

SEISMOLOGICAL BULLETIN OF SYOWA STATION, ANTARCTICA, 2003

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1. Introduction

Seismic observations at Syowa Station (69.0°S, 39.6°E), East Antarctica were started using a short-period seismometer with 1.0 s natural period in 1959 (Eto, 1962). A long-period seismograph was installed and phase readings of the teleseismic events have been reported currently to the United States Geological Survey (USGS), and to the International Seismological Centre (ISC) since 1967 (Kaminuma *et al.*, 1968). A three-component broadband seismometer (STS-1; Wielandt and Steim, 1986) was installed in 1989, for making a contribution to the Federation of Digital broadband Seismograph Networks (FDSN; <http://www.fdsn.org/>) as an important key station in the Japanese PACIFIC21 network (<http://pacific21.eri.u-tokyo.ac.jp>). A distribution of FDSN stations in Antarctic continent and the distribution of PACIFIC21 stations in 2003 at present are shown in Figs. 1 and 2, respectively.

All of the observation systems at Syowa Station were maintained in 2003 by one of the authors (J. Horiuchi) throughout the wintering season of the 44th Japanese Antarctic

Research Expedition (JARE-44). He also scaled the arrival times for seismic events and reported to ISC and USGS through that wintering season.

In this data report, we introduce the seismic observations at present in 2003, scaled read-out travel-time data and detected teleseismic earthquake list, in addition to the procedures for public use by Internet service.

2. Observations

The seismic observation systems at Syowa Station were replaced to the current operating ones by one of the authors in 1997 (Kanao, 1999). The block diagram of the new recording system is illustrated in Fig. 3.

2.1. Seismographic hut and seismographs

Seismic observations at Syowa Station had been carried out mainly by two types of seismometers, one called a short-period (HES) with 1.0 s natural period of the pendulum and it had been operated since 1967 (Kaminuma *et al.*, 1968). The overall frequency responses and the magnifications of the HES are shown in Fig. 4. A three-component broadband seismometer (Streckeisen STS-1) with the digital recording system has been operating since 1990 (Nagasaka *et al.*, 1992). The amplitude and phase responses for the velocity output (Broadband; BRB) are shown in Fig. 5 (after Streckeisen and Messegeraete, 1987).

The seismographic hut was re-constructed in 1996 and the whole sensors were moved inside it in 1997. The new hut is located about 200 m north from the old vault, with geodetic coordinates of 69°00'24.0"S, 39°35'06.0"E and the elevation is 20 m above mean sea level. Since the broadband seismographs are affected by a change of temperature and atmospheric conditions, the seismometers were installed in the adiabatic small room of the hut. In addition, the whole surface of the hut was covered by titanium material in order to keep constant temperature.

Seismic signals of the HES and STS-1 seismometers are transmitted to the Earth Science Laboratory (ESL) via analog cables of 600 m in length.

2.2. Acquisition system at Earth Science Laboratory

A three-component analogue output by HES is digitized at 200 Hz over sampling by a 24-bit analog-to-digital (A/D) converter, generating triggered signals of 80 and 1 Hz re-sampling data and the continuous outputs of 20 Hz data. Signals of a three-component broadband of STS-1 are also digitized to create the triggered output of 80 Hz re-sampling data and the continuous outputs of 20, 1, 0.1 and 0.01 Hz data, respectively. All the data was created as a Mini_SEED volume, which is a standard format for data exchange in the global seismology. The digitized data are automatically transmitted from A/D converter to the workstation via TCP/IP protocol (DP/UX software). All kinds of the data are stored in 10 GB hard-disk of the workstation, then copied into DAT or 8 mm tape in every three months interval. A recording condition of A/D converter has been continuously monitored by a personal computer via RS-232C serial port (Kermit software).

A remote-centering operation for the STS-1 sensors can also be carried out by keyboard commands from the computer. A reference clock for the new system has also been calibrated to the Coordinated Universal Time (UTC) from Global Positioning System (GPS). Two sets of thermal pen-recorders for HES and BRB output of STS-1, however, have now been operated for monitoring at ESL. Boom-position output (POS) of STS-1 seismograph has been monitored by RD2212 type analogue-recorder. Temperature in the sensor room is also recording by the RD2212 recorder.

2.3. Data transmission via INMARSAT

The digital waveforms of broadband and short-period seismographs have been transmitted via the INMARSAT telecommunication link from Syowa Station to National Institute of Polar Research (NIPR) since 1993. In 2003 season, continuous data of HES with 20 Hz sampling had been automatically transmitted to NIPR. The UUCP protocol has been used for the file transfer. In addition, phase read-out data are reported by email

directly from Syowa to USGS/NEIC regularly with time delay of a day, in order to make a contribution to the Quick Earthquake Determination (QED) email services and to the Preliminary Determination for Epicenters (PDE) weekly/monthly bulletins.

3. Data

Since there is a delay time of one year between the publication of this report and the observing wintering period, the Preliminary Determination of Epicenters (PDE) reports by NEIC are referred to and only the seismograms of teleseismic events are edited. The arrival-time data and the corresponding hypocentral data of teleseismic events are presented in this report.

3.1. Phase read-out data

The phase arrival-time of teleseismic events was detected on the short-period monitoring seismograms. Most phases were scaled on the vertical component, and only clear phases of shear waves were scaled on the horizontal components. These phases were identified by comparing the observed travel-time with the calculated one within time difference of 3 s. The phases identified as *P*- and *S*-waves are listed in Table 1. The phase *K* denotes the *PKP* phase, which can be identified within 3 s of difference by comparing the observed travel-time with that of calculated one. While *X* denotes the clear phase whose wave type can be identified but the travel time was within 3-10 s difference in observed and calculated times. Symbols *E* and *I* in the phase column denote emergent and sharp onsets, respectively. The initial ground motion is denoted by + for upward and - for downward direction. Arrival time is given in UTC and the accuracy of the read-out data is limited to 0.2 s. The teleseismic events identified in the PDE are labeled by the serial numbers (#-xxx) in the table. These serial numbers correspond to those in Table 2. The events without serial numbers are teleseisms whose locations have not been determined by NEIC.

3.2. Teleseismic events

The list of hypocentral parameters of the teleseismic events is shown in Table 2, together with the same serial numbers as given in the remarks of Table 1. Figure 6 shows the hypocenters of 783 teleseismic events whose initial phases were detected at Syowa.

Figure 7 indicates the relationship between the annual mean number of detected teleseismic events and body-wave magnitude (M_b) in bars of 0.1 magnitude interval. The events were divided into three groups (1) all events (solid circles), (2) shallow events with depths less than 50 km (open squares), (3) intermediate and deep events larger than 50 km depths (crosses). The peak number of all events for magnitude exists around 4.9-5.2, where the number of earthquakes per year is about 70. Detection capability of teleseismic events has been evaluated by ISC from global seismic networks for the ten years (Ringdal, 1986). It is pointed out that the magnitude threshold of earthquake detection gradually increases with increasing southern latitude. The bias problem of network magnitude determination is significant at small and middle magnitudes, particularly in the southern high latitude.

4. Publication

The person maintained the seismic equipment through the year is basically given priority for using any data obtained at Syowa Station with time limit of two years. These data are transmitted to NIPR and then to be stored in the file server, and can be obtained upon request by Internet service and/or UNIX media (*i.e.*, CD-R, DAT, 8 mm-tape, *etc.*) with a permission of the NIPR members. If anybody would like to use the two-year period data, please contact to *kanao@nipr.ac.jp* concerning the availability.

All kinds of archived seismic data (arrival times, hypocenter, waveform data by analog & digital, related document reports) obtained from Syowa Station are stored and available from the data library server of NIPR (POLARIS, URL; <http://polaris.isc.nipr.ac.jp/~pseis/syowa>). You are accessible by use of 'ftp' command with special password. If you interested in to get these data, please contact to *kanao@nipr.ac.jp* concerning the availability.

Archived data after two years from the JARE-period are stored and freely available from both the ftp sites in NIPR and the PACIFIC21 center of the Earthquake Research Institute (ERI), the University of Tokyo. Any questions concerning data availability from ERI should be directed to *takeuchi@eri.u-tokyo.ac.jp*.

5. Data Processing Staff

A seismic observation system at Syowa Station was designed by M. Kanao and by K. Shibuya of the National Institute of Polar Research. Ms. A. Ibaraki has kindly assisted preparing this data report. Readers can refer to the URL sites below for finding data directory or access; <http://polaris.isc.nipr.ac.jp/~pseis/syowa>.

References

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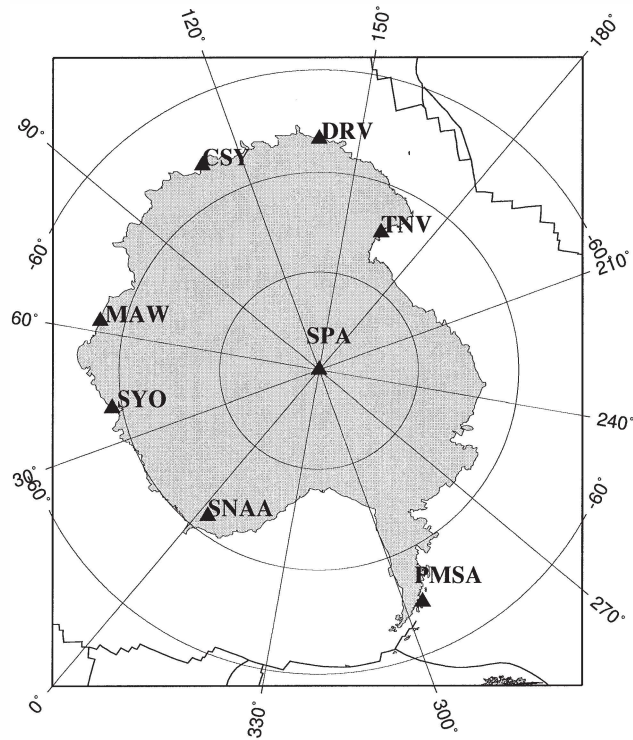


Fig. 1. A distribution of FDSN stations in Antarctic continent. Syowa (SYO), Mawson (MAW), Casey (CSY), Dumont d'Urville (DRV), Terra Nova Bay (TNV), South Pole (SPA), Palmer (PMSA), Sanae (SNAA).

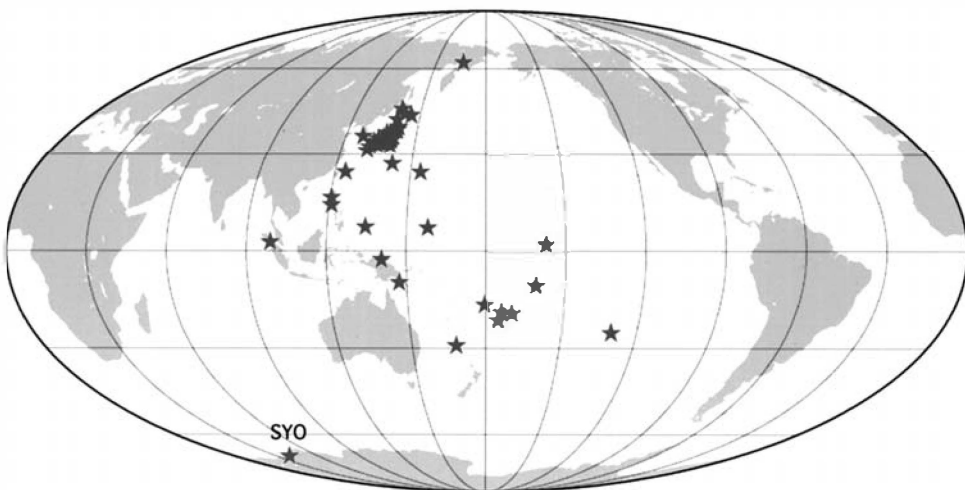


Fig. 2. PACIFIC21 station map in 2003 (<http://pacific21.eri.u-tokyo.ac.jp>).

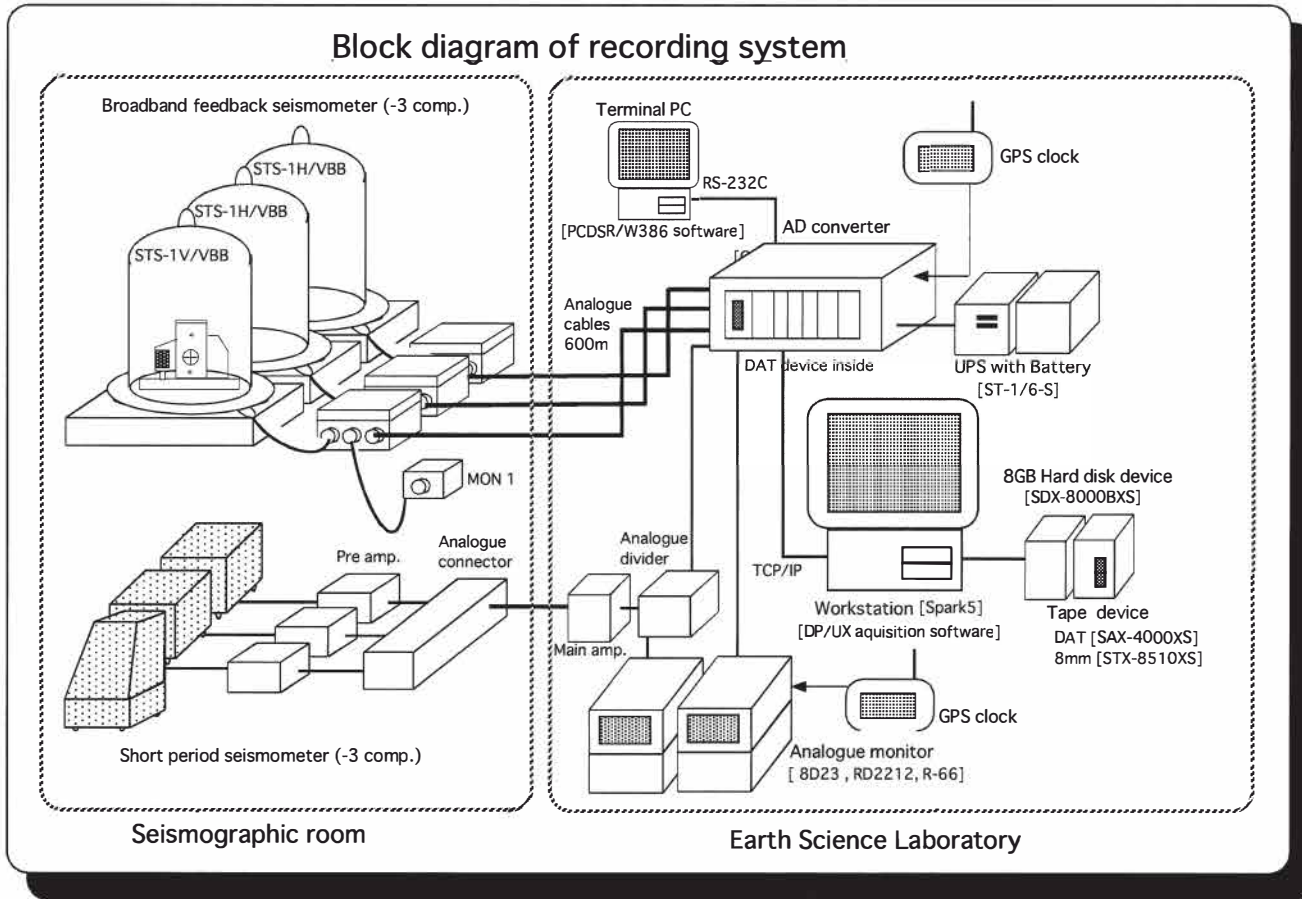


Fig. 3. Block diagram of new recording system for the STS and HES seismographs at Syowa Station. Left figure: Seismographic room; Right figure: Earth Science Laboratory.

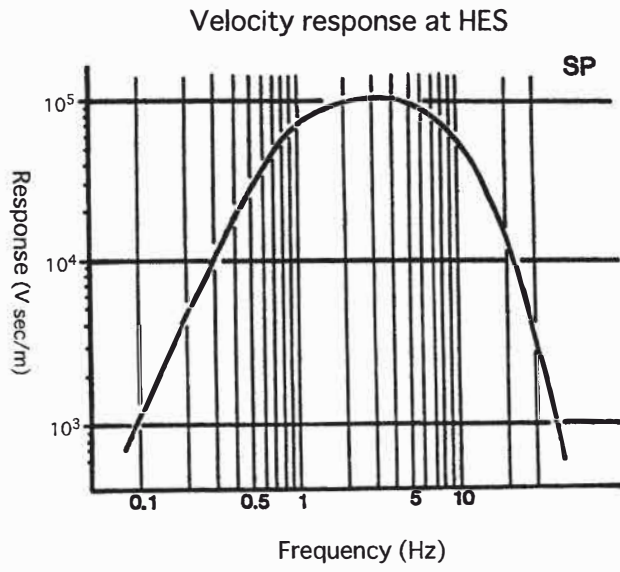


Fig. 4. Over-all frequency responses of the HES seismographs.

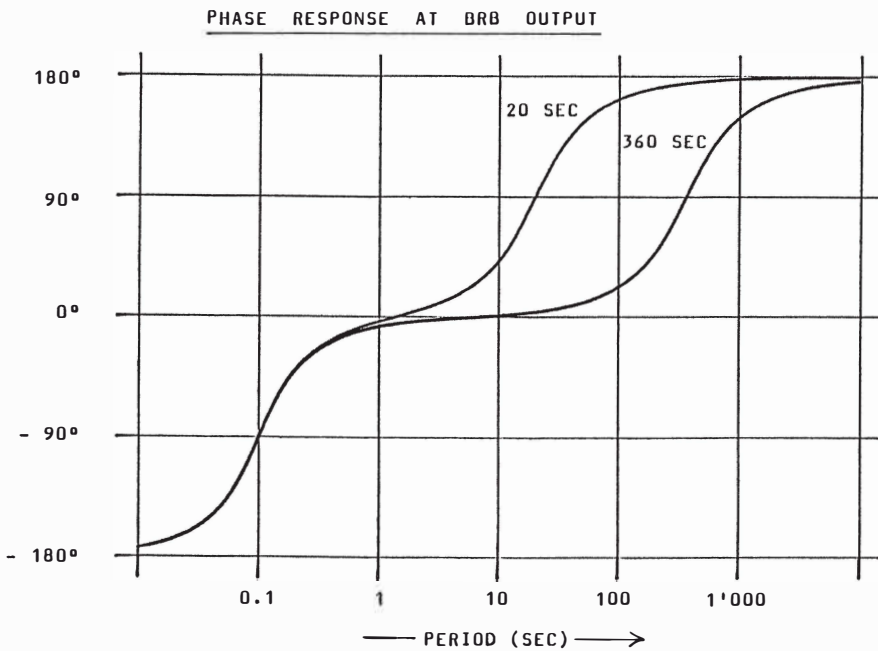
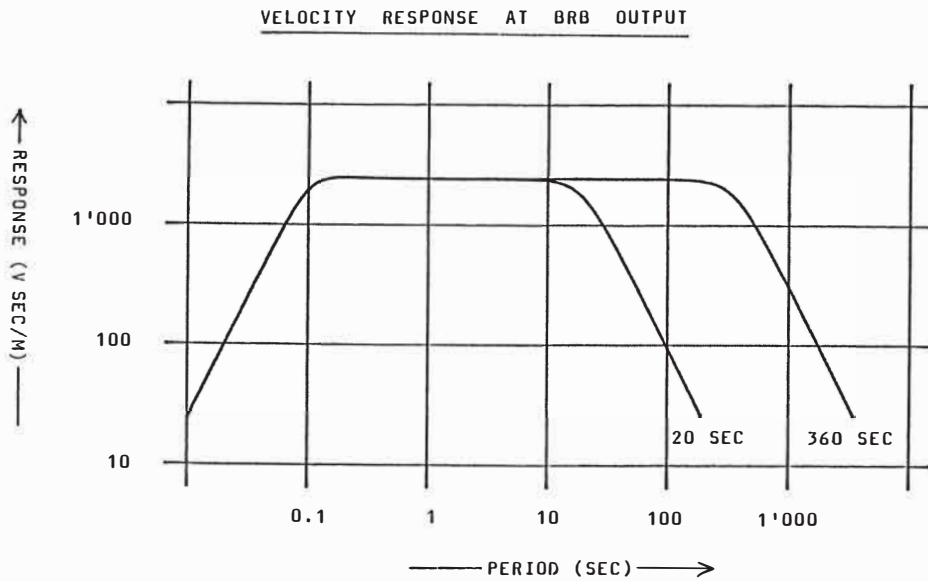


Fig. 5. Amplitude responses (upper figure) and phase responses (lower figure) for the velocity (BRB) output of the broadband seismograph (STS) in the two distinct signal modes of 20-s and 360-s (after Streckeisen and Messergeraete, 1987).

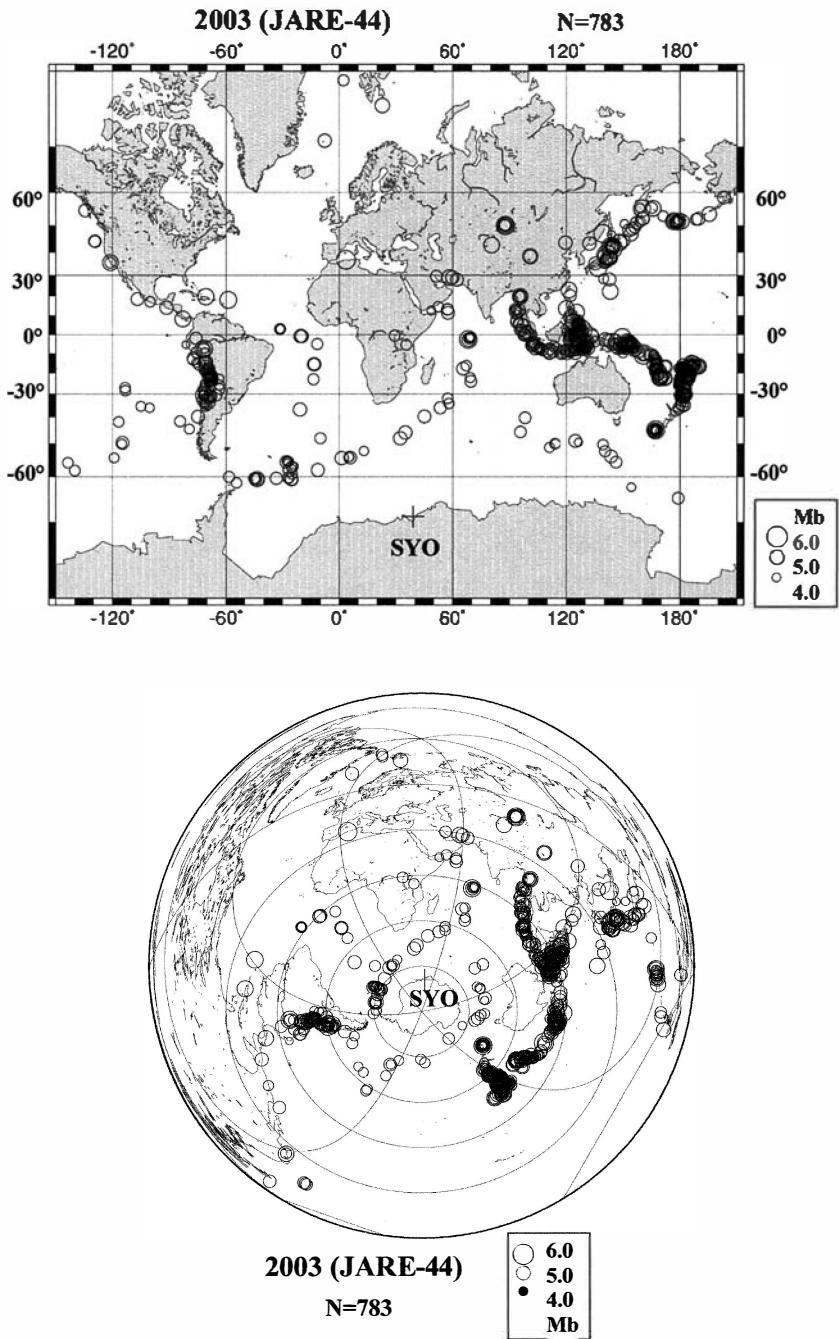


Fig. 6. Epicenters of the 783 earthquakes recorded at Syowa Station. The sizes of earthquake circles are proportional to the body-wave magnitude (Mb) determined by the National Earthquake Information Center (NEIC) (upper: Mercator Projection, lower: Azimuthal Equidistant Projection).

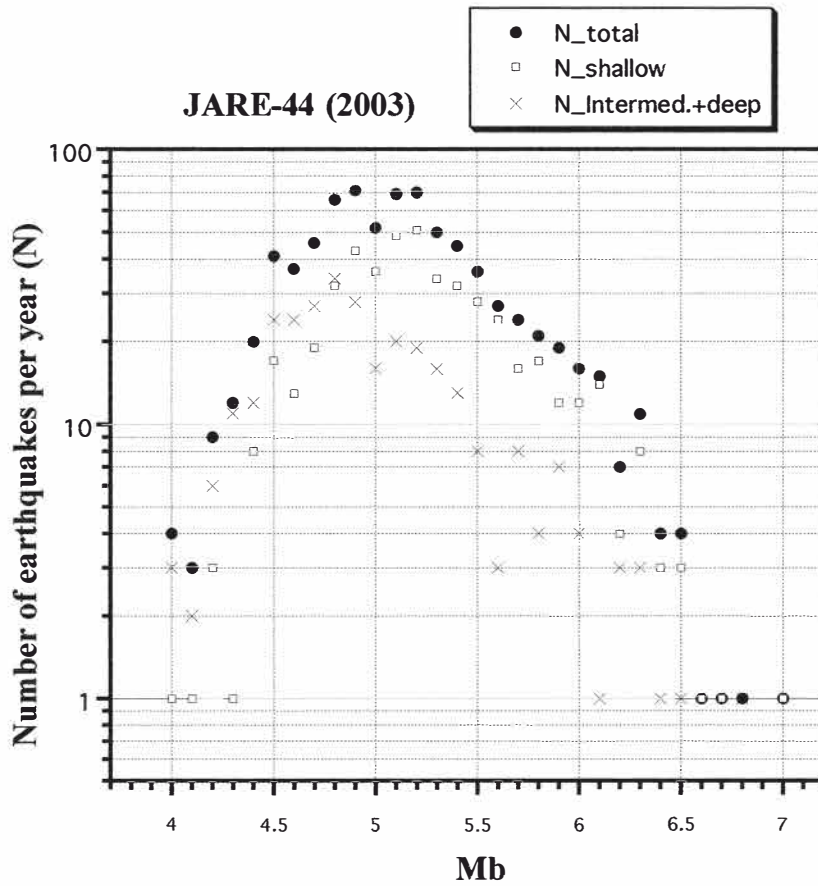


Fig. 7. Annual mean number of total detected earthquakes in 2003 against body-wave magnitude (Mb). The number of events for each group are marked with an increment of 0.1 Mb (solid circles (N-total), 783 total events; open squares (N-shallow), shallow events of focal depth less than 50 km; crosses (N-Intermed.+deep), intermediate depth and deep events of focal depth larger than 50 km).

Table 1. List of phase arrival-time data in 2003.

Date	Phase	UTC time			Remarks	Date	Phase	UTC time			Remarks
		h	m	s				h	m	s	
Jan.						09	-ePcPz	0454	59.8		#-25
01	-epz	0020	36.7	#-1	09	-esPz	0455	01.5			#-25
01	+espz	0020	39.0	#-1	09	-ePcPz	0515	32.8			#-26
01	-epz	0634	56.0	#-2	09	-epPz	0515	35.7			#-26
01	+epz	0635	40.9	#-2	09	-epz	0715	05.2			#-27
01	-epz	1209	22.0	#-3	09	-ePcPz	0715	08.7			#-27
02	-epz	0032	29.3		09	+epz	0958	59.4			#-28
03	+epz	0146	11.4		09	+ePcPz	1041	39.0			#-29
04	+ipz	0527	05.2	#-4	09	-epPz	1041	46.0			
04	+epPz	0528	35.7	#-4	09	-epz	1551	18.8			#-30
04	+epz	0720	15.2	#-5	09	-epPz	1551	21.8			#-30
04	-ePcPz	0720	20.3	#-5	09	+epz	1948	58.2			
05	-epz	0024	11.3		09	+epz	2327	29.0			
05	-epz	0453	52.8		10	+epz	0140	53.2			
05	-epz	0937	30.6	#-6	10	+ePdiffz	0223	21.9			#-31
05	-ePcPz	0937	42.6	#-6	10	-epz	1325	04.9			#-32
05	-epz	1202	41.3	#-7	10	-iPcPz	1325	07.8			#-32
05	-epz	1245	32.9	#-8	10	+epPz	1325	24.8			#-32
05	-ePcPz	1245	37.5	#-8	10	-epz	1531	00.9			#-33
05	-epz	1628	16.4	#-9	10	-ePcPz	1531	08.1			#-33
05	+epPz	1628	28.0	#-9	10	-epPz	1531	09.6			#-33
06	+epz	2127	31.8		10	+epz	1538	05.0			#-34
07	+epz	0105	23.8	#-10	10	+ePcPz	1538	13.0			#-34
07	-epz	0515	11.2	#-11	10	-epPz	1807	19.1			#-35
07	+epPz	0515	19.8	#-11	10	-ePcPz	1807	23.5			#-35
07	-epz	0819	54.6	#-12	10	-epz	1832	12.6			#-36
07	-epPz	0820	06.1	#-12	11	-epz	0634	55.6			
07	-epz	1333	08.9	#-13	11	-epz	0741	33.1			#-37
07	+epz	1442	43.9	#-14	11	-epPz	0741	34.2			#-37
07	+epPz	1442	47.6	#-14	11	-ePcPz	0741	46.1			#-37
07	+epz	1738	52.5	#-15	11	-ePdiffz	1759	09.3			#-38
07	-epz	2317	47.3	#-16	11	-epz	1759	51.5			#-38
08	+epz	0041	15.9	#-17	12	-epz	2224	10.1			
08	-iPcPz	0041	17.3	#-17	13	-epz	1644	00.8			#-39
08	-ipPz	0041	25.3	#-17	13	-epPz	1644	07.9			#-39
08	-epz	0458	01.7	#-18	13	+ipz	2015	08.5			#-40
08	-ePcPz	0458	03.1	#-18	13	-epz	2229	43.4			#-41
08	-epz	1557	38.6	#-19	14	-epz	0945	47.1			#-42
08	-epPz	1557	45.1	#-19	14	-ePcPz	0945	47.9			#-42
08	-ePKPdfz	1735	03.4	#-20	14	-ePdiffz	1427	29.8			#-43
08	-epz	2140	35.5	#-21	15	+epz	1255	17.4			#-44
09	-epz	0303	38.2	#-22	15	+epz	1305	24.4			
09	-ePcPz	0303	41.3	#-22	16	+epz	0004	30.2			
09	-epz	0353	04.0	#-23	16	-ePKPabz	0113	29.0			#-45
09	-epPz	0353	43.4	#-23	16	-ePKPdfz	0244	55.1			#-46
09	+ePdiffz	0430	09.5	#-24	16	-epz	0253	10.6			
09	-epz	0454	49.3	#-25	16	-ePKPabz	0523	43.8			#-47

Date	Phase	UTC time		Remarks	Date	Phase	UTC time		Remarks
		h	m				s	h	
16	-epz	1700	03.6	#-48	21	-epPz	1432	09.8	#-71
16	-ePcPz	1700	04.9	#-48	22	+ixz	0311	18.6	#-72
17	-ePKPbc	0233	47.7	#-49	22	-epz	0311	28.2	
17	-epz	0306	25.9	#-50	22	+epz	1638	24.0	
17	+epPz	0615	23.6	#-51	23	-epz	1048	01.3	#-73
17	-epz	0711	38.3	#-52	23	-ePcPz	1048	19.2	#-73
17	-epPz	0711	42.0	#-52	23	+epz	1822	28.3	
17	-epz	1214	30.6	#-53	23	-epz	1822	50.5	#-74
17	-ePcPz	1214	34.6	#-53	24	+epz	1432	14.9	#-75
17	+epz	1443	28.7		24	+epPz	1432	28.7	#-75
17	-ePcPz	1443	49.8	#-54	24	-epz	2239	41.7	#-76
17	-epPz	1443	52.7	#-54	24	+epPz	2239	53.3	#-76
17	+epz	2358	13.5	#-55	25	-epz	0036	00.4	
17	-ePcPz	2358	16.6	#-55	26	+ePKPabz	0728	37.7	#-77
18	-ePPz	0001	50.9	#-55	26	+epz	1957	23.4	#-78
18	-epz	0221	21.9	#-56	26	-epz	2148	46.0	#-79
18	-epPz	0221	45.2	#-56	26	-ePcPz	2148	50.7	#-79
18	-epz	0455	39.6	#-57	27	+epz	0222	51.9	#-80
18	-epz	0518	31.5	#-58	27	+epz	1113	58.9	#-81
18	-epz	1138	11.5	#-59	27	-epz	1801	31.4	#-82
18	-ePcPz	1138	14.8	#-59	27	-epz	1801	33.8	#-82
19	-epz	0632	10.8	#-60	27	-jpPz	1801	36.4	#-82
19	+epPz	0632	19.1	#-60	27	-iPnPz	1801	52.6	#-82
19	-epz	1025	08.4	#-61	28	-epPz	0106	32.3	#-83
19	-epz	1325	32.5	#-62	28	+esPz	0106	24.9	#-83
19	-epz	1739	20.4	#-63	28	-ipz	0806	58.6	#-84
19	-ePcPz	1739	36.4	#-63	28	-ePcPz	0807	25.1	#-84
19	-ipz	1847	49.6	#-64	28	-espz	0807	47.9	#-84
19	+epPz	1848	00.1	#-64	28	+ipz	1142	21.9	#-85
20	-epz	0318	23.9		28	-iPcPz	1142	22.5	#-85
20	-epz	0320	32.7		28	+epPz	1142	34.6	#-85
20	-ipz	0856	06.9	#-65	28	-epz	1417	43.7	#-86
20	-ipPz	0856	15.0	#-65	28	-epz	1625	02.6	#-87
20	-epz	0856	26.8		28	-ePcPz	1625	05.3	#-87
20	-epz	1729	54.0	#-66	29	+ePcPz	0353	42.4	#-88
20	-epPz	1729	55.8	#-66	29	-epPz	0353	46.0	#-88
20	-epz	1730	22.2		29	+epz	0449	11.3	#-89
20	-epz	1855	34.7	#-67	29	+epz	1445	24.4	#-90
20	-iPcPz	1855	35.4	#-67	29	+ePcPz	1445	25.6	#-90
20	+epPz	1857	35.7	#-67	29	-epz	1806	38.7	
20	-epz	1917	51.6	#-68	30	-epz	0034	56.7	#-91
20	-epPz	2031	05.6	#-69	30	+epz	0606	12.1	
21	-epz	0030	47.9	#-69	30	+epz	1328	18.3	
21	-epPz	0030	59.4	#-69	31	+exz	2104	59.5	#-92
21	-ePdiffz	0435	09.1	#-70	31	+epz	2156	07.8	#-93
21	+epz	1429	53.4	#-71	Feb.				
21	-ePcPz	1429	59.2	#-71	01	-epz	0338	14.3	

Date	Phase	UTC time		Remarks
		h	m s	
01	-epz	2104	43.1	
02	-epz	0044	19.4	
02	-epz	0614	43.6	
03	none			
04	+epz	1308	04.4	
05	-epz	1129	13.4	
06	-epz	1525	03.1	
07	-epz	0640	16.3	
07	-epz	1724	41.9	
07	+epz	1900	13.9	
08	-epz	0856	02.2	#-94
08	+ePcPz	0859	07.8	#-94
08	eScPh	0902	48.9	#-94
09	-epz	1412	43.0	#-95
09	+epPz	1413	17.1	#-95
09	+epz	1539	49.0	#-96
09	+ePcPz	1539	51.3	#-96
09	+epPz	1539	40.0	#-96
10	-epz	0502	35.3	#-97
10	+epPz	0502	50.8	#-97
10	+epz	1300	37.4	#-98
10	+epz	2027	45.8	#-99
10	-ePcPz	2027	47.0	#-99
10	+epz	2345	10.3	#-100
10	-ePcPz	2345	14.5	#-100
11	+epz	1453	39.4	#-101
11	+ePcPz	1453	40.0	#-101
11	+epPz	1454	00.0	#-101
11	-epz	1946	55.8	#-102
12	+epz	2246	40.4	#-103
12	+epz	2246	40.9	#-103
13	+epz	1550	24.5	#-104
13	-ePcPz	1550	25.6	#-104
13	esh	1600	02.5	#-104
14	-epz	0334	21.5	#-105
14	-epz	1910	25.6	#-106
14	-epPz	1910	34.7	#-106
14	+epz	2124	03.7	#-107
14	+epz	2154	01.2	#-108
14	esh	2203	49.3	#-108
14	-epz	2322	39.6	#-109
14	-epPz	2322	41.3	#-109
15	-epz	1927	20.7	#-110
15	-epPz	1927	56.4	#-110
16	-epz	0527	09.5	#-111
16	-epz	2235	46.7	#-112
16	+epPz	2235	56.9	#-112

Date	Phase	UTC time		Remarks
		h	m s	
16	+esPz	2236	00.8	#-112
17	none			
18	none			
19	-ePKPdz	0352	31.7	#-113
19	+epz	0523	42.3	
20	+epz	1049	54.0	#-114
20	+ePcPz	1049	57.1	#-114
20	+epPz	1050	04.5	#-114
20	-esPz	1050	07.1	#-114
20	-ePKiPKz	1054	52.9	#-114
21	-ePKPbcz	1227	10.6	#-115
21	+ePKiPKz	1227	11.5	#-115
21	+ePKPabz	1227	18.0	#-115
21	+epz	2225	14.0	#-116
21	esh	2235	01.1	#-116
22	-epz	1142	53.3	
22	-epz	1229	41.2	#-117
22	+ePcPz	1229	41.5	#-117
22	-epPz	1231	42.4	#-117
22	-ePPz	1233	23.3	#-117
22	-epz	1519	36.8	#-118
22	+epPz	1519	46.1	#-118
22	+esPz	1519	50.4	#-118
22	-epz	1519	51.8	#-118
22	esh	1529	01.1	#-118
23	+epz	1009	54.4	
23	+epz	1148	27.9	#-119
23	+epPz	1148	36.9	#-119
24	-epz	1051	37.9	#-120
24	+ePcPz	1051	47.0	#-120
24	+epPz	1051	48.1	#-120
24	+esPz	1051	52.1	#-120
25	-epz	1421	24.6	
25	+epz	1521	33.8	
26	-epz	0045	45.2	#-121
26	+ePcPz	0045	48.1	
26	+epz	0142	46.0	#-122
26	+epz	1232	45.2	#-123
26	-epz	1237	41.7	
27	-epz	1152	44.5	#-124
27	+ePcPz	1152	51.5	#-124
27	+epPz	1152	54.2	#-124
27	+ePKPabz	1556	15.8	#-125
27	-epz	2019	19.9	#-126
27	esh	2028	06.6	#-126
28	+epz	0621	25.8	
28	+epz	1220	00.1	

Date	Phase	UTC time		Remarks
		h	m s	
Mar.				
01	none			
02	-epz	0910	12.5	
02	-epz	1237	39.5	
02	-epz	1318	41.9	#-127
02	-epPz	1318	52.8	#-127
02	+ePcPz	1318	58.1	#-127
02	esh	1328	01.6	#-127
02	-epz	1651	17.1	#-128
03	+epz	1643	44.1	#-129
03	+epPz	1644	02.5	#-129
03	-esPz	1644	12.6	#-129
03	esh	1653	28.1	#-129
04	none			
05	-epz	0601	19.2	#-130
05	+ePcPz	0601	21.4	#-130
05	-epPz	0601	29.5	#-130
05	-epz	1056	29.3	#-131
05	-esPz	1056	33.1	#-131
06	none			
07	none			
08	-epz	1430	06.4	
09	-epz	1048	51.4	#-132
09	+ePPz	1052	08.2	#-132
10	-epz	0222	30.6	#-133
10	+ePcPz	0222	31.9	#-133
10	+esPz	0223	08.6	#-133
10	+epz	1014	38.0	#-134
10	+epPz	1015	11.3	#-134
10	+epz	1952	53.3	#-135
10	-ePcPz	1952	55.4	#-135
11	-epz	0740	46.3	#-136
11	+esPz	0741	00.8	#-136
11	-epPKiKPz	0745	41.7	#-136
11	-epz	0748	57.6	#-137
11	+ePcPz	0748	58.0	#-137
11	+epPz	0749	08.2	#-137
11	-ePPz	0752	44.4	#-137
11	-epz	0853	09.4	#-138
12	-epz	0257	54.8	
12	-epz	0939	06.1	#-139
12	+ePcPz	0930	16.2	#-139
13	+epz	0248	45.1	#-140
13	+esPz	0248	58.2	#-140
14	-epz	0121	50.6	
14	-epz	0719	14.3	#-141
14	-ePcPz	0719	15.1	#-141

Date	Phase	UTC time		Remarks
		h	m s	
14	+epPz	0719	25.1	#-141
14	-epz	1306	42.6	#-142
14	+ePcPz	1306	43.1	#-142
14	-epPz	1307	47.7	#-142
14	+esPz	1308	16.3	#-142
14	esh	1317	12.2	#-142
15	+epz	0842	14.4	#-143
15	-ePcPz	0842	17.4	#-143
15	+epz	1429	26.5	
15	+ePKPdz	2001	04.7	#-144
15	-ePKPbcz	2001	11.6	#-144
15	+ePKiKPz	2001	13.4	#-144
16	none			
17	-epz	0415	24.2	#-145
17	+epPz	0415	27.2	#-145
17	+epz	1656	14.0	
17	+epz	1857	10.0	
17	-epz	1915	44.5	
18	-epz	0557	12.1	
19	+ePKPbcz	1503	18.7	#-146
19	+ePKiKPz	1503	21.4	#-146
19	-epz	1845	13.9	#-147
19	-epPz	1845	24.6	#-147
20	+epz	1520	44.3	#-148
20	-ePcPz	1520	47.0	#-148
20	-epPz	1520	56.0	#-148
20	-epz	1644	55.2	#-149
20	-epz	2048	30.2	#-150
21	-epz	1047	04.0	#-151
21	+ePcPz	1047	05.1	#-151
21	-epPz	1047	06.8	#-151
21	-esPKiKPz	1055	05.5	#-151
22	none			
23	-epz	0931	22.9	
23	-epz	1649	04.3	
24	-epz	1927	30.5	
25	-epz	0305	28.6	
26	+epz	0435	37.7	
27	+epz	0306	23.4	
28	-epz	1744	56.4	#-152
28	+ePcPz	1744	57.7	#-152
28	+epPz	1745	08.6	#-152
28	-ePPz	1748	37.6	#-152
29	-epz	2010	41.2	#-153
29	+ePcPz	2010	45.5	#-153
29	+esPz	2013	27.2	#-153
29	-epPKiKPz	2018	03.7	#-153

Date	Phase	UTC time			Remarks
		h	m	s	
29	esh	2020	07.8	#-153	
30	-epz	0055	28.1	#-154	
30	+ePcPz	0055	32.1	#-154	
30	+epPz	0055	38.2	#-154	
30	+epPKiKPz	0101	59.6	#-154	
30	+epz	0824	25.6	#-155	
30	+ePcPz	0824	26.1	#-155	
30	+ePKPbcz	1323	37.9	#-156	
30	+ePKPdfz	1323	39.9	#-156	
30	-epPKPdfz	1323	50.9	#-156	
30	+epz	1826	12.3	#-157	
30	+ePcPz	1826	14.7	#-157	
30	+ePPz	1829	34.8	#-157	
30	-epz	1936	04.8	#-158	
30	-ePcPz	1936	05.1	#-158	
31	-epz	0119	56.8	#-159	
31	+epPz	0120	07.1	#-159	
31	+epz	0745	50.9	#-160	
31	-ePcPz	0746	05.3	#-160	
31	esh	0754	18.1	#-160	
31	+epz	1729	23.0	#-161	
31	esh	1739	30.0	#-161	
Apr.					
01	none				
02	-epz	2143	03.8	#-162	
02	esh	2152	33.7	#-162	
02	-epz	2355	43.1		
03	+epz	2217	31.2		
04	+epz	0720	40.7	#-163	
04	-ePcPz	0720	44.1	#-163	
04	-epPz	0721	26.8	#-163	
04	+esPz	0721	47.2	#-163	
05	-epz	1833	48.5	#-164	
05	+ePcPz	1833	48.9	#-164	
05	-epz	2147	43.3		
05	-epz	2216	00.1	#-165	
05	-ePcPz	2216	01.2	#-165	
05	esh	2226	26.4	#-165	
06	+epz	0120	35.4	#-166	
06	+ePcPz	0120	48.7	#-166	
06	-epPz	0120	59.3	#-166	
06	+esPz	0121	09.9	#-166	
06	-epz	0730	18.4	#-167	
06	+ePcPz	0730	19.3	#-167	
06	+epz	1755	43.1		
06	+epz	1910	10.2		
07	+epz	0141	35.9		

Date	Phase	UTC time			Remarks
		h	m	s	
07	+epz	0908	53.7	#-168	
07	-epPz	0909	03.6	#-168	
07	-esPz	0909	07.8	#-168	
08	-epz	0428	41.0		
08	-epz	1545	30.6		
09	-epz	1624	38.4	#-169	
09	-epPz	1624	49.7	#-169	
09	+epz	1741	40.5		
09	-epz	2349	06.3		
10	+epz	0145	21.2	#-170	
10	+ePcPz	0145	31.8	#-170	
10	+esPz	0146	00.2	#-170	
11	none				
12	+epz	1124	01.8		
13	none				
14	+epz	1036	00.2		
14	+epz	2014	09.5		
11	none				
16	-epz	0046	08.0		
16	+epz	0726	51.8		
16	+epz	0943	49.5	#-171	
17	+epz	1455	49.9	#-172	
17	-epz	1455	51.2	#-172	
17	-epPz	1455	52.4	#-172	
17	+epz	1946	02.7		
18	+epz	1615	58.5		
18	-epz	2102	51.7		
18	-epz	2222	24.3		
19	-epz	0251	52.5		
19	+epz	1156	12.3	#-173	
19	+epPz	1156	15.1	#-173	
19	+esPz	1156	16.3	#-173	
19	+epz	1156	12.3	#-173	
19	+ePKiKPz	1201	35.2	#-173	
20	none				
21	+epz	0037	42.6		
22	none				
23	-epz	1323	13.1		
24	+ePKPdfz	1115	47.7	#-174	
25	+epz	0006	00.9		
25	+epz	0618	11.1		
25	+epz	2143	22.5		
26	-epz	0955	36.4		
26	+epz	1522	51.1	#-175	
27	+epz	1615	59.7	#-176	
27	+ePcPz	1616	03.7	#-176	
27	+esPKiKPz	1621	53.8	#-176	

Date	Phase	UTC time			Remarks
		h	m	s	
27	eSKSach	1626	12.5	#-176	
27	esh	1626	13.5	#-176	
27	-epz	1621	44.4	#-177	
27	-ePcPz	1621	44.8	#-177	
27	+epz	1910	02.7		
27	+epz	2309	44.0	#-178	
27	+ePcPz	2309	44.6	#-178	
27	eSKSach	2319	18.3	#-178	
27	esh	2319	46.1	#-178	
27	-epz	2327	12.3		
28	-epz	1140	55.4	#-179	
28	+epz	1750	56.1	#-180	
28	+ePcPz	1750	58.7	#-180	
29	-epz	1056	15.5	#-181	
29	+epz	1805	11.1	#-182	
29	+epPz	1805	14.9	#-182	
29	-esPz	1805	15.6	#-182	
29	+ePPz	1807	02.3	#-182	
29	+epz	1917	02.4		
29	+epz	2013	42.3	#-183	
29	+ePcPz	2013	43.4	#-183	
29	+esPz	2014	46.5	#-183	
30	-epz	0051	58.7	#-184	
30	-ePnz	0052	00.4	#-184	
30	-epPz	0052	00.6	#-184	
30	+esPz	0052	01.9	#-184	
May					
01	+epz	0413	20.5	#-185	
01	+ePcPz	0413	24.3	#-185	
01	+epPz	0415	25.1	#-185	
01	esh	0422	40.9	#-185	
01	+epz	0533	48.7	#-186	
01	+epz	1355	36.1		
01	-epz	1600	11.3	#-187	
01	esh	1609	42.6	#-187	
01	-epz	1848	24.7		
02	-epz	1308	52.5		
03	-epz	0516	11.5	#-188	
03	+ePcPz	0516	11.9	#-188	
03	-epPz	0516	21.8	#-188	
03	-epKikPz	0521	10.5	#-188	
03	eSKSach	0526	42.3	#-188	
03	esh	0527	13.3	#-188	
03	+epz	0555	08.6	#-189	
04	-epz	0208	07.0		
04	-epz	0501	38.1		
04	-epz	1327	04.7	#-190	

Date	Phase	UTC time			Remarks
		h	m	s	
04	-epPz	1327	14.1	#-190	
04	esh	1336	45.2	#-190	
04	eSKSach	1337	11.0	#-190	
04	-epz	2020	34.7	#-191	
04	-epPz	2020	44.6	#-191	
04	-esPz	2020	47.7	#-191	
04	esh	2030	14.3	#-191	
04	eSKSach	2030	37.7	#-191	
04	-epz	2157	36.8	#-192	
04	-ePcPz	2157	47.5	#-192	
04	-epPz	2157	53.7	#-192	
04	-esPz	2158	01.3	#-192	
05	-epz	0150	49.9		
05	+epz	0836	40.4	#-193	
05	+epz	1602	51.4	#-194	
05	+ePcPz	1602	52.7	#-194	
05	-epz	2141	04.9		
05	-epz	2317	53.7	#-195	
05	+ePcPz	2317	54.2	#-195	
05	+epPz	2318	04.0	#-195	
06	-epz	2027	35.4	#-196	
06	-ePcPz	2027	35.4	#-196	
06	esh	2037	00.4	#-196	
07	-epz	0041	08.6		
07	-epz	1825	36.8	#-197	
07	-ePcPz	1825	38.8	#-197	
08	-epz	0524	29.0	#-198	
08	-ePcPz	0524	33.0	#-198	
08	-epPz	0524	59.0	#-198	
08	eSKSach	0534	38.2	#-198	
08	-epz	1645	45.9	#-199	
08	-ePcPz	1645	48.3	#-199	
08	-epPz	1645	56.0	#-199	
09	+epz	2031	04.1	#-200	
09	+ePnz	2031	07.0	#-200	
09	+esPz	2031	08.8	#-200	
09	+epPz	2031	10.3	#-200	
10	-epz	0422	57.0	#-201	
10	+ePcPz	0423	09.2	#-201	
10	-epz	1438	50.2	#-202	
10	+ePcPz	1438	59.8	#-202	
10	-esPz	1439	03.1	#-202	
10	+epz	1500	50.2	#-203	
10	+epPz	1500	59.5	#-203	
10	+esPz	1501	04.9	#-203	
11	-epz	1804	23.9	#-204	
11	-ePcPz	1804	25.9	#-204	

Date	Phase	UTC time			Remarks
		h	m	s	
12	+epPz	0315		29.8	#-205
12	+epz	0405		48.8	#-206
12	+epPz	0405		59.6	#-206
13	+epz	1555		08.8	#-207
13	+epPz	1555		21.6	#-207
13	+ePPz	1558		03.3	#-207
13	-epz	2133		53.3	#-208
13	+ePcPz	2133		55.5	#-208
13	-ePPz	2137		13.6	#-208
14	-ePKiKPz	0622		01.4	#-209
14	-epPKiKPz	0622		14.9	#-209
14	-epz	0752		08.2	#-210
14	+epPz	0752		18.0	#-210
15	-epz	0204		37.8	
15	+epz	0723		50.7	#-211
15	+epPz	0724		16.3	#-211
15	+epz	1556		53.4	#-212
15	+ePcPz	1556		54.3	#-212
16	+epz	0250		02.8	#-213
17	+epz	0217		46.1	#-214
17	+ePcPz	0217		48.6	#-214
17	-epPz	0217		56.0	#-214
18	+epz	0144		15.6	#-215
18	+ePcPz	0144		18.6	#-215
18	+epPz	0144		38.4	#-215
18	+epz	2121		04.6	#-216
18	+ePcPz	2121		32.7	#-216
19	-epz	0027		29.5	#-217
19	+epPz	0027		34.2	#-217
19	+esPz	0027		38.0	#-217
19	-ePcPz	0030		41.4	#-217
19	-epz	1055		17.5	#-218
19	-ePcPz	1055		18.2	#-218
19	esh	1105		14.5	#-218
20	-epz	0511		50.1	#-219
20	+ePPz	0515		28.0	#-219
21	+epz	0557		10.6	#-220
21	+ePcPz	0557		11.3	#-220
21	+epz	0834		41.4	#-221
21	+ePcPz	0834		44.2	#-221
21	+epPKiKPz	0840		40.2	#-221
21	+epz	0916		36.2	#-222
21	+ePcPz	0916		37.2	#-222
21	+epz	1249		53.2	#-223
21	+epPz	1250		02.8	#-223
21	-epz	1415		04.8	#-224
21	+ePcPz	1415		05.9	#-224

Date	Phase	UTC time			Remarks
		h	m	s	
21	+epz	1858		37.4	
21	+ePdiffz	1858		45.2	#-225
21	+esPdiffz	1858		51.6	#-225
22	+epz	0438		06.1	
22	-epz	1229		42.7	
22	-epz	1614		16.6	#-226
22	+ePcPz	1614		18.4	#-226
22	+epPz	1614		27.2	#-226
22	+esPpz	1614		31.5	#-226
22	+epz	1626		12.6	#-227
23	+epz	0101		34.8	#-228
23	+epz	0626		03.9	#-229
23	+ePKiKPz	0631		32.0	#-229
23	+esPKiKPz	0634		43.8	#-229
24	-epz	0043		01.6	#-230
24	-ePcPz	0043		04.9	#-230
24	-ePKiKPz	0048		17.2	#-230
24	-epz	2059		33.2	
25	-epz	1048		25.4	
26	+ePKPdfz	0943		34.8	#-231
26	-ePKiKPz	0943		36.6	#-231
26	+epPKPdfz	0943		54.6	#-231
26	-esPKiKPz	0944		03.1	#-231
26	+epz	1602		47.7	#-232
26	+ePcPz	1602		49.1	#-232
26	+epPz	1602		58.4	#-232
26	+epz	1936		35.1	#-233
26	+esPz	1936		39.4	#-233
26	+epz	2325		48.0	#-234
26	+ePcPz	2325		48.4	#-234
26	+epPz	2327		51.5	#-234
26	+ePPz	2329		43.2	#-234
26	eSKSach	2335		25.0	#-234
26	-epz	2338		49.9	#-235
26	-ePcPz	2338		50.3	#-235
27	-epz	0840		27.8	#-236
27	-ePcPz	0840		53.9	#-236
27	-epz	0958		13.6	#-237
27	+epz	1622		57.0	
28	-epz	0618		40.8	
28	-epz	1145		37.5	
28	-epz	1624		41.2	#-238
28	-epPz	1624		44.1	#-238
28	-esPz	1624		45.2	#-238
28	-epz	1737		38.1	
28	-epz	2139		31.5	#-239
28	-ePcPz	2139		33.3	#-239

Date	Phase	UTC time		Remarks
		h m	s	
28	-ePPz	2142	54.5	#-239
29	-ePKPdfz	0618	40.8	#-240
29	-ePKiKPz	0618	45.0	#-240
30	+epz	2001	25.2	#-241
30	+ePPz	2005	13.5	#-241
30	esh	2012	36.8	#-241
31	+epz	1913	43.1	#-242
31	+epPz	1914	30.0	#-242
31	+ePPz	1916	26.9	#-242
June				
01	+epz	0920	07.6	#-243
01	+epPz	0920	17.0	#-243
01	+ePKPdfz	1809	14.2	#-244
01	+ePKiKPz	1809	14.9	#-244
02	+epz	0303	00.8	#-245
02	+epz	2257	57.1	#-246
03	+epz	1446	10.2	#-247
03	+epz	2121	36.8	#-248
03	+epPz	2121	47.2	#-248
03	+esPz	2121	51.2	#-248
03	+epKiKPz	2126	58.8	#-248
03	+esPKiKPz	2127	02.5	#-248
04	+epz	0010	17.5	
04	+epz	0113	04.8	#-249
04	+ePcPz	0113	13.6	#-249
04	+ePPz	0116	01.4	#-249
04	+ePKiKPz	0118	41.7	#-249
04	+esPKiKPz	0120	02.5	#-249
04	+epz	0609	09.9	#-250
04	+ePcPz	0609	10.5	#-250
04	+ePPz	0612	46.3	#-250
04	+epz	1717	45.8	#-251
04	+epz	1750	01.5	#-252
04	+ePcPz	1750	13.2	#-252
04	+epPz	1750	13.4	#-252
04	+esPz	1750	17.0	#-252
05	-epz	0346	34.9	#-253
05	+ePcPz	0346	42.4	#-253
05	+esPz	0346	49.1	#-253
05	+epz	0834	55.9	#-254
05	+ePcPz	0835	06.6	#-254
05	esh	0844	27.9	#-254
05	+epz	1320	58.1	
05	+epz	2201	04.4	
06	-epz	0358	18.8	
06	+epz	1322	09.3	#-255
06	+ePcPz	1322	11.2	#-255

Date	Phase	UTC time		Remarks
		h m	s	
07	+epz	0045	55.6	#-256
07	+ePcPz	0045	56.3	#-256
07	+epPz	0046	06.6	#-256
07	esh	0057	01.8	#-256
08	+epz	1307	32.7	#-257
08	+epPz	1307	35.5	#-257
08	+esPz	1307	37.0	#-257
08	+ePKiKPz	1315	02.2	#-257
08	-epz	2127	51.1	#-258
08	+ePcPz	2127	55.3	#-258
08	-esPz	2128	04.2	#-258
08	+epz	2142	58.2	#-259
09	+epz	0257	34.2	#-260
09	+epz	1400	53.1	#-261
09	+ePcPz	1400	54.3	#-261
09	+epKiKPz	1406	00.4	#-261
09	-epz	2157	06.7	#-262
09	+ePKiKPz	2202	33.6	#-262
09	+epKiKPz	2203	25.3	#-262
10	none			
11	-epz	0803	47.5	#-263
11	+epPz	0803	50.8	#-263
11	+esPz	0803	52.0	#-263
11	+epz	0806	47.1	#-263
11	+epz	2219	32.6	#-264
11	+ePcPz	2219	40.8	#-264
11	+epPz	2219	53.7	#-264
12	-epz	0912	13.4	#-265
12	-ePcPz	0912	14.2	#-265
12	esh	0923	01.2	#-265
12	+epz	0932	55.2	#-266
12	+ePcPz	0932	55.7	#-266
12	-epz	1042	19.8	#-267
12	+epz	1913	36.8	
13	+epz	0935	37.7	
14	+epz	1841	15.4	#-268
14	+ePcPz	1841	16.2	#-268
14	+epPz	1842	48.9	#-268
15	+epz	0146	43.6	#-269
15	+ePKPdfz	1944	21.4	#-270
15	+ePKPbcz	1944	29.6	#-270
15	+ePKiKPz	1944	30.0	#-270
15	+epPKPdfz	1944	32.1	#-270
15	+esPKPdfz	1944	36.2	#-270
16	+epz	1304	17.3	
16	-epz	1520	53.8	#-271
16	-ePKPdfz	2227	26.3	#-272

Date	Phase	UTC time		Remarks	Date	Phase	UTC time		Remarks
		h	m				s	h	
16	+ePKPbcz	2227	32.5	#-272	20	-ePcPz	2335	52.0	#-286
16	+ePKiKPz	2227	33.7	#-272	21	-epz	0746	38.2	#-287
16	+epPKPabz	2228	24.1	#-272	21	+ePcPz	0746	42.1	#-287
17	+epz	0611	01.1	#-273	21	+esPz	0747	28.6	#-287
17	+ePcPz	0611	09.0	#-273	21	esh	0756	43.1	#-287
17	+epz	1321	10.5	#-274	22	-epz	1117	15.8	
17	+ePcPz	1321	13.8	#-274	23	+epPKPdfz	1232	29.1	#-288
17	+epz	1619	49.8	#-275	23	+ePKPbcz	1232	31.4	#-288
17	+esPz	1622	47.4	#-275	23	+epKiKPz	1232	37.5	#-288
17	+ePPz	1623	09.8	#-275	24	none			
17	+ePKiKPz	1625	03.0	#-275	25	+epz	1155	25.2	#-289
17	esh	1629	22.9	#-275	25	+ePcPz	1155	26.2	#-289
18	-epz	1013	53.7		26	+epz	0032	16.4	#-290
18	+epz	1346	19.0		26	+ePcPz	0032	17.2	#-290
19	+epz	0712	25.1	#-276	26	-esPKiKPz	0037	16.6	#-290
19	+ePKPdfz	1318	54.8	#-277	26	+epz	1748	50.2	#-291
19	+epz	1554	59.3	#-278	26	+epPz	1748	59.7	#-291
19	+epz	2109	51.9	#-279	27	-epz	0011	28.3	
19	-epz	2315	59.6	#-280	27	+epz	1030	49.4	#-292
19	+epPz	2316	09.4	#-280	27	+epz	1604	13.0	
19	+esPz	2316	14.4	#-280	28	+epz	0602	01.3	#-293
19	+ePcPz	2316	24.8	#-280	28	+epz	0749	01.5	#-294
20	+epz	0138	07.9	#-281	28	+ePcPz	0749	03.9	#-294
20	+epPz	0138	18.6	#-281	28	+epPz	0749	08.5	#-294
20	+epKiKPz	0143	24.7	#-281	28	-esPpz	0749	13.6	#-294
20	+esPKiKPz	0143	28.8	#-281	28	+epz	1542	55.4	#-295
20	+epz	0631	40.9	#-282	28	+epPz	1543	04.9	#-295
20	+ePcPz	0631	41.4	#-282	28	+ePPz	1546	36.9	#-295
20	+epPz	0633	46.3	#-282	28	+epz	1655	45.1	
20	+esPz	0634	39.4	#-282	29	-epz	1827	45.4	
20	eSKSach	0641	15.5	#-282	30	-epz	1049	01.7	
20	esh	0641	45.8	#-282	30	-epz	1301	35.5	#-296
20	-epz	1341	42.4	#-283	30	-ePcPz	1301	36.2	#-296
20	+epPz	1341	50.2	#-283	Jul.				
20	-esPz	1341	54.6	#-283	01	-epz	0604	28.4	#-297
20	+ePcPz	1342	05.3	#-283	01	+epz	2015	48.8	
20	esh	1350	43.9	#-283	02	-epz	0059	13.8	
20	eSKSach	1351	39.0	#-283	02	+epz	1023	48.8	
20	-epz	1631	27.3	#-284	02	+epz	1911	25.9	#-298
20	+epPz	1631	36.2	#-284	02	+ePcPz	1911	34.3	#-298
20	-ePcPz	1631	51.5	#-284	02	+esPz	1911	39.6	#-298
20	-esPKiKPz	1638	03.3	#-284	03	+epz	0008	38.2	
20	-ePKPabz	2208	06.1	#-285	03	+epz	1319	27.5	#-299
20	+epPKPdfz	2209	24.9	#-285	03	+ePcPz	1319	28.0	#-299
20	-esPKPdfz	2209	42.1	#-285	03	-esPz	1319	41.6	#-299
20	-epPKPabz	2209	50.2	#-285	03	+epz	1910	14.1	#-300
20	+epz	2335	41.3	#-286	03	-ePcPz	1910	14.8	#-300

Date	Phase	UTC time		Remarks
		h m	s	
03	+esPz	1910	47.7	#-300
04	+epz	0035	42.7	
04	+epz	0047	01.6	#-301
04	+ePcPz	0047	02.2	#-301
04	+epPz	0047	12.1	#-301
04	+esPz	0047	16.4	#-301
04	-epz	0128	39.4	#-302
04	-ePcPz	0128	41.2	#-302
04	+epPz	0128	49.6	#-302
04	-ePPz	0132	02.0	#-302
04	+epz	0352	15.3	#-303
04	+ePcPz	0352	15.7	#-303
04	-ePPz	0355	59.9	#-303
04	+ePKPdfz	0736	23.0	#-304
04	+ePKPbcz	0736	23.4	#-304
04	+epPKPdfz	0736	25.8	#-304
04	+epPKPbcz	0736	26.2	#-304
04	+ePKiKPz	0736	27.4	#-304
05	+epz	1344	58.7	
06	-epz	0649	34.9	#-305
06	+ePcPz	0649	36.7	#-305
06	-epz	2146	56.3	#-306
06	+ePcPz	2146	57.1	#-306
06	-epPz	2147	18.7	#-306
06	eSKSach	2157	12.7	#-306
06	esh	2157	31.1	#-306
07	-epz	1418	18.0	#-307
07	-ePcPz	1418	22.6	#-307
07	+epz	1641	41.9	#-308
07	+ePcPz	1641	43.5	#-308
07	esh	1651	41.9	#-308
07	+epz	2009	14.5	#-309
07	+epz	2156	33.0	#-310
07	+ePcPz	2156	38.1	#-310
07	+epz	2252	51.6	#-311
07	+epPz	2253	01.4	#-311
07	+esPz	2253	05.9	#-311
08	+epz	0337	40.4	#-312
08	+ePcPz	0337	40.9	#-312
08	+epPz	0339	34.6	#-312
08	+epz	0716	02.3	#-313
08	+esPz	0716	06.3	#-313
09	+epz	0735	39.2	#-314
09	+ePcPz	0735	39.7	#-314
09	+epPz	0735	54.0	#-314
09	esh	0746	29.7	#-314
09	-epz	1405	26.3	#-315

Date	Phase	UTC time		Remarks
		h m	s	
09	-epPz	1405	46.7	#-315
09	-ePcPz	1408	14.4	#-315
10	-epz	1535	49.1	#-316
10	-ePcPz	1535	49.7	#-316
10	+epz	2013	59.6	
11	+epz	0134	17.1	#-317
11	-epPz	0134	28.5	#-317
11	+epz	1403	50.9	#-318
11	+epz	1406	49.3	#-319
12	+espz	0208	47.6	#-320
12	-epz	0255	44.5	#-321
12	-epPz	0255	53.0	#-321
12	-ePdiffz	0848	25.5	#-322
12	+epz	1659	32.5	
12	+esPKPdfz	2321	50.4	#-323
13	+epz	0446	17.9	
13	-epz	0737	20.7	#-324
13	-iPcPz	0737	27.0	#-324
13	-epPz	0737	46.9	#-324
13	-epz	1434	25.4	#-325
13	-esPz	1434	48.9	#-325
14	+epz	1241	34.3	
14	-epz	1613	14.4	#-326
14	+ePcPz	1613	15.9	#-326
14	-epz	1613	25.1	#-326
14	-epz	1832	19.9	#-327
14	-ePcPz	1832	21.4	#-327
14	-epPz	1832	29.5	#-327
14	-epz	1938	19.6	#-328
14	-ipz	2011	58.9	#-329
14	-ePcPz	2012	06.7	#-329
14	-ipPz	2012	33.9	#-329
14	+esPz	2012	47.4	#-329
14	+epz	2044	27.5	#-330
14	-ePcPz	2044	32.7	#-330
14	-epPz	2044	37.7	#-330
14	-esPz	2044	42.4	#-330
14	+epz	2153	11.5	#-331
14	-epPz	2153	21.6	#-331
15	-epPz	0134	31.7	#-332
15	+ePcPz	0303	12.5	#-333
15	+epz	0325	28.0	#-334
15	-epz	0335	02.9	#-335
15	-epz	0939	07.6	#-336
15	-iPcPz	0939	08.8	#-336
15	+ipPz	0939	20.9	#-336
15	-esPz	0939	25.1	#-336

Date	Phase	UTC time			Remarks
		h	m	s	
15	-epz	1309		57.9	#-337
15	-iPcPz	1309		59.7	#-337
15	-ipPz	1310		06.4	#-337
15	+ePcPz	1415		08.1	#-338
15	-epz	1802		39.3	#-339
15	-epz	1859		56.2	#-340
15	-ipPz	1900		06.5	#-340
15	-isPz	1900		08.4	#-340
15	+epz	2038		56.1	#-341
15	+epz	2205		50.1	#-342
15	+epPz	2205		58.2	#-342
15	-ePcPz	2206		16.9	#-342
15	-ipz	2347		56.5	#-343
15	-iPcPz	2347		58.0	#-343
15	-epPz	2350		07.3	#-343
15	+esPz	2351		02.6	#-343
15	+ePPz	2351		22.7	#-343
16	+epz	0240		55.0	#-344
16	-epz	0305		41.9	#-345
16	-epPz	0327		57.7	#-346
16	+epz	0337		00.9	
16	-ePcPz	0337		25.2	#-347
16	-epPz	0457		54.8	#-348
16	-epz	2205		33.2	#-349
16	+epz	2205		46.8	
16	+epPz	2206		09.7	#-349
17	+epz	1239		56.6	#-350
17	+ipz	1915		31.8	#-351
17	+epPz	1916		06.0	#-351
17	+esPz	1916		21.1	#-351
17	+epz	2014		10.9	
18	none				
19	+epz	0945		05.2	
19	+epz	1518		07.6	
19	-epz	2132		14.9	#-352
20	+epz	0439		11.6	
20	+epz	1103		24.2	
20	+epz	2202		54.1	
21	+epz	1406		45.4	#-353
21	+epz	1808		53.7	
21	+epz	1933		44.6	#-354
21	-epz	1957		00.0	
22	-epz	0434		27.9	#-355
23	+epz	0543		14.8	
23	-epz	0646		24.9	
23	+epz	1649		03.6	#-356
23	+epz	1704		01.7	#-357

Date	Phase	UTC time			Remarks
		h	m	s	
23	-epz	1759		14.0	
24	-epz	1036		06.6	#-358
25	-epz	0415		30.5	
25	-epz	0441		44.4	#-359
25	-epz	0951		10.3	#-360
25	+epz	1532		16.5	
25	-epz	1617		16.4	
25	+epz	1856		34.0	
25	+epz	2034		24.8	#-361
25	-epz	2037		30.5	
25	-ePKPdfz	2232		39.1	#-362
26	-epz	0333		41.8	#-363
26	-epz	0426		58.8	
26	-epz	1116		16.6	
26	-epz	1358		01.0	#-364
26	-epz	1421		30.6	
26	-epz	2332		11.9	
27	-epz	0216		31.3	#-365
27	+epz	0333		13.0	#-366
27	+epz	0612		20.8	#-367
27	+esPdiffz	0643		46.1	#-368
27	+epz	1152		42.7	
27	-epz	1236		51.9	#-369
27	-epz	1715		30.2	
28	-epz	1621		26.8	#-370
28	+epz	1908		50.9	
29	+epz	0022		20.3	
29	-epz	0539		18.2	
29	+epz	1414		27.3	#-371
29	-epz	1941		23.5	
29	+epz	2314		32.6	
30	-epPz	0550		44.6	#-372
30	+ePcPz	1227		45.3	#-373
31	-epz	0728		01.1	
Aug.					
01	none				
02	-epz	2344		40.7	#-374
03	+epz	0140		39.8	#-375
03	-epz	0547		04.7	
03	-epz	1752		53.2	
03	+epz	1916		42.7	#-376
04	-epz	0359		59.8	
04	+epz	0421		25.9	#-377
04	+epPz	0444		02.9	#-378
04	-esPz	0640		58.3	#-379
04	-epPz	0715		50.4	#-380
04	+epz	0947		01.3	

Date	Phase	UTC time		Remarks
		h	m s	
04	-epz	0958	17.0	
04	+epz	1126	50.5	
04	+epz	1300	34.2	
04	+epz	1602	09.5	
04	-epPz	1825	12.6	#-381
04	-epz	2107	53.6	
05	+epz	0457	17.6	#-382
05	+epz	0915	57.1	
05	+epz	1907	59.2	#-383
06	+epz	0950	57.0	
06	-epz	1303	29.0	
06	-epz	1619	20.0	#-384
06	+epPz	1708	44.3	#-385
07	none			
08	+epz	1508	49.1	#-386
08	-ePcPz	1508	51.3	#-386
08	+epPz	1509	01.2	#-386
08	+esPz	1509	06.5	#-386
08	+ePPz	1512	02.8	#-386
08	+ePKiKPz	1514	14.9	#-386
08	+epz	1534	16.1	#-387
08	+ePcPz	1534	16.3	#-387
08	-epz	1606	09.3	#-388
08	-epz	1708	30.0	#-389
09	+epz	2205	22.4	
09	+epz	2344	36.4	
10	none			
11	-epz	0032	13.2	#-390
11	-ePcPz	0032	14.6	#-390
11	-epPz	0032	23.3	#-390
11	-epz	0038	32.6	#-391
11	-ePcPz	0038	45.4	#-391
11	+epz	1151	33.4	#-392
11	+epz	1348	27.8	
11	-epz	2135	16.5	#-393
11	-ePcPz	2135	18.0	#-393
11	+esPz	2135	54.1	#-393
11	-ePKiKPz	2140	15.5	#-393
11	eSKSach	2145	36.2	#-393
11	esh	2145	58.4	#-393
12	-epz	0646	39.0	
12	-epz	1204	49.2	#-394
12	-epz	1609	34.3	#-395
12	-ePcPz	1609	35.8	#-395
13	-epz	1042	50.9	#-396
13	-epz	2334	08.4	#-397
13	+ePPz	2337	02.6	#-397

Date	Phase	UTC time		Remarks
		h	m s	
13	-ePKiKPz	2339	54.7	#-397
13	-epPKiKPz	2341	08.4	#-397
14	+epPz	0848	14.2	#-398
14	+esPz	0848	16.9	#-398
14	+ePnPz	0849	23.3	#-398
14	esh	0853	34.7	#-398
14	-epz	1834	53.1	#-399
14	-ePcPz	1834	54.7	#-399
14	+esPz	1837	50.6	#-399
14	+ePPz	1838	26.7	#-399
14	+ePKiKPz	1839	54.0	#-399
14	eSKAach	1844	24.7	#-399
14	esh	1834	44.3	#-399
14	-epz	1856	09.4	
14	+epz	2142	18.1	
15	none			
16	+ePKPdz	1117	43.2	#-400
16	+ePKiKPz	1117	44.9	#-400
16	+epz	1347	35.2	
16	-epz	1423	43.9	#-401
16	-epPz	1424	02.6	#-401
16	+epz	1552	40.4	#-402
16	-epPz	1553	17.1	#-402
16	+ePPz	1556	27.2	#-402
16	eSKSach	1602	59.5	#-402
16	+epz	1952	25.5	
17	none			
18	+epz	2041	39.7	#-403
18	+esPz	2041	54.6	#-403
18	+ePPz	2045	30.8	#-403
18	+ePKiKPz	2046	18.2	#-403
19	+epz	0125	02.5	#-404
19	+ePcPz	0125	16.5	#-404
19	+esPz	0125	21.1	#-404
19	+esPKiKPz	0131	16.0	#-404
19	+epz	0236	48.4	
19	+epz	1255	49.3	
19	+epz	1403	42.2	#-405
19	+ePcPz	1403	43.8	#-405
19	+epPz	1405	50.9	#-405
19	+epz	1406	51.5	#-405
19	esh	1413	18.5	#-405
19	+epz	2344	04.0	#-406
19	+ePcPz	2344	05.1	#-406
19	+epPz	2346	21.2	#-406
19	eSkSach	2353	27.0	#-406
19	esh	2353	43.1	#-406

Date	Phase	UTC time		Remarks
		h m	s	
20	-epz	0258	45.4	#-407
20	-ePKiKPz	0305	51.3	#-407
20	-epKiKPz	0306	16.3	#-407
20	esh	0306	51.0	#-407
20	+epz	0841	01.9	#-408
20	+ePcPz	0841	05.3	#-408
20	esh	0851	10.3	#-408
20	+epz	1326	24.7	
21	+epz	0243	33.4	
21	-epz	0409	28.7	#-409
21	-ePcPz	0409	30.0	#-409
21	+ePPz	0413	01.2	#-409
21	-ePKiKPz	0414	23.6	#-409
21	-ePdiffz	0415	50.1	#-410
21	-epPdiffz	0415	56.6	#-410
21	-epz	0505	37.5	#-411
21	-epPz	0505	42.7	#-411
21	+epz	0806	46.2	
21	-epz	1222	52.2	#-412
21	-epPz	1223	00.6	#-412
21	+esPz	1223	04.0	#-412
21	-ePcPz	1223	38.4	#-412
21	esh	1231	00.2	#-412
21	-epz	1239	03.1	#-413
21	-epPz	1239	12.4	#-413
21	+ePcPz	1239	48.4	#-413
21	-epz	1255	42.8	#-414
21	-epPz	1255	51.9	#-414
21	+epz	1422	28.7	#-415
21	+epPz	1422	35.5	#-415
21	+esPz	1422	37.3	#-415
21	+ePcPz	1423	15.5	#-415
21	esh	1430	37.9	#-415
21	+ePcPz	1625	59.8	#-416
21	+epPz	1626	02.9	#-416
21	+esPz	1626	59.8	#-416
21	+ePKiKPz	1631	18.4	#-416
21	+esPKiKPz	1631	35.6	#-416
21	esh	1636	00.3	#-416
21	eSKSach	1636	08.1	#-416
21	-epz	1700	07.5	#-417
21	+epPz	1700	13.9	#-417
21	-esPz	1700	16.3	#-417
21	-ePcPz	1700	53.2	#-417
21	-ePPz	1702	18.2	#-417
21	-epz	2006	23.7	#-418
21	-ePPz	2008	33.9	#-418

Date	Phase	UTC time		Remarks
		h m	s	
21	-eScPz	2011	09.3	#-418
22	+epz	0012	26.8	#-419
22	+epPz	0012	33.6	#-419
22	+epz	0106	35.0	
22	+epz	0337	13.6	#-420
22	+ePcPz	0337	15.1	#-420
22	-epz	2148	16.4	#-421
22	+ePcPz	2148	17.6	#-421
22	+epPz	2148	56.6	#-421
22	+esPz	2149	14.4	#-421
22	+ePPz	2151	50.8	#-421
23	+epz	0259	01.3	#-422
23	+ePcPz	0259	01.9	#-422
23	+epPz	0259	11.2	#-422
23	esh	0309	56.0	#-422
23	+epz	0923	54.5	
23	-epz	1424	29.7	#-423
23	+ePcPz	1424	30.5	#-423
23	+epPz	1424	40.4	#-423
23	+esPz	1424	44.0	#-423
23	+epz	1534	40.9	#-424
23	+epPz	1536	38.2	#-424
23	esh	1542	59.8	#-424
23	-epz	1739	48.1	
24	-epz	0818	40.7	
24	-epz	0913	22.1	#-425
24	+ePcPz	0913	23.5	#-425
24	-epz	2357	13.5	#-426
24	+epPz	2357	16.0	#-426
24	-ePcPz	2359	09.5	#-426
25	+ePKPdfz	0647	10.1	#-427
25	-epz	2228	58.9	#-428
25	-ePcPz	2229	12.0	#-428
25	-esPz	2228	15.0	#-428
25	-ePKPdfz	2344	00.3	#-429
25	+ePKiKPz	2344	00.8	#-429
25	+ePPz	2345	51.4	#-429
26	-epz	1159	21.9	
26	+epz	1746	30.6	#-430
26	eSKSach	1756	20.7	#-430
26	-epz	2123	48.7	#-431
26	-ePcPz	2123	53.4	#-431
26	+epPz	2123	56.1	#-431
26	-esPz	2124	01.2	#-431
26	-epz	2138	26.4	
27	-epz	0006	28.6	
27	-epz	0258	44.8	#-432

Date	Phase	UTC time			Remarks	Date	Phase	UTC time			Remarks
		h	m	s				h	m	s	
27	+epPz	0258	47.5	#-432	30	-epz	0018	16.6	#-445		
27	-ePcPz	0300	32.9	#-432	30	-ePcPz	0018	17.8	#-445		
27	-epz	0447	42.8		30	eSKSach	0028	32.5	#-445		
27	-epz	2131	01.8	#-433	30	esh	0028	51.8	#-445		
27	-esPz	2131	06.1	#-433	30	+epz	0627	26.2	#-446		
27	+ePcPz	2131	07.4	#-433	30	-epPz	0627	42.9	#-446		
28	+epz	0458	25.6	#-434	30	+esPz	0627	49.8	#-446		
28	+epPz	0458	27.2	#-434	30	esh	0637	01.0	#-446		
28	+esPz	0458	29.2	#-434	30	-epz	1214	44.1			
28	+ePcPz	0459	11.7	#-434	31	-ePKPdz	2326	14.3	#-447		
28	-epz	0539	35.4	#-435	31	-ePKiKpZ	2326	16.8	#-447		
28	+epPz	0539	36.9	#-435	31	-eSKPbcz	2328	51.5	#-447		
28	-epz	0649	47.8	#-436	Sep.						
28	-ePcPz	0649	51.8	#-436	01	+epz	0917	02.1	#-448		
28	+epPz	0651	22.2	#-436	01	+eSKPbcz	0917	04.0	#-448		
28	eSKSach	0659	23.4	#-436	01	+esPz	0917	16.6	#-448		
28	-epz	1750	35.0	#-437	01	-epz	1835	12.6			
28	-epPz	1750	37.2	#-437	02	+epz	1745	15.3	#-449		
28	+ePcPz	1751	35.9	#-437	02	+ePcPz	1745	16.0	#-449		
28	-epz	1900	24.0		02	+ePKiKpZ	1750	10.1	#-449		
28	-epz	2051	19.3	#-438	02	-epz	1841	13.2	#-450		
28	-ePcPz	2051	21.5	#-438	02	+ePcPz	1841	13.6	#-450		
28	esh	2100	19.3	#-438	02	-epPz	1841	16.4	#-450		
28	-epz	2111	19.9	#-439	02	eSKSach	1851	47.6	#-450		
28	+ePcPz	2111	21.1	#-439	02	esh	1852	15.0	#-450		
28	+epPz	2111	34.5	#-439	03	-epPz	0118	29.5	#-451		
29	-epz	0103	04.9	#-440	03	+ePPz	0122	02.1	#-451		
29	+ePcPz	0103	05.3	#-440	03	+ePKiKpZ	0123	06.8	#-451		
29	-eSKSacZ	0112	36.4	#-440	03	+epPKiKpZ	0123	16.9	#-451		
29	+epz	0439	59.6	#-441	03	+epz	0508	42.5			
29	-ePcPz	0440	05.2	#-441	04	+epz	0303	05.0			
29	+ePPz	0443	04.4	#-441	04	-epz	0850	46.9			
29	esh	0450	03.1	#-441	04	+ePcPz	0851	34.2	#-452		
29	eSKSach	0450	10.2	#-441	04	+epz	0948	23.1			
29	+epz	0947	30.0	#-442	04	+epz	1059	25.0			
29	+epPz	0947	36.2	#-442	05	-epz	0135	18.1	#-453		
29	esh	0952	15.8	#-442	05	-ePcPz	0135	21.9	#-453		
29	+epz	2132	41.9	#-443	05	eSKSach	0145	23.2	#-453		
29	+epPz	2132	51.9	#-443	05	esh	0145	28.5	#-453		
29	+ePcPz	2132	54.4	#-443	05	-epz	0751	48.3			
29	+ePKiKpZ	2138	29.6	#-443	05	-epz	1443	00.5			
29	+epz	2353	02.3	#-444	06	-epz	1448	31.6			
29	-ePcPz	2353	15.0	#-444	07	+epz	0938	22.7			
29	+ePPz	2355	51.6	#-444	07	-epz	1128	38.1	#-454		
29	+ePKiKpZ	2358	52.4	#-444	07	-epPz	1128	38.9	#-454		
29	+epPKiKpZ	2359	01.2	#-444	07	+epz	1328	23.2	#-455		
29	+esPKiKpZ	2359	04.0	#-444	07	+ePcPz	1328	26.1	#-455		

Date	Phase	UTC time		Remarks	Date	Phase	UTC time		Remarks
		h	m				s	h	
07	+epPz	1328	31.8	#-455	14	+epz	1322	02.4	#-469
07	-epz	1331	41.2	#-456	14	-ePcPz	1322	04.0	#-469
07	+ePcPz	1331	46.8	#-456	14	-epPz	1322	12.7	#-469
07	+ePKiKPz	1336	59.3	#-456	14	+epz	1329	47.6	#-470
07	esh	1342	01.2	#-456	14	+ePcPz	1329	48.0	#-470
07	-epz	1355	40.7	#-457	14	+epPz	1329	58.2	#-470
07	+epz	1404	04.9		15	+epz	1350	12.0	#-471
07	+epz	1430	09.9		15	+ePcPz	1350	12.5	#-471
07	+epz	2250	33.2	#-458	15	-epPz	1350	33.8	#-471
07	+epPz	2250	43.4	#-458	15	+epz	1415	34.9	#-472
07	+ePcPz	2250	54.6	#-458	15	+epPz	1416	06.5	#-472
07	-epz	2257	11.4		15	-epz	1509	35.1	#-473
08	-epz	0536	06.0		15	+ePcPz	1509	36.0	#-473
08	-epz	0638	10.3	#-459	15	-ePKiKPz	1514	36.4	#-473
08	+ePcPz	0638	23.6	#-459	15	esh	1519	58.9	#-473
08	-epPz	0638	24.5	#-459	16	-epz	0235	48.4	
08	-esPz	0638	29.4	#-459	16	-epz	0352	31.4	
08	esh	0647	42.4	#-459	16	+epz	1652	55.0	#-474
09	+epz	0940	54.7		16	-epPz	1653	05.9	#-474
09	-epz	1313	18.1	#-460	16	-ePcPz	1653	06.8	#-474
09	-ePcPz	1313	19.8	#-460	16	-esPz	1653	09.5	#-474
09	-esPz	1315	59.1	#-460	16	+epz	2320	34.1	#-475
09	+ePKiKPz	1318	32.3	#-460	16	-ePcPz	2320	34.6	#-475
09	eSKSach	1322	50.1	#-460	17	+epz	0015	01.5	#-476
09	-epz	1418	09.0		17	+epz	0121	15.1	#-477
10	+epz	0839	20.7		17	+ePcPz	0121	22.9	#-477
10	+epz	1636	54.4	#-461	17	+epz	2146	21.9	#-478
10	+epz	1708	38.2	#-462	17	+ePcPz	2146	32.4	#-478
10	+epPz	1708	40.7	#-462	17	esh	2155	56.9	#-478
10	-esPz	1708	44.2	#-462	17	eSKSach	2156	09.6	#-478
10	+ePPz	1710	09.7	#-462	17	+epz	2216	55.1	
11	-epz	1806	26.7	#-463	18	+epz	1447	27.6	
11	+epz	1852	22.2	#-464	18	+epz	1739	25.7	#-479
11	-epz	2211	33.7	#-465	18	-epPz	1739	36.4	#-479
11	-ePcPz	2211	34.7	#-465	18	-ePcPz	1739	39.4	#-479
11	-ePPz	2211	38.0	#-465	18	esh	1749	03.3	#-479
12	-epz	0709	03.2	#-466	19	none			
12	-ePcPz	0709	04.0	#-466	20	-epz	0415	42.6	
12	+epPz	0709	18.6	#-466	20	-epz	0446	45.9	
12	eSKSach	0714	30.9	#-466	20	-epz	1744	49.7	#-480
12	esh	0719	59.7	#-466	20	+epPz	1745	15.2	#-480
12	-epz	0915	44.2	#-467	20	+esPz	1745	25.7	#-480
12	-ePcPz	0915	45.5	#-467	20	+ePPz	1745	59.7	#-480
12	esh	0926	16.6	#-467	20	+eScPz	1751	06.4	#-480
12	+epPz	1547	30.2	#-468	20	-epz	1839	43.2	
12	+esPz	1547	31.9	#-468	21	+epz	1829	47.2	#-481
13	-epz	2049	32.7		21	+epPz	1829	50.9	#-481

Date	Phase	UTC time			Remarks
		h	m	s	
21	+esPz	1829		52.2	#-481
21	+ePPz	1833		44.7	#-481
21	eSKSach	1840		24.7	#-481
22	+ePKiKPz	0504		18.7	#-482
22	+epPKiKPz	0504		21.8	#-482
22	+epz	0843		10.8	
22	+epz	1048		13.2	
22	+esPKPdfz	2105		08.7	#-483
22	+ePKPbcz	2105		09.4	#-483
22	-epz	2312		09.4	#-484
22	+ePcPz	2312		09.6	#-484
22	+esPz	2312		49.6	#-484
22	-epz	2326		38.6	#-485
23	+epz	0946		08.4	#-486
23	+ePcPz	0946		09.6	#-486
23	+ePPz	0949		48.0	#-486
23	+epz	1140		54.9	
23	+epz	1537		35.4	
23	-epz	1619		01.9	#-487
23	+epPz	1620		03.9	#-487
23	+esPz	1620		04.5	#-487
24	+epz	0041		37.8	
24	+epz	0906		46.0	#-488
24	+ePcPz	0906		46.8	#-488
24	+epPz	0907		16.7	#-488
24	-epz	1158		08.4	#-489
24	+epPz	1158		13.0	#-489
24	-esPz	1158		13.8	#-489
24	-epz	1354		54.7	#-490
24	-epPz	1355		28.2	#-490
24	-epz	1404		54.8	#-490
24	-epz	1717		41.1	#-491
24	+ePcPz	1717		44.1	#-491
24	-epPz	1718		52.5	#-491
24	+ePKiKPz	2115		09.9	#-492
24	+epPKPdfz	2116		40.9	#-492
24	+esPKPdfz	2117		18.4	#-492
24	-epz	2316		16.9	#-493
24	+ePcPz	2316		17.3	#-493
24	-epPz	2316		26.9	#-493
25	+epz	0131		21.1	#-494
25	-ePKPdfz	2009		18.2	#-495
25	-ePKiKPz	2009		21.5	#-495
25	+epPKPdfz	2009		28.4	#-495
25	+ePKiKPz	2009		30.1	#-495
25	-ePKPdfz	2127		12.4	#-496
25	+ePKiKPz	2127		14.4	#-496

Date	Phase	UTC time			Remarks
		h	m	s	
25	-epPKPdfz	2127		24.0	#-496
25	-epPKiKPz	2127		24.7	#-496
25	+epz	2253		22.2	#-497
25	-ePcPz	2253		23.7	#-497
25	-epPz	2253		25.7	#-497
26	-epz	0026		03.9	#-498
26	+ePcPz	0026		05.3	#-498
26	-epPz	0026		13.2	#-498
26	-esPz	0026		17.6	#-498
26	esh	0036		30.2	#-498
26	+ePKPdfz	0254		26.7	#-499
26	+ePKiKPz	0254		28.5	#-499
26	+epz	0354		10.2	#- 500
26	+ePcPz	0354		11.1	#- 500
26	+epPz	0354		24.7	#- 500
26	-epz	0358		11.9	#- 501
26	-ePcPz	0358		12.4	#- 501
26	-ePPz	0401		54.9	#- 501
26	-epz	0557		23.1	#- 502
26	+ePcPz	0557		23.4	#- 502
26	+esPz	0558		15.8	#- 502
26	-epz	0614		07.4	#- 503
26	+ePcPz	0614		07.7	#- 503
26	-epPz	0614		18.8	#- 503
26	-ePKPdfz	0646		12.3	#- 504
26	-epz	1530		39.6	#- 505
26	-epPz	1530		42.6	#- 505
26	-esPz	1530		43.7	#- 505
26	-ePKPdfz	2057		35.5	#- 506
26	-ePKiKPz	2057		37.5	#- 506
26	-epPKiKPz	2057		48.2	#- 506
26	-epz	2116		14.5	#- 507
26	-ePcPz	2116		15.1	#- 507
27	-epz	0019		14.6	
27	+epz	0601		56.4	#- 508
27	+epPz	0601		59.6	#- 508
27	+esPz	0602		00.3	#- 508
27	-ePKPdfz	1152		22.3	#- 509
27	+ePKiKPz	1152		22.8	#- 509
27	-epPKPdfz	1152		28.2	#- 509
27	+ePKPdfz	1335		40.7	#- 510
27	-epPKPdfz	1335		45.5	#- 510
27	+epz	1547		39.6	
27	+ePKPdfz	1626		53.4	#- 511
27	+ePKiKPz	1626		54.4	#- 511
27	+epPKiKPz	1627		05.4	#- 511
27	-epz	1734		54.5	

Date	Phase	UTC time			Remarks
		h	m	s	
27	+ePKPdfz	1911	44.8	#- 512	
27	+ePKiKPz	1911	45.5	#- 512	
28	-epz	0822	40.7	#- 513	
28	-epPz	0822	41.1	#- 513	
28	-epz	1351	48.8		
28	+epz	1432	35.8		
28	+epz	1719	11.1		
28	-epz	1751	08.4	#- 514	
28	+esPz	1751	43.2	#- 514	
29	+ePKPdfz	0256	08.2	#- 515	
29	-ePKiKPz	0256	09.6	#- 515	
29	-esPKPdfz	0256	19.1	#- 515	
29	+ePPz	0258	41.2	#- 515	
29	-epz	0347	09.5	#- 516	
29	esh	0352	10.9	#- 516	
29	+epz	0628	01.1		
29	-ePKPdfz	1621	59.2	#- 517	
29	-epz	2104	28.8		
29	-epz	2213	27.8	#- 518	
29	+epPz	2213	28.1	#- 518	
29	+esPz	2213	29.1	#- 518	
29	esh	2217	47.5	#- 518	
29	-epz	2330	41.8	#- 519	
29	+ePcPz	2330	42.7	#- 519	
29	-epPz	2331	08.1	#- 519	
30	-epz	0212	37.9	#- 520	
30	esh	0222	14.6	#- 520	
30	-epz	0756	40.5	#- 521	
30	-ePcPz	0756	41.3	#- 521	
30	+epPz	0756	51.8	#- 521	
30	+esPz	0756	55.2	#- 521	
30	-epz	0807	47.2	#- 522	
30	+epPz	0807	50.0	#- 522	
30	+esPz	0807	51.1	#- 522	
30	+epz	1349	34.0	#- 523	
30	+ePcPz	1349	37.7	#- 523	
30	-epPz	1349	44.6	#- 523	
30	esh	1359	54.5	#- 523	
30	-epz	1420	32.3	#- 524	
30	+epPz	1420	42.2	#- 524	
30	+ePcPz	1420	42.9	#- 524	
30	-esPz	1420	46.4	#- 524	
30	esh	1430	20.4	#- 524	
30	eSKSach	1430	39.9	#- 524	
30	-epz	1534	21.7	#- 525	
30	+epPz	1534	31.4	#- 525	
30	+ePcPz	1534	31.8	#- 525	

Date	Phase	UTC time			Remarks
		h	m	s	
30	-esPz	1534	35.8	#- 525	
30	esh	1544	12.2	#- 525	
30	+epz	1915	41.9		
30	-epz	1947	52.9	#- 526	
30	+epPz	1948	02.0	#- 526	
30	-epz	2151	09.6	#- 527	
30	-ePcPz	2151	19.0	#- 527	
30	esh	2200	59.9	#- 527	
Oct.					
01	-epz	0056	44.0	#- 528	
01	+ePcPz	0056	45.1	#- 528	
01	+epPz	0056	32.6	#- 528	
01	+ePKPdfz	0122	23.5	#- 529	
01	-ePKiKPz	0122	24.8	#- 529	
01	-epPKPdfz	0122	27.9	#- 529	
01	+esPKPdfz	0122	29.1	#- 529	
02	+epz	0054	08.7		
02	+epz	0117	12.6	#- 530	
02	+epPz	0117	21.2	#- 530	
02	+ePcPz	0117	21.9	#- 530	
02	+esPz	0117	25.3	#- 530	
02	-epz	0130	34.2		
02	+epz	0132	51.9		
02	-epz	0142	36.8		
02	-epz	0206	04.4	#- 531	
02	+epPz	0206	13.2	#- 531	
02	-ePcPz	0206	13.7	#- 531	
02	-epz	0421	11.3	#- 532	
02	+epPz	0421	20.1	#- 532	
02	-esPz	0421	24.3	#- 532	
02	+epz	0615	28.9		
02	+epz	0759	13.6		
02	+epz	0822	35.5		
02	+epz	1400	50.2		
02	+epz	2136	59.7	#- 533	
02	-ePcPz	2137	03.6	#- 533	
02	-epPz	2137	10.6	#- 533	
02	+epz	2337	02.9	#- 534	
02	+ePcPz	2337	03.7	#- 534	
02	-ePPz	2340	48.4	#- 534	
02	eSKSach	2347	19.2	#- 534	
03	+epz	0052	05.3		
03	-epz	0419	52.3		
03	+epz	1205	43.7	#- 535	
03	+epPz	1206	15.4	#- 535	
04	-epz	1500	26.9	#- 536	
04	+ePcPz	1500	28.5	#- 536	

Date	Phase	UTC time		Remarks
		h	m s	
04	eSKAach	1509	53.9	#- 536
04	esh	1509	55.2	#- 536
04	-epz	1827	07.0	#- 537
05	+epz	0914	58.9	
05	-epz	1406	23.6	#- 538
05	-ePcPz	1406	24.2	#- 538
05	-epPz	1406	34.1	#- 538
05	+epz	1839	06.2	
05	-epz	2136	16.6	
06	-epz	0013	52.5	#- 539
06	-ePcPz	0013	53.4	#- 539
06	-epPz	0013	34.1	#- 539
06	-epz	1341	34.7	#-540
06	+ePcPz	1341	36.9	#-540
06	-epz	1404	15.3	#- 541
06	-ePcPz	1404	17.5	#- 541
06	-epPz	1404	24.4	#- 541
06	-epz	1842	43.5	#- 542
06	-ePcPz	1842	44.4	#- 542
06	+esPz	1842	56.9	#- 542
06	eSKSach	1853	15.1	#- 542
06	esh	1853	42.2	#- 542
07	-ePKPdfz	0256	43.7	#- 543
07	-epz	0508	37.9	#- 544
07	+ePcPz	0508	38.4	#- 544
07	eSKSach	0519	11.2	#- 544
07	-epz	0516	20.7	#- 545
07	+ePcPz	0516	21.1	#- 545
07	+epPz	0516	31.2	#- 545
07	+esPz	0516	35.4	#- 545
07	esh	0527	19.8	#- 545
07	+epz	1308	52.2	#- 546
07	+ePcPz	1309	01.5	#- 546
07	esh	1318	38.1	#- 546
07	+epz	1541	25.4	#- 547
07	+ePcPz	1541	33.3	#- 547
07	+epPz	1541	35.0	#- 547
07	-epz	1700	54.4	
07	+epz	2247	53.7	
08	-epz	0115	45.0	
08	+epz	0700	01.5	
08	-ePKPdfz	0926	09.7	#- 548
08	-ePKiKpZ	0926	11.7	#- 548
08	-epPKPdfz	0926	20.9	#- 548
08	+epPKiKpZ	0926	22.4	#- 548
08	+esPKPdfz	0926	24.4	#- 548
08	+esPKiKpZ	0926	26.1	#- 548

Date	Phase	UTC time		Remarks
		h	m s	
08	+epz	1349	54.9	
08	+ePKPdfz	1351	24.7	#- 549
08	+ePKiKpZ	1351	26.5	#- 549
08	-epz	2158	42.1	#- 550
08	-ePcPz	2158	43.3	#- 550
08	+ePKPdfz	2334	31.8	#- 551
08	+ePKiKpZ	2334	33.2	#- 551
08	+epz	2359	36.0	
09	+epz	0038	33.7	#- 552
09	+ePcPz	0038	34.6	#- 552
09	-epPz	0038	44.2	#- 552
09	-ePdiffz	2232	53.7	#- 553
09	+epPdiffz	2233	04.9	#- 553
09	+esPdiffz	2233	08.6	#- 553
09	eSKSach	2243	29.3	#- 553
10	+epz	0346	11.3	#- 554
10	+ePcPz	0346	11.5	#- 554
10	eSKSach	0356	43.6	#- 554
10	-epz	0730	14.8	#- 555
10	+epz	0814	04.5	
11	+ePKPdfz	0028	01.5	#- 556
11	+ePKiKpZ	0028	02.8	#- 556
11	+epPKPdfz	0028	13.4	#- 556
11	-epPKiKpZ	0028	14.7	#- 556
11	+esPKPdfz	0028	17.2	#- 556
11	+ePKPdfz	0130	47.9	#- 557
11	+ePKiKpZ	0130	50.1	#- 557
11	+epPKPdfz	0131	01.3	#- 557
11	-epz	0422	16.6	
11	+epz	0514	02.1	
11	+epz	1447	46.1	#- 558
11	-ePcPz	1447	51.9	#- 558
11	+epPz	1448	16.5	#- 558
11	-epz	1621	20.4	
11	+ePKPdfz	1845	31.1	#- 559
11	+epz	1957	59.7	#- 560
11	-ePcPz	1958	01.2	#- 560
11	+epPz	2000	10.1	#- 560
11	-esPz	2001	11.4	#- 560
11	esh	2007	51.2	#- 560
12	+epz	1107	47.7	
13	+epz	0400	18.1	#- 561
13	+ePcPz	0400	20.1	#- 561
13	-epPz	0402	08.7	#- 561
13	eSKSach	0409	53.7	#- 561
13	esh	0410	05.9	#- 561
13	+ePKPdfz	0545	35.5	#- 562

Date	Phase	UTC time		Remarks
		h	m s	
13	+ePKiKPz	0545	36.9	#- 562
13	+epPKPdfz	0545	39.7	#- 562
13	-epPKiKPz	0545	40.1	#- 562
13	+epz	1005	31.1	#- 563
13	+ePcPz	1005	31.9	#- 563
13	-epz	1507	58.7	#- 564
13	-epz	1508	03.7	#- 564
14	none			
15	+epz	0231	38.1	#- 565
15	-epPz	0233	47.6	#- 565
15	eSKSach	0241	09.6	#- 565
15	esh	0241	30.6	#- 565
15	-epz	0246	01.3	#- 566
15	-epPz	0246	07.8	#- 566
15	-epz	0348	04.2	#- 567
15	+ePcPz	0348	05.7	#- 567
15	+esPz	0348	50.0	#- 567
15	-ePPz	0351	26.8	#- 567
15	+epz	0522	15.1	#- 568
15	-epPz	0522	16.5	#- 568
15	+esPz	0522	18.9	#- 568
15	+epz	0647	39.7	#- 569
15	+ePKPdfz	0749	30.3	#- 570
15	+epz	1147	53.1	#- 571
15	+epz	2123	41.6	#- 572
15	-ePcPz	2123	54.6	#- 572
15	+esPz	2124	12.7	#- 572
16	none			
17	-ePKPdfz	0549	18.5	#- 573
17	+ePKiKPz	0549	19.1	#- 573
17	+epPKPdfz	0549	21.5	#- 573
17	+epz	0810	17.7	
17	-epz	1032	07.4	#- 574
17	+ePcPz	1032	08.0	#- 574
17	eSKSach	1042	07.4	#- 574
17	esh	1043	00.5	#- 574
17	+epz	1157	19.5	#- 575
17	-ePcPz	1157	19.8	#- 575
17	-epz	1648	42.6	#- 576
17	-epz	1703	17.9	#- 577
17	+ePcPz	1703	18.2	#- 577
17	+esPz	1704	18.2	#- 577
17	+epz	1731	36.7	#- 578
17	+ePcPz	1731	50.2	#- 578
17	esh	1740	59.3	#- 578
17	+epz	1842	57.4	#- 579
17	+ePcPz	1842	57.8	#- 579

Date	Phase	UTC time		Remarks
		h	m s	
18	-epz	2240	07.0	#- 580
18	+ePcPz	2240	07.7	#- 580
18	eSKSach	2250	34.7	#- 580
18	esh	2250	53.4	#- 580
19	+epz	0409	22.5	#- 581
19	+epPz	0409	24.6	#- 581
19	esh	0417	32.6	#- 581
19	+epz	1339	00.3	#- 582
19	esh	1348	23.6	#- 582
19	+epz	1835	33.5	
20	+epz	1656	09.3	#- 583
20	-esPz	1656	57.8	#- 583
20	+ePnPnz	1657	08.8	#- 583
20	+ePcPz	1659	10.9	#- 583
20	esh	1700	53.9	#- 583
20	+eScPz	1702	39.3	#- 583
20	-epz	1852	09.3	#- 584
20	-ePcPz	1852	52.9	#- 584
20	+epPz	1853	01.9	#- 584
20	+esPz	1853	05.4	#- 584
20	+epz	1926	03.1	#- 585
20	-epz	1926	08.1	#- 585
21	+epz	0720	55.0	
21	+epz	2119	08.1	#- 586
21	+ePcPz	2119	10.7	#- 586
21	+epPz	2119	17.6	#- 586
21	eSKSach	2129	26.6	#- 586
21	-epz	2144	09.4	#- 587
21	+ePcPz	2144	09.9	#- 587
21	-epPz	2144	12.5	#- 587
21	+esPz	2144	13.9	#- 587
21	+ePPz	2147	48.1	#- 587
21	eSKSach	2154	42.9	#- 587
21	esh	2155	10.1	#- 587
22	-epz	1158	29.2	#- 588
22	+ePcPz	1158	29.9	#- 588
22	-epPz	1158	39.3	#- 588
22	+esPz	1158	43.3	#- 588
22	eSKSach	1208	52.8	#- 588
22	esh	1209	17.2	#- 588
22	-epz	2249	07.4	#- 589
22	+ePcPz	2249	08.0	#- 589
22	+epPz	2249	16.8	#- 589
22	+esPz	2249	20.7	#- 589
22	+epz	2340	02.9	#- 590
22	+esPz	2340	11.2	#- 590
22	esh	2348	16.7	#- 590

Date	Phase	UTC time		Remarks
		h	m s	
23	-epz	0052	40.8	
23	+epz	0507	23.8	#- 591
23	+ePcPz	0507	24.6	#- 591
23	+ePPz	0511	03.7	#- 591
23	+epz	0517	28.4	#- 592
23	+ePcPz	0517	31.0	#- 592
23	-epz	0753	11.4	#- 593
23	+epz	0753	16.5	#- 593
23	-epz	0809	56.5	#- 594
23	+ePcPz	0809	59.8	#- 594
23	eSKSach	0819	24.2	#- 594
23	esh	0819	29.4	#- 594
23	-ePKPdfz	1114	33.2	#- 595
23	-epz	1209	40.0	#- 596
23	+ePcPz	1209	41.1	#- 596
23	+esPz	1211	53.9	#- 596
23	+epz	1636	27.2	#- 597
23	+ePcPz	1636	28.0	#- 597
23	+epz	1730	00.8	#- 598
24	-epz	0140	06.1	
24	+epz	0948	52.5	
24	+epz	1617	40.3	
25	-ePKPdfz	1300	18.4	#- 599
25	+ePKiKPz	1300	18.7	#- 599
25	-epPKPdfz	1300	22.2	#- 599
25	+esPKPdfz	1300	23.3	#- 599
25	+ePKPdfz	1306	42.0	#- 600
25	+ePKPdfz	1306	45.5	#- 600
26	+epz	1639	09.4	#- 601
26	+ePcPz	1639	13.2	#- 601
26	+epPz	1639	34.0	#- 601
26	esh	1649	06.2	#- 601
26	eSKSach	1649	11.5	#- 601
27	-epz	0116	01.8	
27	-epz	2014	12.9	#- 602
27	+epPz	2014	13.6	#- 602
27	+ePcPz	2017	01.4	#- 602
28	-epz	0042	22.1	
28	-epz	0246	56.7	#- 603
28	-ePcPz	0246	57.0	#- 603
28	eSKSach	0257	24.1	#- 603
28	esh	0257	55.1	#- 603
28	+epz	0740	36.4	#- 604
28	+epz	0826	33.7	#- 605
28	-ePcPz	0826	37.8	#- 605
28	+esPz	0827	42.6	#- 605
28	eSKSach	0836	34.4	#- 605

Date	Phase	UTC time		Remarks
		h	m s	
28	esh	0826	40.5	#- 605
28	-epz	0952	47.9	
28	+epz	1844	56.3	#- 606
28	+ePcPz	1844	56.9	#- 606
28	+ePKPdfz	2207	35.4	#- 607
28	-ePKiKPz	2207	37.3	#- 607
29	-epz	1306	31.0	
29	+epz	2000	04.0	#- 608
29	+ePcPz	2003	21.4	#- 608
29	+epz	2004	41.8	#- 608
29	+epz	2118	27.0	#- 609
30	+epz	0128	15.5	#- 610
30	+epPz	0128	17.4	#- 610
30	+esPz	0128	20.1	#- 610
30	-epz	0606	30.8	#- 611
30	+epPz	0606	31.4	#- 611
30	-epz	0606	32.5	#- 611
30	esh	0611	11.7	#- 611
30	-epz	1535	51.7	#- 612
30	+esPz	1536	06.8	#- 612
30	+epz	1638	22.9	#- 613
30	+ePcPz	1638	27.1	#- 613
30	+epz	1940	35.1	#- 614
30	+ePcPz	1940	35.7	#- 614
31	-ePKPdfz	0125	36.6	#- 615
31	-ePKiKPz	0125	37.9	#- 615
31	+epPKPdfz	0125	40.7	#- 615
31	-ePKPdfz	1433	59.5	#- 616
31	-ePKiKPz	1434	00.8	#- 616
31	-epz	1939	13.7	#- 617
Nov.				
01	-epz	0329	37.9	
01	-epz	0436	36.5	
01	+ePKPdfz	1329	16.7	#- 618
01	+ePKiKPz	1329	17.9	#- 618
01	+epz	1935	09.2	
02	+ePKPdfz	0233	58.1	#- 619
02	+epPKPdfz	0234	06.2	#- 619
02	+esPKPdfz	0234	11.3	#- 619
02	+esPKiKPz	0234	14.8	#- 619
02	+ePKPdfz	0317	23.9	#- 620
02	+ePKiKPz	0317	25.1	#- 620
02	+epz	0542	19.6	#- 621
02	+epPz	0542	21.6	#- 621
02	+esPz	0542	22.9	#- 621
02	-epz	0645	24.8	#- 622
02	-epz	0911	21.2	#- 623

Date	Phase	UTC time		Remarks	Date	Phase	UTC time		Remarks	
		h	m	s			h	m	s	
02	-epz	1135		44.0	#- 624	07	+epPKPbcz	0419	59.0	#- 638
02	+epPz	1135		45.7	#- 624	07	+epz	0619	30.5	#- 639
02	-esPz	1135		46.9	#- 624	07	+epz	1412	35.1	#- 640
02	esh	1144		44.9	#- 624	07	+epz	1648	19.9	#- 640
02	eSKSach	1145		23.3	#- 624	07	+ePcPz	1648	20.8	#- 640
02	+epz	1408		14.3	#- 625	07	+epz	1825	11.7	#- 641
02	+epPz	1408		17.1	#- 625	07	+ePcPz	1828	06.3	#- 641
02	-esPz	1408		18.6	#- 625	07	+epz	2354	03.0	#- 642
02	-epz	1449		53.4		08	-epz	2024	10.7	#- 643
03	+epz	0413		12.8		08	eSKSach	2034	25.6	#- 643
03	+epz	0803		14.7		09	+epz	0033	25.4	
03	+epz	1759		48.5	#- 626	09	+epz	1353	52.5	
03	+ePcPz	1759		56.3	#- 626	09	+epz	1936	17.0	#- 644
04	-epz	1650		21.4		09	+ePcPz	1936	18.8	#- 644
04	+epz	1857		25.2	#- 627	09	eSKSach	1946	33.5	#- 644
05	-epz	0404		11.3	#- 628	09	esh	1946	57.1	#- 644
05	+epz	1011		15.4	#- 629	09	+epz	2004	41.2	#- 645
05	+ePcPz	1011		18.5	#- 629	09	+ePcPz	2004	50.5	#- 645
05	eSKSach	1020		40.9	#- 629	09	-epz	2145	44.6	#- 646
05	esh	1020		54.5	#- 629	09	-ePcPz	2145	46.5	#- 646
05	+epz	1336		16.5	#- 630	09	-epPz	2145	55.4	#- 646
05	-epz	1614		13.9		10	none			
05	-epz	1717		49.9	#- 631	11	-epz	1356	40.9	#- 647
05	-ePcPz	1717		54.1	#- 631	11	-epPz	1356	50.9	#- 647
05	-epz	2215		15.7	#- 632	11	-ePcPz	1356	52.0	#- 647
05	+ePcPz	2215		18.1	#- 632	11	-epz	1411	45.2	
05	eSKSach	2225		38.3	#- 632	11	+epz	1551	20.4	#- 648
05	-epz	2233		19.3		11	+epPz	1551	30.0	#- 648
06	-epz	0828		03.4	#- 633	11	-ePcPz	1551	32.2	#- 648
06	+ePcPz	0828		04.4	#- 633	11	-ePKPdfz	1906	54.2	#- 649
06	+ePPz	0831		39.9	#- 633	12	-epz	0040	32.8	#- 650
06	+epz	1050		26.1	#- 634	12	-ePcPz	0040	33.4	#- 650
06	-ePcPz	1050		28.7	#- 634	12	+epz	0042	44.8	#- 651
06	+epPz	1050		55.1	#- 634	12	+ePcPz	0042	45.7	#- 651
06	eSKSach	1100		36.0	#- 634	12	eSKSach	0053	13.9	#- 651
06	esh	1100		41.8	#- 634	12	esh	0053	35.5	#- 651
06	-epz	1443		25.5	#- 635	12	+epz	0204	36.6	#- 652
06	+ePcPz	1443		26.0	#- 635	12	+epPz	0204	45.4	#- 652
06	eSKSach	1453		28.1	#- 635	12	+esPz	0204	48.4	#- 652
06	esh	1453		40.0	#- 635	12	-ePKPdfz	0844	56.2	#- 653
06	+epz	1606		01.2	#- 636	12	-ePKiKpZ	0844	56.8	#- 653
06	-ePcPz	1606		06.7	#- 636	12	-epPKPdfz	0846	34.8	#- 653
07	-epz	0247		06.1	#- 637	12	+epz	0854	47.6	
07	-ePcPz	0247		07.2	#- 637	12	+epz	0858	14.4	
07	+ePKPdfz	0418		38.3	#- 638	12	+ePKPdfz	1620	44.9	#- 654
07	+ePKPbcz	0418		39.7	#- 638	12	+ePKiKpZ	1620	45.2	#- 654
07	-epPKPdfz	0419		58.3	#- 638	12	-epz	1741	07.9	#- 655

Date	Phase	UTC time			Remarks
		h	m	s	
12	-ePcPz	1741	09.2	#- 655	
12	eSKSach	1750	33.1	#- 655	
12	esh	1750	49.4	#- 655	
13	+epz	0257	20.1	#- 656	
13	+epPz	0257	22.6	#- 656	
13	+esPz	0257	24.4	#- 656	
13	+epz	0553	03.0	#- 657	
14	+epz	0441	23.7	#- 658	
14	-ePcPz	0441	24.5	#- 658	
14	eSKSach	0451	50.5	#- 658	
14	+epz	0745	13.0		
14	+epz	1654	12.4	#- 659	
14	-ePcPz	1654	19.7	#- 659	
14	+epPz	1654	22.9	#- 659	
14	+ePKPdfz	1902	51.6	#- 660	
14	+ePKiKPz	1902	52.4	#- 660	
14	+epPKPdfz	1903	04.1	#- 660	
15	+epz	0037	07.4	#- 661	
15	-ePcPz	0037	08.4	#- 661	
15	+epz	0723	35.0	#- 662	
15	+ePcPz	0723	35.8	#- 662	
15	+epz	0928	28.1	#- 663	
15	-epz	1410	47.5		
16	-ePKPbcz	0059	42.2	#- 664	
16	+ePKiKPz	0059	42.9	#- 664	
16	+esPKPbcz	0059	56.1	#- 664	
16	+ePKPbcz	2352	42.0	#- 665	
17	+epz	0154	45.2	#- 666	
17	+ePKPdfz	0702	53.9	#- 667	
17	+ePKPbcz	0732	36.3	#- 668	
17	+ePKiKPz	0732	36.8	#- 668	
17	+esPKPdfz	0732	44.2	#- 668	
17	+esPKPbcz	0732	52.1	#- 668	
17	+esPKiKPz	0732	52.4	#- 668	
17	+epPKPbcz	1132	41.5	#- 669	
17	+epz	1204	41.5		
17	-epz	1712	23.7		
17	+epz	1848	37.2		
17	+epz	2311	40.0	#- 670	
17	+epPz	2311	47.7	#- 670	
17	-ePcPz	2311	06.5	#- 670	
18	+ePKPdfz	0232	11.0	#- 671	
18	+ePKPbcz	0232	17.3	#- 671	
18	+ePKiKPz	0232	17.6	#- 671	
18	+esPKPdfz	0232	24.2	#- 671	
18	+ePKPdfz	0232	11.0	#- 671	
18	+ePKPdfz	0809	58.2	#- 672	

Date	Phase	UTC time			Remarks
		h	m	s	
18	+ePKPbcz	0810	10.2	#- 672	
18	+ePKPbcz	1214	56.6	#- 673	
18	+ePKiKPz	1214	56.9	#- 673	
18	-epPKPdfz	1214	58.8	#- 673	
18	-ePdiffz	1728	02.7	#- 674	
18	-ePKiKPz	1732	31.2	#- 674	
19	+epz	0324	39.5		
20	+epz	0212	57.2	#- 675	
20	+ePcPz	0213	00.1	#- 675	
20	-epPz	0214	42.8	#- 675	
20	eSKSach	0222	27.5	#- 675	
20	esh	0222	31.3	#- 675	
20	-epz	0945	07.0		
20	-epz	1236	10.4	#- 676	
20	+epPz	1236	13.4	#- 676	
20	-epz	1418	00.2	#- 677	
20	+epz	1418	00.8	#- 677	
20	-epz	1449	00.0		
21	-epz	0105	54.9	#- 678	
21	-ePcPz	0105	55.5	#- 678	
21	+epz	0858	36.4	#- 679	
21	-ePcPz	0858	37.5	#- 679	
21	eSKSach	0908	02.4	#- 679	
21	esh	0908	18.1	#- 679	
22	+epz	0942	31.8	#- 680	
22	+epz	1137	01.6	#- 681	
23	-epz	1651	11.5	#- 682	
23	eSKSach	1701	22.7	#- 682	
23	-epz	1819	03.2	#- 683	
23	+ePcPz	1819	03.8	#- 683	
23	eSKSach	1829	27.1	#- 683	
23	esh	1829	52.5	#- 683	
23	+epz	2353	08.6	#- 684	
23	+ePcPz	2353	10.3	#- 684	
24	+epz	0033	30.7	#- 685	
24	+ePcPz	0033	31.2	#- 685	
24	eSKSach	0043	02.3	#- 685	
24	esh	0043	22.5	#- 685	
24	-ePKPbcz	0925	39.6	#- 686	
24	-ePKiKPz	0925	40.5	#- 686	
24	+ePKiKPz	1237	26.3	#- 687	
24	+epPKPdfz	1237	43.1	#- 687	
24	-epz	1507	33.0	#- 688	
24	+ePcPz	1507	34.1	#- 688	
24	+ePPz	1511	19.3	#- 688	
24	-epz	1954	12.4		
25	+epz	0005	34.1	#- 689	

Date	Phase	UTC time			Remarks
		h	m	s	
25	-epPz	0005		45.5	#- 689
25	-ePcPz	0005		48.6	#- 689
25	-esPz	0005		49.4	#- 689
25	-epz	0454		59.3	#- 690
25	-ePPz	0457		43.9	#- 690
25	esh	0504		21.0	#- 690
25	eSKSach	0504		29.5	#- 690
25	-epz	2032		53.4	#- 691
25	+ePcPz	2032		54.2	#- 691
25	+epPz	2033		04.2	#- 691
25	eSKSach	2043		18.7	#- 691
25	esh	2032		47.6	#- 691
26	-epz	0725		17.0	#- 692
26	-ePcPz	0725		17.5	#- 692
26	eSKSach	0734		51.6	#- 692
26	esh	0735		15.8	#- 692
26	+epz	0755		42.6	#- 693
26	+ePcPz	0755		42.7	#- 693
26	+epz	1108		53.9	#- 694
26	+epPz	1109		10.0	#- 694
27	+epz	1047		33.7	#- 695
27	+ePcPz	1047		35.0	#- 695
27	+epPz	1047		44.0	#- 695
27	+esPz	1047		49.2	#- 695
27	+epz	1604		12.1	#- 696
28	+ePKPbcz	1258		30.9	#- 697
28	-epz	1911		49.1	#- 698
28	-epcPz	1911		50.4	#- 698
28	eSKSach	1921		18.7	#- 698
28	esh	1921		37.6	#- 698
29	-epz	0941		45.8	#- 699
29	-esPz	0942		06.6	#- 699
29	+epz	1543		34.6	#- 700
29	+ePcPz	1543		35.4	#- 700
29	+epz	1658		25.8	#- 701
29	+epz	2034		55.1	#- 702
29	esh	2044		46.0	#- 702
29	eSKSach	2045		08.8	#- 702
30	-epz	0821		34.1	#- 703
30	eSKSach	0831		05.2	#- 703
Dec.					
01	+ePKPdfz	0157		15.1	#- 704
01	+ePKiKpZ	0157		15.8	
01	-epz	1046		48.6	#- 705
01	eSKSach	1056		18.1	
01	esh	1056		41.9	
01	-epz	1249		05.0	#- 706

Date	Phase	UTC time			Remarks
		h	m	s	
01	+ePcPz	1249		05.6	
01	+epz	1643		33.3	#- 707
01	+epz	1732		21.8	#- 708
01	+ePcPz	1732		22.7	
02	+epz	0029		55.8	#- 709
02	esh	0039		31.1	
02	eSKSach	0039		47.3	
02	+epz	0809		55.7	#- 710
02	-epPz	0809		59.0	
02	+esPz	0809		59.9	
02	-epz	1408		32.1	#- 711
02	+ePcPz	1408		33.2	
02	eSKSach	1417		53.3	
02	esh	1418		08.9	
03	+epz	0047		30.5	#- 712
03	-ePcPz	0047		33.1	
03	-epPz	0047		41.0	
03	-epz	0745		36.5	#- 713
03	+ePcPz	0745		37.2	
03	eSKSach	0755		01.7	
03	esh	0755		18.7	
03	-epz	0941		51.7	#- 714
03	-ePcPz	0941		55.7	
03	+epz	1215		44.6	#- 715
03	+ePKiKpZ	1221		33.3	
03	esh	1225		16.0	
03	+epz	1944		39.0	#- 716
03	+epPz	1944		49.0	
03	+epz	1944		52.9	
04	+epz	0409		01.2	#- 717
04	-epz	0706		34.8	#- 718
04	+ePcPz	0706		35.1	
05	-epz	0038		42.6	#- 719
05	-ePcPz	0038		46.8	
05	esh	0048		04.8	
05	eSKSach	0048		08.8	
05	-epz	1657		36.8	#- 720
05	-ePcPz	1657		37.6	
05	+epPz	1658		01.5	
05	+epz	2016		24.1	#- 721
05	+ePcPz	2016		24.8	
05	eSKSach	2026		48.4	
05	esh	2027		16.9	
05	-ePKPdfz	2145		58.9	#- 722
05	+ePKiKpZ	2146		06.9	
05	+epPKiKpZ	2146		09.9	
05	+epz	2353		30.2	#- 723

Date	Phase	UTC time		Remarks
		h	m s	
05	+esPz	2353	44.1	
06	-epz	0109	07.0	#- 724
06	-ePcPz	0109	08.2	
06	+epPz	0109	17.1	
07	+epz	0021	35.1	#- 725
07	+epPz	0021	37.9	
07	+ePKiKPz	0028	18.5	
07	+esPKiKPz	0028	23.1	
07	+epz	0102	43.1	#- 726
07	-epz	0102	45.4	
07	+epz	2034	29.5	#- 727
07	-epz	2349	25.5	#- 728
07	+esPz	2349	29.3	
08	+epz	1703	22.3	#- 729
08	+ePcPz	1703	23.6	
08	-ePKPbcz	2032	29.6	#- 730
08	+ePKiKPz	2032	30.7	
08	+ePKPbcz	2047	00.2	#- 731
09	-ePKPdfz	1303	48.6	#- 732
09	+esPKPbcz	1304	12.4	
10	+ePdiffz	0452	36.3	#- 733
10	+epPdiffz	0452	39.5	
10	+ePKiKPz	0452	41.2	
10	eSKSach	0503	11.6	
10	eSKSdfh	0504	04.4	
10	-epz	0952	32.0	#- 734
10	-epz	1237	08.9	#- 735
10	+esPz	1237	20.1	
10	-epz	1331	35.5	#- 736
10	-ePcPz	1331	38.3	
10	-ePKiKPz	1336	46.0	
10	-epz	1509	28.2	#- 737
10	eSKSach	1519	06.0	
10	+epz	1746	28.4	#- 738
10	+epcPz	1746	29.7	
10	+epz	2310	10.1	#- 739
10	-epPz	2310	19.8	
10	+ePKiKPz	2316	08.7	
11	-epz	0818	04.4	#- 740
11	+ePcPz	0818	04.9	
11	esh	0829	03.6	
11	-epz	1519	59.2	#- 741
12	-epz	0323	36.9	#- 742
12	+ePcPz	0323	37.4	
12	+epPz	0323	37.0	
12	eSKSach	0334	01.1	
12	esh	0334	14.9	

Date	Phase	UTC time		Remarks
		h	m s	
12	+epz	0613	49.6	#- 743
12	+ePcPz	0613	52.6	
12	+esPz	0614	03.8	
12	+epz	0709	24.7	#- 744
12	+epPz	0709	52.2	
12	esh	0718	59.1	
12	-epz	0738	54.3	#- 745
12	+ePcPz	0738	54.7	
12	-epPz	0739	04.2	
12	eSKSach	0749	59.1	
12	esh	0749	26.6	
12	-epz	0751	52.9	#- 746
12	+ePcPz	0751	53.2	
12	+esPz	0752	53.1	
12	+epz	0820	11.7	#- 747
12	+ePcPz	0820	12.4	
12	+esPz	0820	40.9	
12	eSKSach	0830	32.2	
12	esh	0830	47.5	
13	-epz	1232	42.5	#- 748
13	-ePcPz	1232	43.7	
13	eSKSach	1242	07.0	
13	esh	1242	20.8	
14	none			
15	none			
16	-epz	2020	27.9	#- 749
16	+ePcPz	2020	29.2	
16	eSKSach	2030	17.6	
16	esh	2030	37.9	
17	+epz	0430	22.9	#- 750
17	-epz	1037	18.5	
17	-epz	1219	43.4	#- 751
17	+ePcPz	1219	44.2	
17	+epz	1220	29.7	
17	+epz	1904	32.1	
18	+epz	0554	59.9	#- 752
18	+ePcPz	0555	00.6	
18	+epPz	0555	15.2	
18	+esPz	0555	21.6	
18	esh	0605	58.5	
18	-epz	2158	28.4	#- 753
19	-epz	0025	32.0	#- 754
19	+ePcPz	0025	32.4	
19	+esPz	0025	36.8	
19	+ePPz	0029	27.9	
19	-epz	1315	25.4	#- 755
19	-epPz	1315	35.0	

Date	Phase	UTC time			Remarks
		h	m	s	
19	+esPz	1315	39.8		
19	-epz	1425	06.0	#- 756	
19	-ePcPz	1425	07.1		
19	-epz	1747	41.7		
19	+epz	2052	33.9		
19	+epz	2353	20.1		
20	none				
21	+epz	0752	45.7	#- 757	
21	esh	0802	39.5		
21	+epz	2034	35.7		
22	+epz	0205	26.7	#- 758	
22	-epz	0338	03.5		
22	-ePKPbcz	1935	31.7	#- 759	
22	+ePKPabz	1935	31.7		
22	-epPKPbcz	1935	34.7		
23	+epz	0610	48.2	#- 760	
23	+epz	1318	22.1	#- 761	
23	+ePcPz	1318	23.8		
23	-ePKPbcz	1836	47.3	#- 762	
23	+ePKPabz	1836	47.5		
23	+ePKPdfz	1836	48.4		
23	-epPKPbcz	1836	49.2		
23	+epPKPabz	1836	49.6		
24	+epz	1144	46.7	#- 763	
25	-epz	0320	35.2	#- 764	
25	-ePcPz	0320	36.2		
25	-ePPz	0730	02.8	#- 765	
25	+epz	1432	40.2	#- 766	
25	-epPz	1432	42.0		
25	-ePcPz	1432	58.2		
25	esh	1442	02.1		
25	eSKSach	1442	15.1		
25	+epz	2054	54.7	#- 767	
25	+epPz	2054	58.5		
25	+ePcPz	2055	00.3		
25	esh	2105	06.5		
25	+epz	2322	03.6	#- 768	
25	+epPz	2322	06.2		
25	-esPz	2322	07.6		
25	+ePcPz	2322	08.4		
25	+epz	2332	17.6		
26	-ePdiffz	0210	34.4	#- 769	
26	+epPdiffz	0210	37.3		
26	+esPdiffz	0210	38.8		
26	eSKSach	0221	02.3		
26	esh	0221	52.8		
26	-epz	0440	18.7	#- 770	

Date	Phase	UTC time			Remarks
		h	m	s	
26	-epz	1523	37.2	#- 771	
26	+epz	2106	32.3	#- 772	
26	+epz	2128	38.0		
26	+epz	2138	23.1	#- 773	
26	-epPz	2138	26.7		
26	-esPz	2138	27.8		
26	-ePcPz	2138	29.2		
27	+epz	0104	34.8		
27	+epz	0507	46.8	#- 774	
27	+epz	0648	35.7		
27	+epz	0850	28.5		
27	+epz	1613	22.0	#- 775	
27	-epPz	1613	24.5		
27	-ePcPz	1613	26.4		
27	esh	1623	42.4		
27	eSKSach	1623	52.6		
27	+epz	2003	46.4		
27	-epz	2250	26.6	#- 776	
27	+epPz	2250	29.9		
27	-ePcPz	2250	30.7		
27	esh	2300	43.3		
27	eSKSach	2300	47.3		
27	-epz	2307	24.9		
28	+epz	0549	36.5	#- 777	
28	-ePcPz	0549	38.5		
28	eSKSach	0559	44.9		
28	esh	0559	59.5		
28	+epz	0556	46.3	#- 778	
28	+epz	0726	17.9	#- 779	
28	+ePcPz	0726	18.6		
28	+epz	2359	59.1		
29	-ePKPdfz	0150	09.7	#- 780	
29	+ePKiKpZ	0150	11.1		
29	+epz	0652	48.9	#- 781	
29	+epz	1201	03.2	#- 782	
29	+epz	1427	40.4		
29	-epz	1517	37.9		
30	+ePKPdfz	1010	08.8	#- 783	
31	-epz	0737	08.2		

Table 2. List of hypocenters of teleseismic events detected at Syowa Station. The total number of events is 783.

No.	Date	Origin time UTC			Geographic Coordinates		Depth (km)	Epicentral distance		Magnitude mb ms	Region
		h	m	s	Latitude (deg)	Longitude (deg)		(deg)	(deg)		
1.	1 1	0	14	10.6	48.121 S	9.899 W	10	31.53	5.1	5.5	SOUTHERN MID-ATLANTIC RIDGE
2.	1 1	6	23	8.8	8.010 S	119.999 E	172	79.30	4.9		FLORES REGION, INDONESIA
3.	1 1	11	56	18.3	11.418 S	166.237 E	33	91.58	4.8		SANTA CRUZ ISLANDS
4.	1 4	5	15	4.2	20.516 S	177.757 W	377	86.65	6.0		FIJI ISLANDS REGION
5.	1 4	7	8	55.2	7.070 S	122.777 E	528	81.17	4.3		FLORES SEA
6.	1 5	9	25	54.4	21.639 S	68.169 W	126	75.76	5.2		CHILE-BOLIVIA BORDER REGION
7.	1 5	11	50	19.6	6.307 S	130.043 E	100	84.48	4.7		BANDA SEA
8.	1 5	12	34	0.8	20.487 S	178.301 W	684	86.57	4.7		FIJI ISLANDS REGION
9.	1 5	16	16	35.5	6.554 S	105.678 E	33	75.67	4.9		SUNDA STRAIT, INDONESIA
10.	1 7	0	54	52.2	33.572 S	69.762 W	111	65.15	6.0		CHILE-ARGENTINA BORDER
11.	1 7	5	1	54.7	4.203 S	152.697 E	33	94.31	5.1		NEW BRITAIN REG, P.N.G.
12.	1 7	8	6	53.0	10.111 S	160.818 E	33	91.26	5.8	5.7	SOLOMON ISLANDS
13.	1 7	13	21	7.0	20.145 S	177.606 W	400	87.04	4.8		FIJI ISLANDS REGION
14.	1 7	14	31	41.6	30.666 S	71.606 W	36	92.24	4.6		NEAR THE COAST OF CEN CHILE
15.	1 7	17	27	11.6	21.253 S	68.658 W	111	76.28	4.6		CHILE-BOLIVIA BORDER REGION
16.	1 7	23	5	19.9	6.323 N	94.835 E	33	84.42	4.9	4.2	NICOBAR ISL., INDIA REGION
17.	1 8	0	28	31.7	20.382 S	174.814 W	33	87.35	5.6		TONGA ISLANDS
18.	1 8	4	45	4.8	9.425 S	75.513 W	35	89.64	5.1		CENTRAL PERU
19.	1 8	15	44	49.8	15.352 S	167.727 E	33	88.22	4.7		VANUATU ISLANDS
20.	1 8	17	15	8.0	52.051 N	171.514 W	33	157.82	5.2	4.9	FOX ISL., ALEUTIAN ISLANDS
21.	1 8	21	28	44.3	19.670 S	177.965 W	500	87.43	4.3		FIJI ISLANDS REGION
22.	1 9	2	50	49.3	19.515 S	176.476 W	33	87.88	5.4	5.8	FIJI ISLANDS REGION
23.	1 9	3	40	29.5	0.101 N	123.541 E	153	88.14	5.1		MINAHASSA PEN, SULAWESI
24.	1 9	4	14	21.3	36.729 N	141.009 E	33	128.17	5.1		NEAR THE EAST COAST OF HONSHU, JAPAN
25.	1 9	4	42	42.2	0.610 N	98.661 E	33	80.15	5.8		NORTHERN SUMATRA, INDONESIA
26.	1 9	5	2	34.4	3.574 S	135.292 E	10	88.91	4.9		IRIAN JAYA REGION, INDONESIA
27.	1 9	7	2	57.2	18.158 S	70.948 W	33	79.93	5.4	5.0	NEAR THE COAST OF NORTHERN CHILE
28.	1 9	9	49	6.5	44.734 S	79.356 W	10	57.57	4.8		OFF THE COAST OF S CHILE
29.	1 9	10	29	29.1	18.260 S	71.062 W	33	79.88	4.6	5.2	OFF THE COAST OF NORTHERN CHILE
30.	1 9	15	43	55.9	59.987 S	58.295 W	10	38.22	5.1		SCOTIA SEA
31.	1 10	2	8	3.8	17.131 N	100.032 W	62	122.24	5.0	4.5	GUERRERO, MEXICO
32.	1 10	13	11	56.7	5.209 S	153.566 E	71	93.64	5.9		NEW IRELAND REGION, P.N.G.
33.	1 10	15	18	54.9	0.157 N	97.891 E	33	79.48	5.6	5.5	NORTHERN SUMATRA, INDONESIA
34.	1 10	15	25	59.7	0.181 N	97.794 E	33	79.47	5.4		NORTHERN SUMATRA, INDONESIA
35.	1 10	17	55	3.6	28.360 S	113.092 W	10	80.51	4.9		EASTER ISLAND REGION
36.	1 10	18	19	8.1	15.748 S	174.395 W	33	91.97	5.0		TONGA ISLANDS
37.	1 11	7	30	5.9	4.929 S	11.575 W	10	72.13	5.1	4.5	NORTH OF ASCENSION ISLAND
38.	1 11	17	45	30.2	29.629 N	51.423 E	33	99.06	5.2	5.0	SOUTHERN IRAN
39.	1 13	16	31	0.2	12.984 N	95.589 E	33	91.00	4.9		ANDAMAN ISL., INDIA REGION
40.	1 13	20	2	1.0	15.592 S	173.532 W	33	92.29	4.9		TONGA ISLANDS
41.	1 13	22	16	19.1	8.210 N	126.670 E	33	96.83	4.5		MINDANAO, PHILIPPINES
42.	1 14	9	33	8.8	3.218 S	127.210 E	33	86.35	4.7		SERAM, INDONESIA
43.	1 14	14	13	54.5	27.994 N	62.347 E	33	98.50	5.5	5.0	SOUTHERN IRAN
44.	1 15	12	43	23.0	17.958 S	178.788 W	600	88.94	4.0		FIJI ISLANDS REGION
45.	1 16	0	53	15.0	44.306 N	129.086 W	10	154.55	5.3	6.0	OFF THE COAST OF OREGON
46.	1 16	2	25	4.5	44.293 N	129.420 W	10	154.58	5.2	5.3	OFF THE COAST OF OREGON
47.	1 16	5	3	29.1	44.201 N	129.192 W	10	154.46	5.2	5.1	OFF THE COAST OF OREGON
48.	1 16	16	47	3.2	1.454 N	126.976 E	33	90.63	5.0		NORTHERN MOLUCCA SEA
49.	1 17	2	13	53.6	51.337 N	179.252 E	38	154.30	5.2	4.6	RAT ISLANDS, ALEUTIAN
50.	1 17	2	52	55.5	19.881 N	95.194 E	33	97.47	5.1		MYANMAR

No.	Date	Origin time UTC			Geographic Coordinates		Depth (km)	Epicentral distance (deg)	Magnitude		Region
		h	m	s	Latitude (deg)	Longitude (deg)			mb	ms	
51.	1 17	6	1	51.2	5.201 S	81.153 W	33	95.43	4.2		NEAR THE COAST OF N PERU
52.	1 17	7	3	16.0	52.535 S	140.421 E	10	45.74	5.1		WEST OF MACQUARIE ISLAND
53.	1 17	12	2	48.7	6.919 S	126.577 E	409	82.67	4.4		BANDA SEA
54.	1 17	14	31	9.5	7.793 N	93.814 E	33	85.53	5.2	5.0	NICOBAR ISL., INDIA REGION
55.	1 17	23	46	8.6	1.935 N	122.671 E	484	89.54	5.2		MINAHASSA PEN, SULAWESI
56.	1 18	2	10	13.8	35.872 S	179.204 E	119	71.09	5.0		OFF E COAST THE N ISL., N.Z.
57.	1 18	4	43	17.1	12.684 N	48.750 E	10	81.98	4.5		EASTERN GULF OF ADEN
58.	1 18	5	6	47.9	19.893 S	178.347 W	600	87.14	4.5		FIJI ISLANDS REGION
59.	1 18	11	25	47.3	22.267 S	176.692 W	114	85.15	4.7		SOUTH OF THE FIJI ISLANDS
60.	1 19	6	25	51.4	55.712 S	27.009 W	33	31.42	5.0		SOUTH SANDWICH ISL REGION
61.	1 19	10	12	2.6	6.051 S	150.962 E	33	91.99	4.6		NEW BRITAIN REGION, P.N.G.
62.	1 19	13	13	52.1	20.407 S	178.903 W	600	86.52	4.5		FIJI ISLANDS REGION
63.	1 19	17	27	51.8	18.802 S	67.866 W	209	78.32	4.0		CENTRAL BOLIVIA
64.	1 19	18	34	36.0	5.107 S	153.673 E	33	93.77	5.2	4.6	NEW IRELAND REGION, P.N.G.
65.	1 20	8	43	6.0	10.478 S	160.749 E	33	90.89	6.7	7.8	SOLOMON ISLANDS
66.	1 20	17	18	55.1	41.991 S	116.664 W	10	67.54	4.9	4.6	SOUTHERN EAST PACIFIC RISE
67.	1 20	18	43	49.3	20.339 S	178.355 W	550	86.70	5.1		FIJI ISLANDS REGION
68.	1 20	19	4	43.1	15.562 S	173.509 W	33	92.32	5.5	5.1	TONGA ISLANDS
69.	1 20	20	17	44.8	5.214 S	153.702 E	33	93.68	4.5		NEW IRELAND REGION, P.N.G.
70.	1 21	4	19	23.2	36.321 N	140.931 E	41	127.78	5.3	5.2	NEAR THE EAST COAST OF HONSHU, JAPAN
71.	1 21	14	18	30.1	22.248 S	179.868 W	650	84.53	4.5		SOUTH OF THE FIJI ISLANDS
72.	1 22	2	58	51.2	4.577 N	97.540 E	33	83.57	5.7		NORTHERN SUMATRA, INDONESIA
73.	1 23	10	35	7.7	12.967 N	93.736 E	82	90.45	4.8		ANDAMAN ISL., INDIA REGION
74.	1 23	18	10	32.7	0.392 N	123.381 E	296	88.35	4.9		MINAHASSA PEN, SULAWESI
75.	1 24	14	19	2.3	5.481 S	154.194 E	33	93.59	4.9		SOLOMON ISLANDS
76.	1 24	22	26	49.3	0.864 N	125.768 E	33	89.65	4.9		NORTHERN MOLUCCA SEA
77.	1 26	7	8	11.9	52.228 N	170.258 W	33	158.34	5.4	5.1	FOX ISLANDS, ALEUTIAN
78.	1 26	19	44	50.1	14.770 S	167.292 E	186	88.66	4.5		VANUATU ISLANDS
79.	1 26	21	37	26.2	23.641 S	179.700 E	600	83.08	4.6		SOUTH OF THE FIJI ISLANDS
80.	1 27	2	9	58.5	17.363 S	176.774 W	33	89.93	4.8		FIJI ISLANDS REGION
81.	1 27	11	2	20.8	20.949 S	178.838 W	600	86.01	4.4		FIJI ISLANDS REGION
82.	1 27	17	56	25.9	46.074 S	35.028 E	10	23.02	5.6	6.3	PRINCE EDWARD ISLANDS
83.	1 28	0	53	47.6	15.462 S	73.937 W	70	83.44	5.3		S PERU
84.	1 28	7	56	22.7	30.557 S	65.063 W	156	66.44	5.2		CORDOBA PROVINCE, ARGENTINA
85.	1 28	11	29	39.8	0.696 S	121.991 E	33	86.84	5.5	5.0	MINAHASSA PENINSULA, SULAWESI
86.	1 28	14	4	58.6	0.714 S	122.020 E	10	86.83	5.2	4.7	MINAHASSA PENINSULA, SULAWESI
87.	1 28	16	11	57.1	2.911 N	126.547 E	33	91.84	5.0	4.4	NORTHERN MOLUCCA SEA
88.	1 29	3	40	36.9	16.668 S	173.734 W	33	91.19	4.6		TONGA ISLANDS
89.	1 29	4	36	5.7	2.851 N	126.508 E	33	91.77	4.8		NORTHERN MOLUCCA SEA
90.	1 29	14	33	47.2	20.852 S	178.896 W	627	86.09	4.4		FIJI ISLANDS REGION
91.	1 30	0	23	19.1	7.186 S	106.118 E	33	75.22	4.6		JAVA, INDONESIA
92.	1 31	20	53	9.4	5.498 S	103.666 E	33	75.99	5.0	4.3	SOUTHERN SUMATRA, INDONESIA
93.	1 31	21	43	30.2	14.841 S	167.310 E	142	88.59	4.8		VANUATU ISLANDS
94.	2 8	8	49	57.3	39.789 S	45.104 E	10	29.40	5.5	5.3	SOUTHWEST INDIAN RIDGE
95.	2 9	14	0	4.0	19.037 S	174.756 W	129	88.68	5.2		TONGA ISLANDS
96.	2 9	15	27	11.7	17.925 S	168.077 E	33	85.84	4.9		VANUATU ISLANDS
97.	2 10	4	49	30.7	6.011 S	149.815 E	33	91.65	5.3	6.3	NEW BRITAIN REGION, P.N.G.
98.	2 10	12	48	13.0	24.561 S	176.330 W	33	82.98	5.2	5.2	SOUTH OF THE FIJI ISLANDS
99.	2 10	20	16	3.8	20.53 S	178.22 W	600	86.54	4.3		FIJI ISLANDS REGION
100.	2 10	23	33	39.6	24.36 S	179.40 W	500	82.57	4.7		SOUTH OF THE FIJI ISLANDS

No.	Date	Origin time UTC			Geographic Coordinates		Depth (km)	Epicentral distance (deg)	Magnitude		Region
		h	m	s	Latitude (deg)	Longitude (deg)			mb	ms	
101.	2 11	14	40	41.3	5.037 S	145.343 E	70	91.05	5.2		E NEW GUINEA REGION, P.N.G.
102.	2 11	19	42	10.9	52.405 S	13.037 E	10	20.57	4.7		SOUTHWEST OF AFRICA
103.	2 12	22	33	30.8	3.594 S	144.255 E	10	92.03	6.0		NEAR NORTH COAST OF NEW GUINEA, P.N.G.
104.	2 13	15	38	51.8	22.122 S	179.768 W	592	84.67	5.2		SOUTH OF THE FIJI ISLANDS
105.	2 14	3	21	16.4	16.372 S	173.380 W	33	91.55	5.1	5.5	TONGA ISLANDS
106.	2 14	19	3	25.2	61.512 S	54.277 W	33	35.83	5.0	4.8	SOUTH SHETLAND ISLANDS
107.	2 14	21	11	57.5	7.441 S	127.975 E	166	82.69	4.7		BANDA SEA
108.	2 14	21	42	18.2	19.742 S	178.446 W	600	87.27	4.6		FIJI ISLANDS REGION
109.	2 14	23	17	52.9	54.507 S	5.769 E	10	20.92	5.4	5.3	BOUVET ISLAND REGION
110.	2 15	19	14	16.6	6.066 N	125.660 E	143	94.47	4.5		MINDANAO, PHILIPPINES
111.	2 16	5	15	16.0	18.166 S	68.774 W	132	79.21	4.8		CHILE-BOLIVIA BORDER REGION
112.	2 16	22	24	23.0	34.756 S	179.755 W	33	72.38	4.8		SOUTH OF THE KERMADEC ISLANDS
113.	2 19	3	32	36.5	53.758 N	164.612 W	19	161.27	5.8	6.6	UNIMAK ISLAND REGION, ALASKA
114.	2 20	10	37	4.3	0.946 S	126.772 E	33	88.32	5.3	5.1	SOUTHERN MOLUCCA SEA
115.	2 21	12	7	56.5	55.619 N	158.925 E	317	150.62	4.7		KAMCHATKA PENINSULA, RUSSIA
116.	2 21	22	13	25.3	25.845 S	178.417 W	254	81.32	5.2		SOUTH OF THE FIJI ISLANDS
117.	2 22	12	17	45.8	18.302 S	178.132 W	550	88.74	4.5		FIJI ISLANDS REGION
118.	2 22	15	8	7.1	34.160 S	177.780 W	33	73.33	4.5		SOUTH OF THE KERMADEC ISLANDS
119.	2 23	11	36	2.7	21.273 S	171.682 E	33	83.54	5.0	5.1	SE OF THE LOYALTY ISLANDS
120.	2 24	10	39	41.3	7.268 S	114.549 E	33	78.06	5.1	4.9	BALI SEA
121.	2 26	0	34	19.2	23.779 S	179.802 E	577	82.97	4.3		SOUTH OF THE FIJI ISLANDS
122.	2 26	1	34	39.6	49.522 S	126.425 E	10	43.89	4.4		W INDIAN-ANTARCTIC RIDGE
123.	2 26	12	21	30.9	24.120 S	66.852 W	172	73.01	4.6		SALTA PROVINCE, ARGENTINA
124.	2 27	11	40	30.9	7.842 S	124.913 E	33	81.21	5.1	4.4	BANDA SEA
125.	2 27	15	35	29.9	58.651 N	156.874 W	199	167.58	5.5		ALASKA PENINSULA
126.	2 27	20	8	36.6	22.712 S	63.315 W	497	73.15	4.5		SALTA PROVINCE, ARGENTINA
127.	3 2	13	7	18.6	35.044 S	178.806 W	33	72.28	5.3	4.9	E OF THE N ISL, N.Z.
128.	3 2	16	42	56.7	36.868 S	20.801 W	10	45.23	5.6	5.5	SOUTHERN MID-ATLANTIC RIDGE
129.	3 3	16	31	58.2	3.833 S	102.597 E	74	77.21	5.0		SOUTHERN SUMATRA, INDONESIA
130.	3 5	5	48	33.1	3.296 S	130.878 E	33	87.59	5.5	5.4	SERAM, INDONESIA
131.	3 5	10	49	23.9	34.337 S	58.087 E	10	36.28	4.9		SOUTH INDIAN OCEAN
132.	3 9	10	36	21.1	6.806 S	130.982 E	33	84.35	5.9	5.5	BANDA SEA
133.	3 10	2	9	37.7	1.696 N	127.354 E	102	90.99	6.2		HALMAHERA, INDONESIA
134.	3 10	10	2	43.7	27.356 S	177.902 W	148	79.94	5.5		KERMADEC ISLANDS REGION
135.	3 10	19	41	16.7	21.645 S	179.481 W	570	85.20	4.6		FIJI ISLANDS REGION
136.	3 11	7	27	31.6	4.656 S	153.131 E	33	94.02	6.3	6.8	NEW IRELAND REGION, P.N.G.
137.	3 11	7	35	42.8	4.599 S	153.130 E	33	94.08	5.7		NEW IRELAND REGION, P.N.G.
138.	3 11	8	40	4.4	6.089 S	150.229 E	33	91.71	5.2	5.9	NEW IRELAND REGION, P.N.G.
139.	3 12	9	27	14.7	21.105 S	69.221 W	33	76.61	4.7		NORTHERN CHILE
140.	3 13	2	37	10.4	24.341 S	68.343 W	33	73.29	4.6		CHILE-ARGENTINA BORDER REGION
141.	3 14	7	6	13.2	0.361 S	132.887 E	33	91.05	5.9	6.1	IRIAN JAYA REGION, INDONESIA
142.	3 14	12	54	11.9	17.388 S	175.214 W	275	90.21	5.7		TONGA ISLANDS
143.	3 15	8	30	49.0	24.893 S	179.625 E	524	81.85	4.9		SOUTH OF THE FIJI ISLANDS
144.	3 15	19	41	28.4	52.349 N	160.241 E	33	148.50	5.4	5.8	OFF THE EAST COAST OF KAMCHATKA, RUSSIA
145.	3 17	4	10	6.4	58.141 S	11.273 W	10	23.96	5.5	5.3	EAST OF THE SOUTH SANDWICH ISLANDS
146.	3 19	14	43	35.6	52.307 N	160.553 E	33	148.58	5.4	5.3	OFF THE EAST COAST OF KAMCHATKA, RUSSIA
147.	3 19	18	33	12.4	19.380 S	70.366 W	33	78.60	5.1		NEAR THE COAST OF N CHILE
148.	3 20	15	8	14.4	19.225 S	167.620 E	39	84.47	5.7	5.0	VANUATU ISLANDS REGION
149.	3 20	16	33	10.4	10.155 S	117.268 E	33	76.33	5.1	5.3	SOUTH OF SUMBAWA, INDONESIA
150.	3 20	20	42	8.3	55.915 S	27.344 W	33	31.38	4.7		SOUTH SANDWICH ISL REGION

No.	Date	Origin time UTC			Geographic Coordinates		Depth (km)	Epicentral distance (deg)	Magnitude		Region
		h	m	s	Latitude (deg)	Longitude (deg)			mb	ms	
151.	3 21	10	35	7.6	17.713 S	178.728 W	569	89.19	4.5		FIJI ISLANDS REGION
152.	3 28	17	31	47.7	15.283 S	173.538 W	41	92.59	5.9	5.9	TONGA ISLANDS
153.	3 29	19	59	19.1	25.303 S	179.429 E	525	81.41	5.0		SOUTH OF THE FIJI ISLANDS
154.	3 30	0	43	6.5	7.845 S	129.044 E	33	82.69	5.3	5.3	BANDA SEA
155.	3 30	8	11	27.4	5.907 S	154.686 E	158	93.34	5.1		BOUGAINVILLE REGION, PAPUA NEW GUINEA
156.	3 30	13	4	9.7	49.324 N	156.137 E	40	144.54	5.2	5.1	KURIL ISLANDS
157.	3 30	18	13	33.4	3.260 S	127.543 E	33	86.43	5.8	6.0	SERAM, INDONESIA
158.	3 30	19	23	37.2	4.721 S	155.057 E	482	94.58	4.7		BOUGAINVILLE REG, P.N.G.
159.	3 31	1	6	51.4	6.195 S	151.304 E	33	91.97	6.0		NEW BRITAIN REGION, P.N.G.
160.	3 31	7	35	33.2	25.791 S	63.319 W	599	70.28	4.8		SALT A PROVINCE, ARGENTINA
161.	3 31	17	17	14.0	7.286 S	129.073 E	156	83.22	4.9		BANDA SEA
162.	4 2	21	31	38.2	25.085 S	179.795 E	500	81.69	5.3		SOUTH OF THE FIJI ISLANDS
163.	4 4	7	8	33.0	6.912 S	129.335 E	191	83.67	4.6		BANDA SEA
164.	4 5	18	21	24.5	15.087 S	178.673 W	395	91.76	4.6		FIJI ISLANDS REGION
165.	4 5	22	3	32.4	16.169 S	167.871 E	178	87.47	5.2		VANUATU ISLANDS
166.	4 6	1	9	5.4	23.364 S	68.640 W	95	74.30	5.3		NORTHERN CHILE
167.	4 6	7	18	26.8	17.574 S	179.499 E	602	88.94	4.9		FIJI ISLANDS
168.	4 7	8	55	36.1	5.673 N	126.961 E	33	94.56	5.1		MINDANAO, PHILIPPINES
169.	4 9	16	13	16.0	26.640 S	70.940 W	39	71.98	4.4		NEAR THE COAST OF NORTHERN CHILE
170.	4 10	1	33	39.6	20.905 S	68.290 W	114	76.49	5.1		CHILE-BOLIVIA BORDER REGION
171.	4 16	9	31	23.4	0.236 N	122.072 E	191	87.74	5.1		MINAHASSA PEN, SULAWESI
172.	4 17	14	50	49.0	54.682 S	1.366 E	10	22.21	5.6	6.0	BOUVET ISLAND REGION
173.	4 19	11	43	50.5	27.068 S	113.253 W	10	81.81	5.0	4.8	EASTER ISLAND REGION
174.	4 24	10	56	22.5	48.853 N	154.878 E	49	143.70	5.5	5.6	KURIL ISLANDS
175.	4 26	15	9	42.6	6.032 N	125.536 E	100	94.39	4.9		MINDANAO, PHILIPPINES
176.	4 27	16	3	43.0	20.880 S	169.670 E	96	83.42	5.9		VANUATU ISLANDS
177.	4 27	16	8	38.4	5.445 N	125.927 E	105	93.98	5.3		MINDANAO, PHILIPPINES
178.	4 27	22	57	44.7	8.207 S	71.641 W	560	89.53	5.6		WESTERN BRAZIL
179.	4 28	11	29	13.4	20.383 S	178.096 W	600	86.71	4.3		FIJI ISLANDS REGION
180.	4 28	17	38	20.0	18.019 S	168.035 E	33	85.74	5.0	4.5	VANUATU ISLANDS
181.	4 29	10	44	39.6	7.022 S	103.715 E	33	74.57	5.7	5.7	SOUTHWEST OF SUMATRA, INDONESIA
182.	4 29	17	56	38.3	50.360 S	139.345 E	10	47.32	4.9		W INDIAN-ANTARCTIC RIDGE
183.	4 29	20	1	10.5	14.888 S	167.284 E	181	88.54	4.9		VANUATU ISLANDS
184.	4 30	0	47	8.4	54.349 S	4.967 E	10	21.30	4.8	4.6	BOUVET ISLAND REGION
185.	5 1	4	2	4.5	7.211 S	122.731 E	570	81.02	4.9		FLORES SEA
186.	5 1	5	22	10.8	7.379 S	106.243 E	33	75.09	4.5		JAVA, INDONESIA
187.	5 1	15	48	34.5	31.692 S	178.918 W	80	75.52	4.8		KERMADEC ISLANDS REGION
188.	5 3	5	3	2.8	15.166 S	173.792 W	33	92.66	6.3	6.1	TONGA
189.	5 3	5	42	50.6	7.051 S	129.722 E	100	83.67	4.7		BANDA SEA
190.	5 4	13	15	14.9	30.625 S	178.315 W	33	76.67	6.1	6.5	KERMADEC ISLANDS, N.Z.
191.	5 4	20	8	45.0	30.686 S	178.230 W	33	76.63	6.0	6.1	KERMADEC ISLANDS, N.Z.
192.	5 4	21	45	51.1	30.519 S	178.257 W	65	76.79	4.8		KERMADEC ISLANDS, N.Z.
193.	5 5	8	24	24.1	14.447 S	70.565 W	113	83.30	5.3		CENTRAL PERU
194.	5 5	15	50	8.2	0.185 N	127.268 E	123	89.55	5.9		HALMAHERA, INDONESIA
195.	5 5	23	4	42.6	3.745 N	127.894 E	33	93.10	6.2	5.7	TALAUD ISLANDS, INDONESIA
196.	5 6	20	16	15.7	24.310 S	179.523 E	623	82.39	4.7		SOUTH OF THE FIJI ISLANDS
197.	5 7	18	13	8.3	5.659 S	130.928 E	93	85.40	5.4		BANDA SEA
198.	5 8	5	12	15.4	7.243 S	128.990 E	117	83.23	4.6		BANDA SEA
199.	5 8	16	33	0.9	12.942 S	77.130 W	33	86.83	5.2	5.3	NR THE CST PERU
200.	5 9	20	26	15.8	48.137 S	32.265 E	10	21.14	5.6	6.1	PRINCE EDWARD ISLANDS REGION

No.	Date	Origin time UTC			Geographic Coordinates		Depth (km)	Epicentral distance		Magnitude mb ms	Region
		h	m	s	Latitude (deg)	Longitude (deg)		(deg)	(deg)		
201.	5 10	4 11	16.8	32.039 S	178.804 W	33	75.20	5.0		SOUTH OF THE KERMADEC ISLAND	
202.	5 10	14 26	59.8	30.470 S	177.502 W	33	76.98	4.6		KERMADEC ISLANDS, N.Z.	
203.	5 10	14 49	0.9	30.559 S	177.554 W	33	76.88	4.8		KERMADEC ISLANDS, N.Z.	
204.	5 11	17 51	35.4	0.961 S	126.896 E	33	88.35	5.6	5.8	SOUTHERN MOLUCCA SEA	
205.	5 12	3 3	5.4	1.175 N	98.946 E	78	80.78	5.7		NORTHERN SUMATRA, INDONESIA	
206.	5 12	3 53	32.2	8.332 S	127.918 E	33	81.83	4.9		TIMOR REGION	
207.	5 13	15 43	11.8	20.059 S	70.569 W	50	78.03	4.6		NEAR THE COAST OF NORTHERN CHILE	
208.	5 13	21 21	14.0	17.355 S	167.617 E	33	86.26	5.9	6.3	VANUATU ISLANDS	
209.	5 14	6 3	35.6	18.236 N	58.674 W	41	109.73	6.3	6.6	NORTH ATLANTIC OCEAN	
210.	5 14	7 40	30.0	8.061 S	107.367 E	33	74.83	5.2	5.3	JAVA, INDONESIA	
211.	5 15	7 11	28.2	22.913 S	176.764 W	105	84.50	4.8		SOUTH OF THE FIJI ISLANDS	
212.	5 15	15 45	4.0	18.583 S	178.084 W	600	88.47	4.5		FIJI REGION	
213.	5 16	2 37	29.6	14.776 S	75.534 W	33	84.59	4.6		NEAR THE COAST OF PERU	
214.	5 17	2 5	11.5	5.351 S	129.749 E	32	85.27	5.3	5.2	BANDA SEA	
215.	5 18	1 31	49.2	18.793 S	168.701 E	87	85.17	5.5		VANUATU ISLANDS	
216.	5 18	21 10	21.5	31.275 S	68.720 W	114	66.95	5.5		SAN JUAN PROVINCE, ARGENTINA	
217.	5 19	0 21	36.4	60.179 S	26.846 W	33	28.01	5.2	4.9	SOUTH SANDWICH ISL REGION	
218.	5 19	10 43	22.3	18.026 S	178.741 W	562	88.88	5.7		FIJI REGION	
219.	5 20	4 59	51.2	18.401 S	177.774 W	500	88.71	4.4		FIJI REGION	
220.	5 21	5 44	34.5	13.705 S	167.204 E	196	89.66	4.9		VANUATU ISLANDS	
221.	5 21	8 22	26.7	5.237 S	129.331 E	193	85.23	4.7		BANDA SEA	
222.	5 21	9 4	2.3	22.850 S	175.202 W	33	84.86	4.9	4.3	TONGA REGION	
223.	5 21	12 37	52.4	9.220 S	121.881 E	33	78.84	4.9		SAVU SEA	
224.	5 21	14 2	18.8	2.965 S	130.123 E	33	87.63	4.9	4.8	SERAM, INDONESIA	
225.	5 21	18 44	19.7	36.976 N	3.668 E	10	109.15	6.6	6.9	NORTHERN ALGERIA	
226.	5 22	16 1	28.2	0.227 N	123.813 E	33	88.35	5.3		MINAHASSA PEN, SULAWESI	
227.	5 22	16 14	37.2	21.056 S	179.519 W	600	85.76	4.1		FIJI REGION	
228.	5 23	0 50	8.2	21.386 S	66.457 W	200	75.43	4.5	1.0	SOUTHERN BOLIVIA	
229.	5 23	6 15	1.7	6.037 S	113.285 E	582	78.77	4.8		JAVA, INDONESIA	
230.	5 24	0 30	47.5	14.517 S	71.437 W	142	83.52	5.4		CENTRAL PERU	
231.	5 26	9 24	32.9	38.901 N	141.446 E	68	130.27	6.8		NEAR THE EAST COAST OF HONSHU, JAPAN	
232.	5 26	15 50	0.9	1.129 N	120.458 E	33	88.00	5.0	4.5	MINAHASSA PEN, SULAWESI	
233.	5 26	19 23	28.2	2.406 N	128.811 E	33	92.18	6.5	7.0	HALMAHERA, INDONESIA	
234.	5 26	23 13	28.9	6.764 N	123.762 E	561	94.44	6.3		MINDANAO, PHILIPPINES	
235.	5 26	23 26	30.5	6.790 N	123.816 E	568	94.48	5.9		MINDANAO, PHILIPPINES	
236.	5 27	8 29	46.1	31.266 S	68.453 W	118	66.88	5.7		SAN JUAN PROVINCE, ARGENTINA	
237.	5 27	9 46	11.7	2.805 N	99.251 E	181	82.42	4.7		NORTHERN SUMATRA, INDONESIA	
238.	5 28	16 15	16.1	17.796 S	65.547 E	10	53.81	5.4	6.0	MAURITIUS - REUNION REGION	
239.	5 28	21 26	46.7	12.369 S	77.021 W	41	87.34	5.4	4.8	NEAR THE COAST OF PERU	
240.	5 29	5 59	7.0	50.856 N	157.207 E	49	146.20	5.4		KURIL ISLANDS	
241.	5 30	19 48	6.4	6.231 N	126.376 E	33	94.87	4.7		MINDANAO, PHILIPPINES	
242.	5 31	19 2	30.1	23.713 S	66.539 W	204	73.29	4.5		JUJUY PROVINCE, ARGENTINA	
243.	6 1	9 7	1.5	2.909 S	142.276 E	33	91.99	5.4	5.2	NR N CST NEW GUINEA, P.N.G.	
244.	6 1	17 50	25.3	28.188 N	142.730 E	33	121.06	5.5		BONIN ISLANDS, JAPAN REGION	
245.	6 2	2 52	11.8	32.942 S	71.958 W	33	66.41	5.3	5.1	NEAR THE COAST OF CENTRAL CHILE	
246.	6 2	22 44	52.1	6.145 S	151.541 E	37	92.09	5.2	4.5	NEW BRITAIN REG, P.N.G.	
247.	6 3	14 33	21.8	15.124 S	167.671 E	33	88.42	4.7		VANUATU ISLANDS	
248.	6 3	21 9	3.0	18.287 S	167.240 E	35	85.27	5.6		VANUATU ISLANDS	
249.	6 4	1 1	32.6	29.584 S	178.622 W	226	77.63	4.5		KERMADEC ISLANDS, N.Z.	
250.	6 4	5 56	9.2	10.400 S	161.014 E	33	91.04	5.2	4.8	SOLOMON ISLANDS	

No.	Date	Origin time UTC			Geographic Coordinates		Depth (km)	Epicentral distance (deg)	Magnitude		Region
		h	m	s	Latitude (deg)	Longitude (deg)			mb	ms	
251.	6 4	17	5	40.3	27.430 S	177.554 W	33	79.94	4.7		KERMADEC ISLANDS REGION
252.	6 4	17	38	11.6	10.284 S	120.408 E	33	77.33	5.1	4.6	SUMBA REGION, INDONESIA
253.	6 5	3	34	30.3	27.920 S	176.716 W	33	79.62	5.0	4.7	KERMADEC ISLANDS REGION
254.	6 5	8	23	18.3	30.549 S	178.876 W	114	76.64	5.4		KERMADEC ISLANDS, N.Z.
255.	6 6	13	9	22.5	2.943 S	130.142 E	33	87.66	5.2	5.4	CERAM SEA, INDONESIA
256.	6 7	0	32	44.9	5.100 S	152.342 E	33	93.34	6.1	6.8	NEW BRITAIN REGION, P.N.G.
257.	6 8	12	57	56.1	16.286 S	67.201 E	10	55.61	4.9	4.3	MID-INDIAN RIDGE
258.	6 8	21	15	34.8	7.565 S	125.519 E	33	81.69	5.6	4.6	KEPULAUAN BARAT DAYA, INDONESIA
259.	6 8	21	36	34.3	55.650 S	27.416 W	33	31.61	4.8		SOUTH SANDWICH ISL REGION
260.	6 9	2	51	34.9	57.185 S	23.920 W	33	29.19	4.5		SOUTH SANDWICH ISL REGION
261.	6 9	13	47	57.2	13.440 S	167.654 E	33	90.03	5.1		VANUATU ISLANDS
262.	6 9	21	45	17.5	27.278 S	177.389 W	200	80.12	4.6		KERMADEC ISLANDS REGION
263.	6 11	7	51	41.2	9.751 S	124.786 E	10	79.39	5.5	4.7	TIMOR REGION
264.	6 11	22	7	44.6	9.163 S	118.295 E	85	77.62	5.3		SUMBAWA REGION, INDONESIA
265.	6 12	8	59	20.3	5.982 S	154.758 E	185	93.29	5.9		BOUGAINVILLE REGION, P.N.G.
266.	6 12	9	20	2.4	5.917 S	154.759 E	188	93.36	4.8		BOUGAINVILLE REGION, P.N.G.
267.	6 12	10	30	41.7	20.783 S	178.984 W	600	86.14	4.5		FIJI REGION
268.	6 14	18	28	49.8	7.469 S	156.656 E	405	92.49	5.7		SOLOMON ISLANDS
269.	6 15	1	35	43.9	28.609 S	68.442 W	106	69.34	4.3		LA RIOJA PROVINCE, ARGENTINA
270.	6 15	19	24	34.8	51.594 N	176.923 E	33	153.74	5.9	6.4	RAT ISLANDS, ALEUTIAN ISLANDS, ALASKA
271.	6 16	15	10	22.7	33.985 S	71.092 W	70	65.18	4.5		NEAR THE COAST OF CENTRAL CHILE
272.	6 16	22	8	1.6	55.489 N	159.942 E	174	150.89	6.3		KAMCHATKA PENINSULA, RUSSIA
273.	6 17	5	59	5.5	9.450 S	119.592 E	33	77.81	4.9		SUMBA REGION, INDONESIA
274.	6 17	13	9	40.4	23.868 S	179.108 E	500	82.73	4.4		SOUTH OF THE FIJI ISLANDS
275.	6 17	16	8	23.5	23.809 S	179.717 E	563	82.92	4.8		SOUTH OF THE FIJI ISLANDS
276.	6 19	7	0	44.6	20.948 S	178.653 W	576	86.05	4.8		FIJI REGION
277.	6 19	12	59	24.6	71.126 N	7.697 W	10	143.51	5.6	5.0	JAN MAYEN ISLAND REGION
278.	6 19	15	42	51.6	0.553 N	98.428 E	33	80.02	4.8		NIAS REGION, INDONESIA
279.	6 19	20	58	8.4	31.136 S	178.304 W	54	76.18	5.3		KERMADEC ISLANDS REGION
280.	6 19	23	4	58.2	30.656 S	71.535 W	33	68.41	5.2	5.1	NEAR THE COAST OF CENTRAL CHILE
281.	6 20	1	25	27.5	2.988 S	127.544 E	33	86.69	5.1		CERAM SEA, INDONESIA
282.	6 20	6	19	38.6	7.537 S	71.620 W	556	90.15	6.4		AMAZONAS, BRAZIL
283.	6 20	13	30	41.4	30.532 S	71.371 W	32	68.48	6.4	6.8	NEAR THE COAST OF CENTRAL CHILE
284.	6 20	16	20	26.4	30.693 S	71.494 W	33	68.37	5.2		NEAR THE COAST OF CENTRAL CHILE
285.	6 20	21	49	9.5	52.270 N	179.673 E	174	155.23	5.2		RAT ISLANDS, ALEUTIAN
286.	6 20	23	24	8.0	21.127 S	68.037 W	157	76.20	4.8		CHILE-BOLIVIA BORDER REGION
287.	6 21	7	34	31.3	7.528 S	127.879 E	142	82.57	4.9		KEPULAUAN BARAT DAYA, INDONESIA
288.	6 23	12	12	34.2	51.421 N	176.794 E	18	153.55	6.3	7.0	RAT ISLANDS, ALEUTIAN ISLANDS, ALASKA
289.	6 25	11	43	13.3	17.926 S	178.209 W	400	89.09	4.5		FIJI REGION
290.	6 26	0	19	2.6	4.759 N	126.881 E	33	93.68	5.2	4.3	KEPULAUAN TALAUD, INDONESIA
291.	6 26	17	37	46.5	30.555 S	71.845 W	33	68.60	4.5		NEAR THE COAST OF CEN CHILE
292.	6 27	10	18	34.4	17.369 S	177.881 W	400	89.70	4.5		FIJI REGION
293.	6 28	5	50	45.9	23.250 S	66.619 W	207	73.75	4.2		JUJUY PROVINCE, ARGENTINA
294.	6 28	7	36	41.3	2.733 N	95.702 E	33	81.26	5.2	4.8	SIMEULUE, INDONESIA
295.	6 28	15	29	45.8	3.312 S	146.002 E	33	92.90	5.6	6.3	BISMARCK SEA
296.	6 30	12	48	39.2	0.920 N	126.209 E	33	89.86	5.3		MOLUCCA SEA
297.	7 1	5	52	26.1	4.561 N	122.652 E	637	91.99	5.8		CELEBES SEA
298.	7 2	18	59	25.3	7.739 S	117.916 E	33	78.81	4.5		BALI SEA
299.	7 3	13	6	17.9	5.412 S	151.796 E	33	92.87	5.5	5.3	NEW BRITAIN REGION, P.N.G.
300.	7 3	18	57	27.7	18.529 S	174.598 W	92	89.21	4.8		TONGA

No.	Date	Origin time			Geographic Coordinates		Depth (km)	Epicentral distance		Magnitude		Region
		h	m	s	Latitude (deg)	Longitude (deg)		(deg)	(deg)	mb	ms	
301.	7 4	0	33	53.3	5.479 S	151.657 E	33	92.76	5.4	5.9	NEW BRITAIN REGION, P.N.G.	
302.	7 4	1	15	56.7	20.931 S	174.574 W	33	86.86	5.1		TONGA	
303.	7 4	3	39	6.2	5.446 S	151.686 E	33	92.80	5.3	4.9	NEW BRITAIN REGION, P.N.G.	
304.	7 4	7	16	45.3	76.307 N	22.869 E	10	145.65	5.8	5.1	SVALBARD REGION	
305.	7 6	6	37	43.9	21.544 S	179.172 W	400	85.36	4.4		FIJI REGION	
306.	7 6	21	34	15.6	15.556 S	167.498 E	87	87.96	5.3		VANUATU ISLANDS	
307.	7 7	14	6	57.4	26.173 S	179.745 E	500	80.62	4.3		SOUTH OF THE FIJI ISLANDS	
308.	7 7	16	30	8.7	21.937 S	179.527 W	600	84.90	5.0		FIJI REGION	
309.	7 7	19	55	0.3	20.352 N	121.960 E	10	106.47	5.3	5.2	BATAN ISLANDS REGION, PHILIPPINES	
310.	7 7	21	44	10.1	20.935 S	168.304 E	33	83.01	5.2	4.4	LOYALTY ISLANDS	
311.	7 7	22	40	28.7	20.986 S	168.333 E	33	82.97	5.1	4.1	LOYALTY ISLANDS	
312.	7 8	3	25	31.9	7.011 S	71.858 W	517	90.73	5.2		AMAZONAS, BRAZIL	
313.	7 8	7	8	50.0	51.331 S	111.283 E	10	37.15	4.8	3.5	SOUTHEAST INDIAN RIDGE	
314.	7 9	7	22	38.8	4.944 S	145.254 E	50	91.11	5.4	5.0	NEAR NORTH COAST OF NEW GUINEA, P.N.G.	
315.	7 9	13	59	10.5	55.882 S	27.424 W	100	31.43	4.6		SOUTH SANDWICH ISL REGION	
316.	7 10	15	23	12.9	0.123 N	123.397 E	121	88.11	4.7		MINAHASA, SULAWESI, INDONESIA	
317.	7 11	1	21	49.4	17.274 S	175.089 W	300	90.35	4.1		TONGA	
318.	7 11	13	51	34.1	7.194 S	128.427 E	100	83.08	4.8		KEPULAUAN BARAT DAYA, INDONESIA	
319.	7 11	13	53	24.8	9.359 N	122.082 E	33	96.27	5.6	5.4	NEGROS, PHILIPPINES.	
320.	7 12	1	55	43.7	11.592 N	95.209 E	33	89.56	5.0	4.5	ANDAMAN ISL., INDIA REGION	
321.	7 12	2	42	45.7	12.720 N	95.007 E	33	90.58	5.3	5.0	ANDAMAN ISL., INDIA REGION	
322.	7 12	8	32	35.9	46.797 N	143.791 E	380	138.00	4.3		SAKHALIN, RUSSIA	
323.	7 12	23	1	38.2	54.885 N	134.325 W	10	165.55	5.5	5.6	QUEEN CHARLOTTE ISLANDS REGION	
324.	7 13	7	25	46.5	21.895 S	68.129 W	114	75.51	5.0		CHILE-BOLIVIA BORDER REGION	
325.	7 13	14	21	3.7	9.222 N	122.027 E	45	96.12	4.8	4.2	NEGROS, PHILIPPINES	
326.	7 14	15	59	54.8	6.494 N	126.626 E	33	95.21	5.1	4.5	MINDANAO, PHILIPPINES	
327.	7 14	18	19	42.1	21.250 S	174.469 W	33	87.27	4.8	4.9	TONGA	
328.	7 14	19	25	34.9	2.936 S	129.945 E	33	87.59	5.2		SERAM, INDONESIA	
329.	7 14	20	0	6.2	0.502 S	100.841 E	144	79.79	5.4		SOUTHERN SUMATRA, INDONESIA	
330.	7 14	20	32	3.1	7.758 S	130.283 E	33	83.22	5.2	4.3	KEPULAUAN TANIMBAR REG, INDONESIA	
331.	7 14	21	40	13.1	1.333 N	126.766 E	33	90.44	4.9		MOLUCCA SEA	
332.	7 15	1	22	36.8	6.531 S	105.368 E	33	75.59	4.8		SUNDA STRAIT, INDONESIA	
333.	7 15	2	50	27.4	2.946 N	31.263 W	10	85.83	4.6		CENTRAL MID-ATLANTIC RIDGE	
334.	7 15	3	12	51.4	3.038 N	31.106 W	10	85.86	4.5		CENTRAL MID-ATLANTIC RIDGE	
335.	7 15	3	22	20.8	3.063 N	31.275 W	10	85.94	4.5		CENTRAL MID-ATLANTIC RIDGE	
336.	7 15	9	25	58.8	5.132 S	151.834 E	45	93.15	4.9	4.7	NEW BRITAIN REG, P.N.G.	
337.	7 15	12	57	9.3	1.008 S	126.928 E	33	88.31	5.2	4.0	KEPULAUAN SULA, INDONESIA	
338.	7 15	14	2	24.8	2.956 N	31.217 W	10	85.82	4.8		CENTRAL MID-ATLANTIC RIDGE	
339.	7 15	17	50	0.0	3.050 N	31.298 W	10	85.94	5.1		CENTRAL MID-ATLANTIC RIDGE	
340.	7 15	18	46	37.8	3.823 S	152.153 E	33	94.49	6.0	6.4	NEW IRELAND REGION, P.N.G.	
341.	7 15	20	27	50.2	2.562 S	68.300 E	10	69.28	6.4	7.6	CARLSBERG RIDGE	
342.	7 15	21	54	41.0	1.887 S	68.774 E	10	70.03	5.2		CARLSBERG RIDGE	
343.	7 15	23	36	20.9	21.437 S	179.434 W	600	85.41	5.0		FIJI REGION	
344.	7 16	2	29	48.3	2.679 S	68.417 E	10	69.18	5.6	4.9	CARLSBERG RIDGE	
345.	7 16	2	52	47.6	9.018 S	157.973 E	88	91.43	5.3		SOLOMON ISLANDS	
346.	7 16	3	16	39.3	1.605 S	68.773 E	10	70.31	5.0	4.6	CARLSBERG RIDGE	
347.	7 16	3	25	52.4	1.738 S	69.181 E	10	70.25	4.5		CARLSBERG RIDGE	
348.	7 16	4	46	34.5	1.644 S	68.863 E	10	70.28	4.5		CARLSBERG RIDGE	
349.	7 16	21	53	45.2	8.319 S	119.483 E	144	78.83	4.7		FLORES REGION, INDONESIA	
350.	7 17	12	28	39.6	1.081 S	69.628 E	10	70.98	4.7		CARLSBERG RIDGE	

No.	Date	Origin time UTC			Geographic Coordinates		Depth (km)	Epicentral distance (deg)	Magnitude		Region
		h	m	s	Latitude (deg)	Longitude (deg)			mb	ms	
351.	7 17	19	3	46.6	19.543 S	68.459 W	136	77.82	5.1		CHILE-BOLIVIA BORDER REGION
352.	7 19	21	20	34.0	8.649 S	111.285 E	33	75.63	6.0	5.2	JAVA, INDONESIA
353.	7 21	13	53	59.1	5.491 S	148.928 E	190	91.84	6.2		NEW BRITAIN REGION, P.N.G.
354.	7 21	19	21	10.6	6.701 N	93.647 E	10	84.44	5.2	5.5	NICOBAR ISLANDS, INDIA REGION
355.	7 22	4	21	41.0	15.449 S	166.191 E	33	87.71	5.7	5.7	VANUATU ISLANDS
356.	7 23	16	38	37.1	15.550 S	13.321 W	10	62.54	5.6	5.2	SOUTHERN MID-ATLANTIC RIDGE
357.	7 23	16	53	35.4	15.482 S	13.268 W	10	62.58	5.2		SOUTHERN MID-ATLANTIC RIDGE
358.	7 24	10	23	16.9	0.124 N	124.502 E	33	88.50	5.7	5.0	MINAHASA, SULAWESI, INDONESIA
359.	7 25	4	28	38.1	10.697 S	165.017 E	33	91.93	5.5	5.0	SANTA CRUZ ISLANDS
360.	7 25	9	37	48.3	1.487 S	149.630 E	42	95.85	6.4	6.2	NEW IRELAND REGION, P.N.G.
361.	7 25	20	28	14.9	57.141 S	25.186 W	33	29.67	4.9	3.9	SOUTH SANDWICH ISL REGION
362.	7 25	22	13	30.3	38.510 N	140.984 E	6	129.75	6.1	5.8	EASTERN HONSHU, JAPAN
363.	7 26	3	21	39.2	7.548 S	126.985 E	173	82.23	4.8		KEPULAUAN BARAT DAYA, INDONESIA
364.	7 26	13	45	25.8	17.579 S	175.087 W	227	90.05	5.3		TONGA
365.	7 27	2	4	11.4	21.119 S	176.601 W	214	86.29	5.9		FIJI REGION
366.	7 27	3	20	48.7	16.174 S	176.255 W	366	91.19	5.2		FIJI REGION
367.	7 27	6	1	7.3	23.707 S	66.542 W	208	73.30	4.5		JUJUJ PROVINCE, ARGENTINA
368.	7 27	6	25	33.1	47.173 N	139.244 E	481	136.72	6.5		PRIMOR'YE, RUSSIA
369.	7 27	12	26	22.2	34.343 S	70.552 W	99	64.68	5.0		CHILE-ARGENTINA BORDER
370.	7 28	16	9	13.1	7.385 S	128.247 E	103	82.83	4.8		KEPULAUAN BARAT DAYA, INDONESIA
371.	7 29	14	2	51.0	21.527 S	68.126 W	126	75.85	5.2		CHILE-BOLIVIA BORDER REGION
372.	7 30	5	43	18.6	31.995 S	57.474 E	10	38.48	5.0	4.9	SOUTHWEST INDIAN RIDGE
373.	7 30	12	15	16.6	20.408 S	168.803 E	33	83.65	5.0	4.8	LOYALTY ISLANDS
374.	8 2	23	31	56.1	0.400 S	127.522 E	100	89.09	4.7		HALMAHERA, INDONESIA
375.	8 3	1	28	52.3	30.671 S	178.216 W	55	76.65	5.1		KERMADEC ISL, N.Z.
376.	8 3	19	4	25.1	22.587 S	177.021 W	167	84.77	5.1		SOUTH OF THE FIJI ISLANDS
377.	8 4	4	9	28.8	20.273 S	177.727 W	450	86.89	4.8		FIJI REGION
378.	8 4	4	37	20.0	60.555 S	43.492 W	10	33.28	5.9	7.4	SCOTIA SEA
379.	8 4	6	34	11.0	60.597 S	44.540 W	10	33.58	5.2		SCOTIA SEA
380.	8 4	7	9	6.1	60.472 S	43.729 W	10	33.42	4.9		SCOTIA SEA
381.	8 4	18	18	29.6	60.591 S	43.162 W	10	33.15	5.3	4.8	SCOTIA SEA
382.	8 5	4	45	38.6	20.893 S	178.947 W	610	86.04	5.1		FIJI REGION
383.	8 5	18	56	50.7	0.509 S	29.434 E	10	68.81	5.1	4.8	LAKE EDWARD REGION, DEM REP OF THE CONGO
384.	8 6	16	7	36.9	30.700 S	178.130 W	100	76.64	5.1		KERMADEC ISL, N.Z.
385.	8 6	17	1	54.4	60.360 S	45.023 W	10	33.91	5.1	4.2	SCOTIA SEA
386.	8 8	14	56	20.6	13.698 S	71.727 W	44	84.38	5.0	4.2	CENTRAL PERU
387.	8 8	15	21	23.7	5.255 N	125.264 E	219	93.57	4.8		MINDANAO, PHILIPPINES
388.	8 8	15	53	33.4	12.267 S	167.083 E	250	91.00	4.8		SANTA CRUZ ISLANDS
389.	8 8	16	56	59.3	24.098 S	179.801 E	500	82.66	4.6		SOUTH OF THE FIJI ISLANDS
390.	8 11	0	19	12.3	1.111 N	128.163 E	33	90.73	5.7	5.6	HALMAHERA, INDONESIA
391.	8 11	0	26	43.2	20.301 S	69.626 W	111	77.49	4.9		NORTHERN CHILE
392.	8 11	11	39	3.5	18.653 S	175.451 W	227	88.93	4.8		TONGA
393.	8 11	21	22	30.1	12.119 N	93.558 E	100	89.59	5.6		ANDAMAN ISLANDS, INDIA REGION
394.	8 12	11	45	10.6	51.202 N	158.970 E	36	147.11	5.0	4.4	NEAR THE E COAST OF KAMCHATKA, RUSSIA
395.	8 12	15	58	0.3	21.669 S	179.376 W	600	85.19	4.4		FIJI REGION
396.	8 13	10	30	2.7	0.109 N	123.357 E	33	88.08	4.4		MINAHASA, SULAWESI, INDONESIA
397.	8 13	23	22	59.1	31.870 S	179.974 W	300	75.14	4.7		KERMADEC ISLANDS REGION
398.	8 14	8	41	32.0	60.473 S	44.049 W	10	33.52	5.0	4.0	SCOTIA SEA
399.	8 14	18	23	5.9	19.894 S	178.019 W	557	87.20	4.9		FIJI REGION
400.	8 16	10	58	42.9	43.796 N	119.618 E	24	127.15	5.6	5.1	EASTERN NEI MONGOL, CHINA

No.	Date	Origin time UTC			Geographic Coordinates		Depth (km)	Epicentral distance (deg)	Magnitude		Region
		h	m	s	Latitude (deg)	Longitude (deg)			mb	ms	
401.	8 16	14	10	39.3	5.400 S	151.097 E	60	92.65	5.2		NEW BRITAIN REGION, P.N.G.
402.	8 16	15	39	42.4	4.584 S	151.760 E	157	93.64	5.3		NEW BRITAIN REGION, P.N.G.
403.	8 18	20	28	20.2	6.703 N	126.376 E	33	95.32	4.8		MINDANAO, PHILIPPINES
404.	8 19	1	13	30.4	33.024 S	179.257 W	48	74.16	5.2		SOUTH OF THE KERMADEC ISLANDS
405.	8 19	13	52	10.0	21.899 S	179.608 W	605	84.92	5.0		FIJI REGION
406.	8 19	23	32	29.9	20.883 S	179.066 W	650	86.02	4.7		FIJI REGION
407.	8 20	2	48	49.4	45.200 S	167.340 E	91	59.61	4.5		SOUTH ISLAND OF N.Z.
408.	8 20	8	28	46.6	6.492 S	129.748 E	145	84.20	4.8		BANDA SEA
409.	8 21	3	56	31.3	12.962 N	93.037 E	33	90.25	4.7		ANDAMAN ISL., INDIA REGION
410.	8 21	4	2	9.8	29.091 N	59.814 E	20	99.28	5.6	5.8	SOUTHEASTERN IRAN
411.	8 21	4	53	1.8	14.637 N	52.330 E	10	84.18	4.9		GULF OF ADEN
412.	8 21	12	12	50.2	45.124 S	167.172 E	28	59.64	6.5	7.5	SOUTH ISLAND OF N.Z.
413.	8 21	12	29	0.8	45.046 S	167.392 E	33	59.76	5.1		SOUTH ISLAND OF N.Z.
414.	8 21	12	45	41.0	45.109 S	167.203 E	33	59.66	5.7		SOUTH ISLAND OF N.Z.
415.	8 21	14	12	27.5	45.290 S	166.840 E	21	59.41	5.9		OFF W CST THE S ISL., N.Z.
416.	8 21	16	13	40.9	2.289 N	96.549 E	33	81.09	5.2	5.0	SIMEULUE, INDONESIA
417.	8 21	16	50	4.0	45.060 S	167.050 E	21	59.67	4.7		SOUTH ISLAND OF N.Z.
418.	8 21	19	56	22.8	45.232 S	166.987 E	33	59.50	5.2		OFF WEST COAST OF THE SOUTH
419.	8 22	0	2	22.5	45.150 S	166.920 E	24	59.56	5.0	4.6	OFF W CST THE S ISL., N.Z.
420.	8 22	3	24	38.9	15.346 S	167.531 E	150	88.17	4.6		VANUATU ISLANDS
421.	8 22	21	35	35.3	13.451 S	167.115 E	163	89.88	4.9		VANUATU ISLANDS
422.	8 23	2	46	0.0	0.832 S	133.728 E	33	90.91	5.4	4.9	NEAR THE NORTH COAST OF IRIAN JAYA
423.	8 23	14	11	36.0	0.746 N	125.105 E	33	89.30	5.2		MOLUCCA SEA
424.	8 23	15	24	32.0	27.569 S	63.314 W	577	68.63	4.9		SANT DEL ESTERO PROV, ARGENTINA
425.	8 24	9	0	51.3	17.563 S	167.778 E	100	86.11	4.9		VANUATU ISLANDS
426.	8 24	23	49	22.1	40.360 S	98.300 E	10	41.93	5.2		SOUTHEAST INDIAN RIDGE
427.	8 25	6	28	30.5	14.170 N	91.349 W	35	116.97	5.6	5.6	GUATEMALA
428.	8 25	22	17	16.0	8.942 S	113.146 E	33	76.00	5.3		JAVA, INDONESIA
429.	8 25	23	25	3.2	18.654 N	106.707 W	33	125.38	5.5	5.4	OFF THE COAST OF JALISCO, MEXICO
430.	8 26	17	34	57.2	32.964 S	179.193 W	33	74.23	5.2	5.1	SOUTH OF THE KERMADEC ISLANDS
431.	8 26	21	11	35.9	17.058 S	70.590 W	31	80.85	5.7		NEAR THE COAST OF PERU
432.	8 27	2	50	43.3	65.173 S	179.106 E	10	42.95	5.2	5.2	BALLENY ISLANDS REGION
433.	8 27	21	18	44.3	11.484 N	57.557 E	10	81.55	5.4	5.0	OWEN FRACTURE ZONE REGION
434.	8 28	4	48	20.3	49.759 S	114.651 W	10	59.65	5.4	6.1	SOUTHERN EAST PACIFIC RISE
435.	8 28	5	31	21.7	55.901 S	146.228 E	10	44.47	5.2	5.0	WEST OF MACQUARIE ISLAND
436.	8 28	6	38	11.9	7.279 S	126.102 E	414	82.17	5.7		KEPULAUAN BARAT DAYA, INDONESIA
437.	8 28	17	41	2.4	56.096 S	143.488 W	10	54.88	4.9		PACIFIC-ANTARCTIC RIDGE
438.	8 28	20	39	44.2	21.963 S	179.535 W	566	84.87	5.1		FIJI REGION
439.	8 28	20	58	26.6	0.230 N	126.082 E	33	89.17	5.1	4.5	MOLUCCA SEA
440.	8 29	0	51	12.3	17.931 S	178.585 W	600	89.00	4.7		FIJI REGION
441.	8 29	4	27	52.7	26.267 S	177.256 W	86	81.13	5.3		SOUTH OF THE FIJI ISLANDS
442.	8 29	9	41	36.3	59.157 S	24.824 W	10	28.04	4.9	4.9	SOUTH SANDWICH ISL REGION
443.	8 29	21	21	0.3	5.453 S	102.191 E	33	75.55	4.9	4.4	SOUTHERN SUMATRA, INDONESIA
444.	8 29	23	41	20.6	5.425 S	102.249 E	33	75.59	5.0	4.3	SOUTHERN SUMATRA, INDONESIA
445.	8 30	0	5	39.1	14.794 S	167.250 E	136	88.62	5.1		VANUATU ISLANDS
446.	8 30	6	15	42.0	30.788 S	178.226 W	60	76.53	5.1		KERMADEC ISL., N.Z.
447.	8 31	23	8	0.2	43.414 N	132.234 E	481	131.02	5.6		PRIMOR'YE, RUSSIA
448.	9 1	9	4	17.3	2.932 S	129.161 E	33	87.32	5.3	4.9	SERAM, INDONESIA
449.	9 2	17	33	19.0	17.888 S	178.753 W	556	89.01	4.8		FIJI REGION
450.	9 2	18	28	0.1	15.218 S	173.248 W	10	92.71	6.1	6.6	TONGA

No.	Date	Origin time UTC			Geographic Coordinates		Depth (km)	Epicentral distance (deg)	Magnitude		Region
		h	m	s	Latitude (deg)	Longitude (deg)			mb	ms	
451.	9 3	1	5	9.9	15.206 S	173.418 W	33	92.69	4.4		TONGA
452.	9 4	8	40	44.7	45.260 S	166.910 E	24	59.45	5.8	5.2	OFF W CST THE S ISL., N.Z.
453.	9 5	1	23	3.2	5.361 N	95.914 E	134	83.83	5.7		NORTHERN SUMATRA, INDONESIA
454.	9 7	11	16	58.8	5.644 S	102.121 E	33	75.34	5.6	5.2	SOUTHERN SUMATRA, INDONESIA
455.	9 7	13	16	2.7	22.559 S	172.123 E	33	82.41	5.5		SOUTHEAST OF THE LOYALTY ISLANDS
456.	9 7	13	19	20.0	22.494 S	172.138 E	33	82.48	5.8	6.4	SOUTHEAST OF THE LOYALTY ISLANDS
457.	9 7	13	42	55.0	15.666 S	167.090 E	33	87.74	5.1		VANUATU ISLANDS
458.	9 7	22	39	30.6	30.588 S	71.358 W	33	68.42	4.9		NEAR THE COAST OF CENTRAL CHILE
459.	9 8	6	26	31.2	8.405 S	110.332 E	45	75.53	5.5	5.4	JAVA, INDONESIA
460.	9 9	13	1	46.6	23.893 S	179.848 E	500	82.87	4.6		SOUTH OF THE FIJI ISLANDS
461.	9 10	16	30	3.3	50.061 S	114.052 E	10	39.18	4.9		WESTERN INDIAN-ANTARCTIC RIDGE
462.	9 10	17	1	9.8	50.031 S	114.487 E	10	39.35	4.7		WESTERN INDIAN-ANTARCTIC RIDGE
463.	9 11	17	54	20.3	19.110 S	177.220 W	600	88.13	4.2		FIJI REGION
464.	9 11	18	41	20.0	45.480 S	166.520 E	25	59.15	4.6		OFF W CST THE S ISL., N.Z.
465.	9 11	21	58	26.2	8.185 S	156.052 E	10	91.62	5.5		SOLOMON ISLANDS
466.	9 12	6	55	55.9	5.262 S	151.436 E	52	92.89	5.8	5.6	NEW BRITAIN REGION, P.N.G.
467.	9 12	9	3	6.3	0.081 S	123.002 E	95	87.78	5.4		SULAWESI, INDONESIA
468.	9 12	15	40	44.8	36.121 S	53.473 E	10	33.84	5.3	5.2	SOUTH INDIAN OCEAN
469.	9 14	13	9	25.1	21.907 S	174.880 W	33	85.85	4.8		TONGA
470.	9 14	13	17	6.8	16.849 S	167.182 E	36	86.63	4.7		VANUATU ISLANDS
471.	9 15	13	37	15.9	5.858 S	148.015 E	82	91.19	5.1		NEW BRITAIN REG, P.N.G.
472.	9 15	14	3	46.8	19.449 S	68.647 W	129	77.97	4.2		CHILE-BOLIVIA BORDER REGION
473.	9 15	14	56	45.5	9.487 S	149.882 E	33	88.40	4.8		E NEW GUINEA REG, P.N.G.
474.	9 16	16	41	9.1	7.939 S	111.639 E	33	76.42	5.0		JAVA, INDONESIA
475.	9 16	23	7	26.3	15.517 S	172.893 W	33	92.48	5.2	5.0	SAMOA ISLANDS REGION
476.	9 17	0	2	54.1	8.734 S	123.817 E	33	79.99	4.8		FLORES REGION, INDONESIA
477.	9 17	1	9	35.6	28.771 S	178.469 W	200	78.45	4.8		KERMADEC ISLANDS REGION
478.	9 17	21	34	47.0	21.493 S	68.397 W	127	75.97	5.9		CHILE-BOLIVIA BORDER REGION
479.	9 18	17	27	48.8	8.188 S	107.731 E	33	88.77	4.8		JAVA, INDONESIA
480.	9 20	17	38	34.0	55.836 S	27.963 W	117	31.66	5.5		SOUTH SANDWICH ISLANDS REGION
481.	9 21	18	16	13.1	19.896 N	95.731 E	10	97.64	6.1	6.9	MYANMAR.
482.	9 22	4	45	36.4	19.847 N	70.666 W	10	115.49	6.2	6.6	DOMINICAN REPUBLIC REGION
483.	9 22	20	45	16.9	80.309 N	1.763 W	10	151.00	5.2	4.7	NORTH OF SVALBARD
484.	9 22	22	59	3.6	4.939 S	153.857 E	110	93.99	5.2		NEW IRELAND REGION, P.N.G.
485.	9 22	23	17	53.5	23.959 S	69.588 E	10	48.63	5.2		MID-INDIAN RIDGE
486.	9 23	9	33	18.7	4.843 S	145.405 E	135	91.26	4.9		NR N CST NEW GUINEA, P.N.G.
487.	9 23	16	10	22.3	22.976 S	13.640 W	10	55.63	5.1	4.6	SOUTHERN MID-ATLANTIC RIDGE
488.	9 24	8	53	41.6	4.873 S	153.759 E	115	94.02	4.9		NEW IRELAND REG, P.N.G.
489.	9 24	11	48	6.1	45.190 S	166.850 E	12	59.50	4.4	3.9	OFF W CST THE S ISL., N.Z.
490.	9 24	13	42	45.1	7.389 S	128.025 E	136	82.75	4.9		KEPULAUAN BARAT DAYA, INDONESIA
491.	9 24	17	5	45.2	22.965 S	178.750 W	310	84.06	4.6		SOUTH OF THE FIJI ISLANDS
492.	9 24	20	56	54.9	35.300 N	135.238 E	373	124.84	5.4		WESTERN HONSHU, JAPAN
493.	9 24	23	3	22.6	0.526 N	126.231 E	33	89.50	5.3	4.4	MOLUCCA SEA
494.	9 25	1	21	18.0	45.360 S	166.770 E	12	59.32	4.3		OFF W CST THE S ISL., N.Z.
495.	9 25	19	50	6.2	41.775 N	143.904 E	27	133.68	7.0	8.1	HOKKAIDO, JAPAN REGION
496.	9 25	21	8	0.0	41.755 N	143.626 E	33	133.57	6.3	7.3	HOKKAIDO, JAPAN REGION
497.	9 25	22	20	20.5	41.972 N	143.776 E	33	133.81	5.2		HOKKAIDO, JAPAN REGION
498.	9 26	0	13	28.9	22.439 S	175.242 W	33	85.26	5.3	5.6	TONGA REGION
499.	9 26	2	35	12.9	41.978 N	144.455 E	33	134.06	5.4	5.4	HOKKAIDO, JAPAN REGION
500.	9 26	3	41	12.8	6.426 S	147.772 E	49	90.57	4.8		E NEW GUINEA REG, P.N.G.

No.	Date	Origin time UTC			Geographic Coordinates		Depth (km)	Epicentral distance		Magnitude mb ms	Region
		h	m	s	Latitude (deg)	Longitude (deg)		(deg)	(deg)		
501.	9 26	3	44	58.8	3.985 N	128.143 E	33	93.41	4.9		N OF HALMAHERA, INDONESIA
502.	9 26	5	44	22.2	5.045 S	153.824 E	145	93.88	4.8		NEW IRELAND REG, P.N.G.
503.	9 26	6	0	52.7	5.086 N	127.265 E	33	94.12	4.8		PHILIPPINE ISLANDS REGION
504.	9 26	6	26	57.1	42.190 N	144.638 E	33	134.31	5.8	5.6	HOKKAIDO, JAPAN REGION
505.	9 26	15	22	57.8	62.613 S	154.344 E	10	40.67	4.5	4.7	BALLENY ISLANDS REGION
506.	9 26	20	38	22.0	41.982 N	144.540 E	33	134.09	5.7	5.7	HOKKAIDO, JAPAN REGION
507.	9 26	21	3	20.1	15.732 S	174.462 W	127	91.98	4.8		TONGA
508.	9 27	5	54	52.8	45.893 S	95.871 E	10	36.23	5.2	5.2	SOUTHEAST INDIAN RIDGE
509.	9 27	11	33	24.9	49.999 N	87.852 E	16	124.31	6.5	7.5	RUSSIA-KAZAKHSTAN-XINJIANG BORDER REG.
510.	9 27	13	16	43.4	50.056 N	87.935 E	10	124.38	5.4		SOUTHWESTERN SIBERIA, RUSSIA
511.	9 27	16	7	38.9	42.270 N	144.322 E	33	134.27	5.0	5.1	HOKKAIDO, JAPAN REGION
512.	9 27	18	52	46.8	50.054 N	87.756 E	10	124.34	6.1	6.6	SOUTHWESTERN SIBERIA, RUSSIA
513.	9 28	8	12	35.1	45.109 S	166.911 E	10	59.59	4.2		OFF WEST COAST OF THE SOUTH ISLAND, N.Z.
514.	9 28	17	40	43.6	35.193 S	70.624 W	105	63.91	5.2		CHILE-ARGENTINA BORDER REGION
515.	9 29	2	36	53.0	42.424 N	144.382 E	25	134.42	6.0	6.3	HOKKAIDO, JAPAN REGION
516.	9 29	3	40	49.4	56.078 S	27.501 W	33	31.31	4.0		SOUTH SANDWICH ISL REGION
517.	9 29	16	2	45.9	48.321 N	153.113 E	118	142.62	5.4		KURIL ISLANDS
518.	9 29	22	7	2.1	55.704 S	26.932 W	10	31.39	4.9		SOUTH SANDWICH ISL REGION
519.	9 29	23	17	49.9	1.509 N	127.307 E	100	90.80	4.9		HALMAHERA, INDONESIA
520.	9 30	2	1	5.4	22.206 S	179.686 W	589	84.61	4.9		SOUTH OF THE FIJI ISLANDS
521.	9 30	7	43	23.7	3.942 S	152.825 E	33	94.60	5.2		NEW IRELAND REGION, P.N.G.
522.	9 30	8	1	33.0	60.338 S	33.264 W	10	30.09	5.3	5.8	SCOTIA SEA
523.	9 30	13	37	7.8	7.333 S	130.351 E	33	83.64	5.0		KEPULAUAN TANIMBAR REG, INDONESIA
524.	9 30	14	8	41.5	30.317 S	177.427 W	33	77.14	5.8	6.5	KERMADEC ISLANDS, N.Z.
525.	9 30	15	22	31.6	30.528 S	177.152 W	33	76.99	5.4	6.0	KERMADEC ISLANDS, N.Z.
526.	9 30	19	37	53.5	45.472 S	167.215 E	33	59.32	5.2	5.4	SOUTH ISLAND OF N.Z.
527.	9 30	21	39	18.0	30.250 S	177.487 W	33	77.20	5.5	5.4	KERMADEC ISLANDS, N.Z.
528.	10 1	0	44	7.7	13.648 S	167.179 E	197	89.70	5.1		VANUATU ISLANDS
529.	10 1	1	3	25.2	50.205 N	87.703 E	10	124.47	6.3	7.1	SOUTHWESTERN SIBERIA, RUSSIA
530.	10 2	1	5	21.6	30.521 S	177.101 W	33	77.01	5.0	5.3	KERMADEC ISL, N.Z.
531.	10 2	1	54	13.5	30.516 S	177.401 W	33	76.95	5.2	5.2	KERMADEC ISL, N.Z.
532.	10 2	4	10	7.4	29.974 S	71.677 W	33	69.09	4.5		NEAR THE COAST OF CENTRAL CHILE
533.	10 2	21	24	33.4	23.360 S	177.500 W	33	83.92	4.4		SOUTH OF THE FIJI ISLANDS
534.	10 2	23	24	6.3	4.605 N	125.837 E	158	93.16	4.9		KEPULAUAN SANGIHE, INDONESIA
535.	10 3	11	54	8.8	21.878 S	68.341 W	122	75.60	4.6		CHILE-BOLIVIA BORDER REGION
536.	10 4	14	49	2.9	7.049 S	125.421 E	531	82.14	5.5		KEPULAUAN BARAT DAYA, INDONESIA
537.	10 4	18	15	54.9	28.869 S	71.235 W	29	69.99	5.2	4.7	NEAR THE COAST OF CENTRAL CHILE
538.	10 5	13	53	19.9	2.425 N	126.842 E	33	91.49	5.3		MOLUCCA SEA
539.	10 6	0	0	45.8	6.221 S	152.130 E	33	92.22	5.3		NEW BRITAIN REG, P.N.G.
540.	10 6	13	28	57.5	17.832 S	167.668 E	33	85.82	4.9	4.0	VANUATU ISLANDS
541.	10 6	13	51	38.3	17.909 S	167.775 E	33	85.78	4.9	3.9	VANUATU ISLANDS
542.	10 6	18	29	38.1	10.668 S	164.308 E	33	91.75	5.4	5.4	SANTA CRUZ ISLANDS REGION
543.	10 7	2	36	54.3	79.133 N	2.304 E	10	149.63	5.1	4.6	GREENLAND SEA
544.	10 7	4	55	32.1	16.491 S	170.254 W	33	91.98	6.1	5.9	SAMOA ISLANDS REGION
545.	10 7	5	3	15.8	16.507 S	170.241 W	33	91.97	5.1		SAMOA ISLANDS REGION
546.	10 7	12	57	18.8	22.537 S	68.397 W	105	75.00	4.8		NORTHERN CHILE
547.	10 7	15	29	24.7	9.244 S	122.251 E	33	78.95	5.1		SAVU SEA
548.	10 8	9	6	55.2	42.612 N	144.559 E	32	134.65	5.9	6.6	HOKKAIDO, JAPAN REGION
549.	10 8	13	32	9.5	42.241 N	144.719 E	33	134.38	5.3	5.5	HOKKAIDO, JAPAN REGION
550.	10 8	21	46	13.5	15.299 S	167.219 E	200	88.13	4.8		VANUATU ISLANDS

No.	Date	Origin time UTC			Geographic Coordinates		Depth (km)	Epicentral distance (deg)	Magnitude		Region
		h	m	s	Latitude (deg)	Longitude (deg)			mb	ms	
551.	10 8	23	15	17.4	42.175 N	144.682 E	33	134.31	5.8	5.4	HOKKAIDO, JAPAN REGION
552.	10 9	0	25	34.3	12.560 S	166.630 E	33	90.60	4.9	4.8	SANTA CRUZ ISLANDS
553.	10 9	22	19	13.5	13.803 N	120.045 E	33	99.70	6.1	5.7	MINDORO, PHILIPPINES
554.	10 10	3	32	45.4	7.497 N	126.502 E	33	96.10	5.1		MINDANAO, PHILIPPINES
555.	10 10	7	20	6.6	44.900 S	166.340 E	33	59.66	4.4		OFF W CST THE S ISL., N.Z.
556.	10 11	0	8	49.0	41.962 N	144.280 E	33	133.98	5.8	5.7	HOKKAIDO, JAPAN REGION
557.	10 11	1	11	29.3	43.952 N	148.164 E	38	137.11	6.2	5.2	EAST OF THE KURIL ISLANDS
558.	10 11	14	35	50.0	17.752 S	69.039 W	131	79.69	5.3		PERU-BOLIVIA BORDER REGION
559.	10 11	18	26	18.6	41.793 N	143.626 E	33	133.60	5.5	5.2	HOKKAIDO, JAPAN REGION
560.	10 11	19	46	8.1	17.864 S	178.609 W	599	89.06	5.3		FIJI REGION
561.	10 13	3	48	28.6	20.547 S	178.136 W	500	86.54	4.6		FIJI REGION
562.	10 13	5	26	37.7	50.233 N	87.610 E	10	124.48	5.3	5.0	SOUTHWESTERN SIBERIA, RUSSIA
563.	10 13	9	52	30.2	15.899 S	178.310 W	33	91.04	5.4	5.8	FIJI REGION
564.	10 13	14	56	22.7	7.196 S	125.873 E	400	82.16	4.6		KEPULAUAN BARAT DAYA, INDONESIA
565.	10 15	2	19	44.0	17.744 S	178.732 W	583	89.16	5.8		FIJI REGION
566.	10 15	2	34	32.7	26.024 S	71.114 W	47	72.61	4.6		OFF THE CST N CHILE
567.	10 15	3	35	39.8	4.812 S	129.818 E	131	85.80	4.5		BANDA SEA
568.	10 15	5	13	17.2	22.182 S	69.305 E	10	50.29	4.8	4.0	MID-INDIAN RIDGE
569.	10 15	6	35	47.0	29.988 S	177.357 W	33	77.48	4.9		KERMADEC ISL., N.Z.
570.	10 15	7	30	35.2	35.432 N	139.860 E	72	126.60	5.0		NEAR THE SOUTH COAST OF HONSHU, JAPAN
571.	10 15	11	37	25.3	34.633 S	70.751 W	102	64.47	4.4		CHILE-ARGENTINA BORDER REGION
572.	10 15	21	12	15.4	24.349 S	69.469 W	90	73.65	4.3		NORTHERN CHILE
573.	10 17	5	30	20.5	50.142 N	87.694 E	10	124.41	5.1	4.7	SOUTHWESTERN SIBERIA, RUSSIA
574.	10 17	10	19	6.5	5.471 S	154.069 E	132	93.56	6.2		BOUGAINVILLE REGION, P.N.G.
575.	10 17	11	44	16.9	5.017 S	153.920 E	135	93.94	4.6		NEW IRELAND REG, P.N.G.
576.	10 17	16	36	6.0	7.355 S	146.156 E	168	89.15	4.5		E NEW GUINEA REG, P.N.G.
577.	10 17	16	50	20.9	5.448 S	154.217 E	168	93.63	4.7		BOUGAINVILLE REG, P.N.G.
578.	10 17	17	19	53.3	4.997 S	102.509 E	33	76.08	5.6	5.7	SOUTHERN SUMATRA, INDONESIA
579.	10 17	18	29	59.5	5.462 S	154.293 E	169	93.64	4.2		BOUGAINVILLE REG, P.N.G.
580.	10 18	22	27	13.3	0.509 N	126.059 E	33	89.42	6.2	6.1	MOLUCCA SEA
581.	10 19	3	59	15.5	44.857 S	167.195 E	10	59.90	4.9	4.3	SOUTH ISLAND OF N.Z.
582.	10 19	13	27	38.3	30.429 S	179.451 W	265	76.64	4.7		KERMADEC ISLANDS REGION
583.	10 20	16	50	17.5	58.063 S	26.269 W	151	29.36	5.4		SOUTH SANDWICH ISLANDS REGION
584.	10 20	18	40	0.5	18.672 S	175.094 W	33	88.97	5.3		TONGA
585.	10 20	19	13	59.3	18.924 S	70.565 W	33	79.09	4.7		NEAR THE COAST OF NORTHERN CHILE
586.	10 21	21	6	38.1	23.181 S	176.265 W	33	84.34	4.9		SOUTH OF THE FIJI ISLANDS
587.	10 21	21	31	1.4	2.500 S	140.551 E	10	91.77	5.6	5.1	NEAR THE NORTH COAST OF IRIAN JAYA
588.	10 22	11	45	28.2	6.053 S	147.686 E	33	90.90	6.3	6.3	EASTERN NEW GUINEA REG, P.N.G.
589.	10 22	22	35	57.8	6.515 S	154.882 E	29	92.83	5.1	4.5	BOUGAINVILLE REG, P.N.G.
590.	10 22	23	30	0.6	45.230 S	166.960 E	21	59.49	4.2		OFF W CST THE S ISL., N.Z.
591.	10 23	4	55	32.4	18.022 S	178.570 W	600	88.92	4.3		FIJI REGION
592.	10 23	5	5	0.7	23.717 S	175.902 W	33	83.88	4.8		TONGA REGION
593.	10 23	7	47	23.2	60.347 S	26.695 W	33	27.84	4.7		SOUTH SANDWICH ISL REGION
594.	10 23	7	58	27.2	23.803 S	179.723 E	536	82.93	5.2		SOUTH OF THE FIJI ISLANDS
595.	10 23	10	54	39.3	51.427 N	176.626 E	33	153.50	5.4	5.1	RAT ISLANDS, ALEUTIAN ISLANDS, ALASKA
596.	10 23	11	57	26.5	17.449 S	177.656 W	400	89.67	4.4		FIJI REGION
597.	10 23	16	23	27.8	7.423 S	156.073 E	100	92.35	4.7		SOLOMON ISLANDS
598.	10 23	17	19	58.4	45.230 S	166.930 E	23	59.48	4.1		OFF W CST THE S ISL., N.Z.
599.	10 25	12	41	34.9	38.348 N	100.963 E	10	116.56	5.9	5.7	GANSU-QINGHAI BORDER REGION, CHINA
600.	10 25	12	47	58.2	38.345 N	100.984 E	10	116.57	5.5	5.4	GANSU-QINGHAI BORDER REGION, CHINA

No.	Date	Origin time UTC			Geographic Coordinates		Depth (km)	Epicentral distance (deg)	Magnitude		Region
		h	m	s	Latitude (deg)	Longitude (deg)			mb	ms	
601.	10 26	16	27	9.0	17.661 S	69.922 W	108	80.07	5.0		PERU-BOLIVIA BORDER REGION
602.	10 27	20	7	44.1	55.580 S	27.765 W	10	31.79	4.7		SOUTH SANDWICH ISL REGION
603.	10 28	2	33	50.4	5.347 S	151.448 E	56	92.82	5.8		NEW BRITAIN REGION, P.N.G.
604.	10 28	7	28	44.6	18.004 S	178.573 W	600	88.94	4.4		FIJI REGION
605.	10 28	8	14	25.5	14.130 S	70.459 W	197	83.56	5.5		CENTRAL PERU
606.	10 28	18	32	7.4	16.175 S	174.225 W	166	91.59	4.7		TONGA
607.	10 28	21	48	20.3	43.802 N	147.760 E	60	136.83	6.1		KURIL ISLANDS
608.	10 29	19	54	19.2	60.569 S	25.236 W	33	27.17	5.3		SOUTH SANDWICH ISL REGION
609.	10 29	21	10	20.9	49.060 S	124.737 E	10	43.72	5.4	5.0	WESTERN INDIAN-ANTARCTIC RIDGE
610.	10 30	1	16	49.0	35.595 S	104.817 W	10	72.04	4.8		SOUTHEAST OF EASTER ISLAND
611.	10 30	6	0	45.3	60.674 S	25.165 W	10	27.07	5.4	5.5	SOUTH SANDWICH ISLANDS REGION
612.	10 30	15	22	21.2	19.754 N	95.794 E	33	97.52	5.4	5.1	MYANMAR
613.	10 30	16	26	4.6	22.297 S	170.503 E	33	82.26	5.2	5.3	SE OF THE LOYALTY ISLANDS
614.	10 30	19	27	33.0	10.851 S	166.131 E	72	92.10	4.9		SANTA CRUZ ISLANDS
615.	10 31	1	6	28.3	37.830 N	142.629 E	10	129.74	6.1	6.8	OFF THE EAST COAST OF HONSHU, JAPAN
616.	10 31	14	15	9.8	38.643 N	139.819 E	153	129.46	5.2		NR THE W CST HONSHU, JAPAN
617.	10 31	19	27	22.4	30.540 S	176.543 W	33	77.09	5.1		KERMADEC ISLANDS REGION}
618.	11 1	13	10	7.6	37.742 N	143.083 E	10	129.89	5.9	5.5	OFF THE EAST COAST OF HONSHU, JAPAN
619.	11 2	2	14	37.0	44.596 N	150.179 E	33	138.39	5.4	5.2	EAST OF THE KURIL ISLANDS
620.	11 2	2	58	14.1	37.728 N	143.073 E	10	129.80	5.4	4.9	OFF THE EAST COAST OF HONSHU, JAPAN
621.	11 2	5	32	15.7	45.194 S	166.547 E	10	59.43	5.3	6.3	OFF WEST COAST OF THE SOUTH ISLAND, N.Z.
622.	11 2	6	35	15.8	44.849 S	166.746 E	10	59.80	4.5		OFF WEST COAST OF THE SOUTH ISLAND, N.Z.
623.	11 2	9	1	15.3	45.150 S	166.490 E	12	59.46	4.4		OFF WEST COAST OF THE SOUTH ISLAND, N.Z.
624.	11 2	11	24	28.6	36.783 S	179.317 E	10	70.23	5.0		OFF EAST COAST OF THE NORTH ISLAND, N.Z.
625.	11 2	13	58	8.6	45.092 S	166.592 E	10	59.54	4.8		OFF WEST COAST OF THE SOUTH ISLAND, N.Z.
626.	11 3	17	47	49.7	1.351 S	99.772 E	33	78.64	5.0		KEPULAUAN MENTAWAI REG, INDONESIA
627.	11 4	18	45	35.6	4.120 S	102.538 E	33	76.92	5.3		SOUTHERN SUMATRA, INDONESIA
628.	11 5	3	52	37.9	25.086 S	71.197 W	27	73.51	4.5		OFF THE COAST OF NORTHERN CHILE
629.	11 5	9	59	42.4	23.676 S	179.676 W	500	83.18	4.2		SOUTH OF THE FIJI ISLANDS
630.	11 5	13	24	25.1	30.509 S	176.587 W	33	77.11	4.9		KERMADEC ISLANDS REGION
631.	11 5	17	5	32.2	7.224 S	128.894 E	78	83.22	4.8		KEPULAUAN BARAT DAYA, INDONESIA
632.	11 5	22	2	45.5	2.761 S	121.230 E	33	84.64	5.1		SULAWESI, INDONESIA
633.	11 6	8	14	57.6	1.993 N	126.987 E	10	91.14	5.4	5.2	MOLUCCA SEA
634.	11 6	10	38	4.1	19.253 S	168.840 E	114	84.77	6.0		VANUATU ISLANDS
635.	11 6	14	30	57.0	17.944 S	175.470 W	268	89.62	4.8		TONGA
636.	11 6	15	54	19.7	26.200 S	178.670 W	300	80.92	4.2		SOUTH OF THE FIJI ISLANDS
637.	11 7	2	34	33.1	10.522 N	93.832 E	158	88.14	4.6		ANDAMAN ISL, INDIA REGION
638.	11 7	3	59	7.9	50.948 N	157.221 E	67	146.28	5.5		KURIL ISLANDS
639.	11 7	6	14	40.1	54.387 S	5.453 E	10	21.12	4.6	4.3	BOUVET ISLAND REGION
640.	11 7	13	59	32.1	2.025 N	126.878 E	33	91.13	5.3	4.9	MOLUCCA SEA
641.	11 7	18	19	7.5	57.300 S	25.003 W	33	29.49	4.9		SOUTH SANDWICH ISL REGION
642.	11 7	23	42	8.6	29.962 S	176.662 W	33	77.63	4.5		KERMADEC ISLANDS REGION
643.	11 8	20	11	38.2	6.292 S	131.251 E	33	84.93	4.9		KEPULAUAN TANIMBAR REG, INDONESIA
644.	11 9	19	23	27.9	1.591 N	127.287 E	128	90.87	5.7		HALMAHERA, INDONESIA
645.	11 9	19	52	35.8	0.864 S	19.622 W	10	78.43	5.5	6.0	CENTRAL MID-ATLANTIC RIDGE
646.	11 9	21	32	56.7	19.660 S	174.510 W	33	88.12	5.1		TONGA
647.	11 11	13	44	53.1	30.499 S	179.061 W	33	76.65	5.5	5.9	KERMADEC ISLANDS REGION
648.	11 11	15	39	33.8	30.593 S	179.417 W	33	76.49	5.7	6.0	KERMADEC ISLANDS REGION
649.	11 11	18	48	25.1	22.315 N	143.228 E	114	115.84	6.0		VOLCANO ISLANDS, JAPAN REGION
650.	11 12	0	27	46.9	3.192 S	130.569 E	33	87.58	4.8		SERAM, INDONESIA

No.	Date	Origin time UTC			Geographic Coordinates		Depth (km)	Epicentral distance		Magnitude		Region
		h	m	s	Latitude (deg)	Longitude (deg)		(deg)	ms	mb	ms	
651.	11 12	0	29	45.3	1.622 N	126.436 E	33	90.59	5.8	6.2	MOLUCCA SEA	
652.	11 12	1	54	24.5	39.960 S	74.761 W	30	60.73	5.5	5.1	OFF THE COAST OF CEN CHILE	
653.	11 12	8	26	44.4	33.319 N	136.893 E	396	123.64	6.3		NEAR S. COAST OF WESTERN HONSHU, JAPAN	
654.	11 12	16	2	44.4	28.384 N	139.688 E	429	120.15	4.8		BONIN ISLANDS, JAPAN REGION	
655.	11 12	17	29	29.3	20.844 S	178.985 W	600	86.08	4.8		FIJI REGION	
656.	11 13	2	49	2.1	54.206 S	143.609 E	10	45.21	5.5	5.7	WEST OF MACQUARIE ISLAND	
657.	11 13	5	41	26.0	7.017 S	104.260 E	33	74.76	5.0		SW OF SUMATRA, INDONESIA	
658.	11 14	4	28	33.0	16.812 S	172.318 E	10	88.00	5.7	5.7	VANUATU ISLANDS REGION	
659.	11 14	16	42	5.4	8.651 S	123.962 E	33	80.12	4.9		FLORES REGION, INDONESIA	
660.	11 14	18	43	50.8	36.393 N	141.062 E	39	127.89	5.7	5.1	NEAR THE EAST COAST OF HONSHU, JAPAN	
661.	11 15	0	24	6.9	1.794 N	127.556 E	33	91.15	5.0	1.0	HALMAHERA, INDONESIA	
662.	11 15	7	10	34.5	17.235 S	172.243 W	33	90.91	5.8	5.5	TONGA REGION	
663.	11 15	9	16	22.2	8.423 S	121.681 E	33	79.52	5.2	4.6	FLORES REGION, INDONESIA	
664.	11 16	0	39	49.8	53.059 N	171.032 E	33	152.92	5.0	4.3	NR ISL., ALEUTIAN ISL., ALASKA	
665.	11 16	23	34	2.8	50.508 N	150.616 E	449	143.55	4.5		NW OF THE KURIL ISLANDS	
666.	11 17	1	35	47.6	50.191 N	87.601 E	10	124.44	5.5	4.7	SOUTHWESTERN SIBERIA, RUSSIA	
667.	11 17	6	43	7.0	51.128 N	178.745 E	33	153.95	6.0	7.2	RAT ISLANDS, ALEUTIAN ISLANDS, ALASKA	
668.	11 17	7	12	42.2	51.328 N	177.584 E	33	153.74	5.3		RAT ISLANDS, ALEUTIAN ISLANDS, ALASKA	
669.	11 17	11	12	35.4	51.175 N	178.088 E	33	153.77	5.0		RAT ISLANDS, ALEUTIAN ISLANDS, ALASKA	
670.	11 17	23	0	48.7	31.330 S	68.646 W	33	66.88	4.8		SAN JUAN PROVINCE, ARGENTINA	
671.	11 18	2	12	22.1	51.253 N	178.037 E	33	153.82	5.5	5.0	RAT ISLANDS, ALEUTIAN ISLANDS, ALASKA	
672.	11 18	7	50	10.3	51.136 N	178.837 E	33	153.99	5.3	5.3	RAT ISLANDS, ALEUTIAN ISLANDS, ALASKA	
673.	11 18	11	55	0.9	51.272 N	178.145 E	33	153.88	5.4	4.8	RAT ISLANDS, ALEUTIAN ISLANDS, ALASKA	
674.	11 18	17	14	22.7	12.036 N	125.435 E	35	99.95	6.0	6.5	SAMAR, PHILIPPINES	
675.	11 20	2	1	25.3	24.367 S	179.793 W	481	82.48	5.4		SOUTH OF THE FIJI ISLANDS	
676.	11 20	12	24	32.3	10.015 S	111.082 E	10	74.28	5.2	5.6	SOUTH OF JAVA, INDONESIA	
677.	11 20	14	5	2.2	13.111 N	93.268 E	33	90.46	5.3	5.2	ANDAMAN ISLANDS, INDIA REGION	
678.	11 21	0	52	57.8	1.269 N	126.376 E	33	90.24	5.6		MOLUCCA SEA	
679.	11 21	8	46	56.0	21.060 S	178.798 W	579	85.91	4.5		FIJI REGION	
680.	11 22	9	30	3.3	13.268 N	57.395 E	10	83.30	5.1	3.8	OWEN FRACTURE ZONE REGION	
681.	11 22	11	24	33.2	13.348 N	57.278 E	10	83.37	5.2		OWEN FRACTURE ZONE REGION	
682.	11 23	16	38	50.5	6.121 S	130.404 E	127	84.79	4.9		BANDA SEA	
683.	11 23	18	6	4.8	15.766 S	173.906 W	97	92.05	5.1		TONGA	
684.	11 23	23	40	28.1	17.330 S	167.820 E	33	86.34	4.8		VANUATU ISLANDS	
685.	11 24	0	21	45.5	19.659 S	177.673 W	600	87.50	4.7		FIJI REGION	
686.	11 24	9	5	44.9	51.312 N	176.942 E	33	153.51	5.0	4.6	RAT ISLANDS, ALEUTIAN ISLANDS, ALASKA	
687.	11 24	12	18	15.2	42.314 N	142.903 E	60	133.80	5.0		HOKKAIDO, JAPAN REGION	
688.	11 24	14	54	17.2	4.242 S	152.704 E	33	94.27	5.8	5.6	NEW BRITAIN REGION, P.N.G.	
689.	11 24	23	53	57.3	7.541 S	106.256 E	33	94.27	5.2	5.0	JAVA, INDONESIA	
690.	11 25	4	43	38.1	23.096 S	67.458 W	161	74.94	5.4		CHILE-ARGENTINA BORDER REGION	
691.	11 25	20	19	46.2	5.539 S	150.838 E	33	74.17	6.1	6.4	NEW BRITAIN REGION, P.N.G.	
692.	11 26	7	13	21.9	17.796 S	178.764 W	572	92.43	4.8		FIJI REGION	
693.	11 26	7	42	31.0	1.954 S	75.761 W	184	89.10	5.3		PERU-ECUADOR BORDER REGION	
694.	11 26	10	57	52.3	29.830 S	71.094 W	63	96.79	5.2		NEAR THE COAST OF CENTRAL CHILE	
695.	11 27	10	34	56.2	3.141 S	127.240 E	33	69.05	5.5	5.2	SERAM, INDONESIA	
696.	11 27	15	52	40.7	22.841 S	68.459 W	106	153.55	4.4		NORTHERN CHILE	
697.	11 28	12	38	35.0	51.571 N	178.776 E	33	74.73	4.9		RAT ISLANDS, ALEUTIAN ISLANDS, ALASKA	
698.	11 28	19	0	3.3	19.846 S	178.198 W	575	87.26	4.9		FIJI REGION	
699.	11 29	9	30	48.7	37.880 S	177.540 E	48	68.81	4.7		OFF EAST COAST OF THE NORTH ISLAND, N.Z.	
700.	11 29	15	31	45.1	18.111 S	178.383 W	633	88.96	4.4		FIJI REGION	

No.	Date	Origin time UTC			Geographic Coordinates		Depth (km)	Epicentral distance (deg)	Magnitude		Region
		h	m	s	Latitude (deg)	Longitude (deg)			mb	ms	
701.	11 29	16	48	4.3	41.709 S	84.155 W	10	61.65	5.1	4.8	WEST CHILE RISE
702.	11 29	20	17	11.1	4.033 N	126.432 E	33	92.81	5.0		KEPULAUAN TALAUD, INDONESIA
703.	11 30	8	10	4.4	24.373 S	179.861 E	496	82.39	4.7		SOUTH OF THE FIJI ISLANDS
704.	12 1	1	38	31.9	42.905 N	80.515 E	10	116.02	6.0	5.9	KAZAKHSTAN-XINJIANG BORDER REGION
705.	12 1	10	34	54.3	18.294 S	177.994 W	558	88.68	4.9		FIJI REGION
706.	12 1	12	36	24.2	1.358 S	123.822 E	33	86.91	5.0		SULAWESI, INDONESIA
707.	12 1	16	32	5.9	24.070 S	179.885 E	543	82.54	4.7		SOUTH OF THE FIJI ISLANDS
708.	12 1	17	19	43.8	17.805 S	167.487 E	33	85.76	4.9		VANUATU
709.	12 2	0	18	22.5	22.154 S	68.072 W	120	75.27	5.1		ANTOFAGASTA, CHILE
710.	12 2	7	58	37.1	36.168 S	100.248 W	10	70.67	4.6	4.4	SOUTHEAST OF EASTER ISLAND
711.	12 2	13	56	58.9	21.953 S	179.591 W	606	84.81	4.7		FIJI REGION
712.	12 3	0	34	50.1	17.122 S	167.222 E	33	86.34	4.8		VANUATU
713.	12 3	7	33	57.3	20.842 S	178.723 W	612	86.20	5.1		FIJI REGION
714.	12 3	9	29	28.9	7.178 S	128.880 E	33	83.03	4.7		KEPULAUAN BARAT DAYA, INDONESIA
715.	12 3	12	4	4.2	6.959 S	106.274 E	33	75.56	5.1	4.8	JAVA, INDONESIA
716.	12 3	19	32	0.0	13.199 S	167.120 E	192	90.06	4.3		VANUATU
717.	12 4	3	56	20.9	18.829 S	174.722 W	139	88.97	4.9		TONGA
718.	12 4	6	53	24.3	6.010 N	126.716 E	100	94.88	4.9		MINDANAO, PHILIPPINES
719.	12 5	0	27	22.8	26.118 S	179.268 E	509	80.57	5.0		SOUTH OF THE FIJI ISLANDS
720.	12 5	16	45	4.0	22.856 S	175.323 W	33	84.82	5.1	4.4	TONGA REGION
721.	12 5	20	3	22.8	5.937 S	149.745 E	57	91.70	5.1	5.0	NEW BRITAIN REGION, P.N.G.
722.	12 5	21	26	9.4	55.538 N	165.780 E	10	152.98	6.1	6.5	KOMANDORSKIYE OSTROVA, RUSSIA REGION
723.	12 5	23	41	27.4	8.137 S	120.524 E	33	79.38	5.4	4.9	FLORES REGION, INDONESIA
724.	12 6	0	56	3.6	11.592 S	166.281 E	33	91.42	5.1	5.2	SANTA CRUZ ISLANDS
725.	12 7	0	11	2.2	5.400 S	35.415 E	10	63.65	4.9		TANZANIA
726.	12 7	0	49	55.5	20.125 S	173.847 W	33	87.83	4.8	4.1	TONGA
727.	12 7	20	20	54.7	19.886 N	95.952 E	10	97.66	5.1		MYANMAR
728.	12 7	23	39	48.5	54.652 S	119.035 W	10	55.31	4.8	4.6	SOUTHERN EAST PACIFIC RISE
729.	12 8	16	50	20.9	17.198 S	172.279 W	33	90.93	5.0	4.5	TONGA REGION
730.	12 8	20	12	34.7	51.090 N	178.261 E	33	153.80	5.3	5.2	RAT ISLANDS, ALEUTIAN ISLANDS, ALASKA
731.	12 8	20	27	5.4	55.689 N	165.220 E	10	152.95	5.1	5.0	KOMANDORSKIYE OSTROVA, RUSSIA REGION
732.	12 9	12	44	1.6	51.334 N	179.272 W	33	154.90	5.9	5.8	ANDREANOF ISLANDS, ALEUTIAN IS., ALASKA
733.	12 10	4	38	11.5	23.039 N	121.362 E	10	108.76	6.0	6.7	TAIWAN
734.	12 10	9	42	25.4	50.030 S	114.887 W	10	59.40	4.7	5.1	SOUTHERN EAST PACIFIC RISE
735.	12 10	12	25	51.5	27.961 S	71.322 W	33	70.93	5.5	5.4	OFFSHORE ATACAMA, CHILE
736.	12 10	13	19	9.5	5.398 S	131.071 E	95	85.69	5.0		BANDA SEA
737.	12 10	14	57	53.0	21.435 S	179.303 W	600	85.54	4.6		FIJI REGION
738.	12 10	17	33	37.1	5.734 S	148.731 E	142	91.41	4.6		NEW BRITAIN REGION, PAPUA NEW GUINEA
739.	12 10	22	58	58.4	23.810 S	66.370 W	214	73.41	4.0		SALTA, ARGENTINA
740.	12 11	8	4	55.2	16.547 S	170.175 W	10	91.95	5.6	4.8	SAMOA ISLANDS REGION
741.	12 11	15	7	48.3	7.373 S	128.502 E	130	82.98	4.6		KEPULAUAN BARAT DAYA, INDONESIA
742.	12 12	3	10	48.4	1.062 S	126.991 E	33	88.31	5.4	5.4	KEPULAUAN SULA, INDONESIA
743.	12 12	6	1	9.9	17.199 S	167.123 E	33	86.24	5.1		VANUATU
744.	12 12	6	57	47.2	21.042 S	68.179 W	117	76.32	5.2		POTOSI, BOLIVIA
745.	12 12	7	26	14.6	17.053 S	167.084 E	33	86.27	4.8		VANUATU
746.	12 12	7	38	55.8	5.485 S	154.126 E	165	93.58	5.0		BOUGAINVILLE REGION, P.N.G.
747.	12 12	8	7	30.7	0.110 S	123.991 E	93	88.11	5.0		SULAWESI, INDONESIA
748.	12 13	12	21	8.5	21.642 S	179.349 W	610	85.26	4.9		FIJI REGION
749.	12 16	20	8	18.7	18.905 S	177.342 W	382	88.32	5.3		FIJI REGION
750.	12 17	4	21	5.2	58.305 S	139.754 W	10	52.68	5.0		PACIFIC-ANTARCTIC RIDGE

No.	Date	Origin time UTC			Geographic Coordinates		Depth (km)	Epicentral distance (deg)	Magnitude		Region
		h	m	s	Latitude (deg)	Longitude (deg)			mb	ms	
751.	12 17	12	7	8.4	14.160 S	167.062 E	187	89.17	4.5		VANUATU
752.	12 18	5	41	57.6	6.347 S	151.384 E	54	91.90	5.4		NEW BRITAIN REGION, PAPUA NEW GUINEA
753.	12 18	21	46	2.3	7.170 S	129.727 E	30	83.60	5.1		KEPULAUAN BABAR, INDONESIA
754.	12 19	0	11	58.2	19.852 N	95.698 E	10	97.58	5.6	4.9	MYANMAR
755.	12 19	13	3	43.6	5.559 S	102.810 E	33	75.67	5.1	5.2	SOUTHERN SUMATRA, INDONESIA
756.	12 19	14	12	17.9	16.703 S	172.349 E	33	88.03	5.1	4.8	VANUATU REGION
757.	12 21	7	40	45.8	0.769 S	20.601 W	10	78.84	5.5	5.8	CENTRAL MID-ATLANTIC RIDGE
758.	12 22	1	54	39.0	31.824 S	69.423 W	75	66.65	5.1		SAN JUAN, ARGENTINA
759.	12 22	19	15	56.0	35.706 N	121.102 W	8	144.93	6.1	6.4	CENTRAL CALIFORNIA
760.	12 23	5	58	37.1	0.696 S	20.330 W	10	78.82	5.6	5.3	CENTRAL MID-ATLANTIC RIDGE
761.	12 23	13	5	48.4	22.682 S	175.241 W	33	85.05	5.1		TONGA REGION
762.	12 23	18	17	11.0	35.654 N	121.045 W	7	144.87	5.1	4.5	CENTRAL CALIFORNIA
763.	12 24	11	33	4.3	5.801 S	102.028 E	10	75.29	5.4	5.3	SOUTHERN SUMATRA, INDONESIA
764.	12 25	3	8	43.5	18.307 S	177.976 W	600	88.77	4.7		FIJI REGION
765.	12 25	7	11	11.5	8.416 N	82.824 W	33	108.87	6.0	6.4	PANAMA-COSTA RICA BORDER REGION
766.	12 25	14	21	14.9	34.954 S	178.249 W	35	72.24	5.7	5.8	SOUTH OF THE KERMADEC ISLANDS
767.	12 25	20	42	33.7	22.252 S	169.488 E	10	82.03	6.3	6.3	SOUTHEAST OF THE LOYALTY ISLANDS
768.	12 25	23	9	43.4	22.305 S	169.531 E	10	81.92	5.8	5.5	SOUTHEAST OF THE LOYALTY ISLANDS
769.	12 26	1	56	52.4	28.995 N	58.311 E	10	99.03	6.0	6.8	SOUTHEASTERN IRAN
770.	12 26	4	28	27.4	20.170 S	177.972 W	500	86.89	4.5		FIJI REGION
771.	12 26	15	11	16.8	6.383 S	129.986 E	111	84.41	4.6		BANDA SEA
772.	12 26	20	54	12.1	22.251 S	169.485 E	10	82.00	5.3		SOUTHEAST OF THE LOYALTY ISLANDS
773.	12 26	21	26	4.1	22.273 S	169.314 E	10	81.94	6.1	6.8	SOUTHEAST OF THE LOYALTY ISLANDS
774.	12 27	4	55	25.4	22.107 S	169.350 E	10	82.11	5.9	5.9	SOUTHEAST OF THE LOYALTY ISLANDS
775.	12 27	16	0	59.4	22.015 S	169.766 E	10	82.30	6.1	7.1	SOUTHEAST OF THE LOYALTY ISLANDS
776.	12 27	22	38	1.8	21.672 S	169.835 E	10	82.58	5.8	6.7	SOUTHEAST OF THE LOYALTY ISLANDS
777.	12 28	5	36	54.8	0.599 N	122.350 E	75	88.32	5.4		MINAHASA, SULAWESI, INDONESIA
778.	12 28	5	45	34.0	24.127 S	66.889 W	185	73.13	4.7		SALTA, ARGENTINA
779.	12 28	7	14	30.1	9.677 S	71.237 W	607	88.00	4.8		PERU-BRAZIL BORDER REGION
780.	12 29	1	30	54.7	42.423 N	144.613 E	33	134.52	5.7	5.9	HOKKAIDO, JAPAN REGION
781.	12 29	6	40	27.2	22.089 S	169.828 E	10	82.36	5.4	5.0	SOUTHEAST OF THE LOYALTY ISLANDS
782.	12 29	11	48	45.8	22.459 S	169.622 E	27	81.82	5.8	5.2	SOUTHEAST OF THE LOYALTY ISLANDS
783.	12 30	9	50	44.2	47.053 N	154.187 E	33	141.98	5.7	5.6	KURIL ISLANDS