

LAMONT GEOLOGICAL OBSERVATORY

COLUMBIA UNIVERSITY

PALISADES, NEW YORK

I. G. C.

SEISMOLOGICAL BULLETIN

Rio de Janeiro, Brazil

by

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1 January 1959-30 April 1959

## STATION CONSTANTS, INSTRUMENTS AND ABBREVIATIONS

Latitude: 22° 53' 42" South  
Longitude: 43° 13' 24" West  
Elevation: 29 meters

### INSTRUMENTS

One L.G.O.- I.G.Y. vertical seismograph  
To = 15 Tg = 75

Two L.G.O.- I.G.Y. horizontal seismographs  
To = 15 Tg = 75

One L.G.O.- I.G.Y. vertical seismograph  
To = 15 Tg = 7

Two L.G.O.-I.G.Y. horizontal seismographs  
To = 15 Tg = 7

### ABBREVIATIONS

i = sudden beginning of the motion (impetus)

e = gradual beginning of the motion (emersio)

All times are G.C.T.

Epicentral data from U.S. Coast and Geodetic Survey  
preliminary determinations.

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Date	Phase	h	m	s	Remarks
1959					
Jan. 1	eL	02	19	40	
Jan. 1	eLQ	08	14	20	Tonga Is.
	eLR	08	21	40	
Jan 1	eLQ	08	39	30	Fiji Is.
	eLR	08	44	50	
Jan. 1	eLR	13	21	20	
Jan. 2	eRg	10	43	10	
Jan. 3	eLQ	04	30	30	
	eLR	04	35	00	
Jan. 3	eP	11	24	00	Peru
	eS	11	29	07	14½°S 75½°W
	eLQ	11	31	50	Dist. 31.1°
	eLR	11	33	00	USCGS 0 = 11 17 38
Jan 3	eLR	19	08	45	
Jan. 4	e	04	21	15	Java
	eLQ	04	40	30	
	eLR	04	46	10	
Jan. 5	ePP	10	07	35	Loyalty Is.
	ePS	10	17	14	22°S 171½°E
	eSS	10	24	15	Dist. 124.0°
	eLQ	10	38	00	Mag. 6½-6¾
	eLR	10	44	30	USCGS 0 = 09 46 42
Jan. 6	eLR	15	52	15	Java
Jan. 11	eP	07	32	25	Guatemala
	epP	07	33	11	15°N 90°W
	esP	07	33	33	Dist. 59°17'
	ePP	07	34	39	Depth 200 km
	eS	07	40	12	USCGS 0 = 07 22 40
	eSS	07	44	20	
	eSSS	07	47	21	
	eLQ	07	47	56	
	eLR	07	55	43	
Jan. 13	ePKP	01	35	34	Mariana Is.
	ePP	01	40	28	13½°N 146°E
	eLQ	02	14	20	Dist. 167.2°
	eLR	02	35	10	Mag. 6¾
					USCGS 0 = 01 15 25

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2.

Date	Phase	h	m	s	Remarks
1959					
Jan. 13	e	08	43	30	Costa Rica
	eS	08	50	29	9°N 83½°W Dist. 50.6° Depth 100 km USCGS 0 = 08 34 08
Jan 13	eLQ	08	55	20	Aleutians
	eLR	09	01	10	
Jan. 13	eLQ	10	20	45	Chagos Arch.
	eLR	10	26	20	
Jan. 13	eLQ	19	19	20	Peru
	eLR	19	23	10	
Jan. 13	eP	20	41	27	Chile
	eS	20	46	16	34½°S 71°W
	eLR	20	49	10	Dist. 26.9° Depth 100 km USCGS 0 = 20 35 54
Jan. 14	eLQ	07	44	10	
	eLR	07	45	40	
Jan. 14	eLQ	11	26	40	
	eLR	11	29	30	
Jan. 15	ePP	21	39	36	Fiji Is.
	ePPP	21	42	10	25½°S 180°E
	ePS	21	48	22	Dist. 116.2°
	ePSP	21	49	22	Mag. 6½
	e	21	51	42	Depth 500 km
	eSS	21	55	10	USCGS 0 = 21 20 26
Jan. 16	eLQ	01	41	25	
	eLR	01	53	05	
Jan. 16	eLQ	02	30	40	Aleutians
	eLR	02	37	00	
Jan. 16	eLQ	03	02	50	
	eLR(SW)	03	04	45	
Jan. 16	eLQ	17	36	45	Queen Charlotte Is.
	eLR	17	45	50	
Jan. 17	eLR	15	01	50	
Jan. 18	ePKP	15	01	05	New Britain
	eLR	15	52	05	5°S 152½°E Dist. 145.5° USCGS 0 = 14 41 06

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3.

Date	Phase	h	m	s	Remarks
1959					
Feb. 1	eS	04	28	18	Ascension
	eLG	04	30	02	7°S 12½°W
	eLR	04	30	39	Dist. 33.5° USCGS 0 = 04 16 12
Feb. 6	eL	08	38	20	Oaxaca, Mexico
Feb. 6	ePKS	14	56	02	Andreanof Is.
	eL	15	12	15	51°N 175½°W
	eL	15	31	00	Dist. 139.1° Mag. 6 Depth 60 km USCGS 0 = 14 33 02
Feb. 6	eL	21	00	30	
Feb. 6	eL	23	48	10	
Feb. 7	e	09	44	52	Peru
	eS	09	50	56	4°S 81½°W
	eLQ	09	55	10	Dist. 41.5° Mag. 7¼-7½
Feb. 7	eLQ	23	55	10	USCGS 0 = 09 36 51
Feb. 7	eLQ	23	55	10	
	eLR	23	58	40	
Feb. 8	eLQ	01	33	25	North Atlantic
	eLR	01	36	30	
Feb. 9	eLQ	05	38	20	Aleutians
	eLR	05	46	15	
Feb. 9	eLR	14	41	05	
Feb. 9	eLR	15	22	35	
Feb. 11	eS	14	11	58	Oaxaca, Mexico
	eSS	14	16	16	16°N 97°W
	eLR	14	23	10	Dist. 66.1° Mag. 6 USCGS 0 = 13 52 13
Feb. 11	eLQ	20	18	40	Peru
	eLR	20	21	15	
Feb. 11	eLR	22	33	30	Samoa
Feb. 12	eLQ	17	04	50	
Feb. 14	eL	05	36	10	

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Date	Phase	h	m	s	Remarks
1959					
Feb. 15	eP	04	06	51	So. Sandwich
	eS	04	12	46	59½°S 25°W
	eSS	04	15	38	Dist. 38.8°
	eLR	04	18	05	Mag. 6½-6¾ USCGS 0 = 03 59 25
Feb. 15	eP	04	50	01	So. Sandwich
	eS	04	55	57	59½°S 26°W
	eSS	04	58	52	Dist. 38.6°
	eLR	05	00	10	Mag. 6¾ USCGS 0 = 04 42 35
Feb. 15	eLQ	23	47	50	Ecuador
	eLR	23	51	15	
Feb. 16	eP	00	47	25	Ecuador
	ePP	00	49	14	1°S 81½°W
	eS	00	53	51	Dist. 42.8°
	eSS	00	57	21	USCGS 0 = 00 39 32
	eLQ	00	58	05	
	eLQ	01	00	10	
Feb. 16	eLQ	12	38	10	Ecuador
	eLR	12	39	10	
Feb. 16	eLQ	18	18	00	Honduras-Nicaragua
	eLR	18	25	35	Border
Feb. 17	eLQ	03	11	45	Ecuador
	eLR	03	13	35	
Feb. 17	eLQ	12	58	50	Fox Islands, Aleutians
	eLR	13	02	25	
Feb. 17	eLR	13	59	05	Japan
Feb. 20	eP	04	18	21	Chile
	eS	04	22	36	30.5°S 71°W
	eLQ	04	24	00	Dist. 25.9°
	eLR	04	24	35	Mag. 6¼-6½ Depth 100 km USCGS 0 = 04 12 54
Feb. 20	eLQ	18	44	30	Guatemala
	eLR	18	48	05	
Feb. 23	ePKP	02	18	22	New Britain
	eLQ	02	41	05	5½°S 150°E
	eLR	02	57	10	Dist. 149.0° USCGS 0 = 01 58 38
Feb. 23	eLQ	08	05	10	Atlantic Ocean
	eLR	08	08	40	

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Date	Phase	h	m	s	Remarks
1959					
Feb. 23	eLQ	17	24	45	
	eLR	17	26	30	
Feb. 24	eLR	07	43	15	
Feb. 24	eLR	11	38	30	
Feb. 27	eLQ	22	42	10	
	eLR	22	45	30	
Feb. 28	eLR	02	55	05	Ceram Is.
Feb. 28	eLR	07	07	05	Fiji Is.
Feb. 28	eLR	07	56	45	Fiji Is.
Feb. 28	eLQ	12	35	45	500 mi. North of Macquarie Is.
	eLR	12	41	15	
Mar. 1	eLR	01	14	50	Arctic Ocean
Mar. 1	e	17	05	02	New Guinea ½°S 135°E Dist. 156.6° Mag. 7 Depth 100 km USCGS 0 = 16 49 13
	e	17	28	00	
	eLQ	17	47	44	
	eLR	17	58	10	
Mar. 2	ePKP	09	33	36	Timor 7½°S 127½°E Dist. 148.5° USCGS 0 = 09 13 37
	eLR	10	24	50	
Mar. 5	eLR	01	27	10	Kamchatka
Mar. 5	eLR	23	21	05	Sumatra
Mar. 6	eLR	00	09	50	
Mar. 6	eLQ	04	00	20	
	eLR	04	08	05	
Mar. 7	eLR	15	46	10	
Mar. 8	eLR	23	22	30	Peru
Mar. 10	eLQ	23	19	40	Guatemala
	eLR	23	24	00	
Mar. 12	eLQ	02	13	00	Caroline Is.
	eLR	02	28	00	

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Date	Phase	h	m	s	Remarks
1959					
Mar. 13	eLQ	10	40	30	
Mar. 14	eLQ	04	56	10	
	eLR	04	57	15	
Mar. 17	ePKP	08	45	34	Ryukyu Is.
	ePP	08	50	53	27½°N 130°E
	ePPP	08	55	06	Dist. 172.4°
	e	09	01	44	Mag. 5¾-6
	eSS	09	12	07	USCGS 0 = 08 25 22
	eSS	09	15	43	
	eSSS	09	19	20	
	eSSS	09	22	58	
	eSSSS	09	26	42	
	eSSSS	09	30	30	
	eLQ	09	37	50	
	eLR	09	48	40	
Mar. 17	eP	13	06	06	Sandwich Islands
	eS	13	11	43	57°S 25°W
	eSS	13	14	20	Dist. 34.2°
	eLQ	13	14	45	USCGS 0 = 12 58 57
	eLR	13	15	30	
Mar. 17	eS	15	19	02	
	eLQ	15	20	40	
	eLR	15	20	54	
Mar. 17	eLR	23	21	40	
Mar. 18	ePKP	01	01	27	Ryukyu Is.
	ePP	01	06	47	27°N 129°E
	ePPP	01	10	48	Dist. 171.8°
	e	01	17	10	USCGS 0 = 00 41 17
	eLQ	01	52	20	
	eLR	01	59	20	
Mar. 25	eLQ	00	32	00	Peru
	eLR	00	34	00	
Mar. 27	eS	07	16	26	Leeward Is.
	eSS	07	20	00	17½°N 63°W
	eLR	07	23	25	Dist. 44.6°
					Depth 150 km
					USCGS 0 = 07 02 07
Mar. 27	e	23	06	13	Pacific Ocean
	eSS	23	15	07	1°N 85°W
	eLQ	23	19	05	Dist. 42.9°
	eLR	23	20	15	USCGS 0 = 22 57 36



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Date	Phase	h	m	s	Remarks
1959					
March 28	eLR(NW)	00	50	20	
Mar. 28	eS	03	55	23	
	eLQ	04	02	10	
	eLR(SW)	04	04	30	
Mar. 28	eLR	07	46	35	
Mar. 28	e	20	15	06	Fiji Is. (?)
Mar. 29	eLQ	22	54	30	
	eLR	22	55	30	
Mar. 30	eLQ	07	44	00	
	eLR	07	47	35	
Mar. 31	ePS	07	50	36	Samoa
	eSS	07	57	08	15°S 173°W
	eLR	08	08	05	Dist. 118.1°
					Mag. 6
					USCGS 0 = 07 20 45
Apr. 1	eP	00	43	45	Canary Is.
	eS	00	51	25	27½°N 21°W
	eSS	00	55	10	Dist. 54.5°
	eSSS	00	57	08	Mag. 6¼
	eLR	01	01	30	USCGS 0 = 00 34 18
Apr. 1	eLQ	12	56	30	
	eLR	12	58	40	
Apr. 1	eLQ	14	52	00	Indian Ocean
	eLR	14	55	45	
Apr. 1	eS	17	00	32	
	eLQ	17	01	40	
	eLR	17	02	10	
Apr. 1	eLR	19	15	50	California
Apr. 1	eLR	20	13	10	Tonga Is.
Apr. 1	eLQ	23	14	20	
	eLR	23	17	45	
Apr. 1	ePKP	23	53	14	Solomon Is.
Apr. 2	eLQ	00	41	20	6°S 154½°E
	eLR	00	50	10	Dist. 146.5°
					USCGS 0 = 23 33 36
Apr. 2	eLQ	05	02	15	Ryukyu Is.
Apr. 2	eLR	17	27	00	

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Date	Phase	h	m	s	Remarks
1959					
Apr. 2	eLQ	20	52	15	Batan Is.
	eLR	20	58	10	
Apr. 3	eLQ	19	55	00	Peru
	eLR	19	58	10	
Apr. 4	eLQ	23	24	15	
	eLR	23	25	25	
Apr. 5	eLR	11	29	15	France
Apr. 5	eLR	20	34	50	
Apr. 5	eLQ	23	34	30	
	eLR	23	35	25	
Apr. 5	ePKP	23	49	13	New Guinea
Apr. 6	eSS	00	13	45	5½°S 146°E
	eLQ	00	26	00	Dist. 150.4°
	eLR	00	36	35	USCGS 0 = 23 29 25
Apr. 6	ePKP	14	32	11	Sumba Is.
	eSKKS	14	42	16	10°S 120½°E
	eSS	14	54	06	Dist. 143.6°
	eLQ	15	06	40	Mag. 6¼
	eLR	15	18	00	USCGS 0 = 14 12 36
Apr. 6	e	21	31	19	
	eLQ	21	33	20	
	eLR	21	35	40	
Apr. 8	eLR	00	52	15	
Apr. 8	eLR	01	51	00	
Apr. 8	eLQ	06	28	20	
	eLR	06	31	15	
Apr. 8	iP	11	51	26	So. Chile-Argentina Border
	ePP	11	52	38	50½°S 73°W
	eS	11	57	06	Dist. 36.0
	eSS	11	59	30	USCGS 0 = 11 44 25
	eLQ	12	00	00	
	eLR	12	01	00	
Apr. 9	eS	06	43	32	Indian Ocean
	eSS	06	50	20	36°S 76°E
	eLQ	06	57	00	Dist. 98.0°
	eLR	06	59	10	USCGS 0 = 06 18 30

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Date	Phase	h	m	s	Remarks
1959					
Apr. 9	eLR	13	34	00	
Apr. 9	eP	17	44	54	Panama
	ePP	17	46	44	7°N 82°W
	eS	17	51	50	Dist. 48.2°
	eLQ	17	57	00	Mag. 6¼-6½
	eLR	17	59	00	USCGS 0 = 17 36 10
Apr. 9	eLR(E)	19	46	20	
Apr. 10	ePPP	06	15	30	Fiji Is. 25°S 178½°E Dist. 117.5° Depth 600 km USCGS 0 = 05 47 34
Apr. 10	eLR	13	53	00	
Apr. 11	eL	00	50	40	
Apr. 11	ePP	09	36	06	Costa Rica-Panama Border
	eS	09	41	22	9½°N 83°W
	eSS	09	45	00	Dist. 50.5°
	eL	09	48	30	USCGS 0 = 09 25 08
Apr. 11	eL	12	32	20	Spice Islands
Apr. 11	eL	15	06	10	Columbia-Venezuela Border
Apr. 11	eL	18	48	30	Formosa
Apr. 12	eL	08	22	05	
Apr. 12	ePP	10	06	44	Mexico
	eS	10	13	45	17½°N 95°W
	eSS	10	18	56	Dist. 64.6°
	eL	10	22	00	Mag. 6-6¼ Depth 100 km USCGS 0 = 09 54 51
Apr. 12	eSS	16	05	20	New Guinea
	eL	16	22	45	4½°S 134°E Dist. 152.6° Depth 100 km USCGS 0 = 15 22 33
Apr. 12	e	21	23	14	Samoa
	ePPS	21	25	06	15½°S 173°W
	eSS	21	30	22	Dist. 117.8°
	eL	21	43	05	Mag. 6-6½ USCGS 0 = 20 54 00

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Date	Phase	h	m	s	Remarks
1959					
Apr. 13	eL	20	06	20	
Apr. 14	e	00	36	13	
	eL	00	38	20	
Apr. 14	eL	02	26	10	Gulf of California
Apr. 14	eL	06	31	40	Chile
Apr. 14	eL	08	18	15	Alaska
Apr. 14	eL	17	28	50	
	eSS	01	05	57	Japan
	eLQ	01	08	00	41½°N 143°E
Apr. 15	eLR	01	25	00	Dist. 160.7°
					USCGS 0 = 00 15 21
Apr. 15	eL	17	44	10	Andreanof Islands, Aleutians
Apr. 16	eL	09	42	40	
Apr. 16	ePPS	16	49	38	Mariana Is.
	eL	17	08	50	12½°N 143°E
Apr. 16					Dist. 168.1°
					Mag. 6½
					Depth 100 km
					USCGS 01 = 16 13 56
Apr. 16	eL	20	20	30	
Apr. 18	eL	07	27	10	New Ireland Island
Apr. 19	ePP	07	34	52	Pacific Ocean
	eS	07	39	13	45°S 82°W
	eL	07	41	45	Dist. 38.6°
Apr. 19					Mag. 6
					USCGS 0 = 07 26 15
Apr. 19	eL	16	00	30	Alaska
Apr. 19	eL	20	38	05	
Apr. 20	ePKP	03	47	51	New Britain
	ePP	03	50	55	6°S 149½°E
	eL	04	29	50	Dist. 147.2°
Apr. 20					Depth 100 km
					USCGS 0 = 03 27 52
Apr. 21	eL	16	43	30	