

190

WILKES

WILKES

No.	Date 1960	Phase	Time (G.M.T.)	Period Sec.	Remarks
JANUARY					
361	1	e(SP) eLr	Z N Z 05 27 56 39.5		USCGS: 2.5N 96E. Off Coast of Sumatra.
362	2	eLq eL(r)	E N Z Z 08 53.5 55.5		USCGS: Sandwich Island, H = 08 27 14 ⁺⁺
363	2	eL eL	E N Z 11 33.5 35.5		
364	2	e(P) e(PP) e(S) e(SS)	E E E E 12 30 35 32 23 37 36 41 10		Δ = 5440Km. H = 12 21 50 USCGS: West of Bouvetøya, only E component recording. Absolute times uncertain but intervals reliable.
365	2	eL Max.	N Z 21 59 ..		USCGS: 5S 152.5E New Britain.
366	4	eS eS eSS eLq eLr M	N E Z E N Z Z 06 45 58 45 57 51 14 53.8 56.8 59.5		USCGS: 4.5S 153.5E New Britain.
367	6	eLr	E N Z 13 42 40		USCGS: 10.5S 167E Santa Cruz Island.
368	7	eLr	E N Z 08 49 ..		USCGS: 6.5N 94E Nicobar Is.
369	7	e(P) (e)PcS eS eX eScS eSS eLq eLr	N E E N N E E N E N E 13 37 55 42 35 45 22 45 27 47 21 48 56 51.8 55 ..		Δ = 5890Km. H = 13 28 38 USCGS: Sandwich Island. Z component not recording.
370	7	eL	E N Z 17 51 56		
371	7	eS (eX) eLq eLr	E E N Z E N Z 23 38 27 39 34 48 07 51 05		USCGS: 6.5N 94.5E Nicobar Island.
372	8	eX eL eL eL	E N E N Z Z 00 45 56 51.5 53 .. 56 ..		
373	8	eS eSS eLr eL	E N Z E N Z Z 02 51 25 55.2 03 00 40 04 ..		USCGS: 58.5S 26W Sandwich Island.
374	8	eS eSS eLr M eL eL	N E Z E N Z E N Z E N Z 11 46 25 46 51 50 06 55 .. 56.8 59 ..		USCGS: 55S 27.5W Sandwich Island.

WILKES

No.	Date 1960	Phase	Time (G.M.T.)	Period Sec.	Remarks
JANUARY					
375	8	eP	Z 14 55 26		$\Delta = 6110\text{Km.}$ H = 14 45 56 USCGS: 55.5S 27.5W Sandwich Island.
		e(ScP)	Z 15 00 37		
		eS	E 03 03		
		eX	N 03 07		
		eX	N 03 16		
		eX	Z 03 29		
		eScS	E 05 08		
		eSS	N Z 06 36		
		eSS	E 06 51		
		eSSS	E N Z 08 40		
		eLr	N Z 11.5		
376	8	eS	E N(Z) 22 03 07		
		eSS	E 06 54		
		eSS	Z 07.6		
		eLq	E N 11 07		
		eLr	Z 13.5		
377	9	eLq	(EN) Z 08 10.5		USCGS: 36N 69E Hindu Kush
378	11	eL	E N Z 03 52 ..		USCGS: 16N 96.5E Near South Coast of Burma.
379	11	eL	E N Z 18 21 ..		USCGS: 29S 176W Kermadec.
380	11	eLr	E N Z 23 27 ..		USCGS: 2S 140.5E Near Coast of New Guinea.
381	12	eP	Z 03 18 42		$\Delta = 6110\text{Km.}$ H = 03 09 11 USCGS: 55.5S 27W Sandwich Island Region.
		ePP	Z 20 36		
		eS	E N 26 21		
		eSP	Z 26 31		
		eSS	E N Z 30 04		
		eLr	N Z 34 43		
		M	E Z 40 ..		
382	12	eL	N Z 22 27 ..		
383	12	eX	E Z 22 42 41		
		eX	N 42 43		
		eL	E Z 53 ..		
		eL	Z 23 00 ..		
384	13	eP	Z 07 37 29		$\Delta = 7220\text{Km.}$ H = 07 26 51 USCGS: 3.5S 140E Northern New Guinea.
		eS	(E)N Z 46 06		
		eSS	Z 50 22		
		eLq	E 54.5		
		eLr	Z 57 ..		
385	13	eP	N Z 15 53 56		$\Delta = 11,050\text{Km.}$ H = 15 40 23 USCGS: 16S 72W Southern Peru. h = 200Km.
		epP	Z 54 24		
		iX	E N 54 28		
		e(PP)	Z 57 51		
		e(PP)	N 57 57		
		i(PP)	Z 58 15		
		e(PP)	E 58 29		
		e(PPP)	Z 16 00 03		
		e(PPP)	N 00 22		
		iSKP	E N 01 33		
		eSKS	N 04 20		
		eSKKS	E N 05 03		
		iS	E Z 05 16		
		iSP	Z 06 42		
		eX	N 06 59		

WELKES

3.

No.	Date 1960	Phase	Time (G.M.T.)	Period Sec.	Remarks
385	JANUARY continued 13	eSPP e(SS) e(SS) e(SSS) e(SSS) e(Lq ₁) e(Lq ₁) e(Lq ₁) e(Lr ₁) e(Lr ₁) e(Lr ₁) M eLq ₂ eLr ₂ eLq ₃	Z E Z N E Z N E Z E Z N Z N Z E(N) (N)Z E	16 07 36 11 24 11 43 16(09) 16 31 19 .. 19(08) 19.5 (22.5) 23 16 23 44 28 .. 17 25 .. 40 .. 18 47 ..	
386	14	eX eX eL eL	E N Z Z E N Z	07 48 33 52(52) 57.5 08 00 ..	
387	14	M	Z	16 34 ..	USCGS: 3S 127.5E Ceram Island Region.
388	14	eLq	E N Z	19 23 ..	Small surface waves.
389	14	eLq eLr	E N Z	22 17.5 23 ..	USCGS: 11N 43W Atlantic Ocean.
390	15	eP ePP ePPP eSKS eS ePS eSS e(SSS) e(SSS) eLq	N N N N E N E N N E E	09 43 54 47 55 50 06 54 30 55 20 57 02 10 02(12) 05 07 06 04 10.6	$\Delta = 11,050\text{Km}$. H = 09 30 13 USCGS: 15S 75W Near Coast of Southern Peru. Z component not recording.
391	16	iP eS iX eLq eLr M eS eP eS	E N Z N E N Z N E Z Z E Z N	07 03 22 06 49 06 59 07 18 08 04 10.5 11 55 12 04 15 58	$\Delta = 2110\text{Km}$. H = 06 59 05 USCGS: 59.5S 149.5E 500 miles Southwest of Macquarie Island.
392	16	eLr	E N Z	15 58 ..	USCGS: 22.5S 173.5E Loyalty Islands.
393	16	eP iX eS e(ScS) eSS eL eLq eLr	Z Z N E Z (E) Z N (E) Z E N Z	21 52 30 52 46 22 01 13 02(00) 05(10) 07 50 09.5 13.5	$\Delta = 7330\text{Km}$. H = 21 41 45 USCGS: 10S 161.5E Solomon Islands.

WILKES

No.	Date 1960	Phase	Time (G.M.T.)	Period Sec.	Remarks
JANUARY					
394	17	eLr eL	E Z N 03 47 .. 49.5		USCGS: 14.5S 74.5W Near Coast of Southern Peru.
395	18	eP ePcP e(PP) eS eX eX eSS eLq eLr	Z Z (Z) E N Z N E(NZ) E Z 09 16 13 16 33 19 07 25 42 25 46 26 27 30 16 34.5 37 ..		$\Delta = 8220\text{Km}$. H = 09 04 39 USCGS: 5N 126.5E. Off South Coast Mindanao.
396	18	M	Z 20 37 ..		USCGS: 9N 77W Off Coast of Panama.
397	19	eLr	E N Z 03 16.5		USCGS: 52N 158E. South East Coast Kamchatka.
397A	19	eX	Z 09 22 06		
398	19	eP epP e(PP) eS eScS eisS eSS eSS eSSS	Z Z Z E N Z E N N Z N N 09 24 23 26 10 27 12 31 55 33 17 35 09 35 14 37 00 38 47		$\Delta = 6690\text{Km}$. H = 11 15 05 USCGS: 23S 180 South of Fiji Island. h = 530Km.
399	21	eL eL eL	E N Z 04 31.5 31 54 32 50		
400	21	eX eX eL eL	N N N N 11 02 42 03 39 11.5 15 31		Only N component recording
401	23	iP iS e(ScS) eSS eLq iLr M	N Z E N Z E N Z E N Z E N Z N Z 04 51 29 05 00 04 01 28 04 04 06 44 10 54 17 ..		$\Delta = 7140\text{Km}$. H = 04 40 55 USCGS: 4S 127.5E Ceram Island Region.
402	23	iP iS eSS eLq iLr M	N Z E N Z N Z E N Z N Z N Z 07 41 48 50 20 54 15 56 50 08 01 11 07 ..		$\Delta = 7110\text{Km}$. H = 07 31 16 USCGS: 4S 127.5E Ceram Is. Region.
403	23	iP eX eS eSS eLq eLr M	Z N Z E (Z) E Z E N Z N Z 18 07 21 15 36 15 41 19(47) 22 33 26.4 32.5		$\Delta = 6890\text{Km}$. H = 17 57 02 USCGS: 4S 127.5E Ceram Is. Region.

5.

WILKES

No.	Date 1960	Phase	Time (G.M.T.)	Period Sec.	Remarks
JANUARY					
404	24	e(P) eX eX eS eScS eSS eLq eLr eLr	(Z) (Z) N E N E N Z N E N Z	04 32 09 36 32 37 16 41 44 41 51 46 08 50 36 53 36 54.5	$\Delta = 8330\text{Km}$. H = 04 20 09 USCGS: 15.5S 179W Fiji Island Region.
405	25	e(S) eX eLq eLr eL	E N N E N Z E Z	16 49.8 50.5 59 .. 17 01.5 04 ..	USCGS: 16S 179W Fiji Island Region.
406	26	eLr eL	Z N	22 47.5 51 ..	USCGS: 30S 178W Kermadec.
407	29	iP ePP ePcS iS eX eScS eSS eLq eLr	E Z Z N E N E Z N E N Z E N Z	07 54 54 56 40 08 00 02 01 45 01 48 04 32 05 04 06 16 (08 ..)	$\Delta = 5280\text{Km}$. H = 07 46 21 About 100 miles North of Bouvetøya.
408	30	eL	Z	03 31 ..	
409	30	e(SKP) e(S), (SP) e(SKS), (SPP) e(SS) eL, (Lr) eL	Z N Z Z E N Z N Z N Z	18 56 41 19 02 15 03 15 08 13 22 .. 25.8	$\Delta = 11,770\text{Km}$. USCGS: 22N 144E Marianas Region.
410	31	eP ePP eSKS eS ePS e(SS) e(SS) e(SS)	Z Z E N E (E)N Z E N Z	05 22 16 26 14 32 46 33 40 35 09 40 13 40 40 41 00	$\Delta = 11,000\text{Km}$. H= 05 08 38 USCGS: 33.5N 134.5E Near East Coast of Shikoku, Japan.

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COMMONWEALTH OF AUSTRALIA

DEPARTMENT OF NATIONAL DEVELOPMENT

BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS

203 Collins Street,
MELBOURNE. VIC.

SEISMOLOGICAL BULLETIN 1960

WILKES BASE - ANTARCTICA

Latitude: $66^{\circ}15' S$

Longitude: $110^{\circ}35' E$

Height: 12 meters above M.S.L.

Foundation: Gneiss.

Instrument: Lehner and Griffith Long period 3-component seismograph.

Seismometer periods: 15 sec.

Galvanometer periods: 90 sec.

Magnification (Nominal): 4,200 at 25 sec.

Date 1960	Phase	Time (G.M.T.)	Per.	Amplitude			Δ km	Remarks
				A _N	A _E	A _Z		
FEB.		h. m. s.	s.					
1	eL(r)	Z 03 16 ..						USCGS: 43N 132W
3	eS	NEZ 02 36 19						USCGS: 37S 179E
	e(SS,Lq)	N Z 40 ..						
	eL(r)	EZ 44 ..						
	eL(r)	N 45 22						
3	e(Lr)	NE 14 48 37						USCGS: 19S 173 $\frac{1}{2}$ W
	eLM	N 15 04 ..						
4	iP	NEZ 03 57 35		-	-	+		USCGS: 4 $\frac{1}{2}$ S 153 $\frac{1}{2}$ E
	ipP	NEZ 57 47						
	iX	NEZ 57 53						
	iPcP	NEZ 58 10						
	iX	NEZ 58 43						
	iX	NEZ 58 57						
	eX	NEZ 04 01 05						
	ePcS	EZ 02 07						
	eS	NE 06 28						
	iX	N 07 14						
	iX	Z 07 25						
	eX	NEZ 08 36	32					
	eSS	NEZ 11(00)						
	e(G)	E 13 16						
	eLq	NEZ 14(45)						
	eL	NEZ 16 10						
	eLr	NEZ 19 20						
4	eS	N 09 47 09						USCGS: 5S 154E h = 100km
	ePS	NE 47 49						
	eSS	N 51 46						
	e(SSS,Lq)	E 53 42						
	eL	NE 10 01 ..						
4	eX	E 17 17 ..						
	eX	NEZ 24 20						
4	iP	EZ 17 32 46						
	eX	E 35 09						

2.

Date 1960	Phase	Time (G.M.T.)	Per.	Amplitude			Δ km	Remarks
				A _N	A _E	A _Z		
FEB. (cont'd)		h. m. s.	s.					
4	eX N	17 36 12						
	eX EZ	36 21						
	eS N	36 30						
	eX N	36 42						
	e(PcP) N Z	37 10						
	o(PoS) NEZ	41 20						
	e(ScS) EZ	44 34						
5	eLr NEZ	02 38 ..						USCGS: 37S 95 $\frac{1}{2}$ W
5	eLr NEZ	06 12.5						USCGS: 4 $\frac{1}{2}$ S 153 $\frac{1}{2}$ E
6	eLr N Z	17 38.5						USCGS: 6S 104E
7	eLr NEZ	11 50 19						USCGS: 15 $\frac{1}{2}$ S 173 $\frac{1}{2}$ W
8	iP Z	12 55 15				+		USCGS: 58S 67W
	iPP Z	57 23						
	ePPP Z	58 42						
	iS NEZ	13 03 03						
	i(ScS) E	05 14						
	eSS NE	06 45						
	eX N Z	07 00						
	eLq E	09 00						
	eLq Z	11 30						
	M E	16 ..						
	M N Z	22 ..						
10	(iP) N	00 06 22						USCGS: 4S 128E
	iP Z	06 23				+		
	eX E	06 27						
	e(PPP) N	10 15						
	e(ScP, PoS) Z	10 47						
	ePoS E	11 04						
	iS NEZ	14 55						
	i(ScS) E	15 36						
	i(ScS) N	15 50						
	e(ScS) Z	16 06						
	eSS NEZ	19 04						
	eLq NEZ	21 35						
	eLr NEZ	25 51						
	M N Z	31 ..						
	eLr NEZ	02 15 ..						
10	e(P) Z	23 31 32						USCGS: 15 $\frac{1}{2}$ S 173W
	eS E	40 19						
	eX N Z	41 05						
	eL NE	51 00						
	eL Z	57 44						
11	eLr N Z	21 27.8						USCGS: 11 $\frac{1}{2}$ S 166 $\frac{1}{2}$ E
17	eLq N	13 05.5						USCGS: 30S 112 $\frac{1}{2}$ W
	eLr Z	09 ..						
19	e(S) NE	11 02 42						USCGS: 36N 70 $\frac{1}{2}$ E h = 200km
	e(P) NE	05 42						
	eX N	06 38						
	e(SS) E	10 12						
	eX N	21 00						
	eX E	21 10						

3.

Date 1960	Phase	Time (G.M.T.)	Per.	Amplitude			Δ	Remarks
				A _N	A _E	A _Z		
FEB.	(cont'd)	h. m. s.	s.				km	
21	eS E	01 00 55						USCGS: 42S 173E h = 60km
	eX N	01 04						
	e(PPS) E	01 18						
	iX E	04 30						
	eScS N	04 37						
	eL(G) Z	04 40						
	eL(r) Z	06 56						
23	e(S) NE	16 24 39						USCGS: 6S 154 $\frac{1}{2}$ E
	eX Z	24 51						
	eSSS NEZ	32 18						
	e(Lq) E	33 56						
	eLr Z	36 ..						
	M EZ	44.5						
23	eL(q) NE	19 04.9						
	eL(r) N Z	06.9						
24	iP Z	21 48 01					7477	USCGS: 7 $\frac{1}{2}$ S 156E
	i(pP) NE	48 10						
	ePP Z	50 29						
	iS NEZ	56 45						
	eScS EZ	57 51						
	iX Z	22 01 02						
	eSS NE	01 06						
	iX N Z	04 31						
	eL(r) N	08.9						
	eL(r) Z	09.2						
	M NEZ	13.5						
26	eP N Z	02 19 36					7677	USCGS: 1S 138E
	eS N	28 39						
	eLr N Z	41.5						
26	eP Z	05 27 44						USCGS: 53S 28W
	eS N	35 27						
	e(ScS) E	37 36						
	eX Z	39 45						
	eL E	47 ..						
27	eS NE	09 13 04						USCGS: 30 $\frac{1}{2}$ S, 179 $\frac{1}{2}$ W
	eLq N	19.1						
	eL E	22 13						
	eL N Z	22 ..						
27	eL ? N	17 45 23						
28	eL N Z	23 43 ..						USCGS: 3S 142E
29	eL NEZ	23 07 ..						
	eL N	09.0						
MARCH								
1	eL Z	00 42 ..						USCGS: 30N 9W
	eL NE	44 ..						
3	eX NE	11 42 31						
	eX NE	45 58						
	eL E	49 18						
	M NE	52.0						

4.

Date 1960	Phase	Time (G.M.T.)	Per.	Amplitude			Δ	Remarks
				A _N	A _E	A _Z		
MARCH	(cont'd)	h. m. s.	s.				km	
5	eS E	14 09 25						USCGS: 1N 129 E
	e(SS) E	14 07						
	M NE	23.0						
6	eS NE	02 42 12						USCGS: 1N 129E
	eLq E	51 ..						
	e(Lr) N	54.7						
6	eX N	10 22 03						
8	eS NE	12 01 40						USCGS: 65S 179.5E
	eL Z	02.7						
8	iP NEZ	16 43 36	4					USCGS: 16 $\frac{1}{2}$ S 168 $\frac{1}{2}$ E h = 250km
	e(pP) EZ	44 27						
	i(pp) Z	45 42						
	iX Z	47 54						
	iS NEZ	51 31						
	esS N	53 00						
	eX E	53 28						
	i(SS) Z	55 48						
	eX N	56 29						
10	eX E	00 19 35						USCGS: 16.7S 72W H = 150km
	e(L) N	34.1						
10	iX EZ	00 45 00						
	iX N Z	48 34						
10	eL Z	10 18.2						USCGS: 10S 161E
10	eS NE	14 04 52						USCGS: 15S 174W
	eL N	19.1						
12	iP Z	20 41 33	6				7466	USCGS: 6S 152E H = 30km
	ePcP Z	42 01						
	iS NEZ	50 24						
	iX Z	51 12						
	eX E	55 22						
	eLq NEZ	58.0						
	eLr N Z	21 01.7						
	M NEZ	10.5						
16	eL N Z	01 00 ..						USCGS: 59 $\frac{1}{2}$ S 26W
16	eS N	17 59 51						USCGS: 15.5S 173.5W
	eLq N	18 09.7						
19	eX N	04 13 23						
19	eP N Z	19 26 25						USCGS: 3S 138E
	eS NE	35 07						
	eLq E	42.5						
	eLr Z	47 ..						
20	iP diff. Z	17 22 05						USCGS: 40N 143 $\frac{1}{2}$ E h = 60km
	ePP N	26 33						
	ePP Z	26 35						
	iSKS NEZ	32 39						
	i(S diff.) E	33 59						
	i(SP) Z	35 43						
	i(PS) N	35 47						

5.

1960	Phase	Time (G.M.T.)	Per.	Amplitude			A	Remarks
				A _N	A _E	A _Z		
MARCH (cont'd)		h. m. s.	s.				km	
22	eX E	02 35 55						USCGS: 61 $\frac{1}{2}$ S 154E
	eX N	35 57						
	iS N	39 26						
	eLq E	39.6						
22	iS N	13 56 57						USCGS: 60 $\frac{1}{2}$ 153E
	eL E	58.5						
23	e(SKS) N	00 48 38						USCGS: 39 $\frac{1}{2}$ N 143E
	eX E	50 04						
	eX N	50 08						
	i(SS) N	57 24						
	i(SS) E	57 33						
	e(SSS) E	01 01 38						
	eL(q) NE	08.2						
27	iS N	04 07 40						USCGS: 13 $\frac{1}{2}$ S 166E
	eS E	07 44						P masked by heavy microseisms.
	ePPS E	08 17						
	ePPS N	08 20						
	eX E	09 07						
	eX Z	09 36						
	eSS E	12 04						
	e(SSS) NE	15 13						
	eLq N	15 ..						
	eL NEZ	21.5						
27	eP Z	09 08 33					7266	USCGS: 13 $\frac{1}{2}$ S 166 $\frac{1}{2}$ E
	i(pP) NEZ	08 46						
	ePcP Z	09 00						
	iS NE	17 12						
	i(ScS) N	18(34)						
	eX E	20 08						
	eSS E	21 28						
	eLq NE	25.4						
	M NE	32 ..						
28	eL(r) NE	01 09 ..						USCGS: 7 $\frac{1}{2}$ N 82W
	eL Z	15 ..						
28	i(S) N	06 55 14						USCGS: 13 $\frac{1}{2}$ S 165E
	eLq NE	07 02 ..						
	eLr Z	06 ..						
29	eP Z	06 41 08						USCGS: 17S 167E
	eX N	44 28						
	iS NEZ	49 39						
	iG N	56 33						
29	e(S) N	22 29(48)						USCGS: 6S 147E
	eL NEZ	43 ..						
30	eLq N	11 17 ..						USCGS: 13 $\frac{1}{2}$ S 166E
30	eS NE	15 37 44						USCGS: 22 $\frac{1}{2}$ S 174E
	eX N	44 26						
	eLq E	45 ..						
	eLr Z	48 ..						
31	eL N	04 57 ..						
31	eL EZ	21 02 ..						USCGS: 26N 110W

6.

Date 1960	Phase	Time (G.M.T.)	Per.	Amplitude			Δ	Remarks
				A _N	A _E	A _Z		
APRIL		h. m. s.	s.				km	
3	eX NE	06 30 20						
4	eL NEZ	13 21 ..						USCGS: 5S 152E
5	e(P) Z	07 26(39)						USCGS: 61S 26W
	iS NE	33 43						
	eX Z	33 48						
	eSS E	37 01						
	eX N	37 08						
	eX Z	37 12						
	eLr EZ	40.5						
	M N Z	46.5						
5	iS NE	12 52 18						USCGS: 60 $\frac{1}{2}$ S 25W
	eSS N	55 42						
	eLr NEZ	13 00 ..						
8	eP Z	00 06 09						Tonga Island region. H = 150km
	e(S) N	14 27						
	eScS N	15 42						
9	eL NE	19 53 ..						
	eL Z	55.1						
14	eL N	06 53.0						USCGS: 8S 118E
15	ePcP Z	03 38 03					9166	USCGS: 27S 113W
	iS NE	48 11						
	eSS N	53 33						
	eSS E	53 38						
	eLq NE	04 00.0						
	eLr E	03.5						
15	iP NEZ	22 15 43		+	+	-	7221	USCGS: 13.5S 166E
	ePcP Z	16 12						
	iS NE	24 19						
	e(S) Z	24 23						
	ePS N	24 47						
	eX N	31 46						
	eLq NE	32.5						
	eLr Z	35.5						
17	eL N	16 11.5						USCGS: 21S 175 $\frac{1}{2}$ W
	eL EZ	13 ..						
22	eP Z	20 37 12					7633	USCGS: 17 $\frac{1}{2}$ S 174 $\frac{1}{2}$ W h = 200km
	ipP EZ	37 59						
	iS Z	45 54						
24	iP N Z	03 31 40		-		+	6688	USCGS: 6S 113 $\frac{1}{2}$ E h = 600km
	eP E	31 43						
	ipP Z	33 45						
	e(PP) E	34 01						
	iX Z	35 22						
	iS NEZ	39 06						
	iScS NE	40 30						
	i(sS) N	42 32						
24	eLq N	12 57 ..						USCGS: 28N 54 $\frac{1}{2}$ E
	eLr N Z	13 02 ..						
27	eS E	17 31(22)						USCGS: 3 $\frac{1}{2}$ S 146 $\frac{1}{2}$ E
	eS N	31(28)						
	eL NE	39 ..						

7.

Date 1960	Phase		Time (G.M.T.)	Per.	Amplitude			Δ	Remarks
					A _N	A _E	A _Z		
APRIL (cont'd)			h. m. s.	s.				km	
28	iS	NE	02 26 24						USCGS: 59.5S 26W
	eSS	E	29 53						
	eX	N	30 05						
	eX	Z	30 11						
	eLq	E	32.5						
	eLr	NEZ	35.8						
	M	NEZ	40 ..						
28	eL	E	05 35 ..						USCGS: 3.5S 144.5E
28	eX	Z	18 57 04						
29	iX	NE	02 33 14						
	eX	E	35 36						
	eL	NE	40 ..						
29	eS	E	13 52 58						USCGS: 0 122E
	eLr	N Z	14 05 ..						
29	eP	Z	19 43 06						USCGS: 0 122E
	iS	N	51 53						
	iS	Z	51 54						
	iS	E	51 56						
	eX	E	53 14						
	eLq	E	59.6						
	eLr	N Z	20 03.5						
	M	N Z	12 ..						
30	e(pP)	NEZ	04 12 36						USCGS: 0 122E
	iS	NE	21 14						
	eX	E	28 45						
	eLr	N Z	33 ..						
	M	N Z	41 ..						
30	eL	NE	14 44.0						USCGS: 9S 157E
MAY									
2	eX	N	12 30(24)						USCGS: 0 121½E
	eL	N	41.5						
4	eLr	N Z	18 58 ..						USCGS: 0 122E
5	eL	N Z	23 40.5						
9	eLq	NE	20 57.5						Pacific Ocean. About 900 miles S.W. of Galapagos Is.
	eL	NEZ	21 08.5						
10	eL	NEZ	11 22 ..						USCGS: 55.5S 26W
10	e(PPS)	N	18 08 38						USCGS: 51½N 159½E
11	eP	N Z	18 46 38					7199	USCGS: 3S 131E
	e(sP)	NEZ	46 59						
	iS	E	55 14						
	iX	N	55 22						
	iX	Z	55 33						
	iScS	E	56 27						
	iX	E	58 08						
	iSS	E	19 02 24						
	eLr	Z	05 ..						
	M	N Z	12.3						



8.

Date 1960	Phase	Time (G.M.T.)	Per.	Amplitude			km.	Remarks
				A _N	A _E	A _Z		
MAY	(cont'd)	h. m. s.	s.					
12	eLq E eL EZ	23 23 .. 33.8						USCGS: 7 $\frac{1}{2}$ N 81W
13	eLr NEZ	17 11.5						USCGS: 55N 161 $\frac{1}{2}$ W
13	eLq N eLr EZ	21 09.5 12.0						USCGS: 32 $\frac{1}{2}$ S 179W
18	eP Z iSKS NE iS N iS E iSP Z i(SS) E iSS N eX E	06 48(34) 59 07 59 47 59 50 07 01 06 06 20 06 26 12 32					10843	USCGS: 29N 130E
18	eX E	12 56 25						
19	e(pP) EZ e(PPS) NE iX E eX Z i(G) E i(G) N M Z	10 21 50 29 50 32 09 35 45 35 52 35 56 49.5						USCGS: 17S 66E
20	eP NEZ iS N eSP EZ iG N eLq E eLr Z	11 21 40 28 58 29 01 33 50 34 08 36 32					5744	USCGS: 28S 167.5E
21	iP N Z iS NE	10 14 44 24 49		+		+		USCGS: 37 $\frac{1}{2}$ S 73 $\frac{1}{2}$ W Very heavy microseisms.
22	eX NE	01 21 08						
22	eL E	06 48 ..						USCGS: 38S 73 $\frac{1}{2}$ W
22	eL NE eL Z	08 50 .. 55.8						USCGS: 37 $\frac{1}{2}$ S 73W
22	iP N Z iS E	10 42 28 52 14				+		USCGS: 38S 73 $\frac{1}{2}$ W
22	iP N Z iS NE	10 44 34 54 16		+		+		USCGS: 37 $\frac{1}{2}$ S 73W
22	iP N Z eX E iS NEZ	19 07 48 07 54 17 28		+		+		USCGS: 38S 73 $\frac{1}{2}$ W
24	iP Z eS E iS N iScP Z iG N eLr Z M N M Z	14 53 56 59 32 59 38 59 55 15 02 16 04 14 07.5 08.5				-		USCGS: 44 $\frac{1}{2}$ S 167 $\frac{1}{2}$ E

Date 1960	Phase		Time (G.M.T.)	Per.	Amplitude			Δ	Remarks
					A _N	A _E	A _Z		
MAY	(cont'd)		h. m. s.	s.				km	
24	eX	E	20 51 50						USCGS: 50 $\frac{1}{2}$ S 74W
	eL	NEZ	21 04 ..						
26	eL	E	01 47.2						
26	eL	EZ	06 10 ..						USCGS: 40N 20E
26	eL	NE	09 22.1						
	eL	N Z	23 ..						
26	eL	NEZ	20 43 ..						USCGS: 27N 93E
27	e(ScS)	E	23 27 14						USCGS: 45S 77W
	eL	E	38.5						
	eL	N Z	40.0						
29	e(S)	E	08 01 01						USCGS: 38S 72 $\frac{1}{2}$ W
	eL	E	17 ..						
29	eL	NE	21 44.5						Near S.Coast of Chile.
31	iP	N Z	02 51 41	-				8432	USCGS: 39 $\frac{1}{2}$ S 75W
	iS	NE	03 01 20						
	ePS	N	02 01						
	eSS	E	06 10						
	eLq	E	11 ..						
	eLr	N Z	15.5						
JUNE									
1	iS	E	05 24 30						USCGS: 38S 73W
	eL	NE	42.0						
2	iP	Z	06 09 04						USCGS: 46 $\frac{1}{2}$ S 74W
	eS	NE	18 06						
	eSS	N	22 32						
	eX	N	26 09						
	eL	E	28.5						
	eL	N	33.5						
	eL	Z	34 ..						
2	e(P)	Z	07 58 13						USCGS: 55S 151.5E
	iS	NE	08 06 56						
	eX	Z	07 00						
	eX	N	07 10						
	eScS	N	07 58						
	e(SSS)	N	14 34						
	eL	E	14 ..						
	eL	N	16.8						
	eL	Z	17.5						
3	eL	NE	13 59 ..						
	eL	Z	14 01 ..						
3	eL	Z	18 58 ..						
5	eL	NE	05 39 ..						USCGS: 65S 178E
	M	N Z	45.5						
5	e(S)	NE	19 47 36						USCGS: 31 $\frac{1}{2}$ S 177W
6	e(SS,PSS)	E	01 59 51						USCGS: 41N 125W
	eL	EZ	02 22 ..						

10.

Date 1960	Phase		Time (G.M.T.)	Per.	Amplitude			Δ	Remarks
					A _N	A _E	A _Z		
JUNE	(cont'd)		h. m. s.	s.				km	
✓ 6	iP	NEZ	06 06 51			+	+		USCGS: 45 $\frac{1}{2}$ S 173 $\frac{1}{2}$ W
	eX	N	07 35						
	eX	E	07 47						
	iS	E	15 56						
6	eLq	N	17 46 ..						USCGS: 46S 73 $\frac{1}{2}$ W
	eLq	EZ	48 ..						
7	eL	N	05 56 ..						USCGS: 40 $\frac{1}{2}$ S 72W
	eL	EZ	06 01 ..						
7	eL	NEZ	13 33.0						
8	eL	E	22 12 ..						
✓ 9	iP	EZ	11 34 13					6688	USCGS: 18S 169E
	iS	E	42 23						
	eScS	E	43 58						
	iSS	E	46 20						
	e(SS)	Z	46 27						
	eLq	E	49.4						
	eLr	Z	52.6						
	M	EZ	56 ..						
10	eS	E	14 51 32						USCGS: 37S 75W
✓ 10	eS	NE	21 32 28						USCGS: 15 $\frac{1}{2}$ S 174W
	e(PSP)	Z	33 15						
✓ 11	iS	NE	00 58 16						USCGS: 21S 64.5W h = 300km
	eX	N	59 28						
	eSS	NE	01 04 33						
✓ 11	iP	NEZ	15 24 44		+	+	-	7177	USCGS: 9S 152 $\frac{1}{2}$ E
	eX	Z	26 05						
	eX	Z	33 15						
	iS	N	33 20						
	iS	E	33 23						
	eSS	Z	37 26						
	eL	N	40 ..						
	eR	Z	44 20						
	eLr	N	44 36						
	eLr	E	45.0						
	M	NEZ	46.8						
✓ 11	iP	Z	16 48 14				-	7166	USCGS: 9 $\frac{1}{2}$ S 152 $\frac{1}{2}$ E
	ePcP	Z	48 43						In coda of preceding.
	ePPP	Z	52 14						
	iS	NE	56 49						
	e(S)	Z	56 57						
	eSS	N Z	17 00 58						
	eSSS	N	04 01						
	eLq	NE	05.0						
	eR	Z	07.9						
	eLr	N	08.2						
	eLr	E	08.8						
	M	N	12 ..						
	M	EZ	13 ..						
12	eL	Z	00 44.1						USCGS: 37S, 75W

Date 1960	Phase	Time (G.M.T.)	Per.	Amplitude			Δ	Remarks
				A _N	A _E	A _Z		
JUNE (cont'd)		h. m. s.	s.				km	
12	e(PcP)	Z	07 31 38					USCGS: 36S 98W
	iS	E	41 08					
	iX	Z	41 18					
	iX	N	41 22					
	i(SS)	E	46 14					
	i(SSS)	E	49 32					
	eLq	NE	52 08					
	eLr	Z	55.6					
12	eL	N Z	15 45.0					USCGS: 22 $\frac{1}{2}$ S 172E
13	eP	N Z	05 58 16					USCGS: 44.5S 76.5W
	eS	E	06 07 32					
	eS	N	07 34					
	eSS	E	12 02					
	eLq	E	15 ..					
	eLr	Z	20 ..					
14	eS	E	23 57 22					USCGS: 9S 152 $\frac{1}{2}$ E
	eL	NEZ	00 09 ..					
15	eP	Z	22 59 04					USCGS: 32S 177.5W
	eS	E	23 06 33					
	eS	N	06 37					
	e(ScS)	N	08 54					
	eL(r)	NEZ	16.0					
	M	NEZ	21 ..					
15	eP	Z	23 38 40					USCGS: 0.5S 133E
	iX	EZ	40 48					In coda of preceding. Possibly
	iX	NEZ	48 18					some phases are from
	eX	N	50 50					USCGS: 26S 178 $\frac{1}{2}$ E.
	M	NEZ	24 03 ..					
16	eS	NEZ	03 16 48					Indian Ocean near
	eLr	NEZ	20.5					Amsterdam Is.
16	eL	NEZ	10 53.5					USCGS: 2S 69E
16	e(S)	N Z	17 19 28					
	eL	N Z	23.2					
16	eL	N Z	21 25.6					
16	eL	N Z	21 34.7					
17	eX	E	18 02 02					
	eX	N	02 08					
	eL	NEZ	10 ..					
18	eL	NE	03 00 ..					
20	iP	Z	02 12 55					USCGS: 38S 73.5W
	eP	N	12 58					
	iPP	Z	15 52					
	ePP	N	15 56					
	iS	NE	22 40					
	eX	E	27 05					
	eX	N	27 14					
	eLq	E	33 20					
	eL(r)	N	39 44					
	M	E	43.5					
	M	N Z	46.5					

12.

Date 1960	Phase	Time (G.M.T.)	Per.	Amplitude			Δ	Remarks
				A _N	A _E	A _Z		
JUNE	(cont'd)	h. m. s.	s.				km	
20	iP Z	13 11 24				+		USCGS: 39.5S 73W
	e(pP) E	11 32						
	iPP Z	14 22						
	iS Z	20 59						
	iS NE	21 02						
	eSS E	25 56						
	eX Z	26 27						
	eX E	26 48						
	eX Z	30 10						
	M N Z	39.5						
	M E	42 ..						
21	iP Z	21 42 37				-	5377	USCGS: 61S 21W
	iX E	44 24						
	iPP Z	44 32						
	iS N	49 34						
	iS E	49 36						
	eS Z	49 38						
	eScS N	52 18						
	e(SS) N	53 08						
	e(SS) E	53 10						
	iX Z	53 20						
	eLr N Z	56.8						
	M N Z	22 01.9						
22	eP EZ	03 03 04						USCGS: 62S 162 $\frac{1}{2}$ E
	i(S) N	03 06 35						
	i(L) N	06 44						
	e(L) Z	06 45						
22	eL N Z	09 42 ..						
25	eP EZ	02 12 13						USCGS: 30 $\frac{1}{2}$ S 72 $\frac{1}{2}$ W
	eS E	19 52						
	eSP N	20 01						
	e(ScS) N	22 05						
	eL Z	29 ..						
	eL N	30 ..						
25	iP EZ	14 51 25				- +	6133	USCGS: 30.5S 177W
	eX Z	55 57						
	iS E	59 04						
	eS N	59 05						
	eS Z	59 06						
	iPS N	59 16						
	eScS N	15 01 19						
	eSS E	02 49						
	eLq N	05.1						
	eR EZ	08.6						
	M EZ	11.2						
	M N	12.5						
27	eS NE	17 07 22						USCGS: 32 $\frac{1}{2}$ S 177 $\frac{1}{2}$ W
	eScS N	09 28						
	eL NE	15 ..						
28	eL N	15 54.3						
	eL Z	56.8						
29	eX E	02 18 03						
	eL E	30.9						
	eL N	34 ..						

13.

Date 1960	Phase	Time (G.M.T.)	Per.	Amplitude			Δ	Remarks
				A _N	A _E	A _Z		
JUNE (cont'd)		h. m. s.	s.				km	
29	eL(r) N Z	04 56.2						USCGS: 30S 177.5W
JULY								
2	iP NEZ	12 05 08		+	+	+		USCGS: 56S 37W
	eLq E	19 ..						Intermediate phases lost
	M E	23 ..						in record change.
3	ePKP Z	20 40 14						USCGS: 50 $\frac{1}{2}$ N 177W
	ePP Z	42 17						
	e(SKSP) Z	52 02						
	e(SKSP, SP) N	52 05						
	e(PS) E	52 10						
	eSS NE	59 19						
	eSSP Z	59 41						
	e(SSS) E	21 03 44						
	e(SSS) Z	03 56						
	eLq NE	14 07						
	eLr N	20.8						
	eLr Z	21.0						
4	ePKP EZ	04 48 20						USCGS: 52N 131 $\frac{1}{2}$ W
	e(SKSP) E	05 02 03						
	e(PSS) E	11 32						
	eL EZ	36.0						
4	eLr EZ	14 18.0						USCGS: 52N 131W
4	eLr Z	22 05 ..						USCGS: 43S 73.5W
5	e(S) E	06 06 51						USCGS: 39S 73 $\frac{1}{2}$ W
6	eP Z	07 14(41)						USCGS: Prince Edward Island
	eS E	21 06						Region Indian Ocean.
	eX Z	21 12						
	eL EZ	26.5						
7	eL NE	17 17 ..						
8	eX E	15 10 20						USCGS: 7S 129E
	eL E	15 14 ..						
9	eL N	18 13 ..						
	eL Z	16 ..						
10	eP N Z	00 16 20						USCGS: 0S 98E
	e(pP) N Z	16 30						
	eLr N Z	36.0						
	M N Z	42.0						
10	iP Z	20 27 32				+		
	e(S) N	31 08						
	eL N Z	32.0						
11	iP Z	07 37 57				+		USCGS: 54S 140 $\frac{1}{2}$ E
	e(S) N	41 36						
	eL N Z	42 31						
11	iP Z	07 39 33				+		Same region as preceding shock.

14.

Date 1960	Phase	Time (G.M.T.)	Per.	Amplitude			Δ	Remarks
				A _N	A _E	A _Z		
JULY	(cont'd)	h. m. s.	s.				km	
11	eX E eL Z	16 34 39 38.5						
13	eP Z eX NE e(pP) Z ePP EZ iS NEZ iSS N eLq NE eLr Z	08 04 43 04 51 05 10 06 44 11 47 15 24 16.5 17.3					5688	USCGS: Sandwich Islands.
14	iP N Z ePcP N iS NE eS Z e(PS) E e(PS) N e(SP) Z e(SSS) E eLr N Z	10 38 26 38 52 47 44 47 49 48 08 48 10 48 12 55 13 11 01 ..	-	+				USCGS: 5N 127.5E
15	eLr EZ	05 34 ..						USCGS: 12S 45½E
18	eP Z iS NE eL Z M NEZ	01 54 15 02 03 05 15 .. 21.0						USCGS: 4½S 151E h = 200km
20	eP EZ e(PcP) EZ e(S) N eX E eX N eX N eX E eL Z M NEZ	21 09 13 10 10 17 24 17 33 18 14 24 10 24 25 24.9 29 ..						USCGS: 20½S 169E h = 200km
24	eL E	10 42.2						USCGS: 56N 164E
25	e(PP) Z eX E i(PSS) E i(PSS) N eX E eX E eL N e(G) E e(L) Z	04 02 .. 10 29 23 10 23 15 25 44 27 16 31 17 31 21 33 12						USCGS: 55N 163E
25	e(PP) NE eX E i(PKS) E e(SKS) E iX E eX E e(SS) E	11 32 .. 33 24 34 11 37 41 40 33 41 39 49.5						USCGS: 54N 159E h = 100km
25	eL E eL N	22 04 .. 13.0						

15.

Date 1960	Phase	Time (G.M.T.)	Per.	Amplitude			Δ	Remarks
				A _N	A _E	A _Z		
JULY	(cont'd)	h. m. s.	s.				km	
26	eL NE	22 21.0						
27	eL N	04 22 ..						USCGS: 59.4S 25.1E h = 65km
27	eS N	09 14.6						USCGS: 5.6S 103.6E h = 93km
	eLr N Z	24 ..						
27	iP N	10 16 03	-				7732	USCGS: 44.7S 75.1W h = 25km
	eX N	16 41						
	ePP N	18 36						
	iS E	25 11						
	e(S) N	25 15						
	ePPS N	25 49						
	eSS E	29 41						
	eL N	38.0						
	M N	44.4						
29	iP E	00 34 19	-				6721	USCGS: 19 $\frac{1}{2}$ S 170 $\frac{1}{2}$ E
	eP N	34 20						
	ePcP E	35 00						
	iS NE	42 30						
	eSS N	46 26						
	e(SS) E	46 38						
	eSSS N	49 13						
	eLr E	52.4						
	M N	54 ..						
	M E	55 ..						
29	ePP N	17 50 36					12165	USCGS: 40.1N 142.3E h = 50km
	ePP E	50 42						
	iSKS NE	56 39						
	eX E	58 07						
	e(SP) NE	59 52						
	i(SS) N	18 05 44						
	iSS E	05 48						
31	eP Z	03 06 36						USCGS: 5.6S 150E h = 25km
	eP NE	06 40						
	eX N	10 46						
	i(S) EZ	15 11						
	i(S) N	15 14						
	e(S) E	15 22						
	e(S) N	15 24						
	e(ScS) E	16 25						
	eX N	18 44						
	M NEZ	31 ..						
AUGUST								
2	e(S) E	09 48 06						USCGS: 28.2S 176.6W h = 60km
	e(S) N	48 09						
	e(ScS) N	50 05						

Date 1960	Phase	Time (G.M.T.)	Per.	Amplitude			Δ	Remarks
				A _N	A _E	A _Z		
AUGUST (cont'd)		h. m. s.	s.				km	
4	ePKP	Z	07 54 00				1431	USCGS: 51.4N 179.1E h = 83km
	ePP	Z	56 09					
	e(SKP)	Z	57 11					
	ePPP	Z	58 57					
	eSP	Z	08 06 07					
	eX	Z	08 17					
	cX	N	08 21					
	eSS	E	13 08					
	eSS	N	13 10					
	e(SSP)	E	13 52					
	eX	Z	14 19					
	eX	N	16 07					
	eX	N	17 41					
	e(SSS)	E	18 03					
	eX	NE	21 29					
	eLq	NE	28.2					
	eLr	Z	33 ..					
	M	N	42.8					
	M	EZ	43.5					
	W ₂	EZ	09 41 ..					
4	eL	EZ	23 30 ..					USCGS: 51.0N 178.7E h = 15km
6	eX	Z	15 31 56					
9	e(SS)	N	08 20 14					USCGS: 40.0N 126.6W h = 25km
	eX	E	21 07					
	eL(q)	N	36.5					
	eL(r)	EZ	43.2					
	M	Z	48.0					
9	eP	Z	16 56(40)					USCGS: 24.5S 177.1W h = 186km.
	i(S)	N	17 04 57					Obscured by large microseisms.
	eX	E	05 26					
	e(Lq)	N	12.6					
	e(Lr)	EZ	15.7					
10	eL	E	00 06.7					USCGS: 11.5S 166.3E h = 80km
	eLr	N Z	08 ..					
11	eL(r)	EZ	03 25 ..					USCGS: 0.0 121.6E
12	eL	N Z	10 10 17					
	eL	E	10.3					
13	iX	E	04 24 07					possibly Amsterdam Is. Region
	eL	NEZ	25.3					Indian Ocean.
13	iP	N Z	14 26 31	-			8332	USCGS: 39.7S 74.8W h = 60km
	iPcP	N Z	26 47					
	ePP	Z	29(15)					
	ePPP	N Z	31 05					
	iS	NE	36 05					
	eX	N	37 47					
	eSS	NE	40 53					
	i(G)	Z	45 01					
	eLq	E	45 ..					
	eLr	N Z	50.1					
	M	E	53 ..					
	M	N Z	59 ..					
15	e(S)	E	07 17 21					USCGS: 13.4S 65.8E h = 15km
	e(S)	N	17 22					
	eX	Z	18 05					
	eLq	NE	24.0					

Date 1960	Phase		Time (G.M.T.)	Per.	Amplitude			Δ	Remarks
					A _N	A _E	A _Z		
AUGUST (cont'd)			h. m. s.	s.				km	
15	eLq	NE	14 58.8						USCGS: 13.5S 67.0E h = 25km
	eL	Z	59.8						
16	eL	N Z	15 02.1						
16	eL(r)	N Z	22 56.9						USCGS: 7.6S 128.8E h = 60km
17	eL(r)	E	12 04.1						USCGS: 19.8S 122W h = 25km
18	e(S)	Z	23 03 36						USCGS: 11.4S 166.2E h = 62km
	eL(r)	N Z	15 ..						
20	eP	Z	20 20 03					7766	USCGS: 35.6S 15.4W h = 37km.
	epP	Z	20 12						
	eS	E	29 09						
	eS	N	29 12						
	e(SP)	Z	29 28						
	eSS	NE	33 45						
	eX	Z	33 52						
	e(SSS)	N	37.0						
	e(L)	E	37 22						
	eLr	Z	41.0						
20	e(S)	E	21 40 25						Possibly same region as preceding.
	e(SS)	NE	44 54						Confused by preceding.
	eLq	NE	49 ..						
	eLr	Z	53.0						
21	eL	Z	17 52 13						USCGS: 15.3S 176.0W h = 24km
	eL	E	55.1						
23	eL	N	14 56 ..						USCGS: 0.9N 26.0W h = 25km
23	eL	Z	22 05 ..						
23	eP	Z	22 56 04					7721	USCGS: 14.5S 176.4W h = 50km
	iS	NE	23 05 08						
	e(PPS)	E	05 46						
	eSS	N	09 42						
	eLq	NE	14.4						
	M	EZ	21.9						
24	eL	Z	02 46.5						USCGS: 56.3N 163.8E h = 25km
24	eP	EZ	05 59 50						USCGS: 19.0S 174.1W h = 42km
	iS	NE	06 08 42						
	eL	E	23.5						
	M	Z	26 ..						
24	eL	N	22 38 ..						
	eL	E	40 ..						
	eL	Z	41.7						
25	eL	Z	06 03.0						
25	eL	Z	18 50 ..						USCGS: 52.7N 169.6W h = 38km
25	eL	Z	23 41 ..						USCGS: 37.8S 73.5W h = 109km
26	eS	NE	00 35 39						USCGS: 37.8S 73.2W h = 25km
	eL	E	48 ..						
	eL	Z	54 ..						
	eL	N	56 ..						
26	eX	N Z	15 07.9						

Date 1960	Phase	(G.M.T.)	Per.	Amplitude			Δ	Remarks
				A _N	A _E	A _Z		
AUGUST (cont'd)		h. m. s.	s.				km	
26	eX	E	15 40 52					
	eL	N	41.1					
	eL	Z	41.1					
26	eS	E	15 40 52					USCGS: 13.5S 165.9E h = 56km
	eLq	N	54.5					
	eL(r)	Z	59.1					
	eL(r)	E	59 ..					
30	eL	N	07 24.5					USCGS: 20.9S 113.7W h = 40km
	eL	EZ	29.0					
31	eL	Z	07 58.0					USCGS: 20.9S 114.1W h = 25km
	eL	NEZ	08 00.0					
SEPTEMBER								
1	eX	E	08 00 45					USCGS: Possibly 27.6S 176.9W
	eL	N	04.1					h = 500km
	eL	Z	06 ..					
1	eP	Z	09 38 42					USCGS: 168S 167.6E h = 63km
	iS	N	47 01					
	iS	E	47 03					
	iX	N	48 47					
	eX	E	48 49					
	eSS	N	51 04					
	eLq	N	54.1					
	eLr	Z	57.5					
1	iS	NE	10 53 48					USCGS: 16.5S 167.6E h = 27km
	e(ScS)	E	55 15					
	eLq	NE	11 01.0					
	eLr	Z	04.5					
1	eX	Z	16 19 42					USCGS: 56.1N 153.7W h = 24km.
	eL(r)	Z	45 ..					
2	eL	Z	14 35 ..					USCGS: 28.7N 98.3E h = 48km
2	e(SS)	NE	22 41 55					USCGS: 52.0N 171.4W h = 49km
	eSSS	E	46 56					
	e(SSS)	Z	47 07					
	eLr	Z	23 04 ..					
	eL	N	08.5					
3	epP	E	12 53 17					USCGS: 6.1S 154.5E h = 457km
	iS	NE	13 00 05					P lost in record change.
	iScS	NE	00 59					
	e(G)	N	09 51					
	eL	N	14 ..					
3	eP	N Z	20 45 35				2199	USCGS: 48.5S 126.3E h = 30km
	eS	E	49 13					
	eLq	N	49 25					
	eLr	N Z	50.1					
4	e(PS)	Z	00 15 55					USCGS: 44.6N 149.1E h = 27km
	e(SS)	E	21 46					

Date 1960	Phase	Time (G.M.T.)	Per.	Amplitude			Δ	Remarks
				A _N	A _E	A _Z		
SEPTEMBER (cont'd)		h. m. s.	s.				km	
5	e(S) E e(Lq) N	09 49 22 49 26						USCGS: 48.9S 121.2E h = 89km
6	eLq E eLr Z eLr N	14 28 .. 30.8 30 ..						USCGS: 20.4S 169.4E h = 35km
7	eL N eL E eL Z	01 48 .. 49 .. 50.0						USCGS: 37.2S 16.1W h = 25km
9	eL NE eL Z	03 57 .. 58.3						
10	eP Z epP Z iS NE iScS NE e(SS) E	10 55 12 57 11 11 03 37 04 16 07 08					7777	USCGS: 4.0N 122.6E h = 629km
10	eX Z eL Z eL E eL N	14 24 13 39.9 39 .. 40 ..						USCGS: Possibly 11.2S 163.1E h = 48km
14	iS NE ePS E eLq E	05 18 32 19 13 29 ..						USCGS: 35.1S 106.0W h = 40km
14	eP Z eS NE eLq NE eLr Z	23 29 16 38 01 48 .. 52 ..					7355	USCGS: 20.9S 174.1W h = 25km
17	e(SP) Z e(PS) N eX N eL Z	08 35 36 35 40 41 28 52 ..						USCGS: 49.4N 155.2E h = 28km Possibly some L waves from foreshock H = 07 52 51
17	eL(r) NEZ	13 32 ..						USCGS: 6.3S 154.4E h = 134km
17	eL N Z	16 29 ..						USCGS: 6.3S 148.8E h = 79km
17	eP EZ epP Z iS N eX E e(SP) Z eSS E eLq N	20 06 52 07 16 15 33 15 45 15 50 20 02 24 ..					7466	USCGS: 20.9S 174.5W h = 28km
18	iS N eSSS N	09 58 40 10 05 34						USCGS: 6.8S 129.2E h = 83km
19	e(P) N Z e(S) E	02 32 29 32 43						Appears to be local.
19	iP N Z ePcP N Z ePP Z iS NE eSS E	03 51 54 52 03 55 08 04 02 07 07 25				+	9188	USCGS: 15.6N 120.0E h = 97km

Date 1960	Phase	Time (G.M.T.)	Per.	Amplitude			△	Remarks
				A _N	A _E	A _Z		
SEPTEMBER (cont'd)		h. m. s.	s.				km	
19	e(PP) N Z	19 22 39						USCGS: 6.9N 77.5W h = 66km
	eX NE	29 35						
	eSS E	38 19						
	eSSS E	42 58						
	eL N Z	59 ..						
20	eLq N	03 59 ..						USCGS: 28.2S 177.9W h = 47km
	eLr EZ	04 03.0						
22	iP EZ	05 50 43						USCGS: 3.4S 29.1E h = 28km
	i(S) E	06 01 07				+		
	e(SKS) N	01 21						
	eL(q) E	12.9						
	eL(r) E	15 ..						
	eL(r) Z	16 ..						
22	eP Z	09 18 05						USCGS: 3.3S 29.3E h = 28km
	iX EZ	18 09						
	i(S) EZ	27 32						
	iX N	28 39						
	eX Z	28 41						
	eX Z	30 53						
	eX E	34 05						
	eX Z	34 55						
	iX N	38 05						
	eL N	40.4						
23	eP Z	23 12 59					7110	USCGS: 22.2S 174.8W h = 39km
	ePcP EZ	13 25						
	iS N	21 31						
	eSP Z	21 54						
	ePS E	21 59						
27	eL N Z	02 52 ..						USCGS: 44.6S 73.6W h = 59km
27	eL N Z	07 55 ..						USCGS: 00.9S 134.5E h = 107km
29	eL NE	03 31 ..						
29	iP Z	11 31 06					9854	USCGS: 18.9N 144.7E h = 469km
	epP Z	32 35				-		
	iX Z	32 41						
	iSKS NE	40 53						
	iS NEZ	41 16						
	esP NEZ	42 23						
	iX NE	47 18						
	eSS N	47 25						
OCTOBER								
1	ePP Z	16 32 39					14665	USCGS: 52.2N 172.6W h = 41km
	ePP E	32 41						
	ePKS NE	33 48						
	ePPS E	44 32						
	eSS NE	50 15						
	ePSS NE	50 43						
	e(SSS) Z	54 33						
	e(SSS) N	54.5						
	eL(q) E	17 05 ..						
	eL N	17 10 ..						
	eL(r) EZ	17 11 ..						

Date 1960	Phase	Time (G.M.T.)	Per.	Amplitude			Δ	Remarks
				A _N	A _E	A _Z		
OCTOBER (cont'd)		h. m. s.	s.				km	
2	iP	N Z	04 46 33			+	5555	USCGS: 61.0S 23.3W h = 77km
	ePP	N Z	48 28					
	ePPP	Z	49 23					
	iS	NE	53 40					
	eS	Z	53 43					
	eSS	NEZ	57 13					
	eLq	E	59 ..					
	eLr	Z	05 00.5					
	eLr	N	01.2					
	M	Z	06 ..					
2	eLq	E	07 39 ..					USCGS: 39.0S 91.6W h = 107km
	eLr	Z	43.1					
2	iS	E	12 14 45					USCGS: 38.7S 91.5W h = 84km
	e(SSS)	E	22 ..					
3	eP	Z	05 22 17					USCGS: 38.7S 75.3W h = 43km
	e(S)	E	32 01					
	eL	E	48 ..					
	eL	Z	51.6					
3	e(P)	Z	20 01 09					USCGS: 05.7S 103.0E h = 51km
	iS	NE	09 12					
	e(PS)	N	09 22					
	eLq	E	16.2					
	eLr	N	18 ..					
	eLr	Z	18.5					
4	eP	Z	10 01 53					USCGS: 17.5S 155.3E h = 134km
	iS	N	10 42					
	e(SP)	E	10 52					
	eLr	Z	22.6					
	eLr	N	23.2					
	M	NEZ	28.0					
6	eX	NE	13 58 33					
	eL	N	01 ..					
	eL	Z	02.1					
7	iP	NEZ	15 28 38	-	-	+	6666	USCGS: 7.4S 130.7E h = 45km
	i(PP)	Z	31 13					
	iS	NEZ	36 46					
	e(PPS)	N	37 20					
	iX	Z	37 48					
	eSS	Z	40 50					
	eLr	Z	46 ..					
	M	N Z	50 ..					
7	i(S)	E	20 24 44					USCGS: 20.4S 113.7W h = 200km
	eX	E	37.3					
	eLr	N Z	42 ..					
8	iP	Z	06 06 19 A			+	11887	USCGS: 40.0N 129.7E h = 600km
	iPP	N Z	10 52					
	isPP	N Z	13 53					
	ipPPP	N	14 56					
	iS	E	17 22					
	isS	E	21 24					
	iSS	E	25 11					
	isSS	E	28 39					

Date 1960	Phase	Time (G.M.T.)	Per.	Amplitude			△	Remarks
				A _N	A _E	A _Z		
OCTOBER (cont'd)		h. m. s.	s.				km	
8	eLq N eLq E eLr Z	17 54.8 54 .. 57.0						USCGS: 35.9S 176.9E h = 176km
8	iP N Z epP Z eS NE ePS N eLq E eLr N Z M N Z	20 51 46 52 08 21 01 29 02 28 11 .. 14.2 20 ..	A		+		8732	USCGS: 7.9N 92.9E h = 84km
9	ePP Z ePP N esPP N eX NE e(SKS) NE eSP NE eSP Z eSS N eSS E	09 19(26) 19 30 20 05 24 27 25 22 28 43 28 45 34 38 34 42					12198	USCGS: 40.8N 141.2E h = 155km
10	i(S) N	15 09 05						Balleny Is. Region. H = 15 00 20
13	ePKP Z ePP Z eSKKS N i(SS) E eSSS Z eSSS NE eLq E eLr Z	15 11 38 13 35 20 25 30 44 35 12 35 19 45.0 51.3					13998	USCGS: 54.8N 161.2E h = 35km
14	eS E eL(r) Z M N Z	18 09 57 26.8 34 ..						USCGS: 37.9S 74.7W h = 25km
14	ePKP Z ePP NEZ ePKS NEZ e(PS) NE eSS NE eSSP Z eX E eSSS Z eG N eLq E eLr Z	21 38 20 40 39 41 49 50 57 58 07 58 25 58 59 22 03 01 13 29 13 .. 20 24					14554	USCGS: 51.7N 172.1W h = 50km
16	eLr Z	13 50.6						USCGS: 36.2S 177.3E h = 25km
17	eL E	07 36.1						
19	eS E eLq E	10 48 17 55 ..						USCGS: 55.1S 129.9W h = 100km
20	iP NEZ iS N Z ePS E e(ScS) E	11 16 44 25 30 25 53 26 42			-		7377	USCGS: 11.0S 164.9E h = 40km

23.

Date 1960	Phase	Time (G.M.T.)	Per.	Amplitude			Δ	Remarks
				A _N	A _E	A _Z		
OCTOBER (cont'd)		h. m. s.	s.				km	
22	iP	NEZ	08 32 38	-	-	+	7333	USCGS: 10.3S 161.2E h = 93km
	ipP	NEZ	32 52					
	iS	NE	41 19					
	e(S)	Z	41 24					
	eScS	N	42 10					
	eX	N	42 30					
	eSS	N Z	45 40					
	e(SSS)	EZ	48.9					
	M	N Z	54.0					
24	iP	Z	05 22 23			+		USCGS: 15.0S 167.4E h = 145km
	iS	N	30 45					
24	iS	NE	17 28 36					USCGS: 6.0S 150.0E h = 120km
28	e(SS)	N	05 03 03					USCGS: 71.3N 8.6W h = 48km
28	e(PP)	Z	13 39.11					USCGS: 52.0N 157.4E h = 96km
	eX	Z	39 22					
	eX	Z	39 41					
	iX	NE	46 34					
	e(PKKP)	E	47 22					
	e(SS)	NE	55 24					
	eX	E	56 08					
	eX	N	56 18					
	eX	E	14 07 06					
	eX	E	09.0					
28	ePP	Z	22 47 38					USCGS: 34.4N 141.1E h = 96km
	eX	E	55 22					
29	e(P)	N Z	09 48 51					
	eX	N	58 08					
30	e(S)	N	12 38 30					USCGS: 23.3S 70.3W h = 76km
	e(PS)	N	39 46					
	eL	N	59 ..					
30	iS	NE	16 10 22					USCGS: 1.0S 127.0E h = 32km
	eLq	N	17.5					
30	iP	N Z	21 45 50			-	10110	USCGS; 23S 68.0W h = 60km
	e(sP)	Z	46 17					
	eX	Z	46 26					
	ePP	Z	49 26					
	e(pPP)	Z	50 02					
	eS	E	56 38					
	eS	N	56 41					
	iX	E	57 25					
	ePPS	N	58 35					
	eX	E	22 03 34					
	eLq	E	10 ..					
	eLr	Z	17 ..					

Date 1960	Phase	Time (G.M.T.)	Per.	Amplitude			Δ	Remarks
				A _N	A _E	A _Z		
NOVEMBER		h. m. s.	s.				km	
1	iP	N Z	08 57 41	-	-	-	8621	USCGS: 38.4S 74.4W h = 97km
	epP	N	58 01					
	eS	NE	09 07 23					
	eSKS	E	07 41					
	eSS	NE	12 20					
	eL	Z	21 ..					
	eL	N	22 ..					
	M	N Z	30.5					
1	eLq	E	13 00.0					USCGS: 38.5S 75.0W h = 64km
	eL	Z	04 ..					
2	iP	NEZ	17 25 39	+	+	-	7388	USCGS: 10.9S 164.9E h = 25km
	ePcP	NE	26 02					
	eS	N	34 24					
	e(S)	E	34 28					
	eScS	E	35 37					
	eSS	N	38(40)					
	e(SSS)	N	41 54					
	eLq	N	42 ..					
6	ePP	Z	04 59 06					USCGS: 58.0N 159.8E h = 32km
	eLr	Z	38 ..					
6	eP	EZ	06 24 17					USCGS: 31.0S 177.7W h = 184km
	eS	E	31 54					
	eS	N	31 57					
	eX	Z	32 05					
	eScS	N	34 06					
	eSS	N	35 49					
	eL(r)	Z	39.8					
	M	EZ	47.5					
6	eL	EZ	15 58 ..					
6	eL(r)	EZ	23 13 ..					USCGS: 52.7N 168.0W h = 42km.
8	eL(r)	EZ	00 27.6					USCGS: 30.6S 177.5W h = 25km
9	iP	NEZ	03 26 48	+	+	+	5533	USCGS: 60.7S 24.8W h = 37km
	ePcP	Z	28 17					
	iPP	NEZ	28 46					
	iS	NE	33 54					
	iS	Z	33 56					
	eSS	NE	37 27					
	eLr	NEZ	40 ..					
	M	NEZ	46.5					
9	e(PS)	Z	11 10 23					USCGS: 32.7N 103.4E h = 47km
	eSS	N	15 49					
	eLq	E	25 ..					
	eLr	Z	30 ..					
9	e(S)	N	19 49(49)					USCGS: 30.7S 177.1W h = 68km
9	e(SKS)	N	20 29 49					USCGS: 23.2S 70.6W h = 52km
	i(S)	NE	30 15					
10	iP	NEZ	14 55 39	-	-	+	7377	USCGS: 2.6S 139.4W h = 25km
	iS	NEZ	15 04 25					
	eL	E	41.7					
13	iP	NEZ	06 48 07	-	-	+	7455	USCGS: 1.4N 127.2E h = 60km
	iS	NEZ	56 57					
	eSS	N	07 01 22					
	eSSS	N	04 32					

25.

Date 1960	Phase	Time (G.M.T.)	Per.	Amplitude			Δ	Remarks
				A _N	A _E	A _Z		
NOVEMBER (cont'd)		h. m. s.	s.				km.	
13	iPKP Z	09 39 47				-		USCGS: 51.1N 168.8W h = 65km.
	ePKP NE	39 49						
	ePKS E	43 24						
	eSKKS N	49 00						
	eSKKS E	49 04						
	iSP Z	52 17						
	eX Z	55 58						
	eSS Z	59 33						
14	iP NEZ	02 12 32		-	-	+		USCGS: 53.5S 140.7E h = 21km
	eL NEZ	17.1						
14	eL(r) N Z	21 00.0						USCGS: 14.5N 92.8W h = 100km
15	eP EZ	06 30 27						USCGS: 62.5S 161.7W h = 46km
	iS NE	36 01						
	eLq E	38 ..						
	M EZ	44.5						
15	e(S) E	21 57(10)						USCGS: 35.0S 178.4E h = 84km
	eL NE	22 00 ..						
17	eS NE	21 39 19						USCGS: 56.2S 122.0W h = 38km
	eL(q) E	45 ..						
	eLr Z	48.3						
20	e(P) Z	22 16.3						USCGS: 6.8S 80.7W h = 93km
	ePP N Z	20 49						
	iSKS N	26 50						
	ePS Z	30 02						
	eSS N	36 01						
	M N Z	23 01.5						
22	eX Z	03 43(07)						USCGS: 19.2S 173.1W h = 25km
	iS NE	51 41						
	e(PPS) Z	52 19						
	eL E	04 02.3						
22	iP EZ	06 30 03						USCGS: 35.9S 52.3E h = 21km
	eX EZ	30 27						
	iS N	36 39						
	eS E	36 40						
	i(S) Z	36 44						
	eSS N	39 57						
	eL EZ	42.0						
	M EZ	44.5						
22	iP N	12 40 28						USCGS: 40.0S 74.3W h = 107km
	ePcP N	40 43						
	iS N	49 59						
	e(SS) N	54 45						
	eL N	13 03 ..						
23	iP NEZ	14 22 41		+	-		6910	USCGS: 24.2S 176.1W h = 28km
	e(S) Z	30 51						
	iS NE	30 57						
	eL N	38.5						
	M EZ	45.0						
24	iP Z	05 01 12			+		7655	USCGS: 4.6S 153.0E h = 87km
	epP Z	01 29						
	iS NEZ	10 07						
	eSP Z	10 31						
	eX N	18 00						
	eL(r) EZ	23 ..						
	eL(r) N	23.1						
	M E	30 ..						

Date 1960	Phase	Time (G.M.T.)	Per.	Amplitude			Δ	Remarks
				A _N	A _E	A _Z		
NOVEMBER (cont'd)		h. m. s.	s.				km	
24	iP	Z	07 02 58			-	6710	USCGS: 24.2S 176.1W h = 23km
	iP	NE	02 59					
	eScP	Z	07 41					
	iS	NEZ	11 09					
	eSS	Z	15 13					
	e(Lq)	N	18.1					
	M	Z	38 ..					
26	eP	N Z	18 24 50					USCGS: 53.9S 141.5E h = 25km
	e(S)	N Z	28 31					
	eL(q)	N Z	28 58					
29	iP	N Z	09 43 10			-	7866	USCGS: 44.0S 74.9W h = 86km
	epP	Z	43 19					
	ePP	Z	45 55					
	iS	NE	52 20					
	eScS	E	53 11					
	eLr	Z	10 05 ..					
DECEMBER								
1	e(P)	Z	10 50 42					Possibly Fiji Is. Region.
2	eP	Z	09 23 35					USCGS: 24.5S 69.9W h = 37km
	ipP	N	23 46					
	ipP	Z	23 47					
	eX	E	23 57					
	eX	N	24 13					
	e(PP)	Z	27 29					
	e(PPP)	N	29(33)					
	e(PPP)	Z	29 36					
	i(S)	N	34 13					
	e(ScS)	E	34 25					
	eX	Z	34 43					
	eX	E	36 51					
	e(SS)	E	40 06					
	eX	N	40(29)					
	eX	E	40 37					
	eL	E	47 17					
	eL	Z	54 ..					
2	eL	N	19 51 ..					USCGS: 41.6S 88.3E h = 35km
	eL	E	52 ..					
	eL	Z	54.0					
3	iP diff.	Z	04 38 49			-	12143	USCGS: 42.8N 104.5E h = 45km
	ePP	N Z	43 14					
	eSKS	N	49 21					
	eSKKS	N	50 17					
	eX	E	50 51					
	ePS	N	52 37					
	ePS	Z	52 39					
	eX	E	54 39					
	e(SS)	Z	58 53					
	eLq	E	05 09 ..					
	M	Z	22 ..					

Date 1960	Phase	Time (G.M.T.)	Per.	Amplitude			Δ	Remarks
				A _N	A _E	A _Z		
DECEMBER (cont'd)		h. m. s.					km	
6	iP Z	09 09 24				+	10221	USCGS: 21.4S 69.0W h = 25km
	ipP Z	09 37						
	eSKS N	19 50						
	ePS Z	21 31						
	ePS N	21 34						
	e(SS) N	26 45						
	e(SSS) Z	30 32						
	eL N Z	40 ..						
11	eP Z	00 10 53					6554	USCGS: 22.1S 171.4E h = 144km
	iS NEZ	18 47						
	eSS	22 43						
11	iP EZ	19 03 25			-	+		USCGS: 15.7S 166.9E h = 133km
	eP N	03 27						
	iS NE	11 53						
	eS Z	11 57						
	e(SS) N Z	16 00						
	e(SSS) N	19 12						
	eLr Z	22.5						
	M Z	26.0						
13	eP Z	07 42 05						USCGS: 52.1S 160.9E h = 29km.
	e(PP) EZ	42 49						
	e(S) N	46.9						
	eX N	47 28						
	iX E	47 31						
	eX E	47 59						
	e(L) Z	49 33						
14	iP Z	01 08 11						USCGS: 10.8S 165.4E h = 65km
	iS NE	17 01						
	iS Z	17 05						
14	eP Z	14 29 18						USCGS: 51.9S 160.7E h = 77km
	eS N	34 08						
15	iP Z	00 02 38				+		USCGS: 2.9N 126.5E h = 77km
	ipP N	03 41						
	e(S) Z	11 37						
	iS NE	11 41						
	e(SS) Z	16 36						
	eSSS E	19 20						
	eL(r) Z	25.2						
17	eX N	05 31 51						
17	iP N Z	10 46 51						USCGS: 6.4S 109.3E h = 295km
	iS N	54 39						
	iS Z	54 41						
18	eX Z	11 07 01						
	eX E	07 11						
18	eS E	18 42 11						USCGS: 8.5N 125.9E h = 36km
	eX N	42 19						
21	eP EZ	22 35 09						USCGS: 62.5S 167.1E h = 29km
	eS E	39 28						
	iS N	39 31						
	eS Z	39 33						
22	eL N	06 58 ..						USCGS: 30.8S 177.1W h = 46km
22	eS NE	14 30 11						USCGS: 27.8S 176.1W h = 60km
22	eP Z	21 12(54)						USCGS: 6.8S 155.3E h = 469km
	epP Z	14 18						
	ePP Z	15 03						
	iS NE	21 03						
	i(sS) NE	23 48						





Date 1960	Phase	Time (G.M.T.)	Per.	Amplitude			Δ	Remarks
				A _N	A _E	A _Z		
DECEMBER (cont'd)		h. m. s.	s.				km	
26	eLr Z	01 25 ..						USCGS: 23.7S 176.9W h = 59km
26	iP Z	04 41 46				+		USCGS: 57.4S 26.2W h = 25km
	iX Z	42 12						
	iS NE	49 03						
	eL Z	57.5						
26	eX E	06 16 04						
	eL N	17.1						
	eL Z	17.4						
26	eLq N Z	13 56 ..						USCGS: 49.4S 164.3E h = 37km
29	iP EZ	06 13 01				+		
	eS NE	21 57						
	eLr Z	34 ..						
29	eP E	10 47 45						USCGS: 44.8S 75.6W h = 30km
	eS N	56 54						
	eX N	57 05						
31	iP N Z	18 19 17				-		USCGS: 43.9S 75.0W h = 92km
	iS NE	28 28						

(J.M. RAYNER)
DIRECTOR