

K O N I N K L I J K N E D E R L A N D S
M E T E O R O L O G I S C H I N S T I T U U T

Seismic Records

at De Bilt

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P R E F A C E

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 headassistant.

The Director in Chief
of the Royal Netherlands Meteor-
ological Institute,

Ir. C.J. WARNERS.

De Bilt, May 1959.

INTRODUCTION



SEISMOLOGICAL STATION DE BILT

The geographic coordinates of the seismological station are: $52^{\circ}6'.1$ N and $5^{\circ}10'.6$ E. The instruments are placed at a height of 3 m above mean sea-level on a subsoil consisting of sand (pleistocene).

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 rough values for the natural period T of the undamped pendulum, of the damping constant μ and of the multiplying factor for the year 1954.

	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 and of the static magnification V for the year 1954 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 geographic coordinates of the seismological station are: $50^{\circ}53'.0$ N and $5^{\circ}59'.0$ 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 1954 are:

T	ϵ	V	V max.	T max.
2	3	400	600	2

SEISMOLOGICAL STATION WITTEVEEN

The geographic coordinates of the seismological station are: $52^{\circ}48'.8$ N and $6^{\circ}40'.1$ E.

The instrument, a GRENET vertical seismograph with galvanometric record, is placed at a height of 2 m above mean sea-level on a subsoil consisting of pleistocene sand.

Recording started in April 1951.

The period of the seismograph is 2,3 sec, the period of the galvanometer is 0.8 sec. The maximum amplification is 6500 for a period of about 1 sec.

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 = alternating wave which has been reflected within the core.
- L = long wave 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.
- Δ = distance of epicentre.

The indices H, N, E and Z refer to 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:

$$V = \frac{A_1 k T_b}{\pi l} \cdot \frac{1}{\left\{ 1 + \left(\frac{T_b}{T} \right)^2 \right\}^2}$$

In this formula A_1 is the distance between galvanometer mirror and recording paper, k is the multiplying factor, T_b the period of the wave, l the reduced length of the pendulum, T the free period of the undamped seismograph, and V the magnification. The period of the galvanometer 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, Azores, BCIS (Bureau Central International de Séismologie), Beograd, Bogota, Brisbane, Budapest, Coimbra, Columbia-University (Palisades N.Y. and Bermuda), Djakarta, Dublin, Firenze, Geophysics Division (New Zealand), Granada, Harvard University, Helsinki, Hermanus, Huanacayo, Istanbul, Jena, John Carroll University (Cleveland), JSA (Jesuit Seismological Association), Kew, Kiruna, København, Ksara, La Paz, Lisboa, Manila, Melbourne, Paris, Pasadena, Perth, Poona, Praha, Prato, Quetta, Reykjavik, Riverview N.S.W., Roma, Santiago (Chile) Seismographic Stations of the University of California, Seismological Service of Canada, Stuttgart, Tacubaya, Tananarive, Toledo, Tortosa, Trieste, Uppsala, USCQS (United States Coast and Geodetic Survey), Western Samoa, Weston (Mass.), Wien, Zürich.

THE MICROSEISMIC ACTIVITY

The table on page 1 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 - $\frac{1}{2}$ mm	0 - $1\frac{1}{2}$
1	$\frac{1}{2}$ - 2 "	$1\frac{1}{2}$ - 5 "
2	2 - 4 "	5 - 10 "
3	> 4 "	> 10 "

CHARACTER OF THE MICROSEISMIC MOVEMENT

Date 1954	Jan.	Febr.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1	1 2 2	1 2	2	1	1	1	0	0	1	1	3 2
2	1 2	2 1	1	2	1 2	1	1	0 1 0	0 1 0	1	1	2
3	2 3 2	1	1 2	2	2	1	1 2	0	0	1	1	2 3
4	2	1	2	2	2 1	1 0	2 1	0	0	1 0	1 2	3
5	2 1 2	1 2 2	1 2	1 1	2	0	1 0	0 1 0	1 0	1 2	3 2	
6	2	2 3	1 2	1 2	2 3 2	0 1	0	1	1	1 2	2 1	2 1 2
7	2 1	3 2	2	2 1	2 1	1	0	1 2 1	1	2 3 2	1	2
8	1	2 1	2	1	1	1 2	0	1 0	1	2	1 2	2 3
9	1	1 2	2 1	1 2	1	2 1	0	0 1	1	2	2 3	3
10	1 2 1	2	1 2	2 1	1 0	1 2 1	0 1	1 2 1	1	2 3 2	3 2	3 2
11	1 2 1	2 1	2 1	1	0	1 0	1 0 1	1 2 1	1	2	2 3 2	1 1
12	1	1 2	1	1 2	0	0	1	1 0 1	1	2 1	2	1 2
13	1 3 2	2 3	1	2 1	0	0	1	1 0 1	0	1	2	2 1
14	2	3 2	1 0	1 2	0	0	1 2 1	0	0 1	1 0	2	1 2
15	2 3	2 1	0 1	2 1	0	0	1	0	1	0 1 0	2	2
16	3	1 2	1 2	1 0	0	0	1 2	0	1 2	0 1	2 1	2
17	3 2	2 3	2 1	0 1	0 1	0 1	2 3 2	0	2	1 2	1	2
18	2	3 2	1 0	1 0	1	1	2 1	0 1	2 1	2	1 2	2 3
19	2 3 2	2	1	1	1	1 2	1	1 0	1	2	2 1	3
20	2 3	2	1	1	1 0	1	1	0	1 2	2 3	1	3
21	3 2	2	1	1	0 1	1 0	1	0	2 1	3 2	1 2	3
22	2	2	1 2	1 0	1 0	0	1 0	0	1	2 1	2	3
23	2 1	2	2 3	2 0	0 1	0 1	0 1	0 1	1 2	1	2 3	3
24	1 2	2	2 1	0	1	1	1 0	1 2	1	2 3	2 3	2
25	2	2 3	1	0	1	1	0 1	0 1	0 2	1 2	1 2	3 2 1 2
26	2	3 2	1 0	1 1	1	1 0	1 0	1	1	3	2 3	2
27	2 3	2	1	1 0	1 0	1	1 3	2 0	1 1	2 1	1 2	3 2 1
28	3	2 1	1	0	0	1	2 1	1	1 2	1	2 3	2 1
29	3 2		1	0	0	1	1	1 2	1 2	2 2	1 2	3 1
30	2		1 2	0 1	0	1	1	2 1	2 1	1	3	1 2
31	2 1		2 3	2	0 1		1 0	1 0				2 1

Seismic Records at De Bilt



Date 1954	Phase	Time	Direction	Period	Amplitude	Remarks
		h m s		s	μ	
Jan. 1 (1)	1PP 1PS eL P	13 24 15 13 33 53 13 55 14 30				(1) BCIS: $9^{\circ}\text{S } 123^{\circ}\text{E}$, H. 13h 04m 19s. USCGS: $8^{\circ}.5 \text{ S } 124^{\circ}\text{E}$, H. 13h 04m 17s. Sawoe Sea.
Jan. 2 (2)	eS eL P	01 22.5 01 25 01 40				(2) W1: eP 1h 18m 16s. BCIS: $36^{\circ}\text{N } 27^{\circ}\text{E}$, H. 1h 13m 21s. Dodocanesos.
Jan. 6 (3)	eP eL P	15 59 15 16 07 16 15				(3) Disturbed by microseisms. W1: eP 15h 59m 11s. USCGS: $76^{\circ}\text{N } 7^{\circ}\text{E}$, H. 15h 53m 59s. Southwest of Spitzbergen.
Jan. 9 (4)	eL P	08 59 09 11				(4) Disturbed by microseisms. USCGS: $34^{\circ}\text{N } 141^{\circ}\text{E}$, H. 8h 06m 30s. Off east coast of Honshu, Japan.
Jan. 11 (5)	eL P	17 50 18 20				(5) Disturbed by microseisms. BCIS: $22^{\circ}\text{N } 125^{\circ}\text{E}$, H. 17h 09m 02s. USCGS: $23^{\circ}\text{N } 126^{\circ}\text{E}$, H. 17h 09m 02s. Ryukyu Islands region.
Jan. 12 (6)	ePKP ₁ ePKP ₂ 1z 1PP ePPP eL P	14 36.5 14 37.5 14 40 33 14 41 42 14 45.5 15 35 17 30				(6) Disturbed by microseisms. USCGS: $49^{\circ}\text{S } 165^{\circ}\text{E}$, H. 14h 16m 22s. Off south coast of South Island, New Zealand.
Jan. 12 (7)	eS eL	23 56.0 24 14				(7) Disturbed by microseisms. USCGS: $35^{\circ}\text{N } 119^{\circ}.1\text{W}$, H. 23h 33m 46.5s. California
Jan. 13 (8)	ePKP ₁ ePP eSS eL P	00 33 18 00 38 14 00 59 20 01 30 03 30				(8) Disturbed by microseisms. W1: ePKP ₂ 0h 34m 22s. BCIS: $49^{\circ}.5\text{S } 166^{\circ}.0\text{E}$, H. 0h 13m 10s. Off south coast of South Island, New Zealand.
Jan. 18 (9)	eL P	14 27 14 30				(9) Disturbed by microseisms. USCGS: H. 14h 16m 05s. Near west coast of Greece.
Jan. 20 (10)	eL P	05 00 05 15				(10) Disturbed by microseisms. USCGS: $8^{\circ}\text{N } 103^{\circ}\text{W}$, H. 4h 16m 25s. Pacific Ocean, south of Mexico.
Jan. 20 (11)						(11) W1: ePKP 14h 09m 40s. USCGS: $21^{\circ}\text{S } 176^{\circ}\text{W}$, H. 13h 50m 14s, h = about 200km. Tonga Islands.
Jan. 22 (12)	ePKP eL P	21 42.5 22 25 22 50				(12) Disturbed by microseisms. USCGS: $20^{\circ}\text{S } 169^{\circ}\text{E}$, H. 21h 23m 04s. Loyalty Islands.
Jan. 23 (13)	eP eS eL P	16 15 17 16 21.4 16 26 17 05				(13) Disturbed by microseisms. W1: 1P 16h 15m 07s. USCGS: $37^{\circ}\text{N } 72^{\circ}\text{E}$, H. 16h 06m 30s. Tadzhik, S S R.
Jan. 23 (14)	eL P	17 35 17 55				(14) Disturbed by microseisms. USCGS: aftershock of (13), H. 17h 11m 54s.
Jan. 24 (15)	eL P	13 42 13 48				(15) Disturbed by microseisms. BCIS: $37^{\circ}.8\text{N } 20^{\circ}.5\text{E}$, H. 13h 32m 48s. USCGS: H. 13h 32m 47s. Near west coast of Greece.

Seismic Records at De Bilt



Date 1954	Phase	Time			Direction	Period	Amplitude	Remarks
		h	m	s		s	μ	
Jan. 27 (16)								(16) W1: 1PKP 2h 37m 36s. BCIS: $18\frac{1}{2}^{\circ}$ S $173\frac{1}{2}^{\circ}$ W, H. 2h 17.7m. Tonga Islands.
Jan. 27 (17)								(17) W1: 1P 3h 01m 49s. BCIS: H. 2h 42.2m. Region north of Tonga Islands.
Jan. 31 (18)	eL F	12	25					(18) Disturbed by microseisms. USCGS: 52° N 160° E, H. 11h 43m 27s. Off east coast of Kamchatka.
Feb. 1 (19)								(19) W1: ePKP 0h 51m 04s. USCGS: H. 0h 32m 00s, h = about 300 km. Fiji Islands region.
Feb. 1 (20)	eP ePP eSKS ePS eSS eL F	01	20	24				(20) W1: eP 1h 20m 14s. e 1h 23m 32s. BCIS: $24\frac{1}{2}^{\circ}$ N $143\frac{1}{2}^{\circ}$ E, H. 1h 06m 53s. USCGS: 24° N 142° E, H. 1h 06m 48s. Volcano Islands.
Feb. 2 (21)	eL F	18	00					(21) W1: eP 17h 52m 03s. USCGS: 83° N 7° E, H. 17h 45m 45s. Off northeast coast of Greenland.
Feb. 3 (22)								(22) W1: 1P 18h 35m 39s. BCIS: $45\frac{1}{2}^{\circ}$ N $148\frac{1}{2}^{\circ}$ E, H. 18h 23m 53s. Kurile Islands.
Feb. 5 (23)	1(PP) eL F	09	40	46	+			(23) Disturbed by microseisms. W1: ePKP 9h 38m 40s. BCIS: 5° S 153° E, H. 9h 19m 46s. USCGS: $4\frac{1}{2}^{\circ}$ S 153° E, H. 9h 19m 42s. Off coast of New Britain.
Feb. 5 (24)								(24) W1: eP 15h 31.2m. USCGS: $17\frac{1}{2}^{\circ}$ N $92\frac{1}{2}^{\circ}$ W, H. 15h 17m 59s, h = about 100 km. Chiapas, Mexico.
Feb. 7 (25)								(25) W1: 1PKP 6h 34m 44s. USCGS: 15° S $167\frac{1}{2}^{\circ}$ E, H. 6h 15m 21s. New Hebrides Islands.
Feb. 9 (26)								(26) W1: eP 17h 51m 13s. USCGS: 53° N $166\frac{1}{2}^{\circ}$ W, H. 17h 39m 40s, h = about 100 km. Aleutian Islands.
Feb. 9 (27)	eL F	23	44					(27) W1: eP 23h 34.7m USCGS: H. 23h 27m 36s. North Atlantic Ocean, 400 miles southeast of Azores.
Feb. 11 (28)	1P 1z eS eScS eSSS eL F	00	40	50				(28) Disturbed by microseisms. W1: e 0h 44m 42s+. He: 1P 0h 40m 46s. BCIS: 39° .0N $101\frac{1}{2}^{\circ}$ E, H. 0h 30m 13s. USCGS: $39\frac{1}{2}^{\circ}$ N 101° E, H. 0h 30m 13s. Ningsia Province, China.
Feb. 12 (29)	eL F	02	21					(29) Disturbed by microseisms. USCGS: 40° N $100\frac{1}{2}^{\circ}$ E, H. 1h 47m 41s, aftershock of (28).
Feb. 15 (30)	eP eS eL F	20	04.2					(30) Disturbed by microseisms. USCGS: $6\frac{1}{2}^{\circ}$ S 81° W, H. 19h 50m 52s. Near coast of northern Peru.

Seismic Records at De Bilt



Date 1954	Phase	Time			Direction	Period	Amplitude	Remarks
		h	m	s				
Feb. 17 (31)	eL F	02	18			s	μ	(31) Disturbed by microseisms. W1: eP 1h 50m 26s. BCIS: $52\frac{1}{2}^{\circ}\text{N } 160^{\circ}\text{E}$, H. 1h 38m 50s. USCGS: $51\frac{1}{2}^{\circ}\text{N } 160^{\circ}\text{E}$, H. 1h 38m 59s. Off southeast coast of Kamchatka.
Feb. 17 (32)								(32) W1: eP 11h 48.3m. USCGS: $46\frac{1}{2}^{\circ}\text{N } 151^{\circ}\text{E}$, H. 11h 36m 18s, h = about 100 km. Kurile Islands.
Feb. 19 (33)	eP eS eSSS eL F	00 01 01 01 03	52.5 02.5 12.4 19 00					(33) Disturbed by microseisms. W1: eP 0h 53.0m. USCGS: $11\frac{1}{2}^{\circ}\text{N } 87\frac{1}{2}^{\circ}\text{W}$. H. 0h 40m 25s. Off coast of Nicaragua.
Feb. 19 (34)	eL F	13 14	58 05					(34) Disturbed by microseisms. USCGS: $45^{\circ}\text{N } 91\frac{1}{2}^{\circ}\text{E}$, H. 13h 28m 26s. Sinkiang Province, China.
Feb. 19 (35)	eL F	15 16	07 00					(35) Disturbed by microseisms. BCIS: $55\frac{1}{2}^{\circ}\text{S } 134^{\circ}\text{W}$, H. 13h 54m 29s. South Pacific.
Feb. 19 (36)	cPKP ePP eSS eSSS eL F	19 19 19 19 20 21	27.9 31.7 52 58 26 45					(36) Disturbed by microseisms. USCGS: $30^{\circ}\text{S } 178^{\circ}\text{W}$, H. 19h 07m 44s. Kermadec Islands.
Feb. 19 (37)	eP eS ePS eSS eSSS eL F	21 21 21 22 22 22 23	47.3 57.5 58.5 03.2 06 12 30					(37) Disturbed by microseisms. BCIS: $11\frac{1}{2}^{\circ}\text{N } 88^{\circ}\text{W}$, H. 21h 34m 45s. USCGS: $12\frac{1}{2}^{\circ}\text{N } 87\frac{1}{2}^{\circ}\text{W}$, H. 21h 34m 41s. Near coast of Nicaragua.
Feb. 20 (38)	eL F	02 03	30 00					(38) Disturbed by microseisms. USCGS: aftershock of (37), H. 2h 00m 43s.
Feb. 20 (39)	1PP 1pPP ePPP epPPP 1pPKS eSKS eSS eL F	18 18 18 18 18 18 19 19 20	53 55 56 57 58 59.9 12 30 30	54 35 28 56 45				(39) Disturbed by microseisms. W1: 1 18h 52m 47s; 1 18h 52m 53s; e 18h 53m 46s. BCIS: $6^{\circ}\text{S } 124^{\circ}\text{E}$, H. 18h 53m 07s, h = about 600 km. USCGS: $7^{\circ}\text{S } 124\frac{1}{2}^{\circ}\text{E}$, H. 18h 35m 05s, h = about 600 km. Flores Sea.
Feb. 20 (40)	ez ez	19 19	02 03	23 42				(40) Disturbed by microseisms. W1: e 19h 02m 14s; e 19h 03m 36s.
Feb. 20 (41)	eL F	22 23	52 30					(41) Disturbed by microseisms. W1: ePKP 21h 48.9m. USCGS: $28^{\circ}\text{S } 177\frac{1}{2}^{\circ}\text{W}$, H. 21h 28m 28s. Kermadec Islands.
Feb. 22 (42)	eL F	06 07	57 30					(42) Disturbed by microseisms. W1: eP 6h 24.0s. USCGS: $34\frac{1}{2}^{\circ}\text{N } 141^{\circ}\text{E}$, H. 6h 11m 26s. CMO: $34^{\circ}\text{N } 141^{\circ}\text{E}$, H. 6h 11m 28s., h = about 60 km. Off coast of Honshu, Japan.
Feb. 22 (43)	eL F	11 11	12 30					(43) Disturbed by microseisms. USCGS: aftershock of (42), H. 10h 26m 39s. CMO: H. 10h 26m 42s.

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Date 1954	Phase	Time			Direction	Period	Amplitude	Remarks
		h	m	s				
Feb. 22 (44)	ePP eSKS eSKKS ePS eSS eL F	12	22	36		s	μ	(44) Disturbed by microseisms. BCIS: $57\frac{1}{2}^{\circ}\text{S } 26\frac{1}{2}^{\circ}\text{W}$, H. 12h 03m 23s. USCGS: $56\frac{1}{2}^{\circ}\text{S } 26\frac{1}{2}^{\circ}\text{W}$, H. 12h 03m 20s. Sandwich Islands.
Feb. 23 (45)	eL F	07	10					(45) Disturbed by microseisms. BCIS: $27\frac{1}{2}^{\circ}\text{N } 91\frac{1}{2}^{\circ}\text{E}$, H. 6h 40m 33s. USCGS: $27\frac{1}{2}^{\circ}\text{N } 91^{\circ}\text{E}$, H. 6h 40m 30s. Bhutan.
Feb. 25 (46)								(46) W1: 1P 11h 56m 06s. BCIS: $52\frac{1}{2}^{\circ}\text{N } 34\frac{1}{2}^{\circ}\text{E}$, H. 11h 50m 40s. USCGS: $52\frac{1}{2}^{\circ}\text{N } 34^{\circ}\text{W}$, H. 11h 50m 42s. North Atlantic Ocean.
Feb. 26 (47)								(47) W1: 1P 0h 04m 18s. USCGS: after- shock of (42), H. 23h 51m 40s. CMO: 23h 51m 45s.
Feb. 26 (48)								(48) W1: eP 3h 32m 58s. USCGS: $45^{\circ}\text{N } 148^{\circ}\text{E}$, H. 3h 21m 12s. Kurile Islands.
Feb. 26 (49)								(49) W1: eP 18h 54m 39s. BCIS: $36^{\circ}.5\text{N } 70^{\circ}.5\text{E}$, H. 18h 46m 27s, h = about 220 km. USCGS: $37^{\circ}\text{N } 71\frac{1}{2}^{\circ}\text{E}$, H. 18h 46m 04s. Hindu Kush.
Feb. 28 (50)	eL F	01	38					(50) Disturbed by microseisms. W1: eP 1h 08m 15s. BCIS: $27^{\circ}\text{N } 130\frac{1}{2}^{\circ}\text{E}$, H. 0h 55m 24s. USCGS: $27^{\circ}\text{N } 131^{\circ}\text{E}$, H. 0h 55m 22s. Ryukyu Islands region.
Mar. 3 (51)	eP ePKP ePP ez ePPP eH ePS eSS eL F	06	18.5					(51) W1: 1PKP 6h 21m 56s; 1PP 6h 23m 31 s. USCGS: $5\frac{1}{2}^{\circ}\text{S } 142\frac{1}{2}^{\circ}\text{E}$, H. 6h 02m 55s. Central New Guinea.
Mar. 3 (52)								(52) W1: 1P 7h 56m 04s +. BCIS: $53\frac{1}{2}^{\circ}\text{N } 159\frac{1}{2}^{\circ}\text{E}$, H. 7h 44m 37s. USCGS: $53^{\circ}\text{N } 160^{\circ}\text{E}$, H. 7h 44m 36s. Near east coast of Kamchatka.
Mar. 6 (53)								(53) W1: 1PKP 0h 48m 24s (+). USCGS: $24^{\circ}\text{S } 180^{\circ}$, H. 0h 29m 27s, h = about 500 km. Fiji Islands region.
Mar. 7 (54)	eS eSS eL F	02	04					(54) Disturbed by microseisms. BCIS: $14\frac{1}{2}^{\circ}\text{S } 14^{\circ}\text{W}$, H. 1h 44m 26s. USCGS: H. 1h 44m 30s. Ascension Island region.
Mar. 8 (55)	eL F	08	25					(55) Disturbed by microseisms. W1: eP 8h 21.6m. BCIS: $38^{\circ}.2\text{N } 20^{\circ}.4\text{E}$, H. 8h 17m 21s. Near west coast of Greece.
Mar. 8 (56)								(56) W1: 1P 13h 50m 02s. USCGS: $37\frac{1}{2}^{\circ}\text{N } 143^{\circ}\text{E}$, H. 13h 37m 35s. Off east coast of Honshu, Japan.
Mar. 8 (57)	e F	19	18					(57) Disturbed by microseisms.

Seismic Records at De Bilt



Date 1954	Phase	Time			Direction	Period	Amplitude	Remarks
		h	m	s		s	μ	
Mar. 8 (58)								(58) W1: 1PKP 20h 46m 04s. BCIS: 20°S 168½°E, H. 20h 26m 28s. USCGS: H. 20h 26m 28s. USCGS: H. 20h 26m 20s. New Hebrides Islands.
Mar. 9 (59)	1P eS 1PS eSSS eL F	02 02 02 02 02 03	31 39.9 40 46.5 49 15	46 08 				(59) Disturbed by microseisms. W1: 1P 2h 31m 52s (+); 1 2h 31m 56s. BCIS: 0° 3N 29° 8W, H. 2h 21m 41s. USCGS: 1½°N 30½°W, H. 2h 21m 43s. Atlantic Ocean, northeast of Brazil.
Mar. 9 (60)	e(SS) eL F	06 06 07	06.5 20 00					(60) Disturbed by microseisms. W1: 1P 5h 54m 04s +. BCIS: 50½°N 157½°E, H. 5h 39m 24s. USCGS: 50°N 157°E, H. 5h 39m 20s. Off south coast of Kamchatka.
Mar. 9 (61)								(61) W1: 1PKP 10h 44m 09s -. USCGS: 19½°S 178°W, H. 10h 25m 02s, h = about 350 km. Fiji Islands.
Mar. 11 (62)	eL F	11 11	10 23					(62) Disturbed by microseisms. USCGS: 14½°N 90½°W, H. 10h 30m 10s, h = about 10 km. Guatemala.
Mar. 12 (63)								(63) W1: 11h 43m 25s. USCGS: 17°S 174°W, H. 11h 23m 47s. Tonga Islands region.
Mar. 13 (64)	eL F	01 01	29 35					(64) W1: e 1h 08.0m. BCIS: 28° 1N 65° 6E, H. 0h 59m 02s. USCGS: H. 0h 58m 53s. Southern Pakistan.
Mar. 14 (65)	ePKP eSS eL F	09 09 10 11	13.0 34.0 00 15					(65) Disturbed by microseisms. USCGS: 11°S 179°W, H. 8h 52m 36s. Fiji Islands.
Mar. 14 (66)	eP e(PPP) eS eL F	17 18 18 18 19	56.2 01 05 14 25	50				(66) Disturbed by microseisms. BCIS: 52½°N 160° 0E, H. 17h 44m 33s. USCGS: 51½°N 160°E, H. 17h 44m 18s. Off southeast coast of Kamchatka.
Mar. 16 (67)								(67) W1: e 9h 59.5m. BCIS: H. 9h 54.3m. Off south coast of Crete.
Mar. 18 (68)								(68) W1: i 17h 32m 46s.
Mar. 19 (69)								(69) W1: 1PKP 8h 31m 08s. USCGS: 25°S 178°W, H. 8h 11m 02s. Fiji Islands region.
Mar. 19 (70)	eS ePS eH eL F	10 10 10 10 11	17 17 28 32 30	00 40				(70) Disturbed by microseisms. USCGS: 33° 3N 116° 1W, 9h 54m 27s. Santa Rosa Mountains, California.
Mar. 20 (71)	e(P) eL F	14 14 15	15.9 45 20					(71) Disturbed by microseisms. USCGS: 47°N 154°E, H. 14h 04m 01 s. h = about 100 km. Kurile Islands.
Mar. 21 (72)								(72) W1: 1P 6h 20m 51s -. BCIS: 53° 0N 158° 5E, H. 6h 09m 26s. USCGS: 52°N 158½°E, H. 6h 09m 23s, h = about 60 km. Near southeast coast of Kamchatka.

Seismic Records at De Bilt



Date 1954	Phase	Time			Direction	Period	Amplitude	Remarks
		h	m	s		s	μ	
Mar. 21 (73)	1P 1pP 1PP 1pPP 1S 1sS 1SS 1sSS eL F	23	53	15 59 58 37 18 02 03 06 07 16 00				(73) W1: 1P 23h 53m 09s; 1pP 23h 53m; 1pPP 23h 56m 23s. He: 1P 23h 53m 11s. BCIS: $24^{\circ}.6N$ $95^{\circ}.2E$, H. 23h 42m 09s, h = about 150 km. USCGS: $24\frac{1}{2}^{\circ}N$ $95^{\circ}E$, H. 23h 42m 05s. Northwestern Burma.
Mar. 22 (74)	eL F	11	10					(74) Disturbed by microseisms. USCGS: $27^{\circ}S$ $176\frac{1}{2}^{\circ}W$, H. 9h 38m 43s. Kermadec Islands region.
Mar. 22 (75)								(75) W1: 1P 17h 23m 20s. USCGS: $17^{\circ}N$ $95\frac{1}{2}^{\circ}W$, H. 17h 10m 50s, h = about 60 km. Southern Mexico.
Mar. 22 (76)								(76) W1: 1P 19h 09m 20s. BCIS: $55\frac{1}{2}^{\circ}N$ $162\frac{1}{2}^{\circ}E$, H. 18h 58m 04s. USCGS: H. 18h 58m 02s. Near east coast of Kamchatka.
Mar. 24 (77)	eL F	01	24					(77) Disturbed by microseisms. BCIS: $54^{\circ}S$ $145\frac{1}{2}^{\circ}E$, H. 23h 56m 18s. West of Macquarie Islands.
Mar. 24 (78)								(78) W1: 1P 17h 33m 12s. BCIS: $53^{\circ}N$ $160\frac{1}{2}^{\circ}E$, H. 17h 21m 43s. Off east coast of Kamchatka.
Mar. 26 (79)	eL F	05	20					(79) Disturbed by microseisms. W1: 1P 4h 47m 35s. BCIS: $41\frac{1}{2}^{\circ}N$ $142\frac{1}{2}^{\circ}E$, H. 4h 35m 25s, h = about 60 km. Off south coast of Hokkaido, Japan.
Mar. 27 (80)	eL F	05	03					
Mar. 27 (81)								(81) W1: 1P 11h 45m 22s. BCIS: $44\frac{1}{2}^{\circ}N$ $141\frac{1}{2}^{\circ}E$, H. 11h 34m 00s, h = about 230 km. Near northwest coast of Hokkaido, Japan.
Mar. 27 (82)								(82) W1: 1P 18h 34m 00s; 1 18h 34m 06s. USCGS: $8^{\circ}S$ $75\frac{1}{2}^{\circ}W$, H. 18h 21m 05 s. Central Peru.
Mar. 27 (83)								(83) W1: 1P 18h 53m 18s. USCGS: $9^{\circ}N$ $84^{\circ}W$, H. 18h 40m 55s. Near coast of Costa Rica.
Mar. 28 (84)								(84) W1: 1P 17h 22m 23s. USCGS: $53^{\circ}N$ $168^{\circ}W$, H. 17h 10m 40s. Fox Islands, Aleutian Islands.
Mar. 28 (85)	eP eS eH ePS eSS eL F	20	48	16 00 10 8 14 13 30				(85) W1: 1P 20h 48m 11s; 1 20h 48m 23s. USCGS: $52^{\circ}N$ $176^{\circ}E$, H. 20h 36m 22s. Rat Islands, Aleutian Islands.
Mar. 28 (86)								(86) W1: 1P 21h 09m 50s; 1 21h 11m 03s. USCGS: $52^{\circ}N$ $175\frac{1}{2}^{\circ}W$, H. 20h 58m 09s, h = about 60 km. Near Islands, Aleutian Islands.

Seismic Records at De Bilt



Date 1954	Phase	Time			Direction	Period	Amplitude	Remarks
		h	m	s				
Mar. 29 (87)	eS ePS eSS eSSS eL F	04	24	40 00 30.5 35.5 47 40		s	μ	(87) W1: 1P 4h 14m 07s; 1 4h 14m 19s; 1 4h 14m 45s. USCGS: $19\frac{1}{2}^{\circ}\text{N } 121\frac{1}{2}^{\circ}\text{E}$, H. 4h 01m 10s. Near north coast of Luzon Island, Philippine Islands.
Mar. 29 (88)	1P 1S F	06	20	27 10 00	-			(88) W1: 1P 6h 20m 36s - . BCIS: $36^{\circ}.9\text{N } 3^{\circ}.3\text{W}$, H. 6h 17m 06s, h = about 730 km. USCGS: $37^{\circ}\text{N } 3\frac{1}{2}^{\circ}\text{W}$, H. 6h 17m 05s, h = about 650 km. Near south coast of Spain.
Mar. 30 (89)	eL F	04	41	50 53				(89) Disturbed by microseisms. W1: eP 4h 35m 18s. BCIS: $36\frac{1}{4}^{\circ}\text{N}$, $22\frac{3}{4}^{\circ}\text{E}$, H. 4h 30m 35s. Near south coast of Peleponese, Greece.
Mar. 30 (90)	eL F	19	30	21 10				(90) Disturbed by microseisms. USCGS: $20^{\circ}\text{N } 155^{\circ}\text{W}$, H. 18h 41m 54s. Near northeast coast of Hawaii.
Mar. 31 (91)	1P 1S eSS eSSS eL F	18	35	44 41 48 50 53 30	-			(91) W1: 1P 18h 35m 37s - . BCIS: $12\frac{1}{2}^{\circ}\text{N } 58^{\circ}.0\text{E}$, H. 18h 25m 47s. USCGS: $13\frac{1}{2}^{\circ}\text{N } 58^{\circ}\text{E}$, H. 18h 25m 48s. Arabian Sea.
Apr. 1 (92)	eL F	14	41	15 00				(92) Disturbed by microseisms. USCGS: $19\frac{1}{2}^{\circ}\text{N } 67^{\circ}\text{W}$, H. 14h 08m 59s, h = about 60 km. North of Puerto Rico.
Apr. 1 (93)	eL F	19	00	19 50				(93) Disturbed by microseisms. USCGS: $46\frac{1}{2}^{\circ}\text{N } 153\frac{1}{2}^{\circ}\text{E}$, H. 18h 48m 47s, h = about 60 km. Kurile Islands.
Apr. 2 (94)								(94) W1: ePKP 15h 18m 15s, ePP 15h 18m 43s. USCGS: $28\frac{1}{2}^{\circ}\text{S } 177^{\circ}\text{W}$, H. 14h 58m 26s, h = about 60 km. Kermadec Islands.
Apr. 2 (95)								(95) W1: 1P 20h 37m 28s + . BCIS: $51\frac{1}{2}^{\circ}\text{N } 157^{\circ}.0\text{E}$, H. 20h 25m 50s. USCGS: $50\frac{1}{2}^{\circ}\text{N } 156^{\circ}\text{E}$, H. 20h 25m 45s. Near south coast of Kamchatka.
Apr. 4 (96)								(96) W1: 1PKP 13h 39m 21s + . USCGS: $16\frac{1}{2}^{\circ}\text{S } 175^{\circ}\text{W}$, H. 13h 20m 04s, h = about 200 km. Tonga Islands region.
Apr. 4 (97)	eL F	23	53	00 30				(97) W1: 1P 23h 25m 59s. BCIS and USCGS: $42^{\circ}\text{N } 142\frac{1}{2}^{\circ}\text{E}$, H. 23h 13m 55s. CMO: $41^{\circ}.9\text{N } 142^{\circ}.8\text{E}$, H. 23h 14m 01s, h = about 50 km. Near south coast of Hokkaido, Japan.
Apr. 5 (98)	eL F	20	03	20 20				(98) USCGS: $48^{\circ}\text{N } 129^{\circ}\text{W}$, H. 19h 20m 00s. Off Vancouver Islands, British Columbia.
Apr. 6 (99)								(99) W1: e 14h 43m 06s. BCIS: $28\frac{1}{4}^{\circ}\text{N } 55^{\circ}\text{E}$, H. 14h 35m 09s. USCGS: H. 14h 35m 10s. Southern Iran.
Apr. 8 (100)	eL F	04	30	04 40				(100) BCIS: $37^{\circ}.2\text{N } 29^{\circ}.7\text{E}$, H. 4h 18m 04s. Turkey.

Seismic Records at De Bilt



Date 1954	Phase	Time			Direction	Period	Amplitude	Remarks
		h	m	s		s	μ	
Apr. 8 (101)	eL F	17	38					(101) USCGS: $27\frac{1}{2}^{\circ}\text{S}$, 116°W , H. 16h 39m 52s. Easter Island region.
Apr. 9 (102)	eL F	08	04					(102) USCGS: $19\frac{1}{2}^{\circ}\text{N}$ $121\frac{1}{2}^{\circ}\text{E}$, H. 7h 15m 03s. Off north coast of Luzon, Philippine Islands.
Apr. 10 (103)								(103) W1: eP 3h 19m 14s. BCIS: $54\frac{1}{2}^{\circ}\text{N}$ 161°E , H. 3h 07m 48s. USCGS: H. 3h 07m 47s. Near east coast of Kamchatka.
Apr. 11 (104)	eL F	04	02					(104) W1: ePKP 3h 22m 12s. USCGS: 7°S 155°E , H. 3h 03m 03s. Solomon Islands.
Apr. 11 (105)								(105) W1: ePKP 3h 34m 59s. USCGS: aftershock of (104), H. 3h 15m 51s.
Apr. 11 (106)	eP ePPP eS eSS eSSS eL	10	35	22				(106) F in next shock. W1: eP 10h 35m 18s; 1 10h 35m 30s - . BCIS: $10\frac{1}{2}^{\circ}\text{N}$ 57°E , H. 10h 25m 23s. USCGS: 11°N 57°E , H. 10h 25m 22s. Arabian Sea.
Apr. 11 (107)	1P ePP F	10	01	52		4	6	(107) W1: 1P 10h 01m 45s +. USCGS: 37°N $70\frac{1}{2}^{\circ}\text{E}$, H. 10h 53m 20s, h = about 60 km. Hindu Kush.
Apr. 13 (108)	eL F	16	09					(108) BCIS and USCGS: $34\frac{1}{2}^{\circ}\text{N}$ $133\frac{1}{2}^{\circ}\text{E}$, H. 15h 25m 48s. Near south coast of Honshu, Japan.
Apr. 14 (109)								(109) W1: 1P 7h 57m 57s. BCIS: $52\frac{1}{2}^{\circ}\text{N}$ $158\frac{1}{2}^{\circ}\text{E}$, H. 7h 45m 27s. Near east coast of Kamchatka.
Apr. 14 (110)	eL F	14	08					(110) W1: 1P 13h 36m 58s. BCIS: 10°N $93\frac{1}{2}^{\circ}\text{E}$, H. 13h 24m 46s. USCGS: 10°N 93°E . Andaman Islands region.
Apr. 17 (111)	eP eS eSS eL F	20	22	30				(111) W1: eP 20h 22m 27s. USCGS: $51\frac{1}{2}^{\circ}\text{N}$ 179°W , H. 20h 10m 37s. Andreanof Islands, Aleutian Islands.
Apr. 17 (112)	ez	20	57	10				(112) W1: e 20h 57m 08s; e 20h 57m 14s. BCIS: H. 20h 52m 47s. Athens: $38^{\circ}07'\text{N}$ $22^{\circ}45'\text{E}$, H. 20h 52.8m. Central Greece.
Apr. 18 (113)								(113) W1: ePKP 3h 23.6m. USCGS: 31°N 128°W , H. 3h 03m 26s. Kermadec Islands.
Apr. 22 (114)	eL F	15	42					(114) USCGS: 22°N $142\frac{1}{2}^{\circ}\text{E}$, H. 14h 55m 22s. Marianas Islands region.
Apr. 23 (115)	eL F	19	04					(115) BCIS: $34^{\circ}.7\text{N}$ $4^{\circ}.9\text{W}$, H. 18h 55m 19s. Maroc.
Apr. 23 (116)	eL F	20	05					
Apr. 24 (117)	eL F	18	19					(117) W1: eP 17h 45.4m. BCIS and USCGS: 34°N 141°E , H. 17h 33m 45s, h = 80 - 90 km. Near east coast of Honshu, Japan.

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Seismic Records at De Bilt



Date 1954	Phase	Time			Direction	Period	Amplitude	Remarks
		h	m	s		s	μ	
Apr. 25 (118)	eP ePP eS eSS eL F	00	37	30 35 24 00 52 00				(118) W1: eP 0h 37.5m. BCIS: $1^{\circ}10'S$ $15^{\circ}10'W$, H. 0h 27m 47s. USCGS: 0° $15^{\circ}10'W$, H. 0h 27m 54s. Atlantic Ocean, about 500 miles southwest of Liberia.
Apr. 25 (119)								(119) W1: eP 22h 19m 34s. Disturb- ed by microseisms. BCIS: $46^{\circ}.2N$ $12^{\circ}.6 E$, H. 22h 17m 24s. Northeast of Italy.
Apr. 25 (120)	eL F	21	13					
		21	40					
Apr. 26 (121)	1P ePcP ePP 1S eHZ eSS eL F	20	36	21 36 06 49 11 50.4 59 20	+	5	3	(121) W1: 1P 20h 36m 15s +. USCGS: $51^{\circ}N$ $158^{\circ}10'E$, H. 20h 24m 44s. Off southeast coast of Kamchatka.
Apr. 27 (122)	eP eS ePS F	10	19	00 19 23 30				(122) W1: eP 10h 19m 05s. USCGS: $6^{\circ}N$ $82^{\circ}10'W$, H. 10h 06m 24s. South of Panama.
Apr. 27 (123)	ePKP eSS eL F	21	41	39 06 35 00				(123) USCGS: $56^{\circ}S$ $147^{\circ}E$, H. 21h 21m 35s. South of Tasmania.
Apr. 29 (124)								(124) W1: eP 2h 46m 04s. USCGS: $52^{\circ}10'N$ $159^{\circ}10'E$, H. 2h 34m 31s. South of Tasmania.
Apr. 29 (125)	eP eS eSS eL F	11	01	55 14 17.5 25 00				(125) W1: eP 11h 02m 00s. USCGS: $29^{\circ}10'N$ $112^{\circ}10'W$, H. 10h 49m 27s. Gulf of California
Apr. 29 (126)	eP eS eL	11	47	04 30 11				(126) In previous shock. W1: eP 11h 47m 06s. USCGS: $29^{\circ}10'N$ $112^{\circ}10'W$, H. 11h 34m 34s. Gulf of California.
Apr. 30 (127)	eL F	00	44					(127) W1: eP 0h 14m 44s. USCGS: $53^{\circ}N$ $162^{\circ}E$, H. 0h 03m 10s. Off east coast of Kamchatka.
Apr. 30 (128)	eP 1z 1S eL F	13	06	43 49 03 10.7 00				(128) W1: eP 10h 06m 40s; 1 10h 06m 48s. BCIS: $39^{\circ}.3N$ $22^{\circ}.2E$, H. 13h 02m 35s. USCGS: $39^{\circ}10'N$ $22^{\circ}E$, H. 13h 02m 36s. Central Greece.
Apr. 30 (129)	eP eZ eL F	19	37	37 05 42.5 00				(129) W1: eP 19h 37m 34s. USCGS: aftershock of (128), H. 19h 33m 30s.
Apr. 30 (130)	eP ePcP eS eSS eL	23	14	17 16 22.0 25.8 28.4				(130) F in next shock. W1: eP 23h 14m 17s; e 23h 14m 21s +. USCGS: $1^{\circ}N$ $19^{\circ}W$, H. 23h 04m 30s. Mid-Atlantic Ocean.
May 1 (131)	eL F	01	27					(131) W1: ePKP 0h 39m 45s. USCGS: $17^{\circ}S$ $174^{\circ}E$, H. 0h 20m 03s. Fiji Islands region.

Seismic Records at De Bilt



Date 1954	Phase	Time	Direction	Period	Amplitude	Remarks
		h m s		s	μ	
May 1 (132)	eL F	15 36 15 50				(132) W1: eP 15h 29m 38s. BCIS: foreshock of (134) H. 15h 24m 53s.
May 1 (133)	eL F	18 50 19 10				(133) BCIS: 210.0N 123°.3E, H. 18h 06m 17s. Off southeast coast of Formosa.
May 1 (134)	eS eL F	21 02 09 21 03.7 21 30				(134) W1: eP 20h 58m 09s. BCIS: 37½°N 27°.0E, H. 20h 53m 25s. USCGS: 36½°N 26°E, H. 20h 53m 16s. Aegean Sea.
May 2 (135)	eL F	18 37 19 30				(135) Disturbed by microseisms. BCIS: 40.0N 95½°E, H. 17h 48m 03s. USCGS: 40°N 94½°E, H. 17h 48m 02s. Off north west coast of Sumatra.
May 3 (136)	er eL F	05 33 05 36 06 00				(136) Disturbed by microseisms. BCIS: 36°N 22°E, H. 5h 24m 57s. USCGS: 36°N 21½°E, H. 5h 24m 55s. Near south coast of Greece.
May 3 (137)	eL F	09 02 09 30				(137) Disturbed by microseisms. Aftershock of (136) BCIS: H. 8h 51m 19s. USCGS: H. 8h 51m 17s.
May 3 (138)	eL F	13 40 14 00				(138) Disturbed by microseisms. BCIS: 35½°N 27½°E, H. 13h 29m 41s. USCGS: 36°N 27°E, H. 13h 29m 42s. Dodecanese Islands.
May 3 (139)	1P 1PP eS eL F	15 41 25 15 44 11 15 51.1 16 05 18 20	(+)			(139) Disturbed by microseisms. W1: eP 15h 41m 20s. USCGS: 51½°N 159½°E, H. 15h 29m 40s. Off south coast of Kamchatka.
May 3 (140)	eL F	18 55 19 20				(140) BCIS and USCGS: 31°N 98½°E, H. 18h 20m 26s. Sikang Province, China.
May 4 (141)	eS eL F	08 41.8 08 44 09 00				(141) Disturbed by microseisms. BCIS: 38°.0N 22°.0E, H. 8h 33m 44s. Central Greece.
May 4 (142)	1P eS eL F	16 47 30 16 50 54 16 52 17 18	+			(142) Disturbed by microseisms. W1: eP 16h 47m 25s. Aftershock of (128). BCIS: H. 16h 43m 21s. USCGS: H. 16h 43m 22s.
May 4 (143)	eP	16 49 36				(143) In previous shock. W1: eP 16h 49m 30s +. Aftershock of (128) BCIS: H. 16h 45m 25s. USCGS: 16h 45m 33s.
May 4 (144)	eL F	18 15 18 45				(144) W1: eP 17h 46m 40s. BCIS: 52½°N 159½°E, H. 17h 35m 05s. USCGS: 52°N 159½°E, H. 17h 35m 05s. Off south coast of Kamchatka.
May 4 (145)	eL F	23 54 00 10				(145) Aftershock of (128) BCIS: H. 23h 44m 54s. USCGS: H. 23h 44m 55s.
May 5 (146)	1P ePP eS eL F	13 22 23 13 25 33 13 32 46 13 48 15 00	(+)			(146) Disturbed by microseisms. W1: 1P 13h 22m 27s +. USCGS: 27½°N 112½°W, H. 13h 09m 46s. Gulf of California.

Seismic Records at De Bilt



Date 1954	Phase	Time			Direction	Period	Amplitude	Remarks
		h	m	s				
May 5 (147)	eL F	17 55 18 40						(147) BCIS: $51^{\circ}\text{N } 156^{\circ}\text{E}$, H. 17h 13m 16s. USCGS: $50^{\circ}\text{N } 156\frac{1}{2}^{\circ}\text{E}$, H. 17h 13m 12s. Off south coast of Kamchatka
May 6 (148)	1P eH eL F	09 13 48 09 24 15 09 39 10 30			+			(148) Disturbed by microseisms. W1: eP 9h 13m 43s. USCGS: $50^{\circ}\text{N } 155\frac{1}{2}^{\circ}\text{E}$, H. 9h 02m 14s. h = about 100 km. Off south coast of Kamchatka.
May 7 (149)	e F	00 57 01 05						(149) BCIS: $8^{\circ}\text{S } 74^{\circ}\text{W}$, H. 0h 22m 55s, h = about 150 km. Peru-Brazil border region.
May 8 (150)	eL F	22 14 22 25						(150) BCIS: $40\frac{1}{2}^{\circ}\text{N } 20\frac{1}{2}^{\circ}\text{E}$, H. 22h 05m 45s. Albania.
May 9 (151)	eP eS eL F	14 19 14 14 23.2 14 24.4 15 00						(151) W1: eP 14h 19m 09s. BCIS: $71\frac{1}{2}^{\circ}\text{N } 13^{\circ}\text{W}$, H. 14h 14m 29s. USCGS: $71^{\circ}\text{N } 12^{\circ}\text{W}$, H. 14h 14m 32s. Near Jan Mayen Island.
May 9 (152)								(152) W1: eP 20h 57m 02s. USCGS: $24\frac{1}{2}^{\circ}\text{N } 125^{\circ}\text{E}$, H. 20h 44m 15s. Ryukyu Islands.
May 10 (153)	eL F	07 40 08 00						(153) Change of papers from 7h 31m till 7h 40m. BCIS: H. 6h 41.5m. Near east coast of Mindanao. Philippine Islands.
May 10 (154)								(154) W1: 1P 8h 11m 28s -. USCGS: $26^{\circ}\text{N } 125^{\circ}\text{E}$, H. 7h 58m 48s. Ryukyu Islands.
May 10 (155)	1PKP F	14 49 17 14 51			+			(155) W1: 14h 49m 13s +. USCGS: $17\frac{1}{2}^{\circ}\text{S } 179^{\circ}\text{W}$, H. 14h 30m 38s. Fiji Islands.
May 11 (156)	eL F	11 59 12 30						(156) BCIS: $8^{\circ}\text{S } 30^{\circ}\text{E}$, H. 11h 22m 32s. Near Lake Tanganyika, Central Africa.
May 11 (157)	eL F	23 37 23 45						(157) W1: eP 23h 02m 06s. BCIS and CMO: $41^{\circ}.5\text{N } 140^{\circ}.6\text{E}$, H. 22h 50m 05s. USCGS: $41^{\circ}\text{N } 141^{\circ}\text{E}$, H. 22h 50m 02s. Off north coast of Honshu, Japan.
May 12 (158)	eP eS eL F	02 20 56 02 24 30 02 27 02 40						(158) W1: eP 2h 20m 56s. BCIS: $37^{\circ}.6\text{N } 20^{\circ}.0\text{E}$, H. 2h 16m 33s. Peleponese, Greece.
May 13 (159)	1P 1pP ePP ez 1S eL F	14 59 02 14 59 22 15 02 16 15 08 32 15 09 19 15 24 17 00			- -			(159) W1: 1P 14h 59m 06s -; 1pP 14h 59m 23s -. BCIS: $16^{\circ}.5\text{N } 95^{\circ}.9\text{W}$, H. 14h 46m 36s, h = about 80 km USCGS: $17^{\circ}\text{N } 95\frac{1}{2}^{\circ}\text{W}$, H. 14h 46m 38s, h = about 100 km. Oaxaca, Mexico.
May 14 (160)	1P 1sP ePP 1S eSP epS 1sS eL F	22 51 26 22 52 50 22 54 31 23 01 21 23 02 08 23 02 38 23 03 05 23 19 01 00			- +	4	8	(160) W1: 1P 22h 51m 20s -; 1pP 22h 52m 20s -. BCIS and CMO: $36^{\circ}.0\text{N } 137^{\circ}.4\text{E}$, H. 22h 39m 25s, h = about 230-240 km. USCGS: $36^{\circ}\text{N } 137^{\circ}\text{E}$, H. 22h 39m 25s, h = about 250 km. Near coast of Honshu, Japan.

Seismic Records at De Bilt



Date 1954	Phase	Time	Direction	Period	Amplitude	Remarks
		h m s		s	μ	
May 15 (161)	eP eS eL F	12 29 24 12 33.1 12 35.0 12 50				(161) W1: eP 12h 29.5m. BCIS: 36°.2N 21°.7E, H. 12h 24m 34s. Off south coast of Peloponese, Greece.
May 16 (162)	eL F	13 43 14 00				(162) USCGS: H. 12h 59m 51s. Pribilof Islands, Bering Sea.
May 16 (163)	ezH eL F	20 30.2 20 35 21 00				(163) BCIS: 36°.5N 70°.5E, H. 20h 10m 43s, h = about 220 km. USCGS: 36°.5N 70°.5E, H. 20h 10m 42s, h = about 200 km. Hindu Kush.
May 19 (164)	eE eE 1z F	09 37 44 09 37 54 09 38 11 10 10				(164) Disturbed by microseisms. W1: eP 9h 36m 38s. BCIS: 46°.4N 7°.15'E, H. 9h 34m 57s. Zurich: 46°.16'N 7°.14'E, H. 9h 34m 56.0s. Southern Switzerland.
May 21 (165)	eL F	05 41 06 00				(165) Disturbed by microseisms.
May 21 (166)	eL F	16 51 17 20				(166) Disturbed by microseisms. USCGS: 56°N 157°W, 16h 13m 15s. Off east coast of Alaska Peninsula.
May 23 (167)	eP eH eL F	04 22 12 04 38.8 04 51 05 20				(167) W1: eP 4h 22.1m. USCGS: 46°N 149°.0E, H. 4h 10m 27s, h = about 150 km. Kurile Islands.
May 23 (168)	eSKS eSS eL F	07 21 34 07 30.3 07 45 08 20				(168) USCGS: 3°N 124°E, H. 6h 56m 42s. Celebes Sea.
May 24 (169)						(169) W1: eP 7h 40m 48s. USCGS: 148°.0N 156°.0E, H. 7h 28m 59s. Kurile Islands.
May 24 (170)	ez F	14 52 14 55				(170) W1: eP 14h 50m 16. After-shock of (164). BCIS: H. 14h 48m 30s.
May 24 (171)						(171) W1: eP 16h 45m 46s. BCIS: 47°.0N 27°.0W, H. 16h 40m 41s. North Atlantic Ocean.
May 24 (172)	eL F	22 59 23 10				(172) W1: eP 22h 40m 34s. BCIS: H. 22h 31.7m. Karakorum region.
May 25 (173)	eP eS eL F	22 07 37 22 11.0 22 12 22 50				(173) eP 22h 07m 36s. Aftershock of (128) BCIS: H. 22h 03m 35s. USCGS: 22h 03m 34s.
May 26 (174)	eP eS eL F	01 54 48 02 04 33 02 25 03 30				(174) W1: eP 1h 54m 41s. USCGS: 51°.0N 159°.0E, H. 1h 43m 03s. Off southeast coast of Kamchatka.
May 26 (175)	eL F	11 30 12 20				(175) BCIS: 30°.0S 177°.0W, H. 9h 58m 02s. USCGS: H. 9h 57m 55s. Kermadec Islands.

Seismic Records at De Bilt



Date 1954	Phase	Time	Direction	Period	Amplitude	Remarks
		h m s		s	μ	
May 26 (176)	eL F	19 43 20 00				(176) W1: eP 19h 09m 21(-). USCGS: 48 $\frac{1}{2}$ °N 156 $\frac{1}{2}$ °E, H. 18h 57m 30s. Kurile Islands.
May 26 (177)						(177) W1: eP 22h 05m 51s. BCIS: 35° 4N 24° 4E, H. 22h 00m 56s. Near north coast of Crete.
May 27 (178)	eL F	07 33 08 00				(178) USCGS: 32°N 131 $\frac{1}{2}$ °E, H. 6h 59m 09s. Near east coast of Kyushu, Japan.
May 27 (179)	eP eL F	14 32.0 14 37 15 00				(179) W1: eP 14h 32.3m. BCIS: H. 14h 27.4m, about 300 km south of Iceland.
May 28 (180)	eL F	02 07 02 10				(180) BCIS: aftershock of (128), H. 1h 57m 08s.
May 28 (181)	eP eS eL F	07 47 06) 07 50 33 07 52 08 05				(181) BCIS: aftershock of (128), H. 7h 43m 02s. USCGS: H. 7h 43m 00s.
May 28 (182)						(182) W1: 13h 42m 41s (+). BCIS: 21 $\frac{1}{2}$ °S 178°W, H. 13h 22m 33s. Fiji Islands region.
May 29 (183)	ePKP ePP F	05 56 04 05 58 26 06 10				(183) W1: 1PKP 5h 56m 01s +. USCGS: 18°S 178°W, H. 5h 37m 21s, h = about 550 km. Fiji Islands.
May 29 (184)	eL F	23 50 00 30				(184) BCIS: 27 $\frac{1}{2}$ °S 175°W, H. 22h 20m 56s. USCGS: H. 22h 21m 00s. Kermadec Islands region.
May 31 (185)	ePP ePS eL F	16 07 50 16 17.2 16 43 18 30				(185) USCGS: 8°S 118 $\frac{1}{2}$ °E, H. 15h 48m 48s, h = about 150 km Flores Sea.
June 3 (186)	eL F	21 36 21 50				(186) Disturbed by microseisms.
June 4 (187)						(187) W1: 1P 0h 57m 14s. USCGS: 45°N 148°E, h. 0h 45m 18s. Kurile Islands.
June 4 (188)	eP ePP eS ePS eL F	07 04 04 07 07 46 07 15 28 07 16.5 07 30 09 00				(188) USCGS: $\frac{1}{2}$ °S 91 $\frac{1}{2}$ °W, H. 6h 50m 42s. Galapagos Islands.
June 4 (189)	eL F	11 35 12 15				(189) BCIS: 5°S 108°E, H. 10h 41.6m USCGS: H. 10h 41m 37s. Java Sea.
June 4 (190)	eL F	16 37 17 25				(190) BCIS: 27° 0N 111° 0W, H. 16h 01m 52s. USCGS: H. 16h 01m 45s. Central Gulf of California.
June 4 (191)						(191) W1: eP 16h 48m 41s, BCIS: 47 $\frac{1}{2}$ °N 153°E, H. 16h 36m 48s. Kurile Islands.
June 4 (192)	eL F	21 21 21 50				(192) Aftershock of (190) BCIS: H. 20h 42m 42s. USCGS: H. 20h 42m 25s.

Seismic Records at De Bilt



Date 1954	Phase	Time	Direction	Period	Amplitude	Remarks
		h m s		s	μ	
June 5 (193)	eL F	14 15 15 00				(193) W1: eP 14h 09.5m. BCIS: aftershock of (128), H. 14h 05m 32s.
June 6 (194)	ePKP ePP ePPP eSKS ePS ePPS eSS eL F	17 09.4 17 10 30 17 12 59 17 16 18 17 20 15 17 22 08 17 26 40 17 42 20 30				(194) W1: 1PKP 17h 09m 28s. BCIS: 30° OS 135° .5E, H. 16h 50m 40s. USCGS: $3\frac{1}{2}^{\circ}$ S $136\frac{1}{2}^{\circ}$ E, H. 16h 50m 33s. Western New Guinea.
June 7 (195)	ez ePP eSKS eE e(SS) F	10 35 09 10 35 36 10 40 09 10 41 52 10 53.3 12 00				(195) W1: 1PKP 10h 33m 45s -; ePP 10h 35.5m; epPP 10h 37m 06s. Disturbed by microseisms. USCGS: $3\frac{1}{2}^{\circ}$ S $152\frac{1}{2}^{\circ}$ E, H. 10h 15m 33s, h = about 450 km. New Britain region.
June 10 (196)	eL F	04 56 05 04				(196) Disturbed by microseisms. BCIS: 34° .0N $38\frac{1}{2}^{\circ}$ W, H. 4h 39m 38s. USCGS: $33\frac{1}{2}^{\circ}$ N 38° W, H. 4h 39m 38s. North Atlantic Ocean.
June 10 (197)						(197) W1: ePKP ₁ 18h 55m 18s; 1pPKP ₁ 18h 58m 08s -; 1pPKP ₂ 18h 58m 24s. USCGS: 19° S 179° W, H. 18h 36m 48s, h = about 750 km. Fiji Islands region.
June 10 (198)						(198) W1: 1P 22h 50m 08s. USCGS: $29\frac{1}{2}^{\circ}$ N $139\frac{1}{2}^{\circ}$ E, H. 22h 37m 56s, h = about 400 km. Off south coast of Honshu, Japan.
June 10 (199)	eL F	23 44 24 00				(199) Disturbed by microseisms.
June 11 (200)						(200) W1: 1P 17h 07m 23s. USCGS: 52° N $172\frac{1}{2}^{\circ}$ E, H. 16h 55m 45s, h = about 60 km. Near Islands, Aleutian Islands.
June 12 (201)						(201) W1: 1PKP ₁ 5h 53m 53s - ; 1PKP ₂ 5h 54m 02s; 1pPKP ₁ 5h 56m 41s. USCGS: 18° S 179° W, H. 5h 35m 13s, h = about 550 km. Fiji Islands.
June 14 (202)	eL F	10 31 10 50				(202) BCIS: $8\frac{1}{2}^{\circ}$ N $33\frac{1}{2}^{\circ}$ W, H. 10h 04m 34s. Mid-Atlantic Ocean.
June 14 (203)	eL F	20 16 20 25				(203) BCIS: $38\frac{1}{2}^{\circ}$ N $21\frac{1}{2}^{\circ}$ E, H. 20h 06m 23s. Western Greece.
June 15 (204)	1P epP ePP eS 1SP eL F	13 42 48 13 43 20 13 46 15 13 53 27 13 54 24 14 08 15 30	-			(204) W1: 1P 13h 42m 53s (+). USCGS: 5° S 77° W, H. 13h 29m 59s, h = about 100 km. Northern Peru.
June 17 (205)	1P 1S eSSS eL F	01 53 42 02 03 00 02 11 02 17 04 00	-			(205) W1: 1P 1h 53m 40s -. BCIS: 56° .8N 154° .0W, H. 1h 42m 24s. USCGS: 56° N $154\frac{1}{2}^{\circ}$ W, H. 1h 42m 22s. Off south coast of Kodiak Island.

Seismic Records at De Bilt



Date 1954	Phase	Time			Direction	Period	Amplitude	Remarks
		h	m	s				
June 17 (206)	eL F	14	00			s	μ	(206) BCIS: $36\frac{1}{2}^{\circ}\text{N } 27\frac{1}{2}^{\circ}\text{E}$, H. 13h 47m 29s. Dodecanese Islands.
June 18 (207)	eL F	18	50			s		(207) BCIS: $6^{\circ}.0\text{S } 105\frac{1}{2}^{\circ}\text{E}$, H. 17h 54m 42s. USCGS: H. 17h 54m 40s. Sunda Strait.
June 19 (208)	eP eS eL F	02	09	06		s		(208) W1: eP 2h 09m 00s. BCIS and USCGS: $30\frac{1}{2}^{\circ}\text{N } 130^{\circ}\text{E}$, H. 1h 56m 30s. CMO: $29\frac{1}{2}^{\circ}\text{N } 131\frac{1}{2}^{\circ}\text{E}$, H. 1h 56m 22s, h, 0 - 10 km. Off south coast of Kyushu.
June 19 (209)						s		(209) W1: 1PKP 19h 49m 09s. BCIS: aftershock of (196) H. 19h 30m 20s.
June 20 (210)	eP eS eL F	22	17	32		s		(210) W1: 1P 22h 17m 41s. BCIS: $4^{\circ}\text{N } 17\frac{1}{2}^{\circ}\text{W}$, H. 22h 07m 56s. USCGS: $\frac{1}{2}^{\circ}\text{N } 18^{\circ}\text{W}$, H. 22h 07m 54s. Mid-Atlantic Ocean.
June 21 (211)	epP ePP epPP e(SKS) e(PS) eL F	02	02	39		s		(211) W1: eP 2h 02m 15s; epP 2h 02m 45s; ePP 2h 06m 15s; epPP 2h 06m 43s; USCGS: $23^{\circ}\text{S } 68\frac{1}{2}^{\circ}\text{W}$, H. 1h 48m 44s, h = about 150 km. Northern Chile.
June 21 (212)						s		(212) W1: 1PKP 2h 25m 35s - , USCGS: $6^{\circ}\text{S } 129^{\circ}\text{E}$, H. 2h 06m 53s. Banda Sea.
June 21 (213)						s		(213) W1: eP 14h 35m 52s. (clock correction doubtful), USCGS: $55^{\circ}\text{N } 162\frac{1}{2}^{\circ}\text{E}$, H. 14h 24m 46s, h = about 60 km. Near east coast of Kamchatka.
June 25 (214)						s		(214) W1: eP 5h 25m 04s. USCGS: $73\frac{1}{2}^{\circ}\text{N } 8^{\circ}\text{E}$, H. 5h 20m 11s. Arctic Ocean.
June 28 (215)	eSS eL F	05	43.6			s		(215) BCIS: $58^{\circ}\text{S } 143^{\circ}\text{W}$, H. 4h 57m 56s. USCGS: $59^{\circ}\text{S } 142^{\circ}\text{W}$, H. 4h 57m 48s. Antarctic Ocean.
June 30 (216)	1P eS eL F	13	36	13		s		(216) W1: eP 13h 36m 13s. BCIS: $6^{\circ}.0\text{N } 37^{\circ}.2\text{ E}$, H. 13h 26m 55s. USCGS: $7^{\circ}\text{N } 37^{\circ}\text{E}$, H. 13h 26m 50s. Southwestern Ethiopia.
June 30 (217)						s		(217) W1: 1P 15h 17m 01s +. USCGS: $51\frac{1}{2}^{\circ}\text{N } 158^{\circ}\text{E}$, H. 15h 05m 26s. Near southeast coast of Kamchatka.
July 1 (218)	eL F	04	00			s		(218) W1: 1P 3h 26m 50s +; e 3h 27m 53s. USCGS: $52^{\circ}\text{N } 159\frac{1}{2}^{\circ}\text{E}$, H. 3h 15m 16s. Off east coast of Kamchatka.
July 1 (219)	eL F	06	06			s		(219) USCGS: $23\frac{1}{2}^{\circ}\text{N } 122^{\circ}\text{E}$, H. 5h 23m 57s. Off east coast of Formosa.
July 2 (220)	eP 1PP eS eSS eL F	02	58	42	+	s		(220) W1: eP 2h 58m 38s. BCIS: $13^{\circ}.0\text{N } 124^{\circ}\text{E}$, H. 2h 45m 09s. USCGS: $13^{\circ}\text{N } 124\frac{1}{2}^{\circ}\text{E}$, H. 2h 45m 08s. Southeastern Luzon, Philippine Islands.

Seismic Records at De Bilt



Date 1954	Phase	Time			Direction	Period	Amplitude	Remarks
		h	m	s				
July 2 (221)	eL F	23	08					
		23	30					
July 3 (222)	eS eSS eH F	00	51.3					(222) W1: 1P 0h 43m 00s; 1 0h 43m 03s. USCGS: $3\frac{1}{2}^{\circ}\text{S}$ 29°E , H. 0h 32m 53s. Belgian Congo, near Lake Tanganyika.
		00	55.1					
		01	01					
		01	50					
July 3 (223)	eL F	22	01					(223) USCGS: $19\frac{1}{2}^{\circ}\text{N}$ $121\frac{1}{2}^{\circ}\text{E}$, H. 21h 15m 00s. Off north coast of Luzon, Philippine Islands.
		22	30					
July 3 (224)	1P ePP eS ePS eSS eL F	22	45	14	+			W1: e 22h 48.0m. USCGS: $6\frac{1}{2}^{\circ}\text{S}$ $105\frac{1}{2}^{\circ}\text{E}$, H. 22h 31m 25s, h = about 100 km. Near southwest coast of Java.
		22	49	14				
		22	56	56				
		22	58	17				
		23	04	10				
		23	15					
		01	40					
July 6 (225)	ePKP ePP ePPP eL F	04	19.3					(225) USCGS: 3°S 148°E , H. 4h 00m 13s. Bismarck Sea.
		04	21.7					
		04	24	24				
		05	02					
		06	20					
July 6 (226)	eS eSS eL F	08	26	29				(226) P during change of papers. W1: 1P 8h 16m 29s USCGS: $46\frac{1}{2}^{\circ}\text{N}$ $153\frac{1}{2}^{\circ}\text{E}$, H. 8h 04m 42s, h = about 100 km. Kurile Islands.
		08	32					
		08	43					
		10	00					
July 6 (227)								(227) W1: eP 10h 26m 05s. USCGS: 46°N 153°E , H. 10h 14m 00s. Kurile Islands.
July 6 (228)	eP	11	23	42				(228) F in next shock. W1: eP 11h 33m 34s. USCGS: aftershock of (227), H. 11h 11m 31s.
July 6 (229)	1P 1S ePS eL F	11	25	15				(229) W1: 1P 11h 25m 12s +; 1 11h 25m 24s -. USCGS: $39\frac{1}{2}^{\circ}\text{N}$ $118\frac{1}{2}^{\circ}\text{W}$, H. 11h 13m 19s. Near Fallon, Nevada (U.S.A.)
		11	35	10				
		11	35	46				
		11	48					
		12	00					
July 6 (230)	1P eS eL F	22	19	36	-			(230) USCGS: aftershock of (229), H. 22h 07m 41s.
		22	29	25				
		22	43					
		00	20					
July 7 (231)	eL F	02	00					(231) USCGS: H. 1h 21m 24s. North of Kurile Islands.
		02	20					
July 9 (232)	1PKP 1pPKP ePP ePS eSS F	12	40	08	-			(232) W1: 1PKP 12h 40m 07s. USCGS: 16°S $174\frac{1}{2}^{\circ}\text{W}$, H. 12h 20m 38s, h = about 100 km. Tonga Islands region.
		12	40	35				
		12	43	51				
		12	53.5					
		13	02.5					
		13	40					
July 9 (233)	eS eL F	16	00	24				(233) P during control. W1: eP 15h 50m 20s. USCGS: $43\frac{1}{2}^{\circ}\text{N}$ 147°E , H. 15h 38m 18s. Off east coast of Hokkaido, Japan.
		16	16					
		17	00					
July 9 (234)								(234) W1: 1P 18h 40m 22s +. BCIS: 41°ON $138^{\circ}.5\text{E}$, H. 18h 28m 50s, h = about 250 km. CMO: $40^{\circ}.7\text{N}$ $139^{\circ}.3\text{E}$, 18h 28m 51s, h = about 300 km. Off northwest coast of Honshu, Japan.

Seismic Records at De Bilt



Date 1954	Phase	Time			Direction	Period	Amplitude	Remarks
		h	m	s				
July 10 (235)	eL F	17	00					(235) USCGS: 38°S 73½°W, H. 16h 00m 40s. Off coast of Central Chili.
July 10 (236)	1P F	23	05	14				(236) W1: 1P 23h 05m 06s +; ePP 23h 07m 00s. BCIS: 36°.5N 70°.5E, H. 22h 56m 57s, h = about 220 km. USCGS: 37°N 70½°E, H. 22h 56m 53s, h = about 200 km. Hindu Kush.
July 12 (237)	eL F	18	18					(237) USCGS: 46°N 153°E, H. 17h 32m 10s. Kurile Islands.
July 13 (238)	ePP eL F	08	25	38				(238) Disturbed by microseisms. USCGS: 3°S 151°E, H. 8h 04m 44s. New Britain region.
July 13 (239)	eL F	22	50					(239) W1: eP 22h 19m 23s, USCGS: 51°.0N 155½°E, H. 22h 07m 40s. Northern Kurile Islands.
July 15 (240)	ePKP F	00	23	40				(240) USCGS: 13°S 177°W, H. 0h 03m 44s. Wallis Islands region.
July 15 (241)	eL F	01	00					
July 18 (242)	eL F	07	10					(242) W1: e6h 45m 55s +. BCIS: 56°.0N 162°.0E, H. 6h 34m 38s. USCGS: 55°N 161½°E, H. 6h 34m 35s. Near east coast of Kamchatka.
July 18 (243)	eP eS eSS eL F	09	20	10				(243) Disturbed by microseisms. W1: eP 9h 20m 04s. USCGS: 35½°N 140½°E, H. 9h 07m 44s. Near east coast of Honshu, Japan.
July 18 (244)	eL F	11	44					(244) Disturbed by microseisms. CMO: 36°.4N 140°.9 E, H. 10h 38m 17s, h = about 40 km. Off east coast of Honshu, Japan.
July 18 (245)	eL F	13	29					(245) Disturbed by microseisms. BCIS: 37°.4N 22°.9E, H. 13h 18m 57s. USCGS: 37½°N 23°E, H. 13h 18m 55s. Near south coast of Greece.
July 18 (246)	eP eS eL F	14	46	47				(246) Disturbed by microseisms. BCIS: 37½°N 21½°E, H. 14h 42m 25s. USCGS: 38½°N 20½°E, H. 14h 42m 38s. Near west coast of Greece.
July 18 (247)								(247) W1: 1PKP 15h 27m 46s. BCIS: H. 15h 07.8m. Kermadec Islands region.
July 21 (248)	e(P) eL F	04	50.3					(248) W1: 1P 4h 50m 08s (-). USCGS: 27½°N 101°E, H. 4h 38m 51s. Szechwan province, China.
July 23 (249)	eP ePP ePPP ePS eL F	04	47	40				(249) W1: eP 4h 47m 45s. USCGS: 31½°S 71½°W, H. 4h 33m 30s, h = about 60 km. Central Chile - Argentina border.

Seismic Records at De Bilt



Date 1954	Phase	Time			Direction	Period	Amplitude	Remarks
		h	m	s				
July 23 (250)	eL F	15	10					(250) USCGS: $34\frac{1}{2}^{\circ}\text{N } 69\frac{1}{2}^{\circ}\text{E}$, H. 14h 45m 16s. Eastern Afghanistan.
July 26 (251)	ePP ePS eSS eL F	20	35.0					(251) Disturbed by microseisms. W1: ePKP 20h 34m 32s. USCGS: $41^{\circ}\text{S } 73^{\circ}\text{W}$, H. 20h 15m 45s. Central Chile
July 26 (252)	eP eS eL F	22	19.6					(252) Disturbed by microseisms. W1: eP 22h 19m 47s. BCIS: $11^{\circ}.5\text{N } 43^{\circ}.9\text{W}$, H. 22h 09m 54s. USCGS: $12\frac{1}{2}^{\circ}\text{N } 44^{\circ}\text{W}$, H. 22h 09m 57s. Mid-Atlantic Ocean.
July 29 (253)	1P eS eL	03	46	14	+			(253) Disturbed by microseisms. F in next shock. W1: 1P 3h 46m 09s +; 1 3h 46m 23s +. USCGS: $49\frac{1}{2}^{\circ}\text{N } 158^{\circ}\text{E}$, H. 3h 34m 20s. Off south coast of Kamchatka.
July 29 (254)	1z 1S _g eL _g F	04	45	49				(254) Disturbed by microseisms. W1: Ph 4h 44m 05s -; 1 4h 44m 15s +. BCIS: $46^{\circ}.3\text{N } 7^{\circ}.5\text{E}$, H. 4h 42m 27s. Zürich: $46^{\circ}19'\text{N } 7^{\circ}30'\text{E}$, H. 4h 42m 27s. Western Switzerland.
July 30 (255)	eP 1PPP eSS eL F	09	06	58				(255) USCGS: $35\frac{1}{2}^{\circ}\text{S } 97^{\circ}\text{W}$, H. 8h 46m 11s. Pacific Ocean, southeast of Easter Island.
July 30 (256)								(256) W1: 1PKP 15h 52m 22s +. BCIS: H. 15h 32.6m. Loyalty Islands.
July 31 (257)	eP eS eSS eL F	01	10	49				(257) BCIS: $39^{\circ}.5\text{N } 104^{\circ}.0\text{E}$, H. 0h 59m 56s. USCGS: $39^{\circ}\text{N } 104^{\circ}\text{E}$, H. 0h 59m 57s. Ningsia province, China.
Aug. 1 (258)								(258) W1: ePKP 21h 51m 54s (+). BCIS: $20^{\circ}\text{S } 168^{\circ}\text{E}$, H. 21h 32m 14s. USCGS: H. 21h 32m 11s. Loyalty Islands.
Aug. 3 (259)	eL F	00	28					(259) USCGS: $37^{\circ}\text{S } 99\frac{1}{2}^{\circ}\text{W}$, H. 23h 28m 33s. Southeast of Easter Island.
Aug. 3 (260)	eP 1z 1S eL F	18	22	23	+			(260) W1: eP 18h 22m 19s. BCIS: $40^{\circ}.2\text{N } 25^{\circ}.0\text{E}$, H. 18h 18m 10s. USCGS: $40^{\circ}\text{N } 25^{\circ}\text{E}$, H. 18h 18m 11s. Aegean Sea.
Aug. 3 (261)	eL F	23	28					(261) BCIS: aftershock of (160), H. 23h 17m 50s.
Aug. 4 (262)	eL F	01	24					(262) BCIS: probably aftershock of (260), H. 1h 12.6m.
Aug. 5 (263)	eP eL F	03	52	32				(263) W1: eP 3h 52m 28s. BCIS: aftershock of (128), H. 3h 48m 22s. USCGS: H. 3h 48m 27s.
Aug. 5 (264)	eP eS eL	04	17	07				(264) F in next shock. W1: eP 4h 17m 04s. BCIS: aftershock of (260) H. 4h 12m 51s. USCGS: H. 4h 12m 54s.

Seismic Records at De Bilt



Date 1954	Phase	Time	Direction	Period	Amplitude	Remarks
		h m s		s	μ	
Aug. 5 (265)	eP eS eL F	04 41 50 04 45 18 04 47 05 10				(265) W1: eP 4h 41m 43s. BCIS: aftershock of (260), H. 4h 37m 33s. USCGS: H 4h 37m 34s.
Aug. 5 (266)	eP ePP eS eSS eL F	09 01 38 09 04 31 09 11 22 09 16.5 09 27 11 00	+			(266) W1: eP 9h 01m 33s. BCIS: 52 $\frac{1}{2}$ °N 175 $\frac{1}{2}$ °E, H. 8h 49m 50s. h = about 60 km. USCGS: 52°N 176°E, H. 8h 49m 52s, h = about 60 km Rat Islands, Aleutian Islands.
Aug. 5 (267)	eL F	20 51 21 00				(267) W1: eP 20h 44m 22s. BCIS: 35° 8'N 27° 6'E, H. 20h 39m 09s. USCGS: H. 20h 39m 13s. Near east coast of Turkey.
Aug. 6 (268)	ePP ePPP ePS eL F	00 05.3 00 08.2 00 15.3 00 45 02 00				(268) USCGS: H. 23h 43m 45s. Near northeast coast of New Guinea.
Aug. 6 (269)						(269) W1: eP 11h 38m 20s. BCIS: 36 $\frac{1}{2}$ °N 23 $\frac{1}{2}$ °E, H. 11h 33.51s, h = about 100 km. USCGS: 36 $\frac{1}{2}$ °N 23°E, H. 11h 33m 41s. Near south coast of Greece.
Aug. 6 (270)	eL F	16 11 16 25				(270) BCIS: 39 $\frac{1}{2}$ °N 25°E, H. 16h 01.3m Aegean Sea.
Aug. 6 (271)	eP eS eL F	16 29 57 16 37 52 16 46 17 30				(271) W1: eP 16h 29m 53s. USCGS: 1°S 23 $\frac{1}{2}$ °W, H. 16h 19m 45s. Mid-Atlantic Ocean.
Aug. 6 (272)	eL F	19 28 19 40				(272) USCGS: 41°N 16°E, H. 19h 21m 14s. Southern Italia.
Aug. 8 (273)						(273) W1: 1PKP 16h 49m 08s. USCGS: 23 $\frac{1}{2}$ °S 179°E, H. 16h 30m 12s. h = about 550 km. Fiji Islands region.
Aug. 9 (274)	eP 1S 1PS eL F	19 28 10 19 37 43 19 38 24 19 49 20 30				(274) W1: 1P 19h 28m 12s (-) USCGS: 53°N 161°E, H. 19h 16m 48s, h = about 60 km. Off east coast of Kamchatka.
Aug. 12 (275)						(275) W1: 1P 23h 29m 43s +. USCGS: 53°N 159°E, H. 23h 18m 14s. Near east coast of Kamchatka.
Aug. 13 (276)	ehz eSS eL F	00 10 00 15.0 00 32 02 00				(276) USCGS: 2°N 118°E, H. 23h 42m 31s. Near east coast of Borneo, Indonesia.
Aug. 14 (277)	eP ePP eS eL F	01 48 28 01 51 19 01 58 16 02 14 02 50				(277) W1: eP 1h 48m 23s. USCGS: 51°N 160 $\frac{1}{2}$ °E, H. 1h 36m 43s. Off southeast coast of Kamchatka.
Aug. 14 (278)						(278) W1: ePKP 14h 19m 41s. USCGS: 18°S 179°W, H. 14h 01m 01s. Fiji Islands.

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Seismic Records at De Bilt



Date 1954	Phase	Time			Direction	Period	Amplitude	Remarks
		h	m	s		s	μ	
Aug. 14 (279)	eL F	23	45					(279) BCIS: 3°S 127 $\frac{1}{2}$ °E, H. 22h 56m 08s. USCGS: H. 22h 56m 08s. Ceram Sea.
Aug. 15 (280)								(280) W1: eP 5h 51m 39s. BCIS: 54°N 160°W, H. 5h 40m 12s. USCGS: H. 5h 40m 10s. Near east coast of Kamchatka.
Aug. 16 (281)	eL F	00	36					(281) USCGS: 25°N 122 $\frac{1}{2}$ °E, H. 23h 56m 53s. Near east coast of Formosa.
Aug. 16 (282)	eL F	09	30					(282) BCIS: 4 $\frac{1}{2}$ °N 85 $\frac{1}{2}$ °E, H. 9h 02m 33s. USCGS: 9h 02m 32s. Sinkiang province, China.
Aug. 16 (283)								(283) W1: 1PKP 14h 45m 34s. USCGS: 21°S 178 $\frac{1}{2}$ °W, H. 14h 26m 44s, h = about 500 km. Fiji Islands.
Aug. 18 (284)	1PKP 1pPKP ePS eSS esSS eL F	05	01	53	-			(284) W1: 1PKP 5h 01m 53s (+); epPKP 5h 02m 38s. USCGS: 21 $\frac{1}{2}$ °S 176°W, H. 4h 42m 20s, h = about 150 km. Tonga Islands.
Aug. 18 (285)								(285) W1: eP 18h 09m 57s. BCIS: 52°N 159 $\frac{1}{2}$ °E, H. 17h 58m 07s. USCGS: H. 17h 58m 06s. Off southeast coast of Kamchatka.
Aug. 19 (286)	eP eS eL F	21	08	43				(286) W1: eP 21h 08m 40s. BCIS: 41°N 35 $\frac{1}{2}$ °E, H. 21h 03m 27s. USCGS: H. 21h 03m 23s. Near north coast of Turkey.
Aug. 20 (287)	eP eS eL F	19	26	15				(287) USCGS: foreshock of (300), H. 19h 21m 33s.
Aug. 20 (288)	eP eS eL F	20	28	56				(288) USCGS: foreshock of (300), H. 20h 24m 15s.
Aug. 20 (289)	eP eS eL	21	52	03				(289) F in next shock. BCIS: foreshock of (300), H. 21h 47.3m.
Aug. 20 (290)	eP eS eL F	22	13	50				(290) BCIS: foreshock of (300) H. 22h 09.1m.
Aug. 20 (291)	eP eS eL F	23	03	58				(291) USCGS: foreshock of (300), H. 22h 59m 16s.
Aug. 21 (292)	eP eS eL	00	30	20				(292) F in next shock. W1: eP 0h 30m 15s. BCIS: foreshock of (300), H. 0h 25m 35s.
Aug. 21 (293)	eP eS F	00	30	50				(293) BCIS: foreshock of (300), H. 0h 26m 06s.

Seismic Records at De Bilt



Date 1954	Phase	Time			Direction	Period	Amplitude	Remarks
		h	m	s		s	μ	
Aug. 21 (294)	eP eS eL F	04	17	59				(294) W1: 4h 17m 55s. USCGS: foreshock of (300) H. 4h 13m 14s.
		04	22	02				
		04	23					
		04	40					
Aug. 21 (295) F	eL	07	30					(295) Change of papers from 7h 24m till 7h 30m. W1: eP 7h 24m 32s, USCGS: foreshock of (300), H. 7h 19m 46s.
		08	10					
Aug. 21 (296)	eP eS eL F	13	09	48				(296) W1: eP 13h 09m 50s. USCGS: foreshock of (300) H. 13h 05m 05s.
		13	13	54				
		13	15					
		13	30					
Aug. 21 (297)	eL F	14	10					(297) BCIS: foreshock of (300), H. 14h 00.4m.
		14	25					
Aug. 21 (298)	eP eS eL F	17	44	52				(298) W1: eP 17h 44m 50s. USCGS: foreshock of (300), H. 17h 40m 05s.
		17	48	56				
		17	50					
		18	10					
Aug. 21 (299)	eL F	20	44					
		21	00					
Aug. 21 (300)	eP eS eL F	22	55	43				(300) W1: eP 22h 55m 45s. BCIS: 71°0'N 140°W, H. 22h 50m 54s. USCGS: 72°0'N 13°W, H. 22h 51m 00s Jan Mayen Island region.
		22	59	49				
		23	01					
		23	40					
Aug. 22	eP eS eL F	02	56	29				(301) W1: eP 2h 56m 25s. USCGS: aftershock of (300), H. 2h 51m 42s.
		03	00	28				
		03	02					
		03	20					
Aug. 22 (302)	eP eS eL F	08	51	30				(302) BCIS: aftershock of (300), H. 8h 46.8m.
		08	55	37				
		08	57					
		09	15					
Aug. 22 (303)	1P eS eL F	10	12	45				(303) W1: eP 10h 12m 43s. USCGS: aftershock of (300), H. 10h 08m 02s.
		10	16	50				
		10	18					
		10	50					
Aug. 22 (304)	eP eS eL F	12	44	26				(304) USCGS: aftershock of (300), H. 12h 39m 38s.
		12	48	28				
		12	50					
		13	10					
Aug. 22 (305)	eP eS eL F	18	26.0					(305) USCGS: aftershock of (300), H. 18h 21m 12s.
		18	30	05				
		18	32					
		18	45					
Aug. 23 (306)	eL F	00	02					(306) BCIS: aftershock of (300), H. 23h 52.1m.
		00	15					
Aug. 23 (307)	eP eS eL F	09	37.5					(307) USCGS: aftershock of (300), H. 9h 32m 37s.
		09	41.5					
		09	43					
		10	00					
Aug. 23 (308)	eP eS eL F	11	44	04				(308) USCGS: aftershock of (300), H. 11h 39m 18s.
		11	48	00				
		11	49.0					
		12	00					

Seismic Records at De Bilt



Date 1954	Phase	Time	Direction	Period	Amplitude	Remarks
		h m s		s	μ	
Aug. 24 (309)	1P eS eSS eL F	06 03 24 06 13 20 06 18.0 06 26 09 00				(309) W1: eP 6h 03m 22s. USCGS: 39° 5N 118° 5W, H. 5h 51m 31.5s. Near Fallon, Nevada.
Aug. 24 (310)	eL eS	06 22(56) 06 27(00)				(310) W1: eP 6h 22m 43s. BCIS: aftershock of (300), H. 6h 18.2m.
Aug. 26 (311)	eL F	19 50 21 00				(311) BCIS: 5° 1S 153° 0E, H. 18h 40m 21s. USCGS: 5° S 153° E, H. 18h 40m 20s. Off east coast of New Britain.
Aug. 27 (312)	eP eS eL F	11 08.3 11 18 59 11 39 13 40				(312) W1: eP 11h 08m 15s. USCGS: 24° N 143° E, H. 10h 55m 00s, h = 100 km. South of Bonin Islands.
Aug. 27 (313)						(313) W1: eP 12h 26m 09s. USCGS: aftershock of (300), H. 12h 21m 27s.
Aug. 28 (314)	eL F	10 43 11 10				(314) 1P 10h 13m 45s; e 10h 13m 58s. USCGS: 37° N 141° E, H. 10h 01m 20s. Near east coast of Honshu, Japan.
Aug. 28 (315)	ePP ePPP eH eSS eL F	23 25.3 23 28.0 23 33.3 23 42.0 24 02 24 40				(315) W1: PKP 23h 23m 21s. BCIS: 58° S 65° W, H. 23h 04.4m. USCGS: H. 23h 04m 25s. 300 miles south of Tierra del Fuega.
Aug. 30 (316)	eL F	08 35 09 30				(316) BCIS: 44° 5N 147° 5E, H. 7h 57m 24s, h = about 60 km, USCGS: 44° N 147½° E, H. 7h 57m 23s, h = about 60 km. Kurile Islands.
Sept. 1 (317)	eS eL F	05 40.5 05 57 06 30				(317) USCGS: 39½° N 118½° W, H. 5h 18m 46.5s. Near Fallon, Nevada.
Sept. 2 (318)	eL F	02 01.2 02 15				(318) W1: eP 2h 57m 55s. BCIS: 41° 9N 19° 6E, H. 1h 54m 31s. Albania-Yugoslavia border region.
Sept. 2 (319)	epPP ePPS eSS eL F	19 13.7 19 25 18 19 31.2 19 47 20 30				(319) USCGS: 10° S 166° E, H. 18h 51m 29s, h = about 100km. Santa Cruz Islands.
Sept. 3 (320)	eL F	03 33 03 46				(320) W1: 1 3h 14m 56s -. BCIS: Probably Mid-Atlantic Crust.
Sept. 4 (321)	epPP eSKS eH ePS eSS eSSS eL F	03 48 40 03 54 16 03 56 26 03 58.3 04 04.5 04 10 04 20 06 15				(321) W1: eP 3h 47m 18s; ePP 3h 48m 03s; epPP 3h 48m 31s. BCIS and USCGS: 3° S 139½° E, H. 3h 28m 32s, h = about 60 km. Northern New Guinea.

Seismic Records at De Bilt



Date 1954	Phase	Time			Direction	Period	Amplitude	Remarks
		h	m	s		s	μ	
Sept. 4 (322)	1P ₁ 1P ₂ ePP ₁ ePP ₂ eS ₁ eS ₂ eL F	06	54	07 35 22 42 27 59 10 40				(322) W1: 1P ₁ 6h 54m 00s - ; 1P ₂ 6h 55m 28s. USCGS: Two shocks. 28°N 83½°E, H. 6h 43m 46s and H. 6h 45m 14s. Nepal.
Sept. 4 (323)	eP eS eL F	09	06	28 10 37 20				(323) W1: eP 9h 06.0m. BCIS: 200.4N 120°E, H. 8h 53m 22s. USCGS: 21½°N 133½°E, H. 8h 53m 20s. Southeast of Formosa.
Sept. 4 (324)	ePKP ePP eL F	13	21	17 02 16 30				(324) USCGS: 11½°S 166°E, H. 13h 11m 49s. Santa Cruz Island.
Sept. 5 (325)	ez 1PKP ePP eL F	08	05	19 21 09.0 50 30	+	7	10	(325) W1: e 8h 05m 16s; 1PKP 8h 05m 18s +. USCGS: 19°S 176°E, H. 7h 45m 31s. Fiji Islands region.
Sept. 6 (326)	eL F	12	07	12 30				(326) USCGS: foreshock of (328), H. 11h 25m 33s.
Sept. 6 (327)	eL F	14	55	15 10				(327) USCGS: foreshock of (328), H. 14h 06m 31s.
Sept. 6 (328)	eP eS eL F	16	59	52 10.7 34 20				(328) W1: eP 16h 59m 50s. USCGS: 21°N 121°E, H. 16h 46m 58s. Off north coast of Luzon, Philippine Islands.
Sept. 6 (329)	1P 1pP eS eSS eSS eL F	18	42	27 45 58 25 56.5 04 20	+	5	6	(329) W1: 1P 18h 42m 21s. BCIS: 52°ON 157½°E, H. 18h 30m 51s, H = about 60 km. USCGS: 51°N 158°E, H. 18h 30m 48s, h = about 60 km. Near southeast coast of Kamchatka.
Sept. 7 (330)	eP ePS F	00	48.1	00 59.9 02 00				(330) USCGS: aftershock of (328), H. 0h 35m 13s.
Sept. 7 (331)								(331) W1: 1PKP 7h 33m 31s. USCGS: 17°S 179°E, H. 7h 14m 59s, h = about 600 km. Fiji Islands.
Sept. 9 (332)	1P 1S 1H eL F	01	08	29 24 33 12.0 00	-	4	12	(332) W1: 1P 1h 08m 40s - . BCIS: 36° 17'N 1° 28'E, H. 1h 04m 37s. USCGS: 36°N 1½°E, H. 1h 04m 37s. Northern Algeria.
Sept. 9 (333)	eP eL F	09	32.5	09 36 10 00				(333) W1: eP 9h 32m 40s. BCIS: aftershock of (332), H. 9h 28m 42s. USCGS: H. 9h 28m 41s.
Sept. 9 (334)	eL F	18	28	18 35				(334) BCIS: aftershock of (332) H. 18h 18m 59s.
Sept. 10 (335)	1P eS eL F	05	47	55 50.8 51 23				(335) W1: eP 5h 48m 07s; 1 5h 48m 09s. BCIS: aftershock of (332), H. 5h 44m 05s. USCGS: H. 5h 44m 04s.

Seismic Records at De Bilt



Date 1954	Phase	Time			Direction	Period	Amplitude	Remarks
		h	m	s				
Sept. 12 (336)	eL F	02	53					
		03	10					
Sept. 12 (337)	eP eS eL F	07	56	24				
		08	06	10				
		08	22					
		10	00					(337) W1: 1P 7h 55m 58s. USCGS: 41°N 143°E, H. 7h 43m 50s. CMO: 40° 9'N 143° 6'E, H. 7h 43m 47s, h = about 20 km. Off south coast of Hokkaido, Japan.
Sept. 13 (338)	1PKP 1pPKP eH eH eSS esSS eSSS esSSS F	02	29	28	-	4	4	
		02	30	18	-	4	10	
		02	43	20				
		02	44	28				
		02	52.0					
		02	53	10				
		02	57	43				
		02	58	50				
		04	40					
Sept. 13 (339)	1P eS eL F	18	32	12				
		18	43.1					(339) USCGS: aftershock of (328), H. 18h 19m 16s.
		18	49					
		19	30					
Sept. 13 (340)	eL F	20	10					
		20	30					(340) BCIS: aftershock of (328), H. 19h 22m 45s.
Sept. 13 (341)	eL F	22	04					
		22	20					(341) BCIS: 30° 8'N 35° 5'E, H. 21h 46m 31s. Israel.
Sept. 14 (342)	eP eSKS eS eL F	01	01	10				
		01	11	42				
		01	12	03				(342) USCGS: aftershock of (328), H. 0h 48m 18s.
		01	34					
		02	30					
Sept. 14 (343)	eL F	07	40					
		07	50					(343) BCIS: H. 6h 55.6m. Ryukyu Islands region.
Sept. 15 (344)	1PKP ₁ 1PKP ₂ 1pPKP ₁ F	18	14	48	+			
		18	15	15				(344) Disturbed by microseisms. USCGS: 18°S 178½°W, H. 17h 56m 08s, h = about 600 km. Fiji Islands.
		18	18	11				
		19	20					
Sept. 16 (345)	eL F	22	25					
		22	35					(345) Disturbed by microseisms. BCIS: aftershock of (332) H. 22h 18m 15s.
Sept. 17 (346)	eL F	02	15					
		02	35					(346) Disturbed by microseisms. USCGS: 41½°S 153½°E, H. 1h 13m 08s. New Ireland.
Sept. 17 (347)	eL F	08	14					
		08	45					(347) Disturbed by microseisms. BCIS: 24½°N 121½°E, H. 7h 33m 23s. USCGS: 24½°N 122°E, H. 7h 33m 21s. Near northeast coast of Formosa.
Sept. 17 (348)	1PKP 1pPKP ePP 1pPP 1SKKS 1sSKKS 1PS eSS 1sSS 1SSS F	10	22	41	-			
		10	23	45				
		10	26	06				(348) W1: ePKP 10h 22m 36s +; 1 10h 22m 39s -. USCGS: 20½°S 176½°W, H. 10h 03m 14s, h = about 250 km. Tonga Islands region.
		10	27	30				
		10	32	49				
		10	34	37				
		10	36	33				
		10	45.1					
		10	46	28				
		10	50	53				
		13	40					

Seismic Records at De Bilt



Date 1954	Phase	Time	Direction	Period	Amplitude	Remarks
		h m s		s	μ	
Sept. 18 (349)	eL F	16 20 17 00				(349) 140°N 145°E, H. 15h 31m 06s. Mariana Islands.
Sept. 20 (350)	1P eL F	00 15 30 00 22.0 00 35				(350) Disturbed by microseisms. BCIS: 54° 5N 35° 0W, H. 0h 10m 06s. USCGS: 53° 0N 35° 10W, H. 0h 10m 09s. North Atlantic Ocean.
Sept. 20 (351)	ez eH eL F	01 08.5 01 23.5 01 30 02 30				(351) Disturbed by microseisms. USCGS: 1½°S 120½°E, H. 0h 39m 28s. Celebes
Sept. 23 (352)	1P ePP eZ eS eSS eL F	21 55 28 21 58 20 22 01.4 22 05 15 22 10.6 22 18 23 50	+			(352) Disturbed by microseisms. W1: 1P 21h 55m 23s. BCIS: 50°N 156°E, H. 21h 23m 38s. USCGS: 49°N 156°E, H. 21h 23m 36s. Kurile Islands region.
Sept. 25 (353)	eL F	12 43 13 15				(353) Disturbed by microseisms. BCIS: H. 11h 14.1m. 500 miles southwest of Tasmania.
Sept. 28 (354)	eP eL F	00 37 01 02 01 45				(354) Disturbed by microseisms. USCGS: 52°N 160°E, H. 0h 25m 00s. Off southeast coast of Kamchatka.
Sept. 28 (355)	eL F	14 18 15 08				(355) Disturbed by microseisms. USCGS: 15½°S, 173°W, H. 12h 53m 06s. Samoa Islands region.
Oct. 1 (356)	ePKP 1PP ePS eSS eSSS eL F	03 15.1 03 17 42 03 28.0 03 35.5 03 40.8 03 58 06 00				(356) Disturbed by microseisms. USCGS: 11°S 166°E, H. 2h 55m 31s. Santa Cruz Islands.
Oct. 3 (357)	ePKP ePP eSS eSSS eL F	03 06 50 03 09.2 03 27 31 03 32.5 03 42.5 06 20				(357) W1: ePKP 3h 06m 46s; ePP 3h 09.3m. USCGS: 10°S 165½°E, H. 2h 47m 17s. Santa Cruz Islands
Oct. 3 (358)	1P 1pP 1PP 1S eSS eL F	11 29 28 11 29 51 11 31 55 11 38 14 11 42 20 11 50 13 30	-	4	7	(358) W1: 1P 11h 29m 24s; 1pP 11h 29m 45s. USCGS: 60½°N 151°W, H. 11h 18m 46s, h = about 100 km. Kenai Peninsula, Alaska.
Oct. 3 (359)	ePP ePS ePPS eL F	23 40.5 23 50 13 23 51 18 00 15 01 00				(359) BCIS: 1° 5S 127° 5E, H. 23h 21m 35s. USCGS: 1°S 127½°E, H. 23h 21m 36s. Molucca Islands.
Oct. 4 (360)	eL F	02 15 02 50				(360) Disturbed by microseisms. USCGS: 25°N 122°E, H. 1h 33m 21s. Formosa.
Oct. 4 (361)	eL F	10 45 11 05				(361) Disturbed by microseisms. USCGS: 11°S 166°E, H. 9h 32m 56s. Santa Cruz Islands.

Seismic Records at De Bilt



Date 1954	Phase	Time			Direction	Period	Amplitude	Remarks
		h	m	s		s	μ	
Oct. 5 (362)	eL F	05	05					(362) Disturbed by microseisms. BCIS and CMO $33^{\circ}.7N$ $141^{\circ}.3E$, H. 4h 18m 18s, h = about 50 km. Off southeast coast of Honshu, Japan.
Oct. 5 (363)	eL F	12	03					(363) Disturbed by microseisms. BCIS: $55^{\circ}.7N$ $109^{\circ}.0E$, H. 11h 28m 17s. USCGS: $55^{\circ}N$ $109^{\circ}E$, H. 11h 28m 17s. Lake Baikal, SSR.
Oct. 12 (364)	eL F	19	32					(364) Disturbed by microseisms. BCIS: $36^{\circ}.4N$ $1^{\circ}.7E$, H. 19h 23m 29s. Algeria.
Oct. 13 (365)	eL F	22	37					(365) Disturbed by microseisms. Shillong $38^{\circ}N$ $70^{\circ}E$, H. 22h 11m 45s. North of Afghanistan.
Oct. 14	ePP ePPP ePS ePPS eSSS eL F	01	54.7					(366) Disturbed by microseisms. BCIS: $7^{\circ}.5S$ $127^{\circ}.5E$, H. 1h 35m 03s. USCGS: $7^{\circ}S$ $128^{\circ}E$, H. 1h 35m 00s. Banda Sea.
Oct. 16 (367)	eP eS eL F	00	32	58				(367) Disturbed by microseisms. W1: eP 0h 32m 46s. USCGS: $71^{\circ}N$ $14^{\circ}W$, H. 0h 28m 11s. Jan Mayen Island region.
Oct. 16 (368)								(368) W1: ePKP 16h 37m 55s. BCIS: $18^{\circ}.8S$ $174^{\circ}.2W$, H. 16h 18m 37s, h = about 250 km. Tonga Islands region.
Oct. 16 (369)	eP eS eL F	20	20	25				(369) Disturbed by microseisms. USCGS: aftershock of (367), H. 20h 15m 32.
Oct. 17 (370)	eS eL F	23	20.0					(370) Disturbed by microseisms. USCGS: $31^{\circ}.1N$ $116^{\circ}.1W$, H. 22h 57m 18s. Lower California.
Oct. 19 (371)	eP eS eL F	17	53.3	22				(371) Disturbed by microseisms. W1: eP 17h 53m 20s. BCIS: $58^{\circ}.4N$ $33^{\circ}.4W$, H. 17h 48m 15s. USCGS: $57^{\circ}.2N$ $33^{\circ}.2W$, H. 17h 48m 14s. North Atlantic Ocean.
Oct. 20 (372)	eL F	24	30					(372) Disturbed by microseisms. W1: eP 23h 54m 37s, e 23h 54m 47s. BCIS: and USCGS: $31^{\circ}N$ $141^{\circ}E$, H. 23h 41m 43s. South of Honshu, Japan.
Oct. 21 (373)	eL F	07	32					(373) Disturbed by microseisms. USCGS: $14^{\circ}N$ $90^{\circ}.2W$, H. 16h 51m 48s, h = about 60 km. Guatemala.
Oct. 21 (374)	eL F	18	09					(374) Disturbed by microseisms. BCIS: $36^{\circ}.3N$ $1^{\circ}.6E$, H. 18h 01m 51s. USCGS: $36^{\circ}.2N$ $2^{\circ}E$, H. 18h 01m 53s. Near coast of Algeria.
Oct. 24 (375)	eL F	10	25					(375) Disturbed by microseisms. USCGS: $31^{\circ}.1N$ $116^{\circ}W$, H. 9h 44m 05s. Lower California.

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Date 1954	Phase	Time			Direction	Period	Amplitude	Remarks
		h	m	s		s	μ	
Oct. 24 (376)	eL F	23	48					(376) Disturbed by microseisms. BCIS: 40° 5N 28° 5E, M. 23h 27m 13s. USCGS: 39° 40'N 27° E, M. 23h 27m 10s. Western Turkey.
Oct. 27 (377)	eL F	10	45					(377) Disturbed by microseisms. BCIS: aftershock of (376), M. 10h 34.3m.
Oct. 27 (378)	eL F	22	21					(378) Disturbed by microseisms. BCIS: 40° N 77° 5E, M. 21h 48m 45s. USCGS: 40° N 77° E, M. 21h 48m 41s. Sinkiang Province, China.
Oct. 29 (379)	eL F	21	35					(379) Disturbed by microseisms. BCIS: 64° 1N 21° 3W, M. 21h 24.7m Southwestern Iceland.
Oct. 30 (380)	eL F	22	31					(380) Disturbed by microseisms. USCGS: 38° N 104° E, M. 21h 56m 50s. Ningsia Province, China.
Oct. 30 (381)	eL F	23	55					(381) Disturbed by microseisms. BCIS: 40° 40'N 46° 40'E, M. 23h 43m 29s. USCGS: 40° N 46° E, M. 23h 43m 27s. Azerbaijan, SSR.
Oct. 31 (382)	1PKP eL F	23	32	33				(382) Disturbed by microseisms. USCGS: 18° 40'S 170° E, M. 23h 12m 52s. New Hebrides Islands.
Nov. 1 (383)	eL F	21	35					(383) Disturbed by microseisms. BCIS: 13° 8N 91° 9W, M. 20h 56m 24s., h = about 60 km. USCGS: 14° N 92° W, M. 20h 56m 22s, h = about 60 km. Off coast of Guatemala.
Nov. 2 (384)	ePP eSKS ePS eSS eL F	08	43.4					(384) Disturbed by microseisms. BCIS: 8° 0S 119° 0E, M. 8h 24m 10s. USCGS: 7° 40'S 119° E, M. 8h 24m 08s. Sumbawa Island region.
Nov. 5 (385)	eL F	23	28					(385) Disturbed by microseisms. W1: 1P 22h 58m 17s. USCGS: 52° 40'N 160° 40'E, M. 22h 46m 44s. Off east coast of Kamchatka.
Nov. 6 (386)	eL F	13	50					(386) Disturbed by microseisms. USCGS: 23° 40'N 124° E, M. 13h 07m 14s. Ryukyu Islands region.
Nov. 7 (387)	eL F	06	50					(387) Disturbed by microseisms. W1: 1PKP 5h 38m 47s. USCGS: 24° 40'S 176° W, M. 5h 18m 57s. Tonga Islands region.
Nov. 12 (388)	eL F	13	05					(388) Disturbed by microseisms. W1: 1P 12h 39m 13s. USCGS: 31° 40'N 116° W, M. 12h 26m 47s. Lower California.
Nov. 14 (389)								(389) W1: 1PKP 18h 44m 34s. USCGS: M. 18h 25m 50s, h = about 550 km. Apia: 17° S 179° W, M. 18h 25m 53s, h = about 500 km. Fiji Islands.

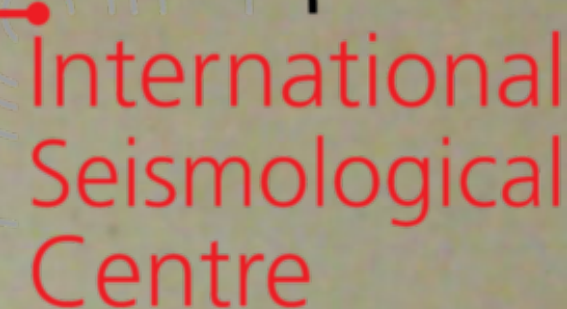
Seismic Records at De Bilt



Date 1954	Phase	Time			Direction	Period	Amplitude	Remarks
		h	m	s		s	μ	
Nov. 15 (390)	eL F	17	15					(390) Disturbed by microseisms. BCIS: $18\frac{1}{2}^{\circ}\text{N } 146^{\circ}.0\text{E}$, H. 16h 26m 39s, h = about 150-200 km. USCGS: $19\frac{1}{2}^{\circ}\text{N } 145\frac{1}{2}^{\circ}\text{E}$, H. 16h 26m 44s, h = about 200 km. Mariana Islands.
Nov. 18 (391)	1P epP ePP eS eSKS eSS eL F	05	31	44				(391) Disturbed by microseisms. W1: eP 5h 31m 42s, epP 5h 32m 08s. USCGS: $49^{\circ}\text{N } 155^{\circ}\text{E}$, H. 5h 20m 04s, h = about 100 km. Kurile Islands.
Nov. 18 (392)	eP eS eL F	20	57	15				(392) Disturbed by microseisms. W1: 1P 20h 57m 10s; epP 20h 57m 27s. BCIS and CMO: $38^{\circ}.9\text{N } 142^{\circ}.3\text{E}$, H. 20h 44m 57s, h = about 60 km USCGS: $39^{\circ}\text{N } 142^{\circ}\text{E}$, H. 20h 44m 55s. Honshu, Japan.
Nov. 19 (393)	1P 1pP ePP 1S 1H esS F	06	06	57				(393) Disturbed by microseisms. W1: 1P 6h 06m 51s; 1pP 6h 08m 45s. USCGS: $41^{\circ}\text{N } 131\frac{1}{2}^{\circ}\text{E}$, H. 5h 56m 03s, h = 600 km. Japan Sea
Nov. 21 (394)	eL F	09	04					(394) Disturbed by microseisms. USCGS: $29^{\circ}\text{S } 178^{\circ}\text{W}$, H. 7h 37m 27s. Kermadec Islands.
Nov. 23 (395)	eL F	10	55					(395) Disturbed by microseisms. USCGS: $52\frac{1}{2}^{\circ}\text{N } 160^{\circ}\text{E}$, H. 10h 17m 35s, h = about 60 km. Off coast of Kamchatka.
Nov. 23 (396)	eL F	21	55					(396) Disturbed by microseisms. USCGS: $52^{\circ}\text{N } 160^{\circ}.5\text{E}$, H. 21h 12m 55s, h = about 60 km. Off southeast coast of Kamchatka.
Nov. 25 (397)	eP eS 1PS eH eL F	11	29.0					(397) Disturbed by microseisms. W1: eP 11h 28m 41s. USCGS: $40^{\circ}.5\text{N } 126^{\circ}\text{W}$, H. 11h 16m 36s. West of Cape Mindocino, California.
Nov. 25 (398)	eL F	21	25	49				(398) Disturbed by microseisms. USCGS: $15^{\circ}\text{N } 94\frac{1}{2}^{\circ}\text{W}$, H. 20h 48m 50s. Off coast of Chiapas, Mexico.
Nov. 25 (399)		22	00	28				(399) W1: ePKP 21h 52m 21s; epPKP 21h 54m 51s. USCGS: $21\frac{1}{2}^{\circ}\text{S } 179^{\circ}\text{E}$, H. 21h 33m 38s, h = about 600 km. Fiji Islands region.
Nov. 29 (400)								(400) W1: 1P 1h 50m 31s (-). USCGS: $53\frac{1}{2}^{\circ}\text{N } 160^{\circ}\text{E}$, H. 1h 39m 02s. Near east coast of Kamchatka.
Dec. 3 (401)	eL F	22	04					(401) Disturbed by microseisms. BCIS: $41\frac{1}{2}^{\circ}\text{N } 74\frac{1}{2}^{\circ}\text{E}$, H. 21h 38m 11s. USCGS: $41\frac{1}{2}^{\circ}\text{N } 74\frac{1}{2}^{\circ}\text{E}$, H. 21h 38m 12s. Kirgiz, SSR, Central Asia.

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Date 1954	Phase	Time			Direction	Period	Amplitude	Remarks
		h	m	s				
Dec. 4 (402)	eL F	07	38					(402) Disturbed by microseisms. BCIS: 5° 03' 152° 55' E, H. 7h 00m 32s. USCGS: 5° 03' 152° 45' E, H. 7h 00m 29s. New Britain region.
Dec. 4 (403)	eL F	18	59					(403) Disturbed by microseisms. W1: eP 18h 41m 44s. BCIS: 10° 10' N 61° 10' W, H. 18h 31m 10s, h = about 60 km. USCGS: 11° 0' N 61° 0' W, H. 18h 31m 07s, h = about 60 km. Near Trinidad.
Dec. 6 (404)	eL F	03	50					(404) Disturbed by microseisms. BCIS: H. 2h 51m 46s. USCGS: 3° 10' S 151° 0' E, H. 2h 51m 40s. New Ireland region.
Dec. 7 (405)	eL F	01	00					(405) Disturbed by microseisms. USCGS: 11° 03' S 166° 0' E, H. 23h 45m 51s. Santa Cruz Islands.
Dec. 7 (406)	eL F	15	43					(406) Disturbed by microseisms. USCGS: 3° 10' N 125° 10' E, H. 14h 48m 30s, h = about 100 km. Celebes Sea.
Dec. 10 (407)	eL F	13	32					(407) Disturbed by microseisms. USCGS: 18° 10' N 81° 10' W, H. 13h 00m 27s. West of Jamaica.
Dec. 11 (408)	eP eS eL F	03	41	52				(408) Disturbed by microseisms. W1: eP 3h 42m 01s. USCGS: 1° 10' S 13° 10' W, H. 3h 32m 13s. Off coast of Liberia.
Dec. 11 (409)	1P 1S eL F	13	02	10	+	5	7	(409) W1: 1P 13h 02m 17s + . BCIS: 52° 08' N 31° 07' W, H. 12h 57m 08s. USCGS: 52° 10' N 32° 0' W, H. 12h 57m 07s. North Atlantic Ocean.
Dec. 15 (410)	eL F	23	45					(410) Disturbed by microseisms. BCIS: 38° 00' N 21° 01' E, H. 23h 35m 59s. USCGS: H. 23h 35m 59s. Near west coast of Greece.
Dec. 16 (411)	eL F	08	30					(411) W1: ePKP 7h 17m 50s; e 7h 17m 56s. USCGS: 24° 03' S 175° 0' W, H. 6h 57m 57s. Tonga Islands region.
Dec. 16 (412)	1P I 1P II eS I ePS I eS II ePS II eSSS I eL F	11	19	08				(412) Disturbed by microseisms. W1: 1P I 11h 19m 08s; 1P II 11h 23m 24s. Two shocks. USCGS: 39° 03' N 118° 00' W, H I 11h 07m 12s. H II 11h 11m 29s.
Dec. 19 (413)	e(S) eL F	10	47					(413) Disturbed by microseisms. W1: eP 10h 37.0m. BCIS: 23° 04' S 66° 05' W, H. 10h 23m 40s, h = about 220 km. USCGS: 23° 03' S 66° 10' W, H. 10h 23m 40s, h = about 250 km. Jujuy Province, Argentina.



Seismic Records at De Bilt						
Date 1954	Phase	Time	Direction	Period	Amplitude	Remarks
		h m s		s	μ	
Dec. 21 (414)	eP eS ePS eSS eL F	20 08.5 20 18 25 20 19 00 20 23.5 20 30 21 30				(414) Disturbed by microseisms. USCGS: 40° 09'N 123° 09'W, H. 19h 56m 27.5s. Humboldt County, California.
Dec. 25 (415)	eL F	16 37.5 16 45				(415) Disturbed by microseisms. BCIS: 38°N 21°E, H. 16h 27m 17s. USCGS: H. 16h 27m 16s. Near west coast of Greece.
Dec. 26 (416)	eL F	04 35 05 00				(416) Two shocks. BCIS and CMO: 30° 10'N 142 1/3°E, h = about 40 km H.I 3h 40m 47s; H.II 3h 41m 40s. South of Honshu, Japan.
Dec. 28 (417)	eSS eL F	01 39 01 56 03 40				(417) BCIS: 4° 05'S 153° 00'E, H. 1h 00m 40s. USCGS: 5° 05'S 152° 00'E, H. 1h 00m 37s. New Britain region. E1: 1PKP 1h 19m 43s.
Dec. 28 (418)						(418) W1: ePKP 2h 33m 20s. USCGS: 5° 05'S 152° 00'E, H. 2h 14m 13s. New Britain region.
Dec. 29 (419)	eL F	12 37 13 50				(419) BCIS: H. 11h 40m 54s. New Britain region.
Dec. 30 (420)	eL F	02 16 02 25				(420) BCIS: 40° 06'N 22° 07'E, H. 2h 07m 22s. Greece.
Dec. 30 (421)	eP eS eL e(ScP) F	11 10 32 11 14 18 11 16 30 11 18 56 11 40				(421) W1: eP 11h 10.5m. BCIS: 36° 05'N 22° 00'E, H. 11h 05m 57s. USCGS: 37° 00'N 22° 00'E, H. 11h 05m 58s. Greece.
Dec. 30 (422)	eP eS eL F	11 44.2 11 53.8 12 12 13 10				(422) Disturbed by microseisms. W1: 1P 11h 44m 07s +; 1pP 11h 44m 40s. USCGS: 53° 00'N 168° 00'W, H. 11h 32m 28s, h = about 60 km. Fox Islands, Aleutian Islands.