

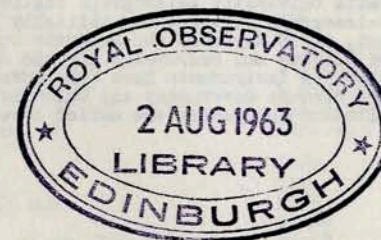
BERMUDA-COLUMBIA UNIVERSITY
SEISMOGRAPH STATION

SIGNAL HILL
ST. GEORGES, BERMUDA

SEISMOLOGICAL BULLETIN

By
G. PIMENTEL

1 April 1959 - 31 March 1960



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LAMONT GEOLOGICAL OBSERVATORY
(COLUMBIA UNIVERSITY)

Contribution No. 634

1

STATION CONSTANTS, INSTRUMENTS AND ABBREVIATIONS.

Latitude: $32^{\circ} 22' 46''$ N
 Longitude: $64^{\circ} 40' 52''$ W
 Elevation: 41 Meters
 Bedrock: Calcareous Aeolionite

Instruments:

Three component short period Benioff Seismographs (N.E.2)
 To = 1 sec., Tg = 0.2 sec.

Three component long period Benioff Seismographs (N.E.2)
 To = 1 sec., Tg = 75 sec.

Three component Columbia University long period seismographs (N.E.2)
 To = 15 sec., Tg = 75 sec.

Two Milne-Shaw horizontal seismographs (N.E., N.W.)
 To = 12 sec., V = 250

One Columbia University Microbarograph
 To = 10 sec., Tg = 75 sec.

Epicentral Data from U.S. Coast and Geodetic Survey Preliminary Determinations.

Abbreviations:

i = sudden beginning of the motion (impetus)
 e = gradual beginning of the motion (emersia)

All Times are G.C.T.

The Bermuda-Columbia University Seismograph Station, formerly known as the Bermuda Seismograph Station, was initially sponsored by the Bermuda Government, the U.S. Coast and Geodetic Survey, The International Union of Geodesy and Geophysics and the Royal Society of London. Since 1951 new instruments have been added under the joint sponsorship of the Bermuda Government and Columbia. It is requested that exchange bulletins and papers are mailed directly to Bermuda.

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Bermuda-Columbia University Seismograph Station									
Date	Phase	h	m	s	Date	Phase	h	m	s
Apr. 1	iP	00	41	40	Apr. 6	eSSS	15	05	00
	iPP		43	08	(Cont.)	e		30	00
	iS		47	28		eLR		35	00
	eLQ		50	00		Sumba Island			
	eLR		51	00		O = 14.12.36			
	Canary Islands					10 S 120 $\frac{1}{2}$ E			
	O = 00.34.18					Mag. 6 $\frac{1}{4}$			
	Mag. 6 $\frac{1}{4}$ 27 $\frac{1}{2}$ N 21 $\frac{1}{2}$ W					Dist.app. 157 Bda			
	Dist.app. 37.5 $\frac{1}{2}$ Bda								
						8 iP	11	56	48
1	eSS	18	36	45		iPP		59	57
	eLR		43	00		eS	12	07	24
	California					eSS		12	48
	Felt in Northeastern					eLR		23	00
	California and Western					Southern Chile-			
	Nevada					Argentina Border			
	O = 00.18.28					O = 11.44.25			
	40 N 120 W					50 $\frac{1}{2}$ S 73 W			
	Mag. 6					Dist.app. 83 Bda			
	Dist.app. 45 $\frac{1}{2}$ Bda								
2	eLR	00	36	00		9 iPKP	06	38	18
	Solomon Islands					iSKSP		51	49
	O = 23.33.36					iPPS		54	50
	6 S 154 $\frac{1}{2}$ E					eSS	07	01	40
	Dist.app. 134 Bda					eSSS		06	20
						e		26	00
						eLR		31	00
3	eLR	02	07	00		Indian Ocean about			
	Hat Island					1000 miles north of			
	Aleutian Islands					Kerguelen Islands			
	O = 01.27.06					O = 06.18.30			
	51 $\frac{1}{2}$ N 179 E					36 S 76 E			
	Dist.app. 80.5 Bda					Dist.app. 148 Bda			
5	eLR	11	13	00		9 iP	17	42	16
	Southeastern France					ePP		43	12
	Two injured and moderate					ePcP		45	32
	property damage					iS		47	32
	Also felt in Italy					eSS		49	00
	O = 10.47.52					eLR		50	00
	44 N 7 E					South of Panama			
	Dist.app. 57 Bda					O = 17.36.10			
						7 N 82 W			
6	eLR	00	37	00		Mag. 6 $\frac{1}{4}$ -6 $\frac{1}{2}$			
	Near North Coast of					Dist.app. 31.5 Bda			
	New Guinea								
	O = 23.29.25					10 iPKP	06	05	25
	5 $\frac{1}{2}$ S 146 E					iPP		07	26
	Dist.app. 140.5 Bda					iPPP		09	30
						eSKKS		13	20
6	iPKP ₂	14	32	38		eScSP		16	5
	ePKP ₂		33	14		eScSPKP		20	22
	iPP		36	44		eSS		24	00
	eSKS		39	08		eSKSSKS		26	20
	eSKSP		47	16		Interpretation Fair			
	eScSPKP		48	28		South of Fiji Islands			
	(Cont.)					O = 05.47.34			
						(Cont.)			

Bermuda-Columbia University Seismograph Station						1959			
Date	Phase	h	m	s	Date	Phase	h	m	s
Apr. 10	25 S 178 $\frac{1}{2}$ E (Cont.) H about 600 km. Dist.app. 125 Bda				Apr. 12	eSS (Cont.) eSSS eLR O = 20.54.00 15 $\frac{1}{2}$ S 173 N Samoa Islands Region Felt at Apia Mag.6-6 $\frac{1}{2}$ Dist.app. 114 Bda	29	30	
11	iP eS eLR Costa Rica-Panama Border O = 09.25.08 9 $\frac{1}{2}$ N 83 W Dist.app. 28.5 Bda	09	31	05					
11	iPKP iPPP eSS Spice Islands O = 11.28.50 1 S 128 E Dist.app. 146 Bda	11	48	30					
11	eLR Samoa Islands Region Felt at Apia O = 17.55.53 15 S 173 $\frac{1}{2}$ W Dist.app. 113 Bda	18	54	00					
12	iP iPP iPP iS iPcS eLQ eLR Mexico Damage at Cordoba and Juchitas O = 09.54.51 11 $\frac{1}{2}$ N 95 W H about 100 km Mag.6-6 $\frac{1}{2}$ Dist.app. 32 Bda	10	00	56					
12	iPKP ePKS ePcPKP eLQ eLR Near Coast of New Guinea O = 15.22.33 4 $\frac{1}{2}$ S 134 E Dist.app. 147 Bda	15	42	14					
12	ePP ePS (Cont.)	21	13	25					
					Apr. 12	eSS (Cont.) eSSS eLR O = 20.54.00 15 $\frac{1}{2}$ S 173 N Samoa Islands Region Felt at Apia Mag.6-6 $\frac{1}{2}$ Dist.app. 114 Bda	29	30	
							33	50	
							46	00	
					14	eLR Gulf of California Foreshock O = 02.51.13	03	11	00
					19	eS eSS eLQ Pacific Ocean O = 07.26.15 Mag.6 45 S 82 W Dist.app. 79 Bda	07	48	00
							54	24	
							58	44	
					19	iP eS eLQ eLR Near Kodiak Islands Alaska O = 15.03.26 58 N 152 $\frac{1}{2}$ W Dist.app. 62.5 Bda	15	13	42
							22	17	
							29	10	
							35	00	
					20	ePP eSKKS ePFS eSS eLQ New Britain Felt at Walindi Kandrain O = 03.27.52 6 S 149 $\frac{1}{2}$ E H about 100 km. Dist.app. 138 Bda	03	50	20
							57	20	
							04	02	30
							08	50	
							15	00	
					20	eS eLQ eLR Costa Rica O = 04.21.10 8 $\frac{1}{2}$ N 83 W Dist.app. 30 Bda	04	32	00
							33	00	
							35	00	

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Bermuda-Columbia University Seismograph Station						1959			
Date	Phase	h	m	s	Date	Phase	h	m	s
Apr. 22	ePP ePPP eS eSS eL Fox Islands Aleutian Islands O = 10.55.05 54 N 167 W Dist.app. 72 Bda	11	09	12	Apr. 24	Mag.6 $\frac{1}{2}$ -63/4. 63/4-7 (Cont.) Dist.app. 124 Bda			
		11	20		25	eS e eLR Turkey Extensive damage in Magla Province O = 00.26.40 37 N 28 $\frac{1}{2}$ E Dist.app. 74 Bda	00	47	45
		15	30				01	03	00
		20	27		25	iP iS eLQ eLR eT Puerto Rico Region Felt at San Juan O = 06.06.04 19 $\frac{1}{2}$ N 66 W Dist.app. 12 Bda (Both P & S phases have high frequency characteristics)	06	09	00
		29	30						
22	eP e e eS eLR Near Coast of Nicaragua O = 18.01.41 11 $\frac{1}{2}$ N 86 $\frac{1}{2}$ W Dist.app. 30 Bda	19	07	46					
		10	15						
		12	00						
		13	00						
		15	00						
22	eS eSS eSSS eSSS Pacific Ocean O = 20.26.46 36 $\frac{1}{2}$ S 97 $\frac{1}{2}$ W Mag.53/4-6 Dist.app. 75 Bda	20	48	00					
		53	00						
		56	00						
		21	00	00					
24	iP iS eLR Near Coast of Nicaragua O = 09.31.33 11 $\frac{1}{2}$ N 86 $\frac{1}{2}$ W Mag.6 $\frac{1}{2}$ -6 $\frac{1}{2}$ Dist.app. 30 Bda	09	37	35					
		43	00						
		45	00						
24	ePP ePKS eSKS eSKKS ePS ePPS eScSPKP eSS e e eLQ eLR Near Northeast Coast of Formosa 2 killed Minor damage at Taipei O = 20.40.38 25 N 122 $\frac{1}{2}$ E H about 150 km Mag.7 $\frac{1}{2}$ -73/4 Dist.app. 122 Bda	18	18	48					
		20	00						
		24	00						
		25	30						
		28	30						
		29	40						
		31	40						
		35	20						
		45	10						
		49	30						
		53	40						
		55	00						
					26	e Solomon Islands O = 08.47.28 7 $\frac{1}{2}$ S 157E Dist.app. 133.5 Bda	10	08	00

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Bermuda-Columbia University Seismograph Station						1959					
Date	Phase	h	m	s	Date	Phase	h	m	s		
May 14	eT Atlantic Ocean	15	57	30	May 19	eLR Eastern Afghanistan O = 15.17.44 33 N 68½ E Dist.app. 101 Bda	16	11	00		
14	eT Atlantic Ocean	20	22	10							
15	eLR Near Coast of Mexico O = 07.49.30 14 N 93 W H about 100 km Dist.app. 32 Bda	08	04	00	20	1P IS eLQ South Pacific Ocean O = 00.50.03 23 S 114 W Dist.app. 73 Bda	01	01	30		
15	eLR Oaxaca Mexico O = 14.42.48	14	59	00	20	eSKS ePS eSS eSSS eLR Kurile Islands Felt at Kushiro O = 19.35.03 44½ N 149 E Dist.app. 97 Bda	19	59	12		
15	eP eS eLQ eT Lesser Antilles O = 18.37.47 17½ N 63 W Dist.app. 13 Bda	18	40	45			20	01	16		
16	e Alaska O = 04.58.25	05	30	00			06	50			
16	ePKP 1PP eSKKS ePS ePPS eSS eLR New Britain Felt at Karoola, Rabaul & Taliligap O = 06.16.23 4½ S 153½ E H about 60 km Mag. 63/4 Dist.app. 135 Bda	06	35	25	21	eS eLR Fox Islands Aleutian Islands O = 06.51.40 52½ N 170½ W Dist.app. 75 Bda	07	12	36		
18	eT Atlantic Ocean	17	57	40			32	00			
18	eT Atlantic Ocean	18	34	30	21	1P ePPP IS eScS eSS eLQ eLR Northern Chile- Argentina Border H about 60 km O = 11.34.23 28 S 69 W Mag. 6 Dist.app. 61 Bda	11	44	28		
19	eLQ Atlantic Ocean	07	21	30			12	03	00		
					21	eLR Western Nevada O = 17.51.40 39½ N 118 W Mag 43/4(Berk) Dist.app. 43.5 Bda	18	18	00		

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Bermuda-Columbia University Seismograph Station						1959					
Date	Phase	h	m	s	Date	Phase	h	m	s		
May 23	eLR Near Coast of Venezuela O = 09.55.29 10½ N 63 W Dist.app. 22 Bda	10	06	00	May 26	eTmax (Cont.) Leeward Islands O = 05.27.36 17 N 61 W Dist.app. 15 Bda	46	50			
24	eP IS eLQ eLR eT eTmax Virgin Islands Felt at San Juan and St. Thomas O = 00.09.29 19½ N 64½ W Dist.app. 12½ Bda	00	12	22	26	eP eS West Indies	18	13	45		
24	1P ePP ePcP IS ePcS eLR Oaxaca Mexico 5 killed, 10 injured & minor property damage Felt also at Mexico City O = 19.17.40 17½ N 97 W H about 100 km. Mag. 63/4-7 Dist.app. 32.5 Bda	19	24	05	27	eP eS eLR West Indies	04	15	14		
25	eP	10	27	10	27	eL South of Honshu, Japan O = 04.51.45 33 N 141 E Dist.app. 109 Bda	05	56	00		
25	eLR	11	16	00	28	eT	04	39	00		
26	e eLR Ryukyu Islands Region O = 04.13.01 27½ N 126½ E H about 100 km Mag. 6½-63/4 Dist.app. 119 Bda.	04	43	20	29	e eLR	05	01	40		
26	1P e IS eLQ eLR eT (Cont.)	05	31	25	29	1PKP 1PKP 1PKS 1PKS ePPS eScSPKP eSS eLR Interpretation Fair New Hebrides Islands O = 10.42.48 H about 100 km 19 S 169½ E Dist.app. 130 Bda	11	01	47		
					29	eLR Mariana Islands O = 17.52.42 21½ N 145½ E Dist.app. 118 Bda	18	54	00		
					29	eLR	21	30	00		
					30	eLR	12	53	00		
					31	1P eS eLR Cayman Islands (Cont.)	05	40	55		
							44	46			
							45	30			

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Bermuda-Columbia University Seismograph Station 1959

Date	Phase	h	m	s	Date	Phase	h	m	s
May 31 (Cont.)	0 = 05.36.25 20 N 80 W Dist.app. 19 Bda				June 2 (Cont)	Off South Coast of Minahasa, North Celebes 0 = 01.56.32 0 123 $\frac{1}{2}$ E H about 200 km Dist.app. 146			
31	1PKP ePP ePKS ePPS eLR Solomon Islands 0 = 09.28.09 6 $\frac{1}{2}$ S 155 E Mag 6 $\frac{1}{2}$ Dist.app. 134 Bda	09	47	20	2	eLR Tonga Islands Region 0 = 02.23.12 25 S 176 W Dist.app.120 Bda	03	42	00
31	eLR Romania 0 = 12.15.51 46 $\frac{1}{2}$ N 27 E Dist.app. 68.5 Bda	12	56	00	2	iP Chile-Argentina Border 0 = 05.42.26 43 S 72 W H about 150 km Dist.app.76 Bda	05	54	00
31	eLR North Western Iran 0 = 13.01.44 37 $\frac{1}{2}$ N 49 E Dist.app. 88 Bda	13	58	00	2	eLR Batan Islands Region 0 = 04.57.18 21 N 121 $\frac{1}{2}$ E Dist.app. 126 Bda	06	00	00
31	eLR Queen Charlotte Islands Region 0 = 15.01.10 51 N 130 W Dist.app. 51 Bda	15	26	00	3	ePPP eS eSS eL Near West Coast of Columbia Felt from PoPayan to Medellin 0 = 03.43.42 4 N 77 W Dist.app. 31 Bda	03	50 54 56 58	45 20 40 00
31	eLR	17	03	00					
31	eLR	19	03	00					
June 1	eLR Solomon Islands 0 = 17.07.23 6 $\frac{1}{2}$ S 155 $\frac{1}{2}$ E H about 100 km Dist.app. 134 Bda	18	11	00	3	eS eSS eLR Fox Islands Aleutian Islands 0 = 05.43.28 52 $\frac{1}{2}$ N 170 W Dist.app. 74 Bda	06	04 09 19	10 10 00
2	eLR Near Coast of Kyushu, Japan Felt at Kagoshima & Myazaki 0 = 00.47.17 31 $\frac{1}{2}$ N 131 $\frac{1}{2}$ E Dist.app. 114 Bda	01	45	00	3	eLR Near East Coast of Kamchatka 0 = 08.36.04 55 $\frac{1}{2}$ N 163 E Dist.app. 84 Bda	09	21	00
2	iPKP (Cont.)	02	16	00					

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Bermuda-Columbia University Seismograph Station 1959

Date	Phase	h	m	s	Date	Phase	h	m	s
June 4	eL Near Coast of Costa Rica 0 = 01.57.49 9 N 84 $\frac{1}{2}$ W Dist.app. 30.5 Bda	02	10	00	June 14 (Cont)	Southwestern Bolivia 1 killed and minor damage in Northern Chile 0 = 00.11.57 20 $\frac{1}{2}$ S 68 W H about 100 km Mag 7 $\frac{1}{2}$ -7 $\frac{1}{2}$ Dist.app. 54 Bda			
5	eP eS eLR Near Coast of Nicaragua depth about 100 km 0 = 20.37.15 12 N 86 $\frac{1}{2}$ W Dist.app. 30 Bda	20	43	10	16	eLQ eLR Off Coast of Chiapas, Mexico 0 = 08.02.05 15 N 93 $\frac{1}{2}$ W H about 60 km Dist.app. 32 Bda	08	14	00
6	eL Near Coast of Chiapas, Mexico 0 = 11.28.13 Dist.app. 31 Bda	11	44	00	16	eLR Off Coast of Oaxaca, Mexico 0 = 12.45.55 15 $\frac{1}{2}$ N 99 $\frac{1}{2}$ W Dist.app. 36 Bda	13	02	00
7	eS eScS eLQ eLR Atlantic Ocean 0 = 13.39.38 1 N 18 W Dist.app. 55 Bda	13	57	00	18	e eL Pacific Ocean 0 = 06.50.45 55 S 129 W Dist.app. 102 Bda	07	24	00
7	eT	14	47	30					
7	e	17	11	00	18	iP ePP iS eSS eLQ eLR Near East Coast of Kamchatka 0 = 15.31.25 54 N 160 E Mag 6 $\frac{1}{2}$ -6 $\frac{1}{2}$ Dist.app. 87 Bda	15	44 47 54 00 06 11	10 00 36 16 30 00
9	eS eSS eLR About 600 miles Southwest of Bouvet Islands 0 = 23.10.38 58 S 9 $\frac{1}{2}$ W Dist.app. 100.5 Bda	23	36	12					
14	iP iPP ePP iS iPS eScS eSS eLQ eLR (Cont)	00	21 21 23 28 29 30 31 33 36	05 30 25 28 05 30 38 00 00	19	eP ePP eS eLR South of Panama 0 = 01.37.51 6 N 82 $\frac{1}{2}$ W Dist.app. 32 Bda	01	44 45 49 52	12 00 20 00

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Bermuda-Columbia University Seismograph Station 1959

Date	Phase	h	m	s	Date	Phase	h	m	s
May 31 (Cont.)	0 = 05.36.25 20 N 80 W Dist.app. 19 Bda				June 2 (Cont)	Off South Coast of Minahasa, North Celebes 0 = 01.56.32 0 123 $\frac{1}{2}$ E H about 200 km Dist.app. 146			
31	1PKP ePP ePKS ePPS eLR Solomon Islands 0 = 09.28.09 6 $\frac{1}{2}$ S 155 E Mag 6 $\frac{1}{2}$ Dist.app. 134 Bda	09	47	20	2	eLR Tonga Islands Region 0 = 02.23.12 25 S 176 W Dist.app.120 Bda	03	42	00
31	eLR Romania 0 = 12.15.51 46 $\frac{1}{2}$ N 27 E Dist.app. 68.5 Bda	12	56	00	2	iP Chile-Argentina Border 0 = 05.42.26 43 S 72 W H about 150 km Dist.app.76 Bda	05	54	00
31	eLR North Western Iran 0 = 13.01.44 37 $\frac{1}{2}$ N 49 E Dist.app. 88 Bda	13	58	00	2	eLR Batan Islands Region 0 = 04.57.18 21 N 121 $\frac{1}{2}$ E Dist.app. 126 Bda	06	00	00
31	eLR Queen Charlotte Islands Region 0 = 15.01.10 51 N 130 W Dist.app. 51 Bda	15	26	00	3	ePPP eS eSS eL Near West Coast of Columbia Felt from PoPayan to Medellin 0 = 03.43.42 4 N 77 W Dist.app. 31 Bda	03	50	45
31	eLR	17	03	00					
31	eLR	19	03	00					
June 1	eLR Solomon Islands 0 = 17.07.23 6 $\frac{1}{2}$ S 155 $\frac{1}{2}$ E H about 100 km Dist.app. 134 Bda	18	11	00	3	eS eSS eLR Fox Islands Aleutian Islands 0 = 05.43.28 52 $\frac{1}{2}$ N 170 W Dist.app. 74 Bda	06	04	10
2	eLR Near Coast of Kyushu, Japan Felt at Kagoshima & Myazaki 0 = 00.47.17 31 $\frac{1}{2}$ N 131 $\frac{1}{2}$ E Dist.app. 114 Bda	01	45	00	3	eLR Near East Coast of Kamchatka 0 = 08.36.04 55 $\frac{1}{2}$ N 163 E Dist.app. 84 Bda	09	21	00
2	1PKP (Cont.)	02	16	00					

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Bermuda-Columbia University Seismograph Station 1959

Date	Phase	h	m	s	Date	Phase	h	m	s
June 4	eL Near Coast of Costa Rica 0 = 01.57.49 9 N 84 $\frac{1}{2}$ W Dist.app. 30.5 Bda	02	10	00	June 14 (Cont)	Southwestern Bolivia 1 killed and minor damage in Northern Chile 0 = 00.11.57 20 $\frac{1}{2}$ S 68 W H about 100 km Mag 7 $\frac{1}{2}$ -7 $\frac{1}{2}$ Dist.app. 54 Bda			
5	eP eS eLR Near Coast of Nicaragua depth about 100 km 0 = 20.37.15 12 N 86 $\frac{1}{2}$ W Dist.app. 30 Bda	20	43	10	16	eLQ eLR Off Coast of Chiapas, Mexico 0 = 08.02.05 15 N 93 $\frac{1}{2}$ W H about 60 km Dist.app. 32 Bda	08	14	00
6	eL Near Coast of Chiapas, Mexico 0 = 11.28.13 Dist.app. 31 Bda	11	44	00	16	eLR Off Coast of Oaxaca, Mexico 0 = 12.45.55 15 $\frac{1}{2}$ N 99 $\frac{1}{2}$ W Dist.app. 36 Bda	13	02	00
7	eS eScS eLQ eLR Atlantic Ocean 0 = 13.39.38 1 $\frac{1}{2}$ N 18 W Dist.app. 55 Bda	13	57	00	18	e eL Pacific Ocean 0 = 06.50.45 55 S 129 W Dist.app. 102 Bda	07	24	00
7	eT	14	47	30					
7	e	17	11	00	18	iP ePP iS eSS eLQ eLR Near East Coast of Kamchatka 0 = 15.31.25 54 N 160 E Mag 6 $\frac{1}{2}$ -6 $\frac{1}{2}$ Dist.app. 87 Bda	15	44	10
9	eS eSS eLR About 600 miles Southwest of Bouvet Islands 0 = 23.10.38 58 S 9 $\frac{1}{2}$ W Dist.app. 100.5 Bda	23	36	12					
14	iP iPP ePP iS iPS eScS eSS eLQ eLR (Cont)	00	21	05	19	eP ePP eS eLR South of Panama 0 = 01.37.51 6 N 82 $\frac{1}{2}$ W Dist.app. 32 Bda	01	44	12
			21	30					
			23	25					
			28	28					
			29	05					
			30	30					
			31	38					
			33	00					
			36	00					

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Bermuda-Columbia University Seismograph Station						1959			
Date	Phase	h	m	s	Date	Phase	h	m	s
June 19	e	20	53	16	June 26	eLR	21	00	
	eLR		55	00	(Cont)	Interpretation Fair			
	Gulf of California					About 1000 miles			
	0 = 20.34.40					Southwest of			
	27½ N 111 W					Galapagos Islands.			
	Dist.app. 40 Bda					0 = 03.55.32			
20	1P	16	47	10		6 S 107 W			
	1S		50	50		Dist.app. 56 Bda			
	eSS		51	20	27	1PKP	19	23	16
	eLR		52	00		1PPKP		23	55
	eT	17	07	35		1PP		25	18
	eTmax		07	50		1PPP		25	48
	Atlantic Ocean					1PKS		26	16
	0 = 16.42.25					eSKS		30	10
	32 N 40 W					eSKKS		31	52
	Dist.app. 21 Bda					1PS		35	10
22	eLR	14	44	30		ePPS		36	24
	South Atlantic ?					eScSPKP		38	16
23	eS	14	49	36		eSKKS		40	10
	eSS		53	10		eSS		42	35
	eLR		56	00		eSSS	20	03	00
	Western Nevada					eLR			
	Minor damage at					South of			
	Genoa & Schurz					Kermadec Islands			
	Also felt in					Felt from East Cape to			
	Eastern California					Wellington			
	0 = 14.35.00					depth about 100 km			
	39.05 N 118.49 W					0 = 19.04.27			
	Mag 6.1					33 S 179 W			
	Dist.app. 45 Bda					Mag 63/4			
24	eLR	05	25	00	28	1P	08	13	16
	Near East Coast of					eLQ		18	00
	Kamchatka					Cayman Islands			
	0 = 04.24.22					0 = 08.08.40			
	54 N 160 E				28	eLR	18	52	00
	Dist.app. 87 Bda					Gulf of California			
25	1P	06	54	15	28	1PKP	20	03	22
	1PP		55	33		ePKS		07	27
	eS	07	00	10		ePP		08	00
	eLR		04	00		eLR ¹		57	00
	South of Iceland					eLR ²	21	22	00
	0 = 06.46.55					Sawoe Sea			
	62 N 27½ W					0 = 19.43.22			
	Dist.app. 38 Bda					9½ S 122½ E			
25	eLR	15	37	00		Dist.app. 156 Bda			
26	eP	04	04	32	29	1PP	07	38	03
	1P		05	00		1PKS		39	01
	eS		12	48		eSKS		43	16
	(Cont.)					(Cont)			

12

Bermuda-Columbia University Seismograph Station						1959			
Date	Phase	h	m	s	Date	Phase	h	m	s
June 29	ePFS		50	20	July 3	eSSS	05	46	20
(Cont)	eScSPKP		51	28		eLR		56	00
	eSKSSKS		57	40		Kodiak Islands Region felt			
	eLR	08	18	00		0 = 05.21.13			
	Solomon Islands					58½ N 152 W			
	0 = 07.16.07					Dist.app. 63 Bda			
	7 S 155½ E				3	eP	18	11	36
	Mag 6-61/4					1PKP		14	58
	Dist.app. 134 Bda					1PP		16	42
30	eP	22	47	50		ePKS		18	15
	eS		51	40		ePPP		20	10
	eLR		54	00		eSKKS		23	50
	Northwestern Venezuela					ePS		26	58
	1 killed, several					ePPS		28	30
	buildings damaged at					e		29	28
	Aricagua					eSS		34	35
	0 = 22.42.02					eSKSSKS		36	45
	8½ N 71½ W					eSSS		38	25
	H about 60 km					eLQ		48	00
	Dist.app. 26 Bda					eLR		52	00
July 1	eP	01	16	10		New Hebrides Region			
	eS		18	20		0 = 17.55.10			
	eLQ		19	00		16 S 173 E			
	eLR		20	00		Mag 6½			
	eT		29	40		Dist.app. 126 Bda			
	eTmax		30	10	4	eLR	03	17	00
	Virgin Islands Region					Near Coast of			
	Felt at San Juan					Nicaragua			
	0 = 01.13.03				6	1P	09	19	23
	19 N 65 W					1PP		21	22
	H about 100 km					e		22	31
	Dist.app. 13 Bda					1S		26	42
1	eS	01	34	34		1SS		28	00
	eLQ		35	00		1SS		30	00
	eT		46	20		Interpretation Fair			
	Virgin Islands Region					Chaco Province			
1	eSKS	02	51	24		Argentina			
	eSKKS		52	44		0 = 09.10.17			
	ePS		55	20		26½ S 61 W			
	eSS	03	02	05		H about 600 km			
	Interpretation doubtful					Mag 6 3/4			
	Bonin Islands Region					Dist.app. 60 Bda			
	Felt in Japan				6	1P	09	32	32
	0 = 02.27.46					1PP		34	31
	28 N 139½ E					1S		39	52
	H about 550 km					1SS		41	23
	Mag 6					eSS		43	00
	Dist.app. 115 Bda					1		47	30
2	eLR	20	12	00		Interpretation Fair			
	eT		36	20		Chaco Province			
						Argentina			
						(Cont)			

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Bermuda-Columbia University Seismograph Station						1959					
Date	Phase	h	m	s	Date	Phase	h	m	s		
July 6	O = 09.23.27 (Cont) 26½ S 61½ W H about 600 km Mag 6 3/4 Dist.app. 60 Bda				July 11	eLR Kurile Islands O = 18.23.00 4¼ N 148½ E Dist.app. 97.5 Bda	19	17	00		
9	eS eL Off Coast of Peru O = 02.32.40 20 S 72 W Dist.app. 53 Bda	02	49	18	12	eL Fiji Islands Region O = 00.24.22 19½ S 177½ W H about 400 km Dist.app. 119 Bda	01	21	00		
9	iP iPP iPcP iPP i iS iPS eSCS eSS eLR Chile-Bolivia Border O = 16.05.18 20½ S 68 W H about 100 km Mag 6 3/4 Dist.app. 54 Bda	16	14	23	13	e Sumbawa Islands Region O = 04.36.00	05	36	00		
10	eP ePP eS eLQ eLR Chile-Bolivia Border O = 04.11.40 19 S 69 W Dist.app. 52½ Bda	04	20	45	13	iP iS eSS eLR Andreanof Islands Aleutian Islands O = 12.28.45 52 N 172½ W Mag 6½ Dist.app. 76 Bda	12	40	27		
10	i Explosion	22	53	46	14	eS eLR Fox Islands Aleutian Islands O = 08.40.48 51½ N 172 W Dist.app. 76 Bda	09	02	10		
11	eLR New Hebrides Islands O = 04.51.30 18½ S 169 E Dist.app. 130 Bda	05	56	00	14	iPKP Near North Coast of Celebes O = 22.31.22 ½ N 120 E Dist.app. 146 Bda	22	51	05		
11	iPKP eLR Indian Ocean O = 12.01.39 37 S 79 E Mag 6½-6½ Dist.app. 150 Bda	12	21	39	16	eLR Andreanof Islands Region Aleutian Islands O = 15.17.27 50½ N 177 W Dist.app. 78.5 Bda	16	04	00		
					18	eLR Off Coast of Vancouver, B.C. O = 12.18.25 50½ N 130 W Dist.app. 52 Bda	12	44	00		

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Bermuda-Columbia University Seismograph Station						1959					
Date	Phase	h	m	s	Date	Phase	h	m	s		
July 18	iPKP iPP iPKS iPPP eSKS eSKKS e iPS iPPS iScSPKP eSS eSKSSKS eLQ Luzon, P.I. felt O = 19.54.57 15½ N 120½ E H about 150 km Mag 6½-6 3/4 Dist.app. 131 Bda	20	13	56	July 20	6 S 111 E (Cont) H about 500 km Dist.app. 153 Bda	19	35	00		
19	iPKP iPP e eLR Sunda Strait O = 03.42.02 6½ S 105 E Dist.app. 152 Bda	04	01	56	20	eLQ eT eTmax eLQ eT eTmax	19	51	20		
19	iP iPP iPcS iS eSS e eSS eSSS eLR Peru. Felt in Northern Chile O = 15.06.10 15 S 70½ W h about 200 km Mag 7 Dist.app. 54 Bda	15	14	28	21	ePP ePKS eScSPKP eSS eLR New Hebrides Islands O = 07.43.13 14½ S 167½ E Mag 6½ Dist.app. 129 Bda	08	04	32		
20	i i i e e e Near North Coast of Java O = 02.41.04 (Cont)	03	00	00	21	iP iS eLQ eLR Near Coast of Oaxaca, Mexico O = 12.29.05 16 N 98 W Mag 6 Dist.app. 35 Bda	09	21	02		
					21	iP ePP iS eLQ eLR Near Coast of Oaxaca, Mexico O = 12.29.05 16 N 98 W Mag 6 Dist.app. 35 Bda	12	36	01		
					22	eL Near North Coast of Java O = 02.41.04 (Cont)	03	33	00		

Bermuda-Columbia University Seismograph Station					1959				
Date	Phase	h	m	s	Date	Phase	h	m	s
July 22	eP	04	58	23	July 23	eLR	03	58	00
	ePP		59	41					
	eS	05	03	53	23	e	08	45	00
	eLR		09	00		Near Coast of Oregon			
	O = 04.51.30					O = 08.15.12			
	15½ N 97½ W					4¼ N 124½ W			
	Off Coast of Oaxaca, Mexico					Dist.app. 49 Bda			
	Dist.app. 35 Bda								
22	eP	16	00	45	23	e PKP	15	16	12
	ePP		02	54		ePS		27	16
	eS		06	13		eSS		34	49
	eLR		11	00		eLR		55	00
	Near Coast of Oaxaca, Mexico					Interpretation Fair			
	O = 15.53.53					Tonga Islands Region			
	15½ N 97½ W					O = 14.56.45			
	Dist.app. 35 Bda					2¼ S 176 W			
						H about 60 km			
						Mag 5 3/4			
						Dist.app. 120 Bda			
22	1P	19	36	06	23	eLR	17	38	00
	1PP		38	21					
	e		42	38	24	1P	01	31	57
	1SKS		46	00		1PP		33	57
	1		50	05		1S		38	59
	eSS		52	13		eSS		42	30
	eSSS		55	44		eLQ		45	00
	e		58	25		eLR		46	00
	Sea of Okhotsk					Surface waves (LR) last for			
	O = 19.24.17					a couple of hours			
	53 N 153 E					Off Coast of Northern California. Felt in			
	H about 650 km					Humboldt County			
	Mag 6½					O = 01.23.09			
	Dist.app. 90 Bda					41.08 N 125.18 W			
						Mag 5-8			
						Dist.app. 49 Bda			
22	1PKP	23	21	46	24	eLR	04	30	00
	ePP		24	10		Off Coast of California			
	ePKS		25	21		O = 03.35.24			
	ePS		34	30		41 N 125½ W			
	eSS		42	20		Dist.app. 49 Bda			
	eSKSSKS		43	30	24	ePP	23	20	20
	eLQ	00	00	00		eSKS		26	40
	eLR		07	00		ePS		28	15
	New Britain felt					eSS		34	30
	O = 23.02.27					eLQ		40	40
	5 S 152½ E					Sandwich Islands			
	H about 60 km					Dist.app. 93 Bda			
	Dist.app. 136 Bda					O = 23.03.08			
						56½ S 28½ W			
23	eLR	01	00	00					
	New Britain Felt at Rabaul								
	O = 00.04.49								
	5 S 152½ E								
	Dist.app. 136 Bda								

Bermuda-Columbia University Seismograph Station					1959				
Date	Phase	h	m	s	Date	Phase	h	m	s
July 25	eLQ	18	15	00	Aug. 3	eS		13	48
	eT		33	40		eT		22	37
	South Atlantic					South Carolina			
						Slight damage also felt in Georgia			
27	e		05	43	30				
	About 900 miles West of Galapagos Islands					O = 06.08.30			
	O = 05.27.45					33 N 79½ W			
	Dist.app. 13 Bda					Dist.app. 13 Bda			
27	e		06	42	57	6	1		18
	eLR			49	00		1		03
	Possibly close to Galapagos Islands						1		08
						High frequency signals - possibly local explosions			
31	e		06	19	00	7	eS		11
	New Britain						eSS		09
	O = 04.59.23						eLQ		17
	5 S 152½ E						Kodiak Islands Region		
	Dist.app. 135.5°Bda						O = 10.43.32		
							56 N 154 W		
							Mag 5 3/4		
							Dist.app. 64 Bda		
Aug. 1	e		01	52	30	7	eS		22
							eLQ		11
							eLR		19
							Kodiak Islands Region		
							O = 21.45.26		
							56½ N 154 W		
							Mag 5		
							Dist.app. 64 Bda		
1	eP		13	26	20	8	eP		01
	eS			28	30		ePP		03
	eT			39	48		eS		10
	eTmax			40	15		eSS		16
	13°-14° Caribbean						eLQ		21
							eLR		25
1	eP		15	43	39		Near East Coast of Kamchatka		
	eS			45	39		O = 00.47.38		
	eT			57	13		55 N 162½ E		
	eTmax			57	46		Mag. 6½		
	13 -14° Caribbean						Dist.app. 85 Bda		
2	eP		20	33	06	9	eLR		05
	eS			35	20				57
	eLQ			35	40	9	ePKS		20
	eT			46	42		ePPS		21
	About 150 miles North of Puerto Rico						eLR		36
	O = 20.29.55						Solomon Islands		
							O = 20.29.28		
							10 S 161 E		
							H about 100 km		
							Dist.app. 132 Bda		
3	eP		06	11	39				
	(Cont)								

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Bermuda-Columbia University Seismograph Station				1959			
Date	Phase	h	m s	Date	Phase	h	m s
Aug. 20	eLR	10	06 00	Aug. 24	eSS	10	24
	New Britain			(Cont)	eSSS	14	50
20	eSS	13	04 00	e	29	16	
	eLR		30 00	eL	32	00	
	Indian Ocean			eLR	37	00	
	O = 12.20.08			Solomon Islands			
	38½ S 78 E			O = 21.30.46			
	Dist.app. 149 Bda			10½ S 161 E			
20	eL	19	31 00	Mag 7			
	Hebgen Lake			Dist.app. 132.5 Bda			
	Aftershock felt			(LR waves lost for several hrs.)			
	O = 19.11.27			25	eP	12	34 26
	45 N 111 W			eL		57	00
	Dist.app. 38 Bda			Northern Chile			
21	e	08	23 23	25	eLR	14	45 00
	e		26 00	Solomon Islands			
	e		40 00	O = 13.40.06			
	e		51 30	6½ S 155 E			
	e		55 36	Dist.app. 134.5 Bda			
	eL	09	09 00	26	1P	08	31 45
	eLR		25 00	1PP		32	34
	Indian Ocean			i		33	44
	South of Australia			eS		36	40
	O = 08.03.15			i		37	42
	50½ S 139½ E			eLQ		38	00
	Mag 5 3/4-6			eLR		40	00
	Dist.app. 154 Bda			Vera Cruz, Mexico			
23	eLR	22	44 00	20 killed, many injured and			
	Mediterranean Sea			extensive damage throughout			
	North of Spanish Morocco			Tehuantepec Isthmus			
	Felt at Melilla			O = 08.25.30			
	O = 22.21.30			18 N 94½ W			
	35½ N 3 W			Mag 6 3/4			
	Dist.app. 51½ Bda			Dist.app. 31 Bda			
24	eLR	16	48 00	26	eP	10	36 40
	Solomon Island			ePP		38	36
	Foreshock			eS		44	00
	O = 15.41.40			eSS		47	35
	10½ S 161½ E			eLQ		50	00
	Dist.app. 132½ Bda			eLR		52	00
24	ePKP	21	49 46	Queen Charlotte Islands			
	ePP		52 32	Region			
	ePKS		53 36	O = 10.27.41			
	ePPP		55 48	51 N 132 W			
	eSKS		57 32	Dist.app. 52 Bda			
	eSKKS		58 30	26	eLR	13	18 00
	eSKKS		59 24	Queen Charlotte Islands			
	ePS	22	02 40	Region			
	ePPS		04 26	26	eLR	20	28 00
	eScSPKP		05 48				
	(Cont)						

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Bermuda-Columbia University Seismograph Station				1959			
Date	Phase	h	m s	Date	Phase	h	m s
Aug. 27	eLR	10	02 00	Aug. 29	eSSS		38 00
				(Cont)	eLQ		45 00
27	eP	13	48 57	eLR			50 00
	eS		59 00	Lake Baikal, USSR			
	e	14	02 50	O = 17.03.10			
	e		09 00	52 N 106½ E			
	eLR		12 00	Mag 6½-6 3/4			
	Off Coast of			Dist.app. 95 Bda			
	Southern Chile			30	eLR		03 50 00
	O = 13.36.50						
	45 S 80½ W			30	ePKP		22 05 04
	Dist.app. 79 Bda			ePKP			06 24
28	eLR	00	56 00	eSS			28 44
	Northern Burma			eLR			54 00
	O = 23.53.10			Indian Ocean			
	25 N 96 E			O = 21.45.01			
	Dist.app. 119.5 Bda			36½ S 78½ E			
28	eLR	03	40 00	Dist.app. 150 Bda			
	Solomon Islands			Sept. 1	i		01 00 17
28	e	07	54 00	e			10 20
	eLQ		57 50	eLR			15 00
	eLR	08	00 00	Peru			
28	eLR	11	52 00	Felt at Hoancayo			
				O = 00.52.04			
28	eP	12	17 44	11 S 74½ W			
	e		21 16	Dist.app. 46 Bda			
	eL		30 00	1	eLR		05 51 00
	Central Alaska						
	Felt at College,			1	eLQ		07 40 00
	Fairbanks and			eLR			42 00
	Matanuska			1	1P		10 52 40
	O = 12.07.44			1S			54 50
	63½ N 149 W			eLQ			55 30
	Dist.app. 60 Bda			eLR			56 20
28	ePKS	16	14 50	North of Puerto Rico			
	eLR		58 00	O = 10.49.43			
	New Hebrides Islands			20 N 64½ W			
	Felt at Paama and Vate			Dist.app. 125 Bda			
	O = 15.52.10			1	1P		11 49 45
	17 S 167 E			1S			51 54
	Dist.app. 131 Bda			Puerto Rico ?			
29	e	03	38 17	1	1P		11 49 44
	eLR		04 27 00	1S			51 42
	Solomon Islands Region			eLR			53 20
29	1P	17	16 39	eT			12 06 18
	1PP		20 28	Puerto Rico aftershock			
	1SKS		27 12				
	1PS		29 16				
	eSS		34 10				
	(Cont)						

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Bermuda-Columbia University Seismograph Station				1959						
Date	Phase	h	m	s	Date	Phase	h	m	s	
Sept. 15	Kermadec aftershock				Sept. 17	El Salvador				
(Cont)	Felt on Rabaul				(Cont)	H about 60 km				
	O = 05.59.42					Dist.app. 29½ Bda				
	28½ S 177 W				Sept. 17	ePcP	22	24	19	
	Mag. 6½-6 3/4					eS		29	08	
	Dist.app. 122 Bda					eSS		31	44	
15	ePKP	11	25	08		eLR		35	00	
	e		31	08		Gulf of California				
	ePKKP		35	12		O = 22.14.40				
	ePPS		38	09		30½ N 114 W				
	Fiji Islands Region					Mag 5½				
	O = 11.05.33					Dist.app. 42.5 Bda				
	21½ S 179½ W				18	1P	12	14	42	
	H about 600 km					1PP		18	36	
	Mag 6½					eSKS		25	11	
	Dist.app. 121½ Bda					ePS		27	11	
16	eL	03	35	00		eSS		32	32	
	Kermadec ?					eLR		45	00	
16	eL	11	07	00		Sandwich Islands				
	Kermadec ?					O = 12.01.11				
16	eSKS	16	23	08		57½ S 24 W				
	e		26	44		Dist.app. 94.5 Bda				
	eSS		34	22	20	1S	06	27	20	
	eLR		54	00		eLR		37	00	
	Interpretation poor					Pacific Ocean				
	Kermadec Aftershock					North of Easter Islands				
	O = 15.57.03					O = 06.07.59				
	28½ S 176 W					13½ S 111½ W				
	Mag 5 3/4-6					Dist.app. 65 Bda				
	Dist.app. 122 Bda				21	eLR	03	15	00	
17	eLR	08	10	00		New Guinea				
17	eSKS	15	02	12	21	eLQ	16	48	30	
	ePS		06	50		Southwestern Alaska				
	eSS		13	44	24	eLQ	10	57	30	
	eLR		36	00		25	1PKP	02	55	53
	Interpretation fair					1PP		57	40	
	Kermadec aftershock					1SKS	03	03	00	
	O = 14.36.11					eSKS		05	00	
	28½ S 176 W					ePPS		09	16	
	Mag 5 3/4-6					eScSPKP		11	00	
	Dist.app. 122 Bda					e		13	00	
17	1P	21	30	28		eSS		14	20	
	ePP		31	30		e		15	50	
	eS		35	20		eSSS		20	10	
	eLQ		37	00		e		23	30	
	eLR		38	00		eLQ		28	00	
	El Salvador					eLR		36	00	
	1 killed, slight					Near East Coast of				
	damage in southern					Formosa.				
	(Cont)					(Cont)				

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Bermuda-Columbia University Seismograph Station				1959					
Date	Phase	h	m	s	Date	Phase	h	m	s
Sept. 25	Felt at Hong Kong				Oct. 5	Mag 5 3/4-6			
(Cont)	O = 02.36.48				(Cont)	Dist.app. 65 Bda			
	22 N 122 E					(1)			
	Dist.app. 125 Bda					1 PKP	06	04	00
26	1P	08	29	51		(2)			
	1PP		31	51		1 PKP		04	32
	1PPP		32	24		Celebes			
	1S		37	02		O = 05.44.37			
	1SS		40	40		1/2 N 122½ E			
	eLQ		43	20		H about 200 km			
	eLR		44	30		Dist.app. 146 Bda			
	Off Coast of Oregon				7	1P	08	41	30
	O = 08.20.51					ePP		44	15
	43½ N 128½ W					eS		50	16
	Mag 6-6½					eLR	09	02	00
	Dist.app. 50 Bda					Albania			
29	1PP	15	52	28		Felt in Northern Greece			
	1SKS		58	00		O = 08.30.39			
	1SKKS		59	30		41 S 20 E			
	ePS	16	02	20		Dist.app. 66 Bda			
	ePPS		03	48	7	eLR	14	26	00
	eSS		09	33		8 eLR	01	23	00
	eLR		27	00		New Hebrides			
	Kermadec Islands				8 eLR		02	10	00
	O = 15.31.57				8 eLR		03	17	30
	29 S 176½ W					Aleutians			
	Mag 6½-6 3/4				30	ePP	20	47	28
	Dist.app. 121½ Bda					ePKS		48	38
						ePPS		59	30
						eSS	21	05	00
						eL		28	00
						New Hebrides Islands			
						Felt at Port Vila & Vate			
						O = 20.25.58			
						18 S 168 E			
						Mag 6½			
						Dist.app. 130 Bda			
Oct. 5	eLR	12	15	00					
5	1P	18	38	20					
	ePPP		42	34					
	eS		47	00					
	eLQ		54	12					
	eLR		57	00					
	North Polar Regions								
	O = 18.27.47								
	83½ N 112½ E								
	(Cont)								
11	eLR	11	05	00					
	New Ireland								
11	eL	21	14	00					
11	eL	21	57	00					
12	eL	01	21	00					

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Bermuda-Columbia University Seismograph Station						1959				
Date	Phase	h	m	s	Date	Phase	h	m	s	
Oct. 12	eT	02	00	46	Oct. 25	eL	00	33	00	
	e		05	30		Kazakh USSR				
12	1PKP	03	41	24	25	eLR	07	03	00	
	1PP		44	32		Atlantic Ocean North of				
	eSS	04	03	24		The Azores				
	eLR		32	00		O = 06.51.09				
	Near Coast of Sumatra				26	1PP	07	53	48	
	O = 03.21.52					eSKS	08	00	10	
	2 N 98½ E					eSKKS		01	00	
	Dist.app. 142 Bda					ePS		03	00	
15	e	04	47	00		eSS		08	44	
15	1PKP	06	35	23		eSSS		11	42	
	1PP		38	48		eLQ		18	40	
	eSS		57	30		eLR		32	00	
	e	07	15	00		Near East Coast of				
	e		26	00		Honshu, Japan				
	eLR		32	00		O = 07.35.12				
	Celebes					37½ N 142½ E				
	O = 06.15.32					H 60 km				
	1/2 N 120½ E					Mag 6½				
	Mag 6½					Dist.app. 105 Bda				
	Dist.app. 146 Bda				27	eS	06	28	24	
16	1PKP	16	35	00		eSS		32	07	
	Near South Coast of					eLQ		33	00	
	Mindanao, P.I.					eLR		36	00	
	O = 16.14.53					Off Coast of Oregon				
	6 N 125 E					O = 06.12.17				
	Dist.app. 140 Bda					42½ N 127 W				
17	eL	21	00	00		Mag 5-5½				
	Yukon-British					Dist.app. 50 Bda				
	Columbia Border				27	1P	07	06	15	
19	ePP	08	48	25		ePP		10	02	
	eSS	09	05	10		eSKS		16	30	
	eLR		23	00		eS		17	16	
	Kermadec Islands Region					ePS		18	32	
	O = 08.27.21					ISS		23	52	
	27½ S 177 W					1		29	44	
	Mag 6½					eLQ		32	00	
	Dist.app. 122 Bda					eLR		36	00	
19	1P	16	08	46		Kurile Islands				
	e		10	10		O = 06.52.50				
	ePP		12	32		45½ N 151 E				
	IS		19	24		H about 100 km				
	1PS		21	00		Mag 6½				
	eSS		25	32		Dist.app. 95 Bda				
	eLR		37	00		29	eSKS	14	45	51
	Sandwich Islands Region					eSKKS		47	20	
	O = 15.55.30					ePS		50	10	
	54½ S 29 W					ePPS		52	00	
	Dist.app. 92 Bda					eSS		57	00	
						eSSS		15	02	00

(Cont)

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Bermuda-Columbia University Seismograph Station						1959				
Date	Phase	h	m	s	Date	Phase	h	m	s	
Oct. 29	eLR	16	00		Nov. 3	1PKP	10	00	04	
(Cont)	Kermadec Islands					1PKP		00	42	
	Felt on Raoul					1PP		04	17	
	O = 14.19.51					e		10	20	
	29½ S 176½ W					eSKKS		11	56	
	H about 60 km					eSKSP		15	00	
	Mag 5 3/4					eLR		56	00	
	Dist.app. 122 Bda					South of Java				
30	ePP	14	18	32		O = 09.40.05				
	ePS		28	08		10½ S 111 E				
	eLR		57	00		Dist.app. 158 Bda				
	Tonga Islands Region				5	eL	12	52	00	
	O = 13.58.25					New Hebrides Islands Region				
	23½ S 175½ W				5	eL	13	57	00	
	Dist.app. 119 Bda				5	1PKS	18	01	06	
31	ePKP	04	46	30		ePS		10	17	
	ePKP		48	42		eLR		43	00	
	eSKKS		55	32		Solomon Islands				
	ePS		58	00		Felt on Tetepari				
	Interpretation fair					O = 17.38.08				
	Fiji Islands					8½ S 157½ E				
	Felt at Apia					Dist.app. 134 Bda				
	O = 04.27.12				6	1PKS	01	30	26	
	16½ S 178 W					ePS		39	14	
	H about 450 km					ePPS		41	22	
	Mag 6½-6 3/4					eLR		02	17	
	Dist.app. 118 Bda					Solomon Islands Region				
Nov. 2	ePS	09	13	42		O = 01.07.31				
	eLR		40	00		8½ S 157½ E				
	Mariana Islands Region					Dist.app. 134 Bda				
	O = 08.44.01				6	eLR	12	43	00	
	11½ N 144½ E					Tonga Islands				
	H about 60 km					O = 11.43.06				
	Dist.app. 118 Bda					24 S 174½ W				
2	eFKP	20	22	55		Dist.app. 118 Bda				
	ePP		25	37		7	eLR	02	57	00
	ePPS		37	52			Near Coast of Algeria			
	e		52	00			Several killed.			
	eLR	21	04	00			Moderate at Ameur-El Ain,			
	New Britain						Bou-MedFa and Hammals-Righa			
	Felt at Karlai, Pomio,						O = 02.32.07			
	Rabaul and Walindi						36½ N 2½ E			
	O = 20.03.32						Dist.app. 73.5 Bda			
	5½ S 151½ E									
	H about 60 km									
	Mag 6 3/4									
	Dist.app. 137 Bda									
3	e	06	17	40						

(Cont)

27

Bermuda-Columbia University Seismograph Station				1959						
Date	Phase	h	m	s	Date	Phase	h	m	s	
Nov. 7	Tonga Islands				Nov. 15	O = 17.08.41				
(Cont)	O = 22.16.14				(Cont)	37½ N 20½ E				
	23½ S 176 W					Mag 6½-6 3/4				
	Mag 6½					Dist.app. 68 Bda				
	Dist.app. 120 Bda									
8	1P	14	08	44	16	1P	10	30	09	
	1PP		12	52		ePPP		33	00	
	eS		20	20		1S		37	00	
	ePPS		22	16		eSS		40	50	
	eLQ		37	10		eLR		42	00	
	eLR		45	00		Mid Atlantic Ocean				
	Near West Coast of Hokkaido, Japan					O = 10.21.17				
	Felt Mag 6½					1 N 26½ W				
	O = 13.54.55					Mag 6½-6¾				
	44 N 140½ E					Dist.app. 48 Bda				
	Dist.app. 100 Bda				19	1PP	11	31	49	
9	eLQ	00	21	00		ePKS		32	24	
	eLR		29	00		ePPP		34	36	
	Mexico					ePS		41	47	
	O = 00.05.36					ePPS		43	24	
	18½ N 103 W					eSS		49	13	
	Dist.app. 38 Bda					eSSS		54	00	
						eLQ	12	01	00	
						eLR		05	00	
9	eLQ	06	06	00		Near North Coast of New Guinea				
						Slight damage at Lae and Madang				
10	eLQ	18	02	00		O = 11.08.41				
						5½ S 146 E				
10	eL	21	40	00		H about 100 km				
	eLR		50	00		Mag 7				
	Tibet					Dist.app. 141 Bda				
14	eLR	11	43	00						
	Bismarck Sea ?				20	ePP	00	04	38	
15	eLR	11	12	00		eS		09	52	
	Tadzhik UССР-China Border					eSS		13	17	
	O = 10.25.22					eLQ		15	00	
	38½ N 75½ E					eLR		17	00	
	H about 150 km					Off Coast of Oregon				
	Dist.app. 100.5 Bda					O = 23.53.49				
15	1P	17	19	43		43½ N 126½ W				
	1PP		22	00		Dist.app. 50 Bda				
	1S		28	40						
	1SSS		36	00		20	eLQ	19	50	00
	eLR		41	00			Mid Atlantic Ocean			
	LR waves last for several hours						O = 19.29.38			
	Near West Coast of Greece.						1 N 26½ W			
	Felt in Greece and Italy						Dist.app. 47 Bda			
	Several injured at Agrinion, Greece. Slight damage (Cont.)									
						22	eLR	13	58	00
							(New Guinea)			

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Bermuda-Columbia University Seismograph Station				1959						
Date	Phase	h	m	s	Date	Phase	h	m	s	
Nov. 22	ePS	16	54	16	Nov. 28	1P	12	45	06	
	eSS	17	00	25		ePPP		49	00	
	eLR		17	00		1S		53	34	
	South Pacific Ocean					eLQ	13	01	00	
	O = 16.26.34					eLR		04	00	
	54 S 136 W					Chile				
	Dist.app. 105 Bda					O = 12.34.53				
24	e	20	21	44		28½ S 71 W				
	eL		22	50		Mag 6½				
	eT	21	00	50		Dist.app. 62 Bda				
	Atlantic Ocean									
	O = 20.06.35					29	e	20	11	00
	7½ N 37 W						South Pacific Ocean			
	Dist.app. 36 Bda									
26	1PKP	07	26	20		30	eLR	12	04	00
	eSKSP		40	00			China			
	e		44	44						
	eSS		49	12						
	e	08	09	00	Dec. 2	1PKP	09	53	50	
	eLR		12	00		1PKP		54	30	
	Near Coast of Sumatra		20	00		1		55	33	
	O = 07.06.19					e		56	16	
	5½ S 102½ E					ePKS		57	19	
	Mag 6½					1		59	36	
	Dist.app. 151 Bda					1PcSPKP	10	05	20	
						1SKSP		07	36	
26	1PKP	23	29	16		1PPS		10	20	
	1PKP		29	34		1		13	20	
	1PKS		32	28		eSS		16	00	
	e SKS		36	16		e		34	00	
	e SKSP		43	18		eLR		46	00	
	e		47	47		Celebes				
	eSS		52	15		O = 09.34.00				
	eSSS		57	00		1 S 123 E				
	e	00	10	50		Mag 6½-6 3/4				
	e		15	18		Dist.app. 150 Bda				
	e		18	00						
	eLR		21	00		5	eL	08	38	00
	Near Coast of Sumatra						Off Coast of Northern California			
	O = 23.09.23						Felt in Humboldt County			
	5½ S 103 E						O = 08.13.42			
	Mag 6 3/4						40.18 N 125.25 W			
	Dist.app. 151.5 Bda						Mag 5.1			
							Dist.app. 49 Bda			
27	i	15	45	21		7	eL	04	32	00
	Very high frequency signal						Northern Gulf of California			
	Local Explosion									
28	eT	03	09	00		11	eL	02	48	00
28	eLR	03	47	00		14	1PKP	22	09	00
	Fiji Islands Region						Celebes			
							O = 21.49.10			
							1 N 125 E			
							Dist.app. 145 Bda			

Bermuda-Columbia University Seismograph Station					1960				
Date	Phase	h	m	s	Date	Phase	h	m	s
Jan. 30	e	19	08	20	Feb. 8	eP	12	59	14
	e		19	29		IS	13	09	32
	eLR		32	00		ISS		15	32
	Mariana Islands Region					eSSS		19	00
	O = 18.38.10					eLQ		22	00
	22 N 144 E					eLR		30	00
	Dist.app. 119 Bda					Drake Passage			
						O = 12.45.34			
31	ePP	05	27	36		58 S 67 W			
	eSKKS		35	24		Dist.app. 91 Bda			
	ePS		37	36		10	1PKP	00	15 35
	eSS		43	14			1PKP		16 27
	eSSS		46	48		e		17 27	
	eLR	06	01	00		ePP		19 19	
	Near East Coast of					1SKSP		29 32	
	Shikoku, Japan					i		33 00	
	O = 05.08.18					eSS		38 30	
	33 $\frac{1}{2}$ N 134 $\frac{1}{2}$ E					ISSS		44 00	
	Dist.app. 111 Bda					eSSSS		47 30	
						eLQ		55 00	
						e		58 00	
Feb. 1	eL	02	39	00		eLR	01	05	00
						Ceram			
3	eL	11	55	30		O = 23.55.49			
						4 S 128 E			
4	1PKP	04	05	53		Mag 6 $\frac{1}{2}$ -6 3/4			
	1PP		08	44		Dist.app. 149.5 Bda			
	1PKS		09	13		10	eLR	13	00 00
	eSKS		13	46					
	e		15	34		10	eSKS	23	45 22
	1SKKS		16	40			eSKKS		46 30
	1PS		19	22			ePS		49 00
	1PPB		20	44			eSS	00	55 00
	eSS		26	38			eLR		00 15 00
	eLQ		42	40			Samoa Islands Region		
	eLR		50	00			O = 23.19.55		
	New Ireland Region						15 $\frac{1}{2}$ S 173 W		
	O = 03.46.30						Dist.app. 113 Bda		
	4 $\frac{1}{2}$ S 153 $\frac{1}{2}$ E					11	eLR	21	56 00
	Dist.app. 135 Bda						Santa Cruz Islands		
							O = 20.56.08		
4	eLR	10	29	00			11 $\frac{1}{2}$ S 166 $\frac{1}{2}$ E		
	New Ireland Region						Dist.app. 129 Bda		
	Felt at Rabaul-					11	eLR	22	59 00
	Fead Islands								
	Namatani					12	eLR	02	32 00
	O = 09.27.23						New Ireland		
	5 S 154 E						O = 01.29.42		
	H about 100 km						4 $\frac{1}{2}$ S 153 $\frac{1}{2}$ E		
	Dist.app. 134 Bda						Dist.app. 134 Bda		
4	eLR	17	44	00					
5	eLR	06	42	00					
	New Britain Region								

Bermuda-Columbia University Seismograph Station					1960				
Date	Phase	h	m	s	Date	Phase	h	m	s
Feb. 12	eLQ	09	54	00	Feb. 19	eLR	01	15	00
	eT	10	12	08		Caribbean			
						Honduras-El Salvador			
						Border			
	12	eT	10	57 06		19	1P	10	50 08
							1pP		51 06
	13	eLR	08	13 00			i		55 30
							Canary Islands		
							O = 07.55.30		
							27 $\frac{1}{2}$ N 21 $\frac{1}{2}$ W		
							Dist.app. 38 Bda		
	13	eLR	17	30 00			1PPS		03 48
							ISS		08 30
							eLR		26 00
							Hindo Kush		
							Felt in Kashmir,		
							Vally LaHore, Rawalpindi &		
							Walsak, Pakistan		
							O = 10.36.46		
							36 N 70 $\frac{1}{2}$ E		
							H about 200 km		
							Dist.app. 99 Bda		
						22	eLR	01	51 00
							Fiji Islands		
						23	eLR	17	07 00
							eLR		18 04 00
							Solomon Islands		
						24	1PKP	21	56 24
							ePP		59 10
							ePS		22 09 00
							ePPS		11 08
							eSS		18 20
							eSSS		22 20
							e		29 30
							e		37 30
							eLR		39 00
							Solomon Islands		
							Felt at Bruin, Kieta,		
							Noma and Rabaul		
							O = 21.37.04		
							7 $\frac{1}{2}$ S 156 E		
							Mag 6 $\frac{1}{2}$ -6 3/4		
							Dist.app. 134 Bda		
						26	eSKKS	02	38 12
							eSKSP		41 25
							ePPS		43 45
							eLR	03	17 ~
							New Guinea		
							O = 02.08.31		
							1 S 138 E		
							Dist.app. 142 Bda		
						18	eLR	23	10 00
							Aloutian Islands		
							Fox Island		

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Bermuda-Columbia University Seismograph Station				1960					
Date	Phase	h	m	s	Date	Phase	h	m	s
Feb. 26	1P	23	41	26	Mar. 4	e	00	58	16
	18		51	20					
	eSS		56	28	5	1	14	31	18
	eLQ	00	01	40		1		34	40
	eLR		08	00		e		49	30
	Andean of Islands					eLR	15	08	00
	Aleutian Islands					Halmahera Islands			
	Felt on Adak					O = 13.49.18			
	O = 23.29.25					1 N 129 E			
	5 1/2 N 178 W					Mag 6 3/4			
	Mag 6-6 1/2					Dist.app. 144 Bda			
	Dist.app. 78 Bda								
27	1P	08	22	06	8	1PKP	16	52	19
	1S		32	00		1PP		54	29
	eLR		50	20		1PKS		55	42
	Andean of Islands					1PPP		56	45
	Aleutian Islands					1PKKP	17	02	26
	Felt on Adak					1PS		04	12
	O = 08.10.03					ISS		11	40
	5 1/2 N 178 W					ISKSSKS		13	16
	Mag 6-6 1/2					ISSS		15	46
	Dist.app. 78 Bda					New Hebrides Islands			
						Felt at Port-Villa			
29	eLR	00	10	00		O = 16.33.38			
						16 1/2 S 168 1/2 E			
						H about 250 km			
						Mag 7-7 1/2			
						Dist.app. 130 Bda			
29	1PPP	23	51	04	10	1P	00	03	00
	1S		55	39		1		05	50
	eLQ		59	46		1S		09	50
	eLR	00	01	30		eSS		13	38
	eLR		02	00		eLR		14	00
	Morocco -					Southern Peru			
	12,500 killed,					1 killed & 23 injured at			
	25,000 injured and					Arequipa			
	major property damage at					Felt at Arica & Iquique			
	Agadir					O = 23.54.25			
	90% of Talborjit quarters					16 1/2 S 72 1/2 W			
	(70% new buildings and					H about 150 km			
	20% industrial buildings)					Mag 6-6 1/2			
	destroyed					Dist.app. 50.5 Bda			
	O = 23.40.12								
	30 N 9 W								
	Mag 6 1/2								
	Dist.app. 48 Bda								
Mar. 2	1P	00	17	30	10	eL	19	12	00
	e		27	10		Guatemala			
	eLR		29	00					
	Micloacan, Mexico								
	Felt at Mexico City								
	O = 00.10.26								
	19 N 101 1/2 W								
	Dist.app. 36 Bda								

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Bermuda-Columbia University Seismograph Station				1960					
Date	Phase	h	m	s	Date	Phase	h	m	s
Mar. 12	e	20	52	44	Mar. 21	eLR	10	19	00
	e		57	48		Honshu, Japan			
	e		59	49		O = 09.18.22			
	eL		34	00		40 N 143 E			
	New Britain					Dist.app. 103 Bda			
	Felt at Rabaul								
	O = 20.30.39				21	eL	20	12	00
	6 S 152 E					Near North Coast of			
	Mag 6 1/2					Chile			
	Dist.app. 135 1/2 Bda					O = 19.49.00			
						21 S 71 W			
						H about 60 km			
						Dist.app. 55 Bda			
14	i	17	45	30					
	Very high frequency								
	signal - possibly								
	local explosion								
19	eLR	20	27	00	22	eLR	02	04	00
	New Guinea					Mexico			
20	1P	17	21	35	22	eLR	04	15	00
	1PP		25	40					
	1S		33	12					
	iSS		40	15	22	eP	13	28	37
	eSSS		45	20		eS		33	10
	eLR		55	00		Jalisco, Mexico			
	Off Northeast Coast of					O = 13.19.52			
	Honshu, Japan					19 1/2 N 105 W			
	Felt on Northern and					H about 150 km			
	Southern Hokkaido					Mag 5 1/2 - 5 3/4			
	5 ft seismic sea wave at					Dist.app. 39 Bda			
	Miyako								
	O = 17.07.32				22	eLQ	20	36	00
	40 N 143 E					eT		58	04
	Mag 7-7 1/2					eTmax		58	32
	H about 60 km					O = 20.24.45			
	Dist.app. 103 Bda					13 1/2 N 44 1/2 W			
						North Atlantic Ocean			
						Dist.app. 27 Bda			
20	eP	23	33	12	22	e	21	13	10
	eLQ		37	40		Atlantic Ocean			
	eLR		39	00					
	eT		56	14	23	e	00	40	08
	eTmax		56	38		ePP		41	24
	North Atlantic Ocean					ePKS		45	00
	O = 23.28.28					1S		49	24
	17 N 46 1/2 W					ePPS		52	00
	Dist.app. 22 1/2 Bda					eSS		56	41
						eSSS	01	01	35
						eLQ		04	00
						eLR		15	00
21	e	01	00	40		Near East Coast of			
	e		09	00		Honshu, Japan			
	eL		25	00		Felt at Miyako, Morioka, Sakata,			
	Honshu, Japan					Mizusawa and Urakawa			
	O = 00.34.50					O = 00.23.26			
	39 1/2 N 143 E					39 1/2 N 143 E			
	Dist.app. 103 Bda					Mag 6 1/2 - 6 3/4			
						Dist.app. 103 Bda			

