

SEISMOLOGICAL BULLETIN OF SYOWA STATION, ANTARCTICA, 2009

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1. Introduction

Seismic observations at Syowa Station (69.0°S, 39.6°E), East Antarctica, began in 1959 using a short-period seismometer with a natural period of 1.0 s (Eto, 1962). In 1967, a long-period seismograph was installed, and phase readings of teleseismic events (i.e., the detection of arrival times and amplitudes for significant seismic phases) were reported in near real-time to the United States Geological Survey (USGS) and to the International Seismological Centre (ISC) (Kaminuma *et al.*, 1968). A three-component broadband seismometer (STS-1; Wielandt and Steim, 1986) was installed in 1989, in order to contribute to the Federation of Digital broadband Seismograph Networks (FDSN; <http://www.fdsn.org>), together with other key stations of the PACIFIC21 Japanese regional network. Figure 1 shows the present-day distribution of FDSN stations in Antarctica.

During 2009, all of the observation systems at Syowa Station were maintained by one of the present authors (Y. Murakami) throughout the wintering season of the 50th Japanese Antarctic Research Expedition (JARE-50). In this report, we introduce the seismic

observations made in 2009, and provide scaled read-out travel-time data and a list of detected teleseismic earthquakes. We also provide information on public access to these data via the Internet.

2. Observations

The original seismic observation systems at Syowa Station were replaced by the current stations by one of the present authors (M. Kanao) in 1997 (Kanao, 1999). Fig. 2 shows a block diagram of the current recording system.

2.1. Seismographic hut and seismographs

Seismic observations at Syowa Station have generally been carried out using two types of seismometers. The first is a short-period seismometer (HES) with a 1.0-Hz eigenfrequency of the pendulum, which has been operated since 1967 (Kaminuma *et al.*, 1968). The overall frequency responses and the magnifications of the HES seismographs (Hagiwara, 1958) are shown in Fig. 3. The second is a three-component broadband seismometer (Streckeisen STS-1) with a digital recording system, which has been operating since 1990 (Nagasaka *et al.*, 1992). For this seismometer, the amplitude and phase responses for the velocity output (Broadband; BRB) are shown in Fig. 4 (after Streckeisen and Messergeraete, 1987).

The current seismographic hut was built in 1996, and all of the sensors were moved into the hut in 1997. The new hut is located about 200 m north of the old vault, at WGS84 geodetic coordinates of 69°00'24.0"S, 39°35'06.0"E (20 m above mean sea level). Because the long-period output signals from the broadband seismographs may be affected by variations in temperature and atmospheric conditions, the seismometers were installed in a small, thermally insulated room in the hut. The entire outside surface of the hut is covered by titanium to maintain a constant temperature.

Seismic signals from the HES and STS-1 are transmitted to the Earth Science Laboratory (ESL) via analog cables (600 m in length) through the main buildings of Syowa Station.

2.2. Acquisition system at the Earth Science Laboratory

The three-component analogue output of HES was digitized at a sampling frequency of 200 Hz by a 24-bit analog-to-digital (A/D) converter, generating triggered signals of 80-Hz and 1-Hz re-sampling data and 20-Hz continuous outputs. The signals of the three-component broadband STS-1 were also digitized to create triggered output of 80-Hz re-sampling data and continuous outputs of 20-, 1-, 0.1-, and 0.01-Hz data. All the waveform data were formatted as a Mini_SEED volume, which is a standard format for data exchange in global seismology. The digitized data were automatically transmitted from the A/D converter to a workstation via TCP/IP protocol. All data were stored on the 40-GB hard disk of the workstation, and then copied onto DAT or 8-mm tape at 3-month intervals. The recording status of the A/D converter was continuously monitored by a personal computer via an RS-232C serial port.

Remote-centering of the mass position for the STS-1 sensors can be carried out by keyboard commands from the computer using 'Kermit' communication software. The reference clock for the new system has been calibrated to Universal Time Coordinated (UTC) by detecting time codes by GPS. Long-term analog-recorders for the HES and BRB output of the STS-1 are operated to monitor at ESL. The boom-POSITION output (POS) of the STS-1 seismograph is monitored by an RD2212-type analogue recorder, as is the temperature in the sensor room.

2.3. Data transmission via INTELSAT

Since 1993, the digital waveforms of both broadband and short-period seismographs have been transmitted from Syowa Station to the National Institute of Polar Research (NIPR) via an INMARSAT telecommunication link. Waveform data transmission was greatly improved by using an INTELSAT communication link, established in February 2004. During the 2009 winter season, continuous data of both HES and STS-1 (sampling frequency of 20 Hz) were automatically transmitted to NIPR once a day from the acquisition workstation, using the UUCP protocol for data transfer.

In addition to remote monitoring of the data acquisition system from NIPR, Internet access to the Syowa facilities has improved markedly since 2005, with the development of the INTELSAT system. Moreover, a Web camera, employing the Station LAN, was installed inside ESL, followed by improved monitoring of the analogue recorders during periods when it is not possible to access the ESL due to bad weather.

3. Data

By using the waveform data transmitted via INTELSAT, arrival-time information of major seismic phases (herein termed ‘read-out data’) is regularly sent from NIPR to USGS/NEIC (National Earthquake Information Center) via email, to contribute to the weekly and monthly Preliminary Determination for Epicenters (PDE) bulletins. The Quick Earthquake Determination (QED) services offered by NEIC are used to identify the seismograms of teleseismic events. This report lists the arrival-time data and corresponding hypocentral data of teleseismic events recorded during 2009. The phase arrival-times of teleseismic events are detected on short-period digital monitoring seismograms. Most phases were scaled on the vertical component; 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 time within a 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 a time difference of 3 s by comparing the observed travel-time with the calculated time. *X* denotes a clear phase whose wave type can be identified but for which the observed travel time was within 3–10 s of the calculated time. The symbols *E* and *I* in the phase column denote emergent and sharp onsets, respectively. The initial ground motion is denoted by + for upward motion and by - for downward motion. Arrival time is given in UTC and the accuracy of the read-out data is 0.2 s. The teleseismic events identified in the PDE are indicated by serial numbers (#-xxx) in the table. These serial

numbers correspond to those in Table 2. Events without serial numbers are teleseisms whose locations have not been determined by NEIC.

Table 2 provides a list of hypocentral parameters for individual teleseismic events, identified by the same serial numbers as those given in the remarks in Table 1. Figure 5 shows the hypocenters of the teleseismic events whose initial phases were detected at Syowa Station.

4. Publication

The seismic waveform data, which are continuously transmitted to NIPR and stored in the data library server, are accessible upon request via the Internet and/or by UNIX-formatted media (CD-R, DAT, etc.). The present authors hereby grant permission for the use of these data in scientific publications. All kinds of archived seismic data (e.g., arrival times, hypocenters, analog and digital waveform data, and related document reports) recorded at Syowa Station have been accumulated and are available from the data library server (POLARIS; URL: <http://polaris.nipr.ac.jp/~pseis/syowa>). These data can be accessed by using the 'ftp' command with a password. If you are interested in using these data for scientific research, please contact kanao@nipr.ac.jp for information on availability of the data.

Archived data (i.e., data collected more than 2 years ago) are stored and are freely available from both the NIPR ftp site and from the PACIFIC21 center of the Japan Marine Science and Technology Agency. Any questions concerning data availability from PACIFIC21 should be directed to y-ishihara@jamstec.go.jp.

5. Data-Processing Staff

The seismic observation system at Syowa Station was designed by M. Kanao and K. Shibuya of NIPR. The authors express their sincere thanks to Ms. A. Ibaraki of NIPR for her efforts in scaling the seismic data. Information on data access is available at <http://polaris.nipr.ac.jp/~pseis/syowa>.

References

- Eto, T. (1962): On the electromagnetic seismographs at Syowa Base, Antarctica. *Nankyoku Shiryô* (Antarct. Rec.), **14**, 1168–1170. (in Japanese with English abstract).
- Hagiwara, T. (1958): A note on the theory of the electromagnetic seismograph. *B. Earthquake Res. Inst.*, **36**, 139-164. <http://hdl.handle.net/2261/11911>.
- Kaminuma, K., Eto, T. and Yoshida, M. (1968): Seismological observation at Syowa Station, Antarctica. *Nankyoku Shiryô* (Antarct. Rec.), **33**, 65-70 (in Japanese with English abstract).
- Kanao, M. (1999): Seismological bulletin of Syowa Station, Antarctica, 1997. *JARE Data Rep.*, **236** (Seismology **33**), 65 p.
- Nagasaka, K., Kaminuma, K. and Shibuya, K. (1992): Seismological observations by a three-component broadband digital seismograph at Syowa Station, Antarctica. *Recent Progress in Antarctic Earth Science*, ed. by Y. Yoshida *et al.* Tokyo, Terra Sci. Publ., 595–601. (TERRAPUB e-Library) <http://www.terrapub.co.jp/e-library/aes/pdf/RP0595.PDF>.
- Streckeisen, G. and Messegueaete, A. G. (1987): Very-broad-band Feedback Seismometers STS-1V/VBB and STS-1H/VBB Manual. 34–35.
- Wielandt, E. and Steim, J. M. (1986): A digital very-broad-band seismograph. *Ann. Geophys.*, **4**, Ser. B, 227–232.

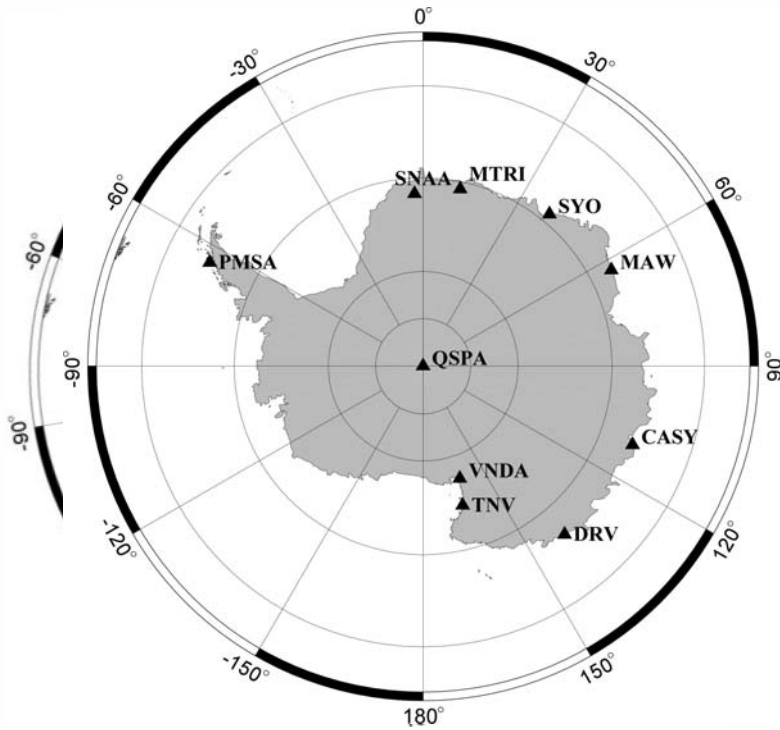


Fig. 1. Distribution of FDSN stations on the Antarctic continent in 2011. Abbreviations are as follows: Syowa (SYO), Mawson (MAW), Casey (CASY), Dumont d'Urville (DRV), Terra Nova Bay (TNV), Vanda (VNDA), South Pole (QSPA), Palmer (PMSA), Sanae (SNAA), and Maitri (MTRI).

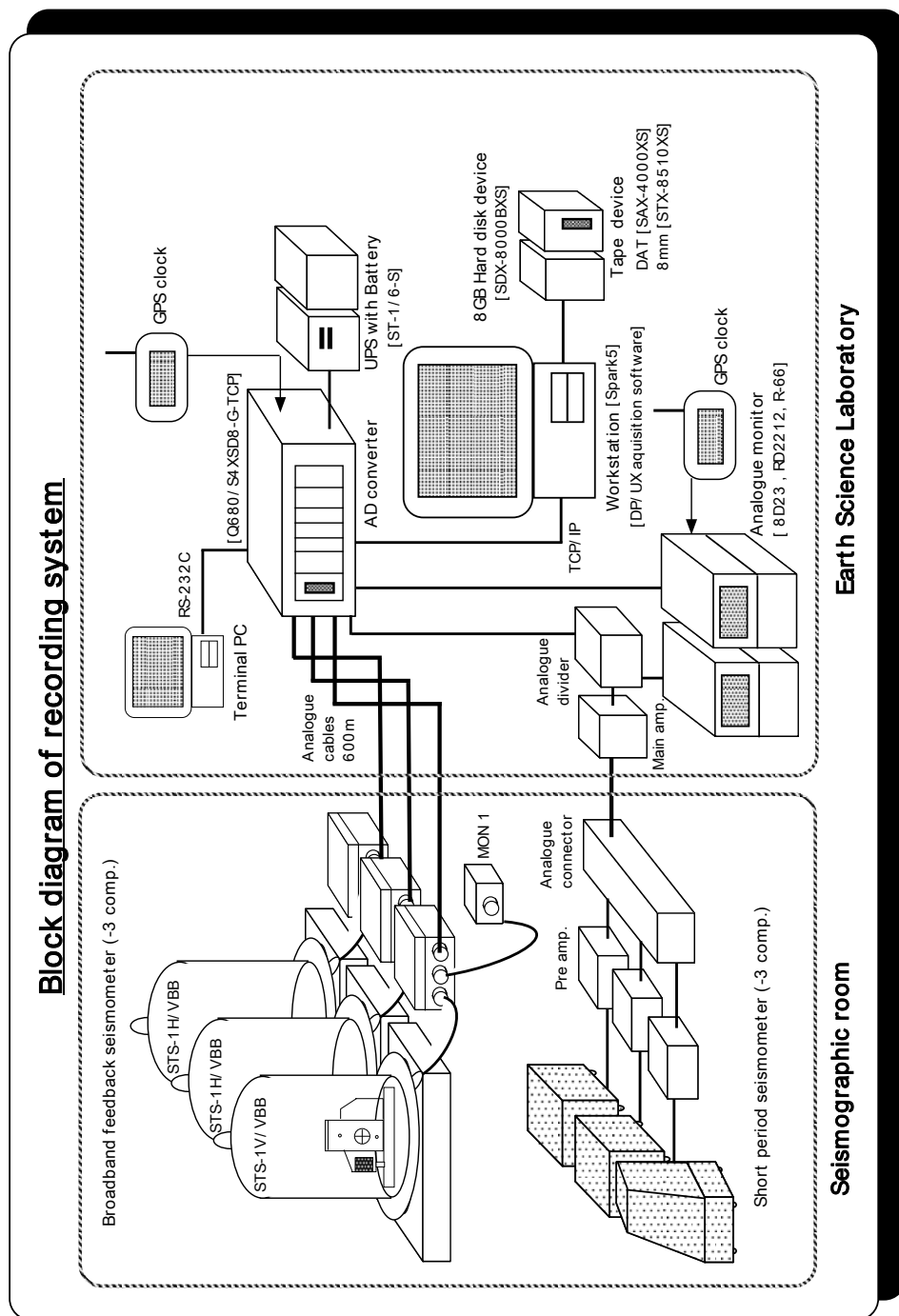


Fig. 2. Block diagram of the new recording system for the STS and HES seismographs at Syowa Station.
 Left : Seismographic room; Right: Earth Science Laboratory.

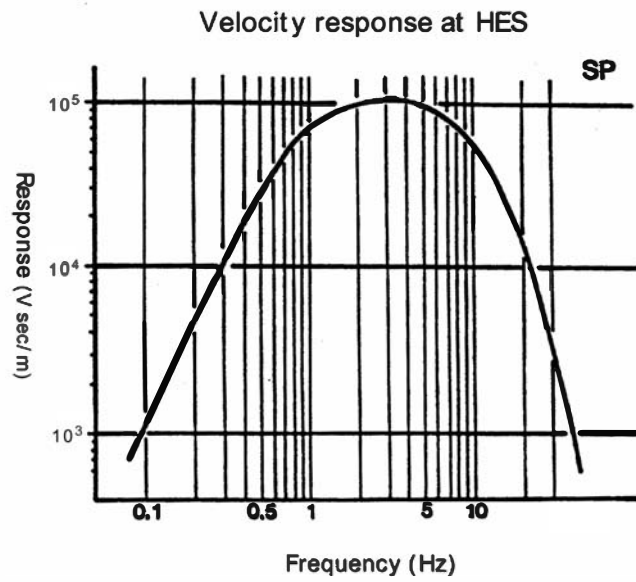


Fig. 3. Overall frequency responses of the HES seismographs (modified after Hagiwara, 1958).

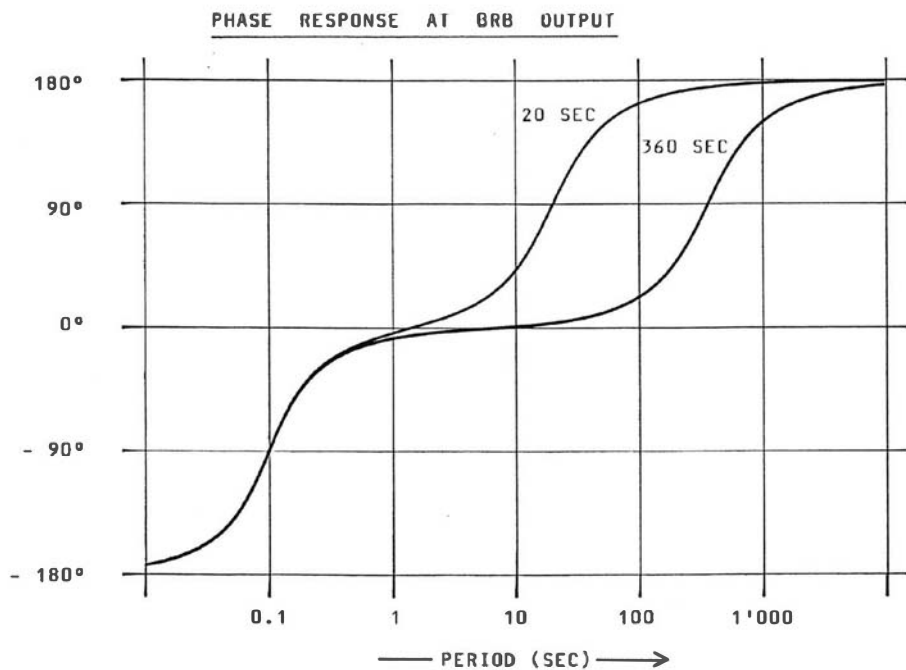
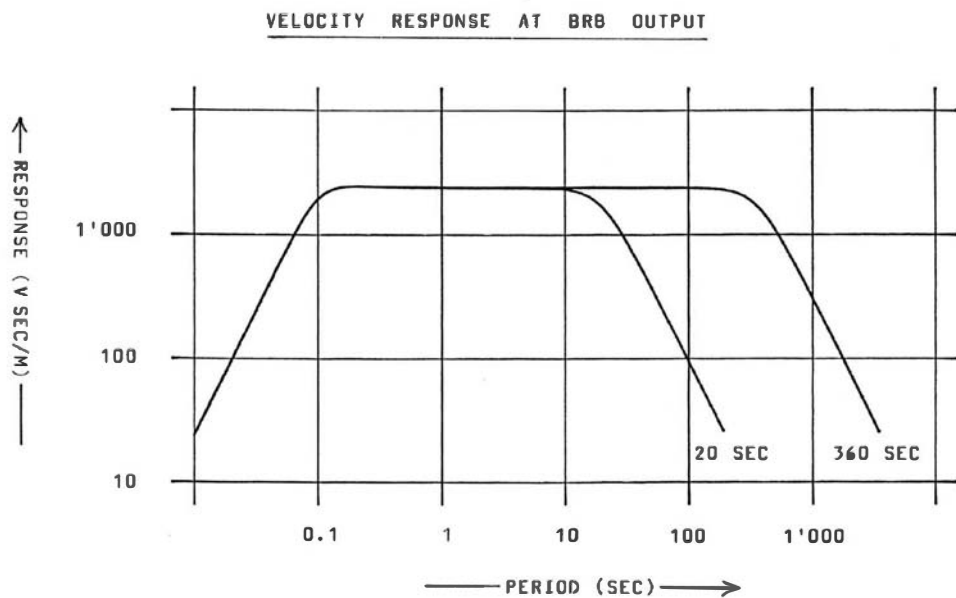


Fig. 4. Amplitude responses (upper) and phase responses (lower) for the velocity (BRB) output of a broadband seismograph (STS) in two distinct signal modes: 20 s and 360 s (after Streckeisen and Messegeraete, 1987).

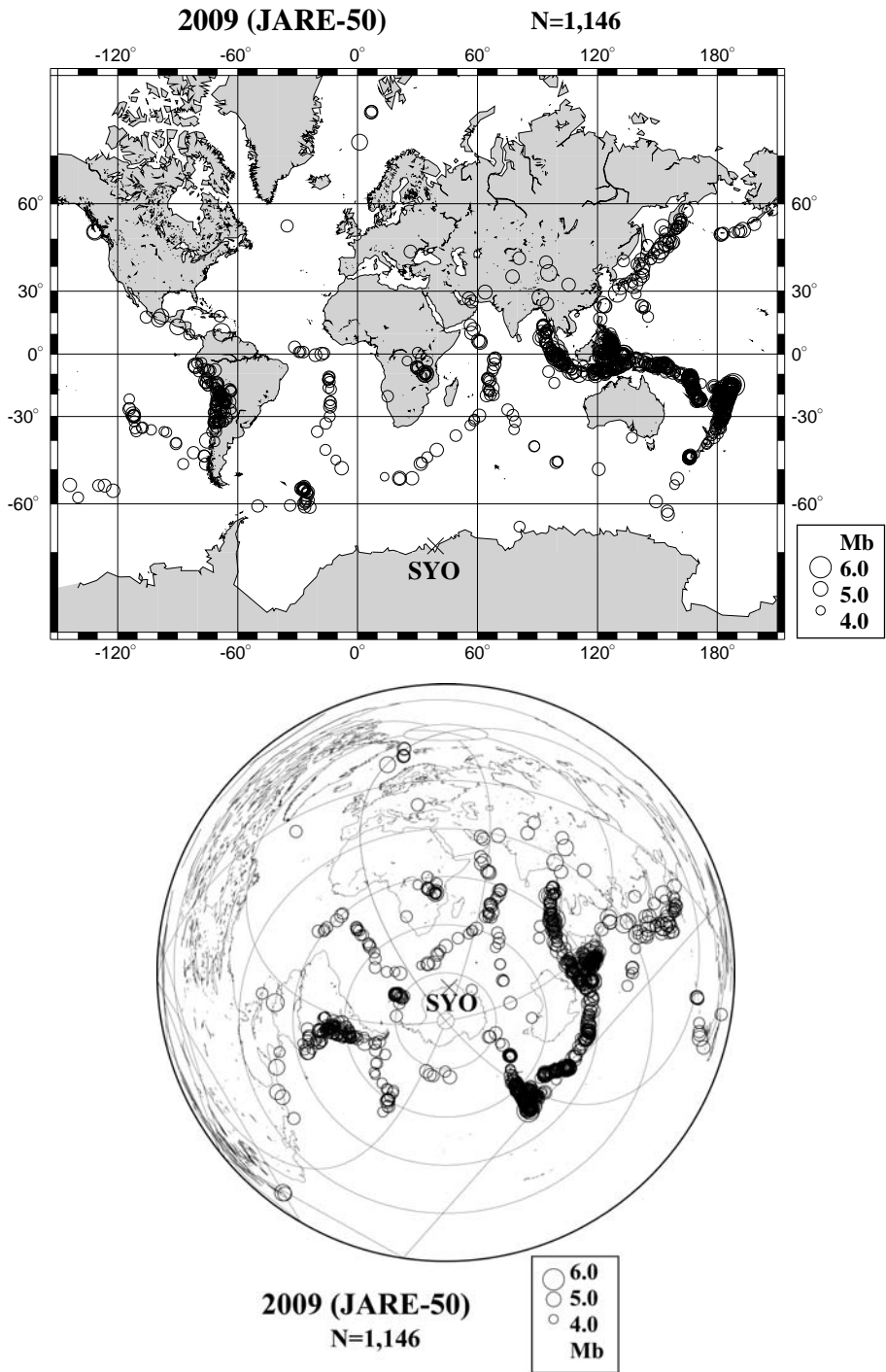


Fig. 5. Epicenters of the 1,146 earthquakes recorded at Syowa Station during 2009. The radii of the circles are proportional to the body-wave magnitude (Mb) determined by the National Earthquake Information Center (NEIC) (upper: Mercator Projection, lower: Azimuthal Equidistant Projection).

Table1. List of phase arrival-time data in 2009.

Date	Phase	Time H M S	Remarks	Date	Phase	Time H M S	Remarks
Jan.				3	−ESH	2009 12.0	
1	−EPZ	0314 04.6		3	+EPZ	2032 19.8	#-14
1	−EPZ	0354 26.0		3	+EpPZ	2033 01.6	#-14
1	+EPZ	0544 23.6		3	−EPZ	2052 49.6	
1	−EPZ	0639 21.5	#-1	3	+IPZ	2124 58.6	#-15
1	+EPZ	0850 01.3		3	−IXZ	2125 01.4	#-15
1	−EPZ	1002 24.8		3	−ESH	2133 10.0	#-15
1	−EPZ	1048 21.2	#-2	3	−EPZ	2202 30.8	
1	+EPZ	1126 16.6		3	+EPZ	2220 46.0	
1	+EPZ	1427 34.3		3	−EPcPZ	2236 49.6	#-16
1	+EPZ	1709 21.8		3	+EPZ	2246 39.6	#-17
1	+EPZ	1709 39.6	#-3	3	+EPZ	2312 42.2	
1	+EPKiKPZ	1715 24.6	#-3	4	+EXZ	0018 09.4	#-18
1	+EPZ	1849 09.0	#-4	4	+EXZ	0108 33.4	#-19
2	+EPZ	0518 30.0		4	−EPcPZ	0208 28.8	#-20
2	+EPZ	0755 00.8		4	−EPZ	0557 02.4	#-21
2	+EPZ	0904 09.7	#-5	4	−EPZ	0642 18.0	
2	+EPZ	1056 03.7		4	+EXZ	0726 56.2	#-22
2	−EXZ	1438 34.5	#-6	4	+EPZ	0818 12.0	
2	+EpPZ	2026 54.2	#-7	4	+EPZ	1142 04.3	
2	+EXZ	2050 10.2	#-8	4	+EPZ	1205 35.0	
2	+EPZ	2056 35.6		4	+EPKiKPZ	1601 13.0	#-23
3	+EPZ	0332 36.4	#-9	4	+EPZ	1703 11.3	
3	+EPZ	0835 17.8	#-10	4	+EPZ	1755 49.5	#-24
3	−EPcPZ	0835 21.6	#-10	4	+EpPZ	1755 52.4	#-24
3	−EPZ	1107 31.2		4	+EPZ	2031 07.6	
3	−EPZ	1137 33.0		4	+IPZ	2035 22.8	#-25
3	−IPZ	1642 55.4	#-11	4	+IPZ	2103 55.1	#-26
3	−EPcPZ	1643 01.0	#-11	4	+EPZ	2342 16.4	
3	−IPZ	1702 14.4	#-12	5	+EPZ	0146 08.6	
3	−EPZ	1746 11.8		5	+EPZ	0242 04.4	
3	+EPZ	1956 51.4	#-13	5	−EPZ	0328 00.6	
3	−IpPZ	1956 56.8	#-13	5	+EPZ	0442 03.4	

Table 1. Continued.

Date	Phase	Time H M S	Remarks	Date	Phase	Time H M S	Remarks
5	+EPZ	1116 05.4		7	+EPZ	2307 30.2	
5	+EPZ	1116 07.2		7	+EPZ	2351 47.4	#-35
5	+EPZ	1215 13.6		8	+EPZ	0435 16.8	
5	−EPcPZ	1706 42.0	#-27	8	+EPZ	0916 13.6	
5	+IPZ	1937 01.5	#-28	8	−EPZ	0933 34.2	
5	+EPZ	2114 21.6		8	+EPZ	1340 41.0	
5	+EPZ	2114 25.0		8	+EPZ	1631 51.4	#-36
5	+EPZ	2239 17.0	#-29	8	+EsPZ	2200 42.2	#-37
5	−EPcPZ	2239 25.0	#-29	8	+EPZ	2251 40.0	
6	+EPZ	0007 09.4		8	−IPZ	2251 49.2	
6	+EPZ	0033 42.8		9	+EPZ	0023 22.7	
6	+EPZ	0122 45.3		9	+EPZ	0205 00.6	
6	+EPZ	0256 03.8		9	−EPZ	0356 48.2	#-38
6	+EPZ	2004 31.0		9	+EPPZ	0359 50.7	#-38
6	+EPZ	2009 26.0	#-30	9	+EPZ	0423 20.6	
6	+EPZ	2143 20.3		9	−EPZ	0612 30.2	
6	−IPZ	2301 28.5		9	−EPZ	0612 35.7	
6	−ESH	2312 31.6		9	+EPZ	0640 04.8	#-39
6	−EPZ	2320 01.3		9	+EPZ	0752 47.0	
7	+EPZ	0122 18.3		9	+EXZ	0858 45.8	#-40
7	+IPZ	0356 59.2	#-31	9	+EPZ	1428 37.6	
7	+EPcPZ	0356 02.1	#-31	9	+IPZ	1825 52.0	#-41
7	+EPZ	0455 54.4	#-32	9	+EPcPZ	1825 55.0	#-41
7	+EPZ	0508 19.2		9	+EPZ	1845 09.0	
7	−EPZ	0600 50.4		9	+EPZ	1928 35.8	
7	+EPZ	0757 10.6		9	+IPZ	2255 14.0	#-42
7	+EPZ	0851 53.0	#-33	9	+EpPZ	2255 19.6	#-42
7	+EPZ	0900 35.8		10	+EPZ	0751 11.2	
7	+EPZ	1129 55.6		10	−EPZ	0820 00.6	
7	+IPZ	1637 05.2	#-34	10	+EPZ	1204 24.4	#-43
7	−EPcPZ	1637 08.6	#-34	10	−EPZ	2145 50.4	
7	+EPZ	2057 22.6		11	−EPZ	0424 22.0	
7	−EPZ	2307 29.2		11	+EPZ	0520 39.9	

Table 1. Continued.

Date	Phase	Time H M S	Remarks	Date	Phase	Time H M S	Remarks
11	+EPZ	0538 04.4	#-44	14	−EPZ	1121 16.8	#-52
11	+EPZ	0902 23.2		14	+EXZ	1121 23.2	#-52
11	+IPZ	1121 11.7		14	+EXZ	1535 00.2	#-53
11	+EXZ	1606 34.6	#-45	14	+EPZ	1627 15.8	
11	+EPZ	1841 19.4	#-46	15	+EPZ	0739 36.7	#-54
11	−EpPZ	1841 22.4	#-46	15	+EsPZ	0739 50.2	#-54
11	+EPZ	2159 10.4		15	−EPZ	0828 04.9	
11	−EPZ	2346 02.8		15	+EPZ	0828 08.2	
12	−EPZ	0250 26.0		15	+EPZ	0844 07.8	
12	−EXZ	2226 30.0	#-47	15	+EPZ	1204 00.4	
12	−EPZ	2304 02.0		15	−EPZ	1204 05.0	
13	+EPZ	0114 36.2	#-48	15	+EsPZ	1315 01.6	#-55
13	+EPZ	0210 22.2		15	+EPZ	1441 08.0	
13	−EPZ	0802 33.3	#-49	15	+EPZ	1627 51.6	#-56
13	+EPZ	0852 18.6		15	+EPcPZ	1627 53.0	#-56
13	+EPZ	1050 48.0		15	+EPZ	1806 07.9	
13	−EPcPZ	1050 50.6		15	−EPZ	1809 57.2	
13	+EpPZ	1051 00.5		15	+EPZ	1949 01.2	
13	−EPZ	1728 15.0	#-50	16	−EPZ	0006 02.2	
13	+EpPZ	1728 30.3	#-50	16	−EPZ	0348 36.8	
13	+EPZ	1750 37.3		16	−EPZ	0506 02.6	
13	−EPZ	1825 12.4		16	+EPZ	0749 29.6	
13	−EPZ	1844 32.2		16	+EPZ	1413 01.0	
13	+EPZ	2105 20.3		16	+EPZ	1413 21.6	
13	−EPZ	2117 03.4		16	+EPZ	1510 16.8	
13	+EPZ	2143 19.3		16	−EPZ	1936 09.4	
13	+EPZ	2258 29.2		16	+EPZ	1936 14.0	
13	−EPZ	2340 17.8		16	−EPZ	2007 40.0	#-57
14	−EPZ	0209 25.4		16	+EPZ	2013 37.8	
14	+EPZ	0501 50.6	#-51	16	+EPZ	2221 11.0	
14	+EPZ	0834 38.2		16	+EpPZ	2315 31.4	#-58
14	−EPZ	1034 10.0		17	−EPZ	0037 35.6	
14	+EPZ	1034 13.0		17	+EPZ	0207 46.0	

Table 1. Continued.

Date	Phase	Time H M S	Remarks	Date	Phase	Time H M S	Remarks
17	+EPZ	0311 10.4		19	−EPZ	1740 51.0	
17	+EsPZ	0523 00.0	#-59	19	−EPZ	1742 22.0	#-69
17	−EPcPZ	0526 10.2	#-59	19	+EPZ	2239 10.8	
17	+EPZ	0641 17.6		19	+EPZ	2239 21.8	
17	−EXZ	0727 19.8	#-60	20	−EPZ	0011 12.6	
17	+EPZ	0818 23.2		20	+EPZ	0303 28.8	
17	−EXZ	0857 37.6	#-61	20	+EPZ	0925 03.2	
17	−EPZ	0942 42.0		20	+EXZ	1059 13.8	#-70
17	+EPZ	1320 08.0		20	−ESH	1109 30.6	#-70
17	−EPZ	1821 25.4		20	+EPZ	1207 29.0	
17	+EPZ	2355 02.8		20	−EPZ	1304 02.4	
18	+EPZ	0002 12.6		20	+EPZ	1855 32.8	
18	+EPZ	0208 23.0		21	−EPZ	0637 05.0	#-71
18	+EPZ	1148 56.8		21	−EPZ	0946 07.8	#-72
18	+EPZ	1231 33.8	#-62	21	−EPcPZ	0946 14.8	#-72
18	−EPZ	1423 39.0	#-63	21	−EsPZ	0946 23.6	#-72
18	−ESH	1433 23.2	#-63	21	+EPZ	1647 14.5	
18	−EPZ	1845 09.0		21	−EPZ	1721 00.0	#-73
19	+EPZ	0119 29.7	#-64	21	+EPZ	1829 51.6	#-74
19	−EPZ	0342 31.0	#-65	21	+EPZ	1910 07.0	
19	+EPZ	0347 36.6		21	+EPZ	1911 23.2	
19	+EPZ	0347 38.6		22	−EPZ	0107 27.0	
19	−EXZ	0358 10.6	#-66	22	−EXZ	0314 30.4	#-75
19	−EXZ	0358 14.0	#-66	22	−IPZ	0314 31.8	#-75
19	−EPZ	0358 55.0	#-67	22	−EpPZ	0315 03.0	#-75
19	+EPZ	0415 24.6		22	+EPZ	0350 29.0	
19	+EPZ	0415 27.3		22	+EPZ	0529 06.0	
19	−EPZ	0427 25.0		22	+EPKPdfZ	0529 14.0	#-76
19	−EPZ	0927 02.0		22	+EPZ	0710 11.0	
19	−EPZ	1021 01.6	#-68	22	+EXZ	0719 40.6	#-77
19	+EPZ	1035 01.2		22	+EPZ	0936 02.6	
19	−EPZ	1045 40.6		22	−EPZ	1353 23.6	
19	−EPZ	1518 10.0		22	−EPZ	1353 29.2	

Table 1. Continued.

Date	Phase	Time H M S	Remarks	Date	Phase	Time H M S	Remarks
22	−ESH	1404 49.5		25	−EsPZ	0927 45.0	#86
22	+EPZ	1410 53.2		25	−EPZ	1002 13.0	
22	+EPZ	1938 42.8		25	−EPZ	1140 09.4	
22	−IPZ	2028 41.0		25	−EPZ	2232 10.6	
22	−IPZ	2028 45.0		25	+EPZ	2257 49.3	
22	−ESH	2038 44.8		26	−EPZ	0649 23.4	
22	+EPZ	2114 31.3		26	+EPZ	0721 33.4	
23	−EPZ	0202 32.6		27	+IPZ	0641 03.2	#87
23	−EPZ	0203 02.0		27	+IPcPZ	0641 05.3	#87
23	+EPZ	0205 10.0		27	+EPZ	0846 30.2	
23	−EPZ	0301 22.8	#78	27	+EPZ	1622 04.3	
23	−EXZ	0301 34.6	#78	27	+EPZ	1741 07.0	
23	−EPZ	0347 18.2	#79	28	+EPZ	0147 24.6	#88
23	+EPZ	0731 46.0		28	−EPcPZ	0147 27.0	#88
23	+EPZ	0819 34.8		28	−EPZ	1252 45.6	#89
23	+EPZ	0832 07.6	#80	28	−IPcPZ	1252 48.0	#89
23	+EXZ	1306 16.0	#81	28	+EPZ	1345 08.5	
23	+IPZ	1306 26.4		28	+EPZ	2004 41.0	#90
23	−EPZ	1922 15.8		28	+EPcPZ	2004 43.6	#90
23	+EPZ	2136 44.0		28	−EPZ	2042 57.6	#91
23	+EPZ	2139 48.2	#82	29	+EPZ	0329 05.0	
23	−EPcPZ	2139 57.6	#82	29	+EPZ	0457 05.2	#92
24	−EPZ	0049 02.2		29	−EPcPZ	0457 13.0	#92
24	+EPZ	0049 06.5		29	+EPZ	0908 04.0	
24	−EPZ	0140 44.2	#83	29	+EPZ	1011 21.8	
24	−IpPZ	0140 48.2	#83	29	+EPZ	1134 19.2	#93
24	+EPZ	0210 09.2		29	−EPZ	1206 43.0	
24	+EPZ	0311 40.2	#84	29	+EPZ	1423 55.2	
25	−EPdiffZ	0202 47.6	#85	29	+EPcPZ	1443 25.8	#94
25	−EPZ	0239 13.2		29	+EPZ	1712 36.4	
25	−EPZ	0651 08.0		29	+IPZ	2239 59.2	#95
25	+EPZ	0927 29.7	#86	30	−EPZ	1600 57.7	
25	−EPcPZ	0927 39.6	#86	30	+EPZ	1732 35.4	

Table 1. Continued.

Date	Phase	Time H M S	Remarks	Date	Phase	Time H M S	Remarks
30	+EPZ	1939 02.0		2	+EPZ	1805 05.2	
30	−EPZ	2359 07.6		2	+EPZ	1849 32.4	
31	+EPZ	0214 44.9		3	+EPZ	1105 05.9	
31	−EPZ	0219 01.0		3	−EPZ	1517 28.0	
31	−EPZ	0440 30.6	#-96	3	+EPZ	1520 37.8	
31	−EpPZ	0440 38.5	#-96	3	+EPZ	1520 42.0	
31	−EPZ	0609 01.4		3	+EPZ	1749 17.8	
31	−EPZ	0733 50.6		4	+EPZ	1634 05.7	
31	+EPZ	0825 01.4		4	+EPZ	2317 48.2	
31	+EPZ	1451 52.8	#-97	5	+EXZ	0408 44.2	#-102
31	−EPcPZ	1452 03.2	#-97	5	−EPZ	0506 05.0	
31	−EPZ	1641 25.2	#-98	5	+EPZ	0506 18.0	
31	−IXZ	1641 29.2	#-98	5	+EPZ	0704 36.8	
31	+EPZ	2001 34.0		5	+EPZ	0725 30.3	
31	+EPZ	2210 52.0		5	+EPZ	0930 34.2	
31	+EPZ	2211 05.6		5	−EPZ	1047 32.8	
Feb.				5	+EPZ	2253 37.3	
1	−EPZ	0037 57.8		5	−EPZ	2326 39.6	#-103
1	−EPZ	0038 00.6		5	+EPcPZ	2326 46.2	#-103
1	+EPZ	0112 10.0	#-99	6	+EPZ	0309 46.6	#-104
1	−EPZ	0203 18.6	#-100	6	−EPZ	0318 39.6	
1	−EPZ	0332 25.4		6	+EPZ	0459 18.2	
1	+EPZ	0527 15.4		6	+EXZ	1010 52.4	#-105
1	+EPZ	0527 23.0		6	−EPcPZ	1010 57.6	#-105
1	+EPZ	0624 36.3		7	+EPZ	0047 53.6	
1	+EPZ	0835 14.7		7	+EPZ	0049 17.8	
1	+EPZ	0940 09.3		7	−EpPZ	0346 26.7	#-106
1	−EPZ	1537 36.8		7	−EPZ	0548 30.4	
1	+EPZ	1740 41.0		7	+EPZ	0705 42.0	
2	+EPZ	0024 23.4		7	+EPZ	0853 42.8	
2	+EPZ	1024 28.8		7	−EPZ	1431 14.5	
2	+EXZ	1455 26.2	#-101	7	+EPZ	1516 04.0	
2	+EPZ	1805 01.2		7	−EPZ	2105 35.6	

Table 1. Continued.

Date	Phase	Time H M S	Remarks	Date	Phase	Time H M S	Remarks
7	+EPZ	2203 40.3		11	+EPZ	0648 23.0	
7	+EPZ	2204 02.2		11	+EPZ	0921 48.4	
7	−ESH	2213 27.2		11	−EpPZ	0943 50.2	#-115
8	+EPZ	0448 05.5		11	−EPZ	1026 33.5	
8	−EPZ	0523 30.6		11	+IPZ	1405 43.2	
8	+EPZ	0610 45.0		11	+EpPZ	1405 47.9	#-116
8	+EPZ	0646 34.2	#-107	11	+EpPZ	1405 47.9	#-116
8	−EPcPZ	0646 44.4	#-107	11	+EPZ	1425 14.8	
8	−EPZ	0715 48.4		11	+EPZ	1532 22.3	
8	−EPZ	0736 53.2	#-108	11	+EPZ	1739 53.2	
8	−EpPZ	0736 56.6	#-108	11	−IPZ	1748 00.0	
8	+EPZ	0903 42.5		11	+EXZ	1802 19.8	#-117
8	+EPZ	0931 12.8		11	−ESH	1813 28.8	#-117
8	+EPZ	1211 02.7		11	−EPZ	1820 01.8	
8	−EPZ	1449 09.8		11	+EPZ	1835 11.6	
8	−EPZ	1547 33.2	#-109	11	−IPZ	1838 18.2	
8	+EPZ	1716 10.1		11	+EpPZ	1900 42.0	#-118
8	+EPZ	1722 50.0		11	+IPZ	1907 10.8	#-119
9	+EPZ	0226 14.1		11	−EPZ	1915 01.3	#-120
9	−EXZ	1100 39.5	#-110	11	+EsPZ	1915 18.5	#-120
9	+EPZ	1422 20.2	#-111	11	+EPZ	1950 02.6	
9	+EpPZ	1422 24.2	#-111	11	+EPZ	2009 51.0	
9	+EPZ	1607 15.6		11	+EPZ	2110 01.6	
9	+EPZ	1954 01.0	#-112	11	+EPZ	2022 38.0	
9	+EPZ	2008 28.5		11	+EPZ	2057 14.3	#-121
10	+EPZ	0006 44.2		11	−ESH	2107 20.0	#-121
10	+EPZ	0215 03.0		11	+EPZ	2129 24.0	
10	+EPZ	1023 23.2		11	+EPZ	2139 45.4	
10	+EPZ	1851 23.0		11	−EPZ	2139 55.0	
11	+EPZ	0001 25.0		11	+EPcPZ	2246 02.4	#-122
11	+EPZ	0002 22.5		11	+EXZ	2354 14.0	#-123
11	+EPZ	0203 11.4	#-113	11	+EpPKiKPZ	2359 05.8	#-123
11	+EPZ	0430 14.4	#-114	11	−EPcPZ	2356 44.8	#-124

Table 1. Continued.

Date	Phase	Time H M S	Remarks	Date	Phase	Time H M S	Remarks
12	+EXZ	0016 05.5	#-125	12	−EPZ	2018 51.4	
12	−EPZ	0138 35.2	#-126	12	+EPZ	2036 46.0	#-136
12	−EPcPZ	0138 37.7	#-126	12	+EPZ	2317 06.8	#-137
12	−EPZ	0155 14.8		12	+EXZ	2317 15.8	#-137
12	−EPZ	0155 21.2		13	+EPZ	0053 02.0	
12	+EPZ	0218 32.5		13	+EPZ	0229 33.0	#-138
12	+EPZ	0314 21.8		13	−IpPZ	0229 49.4	#-138
12	+EPZ	0402 46.9		13	−IsPZ	0229 56.0	#-138
12	+EPZ	0440 14.4		13	+EPZ	0237 29.0	#-139
12	−EPZ	0615 09.0	#-127	13	−EPZ	0342 02.8	#-140
12	+EPZ	0630 35.2	#-128	13	+EsPZ	0342 19.6	#-140
12	+EXZ	0720 43.4	#-129	13	−EPZ	0505 51.6	
12	−EXZ	0720 54.5	#-129	13	+EPZ	0605 32.2	
12	+EPZ	0733 08.0		13	+EPZ	0633 45.6	
12	+EPZ	0733 24.2		13	−EPZ	0759 03.0	#-141
12	−EPZ	0751 13.0	#-130	13	+EXZ	0759 12.8	#-141
12	+EsPZ	0751 33.0	#-130	13	+EPZ	1004 49.6	
12	−EPZ	0843 24.0	#-131	13	+EPZ	1113 30.4	
12	−IPcPZ	0843 28.0	#-131	13	+EPZ	1144 57.0	#-142
12	−EPPZ	0847 08.0	#-131	13	+EPZ	1211 16.5	
12	+EPZ	1111 05.0		13	−EPZ	1250 57.6	
12	−EXZ	1148 20.5	#-132	13	+EPZ	1251 01.0	
12	−EpPZ	1148 34.8	#-132	13	+EPZ	1331 18.0	#-143
12	+EPZ	1328 13.2		13	+EPZ	1451 39.0	
12	−EPZ	1429 25.0	#-133	13	+EPZ	1451 40.3	
12	−EpPZ	1429 37.8	#-133	13	+EPZ	1531 29.7	
12	+EsPZ	1429 43.8	#-133	13	+EPZ	1826 38.6	
12	+EPKiKPZ	1434 12.5	#-133	13	+EPZ	1911 54.6	
12	+EPZ	1545 15.4	#-134	13	+EXZ	2054 37.0	#-144
12	+EsPZ	1545 33.0	#-134	13	−EXZ	2059 25.0	#-144
12	−EPZ	1711 02.6	#-135	13	+EPZ	2139 43.2	#-145
12	−IPZ	1906 13.6		13	+EpPZ	2139 52.7	#-145
12	−ESH	1915 56.4		14	−EPZ	0151 39.4	

Table 1. Continued.

Date	Phase	Time H M S	Remarks	Date	Phase	Time H M S	Remarks
14	−EPZ	0151 40.8		16	+EPZ	0143 47.2	
14	−EPZ	0151 47.0		16	−EPZ	0203 48.2	
14	+EPZ	0219 04.0	#-146	16	−IPZ	0203 50.8	
14	+EPZ	0315 03.8		16	−IPZ	0204 16.6	
14	−EPZ	0315 27.0		16	+EPZ	0301 49.4	
14	+EXZ	0803 04.0	#-147	16	−EPZ	0448 03.8	
14	+IPZ	0842 14.0	#-148	16	−EPZ	0607 35.8	#-156
14	−EPZ	0918 05.8		16	+EPZ	0612 28.6	#-157
14	−EPZ	0932 20.0		16	+EPZ	0625 37.2	
14	+EPZ	1359 08.6		16	+EXZ	0703 39.6	#-158
14	−EXZ	2018 44.0	#-149	16	+EPZ	0829 31.8	
14	+EXZ	2042 13.8	#-150	16	−EXZ	0835 31.0	#-159
14	+EXZ	2144 14.0	#-151	16	+EPZ	0908 12.3	
14	−EsPZ	2144 31.4	#-151	16	+EPZ	1810 12.2	
14	+EPZ	2340 52.2		16	+EPZ	1816 49.4	
15	−EPcPZ	0131 10.6	#-152	17	+EPZ	0208 08.0	
15	+EPZ	0221 38.2		17	−EPZ	0342 41.2	
15	+EPZ	0248 05.0		17	−IPZ	0342 42.6	
15	+EPZ	0453 42.3	#-153	17	−EPZ	0628 39.4	#-160
15	+EPKpdlZ	0943 38.0	#-154	17	−EPcPZ	0628 45.8	#-160
15	−EPPZ	0946 02.4		17	+EPZ	0920 22.4	
15	−EPZ	1018 09.4	#-155	17	+EPZ	0920 28.4	
15	−EXZ	1018 12.4	#-155	17	−EPZ	1500 07.2	#-161
15	−EPZ	1035 02.4		17	+EPZ	2347 28.8	
15	+EPZ	1152 00.2		18	−EPZ	0013 28.8	#-162
15	+EPZ	1225 00.4		18	−IPZ	0013 37.6	#-162
15	+EPZ	1515 16.5		18	−IPZ	0013 48.4	
15	−EPZ	2125 53.8		18	+EPZ	0219 40.4	
15	−IPZ	2125 57.4		18	−EPZ	0312 00.2	#-163
15	+EPZ	2205 36.2		18	−IpPZ	0312 04.4	#-163
15	+EPZ	2337 53.4		18	−IPZ	0312 11.4	#-163
15	−EPZ	2338 01.0		18	+EPZ	0323 39.5	
16	+EPZ	0115 21.2		18	−EPZ	0338 22.0	#-164

Table 1. Continued.

Date	Phase	Time H M S	Remarks	Date	Phase	Time H M S	Remarks
18	−EPZ	0441 09.0		22	+EXZ	2140 48.2	#-171
18	+EPZ	1039 11.0	#-165	23	+EsPZ	0031 00.0	#-172
18	+EPZ	1157 21.2	#-166	23	+EPZ	0054 31.8	
18	+EPZ	2048 32.8		23	+EPZ	0221 07.0	
18	−IPZ	2205 53.0		23	−EPZ	0337 47.3	
18	−ESH	2215 55.4		23	−EPZ	0419 20.0	#-173
19	+EPZ	0017 50.6		23	−EpPZ	0419 29.8	#-173
19	−EPZ	0145 09.6		23	+EPZ	0423 32.6	
19	+EPZ	0314 30.0		23	−EPZ	0445 07.2	
19	+EPZ	0314 41.6		23	+EPZ	0445 20.8	
19	+IPZ	0914 28.6	#-167	23	+EPZ	0817 37.3	
20	NIL			23	+EPZ	1254 50.2	
21	+EPZ	1721 07.4		23	−EPZ	1356 35.7	
21	−EPZ	1721 13.4		23	−EPZ	1405 07.2	
21	+EPZ	2205 33.2		23	+EPZ	1615 26.0	
21	+EPZ	2338 10.2		23	−EPZ	1747 07.2	#-174
22	+EPZ	0148 30.4		23	+EPZ	2001 54.6	#-175
22	+EPZ	0148 44.6		23	+EPZ	0006 10.6	
22	+EPZ	0405 53.6	#-168	23	−EPZ	2150 07.9	
22	−EPZ	0536 01.8		24	+EPZ	0134 46.0	#-176
22	+EPZ	0705 24.0		24	+EPZ	0247 06.2	
22	−EPZ	0725 03.8		24	+EPZ	0309 25.0	
22	+EPZ	0725 11.4		24	−EPZ	0615 36.4	
22	−EXZ	1053 16.8	#-169	24	−IPZ	0710 05.0	
22	+EpPKPdZ	1053 26.0	#-169	24	+EPZ	0754 03.9	
22	−EPZ	1113 32.0		24	−EPZ	0852 05.8	#-177
22	+EPZ	1148 26.4		24	+EPZ	0913 45.6	
22	+EPZ	1422 06.2		24	+EPZ	1048 10.8	#-178
22	+EPZ	1758 28.0	#-170	24	+EPPZ	1051 30.8	#-178
22	−IPcPZ	1758 29.4	#-170	24	+IPZ	1251 53.6	
22	−IpPZ	1758 38.6	#-170	24	+EPZ	1815 22.6	
22	+EPZ	2122 32.0		24	+EPZ	1840 23.4	
22	−EPZ	2136 08.0		24	−IPZ	1842 48.6	#-179

Table 1. Continued.

Date	Phase	Time H M S	Remarks	Date	Phase	Time H M S	Remarks
25	+EPZ	0617 11.2		1	−EPZ	2146 40.0	
25	+EPZ	0932 00.8	#-180	2	+EPZ	0016 15.4	
25	+EPcPZ	0932 04.6	#-180	2	+EPZ	0053 49.0	
25	+EPZ	1615 08.6		2	+EPZ	0140 47.9	
25	+EPZ	1855 39.5		2	−EPZ	0253 06.6	
26	+EPZ	0321 19.4		2	+EPZ	0340 03.2	
26	+EPZ	0844 19.0		2	−EPZ	0752 56.0	#-188
26	+IPZ	1628 58.2	#-181	2	+EpPZ	0753 35.4	#-188
26	−EPZ	1648 10.8		2	+EPZ	0810 52.2	
26	+EPZ	1705 12.8		2	−EPZ	1332 41.8	
26	+EPZ	2121 34.3		3	−EPZ	0410 32.0	
26	+EPZ	2137 26.0		3	−EPZ	0538 16.8	
27	−EPZ	0012 20.6		3	+EXZ	0611 02.6	#-189
27	−EPZ	0310 30.6		3	−EPZ	1103 40.0	
27	+EPZ	0529 09.8		3	−EpPZ	2213 03.5	#-190
27	−EPcPZ	0538 01.4	#-182	4	−EPZ	1716 47.0	
27	−EPZ	0602 32.5		5	−EPZ	0041 30.2	
27	+EPZ	1739 18.6		5	+EPKiKPZ	1237 20.2	#-191
28	+EPZ	0010 03.0		5	+EpPKiKPZ	1237 23.4	#-191
28	+EPPZ	0057 33.3	#-183	5	+EPZ	1446 32.8	
28	−EPZ	0156 40.0	#-184	5	+EPZ	1447 03.2	
28	+IPZ	1438 49.2		5	+EPZ	1725 15.8	
28	−EPZ	2043 36.6		5	+EPZ	1945 12.2	#-192
Mar.				5	+EPcPZ	1945 14.6	#-192
1	+EPZ	0721 31.8		5	−EpPZ	1947 10.8	#-192
1	−IPZ	0829 42.0	#-185	5	+EpPKPdZ	2001 31.0	#-193
1	−IPcPZ	0829 49.3	#-185	5	−EPKiKPZ	2001 35.0	#-193
1	+EPZ	1154 08.0		5	+EPZ	2021 09.6	
1	−IPZ	1554 32.0	#-186	5	+EPZ	2109 31.8	
1	+IXZ	1555 11.8	#-186	6	+EPZ	0711 49.5	#-194
1	−EPZ	1923 14.4	#-187	6	+EPZ	0834 38.4	#-195
1	−EpPZ	1923 17.6	#-187	6	+EPZ	0957 19.8	
1	+EPZ	2122 17.4		6	−EPZ	1017 41.0	

Table 1. Continued.

Date	Phase	Time H M S	Remarks	Date	Phase	Time H M S	Remarks
6	+IPZ	1110 16.8		12	+EPZ	0218 45.3	
6	−IPZ	1110 20.0		12	−EPZ	0523 44.6	#-201
6	−EPZ	1345 46.6		12	−EpPZ	0523 48.5	#-201
6	+EPZ	1346 03.9		12	+EPZ	0819 26.2	
6	+EXZ	2016 45.8	#-196	12	+EPZ	0905 22.2	
6	+EPZ	2148 35.0		12	−EPZ	0907 36.6	#-202
6	+EPZ	2148 37.4		12	+EPZ	1013 05.4	
6	−EPZ	2310 02.0		12	+EPZ	1117 20.2	
7	+EPZ	0201 17.6		12	−IPhZ	1151 43.0	#-203
7	−EPZ	0947 29.4		12	+EPZ	1304 11.2	
7	+EPZ	1639 09.4	#-197	12	+EPZ	1324 11.0	
7	−EPZ	1809 27.7		13	+EPZ	0215 25.0	#-204
7	−EPZ	1814 09.7		13	+EPcPZ	0215 30.0	#-204
7	−EPZ	2357 17.4		13	+EPZ	0242 51.5	#-205
8	+IPZ	0701 13.2		13	+EXZ	0243 03.7	#-205
9	+EPZ	0912 16.7		13	+EPZ	0609 18.8	
9	−EPZ	1241 07.8		14	−EPZ	1522 36.8	
9	+EPZ	1410 54.0		15	−EPZ	0831 10.2	#-206
9	−IPZ	2142 00.4		15	+EPcPZ	0831 15.2	#-206
10	−IPZ	0249 52.9		15	−EPZ	1228 42.4	
10	−EPZ	0714 40.6		15	+IPZ	1401 07.7	#-207
10	+IPZ	0714 48.0		15	−IPZ	1820 20.0	#-208
10	+EPZ	0826 18.6		15	−IPcPZ	1820 28.4	#-208
10	−EPZ	1017 21.2		15	+EPcPZ	2042 03.3	#-209
10	+EPZ	1338 01.4		16	−IPZ	0207 39.5	#-210
10	+EpPZ	1805 44.4	#-198	16	+EPZ	0214 18.8	
11	+EPZ	0044 26.0	#-199	16	+EpPZ	0723 13.4	#-211
11	+EPZ	0406 41.8		16	+EPZ	0817 14.7	
11	+EPZ	0510 05.6		16	+EPZ	1213 53.4	
11	+EPZ	0705 30.8		16	−IPZ	1429 04.0	#-212
11	+EPZ	1317 36.4		16	−IPcPZ	1429 05.0	#-212
11	−EPZ	1317 40.0	#-200	16	+EPZ	1937 44.2	
11	+EPZ	1830 04.5		16	+EPZ	2003 04.3	

Table 1. Continued.

Date	Phase	Time H M S	Remarks	Date	Phase	Time H M S	Remarks
16	+EPZ	2003 10.9		21	+EPZ	2325 56.2	
16	+EPZ	2101 45.4		21	−EPZ	2326 18.8	
16	+EPZ	2143 09.7		22	−EPZ	0207 18.5	#-225
17	+EPZ	1619 18.4		22	−EPZ	0337 01.4	
18	+EPZ	0916 16.4	#-213	22	−EPZ	0603 11.0	#-226
18	−EPcPZ	0916 19.6	#-213	22	+EsPZ	0603 17.4	#-226
18	+EPZ	1634 57.4	#-214	22	+EPZ	0617 19.0	#-227
18	+EPZ	2214 15.0	#-215	22	+EpPZ	0617 22.0	#-227
18	+EXZ	2322 28.6	#-216	22	−EPZ	0920 23.8	
19	+EPZ	0638 31.2		22	+EPZ	1246 26.5	
19	+EXZ	0716 35.4	#-217	22	+EPZ	1305 34.2	#-228
19	+IPZ	0937 36.4		22	+EPZ	1723 02.8	
19	−EPZ	1504 37.6		22	−EPZ	1723 04.2	
19	+EPZ	1753 16.0		22	+EPZ	1947 26.2	#-229
19	−IPZ	1830 09.6		22	−EPZ	2012 55.7	
19	+EpPZ	2046 40.2	#-218	22	+EPZ	2123 10.0	
19	+EsPZ	2046 43.4	#-218	22	+EPZ	2304 18.7	
19	−EPZ	2143 17.8		23	−EPZ	0021 15.5	#-230
20	+EPZ	0343 16.3		23	−EPPhZ	0022 37.7	#-230
20	+EPZ	0614 06.0		23	−EPZ	0403 00.6	
20	+EPZ	1237 34.5		23	+EPZ	0403 07.0	
20	+EPZ	1412 34.6	#-219	23	−EPZ	0456 03.9	#-231
20	−EPcPZ	1434 25.0	#-220	23	−EPZ	0627 22.0	#-232
20	−EXZ	1607 09.0	#-221	23	+EPZ	0924 08.8	
20	−EpPZ	1607 29.6	#-221	23	+EPZ	0924 11.0	
20	−EPZ	2054 53.2		23	+EPZ	1514 02.0	
21	+EPZ	0620 22.0	#-222	23	+EPZ	2014 19.4	
21	−EPcPZ	0620 25.5	#-222	23	+EPZ	2014 29.2	
21	−EPZ	0949 05.2		24	+EPZ	0414 02.4	
21	−EPZ	0949 10.0		24	+EPZ	0448 06.2	#-233
21	−EPcPZ	1751 09.6	#-223	24	−EPZ	0634 02.6	#-234
21	+EPZ	2039 02.6	#-224	24	+EPcPZ	0634 20.0	#-234
21	−EPcPZ	2039 21.5	#-224	24	−EPZ	1028 02.0	

Table 1. Continued.

Date	Phase	Time H M S	Remarks	Date	Phase	Time H M S	Remarks
24	−EPZ	1028 15.6		28	+EPZ	0321 50.3	
24	+EPZ	1713 13.7		28	+EPZ	0705 28.3	
24	−EPZ	1826 00.0	#-235	28	+EPZ	1116 50.5	
24	−EPZ	1944 47.4		28	−EPZ	1338 19.4	
24	−EPZ	1945 00.6		28	+EPZ	1558 29.6	
24	+EPZ	2214 07.4		28	−EPZ	1240 51.4	
24	−EPZ	2244 53.2		28	+EPZ	1240 56.3	
24	−EPZ	2244 56.8		28	−EXZ	1610 42.6	#-244
24	+EPZ	2245 11.6		28	−EPZ	1812 24.6	#-245
24	−IXZ	2341 34.2	#-236	28	+EPcPZ	2043 22.2	#-246
24	−EPcPZ	2341 37.4	#-236	28	−EPZ	2121 31.4	
24	+EPZ	2356 03.5		29	−EPZ	0503 25.6	#-247
25	−EPZ	0613 04.3		30	+EPZ	1227 12.3	
25	−EPZ	0644 34.0		30	+IPZ	1227 38.8	
25	−EPZ	0717 45.0		30	−IPZ	1227 49.8	
25	+EPZ	0843 01.2		31	+EXZ	1144 24.0	#-248
25	+EPZ	1926 23.9		31	−EPZ	1431 09.2	
25	+EpPZ	2158 43.0	#-237	31	+EPZ	1431 19.4	
25	+EPZ	0012 03.6		31	+EPZ	1638 41.2	#-249
26	−EPcPZ	1013 03.4	#-238	31	−EPcPZ	1638 42.8	#-249
26	+EpPZ	1013 12.4	#-238	31	−IPZ	2233 15.0	#-250
26	−EPZ	1301 13.0		31	−EPcPZ	2233 19.8	#-250
26	−EPZ	1748 37.2	#-239	Apr.			
26	+EPZ	2158 01.2		1	+EPZ	0253 33.7	#-251
26	+EPZ	2158 05.6		1	−EPZ	0408 10.0	#-252
27	+EPZ	1052 48.2	#-240	1	−EPZ	0624 15.6	
27	+EPZ	1738 32.0	#-241	1	−EPZ	0624 24.8	
27	+EPZ	1332 48.4		2	+EPZ	0231 05.0	
27	+EPZ	1624 09.8		2	−EPZ	0431 22.8	#-253
27	−EPZ	1701 39.6		2	+EPZ	2342 06.6	
27	+EPZ	1908 30.9	#-242	3	−EPZ	0742 38.6	#-254
27	−EPZ	2023 27.0		3	+EPZ	0920 50.0	
27	+EPZ	2105 04.9	#-243	3	+EPZ	1350 19.2	

Table 1. Continued.

Date	Phase	Time H M	S	Remarks	Date	Phase	Time H M	S	Remarks
3	−EPZ	1449	32.7		5	−EPZ	1957	34.4	#-266
3	−EPZ	1449	36.8		5	−EPcPZ	1957	45.0	#-266
3	+IPZ	1805	40.2	#-255	5	−EPZ	2047	46.0	
3	−ESH	1814	42.4	#-255	5	+EPZ	2047	49.0	
3	+EPZ	1903	00.8	#-256	5	−EPZ	2223	19.0	#-267
3	+EPZ	2006	30.6	#-257	6	NIL			
3	+EPcPZ	2006	37.4	#-257	7	+EPZ	0442	46.0	
3	−EpPZ	2006	47.8	#-257	7	−EXZ	0442	52.6	#-268
4	−IPZ	0545	06.6	#-258	7	+EPZ	1121	57.3	
4	−IPcPZ	0545	09.6	#-258	7	−IPZ	1121	58.8	
4	+IpPZ	0545	24.2	#-258	7	−EPZ	1342	05.6	#-269
4	−EPZ	0604	26.0		7	+EPZ	1539	06.4	
4	−EPZ	0727	23.0	#-259	7	−EPZ	1935	58.6	#-270
4	−EpPZ	0727	27.0	#-259	8	+EPZ	0045	21.0	
4	+EPZ	1119	45.6	#-260	8	−EPZ	0212	03.2	
4	−EPcPZ	1119	47.5	#-260	8	−EPZ	0319	08.0	#-271
4	−EPZ	1212	09.7	#-261	8	−EPZ	0319	31.7	
4	−EpPZ	1212	18.6	#-261	8	−EPZ	0429	11.6	
4	−EPZ	1254	31.4		8	−EPZ	0429	16.4	
4	+EPZ	1741	02.4		8	+EPZ	0823	23.0	#-272
4	−IPZ	1845	32.2	#-262	8	−IPZ	0631	55.0	
4	−IpPZ	1845	49.6	#-262	8	−IPZ	0631	57.0	
4	+EXZ	1924	34.8	#-263	8	+EPZ	1033	29.6	#-273
4	+EXZ	1924	44.8	#-263	8	−IPZ	1123	58.6	#-274
4	+EPZ	2317	42.4		8	+EpPZ	1124	06.4	#-274
4	+EPZ	2357	23.4		8	−EsPZ	1124	10.8	#-274
5	−EPZ	0350	58.3		8	+EPZ	1752	20.6	
5	+EPZ	0951	01.7		8	+EPZ	1752	27.0	
5	−EpPKPdfZ	0955	22.2	#-264	8	−EPZ	1809	26.6	
5	−EXZ	1307	02.7	#-265	8	+EPZ	1809	37.3	
5	+EPZ	1509	21.4		8	−EPZ	1959	40.2	#-275
5	−EPZ	1509	24.6		9	+EPZ	0229	18.2	
5	+EPZ	1852	11.7		9	+EpPZ	0338	26.2	#-276

Table 1. Continued.

Date	Phase	Time H M	S	Remarks	Date	Phase	Time H M	S	Remarks
9	−IsPZ	0338	28.0	#-276	12	−EPZ	0458	12.0	
9	+IPZ	0425	25.6	#-277	12	+EPZ	0502	23.6	#-286
9	+IPcPZ	0425	31.2	#-277	12	−EPcPZ	0502	26.6	#-286
9	−EPZ	0627	35.0	#-278	12	−EPZ	1250	07.0	
9	−EPZ	0823	14.8	#-279	12	+EPZ	2050	41.4	
9	−EPcPZ	0823	19.0	#-279	13	−EPZ	0728	24.4	
9	+EPZ	1042	37.6		13	−EPZ	2140	50.6	
10	−EPZ	0307	19.2		14	−EXZ	0323	48.7	
10	+EPZ	0354	07.8		14	−IPZ	1300	48.6	
10	−EPZ	0437	31.5		15	+EPZ	1032	28.3	#-287
10	−EPZ	0437	34.6		15	+EPZ	2013	25.4	
10	+EPZ	0553	04.2		15	+EPZ	2013	34.7	
10	−EPZ	0553	06.8		16	+EXZ	0527	14.6	#-288
10	+EPZ	0701	04.0	#-280	16	+EpPZ	0527	21.0	#-288
10	−EPZ	1013	50.4		16	+IPZ	1503	56.2	
10	+EPZ	1013	54.0		16	+IPZ	1503	59.2	
10	−EPZ	1510	12.4	#-281	16	−ESH	1513	45.4	
10	+EPcPZ	1510	16.8	#-281	16	−EPZ	1621	39.0	
10	+EPZ	1932	44.0		16	+EPZ	1918	12.4	
10	−EPZ	1932	50.4		16	−EPZ	1940	32.8	
10	−EPZ	2013	08.2	#-282	16	+EPZ	2150	08.3	
10	+EPcPZ	2013	11.0	#-282	16	+EPZ	2207	05.4	
10	+EPZ	2324	17.0		17	+EPZ	0005	04.3	
10	−EPZ	2354	22.4		17	+EPZ	0059	06.4	
11	+EPZ	0210	43.8		17	+EPZ	0126	36.4	
11	−EPcPZ	0212	01.8	#-283	17	−IPZ	0422	05.8	#-289
11	+EXZ	0401	27.5	#-284	17	−EPZ	0818	21.0	
11	+EPZ	0742	19.9		17	−EPZ	1150	07.4	
11	+EPZ	1003	35.0		17	+EPZ	1210	14.3	
11	+EpPZ	1720	37.4	#-285	17	+EPZ	1319	33.0	
11	+EPZ	2048	07.4		17	−EPZ	1446	55.8	
12	−EPZ	0042	19.4		17	+EPZ	1511	10.0	
12	−EPZ	0042	23.6		17	+EPZ	1511	22.2	

Table 1. Continued.

Date	Phase	Time H M S	Remarks	Date	Phase	Time H M S	Remarks
17	+EPZ	1612 02.4		20	−EPZ	1517 36.9	
17	+EPZ	1624 04.6	#-290	21	+EXZ	0038 06.8	#-298
17	−EPcPZ	1624 06.4	#-290	21	+EsPZ	0038 35.0	#-298
17	+EXZ	1624 49.0	#-290	21	+EPcPZ	0038 44.0	#-298
17	−EXZ	1842 49.4	#-291	21	+IPZ	0105 40.8	
18	−EPZ	0101 18.6		21	+EPZ	0521 11.0	
18	−IPZ	0215 46.0	#-292	21	+IPZ	0545 27.3	#-299
18	−IpPZ	0216 05.2	#-292	21	−IPKiKPZ	0545 34.5	#-299
18	−ESH	0225 41.0	#-292	21	+EPZ	1926 31.0	
18	+EPZ	0534 26.5		21	−IPZ	1957 34.6	#-300
18	+EPZ	0730 55.6		22	−EPZ	0201 00.2	#-301
18	+EPZ	0819 00.6		22	−EPZ	1733 50.3	
18	+EPZ	0951 01.3		23	+EXZ	0231 17.4	#-302
18	+EPZ	1347 02.0		23	−EPKiKPZ	0231 21.4	#-302
18	+EPZ	1540 45.6	#-293	23	+EPZ	0340 52.0	
18	+EPcPZ	1540 56.2	#-293	23	−EPZ	1229 27.4	#-303
18	+EPZ	1801 21.0	#-294	23	−EPZ	1758 18.2	
18	−EpPZ	1803 25.7	#-294	24	−EPZ	0549 20.8	#-304
18	−ESH	1811 05.8	#-294	24	−EPcPZ	0549 33.9	#-304
18	−EXZ	1937 19.6	#-295	24	+EPZ	1048 06.0	
18	+EPZ	2342 00.4		24	+EPZ	1844 30.3	
19	+EPZ	0013 05.4		24	−EPZ	2216 00.4	
19	+EPZ	0308 21.2		25	−EPZ	0540 20.2	
19	−EPZ	0536 35.4	#-296	25	+EPZ	1406 42.0	
19	−EPcPZ	0536 39.9	#-296	25	+EPZ	1507 05.6	
19	+EpPZ	0536 46.0	#-296	25	+EXZ	1737 14.4	#-305
19	−EPKpdZ	0924 17.8	#-297	25	+EPZ	2052 00.6	
19	+EPZ	1126 34.0		25	+EPZ	2156 04.2	
19	+EPZ	1220 39.7		26	−IPZ	0018 30.2	#-306
19	+EPZ	1220 43.3		26	−EPZ	0814 07.8	#-307
19	+EPZ	1758 11.4		26	+EPPZ	1831 15.0	#-308
19	+EPZ	1804 36.0		26	+EPZ	1929 21.0	
20	+EPZ	1450 05.0		26	+EPZ	2325 01.2	

Table 1. Continued.

Date	Phase	Time H M S	Remarks	Date	Phase	Time H M S	Remarks
26	−EPZ	2325 04.9		1	+EPZ	0919 31.4	#-316
27	+EXZ	0440 50.6	#-309	1	−EPZ	1055 36.4	#-317
27	+EPZ	0535 45.0	#-310	1	−EpPZ	1055 39.0	#-317
27	+EXZ	0536 27.5	#-310	1	+EPZ	1218 12.0	#-318
27	+EPZ	1304 19.0		1	+EPZ	1705 51.2	
27	+EPKiKPZ	1705 22.6	#-311	1	−EPZ	2049 11.0	
27	+EPZ	2054 40.6		2	+EPZ	0217 53.5	
27	+EPZ	2209 52.0		2	−EXZ	0239 52.8	#-319
27	−EPZ	2210 01.0		2	+EXZ	0240 06.8	#-319
28	+EPZ	0032 40.2		2	+EPZ	0633 13.0	
28	−EPZ	0032 42.0		2	−EPZ	0751 38.2	
28	+EPZ	0141 09.4		2	−EPZ	1510 39.0	#-320
28	+EPZ	0741 41.2		2	−EXZ	1510 41.3	#-320
28	−EPZ	0741 44.6		2	+EPZ	1722 02.0	
28	+EXZ	1539 09.8	#-312	2	+EPZ	2232 03.2	#-321
28	+EPZ	1653 23.0		2	+EPZ	2311 11.0	
29	+EPZ	0325 28.2		3	+EPZ	0026 14.8	
29	+EPZ	0347 21.7		3	+EPZ	0133 07.0	#-322
29	+EPZ	0439 36.6		3	+EPZ	0235 17.0	
29	+EPZ	1351 20.0		3	−EPZ	0441 02.1	
29	−EPZ	1917 18.4		3	+EPZ	0920 31.4	
29	+EPZ	2254 38.2	#-313	3	+EPZ	0955 06.2	
29	+EpPZ	2255 07.5	#-313	3	+EPZ	1412 45.6	
30	+EPZ	0023 54.0		3	+EPZ	1428 11.2	
30	−EPZ	0056 00.8	#-314	4	+EPZ	0057 02.7	
30	−EPZ	0253 03.0		4	+EXZ	0221 23.8	#-323
30	−EPZ	0432 19.6		4	+EPZ	0346 39.0	#-324
30	+EPZ	0539 02.4		4	+EPcPZ	0346 41.0	#-324
May				4	+EPZ	0758 09.6	#-325
1	+EPZ	0202 18.7		4	+EPZ	0919 20.9	#-326
1	+EPZ	0515 00.8		4	−EPZ	1240 02.0	
1	+EPZ	0616 09.4	#-315	4	+EXZ	1323 49.2	#-327
1	+EpPZ	0616 14.4	#-315	4	+EPZ	1907 25.3	

Table 1. Continued.

Date	Phase	Time H M S	Remarks	Date	Phase	Time H M S	Remarks
4	−EPZ	2001 27.7		8	+EXZ	2142 26.7	#-335
4	+EPZ	2245 08.8		8	+EXZ	2142 40.5	#-335
5	+EXZ	0247 12.6	#-328	9	+EPZ	0028 32.7	
5	+EsPZ	0247 21.4	#-328	9	+EPZ	0226 07.3	
5	+EsPZ	0333 17.3	#-329	9	+EPZ	0304 06.3	#-336
5	+EPZ	0749 01.4		9	+EPZ	0419 37.4	
5	+EPZ	1752 48.6		9	+EPZ	1428 03.3	
5	+EPZ	1943 05.2		9	+EpPdiffZ	1950 28.0	#-337
5	−EPZ	2113 01.3		10	+EPZ	0001 34.4	
5	+EPZ	2239 08.0	#-330	10	+EPZ	0138 13.0	
5	+EXZ	2239 34.0	#-330	10	+EPZ	0138 26.8	
6	+EPZ	0255 51.0		10	+EPZ	0913 15.0	
6	+EPZ	0342 18.6		10	−EPZ	0913 24.6	
6	+EPZ	0626 03.0		10	+EPZ	1533 12.0	
6	+EPZ	1135 23.0		10	+EPZ	1845 26.6	
6	+EPZ	1306 15.8	#-331	10	+EPZ	2040 16.4	
6	−EPZ	1346 16.6	#-332	10	+EPZ	2041 15.9	
6	+EXZ	1346 27.4	#-332	11	+EPZ	0523 40.6	
6	+EPZ	1841 32.4		11	−EPZ	0540 28.0	#-338
6	+EPZ	2009 01.4		11	+EPZ	1339 24.0	
6	+EPZ	2236 13.6		11	+EPZ	1441 18.5	#-339
7	+EPZ	0037 05.7		11	+EPZ	1753 31.7	
7	+EPZ	0117 15.4		11	+EPZ	2054 56.4	
7	+EPZ	1442 01.6		12	+IPZ	0115 19.4	#-340
7	+EPZ	1451 50.0		12	−EXZ	0115 26.0	#-340
7	+EPZ	1539 25.4		12	−EPZ	0139 23.6	#-341
7	−EPZ	1858 29.4		12	+EXZ	0139 46.6	#-341
7	−EXZ	2257 19.9	#-333	12	−ESH	0150 13.0	#-341
8	+EPZ	0710 19.2		12	+EPZ	0518 51.0	#-342
8	+EPZ	1241 33.6		12	+EPZ	0547 02.6	
8	−EPZ	1331 20.2	#-334	12	+IPZ	0621 48.4	
8	+IPZ	1355 32.6		12	+EPZ	1036 02.4	
8	+EPZ	2006 30.4		12	+EPZ	1248 25.0	

Table 1. Continued.

Date	Phase	Time H M S	Remarks	Date	Phase	Time H M S	Remarks
13	−EPZ	0128 22.0	#-343	16	+EPZ	0117 40.4	#-350
13	+EPZ	1806 08.5		16	+EPZ	0226 04.0	
13	−EPZ	2144 16.4	#-344	16	+EPZ	0542 01.0	
13	+EPZ	2159 10.0		16	+EPZ	0915 04.0	
13	+EPZ	2210 52.0	#-345	16	−EPZ	1842 39.0	
13	+EPcPZ	2210 56.6	#-345	16	−EPZ	1842 50.6	
13	+EPZ	2309 00.6	#-346	16	+EPZ	1857 05.2	
14	+EPZ	0038 39.2		16	−EPZ	2253 37.0	
14	+EPZ	0105 03.8		17	+EPZ	0037 01.4	
14	+EPZ	0353 34.1		17	+EPZ	0507 04.6	
14	+EPZ	0446 23.4		17	−EPZ	0636 00.0	#-351
14	−EPZ	0503 38.4		17	+EXZ	0636 06.6	#-351
14	−EPZ	0518 05.4		17	+EPZ	0745 12.0	
14	+EPZ	0607 20.4		17	−EPZ	1219 17.4	
14	+EPZ	0608 04.0	#-347	17	+IPZ	1246 30.0	#-352
14	+EPZ	0641 01.2		17	−IPcPZ	1246 46.5	#-352
14	+EXZ	0937 35.0	#-348	17	−EPZ	1944 14.2	
14	+EPZ	1028 34.8		17	−EPZ	1944 28.6	
14	+EPZ	1028 43.2		17	−EPZ	2336 03.0	#-353
14	−EPZ	1117 33.9		18	NIL		
15	+EPZ	0452 18.7		19	+EPZ	1726 06.0	
15	+EPZ	0618 17.0	#-349	19	+EPZ	2042 09.0	
15	+EpPZ	0618 46.6	#-349	19	+EXZ	2042 09.0	#-354
15	+EsPZ	0619 01.4	#-349	19	−IPcPZ	2042 11.6	#-354
15	+EPZ	0834 31.1		19	−EPZ	2205 02.7	
15	+EPZ	1054 07.3		20	−EPZ	0727 10.0	
15	+EPZ	1501 38.4		20	−EPZ	0850 02.0	
15	+EPZ	1603 40.2		20	+EXZ	0853 45.0	#-355
15	−EPZ	2126 01.4		20	−IPZ	0952 50.0	#-356
15	+IPZ	2126 15.2		20	+IpPZ	0953 09.6	#-356
15	+EPZ	2224 40.0		20	+EPZ	1008 17.8	#-357
16	−IPZ	0105 32.2		20	+EPZ	1211 17.2	#-358
16	−ESH	0115 25.0		20	+EXZ	1255 30.6	#-359

Table 1. Continued.

Date	Phase	Time H M S	Remarks	Date	Phase	Time H M S	Remarks
20	+EPZ	1256 06.2		23	−EPcPZ	0310 51.8	#-373
20	+EPZ	1354 21.2		23	−ESH	0320 12.8	#-373
20	+EXZ	1416 13.4	#-360	23	+EPZ	1137 16.6	
20	−EPZ	2134 18.2		23	+EPZ	1452 48.8	
20	+EPZ	2344 29.6		23	+EPZ	1814 20.0	
21	+EPZ	0042 50.2	#-361	23	+EPZ	2357 19.5	
21	−EPZ	0046 07.2		24	+EPZ	0109 49.5	
21	+EXZ	0154 26.9	#-362	24	−IPZ	0109 56.0	
21	+EPZ	0203 10.2	#-363	24	+EPZ	0119 52.3	
21	−EPcPZ	0203 16.0	#-363	24	−EPZ	0212 00.0	#-374
21	−EPZ	0334 50.4		24	+EpPZ	0212 04.0	#-374
21	−EPZ	0607 20.7	#-364	24	+EPZ	0333 36.0	#-375
21	+EXZ	0607 32.6	#-364	24	+EpPZ	0333 40.6	#-375
21	+EPZ	0748 51.2	#-365	24	+EPZ	0340 26.2	
21	−EPZ	1201 06.0		24	−EPZ	0443 07.8	
21	+EPZ	1252 43.8	#-366	24	+EPZ	0513 41.6	
21	+EPKpdlZ	1411 27.3	#-367	24	+EPZ	0622 56.4	
21	−EPZ	1442 14.4	#-368	24	+EPZ	0656 32.0	#-376
21	+EPcPZ	1442 18.8	#-368	24	+EpPZ	0656 34.9	#-376
21	+EPZ	2225 28.3		24	+EXZ	0710 44.3	#-377
21	+EPZ	2253 55.4		24	+EPZ	0806 03.0	
22	+EPZ	0034 53.4		24	−EPZ	0934 03.0	
22	+EPZ	0058 02.8	#-369	24	+EPZ	1311 24.6	
22	+EPZ	0118 46.2		24	+EpPZ	1457 33.0	#-378
22	+EPZ	0637 02.0		24	−EPZ	1521 45.6	
22	+EPZ	0730 47.5	#-370	24	+IPZ	1601 17.2	#-379
22	+EPZ	0903 43.0		24	−EPZ	1735 29.4	
22	+EPZ	1001 27.0		24	+EPZ	1735 33.5	
22	+EPKpdlZ	1943 05.0	#-371	24	+EPZ	1832 13.2	
22	+EXZ	1943 30.4	#-371	25	+EPZ	0521 22.0	
22	+EPZ	2001 26.2	#-372	25	+EPZ	0549 10.6	#-380
23	−EPZ	0031 32.8		25	+EPcPZ	0549 14.6	#-380
23	−IPZ	0310 48.2	#-373	25	+EPZ	0648 13.2	

Table 1. Continued.

Date	Phase	Time H M S	Remarks	Date	Phase	Time H M S	Remarks
25	−EPZ	1038 48.4		28	−EPZ	2114 02.6	#-387
25	−EPZ	1321 10.8		28	−EPZ	2341 34.0	
25	+EPZ	1333 12.8		29	−EPZ	0111 09.4	#-388
26	+EPZ	0047 12.0		29	+EPZ	0120 40.0	
26	+EpPZ	0102 41.8	#-381	29	+EPZ	0128 13.0	
26	+EPZ	0116 44.6		29	+EPZ	0321 41.4	
26	−EPZ	0544 20.0	#-382	29	+EPZ	0405 29.6	
26	+EPZ	0651 13.6	#-383	29	−EXZ	0632 55.0	#-389
26	−EsPZ	0651 21.6	#-383	29	+EPZ	0633 22.4	
26	+EPZ	1959 26.6		29	+EPZ	0805 44.4	
26	+EPZ	1959 29.8		29	+EPZ	0841 48.8	
26	+EPZ	2126 04.8		29	+EPZ	1455 38.3	
26	+EPZ	2216 01.6		29	+EPZ	1501 13.2	
27	+EPZ	0017 07.4	#-384	29	+EPZ	1501 30.2	
27	+EPZ	0221 34.4	#-385	29	−IPZ	1537 04.2	
27	+EPZ	0258 54.8	#-386	29	−EPZ	1537 33.0	
27	+EPZ	1046 41.4		29	+EPZ	1925 26.2	#-390
27	−EPZ	1326 00.8		29	+EXZ	1925 43.6	#-390
27	+EPZ	1620 08.2		29	−EPZ	2004 16.8	#-391
27	+IPZ	2333 47.4		29	−ESH	2015 12.0	#-391
27	+EPZ	2349 36.6		29	−EPZ	2340 33.8	
28	+EPZ	0036 26.2		30	+EPZ	0001 05.4	#-392
28	+EPZ	0049 29.4		30	+EPZ	0012 10.5	
28	+EPZ	0448 29.0		30	+EPZ	0254 22.0	
28	+EPZ	0535 02.7		30	+EPZ	0344 14.9	
28	+EPZ	0843 31.0		30	+EPZ	0653 45.0	#-393
28	−EPZ	0843 46.4		30	+EpPZ	0653 51.2	#-393
28	+EPZ	0853 53.6		30	+EPZ	0806 31.4	
28	+EPZ	0934 41.6		30	+EPZ	1101 18.4	
28	+EPZ	1107 16.1		30	+EPZ	1204 45.0	#-394
28	−EPZ	1420 10.0		31	+EPZ	0146 45.3	
28	+EPZ	1739 53.8		31	+EPZ	0239 23.2	
28	+EPZ	1740 03.6		31	−EPZ	0347 19.0	#-395

Table 1. Continued.

Date	Phase	Time H M S	Remarks	Date	Phase	Time H M S	Remarks
31	+EPZ	0907 10.6	#-396	3	−EPZ	0836 00.2	
31	+EPcPZ	1627 29.5	#-397	3	+EPZ	1007 30.4	
31	+EPZ	1654 48.4		3	+EPZ	1126 01.0	
31	+EPZ	1903 09.6		3	+EPZ	1443 35.0	#-407
31	−EPZ	2004 38.4		3	−EPZ	1828 16.4	#-408
31	+EPZ	2004 45.3		3	−EpPZ	1828 19.2	#-408
June				3	+EXZ	1902 23.0	#-409
1	+EPZ	0041 36.4		3	+EXZ	1902 26.0	#-409
1	+EPZ	0204 01.8		4	+EPZ	0000 30.2	
1	+EPZ	0350 01.7		4	+EPZ	0116 38.0	#-410
1	+EPZ	0417 07.5		4	+EPZ	0345 11.3	
1	+EPZ	1040 14.8		4	−EPZ	1035 21.2	
1	+EPZ	1044 03.9		4	+EPZ	1041 06.4	
1	+EPZ	2137 58.4	#-398	4	+EPZ	1350 05.0	
2	+EPZ	0033 21.4	#-399	4	+EPZ	1632 42.8	#-411
2	+EpPZ	0033 28.0	#-399	4	+EPZ	1709 14.6	
2	+EPZ	0144 21.4	#-400	4	+EPZ	1722 48.0	
2	+EPcPZ	0144 31.2	#-400	4	−IPZ	1730 31.0	
2	−EPZ	0229 42.0	#-401	4	+EPZ	1925 41.6	
2	−EPcPZ	0229 46.0	#-401	4	−EPZ	2209 02.0	
2	−EsPZ	0229 51.7	#-401	5	−EPZ	0349 43.0	
2	+EPZ	0239 28.7	#-402	5	−EPZ	0416 31.8	
2	+EPcPZ	0239 32.2	#-402	5	+EPZ	0424 17.2	
2	−EPZ	0247 10.2		5	−EPZ	0743 49.8	
2	+EPZ	0307 50.5	#-403	5	+EPZ	1612 56.5	
2	+EPZ	0403 03.0	#-404	5	−EPZ	1820 34.4	#-412
2	+EpPZ	0403 11.4	#-404	5	+EPcPZ	1820 45.5	#-412
2	+EPZ	1438 14.4		5	+EPZ	2111 01.5	#-413
2	+EPZ	1609 42.6		5	−EPcPZ	2111 04.0	#-413
2	+EPZ	1615 03.9		5	+EPZ	2129 36.6	#-414
2	+EPZ	1733 41.8		6	−EPKPdIZ	0435 10.0	#-415
2	+EPZ	2149 23.0	#-405	6	+EPKPabZ	0435 21.2	#-415
3	+EPZ	0443 04.0	#-406	6	+EPZ	0507 27.8	

Table 1. Continued.

Date	Phase	Time H M S	Remarks	Date	Phase	Time H M S	Remarks
6	+EPKpdZ	0611 40.7	#416	8	+EPZ	2032 02.8	
6	−EPZ	0612 06.0		8	−EPZ	2231 42.0	
6	−EPZ	1544 35.4	#417	8	+EPnZ	2336 05.0	#427
6	−EPZ	1603 44.4		8	+EsPZ	2336 08.0	#427
6	−EPZ	2100 07.8		8	+EPZ	2342 04.6	
6	+EPZ	2204 04.8	#418	9	−EPZ	0319 14.0	
6	+EXZ	2204 12.0	#418	9	−EPZ	0553 21.2	
6	−EPZ	2204 42.8		9	+EPZ	0553 34.0	
7	−EPZ	0231 01.0		9	−EPZ	0749 45.4	
7	+EPZ	0529 07.2		9	−EPZ	1120 15.2	
7	+EPZ	0537 07.8	#419	9	−EPZ	1248 43.6	
7	+EPZ	0750 12.6		9	+EPZ	1521 43.6	#428
7	+EPZ	0750 16.8		9	+EPZ	1708 51.6	
7	+EPZ	0941 27.2		9	+EPZ	2252 14.2	#429
7	+EPZ	1258 01.2	#420	9	+EsPZ	2252 20.8	#429
7	−EXZ	1300 05.5	#420	9	+EPZ	2352 10.1	
7	−ESH	1307 39.2	#420	10	−EPZ	0304 42.0	#430
7	+EXZ	1518 10.4	#421	10	−EPcPZ	0304 47.4	#430
7	+IXZ	1756 59.0	#422	10	+EPZ	0639 30.8	
7	−EPZ	1815 36.6		10	+EPZ	0723 53.6	
7	−EPZ	2128 16.0		10	+EXZ	0823 03.6	#431
7	−EPZ	2358 25.4		10	+EPZ	1508 36.4	
8	−EPZ	0116 37.0		10	+EPKpdZ	1614 07.6	#432
8	+EPZ	0344 19.6	#423	10	−EPZ	1649 27.2	
8	+EXZ	0344 33.4	#423	10	−EPZ	1743 04.7	
8	+EPZ	0444 47.8	#424	10	+EPZ	1910 00.4	
8	−EPcPZ	0444 51.4	#424	10	+EPZ	2118 14.5	
8	−ESH	0454 23.6	#424	10	+EPZ	2134 01.6	
8	+EpPZ	1113 17.5	#425	10	−EPZ	2321 19.8	#433
8	−EPZ	1501 45.6	#426	10	−EPZ	2323 40.0	#433
8	−EPcPZ	1501 49.6	#426	11	+EPZ	0027 40.0	#434
8	+EPZ	1643 17.2		11	−EPKpdZ	0154 36.0	#435
8	+EPZ	1830 01.6		11	−EPZ	0237 14.0	

Table 1. Continued.

Date	Phase	Time H M S	Remarks	Date	Phase	Time H M S	Remarks
11	−EPZ	0350 05.4	#436	14	−EPZ	0347 45.0	
11	+EPcPZ	0350 09.9	#436	14	+EXZ	0611 55.0	#444
11	+EPZ	0726 31.2		14	+EpPZ	0829 25.0	#445
11	+EPZ	0904 27.0	#437	14	+EPZ	0832 41.0	#446
11	−EPZ	1218 09.0		14	−EPZ	1032 05.8	
11	−EPZ	1937 15.0		14	+EpPZ	1837 49.6	#447
11	+EPZ	1949 16.2		14	+EPZ	1942 04.3	
11	+EPZ	2057 04.8		14	−EPZ	2031 08.4	#448
11	+EPZ	2138 17.4		14	+EsPZ	2031 14.0	#448
12	+EPZ	0244 07.8		14	+EPZ	2121 36.4	#449
12	−EPZ	0553 38.0		14	−EPcPZ	2121 40.0	#449
12	+EPZ	0900 16.4	#438	14	−EPZ	2216 22.8	#450
12	+EPZ	0937 20.0	#439	14	−EPZ	2253 39.0	
12	+EPcPZ	0937 22.0	#439	15	+EPZ	0009 34.4	
12	−EPZ	0956 53.4	#440	15	−EpPZ	0347 36.0	#451
12	−IpPZ	0957 00.0	#440	15	−IPZ	1218 04.2	#452
12	+EPZ	1201 25.6		15	+EPcPZ	1218 09.0	#452
12	+EPZ	1339 14.0		15	−IPZ	1317 11.0	#453
12	−EPZ	1445 31.8		15	−IpPZ	1317 23.6	#453
12	−EPZ	2058 48.8	#441	15	+EPZ	1357 39.6	#454
12	−EXZ	2058 50.6	#441	15	+EPcPZ	1357 44.2	#454
13	+EPZ	0015 15.0		15	+EXZ	1438 36.0	#455
13	−EPZ	0050 35.4		16	−EPZ	1302 53.2	
13	+EPZ	0515 05.0		16	+EPZ	1622 03.4	
13	+EPZ	1132 35.4		16	−IPZ	2010 42.0	
13	+EPZ	1736 16.4		16	+EPZ	2256 25.3	
13	+EPZ	1736 35.0		17	+EPZ	0355 49.0	
13	+IPZ	2022 59.0	#442	17	+EPZ	0815 25.0	
13	−EPcPZ	2023 05.0	#442	17	−EPZ	1047 33.6	
13	−EPZ	2133 05.8	#443	17	+EPZ	1157 33.0	#456
13	−EXZ	2133 11.4	#443	17	−IPcPZ	1157 41.8	#456
14	+EPZ	0034 51.6		17	−EsPZ	1157 49.0	#456
14	+EPZ	0116 35.4		17	+EPZ	1303 41.9	

Table 1. Continued.

Date	Phase	Time H M S	Remarks	Date	Phase	Time H M S	Remarks
17	+EPZ	1304 25.2		21	+EXZ	1246 43.4	#461
17	+EPZ	1519 31.7		21	+EPKPabZ	1246 49.2	#461
17	+EPZ	1821 03.8		21	−EPZ	1356 01.4	
17	+EPZ	2259 14.4		21	+EPZ	1554 28.2	
18	+EPZ	0017 00.6		21	+EPZ	1632 51.4	
18	+EPZ	0017 04.7		22	+EPZ	0145 46.2	
19	+EPZ	1048 02.2		22	−EPZ	1603 33.7	
19	+EPZ	1048 35.0		22	−EPZ	1711 26.0	#462
19	+EPZ	1732 06.5		22	−IPKPdfZ	1835 17.8	#463
19	−EPZ	1759 21.5		22	−IPKPbcZ	1835 20.7	#463
19	+EPZ	1814 50.8		22	+EPKPdfZ	1924 54.6	#464
19	−EPZ	2203 06.4		22	−EPKPbcZ	1924 57.8	#464
20	+EPZ	0122 10.0		22	+EPZ	1925 09.5	
20	+EPZ	0306 41.2		22	+EPZ	1947 47.6	
20	−EXZ	0411 47.4	#457	22	+EPZ	1947 54.5	
20	+EpPKiKPZ	0418 25.6	#457	22	+EPKPdfZ	2015 09.6	#465
20	+EPZ	0412 39.8	#458	22	−EPKPbcZ	2015 18.6	#465
20	+EPZ	0558 31.2		22	+IpPKPbcZ	2015 33.6	#465
20	+EPZ	0612 44.4		22	+EPKPbcZ	2125 32.0	#466
20	−EPZ	0621 03.0		22	−EpPKPbcZ	2125 42.2	#466
20	−EPZ	0733 12.0		22	−IPZ	2235 39.2	#467
20	−EPZ	0933 05.0	#459	22	−EPcPZ	2235 42.0	#467
20	+EXZ	0933 15.6	#459	22	−EPZ	2305 05.6	
20	+EPZ	1141 08.8		22	+EPZ	2323 01.4	#468
20	+EPZ	1156 42.6	#460	22	+EPZ	2357 22.4	
20	+EPZ	1258 41.8		23	−EPZ	0208 20.0	
20	−EPZ	1323 28.4		23	−EPZ	0643 06.6	#469
20	+EPZ	1436 24.8		23	−EPcPZ	0643 09.6	#469
20	−EPZ	2055 25.7		23	−IPKPdfZ	0756 21.5	#470
20	+EPZ	2108 43.8		23	−EPKiKPZ	0756 24.4	#470
21	+EPZ	0442 10.4		23	+EPZ	1219 30.8	#471
21	+EPZ	0442 19.6		23	+EXZ	1223 11.0	
21	+EPZ	0852 06.2		23	+EPZ	1421 48.7	

Table 1. Continued.

Date	Phase	Time H M S	Remarks	Date	Phase	Time H M S	Remarks
23	−IPZ	1432 25.2	#472	28	+EPZ	0758 26.0	#479
23	−IPcPZ	1432 27.4	#472	28	−EPZ	1138 03.8	
23	−ESH	1443 34.0		28	+EPZ	1347 42.9	
23	+IPZ	1432 30.3	#473	28	+EXZ	1431 31.8	#480
24	+EPZ	0144 07.4		28	−EXZ	1432 17.0	#481
24	−EPZ	0445 49.0		28	+EpPZ	1432 26.4	#481
24	+EPZ	1124 22.2	#474	28	−EPZ	1440 59.4	
24	+EPcPZ	1124 33.6	#474	28	+EPZ	1641 18.4	
24	−EPZ	1321 32.2		28	+EPZ	2336 57.1	
24	−EPZ	1650 50.6		29	+EPZ	0307 34.4	
24	+EPZ	2110 28.8		29	−EPZ	0317 11.8	#482
24	−EPZ	2127 03.6		29	+EPZ	1105 22.6	
24	−EPZ	2127 15.0		29	+EPZ	1105 26.0	
25	−EPZ	0447 37.0		29	−EPZ	1123 18.4	
25	−EPZ	0656 19.9	#475	29	−EPZ	1129 24.9	
25	+EPZ	1243 48.0	#476	29	−EPZ	1129 26.0	
25	−EsPZ	1243 53.4	#476	29	+EPZ	1208 36.5	#483
25	+EPZ	2202 04.2		29	−EPcPZ	1208 41.5	#483
26	+EPZ	2016 09.1		29	−EPZ	1226 34.5	
26	−EPZ	2019 31.8		29	+EPZ	1313 24.8	#484
27	−EPZ	0154 20.0		29	−EpPZ	1313 39.0	#484
27	−EPZ	0631 40.2		29	+EPZ	1336 04.1	
27	−EXZ	0807 31.0	#477	29	+EPZ	1525 02.2	
27	−EXZ	0812 22.0	#477	29	+EPZ	1525 03.0	
27	+EPZ	0921 46.0		29	+EPZ	1657 23.0	
27	+EPZ	1036 22.5		29	+EPZ	1705 17.0	
27	+EPZ	1554 18.4		29	+EPZ	1725 05.0	
27	−EPZ	1554 21.0		29	+EPZ	1725 15.6	
27	−IPZ	1554 24.2		29	+EXZ	1734 53.6	#485
27	−EPZ	1650 19.0		30	−IPZ	0426 29.4	#486
27	−EPZ	1902 15.6		30	−EpPZ	0426 42.8	#486
27	+EPZ	2140 02.8		30	+EPZ	0522 44.3	
28	+EPZ	0011 45.3	#478	30	+EPZ	0557 05.0	

Table 1. Continued.

Date	Phase	Time H M S	Remarks	Date	Phase	Time H M S	Remarks
30	+EPZ	0706 34.0	#487	5	−EPZ	0014 06.4	
30	+EPZ	0729 56.7	#488	5	−EPZ	0313 50.0	
30	+EsPZ	0730 03.2	#488	5	+EPZ	0542 31.0	
30	+EPZ	1019 07.0		5	+EPZ	0638 02.2	
30	+EPZ	1804 10.3		5	+EPZ	1339 05.6	
30	−EPZ	2004 38.2		5	+EPZ	1339 24.9	
July				6	+EPZ	0021 24.5	
1	+EPZ	0004 33.6	#489	6	+EPZ	0103 47.4	
1	−ESH	0014 18.0	#489	6	+EPZ	0251 19.4	
1	+EPZ	0253 13.4		6	−EPZ	1246 38.0	
1	+EPZ	0306 43.2		6	−IPZ	1513 02.8	
1	−EPZ	1850 46.6		6	+IPZ	2121 37.7	
1	+EPZ	1910 00.8	#490	7	+EPZ	0833 30.6	
1	+EPcPZ	1910 12.5	#490	7	−EPZ	0833 40.3	
1	+EPZ	2123 38.4		7	+EPZ	1657 19.0	
1	−EPZ	2123 54.8		7	+EPZ	2305 34.7	
2	+EPZ	0322 44.2	#491	8	−EPZ	0135 20.9	
2	−EPZ	0331 36.8	#492	8	−EPZ	0849 43.2	
2	−EPZ	0443 45.2	#493	8	+EPZ	1203 37.2	
2	−EPZ	0701 41.0	#494	8	−EPZ	1539 13.4	
2	−IPZ	0735 20.4	#495	8	−EPZ	1623 00.9	
2	+EPZ	1847 00.8		8	+EPZ	1934 57.6	
2	+EPZ	2221 11.8		8	−EPZ	1935 06.7	
3	−EPZ	0112 16.0		8	+EPZ	2134 23.9	
3	−EPZ	0614 25.2	#496	8	−EPZ	2134 28.4	
3	−EpPZ	0614 28.9	#496	9	+EPZ	1508 28.7	
3	−EPZ	1339 47.4	#497	10	+EPZ	0046 39.8	
3	−EpPZ	2034 26.0	#498	10	+EPZ	0110 50.5	
3	−EsPZ	2034 30.2	#498	10	+IPZ	0400 26.8	#499
4	+EPZ	0620 56.2		10	−IPcPZ	0400 29.8	#499
4	+EPZ	1354 40.4		10	+EPZ	1602 46.6	
4	−EPZ	1554 35.7		10	+EPZ	2006 28.6	
4	−EPZ	2336 35.0		11	+EPZ	0205 05.0	#500

Table 1. Continued.

Date	Phase	Time H M S	Remarks	Date	Phase	Time H M S	Remarks
11	+EsPZ	0205 11.3	#-500	14	+EPZ	0440 12.7	
11	+EPZ	0404 18.8		14	+EPKPdfZ	1146 07.2	#-508
11	-EPZ	0618 03.2		14	+EPZ	1814 41.5	#-509
11	+EPZ	1213 23.8		14	+EpPZ	1814 47.0	#-509
11	-IPZ	1248 04.0	#-501	14	-IPZ	1819 32.3	
11	+EpPZ	1248 14.0	#-501	14	-IPZ	1819 37.2	
11	+EPZ	1420 44.2		14	+EPZ	2014 35.3	
11	+EPZ	1940 02.0		14	-EPZ	2053 19.6	
11	-EPZ	2203 47.6		15	+EPZ	0427 31.8	
12	+EPZ	0311 05.0	#-502	15	+EPZ	0544 19.4	
12	+EPZ	0624 48.0	#-503	15	+EPZ	0825 42.0	
12	-IPcPZ	0624 50.0	#-503	15	-EPZ	0932 26.0	
12	-ESH	0634 53.4		15	-IPZ	0932 29.4	
12	+EPZ	1229 16.4		15	+EPZ	1045 02.8	
12	-EPZ	1454 45.6	#-504	15	-EPZ	1400 40.4	#-510
12	+EpPZ	1455 01.4	#-504	15	-IpPZ	1400 41.8	#-510
12	-EPZ	1932 00.6		15	-EPZ	1425 21.4	
12	+EPZ	2213 01.0		15	+IPZ	1533 09.6	#-511
12	-EPZ	2312 11.6	#-505	15	+EXZ	1533 15.5	#-511
12	-EPcPZ	2312 34.0	#-505	15	-ESH	1543 17.4	#-511
13	-EPZ	0019 17.0	#-506	15	+EPZ	1644 46.4	
13	-EsPZ	0019 23.5	#-506	15	-EPZ	2351 13.0	
13	+EPZ	0214 17.4		16	+EPZ	0034 01.4	#-512
13	+EPZ	0632 10.2		16	+EpPZ	0034 04.2	#-512
13	-EPZ	0726 20.6		16	-EPZ	0054 42.0	#-513
13	+IPZ	1104 09.0		16	+EPZ	0223 09.7	#-514
13	-IPZ	1104 19.4		16	+EpPZ	0329 08.4	#-515
13	-IPZ	1104 29.4		16	-EPZ	0455 04.8	
13	-EPZ	1823 16.8		16	+EPZ	0639 59.3	
13	-EPPZ	1824 03.8	#-507	16	-EpPZ	0640 05.2	#-516
13	+EPZ	1905 43.0		16	-EXZ	0649 52.4	#-517
13	+EPZ	2240 08.0		16	+EPZ	0956 32.8	
13	+EPZ	2241 41.0		16	-EPZ	1005 23.4	

Table 1. Continued.

Date	Phase	Time H M S	Remarks	Date	Phase	Time H M S	Remarks
16	−EPZ	1518 26.0	#-518	20	+EPZ	0413 05.2	
16	+EPZ	1623 38.0	#-519	20	+EPZ	0645 09.0	
16	+EPZ	1747 42.4		20	−EPZ	1357 02.4	
16	+EPZ	1812 17.0		20	−EPZ	1357 06.9	
16	−EPZ	2028 32.5		20	−EPZ	1532 49.0	#-532
16	+EPZ	2228 14.8	#-520	20	−EpPZ	1533 00.4	#-532
16	−IPZ	2228 23.0	#-520	20	−EsPZ	1533 02.4	#-532
16	−EPZ	2228 25.0	#-520	20	+EPZ	2311 36.4	#-533
16	+EpPZ	2311 03.2	#-521	20	−EpPZ	2311 39.4	#-533
16	+EPZ	2354 05.8		21	+EPZ	0726 33.0	#-534
17	+EPZ	0333 06.6	#-522	21	+EpPZ	0727 06.1	#-534
17	−EXZ	0649 31.2	#-523	21	−EPZ	0852 01.2	
17	+EPZ	0724 51.4	#-524	21	−EPZ	1152 37.0	#-535
17	+IPZ	0753 47.2		21	−EPcPZ	1152 41.6	#-535
17	+EPZ	0913 09.6	#-525	21	−EPZ	1632 01.2	
18	−EPZ	0053 52.0		21	+EPZ	1632 14.4	
18	−EPZ	0911 19.0		21	+EXZ	1727 10.3	#-536
18	+EPZ	0911 39.8		21	+EPZ	2005 36.1	#-537
18	+EPZ	1440 32.6		21	+EpPZ	2005 41.0	#-537
18	+EPZ	1543 46.0	#-526	21	+EPcPZ	2006 29.9	#-537
18	−EpPZ	1719 05.2	#-527	22	−EPZ	0046 26.0	
18	+EPZ	2255 28.0		22	−EPZ	0046 55.8	
19	+EPZ	0146 06.3		22	+EPZ	0053 26.0	
19	+EPZ	0256 27.0		22	+EPZ	0406 30.0	#-538
19	+EPZ	0521 29.4	#-528	22	−EPZ	0758 27.5	
19	−EsPZ	0521 36.6	#-528	22	+EPZ	1007 03.0	
19	+EPZ	0858 44.6	#-529	22	−EPZ	1007 07.4	
19	−EPcPZ	0859 32.6	#-529	22	+EPZ	1231 41.6	
19	+EPZ	1150 55.6	#-530	22	+EPZ	1708 30.5	
19	+EpPZ	1151 04.2	#-530	22	+EPZ	2004 01.6	
19	+EPZ	1443 08.5		22	+EPZ	2004 06.8	
19	−EPZ	2132 07.8		22	+EPZ	2246 35.0	
20	+EPZ	0349 28.1	#-531	23	+EPZ	0328 10.8	

Table 1. Continued.

Date	Phase	Time H M S	Remarks	Date	Phase	Time H M S	Remarks
23	+EPZ	0433 15.3		26	+EPZ	0755 33.3	
23	−EPZ	0433 27.6		26	+EPcPZ	0953 21.0	#-548
23	+EPZ	0716 38.7		26	+EsPZ	1238 47.6	#-549
23	+EPZ	0724 00.4		26	+EPZ	1539 49.6	#-550
23	+EPZ	1329 51.3		26	+EPZ	1548 00.6	
23	+EPZ	1547 50.7		26	+EPZ	1827 38.6	
23	+EPZ	1919 21.8		26	+EpPZ	1958 04.0	#-551
24	+EPZ	0640 06.0		26	+EPZ	2201 22.0	
24	+EPZ	0644 35.0		26	−EPZ	2201 31.0	
24	+EPZ	1019 26.6		26	+EPZ	2314 07.6	
24	−EPZ	1048 05.0		26	−IPZ	2314 08.8	
24	+EPZ	1447 06.2		26	−EPZ	2314 18.4	
24	−EPZ	1539 28.0		26	−EPZ	2322 06.9	
24	+IPZ	2153 45.4	#-539	27	+EPZ	1109 26.4	#-552
24	+EXZ	2153 50.4	#-539	27	−EPcPZ	1109 41.6	#-552
25	+EPZ	0115 46.2	#-540	27	+EPPZ	1125 11.2	#-553
25	−IPZ	0155 30.5	#-541	27	−EsPZ	1247 43.0	#-554
25	−EPZ	0350 36.4		27	+EPZ	1332 12.7	
25	−EPZ	0350 40.2		27	−EPZ	1332 13.2	
25	+EPZ	0428 22.8	#-542	27	+EPZ	1636 37.0	
25	−EPZ	0633 04.6		27	+EPZ	2151 35.6	
25	+EPZ	0844 01.6		28	−EPZ	0106 20.6	
25	−EPZ	1129 09.7	#-543	28	−EPZ	0136 12.7	
25	−EPZ	1246 02.0		28	−EPZ	0527 47.4	#-555
25	+EPZ	1542 04.0		28	−EPcPZ	0527 50.0	#-555
25	−EPZ	1822 21.0		28	−EPZ	0855 24.4	
25	−EPZ	1854 06.0	#-544	28	+EPZ	1302 29.4	#-556
25	−EsPZ	1854 13.8	#-544	28	−EPcPZ	1302 38.8	#-556
25	−EPZ	1915 13.6	#-545	28	+EPZ	1649 00.2	
25	−EPZ	1931 06.3		28	+EPZ	1649 15.0	
25	+EPZ	2155 17.5		29	+EPZ	0105 08.6	
26	+EPZ	0515 19.0	#-546	29	−EPZ	0642 04.0	
26	+EPZ	0619 43.8	#-547	29	−EPZ	0852 57.0	#-557

Table 1. Continued.

Date	Phase	Time H M S	Remarks	Date	Phase	Time H M S	Remarks
29	+EPcPZ	0853 01.0	#-557	31	+EPZ	1507 17.6	
29	+EPZ	0942 49.4	#-558	31	+EPZ	1507 52.6	#-570
29	-EpPZ	0942 51.8	#-558	31	+EPZ	1938 21.0	
29	-EPZ	1039 28.0		Aug.			
29	-EPZ	1510 31.5		1	+EPZ	0101 25.0	
29	+EPZ	1831 15.0		1	+EPZ	0247 44.4	
29	+EPZ	2009 36.8	#-559	1	-EPZ	0315 35.6	
29	-EXZ	2146 25.0	#-560	1	+EPZ	0356 52.3	
29	+EPZ	2331 40.8		1	-EPZ	0356 53.2	
29	-EPZ	2332 51.0	#-561	1	+EPZ	0633 27.0	
30	+EXZ	0216 43.4	#-562	1	-EPZ	1152 47.2	
30	+EPZ	0216 50.0	#-562	1	+EPZ	1316 37.4	
30	+EPZ	0251 11.5		1	-EPZ	1323 24.8	
30	+EPZ	0251 15.0		1	+EPZ	1342 58.2	
30	-EPZ	0451 04.9		1	+EPZ	2212 41.6	#-571
30	+EPZ	0602 35.0		1	+EPcPZ	2212 49.4	#-571
30	-EPZ	0844 19.4	#-563	1	+EPZ	2319 36.0	#-572
30	+EPZ	0908 17.2		2	+EPZ	0347 02.0	
30	+EPZ	1936 24.4		2	-EPZ	0907 33.2	#-573
30	+EPZ	2018 19.2	#-564	2	+IpPZ	0907 45.0	#-573
30	-EsPZ	2018 25.6	#-564	2	-EPZ	1317 46.0	
31	-EPZ	0017 17.0	#-565	2	+EPZ	1317 50.8	
31	+EPZ	0153 11.0		2	-EXZ	1334 45.0	#-574
31	+EPZ	0153 14.2		3	-EPZ	0341 53.4	#-575
31	+EPZ	0621 12.5		3	+EPZ	0618 09.2	
31	+EPZ	0819 56.4	#-566	3	+EPZ	1344 59.4	#-576
31	-EPcPZ	0820 00.4	#-566	3	-EPZ	1638 39.4	
31	+EPZ	0823 35.2	#-567	3	+EPZ	1819 17.0	
31	-EpPZ	0823 38.6	#-567	3	-EPZ	2022 48.2	#-577
31	-EPZ	1019 14.0		3	-EpPZ	2256 54.8	#-578
31	-EsPZ	1111 55.4	#-568	4	-EPZ	0625 00.2	
31	+EPZ	1337 40.0		4	+EPZ	1009 12.0	
31	-EPcPZ	1422 38.0	#-569	4	-EPZ	1810 14.4	#-579

Table 1. Continued.

Date	Phase	Time H M S	Remarks	Date	Phase	Time H M S	Remarks
4	+EPZ	1913 17.4		7	−EPZ	2041 56.4	#-586
5	−EPZ	0214 53.0		7	+EsPZ	2042 03.6	#-586
5	−EPZ	0215 01.5		8	+EPZ	0655 12.2	
5	+EXZ	0435 16.7	#-580	8	+EPZ	0912 01.8	
5	+EsPZ	0435 24.0	#-580	8	−EPZ	0912 11.8	
5	−EpPZ	0639 06.6	#-581	8	+EPZ	0942 00.2	#-587
5	+EPcPZ	0639 37.0	#-581	8	+EXZ	1039 22.5	#-588
5	+EPZ	0841 39.4		8	+EPZ	1122 57.2	#-589
5	+EPZ	0841 41.4		8	+EPZ	1212 08.0	
5	+EPZ	0841 45.5		8	+EPZ	1812 15.7	
5	+EPZ	0841 53.4		8	−EPZ	2204 29.0	#-590
5	−ESH	0849 50.0		8	−IXZ	2204 30.4	#-590
5	−EPZ	1018 10.0		8	−ESH	2214 00.6	#-590
5	+EPZ	1101 08.0	#-582	8	+EPZ	2249 20.8	
5	−EPZ	1215 39.0		8	−EPZ	2330 37.0	
5	−EPZ	1331 37.8		9	+EPZ	0201 36.7	
5	−EPZ	1445 23.6		9	+EPZ	0642 12.7	
5	+EPZ	1445 28.0		9	−EXZ	0722 08.0	#-591
5	+EPZ	1509 27.0		9	+EPZ	0743 03.6	
5	+EPZ	1747 32.4	#-583	9	−EXZ	1114 14.8	#-592
5	+EPZ	1731 37.8		9	−IPKiKPZ	1114 16.3	#-592
5	+EPZ	1731 40.1		9	+EPZ	1322 27.0	
5	−EPZ	2106 02.6		9	+EPKpdlZ	1619 45.6	#-593
5	+EPZ	2153 11.0	#-584	9	+EPZ	1838 14.2	
5	+EPcPZ	2154 06.0	#-584	9	−EPZ	2121 13.0	
5	−EPZ	2336 29.7		9	−EPZ	2310 46.4	
6	+EPZ	0230 21.7		10	+EPZ	0304 03.2	
6	+EPZ	0340 18.8		10	+EPZ	0419 30.2	#-594
6	−EPZ	1538 31.6		10	−IPcPZ	0419 32.6	#-594
6	+EPZ	1755 02.0		10	−ESH	0430 23.0	#-594
7	+EPZ	0239 28.6		10	+EXZ	0541 14.4	#-595
7	+EPZ	1023 29.4		10	−EpPZ	0541 28.8	#-595
7	−EsPZ	1747 27.5	#-585	10	+EPZ	0550 03.2	

Table 1. Continued.

Date	Phase	Time H M S	Remarks	Date	Phase	Time H M S	Remarks
10	+EPZ	1151 42.7		13	−IPZ	0934 35.0	
10	−EPZ	1422 33.6	#-596	13	+EPZ	1242 24.5	
10	−EpPZ	1422 34.2	#-596	13	+EPZ	1251 03.4	
10	−EXZ	1434 42.6	#-597	13	+IPZ	2048 34.0	
10	−IXZ	1434 44.4	#-597	13	−EPZ	2048 45.3	
10	+EPZ	1759 30.2		13	+EPZ	2358 37.0	
10	+EPZ	1841 11.0		13	+EPZ	2358 44.7	
10	+EPZ	1841 13.5		14	+EPZ	0034 39.6	
10	+IPZ	2008 39.2		14	−EPZ	0244 13.0	#-602
10	−ESH	2019 10.8		14	−EPcPZ	0244 14.8	#-602
10	−EPZ	2304 43.6	#-598	14	−EPZ	0404 10.8	
11	+EPZ	1012 18.8		14	+EPZ	0411 12.0	
11	−IPZ	1145 25.6		14	+EPZ	0641 31.0	
11	−EPZ	2007 51.4		14	−EPZ	0832 49.2	#-603
11	−EPdiffZ	2157 25.0	#-599	14	+IPZ	0832 53.2	#-603
12	+EPZ	0241 36.5		14	+EPZ	0907 24.0	
12	+EPZ	0824 01.9		14	+EPZ	1223 46.3	
12	+EPZ	1312 42.1		14	+EPZ	1223 47.6	
12	−EPZ	1456 13.5	#-600	14	+EPZ	1952 42.0	
12	−ESH	1506 50.0	#-600	14	+EXZ	1952 50.3	#-604
12	+EPZ	1603 30.2		15	+EPZ	0214 40.8	
12	+IPZ	1811 43.0		15	+EPZ	0214 46.0	
12	−IPZ	1811 47.8		15	−EPZ	0234 47.0	
12	−ESH	1820 45.0		15	+EPZ	0234 49.6	
12	−EPZ	2307 41.8		15	−EPZ	0242 35.7	
12	−EPZ	2307 45.2		15	+EPZ	0303 17.0	
12	−ESH	2316 17.8		15	−EPZ	0705 44.4	#-605
13	+EPZ	0359 15.2	#-601	15	+EPZ	0722 35.0	
13	−EPZ	0359 17.6	#-601	15	+EPZ	1150 29.6	
13	+EPZ	0721 14.0		15	+EPZ	1237 34.6	
13	−EPZ	0721 26.9		15	−IPZ	1242 42.4	#-606
13	+EPZ	0934 22.7		15	−EPcPZ	1242 45.2	#-606
13	+EPZ	0934 31.0		15	−EPZ	1405 19.7	

Table 1. Continued.

Date	Phase	Time H M S	Remarks	Date	Phase	Time H M S	Remarks
15	+EPZ	1550 17.0		17	−EPZ	1359 11.4	
15	+EPZ	1641 22.0	#-607	17	−EPZ	1407 36.4	#-624
15	+EPZ	1714 03.2		17	−EPZ	1426 05.8	#-625
15	+EPZ	2120 32.0	#-608	17	+EPZ	1706 34.6	#-626
15	+EPZ	2224 02.6		17	+EsPZ	1706 51.2	#-626
15	+EPcPZ	2342 05.8	#-609	17	+EPZ	2352 08.3	
16	−EPZ	0455 01.0		18	+EPZ	0040 15.0	#-627
16	+EPZ	0738 02.8	#-610	18	−EPZ	0112 00.0	#-628
16	+IXZ	0738 11.0	#-610	18	−EPcPZ	0112 03.6	#-628
16	−IPZ	0750 19.4	#-611	18	−EPZ	0112 00.0	
16	−IpPZ	0750 24.9	#-611	18	−EPZ	0144 02.5	#-629
16	−IPcPZ	0750 29.0	#-611	18	−EpPZ	0144 28.0	#-629
16	−ESH	0800 18.2	#-611	18	−EPZ	0213 09.4	
16	+EPZ	0855 18.6		18	+EPZ	0940 53.4	#-630
16	+EPZ	1033 41.7	#-612	18	−EXZ	0941 01.0	#-630
16	−EXZ	1057 24.0	#-613	18	−EPZ	1216 20.0	
16	+EPZ	1139 01.4	#-614	18	+EPZ	1242 47.0	
16	−IPZ	1300 57.2	#-615	18	+EXZ	1332 13.2	#-631
16	−EpPZ	1301 05.2	#-615	18	−EPZ	1424 56.0	#-632
16	−EPZ	1325 33.4		18	+EPZ	1638 40.0	
16	−EPZ	1726 04.0		18	−EPZ	1638 43.0	
16	+EPZ	1742 44.4	#-616	18	+EPZ	1638 47.2	#-633
16	+EPZ	1854 21.2	#-617	18	+EPZ	1802 37.6	#-634
16	−EPZ	1902 10.0	#-618	18	−EPZ	1812 20.0	#-635
16	+EPZ	2005 22.6	#-619	18	−EPZ	2132 31.8	#-636
16	+EPZ	2021 25.4		18	−IPcPZ	2132 36.0	#-636
16	+IPZ	2035 41.8	#-620	18	−ESH	2142 17.3	
16	−EpPZ	2035 50.4	#-620	18	+EXZ	2320 13.4	#-637
16	+EPZ	2205 11.2	#-621	19	−EPZ	0127 14.2	#-638
16	−EPZ	2214 56.0	#-622	19	−EpPZ	0127 32.0	#-638
16	−EPcPZ	2214 57.4	#-622	19	−EPZ	0307 07.0	#-639
17	−EPZ	0019 00.4		19	−EPZ	0537 02.5	
17	+EpPdiffZ	1029 38.0	#-623	19	+EPZ	0856 32.2	#-640

Table 1. Continued.

Date	Phase	Time H M S	Remarks	Date	Phase	Time H M S	Remarks
19	+EPZ	1004 45.1		22	+EPZ	1247 14.7	#-651
19	+IPZ	1147 20.0	#-641	22	+EXZ	1338 20.0	#-652
19	+EpPZ	1147 25.6	#-641	22	−EPZ	1525 38.0	
19	−EPZ	1320 28.2	#-642	22	+EPZ	2215 09.0	
19	−EsPZ	1320 35.0	#-642	22	+EPZ	0037 23.5	
19	+EPZ	1901 15.2		22	+EPZ	0037 25.7	
20	−EXZ	0654 32.9	#-643	22	+EPZ	0120 38.0	
20	+EPZ	0703 54.0	#-644	22	+EPZ	0732 17.0	#-653
20	−EsPZ	0704 10.9	#-644	22	−EPcPZ	0732 27.6	#-653
20	−EPZ	0812 11.0		22	+EPZ	0740 23.0	
20	−EPZ	1225 52.7	#-645	23	−IPZ	0838 54.5	#-654
20	+EPcPZ	1225 55.0	#-645	23	+EXZ	0839 01.0	#-654
20	−EPZ	1435 14.6		23	−EPZ	1015 31.0	
20	+EPZ	1923 43.5		23	+EPZ	1015 37.0	
20	+EPZ	2004 27.2		23	−EPZ	1157 31.7	#-655
21	−EPZ	0426 14.8		23	+EPcPZ	1321 35.6	#-656
21	−EPZ	0558 04.5		23	−EpPZ	1537 43.2	#-657
21	−EPZ	0804 07.6		23	+EPZ	1729 09.0	
21	−EPZ	1429 31.3		23	−EPcPZ	1754 22.8	#-658
21	+EPcPZ	1519 53.6	#-646	23	−EPZ	1750 21.2	
21	+EPZ	1610 10.2		23	+EXZ	2324 39.2	#-659
21	−EPZ	1735 38.4	#-647	24	+EXZ	0545 02.8	#-660
21	+EpPZ	1735 51.3	#-647	24	−EPZ	0646 53.4	
21	−EPcPZ	1735 58.7	#-647	24	+EPZ	0646 55.8	
21	−EPZ	1900 43.0	#-648	24	+EPZ	0841 39.6	
21	−EPZ	2105 32.6		24	+EPZ	0841 40.7	
21	−EPZ	2257 15.4		24	+EPZ	1147 13.8	#-661
21	+EPZ	2257 19.4		24	+EPZ	2215 14.2	
22	−EXZ	0139 30.8	#-649	24	+EXZ	2215 30.0	#-662
22	−EXZ	0732 27.6	#-650	25	+EXZ	0507 13.0	#-663
22	+EPcPZ	0732 52.5	#-650	25	+EPZ	0507 25.8	#-663
22	+EPZ	1104 28.4		25	+EPZ	0650 51.1	
22	+EPZ	1246 28.7		25	+EPZ	1145 41.2	

Table 1. Continued.

Date	Phase	Time H M S	Remarks	Date	Phase	Time H M S	Remarks
25	+EPZ	1954 43.8		28	+EPZ	0220 58.6	
25	+EPZ	2046 32.2		28	+EPZ	0229 01.4	
25	−EPZ	2117 08.0		28	+EPZ	0230 18.6	
25	+EPZ	2146 36.4	#-664	28	−IPZ	0231 21.3	
25	+EpPZ	2147 08.9	#-664	28	+EPZ	0305 45.2	#-676
25	+EXZ	2213 10.0	#-665	28	+EPZ	0420 50.0	#-677
26	+EPZ	0203 55.0	#-666	28	+EpPZ	0421 24.0	#-677
26	+EPZ	0743 49.8	#-667	28	+EPZ	0647 35.0	
26	+EPZ	0744 06.2		28	+EPZ	0652 06.2	
26	+EPZ	0749 13.8		28	+EPZ	0841 01.6	
26	−EPZ	0759 37.6		28	−EPZ	0841 04.4	
26	−EPZ	0844 27.8		28	+EPZ	0917 28.2	
26	+EPZ	1150 41.0		28	+EPZ	1217 53.5	
26	−EPZ	1202 33.6	#-668	28	−EPZ	1218 02.4	
26	−EPZ	1523 19.6	#-669	28	−EPZ	1442 18.6	#-678
26	−EPcPZ	1523 25.0	#-669	28	−EsPZ	1442 23.8	#-678
26	−EXZ	2233 19.8	#-670	28	−EPZ	1657 39.0	#-679
26	−IXZ	2340 25.6	#-671	28	+EpPZ	1657 56.0	#-679
26	−ESH	2350 39.8	#-671	28	+EPZ	1708 02.0	
27	+EPZ	0042 07.5	#-672	29	+EPZ	0425 40.0	#-680
27	−EPcPZ	0042 21.0	#-672	29	+EPZ	0456 16.6	
27	−EXZ	0042 41.6	#-672	29	+EPZ	0500 00.7	#-681
27	+EPZ	0201 20.8		29	+EPZ	0734 02.2	
27	−EPZ	0812 53.2		29	+EPZ	0804 14.4	#-682
27	−EPZ	0813 25.6		29	+EPZ	0819 37.2	#-683
27	+EPZ	0842 37.6		29	+EPZ	0901 18.4	
27	+EPZ	0955 16.7		29	+EPZ	1836 08.8	
27	+EPZ	1205 44.0		29	+EPZ	2048 03.6	
27	−EPZ	1206 26.0		29	−EPZ	2343 01.0	
27	+EpPZ	1421 35.2	#-673	30	−EPZ	0157 08.8	
27	−EPZ	2029 13.6		30	+EXZ	0722 11.0	#-684
28	−IXZ	0202 28.6	#-674	30	+EPZ	0750 39.5	
28	+IPPZ	0211 45.4	#-675	30	−EPZ	1403 19.6	

Table 1. Continued.

Date	Phase	Time H M S	Remarks	Date	Phase	Time H M S	Remarks
30	+EPZ	1439 01.4		2	−EPZ	0655 43.4	
30	+EPZ	1504 46.3	#-685	2	−IPZ	0806 34.5	#-691
30	−EXZ	1504 57.7	#-685	2	−ESH	0816 05.4	#-691
30	−ESH	1515 51.6	#-685	2	−EPZ	0918 17.8	
30	+EPZ	1558 28.0		2	−EPZ	0819 25.2	
30	+EPZ	1558 35.0		2	−EPZ	0833 45.0	
30	+EXZ	1955 05.0	#-686	2	+EPZ	0834 03.6	
30	−EXZ	1955 09.4	#-686	2	−EPZ	0940 19.0	#-692
30	+EPZ	2216 07.6	#-687	2	+EPcPZ	0940 31.0	#-692
30	+EPcPZ	2216 09.6	#-687	2	+EPZ	1143 01.6	
31	+EPZ	0204 01.4		2	+EPZ	1144 12.5	
31	−IPZ	0204 02.0		2	−EPZ	1541 27.3	
31	−EPZ	0204 09.0		2	−EPZ	1600 03.8	
31	+EPZ	0903 04.1		2	−EPZ	1811 37.0	
31	+EPZ	1034 07.6		2	−ESH	1821 03.0	
31	+EXZ	1054 43.9	#-688	2	+EXZ	2339 58.2	#-693
31	+EPZ	1432 42.5		3	−EPZ	0242 12.2	
31	+EPZ	1653 10.5		3	+EPZ	0413 45.3	
31	+EPZ	1740 33.4		3	−EPZ	0745 08.2	
Sep.				3	+EPZ	0745 23.0	
1	+EPZ	0635 10.7		3	−EPZ	0918 14.2	#-694
1	+EPZ	0906 09.6		3	−EPcPZ	0918 17.7	#-694
1	+EPZ	0906 17.4		3	+EPZ	1038 46.8	
1	+EPZ	1425 32.5		3	+EPZ	1110 35.0	
1	+EPZ	1712 07.4		3	−EPZ	1152 35.6	
1	+EPZ	1712 09.9		3	−EPZ	1344 44.9	
1	−EPZ	1745 24.8	#-689	3	+EPZ	1506 12.7	
1	−EPcPZ	1745 27.3	#-689	3	+EPZ	1710 51.2	#-695
1	−EPZ	1933 30.0		3	+EPZ	1813 05.9	
1	+IPZ	2359 43.0	#-690	3	−EPZ	2004 45.4	
1	+EPcPZ	2359 55.3	#-690	3	−ESH	2015 12.5	
2	−EPZ	0052 32.4		3	+IPZ	2030 59.0	#-696
2	−EPZ	0436 33.7		4	+EPZ	0103 48.6	#-697

Table 1. Continued.

Date	Phase	Time H M S	Remarks	Date	Phase	Time H M S	Remarks
4	−EsPZ	0104 02.6	#-697	7	+EPZ	0050 52.2	
4	+EPZ	0451 36.9		7	+EPZ	0050 55.4	
4	−EPZ	0719 51.0	#-698	7	+EPZ	0937 22.8	
4	−EPcPZ	0719 55.0	#-698	7	+EPZ	1306 46.4	
4	+EPZ	0818 32.6		7	+IPZ	1623 53.0	#-703
4	−EPZ	1009 24.0		7	−ESH	1633 19.6	#-703
4	+EPZ	1013 06.1		7	−EPZ	2334 05.3	
4	+EPZ	1037 03.0		8	−EPZ	0352 10.8	#-704
4	+EPZ	1127 19.2		8	−EpPZ	0352 25.7	#-704
4	−EPZ	1128 22.8		8	+EPZ	0930 05.1	#-705
4	+EPZ	1427 07.5		8	+EPZ	1115 24.0	
4	+EPZ	1427 10.5		8	+EPZ	1529 47.0	#-706
4	+EPZ	1734 00.9		8	+EpPZ	1530 53.4	#-706
4	−EPZ	1803 18.6		8	−EXZ	1904 08.2	#-707
4	−EPZ	2221 30.3	#-699	8	−EPZ	2234 06.8	#-708
4	+IPnZ	2221 33.6	#-699	8	+EPZ	2306 15.8	
5	−EPZ	0006 29.2		8	+EPZ	2334 29.2	
5	+EPZ	0051 16.2		9	+EpPZ	0002 28.0	#-709
5	−EPZ	0150 05.6		9	+EPZ	0019 17.8	
5	+EPZ	0410 37.6	#-700	9	−EpPZ	0414 12.8	#-710
5	+EPcPZ	0410 40.0	#-700	9	+EpPZ	0658 15.3	#-711
5	−ESH	0420 40.0	#-700	9	−EsPZ	0658 18.4	#-711
5	+EPZ	1522 55.2		9	+EPZ	0819 25.4	
5	+EPZ	1801 04.4		9	+EPZ	0925 43.4	
5	+EPZ	1840 03.3		9	−EPZ	0926 42.8	
6	+EPZ	0424 30.6		9	−EPZ	1044 07.2	#-712
6	−EPZ	0927 44.6		9	−EPZ	1118 08.2	
6	+EPZ	0937 02.7		9	−EPZ	1118 19.5	
6	+EPZ	0937 05.2		9	+EPZ	1408 53.1	
6	−EXZ	2125 41.5	#-701	9	−EPZ	1432 24.9	
6	+EPZ	2303 10.4	#-702	9	−EPZ	1502 17.3	
6	+EPZ	2316 39.2		9	−EPZ	1950 06.9	
6	+EPZ	2350 10.9		9	+EPZ	2319 14.8	

Table 1. Continued.

Date	Phase	Time H M S	Remarks	Date	Phase	Time H M S	Remarks
9	+EPZ	2319 18.0		13	−EPZ	0527 11.0	#-722
10	+EPZ	0303 12.3		13	−IPcPZ	0527 12.2	#-722
10	−EXZ	0306 39.8	#-713	13	+EPZ	0554 46.9	
10	−EPZ	0342 01.5		13	+EPZ	1508 38.4	
10	−EPZ	0342 04.8		13	+EPZ	1508 47.7	
10	+EPZ	0638 35.2		13	−EPZ	1709 01.4	
10	−EPZ	1208 54.0		13	−EPZ	2154 29.4	#-723
10	−EPZ	1703 51.2		13	+EPZ	2155 17.7	
10	+IPZ	1958 07.0	#-714	14	+EPcPZ	1054 33.0	#-724
10	−EpPZ	1958 11.0	#-714	14	+EPZ	1135 33.2	
10	−EPZ	2001 32.9		14	−EPZ	1412 45.2	
10	−EPZ	2153 42.2		15	+EPZ	0109 11.0	#-725
10	+EPZ	2343 25.0	#-715	15	+EPZ	0735 36.6	#-726
10	+EpPZ	2343 28.4	#-715	15	−EPZ	0738 58.0	#-727
10	+EPZ	2347 26.9	#-716	15	−EPZ	1037 15.3	
11	+EPZ	0026 07.5		15	+EPZ	1150 00.7	
11	−EpPZ	0438 36.3	#-717	15	+EPZ	1150 02.4	
11	+EPZ	0620 30.7		15	+EPZ	1436 20.3	
11	+EPZ	0818 19.6		16	+EPZ	0037 08.8	
11	−IXZ	0908 34.0	#-718	16	+EPZ	0037 12.0	
11	+EPZ	0924 28.8		16	−EPZ	0417 32.2	
11	−EPZ	1133 35.5		16	+EPZ	0657 10.0	
11	−EPZ	1320 26.4		16	+EPZ	0834 38.0	
11	+EPZ	1343 25.5		16	+EPZ	1415 55.2	
11	+EPZ	1505 03.2		16	−EPZ	1416 31.8	
11	+EXZ	2112 32.8	#-719	16	−EPZ	1554 20.2	
12	+EPZ	0045 21.7		16	+EPZ	2035 37.7	
12	−EPZ	0256 17.2		16	+EXZ	2110 40.6	#-728
12	+EpPZ	0406 36.4	#-720	16	+EPZ	2111 02.9	
12	+EPZ	0824 06.0		16	+EPZ	2344 04.0	
12	+EPZ	2023 48.5		16	+EPZ	2358 41.9	#-729
12	−EPZ	2033 54.3		16	−EXZ	2358 51.6	#-729
12	−EPPZ	2025 01.0	#-721	17	+EPZ	0003 36.5	

Table 1. Continued.

Date	Phase	Time H M S	Remarks	Date	Phase	Time H M S	Remarks
17	+EPZ	0216 42.6		18	−IXZ	2318 45.4	#-733
17	+EPZ	0505 19.0	#-730	19	+EPZ	0451 01.0	
17	−EPcPZ	0505 21.3	#-730	19	+EPZ	0451 07.3	
17	+EPZ	0551 43.4		19	−EPKiKPZ	0912 50.0	#-734
17	+EPZ	0647 25.5		19	+EPZ	0923 33.4	
17	+IPZ	0931 02.1		19	+EPZ	1102 52.0	
17	+EPZ	1235 00.8		19	−EPZ	2004 49.5	
17	−EPZ	1235 06.0		19	+EPZ	2041 34.2	
17	+EPZ	1353 03.6		19	−EPZ	2041 48.2	
17	+EPZ	2032 51.0		20	+EPZ	0104 22.0	#-735
17	+EPZ	2032 52.8		20	+EXZ	0104 42.0	#-735
17	−EPZ	2238 55.0		20	+EPZ	0631 48.4	
17	−EPZ	2333 48.3	#-731	20	+EPZ	0722 34.4	
17	−IsPZ	2333 53.8	#-731	20	+EPZ	0925 01.0	
17	+EPZ	2344 03.7		20	+EPZ	1056 42.6	
18	−EPZ	0001 15.4		20	−EPZ	1348 52.8	
18	−EPZ	0001 21.2		20	−EPZ	1348 55.4	
18	+EPZ	0002 01.6		20	−EPZ	1349 03.3	
18	+EPZ	0116 58.0	#-732	20	+EPZ	1401 36.0	
18	−IPZ	0540 54.4		20	−EPZ	1401 45.2	
18	−EPZ	0557 09.0		20	+EPZ	1835 12.6	#-736
18	−EPZ	1033 43.2		20	+EsPZ	1835 17.0	#-736
18	+EPZ	1143 50.0		20	+EPZ	1948 05.1	
18	−EPZ	1143 52.6		21	+EPZ	0014 25.0	
18	+EPZ	1514 17.0		21	+EPZ	0222 01.2	
18	+EPZ	1514 27.2		21	+EPZ	0424 24.0	
18	+EPZ	1737 42.4		21	+EPZ	0801 23.3	
18	−IPZ	1835 33.2		21	+EPZ	0841 23.4	
18	−EPZ	1847 12.4		21	−EXZ	0907 10.8	#-737
18	−IPZ	1847 15.5		21	+EXZ	0911 12.4	#-737
18	+EPZ	1853 01.1		21	+EPZ	0933 12.2	
18	−EPZ	2127 02.0		21	+EPZ	0934 41.5	
18	−IPZ	2318 37.5	#-733	21	−EPZ	0952 50.4	

Table 1. Continued.

Date	Phase	Time H M S	Remarks	Date	Phase	Time H M S	Remarks
21	−EPZ	1310 06.5		25	−IPZ	0918 29.8	
21	−EPZ	1407 16.0		25	−IPZ	0918 37.8	
21	+EPZ	1721 19.8		25	−ESH	0928 38.0	
21	−EPZ	1721 54.7		25	−EPZ	0956 36.6	#-744
21	+EPZ	1952 04.2		25	+EPcPZ	0957 33.2	#-744
21	−EPZ	1952 14.2		25	+EPZ	1418 50.0	#-745
21	−EPZ	2014 41.6		25	+EpPZ	1419 10.3	#-745
22	+EPZ	0217 50.2		25	−EPZ	1435 29.0	#-746
22	−EPZ	0451 07.6	#-738	25	−EPZ	1558 12.5	#-747
22	+EPZ	0518 32.0		25	−EsPZ	1558 28.6	#-747
22	+EPZ	1007 34.2		25	−EPZ	1940 11.5	
22	+EXZ	1105 31.1	#-739	25	+EPZ	2314 22.2	
22	+EXZ	1105 42.6	#-739	25	+EPZ	2314 25.3	
22	+EPZ	1640 00.7		25	−EPZ	2351 46.8	
22	+EPZ	1928 41.0	#-740	25	+EPZ	2351 49.8	
22	+IpPZ	1928 45.2	#-740	26	−EPZ	0214 25.4	
22	−EsPZ	1928 48.1	#-740	26	+EPZ	0232 42.8	
22	+EPZ	1938 27.0		26	−EPZ	0352 25.6	
22	+EPZ	2223 03.4		26	+EPZ	0430 12.1	#-748
22	−EPZ	2311 33.0	#-741	26	−EpPZ	0430 16.2	#-748
23	+EPZ	0033 52.5		26	+EPZ	0650 15.5	#-749
23	−EPZ	0308 28.8	#-742	26	−EpPZ	0650 21.6	#-749
23	−IpPZ	0308 32.0	#-742	26	−EPZ	0817 57.2	
23	−EPZ	0604 02.2		26	+EPZ	0818 00.6	
23	+IPZ	0736 04.8	#-743	26	+EPZ	0818 06.2	
23	+EPZ	1451 53.2		26	−EPZ	0911 47.8	
23	+EPZ	2207 46.5		26	+EPZ	1336 49.6	
24	+EPZ	0320 31.2		26	+EpPZ	1336 56.3	#-750
24	+EPZ	1416 17.2		26	−EPZ	1356 47.6	#-751
24	+EPZ	1433 08.8		26	+EsPZ	1356 54.0	#-751
25	+EPZ	0620 52.7		26	+EPZ	1736 13.6	
25	+EPZ	0840 14.2		26	−EPZ	1808 22.2	
25	−EPZ	0910 43.8		26	+EPZ	1808 29.5	

Table 1. Continued.

Date	Phase	Time H M S	Remarks	Date	Phase	Time H M S	Remarks
26	−EPZ	1924 26.0		29	+EPZ	1542 34.8	
26	+EPZ	1924 30.2		29	+EPZ	1542 45.0	
26	+EPZ	2249 45.8		29	−EPZ	1801 19.8	#-759
26	−EPZ	2249 49.0		29	−IPcPZ	1801 21.3	#-759
27	−EPZ	0032 19.6		29	−IPZ	1832 44.0	#-760
27	+EPZ	0128 33.2		29	+IPZ	1834 48.5	#-761
27	+EPZ	0516 20.4		29	−IXZ	1853 15.4	#-762
27	+EPZ	0516 22.6		29	−EPZ	1859 14.0	#-763
27	−EPZ	0738 13.0	#-752	29	+EPZ	1911 06.3	#-764
27	−EPZ	1207 41.5		29	+EpPZ	1932 00.2	#-765
27	+EPZ	1504 01.3		29	−EPZ	1946 20.8	#-766
27	+EPZ	1504 11.5		29	+EsPZ	1946 25.6	#-766
27	+IPZ	1529 44.2	#-753	29	+EPZ	2214 25.4	
27	−EpPZ	1530 13.6	#-753	29	−EPZ	2221 39.0	#-767
27	−EPZ	1941 33.4		29	−EXZ	2223 13.0	#-768
27	+EPZ	2250 27.8		29	+EsPZ	2255 02.9	#-769
27	−EPZ	2250 30.4		29	−EPZ	2325 00.6	#-770
28	−EPZ	0037 57.6	#-754	29	+EPZ	2346 06.2	#-771
28	−EPcPZ	0038 09.0	#-754	29	+EXZ	2346 15.6	#-771
28	+EPZ	0100 22.6		29	+EPZ	2358 11.5	#-772
28	−EPZ	0424 19.0	#-755	29	−EsPZ	2358 19.4	#-772
28	−EPcPZ	0424 26.6	#-755	30	−EPZ	0118 46.0	#-773
28	+EPZ	1222 36.6	#-756	30	−EPcPZ	0118 48.1	#-773
28	−EpPZ	1222 38.2	#-756	30	+EPZ	0122 40.0	#-774
28	−EXZ	1452 01.0	#-757	30	−EPZ	0139 06.4	
28	+EsPZ	1452 19.8	#-757	30	−IPZ	0152 50.0	#-775
28	+EPZ	1654 04.6		30	−IPZ	0153 00.0	#-776
28	+EPZ	2010 51.3		30	+EPZ	0241 43.4	
28	+EPZ	2141 54.0		30	−EPZ	0241 46.0	
29	+EPZ	0555 11.3		30	+EPZ	0411 50.8	
29	+EPZ	0926 13.1	#-758	30	+EPZ	0416 19.0	#-777
29	+EPZ	1202 38.4		30	+EPZ	0538 00.8	#-778
29	−EPZ	1202 42.4		30	+EPZ	0538 56.2	

Table 1. Continued.

Date	Phase	Time H M S	Remarks	Date	Phase	Time H M S	Remarks
30	−EXZ	0745 24.4	#-779	1	−IpPZ	0204 30.4	#-794
30	+EPZ	0745 44.0		1	−IsPZ	0204 32.4	#-794
30	−EPZ	0838 03.0	#-780	1	−ESH	0215 02.4	#-794
30	+EPZ	0918 19.0	#-781	1	−EPZ	0228 33.3	
30	+EPZ	0940 57.4	#-782	1	+EPZ	0232 30.4	#-795
30	−EpPZ	0941 07.6	#-782	1	−EpPZ	0232 34.0	#-795
30	−ESH	0950 28.0	#-782	1	+EXZ	0554 14.0	#-796
30	−IPZ	1028 03.8	#-783	1	−EPZ	0554 32.4	
30	−EPZ	1050 45.6	#-784	1	−EPZ	0626 43.4	
30	−ESH	1100 03.5	#-784	1	+EPZ	0737 17.6	#-797
30	−EPZ	1301 02.0	#-785	1	−EpPZ	0737 21.8	#-797
30	+EpPZ	1301 21.5	#-785	1	−EPZ	1021 00.2	
30	−EPZ	1410 16.0	#-786	1	−EPZ	1104 09.6	#-798
30	+EXZ	1410 25.8	#-786	1	+EPcPZ	1104 10.6	#-798
30	+EPZ	1433 40.0		1	−EPZ	1304 39.4	
30	+EPZ	1533 27.8	#-787	1	+EPZ	1304 47.0	
30	+EPZ	1732 50.5	#-788	1	−EPZ	1317 21.8	
30	+EpPZ	1733 01.4	#-788	1	+EPZ	1832 04.3	#-799
30	+EPZ	1742 42.0	#-789	1	−EpPZ	1832 07.0	#-799
30	+EPZ	1800 28.0	#-790	1	+EPZ	1844 01.0	
30	+EPZ	1816 30.5		1	−EPZ	1852 39.4	
30	+EPZ	1915 07.7		1	+EPZ	2108 35.0	#-800
30	−EPZ	1915 14.4		1	−EPZ	2108 48.0	
30	−ESH	1925 01.0		1	+EPZ	2128 48.0	#-801
30	+EpPZ	2136 05.5	#-791	2	+EPZ	0120 45.2	
30	+EPKPdfZ	2154 18.4	#-792	2	−IPZ	0120 50.8	
30	−EPKPbcZ	2154 23.8	#-792	2	−ESH	0131 20.6	
30	+EPZ	2321 08.0		2	+EPZ	0208 17.2	#-802
Oct.				2	+EPZ	0227 06.9	#-803
1	+EPZ	0039 23.5		2	−EPZ	0236 08.7	
1	+EPZ	0130 50.0		2	+EPZ	0259 51.2	#-804
1	+EPZ	0144 11.0	#-793	2	+EPZ	0912 16.5	
1	−EPZ	0204 25.6	#-794	2	+EPZ	1010 20.9	#-805

Table 1. Continued.

Date	Phase	Time H M S	Remarks	Date	Phase	Time H M S	Remarks
2	−EPcPZ	1010 26.0	#-805	4	+EXZ	1127 04.8	#-817
2	−EXZ	1214 20.0	#-806	4	−ESH	1137 27.2	
2	+EPZ	1221 36.4	#-807	4	−EPZ	1215 37.4	
2	+EPZ	1327 42.6		4	−EPZ	1456 02.1	#-818
2	+EPZ	1351 41.6		4	−EPZ	1635 25.0	
2	−EPZ	1351 47.3		4	−EXZ	1715 36.7	#-819
2	−EPZ	1449 02.4		4	+EpPZ	1715 44.3	#-819
2	+EPZ	1559 00.0		4	+EPZ	1803 04.0	
2	−EPZ	1600 06.2		4	+EPZ	1804 47.2	#-820
2	+EPZ	1606 35.3	#-808	4	+EPZ	1908 51.6	
2	−EPZ	2010 45.4	#-809	4	−EPZ	2344 37.0	
2	−EPZ	2016 04.6	#-810	5	+EPZ	0228 07.0	
2	+EPZ	2251 37.0	#-811	5	+EPZ	0614 07.0	
2	+EPZ	2300 01.6	#-812	5	−EPZ	0743 00.0	
2	+EpPZ	2300 07.5	#-812	5	+EPZ	0743 09.6	
3	+EPZ	0128 55.0		5	−EPZ	0824 27.5	
3	−EPZ	0130 01.0		5	+EPZ	0901 51.1	
3	+EPZ	0130 04.1		5	+EPZ	0901 52.7	
3	−EPZ	0730 01.4	#-813	5	+EPZ	1245 05.5	
3	−EPZ	0745 08.5		5	−EPZ	1245 09.6	
3	−EPZ	0804 11.0		5	−EPZ	1330 24.6	#-821
3	+EPZ	0941 25.3		5	−EPcPZ	1330 36.2	#-821
3	+EPZ	1311 21.2		5	+EXZ	1432 26.8	#-822
3	−EPZ	1421 38.9		5	−EPZ	1639 26.6	
3	+EPZ	2023 46.8		5	+EPZ	1820 37.0	
3	+EPZ	2023 50.6		5	−EPZ	2020 37.0	
4	−EPZ	0108 15.0		5	−EPZ	2258 40.4	#-823
4	−EPZ	0348 57.4	#-814	6	−EPZ	0503 04.8	
4	+EPZ	0815 03.4		6	−EPZ	0611 46.4	
4	−EPZ	0923 35.4	#-815	6	−EPZ	0926 32.2	
4	−EsPZ	0923 49.0	#-815	6	−EPZ	0945 57.4	#-824
4	−IPZ	1110 11.4	#-816	6	+EpPZ	1116 15.5	#-825
4	−ESH	1119 44.2		6	+EXZ	1124 40.6	#-826

Table 1. Continued.

Date	Phase	Time H M S	Remarks	Date	Phase	Time H M S	Remarks
6	+EPZ	1257 37.0		7	−IPZ	2231 21.0	
6	−EPZ	1456 03.2		7	−IPZ	2303 11.0	
6	+EPZ	1456 10.7		7	−IXZ	2326 41.8	#-832
6	+EPZ	1456 28.7		7	−EXZ	2351 12.0	#-833
6	−EPZ	1536 26.5	#-827	8	−EXZ	0001 43.8	#-834
6	+EpPZ	1536 48.6	#-827	8	−EPcPZ	0001 46.8	#-834
6	−EPZ	1606 00.8		8	+EPZ	0007 08.8	
6	−EPZ	1606 13.2		8	+EPZ	0119 33.7	
6	+EPZ	1804 36.0		8	+EPZ	0132 22.4	
6	+EPZ	2015 04.8	#-828	8	−EPZ	0132 31.6	
6	−EPZ	2017 13.6		8	+EPZ	0144 02.8	
6	+EPZ	2035 42.5		8	+EXZ	0212 17.2	#-835
7	+EPZ	0152 49.0		8	+IPcPZ	0212 21.4	#-835
7	−EPZ	0217 25.4		8	+IPZ	0225 38.6	#-836
7	+EXZ	0521 44.2	#-829	8	−IPcPZ	0225 41.9	#-836
7	−EXZ	0521 45.9	#-829	8	−ESH	0236 35.4	#-836
7	+EPZ	0558 17.6		8	+EPZ	0353 50.3	#-837
7	−EPZ	0558 21.2		8	−EPZ	0354 31.8	
7	+EPZ	0558 32.4		8	−EPZ	0430 47.4	#-838
7	+EPZ	0808 51.0		8	−EPcPZ	0430 49.5	#-838
7	+EPZ	0809 00.5		8	+EPKpZ	0544 51.2	#-839
7	−EPZ	0843 19.6		8	+EPZ	0602 30.0	
7	−EPZ	0843 29.5		8	−EXZ	0620 21.6	#-840
7	+EPZ	0908 21.6		8	−EXZ	0657 42.8	#-841
7	+EPZ	1342 54.2		8	+EPZ	0714 06.4	
7	+EPZ	1600 49.7	#-830	8	+EPZ	0802 00.6	
7	+EPZ	2112 02.5		8	+IPZ	0841 43.4	
7	+EPZ	2112 05.2		8	+IPZ	0841 47.6	
7	−EPZ	2112 13.3		8	−IPZ	0847 33.4	
7	+EXZ	2153 16.0	#-831	8	+IPZ	0847 49.0	
7	−IXZ	2155 21.9	#-831	8	+EPZ	1001 42.6	
7	−EPZ	2216 07.0		8	+EPZ	1024 08.6	#-842
7	−EPZ	2229 07.4		8	+EPcPZ	1024 13.0	#-842

Table 1. Continued.

Date	Phase	Time H M S	Remarks	Date	Phase	Time H M S	Remarks
8	+EPZ	1045 33.6		10	−EPZ	0705 50.3	#-855
8	+EPZ	1101 19.6	#-843	10	+EPZ	0935 23.2	#-856
8	+EPZ	1421 33.6		10	+EPZ	1124 06.0	#-857
8	−EPZ	1648 09.6		10	−EPZ	1344 27.0	
8	+EPZ	1753 03.3		10	−IPZ	1438 06.4	#-858
8	+EPZ	1757 29.4		10	+EPZ	1449 23.8	#-859
8	+EPZ	1822 36.4		10	−EPZ	1537 50.6	#-860
8	+EPZ	1844 56.4		10	−EpPZ	1538 00.0	#-860
8	−EXZ	1908 02.9	#-844	10	+EPZ	1547 49.4	#-861
8	+EPZ	1921 02.0		10	−EsPZ	1548 05.4	#-861
8	−EPZ	1935 01.2		10	+EpPZ	1702 01.0	#-862
8	−EPZ	2129 10.0	#-845	10	−EPZ	1721 51.5	#-863
8	−IPZ	2150 15.0	#-846	10	−EsPZ	1721 53.9	#-863
8	−IPZ	2244 37.6	#-847	10	−EPZ	1828 13.4	
8	−EPZ	2330 17.5		10	−IPZ	1954 34.0	#-864
8	−IPZ	2348 41.0	#-848	10	−ESH	2005 27.0	#-864
8	−IPcPZ	2348 45.9	#-848	10	+EXZ	2143 48.0	#-865
9	+EPZ	0056 03.4		10	−ESH	2147 17.0	#-865
9	−EPZ	0158 31.8		10	−EPZ	2158 05.6	
9	−EPZ	0357 05.0		11	−EPKiKPZ	0131 38.4	#-866
9	+EPZ	0420 49.0		11	−EPZ	0214 28.0	
9	+EPZ	0746 20.5	#-849	11	+IPZ	0324 34.0	#-867
9	+EPcPZ	0746 26.2	#-849	11	−IpPZ	0324 39.0	#-868
9	+EPZ	0927 41.3		11	+EPZ	0456 06.0	
9	+EPZ	1010 04.1		11	+EPZ	0500 44.5	#-869
9	−IPZ	1325 25.0	#-850	11	−EsPZ	0501 08.6	#-869
9	+EPcPZ	1954 33.0	#-851	11	−EPZ	0610 56.0	
9	+EPZ	2031 17.0	#-852	11	+EPZ	1113 40.0	#-870
9	−EPcPZ	2031 18.8	#-852	11	−EPZ	1815 51.0	
9	+EPZ	2254 15.0		11	+EXZ	2012 11.7	#-871
9	+EPZ	2303 00.2	#-853	11	−EPZ	2150 49.6	
10	−EPZ	0513 09.4	#-854	12	+EXZ	0325 12.7	#-872
10	+EsPZ	0513 29.3	#-854	12	−IsPZ	0325 20.0	#-872

Table 1. Continued.

Date	Phase	Time H M S	Remarks	Date	Phase	Time H M S	Remarks
12	−EPcPZ	0650 00.0	#-873	14	+EPZ	1813 33.2	#-884
12	−EPZ	0950 15.5	#-874	14	+EPcPZ	1813 34.9	#-884
12	−EPcPZ	0950 17.4	#-874	15	−EPZ	0006 00.2	
12	+EPZ	1042 05.4	#-875	15	+EPZ	0156 19.7	#-885
12	−EPcPZ	1042 08.0	#-875	15	+EPZ	0344 23.8	#-886
12	−EPZ	1114 51.5		15	+EPcPZ	0344 28.3	#-886
12	+EPZ	1114 54.0		15	+EPZ	0554 21.4	
12	+EPZ	1257 35.8		15	+EPZ	0604 26.0	#-887
12	+EPZ	1857 46.4		15	+IpPZ	0604 33.6	#-887
12	+EPZ	2112 27.6		15	−ESH	0614 03.2	
12	−EPZ	2112 34.5		15	+EPZ	0645 13.5	
13	+EPZ	0034 28.4	#-876	15	+EPZ	0903 32.4	#-888
13	+EPZ	0413 28.2		15	+EPZ	1001 29.6	#-889
13	+EPZ	0502 01.4	#-877	15	−IPZ	1224 05.9	
13	−EPcPZ	0502 03.8	#-877	15	+EPZ	1230 09.8	
13	+EPZ	0507 17.3		15	+IPZ	1846 05.7	
13	+EPZ	0537 05.6		15	−IPZ	1846 15.9	
13	−EPZ	0537 10.3		15	−EPZ	1933 12.6	#-890
13	+EPKpdZ	2041 50.6	#-878	15	+EPZ	1943 08.0	
13	+EPKPabZ	2042 27.4	#-878	16	+EPZ	0415 01.0	
13	+IPZ	2101 05.4	#-879	16	−EPZ	0514 56.0	
13	−IPcPZ	2101 07.0	#-879	16	−EPZ	0839 41.3	#-891
13	+EPZ	2254 21.5		16	−EPZ	0919 59.2	#-892
14	+EPZ	0108 07.8	#-880	16	+EPZ	0950 33.6	#-893
14	−EPcPZ	0108 11.4	#-880	16	+IPZ	1004 34.2	
14	+EXZ	0331 51.5	#-881	16	−ESH	1014 02.8	
14	+EPZ	0707 34.6	#-882	16	+EPZ	1615 48.0	
14	+EPcPZ	0707 36.0	#-882	16	+EpPZ	1730 02.8	#-894
14	−EPZ	0812 10.7	#-883	16	−EPZ	1803 10.7	
14	+EPZ	0918 08.8		16	+EPZ	1935 03.0	
14	−EPZ	1405 52.0		16	+EPZ	2342 55.0	#-895
14	+EPZ	1608 30.3		17	−EPZ	0018 40.0	#-896
14	+EPZ	1712 13.6		17	−EPcPZ	0018 49.4	#-896

Table 1. Continued.

Date	Phase	Time H M S	Remarks	Date	Phase	Time H M S	Remarks
17	+EPZ	0406 57.5		19	−EPZ	1642 05.2	
17	+EPZ	0635 52.6		19	+EXZ	2229 24.2	#-909
17	+EPZ	1058 32.7	#-897	19	+EpPZ	2231 42.5	#-909
17	+EPcPZ	1058 34.4	#-897	19	−ESH	2238 50.0	#-909
17	−EPZ	1331 34.0	#-898	19	+IPZ	2302 48.0	
17	+EPZ	1455 21.2		19	+EPZ	2302 51.3	
17	+EPZ	1909 22.0		19	+EPZ	2324 06.0	
18	+EPZ	0050 54.6	#-899	19	+EPZ	2324 13.8	
18	−EPKpdlZ	0219 24.4	#-900	20	−EXZ	0721 17.6	#-910
18	+EPZ	0247 35.9		20	−EXZ	0721 40.2	#-910
18	−IPZ	0835 54.6	#-901	20	−EpPZ	0806 37.2	#-911
18	+EpPZ	0836 01.0	#-901	20	+EPZ	0941 44.1	#-912
18	−EPZ	0838 43.0	#-902	20	−EpPZ	0941 52.6	#-912
18	+EPZ	1215 38.8	#-903	20	+EXZ	1156 34.4	#-913
18	−EPZ	1239 59.4		20	+EPZ	1758 26.0	
18	−IPZ	1300 43.0	#-904	21	−EPZ	0358 24.9	
18	−IPcPZ	1300 50.4	#-904	21	+IPZ	1251 07.9	#-914
18	+EPZ	1425 06.2	#-905	21	−EpPZ	1251 14.6	#-914
18	+EPcPZ	1425 32.3	#-905	21	+EsPZ	1251 17.3	#-914
18	−EPZ	1646 13.4		21	+EPZ	1355 23.2	#-915
18	+EPZ	1734 14.3	#-906	21	−EPZ	1521 18.0	
18	+EsPZ	1734 24.8	#-906	21	+EPZ	1521 21.0	
18	−EPZ	1825 17.4		21	+EPZ	1840 08.8	
18	−EPZ	2239 23.6		22	−EPZ	0047 05.6	
18	−EPZ	2313 22.6	#-907	22	+EPZ	0319 05.4	
19	−EPZ	0137 52.6		22	+EPZ	0515 06.0	
19	−EPZ	0650 44.8		22	−EPZ	0518 13.0	
19	+EPZ	0746 07.0		22	−EPZ	0623 55.5	#-916
19	+EPZ	0754 47.4		22	+EPZ	0634 50.6	
19	−EPZ	0852 21.6		22	−EPZ	0847 14.2	#-917
19	−EPZ	0852 54.9		22	+EPZ	0854 04.5	
19	+IPZ	1101 25.3	#-908	22	+EPZ	1440 34.6	
19	+EPZ	1231 18.6		22	−EPZ	1445 10.0	

Table 1. Continued.

Date	Phase	Time H M S	Remarks	Date	Phase	Time H M S	Remarks
22	+EPZ	1831 22.7		25	+EPZ	1052 22.9	#-929
22	-EPZ	2246 07.2		25	+EPZ	1749 39.8	
23	+EPZ	0239 32.6	#-918	25	+EpPdiffZ	1801 54.0	#-930
23	-EPZ	0518 44.4	#-919	25	-EPZ	2313 10.0	#-931
23	+EPZ	0631 41.8		26	+EPZ	0915 46.2	
23	+IPZ	1128 27.3		26	-EPZ	1522 38.2	
23	-IPZ	1128 32.2		26	+EPZ	1619 49.0	
23	+EPZ	1147 51.2	#-920	26	-EPZ	1911 59.8	
23	-EPZ	1250 39.6	#-921	26	+EPZ	2104 59.0	
23	+EPZ	1512 34.2	#-922	26	+EPZ	2147 31.0	#-932
23	-EPZ	1527 11.4		26	+EPZ	2323 04.9	
23	-EPZ	1527 20.4		27	+EsPdiffZ	0008 38.8	#-933
23	+EXZ	2019 54.8	#-923	27	-IPZ	0012 24.0	
23	+EXZ	2020 01.2	#-923	27	+EPZ	0109 40.5	
24	-EPZ	0321 27.8	#-924	27	+EPZ	0115 01.9	
24	+EPcPZ	0321 41.4	#-924	27	+EPZ	0409 35.0	#-934
24	-EPZ	0549 25.4		27	+EPcPZ	0409 37.4	#-934
24	+EPZ	1453 00.8		27	+EpPZ	0409 48.6	#-934
24	-IPZ	1453 01.4		27	+EPZ	1125 43.4	
24	-ESH	1503 13.1		27	-EPZ	1201 39.8	
24	+EPZ	1551 35.6		27	+EPZ	1206 52.2	
24	-EPZ	1558 07.5		27	+EPZ	1207 04.3	
24	-EPZ	2106 39.8	#-925	27	-EPZ	1422 59.6	#-935
24	-ESH	2114 16.4		27	-EPZ	1924 22.0	
24	+EPZ	2116 19.6	#-926	27	+EPZ	1924 27.4	
25	+EPZ	0047 35.3	#-927	28	+EPZ	0248 16.5	
25	+EpPZ	0047 43.2	#-927	28	+EPZ	0554 06.2	
25	-EPZ	0415 56.8		28	-EPZ	0630 53.0	#-936
25	-IPZ	0805 35.1	#-928	28	+EpPZ	0630 56.6	#-936
25	-IPcPZ	0805 40.0	#-928	28	+EPKPdfZ	0856 10.6	#-937
25	-ESH	0815 14.5	#-928	28	-EPZ	0920 10.4	
25	+EPZ	0835 58.4		28	+EPZ	1133 24.4	
25	+EPZ	0836 14.6		28	+EPZ	2143 54.0	

Table 1. Continued.

Date	Phase	Time H M S	Remarks	Date	Phase	Time H M S	Remarks
29	−EPZ	0009 49.4	#-938	30	−EPZ	1602 55.6	
29	+EpPZ	0009 54.8	#-938	30	−EPZ	1716 01.4	
29	+EPZ	0043 21.7		30	+IPZ	2012 22.8	
29	−EXZ	0137 04.8	#-939	30	−IPZ	2012 24.9	
29	−IPZ	0146 51.0	#-940	30	+EPZ	2134 40.5	
29	+EPZ	0352 01.4		31	+EPZ	0026 53.4	#-949
29	+EPZ	0352 04.8		31	+EPZ	0048 23.4	
29	−EPZ	0513 01.0	#-941	31	+EPZ	0323 18.0	
29	−EPZ	0534 12.6	#-942	31	+EPZ	0450 34.5	
29	+EPZ	1338 00.2		31	−EPZ	0618 30.4	
29	+EPZ	1606 02.4		31	+EPZ	1025 04.5	
29	+EPZ	1606 05.0		31	+EPZ	1025 08.7	
29	+EPZ	1711 26.4		31	+EPZ	1049 40.8	#-950
29	−EPZ	1802 30.6		31	−EPcPZ	1049 46.5	#-950
29	−ESH	1808 41.6		31	−EPZ	1316 19.4	#-951
29	+EPZ	1831 32.6		31	+EPcPZ	1316 20.9	#-951
29	+EPZ	1903 23.5		31	+EPZ	1337 29.2	
29	+EPZ	2100 20.2		31	+EPZ	1624 17.0	
29	−EPZ	2117 53.4	#-943	31	−EPZ	1922 40.6	#-952
29	+EPZ	2208 44.0		31	−IPcPZ	1922 43.9	#-952
29	+EPZ	2208 49.0		31	−EPZ	2046 31.7	#-953
30	+EPZ	0014 07.0	#-944	31	−EXZ	2046 39.9	#-953
30	+EPZ	0118 45.3		31	+EPZ	2301 59.0	#-954
30	+EPZ	0138 34.6	#-945	Nov.			
30	+EsPZ	0138 39.8	#-945	1	+EPZ	0436 27.5	
30	+EPZ	0236 43.7		1	+EPZ	0644 42.2	
30	−EPZ	0304 30.0	#-946	1	−EPZ	1155 09.2	
30	+EPZ	0732 43.2		1	+EPZ	1614 15.4	#-955
30	+EPZ	0732 46.6		1	+EPZ	1817 08.6	
30	−EPKpZ	0722 18.9	#-947	1	−IPZ	2141 56.4	
30	+EPKiKPZ	0722 21.0	#-947	1	−IPZ	2142 02.0	
30	+EPZ	1500 20.6	#-948	1	+EPZ	2142 20.4	
30	−EPcPZ	1500 21.2	#-948	2	+EPZ	0416 17.2	

Table 1. Continued.

Date	Phase	Time H M S	Remarks	Date	Phase	Time H M S	Remarks
2	−EPZ	0523 23.6		5	+EPZ	0345 36.6	
2	−EPZ	0704 01.6		5	+EPZ	0345 38.2	
2	+EPZ	0913 55.8		5	+EPZ	0431 15.1	
2	+IPZ	1030 41.2		5	−EPZ	0523 47.0	
2	−IPZ	1030 45.3		5	−EPZ	0653 43.5	
2	−ESH	1110 02.4		5	−EPZ	0952 24.7	
2	+EPZ	1853 16.4		6	+EPZ	0339 32.6	
2	+EpPZ	1951 29.6	#-956	6	+EPZ	0339 36.2	
2	+EPZ	2111 34.0		6	+EPZ	0413 07.4	
2	+EPZ	2148 47.4	#-957	6	+EPZ	0413 10.2	
2	−EPZ	2308 25.0	#-958	6	+EPZ	0753 24.0	
3	−EPZ	0008 12.0		6	−IPZ	0901 22.2	#-960
3	+EPZ	0421 36.4		6	−IsPZ	0901 25.0	#-960
3	−IPZ	1136 13.0	#-959	6	+EPZ	1241 34.8	#-961
3	+EsPZ	1136 18.7	#-959	6	+EPcPZ	1748 35.0	#-962
3	−EPZ	1719 16.4		6	+EPZ	2332 25.6	
3	+EPZ	1817 06.9		7	−EPZ	1026 37.1	
4	−EPZ	0015 20.6		7	+EPZ	1408 13.5	
4	−EPZ	0147 08.9		7	−EPZ	1514 13.6	#-963
4	−EPZ	0147 11.9		7	−EPZ	1545 06.5	
4	+EPZ	0634 57.4		7	+EPZ	1948 05.4	
4	+EPZ	0635 04.1		7	−EPZ	2014 19.9	
4	+EPZ	0814 21.2		7	−EPZ	2154 23.6	
4	+EPZ	0814 21.2		8	+EPZ	0120 34.0	#-964
4	+EPZ	0817 21.6		8	+EpPZ	0122 46.6	#-964
4	−EPZ	1027 18.2		8	+EPZ	0215 47.2	
4	+EPZ	1324 29.3		8	−EPZ	0816 58.2	#-965
4	+EPZ	1449 49.0		8	−EPZ	1010 12.4	
4	−EPZ	1544 41.7		8	+EPZ	1228 49.1	
4	+EPZ	1836 40.5		8	+EPZ	1358 36.2	
4	+EPZ	1848 32.9		8	+EPZ	1358 42.4	
5	−EPZ	0303 33.6		8	+EPZ	1519 40.6	
5	+EPZ	0321 25.0		8	+EPZ	1519 43.7	

Table 1. Continued.

Date	Phase	Time H M S	Remarks	Date	Phase	Time H M S	Remarks
8	+EPZ	1558 35.3	#-966	9	+EPZ	2313 30.4	
8	-EPcPZ	1558 40.0	#-966	10	+EPZ	0301 19.2	#-975
8	+EPZ	1648 21.6		10	+EsPZ	0301 30.5	#-975
8	-IPZ	1953 42.7		10	+EPZ	0753 25.2	#-976
8	+IPZ	1953 44.0		10	+EPZ	0933 48.6	#-977
8	-ESH	2003 47.0		10	-EPZ	1258 12.1	
8	-EPZ	2038 28.7		10	-EPZ	1821 38.2	
8	-EPZ	2047 13.0	#-967	10	-EPZ	2033 33.6	
8	+EPZ	2230 56.0	#-968	10	+EPZ	2115 45.0	
8	+EPKPabZ	2325 50.1	#-969	11	+EPZ	0037 35.0	
9	-EPZ	0027 08.0	#-970	11	+EPZ	1010 24.7	#-978
9	-EsPZ	0027 14.6	#-970	11	-EPZ	1249 01.9	
9	-IPZ	0027 25.0	#-970	11	-EPZ	1652 15.1	
9	+EPZ	0631 34.8	#-971	11	-EPZ	1652 28.1	
9	+EPZ	0631 51.0	#-971	11	-EPZ	1808 18.7	
9	+EPZ	1014 16.2		11	+EPZ	1824 02.4	
9	-EPZ	1056 45.4		11	+EPZ	1940 05.7	
9	-ESH	1106 16.2		11	-EXZ	2213 14.6	#-979
9	+IPZ	1114 12.2		11	+EPZ	2254 44.8	
9	+IPZ	1114 19.8		12	+EPZ	0156 36.6	
9	+EPZ	1122 03.4		12	+EPZ	0156 39.7	
9	+EPZ	1139 01.4		12	+EPZ	0225 16.0	
9	+EPZ	1150 36.0		12	+EPZ	0613 03.9	
9	+EPZ	1331 44.3		12	+EPZ	1452 40.0	
9	-EPZ	1407 14.2	#-972	12	+EPZ	1950 56.4	
9	+EPcPZ	1407 16.0	#-972	12	+EPZ	1951 16.7	
9	+EPZ	1615 27.6	#-973	13	-IPZ	0317 56.8	
9	-EPZ	1725 08.2		13	-IPZ	0318 29.0	
9	+EPZ	1953 33.2	#-974	13	-ESH	0328 07.0	
9	+EPZ	2020 30.2		13	+EPZ	0331 32.0	
9	+EPZ	2107 46.6		13	+EPZ	0738 09.5	#-980
9	+EPZ	2220 36.1		13	-IPcPZ	0738 15.4	#-980
9	-IPZ	2220 40.8		13	-ESH	0747 14.0	#-980

Table 1. Continued.

Date	Phase	Time H M S	Remarks	Date	Phase	Time H M S	Remarks
13	+EPZ	1205 12.7		15	−EPZ	2209 26.6	
13	+EpPZ	1254 10.4		16	+EPZ	0053 16.0	
13	+EPZ	1407 12.4		16	+EPZ	0200 39.0	
13	+EPZ	1735 10.0	#-981	16	+EPZ	0447 09.9	
13	+EpPZ	1735 19.8	#-981	16	+EPZ	0447 13.2	
13	+EPZ	2054 10.4		16	+EPZ	0528 15.0	
13	−EXZ	2134 20.8	#-982	16	−IPZ	0608 44.0	#-991
14	−EPZ	0210 25.4		16	−IPcPZ	0608 46.2	#-991
14	+EPZ	0210 31.0		16	+EpPZ	0609 40.6	#-991
14	+IPZ	0457 25.2	#-983	16	+EPZ	1206 02.0	
14	+IsPZ	0457 32.5	#-983	16	−EPZ	1413 13.1	
14	+IPZ	0500 39.8	#-984	16	−EPZ	1846 23.0	#-992
14	−IPZ	0513 25.6		16	+EPZ	2012 12.2	#-993
14	−EPZ	1032 45.4	#-985	16	+EPcPZ	2012 15.9	#-993
14	+EpZP	1032 56.7	#-985	16	+EPZ	2219 19.8	
14	+EPZ	1101 08.0		16	+EPZ	2246 12.9	
14	+EPZ	1446 05.2		17	−EPZ	0052 15.2	#-994
14	+IPZ	1955 42.6	#-986	17	+EPZ	0712 04.2	
14	−ESH	2005 00.0	#-986	17	−EPZ	0856 44.0	
14	+EPZ	2214 34.7	#-987	17	+EPZ	1419 01.8	#-995
14	−EpPZ	2214 36.4	#-987	17	+EsPZ	1419 15.0	#-995
14	+EPZ	2223 26.2	#-988	17	+EpPKPdfZ	1550 51.6	#-996
15	+EPZ	0038 07.8		17	+EPKPabZ	1551 34.6	#-996
15	+EPZ	0038 09.4		17	+EpPKPabZ	1558 34.8	#-997
15	−EPZ	0239 23.3		17	+EPZ	2158 41.0	
15	−EPZ	1022 53.0	#-989	17	−EPZ	2158 43.6	
15	+EsPZ	1023 29.3	#-989	18	−EPZ	0131 26.0	
15	+EXZ	1332 40.8	#-990	18	−IPZ	0147 33.6	
15	+EPZ	1538 20.0		18	+IPZ	0147 44.2	
15	−EPZ	1553 37.0		18	+EPZ	0228 37.0	#-998
15	+EPZ	2014 03.6		18	+EpPZ	0228 44.6	#-998
15	+EPZ	2014 06.2		18	+EsPZ	0228 48.2	#-998
15	+EPZ	2053 10.5		18	+EPZ	0358 43.0	

Table 1. Continued.

Date	Phase	Time H M S	Remarks	Date	Phase	Time H M S	Remarks
18	+EPZ	0358 47.6		20	−EPZ	1943 29.2	#-1006
18	+EPZ	0405 45.7		20	−EpPZ	1943 31.0	#-1006
18	+EPZ	0406 23.4		20	+EPZ	2015 01.6	
18	−EPZ	0406 32.0		20	+EPZ	2327 53.2	#-1007
18	+EPZ	1320 41.0		20	+EpPZ	2328 07.4	#-1007
18	+EPZ	1320 44.0		21	+EPZ	0039 31.4	
18	+EPZ	1814 40.4	#-999	21	+EPZ	0131 05.6	
18	+EPZ	2006 41.4		21	+EPZ	0241 05.6	
18	+EPZ	2232 27.6		21	+EPZ	0241 09.9	
18	+EPZ	2321 45.8		21	+EPZ	0430 19.8	
19	+IPZ	0010 29.2	#-1000	21	+EPZ	0430 24.5	
19	−EpPZ	0010 33.1	#-1000	21	−EPZ	0801 57.8	
19	−EPZ	0127 45.0	#-1001	21	−EPZ	0802 02.4	
19	−IpPZ	0127 55.2	#-1001	21	+EPZ	0909 50.8	
19	+EPZ	0432 01.6		21	+EPZ	0909 54.3	
19	+EPZ	0432 04.3		21	+EPZ	1346 08.6	
19	+IPZ	0432 08.2		21	+EPZ	1715 13.0	
19	+IPZ	1052 46.0	#-1002	21	−EPZ	1715 14.8	
19	−ESH	1101 10.0	#-1002	21	+IPZ	1943 35.0	#-1008
19	+EPZ	1132 14.8		21	+EPZ	2113 54.8	
19	+EPZ	1451 17.0		21	+EPZ	2113 56.2	
19	+EpPZ	2320 48.4	#-1003	21	−EPcPZ	2303 45.0	#-1009
20	+EPZ	0037 37.5		21	+EpPZ	2303 49.9	#-1009
20	−EPZ	0137 47.8		22	−EPZ	0203 07.8	#-1010
20	−EPZ	0538 08.6		22	+EPcPZ	0203 10.8	#-1010
20	+EPZ	0813 24.8	#-1004	22	+EPZ	0512 08.6	
20	+EPZ	0827 11.3		22	+EPZ	0512 11.3	
20	−EPZ	1541 03.6		22	+EPZ	0512 14.6	
20	+EPZ	1639 09.4	#-1005	22	+EPZ	0705 31.2	
20	+EPZ	1815 37.5		22	+IPZ	0800 18.8	#-1011
20	−EPZ	1834 45.3		22	−ESH	0810 19.2	
20	+EPZ	1834 48.0		22	−EPZ	1050 35.0	
20	−EPZ	1851 17.0		22	−EPZ	1448 15.8	

Table 1. Continued.

Date	Phase	Time H M S	Remarks	Date	Phase	Time H M S	Remarks
22	−EPZ	1448 20.6		26	−EPZ	2345 07.3	
22	+EPZ	2140 00.8		27	+EPZ	0409 05.4	
22	+IPZ	2218 04.0	#-1012	27	+EPZ	1144 24.2	
22	−EPZ	2258 24.8		27	+EPZ	1356 44.2	
22	−IPZ	2258 27.6		27	+EPZ	1618 23.4	
22	+IPZ	2301 14.8		28	−EPZ	0016 22.5	
22	−ESH	2307 23.4		28	+EPZ	0155 20.0	
23	+EPKpdZ	0627 34.8	#-1013	28	−EPZ	0214 34.6	
23	−EPZ	0841 18.0		28	−EPZ	0214 37.5	
23	+EPZ	1203 20.5		28	−EPZ	0448 02.0	#-1023
23	−EPZ	1849 30.6	#-1014	28	+EPcPZ	0448 07.4	#-1023
23	−IPcPZ	1849 31.6	#-1014	28	−EPZ	0518 32.0	#-1024
23	+EPZ	2220 21.8		28	+EPZ	0526 02.8	
24	+EPZ	1058 26.6		28	+IXZ	0616 09.6	#-1025
24	+EPZ	1101 33.6		28	−ESH	0625 53.0	#-1025
24	+EPZ	1300 00.2		28	−EPZ	0933 17.0	#-1026
24	−EPZ	1317 08.2	#-1015	28	−ESH	0943 11.0	#-1026
24	−IpPZ	1317 13.0	#-1015	28	−EPZ	1346 09.4	
24	−EPZ	1344 56.0	#-1016	28	+EPZ	1502 34.8	
24	+EPZ	1519 19.1		28	−EPKpdZ	1808 53.8	#-1027
24	+EXZ	2249 14.7	#-1017	28	−EXZ	1823 31.0	#-1028
25	−EPZ	0045 02.8		28	−EsPZ	1823 49.4	#-1028
25	+EPZ	0142 03.4		28	−EPZ	1912 27.4	
25	−EPZ	0142 08.6		28	−EPZ	1912 31.8	
26	+EPZ	0430 27.0	#-1018	29	+EPcPZ	0241 19.6	#-1029
26	+EPZ	1145 56.4	#-1019	29	−EPZ	0241 31.8	
26	+EpPZ	1146 09.2	#-1019	29	+EPZ	0823 31.2	#-1030
26	−EPZ	1554 08.2	#-1020	29	+EPZ	1010 03.8	#-1031
26	−EXZ	1554 11.6	#-1020	29	+EPcPZ	1010 16.8	#-1031
26	+EPZ	1713 37.4		29	+EsPZ	1010 35.7	#-1031
26	+EPZ	1844 44.4	#-1021	29	−EPZ	1046 37.6	#-1032
26	+EpPZ	1844 45.5	#-1021	29	+EPZ	1208 24.8	
26	+EPdifZ	1923 03.2	#-1022	29	−EPZ	1242 24.6	#-1033

Table 1. Continued.

Date	Phase	Time H M S	Remarks	Date	Phase	Time H M S	Remarks
29	+EsPZ	1242 51.6	#-1033	2	+EPZ	2126 04.6	
29	+EPZ	1550 04.0		2	−EPZ	2126 11.1	
29	+EPZ	1758 45.7		2	+EPZ	2308 51.4	#-1044
29	−IPZ	1954 11.7		2	−EPcPZ	2309 05.6	#-1044
29	−EPZ	1954 16.5		2	+EPZ	2320 13.5	#-1045
29	+EPZ	2022 22.4		3	+EPZ	0058 23.7	
29	−IPZ	2022 37.2		3	+EPZ	0201 10.4	
30	+EPZ	0125 35.6	#-1034	3	−EPZ	0217 06.8	
30	+EPZ	0125 44.8		3	−EPZ	0409 27.8	#-1046
30	+EPZ	0413 02.0		3	−EpPZ	0409 32.4	#-1046
30	+EPZ	1120 33.4		3	+EpPZ	0621 59.2	#-1047
30	+EPZ	1138 23.0		3	+EPZ	0636 47.0	#-1048
30	+EPcPZ	1334 09.0	#-1035	3	+EPZ	0813 01.4	
Dec.				3	+EPZ	0833 06.0	
1	−EPZ	0102 09.8	#-1036	3	−EPZ	0833 27.4	
1	+EPZ	0524 25.4	#-1037	3	−EPZ	1030 24.0	
1	+EXZ	1153 42.5	#-1038	3	+EPZ	1645 55.4	
1	−EPZ	1624 15.2	#-1039	3	+EPZ	1713 17.4	
1	+EpPZ	1624 39.2	#-1039	3	+EPZ	2051 01.9	
1	+EPZ	1631 02.4		3	+EPZ	2051 51.7	
1	−EPZ	1631 06.6		3	+EPZ	2314 47.6	
1	+EPZ	1955 36.6	#-1040	4	+EPZ	0050 08.2	#-1049
1	+EpPZ	1955 41.4	#-1040	4	+EpPZ	0050 12.9	#-1049
1	+EPZ	2129 25.4		4	−EPZ	0504 08.3	
2	+EPZ	0021 44.8		4	+EPZ	0628 40.1	
2	−EPZ	0151 39.8		4	+EPZ	0712 02.8	
2	+EPZ	0429 36.8	#-1041	4	+EPZ	1215 12.6	#-1050
2	+EPZ	0652 21.4		4	+EPZ	1804 42.7	
2	−EPZ	0820 29.3		4	+EPZ	1836 47.4	
2	+EPZ	1134 58.9	#-1042	5	−EPZ	0026 21.5	#-1051
2	−EPZ	1148 11.7		5	+EXZ	0118 42.8	#-1052
2	−EPZ	2018 08.3		5	+EPZ	0520 44.8	
2	+EPZ	2113 35.9	#-1043	5	+EPZ	0704 00.4	#-1053

Table 1. Continued.

Date	Phase	Time H M S	Remarks	Date	Phase	Time H M S	Remarks
5	+IPZ	0735 26.8		6	+EPZ	2228 20.8	
5	+EPZ	0754 01.4		6	+EPZ	2251 20.7	
5	−EPZ	0922 43.4		6	+EPZ	2255 00.9	
5	+EPZ	0945 03.4		7	+EPZ	0142 26.7	
5	+EPZ	0945 05.0		7	−EPZ	0210 40.3	
5	+EPZ	1146 03.9		7	−EPZ	0311 02.0	#-1063
5	+EPZ	1249 43.5		7	+EPZ	0426 27.3	
5	−EPZ	1656 00.2	#-1054	7	−EPZ	0444 12.3	
5	−EPZ	1746 15.0	#-1055	7	+EPZ	0520 55.2	
5	+EpPZ	1746 20.2	#-1055	7	+EPZ	0802 05.0	
5	+EPZ	2308 04.2	#-1056	7	+EPZ	0802 08.0	
5	−EPcPZ	2308 06.4	#-1056	7	+EPZ	0941 45.5	#-1064
6	−EPZ	0052 17.8		7	−EpPZ	0941 48.5	#-1064
6	+EPZ	0110 24.5		7	−EPZ	1002 37.2	
6	+EPZ	0137 07.0		7	+EPZ	1002 45.3	
6	−EPZ	0227 51.6	#-1057	7	+EPZ	1046 23.4	
6	+EpPZ	0228 22.6	#-1057	7	+EPZ	1418 48.2	#-1065
6	+EPZ	0308 36.3	#-1058	7	+EsPZ	1418 51.2	#-1065
6	+EpPZ	0308 39.2	#-1058	7	−EPZ	1452 41.7	
6	−EPZ	0412 27.8		7	+EPZ	1452 45.8	
6	−EPZ	0656 24.4	#-1059	7	−EPZ	1501 10.5	
6	+EpPZ	0656 26.4	#-1059	7	+EPZ	1610 39.8	
6	+EPZ	0855 23.9		7	−EPZ	1610 42.2	
6	+EPZ	1323 33.6		7	+EPZ	1732 33.3	#-1066
6	+EPZ	1323 34.6		7	+EPZ	1837 52.6	
6	+EPZ	1356 40.4		7	−EPZ	2109 33.1	
6	−EPZ	1746 36.6		7	+EPZ	2153 06.4	
6	−EpPZ	1808 16.0	#-1060	7	+IPZ	2200 03.8	#-1067
6	−IPZ	1810 01.4	#-1061	7	+EPcPZ	2200 15.0	#-1067
6	+EPZ	1810 38.2		7	−EpPZ	2200 27.0	#-1067
6	+EPZ	1819 15.7		7	+EPZ	2218 16.0	#-1068
6	+EPZ	1839 14.6	#-1062	7	+EPcPZ	2218 25.4	#-1068
6	−EsPZ	1839 17.7	#-1062	7	+EPZ	2348 45.6	

Table 1. Continued.

Date	Phase	Time H M S	Remarks	Date	Phase	Time H M S	Remarks
8	−EPZ	0214 04.6		9	+EPZ	2031 17.4	
8	+EPZ	0214 10.6		9	−EPZ	2141 18.7	#-1074
8	−EPZ	0318 56.7	#-1069	9	+EPcPZ	2141 23.4	#-1074
8	+IpPZ	0318 58.0	#-1069	9	+EPZ	2151 10.8	
8	+EPZ	0337 43.8		9	+EPZ	2151 15.0	
8	−EPZ	0537 06.4		9	+EPZ	2306 25.3	
8	−EPZ	0606 11.4		9	+EPZ	2306 28.9	
8	+EPZ	0856 50.3		9	+EPZ	2310 02.2	
8	+EPZ	1138 11.8		9	+EPZ	2310 03.4	
8	+IPZ	1150 57.7	#-1070	9	+EXZ	2345 04.8	#-1075
8	+EpPZ	1151 30.2	#-1070	10	+IXZ	0249 15.0	#-1076
8	+EPZ	1228 29.6		10	+IXZ	0249 18.2	#-1076
8	+EPZ	1420 16.2		10	−ESH	0259 47.4	#-1076
8	+EPZ	1617 40.1		10	+EPZ	0318 48.5	
8	+EPZ	2219 27.8		10	−EPZ	1519 58.0	#-1077
8	−EPZ	2220 02.2		10	+EPZ	1520 01.7	#-1078
9	+EpPKPdFZ	0245 52.0	#-1071	10	+EPZ	2113 34.4	
9	+EPZ	0246 05.0		10	+EPZ	2136 55.0	
9	+EPZ	0323 04.1		10	+EPdiffZ	2138 15.9	#-1079
9	+EPZ	0757 55.3		11	+EPZ	0022 25.9	#-1080
9	+EPZ	0815 14.9		11	+EPKPdFZ	0136 32.4	#-1081
9	+EPZ	0958 18.5	#-1072	11	−EpPKPdFZ	0136 45.0	#-1081
9	−IpPZ	0958 33.0	#-1072	11	−EPZ	0224 25.9	
9	−IsPZ	0958 39.0	#-1072	11	+EPZ	0349 49.4	#-1082
9	+EPZ	1008 28.4		11	+EPcPZ	0349 52.4	#-1082
9	−EPZ	1149 28.8		11	+EPZ	0457 25.0	
9	+EPZ	1235 00.7		11	+EPZ	0457 37.7	
9	−EPZ	1455 12.7		11	+EPZ	0459 10.0	#-1083
9	+EPZ	1612 46.6	#-1073	11	−EPZ	0518 11.9	
9	+EPcPZ	1612 54.8	#-1073	11	+EPZ	0605 22.5	
9	+EPZ	1627 22.9		11	−EPZ	1838 14.4	
9	−EPZ	1848 21.0		11	−EPcPZ	2017 12.0	#-1084
9	−EPZ	2013 36.3		11	−EPZ	2127 35.0	

Table 1. Continued.

Date	Phase	Time H M S	Remarks	Date	Phase	Time H M S	Remarks
11	+EPZ	2311 09.4		13	−EPZ	1616 05.0	
12	+EPZ	0035 07.3		13	+EXZ	1622 44.1	#-1091
12	+EPZ	0035 14.5		13	+EPZ	1808 22.0	
12	+EPZ	0051 01.0		13	+EPZ	1808 32.5	
12	+EPKpZ	0236 18.4	#-1085	14	+EPZ	0035 57.6	#-1092
12	+EPKiKPZ	0236 23.0	#-1085	14	+EPZ	0118 50.6	
12	+EPZ	0237 03.8	#-1086	14	+EPZ	0140 47.0	
12	+EPZ	0344 49.6	#-1087	14	+EPZ	0317 19.4	#-1093
12	+EpPZ	0344 52.6	#-1087	14	+EpPZ	0317 34.6	#-1093
12	+EPZ	0434 27.2		14	+EPZ	0339 10.4	
12	+EPZ	0607 18.4		14	+EPZ	0426 53.6	
12	+EPZ	0921 11.1	#-1088	14	+EPZ	0507 25.2	
12	+EsPZ	0921 17.3	#-1088	14	+EPZ	0550 30.4	
12	+EPZ	1011 11.8		14	+EPZ	0615 01.5	
12	−EPZ	1011 13.5		14	−IPZ	0907 08.7	
12	+EPZ	1144 20.9		14	+IPZ	0907 10.9	
12	+EPZ	1313 47.4		14	+EPZ	1324 09.8	
12	+EPZ	1653 00.5		14	−EPZ	1640 44.6	
12	+EPZ	1653 02.7		14	+EPZ	1640 47.2	
12	+EPZ	1722 09.2		14	+EPZ	2216 37.0	
12	+IXZ	1858 15.4	#-1089	15	−EPZ	0013 36.4	
12	+EPZ	1948 22.6		15	+EPZ	0103 01.0	
12	+EPZ	1952 00.4		15	+EPZ	0150 16.6	
12	+EPZ	2051 39.0	#-1090	15	−EPZ	0219 56.8	
12	+EPZ	2314 03.8		15	+EPZ	0440 37.7	
12	+EPZ	2314 08.1		15	+EPZ	0733 03.8	
13	+EPZ	0057 34.5		15	+EPZ	0733 07.2	
13	−EPZ	0455 34.6		15	−EPZ	0912 47.3	
13	+EPZ	0806 03.8		15	+EPZ	1025 02.6	
13	−EPZ	0924 02.5		15	+EPZ	1144 40.0	#-1094
13	+EPZ	1208 56.0		15	+EpPZ	1144 41.5	#-1094
13	+EPZ	1251 02.0		15	−EPZ	1244 37.1	
13	+EPZ	1356 44.0		15	+EPZ	1347 32.8	

Table 1. Continued.

Date	Phase	Time H M S	Remarks	Date	Phase	Time H M S	Remarks
15	+EPZ	1522 37.8	#-1095	17	−EPZ	2236 07.0	
15	+EPZ	1651 48.6	#-1096	17	+EPZ	2236 12.2	
15	+EPZ	2118 24.8		17	−EPZ	2303 49.4	#-1102
15	+EPZ	2135 30.4	#-1097	18	−EPZ	0031 41.7	
16	+EPZ	0034 22.0		18	−EPZ	0031 46.0	
16	+EPZ	0151 22.5		18	+EPZ	0656 44.3	#-1103
16	+EPZ	0156 10.4		18	−EXZ	0742 26.0	#-1104
16	+EPZ	0322 00.4		18	−EPZ	0958 30.0	#-1105
16	−EPZ	0456 42.2		18	+EPZ	1416 15.7	
16	+EPZ	1010 33.5		18	+EPZ	1933 04.4	
16	+EPZ	1248 25.3	#-1098	19	+EPZ	0212 34.6	
16	−EPZ	1336 46.0		19	+EPZ	0415 21.2	
16	+EPZ	1354 31.5		19	+EPZ	0553 50.4	
16	+EPZ	1557 38.6	#-1099	19	+EPZ	0716 26.2	
16	−EPcPZ	1557 49.6	#-1099	19	+EPZ	0746 10.2	
16	+EPZ	1650 14.7		19	+EPZ	1239 21.4	
16	−EPZ	1651 36.4		19	+EPZ	2257 26.6	
16	+EPZ	1753 01.7		19	+IPZ	2329 16.5	#-1106
16	+EPZ	1907 51.2	#-1100	20	+EPZ	0223 50.0	
16	+EPZ	2338 45.4		20	+EPZ	0453 02.0	
16	+EPZ	2339 01.4		20	+EPZ	0501 12.3	
17	−EPZ	0447 54.0		20	+EPZ	1040 31.5	
17	−EPZ	0454 43.2	#-1101	20	−EXZ	1300 29.2	#-1107
17	+EPZ	0639 39.8		20	−EsPZ	1300 49.8	#-1107
17	+EPZ	0658 04.7		20	+EPZ	1338 30.8	#-1108
17	+EPZ	0738 03.2		20	−EPcPZ	1338 33.9	#-1108
17	+EPZ	1031 19.1		20	+EPZ	1434 21.0	
17	+EPZ	1156 50.0		20	+EPZ	1609 45.1	
17	+EPZ	1507 05.7		20	+IPZ	1637 34.5	#-1109
17	+EPZ	1537 17.0		20	−EPZ	1755 17.4	
17	+EPZ	2021 06.0		21	+EPZ	0013 02.4	
17	−EPZ	2021 18.4		21	+EPZ	0304 14.4	
17	+EPZ	2046 07.6		21	+EPZ	0439 32.4	

Table 1. Continued.

Date	Phase	Time H M S	Remarks	Date	Phase	Time H M S	Remarks
21	+EPZ	0703 06.4		23	−ESH	2159 37.2	#-1118
21	−EPZ	0858 02.0		23	+EPZ	2318 01.6	
21	+EPZ	1153 00.6		24	+EPZ	0041 41.0	
21	+EPZ	1216 15.0		24	+EPZ	0409 38.4	
21	+EPZ	1234 07.4		24	−IPZ	0518 21.2	#-1119
21	+EXZ	2013 17.8	#-1110	24	+EPZ	0655 26.2	
21	+EPZ	2032 04.8		24	−EPZ	1205 24.0	
22	+EPZ	0533 17.3		24	+EPZ	1414 04.2	
22	+EPZ	0554 23.2		24	−IPZ	1414 19.2	
22	+EPZ	0621 01.2		24	−EPZ	1554 31.0	
22	+EPZ	0717 14.6		24	+EPZ	2013 10.0	#-1120
22	−EPZ	0804 26.4	#-1111	24	+EPZ	2210 56.2	
22	−EPZ	0902 47.6		24	+EPZ	2211 12.8	#-1121
22	−EPZ	1931 47.4	#-1112	24	+EPZ	2324 11.4	
22	+EPZ	2021 19.4		25	+EPZ	0220 25.4	
22	−EPZ	2312 20.2	#-1113	25	+EPZ	0454 00.7	
22	−EPZ	2312 32.1	#-1113	25	+EPZ	1154 37.7	
23	−EPZ	0051 51.7	#-1114	25	+EPZ	1322 47.5	
23	−IPZ	0123 54.8		25	−EPZ	2217 30.6	#-1122
23	+EPZ	0124 04.6		26	+EPZ	0113 28.8	#-1123
23	+EPZ	0159 12.8	#-1115	26	+EPZ	0302 16.8	
23	+EPZ	0322 35.9		26	+EPZ	0326 06.4	
23	−EPZ	0329 04.4		26	−EPKpdlZ	0433 50.6	#-1124
23	+EPZ	0507 09.7	#-1116	26	+EPZ	0457 44.3	
23	+EPZ	0550 36.0		26	+EPZ	0522 42.2	#-1125
23	+EXZ	0553 25.4	#-1117	26	−EPZ	0534 02.5	
23	−ESH	0602 55.2	#-1117	26	+EPZ	0712 29.0	#-1126
23	+EPZ	0914 27.1		26	+EPcPZ	0712 30.5	#-1126
23	+EPZ	1612 01.0		26	−IPZ	0909 55.0	#-1127
23	−EPZ	1807 38.3		26	−ESH	0920 19.0	#-1127
23	+EPZ	1831 21.3		26	+EPZ	2135 32.2	
23	+EPZ	1947 19.5		26	+EPZ	2135 36.0	
23	−IPZ	2149 28.2	#-1118	27	+EPZ	0024 13.6	

Table 1. Continued.

Date	Phase	Time H M	S	Remarks	Date	Phase	Time H M	S	Remarks
27	+EPZ	0401	41.8		29	−EPZ	2314	31.4	
27	+EPZ	1014	20.3	#-1128	29	+EXZ	2332	53.5	#-1140
27	−EPZ	1332	10.0	#-1129	30	+EPZ	0151	32.3	
27	−EpPZ	1332	14.3	#-1129	30	−EPZ	0606	20.1	
27	−EPZ	1628	26.2		30	+EPZ	0616	20.6	
27	+EPZ	1824	26.6		30	+EPZ	0737	07.8	
28	+EPZ	0002	21.8		30	−EPZ	1131	06.0	#-1141
28	−IPZ	0108	59.4	#-1130	30	−EPZ	1137	09.4	#-1142
28	−IPcPZ	0109	09.2	#-1130	30	−EPZ	1151	18.4	#-1143
28	+EPZ	0320	14.9		30	+EPZ	1217	28.4	
28	−IPZ	0911	46.5		30	−EPZ	1411	04.9	
28	+EPZ	0911	53.1		30	+EPZ	1411	22.0	
28	+EPZ	1031	15.4	#-1131	30	+EPZ	1540	46.8	
28	+EPZ	1204	37.6	#-1132	30	+EPZ	1909	05.2	
28	−EPZ	1228	38.2	#-1133	30	+EPZ	2033	04.5	
28	+EPZ	1406	04.8		30	−EPZ	2049	42.4	
28	+EPZ	1512	06.6		31	+EPZ	0322	14.8	#-1144
28	+EPZ	1650	01.3		31	+EPZ	0327	36.4	
28	+EPZ	2044	06.4		31	−EPZ	0404	30.4	#-1145
29	+EPZ	0436	55.4	#-1134	31	−EPcPZ	0404	43.7	#-1145
29	−EpPZ	0436	57.4	#-1134	31	+EPZ	0536	05.1	
29	+EPZ	0525	35.1	#-1135	31	+EPZ	1448	16.4	
29	+EPZ	0543	02.7		31	−IPZ	1754	18.0	#-1146
29	+IPZ	0819	13.8	#-1136	31	−IPcPZ	1754	21.1	#-1146
29	+EPZ	1020	52.0	#-1137	31	+EPZ	2125	05.3	
29	+EPcPZ	1020	54.1	#-1137					
29	−IPZ	1158	02.0	#-1138					
29	+EpPZ	1158	15.3	#-1138					
29	−EPZ	1629	28.0						
29	−EPdiffZ	2228	03.9	#-1139					
29	+EPZ	2305	03.8						
29	−EPZ	2305	06.8						
29	−EPZ	2314	27.5						

Table 2. List of the hypocenters of teleseismic events detected at Syowa Station in 2009.
The total number of events is 1,146.

No.	Date		Origin time UTC			Geographic Coordinates		Dep	Epicentral Magnitude distance			Region
			h	m	s	Latitude (deg)	Longitude (deg)		(km)	(deg)	Mb	
#-1	1	1	6	27	51.5	−34.820	−107.654	10	73.30	5.1	-	SOUTHERN EAST PACIFIC RISE
#-2	1	1	10	35	35.0	1.277	121.785	36	88.61	5.2	-	MINAHASA, SULAWESI, IND.
#-3	1	1	16	57	56.3	−4.259	101.291	43	76.38	5.3	-	SOUTHERN SUMATRA, INDONESIA
#-4	1	1	18	37	23.5	−4.340	101.137	27	76.25	4.9	-	SOUTHERN SUMATRA, INDONESIA
#-5	1	2	8	51	35.2	−19.253	−174.858	155	88.45	4.8	-	TONGA
#-6	1	2	14	17	13.2	58.526	−152.254	53	168.44	5.2	-	KODIAK ISLAND REGION, ALASKA
#-7	1	2	20	14	30.4	0.811	−27.109	10	82.43	5.1	-	CENTRAL MID-ATLANTIC RIDGE
#-8	1	2	20	37	17.6	−11.408	166.330	97	91.62	5.2	-	SANTA CRUZ ISLANDS
#-9	1	3	3	21	12.8	−22.010	−67.010	173	75.03	4.2	-	POTOSI, BOLIVIA
#-10	1	3	8	22	57.9	−25.359	−175.491	23	82.35	5.4	-	SOUTH OF TONGA
#-11	1	3	16	30	46.7	−7.418	128.477	127	82.89	5.4	-	KEPULAUAN BARAT DAYA, INDONESIA
#-12	1	3	16	49	25.5	−12.416	166.728	109	90.76	5.4	-	SANTA CRUZ ISLANDS
#-13	1	3	19	43	50.5	−0.408	132.886	17	91.01	6.5	7.5	NEAR THE NORTH COAST OF PAPUA, IND.
#-14	1	3	20	20	36.7	−8.173	119.671	174	79.03	4.9	-	FLORES REGION, INDONESIA
#-15	1	3	21	15	1.8	−28.495	−62.908	628	67.64	5.1	-	SANTIAGO DEL ESTERO, ARG.
#-16	1	3	22	23	47.9	−0.545	132.150	35	90.62	4.9	-	NEAR N COAST PAPUA, IND.
#-17	1	3	22	33	40.3	−0.707	133.361	23	90.90	6.6	7.4	NEAR THE NORTH COAST OF PAPUA, IND.
#-18	1	4	0	5	11.7	−0.213	132.980	35	91.22	5.2	-	NEAR N COAST PAPUA, IND.
#-19	1	4	0	55	36.0	−0.189	132.853	35	91.20	5.1	-	NEAR N COAST PAPUA, IND.
#-20	1	4	1	55	23.5	−0.737	133.546	20	90.94	5.3	-	NEAR N COAST PAPUA, IND.
#-21	1	4	5	44	4.5	−0.669	133.222	32	90.88	5.3	-	NR N CST PAPUA, IND.
#-22	1	4	7	14	0.3	−0.371	132.777	35	91.00	5.5	-	NEAR THE NORTH COAST OF PAPUA, IND.
#-23	1	4	15	43	6.0	−0.731	133.382	35	90.88	4.6	-	NEAR N COAST PAPUA, IND.
#-24	1	4	17	46	34.2	−58.297	−139.822	10	52.69	5.0	-	PACIFIC-ANTARCTIC RIDGE
#-25	1	4	20	22	57.9	6.421	94.188	65	84.33	5.3	-	NICOBAR ISL, INDIA REGION
#-26	1	4	20	53	26.1	−34.394	−70.716	94	64.68	5.1	-	LIBERTADOR O'HIGGINS, CHILE
#-27	1	5	16	54	43.1	−3.540	100.715	27	76.87	5.2	-	KEPULAUAN MENTAWAI REG, IND.
#-28	1	5	19	24	3.4	−0.682	133.263	35	90.89	5.3	-	NEAR N COAST PAPUA, IND.
#-29	1	5	22	27	13.4	−27.463	−176.716	42	80.07	5.3	-	KERMADEC ISLANDS REGION

Table 2. Continued.

No.	Date		Origin time UTC			Geographic Coordinates		Dep Epicentral		Magnitude		Region
			h	m	s	Latitude (deg)	Longitude (deg)	(km)	(deg)	Mb	Ms	
#-30	1	6	19	56	24.4	−0.583	132.789	10	90.81	5.3	-	NEAR THE NORTH COAST OF PAPUA, IND.
#-31	1	7	3	43	7.2	1.799	127.336	92	91.08	5.2	-	HALMAHERA, INDONESIA
#-32	1	7	4	43	58.3	−9.208	123.874	84	79.57	5.0	-	TIMOR REGION, INDONESIA
#-33	1	7	8	40	41.2	−32.325	−179.857	230	74.72	5.1	-	SOUTH OF KERMADEC ISLANDS
#-34	1	7	16	25	34.0	−20.686	−179.257	665	86.18	5.2	-	FIJI REGION
#-35	1	7	23	38	50.0	−0.631	132.958	37	90.82	5.0	-	NR N CST PAPUA, IND.
#-36	1	8	16	18	50.8	−0.411	132.926	23	91.02	5.4	-	NEAR THE NORTH COAST OF PAPUA, IND.
#-37	1	8	21	47	6.3	−4.850	153.043	78	93.81	5.1	-	NEW IRELAND REG, P.N.G.
#-38	1	9	3	44	38.8	10.437	56.992	10	80.45	5.4	-	CARLSBERG RIDGE
#-39	1	9	6	28	35.1	−19.287	−66.595	243	77.44	4.7	-	ORURO, BOLIVIA
#-40	1	9	8	45	53.9	−4.284	152.136	193	94.05	4.9	-	NEW BRITAIN REG, P.N.G.
#-41	1	9	18	14	22.2	−23.622	−179.926	521	83.18	4.8	-	SOUTH OF THE FIJI ISLANDS
#-42	1	9	22	43	31.1	−23.124	−70.665	18	75.18	5.0	-	OFFSHORE ANTOFAGASTA, CHILE
#-43	1	10	11	53	21.5	−35.364	178.938	176	71.53	5.0	-	OFF E COAST OF N ISL, N.Z.
#-44	1	11	5	27	11.5	−31.691	−69.406	10	66.78	4.9	-	SAN JUAN, ARGENTINA
#-45	1	11	15	53	1.2	6.437	126.855	108	95.24	5.0	-	MINDANAO, PHILIPPINES
#-46	1	11	18	29	6.4	−26.745	−176.014	15	80.90	5.4	-	SOUTH OF THE FIJI ISLANDS
#-47	1	12	22	14	11.1	2.887	95.827	65	81.44	5.1	-	SIMEULUE, INDONESIA
#-48	1	13	1	4	42.7	−13.194	66.060	10	58.42	5.5	5.6	MID-INDIAN RIDGE
#-49	1	13	7	50	2.5	−18.177	−175.216	202	89.44	4.5	-	TONGA
#-50	1	13	17	17	13.4	−29.544	−71.128	60	69.32	5.1	-	COQUIMBO, CHILE
#-51	1	14	4	48	59.0	−6.481	155.703	171	93.12	5.1	-	BOUGAINVILLE REG, P.N.G.
#-52	1	14	11	9	18.0	−7.744	118.706	38	79.09	4.9	-	FLORES SEA
#-53	1	14	15	22	29.5	−2.834	127.532	84	86.83	4.6	-	CERAM SEA, INDONESIA
#-54	1	15	7	27	20.0	−22.355	170.648	27	82.24	5.8	6.5	SOUTHEAST OF THE LOYALTY ISLANDS
#-55	1	15	13	2	31.4	−22.552	170.370	35	81.98	5.4	-	SOUTHEAST OF THE LOYALTY ISLANDS
#-56	1	15	16	15	1.8	−10.327	161.260	112	91.19	5.6	-	SOLOMON ISLANDS

Table 2. Continued.

No.	Date		Origin time UTC			Geographic Coordinates		Dep Epicentral		Magnitude		Region
			h	m	s	Latitude (deg)	Longitude (deg)	(km)	(deg)	Mb	Ms	
#-57	1	16	19	55	24.2	−22.319	170.314	38	82.19	5.3	-	SOUTHEAST OF THE LOYALTY ISLANDS
#-58	1	16	23	3	1.7	−22.337	170.274	50	82.17	4.8	-	SOUTHEAST OF LOYALTY ISLANDS
#-59	1	17	5	17	4.6	−59.869	−26.817	10	28.22	5.3	-	SOUTH SANDWICH ISL REGION
#-60	1	17	7	14	52.6	−22.196	170.499	46	82.36	4.8	-	SOUTHEAST OF LOYALTY ISLANDS
#-61	1	17	8	38	20.3	44.054	150.643	33	138.08	5.4	-	EAST OF THE KURIL ISLANDS
#-62	1	18	12	19	22.3	−22.495	170.581	65	82.09	4.9	-	SOUTHEAST OF LOYALTY ISLANDS
#-63	1	18	14	11	49.1	−30.090	−177.998	33	77.26	6.0	6.1	KERMADEC ISLANDS, NEW ZEALAND
#-64	1	19	1	6	29.4	−0.227	132.829	35	91.16	5.1	-	NEAR N COAST PAPUA, IND.
#-65	1	19	3	31	3.2	−23.947	−179.976	509	82.85	4.8	-	SOUTH OF THE FIJI ISLANDS
#-66	1	19	3	38	32.3	53.933	160.420	30	149.84	5.1	-	NR E COAST KAMCHATKA, RUSSIA
#-67	1	19	3	46	33.9	−22.400	170.805	10	82.24	5.3	-	SOUTHEAST OF THE LOYALTY ISLANDS
#-68	1	19	10	9	12.6	−21.372	−177.897	472	85.79	4.7	-	FIJI REGION
#-69	1	19	17	29	3.0	7.656	126.786	81	96.35	5.1	-	MINDANAO, PHILIPPINES
#-70	1	20	10	46	51.6	−4.628	129.871	124	85.99	5.5	-	BANDA SEA
#-71	1	21	6	27	57.4	−20.199	66.367	10	51.61	5.1	-	MAURITIUS - REUNION REGION
#-72	1	21	9	34	16.2	−30.176	−177.233	35	77.32	4.7	-	KERMADEC ISL, NEW ZEALAND
#-73	1	21	17	8	42.9	−22.686	171.033	24	82.02	5.4	5.8	SOUTHEAST OF THE LOYALTY ISLANDS
#-74	1	21	18	17	2.9	−11.789	−75.639	10	87.45	4.6	-	CENTRAL PERU
#-75	1	22	3	1	52.8	−0.514	127.400	121	88.94	5.2	-	HALMAHERA, INDONESIA
#-76	1	22	5	9	41.0	47.078	155.499	10	142.42	5.0	-	EAST OF THE KURIL ISLANDS
#-77	1	22	7	7	4.0	−14.976	167.108	105	88.41	4.7	-	VANUATU
#-78	1	23	2	48	16.3	−6.355	154.959	47	93.01	5.1	-	BOUGAINVILLE REG, P.N.G.
#-79	1	23	3	35	28.1	−20.024	−177.413	522	87.20	4.8	-	FIJI REGION
#-80	1	23	8	26	0.2	−57.083	−25.149	10	29.70	4.8	-	SOUTH SANDWICH ISL REGION
#-81	1	23	12	56	7.5	−36.375	−70.780	117	62.87	4.9	-	MAULE, CHILE
#-82	1	23	21	27	57.9	−30.293	−177.763	35	77.10	5.0	-	KERMADEC ISL, NEW ZEALAND
#-83	1	24	1	28	39.4	−28.176	−176.737	10	79.36	5.5	-	KERMADEC ISLANDS REGION
#-84	1	24	3	5	37.7	−56.837	−25.043	52	29.85	4.9	-	SOUTH SANDWICH ISL REGION

Table 2. Continued.

No.	Date		Origin time UTC			Geographic Coordinates		Dep Epicentral		Magnitude		Region
			h	m	s	Latitude (deg)	Longitude (deg)	(km)	(deg)	Mb	Ms	
#-85	1	25	1	47	47.4	43.290	80.883	19	116.49	5.3	-	KAZAKHSTAN-XINJIANG BDR REG
#-86	1	25	9	15	39.4	-30.139	-177.736	38	77.26	5.0	-	KERMADEC ISL., NEW ZEALAND
#-87	1	27	6	29	13.0	-17.824	-178.694	601	89.09	5.1	-	FIJI REGION
#-88	1	28	1	34	31.3	-2.973	136.496	41	89.90	5.1	-	NEAR N COAST PAPUA, IND.
#-89	1	28	12	39	42.7	-16.969	-172.079	10	91.20	5.6	5.3	SAMOA ISLANDS REGION
#-90	1	28	19	51	57.6	2.454	128.554	208	92.13	5.0	-	HALMAHERA, INDONESIA
#-91	1	28	20	29	57.0	13.631	92.862	35	90.84	5.2	-	ANDAMAN ISL, INDIA REGION
#-92	1	29	4	45	4.0	-9.044	124.181	53	79.83	5.1	-	TIMOR REGION
#-93	1	29	11	22	51.5	-7.052	125.567	479	82.19	4.7	-	KEPULAUAN BARAT DAYA, IND.
#-94	1	29	14	31	45.0	-26.301	-178.020	339	80.95	4.7	-	SOUTH OF THE FIJI ISLANDS
#-95	1	29	22	28	5.6	-8.104	-71.381	602	89.54	5.3	-	ACRE, BRAZIL
#-96	1	31	4	27	35.9	11.794	94.988	27	89.69	5.1	-	ANDAMAN ISL, INDIA REGION
#-97	1	31	14	40	15.7	-22.885	-69.864	52	75.15	5.1	-	ANTOFAGASTA, CHILE
#-98	1	31	16	29	36.7	-19.402	-69.008	102	78.13	5.4	-	TARAPACA, CHILE
#-99	2	1	1	0	31.4	-20.314	-68.676	135	77.17	4.6	-	POTOSI,BOLIVA
#-100	2	1	1	50	16.5	4.756	127.640	117	93.95	4.9	-	KEPULAUAN TALAUD, INDONESIA
#-101	2	2	14	43	57.8	-21.789	-179.443	588	85.06	4.8	-	FIJI REGION
#-102	2	5	3	55	58.7	-16.639	-173.765	95	91.22	4.8	-	TONGA
#-103	2	5	23	14	36.4	-27.388	-176.442	52	80.19	4.9	-	KERMADEC ISLANDS REGION
#-104	2	6	2	58	35.7	-27.952	-71.072	52	70.79	5.5	-	ATACAMA,CHILE
#-105	2	6	9	59	44.7	-6.924	123.260	654	81.48	5.1	-	BANDA SEA
#-106	2	7	3	33	56.9	-24.906	-176.629	35	82.58	5.1	-	SOUTH OF THE FIJI ISLANDS
#-107	2	8	6	34	31.8	-29.644	-111.930	10	79.07	5.0	-	EASTER ISLAND REGION
#-108	2	8	7	24	30.3	-24.686	-176.780	10	82.77	5.0	-	SOUTH OF THE FIJI ISLANDS
#-109	2	8	15	34	38.3	-6.147	147.820	56	90.85	5.5	5.3	EASTERN NEW GUINEA REG, P.N.G.
#-110	2	9	10	47	48.0	1.293	123.437	10	89.21	5.2	-	MINAHASA, SULAWESI, IND.
#-111	2	9	14	9	2.9	-6.567	-81.125	15	94.12	5.5	5.5	NEAR THE COAST OF NORTHERN PERU
#-112	2	9	19	41	12.1	1.760	127.228	117	91.01	5.2	-	HALMAHERA, INDONESIA
#-113	2	11	1	50	12.3	-0.529	133.223	44	91.01	4.9	-	NEAR N COAST PAPUA, IND.
#-114	2	11	4	17	31.1	-0.076	124.323	61	88.25	5.0	-	MOLUCCA SEA
#-115	2	11	9	31	4.4	-20.778	-177.334	10	86.48	5.5	5.2	FIJI REGION

Table 2. Continued.

No.	Date		Origin time UTC			Geographic Coordinates		Dep Epicentral		Magnitude		Region
			h	m	s	Latitude (deg)	Longitude (deg)	(km)	(deg)	Mb	Ms	
#-116	2	11	13	52	43.8	−16.211	178.316	22	90.01	5.6	5.3	FIJI
#-117	2	11	17	49	18.1	3.982	126.505	35	92.82	5.6	-	KEPULAUAN TALAUD, INDONESIA
#-118	2	11	18	47	26.4	3.831	126.551	35	92.70	5.1	-	KEPULAUAN TALAUD, INDONESIA
#-119	2	11	18	54	3.3	3.982	126.721	35	92.90	5.1	-	KEPULAUAN TALAUD, INDONESIA
#-120	2	11	19	1	55.8	3.882	126.518	35	92.73	5.5	-	KEPULAUAN TALAUD, INDONESIA
#-121	2	11	20	45	33.0	−20.169	−68.715	109	77.32	5.3	-	POTOSI, BOLIVA
#-122	2	11	22	32	50.4	3.836	127.080	35	92.89	5.0	-	KEPULAUAN TALAUD, INDONESIA
#-123	2	11	23	40	59.4	3.911	126.886	35	92.89	4.8	-	KEPULAUAN TALAUD, INDONESIA
#-124	2	11	23	43	32.4	−5.554	151.696	29	92.70	5.2	-	NEW BRITAIN REG, P.N.G.
#-125	2	12	0	3	0.5	3.913	126.472	35	92.75	5.5	-	KEPULAUAN TALAUD, INDONESIA
#-126	2	12	1	25	25.7	4.048	126.815	19	92.99	5.5	-	KEPULAUAN TALAUD, INDONESIA
#-127	2	12	6	2	0.0	4.160	126.935	35	93.14	5.0	-	KEPULAUAN TALAUD, INDONESIA
#-128	2	12	6	17	27.6	3.916	126.757	35	92.85	4.8	-	KEPULAUAN TALAUD, INDONESIA
#-129	2	12	7	7	37.9	4.029	126.681	35	92.93	5.4	-	KEPULAUAN TALAUD, INDONESIA
#-130	2	12	7	38	6.9	3.692	126.771	35	92.65	5.4	-	KEPULAUAN TALAUD, INDONESIA
#-131	2	12	8	30	17.3	3.982	126.748	35	92.91	5.9	-	KEPULAUAN TALAUD, INDONESIA
#-132	2	12	11	35	13.8	4.003	126.709	35	92.91	5.1	-	KEPULAUAN TALAUD, INDONESIA
#-133	2	12	14	16	18.5	3.819	126.734	35	92.75	5.3	-	KEPULAUAN TALAUD, INDONESIA
#-134	2	12	15	32	7.6	3.973	126.617	35	92.85	4.9	-	KEPULAUAN TALAUD, INDONESIA
#-135	2	12	16	57	53.0	4.028	126.688	21	92.93	5.1	-	KEPULAUAN TALAUD, INDONESIA
#-136	2	12	20	25	4.3	−8.333	121.296	214	79.46	5.1	-	FLORES REGION, INDONESIA
#-137	2	12	23	3	58.3	4.032	127.026	35	93.05	4.7	-	KEPULAUAN TALAUD, INDONESIA
#-138	2	13	2	17	50.0	−30.822	−178.147	58	76.52	5.3	-	KERMADEC ISLANDS, NEW ZEALAND
#-139	2	13	2	24	22.3	3.736	126.743	35	92.68	5.3	-	KEPULAUAN TALAUD, INDONESIA
#-140	2	13	3	28	55.6	3.756	126.687	35	92.68	5.0	-	KEPULAUAN TALAUD, INDONESIA
#-141	2	13	7	47	26.8	−23.131	−70.657	37	75.17	4.8	-	OFFSHORE ANTOFAGASTA, CHILE
#-142	2	13	11	31	52.8	3.976	126.834	67	92.93	5.0	-	KEPULAUAN TALAUD, INDONESIA
#-143	2	13	13	18	35.9	−8.490	−73.998	151	90.04	5.2	-	PERU-BRAZIL BORDER REGION
#-144	2	13	20	41	34.1	3.859	127.120	35	92.93	4.7	-	KEPULAUAN TALAUD, INDONESIA
#-145	2	13	21	26	36.7	3.800	126.491	32	92.65	5.5	-	KEPULAUAN TALAUD, INDONESIA
#-146	2	14	2	6	54.4	−21.503	170.412	119	83.00	5.3	-	SOUTHEAST OF LOYALTY ISLANDS

Table 2. Continued.

No.	Date	Origin time UTC			Geographic Coordinates		Dep Epicentral Magnitude distance				Region
		h	m	s	Latitude (deg)	Longitude (deg)	(km)	(deg)	Mb	Ms	
#-147	2 14	7	48	38.8	18.674	−68.919	122	113.79	5.1	-	DOMINICAN REPUBLIC
#-148	2 14	8	29	39.7	−15.711	167.470	119	87.80	4.9	-	VANUATU
#-149	2 14	20	5	46.0	3.956	126.655	102	92.85	4.3	-	KEPULAUAN TALAUD, INDONESIA
#-150	2 14	20	29	12.8	−5.484	151.705	64	92.77	5.2	-	NEW BRITAIN REG, P.N.G.
#-151	2 14	21	31	47.8	−5.968	129.983	35	84.78	5.0	-	BANDA SEA
#-152	2 15	1	18	7.7	−16.622	−173.173	53	91.34	4.8	-	TONGA
#-153	2 15	4	40	33.3	3.986	126.706	25	92.90	5.1	-	KEPULAUAN TALAUD, INDONESIA
#-154	2 15	9	24	31.6	40.245	142.225	33	131.74	6.0	5.5	NEAR THE EAST COAST OF HONSHU, JAPAN
#-155	2 15	10	4	49.3	−5.865	−80.911	21	94.72	5.8	5.7	NEAR THE COAST OF NORTHERN PERU
#-156	2 16	5	54	35.2	−6.895	155.263	83	92.59	5.2	-	BOUGAINVILLE REG, P.N.G.
#-157	2 16	5	59	30.5	−6.963	155.270	103	92.53	5.0	-	BOUGAINVILLE REG, P.N.G.
#-158	2 16	6	50	57.3	−1.343	127.722	35	88.29	4.7	-	KEPULAUAN OBI, INDONESIA
#-159	2 16	8	24	22.3	−3.931	34.866	10	65.14	4.9	-	LAKE VICTORIA REG, TANZANIA
#-160	2 17	6	16	35.8	−7.621	127.721	153	82.43	4.8	-	KEPULAUAN BARAT DAYA, IND.
#-161	2 17	14	49	35.3	−30.362	−65.234	180	66.68	4.8	-	CORDOBA, ARGENTINA
#-162	2 18	0	9	18.8	−52.984	20.967	10	18.10	5.1	-	SOUTH OF AFRICA
#-163	2 18	3	7	50.3	−52.933	20.952	10	18.15	5.6	-	SOUTH OF AFRICA
#-164	2 18	3	30	34.9	−61.711	154.889	10	41.58	5.2	-	BALLENY ISLANDS REGION
#-165	2 18	10	26	4.9	3.654	126.533	35	92.53	5.2	-	KEPULAUAN BARAT DAYA, IND.
#-166	2 18	11	44	13.9	3.846	126.656	35	92.75	5.2	-	KEPULAUAN BARATDAYA, IND.
#-167	2 19	9	3	21.4	−7.401	120.653	584	80.10	4.9	-	FLORES SEA
#-168	2 22	3	52	46.5	3.873	126.786	35	92.82	5.2	-	KEPULAUAN TALAUD, INDONESIA
#-169	2 22	10	33	45.7	48.912	158.052	10	144.88	5.3	-	EAST OF THE KURIL ISLANDS
#-170	2 22	17	45	22.5	3.681	126.564	32	92.56	5.9	5.7	KEPULAUAN TALAUD, INDONESIA
#-171	2 22	21	27	45.5	3.700	126.763	54	92.65	4.8	-	KEPULAUAN TALAUD, INDONESIA
#-172	2 23	0	19	49.5	−36.715	−95.523	10	69.10	4.8	-	WEST CHILE RISE
#-173	2 23	4	6	11.3	4.005	126.802	35	92.95	4.9	-	KEPULAUAN TALAUD, INDONESIA
#-174	2 23	17	34	0.8	3.675	126.613	35	92.57	5.3	-	KEPULAUAN TALAUD, INDONESIA
#-175	2 23	19	49	22.8	−18.755	−174.803	203	88.95	4.8	-	TONGA
#-176	2 24	1	26	16.8	−27.130	75.112	10	46.90	5.1	-	MID-INDIAN RIDGE

Table 2. Continued.

No.	Date		Origin time			Geographic Coordinates		Dep Epicentral		Magnitude		Region
			UTC			Latitude	Longitude	distance				
			h	m	s	(deg)	(deg)	(km)	(deg)	Mb	Ms	
#-177	2	24	8	40	20.1	−31.008	−177.204	35	76.51	4.8	-	KERMADEC ISLANDS REGION
#-178	2	24	10	35	40.5	−1.775	120.508	35	85.31	5.0	-	SULAWESI, INDONESIA
#-179	2	24	18	30	15.4	−13.158	167.233	221	90.19	5.1	-	VANUATU
#-180	2	25	9	19	48.4	−23.113	170.607	35	81.50	5.1	-	SOUTHEAST OF LOYALTY ISLANDS
#-181	2	26	16	15	55.6	3.697	126.758	81	92.65	5.0	-	KEPULAUAN TALAUD, INDONESIA
#-182	2	27	5	25	48.8	1.570	97.104	35	80.58	5.0	-	NIAS REGION, INDONESIA
#-183	2	28	0	35	56.2	42.636	142.064	99	133.78	5.5	-	HOKKAIDO, JAPAN REGION
#-184	2	28	1	43	31.9	3.693	126.692	35	92.62	5.2	-	KEPULAUAN TALAUD, INDONESIA
#-185	3	1	8	17	39.7	−27.289	−176.394	68	80.30	5.3	-	KERMADEC ISLANDS REGION
#-186	3	1	15	42	13.7	−21.728	−176.598	172	85.69	5.2	-	FIJI REGION
#-187	3	1	19	11	46.6	−35.123	−178.207	6	72.31	5.0	-	EAST OF N ISL, NEW ZEALAND
#-188	3	2	7	43	11.9	−40.303	−71.481	180	59.45	4.8	-	NEUQUEN, ARGENTINA
#-189	3	3	6	5	3.6	−56.299	−27.046	134	30.97	5.2	-	SOUTH SANDWICH ISL REGION
#-190	3	3	21	59	52.3	1.717	126.592	52	90.74	5.0	-	MOLUCCA SEA
#-191	3	5	12	17	26.8	80.270	−1.125	10	150.92	5.1	-	NORTH OF SVALBARD
#-192	3	5	19	33	15.1	−17.498	−179.067	536	89.33	5.4	-	FIJI REGION
#-193	3	5	19	41	40.7	80.251	−1.913	10	150.96	5.5	5.0	NORTH OF SVALBARD
#-194	3	6	7	0	4.9	−19.933	−177.824	560	87.21	4.6	-	FIJI REGION
#-195	3	6	8	21	26.0	−15.188	−173.393	10	92.71	5.0	-	TONGA
#-196	3	6	20	4	26.7	−17.215	178.994	260	89.18	4.4	-	FIJI
#-197	3	7	16	27	20.7	−8.356	123.579	181	80.26	5.5	-	FLORES REGION, INDONESIA
#-198	3	10	17	52	33.5	−1.784	139.193	15	91.96	4.9	-	NEAR N COAST PAPUA, IND.
#-199	3	11	0	31	30.6	−11.919	166.084	56	91.06	5.2	-	SANTA CRUZ ISLANDS
#-200	3	11	13	6	53.4	−31.894	−69.161	28	66.52	5.5	4.8	SAN JUAN, ARGENTINA
#-201	3	12	5	18	8.5	−60.760	−23.870	10	26.56	5.2	-	SOUTH SANDWICH ISL REGION
#-202	3	12	8	57	13.3	−32.696	−66.753	167	65.01	4.5	-	SAN LUIS, ARGENTINA
#-203	3	12	11	47	46.1	−52.905	27.285	10	17.01	5.5	-	SOUTH OF AFRICA
#-204	3	13	2	3	15.3	−7.033	129.347	143	83.56	5.4	-	KEPULAUAN BABAR, INDONESIA
#-205	3	13	2	30	57.8	−29.274	−177.317	60	78.18	4.9	-	KERMADEC ISL, NEW ZEALAND
#-206	3	15	8	19	8.1	−14.437	−70.343	213	83.23	5.2	-	SOUTHERN PERU
#-207	3	15	13	50	38.5	−30.990	−65.394	179	66.15	5.1	-	CORDOBA, ARGENTINA
#-208	3	15	18	8	29.6	−30.287	−177.679	39	77.13	5.0	-	KERMADEC ISL, NEW ZEALAND

Table 2. Continued.

No.	Date	Origin time UTC			Geographic Coordinates		Dep	Epicentral Magnitude		distance	Region	
		h	m	s	Latitude (deg)	Longitude (deg)		(deg)	Mb	Ms		
#-209	3 15	20	28	53.5	−15.455	−173.212	35	92.48	5.0	-	TONGA	
#-210	3 16	1	56	47.4	−27.915	−66.564	147	69.38	4.4	-	CATAMARCA, ARGENTINA	
#-211	3 16	7	13	35.4	−55.007	−129.639	10	55.71	5.1	5.2	PACIFIC-ANTARCTIC RIDGE	
#-212	3 16	14	15	56.3	3.820	126.500	35	92.67	6.1	6.0	KEPULAUAN TALAUD, INDONESIA	
#-213	3 18	9	3	10.3	3.637	126.690	35	92.57	5.8	-	KEPULAUAN TALAUD, INDONESIA	
#-214	3 18	16	23	50.5	−33.093	179.558	250	73.86	5.2	-	SOUTH OF KERMADec ISLANDS	
#-215	3 18	22	2	32.8	−20.340	−68.467	108	77.08	4.9	-	POTOSI, BOLIVA	
#-216	3 18	23	9	14.0	3.707	127.002	35	92.74	5.0	-	KEPULAUAN TALAUD, INDONESIA	
#-217	3 19	7	3	34.9	−1.999	139.028	35	91.70	5.1	-	NR N CST PAPUA, IND	
#-218	3 19	20	33	58.7	−23.290	−174.623	35	84.54	5.3	-	TONGA REGION	
#-219	3 20	14	0	5.0	−22.879	−175.127	33	84.85	4.8	-	TONGA REGION	
#-220	3 20	14	21	50.1	−18.109	167.365	48	85.47	5.0	-	VANUATU	
#-221	3 20	15	54	45.7	−23.174	−174.679	62	84.64	5.0	-	TONGA REGION	
#-222	3 21	6	8	1.8	−22.688	−176.438	123	84.79	4.6	-	SOUTH OF THE FIJI ISLANDS	
#-223	3 21	17	38	40.5	−23.680	−175.373	35	84.02	5.0	-	TONGA REGION	
#-224	3 21	20	28	15.4	−37.969	177.046	164	68.63	4.8	-	OFF E COAST OF N ISL, N.Z.	
#-225	3 22	1	54	48.4	−22.855	−174.801	35	84.93	4.8	-	TONGA REGION	
#-226	3 22	5	52	28.8	−12.841	−14.636	10	65.51	5.1	-	SOUTHERN MID-ATLANTIC RIDGE	
#-227	3 22	6	6	36.1	−12.846	−14.522	10	65.47	4.9	-	SOUTHERN MID-ATLANTIC RIDGE	
#-228	3 22	12	54	51.3	−12.775	−14.697	10	65.59	5.0	-	SOUTHERN MID-ATLANTIC RIDGE	
#-229	3 22	19	34	18.9	−5.390	151.881	48	92.92	5.3	-	NEW BRITAIN REG, P.N.G.	
#-230	3 23	0	14	14.1	−47.507	99.969	10	36.30	4.9	-	SOUTHEAST INDIAN RIDGE	
#-231	3 23	4	43	34.3	−22.808	−175.263	35	84.89	5.2	-	TONGA REGION	
#-232	3 23	6	14	14.4	3.524	128.592	35	93.14	4.9	-	N OF HALMAHERA, INDONESIA	
#-233	3 24	4	35	46.5	5.300	94.327	63	83.30	5.2	-	NORTHERN SUMATRA, INDONESIA	
#-234	3 24	6	22	48.1	−28.343	−72.314	27	70.82	4.7	-	OFF COAST OF ATACAMA, CHILE	
#-235	3 24	18	12	50.6	−15.164	−173.672	10	92.68	4.8	-	TONGA	
#-236	3 24	23	28	27.3	−5.146	151.854	36	93.14	5.6	5.4	NEW BRITAIN REGION, P.N.G.	
#-237	3 25	21	46	2.3	−23.612	−175.779	68	84.01	5.1	-	TONGA REGION	
#-238	3 26	10	0	31.2	−23.057	−175.161	43	84.67	5.2	-	TONGA REGION	
#-239	3 26	17	35	14.3	−5.677	−81.357	8	95.04	5.5	5.5	NEAR THE COAST OF NORTHERN PERU	

Table 2. Continued.

No.	Date	Origin time UTC			Geographic Coordinates		Dep Epicentral Magnitude distance				Region
		h	m	s	(deg)	(deg)	(km)	(deg)	Mb	Ms	
#-240	3 27	10	41	22.6	−24.001	179.864	572	82.76	5.4	-	SOUTH OF THE FIJI ISLANDS
#-241	3 27	17	26	43.3	−19.006	−69.218	115	78.57	5.3	-	TARAPACA, CHILE
#-242	3 27	18	56	49.7	−8.190	119.716	206	79.03	4.4	-	FLORES REGION, INDONESIA
#-243	3 27	20	53	25.9	−6.989	106.112	43	75.41	4.9	-	JAVA, INDONESIA
#-244	3 28	15	58	22.3	−21.081	−177.861	116	86.08	4.8	-	FIJI REGION
#-245	3 28	17	59	31.9	−2.957	139.566	96	91.00	5.8	-	NEAR THE NORTH COAST OF PAPUA, IND.
#-246	3 28	20	31	55.3	−7.264	119.676	442	79.88	4.7	-	FLORES SEA
#-247	3 29	4	50	44.7	−3.163	129.410	55	87.19	4.8	-	SERAM, INDONESIA
#-248	3 31	11	31	21.3	3.890	126.783	35	92.83	5.3	-	KEPULAUAN TALAUD, INDONESIA
#-249	3 31	16	25	56.9	−22.180	−114.150	10	86.76	4.8	-	EASTER ISLAND REGION
#-250	3 31	22	21	53.1	−25.516	179.524	490	81.22	4.8	-	SOUTH OF THE FIJI ISLANDS
#-251	4 1	2	41	28.0	−16.686	−71.140	100	81.38	4.8	-	SOUTHERN PERU
#-252	4 1	3	54	59.0	−3.516	144.191	10	92.08	5.9	6.5	NEAR NORTH COAST OF NEW GUINEA, P.N.G.
#-253	4 2	4	20	5.6	−27.508	−70.941	21	71.17	4.9	-	OFFSHORE ATACAMA, CHILE
#-254	4 3	7	30	9.8	−22.953	−174.973	45	84.80	4.8	-	TONGA REGION
#-255	4 3	17	54	46.1	−27.839	−66.457	139	69.42	5.2	-	CATAMARCA, ARGENTINA
#-256	4 3	18	51	47.3	−24.092	−66.782	150	73.01	4.6	-	JUJUY, ARGENTINA
#-257	4 3	19	54	27.2	−27.423	−176.305	63	80.18	4.9	-	KERMADEC ISLANDS REGION
#-258	4 4	5	31	55.4	5.141	127.198	48	94.15	6.1	5.8	PHILIPPINE ISLANDS REGION
#-259	4 4	7	19	42.4	−62.558	155.259	10	40.93	5.3	5.7	BALLENY ISLANDS REGION
#-260	4 4	11	7	13.1	−22.471	−174.687	35	85.33	5.5	5.4	TONGA REGION
#-261	4 4	11	59	37.4	−22.558	−174.712	35	85.24	5.2	-	TONGA REGION
#-262	4 4	18	39	17.1	−56.002	−27.735	87	31.45	5.4	-	SOUTH SANDWICH ISLANDS REGION
#-263	4 4	19	11	2.0	9.459	122.261	35	96.43	4.5	-	NEGROS, PHILIPPINES
#-264	4 5	9	36	26.5	31.955	131.516	26	120.49	5.9	5.4	KYUSHU, JAPAN
#-265	4 5	12	56	14.7	−5.245	68.538	10	66.69	5.3	5.3	CHAGOS ARCHIPELAGO REGION
#-266	4 5	19	45	27.3	−9.325	124.140	10	79.56	5.4	-	TIMOR REGION
#-267	4 5	22	11	17.0	−9.397	124.003	35	79.44	4.7	-	TIMOR REGION
#-268	4 7	4	23	33.2	46.113	151.483	31	140.16	6.4	6.8	KURIL ISLANDS
#-269	4 7	13	29	47.6	−6.976	129.425	70	83.64	5.1	-	BANDA SEA

Table 2. Continued.

No.	Date		Origin time UTC			Geographic Coordinates		Dep Epicentral Magnitude distance				Region
			h	m	s	Latitude (deg)	Longitude (deg)	(km)	(deg)	Mb	Ms	
#-270	4	7	19	23	30.4	−22.979	−174.761	60	84.82	4.8	-	TONGA REGION
#-271	4	8	3	6	22.4	−7.937	−74.311	151	90.66	4.6	-	NORTHERN PERU
#-272	4	8	8	11	0.8	−19.997	168.027	41	83.84	5.0	-	VANUATU
#-273	4	8	10	22	54.0	−32.762	−70.195	92	66.04	4.5	-	VALPARAISO, CHILE
#-274	4	8	11	13	1.5	−38.767	178.236	35	68.09	5.2	-	OFF E CST N ISL, N.Z.
#-275	4	8	19	48	12.0	−23.694	179.815	525	83.05	4.7	-	SOUTH OF THE FIJI ISLANDS
#-276	4	9	3	31	28.6	−60.513	−49.864	10	35.30	5.2	-	SCOTIA SEA
#-277	4	9	4	13	14.9	−22.231	170.558	87	82.34	5.3	-	SOUTHEAST OF LOYALTY ISLANDS
#-278	4	9	6	14	29.7	3.563	126.635	35	92.48	5.0	-	KEPULAUAN TALAUD, INDONESIA
#-279	4	9	8	10	48.4	6.147	94.280	35	84.09	5.4	-	NICOBAR ISLANDS, INDIA REGION
#-280	4	10	6	51	47.4	−18.471	65.935	10	53.22	5.0	-	MAURITIUS - REUNION REGION
#-281	4	10	14	58	33.0	−21.306	−178.797	561	85.67	4.6	-	FIJI REGION
#-282	4	10	20	0	21.8	−5.763	145.655	123	90.48	4.3	-	NEW GUINEA REG, P.N.G.
#-283	4	11	1	59	47.7	1.144	97.221	38	80.21	4.9	-	NIAS REGION, INDONESIA
#-284	4	11	3	48	12.6	−16.360	−173.922	101	91.46	4.4	-	TONGA
#-285	4	11	17	14	36.4	−59.621	−26.269	65	28.21	5.1	-	SOUTH SANDWICH ISL REGION
#-286	4	12	4	50	31.6	−17.836	−178.462	587	89.12	4.5	-	FIJI REGION
#-287	4	15	10	20	4.8	12.328	58.095	10	82.45	5.5	5.1	OWEN FRACTURE ZONE REGION
#-288	4	16	5	17	19.4	−12.485	65.229	10	58.96	5.1	-	MID-INDIAN RIDGE
#-289	4	17	4	9	59.2	−7.402	128.263	137	82.82	5.6	-	KEPULAUAN BARAT DAYA, INDONESIA
#-290	4	17	16	11	55.9	−9.211	158.881	510	91.53	5.0	-	SOLOMON ISLANDS
#-291	4	17	18	29	33.3	−0.549	132.805	55	90.85	4.7	-	NEAR N COAST PAPUA, IND.
#-292	4	18	2	3	52.6	−28.933	−177.418	65	78.50	6.0	-	KERMADEC ISLANDS REGION
#-293	4	18	15	29	19.8	−23.428	−68.383	116	74.16	4.9	-	ANTOFAGASTA, CHILE
#-294	4	18	17	49	39.4	−20.604	−178.488	566	86.42	5.0	-	FIJI REGION
#-295	4	18	19	18	1.2	46.061	151.383	57	140.08	6.2	-	KURIL ISLANDS
#-296	4	19	5	23	25.8	4.130	126.676	25	93.02	5.9	5.8	KEPULAUAN TALAUD, INDONESIA
#-297	4	19	9	5	57.3	23.140	142.240	169	116.25	5.3	-	VOLCANO ISL, JAPAN REGION
#-298	4	21	0	27	44.1	−35.085	−71.565	64	64.30	5.2	-	MAULE, CHILE
#-299	4	21	5	26	11.6	50.793	155.052	152	145.37	6.0	-	KURIL ISLANDS
#-300	4	21	19	45	3.7	14.385	56.300	10	84.30	5.2	-	OWEN FRACTURE ZONE REGION

Table 2. Continued.

No.	Date		Origin time UTC			Geographic Coordinates		Dep	Epicentral distance	Magnitude			Region
			h	m	s	Latitude (deg)	Longitude (deg)			(km)	(deg)	Mb	
#-301	4	22	1	48	26.2	−13.623	167.198	196	89.73	5.1	-	VANUATU	
#-302	4	23	2	11	40.7	55.860	161.016	116	151.56	5.1	-	NR E COAST KAMCHATKA, RUSSIA	
#-303	4	23	12	16	22.3	4.326	126.738	75	93.23	5.4	-	KEPULAUAN TALAUD, INDONESIA	
#-304	4	24	5	37	35.3	−31.697	−177.669	10	75.75	5.2	-	KERMADEC ISLANDS REGION	
#-305	4	25	17	18	48.5	45.676	26.527	101	115.06	5.3	-	ROMANIA	
#-306	4	26	0	6	54.3	−30.289	−178.595	142	76.95	5.5	-	KERMADEC ISLANDS, NEW ZEALAND	
#-307	4	26	8	3	35.8	−32.810	−69.265	107	65.70	5.1	-	MENDOZA, ARGENTINA	
#-308	4	26	18	14	21.0	4.017	126.501	35	92.85	5.1	-	KEPULAUAN TALAUD, INDONESIA	
#-309	4	27	4	34	42.2	−56.369	−26.850	10	30.85	5.0	-	SOUTH SANDWICH ISL REGION	
#-310	4	27	5	23	19.2	−0.096	122.944	185	87.74	4.8	-	SULAWESI, INDONESIA	
#-311	4	27	16	46	28.8	17.069	−99.386	35	122.01	5.7	5.4	GUERRERO, MEXICO	
#-312	4	28	15	29	32.4	−48.315	−75.973	40	53.37	5.2	-	NEAR COAST OF AISEN, CHILE	
#-313	4	29	22	44	3.3	−32.805	−70.160	127	65.99	4.9	-	VALPARAISO, CHILE	
#-314	4	30	0	44	49.3	−7.303	120.136	538	80.01	4.8	-	FLORES SEA	
#-315	5	1	6	3	6.3	−10.749	162.306	21	91.09	5.9	5.6	SOLOMON ISLANDS	
#-316	5	1	9	7	53.2	−6.738	126.883	408	82.95	4.6	-	BANDA SEA	
#-317	5	1	10	43	36.8	−19.469	−68.904	10	78.04	4.7	-	TARAPACA, CHILE	
#-318	5	1	12	6	8.1	−20.921	−177.277	321	86.35	4.9	-	FIJI REGION	
#-319	5	2	2	19	7.4	54.550	−161.680	10	162.73	5.5	5.0	ALASKA PENINSULA	
#-320	5	2	14	58	27.7	−24.772	−177.058	96	82.63	5.1	-	SOUTH OF THE FIJI ISLANDS	
#-321	5	2	22	27	7.7	−58.971	−25.558	46	28.44	4.8	-	SOUTH SANDWICH ISL REGION	
#-322	5	3	1	20	19.3	−18.606	−173.872	65	89.27	4.8	-	TONGA	
#-323	5	4	2	3	14.8	−4.339	−77.963	55	95.24	4.6	-	NORTHERN PERU	
#-324	5	4	3	33	51.8	−3.553	135.516	51	89.01	5.6	-	PAPUA, INDONESIA	
#-325	5	4	7	47	6.0	−7.483	119.958	609	79.78	4.6	-	FLORES SEA	
#-326	5	4	9	6	26.2	−10.259	161.482	91	91.32	5.2	-	SOLOMON ISLANDS	
#-327	5	4	13	20	4.4	−65.202	81.049	2	16.44	4.9	-	SOUTHERN KERGUELEN PLATEAU	
#-328	5	5	2	40	0.3	−43.421	−16.115	10	37.77	4.9	-	SOUTHERN MID-ATLANTIC RIDGE	
#-329	5	5	3	20	5.7	−17.471	−173.364	35	90.48	4.9	-	TONGA	
#-330	5	5	22	26	6.9	−4.784	151.780	103	93.46	5.2	-	NEW BRITAIN REGION, P.N.G.	
#-331	5	6	12	54	6.1	−22.393	170.873	79	82.26	5.0	-	SOUTHEAST OF LOYALTY ISLANDS	

Table 2. Continued.

No.	Date		Origin time UTC			Geographic Coordinates		Dep	Epicentral Magnitude			Region
			h	m	s	Latitude (deg)	Longitude (deg)		distance (km)	(deg)	Mb Ms	
#-332	5	6	13	33	11.7	−6.537	154.950	46	92.83	5.2	-	BOUGAINVILLE REG, P.N.G.
#-333	5	7	22	44	2.4	25.414	57.053	24	95.34	5.3	-	NEAR THE COAST OF SOUTHEASTERN IRAN
#-334	5	8	13	19	0.8	3.357	97.591	25	82.43	5.3	-	NORTHERN SUMATRA, INDONESIA
#-335	5	8	21	22	28.7	58.132	164.253	1	154.43	5.6	-	KAMCHATKA PENINSULA, RUSSIA
#-336	5	9	2	51	17.5	11.711	92.016	29	88.76	4.8	-	ANDAMAN ISL, INDIA REGION
#-337	5	9	19	34	33.2	36.562	142.607	27	128.59	5.4	-	OFF E COAST OF HONSHU, JAPAN
#-338	5	11	5	11	37.9	−19.569	−177.709	382	87.58	4.8	-	FIJI REGION
#-339	5	11	14	32	30.5	−30.034	−13.847	10	49.11	4.9	-	SOUTHERN MID-ATLANTIC RIDGE
#-340	5	12	1	3	57.2	−22.233	−66.688	165	74.72	5.2	-	JUJUY, ARGENTINA
#-341	5	12	1	26	27.5	−5.681	149.567	96	91.88	5.9	-	NEW BRITAIN REGION, P.N.G.
#-342	5	12	5	7	6.5	−20.007	−68.842	105	77.51	5.1	-	TARAPACA, CHILE
#-343	5	13	1	15	21.4	−6.403	154.926	92	92.95	5.2	-	BOUGAINVILLE REG, P.N.G.
#-344	5	13	21	31	17.9	−15.729	−173.493	85	92.16	5.3	-	TONGA
#-345	5	13	21	58	43.2	−21.296	170.130	131	83.13	4.8	-	SOUTHEAST OF LOYALTY ISLANDS
#-346	5	13	23	2	45.3	−55.900	−26.892	43	31.23	5.3	-	SOUTH SANDWICH ISL REGION
#-347	5	14	5	48	54.9	21.607	143.113	312	115.15	4.4	-	MARIANA ISLANDS REGION
#-348	5	14	9	24	53.7	−0.177	124.830	41	88.34	5.2	-	MOLUCCA SEA
#-349	5	15	6	12	10.6	−56.182	−27.232	140	31.13	4.6	-	SOUTH SANDWICH ISL REGION
#-350	5	16	1	5	59.8	−31.388	−177.977	50	76.00	5.2	-	KERMADEC ISLANDS REGION
#-351	5	17	6	22	59.9	−16.769	−173.492	35	91.14	5.5	-	TONGA
#-352	5	17	12	35	21.9	−27.216	−69.580	94	71.01	5.1	-	ATACAMA, CHILE
#-353	5	17	23	22	58.9	2.513	126.767	10	91.54	5.1	-	MOLUCCA SEA
#-354	5	19	20	30	34.3	−20.265	−178.928	635	86.66	4.5	-	FIJI REGION
#-355	5	20	8	41	26.0	1.834	124.069	312	89.95	4.9	-	MINAHASA, SULAWESI, IND.
#-356	5	20	9	40	23.6	−23.170	−174.740	60	84.63	5.2	-	TONGA REGION
#-357	5	20	9	57	42.5	−7.156	67.988	10	64.71	5.1	-	MID-INDIAN RIDGE
#-358	5	20	11	59	20.2	−8.852	124.221	106	80.03	4.8	-	KEPULAUAN ALOR, INDONESIA
#-359	5	20	12	43	52.7	−31.209	−177.768	39	76.21	5.1	-	KERMADEC ISLANDS REGION
#-360	5	20	14	4	7.7	−18.458	−68.900	129	78.98	4.5	-	ORURO, BOLIVIA
#-361	5	21	0	29	45.7	−15.217	−173.348	48	92.69	5.1	-	TONGA
#-362	5	21	1	42	53.7	−20.651	−179.274	623	86.21	4.6	-	FIJI REGION

Table 2. Continued.

No.	Date		Origin time UTC			Geographic Coordinates		Dep Epicentral Magnitude				Region
			h	m	s	Latitude (deg)	Longitude (deg)	(km)	(deg)	Mb	Ms	
#-363	5	21	1	51	18.9	−5.461	128.181	366	84.61	4.6	-	BANDA SEA
#-364	5	21	5	53	59.1	7.869	126.843	55	96.57	5.4	-	MINDANAO, PHILIPPINES
#-365	5	21	7	35	33.6	7.771	126.828	86	96.47	4.9	-	MINDANAO, PHILIPPINES
#-366	5	21	12	33	54.3	36.212	77.490	84	108.98	5.4	-	SOUTHERN XINJIANG, CHINA
#-367	5	21	13	52	44.5	52.542	153.062	458	146.09	4.5	-	NORTHWEST OF KURIL ISLANDS
#-368	5	21	14	30	32.9	−22.190	−179.203	465	84.72	4.7	-	SOUTH OF THE FIJI ISLANDS
#-369	5	22	0	44	59.7	−15.879	−173.707	35	91.97	4.8	-	TONGA
#-370	5	22	7	19	16.6	−20.671	−179.314	664	86.18	4.5	-	FIJI REGION
#-371	5	22	19	24	21.6	18.414	−98.243	90	122.99	5.8	-	PUEBLA, MEXICO
#-372	5	22	19	49	51.2	−21.443	−179.053	586	85.48	4.6	-	FIJI REGION
#-373	5	23	2	59	28.0	−24.366	178.813	566	82.19	5.2	-	SOUTH OF THE FIJI ISLANDS
#-374	5	24	2	0	13.3	−31.419	−177.640	10	76.03	5.3	-	KERMADEC ISLANDS REGION
#-375	5	24	3	21	49.6	−31.371	−177.757	10	76.05	5.1	-	KERMADEC ISLANDS REGION
#-376	5	24	6	49	23.1	−42.079	88.309	10	36.96	5.0	-	SOUTHEAST INDIAN RIDGE
#-377	5	24	7	3	38.0	−42.104	88.497	10	37.00	4.8	-	SOUTHEAST INDIAN RIDGE
#-378	5	24	14	44	39.4	−2.957	128.349	36	87.00	4.6	-	CERAM SEA, INDONESIA
#-379	5	24	15	48	22.1	−8.439	158.828	106	92.25	5.0	-	SOLOMON ISLANDS
#-380	5	25	5	37	42.9	−22.970	179.154	554	83.62	4.6	-	SOUTH OF THE FIJI ISLANDS
#-381	5	26	0	49	47.1	−21.136	−176.941	100	86.21	4.5	-	FIJI REGION
#-382	5	26	5	31	21.9	−6.825	150.444	35	91.09	5.0	-	NEW BRITAIN REG, P.N.G.
#-383	5	26	6	38	38.8	−14.378	−75.999	10	85.12	5.1	-	NEAR COAST OF CENTRAL PERU
#-384	5	27	0	4	47.0	−24.650	−175.515	38	83.04	5.0	-	SOUTH OF TONGA
#-385	5	27	2	8	45.9	−19.202	−172.802	38	88.88	5.1	-	TONGA REGION
#-386	5	27	2	50	23.8	−33.087	−15.897	10	46.98	5.1	-	SOUTHERN MID-ATLANTIC RIDGE
#-387	5	28	21	7	47.7	−55.873	−28.183	97	31.70	5.3	-	SOUTH SANDWICH ISL REGION
#-388	5	29	0	58	38.0	−3.873	127.489	54	85.84	5.8	6.4	SERAM, INDONESIA
#-389	5	29	6	20	14.7	−17.045	168.354	13	86.76	5.5	5.5	VANUATU
#-390	5	29	19	12	30.3	0.974	126.176	21	89.90	5.2	-	MOLUCCA SEA
#-391	5	29	19	51	18.4	5.926	125.783	164	94.38	5.4	-	MINDANAO, PHILIPPINES
#-392	5	29	23	48	3.9	−6.182	151.008	48	91.88	5.0	-	NEW BRITAIN REG, P.N.G.
#-393	5	30	6	47	56.8	−60.733	−26.449	10	27.48	5.2	5.2	SOUTH SANDWICH ISLANDS REGION
#-394	5	30	11	54	49.0	−12.399	64.624	10	58.94	4.6	-	MID-INDIAN RIDGE

Table 2. Continued.

No.	Date		Origin time UTC			Geographic Coordinates		Dep Epicentral Magnitude distance				Region
			h	m	s	Latitude (deg)	Longitude (deg)	(km)	(deg)	Mb	Ms	
#-395	5	31	3	34	32.1	1.746	125.855	120	90.50	5.1	-	MOLUCCA SEA
#-396	5	31	9	0	38.6	-47.048	-10.858	10	32.79	4.7	-	SOUTHERN MID-ATLANTIC RIDGE
#-397	5	31	16	14	30.5	-16.298	178.328	23	89.93	4.9	-	FIJI
#-398	6	1	21	25	26.5	-17.735	167.760	65	85.94	5.0	-	VANUATU
#-399	6	2	0	22	2.9	-35.664	-103.170	10	71.67	4.8	-	SOUTHEAST OF EASTER ISLAND
#-400	6	2	1	32	33.5	-3.270	100.043	35	76.91	4.9	-	KEPULAUAN MENTAWAI REG, IND.
#-401	6	2	2	17	3.5	-17.752	167.945	15	85.97	5.7	6.2	VANUATU
#-402	6	2	2	26	55.0	-17.790	167.873	25	85.92	5.5	-	VANUATU
#-403	6	2	2	55	14.9	-17.719	167.849	35	85.98	5.1	-	VANUATU
#-404	6	2	3	52	21.9	-32.607	-68.832	26	65.75	4.9	-	MENDOZA, ARGENTINA
#-405	6	2	21	37	2.4	-14.693	-73.340	75	83.97	4.8	-	CENTRAL PERU
#-406	6	3	4	36	42.6	-37.977	49.187	10	31.52	5.1	-	SOUTHWEST INDIAN RIDGE
#-407	6	3	14	31	0.0	-17.787	167.599	50	85.85	4.7	-	VANUATU
#-408	6	3	18	16	11.2	-8.467	122.109	15	79.63	5.1	-	FLORES REGION, INDONESIA
#-409	6	3	18	54	39.5	-50.025	120.645	10	41.50	5.3	-	WESTERN INDIAN-ANTARCTIC RIDGE
#-410	6	4	1	3	43.8	-6.018	146.513	54	90.53	5.3	-	E NEW GUINEA REG, P.N.G.
#-411	6	4	16	21	31.6	-24.141	-66.572	181	72.90	4.4	-	JUJUY, ARGENTINA
#-412	6	5	18	8	35.6	-9.194	123.733	60	79.53	5.1	-	TIMOR REGION, INDONESIA
#-413	6	5	20	58	26.1	-17.347	167.775	52	86.31	4.8	-	VANUATU
#-414	6	5	21	17	0.7	-17.448	167.666	41	86.19	5.2	-	VANUATU
#-415	6	6	4	15	26.1	54.690	161.400	34	150.79	5.2	-	NR E COAST KAMCHATKA, RUSSIA
#-416	6	6	5	52	43.3	35.455	140.943	34	127.01	5.7	5.4	NEAR THE EAST COAST OF HONSHU, JAPAN
#-417	6	6	15	37	33.8	-47.818	99.317	10	35.81	5.2	-	SOUTHEAST INDIAN RIDGE
#-418	6	6	21	51	13.4	-8.727	-74.698	61	90.04	5.2	-	CENTRAL PERU
#-419	6	7	5	25	25.1	-8.484	118.386	142	78.28	5.1	-	SUMBAWA REGION, INDONESIA
#-420	6	7	12	46	30.4	-21.992	-179.583	590	84.84	5.1	-	FIJI REGION
#-421	6	7	15	5	27.6	-18.096	167.874	49	85.62	4.9	-	VANUATU
#-422	6	7	17	48	40.1	-36.473	-20.187	27	45.37	5.1	-	SOUTHERN MID-ATLANTIC RIDGE
#-423	6	8	3	31	46.4	-22.834	-174.999	14	84.92	5.0	-	TONGA REGION
#-424	6	8	4	33	19.2	-22.225	-179.613	612	84.60	5.2	-	SOUTH OF THE FIJI ISLANDS

Table 2. Continued.

No.	Date		Origin time			Geographic Coordinates		Dep	Epicentral Magnitude			Region
			UTC			Latitude	Longitude		distance			
			h	m	s	(deg)	(deg)	(km)	(deg)	Mb	Ms	
#425	6	8	11	1	42.2	−34.820	−107.913	10	73.34	4.8	-	SOUTHERN EAST PACIFIC RISE
#426	6	8	14	49	42.2	−20.908	−177.164	343	86.38	4.8	-	FIJI REGION
#427	6	8	23	31	26.2	−52.409	13.564	10	20.43	4.4	-	SOUTHWEST OF AFRICA
#428	6	9	15	15	35.1	−56.260	−26.526	90	30.82	5.2	-	SOUTH SANDWICH ISL REGION
#429	6	9	22	42	39.9	−55.039	−126.478	10	55.50	5.3	5.0	SOUTHERN EAST PACIFIC RISE
#430	6	10	2	52	51.0	−6.282	128.294	324	83.88	4.8	-	BANDA SEA
#431	6	10	8	10	14.6	−11.060	166.287	137	91.94	5.0	-	SANTA CRUZ ISLANDS
#432	6	10	15	54	56.3	45.012	148.186	95	138.03	5.0	-	KURIL ISLANDS
#433	6	10	23	9	2.5	−17.014	168.206	216	86.75	5.1	-	VANUATU
#434	6	11	0	16	0.7	−4.942	102.834	58	76.24	5.1	-	S SUMATRA, IND.
#435	6	11	1	35	7.5	53.131	159.316	98	148.80	5.0	-	NR E COAST KAMCHATKA, RUSSIA
#436	6	11	3	37	52.2	−24.182	−176.893	106	83.24	5.0	-	SOUTH OF THE FIJI ISLANDS
#437	6	11	8	55	3.7	−25.062	−13.612	10	53.67	5.0	-	SOUTHERN MID-ATLANTIC RIDGE
#438	6	12	8	47	43.0	−17.491	167.650	53	86.14	5.0	-	VANUATU
#439	6	12	9	24	45.4	−17.540	167.677	54	86.10	5.0	-	VANUATU
#440	6	12	9	44	15.1	−17.587	167.798	15	86.09	5.5	-	VANUATU
#441	6	12	20	46	55.3	−5.278	128.020	341	84.72	5.3	-	BANDA SEA
#442	6	13	20	10	48.5	−17.292	−70.688	29	80.66	5.1	-	S PERU
#443	6	13	21	22	6.6	−30.647	−71.624	28	68.45	4.9	-	COQUIMBO, CHILE
#444	6	14	5	58	43.4	5.388	126.511	35	94.14	5.7	5.7	MINDANAO, PHILIPPINES
#445	6	14	8	15	55.8	5.363	126.459	50	94.09	5.1	-	MINDANAO, PHILIPPINES
#446	6	14	8	20	27.9	−24.623	−176.713	86	82.84	4.8	-	SOUTH OF THE FIJI ISLANDS
#447	6	14	18	24	23.0	5.394	126.391	59	94.10	4.8	-	MINDANAO, PHILIPPINES
#448	6	14	20	25	14.9	−59.004	−25.016	10	28.22	5.5	-	SOUTH SANDWICH ISL REGION
#449	6	14	21	8	27.4	5.375	126.392	69	94.08	5.2	-	MINDANAO, PHILIPPINES
#450	6	14	22	10	3.5	−56.104	−27.776	19	31.38	5.0	-	SOUTH SANDWICH ISL REGION
#451	6	15	3	41	30.5	−59.381	−26.245	74	28.38	5.1	-	SOUTH SANDWICH ISL REGION
#452	6	15	12	5	23.3	9.153	93.664	13	86.79	5.4	-	NICOBAR ISL, INDIA REGION
#453	6	15	13	4	36.0	−13.534	−76.050	42	85.93	5.4	4.7	NEAR THE COAST OF CENTRAL PERU
#454	6	15	13	45	36.5	−26.185	−177.321	114	81.20	4.7	-	SOUTH OF THE FIJI ISLANDS
#455	6	15	14	27	21.2	−7.271	124.009	564	81.42	4.5	-	BANDA SEA
#456	6	17	11	45	39.9	−29.444	−177.205	35	78.04	4.8	-	KERMADEC ISL, NEW ZEALAND

Table 2. Continued.

No.	Date	Origin time UTC			Geographic Coordinates		Dep Epicentral Magnitude distance				Region
		h	m	s	Latitude (deg)	Longitude (deg)	(km)	(deg)	Mb	Ms	
#457	6 20	4	0	25.6	−5.428	105.585	174	76.70	4.6	-	SUNDA STRAIT, INDONESIA
#458	6 20	4	0	17.2	−14.457	−72.637	71	83.97	4.8	-	CENTRAL PERU
#459	6 20	9	21	23.5	−5.019	103.033	44	76.23	5.8	-	SOUTHERN SUMATRA, INDONESIA
#460	6 20	11	43	45.1	2.139	125.710	35	90.82	4.8	-	KEPULAUAN SANGIHE, INDONESIA
#461	6 21	12	27	6.8	76.385	7.079	10	146.70	5.1	-	SVALBARD REGION
#462	6 22	16	59	51.9	−19.951	−179.006	676	86.95	4.9	-	FIJI REGION
#463	6 22	18	15	40.0	76.237	6.812	10	146.59	5.5	-	SVALBARD REGION
#464	6 22	19	5	17.3	76.194	6.894	10	146.54	5.1	-	SVALBARD REGION
#465	6 22	19	55	24.1	51.276	−178.243	35	155.06	5.5	-	ANDREANOF ISLANDS, ALEUTIAN IS., ALASKA
#466	6 22	21	5	33.8	51.328	−178.253	29	155.10	5.5	5.0	ANDREANOF ISLANDS, ALEUTIAN IS., ALASKA
#467	6 22	22	24	12.5	−23.882	179.915	545	82.89	5.1	-	SOUTH OF THE FIJI ISLANDS
#468	6 22	23	10	3.6	12.116	95.009	18	90.01	4.9	-	ANDAMAN ISL, INDIA REGION
#469	6 23	6	30	13.8	−15.974	−174.218	114	91.78	4.9	-	TONGA
#470	6 23	7	37	17.5	38.850	142.397	37	130.56	5.7	5.0	NEAR THE EAST COAST OF HONSHU, JAPAN
#471	6 23	12	6	24.6	−15.112	−173.653	35	92.74	4.7	-	TONGA
#472	6 23	14	19	17.6	−5.197	153.706	65	93.70	5.5	-	NEW IRELAND REG, P.N.G.
#473	6 23	14	19	22.3	−5.153	153.794	64	93.77	5.7	-	NEW IRELAND REG, P.N.G.
#474	6 24	11	12	22.6	0.198	−16.865	10	78.60	5.1	-	NORTH OF ASCENSION ISLAND
#475	6 25	6	43	52.0	−19.385	169.339	72	84.77	5.1	-	VANUATU
#476	6 25	12	34	18.4	−23.764	−13.528	10	54.86	5.2	-	SOUTHERN MID-ATLANTIC RIDGE
#477	6 27	7	53	38.7	18.294	145.294	489	112.86	4.9	-	PAGAN REGION, N MARIANA ISL
#478	6 28	0	4	22.3	−31.785	58.363	10	38.82	4.9	-	MONA PASSAGE, PUERTO RICO
#479	6 28	7	47	3.3	−25.405	179.564	498	81.33	4.5	-	SOUTH OF THE FIJI ISLANDS
#480	6 28	14	18	44.1	1.340	122.284	32	88.85	5.0	-	MINAHASA, SULAWESI, IND.
#481	6 28	14	19	28.6	1.381	122.194	25	88.85	5.5	-	MINAHASA, SULAWESI, INDONESIA
#482	6 29	3	7	31.3	−45.607	−76.649	10	56.04	5.2	-	OFF COAST OF AISEN, CHILE
#483	6 29	11	56	34.1	−21.599	170.637	182	82.97	5.1	-	SOUTHEAST OF LOYALTY ISLANDS
#484	6 29	13	0	19.1	−5.965	151.479	54	92.24	4.8	-	NEW BRITAIN REG, P.N.G.
#485	6 29	17	21	49.9	−23.715	−176.682	116	83.74	4.7	-	SOUTH OF THE FIJI ISLANDS

Table 2. Continued.

No.	Date		Origin time UTC			Geographic Coordinates		Dep Epicentral Magnitude distance			Region	
			h	m	s	Latitude (deg)	Longitude (deg)	(km)	(deg)	Mb		
#486	6	30	4	14	52.8	−32.334	−178.220	33	75.03	5.2	-	SOUTH OF KERMADEC ISLANDS
#487	6	30	6	56	17.1	−16.797	−14.451	10	61.71	5.0	-	SOUTHERN MID-ATLANTIC RIDGE
#488	6	30	7	22	24.5	−35.521	78.356	10	39.83	4.8	-	MID-INDIAN RIDGE
#489	6	30	23	52	57.8	−19.161	−179.352	679	87.64	4.8	-	FIJI REGION
#490	7	1	18	58	2.0	0.312	96.685	35	79.25	5.3	-	NIAS REGION, INDONESIA
#491	7	2	3	9	51.4	−7.241	−75.928	129	91.84	4.7	-	NORTHERN PERU
#492	7	2	3	20	49.2	−11.625	−14.169	10	66.52	5.2	-	ASCENSION ISLAND REGION
#493	7	2	4	32	32.2	−24.089	−66.804	167	73.03	4.3	-	SALTA, ARGENTINA
#494	7	2	6	51	0.8	−32.400	−67.127	30	65.40	4.6	-	SAN LUIS, ARGENTINA
#495	7	2	7	23	36.0	−28.716	−178.128	141	78.57	4.8	-	KERMADEC ISLANDS REGION
#496	7	3	6	3	37.1	−11.702	−14.063	10	66.41	4.8	-	ASCENSION ISLAND REGION
#497	7	3	13	27	3.6	−3.479	131.191	40	87.53	5.0	-	CERAM SEA, INDONESIA
#498	7	3	20	28	18.7	−49.760	−8.032	35	29.50	5.5	-	SOUTHERN MID-ATLANTIC RIDGE
#499	7	10	3	48	6.5	0.248	123.307	250	88.19	5.0	-	MINAHASA, SULAWESI, INDONESIA
#500	7	11	1	54	31.9	−14.022	−13.901	10	64.16	4.9	-	SOUTHERN MID-ATLANTIC RIDGE
#501	7	11	12	35	21.9	−20.628	−174.217	35	87.22	5.2	-	TONGA
#502	7	12	2	58	21.5	−5.008	134.088	15	87.14	5.4	-	KEPULAUAN ARU REG, INDONESIA
#503	7	12	6	12	47.3	−15.022	−70.450	199	82.72	5.7	-	SOUTHERN PERU
#504	7	12	14	43	50.4	−30.650	−71.171	60	68.31	4.9	-	COQUIMBO, CHILE
#505	7	12	23	1	10.9	−36.958	178.176	85	69.83	4.8	-	OFF E COAST OF THE NORTH ISLAND, N.Z.
#506	7	13	0	11	49.5	−31.248	58.436	10	39.36	4.6	-	SOUTHWEST INDIAN RIDGE
#507	7	13	18	5	3.4	24.032	122.171	32	109.95	6.1	6.2	TAIWAN REGION
#508	7	14	11	27	37.3	22.856	143.718	94	116.52	5.1	-	VOLCANO ISL, JAPAN REGION
#509	7	14	18	2	2.1	−17.447	167.931	26	86.26	5.2	-	VANUATU
#510	7	15	13	50	38.0	−45.405	166.498	5	59.22	5.3	-	OFF W COAST OF THE SOUTH ISLAND, N.Z.
#511	7	15	15	21	27.7	−20.302	−68.871	115	77.24	5.2	-	TARAPACA, CHILE
#512	7	16	0	24	7.0	−46.198	166.161	5	58.39	5.3	-	OFF W COAST OF THE SOUTH ISLAND, N.Z.
#513	7	16	0	44	46.5	−46.288	165.867	5	58.24	5.4	-	OFF W COAST OF THE SOUTH ISLAND, N.Z.

Table 2. Continued.

No.	Date		Origin time UTC			Geographic Coordinates		Dep Epicentral		Magnitude		Region
			h	m	s	Latitude (deg)	Longitude (deg)	(km)	(deg)	Mb	Ms	
#-514	7	16	2	13	9.8	−45.400	166.750	12	59.28	4.6	-	OFF W COAST OF THE SOUTH ISLAND, N.Z.
#-515	7	16	3	19	8.5	−46.370	165.613	12	58.10	5.2	-	OFF W COAST OF THE SOUTH ISLAND, N.Z.
#-516	7	16	6	30	1.2	−45.702	166.551	5	58.95	4.8	-	OFF W COAST OF THE SOUTH ISLAND, N.Z.
#-517	7	16	6	29	4.5	42.350	133.032	475	130.36	5.2	-	PRIMOR'YE, RUSSIA
#-518	7	16	15	5	43.4	3.343	−31.491	10	86.28	5.2	-	CENTRAL MID-ATLANTIC RIDGE
#-519	7	16	16	13	45.2	−46.167	166.100	30	58.41	4.8	-	OFF W COAST OF THE SOUTH ISLAND, N.Z.
#-520	7	16	22	18	22.9	−46.224	166.124	28	58.36	5.6	-	OFF W COAST OF THE SOUTH ISLAND, N.Z.
#-521	7	16	23	1	5.6	−46.209	166.098	18	58.37	5.0	-	OFF W COAST OF THE SOUTH ISLAND, N.Z.
#-522	7	17	3	20	30.4	−21.788	−175.070	27	85.93	5.2	5.2	TONGA
#-523	7	17	6	39	23.9	−45.429	166.535	5	59.20	4.7	-	OFF W COAST OF THE SOUTH ISLAND, N.Z.
#-524	7	17	7	11	50.9	2.241	126.946	57	91.35	5.2	-	MOLUCCA SEA
#-525	7	17	9	0	15.9	4.160	125.708	137	92.70	5.1	-	KEPULAUAN SANGIHE, INDONESIA
#-526	7	18	15	33	43.7	−45.585	166.577	4	59.07	5.1	-	OFF W COAST OF THE SOUTH ISLAND, N.Z.
#-527	7	18	17	6	35.2	0.817	−29.276	10	83.15	4.9	-	CENTRAL MID-ATLANTIC RIDGE
#-528	7	19	5	11	29.7	−45.403	165.506	17	58.99	4.9	-	OFF W COAST OF THE SOUTH ISLAND, N.Z.
#-529	7	19	8	48	45.9	−45.541	166.285	12	59.04	4.9	-	OFF W COAST OF THE SOUTH ISLAND, N.Z.
#-530	7	19	11	39	47.4	−8.989	95.489	15	70.05	5.1	-	SOUTH INDIAN OCEAN
#-531	7	20	3	37	37.0	−8.870	117.800	35	77.72	5.1	-	SUMBAWA REG, IND.
#-532	7	20	15	19	47.5	2.308	126.960	35	91.42	5.4	4.9	MOLUCCA SEA
#-533	7	20	23	1	11.8	−6.661	29.980	10	62.63	5.0	-	LAKE TANGANYIKA REG, CONGO-TANZANIA
#-534	7	21	7	13	29.2	5.995	125.999	123	94.52	4.8	-	MINDANAO, PHILIPPINES

Table 2. Continued.

No.	Date		Origin time			Geographic Coordinates		Dep Epicentral Magnitude			Region	
			UTC			Latitude	Longitude	distance				
			h	m	s	(deg)	(deg)	(km)	(deg)	Mb	Ms	
#-535	7	21	11	40	21.1	−23.447	172.736	35	81.70	4.9	-	SOUTHEAST OF LOYALTY ISLANDS
#-536	7	21	17	14	11.6	−6.583	154.993	83	92.80	5.0	-	BOUGAINVILLE REG, P.N.G.
#-537	7	21	19	55	45.5	−13.689	66.126	10	57.94	5.1	-	MID-INDIAN RIDGE
#-538	7	22	3	53	3.0	26.770	55.790	10	96.56	5.5	-	SOUTHERN IRAN
#-539	7	24	21	45	55.0	−59.357	149.293	25	42.27	5.3	-	WEST OF MACQUARIE ISLAND
#-540	7	25	1	3	14.1	−13.349	167.096	228	89.97	4.8	-	VANUATU
#-541	7	25	1	42	24.3	−6.459	154.933	35	92.90	5.9	5.7	BOUGAINVILLE REGION, P.N.G.
#-542	7	25	4	17	11.4	−23.953	−66.482	182	73.05	5.1	-	JUJUY, ARGENTINA
#-543	7	25	11	16	40.1	−14.628	167.273	195	88.79	4.9	-	VANUATU
#-544	7	25	18	41	54.5	1.866	96.996	12	80.83	5.2	-	NIAS REGION, INDONESIA
#-545	7	25	19	3	21.6	−29.746	−177.739	35	77.64	5.5	-	KERMADEC ISLANDS, NEW ZEALAND
#-546	7	26	5	3	16.1	−20.123	169.833	237	84.19	5.0	-	VANUATU
#-547	7	26	6	6	44.3	−0.308	132.327	24	90.90	5.4	-	NEAR N COAST PAPUA, IND.
#-548	7	26	9	40	26.4	10.651	94.414	10	88.43	4.8	-	ANDAMAN ISL, INDIA REGION
#-549	7	26	12	25	51.2	10.535	94.058	10	88.22	4.8	-	ANDAMAN ISL, INDIA REGION
#-550	7	26	15	26	57.6	10.807	94.345	10	88.56	5.0	-	ANDAMAN ISL, INDIA REGION
#-551	7	26	19	45	8.0	10.671	94.315	25	88.42	5.0	-	ANDAMAN ISL, INDIA REGION
#-552	7	27	10	58	14.6	−23.926	−66.452	173	73.06	5.2	-	JUJUY, ARGENTINA
#-553	7	27	11	8	21.1	−5.431	151.686	65	92.82	5.1	-	NEW BRITAIN REG, P.N.G.
#-554	7	27	12	34	19.3	−5.508	151.770	39	92.77	5.4	-	NEW BRITAIN REG, P.N.G.
#-555	7	28	5	14	57.9	10.583	94.156	10	88.29	5.3	-	ANDAMAN ISL, INDIA REGION
#-556	7	28	12	50	51.3	−8.977	112.502	73	75.75	4.9	-	JAVA, INDONESIA
#-557	7	29	8	40	46.0	−6.265	130.457	188	84.67	4.9	-	BANDA SEA
#-558	7	29	9	31	7.3	−5.536	101.571	6	75.26	5.4	-	SW OF SUMATRA, INDONESIA
#-559	7	29	19	59	41.5	−46.227	166.273	13	58.39	4.8	-	OFF W COAST OF S ISL, N.Z.
#-560	7	29	21	33	6.1	−5.159	152.605	48	93.37	5.2	-	NEW BRITAIN REGION, PAPUA NEW GUINEA
#-561	7	29	23	22	53.1	−45.565	166.713	9	59.12	4.9	-	OFF W COAST OF THE SOUTH ISLAND, N.Z.
#-562	7	30	2	6	48.9	−45.752	166.671	12	58.93	4.5	-	OFF W COAST OF THE SOUTH ISLAND, N.Z.

Table 2. Continued.

No.	Date	Origin time UTC			Geographic Coordinates		Dep Epicentral Magnitude distance				Region
		h	m	s	Latitude (deg)	Longitude (deg)	(km)	(deg)	Mb	Ms	
#-563	7 30	8	34	43.1	−23.076	−13.561	10	55.51	4.7	-	SOUTHERN MID-ATLANTIC RIDGE
#-564	7 30	20	5	35.0	−20.843	−174.258	10	87.00	5.8	5.7	TONGA
#-565	7 31	0	5	25.0	−9.997	118.699	1	76.98	5.4	-	SUMBAWA REGION, INDONESIA
#-566	7 31	8	7	12.4	−20.718	−174.153	10	87.15	5.3	-	TONGA
#-567	7 31	8	14	39.8	−20.940	14.982	10	50.26	5.1	-	NAMIBIA
#-568	7 31	11	1	18.8	−41.147	−90.895	10	63.81	5.1	-	SOUTHEAST OF EASTER ISLAND
#-569	7 31	14	9	53.8	−4.857	134.161	35	87.31	5.2	-	NEAR S COAST PAPUA, IND.
#-570	7 31	14	56	14.4	−8.944	108.610	11	74.43	5.4	-	JAVA, INDONESIA
#-571	8 1	22	0	51.1	−9.161	123.175	121	79.36	5.4	-	TIMOR REGION, INDONESIA
#-572	8 1	23	7	2.2	−12.085	−75.415	100	87.10	5.0	-	CENTRAL PERU
#-573	8 2	8	54	35.5	−0.459	132.874	35	90.95	5.8	5.8	NEAR THE NORTH COAST OF PAPUA, IND.
#-574	8 2	13	21	9.0	7.729	126.472	99	96.31	4.7	-	MINDANAO, PHILIPPINES
#-575	8 3	3	30	36.1	−24.547	−67.664	116	72.88	4.1	-	SALTA, ARGENTINA
#-576	8 3	13	33	13.1	−28.592	−177.954	129	78.73	4.7	-	KERMADEC ISLANDS REGION
#-577	8 3	20	10	18.0	−14.260	−75.483	45	85.06	5.3	-	NEAR COAST OF CENTRAL PERU
#-578	8 3	22	44	25.0	−22.340	171.253	58	82.41	4.9	-	SOUTHEAST OF LOYALTY ISLANDS
#-579	8 4	17	57	40.6	−17.636	167.535	49	85.97	5.0	-	VANUATU
#-580	8 5	4	25	20.9	−45.610	166.415	5	59.01	4.7	-	OFF W COAST OF THE SOUTH ISLAND, N.Z.
#-581	8 5	6	28	33.5	−8.587	67.464	10	63.20	5.0	-	MID-INDIAN RIDGE
#-582	8 5	10	48	16.3	−5.751	146.965	87	90.94	4.8	-	E NEW GUINEA REG, P.N.G.
#-583	8 5	17	34	32.5	5.302	127.319	149	94.34	4.9	-	PHILIPPINE ISLANDS REGION
#-584	8 5	21	43	24.9	−38.844	137.201	4	56.92	5.0	-	OFF SOUTH COAST OF AUSTRALIA
#-585	8 7	17	34	16.0	−16.052	−177.758	10	91.01	5.1	-	FIJI REGION
#-586	8 7	20	28	49.9	−7.957	156.524	10	91.99	5.4	-	SOLOMON ISLANDS
#-587	8 8	9	30	50.0	−24.163	−66.736	185	72.93	4.2	-	SALTA, ARGENTINA
#-588	8 8	10	27	24.7	−19.664	−177.878	431	87.46	4.3	-	FIJI REGION
#-589	8 8	11	11	20.0	−21.314	−68.907	131	76.31	4.4	-	ANTOFAGASTA, CHILE
#-590	8 8	21	53	5.5	−22.654	179.082	620	83.91	5.0	-	SOUTH OF THE FIJI ISLANDS
#-591	8 9	7	9	3.5	−4.682	153.131	82	94.00	5.3	-	NEW IRELAND REGION, PAPUA NEW GUINEA

Table 2. Continued.

No.	Date		Origin time UTC			Geographic Coordinates		Dep Epicentral		Magnitude		Region
			h	m	s	Latitude (deg)	Longitude (deg)	(km)	(deg)	Mb	Ms	
#-592	8	9	10	55	55.7	33.122	138.026	297	123.86	6.5	-	IZU ISLANDS, JAPAN REGION
#-593	8	9	16	1	28.5	32.953	138.026	322	123.71	4.5	-	IZU ISLANDS, JAPAN REGION
#-594	8	10	4	6	31.1	-11.620	166.093	35	91.35	5.8	6.3	SANTA CRUZ ISLANDS
#-595	8	10	5	28	16.6	-11.485	166.151	46	91.49	5.0	-	SANTA CRUZ ISLANDS
#-596	8	10	14	10	9.8	-26.406	-113.969	10	82.57	4.9	-	EASTER ISLAND REGION
#-597	8	10	14	23	6.0	-32.307	-179.368	10	74.83	5.2	-	SOUTH OF KERMADEC ISLANDS
#-598	8	10	22	54	46.2	-10.650	34.408	10	58.44	4.5	-	MALAWI
#-599	8	11	21	43	47.6	24.338	94.790	99	101.61	5.4	-	MYANMAR-INDIA BORDER REGION
#-600	8	12	14	50	15.7	-57.629	-25.306	38	29.35	5.5	5.0	SOUTH SANDWICH ISLANDS REGION
#-601	8	13	3	46	53.6	-26.741	-114.234	10	82.27	5.3	5.0	EASTER ISLAND REGION
#-602	8	14	2	31	14.4	-15.362	-173.831	93	92.46	4.4	-	TONGA
#-603	8	14	8	19	58.1	-13.918	166.675	27	89.31	5.3	5.3	VANUATU
#-604	8	14	19	39	50.7	14.042	92.985	26	91.27	5.3	-	ANDAMAN ISL, INDIA REGION
#-605	8	15	6	54	12.1	-21.650	-179.337	588	85.22	4.4	-	FIJI REGION
#-606	8	15	12	30	12.8	0.089	123.454	166	88.10	5.3	-	MINAHASA, SULAWESI, INDONESIA
#-607	8	15	16	28	17.2	4.949	127.492	108	94.08	4.9	-	KEPULAUAN TALAUD, INDONESIA
#-608	8	15	21	14	18.8	-56.141	-27.583	78	31.29	5.0	-	SOUTH SANDWICH ISL REGION
#-609	8	15	23	30	19.3	-19.807	-178.267	608	87.24	5.2	-	FIJI REGION
#-610	8	16	7	26	42.7	-35.029	-179.653	35	72.13	5.3	-	EAST OF THE NORTH ISLAND, N.Z.
#-611	8	16	7	38	21.5	-1.486	99.469	20	78.42	6.5	6.7	KEPULAUAN MENTAWAI REG, IND.
#-612	8	16	10	21	46.0	-1.475	99.463	33	78.43	4.9	-	KEPULAUAN MENTAWAI REG, IND.
#-613	8	16	10	45	31.4	-1.507	99.404	44	78.38	5.3	-	KEPULAUAN MENTAWAI REG, IND.
#-614	8	16	11	27	6.2	-1.533	99.536	35	78.39	4.9	-	KEPULAUAN MENTAWAI REG, IND.
#-615	8	16	12	49	0.1	-1.434	99.425	21	78.45	6.0	5.7	KEPULAUAN MENTAWAI REG, IND.
#-616	8	16	17	29	41.0	5.293	127.358	115	94.35	5.3	-	PHILIPPINE ISLANDS REGION
#-617	8	16	18	42	21.7	-1.494	99.323	6	78.36	5.1	-	KEPULAUAN MENTAWAI REG, IND.
#-618	8	16	18	50	17.4	-1.378	99.492	54	78.53	5.2	-	KEPULAUAN MENTAWAI REG, IND.
#-619	8	16	19	53	23.7	-1.430	99.335	7	78.43	5.0	-	KEPULAUAN MENTAWAI REG, IND.
#-620	8	16	20	23	43.5	-1.373	99.538	23	78.55	5.2	-	KEPULAUAN MENTAWAI REG, IND.
#-621	8	16	21	53	16.1	-1.450	99.411	37	78.43	4.9	-	KEPULAUAN MENTAWAI REG, IND.
#-622	8	16	22	3	9.2	-17.914	-179.422	626	88.84	4.9	-	FIJI REGION
#-623	8	17	10	15	6.0	23.435	123.707	10	109.93	5.6	-	SW RYUKYU ISLANDS, JAPAN

Table 2. Continued.

No.	Date		Origin time			Geographic Coordinates		Dep	Epicentral distance	Magnitude			Region
			UTC			Latitude	Longitude				Mb	Ms	
			h	m	s	(deg)	(deg)	(km)	(deg)	Mb	Ms		
#-624	8	17	13	55	42.6	−1.355	99.493	45	78.55	5.0	-	KEPULAUAN MENTAWAI REG, IND.	
#-625	8	17	14	14	13.0	−1.334	99.516	55	78.58	4.8	-	KEPULAUAN MENTAWAI REG, IND.	
#-626	8	17	16	56	42.2	−45.789	165.897	35	58.72	5.0	-	OFF W COAST OF S ISL, N.Z.	
#-627	8	18	0	27	6.6	−5.178	152.929	45	93.46	4.9	-	NEW BRITAIN REG, P.N.G.	
#-628	8	18	0	59	45.7	−22.480	170.693	52	82.13	5.0	-	SOUTHEAST OF LOYALTY ISLANDS	
#-629	8	18	1	31	10.4	1.846	127.420	91	91.15	5.3	-	HALMAHERA, INDONESIA	
#-630	8	18	9	28	58.6	−1.437	99.359	35	78.43	5.1	-	KEPULAUAN MENTAWAI REG, IND.	
#-631	8	18	13	17	34.9	23.486	123.509	4	109.91	5.6	5.2	SW RYUKYU ISLANDS, JAPAN	
#-632	8	18	14	12	41.8	−16.981	168.537	254	86.87	4.9	-	VANUATU	
#-633	8	18	16	26	48.9	−0.988	97.935	21	78.41	5.1	-	KEPULAUAN MENTAWAI REG, IND.	
#-634	8	18	17	50	37.7	−0.879	97.974	35	78.52	5.5	-	KEPULAUAN MENTAWAI REG, IND.	
#-635	8	18	17	59	16.4	−6.697	154.583	61	92.56	5.2	-	BOUGAINVILLE REGION, PAPUA NEW GUINEA	
#-636	8	18	21	20	47.5	−26.032	−178.407	269	81.14	5.5	-	SOUTH OF THE FIJI ISLANDS	
#-637	8	18	23	8	25.3	−1.536	99.469	56	78.37	4.5	-	KEPULAUAN MENTAWAI REG, IND.	
#-638	8	19	1	15	21.4	−1.348	99.494	55	78.56	4.9	-	KEPULAUAN MENTAWAI REG, IND.	
#-639	8	19	2	55	8.2	−1.358	99.358	10	78.50	5.5	5.2	KEPULAUAN MENTAWAI REG, IND.	
#-640	8	19	8	44	38.9	−1.282	99.442	56	78.60	4.7	-	KEPULAUAN MENTAWAI REG, IND.	
#-641	8	19	11	35	21.0	−1.394	99.471	10	78.51	5.1	-	KEPULAUAN MENTAWAI REG, IND.	
#-642	8	19	13	7	21.7	−15.784	−173.256	10	92.15	5.1	-	TONGA	
#-643	8	20	6	35	4.4	72.218	0.968	6	143.41	5.9	5.8	NORWEGIAN SEA	
#-644	8	20	6	50	52.9	2.397	127.123	35	91.56	5.0	-	MOLUCCA SEA	
#-645	8	20	12	12	47.3	3.808	126.668	44	92.72	5.3	-	KEPULAUAN MENTAWAI REG, IND.	
#-646	8	21	15	7	35.7	−22.665	171.107	90	82.06	4.9	-	SOUTHEAST OF LOYALTY ISLANDS	
#-647	8	21	17	24	25.6	−35.734	179.198	52	71.22	5.0	-	OFF E COAST OF N ISL, N.Z.	
#-648	8	21	18	48	40.7	−1.607	99.542	1	78.33	4.8	-	KEPULAUAN MENTAWAI REG, IND.	
#-649	8	22	1	26	44.3	−21.264	−174.522	35	86.54	4.9	-	TONGA	
#-650	8	22	7	21	35.5	−28.265	−67.405	112	69.33	4.2	-	CATAMARCA, ARGENTINA	
#-651	8	22	12	34	50.6	0.935	−28.562	10	83.03	5.0	-	CENTRAL MID-ATLANTIC RIDGE	
#-652	8	22	13	18	36.4	46.397	149.989	181	139.87	5.1	-	KURIL ISLANDS	
#-653	8	23	7	20	17.2	0.273	96.989	35	79.31	5.5	-	NIAS REGION, INDONESIA	
#-654	8	23	8	26	30.7	−19.822	−175.838	211	87.71	4.6	-	TONGA	

Table 2. Continued.

No.	Date		Origin time UTC			Geographic Coordinates		Dep Epicentral		Magnitude		Region
			h	m	s	Latitude (deg)	Longitude (deg)	(km)	(deg)	Mb	Ms	
#-655	8	23	11	44	30.4	2.495	127.067	34	91.63	5.5	4.9	MOLUCCA SEA
#-656	8	23	13	8	25.2	2.722	127.517	14	92.01	4.6	-	MOLUCCA SEA
#-657	8	23	15	24	24.2	-10.349	161.362	103	91.20	4.8	-	SOLOMON ISLANDS
#-658	8	23	17	42	32.5	-22.699	-178.414	414	84.39	5.2	-	SOUTH OF THE FIJI ISLANDS
#-659	8	23	23	5	10.8	48.519	157.456	19	144.34	5.3	-	EAST OF THE KURIL ISLANDS
#-660	8	24	5	26	16.3	41.019	140.094	167	131.66	5.4	-	HOKKAIDO, JAPAN
#-661	8	24	11	36	0.6	-22.521	-65.888	225	74.18	4.8	-	JUJUY, ARGENTINA
#-662	8	24	22	4	28.2	-37.529	-179.250	33	69.78	4.4	-	E N ISL, NEW ZEALAND
#-663	8	25	4	57	24.9	-46.268	166.227	5	58.34	5.0	-	OFF W COAST OF THE SOUTH ISLAND, N.Z.
#-664	8	25	21	35	0.3	-21.177	-68.837	138	76.41	5.1	-	TARAPACA, CHILE
#-665	8	25	22	0	12.3	-7.565	-77.453	30	92.02	4.8	-	NORTHERN PERU
#-666	8	26	1	52	1.9	-3.631	102.987	35	77.53	4.5	-	SOUTHERN SUMATRA, INDONESIA
#-667	8	26	7	30	54.7	-15.314	-173.411	131	92.58	4.7	-	TONGA
#-668	8	26	11	49	27.9	-15.369	-173.268	38	92.56	5.2	-	TONGA
#-669	8	26	15	12	6.1	-25.032	178.302	600	81.43	5.2	-	SOUTH OF THE FIJI ISLANDS
#-670	8	26	22	20	52.8	9.393	124.006	570	96.98	5.3	-	BOHOL, PHILIPPINES
#-671	8	26	23	27	54.0	0.115	123.475	143	88.13	5.3	-	MINAHASA, SULAWESI, IND.
#-672	8	27	0	30	36.9	-22.409	-68.571	112	75.17	4.5	-	ANTOFAGASTA, CHILE
#-673	8	27	14	10	48.6	-41.388	174.599	35	64.83	4.6	-	COOK STRAIT, NEW ZEALAND
#-674	8	28	1	51	20.4	-7.127	123.430	642	81.35	6.3	-	BANDA SEA
#-675	8	28	1	52	6.6	37.713	95.687	13	114.55	6.1	6.2	NORTHERN QINGHAI, CHINA
#-676	8	28	2	52	48.2	-9.220	154.174	10	90.04	5.1	-	D'ENTRECASTEAUX ISL REGION
#-677	8	28	4	8	3.0	-16.851	-174.065	136	90.95	5.1	-	TONGA
#-678	8	28	14	30	52.9	-36.311	-110.620	10	72.31	4.9	-	SOUTHERN EAST PACIFIC RISE
#-679	8	28	16	45	18.5	5.460	94.692	54	83.56	5.0	-	NORTHERN SUMATRA, INDONESIA
#-680	8	29	4	13	44.1	-0.959	97.953	37	78.44	4.9	-	KEPULAUAN BATU, INDONESIA
#-681	8	29	4	46	52.4	5.319	126.390	65	94.03	4.8	-	MINDANAO, PHILIPPINES
#-682	8	29	7	52	9.6	-15.408	-70.265	144	82.30	4.9	-	SOUTHERN PERU
#-683	8	29	8	6	24.2	6.119	126.842	67	94.94	4.6	-	MINDANAO, PHILIPPINES
#-684	8	30	7	9	19.4	-11.875	165.686	35	90.99	4.9	-	SANTA CRUZ ISLANDS
#-685	8	30	14	51	33.2	-15.187	-172.526	11	92.87	6.4	6.3	SAMOA ISLANDS REGION

Table 2. Continued.

No.	Date		Origin time			Geographic Coordinates		Dep Epicentral Magnitude				Region
			UTC			Latitude	Longitude	distance				
	h	m	s			(deg)	(deg)	(km)	(deg)	Mb	Ms	
#-686	8	30	19	35	39.2	49.717	153.870	27	144.06	5.2	-	KURILISLANDS
#-687	8	30	22	3	10.4	2.129	128.479	76	91.80	5.1	-	HALMAHERA, INDONESIA
#-688	8	31	10	41	28.8	14.034	92.828	10	91.22	4.8	-	ANDAMAN ISL, INDIA REGION
#-689	9	1	17	33	39.6	−19.703	−177.769	574	87.44	5.0	-	FIJI REGION
#-690	9	1	23	47	48.5	−1.296	99.523	44	78.62	5.1	-	KEPULAUAN MENTAWAI REG, IND.
#-691	9	2	7	55	1.1	−7.809	107.259	46	75.03	6.7	7.0	JAVA, INDONESIA
#-692	9	2	9	28	45.9	−8.063	107.255	51	74.79	4.9	-	JAVA, INDONESIA
#-693	9	2	23	27	18.6	−21.894	−174.635	78	85.90	4.8	-	TONGA
#-694	9	3	9	5	21.0	−5.261	145.850	72	91.02	4.8	-	E NEW GUINEA REG, P.N.G.
#-695	9	3	16	58	8.9	−4.729	134.147	35	87.42	5.1	-	NEAR S COAST PAPUA, IND.
#-696	9	3	20	19	9.2	−19.695	−177.550	513	87.49	4.5	-	FIJI REGION
#-697	9	4	0	52	7.1	−6.338	104.752	38	75.56	5.4	-	SUNDA STRAIT, INDONESIA
#-698	9	4	7	7	30.8	−6.206	130.765	106	84.84	5.4	-	BANDA SEA
#-699	9	4	22	16	47.5	−48.288	31.626	10	21.04	5.4	-	SOUTH OF AFRICA
#-700	9	5	3	58	39.6	−15.094	−70.238	212	82.58	5.2	-	SOUTHERN PERU
#-701	9	6	21	13	30.1	−22.721	171.152	52	82.02	5.0	-	SOUTHEAST OF LOYALTY ISLANDS
#-702	9	6	22	50	29.4	−18.754	−174.866	98	88.94	4.9	-	TONGA
#-703	9	7	16	12	22.6	−10.196	110.626	23	73.95	6.1	5.9	SOUTH OF JAVA, INDONESIA
#-704	9	8	3	39	52.6	5.259	94.314	58	83.25	5.0	-	NORTHERN SUMATRA, INDONESIA
#-705	9	8	9	17	42.6	−21.415	−176.345	140	86.05	5.1	-	FIJI REGION
#-706	9	8	15	18	18.6	−7.797	117.414	286	78.58	5.1	-	BALI SEA
#-707	9	8	18	51	22.8	1.129	120.903	23	88.16	5.5	5.3	MINAHASA, SULAWESI, INDONESIA
#-708	9	8	22	22	29.0	−20.902	−68.411	115	76.53	4.9	-	POTOSI, BOLIVIA
#-709	9	8	23	49	56.7	−20.760	168.479	35	83.22	4.2	-	LOYALTY ISLANDS
#-710	9	9	4	2	14.3	−5.466	103.606	74	76.00	5.0	-	SOUTHERN SUMATRA, INDONESIA
#-711	9	9	6	45	47.7	−24.729	−174.931	10	83.07	4.9	-	SOUTH OF TONGA
#-712	9	9	10	33	6.6	−32.291	179.775	346	74.68	5.1	-	SOUTH OF KERMADEC ISLANDS
#-713	9	10	2	46	50.4	48.284	154.253	36	142.99	5.9	-	KURIL ISLANDS
#-714	9	10	19	46	4.5	−29.937	−111.828	10	78.76	5.5	-	EASTER ISLAND REGION
#-715	9	10	23	31	24.2	−29.918	−111.981	10	78.81	5.4	-	EASTER ISLAND REGION
#-716	9	10	23	35	23.4	−29.949	−111.849	7	78.76	5.2	-	EASTER ISLAND REGION
#-717	9	11	4	25	51.6	−20.735	169.798	140	83.59	4.9	-	VANUATU

Table 2. Continued.

No.	Date		Origin time UTC			Geographic Coordinates		Dep Epicentral Magnitude				Region
			h	m	s	Latitude (deg)	Longitude (deg)	(km)	(deg)	Mb	Ms	
#-718	9	11	8	49	11.9	48.308	154.218	35	143.00	5.7	5.0	KURIL ISLANDS
#-719	9	11	20	57	28.6	23.629	142.222	81	116.69	5.2	-	VOLCANO ISL, JAPAN REGION
#-720	9	12	3	56	54.8	-45.669	-76.568	2	55.96	5.1	-	OFF COAST OF AISEN, CHILE
#-721	9	12	20	6	24.7	10.720	-67.951	10	106.04	6.3	6.4	OFFSHORE CARABOBO, VENEZUELA
#-722	9	13	5	14	44.8	-14.640	167.292	229	88.78	5.1	-	VANUATU
#-723	9	13	21	42	59.8	-23.296	179.713	539	83.42	4.8	-	SOUTH OF THE FIJI ISLANDS
#-724	9	14	10	41	32.1	-9.054	-79.551	44	91.27	4.7	-	OFF COAST OF NORTHERN PERU
#-725	9	15	0	57	11.0	-20.650	-177.450	365	86.58	4.6	-	FIJI REGION
#-726	9	15	7	24	24.5	-24.104	-66.832	169	73.02	4.6	-	SALTA, ARGENTINA
#-727	9	15	7	28	15.3	-14.435	98.446	10	65.85	4.9	-	SOUTH INDIAN OCEAN
#-728	9	16	20	50	16.9	52.270	-169.325	35	158.65	5.2	-	FOX ISLANDS, ALEUTIAN ISLANDS, ALASKA
#-729	9	16	23	47	1.1	-4.499	102.664	70	76.60	5.2	-	SOUTHERN SUMATRA, INDONESIA
#-730	9	17	4	52	26.1	1.630	128.257	86	91.25	5.3	-	HALMAHERA, INDONESIA
#-731	9	17	23	21	40.0	-29.112	-112.320	10	79.65	5.7	-	EASTER ISLAND REGION
#-732	9	18	1	5	3.5	-1.498	99.370	39	78.38	4.8	-	KEPULAUAN MENTAWAI REG, IND.
#-733	9	18	23	6	57.7	-9.171	115.607	74	76.66	6.0	-	SOUTH OF BALI, INDONESIA
#-734	9	19	8	54	16.3	32.835	105.562	10	112.74	5.4	-	SICHUAN-GANSU BDR REG, CHINA
#-735	9	20	0	51	33.8	-12.848	165.832	84	90.10	5.1	-	SANTA CRUZ ISLANDS
#-736	9	20	18	23	20.3	-32.182	-111.601	10	76.52	4.9	-	SOUTHERN EAST PACIFIC RISE
#-737	9	21	8	53	6.1	27.324	91.421	14	103.56	6.0	6.1	BHUTAN
#-738	9	22	4	38	11.3	-3.776	141.969	56	91.07	5.4	-	NEW GUINEA, PAPUA NEW GUINEA
#-739	9	22	10	45	25.0	51.474	-177.968	35	155.32	5.2	-	ANDREANOF ISLANDS, ALEUTIAN IS., ALASKA
#-740	9	22	19	17	8.2	-33.301	-179.342	10	73.87	4.8	-	SOUTH OF KERMADEC ISLANDS
#-741	9	22	22	58	32.2	-6.163	154.675	93	93.10	5.5	-	BOUGAINVILLE REGION, PAPUA NEW GUINEA
#-742	9	23	2	59	30.6	-52.961	159.919	10	50.62	5.3	5.4	MACQUARIE ISLAND REGION
#-743	9	23	7	29	57.0	-60.339	-33.650	10	30.22	5.1	-	SCOTIA SEA
#-744	9	25	9	46	58.4	-54.863	-143.929	10	56.11	5.4	-	PACIFIC-ANTARCTIC RIDGE
#-745	9	25	14	7	9.0	-30.891	-177.560	66	76.56	5.0	-	KERMADEC ISL, NEW ZEALAND
#-746	9	25	14	23	19.5	-22.359	170.986	109	82.32	4.8	-	SOUTHEAST OF LOYALTY ISLANDS

Table 2. Continued.

No.	Date		Origin time UTC			Geographic Coordinates		Dep Epicentral		Magnitude		Region
			h	m	s	Latitude (deg)	Longitude (deg)	(km)	(deg)	Mb	Ms	
#-747	9	25	15	47	23.1	−32.110	−71.509	35	67.05	5.1	-	COQUIMBO, CHILE
#-748	9	26	4	22	27.5	−29.572	60.849	10	41.41	5.3	4.7	SOUTHWEST INDIAN RIDGE
#-749	9	26	6	39	25.3	−32.335	−71.691	26	66.90	4.5	-	OFFSHORE VALPARAISO, CHILE
#-750	9	26	13	26	36.4	−7.593	30.439	10	61.67	5.3	-	LAKE TANGANYIKA REGION, CONGO-TANZANIA
#-751	9	26	13	46	13.2	−40.784	−90.774	10	64.13	4.8	-	WEST CHILE RISE
#-752	9	27	7	26	5.8	2.062	97.219	58	81.08	4.7	-	NORTHERN SUMATRA, INDONESIA
#-753	9	27	15	16	52.5	2.671	125.733	107	91.32	5.1	-	KEPULAUAN SANGIHE, INDONESIA
#-754	9	28	0	26	23.8	−7.921	107.195	50	74.90	4.8	-	JAVA, INDONESIA
#-755	9	28	4	13	20.5	−6.124	112.906	584	78.56	4.9	-	JAVA, INDONESIA
#-756	9	28	12	13	17.8	−25.632	−13.823	10	53.20	5.3	-	SOUTHERN MID-ATLANTIC RIDGE
#-757	9	28	14	38	57.2	−6.125	152.201	32	92.33	5.1	-	NEW BRITAIN REG, P.N.G.
#-758	9	29	9	14	5.8	−7.019	129.557	162	83.65	4.8	-	KEPULAUAN BABAR, INDONESIA
#-759	9	29	17	48	10.8	−15.510	−172.034	18	92.64	7.1	8.1	SAMOA ISLANDS REGION
#-760	9	29	18	19	36.0	−15.952	−171.611	10	92.28	5.6	-	SAMOA ISLANDS REGION
#-761	9	29	18	21	42.4	−16.193	−172.982	10	91.80	5.8	-	SAMOA ISLANDS REGION
#-762	9	29	18	40	12.6	−15.340	−173.270	20	92.58	5.5	-	TONGA
#-763	9	29	18	46	2.2	−14.953	−173.329	10	92.95	5.0	-	SAMOA ISLANDS REGION
#-764	9	29	18	57	58.7	−16.100	−173.037	10	91.88	5.1	-	TONGA
#-765	9	29	19	18	52.8	−16.879	−172.803	10	91.16	5.2	-	SAMOA ISLANDS REGION
#-766	9	29	19	33	12.2	−15.948	−173.363	10	91.97	4.9	-	TONGA
#-767	9	29	22	8	30.3	−15.294	−173.392	10	92.61	5.0	-	TONGA
#-768	9	29	22	10	5.0	−15.192	−173.077	10	92.76	4.9	-	TONGA
#-769	9	29	22	41	45.0	−15.067	−173.215	10	92.86	4.9	-	TONGA
#-770	9	29	23	11	51.0	−15.693	−173.320	10	92.23	5.5	-	TONGA
#-771	9	29	23	32	56.8	−15.542	−173.328	10	92.38	5.3	-	TONGA
#-772	9	29	23	45	3.5	−15.827	−172.530	10	92.24	6.0	-	SAMOA ISLANDS REGION
#-773	9	30	1	5	33.8	−15.007	−173.374	10	92.89	5.1	-	TONGA
#-774	9	30	1	9	29.2	−15.012	−173.656	10	92.83	5.0	-	TONGA
#-775	9	30	1	39	42.0	4.907	126.710	65	93.76	5.5	-	KEPULAUAN TALAUD, INDONESIA
#-776	9	30	1	39	50.3	−15.544	−173.219	10	92.39	5.0	-	TONGA
#-777	9	30	4	3	11.0	−15.700	−173.331	10	92.22	4.9	-	TONGA

Table 2. Continued.

No.	Date		Origin time			Geographic Coordinates		Dep	Epicentral distance	Magnitude			Region
			UTC			Latitude	Longitude				Mb	Ms	
			h	m	s	(deg)	(deg)	(km)	(deg)				
#-778	9	30	5	24	51.4	−15.351	−173.380	10	92.55	5.3	-	TONGA	
#-779	9	30	7	32	15.2	−15.256	−172.697	10	92.77	4.9	-	SAMOA ISLANDS REGION	
#-780	9	30	8	24	59.0	−16.558	−172.721	10	91.49	5.3	-	SAMOA ISLANDS REGION	
#-781	9	30	9	5	12.7	−16.103	−172.972	10	91.89	5.0	-	SAMOA ISLANDS REGION	
#-782	9	30	9	29	26.8	−33.211	−179.198	35	73.99	4.8	-	SOUTH OF KERMADec ISLANDS	
#-783	9	30	10	16	9.1	−0.725	99.856	81	79.26	7.1	-	SOUTHERN SUMATRA, INDONESIA	
#-784	9	30	10	38	53.6	−0.745	100.065	99	79.31	5.5	-	SOUTHERN SUMATRA, INDONESIA	
#-785	9	30	12	48	1.0	−6.277	151.402	57	91.92	5.3	-	NEW BRITAIN REG, P.N.G.	
#-786	9	30	13	57	11.4	−16.637	−172.519	10	91.45	5.3	-	SAMOA ISLANDS REGION	
#-787	9	30	15	20	16.0	−15.087	−173.427	10	92.80	5.1	-	TONGA	
#-788	9	30	17	20	39.8	−23.049	169.516	31	81.29	5.4	-	SOUTHEAST OF LOYALTY ISLANDS	
#-789	9	30	17	30	28.6	−23.060	169.513	10	81.28	4.9	-	SOUTHEAST OF LOYALTY ISLANDS	
#-790	9	30	17	47	17.3	−15.453	−173.384	10	92.45	5.2	-	TONGA	
#-791	9	30	21	22	54.3	−16.648	−173.779	10	91.21	5.0	-	TONGA	
#-792	9	30	21	34	27.7	55.895	162.005	9	151.94	5.0	-	NR E COAST KAMCHATKA, RUSSIA	
#-793	10	1	1	31	4.4	4.228	127.487	61	93.40	5.0	-	KEPULAUAN TALAUD, INDONESIA	
#-794	10	1	1	52	28.3	−2.508	101.483	15	78.10	5.9	6.7	SOUTHERN SUMATRA, INDONESIA	
#-795	10	1	2	20	31.1	−2.456	101.373	10	78.11	5.2	-	SOUTHERN SUMATRA, INDONESIA	
#-796	10	1	5	44	19.4	−45.985	166.906	10	58.77	4.7	-	OFF W COAST OF S ISL, N.Z.	
#-797	10	1	7	24	7.9	−15.272	−173.547	10	92.60	5.1	-	TONGA	
#-798	10	1	10	51	7.6	−17.200	−172.789	10	90.85	5.4	-	TONGA REGION	
#-799	10	1	18	18	52.9	−15.043	−173.814	10	92.77	5.4	-	TONGA	
#-800	10	1	20	55	44.1	−12.291	166.430	86	90.80	5.4	-	SANTA CRUZ ISLANDS	
#-801	10	1	21	15	42.2	−16.338	−173.404	10	91.58	4.8	-	TONGA	
#-802	10	2	1	55	3.6	−14.875	−173.602	10	92.98	5.1	-	SAMOA ISLANDS REGION	
#-803	10	2	2	13	56.1	−15.444	−172.281	10	92.66	4.9	-	SAMOA ISLANDS REGION	
#-804	10	2	2	46	46.9	−16.644	−172.556	10	91.43	5.1	-	SAMOA ISLANDS REGION	
#-805	10	2	9	57	19.1	−6.105	151.376	49	92.08	5.3	-	NEW BRITAIN REG, P.N.G.	
#-806	10	2	12	1	12.9	−15.379	−172.838	10	92.62	5.4	-	SAMOA ISLANDS REGION	
#-807	10	2	12	8	31.6	−16.414	−172.674	10	91.64	5.4	-	SAMOA ISLANDS REGION	
#-808	10	2	15	53	57.8	−0.933	121.675	61	86.51	5.3	-	SULAWESI, INDONESIA	
#-809	10	2	19	58	52.0	−14.749	171.986	611	89.91	4.7	-	VANUATU REGION	

Table 2. Continued.

No.	Date		Origin time UTC			Geographic Coordinates		Dep Epicentral Magnitude distance				Region
			h	m	s	Latitude (deg)	Longitude (deg)	(km)	(deg)	Mb	Ms	
#-810	10	2	20	3	2.2	−17.119	−172.632	10	90.95	5.1	-	TONGA REGION
#-811	10	2	22	38	44.5	−17.808	−172.590	44	90.28	5.3	-	TONGA REGION
#-812	10	2	22	48	28.1	−33.253	−178.986	20	73.99	4.7	-	SOUTH OF KERMADEC ISLANDS
#-813	10	3	7	16	59.3	−16.857	−172.953	10	91.15	5.2	-	SAMOA ISLANDS REGION
#-814	10	4	3	36	0.0	−0.453	133.014	41	91.01	5.5	-	NEAR THE NORTH COAST OF PAPUA, IND.
#-815	10	4	9	10	31.6	−16.210	−173.244	23	91.73	5.4	-	TONGA
#-816	10	4	10	58	0.1	6.742	123.360	620	94.28	6.3	-	MORO GULF, MINDANAO, PHILIPPINES
#-817	10	4	11	7	46.5	6.725	123.617	665	94.35	4.9	-	MORO GULF, MINDANAO, PHILIPPINES
#-818	10	4	14	43	14.7	−5.585	148.401	174	91.58	5.3	-	NEW BRITAIN REG, P.N.G.
#-819	10	4	17	2	29.4	−15.120	−172.786	10	92.89	5.4	-	SAMOA ISLANDS REGION
#-820	10	4	17	51	54.0	−6.012	147.564	68	90.89	5.4	-	E NEW GUINEA REG, P.N.G.
#-821	10	5	13	18	52.7	−22.478	−68.478	100	75.08	4.6	-	ANTOFAGASTA, CHILE
#-822	10	5	14	12	0.7	33.674	137.245	352	124.08	4.6	-	NEAR S COAST HONSHU, JAPAN
#-823	10	5	22	45	30.8	−15.260	−173.483	10	92.62	4.9	-	TONGA
#-824	10	6	9	33	38.2	−20.782	168.665	44	83.25	5.1	-	LOYALTY ISLANDS
#-825	10	6	11	4	59.2	−2.140	68.816	10	69.79	5.1	-	CARLSBERG RIDGE
#-826	10	6	11	13	34.7	−2.261	68.782	10	69.66	5.3	-	CARLSBERG RIDGE
#-827	10	6	15	23	33.9	−5.234	145.392	82	90.89	4.9	-	E NEW GUINEA REG, P.N.G.
#-828	10	6	20	1	54.4	−15.160	−173.638	10	92.69	4.5	-	TONGA
#-829	10	7	5	8	56.2	−13.615	165.942	35	89.39	4.9	-	VANUATU
#-830	10	7	15	48	33.2	−8.299	127.621	15	81.76	5.0	-	EAST TIMOR REGION
#-831	10	7	21	41	13.7	4.069	122.535	574	91.49	6.1	-	CELEBES SEA
#-832	10	7	23	13	49.2	−13.112	166.341	34	89.99	6.4	-	VANUATU
#-833	10	7	23	38	8.8	−16.639	−172.473	10	91.45	5.3	-	SAMOA ISLANDS REGION
#-834	10	7	23	48	52.9	−13.489	166.408	30	89.64	5.7	-	VANUATU
#-835	10	8	1	59	19.8	−11.900	165.942	35	91.04	5.9	-	SANTA CRUZ ISLANDS
#-836	10	8	2	12	39.0	−11.656	166.173	35	91.34	5.8	-	SANTA CRUZ ISLANDS
#-837	10	8	3	40	55.4	−12.720	165.790	35	90.21	5.1	-	SANTA CRUZ ISLANDS
#-838	10	8	4	17	53.7	−13.031	166.003	35	89.97	5.3	-	VANUATU

Table 2. Continued.

No.	Date		Origin time UTC			Geographic Coordinates		Dep Epicentral		Magnitude		Region
			h	m	s	Latitude (deg)	Longitude (deg)	(km)	(deg)	Mb	Ms	
#-839	10	8	5	25	16.5	53.162	159.760	48	148.99	5.0	-	NRE COAST KAMCHATKA, RUSSIA
#-840	10	8	6	7	12.7	-11.385	165.580	35	91.43	5.1	-	SANTA CRUZ ISLANDS
#-841	10	8	6	44	47.7	-12.516	166.450	35	90.59	5.1	-	SANTA CRUZ ISLANDS
#-842	10	8	10	11	11.6	-11.261	165.771	80	91.60	5.4	-	SANTA CRUZ ISLANDS
#-843	10	8	10	47	30.6	-12.520	165.302	89	90.26	5.1	-	SANTA CRUZ ISLANDS
#-844	10	8	18	51	27.5	-11.660	165.958	35	91.27	4.9	-	SANTA CRUZ ISLANDS
#-845	10	8	21	16	12.8	-12.909	166.225	16	90.15	5.7	-	SANTA CRUZ ISLANDS
#-846	10	8	21	37	21.4	-12.400	166.100	55	90.60	5.3	-	SANTA CRUZ ISLANDS
#-847	10	8	22	32	55.9	-19.580	-178.007	598	87.51	5.2	-	FIJI REGION
#-848	10	8	23	35	49.8	-12.485	166.546	78	90.65	5.5	-	SANTA CRUZ ISLANDS
#-849	10	9	7	33	28.2	-13.235	166.276	35	89.85	5.2	-	VANUATU
#-850	10	9	13	12	32.9	-13.303	166.414	42	89.82	5.5	-	VANUATU
#-851	10	9	19	41	32.6	-12.208	165.892	46	90.73	5.0	-	SANTA CRUZ ISLANDS
#-852	10	9	20	18	17.8	-11.656	165.966	35	91.28	5.2	-	SANTA CRUZ ISLANDS
#-853	10	9	22	50	0.1	-9.034	157.841	41	91.38	5.7	-	SOLOMON ISLANDS
#-854	10	10	5	2	35.5	-41.169	174.614	42	65.04	4.5	-	COOK STRAIT, NEW ZEALAND
#-855	10	10	6	54	21.7	-24.940	-70.682	35	73.49	4.9	-	OFFSHORE ANTOFAGASTA, CHILE
#-856	10	10	9	22	14.0	-15.894	-172.737	10	92.14	5.0	-	SAMOA ISLANDS REGION
#-857	10	10	11	11	9.6	-13.624	166.530	10	89.55	5.3	-	VANUATU
#-858	10	10	14	25	16.1	-14.125	166.649	37	89.10	5.8	-	VANUATU
#-859	10	10	14	36	42.4	-14.393	166.148	114	88.71	5.2	-	VANUATU
#-860	10	10	15	26	21.9	-24.973	-70.173	47	73.29	5.3	-	ANTOFAGASTA, CHILE
#-861	10	10	15	34	59.4	-14.192	166.477	35	88.99	5.3	-	VANUATU
#-862	10	10	16	49	6.5	-14.442	166.302	31	88.70	5.1	-	VANUATU
#-863	10	10	17	10	17.5	-25.027	-70.757	5	73.43	5.3	-	OFFSHORE ANTOFAGASTA, CHILE
#-864	10	10	19	41	23.9	-15.614	-173.121	12	92.34	5.6	-	TONGA
#-865	10	10	21	24	41.4	47.854	152.487	134	142.00	5.9	-	KURIL ISLANDS
#-866	10	11	1	12	19.3	43.156	146.624	50	135.86	5.2	-	KURIL ISLANDS
#-867	10	11	3	11	23.9	-14.950	-173.612	35	92.90	4.7	-	SAMOA ISLANDS REGION
#-868	10	11	3	12	22.3	-11.648	165.176	35	91.06	5.2	-	SANTA CRUZ ISLANDS
#-869	10	11	4	47	52.2	-13.040	166.146	53	90.00	5.3	-	VANUATU
#-870	10	11	11	0	39.6	-17.547	-173.096	10	90.45	5.0	-	TONGA

Table 2. Continued.

No.	Date		Origin time UTC			Geographic Coordinates		Dep Epicentral		Magnitude		Region
			h	m	s	Latitude (deg)	Longitude (deg)	(km)	(deg)	Mb	Ms	
#871	10	11	19	59	22.1	−11.327	165.378	91	91.43	5.1	-	SANTA CRUZ ISLANDS
#872	10	12	3	15	47.3	−17.119	66.707	10	54.69	6.0	6.0	MAURITIUS - REUNION REGION
#873	10	12	6	37	15.5	−12.938	165.858	138	90.02	5.0	-	SANTA CRUZ ISLANDS
#874	10	12	9	37	23.8	−12.521	166.475	62	90.59	5.9	-	SANTA CRUZ ISLANDS
#875	10	12	10	29	23.0	−14.014	166.611	93	89.20	5.0	-	VANUATU
#876	10	13	0	21	31.4	−13.486	166.594	10	89.70	5.2	-	VANUATU
#877	10	13	4	49	4.6	−12.252	165.487	35	90.57	4.9	-	SANTA CRUZ ISLANDS
#878	10	13	20	21	53.0	52.704	−167.194	14	159.63	5.8	-	FOX ISLANDS, ALEUTIAN ISLANDS, ALASKA
#879	10	13	20	48	15.2	−13.154	166.873	73	90.09	5.1	-	VANUATU
#880	10	14	0	55	11.1	−12.666	166.283	28	90.40	5.4	-	SANTA CRUZ ISLANDS
#881	10	14	3	18	59.6	−12.584	166.272	35	90.47	4.9	-	SANTA CRUZ ISLANDS
#882	10	14	6	54	49.6	−14.183	166.560	89	89.02	5.0	-	VANUATU
#883	10	14	7	59	0.9	−15.269	−173.167	10	92.67	5.1	-	TONGA
#884	10	14	18	0	21.6	−14.946	−174.806	10	92.68	5.7	-	SAMOA ISLANDS REGION
#885	10	15	1	43	0.8	−4.614	−80.213	62	95.69	5.0	-	PERU-ECUADOR BORDER REGION
#886	10	15	3	32	9.2	−22.645	171.060	35	82.07	5.1	-	SOUTHEAST OF LOYALTY ISLANDS
#887	10	15	5	52	54.6	−33.403	−178.722	35	73.89	5.1	-	SOUTH OF KERMADEC ISLANDS
#888	10	15	8	50	37.6	−12.646	166.084	35	90.36	5.0	-	SANTA CRUZ ISLANDS
#889	10	15	9	48	36.1	−12.670	166.026	51	90.32	4.9	-	SANTA CRUZ ISLANDS
#890	10	15	19	20	24.9	−12.547	166.469	106	90.56	5.1	-	SANTA CRUZ ISLANDS
#891	10	16	8	27	48.6	−17.943	−178.540	569	89.00	4.4	-	FIJI REGION
#892	10	16	9	7	42.0	−7.926	129.404	35	82.74	4.8	-	KEPULAUAN BABAR, INDONESIA
#893	10	16	9	37	36.8	−12.026	165.834	35	90.89	4.8	-	SANTA CRUZ ISLANDS
#894	10	16	17	16	57.7	−12.495	165.891	10	90.45	5.1	-	SANTA CRUZ ISLANDS
#895	10	16	23	31	4.7	−18.599	−63.398	45	77.01	5.0	-	SANTA CRUZ, BOLIVIA
#896	10	17	0	6	50.7	−18.521	−63.317	45	77.05	5.1	-	SANTA CRUZ, BOLIVIA
#897	10	17	10	45	26.6	−16.380	−171.983	10	91.80	5.7	5.3	SAMOA ISLANDS REGION
#898	10	17	13	18	43.9	−12.936	166.250	68	90.13	5.3	-	SANTA CRUZ ISLANDS
#899	10	18	0	39	43.7	0.489	30.092	18	69.76	5.0	-	LAKE EDWARD REGION, UGANDA
#900	10	18	2	1	24.2	28.730	139.443	412	120.38	4.7	-	BONIN ISLANDS, JAPAN REGION
#901	10	18	8	23	25.4	−3.650	123.228	18	84.52	5.6	-	SULAWESI, INDONESIA

Table 2. Continued.

No.	Date			Origin time			Geographic Coordinates		Dep Epicentral		Magnitude		Region
				UTC			Latitude	Longitude	distance		Mb	Ms	
				h	m	s	(deg)	(deg)	(km)	(deg)			
#-902	10	18	8	26	15.0	—3.607	123.255	24	84.57	5.4	-		SULAWESI, INDONESIA
#-903	10	18	12	2	33.4	—16.400	—173.248	10	91.55	5.2	-		TONGA
#-904	10	18	12	49	3.8	—28.220	—178.142	210	79.05	4.9	-		KERMADEC ISLANDS REGION
#-905	10	18	14	14	4.7	—2.995	68.086	10	68.81	5.3	-		CARLSBERG RIDGE
#-906	10	18	17	21	57.3	—7.516	126.074	20	81.93	5.2	-		KEPULAUAN BARAT DAYA, IND.
#-907	10	18	23	0	23.0	—15.382	—172.078	88	92.76	4.7	-		SAMOA ISLANDS REGION
#-908	10	19	10	48	30.4	—12.356	166.217	44	90.68	5.1	-		SANTA CRUZ ISLANDS
#-909	10	19	22	18	17.1	—6.895	124.006	608	81.77	5.2	-		BANDA SEA
#-910	10	20	7	2	0.7	49.355	155.572	78	144.37	5.2	-		KURIL ISLANDS
#-911	10	20	7	53	27.0	—11.539	165.447	35	91.24	5.0	-		SANTA CRUZ ISLANDS
#-912	10	20	9	28	49.4	12.005	94.985	35	89.89	4.8	-		ANDAMAN ISL, INDIA REGION
#-913	10	20	11	44	51.0	—18.484	—177.937	630	88.60	4.4	-		FIJI REGION
#-914	10	21	12	40	19.7	—32.699	—71.702	23	66.56	5.1	-		OFFSHORE VALPARAISO, CHILE
#-915	10	21	13	43	30.2	—17.772	—178.573	572	89.16	4.5	-		FIJI REGION
#-916	10	22	6	10	47.4	—15.801	—171.915	10	92.38	4.9	-		SAMOA ISLANDS REGION
#-917	10	22	8	34	6.8	3.828	126.966	35	92.84	4.9	-		KEPULAUAN TALAUD, INDONESIA
#-918	10	23	2	28	9.4	—24.366	179.769	543	82.39	4.7	-		SOUTH OF THE FIJI ISLANDS
#-919	10	23	5	5	48.4	—12.254	165.435	35	90.56	4.8	-		SANTA CRUZ ISLANDS
#-920	10	23	11	37	54.3	—12.457	65.239	10	58.99	5.3	-		MID-INDIAN RIDGE
#-921	10	23	12	37	51.5	—4.309	143.655	124	91.16	5.1	-		NEW GUINEA, PAPUA NEW GUINEA
#-922	10	23	14	59	31.0	—12.162	166.248	10	90.87	5.0	-		SANTA CRUZ ISLANDS
#-923	10	23	20	0	9.7	54.908	162.181	45	151.24	5.3	-		NR E COAST KAMCHATKA, RUSSIA
#-924	10	24	3	9	49.0	—7.150	106.446	30	75.37	4.7	-		JAVA, INDONESIA
#-925	10	24	20	54	46.9	—9.938	118.734	10	77.05	5.5	-		SUMBAWA REGION, INDONESIA
#-926	10	24	21	4	30.8	—10.109	118.629	43	76.86	4.9	-		SOUTH OF SUMBAWA, INDONESIA
#-927	10	25	0	35	5.2	—6.740	131.632	29	84.65	5.0	-		KEPULAUAN TANIMBAR REG, IND.
#-928	10	25	7	53	51.6	—23.092	—179.200	413	83.84	5.6	-		SOUTH OF THE FIJI ISLANDS
#-929	10	25	10	39	15.0	—15.893	—173.377	10	92.02	4.7	-		TONGA
#-930	10	25	17	47	48.8	29.588	63.823	120	100.27	5.6	-		WESTERN AFGHANISTAN
#-931	10	25	23	1	38.7	—25.128	—70.656	20	73.30	5.0	-		OFFSHORE ANTOFAGASTA, CHILE
#-932	10	26	21	34	52.2	—16.542	166.825	42	86.83	5.1	-		VANUATU
#-933	10	26	23	50	18.9	47.786	145.014	463	139.28	5.2	-		SEA OF OKHOTSK

Table 2. Continued.

No.	Date		Origin time UTC			Geographic Coordinates		Dep Epicentral		Magnitude		Region
			h	m	s	Latitude (deg)	Longitude (deg)	(km)	(deg)	Mb	Ms	
#-934	10	27	3	56	34.9	−11.472	165.542	35	91.33	5.1	-	SANTA CRUZ ISLANDS
#-935	10	27	14	10	1.2	−12.041	165.973	35	90.91	5.3	-	SANTA CRUZ ISLANDS
#-936	10	28	6	20	3.3	−32.680	−71.755	10	66.60	5.2	-	OFFSHORE VALPARAISO, CHILE
#-937	10	28	8	36	29.9	53.791	160.393	35	149.71	5.0	-	NR E COAST KAMCHATKA, RUSSIA
#-938	10	28	23	56	40.6	−15.758	−173.349	10	92.16	5.7	-	TONGA
#-939	10	29	1	25	18.9	−20.645	−69.389	112	77.09	4.6	-	TARAPACA, CHILE
#-940	10	29	1	34	1.0	−5.268	140.371	36	89.11	5.5	-	PAPUA, IND
#-941	10	29	4	59	57.8	5.948	125.836	117	94.42	4.7	-	MINDANAO, PHILIPPINES
#-942	10	29	5	21	23.6	1.191	126.186	84	90.10	5.2	-	MOLUCCA SEA
#-943	10	29	21	5	20.0	8.151	91.759	30	85.28	5.0	-	NICOBAR ISL, INDIA REGION
#-944	10	30	0	2	25.9	−7.449	126.629	355	82.20	4.6	-	KEPULAUAN BARAT DAYA, IND.
#-945	10	30	1	27	44.7	−32.812	−71.815	11	66.49	5.0	-	OFFSHORE VALPARAISO, CHILE
#-946	10	30	2	53	44.4	−32.746	−71.473	35	66.45	5.1	-	VALPARAISO, CHILE
#-947	10	30	7	3	39.4	29.174	129.914	34	117.39	6.3	6.8	RYUKYU ISLANDS, JAPAN
#-948	10	30	14	47	58.0	−5.033	149.598	422	92.50	5.2	-	NEW BRITAIN REG, P.N.G.
#-949	10	31	0	14	5.7	1.228	120.824	20	88.22	5.0	-	MINAHASA, SULAWESI, IND.
#-950	10	31	10	38	14.3	−24.306	−179.977	514	82.50	5.0	-	SOUTH OF THE FIJI ISLANDS
#-951	10	31	13	3	32.2	−12.335	166.294	125	90.72	5.1	-	SANTA CRUZ ISLANDS
#-952	10	31	19	9	51.6	−11.375	166.370	134	91.66	5.9	-	SANTA CRUZ ISLANDS
#-953	10	31	20	34	46.8	−30.134	−177.868	70	77.24	4.9	-	KERMADEC ISL., NEW ZEALAND
#-954	10	31	22	50	4.0	−5.070	102.956	75	76.16	5.2	-	SOUTHERN SUMATRA, INDONESIA
#-955	11	1	16	1	4.6	−15.230	−173.454	10	92.66	4.8	-	TONGA
#-956	11	2	19	38	19.0	−16.324	−172.999	10	91.67	4.9	-	SAMOA ISLANDS REGION
#-957	11	2	21	35	47.3	14.030	93.109	32	91.29	5.4	-	ANDAMAN ISL, INDIA REGION
#-958	11	2	22	55	52.0	−17.605	168.378	53	86.23	5.1	-	VANUATU
#-959	11	3	11	30	6.8	−56.943	−24.924	10	29.73	5.4	-	SOUTH SANDWICH ISL REGION
#-960	11	6	8	49	52.2	−23.398	−64.417	5	72.88	5.6	5.1	SALTA, ARGENTINA
#-961	11	6	12	28	30.6	−16.017	−173.210	36	91.93	5.0	-	TONGA
#-962	11	6	17	35	29.9	−16.992	−173.098	10	90.99	4.9	-	TONGA
#-963	11	7	15	2	47.3	−24.391	179.813	500	82.37	4.8	-	SOUTH OF THE FIJI ISLANDS
#-964	11	8	1	8	44.5	−18.101	−178.435	600	88.87	4.6	-	FIJI REGION
#-965	11	8	8	5	24.3	−35.022	−111.229	10	73.67	5.0	-	SOUTHERN EAST PACIFIC RISE

Table 2. Continued.

No.	Date		Origin time UTC			Geographic Coordinates		Dep Epicentral Magnitude distance				Region
			h	m	s	Latitude (deg)	Longitude (deg)	(km)	(deg)	Mb	Ms	
#-966	11	8	15	46	9.7	−15.959	167.913	179	87.68	5.3	-	VANUATU
#-967	11	8	20	35	21.4	6.701	60.255	10	77.14	5.4	-	CARLSBERG RIDGE
#-968	11	8	22	18	25.3	−22.706	−175.917	35	84.87	5.3	-	TONGA REGION
#-969	11	8	23	5	20.6	52.412	−168.511	48	159.01	5.3	-	FOX ISLANDS, ALEUTIAN ISLANDS, ALASKA
#-970	11	9	0	21	40.2	−43.417	39.617	16	25.59	5.5	-	PRINCE EDWARD ISLANDS REGION
#-971	11	9	6	19	17.0	−24.508	−175.933	60	83.10	5.0	-	SOUTH OF TONGA
#-972	11	9	13	55	22.5	−17.325	178.451	588	88.96	4.5	-	FIJI
#-973	11	9	16	2	40.7	−4.454	144.302	135	91.24	5.3	-	NR N CST NEW GUINEA, P.N.G.
#-974	11	9	19	41	26.4	−7.323	129.120	157	83.21	5.2	-	KEPULAUAN BARAT DAYA, IND.
#-975	11	10	2	48	46.7	8.074	91.876	22	85.24	6.0	5.7	NICOBAR ISLANDS, INDIA REGION
#-976	11	10	7	41	52.8	−22.476	−68.327	92	75.03	4.6	-	ANTOFAGASTA, CHILE
#-977	11	10	9	22	55.7	−29.600	−69.161	93	68.65	4.4	-	SAN JUAN, ARGENTINA
#-978	11	11	9	58	37.8	−19.592	−68.999	106	77.95	4.8	-	TARAPACA, CHILE
#-979	11	11	22	1	17.9	−7.773	119.231	44	79.25	4.9	-	FLORES SEA
#-980	11	13	7	27	13.4	−17.907	−64.092	608	77.89	5.3	-	SANTA CRUZ, BOLIVIA
#-981	11	13	17	22	5.5	−15.991	−172.849	28	92.02	5.3	-	SAMOA ISLANDS REGION
#-982	11	13	21	20	2.6	9.652	−84.167	38	110.47	5.0	-	COSTA RICA
#-983	11	14	4	47	2.9	−6.801	29.884	10	62.50	5.3	-	LAKE TANGANYIKA REG, CONGO-TANZANIA
#-984	11	14	4	50	17.5	−6.783	29.857	10	62.52	5.5	-	LAKE TANGANYIKA REG, CONGO-TANZANIA
#-985	11	14	10	19	47.7	−12.066	166.275	36	90.97	5.1	-	SANTA CRUZ ISLANDS
#-986	11	14	19	44	30.3	−22.846	−66.460	221	74.07	5.8	-	JUJUY, ARGENTINA
#-987	11	14	22	2	45.2	5.893	61.228	10	76.47	5.7	-	CARLSBERG RIDGE
#-988	11	14	22	11	37.7	6.001	61.214	10	76.57	5.2	-	CARLSBERG RIDGE
#-989	11	15	10	11	20.1	−22.102	−68.407	110	75.41	4.6	-	ANTOFAGASTA, CHILE
#-990	11	15	13	10	58.6	53.873	−35.193	10	134.16	5.2	-	REYKJANES RIDGE
#-991	11	16	5	56	17.6	−14.512	167.243	232	88.89	5.1	-	VANUATU
#-992	11	16	18	34	24.9	−19.490	−70.226	30	78.45	5.3	-	OFFSHORE TARAPACA, CHILE
#-993	11	16	19	58	58.8	6.639	126.346	70	95.24	5.2	-	MINDANAO, PHILIPPINES
#-994	11	17	0	39	9.1	5.870	127.046	110	94.78	5.4	-	PHILIPPINE ISLANDS REGION

Table 2. Continued.

No.	Date		Origin time UTC			Geographic Coordinates		Dep Epicentral		Magnitude		Region
			h	m	s	Latitude (deg)	Longitude (deg)	(km)	(deg)	Mb	Ms	
#-995	11	17	14	7	5.1	−8.046	117.920	29	78.53	4.5	-	SUMBAWA REGION, INDONESIA
#-996	11	17	15	30	46.5	52.151	−131.378	12	162.54	6.0	6.5	QUEEN CHARLOTTE ISLANDS REGION
#-997	11	17	15	37	42.3	52.129	−131.494	10	162.54	5.6	-	QUEEN CHARLOTTE ISLANDS REGION
#-998	11	18	2	17	7.1	−9.367	107.436	18	73.63	5.4	-	SOUTH OF JAVA, INDONESIA
#-999	11	18	18	3	58.7	−40.377	175.611	39	66.01	4.8	-	NORTH ISLAND OF NEW ZEALAND
#-1000	11	19	0	5	24.5	−46.026	34.912	10	23.08	4.9	-	PRINCE EDWARD ISLANDS REGION
#-1001	11	19	1	14	40.1	2.965	128.213	35	92.48	5.4	-	HALMAHERA, INDONESIA
#-1002	11	19	10	42	35.4	−26.774	−63.279	574	69.36	4.8	-	SANTIAGO DEL ESTERO, ARG.
#-1003	11	19	23	7	32.7	−0.702	134.620	38	91.35	5.0	-	NEAR N COAST PAPUA, IND.
#-1004	11	20	8	1	31.1	−21.338	−177.902	402	85.82	4.5	-	FIJI REGION
#-1005	11	20	16	28	20.9	−3.572	24.782	10	66.13	4.6	-	DEMOCRATIC REPUBLIC OF CONGO
#-1006	11	20	19	31	26.8	−0.137	−17.981	10	78.62	5.4	-	NORTH OF ASCENSION ISLAND
#-1007	11	20	23	15	59.7	−29.466	−177.250	47	78.01	5.0	-	KERMADEC ISL, NEW ZEALAND
#-1008	11	21	19	30	29.7	−15.428	−173.393	37	92.47	5.0	-	TONGA
#-1009	11	21	22	51	42.4	−29.520	−175.982	43	78.19	4.9	-	KERMADEC ISLANDS REGION
#-1010	11	22	1	51	28.4	−20.778	−178.575	580	86.23	4.9	-	FIJI REGION
#-1011	11	22	7	48	20.6	−17.788	−178.422	522	89.18	5.7	-	FIJI REGION
#-1012	11	22	22	7	51.5	−39.866	−75.155	31	60.93	5.8	5.4	OFF THE COAST OF LOS LAGOS, CHILE
#-1013	11	23	6	8	41.3	18.174	−105.606	43	124.66	5.2	-	OFF COAST OF JALISCO, MEXICO
#-1014	11	23	18	36	35.1	−12.629	166.240	43	90.42	5.5	-	SANTA CRUZ ISLANDS
#-1015	11	24	13	4	22.6	−20.710	−174.030	10	87.18	5.6	-	TONGA
#-1016	11	24	13	32	10.9	−20.563	−174.035	10	87.32	5.1	-	TONGA
#-1017	11	24	22	36	15.0	−12.408	165.905	78	90.54	4.9	-	SANTA CRUZ ISLANDS
#-1018	11	26	4	17	42.7	−17.629	−174.432	127	90.12	4.9	-	TONGA
#-1019	11	26	11	33	4.3	−3.027	136.171	35	89.73	5.0	-	PAPUA, INDONESIA
#-1020	11	26	15	42	17.5	−30.523	−177.927	21	76.85	5.0	-	KERMADEC ISL, NEW ZEALAND
#-1021	11	26	18	33	14.3	−34.457	−178.516	10	72.90	5.1	-	SOUTH OF KERMADEC ISLANDS
#-1022	11	26	19	8	11.5	13.458	−89.924	59	115.86	5.9	-	OFFSHORE EL SALVADOR
#-1023	11	28	4	35	38.9	−15.667	−74.942	53	83.56	5.1	-	NR CST S PERU

Table 2. Continued.

No.	Date			Origin time			Geographic Coordinates		Dep Epicentral		Magnitude		Region
				UTC			Latitude	Longitude	distance		Mb	Ms	
				h	m	s	(deg)	(deg)	(km)	(deg)			
#-1024	11	28	5	6	8.6	—15.602	—74.864	35	83.60	5.0	-		NR CST S PERU
#-1025	11	28	6	4	23.4	—10.392	118.914	22	76.69	5.9	5.8		SOUTH OF SUMBAWA, INDONESIA
#-1026	11	28	9	21	15.0	—29.216	—176.998	10	78.30	5.8	5.8		KERMADEC ISLANDS REGION
#-1027	11	28	17	49	16.9	53.024	159.561	65	148.80	5.0	-		NR E COAST KAMCHATKA, RUSSIA
#-1028	11	28	18	10	21.0	5.317	126.282	42	93.99	5.6	-		MINDANAO, PHILIPPINES
#-1029	11	29	2	28	7.4	5.452	126.437	74	94.17	5.1	-		MINDANAO, PHILIPPINES
#-1030	11	29	8	10	15.8	5.560	126.623	56	94.34	4.8	-		MINDANAO, PHILIPPINES
#-1031	11	29	9	58	29.8	—31.817	—178.761	91	75.43	5.1	-		KERMADEC ISLANDS REGION
#-1032	11	29	10	33	28.1	—15.411	—175.777	10	92.04	5.1	-		TONGA
#-1033	11	29	12	29	37.8	0.413	126.087	68	89.34	5.4	-		MOLUCCA SEA
#-1034	11	30	1	13	14.0	—21.878	—176.133	154	85.64	5.2	-		FIJI REGION
#-1035	11	30	13	21	48.2	—22.328	—176.446	164	85.14	4.8	-		SOUTH OF THE FIJI ISLANDS
#-1036	12	1	0	53	3.0	—20.339	68.105	10	51.83	4.9	-		MID-INDIAN RIDGE
#-1037	12	1	5	11	21.5	—4.933	151.951	74	93.37	5.2	-		NEW BRITAIN REG, P.N.G.
#-1038	12	1	11	40	46.4	13.614	92.843	35	90.82	5.2	-		ANDAMAN ISL, INDIA REGION
#-1039	12	1	16	11	9.1	5.069	127.451	91	94.17	5.3	-		PHILIPPINE ISLANDS REGION
#-1040	12	1	19	42	54.1	—17.018	167.652	6	86.60	5.5	5.1		VANUATU
#-1041	12	2	4	20	36.7	—20.515	64.527	10	50.95	5.3	-		RODRIGUES REGION, MAURITIUS
#-1042	12	2	11	23	19.3	—22.896	—70.458	44	75.33	4.8	-		OFFSHORE ANTOFAGASTA, CHILE
#-1043	12	2	21	1	41.5	—17.851	—178.599	544	89.08	4.9	-		FIJI REGION
#-1044	12	2	22	57	40.1	—24.292	—66.893	168	72.86	4.7	-		SALTA, ARGENTINA
#-1045	12	2	23	13	59.3	—56.108	—26.754	44	31.02	5.4	-		SOUTH SANDWICH ISL REGION
#-1046	12	3	4	4	42.2	—47.949	32.025	10	21.34	4.8	-		PRINCE EDWARD ISLANDS REGION
#-1047	12	3	6	12	32.7	—56.499	—122.317	10	53.76	5.5	5.8		SOUTHERN EAST PACIFIC RISE
#-1048	12	3	6	28	48.8	—32.260	78.963	10	43.07	5.1	-		MID-INDIAN RIDGE
#-1049	12	4	0	41	51.5	—29.439	77.639	10	45.37	5.1	-		MID-INDIAN RIDGE
#-1050	12	4	12	2	49.5	—19.558	169.700	88	84.69	4.9	-		VANUATU
#-1051	12	5	0	20	7.1	—56.100	—27.656	77	31.34	5.0	-		SOUTH SANDWICH ISL REGION
#-1052	12	5	0	58	58.9	55.209	161.847	56	151.35	5.0	-		NR E COAST KAMCHATKA, RUSSIA
#-1053	12	5	6	53	6.0	—29.151	—68.346	94	68.81	4.3	-		LA RIOJA, ARGENTINA
#-1054	12	5	16	43	9.0	0.477	126.245	46	89.46	5.2	-		MOLUCCA SEA
#-1055	12	5	17	33	38.7	—18.039	167.196	15	85.50	4.7	-		VANUATU

Table 2. Continued.

No.	Date		Origin time UTC			Geographic Coordinates		Dep Epicentral		Magnitude		Region
			h	m	s	Latitude (deg)	Longitude (deg)	(km)	(deg)	Mb	Ms	
#-1056	12	5	22	56	13.4	−17.922	−178.466	585	89.04	4.9	-	FIJI REGION
#-1057	12	6	2	16	19.6	−21.902	−68.242	119	75.54	4.8	-	ANTOFAGASTA, CHILE
#-1058	12	6	2	57	25.0	−36.291	−96.875	10	69.80	4.7	-	WEST CHILE RISE
#-1059	12	6	6	44	20.7	−7.906	118.888	10	79.00	5.0	-	FLORES SEA
#-1060	12	6	17	58	14.6	−10.198	33.926	10	58.90	5.1	-	MALAWI
#-1061	12	6	18	0	1.4	−9.893	33.973	10	59.21	5.1	-	MALAWI
#-1062	12	6	18	29	14.2	−10.154	33.869	10	58.95	5.2	-	MALAWI
#-1063	12	7	3	1	39.4	−17.850	65.678	10	53.78	4.5	-	MAURITIUS-REUNION REGION
#-1064	12	7	9	31	44.3	−10.173	33.770	10	58.93	5.0	-	MALAWI
#-1065	12	7	14	9	6.6	−48.340	−87.213	10	56.16	4.9	-	SOUTHERN PACIFIC OCEAN
#-1066	12	7	17	20	46.4	−18.751	−177.793	592	88.37	4.7	-	FIJI REGION
#-1067	12	7	21	48	35.1	−23.449	−69.116	98	74.38	4.7	-	ANTOFAGASTA, CHILE
#-1068	12	7	22	6	13.2	0.105	97.080	10	79.18	5.2	-	NIAS REGION, INDONESIA
#-1069	12	8	3	8	57.6	−9.894	33.881	8	59.21	6.0	-	MALAWI
#-1070	12	8	11	37	55.2	5.720	125.992	121	94.26	4.8	-	MINDANAO, PHILIPPINES
#-1071	12	9	2	25	45.0	51.731	−177.024	68	155.84	5.2	-	ANDREANOF ISLANDS, ALEUTIAN IS., ALASKA
#-1072	12	9	9	46	3.2	−22.140	170.944	45	82.52	5.8	6.2	SOUTHEAST OF THE LOYALTY ISLANDS
#-1073	12	9	16	0	43.1	−0.620	−21.089	10	79.12	5.3	5.6	CENTRAL MID-ATLANTIC RIDGE
#-1074	12	9	21	29	2.7	2.746	95.908	19	81.33	5.5	5.9	SIMEULUE, INDONESIA
#-1075	12	9	23	25	38.5	43.067	146.730	50	135.82	5.1	-	KURIL ISLANDS
#-1076	12	10	2	30	52.5	53.428	152.712	656	146.68	6.0	-	SEA OF OKHOTSK
#-1077	12	10	15	8	55.6	−26.210	179.660	677	80.57	5.0	-	SOUTH OF THE FIJI ISLANDS
#-1078	12	10	15	6	42.5	6.674	126.283	43	95.25	5.3	-	MINDANAO, PHILIPPINES
#-1079	12	10	21	22	23.2	37.358	142.909	25	129.41	5.0	-	OFF E COAST OF HONSHU, JAPAN
#-1080	12	11	0	10	33.7	−18.001	−178.403	595	88.97	4.8	-	FIJI REGION
#-1081	12	11	1	16	52.2	53.817	160.428	49	149.75	5.0	-	NR E COAST KAMCHATKA, RUSSIA
#-1082	12	11	3	36	53.1	−12.463	166.656	35	90.70	5.0	-	SANTA CRUZ ISLANDS
#-1083	12	11	4	49	9.3	−9.985	33.847	10	59.12	5.0	-	MALAWI
#-1084	12	11	20	6	24.4	−9.988	33.826	10	59.12	4.6	-	MALAWI
#-1085	12	12	2	16	52.3	52.991	157.989	128	148.21	5.0	-	KAMCHATKA PENINSULA, RUSSIA

Table 2. Continued.

No.	Date		Origin time UTC			Geographic Coordinates		Dep Epicentral		Magnitude		Region
			h	m	s	Latitude (deg)	Longitude (deg)	(km)	(deg)	Mb	Ms	
#-1086	12	12	2	27	4.1	−9.878	33.924	10	59.22	5.3	5.3	MALAWI
#-1087	12	12	3	34	40.2	−17.542	−13.301	10	60.64	4.9	-	SOUTHERN MID-ATLANTIC RIDGE
#-1088	12	12	9	8	5.6	−16.124	−173.476	10	91.78	5.1	4.3	TONGA
#-1089	12	12	18	38	44.0	48.817	156.160	3	144.13	5.4	-	EAST OF THE KURIL ISLANDS
#-1090	12	12	20	39	35.5	−21.494	−176.980	319	85.85	4.7	-	FIJI REGION
#-1091	12	13	16	3	59.7	41.776	94.309	3	118.03	5.3	-	XINJIANG-GANSU BORDER REGION, CHINA
#-1092	12	14	0	23	21.6	−13.163	167.253	196	90.19	4.9	-	VANUATU
#-1093	12	14	3	5	24.6	−10.069	123.674	47	78.70	5.3	-	TIMOR REGION, INDONESIA
#-1094	12	15	11	34	43.7	−44.439	−82.007	10	58.54	5.2	-	WEST CHILE RISE
#-1095	12	15	15	10	47.6	−29.477	−177.824	58	77.89	5.1	-	KERMADEC ISL, NEW ZEALAND
#-1096	12	15	16	39	52.7	−17.515	−63.418	32	78.03	4.6	-	SANTA CRUZ, BOLIVIA
#-1097	12	15	21	23	47.9	−20.979	−178.532	532	86.04	4.7	-	FIJI REGION
#-1098	12	16	12	36	38.5	−31.653	−177.827	10	75.77	5.5	5.5	KERMADEC ISLANDS REGION
#-1099	12	16	15	46	2.9	−21.415	−68.095	102	75.95	4.9	-	POTOSI, BOLIVIA
#-1100	12	16	18	54	43.7	−15.940	−173.513	10	91.95	5.1	-	TONGA
#-1101	12	17	4	41	55.4	3.068	125.622	151	91.65	5.2	-	KEPULAUAN SANGIHE, INDONESIA
#-1102	12	17	22	57	29.0	−55.469	−26.890	29	31.56	5.0	-	SOUTH SANDWICH ISL REGION
#-1103	12	18	6	45	2.2	−8.402	120.727	191	79.20	4.9	-	FLORES REGION, INDONESIA
#-1104	12	18	7	33	4.0	−18.059	65.854	34	53.61	5.0	5.2	MAURITIUS-REUNION REGION
#-1105	12	18	9	45	42.2	−19.831	−173.753	10	88.09	5.1	-	TONGA
#-1106	12	19	23	19	15.5	−10.105	33.833	6	59.00	6.0	6.0	MALAWI
#-1107	12	20	12	47	54.1	−21.421	−174.546	35	86.38	4.9	-	TONGA
#-1108	12	20	13	25	49.6	−0.144	124.571	74	88.28	5.0	-	MOLUCCA SEA
#-1109	12	20	16	26	7.2	−25.514	−70.917	35	73.02	4.9	-	OFFSHORE ANTOFAGASTA, CHILE
#-1110	12	21	19	59	22.1	17.282	121.498	10	103.45	5.4	4.7	LUZON, PHILIPPINES
#-1111	12	22	7	57	24.2	−47.525	100.290	10	36.40	4.8	-	SOUTHEAST INDIAN RIDGE
#-1112	12	22	19	19	17.0	−17.241	−175.000	255	90.39	4.8	-	TONGA
#-1113	12	22	23	1	11.4	−28.607	−71.035	45	70.17	5.0	-	ATACAMA, CHILE
#-1114	12	23	0	38	40.5	−15.170	−172.942	19	92.81	5.0	-	SAMOA ISLANDS REGION
#-1115	12	23	1	47	13.1	−1.424	99.392	10	78.45	4.8	-	KEPULAUAN MENTAWAI REGION, IND.

Table 2. Continued.

No.	Date		Origin time UTC			Geographic Coordinates		Dep Epicentral		Magnitude		Region
			h	m	s	Latitude (deg)	Longitude (deg)	(km)	(deg)	Mb	Ms	
#-1116	12	23	4	55	25.3	−31.183	−177.842	26	76.22	5.1	-	KERMADEC ISLANDS REGION
#-1117	12	23	5	42	1.6	−6.796	125.687	522	82.47	4.8	-	BANDA SEA
#-1118	12	23	21	37	9.6	−7.009	129.915	82	83.78	5.5	-	KEPULAUAN BABAR, INDONESIA
#-1119	12	24	5	5	33.6	−5.422	145.614	117	90.78	5.4	-	EASTERN NEW GUINEA REG, P.N.G.
#-1120	12	24	20	0	19.4	1.391	128.263	97	91.03	4.8	-	HALMAHERA, INDONESIA
#-1121	12	24	22	4	53.2	−55.417	−26.758	21	31.56	5.3	-	SOUTH SANDWICH ISL REGION
#-1122	12	25	22	4	21.3	−15.936	−173.040	6	92.04	5.5	5.1	TONGA
#-1123	12	26	1	0	39.0	0.493	126.185	45	89.45	4.8	-	MOLUCCA SEA
#-1124	12	26	4	14	7.4	53.914	161.412	36	150.18	5.0	-	OFF E CST KAMCHATKA, RUSSIA
#-1125	12	26	5	9	27.6	6.473	126.398	54	95.11	5.2	-	MINDANAO, PHILIPPINES
#-1126	12	26	6	59	15.7	6.445	126.440	59	95.10	4.9	-	MINDANAO, PHILIPPINES
#-1127	12	26	8	57	27.5	−5.515	131.193	83	85.63	6.1	-	BANDA SEA
#-1128	12	27	10	2	7.2	−7.395	128.946	94	83.08	4.7	-	KEPULAUAN BARAT DAYA, IND.
#-1129	12	27	13	19	8.8	−3.133	139.629	18	90.85	5.6	5.4	PAPUA, INDONESIA
#-1130	12	28	0	57	19.2	−22.323	−69.995	53	75.72	5.4	-	ANTOFAGASTA, CHILE
#-1131	12	28	10	18	10.8	3.942	126.865	56	92.91	5.3	-	KEPULAUAN TALAUD, INDONESIA
#-1132	12	28	11	51	22.8	6.598	126.451	59	95.24	4.7	-	MINDANAO, PHILIPPINES
#-1133	12	28	12	19	55.3	−54.801	158.642	10	48.64	4.6	-	MACQUARIE ISLAND REGION
#-1134	12	29	4	29	51.4	−33.819	56.381	10	36.52	4.8	-	SOUTHWEST INDIAN RIDGE
#-1135	12	29	5	12	32.1	−5.168	152.178	83	93.23	5.4	-	NEW BRITAIN REG, P.N.G.
#-1136	12	29	8	6	16.3	4.218	127.843	138	93.52	4.8	-	KEPULAUAN TALAUD, INDONESIA
#-1137	12	29	10	8	1.7	−12.530	166.479	83	90.58	5.0	-	SANTA CRUZ ISLANDS
#-1138	12	29	11	47	39.5	−36.427	−72.624	57	63.38	5.1	-	BIO-BIO, CHILE
#-1139	12	29	22	14	35.1	10.040	126.449	75	98.45	5.1	-	PHILIPPINE ISLANDS REGION
#-1140	12	29	23	12	19.7	52.004	−171.444	62	157.80	5.0	-	FOX ISLANDS, ALEUTIAN ISLANDS, ALASKA
#-1141	12	30	11	17	52.7	6.509	126.321	60	95.11	5.4	-	MINDANAO, PHILIPPINES
#-1142	12	30	11	23	53.3	6.570	126.428	39	95.21	4.9	-	MINDANAO, PHILIPPINES
#-1143	12	30	11	38	1.0	6.571	126.603	40	95.27	4.6	-	MINDANAO, PHILIPPINES
#-1144	12	31	3	10	40.1	−28.826	−178.138	217	78.46	4.9	-	KERMADEC ISLANDS REGION
#-1145	12	31	3	53	21.7	−23.942	−66.591	205	73.09	4.8	-	JUJUY, ARGENTINA
#-1146	12	31	17	42	15.0	−19.689	−177.820	376	87.44	5.0	-	FIJI REGION