

CLEVELAND



From the ISC collection scanned by SISMOS

SEISMOLOGICAL OBSERVATORY JOHN CARROLL UNIVERSITY, CLEVELAND 18, OHIO, U. S. A.

41° 29' 27.90" North, 81° 31' 52.22" West, h = 326 m.

Seismographs: Two Sprengnether long-period horizontal, ~~one~~ Benioff vertical.
Two Sprengnether short-period horizontal.

JANUARY, 1963, BULLETIN

<u>Date</u>	<u>Phase</u>	<u>Component</u>	<u>GMCT</u>		<u>Remarks</u>
1	iP iS	z	23 ^h 47 ^m 52.0 ^s 23 54 51.6	d	USCGS: 56.6°N, 157.7°W H = 23 ^h 39 ^m 05.6 ^s h = 50 km
28	iP	nez	13 10 01.0	d	USCGS: 54.7°N, 161.6°W H = 13 00 50.7 h = 33 km
29	iP	nez	09 33 52.0 09 42 26	c	USCGS: 49.7°W, 154.9°E H = 09 21 14.3 h = 126 km
30	iPKP eSKS	z E	10 28 04.2 10 35 00		USCGS: 55.6°S, 28.3°W H = 10 10 04.1 h = 33 km

Seismological Observatory
John Carroll University
Cleveland 18, Ohio USA

FEBRUARY, 1963, BULLETIN

<u>Date</u>	<u>Phase</u>	<u>Component</u>	<u>GMCT</u>		<u>Remarks</u>
5	iP iS	nz ne	20 ^h 51 ^m 26.8 ^s 21 01 27.7	d c	USCGS: 38.4°S, 73.2°W H = 20 ^h 39 ^m 21.6 ^s h = 41 km
6	iP eS	z E	07 08 25.9 07 13 54		USCGS: 7.4°N, 82.6°W H = 07 01 47.0 h = 61 km
13	ePP ePS ePPS eSR ₁	NE E N E	09 09 10 09 18 37 09 19 50 09 25 04		USCGS: 24.5°N, 121.8°E H = 08 50 02.2 h = 33 km
13	eP' ₁ eSKS	n E	18 33 46 18 41 00		USCGS: 9.9°S, 160.8°E H = 18 13 55.1 h = 29 km
14	iP' ₁ ePR ₁	z E	07 23 37.7 07 27 09		USCGS: 7.2°S, 128.2°E H = 07 04 40.8 h = 197 km
14	iP eS	z N	12 19 27.3 12 27 52	d	USCGS: 0.9°N, 30.0°W H = 12 09 11.4 h = 33 km
22	iP eS	z N	07 19 57.8 07 29 29		USCGS: 85.0°N, 98.9°E H = 07 10 28.0 h = 33 km
22	iP eS	nz EN	21 19 30.0 21 24 05		USCGS: 18.1°N, 71.3°W H = 21 14 06.1 h = 50 km
24	iP iS	nez nNE	13 39 57.0 13 44 34.1	c	USCGS: 14.6°N, 91.4°W H = 13 34 15.7 h = 135 km
25	iP	nz	08 19 36.3	d	USCGS: 28.1°S, 65.4°W H = 08 08 20.1 h = 32 km
26	iP' ₁ iPR ₁ eSKS	nez nez N	20 32 51.7 20 34 44.6 20 39 39	d	USCGS: 7.5°S, 146.2°E H = 20 14 08.7 h = 171 km
27	eP iP' ₁	E z	04 46 23 04 49 23.6		USCGS: 6.0°S, 149.0°E H = 04 30 04.8 h = 52 km

 Seismological Observatory
 John Carroll University
 Cleveland 18, Ohio, USA

MARCH, 1963, BULLETIN

<u>Date</u>	<u>Phase</u>	<u>Component</u>	<u>G. M. C. T.</u>			<u>Remarks</u>
3	iP iS ⁴ 4	z n	17 ^h 32 ^m 10.1 ^s 17 33 42.7			USCGS: 36.7°N, 90.1°W H = 17 ^h 30 ^m 13.0 ^s h = 18 km Δ = 970 km
4	iP iS	nNz NE	15 51 23.4 15 57 53.0	d		USCGS: 4.5°S, 81.6°W H = 15 43 04.0 h = 33 km
7	iP eS	NEz NE	05 33 38.3 05 43 16	d		USCGS: 27.0°S, 113.5°W H = 05 22 01.1 h = 33 km
15	iP	e	05 53 35.2			USCGS: 21.7°N, 45.4°W H = 05 36 42.8 h = 33 km
16	iP iS	nez E	08 56 51.9 09 06 47.1	d		USCGS: 45.6°N, 154.7°E H = 08 44 48.3 h = 26 km
24	iP	nez	21 45 43.2	d		USCGS: 51.8°N, 178.1°W H = 21 35 24.4 h = 33 km
26	eP' iSKS	ez E	10 06 57 10 13 55.0	d		USCGS: 29.7°S, 177.8°W H = 09 48 19.7 h = 45 km
26	eP'	NE	13 40 14			USCGS: 29.8°S, 177.9°W H = 13 25 02.6 h = 42 km
26	iP iPcP ePP eSKS	ez NE N Nne	21 48 06.8 21 48 13 21 51 58 21 58 40	d c		USCGS: 36.0°N, 135.7°E H = 21 34 41.1 h = 33 km
28	iP iS	nez NE	00 23 38.9 00 30 02	c		USCGS: 66.3°N, 19.6°W H = 00 15 47.5 h = 15 km
30	iP	nez	17 04 24.1	c		USCGS: 44.2°N, 148.0°E H = 16 51 56.6 h = 33 km
31	iP eS	nz E	04 54 35.7 05 01 31	c		USCGS: 5.6°S, 81.1°W H = 04 46 00.8 h = 33 km

Seismological Observatory
John Carroll University
Cleveland 18, Ohio USA

APRIL, 1963, BULLETIN

<u>Date</u>	<u>Phase</u>	<u>Component</u>	<u>G. M. C. T.</u>			<u>Remarks</u>
1	iP eS	nez E	04 ^h 40 ^m 58.3 ^s 04 50 59.3		c	USCGS: 44.8°N, 141.1°E H = 04 ^h 28 ^m 44.3 ^s h = 255 km
6	iP	nez	11 27 30.1		c	USCGS: 63.4°N, 149.5°W H = 11 19 23.3 h = 39 km
7	iPKP iPR ₁	nez Nn	22 55 29.1 22 58 56.5		d	USCGS: 4.9°S, 103.2°E H = 22 36 03.4 h = 72 km
11	iPn	nez	20 24 48.9			Local
12	iPn	nez	00 40 19.2			Local
13	iP iS	nez NE	02 29 15.3 02 36 00.9		d	USCGS: 6.2°S, 76.5°W H = 02 20 57.5 h = 33 km
16	iP' iSKP	z N	01 48 39.5 01 51 26.2		c	USCGS: 0.8°S, 128.0°E H = 01 29 19.4 h = 33 km
16	iP' eSKP	z e	01 56 22.6 01 59 41		c	USCGS: 1.2°S, 128.4°E H = 01 36 59.4 h = 33 km
16	iP' iSKP	z ne	02 14 26.8 02 17 47.4		d	USCGS: 0.7°S, 128.0°E H = 01 55 10.9 h = 32 km
17	iP' iPP	n n	01 30 23.0 01 32 50.7			USCGS: 0.6°S, 128.1°E H = 01 10 16.6 h = 89 km
19	eSR ₁	NE	08 08 17			USCGS: 35.8°N, 96.9°E H = 07 35 23.7 h = 33 km
29	iP eS	z E	21 54 54.5 22 03 30		d	USCGS: 51.4°N, 178.6°E H = 21 44 17.1 h = 60 km

Seismological Observatory
John Carroll University
Cleveland, Ohio USA
44118

MAY, 1963, BULLETIN

<u>Date</u>	<u>Phase</u>	<u>Component</u>	<u>GMCT</u>	<u>Remarks</u>
1	ePKP iS	z E	10 ^h 21 ^m 53 ^s 10 30 55.5	USCGS: 19.0°S, 169.0°E H = 10 ^h 03 ^m 20.0 ^s h = 140 km
4	iP	nez	21 06 10.2	
8	eS	E	10 46 26.5	USCGS: 36.6°N, 141.0°E H = 10 ^h 22 ^m 11.2 ^s h = 53 km
10	eP i	nNz NE	22 30 51 d 22 37 17.0	USCGS: 2.2°S, 77.6°W H = 22 ^h 22 ^m 42.2 ^s h = 33 km
12	iP eS	nez NE	20 17 20.1 c 20 24 04	USCGS: 57.4°N, 153.9°W H = 20 ^h 08 ^m 43.0 ^s h = 80 km
13	eP	nz	12 49 54	USCGS: 14.5°N, 92.9°W H = 12 ^h 44 ^m 00.7 ^s h = 60 km
13	iPn iPn	nez nez	18 51 22.4 21 08 44.3	Local Local
19	eP eS	Nz E	01 15 52 d 01 26 42	USCGS: 46.5°S, 75.1°W H = 01 ^h 03 ^m 04.1 ^s h = 33 km
19	eP eS	Ez NE	21 42 36 d 21 48 06	USCGS: 23.8°N, 45.9°W H = 21 ^h 35 ^m 49.6 ^s h = 33 km
19	iP	nz	23 41 19.2 c	USCGS: 17.8°S, 69.4°W H = 23 ^h 31 ^m 25.7 ^s h = 148 km
20	ePKP eSS	ez N	11 56 38.6 d 12 13 25	USCGS: 30.7°S, 178.3°W H = 11 ^h 38 ^m 00.9 ^s h = 34 km
23	iP	nez	07 50 03.6	USCGS: 19.2°N, 64.6°W H = 07 ^h 43 ^m 58.0 ^s h = 55 km

Seismological Observatory
John Carroll University
Cleveland 18, Ohio USA

JUNE 1963, BULLETIN

<u>Date</u>	<u>Phase</u>	<u>Component</u>	<u>GMCT</u>		<u>Remarks</u>
10	iPKP	z	04 ^h 36 ^m 22.6 ^s	c	USCGS: 55.4°S, 146.4°E H = 04 ^h 16 ^m 37.7 ^s h = 33 km
10	iPKP	z	06 58 44.0	d	USCGS: 55.3°S, 146.1°E H = 06 ^h 39 ^m 04.0 ^s h = 18 km
17	iP	nez	18 39 52.1	d	USCGS: 60.4°N, 140.8°W H = 18 ^h 32 ^m 14.5 ^s h = 33 km
24	iP eS	nez NE	04 35 01.2 04 41 42	c	USCGS: 59.5°N, 151.7°W H = 04 ^h 26 ^m 37.9 ^s h = 52 km
26	iP iS	nz E	17 49 41.2 17 55 08.7	d	USCGS: 7.1°N, 82.3°W H = 17 ^h 42 ^m 40.6 ^s h = 20 km
28	eP	nez	22 07 47	d	USCGS: 46.5°N, 153.2°E H = 21 ^h 55 ^m 38.8 ^s h = 33 km

Seismological Observatory
 John Carroll University
 Cleveland 18, Ohio USA

JULY, 1963, BULLETIN

<u>Date</u>	<u>Phase</u>	<u>Component</u>	<u>GMCT</u>	<u>Remarks</u>
4	eS	NE	11 ^h 24 ^m 44 ^s d	USCGS: 23.6°S, 177.7°W H = 10 ^h 58 ^m 13.2 ^s h = 158 km
7	e	E	19 30 02	USCGS: 39.6° N, 111.9°W H = 19 ^h 20 ^m 42.3 ^s h = 33 km
10	iP eS	n E	05 34 59.2 c 05 44 57	USCGS: 46.3°N, 152.9°E H = 05 ^h 22 ^m 57.1 ^s h = 33 km
14	iP ePR ₁	z N	05 48 38.0 d 05 49 54	USCGS: 10.4°N, 62.6°W H = 05 ^h 41 ^m 43.0 ^s h = 24 km
16	iP e	z N	18 39 32.9 c 18 50 53	USCGS: 43.1°N, 41.5°E H = 18 ^h 27 ^m 18.4 ^s h = 33 km
26	iP eS	z E	04 28 37.9 d 04 38 00	USCGS: 42.1°N, 21.5°E H = 04 ^h 17 ^m 16.7 ^s h = 33 km

Seismological Observatory
John Carroll University
Cleveland 18, Ohio USA

AUGUST, 1963, BULLETIN

<u>Date</u>	<u>Phase</u>	<u>Component</u>	<u>GMCT</u>	<u>REMARKS</u>
2	iP	e	12 ^h 40 ^m 54.7 ^s	
	iS	e	12 41 32.7	
3	iP	z	10 03 18.7 d	
	eS	E	10 10 42.5	
15	iP	z	17 33 57.6 d	USCGS: 13.8°S, 69.3°W H = 17 ^h 25 ^m 05.9 ^s h = 543 km ca.
	epP	NE	17 35 43.1	
	eS	NE	17 41 01.1	
29	iP	zn	15 39 15.5 d	USCGS: 7.1°S, 81.6°W H = 15 ^h 30 ^m 31.4 ^s h = 23 km ca.
	eS	E	15 46 20.5	

Seismological Observatory
 John Carroll University
 Cleveland 18, Ohio USA

SEPTEMBER 18-30, 1963, BULLETIN

<u>Date</u>	<u>Phase</u>	<u>Component</u>	<u>GMCT</u>		<u>Remarks</u>
18	eP iS	nez NE	17 ^h 10 ^m 02.1 ^s 17 19 58.5	d	USCGS: 40.9°N, 29.2°E H = 16 ^h 58 ^m 12.5 ^s h = 33 km
24	iP iP eS	nz e NE	16 39 18.5 16 39 22.5 16 46 37.9	c	USCGS: 10.6°S, 78.0°W H = 16 ^h 30 ^m 16.0 ^s h = 80 km

Seismological Observatory
 John Carroll University
 Cleveland 18, Ohio USA

OCTOBER, 1963, BULLETIN

<u>Date</u>	<u>Phase</u>	<u>Component</u>	<u>GMCT</u>	<u>Remarks</u>
4	iPn	nez	13 ^h 55 ^m 47.4 ^s	Local
4	iPn	nez	19 41 09.4	Local
12	iP iS	nez NE	11 39 21.5 c 11 49 31.0	USCGS: 44.8°N, 149.0°E H = 11 ^h 26 ^m 57.9 ^s h = 40 km
13	iP	nez	05 30 32.5 c	USCGS: 44.8°N, 149.5°E H = 05 ^h 17 ^m 57.1 ^s h = 60 km
15	ePn iSn	en nez	07 46 24.3 07 46 52.3	
16	iPn iSn	n ne	15 34 34.0 15 35 13.5	USCGS: 42.2°N, 70.7°W H = 15 ^h 31 ^m 00.7 ^s h = 25 km Δ = 910 km
20	eP e	ez NE	01 05 37.0 01 15 41	USCGS: 44.7°N, 150.7°E H = 00 ^h 53 ^m 07.2 ^s h = 25 km
20	iP	nez	13 11 27.5	USCGS: 24.1°N, 5.1°E H = 12 ^h 59 ^m 58.6 ^s h = 0 km

Seismological Observatory
John Carroll University
Cleveland 18, Ohio USA

NOVEMBER, 1963, BULLETIN

<u>Date</u>	<u>Phase</u>	<u>Component</u>	<u>GMCT</u>		<u>Remarks</u>
3	iP	z	03 ^h 18 ^m 26.6 ^s	d	USCGS: 3.5°S, 77.8°W H = 03 ^h 10 ^m 12.7 ^s h = 33 km
	iP	ne	03 18 27.6		
	iS	NE	03 25 01.7		
4	iPKP	nez	01 36 28.8	c	USCGS: 6.8°S, 129.6°E H = 01 ^h 17 ^m 08.9 ^s h = 80 km
9	iP	z	21 23 40.2	c	USCGS: 9.0°S, 71.5°W H = 21 ^h 15 ^m 30.4 ^s h = 600 km
	iP	ne	21 23 40.7		
	i	ne	21 30 22.0		
10	iP	nez	01 08 49.8	c	USCGS: 9.2°S, 71.5°W H = 01 ^h 00 ^m 38.8 ^s h = 600 km
	iS	nez	01 15 16.0	d	
18	iP	z	14 44 26.0	d	USCGS: 29.9°N, 113.6°W H = 14 ^h 38 ^m 28.9 ^s h = 14 km
	eP	ne	14 44 27.9		
	eS	NE	14 49 21		
22	eS	E	08 01 37		USCGS: 30.1°N, 114.0°W H = 07 ^h 50 ^m 46.3 ^s h = 14 km
	eS	N	08 01 37		

Seismological Observatory
 John Carroll University
 Cleveland 18, Ohio USA

DECEMBER, 1963, BULLETIN

<u>Date</u>	<u>Phase</u>	<u>Component</u>	<u>GMCT</u>	<u>Remarks</u>
15	iPKP iSKS	nez NE	19 ^h 53 ^m 05.3 ^s c 19 59 11.5	USCGS: 4.8°S, 108.0°E H = 19 ^h 34 ^m 45.5 ^s h = 650 km
16	iPKP	nez	02 11 01.0 d	USCGS: 2.2°S, 105.9°E H = 01 ^h 51 ^m 44.6 ^s h = 33 km
18	eP	nez	00 44 30.5	USCGS: 24.8°S, 176.6°W H = 00 ^h 30 ^m 02.6 ^s h = 46 km

Seismological Observatory
 John Carroll University
 Cleveland 18, Ohio USA