No. 66 **Jan.—Dec. 1956**

GEODÆTISK INSTITUT

Proviantgården · Copenhagen · Denmark

Bulletin of the seismological station

KØBENHAVN

$\varphi = 55°41'$ N. $\lambda = 12°26'$ E. $h = 13$ m.

Lithologic foundation: chalk

Instruments

Galitzin-Wilip. *N* and *E*. $T_p = T_g = 12^1/_2$ sec, $\mu^2 = 0$, $\frac{Ak}{\pi l} = 265$ or V_{max} abt. 1000.

Galitzin-Wilip. *Z*. $T_p = 9$ sec, $T_g = 12$ sec, $\mu^2 = 0$, $\frac{Ak}{\pi l} = 174$ or V_{max} abt. 600.

Benioff. *Z'*. $T_p = 1$ sec, $T_g = ^1/_4$ sec, V_{max} abt. 30 000.

Wiechert 1000 kg. *N* and *E*. $T = 8^1/_2$ sec, $v = 4:1$, $\varrho = 0.4$ mm, $V_0 = 210$.

Wiechert 1300 kg. *Z*. $T = 5$ sec, $v = 3:1$, $\varrho = 0.2$ mm, $V_0 = 170$.

Seismological Readings

Phases are indicated by the symbols used in ISS. Times are given in GMT. Positions of epicenters are most often due to USCGS. The periods given are periods of full oscillations. The amplitudes are single amplitudes of the ground in microns. + indicates ground motion towards the north, towards the east, or upwards. – indicates the opposite direction. Unless otherwise stated, the periods and amplitudes are due to readings on the Galitzin instruments.

January

6	$eP \cdot Z'$	$12^h19^m52^s$		
	$L \cdot E$	26.4		
	$\Delta = 18°$. Aegean Sea.			
6	$eP \cdot Z'$	14 57 14		
	$iPP \cdot Z'$	57 19	+	
	$\Delta = 19°$. Black Sea.			
6	$iP \cdot Z'$	18 03 03	+	
	$\Delta = 73°$. Aleutian Islands.			
8	$eSKS \cdot E$	7 34 56		
	$e(S) \cdot E$	35 16		
	$L \cdot E$	54		
	$\Delta = 88°$. Mexico.			
8	$iP \cdot Z$	21 08 11		
	$iPP \cdot ZE$	12 17		
	$eSKS \cdot E$	18.8		
	$iSKKS \cdot E$	19 08	+	
	$eSS \cdot E$	27.0		
	$L \cdot E$	43		
	$\Delta = 102°$. Northern Chile.			
9	$iPKP \cdot Z'Z$	12 24 29		
	$epPKP \cdot Z$	26 50		
	$esPKP \cdot Z$	27 46		
	$eSS \cdot E$	46 13		
	$\Delta = 146°$. $h = 650$ km. Fiji Islands region.			
10	$iPKP \cdot Z$	9 12 34	–	
	$i \cdot Z$	12 44		
	E	17 11		
	N	20 01		
	$i \cdot N$	21 27		
	$i \cdot N$	23 21		
	$\Delta = 149°$. Tonga Islands region.			
12	$eP \cdot Z'$	5 48 25		
	$iP \cdot Z'Z$	48 26	–	
	$iL \cdot Z'$	51 32		
	$M \cdot E$	51.9	9^s. 22 μ.	
	$M \cdot N$	52.7	8^s. 16 μ.	
	$\Delta = 9°$. Hungary.			
13	$eP \cdot Z$	3 38 29		
	$eS \cdot NE$	47 20		
	$eSS \cdot NE$	51.0		
	$L \cdot NE$	4.0		
	$\Delta = 67°$. Kamchatka.			
14	$eP \cdot Z$	14 20.2		
	$eS \cdot E$	30.1		
	$ePS \cdot ZN$	30.4		
	$L \cdot NE$	46		
	$\Delta = 74°$. Aleutian Islands.			

January

16	$iP \cdot Z$	$23^h50^m51^s$	+	
	$e \cdot N$	54 11		
	$iPP \cdot Z$	54 32		
	$iSKS \cdot E$	24 01 25	12^s. 14 μ.	
	$iS \cdot N$	02 01	12^s. 22 μ	
	$\Delta = 92°$. Equador.			
19	$L \cdot NE$	20 20		
27	$iP \cdot Z'$	1 18 09		
	$\Delta = 20°$. Aegean Sea.			
27	$eP \cdot Z'$	13 58 39		
	$\Delta = 149°$. Tonga Islands region.			
28	$i \cdot Z'$(?)	5 02 49		
	$eP \cdot Z'$	03 01		
	$L \cdot N$	21		
	$\Delta = 63°$. Mid Atlantic Ocean.			
29	$L \cdot NE$	23.1		

February

1	$L \cdot NE$	2 43		
1	$iP \cdot Z'Z$	13 54 36	–	
	$epP \cdot Z$	56 01		
	$iPP \cdot ZNE$	58 34	10^s. N: + 2 μ, E: + 3 μ, Z: + 3 μ.	
	$iPPP \cdot NE$	14 00 31		
	$iSP \cdot N$	06 41		
	$ePS \cdot N$	07 15		
	$i \cdot NE$	09 09		
	$i \cdot NE$	14 31		
	$\Delta = 95°$. $h = 350$ km. Mariana Islands.			
1	$iP \cdot Z'ZN$	15 14 32		
	$iS \cdot E$	17 31		
	$e \cdot N$	17 45		
	$i \cdot E$	20 15		
	$\Delta = 16°$. $h = 200$ km. Tyrrhenian Sea.			
3	$eP \cdot Z'$	13 22 38		
	$L \cdot NE$	33		
	$\Delta = 33°$. Eastern Iraq.			
7	$i \cdot Z'$	10 10 50		
9	$iP \cdot Z'Z$	14 45 04	–	
	$eSKS \cdot NE$	55 26		
	$eSS \cdot NE$	15 00.8		
	$L \cdot NE$	10		
	$M \cdot NE$	17	22^s. N: 115 μ, E: 60 μ.	
	$\Delta = 83°$. Lower California.			

February				
10	$iP \cdot Z'$	$0^h14^m39^s$		
	$ipP \cdot Z'$	14 49		
	$L \cdot E$	44		
	$\Delta = 78°$. $h = 60$ km. Japan.			
11	$e \cdot Z'$	19 42 36		
12	$eP \cdot Z'$	12 01 53	−	
	$iP \cdot Z'$	01 54	+	
	$i \cdot Z'$	02 04	−	
	$eSKS \cdot E$	12 09		
	$ePS \cdot E$	12 54		
	$eSS \cdot E$	17 39		
	$L \cdot NE$	30		
	$M \cdot NE$	42		14^s. N: 25 μ, E: 40 μ.
12	$i \cdot Z'$	12 10 55	+	
12	$L \cdot NE$	20 25		
13	$L \cdot NE$	2 30		
13	$L \cdot NE$	4 30		
13	$iP \cdot Z'$	14 39 56	−	
	$\Delta = 68°$. $h = 500$ km. Sea of Okhotsk			
13	$L \cdot NE$	15 00		
13	$L \cdot NE$	23 26		
14	$L \cdot NE$	13 18		
14	$eS \cdot NE$	18 56 28		
	$L \cdot NE$	19 11		
	$\Delta = 83°$. Lower California.			
15	$eP \cdot Z'$	1 33 06		
	$iS \cdot NE$	43 36		
	$ePS \cdot N$	44 21		
	$L \cdot NE$	59		
	No Benioff record. P read on a Willmore vertical.			
	$\Delta = 84°$. Lower California.			
15	$iP \cdot Z'Z$	15 57 04		
	$iS \cdot E$	16 03 13		
	$L \cdot NE$	11.5		
	$\Delta = 41°$. Southern Iran.			
16	$iP \cdot Z'$	0 30 55		
	$epP \cdot Z'$	31 26		
	$\Delta = 91°$. $h = 100$ km. Mariana Islands region.			
17	$eSKS \cdot N$	10 18.6		
	$i(S) \cdot E$	20 20		
	$eSS \cdot NE$	27.5		
	$L \cdot E$	42		
	$\Delta = 105°$. South Atlantic Ocean.			
February				
17	$e \cdot Z'$	$14^h00^m06^s$		
18	$iP \cdot Z$	7 45 57		5^s. − 3 μ.
	$epP \cdot Z$	47 41		
	$ipP \cdot ZNE$	47 44		Z: 6^s. − 5 μ.
	$esP \cdot E$	48 34		
	$iPP \cdot ZNE$	49 17		Z: −. E: −.
	$e(pPP) \cdot ZN$	51 06		
	$e(sPP) \cdot ZN$	51 39		
	$iS \cdot ZNE$	55 29		
	$\Delta = 82°$. $h = 450$ km. South of Honshu, Japan.			
19	$eP \cdot Z'ZN$	2 29 10		
	$iS \cdot E$	38 18		
	$eScS \cdot N$	39 10		
	$eSS \cdot N$	42.6		
	$L \cdot NE$	51		
	$\Delta = 70°$. Queen Charlotte Islands.			
19	$ePKP \cdot Z'$	6 00 07		
	$\Delta = 147°$. Tonga Islands.			
20	$L \cdot E$	1 35.5		
	$L \cdot N$	37		
20	$eP \cdot Z'$	8 09 58		
	$\Delta = 82°$. Ryukyu Islands.			
20	$iP \cdot Z'ZNE$	20 36 12		7^s. N: + 7 μ, E: − 5 μ, Z: + 6 μ.
	$iS \cdot N$	39 49		
	$iS \cdot ZE$	39 55		
	$eSS \cdot N$	40 05		
	$L \cdot NE$	41.6		
	$M \cdot E$	45		12^s. 80 μ.
	$M \cdot N$	46		12^s. 65 μ.
	$\Delta = 20°$. Turkey.			
21	$iPKP \cdot Z'Z$	20 51 27		
	$iSKP \cdot Z'$	54 10		
	$\Delta = 145°$. $h = 650$ km. Fiji Islands region.			
21	$L \cdot NE$	23 08		
22	$eP \cdot Z'Z$	0 11 46		
	$eS \cdot ZE$	15 15		
	$L \cdot NE$	16.3		
	$\Delta = 18°$. Southwest of Svalbard.			
22	$eP \cdot Z'Z$	10 11 18		
	$eS \cdot E$	20 46		
	$eSS \cdot NE$	25.4		
	$L \cdot NE$	10.7		
	$\Delta = 75°$. Indian Ocean.			

February

23 *iP·Z′* 1h29m24s
iS·NE 36 09
eSS·E 39 31
i(ScS)·E 39 39
L·NE 42
Δ = 46°. North Atlantic Ocean.

23 *eP·Z′* 6 09 04
eS·E 12 48
L·NE 17.1
P read on a Willmore vertical.
Δ = 21°. Eastern Turkey.

24 *ePKP2·Z′Z* 9 39 21
L·NE 10.7
Δ = 155°. Kermadec Islands region.

25 *iPKP·Z′* 6 09 14
Tonga Islands region.

29 *eS·E* 21 10 55
e(sS)·E 11 19
L·E 25
Δ = 66°. *h* = 60 km. India-Burma border.

March

1 *iP·Z′* 12 55 38 –
L·NE 13 10
Δ = 41°. Southern Iran.

3 *L·NE* 1 13

3 *L·NE* 18 35

5 *L·NE* 4 23

5 *iP·Z′* 7 20 53
e·Z′ 21 04
iS·NE 27 35
eSS·NE 31.0
L·NE 35.6
M·E 41 12s. 10 μ.
Δ = 46°. Sinkiang Province, China.

5 *iP·Z′* 23 41 10 +
ePPP·ZNE 45 34
eS·E 50 40
ePS·N 51 00
eSSS·E 58 35
e·N 24 02 13
L·NE 04
Δ = 73°. Japan.

March

6 *iP·Z′* 9h03m08s +
eS·E 09 13
L·NE 15
Δ = 40°. Southern Iran.

6 *iP·Z′* 9 17 22
Δ = 40°. Southern Iran.

6 *eP·Z′* 9 22 11
Southern Iran?

9 *iP·Z′* 15 40 47
Southern Iran.

9 *eP·Z′* 16 52 31
L·NE 17 06
Δ = 41°. Southern Iran.

10 *ePKP·Z′* 19 53 00
Δ = 146°. *h* = 200 km. Tonga Islands.

11 *eP·Z′* 8 13 41
Δ = 40°. Southern Iran.

13 *iP·Z′Z* 13 26 05
ePP·E 29 36
eSKS·E 36 30
iS·E 36 40
iS·N 36 43
iPS·E 37 31
eSS·E 42.2
e·N 42 44
L·E 51.3
Δ = 86°. South of Panama.

16 *iP·Z′* 19 38 26
L·NE 49
Δ = 27°. Lebanon.

16 *eP·Z′* 19 49 16
ePP·Z′ 49 50
Δ = 27°. Lebanon.

19 *L·NE* 18 35

21 *L·NE* 5 08.5

22 *iP·Z′Z* 6 47 07
ipP·Z′Z 47 30
isP·Z′Z 47 44
ePP·E 50 57
iSKS·E 57 36
iS·NE 58 15
isS·E 58 46
Δ = 94°. *h* = 100 km. Ecuador.

March				
23	$L \cdot E$	6^h13^m		
25	$iP \cdot Z'Z$	23 38 42^s	+	
	$iS \cdot N$	47 53		
	$L \cdot NE$	24 01		
	$\Delta = 70°$. Kamchatka.			
26	$L \cdot NE$	4 02		
26	$iP \cdot Z'Z$	4 10 35		
	$L \cdot NE$	36		
	$\Delta = 70°$. Kamchatka.			
28	$iP \cdot Z'$	22 16 52	+	
	$\Delta = 82°$. $h = 500$ km. Japan.			
30	$iP \cdot Z'$	18 55 34	−	
	$L \cdot NE$	19.4		
	$\Delta = 76°$. Japan.			
30	$ePKP \cdot Z'$	22 35 14		
	$\Delta = 145°$. Tonga Islands region.			
31	$L \cdot Z'NE$	14 11.9		
April				
1	$L \cdot NE$	12.2		
2	$eP \cdot Z'ZE$	11 02 43		
	$eSKS \cdot E$	13 12		
	$ePS \cdot E$	14.1		
	$eSS \cdot E$	19.4		
	$L \cdot E$	34		
	$\Delta = 86°$. Sumatra.			
6	$iP \cdot Z'ZNE$	7 19 21	5^s. Z: $+5\,\mu$, E: $-5\,\mu$.	
	$ipP \cdot Z$	20 07		
	$esP \cdot Z$	20 36		
	$iPP \cdot ZE$	21 03		
	$isPP \cdot ZE$	22 13	E: 8^s, $-9\,\mu$.	
	$iS \cdot NE$	25 33	N: 8^s, $+10\,\mu$.	
	$esS \cdot N$	26 51		
	$iScS \cdot ZNE$	28 54		
	$MScS \cdot E$	29 12	10^s, $18\,\mu$.	
	$\Delta = 44°$. $h = 200$ km. Hindu Kush.			
7	$L \cdot NE$	0 48		
7	$L \cdot NE$	19 26		
10	$epP \cdot Z'Z$	13 29 38		
	$iSKS \cdot E$	39 21	8^s. $7\,\mu$.	
	$iS \cdot NE$	39 53	8^s. N: $4\,\mu$, E: $8\,\mu$.	
	$esS \cdot NE$	40 56		
	$\Delta = 92°$. $h = 150$ km. South of Sumatra.			

April			
11	$L \cdot NE$	7^h07^m	
12	$L \cdot NE$	5 57	
12	$iP \cdot Z'$	22 41 03^s	
	$i \cdot Z'$	41 08	
	$i \cdot Z'$	41 11	
	$iS \cdot NE$	46 18	
	$L \cdot NE$	49	
	$\Delta = 32°$. Northern Iran.		
18	$iS \cdot NE$	11 21 16	
	$L \cdot NE$	36	
	$\Delta = 72°$. Aleutian Islands.		
19	$L \cdot NE$	18 50	
22	$e \cdot NE$	5 11.2	
	$eSS \cdot N$	18.1	
	$L \cdot NE$	39	
	$\Delta = 122°$. New Britain.		
22	$eiP \cdot Z'Z$	17 33 10	
	$ePcP \cdot ZN$	33 28	
	$iS \cdot NE$	42 31	
	$i(PS) \cdot E$	42 41	
	$L \cdot NE$	57	
	$\Delta = 72°$. South of Alaska Peninsula.		
23	$iP \cdot Z'ZNE$	3 43 15	+
	$iS \cdot NE$	52 46	N: −, E: +.
	$ePS \cdot NE$	53 07	
	$L \cdot NE$	4 08	
	$M \cdot NE$	19	16^s. N: $12\,\mu$, E: $10\,\mu$.
	$\Delta = 74°$. Japan.		
23	$L \cdot NE$	9 27	
25	$L \cdot NE$	8 11.4	
25	$L \cdot NE$	9 36	
26	$L \cdot N$	3 08.3	
26	$L \cdot NE$	8 48	
26	$L \cdot NE$	12 19	
26	$L \cdot NE$	15 27	
26	$L \cdot N$	17 44	
28	$L \cdot NE$	7 28	
28	$L \cdot NE$	16.2	

May

3 *L·E* 17.8

5 *e·Z′* 17 30m01s

5 *eP·Z′* 20 46 47
L·NE 20.9
$\Delta = 22°$. Asia Minor.

5 *L·NE* 22 41

6 *iP·Z′* 21 08 33 +
i·Z′ 08 37
L·NE 31
$\Delta = 70°$. Alaska.

7 *ePP·N* 11 19 05
eSS·N 35 43
L·E 58
$\Delta = 123°$. South Pacific Ocean.

13 *iP·Z′* 7 59 14 –
L·NE 8 14
M·N 20 16s. 10 μ.
M·E 24 16s. 10 μ.
$\Delta = 48°$. Central Pakistan.

15 *eP·Z′* 18 38 38 very weak.
i·Z′ 38 58 +
eS·NE 42 13
L·NE 44.6
$\Delta = 20°$. Ionian Islands.

15 *eP·Z′* 23 01 20
eS·NE 04 56
L·NE 06.6
$\Delta = 20°$. Ionian Islands.

18 *L·NE* 22 18.5

19 *L·NE* 1 36

19 *iPKP·Z′* 1 49 37
eSSS·NE 2 12.3
L·NE 29
$\Delta = 123°$. Solomon Islands.

19 *L·NE* 14 34

19 *ePP·ZN* 20 20 36
eSKS·N 26 41
iS·NE 28 12
ePS·N 29.5
eSS·NE 34.5
L·NE 51
$\Delta = 100°$. Indian Ocean.

May

22 *ePKP·Z* 3h20m36s
ePP·Z 23 33
ePKS·NE 24 13
SKKS·N 30 23
SKSP·N 33.7
L·NE 4 07
$\Delta = 140°$. Samoa Islands.

22 *iPKP·Z′* 13 54 08 –
iPP·ZNE 55 31
ipPP·E 57 19
i·E 57 52
eSKS·NE 14 00 20
i·NE 01 44
i·N 14 30
$\Delta = 119°$. $h = 550$ km. New Ireland.

23 *ePKP·ZN* 21 06 50
i·Z′ZN 06 59 *Z*: –.
i·Z′Z 07 09 6s. + 6 μ.
ipPKP·Z′Z 08 57 *Z*: –.
iSKP·Z′ZN 10 04 *Z*: 9s. + 15 μ.
iPKS·N 10 47 9s. + 20 μ.
isPKS·N 13 16
i·N 21 40
No *E*-record.
$\Delta = 140°$. $h = 450$ km. Fiji Islands.

26 *L·NE* 18 46

26 *iPKP·Z′* 20 39 44
iSKP·Z′ 42 30
ePP·N 43 17
eSKS·NE 45 59
eSKKP·Z′ 50 48
iSS·NE 21 00 52
No *Z*-record.
$\Delta = 142°$. $h = 550$ km. Fiji Islands.

30 *iPKP·Z′* 16 00 59
i·Z′ 01 02
$\Delta = 147°$. $h = 350$ km. Tonga Islands region.

June

1 *L·NE* 10 56

1 *L·NE* 22 59

3 *iP·Z′* 5 27 16
iS·N 33 37
eSS·NE 36.6
L·NE 41
$\Delta = 43°$. Arctic Ocean.

3 *L·NE* 20 29

June				
4	*iP·Z′*	7h20m50s	+	
	eS·N	30 27		
	eS·E	30 36		
	eScS·N	31 01		
	eSS·NE	35 06		
	L·N	45		
	$\Delta = 74°$. Aleutian Islands.			
8	*ePP·E*	4 17.1		
	eS·E	21 53		
	SS·NE	24.5		
	SSS·E	25.3		
	L·N	29		
	$\Delta = 43°$. Afghanistan.			
8	*L·NE*	14 48		
9	*ePP·ZE*	10 27 35		
	eSKKS·NE	34 01		
	eS·E	34 59		
	epS·N	35 41		
	e·E	36 40		
	iPS·E	37 17		
	eSS·NE	43 20		
	L·NE	59		
	$\Delta = 111°$. Central Chile.			
9	*iP·Z′ZNE*	23 21 48	8s. *Z*: + 30 μ, *N*: + 4 μ, *E*: − 30 μ.	
	iPP·ZNE	23 27	*Z*: 9s, + 40 μ.	
	iS·NE	28 12		
	M·ZN	44	15s. *Z*: 300 μ, *N*: 100 μ.	
	M·E	49	15s. 125 μ.	
	$\Delta = 43°$. Afghanistan.			
10	*L·NE*	14 15		
11	*eS·NE*	1 20 48		
	L·NE	25		
	$\Delta = 24°$. Near Crete.			
11	*eS·E*	3 11 38		
	L·NE	22		
	$\Delta = 43°$. Afghanistan.			
11	*L·NE*	10.9		
11	*L·NE*	23 18		
12	*L·NE*	3 46		
12	*eSKSP·E*	9 23 23		
	ePS·E	23 33		
	eSS·E	29.8		
	eSSS·E	34.0		
	L·NE	49		
	$\Delta = 117°$. Eastern Pacific Ocean.			
June				
13	*eSKS·N*	12h32m00s		
	L·N	56		
	$\Delta = 102°$. $h = 200$ km. Celebes.			
14	*iP·Z′*	12 24 31	+	
	$\Delta = 75°$. Kurile Islands.			
15	*ePKP·Z′*	15 55 16		
	$\Delta = 149°$. $h = 200$ km. South of Tonga Islands.			
16	*eP·Z′*	6 31 43		
	eS·NE	41 58		
	eSKS·E	42 03		
	L·NE	7 01		
	$\Delta = 81°$. Ryukyu Islands.			
16	*ePKP·Z′*	19 55 51		
	$\Delta = 150°$. South of Tonga Islands.			
21	*iPKP·Z′*	10 46 16		
	$\Delta =$ abt. 144°. South of Fiji Islands.			
22	*i·NE*	0 55 44		
	L·NE	59		
23	*iP·Z′*	2 28 51		
	ePP·N	31 25		
	ePPP·E	33 05		
	iS·NE	37 48		
	ePS·N	38 07		
	eSS·NE	42 04		
	eSSS·E	45 03		
	L·E	49.5		
	M·E	56	20s. 35 μ.	
	M·N	59	18s. 40 μ.	
	$\Delta = 68°$. Kamchatka.			
24	*eSS·N*	21 36.0		
	eSSS·E	39.5		
	L·NE	22 01		
	$\Delta = 122°$. Solomon Islands.			
25	*L·NE*	11 01		
25	*L·NE*	13 17		
26	*L·NE*	6 37		
28	*L·NE*	17 49		
	M·E	51.0	15s. 3 μ.	
	M·N	51.2	9s. 2 μ.	
	$\Delta = 12°$. Yugoslavia.			

June
28 *eP·Z* 23h10m14s
iS·NE 19 33
M·N 44 20s. 25 μ.
M·E 45 15s. 15 μ.
Δ = 72°. Off British Columbia.

29 *iP·Z′* 2 26 25
i·Z′ 26 36
Δ = 42°. Southern Iran.

29 *L·NE* 3 02

30 *iP·Z′* 1 54 11
eS·NE 57 30
iL·N 59 17
M·NE 2 00.6 18s. *N*: 10 μ, *E*: 6 μ.
Δ = 16°. Black Sea.

July
3 *L·NE* 16.5

3 *iP·Z′Z* 23 34 00
i·E 36 54
eS·E 40 16
e·ZNE 43.6
i·E 43 49
Δ = 44°. *h* = 250 km. Hindu Kush.

4 *iPKP1·Z′* 0 58 35 –
iPKP2·Z′ 58 39
Δ = 142°. *h* = 450 km. Fiji Islands.

4 *L·NE* 4.1

6 *L·NE* 3 03

7 *L·NE* 10 48

9 *iP·Z′Z* 3 16 27 +
MP·Z 16.9 10s. 50 μ.
iS·NE 20 25
Δ = 22°. Aegean Sea.

9 *iP·Z′* 10 07 30
ePP·E 10.3
iS·NE 16 47
i·NE 17 08
e·E 17 35
i·E 17 58
L·E 30
M·E 34 20s. 7 μ.
M·N 36 19s. 6 μ.
Δ = 72°. *h* = 100 km. Haïti.

July
9 *eP·Z′* 20h18.6
L·E 23.6
Δ = 22°. Aegean Sea.

9 *L·E* 20 59

9 *eP·Z′* 21 33.5
L·E 37.4
Δ = 22°. Aegean Sea.

10 *eP·Z′* 2 04 37
Δ = 22°. Aegean Sea.

10 *eP·Z′* 3 06 13
eS·NE 10 13
i(PcP)·N 10 22
L·N 13.6
Δ = 22°. Aegean Sea.

10 *iP·Z′* 22 16 25
Δ = 43°. Hindu Kush.

12 *eP·Z′Z* 15 12 14
eS·N 21 04
i(ScS)·N 21 48
L 15.5
Δ = 67°. Central Burma.

12 *L·NE* 18 14

14 *eS·NE* 19 09 17
L·NE 11.3
Δ = 20°. Turkey.

16 *eP·Z′ZNE* 15 18 10
e·ZE 20 02
iS·NE 27 14
iPS·NE 27 27
iSSS·N 35 59
L·E 41
M·E 52 14s. 115 μ.
Δ = 69°. Burma.

17 *iPKP·Z′* 07 51 51
iPP·Z′ 52 26
eSKS·E 57 43
Δ = 109°. *h* = 450 km. Banda Sea.

July				
18	*eP·Z′ZE*	$6^h33^m48^s$		
	ePKP·Z′Z	37 47		
	iPP·Z′ZNE	38 23		
	ipPP·E	39 08		
	iSKKS·NE	45 15		
	e(PS)·E	47 35		
	i(pPS)·NE	48 28	E: 13^s, 25 μ.	
	iSS·N	53 29		
	$\Delta = 109°$.	$h = 150$ km.	Banda Sea.	
19	*eP·Z*	20 53 44		
	eSKS·NE	21 04 20		
	L·NE	22		
	$\Delta = 87°$.	Philippine Islands.		
19	*iP·Z′Z*	23 39 09		
	eSKS·E	49 33		
	eS·E	49 44		
	eS·N	50 00		
	L·NE	24 06		
	$\Delta = 87°$.	Costa Rica.		
21	*eS·NE*	0 27.6		
	L·NE	40		
	$\Delta = 63°$.	Mid Atlantic Ocean.		
21	*iP·Z′ZNE*	15 41 47	4^s. Z: + 4 μ, N: 1 μ, E: 3 μ.	
	ePP·NE	43 49		
	iS·ZNE	49 17		
	L·N	59		
	M·N	16 07	15^s. 9 μ.	
	M·E	10	15^s. 15 μ.	
	$\Delta = 53°$.	Western India.		
22	*eP·Z′ZNE*	3 33 46		
	ePP·Z′	34 03		
	eS·NE	37 47		
	L·NE	40		
	$\Delta = 22°$.	Aegean Sea.		
23	*e(PPP)·N*	19 48.6		
	e(SSS)·N	20 08.7		
	L·N	22		
	N the only record.			
	$\Delta = 123°$.	Easter Island region.		
29	*e(S)·NE*	7 37 19		
	e(SS)·E	43.3		
	L·NE	8 05		
	$\Delta = 88°$.	Indian Ocean.		
30	*eS·NE*	5 50 07		
	L·N	52		
	$\Delta = 22°$.	Aegean Sea.		
July				
30	*iS·NE*	$9^h23^m58^s$		
	L·N	26.0		
	M·NE	27	20^s. N: 25 μ, E: 40 μ.	
	$\Delta = 22°$.	Aegean Sea.		
30	*eS·NE*	10 49 08		
	L·NE	51		
	$\Delta = 22°$.	Aegean Sea.		
30	*L·N*	12 08		
August				
2	*ePKP·Z*	20 22 03		
	e·E	28 43		
	South of Tonga Islands.			
4	*ePP·E*	10 09 10		
	eSKKS·E	14 48		
	ePS·NE	19.1		
	L·NE	49		
	$\Delta = 120°$.	$h = 250$ km.	New Britain.	
5	*L·NE*	9 50		
6	*L·NE*	18 03		
8	*L·NE*	23 26		
9	*L·NE*	3 49		
9	*ePKP·Z′Z*	23 19 38		
	i·Z′Z	19 46		
	ipPKP·Z′	20 00		
	isPKP·Z	20 57		
	eSKP·Z	22 57		
	iPKS·NE	23 25		
	epPKS·NE	24 33		
	i·NE	24 37		
	i·N	29 06		
	$\Delta = 139°$.	$h = 250$ km.	Samoa Islands region.	
12	*iP·Z′*	17 11 43		
	e(PcP)·Z	11 49		
	iS·N	21 44		
	iScS·NE	22 03		
	SS·E	26.8		
	L·E	37		
	M·NE	44	16^s. N: 17 μ, E: 20 μ.	
	$\Delta = 79°$.	Japan.		
14	*ePP·Z*	3 09.1		
	ePS·N	18 37		
	eSS·N	24.3		
	L·E	42		
	$\Delta = 107°$.	South Indian Ocean.		

August				
15	*iP·Z'Z*	5h33m07s		
	iSKS·E	43 06		
	iS·NE	43 30		
	sS·N	45.6		
	$\Delta = 90°$. $h = 300$ km. Sumatra.			
15	*ePP·ZE*	11 09 15		
	iSKS·NE	15 31		
	PS·E	18.4		
	$\Delta = 102°$. $h = 100$ km. Celebes.			
15	*iS·E*	12 08 43		
	iL·E	09 26		
	M·ZE	10 13	5s. *Z*: 18 μ, *E*: 40 μ.	
	M·ZN	11 24	11s. *Z*: 40 μ, *N*: 35 μ.	
	$\Delta = 13°$. Adriatic Sea.			
15	*eP·Z*	13 23 47		
	eS·N	33 12		
	ePS·N	33 30		
	SS·NE	38.0		
	L·NE	48		
	$\Delta = 72°$. Kurile Islands.			
16	*eP·N*	0 43.6		
	eS·E	47 08		
	L·NE	49.7		
	$\Delta = 21°$. South of Greece.			
16	*L·NE*	2 22		
17	*iP·Z'*	1 28 58		
	eS·E	33 40		
	L·NE	36.5		
	$\Delta = 28°$. North Atlantic Ocean.			
17	*L·NE*	2 12		
17	*L·NE*	15 16		
20	*eS·NE*	5 57 01		
	L·NE	6 19		
	$\Delta = 86°$. Panama.			
22	*eP·Z'*	19 50 48		
	eS·N	59 24		
	L·N	20 10		
	$\Delta = 64°$. Northern Assam.			
23	*iP·ZE*	14 02 07	*Z*: +.	
	ePP·Z	05 56		
	eSKS·NE	12 34		
	iS·E	13 21		
	ePS·E	14 42		
	SS·E	19.1		
	L·E	35		
	$\Delta = 98°$. $h = 100$ km. Bolivia.			
August				
24	*iP·Z'*	4h02m30s		
	$\Delta = 74°$. Kurile Islands.			
24	*iP·Z'ZN*	4 38 51	*Z'Z*: +.	
	ePP·N	41 29		
	ePPP·N	43 17		
	iS·NE	48 07		
	i·NE	48 37		
	L·NE	5 00		
	$\Delta = 71°$. Aleutian Islands.			
26	*e·ZNE*	21 55 49		
	L·NE	22 12		
28	*L·NE*	1 40		
30	*iP·Z*	4 35 42	+	
	eS·NE	45 14		
	eScS·N	46 03		
	L·NE	59		
	$\Delta = 71°$. Aleutian Islands.			
30	*L·NE*	6 01		
30	*iL·ZNE*	6 28.6		
30	*L·NE*	17 52		
30	*e(S)·E*	18 22 23		
	L·NE	26		
	$\Delta = 27°$. North Atlantic Ocean.			
September				
1	*L·E*	0 04		
1	*L·E*	1 19		
6	*eP·Z*	11 51 45		
	eS·E	55 36		
	e·N	55 41		
	M·E	59.6	17s. 12 μ.	
	M·N	12 01.7	13s. 7 μ.	
	$\Delta = 22°$. North of Crete.			
6	*L·NE*	13 10		
7	*L·NE*	15 24		
8	*eP·Z'*	18 13 00		
	eS·NE	17 00		
	L·NE	19.2		
	$\Delta = 21°$. West of Svalbard.			
9	*L·NE*	18 27		
10	*L·NE*	3 29		

September				
10	$e(PS)\cdot E$	$14^h30.4$		
	$e(SS)\cdot E$	36	09^s	
	$L\cdot NE$	51		
	$\Delta = 94°$. South of Mexico.			
11	$ePKP\cdot Z'Z$	0 11	34	
	$e(PKS)\cdot N$	15	24	
	$\Delta = 150°$. Tonga Islands region.			
11	$ePKP\cdot Z$	2 52.0		
	$ePP\cdot N$	55.2		
	$ePKS\cdot NE$	55	46	
	$eSKKS\cdot N$	3 02	14	
	$iSS\cdot E$	13	25	
	$L\cdot NE$	3.5		
	$\Delta = 140°$. Fiji Islands.			
11	$iP\cdot Z'Z$	21 15	17	
	$eS\cdot NE$	24	29	
	$eScS\cdot N$	25	17	
	$L\cdot NE$	38		
	$\Delta = 70°$. Kurile Islands.			
16	$iP\cdot Z'Z$	8 45	36	
	$e\cdot ZE$	46	19	
	$ePP\cdot E$	47	18	
	$iS\cdot NE$	52	15	
	$eSS\cdot NE$	55	25	
	$M\cdot N$	9 05		14^s. 50 μ.
	$M\cdot E$	07		14^s. 40 μ.
	$\Delta = 45°$. Afghanistan.			
16	$L\cdot NE$	14 46		
16	$L\cdot NE$	18 16		
19	$iP\cdot Z'$	23 58	08	+
	$e(sS?)\cdot NE$	24 08	02	
	$eSS\cdot N$	11	27	
	$eSS\cdot E$	11	39	
	$L\cdot NE$	23		
	$\Delta = 67°$. $h = 150$ km. Burma.			
20	$(i)P\cdot Z'$	20 17	21	in the time break.
	$L\cdot NE$	45		
	$\Delta = 70°$. Kamchatka.			
20	$ieP\cdot Z'Z$	12 03	11	
	$eS\cdot N$	12	21	
	$ePS\cdot NE$	12	34	
	$L\cdot NE$	27		
	$\Delta = 70°$. Kamchatka.			

September				
20	eP	$23^h13^m59^s$		uncertain
	$eS\cdot N$	22	20	»
	$eS\cdot E$	22	35	»
	$L\cdot NE$	31.5		
	$\Delta = 64°$. Mid Atlantic Ocean.			
22	$L\cdot N$	15 14.3		
24	$iP\cdot Z$	10 28	52	
	$ePP\cdot Z$	30	34	
	$iS\cdot NE$	35	30	
	$iScS\cdot NE$	38	53	
	$L\cdot NE$	42		
	$\Delta = 45°$. Afghanistan.			
26	$L\cdot NE$	5 51		
26	$iP\cdot Z'$	13 58	05	+
	$\Delta = 72°$. $h = 100$ km. Aleutian Islands.			
29	$L\cdot NE$	9 51		
29	$L\cdot NE$	22 01		
29	$iP\cdot Z'$	23 32	51	
	Masked by microseisms.			
	$\Delta = 79°$. Japan.			
October				
2	$iP\cdot Z'ZN$	15 07	25	
	$eS\cdot NE$	16	23	
	$ePS\cdot E$	16	51	
	$eScS\cdot NE$	17	25	
	$eSS\cdot N$	21.0		
	$L\cdot NE$	15.5		
	$\Delta = 68°$. Kamchatka.			
7	$L\cdot NE$	22 34		
8	$iPKP\cdot Z$	15 15	27	
	$L\cdot NE$	16.2		
	$\Delta = 145°$. Tonga Islands.			
10	$L\cdot NE$	16 02		
11	$iP\cdot Z'ZNE$	2 35	54	Z: 6^s. + 25 μ, N: 7^s. − 12 μ.
	$ipP\cdot Z'$	36	15	
	$iPP\cdot N$	38	31	
	$isPP\cdot N$	39	06	
	$iPPP\cdot NE$	40	21	
	$iS\cdot E$	45	05	
	$eS\cdot N$	45	11	
	$iPS\cdot NE$	45	53	Wiechert
	$M\cdot NE$	3 03		28^s. N: 165 μ, E: 200 μ.
	$\Delta = 72°$. $h = 100$ km. Kurile Islands.			

October					
11	*eP·Z′Z*	17h	00m	53s	
	ePcP·Z		01	13	
	iS·NE		10	50	
	iSS·NE		15	46	
	L·NE		23		
	$\Delta = 78°$. California.				
12	*eSS·NE*		3	10.5	
	L·NE		3.4		
	$\Delta = 102°$. Peru.				
12	*L·NE*		13	00	
13	*L·NE*		19	58	
14	*eP·Z′*	21	17	28	
	ePcP·Z′		17	36	
	ipP·Z′		17	40	
	i·Z′		17	43	
	$\Delta = 77°$. $h = 60$ km. Japan.				
15	*L·NE*		7	45	
15	*iP·Z′*	23	15	12	
	L·NE		31		
	$\Delta = 41°$. Tadznik S.S.R.				
19	*iPKP·Z′Z*	12	19	07	
	$\Delta = 145°$. $h = 650$ km. Fiji Islands.				
19	*eP·Z′*	20	58	56	
	i·Z′		59	09	
	e·Z		59	21	
	e·Z		59	35	
	iS·NE	22	08	18	
	iSKS·E		08	52	
	L·N		23		
	$\Delta = 72°$. Aleutian Islands.				
22	*L·NE*		13	35	
24	*iP·Z*	14	54	51	
	ePP·Z		58	17	
	eSKS·NE	15	05	46	
	iPS·NE		06	34	
	iSS·N		11	43	
	SSS·N		14.9		
	M2·NE		31		20s. *N*: 60 μ, *E*: 100 μ.
	$\Delta = 86°$. Nicaragua.				
25	*L·NE*		6	02	

October.					
26	*iPKP·Z′Z*	23h	09m	46s	–
	ePP·Z		12	21	
	iPKS·Z′NE		13	14	
	L·NE		52		
	$\Delta = 134°$. New Hebrides.				
28	*iPKP1·Z′Z*	3	48	34	+
	iPKP2·Z′		49	03	
	ePKS·NE		52	25	
	L·NE	4	42		
	$\Delta = 155°$. Kermadec Islands.				
28	*L·NE*	11	32		Strong microseisms.
29	*L·NE*	7	47		Strong microseisms.
30	*L·NE*	0	23		Strong microseisms.
31	*L·NE*	0	24		
31	*iP·Z′Z*	14	11	34	–
	i·Z′		12	29	
	i·Z′		12	38	+
	ePP·N		13	10	
	iS·NE		17	45	
	L·NE		23		
	$\Delta = 42°$. Southern Iran.				
31	*iP·Z′*	14	30	12	–
	$\Delta = 42°$. Southern Iran.				
November					
2	*iP·Z′Z*	16	08	46	+
	eS·ZN		12	09	
	L·NE		13.6		
	$\Delta = 18°$. Greece.				
2	*eL·NE*		17	36	
3	*iPKP·Z′*		18	20	55
	$\Delta = 147°$. $h = 500$ km. Fiji Islands region.				
4	*iP·Z′*		5	49	12
	$\Delta = 78°$. $h = 100$ km. Japan.				
4	*ePKP·Z′Z*		7	25	22
	iPKP·Z′Z			25	24 +
	ipPKP·Z			25	38
	eSKSP·N			39	09
	SS·N			48.3	
	SSS·N			52.8	
	$\Delta = 145°$. $h = 60$ km. Tonga Islands.				

November
9 *iP·Z′Z* 13h18m38s +
ipP·Z 19 12
iPP·Z 22 26
iSKS·NE 28 47
iS·NE 29 01
i·NE 29 48
SS·N 33.8
Δ = 85°. *h* = 150 km. Mexico.

11 *iP·Z′* 19 26 57
Δ = 75°. Kurile Islands.

13 *iP·Z′* 3 02 47 +
L·N 08
Δ = 18°. Southwest of Svalbard.

13 *ePKP·Z* 10 14 58
ePP·Z 17 51
L·NE 11.1
Δ = 138°. Indian Ocean.

13 *eSKS·NE* 15 02 30
L·NE 26
Δ = 89°. Philippine Islands.

14 *iP·Z′Z* 0 59 25 –
e·ZE 1 01 07
iPP·E 01 16
iS·E 05 47
i·NE 05 52
isS·NE 06 30
iSS·E 09 11
L·E 13
Δ = 44°. *h* = 150 km. Hindu Kush.

16 *L·NE* 12 31

17 *SS·N* 20 51.7
L·NE 21 00
Δ = 67°. Queen Charlotte Islands.

18 *L·NE* 5 43

18 *L·NE* 19.8

18 *L·NE* 22 06

19 *L·NE* 12 55

20 *eP·Z′Z* 23 25 16 very weak.
eS·NE 28 40
L·NE 31.0
Δ = 19°. Aegean Sea.

November
21 *iP·Z* 7h45m21s +
ePcP·Z 45 33
eS·N 55 12
eSKS·N 55 28
L·NE 8 12
Δ = 77°. *h* = 60 km. Japan.

28 *iP·Z′Z* 19 38 33 +
eS·NE 47 47
iPS·N 48 12
L·E 20 01
Δ = 71°. Kurile Islands.

29 *eP·Z* 9 28 15
ePP·Z 31 31
ePPP·Z 33 22
eSKS·N 38 34
iPS·E 39 34
L·NE 10 00
M·NE 05 17s. *N*: 20 μ, *E*: 20 μ.
Δ = 87°. Bonin Islands.

December
4 *L·NE* 23.7

8 *iP·Z′Z* 16 21 57 +
iS·N 31 27
ePS·E 31 42
eScS·N 32 15
SS·N 35.8
L·NE 46
Δ = 73°. Aleutian Islands.

8 *iP·Z′* 16 28 02 –
iPcP·Z′ 28 22 –
Δ = 73°. Aleutian Islands.

18 *iPP·Z′Z* 2 49 43
iSKS·E 56 26
iSKKS·E 57 17
eS·N 57 47
iPS·ZE 59 24
L·NE 3 17
Δ = 106°. Chile-Argentina border.

18 *eP·Z* 17 59 07
L·NE 18 10
Δ = 30°. Dead Sea region.

18 *L·NE* 20.3

18 *eP·Z′* 21 24 47
Δ = 78°. *h* = 100 km. Japan.

December				
20	*iPKP2·Z′*	11h19m54s		
	$\Delta = 150°$. Kermadec Islands.			
21	*L·NE*	4 02		
21	*iP·Z′Z*	9 10 07		
	ePP·N	12 33		
	e·N	14 52		
	eS·NE	19 12		
	iPS·N	19 31		
	iSS·N	23 35		
	SSS·N	26.4		
	L·NE	32		
	M·N	42	15s. 25 μ.	
	M·E	43	15s. 35 μ.	
	$\Delta = 69°$. Queen Charlotte Islands.			
21	*iP·Z′*	20 22 16		
	iPcP·Z′	22 23		
	L·NE	52		
	$\Delta = 80°$. Japan.			
22	*ePKP1·Z′*	22 58 02	very weak.	
	ePKP2·Z′	58 24		
	$\Delta = 153°$. Kermadec Islands region.			
22	*eP·Z′*	23 24 46		
	L·NE	52		
	$\Delta = 80°$. Japan.			
23	*L·NE*	18 16		
25	*iP·Z*	9 39 05		
	iS·E	43 35		
	iS·N	43 41		
	L·NE	47		
	$\Delta = 26°$. North Atlantic Ocean.			
27	*iPKP1·Z′Z*	0 33 30	+	
	i·Z	33 33	7s. − 25 μ.	
	i·N	33 35	6s. + 6 μ.	
	i·E	33 36	5s. + 3 μ.	
	iPKP2·Z	33 56	−	
	ipPKP·Z	34 58		
	iSS·E	55 40	18s. 20 μ.	
	$\Delta = 148°$. $h = 300$ km. Tonga Islands region.			
27	*L·NE*	10 21		
27	*L·NE*	22 20		

December		
28	*L·NE*	15h48m
29	*L·NE*	21 45

November 1957. HENRY JENSEN