

HALLETT STATION

Lat. 72° 19'S Long. 170° 13'E



SEISMOLOGICAL BULLETIN

JULY, 1957

Instrument	Component	Symbol	To(sec.)	Tg(sec.)	Damping Shunt (ohms)	Paper Speed mm./sec.
Willmore	Vertical	z	1	2	Near critical	30
Columbia	Vertical	Z	15	75	100	15
Columbia	N - S	N	15	75	100	15
Columbia	E - W	E	15	75	100	15

noted 12/2/57

First Movement: + indicates first ground motion towards the North, East or Upwards.
- indicates first ground motion towards the South, West or Downwards.



Date	No.	Phase	First Motion	h. m. s.	A(mm.)	T	Remarks;
1	1	eP z		02 31 25	1.0	1	Tonga 22°S 176°W H = 02 22 26, h = 60 km (USCGS)
2	2	eP z		22 04 10	1.0	1	Chile 24½°S 70½°W H = 21 52 20 (USCGS)
3	3	eP z		06 10 40	0.5	1	Fiji 24°S 180°W H = 06 02 37, h = 550 km (USCGS)
		ePP z		06 12 23	1.0	1	
	4	e z		06 36 07	1.0	1	
	5	e z		09 58 50	0.5	1	
	6	iP z		10 05 1	1.0	1	
	7	iPKP z	-	12 43 37	1.0	1	Aleutians 50½°N 179°W H = 12 24 37 (USCGS)
	8	e z		17 20 12	0.5	1	
		e z		17 23 32	0.5	1	
4	9	iP z	-	08 41 02	1.0	1	Sumatra 04°S 102°E H = 08 29 01 h = 100 km (USCGS)
	10	e z		19 38 32	0.5	1	
	11	iP z		23 12 42	1.0	1	
	12	iP z	+	12 41 47	1.0	1	Kermadec 28½°S 179°W H = 12 33 56 (USCGS)
		iP Z	+	12 41 47	2.0	13	
		iS Z	-	12 48 20	3.0	15	
		iS N		12 48 10	0.4	16	
		eSS Z		12 51 33	2.0	15	
		i(ScS) Z	-	12 51 56	3.0	12	
		i(ScS) N		12 51 44			



Date	No.	Phase	First Motion	h. m. s.	A(mm.)	T	Remarks:
5	13	e z		17 01 43	0.5	1	Appears to be same disturbance as recorded at Scott.
6	14	iP z		00 31 15	1.0	1	Also recorded at Scott; also probably Brisbane. Willmore record shows considerable micro-seismic activity before blizzard starting at 1500.
7	15	iP z	+	16 22 05	1.0	1	Solomon Is. $6\frac{1}{2}^{\circ}\text{S}$ 156°E H = 16 11 15
9	16	iP z		07 57 07	1.0	< 1	Local. P - S or P - L about 1 minute.
		i N		07 58.2	3.0	18	
	17	iP z	+	10 10 02	1.0	1	Sumatra 6°S 104°E H = 09 58 09, h = 60 km. (USCGS). Surface wave began at about 07 58.9
		iS N	+	10 20 49	3.0	10	
10	18	eP z		04 43 45	1.0	2	Kermadec 04 38 05.
	19	eP z		08 10 49	0.5	1	Local. Can find no other record of it.
		e(S) z		08 12 05	2.0	2	
20		e z		09 25 51	0.5	< 1	North of Chile $22\frac{1}{2}^{\circ}\text{S}$ 69°W , H = 09 14 00(BCIS)
		ePP Z		09 22 27	2.0	10	
		iS N	+	09 30 07	2.0	22	
		iPS Z	-	09 31 43	2.0	18	
		e(PSS) N		09 36 04	2.0	25	
		e(PSS) Z		09 37 00	2.0	25	
		iSSS N	+	09 40 53	2.0	15	
L Z		09 51.7					



Date	No.	Phase	First Motion	h. m. s.	A(mm.)	T	Remarks:
11	21	iP z		23 52 14	1.0	1	
	22	ePKP z		23 56 40	1.0	1	Greece 36.5°N 26°E H = 23 37 20 (BCIS)
12	23	e Z		07 49.7	2.0	25	Appear to be surface waves.
		e N		07 51.2	2.0	21	
	24	iP z	+	21 07 38	1.0	1	Bismarck Archipelago 3°S 148½°E, H = 20 56 18 (USCGS)
		e(S)N		21 16 56	1.0	10	
		e(L)N		21 32	2.0	20	
	25	eP z		22 10 03	0.5	1	Bismarck Sea 3°S 148½°E H = 21 58 45 (USCGS)
		e N		22 41.4	2.0	20	
13	26	iP z	-	09 42 02	1.0	1	Samoa 15°S 173°W H = 09 32 05 (USCGS)
		iP N	-	09 42 02	2.0	7	
		iP Z	+	09 42 07	2.0	8	
		eS Z		09 50 00	2.0	12	
		eS E		09 50 00	3.0	18	
		e Z		09 51 56	2.0	14	
		e(L)N		09 56	2.0	25	
		e(L)E		09 56	2.0	25	
		e(L)Z		09 56 32	3.0	25	
14	27	i N		03 38 10	3.0	15	Probably S group from local earthquake.
		iP N	-	06 31 56	1.5	2	
		iP E	+	06 31 54	1.5	2	



Date	No.	Phase	First Motion	h. m. s.	A(mm.)	T	Remarks
	28	ipP N	-	06 32 34	12.0	12	Kermadec Is. 27°S 178°W h = 150 km H = 06 23 52 (USCGS)
		ipP E	-	06 32 34	4.0	12	
		iPP E	-	06 34 24	3.0	08	
		iScP N	-	06 37 00	4.0	16	
		ePcS E		06 37 38	2.0	14	
		iS N	+	06 38 14	30.0	12	
		iS E	-	06 38 30	3.0	10	
		iScS E	-	06 39 49	15.0	12	
	29	i N		06 39.8	10.0	17	
		i(L) N		06 42.6	15.0	14	
		i(L) E		06 42.3	25.0	15	
	30	iP N	-	08 18 42	3.0	7	Kermadec Is. 30°S 177°W H = 08 10 45 (USCGS)
		iP E	-	08 18 42	2.0	7	
		i N	+	08 19 45	3.0	8	
		iPP N		08 20.2	2.0	14	
		ePP N		08 20 40	4.0	15	
		iPcS N	+	08 24 31	4.0	16	
		ePcS E		08 24 40	4.0	34	
		iS N	+	08 25 10	25.0	15	
		iS E	+	08 25 20	8.0	28	
		iScS N	+	08 28 32	8.0	8	
		iScS E	+	08 28 37	25.0	35	
15	31	e z		09 36 42	5.0	1	Gibraltar 36°N 7.5°W, H = 09 36 30 (USCGS) See Brisbane BCIS bulletin, Page 90.
		ePKP z		09 56 23	5.0	1	
		e z		10 53 35	5.0	1	
16	32	e z		16 27 57	0.5	1	Probably p from a local disturbance. Unable to find any other record.
		iP z	-	16 56 04	0.5	1	



Date	No.	Phase	First Motion	h. m. s.	A(mm.)	T	Remarks:
	32	iP z		17 09 04	1.0	1	Borneo $1^{\circ}\text{S } 118^{\circ}\text{E}$ H = 16 57.2 (BCIS)
17	33	eP z		05 24 40	0.5	1	Chile $24\frac{1}{2}^{\circ}\text{S } 69^{\circ}\text{W}$ H = 05 12 53 (USCGS)
		i z	-	05 24 54	1.0	1	
	34	iP z	?	11 20 23	6.0	1	Santa Cruz, $11^{\circ}\text{S } 167^{\circ}\text{E}$ H = 11 10 10 (USCGS)
		iP N	-	11 20 23	2.5	7	Very strong microseismic activity on N - S component for 16th - 17th.
		iS N	-	11 28 11	2.5	32	
	35	ePKP z		18 57 25	1.0	1	Atlantic $1^{\circ}\text{S } 13^{\circ}\text{W}$, H = 18 39 57 (USCGS)
18	36	ePKP z		01 34 04	0.5	1	Aleutians, $53^{\circ}\text{N } 169^{\circ}\text{W}$ H = 01 14 52 (USCGS)
	37	ePKP z		01 38 46	0.5	1	Aleutians, $53^{\circ}\text{N } 170^{\circ}\text{W}$ H = 01 19 52 (USCGS)
	38	eP z		02 34 55	0.5	1	
		i(S) N		02 37 58	12.0	16	Can find no other reference to this earthquake.
		i(S) Z		02 38 04	2.0	17	
19	39	e z		07 41 27	1.0	1	
	40	e z		15 54 54	0.5	1	
	41	eP z		21 48 10	0.5	1	New Guinea $3\frac{1}{2}^{\circ}\text{S } 142^{\circ}\text{E}$ H = 21 36 46 (USCGS)
20	42	iP z	+	10 08 03	1.0	1	Mozambique $21\frac{1}{2}^{\circ}\text{S } 33\frac{1}{2}^{\circ}\text{E}$ H = 09 55 37 (BCIS)
	43	e z		13 32 46	0.5	1	Recorded at Scott Base.



Date	No.	Phase	First Motion	h. m. s.	A(mm.)	T	Remarks:
	44	iP z		15 48 17	1.0	1	Tonga $19\frac{1}{2}^{\circ}\text{S}$ 174°W , H = 15 38 47 (USCGS)
		i(pP) z		15 48 28	1.5	2	
21	45	iP z		00 34 42	1.0	1	Chile-Argentine H = 00 23 05 (USCGS)
	46	i(P) z		02 08 42	1.5	1	Probably local.
	47	eP z		06 01 50	2.0	2	Balleny Is. $62\frac{1}{2}^{\circ}\text{S}$ 156°E H = 05 59 13 (USCGS)
		i(S) E	-	06 04 11	20.0	17	
		i(S) N	-	06 04 37	15.0	16	
		e E		06 07 46	7.0	10	
	48	eP z		06 46 27	0.5	1	New Hebrides 18°S $169\frac{1}{2}^{\circ}\text{E}$ H = 06 36 58 (USCGS)
	49	iP z		07 11 17	1.0	1	New Ireland $4\frac{1}{2}^{\circ}\text{S}$ 153°E H = 07 00 10 (USCGS)
	50	e		15 10 14	1.0	1	Kermadec, 28°S 175°W , h = 150 km, H = 19 37 10 (USCGS).
		iP z	-	19 45 24	1.5	1	
		ePP z	-	19 47 01	0.5	1	
		eS Z		19 51 55	2.0	7	
		esS Z		19 53 04	2.0	14	
		iSSS Z	+	19 56 41	3.0	8	
		i	-	20 04 08			
		L		20 08.1			
22	51	iP z	-	06 24 36	1.0	1	Kermadec Is. $33\frac{1}{2}^{\circ}\text{S}$ 178°W H = 06 16 52 (USCGS)
		i(pP) z	+	06 24 44	2.0	1	
		ePP z	+	06 26 08	1.0	3	
		eP Z		06 24 34	2.0	2	
		e(pP) Z		06 24 44	3.0	11	



Date	No.	Phase	First Motion	h. m. s.	A(mm.)	T	Remarks:
	51	iPP Z	+	06 26 09	5.0	07	
		i(pP) N	+	06 24 43	2.0	5	
		iPP N	-	06 26 09	3.0	6	
		iS Z	+	06 30 29	7.0	15	
		iS N	+	06 30 40	5.0	15	
		iSS Z	-	06 33 47	7.0	12	
		iSS N	+	06 33 35	3.0	16	
	52	eP z		06 29 41	1.5	1	Kermadec 34°S 177½°W H = 06 21 50 (USCGS)
23	53	eX z		22 38 45	0.5	1	
24	54	iP z	+	02 08 45	1.0	1	Chile-Argentine 30°S 70½°W, H = 01 57 25 (USCGS)
		iP Z	-	02 08 43	3.0	10	
		iP N	+	02 08 49	1.5	7	
		iP E	+	02 08 49	1.0	10	
		i(pP) z	+	02 09 01	1.5	8	
		eS Z	+	02 13 02	2.0	12	
		iS N	+	02 17 59	1.5	15	
		iS E	+	02 17 58	2.0	14	
		iSS z	+	02 22 21	2.0	17	
		iX Z	-	02 26 29	2.0	10	
		iX Z	-	02 28 41	2.0	18	
		eL Z		02 30			
		eL N		02 30			
		ePKPPKP z		02 36 45	1.0	1	
	55	eP z		03 58 34	1.0	1	Oazis 03 52 51?



Date	No.	Phase	First Motion	h. m. s.	A(mm.)	T	Remarks:
	56	eP z		06 12 46	0.5	1	Nth of New Zealand 35.9°S 174.4°W
		eS E		06 18 43	2.0	12	H = 06 05 34.5 (Wgton)
		eSSS E		06 21 17	3.0	12	
		e(L) E		06 22.6	3.0	14	
		e(L) N		06 23 26	3.0	14	
	57	iP z	+	10 06 26	2.0	1	New Hebrides 18°S 169½°E H = 09 56 57 (USCGS)
	58	iP z	-	10 59 06	2.0	1	Argentina 27°S 66°W h = 150 km.
		i z	+	10 59 53	1.0	1	H = 10 57 44 (USCGS)
	59	iP z	-	11 12 01	1.0	1	New Hebrides 20°S 169°E H = 11 02 30 (USCGS)
		iP Z	-	11 12 01	2.0	2	
		eP N	-	11 12 01	2.0	2	
		ipP z	+	11 12 08	2.0	1	
		ipP N		11 12 11	2.0	8	
		ePP N		11 13 14	2.0	14	
		iPP Z		11 13 19	3.0	14	
		iX Z		11 21 09	3.0	20	
	60	eP z		13 50 12	0.5	1	Also recorded at Mac- quarie Is. and Melbourne
	61	iP z	+	14 52 15			
	62	e		14 20 38	1.0	1	
	63	i(S) E	+	13 54 11			
	64	iP z	+	14 52 15	0.5	1	New Guinea 3°S 134½°E H = 14 40 45 (USCGS)
	65	eP z		15 02 43	1.0	<1	Kermadec Is. H = 14 55.2 (BCIS)



Date	No.	Phase	First Motion	h. m. s.	A(mm.)	T	Remarks:
	66	eP z		21 26 59	0.5	1	Kermadec Is. 34°S 177 ³ / ₄ °W H = 18 21 18 (Wgton)
25	67	eP z		22 51 03	0.5	1))))))) See seism X (BCIS)
	68	e(P) z		22 52 50	1.0	1	
	69	i(S) E		23 01 21	1.0	18	
	70	eX N		23 05.0	4.0	22	
		iX Z	+	23 06 19	3.0	19	
		iX N	-	23 11 23	4.0	15	
		eX E		23 05.0	2.0	23	
26	71	eP z		06 56 53	1.0	1	
		iS E	-	07 02 05	2.0	13	
28	72	eP z	+?	01 40 38	1.0	1	New Hebrides 15°S 167 ¹ / ₂ °E H = 01 30 52 (USCGS)
	73	eP z	+?	02 58 34	0.5	1	South Pacific, H = 02 51 01 (BCIS)
	74	eP z		08 54 34	0.5	1	
		iP Z	+	08 54 33	4.0	07	
		iPP z	+	08 53 57	1.0	2	
		iPP Z	+	08 58 56	15.0	20	
		iPPP Z	+	09 01 07	6.0	11	
		i(S) Z	+	09 05 21	14.0	28	
		i(PS) Z	-	10 08 05			
		iX Z	+	10 12 39			



Date	No.	Phase	First Motion	h. m. s.	A(mm.)	T	Remarks:
28	75	e(P)		09 10 01	1.0	1	Also recorded at Scott Base.
29	76	eP		10 04 58	1.0	1	Kermadec Is. 34°S 178°W H = 09 57 13 (Wgton)
	77	iP z	-	17 27 05	4.0	1	
		iP Z	-	17 27 06	4.0	11	
		iP E	+	17 27 06	3.0	11	Chile 23½°S 71½°W H = 17 15 14 (USCGS)
		iS Z	+	17 36 46	4.0	16	
		iS E	+	17 36 50	11.0	12	
		eSS Z		17 41 47	4.0	25	
		eSS E		17 41 58	5.0	20	
		e(PKKP) z		17 45 06	2.0	1	
		ePKPPKP z		17 54 00	1.0	1	
		L Z		17 50.2	12.0	24	
	78	iP z	-	22 09 54	3.0	1	Local, not recorded at Scott Base.
	79	eP z		22 19 22	1.0	1	
30	80	eP z		02 22 03	1.0	1	
	81	e(S) z		02 24 48	2.0	18	
	82	e z		07 27 38	1.0	1	
	83	iP z	-	07 51 37	2.5	1	
	84	iP z	-	13 53 17	1.0	1	
		iP z	+	21 51 44	7.5	1	Local.



Date	No.	Phase	First Motion	h. m. s.	A(mm.)	T	Remarks:
31	85	eP z		07 43 23	0.8	1	Sumatra $6\frac{1}{2}^{\circ}$ S 105° E, h = 100 km,
		iP z	-	10 52 36	4.0	1	H = 07 32 39 (USCGS)
	86	eP z		20 17 23	0.3	1	Kermadec Is. $31\frac{3}{4}^{\circ}$ S $177\frac{1}{2}^{\circ}$ E, H = 20 09 41 (USCGS)

HALLETT STATION

Lat. 72° 19'S Long. 170° 13'E



SEISMOLOGICAL BULLETIN

AUGUST, 1957

Instrument	Component	Symbol	To(sec)	Tg(sec)	Damping Shunt (ohms)	Paper Speed mm./sec.
Willmore	Vertical	z	1	2	Near critical	30
Columbia	Vertical	Z	15	75	100	15
Columbia	N - S	N	15	75	100	15
Columbia	E - W	E	15	75	100	15

First Movement: + indicates first ground motion towards the North, East or Upwards.
- indicates first ground motion towards the South, West or Downwards.



Date	No.	Phase	First Motion	h. m. s.	T	A	Remarks:
1	1	eP z		06 36 05	1	1.0	
	2	iP z	+	17 05 33	1.5	1.0	Kermadec Is. $30^{\circ}\text{S } 177\frac{1}{2}^{\circ}\text{W}$ H = 16 57 30 (USCGS)
2	3	eP z		02 19 20	1	0.5) North of New Zealand.) $38.3^{\circ}\text{S } 177.9^{\circ}\text{E}$.) H = 02h 12m 28s (Wgton)
		iS z	+	02 24 36	1	1.0	
		e L		02 28.2			
	4	iX z	+	08 39 36	1	0.8	
	5	iX z	+	09 30 04	1	0.8	
	6	eP z		09 52 08	0.8	0.8	Philippine Is. $5^{\circ}\text{N } 126\frac{1}{2}^{\circ}\text{E}$ h = 150 km H = 09 40 00 (USCGS)
	7	ePkP z		12 40.6	1	0.3	Aleutian Is. $52^{\circ}\text{N } 175^{\circ}\text{W}$ H = 12h 21m 37s (USCGS)
	8	eP z		13 27.9	1	0.3	North of New Zealand $38.3^{\circ}\text{S } 177.9^{\circ}\text{E}$ H = 13h 00m 53s (Wgton)
3	9	eP z		06 55 32	1	0.5	Sumatra $7^{\circ}\text{S } 103^{\circ}\text{E}$ H = 06h 43m 40s (USCGS)
	10	iP z	-	08 24 03	1	0.9	
		iS N	-	08 30 43	20	1.6	
		iS E	+	08 30 44	15	3.5	Kermadec Is. $28^{\circ}\text{S } 176\frac{1}{2}^{\circ}\text{W}$ H = 08h 15m 45s (USCGS)
		i(SS) N	+	08 35 46	10	3.0	
		i(SS) E	+	08 35 22	7	0.25	
		i(SS) z	-	08 35 31	12	0.25	
4	11	iP z	-	00 50 29	1	1	New Guinea $3\frac{1}{2}^{\circ}\text{S } 145^{\circ}\text{E}$ H = 00h 39m 12s (USCGS)
		iPP Z	+	00 53 08	8	2	



Date	No.	Phase	First Motion	h.	m.	s.	T	A	Remarks:
4	11	eS Z	-	00	59	52	14	2	
		iS N	+	00	59	46	12	3	
		iS E	-	00	59	47	12	4	
		iScS Z	-	01	00	34	12	2.5	
		iSSS N	+	01	08	01	20	4.0	
		iSSS Z	-	01	08	11	9	1.5	
	12	eP z		02	12	19	1	0.8	
	13	iP z	-	02	30	49	1	1.0	New Britain $4\frac{1}{2}^{\circ}\text{S}$ $155\frac{1}{2}^{\circ}\text{E}$ H = 02h 18.8m (BCIS)
	14	eP z		09	35	14	2.5	0.7	Croset Is. $40\frac{1}{2}^{\circ}\text{S}$ $54\frac{1}{2}^{\circ}\text{E}$ H = 09h 24m 24s (BCIS)
5	16	iP z	-	21	18	50	1.7	1.0	
		iX z	+	21	18	55	1.2	2.2	
		iPcP Z	+	21	19	58	9	2.1	Prince Edward Is. 45°S 35°E
		iS Z	-	21	27	12	20	4.0	H = 21h 08m 51s (USCGS)
		iS N	+	21	27	13	22	11.5	
		iS E	-	21	27	16	15	13.0	
		iSS Z	-	21	31	25	28	4.5	
		iSS N	+	21	31	27	22	5.5	
		iSSS Z	+	21	33	39	12	4.0	
		iSSS N	+	21	33	21	12	5.0	
	17	iP z	-	07	59	06	1	1.0	Samoa 15°S 173°W H = 07h 49m 13s (BCIS)



Date No.	Phase	First Motion	h. m. s.	T	A	Remarks:
18	iP z	+	08 23 48	1.2	1.2	New Britain 5°S 154°E H = 03h 12m 46s (USCGS)
19	iP z	-	13 08 30	2	1.0	Samoa; H = 12h 57.7m (BCIS)
7 20	iP z	-	19 49 20	1.2	2.0	
	iPcP z	-	19 50 17	1	0.7	Fiji 19½°S 178°W h = 550 km
	ipP z	-	19 51 03	1.2	1	H = 19h 40m 46s (USCGS)
	eS z		19 56 14	1.7	0.8	
	ePP Z		19 52 03	14	1.2	
	eS Z		19 56 13	15	1.7	
8 21	iP z	-	03 25 36	1	0.7	
22	iP z	-	10 01 27	1	0.3	New Guinea H = 09h 50.5m (BCIS)
23	eP z		11 38 24	1	0.5	Local? Not recorded at Scott Base.
24	eX z		22 35 33	1	0.5	
25	eP z		22 47 01	1	0.3	Ascension Is. 7½°S 13°W H = 22h 33m 02s (USCGS)
9 26	iP z	-	02 40 55	1	4.0	New Guinea 2°S 137°E H = 02h 29m 20s (USCGS)
	eS N		02 50 24	7	2.0	
27	eP z		16 48 58	1	0.8	Not recorded at Scott Base.
28	eP z		22 02 23	1	0.3	Recorded at Scott Base and Terre Adelie.



Date	No.	Phase	First Motion	h.	m.	s.	T	A	Remarks:
10	29	eP z		00	05	47	1.3	0.2	Recorded at Scott Base.
	30	eP z		02	07	18	1	0.3	Recorded at Scott Base and Terre Adelie.
	31	iP z	+	02	26	51	1.2	1.8	Fiji $21^{\circ}\frac{1}{2}S$ $179^{\circ}\frac{1}{4}W$ / h = 600 km, H = 02h 18m 38s (USCGS)
	32	eP z		04	05	30	1.5	1.0	Tonga $17^{\circ}S$ $172^{\circ}W$ H = 03h 55m 46s (USCGS)
		iS N	-	04	13	26	12	1.2	
		iSSS N	+	04	19	21	16	1.5	
	33	eP z		12	11	28	1	1	Recorded at Terre Adelie and Scott Base.
		iX z	+	12	12	23	1	1	
11	34	eP z		05	19	26	1.2	1.3	New Zealand $39^{\circ}S$ $176^{\circ}E$ H = 05h 12m 54s (Wgton)
12	35	eP z		07	21	08	1.2	0.7	Philippine Is. $6^{\circ}N$ $124^{\circ}\frac{1}{2}E$ H = 07h 08m 38s (USCGS)
	36	eX z		13	29	02	1.2	0.5	
	37	i(P) z	-	20	35	16	1	0.5	
	38	eP z		22	27	50	1	0.5	Appears to be distant.
13	39	eP z		00	14	57	1	0.3	Local.
		eX z		00	15	03	1	3.0	
	40	iP z		03	47	58	1	3.0	Local.
	41	eP z		09	47	03	1	0.3	
		iX z	+	09	47	20	1	1.0	Local?



Date	No.	Phase	First Motion	h.	m.	s.	T	A	Remarks:
	42	ePKP z		12	18	55	1	0.3	Alaska 61°N 148°W H = 12h 00m 03s (USCGS)
		ePKS z		12	23	05	1	0.3	
	43	eP z		12	29	58	1.6	0.5	South Indian Ocean (BCIS)
		iS N	-	12	37	35	22	3.0	
	44	iP z	+	14	55	19	1	0.5	Philippine Is. $9\frac{1}{2}^{\circ}\text{N}$ 126°E H = 14h 42m 30s (USCGS)
	45	eX z		17	44	01	1.2	0.5	
		eX z		17	47	44	0.1	0.5	
	46	eP z		18	00	43	1	0.3	Also recorded at Terre Adelie.
		eX z		18	03	23	1	0.3	
14	47	iP z		04	06	29	1	0.8	
		eX z		04	12	19	1	0.3	
	48	ePkP z		09	37	19	1	0.3	Aleutian Is. H = 09 19 54 (USCGS)
	49	ePkP z		09	53	32	1	0.3	Probably from Aleutian Is.
	50	iP z		13	56	09	1	0.5	
	51	eX z		14	38	12	1.2	0.3	Recorded at Scott Base.
	52	iP z	+	18	35	45	1	1.0	Tonga 21°S $176\frac{1}{2}^{\circ}\text{W}$ h = 200 km. H = 28h 26m 52s (USCGS)
		ipP z	-	18	36	32	1	1.0	
		eS z		18	42	09	1	0.3	
	53	eX z		20	01.7		1.2	0.3	
	54	eX z		20	55	06	1.3	0.3	Recorded at Scott Base.



Date	No.	Phase	First Motion	h. m. s.	T	A	Remarks:
15	55	iP z	+	12 07 50	1	1.0	
	56	iP z	(-)	20 55 34	1.2	2.0	Solomon Is. $4\frac{1}{2}^{\circ}\text{S}$ 155°E h = 500 km.
		iP z	+	20 55 34	12	3.5	H = 20h 45m 20s (USCGS)
		ipP z	-	20 57 20	1	1.0	
		ipP z	-	20 57 21	14	2.5	
		iS z	-	21 03 58	12	2.5	
		iSS z	-	21 08 50	15	2.5	
16	57	iP z	+	03 37 04	1	1.5	New Britain 5°S 154°E H = 03h 26m 05s (USCGS)
		ePc P		03 37 25	1	1.0	
	58	iP z	+	12 08 16	1.2	1.7	
		iP z	+	12 08 21	12	2.0	Solomon Is. 5°S 155°E H = 11h 57m 16s (USCGS)
		iPcP z	-	12 08 40	1.6	1.3	
		iPcP z	-	12 08 44	10	2.0	
		iS z	-	12 17 54	15	2.0	
	59	iP z	+	14 59 19	1	0.3	New Britain H = 14h 48m 19s (USCGS)
		iPcP z	-	14 59 44	1.6	0.8	
	60	iP z	+	18 39 00	1	1.2	South Pacific Ocean H = 18h 29.6m (BCIS)
		eL z		18 54.5	23	4.0	
	61	eP z		23 45.7	1.8	0.5	
		iP z	-	23 45 43	10	1.2	Pacific Ocean $10\frac{1}{2}^{\circ}\text{N}$ 104°W H = 23h 31m 55s (USCGS)
		ePP z		23 49.8	3	0.5	
		iPP z	+	23 49 36	10	1.8	
		i(SkS) z	-	23 55 56	7	1.5	
		iS N	-	23 57 11	10	5.0	
		iPS z	+	23 58 29	8	6.5	



Date No.	Phase	First Motion	h. m. s.	T	A	Remarks:
17	iSS N	-	24 04 01	24	7.0	
	iSS Z	-	24 04 09	12	8.5	
	iSSS Z	+	24 07 41	21	3.5	
	eL Z		24 18 $\frac{1}{2}$	25	23	
62	iP z	-	02 32 28	1	1.0	New Britain 4°S 151°E H = 02h 21m 47s (USCGS)
	iPcP z	-	02 32 51	1.6	1.2	
63	iP z	-	04 37 20	1.5	1.0	
64	iP z	-	12 18 04	1.2	0.8	Solomon Is. 5°S 155°E H = 12h 07m 04s (USCGS)
18 65	iP z	+	00 00 37	1	0.3	
	e(P) z		05 13 20	1	0.3	Also recorded at Scott Base and Adelie Land.
	e(S) Z		05 16 43	15	1.0	
	i(S) N	+	05 16 13	16	2.2	
67	iX Z	-	05 18 17	06	1.7	
						South Pacific Ocean 57°S 142 $\frac{1}{2}$ °W H = 06h 34m 16s (USCGS)
	iP z	-	06 39 38	1.2	1.3	
	iP Z	-	06 39 37	10	2.8	
	e(P) N		06 40 05	1	0.5	
	iX Z	-	06 44 21	11	3.9	
68	iX N	-	06 44 05	12	6.0	
	L Z		06 45.1	17	10	
68	iP z	-	06 49 41	1	0.5	Recorded at Scott Base and Adelie Land.
69	iP z	-	08 17 44	1.3	0.5	Near the coast of Chile (BCIS)
70	iP z	+	08 49 58	1.6	2.0	
	eP Z		08 49 58	4	1.2	



Date No.	Phase	First Motion	h. m. s.	T	A	Remarks:
	eP N		08 49 53	2	0.5	
	iX z	+	08 50 25	1.6	2.0	
	eX Z	+	08 51 09	14	2.2	Philippine Is. 12°N 124°E H = 08h 36m 57s (USCGS)
	iPPP Z	-	08 54 41	17	2.3	
	iPP z	+	08 53 34	4	1.3	
	ePPP N		08 54.8	19	1.5	
	eS Z		09 00 46	14	2.0	
	iS N	+	09 00 34	12	2.2	
	iSS N	+	09 05 42	7	4.0	
	eX Z		09 10 06	18	4.0	
	ePKPPKP z		09 14 31	1	0.3	
	eL Z		09 20 51	35	7.0	
71	eX z		12 30 19	1	1.0	
	eX z		14 34 17	1.2	0.5	
72	iP z	+	16 11 14	1	1.1	New Britain H = 16h 00.9m (BCIS)
73	eP z		21 41 20	1	0.2	
	iX Z	-	21 45 36	23	2.0	
74	iPKP z	+	22 01 26	1.6	1.0	Kuril Is. 50°N 157°E H = 21h 42m 29s (BCIS)
	ePKP Z		22 02	20	1.5	
	iS N	+	22 09 56	12	2.2	
	ePKKP z		22 11 10	1	0.3	
	iX Z		22 12 56	17	4.0	
	eX N	-	22 12 51	20	3.0	
	eX Z		22 18 58	10	2.0	
	eL Z		22 38.1	32	7.0	



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Date	No.	Phase	First Motion	h.	m.	s.	T	A	Remarks:
19	75	iP z	+	00	22	17	1.2	0.8	New Britain $4\frac{1}{2}^{\circ}\text{S}$ 153°E H = 00h 11m 13s (USCGS)
		iX z	+	00	26	06	1	0.8	
	76	iP z	+	02	52	11	1.2	1.8	New Britain $4\frac{1}{2}^{\circ}\text{S}$ 153°E H = 02h 41m 14s (USCGS)
		eX z		10	56	34	1.6	0.5	
	77	iP z	+?	11	45	01	1.6	1.0	Solomon Is. 10°S 161°E H = 11h 34m 36s (USCGS)
		iP Z	-	11	45	02	11	3.0	
		iP N	-	11	45	02	11	1.8	
		eS Z		11	53	34	12.0	2.0	
		iS N	-	11	53	41	8	2.5	
		iS E	+	11	53	34	8	2.5	
		eSS N		11	57	30	1.5	10	
	78	iP _k P z	-	21	50	51	1	0.7	Aleutian Is. $51\frac{1}{2}^{\circ}\text{N}$ 171°W H = 21h 31m 55s (USCGS)
20	79	iP z	-	04	54	14	1	0.5	South Pacific Ocean 56°S 130°W H = 04h 48m 06s (BCIS)
	80	iP z	+	06	37	31	1	0.8	Solomon Is. 10°S 161°E H = 06h 27m 07s (USCGS)
	81	iP z	+	07	12	29	0.1	1.5	Very local.
	82	iP z	+	12	12	15	1.2	1.3	Solomon Is. 10°S 161°E H = 12h 01m 54s (USCGS)
		iP Z	-	12	12	17	12	4.5	
		iP N	-	12	12	17	12	2.1	
		eS Z		12	20	23	14	2.0	
		eX Z		12	28.1		39	3.2	
	83	eX z		12	16	07	1.2	0.5	
	84	eX z		12	24	04	1	0.3	



Date No.	Phase	z	First Motion	h. m. s.	T	A	Remarks:
85	eP	z		18 51 11	1	0.5	Recorded at Scott Base and Terre Adelie.
	iS	Z		18 53 47	20	3.0	
86	iP	z	-	22 36 05	1	0.5	Aleutian Is. 52°N 173°W H = 22h 17m 05s (USCGS)
87	eP	z		22 11 54	1	0.8	
88	iP	z	-	23 07 14	1.2	0.5	Tonga 17°S 174°W H = 22h 57m 30s (BCIS)
21 89	iP	z	-	05 54 27	1.6	1.0	North of New Zealand 40° ₀ .9S 176° ₀ .0E H = 05h 48m 03s (Wgton)
90	eX	z		08 08 24	1	0.3	
91	eX	z		12 01 39	1	0.5	
92	eX	z		14 57 46	1	1.0	
93	iP	z	+	17 34 55	1.2	0.8	Not recorded at Scott Base or Terre Adelie.
94	eX	z		18 19 50	1.6	0.5	
22 95	eP	z		06 29 18	1.2	0.5	Recorded at Macquarie Is.
96	iP	z	-	08 07 08	1.6	1.2	Molucca Strait 1°N 126°E H = 07h 55m 06s (USCGS)
	iX	z	+	08 07 47	1.2	3.0	
	eL	Z		08 33.7			
97	iP	z	-	15 39 19	1.2	0.5	Molucca Strait 3°N 126½°E H = 15h 27m 10s (USCGS)
98	iP	z	+	16 45 47	1.0	0.3	Recorded at Scott Base.



Date	No.	Phase	First Motion	h. m. s.	T	A	Remarks:
	99	iP z	+	16 53 23	1.6	0.7	
		iP Z	-	16 53 24	?	1.5	New Hebrides 15°S 168°E H = 16h 43m 35s (USCGS)
		iP N	+	16 53 24	?	1.0	
		iS N	+	17 01 16	15	2.2	
	100	ePkP z		18 42 07	1.2	0.3	China 38°N 87°E H = 18h 27.3m (BCIS)
	101	iP z	+	19 03 33	1.2	1.0	Recorded at Scott Base.
	102	eP z		23 39 41	1.6	0.8	
23	103	iP z	-	02 11 04	1.2	4.2	
		iP Z	-	02 11 04	6	7.5	
		ipP z	-	02 11 46	1.2	2.0	Solomon Is. 6°S 154½°E h = 60 km
		ipP Z	-	02 11 41	?	8.0	H = 02h 00m 09s (USCGS)
		ipP N	-	02 11 42	?	4.3	
		ePP N		02 13 35	17	22.0	
		iX Z	-	02 19 49	7	1.2	
		iX N	-	02 19 54	16	3.8	
		iS Z	+	02 20 18	12	3.5	
		iS N	-	02 20 17	21	14.5	
		iSS Z	-	02 24 48	14	7.7	
		iSS N	-	02 24 55	?	12	
		iX Z	-	02 29 23	17	0.8	
		iX N	-	02 29 07	31	6.0	
		ePKKP z		02 31 26	1	0.3	
	104	iP z	-	02 43 12	1.2	1.5	Recorded at Scott Base.
	105	iP z	+	07 01 23	1.2	0.3	Does not look local.
	106	iP z	+	11 49 00	1	0.5	Possibly Chile (Seism.V BCIS)



Date	No.	Phase	First Motion	h. m. s.	T	A	Remarks:
	107	eP z		12 00 36	1.2	0.3	Formosa 24°N 122°E H = 11h 42m 34s (USCGS)
	108	iP z	+	13 44 42	1.2	2.3	
		ipP z	-	13 45 05	1.6	22	Solomon Is. 6°S 154°E h = 100 km H = 13h 33m 51s (USCGS)
	109	eX z		16 26 32	1.2	0.5	Recorded at Scott Base.
		eL Z		16 52	26	1	
	110	eX z		17 15 35	1	0.8	
	111	eP z		20 19 17	1	0.5	Kermadec Is. 30°.5S 176°.9W H = 20h 11m 22s (Wgton)
	112	iP z	-	23 02 40	2	1.0	Java 7°S 112°E H = 22h 51m 10s (Wgton)
		ipP z	-	23 03 01	2	1.0	h = 100 km
		eL Z		23 26.9	22	3.0	
24	113	eP z		01 11 39	1.2	0.8	Tonga 19½°S 175°W H = 01h 01m 58s (BCIS)
	114	iP z	-	01 38 12	1.2	1.0	Recorded at Scott Base and Terre Adelie.
	115	iP z	-	15 12 45	1.3	0.5	Recorded at Mirny and Bungera.
		eL Z		15 22	22	2.5	
	116	eP z		17 32 45	1	0.3	Recorded at Scott Base and Terre Adelie.
25	117	iP z	-	14 00 28	1	0.5	Recorded at Scott Base.
	118	iP z	+	15 04 43	1	0.5	
	119	iP z	+	15 23 12	1	0.3	
		iX z	-	15 23 14	1	8.0	



Date No.	Phase	First Motion	h. m. s.	T	A	Remarks:
	iP Z	-	15 23 12	15	2.8	
	iP N	-	15 23 10	18	3.2	See Page 306, BCIS Bulletin.
	iS Z	+	15 25 29	14	16	
	iS N	-	15 25 29	15	14	
120	iP z	-	16 53 47	1	0.3	
121	iP z	-	18 42 18	0.8	0.5	
122	eP z		21 23 09	1	0.3	
	iX z	-	21 23 11	1	0.5	Java 10°S 111°E H = 21h 11m 45s (USCGS)
26 123	ePkP z		07 01 58	1	0.3	
124	iP z	+	11 41 18	1	3.8	
	iP Z	-	11 41 18	14	8.5	Bolivia 18°S 63°W H = 11h 28m 50s (USCGS)
	iP N	-	11 41 23	10	1.8	
	iPP Z	-	11 44 45	13	3.0	
	iX Z	-	11 51 18	1.8	12.0	
	iS N	+	11 51 30	15	6.5	
	i(PS) Z	-	11 52 30	14	7.8	
125	eX z		11 59 47	1	0.3	Recorded at Scott Base.
126	eP z		12 22 13	1	0.3	
127	eP z		14 12 07	1.2	0.3	
	eS N		14 22 36	1.7	18.0	Ecuador 2°S 81°W H = 13 58 48 (USCGS)
	iSS N	+	14 29 42	24	6.0	
128	iP z	-	18 34 44	0.8	1.0	



Date	No.	Phase	First Motion	h. m. s.	T	A	Remarks:
	129	iP z	+	20 04 25	1	0.3	
		iP Z	-	20 04 25	7	1.8	
		iX z	-	20 04 27	1.2	2.0	
		ipP Z	-	20 05 05	10	2.2	Solomon Is. $5\frac{1}{2}^{\circ}\text{S}$ 154°E h = 100 km.
		iS Z	-	20 13 33	15	1.8	H = 19h 53m 33s (USCGS)
		eS N		20 13 55	10	1.5	
27	130	eP z		00 15 23	1	1.0	
	131	iP z	+	07 50 23	0.8	1.5	Very local.
	132	iP z	+	21 04 09	1	2.2	
		iX z	-	21 08 26	1	0.3	Fiji $25\frac{1}{2}^{\circ}\text{S}$ 178°E h = 650 km. H = 20h 56m 29s (USCGS)
28	133	eP z		11 37 46	1	0.3	
		eP z		19 58 16	1	0.3	
		eP z		23 34 39	1	1.0	
29	134	iP z	+	07 29 58	1.6	0.6	Kermadec Island H = 07h 22.7m
	135	iP z	-	07 56 38	1	0.3	
	136	iP z	-	12 57 54	1	0.6	Argentine h = 250 km H = 12h 47m 06s (USCGS)
		i(PcP) z	+	12 58 22	1	1.5	
	137	iP z	-	14 10 49	1.2	0.5	Fiji h = 600 km. H = 14h 02m 40s (BCIS)
		i(PcP) z	+	14 11 56	1	0.3	May be another P.
	138	eP z		23 18 57	0.8	1	



Date	No.	Phase	First Motion	h.	m.	s.	T	A	Remarks:
30	139	iP z	+	14	40	25	1	0.5	Local.
	140	iP z	-	16	37	07	1	0.5	Tadzhik $39\frac{1}{2}^{\circ}$ N $72\frac{1}{2}^{\circ}$ E
		eL Z		17	23		24	2.0	H = 16h 18m 01s (Moscow)

HALLETT STATION

Lat. 72° 19'S; Long. 170° 13'E

SEISMOLOGICAL BULLETIN

September 1957

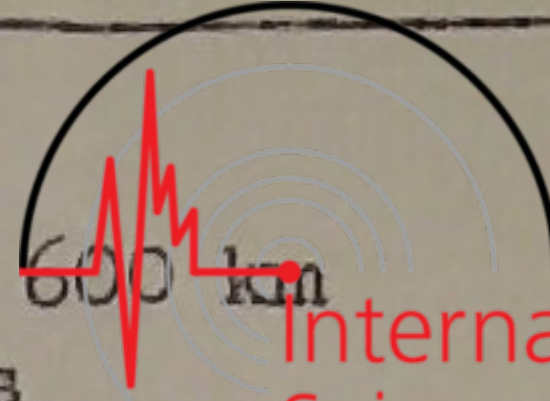


Instrument	Component	Symbol	To(sec)	Tg(sec)	Damping Shunt (ohms)	Paper Speed mm./sec.
Willmore	Vertical	z	1	2	Near critical	30
Columbia	Vertical	Z	15	75	100	15
Columbia	N - S	N	15	75	100	15
Columbia	E - W	E	15	75	100	15

First Movement: + indicates first ground motion towards the North, East or Upwards.
 - indicates first ground motion towards the South, West or Downwards.

Periods (T) are in seconds; and trace amplitudes (A) in millimetres.

Date	No.	Phase	Component	First Motion	h	m	s	T	A	Remarks
1	1	eX	z		12	54		1	0.5	
	2	eX	z		13	09.1		1	0.2	China - Sin Kiang. 39°N 75°E, 12 hr 49 m 55s (USCGS)
	3	eX	z		19	03.1		1	0.3	
	4	eX	z		21	43.1		1	0.5	
2	5	eP	z		05	47	30	1	0.7	Mariana Is. 18°N 147½°E H = 23h 59m 54s (USCGS)
		eS	Z		05	55	17	15	1.4	
	6	eP	z		05	47	27	1	0.5	New Hebrides 19°S 174°E H = 05h 39.3m (BCIS)
	7	eP	z		09	56	27	1	0.5	Samoa 15°S 173½°W H = 09h 46m 30s (USCGS)
		iX	Z	+	09	56	35	11	1.0	
		eX	z		10	02	50	1	0.2	
		eS	N		10	04	29	11	1.3	
		e(S)	Z		10	04	35	09	2.0	
	8	eX	z		12	49	28	1	0.5	
	9	iPKP	z	+	14	39	11	1		Aleutians 51½°N 168°W H = 14h 20m 13s (USCGS)
10		iX	z	-	14	41	02	6	.2	
		ePKKP	z		14	48	56	1	.2	
		ePKKS	z		14	52	41	1	0.3	
11	eX	z		19	02.4		1.2	0.5		
12	iP	z	+	20	29	18	1.2	0.8	Solomon Is. H = 20h 18.7m (BCIS)	
13	iPKP	Z	-	21	46	17	1.2	0.7	Hindu Kush 37°N 71°E h = 200 km. H = 21h 27m 30s Shilloisa	
3	14	iP	z	+	04	48	32	1.2	0.3	
	15	eP	z		06	16	54	2	0.3	Santa Cruz 12°S 167°E H = 06h 06m 42s (USCGS)
		iX	z	+	06	16	59	1.6	0.8	
		e(L)	Z		06	35.6		30	1.3	
	16	eX	z		07	31		1	0.5	

Date	No.	Phase	First Motion	h	m	s	T	A	Remarks		
4	17	iP	z	+	14	48	32	1	0.8	 Near Fiji, h = 600 km H = 14h 39m 34s Possibly ePKKP from Fiji.	
		iX	z	+	14	50	12	0.3	1.2		
		ipP	z	-	14	50	23	0.5	1.6		
		eX	z		15	13	37				
	18	e(P)	z		00	33	43	2	0.3		
		e(S)	N		00	40	30	20	2		
		iX	z	+	00	41	55	15	2.2		
	19	iP	z	+	01	41	37	2	0.7		Santa Cruz 12°S 167½°E H = 01h 31m 23s (USCGS)
	Surface waves from 5th, Ind. Ocean. Body phases missed at record change time.										
	20	eX	z		07	56.3		1	0.3		
21	ePkP	z		08	25	04	1	0.3	Pakistan 28°N 65½°E H = 08h 07m 20s (BCIS)		
22	eP	z		12	37	55	1.3	0.5	New Britain about 4°S 156½°E H = 12h 26.6m (BCIS)		
23	eP	z		22	17	47	0.8	0.3	Seism. XII BCIS		
	eX	z		22	18	10	1.3	0.3			
24	iP	z	-	22	47	26	1.0	0.7	Seism XIII BCIS		
5	25	iP	z	+	01	24	41	1.2	0.7	Seism I BCIS	
26	eX	z		03	20	15	1	0.3			
27	iX	z	+	03	25	31	1.0	0.5			
28	iP	z									
29	i(P)	z	-	07	10	10	1.2	0.5			
	eX	z		07	12	36	1.3	0.5			
	i(S)	z	+	07	17	38	10	2.3			
30	eX	z		07	26	45	1.4	0.8			
	eX	z		07	29	40	1.1	0.3			
31	ePKP	z	-	07	44	18	1.4	0.4	Kamchatka 53½°N 160½°E H = 07h 25m 19s (USCGS)		
	eSKS	z		07	50	56	1.3	0.3			
32	eX	z		09	05	42	1	0.3			
33	eX	z		09	34	32	1	0.3			
34	iP	z	-	19	10	43	1.1	1.0	Southern Bolivia, 20°S 67°W h = 150 km H = 18h 58m 42s.		
6	35	iP	z	-	00	29	55	1.3	1.0	Chile - Bolivia 20°S 68°W h = 100 km	
	epP	z		00	30	24	1.0	1.1	H = 00h 17m 55s (USCGS)		
	eX	z		00	33	57	1.0	0.3			
36	iP	z	-	01	28	00	1.0	0.3	Mariana Is. 18°N 146°E H = 01h 14m 09s (BCIS)		
37	ePKP	z		05	13	31	1.3	0.3	Aleutian Is. 51°N 177°W H = 04h 54m 37s (USCGS)		
	ePKKS	z		05	27	30	1	0.3			
7	38	iP	z	+	06	12	55	1.2	.4		
39	ePKP	z		07	07	30	1	0.3	Kurile Is. 50°N 156°E H = 06h 48m 40s (USCGS)		
	ePcPPKP	z		07	17	06	3	1.0			
	iPcSEKP	z	+	07	19	08	4	1.0			
	eL	z		07	46						

Date	No.	Phase	First Motion	h	m	s	T	A	Remarks
	40	ePKP	z	10	25	28	1	0.8	Aleutian Is. $51\frac{1}{2}^{\circ}\text{N}$ $178\frac{1}{2}^{\circ}\text{W}$ H = 10h 06m 47s (USCGS)
		iX	Z	+	10	27	25	4	1.4
		eL	Z		11	03			
8	41	iP	z		13	29	55		New Britain 5°S 152°E h = 60 km H = 13h 18m 55s (USCGS)
9	42	iP	z		00	21	08		Sth Indian Ocean $47\frac{3}{4}^{\circ}\text{S}$ 101°E H = 00h 13m 31s (BCIS)
		iX	z		00	22	52		
	43	iP	z	-	04	50	53	1.2	0.5
	44	iP	z	-	05	03	08	1.0	1.9
									Solomon Is. $9\frac{1}{2}^{\circ}\text{S}$ $161\frac{3}{4}^{\circ}\text{E}$ H = 04h 52m 44s (BCIS)
	45	iP	z	-	09	10	29	1.0	1.2
		i(S)	Z	-	09	19	05	8	3.8
		iS	E	-	09	18	37	7	3.2
									Fiji Is. 15°S $176\frac{1}{2}^{\circ}\text{W}$ H = 09h 00m 33s
		iX	E	-	09	25	01	20	6.2
		eL	Z		09	27.3		37	4.5
	46	iP	z	-	12	20	22	1.2	2.2
		iS	E		12	21	47	14	1.0
		i(S)	Z	-	12	22	13	18	4.0
	47	eP	z		20	14	37	1.2	0.3
10	48	eP	z		11	52	25	1	0.3
	49	eP	z		14	55	05	1	0.3
									Equador $10\frac{1}{2}^{\circ}\text{S}$ 80°W H = 14h 43m 05s (USCGS)
	50	iP	z		15	40	02	1.2	0.5
									Philippine Is. 5°N $125\frac{1}{2}^{\circ}\text{E}$ H = 15h 27m 40s (USCGS)
11	51	eP	z		12	11	41	0.8	0.3
		iX	z	+	12	11	45	0.8	0.7
		iX	z	-	12	11	50	0.8	7.0
	52	iP	z	+	13	24	20	1.0	0.6
	53	iP	z	+	13	50	24	1.0	1.2
		e(PKPPKP)	z		13	22	31	1.0	0.3
									H = 13h 41m 44s (USCGS)
	54	eX	z		14	36	25	1.0	0.3
		eX	z		14	38	00	1.2	0.5
		e(L)	Z		15	02		25	1.5
		e(L)	N		15	02		25	1
	55	eP	z		19	19	41	1	0.3
	56	iP	z	+	23	32	01	1.2	7.2
		iP	Z	-	23	32	01	4.0	2.0
		iP	N	-	23	32	01	5.0	1.0
									Samoa 16°S 172°W H = 23h 22m 09s (USCGS)
		eP	E		23	32	01	1	0.3
		eS	Z		23	39	58	18	1
		eS	Z		23	39	58	18	1
		eS	N		23	39	58	10	0.8
		iSSS	Z	+	23	46	42	?	2.0
		eL	Z		23	47		33	2.0
		eL	N		23	48		20	1.5

Date	No.	Phase	First Motion	h	m	s	T	A	Remarks		
12	57	ePKP	Z	00	46	35	1	0.3	Gulf of Honduras H = 00h 28m 02s		
		eSKS	Z	00	53	44	1	0.3			
		iPKKP	Z	+	00	56	34	?	1.5		
		ePKKP	E		00	56	47	20	1.5		
		eX	Z		01	03	11	34	2.0		
		eL	Z		01	20		30	3.5		
		58	iP		+	00	03	58	1	0.3	
		59	iP	Z	+	08	26	06	1.4	1.0	
			eL	Z		09	05		26	3.0	
			eL	E		09	05		22	2	
	60	ePKP	Z		17	45	39	1	0.3	Kirghiz $40^{\circ}\text{N } 73\frac{1}{2}^{\circ}\text{E}$ H = 17h 26m 05s (USCGS)	
13	61	iP	Z	+	00	03	58	1	0.3		
	62	i(P)	Z	-	09	12	10	1.0	0.3		
		iP	Z	-	09	12	54	1.2	0.9		
		iX	N	+	09	19	56	16	1.5		
		eX	E		09	23	19	24	1.5		
		eX	Z		09	30	51	16	1.0		
		e(L)	Z		09	34.9		15	1.3		
		e(L)	N		09	34.9		16	2.0		
		63	iP	Z	-	12	55	24	1.0	2.0	Chile about $25^{\circ}\text{S } 70^{\circ}\text{W}$ H = 12h 43m 40s (BCIS)
		64	iP	Z	+	16	32	38	1.0	0.3	Recorded at Scott Base
14	65	iP	Z		00	13	22	1.2	0.3		
	66	iP	Z	+	06	24	51	1.6	0.5	$4^{\circ}\text{S } 130^{\circ}\text{E}$ H = 06h 13m 20s (USCGS)	
	67	iP	Z	-	12	40	08	1.2	0.8	Macquarie Is. (NE of) H = 12h 36.8m (BCIS)	
		iX	Z	-	12	40	20	1.2	2.0		
		eL	Z		12	43.0		15	0.8		
68	eP	Z		14	07	27	1	0.3	New Guinea $5\frac{1}{2}^{\circ}\text{S } 147^{\circ}\text{E}$ H = 13h 56m 25s (USCGS)		
15	69	iP	Z	+	03	35	22	1.4	0.5		
	70	iP	Z	+	04	33	50	1.0	1.0	Java Coast $5\frac{1}{2}^{\circ}\text{S } 108^{\circ}\text{E}$ h = 300 km H = 04h 22m 34s (USCGS)	
		ipP	Z	+	04	34	57	1.2	0.5		
		iS	E		04	43	14	6	3.5		
17	71	i(P)	Z	+	06	31	30	1.0	0.7		
	72	i(P)	Z	-	08	55	52	1.2	1.3		
	73	iP	Z	-	13	45	52	0.8	0.3	Molucca Strait $0^{\circ}\text{ Lat.}, 125\frac{1}{2}^{\circ}\text{E}$ H = 13h 33m 56s (BCIS)	
		eX	Z		14	34	37	1	0.5	Indian Ocean $36^{\circ}\text{S } 53\frac{1}{2}^{\circ}\text{E}$ H = 19h 24m 01s (USCGS)	
		eX	Z		14	43	22	?	1.2		
		eL	Z		14	54.7		43	2.0		
		eL	E		14	53.1		27	2.5		
		eL	N		14	53.1		25	3.0		
		eX	Z		21	51		1	0.3		
		eL	Z		22	03.5		17	1.9		
18	74	iP	Z	-	03	24	19	0.8	0.3		
		iX	Z	+	03	24	37	11	0.8		
	75	iP	Z	+	03	58	13	1.2	0.5		



Date	No.	Phase	First Motion	h	m	s	T	A	Remarks	
	76	eP	z	12	34	33	0.8	0.3		
		iX	z	-	12	34	49	1.0	0.8	
	77	eP	z	20	07	23	1	0.3		
	78	iP	z	+	00	50	27	1.2	0.5	
	79	iP	z	+	01	04	18	1.2	0.5	
									Samoa $15^{\circ}\text{S } 173\frac{1}{2}^{\circ}\text{W}$ H = 00h 54m 24s (BCIS)	
19	80	e(P)	z	23	38	33	1.2	0.5		
20	81	eP	z	18	55	48	1.2	0.5	Tonga $20\frac{1}{2}^{\circ}\text{S } 174\frac{1}{2}^{\circ}\text{W}$ H = 18h 46m 29s (BCIS)	
	82	iP	z	+	19	21	33	1.6	0.5	Mexico $17^{\circ} 17'\text{N } 99^{\circ} 10'\text{W}$ h = 100 km H = 19h 08m 48s (Tacubaya)
21	83	iP	z	-	09	48	41	1.5	0.5	
22	84	iP	z	+	06	04	18	1.2	0.5	
	85	iP	z	+	06	47	49	1.0	1.3	
22	86	iP	z	+	08	56	11	1.2	0.5	
	87	iP	z	+	09	33	56	1.2	0.7	Banda Sea $6^{\circ}\text{S } 131^{\circ}\text{E}$ H = 09h 22m 36s (USCGS)
	88	e(P)	z		09	42	01	1.6	0.5	
	89	iX	z	+	09	45	17	1.3	0.3	
	90	iP	z	-	18	54	03	1.6	0.5	Samoa $16^{\circ}\text{S } 173^{\circ}\text{W}$ H = 18h 44m 10s (USCGS)
	91	eP eL	z N		01 02	54 16	28	1.6	0.5	Samoa $16^{\circ}\text{S } 173^{\circ}\text{W}$ H = 01h 44m 35s (BCIS)
24	92	e(P)	z		08	33	29	?	0.8	
		iP	z	-	08	33	31	1.8	1.8	
		iP	N	-	08	33	34	4	1.2	
		eP	Z		08	33	35	4	1.2	
		ipP	Z	-	08	33	50	8	5	Philippine Is. $5^{\circ}\text{N } 126\frac{1}{2}^{\circ}\text{E}$ H = 08h 21m 08s (BCIS)
		ipP	N	+	08	33	50	10	10	
		iS	z	+	08	43	40	5	1	
		iS	N	+	08	43	41	12	5	
		iS	Z	+	08	43	45	12	14	
		isS	Z	-	08	44	03	20	11	
		isS	N	-	08	44	07	50	> 50	
		i(PSP)	z	+	08	44	37	4	1	
		ePKKP	z		08	52	18	1.2	0.5	
		ePKPPKP	z		09	00	07	1.2	0.8	
		iPKPPKS	z	-	09	03	39	9	1.0	
		iX	z		09	20	14			
	93	iP	z	+	09	23	02	1.1	0.5	Philippine Is. $6^{\circ}\text{N } 127^{\circ}\text{E}$ H = 09h 10m 30s (USCGS)
25	94	iP	z	+	02	24	30	1.1	1.6	
	95	i(PKP)	z	-	06	09	39	1.5	1.0	Azores $33^{\circ}\text{N } 37\frac{1}{2}^{\circ}\text{W}$ H = 05h 50m 54s (BCIS)
		e(PKS)	z		06	13	15	1.5	1.0	
		eL	Z		06	56.8				
	96	eP	z		07	21	58	1.0	0.5	
		eX	Z		07	24.5		21	1.5	
	97	eX	z		07	27	10	18	2.0	



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Date	No.	Phase	First Motion	h	m	s	T	A	Remarks	
	98	iP	z	-	08	32	03	1.2	0.5	
		eL	Z		10	12		20	1.4	Probably from seismic IV (BCIS)
	99	iP	z	+	11	37	38	1.6	0.8	
	100	iP	z	+	14	19	31	1.2	0.6	New Guinea 2°S, 140°E H = 14h 08.0m (BCIS)
		ePKPKP	z		14	47	39	1.2	0.3	
		eX	Z		14	47.7		1.0	0.8	Probably a surface wave
	101	e(pP)	z		15	22	19	1.0	0.3	Philippine Is. 6°N 127°E H = 15h 09m 38s (BCIS)
										Small disturbance at 16h 14m 42s on short period instrument and that at 16h 18.3m on long period vertical instrument are probably P and S arrivals of a near earthquake.
	102	iP	Z	+	16	28	41	1.6	0.8	
	103	eP	z		16	42	19	1.1	0.3	Philippine Is. H = 16h 29m 44s (BCIS)
	104	iP	z	-	16	49	02	1.2	0.3	
		iP	Z	+	16	49	03	10	1.2	
		ipP	z	-	16	49	11	1.2	1.0	
		iX	Z	+	16	49	33	14	1.5	Philippine Is. 6°N 127½°E H = 16h 36m 38s (Moscow)
		eS	E		16	59	07	7	1.0	
		iS	N	+	16	59	10	?	1.0	
		i(SKS)	N	-	16	59	15	7	1.2	
		i(SKS)	Z	-	16	59	15	6	1.2	
	105	iP	z	+	16	56	37	1.3	1.0	
	106	iP	z	-	18	09	59	1.0	0.3	New Hebrides 15°S, 167°E H = 18h 00.4m (BCIS)
		eX	z		18	10	44	1.0	0.3	
	107	iP	z	+	21	21	09	1.6	0.5	
	108	eP	z		22	29	27	1.0	0.3	Philippine Is. 6°N 127½°E H = 22h 17m 00s (USCGS)
	109	eP	z		23	45	58	1.0	0.3	Philippine Is. 5½°N 127½°E H = 23h 33m 30s (USCGS)
26	110	eP	z		02	44	27	1.0	0.3	Philippine Is. 5°N 127°E H = 02h 32m 01s (USCGS)
	111	eP	z		06	13	18	1.1	0.3	Philippine Is. H = 06h 00m 43s (BCIS)
	112	iP	z	+	06	43	02	1.3	0.3	
		eX	Z		06	48	23	8	1.6	
	113	eP	z		07	09	24	1.0	0.3	
	114	eP	z		10	20.1		1.1	0.3	Philippine Is. H = 10h 07m 42s (USCGS)
	115	eP	z		10	34	04	1.1	0.3	Philippine Is. H = 10h 22m 33s (USCGS)
	116	iP	z	-	11	10	13	1.6	0.8	
	117	eX	z		12	08	08	1.0	0.3	
	118	iP	z	-	12	09	23	1.6	2.6	New Zealand 39½°S 174½°E h = 150 km H = 12h 03m 01s (USCGS)
		eS	Z		12	14	21	10	1.0	
		e(ScS)	Z		12	19	29	15	1.2	
	119	eP	z		12	45	06	1.0	0.3	

Date	No.	Phase	First Motion	h	m	s	T	A	Remarks
	120	eP	z	14	33	26	1.1	0.3	Philippine Is. H = 14h 20m 50s (BCIS)
	121	iP	z	18	59	10	1.1	1.4	Philippine Is. $6^{\circ}\text{N } 126^{\circ}\text{E}$ H = 16h 46m 41s (USCGS)
	122	eP	z	20	28	38	1.2	0.3	Kermadec Is. $34^{\circ}\text{S}, 178^{\circ}\text{W}$ H = 20h 21m 12s (Wgton)
	123	iP	z	21	45	19	1.6	0.3	
	124	iP	z	22	18	35	1.6	0.3	
27	125	ePKP	z	00	43	31	1.2	0.3	Aleutian Is. $52^{\circ}\text{N } 175^{\circ}\text{W}$ H = 00h 23m 49s (BCIS)
	126	eP	z	04	19	(18)	1.2	1.5	
		eP	Z	04	19	20	0.5	?	
		eX	Z	04	19	27	7.0	2.2	Molucca Sea $1^{\circ}\text{S}, 127^{\circ}\text{E}$ H = 04h 08m 23s (USCGS)
		e(PKS)	Z	04	28	23	5.0	1.8	
		eX	Z	04	30	00	8.0	1.0	
		iX	N	04	30	01	1.0	5.0	
		iS	N	04	30	06	7.0	7.3	
		iS	E	04	30	06	1.4	2.0	
		iS	Z	04	30	11	?	3.9	
	127	ePKP	z	05	18	13	1.2	0.3	Siberia $64^{\circ}\text{N } 178^{\circ}\text{E}$ H = 04h 58m 52s (USCGS)
	128	iP	z	06	08	43	1.5	1.2	Molucca Sea $1^{\circ}\text{S } 127^{\circ}\text{E}$ H = 05h 56m 50s (USCGS)
		ePPP	Z	06	13	56	20	1.0	
		eS	Z	06	18	16	20	1.2	
		eL	Z	06	33		40	2.0	
									A tremor lasting 8 mins commenced at about 14h 12m
	129	iP	z	22	47	08	1.0	4.8	
		e(S)	N	22	49	15	15	1.4	
		e(S)	E	22	49	15	15	1.0	Local
		e(S)	Z	22	49	20	20	1.6	
28	130	ePKP		00	43	32	1.3	0.3	Japan $30^{\circ}\text{N } 137^{\circ}\text{E}$. h = 500 km H = 00h 27m 31s (USCGS)
	1308	eX	z	00	46	49	5	0.7	
		eX	Z	00	46	51	10	1.3	
	131	eP	z	04	22	51	1.6	0.6	New Guinea $3^{\circ}\text{S } 135^{\circ}\text{E}$ H = 04h 11m 23s (USCGS)
	132	iP	z	07	15	01	1.2	0.5	
	133	iP	z	14	28	23	1.6	7.9	
		iP	Z	14	28	23	4	11.2	Fiji Is. $20^{\circ}\text{S } 178^{\circ}\text{W}$. h = 650 km H = 14h 20m 00s
		iP	E	14	28	24	7	2.0	
		iP	N	14	28	24	10	6.0	
		ipP	Z	14	30	10			
		ipP	N	14	30	10	14	19.5	Phase amplitudes often too great for satisfactory scaling.
		ipP	E	14	30	10	7.0	6.0	
		iPPP	N	14	31	15	14	12	
		iS	N	14	35	09	15	15	
		iS	z	14	35	10	9	2.9	
		iScS	N	14	36	06	17	31	
		isS	N	14	38	29	21	46	
		ePKPKP	z	14	58	19	1.2	1.2	
134	iP	z	-	14	38	38	1.2	10.5	Recorded at Scott Base.

Date	No.	Phase	First Motion	h	m	s	T	A	Remarks	
	135	iP	z	+	14	52	28	1	1.6	Fiji $20\frac{1}{2}^{\circ}\text{S}$, $178\frac{1}{2}^{\circ}\text{W}$. $h = 600$ km H = 14h 44m 02s (USCGS)
	136	iP	z	-	21	16	09	1.2	0.3	Mariana Is. $17\frac{1}{2}^{\circ}\text{S}$ 146°E h = 200 km H = 21h 03m 18s (USCGS)
	137	eP	N		23	34	22	15	1	
		iP	z	+	23	34	23	1.2	2.0	
		iP	E	+	23	34	23	21	1.2	
		iX	z	-	23	34	28	1.2	2.0	
		iX	z	-	23	34	29	?	2.0	
		iS	N	+	23	36	40	14	5.0	
		iS	E	+	23	36	40	14	5.5	
	137	iS	z	+	23	36	40	7	0.8	
		iX	z	-	23	36	52	?	2.0	
29	138	iP	z	-	01	39	39	1.2	0.3	
	139	iP	z	-	02	11	40	1.2	1.6	South Pacific Ocean $64\frac{1}{2}^{\circ}\text{S}$ $172\frac{1}{2}^{\circ}\text{W}$
		iP	z	+	02	11	40	9	4.7	
	140	iP	E	-	02	11	40	11	5	
		iP	N	+	02	11	40	10	4.5	
		iX	z	+	02	13	19	4	1.1	Amplitude too large for accurate scaling of some phases.
		iX	E	-	02	13	19	5	1.8	
		iX	z	-	02	13	20	6	2.2	
		iS	z	-	02	13	46	15	3.8	
		iS	N	-	02	13	47	18	23	
		iX	E	+	02	13	56	14	22.5	
		iX	z		02	14	26	?	?	
	141	iP	z	+	06	49	13	1.2	2.2	Celebes Is. 0° lat. 124°E h = 200 km H = 06h 37m 33s (USCGS)
	142	iP	z	+	07	14	37	1.2	2.0	Fiji Is. 20°S 178°W h = 650 km H = 07h 06m 11s (USCGS)
	143	iP	z	+	08	21	08	1.2	7.5	
		iP	z	-	08	21	08	8	4.1	
		eX	z		08	23	07	2	1.7	Fiji Is. 25°S $178\frac{1}{2}^{\circ}\text{E}$ h = 600 km H = 08h 13m 22s (USCGS)
		iX	N	-	08	24	13	6	1.5	
		iS	E	-	08	27	23	10	10.6	
		isS	E	-	08	29	57	12	10.5	
		isS	z	+	08	30	02	4	1.1	
		iX	E	+	08	33	45	13	9.5	
	144	i(PP)	z	-	08	25	27	1.2	2.0	
	145	eP	z		17	46	58	1.1	0.3	Philippine Is. 4°N $126\frac{1}{4}^{\circ}\text{E}$ H = 17h 34m 16s (BCIS)
30	146	iP	z	+	12	18	31	1.6	0.3	Molucca Sea $1\frac{1}{2}^{\circ}\text{S}$ $126\frac{1}{2}^{\circ}\text{E}$ H = 12h 06m 43s (USCGS)
	147	eP	z		13	54	07	1	0.3	

HALLETT STATION

72° 19'S, 170° 13'E



SEISMOLOGICAL BULLETIN

October 1957

Instrument	Component	Symbol	To (sec)	Tg (sec)	Damping Shunt (ohms)	Paper Speed mm/sec.
Willmore	Vertical	z	1	2	near critical	30
Columbia	Vertical	Z	15	75	100	15
Columbia	N-S	N	15	75	100	15
Columbia	E-W	E	15	75	100	15

Directions of initial movements are indicated by small letters immediately after the last figures of the phase arrival times; as follows:-

u = ground movement up
d = " " down
n = " " to north
s = " " to south
e = " " to east
w = " " to west

Trace amplitudes (A) are in millimetres; and periods (T) in seconds.

Date 1957	Phase		Time (U.T.)			Az	Tz	An	Tn	Ae	Te	Remarks
			h	m	s							
Oct 1	iP	z	07	23	19d	0.9	1.0					
1	iP	z	21	47	11d							Local?
2	iP	z	03	42	07u							Local
2	iP	z	11	37	31d	0.7	1.5					
	eL	Z	12	10.5		1	25					
2	ePKP	z	12	47	13	0.6	1.3					
	ePS	Z		56	49	0.9	10					
	e	Z	13	01	57	1.2	6					
	eSS	N		02	54			1.5	10			
	eL	Z		21		1.3	23					
2	iP	z	14	04	59u							Local?
2	eP	z	15	58	11	0.3	1.8					
	e	Z	16	04.2		1.0	26					
2	iP	Z	20	52	14d	1.3	7					
	iP	zN			15d	0.9	1.2	1	11			
	iS	Z		59	49d	5.0	16					
	iS	N			54s			13.5	17			
	eL	Z	21	08.0		3.8	50					
2	eP	z	21	11	24	0.5	1.2					
2	iP	z	23	54	43u							
3	eP	z	06	09.7		0.5	1.3					Records disturbed by high wind.
4	ePKP	z	05	45	20	1.3	>10					Records disturbed by high wind.
	i	z		46	37	3.0	12					
4	i	z	07	04	13u							Wind interference.
	iP	Z			15d							
	eP	Z			17							
5	eP	z	16	16	59	0.5	1.1					
5	iP	z	21	16	34u							
6	iP	z	00	48	04u							
7	iP	z	16	57	13u							
8	iP	z	07	05	11d	2.6	1.0					
	ipP	z			45d	1.0	1.0					
9	iP	z	14	37	16u							Local.
10	iP	z	03	55	02d	3.0	1					
10	iPKP	z	07	57	18d	0.5	1					
10	eP	z	14	32	35	0.3	1.2					
	eL	Z		56.9		2.0	23					
10	i(P)	z	18	52	40u							
10	iP	z	18	52	53u	1.2	1.6					
10	ePKP	z	19	12.8		0.3	1.0					
	eL	Z		54		2.0	20					
11	iP	z	00	39	11	0.8	1.4					



Date 1957	Phase	Time (U.T.)			Az	Tz	An	Tn	Ae	Te	Remarks
		h	m	s							
Oct 12	e z	16	54	54							
12	eP z	16	55	21	0.5	1.2					
	i(pP) z			30u	0.6	1.2					
	eS E	17	02	28				1.3	7		
	iSS ZE		05	58w	0.8	14		3	11		
	eL E		11.6					1.6	18		
12	iP z	19	08	38d	0.6	1					
	eP Z			39	2.0	12					
	iS ZN		17	59ds	3.8	16	3.6	7			
	i(SS) E		22	44e				3.2	11		
	i(SS) N			58s			3.2	11			
	iSSS Z		25	48d	1.2	15					
	iSSS N			50s			1.0	10			
	e(SSS) E		26	11				2.5	22		
	eL Z		31.5		2.3	37					
12	eP z	22	14	21	0.3	1.2					
	eL Z		38.9		1.0	28					
13	e z	04	40	33	1.0	5					
	eSS N		57	36			2.1	25			
13	iP z	05	29	15d							
13	eP z	20	30	22	0.5	1					
	iS Z		33	02u	4	0.8					
	eS E			03				1.2	15		
	eS N			05			1.4	15			
13	iP z	20	36	22u	0.3	1					
	iP ZNE			23dsw	7	8	3	8	4	9	
	i(PcP) Z		37	50u	4.8	5					
	iS ZE		38	54de	4	20			12	20	
	iS N			55s			9	25			
13	iP z	03	21	11u	1	1.5					
	eS N		25	24			2	20			
	eS E			29				1.5	20		
	eS Z			30	1.5	?					
	eL Z		27								
14	eP z	12	28	46							
14	eP z	12	56	03	0.3	1.0					
14	eP z	14	19	16	0.3	1					
15	iP z	06	03	09u	1.1	1.3					
15	eP z	12	49.1								
15	e N	12	58	15			4	21			
	e Z	13	00	16	2.3	22					
15	e N	13	18	17			6.5	20			
	e Z		20	02	2.3	21					
17	eP z	14	49.0		0.3	1.1					
17	eP z	14	57	20	0.3	1.1					
17	eP z	15	33	17	0.3	1.2					
17	eP z	17	56	21	0.3	1.0					



Date 1957	Phase	Time (U.T.)			Az	Tz	An	Tn	Ae	Te	Remarks
		h	m	s							
Oct 19	eP z	18	42	42	0.3	1.2					
	eP Z			42	2.5	17					
	ePP z		46	56	0.8	4					
	iPP Z			57d	4.3	15					
	iPP N			59u			2.2	15			
	i(PKP) z		47		14u	1.0	1.5				
20	ePKP z	12	23	11	0.3	1					
	e Z		32	12	1.0	8					
	e(PPS) N		34	58			1	12			
	iSS NE		40	12es			1	27	3	30	
	i(SKKS) Z			40u	1.5	14					
	eSSS Z		44	56	1.2	24					
	eL N		52.8				3.5	50			
20	iP z	16	06	17u	1.2	1.3					
20	e(P) z	19	30.2								
21	iP z	00	27	36d	3	1.2					
	P ZN			36u	1	6	0.3	1			
	eL Z		46.5		2	30					
23	iP z	00	02	45d	2.1	1					
24	iP z	00	27	31d	1.2	1					
	iP ZN			31ds	1.3	8	1.3	8			
	i Z		28	05d	2.5	9					
	iS E		35	35w					2	12	
	iS ZN			36dn	2.2	11	1	12			
	eL Z		44		3	44					
24	iP z	09	15	59u	1	1.3					
	i z		16	10u	1	1.2					
	iPcP z			32d	1	1.2					
	ipP z		17	43d	0.5	1.6					
	i N		18	39s			1.2	7			
	iS N		22	46n			3.2	21			
	i(PPS) N		24	51s			1.2	8			
	isS N		25	50s			3.3	12			
24	iP z	20	18	40u	2.3	1.0					
	iP Z			42u	1.1	10					
	i(pP) z			55u	1.3	1.0					
	e Z		42.1		1.0	23					
	e Z		47.1		2.0	21					
24	e(PPS) Z	22	13.4		1.6	9					
	i(SSS) Z		19	49d	1.9	25					
	eL Z		36.6		3.7	24					
25	ePKP z	10	22.7		0.5	1.2					
25	iP z	20	49	55d	1.8	1					
	i(P) z			57u	2.2	1					
	iP ZN			58ds	2.0	16	4.9	10			
	i(S) E		51	43e					1.9	14	
	i(S) N			45s			8.9	20			
	i(S) Z			48u	6.0	20					
25	iP z	22	57	43u	1.3	1.0					
26	eP z	04	43	02	0.5	1.5					
26	iP z	08	34	37u	0.9	1.2					



From 21d to 23d blizzard conditions interfered with recordings.

Date 1957	Phase		Time (U.T.)			Az	Tz	An	Tn	Ae	Te	Remarks
			h	m	s							
Oct 26	iP	z	14	28	55d	1.2	1					
	iPP	z		31	55d	1.3	1.6					
27	iPKP	z	22	51	29d	1.2	1.2					
	i	z		52	06u	0.9	1.2					
27	iP	z	23	07	08u	2.2	1.0					
	i(pP)	z			20d	1.0	1.2					
29	iP	z	02	33	34u	0.7	1.4					
	iPP	z		36	27u	0.1	1.2					
29	eP	z	12	54	38	0.3	1.2					
	i	z		55	22d	0.7	1.0					
29	eL	Z	03	00.5		1.5	25					
31	e	Z	10	25	25	0.5	8					
	iS	E		32	32w			1.3	14			
	e(SP)	Z		34	43	1.0	22					
	iSP	E		35	10w			3.5	22			
	iSS	Z		40	22d	1.9	35					
	iSSS	Z		44	23d	3.2	22					
	eL	E		52.5				2	28			
	eL	Z		54.8		2	30					
31	iP	ZE	10	33	45	2.7	11		1.3	11		
31	eS	ZE	17	07		3.0	31		2.1	22		



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HALLETT STATION

72° 19', 170° 13'E

SEISMOLOGICAL BULLETIN

November 1957



Instrument	Component	Symbol	To (sec)	Tg (sec)	Damping Shunt (ohms)	Paper Speed mm/sec.
Willmore	Vertical	z	1	2	near critical	30
Columbia	Vertical	Z	15	75	100	15
Columbia	N - S	N	15	75	100	15
Columbia	E - W	E	15	75	100	15

Directions of initial movements are indicated by small letters immediately after the last figures of the phase arrival times, as follows:

- u = ground movement up
- d = " " down
- n = " " to north
- s = " " to south
- e = " " to east
- w = " " to west

Trace amplitudes (A) are in millimetres, and periods (T) in seconds.

Date 1957	Phase	Component	Time (UT)			Az	Tz	An	Tn	Ae	Te	Remarks
			h	m	s							
Nov. 2	iP	z	16	29	21u	0.6	1					
	e(PKPKP)	z		45	27	0.3	1					
2	iP	z	18	40	26u	1.9	1.2					
	iP	Z			26d	4.0	8					
	eP	E			27			0.7	7			
	i(PcP)	Z		41	14d	3.2	8					
	iPP	Z		42	39d	1.9	12					
	e	Z		48	12	1.7	14					
	iS	E			29e			2.1	12			
	iSS	Z		52	21u	1.7	15					
	iSSS	Z		54	26u	2.8	18					
	eL	E			55.1			5	17			
	eL	Z			58.2	7	31					
	e(PKPPKP)	z		19	10	02	0.3	1				
3	eP	z	10	35	41							
	ipP	z			52u							
	eS	E		44	50							
	eL	N		57								
	ePKPPKP	z	11	04	38							
3	i(pP)	z	11	25	31							
	e(PKPPKP)	z		54	10							
3	eP	z	15	38	46							
3	eP	z	22	59	38							
	e(S)	N	22	07	13							
	eL	N		19								
4	eP	z	13	55								Very emergent
4	iP	z	15	06	07d							
5	iP	z	00	47	27u							
5	iP	z	10	03	35d	1.2	1.0					
	iPKKP	z		26	15u	0.7	0.8					
5	eP	z	11	23	44							

Date 1957	Phase		Time (UT)			Az	Tz	An	Tn	Ae	Te	Remarks	
			h	m	s								
Nov. 6	iP	z	05	10	33d								
7	eL	Z	02	05.5									
7	iP eL	z Z	03	09	33u 28.9								
7	iP iS eL	zE E E	06	27	18u 31 38e 32 36	0.5	1.6			1.7 1.8 21	10 15 16		
8	iP	z	02	57	19u								
8	eP	z	06	29	11								
9	iP	z	19	21	26u								
10	iP iP i(P) iS iSS eL ePKPKP	z Z N ZNE ZE Z z	02	47	10d 10u 14d 55 58unw 03 00 17de 07 08 15 50	0.5 2.8 4 5.8 0.3	0.9 11 12 22 1		1.2 5.1	11 15		8.2 8 8	16 22 26
10	iP	z	03	54	30d	0.5	1						
10	eP	z	08	53	39								
10	iP	z	12	57	34								
11	i(P) i	z z	13	11	42d 14u								
11	iP i	z z	22	50	48u 21u								
12	iP	z	00	29	33d								
12	iP ipP epP iS eS	z z Z N Z	01	42	40d 50u 52 51 35s 40								
12	iP	z	09	45	01d								
12	iP	z	18	28	05d								
13	eP	z	00	25	04								
13	iP iP ipP iS i(sS) i(sS) i(sS) iSS	z ZNE zN N N Z E ZE	17	30	22u 22ds 31 57ds 36 11n 22n 25u 30e 39 28uw	2.6 8.5 9 8.3 6.9	1 7 1.6? 15 12		6.7 5.5 2.2 6.9	7 12 11 16		5 10.8 21	? 24 26
14	eP	z	03	14	56								
14	eP	z	10	23	42								
14	ePKP	z	14	36	08								
14	iP	z	16	44	06u								
14	eP	z	18	07	13								
14	eP	z	21	35	12								
14	iP	z	22	57	20d								



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Date 1957	Phase		Time (UT)			Az	Tz	An	Tn	Ae	Te	Remarks
			h	m	s							
Nov. 15	iP	z	08	05	08u	1.2	1.2					
	e	Z			47	0.8	6					
	i(PP)	z	08	27		0.6	1.2					
	iS	N	15	26s				3.2	17			
	e(S)	E			31					1	17	
	i(S)	Z			36d	1.3	17					
	iPS	Z	16	41d		1.5	12					
	e(SS)	Z	21	12		1	25					
e	Z	24	48		1.9	20						
e	N		49				1.9	17				
15	iP	z	12	22	08d							
	i(P*)	z			10u							Local
15	iPKP	z	12	49	25d							
	ePP	Z		51	12							
	iPS	Z	13	01	06d							
	e(SS)	N		08	30							
	eL	E		21.9								
eL	Z		27.8									
16	iPKP	z	02	07	46u							
17	eP	Z	15	50	57(u)							
	i(S)	ZE		58	31dw							
	i(S)	N			36s							
	eL	Z	16	06.0								
17	iP	z	19	08	17u							Local
18	iP	z	15	01	06u							Local
	i(P*)	z			11							
18	iP	z	15	06	45u							
18	iP	z	15	18	34u							
19	i	z	00	43	15u							
	i	z			25d							
19	eP	z	02	37	16							
	iP	ZN			16ds							
	ipP	z			25d							
	i(S)	N		39	37u							
	i(S)	Z			38u							
eL	Z		40.1									
19	iPKP	z	16	29	38d							
20	ePKP	z	12	59	39	0.5	3					
	iPKP	Z			39d	1.0	5					
	e	z	13	01	28	1.3	9					
22	eP	z	07	45	58							
22	eP	z	08	31	10							
22	eP	z	16	07	05							
	eL	E		12.5								
22	iP	z	16	14	34d							
	i(P*)	z			38u							
22	eP	z	22	02	58							
23	eP	z	01	17	39	0.7	1.3					
23	eP	z	16	43	02							
23	iP	z	18	08	50d							
23	iP	z	22	13	06u							
	eL	z		27.5								



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Date 1957	Phase		Time (UT)			Az	Tz	An	Tn	Ae	Te	Remarks
			h	m	s							
Nov. 25	iP	z	00	11	10u							
25	iP	z	00	38	43d							
25	iP	z	22	47	04u	2.3	1.6					
	iP	Z			04d	3.8	5.0					
	i(PP)	z		49	55d	1.2	4					
	iPP	Z		50	00d	2.2	8.0					
	iPPP	Z		51	56u	2.0	10					
	eS	Z		56	55	2.0	19					
	eSS	Z	23	02	07	4	20					
	eL	Z		08.7		2.9	23					
26	iP	z	05	22	05u	1.8	1.6					
	iP	ZE			05dw	3.2	10		1	7		
	iPP	z		24	58u	2.3	2					
	iPP	Z			59d	1.8	9					
	iS	ZE		32	03dw	2.2	17		2.0	17		
	eSS	Z		37	04	4.2	30					
	eL	Z		43.5								
26	iPKP	z	11	54	45d	0.5	1.2					
	eL	Z	12	36.6		1.1	11					
27	eP	z	01	57	07							
27	iP	z	03	33	28u							
27	eP	z	08	14	52							
27	iP	z	08	44	42u							
27	iP	z	14	08	45d							
	i	z		09	23							
27	iP	z	22	48	40u							
28	eP	z	05	22	15							
28	iP	z	21	00	01u	1.5	1.6					
	iP	NE			02w			0.5	10	2.0	11	
	iS	E		08	01w					2.8	14	
	eS	N			03			0.7	10			
	iSSS	N		14	51s			4.0	35			
	iL	E		17	30e					4.0	42	
28	eP	z	23	08.4								Very emergent
29	eP	z	07	34	53							
29	eP	z	10	11	38							
29	iP	z	17	49	56d							
	eS	E		54	52							
	e	N		55	26							
	eL	N		57.1								
29	iP	z	21	52	45d							
29	iP	z	22	31	22d	17	1.2					
	iS	z		41	19u	2.0	7					
	eSS	z		45	46	1.8	6					
	ePKKP	z		50	04	1	1.2					
	ePKPKP	z		57	52	1	1.2					
	i	z		59	22u	2.8	5					
	i	z	23	02	52u	1.8	5					
30	iP	z	02	12	51d							



HALLETT STATION, *712.*

NO AA

72°19'S, 170° 13'E

File only

SEISMOLOGICAL BULLETIN

December 1957



Instrument	Component	Symbol	To (sec.)	Tg (sec)	Dumping Shunt (ohms)	Paper Speed mm/sec.
Willmore	Vertical	z	1	2	near critical	30
Columbia	Vertical	Z	15	75	100	15
Columbia	N - S	N	15	75	100	15
Columbia	E - W	E	15	75	100	15

Directions of initial movements are indicated by small letters after the last figure of the phase arrival times, as follows:

- u = ground movement up
- d = " " down
- n = " " to north
- s = " " to south
- e = " " to east
- w = " " to west

Trace amplitudes (A) are in millimetres; periods (T) in seconds.

Date 1957	Phase	Symbol	Time (UT)			Az	Tz	An	Tn	Ae	Te	Remarks
			h	m	s							
DEC. 3	iP	z	15	25	20u							
	e	Z	21	21	48							
	eL	Z	22	05.3								
4	iP	z	00	38	59u							
4	iP	z	03	36	34d							
4	iPKP	z	03	57	55u	3	1					
4	iP	z	07	26	17d							
4	eP	z	09	01	54							
	e	z		02	24							
4	eP	z	12	05	39							
	e	z		06	22							
4	iPKP	z	13	39	12u	1/2	1 1/2					
5	iP	z	10	49	14u							
	e	z			47							
6	iP	z	09	50	26u							
7	iP	z	03	27	11u	2	1 1/4					
	eS	Z		35	43	2	10					
	eS	N			50			1 1/2	10			
7	iP	z	10	53	34d							
7	i(P)	z	14	23	26d							
	i(pP)	z			57d							
7	i(P)	z	15	08	42d							
	i(pP)	z		09	17d							
7	i(P)	z	15	38	42d							
7	eL	Z	23	14.1								
8	iPKP	z	15	47	54d							

Date 1957	Phase		Time (UT)			Az	Tz	An	Tn	Ae	Te	Remarks
			h	m	s							
DEC. 8	iPKP	z	15	47	54d							
8	eP	z	15	56	46							
8	i(pP)	z	16	14	34u							
8	i(pP)	z	16	45	54d							
8	ePKP	z	16	46	00							
9	eP	z	08	47	24							
9	iP	z	15	59	29u							
9	eP	z	16	21	26							
	i(pP)	z		22	01d							
9	ePKP	z	22	27	13	0.3	1 $\frac{1}{4}$					
10	iP	z	14	46	49u	1	1 $\frac{1}{2}$					
	iP	ZNE			49ds(w)	5	14	3	15	1	16	
	ipP	z			58u	5 $\frac{1}{2}$	1 $\frac{1}{4}$					
	iS	ZN	55		36us	10	10	8	16			
	i(S)	E			54w					19	20	
	i(SS)	N	59		30s			14	9			
	iSS	E			57					5	25	
	iSSS	E	15	03	25e					4 $\frac{1}{2}$	22	
	i(SSS)	Z			29u	10 $\frac{3}{4}$	18					
	ePKKP	z	06	12		0.3	1 $\frac{1}{2}$					
	eL	Z	07.1									
	iPKPKP	z	15	22d		1.2	7					
10	iP	z	20	00	03u							
11	eP	z	09	12	43							
12	iP	ZN	18	48	20	2	6	1	7			
	eS	N		56	24			2	22			
	eL	N	19	05.5				1	37			
	eL	Z		05.7		2 $\frac{1}{2}$	36					
13	iS	Z	01	56	34d	1.8	10					
13	ePKP	N	02	05	03			1.8	10			
	iPP	N		07	46s			1.7	4			
	iSP	Z		16	54u	6.7	11					
	eSPP	Z		18	27	4	12					
13	eP	z	20	14	50							
13	eSS	N	21	04	45							
	e	Z		05	07							
	eL	Z		30								
	eL	N		33.0								
16	ePKP	z	17	47	05	0.5	1.2					
16	iP	z	19	14	21d							
	eL	Z		25.1								
17	ePKP	z	05	29	15	0.5	1.6					
	ePKP	Z			15	1.0	7					
	ePP	Z		30	51	1.2	9					
	iSS	N		48	43n			7.3	24			
17	iP	NE	14	00	18w			31	7	15.3	7	
18	iP	Z	20	53	27u							
20	iP	Z	11	29	53u							
	eS	Z		38	52							
	e(SSS)	Z		47	06							
	eL	Z		52.6								



Date 1957	Phase		Time (UT)			Az	Tz	An	Tn	Ae	Te	Remarks
			h	m	s							
DEC. 25	iP	z	16	13	25							
	eP	Z			26							
25	ePKP	Z	16	45	15	1	3					
	e(SKS)	Z		54	40	1.3	15					
	eL	Z	17	19.0								
26	iP	Z	12	16	52d	2.0	9					
	iPP	Z		18	30	1.1	11					
28	eP	z	14	49	06	1.5	1.6					
	eP	ZE			06	1.2	12			1.7	11	
	S	ZNE		59	32se	1.1	12	2.1	16	2.0	12	
	eL	Z	15	17.5		2.5	30					
28	iP	Z	19	11	11d							
	i(P)	z			15d							
	eS	ZE		19	13							
	eL	Z		27								
30	iP	z	23	20	10u							
31	iP	z	14	34	05u	0.7	1.2					
	iP	ZN			05ds	2.1	15	1.8	19			
	ipP	z			14u	1.8	1.6					
	iS	ZNE		38	44usw	4	15	4	27	8	12	
	eL	Z		40.6		10	22					

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