

SEISMOLOGICAL BULLETIN OF SYOWA STATION, ANTARCTICA, 1998

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1. Introduction

Seismic observations at Syowa Station (69.0°S, 39.6°E), East Antarctica were started using a short-period seismometer with 1.0 s natural period in 1959 (Eto, 1962). A three-component long-period seismograph was installed and phase readings of the teleseismic events, detected on the three-component short- and long-period seismograms, have been reported currently to US Coastal Geodetic Survey (USCGS), and to the International Seismological Centre (ISC) since 1967 (Kaminuma *et al.*, 1968). A three-component broadband seismometer (Streckeisen Seismometer; STS, Streckeisen and Messegeraete, 1987) was installed in April 1989, based on the recommendation from the Working Group of Solid Earth Geophysics (WG/SEG) of Scientific Committee on Antarctic Research (SCAR). Syowa Station has also an important role in the framework of the Japanese Pacific Orient Seismic Digital Observation Network (POSEIDON; now the name was changed to PACIFIC21) (Tsuboi, 1995). All of these observation systems were replaced and maintained by one of the authors (Y. Tono) throughout the wintering season of the 39th Japanese Antarctic Research Expedition (JARE-39) in 1998. She also scaled the events and reported to the International Seismological Centre (ISC) and the United States Geological Survey/National Earthquake Information Center (USGS/NEIC) through the season.

2. Observations

The whole seismic recording system including sensors at Syowa Station was replaced by the authors at the end of 1997 (Kanao, 1999). The block diagram of the new recording system is illustrated in Fig. 1.

2.1. Seismographic hut and seismographs

Seismic observations at Syowa Station had been carried out mainly by two types of seismometers, one called a HES-type with 1.0 s natural period of the pendulum and the other called a PELS-type with 12.0 s natural period. These three-component short-period and long-period seismographs had been operated since 1967 (Kaminuma *et al.*, 1968). The overall frequency responses and the magnifications of the short- and long-period seismometers are shown in Fig. 2. A three-component broadband seismometer (Streckeisen STS-1) with the digital recording system has been operating since May 1990 (Nagasaka *et al.*, 1992). The amplitude and phase responses for the velocity output (Broadband; BRB) are shown in Fig. 3 (after Streckeisen and Messegeraete, 1987).

The seismographic vault constructed in March 1970 (69°00'31.7"S, 39°35'31.6"E, 20 m above mean sea level ; Kaminuma and Chiba, 1973) was closed at the end of 1997 because of a superannuating for inner side of the vault by continuous flowing of water from walls in summer and its frozen in winter. Therefore, all the sensor-instruments were moved to the new seismographic hut in April 1997, which was constructed in 1996. PELS seismographs were stopped to recording in the new hut, because of its frequency response is fully covered by STS-1 BRB outputs. The new seismographic hut locates about 200 m north from the old vault, with geodetic coordinates of 69°00'24.0"S, 39°35'06.0"E and the elevation is 20 m above mean sea level. Since the broadband seismographs are largely affected by a change of temperature and atmospheric conditions, the sensor room was covered doubly by adiabatic walls, with a surface covered by titanium to keep constant temperature in the room.

Seismic signals of the short-period (HES) and broadband (STS-1) seismometers in the new hut are transmitted to the Earth Science Laboratory (ESL) via analog cable of 600 m in length. The cable was mounted on racks, which connect the main buildings of Syowa Station, and laid parallel with the other electric power cables of the Station.

2.2. Acquisition system at Earth Science Laboratory

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

A remote-centering operation for the STS-1 sensors can also be carried out by keyboard commands from the computer. A reference clock for the new system has also been calibrated to the Coordinated Universal Time (UTC) from a Global Positioning System (GPS). Two sets of thermal pen-recorders for HES and BRB output of STS-1, however, have now been operated for monitoring at ESL. Boom-position (POS) output of STS-1, which is proportional to the offset of the null position of the pendulum, has been analog-monitored with parallel input of temperature in the sensor room.

2.3. Data transmission via the satellite telecommunication system

The digital waveform of broadband seismographs has been transmitted via the INMARSAT telecommunication link from Syowa Station to National Institute of Polar Research (NIPR) since 1993. The UUCP protocol has been used for the file transfer. In

addition, e-mail communication started from May 1995, and phase read-out data can be sent directly to USGS/NEIC regularly with time delay of a week.

3. Data

Since there is a delay time of 1-2 years between the publication of this report and the observing wintering period, which is inevitable because of the re-supply ship visits to Syowa Station only once a year, the Preliminary Determination of Epicenters (PDE) reports by NEIC are referred to and only the seismograms of teleseismic events are edited. The arrival-time data and the corresponding hypocentral data of teleseismic events are presented in this report.

3.1. Data priority and release schedule

The person maintained the seismic equipment through the year is basically given priority for using any data obtained at Syowa Station with time limit of two years. These data are transmitted to NIPR and then to be stored in the file server, and can be obtained upon request by Internet service (see Section 3.5) and/or UNIX media (*i.e.*, CD-R, DAT, 8 mm-tape, *etc.*) with a permission of the NIPR members. If anybody wish to use the two-year period data, please contact to kanao@nipr.ac.jp concerning the availability.

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

3.2. Phase read-out data

The phase arrival-time of the teleseismic events was detected on the short-period monitoring seismograms. Most phases were scaled on the vertical component, and only clear phases of shear waves were scaled on the horizontal components. These phases were identified by comparing the observed travel time with the calculated one which is

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

3.3. List of teleseismic events

Figure 4 shows the hypocenters of 847 teleseismic events whose initial phases were detected at Syowa Station. The list of hypocentral parameters of the teleseismic events is shown in Table 2, together with the same serial numbers as given in the remarks of Table 1. The seismograms of these events are available from NIPR.

Examples of digital waveforms on the BRB outputs of STS seismograph for the large 13 events are given in the Appendix. The three-component seismograms are shown in the Appendix 1 where the scale of amplitude is arbitrary. The serial number of each output is the same as given in Table 2. The beginning time of each seismogram is given at the top left of each panel.

3.4. Local events

Two local events were recognized on the short period seismograms. The three-component seismograms are shown in the Appendix 2. The arrows show *P* and *S* phases. *P*-*S* time of the first event on September 16 is 13.5 s and that on November 18 is 7.2 s, respectively.

3.5. Data publication by Internet

Hypocenters, arrival-times detected at Syowa Station, and digital waveforms for recent several years are available from Internet services upon request. They are stored in the directories under /pub/HYPO, /pub/ATIME and /pub/STS of UNIX workstation (133.57.3.2), and accessible by use of 'anonymous ftp' command. Data access by use of WWW servers is also supplied by the ftp address; `ftp://geoipx.nipr.ac.jp/pub`.

Data Processing Staff

The seismic observation system at Syowa Station was designed by M. Kanao, K. Kaminuma and K. Shibuya of National Institute of Polar Research. Ms. A. Ibaraki assisted preparing this data report. Readers can refer to the URL sites below for finding data directory or access; `http://geoipx.nipr.ac.jp/~kanao/seismic_obs`.

References

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- Tsuboi, S. (1995): POSEIDON. *IRIS Newsletter*, **XIV** (1), 8-9.

Block diagram of recording system

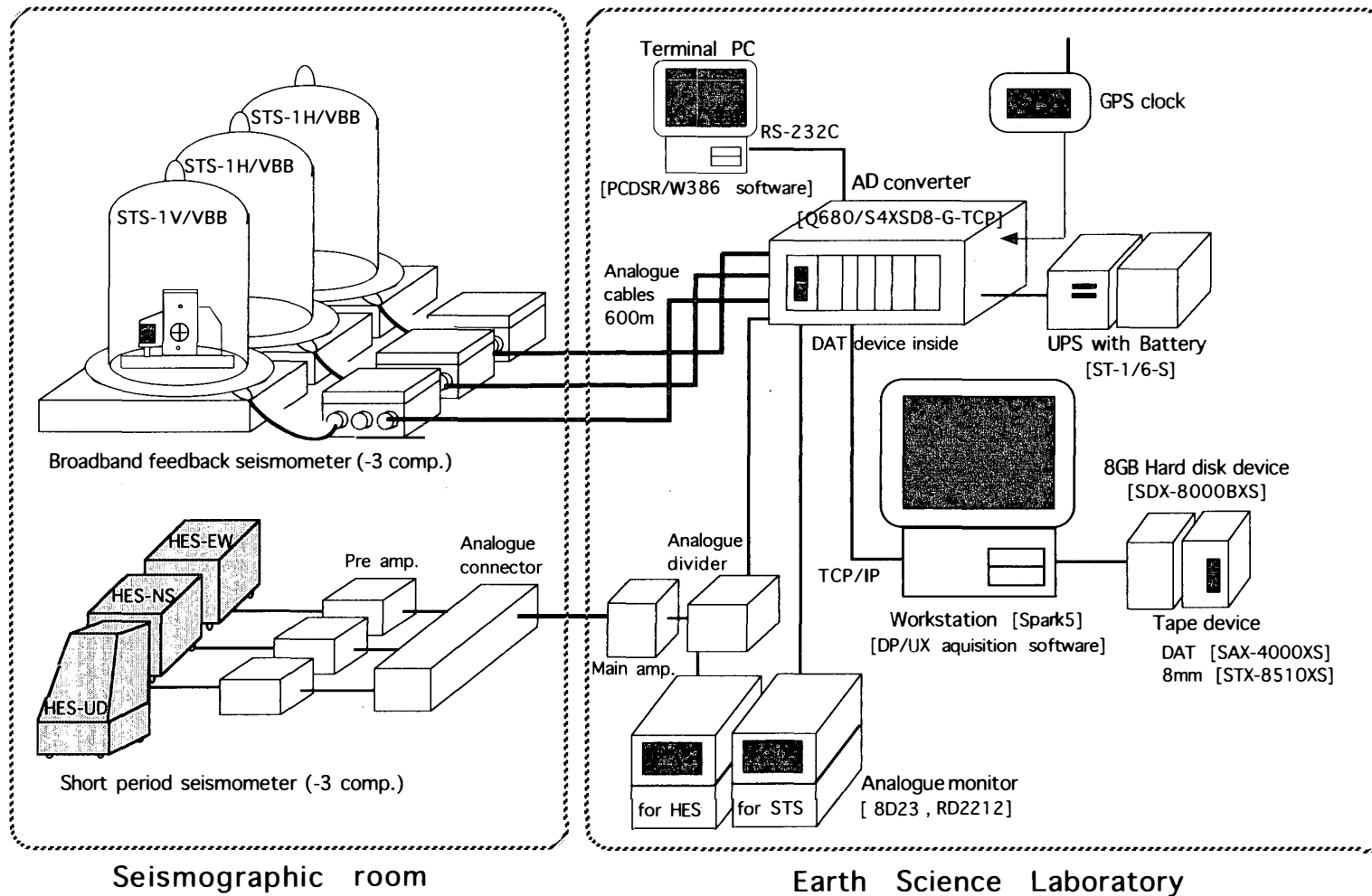


Fig. 1. Block diagram of new recording system for the STS and HES seismographs at Syowa Station. Left figure: Seismographic room; Right figure: Earth Science Laboratory.

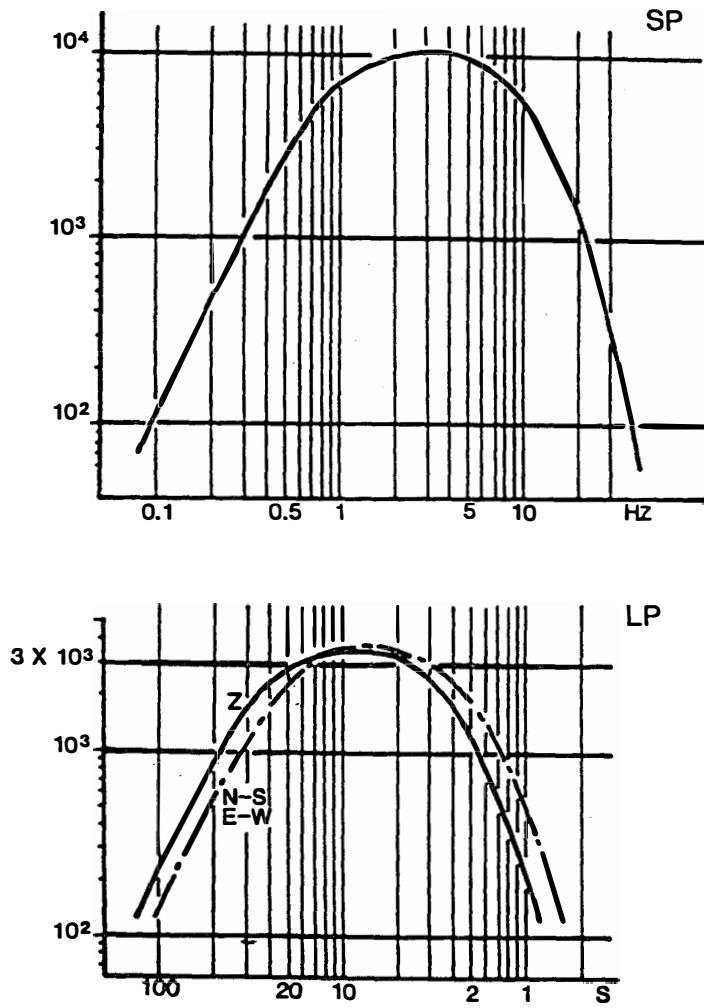


Fig. 2. Over-all frequency responses of the short- and long-period seismographs.

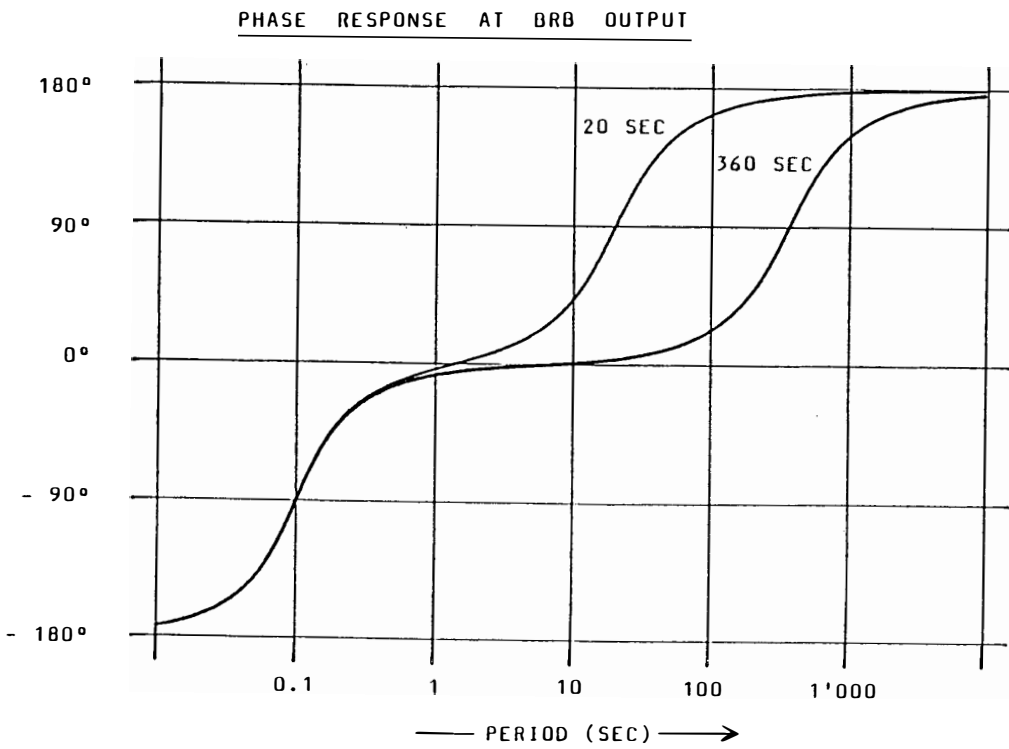
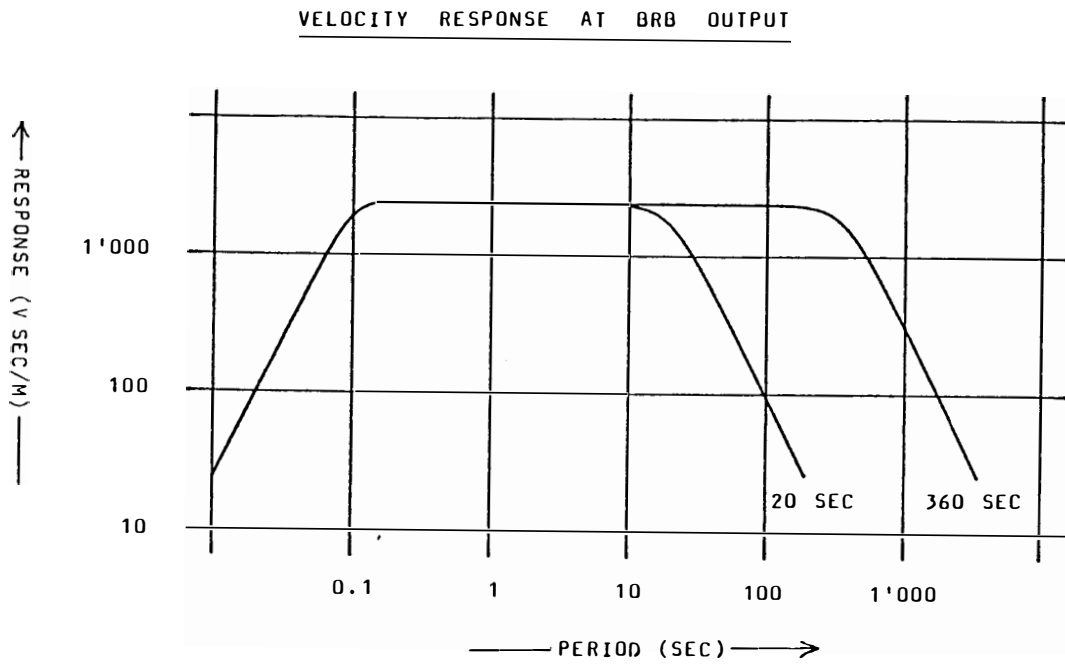


Fig. 3. Amplitude responses (upper figure) and phase responses (lower figure) for the velocity (BRB) output of the broadband seismograph (STS) in the two distinct signal modes of 20-s and 360-s (after Streckeisen and Messergette, 1987).

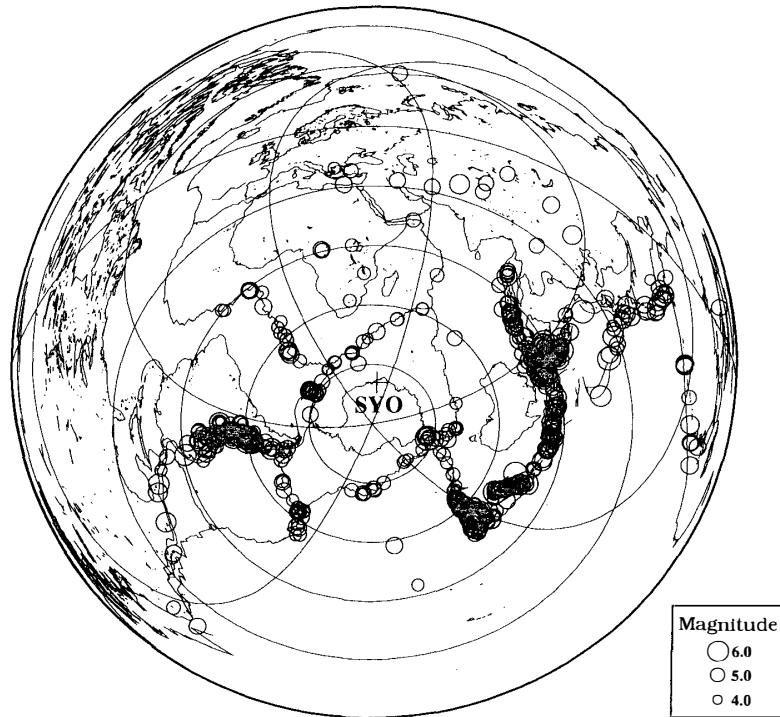
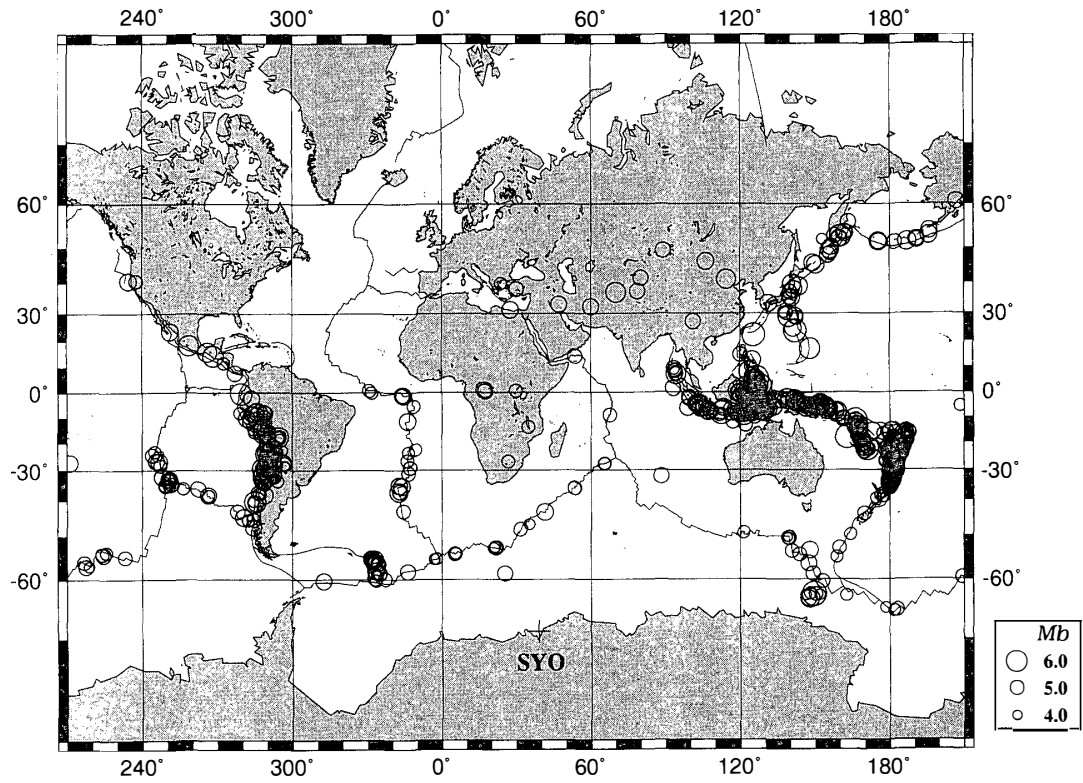


Fig. 4. Epicenters of the 847 earthquakes recorded at Syowa Station. The sizes of earthquake circles are proportional to the body-wave magnitude (M_b) determined by the National Earthquake Information Center (NEIC).

Table 1. List of phase arrival-time data.

Date	Phase	UTC time h m s	Remarks	Date	Phase	UTC time h m s	Remarks
Jan 1	-EPPZ	0144 32.0	#-1	12	-EPZ	0423 35.3	#-24
	+EPKpdfZ	0629 55.8	#-2		+IPZ	1021 06.8	#-25
	EPZ	1553 20.3			-IPZ	1649 28.9	#-26
	+IPKpdfZ	2023 49.7	#-3		-EXZ	2252 32.1	#-27
	-EPZ	2355 24.9	#-4	13	+IPZ	0855 40.3	#-28
2	EPZ	0733 23.7			ESH	0900 50.2	
3	-EPZ	0210 34.8		14	+EPZ	1002 47.3	#-29
	EPZ	0320 51.6			-EPZ	0424 24.8	
	ESH	0326 39.8		+EXZ	0502 03.4	#-30	
	+EPZ	0618 24.8	#-5	-EPZ	0646 23.8	#-31	
	+EPZ	0919 52.2	#-6	-EPZ	1705 03.5	#-32	
	-IPKpdfZ	2322 55.2	#-7	-EPZ	1737 12.0	#-33	
4	-EPZ	0003 38.5		15	-IPZ	2338 01.4	
	-IPZ	0624 10.3	#-8	16	+IPZ	0220 17.8	
	+EPZ	0910 47.0	#-9		+EPZ	0249 18.2	#-34
	-EPZ	1419 24.1	#-10	+EPZ	1036 35.3	#-35	
5	+EPZ	0408 09.9	#-11	17	-IPZ	0007 46.0	
	+EPZ	0820 33.6	#-12		-IPZ	0042 29.0	#-36
6	+EPZ	0018 11.8	#-13	+EPZ	2044 37.4		
	+IPcPZ	1135 59.6	#-14	18	-EPZ	0034 09.5	
7	(NIL)			-EPZ	0044 23.3		
8	(NIL)			+IPZ	0856 31.5		
9	-EPZ	0226 27.7		19	-IPZ	1748 41.8	
	+IPZ	0256 46.1	#-15		-EPZ	0547 43.5	
	-EPZ	0418 16.6		+EPZ	1400 51.2	#-37	
	+EXZ	0951 49.0	#-16	+EXZ	1833 54.9	#-38	
	+EXZ	2008 56.5	#-17	+EXZ	1915 46.0	#-39	
10	-EPKpdfZ	0409 27.0	#-18	20	-EPZ	0421 16.4	#-40
	-IXZ	0506 58.8	#-19	21	-EPZ	2353 35.3	#-41
	ESH	0517 33.8		22	+EPZ	0131 21.7	#-42
	+EPKpdfZ	0838 40.5	#-20	+EPZ	0304 46.0	#-43	
	+EPZ	0913 33.0		-EPZ	0559 28.5	#-44	
	-IXZ	0920 34.3	#-21	+EXZ	1524 51.2	#-45	
	+EXZ	1556 36.0	#-22	23	+IPZ	1353 39.2	
11	+EPKpbcZ	0929 24.7	#-23		-EPZ	2308 03.2	

Date	Phase	UTC time h m s	Remarks	Date	Phase	UTC time h m s	Remarks
24	-EPZ	1351 29.7			-EPZ	1444 59.7	
	+IPZ	0742 08.9			+EPZ	1520 52.3	
25	(NIL)				+EPZ	1542 41.0	
26	+EPZ	1327 40.4			+EPZ	1736 27.3	
27	-IPZ	0225 48.3	#-46		+EPZ	1906 24.5	
	+EPZ	1927 48.6			-EPZ	1926 53.6	
	+EPZ	2007 29.0		7	+EPZ	0136 44.4	
	-IPZ	2117 13.5	#-47		-EPZ	0157 45.8	
28	+IPZ	0650 56.4			-EPZ	0216 39.1	
	-EPZ	2044 28.0			+EPZ	0332 09.5	#-53
29	+EPZ	0413 31.7			ESH	0343 32.7	
	-EPZ	1134 12.0			-EPZ	0414 29.8	#-54
	+EPZ	1758 52.3			-EPZ	0430 04.2	
	-EPZ	1853 19.9			+EPZ	0524 28.3	
30	+EPZ	0236 04.7			-EPZ	1144 55.7	
	-EPW	0406 09.7			+IPZ	1333 44.9	
	+EPZ	0630 40.9			-EPZ	2326 01.2	#-55
	-EPZ	0811 36.1		8	+EPZ	0114 54.0	#-56
	-EPZ	1227 44.3	#-48		-EPZ	0541 10.2	
	-EPZ	1433 16.9			+EPZ	1200 43.6	#-57
	-EPZ	1452 35.4		9	+EPZ	0224 11.5	
	+EPZ	1627 36.3			-IPZ	0320 32.4	
	-EPZ	1716 43.3			+IPZ	0411 17.8	#-58
31	-EXZ	0626 00.6	#-49		-EPZ	0557 06.4	
Feb 1	(NIL)				-EPZ	0824 12.0	
2	+EPZ	1706 32.6			-EPZ	0933 37.8	
3	-EPZ	1514 32.4		10	-EPZ	0548 52.7	
4	+EPZ	1639 26.7			+EPZ	0637 54.9	
5	-EXZ	0823 19.1	#-50		-EPZ	0839 53.5	
	-EPZ	0935 18.0			+EPZ	0852 35.2	
	+EPZ	1635 55.7	#-51		-EPZ	0940 04.8	
6	-EPZ	0936 16.1			-EPZ	1212 21.8	
	+EPZ	1257 23.7			+EPZ	1357 19.7	
	-IPZ	1307 28.8	#-52		+EPZ	1927 55.8	
	-EPZ	1356 39.7			+EPZ	2208 23.7	

Date	Phase	UTC time h m s	Remarks	Date	Phase	UTC time h m s	Remarks
	+EPZ	2300 52.9		23	-EPZ	0754 31.2	
11	+EPZ	1728 32.5			+EPZ	0920 22.1	
	+EPZ	1913 46.6	#-59		+EPZ	1021 56.7	
	+EPZ	1932 16.6			-EPZ	2126 20.3	
12	+EPZ	0104 55.7	#-60		-EPZ	2126 43.2	
	+EXZ	1644 47.0	#-61	24	+EPZ	0629 39.8	
	-EPZ	1826 12.8			-EPZ	0900 01.0	
	+EPZ	1827 31.8		25	+EPZ	1335 44.9	
13	-EPZ	0100 05.8		26	+EPZ	1055 32.4	
	-EPZ	1505 22.2		27	-EPZ	0951 21.4	
14	+EPZ	0855 58.6			+EPZ	1743 40.8	
	-EPZ	0913 51.1		28	-EPZ	1004 28.7	
	-IPZ	0937 59.3			+IPZ	1059 27.9	#-66
	-EPZ	1230 26.4		Mar 1	+EPZ	0450 06.4	
15	+EPZ	0252 29.4			-EPZ	0629 00.0	#-67
	+EPZ	0711 24.5			+EPZ	1058 23.4	
	-EPZ	0819 29.1			-EPZ	1418 36.1	
16	-EPZ	0047 21.1			+EPZ	2147 41.5	
	+EPZ	0814 43.2		2	-EPZ	0130 45.9	
	+EPZ	1136 51.7			-EPZ	0222 18.3	
	+EPZ	1704 03.3	#-62		+EXZ	0641 21.5	#-68
	+EXZ	1759 15.0	#-63		+EPZ	0939 57.0	
	+EPZ	1954 55.1			-IPZ	2353 26.4	
	+EPZ	2010 54.7		3	(NIL)		
17	+EPZ	0012 40.9		4	+EPZ	2301 30.8	
	+EPZ	0045 27.2		5	+EPZ	0006 15.7	
18	-EPZ	0605 18.6			+IPZ	0528 50.9	
	-EPZ	1335 05.9			+EPZ	0547 07.2	
19	-EPZ	0124 00.1	#-64		-EPZ	1600 52.9	
	-EPZ	1409 32.6			-EPZ	1834 34.8	
	-EPZ	1427 27.5	#-65	6	+EPZ	0020 23.8	#-69
	-EPZ	1457 27.5			-IPZ	0112 25.9	
20	-IPZ	0101 30.3			-EPZ	1129 12.1	
21	(NIL)				+IPZ	1151 40.2	
22	+EPZ	1834 35.1			+EPZ	1235 11.9	

Date	Phase	UTC time h m s	Remarks	Date	Phase	UTC time h m s	Remarks
	-IPZ	1355 54.3			-EPZ	2059 32.7	
	-EPZ	1636 44.0		20	-IPZ	1806 09.6	
	-EPZ	1806 14.1		21	+IPZ	2122 48.0	
	+EPZ	2309 18.3		22	+EPZ	0929 29.4	
7	-EPZ	0030 35.9		23	(NIL)		
	-EPZ	1209 15.5		24	(NIL)		
8	(NIL)			25	-EPZ	0129 18.6	
9	+EPZ	0129 31.8	#-70		+IPZ	0256 26.9	#-81
	-EPZ	0512 48.5	#-71		-IPZ	0319 58.5	#-82
	-EPZ	0824 25.6			-EPZ	1152 40.7	#-83
	-EPZ	0825 31.1			-EPZ	1224 45.3	#-84
	+EXZ	1440 39.9	#-72		-EPZ	1322 22.7	#-85
	-EPZ	2157 13.7	#-73		-EPZ	1630 51.6	
	-EPZ	2321 47.6			-EPZ	1630 57.9	
10	-EPZ	0212 45.9			-EPZ	2114 06.6	#-86
	+EPZ	1417 14.8		26	+EPZ	1629 13.6	
	-EPZ	1417 44.8		27	-EPZ	0036 44.4	#-87
	+EXZ	1753 39.9	#-74		+EXZ	0043 35.5	#-88
	+EPZ	2110 34.5	#-75	28	(NIL)		
	-EPZ	2137 28.3		29	+IPZ	2000 14.3	#-89
11	(NIL)				+IpPZ	2002 15.3	#-89
12	-EPZ	0530 17.6	#-76		-IPZ	2011 29.6	
13	-EPZ	0451 48.7		30	-IPZ	1155 10.5	
	-EPZ	0810 12.6		31	-IPZ	0449 42.1	
14	+EPZ	2104 08.2		Apr 1	-IsPZ	2253 23.9	#-90
	+EPZ	2329 40.2		2	(NIL)		
15	-EPZ	1505 34.9		3	-EPZ	0925 36.9	#-91
16	+EPZ	0019 01.8			-EXZ	2214 39.9	#-92
	-EPZ	1654 15.7		4	+EPZ	0529 20.8	
	-EPKPbcZ	1701 07.7	#-77		-EPdiffZ	1631 02.2	#-93
17	-EPZ	1501 06.5		5	(NIL)		
18	+EPZ	0810 38.1	#-78	6	+EPZ	0659 38.6	
	+EPZ	1912 24.8			+EPZ	1638 37.8	
	+EXZ	1921 49.0	#-79	7	-EPZ	0034 11.4	
19	+EPZ	0505 28.0	#-80		+EPZ	0451 40.8	#-94

Date	Phase	UTC time h m s	Remarks	Date	Phase	UTC time h m s	Remarks
	+EPZ	2128 44.1			+EPZ	2236 50.0	#-110
8	-EPZ	0001 28.2			+EPKpdfZ	2318 05.6	#-111
	+EPZ	0152 44.3		21	+EPZ	0910 23.4	
	-EPZ	1309 54.3	#-95		-EPZ	1225 43.4	
9	+EPZ	0329 25.4		22	-EPZ	0732 37.7	
	-EPZ	2113 13.5			+EPZ	1952 12.8	#-112
10	-EPZ	0011 41.6		23	+EPZ	0709 17.1	
	-EPZ	1015 08.6	#-96		-EPZ	0921 31.6	
	-EPdiffZ	1514 48.1	#-97		+EPZ	1501 29.5	
	+EPZ	1652 29.6	#-98		+EPZ	1856 35.6	#-113
	+IPZ	1655 11.7	#-99	24	-EPZ	0439 44.9	#-114
	ESH	1704 41.7			-EPZ	0725 59.3	#-115
11	-EPZ	0057 04.2	#-100		+EPZ	1420 22.8	
	-EPZ	0123 20.9	#-101		-EPZ	1618 03.2	#-116
	-IPdiffZ	0943 40.2	#-102	25	-IPZ	0530 13.1	#-117
12	(NIL)				+EPZ	0615 45.3	#-118
13	-EPZ	0001 55.0	#-103		-EPZ	1137 13.2	
	-EPZ	0159 12.4	#-104	26	+EPZ	0131 39.3	#-119
	-EPZ	0205 30.6			-EPZ	0845 46.7	#-120
	+EPZ	1726 10.8			+EPZ	1428 15.2	#-121
	+EPZ	2234 01.3		27	+EPZ	1608 42.2	
14	+IPZ	0254 18.5	#-105		+EPZ	1638 04.2	#-122
	+IPZ	0352 55.5	#-106		+IPZ	1853 33.2	#-123
	-ESKSacZ	0402 25.6			-EPZ	2039 17.2	
	-IPZ	0929 13.0	#-107	28	-EPZ	0002 37.4	#-124
	-EPZ	1705 28.8			+IPZ	1555 38.7	#-125
15	(NIL)				+EPZ	2030 00.2	
16	-EPZ	1439 37.3		29	(NIL)		
17	(NIL)			30	(NIL)		
18	+IPZ	0826 55.1		May 1	-EXZ	1214 58.8	#-126
	-EPZ	1413 34.9		2	(NIL)		
19	+EPZ	0829 10.8		3	+IPPZ	2349 20.0	#-127
	+EPZ	0941 51.2			-EPZ	2358 51.8	
20	+EPZ	0803 32.2	#-108	4	(NIL)		
	+EPZ	0942 10.7	#-109	5	(NIL)		

Date	Phase	UTC time h m s	Remarks	Date	Phase	UTC time h m s	Remarks
6	(NIL)				+IPZ	0233 36.8	#-151
7	-EPZ	1703 45.0			-EPZ	0333 04.5	#-152
8	+EPZ	1709 41.2	#-128		-IPZ	1053 49.8	#-153
	+EXZ	1752 07.0	#-129	17	-EPZ	0359 53.9	#-154
9	(NIL)				-EPZ	0615 29.0	#-155
10	+EPZ	0213 51.3	#-130	18	-EPZ	0752 19.4	
	+EPZ	0217 38.1			+EPZ	1029 04.2	#-156
	+EPZ	0910 28.2	#-131		+EPZ	1157 59.5	#-157
	-EPZ	1212 08.2		19	+EXZ	0804 35.9	#-158
	+EPZ	1255 03.7	#-132		-EPZ	1431 27.6	#-159
	+EPZ	2010 13.4		20	-EPZ	0624 06.1	#-160
11	-EPZ	0414 45.9	#-133		ESH	0630 27.6	
	+EPZ	0505 09.5			-EPZ	0752 22.6	
	+EPZ	1331 51.9	#-134		-EPZ	0818 52.0	#-161
12	+EPZ	0228 59.5	#-135	21	-EPZ	0547 06.8	#-162
	+EPZ	0756 50.7	#-136		ESH	0557 51.7	
	+EPdiffZ	1717 36.8	#-137		+EPZ	1525 36.4	
	-EPKpdfZ	1720 26.0	#-137		-EPZ	2236 54.6	#-163
	-EPZ	2109 54.5	#-138		+IPZ	2236 58.2	#-163
13	+EXZ	1016 14.5	#-139	22	-EPZ	0447 49.4	#-164
	+EPZ	1638 10.8			+EPZ	0500 50.6	#-165
	-EPZ	2315 13.2	#-140		+EPZ	0555 26.1	#-166
	ESH	2326 28.5			-EPKpdfZ	2008 19.1	#-167
14	+EPdiffZ	0635 52.8	#-141	23	-EPZ	0249 58.6	#-168
	-EPKpdfZ	0639 24.9	#-141		-EPZ	1438 55.4	#-169
	+EXZ	0830 42.7	#-142		+EPZ	1522 28.9	#-170
	+EXZ	0938 21.2	#-143		-EPZ	1557 48.0	#-171
	-EPZ	1027 52.1	#-144		+EPZ	1757 04.7	#-172
	+EPZ	1812 18.8	#-145	24	-EPZ	0236 33.3	#-173
	+EPZ	2015 44.7	#-146		-EPZ	0244 32.2	#-174
	+EPZ	2256 24.2	#-147		ESH	0254 09.3	
15	+EPZ	1920 36.6		25	+EPZ	0107 00.6	
	-EPZ	2118 33.1	#-148		+EPZ	2057 01.4	#-175
	+EPZ	2221 13.8	#-149	26	+IPZ	0009 34.2	
16	-EPZ	0104 54.4	#-150		+EPZ	0120 18.7	#-176

Date	Phase	UTC time h m s	Remarks	Date	Phase	UTC time h m s	Remarks
27	+EPZ	0023 57.3			+EPZ	1621 26.4	#-207
	-EPZ	0332 50.4	#-177		ESH	1630 15.7	
	+EXZ	0418 23.0	#-178		+EPdiffZ	2335 14.4	#-208
	-EPZ	1050 25.0	#-179		+EPZ	2351 03.9	
	-EPZ	1245 17.4	#-180	8	(NIL)		
	-EPZ	1540 20.6	#-181	9	-EPZ	0456 21.4	#-209
	+EPKpdfZ	2101 15.3	#-182		+EXZ	1217 55.0	#-210
	+EPZ	2355 26.8	#-183	10	+EPZ	0008 34.1	#-211
28	-EPZ	0434 33.9			-EPZ	0034 21.3	#-212
	-EPZ	0518 17.5	#-184		+EPZ	0656 17.3	#-213
	-EPKpdfZ	0518 29.0	#-185		+EPZ	1347 27.9	#-214
	-EPZ	1137 54.4	#-186		+EPZ	1738 25.7	#-215
	+EPZ	1826 38.3	#-187		+EPZ	2252 24.0	#-216
	+EPdiffZ	1847 18.2	#-188	11	+EPZ	1347 20.9	#-217
	-EPkiKPZ	2130 10.1	#-189		-EPZ	1459 54.3	
29	+EPZ	0307 51.6	#-190	12	+EPZ	0049 00.6	
	-EPZ	0459 49.3	#-191		+EPZ	1355 38.3	#-218
	-EPZ	0810 31.9	#-192		-EPZ	1939 09.5	#-219
	-EPZ	1135 53.7	#-193		ESH	1948 47.8	
	-EPZ	2054 21.8	#-194		+IPZ	2102 29.6	#-220
30	-EPdiffZ	0636 50.2	#-195		ESH	2111 58.2	
	+EPZ	1142 24.5	#-196		-EPZ	2205 50.2	#-221
	-EPKpdfZ	1837 24.4	#-197		ESH	2216 07.5	
31	+EPZ	0158 14.6	#-198	13	-EPZ	0433 25.8	#-222
	+IPZ	0323 25.0	#-199		-EPZ	0604 07.1	#-223
	-EPZ	1709 09.1	#-200	14	-EPZ	0148 02.0	#-224
Jun 1	-EPKpdfZ	0553 41.2	#-201		-EPKpdfZ	1336 07.8	#-225
2	+EPZ	1639 05.3	#-202		-EPZ	1612 59.1	
3	+EPZ	0255 03.4	#-203	15	-EPZ	1853 31.3	#-226
	-EPZ	2146 22.7	#-204		-EPKpdfZ	1939 19.8	#-227
	-EPpZ	2146 38.4	#-204		-EPZ	2128 03.6	
4	+IPZ	1000 18.8		16	+EPZ	0944 12.8	#-228
5	+EPZ	2351 31.8	#-205		-EPZ	2259 37.8	#-229
6	+EPZ	1523 37.4		17	-EXZ	1901 14.0	#-230
7	-EPZ	1452 42.3	#-206		ESKSachH	1911 27.8	

Date	Phase	UTC time h m s	Remarks	Date	Phase	UTC time h m s	Remarks
	+EPZ	2054 18.5	#-231		-EPZ	0744 58.2	#-257
	+EPZ	2224 52.8	#-232		-EPZ	1719 56.9	#-258
18	-EPZ	0428 47.4	#-233		-EPZ	1859 21.6	#-259
	-EPZ	0448 17.9	#-234	28	+EPZ	0305 57.2	#-260
	-EPZ	1718 02.2	#-235		+EPZ	1646 12.8	#-261
19	-EPZ	0213 16.7			-EPZ	2300 49.7	
	+EPZ	0949 07.6		29	-EPZ	0843 22.2	#-262
	+EPZ	1304 37.8	#-236		+EPZ	2345 12.6	#-263
	-IPZ	2321 30.9	#-237	30	-IPZ	0910 06.9	#-264
20	+EPZ	0105 21.7	#-238		+IPZ	1210 05.4	
	-EPZ	1012 02.2			+EPZ	1738 14.0	#-265
	-EPZ	1649 14.2	#-239	Jul 1	-EPZ	0152 13.0	#-266
	-EPZ	1908 18.5	#-240		-EPZ	2051 49.6	#-267
	-IPZ	2036 35.8	#-241	2	+EPZ	0022 32.9	
	ESH	2046 19.0			+EPZ	0034 03.0	#-268
21	(NIL)				+EPZ	0849 06.6	#-269
22	+IPZ	0806 02.7	#-242		+EPZ	1039 01.7	#-270
23	+EPZ	0359 13.9	#-243		+EPZ	1357 58.3	#-271
	+EPZ	0756 16.2	#-244		+EPZ	2149 22.7	
	-EPZ	1442 19.7	#-245	3	-EPZ	0643 45.6	#-272
24	+EXZ	0705 32.2	#-246		+EPZ	0652 05.3	#-273
	+EPZ	0804 27.1			-EPZ	1044 35.7	#-274
	-EPZ	0904 49.9	#-247	4	-EPZ	0136 36.4	#-275
	-EPZ	1052 39.4	#-248		-EPZ	0137 03.3	#-275
	-EXZ	1729 14.7	#-249		+EPZ	0329 21.7	
	-EPZ	1826 21.3	#-250		+EPZ	0434 12.3	#-276
25	+EPZ	0024 26.7			+EPZ	0757 41.8	#-277
	-EPKpdfZ	0657 56.6	#-251		+EPZ	1409 11.6	#-278
	+EPZ	1040 04.0	#-252	5	-EPZ	0205 18.0	#-279
	-EPZ	1716 37.0	#-253		-EPZ	0804 49.9	#-280
	-EPZ	1741 33.1			-EPZ	1155 58.2	#-281
26	+EPZ	1158 51.4	#-254		+EPZ	1828 07.5	#-282
	-EPZ	1948 49.2	#-255		+EPZ	2318 16.7	#-283
	-EPZ	2019 31.9	#-256	6	-EPZ	1832 42.2	#-284
27	-EPZ	0305 14.4		7	+EPZ	0342 13.2	#-285

Date	Phase	UTC time h m s	Remarks	Date	Phase	UTC time h m s	Remarks
	-EPZ	0537 28.6	#-286		+EPZ	2215 36.7	#-313
	+EPZ	1429 19.6	#-287		-EPZ	2255 33.8	#-314
8	-EPZ	1514 19.4	#-288	18	+EPZ	0142 28.6	#-315
9	-EPZ	0056 42.1	#-289		-EPZ	0429 44.7	#-316
	+EPZ	0955 21.0	#-290		-EPZ	0607 17.9	#-317
	+IPZ	1457 17.3	#-291		-EPZ	0643 49.0	#-318
	-ISH	1506 47.4			-EPZ	0749 03.3	#-319
	+EPZ	1635 34.3	#-292		-IPZ	1008 26.6	#-320
	+EPKpdfZ	1959 33.5	#-293		+EPZ	1617 29.5	#-321
	-EPKpabZ	2000 47.3	#-293		+EPZ	1653 56.0	#-322
10	-EPZ	0344 50.5		19	+EPZ	1036 17.6	#-323
	-EPZ	0646 32.8			-EPZ	1047 08.1	#-324
	-EPZ	0832 27.3	#-294		+EPZ	1513 09.3	#-325
	-EPZ	1040 52.2	#-295		-EPZ	1611 10.7	#-326
11	+EPZ	0714 42.5			ESH	1621 36.5	
12	-EPZ	0026 42.6	#-296		-EPZ	1818 29.3	#-327
13	-EPZ	0642 38.5	#-297		-EPZ	2052 37.8	#-328
	-EPZ	0913 54.7	#-298	20	-EPZ	1258 34.8	
14	+EXZ	0345 45.0	#-299		-EPZ	1843 44.0	#-329
	-EPZ	1236 16.2	#-300	21	+EPZ	0125 35.0	#-330
	-EPZ	1922 43.2	#-301		+EPZ	0652 55.5	#-331
15	+EPZ	0430 00.7	#-302		-EXZ	0739 21.3	#-332
	+EPZ	0513 00.3		22	-EPZ	0235 05.9	#-333
	+EPZ	0945 49.5			-EPZ	0854 12.9	#-334
	-EPZ	1008 20.8	#-303		-EPZ	1112 43.6	#-335
	-EPZ	1515 37.3	#-304		-EPZ	1732 26.3	#-336
	+EPZ	1905 22.4	#-305		-EPZ	1903 24.0	#-337
16	+EPZ	0717 35.5	#-306	23	+EPZ	0759 02.9	#-338
	-EPZ	1209 32.4	#-307		+EPKpdfZ	1144 07.4	#-339
17	-EPZ	0231 34.6	#-308	24	(NIL)		
	-EXZ	0902 34.5	#-309	25	-EPZ	0252 17.9	#-340
	+EPZ	0922 41.2	#-310		+EPZ	0521 50.9	#-341
	-EXZ	1351 17.2	#-311		-EPZ	0711 36.9	#-342
	-EPZ	1926 16.1		26	+EPZ	1451 53.0	#-343
	+EPZ	2108 09.8	#-312	27	-EPZ	0818 22.1	#-344

Date	Phase	UTC time h m s	Remarks	Date	Phase	UTC time h m s	Remarks
28	+EPZ	0512 41.5	#-345		-EPZ	0408 20.1	#-376
29	-EPZ	0001 45.5	#-346		-EPKPbcZ	1102 13.6	#-377
	-IPZ	0725 13.6	#-347		-EPZ	1226 34.2	#-378
	-EP'P'dfZ	0753 27.1	#-347		-EPZ	1304 09.3	#-379
	-IPZ	1813 32.1	#-348		-EPZ	2212 14.8	#-380
	ESH	1824 25.0		6	+EXZ	0925 31.4	#-381
	+EPZ	1956 38.6	#-349		-EPZ	1543 01.8	
30	+EPZ	0509 31.5	#-350	7	-EXZ	0149 27.4	#-382
	-EPZ	1528 14.6	#-351		+EPZ	0426 29.9	#-383
	+EPZ	2342 26.4	#-352		ESH	0436 05.0	
31	+EPZ	0502 07.3	#-353		+EPZ	0733 35.0	
	-EPZ	1253 21.0	#-354		+EPZ	1008 04.6	
	-EPZ	1300 26.3	#-355		-EPZ	2110 14.8	
	-EPZ	1443 29.7		8	-EXZ	0827 13.7	#-384
	-EPZ	1528 18.6	#-356		+EPZ	1436 47.5	#-385
	-EPZ	1529 42.8	#-357		-EPZ	1620 23.9	#-386
	-EPZ	1724 07.0	#-358		+EPZ	1715 31.3	#-387
Aug 1	-EPZ	0918 45.2	#-359		-EPZ	2308 41.3	
	-EPZ	1407 10.1	#-360	9	-EPZ	0047 32.5	#-388
	-EPZ	1654 16.0	#-361		-EPZ	0101 14.2	
	+EPZ	2025 43.7	#-362		-EPKPbcZ	0547 36.3	#-389
2	+EPZ	0529 31.1	#-363		-EPZ	0954 55.4	#-390
3	-EPZ	1041 12.1	#-364		+EPZ	1142 35.7	
	-EPKPdfZ	1128 39.8	#-365		-EPZ	1816 34.9	#-391
	-EPZ	1408 00.2	#-366		+EXZ	1852 15.6	#-392
	+EPZ	2143 24.7	#-367		-EPZ	2032 13.4	#-393
4	+EPZ	0519 12.3	#-368		+EPZ	2058 51.8	#-394
	+IPZ	0558 37.9	#-369	10	-EXZ	1004 50.7	#-395
	-EPZ	0635 06.9	#-370		-EPZ	1442 16.3	
	-EPZ	1151 02.5	#-371		-EPZ	2108 04.4	#-396
	-EPZ	1232 47.3	#-372	11	-EPZ	0602 02.4	
	-EXZ	1559 14.3	#-373		+EPZ	1506 48.2	#-397
	-EPZ	1752 32.1	#-374	12	+EPZ	1601 21.4	#-398
	-EpPdiffZ	1913 07.5	#-375		+EPZ	1951 25.9	#-399
5	-EPZ	0131 11.8		13	-EPZ	0227 11.8	

Date	Phase	UTC time h m s	Remarks	Date	Phase	UTC time h m s	Remarks
	+EPZ	0252 07.2	#-400		+EPZ	1138 16.2	#-434
	-EPZ	0600 53.7	#-401	23	-EPZ	0549 52.8	
14	+EPZ	0108 38.5	#-402		+EXZ	0725 34.8	#-435
	-EPZ	0844 28.1	#-403		+EPKPbcZ	1421 04.5	#-436
	+IPZ	1328 47.4	#-404		+EPZ	1832 59.7	#-437
15	-EPZ	1626 08.2	#-405		-EPZ	2130 19.8	
	+EPZ	1740 28.2	#-406	24	+IPZ	0147 52.8	#-438
	-EPZ	1826 33.5	#-407		+EPZ	0256 16.1	#-439
16	-EPZ	1146 01.9	#-408		+EPZ	0508 05.0	#-440
	-EPZ	1638 40.2	#-409		-EPZ	0857 00.6	#-441
17	+EPZ	0649 17.4	#-410		-EPZ	1221 40.5	#-442
	-EPZ	1255 14.8	#-411	25	(NIL)		
	-EPZ	1950 51.6	#-412	26	(NIL)		
18	-EPZ	0411 37.6	#-413	27	(NIL)		
	-EPZ	0512 59.3	#-414	28	+EPZ	0112 10.4	
	+EPZ	0643 28.1	#-415		-EPZ	0449 06.7	
	+EPZ	1057 54.3	#-416		-EPZ	0829 58.9	#-443
	-EPZ	1236 02.4	#-417		-EPZ	1253 43.6	#-444
	+EPKPdfZ	1819 27.3	#-418		ESH	1304 09.5	
19	-EPZ	0645 07.3	#-419		-EPKPbcZ	1551 30.8	#-445
	-EPZ	0701 05.6	#-420	29	-EPKPdfZ	0005 39.0	#-446
	-EPZ	1647 48.0	#-421		-EPZ	0836 43.5	#-447
	+EPZ	1754 41.6	#-422		-EPZ	1240 39.3	
20	+EPZ	0513 20.9	#-423		+EPZ	1934 54.9	#-448
	+EPKPdfZ	0658 58.1	#-424	30	-EPKiKPZ	0206 43.1	#-449
	-EPZ	1023 37.1	#-425		-EPKPbcZ	0217 32.5	#-449
	-EPKPbcZ	1516 32.7	#-426		-EPZ	0803 37.2	#-450
	-EPKPbcZ	1520 02.0	#-427		ESH	0812 51.3	
	+EPKPbcZ	2001 34.4	#-428		+EPKPbcZ	1454 29.7	#-451
21	-EPZ	0734 50.2	#-429	31	-EPZ	0325 55.8	#-452
	-EPZ	0919 23.6	#-430		-EPZ	0332 19.2	
	-EXZ	1115 46.8	#-431		+EPZ	1036 11.8	#-453
	+EPZ	1903 23.7			-EPZ	1148 41.4	
22	+EPZ	0945 11.9	#-432		-EPZ	1453 51.2	
	-EPZ	1122 53.9	#-433		-EPZ	1542 54.0	

Date	Phase	UTC time h m s	Remarks	Date	Phase	UTC time h m s	Remarks		
Sep 1	+IPZ	1552 57.8	#-454	7	+EPZ	0859 07.9			
	-EPZ	1930 02.4	#-455		-EPZ	0004 54.2			
	-EPZ	0132 14.5	#-456		-EPZ	0034 54.2	#-480		
	-EpP	0133 06.1	#-456		+EPZ	0050 44.5	#-481		
	+EPZ	0840 21.9	#-457		+EPZ	0319 18.6	#-482		
	+EPZ	1035 40.9	#-458		-EPZ	1302 25.1	#-483		
	ESH	1040 22.9			8	+EPZ	0939 28.1		
	+EPZ	1446 40.5	#-459			+EPZ	1901 04.1	#-484	
	2	-EPZ	0032 16.4		#-460	-EPZ	2018 43.7	#-485	
		-EPZ	0441 09.6		#-461	9	-EPZ	1459 45.8	#-486
		-EPZ	0546 52.4				-EPZ	1624 11.2	#-487
		-EPZ	0705 27.7		#-462	+EPZ	2344 05.0	#-488	
		-EPZ	0850 41.4		#-463	10	-EPZ	0009 36.8	#-489
		ESH	0901 42.8				+EPZ	0335 08.0	#-490
		-EPZ	0907 45.9			-EPZ	0434 52.3	#-491	
		+EPZ	1302 29.4		#-464	-EXZ	1003 27.3	#-492	
		+EPZ	1750 08.0		#-465	+EPZ	1843 32.1	#-493	
		-IPZ	1904 12.4		#-466	-EPZ	1914 31.9	#-494	
ESH		1913 42.4		11	+EPZ	0535 41.7	#-495		
+EPZ		2002 35.0	#-467		12	+IPZ	0914 59.9	#-496	
-EPZ	2024 57.6	#-468	ESH	0924 13.8					
3	+EPZ	0449 06.6		+EPZ	1054 29.4	#-497			
	+EPKpdfZ	0817 28.0	#-469	+EPZ	1110 27.9	#-498			
	-IPZ	1749 06.1	#-470	ESH	1120 49.4				
	-EPZ	1817 06.5		-EPZ	1426 09.3	#-499			
4	-EPZ	2314 23.8	#-471	-EPZ	1825 48.8	#-500			
	+EPZ	1206 46.4	#-472	13	-EPZ	0349 36.8	#-501		
	+EPZ	2013 33.0	#-473		14	-EXZ	0455 06.9	#-502	
5	-EPZ	0151 43.8	#-474	-EPZ		1010 27.3	#-503		
	+EPZ	0417 28.4	#-475	-EPKPabZ	2337 05.2	#-504			
	-EPZ	0529 25.7	#-476	15	+EPZ	0344 26.7	#-505		
	+EPZ	0752 56.8	#-477		-EXZ	0441 50.2	#-506		
	+EPZ	1722 27.3	#-478		+EPZ	0821 39.9	#-507		
6	-EPZ	0243 07.1	#-479	-EPZ	0848 55.4	#-508			
	-EPZ	0454 22.4		ESH	0859 39.4				

Date	Phase	UTC time h m s	Remarks	Date	Phase	UTC time h m s	Remarks
16	-EPZ	0225 05.3	#-509		-EPZ	2146 16.3	#-538
	-EPZ	0603 56.1	#-510	23	+EPZ	1102 04.9	#-539
	+IPZ	1120 27.6	#-511		-EPZ	1402 26.8	#-540
17	+EPZ	0040 37.5	#-512		+EPZ	1823 17.5	#-541
	+EPZ	0503 37.2		24	+EPKpdfZ	1912 35.0	#-542
	+EPZ	1652 17.2	#-513	25	-EPZ	1809 31.8	
	+EPZ	1801 57.9	#-514	26	+EPZ	1110 23.4	#-543
	-EPKpdfZ	1832 22.1	#-515	27	+EPZ	0639 11.3	#-544
18	+EPZ	0829 16.5	#-516		+EPZ	0936 40.1	#-545
	-EPZ	1433 52.9	#-517		-EPZ	1119 39.6	#-546
	+EPZ	1619 49.6	#-518	28	+EPZ	0323 09.8	#-547
	+EPZ	2120 50.9	#-519		-EPZ	0556 32.7	#-548
19	-EPZ	0902 04.2	#-520		-EPZ	0742 01.0	#-549
	-EPZ	1627 44.0	#-521		-EPZ	0917 26.4	#-550
	-EPZ	2028 21.2	#-522		+EPZ	1112 12.3	#-551
	+EPZ	2254 51.1	#-523		-EPZ	1306 30.5	#-552
	-EPZ	2349 53.4	#-524		+EPZ	1342 34.5	#-553
20	-EPZ	0049 19.6	#-525		+EPZ	1346 01.9	#-554
	-EPZ	0642 03.8	#-526		+EPZ	1800 02.3	#-555
	ESH	0651 29.8			-EPZ	1936 31.5	#-556
	+EPZ	0725 47.6	#-527		ESH	1947 15.0	
	-EPZ	1201 05.1	#-528	29	(NIL)		
	-EPZ	1453 00.4	#-529	30	(NIL)		
	-EPZ	1551 59.4		Oct 1	-EPZ	1929 47.0	#-557
	+EpPKiKPZ	1636 12.8	#-530	2	+EPZ	0316 19.4	
	+EXZ	2055 27.7	#-531		-EPZ	0513 07.1	#-558
	-EPZ	2133 28.1	#-532		-EPZ	0855 21.5	#-559
	+EPZ	2304 03.1	#-533		-EPdiffZ	1303 40.3	#-560
21	-EPZ	0705 12.8	#-534		-EPZ	1537 01.4	
	ESH	0715 40.2			-EPZ	2131 04.9	#-561
	-IPZ	1222 34.2	#-535	3	-EPZ	0119 46.2	#-562
	+EPZ	1749 32.5	#-536		-EPZ	1519 07.7	#-563
	+EpP	1749 58.7	#-536		-EPZ	1936 54.5	#-564
22	+EPZ	0345 03.5			-EPZ	2131 04.9	
	+EPZ	0700 07.3	#-537	4	-EPZ	0629 05.8	#-565

Date	Phase	UTC time h m s	Remarks	Date	Phase	UTC time h m s	Remarks
	+EPZ	1119 04.4	#-566		-EPZ	1011 55.5	#-599
	+EPZ	1354 12.0	#-567		-EPZ	1216 29.7	#-600
	-EXZ	1643 58.0	#-568		ESH	1226 10.5	
5	+EPZ	0026 48.1	#-569		+EPZ	1430 19.9	#-601
	-EPdiffZ	0234 27.7	#-570		+IPZ	2154 25.8	#-602
	+EPZ	0509 25.5	#-571		ESH	2202 45.7	
	+EPZ	0824 53.2	#-572		+EPZ	2345 34.7	
	+EPZ	1052 28.0	#-573	12	+IPZ	0007 01.4	#-603
	-EPZ	1745 50.2	#-574		-EPZ	0749 43.2	#-604
	-EPZ	2253 10.6	#-575	13	-EPZ	0307 10.6	#-605
6	+EPZ	0417 15.1	#-576	14	(NIL)		
	-EPZ	0735 00.3	#-577		-EPZ	0349 13.4	#-606
	-EPZ	1613 12.5	#-578	15	-EPZ	1301 31.1	#-607
	-EPZ	1841 45.6	#-579		+EPZ	1917 58.8	#-608
7	-EPZ	0026 09.1	#-580	16	+EPZ	0416 43.7	#-609
	-EPZ	0843 26.0	#-581		-EPZ	0737 30.8	#-610
	+EPZ	1021 11.1	#-582	17	-EXZ	0722 55.7	#-611
	+EPZ	1210 19.5	#-583		+EPZ	0735 30.4	#-612
	-EPZ	1418 51.0	#-584		-IPZ	1115 36.6	#-613
	-EPZ	1553 09.7	#-585		-EPZ	1254 04.7	#-614
	+EPZ	2342 46.5	#-586	18	-EPKpdfZ	0157 32.8	#-615
8	-EPZ	0415 58.2	#-587		-EPZ	0222 17.1	#-616
	-EPZ	0416 36.1	#-588		+EPZ	0328 18.6	#-617
	+IPZ	0503 50.2	#-589		+EPZ	0828 05.8	#-618
	ESH	0513 55.3			+EPZ	1107 31.4	#-619
	-EPZ	2303 45.1	#-590		+EPZ	1406 37.5	#-620
9	-EPZ	1033 53.8	#-591		+EPZ	1713 35.3	#-621
	-EPZ	1745 16.5	#-592		-EPKpabZ	2229 39.1	#-622
10	-EPZ	0126 53.2	#-593	19	-EPZ	0137 39.8	#-623
	-EPZ	0422 53.8	#-594		-EPZ	0236 15.6	#-624
	+EPZ	0439 59.2	#-595	20	+EPZ	0009 13.5	#-625
	-EPZ	1641 46.0	#-596		-EPZ	1205 24.7	#-626
	-EPZ	1644 57.3	#-597		-EPZ	1750 52.7	#-627
	ESH	1652 18.8			+EPZ	2013 16.1	#-628
11	+EPZ	0924 54.6	#-598	21	-EPZ	0057 38.9	#-629

Date	Phase	UTC time h m s	Remarks	Date	Phase	UTC time h m s	Remarks
	+EPZ	1211 16.8	#-630	Nov 1	-EPZ	0245 14.9	#-661
22	-EPZ	0825 36.5	#-631		+EPZ	1832 05.8	#-662
	-EPZ	1010 49.2	#-632		+EPZ	1927 17.2	
23	-EPZ	0202 05.7	#-633	2	-EPZ	0403 13.6	#-663
	+EPZ	0524 34.7	#-634		+EPZ	1049 56.5	#-664
	+EPZ	1131 49.2	#-635	3	-EPZ	1445 32.8	#-665
24	-EPZ	0839 42.2	#-636		-EPZ	1551 53.2	#-666
	ESH	0850 10.4		4	+EPZ	0034 28.6	#-667
25	+IPZ	0035 10.7	#-637	5	-EPZ	0358 11.7	#-668
	+EPZ	0406 45.4	#-638		+EPKpdfZ	0658 53.9	#-669
	-EPZ	0435 51.5	#-639		+EXZ	1458 44.2	#-670
	-EPZ	1934 01.7	#-640		-EsPKiKPZ	1506 22.7	#-671
26	+EPZ	0246 36.8	#-641		+EPZ	1644 15.3	
	-EPZ	1409 09.3	#-642		-EPdiffZ	1819 08.7	#-672
27	+EPZ	0151 21.9	#-643	6	-EPZ	0848 32.6	#-673
	-EPZ	0707 52.3	#-644		+IPZ	1235 30.7	#-674
	-EPZ	1654 04.8	#-645	7	+EPZ	2034 10.7	#-675
	+EPZ	2014 30.2	#-646	8	+EPZ	0017 24.2	#-676
	-IPZ	2129 25.3	#-647		ESH	0027 12.0	
	ESH	2140 21.0			+EPZ	0145 12.5	#-677
28	-EPZ	1637 58.4	#-648		-EPZ	0406 43.0	#-678
	ESH	1648 24.8			-EPZ	0512 45.6	#-679
	+EXZ	2013 55.7	#-649		+IPZ	0737 47.6	#-680
29	-EPZ	0918 44.5	#-650		ESH	0747 35.7	
	-EPZ	1621 30.0	#-651		+EPZ	0808 06.6	
	-EPZ	2006 34.7	#-652		-EPZ	1630 23.5	#-681
	-EPZ	2041 18.4	#-653	9	+EPZ	0510 20.3	#-682
	+EPZ	2058 17.2	#-654		-EPZ	0542 38.3	#-683
	+EPZ	2121 41.4	#-655		-EXZ	0552 07.7	#-684
30	-EPZ	0837 58.5	#-656		+EPZ	0624 19.2	#-685
	-EXZ	1447 18.7	#-657		+EPZ	1025 48.8	#-686
31	-EPZ	1130 35.6	#-658		-EPZ	1818 51.2	#-687
	+EPZ	1257 44.9	#-659		+EPZ	1825 43.1	#-688
	-EPKpdfZ	1422 58.3	#-660		-EXZ	2107 52.1	#-689
	-EpPKpdfZ	1423 39.8	#-660		ESH	2118 17.4	

Date	Phase	UTC time h m s	Remarks	Date	Phase	UTC time h m s	Remarks
	-EPZ	2112 15.3	#-690	16	(NIL)		
	+EPZ	2233 59.9	#-691	17	+EPZ	0328 30.7	#-722
10	-EPZ	0210 56.5	#-692		+EPZ	0412 19.3	#-723
	+EPZ	1516 22.8	#-693		-EPZ	1719 37.5	#-724
	+EPZ	1756 46.5	#-694		ESH	1729 17.5	
	-EPZ	1818 24.2	#-695		+EPZ	2145 45.8	
	+EPZ	2011 06.3	#-696		-EPZ	2145 52.5	
	-EPZ	2356 23.8	#-697	18	+EPZ	0150 46.0	#-725
11	+EPZ	0117 54.3			+EPZ	1153 01.7	#-726
	-EPZ	0121 04.2	#-698		-EPZ	1601 25.8	#-727
	+EPZ	1805 57.8	#-699		-EPZ	1638 04.2	#-728
	-EPZ	2332 11.6	#-700		-EXZ	2154 43.3	#-729
12	-EPZ	0456 12.4	#-701	19	+EPZ	0131 37.7	#-730
	+EPZ	0459 49.8	#-702		-EXZ	1215 04.6	#-731
	+EPZ	0555 17.4	#-703		-EPZ	1216 53.6	#-732
	+EPZ	0825 06.6	#-704		-EPZ	2103 30.7	#-733
	+EPZ	0924 30.6	#-705	20	-EPZ	1826 46.8	#-734
	-EPZ	1931 13.2	#-706		-EPZ	2135 52.9	#-735
13	+EPZ	0507 04.3	#-707	21	+EPZ	0617 45.5	#-736
	-EPZ	0720 07.5	#-708		-EPZ	0945 56.4	#-737
	-EPZ	0920 51.3	#-709		+EPZ	0958 34.6	#-738
	-EPZ	1750 34.1	#-710		-EPKpdfZ	1718 46.8	#-739
	ESH	1800 08.9		22	+EPZ	0558 04.8	#-740
	+EPZ	1841 05.4	#-711		+EPZ	1245 35.3	
14	-EPZ	0450 58.4	#-712		-EXZ	1801 40.3	#-741
	+EPZ	1154 38.3	#-713		+EPZ	2239 07.3	#-742
	-IPZ	1515 51.5	#-714	23	+EPZ	0034 07.4	#-743
	ESH	1526 07.8			-EPZ	0329 20.3	#-744
	+EPZ	2110 04.7	#-715		+EPZ	0941 56.9	#-745
	+EPZ	2319 52.6	#-716		ESH	0951 32.5	
15	+EPZ	0256 35.5	#-717		-EPZ	1228 24.4	#-746
	+EPZ	0754 47.0	#-718		-EPZ	1903 06.4	#-747
	+IPZ	0834 58.8	#-719		-EPKpdfZ	2007 09.8	#-748
	-EPZ	1333 58.5	#-720	24	+IPZ	0117 48.8	#-749
	-EPZ	1342 54.2	#-721		-EPZ	1214 14.8	

Date	Phase	UTC time h m s	Remarks	Date	Phase	UTC time h m s	Remarks
	-EPZ	2137 39.6	#-750		ESH	1344 35.4	
25	+EPZ	0007 26.0	#-751		-EPZ	1610 31.4	#-782
	+EPZ	0108 42.3	#-752	2	-EPZ	0722 46.9	#-783
	-EPZ	1755 28.2	#-753		-EPZ	0726 23.6	#-784
	-EPZ	1818 31.4	#-754		+EPZ	1420 52.2	
	-EPZ	2355 58.4	#-755		-EPZ	1631 49.0	#-785
26	+EPZ	0202 48.3	#-756		-EPZ	2351 41.7	#-786
	+EPZ	0908 29.3	#-757	3	+EPZ	2046 16.9	#-787
	+EPZ	1007 54.6	#-758	4	-EPZ	1836 17.2	#-788
	+EPZ	1325 51.9	#-759		+EPKPabZ	2209 50.7	#-789
	-EPZ	1902 09.4	#-760	5	+EsPKPdfZ	0123 59.6	#-790
	-EPKPbcZ	2009 40.5	#-761		+EPZ	0457 04.1	#-791
27	-EPKPdfZ	0103 38.7	#-762		+EPZ	0725 21.3	#-792
	+EPZ	0419 29.4	#-763		-EPZ	1854 34.6	#-793
	+ipz	0747 36.5	#-764		+EPZ	2210 27.6	
	+EPZ	0748 42.8		6	+EPZ	0100 10.6	#-794
	-EPZ	0905 33.1	#-765		ESH	0111 02.4	
	+EPZ	1037 40.7	#-766		+EPZ	0734 49.8	#-795
	-EPZ	1338 34.8	#-767		+EPZ	1108 04.0	#-796
28	-EPZ	1010 59.6	#-768		+EPZ	1733 41.6	#-797
	+EPZ	1011 36.2			-EPZ	2342 37.6	#-798
	+EPZ	1533 59.5	#-769	7	+EPZ	1605 11.4	#-799
	-EPZ	1851 07.2	#-770		+EPZ	2001 19.7	
	-EPZ	2033 49.1	#-771		-EPZ	2349 10.5	#-800
	-EPZ	2139 02.8	#-772	8	-EPZ	0558 01.8	#-801
29	-EPZ	1047 19.2	#-773		+EPZ	0929 41.4	
	-EPZ	1423 11.6	#-774	9	-EPZ	0633 51.7	#-802
	-EPZ	1745 13.2	#-775	10	+EPZ	0833 06.0	#-803
30	+EPZ	0231 02.2			+EPZ	1355 44.2	
	+EPZ	1601 23.3	#-776		+EPZ	1402 40.8	
	-EPZ	1828 45.9	#-777	11	+IPZ	0848 33.9	#-804
	-EPZ	2111 41.8	#-778	12	-EPZ	1002 21.7	#-805
Dec 1	-EPZ	0212 55.2	#-779		+EPZ	1305 15.5	#-806
	-EsPKPdfZ	1058 53.8	#-780		-EPZ	2151 12.7	#-807
	-EPZ	1334 40.9	#-781	13	-EPZ	1337 20.5	#-808

Date	Phase	UTC time h m s	Remarks	Date	Phase	UTC time h m s	Remarks
14	+EPZ	1552 51.0	#-809		-EPZ	1551 49.2	#-841
	-EPZ	1635 27.3	#-810	27	-IPZ	0050 50.9	#-842
	-EPZ	1948 02.7	#-811		+EPZ	1806 12.6	#-843
15	+EPZ	1004 20.3	#-812	28	-EPZ	1337 05.8	#-844
	+EPZ	2353 22.9	#-813		+EPZ	2059 16.1	#-845
16	-EPKpdfz	1401 13.0	#-814	29	(NIL)		
	-EPZ	1627 54.5	#-815	30	-EPZ	1608 04.1	#-846
	-EPZ	1758 01.8	#-816	31	-EPZ	0832 04.3	#-847
17	-EPZ	0305 35.2	#-817				
	-EPZ	1323 17.2	#-818				
	+EPZ	1408 55.9	#-819				
18	-EPZ	2102 36.3	#-820				
19	-EPZ	0845 12.8	#-821				
20	-EPZ	0034 36.0	#-822				
	-EPZ	1013 48.0	#-823				
	-EpPZ	1013 56.3					
	-EPZ	1157 04.1	#-824				
	+EPZ	2103 37.0	#-825				
	-EpPZ	2103 47.3					
21	+EPZ	0242 57.2	#-826				
	-EPZ	1337 06.0	#-827				
	+EPZ	1614 06.0	#-828				
22	+EPZ	1018 42.5	#-829				
	-EPZ	2219 17.8	#-830				
23	+EPZ	0312 34.9					
24	+EPZ	1128 27.4	#-831				
	-EPZ	1616 42.8	#-832				
	+EPZ	2355 34.7	#-833				
25	-EPZ	1439 05.7	#-834				
	+EPZ	1757 02.2	#-835				
26	-EPZ	0059 55.4	#-836				
	+EXZ	0712 59.5	#-837				
	+EXZ	0831 01.0	#-838				
	-EPZ	1130 31.1	#-839				
	-EPZ	1220 45.2	#-840				

Table 2. List of hypocenters of teleseismic events detected at Syowa Station. The total number of events are 847.

No.	Origin Time UTC				Geographic Coordinates		Region	Dept Magnitude Epicentral distance			
	date	h	m	s	Latitude (deg)	Longitude (deg)		(km)	(Mb)	(Ms)	(deg)
1	1 01	01	24	57.0	11.706	-87.377	NEAR COAST OF NICARAGUA	33	4.7		89.508
2	1 01	06	11	22.6	23.913	141.907	VOLCANO ISLANDS REGION	96	6.4	5.8	113.600
3	1 01	20	04	03.0	53.922	161.776	OFF EAST COAST OF KAMCHATKA	33	5.2	4.8	149.960
4	1 01	23	42	16.1	-6.338	154.870	SOLOMON ISLANDS	46	5.6	5.8	92.902
5	1 03	06	10	08.3	-35.474	-16.191	SOUTHERN MID-ATLANTIC RIDGE	10	5.4	5.9	45.226
6	1 03	09	08	19.7	-35.207	-107.073	SOUTHERN EAST PACIFIC RISE	10	4.0		73.209
7	1 03	23	02	11.1	54.224	-164.177	UNIMAK ISLAND REGION	10	5.5	5.3	161.570
8	1 04	06	11	58.9	-22.301	170.911	LOYALTY ISLANDS REGION	101	6.4		82.435
9	1 04	08	58	29.6	-22.232	171.036	LOYALTY ISLANDS REGION	33	4.7		82.533
10	1 04	14	07	12.5	-22.327	171.460	LOYALTY ISLANDS REGION	100	4.9		82.549
11	1 05	04	01	59.8	-56.315	-25.845	SOUTH SANDWICH ISLANDS REGION	38	4.9	4.9	30.901
12	1 05	08	07	56.0	-24.454	-116.036	SOUTHERN EAST PACIFIC RISE	10	4.9	4.9	85.129
13	1 06	00	06	34.4	-22.361	-68.972	NORTHERN CHILE	95	4.6		75.720
14	1 06	11	23	43.1	-7.984	126.824	BANDA SEA	33	5.2		81.608
15	1 09	02	43	56.8	-14.525	166.771	VANUATU ISLANDS	33	5.4	5.4	88.761
16	1 09	09	39	13.8	-14.954	167.325	VANUATU ISLANDS	123	4.7		88.506
17	1 09	19	57	17.2	-21.510	-68.260	CHILE-BOLIVIA BORDER REGION	149			76.279
18	1 10	03	50	41.5	41.083	114.500	NORTHEASTERN CHINA	30	5.8	5.7	122.670
19	1 10	04	54	25.3	-12.029	-72.074	CENTRAL PERU	33	5.7	5.9	86.387
20	1 10	08	20	05.7	14.374	-91.473	GUATEMALA	33	6.1	6.2	117.350
21	1 10	09	08	01.7	-12.149	-72.183	CENTRAL PERU	49	5.2		86.310
22	1 10	15	44	06.2	-4.600	154.767	SOLOMON ISLANDS	500	4.7		94.500
23	1 11	09	09	56.7	50.195	156.360	KURIL ISLANDS	70	5.3		144.980

24	1	12	04	12	06.1	-24.954	-70.008	NEAR COAST OF NORTHERN CHILE	53	5.3		73.640
25	1	12	10	14	07.6	-30.985	-71.410	NEAR COAST OF CENTRAL CHILE	35	5.8	6.2	68.472
26	1	12	16	36	20.2	-15.848	-179.376	FIJI ISLANDS REGION	23	5.8	6.7	90.943
27	1	12	22	39	58.1	9.354	93.618	NICOBAR ISLANDS, INDIA	122	5.2		85.711
28	1	13	08	49	12.9	-55.517	-28.199	SOUTH SANDWICH ISLANDS REGION	33	5.5	5.1	32.357
29	1	13	09	50	11.2	-4.099	129.115	BANDA SEA	44	5.9	5.5	86.030
30	1	14	04	49	20.1	-4.177	129.023	BANDA SEA	47	4.9	4.4	85.925
31	1	14	06	35	44.0	-31.803	-68.191	SAN JUAN PROVINCE, ARGENTINA	112	5.1		66.701
32	1	14	16	52	56.4	-15.415	-71.030	SOUTHERN PERU	171	4.8		82.876
33	1	14	17	24	10.3	-15.731	-179.329	FIJI ISLANDS REGION	33	5.8	6.5	91.067
34	1	16	02	37	48.5	-32.673	-179.071	SOUTH OF KERMADEC ISLANDS	100	5.0		74.698
35	1	16	10	23	35.6	-5.870	146.392	EASTERN NEW GUINEA REG. P.N.G.	33	5.8	5.5	90.506
36	1	17	00	29	50.5	-6.144	133.497	ARU ISLANDS REGION, INDONESIA	33	5.3	5.0	85.711
37	1	19	13	48	07.5	-5.231	146.308	EASTERN NEW GUINEA REG., P.N.G.	159	5.4		91.073
38	1	19	18	23	59.6	-44.971	-79.488	OFF COAST OF SOUTHERN CHILE	10	5.4	5.5	57.808
39	1	19	19	03	01.4	-4.260	128.160	BANDA SEA	33	3.0		85.537
40	1	20	04	09	40.9	-35.132	-110.862	SOUTHERN EAST PACIFIC RISE	10	5.0	5.4	73.890
41	1	21	23	45	36.8	-58.876	149.137	WEST OF MACQUARIE ISLAND	10	5.1	5.5	42.735
42	1	22	01	18	31.8	-4.170	143.275	NEW GUINEA, PAPUA NEW GUINEA	141	5.0		91.010
43	1	22	02	53	05.5	-23.290	-70.127	NEAR COAST OF NORTHERN CHILE	44	4.4		75.229
44	1	22	05	47	30.8	-19.654	-178.135	FIJI ISLANDS REGION	450	4.6		87.518
45	1	22	15	12	39.0	-27.602	-178.095	KERMADEC ISLANDS REGION	33	5.0	5.1	79.812
46	1	27	02	14	12.9	-20.768	-179.178	FIJI ISLANDS REGION	643	5.3		86.219
47	1	27	21	05	44.3	-22.411	179.035	SOUTH OF FIJI ISLANDS	610	5.6		84.244
48	1	30	12	16	08.6	-23.913	-70.207	NEAR COAST OF NORTHERN CHILE	42	6.3	6.5	74.674
49	1	31	06	15	46.0	-37.498	-73.683	NEAR COAST OF NORTHERN CHILE	33			63.114
50	2	05	08	11	43.6	-33.584	-179.423	SOUTH OF KERMADEC ISLANDS	33	4.8		73.746
51	2	05	16	23	01.3	-17.997	-172.701	TONGA ISLANDS REGION	33	4.5		90.194

52	2	06	13	01	16.2	-56.059	-27.712	SOUTH SANDWICH ISLANDS REGION	129	5.5		31.762
53	2	07	03	20	18.9	-14.796	167.323	VANUATU ISLANDS	129	5.2		88.656
54	2	07	04	03	21.6	-6.613	115.865	BALI SEA	555	4.8		78.951
55	2	07	23	16	21.9	-55.158	-126.856	SOUTHERN EAST PACIFIC RISE	10	5.0	5.1	55.744
56	2	08	01	03	22.6	-23.050	-179.819	SOUTH OF FIJI ISLANDS	550	4.8		83.872
57	2	08	11	48	59.1	-31.586	-177.608	KERMADEC ISLANDS REGION	33	4.8		76.037
58	2	09	03	59	20.9	-22.274	-178.175	SOUTH OF FIJI ISLANDS	354	4.8		84.967
59	2	11	19	02	12.2	-22.448	-68.901	NORTHERN CHILE	118	4.7		75.615
60	2	12	00	52	31.7	-6.106	130.443	BANDA SEA	100	5.0		84.650
61	2	12	16	33	40.8	-31.258	-71.661	NEAR COAST OF CENTRAL CHILE	35			68.296
62	2	16	16	51	51.5	-7.158	129.057	BANDA SEA	139	5.1		83.177
63	2	16	17	47	17.3	-10.464	120.063	SUMBA REGION, INDONESIA	33	3.6		76.880
64	2	19	01	13	26.3	-34.055	-71.165	NEAR COAST OF CENTRAL CHILE	62			65.547
65	2	19	14	14	51.1	-4.476	129.082	BANDA SEA	33	6.1	6.4	85.669
66	2	28	10	46	52.3	-14.424	167.355	VANUATU ISLANDS	185	5.4		89.019
67	3	1	6	15	51.4	-7.620	158.160	SOLOMON ISLANDS	33	5.4	5.1	92.746
68	3	2	6	28	44.2	-4.510	144.040	NEAR N COAST OF NEW GUINEA, P.N.G.	155	4.0		90.960
69	3	6	0	8	20.2	1.637	93.126	OFF W COAST OF NORTHERN SUMATERA	32	5.2	4.9	79.188
70	3	9	1	16	29.3	-2.687	140.571	NEAR NORTH COAST OF IRIAN JAYA	33	4.4		91.439
71	3	9	5	1	29.1	0.720	17.458	CONGO	10			71.211
72	3	9	14	34	52.9	-59.905	-22.893	SOUTH SANDWICH ISLANDS REGION	33	5.0	4.1	27.177
73	3	9	21	46	7.6	-22.798	-66.101	JUJUY PROVINCE, ARGENTINA	264	4.3		74.368
74	3	10	17	40	47.4	-8.484	-74.271	PERU-BRAZIL BORDER REGION	157	5.0		90.428
75	3	10	20	57	45.0	-10.930	-74.524	CENTRAL PERU	33	5.3	4.6	88.215
76	3	12	5	17	42.5	-1.598	119.407	SULAWESI, INDONESIA	33	4.6		84.864
77	3	16	16	41	40.6	49.437	156.007	KURIL ISLANDS	61	5.7		144.222
78	3	18	7	58	8.0	-22.916	-175.375	TONGA ISLANDS REGION	39	5.0	5.2	84.898
79	3	18	19	9	28.8	-23.136	169.740	LOYALTY ISLANDS REGION	33	4.2		81.338

80	3	19	4	52	41.0	-19.333	-176.317	FIJI ISLANDS REGION	33	4.9	5.3	88.200
81	3	25	2	44	16.9	-7.349	128.680	BANDA SEA	150	5.4		82.864
82	3	25	3	12	25.0	-62.877	149.527	BALLENY ISLANDS REGION	10	6.6	8.0	39.396
83	3	25	11	45	12.7	-62.848	150.178	BALLENY ISLANDS REGION	10	4.9		39.579
84	3	25	12	17	22.5	-63.612	147.937	SOUTH OF AUSTRALIA	10	5.8	6.1	38.386
85	3	25	13	14	59.0	-53.561	147.862	SOUTH OF AUSTRALIA	10	5.4	5.8	47.056
86	3	25	21	2	55.6	-24.336	-66.990	SALTA PROVINCE	197	5.2		73.233
87	3	27	0	30	51.0	-58.733	25.380	SOUTH SANDWICH ISLANDS REGION	33	5.2	5.3	28.907
88	3	27	0	36	14.0	-63.030	146.220	SOUTH OF AUSTRALIA	10	4.4		38.444
89	3	29	19	48	16.2	-17.552	-197.092	FIJI ISLANDS REGION	537	6.5		89.354
90	4	1	22	42	56.9	-40.316	-74.874	OFF COAST OF SOUTHERN CHILE	9	6.2	6.0	60.851
91	4	3	09	13	12.7	-19.482	-176.258	FIJI ISLANDS REGION	250	4.6	5.6	88.067
92	4	3	22	01	48.2	-8.148	-74.238	PERU-BRAZIL BORDER REGION	165	6.1		90.732
93	4	4	16	16	47.0	38.102	30.157	TURKEY	10	5.1	4.6	107.030
94	4	7	04	38	53.5	-5.599	147.261	EASTERN NEW GUINEA REG., P.N.G.	135	4.6		91.056
95	4	8	12	58	09.9	-20.972	-178.702	FIJI ISLANDS REGION	550	4.6		86.121
96	4	10	10	03	20.1	-21.209	-69.637	NORTHERN CHILE	63	5.0	5.7	77.010
97	4	10	15	00	53.1	32.457	59.976	NORTHERN IRAN	33	5.3	5.9	102.280
98	4	10	16	40	38.5	-1.322	-15.651	NORTH OF ASCENSION ISLANDS	10	5.4		76.895
99	4	10	16	43	41.3	-33.546	-179.543	SOUTH OF KERMADEC ISLANDS	46	5.9	5.9	73.759
100	4	11	00	44	35.7	-23.635	-176.111	SOUTH OF FIJI ISLANDS	33	5.7	6.1	84.057
101	4	11	01	10	51.6	-23.726	-176.004	SOUTH OF FIJI ISLANDS	33	5.2	5.5	83.989
102	4	11	09	29	11.4	39.895	23.938	AEGEAN SEA	10	4.6		109.210
103	4	12	23	49	35.3	-15.525	-71.821	SOUTHERN PERU	33	5.6	5.4	83.031
104	4	13	01	46	43.6	-23.793	-176.024	SOUTH OF FIJI ISLANDS	33	5.1	5.0	83.920
105	4	14	02	44	08.1	-27.590	-63.252	SANTIAGO DEL ESTERO PROV., ARG	568	4.9		68.982
106	4	14	03	41	22.3	-23.821	-179.871	SOUTH OF FIJI ISLANDS	499	5.5		83.114
107	4	14	09	18	01.1	-24.103	-66.763	SALTA PROVINCE, ARGENTINA	192	4.5		73.375

108	4	20	07	59	19.1	-53.030	21.030	SOUTH OF AFRICA	10	4.5		18.237
109	4	20	09	37	53.6	-52.637	21.459	SOUTH OF AFRICA	10	4.5		18.511
110	4	20	22	25	25.2	-24.412	-179.979	SOUTH OF FIJI ISLANDS	550	4.1		82.519
111	4	20	22	59	14.7	18.525	-101.203	GUERRO, MEXICO	67	5.9		124.020
112	4	22	19	41	31.7	-31.894	-69.205	SAN JUAN PROVINCE, ARGENTINA	120	4.3		66.938
113	4	23	18	46	33.2	-28.472	-63.122	SANTIAGO DEL ESTERO PROV., ARG	600	4.2		68.125
114	4	24	04	28	31.4	-23.941	-66.666	JUJUY PROVINCE, ARGENTINA	185	4.6		73.493
115	4	24	07	13	10.7	2.530	128.276	HALMAHERA, INDONESIA	188	5.2		91.870
116	4	24	16	06	10.6	-17.860	-178.712	FIJI ISLANDS REGION	600	4.5		89.137
117	4	25	05	17	38.5	4.257	124.647	CELEBES SEA	326	5.2		92.167
118	4	25	06	07	23.4	-35.266	-17.326	SOUTHERN MID-ATLANTIC RIDGE	10	5.5	5.5	45.804
119	4	26	01	20	12.0	-31.321	-179.490	KERMADEC ISLANDS REGION	174	5.1		75.926
120	4	26	08	30	07.5	-17.665	-178.817	FIJI ISLANDS REGION	550	4.7		89.303
121	4	26	14	16	52.2	0.855	17.342	CONGO	10	5.5	4.7	71.360
122	4	27	16	31	53.7	-55.948	-27.705	SOUTH SANDWICH ISLANDS REGION	145	4.8		31.846
123	4	27	18	40	38.5	-2.995	136.282	IRIAN JAYA REGION, INDONESIA	53	5.5		89.628
124	4	28	23	51	35.7	-6.082	113.097	JAWA, INDONESIA	591	5.5		78.468
125	4	28	15	44	06.0	-21.971	-179.606	FIJI ISLANDS REGION	608	5.3		84.963
126	5	01	12	08	43.3	-55.949	-26.707	SOUTH SANDWICH ISLANDS REGION	33	5.0	4.6	31.491
127	5	03	23	30	21.9	22.306	125.308	SOUTH EAST OF TAIWAN	33	6.4	7.3	109.090
128	5	08	16	56	48.1	-4.537	144.142	NEAR N COAST OF NEW GUINEA, P.N.G.	112	5.0		90.971
129	5	08	17	42	21.8	-45.692	-77.630	OFF COAST OF SOUTHERN CHILE	33	4.6	5.0	56.646
130	5	10	02	02	17.7	-33.608	-178.269	SOUTH OF KERMADEC ISLANDS	33	4.6		73.947
131	5	10	08	57	17.9	-8.172	-81.043	OFF COAST OF NORTHERN PERU	33	4.6		92.868
132	5	10	12	42	08.6	-13.614	166.560	VANUATU ISLANDS	33	5.1	4.9	89.569
133	5	11	04	01	40.9	-2.972	142.050	NEAR N COAST OF NEW GUINEA, P.N.G.	34	5.0	5.4	91.695
134	5	11	13	22	25.8	-57.290	-142.360	PACIFIC-ANTARCTIC RIDGE	10	5.2		53.996
135	5	12	02	19	24.8	-23.614	-13.500	SOUTHERN MID-ATLANTIC RIDGE	10	4.7		55.247

136	5	12	07	48	49.7	-65.273	178.231	BALLENY ISLANDS REGION	10	4.4		42.899
137	5	12	17	01	03.8	45.307	150.364	KURIL ISLANDS	33	5.6	4.7	138.690
138	5	12	20	57	20.8	9.260	93.594	NICOBAR ISLANDS, INDIA	100	4.3		86.556
139	5	13	10	03	23.5	-23.160	-114.950	EASTER ISLAND REGION	10	4.6	4.3	86.251
140	5	13	23	02	05.6	-5.147	151.714	NEW BRITAIN REGION, P.N.G.	61	6.0		92.982
141	5	14	06	20	35.6	29.310	141.979	SOUTH OF HONSHU, JAPAN	33	5.3	5.0	121.460
142	5	14	08	19	0.8	-35.450	-110.766	SOUTHERN EAST PACIFIC RISE	10	4.7	4.8	73.564
143	5	14	09	27	18.0	-38.643	177.451	NORTH ISLAND, NEW ZEALAND	56	4.6		68.228
144	5	14	10	15	02.4	0.070	124.582	MINAHASSA PENINSULA, SULAWESI	33	5.2		88.262
145	5	14	18	00	51.5	-22.797	178.967	SOUTH OF FIJI ISLANDS	600	4.7		83.856
146	5	14	20	05	17.6	-20.119	169.276	VANUATU ISLANDS	49	5.2	5.2	84.102
147	5	14	22	46	02.3	-37.781	-73.060	NEAR COAST OF CENTRAL CHILE	37	4.8		62.668
148	5	15	21	06	19.0	-15.108	-71.865	SOUTHERN PERU	130	4.6		83.436
149	5	15	22	09	44.3	-23.479	179.856	SOUTH OF FIJI ISLANDS	550	4.3		83.388
150	5	16	00	53	25.6	-5.893	125.376	BANDA SEA	550	5.2		83.022
151	5	16	02	22	03.2	-22.227	-179.519	SOUTH OF FIJI ISLANDS	586	6.1		84.733
152	5	16	03	20	27.0	-20.076	-175.488	TONGA ISLANDS	100	5.0		87.641
153	5	16	10	41	28.6	-21.792	-176.637	FIJI ISLANDS REGION	174	5.3		85.746
154	5	17	03	52	18.2	-63.027	151.847	BALLENY ISLANDS REGION	10	4.4		39.827
155	5	17	06	02	54.4	-1.072	120.588	SULAWESI, INDONESIA	62	4.8		85.773
156	5	18	10	16	04.9	-12.454	166.575	SANTA CRUZ ISLANDS	38	4.7	4.1	90.678
157	5	18	11	45	42.0	-19.311	-176.623	FIJI ISLANDS REGION	305	4.7		88.160
158	5	19	07	54	23.5	-43.290	-82.041	WEST CHILE RISE	10	5.1	4.5	60.042
159	5	19	14	23	13.6	-53.779	140.737	WEST OF MACQUARIE ISLAND	10	5.0	4.7	44.809
160	5	20	06	17	52.6	-56.154	-27.574	SOUTH SANDWICH ISLANDS REGION	105	4.7		31.639
161	5	20	08	06	30.1	-6.595	130.527	BANDA SEA	97	4.9		84.227
162	5	21	05	34	25.5	0.207	119.584	MINAHASSA PENINSULA, SULAWESI	33	6.2	6.3	86.602
163	5	21	22	31	22.9	-43.400	41.387	PRINCE EDWARD ISLANDS REGION	10	5.4	5.8	25.690

164	5	22	04	35	50.3	-17.938	-65.594	CENTRAL BOLIVIA	33	4.8		78.714
165	5	22	04	48	50.4	-17.731	-65.431	CENTRAL BOLIVIA	24	5.9	6.6	78.851
166	5	22	05	43	28.1	-18.021	-65.052	CENTRAL BOLIVIA	33	4.1		78.454
167	5	22	19	49	33.7	33.622	131.514	KYUSHU, JAPAN	81	5.4	4.8	121.610
168	5	23	02	37	01.0	-18.040	-173.146	TONGA ISLANDS	33	4.8	4.7	90.070
169	5	23	14	27	12.6	-31.650	-178.589	KERMADEC ISLANDS REGION	33	5.0	4.4	75.785
170	5	23	15	11	33.0	-27.929	-66.862	CATAMARCA PROVINCE, ARGENTINA	150	4.5		69.859
171	5	23	15	44	37.7	-6.283	154.943	SOLOMON ISLANDS	33	5.3	4.7	92.977
172	5	23	17	44	47.7	8.138	123.726	MINDANAO, PHILIPPINE ISLANDS	658	5.9		95.436
173	5	24	02	24	52.1	-6.537	104.785	SUNDA STRAIT	33	5.1	4.8	75.185
174	5	24	02	32	53.5	-6.513	104.906	SUNDA STRAIT	53	5.2	5.1	75.248
175	5	25	20	45	06.2	-17.251	-179.069	FIJI ISLANDS REGION	600	4.4		89.650
176	5	26	01	08	17.9	-17.828	-65.374	CENTRAL BOLIVIA	33	5.1	4.9	78.742
177	5	27	03	24	17.0	-50.462	139.489	SOUTH OF AUSTRALIA	10	5.1	5.4	47.323
178	5	27	04	09	49.5	-50.390	139.048	SOUTH OF AUSTRALIA	33	4.1		47.250
179	5	27	10	37	23.7	-6.460	155.298	SOLOMON ISLANDS	117	5.1		92.954
180	5	27	12	34	10.0	-31.866	179.953	KERMADEC ISLANDS REGION	336	4.4		75.285
181	5	27	15	27	16.1	-5.845	149.704	NEW BRITAIN REGION, P.N.G.	33	5.4	5.8	91.656
182	5	27	20	41	37.9	52.239	159.526	OFF EAST COAST OF KAMCHATKA	60	5.5		147.800
183	5	27	23	43	01.5	-13.915	-72.725	CENTRAL PERU	96	4.9		84.833
184	5	28	05	05	52.5	-21.300	-176.344	FIJI ISLANDS REGION	150	4.7		86.282
185	5	28	04	58	54.5	52.154	159.641	OFF EAST COAST OF KAMCHATKA	47	5.3	5.4	147.770
186	5	28	11	31	58.4	-58.713	-25.041	SOUTH SANDWICH ISLANDS REGION	33	5.1	4.8	28.803
187	5	28	18	13	55.7	-4.145	129.543	BANDA SEA	10	4.8		86.142
188	5	28	18	33	28.1	31.401	27.667	EGYPT	10	5.5	5.0	100.500
189	5	28	21	11	44.1	37.388	78.843	SOUTHERN XINJIAN, CHINA	33	5.2	5.6	109.990
190	5	29	02	55	57.4	-2.231	99.477	SOUTHERN SUMATERA, INDONESIA	33	4.9	4.9	77.484
191	5	29	04	47	54.0	-2.191	99.633	SOUTHERN SUMATERA, INDONESIA	33	5.3	5.1	77.571

192	5	29	07	57	42.2	-13.156	166.899	VANUATU ISLANDS	100	4.7		90.100
193	5	29	11	23	51.4	-17.746	-65.273	CENTRAL BOLIVIA	33	5.1	5.1	78.784
194	5	29	20	42	46.3	-7.988	117.556	BALI SEA	236	4.8		78.276
195	5	30	06	22	28.9	37.106	70.110	AFGHANISTAN-TAJIKISTAN BORDER REGION	33	5.9	6.9	108.190
196	5	30	11	31	52.7	-33.697	-66.019	SAN LUIS PROVINCE, ARGENTINA	42	4.7		64.259
197	5	30	18	18	15.6	39.027	143.441	OFF EAST COAST OF HONSHU, JAPAN	33	5.7	5.7	130.710
198	5	31	01	46	06.8	-18.948	169.311	VANUATU ISLANDS	260	5.2		85.230
199	5	31	03	12	27.7	-33.193	179.184	SOUTH OF KERMADEC ISLANDS	350	4.3		73.845
200	5	31	16	57	58.4	-7.223	120.296	FLORES SEA	585	5.1		79.964
201	6	01	05	34	03.5	52.889	160.067	OFF EAST COAST OF KAMCHATKA	44	6.2	6.3	148.520
202	6	02	16	26	20.2	-2.843	128.415	CERAM SEA	33	4.5		86.942
203	6	03	02	42	55.9	-19.673	-69.616	NORTHERN CHILE	33	5.0	4.4	78.436
204	6	03	21	34	48.9	-23.887	-69.875	NORTHERN CHILE	48	5.1	4.5	74.591
205	6	05	23	38	36.0	-18.799	-173.373	TONGA ISLANDS	33	4.8	4.9	89.288
206	6	07	14	40	52.6	-18.782	-177.885	FIJI ISLANDS REGION	600	4.3		88.416
207	6	07	16	10	46.2	-31.518	-67.833	SAN JUAN PROVINCE, ARGENTINA	113	5.6		66.851
208	6	07	23	20	13.9	15.959	-93.776	NEAR COAST OF CHIAPAS, MEXICO	87	5.8		119.530
209	6	09	04	43	32.8	-5.512	146.906	EASTERN NEW GUINEA REG., P.N.G.	141	5.0		91.016
210	6	09	12	04	55.3	-18.868	-173.309	TONGA ISLANDS	33	5.2	5.4	89.232
211	6	09	23	56	20.9	-23.069	169.712	LOYALTY ISLANDS REGION	33	5.0	4.9	81.395
212	6	10	00	22	08.0	-23.044	169.764	LOYALTY ISLANDS REGION	33	5.2	4.8	81.433
213	6	10	06	45	21.0	-30.876	-71.206	NEAR COAST OF CENTRAL CHILE	69	4.6		68.509
214	6	10	13	36	04.7	-26.557	-70.749	NEAR COAST OF NORTHERN CHILE	33	4.4		72.384
215	6	10	17	25	37.2	-12.005	166.626	SANTA CRUZ ISLANDS	147	4.7		91.120
216	6	10	22	40	17.3	-18.730	169.116	VANUATU ISLANDS	272	4.9		85.386
217	6	11	13	42	30.5	-54.331	5.602	BOUVET ISLAND REGION	10	4.5	3.7	21.398
218	6	12	13	47	29.5	-37.257	-17.138	SOUTHERN MID-ATLANTIC RIDGE	10	5.1	4.6	43.943
219	6	12	19	27	36.2	-21.774	-179.588	FIJI ISLANDS REGION	601	4.9		85.157

220	6	12	20	51	01.7	-24.804	179.829	SOUTH OF FIJI ISLANDS	502	5.2	82.099	
221	6	12	21	53	00.0	-5.724	147.889	EASTERN NEW GUINEA REG., P.N.G.	140	5.7	91.154	
222	6	13	04	21	12.5	-5.748	130.140	BANDA SEA	196	4.9	84.872	
223	6	13	05	52	21.5	-27.111	-178.188	KERMADEC ISLANDS REGION	239	4.4	80.270	
224	6	14	01	36	23.5	-5.787	104.790	SOUTHERN SUMATERA, INDONESIA	95	4.8	75.888	
225	6	14	13	17	08.0	35.372	140.520	NEAR EAST COAST OF HONSHU, JAPAN	45	5.5	5.3	126.400
226	6	15	18	41	32.2	-18.202	-178.282	FIJI ISLANDS REGION	521	4.4	88.896	
227	6	15	19	20	33.2	52.124	152.816	NORTHWEST OF KURIL ISLANDS	435	4.4	145.290	
228	6	16	09	35	11.8	-52.988	159.837	MACQUARIE ISLANDS REGION	10	4.9	5.7	50.703
229	6	16	22	47	43.1	-17.575	-178.603	FIJI ISLANDS REGION	600	4.7	89.436	
230	6	17	18	49	03.1	-6.031	130.163	BANDA SEA	148	5.5	84.618	
231	6	17	20	42	59.3	-23.068	-66.646	JUJUY PROVINCE, ARGENTINA	184	4.4	74.298	
232	6	17	22	16	55.5	-49.100	121.365	SOUTH OF AUSTRALIA	10	4.6	42.529	
233	6	18	04	17	54.9	-11.572	-13.894	ASCENSION ISLAND REGION	10	5.4	6.1	66.671
234	6	18	04	38	37.1	-45.595	-75.557	OFF COAST OF SOUTHERN CHILE	10	5.0	56.171	
235	6	18	17	06	55.6	-28.066	-69.958	CHILE-ARGENTINA BORDER REGION	100	4.4	70.728	
236	6	19	12	53	57.7	-32.382	-69.867	MENDOZA PROVINCE, ARGENTINA	115	4.2	66.694	
237	6	19	23	09	57.0	-21.927	-179.446	FIJI ISLANDS REGION	600	4.8	85.039	
238	6	20	00	52	14.5	-3.439	143.603	NEAR N COAST OF NEW GUINEA, P.N.G.	25	4.4	91.805	
239	6	20	16	37	34.4	-32.179	-178.904	SOUTH OF KERMADEC ISLANDS	33	5.0	4.7	75.210
240	6	20	18	55	14.3	4.266	126.512	TALAUD ISLANDS, INDONESIA	84	4.4	92.844	
241	6	20	20	24	45.1	-30.105	-177.925	KERMADEC ISLANDS, NEW ZEALAND	57	5.7	77.415	
242	6	22	07	55	09.5	-27.990	-66.701	CATAMARCA PROVINCE, ARGENTINA	174	4.9	69.750	
243	6	23	03	46	31.1	-14.521	167.247	VANUATU ISLANDS	100	4.7	88.897	
244	6	23	07	44	43.3	-7.543	108.907	JAWA, INDONESIA	124	4.6	75.651	
245	6	23	14	36	54.6	-58.358	-13.792	SOUTHWESTERN ATLANTIC OCEAN	10	5.2	4.6	25.045
246	6	24	06	52	50.2	-2.033	128.410	CERAM SEA	100	4.4	87.690	
247	6	24	08	53	24.7	-23.680	179.890	SOUTH OF FIJI ISLANDS	600	4.3	83.200	

248	6	24	10	44	30.8	-37.295	-17.391	SOUTHERN MID-ATLANTIC RIDGE	10	5.7	5.8	43.996
249	6	24	17	19	42.4	-49.596	164.260	AUCKLAND ISLANDS REGION	33	4.7		54.902
250	6	24	18	14	44.9	-30.610	-178.107	KERMADEC ISLANDS, NEW ZEALAND	150	5.0		76.889
251	6	25	06	39	20.3	41.547	80.137	SOUTHERN XINJIAN, CHINA	33	5.2	4.7	114.260
252	6	25	10	28	11.1	-17.560	-178.420	FIJI ISLANDS REGION	600	4.0		89.489
253	6	25	17	04	09.2	-15.680	-75.050	NEAR COAST OF PERU	33	4.7	4.7	83.925
254	6	26	11	45	42.5	-15.168	-173.717	TONGA ISLANDS	39	5.0	5.1	92.763
255	6	26	19	37	04.8	-29.298	-177.544	KERMADEC ISLANDS, NEW ZEALAND	150	4.5		78.273
256	6	26	20	08	07.4	-24.466	-179.728	SOUTH OF FIJI ISLANDS	550	4.4		82.405
257	6	27	07	32	38.1	-5.638	122.545	SULAWESI, INDONESIA	33	4.6		82.240
258	6	27	17	07	01.3	1.085	126.355	NORTHERN MOLUCCA SEA	50	5.2	4.7	89.840
259	6	27	18	46	22.2	-15.805	179.083	FIJI ISLANDS	33	4.8	4.6	90.643
260	6	28	02	54	47.8	-34.300	179.590	SOUTH OF KERMADEC ISLANDS	200	4.3		72.856
261	6	28	16	33	18.4	-16.491	-174.117	TONGA ISLANDS	108	4.6		91.397
262	6	29	08	31	22.0	-21.610	-178.170	FIJI ISLANDS REGION	350	4.0		85.613
263	6	29	23	37	16.5	-60.354	153.143	WEST OF MACQUARIE ISLAND	10	5.0	5.8	42.455
264	6	30	08	58	56.4	-23.994	-66.573	JUJUY PROVINCE, ARGENTINA	223	4.9		73.414
265	6	30	17	26	07.9	-22.986	-177.086	SOUTH OF FIJI ISLANDS	250	4.8		84.496
266	7	01	01	40	21.1	-20.299	-177.695	FIJI ISLANDS REGION	500	4.5		86.983
267	7	01	20	40	35.6	-24.000	-66.698	SALTA PROVINCE, ARGENTINA	187	4.5		73.449
268	7	02	00	22	28.8	-21.795	-68.148	CHILE-BOLIVIA BORDER REGION	131	4.5		75.977
269	7	02	08	36	20.9	-1.692	126.548	SOUTHERN MOLUCCA SEA	33	5.0		87.336
270	7	02	10	28	45.4	-40.021	-75.553	OFF COAST OF SOUTHERN CHILE	10	4.5		61.318
271	7	02	13	45	58.1	-17.765	-65.099	CENTRAL BOLIVIA	33	4.8	4.6	78.707
272	7	03	06	32	10.8	-8.834	111.860	JAWA, INDONESIA	100	4.8		75.477
273	7	03	06	40	11.6	-8.175	-70.834	WESTERN BRAZIL	614	5.1		89.582
274	7	03	10	33	12.4	-21.254	-66.503	SOUTHERN BOLIVIA	231	4.5		75.936
275	7	04	01	23	42.8	-4.275	143.539	NEW GUINEA, PAPUA NEW GUINEA	110	5.5		91.004

276	7	04	04	22	40.3	-22.298	-179.529	SOUTH OF FIJI ISLANDS	600	4.7		84.662
277	7	04	07	47	47.8	-39.303	174.370	NORTH ISLAND, NEW ZEALAND	600	4.3		66.947
278	7	04	13	57	51.3	-32.468	-178.749	SOUTH OF KERMADEC ISLANDS	200	4.4		74.960
279	7	05	01	52	49.6	-23.466	-175.860	TONGA ISLANDS REGION	33	4.9	5.0	84.270
280	7	05	07	52	42.4	-7.474	128.235	BANDA SEA	150	4.7		82.588
281	7	05	11	43	44.4	-7.330	128.532	BANDA SEA	100	4.4		82.828
282	7	05	18	15	58.9	-9.875	125.606	TIMOR REGION, INDONESIA	33	4.9		79.419
283	7	05	23	05	27.6	-15.025	166.413	VANUATU ISLANDS	33	5.1	4.9	88.185
284	7	06	18	21	21.1	-23.461	179.788	SOUTH OF FIJI ISLANDS	662	4.2		83.391
285	7	07	03	30	14.8	-18.700	-178.083	FIJI ISLANDS REGION	500	4.1		88.455
286	7	07	05	26	22.5	-26.668	178.218	SOUTH OF FIJI ISLANDS	629	5.0		79.951
287	7	07	14	17	51.1	-33.842	-179.193	SOUTH OF KERMADEC ISLANDS	55	5.1	5.1	73.541
288	7	08	15	02	41.8	-6.308	104.058	SUNDA STRAIT	55	5.4	4.5	75.156
289	7	09	00	47	25.3	-26.614	-13.954	SOUTHERN MID-ATLANTIC RIDGE	10	4.8		52.605
290	7	09	09	42	32.3	-5.529	147.417	EASTERN NEW GUINEA REG., P.N.G.	170	4.7		91.175
291	7	09	14	45	39.9	-30.487	-178.994	KERMADEC ISLANDS, NEW ZEALAND	130	6.2	6.2	76.833
292	7	09	16	23	41.7	-1.368	-15.933	NORTH OF ASCENSION ISLAND	10	5.3	5.4	76.937
293	7	09	19	39	43.9	60.530	-153.219	SOUTHERN ALASKA	145	5.3		169.910
294	7	10	08	20	32.6	-1.328	-15.858	NORTH OF ASCENSION ISLAND	10	5.0	4.5	76.952
295	7	10	10	29	16.2	-30.364	-178.857	KERMADEC ISLANDS, NEW ZEALAND	150	4.8		76.980
296	7	12	00	14	05.3	-18.275	168.220	VANUATU ISLANDS	33	4.8	5.2	85.582
297	7	13	06	30	49.7	-7.720	123.140	BANDA SEA	229	4.0		80.525
298	7	13	09	01	22.1	-19.419	169.777	VANUATU ISLANDS	33	4.5	4.6	84.902
299	7	14	03	34	12.6	-34.019	179.510	SOUTH OF KERMADEC ISLANDS	33	5.0		73.112
300	7	14	12	24	10.3	-18.049	-178.058	FIJI ISLANDS REGION	450	4.4		89.091
301	7	14	19	10	28.3	-7.221	128.665	BANDA SEA	100	4.7		82.977
302	7	15	04	18	18.0	-20.961	-178.503	FIJI ISLANDS REGION	555	4.6		86.174
303	7	15	09	55	51.0	-6.219	131.160	TANIMBAR ISLANDS REG., INDONESIA	33	4.8		84.803

304	7	15	15	03	08.4	-6.468	131.303	TANIMBAR ISLANDS REG., INDONESIA	61	4.7	84.624	
305	7	15	18	54	39.5	-31.569	-68.663	SAN JUAN PROVINCE, ARGENTINA	109	4.0	67.068	
306	7	16	07	05	30.4	-18.169	-178.141	FIJI ISLANDS REGION	450	4.2	88.958	
307	7	16	11	56	36.4	-11.040	166.160	SANTA CRUZ ISLANDS	110	6.4	6.7	91.906
308	7	17	02	18	58.2	-18.301	168.206	VANUATU ISLANDS	33	5.2	5.1	85.554
309	7	17	08	49	13.2	-2.961	141.926	NEAR N COAST OF NEW GUINEA, P.N.G.	10	5.8	7.1	91.662
310	7	17	09	09	31.5	-2.895	142.098	NEAR N COAST OF NEW GUINEA, P.N.G.	10	5.6		91.784
311	7	17	13	45	59.8	-55.586	-3.056	SOUTHERN MID-ATLANTIC RIDGE	10	4.3		23.311
312	7	17	20	56	19.7	-20.410	-177.760	FIJI ISLANDS REGION	513	4.7		86.862
313	7	17	22	03	52.3	-4.687	103.065	SOUTHERN SUMATERA, INDONESIA	50	5.8	5.1	76.343
314	7	17	22	49	18.5	-56.038	-27.609	SOUTH SANDWICH ISLANDS REGION	100	5.1		31.742
315	7	18	01	31	17.2	-24.214	-66.736	SALTA PROVINCE, ARGENTINA	200	4.2		73.263
316	7	18	04	18	32.2	-27.890	179.598	KERMADEC ISLANDS REGION	490	4.7		79.062
317	7	18	05	54	42.0	-18.303	168.162	VANUATU ISLANDS	33	4.7	5.0	85.540
318	7	18	06	33	07.1	-31.763	-68.912	SAN JUAN PROVINCE, ARGENTINA	108	4.2		66.967
319	7	18	07	35	56.9	-5.567	151.007	NEW BRITAIN REGION, P.N.G.	46	5.2	4.9	92.353
320	7	18	09	57	13.9	-28.307	-70.841	CENTRAL CHILE	47	5.3	4.4	70.784
321	7	18	16	04	26.0	6.171	125.914	MINDANAO, PHILIPPINE ISLANDS	156	5.1		94.395
322	7	18	16	41	19.4	-18.369	168.173	VANUATU ISLANDS	33	5.4	6.0	85.480
323	7	19	10	25	26.0	-35.180	179.150	OFF E. COAST OF N. ISLAND, N.Z.	300	4.6		71.916
324	7	19	10	35	04.7	-8.148	128.016	TIMOR SEA	132	4.2		81.885
325	7	19	15	00	44.4	-26.651	-114.336	EASTER ISLAND REGION	10	5.3	5.0	82.730
326	7	19	15	58	38.8	-21.836	-175.792	TONGA ISLANDS	72	5.9		85.869
327	7	19	18	13	42.0	-48.137	31.674	SOUTH OF AFRICA	10	4.9		21.301
328	7	19	20	45	55.9	-36.160	53.372	SOUTH INDIAN OCEAN	10	4.8		33.779
329	7	20	18	31	54.2	-19.933	-178.062	FIJI ISLANDS REGION	519	4.3		87.262
330	7	21	01	12	40.4	-13.945	166.868	VANUATU ISLANDS	33	4.6		89.340
331	7	21	06	41	16.2	-21.463	-68.641	CHILE-BOLIVIA BORDER REGION	114	4.5		76.448

332	7	21	07	26	42.9	-21.611	-176.507	FIJI ISLANDS REGION	108	4.4		85.948
333	7	22	02	22	33.5	0.061	123.357	MINAHASSA PENINSULA, SULAWESI	162	4.9		87.814
334	7	22	08	42	55.4	-22.814	-66.737	JUJUY PROVINCE, ARGENTINA	213	4.5		74.564
335	7	22	11	01	07.3	-7.000	106.843	JAWA, INDONESIA	93	4.8		75.449
336	7	22	17	20	45.9	-23.530	-70.705	NEAR COAST OF NORTHERN CHILE	31	4.4		75.191
337	7	22	18	51	10.0	-18.121	168.959	VANUATU ISLANDS	235	4.6		85.927
338	7	23	07	47	56.5	-26.632	178.224	SOUTH OF FIJI ISLANDS	627	4.6		79.987
339	7	23	11	26	03.1	30.368	138.363	SOUTH OF HONSHU, JAPAN	418	5.0		121.110
340	7	25	02	39	23.3	-13.608	166.867	VANUATU ISLANDS	44	5.9	6.0	89.661
341	7	25	05	10	04.2	-30.664	-178.766	KERMADEC ISLANDS, NEW ZEALAND	33	4.7		76.707
342	7	25	06	59	15.5	-7.140	128.351	BANDA SEA	33	4.9		82.939
343	7	26	14	38	47.7	-7.587	154.761	SOLOMON ISLANDS	33	5.3	4.7	91.694
344	7	27	08	06	54.5	-30.562	-178.699	KERMADEC ISLANDS, NEW ZEALAND	217	4.4		76.819
345	7	28	05	01	32.2	-7.202	120.401	FLORES SEA	600	5.1		80.021
346	7	28	23	50	08.4	-34.920	-111.100	SOUTHERN EAST PACIFIC RISE	10	4.6		74.134
347	7	29	07	14	24.0	-32.312	-71.286	NEAR COAST OF CENTRAL CHILE	51	6.3		67.201
348	7	29	18	00	29.9	-2.693	138.901	IRIAN JAYA, INDONESIA	33	5.9	6.7	90.841
349	7	29	19	43	37.0	-2.641	138.915	IRIAN JAYA, INDONESIA	38	5.0		90.895
350	7	30	04	56	29.1	-2.705	138.955	IRIAN JAYA, INDONESIA	33	4.9	4.6	90.849
351	7	30	15	16	49.2	-24.218	179.152	SOUTH OF FIJI ISLANDS	550	4.2		82.522
352	7	30	23	36	30.6	-58.808	-25.273	SOUTH SANDWICH ISLANDS REGION	33	5.1	4.8	28.814
353	7	31	04	50	59.7	-28.441	-70.460	CENTRAL CHILE	82	4.0		70.539
354	7	31	12	40	59.5	-21.614	169.820	LOYALTY ISLANDS REGION	33	5.4	5.9	82.814
355	7	31	12	48	04.4	-21.644	169.919	LOYALTY ISLANDS REGION	33	5.5	5.3	82.811
356	7	31	15	17	21.8	-35.268	179.544	OFF E. COAST OF N. ISLAND, N.Z.	250	4.6		71.910
357	7	31	15	17	25.4	-6.406	123.569	BANDA SEA	33	5.1		81.896
358	7	31	17	11	27.7	-15.128	167.443	VANUATU ISLANDS	117	5.3		88.372
359	8	1	9	10	2.5	-31.087	-13.488	SOUTHERN MID-ATLANTIC RIDGE	10	4.9	4.5	48.320

360	8	1	13	56	42.7	-34.905	-71.023	NEAR COAST OF CENTRAL CHILE	108	4.5	64.716
361	8	1	16	41	29.4	-14.306	166.949	VANUATU ISLANDS	88	4.6	89.019
362	8	2	20	13	5.7	-2.843	126.201	CERAM SEA	45	4.9	86.144
363	8	3	5	17	1.4	-27.295	-148.858	SOUTH PACIFIC OCEAN	10	5.5 5.0	83.780
364	8	3	10	30	0.3	-28.594	-71.101	NEAR COAST OF CENTRAL CHILE	43	4.4	70.599
365	8	3	11	9	35.5	37.189	139.934	EASTERN HONSHU, JAPAN	33	5.1 4.6	127.814
366	8	3	13	56	14.6	-7.017	126.932	BANDA SEA	358	4.4	82.542
367	8	3	21	31	2.9	-0.122	-28.346	CENTRAL MID-ATLANTIC RIDGE	10	4.7	82.108
368	8	4	5	7	38.1	-21.468	-179.392	FIJI ISLANDS REGION	616	4.8	85.495
369	8	4	5	46	56.7	-20.627	-178.361	FIJI ISLANDS REGION	600	4.7	86.527
370	8	4	6	23	7.4	-17.111	-179.332	FIJI ISLANDS REGION	550	4.3	89.729
371	8	4	11	46	50.1	-52.924	21.795	SOUTH OF AFRICA	10	4.8 4.5	18.170
372	8	4	12	28	36.0	-52.920	21.857	SOUTH OF AFRICA	10	5.1 5.1	18.161
373	8	4	15	51	1.8	-56.676	147.434	WEST OF MACQUARIE ISLAND, ISLAND	10	5.3 5.5	44.198
374	8	4	17	48	20.9	-52.909	22.028	SOUTH OF AFRICA	10	5.0 5.4	18.135
375	8	4	18	59	20.1	-0.593	-80.393	NEAR COAST OF ECUADOR	33	6.2 7.1	99.815
376	8	5	3	56	29.1	-21.472	-178.179	FIJI ISLANDS REGION	445	4.3	85.745
377	8	5	10	42	21.5	56.164	163.360	NEAR EAST COAST OF KAMCHATKA	33	5.2 4.7	152.318
378	8	5	12	13	29.2	6.495	125.987	MINDANAO, PHILIPPINE ISLANDS	147	5.0	94.721
379	8	5	12	54	25.6	-54.674	-135.521	PACIFIC-ANTARCTIC RIDGE	10	5.2 5.9	56.575
380	8	5	22	0	43.4	-25.149	-179.584	SOUTH OF FIJI ISLANDS	450	4.6	81.888
381	8	6	9	15	37.9	-54.399	-135.953	PACIFIC-ANTARCTIC RIDGE	10	4.8 4.9	56.859
382	8	7	1	40	16.2	-59.586	-150.715	PACIFIC-ANTARCTIC RIDGE	10	4.9 5.6	51.485
383	8	7	4	14	37.0	-20.505	-177.721	FIJI ISLANDS REGION	486	5.1	86.778
384	8	8	8	17	36.6	-22.525	-10.647	SOUTHERN MID-ATLANTIC RIDGE	10	4.6	55.362
385	8	8	14	25	49.3	-30.650	-71.372	NEAR COAST OF CENTRAL CHILE	44	4.7	68.771
386	8	8	16	7	56.1	0.225	122.246	MINAHASSA PENINSULA, SULAWESI	186	5.2	87.568
387	8	8	17	4	42.7	-32.995	-70.119	CHILE-ARGENTINA BORDER REGION	10	4.5	66.205

390	8	9	9	43	19.5	-23.216	-179.215	SOUTH OF FIJI ISLANDS	500	4.3	83.838	
391	8	9	18	4	25.6	-7.443	128.602	BANDA SEA	144	4.8	82.749	
392	8	9	18	39	45.8	-21.839	169.981	LOYALTY ISLANDS REGION	33	4.5	82.640	
393	8	9	20	19	51.3	-18.800	-175.736	TONGA ISLANDS	300	4.5	88.834	
394	8	9	20	47	25.1	-24.049	179.860	SOUTH OF FIJI ISLANDS	561	4.5	82.837	
395	8	10	9	52	14.9	7.324	94.305	NICOBAR ISLANDS, INDIA	33	5.9	5.8	84.933
396	8	10	21	0	34.3	-62.693	148.032	BALLENY ISLANDS REGION	10	4.7	4.4	39.182
397	8	11	14	55	22.2	-24.729	-179.994	SOUTH OF FIJI ISLANDS	528	4.5	82.209	
398	8	12	15	49	55.4	-24.468	179.834	SOUTH OF FIJI ISLANDS	550	4.2	82.425	
399	8	12	19	40	14.8	-23.837	-66.658	JUJUY PROVINCE, ARGENTINA	215	4.1	73.587	
400	8	13	2	40	10.7	-17.915	-178.688	FIJI ISLANDS REGION	550	4.3	89.088	
401	8	13	5	54	56.8	-58.786	-24.875	SOUTH SANDWICH ISLANDS REGION	33	5.0	5.1	28.690
402	8	14	0	55	37.4	-11.430	166.216	SANTA CRUZ ISLANDS	58	5.3	5.4	91.551
403	8	14	8	33	17.7	-23.981	-66.644	JUJUY PROVINCE, ARGENTINA	220	4.6	73.449	
404	8	14	13	21	24.7	-63.607	147.488	SOUTH OF AUSTRALIA	10	5.3	5.2	38.279
405	8	15	16	14	6.0	-24.610	-177.690	SOUTH OF FIJI ISLANDS	200	4.5	82.798	
406	8	15	17	29	16.5	0.752	29.956	ZAIRE	10	4.8	3.8	69.938
407	8	15	18	14	11.7	-21.777	170.351	LOYALTY ISLANDS REGION	33	4.2	82.795	
408	8	16	11	34	23.2	-20.389	-178.734	FIJI ISLANDS REGION	650	4.5	86.680	
409	8	16	16	26	13.6	-16.354	167.743	VANUATU ISLANDS	180	4.8	87.286	
410	8	17	6	36	26.4	-10.047	-77.612	NEAR COAST OF PERU	92	4.7	90.031	
411	8	17	12	43	39.8	-7.580	107.199	JAWA, INDONESIA	77	5.4	4.4	75.030
412	8	17	19	38	16.7	-19.641	-175.529	TONGA ISLANDS	143	4.6	88.056	
413	8	18	3	59	10.0	-21.196	173.851	VANUATU ISLANDS REGION	33	4.4	84.223	
414	8	18	5	1	27.0	-30.210	-178.341	KERMADEC ISLANDS, NEW ZEALAND	200	4.7	77.231	
415	8	18	6	30	34.4	-14.162	166.736	VANUATU ISLANDS	33	4.8	4.3	89.097
416	8	18	10	50	33.4	-43.189	-15.591	SOUTHERN MID-ATLANTIC RIDGE	10	4.9	4.5	38.130
417	8	18	12	24	19.4	-7.547	126.403	BANDA SEA	346	4.6	81.860	

418	8	18	18	0	12.7	45.852	149.116	KURIL ISLANDS	116	5.4	138.705	
419	8	19	6	33	31.0	-22.370	-179.283	SOUTH OF FIJI ISLANDS	550	4.0	84.644	
420	8	19	6	49	16.5	-25.055	-177.935	SOUTH OF FIJI ISLANDS	300	4.2	82.317	
421	8	19	16	35	38.9	-7.501	128.769	BANDA SEA	150	4.2	82.755	
422	8	19	17	41	43.6	-6.179	147.745	EASTERN NEW GUINEA REG., P.N.G.	55	5.3	5.2	90.400
423	8	20	5	3	31.9	-54.100	-134.350	PACIFIC-ANTARCTIC RIDGE	10	4.6	57.121	
424	8	20	6	40	55.8	28.932	139.329	BONIN ISLANDS REGION	441	6.1	120.157	
425	8	20	10	13	47.8	-54.048	-134.314	PACIFIC-ANTARCTIC RIDGE	10	4.7	5.2	57.172
426	8	20	14	56	40.0	51.531	175.389	RAT ISLANDS, ALEUTIAN ISLANDS	33	5.4	152.848	
427	8	20	15	0	8.1	51.618	175.248	RAT ISLANDS, ALEUTIAN ISLANDS	33	5.6	6.0	152.872
428	8	20	19	41	41.9	51.583	175.353	RAT ISLANDS, ALEUTIAN ISLANDS	33	5.3	4.5	152.879
429	8	21	7	23	18.7	-21.046	-67.549	CHILE-BOLIVIA BORDER REGION	191	4.5	76.476	
430	8	21	9	7	3.0	-19.182	168.965	VANUATU ISLANDS	133	4.8	84.915	
431	8	21	11	4	7.5	-21.019	-178.879	FIJI ISLANDS REGION	550	4.5	86.039	
432	8	22	9	33	30.7	-21.066	-178.841	FIJI ISLANDS REGION	562	4.5	86.001	
433	8	22	11	9	46.9	-3.062	142.036	NEAR N COAST OF NEW GUINEA, P.N.G.	20	5.4	5.4	91.607
434	8	22	11	26	27.0	-8.731	120.498	FLORES REGION, INDONESIA	139	4.6	78.640	
435	8	23	7	17	32.7	-63.070	162.590	BALLENY ISLANDS REGION	10	4.6	42.168	
436	8	23	14	1	11.3	51.515	175.345	RAT ISLANDS, ALEUTIAN ISLANDS	33	5.3	152.819	
437	8	23	18	22	18.2	-31.969	-69.863	SAN JUAN PROVINCE, ARGENTINA	121	4.6	67.076	
438	8	24	1	35	56.7	-17.989	-178.449	FIJI ISLANDS REGION	561	4.9	89.067	
439	8	24	2	45	34.2	-31.892	-69.448	SAN JUAN PROVINCE, ARGENTINA	115	5.0	67.017	
440	8	24	4	56	16.4	-4.449	102.597	SOUTHERN SUMATERA, INDONESIA	34	5.2	76.412	
441	8	24	8	46	23.4	-31.574	-67.060	SAN JUAN PROVINCE, ARGENTINA	132	4.6	66.551	
442	8	24	12	12	9.5	-13.791	34.729	MALAWI	46	4.8	55.267	
443	8	28	8	18	41.1	-25.744	179.109	SOUTH OF FIJI ISLANDS	550	4.1	81.036	
444	8	28	12	40	58.7	-0.154	125.018	SOUTHERN MOLUCCA SEA	66	6.2	88.211	
445	8	28	15	31	38.2	51.437	175.526	RAT ISLANDS, ALEUTIAN ISLANDS	33	5.5	4.8	152.816

446	8	28	23	46	43.9	35.522	139.879	NEAR S. COAST OF HONSHU, JAPAN	76	5.2	126.304	
447	8	29	8	30	21.1	-55.737	-27.045	SOUTH SANDWICH ISLANDS REGION	33	5.6	5.6	31.776
448	8	29	19	22	28.5	-16.220	-176.144	FIJI ISLANDS REGION	350	4.4	91.262	
449	8	30	1	48	8.7	17.092	148.133	MARIANA ISLANDS REGION	33	6.0	6.1	112.461
450	8	30	7	52	25.3	-23.934	-66.906	JUJUY PROVINCE, ARGENTINA	220	4.9	73.579	
451	8	30	14	34	43.2	53.669	161.867	OFF EAST COAST OF KAMCHATKA	33	5.5	5.2	149.792
452	8	31	3	19	39.3	-56.142	-27.602	SOUTH SANDWICH ISLANDS REGION	79	5.0	31.658	
453	8	31	10	23	59.2	-7.351	129.282	BANDA SEA	126	4.7	83.079	
454	8	31	15	41	6.0	-15.555	-69.263	PERU-BOLIVIA BORDER REGION	281	4.6	82.162	
455	8	31	19	16	20.8	14.944	120.196	LUZON, PHILIPPINE ISLANDS	68	5.1	4.7	100.497
456	9	1	1	19	37.5	-17.555	-174.771	TONGA ISLANDS	220	5.3	90.235	
457	9	1	8	29	12.7	-28.049	-70.439	CENTRAL CHILE	87	4.6	70.897	
458	9	1	10	29	49.0	-58.206	-26.533	SOUTH SANDWICH ISLANDS REGION	152	5.4	29.706	
459	9	1	14	33	41.9	-16.758	-173.597	TONGA ISLANDS	33	5.3	91.236	
460	9	2	0	20	53.8	-36.053	-103.698	SOUTHERN PACIFIC OCEAN	10	4.6	4.3	71.788
461	9	2	4	29	34.3	-7.673	124.888	BANDA SEA	368	4.5	81.198	
462	9	2	6	54	40.7	-37.584	177.099	OFF E. COAST OF N. ISLAND, N.Z.	184	4.4	69.176	
463	9	2	8	37	29.9	5.410	126.764	MINDANAO, PHILIPPINE ISLANDS	50	6.6	6.7	93.995
464	9	2	12	51	16.9	-23.650	-66.590	JUJUY PROVINCE, ARGENTINA	200	4.3	73.739	
465	9	2	17	37	14.3	-14.141	166.973	VANUATU ISLANDS	33	4.7	89.183	
466	9	2	18	52	42.2	-29.695	-178.790	KERMADEC ISLANDS, NEW ZEALAND	230	5.4	77.642	
467	9	2	19	49	28.4	-4.937	152.182	NEW BRITAIN REGION, P.N.G.	68	5.0	93.334	
468	9	2	20	13	3.6	2.704	121.931	CELEBES SEA	612	5.4	89.756	
469	9	3	7	58	21.1	39.716	140.760	EASTERN HONSHU, JAPAN	38	5.7	5.7	130.355
470	9	3	17	37	58.2	-29.450	-71.715	NEAR COAST OF CENTRAL CHILE	27	6.2	6.4	69.994
471	9	3	23	3	15.3	-29.310	-71.938	NEAR COAST OF CENTRAL CHILE	33	5.1	4.7	70.194
472	9	4	11	54	25.0	-23.831	-175.798	TONGA ISLANDS REGION	70	5.4	83.926	
473	9	4	20	8	38.0	-46.890	35.260	PRINCE EDWARD ISLANDS REGION	10	4.3	22.290	

474	9	5	1	43	27.1	-54.555	143.749	WEST OF MACQUARIE ISLAND	10	4.9	45.017	
475	9	5	4	6	11.3	-23.088	-66.733	JUJUY PROVINCE, ARGENTINA	202	4.4	74.308	
476	9	5	5	16	17.2	-6.646	155.209	SOLOMON ISLANDS	37	5.5	5.7	92.723
477	9	5	7	47	4.7	-60.231	-26.638	SOUTH SANDWICH ISLANDS REGION	33	4.7	28.254	
478	9	5	17	9	31.4	-4.051	152.041	NEW BRITAIN REGION, P.N.G.	192	5.5	94.117	
479	9	6	2	31	5.8	-17.670	-178.574	FIJI ISLANDS REGION	500	4.5	89.350	
480	9	7	0	23	2.1	-32.347	-111.950	SOUTHERN EAST PACIFIC RISE	10	5.3	5.1	76.786
481	9	7	0	39	30.2	-36.240	-97.711	WEST CHILE RISE	10	5.2	5.7	70.429
482	9	7	3	7	41.0	-22.337	-69.155	NORTHERN CHILE	83	4.9	75.802	
483	9	7	12	50	4.2	-25.048	-176.577	SOUTH OF FIJI ISLANDS	33	4.9	4.5	82.592
484	9	8	18	48	43.7	-8.150	129.137	TIMOR SEA	33	4.7	82.287	
485	9	8	20	6	21.8	-6.955	129.642	BANDA SEA	55	4.3	83.575	
486	9	9	14	48	37.0	-29.302	-71.682	NEAR COAST OF CENTRAL CHILE	33	5.0	70.122	
487	9	9	16	16	8.6	-65.592	-177.115	PACIFIC-ANTARCTIC RIDGE	10	5.0	5.4	43.243
488	9	9	23	30	52.7	-4.443	151.203	NEW BRITAIN REGION, P.N.G.	33	5.3	5.1	93.470
489	9	9	23	56	24.4	-4.504	151.149	NEW BRITAIN REGION, P.N.G.	33	5.1	93.395	
490	9	10	3	22	55.7	-22.990	169.660	LOYALTY ISLANDS REGION	33	4.4	81.458	
491	9	10	4	21	41.9	5.467	126.639	MINDANAO, PHILIPPINE ISLANDS	77	5.3	94.003	
492	9	10	9	51	24.5	-20.028	-70.378	NEAR COAST OF NORTHERN CHILE	33	4.9	4.6	78.353
493	9	10	18	31	39.0	-20.120	-70.566	NEAR COAST OF NORTHERN CHILE	70	4.6	78.328	
494	9	10	19	6	31.6	-65.736	-178.145	PACIFIC ANTARCTIC RIDGE	10	4.5	5.1	42.970
495	9	11	5	24	42.5	-30.676	-71.231	NEAR COAST OF CENTRAL CHILE	33	4.9	4.4	68.703
496	9	12	9	3	48.3	-24.512	-67.119	CHILE-ARGENTINA BORDER REGION	187	5.1	73.112	
497	9	12	10	41	49.7	-2.832	126.320	CERAM SEA	72	5.0	86.197	
498	9	12	10	58	4.2	-14.233	-72.615	CENTRAL PERU	91	5.3	84.499	
499	9	12	14	14	42.6	-34.454	-179.240	SOUTH OF KERMADEC ISLANDS	33	4.6	72.938	
500	9	12	18	14	41.1	-30.610	-179.450	KERMADEC ISLANDS REGION	400	4.0	76.623	
501	9	13	3	38	10.0	-23.785	-179.953	SOUTH OF FIJI ISLANDS	572	4.4	83.132	

502	9	14	4	43	28.9	-34.750	-107.981	SOUTHERN EAST PACIFIC RISE	10	4.9	5.3	73.807
503	9	14	10	1	44.4	-55.118	158.691	MACQUARIE ISLANDS REGION	10	4.7		48.480
504	9	14	23	16	46.8	51.618	-173.150	ANDREAN OF ISLANDS	33	5.7	6.0	156.677
505	9	15	3	32	8.3	-6.721	130.031	BANDA SEA	114	5.0		83.932
506	9	15	4	28	39.7	-5.426	-151.679	NEW BRITAIN REGION, P.N.G.	60	4.7		92.709
507	9	15	8	10	15.4	-29.503	-179.111	KERMADEC ISLANDS REGION	300	4.7		77.764
508	9	15	8	35	51.5	-5.624	151.637	NEW BRITAIN REGION	83	5.6		92.509
509	9	16	2	12	2.1	-6.580	154.868	SOLOMON ISLANDS	87	5.4		92.674
510	9	16	5	51	27.0	-6.640	131.232	TANIMBAR ISLANDS REG., INDONESIA	42	5.4		84.439
511	9	16	11	9	14.3	-24.047	-66.744	SALTA PROVINCE, ARGENTINA	175	4.9		73.421
512	9	17	0	29	4.5	-23.674	-179.809	SOUTH OF FIJI ISLANDS	482	4.3		83.270
513	9	17	16	41	20.1	-38.294	-93.623	WEST CHILE RISE	10	5.3	5.2	67.570
514	9	17	17	51	14.4	-31.292	-69.468	SAN JUAN PROVINCE, ARGENTINA	118	4.5		67.579
515	9	17	18	14	25.8	30.593	137.557	SOUTH OF HONSHU, JAPAN	487	4.5		121.027
516	9	18	8	16	37.4	-17.463	168.051	VANUATU ISLANDS	33	4.4		86.311
517	9	18	14	21	14.9	-17.528	167.757	VANUATU ISLANDS	33	4.8		86.170
518	9	18	16	6	49.2	-6.865	149.909	NEW BRITAIN REGION, P.N.G.	51	4.6		90.771
519	9	18	21	9	17.3	-21.220	-179.030	FIJI ISLANDS REGION	650	4.2		85.812
520	9	19	8	50	25.8	-32.447	-177.724	SOUTH OF KERMADEC ISLANDS	33	4.6		75.179
521	9	19	16	15	49.8	-20.096	-70.557	NEAR COAST OF NORTHERN CHILE	66	4.6		78.348
522	9	19	20	15	56.7	3.506	124.259	CELEBES SEA	377	4.3		91.331
523	9	19	22	42	4.5	-10.959	-73.524	CENTRAL PERU	33	4.1		87.863
524	9	19	23	37	47.1	-17.880	-178.155	FIJI ISLANDS REGION	450	4.4		89.235
525	9	20	0	36	46.5	-21.392	-174.709	TONGA ISLANDS	100	5.1		86.509
526	9	20	6	30	46.6	-35.630	-179.844	EAST OF NORTH ISLAND, N.Z.	53	5.0		71.681
527	9	20	7	14	32.6	-35.586	179.958	OFF E. COAST OF N. ISLAND, N.Z.	76	5.3		71.684
528	9	20	11	49	11.2	-17.754	-178.785	FIJI ISLANDS REGION	578	4.3		89.224
529	9	20	14	40	17.3	-13.956	167.063	VANUATU ISLANDS	118	5.1		89.384

530	9	20	16	16	1.1	51.454	-178.178	ANDREANOF ISLANDS, ALEUTIAN	33	5.1	4.5	154.942
531	9	20	20	43	59.1	-35.020	-179.400	EAST OF NORTH ISLAND, N.Z.	33	4.6		72.359
532	9	20	21	21	55.1	-7.770	106.951	JAWA, INDONESIA	67	5.5		74.768
533	9	20	22	52	8.2	-17.754	-179.000	FIJI ISLANDS REGION	565	4.8		89.178
534	9	21	6	52	41.1	0.262	122.467	MINAHASSA PENINSULA, SULAWESI	147	6.1		87.682
535	9	21	12	9	39.6	-13.573	166.791	VANUATU ISLANDS	33	6.0	6.3	89.673
536	9	21	17	38	0.4	-22.832	-68.872	NORTHERN CHILE	102	4.8		75.248
537	9	22	6	47	0.7	-7.282	155.539	SOLOMON ISLANDS	33	5.0		92.231
538	9	22	21	33	21.3	1.399	126.926	NORTHERN MOLUCCA SEA	64	4.8		90.336
539	9	23	10	50	38.5	-34.182	-179.606	SOUTH OF KERMADEC ISLANDS	33	4.2		73.130
540	9	23	13	50	43.1	-31.534	-178.310	KERMADEC ISLANDS REGION	33	4.5		75.952
541	9	23	18	12	39.9	-22.706	-63.628	SALTA PROVINCE, ARGENTINA	545	4.1		73.624
542	9	24	18	53	40.1	46.313	106.288	MONGOLIA	33	5.5	5.3	125.001
543	9	26	10	57	33.7	-6.525	155.791	SOLOMON ISLANDS	204	5.2		93.024
544	9	27	6	26	21.2	1.764	127.159	HALMAHERA, INDONESIA	128	5.3		90.758
545	9	27	9	25	19.8	-35.422	-179.557	EAST OF NORTH ISLANDS, N.Z.	33	4.8		71.938
546	9	27	11	7	16.1	-20.270	-175.876	TONGA ISLANDS	207	4.9	4.9	87.376
547	9	28	3	13	43.3	-57.215	-141.218	PACIFIC-ANTARCTIC RIDGE	10	4.4		54.078
548	9	28	5	43	28.1	3.740	126.307	TALAUD ISLANDS, INDONESIA	73	4.9		92.283
549	9	28	7	29	12.4	-16.491	177.223	FIJI ISLANDS	82	4.8		89.554
550	9	28	9	5	26.6	-19.364	-70.232	NEAR COAST OF NORTHERN CHILE	44	4.5		78.925
551	9	28	11	1	30.2	-31.592	-69.082	SAN JUAN PROVINCE, ARGENTINA	114	4.3	4.1	67.179
552	9	28	12	53	18.4	5.369	126.695	MINDANAO, PHILIPPINE ISLANDS	61	5.0		93.932
553	9	28	13	29	29.0	3.747	126.277	TALAUD ISLANDS, INDONESIA	63	5.0		92.279
554	9	28	13	34	30.4	-8.194	112.413	JAWA, INDONESIA	152	6.4		76.265
555	9	28	17	49	8.0	-32.408	179.374	SOUTH OF KERMADEC ISLANDS	415	4.6		74.643
556	9	28	19	23	23.2	3.840	126.407	TALAUD ISLANDS, INDONESIA	30	5.8	5.9	92.412
557	10	01	19	17	16.0	14.367	53.772	ARABIAN SEA	10	5.1	5.1	83.769

558	10	02	04	59	59.4	3.773	126.225	TALAUD ISLANDS, INDONESIA	33	5.1		92.284
559	10	02	8	44	27.4	-31.564	-71.820	NEAR COAST OF CENTRAL CHILE	53	4.8		68.060
560	10	02	12	49	35.7	27.268	101.016	SICHUAN, CHINA	48	5.2	4.7	105.766
561	10	02	21	18	12.4	-10.634	161.178	SOLOMON ISLANDS	92	5.2		90.831
562	10	03	01	13	36.1	-56.628	-25.502	SOUTH SANDWICH ISLANDS REGION	33	5.0	5.3	30.538
563	10	03	15	12	56.7	-56.705	-25.571	SOUTH SANDWICH ISLANDS REGION	33	5.0	5.3	30.503
564	10	03	19	30	43.1	-56.605	-25.452	SOUTH SANDWICH ISLANDS REGION	33	5.1	5.0	30.538
565	10	04	06	16	46.1	-6.103	130.596	BANDA SEA	133	4.6		84.707
566	10	04	11	06	11.3	-6.294	147.491	EASTERN NEW GUINEA REG., P.N.G.	84	5.2		90.486
567	10	04	13	41	10.1	-8.464	-76.380	CENTRAL PERU	33	5.2	4.9	91.128
568	10	04	16	32	39.2	-30.010	-178.710	KERMADEC ISLANDS, NEW ZEALAND	300	4.4		77.352
569	10	05	00	15	48.0	-31.263	179.766	KERMADEC ISLANDS REGION	433	4.8		75.831
570	10	05	02	20	33.9	33.199	47.225	WESTERN IRAN	39	5.3	4.9	102.060
571	10	05	04	58	04.1	-24.934	179.521	SOUTH OF FIJI ISLANDS	548	4.3		81.908
572	10	05	08	13	23.2	-21.880	-179.642	FIJI ISLANDS REGION	632	4.2		85.043
573	10	05	10	40	53.5	-21.971	-68.505	CHILE-BOLIVIA BORDER REGION	116			75.930
574	10	05	17	36	56.0	-29.137	-12.915	SOUTHERN MID-ATLANTIC RIDGE	10	4.9	4.3	49.930
575	10	05	22	40	44.4	7.418	94.304	NICOBAR ISLANDS, INDIA	106	4.8		85.021
576	10	06	04	04	29.0	-5.405	146.645	EASTERN NEW GUINEA REG., P.N.G.	159	5.0		91.026
577	10	06	07	23	31.8	-24.567	-179.896	SOUTH OF FIJI ISLANDS	500	4.6		82.386
578	10	06	16	01	25.8	-32.947	-109.044	SOUTHERN EAST PACIFIC RISE	10	5.2	4.3	75.745
579	10	06	18	29	59.7	-32.875	-109.079	SOUTHERN EAST PACIFIC RISE	10	4.8	4.5	75.821
580	10	07	00	14	17.8	-17.907	-178.655	FIJI ISLANDS REGION	600	4.6		89.103
581	10	07	8	30	19.4	-5.878	151.628	NEW BRITAIN REGION, P.N.G.	33	4.9	5.0	92.269
582	10	07	10	08	32.3	-17.820	167.330	VANUATU ISLANDS	33	4.4		85.776
583	10	07	11	57	12.1	-5.983	151.761	NEW BRITAIN REGION, P.N.G.	33	4.8	4.8	92.214
584	10	07	14	07	32.5	-35.200	-179.544	EAST OF NORTH ISLANDS, N.Z.	66	4.9		72.156
585	10	07	15	41	52.7	-35.218	-179.756	EAST OF NORTH ISLANDS, N.Z.	68	4.5		72.097

586	10	07	23	31	38.1	-7.346	120.230	FLORES SEA	594	4.2	79.827	
587	10	08	04	04	22.0	-24.973	-179.359	SOUTH OF FIJI ISLANDS	404	4.7	82.105	
588	10	08	4	5	10.4	-34.210	179.810	SOUTH OF KERMADEC ISLANDS	33	4.7	72.987	
589	10	08	04	51	42.8	-16.119	-71.404	SOUTHERN PERU	136	6.1	82.340	
590	10	08	22	52	24.1	-35.078	-179.411	EAST OF NORTH ISLANDS, N.Z.	50	4.8	72.300	
591	10	09	10	24	27.5	-47.648	-75.593	SOUTHERN CHILE	10	5.3	4.5	54.295
592	10	09	17	33	29.2	-32.976	-109.266	SOUTHERN EAST PACIFIC RISE	10	4.4	4.1	75.752
593	10	10	01	16	09.3	-33.555	-72.049	OFF COAST OF CENTRAL CHILE	46	4.7	4.6	66.281
594	10	10	04	12	08.7	-33.518	-72.078	OFF COAST OF CENTRAL CHILE	33	5.3	5.2	66.324
595	10	10	4	26	58.3	-10.506	161.450	SOLOMON ISLANDS	33	5.0	4.6	91.034
596	10	10	16	29	08.1	-0.384	119.859	MINAHASSA PENINSULA, SULAWESI	33	5.4	5.5	86.151
597	10	10	16	32	19.4	-0.403	119.840	MINAHASSA PENINSULA, SULAWESI	33	5.7	5.6	86.127
598	10	11	09	12	45.7	-7.354	128.586	BANDA SEA	150	4.6	82.826	
599	10	11	10	00	27.2	-23.809	179.913	SOUTH OF FIJI ISLANDS	543	5.0	83.080	
600	10	11	12	04	54.7	-21.040	-179.110	FIJI ISLANDS REGION	624	5.4	85.970	
601	10	11	14	17	23.9	5.978	125.680	MINDANAO, PHILIPPINE ISLANDS	202	4.8	94.132	
602	10	11	21	44	16.1	-27.329	-63.335	SANTIAGO DEL ESTERO PROV., ARG.	583	5.3	69.250	
603	10	11	23	57	30.0	-56.273	-143.186	PACIFIC-ANTARCTIC RIDGE	10	5.0	5.5	55.007
604	10	12	7	36	39.7	-15.278	-173.579	TONGA ISLANDS	77	4.9	4.6	92.682
605	10	14	02	54	04.4	-5.915	151.036	NEW BRITAIN REGION, P.N.G.	33	5.5	5.7	92.037
606	10	14	03	36	07.6	-5.883	151.097	NEW BRITAIN REGION, P.N.G.	33	5.2	5.0	92.087
607	10	15	12	48	37.2	-13.619	166.895	VANUATU ISLANDS	43	5.0	4.7	89.658
608	10	15	19	5	23.9	7.557	94.281	NICOBAR ISLANDS, INDIA	33	5.1	4.9	85.147
609	10	16	4	4	32.9	-26.336	-177.686	SOUTH OF FIJI ISLANDS	33	4.8	4.8	81.122
610	10	16	7	26	46.8	-33.769	-72.214	OFF COAST OF CENTRAL CHILE	33	5.0	4.4	66.133
611	10	17	7	11	16.4	-11.861	116.980	SOUTH OF SUMBAWA, INDONESIA	33	4.9	4.4	74.483
612	10	17	7	23	47.9	-20.906	-178.574	FIJI ISLANDS REGION	554	4.7	86.212	
613	10	17	11	4	4.7	-6.382	106.872	JAWA, INDONESIA	148	5.1	76.036	

614	10	17	12	41	11.9	-13.971	167.497	VANUATU ISLANDS	33	5.0	4.7	89.490
615	10	18	1	39	1.3	24.718	141.237	VOLCANO ISLANDS REGION	110	5.5		117.004
616	10	18	2	10	30.3	-32.843	-109.033	SOUTHERN EAST PACIFIC RISE	10	4.4		75.845
617	10	18	3	15	38.9	-16.832	166.759	VANUATU ISLANDS	33	5.0	4.6	86.561
618	10	18	8	16	52.9	-23.608	-66.734	JUJUY PROVINCE, ARGENTINA	207	4.4		73.825
619	10	18	10	54	33.6	1.566	126.732	NORTHERN MOLUCCA SEA	50	5.1	4.2	90.421
620	10	18	13	54	28.2	-22.179	-176.954	SOUTH OF FIJI ISLANDS	247	4.6		85.307
621	10	18	17	1	38.3	-8.894	124.064	TIMOR REGION, INDONESIA	122	4.6		79.771
622	10	18	22	9	19.1	86.283	75.609	NORTH OF SEVERNAYA ZEMLYA	10	5.2	4.6	155.759
623	10	19	1	25	1.0	-17.275	167.763	VANUATU ISLANDS	33	5.3	5.6	86.413
624	10	19	2	23	35.3	-17.198	167.864	VANUATU ISLANDS	33	4.9	5.0	86.514
625	10	19	23	57	33.2	-21.254	-68.969	CHILE-BOLIVIA BORDER REGION	124	4.7		76.750
626	10	20	11	52	40.6	-20.594	-174.299	TONGA ISLANDS	33	5.1	4.8	87.364
627	10	20	17	39	40.3	-23.377	-66.629	JUJUY PROVINCE, ARGENTINA	214	4.5		74.005
628	10	20	20	2	59.8	-43.834	169.669	SOUTH ISLAND, NEW ZEALAND	10	4.9	4.8	61.581
629	10	21	0	45	20.5	-15.800	168.327	VANUATU ISLANDS	283	4.5		87.973
630	10	21	12	0	38.7	-38.266	175.896	NORTH ISLAND, NEW ZEALAND	208	4.2		68.268
631	10	22	8	13	23.6	-8.008	125.525	TIMOR REGION, INDONESIA	33	5.3	4.5	81.117
632	10	22	9	59	26.6	-5.625	-11.528	ASCENSION ISLAND REGION	10	4.8	4.5	71.584
633	10	23	1	48	51.6	-2.423	-76.359	PERU-ECUADOR BORDER REGION	147	5.3		96.797
634	10	23	5	12	28.9	-5.175	128.902	BANDA SEA	265	5.0		84.957
635	10	23	11	18	50.2	1.647	126.470	NORTHERN MOLUCCA SEA	36	5.3	4.3	90.402
636	10	24	8	27	12.2	-17.719	-175.222	TONGA ISLANDS	261	5.1		89.987
637	10	25	0	23	22.4	-19.320	-177.666	FIJI ISLANDS REGION	580	4.6		87.939
638	10	25	3	54	39.8	-17.974	-69.592	PERU-BOLIVIA BORDER REGION	33	5.0	4.6	80.013
639	10	25	4	24	16.4	-9.118	111.468	SOUTH OF JAWA, INDONESIA	68	4.7		75.076
640	10	25	19	22	21.0	-8.978	115.605	BALI REGION, INDONESIA	112	4.5		76.664
641	10	26	2	34	57.8	-21.224	-178.905	FIJI ISLANDS REGION	574	4.9		85.834

642	10	26	13	56	20.2	-4.185	142.115	NEW GUINEA, PAPUA NEW GUINEA	124	5.4		90.590
643	10	27	1	38	52.8	-3.552	123.164	SULAWESI, INDONESIA	33	5.5	5.0	84.395
644	10	27	6	55	2.4	-14.939	166.610	VANUATU ISLANDS	33	4.8	4.8	88.322
645	10	27	16	47	47.3	-56.080	-26.712	SOUTH SANDWICH ISLANDS REGION	33	4.9	4.3	31.391
646	10	27	20	3	35.1	-29.851	-67.098	LA RIOJA PROVINCE, ARGENTINA	54	4.3		68.156
647	10	27	21	16	21.0	2.921	128.623	HALMAHERA, INDONESIA	61	5.9		92.357
648	10	28	16	25	3.8	0.839	125.966	NORTHERN MOLUCCA SEA	33	6.2	6.2	89.472
649	10	28	20	2	18.0	-33.720	-178.770	SOUTH OF KERMADEC ISLANDS	33	4.4		73.742
650	10	29	9	7	16.3	-23.642	179.810	SOUTH OF FIJI ISLANDS	550	4.4		83.220
651	10	29	16	8	38.7	0.714	125.883	NORTHERN MOLUCCA SEA	61	5.1		89.326
652	10	29	19	55	54.7	-32.760	-70.479	CHILE-ARGENTINA BORDER REGION	86	4.9		66.535
653	10	29	20	30	39.0	-32.809	-70.475	CHILE-ARGENTINA BORDER REGION	87	4.4		66.488
654	10	29	20	45	22.8	0.718	126.122	NORTHERN MOLUCCA SEA	33	4.6		89.416
655	10	29	21	8	50.0	0.704	125.944	NORTHERN MOLUCCA SEA	60	5.2		89.339
656	10	30	8	33	10.1	-54.404	5.387	BOUVET ISLAND REGION	10	5.0	4.2	21.407
657	10	30	14	34	30.8	-16.197	167.941	VANUATU ISLANDS	176	5.2		87.489
658	10	31	11	19	6.2	-6.221	98.798	SOUTHWEST OF SUMATERA, INDONESIA	33	5.3	5.2	73.513
659	10	31	12	45	50.0	-17.881	-178.318	FIJI ISLANDS REGION	577	4.8		89.200
660	10	31	14	3	32.5	53.049	157.859	KAMCHATKA	153	5.2		147.852
661	11	1	2	33	5.9	-16.350	-71.240	SOUTHERN PERU	107	4.5		82.070
662	11	1	18	20	55.0	-24.005	-66.720	SALTA PROVINCE, ARGENTINA	216	4.5		73.452
663	11	2	3	50	32.4	-19.250	177.791	SOUTH OF FIJI ISLANDS	33	5.2	5.3	87.022
664	11	2	10	38	44.3	-23.951	-66.794	JUJUY PROVINCE, ARGENTINA	200	4.1		73.526
665	11	3	14	34	9.6	-25.424	-70.417	NEAR COAST OF NORTHERN CHILE	80			73.333
666	11	3	15	39	19.6	4.298	124.740	CELEBES SEA	332	4.5		92.238
667	11	4	0	22	0.6	0.851	-29.194	CENTRAL MID-ATLANTIC RIDGE	10	4.8	4.1	83.304
668	11	5	3	45	17.5	-10.322	-78.364	NEAR COAST OF PERU	51	5.4	4.6	90.009
669	11	5	6	40	5.8	28.531	142.548	BONIN ISLANDS REGION	40	4.9	4.9	120.950

670	11	5	14	46	37.5	-7.376	128.130	BANDA SEA	108	4.6		82.641
671	11	5	14	47	2.8	23.643	-108.787	GULF OF CALIFORNIA	10	5.4	5.1	130.800
672	11	5	18	5	24.3	12.867	125.036	SAMAR, PHILIPPINE	33	5.4	5.4	100.280
673	11	6	8	36	55.4	-30.319	-178.116	KERMADEC ISLANDS, NEW ZEALAND	150	4.9		77.169
674	11	6	12	24	7.2	-21.806	-67.162	CHILE-BOLIVIA BORDER REGION	210	4.9		75.641
675	11	7	20	21	34.1	-14.885	167.302	VANUATU ISLANDS	137	4.6		88.565
676	11	8	0	5	32.9	-30.385	-177.608	KERMADEC ISLANDS, NEW ZEALAND	33	5.4	5.3	77.204
677	11	8	1	33	30.5	-30.159	-177.417	KERMADEC ISLANDS, NEW ZEALAND	116	4.5		77.460
678	11	8	3	54	51.1	-30.164	-177.462	KERMADEC ISLANDS, NEW ZEALAND	33	5.0		77.447
679	11	8	5	0	53.2	-7.262	127.081	BANDA SEA	263	5.3		82.369
680	11	8	7	25	48.5	-9.135	121.421	FLORES REGION	33	6.0	5.9	78.598
681	11	8	16	18	28.3	-17.907	-178.606	FIJI ISLANDS REGION	567	4.6		89.114
682	11	9	4	57	41.2	-21.148	-174.452	TONGA ISLANDS	53	5.2		86.796
683	11	9	5	30	14.4	-6.954	129.022	BANDA SEA	33	6.1		83.353
684	11	9	5	38	44.2	-6.920	128.946	BANDA SEA	33	6.4	7.0	83.357
685	11	9	6	11	54.8	-7.049	129.138	BANDA SEA	33	4.8		83.307
686	11	9	10	13	24.3	-7.047	129.016	BANDA SEA	33	4.4		83.265
687	11	9	18	6	26.8	-7.048	129.124	BANDA SEA	33	5.1	4.4	83.303
688	11	9	18	13	21.3	-21.552	169.936	LOYALTY ISLANDS REGION	33	4.7		82.903
689	11	9	20	55	34.0	-7.018	128.659	BANDA SEA	33	5.2	5.1	83.163
690	11	9	21	1	43.4	-33.395	-69.984	CHILE-ARGENTINA BORDER REGION	123	4.7		65.793
691	11	9	22	21	35.2	-7.030	129.025	BANDA SEA	33	4.7		83.284
692	11	10	1	58	15.4	-4.670	145.071	NEAR N COAST OF NEW GUINEA, P.N.G.	215	4.7		91.169
693	11	10	15	3	20.1	-2.665	127.251	NORTHERN MOLUCCA SEA	33	4.2		91.626
694	11	10	17	45	12.2	-22.027	-68.239	NORTHERN CHILE	118	4.7		75.791
695	11	10	18	10	14.1	-27.639	65.506	SOUTH INDIAN OCEAN	10	4.8		44.113
696	11	10	19	58	40.4	-6.969	129.263	BANDA SEA	33	4.5		83.426
697	11	10	23	48	13.7	-27.645	65.559	SOUTH INDIAN OCEAN	10	4.7	4.3	44.117

698	11	11	1	8	40.2	-7.016	128.855	BANDA SEA	33	5.2	4.8	83.235
699	11	11	17	59	13.5	-35.969	53.493	SOUTHWEST INDIAN RIDGE	10	5.0	4.5	33.982
700	11	11	23	20	47.2	-34.558	179.791	SOUTH OF KERMADEC ISLANDS	33	5.5		72.646
701	11	12	4	43	54.1	-8.497	129.749	TIMOR SEA	33	5.1		82.186
702	11	12	4	48	0.2	-19.195	-69.094	NORTHERN CHILE	123	4.4		78.710
703	11	12	5	43	26.9	-19.193	-69.153	NORTHERN CHILE	114	4.4		78.731
704	11	12	8	13	51.8	-30.716	-178.703	KERMADEC ISLANDS, NEW ZEALAND	347	4.5		76.669
705	11	12	9	11	44.8	1.669	127.390	HALMAHERA, INDONESIA	164	5.0		90.753
706	11	12	19	19	31.8	-13.029	122.039	NORTHWEST OF AUSTRALIA	33	4.9		75.219
707	11	13	4	55	18.3	-5.812	127.689	BANDA SEA	411	4.7		83.930
708	11	13	7	8	21.0	-20.328	-177.979	FIJI ISLANDS REGION	550	4.5		86.896
709	11	13	9	16	3.9	-54.360	5.746	BOUVET ISLAND REGION	10	4.6		21.328
710	11	13	17	38	58.9	-21.572	-68.222	CHILE-BOLIVIA BORDER REGION	123	5.4		76.209
711	11	13	18	28	33.4	-14.516	167.086	VANUATU ISLANDS	200	4.6		88.857
712	11	14	4	38	19.4	8.698	93.950	NICOBAR ISLANDS, INDIA	33	5.1		86.134
713	11	14	11	43	26.1	-7.006	117.043	BALI SEA	500	4.7		79.004
714	11	14	15	3	12.0	-14.946	167.367	VANUATU ISLANDS	115	5.5		88.525
715	11	14	20	57	32.7	-14.797	-75.700	NEAR COAST OF PERU	33	4.3		84.960
716	11	14	23	7	57.3	-17.270	-69.402	PERU-BOLIVIA BORDER REGION	150	4.2		80.608
717	11	15	2	44	12.3	-21.589	-176.504	FIJI ISLANDS REGION	149	5.9		85.970
718	11	15	7	43	49.7	-38.358	-93.560	WEST CHILE RISE	10	4.7	4.7	67.495
719	11	15	8	23	8.6	-9.344	-71.292	PERU-BRAZIL BORDER REGION	596	4.7		88.641
720	11	15	13	27	4.0	-60.275	-47.477	SCOTIA SEA	10	5.3	5.0	35.122
721	11	15	13	30	33.6	-21.546	169.802	LOYALTY ISLANDS REGION	33	4.6	4.9	82.874
722	11	17	3	16	8.7	-26.830	-113.290	EASTER ISLAND REGION	10	5.4	5.5	82.402
723	11	17	3	57	58.9	7.666	-82.780	SOUTH OF PANAMA	17	5.2	5.5	108.350
724	11	17	17	8	2.3	-21.695	-179.131	FIJI ISLANDS REGION	600	5.1		85.330
725	11	18	1	38	9.9	-2.941	127.514	CERAM SEA	33	4.8		86.526

726	11	18	11	40	39.3	-20.932	168.597	LOYALTY ISLANDS	33	5.0	4.6	83.147
727	11	18	15	48	40.8	-3.315	130.766	SERAM, INDONESIA	33	5.3	5.7	87.351
728	11	18	16	30	4.5	-26.881	26.757	REPUBLIC OF SOUTH AFRICA	5	4.8		42.837
729	11	18	21	43	45.2	-32.319	179.453	SOUTH OF KERMADEC ISLANDS	500	4.5		74.745
730	11	19	1	20	10.5	-23.683	-64.537	JUJUY PROVINCE, ARGENTINA	33			73.025
731	11	19	12	3	3.1	-9.087	124.715	TIMOR REGION, INDONESIA	33	4.8		79.827
732	11	19	12	3	47.4	5.167	126.143	MINDANAO, PHILIPPINE ISLANDS	89	5.5		93.547
733	11	19	20	50	31.4	1.681	126.543	NORTHERN MOLUCCA SEA	33	5.5	5.1	90.460
734	11	20	18	14	32.7	-28.364	-112.814	EASTER ISLANDS REGION	10	4.8	5.0	80.825
735	11	20	21	23	38.1	-16.291	-178.088	FIJI ISLANDS REGION	438	5.2		90.790
736	11	21	6	5	21.6	-7.002	128.600	BANDA SEA	33	4.8	4.3	83.156
737	11	21	9	34	27.2	-24.045	179.975	SOUTH OF FIJI ISLANDS	516	4.8		82.865
738	11	21	9	45	42.2	-4.313	143.120	NEW GUINEA, PAPUA NEW GUINEA	100	4.8		90.823
739	11	21	16	59	47.9	49.233	89.186	RUSSIA-MONGOLIA BORDER REGION	10	5.2	4.7	123.460
740	11	22	5	44	57.6	-4.920	152.314	NEW BRITAIN REGION, P.N.G.	73	5.0		93.394
741	11	22	17	49	21.6	-26.963	-176.405	SOUTH OF FIJI ISLANDS	33	4.6		80.762
742	11	22	22	27	54.3	-24.160	-67.139	CHILE-ARGENTINA BORDER REGION	184	4.1		73.446
743	11	23	0	22	36.8	-7.626	117.236	BALI SEA	272	4.4		78.498
744	11	23	3	23	31.8	-58.985	-26.240	SOUTH SANDWICH ISLANDS REGION	112	4.4		29.023
745	11	23	9	30	19.1	-23.716	-70.512	NEAR COAST OF NORTHERN CHILE	33	5.5	5.2	74.955
746	11	23	12	15	50.4	-18.184	-174.974	TONGA ISLANDS	209	5.2		89.583
747	11	23	18	51	52.6	-30.668	-178.715	KERMADEC ISLANDS, NEW ZEALAND	354	4.5		76.713
748	11	23	19	48	10.2	37.979	141.479	NEAR EAST COAST OF HONSHU, JAPAN	79	5.4		129.070
749	11	24	1	6	11.7	-22.625	-69.243	NORTHERN CHILE	80	5.3		75.562
750	11	24	21	24	31.8	-16.000	-172.703	SAMOA ISLANDS REGION	33	5.2	5.4	92.143
751	11	24	23	54	46.1	-16.515	-174.751	TONGA ISLANDS	223	5.4		91.251
752	11	25	0	57	12.5	-24.427	-179.688	SOUTH OF FIJI ISLANDS	500	4.7		82.566
753	11	25	17	42	45.2	-20.539	-174.360	TONGA ISLANDS	33	4.2		87.407

754	11	25	18	5	25.7	-7.859	158.622	SOLOMON ISLANDS	48	5.9	5.0	92.666
755	11	25	23	44	30.0	-23.126	-179.559	SOUTH OF FIJI ISLANDS	600	4.7		83.853
756	11	26	1	51	12.0	-32.774	-179.281	SOUTH OF KERMADEC ISLANDS	33	4.4		74.559
757	11	26	8	55	58.9	-13.714	167.148	VANUATU ISLANDS	250	4.5		89.638
758	11	26	9	56	1.4	-9.321	121.409	SAVU SEA	81	4.9		78.421
759	11	26	13	13	4.9	-5.548	147.339	EASTERN NEW GUINEA REG., P.N.G.	156	5.1		91.131
760	11	26	18	49	24.4	-3.342	130.851	SERAM, INDONESIA	33	4.8		87.357
761	11	26	19	49	53.7	40.624	-122.406	NORTHERN CALIFORNIA	23	5.0	4.9	149.978
762	11	27	0	43	48.0	40.667	-125.384	OFF COAST OF NORTHERN CALIFORNIA	5	5.4	5.2	150.487
763	11	27	4	8	39.8	-32.695	-71.843	NEAR COAST OF CENTRAL CHILE	29	4.3		67.017
764	11	27	7	36	15.4	-34.680	179.990	SOUTH OF KERMADEC ISLANDS	93	5.2		72.568
765	11	27	8	53	34.2	-29.238	-177.120	KERMADEC ISLANDS, NEW ZEALAND	33	5.2	5.4	78.413
766	11	27	10	27	2.8	-32.140	-69.328	MENDOZA PROVINCE, ARGENTINA	127	5.2		66.749
767	11	27	13	26	36.0	-28.978	-177.026	KERMADEC ISLANDS REGION	33	5.1	5.2	78.684
768	11	28	9	58	9.9	-7.589	-74.416	PERU-BRAZIL BORDER REGION	149	5.3		91.315
769	11	28	15	21	5.0	-15.363	172.964	VANUATU ISLANDS REGION	33	5.4	5.5	89.605
770	11	28	18	39	27.4	-28.830	-177.370	KERMADEC ISLANDS REGION	200	4.4		78.761
771	11	28	20	27	40.8	-56.143	-27.291	SOUTH SANDWICH ISLANDS REGION	150	4.3		31.547
772	11	28	21	27	13.6	-28.870	-177.045	KERMADEC ISLANDS REGION	125	4.7		78.785
773	11	29	10	35	25.0	-28.695	-177.144	KERMADEC ISLANDS REGION	100	4.9		78.936
774	11	29	14	10	31.9	-2.071	124.891	CERAM SEA	33	6.5	7.7	86.388
775	11	29	17	32	32.5	-1.909	124.708	SOUTHERN MOLUCCA SEA	33	5.7		86.473
776	11	30	15	48	43.6	-1.894	124.609	SOUTHERN MOLUCCA SEA	33	5.1	4.3	86.451
777	11	30	18	16	26.2	-15.460	-71.962	SOUTHERN PERU	53	4.8		83.138
778	11	30	20	58	36.2	-5.875	151.262	NEW BRITAIN REGION, P.N.G.	33	5.5	5.6	92.149
779	12	1	2	0	14.6	-1.864	124.570	SOUTHERN MOLUCCA SEA	33	5.0		86.465
780	12	1	10	38	45.5	53.099	-164.338	UNIMAK ISLAND REGION	22	5.6	4.8	160.518
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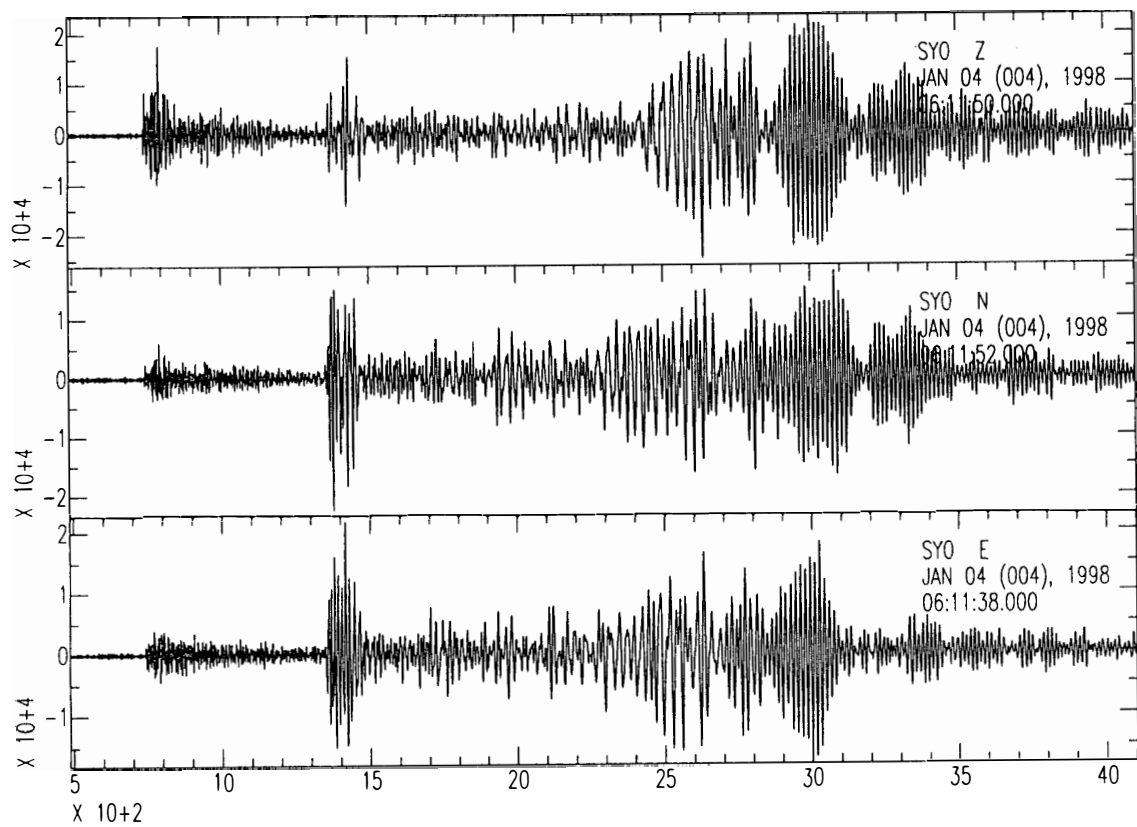
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784	12	2	7	14	40.0	-33.507	-109.309	SOUTHERN EAST PACIFIC RISE	10	5.0		75.239
785	12	2	16	20	14.9	-33.023	-179.023	SOUTH OF KERMADEC ISLANDS	33	5.1		74.368
786	12	2	23	41	17.8	-9.144	67.459	MID-INDIAN RIDGE	10	5.0	5.2	62.496
787	12	3	20	34	25.1	-30.287	-178.233	KERMADEC ISLANDS, NEW ZEALAND	33	5.1		77.178
788	12	4	18	29	51.9	-55.611	-28.274	SOUTH SANDWICH ISLANDS REGION	33	5.1		32.310
789	12	4	21	49	24.8	52.096	-169.392	FOX ISLANDS, ALEUTIAN ISLANDS	33	5.1	4.7	158.219
790	12	5	1	12	47.6	52.121	-169.412	FOX ISLANDS, ALEUTIAN ISLANDS	33	5.4	5.5	158.235
791	12	5	4	45	15.5	-4.328	125.915	BANDA SEA	416	4.9		84.665
792	12	5	7	19	27.0	-59.677	-26.840	SOUTH SANDWICH ISLANDS REGION	33	5.2	5.3	28.726
793	12	5	18	46	2.8	-50.683	139.318	SOUTH OF AUSTRALIA	10	4.6	4.6	47.077
794	12	6	0	47	13.4	1.253	126.198	NORTHERN MOLUCCA SEA	33	6.3	6.2	89.939
795	12	6	7	22	3.9	-3.071	130.493	SERAM, INDONESIA	33	4.7	4.4	87.479
796	12	6	10	57	22.5	-34.280	-72.316	NEAR COAST OF CENTRAL CHILE	33	4.7		65.690
797	12	6	17	22	11.6	-23.771	-68.029	NORTHERN CHILE	65	4.6		74.099
798	12	6	23	31	0.9	-21.059	-179.133	FIJI ISLANDS REGION	600	4.9		85.946
799	12	7	15	53	29.5	-5.157	102.957	SOUTHERN SUMATERA, INDONESIA	49	5.2	4.6	75.867
800	12	7	23	37	6.6	-8.344	121.450	FLORES REGION, INDONESIA	33	5.5	5.4	79.340
801	12	8	5	46	36.2	-34.147	179.779	SOUTH OF KERMADEC ISLANDS	33	4.9		73.042
802	12	9	6	22	16.2	-5.793	105.724	SUNDA STRAIT	126	4.6		76.197
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804	12	11	8	37	51.1	-31.073	-68.833	SAN JUAN PROVINCE, ARGENTINA	118	5.5		67.581
805	12	12	9	50	42.7	-7.570	107.786	JAWA, INDONESIA	33	5.1		75.240
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812	12	15	9	51	42.2	-12.236	166.887	SANTA CRUZ ISLANDS	223	4.7		90.973
813	12	15	23	42	50.5	-33.265	-70.275	CHILE-ARGENTINA BORDER REGION	107	4.5		66.004
814	12	16	13	41	45.0	48.549	156.127	EAST OF KURIL ISLANDS	33	5.1	4.4	143.521
815	12	16	16	14	58.0	1.285	126.131	NORTHERN MOLUCCA SEA	33	5.3	4.3	89.945
816	12	16	17	45	5.4	1.181	126.159	NORTHERN MOLUCCA SEA	33	6.1	5.8	89.858
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818	12	17	13	11	35.4	-8.316	118.549	SUMBAWA REGION, ONDONESIA	183	5.0		78.327
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821	12	19	8	32	7.8	-6.590	152.864	NEW BRITAIN REGION, P.N.G.	33	5.0	4.4	92.010
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825	12	20	20	51	53.6	-4.796	101.938	SOUTHERN SUMATERA, INDONESIA	33	5.1	4.8	75.870
826	12	21	2	30	8.0	0.620	125.747	NORTHERN MOLUCCA SEA	78	4.8		89.190
827	12	21	13	24	14.3	-3.475	135.510	IRIAN JAYA REGION, INDONESIA	33	5.0	4.3	88.907
828	12	21	16	1	2.7	-6.260	154.743	SOLOMON ISLANDS	93	4.9		92.934
829	12	22	10	6	24.6	-25.635	-176.178	SOUTH OF FIJI ISLANDS	33	4.9	4.8	82.098
830	12	22	22	7	53.9	-25.159	179.627	SOUTH OF FIJI ISLANDS	518	5.1		81.712
831	12	24	11	15	44.4	-3.637	131.221	IRIAN JAYA REGION, INDONESIA	33	5.3	5.3	87.217
832	12	24	16	4	46.5	-25.641	-177.534	SOUTH OF FIJI ISLANDS	200	4.2		81.827
833	12	24	23	49	20.3	-56.039	-27.799	SOUTH SANDWICH ISLANDS REGION	104	4.4		31.808
834	12	25	14	26	20.7	-11.633	-77.213	NEAR COAST OF PERU	67	5.0		88.413
835	12	25	17	45	34.8	-33.050	-179.320	SOUTH OF KERMADEC ISLANDS	78	5.0	5.2	74.284
836	12	26	0	47	45.1	-16.102	-71.517	SOUTHERN PERU	113	4.6		82.393
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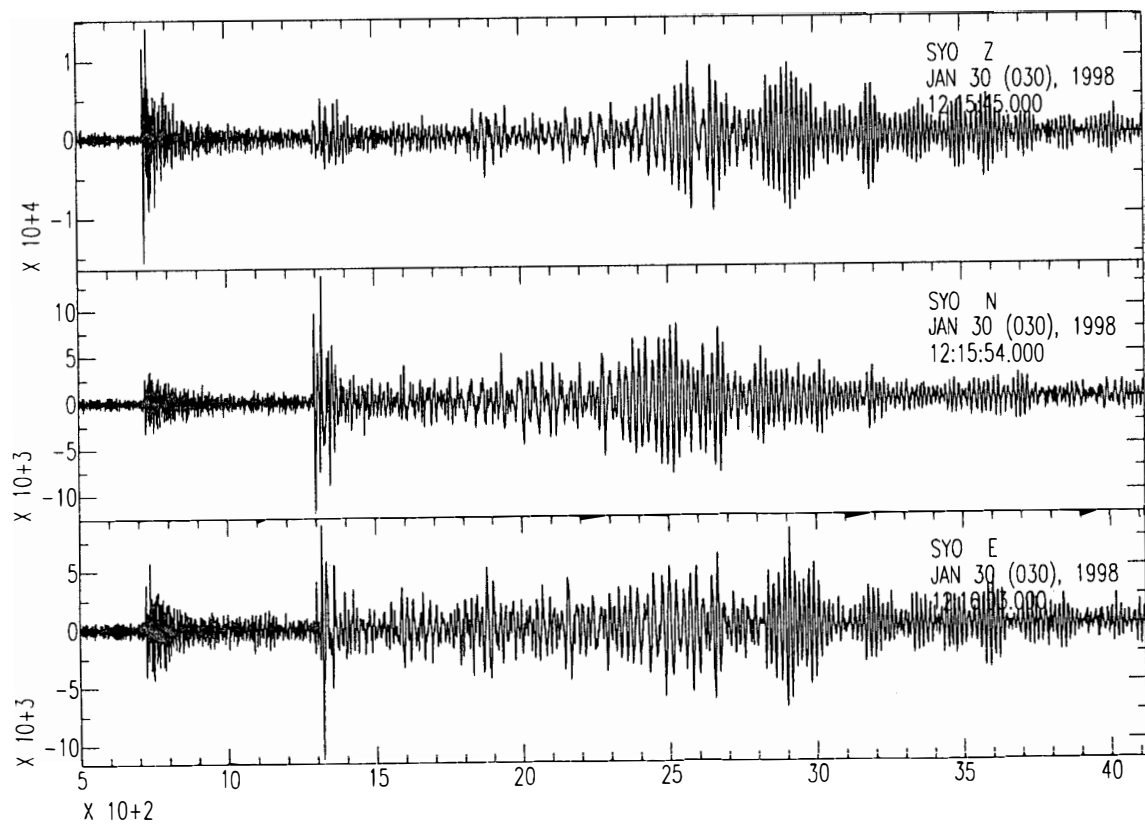
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840	12	26	12	14	37.4	-56.483	-27.366	SOUTH SANDWICH ISLANDS REGION	110	5.4		31.311
841	12	26	15	39	7.8	-1.364	123.644	SULAWESI, INDONESIA	33	5.4	5.6	86.596
842	12	27	0	38	26.7	-21.632	-176.376	FIJI ISLANDS	144	6.1		85.953
843	12	27	17	54	11.1	-6.708	129.214	BANDA SEA	252	4.8		83.650
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845	12	28	20	54	11.8	-55.563	-2.135	SOUTHERN MID-ATLANTIC RIDGE	10	4.5		23.007
846	12	30	15	59	39.6	-32.031	88.273	BROKEN RIDGE	10	5.2	4.6	46.019
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APPENDIX 1

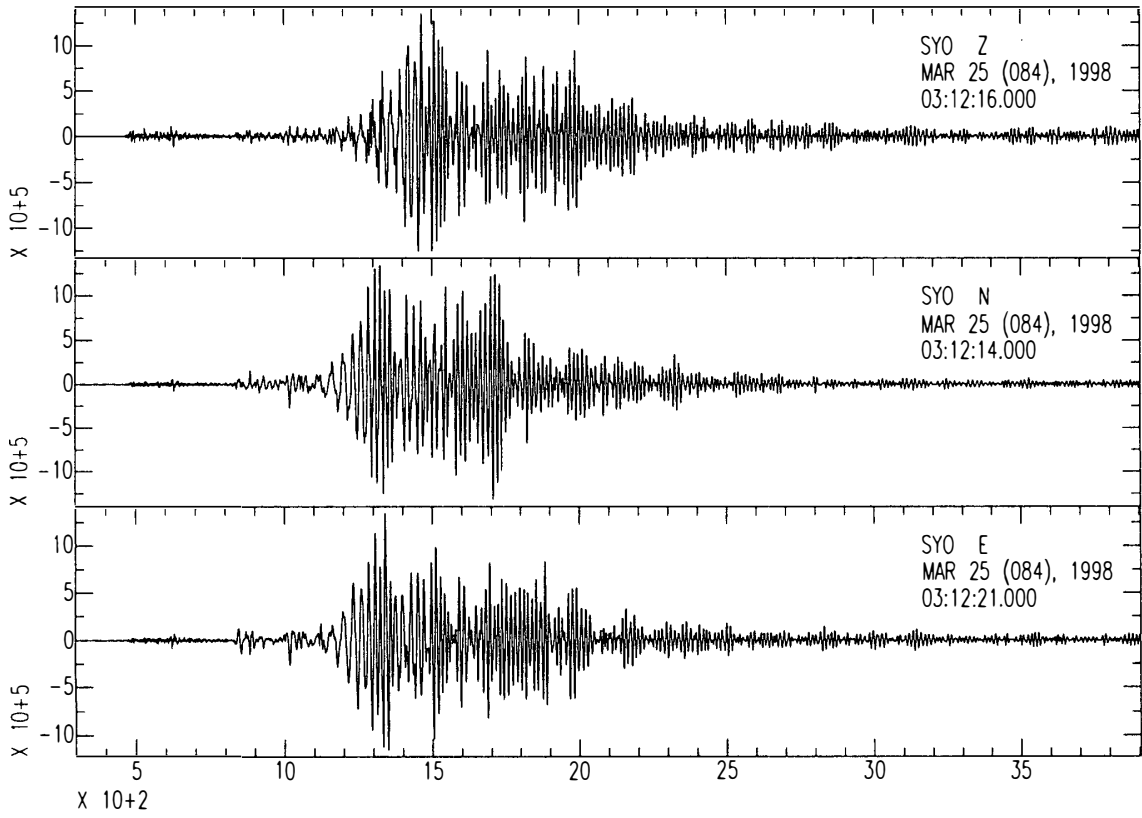
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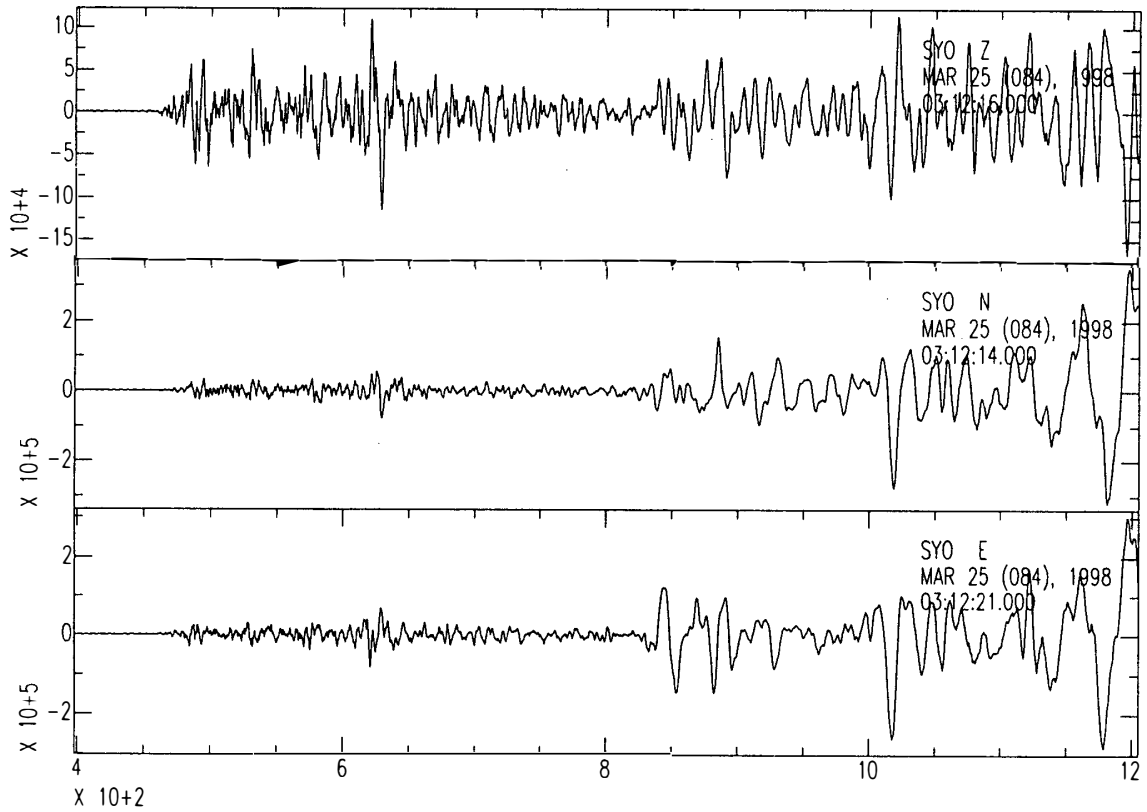
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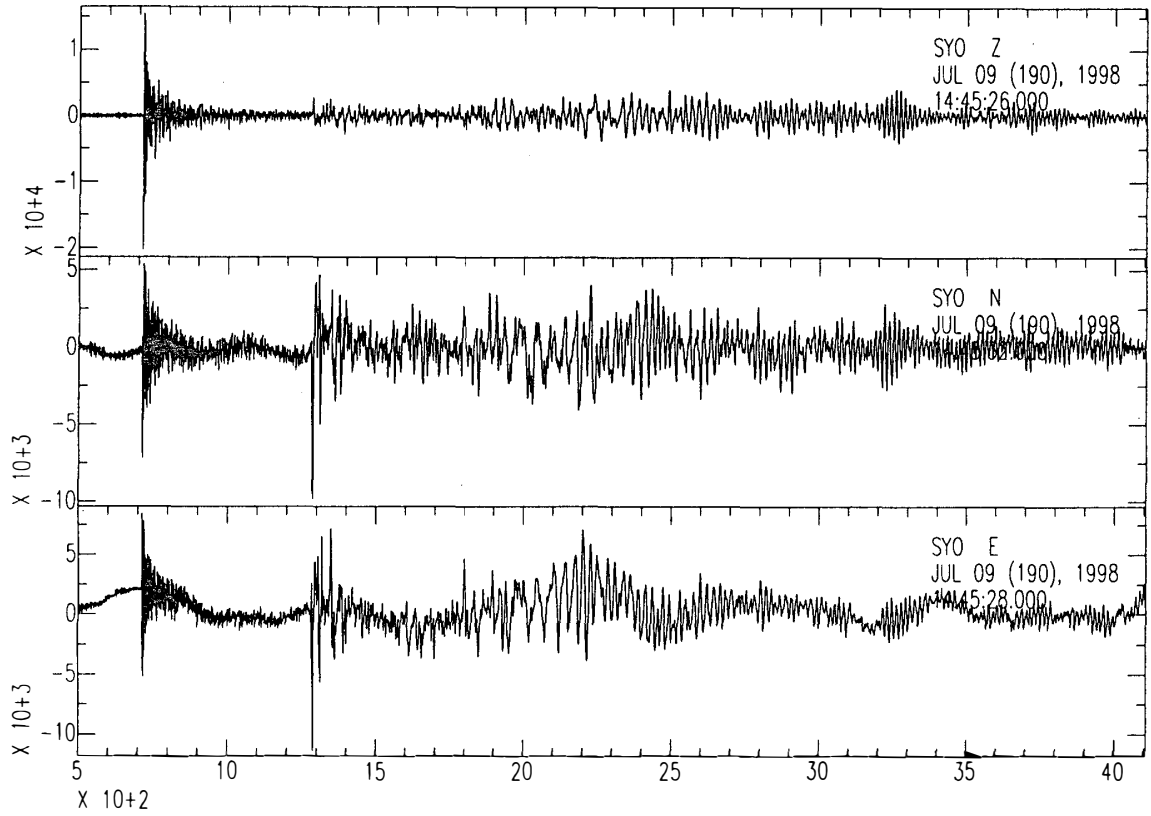
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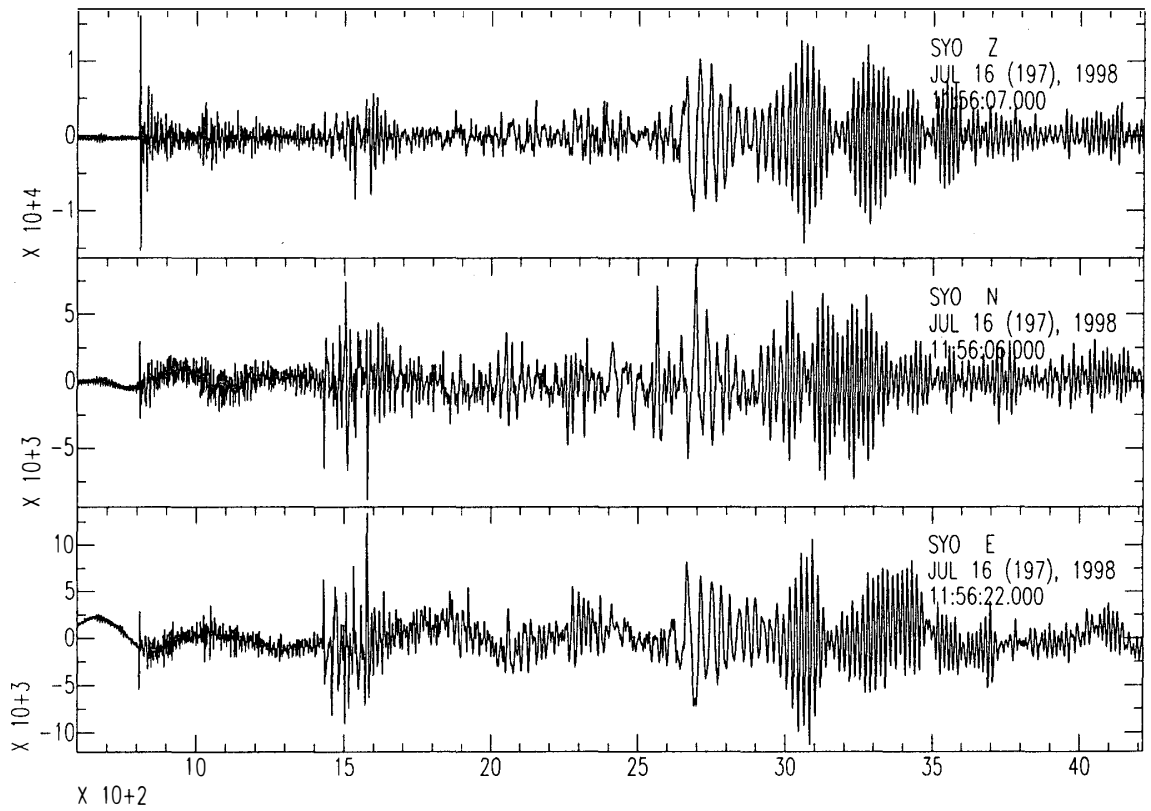
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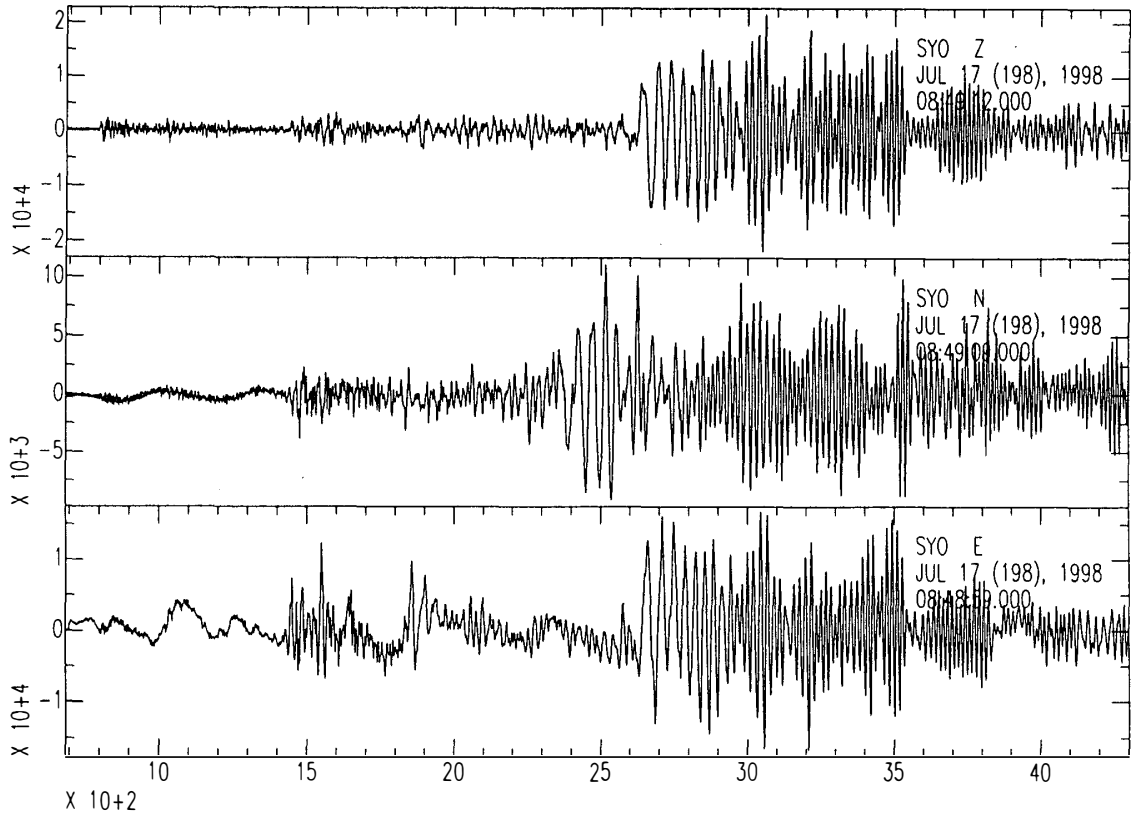
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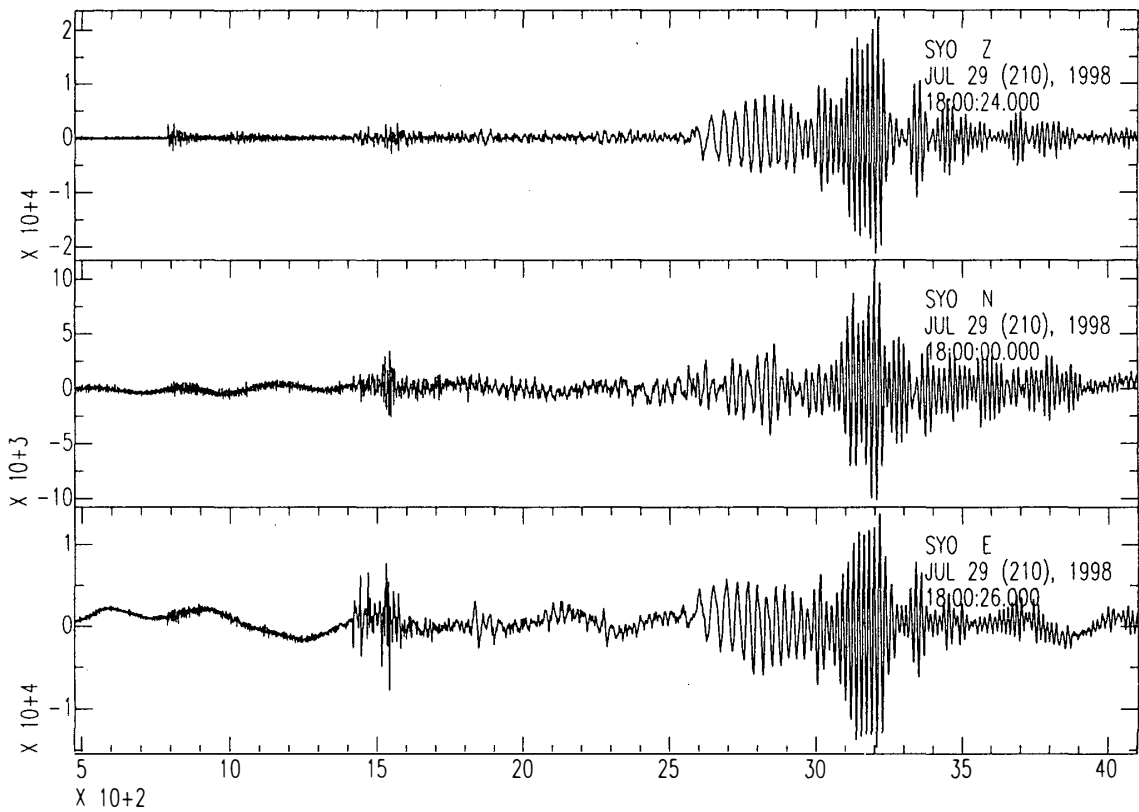
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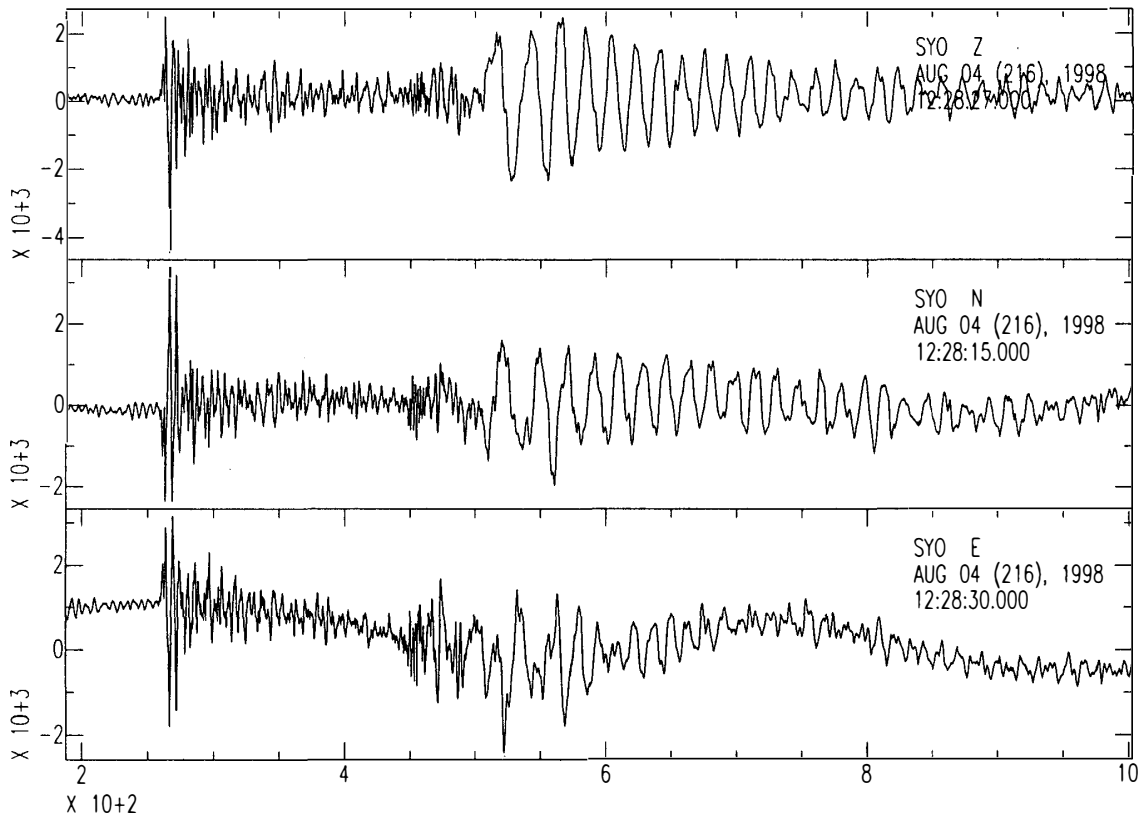
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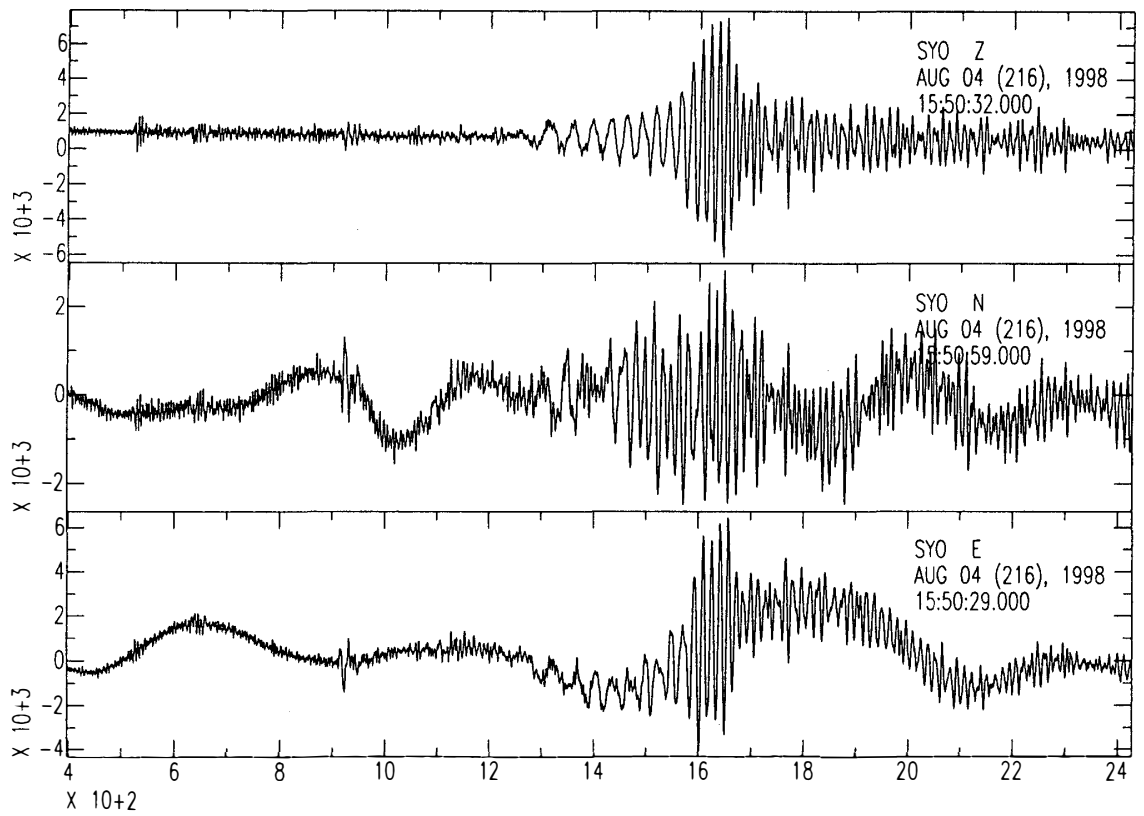
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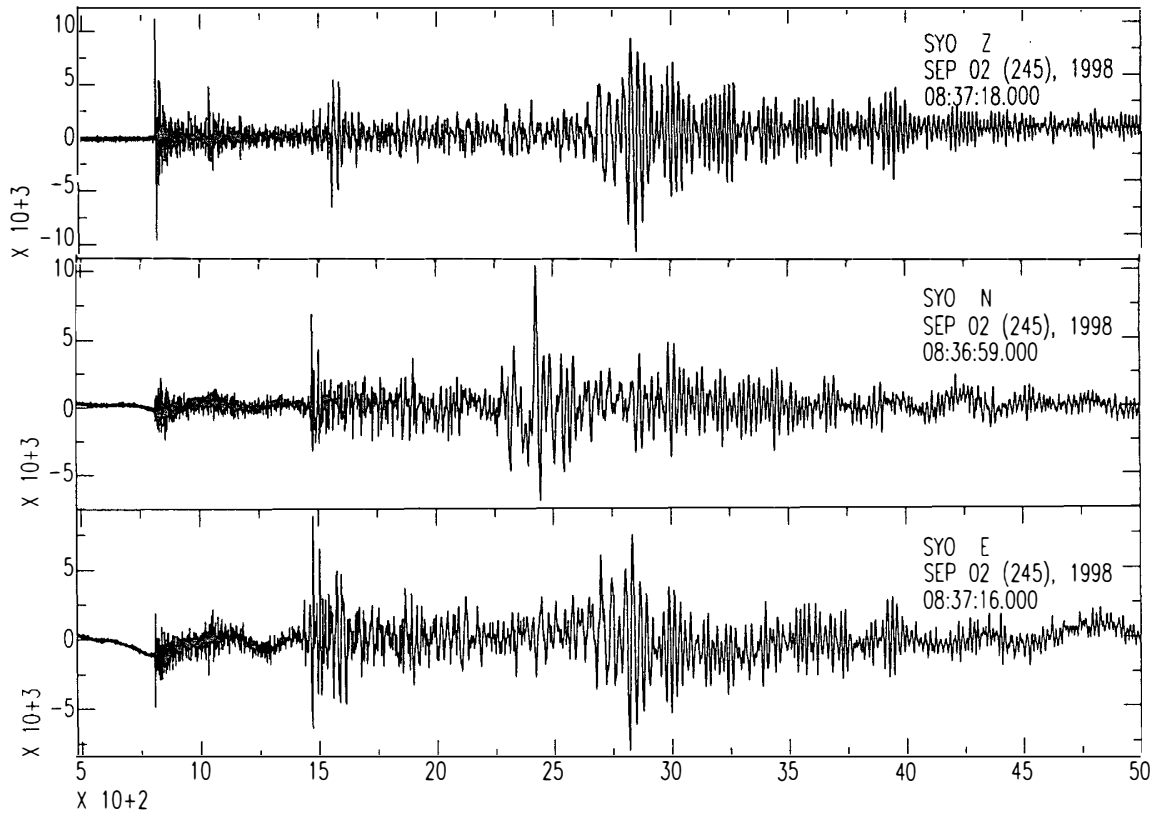
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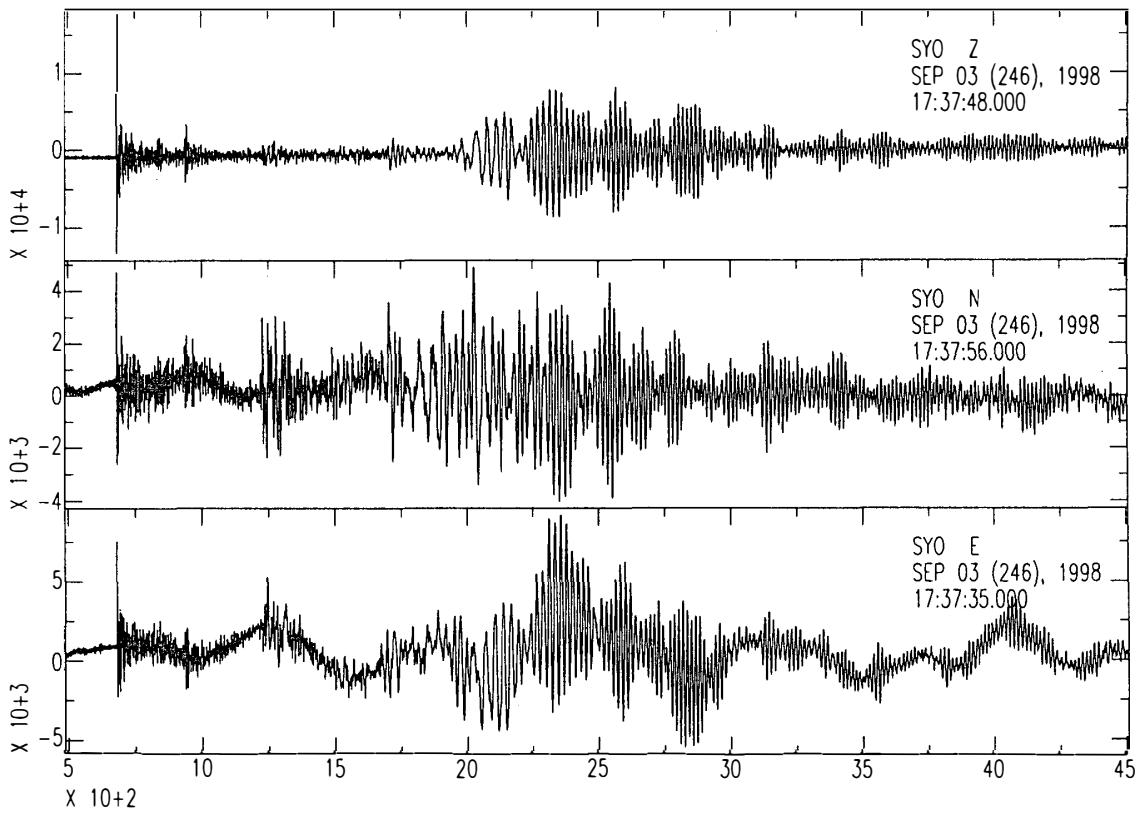
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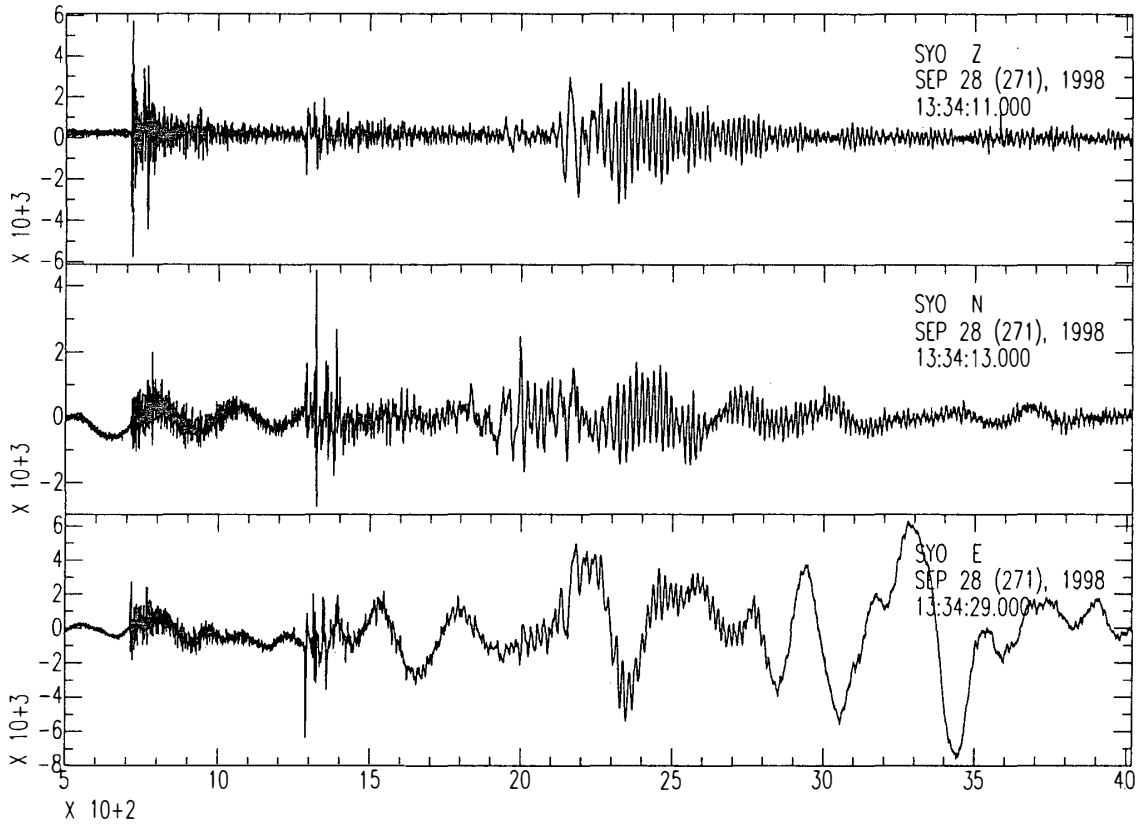
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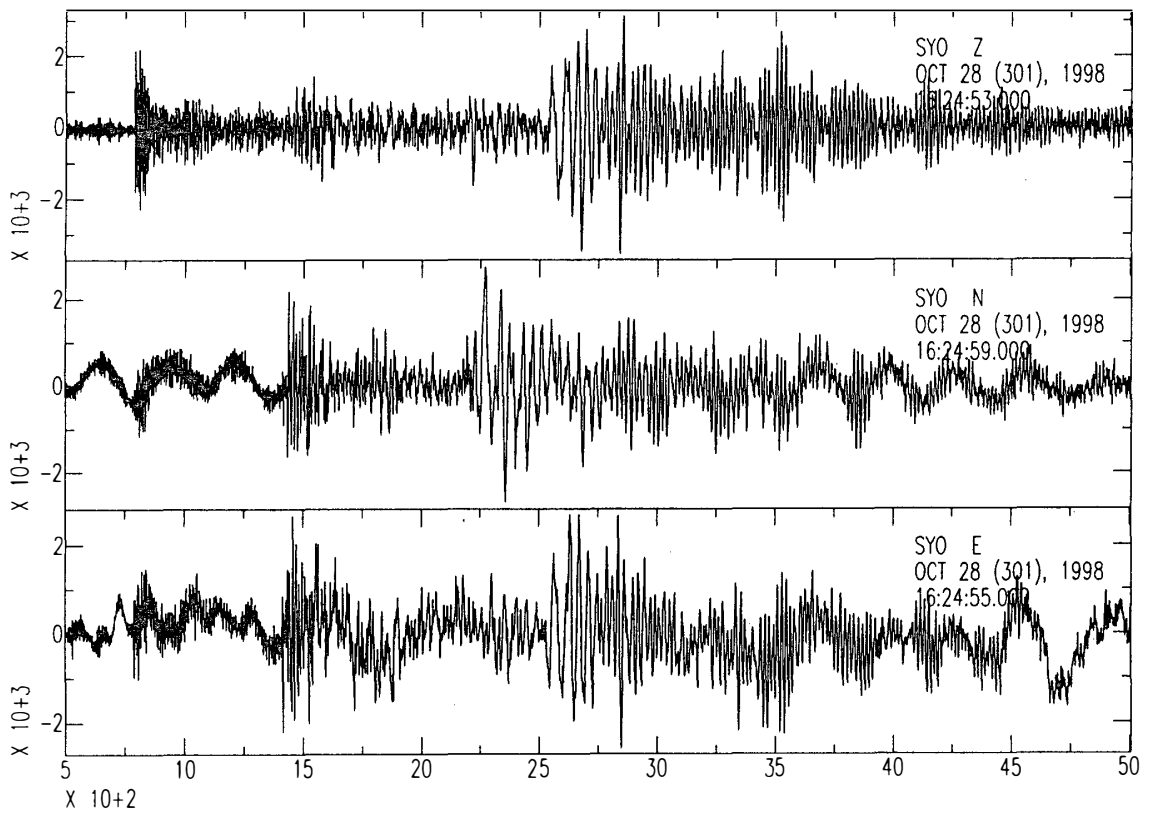
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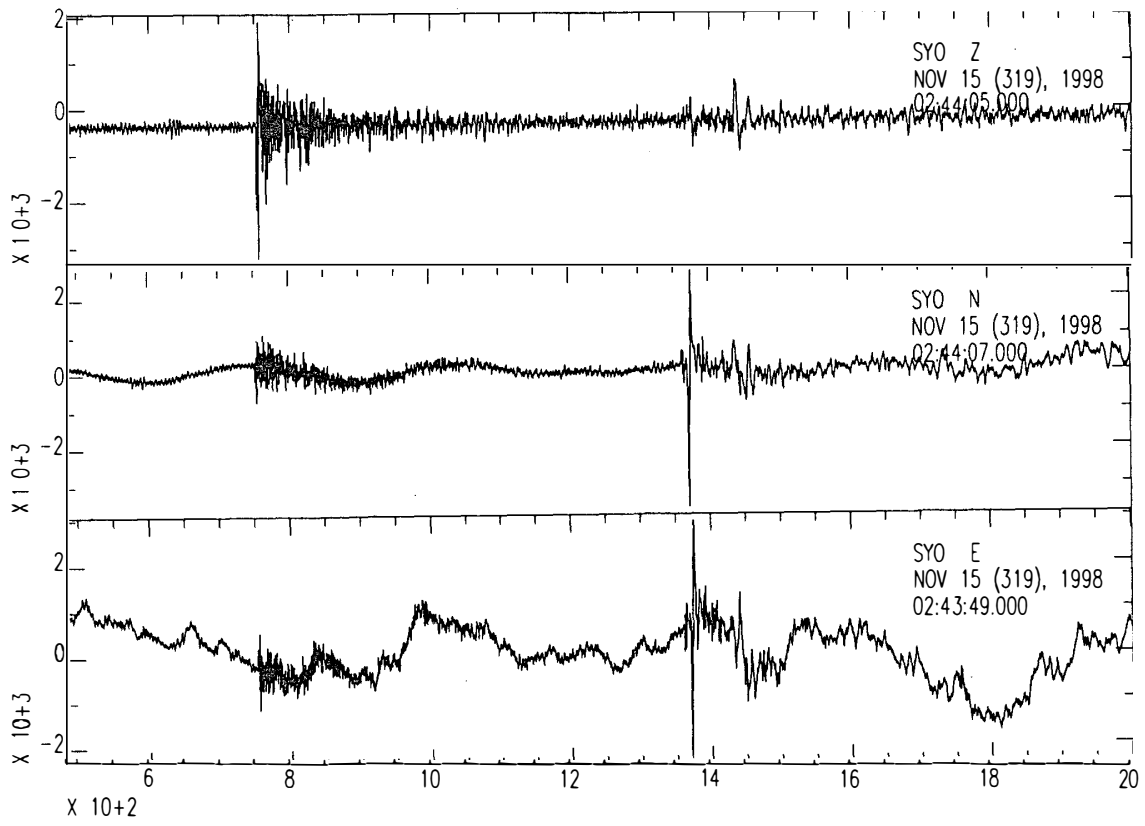
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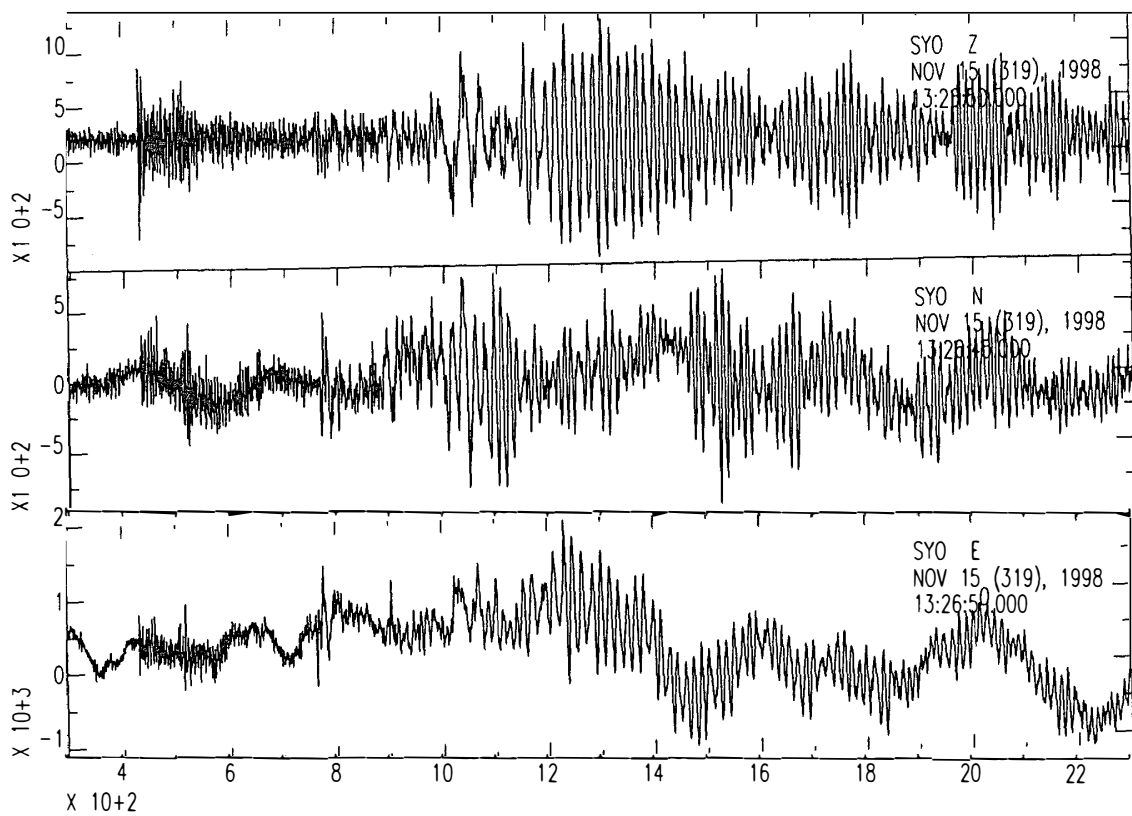
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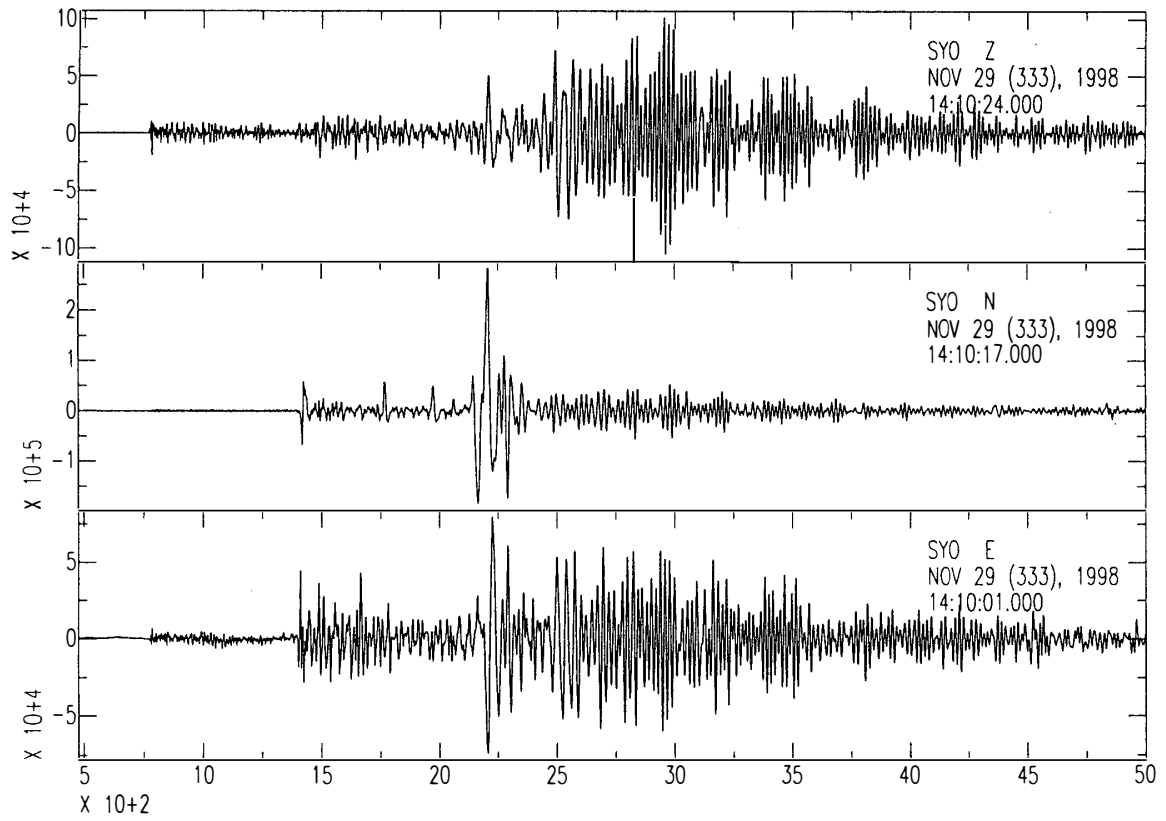
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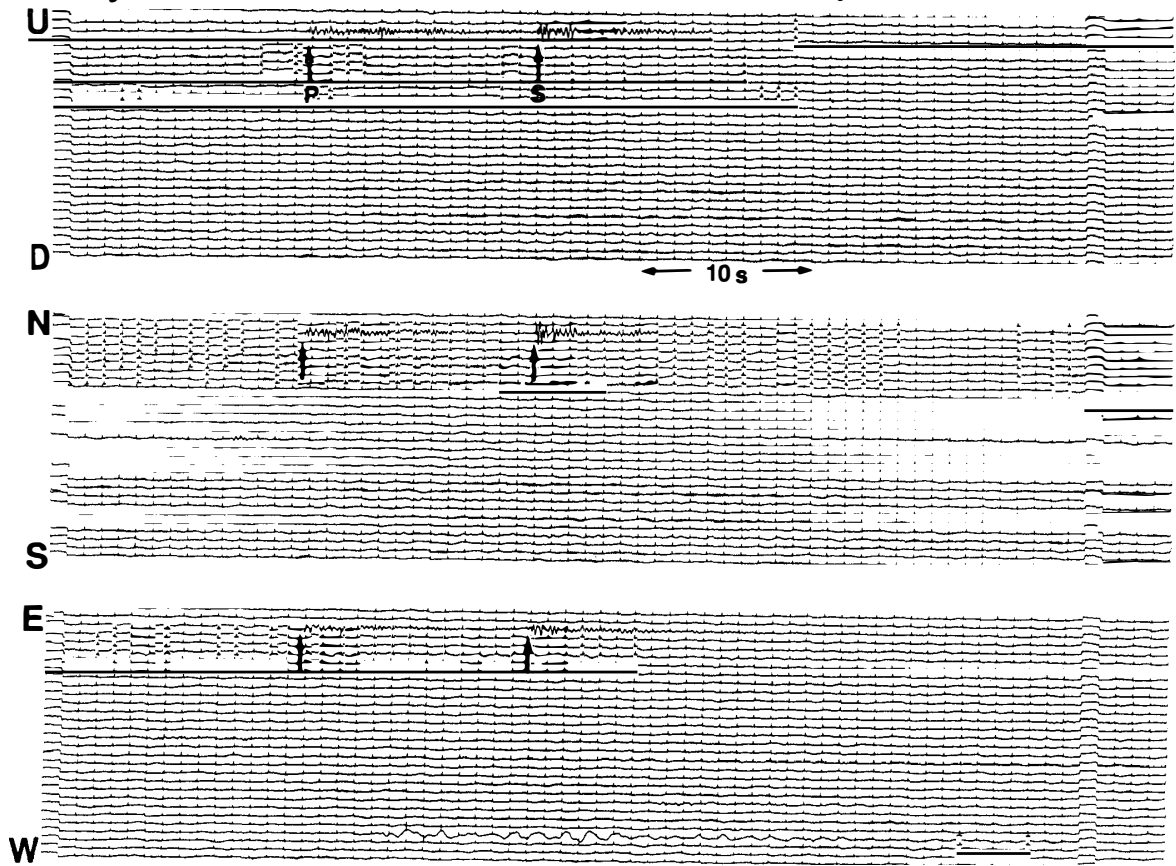
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APPENDIX 2

Syowa Station

September 16, 1998



Syowa Station

November 18, 1998

