h. Afghanistan. Deep focus. Azimuth of epicentre nearly E. Several clearly marked phases on E and Z. iP 4^m39^s, condensation, small. i 5^m35^s, small; 6^m0^s, in time mark, larger. $6^m.5$ oscillations of longer period. $e_{E,Z}$ 7^m33^s; large oscillations begin about 7^m42^s; e_N 7^m54^s. iS 10^m52^s, large on E; $e_{N,E}$ $12^m.3$; e $14^m.2$, large. L small.

No. 62. July 28. 21^h. Alaska. P, condensation; first movement 48^m2^s quite small, iP 48^m4^s, large oscillations; e $48^m.3$. PP 50^m41^s; PPP $52^m.6$. S 57^m8^s; PS 57^m23^s, larger. $e(S_cS)$ $58^m.2$.

No. 79. August 7. 3^h. Pacific Ocean, $\triangle$ = ca. 135°. P' 59^m22^s, clearly marked on Z. PP 61^m50^s. $\overline{P_cP_cS}$ 62^m54^s, large on N and E. (PPS) $74^m.8$. SS $79^m.9$, not very prominent; SSS $84^m.5$, well-marked on N.

No. 91. August 13. 0^h. Mindanao, $\triangle$ = ca. 95°. P_Z 2^m52^s, small. Later phases most clearly marked on E. PP 6^m49^s. PPP $8^m.9$. $\overline{S_cP_cS}$ 13^m42^s. PS 15^m45^s. SS about 20^m, not well marked.

No. 117. August 31. 5^h. Baffin Bay. P 9^m50^s, dilatation; possibly a faint beginning 1 or 2 secs. earlier. PP 11^m6^s, e_Z 12^m28^s. S 15^m27^s, large and clearly marked on N. e_E $15^m.9$. SS_E $18^m.0$. L shortly afterwards.

No. 166. Sept. 21. 12^h. Felt on North Sumatra. $\triangle$ = ca. 85°. Focus rather deep. iP, dilatation. i_E ($\overline{S_cP_cS}$) 61^m50^s; e_N (S_N) 62^m2^s (in time-mark); e_N 62^m40^s. L small.

BIANCO LUNOS BOGTRYKKERI A/S
KØBENHAVN

No. 32. 1934.

Geodætisk Institut

Provlantgaarden, Copenhagen, Denmark.

Bulletin

of the seismological station

KØBENHAVN

φ = 55°41′ N. λ = 12°27′ E. h = 13 m.

Lithologic foundation: chalk.

No. 32. Oct.—Dec. 1934.

Instruments:

Galitzin pendulums with galvanometric registration.

Constants:

Component	l	T_1	A_1	μ^2	T	k
	cm	sec	cm		sec	
N	12.5	12.61	100	—0.03	12.2	102
E	12.5	12.65	100	0.09	12.4	101
Z	14.5	10.02	100	0.0	11	100

Wiechert 1000 kg. horizontal seismograph.

Wiechert 1300 kg. vertical seismograph.

Constants:

Component	T	ν	ϱ	V
	sec		mm	
N	9.7	4.4	0.7	215
E	9.7	4.4	0.7	195
Z	5.7	4	0.1	160

Milne-Shaw seismograph, E component, with the approximate constants $T = 12^s$ $\nu = 20$ $V = 300$.

Wood-Anderson seismograph, E component, $T = 2^s.7$, recording intermittingly.

København.

No.	Date	Hour	Forerunners P	Forerunners S			L	Un-defined	△	Remarks
	1934 Oct.		m s	m s	h m s	m s	h m	h m	°	
1	1	3			1.0		.2			
2	2	1					.1			
3	5	8					.8			
4	5	20	37 30	47 0*			61		74	East of Japan.
5	5	22					.6			
6	6	0			29.1					
7	6	3					.7			
8	6	12	59 16	67.8			1.3		63	
9	6	14					32			
10	7	11					.1			
11*	10*	16			0 49	2 55				Pacific Ocean.
12	15	8					.8			Disturbed
13	18	8			10.1	11.2	.8			*e* 27m.3. Pacific Ocean.
14	19	21					25			Small preceding movement
15	20	8						40		[masked by microseisms.
16	21	18			17.0		.7			
17	26	15			7.6	10.6				
18	26	17	23 22	33 26	38.6		.8		80	Pacific Ocean.
19	27	11					.2			
20	29	0					.3			
21	29	3					.3			
22	29	16					31			*P* and *S* not clearly marked,
	Nov.									[masked by microseisms.
23	4	2			13.6	35	1.0			
24	4	3					1.3			Superposed on preced ng shock.
25	5	23	13 52	23.3	24.1	28.4	39		73	
26	7	14					45			
27	8	4					.1			
28	8	14						.5		Faint.
29	9	4						39		
30	9	13	*i* 45 34		*i* 45 59	46 15				*e* 50m1s.
31	10	9					.5			
32	10	15	45 20	49 55			52		26	
33	11	22					.1			
34	12	7	24 45	29 13					26	Asia Minor.
35	13	0					.0			
36	15	23	22 50	29 13	24.6	32.5				Darwaz. Deep focus.
37	16	11					.0			
38	16	13					.1			
39	16	14			3		.6			
40*	18*	3	*i* 29 9	35 22	30 21	*i* 32 3				Darwaz. Deep focus.
41	18	9					.9			Disturbed.
42	18	15					.8			
43	18	23			0.4	10.2	.6			*e* 17m.1.
44	19	8					.2			
45	21	22					40			
46	24	13			18	24.2	1.0			Small preceding movement.
47	26	12			32.4		.9			Luzon.

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No.	Date	Hour	Forerunners P	Forerunners S			L	Un-defined	△	Remarks
	1934 Nov.		m s	m s	h m s	m s	h m	h m	°	
48	27	6			32.9	38 38	1.0			*e* 41m.9. *SS* 47m.2. Pacific Ocean.
49	30	2	18 16	29 14	21 45	28 45	.8			Mexico. Masked by microseisms.
50*	30*	3								Italy.
	Dec.									
51	1	20					.0			
52	3	2	51 4*		54 17		1.4			
53	4	17			42 32	49 0	1.2			*e* 49m.6; 51m.6. Chile.
54	7	11			28 36					
55	7	11					.5			
56	8	10					.5			
57	14	21					.3			
58*	15*	2	7 30	15 27	19.5					Tibet.
59	15	19			35 17					No Galitzin *Z* record.
60	17	3					12			[Masked by microseisms.
61	17	4					.3			
62	17	4			50 12		56			
63	17	16			11.9	19.5	.8			*e* 22m.2: 23m.3; 28m.5.
64	18	11					.9			
65	21	7					.1			
66	21	12	48 54				69			
67	22	11					.6			
68	22	14	42 15		53.0	58.9				*P* small, uncertain.
69	23	10			10 33	16 59	.6			*i* 17m55s. South America.
70	23	23					53			
71	24	15						.3		
72	24	16					7			Preceding movement
73	25	7					.2			[masked by microseisms.
74	26	0					35			Quite small preceding movement
75	28	7					27			[masked by microseisms.
76	28	12					.8			
77	30	14	4 37		14 50	15 2*	26			*SS* 20m.0. California.
78	31	18	58 14	68 25			79		81	California. Rather strong record.

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NOTES

No. 11. Oct. 10. 16^h. Pacific Ocean; $\triangle$ = ca. 150°. Deep focus. iP'_Z 0^m49^s small; i 0^m55^s very large on Z. e 2^m55^s followed by very large oscillations on Z. e 3^m48^s; 4^m20^s; $6^m.2$; 7^m45^s. $e_{N,E}$ 10^m20^s. e 13^m45^s; e_E $15^m.6$; e_N $16^m.2$; e $21^m.6$; $22^m.7$. L small.

No. 40. Nov. 18. 3^h. Darwaz. Deep focus. iP 29^m9^s; $i_{E,Z}$ 30^m21^s; e $31^m.0$. $i_{E,Z}$ 32^m3^s, large. S_E 35^m22^s, large; S_N 35^m27^s. $36^m.7$ large, on E only. e_N $38^m.5$; e_E 38^m40^s; $39^m.0$ large on E and Z. L not large.

No. 50. Nov. 30. 3^h. Italy. Superposed on preceding shock. Quite small movement, visible on Wood-Anderson record only, begins somewhat after 1^m; stronger movement on all records about 4^m.

No. 58. Dec. 15. 2^h. Tibet. P possibly earlier than read; masked by microseisms. $(P_eP)_{E,Z}$ 8^m37^s. PP $9^m.8$; PPP $11^m.0$ eS_E 15^m27^s; iS_N 15^m32^s. SS $19^m.5$. M large.

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