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 10 MAY 1966

MONTHLY SEISMOLOGICAL BULLETIN.

January, 1962.

Latitude: 35° 19' 15"S. Longitude: 148° 59' 55"E. Height: 700 M

Instruments: three-component Benioff, variable reluctance seismographs  
 $T_s = 1$  sec.  
 $T_g = 0.25$  sec. (short periods VNE)  
 $T_g = 16$  sec. (long period vertical  $V_1$ )  
 $T_g = 70$  sec. (Long period horizontals  $N_1E_1$ )  
 One N-S component Wood-Anderson Seismograph,  $T_s = 0.8$  sec.

Mt. Stromlo quartz clocks provide accurate time marks and 50 c/s for drum drive.

Abbreviations: R = rarefaction; C = compression; h = origin.

Epicentre locations are those given by USCGS.

No.	Date	Phase	Component	Time	Remarks.
1	1	eP	V	12 22 16.0	27.1S 175.4W h:48km. Kermadec Is. region.
2	1	eP	VNE	15 36 15.0	C 22.3S 171.6E h:83km. Loyalty Is. region.
3	1	eP	V	22 19 32.5	
4	1	eP	V	23 53 25.5	52.4N 177.7E h:27km. Rat Is., Aleutian Is.
5	2	eP	VN	02 21 43.0	
6	2	eP	V	05 59 41	20.1S 175.1W h:25km. Tonga Is.
7	2	iP	VNE	08 16 37.5	C
8	2	eP	V	11 52 32.5	21.8S 169.8E h:56km. Loyalty Is. region.
		i	VNEV <sub>1</sub>	34.0	
		i	VV <sub>1</sub>	39.0	
		i	V <sub>1</sub>	40.5	
		iPP	V	53 04.5	
		iPPP	V	18.5	
		eS	E <sub>1</sub>	56 42.5	
		eS	V <sub>1</sub>	44.0	
		i	E <sub>1</sub>	48.5	
		eL	V <sub>1</sub>	58.6	
9	2	eP	VN	12 27 22.5	
10	2	eP	V	15 05 19.0	
11	2	e	V	19 12 19	19.3N 145.3E h:178km. Mariana Is.
12	2	iP	VN	21 12 22.5	C
13	2	iP	V	23 13 40.5	
		i	V	17 08.5	
14	3	eP	V	02 09 58.0	
		i	VNE	59.0	22.2S 168.7E h:118km. Loyalty Is. region.
15	3	iP	VE	06 54 49.5	
		i	N	50.0	21.7S 170.0E h:120km. Loyalty Is. region.
		i	V	55 01.0	
16	3	iP	VNE	06 58 23.5	C



No.	Date	Phase	Component	Time		Remarks.
17	3	eP	VE	11 27 47.5	C	20.6S 174.4W h:32km. Tonga Is. region.
18	3	eP	VE	11 30 01.0	C	
19	3	eP i	V VN	11 44 54.0 55.0		
L1	3	i(S)	V	13 34 13.0		Local
20	3	iP	VN	13 41 58.0	C	9.9S 159.7E h:75km. Solomon Is. region.
21	3	eP i i i iPPP iS eL eL	V V VE VE <sub>1</sub> E <sub>1</sub> EV <sub>1</sub> E <sub>1</sub> N <sub>1</sub> V <sub>1</sub>	23 55 30.5 33.0 34.0 38.5 56 14.0 59 43.5 24 00.1 01.6		21.5S 169.9E h:75km. Loyalty Is. region.
22	4	iP	VE	01 22 18.0		0.1S 100.1E h:141km. Near coast of Sumatra
23	4	eP ipP i eS e eL	VN N N E <sub>1</sub> E <sub>1</sub> E <sub>1</sub>	04 46 49.5 47 05.5 28.5 55 54 05 04.1 04.6		33.9N 135.2E h:56km. Near Shikoku, Japan
24	4	iP iPcP iS iScP	VNEV <sub>1</sub> E <sub>1</sub> V E <sub>1</sub> V	07 41 18.5 43 47.5 46 28.0 47 13.0	C	5.0S 130.4E h:222km. Banda Sea
25	4	eP i	V V	20 10 37.5 45.5		1.6S 99.6E h:59km, Near coast of Sumatra
L2	4	eP iS	VN VNE	22 24 07.5 14.0	eP	Local
26	5	eP iS e eL	V E <sub>1</sub> N <sub>1</sub> N <sub>1</sub> V <sub>1</sub>	00 30 36.0 36 14.0 21 38 56 40.5		15.5S 177.7W h:24km.
27	5	iP i eL	V V E <sub>1</sub>	08 15 36.5 41.0 27.0		15.5S 172.5W h:60km. Tonga Is. region.
28	5	iP	V	11 56 59.5		15.1S 167.6E h:133km. New Hebrides Is.
29	5	eP ipP	V V	14 11 27.0 35.0		1.6S 100.0E h:25km, Near south coast of Sumatra.
30	5	eP ipP	V V	15 57 31.5 40.5		1.5S 100.1E h:25km. Near South coast of Sumatra
L3	6	iP iS	V VNE	03 32 50.5 33 16.0		Regional
31	6	i(P)	VE	05 43 05.5	C	
L4	6	eP iS i	V VE N	14 31 15.0 24.5 25.0		Local
L5	7	e(P) e(S)	V V	01 41 12.5 19.0		Local

No.	Date	Phase	Component	Time	Remarks.
32	7	i(P)	VN	02 06 29.5	R
33	7	eP	V	10 17 00.5	C
L6	7	e(S)	VN	12 08 41.0	Regional
34	7	e	N	13 15 32	8.6S 125.1E h:96km.
		e	V	16 18	Near Timor
35	7	e(P)	V	14 30 49.0	
36	8	eP	V	01 19 47.0	18.5N 70.5W h:63km,
		iPP	VV <sub>1</sub>	22 58.0	Near south coast of
		iPKS	VV <sub>1</sub>	23 29.0	Dominican Republic.
		eLq	N <sub>1</sub>	02 00.0	
37	8	iP	V	05 49 13.0	24.2S 177.7W h:133km.
		isP	V	53.0	Tonga Is. region.
38	8	eP	VN	17 09 12.5	6.4S 147.3E h:104km.
		i	V	42.5	Near north coast of
		i(sP)	N	45.5	New Guinea
		iPcP	V	11 19.5	
39	8	iP	VN	18 01 33.5	R
40	8	iP	V	18 25 28.5	C
L7	8	e(P)	V	22 50 08.5	Local
		i(S)	V	19.0	
41	9	e(P)	V	12 52 49.5	42.9N 144.8E h:73km.
		iPcP	VN	58.0	Near coast of Hokkaido
		i(pP)	V	53 08.5	
42	10	iP	V	00 01 19.5	C
					22.2S 179.5W h:603km.
					Fiji Is. region.
L8	10	eP	V	05 41 37.0	Victoria.
		eS	N	42 21.5	
		i	V	34.0	
L9	10	eP	V	06 13 21.5	Victoria.
		i(S)	NE	14 08.5	
		i	V	22.5	
L10	10	eP	VN	13 02 42.0	Local
		i	V	42.5	
		iS	V	50.0	
		eS	NE	50.5	
L11	10	eP	V	19 38 14.5	South Australia
		eP	VE	19.5	
		i	V	20.5	
		i(S)	N	39 35.0	
43	10	eP	VE	20 48 57.5	
44	10	e	V	22 05 30	
L12	11	eP	V	01 03 54.0	Local
		iS	V	04 02.5	
45	11	eP	VNE	03 14 17.5	C
					28.1N 84.8E h:38km.
					Nepal
L13	11	eS	V	05 08 44.0	Regional
46	11	e	V	05 21 13.0	
47	11	ePKP	V	05 24 29.5	43.5N 17.7E h:25km.
					Near coast of central
					Yugoslavia.

No.	Date	Phase	Component	Time	Remarks.
48	11	e	V	06 39 29	
49	11	e	V	07 02 08.5	51.9N 179.3W h:60km. Andreanof Is. Aleutian Is.
L14	11	e(P)	V	09 11 39.0	Regional
		e(S)	E	12 09.5	
50	11	e	V	12 39 56.5	
L15	11	eP	V	16 51 19.0	Regional
		eS	V	42.5	
L16	12	(eP)	V	02 12 28.0	Local
		iS	V	36.5	
L17	12	eP	V	06 36 39.0	Local
		i	V	39.7	
		iS	V	47.0	
L18	12	(e)	V	07 08 03.5	Local
		iS	V	12.0	
51	12	iP	VN	08 59 57.5	C 20.2N 145.9E h:103km. Mariana Is.
		i(P)	V	09 00 17.0	
		i	V	46.0	
52	12	eP	V	11 28 14.5	34.6S 110.7W h:52km. South Pacific Ocean
		e	V	29 03.0	
53	12	e	V	13 22 51.5	
54	13	iP	VN	02 26 05.0	R
55	13	iP	V	03 10 53.0	C 19.1S 177.5W h:542km. Fiji Is.
56	13	eP	V	05 01 38.0	52.3N 177.4E h:49km. Rat Is., Aleutian Is.
57	13	iP	VNE	08 26 31.5	C 2.9N 124.8E h:25km. Celebes Sea.
		ipP	V	39.0	
58	13	eP	V	11 10 35.5	37.5S 178.7E h:25km. North Is., N.Z.
59	13	eP	V	11 48 38.5	15.1S 174.0W h:25km. Tonga Is. region.
60	13	i	V	13 35 17.0	
61	13	e(P)	V	18 14 11.5	
62	14	iP	V	08 24 01.5	C 5.3S 129.0E h:18km. Banda Sea
63	14	iP	V	08 41 54.5	
64	14	eP	V	09 23 22	7.5S 158.6E h:49km. Solomon Is.
		i	V	27.0	
65	14	iP	V	10 43 14.0	C 9.6S 160.0E h:100km. Solomon Is.
66	14	eP	V	13 45 52.0	C 44.9N 140.8E h:193km, Off north west coast of Hokkaido
		ipP	V	46 00.0	
67	14	iP	V	18 47 28.0	C 11.4S 166.5E h:229km. Santa Cruz Is.
		eP	V	48 29.5	
68	15	iPKP	VE	08 41 48.0	C 13.0N 60.5W h:78km. Off coast of Venezuela
		ipPKP	V	42 08.5	
69	15	iP	VE	11 01 25.0	

No.	Date	Phase	Component	Time		Remarks.
70	15	iP i	VN V	18 27 07.0 12.5	R	6.0S 146.8E h:140km. Near east coast of New Guinea
71	15	eP	V	22 21 40.5		32.0S 178.4W h:286km. Kermadec Is.
L19	16	(eP) eP iP i(S) e	VN N VN VN E	06 16 46.0 51.0 53.5 17 20.0 23.0		Regional
72	16	iP i i i i -ePP i -i(PPP) -iPcP i -iS -eSSS i e eLr	VEV <sub>1</sub> E <sub>1</sub> VV <sub>1</sub> VE <sub>1</sub> E <sub>1</sub> N <sub>1</sub> E <sub>1</sub> E <sub>1</sub> E <sub>1</sub> VV <sub>1</sub> V E <sub>1</sub> N <sub>1</sub> E <sub>1</sub> V <sub>1</sub> V <sub>1</sub>	11 41 34.0 37.0 38.0 55.5 42 12.0 21.5 26.0 41.0 44 46.5 52.5 46 14 48 05 08 10 48.8	A	30.5S 177.9W h:39km. Kermadec Is. Mag. 6-1/4
73	16	eP	V	16 13 49		3.0S 129.4E h:221km. Ceram.
74	16	iP	V	17 28 04.5	R (K)	
75	16	iPKP i	V V	18 37 25.0 43.0		7.8N 36.0W h:30km. Mid-Atlantic Ocean
76	17	e(P)	V	05 07 01		
77	17	iP	V	11 36 11.5	C(A)	20.8S 178.4W h:613km Fiji Is. region.
78	17	iP i eS e(L) M eL M	VV <sub>1</sub> V E <sub>1</sub> VE E <sub>1</sub> V <sub>1</sub> V <sub>1</sub> E <sub>1</sub>	13 26 09.0 27 54.0 31 29.5 33 05 38.4 40.5 41.1	R (K)	Banda Sea (Canb.)
79	17	e	V	15 10 56.0		
80	17	iP i isP i i(IP)	VV <sub>1</sub> N VV <sub>1</sub> V V	15 37 23.5 25.4 35.0 38 20.5 39 10.5	C	4.3N 128.3E h:25km. Molucca Passage
81	17	iP i	V N	15 51 20.0 25.5	C	3.9N 126.6E h:74km. Molucca Passage
L20	17	e	V	19 04 03		Regional
82	17	iP	V	19 11 37.5	C	
L21	17	iP iP iS	VNE V E	19 54 25.0 26.5 30.5	C	Local
83	18	iP	V	08 22 17.5		21.1S 178.7W h:600km. Fiji Is. region.

No.	Date	Phase	Component	Time		Remarks.
84	18	iP	V	10 41 42.0	C	
85	18	iP	VE	11 53 20.0	R	
86	18	eP	N	15 48 34		5.3S 153.7E h:83km. Solomon Is. region.
87	18	iP	V	15 51 54.5	R	4.2S 153.6E h:127km. New Britain
		i	V	52 01.0		
		ipP	V	18.5		
88	18	eP	VN	15 59 56.0	R	
89	18	iP	VNE	22 06 41.5	R	4.4S 129.5E h:21km. Banda Sea
		ipP	V	08 02.5		
		i	N	12.5		
		ipPP	V	22.5		
		ipcP	V	09 16.0		
90	19	iP	V	16 39 30.5	C	
91	19	iP	V	19 46 22.0	R	
92	19	eP	VN	20 52 30.0		10.8N 122.4E h:99km. Negros, P.I.
		i	V	36.5		
		ipP	V	50.0		
		isP	V	53 02.5		
93	19	eP	V	21 25 34.5		2.9S 139.0E h:76km. Near north coast of New Guinea.
		i	V	26 22.5		
94	19	iP	V	22 11 54.0	C	49.8S 163.0E h:53km. South west of New Zealand.
		ipP	V	12 04.5		
		i	V	15 05.0		
		eT	V	27 20		
		T max	V	29 12.0		
95	20	iP	V	20 20 30.5	C	6.6S 152.1E h:33km. Off south coast of New Britain.
96	21	eP	VN	07 44 28.0		
97	21	iP	VNEV <sub>1</sub> N <sub>1</sub> E <sub>1</sub>	12 57 50.5	R	17.7S 178.8W h:558km, Fiji Is.
		i	V <sub>1</sub>	58 21.5		
98	22	i	V	00 14 28.0	R	
99	22	s	VN	08 23 16.0		
100	22	iP	V	10 08 27.0	C	11.4N 125.4E h:125km, Near coast of Samar, P.I.
L22	22	eP	V	10 08 58.0		Local
		eS	N	09 17.5		
101	22	eP	V	20 35 29.5		30.7N 80.6E h:25km. Tibet-India border.
102	22	eP	VN	21 36 32.5		4.3S 152.5E h:104km. New Britain region.
L23	23	e	V	03 56 29.5		Regional
103	23	eP	VN	04 17 15.5		
L24	23	e	V	04 53 (57)		Regional
		i	V	54 23.0		
104	23	iP	V	05 20 37.0	C	
		i	V	21 13.5		
105	23	iP	V	06 54 28.5	C	
		e(T)	V	07 10 10		

No.	Date	Phase	Component	Time		Remarks.
106	23	• iPKP ipPKP ✓	V V	17 51 12.0 29.5	C	44.6N 12.3E h:61km. Near coast of Emilia Romagna, Italy.
107	24	e	V	00 39 05.0		
108	24	iP	VN	01 53 46.5	C	
109	24	• eP	V	04 51 49.5		15.6S 167.6E h:133km. New Hebrides Is.
110	24	iP iPcP	V V	15 50 24.0 55.5	C	24.4N 122.0E h:58km. Near east coast of Formosa
111	24	eP	V	17 51 43.0		
L25	24	eP i(S)	V V	20 57 23.5 40.0		Local
112	24	e	V	22 27 35.0		
L26	25	eP eS	V N	01 49 53.5 50 16.0		Regional
113	25	• iP i i i eS ✓ e M	VN VNV <sub>1</sub> V <sub>1</sub> V <sub>1</sub> E <sub>1</sub> N <sub>1</sub> E <sub>1</sub>	01 55 52.5 58.0 56 07.0 16.0 02 00 20.5 23 06.1	R	10.7S 161.8E h:80km. Solomon Is.
L27	25	eS ✓	V	02 02 01		Regional
114	25	eP	V	09 33 55.0		12.3N 142.3E h:145km. Mariana Is.
115	25	iP i i(pP) i(sP)	V V V V	10 13 24.5 27.5 35.0 42.0		4.4S 152.7W h:50km. Line Is. region.
116	25	eP	V	12 20 18.5		23.2S 179.9E h:574km. South of Fiji Is.
117	25	iP	V	22 42 09.5		18.4S 177.9W h: 617km. Tonga Is.
L28	26	eP iP i(S) i	V VN N N	01 28 28.5 30.5 58.5 29 01.0		Regional
118	26	• eP i	V VNE	05 33 16.0 16.5	C	32.2N 138.1E h:333km. South of Honshu
119	26	• i(P)	V	06 15 46.0		23.4S 176.1W h:214km. Tonga Is. region.
120	26	• ePKP iPKS	V V	08 36 (52) 40 32.5		35.1N 22.7E h:32km. Mediterranean Sea, west of Crete
L29	26	iP i iS	VNE VN NE	09 03 16.5 17.0 29.5	R	Local
121	26	iP	V	19 52 28.5		
122	27	e	V	11 46 54.0		
123	27	eP	V	20 34 08.0		5.1S 144.2E h:145km. New Guinea.

No.	Date	Phase	Component	Time		Remarks.
124	27	e	N	20 42 41		
		i	V	45.0		
125	27	iP	V	23 56 01.5	C	21.4S 170.4E h:200km. Loyalty Is.
		i	VE	03.0		
126	28	e	V	04 00 26		4.6S 144.0E h:157km. Near north coast of New Guinea.
127	28	eP	VEV <sub>1</sub> E <sub>1</sub>	05 47 35.0	C	17.2S 172.0W h:25km. Tonga Is.
		i	N	35.5		
		iPcP	V	49 45.5		
		iS	E <sub>1</sub>	53 34.5		
		eL <sub>r</sub>	V <sub>1</sub> E <sub>1</sub>	58.4		
128	28	iP	V	16 48 59.0	C	0.0, 123.9E h:101 km. Northern Celebes region
		i	VNE	59.5		
		iPcP	V	50 53.0		
		iS	E <sub>1</sub>	55 13.5		
129	29	i(P)	V	11 48 54.0	C	9.1S 157.5E h:114km. Solomon Is.
		i	V	57.0		
L30	29	eP	VN	16 19 40.0		Local
		eS	VE	48.0		
130	30	ePKP	V	08 53 18.0		12.7N 87.7W h:101km. Near coast of Nicaragua
L31	30	e	V	10 47 43.5		Regional
		e(S)	V	48 25.0		
131	30	iP	V	12 41 17.5		
132	30	iP	VN	13 57 22.0	C	5.3S 146.8E h:158km. Off north coast of New Guinea
L32	30	iP	VN	14 17 17.0		Local
		iS	V	30.0		
133	30	iP	V	15 01 21.5	C	
		i	V	52.0		
134	30	eP	V	15 07 48.5		16.2S 176.0W h:383km. Samoa Is. region.
135	30	eP	V	15 32 11		20.7N 144.5E h:187km. Mariana Is. region.
136	30	iP	VN	18 35 56.0	C	18.8S 163.5E h:79km. New Hebrides Is. region
		ipP	V <sub>1</sub> E <sub>1</sub>	36 11.0		
		isP	VNEV <sub>1</sub>	22.0		
		i	V <sub>1</sub>	37 15.0		
		eS	V <sub>1</sub>	40 12		
		i	E <sub>1</sub>	20		
		iPcS	E <sub>1</sub>	43 31		
137	30	iP	V	19 47 11.5	C	
138	30	iP	V	21 04 02.0	C	
139	31	iP	V	03 52 08.5		17.6S 168.0E h:46km. New Hebrides Is. region
		i	VNE	33.5		
140	31	e	V	20 53 24.5		

Seismograms read by  
Jennifer Clay.

J.C. Jaeger,  
Professor of Geophysics.



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FEBRUARY, 1962

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$T_g = 0.25$  sec. (short periods VNE)

$T_g = 16$  sec. (long period vertical  $V_1$ )

$T_g = 70$  sec. (long period horizontals  $N_1E_1$ )

One N-S component Wood-Anderson Seismograph,  $T_s = 0.8$  sec.

Mt. Stromlo quartz clocks provide accurate time marks and 50 c/s for drum drive.

Abbreviations: R - rarefaction; C = compression; H = origin.

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No.	Date	Phase	Component	Time	Regional
1	1	eP	V	00 22 15.5	
2	1 ✓	iP	VNE	00 45 50.0	R 31.7S 177.3W h:30 km. Kermadec Is. region
		i	VV <sub>1</sub>	53.0	
		i	VV <sub>1</sub>	46 00.0	
		eS	N <sub>1</sub>	50 36	
		eL <sub>Q</sub>	N <sub>1</sub>	51.9	
		eL <sub>R</sub>	V <sub>1</sub>	53.4	
		M	V <sub>1</sub> E <sub>1</sub>	57.2	
		M	E <sub>1</sub>	59.3	
3	1	iP	VNEV <sub>1</sub>	02 17 46.5	
L1	1	iP	VN	04 02 37.5	Regional
		i	V	45.0	
		i(S)	V	03 25.0	
4	1	iP	V	08 15 48.0	R
5	1	iP	V	11 33 27.0	
		i	VNE	27.5	
6	1	i(P)	V	12 46 23.0	
7	1	iP	VE	19 03 17.0	C
		i	V	30.5	
8	1	eP	V	20 26 47.0	
9	2	iP	VN	03 38 41.0	5.4S 147.3E h: 161 km Bismarck Sea.
10	2	iP	V	09 13 58.0	
11	2	e	V	14 58 05.0	
12	2 ✓	iP	VE	17 37 39.0	
13	3 ✓	iP	VNV <sub>1</sub> N <sub>1</sub>	00 44 53.5	C 1.2S 137.8E h: 17 km. North of New Guinea
		i	E	56.0	
		i	V	45 23.5	
		iPP	VV <sub>1</sub>	46 14.0	
		(eS)	N <sub>1</sub>	50 29	
		i	N	38.0	
		M	V <sub>1</sub> N <sub>1</sub>	01 01.7	
14	3	iP	V	13 56 54.0	

No.	Date	Phase	Component	Time	Regional.
15	3	e	V	23 24 40	
16	4	iP	V	01 08 35.0	29.1S 177.2W h:43 km Kermadec Is.
17	4 ✓	iP	V	03 02 23.0	4.6S 119.0E h:89km. Celebes
		i	E	03 07.0	
		eL	N <sub>1</sub>	17.6	
		eL	V <sub>1</sub>	18.2	
		M	V <sub>1</sub>	20.2	
18	4 ✓	ePKP	V	21 49 17.0	0.5S 20.2W h:17km. South Atlantic Ocean
19	5	i(P)	V	02 44 19.0	R
20	5	e	V	07 05 10	
L2	5	e(P)	V	12 15 08.5	Local
		e(S)	V	16.0	
21	5 ✓	eP	VN	23 06 59.5	C 35.9N 138.8E h: 151 km. Central Honshu
		epP	V	07 32	
22	6	eP	V	02 06 40.5	29.5N 130.4E h: 40 km. Ryukyu Is. region.
23	6	e	V	07 20 24	
		i	V	37.5	
24	6	e	V	15 43 45.0	
25	6	eP	V	18 09 04.5	
L3	6	eP	V	18 29 33.0	Local
		eS	VNE	44.5	
26	6	iP	VN	20 45 08.0	C
27	7	iP	V	17 32 23.5	
L4	7	eP	V	23 29 32.0	Regional
		eS	VN	53.0	
L5	8	iP	V	02 03 02.5	Local
		iS	V	18.0	
L6	8	iP	VE	05 26 15.0	Local
		iP	VN	16.0	
		i(S)	V	33.0	
		iS	VN	34.0	
28	8 ✓	iP	VN	11 55 42.0	3.2S 141.3E h: 87 km. New Guinea
		i	VV <sub>1</sub>	45.0	
		ipP	VE <sub>1</sub>	56 02.0	
		esP	V <sub>1</sub>	14	
		i	N <sub>1</sub>	53.0	
		e(PP)	N	57.0	
		e(PP)	V <sub>1</sub>	57 01.0	
		eS	N <sub>1</sub>	12 00 53	
		eL <sub>Q</sub>	E <sub>1</sub>	03.1	
		i	V <sub>1</sub>	06 34.5	
		M	E <sub>1</sub>	07.3	
		M	N <sub>1</sub>	10.6	
		M	V <sub>1</sub>	10.9	
29	8	eP	V	14 42 23.5	
30	8	iP	V	16 47 17.5	19.2S 169.1E h: 43 km. New Hebrides Is. region.
		i	V	27.5	
		ipP	V	30.0	
		i	VN	42.0	
31	8 ✓	iP	VNE	19 50 26.0	C 0.7N 98.6E h: 43 km. Sumatra.
		iPcP	V	51 15.5	

6						
6	No.	Date	Phase	Component	Time	Regional
	32	8	eP i	V VN	22 56 38.0 41.0	
	33	8	iP	VN	23 49 59.0	R
	34	9	iP	VE	12 07 51.5	C
	35	9 ✓	iP i i iPcP	VNEV <sub>1</sub> N <sub>1</sub> E <sub>1</sub> N N V	21 59 06.5 31.0 37.5 22 00 58.0	C
	36	10	eP i i	V V V	13 11 08.5 13.5 12 03.5	
	37	10 ✓	ePKP i	V V	19 51 32.5 35.0	17.9N 62.2W h: 70 km. Leeward Is.
	38	10	i	V	21 21 42.5	
	39	11 ✓	iP iPcP ipP i eS i(ScS) esS	V V V V E <sub>1</sub> E <sub>1</sub> E <sub>1</sub>	02 52 58.0 53 06.5 54 08.0 12.5 03 00 48 01 54.0 03 25	C
	40	11	eP	V	11 19 08.5	0.9S 67.2E h: 25 km. Maldiva Is. region.
	41	11 ✓	iP e isP ePP i i is esS eL <sub>Q</sub> e M	VNN <sub>1</sub> V <sub>1</sub> N <sub>1</sub> V <sub>1</sub> N <sub>1</sub> N <sub>1</sub> E <sub>1</sub> E <sub>1</sub> E <sub>1</sub> N <sub>1</sub> V <sub>1</sub> V <sub>1</sub> E <sub>1</sub> V <sub>1</sub> E <sub>1</sub>	19 01 41.5 02 03 19.0 49.0 56.0 06 31.0 39.5 07 14 08.3 08 45 11.0	C
	42	11	iP	VN	22 47 27.5	R
	43	11	iP i	V VNE	23 02 50.0 51.0	C
	44	12	e	V	03 29 14.0	
	45	12	eP	VN	05 02 22.0	C
	46	12	eP	V	06 52 39.5	4.5S 153.8E h: 107 km. New Ireland region.
	47	12	eP	VN	13 50 51.5	2.0N 128.1E h: 169 km. Halmahera.
	48	12 ✓	iP	VN	17 36 42.5	C
	49	12	iP iPcP	VN V	23 35 01.0 34.5	C
	50	13	eP i	V N	01 18 48.0 49.0	34.4N 135.6E h: 317 km. Southern Honshu
	51	14	iP	V	01 59 43.5	C
						4.3S 153.5E h: 119 km. New Ireland region.

No.	Date	Phase	Component	Time	Remarks.
52	14	iP	V	02 17 48.0	R 6.2N 126.8E h:101 km Near coast of Mindanao, P.I
53	14	eP	V	02 55 21.0	0.1N 123.8E h:96km. Northern Celebes.
		i	V	30.0	
		isP	VN	52.5	
		iPcF	V	57 12.5	
L7	14	eP	V	03 05 04.5	Regional
		e(S)	VN	27.5	
L8	14	e(P)	V	03 09 59.0	Regional
		i(S)	N	10 22.5	
54	14 ✓	eP	V <sub>1</sub>	06 49 39.0	38.1S 73.1W h:44km. Near coast of Chile
		e	V <sub>1</sub>	53 21	
		i	V <sub>1</sub>	46	
		eSKS	N <sub>1</sub>	07 00 06	
		i	V	21.0	
		eSKKS	N <sub>1</sub>	30.0	
		ePS	N <sub>1</sub>	02 23	
		e	V <sub>1</sub>	29.0	
		eL	N <sub>1</sub>	17.0	
		eL	V <sub>1</sub> N <sub>1</sub>	20.7	
		M	N <sub>1</sub>	25.5	
55	14	eP	V	07 44 18.5	4.2S 153.4E h:137km. New Ireland region.
56	14	iP	VN	11 51 51.5	R 5.7N 126.0E h:147km. Near coast of Mindanao, P.I.
		i	V	53 39.0	
57	15	i(P)	V	14 17 08.0	17.5S 178.3W h:600km. Fiji Is.
58	15	eP	V	15 31 40	4.4S 153.8E h:109km. New Ireland region
		i	VN	46.0	
		iPP	V	32 48.0	
		eS	N <sub>1</sub>	36 46	
		e	V <sub>1</sub>	38 51	
59	15	iP	VN	15 35 18.0	R 23.7S 179.7W h:555km. South of Fiji Is. region.
60	15	iP	V	21 02 26.5	R 23.9S 176.5W h:25km. South of Tonga Is. region.
		ipP	V	35.0	
61	16	iP	V	06 54 24.0	
62	16	e	V	19 14 15	
63	17	eL <sub>Q</sub>	N <sub>1</sub>	03 55.5	61.6S 162.9E h:25km. South of Macquarie Is. region.
64	17	iP	V	06 43 17.5	
65	17	eP	V	11 14 10.0	2.7S 130.2E h:54km. Ceram.
66	18	iP ✓	V	07 19 59.0	R 8.1N 74.6W h:70km. Northern Colophia
67	18	ePKP	V	17 44 25.5	
		i	V	45 05.0	
68	18	eP	VN	22 31 34.0	15.5S 166.8E h:45km. New Hebrides Is.
		i	V	32 06.0	
69	19	eP	V	05 27 15.0	
70	19	iP	VN	11 11 30.5	R 20.2S 175.1W h:95km. Tonga Is.

No.	Date	Phase	Component	Time		Remarks.
71	19	e	VN	21 22 58		
72	20 ✓	eP ipP	V V	09 26 59.0 27 07.0		6.8N 92.5E h:29km. Nicobar Is.
73	20 ✓	iP iPPP iScP	VV <sub>1</sub> V V	10 12 20.0 13 57.0 18 00.0	R	25.9S 178.4E h:655km. South of Fiji Is. region
74	20 ✓	eP i	V V	16 17 39.5 53.0		43.0N 144.9E h:55km. Near coast of Hokkaido
75	20	iP	V	16 34 16.5		
76	20	iP	V	17 14 46.5	C	4.0S 104.2E h:25km. Sumatra
77	20 ✓	eP	V	20 17 36.5		50.6S 110.8E h:31km. South of Australia
78	20 ✓	eP	V	22 14 40.0		26.1N 96.8E h:25km. Northern Burma.
79	21	iP ipP	V V	09 54 55.0 59.5	R	56.8S 146.7E h:25km. About 500miles west of Macquarie Is.
80	21	e	V	11 32 05		
81	21	iP	V	14 50 31.0	R	
82	21	e	V	22 38 24		
83	22	eP	V	09 55 37.5		32.7S 179.7W h:246km. Kermadec Is.
84	22	i(P)	V	10 45 56.0	C	25.6S 69.8E h:25km. Indian Ocean
85	22	iP	V	16 48 52.0	R	29.4N 131.1E h:25km. Ryukyu Is.
86	22	eP ipP	V V	22 05 43.5 49.0	C	27.8S 73.4E h:25km. Indian Ocean
87	23	i(P)	V	07 57 56.5	C	
88	23	iP	V	09 38 12.5	C	
89	23 ✓	eP i(pP) i(PcS) eL	VN V V N <sub>1</sub>	11 46 48.5 47 05.0 53 42.0 56.5		6.3S 147.0E h:80km. North coast of New Guinea
90	23	iP ipP isP i eL M	V VN V V E <sub>1</sub> E <sub>1</sub>	18 11 48.0 54.5 59.0 12 09.0 18.8 24.5		4.0S 152.6E h:25km. New Ireland
91	23	iP	V	19 38 09.5	C	11.1N 125.8E h:100km. Samar, P.I.
92	23	iP	V	20 09 23.0	R	10.9N 125.8E h:98km. Samar, P.I.
93	23 ✓	iP i eS eL M M	V N N <sub>1</sub> N <sub>1</sub> E <sub>1</sub> V <sub>1</sub>	20 27 49.5 50.5 33 00 36.2 40.6 41.5	C	3.8S 152.0E h:25km. New Britain

No.	Date	Phase	Component	Time	Remarks.
94	24	eP	V	06 15 31.5	00.6S 99.4E h:25km. Near coast of Sumatra
L9	24	e	V	08 19 17	Regional or T wave
95	24	eP	V	13 58 20.5	9.5N 120.9E h:25km. Sulu Sea
96	24	eP ipP	V VN	14 32 39.5 51.0	10.7S 161.3E h:50km. Solomon Is.
97	24	e	V	16 36 44.5	
98	24	eP	V	18 02 (55)	10.8S 161.6E h:25km. Solomon Is.
99	24	eP i i	V V V	19 40 38.5 54.0 42 34.5	5.5E 146.1E h:40km. North coast of New Guinea
100	25	iP	VN	05 15 16.0	
101	25	e	V	06 31 39.5	11.7N 120.9E h:25km. Mindoro, P.I.
102	25	eP ipP i	V V V	14 06 11.5 16.5 25.5	17.1S 168.4E h:24km. New Hebrides Is.
L10	25	iP iP iS iS	VNE V N VNE	15 16 06.5 07.5 19.0 19.5	C Snowy Mts., N.S.W.
103	26	eP	VN	02 23 13.5	9.3S 152.9E h:47km. D'Entrecasteaux Is.
104	26	iP	V	02 36 19.0	C 33.0S 178.4W h:25km. Kermadec Is.
105	26 ✓	iP	VN	08 52 46.5	C 0.1S 122.3E h:25km. Northern Celebes
106	26	iP	V	12 09 53.5	R
107	26	(eP) i	V V	12 40 36.0 37.0	
108	27	eP	V	06 46 46.5	27.7N 101.9E h:40km. Szechwan, China.
109	27 ✓	e eSS eL M	V <sub>1</sub> E <sub>1</sub> E <sub>1</sub> V <sub>1</sub> E <sub>1</sub>	13 00 57 12.4 25.7 30.4	37.4S 73.2W h:40km, Near coast of central Chile.
110	27	iP i ipP e i	V VNE VV <sub>1</sub> E <sub>1</sub> E <sub>1</sub>	14 28 29.5 30.0 37.0 41.9 43 18.5	C 2.7S 130.1E h:40km. Ceram Sea
111	28	eP	V	05 26 32.0	2.5S 140.5E h:25km. Near north coast of New Guinea.
112	28 ✓	e	V	07 30 51	31.4N 139.2E h:62km. South Of Honshu.
113	28	iP	V	16 02 49.0	
114	28	e(P) i(PP)	VN V	20 50 58.5 52 22.5	2.9S 140.7E h:25km. Near coast of New Guinea.

Seismograms read by  
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Monthly Seismological Bulletin.

MARCE, 1962.

Latitude: 35° 19' 15"S. Longitude: 143° 59' 55"E. Height: 700M

Instruments: three-component Benioff variable reluctance seismographs

$T_g = 1$  sec.

$T_g = 0.25$  sec. (short periods VNE)

$T_g = 13$  sec. (long period vertical  $V_1$ )

$T_g = 70$  sec. (long period horizontals  $N_1E_1$ )

One N-S component Wood-Anderson Seismograph,  $T_g = 0.3$  sec.

Mt. Stromlo quartz clocks provide accurate time marks and 50 c/s for drum drive.

Abbreviations: R - rarefaction; C = compression;

Epicentre locations are those given by USCGS.

No.	Date	Phase	Component	Time	Remarks
L1	1	eP	V	08 28 59.0	Regional
		iP	V	29 02.5	
		i(S)	VE	32.5	
1	1 ✓	e(P)	V	05 02 35.0	
L2	1	e	V	07 08 19.5	Regional
		e	V	52.5	
		i	V	04 07.5	
L3	1	eP	V	12 31 12.0	
		eS	NE	50.5	
2	1 ✓	eP	V	18 47 11.5	48.0N 143.2E h:48km Near east coast of Hokkaido
		i(P)	V	29.0	
3	1 ✓	iP	V	23 47 20.0	C
		eS	$E_1$	52 20.5	
		i	$E_1$	30.5	
		eLq	$N_1$	53.7	
		M	$N_1$	53.9	
4	2	i(P)	V	00 15 03.5	
5	2	iP	VN	00 36 33.0	C
					6.1N 125.9E h:100km Near south east coast of Mindanao, P.I.
6	2	iP	VN	08 35 42.5	C
7	2	iP	V	04 25 50.0	C
		i	V	26 05.5	
					0.8N 128.9E h:194km Celebes
8	2 ✓	iP	$VV_1$	13 11 24.0	C
		e	$NE_1$	25.0	
		isP	N	39.0	
		iPP	V	13 09.5	
		iPPP	VN	14 07.0	
		iPcS	V	13 50.0	
		eS	$N_1E_1$	13 03.5	
		eScS	$E_1$	21 15.5	
					Mag. 3 (Canb.)

No.	Date	Phase	Component	Time	Remarks.
9	3	e	V	05 01 53.5	0.1S 122.0E h:25km. Celebes.
10	3	eP	VNE	10 09 00.5	0.1N 123.5E h:25km. Molucca Passage.
11	3	iP i(pP) i(sP) i iScP eS	VV <sub>1</sub> VV <sub>1</sub> V <sub>1</sub> VV <sub>1</sub> V <sub>1</sub> NE	12 22 23.5 33.5 44.0 24 17.5 23 42.0 30 14.0	C 7.4N 126.5E h:90km. Near east coast of Mindanao, P.I.
12	3	iP	V	16 07 23.5	R 21.5S 172.1W h:313km. Fiji Is.
13	3	iP	V	13 21 05.0	C 13.1S 174.2W h:129km. Tonga Is.
14	3	e	V	21 05 23.5	
14	3	eP i eS	VNE V N	22 07 03.5 10.5 03 43.0	C Regional
15	4	iP i	VN V	03 34 01.0 05.5	C 01.4S 120.2E h:144km. Celebes
16	4	iP	VN	14 22 01.0	C 00.9S 121.4E h:133km. Celebes.
17	5	iP i iPcP	VN VN V	03 51 42.0 50.5 52 52.5	C 4.0S 103.3E h:73km. Near south coast of Sumatra.
18	5	iP	V	03 07 40.0	C
19	5	e	V	10 23 17.5	55.9S 27.0W h:25km. Sandwich Is.
20	5	eP ipP	V VN	15 03 53.0 03 03.0	R 11.3N 123.3E h:49km. Leyte, P.I.
21	5	eP	V	13 53 23.5	19.1N 121.1E h:14km. Off north west coast of Luzon, P.I.
22	3	eP	V	03 07 05.5	C 13.7N 93.7E h:13km. Andaman Is.
23	3	iP	V	22 13 53.0	R
24	7	eP i	V VNE	01 53 14.0 14.5	C
25	7	iP i i i iPcP i(pP) i iS iS i iScS iSSS	VV <sub>1</sub> VNEV <sub>1</sub> V N <sub>1</sub> VV <sub>1</sub> V V N <sub>1</sub> EV <sub>1</sub> E <sub>1</sub> NN <sub>1</sub> NEN <sub>1</sub> E <sub>1</sub> E <sub>1</sub>	11 03 32.0 32.5 37.0 42.0 10 25.0 11 30.5 14 45.0 13 21.0 21.5 17 30.0 13 14.0 23 24.0	19.3N 145.3E h:330 km Mariana Is.
26	7	e	V	11 33 (34)	
27	7	e	V	14 07 40.0	17.2N 147.1E h:41km. Mariana Is.



No.	Date	Phase	Component	Time	Remarks.
L5	7	eP	VN	14 18 11.5	Regional
		e(S)	E	45.5	
		e(S)	E	53.0	
28	7	eP	V	17 41 19.5	2.1S 133.9E h:89km. New Guinea.
29	7	iP	VN	22 05 02.0	R 0.0, 123.9E h:25km. Celebes.
30	8	eP	V	02 07 51.5	C 22.5S 89.1E h:25km. Mozambique Channel
31	8	eP	V	03 20 15.0	17.9N 143.5E h:181km. Mariana Is.
L6	8	e	V	09 08 21.0	Regional
		eS	E	57.0	
32	8 ✓	eP	V	10 30 23.5	35.1S 179.7W h:25km. Off north east coast of North Is., N.Z.
33	8	eP	VN	21 00 29.0	C 1.2N 123.1E h:43km. Molucca Passage
34	9 ✓	iP	VEV <sub>1</sub> E <sub>1</sub>	07 08 14.0	C 13.4S 173.7W h:472km. Fiji Is.
		i	N	14.5	
		ipP	N	04 37.0	
		iPP	V	50.0	
		iPPP	N	05 21.5	
		eS	NN <sub>1</sub>	03 02.5	
		eScP	V	44.0	
35	9	e	V	14 24 57.5	
L7	9	e	V	14 53 (33)	Regional
		i	V	54 03.5	
36	9	iP	VE	17 35 13.0	R 24.5S 179.3W h:506km. Fiji Is. region.
		e	N	13.5	
37	9 ✓	eP	V	22 13 34.5	5.3S 143.4E h:73km. Near east coast of New Guinea
		i	V	35.5	
		i(pP)	N	42.0	
		i(PcP)	N	13 40.0	
		i	V	42.0	
		eS	N <sub>1</sub> E <sub>1</sub>	13 27.5	h: 0.00 (Camb.)
		e(SSS)	V	20 15.5	
38	9	iP	V	22 49 50.5	
39	10	iP	VNEV <sub>1</sub>	01 08 59.5	R 3.5S 129.4E h:202 km. Banda Sea
		i(PP)	N	05 12.5	
		i	V	09 17.0	
		i	V	59.0	
		i	E <sub>1</sub>	11 32.0	
40	10	iP	V	03 11 33.5	C 3.3N 97.7E h:25km. Sumatra.
41	10	iP	V	05 05 10.5	31.2S 173.3W h:63km. Kermadec Is.
42	10	eP	V	12 14 11.0	11.0S 135.3E h:25km. Santa Cruz Is.
43	11	eP	V	07 25 07.0	13.2S 172.1E h:133km. New Hebrides Is. region
		eS	N <sub>1</sub>	30 01	
		i	E <sub>1</sub>	34 04	

No.	Date	Phase	Component	Time	Remarks.
44	11	eP	V	03 01 14.0	
L3	11	e(P) e(S)	VN E	12 55 41.5 54.0	
45	11	e e(T)	V V	13 30 23.0 43 19	
46	11 ✓	iP	V	15 33 35.0	52.3N 173.0E h:135km. Ret Is., Aleutian Is.
47	11 ✓	iP	VN	16 25 15.5	R 19.4N 144.3E h:423km. Mariana Is. Region
48	11 ✓	eP i iP i i i iPP e eS eS i(PS) iSS e M	VN V V <sub>1</sub> V <sub>1</sub> V V VV <sub>1</sub> N <sub>1</sub> N <sub>1</sub> V <sub>1</sub> E <sub>1</sub> E <sub>1</sub> EE <sub>1</sub> N <sub>1</sub> V <sub>1</sub> N <sub>1</sub>	19 27 50.5 51.5 57.0 23 02.0 19.5 45.0 29 43.0 34 23 51 53 35 00 33 21.0 32 47.4	3.0N 126.7E h:25km. Near east coast of Mindanao, P.I.
49	11	eP i	V VVV <sub>1</sub>	20 07 22.5 20.0	0.7N 126.3E h:171km. Mindanao, P.I.
50	11	e	V	20 16 03	
51	11	e	V	21 31 (49)	03.7N 123.2E h:157km. Mindanao, P.I.
52	11	i(P)	V	23 45 42.5	
53	12	iP i	VE V	01 15 59.0 13 10.0	4.3N 125.3E h:44km. Celebes Sea
54	12	e	V	04 10 19	
55	12 ✓	iPKP i	V V	10 00 35.0 41.0	R 9.0N 38.0W h:113km. Costa Rica
56	12 ✓	ePKP iPKP ePP eSS eSSP i(SSS)	V V V <sub>1</sub> E <sub>1</sub> E <sub>1</sub> E <sub>1</sub>	11 59 17 25.0 12 01 11 13.2 13.5 22 6	0.1 N 33.0W h:50km. Near south coasts of Panama and Costa Rica
57	12	eP	V	12 19 40	
58	12	e	V	17 25 24	13.1S 133.2E h:172km. New Hebrides Is.
59	12	eP	V	19 35 02	10.3S 131.4E h:133km. Solomon Is. region.
60	13	e	V	00 50 29.0	
L9	13	iP iS	VN VE	02 10 05.5 11.5	Local
61	13	iP	VNE	05 40 13.0	
L10	13	iP iS	V V	03 00 11.0 29.5	Local

No.	Date	Phase	Component	Time		Remarks.
62	13	iP	VN	11 37 35.0	R	2.9N 123.8E h:152km. Molucca Passage
63	13	e	V	21 54 05		
		i	V	15.0		
64	14	e	V	04 24 19.5		
65	14	iP	VNE	05 35 37.0	C	
66	14	iP	V	03 36 03.0	C	8.8N 126.8E h:28km. Mindanao, P.I.
		i	V	49.0		
67	15	iP	V	13 12 47.5	C	20.6S 178.8W h:623km. Fiji Is. region.
68	15	eP	V	21 21 43.0		7.1S 106.1E h:33km. Near south coast of Java
		ipF	V	54.5		
69	15	eP	V	23 03 47.5		10.5S 162.6E h:100km. Solomon Is.
70	16	i(P)	VN	04 25 01.0		
71	16	e	V	05 28 51		
		i	VE	29 13.0		
72	16	i(P)	V	07 25 37.0	R	
73	16	i(P)	V	08 18 23.5		
74	16	e	V	09 52 48		26.8N 127.2E h:176km. Ryukyu Is. Region.
75	16	e	V	13 27 52		
		i	V	23 41.0		
76	16	iP	VNEV <sub>1</sub>	15 31 09.5	C	21.7S 173.0E h:216km. New Hebrides Is. region
		eL <sub>Q</sub>	E <sub>1</sub>	33		
77	16	i(P)	V	19 39 29.5		
78	16	iP	VNEV <sub>1</sub>	19 43 37.0	R	10.3S 165.7E h:25km. Santa Cruz Is. region
		i	VV <sub>1</sub>	49 15.0		
		iPP	V <sub>1</sub>	31.0		
		i(PcP)	V <sub>1</sub>	51 53.0		
		eS	E <sub>1</sub>	53 24		
		eL <sub>R</sub>	V <sub>1</sub>	56.3		
		iScS	EE <sub>1</sub>	59 22.4		
		i	E <sub>1</sub>	43.5		
L11	17	iP	V	03 51 13.0	C	Local
		iS	V	31.0		
79	17	e(P)	VN	07 07 19.5		
L12	17	e	V	12 00 (39)		Regional
		e(S)	E	01 39		
80	17	iP	V	13 03 06.0	C	17.7S 177.4W h:673km. Tonga Is. region
81	17	eP	V	19 05 45.5		9.8N 122.5E h:25km. Near east coast of Negros Is., P.I.
82	17	ePKP	VV <sub>1</sub>	21 07 25		10.8N 43.7W h:25km. North Atlantic Ocean
		ipPKP	VV <sub>1</sub>	37.0		
		i	V <sub>1</sub>	47.5		
		eSS	E <sub>1</sub>	30.9		Mag. 3 1/2 - 3-3/4 (Camb).
		F	E <sub>1</sub>	23.3		
83	17	eP	V	21 34 03.5		22.8S 169.7E h:100km. Loyalty Is. region
		i	VEV <sub>1</sub> E <sub>1</sub>	03.0		

No.	Date	Phase	Component	Time		Remarks.	6.
34	18	i(P)	VE	00 43 23.0	R	(36.0S 173.9W h:25km) (Off coast of North Is.) (N.Z.)	
35	18 ✓	iP eS e M	VEV <sub>1</sub> E <sub>1</sub> E <sub>1</sub> N <sub>1</sub> E <sub>1</sub> N <sub>1</sub>	08 11 47.5 13 15.0 19 21.4	C	13.5S 163.2E h:14km. New Hebrides Is.	
36	18 ✓	i(P)	VNE	08 12 12.5	C	Possibly a phase of No.05	
37	18	iP	V	13 44 08.5	R	22.3S 173.7E h:100km. New Hebrides Is. region	
38	18 ✗	e	V	15 03 53		9.1N 123.4E h:44km. Mindanao, P.I.	
39	18 ✓	iPKP	V	15 43 56.0	R	40.3N 19.6E h:25km. Southern Albania	
90	18 ✓	eP i	V V	20 22 49.5 21 20.0		23.7N 114.5E h:48km. Kwantung Province, China	
L13	18	eP i eS	VE VN E	21 55 53.0 56.5 56 09.0		Local	
91	19	i(F)	V	02 40 53.5			
92	19	eP i iS isS eLR M	VNV <sub>1</sub> V E <sub>1</sub> V <sub>1</sub> V <sub>1</sub> E <sub>1</sub>	04 54 26.0 32.5 53 36.5 49.0 05 00.1 02.1	C	57.3S 147.2E h:25km. About 900 miles south of Tasmania.	
93	19 ✓	iP i e i ipP isP iPP i iPcP i(FPP) i iScP iS i i eScS	VNEV <sub>1</sub> N <sub>1</sub> E <sub>1</sub> V <sub>1</sub> V <sub>1</sub> VV <sub>1</sub> VNV <sub>1</sub> N <sub>1</sub> VV <sub>1</sub> VE E <sub>1</sub> V <sub>1</sub> E <sub>1</sub> V V V N <sub>1</sub>	03 02 19.5 24.0 34.5 44.0 52.5 03 06.0 04 00.5 06.5 10.0 34.5 46.5 07 43.5 08 31.5 34.0 11 14.0 54.5	R	0.3N 123.5E h:53km Near south coast of Mindanao, P.I.  E: 05 54 33 (Camb.) h: 0.017 "	
94	19	iP i	V VE	03 47 41.5 42.0	R		
95	19	iP	V	15 39 42.5		31.2S 179.9E h:439km. Kermadec Is. region	
96	19	iP i	VN V	21 03 29.0 37.5	R	4.3S 103.1E h:100km. Near south coast of Sumatra	
L14	19	eP eS	NE E	22 40 03.5 13.5		Local	
97	20	eP	VN	19 02 42.5		22.3N 143.2E h:98km. Mariana Is. region	

No.	Date	Phase	Component	Time		Remarks.
98	21	iP eS e e	VN E <sub>1</sub> N <sub>1</sub> V <sub>1</sub>	02 35 21.5 39 30 33 33		22.2S 170.4E h:25km. Loyalty Is.
99	21	e	V	03 31 31		
100	21 ✓	iP i iPcP i ipP i(ScP) i iS iScS	VNEV <sub>1</sub> N <sub>1</sub> E <sub>1</sub> N VV <sub>1</sub> N VV <sub>1</sub> VV <sub>1</sub> NEE <sub>1</sub> VV <sub>1</sub> N <sub>1</sub> E <sub>1</sub> E <sub>1</sub>	23 05 10.5 19.5 06 42.5 44.0 07 03.0 09 33.5 37.0 11 00.5 13 50.0	C	5.9S 113.0E h:631km. Java Sea
101	21	iP i i	VNE V V	23 17 30.0 19 10.5 22 05.5	R	
102	22 ✓	iP i iPcP i(pP) iScP eS eSS eL	VNN <sub>1</sub> V VV <sub>1</sub> V VV <sub>1</sub> NNE <sub>1</sub> E <sub>1</sub> E <sub>1</sub> E <sub>1</sub>	00 27 08.5 28 00.5 36.5 50.5 31 32.0 32 55.5 36 22 32.2	C	5.9S 112.0E h:611km. Java Sea
103	22 ✓	iP iPcP iScP	VNE V V	00 44 53.0 46 27.0 49 23.5	C	3.0S 113.0E h:595km. Java Sea
104	22	iP i	VN V	01 33 20.0 34 31.5	R	
105	22	iP ipP	V V	01 57 59.5 59 11.5	C	10.9S 173.1W h:60km. Fiji Is.
106	22	e	V	06 26 (47)		15.3S 137.6E h:25km. New Hebrides Is.
107	22	eP	V	07 20 21.0		
108	22	iP	VN	12 10 30.0	C	13.3S 137.5E h:45km. New Hebrides Is.
109	22	e(-) i(S)	V V	14 30 21.0 27.0		Local
110	22	i(S)	V	14 00 53.5		Local
111	22 ✓	iP ePP i i i(ScP) iS iS eL <sub>0</sub> M M	VNV <sub>1</sub> N <sub>1</sub> N <sub>1</sub> NEE <sub>1</sub> N V <sub>1</sub> N <sub>1</sub> E <sub>1</sub> E <sub>1</sub> E <sub>1</sub> E <sub>1</sub> V <sub>1</sub> N <sub>1</sub>	15 19 37.0 20 21 31.5 22 20.5 30.0 24 49 52.5 23 34.1 33.0	C	3.2S 142.3E h:25km. Near north coast of New Guinea Mag. 6-3/4 (Camb).
110	22	iP i iPP	VN V V	16 28 13.0 22.0 24 26.0	C	2.1S 139.3E h:44km. Near north coast of New Guinea
111	22	iP	V	16 42 20.0	C	
112	22	eP i	V V	17 52 55.5 53 00.0		2.0S 139.4E h:32km. Near north coast of New Guinea.

No.	Date	Phase	Component	Time	Remarks.
113	22	iP	V	18 09 47.5	C
114	22	eP	V	19 54 07.0	2.1S 139.0E h:57km. Near north coast of New Guinea.
115	22	eP	VNE	22 30 44.0	C
116	23	iP	V	00 21 31.0	17.4S 170.9W h:576km. Fiji Is.
117	23	i	V	04 39 23.5	
118	23	eP	V	06 28 23.0	
L17	23	eP	V	07 59 27.5	Local
		eS	V	33.5	
L18	23	e	V	13 51 40	Regional
L19	23	eP	VN	14 11 37.5	Local
		iS	VNE	44.0	
119	23	eP	V	14 49 29.0	23.5S 167.6E h:23km. Norfolk Is.
		e	N <sub>1</sub>	53 10	
		eT	V <sup>1</sup>	15 04 09	
120	23	iP	V	15 14 04.0	22.3S 179.4E h:608km. Fiji Is. region
L20	23	eP	V	15 33 11.5	Local
		eS	V	13.0	
121	24 ✓	e	V	01 41 23	17.3S 173.0W h:25km. Fiji Is.
L21	24	(eP)	V	03 31 13.0	Regional
		e	N	13.5	
		i(S)	N	49.0	
122	24 ✓	iP	VNV <sub>1</sub>	13 05 30.0	R 5.7S 145.0E h:111 km Near north coast of New Guinea.
		i	VV <sub>1</sub>	33.0	
		ipP	VNV <sub>1</sub>	56.5	
		esP	N <sub>1</sub>	03 05.0	
		eS	N <sub>1</sub>	10 13.5	
		M	E <sub>1</sub>	19.0	
123	24	eP	N	15 31 57.0	2.1S 133.0E h:34km. Near north coast of New Guinea.
		i	V	32 01.0	
124	24	iP	V	20 23 51.5	
125	25	i(P)	V	04 29 20.5	R
126	25	iP	VN	05 35 13.0	C 5.3S 130.7E h:30km. Banda Sea
127	25	iP	V	11 57 42.5	49.5S 3.7W h:25km. About 300miles North west of Bouvet Is.
128	25	e	V	13 51 (09)	23.2N 96.1E h:25km. Eastern India- Tibet border region
129	25	iP	V	14 29 54.0	
130	25	eP	V	20 43 45.0	
131	25	iP	V	21 01 03.5	C 27.3N 99.6E h:25km. Sikang Province, China.
132	25 ✓	iP	V	21 52 32.5	C 1.3N 127.2E h:60km. Halmahera

No.	Date	Phase	Component	Time		Remarks.
133	25	i	V	21 57 21.0		
134	26	iP	VN	03 13 23.5	C	0.5S 127.3E h:55km. Halmahera region
135	26	iP iPP	VN V	15 23 41.0 27 46.0	C	5.5S 143.1E h:122km. New Britain region
136	26 ✓	eP eL	V V <sub>1</sub> N <sub>1</sub> E <sub>1</sub>	16 43 04.5 17 13.2		40.6S 73.3W h:82km. Near coast of southern Chile
137	27 ✓	iP eS eSSS	VNE V <sub>1</sub> N <sub>1</sub> E <sub>1</sub> EE <sub>1</sub> E <sub>1</sub>	05 23 23.0 31 59 33 09	C	3.9S 129.1E h:96km. Ceram region
138	27	iP	VN	14 53 10.5	C	20.3S 177.3W h:510km. Tonga Is.
L22	27	eP iP i i(S) i(L <sub>g</sub> )	V VNE V N VNE	17 55 14.0 22.5 45.5 50.5 56 00.5		Regional
L23	27	iP iP iS i	V VN VNE V	20 48 53.5 49 00.5 06.5 08.0		Local
139	28 ✓	iP	VN	04 15 29.0	K R	1.4N 97.5E h:74km. Near south coast of Sumatra
L24	28	e e	V N	04 52 08.5 31.5		Local
140	28	eP	V	03 22 23.0		23.7S 179.9W h:375km. Mernadee Is.
L25	28	eP eS	V N	07 14 04.0 33.0		Regional
141	28	e	V	07 27 02.5		
L26	28	eP eS	V V	07 31 55.5 32 27.0		Regional
142	28	iP	VN	09 33 22.5	C	
143	28	iP	V	10 35 25.0	C	
144	28	iP	V	11 12 57.0		
145	28	eP eL	V E <sub>1</sub>	14 13 23.5 27.5		32.7S 173.0W h:104km. Mernadee Is.
146	29	e	V	02 04 56.5		51.3N 157.2E h:155km. Near south coast of Kamchatka
L27	29	e(P) e(S)	V V	04 08 29.5 55.0		Regional
147	29 ✓	iP i i eS eL	V VNE V N <sub>1</sub> N <sub>1</sub>	20 13 37.0 33.0 17 13.0 22.3 25.0		0.5S 127.4E h:25km. Halmahera region
148	29	eP	V	22 43 34.0		20.1S 139.0E h:51km. Loyalty Is.

No.	Date	Phase	Component	Time		Remarks.
149	29	eP	V	22 57 31.5		
L28	30	eP	VNE	08 12 23.0		Young District, N.S.W. Felt.
		iP	NE	23.5		
		eS	E	40.5		
150	30	iP	V	08 53 34.0	R	
151	30	e	V	05 54 45.0		
		i	V	55 13.0		
152	30	iP	VE	08 04 21.0	C	
		i	V	32.5		
153	30	iP	V	12 03 50.0	R	
154	30	iP	VN	14 17 13.5	R	
155	30 ✓	iP	VE	14 23 59.0	R	23.7S 179.0W h:292km. Ternadec Is.
L29	30	eP	V	15 32 34.0		Young District, N.S.W.
		iP	VN	34.5		
		iS	VNE	47.5		
156	30	eP	V	17 34 33.5		
		i	V	33.5		
157	31	e	V	02 21 17.0		
158	31	eP	VN	07 40 12.5	C	
159	31	iP	VE	07 53 53.0	R	9.3N 121.3E h:156km. Negros Is. P.I. region
160	31	iP	VN	10 37 41.0	C	
161	31	eP	VN	11 06 14.0	C	
162	31	eP	V	12 14 57		
163	31	eP	V	15 43 15.5		
164	31	eP	VN	13 42 14.0	C	
		i	VN	23.5		
L30	31	eP	VN	16 51 07.0		Local
		iS	VE	13.0		

Seismograms read by  
Jennifer Clay.

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*collected*  
10 MAY 1966

MONTHLY SEISMOLOGICAL BULLETIN.

APRIL, 1962.

Latitude:  $85^{\circ} 19' 15''$ S. Longitude:  $140^{\circ} 59' 55''$ E. Height: 700 M.

Instruments: three-component Benioff variable reluctance seismographs

$T_S = 1$  sec.

$T_G = 0.25$  sec. (short periods VNE)

$T_G = 16$  sec. (long period vertical  $V_1$ )

$T_G = 70$  sec. (long period horizontals  $N_1E_1$ )

One N-S component Wood-Anderson Seismograph,  $T_S = 0.3$  sec.

Mt. Stromlo quartz clocks provide accurate time marks and 50 c/s for drum drive.

Abbreviations: R - rarefaction; C = compression; E = origin.

Epicentre locations are those given by USCGS.

No.	Date	Phase	Component	Time	Remarks.	
1	1 ✓	eP	VN	02 24 50.5	7.6S 130.9E h:30km. Tanimbar Is. region	
		i	V	25 21.5		
L1	1 .	e	V	02 55 41	Regional	
		e	N	56 29		
2	1 ✓	eP	V	05 12 50	41.9N 143.4E h:55km. Near coast of Hokkaido	
3	1 ✓	eP	VN	12 17 24.0	4.2S 143.6E h:80km. Near north coast of New Guinea	
		i	VN	25.5		
		ipP	VN	44.5		
		i	V	13 00.0		
		i	$N_1$	19 05		
		iS	$E_1$	22 25.5		
		iPcS	V	28 57.5		
		eL	$N_1$	24.3		
4	1	eP	V	14 06 21.5	C	
5	1	iP	VNEV <sub>1</sub>	15 42 13.5	C	17.9S 137.2E h:53km. New Hebrides Is. region
		i	V	21.0		
		ipP	$V_1$	24.5		
		i(sP)	V	35.5		
		eS	$E_1$	43 19.5		
L2	1	eP	VN	18 31 50.5	Regional	
		iS	VN	32 20.0		
6	2 ✓	eP	V	00 23 52.5	C	13.6N 145.5E h:205km Mariana Is.
		i	V	53.5		
		ipP	V	24 37.0		
		iPcP	V	51.0		
7	2	e	V	00 34 40.0		
8	2	eP	V	18 39 51.5	3.1S 143.7E h:60km. Near north coast of New Guinea.	
		i	V	53.5		
9	3	e	V	01 05 13.0		
L3	3	eP	V	05 41 30.5	Local	
		iS	VNE	07.5		
L4	3	iP	VN	09 02 38.0	Local	
		eS	E	50.0		

No.	Date	Phase	Component	Time	Remarks.
L5	3	eP eS	VN VNE	10 02 44.5 53.5	
10	3	iP	V	15 43 23.0	4.5S 143.2E h:80km. Near north coast of New Guinea.
11	3 ✓	iP ipP isP i ePP eS eLq M	V VN VNE VNE N <sub>1</sub> N <sub>1</sub> N <sub>1</sub> V <sub>1</sub>	13 30 32.0 59.5 31 04.5 11.0 44.0 35 37 37.0 43.5	10.3S 134.9E h:33km. Santa Cruz Is. region
12	3	eP ipP	V V	10 42 54.5 43 03.0	20.3S 139.4E h:40km Loyalty Is.
L6	4	i(P) e(S)	V VN	02 47 14.0 43.5	Regional
L7	4	eP e(S) e(S)	V V VN	02 53 40.0 59 11.0 13.5	Regional
13	4	iP	V	03 37 03.5	C
L8	4	e(P) e i	V V V	03 52 04.0 29.5 32.5	Regional
L9	4	iP eS	V N	04 34 39.0 35 10.0	Regional
14	4	iP	V	09 34 30.0	22.0S 173.2W h:263km Fiji Is. region..
15	5	eP	V	12 37 33.0	44.9S 75.3W h:25km. near coast of southern Chile.
16	5	eP i	V V	19 51 24.5 29.0	13.2S 137.5E h:35km. New Hebrides Is.
17	6	iP	VN	04 32 05.5	17.7S 173.3W h:533km. Fiji Is.
18	6	eP i	V VN	03 57 09.5 10.0	4.2S 143.3E h:33km. New Guinea
19	6	iP	V	14 13 25.0	R 24.0S 179.5W h:533km. South of Fiji Is. region.
20	3	eP ✓	V	17 02 29.5	23.7S 113.2W h:33km. Easter Is. region.
L10	3	iP iP i iS	VN VN V VN	20 23 33.5 39.0 43.0 50.0	Local
21	3	iP	V	20 30 04.5	23.4S 179.7W h:533km. South of Fiji Is. region
L11	3	eP eS	V E	22 49 49.0 50 07	Local
22	7	iP ✓ ePP eS e	VV <sub>1</sub> N <sub>1</sub> N <sub>1</sub> N <sub>1</sub>	03 29 52.5 31 42.5 33.5 40 03	C 10.0N 144.4E h:50km. Caroline Is. region

No.	Date	Phase	Component	Time	Remarks.
23	7	eP	V	08 09 33.0	10.7S 130.7E h:23km. New Hebrides Is.
24	7	iP	V	19 50 23.5	10.3S 131.4E h:75km. Solomon Is. region.
25	7	iP	VN	21 08 21.0	7.3S 130.4E h:25km. Tanimbar Is. region.
26	7	i(P)	V	23 00 21.7	
27	7 ✓	ePKP	V	23 22 30.0	C 15.0N 30.5W h:77km. Windward Is.
28	8	eP	V	04 35 02	4.1S 141.5E h:115km. New Guinea
29	8	iP	V	05 03 33.5	
30	8	iP	V	05 21 44.5	20.3S 175.7W h:70km. Tonga Is.
31	9	e	V	04 23 23.0	13.3N 145.5E h:200km. Mariana Is.
32	9 ✓	iP i i e	VNE VNV <sub>1</sub> N <sub>1</sub> V N <sub>1</sub>	09 01 13.5 15.0 02 11.0 00 25	R 0.3S 124.1E h:43km. Sawee Sea
33	9	iP	V	10 32 23.0	3.7N 123.5E h:100km. near coast of Mindanao, P.I.
34	9	iP	VN	22 42 44.0	C 12.0N 124.9E h:44km. Near coast of Samar,P.I.
L12	10	iS	V	02 33 51.0	Local
35	10	iP	V	13 13 23.5	R 30.1S 177.7W h:46km. Bernadec Is.
36	10	iP	VNEV <sub>1</sub>	17 13 52.0	R 16.4S 175.3W h:330km. Fiji Is. region.
37	10 ✓	e i(P.H.)	V V	21 53 27 40.0	37.3N 201E h:35km. Ionian Sea.
L13	10 ✓	iP iS i	V V VN	22 19 13.5 32.5 33.5	Local
38	11 ✓	iP	V	00 05 10.0	37.4N 135.4E h:302km. Sea of Japan.
39	11 ✓	eP ipP i ePP iPcS	V V V V V	11 03 24.5 32.0 52.5 03 23.0 11 43.5	9.0N 123.3E h:31km. Off east coast of Mindanao
L14	11	e eS	V N	13 30 (12) 43.5	Regional
40	11	e	V	19 02 35.0	
41	11	iP i	V V	20 20 52.0 21 04.0	R
L15	11	iP iS	V VN	21 22 07.0 22.5	Local
42	12 ✓	eP iPcP i ePPP eS	V V <sub>1</sub> V <sub>1</sub> N N <sub>1</sub> E <sub>1</sub>	01 04 14.0 23.5 23.5 03 30.5 13 33.0	33.2N 142.3E h:33km. Near east coast of Honshu

No.	Date	Phase	Component	Time	Remarks.
42	12	(Contd)			
		eSS	N <sub>1</sub>	13.2	
		M	E <sub>1</sub>	32.4	
L16	12	iP	VN	05 53 52.0	Local
		iP	VN	52.5	
		iS	VE	54 18.0	
		iL	V	14.5	
43	12	eP	V	05 59 (02)	14.3S 133.3E h:104km. New Hebrides Is.
44	12	i	V	11 23 37.0	10.4S 105.0E h:34km. South of Java
		e	V	32 45.0	
45	12	e	V	15 24 35	
L17	12	eP	VN	20 55 33.0	Regional
		eS	N	53 14.5	
46	13	eP	VN	02 27 14.0	1.0N 122.3E h:37km. Celebes.
		isP	VN	30.0	
47	13	e	V	10 51 20	
48	13	eP	V	12 14 57.5	
49	15	i	V	03 37 10.0	
50	15	iP	V	11 44 53.5	13.7N 120.3E h:40km Luzon, PI.
		i	V	45 25.0	
51	15	eP	V	20 34 44.5	3.3S 149.5E h:33km. New Britain.
52	15	eP	V	22 43 57.0	53.3S 23.2W h:25km. Sandwich Is.
53	13	iP	V	11 43 51.5	C 10.5S 131.6E h:53km. Solomon Is.
54	13 ✓	iP	VV <sub>1</sub>	13 30 43.5	C 30.6N 140.3E h:173km. South of Honshu, Japan.
		i	VN <sub>1</sub>	44.0	
		i	V	53.0	
		iPcP	VV <sub>1</sub>	31 13.0	
		ipP	V <sub>1</sub>	29.0	
		isP	V <sub>1</sub>	44.0	
		iPP	V	33 15.0	
		iS	E <sub>1</sub>	39 13.5	
		ePS	E <sub>1</sub>	40 07.5	
		esS	VN <sub>1</sub>	33.5	
55	17	iP	V	15 21 33.5	R 7.0S 129.1E h:140km. Banda Sea.
L18	17	e(P)	VN	17 03 59.0	Regional
		e(S)	VE	04 37.5	
56	17	iP	V	17 47 43.5	R 42.3S 174.0E h:25km. South Is., New Zealand.
		i	VNE	44.0	
		i(pP)	E <sub>1</sub>	54.0	
		i(sP)	V	57.5	
		i(S)	E <sub>1</sub>	51 44.0	
		eT	VN	13 03	
		T max	E	03 04.5	
57	17 ✓	eP	V	21 05 47.5	33.4N 142.2E h:110km. Near east coast of Honshu.
58	17 ✓	ePKP	V	22 54 (20)	1.5S 142W h:25km. Mid-Atlantic Ocean.

No.	Date	Phase	Component	Time	Remarks.			
L19	18	eP	V	05 08 33.5	Regional			
		iS	V	04 00.0				
59	18	e(P)	V	08 32 04				
60	18	e	V	09 54 53				
61	18	i(P)	V	13 29 53.0				
62	18 ✓	iPKP	V	19 33 21.0	10.0S 79.0W h:89km. Off coast of Peru.			
		iPP	V	34 57.0				
		ePS	N <sub>1</sub> E <sub>1</sub>	44 09				
		e	E <sub>1</sub>	50 42				
		ePSPS	N <sub>1</sub> E <sub>1</sub>	51 08				
		e	V <sub>1</sub>	52 34				
		eLR	E <sub>1</sub>	20 00.9				
		eLR	V <sub>1</sub> N <sub>1</sub>	09.5				
		M	V <sub>1</sub> N <sub>1</sub> E <sub>1</sub>	18.0				
63	18	e	V	19 48 51.0				
64	18	eP	V	21 14 05.5	13.0S 166.0E h:105km. New Hebrides.			
65	19	eP	V	02 42 16.5				
66	19	eP	V	05 34 16.5				
		i	V	24.0				
67	19	iP	VN	06 44 23.0	R			
L20	19	eP	V	14 30 43.5	Local			
		iS	VE	52.5				
68	19	i(P)	V	19 51 21.5				
69	19 ✓	iP	V	22 20 35.0	C 15.3S 163.0E h:213km. New Hebrides Is.			
		i	VE	40.0				
		iPP	V <sub>1</sub> E <sub>1</sub>	21 15.5				
		e	N	20.5				
		isP	E <sub>1</sub>	43.0				
		iS	N <sub>1</sub> E <sub>1</sub>	24 49.0				
		iSS	V <sub>1</sub> E <sub>1</sub>	26 10.5				
		eSSS	N <sub>1</sub>	40.5				
		iPcS	V	27 33.5				
		eScS	V <sub>1</sub>	31 08.5				
		70	20 ✓	ePKP		VV <sub>1</sub>	06 07 17.0	R 20.3N 72.2W h:25km. Near north coast of Haiti
iPKP	VEV <sub>1</sub>			25.5				
i	VE			33.5				
i	VV <sub>1</sub>			43.5				
ePP	EE <sub>1</sub>			10 09.0				
iPP	VV <sub>1</sub>			25.0				
i	V			13 54.0				
i	V			14 09.0				
i	V			33.5				
i	V			17 35.5				
eL	E <sub>1</sub>			54.2				
71	20			iP	VN	14 30 47.5	C 17.2S 169.9E h:37km. New Hebrides.	
				i	V	43.5		
		isP	V	31 14.0				
72	20	eP	V	23 45 45				
73	21	eP	V	08 39 50	3.1S 143.1E h:36km. New Guinea.			
74	21	iP	VNE	07 51 40.0	R 23.7S 130.0, h:559km. Fiji Is. region.			
		ePP	V	53 10.5				
75	21	iP	VN	14 27 35.0	C 4.4S 151.2E h:334km. New Ireland.			

No.	Date	Phase	Component	Time		Remarks.
76	21	iP eL	VN <sub>1</sub> E <sub>1</sub>	21 28 59.5 38.7	C	6.5S 144.6E h:42km. New Guinea.
77	22 ✓	iP i(PcP) i(PcP) i(ScP)	V VN V V	08 15 09.5 55.0 18 00.5 21 53.0		18.9S 169.5E h:233km. New Hebrides Is. region
78	22 ✓	eP	V	04 42 32.5		44.2S 72.3W h:120km. Chile-Argentina border.
79	22	iP	V	13 03 51.0	R	21.1S 173.7W h:578km. Fiji Is.
80	22	iP	VN	17 41 51.0		
81	22	e(P)	V	22 13 50.5		
82	23 ✓	iP i <sub>1</sub> P i <sub>1</sub> S i iPP eS e(ScS) i ePFS eL <sub>Q</sub> M e M M	VN VNEV <sub>1</sub> N <sub>1</sub> E V <sub>1</sub> N <sub>1</sub> N <sub>1</sub> E <sub>1</sub> V <sub>1</sub> E <sub>1</sub> E <sub>1</sub> N <sub>1</sub> N <sub>1</sub> V <sub>1</sub>	03 10 02.5 03.5 12.0 23.0 12 53.0 19 53.5 20 27.5 32.0 21 04.5 31.2 33.5 34.9 38.0 39.5	R	42.0N 143.4E h:25km. Hokkaido
83	23	iP	V	06 10 14.0		
84	23	e	V	06 29 14		
85	23	iP i <sub>1</sub> S i	VN VN V	14 53 02.5 32.0 15 04 12.0	C	6.9S 128.4E h:03km. Banda Sea
L21	23	iP i i iS	VN V V VNE	19 47 57.0 59.0 48 00.5 07.0		Local
86	23	eP	V	21 12 10		5.9S 148.4E h:51km. Bismark Sea.
87	24 ✓	ePKP	V	13 25 02.5		2.2S 76.1W h:175km. Ecuador-Peru border.
88	25	iP	V	00 27 00.5	C	
89	25	e	V	01 33 40		
90	25	eP	V	03 41 53.5		54.0N 130.8E h:29km. Kamchatka.
91	25	e	V	05 30 20		
92	25 ✓	e e eS	V N E <sub>1</sub>	15 53 57 59 06.0 16 03 23		30.4N 142.5E h:56km. Honshu, Japan.
L22	25	iP i eS	VN V VN	19 00 15.5 35.5 37.5		Regional
93	25	eP	VN	19 43 00.5	C	
94	25 ✓	eP	V	20 01 24.5		38.4N 142.7E h:120km. Honshu, Japan.

No.	Date	Phase	Component	Time		Remarks.
95	25	iP	V	21 39 40.0	C	
96	25	iP	V	21 40 58.0		
97	26 ✓	iP eS i(PoS)	VNEV <sub>1</sub> E <sub>1</sub> N <sub>1</sub> VV <sub>1</sub>	07 32 20.5 37 08 41.0	R	17.3S 179.1W h:309km. Fiji Is.
98	26	eP	V	08 41 51.0		
99	26	e	V	19 47 13		
L28	26	e e	V V	20 02 (87) 08 08		Regional or T-wave.
100	27	iP	V	00 23 57.5	C	
L24	27	eP iP eS	V VNE NE	01 31 25.0 25.5 48.5		Local
101	27	eP i	V V	06 06 34.0 48.0		
102	27	i i(sP)	VNE V	06 35 48.5 38 04.0	C	28.1S 178.2E h:576km. Fiji Is. region.
103	27 ✓	eP	V	07 00 31.0		44.4S 74.6W h:81km. Southern Chile.
104	28	i(P)	V	02 02 38.0	C	
105	28	iP i i ipP	VN VN V V	07 44 08.0 04.5 18.5 29.0	R	2.6S 169.8E h:124km. New Guinea
106	28	iP	V	09 13 02.5		48.9N 146.3E h:155km. Hokkaido, Japan
107	28 ✓	e i	V V	11 30 11 19.0		36.4N 26.6E h:40km. Dodecanese Is.
108	28	iP i	VN V	16 31 28.5 33.5	R	
L25	29	eP eS	N VN	14 13 33.5 48.5		Local
109	29	iP	V	14 31 28.0		
110	29	iP	V	15 16 10.0		12.4S 166.5E h:72km. Santa Cruz Is.
111	30	e	V	01 10 (52)		
112	30 ✓	iP i(PoS) isP i e(PFP)	VV <sub>1</sub> VV <sub>1</sub> N V N	02 33 00.5 06.5 33.0 40 34.0 42 30.5	C	38.3N 140.9E h:104km. Honshu, Japan.
113	30 ✓	iP	VN	09 52 21.5	R	17.0N 147.8E h:109km. Mariana Is.
114	30	eP iPP	V V	10 45 28 47 20.0		20.1S 169.0E h:49km. Loyalty Is.
115	30 ✓	iP i is isS eSSS M	VEV <sub>1</sub> V <sub>1</sub> N <sub>1</sub> N <sub>1</sub> E <sub>1</sub> N <sub>1</sub> E <sub>1</sub> N <sub>1</sub>	13 28 45.5 26 17.0 28 22.5 32 34 37.0	C	17.9S 173.1W h:26km. Tonga Is. region

No.	Date	Phase	Component	Time	Remarks.
116	80 ✓	eP e eL	VNEV <sub>1</sub> E N <sub>1</sub>	10 37 54.0 42 44.0 43.8	C 10.0S 173.4W h:185km. Fiji Is. region.
117	80 ✓	iP ePP	VNV <sub>1</sub> N <sub>1</sub> VV <sub>1</sub>	20 43 24.5 50 18.5	C 3.4N 124.0E h:20km. Banda Sea.

Seismograms read by  
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CANBERRA, A.C.T., AUSTRALIA.

MONTHLY SEISMOLOGICAL BULLETIN.

MAY, 1962.

Latitude:  $35^{\circ} 19' 15''$ S. Longitude:  $143^{\circ} 59' 55''$ E. Height: 700 M

Instruments: three-component Benioff variable reluctance seismographs.

$T_g = 1$  sec.

$T_g = 0.25$  sec. (short periods VNE)

$T_g = 13$  sec. (long period vertical  $V_1$ )

$T_g = 70$  sec. (long period horizontals  $N_1E_1$ )

One N-S component Wood-Anderson Seismograph,  $T_g = 0.8$  sec.

Mt. Stromlo quartz clocks provide accurate time marks and 50 c/s for drum drive.

Abbreviations: R - rarefaction; C = compression; H = origin.

Epicentre locations are those given by USCGS.

No.	Date	Phase	Component	Time	Remarks.
1	1	iP	VN	02 27 03.0	
L1	1	eP eS	V N	03 03 (09) 43.5	Regional
2	1	i	V	03 53 30.5	R
3	1	eP i i(PcP) e i(S)	VN V V V N	10 00 40.0 01 14.0 02 43.0 05 42.0 45.5	R 5.3S 125.5E h:321.km Banda Sea
4	1 ✓	iPKP	V	10 19 45.5	23.3N 5.4E h:0km. Southern Algeria
L2	1	eP iS	V VN	19 21 47.0 22 02.5	Regional
L3	2	iP eS	V VN	01 47 11.5 33.5	Regional
L4	2	iP i eS	V V VNE	13 54 25.5 47.5 49.0	Regional
5	3	iP	VN	01 54 17.5	C
6	3 ✓	e(P) ipP i eSS	V V V N <sub>1</sub>	03 47 25.5 30.5 43 14.0 04 03 33	30.3S 32.9W h:20km. Sandwich Is. region
7	3	iP	V	10 07 30.0	R
8	3	iP	V	10 50 29.0	
9	3	e	VN	17 31 (04)	
	4	i	V	12 40 10.5	
10	4	e	V	15 10 (33)	
11	4	iP	V	17 31 02.5	
12	5	iP	V	06 33 10.0	R
13	5 ✓	eP	V	11 22 (53)	34.2N 139.2E h:73km Near south coast of Honshu.

No.	Date	Phase	Component	Time		No. 2 Remarks.
14	5 ✓	iP ipP	V VE	23 11 53.5 12 04.5	C	31.6S 173.7W h:41km Kermadec Is. region
15	6	eP	V	03 28.14		54.3S 133.3W h:23km South Pacific Ocean, about 2300 miles SE of New Zealand.
16	6	iP	VN	12 14 23.0	R	20.3S 173.7W h:537km Fiji Is. region.
17	6	iP	V	13 00 32.0	R	23.4S 171.2E h:75km. Loyalty Is. region
18	6	eP	V	15 43 36.0	R	
19	6 ✓	eP i iPcP iS e eLq	V VV <sub>1</sub> V <sub>1</sub> E <sub>1</sub> N <sub>1</sub> E <sub>1</sub>	19 12 45.0 43.5 52.0 23 16.0 23:7 34.9	A	30.0S 32.3W h:25km. Sandwich Is. region
20	6	iP	V	19 32 31.0	R	
21	6 ✓	eP	V	22 03 21.5		30.2S 33.1W h:37km. Sandwich Is. region.
22	6	eP	V	22 47 (19)		30.4S 33.6W h:34km. Sandwich Is. region
23	7	eP	V	05 02 52.5		4.1S 143.7E h:113km. Near north coast of New Guinea.
24	7	eP	V	03 17 11.5		19.3N 145.4E h:113km Mariana Is.
25	7 ✓	iP i i eSKS eL M	VV <sub>1</sub> V V <sub>1</sub> E <sub>1</sub> E <sub>1</sub> E <sub>1</sub>	17 52 02.0 02.5 04.5 13 02 15 13.5 15.4	C	45.3N 143.7E h:25km. Kurile Is.
26	7	iP	VN	13 43 23.0	C	
27	7	iP	V	13 16 09.5	C	53.5S 25.6W h:25km. Sandwich Is.
28	8	iP	V	01 33 41.5	R	
29	8	eP	V	07 58 00		14.4N 145.1E h:70km Mariana Is.
30	8	iP	V	03 03 41.0	R	17.9S 177.7W h:409km Fiji Is.
31	8	iP	V	13 16 14.5	C	17.8S 177.3W h:451km Fiji Is.
L5	8	e	V	19 34.5		South Australian regio- nal.
32	10 ✓	eP i i i ipP i i eL eT T max	VE VNE VE VNE VNE N <sub>1</sub> V V <sub>1</sub> VNE VE	00 31 35.5 36.5 38.0 40.5 44.5 35 15.5 27 33.4 45 49 49	C	41.3S 171.6E h:54km South Is., N.Z.,

No.	Date	Phase	Component	Time	No.3.	Remarks.
32	10	iP i eL eL	VE V E <sub>1</sub> V <sub>1</sub>	04 35 54.5 50.5 40.5 42.8	C	
L6	10	e	V	04 43 (34)		Regional or T -wave
L7	10	e	V	04 53 (44)		Regional or T - wave
34	10 ✓	eP	V	05 25 35.5		52.4N 170.9W h:43km. Fox Is. Aleutian Is.
	10	i	V	06 29 31		
L8	10	e	V	07 17.2		Regional or T Wave.
35	10	e(T)	V	10 39		
36	10	e(T)	V	11 31 (42)		
37	10	iP i i	VN V V	17 43 53.5 48 13.5 23.0	R	
	11	eL	V <sub>1</sub>	05 03.3		6.4S 143.3E h:37km. New Guinea
38	11	eP ipP	V VN	07 11 43.0 53.5		6.6S 147.7E h:42km. Near north coast of New Guinea
39	11 ✓	iP	V	12 11 50.0	R	14.3S 170.4E h:323km. New Hebrides Is.region
40	11	i	V	12 22 53.0		
41	11	eP	V	13 41 22.5		23.5S 177.3W h:115km Kermadec Is.
42	11 ✓	ePP e ePS eSS e e eSSS eL <sub>R</sub>	V V V <sub>1</sub> V <sub>1</sub> N <sub>1</sub> N <sub>1</sub> V <sub>1</sub> V <sub>1</sub>	14 32 14.5 41 07.0 41.5 47.5 43.0 51.9 52.7 15 05.5		17.0N 99.7W h:25km. Near coast of Mexico
L9	11	eP eS iS	V V VN	14 34 39.5 43.5 47.5		Local
43	11	e i	V V	16 25 39 23 32.5		
44	12	iP	VNE	20 41 42.0	R	17.7S 173.2W h:300km Fiji Is.
45	12 ✓	iP	VE	22 09 39.5	R	13.0S 173.0W h:303km. Fiji
46	13	iP	VNE	02 44 03.0	C	
47	13 ✓	ePKP ePKS	V V	09 31 33 34 43.5		6.9N 73.0W h:133km. Columbia
48	14	eP ipP	V VN	01 30 27.5 41.0		13.4S 163.3E h:53km. New Hebrides Is.region
49	14	iP	VNE	10 40 44.0	C	9.0S 113.7E h:30km. Soembawa

No.	Date	Phase	Component	Time		Remarks.
50	15 ✓	eP	VV <sub>1</sub>	05 30 26.0	C	7.5S 120.3E h:84km.
		i	VIE	27.5		Banda Sea
		isP	N <sub>1</sub>	39.0		
		iPPP	N <sub>1</sub>	31 56.0		Mag. 7 (Camb).
		eS	N <sub>1</sub>	35 44		
		eL	NE	37.7		
		M	VN	42.8		
		M	E	43.2		
		M	V <sub>1</sub>	45.1		
51	15 ✓	iP	VNEV <sub>1</sub>	06 49 39.5	R	7.2S 120.3E h:52km.
		i	V	54 19.0		Banda Sea
		eS	N	57.5		In coda of No.50
		iPcS	V	56 01.5		
		eL	N	57.1		
52	15	iP	V	07 37 39.5	C	6.2S 120.2E h:57km.
		i	VN	41.5		Arafura Sea
53	15	e	V	08 33 15.0		
54	15	e(F)	V	09 34 41.0		
55	15	iP	VNEV <sub>1</sub>	10 01 59.5	R	7.2S 120.2E h:30km.
		i	V	03 01.0		Banda Sea
56	15	eP	VN	13 02 17.5	R	7.6S 127.9E h:35km.
						Banda Sea
57	15	eP	V	13 29 29		7.3S 120.4E h:35km.
						Banda Sea
58	15	iP	V	16 25 56.5	C	
59	15 ✓	iP	VNEV <sub>1</sub>	17 00 44.0	R	7.4S 120.0E h:84km.
		i	V <sub>1</sub>	14 24.5		Banda Sea
						Mag. 6-1/4 (Camb.)
60	15	eP	V	18 03 57.0	R	
		i	V	04 50.5		
61	15	iP	V	18 22 40.5	C	
62	15	iP	VN	18 25 35.0	R	
63	15	iP	V	19 07 02.5	C	
64	15 ✓	iP	V	19 45 15.0		53.4N 159.6E h:30km.
						Near east coast of Kamchatka
L10	15	iP	VN	20 06 31.5	C	Local
		iS	VNE	41.0		
65	15	eP	V	21 37 43.0		7.2S 120.1E h:30km.
		iPP	V	38 57.5		Banda Sea
66	15	eP	V	23 00 12.0	C	
67	15	e	V	23 39 11		
68	16	iP	V	01 13 44.5	C	
69	16	eP	V	05 22 27.5	C	13.6S 167.3E h:52km.
		iPP	V	28 20.5		New Hebrides Is.
70	16	iP	VIE	08 23 03.5	C	0.9S 127.0E h:84km.
						Spice Is.
71	16	e	V	13 04 05		
72	16	eP	VN	13 37 55.0	R	
73	16 ✓	iP	VNE	14 42 11.5	R	7.3S 120.1E h:84km.
		i	V	44 11.5		Banda Sea
		e	V	49 30		

No.	Date	Phase	Component	Time	Remarks.
74	16	iP	V	16 53 01.0	C
75	16 ✓	eP	V	17 33 50	18.4S 167.3E h:35km. New Hebrides Is.
76	16	eP	V	19 16 19.0	R 9.8S 118.4E h:47.km. Soembawa
L11	16	iP	VE	21 48 40.5	R 35.3S 137.7E h:25km. Near coast of Southern Australia Mag. 5-8.4 (Comb.)
		i	N	49.5	
		i	N	53.5	
		iPP	N	57.0	
		i	V	45 21.5	
		iS	NE	26.5	
		iSS	E	44.5	
		iL	N <sub>1</sub>	43 17	
77	16	iP	VNE	28 10 44.5	C 15.1S 167.6E h:186km. New Hebrides Is.
78	17	(eP)	V	02 24 16.0	41.9S 171.5E h:41km. Near coast of South Is. N.E,
		i	VN	13.5	
		e	N <sub>1</sub>	27 58	
		eL	N <sub>1</sub>	28.3	
		eT	V <sub>1</sub>	30	
		T max	NE	42 22	
		T max	V	31	
79	17	iP	V	09 23 46.5	R 7.2S 120.0E h:35km. Banda Sea
80	17	iP	V	13 13 34.0	R 55.3S 27.0W h:23km. Sandwich Is.
81	17	i(P)	V	22 17 03.0	C
82	18	eP	V	02 55 23.0	21.2S 170.8W h:543km. Fiji Is. region.
83	18	iP	VE	07 13 38.5	C 29.3S 173.4W h:192km Kermadec Is.
84	18 ✓	e(P)	V	19 05 54.0	
85	18	i	V	20 07 49.0	
86	18	eP	V	23 26 12.5	16.0S 173.0W h:25km. Tonga Is. region.
87	18	eP	V	02 57 04.5	
		i	VN	05.5	
88	19 ✓	e(PP)	V <sub>1</sub>	15 10 09.5	17.2N 99.5W h:20km. Near coast of Mexico
		eFS	V <sub>1</sub> N <sub>1</sub>	20 03	
		e(SS)	V <sub>1</sub>	33 49	
		e	N <sub>1</sub>	34 03	
		e(SS)	V <sub>1</sub>	15	
		eScSScS	N <sub>1</sub>	30 07	
		eSSS	V <sub>1</sub>	55	
		eL	V <sub>1</sub>	52.5	
89	19	iP	VN	20 33 32.5	
90	19	e	VE	21 42 04.0	
L12	19	e	VN	23 47 11	South Australia
91	20 ✓	iP	VE	03 14 47.5	R 21.3S 179.1W h:603km. Fiji Is. region.
92	20 ✓	iPKP	V	15 20 50.5	R 20.5N 33.0W h:33km. Off coast of Puerto Rico.
*		i	V	21 09.0	
94	20	eP	V	13 33 35.5	30.0S 177.5W h:25km. Kermadec Is.

No.	Date	Phase	Component	Time		Remarks.
95	21	iP	V	02 08 27.0		19.4N 145.6E h:35km Mariana Is.
	21	i	V	11 10 25.0		
96	21 ✓	iP	V	12 15 30.5		37.3N 93.0E h:25km. Chinghai Province, China
		i	N	48.5		
		ipP	VE	45.0		
		isP	V	49.0		
		eSKS	N <sub>1</sub>	26 06		
		e	N <sub>1</sub>	29		
		ePS	N <sub>1</sub>	27 33		
		eL <sub>1</sub>	N <sub>1</sub>	42 49		
		M	N <sub>1</sub>	51.2		
97	21 ✓	iP	VNE	13 20 20.5	R	37.0N 95.7E h:25km. Chinghai Province, China
		ipP	V	34.5		
98	21 ✓	iP	VEV <sub>1</sub>	21 21 39.0	R	20.0S 177.5W h:370km Fiji Is. region
		i	V <sub>1</sub>	50.0		
		i	N <sub>1</sub>	22 01.5		
		ipP	V	55.0		
		ePP	N <sub>1</sub>	23 05		
		ePPP	N <sub>1</sub>	33		
		eS	N <sub>1</sub>	23 33		
		eScP	N <sub>1</sub>	27 24		
		eL	N <sub>1</sub>	23.1		
99	22	iP	V	00 27 15.0	R	16.0S 174.3W h:52km. Tonga Is.
100	22	iP	V	04 49 24.0	R	55.5S 130.3W h:42km. South Pacific Ocean
		i	V	29.0		
		i	V	50 11.5		
101	22	iP	V	06 27 39.0	R	22.7N 121.5E h:25km. Off south east coast of Formosa
102	22	iP	V	07 55 41.5		10.2S 161.5E h:105km Solomon Is.
103	22 ✓	iP	VNEV <sub>1</sub> N <sub>1</sub> E <sub>1</sub>	08 12 19.0	C	12.3S 136.3E h:151km. Santa Cruz Is.
		ipP	V <sub>1</sub>	49.5		
		ePP	V <sub>1</sub> N <sub>1</sub>	13 15		
		ePcP	V <sub>1</sub>	15 34.5		
		eS	N <sub>1</sub>	16 55		
		e	V <sub>1</sub>	17 15.0		
		M	N <sub>1</sub>	22.7		
104	22	iP	VE	00 23 02.5	R	
105	22 ✓	iP	V	22 09 25.5	C	5.5S 152.0E h:100km New Britain
		i	V	10 10.0		
		i	V	33.0		
		i	V	51.5		
		eS	N <sub>1</sub>	14 27		
		e	N <sub>1</sub>	15 57		
		ePcS	V <sub>1</sub>	13 13.5		
		M	V <sub>1</sub>	25.9		
106	22 ✓	iP	V	01 54 57.0	C	37.1N 93.0E h:50km. Chinghai Province, China
107	23	iP	VN	07 17 32.5	C	7.3S 126.4E h:25km. Banda Sea.

No.	Date	Phase	Component	Time		Remarks.
108	23	iP	V	03 24 31.0		25.4S 179.3W h:363km. Kermadec Is. region
109	23	eT	N	10 45 (30)		
110	24	eP	V	02 17 42		5.4S 151.9E h:55km New Britain
111	24	e	V	04 15 11.5		
112	24	i	V	13 03 33.0		
113	24	i	V	19 02 13.0		
114	25	iP	VE	04 26 27.5	R	20.7S 174.3W h:201km Tonga Is.
		ipP	V	27 24.0		
		i	V	39.5		
		iPP	V	23 50.5		
		eL	V <sub>1</sub>	33.7		
		M	V <sub>1</sub>	43.7		
115	25	eP	V	07 10 42.5		13.4S 163.4E h:67km. New Hebrides Is.
		(ipP)	V	53.0		
116	25	iP	V	11 47 49.0	C	33.0N 95.9E h:25km Chinghai Province, China
117	25	eP	V	14 25 22		33.9S 177.2W h:25km Kermadec Is.
118	25	iP	VE	17 27 09.5	R	24.1S 179.1E h:576km Fiji Is. region
		i	V	15.0		
	25	i	V	21 22 15.5		
119	26	eP	V	02 18 53.0		19.7S 173.0W h:300km Fiji Is.
		iS	V	23 37.0		
120	26	iP	V	09 57 39.5	R	
		i	VN	15.0		
		e	N <sub>1</sub>	10 05.1		
		eL	H <sub>1</sub>	03.0		
121	26	e	V	13 27 11.0		
122	26	iP	V	19 55 02.0	C	6.7N 94.3E h:60km Nicobar Is.
		i	VNE	04.5		
		ipP	V	13.0		
123	26	iP	VN	23 42 32.0	R	
124	27	iP	V	05 37 45.5	R	3.2S 129.5E h:32km Ceram
L13	27	eP	V	11 35 33.5		Regional
		i	VN	40.5		
		e(S)	E	33 13.5		
		e(S)	N	20.0		
L14	27	e	V	12 03 12.5		Regional
		i	N	23.0		
		e(S)	NE	09 (15)		
125	27	e	V	14 42 20		41.4S 30.3E h:25km. Kerguelen Is. region
126	27	iP	V	17 53 19.5	C	
127	27	iP	VNE	19 47 55.5	C	
	28	waves	V <sub>1</sub> H <sub>1</sub>	03.4		5.3S 143.0E h:25km. Bismarck Sea
128	28	eP	V	10 20 37.5		31.1N 140.3E h:150km South of Honshu

No.	Date	Phase	Component	Time		Remarks.
129	28	iP	V	21 51 55.0	C	7.0S 123.9E h:65km Banda Sea
L15	30	iP i(S)	VNE E	00 28 11.0 22.5		Local
L16	30	eP i	VN VN	02 28 13.5 33.0		Local
L17	30	iP i(S) i(S)	VNE E VE	05 35 40.0 53.0 53.5		Local
130	30	iP	VNE	17 03 33.5	C	13.9S 177.9W h:430km Fiji Is.
131	31	iP ipP	V VE	03 23 53.0 24 09.0		30.1S 177.1W h:15km Kermadec Is.
L18	31	iP eS	VN E	04 24 23.0 34.5	C	Local
132	31	e ipP	V V	05 20 (15) 19.0		7.7N 124.0E h:40km Mindanao, P.I.
133	31	iP iPcP ipP i i(sP) iS iS iScS e	VNE VV <sub>1</sub> V <sub>1</sub> V <sub>1</sub> V <sub>1</sub> N <sub>1</sub> EV <sub>1</sub> N <sub>1</sub> E <sub>1</sub> NEE <sub>1</sub> E	06 37 49.0 38 43.5 43.0 39 07.0 11.0 45 25.5 26.0 47 14.0 48 17.0	R	22.1N 142.6E h:257km Volcano Is. region
134	31	iP i iPcP	V V V	03 43 20.0 21.5 43 29.5	C	30.3S 177.3W h:42km Kermadec Is.
135	31	eP	V	10 20 32.5		
136	31	i(P)	V	13 30 25.0		
137	31	eP	V	15 03 03.0		
138	31	iP	VE	20 03 13.0	R	
L19	31	e	V	22 43 (53)		T wave or regional
139	31	i(P)	V	22 53 23.0		



Seismograms read by  
Jennifer Clay.

J.C. Jaeger,  
Professor of Geophysics.

* 93	20	eP i ipP	V VNE V	13 53 04.5 05.0 37.5	R	6.2N 125.3E h:133km Near coast of Mindanao, P.I.
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Department of Geophysics,  
Australian National University,  
CANBERRA, A.C.T., AUSTRALIA.

MONTHLY SEISMOLOGICAL BULLETIN.

JUNE, 1962.

Latitude: 35° 19' 15" S. Longitude: 148° 59' 55"E Height: 700 M

Instruments: three-component Benioff variable reluctance seismographs.

$T_s = 1$  sec.

$T_g = 0.25$  sec. (short periods VNE)

$T_g = 16$  sec. (long period vertical  $V_1$ )

$T_g = 70$  sec. (long period horizontals  $N_1E_1$ )

One N-S component Wood-Anderson Seismograph,  $T_s = 0.8$  sec.

Mt. Stromlo quartz clocks provide accurate time marks and 50 c/s for drum drive.

Abbreviations: R - rarefaction; C = compression; H = origin.

Epicentre locations are those given by USCGS.

No.	Date	Phase	Component	Time		Remarks.
1	1	iP	VN	01 23 54.0		3.9S 137.9E h:166km.
2	1	iP	VN	09 08 26.0	C	6.9S 129.2E h:140km
		iScP	V	14 32.0		Banda Sea
3	1	iP	V	21 45 30.5	R	
	2	eL	$N_1E_1$	05 54.0		3.5S 145.3E h:42km Bismarck Sea
4	2 ✓	eP	V	17 26 07.0		29.8N 130.6E h:15km Kyushu, Japan.
5	3	iP	V	13 43 25.5	C	6.4S 143.1E h:32km New Britain region.
6	3	iP	VNE	14 31 10.5	R	23.7S 179.7W h:436km Fiji Is. region.
7	3	ePKP	V	17 51 39.5		17.7N 31.5W h:49km Leeward Is.
	3	e	V	19 15 15		
8	5 ✓	iP	V	13 50 15.0	R	7.1S 129.2E h:124km.
		i	VNE	15.5		Banda Sea
		isP	V	54.5		
		iPP	V	51 34.5		
		iPcP	V	52 52.5		
		i	V	56 13.0		
9	5	e	V	22 03 13		
10	6	eP	V	02 34 (43)		3.3S 153.9E h:60km New Britain region.
11	7	i	V	15 19 33.5		
12	8 ✓	iP	VNE	01 37 54.0	R	13.1S 173.4W h:603km
		iPcP	V	40 13.0		Fiji Is.
13	8	iP	V	11 59 34.5	R	
14	8	eT	V	13 13 (14)		
15	8 ✓	iP	V	19 23 23.0	R	11.3N 123.0E h:60km
		i	VN	27.0		Timor Sea

No.	Date	Phase	Component	Time		Remarks.
16	8	i(P)	V	20 51 32.0		
17	8	iP	V	21 02 13.5	C	55.7S 23.2W h:25km Sandwich Is.
18	9	iP	V	01 55 04.5		
19	9	iP	V	06 00 35.0		
20	9	iP	VE	03 10 53.0	C	21.1S 173.3E h:339km Fiji Is.
21	9	iP	VN	07 49 00.0	R	9.0N 126.6E h:65km Mindanao, P.I.
22	9	iP	V	10 33 49.0	R	5.9S 147.0E h:72km Bismarck Sea
23	10	eP	V	03 05 02.5		20.9S 170.3E h:31km
		i	V	25.0		Loyalty Is. region
24	10	eP	V	05 04 09.5		
25	10	iP	V	09 43 20.0		
26	10	eT	V	11 26 20.5		
27	10	e	V	13 03 13.5		
		i	V	55.5		
28	10	eT	N	13 52.5		
29	10	e	V	22 14 23.5		
30	11	iP	V	02 10 51.0	C	19.0S 160.3E h:35km
		isP	VNE	11 21.5		New Hebrides Is.
31	11 ✓	iP	VE	04 41 05.1	C	19.3S 177.7W h:370km
		i	N	05.5		Fiji Is.
32	11 ✓	ePKP	V	07 25 07		43.5N 13.3E h:21km Yugoslavia
33	11	i	V	12 03 01.0		
34	11	i	V	15 05 52.0		
35	11	iP	V	17 03 05.0		10.6S 164.7E h:132km Santa Cruz Is. region
36	11	iP	VN	21 55 53.0	R	17.3N 147.4E h:19km Mariana Is.
37	12	iP	V	12 19 49.0		
38	12	iP	VNE	13 51 09.0	R	13.2S 167.2E h:233km
		eScP	V	57 45		New Hebrides Is.
	13	i	V	04 40 29.0		
L1	13	e	V	11 30 23.5		Regional
		(e)	V	39 03		
L2	13	e(P)	V	21 51 29		Regional
		i	V	34.5		
		i	V	52 17.0		
39	14 ✓	eP	V	02 05 03.0		54.3N 139.1E h:34km
		i	V	27.0		Near Is, Aleutian Is.
		eL	E <sub>1</sub>	31.2		
		eL	V <sub>1</sub>	35.3		
40	14 ✓	iPKP	V	03 50 29.0	R	19.4N 65.0W h:64km
		i	N	33.0		Puerto Rico region.

No.	Date	Phase	Component	Time	Remarks.
41	14 ✓	eP	V	22 24 54.5	26.4N 126.5E h:22 km Ryukyu Is.
42	15	iP	VE	12 01 48.5	13.3S 167.0E h:211km New Hebrides Is.
		i	N	49.0	
		i	V	51.5	
		iPcP	V	05 03.0	
43	15	iP	V	12 16 56.5	13.4S 176.7W h:278km Tonga Is.
44	16 ✓	e	V	05 31 50	26.6N 126.4E h:30km Ryukyu Is.
		i	V	55.5	
45	16	eP	VV <sub>1</sub> N <sub>1</sub> E <sub>1</sub>	06 35 13.5	0.2S 122.3E h:177km Celebes region
		iP	VNE	17.0	
		i	VN	51.5	
		ipP	VN	59.0	
		iPcP	V	37 04.5	
L3	16	eP	VN	14 59 39.5	Local
		i	VN	40.5	
		iS	VN	55.5	
46	16	eP	V	17 54 11.5	13.6S 137.7E h:25km New Hebrides Is.
47	17 ✓	eP	V	04 39 34.5	40.1S 45.7E h:15km Indian Ocean, north of Crozet Is.
48	17	i(P)	V	13 23 11.0	10.7S 135.3E h:106km Santa Cruz Is. region
		i	V	18.5	
49	18	iP	V	20 33 35.0	C
50	18 ✓	iP	V	23 43 41.0	4.3S 151.3E h:47km New Britain region
		i	VN	42.0	
		ipP	V <sub>1</sub>	49.0	
		iPcP	V <sub>1</sub>	51 39.5	
		eS	E <sub>1</sub>	52 36	
		eL	E <sub>1</sub>	55.2	
51	19	iP	V	03 22 31.0	
52	19	eP	V	15 52 31.0	17.0S 172.5W h:29km Tonga Is.
53	19 ✓	iP	V	13 45 17.0	20.9S 177.3W h:405km Fiji Is region.
54	20	iP	V	00 12 19.0	19.4S 175.4W h: 244km Tonga Is.
		ipP	VN	13 07.5	
		iPcP	VN	14 48.5	
		i	V	49.5	
55	20	iP	V	03 27 31.5	R
56	20 ✓	iP	VN	06 22 51.0	6.9S 126.3E h:272 km Banda Sea
		ipP	V	23 54.0	
		e	V	24 13.5	
		isP	VN	22.0	
57	20	iP	VN	09 29 19.5	
58	20	eP	V	13 10 18.0	
59	21	iP	VNE	03 31 02.0	C 4.9N 122.7E h:300km Celebes Sea
		iScP	V	35 20.0	
60	21 ✓	iP	VE	03 45 03.0	R 20.3S 175.6W h:67km Tonga Is. region

No.	Date	Phase	Component	Time		Remarks.
61	21	iP	VNE	22 59 24.0	R	7.4S 130.1E h:52km
		ipP	N	30.5		Tanimbar Is. region
		i	V	23 03 10.0		
		i	E	06 30.5		
		iLg	E <sub>1</sub>	10 32		
L4	22	eP	VN	04 03 55.5		Local
		i	VNE	57.0		
		iS	VNE	04 03.0		
62	22 ✓	iP	VN	11 59 50.5	R	32.2N 142.4E h:25km
		i	V	54.0		Off coast of Honshu
63	22	iP	VN	15 01 29.0	R	6.9S 147.0E h: 70km
						Near north coast of New Guinea.
64	22	iP	V	13 03 14.5		17.2S 173.3W h:609km
						Fiji Is.
65	23 ✓	iP	VNV <sub>1</sub>	09 55 09.0	C	25.7N 123.5E h:36km
		i	V <sub>1</sub> N <sub>1</sub>	10.0		Ryukyu Is.
		ipP	N	20.0		
		isP	V <sub>1</sub>	25.5		
		iPP	V	57 27.0		
		eS	N <sub>1</sub>	10 03 40		
		e	V <sub>1</sub>	03 32		
66	23 ✓	eP	V	10 03 32		19.1N 121.4E h:40km
						Near coast of Luzon, P.I
67	23	e	V	16 32 (27)		
		e	V	42		
68	24 ✓	iP	V	01 33 03.0	C	25.6N 101.1E h:35km
						Yunnan Province, China.
69	24	iP	VE	01 49 43.5		15.7S 179.1W h:29km
						Fiji Is. region
70	24	iP	V	03 07 39.0		6.3S 146.3E h:50km
						New Guinea.
71	24	i(P)	V	03 10 40.0		
72	24	eP	V	12 02 27.0		27.7S 177.1W h:52km
						Kermadec Is. region
73	24	eP	V	17 03 37.5		15.3S 167.3E h:130km
						New Hebrides Is.
74	25 ✓	iP	V	01 37 15.0	R	20.3S 179.2W h:645km
						Fiji Is. region
75	25 ✓	iP	VNV <sub>1</sub>	11 21 00.0	R	24.3N 122.6E h:33km
		ipP	V	09.5		Off coast of Formosa
		isP	VNV <sub>1</sub>	15.0		
		iPcP	E	34.0		
		iPP	VV <sub>1</sub>	23 24.0		
		iS	N <sub>1</sub> E <sub>1</sub>	29 37.5		
		ePPS	N	30 13.0		
		eSS	N <sub>1</sub>	33 53		
		M	V <sub>1</sub>	49.9		
76	25	eP	V	12 57 52.0		3.7N 126.6E h:25km
						Molucca Passage
77	26	iP	VN	03 11 40.0	R	4.3S 146.9E h:32km
						Bismarck Sea
78	27	eP	V	03 36 03		6.1S 140.3E h:55 km
						New Britain region

No.	Date	Phase	Component	Time		Remarks.
79	27	iP isP	VE V	00 28 42.5 24 00.0	R	30.0S 177.7W h:60km Kermadec Is.
80	27	eP	V	23 37 28.0		23.7N 128.0E h:76km Off coast of Formosa
81	28 ✓	eP i ipP isP	V V V V	04 39 03.5 06.0 10.0 15.0		20.0N 155.6W h:25km Hawaii Is., Hawaii
82	28 ✓	i	V	07 10 49.0		40.9N 20.0E h:25km Near Greece - Albania border
83	28	eP	VN	11 10 08.0		2.4S 127.7E h:72km Ceram Sea
84	28	iP	V	11 23 00.0		7.7S 107.9E h:94km near coast of Java
85	28 ✓	iP iPcP i iS	VNEV <sub>1</sub> N <sub>1</sub> E <sub>1</sub> VV <sub>1</sub> N <sub>1</sub> NN <sub>1</sub>	10 53 14.0 19 00 10.0 22.5 04 30.0	C	0.2S 124.3E h:53km Northern Celebes
86	28 ✓	iP i	VE V	20 54 14.0 56 47.5	R	17.3S 175.2W h:244km Tonga Is. region
87	28	iP	VN	22 03 23.5	R	
	28	e	V	23 23 52.5		
88	29	eP	V	00 57 35.0		15.1S 163.9E h:122km New Hebrides Is.
89	29	eP	V	08 43 13.5		56.2S 26.9W h:25km Sandwich Is.
90	29	iP i	VE N	13 55 53.5 54.0	C	7.9S 127.3E h:30km Banda Sea
91	29	iP	V	17 11 44.0	C	
92	30 ✓	iP i(sP) i i	VN V V V	19 39 40.0 40 04.0 18.0 47.0		13.5N 122.0E h:40km Near coast of Luzon, P.I.

Seismograms read by  
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*Cohen*  
170 MAY 1966

MONTHLY SEISMOLOGICAL BULLETIN.

JULY  
~~JUNE~~, 1962.

Latitude: 35° 19' 15" S. Longitude: 148° 59' 55"E Height: 700 M

Instruments: three-component Benioff variable reluctance seismographs

$T_s = 1$  sec.

$T_g = 0.25$  sec. (short periods VNE)

$T_g = 16$  sec. (long period vertical  $V_1$ )

$T_g = 70$  sec. (long period horizontals  $N_1E_1$ )

One N-S component Wood-Anderson Seismograph,  $T_s = 0.3$ sec.

Mt. Stromlo quartz clocks provide accurate time marks and 50 c/s for drum drive.

Abbreviations: R = rarefaction; C = compression; H = origin.

Epicentre locations are those given by USCGS.

No.	Date	Phase	Component	Time	Remarks.
1	1	eP ✓ i	V V	01 37 38.5 38 10.5	14.1S 167.2E h:156km New Hebrides Is.
2	1	iP	VN	02 02 35.5	3.8S 150.4E h:24km. New Ireland region
3	1	eP	V	08 49 36.0	30.1N 102.8E h:25km Sinkiang Province, China.
4	1	iP	V	08 53 13.0	
5	1	iP	V	05 05 24.0	
6	1	eP	V	05 14 05.5	28.8S 176.9W h:25km Tonga Is. region
7	1	iP	VN	09 23 42.5	
8	1	iP	VN	19 17 09.5	R
9	2 ✓	iP i iPP iPcP eS iS eScP eScS	VNE V V V N <sub>1</sub> E <sub>1</sub> V <sub>1</sub> E	08 36 34.0 37.0 39 28.0 41 41.0 43 19.5 20.0 45 15.0 49 09.5	C 10.3S 165.9E h: 50km Santa Cruz Is.
10	2	eP i	V V	15 50 04.5 13.5	0.2S 128.1E h:136km Celebes region
11	3 ✓	e	V	13 22 37.0	
12	3	iP e e	V V <sub>1</sub> N <sub>1</sub>	18 31 43.0 38.4 40 33.5	54.6S 132.3W h:25km South Pacific Ocean
13	3	iP	V	21 04 22.5	17.3S 167.8E h:28km New Hebrides Is.
14	3	iPKP	V	21 36 45.0	C 4.3N 31.6W h:23km Mid-Atlantic Ocean
15	4	i(P) i	V V	05 09 39.5 55.0	C
16	4	eP	V	17 06 29	14.9S 167.8E h:62km New Hebrides Is.

No.	Date	Phase	Component	Time	Remarks.
17	4	iP	VN	20 28 53.0	
18	5	eP	VN	07 38 29.5	11.3S 166.5E h:33km Santa Cruz Is.
19	5	e	V	10 39 (20)	0.6S 139.0E h:25km New Guinea.
20	5	eP	V	12 14 05.0	54.9S 156.3E h:25km Macquarie Is. region
L1	5	iP eS	VN E	13 00 39.0 01 04.5	Regional
21	5 ✓	eP	V	17 51 46.0	30.9N 141.4E h:23km South of Honshu.
22	6	e(P)	VN	01 26 27.5	32.6N 139.7E h:62km South of Honshu.
23	6 ✓	e(PKP)	V	09 35 36.0	Possibly 33.0N 20.2E h: 30km Ionian Sea
24	6	iP	V	12 19 16.5	R 16.5S 174.1W h:27km Tonga Is. region
25	6 ✓	iP i e ePP i ipPPP iSKS eS esS e iSP eSSP e esSS eSSS e(PKPKP) eSKPKP	V V V <sub>1</sub> V <sub>1</sub> V <sub>1</sub> E <sub>1</sub> V N <sub>1</sub> E <sub>1</sub> N <sub>1</sub> N <sub>1</sub> V <sub>1</sub> E <sub>1</sub> VEV <sub>1</sub> N <sub>1</sub> E <sub>1</sub> E <sub>1</sub> E <sub>1</sub> N <sub>1</sub> N <sub>1</sub>	23 19 04.0 07.0 20 00.0 23 14.0 24 10.0 26 14.0 29 20.5 30 19 31 54 32 00 10 33 07 37.1 38 44 41 35 44 18 47 29	36.6N 70.4E h:203km Hindu Kush
26	6	iP i i	V V V	23 35 07.5 31.0 36 26.0	
L2	7	e e(S) i	V V V	04 32 22 34 12 35 18.5	Regional
27	7 ✓	iP ipP eS	V VNV <sub>1</sub> E <sub>1</sub>	06 25 44.0 56.5 36 24	51.3N 178.6E h:60km Rat Is., Aleutian Is.
28	7	iP iScP e(L)	VNE V E <sub>1</sub>	11 54 00.5 12 00 21.5 01.3	R 7.3S 123.3E h:30km Banda Sea
29	8 ✓	iP ipP	V V	03 34 59.0 35 10.5	R 51.5N 173.5E h:60km Rat Is., Aleutian Is.
30	8 ✓	ePKP ipPKP	V V	07 50 40.5 52.5	C 8.1N 38.0W h:25km Mid-Atlantic Ocean
31	8 ✓	eP i	V VE	12 07 59.0 08 00.5	22.0S 179.8W h:600km Fiji Is.
32	8	iP	V	14 27 51.5	R

No.	Date	Phase	Component	Time		Remarks.
33	8	e	V	15 31 20		
34	8	iP	V	17 23 00.5	C	0.3S 121.8E h:53km
		iPcP	V	29 46.5		Celebes
35	8	e	V	22 12 49.5		
36	8	iP	V	23 00 54.5		23.1S 176.5W h:25km
						Kermadec Is. region
37	9	eP	V	10 03 59.0		56.0S 153.1E h:25km
		i(sP)	V	04 13.0		Macquarie Is. region
38	9	iP	V	10 23 21.0	C	
39	10 ✓	iP	V	05 17 45.5	R	20.3S 173.7W h:584km
		iPP	V	19 18.0		Fiji Is.
		iPPP	V	42.0		
L3	10	ePn	V	06 44 33.5		Regional
		iP <sub>2</sub>	VNE	35.0		
		iP <sub>1</sub>	VNE	33.5		
		i	V	54.5		
		iS <sub>n</sub>	VNE	57.5		
40	10	iP	VN	11 42 47.5		
41	10	iP	V	13 02 03.0		22.3S 177.2W h:333km
						Tonga Is.
42	11 ✓	iP	VN	12 49 51.0	C	11.9N 122.1E h:25km
						Panay, P.I.
43	11	iP	V	15 44 56.0	R	
44	11	iP	V	13 53 23.5		31.9S 173.5W h:37km
						Kermadec Is. region
45	12	iP	V	01 46 46.5		19.9S 177.5W h:321km
						Tonga Is. region
46	12	iP	VN	09 39 13.5	R	17.9S 173.7W h:545km
						Fiji Is. region
47	12	iP	V	16 42 49.5		
48	13	iP	V	02 22 31.5	C	
49	13 ✓	iP	V	03 40 57.0	C	10.4N 122.6E h:66km
						Panay, P.I.
50	13	iP	VN	03 41 03.5	C	10.2N 121.7E h:157km
		iPcP	V	42 14.0		Panay, P.I.
51	13	iP	V	04 16 13.5		32.4S 179.7W h:87km
						Kermadec Is. region
52	13 ✓	iP	V	05 14 21.0	C	30.5N 79.6E h:25km
		ipP	V	31.0		Tibet-India border
53	14	e	V	02 36 40.5		
54	14 ✓	iP	V	16 12 05.0	C	30.4N 79.5E h:40km
						Tibet-India border
55	14 ✓	eP	V	20 50 39.5		50.2N 155.8E h:60km
						Kurile Is.
56	14	eP	V	23 43 43.0		18.7N 145.5E h:103km
		e	V	44 12.0		Mariana Is.
57	15	iP	V	00 02 43.0		
58	15 ✓	iP	V	06 53 43.5	R	39.8N 140.9E h:103km
		e	V	59 30.0		Honshu
59	15	iP	V	03 11 44.0	C	



No.	Date	Phase	Component	Time		Remarks.
60	15	iP	V	09 42 30.0	R	14.7N 146.3E h:25km Mariana Is. region
61	15	i(P)	V	12 44 37.0		
62	15	eP	V	19 39 17.5		20.3S 169.2E h:24km Loyalty Is.
63	16 ✓	iP ipP iPP iS eL e M	V VV <sub>1</sub> E N <sub>1</sub> E <sub>1</sub> N <sub>1</sub> V <sub>1</sub> E <sub>1</sub> E <sub>1</sub>	02 09 08.0 12.5 20.5 12 32.5 13.2 13.9 14.7	R	52.1S 138.9E h:14km South of Tasmania  Mag. 6½ (Camb.)
64	16	VE	iP	07 56 09.0	C	17.8S 178.4W h:519km Fiji Is. region
65	16	iP	VN	08 34 00.0	C	11.8S 166.4E h:57km Santa Cruz Is.
66	16 ✓	iP i	VNEV <sub>1</sub> PcP	09 31 27.0 34 41.0	C	13.0S 167.2E h:180km Santa Cruz Is. region
67	16	iP	V	20 13 54.5		19.9S 175.7W h:114km Tonga Is. region
68	17	iP	V	00 24 12.0	C	17.3S 178.8W h:538km Fiji Is.
69	17 ✓	iP i	V V	05 45 18.0 29.0	C	43.0S 74.9W h:26km Near coast of Chile
70	17 ✓	eP i(PcP)	V V	17 32 20.0 34.0		43.1N 144.5E h:30km Hokkaido, Japan
71	17	iP	VN	20 13 53.5	R	
72	17	iP	VN	23 17 52.4	C	7.8S 148.1E h:42km New Britain region
73	18	eP i	V V	00 22 03.5 13.5		11.2N 121.9E h:164km Panay, P.I.
74	18	iP	V	01 27 17.5		4.3S 152.9E h:51km New Britain region
75	18	iP	VNE	02 40 05.0	R	
76	18	iP	V	03 53 29.0		
77	18 ✓	iP ipP isP iPP iPPP iPcP eScP	VN N V V V V V	06 00 52.5 01 09.5 22.0 02 19.0 39.5 03 18.0 06 52.0	C	9.6S 119.8E h:68km Sumba Is.
78	18 ✓	iP ipP iPcS	V V V	09 30 12.0 31 49.0 25 09.0	C	7.2S 119.9E h:588km Flores Sea
79	18	iP	VN	10 19 11.0	C	15.3N 148.1E h:16km Mariana Is. region
80	18	eP	V	14 48 06.5		21.5S 175.3W h:218km Tonga Is. region
81	19	iP	V	00 58 23.5		5.1S 153.6E h:49km New Britain region

No.	Date	Phase	Component	Time	Remarks.
L4	19	e(P) i(S)	V V	13 27 40.0 45.5	Local
82	20	eP	V	09 29 34.0	
83	20	eP	V	13 20 33.5	
84	20	eP	V	16 34 15	21.0S 174.8W h:23km Tonga Is. region
85	20	iP i i(sP)	VN V V	23 38 05.0 45.5 39 35.0	C 5.6S 123.7E h:297km Banda Sea
86	21	iP	VN	13 23 40.0	
87	21	i	V	14 10 49.5	
88	22	iP i	V VN	00 22 44.0 46.0	3.2S 137.5E h:104km Western New Guinea
89	22	e eS e e M	V N <sub>1</sub> E <sub>1</sub> V <sub>1</sub> N <sub>1</sub> E <sub>1</sub>	00 27 50.5 32 22 38 22 38.7 40.5	5.9S 151.7E h:81km New Britain region
90	22	iP	V	12 29 34.0	
91	22 ✓	iP i i iPP	V V VN V	13 42 37.5 38.0 44.0 43 36.5	C 3.4S 158.3E h:107km Solomon Is.
L5	22	e e(S)	V V	14 28 (12) 37.5	Regional
92	22	eP i	V V	13 15 13.0 15.5	24.0S 130.0 h:634km South of Fiji Is.
93	23	ePKP	V	22 31 33.0	19.0N 65.1W h:25km Virgin Is. region
94	23	e	V	23 14 (44)	14.1S 166.8E h:99km New Hebrides Is.
95	24	iP i eT	VN V VN	06 58 43.5 07 02 29.0 16 52	
96	24 ✓	iP ipP	V V	16 32 32.5 41.5	10.3N 121.5E h:21km Sulu Sea.
97	24	e	V	13 35 18	
L6	24	e(P) i(S)	V V	20 36 18.0 30.5	Local
98	24 ✓	ePKP ipPKP	V V	21 27 (04) 31.0	15.5N 92.5W h:129km Mexico-Guatemala border region
99	25	iP	VN	00 46 28.0	R
100	25 ✓	iP i	VN V	04 51 23.0 45.0	
L7	25	e i(S) i	V VN V	06 52 05 22.5 23.0	Local

No.	Date	Phase	Component	Time	Remarks.
101	26 ✓	ePKP	V	08 33 45.5	7.5N 82.7W h:21km South of Panama  Mag. 7-1/4 (Camb.)
		e	V	35 26	
		e	V <sub>1</sub>	27.5	
		iPP	VV <sub>1</sub>	48.0	
		e	N <sub>1</sub>	44 02	
		e	V <sub>1</sub>	45 11	
		i	E <sub>1</sub>	43	
		ePPS	V	47 10.5	
		eSS	VN <sub>1</sub>	52 10	
		e	N <sub>1</sub>	42	
		e	V <sub>1</sub>	53 53	
		e	N <sub>1</sub>	56.2	
		e	N <sub>1</sub>	57 30	
		eL	N <sub>1</sub> E <sub>1</sub>	09 07 54	
		eL	V <sub>1</sub> E <sub>1</sub>	13 30	
F		10.9			
102	27	iP	VN	01 26 28.0	21.7N 144.4E h:100km North of Mariana Is.
103	27	e	V	02 36 39	
104	27	e	V	06 17 18.0	14.8S 167.6E h:205km New Hebrides Is.
105	27	i	V	08 24 39.5	
106	27	e	V	11 10 02.5	
		i	VN	25.0	
107	27	iP	VN	19 31 53.0	C 13.2S 167.1E h:286km Santa Cruz Is. region
		ePP	V	32 57.0	
		i(sP)	V	33 21.5	
		iPcP	V	35 11.0	
108	28 ✓	eP	V	00 12 34.0	C 16.2S 173.2W h:40km Samoa Is. region
		i	VNE	34.5	
		ipP	E	47.0	
		isP	V	52.5	
		i	V	13 11.0	
		i	V	14 17.0	
		eL	V <sub>1</sub>	24.0	
		M	E <sub>1</sub>	25.6	
109	28	iP	V	06 49 26.0	
L8	28	eP	VN	08 57 48.0	Local
		iP	V	47.0	
		eS	VN	52.5	
L9	28	e	V	14 16 51.0	Regional
		i	V	17 30.5	
		eS	E	31.5	
110	28	iP	VN	23 43 08.0	C
		i	VNE	10.0	
		i	N	48.5	
		i	N	47 32.0	
		eT	VN	58 18	
		T max	V	59 32.0	
		T max	N	44.5	
111	29	e	V	03 47 48.5	
112	29	iP	V	07 34 21.5	
113	29	iP	V	18 24 19.0	R 41.4S 173.2E h:75km South Is., N.E.
		i	VNE	19.5	
		i	V	29.0	
		ipP	VN	35.0	
		isP	N	37.0	
		eT	V	39.5	

No.	Date	Phase	Component	Time		Remarks.
114	29	iP	V	19 22 45.0		
		i	NE	45.5		
		i	V	52.5		
L10	30	iP	VN	00 24 00.4		Local
		i	VN	03.0		
		iS	NE	13.2		
L11	30	iP	V	00 25 41.6		Local
		iS	NE	54.4		
115	30 ✓	iP	VN <sub>1</sub>	17 23 14.0	C	8.3S 148.9E h:25km
		i(pP)	V	16.5		Near north coast of New Guinea
		iSP	V <sub>1</sub> N <sub>1</sub>	21.5		Mag.7 (Camb.)
		iPP	E	24 20.0		
		iPcP	V	26 25.0		
		e	N <sub>1</sub>	23 23.0		
		eL	N <sub>1</sub>	29 40		
116	30 ✓	iPKP	V	20 37 52.0		5.0N 76.3W h:21km
		i	V	55.0		Western Columbia
		iPKP	V <sub>1</sub>	33 03.0		
		i	V <sub>1</sub>	23.0		
		iPPP	V	41 50.5		
		i	V <sub>1</sub>	50 13.0		
		e	N <sub>1</sub>	57.6		
		eL	N <sub>1</sub>	21 12.3		
117	31 ✓	iP	VN	02 25 37.0	C	8.2S 144.1E h:20km
						Near north coast of New Guinea
118	31 ✓	eP	V	05 23 12.0		13.8N 120.3E h:39km
		ipP	V	22.5		Near north coast of Luzon, P.I.
119	31	i	V	19 02 29.0		
120	31	iP	V	19 50 37.0	C	

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MONTHLY SEISMOLOGICAL BULLETIN

August, 1962.

Latitude:  $35^{\circ} 19' 15''$ S. Longitude:  $143^{\circ} 59' 55''$ E. Height: 700 M.

Instruments: Three-component Benioff variable reluctance seismographs.

$T_s = 1$  sec.

$T_g = 0.25$  sec. (Short periods VNE)

$T_g = 16$  sec. (Long-period vertical  $V_1$ )

$T_g = 70$  sec. (Long-period horizontals  $N_1E_1$ )

One N-S component Wood-Anderson Seismograph,  $T_s = 0.8$  sec.

Mount Stromlo quartz clocks provide accurate time marks and 50 c/s for drum drive.

Abbreviations: R - rarefaction; C = compression; H = origin.

Epicentre locations are those given by USCGS.

No.	Date	Phase	Component	Time		Remarks
1	1	iP	V	03 55 24.5	R	27.0S 176.3W h: 33 km Kermadec Is. region
2	1	eP	VN	04 36 53.0		5.5N 125.3E h: 33 km.
		isP	V	37 07.0		Near coast of Mindanao, P.I.
3	1 ✓	iP	VNV <sub>1</sub>	04 48 25.5	C	3.2S 143.7E h: 33 km
		i	V <sub>1</sub>	33.5		Near north coast of
		i	V <sub>1</sub>	47 13.0		New Guinea
		eS	N <sub>1</sub>	43 32		
		e(L)	V <sub>1</sub>	49 22		Mag. $6^{3/4}$ (Canb.)
		iPcS	V <sub>1</sub>	50 06.0		
		M	N <sub>1</sub>	53.9		
		M	V <sub>1</sub>	53.2		
		i	N <sub>1</sub>	59 02		
4	1	i(P)	V	12 44 33.0	C	
		i	V	45 10.5		
5	1	i(P)	V	12 54 07.0	C	27.1S 176.3W h: 33 km. Kermadec Is. region.
6	2	eP	VN	13 32 49.0		4.0S 152.1E h: 79 km. New Britain region.
7	2	eP	VNE	13 57 53.0	C	4.5S 125.0E h: 563 km. Banda Sea.
L1	3	i(S)	VN	01 55 24.0		Local
8	3 ✓	ePKP	V <sub>1</sub>	09 14 31.0		23.2S 37.5W h: 71 km.
		iPKP	V <sub>1</sub>	42.0		Northern Chile-Argentine
		ePP	V <sub>1</sub>	15 23.5		border.
		e	N <sub>1</sub>	26.0		
		eSKS	NN <sub>1</sub>	21 12.0		
		ePS	N <sub>1</sub>	25 04		
		i	V <sub>1</sub>	34.5		
		e	N	40.0		
		i	V	26 21.0		
		e	N <sub>1</sub> E <sub>1</sub>	31 19		
9	3	iP	VEV <sub>1</sub>	10 10 23.5	C	10.1S 161.2E h: 40 km. Solomon Is.
10	3	eP	VE	10 21 23.0	R	23.3S 171.2E h: 39 km.
		e	N <sub>1</sub>	25.3		Loyalty Is. region.

No.	Date	Phase	Component	Time	Remarks
11	3	eP	V	13 03 17.5	R
12	3	e	V	22.57 51.0	
13	4	e	V	05 20 04	
14	5	eP i(S)	VNV <sub>1</sub> E <sub>1</sub>	15 14 10.5 18 40.0	R 13.7S 163.6E h: 60 km. New Hebrides Is.
15	6 ✓	ePKP. i	V V	01 55 41.5 50 00.0	32.0N 40.8W h: 48 km. North Atlantic Ocean.
16	6	i	V	04 15 39.5	
17	6 ✓	iP ipP isP	VN V V	03 53 57.0 54 14.0 19.0	C 53.4S 25.5W h: 54 km. Sandwich Is.
18	6	iP	VN	15 32 42.5	15.3S 167.5E h: 120 km. New Hebrides Is.
19	6 ✓	iP i i iPPP eS esS eL eL M	VEV <sub>1</sub> E <sub>1</sub> V <sub>1</sub> E <sub>1</sub> V <sub>1</sub> E <sub>1</sub> E <sub>1</sub> E <sub>1</sub> V <sub>1</sub> E <sub>1</sub>	20 53 05.0 34.5 59 12.5 23.5 21 03 06 24.5 05.2 06.2 07.3	C 26.9S 177.1W h: 50 km. Kermadec Is. region.
20	7	eP	VN	03 18 10.0	12.2N 92.5E h: 33 km. Andaman Is.
21	7	eP e ipP	V N V	03 52 55.0 59.0 53 05.5	4.3N 127.3E h: 33 km. Molucca Passage.
22	8	eP	VNE	07 11 31.5	R
23	8	iP	V	09 25 24.0	C 16.4S 179.5W h: 493 km. Fiji Is.
24	8	iP i ipP iPP i	V VNE V V V	12 05 32.5 33.5 42.5 06 12.0 10 31.5	C 17.3S 168.0E h: 30 km. New Hebrides Is.
25	8	eP i ipP	V V V	12 17 33.5 39.5 49.0	17.9S 168.0E h: 33 km. New Hebrides Is.
26	8	iP ipP	VNE V	13 40 27.5 39.0	C 18.0S 163.1E h: 33 km. New Hebrides Is.
27	8	iP i(PcP) e	VN V V	17 25 20.0 23 03.5 19.5	18.8N 144.3E h: 335 km. Mariana Is.
28	8	iP	V	21 14 30.0	
29	8	iP i	VN V	22 34 14.0 25.5	
L2	8	e e i	V N N	22 49 07.0 10.0 39.5	Regional
L3	9	eP iP i(S)	V E V	00 33 20.5 21.5 54.5	Regional

No.	Date	Phase	Component	Time	Remarks
L4	9	e(P)	E	00 40 45.0	Regional
		i	VN	43.5	
		e	E	41 15.5	
		e	V	17.5	
L5	9	e	V	00 42 30.0	Regional
		e	VN	31.0	
		e	E	43 03.0	
		i	V	05.5	
L6	9	e(F)	V	02 20 27.0	Regional
		e	VNE	30.0	
		i(S)	VE	21 03.0	
		i	VNE	05.0	
30	9	iP	V	02 41 24.0	
31	9 ✓	iPKP	V	04 40 51.0	6.7N 78.1W h: 130 km. Columbia.
32	9	eP	V	04 44 01.5	
	9	i	V	05 26 03.0	
33	10	i(P)		20 12 55.0	
34	11 ✓	eP	VE	01 53 19.5	R 20.0S 173.0W h: 633 km. Fiji Is.
		i	NE <sub>1</sub>	20.5	
		i	E <sub>1</sub>	39.5	
		i(PF)	E <sub>1</sub>	54 53.0	
		eS	NN <sub>1</sub> E <sub>1</sub>	57 50.5	
		iS	V <sub>1</sub>	51.0	
		eScP	E <sub>1</sub>	53 29.5	
		e(sS)	E <sub>1</sub>	02 01 05	
		iScS	N <sub>1</sub>	02 27.5	
35	11	iP	V	03 54 55.5	15.7S 172.9W h: 157 km.
		i	V	07 00 06.5	Tonga Is. region
L7	11	iP	VE	07 13 10.0	Local
		i	V	12.0	
		iS	VNE	15.5	
36	11 ✓	iP	VNV <sub>1</sub>	08 23 10.0	R 25.2N 123.3E h: 140 km. Off north-east coast of Formosa.
		i	V <sub>1</sub>	24.0	
		iPcP	VV <sub>1</sub>	42.5	
		isP	VV <sub>1</sub>	56.4	
		iS	NN <sub>1</sub> E <sub>1</sub>	34 41.5	
		esS	N <sub>1</sub> E <sub>1</sub>	35 35.5	
		iScS	EE <sub>1</sub>	54.0	
		i	E <sub>1</sub>	36 54.5	
37	11	iP	VNEV <sub>1</sub>	13 19 13.0	R 06.6S 130.3E h: 173 km Banda Sea.
L8	12	eP	VN	01 42 09.0	Local
		iS	VN	19.0	
38	13	eSS	E <sub>1</sub>	07 12.9	2.1N 33.5W h: 33 km. About 300 miles north- west of Ecuador.
		e	E <sub>1</sub>	13.4	
39	13	iP	V	14 52 25.5	1.9N 127.5E h: 33 km. Molucca Passage.





No.	Date	Phase	Component	Time		Remarks
59	18 ✓	iP ePP iScP	VNEN <sub>1</sub> E <sub>1</sub> V V	04 07 08.5 08 44.0 12 36.5	R	21.9S 179.3W h: 516 km. Fiji Is. region.
60	18	eP	V	09 02 35.0		10.7N 121.6E h: 44 km. Panay Is., P.I.
61	18	iP	VE	20 49 41.5	R	22.7S 173.1E h: 82 km. Loyalty Is. region.
62	18	e	V	22 55 (53)		7.3S 156.1E h: 60 km. Solomon Is.
63	19	iP	V	07 49 28.0	C	
64	19 ✓	eP	V	13 40 23.5		44.6N 81.7E h: 33 km. North west Sinkiang Province.
65	19	iP	VN	21 27 34.5	C	04.5N 123.2E h: 552 km Celebes Sea.
L11	19	e iS	V V	23 55 32.5 51.5		Local
L12	20	e i(P) iS	V V VN	03 08 (21) 26.0 55.0		Regional
66	20	iP	V	11 28 17.0	C	20.9S 173.3W h: 305 km. Tonga Is. region.
67	20	iP	V	13 05 55.5		12.4S 112.1E h: 87 km. 340 miles south of Java.
	20	i	V	23 14 02.5		
68	20	iP	V	23 24 20.5		14.7S 136.6E h: 52 km. New Hebrides Is.
69	21	iP	V	13 16 14.0	C	23.2S 176.7W h: 57 km. Kermadec Is. region.
70	21 ✓	ePKP	V	13 39 12.0		41.4N 15.5E h: 34 km. Italy.
71	21 ✓	eP e eL	V E <sub>1</sub> N <sub>1</sub>	21 12 02.5 17 38.0 13 43		23.7S 176.3W h: 55 km. Kermadec Is. region.
72	21 ✓	eP	V	21 21 55.5		29.3S 111.9W h: 33 km. Easter Is. region.
73	22 ✓	iP	V	04 42 49.5	R	26.1N 142.5E h: 29 km. Volcano Is. region.
74	22	iP	V	05 35 30.5	R	29.6S 176.7W h: 55 km. Kermadec Is. region.
75	22	iP	V	12 11 53.0		23.3S 176.7W h: 56 km. Kermadec Is. region.
76	22	eP	V	21 16 55.5		3.3N 123.8E h: 125 km. Mindanao, P.I.
77	23	eP	V	08 29 50.5	C	
78	23 ✓	iP i(PcP) i(P)	VN V V	15 40 20.0 43.0 42 53.5	C	22.9N 120.3E h: 17 km. near south coast of Formosa.
79	23	eP	V	16 54 20.5		21.4S 179.1W h: 537 km. Fiji Is.

No.	Date	Phase	Component	Time		Remarks
80	23 ✓	iP	VNV <sub>1</sub>	21 05 44.0	C	53.1S 23.6W h: 33 km. Sandwich Is.
81	24 ✓	iP e iS i	VN N N V	08 52 19.0 52.0 56 25.0 26.5	C	24.5S 173.3E h: 526 km Fiji Is. region
82	24 ✓	eP i eL e	V V N <sub>1</sub> V <sub>1</sub>	09 11 49.5 51.0 20.9 21.0		15.0S 173.3W h: 33 km Samoa Is. region
83	24	iP	V	18 20 55.5		17.9S 178.5W h: 600 km. Fiji Is.
84	25 ✓	iP ipP iPP iPPP iPcP iS iScP i ePcS e(sS) eSS iScS	VNV <sub>1</sub> V V <sub>1</sub> V <sub>1</sub> V VNN <sub>1</sub> V V N N <sub>1</sub> N <sub>1</sub> NN <sub>1</sub>	08 37 32.0 39 05.0 07 33.0 40 13.5 42 03.5 56.0 53.5 43 40.0 45 00 09 46 56.5	R	20.5S 178.5W h: 561 km. Fiji Is.
L13	25	eP iS	VN VN	13 52 55.0 53 04.0		Local
85	25	e	V	18 32 47.0		
86	26 ✓	eP i i	V VN V	07 00 03.0 09.0 25.0		34.0N 139.2E h: 33 km. near east coast of Honshu.
87	26	iP ipP	VN V	08 06 26.5 07 05.0	C	00.1N 121.3E h: 185 km. Northern Celebes.
L14	26	eP iP iS	V VN VN	11 45 (47.5) 43.7 54.0		Local
L15	26	iP iP iS	V V VN	11 50 23.0 29.0 34.5		Local
L16	26	iP iP iS	V VN VN	14 07 47.5 49.0 54.5		Local
L17	26	i	V	14 50 11.5		Local
L18	26	eP iS	VN VN	17 24 21.0 30.0		Local
88	26 ✓	e	V	22 46 29.5		34.3N 139.3E h: 54 km. near east coast of Honshu.
89	26 ✓	e iP i iPP iPPP iPcP eL eL	V V VN V V V E <sub>1</sub> V <sub>1</sub>	23 37 07.0 07.5 09.0 33 15.0 32.5 39 54.0 44.2 45.7		3.7S 140.1E h: 50 km. New Guinea.

No.	Date	Phase	Component	Time	Remarks
L19	27 ✓	eP	V	02 19 27.5	Local
		eS	V	36.0	
90	27	iP	VN	02 30 17.5	C 40.2N 137.8E h: 274 km Sea of Japan.
91	27	iP	V	15 23 45.0	C 27.1N 127.4E h: 33 km. Ryukya Is.
92	27 ✓	eP	V	16 31 44	38.3N 142.4E h: 40 km. Off east coast of Honshu.
93	27	eP	V	23 24 54.5	06.0S 149.5E h: 43 km. New Britain region.
		i	V	35 15.0	
94	28	eP	V	00 47 33.5	15.7S 173.1W h: 33 km Samoa Is. region.
L20	28	(e)	V	03 12 33.0	Regional
		e	V	36.0	
		i(S)	V	13 04.0	
		iS	VN	05.0	
95	28 ✓	(e)	V	11 13 (40.5)	38.0N 23.1E h: 120 km. Greece.
		iPKP	V	56.0	
		i	V	53.0	
		iPKP	VN	19 09.0	
		i	V	21 55.0	
		i	VV <sub>1</sub>	22 32.5	
		iPKS	NE <sup>1</sup>	44.0	
		i	V	23 34.5	
96	28	iP	VNE	15 16 27.0	R
L21	28	iP	VNE	16 30 33.0	C Local
		iP	VN	33.5	
		i	V	37.0	
		iS	VE	52.0	
L22	28	iP	VN	17 10 55.0	Local
		e	V	11 13.5	
		iS	NE	14.0	
L23	28	iP	VN	19 35 02.5	Local
		i	V	03.0	
		iS	VNE	11.5	
97	28	e	VN	20 24 33.0	
L24	29	eP	VN	00 43 49.0	Local
		i	V	51.0	
		iS	VNE	44 03.0	
	29	i	V	07 00 00.5	
98	29	iP	V	16 56 05.0	C
99	29	iP	V	19 46 54.5	19.4S 173.1W h: 532 km. Fiji Is.
L25	29	e	V	22 00 59.5	Local
		eS	VE	01 06.5	
L26	29	eP	V	22 13 (13)	Local
		i(S)	V	19.5	
		eS	NE	20.0	

No.	Date	Phase	Component	Time		Remarks
100	29 ✓	eP	V	22 48 08.0		34.1N 139.1E h: 33 km. Near east coast of Honshu.
101	30 ✓	iP eL	VN V <sub>1</sub>	17 24 41.2 25	C	21.2S 174.4W h: 33 km. Tonga Is.
L27	30	iP iS	V VNE	18 17 09.5 18.0		Local
102	31 ✓	eP	V	10 40 27.0	C	15.4S 177.3W h: 60 km. Fiji Is. region.
103	31 ✓	iP	V	17 15 44.5	C	51.8N 179.7W h: 26 km. Rat Is., Aleutian Is.
104	31 ✓	iP	V	18 09 07.0	C	51.2N 179.9W h: 43 km. Rat Is., Aleutian Is.

Seismograms read by Jennifer Clay.

J. C. Jaeger,  
Professor of Geophysics.

Department of Geophysics  
 Australian National University  
 CANBERRA, A.C.T., AUSTRALIA.

MONTHLY SEISMOLOGICAL BULLETIN

September 1962

Latitude: 35° 19' 15" S. Longitude: 143° 59' 55" E. Height: 700 M.

Instruments: Three-component Benioff variable reluctance seismographs.

$T_s = 1$  sec.

$T_g = 0.25$  sec. (Short periods VME)

$T_g = 16$  sec. (Long-period vertical  $V_1$ )

$T_g = 70$  sec. (Long-period horizontals  $N_1E_1$ )

One N-S component Wood-Anderson Seismograph,  $T_s = 0.8$  sec.

Mount Stromlo quartz clocks provide accurate time marks and 50 c/s for drum drive. Abbreviations: R - rarefaction; C = compression; Epicentre locations are those given by USCGS.

No.	Date	Phase	Component	Time		Remarks
1	1 ✓	iP isP i	VV <sub>1</sub> V V	03 59 06.0 22.0 36.0	C	51.3 N 179.7 W h: 25 km Rat Is., Aleutian Is.
2	1	iP	V	04 11 21.0	C	51.1 N 180.0 h: 33km Rat Is., Aleutian Is.
3	1 ✓	eP	V	04 54 41.5		51.3 N 179.9 W h: 37 km Rat Is., Aleutian Is.
4	1 ✓	iP i ipP i iPP i is eSS iScS	VMEV <sub>1</sub> N <sub>1</sub> E <sub>1</sub> VV <sub>1</sub> V <sub>1</sub> VEN <sub>1</sub> N <sub>1</sub> N <sub>1</sub> NN <sub>1</sub> E <sub>1</sub> N <sub>1</sub> E <sub>1</sub>	04 57 26.0 38.0 53 11.0 12.5 21.0 59 09.5 05 01 38.0 03 04.5 07 56.0		15.9 S 168.2 E h: 244 km New Hebrides Is.
5	1 ✓	eP	V	03 04 07.0		51.3N 179.9W h: 42km Rat Is., Aleutian Is.
6	1	iP	V	18 00 25.0	R	
7	1 ✓	ePKP i i i eSKS ePS	V V V V <sub>1</sub> V <sub>1</sub> V <sub>1</sub> N <sub>1</sub> E <sub>1</sub>	19 39 23.5 55.0 40 19.0 29.0 46 17.0 50 02.5		35.6N 50.0E h: 21 km Northwest Iran Mag. 7 (Canb.)
8	2	e	V	04 48 09.0		
9	2	eP	V	05 43 48.0		27.5N 127.0E h: 58 km Ryukyu Is.
10	2	i	V	11 10 44.5		
11	2 ✓	iP ipP eL	VE V N <sub>1</sub>	15 23 57.5 29 07.0 40.5		10.2S 120.3E h: 33km Soemba Is. region
12	2	e i	V V	15 45 58.0 47 05.5		
13	2	eP i	V V	20 22 07.5 28.5		38.5S 179.8W h: 33 km Off coast of North Is.,

No.	Date	Phase	Component	Time	Remarks
					New Zealand.
14	2	e	V	22 44 59.5	
15	3	iP	VNEV <sub>1</sub> N <sub>1</sub> E <sub>1</sub>	00 03 14.5	C 7.0 S 124.8 E h: 470 km
		i	E	18.5	Banda Sea
		ePP	VV <sub>1</sub>	04 46.5	
		ipP	VNE	43.5	
		eS	NEE <sub>1</sub>	08 14.5	
		iScP	V	23.0	
16	3	iP	VN	20 05 04.0	R
17	3	eP	V	22 18 57	56.6 S 27.2 W h: 33 km
					Sandwich Is.
18	4	e	V	02 00 06.5	
19	4	eP	V	19 33 53	15.5 S 167.7 E h: 133 km
					New Hebrides Is.
20	4	iP	V	22 39 13.5	
21	5	eT	V	01 33 15.	
L1	5	eP	V	10 11 03.5	Local
		eS	VN	20.5	
22	5	iP	VNE	11 23 34.5	R 3.3 S 139.9 E h: 110 km
		i	V	24 13.0	New Guinea
		eS	N	23 43	
23	5	e	V	14 15 11.	
24	5	i(P)	V	19 23 32.0	
25	6 ✓	iP	V	11 13 04.5	4.0 S 126.4 E h: 33 km
		i	VN	07.0	Ceram Sea
		i(P)	VN	13.0	
		eL	E <sub>1</sub>	29.2	
26	6	i	V	12 03 34.0	
L2	6	eP	V	14 50 44.5	Regional
		eS	N	52 14.5	
27	6	eP	V	15 03 43.5	C 8.4 S 159.3 E h: 95 km
		i	VN	54.5	Solomon Is. region
28	6	i(P)	V	18 09 00.0	
29	6	iP	V	18 12 00.0	R 31.8 S 173.3 W h: 81 km
30	6	i	V	19 22 17.0	Kermadec Is. region
31	7	e	V	01 31 30.	
32	7	iP	V	07 14 22.0	C 3.2 S 123.0 E h: 216 km
					Ceram Sea
33	7 ✓	iP	VNE	07 43 13.0	R 6.3 S 130.0 E h: 130 km
		ipP	V	57.0	Banda Sea region
		ePP	V	49 33.5	
L3	7	i(P)	VN	15 15 47.0	Local
		e(S)	V	16 02.5	
34	7	e	V	23 42 39.0	26.3 S 173.0 W h: 50 km
					Kermadec Is. region
35	7	iP	V	23 57 55.5	3.4 S 159.0 E h: 95 km
					Solomon Is. region
L4	8	eP	V	05 04 53	Local
		i(S)	V	05 03.5	
36	8	iP	V	07 32 12.5	R 22.4 S 171.5 E h: 73 km
		i(P)	V	31.5	Loyalty Is. region

No.	Date	Phase	Components	Time	Remarks
		i	V	33 39.5	
37	8	iPKP	V	13 23 13.5	C 16.9 N 60.9 W h: 33 km Leeward Is. region
38	9 ✓	iP iPcP	VN V	01 43 47.0 44 58.0	C 10.8 N 121.4 E h: 58 km Near coast of Panay, P.I.
39	9	iP	V	03 01 56.5	R 17.9 S 178.6 W h: 625 km Fiji Is. region
40	9	eP	V	08 44 39.0	21.8 S 171.1 E h: 112 km Loyalty Is. region
41	10 ✓	ePKP	V	09 55 53.5	35.0 N 27.1 E h: 33 km Dodecanese Is.
42	10 ✓	iP i ipP i iS i iScP i eSS iScS	VEV E <sub>1</sub> EE <sub>1</sub> VEV E <sub>1</sub> V E <sub>1</sub> EV <sub>1</sub> VV <sub>1</sub> VE <sub>1</sub> N E <sub>1</sub> NN <sub>1</sub>	15 49 31.0 51 07.0 12.0 19.0 53 55.5 56.5 54 51.5 55 00.0 57 07.0 58 51.0	C 21.1 S 179.2 W h: 640 km Fiji Is.
43	10 ✓	eP	V	17 56 31.0	17.5 S 173.6 W h: 33 km Tonga Is. region
44	10	eP i	V V	20 20 55.0 21 02.5	13.6 S 111.6 W h: 33 km Pacific Ocean, 1250 miles southwest of Galapagos Is.
45	10	e	V	20 42 23.0	
46	11	eP	V	02 31 50.0	15.2 S 173.4 W h: 33 km Samoa Is. region
47	11	e	V	13 14 11	
48	11 ✓	eP	V	18 01 31.0	26.9 N 142.7 E h: 33 km Bonin Is. region
49	11	iP epP	V V	19 51 35.5 47.0	C 22.4 S 172.3 E h: 33 km Loyalty Is. region
45	12	iP iS	VNE VNE	04 03 49.5 51.0	R Local
50	12	i(P)	V	14 25 31.0	
51	12 ✓	iP ipP eL eL	V VN E <sub>1</sub> V <sub>1</sub> N <sub>1</sub>	18 24 59.0 25 09.5 34.4 36.4	4.4 S 145.4 E h: 32 km Near north coast of New Guinea
46	12	eP eS	V VN	20 13 33.0 51.0	Local
52	12 ✓	e(P) i i(PP)	V V V	21 10 53.5 11 01.5 15 10.5	36.5 N 69.2 E h: 50 km Hindu Kugh
53	13 ✓	ePKP	V	14 54 31	11.6 N 61.3 W h: 73 km North of Trinidad
54	13	iP	V	19 22 16.5	R
55	14	e	V	10 06 08.0	
56	14	iP	VN	11 15 44.5	R 51.4 S 146.3 E h: 33 km South of Tasmania

No.	Date	Phase	Components	Time	Remarks
57	14 ✓	iP	VNEV <sub>1</sub> N <sub>1</sub> E <sub>1</sub>	18 28 59.0	C 19.9 S 177.3 W h: 350 km
		i	V	24 15.0	Fiji Is.
		i	VEE <sub>1</sub>	25 15.5	
		eS	N	28 53.0	
		iScP	V	29 43.0	
58	15	iP	V	08 32 08.5	C
L7	15	eP	V	07 49 24.0	Regional
		i	V	34.5	
		(eS)	N	57.5	
		i	N	50 03.5	
59	15	iP	VN	12 17 18.0	R
60	15 ✓	iP	V	23 03 15.5	48.5 N 156.8 E h: 33 km
		eL	N <sub>1</sub>	33.3	Kurile Is.
61	16	eP	V	22 55 35.0	22.8 N 123.5 E h: 33 km
					Near coast of Formosa
62	17	iP	VN	00 11 18.0	R
L3	17	eP	VN	01 22 04.0	Local
		eS	E	19.5	
L9	17	eP	V	02 59 10.0	Local
		iP	VN	11.0	
		eS	VE	25.5	
		i	V	23.5	
63	17	eP	V	05 05 46.5	R 17.7 S 178.6 W h: 576 km
		i	V	06 11.0	Fiji Is.
L10	17	eP	VN	09 15 17.0	Local
		eS	VE	31.5	
L11	17	eP	V	09 16 (14.0)	Local
		iP	VN	14.5	
		i(S)	V	29.0	
		eS	E	29.5	
L12	17	iS	V	09 43 26.5	Local
L13	17	eP	V	10 49 55.5	Local
		i(S)	N	50 10.5	
		i	V	11.5	
L14	17	eP	VN	11 14 53.0	Local
		eS	E	15 07.5	
L15	17	(eP)	V	13 47 36.0	Local
		e(S)	V	51.5	
		i	N	53.0	
L16	17	iP	VN	13 49 00.5	C Local
		iS	VE	15.5	
		i	V	16.5	
L17	17	eP	V	13 50 57.5	Local
		iP	VN	58.0	
		iS	VE	51 12.5	
64	17 ✓	iP	VNEV <sub>1</sub>	18 01 20.0	C 21.0 S 179.1 W h: 601 km
		i	V	04 43.0	Fiji Is.
		eS	N	05 46.0	
		iScP	V	06 40.0	
		i	V	08 06.0	
		i	V	09 45.0	
L18	17	iP	VN	18 39 33.0	R Local
		iS	VNE	45.5	
L19	17	eP	V	20 23 18.0	Local
		e(S)	E	38.5	
		i	VN	39.0	



No.	Date	Phase	Components	Time	Remarks
65	18	e	V	00 14 02.0	
66	18 ✓	ePKP	V	00 43 06.0	7.5 N 32.3 W h: 33 km
		eSS	N <sub>1</sub>	01 07.1	South of Panama
		e	E <sub>1</sub>	07.3	
		eSSS	E <sub>1</sub>	11.22	Mag. $6\frac{3}{6}$ (Comb.)
		e	V <sub>1</sub>	12.1	
		eL <sub>r</sub>	N <sub>1</sub>	22.27	
		eL <sub>r</sub>	V <sub>1</sub>	27.9	
67	18 ✓	iP	VNEV <sub>1</sub>	06 18 23.0	2.3 N 126.9 E h: 33 km
		i	VNE <sub>1</sub>	24.0	Molucca Passage
		iPP	V	20 07.5	
68	18 ✓	iP	V	20 16 50.5	21.0 S 169.9 E h: 81 km
		ipP	V	17 03.5	New Hebrides Is.
69	18	e	V	21 53 43	14.8 S 178.1 W h: 526 km
					Fiji Is.
70	18	eP	V	22 10 32.0	R
71	18	i(P)	V	23 15 53.5	
72	18	iP	V	23 25 17.5	
73	19	i(P) ✓	V	00 13 14.0	42.0 N 132.9 E h: 436 km
					Sea of Japan
74	19	iP ✓	V	05 19 16.0	48.1 N 145.1 E h: 466 km
		iPcP	V	22.5	Near east coast of Sakhalin Is.
75	19	iP ✓	VN	07 57 05.0	11.5 N 141.0 E h: 61 km
		i	V	11.5	Mariana Is. region
		ipP	V	17.0	
		iPcP	V	53 35.5	
76	19	eP	V	13 13 45.5	9.9 S 120.5 E h: 34 km
					Soemba Is.
77	20	e	V	13 45 (06)	4.7 S 139.4 E h: 33 km
		i	V	46 29.0	West New Guinea
		e(L)	E <sub>1</sub>	55 12	
		e	N <sub>1</sub>	43	
		i	V <sub>1</sub>	49.5	
78	21	iP	VE	08 49 44.0	21.2 S 179.0 W h: 624 km
					Tonga Is. region
79	21	e	V	09 14 03.5	
		eT	V	29 (40)	
L20	21	eP	VN	10 09 14.5	Local
		i	VN	15.0	
		iS	VN	27.5	
80	21	iP	VNE	15 00 43.5	17.7 S 178.7 W h: 536 km
		i	V	01 29.5	Fiji Is. region
L21	21	iP	VN	13 22 23.0	Local
		i	V	24.5	
		eS	VNE	30.0	
81	21	eP	V	22 51 13.5	57.7 S 64.1 W h: 51 km
					Drake Passage
82	22 ✓	iP	VNV <sub>1</sub>	07 03 34.5	26.5 N 97.0 E h: 33 km
					Northern Burma
83	22	eP	V	15 13 17.0	
		e	VE	35.0	
		e	V	20 31.0	
84	22	iP	VN	16 10 02.0	2.5 S 126.9 E h: 28 km
					Ceram Sea

No.	Date	Phase	Components	Time	Remarks
L22	22	eP	V	18 19 39.0	Local
		i	VN	40.0	
		iS	VN	48.5	
85	22	eP	V	21 01 45.0	C
86	22	e	V	21 56 08.0	R
L23	22	eP	V	23 30 12.0	Local
		iP	V	12.5	
		iS	VNE	21.5	
87	23	iP	V	07 05 09.0	23.7 S 179.9 E h: 549 km Fiji Is. region
88	24	iP	V	05 37 14.5	9.2 N 126.6 E h: 33 km
		ipP	V	21.0	Off east coast of Mindanao, P.I.
89	24	eP ✓	V	14 50 19	42.8 N 145.3 E h: 33 km Near coast of Hokkaido
L24	24	(eP)	V	21 28 44.0	Local
		iP	VN	45.0	
		i(S)	VE	29 03.5	
90	24	iP	V	22 03 52.5	0.2 N 124.0 E h: 155 km
		i	V	09 42.5	Celebes region
		i(sP)	V	47.0	
91	25 ✓	eP	V	00 31 15.5	55.6 S 124.3 W h: 67 km South Pacific Ocean
92	25	i(P)	V	10 33 16.0	32.9 N 137.8 E h: 325 km South of Honshu
93	25	eP	V	14 58 23.5	11.7 N 138.6 E h: 33 km
		i(pP)	V	28.0	Mariana Is.
94	25	iP	V	18 34 10.5	3.6 S 128.3 E h: 33 km
		i	V	40 06.5	Ceram Is. region
95	26	ePKP	V	01 46 22.0	0.9 N 27.6 W h: 33 km
		i	V	27.0	Mid-Atlantic Ocean
		i	V	41.5	
L25	26	eP	V	09 03 30.0	Regional
		iP	VN	31.5	
		eS	VNE	55.5	
96	26 ✓	iP	V	12 51 00.0	27.5 S 176.4 W h: 33 km
		ipP	V	10.0	Kernadec Is. region
		i	V	23.5	
		eL	V <sub>1</sub> E <sub>1</sub>	59.4	
97	26	eP	V	13 33 34.5	18.7 N 145.4 E h: 201 km Mariana Is. region
98	26	iP	V	17 45 55.5	C
99	27 ✓	eP	V	13 05 09.0	C
		ipP	V	40.5	4.6 S 104.4 E h: 144 km
		iPeP	V	08 22.5	Southern Sumatra
100	27	eP	VN	13 18 11.5	18.6 N 121.8 E h: 80 km
		i	V	12.5	Near northern coast of Luzon, P.I.
101	27 ✓	iP	V	13 31 04.0	R
		i	V	32 51.5	17.6 S 178.9 W h: 507 km
102	27	e	V	14 45 25.	Fiji Is.
103	27	eP	V	18 33 16.5	4.0 S 151.2 E h: 51 km
		eL	E <sub>1</sub>	42.1	New Ireland region
		eL	V <sub>1</sub>	44.9	
104	27	eP	V	20 23 38.0	
105	23	e	V	01 56 22.0	

No.	Date	Phase	Components	Time	Remarks
107	28	i	VN	02 21 23.0	16.7 S 167.5 E h: 50 km New Hebrides Is.
107	28	eP	V	03 41 15.5	17.5 S 178.8 E h: 584 km Fiji Is. region
108	28	(e) i	V V	06 22 11.5 23.0	
109	28	iPKP	V	19 15 03.0	C 5.2 N 76.2 W h: 127 km Western Colombia
L26	28	iP i iP <sub>n</sub> iS iS	VNE V V V VN	20 47 39.5 40.0 41.5 54.0 54.5	Local
L27	29	iP i iS	VNE V VN	01 31 57.0 59.5 32 12.0	Local. Felt at Bowral and Moss Vale. Mag. 3 $\frac{3}{2}$
110	29	i(P)	V	03 38 15.0	
L28	29	eP i iS	VN N VN	07 21 33.5 36.5 42.5	Local
111	29	eP eT T max	V V N	14 34 46.0 50 23 52 22	
112	29	ePKP iPKKP	V V	15 35 14 46 16.5	27.0 S 63.6 W h: 575 km Santiago Del Estero Province, Argentina
113	29	iP	V	18 11 40.0	
114	30	e	V	06 52 32	13.5 N 146.2 E h: 94 km Mariana Is.
115	30	eP i eL	N V E <sub>1</sub>	10 54 21.0 22.5 11 03.1	5.2 S 152.7 E h: 33 km New Britain region
116	30	iP	VN	11 04 37.0	R 5.9 S 151.0 E h: 50 km Near southern coast of New Britain
117	30	iP	V	13 36 21.0	R
118	30	e	V	15 15 26.5	
119	30	eP i iPcP i	V N V V	22 07 27.0 29.0 08 11.5 55.5	13.6 N 120.9 E h: 51 km Near north coast of Luzon, P.I.

Seismograms read by  
Jennifer Clay  
J.C. Jaeger  
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Department of Geophysics  
Australian National University  
CANBERRA, A.C.T., AUSTRALIA

110 MAY 1966  
10 MAY 1966

MONTHLY SEISMOLOGICAL BULLETIN

October 1962

Latitude:  $35^{\circ} 19' 15''$  S Longitude:  $143^{\circ} 59' 55''$  E Height: 700 M.

Instruments: Three-component Benioff Variable reluctance seismographs.

$T_s = 1$  sec.

$T_g = 0.25$  sec. (Short periods VNE)

$T_g = 16$  sec. (Long-period vertical  $V_1$ )

$T_g = 70$  sec. (Long-period horizontals  $N_1 E_1$ )

One N-S component Wood-Anderson Seismograph,  $T_s = 0.3$  sec.

Mount Stromlo Quartz clocks provide accurate time marks and 50 c/s for drum drive.

Abbreviations: R - rarefaction; C - compression;

Epicentre locations are those given by USCGS

No.	Date	Phase	Component	Time	Remarks
1	1 ✓	iP	VNEV <sub>1</sub> N <sub>1</sub> E <sub>1</sub>	04 02 48.5	R 17.5 S 178.9 W h: 550 km
		i	N	55.5	Fiji Is.
		i	V	03 56.5	
		i(PP)	V	04 36.0	
		iPcP	V	05 18.5	
		isP	V	45.0	
		i	V	06 11.5	
2	1	eP	V	03 01 45.5	6.5 N 95.1 E h: 33 km
		i	V	47.0	Nicobar Is. region
		i	V	54.0	
3	1 ✓	eP	V	10 02 15.0	17.5 S 167.1 E h: 33 km
		i	VE	16.5	New Hebrides Is.
		i	VE	20.5	
		isP	VN	27.5	
		i(PP)	N	52.5	
		e(sS)	E <sub>1</sub>	06 41.5	
		eL	E <sub>1</sub>	07.0	
4	1	eP	V	10 05 42.5	47.3 N 151.5 E h: 127 km
					Kurile Is.
5	1	iP	VNE	10 07 56.0	R
		i	V	09 27.0	
6	1	eP	V	15 13 25.5	5.5 S 151.9 E h: 49 km
					New Britain
7	1 ✓	iP	V	20 49 23.5	C 19.6 S 174.5 W h: 143 km
		i	VNE	24.0	Fiji Is. region
8	2	i	V	02 25 39.5	
LI	2	eP	V	06 03 16.0	Regional
		i(S)	V	56.0	
9	2	iP	V	03 41 42.5	17.6 S 178.7 W h: 616 km
					Fiji Is. region
10	2	iP	V	12 43 43.5	C 0.6 S 122.9 E h: 33 km
					Northern Celebes
11	2	iP	V	19 39 19.5	C 10.4 N 126.9 E h: 125 km
					Leyte, P.I.
12	2	iP	V	19 59 46.0	C 2.1 N 126.2 E h: 35 km
					Molucca Passage

No.	Date	Phase	Component	Time	Remarks	
13	3	iP	V	06 41 14.5	C	
L2	3	iP	V	08 00 18.0	Local	
		eS	VN	35.5		
14	3	iP	VN	12 03 30.0	R	4.5 S 144.6 E h: 108 km New Guinea
15	3	iP	V	17 18 41.5		21.0 S 168.4 E h: 33 km Loyalty Is.
		iPPP	V	19 23.5		
16	3	iP	V	19 01 38.9	R	57.5 S 26.7 W h: 33 km Sandwich Is.
17	3	e	V	21 04 42		21.3 S 168.3 E h: 41 km Loyalty Is.
18	4	iP	V	09 07 35.5		9.1 S 160.4 E h: 138 km Solomon Is.
19	4	iP	V	09 43 08.5		23.3 S 179.0 E h: 611 km Fiji Is. region
20	4	e	V	20 40(53)		5.1 S 151.9 E h: 33 km Bismarck Sea
		i	V	41 00.5		
L3	5	iP	VN	04 38 01.5	C	Local
		iS	NE	14.5		
		i	V	15.5		
21	5	i	V	10 50 47.0		
22	5	iP	V	13 08 53.0		9.2 S 160.7 E h: 228 km Solomon Is.
23	5	e	V	20 13 36		
		eT	V	23 50		
		T max	N	29 53.5		
24	5	iP	VN	22 06 19.9	R	6.1 S 130.8 E h: 31 km Banda Sea
25	6	iP	V	04 28 43.0	C	17.4 S 167.7 E h: 33 km New Hebrides Is. Mag. 6 $\frac{1}{2}$ (Canb.)
		i	V	44.5		
		ipP	VE	52.0		
		i	V <sub>1</sub>	59.5		
		iPP	VN	29 21.5		
		iS	NN <sub>1</sub>	33 03.5		
		e(sS)	N <sub>1</sub>	16.5		
		e	V <sub>1</sub>	23		
26	6	iP	V	04 40 22.0	C	17.4 S 167.3 E h: 33 km New Hebrides Is.
		ipP	V	31.5		
		i	V	44.5		
27	6	iP	VN	05 49 07.8	R	26.2 N 126.9 E h: 122 km Ryukyu Is.
28	6	eP	V	07 22 23.0		17.4 S 167.3 E h: 33 km New Hebrides Is.
		eS	N <sub>1</sub>	26 34		
29	6	iP	VN	08 01 40.0	R	17.4 S 167.9 E h: 33 km New Hebrides Is.
		eS	N <sub>1</sub>	06 07.0		
		iS	E <sup>1</sup>	10.0		
30	6	iP	VE	08 08 52.5	R	17.2 S 168.0 E h: 33 km New Hebrides Is. Confused by No. 29
		ipP	V	59.5		
		ePP	E	09 30		
		e(S)	N <sub>1</sub>	13 23		
31	6	iP	V	08 37 03.5	R	17.3 S 167.3 E h: 33 km New Hebrides Is.
32	6	e	V	10 15 51		

No.	Date	Phase	Component	Time	Remarks
33	6 ✓	iP	V	11 03 21.5	C 18.3 S 167.3 E h: 209 km
		i	VNEV <sub>1</sub>	22.0	New Hebrides Is.
		i	V	09 35.0	
		e(L)	N	12 05	
		iScP	V <sub>1</sub>	53.0	
		iPcS	V	13 13.5	
		eScS	NE	16 51.5	
34	6	eP	V	12 05 03.0	17.4 S 167.8 E h: 17 km
		i	V	04.0	New Hebrides Is.
35	6	eP	V	12 13 29.0	
36	6	iP	V	18 06 24.5	C 17.6 S 168.0 E h: 33 km
		isP	E	36.5	New Hebrides Is.
		i	N	40.0	
L4	6	eP	V	19 48 (08.5)	Local
		eP	V	04.0	
		eS	N	19.5	
		i	V	20.0	
L5	6	eP	V	19 58 01.0	Local
		i(S)	V	17.0	
		eS	E	18.0	
37	6	e	V	21 37 07	
38	6 ✓	iP	VNE	23 36 45.0	R 17.5 S 167.6 E h: 42 km
		ipP	E	52.0	New Hebrides Is.
		i	V	53.0	
		i(PP)	N	37 25.0	
		i	N	28.5	
		i	V <sub>1</sub>	39 09.5	
		eS	N <sub>1</sub>	41 04.5	
		eSS	N <sub>1</sub>	42 04	
39	7	eP	V	00 52 12.0	17.7 S 167.8 E h: 33 km
					New Hebrides Is.
40	7	iP	VNE	00 54 21.0	C
		i	VNE	56 24.5	
		i	V	57 10.0	
41	7	iP	V	01 12 46.0	
		i	V	13 09.5	
42	7	iP	VN	05 33 59.5	C
43	7	i(P)	V	05 52 53.5	17.5 S 168.0 E h: 17 km
		ipP	V	53 08.5	New Hebrides Is.
		i	V	20.5	
44	7	i	V	10 25 58.0	19.9 S 169.4 E h: 33 km
					New Hebrides Is.
45	7	e(P)	V	12 15 35.0	
46	7	eP	V	12 41 41.0	4.9 S 144.3 E h: 75 km
					New Guinea
47	7	i	V	13 20 17.5	
48	7	eP	V	13 57 18.0	17.3 S 167.8 E h: 17 km
		i	V	36.5	New Hebrides Is.
49	7	iP	V	16 13 04.0	57.3 S 25.5 W h: 33 km
50	7	eP	V	16 52 33.5	17.7 S 167.5 E h: 33 km
					New Hebrides Is.
51	7	eP	V	16 57 34.0	17.9 S 167.4 E h: 39 km
					New Hebrides Is.

No.	Date	Phase	Component	Time	Remarks
52	7	e	V	17 14 08	
53	8	eP	V	13 25 50.0	17.3 S 167.8 E h: 33 km New Hebrides Is.
54	8	iP	V	17 24 11.5	
55	8	eP	V	17 59 55.0	18.7 S 176.8 W h: 243 km Fiji Is.
56	8	iP	V	19 00 16.5	10.3 S 161.4 E h: 79 km Solomon Is.
57	8 ✓	eP i isP iS M	VV <sub>1</sub> V V E <sub>1</sub> V <sub>1</sub>	22 07 00.0 05.0 15.0 15 41.5 36.4	R 24.3 N 121.7 E h: 29 km Near east coast of Formosa
58	8	eP	V	22 34 43.5	24.1 N 121.8 E h: 39 km Near east coast of Formosa
59	9	e eT T max T max	V V V N	00 29 20 44 32.5 45 23 40	
60	9	iP isP	VN N	03 19 03.0 17.0	C 17.4 S 167.6 E h: 33 km New Hebrides Is.
61	9 ✓	eP i i ipP ePP e eS eL M	V V VNV <sub>1</sub> N <sub>1</sub> N <sub>1</sub> N <sub>1</sub> N <sub>1</sub> N <sub>1</sub> V <sub>1</sub> N <sub>1</sub>	20 21 02.0 03.5 05.5 11.5 22 11 25 36 26 13 30.0 34.1	3.2 S 148.2 E h: 33 km Bismarck Sea Mag. 6½ (Canb.)
62	9	iP	V	21 24 39.0	17.6 S 167.6 E h: 19 km New Hebrides Is.
63	10	iP	V	09 26 10.0	C 22.2 S 179.6 W h: 558 km Fiji Is.
64	10	eP	V	11 18 21.5	C 10.1 S 161.3 E h: 34 km Solomon Is.
65	10	iP i	V V	13 41 17.0 43 24.0	C 8.9 S 110.3 E h: 33 km Near south coast of Java
66	10	iP	V	14 38 22.0	17.9 S 167.8 E h: 34 km New Hebrides Is.
67	10	i	V	14 46 10.0	
68	10	eP	V	17 21 31	18.0 S 167.7 E h: 33 km New Hebrides Is.
69	10 ✓	iP ipP	VNE V	22 00 02.0 10.5	R 15.1 S 173.3 W h: 33 km Samoa Is. region
70	11	eP	V	12 02 32.0	
71	11	eP	V	16 13 11	24.3 N 121.6 E h: 32 km Near east coast of Formosa
72	11	e	V	19 21 21	
73	12	e	V	01 50 32.0	33.1 S 173.2 W h: 37 km Kermadec Is. region
74	12	eP i	V V	09 18 57.5 19 06.5	27.4 N 129.1 E h: 25 km Ryukyu Is.

No.	Date	Phase	Component	Time	Remarks
75	12	iP	V	10 54 41.0	17.9 S 178.0 W h: 600 km Fiji Is. region
76	12	eP	V	14 57 39.0	
77	12	iP	V	19 09 48.0	28.9 S 177.1 W h: 184 km
		i	V	57.5	Kermadec Is. region
78	12	eP	V	22 40 17.0	
L6	13	eP	V	04 17 15.0	Local
		i	V	16.5	
		iS	V	22.5	
79	13	eP	V	07 39 12.5 C	16.7 S 167.9 E h: 33 km New Hebrides Is.
L7	13	e(S)	V	08 00 34.0	Local
80	13	iP	V	08 33 13.5 R	38.2 S 175.9 E h: 184 km
		i	E	26.0	Near north coast of North Is., N.Z.
81	13	iP	V	11 31 16.0	17.4 S 167.5 E h: 33 km New Hebrides Is.
82	13	eP	V	11 47 12.5	17.3 S 167.6 E h: 33 km
		ipP	V	21.0	New Hebrides Is.
83	13	iP	V	18 53 32.0	12.6 S 166.6 E h: 33 km
		ipP	V	42.0	Santa Cruz Is. region
		eS	N <sub>1</sub>	58 11	
		eL	E <sub>1</sub>	59.4	
		e(SS)	N <sub>1</sub>	59 47	
84	13	iP	V	23 10 53.5 C	
85	14	iP	V	00 35 33.5 R	38.4 S 179.3 W h: 33 km
		eL	V <sub>1</sub>	42.9	Kermadec Is. region
86	14	iP	V	01 48 32.5 C	1.5 N 99.0 E h: 100 km Near west coast of Sumatra
87	14	eP	V	05 03 44.5	17.5 S 167.7 E h: 33 km New Hebrides Is.
88	14	iP	V	14 15 43.0 C	1.0 S 127.2 E h: 33 km Halmahera Is. region
89	15	i(P)	V	00 30 35.5	22.1 S 172.1 E h: 40 km
		ipP	V	45.0	Loyalty Is. region
		eS	E <sub>1</sub>	34 53.5	
90	15	e	V	01 16 30.5	
		i	V	40.5	
91	15	eP	V	17 36 28.5	23.8 S 176.4 W h: 40 km Kermadec Is. region
92	15	eP	V	20 22 32.0	17.7 S 163.3 E h: 65 km New Hebrides Is.
93	15	e(P)	V	20 23 00.5 R	
94	15	iP	V	23 40 43.5 C	43.5 S 169.3 E h: 33 km
		ipP	VV <sub>1</sub> E <sub>L</sub>	47.0	Near coast of South Island, N.Z.
		isP	V	49.5	
		iPP	V	57.5	
		e	V	42 23	
		eS	E <sub>1</sub>	43 59.5	
		eSS	V <sub>1</sub>	44 21.5	
		eSS	N <sub>1</sub>	23.0	
		eL	E <sub>1</sub>	45.2	
		eT	V	56	
		T MAX	V	53 55.5	



No.	Date	Phase	Component	Time	Remarks
		T max	V	58.53.0	
95	16	eP	V	01 14 07.5	17.0 S 167.5 E h: 33 km New Hebrides Is.
96	16	e	V	02 52 06.5	17.0 S 167.7 E h: 19 km New Hebrides Is.
97	16	iP	V	02 54 57.0	17.1 S 167.7 E h: 33 km
		e	E <sub>1</sub>	03 02.9	New Hebrides Is.
98	16	eP	V	05 26 47.5	17.1 S 167.6 E h: 33 km New Hebrides Is.
99	16	iP	V	07 26 53.0	23.3 S 62.5 E h: 33 km South of Mascarene Is.
100	16	eP	VE	09 55 43.5	18.9 S 169.4 E h: 261 km
		i	VN	46.0	New Hebrides Is.
101	16	e	V	18 15 46.5	51.6 N 175.8 W h: 27 km Near Is., Aleutian Is.
102	16	iP	V	18 51 59.5	R
103	16	iP	V	19 13 49.0	
104	17	eP	V	09 49 24.0	17.2 S 167.7 E h: 33 km New Hebrides Is.
105	18	iP	VNE	04 13 29.0	C 8.9 S 117.0 E h: 33 km
		ipP	V	39.5	Sumbawa
106	18	eP	V	08 52 53.0	46.5 N 149.6 E h: 140 km Kurile Is.
107	18	e(P)	V	11 34 44.5	46.5 N 149.5 E h: 123 km Kurile Is.
108	19	iP	VN	01 41 17.0	C 3.4 S 129.1 E h: 53 km Ceram
109	19	e(P)	V	03 51 46.5	
110	19	e	V	09 47 39.0	
111	19	iP	V	10 53 51.5	R 10.6 N 125.2 E h: 50 km
		iPcP	V	55 08.0	Leyte, P.I.
112	19	iP	V	17 19 20.0	C 32.9 S 179.9 E h: 192 km
		i	N	26.5	Kermadec Is. region
113	19	iP	VNE	23 49 05.0	R 5.7 S 130.3 E h: 177 km
		e	N	48.5	Bonda Sea
		i	V	50.5	
		iPP	V	50 31.5	
		iPcP	V	51 38.0	
		e	E <sub>1</sub>	24 00 36	
114	20	iP	VE	03 41 33.0	C 21.0 S 178.3 W h: 530 km Fiji Is. region
115	20	iP	VNEV <sub>1</sub>	05 37 07.0	R 6.7 S 130.1 E h: 167 km Banda Sea
116	20	iP	V	20 15 19.0	
117	21	e	V	02 55 19.0	
118	21	iP	VN	12 40 09.5	R 1.5 N 127.2 E h: 111 km Ealmahera region
119	21	eP	V	23 23 45.5	55.9 S 27.8 W h: 119 km Sandwich Is. region

No.	Date	Phase	Component	Time		Remarks
120	22	iP	VNE	01 15 47.0	R	10.1 S 177.9 W h: 612 km Fiji Is. region
121	22	i(P)	VN	04 16 13.0		
122	22	eP	V	04 41 08.5		3.4 S 145.8 E h: 36 km
		ipP	V	13.0		Bismarck Sea
		e	E <sub>1</sub>	52.2		
		e	V <sub>1</sub>	56.2		
123	22	c(P)	V	15 36 10.0		49.3 N 155.3 E h: 19 km Northern Kurile Is.
124	23	eP	V	00 38 30.0		15.2 S 173.0 W h: 33 km
		ipP	V	40.0		Samoa Is. region
		i	V	41.0		
125	23	i(P)	VN	03 35 59.0	C	
126	23	eP	V	10 06 43.5		10.4 N 145.6 E h: 150 km
		iPcP	V	07 57.0		Northern Mariana Is.
127	24	eP	V	05 08 40.5		17.3 S 167.6 E h: 33 km
						New Hebrides Is.
128	24	iP	V	22 53 25.5		17.9 S 163.4 E h: 41 km
						New Hebrides Is.
129	25	eP	V	03 44 05.5		17.8 S 167.7 E h: 33 km
		e	N <sub>1</sub>	53 10		New Hebrides Is.
130	25	iP	V	03 57 22.5	R	
131	25	iP	VNEV <sub>1</sub> N <sub>1</sub> E <sub>1</sub>	09 42 03.0	C	3.0 N 126.7 E h: 33 km
		ipP	V	29.0		Molucca Passage
		iPP	V <sub>1</sub>	43 50.0		
		i(PcP)	V <sub>1</sub>	44 22.0		
		i	E <sub>1</sub>	57.0		
		iPcS	V <sub>1</sub>	47 46.5		
		eS	N <sub>1</sub>	43 27.0		
		eSSS	V <sub>1</sub>	52.3		
132	25	eP	V	12 43 12.0		15.4 S 179.0 W h: 392 km
		i	V	13.5		Fiji Is. region
		iPPP	V	45 16.0		
133	25	eP	V	15 34 25.5		16.9 S 167.5 E h: 33 km
						New Hebrides Is.
134	25	iP	V	20 11 46.5	C	61.4 S 154.9 E h: 33 km
		ipP	V	56.5		south west of Macquarie Is.
		isP	V	12 00.5		
		i	V	10.5		
		eS	E <sub>1</sub>	16 13		
		e	N <sub>1</sub>	51		
		eL	EE <sub>1</sub>	17.2		
		eSS	N <sub>1</sub>	17 31		
		M	V <sub>1</sub>	22.3		
		eT	V <sub>1</sub>	35		
135	25	c(P)	V	21 25 04.0		
L8	25	eP	VE	23 32 42.0		Local
		iS	VNE	47.5		
		i	V	51.0		
L9	26	iP	VE	00 13 34.5		Local
		iS	VNE	40.0		
136	26	iP	VNV	07 25 41.5	R	17.7 S 167.5 E h: 33 km
		i	VNV <sub>1</sub> E <sub>1</sub>	43.5		New Hebrides Is.
		ipP	V <sub>1</sub>	49.5		Mag. 5 $\frac{3}{4}$

No.	Date	Phase	Component	Time	Remarks
		eS	N <sub>1</sub>	29 59	
		e	EE <sub>1</sub>	30 09.5	
		e	E <sub>1</sub>	33.6	
137	26	✓ e(P)	VNE	11 30 55.0	C
138	26	eP	V	16 11 29.5	55.5 S 26.5 W h: 33 km Sandwich Is.
139	26	iP	VNE	20 30 48.0	C
		i	V	31 32.5	0.1 N 124.1 E h: 112 km Northern Celebes
		iPeP	V	32 35.0	
140	26	eP	V	22 22 30.0	55.7 S 26.5 W h: 33 km Sandwich Is.
141	27	iP	V	20 17 54.0	
142	27	eP	V	13 33 16.5	13.0 S 167.4 E h: 33 km New Hebrides Is. region
143	27	iP	V	14 28 45.0	
144	27	eP	V	14 45 01.0	
145	28	eP	V	12 16 05	14.3 N 119.7 E h: 115 km Off west coast of Luzon, P.I.
		i	V	09.5	
146	28	iP	V	13 20 30.5	
		i	V	33.5	
		i	V	40.0	
147	28	iP	VNEV <sub>1</sub> N <sub>1</sub>	15 03 09.0	C
		i(sP)	VNE	39.5	0.1 N 123.6 E h: 61 km Northern Celebes
		iPeP	V	10 00.0	
		i(PPP)	V	33.5	
148	29	iP	VN	12 43 35.5	R
L10	29	eP	V	15 42 09.5	Local
		eS	VN	29.0	
149	30	✓ iP	V	01 59 11.0	54.2 S 9.1 E h: 33 km Bouvet Is. region
		i	V	25.5	
150	30	i(P)	V	06 00 50.5	R
151	30	eP	V	13 25 32.0	
152	30	iP	V	15 27 17.0	
153	30	eP	V	15 46 25.5	
		e	N <sub>1</sub>	51.4	
		e	N <sub>1</sub>	54 35	
154	30	iP	V	16 11 40.0	
155	30	eP	V	16 25 45.0	26.6 N 93.3 E h: 33 km Eastern India
156	30	iP	V	19 29 09.0	C
157	30	eP	V	21 01 52.0	C
158	31	e	V	04 25 35.0	
159	31	iP	V	05 29 00.5	5.5 S 150.6 E h: 46 km Bismarck Sea

Seismograms read by  
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J.C. Jaeger  
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 CANBERRA, A.C.T. AUSTRALIA.

MONTHLY SEISMOLOGICAL BULLETIN

November, 1962.

16 APR 1963

Latitude: 35° 19' 15"S. Longitude: 143° 59' 55"E. Height: 700 M.

Instruments: Three-component Benioff variable reluctance seismographs.

$T_s = 1$  sec.

$T_g = 0.25$  secs. (Short periods VNE)

$T_g = 16$  sec. (Long period vertical  $V_1$ )

$T_g = 70$  sec. (Long period horizontals  $N_1E_1$ )

Mount Stromlo quartz clocks provide accurate time marks and 50 c/s for drum drive.

Abbreviations: R - rarefaction; C - compression; Epicentre locations are those given by USCGS.

No.	Date	Phase	Component	Time	Remarks
1	1	iP	V	09 52 38.5	23.7 S 179.6W h: 525 km. Fiji Is. region.
2	1	eP	V	13 57 (04)	17.6S 168.5E h: 21 km. New Hebrides Is.
		e	V	27.5	
		iPP	V	42.5	
		i	V	58 31.0	
3	1 ✓	eP	V	15 40 54.5	1.9N 133.0E h: 56 km. off coast of Western New Guinea.
		i	VNV <sub>1</sub>	55.0	
		i	NN <sub>1</sub>	41 03.0	
		ePP	N	42 27.5	
		iPP	VV <sub>1</sub>	29.0	
		i	VN <sub>1</sub>	35.0	
		i	V	43 19.5	
		e	V	44 00.0	
		i	VN	03.0	
		eS	N <sub>1</sub>	46 53	
		i	E <sub>1</sub>	47 02.0	
		e	E <sub>1</sub>	49 56.5	
		M	V <sub>1</sub>	59.4	
4	1	eP	V	16 00 13.0	1.7N 132.9 E h: 58 km. Off coast of W. New Guinea.
5	1 ✓	eP	V	17 59 54.5	1.9N 132.3E h: 36 km. North of Western New Guinea.
		i	NV <sub>1</sub>	55.0	
		iPP	VV <sub>1</sub>	01 27.0	
		i	V <sub>1</sub>	03 05.5	
		eS	N <sub>1</sub>	05 56	
		eSS	E <sub>1</sub>	08 55	
6	2	e	V	06 59 38.0	17.7S 167.5E h: 32 km. New Hebrides Is.
		e	V	44.5	
		eS	E <sub>1</sub>	07 03 53	
		eL	V <sub>1</sub>	03.8	
7	2 ✓	iP	VV <sub>1</sub>	14 58 55.5	C 10.0S 117.3E h: 33 km. South of Sumbawa.
		ipP	V	54 07.0	
		e(S)	N <sub>1</sub>	59 46	
		eL	N <sub>1</sub>	15 05.7	
		M	E <sub>1</sub>	07.2	

No	Date	Phase	Component	Time	Remarks
8	2 ✓	e	V	15 11 52	33.7N 141.1E h: 75 km. near east coast of Honshu.
9	2	iP	V	15 19 54.0	10.2S 117.5E h: 33 km. South of Sumbawa.
10	3	iP	V	01 06 15.5	C 7.9S 158.3E h: 36 km. Solomon Is.
11	3	iP	V	04 40 38.5	2.7S 147.4E h: 33 km. Admiralty Is.
12	3	iP ipP	VN V	05 07 45.5 55.0	R 10.3S 117.3E h: 33 km South of Sumbawa.
13	3	iP	VN	10 10 11.5	C
14	3	eP	V	14 33 33.5	15.0S 167.4E h: 134 km. New Hebrides Is.
15	3	iP	V	15 44 45.5	2.6S 139.5E h: 94 km. Near coast of New Guinea.
16	3	eP	V	13 10 25	37.6S 179.5E h: 33 km. near east coast of North Is. N.Z.
17	4	iP	VE	19 36 03.5	R
18	4	eP	V	21 14 05.0	23.1S 176.5W h: 33 km. Tonga Is. region.
19	4 ✓	eP i ipP eL	V V <sub>1</sub> V <sub>1</sub> V <sub>1</sub>	23 06 39.5 42.5 50.5 36.7	R 43.2S 75.6W h: 33 km. Off coast of southern Chile.
20	5	eP i e(S)	V E <sub>1</sub> E <sub>1</sub>	00 17 54.0 56.0 22.2	
21	6	iP	V	12 52 43.5	R
22	6	eP	V	20 57 52.5	10.5N 121.9E h: 33 km. Near west coast of Panay, P.I.
23	6	iP	VN	21 32 57.0	C 4.9S 152.7E h: 68 km. near coast of New Ireland.
24	7	iP	V	04 05 11.0	13.3N 144.3E h: 121 km. Mariana Is.
25	7	iP	V	06 20 49.5	C
26	7	iP	VNE	06 27 39.5	R 23.2S 179.9W h: 534 km. Fiji Is. region.
27	7	iP	V	11 49 42.0	20.0S 169.5E h: 91 km. Loyalty Is. region.
28	7 ✓	iP iPP iPcP eS iScP e e(SS) iScS	VNE VNE V EV E <sub>1</sub> V <sub>1</sub> E <sub>1</sub> E <sub>1</sub> V <sub>1</sub> E <sub>1</sub> N <sub>1</sub> E <sub>1</sub>	16 10 12.5 11 45.0 12 22.5 15 50 51.0 17 32.5 18 39.0 20 00.5	C 7.3S 119.3E h: 156 km. Flores Sea.
29	7	eP	V	22 06 53.5	15.5N 120.3E h: 95 km. Near west coast of central Luzon, P.I.
L1	7	iP iS	V VN	23 08 49.5 09 13.0	Regional

No.	Date	Phase	Component	Time	Remarks
L2	7	iP iS	VN VN	23.11 23.0 46.5	Regional
L3	8	eP eS	V N	00 13 12.5 35.5	Regional
L4	8	iP i eS	V V VN	00 15 55.0 57.0 16 19.0	Regional
30	8 ?	iP	VNE	00 51 34.0	C
L5	8	eP i(S) i(S)	VE V N	01 23 48.5 24 11.0 12.0	Regional
L6	8	eP e(S)	V V	02 14 49.0 15 11.0	Regional
31	8	eP i	V VNE	07 53 50.0 53.0	C 20.1S 169.6E h: 33 km. Loyalty Is. region.
32	8	eP	V	10 08 52.0	14.7S 167.1E h: 36 km. New Hebrides Is.
33	8	eP	V	16 35 51.5	15.0S 179.2W h: 403 km. Fiji Is. region.
34	9	eP	V	04 56 19.0	10.4N 123.2E h: 33 km. off east coast of Samar, P.I.
35	9	eP	V	08 31 55	20.5S 173.8W h: 522 km. Fiji Is. region.
36	9 ✓	iP	V	09 32 49.0	R 35.8N 140.3E h: 33 km. near east coast of Honshu.
37	10 ✓	eP i(pP)	V VN	01 45 17.0 36.0	C 43.8N 147.2E h: 60 km. Kurile Is.
38	10	iP	V	07 22 29.0	C 17.9S 169.4E h: 54 km. New Hebrides Is. region.
39	11 ✓	eP	V	07 50 16.0	23.9S 69.5E h: 33 km. Mascarene Is. region.
40	11	eP	V	10 42 50	23.8S 69.4E h: 33 km. Mascarene Is. region.
41	11	iP	V	12 03 43.5	19.3S 177.6W h: 547 km. Fiji Is.
42	11 ✓	iP i i isP i iPcP iS iPcS eL	V NE N E VNV <sub>1</sub> VNV <sub>1</sub> NE <sub>1</sub> V <sup>1</sup> <sub>1</sub> V <sub>1</sub>	16 15 38.0 38.5 43.0 16 01.0 17.0 18 56.0 20 15.0 22 33.5 23.2	C 12.9S 166.5E h: 77 km. Santa Cruz Is.
43	11 ✓	(oP) i	V V	22 27 23.0 25.5	43.2S 76.0W h: 33 km. Off coast of southern Chile.
44	12 ✓	eP i	V V	12 59 43.5 52.0	26.0N 123.4E h: 40 km. Ryukyu Is.
L7	12	eP eS	VN VNE	19 21 33.0 43.0	Local

No.	Date	Phase	Component	Time	Remarks
45	13	e	V	13 23 23	
46	13	eP	VN	22 00 30.0	R 56.9S 29.0W h: 33 km. Sandwich Is.
47	14	eP	V	05 21 17	15.4S 163.0E h: 36 km. New Hebrides Is.
48	14	eP	V	07 30 05.5	26.5S 176.2W h: 33 km. Kermadec Is.
49	14	eP i	V VN	07 59 19.0 21.5	C 35.7N 140.8E h: 61 km. Central Honshu.
50	14	iP i i i eS	VN V VNE V E	22 07 05.0 15.0 13.5 25.0 13 23.5	C 0.3S 123.0E h: 92 km. Northern Celebes
51	15	eP	V	11 36 19.0	R 21.0S 173.4W h: 590 km. Tonga Is.
52	15	eP	V	16 31 01.0	C 6.9S 146.7E h: 40 km. New Guinea.
53	15	eP	V	20 42 40.5	
54	15	eP	V	23 54 26.0	
55	16	i	V	00 03 40.0	
56	16	iP	VE	02 25 42.0	C 13.0S 173.4W h: 612 km. Fiji Is. region.
57	16	iP i eS e(SS) eLq eLr M	V V N <sub>1</sub> E <sub>1</sub> N <sub>1</sub> E <sub>1</sub> V <sub>1</sub> V <sub>1</sub>	07 30 40.5 31 13.5 40 31 46 02.5 52.2 55.1 03 01.3	R 32.3S 111.1W h: 43 km. Easter Is. region.
58	16	eP iS	V VN	07 37 03.0 03.0	Local
58	16	iP	VN	10 01 31.0	C 19.0N 145.3E h: 207 km. Mariana Is.
59	16	iP i e(L) e M	V VV <sub>1</sub> E <sub>1</sub> V <sub>1</sub> V <sub>1</sub> E <sub>1</sub>	21 21 22.0 25.0 39.2 49.4 55.5	R 13.5N 93.2E h: 33 km. Andaman Is.
60	17	iP i	VE V	00 33 07.0 14.5	C
61	17	eP i	V V	01 21 22.0 47.5	C 2.7S 126.9E h: 37 km. Molucca Sea.
62	17	iP i i i iPeP ipP isP iScP iS iScS	VN VNE V V V V V V VNE N	14 29 01.0 02.0 11.0 23.5 30 26.5 54.0 31 53.5 33 21.0 35 02.5 37 49.0	R 2.3N 121.7E h: 609 km. Celebes Sea.

No.	Date	Phase	Component	Time		Remarks
63	18 ✓	iP	VN	06 50 52.5	R	0.2S 125.1E h: 56 km. Molucca Sea.
		ipP	VN	51 08.5		
		isP	VN	14.5		
		iPcP	V	✓ 52 49.5		
64	18	iP	V	12 07 34.0		16.4S 174.1W h: 129 km. Tonga Is. region.
65	18	iP	VN	22 13 39.5	R	
		i	V	14 04.5		
66	19	iP	V	04 26 09.0	R	24.3N 122.6E h: 53 km. Ryukyu Is.
67	19	iP	VN	08 53 39.5	C	
68	19	cP	V	12 51 20.5		
69	19	iP	VN	14 04 25.0	C	60.7S 152.9E h: 33 km. 700 miles south-west of Macquarie Is.
		eL	E <sub>1</sub>	09.8		
70	19	e	V	14 52 40.5	R	
71	20	iP	V	10 17 12.0		6.1S 154.5E h: 69 km. Solomon Is.
72	20	iP	VN	13 07 47.5	C	1.3N 126.4E h: 109 km. Celebes region.
73	20	iP	V	13 02 24.0		
74	20	e	V	22 47 53		
		eT	V	23 03 26		
		T max.	N	04 41		
	20	eT	V	23 23 31		
75	21	iP	V	19 45 58.5	C	21.1S 179.2W h: 626 km. Fiji Is. region.
		iPcP	V	48 34.0		
76	21	eP	V	21 36 04.0		
77	22	iP	V	07 42 37.0	C	13.2S 167.6E h: 33 km. New Hebrides Is.
		iPP	V	43 11.5		
78	22	iP	V	20 33 43.0	R	30.2S 178.6W h: 298 km. Kermadec Is. region.
		e	E	47 23		
79	23	iP	VN	10 48 14.0	R	4.0S 142.3E h: 100 km. Bismarck Sea.
		ipP	V	37.0		
		isP	V	47.5		
80	23	iP	V	12 16 24.0	R	
L9	23	iP	V	15 09 53.0		Local
		e	V	10 10.5		
		e	V	16.0		
		i	VNE	16.5		
81	23	iP	V	18 03 30.5		
82	23 ✓	i	V	23 16 41.5		
83	24	i(P)	V	08 17 10.0		18.5S 175.4W h: 33 km. Tonga Is.
84	24 ✓	(cP)	V	10 39 24.5	R	24.8S 180.0E h: 500 km. Fiji Is. region.
		i	VE	✓ 25.0		
85	24	iP	V	17 29 32.5		2.5S 148.9E h: 32 km. Bismarck Sea.
		i	VN	36.0		
		i	V	49.0		



No.	Date	Phase	Component	Time	Remarks
86	25	eP	V	10 00 21.5	10.6N 125.2E h: 47 km. near north coast of Leyte, P.I.
87	25	e	V	15 02(04)	5.9S 143.4E h: 33 km. New Britain region.
88	25	iP i	VN V	20 24 23.5 25 01.0	C
89	26	i(P)	V	09 43 51.5	
90	26	iP	VE	12 40 41.0	R
91	26 ✓	iP eL	V V <sub>1</sub> E <sub>1</sub>	13 05 18.5 14.9	R 23.3S 175.3W h: 19 km. Tonga Is.
92	26	eP	V	23 02 41	
93	27 ✓	iP ipP esP iPP	VN VNV <sub>1</sub> E V	07 08 23.5 04 03.0 19.0 05 43.5	R 25.1N 122.9E h: 143 km. Ryukyu Is.
94	27 ✓	e i(pP) i	V V V	12 16 (53) 17 23.5 44.0	May be 14.9N 119.9E h: 35 km. Near west coast of Luzon, P.I.
95	27 ✓	eP e	V E <sub>1</sub>	16 59 02.5 17 14 04	12.2N 143.3E h: 33 km. Mariana Is.
96	27	iP	VN	17 15 40.5	
97	28 ✓	eP i(sP) iPcP eL	VN V V E <sub>1</sub>	02 44 21.5 35.0 45 53.5 59.5	R 12.1N 143.7E h: 33 km. Mariana Is.
98	28 ✓	eP i iPcP	V VNE V	15 37 01.5 02.0 25.0	9.9N 93.4E h: 53 km. Andaman Is.
99	28	iP	V	20 00 03.0	
100	29	iP	V	04 04 17.0	29.4S 177.9W h: 140 km. Kermadec Is.
101	29	e	V	07 36 (54)	
102	29 ✓	eP eL	V E <sub>1</sub>	09 10 27.0 20 03	22.3S 175.9W h: 33 km. Tonga Is.
103	29	i(P)	V	11 54 25.5	
104	29	iP	VN	12 53 11.5	R 13.9N 145.4E h: 100 km. Mariana Is.
105	29	e	V	13 23 52	
106	29 ✓	iP i ipP iPP eS isS M	V VN E V <sub>1</sub> E <sub>1</sub> E <sub>1</sub> V <sub>1</sub>	19 12 01.0 04.5 10.5 33.0 16 27 42 20.2	R 17.3S 163.5E h: 33 km. New Hebrides Is.
107	29	i(P) i	V V	19 13 47.5 52.0	
108	30 ✓	iP ipP	V VN	17 01 23.5 33.5	3.2N 127.1E h: 53 km Molucca Passage.
109	30 ✓	ePS	E <sub>1</sub>	22 21 17	17.4N 99.6W h: 51 km. Guerrero, Mexico.

No.	Date	Phase	Component	Time	Remarks
110	30	eP	V	23 13 55.5	5.5S 145.9E h: 79 km.
		i	V	14 19.5	Near north coast of
		iPP	V	54.5	New Guinea.
		eL	E <sub>1</sub>	25.2	

Seismograms read by Jennifer Clay.

J. C. Jaeger,  
Professor of Geophysics.

~~17 JUN 1962~~

Department of Geophysics  
Australian National University,  
Canberra, A.C.T., Australia.

Monthly Seismological Bulletin  
December, 1962.

Latitude: 35° 19' 15"S. Longitude: 143° 59' 55"E. Height: 700M.

Instruments: Three-component Benioff variable reluctance seismographs.

$T_g = 1$  sec

$T_g = 0.25$  secs. (Short periods VNE)

$T_g = 16$  secs. (Long period vertical  $V_1$ )

$T_g = 70$  secs. (Long period horizontals  $N_1E_1$ )

Mount. Stromlo quartz clocks provide accurate time marks and 50 c/s for drum drive.  
Abbreviations: R - rarefaction ; C - compression; Epicentre locations are those given by USCGS.

No.	Date	Phase	Component	Time	Remarks
1	1 ✓	iP eL	V $E_1$	04 22 54.0 C 30.5	29.7S 177.7W h: 52 km Kermadec Is.
2	1 ✓	iP	VNE	21 08 43.5 R	17.7S 178.7W h: 620 km Fiji Is. region
3	2	iP i(pP) iPP eL eL M	VNE V V $E_1$ $V_1$ $E_1$	05 36 36.0 R 44.5 37 27.0 43.0 44.2 47.4	9.9S 159.9E h: 34 km Solomon Is.
4	2	iP ipP	V V	16 18 06.0 13.5	18.9S 168.5E h: 33km New Hebrides Is.
5	2	iP	V	17 38 49.5 R	
6	2	e	V	22 45 14	
7	3	iP	VN	03 54 32.5 C	
8	3	i	V	09 40 15.5	
9	4	e	V	01 37 16.5	Possibly 08.0S 147.7E New Guinea h: 91 km
10	4 ✓	i	V	07 51 50.5	
11	4	i(pP) eS eL eL	V $N_1$ $E_1$ $V_1$	10 40 35.5 45 14 47 04 50.3	6.1S 149.9E h: 33 km New Britain Is.
12	4 ✓	eP i eLq eL	V V $N_1$ $V_1$	16 47 28.5 48 46.5 56.5 17 00.9	16.5S 172.8W h: 33 km Samoa Is. region
13	4	iP i	V V	17 39 12.5 28.5	
14	4	iP	VN	18 00 23.0 R	3.3S 131.4E h: 33 km Ceram Is. region

No.	Date	Phase	Component	Time	Remarks
15	4	iP	VNEV <sub>1</sub>	19 39 10.0	C 4.9 N 122.8 E h: 627 km Celebes Sea
16	5	eP	V	01 21 44.5	10.9 S 161.6 E h: 33 km Solomon Is.
17	5	iP	VN	05 17 07.0	R 17.7 S 173.6 W h: 565 km Fiji Is region
18	5	iP	V	22 09 33.5	C
19	6	eP	V	18 02 15.0	3.7 S 131.4 E h: 33 km Ceram Is region
20	7	iP	V	09 48 26.5	C 38.0 N 106.3 E h: 33 km Central China
L1	7	eP is	VN VN	12 53 57.5 54 16.5	Local
21	7	iP i ipP i i isP is iScS i esS i e eLq	V VNE V VN VV <sub>1</sub> V <sub>1</sub> NN <sub>1</sub> E <sub>1</sub> E <sub>1</sub> NE <sub>1</sub> E <sub>1</sub> N <sub>1</sub> E <sub>1</sub> E <sub>1</sub> E <sub>1</sub>	14 13 35.0 36.0 15 05.0 06.0 11.5 45.0 21 42.0 22 51.0 52.0 24 19 25 23 21 30 54	R 29.2 N 139.2 E h: 411 km Bonin Is region
22	8	eP i i epP	V V V V	00 04 24.0 25.0 41.0 05 05.5	13.9 N 120.6 E h: 173 km Near west coast of central Luzon, P.I.
23	8	iP	V	11 34 23.5	4.9 S 154.0 E h: 100 km New Britain region
24	8	eP i ipP isP iPP eS eL eL e	VV <sub>1</sub> VNE VN V N E <sub>1</sub> N <sub>1</sub> V <sub>1</sub> E <sub>1</sub>	18 25 54.0 54.5 26 08.0 11.5 27 23.5 31 54 35.3 36.6 37.4	15.2 S 173.7 W h: 33 km Tonga Is. region
25	8	ePKP i iPP i ipPP ipPPP eSKS eS iSKP e esS iSS e	V V V VV <sub>1</sub> VV <sub>1</sub> V <sub>1</sub> N <sub>1</sub> E <sub>1</sub> V <sub>1</sub> E <sub>1</sub> E <sub>1</sub> V <sub>1</sub> E <sub>1</sub> E <sub>1</sub> V <sub>1</sub>	21 44 52.5 45 37.5 50.0 47 32.5 53.5 50 06.5 44 52 30 54 21.0 30 56 20.5 22 00 36 49	25.8 S 63.4 W h: 620 km Salta-Santiago Del Estero Provinces border, Argentina

No.	Date	Phase	Component	Time	Remarks
25	8	e esSS eSKPP'	E <sub>1</sub> V <sub>1</sub> E <sub>1</sub>	22 03 13 04 06.0 08 17	
26	8	eP i	V V	21 55 43 46.0	
27	8	iP iPcP	VV <sub>1</sub> V	23 08 02.5 07.0	R 50.5 N 176.8 W h: 33 km Andreanof Is., Aleutian Co.
28	9	e	V	03 23 30	
29	9	iP	VN	05 27 43.0	R
30	9	iP	V	07 36 03.5	C 5.4 S 147.9 E h: 173 km Near north coast of New Guinea
31	9	iP	V	14 22 17.5	22.4 S 177.0 W h: 204 km Tonga Is. region
32	9	iP	V	14 56 22.0	
33	9	iP ipP	VN V	17 44 12.0 50.5	C 7.1 S 129.1 E h: 194 km Banda Sea
34	9	eP'	V	21 01 25.0	17.7 S 173.6 W h: 60 km Tonga Is region
35	10	iP ipP iPcP	V V V	05 07 39.5 49.5 08 03.0	R 28.3 S 62.7 E h: 33 km Indian Ocean
36	10	eP eL	V E <sub>1</sub>	06 17 50 24	8.4 S 157.4 W h: 30 km Solomon Is.
37	10	iP	V	10 34 27.5	
38	10	iP eL	V V <sub>1</sub> E <sub>1</sub>	17 02 10.5 11.0	27.2 S 176.8 W h: 33 km Kermadec Is region
39	10	iP	VN	21 55 52.0	C
40	10	iP	V	23 12 47.5	8.0 S 103.6 E h: 193 km Near south coast of central Java
L2	10	eP e i	V V V	21 33(13.5) 29.0 29.5	Local
41	11	eP	V	02 39 09.0	43.9 S 124.6 E h: 33 km South of Australia
42	11	iP	V	14 00 20.0	R 19.7 S 173.4 W h: 630 km Fiji Is.
43	11	eP	V	17 58 04.0	24.8 S 177.6 W h: 93 km Tonga Is.
44	12	eP i ipP isP	VV <sub>1</sub> VN <sub>1</sub> VV <sub>1</sub> VV <sub>1</sub>	10 14 56.0 58.5 15 13.0 27.5	4.8 S 153.8 E h: 94 km New Britain

No.	Date	Phase	Component	Time	Remarks
44	12	i	V	10 15 32.0	
		iPPP	V <sub>1</sub>	16 18.0	
		eS	N <sub>1</sub>	19 56	
		eSS	N <sub>1</sub>	21 42.0	
		e	V <sub>1</sub>	58.5	
		i	N <sub>1</sub>	22 11.0	
45	12	iP	V	14 09 04.5	R 60.3 S 25.9 W h: 33 km Sandwich Is region
46	12	iP	VNE	23 06 55.0	R 4.6 N 96.5 E h: 133 km Sumatra
47	13	eP	V	00 35 52.0	7.2 N 93.1 E h: 33 km
		i	V	59.0	Nicobar Is.
48	13	iP	V	08 19 41.5	R 4.7 S 153.8 E h: 112 km New Britain
49	13	eP	V	16 53 54.0	2.8 N 127.9 E h: 33 km Halmahera region
50	13	iP	V	23 30 43.5	C 20.4 N 122.0 E h: 147 km Batan Is., P.I.
	14	i	V	00 35 52.0	
51	14	eP	V	08 59 55.0	4.8 S 153.8 h: 117 km Solomon Is.
52	14	e	V	10 59 21.5	
53	15	iP	V	02 43 56.0	C 17.3 S 173.9 W h: 509 km Fiji Is.
54	15	iP	VN	02 57 31.5	R
55	15	eP	V	14 23 55	4.6 S 152.1 E h: 53 km New Britain.
L3	15	(e)	V	21 42(44)	Regional
		(eS)	V	43 35.5	
56	16	iP	VN	05 32 02.5	3.1 S 139.3E h: 43 km Near North coast of New Guinea.
57	17	iP	VN	02 22 53.0	R 4.2 S 127.6 E h: 33 km
		iP	V	23 05.0	Ceram
		eL	E <sub>1</sub>	35.5	
58	17	iP	VNEV <sub>1</sub>	11 07 52.4	R 2.1 N 122.9 E h: 393 km
		iPeP	V	09 23.0	Celebes Sea
		iSP	N	53.0	
		iSeP	VV <sub>1</sub>	12 40.0	
		eS	VN <sub>1</sub>	13 53.0	
		iS	EE <sub>1</sub>	53.5	
		iSeS	NNE <sub>1</sub>	17 04.0	
		e	E <sub>1</sub>	33.5	
		eL	E <sub>1</sub>	13.9	
59	17	iP	V	12 37 34.5	R 0.2 N 124.3 E h: 126 Km
		i	V	43.5	Halmahera region.
60	17	eP	V	17 13 43.5	
		i	V	19 12.0	
61	17	eP	V	17 33 05.5	33.0 N 106.1 E h: 33 km Ningxia Province, China.
62	17	iP	V	22 09 47.0	3.2 S 120.5 E h: 151 km Flores Sea.

No.	Date	Phase	Component	Time	Remarks
63	18 ✓	iP i iPeP ipP	VN V V V	09 04 02.5 33.5 54.5 05 14.5	C 21.6 N 143.1 E h: 303 km Mariana Is. region.
64	18 ✓	iP i eSSS	V V N <sub>1</sub>	10 33 33.5 40 32.0 46 24	23.3 S 173.2 W h: 214 km Kermadec Is.
65	18	iP	V	11 35 26.0	C 24.7 S 180.0 h: 406 km Fiji Is. region.
66	18	iP i i	V V V	12 45 00.0 14.0 50.5	2.7 N 123.1 E h: 96 km Halmahera Region.
L4	18	eP eS	V V	13 31 17.0 23.0	Local
67	19	eP	V	11 07 30.0	31.2 S 173.1 W h: 23 km Kermadec Is. region.
68	19 ✓	eP ipP iPPP eS	VN V V E <sub>1</sub>	13 02 27.5 A 52.0 04 43.5 07 25	C 4.7 S 154.0 E h: 93 km Solomon Is.
L5	19	e eS	V N	14 17(39) 13 20	Regional
69	19	i	V	15 15 25.0	
70	19	iP	V	20 21 27.0	23.9 S 179.4 W h: 451 km Kermadec Is. region
71	20	iP i	VNE V	02 07 16.0 26.5	R
72	20	iP	VE	03 39 35.5	R 20.0 S 174.1 W h: 33 km Tonga Is. Region.
73	20 ✓	iP ipP eS	V V E	03 52 41.5 54 12.0 56 55.0	23.4 S 179.3 E h: 512 km Fiji Is. Region
74	20	i	V	12 41 50.5	
75	20	e	V	13 16 03.5	
76	20	eL	E <sub>1</sub>	13 32.3	61.3 S 161.2 E h: 29 km Balleny Is. region.
77	20	eP	V	19 41 47.0	17.8 N 144.6 E h: 33 km Mariana Is.
78	21	eP ✓ i ipP isP eFP eS e eL M	VN VNE VN VN V E <sub>1</sub> N <sub>1</sub> V <sub>1</sub> V <sub>1</sub>	00 52 09.0 10.0 26.0 36.0 53 50.0 53 22 01 01 12 45 10.7	
79	21	e	V	01 32 31	4.2 S 152.9 E h: 150 km New Britain region.
80	21	iP	V	03 33 16.0	R 15.4 N 121.3 E h: 46 km Central Luzon, P.I.
81	21	eP ✓	V	03 52 41.5	17.0 S 173.4 W h: 53 km Tonga Is. region.

No.	Date	Phase	Component	Time	Remarks
82	21 ✓	eP e eSKS eS	V N <sub>1</sub> E <sub>1</sub> E <sub>1</sub>	03 58 08.5 09 06 41 ✓ 49 07 18	52.4N 163.5W. h: 33 km. Fox Is, Alutian Is.
83	21 ✓	eP i	V V	09 26 03.5 ✓ 30.0	
84	21 ✓	iP	VNV <sub>1</sub>	09 45 08.5 ✓	R 42.4N. 142.3E. h: 27 km. Near south coast of Hokkaido.
85	21	iP	V	17 42 04.5	4.6S. 153.8E. h: 95km. New Briatin region.
86	21 ✓	eP	VN	18 30 24.0 ✓	15.3N. 121.7E. h: 55 km. Near west coast of central Luzon, P.I.
87	22 ✓	eP i ipP eS iS i isS M M	VE VN V VE N <sub>1</sub> V <sub>1</sub> E <sub>1</sub> N <sub>1</sub> V <sub>1</sub>	00 57 25.5 26.5 37.5 01 01 33.5 35.0 37.0 45.5 06.4 10.3 ✓	R 22.0S. 170.1E. h: 33 km. Loyalty Is. region.
88	22 •	eP ipP	V V	01 18 05.5 14.5	22.0S. 170.1E. h: 33 km Loyalty Is. region.
89	22 ✓	iP isP eS	VE N E	01 33 51.5 34 06.5 ✓ 37 53.5	C 21.9S. 170.1E. h: 33 km. Loyalty Is. region.
90	22 ✓	eP i ipP	V VN V	02 07 39.5 41.0 ✓ 55.5	R 9.2S. 112.4E. h: 69 km. Near south coast of Java.
91	22	eP	VN	09 32 32	0.9N. 125.3E. h: 33 km. Molucca Sea.
92	22	eP	V	14 17 49.5	4.7N. 125.7E. h: 13 km. Near south coast of Mindanao, P.I.
93	22 ✓	eP iPcP i eS e	V V V E <sub>1</sub> E <sub>1</sub>	15 33 57.5 34 00.5 20.0 ✓ 45 03 51 26	52.5N. 163.3W. h: 47 km. Fox Is., Aleutian Is.
94	22	iP	VN	23 34 00.0	C 5.1S. 151.2E h: 105 km. New Britain region.
95	23	iP	V	00 07 21.5	
96	23	iP	V	03 51 05.0	C
97	23	eP	V	08 23 59	
98	23	iP i	VN V	10 31 35.5 32 13.0	R 15.3N. 121.7E. h: 52 km. Near east coast of Luzon, P.I.
99	23	iP	V	15 39 53.5	R 33.1S. 179.4W. h: 31 km. Off north coast of North Island, N.Z.
100	23	iP	V	19 05 43.0	R



No.	Date	Phase	Component	Time	Remarks	
101	23	iP	VE	23 50 58.5		
102	24	iP	V	00 36 31.5	59.1S. 26.0W. h: 33 km. Sandwich Is. region.	
103	24	eP	V	11 45 (50)	22.0S. 170.1E. h: 33 km. Loyalty Is. region.	
104	25	iP	V	01 46 14.5		
105	25	iP	V	13 37 32.0		
106	26	e	V	06 32 (20)	12.8N. 60.9W. h: 32 km. Windward Is.	
106	26	e(P) e(S)	V E	10 52 14.5 45	Regional	
107	26	i(P)	VN	13 46 31.5	R	
108	26	iP ipP isP e(SKS) iS eSS	V V V N <sub>1</sub> E <sub>1</sub> E <sub>1</sub>	22 38 16.5 26.0 31.0 48 (43) 49 13.0 55 16	53.9N 168.7E h: 33 km. Komandorskie Is.	
109	26	iP ipP	V V	23 59 15.5 26.5	C 54.0N 168.8E h: 33 km. Komandorskie Is.	
110	27	iP	V	04 45 08.5		
111	27	iP	V	08 34 14.0	C 12.5N 120.9E h: 33 km. Near coast of Mindoro, P.I.	
112	27	e	V	12 56 (19)	9.1S. 113.1E. h: 40 km. Off coast of Java.	
113	27	iP	VN	14 03 13.5	R 4.9S. 145.1E. h: 35 km. Near north coast of New Guinea.	
114	27	eP	V	18 30 20.0	39.9N. 142.0E. h: 36 km. Near west coast of southern Honshu.	
	28	No records from 03.38 until 24.00				
115	29	eP i (isP) i eScP i	VV <sub>1</sub> VNE V V V V	04 20 05.0 06.0 19.0 22.5 25 42.0 44.5	C 2.4N. 127.1E. h: 33 km. Halmahera region.	
116	29	e	V	10 06 (01)		
117	29	ePS eSS eL	E <sub>1</sub> E <sub>1</sub> V <sub>1</sub>	11 10 11 16 20 33.9	20.0S 69.9W h: 46 km. Northern Chile	
118	29	iP e e(S) M	VE N <sub>1</sub> E <sub>1</sub> V <sub>1</sub>	14 53 31.0 56 26 58 23 15 03.5	R 31.2S 177.9W h: 43 km. Kermadec Is region.	
119	29	eP	V	13 19 49.5	31.6S 177.8W h: 33 km. Kermadec Is. region.	
120	29	eP	V	13 25 31	31.5S 177.6W h: 33 km. Kermadec Is. region.	
121	29	eP	V	19 46 25.0		
122	30	eP	V	02 03 24.0	14.9S 166.6E h: 49 km. New Hebrides Is.	

N	Date	Phase	Component	Time	Remarks
L7	30	iP	VNE	02 29 07.0	Local
		i	VE	08.0	
		iS	VNE	15.5	
		i(L)	N	16.5	
123	30	i	V	07 04 24.5	C
124	30	eP	V	07 16 59.0	15.4N, 119.7E. h: 33 km. West of Luzon, P.I.
125	30	eP	V	13 29 22.0	23.2S, 175.8W. h: 47/km Kermadec Is.
126	30	iP	V	15 53 25.0	R
127	30	iP	V	17 23 54.0	R
128	30	eP	V	17 52 (14)	21.1S, 169.3E. h: 71 km. Loyalty Is.
129	30 ✓	eP	V	18 22 27.0	R 4.7S 153.7E h: 116 km. New Britain
		i	V	29.0	
		ipP	V	53.5	
		isP	V	23 08.0	
		iPPP	V	44.0	
		iS	N <sub>1</sub> E <sub>1</sub>	27 23.0	
		isS	E <sub>1</sub>	28 02.5	
		iScP	E <sub>1</sub>	46	
		eSS	E <sub>1</sub>	29 11	
		i	V <sub>1</sub>	22.5	
		i	E <sub>1</sub>	30 46	
130	30	eP	VN	21 25 02.5	C 5.0N, 125.8E. h: 33 km. Banda Sea.
131	30	e	V	22 56 37	27.1S, 176.5W. h: 49 km. Kermadec Is.
132	31	eP	V	02 55 43.0	3.1S, 120.9E. h: 33 km. Flores Sea.
		iPcP	V	53 04.5	
133	31	e	V	04 29 25.5	
134	31 ✓	eP	V	11 10 51.0	R 0.1S, 99.3E. h: 33 km. Near coast of Sumatra
		iPcP	V	11 47.5	
		eL	E <sub>1</sub>	32.1	
135	31	e(P)	V	11 25 29.0	
136	31	iP	V	14 12 06.0	
137	31	iP	VN	17 41 17.5	C
		i	V	23.5	
138	31	(eP)	V	17 25 20.5	
		i	V	21.5	
139	31	e	V	18 38 04.5	15.3N, 121.5E. h: 67 km. Luzon, P.I.
L8	31	eP	V	19 11 08.0	Regional
		(eS)	N	32.0	
		e	E	37.5	
140	31 ✓	eP	VV <sub>1</sub>	19 45 16.0	R 22.7S, 171.4E. h: 39 km. Loyalty Is. region.
		i	VNEE <sub>1</sub>	16.5	
		isP	V <sub>1</sub>	31.0	
		eL	E <sub>1</sub>	49 51	
		eL	V <sub>1</sub> E <sub>1</sub>	51.3	
141	31	iP	V	21 50 39.5	23.3S, 173.4W. h: 239 km. Kermadec Is. region.