CANBERRA. 1959. 302 all 1959 selected stations copied MH

Department of Geophysics
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Enclosed is a copy of the monthly bulletin from the Australian National University's seismograph station at Spring Valley, Canberra. This station was installed several months ago, and is now running reliably enough that weekly and monthly bulletins can be issued.

Weekly bulletins will be sent to the IGY World Data Centres, Djakarta, Apia, Pasadena, and stations in New Zealand, New Guinea, and Australia. Monthly bulletins will be sent initially to twenty-seven stations in different parts of the world.

The Spring Valley station is located about ten miles east of Canberra, near Mt. Stromlo Observatory. The foundation is Silurian porphyry, and the entire station is contained in a vault excavated in a hillside and covered with sod. There are no trees near the vault, and the nearest through road is more than half a mile away, so that the noise level is low.

The station is equipped with three Benioff variable reluctance seismographs, north-south, east-west, and vertical. Each drives two galvanometers, one of 0.25 second period, the other of 70 second period. Phases read from the different components are identified in the Bulletins as follows:

V	vertical short-period
N	north-south short-period
E	east-west short period
V_1	vertical long-period
N_1	north-south long period
E_1	east-west long period

Phases are identified as compression or rarefaction by "C" or "R", respectively.

The geographical coordinates of the station are 35° 19' 15" south latitude, 148° 59' 55" east longitude. The elevation of the station, as estimated from a 1:63000 topographic map of the area, is 650 meters above mean sea level.

Times on the record are read to a tenth of a second, but they will be reported only to the nearest half-second in the bulletins until a more accurate timing system is installed. At present, minute marks are taken from an IBM clock. Time signals are put on the records manually once a day, from WWV or the Australian Broadcasting Commission's time signals. The time correction may be in error by ± 0.1 second.

A cable is being installed from the National Time Service in Mt. Stromlo Observatory to the seismograph vault, and when it is completed, minute marks will be put on the records directly from the National Time Service. Notification will be given in the Bulletins when the change takes place.

A subsidiary network of four stations in the Snowy Mountains area (all contained in the square degree $35\frac{1}{2}^{\circ}$ - $36\frac{1}{2}^{\circ}$ S., 148° - 149° E.) is being operated by the Snowy Mountains Authority, and the records are interpreted and stored at the Australian National University. Three of these stations are equipped with Benioff vertical seismographs, and one has a three-component Benioff system. Records from these stations are being used to locate and study local earthquakes, and will be used to study crustal structure by the phase velocity method. Readings and copies of the records from these stations may be obtained on request.

Correspondence should be addressed to me.

November 1, 1958

J.C. Jaeger
Professor of Geophysics

CANBERRA

AUSTRALIAN NATIONAL UNIVERSITY, DEPARTMENT OF GEOPHYSICS.
PROVISIONAL SEISMIC BULLETIN
JANUARY, 1959

Latitude: 35° 19' 15" S. Longitude: 148° 59' 55" E. Height: 650 M.

Instruments: Benioff variable reluctance seismographs, three components: T_g = 0.25 sec. (V,N,E); T_g = 70 sec. ($V_1N_1E_1$).

No.	Date	Time.	Phase	Remarks
1	Jan. 1	07 33 07.0	iP VN	Rarefaction Origin:-
		33 18.0	ipP V	07 26 12 USCGS.
		33 32.5	i VN	
		33 52.0	iPPP V	
		42.4	eL V_1E_1	
2	1	07 55 34.5	iP VN	Rarefaction Origin:-
		56 45.0?	i V	07 49 35 USCGS.
		56 35.0	iPP V	
		56 52.5	iPPP V	
		08 06.4	eL V_1E_1	
A	2	02 33 12.0	iP VN	Local
		33 40.0	iS VN	
3	3	07 41 11.5	iP VN	Rarefaction
4	3	09 10 36.0	iP VN	Compression
5	3	15 52 05.0	iP VN	Rarefaction
6	3	17 15 44.0	e V	
		15 46.0	i VN	
7	3	22 16 33.5	iP VN	Compression
8	4	03 24 32.5	iP VN	Rarefaction Origin:-
				03 16 36 USCGS
9	4	04 15 05.0	iP VN	Rarefaction
10	4	21 15 46.0	iP VN	Rarefaction Origin:-
		18 07.0	I V	21 08 52 USCGS
		18 33.0	i(PP) V	
		19 06.5	i(PPP) V	
11	5	09 52 01.5	iP VN	Compression Origin:-
		54 00.0	i V	09 46 42 USCGS
		56 09.0	iS VN	
		56 18.0	i N	
12	6	14 56 48.5	iP VN	Compression Origin:-
		57 03.5	ipP VN	14 48 03 USCGS
13	8	01 53 22.5	iP VN	Origin:-(01 33 48) USCGS
14	8	04 12 48.0	iP VN	Origin:-04 06 46 USCGS
15	8	22 42 40.0	iP V	Rarefaction Origin:-
		44 09.5	iPPP V	22 36 08 USCGS
16	10	05 59 08.5	iP VN	Compression
17	10	22 00 12.0	iP VNE	Rarefaction
18	10	23 24 33.5	iP VNE	
19	11	01 06 24.5	iP VNE	Rarefaction
20	11	05 30 01.5	iP VN	Rarefaction
21	11	06 41 02.5	iP V	Rarefaction
22	11	15 31 13.5	iP V	Rarefaction
23	11	18 38 57.5	eiP V	
		39 14.5	i VN	

No.	Date	Time	Phase		Remarks.
24	Jan 12	05 31 05.0	iP	V	Rarefaction
25	12	17 37 04.5	iP	VN	Compression
26	12	17 50 10.0	iP	VN	Rarefaction Origin:- 17 41 29 USCGS
27	13	01 24 14.5	iP	VN	Rarefaction Origin:- 01 15 25 USCGS
		24 37.5	i	V	
B	13	04 46 52.0	iP	VN	Local
		47 14.0	i	VN	
28	13	07 43 59.5	eP	VN	Origin:- 07 20 58 USCGS
		44 04.0	i	V	
29	13	09 49 20.0	iP	VN	Rarefaction Origin:- 09 37 18
30	13	23 57 4015	e	V	
31	14	03 11 43.0	iP	VN	Rarefaction Origin:- 03 05 52 USCGS
		11 53.0	i		
32	14	13 23 13.5	iP	V	Compression Origin:- 13 17 39 USCGS
C	14	17 48 47.0	eP	VN	Local
		48 55.5	iS	V	
		49 01.	L	V	Co
33	15	07 37 41.5	iP	V	Compression
34	15	21 25 44.5	iP	VN	Rarefaction Origin:- 21 20 26 USCGS
		27 14.5	iPP	V	
		27 34.5	iPPP	V	
		29 59.5	iS	N	
		31 39.5	i	V	
35	16	08 24 22.0	iP	VN	Rarefaction
36	16	10 56 59.5	iP	VNE	Rarefaction Origin:- 10 51 52 USCGS
		57 11.0	ipP	V	
37	16	22 44 22.5	iP	VN	Compression
38	17	09 33 35.5	iP	VN	Rarefaction Origin:- 09 24 35 USCGS
		33 40.0	i	E	
		33 44.0	ipP	V	
		33 55.5	iPcP	V	
39	17	11 36 37.5	iP	VNE	Rarefaction Origin:- 11 30 46 USCGS
		36 47.0	ipP	V	
		37 29.0	i(PP)	V	
		38 45.5	i(PcP)	V	
D	17	12 44 23.0	i	V	Local
40	17	13 50 45.0	i	VE	
		50 50.0	i	V	
41	18	05 01 07.5	i	VNE	Local
		01 34.5	i	VNE	
42	18	09 33 27.3	i	VNE	
		34 32.5	i	V	
43	18	14 47 21.0	iP	VNE	Rarefaction
		47 32.0	ipP	VN	
		48 52.5	i(PPP)	V	

No.	Date	Time	Phase		Remarks
44	Jan 18	19 16 09.5	iP	VNE	Rarefaction
		16 16.0	ipP	V	
45	18	19 32 10.0	iP	VN	Compression Origin:-
		32 21.0	ipP	V	19 25 45 USCGS
46	18	22 29 21.0	iP	VNE	Compression Origin:-
		30 31.5	ipP	V	22 23 15 USCGS
E	19	05 59 58.0	e	VN	Local
F	19	08 53 55.0	iP	VNE	Melbourne
		54 42.0	iS	VN	
		54 56.5	iL	V	
G	19	10 31 32.0	iP	V	Compression
47	19	10 49 15.5	iP	V	Compression Origin:-
		49 26.5			10 43 42 USCGS
48	20	15 35 22.0	e	VN	
49	20	16 52 52.5	iP	VN	Compression Origin:-
		17 04 38.0	eL	VN	16 46 11 USCGS
50	20	18 43 51.5	iP	V	Rarefaction
		43 56.5	i	N	
51	21	11 18 23.0	iP	VN	Rarefaction Origin:-
					11 08 10 USCGS
52	23	06 24 54.5	i	VN	Compression
53	24	05 20 00.0	iP	VNE	Compression Origin:-
		20 20.0	i	V	05 08 35 USCGS
		21 23.5	i	V	
		21 43.5	i	V	
54	24	07 59 13.0	iP	VNE	Rarefaction Origin:-
		59 17.5	ipP	VNE	07 50 52 USCGS
		59 27.0	i	V	
		59 40.5	iPP	N	
55	24	10 05 40.5	iP	V	Rarefaction
56	24	15 58 50.5	iP	VE	Compression Origin:-
		58 02.5	i	V	15 51 47 USCGS
57	24	20 15 27.5	iP	V	Rarefaction
58	24	21 23 03.0	e	V	
59	25	05 20 36.0	iP	VNE	Compression
60	26	05 25 20.0	iP	VN	Rarefaction
61	26	14 49 41.5	iP	V	Rarefaction
62	26	17 52 09.5	iP	V	Compression Origin:-
					17 46 51 USCGS
63	27	00 39 42.0	eiP	VN	Origin:- 0020 22.
					USCGS
64	27	02 26 00.5	iP	VN	Compression
65	27	05 05 19.0	iP	VN	Rarefaction
66	27	14 17 11.0	iP	VN	Rarefaction

No.	Date	Time	Phase		Remarks
67	Jan.27	17 29 57.0	iP	VN	Compression
68	27	20 14 14.5	iP	VN	Compression
69	27	21 13 31.5	iP	VN	Compression
70	28	04 06 54.5	e	VN	
71	28	17 15 15.5	iP	VN	Compression
		15 25.3	i	V	
72	30	00 25 14.5	iP	V	Compression Origin:-
		25 20.0	ipP	V	00 19 25 USCGS
		26 06.0	ipP	V	
		29 20.0	e	V	
H	30	01 33 34.5	eP	V	
		33 43.0	iS	V	
		33 48.0	L	V	
73	30	16 28 44.0	iP	V	
74	30	18 14 46.5	iP	V	Compression Origin:-
		14 51.0	i	V	18 09 02 USCGS
		14 56.5	i	V	
		15 15.0	iPP	V	
		20 50.5	i	V	
75	30	21 51 04.5	eiP	V	
76	30	22 28 55.0	iP	V	Rarefaction
77	31	05 52 17.0	iP	V	Rarefaction
78	31	07 39 29.0	i	V	

Seismograms read by
Katrine Porra.

J.c. Jaeger,
Professor of Geophysics

AUSTRALIAN NATIONAL UNIVERSITY DEPARTMENT OF GEOPHYSICS.

Provisional Seismic Bulletin.

FEBRUARY , 1959. CANBERRA

Latitude: 35° 19' 15" S. Longitude: 148° 59' 55" E. Height: 650 M.

Instruments: Benioff variable reluctance seismographs, three components : T_g = 0.25 sec.(VNE) ; T_g = 70 sec. ($V_1N_1E_1$).

No.	Date	Time	Phase		Remarks
1	Feb. 1	05 51 23.0	i	V	Compression.
2	1	08 46 13.5	iP	V	Rarefaction. Origin; 08 39 18 USCGS.
A	1	16 57 13.0	eiP	V	Local.
		57 22.0	iS	V	
B	1	17 49 40.0	eiP	V	Local.
		49 48.5	iS	V	
3	2	04 03 03.5	iP	V	Compression. Origin:
		06 11.0	iPcP	V	03 56 12 USCGS.
		08 29.5	iS	V	h - 150 kms.
4	2	08 51 08.0	iP	V	Compression.
5	2	10 27 22.0	e	V	
C	2	19 41 22.5	eP	V	Local.
		41 46.0	i	V	
6	3	23 27 49.5	iP	VN	Compression.
D	3	23 46 08.5	e	V	
7	4	05 05 50.5	iP	VN	Compression. Origin: 04 56 46 USCGS.
8	4	08 41 37.0	iP	V	Rarefaction.
D	5	06 07 52.5	eP	VN	Local.
		08 01.5	i	VN	
9	6	05 23 47.5	iP	VN	Compression.
10	6	06 06 41.5	iP	VN	Rarefaction.
		07 11.5	i	VN	
E	6	07 05 22.0	iP	VN	Local.
11.	6	21 36 58.0	iP	VN	Compression.
12	7	03 29 22.5	e	V	
13	7	03 59 10.0	iP	VN	Rarefaction.
14	7	09 55 34.0	iP	V	Compression. Origin: 09 36 51 USCGS.
15	7	10 20 44.0	iP	VN	Rarefaction. Origin: 10 11 39 USCGS.
16	7	16 53 56.5	iP	VN	Compression. Origin:
		54 46.0	iPcP	V	16 45 35 USCGS.
		56 12.0	iPP	V	h - 600 kms.
		57 25.5	iPPP	VN	
17	8	05 51 39.0	iP	VN	Compression. Origin:
		51 42.5	i	VN	05 46 15 USCGS.
		53 12.5	iPP	V	h - 600 kms.
		53 23.0	iPPP	V	

No.	Date	Time	Phase		Remarks
17(cont'd)		05 54 35.0	iPcP	VE	
		56 00.0	iS	VE	
18	Feb. 9	04 55 35.0	iP	V	Compression. Origin: 04 42 33 USCGS.
F	9	10. 54 17.5	e	N	Local.
		54 25.5	i	V	
G	9	19 06 55.0	i	V	Local.
		07 01.0	i	V	
		07 06.0	i	V	
19	9	21 19 34.0	iP	VNE	Rarefaction. Origin: 21 13 18 USCGS. h - 100 kms.
		20 04.0	ipP	V	
		20 45.0	iPP	V	
		22 24.0	i(PcP)	V	
20	10	12 52 10.5	iP	V	Rarefaction
21	10	20 37 55.5	iP	V	Compression.
22	11	03 52 27.5	iP	VN	Compression. Origin: 03 43 38 USCGS.
		54 24.0	i	V	
		56 41.5	i	V	
23	11	08 38 37.5	eP	V	
24	11	12 55 03.0	eP	V	Origin: 12 49 08 USCGS.
25	11	21 44 17.5	iP	V	Compression. Origin: 21 36 48
26	12	17 08 31.0	iP	V $V_1N_1E_1$	Rarefaction. Origin: 17 03 10 USCGS.
		12 44.5	iPcP	V_1	
		12 50.0	i	$V_1N_1E_1$	
		13 21.0	e	N_1	
27	12	18 05 43.5	eP	V	
28	13	02 07 49.5	iP	V	Compression.
29	13	07 44 59.5	iP	V	Rarefaction.
30	13	15 15 09.5	iP	VN	Compression. Origin: 15 08 25 USCGS.
H	13	19 40 27.0	i	VN	Local.
J	13	20 11 44.0	i	VN	Local.
K	14	01 08 41.0	iP	VN	Local.
31	14	04 43 24.0	iP	VN	Origin: 04 36 10 USCGS
		43 34.5	ipP	V	
		44 47.0	iPP	V	
		45 05.0	iPPP	V	
		45 43.0	iPcP	V	
32	14	22 37 55.5	iP	V	Origin: 22 25 50 USCGS.
33	15	01 32 16.0	e	VN	
34	15	04 12 06.0	iP	VN	Compression. Origin: 04 02 22 USCGS.
35	15	04 16 08.5	eiP	V	
36	15	04 55 14.0	iP	VN	Rarefaction. Origin: 04 42 35 USCGS.

No.	Date	Time	Phase		Remarks
37	Feb. 15	09 27 42.5	iP	VN	Compression.
L	15	21 40 37.0	iP	VN	
		41 09.0	i	VN	
38	16	02 48 42.5	iP	V	Rarefaction.
39	16	08 00 48.0	iP	V	Compression.
M	17	01 30 29.0	i	VN	
		31 54.5	i	V	
		32 15.5	i	N	
40	17	11 59 00.5	iP	VN	Origin: 12 03 05 USCGS.
41	17	12 16 19.0	eiP	V	
		16 28.5	i	N	
42	17	13 00 08.0	iP	VN	Compression. Origin: 12 49 20 USCGS.
43	17	21 36 03.0	i	VN	
44	18	02 02 50.5	iP	VN	Origin: 01 57 21 USCGS. h - 500 kms.
45	18	14 08 44.0	iP	VN	
N	19	09 57 36.5	iP	VN	Local.
		57 44.0	i	V	
O	20	01 23 58.5	i	VN	Local.
		24 30.0	I	V	
		26 2..0	i	VN	
46	20	01 37 11.5	iP	VN	
P	20	05 38 03.5	i	V	Local.
47	20	12 08 54.0	iP	VN	
48	21	01 37 48.0	iP	VN	
49	21	13 01 53.0	iP	VN	
50	22	10 32 53.0	iP	VN $V_1N_1E_1$	Compression. Origin: 1026 06 USCGS.
		35 10.0	iPP	V	
		35 36.0	iPPP	V	
		38 05.0	iS	N N_1E_1	
51	23	02 04 45.5	iP	VN	Rarefaction.
		04 56.0	ipP	V	
52	23	05 58 49.0	iP	VN	
53	23	10 44 00.0	iP	V	Compression Origin: 10 31 07 USCGS.
54	23	18 02 04.5	iP	VN	Compression.
55	23	18 40 42.5	iP	VN	Compression.
56	23	22 27 07.5	iP	VN	Compression. Origin: 22 20 58 USCGS.
57	24	12 54 47.0	iP	VNE	Compression.
58	24	16 20 37.5	iP	V	Compression.

No.	Date	Time	Phase		Remarks
59	Feb.25	10 08 52.0	iP	VNE	Compression. Origin:
		11 28.5	ipP	V	10 02 43
		11 36.5	iPP	V	h - 500 kms.
60	25	11 28 51.5	iP	VNE	Compression. Origin:
					11 19 07 USCGS.
61	25	18 51 00.0	e	VNE	h - 550 kms.
62	25	20 15 16.0	iP	VNE	Compression.
		15 24.0	i	VNE	
		15 28.0	i	VNE	
63	25	23 45 17.0	iP	VNE	Compression. Origin:
					23 40 55 USCGS.
64	25	23 59 14.5	e	V	
65	26	04 47 09.0	eP	NE	Compression. Origin:
					04 41 06 USCGS.
Q	26	06 54 14.0	iP	NE	Rarefaction
		54 16.0	iS	NE	Local.
66	27	13 53 28.0	iP	VNE	Rarefaction
67	27	15 57 15.0	iP	VNE	Origin: 15 20 27 USCGS.
68	27	18 53 15.5	iP	V	Origin: 18 47 05 USCGS.
		53 21.0	i	NE	h - 600 kms.
		59 24.5	iS	N	
69	27	21 07 18.5	iP	VNE	Rarefaction
		07 31.5	ipP	VN	
		11 31.5	i	E	
70	28	04 01 06.0	eP	VN	Origin: 03 53 51 USCGS.
71	28	06 16 02.0	iP	V	Compression
72	28	11 48 39.0	iP	VNE V_1N_1	Origin: 11 44 05 USCGS.
		52 34.0	eS	NE	
		54.7	eL	E	
73	28	13 31 22.0	iP	VNE	Origin: 13 25 18 USCGS.

Seismograms read by
Katrine Porra.

J.C.JAEGER,
Professor of Geophysics.

AUSTRALIAN NATIONAL UNIVERSITY DEPARTMENT OF GEOPHYSICS.

BULLETIN , March 1959.

CANBERRA.

Latitude: 35° 19' 15" S. Longitude: 148° 59' 55" E. Height: 650 kms.

Instruments: Benioff variable reluctance seismographs, three components:- T_g = 0.25 secs.(VNE) ; T_g = 70 secs. ($V_1N_1E_1$).

No.	Date	Time	Phase		Remarks
A	Mar. 1	07 26 00.5	iP	VN	Local.
		26 04.5	i	VN	
1	1	16 56 19.5	iP	VNE $V_1N_1E_1$	Compression. Origin:-
		56 51.0	ipP	V_1	16 49 13 USCGS.
		57 47.5	iPP	V_1	h - 100 kms.
		58 20.0	iPPP	V_1	
		58 47.5	i(PcP)	V_1	
		17 02 09.0	iS	N_1E_1	
		05 01.0	iSS	V_1	
B	2	10 32 29.0	iP	V_1N_1	Local.
		32 36.5	iS	V_1N_1	
		No time marks	on short period.		
2	6	07 14 59.0	e	N	
C	6	15 13 09.0	iP	NE	Local.
		13 17.5	iS	NE	
		13 22.5	eL	N	
3	6	20 47 31.5	e	N	
4	6	21 17 14.5	iP	N	
5	7	09 21 58.0	e	NE	
6	8	17 13 05.5	eiP	NE	Origin:- 17 07 55 USCGS.
7	9	10 27 35.5	e	N	Origin:- 10 18 09 USCGS.
8	11	05 56 23.5	e	VN	
9	11	07 13 53.5	iP	VN	Origin:- 07 06 58 USCGS.
		14 05.0	ipP	V	
		15 14.0	iPP	V	
		15 36.5	iPPP	V	
		19 18.0	eS	N	
D	12	01 47 52.0	iP	V	Local.
		48 14.0	i(S)	VN	
10	12	01 37 09.0	iP	VN	
		37 19.0	i(pP)	V	
11	12	09 06 44.0	iP	VN	Origin:) 09 00 24 USCGS.
		07 06.0	i	V	
		07 49.5	iPP	V	
		08 12.5	iPPP	V	
12	12	23 20 40.5	e	V	
		22 16.0	e	N	
13	13	02 03 24.0	iP	V	
14	13	10 42 51.0	e	VN	Compression.
		43 35.5	i(S)	N	
15	13	16 46 37.5	iP	V	
		47 17.5	ipP	V	Origin:- 16 40 15 USCGS.
		47 52.5	iPP	V	h - 200 kms.
16	14	07 00 44.0	iP	VN	
		00 49.5	i	V	Compression. Origin:-
		01 51.5	iPP	V	06 56 08. h - 500 kms.
		02 05.0	iPPP	V	
		02 17.0	i(pP)	V	
E	15	12 38 04.5	iP	V	
		38 07.0	e	V	Local.
		38 44.0	iS	VN	
17	16	00 06 56.5	i	VN	
18	16	07 01 27.0	i	V	Compression.
F	16	22 14 17.0	i	V	
19	17	05 10 37.5	e	V	
20	17	08 36 02.0	iP	VN	
					Compression. Origin:-
					08 25 22 USCGS.

No.	Date	Time	Phase		Remarks.
21	Mar. 17	10 38 23.0	iP	VN	Rarefaction.
		38 32.0	ipP	V	
22	17	23 27 16.5	i	V	Rarefaction.
23	18	00 51 02.5	iP	VN	
G	18	03 53 06.0	iS	V	Local.
24	18	22 28 29.0	e(P)	V	
		29 21.0	iS	N	
25	19	02 05 52.5	iP	V	Rarefaction.
		07 01.0	i	V	
		07 22.5	iPP	V	
		09 27.0	i	V	
H	19	02 15 51.0	iP	V	
26	19	13 14 37.0	e	V	Rarefaction.
I	19	13 42 57.0	iP	V	Compression. Local.
27	19	22 26 54.5	eP	V	Rarefaction.
		26 57.0	i		
28	20	02 17 29.0	iP	VN	Compression. Origin:- 02 10 33 USCGS.
29	20	08 43 15.0	i	V	Rarefaction. Local.
30	20	10 54 17.0	iP	V	Rarefaction.
31	20	21 56 09.0	iP	VN	Compression.
32	20	23 21 03.5	iP	V	Rarefaction.
33	21	00 00 47.5	e	VN	
34	21	00 31 23.5	i	V	Compression.
35	21	03 21 36.0	iP	V	Rarefaction.
36	21	04 33 22.0	iP	VN	Compression.
		33 30.5	i	V	
		36 32.5	iPcP	V	
37	21	06 12 32.5	iP	VN	Rarefaction.
38	21	08 54 28.0	e	V	
39	21	19 52 33.5	iP	V	Origin:- 19 37 08 USCGS.
		57 55.5	i	V	
40	21	23 25 20.0	i	VN	Compression.
J	23	05 03 06.5	iP	V	Local.
		03 08.0	iS	VN	
41	23	05 08 50.0	iP	V	Rarefaction,
42	23	12 02 26.5	e	V	Origin:- 11 49 27 USCGS.
43	23	13 31 31.5	iP	VN	Compression. Origin:- 13 24 16 USCGS. h - 150 kms.
		33 05.5	iPP	V	
		34 05.5	iPcP	V	
44	23	19 33 23.0	i	V	
45	24	01 18 49.5	iP	V	
46	24	01 23 13.5	iP	VN	Compression.
47	24	05 52 33.0	i	V	Compression.
48	24	17 13 11.5	e	V	
49	25	00 05 55.0	iP	VNE	Origin:- 17 12 51 USCGS. Rarefaction.
		05 59.0	i	V	
50	25	00 44 22.5	e	VN	
K	25	01 43 18.5	eP	V	Local.
51	25	04 33 43.5	e	V	
52	25	12 27 13.5	e	V	
53	25	12 32 47.5	e	N	
54	25	15 01 39.0	e	VN	
55	25	15 18 21.5	e	V	
		18 58.5	i	V	
56	26	02 30 11.0	iP	VN	Compression. Origim:- 02 24 12 USCGS. h - 60 kms.
		30 27.0	ipP	V	
		31 11.5	iPP	V	
		33 18.5	iPcP	V	
57	26	05 32 34.5	iP	VNE	Rarefaction.
		32 42.5	ipP	V	
58	26	09 01 13.5	e	V	
59	26	11 50 13.0	iP	VN	Compression.
		50 15.0	i	V	
60	26	14 09 56.0	e	VN	

No.	Date	Time	Phase		Remarks.
61	Mar. 26	22 36 42.0	e	V	
62	26	16 05 43.5	eiP	V	Compression.
63	27	05 52 14.5	i	V	
64	27	06 49 46.0	e	V	
65	27	07 00 42.0	e	V	
66	27	07 21 32.0	iP	VNE	Origin:- 07 01 47 USCGS.
		22 19.0	e	V	h - 60 kms.
		24 54.5	i	V	
67	28	19 52 57.0	iP	VNE V_1N_1	Rarefaction. Deep?
		54 31.5	i(PP)	VE V_1E_1	
		54 41.0	i	V	
		57 33.5	i	VNE E_1	
		20 00 50.0	iS	E E_1	
68	29	05 29 39.0	iP	V	
L	29	11 09 00.5	iP	V	Rarefaction.
69	30	17 58 49.0	e	V	
70	30	18 26 30.5	iP	V	
M	31	07 46 12.0	iP	VE	
		46 16.0	i	VE	
		46 36.0	i	V	
		46 39.0	i	V	
		46 40.5	i	V	
		46 43.0	i	V	
		46 46.0	i	V	

Seismograms read by
Katrine Porra.

J.C. JAEGER,
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AUSTRALIAN NATIONAL UNIVERSITY DEPARTMENT OF GEOPHYSICS.

April corrected

PROVISIONAL SEISMOLOGICAL BULLETIN.

CANBERRA April 1959.

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

Instruments: Benioff variable reluctance seismographs, three components:-

T_g = 0.25 secs.(VNE) ; T_g = 70 secs. ($V_1N_1E_1$).

No.	Date	Time	Phase		Remarks
1	Apr. 1	14 53 38.0	iP	VNE	Rarefaction. Origin:- 14 48 23
		54 19.0	i(pP)	V	h-150 kms.(USCGS)
2	1	22 54 08.0	iP	V	Rarefaction. Origin:- 22 47 54
		54 10.5	i	N	h-100 kms.(USCGS)
		54 35.5	ipP	V	
3	1	23 29 47.0	iP	V	Compression.
4	2	12 06 27.5	iP	VN	Compression.
		17 58.0	i	E_1	
5	2	19 31 54.5	iP	VN	Compression. Origin:- 19 21 34
		32 06.0	ipP	V	(USCGS)
6	3	05 59 05.5	eiP	VN	Origin:- 05 48 45 (USCGS)
					h-200 kms.
7	3	16 15 19.5	eiP	V	
8	4	16 24 16.0	iP	VNE	
9	5	11 07 47.5	iP	V	Origin:- 10 47 52 (USCGS)
10	5	15 20 35.0	iP	VN	Compression.
11	5	21 11 18.5	iP	VNE	Compression.
12	5	23 35 36.0	iP	VNE	Compression. Origin:- 23 29 25
		35 45.5	ipP	V	(USCGS)
		36 51.5	iPPP	V	
		45.8	eL	V_1	
13	6	14 19 43.0	iP	VN	Compression. Origin:- 14 12 36
		19 56.5	ipP	V	(USCGS)
		21 14.0	iPP	V	
		33.7	eL	V_1	
14	7	10 30 01.0	e	VN	
15	7	13 37 30.5	iP	V	Compression.
16	7	18 0 38.0	iP	V	Compression.
17	8	01 28 26.0	iP	VN	Rarefaction.
		28 36.0	ipP	V	
19	8	08 08 46.5	iP	VN	Compression.
		08 55.5	ipP	V	
20	8	11 57 15.0	iP	V	Compression. Origin:- 11 44 25
					(USCGS)
21	9	04 49 31.5	iP	VN	Compression, Origin:- 04 43 58
		49 47.0	i	V	h-100 kms (USCGS)
		50 04.0	ipP	V	
A	9	06 03 25.0	iP	VN	Local.
		03 54.0	i	VN	
22	9	07 55 04.5	iP	VN	Compression.
23	9	17 20 30.0	i	V	Origin:- 17 08 30 (USCGS)
24	9	17 55 27.5	i	V	Origin:- 17 36 10 (USCGS)
25	10	05 52 36.5	iP	VNE	Origin:- 05 47 34 (USCGS)
		53 55.0	iPP	V	h-600 kms.
		54 12.5	i	V	
		54 18.0	iPPP	V	
		55 23.5	iPcP	VN	
		56 34.0	iS	VNE	
26	10	05 58 22.5	i(P)	V	
27	10	07 42 15.5	iP	VN	
28	10	18 28 24.5	iP	V	
29	11	11 36 23.0	iP	VN V_1	Origin:- 11 28 50 (USCGS)
		36 35.5	ipP	V	
		37 59.0	i(PP)	V	
30	11	18 03 26.0	iP	V	Origin:- 17 55 53 (USCGS)
31	12	01 51 42.0	i	V	
32	12	11 10 04.0	iP	V	Origin:- 10 59 21 (USCGS)

No.	Date	Time	Phase		Remarks
33	Apr. 12	15x29 09.5	iP	VN	Compression. Origin:- 15 22 33 (USCGS)
		34 29.0	eS	N	
34	12	21 01 30.0	iP	VNE	Origin:- 20 54 00 (USCGS)
		01 43.5	ipP	VE	
		03 29.5	iPPP	V	
		03 35.0	iPcP	E	
		07 24.0	eS	E	
35	13	18 43 54.5	iP	VN	Origin:- 18 31 57 (USCGS)
		44 08.5	i	V	
36	15	00 27 17.5	iP	VN	Origin:- 00 15 21 (USCGS)
37	15	00 58 50.5	iP	VN	
E	15	01 59 22.0	iP	VN	Local.
		59 45.0	i	VN	
38	15	19 24 18.5	iP	VN	Origin:- 19 11 20 (USCGS)
39	15	23 58 01.5	iP	V	Rarefaction. Origin:- 23 52 40 (USCGS)
40	16	00 40 50.0	iP	V	
41	16	07 32 44.0	iP	VNE	Compression. Origin:- 07 27 27 h-550 kms. (USCGS)
		34 14.5	ipP	V	
		34 17.0	iPP	V	
		34 35.5	iPPP	V	
		36 53.0	iS	VNE	
42	16	16 22 32.0	iP	VN	Compression. Origin:- 16 13 56 h-100 kms. (USCGS)
		22 49.0	i	V	
		23 00.5	ipP	V	
		23 59.0	iPcP	V	
		24 27.0	iPP	V	
		27 46.5	i	V	
43	16	17 21 52.5	iP	VN	
44	16	19 47 34.0	iP	VN	Compression.
45	17	10 37 23.5	iP	VN	Compression. Origin:- 10 31 35 (USCGS) h-500 kms.
C	17	19 08 24.0	eiP	V	Local.
46	18	06 24 11.0	iP	VN	Compression. Origin:- 06 17 51 (USCGS)
		24 23.5	ipP	V	
		25 19.0	iPP	V	
		25 31.0	iPPP	V	
		30 49.0	i	V	
47	18	08 24 01.5	iP	V	
48	19	01 26 30.0	iP	V	
49	19	15 00 38.0	iP	V	
50	19	19 50 41.0	iP	VNE	Origin:- 14 51 03 (USCGS)
51	20	00 19 46.5	iP	V	
52	20	00 39 19.5	iP	VN	Compression.
53	20	03 33 52.0	iP	VN $V_1N_1E_1$	Rarefaction.
		34 14.5	ipP	V	Compression. Origin:- 03 27 52 h-100 kms. (USCGS)
		36 45.0	iPcP	V	
		38 40.0	iS	E E_1	
		41 03.5	i	V	
54	20	11 50 13.0	eiP	V	
55	21	01 33 09.0	iP	VNE	Deep ?
		34 41.0	i	VE	
		37 29.0	iS	VE	
56	22	07 41 14.0	iP	V	
57	22	11 43 24.0	i	V	Rarefaction.
58	22	15 31 34.5	e	V	Compression.
59	22	20 39 23.0	iP	V	
60	24	02 34 44.0	i	V	Compression. Origin:- 20 26 46 (USCGS)
61	24	05 59 00.5	e	V	
62	24	09 50 36.5	iP	V	
63	24	18 03 52.0	iP	VNE V_1E_1	Origin:- 09 31 33 (USCGS)
		08 54.0	iS	E N_1E_1	Origin:- 17 57 58 (USCGS)
		10 50.0	iSS	E_1	
		11 20.5	iSSS	E_1	
		14 28.5	i(ScS)	V_1	

No.	Date	Time	Phase		Remarks
64	Apr. 25	05 28 43.0	iP	VN	Compression
65	26	05 25 25.0	iP	V	Rarefaction. Origin: 05 17 47 USCGS
		25 40.0	i	V	
66	26	05 52 43.0	iP	V	Rarefaction. Origin: 05 47 28 USCGS
		52 52.0	ipP	V	
		53 26.0	iPP	V	
67	26	08 53 28.0	iP	V	Compression. Origin: 08 47 28 USCGS
D	26	10 53 11.5	iP	VN	Local
		53 14.5	iS	VN	
68	26	13 22 50.5	iP	V	Rarefaction
69	26	15 04 55.5	iP	V	Compression
70	26	20 51 05.0	iP	VN V_1 N_1 E_1	Rarefaction. Origin: 20 40 38 h: 150 km. USCGS
		51 34.0	iPcP	V V_1 N_1	
		51 45.0	ipP	V	
		53 40.0	iPP	V_1	
		59 40.0	iS	N_1 E_1	
		59 58.0	iSP	V_1	
		21 00 25.0	iPS	V_1 N_1 E_1	
		00 54.5	isS	N_1	
71	27	09 54 54.0	iP	VN V_1 N_1 E_1	Rarefaction. Origin: 09 48 09 USCGS
		56 10.5	iPP	V	
		10 00 03.5	iS	E_1	
72	27	12 55 07.0	iP	VN	Compression. Origin: 12 47 27 USCGS
		55 43.0	ipP	V	
		56 57.0	iPPP	V	
73	28	02 01 02.0	i	V	
E	28	08 09 48.0	iP	VN	Local
		10 24.0	iS	V	
74	28	13 07 05.5	iP	V	Compression. Origin: 13 00 57 h: 100 km. USCGS
75	28	14 31 21.0	iP	V	Rarefaction
76	29	03 34 02.5	e	V	
77	30	13 38 33.0	iP	V	Compression. Origin: 13 25 35 USCGS

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AUSTRALIAN NATIONAL UNIVERSITY DEPARTMENT OF GEOPHYSICS

BULLETIN , May 1959.
CANBERRA.

Latitude: 35° 19' 15'' S. Longitude: 148° 59' 55'' E. Height: 700 kms.
Instrunents: Benioff variable reluctance seismographs, three components:-
T_g= 0.25 secs.(VNE) ; T_g = 70 secs. ($V_1N_1E_1$).

Abbreviations:- R - Rarefaction. C- Compression.

No.	Date	Time	Phase		Remarks
1	May 1	07 26 02.0	iP	VN	C Origin: 07 19 16 (USCGS)
		27 23.0	i(PP)	V	
		28 42.0	i(PcP)	V	
2	1	08 52 02.5	e	V	Origin: 08 23 57 (USCGS)
		09 03 17.3	e	V	
3	1	09 36 46.5	iP	V	C
4	1	15 03 10.5	iP	VN	R Origin: 14 56 57 (USCGS)
		03 33.0	ipP	V	h - 60 kms.
		04 16.0	iPP	V	
		04 34.5	iPPP	V	
5	1	23 08 31.0	iP	V	C
6	2	04 45 09.5	iP	V	C
7	3	03 07 24.0	iP	V	C Origin: 03 01 38 (USCGS)
		07 56.0	i	V	
		08 08.0	i	V	
8	3	18 41 54.0	iP	V	R Origin: 18 32 58** (USCGS)
A	4	01 11 40.5	iP	VN	Local.
		11 45.0	i	V	
		12 09.0	i(S)	VN	
		12 12.0	i	VN	
9	4	04 56 24.5	i	V	C
10	4	05 57 47.0	e	VN	
11	4	07 28 33.5	eP	V	R Origin: 07 15 42 (USCGS)
		28 34.5	P!	VNE $V_1N_1E_1$	h - 60 kms.
		28 40.0	iPcP	V	
		28 43.5	ipP	VN	
		32 06.5	iPP	VN	
		38 49.0	i	N_1	
		39 14.0	iS	E E_1	
		39 23.5	iScS	E	
		39 29.5	isS	E	
		40 30.0	iPS	E E_1	
		40 55.5	iPPS	E E_1	
		45 10.0	iSS	E	
		46 10.0	iPKKP	V_1	
		49 54.5	iPKKS	E_1	
		50.9	L_q	V_1	
		52 15.0	i	N_1	
		57.0	L_r	N_1	
		58.0	M	$V_1N_1E_1$	
12	4	22 50 50.5	iP	VN	R Origin: 22 44 50** (USCGS)
13	5	03 14 14.0	i	V	
14	5	22 17 13.0	eP	V	
15	6	06 15 09.0	eP	V	
16	6	17 35 16.5	iP	VN	C Origin: 17 29 26 (USCGS)
		36 53.5	ipP	V	h - 600 kms.
		36 57.0	iPP	V	

No.	Date	Time	Phase		Remarks
17	May 6	18 59 43.0	iP	VN	R Origin: 18 52 22 (USCGS)
		59 50.0	ipP	V	
		19 00 11.0	i	V	
		01 14.5	iPP	V	
		02 49.0	i	V	
18	7	00 09 54.5	iP	VN	C Origin: 00 03 24 (USCGS)
		11 08.5	iPP	V	
19	7	09 10 13.5	iP	VN	R Origin: 09 03 46 (USCGS)
		10 18.0	i	V	
20	7	11 23 44.0	iP	VN	R Origin: 11 17 16 (USCGS)
21	7	17 57 16.5	iP	V	C
22	7	20 29 40.5	iP	VN	R Origin: 20 22 41 (USCGS)
		29 50.0	ipP	V	
23	8	12 47 43.0	iP	VN	C
		47 49.5	ipP	V	
		48 11.5	i	V	
24	8	18 42 30.5	iP	V	C
25	9	00 45 08.5	iP	V	C
26	11	16 41 44.0	iP	V	Origin: 16 28 49 (USCGS)
27	12	05 30 47.5	eiP	V	
		40.7	eL	V_1	
28	12	08 11 42.5	iP	V	
		11 54.5	i	V	
29	12	10 42.6	eL	V_1	Origin: 10 14 00 (USCGS)
30	12	21 29 18.0	e	V	Origin: 21 40 22 (USCGS)
31	13	06 08 58.5	iP	VN	C
32	13	09 59 20.0	iP	V	R Origin: 09 51 52 (USCGS)
B	13	11 31 19.0	iP	VN	Local
		31 27.0	iS	VN	
		31 32.5	iL	VN	
33	14	00 58 35.5	iP	V	
		58 44.5	i	V	
34	14	04 28 35.0	iP	V	R Origin: 04 21 19 (USCGS) h = 60 km.
35	14	06 56 13.0	e	V	Origin: 06 36 57 (USCGS)
36	14	08 38 50.0	i	V	
37	14	09 38 46.5	iP	VN V_1	Origin: 09 33 22 (USCGS)
		38 55.5	ipP	V	
		39 25.5	iPP	V	
		43 07.5	e(S)	V	
38	14	10 47 13.0	iP	V	C Origin: 10 41 56 (USCGS) h = 100 km.
		47 43.5	i(pP)	V	
39	14	11 54 36.0	iP	VN V_1	Origin: 11 49 20 (USCGS) h = 100 km.
		55 02.5	ipP	V	
		12 04.5	eL	N_1	
40	14	12 50 37.0	i	V	C
		52 31.0	i	V	

No.	Date	Time	Phase			Remarks
41	May 14	13 24 43.0	iP	VN V_1		Origin: 13 19 32 (USCGS)
		25 17.5	ipP	V		h = 150 km.
		25 39.0	iPP	V		
		14 04.6	eL	N_1		
42	14	14 06 57.0	iP	V		
43	14	17 41 41.0	i	V		
44	14	20 29 23.0	e	V		
C	15	01 03 56.5	iP	VN		Local
		03 58.0	iS	VN		
45	15	06 01 08.5	i	V		
46	15	06 44 56.0	e	V		
47	15	09 27 28.5	iP	V	R	
48	15	18 57 39.0	iP	V		
49	16	06 22 37.0	iP	VN $V_1N_1E_1$		Origin: 06 16 23 (USCGS)
		22 44.0	i	VN		h = 60 km.
		22 56.0	ipP	V		
		25 26.0	iPcP	V		
		27 34.0	iS	N_1E_1		
		27 38.0	i	V_1		
50	17	12 07 15.5	iP	V	C	
51	17	18 17 43.5	iP	V	C	
52	18	01 01 34.0	e	VN		
D	18	06 13 16.6	P!	VNE V_1		Felt over a large area of New South Wales. Epicenter: 148° 40' E. 36° 13' S. h = 19 km. Origin: 06 12 59.0
53	19	08 00 31.5	i	V	R	
54	19	08 42 42.5	iP	V	C	
55	19	09 32 28.5	i	V		
56	20	03 39 06.5	iP	V		
57	20	19 47 15.5	iP	VN	R	Origin: 19 35 03 (USCGS)
58	21	11 31 02.5	i	V		
59	22	07 01 48.5	iP	VN	C	Origin: 06 57 00 (USCGS)
		01 56.0	ipP	V		
		02 15.0	iPP	V		
		02 26.5	iPPP	V		
		05 57.0	iPcP	V		
60	22	07 16 21.5	e	VN		
61	22	07 09 24.0	iP	V		
E	23	02 09 44.5	iP	V		Local
62	23	23 59 08.5	iP	V	R	
63	24	04 15 02.0	iP	VN	R	
64	24	07 46 45.0	iP	VN	R	
65	24	11 10 45.5	iP	V	C	

No.	Date	Time	Phase			Remarks
66	May 24	13 09 38.0	iP	V		
F	24	21 12 01.5	iP	VN		
67	26	04 23 38.0	iP	VN	C	Origin: 04 13 01 (USCGS)
		23 55.5	iPcP	V		h = 100 km.
		24 09.0	ipP	V		
		25 45.5	iPP	V		
68	26	05 47 26.0	iP	V	C	Origin: 05 27 36 (USCGS)
69	27	16 26 54.5	iP	V	C	
70	28	04 39 43.0	i	V	R	
71	28	15 23 54.5	iP	V	R	
72	28	22 33 39.5	iP	VN	C	
73	28	22 43 39.0	iP	VN	R	
		44 02.5	i	VN		
74	29	01 00 39.5	i	V		
75	29	10 47 58.5	iP	VN $V_1N_1E_1$	R	
	48?	47 22.5	i(pP)	N_1		
		52 15.0	iS	N_1E_1		
		52 44.0	i	N_1		
		58 58.5	i	E_1		
G	29	18 18 19.0	iP	VN	C	Local - felt at Dalton
76	31	09 34 18.5	iP	V V_1	C	
77	31	15 28 51.5	iP	VN	C	

Seismograms read by Katrine Porra.

J. C. Jaeger,
Professor of Geophysics

AUSTRALIAN NATIONAL UNIVERSITY DEPARTMENT OF GEOPHYSICS.

BULLETIN , June 1959.

Canberra.A.C.T.

June copied WK.

Latitude: 35° 19' 15'' S. Longitude: 148° 59' 55'' E. Height: 700 kms.
Instruments: Benioff variable reluctance seismographs, three components:-
T_g = 0.25 secs.(VNE) ; T_g = 70 secs.($V_1N_1E_1$).
Abbreviations:- R - Rarefaction. C - Compression.

No.	Date	Time	Phase		Remarks
1	Jun 1	05 37 22.5	iP	VN	R Origin: 05 31 30 (USCGS) h - 400 kms.
A	1	05 56 41.0	iP	VN	C Local.
		56 54.0	i	VN	
2	1	12 37 58.0	iP	VN	C Origin: 12 32 25 (USCGS)
		39 14.0	ipP	V	h - 400 kms.
		40 44.5	iPcP	V	
3	1	17 13 24.5	iP	VN	R Origin: 17 07 23 (USCGS)
		13 51.0	ipP	V	h - 100 kms.
		14 21.0	iPP	V	
		14 44.5	iPPP	V	
		16 15.5	iPcP	V	
4	2	02 04 13.5	iP	VN	C Origin: 01 56 32 (USCGS)
		04 54.0	ipP	V	h - 200 kms.
		05 48.0	iPP	V	
		06 02.5	iPcP	V	
5	2	02 48 07.5	eP	VN	Origin: 02 37 46 (USCGS)
		50 36.0	iPP	VN	
		03 33.4	eL	V_1E_1	
6	2	03 38 26.0	iP	V	Origin: 03 31 55 (USCGS)
		39 17.5	i	V	
7	2	03 58 35.5	iP	V	Origin: 03 52 06 (USCGS)
8	2	05 07 41.5	iP	V	Origin: 04 57 18 (USCGS)
9	2	05 52 57.5	iP	V	C Origin: 05 42 26 (USCGS)
10	4	01 57 50.5	iP	VN	R
11	7	03 54 24.5	iP	V	Origin: 03 43 42 (USGCS)
12	7	08 43 36.5	iP	V	C Origin: 08 34 32 (USCGS)
13	7	17 43 29.0	i	V	C Origin: 17 36 19 (USCGS)
14	9	05 34 44.5	i	V	
15	9	13 41 03.5	iP	V	R
16	9	13 49 15.5	i	V	C
17	9	14 59 03.5	iP	V	C Origin: 14 53 30 (USCGS)
		59 13.5	ipP	V	
B	10	07 11 06.0	iP	VN	Local.
		11 36.0	i(S)	V	
		11 54.5	i	V	
18	10	10 56 14.0	iP	V	Origin: 10 50 32 (USCGS) h - 600 kms.
19	10	13 12 52.0	iP	VN	R
20	10	13 27 21.0	e	V	
21	11	00 00 56.5	iP	VN	R Origin: 23 54 46 (USCGS)
22	12	11 50 33.0	iP	V	C
23	14	05 59 32.5	iP	V	C

No.	Date	Time	Phase		Remarks
24	Jun 14	15 04 02.5	iP	V	R Origin: 14 56 57 (USCGS)
25	14	17 21 20.5	i	V	R
26	14	17 27 25.0	eiP	VN	
27	14	20 07 27.2	e	V	
28	14	21 08 19.0	iP	VN	C Origin: 21 02 32 (USCGS)
29	16	02 46 56.0	i	V	Origin: 02 40 34 (USCGS)
30	16	05 24 21.0	e	V	
C	16	13 13 40.0	iP	VN	Local.
		13 46.5	iS	VN	
		13 50.5	i	VN	
31	16	17 23 27.5	i	V	
32	17	01 38 48.0	i	V	C
33	17	03 10 06.5	eiP	VN	
34	17	03 13 19.5	eiP	V	
35	17	04 56 38.5	eiP	V	
D	17	05 41 09.5	i	V	R Local.
36	17	10 51 (31)	e	V	
37	17	13 30 13.0	e	V	
38	17	20 51 41.5	iP	V	C
39	18	00 39 08.5	e	V	
		39 36.5	i	V	
40	18	07 00 (37)	eP	V	Origin: 06 50 45 (USCGS)
41	18	08 55 26.5	eP	V	Origin: 08 49 55 (USCGS)
42	18	15 44 26.0	iP	VN V_1	
		44 33.0	ipP	V	
		16 10.1	eL	V_1	
43	18	16 11 39.0	iP	V	R Origin: 15 58 38 (USCGS)
44	19	10 45 42.5	i	V	
45	21	05 53 47.0	iP	VN	C
46	21	12 07 52.0	iP	VN	C
47	21	14 21 18.0	iP	VN	R
48	21	23 31 44.5	iP	V	R
49	22	14 13 44.0	iP	V	C
50	23	03 16 03.0	eiP	V	
51	23	04 46 11.0	iP	VN	R
52	23	13 45 54.5	iP	V	R
E	24	06 00 41.0	iP	V	Local.
		01 08.0	i	VN	
53	25	01 02 31.0	iP	V	
54	26	04 22 39.5	eP	V	
55	26	05 30 10.0	iP	V	R
56	27	19 09 57.0	iP	VN V_1N_1	C
		10 51.0	i	V_1	
		14 13.5	i(S)	N_1	
57	28	06 30 37.0	iP	V	C
58	28	07 52 54.0	iP	VN	R
59	28	09 57 23.0	iP	VN	C

No.	Date	Time	Phase		Remarks
60	Jun 28	19 50 22.0	iP	VN $V_1N_1E_1$	R Origin: 19 43 22 (USCGS)
		51 47.0	iPP	V_1	
		51 53.5	iPPP	V_1	
		55 52.5	iS	E_1	
61	29	13 28 03.0	iP	VN	R Origin: 13 19 47 (USCGS)
		29 23.0	iPcP	V	h - 150 kms.
		29 35.5	iPP	V	
62	30	10 29 04.0	iP	V	C

Seismograms read by
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AUSTRALIAN NATIONAL UNIVERSITY — DEPARTMENT OF GEOPHYSICS

SEISMOLOGICAL BULLETIN.

Canberra , July 1959.

July Copies

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

Instruments: Benioff variable reluctance seismographs, three components:-

T_g = 0.25 secs (VNE ; T_g = 70 secs ($V_1N_1E_1$).

No.	Date	Time	Phase		Remarks
1	Jul 1	02 37 28.0	iP	VN	C Origin: 02:27 46 (USCGS)
		39 21.0	ipP	V	h - 550 kms.
		40 03.5	iPP	V	
2	1	05 49 40.0	i	V	R
3	1	08 36 59.5	iP	V	C
4	1	11 43 34.0	eiP	V	
5	1	20 07 13.0	iP	V	
6	2	11 40 03.0	iP	V	C Origin: 11 34 20 (USCGS) h - 650 kms.
7	3	05 36 35.5	iP	V	
8	3	18 01 09.0	iP	VNE V_1	R Origin: 17 54 08 Canberra. h - 200 kms.
		01 57.0	ipP	V V_1	
		03 18.5	iPcP	V V_1	
		06 46.0	iS	V_1N_1	
9	3	19 52 42.5	e	V	
10	4	01 40 50.0	i	V	
11	4	05 00 31.5	iP	V	C Origin: 04 54 14 (USCGS) h - 100 kms.
12	5	14 11 46.0	eiP	V	Origin: 14 05 42 (USCGS)
		11 54.5	ipP	V	
13	6	01 15 41.5	i	V	
14	6	06 00 55.0	i	V	
15	6	09 27 49.0	iP	V	
16	6	09 58 46.0	iP	V	C
17	6	09 51 56.5	iP	V	C
A	8	05 57 03.0	iP	V	Local.
18	9	02 50 56.0	eiP	V	Origin: 02 32 40 (USCGS)
19	9	09 14 43.0	iP	V	R Origin: 09 07 12 (USCGS)
20	9	10 23 28.5	iP	V	R Origin: 10 17 47 (USCGS)
		24 17.0	i(PP)	V	
21	9	23 51 14.5	iP	V	C
B	10	01 47 24.0	iP	V	Local.
		47 38.0	i(S)	V	
22	10	08 19 38.0	iP	V	C
23	10	16 02 49.0	eP	V	Origin: 15 54 00** (USCGS)
24	11	04 56 49.0	iP	VN V_1	R Origin: 04 51 30 (USCGS)
		57 30.5	i(PP)	V	
25	11	12 11 23.0	iP	VN V_1	C Origin: 12 01 36 (USCGS)
		12 23.5	iPcP	V	
		13 41.5	iPP	V	
		19 17.5	eS	E_1	
		27.8	eL	V_1	
26	11	16 08 32.0	iP	V	C

No.	Date	Time	Phase		Remarks
27	Jul 11	18 35 10.0	iP	V	Origin: 18 23 00 (USCGS)
28	11	18 55 15.5	i	V	
29	12	00 19 29.5	eP	V	Origin: 00 13 30 (USCGS)
30	12	00 30 28.0	iP	VN	C Origin: 00 24 22 (USCGS)
		32 41.0	iPPP	V	h - 400 kms.
		35 19.0	eS	N	
C	13	01 25 42.5	e	V	Local.
31	13	04 43 26.0	iP	V	C Origin: 04 36 00**(USCGS)
32	13	12 42 02.5	eP	V	Origin: 12 28 45 (USCGS)
		45 53.5	iPP	V	
33	13	15 30 01.0	iP	V	R Origin: 15 24 44 (USCGS) h - 500 kms.
34	14	17 27 12.0	e	V	
35	14	18 20 27.5	iP	V	Origin: 18 13 45 (USCGS)
36	14	18 26 17.5	i	V	
37	14	22 39 36.0	iP	V	C
		39 43.0	ipP	V	
38	15	23 35 06.5	iP	V	
39	16	10 21 20.5	iP	V	C
40	17	06 01 08.5	e	V	
41	18	07 06 10.5	iP	VN	R
42	18	19 36 18.0	iP	VN	R
43	18	20 04 37.0	iP	VN $V_1N_1E_1$	R Origin: 19 55 00 Canberra
		05 14.0	ipP	V_1	h - 130 kms.
		12 22.5	iS	$V_1N_1E_1$	
		13 05.0	iPS	E_1	
		14 13.5	iScS	E_1	
		16 14.0	iSS	E_1	
		18 54.0	iSSS	E_1	
44	19	03 29 21.0	i	V	C
45	19	03 50 55.5	iP	V	C Origin: 03 42 02 (USCGS)
		51 18.5	i	V	
46	19	13 50 15.0	iP	V	R Origin: 13 44 52 (USCGS) h - 550 kms.
47	19	15 24 35.5	iPKP	V	Origin: 15 06 10 (USCGS)
		25 51.0	iPP	V	h - 200 kms.
48	20	02 48 43.0	iP	VN $V_1N_1E_1$	R Origin: 02 40 13 (USCGS)
		50 11.5	iPcP	V V_1	
		50 37.0	iPP	V_1	
		54 45.5	e	N_1	
		54 47.0	i	N_1E_1	
49	20	16 58 54.0	iP	VN	C Origin: 16 53 38 (USCGS)
		17 00 25.5	iPP	V	h - 600 kms.
		00 28.0	ipP	V	
50	22	05 03 15.0	eP	VN	Origin: 04 51 30 (USCGS)
51	22	11 23 38.5	iP	VN	R Origin: 11 15 33 (USCGS)
52	22	19 36 03.5	iP	VN	C Origin: 19 24 17 (USCGS) h - 650 kms.
53	23	15 03 08.0	iP	VN	C Origin: 14 56 45 (USCGS)
		03 26.0	ipP	V	h - 60 kms.
54	23	16 41 48.0	e	VN	
55	26	06 31 38.0	iP	V	C

No.	Date	Time	Phase		Remarks
56	Jul 29	00 36 51.0	iP	VN	R
57	29	04 06 10.5	i	V	
D	29	05 47 19.0	i	VN	Local.
58	30	07 35 20.0	e	V	
59	30	12 59 52.0	iP	V	
60	31	20 44 57.0	iP	V	C

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THE AUSTRALIAN NATIONAL UNIVERSITY
DEPARTMENT OF GEOPHYSICS.
CANBERRA, A.C.T., AUSTRALIA

August copied MK

PROVISIONAL SEISMOLOGICAL BULLETIN

AUGUST ~~September~~, 1959.

Latitude: 35° 19' 15" S. Longitude: 148° 59' 55" E. Height: 650 m.

Instruments: three-component Benioff variable reluctance seismographs

T_g = 0.25 sec. (VNE)

T_g = 16 sec. (V_1)

T_g = 70 sec. (N_1E_1)

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

No.	Date	Time	Phase		Remarks
1	Aug. 1 ×	10 23 49.0	e	V	
2	1 ×	14 51 58.0	i	V	
3	1 ×	16 19 33.5	i	V	
A	2 ×	03 49 15.0	e	VN	Local.
B	2 ×	15 53 36.0	e	VN	Local.
		54 07.5	i	N	
		54 11.0	i	VN	
4	4 ×	06 27 47.0	iP	V	
5	4 ✓	08 08 01.0	iP	V	C O: 08 02 17 (USCGS)
		09 43.0	i(pP)	V	h - 600 kms.
		10 34.0	iPcP	V	
C	4 ×	09 09 31.5	e	V	Local.
6	4 ×	13 41 57.5	i	V	
7	5 ✓	05 25 56.5	iP	V	R O: 05 16 39 (USCGS)
		27 11.5	iPcP	V	
		28 04.0	i(PP)	V	
D	5 ×	06 00 22.0	i	VN	Local.
8	5 ✓	13 57 09.0	iP	VN	C O: 13 48 42 (USCGS)
E	6 ×	03 33 39.6	iP	VN	C Local.
9	6 ×	05 51 17.0	e	V	
F	7 ×	04 48 25.0	e	VN	Local.
10	7 ✓	10 36 28.0	iP	V	
11	7 ×	19 16 50.5	iP	VN	R O: 19 10 59 (USCGS)
		17 47.5	iPP	V	
12	8 ✓	01 00 42.0	iP	V	R
13	9 ✓	02 42 43.0	iP	V	C O: 02 34 43 (USCGS)
		44 26.0	iPP	V	
		44 34.5	i(PcP)	V	
14	10 ✓	00 41 12.0	iP	VN	O: 00 36 35 (USCGS)
		41 41.5	iPP	V	
		45 11.5	iS	E	
		45 37.0	ePcP	V	
15	10 ×	19 45 59.5	i	V	
16	12 ×	05 42 18.5	e	VN	
17	12 ×	16 53 46.5	e	VN	

No.	Date	Time	Phase		Remarks
18	Aug. 12	10 05 25.0	iP	V	C 0: 09 58 22 (USCGS)
		06 40.0	i	V	
		11 04.0	iS	N_1	
		13 49.5	iSS	N_1	
19	12	23 19 16.5	e	V	
20	13	00 39 40.5	i	V	Origin: 00 32 55 (USCGS)
21	14	04 47 00.5	iP	VN	C 0: 04 39 07 (USCGS)
		47 22.5	i	V	
G	14	06 01 08.0	i	VN	Local.
22	15	09 07 30.0	iP	VN V_1N_1	0: 08 57 04 (USCGS)
		08 11.0	iPcP	V	
		11 28.0	iPPP	VN	
		16 02.5	iS	N N_1E_1	
		16 14.0	iPS	N_1	
		16 40.5	iPPS	E_1	
23	15	13 30 58.5	iP	VN	C
24	15	21 36 38.0	iP	VN	R 0: 21 29 42 (USCGS)
		38 02.5	ePP	V	
25	16	00 56 48.0	iP	VN	C 0: 00 51 40 (USCGS)
26	16	09 59 54.0	iP	VN	C 0: 09 53 52 (USCGS)
		10 01 11.0	ipP	V	h - 350 kms.
		01 48.5	iPPP	V	
27	17	01 08 04.5	e	V	0: 01 02 37 (USCGS)
H	17	05 11 03.0	iP	VN	Local.
		11 34.5	i	N	
		11 38.0	i(S)	V	
28	17	21 10 39.5	iP	VN V_1N_1	C 0: 21 04 40 (USCGS)
		11 42.0	iPP	V	
		13 54.0	iPcP	V V_1	
		15 31.0	iS	V_1N_1	
		17 14.0	iSS	N_1	
		17 26.5	iSSS	N_1	
		36 43.0	iPKKP	V_1	
		39 28.0	iPKKS	V_1N_1	
		43 43.0	iSKKS	N_1	
		44 42.5	iPKPPKP	V_1	
29	18	05 43 52.5	eP	V V_1	0: 05 38 39 (USCGS)
		44 32.0	iPP	V	
		44 44.0	iPPP	V	
30	18	06 56 16.5	iPKP	V V_1	0: 06 37 13 (USCGS)
		57 51.0	iPP	V_1	
		59 51.0	iPKS	E_1	
		07 00 22.5	i(PPP)	V	
		03 23.0	iSKS	N_1E_1	
		07 55.0	iPS	N_1	
		08 55.5	iPPS	N_1	
		11 37.5	iScSPKP	V_1	
		28.0	L_q	N_1	
31	18	15 45 02.0	i	V	
		16 23.8	eL	V_1	
I	19	04 12 23.0	i	VN	Local.
J	19	05 47 00.0	i	V	Local.
32	20	02 04 49.5	i	V	0: 01 59 06 (USCGS)
33	20	02 47 22.5	e	V	
K	20	06 05 59.5	e	V	Local.
				V	

No.	Date	Time	Phase		Remarks
34	Aug.20	12 29 48.5	iP	V	0: 12 20 08 (USCGS)
35	20	16 08 24.5	i	V	
36	20	17 42 29.0	i	V	
37	20	17 59 29.0	e	V	
38	20	21 53 53.5	i	V	
39	21	04 45 28.0	e	V	
40	21	06 13 20.0	e	V	
41	21	07 26 01.0	e	V	0: 07 13 19 (USCGS)
42	21	08 07 10.0	iP	VNE V_1N_1	R 0: 08 03 15 (USCGS)
		07 29.0	iPP	V	
		07 38.0	iPPP	V V_1	
43	21	08 09 31.5	iP	VN	
		13 01.0	iS	N_1	
44	21	09 41 43.5	iP	VNE V_1N_1	0: 09 37 49 (USCGS)
		42 06.0	iPP	V	
		42 14.0	iPPP	V	
		45 00.5	iS	N	
45	21	13 40 47.0	e	V	
46	21	15 23 01.5	iP	V	
47	23	20 22 48.0	e	V	
48	24	15 47 26.5	eP	VN	0: 15 41 40 (USCGS)
		48 18.0	iPP	V	
		48 36.0	iPPP	V	
49	24	21 36 31.5	eP	VN V_1	0: 21 30 46 (USCGS)
		39 43.5	iPcP	V_1	
		41 18.5	iS	N_1	
		42 55.0	iSS	N_1	
		22 09 28.0	i(SKKS)	N_1	
50	24	16 45 49.5	e	VN	0: 16 40 04 (USCGS)
51	24	23 30 31.0	i	V	
52	24	23 38 06.5	i	V	0: 23 32 23 (USCGS)
53	24	23 47 20.5	e	V	0: 23 41 34 (USCGS)
54	25	06 07 39.5	e	V	
55	25	11 50 16.0	i	V	
56	25	13 46 12.5	iP	V	0: 13 40 06 (USCGS)
L	26	01 31 12.0	i	VN	
		31 33.5	i	V	Local.
57	26	08 44 27.5	ePKP	V	0: 08 25 30 (USCGS)
		09 26.2	eL	V_1	
58	26	18 01 19.0	i	V	
M	27	02 10 21.0	e	VN	Local.
		10 42.0	i	N	
59	27	05 11 30.5	e	V	0: 05 05 44 (USCGS)
					h - 300 kms.
N	27	06 01 16.0	iP	VN	
		01 17.5	i	V	
		01 18.5	i	V	
60	27	07 58 15.5	iP	VN	C 0: 07 50 28 (USCGS)
		58 59.0	ipP	VN	h - 200 kms.
O	28	04 46 10.5	iP	V	Local.
		11.5	i	V	

No.	Date	Time	Phase		Remarks
61	Aug.28	02 09 29.5	i	V	0: 01 56 56 (USCGS)
62	28	02 48 34.0	iP	VN	C 0: 02 37 00 (USCGS)
		43 10.5	ipP	V	h - 150 kms.
63	28	09 36 18.0	e	VN	
64	28	15 57 32.5	iP	VNE $V_1N_1E_1$	R 0: 15 52 10 (USCGS)
		58 15.0	iPP	V	
		16 02 05.5	iS	N_1E_1	
65	28	23 15 13.5	i	V	
66	29	03 26 53.5	e	V	0: 03 21 07 (USCGS)
67	29	17 16 36.5	iP	V	0: 17 03 10 (USCGS)
68	29	21 25 48.5	eP	V	0: 21 20 27 (USCGS)
69	29	21 34 48.5	e	V	
70	29	22 15 37.5	i	V	
71	29	23 05 26.0	i	V	
72	30	18 53 50.0	e	V	0: 18 48 34 (USCGS)
73	30	21 54 46.0	e	V	0: 21 45 07 (USCGS)
74	31	07 45 01.5	i	V	
75	31	20 39 11.5	i	V	
76	31	22 50 29.0	i	P	

Seismograms read by
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THE AUSTRALIAN NATIONAL UNIVERSITY
DEPARTMENT OF GEOPHYSICS
CANBERRA, A.C.T., AUSTRALIA

MONTHLY SEISMOLOGICAL BULLETIN

September 1959

Latitude: 35° 19' 15" S. Longitude: 148° 59' 55" E. Height: 650 M

Instruments: three-component Benioff variable reluctance seismographs
T_g = 0.25 sec. (VNE)
T_g = 16 sec. (V_1)
T_g = 70 sec. (N_1E_1)

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

No.	Date	Time	Phase		Remarks
1	Sep. 1	02 50 32.0	i	V	
2	1	11 09 29.0	iP	V	R
3	2	04 07 42.5	iP	V	
4	2	05 00 09.0	iP	V	C
5	2	05 52 39.5	e	V	
6	3	02 44 55.5	iP	V	O: 02 39 04 (USCGS) h - 550 km.
A	3	02 51 49.0	i	VN	Local.
B	3	05 53 18.0	i	V	Local.
7	3	06 35 02.0	iP	VN	O: 06 27 30 (USCGS)
		35 05.0	i	V_1	
		36 44.5	iPP	V	
		37 11.0	iPPP	V	
		41 04.5	iS	V	
8	3	21 56 20.0	i	V	O: 21 48 56 (USGCS)
9	4	08 08 50.0	e	V	
10	4	08 53 12.5	i	V	
11	4	15 53 59.0	i	V	
12	4	17 20 45.5	i	V	
13	4	18 46 18.0	iPKP	V	O: 18 26 41 (USCGS)
14	5	06 15 22.0	iP	V	C O: 06 07 38 (USCGS)
		15 38.5	ipP	V	
		17 40.0	i	V	
		21 31.5	iS	E E_1	
		34.5	eL	V_1N_1	
15	5	07 06 10.5	iP	VN	C O: 07 00 26 (USCGS)
16	5	07 31 21.5	e	V	
17	5	15 35 31.0	iP	VN	R
18	5	15 42 29.0	iP	VN	R O: 15 34 44 (USCGS)
		44 10.5	i(PP)	V	
		44 31.0	iPcP	V	
		44 43.5	i(PPP)	V	
19	5	07 06 28.0	eP	V	
20	5	17 32 33.5	e	V	
21	5	23 11 00.5	iP	VN V_1	R O: 23 05 00 (USCGS)
		15 43.0	iS	N	h - 550 km.

No.	Date	Time	Phase		Remarks
22	Sep. 6	00 36 26.5	iP	VN V_1	R 0: 00 27 59 (USCGS)
		38 12.5	iPcP	V	
		38 36.0	i	V	
		41 52.5	i	V	
23	6	04 16 39.0	e	VN	0: 04 10 54 (USCGS)
24	6	13 27 31.0	e	V	0: 13 18 03 (USCGS)
25	6	18 12 04.5	i	V	R
26	8	01 08 41.0	e	V	
27	8	03 52 16.0	eP	V	
28	8	04 23 11.5	iP	VN	R
C	8	06 58 59.0	i	VN	
29	8	10 14 48.5	i	V	0: 10 03 27 (USCGS) h - 100 km.
30	8	13 24 25.5	iP	V	0: 13 12 04 (USCGS)
31	8	14 44 13.5	iP	VN	
32	8	19 31 39.0	i	V	0: 19 19 39 (USCGS) h - 100 km.
33	8	20 31 21.0	i	V	
34	9	04 19 42.5	iP	VN	Adelaide.
		19 47.5	i	V	
		21 25.5	iS	N	
		22 31.0	i	V	
		23 40.5	i	VN	
D	10	03 18 11.5	e	V	Local
35	10	05 41 10.0	iP	VN	R 0: 05 35 04 (USCGS)
		41 21.5	i	V	
		44 19.0	iPcP	V	
36	10	05 56 40.0	iP	VN	
37	10	10 10 05.5	e	V	
38	10	10 41 47.0	e	VN	
39	10	10 54 (33)	e	V	
40	10	12 39 08.5	i	V	
41	11	02 38 59.5	iP	VN	
42	12	02 00 21.0	iP	VV_1	R 0: 01 53 47 (USCGS)
		00 12.5	i	V_1	
		01 37.5	iPP	V^1	
		01 50.0	iPPP	V	
		03 13.0	iPcP	V	
		05 34.0	iS	E_1	
		05 40.5	iS	N_1	
43	12	07 02 20.0	i	V	
44	12	11 30 09.0	iP	VV_1	C 0: 11 24 27 (USCGS)
		34 43.5	iS	E_1	
		34 49.0	iS	N^1	
		35 02.5	i	N	
45	13	04 02 54.5	i	V	0: 03 45 11 (USCGS)
46	13	04 39 52.0	i	N	
		41 04.5	e	V	

No.	Date	Time	Phase		Remarks
47	Sep. 13	22 48 21.0	iP	V	0: 22 40 36 (USCGS)
48	14	01 41 47.0	i	V	
49	14	08 52 05.5	iP	V	0: 08 42 56 (USCGS)
50	14	13 22 23.5	i	V	0: 13 15 49 (USCGS)
51	14	14 15 46.5	iP	VN V_1	0: 14 09 39(USCGS)
		16 48.0	iPP	V_1	
		19 42.5	i	N_1	
		20 42.0	iS	$N N_1$	
52	14	15 04 48.0	iP	V	0: 14 58 40 (USCGS)
		04 50.5	i	N	
53	14	15 46 05.5	i	V	
54	14	16 02 12.5	e	V	
55	14	16 28 11.0	iP	V	C 0: 16 22 01 (USCGS)
56	14	17 02 24.5	iP	V	0: 16 56 13 (USCGS)
57	14	17 12 23.0	iP	V	C 0: 17 06 15 (USCGS)
		13 24.5	iPP	V	
		15 29.0	iPcP	V	
		17 32.5	iS	V	
58	14	17 44 05.0	iP	V	
59	14	22 29 59.5	iP	VN	C 0: 22 23 53 (USCGS)
		31 03.5	iPP	V	
		35 06.5	iS	N	
60	15	02 30 20.5	e	V	
61	15	05 15 16.0	i	V	
62	15	06 04 23.0	i	V	
63	15	06 05 53.0	iP	V V_1	R 0: 05 59 42 (USCGS)
		06 59.5	iPP	V	
		11 02.5	iS	N	
64	15	08 06 31.5	iP	V	0: 08 00 23 c(USCGS)
		06 38.5	ipP	V	
65	15	10 54 56.5	e	V	0: 10 48 44 (USCGS)
66	15	11 11 06.0	iP	VN V_1E_1	C 0: 11 05 33 (USCGS)
		12 44.0	iPP	V V_1	h - 600 km.
		15 29.0	iS	N $V_1N_1E_1$	
		15 37.5	i	N_1	
		16 05.5	i	N_1	
		18 35.0	iSS	N_1	
		19 20.5	iSSS	N_1	
		20 32.0	iScS	N_1E_1	
67	15	11 16 34.0	iP	VN V_1	R
68	15	12 06 33.0	e	V	
69	15	13 00 58.5	iP	V	C 0: 12 54 25 (USCGS)
70	15	13 21 31.5	i	V	
71	15	13 52 26.0	iP	V	R 0: 13 46 17 (USCGS)
72	15	14 09 47.0	i	V	
73	15	14 54 24.0	e	V	
74	16	02 09 43.0	iP	V	C 0: 02 03 34 (USCGS)
75	16	02 42 07.5	iP	V	C 0: 02 35 59 (USCGS)
76	16	10 13 55.5	i	V	0: 10 07 45 (USCGS)

No.	Date	Time	Phase		Remarks
77	Sep. 16	16 03 16.0	eP	V	0: 15 57 03 (USCGS)
78	16	16 19 41.5	e	V	
79	16	17 22 06.0	eP	V	
80	17	00 34 29.0	iP	V	
81	17	03 26 37.0	e	V	
82	17	03 45 46.0	iP	V	R
83	17	04 10 08.5	e	V	
84	17	14 42 28.0	eP	V_1	0: 14 36 11 (USCGS)
		46 47.0	e(S)	N_1	
	Out of order from 18th. to 22nd. September inclusive.				
F	23	05 34 36.0	iP	VN	Quarry?
G	23	13 21 22.5	i	V	
85	23	20 55 49.0	iP	VN	C
86	23	21 12 18.0	i	V	
87	23	22 34 30.0	i	VN	0: 22 23 11 (USCGS)
88	24	09 04 04.0	i	V	
89	24	16 44 28.5	i	V	C
90	24	17 39 27.0	i	V	
91	24	18 59 15.5	i	V	
92	24	19 50 28.0	iP	V	C 0: 19 44 29 (USCGS)
93	25	00 22 19.0	iP	VNE	C 0: 00 14 30 (USCGS)
		22 38.0	i	V	
94	25	01 45 16.5	iP	V	C 0: 01 39 09 (USCGS)
95	25	02 47 15.5	iP	V	C 0: 02 36 48 (USCGS)
		47 16.5	i	VNE	
		03 10.9	eL	V_1	
H	25	03 50 42.5	i	V	Local.
96	26	06 19 10.0	i	V	
97	26	07 33 26.0	i	V	
98	26	15 35 48.0	iP	V	
99	27	10 27 07.0	iP	VNE	R 0: 10 20 18 (USCGS)
		32 24.5	eS	N	
100	27	10 53 50.5	iP	V	R
101	28	02 44 47.5	iP	V	C
102	28	04 31 08.0	iP	V	R 0: 04 20 27 (USCGS)
I	29	05 45 32.5	iP	NE	Local.
103	29	14 37 37.0	eP	NE	
104	29	14 53 09.5	•	N	
105	29	15 38 09.5	iP	NE	0: 15 31 57 (USCGS)
		39 16.0	iPP	V_1	
		43 08.5	iS	E_1	
J	30	06 01 03.5	i	V	Local.
		01 08.0	i	N	
106	30	13 37 41.5	iP	V	R 0: 13 31 30 (USCGS)
		37 49.0	i	V	
107	30	14 59 35.5	iP	V	R
			iP	VNE	C

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THE AUSTRALIAN NATIONAL UNIVERSITY
DEPARTMENT OF GEOPHYSICS
CANBERRA, A.C.T., AUSTRALIA

Monthly Seismological Bulletin

October, 1959

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302

Latitude: 35° 19' 15" S. Longitude: 148° 59' 55" E. Height: 650 M.

instruments: three-component Benioff variable reluctance seismographs

T_g = 0.25 sec. (VNE)

T_g = 16 sec. (V_1)

T_g = 70 sec. (N_1E_1)

Abbreviations: R = rarefaction; C = compression; 0 = origin.

No.	Date	Time	Phase		Remarks
1	Oct. 1	00 48 03.5	iP	V	
2	1	03 14 03.0	iP	V	
A	1	04 52 31.5	i	V	Blast?
B	1	05 42 08.0	i	V	Blast?
C	1	05 47 08.0	i	V	Blast?
D	1	05 49 16.5	i	V	Blast?
E	1	05 55 02.0	i	V	Blast?
3	2	17 49 30.0	i	V	
4	3	00 47 09.0	i	V	
5	3	10 23 03.5	i	V	
6	3	23 21 03.0	iP	VNE	C
7	3	23 36 34.0	e	V	
8	6	05 52 28.0	iP	VNE	C 0: 05 44 37 (USCGS)
		53 14.5	i(pP)	V	h: 200 km.
		54 02.5	i(PcP)	V	
		54 13.0	iPP	V	
9	7	03 57 11.0	iP	V	R
10	7	06 40 10.5	eP	V	
11	7	08 50 03.5	iPKP	V	R 0: 08 30 41 (USCGS)
12	7	12 43 04.0	iP	V	
13	8	00 08 48.0	iP	VNE V_1	C 0: 00 03 28 (USCGS)
		08 40.0	i	V	
		08 31.0	iPP	V	
		10 53.5	i	V	
F	9	09 22 21.5	iP	VN	Local.
		22 31.0	iS	VN	
		22 35.5	L	V	
14	9	17 55 22.0	i	V	
15	10	01 19 26.0	iP	V	C
16	11	09 59 43.0	iP	V	C 0: 09 53 18 (USCGS)
17	11	17 56 43.5	iP	V	C 0: 17 50 22 (USCGS)
18	11	20 09 18.5	iP	V	R 0: 20 03 10 (USCGS)
19	12	03 32 05.5	iP	V	C 0: 03 21 52 (USCGS)

No.	Date	Time	Phase		Remarks
20	Oct.12	08 46 55.0	iP	V	C
21	12	13 14 28.0	i	V	
22	12	18 01 53.5	i	V	
G	12	21 25 25.5	iP_n	V	Local.
		25 40.0	i	V	
		25 48.0	iP_g	V	
		26 37.0	i	V	
		26 44.5	i	V	
		26 51.0	iS_g	V	
H	13	02 12 40.0	e	V	Local.
I	13	05 50 59.0	iP	VNE	Local.
		51 11.5	i	N	
		51 13.5	i	E	
23	13	07 23 35.0	e	V	
24	13	17 10 05.0	iP	VNE	R
25	14	10 01 19.0	e	V	0: 09 56 29
26	14	15 41 11.0	iP	VN	R
27	14	18 06 05.0	i	V	
28	14	20 41 09.0	iP	V	R 0: 20 33 59 (USCGS)
29	14	20 58 05.5	i	V	
30	15	04 28 59.5	e	V	0: 04 22 44 (USCGS)
31	15	06 23 47.0	iP	VNE V_1E_1	R 0: 06 15 33 Canberra
		23 53.5	ipP	V_1	
		25 31.5	iPcP	$V V_1$	
		26 11.5	iPPP	$N V_1$	
		30 23.0	iS	$V_1N_1E_1$	
		30 31.0	iPS	E_1	
		33 42.0	iSS	V_1	
		33 44.0	iSS	E_1	
		34 47.0	iSSS	E_1	
		55 32.0	ePKPPKP	V_1	
J	15	07 00 28.5	i	V	Local.
32	15	07 52 57.5	iP	V	0: 07 40 20 (USCGS)
		53 17.0	i	V	
33	15	15 09 21.0	iP	V	R
K	15	15 58 24.0	iP	V	C Local.
L	16	02 36 24.0	iP	VNE	
		36 26.5	i	V	Local.
34	16	16 23 21.5	iP	VNE	C 0: 16 14 53 (USCGS)
		25 12.5	iPP	V	
		25 24.5	iPPP	V	
35	16	17 41 04.0	i	V	
36	16	22 15 50.5	e	V	
M	17	05 33 26.0	iP	VNE	Local.
		33 52.0	i	V	
N	17	05 37 18.5	iP	VNE	Local.
		37 43.5	i	VNE	
O	17	05 39 36.5	i	VNE	Local.
37	17	13 40 01.0	i	V	
38	17	16 50 30.5	i	V	
P	18	00 21 34.5	eP	V	Local.
Q	18	06 33 38.0	i	V	Local.

No.	Date	Time	Phase		Remarks
39	Oct. 18	12 23 27.0	eP	V	0: 12 17 02 (USCGS)
40	18	19 20 24.0	iP	V	R
41	18	23 34 01.5	iP	V	C 0: 23 25 13 (USCGS)
		34 27.5	i	V	h: 150 km.
42	19	01 31 28.0	iP	V	R 0: 01 25 36 (USCGS)
					h: 60 km.
R	19	02 01 33.0	iP	VE	Local.
		01 35.0	i	N	
43	19	02 58 55.5	eP	V	0: 02 46 49 (USCGS)
44	19	08 33 33.5	iP	VE V_1	C 0: 08 27 21 (USCGS)
		34 38.0	iPP	V	
		34 52.5	iPPP	V	
45	19	13 58 11.5	iP	VNE	R 0: 13 52 40 (USCGS)
		59 47.0	ipP	VE	h; 600 km.
		59 54.5	i	V	
46	19	16 08 35.5	iP	V	C 0: 15 55 30 (USCGS)
		08 37.5	i	V_1	
		08 38.5	iPcP	V V_1	
		12 22.0	i(PP)	V	
47	23	03 49 45.0	iP	VNE	C
S	23	06 00 58.5	e	V	Local.
T	24	00 54 03.0	i	V	Local.
		54 05.0	i	V	
U	24	02 50 25.0	i	V	Local.
		52 00.5	i	V	
V	24	03 52 22.0	i	V	Locall
48	24	03 44 17.5	iP	V	C
49	24	07 41 14.0	iP	V	R
50	25	00 05 03.0	iP	V	
51	25	17 15 57.0	i	V	0: 17 07 41 (USCGS)
52	26	05 42 58.5	iP	V	
53	26	07 46 38.5	iP	VN	0: 07 35 12 (USCGS)
		46 54.0	iPcP	V	h: 60 km.
		47 06.5	i(pP)	V	
54	26	10 41 43.0	iP	V	C 0: 10 29 09 (USCGS)
					h: 150km.
55	26	11 37 19.5	iP	V	R
56	26	12 12 45.0	eP	V	
W	26	12 23 34.5	e	V	Local.
57	26	23 40 53.0	iP	VNE	R
58	27	07 05 00.5	iP	VN	C 0: 06 52 50 (USCGS)
		05 04.5	iPcP	V	h: 100 km.
		05 11.5	i	V	
		08 08.5	i(PP)	V	
		15 08.0	iS	E_1	
		15 18.0	eScS	E_1	
59	28	07 35 47.0	i	V	
60	28	09 28 10.0	iP	V	C
61	28	21 11 59.0	iP	V	C
62	29	14 25 57.5	iP	VE	C

No.	Date	Time	Phase		Remarks
63	Oct.29	14 41 37.5	iP	VNE	C 0: 14 30 44 (USCGS)
		41 38.5	iPcP	V	h: 550 km.
		43 42.5	ipP	V	
		44 49.0	iPP	V	
64	30	05 39 27.5	iP	V	R 0: 05 20 36 (USCGS)
65	30	06 31 56.5	iP	V	R 0: 06 24 38 (USCGS)
66	30	07 10 54.0	iP	V	C 0: 07 04 48 (USCGS)
		12 13.0	ipP	V	h: 450 km.
		13 07.5	iPcP	V	
67	30	21 43 33.0	iP	V	R 0: 21 37 35 (USCGS)
					h: 600 km.
68	31	04 33 27.5	iP	VNE	
		34 38.0	i	V	
		38 31.0	iS	N	
		38 35.0	iS	E	

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Monthly Seismological Bulletin

November, 1959

Latitude: 35° 19' 15" S. Longitude: 148° 59' 55" E. Height: 650 M.

Instruments: three-component Benioff variable reluctance seismographs

T_g = 0.25 sec. (VNE)
T_g = 16 sec. (V_1)
T_g = 70 sec (N_1E_1)

Abbreviations: R = rarefaction; C = compression; 0 = origin.

No.	Date	Time	Phase		Remarks
1	Nov. 1 ×	01 49 35.5	iP	V	
A	2 ×	01 20 35.5	iP	VE	Regional
		20 36.0	i	N	Eyre Peninsula
		22 35.5	iS	V	
2	2 ×	07 26 35.5	i	V	C
3	2 ✓	08 53 47.0	iP	VNE	C 0: 08 43 54 (USCGS)
		54 42.0	iPcP	V	
		56 07.0	iPP	V	
4	2 ×	19 39 44.0	i	E	
5	2 ✓	20 09 37.0	iP	V V_1	R 0: 20 03 32 (USCGS)
		09 38.5	iP	N	h: 60 km.
		09 40.5	iP	E	
		14 44.5	iS	E_1	
		14 48.5	e(S)	V_1	
		16 15.0	iSS	E_1	
6	2 ✓	21 59 42.5	i	V	C 0: 21 53 05 (USCGS)
7	3 ×	00 40 30.0	iP	VNE	R 0: 00 32 19 (USCGS)
B	3 ×	06 13 28.5	i	VNE	Local
8	3 ×	09 11 37.5	i	V	
9	3 ✓	09 48 04.0	iP	VNE V_1E_1	R 0: 09 40 05 (USCGS)
		49 49.0	iPP	V	
		49 57.0	iPcP	V	
		54 28.5	iS	E_1	
10	4 ×	18 28 45.5	iP	V	C 0: 18 22 40 (USCGS)
11	4 ×	19 12 48.5	iP	V	C 0: 19 07 36 (USCGS)
		13 08.5	i	V	
12	4 ×	20 06 16.5	iP	V	C
13	5 ×	05 51 34.0	iP	VN	R 0: 05 45 23 (USCGS)
		52 38.5	i	V	
		52 39.5	i	V	
14	5 ✓	11 55 58.5	iP	VNE	C 0: 11 50 17 (USCGS)
		58 26.0			h - 100 kms.
		12 00 20.5	iS	E_1	
		02 00.5	iSS	E_1	
15	5 ✓	17 44 01.0	iP	VN	C 0: 17 38 08 (USCGS)
		44 58.5	iPP	V	
		47 13.0	iPcP	V	

No.	Date	Time	Phase		Remarks
16	Nov. 5	18 05 40.0	iP	VN	
C	5	18 21 40.5	eP	V	Local
17	6	01 13 25.5	iP	VN	C 0: 01 07 31 (USCGS)
18	6	01 17 26.5	iP	VN	0: 01 11 36 (USCGS)
		18 12.0	i(PP)	V	
19	6	01 32 43.0	iP	V	C
20	6	11 49 47.5	i	V	0: 11 32 50 (USCGS)
21	6	12 30 55.0	i	V	0: 12 25 06 (USCGS)
22	7	08 23 58.0	iP	V	R 0: 08 17 59 (USCGS)
23	7	11 02 07.0	iP	V	
24	7	22 23 06.0	iP	V	C 0: 22 16 15 (USCGS)
25	8	14 07 05.0	iP	V	R 0: 13 54 55 (USCGS)
		10 14.5	iPP	V	
		12 05.0	iPcP	V	
26	8	14 33 14.5	i	V	0: 14 27 37 (USCGS) h - 100 kms.
27	8	18 50 46.0	iP	V	
28	9	10 47 16.0	e	V	
29	9	13 42 16.5	iP	V	R 0: 13 35 40 (USCGS)
30	9	20 53 54.0	iP	V	C
31	10	08 14 28.5	i	V	0: 08 08 18 (USCGS) h - 200 kms.
32	10	11 40 35.0	i	V	
33	10	13 42 19.5	i	V	
34	10	16 46 48.0	i	V	0: 16 40 45 (USCGS)
D	11	07 04 16.5	eS	V	Quarry blast.
35	12	00 30 32.0	i	V	
36	12	00 46 11.0	i	V	
37	12	18 09 36.5	iP	V	C
38	13	10 11 32.5	iP	VNE	C 0: 10 06 14 (USCGS) h - 600 kms.
39	13	17 59 47.0	e	V	
40	14	10 40 28.0	i	V	C 0: 10 33 56 (USCGS)
E	14	17 57 04.0	i	V	Local.
41	15	08 10 49.5	iP	V	C 0: 08 04 45 (USCGS) h - 500 kms.
42	15	17 28 06.0	iPKP	V	0: 17 08 41 (USCGS)
F	16	01 43 12.5	e	V	Local.
G	16	05 36 44.0	e	V	Local.
43	16	10 40 59.0	iPKP	V V_1	R 0: 10 21 17 (USCGS)
44	16	15 00 13.0	iP	V	C
45	16	23 51 57.0	iP	V	C 0: 23 43 40 (USCGS)
		52 06.5	ipP	V	
46	16	23 59 56.5	e	V	0: 23 50 35 (USCGS)
47	17	02 44 36.5	iP	V	R 0: 02 32 37 (USCGS)
48	17	15 44 27.5	iP	V	R 0: 15 16 59 (USCGS)
			iP	V	R

No.	Date	Time	Phase		Remarks
50	17	19 43 08.0	e	V	
51	19	05 32 20.0	iP	V	R 0: 05 25 53 (USCGS)
52	19	11 14 40.5	iP	V V_1	C 0: 11 08 32 (USCGS)
		19 23.0	iS	E_1	0: 11 08 41 (Canberra)
		20 08.0	isS	E_1	h: normal (USCGS)
		21 20.5	iScP	V_1	h: 100 km. (Canberra)
		25 14.0	iScS	E_1	
53	20	00 26 35.0	i	V	R
E	20	01 58 23.5	i	V	Local
I	20	02 11 26.5	i	V	Blast?
J	20	08 25 20.0	i	V	Local
K	20	06 06 34.0	i	V	Local
54	20	07 51 05.0	iP	V	C
55	20	15 24 13.0	iP	V	R 0: 15 16 45 (USCGS)
56	20	16 37 28.0	iP	V	C 0: 16 30 45 (USCGS)
		44 31.5	eS	E	
		44 45.5	i	V	
		47 50.0	iSS	V	
		48 39.5	i(ScS)	E	
57	20	19 08 57.0	iP	V	C
		09 04.0	i	V	
58	20	19 49 20.0	iPKP	V	R 0: 19 29 38 (USCGS)
59	21	17 18 25.0	iP	V	C
60	22	02 41 04.5	iP	V	R
61	22	12 54 37.5	iP	V	R 0: 12 47 56 (USCGS)
		55 56.0	iPP	V	
		56 11.0	iPKP	V	
		13 05 47.0	iScS	E_1	
		08 48.0	i	V_1	
62	22	19 40 17.5	iP	VNE V_1E_1	R 0: 19 34 35 (USCGS)
		41 49.5	ipP or PP	VN $V_1N_1E_1$	h: 550 km.
		42 09.0	i(PPP)	E	
		42 12.5	i(PKP)	V	
		42 47.5	iPcP	E_1	
		42 51.0	ePcP	N_1	
		42 51.5	iPcP	V_1	
		42 52.5	iPcP	V_1	
		42 53.0	iPcP	N	
		44 47.0	eS	N_1	
		44 47.5	iS	N	
		44 48.0	iS	E_1	
		44 48.5	iS	V_1	
		44 49.0	iS	V	
		44 49.5	iS	E	
		47 43.0	i(SS)	E	
		47 45.5	eSS	N_1	
		48 34.5	eSSS	E_1	
		49 33.5	iScS	E_1	
L	23	06 53 54.5	i	V	Local
63	23	14 49 09.5	eP	VN	0: 14 41 42 (USCGS)
64	23	16 21 24.5	e(PPP)	V_1	0: 16 14 47 (USCGS)
		25 23.5	e	N_1E_1	

No.	Date	Time	Phase		Remarks
	✓	27 45.0	e	E_1	
		28.2	eL	V_1	
M	23 ×	18 28 54.0	i	V	Local
N	24 ×	08 39 53.0	iP	VNE	R Local
		40 01.5	iS	NE E_1	
O	24 ×	11 39 18.0	i	V	Local
P	24 ×	11 50 01.0	iP	V	C Local
Q	25 ×	10 06 44.0	iP	VN	C Local
65	26 ✓	00 49 27.0	iP	VN	C 0: 00 41 35 (USCGS)
R	26 ×	07 00 30.5	e	VE	Local
66	26 ✓	07 15 30.5	iP	VE	C 0: 07 06 19 (USCGS)
		15 32.0	eP	N	
		15 34.0	eP	V_1	
		15 42.0	ipP	V_1E_1	
		22 51.5	iS	N_1	
		22 52.0	eS	V_1E_1	
		22 53.0	iS	N	
		28 23.0	iSSS	E_1	
		30.3	e(L_q)	V_1	
		36.3	eL_r	V	
67	26 ×	16 41 40.0	iP	VNE	C
		42 19.5	i	VNE	
68	26 ×	18 15 24.0	iP	VNE	R
69	26 ✓	23 18 35.5	iP	E	0: 23 09 28 (USCGS)
		18 36.0	iP	V	C
		18 37.0	iP	N	
		20 46.0	iPP	V_1	
		21 50.0	iPPP	VNE	
		25 57.0	eS	N_1E_1	
		25 58.5	eS	V_1	
		25 59.0	eS	NE	
		31.3	L_q	N_1E_1	
S	27 ×	04 46 58.5	iP	VN	Local
		47 09.5	i	VN	
70	27 ×	05 57 02.0	iP	V	C
71	27 ✓	19 00 39.5	iP	VNE	R 0: 18 51 27 (USCGS)
T	28 ×	02 01 08.5	i	VNE	C Local
72	28 ✓	02 51 38.0	eP	E	0: 02 45 45 (USCGS)
		51 48.5	eP	V	
		56 22.0	eS	N_1	
		56 24.0	iS	E_1	
		59.1	eL_r	V_1N_1	
73	28 ✓	08 31 08.0	iP	V	C 0: 08 20 24 (USCGS)
74	28 ×	06 13 02.5	e	VNE	
75	28 ✓	22 45 04.0	iP	VNE $V_1N_1E_1$	C 0: 22 39 13 (USCGS)
		48 20.0	iPcP	V	
		48 20.5	iPcP	E	
		49 47.0	eS	N	
76	29 ×	01 37 32.5	iP	VNE V_1	R 0: 01 30 52 (USCGS)
77	29 ×	09 03 23.5	eP	N	
		03 24.5	eP	V	
78	29 ×	10 52 59.5	iP	VN	C

No.	Date	Time		Phase	Remarks
U	30 ×	04 06 20.0	i	V	Blast?
V	30 ×	04 17 31.0	i	V	Blast?
W	30 ×	04 58 10.0	i	V	Blast?
X	30 ×	05 15 52.5	i	V	Blast?
Y	30 ×	05 58 53.0	i	V	Blast?
Z	30 ×	06 12 42.0	i	V	Blast?
79	30 ✓	15 22 57.0	i	N	
		22 57.5	i	V	C

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CANBERRA, A.C.T., AUSTRALIA

Dec copied MH

Monthly Seismological Bulletin
December 1959

Latitude: 35° 19' 15" S. Longitude: 148° 59' 55" E. Height: 650 M.

Instruments: three-component Benioff variable reluctance seismographs

T_g = 0.25 sec. (VNE)

T_g = 16 sec. (V_1)

T_g = 70 sec. (N_1E_1)

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

No.	Date	Time	Phase		Remarks
1	Dec. 1	09 52 16.5	iP	V	C
2	1	15 05 36.5	iP	V	R
		10 41.0	i(S)	E_1	
A	1	15 32 14.5	eP	V	Local.
3	1	18 19 45.0	iP	V	C O: 18 11 49 (USCGS)
		21 09.0	ipP	V	h - 400 kms.
		21 23.5	iPP	V	
4	1	18 24 32.0	iP	V	R
5	1	19 01 32.0	iP	V	R O: 18 54 48 (USCGS)
		03 09.0	iPP	V	h - 150 kms.
B	2	01 39 19.0	i	V	Local.
6	2	04 24 04.0	iP	VE	R
7	2	07 39 01.0	iP	VE	C O: 07 30 05 (USCGS)
					h - 150 kms.
8	2	07 55 34.0	e	V	
9	2	09 41 54.5	iP	VN V_1	C O: 09 34 00 (USCGS)
		42 03.0	ipP	V	
		42 04.0	ipP	N E_1	
		43 36.5	iPP	N V_1N_1	
		43 49.5	iPcP	E	
		43 50.5	iPcP	E_1	
		48 11.5	iS	VE E_1	
		48 12.5	eS	N_1	
		51 22.5	i(SS)	E_1	
		51 26.5	i(SS)	V_1	
10	2	20 04 26.5	iP	V	C O: 19 57 55 (USCGS)
11	2	20 12 58.5	e	VE	
		15 02.0	e	V E_1	
		15 08.5	e	E	
12	3	01 02 03.0	e	V	
13	3	03 55 23.0	i	V	
C	3	07 13 32,0	i	V	Local.
14	3	13 23 28.0	eP	V	O: 13 16 26 (USCGS)
15	4	01 13 26.5	eP	V	
16	4	07 06 22.5	e	V	
D	4	09 07 05,5	i	V	Local.
17	4	[illegible]	iP	V	C

No.	Date	Time	Phase		Remarks
18	Dec. 4	20 16 36.0	i	V	
E	7	01 17 59.5	iP	V	C Local.
19	7	03 07 44.0	iP	VN	R 0: 03 01 44 (USCGS)
		09 24.5	ipP	V	h - 600 kms.
20	7	05 26 25.0	iP	V	C 0: 05 15 24 (USCGS)
F	7	07 31 45.5	e	V	Local.
21	7	18 50 32.0	iP	V	R
22	8	03 11 34.0	i	V	C 0: 02 59 56 (USCGS)
23	8	04 37 58.5	iP	V	C 0: 04 30 06 (USCGS)
		38 05.0	ipP	V	
		39 40.5	iPP	V	
G	8	06 04 31.0	i	V	Local.
24	9	10 59 05.0	iP	V	R
25	9	14 10 46.0	iP	VE	R 0; 14 04 28 (USCGS)
					h - 450 kms.
26	9	21 35 12.0	iP	V	C
H	10	01 56 27.0	i	V	Local.
I	10	04 48 07.5	i	V	Local.
27	10	05 47 37.5	i	V	
J	10	06 09 15.5	i	V	Local.
28	11	00 38 38.0	iP	VE	R 0: 00 31 40 (USCGS)
		40 06.0	iPP	VE	
		41 10.5	iPcP	V	
29	11	01 45 18.0	eP	V	0: 00 38 33 (USCGS)
K	11	15 38 28.0	e	V	Local.
L	12	01 58 50.0	iP	V	R Local.
30	12	05 42 27.5	eP	V	
31	12	09 33 10.5	iP	V	R
32	12	19 47 10.0	i	V	R
33	14	01 25 11.0	e	V	
M	14	02 16 23.5	i	V	Local.
34	14	06 29 56.0	i	V	
35	14	13 02 58.0	i	V	
36	14	13 06 44.5	iP	VNE V_1	C 0: 17 58 31 (USCGS)
		06 45.0	iP	E_1	or 17 58 33 (USCGS)
		06 54.0	i	V	h - 150 or 200 kms.
		07 13.0	i	V V_1	
		08 33.0	i(PP)	V	
		09 15.5	i	V	
		13 18.0	eS	N_1E_1	
		14 09.0	i	E_1	
37	14	21 57 09.5	iP	VNE V_1E_1	C 0: 21 49 10 (USCGS)
		57 20.0	ipP	V V_1	
		58 46.5	iPP	V	
		59 03.0	iPcP	V	
		22 08 27.5	eS	N N_1E_1	
38	14	23 34 36.0	iP	VNE V_1N_1	C 0: 23 21 56 (USCGS)
		45 02.0	eS	N_1	
		45 04.0	eS	E_1	
39	15	00 03 56.0	iP	V	C
40	15	08 36.0	i	V	0: 08 56 20 (USCGS)

No.	Date	Time	Phase		Remarks
41	Dec. 15	09 38 51.5	iP	VE	C O: 09 30 22 (USCGS)
42	15	12 28 28.5	iP	VN	C O: 12 15 45 (USCGS)
43	15	16 36 06.5	iP	VN	C
44	15	20 15 06.5	iP	VN	C
45	15	23 55 51.0	e	VN	
46	16	02 28 15.5	e	V	
47	17	02 41 28.5	iP	VN	C O: 02 31 02 (USCGS)
48	17	02 56 25.0	eP	V	
49	17	03 02 14.5	iP	VE	R O: 02 55 58 (USCGS) h - 100 kms.
50	17	06 03 00.0	iP	V	R O: 05 53 46 (USCGS)
		03 10.5	ipP	V	
51	17	06 53 29.0	i	VN	
52	17	13 34 36.5	i	V	
53	17	17 01 16.5	eP	V	O: 16 48 55 (USCGS)
N	18	05 58 51.0	iP	VN	Local.
54	18	09 21 03.0	iP	V	C
55	18	10 03 05.0	iP	VNE	R O: 09 57 07 (USCGS) h - 600 kms,
56	19	09 15 49.0	iP	VNE V_1	R
57	19	10 40 52.0	e	V	
58	19	22 08 14.0	e	V	
O	20	00 03 42.0	eN	N	Local.
		03 48.0	e	E	
		03 49.0	i	V	
59	20	00 07 17.0	i	V	
60	20	01 08 18.0	i	VNE	R
61	20	06 29 54.0	iP	VNE	R
62	20	08 11 25.5	iP	V	R O: 08 05 34 (USCGS)
63	20	13 02 39.0	iP	VN	C O: 12 53 37 (USCGS)
64	20	15 15 47.0	iP	VN	R
65	20	16 57 36.0	iP	V	C
66	21	10 26 52.0	iP	VE V_1	R O: 10 20 33 (USCGS)
		31 50.0	eS	E_1	
		34.9	eL	V_1E_1	
67	21	11 20 33.5	iP	VE V_1	R O: 11 14 17 (USCGS)
		20 45.0	ipP	V	
		21 33.5	iPP	E_1	
		27.3	eL	N_1	
		28.9	eL	V_1E_1	
68	21	11 43 12.5	i	V	R
69	22	00 25 15.0	i	VE	C
		25 23.0	i	VE	
P	22	01 07 13.5	i	VN	Local.
70	22	02 00 13.5	iP	V	C
Q	22	04 28 47.0	iP	VNE	Local.
		28 56.5	iS	VN	
71	22	11 43 46.5	i	V	
		51.0	iP	V	C O: 17 20 19 (USCGS)

4 pP (see over)

No.	Date	Time	Phase		Remarks
73	Dec.22	17 32 08.5	i(pP)	V	h - slightly deeper than normal.
73	23	00 28 50.0	e	V	
74	23	04 37 17.0	e	V	O: 04 31 00 (USCGS)
		48.0	eL	V_1E_1	
75	23	06 32 09.0	e	V	
76	23	09 48 31.0	i(PKP)	V	R O: 09 28 56 (USCGS)
77	23	14 05 18.0	iP	V V_1	C O: 13 59 02 (USCGS)
		05 30.0	ipP	V	
		06 29.0	ePP	V_1	
		15.3	eL	E_1	
78	24	01 11 22.0	i	V	R
79	24	02 26 40.0	iP	VE	C
80	24	05 36 45.5	i	V	R
81	24	07 26 05.5	iP	V	R
82	24	09 20 39.0	iP	VE	R O: 09 14 24 (USCGS)
83	24	13 17 30.5	iP	N	O: 13 08 34 (USCGS)
		17 31.5	iP	V	
84	25	03 55 13.5	iP	V	C O: 03 48 58 (USCGS)
		55 14.0	iP	E V_1	
		55 14.5	eP	N E_1	
		04 00 11.5	eS	E_1	
		02 09.0	e	V_1	
		03.5	eL	$V_1N_1E_1$	
85	25	05 43 27.5	e	V	
86	25	06 13 50.5	i	V	R
87	25	07 13 34.5	i	V	C
88	25	14 32 30.0	iP	VNE	C
89	26	01 44 53.0	iP	VN	R
90	26	16 32.0	eL	V_1E_1	
R	26	20 29 30.0	i	VNE	R Local.
91	27	03 17 04.5	iP	V	C
92	27	06 19 20.5	e	V	
93	27	07 46 22.0	i	VE	C
94	27	13 07 41.5	iP	V	R
		07 55.0	i	V	
95	27	16 06 07.5	eP	V	
		06 14.0	e	V_1	
		06 22.0	i	V	
		17 07.0	iS	E_1	
		17 10.0	eS	V_1	
		27.0	eL	E_1	
96	27	21 21 27.5	i	V	R
97	28	07 33 32.5	iP	V	R O: 07 20 32 (USCGS)
		44 09.5	i(SKS)	E_1	
		44 11.0	e(SKS)	N_1	
		08 02.5	eL	V_1	
98	28	11 52 56.5	iP	V	R
99	28	13 34 41.5	iP	VE	R O: 13 29 15 (USCGS)
100	29	01 21 42.5	i	V	R
101	29	03 58 31.0	i	V	C

No.	Date	Time	Phase		Remarks
S	Dec.29	06 48 04.0	iP	VN	R Local.
		48 11.5	i	V	
		48 29.5	i	V	
102	29	07 11 49.0	i(P)	VE V_1	C 0: 07 04 14 (USCGS)
		11 54.5	i	VE V_1	
103	29	14 39 55.0	i	V	C
104	29	17 21 35.5	iP	V	C 0: 17 14 40 (USCGS)
105	29	18 14 12.0	iP	VE	R
106	29	20 48 54.0	eP	VE	0: 20 35 08 (USCGS)
		45 15.0	ipP	V	h - 350 kms.
107	29	21 34 24.0	iP	VE	R 0: 21 27 17 (USCGS)
		35 45.0	i(sP)	VE	
108	29	21 40 20.5	iP	V	R
109	30	00 03 04.5	iP	V	C
110	30	00 21 12.0	eP	V	
T	30	05 42 49.5	e	VE	Local.
		42 50.5	i	VE	
		43 03.5	i	V	
111	30	14 04 24.0	iP	V	0: 13 55 45 (USCGS)
					h - 150 kms.
112	31	03 01 40.0	i	V	
113	31	10 36 05.5	iP	VE	
		44.2	e(L)	V_1	
		47.1	e(L)	N_1E_1	

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