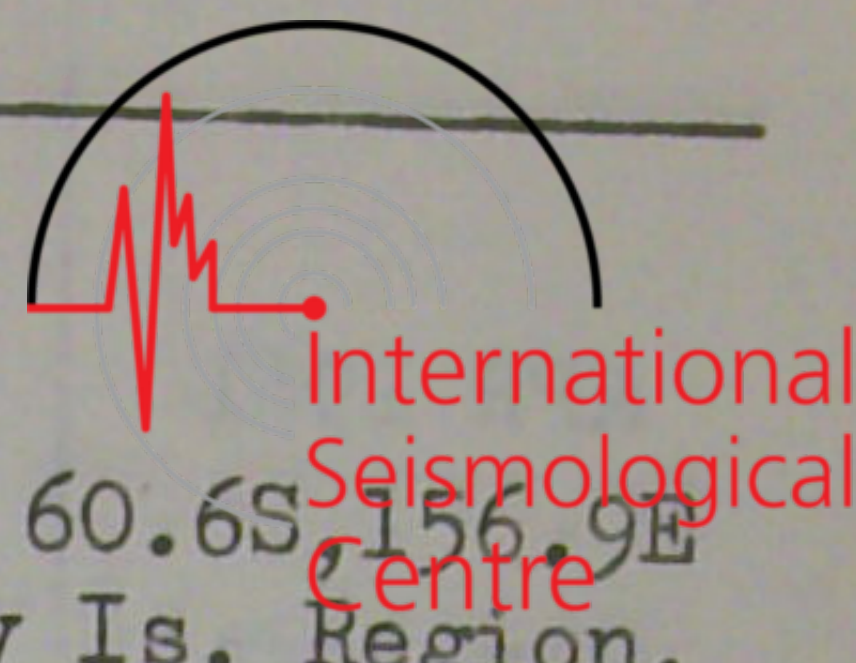


No.	Date 1961	Phase	Time (G.M.T.) h.m.s.			Per sec.	Amplitude			△	Remarks
							A _N	A _E	A _Z		
	<u>NOVEMBER</u>	(Cont'd)									
66	27	iP eS iS iS eX eX eX	Z N E Z N E Z	23 32 32 32 33 46 46 46	00 58 59 01 (21) 24 (27)					6.5	USCGS; 60.6S, 156.9E Balleny Is. Region.
67	28	eL eL eX eX eX	N E Z Z N E	18 37.7 38.1 42 43 43	00 59 (03) (06)						USCGS; 56.9S, 143.5E S. of Tasmania
	<u>DECEMBER</u>										
68	5	eP M eX eX eX	Z EN Z E N	13 03 07.9 16 16 16	57 09						USCGS; 50.8S, 139.8E S.W. of Tasmania
69	17	eP	Z	22	14 35						USCGS; 54.5S, 143.9E W. of Macquarie Is.
70	27	eP epP	Z Z	23 52	12 23						USCGS; 41.2S, 175.7E Near Coast of North Is. New Zealand.
	<u>JANUARY</u> <u>1962</u>										
1	4	eP	Z	07	43 54						USCGS; 5.0S, 130.4E Banda Sea.
2	19	iP eS eS	Z N E	22 09 10 10	14 21 22					4.5	USCGS; 49.8S, 163.0E S.W. of New Zealand
3	21	eP	Z	12	58 48						USCGS; 17.7S, 178.8W Fiji Is.
	<u>FEBRUARY</u>										
4	3	eP	Z	00	47 34						USCGS; 1.2S, 137.8E North of New Guinea
5	4	eP	Z	03	04 39						USCGS; 4.6S, 119.0E Celebes.
6	11	eP epP	Z Z	19 04	18 40						USCGS; 4.5S, 153.5E New Ireland Region.
7	15	eP	Z	15	34 16						USCGS; 4.4S, 153.8E New Ireland Region.
8	17	eP	Z	03	45 31						USCGS; 61.6S, 162.9E S. of Macquarie Is. Region.
9	21	eP	Z	09	51 52						USCGS; 56.8S, 146.7E W. of Macquarie Is.



LOCAL AND NEAR SHOCKS

JAN 1961	21d	15h	09m			
FEB 1961	03d	12h	35m,	08d	01h	52m
	27d	16h	53m,	27d	17h	42m
	27d	17h	46m,	27d	17h	48m
	28d	07h	33m,			
APR 1961	02d	22h	22m,	06d	20h	36m
	09d	14h	06m,	27d	07h	06m
MAY 1961	22d	13h	50m.			
JUN 1961	01d	23h	12m,	11d	10h	43m
JUL 1961	08d	21h	35m,	15d	07h	45m
	23d	15h	30m.			
AUG 1961	31d	02h	26m.			
SEP 1961	02d	00h	57m,	08d	11h	37m
OCT 1961	09d	23h	35m,	27d	12h	06m
FEB 1962	19d	05h	23m.			



International
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(J.M. RAYNER)

DIRECTOR

Dec. 1961
Feb. 1963

COMMONWEALTH OF AUSTRALIA
DEPARTMENT OF NATIONAL DEVELOPMENT
BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

203 Collins Street,
MELBOURNE. VIC.



SEISMOLOGICAL BULLETIN.

MACQUARIE ISLAND

DEC.1961 - FEB.1963

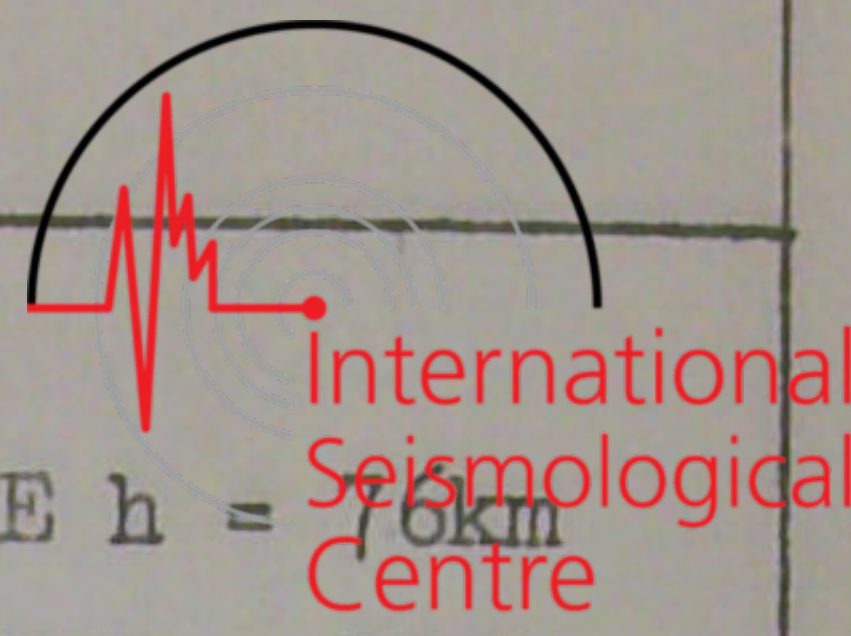
Latitude: 54° 29' 55" S Longitude: 158° 57' 22" E Height: 14m.

Foundation: Weathered Basaltic Lava

Instruments: Benioff Variable Reluctance Seismometers, 3 components.
Seismometer Periods: 1 sec.
Galvanometer Periods: 0.2 sec.
Photographic Recording: 60 mm/min.

Date	Phase		Time (G.M.T.)	Per.	Amplitude			Δ	Remarks
					A _N	A _E	A _Z		
The following shocks are additional to those reported in the last bulletin.									
<u>DECEMBER 1961</u>			h. m. s.	s.				km	
17	eP	Z	22 22 33						Epicentre close to No.69 of last bulletin.
	T max.	Z	31.2						
26	iP	Z	04 35 28	$\frac{3}{4}$					USCGS: 5.5S 110.7E h = 566km Possibly 1 minute timing error.
<u>JANUARY 1962</u>									
26	iP ?	Z	05 35 14				+		USCGS: 32.2N 138.1E h = 333km
<u>FEBRUARY 1962</u>									
11	iP ?	Z	02 54 28				+		USCGS: 29.6N 139.0E h = 400km
14	T max.	NEZ	08 13.2						USCGS: 38.1S 73.1W h = 44km
18	i(PcP)	Z	22 35 24						USCGS: 15.5S 166.8E h = 45km
19	iP	Z	05 23 00						Approximately 550km SSE of Macquarie Island.
	eS	NE	23 56						
	eX	Z	24 38						
<u>MARCH 1962</u>									
1	T max.	NEZ	04 14.3						USCGS: 15.7S 74.4W h = 62km
3	eP	Z	10 11 25						USCGS: 0.1N 126.5E h = 25km
3	eP	Z	12 25 44	$\frac{3}{4}$					USCGS: 7.4N 126.5E h = 90km
7	eP	Z	11 11 37						USCGS: 19.3N 145.3E h = 630km
	eX	Z	11 39						
	iPcP	Z	11 44						
	iX	Z	11 56						
	epP	Z	13(56)						
	eX	Z	14 16						
	e(PP)	Z	14 48						

Date	Phase		Time (G.M.T.)	Per.				Δ	Remarks
					A _N	A _E	A _Z		
MARCH (continued)			h. m. s.	s.				km	
9	eP	Z	22 16 23						USCGS: 5.8S 146.4E h = 76km
10	eP	Z	01 06 30						USCGS: 6.5S 129.4E h = 202km
10	T max.	NEZ	01 35.7						Approximately 65 S 171½ W normal depth.
11	eP	Z	19 30 10						USCGS: 9.0N 126.7E h = 25km
19	eP	Z	04 51(20)						USCGS: 57.3S 147.2E h = 25km
	eLq	NE	52.5	9½					
	eL	Z	52.8						
	L max.	N	53.1	6½					
	L max.	EZ	53.3						
	T max.	NEZ	58.2						
19	iP	Z	06 04 42	¾					USCGS: 0.3N 123.5E h = 53km
	ipP	Z	05 10						
	iPcP	Z	05 16						
21	eP	Z	23 07 09						USCGS: 5.9S 113.0E h = 631km
22	eP	Z	00 29 02						USCGS: 5.9S 112.9E h = 611km
24	eP	Z	13 08 18						USCGS: 5.7S 145.0E h = 111km
26	iP	NEZ	19 26 49		-		+		
	eS	NE	26(53)						
29	eP	Z	20 19 08						USCGS: 0.5S 127.4E h = 25km
APRIL 1962									
1	iP	Z	12 20 12	1			+		USCGS: 4.2S 143.6E h = 80km
6	eP	Z	06 59 56	¾					USCGS: 4.2S 143.3E h = 63km
16	eP	Z	13 32 39						USCGS: 30.6N 140.6E h = 176km
17	iP	Z	17 46 42						USCGS: 42.6S 174.0E h = 25km
19	eP	Z	22 22 32						USCGS: 15.8S 168.0E h = 213km
26	eP	Z	07 33 18						USCGS: 17.8S 179.1W h = 689km
	iX	Z	33 22						
30	eP	Z	20 50 42						USCGS: 6.4N 124.0E h = 28km
MAY 1962									
15	eP	Z	05 33 04	1					USCGS: 7.3S 128.3E h = 34km
	eL	NE	40.5						
	L max.	NE	41.4	8					
	L max.	E	56.2	14					
15	eP	Z	10 04 35	1					USCGS: 7.2S 128.2E h = 30km
17	T max.	NEZ	04 58.5						USCGS: 55.1S 128.8W h = 25km
21	iP	Z	21 02 48						Approximately 58½ S 161½ E
	eS	NE	03 35						
21	eP	Z	21 22 28						USCGS: 20.0S 177.5W h = 379km
	iX	Z	22 34						
	iX	Z	22 39						
	eX	Z	22 49						
	eX	EZ	22 56						
	eS	NE	28.2						





Date	Phase	Time (G.M.T.)	Per.	Amplitude			Δ	Remarks
				A _N	A _E	A _Z		
MAY (continued)		h. m. s.	s.				km	
22	T max. NEZ	05 22.0						USCGS: 55.5S 138.3W h = 42km
22	eP ? Z	08 14 23						USCGS: 12.3S 166.6E h = 151km
	i(P) Z	14 26						
	eX Z	14 48						
	epP Z	15 02						
JUNE 1962								
5	eP Z	16 52 51	1					USCGS: 7.1S 129.2E h = 124km
10	iP Z	13 30 44				+		Approximately 54 S 159 E
	eS NE	30 51						Felt M.M. intensity III at Macquarie Island.
28	iP Z	19 00 38	1			-		USCGS: 0.2S 124.3E h = 58km
JULY 1962								
3	T max. NEZ	18 54.6						USCGS: 56.3S 142.5W h = 25km
3	T max. NEZ	19 10.8						USCGS: 54.6S 132.3W h = 25km
9	iP Z	09 59 30		+	+	+		USCGS: 56.0S 158.1E h = 25km
	eS NE	59 46						
10	eP Z	05 18 36	1 $\frac{1}{4}$					USCGS: 20.8S 178.7W h = 584km
16	eP Z	02 07(49)						USCGS: 52.1S 138.9E h = 14km
	iX Z	07 57						
	eL NE	10.4						
	L max. NE	11.5						
	T max. NEZ	19.9						
16	eP Z	09 33 28						USCGS: 13.0S 167.2E h = 180km
23	iP NEZ	17 56 12		-	-	+		Approximately 54 $\frac{1}{2}$ S 159 E
								Felt M.M. intensity V at Macquarie Island.
24	P NEZ	06 54 ?						Approximately 54 $\frac{1}{2}$ S 159 E
								P lost during brief power cut.
								Felt M.M. intensity V at Macquarie Island.
30	iP Z	17(27) ?	1 $\frac{1}{4}$			-		No time marks.
								USCGS: 3.3S 143.9E h = 25km
AUGUST 1962								
1	eP Z	04 46 10						USCGS: 3.2S 143.7E h = 33km
3	iP Z	09 09 20				+		USCGS: 23.2S 67.5W h = 71km
11	T max. NEZ	00 03.7						Approximately 1000km S.E. of Macquarie Island.
11	eP Z	01 54 10	1					USCGS: 20.0S 178.8W h = 638km
11	iP Z	08 28 06	1			+		USCGS: 25.2N 123.3E h = 140km

Date	Phase	Time (G.M.T.)	Per.	Amplitude			Δ	Remarks
				A _N	A _E	A _Z		
AUGUST (continued)		h. m. s.	s.				km	
14	eP eS eL L max. T max.	NEZ NE E NE NEZ	01 12 04 13 02 13.3 14.5 17.3					USCGS: 49.9S 163.0E h = 431km
17	eP	Z	05 15(59)					USCGS: 10.6N 121.6E h = 33km
21	iP	Z	21 20 39	1 1/4		+		USCGS: 29.6S 111.9W h = 33km
25	iP eS	Z NE	08 38 22 43 34			-		USCGS: 20.5S 178.5W h = 561km
28	iPKP	Z	11 19 26			-		USCGS: 38.0N 23.1E h = 120km
SEPTEMBER 1962								
1	eP	Z	04 59 21					USCGS: 15.9S 168.2E h = 244km
3	eP	Z	00 05 38	3/4		-		USCGS: 7.0S 124.8E h = 470km
6	iPcP	Z	15 12 46					USCGS: 8.4S 158.8E h = 95km
10	iP	Z	15 50 21	3/4		--		USCGS: 21.1S 179.2W h = 640km
14	T max.	Z	11 22.4					USCGS: 51.4S 146.3E h = 33km
14	iP	Z	18 24 47	1 1/4		-		USCGS: 19.9S 177.6W h = 350km
25	T max.	NEZ	01 14.1					USCGS: 55.6S 124.3W h = 67km
27	eP	Z	13 06 54					USCGS: 4.6S 104.4E h = 144km
29	eP eS T max.?	Z E NE	14 32 13 33 27 40.2					Approximately 49 S 164 1/2 E
29	e(pP)	Z	15 31 58					USCGS: 27.0S 63.6W h = 575km
OCTOBER 1962								
1	iP	Z	04 03 46					USCGS: 17.5S 178.9W h = 550km
6	iP	Z	11 08 24	1 1/2		-		USCGS: 13.3S 167.3E h = 209km
15	T max.	NEZ	21 44.2					USCGS: 65.0S 178.2E h = 33km
20	iP	Z	05 39 44	3/4		-		USCGS: 6.7S 130.1E h = 167km
25	iP	Z	09 44 35	1 1/4		-		USCGS: 3.0N 126.7E h = 33km
25	eP eL	Z NE	20 07 55 09.5					USCGS: 61.4S 154.9E h = 33km
28	eP i(PcP)	Z Z	15 10 31 11 03					USCGS: 0.1N 123.6E h = 61km
NOVEMBER 1962								
2	iP eS	Z NE	01 11 38 11 53			+		Approximately 54 S 157 1/2 E
2	eP	Z	14 56 11	3/4				USCGS: 10.0S 117.8E h = 33km
3	eP	Z	01 08 46			-		USCGS: 7.9S 158.3E h = 86km



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Date	Phase	Time (G.M.T.)	Per.	Amplitude			Δ	Remarks
				A _N	A _E	A _Z		
NOVEMBER (continued)			h. m. s.	s.			km	
7	iP	Z	16 12 30	$\frac{3}{4}$		+		USCGS: 7.8S 119.8E h = 156km
11	iP	Z	16 17 43	$1\frac{1}{2}$		+		USCGS: 12.9S 166.5E h = 77km
14	eP	Z	22 09 44					USCGS: 0.3S 123.0E h = 92km
15	eP	Z	16 33 50					USCGS: 6.9S 146.7E h = 40km
16	T max.	NEZ	08 39.4					USCGS: 32.3S 111.1W h = 43km
16	eP	Z	21 22 50					USCGS: 13.5S 93.2E h = 33km
17	iP	Z	14 31 14			-		USCGS: 2.8N 121.7E h = 609km
19	eP	Z	14 00 31					USCGS: 60.7S 152.9E h = 33km
24	eP	Z	17 32 16					USCGS: 2.5S 148.9E h = 32km
Recording ceased at end of 25th November for seismograph modification, and recommenced on 16th December, with vertical component only recording at reduced speed of 30 mm/min.								
DECEMBER 1962								
17	iP	Z	11 10 09					USCGS: 2.1N 122.9E h = 393km
19	iP	Z	13 05 03					USCGS: 4.7S 154.0E h = 98km
20	iP	Z	18 22 35					USCGS: 61.8S 161.2E h = 29km
22	iP	Z	23 36 42					USCGS: 5.1S 151.2E h = 105km
30	eP	Z	18 25 06					USCGS: 4.7S 153.7E h = 116km
JANUARY 1963								
3	e(pP)	Z	09 48 46					USCGS: 5.3S 151.5E h = 74km
3	iP	Z	12 43 48					Approximately $55\frac{1}{2}$ S $158\frac{1}{2}$ E
	eS	Z	44 04					
4	iP	Z	12 25 25					USCGS: 4.7S 154.0E h = 69km
5	eP	Z	13 25 54					USCGS: 10.0S 124.0E h = 33km
7	eP	Z	11 58 36					USCGS: 0.6N 126.7E h = 42km
13	iP	Z	16 22 31					USCGS: 49.7S 163.7E h = 33km
	eS	Z	23 31					
	T max.	Z	28.2					
15	iP	Z	19 33 13					USCGS: 20.5S 177.9W h = 496km
28	iP	Z	10 03 54					USCGS: 52.4S 159.6E h = 33km
	eS	Z	04 31					
30	eP	Z	10 21 15					USCGS: 55.6S 28.3W h = 33km
	epP	Z	21 25					
31	eP	Z	05 19 24					USCGS: 27.9N 126.3E h = 33km
FEBRUARY 1963								
7	eiP	Z	03 31 23					USCGS: 59.6S 147.9E h = 33km
13	iP	Z	09 02 37					USCGS: 24.5N 121.8E h = 33km
	epP	Z	02 51					
	ePP	Z	05 57					



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