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NATURAL ENVIRONMENT RESEARCH COUNCIL

INSTITUTE OF GEOLOGICAL SCIENCES

Seismological Bulletin No. 1

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Eskdalemuir Observatory:
seismological readings
for 1968

SBN 11 880577 0

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NATURAL ENVIRONMENT RESEARCH COUNCIL
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London: Her Majesty's Stationery Office 1972

Eskdalemuir Observatory: Seismological Readings for 1968

World Wide Standard Seismograph Network equipment began operating at Eskdalemuir Observatory on 19th March, 1964. It was originally operated by the Meteorological Office but in April 1968 it was handed over to the Institute of Geological Sciences. From April 1968 the equipment has been operated by Mr E. V. Royal of the Institute and the records for the whole of 1968 have been read by Mr G. Neilson of the Institute's Global Seismology Unit, 6, South Oswald Road, Edinburgh EH9 2HX.

The magnification for the SP components may be either 12 500 or 25 000 and that of the LP components may be either 750 or 1500. Usually the system runs at the higher magnifications in summer and at the lower magnifications in winter. In 1968 the magnifications were 25 000 and 1500 throughout the year.

Notes

In this bulletin all magnitudes are M_B derived from short period Benioff seismograms unless otherwise defined, and information in the remarks section comes from the USCGS PDE data unless otherwise specified. Where a phase is described as *i* and the timing is given only to the nearest second the reading comes from the LP records.

Station Details

Eskdalemuir Observatory (ESK), Langholm. Dumfriesshire, Scotland

Lat. $55^{\circ}19'00''N$, Long. $3^{\circ}12'18''W$, Height above M. S. L. 263 m.

Foundation: Llandovery Shales, folded (late Silurian).

Instruments: World Wide Standard Seismograph system supplied by the United States Coast and Geodetic Survey.

Constants

Instrument		Free periods		Magnification
		pendulum Tp (sec)	galvanometer Tg (sec)	
Sprengnether WWSS	Z	15	100	1500 at 15 sec
	N	15	100	
	E	15	100	
Benioff WWSS	Z	1	0.75	25 000 at 1 sec
	N	1	0.75	
	E	1	0.75	

The Institute of Geological Sciences was formed by the incorporation of the Geological Survey of Great Britain and the Museum of Practical Geology with Overseas Geological Surveys and is a constituent body of the Natural Environment Research Council.

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Date	No.	Phase	Time	Remarks
1	1	i	06 21 36.1	
3	2	i	04 17 47.5	
	3	iP	07 41 50.5	Norwegian Sea 72.2N 1.2E h=33 M=5.3 H=07 37 55.2
	4	iP ipP	10 28 20.0 10 28 31.8	Gulf of Alaska 59.7N 146.8W h=19 M=4.7 H=10 18 00.7
	5	i	10 53 29.6	
	6	i	11 54 56.3	
4	7	iP iS	01 09 09.2 01 18 14	$\Delta = 73^\circ$ (ESK)
5	8	iP	09 29 00.5	South of Alaska 55.9N 154.6W h=33 M=4.8 H=09 18 09.9
6	9	eP e	23 41 14 23 52 04	Nr. Coast N. Chile 27.8S 71.1W h=33 M=5.8 H=23 27 21.2
7	10	e e	23 54 24 00 08 04	
8	11	i	02 24 19.7	
	12	i	18 06 09.1	
	13	iP	20 31 43.4	Central Mid-Atlantic Ridge 8.2N 38.2W h=33 M=5.4 H=20 20 15.6
9	14	iP i	23 21 19.5 23 21 27.0	Mediterranean Sea 35.5N 22.5E h=44 M=4.7 H=23 15 42.2
12	15	iP	04 30 04.9	Andaman Islands Region 13.4N 93.1E h=33 M=5.5 H=04 17 43.1

Date	No.	Phase	Time	Remarks
13	16	iP i iS	07 16 30.1 07 20 05 07 27 02	Taiwan 24.1N 122.2E h=8 M=5.7 H=07 03 39.2
	17	e	07 27 25	
	18	iP iS i	16 20 19.6 16 30 32 16 40 44	$\Delta = 85^\circ$ (ESK)
	19	i	17 31 23.1	
	20	i	21 19 30.1	
	21	i	21 35 44.5	
14	22	i	05 47 25.5	
	23	iP eS	12 28 27.3 12 45 01	
	24	iP	13 20 28.4	Sicily 37.7N 13.1E h=2 M=5.0 H=13 15 41.4
	25	iP	15 53 14.7	Sicily 37.9N 13.1E h=29 M=4.7 H=15 48 31.8
	26	e	16 03 45	
	27	iP iS	17 54 35.5 18 04 03	Fox Islands 52.7N 171.2W h=34 M=5.5 H=7 43 10.0
15	28	iP i	02 05 48.5 02 10 40	Sicily 37.9N 13.1E h=33 M=5.4 H=02 01 08.5
16	29	iP iS	16 47 26.9 16 51 25.0	Sicily 37.9N 13.1E h=14 M=5.1 H=16 42 44.3
18	30	i	15 25 37.9	

<u>Date</u>	<u>No.</u>	<u>Phase</u>	<u>Time</u>	<u>Remarks</u>
18	31	i	22 26 13.5	
19	32	i	18 26 15.9	
20	33	i	10 59 20.0	
	34	iPKP	17 52 29.1	Fiji Islands Region 18.9S 178.0W h=626 M=4.5 H=17 34 05.4
	35	iPKP i	21 40 44.4 21 41 07.1	Kermadec Islands 29.9S 179.5W h=349 M=5.8 H=21 21 31.6
21	36	i	14 04 45.5	
	37	i	16 52 10.1	N. of Ascension Island 1.2S 14.0W h=33 H=16 42 29.2
	38	iPKP	23 14 17.1	New Britain Region 5.0S 150.8E h=185 M=5.0 H=22 55 35.8
	39	iP	23 56 18.2	Mexico Guatemala Border Region 15.6N 92.3W h=166 M=5.0 H=23 44 46.1
	40	iP	23 56 57.2	Chiapas, Mexico 16.8N 92.3W h=77 M=5.4 H=23 45 17.1
22	41	iP	10 44 48.1	Southern Sin Kiang Province, China 38.2N 75.6E h=108 M=5.3 H=10 35 36.6
	42	iP	20 41 47.9	Iran Iraq Border Region 33.8N 46.9E h=33 M=5.0 H=20 34 10.0
	43	iP	21 28 19.5	Iran Iraq Border Region 33.7N 46.8E h=10 M=5.0 H=21 20 38.5
25	44	i	05 22 13.5	

<u>Date</u>	<u>No.</u>	<u>Phase</u>	<u>Time</u>	<u>Remarks</u>
25	45	iP i	10 01 29.9 10 05 32	Sicily, 37.8N 13.2E h=33 M=5.1 H=09 56 48.7
26	46	iP i i	05 04 29.4 05 14 16.8 05 15 15.2	Flores Islands Region 8.8S 120.4E h=29 M= 5.9 H= 04 45 41.4
27	47	iP	14 09 20.5	Taiwan 23.2N 121.6E h=53 M=5.2 H=13 56 23.8
	48	i	18 33 20.5	
29	49	iP i	05 08 58.1 05 09 25.5	Hindu Kush Region 36.3N 70.4E h=225 M=5.5 H=05 00 10.0
	50	iP i i iS	10 31 02.6 10 31 19.9 10 32 17.3 10 41 26.5	Kuriles 43.6N 146.7E h=40 M=7.0(PAS) H=10 19 05.6
	51	iP	10 54 08.2	Kuriles 43.2N 147.2E h= 41 M=5.2 H=10 42 08.6
	52	iP	11 56 01.1	Kuriles 43.4N 147.3E h=33 M=5.1 H=11 43 59.1
	53	iP	14 55 53.5	Kuriles 43.1N 146.9E h=43 M=4.7 H=14 43 50.5
	54	iP i e	16 54 48.9 16 54 58.9 17 04 49	Kuriles 43.5N 147.2E h=36 M=5.7 H=16 42 50.4
	55	iP	21 03 11.3	Kodiak Island Region 56.4N 153.6W h=6 M=5.2 H=20 52 21.3
30	56	iP	01 42 15.9	Kuriles 43.3N 146.8E h=12 M= 5.3 H=01 30 12.7
	57	iP	02 00 29.9	Kuriles 43.3N 147.7E h=33 M=5.1 H=01 48 28.6
	58	iP	02 50 13.1	Kuriles 43.3N 147.7E h=33 M=5.5 H=02 38 12.6

ESK 1968 - JANUARY

DATE	NO.	PHASE	TIME	REMARKS
30	59	i	03 12 48.1	
	60	i	04 01 50.9	
	61	i i	04 12 54.4 04 13 07.7	
	62	iP	04 22 39.5	Kuriles 43.1N 147.1E h=22 M=5.1 H=04 10 36.1
	63	i	16 41 25.5	
	64	iP	18 47 06.1	Kuriles 43.0N 147.2E h=25 M=4.9 H=18 35 00.9
31	65	i	05 07 43.6	Kuriles 43.5N 147.6E h=33 M=4.6 H=05 55 44.1

ESK 1968 - FEBRUARY

DATE	NO.	PHASE	TIME	REMARKS
1	1	iP i	12 59 23.4 13 05 28	Kuriles 43.2N 146.9E h=35 M=5.5 H=12 47 23.4
	2	iP	19 14 13.6	Off coast of Hokaido 42.9N 147.0E h=33 M=4.7 H=19 02 09.4
	3	i	20 59 13.9	
3	4	eP	15 52 22	Chiapas, Mexico 16.6N 93.5W h=142 M=5.5 H=15 40 44.5
	5	iP	16 42 44.5	Kurile Islands 43.2N 146.8E h=33 M=5.5 H=11 30 44.4
4	6	iP eS	11 12 52 11 22 52	Kurile Islands 43.0N 147.1E h=33 M=5.5 H=11 00 50.1
7	7	iP	12 27 17.2	Kuriles 43.0N 146.8E h=42 M=4.6 H=12 15 17.3
	8	iP ipP	22 27 53.0 22 28 26.4	Dodecanese Islands 36.7N 26.8E h=161 M=5.0 H=22 22 20.2
8	9	iP iS	12 38 25.5 12 46 38	Arabian Sea 14.6N 54.0E h=33 M=5.4 H=12 28 21.0
	10	i	16 05 49.5	
9	11	iP	13 27 30.1	Rumania 45.6N 26.4E h=122 M=4.6 H=13 22 53.9
	12	i	15 46 32.5	
	13	iP	16 55 15.7	Loyalty Islands 23.3S 171.2E h=99 M=4.7 H=16 35 41.4
10	14	iP	17 12 56.4	Kashmir/Tibet Border Region 34.1N 78.5E h=37 M=5.2 H=17 03 03.8
11	15	i	20 48 20.9	Kashmir/Tibet Border Region 34.2N 78.6E h=44 M=5.1 H=20 38 29.4

ESK 1968 - FEBRUARY

DATE	NO.	PHASE	TIME	REMARKS
12	16	iP	06 03 46.9	New Ireland 5.5S 153.2E h=74 H=05 44 47.6
		i	06 05 20.1	
		i	06 05 49.5	
17	17	i	12 23 50.5	
		i	12 24 09.1	
18	18	iP	16.30 46.4	Sicily 37.9N 13.1E h=33 M=4.4 H=16 26 03.6
19	19	iP	22 29 26.3	Burma 22.9N 95.4E h=23 M=4.7 H=22 17 36.0
15	20	iP	02 54 12.5	Fox Islands 52.2N 171.4W h=61 M=5.3 H=02 42 47.3
16	21	iP	14 34 13.0	Sea of Okhotsk 49.7N 147.7E h=582 M=4.7 H=14 23 42.6
19	22	iP	22 51 05.9	Aegean 39.4N 25.0E h=7 M=7.25-7.5 H=22 45 41.2 M=6.8 (ESK)
20	23	iP	00 44 33.2	Aegean 39.7N 25.2E h=33 M=4.9 H=00 39 14.8
	24	iP	02 27 16.9	Aegean 39.6N 25.4E h=13 M=5.0 H=02 21 53.0
	25	iP	02 29 19.9	North Atlantic Ridge 12.4N 46.9W h=13 M=5.6 H=02 19 49.6
	26	iP	05 16 48.1	Kodiak Island Region 58.4N 151.7W h=34 M=4.9 H=05 06 11.9
	27	iP	09 46 28.1	Aegean 39.4N 24.9E h=33 M=4.7 H=09 41 09.6
21	28	iP	06 29 38.2	Andreanof Islands, Aleutians 52.3N 175.3W H=108 M=5.2 H=06 18 21.6
	29	i	06 31 20.2	
	30	i	11 01 08.9	

ESK 1968 - FEBRUARY

DATE	NO	PHASE	TIME	REMARKS
21	31	i	15 41 22.8	
	32	i	17 20 44.7	
	33	iP iS iSS	21 19 27.1 21 29 10 21 34 05	Andreanof Islands, Aleutians 51.4N 176.0W h=47 M=5.2 H=21 07 56.9
22	34	iP	05 03 09.5	Aegean Sea 39.5N 25.1E h=33 M=4.6 H=04 57 49.1
	35	i	09 32 37.4	
	36	i e	10 39 26.6 10 57 25	
	37	i	15 23 51.9	
	38	iP	17 58 27.2	Andreanof Islands. 51.4N 176.3W h=49 M=5.1 H=17 46 57.4
	39	i	18 53 13.9	
23	40	i	01 53 13.5	
	41	iPKP	02 33 05.1	Loyalty Islands. 22.2S 170.2E h=20 M=4.9 H=02 13 24.5
	42	i	07 50 27.9	
25	43	i	05 57 48.4	
	44	iP	10 37 13.9	Hokkaido, Japan 45.0N 142.2E h=295 M=5.1 H=10 25 58.1
	45	i	11 04 31.1	
		i	11 04 51.3	
	46	i	15 45 21.4	
		L	15 50 52	

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DATE	NO.	PHASE	TIME	REMARKS
25	47	iP	18 19 49.3	Andreanof Islands 51.4N 176.0W
		i	18 20 08.5	h=50 M=5.3 H=18 08 19.9
		i	18 34 44	
	48	iP	20 12 48.9	Japan, Nr. East Coast of Honshu 37.6N 141.4E h=66 M=5.5 H=20 00 31.5
26	49	iP	09 40 15.8	Near Islands, Aleutians 52.7N 172.6E h=56 M=5.0 H=09 28 54.1
	50	i	10 37 50.2	
	51	i	10 41 48.4	
	52	iP	11 03 14.8	Taiwan 22.7N 121.5E
		iPP	11 06 48.6	h=24 M=6.7(BRK) H=10 50 16.7
		i	11 07 44.1	
		iS	11 13 41	
	53	iP	13 50 42.9	Hokkaido, Japan 42.0N 142.2E h=72 M=4.7 H=13 38 46.4
27	54	i	00 58 21.1	
28	55	i	03 05 12.1	
	56	i	09 14 09.7	
	57	i	10 29 32.2	
	58	iP	12 20 04.5	South of Honshu, Japan
		i	12 21 25.5	32.9N 137.7E
		iS	12 30 07	h=349 M=5.8 H=12 08 01.5
		i	12 33 30	
		i	12 36 00	
	59	i	21 43 23.8	
29	60	i	01 04 16.3	
	61	i	02 09 17.1	

ESK 1968 - FEBRUARY

DATE	NO.	PHASE	TIME	REMARKS
29	62	i	05 24 18.9	
	63	i	07 05 20.5	
	64	iP	12 52 51.8	Aegean 39.0N 24.3E h=18 M=4.3 H=12 47 31.9
	65	iP	13 43 03.3	Aegean 39.5N 25.4E h=30 M=4.7 H=13 37 43.5

ESK 1968 - MARCH

DATE	NO.	PHASE	TIME	REMARKS
1	1	iP	16 46 11.5	Nicaragua 11.7N 85.5W h=190 M=4.8 H=16 34 44.4
2	2	i	13 16 04.1	
		i	13 16 20.1	
		i	13 16 34.9	
3	3	iP iS	22 15 06.9 22 25 44	Chagos Archipeligo Region 6.1S 71.4E h=33 M=5.6 H=22 02 24.8
3	4	i	04 38 39.5	
	5	e	19 06 39	
	6	i	20 58 43.9	
	7	i	23 16 34.5	
4	8	i	11 27 36.8	
	9	e	15 00 24	
5	10	i	00 06 50.9	
	11	iP	00 33 22.1	Unimak Island Region 53.8N 163.3W h=2 M=4.8 H=00 22 06.9
	12	iP	00 42 08.5	Unimak Islands 53.8N 163.3W h=33 M=4.9 H=00 30 57.4
	13	i	10 46 57.2	
	14	i	12 51 34.5	
	15	iPKP	21 40 20.8	Loyalty Islands Region 21.8S 170.9E h=86 M=5.3 H=21 20 49.8
7	16	iP i iS	07 25 07.4 07 25 26.9 07 28 24	$\Delta = 18^\circ$ $M_B = 4.9$ (ESK)

ESK 1968 - MARCH

DATE	NO.	PHASE	TIME	REMARKS
7	17	iP	10 51 50.2	
8	18	iPg iSg i	05 26 52.9 05 26 55.2 05 26 57.9	N 53 W Bearing from ESK $\Delta = 15$ km
9	19	iP iS	00 58 45.2 01 09 23	Nicobar Islands Region 8.7N 94.0E h=33 M=5.0 H=00 46 00.9
	20	i	15 00 46.5	
	21	iPKP	22 54 58.1	Fiji Islands Region 21.7S 178.9W h=544 M=4.5 H=22 36 20.2
10	22	iP i	04 00 45.2 04 14 26.8	Andreanof Islands, Aleutians 177.3W 52.1N h=7 M=5.4 H=03 49 25.0
	23	iP	06 53 38.2	Aegean 39.1N 24.3E h=33 M=4.4 H=06 48 16.4
	24	iP iS	07 16 19.6 07 20 46	
	25	i	07 31 56.3	
	26	i	11 53 27.9	
	27	iPKP i	08 45 47.8 08 48 48	Tonga Islands 16.2S 173.9W h=112 M=6.0 H=08 26 32.8
	28	iP	09 43 06.2	Caribbean Sea 13.0N 72.6W h=11 M=5.3 H=09 32 07.4
	29	i	16 01 41.9	
	30	i	14 44 46.8	
	31	i	15 54 16.1	
	32	iP	02 16 55.9	Central Kazakh S.S.R. 42.3N 66.5E h=33 M=5.4 H=02 08 36.6

ESK 1968 - MARCH

DATE	NO.	PHASE	TIME	REMARKS
14	33	i	16 22 46.5	
15	34	i	13 07 36.5	
	35	i	14 38 35.9	
	36	i	15 36 49.8	
16	37	i	13 50 42.6	
	38	i	16 37 19.8	
	39	i	17 51 09.6	
19	40	i	10 35 44.9	
	41	i	13 53 08.5	
	42	i	14 49 16.2	
20	43	iP	12 24 42.4	Rat Island, Aleutians 51.4N 177.7E h=45 M=5.1 H=12 13 08.4
22	44	i	15 11 22.1	
	45	iP	20 47 16.3	Off East Coast of Honshu, Japan 37.4N 142.4E h=18 M=5.3 H=20 34 45.3
23	46	i	17 16 15.5	
25	47	iP	16 43 51.1	Mexico/Guatemala Border Region 15.2N 92.0W h=60 M=5.1 H=16 32 05.2
26	48	iPKP	00 59 33.1	Bali Sea 6.6S 116.1E h=520 M=5.9 H=00 41 56.9
	49	i	01 10 27.9	
28	50	i	01 04 20.1	

ESK 1968 - MARCH

DATE	NO.	PHASE	TIME	REMARKS
28	51	iP i i iS	07 45 12.9 07 45 26.1 07 46 08 07 49 05	Ionian Sea 37.9N 20.9E h=6 M=5.4 H=07 39 57.1 M _B =6.0 (ESK)
	52	i	15 06 09.9	
	53	i	15 22 57.5	
	54	iP i i	16 42 45.5 16 43 48.1 16 47 52	Greece/Albania Border Region 39.6N 20.4E h=18 M=4.8 H=16 37 46.8 M _B =5.1 (ESK)
31	55	iP	17 44 45.8	South Alaska 59.6N 153.3W h=79 M=4.5 H=17 34 25.8

ESK 1968 - APRIL

DATE	NO.	PHASE	TIME	REMARKS
1	1	iP	00 54 34.9	Shikoku Japa ⁿ 32.5N 132.2E h=33 H=00 42 04.2 M _B =7.4 (ESK)
	2	iP i i iS	07 25 49.7 07 28 08 07 33 08 07 36 12	Shikoku Japan 32.3N 132.1E h=32 M=5.7 H=07 13 17.6 M _B =6.0 (ESK)
3	3	i	12 54 14.9	
	4	iP i	16 36 15.2 16 36 31.1	Near Islands, Aleutians 51.7N 174.2E h=38 M=5.3 H=16 24 45.7
5	5	iP	11 51 29.8	Central Alaska 64.2N 148.9W h=128 M=4.1 H=11 41 49.0
	6	i	13 10 28.9	
	7	i	14 24 25.5	
7	8	iP iS i	04 51 50.7 05 01 24 05 06 28	Rat Islands, Aleutians 51.5N 176.5E h=33 M=5.3 H=04 40 19.3
8	9	iP	09 04 32.5	Aegean Sea 39.5N 25.8E h=33 M=4.3 H=08 59 11.0
9	10	iP iPcP i i iS iSS	02 40 42.5 02 41 05.3 02 44 24 02 47 14 02 50 23 02 55 09	South California 33.1N 116.1W h=20 M=6.1 H=02 28 58.9
	11	iP	11 45 46.9	Fiji Islands Region 17.8S 178.2W h=650 M=5.2 H=11 27 39.0
	12	i	14 32 29.4	
	13	i	14 45 12.3	
10	14	i	13 25 44.3	

ESK 1968 - APRIL

DATE	NO.	PHASE	TIME	REMARKS
10	15	i i	14 35 19.4 14 35 42.8	
	16	i	18 34 55.2	
	17	iPKP	18 51 45.5	Loyalty Islands Region 22.6S 171.5E h=60 M=5.1 H=18 32 09.6
12	18	iPKP	06 35 27.3	Fiji Islands Region 18.1S 178.1W h=471 M=4.2 H=06 16 51.9
	19	iPKP	16 54 13.5	Fiji Islands Region 20.3S 177.9W h=459 M=4.6 H=16 35 38.3
13	20	iP iS	01 25 34.1 01 33 38	Puerto Rico Region 19.0N 66.9W h=51 M=5.1 H=01 15 32.3 M _B =5.5 (ESK)
14	21	iP iS	08 49 52.9 09 00 20	Off East Coast Honshu, Japan 33.4N 141.4E h=44 M=5.4 H=08 37 12,2
	22	iP iS	13 17 48.5 13 28 42	Off East Coast Honshu, Japan 33.4N 141.4E h=41 M=5.4 H=13 05 08.0
	23	iP	14 36 10.6	Northern Colombia 6.8N 73.0W h=161 M=5.0 H=14 24 55.3
15	24	iP iS	08 00 28.1 08 11 14	Nr. Coast of Northern Peru 5.8S 80.9W h=35 M=4.9 H=07 47 40.3
17	25	iP iS	09 16 39.6 09 20 40	Straits of Gibraltar 35.2N 3.7W h=16 M=5.0 H=09 12 04.3
	26	iP	13 20 29.9	Afghanistan/U.S.S.R. Border Region 36.4N 71.5E h=113 M=5.2 H=13 11 26.2
18	27	iP	04 53 47.1	South of Fiji Islands 25.7S 179.5W h=379 M=4.7 H=04 34 40.6

ESK 1968 - APRIL

DATE	NO.	PHASE	TIME	REMARKS
18	28	iP i iS	19 41 26.2 19 41 47.4 19 43 46.3	Northern Italy 44.2N 8.3E h=7 M=4.1 H=19 38 15.4
19	29	iP	12 28 57.6	Azores Islands 38.2N 26.6W h=33 M=4.6 H=12 23 51.5
20	30	iP i iS i	09 49 15.1 09 49 25.9 09 53 28 09 55 08	Azores 38.3N 26.6W h=33 M=4.9 H=09 44 08.6
	31	iP i i	10 23 06.8 10 23 36 10 27 42	Azores 38.3N 26.6W h=33 M=5.1 H=10 18 01.1
21	32	iP i iS i i	08 46 21.9 08 46 35.5 08 56 36 09 01 44 09 09 45	Off East Coast of Honshu 38.6N 143.0E h=42 M=5.3 H=08 34 03.5
	33	iPg iSg i i	13 28 18.8 13 28 24.9 13 28 26.2 13 28 27.5	$\Delta = 44\text{km}$, $M_L = 3.1$ (ESK)
	34	i	14 40 13.5	
	35	eP eS	17 19 06 17 29 20	$\Delta = 79^\circ$ (ESK)
	36	iP	21 13 53.6	Tyrrhenian Sea 39.8N 14.9E h=311 M=4.3 H=21 09 47.0
23	37	iP i	06 54 14.6 06 54 23.5	Afghanistan/U.S.S.R. Border Region 36.3N 71.2E h=114 M=5.2 H=06 45 11.5
	38	iPg iSg i	11 29 42.7 11 29 54.1 11 29 56.5	$\Delta = 109^\circ$ $M_L = 3.3$ (ESK)
	39	iP iS	12 48 42.7 12 55 55	Southern Iran 27.7N 56.7E h=52 M=5.1 H=12 39 47.3

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DATE	NO.	PHASE	TIME	REMARKS
23	40	iP iPcP iPPP iS iPPS iScS iSS iSSS i	20 39 42.4 20 40 30 20 43 34 20 48 14 20 48 40 20 49 24 20 52 06 20 55 06 20 57 08	Gulf of Alaska 58.7N 150.0W h=23 M=6.3 H=20 29 14.5 $M_B = 7.1$ (ESK)
	41	i	21 08 43.9	
24	42	i	02 18 25.5	
	43	iP i i iS	08 23 23.7 08 23 34.1 08 24 16.9 08 27 38	Aegean Sea 39.3N 24.9E h=17 M=5.2 H=08 18 02.5 $M_B = 5.1$ (ESK)
	44	iPKP	14 17 11.5	Bismarck Sea 4.6S 149.4E h=565 M=5.0 H=13 59 14.5
	45	i	16 40 54.3	
	46	iP	19 44 18.1	Chagos Archipelago Region 5.0S 68.4E h=33 M=5.2 H=19 31 49.5
26	47	iP i i	03 06 08.9 03 06 20.8 03 08 10.9	Iran 35.1N 50.2E h=21 M=5.3 H=02 58 22.1
	48	iP i iS i eL	13 25 05.4 13 25 22.5 13 32 58 13 39 14 13 41 44	Central Mid-Atlantic Ridge 0.2S 18.2W h=33 M=5.2 H=13 15 23.3
	49	iP i	13 33 31.8 13 33 45.1	Nr. East Coast of Honshu 37.4N 141.4E h=67 M=5.2 H=13 21 13.0
	50	iP	15 11 22.1	Southern Nevada 37.3N 116.5W h=0 M=6.3 H=15 00 00.1

ESK 1968 - APRIL

DATE	NO.	PHASE	TIME	REMARKS
26	51	iP iPP iS i	18 00 10.1 18 03 08 18 10 14 18 16 05	Nr. Coast of Michoacan, Mexico 18.7N 103.3W h=65 M=5.5 H=17 48 02.3
27	52	iPKP	14 16 17.6	Fiji Islands Region 21.2S 179.2W h=670 M=4.5 H=13 57 50.1
28	53	iP	04 30 24.1	N. Pacific Ocean 44.8N 174.5E h=39 M=5.5 H=04 18 15.7
	54	iP	20 17 53.1	N. Atlantic Ridge 45.5N 27.8W h=33 M=4.5 H=20 13 36.7
29	55	iP i iPP iS L	17 08 49.7 17 09 52.7 17 10 07.6 17 14 28 17 19 09	N.W. Iran/U.S.S.R. Border Region 39.2N 44.3E h=34 M=5.3 H=17 01 57.6 M _B =6.3 (ESK)

ESK 1968 - MAY

DATE	NO.	PHASE	TIME	REMARKS
	1	i	08 56 06.6	
	2	iPg iSg i i	03 50 50.1 03 51 02.2 03 51 04.5 03 51 07.2	Δ =97km M _L =1.9 (ESK)
	3	iP iPP i iS i	05 39 47.5 05 40 07.1 05 40 17.1 05 48 03 05 48 38	Dominican Republic Region 18.8N 69.6W h=82 M=5.8 H=05 29 38.2
	4	iP	23 44 38.5	Banda Sea Region 6.4S 129.9E h=128 M=5.5 H=23 26 03.6
	5	iP	05 45 27.4	N.E. of Taiwan 25.1N 124.6E h=98 M=5.8 H=05 32 45.7
	6	iP	14 49 28.6	Guatemala 14.6N 90.8W h=123 M=5.1 H=14 37 49.8
	7	iP i i i	09 11 42.2 09 11 56.1 09 12 30.2 09 12 36.9	Northern Colombia 6.7N 73.0W h=168 M=5.7 H=09 00 29.0
	8	iP	12 02 03.9	Fiji Islands Region 19.2S 177.6W h=533 M=4.9 H=11 43 31.6
	9	iP i i	12 28 28.5 12 28 41.2 12 29 10.1	Off Coast of Oregon 43.6N 127.9W h=33 M=6.1 H=12 17 13.4
	10	iP	22 54 05.2	Afghanistan/U.S.S.R. Border Region 37.1N 71.9E h=160 M=5.1 H=22 45 08.3
	9	i	06 26 43.1	
	9	iP	07 40 17.4	Near Coast of Northern Peru 5.3S 81.7W h=35 M=5.6 H=12 52 24.4
	13	i	09 09 18.1	

ESK 1968 - MAY

DATE	NO.	PHASE	TIME	REMARKS
9	14	i i	13 05 12.9 13 05 22.9	
	15	iP	14 34 43.3	Southern Honshu, Japan 34.2N 136.8E h=18 M=4.9 H=14 22 08.7
11	16	iP	12 19 52.6	Caspian Sea 41.0N 49.8E h=16 M=5.0 H=12 12 41.0
12	17	iP	04 44 40.1	Oaxaca, Mexico 16.8N 95.3W h=53 M=4.4 H=04 32 49.0
13	18	i	09 43 23.3	
	19	i	14 44 16.5	
	20	i	15 22 05.5	
	21	iP	19 47 18.9	Lake Marakaibo 9.0N 71.1W h=46 M=4.8 H=19 36 05.2
14	22	iP	05 56 36.9	South of Fiji Islands 23.8S 176.9W h=122 M=4.9 H=05 37 05.3
	23	eP iPP i	14 17 25 14 20 50 14 21 38	Ryukyu Islands 29.9N 129.4E h=168 M=5.9 H=14 05 06.0
15	24	i	10 26 33.4	
16	25	iP	01 01 09.2	Off East Coast of Honshu, Japan 40.8N 143.2E h=7 H=00 48 55.4 M _B =8.2
	26	iP	10 51 04.4	Hokkaido, Japan 41.5N 142.7E h=33 H=10 39 01.6 M _B =7.3 (ESK)
	27	iP	16 26 00.7	Honshu, Japan 39.7N 143.6E h=29 M=5.6 H=16 1375.1

ESK 1968 - MAY

DATE	NO.	PHASE	TIME	REMARKS
16	28	iP	17 40 17.3	Hokkaido, Japan 41.4N 143.0E h=33 M=5.2 H=17 28 13.0
	29	iP iPP	18 55 25.2 18 58 23.3	Nr. East Coast of Honshu, Japan 40.7N 142.1E h=59 M=5.7 H=18 43 21.0
	30	iP	19 28 51.1	Hokkaido, Japan 41.3N 142.4E h=42 M=5.6 H=19 16 47.2
	31	iP	20 34 18.5	Hokkaido, Japan 41.4N 142.6E h=39 M=5.6 H=20 22 14.9
	32	iP	23 17 08.1	Off East Coast of Honshu, Japan 39.8N 143.1E h=37 M=5.8 H=23 04 54.7
17	33	iP iS iSS	10 55 04.6 11 05 08 11 10 26	Off East Coast of Honshu, Japan 39.6N 143.4E h=33 M=5.3 H=10 42 45.9 M _B = 6.2 (ESK)
	34	iP	13 14 40.1	Hokkaido, Japan 41.5N 142.8E h=45 M=5.6 H= 13 02 37.3
	35	iPKP	13 23 17.1	Loyalty Islands Region 22.8S 173.3E h=55 M=5.7 H=13 03 32.3
	36	iP	18 29 20.9	Off East Coast of Honshu, Japan 39.6N 143.0E h=32 M=5.2 H=18 17 07.3
18	37	iP	14 19 53.6	Hokkaido, Japan 41.6N 142.6E h=33 M=4.8 H=14 07 50.3
19	38	iP	09 42 09.8	Sicily 38.5N 15.0E h=24 M=4.9 H=09 37 29.8
	39	iPKP	12 30 50.9	South of Australia 48.9S 124.5E h=33 H=12 11 09.0
	40	iP	16 57 42.6	Iran 36.3N 53.4E h=33 M=4.7 H=16 49 50.4

ESK 1968 - MAY

DATE	NO.	PHASE	TIME	REMARKS
19	41	iP iS iSS	22 28 25.6 22 38 52 22 44 12	Off East Coast of Honshu, Japan 40.9N 143.2E h=18 M=5.1 H=22 16 44.8
20	42	iP iS iSS	03 28 33.1 03 38 38 03 43 56	Off East Coast of Honshu, Japan 40.0N 144.0E h=31 M=5.5 H=03 16 19.6
	43	iPKP i i	07 33 03.5 07 33 20.4 07 35 08.9	Kermadec Islands 30.9S 178.3W h=22 M=6.0 H=07 13 03.0
	44	iP	10 45 44.1	Kurile Islands 48.8N 154.7E h=40 M=5.4 H=10 34 16.8
	45	iP	12 05 15.1	Near East Coast of Kamchatka 51.9N 158.5E h=55 M=5.3 H=11 53 55.5
	46	iPKP i iPP eSS	20 25 41.1 20 26 05.2 20 29 33.8 20 49 22	Kermadec Islands 30.7S 178.4W h=46 H=20 05 49.1
	47	iP i	21 21 39.3 21 21 49.5	Kurile Islands 44.8N 150.3E h=38 M=5.8 H=21 09 44.8
21	48	iP i	00 31 28.7 00 31 42.5	Kurile Islands 44.8N 150.2E h=45 M=5.2 H=00 19 34.8
	49	iP i i	04 07 45.8 04 09 17.3 04 09 32.1	South-Eastern Uzbek S.S.R. 38.9N 65.2E h=13 M=5.4 H=03 59 11.5
	50	iP i	11 12 39.8 11 12 54.5	Kurile Islands 44.7N 150.2E h=33 M=5.1 H=11 00 44.6
	51	iP	11 15 49.6	Kurile Islands 45.0N 150.1E h=48 M=4.9 H=11 03 57.5
	52	iP	18 59 23.6	Kurile Islands 44.8N 150.3E h=51 M=5.2 H=18 47 30.5
22	53	iP iPP	11 03 56.5 11 04 10.6	Hokkaido, Japan 41.5N 142.8E h=40 M=5.9 H=10 51 53.3

ESK 1968 - MAY

DATE	NO.	PHASE	TIME	REMARKS
22	54	iP	18 48 14.9	Kurile Islands 44.5N 150.3E h=35 M=5.0 H=18 36 16.6
	55	iP i i iS iSS	19 41 34.2 19 41 48.2 19 44 06 19 51 33 19 56 52	Near East Coast of Honshu, Japan 40.2N 142.3E h=40 M=5.3 H=19 29 25.7
	56	iP	20 13 07.4	Kurile Islands 44.8N 150.2E h=46 M=5.3 H=20 01 13.3
23	57	ePKP i iPP i	17 44 16 17 45 37.8 17 49 12.1 17 56 24	South Island, New Zealand 41.7S 171.9E h=21 M=6.1 H=17 24 15.7
	58	iP i	18 44 55.9 18 45 08.2	Kurile Islands 44.9N 150.2E h=33 M=5.1 H=18 33 01.0
24	59	iPg iSg	11 32 26.3 11 32 37.9	Δ =93 km (ESK)
	60	iP	14 18 31.4	Off East Coast of Honshu, Japan 40.9N 143.0E h=38 M=5.6 H=14 06 24.2
	61	i	14 01 25.9	
	62	i	16 12 10.1	
	63	iP	21 48 29.5	Komandorsky Islands Region 54.2N 169.3E h=5 M=5.3 H=21 37 11.2
25	64	iP iS iSS	12 05 08.7 12 15 10 12 20 34	Off East Coast of Honshu, Japan 40.1N 143.1E h=37 M=5.2 H=11 52 57.4 M _B =5.9 (ESK)
	65	i i	14 56 09.2 14 56 18.2	
	66	i	17 53 48.5	

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DATE	NO.	PHASE	TIME	REMARKS
26	67	i	11 26 34.9	
27	68	i	13 59 11.8	
	69	i	17 04 42.2	
28	70	iPKP i	09 26 16.5 09 29 28	Kermadec Islands 30.9S 177.8W h=33 M=5.5 H=09 06 29.9
	71	i	09 56 57.1	
	72	iP e iS i	13 42 30.7 13 46 08 13 47 08 13 47 18.2	$\Delta = 23^\circ$ $M_B = 5.0$ (ESK)
	73	i	19 41 18.6	
	74	i	21 37 00.3	
	75	iP i eS i iSS	22 41 26.6 22 41 44.7 22 50 52 22 51 34 22 55 48	Near Islands, Aleutian Islands 52.2N 172.8E h=15 M=5.6 H=22 29 56.8 $M_B = 5.6$ (ESK)
29	76	iP	00 19 52.9	Near Islands, Aleutians 52.5N 173.1E h=33 M=4.7 H=00 08 28.0
30	77	iP i	01 19 15.6 01 19 46.1	Southern Iran 27.8N 54.0E h=27 M=5.2 H=01 10 30.0
	78	iP i iS iScS i	05 35 43.3 05 41 53 05 45 31 05 46 02 05 51 07	Kurile Islands 44.7N 150.3E h=49 M=5.5 H=05 23 48.9
	79	iP i i i i iS	17 46 27.1 17 46 48.2 17 47 37.1 17 48 12.7 17 48 38.4 17 51 16	Eastern Mediterranean Sea 35.5N 28.0E h=21 M=5.3 H=17 40 24.4

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DATE	NO.	PHASE	TIME	REMARKS
30	80	iP i i	20 01 28.6 20 02 43.3 20 06 08	Southern Iran 29.7N 51.3E h=32 M=5.2 H=19 53 06.0
	81	iPn iSn	20 06 39.5 20 07 07.3	$\Delta = 263$ km (ESK)
31	82	iPKP	10 18 33.9	New Hebrides Islands 20.7S 170.0E h=97 M=4.8 H=09 59 10.0
	83	i	14 13 29.9	

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DATE	NO.	PHASE	TIME	REMARKS
1	1	iP i i	10 43 57.2 10 44 34.1 10 47 43.4	Near East Coast of Honshu, Japan 40.2N 142.3E h=50 M=5.4 H=10 31 49.3
2	2	iP	06 40 13.1	Kurile Islands 44.2N 147.2E h=31 M=4.9 H=06 28 18.0
3	3	i	08 29 24.5	
	4	iPKP	09 36 23.1	East New Guinea Region 5.4S 147.0E h=190 M=5.6 H=09 17 46.2
	5	iP	14 27 53.6	Kurile Islands 45.7N 148.3E h=160 M=5.4 H=14 16 20.0
4	6	i	04 59 16.1	
	7	iP	06 58 03.1	Western Iran 32.7N 48.3E h=40 M=5.2 H=06 50 06.6
	8	i	10 06 35.9	
	9	i	10 24 45.7	
	10	iP	17 28 02.9	Taiwan Region 22.5N 121.4E h=47 M=5.2 H=17 15 09.8
5	11	iP i	23 17 02.1 23 17 13.5	Near Islands, Aleutian Islands 52.2N 174.3E h=41 M=5.0 H=23 05 36.8
6	12	i i	07 18 40.3 07 18 57.1	
	13	i	14 10 36.5	
	14	iP	19 57 23.9	Luzon, Phillipine Islands 14.9N 119.9E h=80 M=5.4 H=19 44 07.9
	15	iP	21 29 20.9	Hokkaido, Japan 41.3N 142.6E h=37 M=5.3 H=21 17 14.4

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DATE	NO.	PHASE	TIME	REMARKS
6	16	iP	23 03 51.9	Kurile Islands 44.5N 148.1E h=57 M=5.1 H=22 52 00.4
7	17	iP iPP i	12 12 02.8 12 16 35 12 18 36	Celebes 1.8S 120.1E h=20 M=5.9 H=11 57 29.4
	18	i	16 05 07.2	
8	19	iP i	00 48 04.1 00 55 36	North of Franz Josef Land 87.0N 51.3E h=33 M=5.3 H=00 41 29.0
	20	iP	02 56 46.9	Off East Coast of Honshu, Japan 40.6N 143.7E h=33 M=4.7 H=02 44 37.3
	21	iP i iS	05 41 43.9 05 41 57.9 05 51 34	Kurile Islands 43.4N 147.1E h=43 M=5.3 H=05 29 46.5
	22	iP	11 14 01.2	Off East Coast of Kamchatka 51.2N 159.0E h=33 M=4.1 H=11 02 31.0
	23	iPKP	13 49 57.5	Loyalty Islands Region 21.8S 169.8E h=33 H=13 30 20.0
	24	iP	21 06 48.3	Hokkaido, Japan 41.5N 142.3E h=30 M=5.2 H=20 54 45.2
	25	iP iS i i	23 42 52 23 52 08 23 53 08 23 57 48.1	$\Delta = 72^\circ$ (ESK)
9	26	iP	01 03 34.3	North West Iran/U.S.S.R. Border Region 39.0N 46.0E h=50 M=5.0 H=00 56 33.9
	27	i	10 35 28.9	
	28	iP	11 45 24.1	N.W. Iran/U.S.S.R. Border Region 39.0N 46.1E h=40 M=4.2 H=11 38 22.9

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DATE	NO.	PHASE	TIME	REMARKS
9	29	iP	18 11 18.9	Hokkaido, Japan 41.4N 142.6E h=21 M=4.9 H=17 59 13.2
10	30	iP	12 51 43.3	Alaska Peninsula 56.3N 161.6W h=182 M=5.6 H=12 41 05.7
	31	iP iS	15 15 15.5 15 22 02	North Atlantic Ridge 22.3N 45.0W h=33 M=4.7 H=15 06 58.0
11	32	iP	03 14 32.5	Eastern Kazakh S.S.R. 49.8N 78.2E h=0 M=5.3 H=03 05 57.8
	33	iP i	06 03 59.2 06 04 49.9	El Salvador 13.9N 88.9W h=199 M=5.3 H=05 52 33.5
	34	i	14 52 30.1	
	35	iP	22 42 03.9	Kurile Islands 45.6N 150.9E h=60 M=4.7 H=22 30 15.5
12	36	iP	04 40 47.8	India/East Pakistan Border Region 24.9N 91.9E h=44 M=5.3 H=04 29 22.6
	37	i	11 26 24.2	
	38	iP iPP iPPP i	13 54 03.2 13 57 26 13 59 22 14 00 46	Near East Coast of Honshu, Japan 39.5N 142.7E h=44 M=6.0 H=13 41 50.7
	39	iP	14 50 21.5	Near East Coast of Honshu, Japan 39.4N 142.8E h=31 M=5.0 H=14 38 11.9
	40	iPg iSg	14 54 36.5 14 54 52.9	$\Delta = 135$ km (ESK)
	41	iP	15 21 07.2	Off East Coast of Honshu, Japan 39.5N 143.0E h=28 M=5.3 H=15 08 52.2
	42	iP	15 36 07.2	Off East Coast of Honshu, Japan 39.4N 143.1 E h=29 M=5.1 H=15 23 52.5

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DATE	NO.	PHASE	TIME	REMARKS
	43	iP	16 01 13.9	Off East Coast of Honshu, Japan 39.3N 143.0E h=30 M=5.1 H=15 48 59.5
	44	iP	18 04 17.5	Near East Coast of Honshu, Japan 39.1N 142.9E h=30 M=5.5 H=17 52 01.2
	45	iP	19 08 03.1	Off East Coast of Honshu, Japan 39.6N 143.2E h=30 M=5.0 H=18 55 46.4
	46	iP i i	22 09 55.9 22 12 04.5 22 20 05	Near East Coast of Honshu, Japan 39.3N 142.8E h=36 M=5.7 H=21 57 41.3
	47	i	23 40 28.9	
13	48	iP i iPP	00 17 16.9 00 18 11.1 00 20 22.1	Off East Coast of Honshu, Japan 39.5N 143.0E h=24 M=5.3 H=00 05 00.7
	49	iP iPP	02 17 58.1 02 21 22.5	Near East Coast of Honshu, Japan 39.4N 142.8E h=25 M=5.1 H=02 05 42.8
	50	iP	04 01 46.9	Jan Mayen Island Region 71.2N 5.6W h=33 M=4.6 H=03 58 11.0
14	51	iP i iS	12 04 54.8 12 05 26.1 12 15 09	Near East Coast of Honshu, Japan 39.3N 142.8E h=37 M=5.4 H=11 52 39.7 M _B =5.5 (ESK)
	52	iP	12 29 24.4	Kurile Islands 45.2N 153.5E h=41 M=5.5 H=12 17 27.7
	53	iP	13 35 03.2	Off East Coast of Kamchatka 51.7N 159.3E h=33 M=5.0 H=13 23 38.6
	54	iP	13 55 31.5	Off East Coast of Kamchatka 51.7N 159.0E h=33 M=4.3 H=13 44 05.0

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DATE	NO.	PHASE	TIME	REMARKS
14	55	iP	15 30 29.1	Off East Coast of Kamchatka 51.7N 159.1E h=33 M=4.4 H=15 19 04.0
	56	i	17 12 51.6	
	57	i	18 30 45.4	
	58	iP	22 53 16.9	Off East Coast of Kamchatka 51.7N 159.4E h=33 M=4.6 H=22 41 50.0
15	59	iP	00 55 10.2	Off East Coast of Kamchatka 51.5N 159.5E h=33 M=4.4 H=00 43 43.0
	60	iP	03 43 36.1	Near East Coast of Honshu, Japan 39.3N 142.8E h=25 M=5.4 H=03 31 18.3
	61	iP	05 23 14.3	Near Coast of Chiapas, Mexico 14.4N 92.9W h=25 M=5.4 H=05 11 17.2
	62	iP	06 11 37.3	East China Sea 27.0N 126.5E h=88 M=5.7 H=05 58 59.0
	63	iP iS i i i	07 20 54.2 07 30 57 07 31 45 07 32 36 07 36 22	South of Panama 5.6N 82.6W h=16 M=6.0 H=07 08 48.1
	64	iP	11 38 56.3	Off East Coast of Kamchatka 51.7N 159.4E h=39 M=5.4 H=11 27 32.9
15	65	i	14 11 20.2	
	66	iPKP	19 51 51.1	Loyalty Islands 21.5S 169.1E h=36 M=4.7 H=19 32 07.6
	67	iP	20 05 11.1	Hokkaido, Japan 41.9N 142.7E h=33 M=5.2 H=19 53 09.2

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DATE	NO.	PHASE	TIME	REMARKS
	68	i	11 58 41.5	
	69	iP	13 08 07.6	Sicily 38.0N 14.9E h=33 M=4.8 H=13 03 23.1
17	70	iP	05 06 05.4	Eastern Caucusses 40.9N 48.2E h=33 M=5.0 H=04 59 04.7
	71	iP	08 08 52.2	Near Coast of Chiapas, Mexico 14.4N 92.9W h=33 M=4.9 H=07 56 56.2
	72	i	09 33 13.4	
	73	iP i iPP i i iS i i	12 05 05.9 12 05 48.8 12 08 07.9 12 09 42 12 11 18 12 15 08 12 20 09 12 26 01	Hokkaido, Japan 41.0N 143.0E h=48 M=5.7 H=11 53 00.4
	74	i	14 59 43.3	
	75	i	17 51 53.7	
	76	i	18 32 25.2	
	77	iP	19 09 49.5	Off East Coast of Honshu, Japan 38.7N 143.6E h=17 M=4.9 H=18 57 27.5
18	78	iP iS i	05 30 22.9 05 32 30.9 05 34 06.5	Northern Italy 45.7N 8.1E h=5 M=4.7 H=05 27 33.0
	79	iPKP	07 00 56.2	Fiji Islands Region 21.7S 179.6W h=600 M=5.0 H=06 42 21.9
	80	iP	11 21 45.9	Greece 38.0N 23.5E h=179 M=4.3 H=11 16 36.8
	81	i	13 02 40.1	

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DATE	NO.	PHASE	TIME	REMARKS
19	82	iP	01 50 33.1	Near East Coast of Honshu, Japan 39.5N 142.9E h=33 M=5.3 H=01 38 17.4
	83	iP	05 14 34.7	Eastern Kazakh S.S.R. 50.0N 79.1E h=0 M=5.5 H=05 05 57.3
	84	iP iS	08 26 12 08 36 44	Northern Peru 5.6S 77.2W h=28 M=6.4 H=08 13 35.8
	85	i	09 18 31.1	
	86	i	10 54 25.2	
	87	i	15 55 38.7	
	88	iP	18 15 31.6	Off East Coast of Honshu, Japan 40.3N 143.3E h=33 M=4.5 H= 18 03 21.1
20	89	i	00 06 36.7	
	90	iP i iS	02 51 14.4 02 52 24.2 03 01 45	Northern Peru 5.6S 77.3W h=33 M=5.8 H=02 38 38.4
	91	iP	08 23 48.5	Northern Peru 5.8S 77.3W h=33 M=5.3 H=08 11 10.5
	92	i	11 42 50.7	
	93	iP	12 19 08.1	Crete 35.4N 24.0E h=43 M=4.6 H=12 13 30.0
	94	i	22 22 46.9	
21	95	iP iS	00 38 47.9 00 49 16	Northern Peru 5.7S 77.3W h=22 M=5.6 H=00 26 07.8
	96	i	01 37 02.5	
	97	i	14 43 12.2	

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DATE	NO.	PHASE	TIME	REMARKS
21	98	i	14 55 19.8	
	99	iP	17 24 03.9	Norwegian Sea 72.2N 1.0E h=33 M=4.2 H=17 20 05.9
22	100	iP i iS i	01 24 45.1 01 25 58.4 01 34 44 01 40 03	Off East Coast of Honshu, Japan 40.3N 143.7E h=15 M=5.6 H=01 12 30.9
	101	iP	12 24 49.8	Northern Italy 45.9N 11.3E h=35 M=4.6 H=12 21 37.7
	102	i	12 41 03.2	
	103	iP	16 05 10.1	Southern Iran 29.6N 51.5E h=32 M=4.8 H=15 56 46.6
	104	i	18 21 18.9	
23	105	i	04 52 30.1	
	106	iP	09 24 40.9	Southern Iran 29.8N 51.2E h=34 M=5.2 H=09 16 18.6
	107	iP eS	17 04 40.6 17 13 26	Kodiak Island Region 56.7N 152.4W h=33 M=4.9 H=16 53 50.2
24	108	iP	10 22 40.4	Ionian Sea 37.8N 20.4E h=33 H=10 17 29.0 (B.C.I.S.)
	109	iP	20 22 09.1	North of Ascension Island 1.6S 15.7W h=33 M=4.9 H=20 12 19.8
25	110	i	11 30 20.2	
	111	iP i	23 45 37.8 23 55 50	Off East Coast of Honshu, Japan 39.6N 143.4E h=17 M=5.3 H=23 33 18.0
26	112	iP iS	02 03 08.4 02 08 04	$\Delta = 28^\circ$ (ESK)
	113	iP	05 06 31.9	Northern Peru 5.7S 77.2W h=27 M=4.9 H=04 53 45.3

ESK 1968 - JUNE					
DATE	NO.	PHASE	TIME	REMARKS	
26	114	iP	10 35 51.7	Hokkaido, Japan 42.1N 142.7E h=33 M=5.5 H=10 23 48.2	
		iS	10 46 08		
	115	i	14 41 44.2		
	116	iPKP	16 00 03.5	Loyalty Islands 22.2S 171.4E h=90 M=5.6 H=15 40 31.1	
i		16 14 16			
27	117	i	01 06 14.1		
	118	i	08 54 15.8		
	119	i	09 02 42.1		
	120	i	09 04 13.1		
	121	i	09 14 24.1		
	122	iP	15 46 17.2	Switzerland 46.3N 7.0E h=20 M=4.1 H=15 43 40.3	
	123	i	17 39 05.1		
	124	i	18 20 10.2		
	28	125	i	13 44 57.4	
		126	i	14 04 50.1	
	29	127	iP	06 33 32.1	Near Coast of Guatemala 13.6N 90.2W h=97 M=4.7 H=06 21 48.1
		128	i	14 49 42.1	
30	129	ePP	09 54 10	Mariana Islands 13.0N 145.2E h=38 M=5.2 H= 09 35 29.4	
		iSKS	10 00 26		
		iPS	10 03 40		

ESK 1968 - JULY				
DATE	NO.	PHASE	TIME	REMARKS
1	1	i	06 08 25.4	
		i	06 09 35.9	
2	2	iP	10 57 37.7	Honshu, Japan 35.0N 139.3E h=67 M=5.9 H=10 45 11.9
		e	11 04 40	
		iS	11 07 50	
	3	i	11 08 42.3	
	4	iP	12 03 03.2	Near East Coast of Kamchatka 53.8N 160.4E h=65 M=4.3 H=11 51 56.0
	5	iP	23 50 43.5	Southern Iran 29.9N 51.6E h=33 M=4.7 H=23 42 21.0
2	6	iP	03 56 52.9	Guemero, Mexico 17.6N 100.3W h=41 M=5.9 H=03 44 48.9
		i	03 57 57.9	
		iS	04 06 52	
		i	04 12 52	
	7	iPKP	04 50 49.5	Kermadec Islands 29.7S 177.9W h=53 M=5.6 H=04 30 52.7
4	8	iP	07 24 15.1	Kurile Islands 43.9N 147.2E h=80 M=5.0 H=07 12 24.2
	9	iP	21 53 17.3	Southern Greece 37.8N 23.2E h=33 M=5.3 H=21 47 55.6
		iS	21 57 36	
5	10	iP	00 57 04.8	Southern California 34.1N 119.7W h=6 M=5.7 H=00 45 17.2
	11	iP	11 40 27.9	Near East Coast of Honshu, Japan 38.5N 142.0E h=42 M _s =6.3 M _B =5.9 H=11 28 12.6
		i	11 41 06	
		iS	11 50 22	
	12	i	13 58 05.9	
	13	i	16 59 19.1	
6	14	i	17 42 01.9	
	15	i	18 02 48.1	

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DATE	NO.	PHASE	TIME	REMARKS
6	16	iPKP	19 47 45.2	Aroe Islands Region 6.3S 133.8E h=27 M=5.7 H=19 28 55.3
7	17	iP	01 20 37.5	Southern Alaska 61.3N 147.3W h=14 M=4.8 H=01 10 29.5
	18	iP	13 28 29.5	Near East Coast of Honshu, Japan 39.3N 142.9E h=24 M=5.1 H=13 16 14.2
	19	iPKP	14 43 13.1	Tonga Islands Region 22.2S 175.1W h=33 M=5.3 H=14 23 33.6
8	20	iP	00 00 45.2	Northern Peru 5.8S 77.1W h=27 M _s =5.2 M _B =5.5 H=23 48 08.2
	21	iPg iSg	02 56 18.8 02 56 21.2	Δ=16km (ESK)
	22	i	06 48 13.1	
	23	iP	12 28 02.9	South of Fiji Islands 22.2S 179.8W h=622 M=4.9 H=12 09 28.4
	24	iP	13 23 17.1	South Eastern Uzbek S.S.R. 38.0N 67.6E h=28 M=5.2 H=13 14 29.9
	25	iP	17 23 50.1	Southern Iran 29.7N 51.1E h=44 M _s =5.1 M _B =4.9 H=17 15 28.3
	26	iP	17 47 00.1	Crete 34.4N 25.2E h=33 M=5.3 H=17 41 05.8
	27	iP	18 40 30.3	Crete 34.4N 25.2E h=14 M=4.3 H=18 34 24.0
9	28	i	07 38 06.1	
	29	iPg iSg	07 53 23.8 07 53 27.3	Δ =24km (ESK)
12	30	iP iS iSS	00 56 53.2 01 06 54 01 12 14	Off East Coast of Honshu, Japan 39.5N 143.2E h=28 M _s =5.8 M _B =6.0 H=00 44 36.5

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DATE	NO.	PHASE	TIME	REMARKS
12	31	iP	04 08 43.1	Off East Coast of Honshu, Japan 39.5N 143.2E h=26 M _s =M _B =5.5 H=03 56 27.5
	32	i	09 02 27.8	
	33	i i	09 21 57.9 09 22 12.9	
	34	iP	12 16 32.6	Eastern Kazakh S.S.R. 49.7N 78.1E h=0 M _B =5.4 H=12 07 57.2
	35	iP	22 12 49.8	Kurile Islands 48.1 154.6E h=33 M=5.0 H=22 01 08.6
	17	36	i	21 13 30.1
	37	i	21 19 10.1	
	18	38	iP	14 48 45.8 Central Mid-Atlantic Ridge 9.6N 40.2W h=33 M=4.4 H=14 39 21.3
	39	iP	17 33 11.9	Nicobar Islands Region 8.9N 93.9E h=33 M=4.8 H=17 20 29.0
19	40	iP	05 09 09.5	Nicobar Islands Region 8.7N 96.6E M _s =5.3 M _B =5.8 H=04 56 27.2
	41	i	07 20 03.4	
	42	i	20 52 55.6	
	20	43	i	00 35 36.2
	44	i	01 48 49.2	
	45	i	21 13 02.2	
	22	46	iPKP	18 18 00.0 New Hebrides Islands 20.1S 169.0E h=34 M _s =5.5 M _B =5.4 H=17 58 30.3

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DATE	NO.	PHASE	TIME	REMARKS
23	47	eP eS	18 40 24 18 50 40	Off Coast of Jalisco, Mexico 18.7N 107.0W h=33 M _S =5.9 M _B =5.4 H=18 28 01.2
	48	eP eS	23 14 48 23 24 56	Off East Coast of Honshu, Japan 40.3N 143.3E h=14 M _S =5.6 M _B =5.2 H=23 02 35.5
	49	e	04 29 20	
24	50	i	16 16 27.2	
	51	i	16 47 50.1	
	52	iP	21 01 31.9	Greece 38.4N 22.2E h=66 M=4.3 H=20 56 24.1
25	53	iPKP	07 01 04.1	Tonga Islands 21.3S 174.5W h=33 M _B =5.1 H=06 41 27.0
	54	iPKP i	07 42 53.1 07 43 20.5	Kermadec Islands 30.8S 178.4W h=60 M _B =6.4 H=07 23 07.8
	55	iP	11 02 19.8	Kurile Islands 45.8N 146.7E h=17 M _B =5.9 M _S =5.5 H=10 50 31.5
26	56	iP	06 46 00.8	Near Coast of Chiapas, Mexico 14.4N 93.1W h=14 M _B =4.9 M _S =5.7 H=06 33 59.6
27	57	iPKP	11 11 04.1	South of Fiji Islands 19.2S 175.7E h=88 M=5.4 H=10 51 40.1
28	58	iPKP	11 18 05.1	Tonga Islands 22.5S 174.5W h=33 M _B =5.0 M _S =5.2 H=10 58 25.7
	59	iP	18 48 46.4	Northern Peru 5.6S 77.0W h=46.0 M=5.0 H=18 36 10.3
	60	iP	21 23 44.5	Komandorsky Islands Region 55.4N 166.6E h=27 M _B =5.4 M _S =5.8 H=21 12 38.1
	61	iP	21 34 20.9	Northern Chile 22.7S 69.4W h=70 M=5.1 H=21 18 59.5

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DATE	NO.	PHASE	TIME	REMARKS
29	62	iP	10 06 02.8	Near Coast of Oaxaca, Mexico 15.1N 94.0W h=43 M _S =5.1 M _B =5.0 H=09 54 09.4
	63	iPKP	11 31 40.5	Tonga Islands Region 22.5S 175.0W h=33 M _S =6.0 M _B =5.6 H=11 11 59.5
	64	i	12 46 39.6	
	65	iPKP	12 39 26.2	Tonga Islands 22.4S 174.9W h=33 M=5.3 H=12 19 46.6
	66	iPKP	15 33 31.8	South of Fiji Islands 25.3S 177.9W h=205 M=4.5 H=15 14 01.3
	67	iPKP	15 39 33.9	Tonga Islands Region 22.5S 174.4W h=33 M _S =5.3 M _B =5.0 H=15 19 57.6
	68	iP	16 13 37.1	Near Coast of Oaxaca, Mexico 15.1N 94.1W h=33 M=4.4 H=16 01 39.1
30	69	iP iS	00 07 06.9 00 11 56	Δ = 28 ⁰ (ESK)
	70	iP	02 28 05.1	Iceland Region 66.4N 17.4W h=1 M=4.4 H=02 24 48.6
	71	iPKP	03 09 11.8	Fiji Islands Region 20.9S 179.2W h=620 M=4.9m H=02 50 41.4
	72	iPKP	04 29 51.5	Tonga Islands Region 22.5S 175.0W h=33 M _S =5.7 M _B =5.3 H=04 10 12.1
	73	i	10 15 43.5	
	74	i	10 19 52.7	
	75	iP	17 46 26.1	Kurile Islands 44.1N 148.8E h=35 M=5.2 H=17 34 29.0
	76	iP	20 51 31.5	Near Coast of Northern Peru 6.9S 80.5W M _S =6.4 M _B =5.8 h=37 H=20 38 42.0

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DATE	NO.	PHASE	TIME	REMARKS
1	1	iP iPP	20 32 44 20 36 38	Luzon, Philippine Islands 16.5N 122.2E h=37 M _S =7.3 M _B =5.9 H=20 19 21.9
2	2	iP	13 39 35.9	Southern Iran 27.5N 60.9E h=62 M=5.7 H=13 30 23.3
	3	iP	14 18 45.1	Oaxaca, Mexico 16.6N 97.7W h=40 M _S =7.1 M _B =6.3 H=14 06 43.9
3	4	iP iPP iS	05 07 29.1 05 10 58 05 17 56	Ryukyu Islands 25.6N 128.5E h=19 M _S =6.7 M _B =6.4 H=04 54 32.7 M _B =6.4 (ESK)
	5	iP	19 32 24.2	Luzon, Philippine Islands 16.3N 122.4E h=22 M=5.2 H=19 19 01.6
4	6	iP i i	11 55 25.4 11 58 47.6 11 59 47.9	Mindanao, Philippine Islands 6.6N 126.8E h=107 M=5.7 H=11 41 24.8
	7	iP	23 29 31.1	Ionian Sea 37.7N 20.7E h=31 M=4.4 H=23 24 18.0
5	8	iP	05 03 06.1	Greenland Sea 73.2N 6.3E h=33 M=4.7 H=04 58 57.0
	9	i	10 25 31.1	
7	10	iP	08 12 09.3	Hokkaido, Japan 43.0N 144.6E h=54 M=5.6 H=08 00 13.4
8	11	iP	05 07 37.1	Near East Coast of Honshu, Japan 36.4N 141.4E h=41 M=5.4 H=04 55 10.0
	12	i	13 19 38.9	
	13	i	14 16 04.2	
	14	i	15 15 46.1	
9	15	iP	10 50 05.1	Kurile Islands 43.4N 147.1E h=40 M=5.1 H=10 38 04.0

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DATE	NO.	PHASE	TIME	REMARKS
9	16	i	12 33 53.4	
	17	i	20 59 51.9	
	18	i	02 21 38.6	
	19	iP	04 35 00.9	Iraq 36.9N 43.0E h=29 M=5.0 H=04 27 59.8
	20	i i i	06 09 36.5 06 11 23.4 06 21 33.4	
	21	iPKP	19 38 06.9	Loyalty Islands 21.5S 170.4E h=136 M=5.1 H=19 18 43.0
11	22	iP	02 54 51.6	Near Coast of Peru 15.2S 73.9W h=91 M=5.6 H=02 41 52.8
	23	iP	12 48 41.7	Andreanoff Islands, Aleutians 52.1N 179.9W h=159 M=5.5 H=12 37 28.1
	24	i	17 00 16.5	
	25	iP	08 50 54.3	Michoacan, Mexico 18.5N 102.8W h=72 M=5.4 H=08 38 48.4
	26	i	22 31 33.9	
15	27	iP	02 35 42.6	Crete 35.3N 26.8E h=67 M=4.8 H=02 29 45.4
	28	iPKP	07 10 03.6	South of Fiji Islands 23.8S 177.4W h=188 M=5.5 H=06 50 38.7
16	29	iP	10 51 38.8	Off East Coast of Honshu, Japan 38.5N 143.3E h=22 M _S =5.3 M _B =5.6 H=10 39 16.8
	30	iPKP	11 52 45.6	Fiji Islands 21.1S 179.3W h=640 M=5.1 H=11 34 16.4

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DATE	NO.	PHASE	TIME	REMARKS
16	31	iP	18 37 55.5	Oaxaca, Mexico 16.7N 97.7W h=46 M _S =5.0 M _B =5.4 H=18 25 55.1
	32	iP	21 36 48.9	Michoacan, Mexico 18.4N 102.9W h=25 M _S =M _B =4.9 H=21 24 38.1
17	33	iP	04 50 52.8	South of Honshu, Japan 31.6N 140.8E h=82 M=5.3 H=04 38 06.4
18	34	i	10 00 04.9	
	35	iP	12 06 44.1	Kurile Islands 48.2N 157.3E h=27 M=5.2 H=11 54 59.4
	36	iP	14 30 13.4	Eastern India 26.4N 90.6E h=31 M=5.2 H=14 18 59.5
	37	i	18 41 31.8	
		i	18 44 19.8	
		i	18 56 54	
		i	18 59 26	
		i	19 00 16	
19	38	iP iS L	00 39 17.8 00 41 41.1 00 42 49.1	Switzerland 46.4N 6.9E h=33 M=4.3 H=00 36 44.0
	39	iP	15 41 54.4	Eastern Mediterranean Sea 33.8N 25.8E h=33 M=4.9 H=15 35 52.4
21	40	i i	18 17 07.8 18 40 12	
22	41	iP	13 43 48.1	Near Islands, Aleutian Islands 52.8N 171.0E h=34 M=4.8 H=13 32 24.3
	42	iP iPPP iS iSS	14 11 29.1 14 16 02 14 21 04 14 25 52	Near Islands, Aleutian Islands 53.0N 171.0E h=33 M _S =6.0 M _B =5.4 H=14 00 06.8
	43	i	16 03 15.5	

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DATE	NO.	PHASE	TIME	REMARKS
22	44	iP	16 53 15.2	Near Islands, Aleutian Islands 52.7N 171.0E h=23 M=4.7 H=16 41 52.3
23	45	i	13 43 51.8	
	46	iP i i iS i	22 49 06.5 22 50 01 22 58 48 22 59 24 23 00 40	Salta Province, Argentina 22.0S 63.5W h=537 M=5.8 H=22 36 51.3
25	47	iP iS	09 19 43.2 09 29 50	Off East Coast of Honshu, Japan 40.1N 142.0E h=33 M _S =5.5 M _B =5.4 H=09 07 31.9
	48	iPKP	11 35 10.5	Tonga Islands 20.0S 175.3W h=96 M=5.5 H=11 15 46.3
27	49	i	09 41 55.1	
28	50	iP iPP	20 55 46.5 20 59 44	Philippine Islands 15.6N 122.0E h=15 M _S =6.1 M _B =5.7 H=20 42 16.7
30	51	iPn iSn	00 40 25.1 00 40 45.5	Δ =179 km (ESK)
	52	i i	13 17 36.2 13 18 09.4	
31	53	iP iS	10 56 18.1 11 03 14	Iran 34.0N 59.0E h=13 M _S =7.3 M _B =6.0 H=10 47 37.4

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DATE	NO.	PHASE	TIME	REMARKS
1	1	iP	05 46 53.1	Iran/U.S.S.R. Border Region 39.ON 46.OE h=38 M=5.1 H=05 39 46.7
	2	iP i iS	07 36 06.9 07 37 50 07 42 46	Iran 34.ON 58.2E h=15 M _S =6.3 M _B =5.9 H=07 27 30.2
	3	i	14 41 15.1	
3	4	iP iS	08 25 44.5 08 30 16	Turkey 41.8N 32.3E h=5 M _S =6.6 M _B =5.7 H=08 19 52.5
	5	iP iPP	10 02 26.6 10 04 15.2	Iran 33.8N 59.2E h=16 M=5.0 H=09 53 47.0
	6	iP iS	15 46 35.9 15 54 30	North Atlantic Ocean 20.6N 62.2W h=33 M _S =5.9 M _B =5.5 H=15 37 00.2
	7	i	16 01 34.5	
	8	iP	18 57 14.3	Hindu Kush Region 36.2N 69.2E h=75 M=5.3 H=18 48 15.7
4	9	iP	08 17 19.6	Iran 33.9N 59.2E h=24 M=5.0 H=08 08 44.3
	10	i	08 27 03.1	
	11	iP	10 45 44.3	Near East Coast of Kamchatka 53.2N 159.7E h=31 M _S =4.2 M _B =4.7 H=10 34 28.4
	12	iP i	11 28 09.2 11 29 42.3	Iran 33.9N 59.1E h=25 M=5.1 H=11 19 35.6
	13	i	15 36 04.9	
	14	i	19 15 53.4	
	15	iP	23 33 17.2	Iran 34.ON 58.2E h=15 M _S =5.2 M _B =5.4 H=23 24 47.2

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DATE	NO.	PHASE	TIME	REMARKS
	5	iP	04 14 32.1	Eastern Kazakh S.S.R. 49.8N 78.1E h=0 M=5.5 H=04 05 57.4
	6	iP	14 11 21.8	Southern Nevada 37.1N 116.0W h=0 M=5.6 H=14 00 00.1
	18	i	15 52 53.5	
	19	iP	19 35 24.1	Kyushu, Japan 31.ON 131.9E M _B =5.7 M _S =5.7 H=19 22 47.8
	8	iPKP i	15 31 16.8 15 32 43.5	Near North Coast of New Guinea 3.7S 143.0E h=29 M _S =6.1 M _B =6.1 H=15 12 23.8
	9	i	00 42 53.2	
	10	i	11 21 53.5	
	11	iP	04 46 23.1	Andreanoff Islands, Aleutians 50.4N 176.0W h=29 M=4.7 H=04 34 50.2
	24	i	17 25 00.9	
	25	iP	19 25 47.9	Iran 33.9N 59.4E h=33 M _S =5.4 M _B =5.2 H=19 17 12.9
	12	i i	12 06 34.1 12 08 22.7	
	27	iP	13 48 44.1	Off East Coast of Honshu, Japan 39.7N 143.6E h=12 M=5.2 H=13 36 27.5
	28	iPKP i i	23 02 34.1 23 04 56 23 05 57	Fiji Islands 21.6S 179.4W h=635 M=5.9 H=22 44 06.5
13	29	iP	07 42 40.3	Near Coast of Chiapas, Mexico 15.1N 93.9W h=34 M _S =5.4 M _B =5.1 H=07 30 43.6

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DATE	NO.	PHASE	TIME	REMARKS
13	30	i	11 02 38.5	
		i	11 10 56.9	
	31	i	11 45 47.9	
	32	i	12 38 08.7	
	33	iP	21 58 18.8	North Atlantic Ocean 57.9N 32.4W h=33 M=4.5 H=21 54 26.5
14	34	i	01 41 28.8	
		i	01 42 31.5	
	35	iP	13 57 09.9	Southern Iran 28.4N 53.1E h=33 M _S =5.6 M _B =5.8 H=13 48 31.2
		i	14 04 08	
		i	14 07 44	
	36	iP	19 29 00.8	Southern Iran 28.4N 55.2E h=44 M=5.1 H=19 20 22,7
15	37	iP	05 01 58.3	Crete 34.7N 25.1E
		iS	05 06 35.6	h=33 M=4.9 H=04 55 59.5
	38	iP	11 02 22.1	Off East Coast of Honshu, Japan 40.9N 143.2E h=15 M _S =5.6 M _B =5.4 H=10 50 11.8
16	39	iP	14 14 35.1	New Britain Region 6.1S 148.7E
		i	14 16 22	h=59 M=5.8 H=13 55 36.1
18	40	iP	07 46 21.1	Afghanistan/U.S.S.R. Border Region 37.2N 71.9E h=123 M=5.0 H=07 37 21.8
19	41	iP	22 21 17.1	Southern Iran 28.4N 53.2E h=34 M=5.1 H=22 12 38.2
20	42	iP	06 10 27.9	Near Coast of Venezuela
		iS	06 18 59	10.7N 62.7W h=107 M=6.2 H=06 00 03.5
	43	i	18 49 07.5	
21	44	iP	13 17 58.9	Hokkaido Region 42.2N 142.6E
		iS	13 27 50	h=33 M _S =6.4 M _B =5.9 H=13 05 58.2

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DATE	NO.	PHASE	TIME	REMARKS
23	45	i	04 26 31.4	
25	46	i	10 15 27.5	
	47	iP	10 50 15.4	Mexico/Guatemala Border Region
		i	10 50 45.3	15.6N 92.6W
		iS	11 00 05	h=138 M=5.7 H=10 38 38.4
		L	11 11 07	
26	48	i	00 35 42.2	
	49	iPKP	02 58 26.8	Fiji Islands Region 19.3S 177.6W h=560 M=5.2 H=02 39 56.5
	50	iPKP	08 59 46.4	Fiji Islands Region 17.7S 178.5W h=578 M=5.1 H=08 41 22.0
	51	iPKP	14 56 54.9	Fiji Islands Region 20.9S 177.0W
		i	14 57 19.9	h=251 M=5.8 H=14 37 46.2
		iPP	15 00 11.5	
	52	i	18 22 56.1	
		i	18 23 25.8	
27	53	i	04 18 45.2	
		i	04 25 28	
	54	iP	10 46 54.8	Tadzhik S.S.R. 37.8N 72.3E
		i	10 47 22.1	h=119 M=5.2 H=10 37 55.9
28	55	iP	14 06 36.2	Near Coast of Peru 13.2S 76.4W h=70 M=6.0 H=13 53 35.3
29	56	iP	03 51 32.1	Eastern Kazakh S.S.R. 49.8N 78.2E h=0 M=5.8 H=03 42 57.5

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DATE	NO.	PHASE	TIME	REMARKS
1	1	i	14 39 59.2	
2	2	i	15 01 20.4	
3	3	i	10 23 05.3	
	4	i	18 23 20.1	
	5	i	19 22 02.6	
4	6	i	11 08 26.1	
5	7	iP i	15 19 53.2 15 20 13.9	Caspian Sea 41.7N 49.5E h=56 M=5.1 H=15 12 51.0
6	8	iP i	07 54 52.8 07 55 32.3	Andaman Islands Region 10.ON 93.7E h=111 M=5.1 H=07 42 25.2
	9	iP	15 12 28.8	Dodecanese Islands 36.9N 26.5E h=40 M=4.7 H=15 06 44.8
7	10	i	06 57 00.9	
	11	iP i i i i	19 32 36.8 19 36 32 19 38 40 19 42 20 19 45 10	Bonin Islands Region 26.3N 140.6E h=516 M=6.1 H=19 20 20.3
12	12	iPKP	19 36 10.4	Fiji Islands Region 20.9S 178.8W h=607 M=5.7 H=19 17 39.9
14	13	iP	03 18 03.8	Western Australia 31.5S 117.0E h=1 M _S =6.8 M _B =6.0 H=02 58 47.8
	14	i	14 33 22.4	
15	15	i	07 44 22.3	
16	16	i	15 38 16.1	

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DATE	NO.	PHASE	TIME	REMARKS
17	17	i	11 24 54.6	
18	18	iP	00 01 11.8	Greece 38.3N 20.2E h=29 M=4.5 H=23 56 05.5
19	19	i i	09 46 17.6 09 47 17.8	
	20	iP	15 40 44.2	Crete 35.3N 23.5E h=19 M=4.8 H=15 34 54.8
20	21	i	07 53 33.2	
21	22	iP	18 22 26.1	Crete 35.2N 23.4E h=5 M=4.7 H=18 16 41.6
22	23	i	16 15 32.3	
23	24	i	05 20 45.4	
	25	iPKP i i i	21 23 39.3 21 32 10 21 33 24.1 21 34 49	Near North Coast of New Guinea 3.3S 143.3E h=12 M _S =6.8 M _B =6.8 H=21 04 41.3
24	26	i i i	16 05 14 16 09 56 16 16 08	
	27	iP	22 47 24.4	Kurile Islands 49.7N 155.8E h=35 M=5.5 H=22 35 50.9
25	28	iP	11 49 54.2	rat Islands, Aleutians 50.6N 177.4E h=23 M=5.1 H=11 38 14.7
26	29	i	16 08 16.5	
28	30	iP	14 53 18.7	South of Honshu, Japan 33.4N 140.8E h=61 M=5.5 H=14 40 41.4
	31	iPKP i i iPP	23 51 46.6 23 52 00.6 23 54 24 23 55 15	Santa Cruz Islands 12.5S 166.5E h=60 M=5.9 H=23 32 28.7

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DATE	NO.	PHASE	TIME	REMARKS
29	32	iP iS iSS	22 26 02.8 22 33 53 22 37 54	Alaska 65.4N 150.1W h=7 M _S =6.5 M _B =6.0 H=22 16 15.6
30	33	i	10 01 49.9	
	34	iP	11 46 30.2	Straits of Gibraltar 35.1N 3.6W h=34 M=4.6 H=11 41 56.9
	35	iP	16 58 10.2	Turkey 37.9N 38.6E h=3 M=4.9 H=16 51 33.5
31	36	iP	03 38 09.3	Dodecanese Islands 36.6N 27.1E h=11 M=5.1 H=03 22 15.0
	37	i	09 25 29.5	

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DATE	NO.	PHASE	TIME	REMARKS
3	1	iP iS iSS	04 54 02.4 04 57 36 04 58 08	Jugoslavia 42.1N 19.4E h=17 M _S =5.3 M _B =5.0 H=04 39 31.8 M _B =5.2 S(ESK)
4	2	iP i i	09 26 03.6 09 38 10 09 47 06	New Hebrides 14.2S 172.0E h=585 M=5.8 H=09 07 38.5
7	3	i	06 27 47.5	
	4	iP	10 08 09.5	Novaya Zemlya 73.4N 54.9E h=0 M=6.0 H=10 02 05.3
8	5	i	14 01 32.8	
	6	i	15 13 56.2	
	7	iP	16 14 01.5	Iceland 64.7N 17.4W h=33 M=4.7 H=16 11 15.7
	8	iP	18 45 48.2	Fiji Islands Region 19.5S 179.2W h=670 M=5.2 H=18 27 26.7
9	9	iP	17 11 25.9	Southern Illanois 38.0N 88.5W h=19 M=5.3 H=17 01 41.1
	10	iP	19 23 25.6	Iceland Region 63.9N 21.1W h=24 M=4.6 H=19 20 22.8
11	11	iP	09 04 30.4	Alaska 57.3N 155.3W h=59 M=5.3 H=08 53 52.0
	12	iP	14 53 29.5	Honshu, Japan 40.1N 143.0E h=35 M _S =5.9 M _B =5.5 H=14 41 15.9
12	13	i	09 09 51.1	
	14	iP	14 16 44.2	Off East Coast of Honshu, Japan 40.0N 142.6E h=53 M=5.0 H=14 04 34.7
13	15	iPKP	16 07 58.9	Fiji Islands Region 20.8S 178.8W h=590 M=5.2 H=15 49 26.4

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DATE	NO.	PHASE	TIME	REMARKS
14	16	iPKP	23 28 22.6	Loyalty Islands 21.5S 170.1E h=103 M=5.4 H=23 08 54.4
15	17	i	00 17 47.1	
	18	i	06 34 08.2	
	19	iPg iSg	15 06 39.1 15 06 55.1	Δ = 109 km, Bogsackmill Quarry, 10,600 lbs instantaneous 56°38'N 02°37'W
17	20	iP i iS iPS iPPS	00 27 06.1 00 27 49.4 00 36 07 00 36 52 00 37 16	Venezuela 9.6N 72.6W h=172 M=5.7 H=00 16 08.6
	21	iP i i	07 51 07.9 07 54 20 07 58 50	North of Ascension Island 1.3S 13.6W h=33 M _S =5.8 M _B =5.3 H=07 41 16.1
22	22	iP iPP i iS iPS	09 12 44.1 09 16 36.8 09 23 27.2 09 24 02.1 09 25 12.1	Luzon, Philippine Islands 16.3N 122.3E h=26 M=5.8 H=08 59 23.1
24	23	iP	16 02 52.8	South of Fiji Islands 23.6S 180.0W h=516 M=5.3 H=15 44 05.2
26	24	iP	18 41 40.9	Lake Baikal Region 55.9N 111.4E h=4 M=5.1 H=18 31 51.8
27	25	iP	13 06 41.2	Alaska Peninsula 56.6N 157.6W h=61 M=5.3 H=12 55 56.1
	26	i	13 30 20.9	
27	27	i	13 49 04.9	
28	28	iP iS	10 48 04.4 10 58 06.5	Near Coast of Oaxaca, Mexico 15.4N 94.6W h=33 M _S =6.4 M _B 5.2 H=10 36 07.7

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DATE	NO.	PHASE	TIME	REMARKS
28	29	i	15 41 54.1	
	30	iPKP i	16 49 23.4 16 52 11.4	Solomon Islands 6.8S 156.2E h=169 M=5.7 H=16 30 32.1
29	31	i	14 26 59.5	

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DATE	NO.	PHASE	TIME	REMARKS
1	1	i	00 46 51.1	
	2	iPn	13 05 16.3	Stirling, Scotland
2	3	iP iS	02 45 11.5 02 54 21.2	Zambia 13.9S 23.8E h=7 M=6.0 H=02 33 41.6
	4	i	13 03 26.4	
	5	iP	13 48 51.1	Rat Islands, Aleutians 51.9N 175.1E h=55 M=4.5 H=13 37 24.9
3	6	i	11 03 13.9	
	7	i	11 31 23.9	
4	8	i	10 38 21.9	
	9	i	17 07 34.1	
	10	i	19 43 20.7	
5	11	iP	07 58 01.1	Dodecanese 36.6N 27.0E h=35 M=5.5 H=07 52 11.0
	12	iP	09 47 14.6	Iceland Region 43.9N 21.7W h=5 M _S =6.0 M _B =5.5 H=09 44 11.0
6	13	i	09 00 35.9	
	14	i	14 46 55.4	
	15	i	15 19 53.6	
7	16	i i i i i	05 25 16.1 05 28 10.4 05 28 24.6 05 35 09.2 05 35 40.4	

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DATE	NO.	PHASE	TIME	REMARKS
7	17	i	10 29 33.3	
	18	i	13 27 49.1	
	19	iP iS	15 52 28.8 16 02 06.8	Rat Islands, Aleutian Islands 51.6N 175.7E h=33 M _S =5.4 H=15 40 57.9 M _B =5.3
	20	iP i	15 58 13.3 16 04 36.7	Rat Islands, Aleutian Islands 51.6N 175.8E h=59 M=5.0 H=15 46 45.2
	21	i	21 50 14.2	
8	22	iP	10 54 09.5	Near Coast of Oaxaca, Mexico 15.4N 94.6W h=55 M=4.3 H=10 42 12.3
	23	i	11 25 40.2	
	24	i	20 47 07.9	
9	25	iP i i	01 40 10.2 01 42 03.8 01 44 42	Spain 39.4N 0.1W h=33 M=4.5 H=01 36 26.0
	26	i	09 07 12.1	
	27	i	15 00 41.7	
	28	i	15 23 01.1	
10	29	iP i	11 33 41.1 11 34 09.8	Greece 38.9N 21.6E h=65 M=4.6 H=11 28 37.5
	30	i	15 49 01.9	
11	31	i	03 11 05.2	
	32	i	07 07 51.7	
	33	iP i	11 58 00.5 11 59 09.3	Shikoku, Japan 33.6N 140.0E h=32 M=5.4 H=11 45 30.8

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DATE	NO.	PHASE	TIME	REMARKS
11	34	i	13 56 00.8	
	35	i	19 02 16.2	
	36	iPKP	21 53 43.1	South of Fiji Islands 23.9S 176.1W h=95 M=5.4 H=21 34 07.5
	37	iPKP	22 50 39.5	South of Fiji Islands 23.7S 176.2W h=33 M=4.9 H=22 30 53.2
12	38	iPKP	07 38 23.3	Fiji Islands Region 16.0S 177.8W h=431 M=5.5 H=7 19 44.8
	39	i	08 38 30.2	
	40	i	21 41 18.1	
13	41	i	10 23 06.4	
	42	i	12 28 01.1	
	43	i	12 35 40.7	
	44	i	15 09 05.4	
14	45	iP	10 10 34.1	Rat Islands, Aleutian Islands 51.5 N 175.7E h=33 M _s =5.8 M _B =5.2 H=09 59 02.3
	46	i	11 31 48.5	
15	47	iP iS i i i	02 25 38.6 02 35 26.8 02 40 12.1 02 43 52.4 02 49 30.2	Rat Islands, Aleutian Islands 51.6N 175.8E h=33 M _s =6.2 M _B =5.7 H=02 14 17.5
	48	iP	02 40 05.8	Rat Islands, Aleutian Islands 51.7N 175.8E h=33 M _s =6.1 M _B =5.4 H=02 28 32.6

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DATE	NO.	PHASE	TIME	REMARKS
17	49	iP iS	12 12 29.8 12 20 36.8	Southern Alaska 60.2N 152.2W h=86 M=5.9 H=12 02 15.0
19	50	iP iS	15 27 11.5 15 36 23.2	Near East Coast of Kamchatka 53.3N 160.1E h=33 M _s =5.6 M _B =5.4 H=15 15 55.7
	51	iP	16 41 22.1	Southern Nevada 37.2N 116.5W h=0 M=6.3 H=16 30 00.0
24	52	i	14 09 34.8	
25	53	iP	04 08 41.2	Hokkaido Region 41.7N 142.8E h=36 M _s =4.8 M _B =5.3 H=03 56 39.2
	54	i i	12 23 16.1 12 30 52	
26	55	i	18 30 30.3	
29	56	e	08 07 08	
	57	i	15 32 18.6	
	58	iP i iS	17 48 21.1 17 48 40.6 17 58 25	Near Coast of Chiapas, Mexico 14.5N 92.4W h=60 M=5.4 H=17 36 29.9 M _B =5.7 (ESK)
30	59	iP	07 13 46.1	Kodiak Islands Region 57.6N 151.4W h=34 M=5.4 H=07 03 11.7
	60	iP	09 32 04.2	South Pacific Cordillera 55.2S 129.0W h=33 M=4.8 H=09 12 14.8
	61	iP i	10 31 57.4 10 36 09	Svalbard Region 76.2N 7.5E h=23 M _s =5.5 M _B =5.0 H=10 27 09.7
	62	e	23 01 52	