KONINKLIJK
NEDERLANDS METEOROLOGISCH INSTITUUT

SEISMIC RECORDS AT DE BILT

38

1950

TE VERKRIJGEN BIJ HET
STAATSDRUKKERIJ- EN UITGEVERIJBEDRIJF
'S-GRAVENHAGE

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PREFACE

This seismic Yearbook was composed under the supervision of Dr. J. Veldkamp, director of the Geophysical Section. The records have been reduced by Mr. J. Oldeman, scientific assistant.

The Director in Chief of the Royal Netherlands Meteorological Institute,
Ir. C. J. Warners.

De Bilt, October 1954.

INTRODUCTION

SEISMOLOGICAL STATION DE BILT

The geographic coordinates of the seismological station are: 52° 6′.1 N and 5° 10′.6 E. The instruments are placed at a height of 3 m above mean sea-level on a subsoil consisting of sand (diluvial deposits).

The instruments are:

a set of seismographs (two horizontal and one vertical) with galvanometric recording according to GALITZIN,

one astatic horizontal seismograph according to WIECHERT, M = 200 kg,

two horizontal pendulums according to BOSCH, M = 25 kg.

THE GALITZIN SEISMOGRAPHS AT DE BILT. Below are given: the period of the galvanometer T1, the reduced pendulum length l, the distance A1 between the mirror of the galvanometer and the recording paper, and the rough values for the natural period T of the undamped pendulum, of the damping constant μ and of the multiplying factor k for the year 1950.

	NS comp.	EW comp.	Z comp.
Period of galvanometer T1	24.43 sec	24.96 sec	12.0 sec
Reduced length of pendulum l	123 mm	123 mm	406 mm
Distance A1	1380 mm	1380 mm	1380 mm
Period of pendulum T	25 sec	25 sec	12 sec
Damping constant μ	0.0	0.0	0.0
Multiplying factor k	11.0	11.0	175

THE WIECHERT AND BOSCH SEISMOGRAPHS AT DE BILT. The mean values of the natural period of the undamped pendulum T, of the damping ratio ε and of the static magnification V for the year 1950 are:

	T	ε	V
WIECHERT (NS comp.)	5.0 sec	4	170
„ (EW comp.)	5.0 sec	4	170
BOSCH (NS comp.)	18.0 sec	4	20
„ (EW comp.)	18.0 sec	4	20

SEISMOLOGICAL STATION HEERLEN

The geopgraphic coordinates of the seismological station are: 50° 53'.0 N and 5° 59'.0 E.

The instrument, a horizontal seismograph, M = 450 kg, is placed at a height of 100 m above mean sea-level on a subsoil consisting of loess.

The mean values of the constants for the year 1950 are:

T	ε	V	V max.	T max.
2	3	400	600	2

EXPLANATION OF THE TABLES

The data given in this Yearbook have mostly been obtained from the GALITZIN records. The velocity of the recording paper is 30 mm per minute, allowing a good time-accuracy. Only when the earthquake was extraordinarily severe, so that the GALITZIN records could not be analyzed, the records of the WIECHERT and BOSCH seismographs were used. The velocity of the paper of these seismographs is 10 mm and 15 mm per minute respectively. Whenever the WIECHERT and BOSCH records were used, this has been mentioned in the column "remarks".

In a few cases the data from the seismograph at Heerlen are mentioned.

The time is Greenwich mean time.

In the column "direction" + means an upward movement of the soil (compression), — means a downward movement (dilatation). Uncertain data have been given in parentheses. The following symbols were used for the phases.

P = normal first phase, or first longitudinal tremor.
pP = P-wave once reflected at the earth's surface near the epicentre.
PP = P-wave reflected halfway between epicentre and station.
PPP = P-wave two times reflected at the earth's surface.
PPPP = P-wave three times reflected.
S = second phase, arrival of the transversal tremor.
sS = S-wave reflected at the earth's surface near the epicentre.
PS = wave changed from longitudinal to transversal oscillation through reflection at the earth's surface.
PPS = wave twice reflected, having been transversal on one branch of the path.
SS = S-wave reflected halfway between epicentre and station.
SSS = S-wave two times reflected at the earth's surface.
SSSS = S-wave three times reflected at the earth's surface.
PcP = P-wave reflected at the core boundary.
ScS = S-wave reflected at the core boundary.
P′ = PKP = wave having penetrated the core.

S′ = SKS = transversal wave, having been longitudinal within the core.
PKS = alternating wave having penetrated the core.
pP′ = P′-wave reflected near the epicentre.
sS′ = S′-wave reflected near the epicentre.
SKKS = altenating wave which has been reflected within the core.
L = long waves or surface waves.
M = maximum of the surface waves.
L′ = surface waves travelling around the major arc.
M′ = maximum of these waves.
i = sudden beginning of the phase.
e = gradual beginning of the phase.
F = end of discernable movement.
H = time of the shock at point of origin.
h = depth of the origin.
△ = distance of epicentre.

The indices H, N, E, and Z refer to the horizontal, north-south, east-west and vertical components of the movement.

The distance of the epicentre and the depth of origin have been calculated by means of curves constructed with the aid of the time tables of Jeffreys and Bullen (1940).

The data given in the column "amplitude" are the maximal amplitudes measured from the medium line. The amplitudes have been calculated by means of the formula:

$$V = \frac{A1\ k\ T_b}{\pi\ 1} \cdot \frac{1}{\left\{1+\left(\frac{T_b}{T}\right)^2\right\}^2}$$

In this formula A1 is the distance between galvanometer mirror and recording paper, k is the multiplying factor, T_b the period of the wave, 1 the reduced length of the pendulum, T the free period of the undamped seismograph, and V the magnification. The period of the galvonometer is assumed to be equal to the free period of the undamped seismograph.

For the horizontal components of the Galitzin records the following mean values were used: k = 11,0 and T = 24.5 sec, and for the vertical component k = 175 and T = 12.0 sec.

Whenever it was possible the amplitudes and periods of the first P- and S-waves have been given. As the movement of these waves is irregular in general, the accuracy of these data is small. The amplitudes of the maxima of L-waves have been calculated in case of very strong earthquakes.

The amplitudes have been omitted when the oscillations were very irregular.

The seismological bulletins of the following stations were available: Algeria, Alicante, Almeria, Athens, Batavia, BCIS (Bureau Central International Seismologique), Beograd, Berkeley, Bogota, Bucarest, Budapest, Dublin, Firenze, Granada, Graz, Helsinki, Helwan, Istanbul, Jena, John Carroll University

(Cleveland), JSA (Jesuit Seismological Association), Kew, Ksara, La Paz, La Plata, Harvard University, Ottawa, Paris, Pasadena, Perth, Pittsburgh, Poona, Praha, Prato, Riverview N.S.W., Roma, Santiago (Chile), Stuttgart, Tacubaya, Tamanrasset, Toledo, Trieste, Uppsala, USCGS (United States Coast and Geodetic Survey), Wellington (New Zealand), Western Samoa, Zagreb, Zurich.

THE MICROSEISMIC ACTIVITY

The table on page IX shows the character of the microseismic activity (see also 1915 p. 101 and 1916 p. 101). The numbers 0, 1, 2 and 3 mean:

0 very weak and weak
1 moderate
2 strong
3 very strong

For measuring the microseismic activity the records of the GALITZIN seismograph were used. The table below gives the amplitudes of the oscillations (measured from the medium line) and the corresponding amplitudes of the movement of the surface.

Character	Ampl. record	Ampl. surface
0	0—½ mm	0—1¼ μ
1	½—2 „	1¼—5 „
2	2—4 „	5—10 „
3	> 4 „	> 10 „

CHARACTER OF THE MICROSEISMIC MOVEMENT

Date 1950	Jan.	Febr.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1	3	1 0 1	1	1	0	1 0	0	0	1	1 0	3
2	1	3	1	1 3 2	1	0	0	0	0 1	1 2 1	0 1	3 2
3	1	3 2	1	2 1	1 0	0	0	0	1	1 2	1 2 1	2
4	1	2 1	1	1	0	0	0	0	1	2	1	2 1
5	1 2	1 2 1	1 2	1 2 1	0	0	0	0	1 2	2 1	1	1
6	2 3	1 2 1	2 1	1	0 1 0	0	0	0	2 1	1	1	1
7	3	1 2	1	1 0 1	0	0	0	0	1 2 1	1 2	1 2	1 2 1
8	3 2	2 3	1	1 2	0	0	0	0	1	2 3 2	2 3	1
9	2	3 2	1 0	2 3 2	0	0	0	0 1	1 0	2	3	1 2
10	2	2	0	2 3 2	0	0	0 1 0	1	0	2	3	2
11	2 3	2 3	0 1	2 1	0	0	0 1 0	1	0	2 1	3 2	2 3 2
12	3 2	3	1	1 0 1	0	0	0	1 0	0 1 0	1 2	2	2 1
13	2 1	3 1	1	1 0	0	0 1 0	0	0	0 1	2	2	1 2
14	1	1 0 1	1 2	0	0	0 1	0	0	1 2	2 1	2	2 1
15	1	1 2	2	0	0	1 0	0 1	0	2 1	1 0	2 1	1
16	1	2	2	0 1 0	0	0	1 2 1	0 1	1 3	0	1	1
17	1	2 1	2 3	0	0	0	1 0	1	3 2	0 1	1 2	1
18	1 0	1	3 2 3	0	0	0	0	1	2	1 0 1	2	1
19	0 1	1 0	3 2	0	0	0	0	1 0	2 1	1	2	1
20	1 0 1	0 1	2	0 1	0	0	0	0	1	1 2 1	2	1
21	1 2	1 0 1	2 1	1	0 1	0 1	0	0	1	1 0	2	1
22	2 1	1 2 1	1	1 0	1	1	0	0	1	0 1	2 1	1 2
23	1	1	1	0 1	1	1	0 1	0	1	1 0	1 0 1	2 3 1
24	1	1	1	1 2	1 0	1	1	0	1 2 1	0 1	1 0 1	1
25	1	1 2	1	2 1	0	1 0	1 0	0	1 2 1	1 2	1 0 1	1
26	1 2	2 1	1	1 0	0	0	0	0	1	2 3	1 0 1	1
27	2	1	1 0 1	0 1 0	0 1	0	0	0	1	3 2	1	1
28	2	1	1 0 1	0 2 1	1 0	0 1	0	0	1	2 1	1 2	1
29	2 3 2		1 0	1	0 1	1	0	0 1	1	1	2	1 0 1
30	2		0	1	1 0	1	0	1 0	1	1	2 3	1
31	2 3		0 1		0		0	0		1		1

Date 1950	Phase	Time	Direction	Period	Amplitude	Remarks
		h m s		s	μ	
Jan. 1 (1)	eL	16 53				(1) Disturbed by microseisms. USCGS: H. $16^h04^m32^s$, near north coast of Luzon, Pilippine Islands.
	F	17 15				
Jan. 2 (2)	eL	1 14				(2) Disturbed by microseisms. USCGS: 19° N 67½° W, H. $0^h42^m30^s$, h = about 60 km, near west coast of Puerto Rico.
	F	2 00				
Jan. 2 (3)	ePKP	15 34 00				(3) Disturbed by microseisms. BCIS: 12° S 165° E, H. $15^h14^m51^s$, h = about 150 km. USCGS: 12° S 165° E, H. $15^h14^m52^s$, h = about 200 km. JSA: 11°.0 S 164°.0 E, H. $15^h14^m38^s$. Santa Cruz Islands.
	iPP	15 36 40				
	eL	16 20				
	F	17 00				
Jan. 3 (4)	iP	3 05 00				(4) Disturbed by microseisms. JSA: 18°.0 N 121°.0 E, H. $2^h51^m55^s$. USCGS: 18° N 121½° E, H. $2^h51^m50^s$, near north coast of Luzon, Pilippine Islands.
	eS	3 15 00				
	eSS	3 22				
	eL	3 36				
	F	5 00				
Jan. 3 (5)	eL	6 55				(5) Disturbed by microseisms. Aftershock of (3). BCIS: H. $5^h46^m20^s$, h = about 150 km. USCGS: H. $5^h46^m09^s$.
	F	7 20				
Jan. 3 (6)	eL	12 00				(6) Disturbed by microseisms. BCIS: 47° S 74° W, H. $11^h06.4^m$. USCGS: H. $11^h06^m27^s$, off coast of southern Chile.
	F	12 50				
Jan. 10 (7)	eS	3 36				(7) Disturbed by microseisms. USCGS: 11° N 103½° W, H. $3^h05^m47^s$, h = about 100 km. JSA: 10°.2 N 103.9° W, H. $3^h05^m40^s$. Tacubaya: H. $3^h05^m41^s$. Off coast of Mexico.
	eL	3 45				
	F	4 15				
Jan. 10 (8)	eL	17 30				(8) Disturbed by microseisms. USCGS: H. $16^h23^m37^s$, about 150 miles south of Falkland Islands.
	F	17 50				
Jan. 12 (9)	iPKP	12 24 51	—			(9) Disturbed by strong microseisms. USCGS: 18° S 178° W, H. $12^h06^m07^s$, h = about 550 km. JSA: 17°.4 S 178°.8 W, H. $12^h06^m13^s$, h = about 550km. Fiji Islands region.
	eL	12 50				
	F	13 00				
Jan. 14 (10)	eL	0 51				(10) Disturbed by microseisms. USCGS: 4½° S 153½° E, H. $23^h52^m29^s$, New Britain region.
	F	1 15				
Jan. 17 (11)	eL	11 24				(11) Disturbed by microseisms. USCGS: 0°, 25° W, H. $10^h58^m12^s$, Atlantic Ocean.
	F	11 45				
Jan. 19 (12)	eS	17 42				(12) Disturbed by microseisms. P (under paperclip) about $17^h35^m20^s$. USCGS: 27½° N 53° E, H. $17^h27^m18^s$, near south coast of Iran; 20 killed, many injured.
	eSS	17 45				
	eL	17 51				
	eF	18 30				

Date 1950	Phase	Time	Direction	Period	Amplitude	Remarks
		h m s		s	μ	
Jan. 21 (13)	eL	15 05				(13) Disturbed by microseisms. JSA: 35°.6 S, 71°.8 W, H. $14^h09^m54^s$, h = about 100 km. USCGS: 36° S 72° W, H. $14^h09^m50^s$, h = about 100 km, off coast of central Chile.
	F	15 20				
Jan. 22 (14)	e	4 28				(14) Disturbed by microseisms. Aftershock of (12). USCGS: H. $4^h17^m15^s$.
	F	5 00				
Jan. 23 (15)	eL	10 50				(15) Disturbed by microseisms. USCGS: 10½° N. 125½° E, H. $9^h59^m52^s$, Pilippine Islands.
	F	11 20				
Jan. 24 (16)	ez	17 06 18				(16) Disturbed by microseisms. USCGS: 14½° S 167° E, H. $16^h47^m13^s$, h = about 150 km. JSA: 15°.3 S 167°.3 E, H. $16^h47^m26^s$, h = about 200 km. New Hebrides Islands.
	iPKP	17 06 30				
	iPP	17 09 29				
	iz	17 10 04				
	eSS	17 27,5				
	eL	17 51				
	F	19 00				
Jan. 25 (17)	eL	12 45				
	F	13 10				
Jan. 30 (18)	eSS	1 34				(18) Disturbed by very strong microseisms. JSA: 53°.4 S 71°.9 W, H. $0^h56^m32^s$. USCGS: 53° S 72° W, H. $0^h56^m32^s$, Southern Magellanes Province, Chile.
	eH	1 48				
	eL	1 53				
	F	3 30				
Febr. 2 (19)	eS	23 55 16				(19) Disturbed by very strong microseisms. USCGS: 22° N 100°.5 E, H. $23^h33^m37^s$. JSA: 20°.7 N 100°.0 E, H. $23^h33^m42^s$. Poona: 23° N 100° E, H. $23^h33^m39^s$. Southern China-Burma border.
	eSS	0 00				
	eSSS	0 04				
	eL	0 10				
	M	0 16		23	300	
	F	1 00				
Febr. 3 (20)	eSS	3 19				(20) Disturbed by very strong microseisms. Aftershock of (19). USCGS: H. $2^h51^m46^s$. Poona: H. $2^h51^m42^s$.
	eSSS	3 22				
	eL	3 29				
	F	4 30				
Febr. 5 (21)	eSSS	2 10				(21) Disturbed by strong microsseisms. BCIS and USCGS: 50° S 164° E, H. $1^h23^m30^s$. JSA: 48°.0 S 165°.3 E, H. $1^h23^m35^s$. Off southwest coast of New Zealand.
	eL	2 42				
	F	4 00				
Febr. 7 (22)	eL	11 19				(22) Disturbed by microseisms. BCIS and USCGS: 46° N 152° E, H. $10^h37^m22^s$. JSA: 46°.4 N 150°.6 E, H. $10^h37^m27^s$. Kurile Islands.
	F	11 45				
Febr. 8 (23)	eL	18 30				(23) Disturbed by very strong microseisms. BCIS and USCGS: 48° N 27°.5 W, H. $18^h19^m51^s$. JSA: 47°.7 N 27°.4 W, H. $18^h19^m54^s$. North Atlantic Ocean.
	F	18 35				

Date 1950	Phase	Time	Direction	Period	Amplitude	Remarks
		h m s		s	μ	
Febr. 11 (24)	e	2 10				(24) Disturbed by microseisms. BCIS: 43° S 42½° E, H. $1^h22^m09^s$. USCGS: 43° S 41° E, H. $1^h22^m02^s$. Tananarive: H. $1^h21^m54^s$. Prince Edward Islands.
	eL	2 21				
	F	2 35				
Febr. 12 (25)	eL	23 27				(25) Disturbed by microseisms. BCIS: 18°.9 S 177° E, H. $22^h14^m54^s$. USCGS: 19° S 178° E, H. $22^h14^m54^s$. JSA: 19°.6 S 178°.0 E, H. $22^h15^m00^s$. Fiji Islands region.
	F	0 20				
Febr. 15 (26)	eL	0 07				(26) Disturbed by microseisms. USCGS: H. $23^h12^m58^s$. Fiji Islands region.
	F	0 20				
Febr. 22 (27)	e	12 20				(27) Disturbed by microseisms.
	F	12 40				
Febr. 25 (28)	e	6 19				(28) Disturbed by microseisms. BCIS: H. $5^h47^m06^s$. USCGS: 45½° N 99° E, H. $5^h47^m09^s$. Southwestern Mongolia.
	eL	6 23 40				
	F	6 40				
Febr. 25 (29)	eL	10 36				(29) Disturbed by microseisms. BCIS and USCGS: 28° N 131° E, H. $9^h51^m34^s$. Ryukyu Islands region.
	F	11 10				
Febr. 28 (30)	iP	10 32 11	+	4	10	(30) BCIS: 46°.2 N 143°.5 E, H. $10^h20^m58^s$, h = 340 km. USCGS: 46° N 143½° E, H. $10^h20^m58^s$, h = about 350 km. Poona: 49° N 144° E, H. $10^h20^m57^s$, h = about 360 km. JSA: 45.°8 N 143.°4 E, H. $10^h21^m03^s$, h = about 350 km. Off north coast of Hokkaido, Japan.
	epP	10 33 25				
	iz	10 34 05	—			
	iPP	10 35 12	+			
	iPPP	10 37 01	+			
	epPPP	10 38 06	+			
	ez	10 39 46				
	iS	10 41 25				
	isS	10 43 51				
	iH	10 46 24				
	eH	10 51 55				
	eL	10 57				
	F	13 30				
March 1 (31)	eL	9 16				(31) Disturbed by microseisms. BCIS: 45° S 95° E, H. $8^h23^m,7^s$. USCGS: 45° S 96° E, H. $8^h23^m53^s$, South Indian Ocean.
	F	10 30				
March 2 (32)	ePS	19 10,0				(32) Disturbed by microseisms. BCIS and USCGS: 61° S 35° W, H. $18^h39^m46^s$. JSA: 57°.9 S 30°.0 W, H. $18^h39^m38^s$. Sandwich Islands region.
	eSS	19 16,0				
	eL	19 31,5				
	eL′	20 50				
	F	21 15				
March 3 (33)	ePKP	11 03,9				(33) Disturbed by microseisms. BCIS: 25° S 177½° W, H. $10^h43,7^m$. USCGS: 28° S 175½° W, H. $10^h43^m31^s$. Kermadec Islands region.
	eL	12 07				
	F	13 15				
March 5 (34)	eL	0 58				(34) Disturbed by microseisms. BCIS: 39½° N 72° E, H. $0^h32^m40^s$. USCGS: 39° N 71° E, H. $0^h32^m40^s$. Southeastern Turkistan.
	F	1 05				

Date 1950	Phase	Time	Direction	Period	Amplitude	Remarks
		h m s		s	μ	
March 7 (35)	(eP	2 21 22)				(35) Disturbed by microseisms.
	iP	2 21 33				BCIS: 10½° N 122½° E, H. 2h07m50s.
	ePP	2 25 32				USCGS: 11° N 122½° E, H. 2h07m54s.
	iSKS	2 32 00				JSA: 10°.3 N 121°.8 E, H. 2h07m52s.
	eSS	2 40 00				Panay Island, Pilippine Islands. Felt in Ilo Ilo.
	eL	2 54				F in next shock.
March 7 (36)	eS	4 10 24				(36) Disturbed by microseisms. BCIS: 42½° N 13½° E,
	F	4 45				H. 4h05m38s. Gran Sasso region, Italy.
March 8 (37)	iPn	4 27 34				(37) BCIS: 50°.6 N 6°.4 E, H. 4h27m05s.
	iP*	4 27 39				Near Euskirchen, Rhineland.
	iS*	4 27 59				
	iSg	4 28 04				
	F	4 29				
March 9 (38)	eP	10 14 05				(38) Disturbed by microseisms.
	eS	10 22,5				BCIS and USCGS: 16° N 60° W, H. 10h03m39s.
	eL	10 33				JSA: 16°.3 N 61°.0 W, H. 10h03m43s.
	F	10 50				Lesser Antilles Islands.
March 14 (39)	eS	16 43,5				(39) Disturbed by microseisms.
	eL	16 50				BCIS: 1° S 24° W, H. 16h25,0m. USCGS: 1° S 24° W,
	F	17 10				H. 16h25m03s. Mid-Atlantic Ocean.
March 18 (40)	eL	5 35				(40) Disturbed by very strong microseisms. BCIS:
	F	5 50				57° S 24° W, H. 4h39,6m.
						USCGS: 56° S 23° W, H. 4h39m39s. Sandwich Islands region.
March 22 (41)	e	12 01				(41) Disturbed by microseisms. BCIS and USCGS:
	F	13 10				49° N 28° W, H. 12h50m42s. North Atlantic Ocean.
March 22 (42)	eL	21 54				(42) Disturbed by microseisms. USCGS: H. 21h07m25s.
	F	22 15				Near north coast of Formosa.
March 24 (43)	e	1 05				(43) Disturbed by microseisms. Probably aftershock
	F	1 10				of (41). BCIS: H. 0h52,6m.
March 25 (44)	eL	7 42				
	F	8 05				
March 25 (45)	eL	23 44				(45) Disturbed by microseisms.
	F	0 30				USCGS: 21½° S 69° W, H. 22h22m06s. Northern Chili.
March 26 (46)	e	17 16				(46) Disturbed by microseisms. BCIS: 15¾° S 40¾° E,
	F	17 55				H. 16h53.4m. USCGS: H. 16h53m13s. Southern Red Sae.
March 27 (47)	e	11 31				
	F	11 35				

Date 1950	Phase	Time	Direction	Period	Amplitude	Remarks
		h m s		s	μ	
March 27 (48)	iP	13 15 46				(48) BCIS and USCGS: 53½° N 173° E, H. 13h04m10s,
	iS	13 25 20				h = about 60 km.
	eSS	13 30.0				JSA: 53°.3 N 172°.6 W, H. 13h04m07s.
	eL	13 36				Aleutian Islands region.
	F	15 05				
March 27 (49)	(eP	21 32.3)				(49) BCIS: 6° S 102½° E, H. 21h18m32s.
	eSKS	21 42 58				USCGS: 5° S 103° E, H. 21h18m32s.
	eS	21 43.8				Poona: 6°.5 S 101° E, H. 21h18m36s.
	eSS	21 50.5				JSA: 5°. 3 S 103°.1 E, H. 21h18m43s, h = about 100 km.
	eL	22 10				Near south coast of Sumatra.
	F	24 00				
March 29 (50)	eL	14 20				(50) BCIS and USCGS: 26½° S 176½° W, H. 12h52m55s.
	F	14 35				Kermadec Islands region.
March 29 (51)	ePP	18 01.0				(51) BCIS: 3° S 138½° E, H. 17h41m07s, h = 100 km.
	eSS	18 17.5				USCGS: 3° S 138½° E, H. 17h41m10s. JSA: 3°.2 S
	eL	18 34				139°.0 E, H. 17h41m11s. Northern New Guinea.
	F	19 25				
March 30 (52)	e	17 00				(52) Disturbed by microseisms. BCIS and USCGS:
	F	17 10				40½° N 30° W, H. 16h47m40s. Azores Islands region.
April 1 (53)	e	3 04				(53) Disturbed by microseisms.
	F	3 30				
April 2 (54)	eL	3 50				(54) Disturbed by microseisms.
	F	4 15				
April 4 (55)	eL	4 29				(55) Disturbed by microsiesms. BCIS and USCGS:
	F	5 00				30° N 130°½ E, H. 3h42m46s.
						Off coast of southern Kyuschu, Japan.
April 4 (56)	eP	18 53 44				(56) Disturbed by microseisms.
	eS	19 01 26				BCIS and USCGS: 52° N 101° E, H. 18h44m10s.
	eL	19 10				JSA: 49° N 102° E, H. 18h44m17s, h = about 100 km.
	M	19 16		16	400	Poona: 51°0 N 102°.0 E, H. 18h44m10s. Near border of
	F	21 00				USSR and Outer Mongolia, about 100 miles west of Lake Baikal.
April 5 (57)	e	1 49				(57) Disturbed by microseisms. BCIS and USCGS:
	F	2 45				52° N 177° W, H. 1h17m15s. JSA: 51°.8 N 177°.3 W, H. 1h17m19s. Aleutian Islands region.
April 5 (58)	eL	18 26				(58) Disturbed by microseisms. BCIS and USCGS:
	F	18 35				54° N 36° W, H. 18h13m53s. 600 miles south of Greenland.
April 6 (59)	e	3 05				(59) Disturbed by microseisms. BCIS: 38° N 60° W,
	F	3 25				H. 2h43.3m. Iran-Turkmen border.

Date 1950	Phase	Time	Direction	Period	Amplitude	Remarks
		h m s		s	μ	
April 13	eS	12 01.5				(60) USCGS:
(60)	eL	12 04				BCIS and USCGS: 39° N 27° W, H. $11^h51^m15^s$.
	F	12 15				Azores Islands.
April 13	e	15 46				(61) BCIS: 49°.3 N 2°.3 W, H. $15^h36^m39^s$. Near Chan-
(61)	F	15 50				nel Islands, felt at Jersey.
April 14	ePP	20 21 00				(62) BCIS and USCGS: 36° S 103° W, H. $19^h59^m\ 58^s$
(62)	ePS	20 31 00				JSA: 36°.0 S 102°.0 W, H. $20^h00^m00^s$.
	eSS	20 38.7				600 miles south of Easter Island.
	eL	21 00				
	F	22 30				
April 14	e	23 50				
(63)	F	24 05				
April 15	eP	15 03 44				(64) BCIS and USCGS: 14° N 91° W, H. $14^h51^m25^s$,
(64)	eL	15 27				h = 100 km. JSA: 13°.7 N 91.°0 W, H. $14^h51^m26^s$
	F	16 15				h = about 100 km. Tacubaya: 13° 48′ N 91° 47′ W,
						h deeper than normal. Near coast of Guatemala.
April 16	eL	22 23				(65) BCIS: 49° N 128½° W, H. $21^h48^m02^s$. USCGS:
(65)	F	22 40				49° N 129° W, H $21^h48^m02^s$. JSA: 49°.0 N 128°.6 W,
						H. $21^h48^m04^s$. Off coast of Vancouver Island.
April 18	ez	15 23				(66) Disturbed by visitors. BCIS and USCGS: 4½° S
(66)	F	16 30				106 °W, H. $14^h31^m36^s$. JSA: 4°.6 S 105°.3 W, H. 14^h31^m
						46^s. About 1000 miles southwest of Galapagos Islands.
April 20	iP	10 02 52	+			(67) USCGS: 45° N 150° E, H. $9^h50^m44^s$.
(67)	eS	10 12.7				JSA: 45°.8 N 149°.9 E, H. $9^h51^m01^s$, h = about 50 km.
	eSSS	10 22				CMO: 42°.5 N 148°.6 E.
	eL	10 26				Kurile Islands region.
	F	11 15				
April 20	iP	17 23 30	—			(68) BCIS: 33°.9 N 2°.1 E.
(68)	eS	17 27 12				USCGS: 34° N 3° E, H. $17^h19^m14^s$.
	eL	17 29				JSA: 34°.3 N 2°.4 E, H. $17^h19^m20^s$.
	F	18 00				Jebel Amour, Algeria.
April 26	iP	7 17 24	—			(69) h = 60 km.
(69)	ipP	7 17 38				BCIS and USCGS: 34° N 135° E, H. $7^h04^m48^s$, h
	eS	7 27 43				slightly deeper than normal. JSA: 34°.4 N 135°.8 E,
	esS	7 27 59				H. $7^h05^m02^s$, h = about 50 km.
	eSS	7 33.3				CMO: 33°.8 N 135°.8 E.
	eL	7 41				Off south coast of Honshu, Japan.
	F	8 30				
April 26	e	19 41				(70) BCIS: 45° N 150° E, H. $18^h57^m02^s$, h = 200 km.
(70)	F	20 00				Kurile Islands.

Date 1950	Phase	Time	Direction	Period	Amplitude	Remarks
		h m s		s	μ	
May 3	eP	7 18 12				(71) BCIS: 38°.7 N 27°.0 E, H. $7^h13.7^m$.
(71)	eS	7 22.2				Istanbul: 38° 36′ N 27° 03′ E.
	eL	7 24				Menemen, Turkey.
	F	7 35				
May 7	ez	4 50 54				(72) BCIS: Southwest Pacific Ocean.
(72)	F	4 53				
May 7	ePKP	6 56.0				(73) BCIS: 57° S 148° E, H. $6^h36^m03^s$.
(73)	ePP	7 00 28				USCGS: H. $6^h36^m05^s$.
	eSS	7 20				Macquarie Island region.
	eL	7 56				
	F	9 00				
May 7	e	10 50				
(74)	F	11 00				
May 9	iP	6 19 50	—			(75) BCIS: 12½° N 48½° E, H. 6^h10^m 30-31^s.
(75)	eS	6 27 12				USCGS: H. $6^h10^m30^s$.
	eL	6 35				Gulf of Aden.
	F	7 50				
May 9	eP	9 25 42				(76) BCIS: 38° N 40° E, H. $9^h19^m50^s$.
(76)	eS	9 30 30				USCGS: 38° N 38° E, H. $9^h20^m00^s$.
	eL	9 34				Eastern Turkey.
	F	10 00				
May 9	iP	11 24 27				(77) BCIS: 38½° N 58¾° E, H. 11^h16^m56-57^s.
(77)	iPP	11 25 55				USCGS: 41° N 58° E, H. $11^h17^m10^s$.
	eS	11 30 26				JSA: 39°.4 N 57°.2 E, H. $11^h17^m06^s$.
	eSS	11 32 54				Near Ashkhabad, Turkmen.
	eL	11 36				
	F	13 50				
May 10	e	2 16 50				
(78)	F	2 20				
May 10	(eP	22 35 05)				(79) BCIS: 22°.2 N 5°.4 W, H. $22^h30^m30^s$. Marocco.
(79)	eL	22 40				
	F	22 50				
May 10	eP	23 51 12				(80) BCIS: 16½° S 41¾° E, H. $23^h39^m23^s$.
(80)	ePP	23 54 05				USCGS: 15° S 43° E, H. $23^h39^m25^s$.
	ePPP	23 56.0				JSA: 15°.0 S 44°.2 E, H. $23^h29^m39^s$.
	eS	0 00 51				Pretoria: 17° S 41° E, H. $23^h29^m21^s$.
	eL	0 13				Madagaskar region.
	F	2 40				
May 12	eL	22 20				(81) USCGS: 5° S 145° E H. $21^h21^m25^s$.
(81)	F	22 40				Near southeast coast of New Guinea.

Date 1950	Phase	Time	Direction	Period	Amplitude	Remarks
		h m s		s	μ	
May 13 (82)	e	19 09				
	F	19 28				
May 14 (83)	e	20 00				(83) BCIS and USCGS: 38° N 142° E, H. 19h17m16s. Off northeast coast of Honshu, Japan.
	F	20 15				
May 15 (84)	e	5 04				
	F	5 11				
May 16 (85)	ePP	17 42 51				(85) BCIS: 6° S 152½° E, H. 17h21m50s. USCGS: 6° S 151° E, H. 17h21m45s. JSA: 6½° S 154° E, H. 17h21m55s. New Britain region.
	ePPP	17 54 30				
	F	18 45				
May 17 (86)	eL	6 02				
	F	6 40				
May 17 (87)	iP	11 57 47	—			(87) BCIS: 39°.4 N 129°.9 E, H. 11h46m49s, h = about 600 km. USCGS: 39° N 130½° E, H. 11h46m46s, h = about 600 km. JSA: 39°.2 N 130°.5 E, H. 11h47m00s, h = about 630 km. CMO: 39°.9 N 130.9° E, h = about 550 km. Sea of Japan, off east coast of Korea.
	ipP	11 59 46	—			
	iPP	12 00 55				
	iS	12 06 50				
	esS	12 10 26				
	F	13 00				
May 17 (88)	iPKP	18 32 54	+			(88) BCIS and USCGS: 20° S 169° E, H. 18h13m13s. JSA: 30°.8 S 169°.3 E, H. 18h13m19s, h = about 50 km. New Hebrides Islands region.
	iz	18 33 09				
	iPP	18 36 18				
	ePPP	18 39 30				
	eSS	18 54 30				
	eL	19 15				
	F	21 00				
May 19 (89)	iPKP	2 57 54				(89) Aftershock of (88). USCGS: 20½° S 169° E, H. 2h38m10s. JSA: 20°.9 S 169°.0 E, H. 2h38m16s.
	iPP	3 01 17				
	eSS	3 20.2				
	eSSS	2 25.5				
	eL	3 50				
	F	5 30				
May 19 (90)	ePKP	7 25 13	+			(90) Aftershock of (88). USCGS: H. 7h05m31s. JSA: 20°.4 S 168°.7 E, H. 7h05m32s.
	ez	7 26 37				
	ePP	7 28 27				
	eSS	7 47 50				
	eL	8 15				
	F	9 30				
May 20 (91)	e	9 53				(91) BCIS: 28°.5 N 43°.3 W, H. 9h37m25s. USCGS: 29° N 43½° W, H. 9h37m27s. North Atlantic Ocean.
	eL	9 55				
	F	10 20				

Date 1950	Phase	Time	Direction	Period	Amplitude	Remarks
		h m s		s	μ	
May 21 (92)	e	19 28				(92) USCGS: 14° S 72° W, H. 18h37m41s. JSA: 13°.3 S 71°.8 W, H. 18h37m48s. Heavy damage at Cuzco, Peru.
	F	19 40				
May 21 (93)	ePKP	22 02 28				(93) Aftershock of (88). USCGS: H. 21h42m46s. F in next shock.
	eSS	22 51				
May 21 (94)	iPKP	23 34 19				(94) Aftershock of (88). USCGS: 19½° S 168° E, H. 23h14m39s. No records from May 22 7h57m till 16h12m.
	F	1 05				
May 23 (95)	eL	13 15				(95) BCIS: 60° S 20° W, H. 12h17.9m.
	F	13 25				
May 24 (96)	iPKP	4 15 36				(96) Aftershock of (88). USCGS: H. 3h55m55s.
	iz	4 15 47				
	eL	5 10				
	F	5 50				
May 24 (97)	eL	13 24				(97) Disturbed by visitors. BCIS: 15½° N 60½° W, H. 12h54m40s. USCGS: 16½° N 58½° W, H. 12h54m40s. Off southeast coast of Dominican Republic.
	F	13 33				
May 25 (98)	eP	18 49 33				(98) BCIS: 12°.6 N 143°.7 E, H. 18h34m58s. USCGS: 13° N 142½° E, H. 18h35m00s, h = about 100 km. JSA: 12°.9 N 143°.2 E, H. 18h35m02s, h = about 60 km. About 150 miles west of Guam.
	epP	18 49 46				
	iPP	18 53 57				
	epPP	18 54 08				
	eSKS	18 59 42				
	eSKKS	19 00 24				
	iPS	19 02 37				
	ez	19 03 10				
	eSS	19 09				
	eL	19 22				
	F	21 00				
May 26 (99)	iPKP1	1 36 48	+			(99) USCGS: 20° S 169° E, H. 1h17m14s, h = about 100 km. JSA: 20°.0 S 168°.7 E, H. 1h17m18s, h = about 100 km. New Hebrides Islands region.
	iPKP2	1 37 00				
	ipPKP1	1 37 20				
	iPP	1 40 26	+			
	eN	1 48 10				
	eSS	1 59 30				
	eL	2 17				
	F	5 00				
May 26 (100)	ePKP	17 58 56				(100) Aftershock of (99). USCGS: H. 17h39m14s.
	eL	19 00				
	F	19 25				
May 27 (101)	iPKP	11 06 17				(101) Aftershock of (99). USCGS: H. 10h46m29s.
May 27 (102)	iPKP	12 04 34				(102) Aftershock of (99). USCGS: H. 11h44m52s.

Date 1950	Phase	Time	Direction	Period	Amplitude	Remarks
		h m s		s	μ	
May 27 (103)	iPKP	12 59 04	+			(103) Aftershock of (99). USCGS: H. $12^h39^m43^s$, h = about 200 km.
	ipPKP	13 00 00	—			
	eL	13 44				
	F	15 05				
May 28 (104)	iPKP	1 56 28	—			(104) Aftershock of (99). USCGS: H. $1^h36^m44^s$. JSA: H. $1^h36^m50^s$.
	iPP	1 59 55	(+)			
	eL	2 50				
	F	4 00				
May 30 (105)	e	10 08				(105) BCIS: 35½° N 27½° E, H. $9^h52.6^m$. Athens: felt at Rhodos and Karpathos.
	F	10 12				
May 30 (106)	ePKP	15 22 48				(106) BCIS and USCGS: 20° S 178½° W, H. $15^h04^m03^s$, h = about 600 km. Tonga Islands region.
	ipPKP	15 25 08				
	ePP	15 26 06				
	ePPP	15 29 25				
	eSS	15 44.5				
	F	16 00				
May 31 (107)	eP	13 25.7				(107) BCIS and USCGS: 31° N 130° E, H. $13^h13^m09^s$. Off southern coast of Kuyshu, Japan.
	eS	13 36.5				
	eL	13 55				
	F	14 40				
June 3 (108)	eL	0 30				
	F	0 43				
June 4 (109)	ePP	7 48.0				(109) BCIS and USCGS: 7° N 126° E, H. $7^h29^m44^s$. Near east coast of Mindanao, Philippine Islands.
	e(S)	7 54 30				
	eL	8 18				
	F	9 30				
June 4 (110)	eL	14 23				(110) BCIS: 36½° N 28½° E, H. $14^h11.0^m$. Near Rhodos, Mediterranean Sea.
	F	14 30				
June 4 (111)	iPKP	15 37 56				(111) BCIS: 22° S 170¼° E, H. $15^h18^m21^s$, h = about 100 km. USCGS: 21° S 170½° E, H. $15^h18^m20^s$, h = about 100 km. Loyalty Islands region.
	ez	15 38 32				
	ePP	15 41 27				
	eSS	16 00.5				
	eL	16 30				
	F	16 55				
June 5 (112)	eP	11 23 15				(112) BCIS and USCGS: 87° N 45° E, H. $11^h16^m12^s$. JSA: 87° N 50° E, H. $11^h16^m16^s$. North Polar region.
	ePP	11 24 45				
	eS	11 29 00				
	eL	11 33				
	F	12 20				

Date 1950	Phase	Time	Direction	Period	Amplitude	Remarks
		h m s		s	μ	
June 7 (113)	iP	17 05 18	—			(113) USCGS: 4° S 76½° W, H. $16^h52^m34^s$, h = about 100 km. JSA: 4°.1 S 76°.4 W, H. $16^h52^m39^s$, h = about 120 km. Northern Peru.
	ipP	17 05 50	—			
	ePP	17 08 35				
	eH	17 15 36				
	iS	17 15 56				
	iH	17 16 38				
	isS	17 16 45				
	eH	17 18 00				
	F	18 30				
June 8 (114)	iP	16 21 17				(114) BCIS: 47¾° S 14¾° W, H. $16^h07^m43^s$, h = about 150 km. USCGS: 45½° S 15° W, H. $16^h07^m33^s$, possibly deeper than normal. JSA: 44°.0 S 15°.9 W, H. $16^h07^m36^s$. South of Tristan de Cunha.
	ePP	16 25 13				
	eSKS	16 32 00				
	eS	16 33 00				
	eSS	16 39.5				
	eL	16 52				
	F	19 20				
June 11 (115)	eL	4 21				
	F	4 50				
June 11 (116)	e	14 01				(116) BCIS and USCGS: 22° S 69½° W, H. $13^h34^m45^s$, h = about 100 km. JSA: 21° S 67°.8 W, H. $13^h34^m51^s$, h = about 100 km. Northern Chile.
	F	14 04				
June 11 (117)	e	18 08				(117) BCIS and USCGS: 32° N 138½° E, H. $17^h19^m44^s$. South of Honshu, Japan.
	F	18 40				
June 11 (118)	eP	22 31 05				(118) BCIS: 58° S 148° E, H. $22^h11^m06^s$. USCGS: H. $22^h11^m12^s$. South Pacific, 1200 miles southwest of New Zealand.
	eSS	22 55				
	eL	23 32				
	F	0 30				
June 12 (119)	eL	15 25				(119) BCIS: 10° S 155° E, H. $14^h09^m50^s$. USCGS: 10° S 153½ E, H. $14^h09^m44^s$. Solomon Islands region.
	F	15 35				
June 14 (120)	iPKP	4 03 57				(120) BCIS and USCGS: 18½° S 174½° W, H. $3^h44^m10^s$. Tonga Islands region.
	ePP	4 06 50				
	eL	4 58				
	F	6 15				
June 15 (121)	e	7 51				(121) BCIS and USCGS: 12½° N 44½° W, H. $7^h21^m18^s$. Mid-Atlantic Ocean. Change of papers from 7^h24^m till 7^h38^m.
	F	7 59				
June 17 (122)	eP	22 49 54				(122) BCIS and USCGS: 36° N 140½° E, H. $22^h37^m24^s$. Near east coast of Honshu, Japan.
	eS	23 00 21				
	eL	23 20				
	F	0 05				
June 18 (123)	e	13 19				
	F	13 50				

Date 1950	Phase	Time	Direction	Period	Amplitude	Remarks
		h m s		s	μ	
June 19 (124)	eP	12 51.4				(124) BCIS: 6¼° S 112½ E, H. 12h36m54-55s. USCGS: 8° S 112° E, H. 12h36m58s. JSA: 7½° S 111° E, H. 12h37m05s. Eastern Java.
	eSKS	13 01.8				
	ePS	13 05.0				
	eL	13 25				
	F	15 30				
June 21 (125)	iPKP	7 15 21	+			(125) USCGS: 21° S 169° E, H. 6h55m39s. JSA: 20°.9 S 169°.1 E, H. 6h55m45s. Aftershock of (99). New Hebrides Islands region. Change of papers from 7h36m till 7h49m. F in next shock.
	iPP	7 18 47				
	ez	7 19 40				
	eL	8 10				
June 21 (126)	ePP	10 16 33				(126) BCIS and JSA: 3°.8 S 146°.4 E, H. 9h56m03s. USCGS: 3½° S 147° E, H. 9h56m00s. Off northeast coast of New Guinea.
	ePPP	10 19 08				
	ePS	10 26 19				
	eSS	10 33				
	eSSS	10 37 40				
	eL	10 53				
	F	12 30				
June 21 (127)	e	12 40				(127) North Atlantic Ocean?
	F	13 00				
June 24 (128)	iPKP	22 45 15	+			(128) USCGS: 19½° S 168½° E. H. 22h25m31s. JSA: 20°.8 S 169°.6 E, H. 22h25m43s, h = about 100 km. New Hebrides Islands region.
	iPP	22 48 36	(+)			
	e(SKSP)	22 58 48				
	eSS	23 07 48				
	eSSS	23 13				
	eL	23 27				
	F	2 00				
June 25 (129)	eP	11 20.2				(129) USCGS: 5° N 127° E, H. 11h05m51s. JSA: 5°.0 N 126°.2 E, H. 11h05m54s. Poona: 6°.5 N 126°.5 E, H. 11h06m00s. Off southeast coast of Mindanoa, Philippine Islands.
	ePP	11 24 35				
	eSKS	11 30 43				
	eS	11 31 50				
	ePS	11 33.2				
	eSS	11 39.5				
	eL	11 55				
	F	12 40				
June 27 (130)	iP	15 53 40	+			(130) BCIS and USCGS: 45½° N 140° E, H. 15h41m54s. JSA: 44°.7 N 139°.8 E, H. 15h41m56s. Off northwest coast of Hokkaido, Japan.
	eS	16 03 30				
	eSSS	16 22				
	eL	16 17				
	F	17 45				
June 28 (131)	e	23 33				(131) BCIS: 43°.1 N 2°.6 E, H. 23h27m22s, h = 20-30 km. Department of Aude, France.
	F	23 35				
June 29 (132)	eP	23 43 26				(132) BCIS: 47° N 153° E. USCGS: H. 23h31m26s. Kurile Islands region.
	e	0 15				
	F	0 40				

Date 1950	Phase	Time	Direction	Period	Amplitude	Remarks
		h m s		s	μ	
July 2 (133)	eP	23 01.1				(133) USCGS: 4° N 73½° W, H. 22h49m24s. JSA: 4°.0 N 74°.1 W, H. 22h49m27s. Central Colombia, felt at Bogota.
	eS	23 11.5				
	eL	23 25				
	F	23 58				
July 3 (134)	ePP	10 22 33				(134) USCGS: 8½° N 141° E, H. 10h03m36s. JSA: 8°.8 N 140°.3 E, H. 10h03m42s. Caroline Islands.
	ePPP	10 24 39				
	eSKS	10 28 44				
	eS	10 30.3				
	ePS	10 31 56				
	eSS	10 38				
	eSSS	10 42				
	eL	10 54				
	F	12 30				
July 3 (135)	ePKP	12 49 04				(135) BCIS: 24½° S 176° W, H. 12h29m33s, h = 200 km. USCGS: 24° S 176° W, H. 12h29m13s. Tonga Islands region.
	F	12 50				
July 5 (136)	iPKP	3 54 41	+			(136) BCIS: 20° S 168° E, H. 3h35m01s, h = 100 km. USCGS: 19° S 168° E, H. 3h34m59s. New Hebrides Islands.
	eL	4 50				
	F	5 50				
July 6 (137)	eL	7 29				
	F	7 47				
July 7 (138)	ePKP	17 06 17				(138) USCGS: 11° S 164° E, H. 16h46m54s. JSA: 11°.7 S 164°.0 E, H. 16h46m57s. Solomon Islands.
	iPP	17 08 53	(+)			
	iPPP	17 11 51				
	eSKS	17 13 22				
	eSKKS	17 16 11				
	eSS	17 26				
	eSSS	17 32				
	eL	17 50				
	F	19 45				
July 8 (139)	eL	7 17 30				(139) BCIS: 39°.3 N 25°.8 E, H 7h07m30s. Felt at Lesbos, Aegean Sea.
	F	7 28				
July 9 (140)	eP	0 37 29				(140) BCIS: 25°.0 N 63°.3 E, H. 0h28m23s. USCGS: 25½° N 63° E, H. 0h28m24s. Pakistan.
	ePP	0 39 33				
	eS	0 44 46				
	eSS	0 48 50				
	eL	0 53				F in next shock.
July 9 (141)	ePKP	1 58 47				(141) USCGS: 33° S 112° W, H. 1h39m29s. JSA: 32°.2 S 111°.2 W, H. 1h39m40h. About 500 miles southeast of Easter Island.
	ePP	2 00 57				
	ePKS	2 02 15				
	ePS	2 11.2				
	eSS	2 19				
	eL	2 40				F in next shock.

Date 1950	Phase	Time	Direction	Period	Amplitude	Remarks
		h m s		s	μ	
July 9 (142)	eH	3 49 08				
	eH	3 53 12				
	F	4 30				
July 9 (143)	iP	4 51 51	—			(143) USCGS: 8° S 71° W, H. $4^h40^m03^s$, h = about 650 km. JSA: 8°.3 S 70°.2 W, H. $4^h40^m10^s$, h = about 650 km. Western Brazil.
	ipP	4 54 09				
	iPP	4 55 20				
	iS	5 01 23				
	iN	5 01 46				
	esS	5 05 30				
	eH	5 05 48				
	F	7 00				
July 9 (144)	iP	9 56 53				(144) Aftershock of (143). USCGS: 8° S 72° W, H. $9^h45^m01^s$, h = about 650 km. JSA: H. $9^h45^m07^s$.
	ez	9 58 30				
	epP	9 59 07				
	ePP	10 00 11				
	eS	10 06 44				
	esS	10 10 33				
	F	11 00				
July 9 (145)	iP	16 18 39	+			(145) USCGS: 36½° N 71° E, H. $16^h10^m20^s$, h = about 220 km. JSA: 36°.6 N 70°.3 E, H. $16^h10^m25^s$, h = about 220 km. Hindu Kush.
	ipP	16 19 50	—			
	ipPP	16 21 37				
	iS	16 25 23				
	eH	16 26 33				
	eSS	16 29 12				
	F	17 45				
July 10 (146)	eP	5 46.4				(146) Disturbed by microseisms. BCIS: 18° S 64° E, H $5^h33.5^m$. USCGS: H. $5^h33^m32^s$. Indian Ocean, about 400 miles north of Rodriguez Island.
	eL	6 09				
	F	7 30				
July 12 (147)	eP	11 21 01				(147) Disturbed by microseisms. USCGS: 53° N 167° W, H. $11^h09^m12^s$. JSA: 52°.0 N 166°.4 W, H. $11^h09^m21^s$, h = about 60 km. Fox Island, Aleutian Islands.
	eS	11 30 52				
	eL	11 45				
	F	13 00				
July 13 (148)	eP	4 16 08				(148) USCGS: 27½° N 139½° E, H. $4^h03^m50^s$, h = about 500 km. CMO: 28°.2 N 139°.9 E, H. 4^h05^m, h = about 550 km. Bonin Islands region.
	epP	4 18 01				
	eS	4 26 15				
	ePS	4 27 28				
	esS	4 29 26				
	eSS	4 32 35				
	eL	4 50				
	F	5 30				
July 17 (149)	ePKP	20 37 33				(149) USCGS: 21½° S 171° E, H. $20^h17^m55^s$, h = about 100 km. JSA: 22°.3 S 171°.8 E, H. $20^h17^m50^s$. Loyalty Islands.
	ePP	20 41 05				
	ePKS	20 41 36				
	ePPP	20 44 21				
	F	20 45				

Date 1950	Phase	Time	Direction	Period	Amplitude	Remarks
		h m s		s	μ	
July 18 (150)	eL	2 12				(150) USCGS: 35° N 136° E, H. $1^h33^m12^s$. Southern Honshu, Japan.
	F	2 50				
July 18 (151)	eL	17 15				(151) BCIS: H. $16^h25.0^m$. Probably Halmahera, Molucca Islands.
	F	17 55				
July 19 (152)	eL	5 46				
	F	5 55				
July 19 (153)	eP	11 04 49				(153) USCGS: H. $10^h52^m09^s$, h = about 150 km. Andreanof Islands, Aleutian Islands.
	eL	11 40				
	F	12 00				
July 20 (154)	iPKP	9 50 20				(154) USCGS: 16½° S 173° E, H. $9^h30^m45^s$. JSA: 16°.5 S 173°.0 E, H. $9^h30^m51^s$. Fiji Islands region.
	iPP	9 53 36				
	eSS	10 12.5				
	eL	10 30				
	F	12 00				
July 20 (155)	eL	17 44				
	F	18 05				
July 21 (156)	iPKP	20 51 29				(156) USCGS: 15½° S 168½° E, H. $20^h31^m59^s$. JSA: 16°.0 S 168°.4 E, H. $20^h32^m06^s$, possibly deeper than normal. New Hebrides Islands.
	ePP	20 54 19				
	ePKS	20 55 15				
	eSS	21 13.2				
	eL	21 41				
	F	23 00				
July 22 (157)	iPKP	23 27 26				(157) USCGS: H. $23^h07^m58^s$. New Hebrides Islands region.
	iPP	23 30 18				
	eSS	23 48				
	eL	0 16				
	F	1 20				
July 25 (158)	iP	18 22 44				(158) Disturbed by microseisms. USCGS: 31° N 42° W, H. $18^h15^m00^s$. JSA: 30°.7 N 42°.1 W, H. $18^h15^m03^s$. Mid-Atlantic Ocean.
	ePP	18 24 20				
	eS	18 28 50				
	eL	18 34				
	F	19 15				
July 28 (159)	ePKP	5 14 44				(159) USCGS: 13° S 167° E, H. $4^h55^m13^s$. New Hebrides Islands.
	ePP	5 17 33				
	eSS	5 35 50				
	eSSS	5 41				
	eL	6 01				
	F	7 50				
July 28 (160)	eL	18 33				(160) BCIS and USCGS: 33°07′ N 115°.34′ W, H. $17^h50^m48^s$. Near Calipatria, California.
	F	19 30				

Date 1950	Phase	Time	Direction	Period	Amplitude	Remarks
		h m s		s	μ	
July 29 (161)	eS	14 49.0				(161) BCIS and USCGS: 33°07′ N 115°34′ W, H. $14^h 36^m 32^s$. JSA: 33°01′ N 115°37′ W, H. $14^h 36^m 32.0^s$. Near Calipatria, California.
	e	15 15				
	F	15 55				
July 29 (162)	eP	17 00 13				(162) USCGS: 2½° N 127½° E, H. $16^h 45^m 56^s$. JSA: 2°.6 N 127°.2 E, H. $16^h 45^m 58^s$. Molucca Passage.
	iSKS	17 10 47				
	iPS	17 13 46				
	eSS	17 20.0				
	eL	17 35				
	F	19 00				
July 30 (163)	iPKP	0 08 07				(163) USCGS: 6° S 155° E, H. $23^h 48^m 58^s$. JSA: 6°.8 S 155°.1 E, H. $23^h 49^m 08^s$, h = about 75 km. Solomon Islands.
	iPP	0 10 09				
	ePKS	0 11 24				
	eSS	0 27.7				
	eL	0 45				
	F	3 00				
July 30 (164)	iz	0 24 43				
July 31 (165)	e	18 36				(165) BCIS: 37.°9 N 20°.8 E, H. $18^h 28.8^m$. Zante Island, Greece.
	F	18 48				
Aug. 1 (166)	iP	9 23 50	+			(166) BCIS: 43° N 144°.5 E, H. $9^h 11^m 44^s$. USCGS: 42°.5 N 145° E, H. $9^h 11^m 39^s$. JSA: 42°.9 N 144°.5 E, H. $9^h 11^m 48^s$. Off south coast of Hokkaido, Japan.
	eS	9 33 53				
	eL	9 50				
	F	10 45				
Aug. 1 (167)	eL	11 25				(167) Aftershock of (166). USCGS: H. $10^h 42^m 50^s$.
	F	11 45				
Aug. 2 (168)	iPP	11 08 50	+			(168) BCIS: 12½° N 143° E, H. $10^h 50.2^m$. USCGS: 12° N 143° E, H. $10^h 50^m 15^s$, h = about 100 km Marianas Islands.
	ePS	11 18.1				
	eSS	11 24				
	eL	11 41				
	F	13 30				
Aug. 2 (169)	iP	13 58 25	—			(169) Disturbed by visitors. BCIS: 14°.5 N 40° E, H. $13^h 49^m 58^s$. USCGS: 15° N 39½° E, H. $13^h 49^m 55^s$. Near coast of Eritrea, Africa.
	ePcP	14 00 02				
	eS	14 05 20				
	eL	14 13				
	F	15 10				
Aug. 3 (170)	ePP	15 45 32				(170) BCIS: 7° N 144° E, H. $15^h 26.6^m$. USCGS: H. $15^h 26^m 38^s$. Marianas Islands region.
	ePS	15 54 49				
	eSS	16 00.5				
	eL	16 18				
	F	17 00				

Date 1950	Phase	Time	Direction	Period	Amplitude	Remarks
		h m s		s	μ	
Aug. 3 (171)	iP	22 29 51	+			(171) BCIS and JSA: 10°.0 S 70°.0 W, H. $22^h 18^m 20^s$. USCGS: 10° N 69°.5 W, H. $22^h 18^m 18^s$. Northwestern Venezuela, destructive at Tocoyo, 100 killed.
	ePP	22 32.5				
	iS	22 39 19				
	eL	22 49				
	F	1 00				
Aug. 5 (172)	$iPKP_1$	9 36 58	+			(172) BCIS and JSA: 49°.0 S 164°.4 E, H. $9^h 16^m 58^s$. USCGS: 50° S 164° E, H. $9^h 16^m 48^s$. Auckland Island region.
	$iPKP_2$	9 38 02	—			
	iPP	9 41 50				
	iPPP	9 45 44				
	ePPS	9 55 36				
	eSS	10 02.5				
	eSSS	10 09				
	eL	10 35				
	F	12 40				
Aug. 7 (173)	iP	2 58 47	+			(173) BCIS: 7°.5 N 124°.3 E, H. $2^h 44^m 45^s$, h = 100 km. USCGS: 6° N 126° E, H. $2^h 44^m 44^s$. h = 120 km. JSA: 7°.3 N 125°.0 E, H. $2^h 45^m 02^s$, h = about 100 km. Near south coast of Mindanao, Philippine Islands.
	epP	2 59 20				
	iPP	3 03 03	+			
	epPP	3 03 37				
	ez	3 07 34				
	iSKS	3 09 12				
	ePPS	3 12 40				
	eSS	3 17 50				
	eL	3 33				
	F	5 30				
Aug. 7 (174)	(ePP	16 06)				(174) USCGS: 1° N 126½° E, H. $15^h 47^m 23^s$. Molucca Passage.
	sSKS	16 12 38				
	ePS	16 15.5				
	eL	16 47				
	F	17 20				
Aug. 8 (175)	e	5 51				(175) USCGS: 55° N 134½° W, H. $5^h 12^m 00^s$. Near coast of southaestern Alaska.
	F	6 03				
Aug. 10 (176)	eL	20 25				
	F	21 00				
Aug. 11 (177)	eL	21 54				(177) USCGS: H. $20^h 20^m 52^s$. Tonga Islands region.
	F	22 04				
Aug. 13 (178)	eP	16 54.0				(178) USCGS: 19°.5 N 70°.5 W, H. $16^h 43^m 20^s$. JSA: 19°.7 N 70°.4 W, H. $16^h 43^m 23^s$. Near north coast of Dominican Republic.
	eS	17 02.9				
	eL	17 15				
	F	18 00				

Date 1950	Phase	Time	Direction	Period	Amplitude	Remarks
		h m s		s	μ	
Aug. 14 (179)	iP	23 04 02	—			(179) USCGS: 27° S 62°.5 W, H. 22h51m28s, h = about 650 km. JSA: 16°.8 S 62°.5 W, H. 22h51m31s, h = about 650 km. Santiago del Estero province, Argentina.
	ipP	23 06 16	—			
	iPP	23 08 10	—			
	ipPP	23 10 07	—			
	iz	23 11 13				
	iSKS	23 13 42				
	iS	23 14 38				
	esSKS	23 17 24				
	esS	23 18 38				
	eSS	23 21 35				
	esSS	23 25.0				
	F	1 30				
Aug. 15 (180)	iP	14 20 39	+	12	70	(180) BCIS: 28°.6 N 96°.5 E, H. 14h09m30s. USCGS: 28½° N 97° E, H. 14h09m30s. JSA: 28°.2 N 97°.2 E, H. 14h09m33s. Poona: 28°.8 N 96°.6 E, H. 14h09m32s. Assam, 574 killed. Damage estimated at $ 20 million.
	iS	14 29 34				
	eL	14 53				
	F	in next shock				
Aug. 15 (181)	iP	18 49 51				(181) Aftershock of (180). BCIS: H. 18h38m38s. USCGS: H. 18h38m40s. F in next shock.
	iS	18 58 56				
Aug. 15 (182)	iP	21 53 24				(182) Aftershock of (180). BCIS: H. 21h42m16s. USCGS: H. 21h42m19s. F in next shock.
	iPP	21 56 00				
	eS	22 02.5				
	eL	22 17				
Aug. 15 (183)	iP	23 55 42				(183) Aftershock of (180). BCIS: H. 23h44m33s. USCGS: H. 23h44m44s. F in next shock.
	eL	24 22				
Aug. 16 (184)	iP	5 44 15				(184) Aftershock of (180). BCIS: H. 5h32m36s. USCGS: H. 5h32.6m. F in next shock.
	iPP	5 46 48				
	eS	5 53 19				
	eL	6 11				
Aug. 16 (185)	iP	6 53 04				(185) Aftershock of (180). BCIS: H. 6h41m56s. USCGS: H. 6h41m56s.
	ePP	6 55 30				
	eS	7 02 04				
	eL	6 17				
	F	8 40				
Aug. 16 (186)	eL	10 10				(186) USCGS: 14° N 146° E, H. 9h13m50s. Marianas Islands.
	F	10 55				
Aug. 16 (187)	e	11 46				(187) Aftershock of (180). BCIS: H. 11h28m25s.
	eL	12 05				
	F	12 20				
Aug. 16 (188)	eP	15 40 36				(188) Aftershock of (180). BCIS: H. 15h29m15s. USCGS: H. 15h29m25s.
	eS	15 49.3				
	eL	16 06				
	F	16 35				

Date 1950	Phase	Time	Direction	Period	Amplitude	Remarks
		h m s		s	μ	
Aug. 16 (189)	eP	18 02 25				(189) Aftershock of (180). BCIS: H. 17h51m19s. USCGS: 27½° N 92° E, H. 17h51m27s.
	eS	18 11 25				
	eL	18 28				
	F	18 55				
Aug. 16 (190)	eP	19 36 36				(190) Aftershock of (180). BCIS: 19h25m30s. USCGS: 19h25m35s.
	eL	20 03				
	F	20 15				
Aug. 16 (191)	eP	20 22				(191) Aftershock of (180). BCIS: 20h11m24s.
	eL	20 48				
	F	21 20				
Aug. 16 (192)	eP	22 27.5				(192) Aftershock of (180). Stuttgart: H 22h15m51s.
	eL	23 12				
	F	23 15				
Aug. 17 (193)	iP	2 05 14				(193) Aftershock of (180). BCIS: H. 1h54m05s. USCGS: H. 1h54m13s.
	eS	2 14 16				
	eL	2 28				
	F	3 20				
Aug. 17 (194)	eL	3 56				
	F	4 20				
Aug. 17 (195)	iP	5 40 09				(195) Aftershock of (180). BCIS: H 5h29m00s. USCGS: 30° N 94° E, H. 5h29m14s. Sikang province, China.
	eS	5 49 06				
	eL	6 02				
	F	6 30				
Aug. 17 (196)	eL	8 42				
	F	8 55				
Aug. 17 (197)	eL	11 10				
	F	11 20				
Aug. 17 (198)	eL	15 22				(198) USCGS: 12½° S 172° W, H. 14h23m16s. Samoa Islands.
	F	15 35				
Aug. 17 (199)	iPKP	16 34 03				(199) USCGS: 21° S 180°, H. 16h15m22s, h = about 600 km. JSA: 21°.5 S 179°.9 E, H. 16h15m27s, h = about 600 km. Fiji Islands region.
	epPKP	16 36 24				
	ePSKS	16 47 27				
	eH	16 56 16				
	F	18 00				
Aug. 18 (200)	iP	1 18 54				(200) Aftershock of (180). BCIS: H. 1h07m45s. USCGS: H. 1h07m54s.
	ePP	1 21 22				
	iPPP	1 23 02				
	iS	1 27 54				
	ePS	1 28 06				No records from Aug. 18, 7h29m till Aug. 19, 7h39m.
	eScS	1 28 56				
	eL	1 40				
	F	3 30				

Date 1950	Phase	Time	Direction	Period	Amplitude	Remarks
		h m s		s	μ	
Aug. 19 (201)	eL	21 58				
	F	22 08				
Aug. 19 (202)	eL	23 11				
	F	23 20				
Aug. 20 (203)	iP	9 14 34				(203) Aftershock of (180).
	ez	9 15 54				BCIS: H. $9^h03^m57^s$.
	eS	9 23 30				USCGS: 29° N 94° E, H. $9^h03^m35^s$.
	eL	9 41				Assam-China border.
	F	10 25				
Aug. 20 (204)	ePP	23 56 45				(204) USCGS: 15° S 167° E, H. $23^h34^m19^h$.
	eL	0 25				New Hebrides Islands.
	F	1 30				
Aug. 21 (205)	eL	4 04				
	F	4 13				
Aug. 21 (206)	eP	6 02.5				(206) Aftershock of (180).
	eS	6 12				USCGS: 28½° N 96 °E, H. $5^h51^m35^s$.
	eL	6 30				Assam.
	F	7 30				
Aug. 21 (207)	eP	8 39 43				(207) Aftershock of (180).
	eS	8 48 38				BCIS: H. $8^h29.1^m$.
	eL	9 02				
	F	9 50				
Aug. 21 (208)	eL	10 36				
	F	10 40				
Aug. 21 (209)	eL	19 21				(209) Aftershock of (180).
	F	19 35				BCIS: H. $18^h43^m29^s$.
Aug. 21 (210)	eL	23 32				(210) Aftershock of (180).
	F	23 45				BCIS: H. $22^h55^m25^s$.
Aug. 22 (211)	iP	2 33 31				(211) Aftershock of (180).
	eS	2 42.5				eS under paperclip.
	eL	2 58				USCGS: H. $2^h22^m38^s$.
	F	3 45				
Aug. 22 (212)	eP	6 54 09	+			(212) Aftershock of (180).
	eS	7 03				BCIS: H. $6^h43^m18^s$.
	eL	7 20				USCGS: 30½° N 94° E, H. $6^h43^m16^s$.
	F	7 50				Sikang province China.
Aug. 22 (213)	eL	13 58				(213) Disturbed by visitors. Aftershock of (180).
	F	14 40				BCIS: H. $13^h22^m17^s$. USCGS: 27½° N 97½° E, H. $13^h22^m17^s$.
						Northern Burma.

Date 1950	Phase	Time	Direction	Period	Amplitude	Remarks
		h m s		s	μ	
Aug. 23 (214)	iP	3 20 18				(214) Aftershock of (180).
	eS	3 29 14				USCGS: 29½° N 95° E, H. $3^h09^m21^s$.
	eL	3 44				Sikang province, China.
	F	4 40				
Aug. 23 (215)	eP	15 45 20				(215) Aftershock of (180).
	eS	15 54 12				BCIS: H. $15^h34^m03^s$.
	eL	16 12				
	F	16 30				
Aug. 23 (216)	iP	18 58 05	+			(216) Aftershock of (180).
	iz	18 58 15				BCIS: H. $18^h46^m58^s$.
	eS	19 07 10				USCGS: 29° N 95½° E, H. $18^h47^m02^s$.
	eL	19 24				Assam-China border.
	F	20 10				
Aug. 24 (217)	eL	2 05				(217) Aftershock of (180).
	F	2 40				BCIS and USCGS: 28° N 96½° E, H. $1^h27^m43^s$.
Aug. 24 (218)	eL	18 21				
	F	18 55				
Aug. 25 (219)	eL	8 50				(219) BCIS: Aftershock of (180)?
	F	9 10				
Aug. 25 (220)	eL	13 46				(220) BCIS: Aftershock of (180)?
	F	13 50				
Aug. 26 (221)	eP	4 49 58				(221) USCGS: 65° N 162° W, H. $4^h39^m27^s$. JSA:
	eS	4 58 36				64°.3 N 161°.8 W, H. $4^h39^m30^s$.
	eL	5 16				F in next shock. Sewart Peninsula, Alaska.
Aug. 26 (222)	eP	6 44.1				(222) Aftershock of (180).
	eS	6 53 10				USCGS: H. $6^h33.1^m$.
	eL	7 10				
	F	8 30				
Aug. 26 (223)	e	11 26				(223) USCGS: H. $10^h41^m33^s$, h = about 300 km.
	F	11 30				Fiji Islands region.
Aug. 26 (224)	e	14 09				
	F	14 20				
Aug. 27 (225)	eP	11 10.8				(225) Aftershock of (180).
	eL	11 37				BCIS: H. $10^h59^m49^s$.
	F	11 55				USCGS: 30° N 94° E, H. $11^h00^m04^s$.
Aug. 27 (226)	e	22 14				(226) BCIS: 39°.1 N 42° E, H. $22^h03^m00^s$. USCGS:
	F	22 35				39° N 41° E, H. $22^h03^m04^s$. Eastern Turkey.

Date 1950	Phase	Time	Direction	Period	Amplitude	Remarks
		h m s		s	μ	
Aug. 30 (227)	ez	7 15				(227) Disturbed by microseisms. eL during change of papers from 7^h45^m till 7^h53^m. USCGS: 4° S 129½° E, H. $6^h50^m59^s$. Off south coast of Ceram Island.
	F	8 30				
Aug. 30 (228)	iPKP	23 33 33				(228) USCGS: H. $23^h13^m53^s$. New Hebrides Islands.
	F	23 40				
Aug. 31 (229)	e	2 01				
	F	2 25				
Aug. 31 (230)	eP	7 19 45				(230) eL during change of papers from 7^h52^m till 8^h09^m. USCGS: 6° N 126° E, H. $7^h05^m36^s$. JSA: 5°.8 N 125°.8 E, H. $7^h05^m40^s$, possibly deeper than normal. Near south coast of Mindanao, Philippine Islands.
	ePP	7 24.4				
	ePPP	7 26.3				
	eSKS	7 30 13				
	eS	7 31.4				
	ePS	7 32 50				
	iz	7 36 00				
	F	9 40				
Aug. 31 (231)	e	17 27 25				(231) BCIS: 44°.9 N 17°.4 E, H. $17^h22.3^m$. USCGS: 45° N 17½° E, H. $17^h12^m12^s$. Northern Yugoslavia.
	eL	17 28				
	F	17 45				
Aug. 31 (232)	eP	20 03 37				(232) Aftershock of (180). USCGS: 29° N 95½° E, H. $19^h52^m33^s$. Assam-China border.
	eS	20 12 35				
	eL	20 29				
	F	20 45				
Sept. 1 (233)	eP	3 00 00				(233) BCIS: 3°.3 S 89° E, H. $2^h46^m58^s$. USCGS: 3½° S 89½° E, H. $2^h46^m55^s$. 1100 km west of Sumatra.
	ePP	3 03 36				
	eSKS	3 10 22				
	ePS	3 11 50				
	eSS	3 16 40				
	eL	3 30				
	F	4 30				
Sept. 1 (234)	eL	7 35				(234) USCGS: H. $7^h00^m50^s$. Kurile Islands.
	F	8 00				
Sept. 2 (235)	eL	0 22				(235) Aftershock of (180). USCGS: H. $23^h44^m37^s$.
	F	0 35				
Sept. 2 (236)	iP	2 59 02	+			(336) USCGS: 52°.5 N 169° W, H. $2^h47^m23^s$, h = 100 km. JSA: 52°.7 N 168°.6 W, H. $2^h47^m26^s$, h = about 50 km. Aleutian Islands.
	ePP	3 01 50				
	eS	3 08 44				
	ePS	3 09 38				
	eSS	3 14				
	eL	3 21				
	F	5 00				

Date 1950	Phase	Time	Direction	Period	Amplitude	Remarks
		h m s		s	μ	
Sept. 2 (237)	e(PKP)	13 39 05				(237) USCGS: H. $13^h18^m38^s$. Northeast of Balleny Island, Antartic Ocean.
	eL	14 45				
	F	15 30				
Sept. 2 (238)	iP	16 25 42	+			(238) Disturbed bij microseisms. Aftershock of (180). BCIS: H. $16^h14^m34^s$. USCGS: 30 N 96½° E, H. $16^h14^m40^s$. Sikang, province, China.
	eS	16 34.5				
	eL	16 48				
	F	17 50				
Sept. 4 (239)	eL	0 05				(239) Disturbed by microseisms. Aftershock of (180). USCGS: 29° N 95° E, H. $23^h30^m43^s$. Assam.
	F	0 20				
Sept. 4 (240)	eP	6 39.0				(240) Disturbed by microseisms. Aftershock of (180). BCIS: H. $6^h19^m00^s$. USCGS: 29° N 95½ E, $6^h19^m02^s$. Assam-China border.
	eL	6 54				
	F	7 20				
Sept. 4 (241)	eL	8 50				(241) Disturbed by microseisms.
	F	9 00				
Sept. 4 (242)	eP	12 22.2				(242) Disturbed by microseisms. BCIS: 41°.1 N 34°.2 E, H. $12^h17^m09^s$. USCGS: 41° N 34½° E, H. $12^h17^m17^s$. Northern Turkey.
	eS	12 26 29				
	eL	12 29				
	F	13 00				
Sept. 5 (243)	ez	4 10 43				(243) Disturbed by microseisms. BCIS: two earth quakes in Central Italy. Roma: 42°30′30″ N 13° 21′ E, H. $4^h04^m36^s$ and $4^h08^m57^s$
	eS	4 13.8				
	eL	4 14.5				
	F	4 45				
Sept. 9 (244)	ePP	10 42.6				(244) USCGS: 4° S 153° E, H. $10^h21^m40^s$. JSA: 4°.3 S 152°.8 E, H. $10^h21^m42^s$. New Britain region.
	ePS	10 52.4				
	ePPS	10 54 35				
	eSS	10 59.5				
	eL	11 14				
	F	13 00				
Sept. 10 (245)	eP	3 34 00				(245) USCGS: 35° N 140° E, H. $3^h21^m25^s$, h = about 60 km. JSA: 35° N 139°.7 E, H. $3^h21^m29^s$, h = about 50 km. CMO.: 35°.3 N 140°.5 E, h = 30-40 km. Near east coast of Honshu, Japan.
	eS	3 44 18				
	eSS	3 50				
	eL	4 01				
	F	5 00				
Sept. 10 (246)	eL	11 07				
	F	11 20				

Date 1950	Phase	Time	Direction	Period	Amplitude	Remarks
		h m s		s	μ	
Sept. 10 (247)	iPKP	15 35 24	—			(247) USCGS: 15½° S 168½° E, H. 15h16m04s, h = about 100 km. JSA: 14°.3 S 166°.8 E, H. 15h16m10s, h = about 100 km. New Hebrides Islands.
	ipPKP	15 36 00				
	iPP	15 38 30	+			
	ipPP	15 39 11				
	iPPP	15 42 00				
	iSKKS	15 45 11				
	eSS	15 56 45				
	eSSS	16 02				
	eL	16 20				
	F	18 30				
Sept. 11 (248)	eP	0 29 34				(248) Aftershock of (180). BCIS: H. 0h18m24s. USCGS: 29° N 94° E, H. 0h18m34s. Assam-China border.
	eS	0 38 35				
	eL	0 55				
	F	1 10				
Sept. 11 (249)	eP	9 50 49				(249) Aftershock of (180). BCIS: H. 9h39m36s.
	eL	10 15				
	F	10 45				
Sept. 12 (250)	eL	21 14				(250) Disturbed by microseisms.
	F	21 20				
Sept. 13 (251)	eL	0 44				(251) Disturbed by microseisms.
	F	1 30				
Sept. 13 (252)	eS	11 27.6				(252) Disturbed microseisms. Aftershock of (180). USCGS: 29° N 94° E, H. 11h07m41s. Assam-China border.
	eL	11 43				
	F	12 40				
Sept. 14 (253)	eL	10 00				(253) Disturbed by microseisms. BCIS: 0°.5 N 127° E, H. 9h05m50s, h = 200 km. USCGS: H. 9h05m57s, h = about 200 km. Molucca Passage.
	F	10 45				
Sept. 16 (254)	eSS	1 29				(254) USCGS: 4° S 104½° W, H. 0h55m36s. JSA: 4°.4 S 104°.8 W, H. 0h55m35s. About 1000 miles west of Galapagos Islands.
	eL	1 45				
	F	2 30				
Sept. 18 (255)	e	19 40				(255) Disturbed by microseisms.
	F	19 50				
Sept. 19 (256)	iPP	20 49 47				(256) Disturbed by microseisms. USCGS: 2° S 138½° E, H. 20h29m48s. JSA: 0°.4 S 139°.0 E, H. 20h29m54s. Near north coast of New Guinea.
	ePS	20 59 18				
	eSS	21 06 16				
	eL	21 20				
	F	23 30				
Sept. 21 (257)	eP	23 03 20				(257) Disturbed by microseisms. BCIS: 9°.2 S 66° E, H. 22h51m02s. USCGS: 9½° S 66° E, H. 22h51m01s. Indian Ocean.
	eS	23 13.2				
	eL	23 43				
	F	0 10				

Date 1950	Phase	Time	Direction	Period	Amplitude	Remarks
		h m s		s	μ	
Sept. 22 (258)	eSS	8 30				(258) Disturbed by microseisms. USCGS: 25° S 114° W, H. 7h52m07s. JSA: 25°.3 S 113°.5 W, H. 7h52m12s. Easter Island region.
	eL	8 40				
	F	10 00				
Sept. 23 (259)	iPKP	0 12 23				(259) Disturbed by microseisms. BCIS: 17° 5 S 177°.5 W, H. 23h53m30s, h = 400 km. USCGS: 18° S 177° W, H. 23h53m29s, h = about 450 km JSA: 18°.0 S 177°.4 W, H. 23h53m34s, h = about 450 km. Fiji Islands region.
	epPKP	0 14 45				
	eSS	0 34 00				
	esSS	0 36 40				
	eSSS	0 40 00				
	esSSS	0 42 20				
	F	2 10				
Sept. 23 (260)	eS	6 32 53				(260) Disturbed by microseisms. BCIS: 34°.7 N 25°.7 E, H. 6h23m40s. USCGS: 35° N 25½° E, H. 6h23m40s. Southeastern Crete.
	eL	6 35				
	F	6 50				
Sept. 23 (261)	eL	19 27				(261) Disturbed by microseisms. BCIS: 9°.8 N 126°.8 E, H. 18h38m40s. USCGS: 9½° N 126½° E, H. 18h38m40s. Near north coast of Mindanao.
	F	20 10				
Sept. 24 (262)	ez	23 20				(262) Disturbed by microseisms. BCIS: 34° N 62° E, H. 22h56m26s. USCGS: 34½° N 60° E, H. 22h56m39s. Northeastern Iran.
	F	23 40				
Sept. 25 (263)	ePS	23 43				(263) Disturbed by microseisms. USCGS: 9°.8 N 126°.8 E, H. 23h15m58s. Off east coast of Mindanao, Philippine Island.
	eL	0 05				
	F	1 00				
Sept. 26 (264)	eL	15 00				(264) Disturbed by microseisms.
	F	15 10				
Sept. 26 (265)	eL	19 50				(265) Disturbed by microseisms.
	F	20 05				
Sept. 27 (266)	eL	4 15				(266) USCGS: 20° N 108½° W, H. 3h36m55s. JSA: 20°.2 N 109°.0 W, H. 3h37m04s, h = about 50 km. Off east coast of Mexico.
	F	4 50				
Sept. 27 (267)	iPKP	8 43 41				(267) Disturbed by microseisms. BCIS: 18°.4 S 175° E. H. 8h23m58s. USCGS: 18½° S 175° E, H. 8h23m58,s Fiji Islands region.
	F	8 48				
Sept. 27 (268)	eL	11 17				(268) Disturbed by microseisms.
	F	11 30				
Sept. 27 (269)	eL	13 30				(269) Disturbed by microseisms.
	F	13 50				
Sept. 28 (270)	eP	3 42.4				(270) USCGS: 23° N 121° E, H. 3h29m36s. JSA: 23°.1 N 121°.7 E, H. 3h29m41s. Near east coast of Formosa.
	eL	4 15				
	F	4 40				

Date 1950	Phase	Time	Direction	Period	Amplitude	Remarks
		h m s		s	μ	
Sept. 29 (271)	iP	6 45 11	—			(271) Disturbed by microseisms. USCGS: 19° N 107° W, H. 6h32m16s, h = about 60 km. JSA: 18°.9 N 106°.5 W, H. 6h32m16s. Off coast of Colima, Mexico.
	ipP	6 45 37	—			
	iS	6 55 47				
	isS	6 56 04				
	ePS	6 56 58				
	eSS	7 01 50				
	eH	7 08.5				
	eL	7 14				
	F	9 30				
Sept. 29 (272)	eL	23 07				(272) Disturbed by microseisms.
	F	23 35				
Sept. 30 (273)	eL	6 29				(273) Disturbed by microseisms.
	F	6 45				
Sept. 30 (274)	iP	7 39 55	+			(274) F during change of papers from 7h58m till 8h30m. Aftershock of (180). USCGS: 28½° N 94° E, H. 7h28m54s. Assam.
	iS	7 48 50				
	ePS	7 49.9				
	F	9 15				
Oct. 3 (275)	eL	7 07				
	F	7 20				
Oct. 3 (276)	eS	23 22.5				(276) Disturbed microseisms. Aftershock of (180). BCIS: H. 23h02m02s. USCGS: 28° N 96½° E, H. 23h 01m57s. Assam.
	eL	23 39				
	F	24 00				
Oct. 5 (277)	eL	1 40				(277) Disturbed by microseisms. BCIS and USCGS: 18°.5 S 170° E, H. 0h41m07s. New Hebrides Islands region.
	F	2 50				
Oct. 5 (278)	iP	16 21 49	+			(278) USCGS: 10½° N 85½° W, H. 16h09m25s. JSA: 10°.4 N 84°.9 W, H. 16h09m34s. h = about 50 km. Near coast of Costa Rica.
	i(sPP)	16 25 03	+			
	iS	16 31 55				
	iSS	16 37 42				
	eL	16 46				
	F	21 00				
Oct. 5 (279)	eL	23 52				(279) Disturbed by microseisms. BCIS and USCGS: 3½° S 80½° W, H. 23h07m49s. Near coast of Ecuador.
	F	00 05				
Oct. 6 (280)	eL	8 47				(280) BCIS and USCGS: 19½° N 65° W, H. 8h16m02s, h = about 100 km. Off northeast coast of Puerto Rico.
	F	9 15				
Oct. 6 (281)	eL	12 23				(281) Disturbed by microseims.
	F	12 28				

Date 1950	Phase	Time	Direction	Period	Amplitude	Remarks
		h m s		s	μ	
Oct. 8 (282)	iP	3 38 02	(—)			(282) Disturbed by microseisms. USCGS: 4° S 128° E, H. 3h23m07s. JSA: 4°.1 S 128°.7 E, H. 3h23m12s. Banda Sea, felt at Amboina.
	iPP	3 42 45	+			
	iPS	3 52 18				
	eSS	3 58 43				
	eSSS	4 02 36				
	eL	4 17				
	F	7 00				
Oct. 8 (283)	eL	15 50				(283) Disturbed by strong microseisms. BCIS: 4°.5 S 153° E, H. 14h49m35s. USCGS: H. 14h49m37s. New Britain Island region.
	F	16 20				
Oct. 8 (284)	eL	16 58				(284) Disturbed by strong microseisms. BCIS and USCGS: 32° N 41° W, H. 16h40m34s. North Atlantic Ocean.
	F	17 05				
Oct. 15 (285)	iPP	16 21 37				(285) BCIS: 10° S 160° E, H. 15h59m56s. USCGS: 10° S 160° E, H. 15h59m53s. Solomon Island.
	iPKS	16 22 38	—			
	eH	16 22 54				
	ePS	16 32				
	eL	17 01				
	F	18 20				
Oct. 16 (286)	eL	8 13				(286) BCIS: 39° N 34° W, H. 7h57.2m. USCGS: H. 7h 57m03s. North Atlantic Ocean.
	F	8 20				
Oct. 16 (287)	eL	16 20				(287) Aftershock of (180). BCIS: H. 15h42m27s. USCGS: 29° N 95° E, H. 15h42m36s. Sikang province, China.
	F	16 30				
Oct. 17 (288)	ez	15 38				(288) Disturbed by microseisms. USCGS: 11° N 88° W, H. 15h06m46s. Off west coast of Costa Rica.
	F	16 07				
Oct. 19 (289)	eS	4 07.4				(289) BCIS: 18°.5 N 65° W, H. 3h48m24s. USCGS: 19½° N 64° W, H. 3h48m25s. JSA: 19°.8 N 65°.1 W, H. 3h48m33s. Off northeast coast of Puerto Rico.
	eL	4 18				
	F	4 55				
Oct. 19 (290)	ePKP	10 11 21				(290) Disturbed by microseisms. USCGS: 34° S 178° W, H. 9h51m11s. Kermadec Islands region.
	eSS	10 36				
	eL	11 13				
	F	12 05				
Oct. 21 (291)	iPKP	4 32 36	+	6	8	(291) USCGS: 18½° S 173½° W, H. 4h 12m56s, h = about 60 km. JSA: 19°.0 S 174°.5 W, H. 4h13m04s, h = about 100 km. Tonga Islands.
	ipPKP	4 33 07				
	eSS	4 55				
	eL	5 26				
	F	6 30				

Date 1950	Phase	Time	Direction	Period	Amplitude	Remarks
		h m s		s	μ	
Oct. 21 (292)	eP	9 55 45				(292) Disturbed by visitors. USCGS: 17½° N 106° W, H. 9h42m58s. JSA: 17°.7 N 106°.0 W, H. 9h42m58s. Off coast of Colima, Mexico.
	ePP	9 59 25				
	eS	10 06 44				
	eL	10 22				
	F	11 00				
Oct. 22 (293)	eS	6 01 28				(293) Disturbed by microseisms. USCGS: 35° N 26° E, H 5h52m03s. Roma: 35° N 28°.5 E, H. 5h51m32s. Near coast of esatern Crete.
	e	6 03				
	F	6 20				
Oct. 23 (294)	iP	16 25 46	+			(294) USCGS: 14½° N 92° W, H. 16h13m18s. JSA: 14°.0 N 92°.0 W, H. 16h13m24s, h = 100 km. Tacubaya: 13°48′ N 91°47′ W, H. 16h13m26s, h = 100 km. Near coast of Guatemala.
	ePP	16 29 00				
	eS	16 36 03				
	eSS	16 41 46				
	eSSS	16 45 20				
	eL	16 49 10				
	F	21 00				
Oct. 23 (295)	eP	23 51 14				(295) Aftershock of (294). USCGS: H. 23h38m44s.
	e(S)	0 02.5				
	eE	0 18				
	F	1 00				
Oct. 24 (296)	eP	1 04 26				(296) Aftershock of (294). USCGS: H. 0h52m03s.
	eS	1 14 55				
	eL	1 32				
	F	2 15				
Oct. 24 (297)	eL	6 32				(297) Aftershock of (294). USCGS: H. 5h50m15s.
	F	7 00				
Oct. 24 (298)	e	10 14				(298) Aftershock of (294). USCGS: H. 9h28m49s.
	F	10 25				
Oct. 24 (299)	e	16 42				(299) Aftershock of (294). USCGS: H. 15h55m04s.
	F	16 50				
Oct. 24 (300)	e	23 10				(300) BCIS: H. 22h30.4m. About 500 km east of Loyalty Islands.
	F	23 20				
Oct. 25 (301)	iP	7 15 55				(301) BCIS: 24° N 124° E, H. 7h03m26s, h = 100 km. USCGS: 26° N 125½° E, H. 7h03m18s, h = about 100 km. JSA: 25°.8 N 124°.9 E, H. 7h03m27s, h = about 100 km. Ryuklyu Islands.
	eH	7 26 20				
	eL	7 45				
	F	8 15				
Oct. 26 (302)	eL	5 20				(302) Disturbed by microseisms. USCGS: 32° S 178° W, H. 3h49m55s. JSA: 31°.8 S 178°.6 W, H. 3h49m56s. Kermadec Islands.
	F	6 00				

Date 1950	Phase	Time	Direction	Period	Amplitude	Remarks
		h m s		s	μ	
Oct. 26 (303)	eSS	16 23				(303) Disturbed by microseisms. USCGS: 31½° S 178° W, H. 15h38m43s. Kermadec Islands.
	eL	17 04				
	F	18 00				
Oct. 28 (304)	eL	23 00				(304) Disturbed by microseisms. USCGS: 14½° N 92° W, H. 22h15m45s, h = about 100 km. JSA: 13°.1 N 92°.7 W, H. 22h15m42s, h = about 100 km. Near coast of Guatemala.
	F	23 25				
Oct. 29 (305)	eL	1 50				(305) Manila: Philippine Islands.
	F	2 05				
Oct. 29 (306)	eL	6 40				(306) BCIS: Tibet.
	F	7 10				
Oct. 30 (307)	e	23 48				
	F	24 05				
Oct. 31 (308)	eS	19 33				(308) BCIS: 0°.7 N 25°.0 W, H. 19h15m19s. USCGS: ½° N 25½° W, H. 19h15m16s. Mid-Atlantic Ocean.
	eL	19 40				
	F	20 15				
Oct. 31 (309)	eS	20 45.6				(309) USCGS: 23½° N 108° W, H. 20h22m30s. JSA: 22°.9 N 107°.8 W, H. 20h22m39s. Gulf of California.
	e	20 59				
	F	21 30				
Nov. 1 (310)	eL	13 33				(310) No z-record USCGS: 10½° N 85° W, H. 12h45m 30s. JSA: 10°.7 N 84°.0 W, H. 12h45m32s, h = about 100 km. Near west coast of Costa Rica.
	F	13 50				
Nov. 2 (311)	e	7 30.7				(311) No z-record. BCIS: 26° N 120° E, H. 7h07m45s. USCGS: 26½° N 121° E, H. 7h07m38s. Off northwestern coast of Formosa.
	eL	7 54				
	F	8 25				
Nov. 2 (312)	eP	15 42 40				(312) No z-record. BCIS: 6° S 129½° E, two earthquakes, H. 15h27m48s and H. 15h28m58s. USCGS: 6½° S 129° E, H. 15h27m53s, h = about 60 km. JSA: 6°.6 S 129°.6 E, H. 15h27m52s, probably deeper than normal. Banda Sea.
	ePP	15 47 20				
	eH	15 48 48				
	ePPS	15 58 17				
	eSS	16 04				
	eL	16 28				
	F	19 30				
Nov. 2 (313)	eH	20 37.5				(313) No z-record. Aftershock of (180). BCIS: N. 20h 17.4m. USCGS: 30° N 97½° E, H. 20h17m27s. Sikang province, China.
	L	20 55				
	F	21 08				
Nov. 5 (314)	eP	16 47.9				(314) Disturbed by microseisms. F in next shock. USCGS: 14½° N 92° W, H. 16h35m20s. JSA: 14°.0 N 92°.4 W, H. 16h35m18s. Near coast of Guatemala.
	eS	16 58.4				
	eL	17 15				

Date 1950	Phase	Time	Direction	Period	Amplitude	Remarks
		h m s		s	μ	
Nov. 5 (315)	eP	17 50 00	+			(315) USCGS: 33° N 134½° E, H. 17h37m25s.
	ePP	17 53 18	+			JSA: 32°.2 N 135°.0 E, H. 17h37m27s, possibly slight
	iS	18 00 24				depth. Off coast of Shikoka, Japan.
	iPS	18 01 23				
	eSS	18 06 10				
	eL	18 21				
	F	20 30				
Nov. 6 (316)	ePP	22 43 30				(316) Disturbed by microseisms.
	eSS	23 01.0				BCIS and USCGS: 7½° S 155½° E, H. 22h22m05s.
	eL	23 25				Slightly deeper than normal. JSA: 8°.2 S 156°.5 E,
	F	24 30				H. 22h22m10s. Solomon Island region.
Nov. 8 (317)	ePP	2 39 57				(317) Disturbed by microseisms.
	iPKS	2 40 56				BCIS and USCGS: 9½° S 159° E, H. 2h18m10s.
	iPPP	2 42 49				JSA: 10°.0 S 159°.3 E, H. 2h18m13s.
	eSS	2 57 30				Solomon Island region.
	eSSS	3 03				
	eL	3 13				
	F	5 30				
Nov. 11 (318)	eL	4 50				(318) Disturbed by microseisms. USCGS: 6° S 148° E,
	F	4 55				H. 3h38m07s. Off east coast of New Guinea.
Nov. 14 (319)	eL	22 38				(319) Disturbed by microseisms.
	F	22 50				BCIS: 24° N 64° E, H. 22h04.8m. Arabian Sea.
Nov. 16 (320)	eL	9 47				(320) Disturbed by microseisms. USCGS: H. 8h47m
	F	9 57				10s. Off southeast coast of New Guinea.
Nov. 17 (321)	eH	16 15.4				(321) Disturbed by microseisms.
	eL	16 20				BCIS: 7°.5 N 37°.5 W, H. 15h57.8m. USCGS: 6° N
	F	16 50				36° W, H. 15h57m40s. Mid-Atlantic Ocean.
Nov. 17 (322)	iP	19 41 07	—			(332) Disturbed by microseisms.
	eH	19 51 14				USCGS: 17½° N 100½° W, H. 19h28m23s, h = about
	iS	19 51 40				60 km. JSA: 17°.0 N 100°.4 W, H. 19h28m21s, possibly
	ePS	19 52 25				deeper than normal. Near coast of Mexico.
	eSS	19 57				
	eL	20 05				
	F	21 00				
Nov. 17 (323)	eL	22 21				(323) Disturbed by microseisms. BCIS: 40° N 70°.5 E,
	F	22 40				H. 22h00m56s. USCGS: 39° N 70° E, H. 22h00m04s.
						Turkestan.
Nov. 22 (324)	eH	10 38				(324) Disturbed by microseisms. USCGS: 51½° N
	eL	10 49				176½° W, H. 10h16m28s, h = about 60 km. JSA: 51°.3 N
	F	12 00				176°.4 W, H. 10h16m34s, h = about 50 km. Andreanof
						Islands, Aleutian Islands.

Date 1950	Phase	Time	Direction	Period	Amplitude	Remarks
		h m s		s	μ	
Nov. 24 (325)	ePKP	13 25 04				(325) USCGS: 15° S 173° W, H. 13h03m42s.
	iPP	13 26 12				JSA: 15°.6 S 173°.5 W, H. 13h03m44s.
	eSS	13 45.3				Samoa Islands.
	eL	14 04				
	F	15 40				
Nov. 24 (326)	ePKP	20 38 26				(326) Aftershock of (325).
	ePP	20 41 26				USCGS: H. 20h18m48s.
	ez	20 45.5				
	eSS	21 00 25				
	eL	21 20				
	F	23 15				
Nov. 25 (327)	eL	17 32				(327) BCIS: 37° N 44° E, H. 17h18m38s.
	F	17 50				USCGS: H. 17h18m48s. Eastern Turkey.
Nov. 26 (328)	e	3 00				
	F	3 08				
Nov. 28 (329)	eS	18 01.4				(329) BCIS: 38°.4 N 27°.3 E, H. 17h53m19s.
	eL	18 03				USCGS: 39° N 28° E, H. 17h53m15s. Western Turkey.
	F	18 12				
Dec. 1 (330)	eP	15 00 40				(330) Disturbed by microseisms.
	ePP	15 03 59				USCGS: 14½° N 47° W, H. 14h50m58s.
	eS	15 08 28				JSA: 14°.3 N 47°.6 W, H. 14h51m00s, h = about 50 km.
	ePS	15 08 35				Atlantic Ocean.
	eSS	15 12 20				
	eL	15 15				
	F	16 30				
Dec. 2 (331)	iS	15 40 55				(331) Disturbed by microseisms. BCIS: 8° S 71½° W,
	eSS	15 45.0				H. 15h19m20s, h = 650 km. USCGS: 7½° S 71° W,
	F	16 00				H. 15h19m20s, h = 650 km. JSA: 8°.0 S 70°.3 W,
						H. 15h19m25s, h = about 650 km. Western Brasil.
Dec. 2 (332)	iPKP	20 11 19	+			(332) Disturbed by microseisms. USCGS: 18° S
	iPP	20 14 46				167½° E, H. 19h51m50s, h = about 60 km.
	ePS	20 25.3				JSA: 18°.2 S 167°.0 E, H. 19h51m51s, h = about 50 km.
	eL	20 55				New Hebrides Islands.
	F	23 30				
Dec. 3 (333)	eS	6 47.0				(333) Disturbed by microseisms. BCIS: 29°.0 N 94°.6 E,
	eL	7 04				H. 6h27m02s. USCGS: 29° N 95½° E, H. 6h26m52s.
	F	7 20				Northern Assam.
Dec. 4 (334)	iPKP	16 46 58				(334) Disturbed by microseisms. BCIS and USCGS:
	ipPKP	16 47 26				5° S 153½° E, H. 16h28m01s, h = about 100 km.
	iPP	16 48 58				JSA: 4°.9 S 153°.6 E, H. 16h27m56s and H. 16h28m12s,
	ePPP	16 51 50				h = about 125 km. New Britain Island region.
	eE	16 58 24				
	eL	17 24				
	F	19 10				

Date 1950	Phase	Time	Direction	Period	Amplitude	Remarks
		h m s		s	μ	
Dec. 5 (335)	eL	1 07				(335) Disturbed by microseisms.
	F	1 20				
Dec. 5 (336)	eH	22 17				(336) Disturbed by microseisms. BCIS: H. $21^h53^m20^s$.
	eL	22 35				USCGS: 31° N 130° E, H. $21^h53^m38^s$.
	F	23 10				Near south coast of Kyushu, Japan.
Dec. 9 (337)	iP	21 52 24				(337) Disturbed by microsiesms.
	iPP	21 56 10				BCIS: 25°.0 S 68°.5 W, H. $21^h38^m54^s$, h = 200 km.
	iSKS	22 02 49				USCGS: 24° S 67° W, H. $21^h38^m44^s$, h = about 100 km.
	eL	22 26				JSA: 24°.3 S 67°.4 W, H. $21^h38^m48^s$, h = about 100 km.
	F	2 00				Northern Argentina-Chile border.
Dec. 10 (338)	ePP	3 08 09				(338) Disturbed by microseisms.
	eSKS	3 14 38				BCIS: 14°.3 S 77°.4 W, H. $2^h50^m40^s$.
	ePS	3 16 41				USCGS: 14° S 76° W, H. $2^h50^m40^s$, h = about 60 km.
	eSSS	3 25.8				JSA: 14°.2 S 75°.0 W, H. $2^h50^m50^s$, h = about 100 km.
	eL	3 31				Near coast of southern Peru.
	F	4 05				
Dec. 10 (339)	$iPKP_1$	13 42 34	—			(339) Disturbed by microseisms.
	$iPKP_2$	13 43 05	+			BCIS: 28½° S 179° W, H. $13^h23^m00^s$, h = about 300 km.
	$ipPKP_1$	13 43 50				USCGS: 28½° S 179° W, H. $13^h23^m10^s$, h = about
	$ipPKP_2$	13 44 19				300 km. JSA: 28°.7 S 179°.1 W, H. $13^h23^m13^s$, h =
	iPP	13 46 38	+			about 300 km. Kermadec Islands region.
	iPPP	13 50 21				
	iSKKS	13 53 05				
	iSKKKS	13 54 00				
	eSS	14 06 07				
	eL	14 15 20				
	F	16 00				
Dec. 14 (340)	iPKP	2 12 11	—			(340) Disturbed by microseisms.
	ipPKP	2 13 09	+			BCIS: 19½° S 176° W, H. $1^h52^m50^s$, h = 200 km.
	iPP	2 15 40				USCGS: 19½° S 176° W, H. $1^h52^m46^s$, h = about
	ipPP	2 16 38				200 km. JSA: 19°.8 S 176°.1 W, H. $1^h52^m52^s$, h =
	eSKSP	2 25.8				about 200 km. Tonga Islands region.
	iPS	2 27 10				
	iSS	2 34 16				
	esSS	2 35 58				
	eSSS	2 39 55				
	esSSS	2 41 27				
	F	6 00				
Dec. 14 (341)	eP	14 28 26	+	6	10	(341) Disturbed by microseisms.
	ePP	14 31 54				BCIS and USCGS: 17° N 98½° W, H. $14^h15^m48^s$.
	iz	14 33 55				JSA: 17°.2 N 98°.0 W, H. $14^h16^m00^s$ and H. $14^h15^m52^s$,
	eS	14 39 11				h = about 60 km.
	iPS	14 40 20				Oaxaca, Mexico.
	eSS	14 44.9				
	eL	14 55				
	F	17 30				