

SEISMOLOGICAL BULLETIN OF SYOWA STATION, ANTARCTICA, 1997

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1. Introduction

Seismic observations at Syowa Station (69.0° S, 39.6° E), East Antarctica started using a short-period seismometer with a 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 Center (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 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 the author throughout the wintering season of the 38 Japanese Antarctic Research Expedition (JARE-38) in 1997. He also scaled the events and reported to the International Seismological Center (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 author at the end of the wintering season of JARE-38. The block diagram of the new recording system is illustrated in Fig. 1. Details in the seismographic hut and the recording laboratory are described as below.

2.1. New seismographic hut and seismographs

Seismic observations at Syowa Station have 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 the JARE-38 season because of a superannuating for inner side of the vault by continuous flow in 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 by JARE-37. 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, then the sensor room was covered doubly by adiabatic walls, with a surface covered by Titanium to keep the 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 cables were 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

The old systems using personal computers are as follows (Kanao and Kaminuma, 1994; Kaminuma *et al.*, 1997). A set of STS-1 seismometers has wide dynamic-range of 140 dB and three outputs of different frequency characteristics. BRB is characterized by a flat frequency response over 0.1-360 s and is digitized at 20 Hz sampling by a 24-bit analog-to-digital (A/D) converter. The Long-Period output (LP) has a flat response to acceleration for longer periods than 20 s and is A/D converted to 7.5 digits at 3.0 s sampling intervals. These old digital recording system for the BRB and LP outputs were stopped in April 1997 and December 1997, respectively. 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, is also kept to be analog-monitored with parallel input of a temperature in the sensor room.

The new acquisition system have some advantages comparing to the old one. 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 a 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 the kind of 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 of the STS-1 sensors can also be carried out by a keyboard command 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).

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 the National Earthquake Information Center (NEIC) of United States Geological Survey (USGS) 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 since 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 3.4.) 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 while *X* denotes the clear phase whose wave type can be identified within 3-10 s difference by comparing the observed travel time with that of calculated one. 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 413 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 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. 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 (Kaminuma et al., 1997). They are stored in the directories under /pub/HYP0, /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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Block diagram of recording system

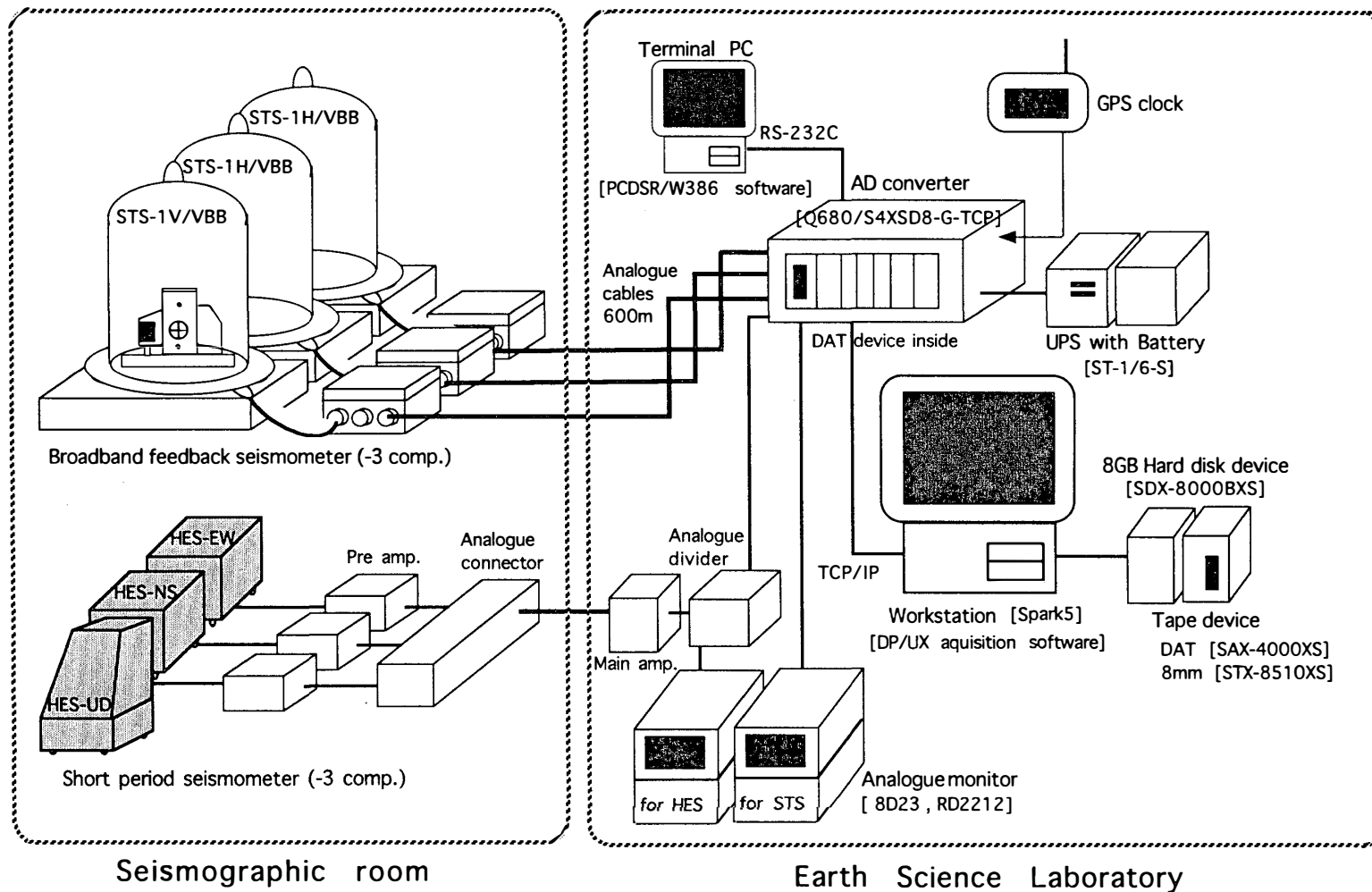


Fig. 1. Block diagram of new recording system for the STS and HES seismographs at Syowa Station.

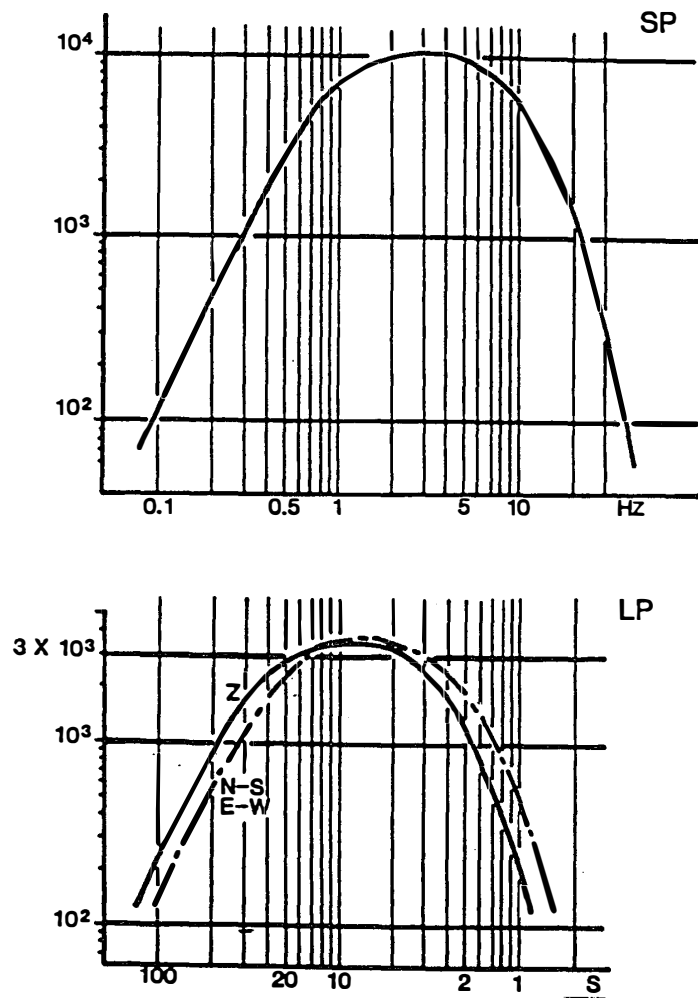


Fig. 2. Over-all frequency responses of the short- and long-period seismographs.

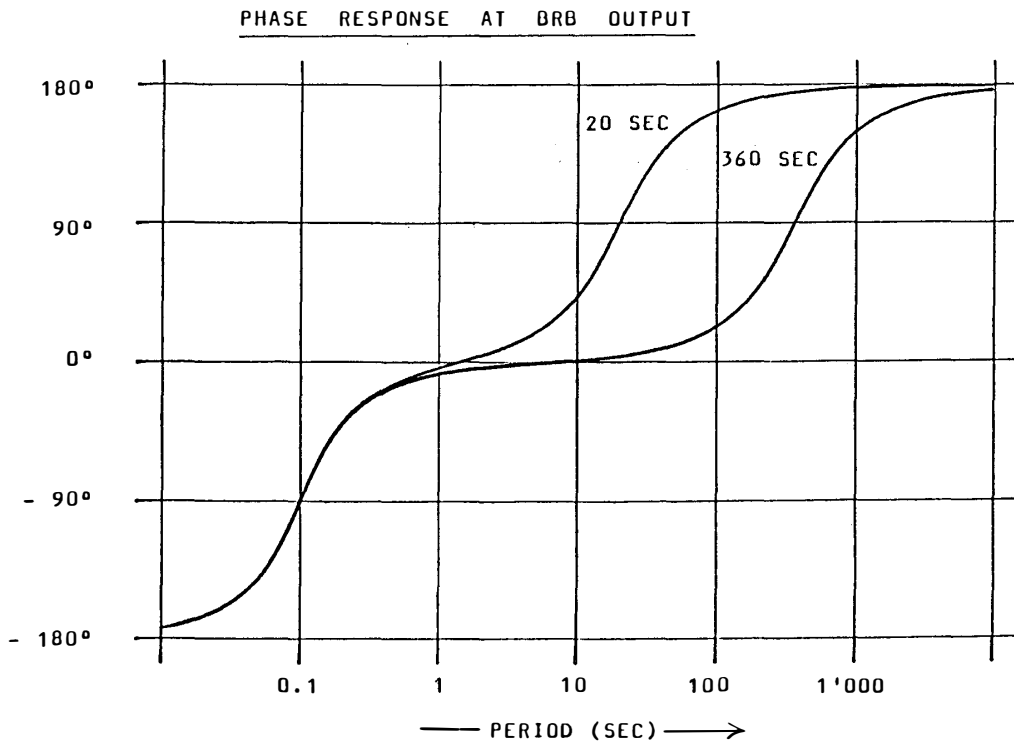
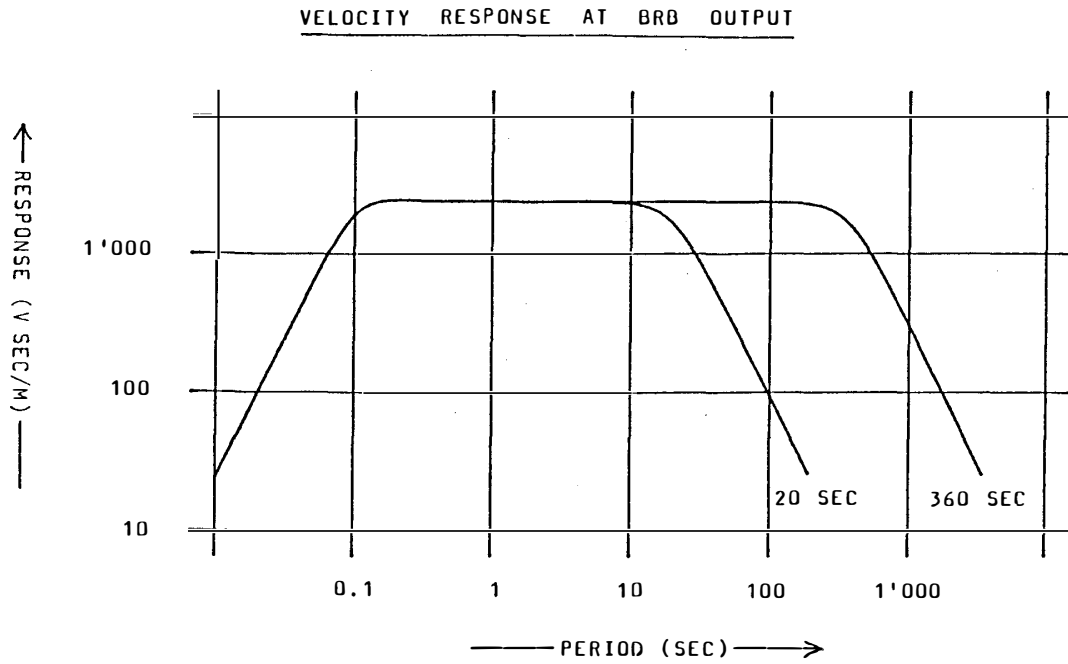


Fig. 3. Amplitude responses (upper figure) and phase responses (lower figure) for the velocity (BRB) output of the broadband seismograph (STS) in the two distinct signal modes of 20-s and 360-s (after Streckeisen and Messergeraete, 1987).

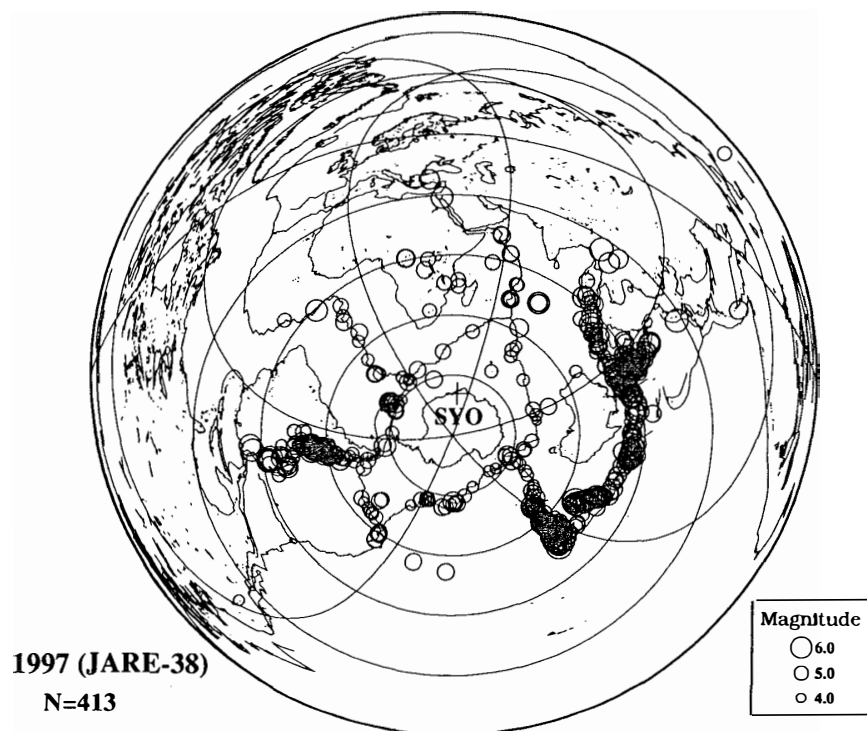
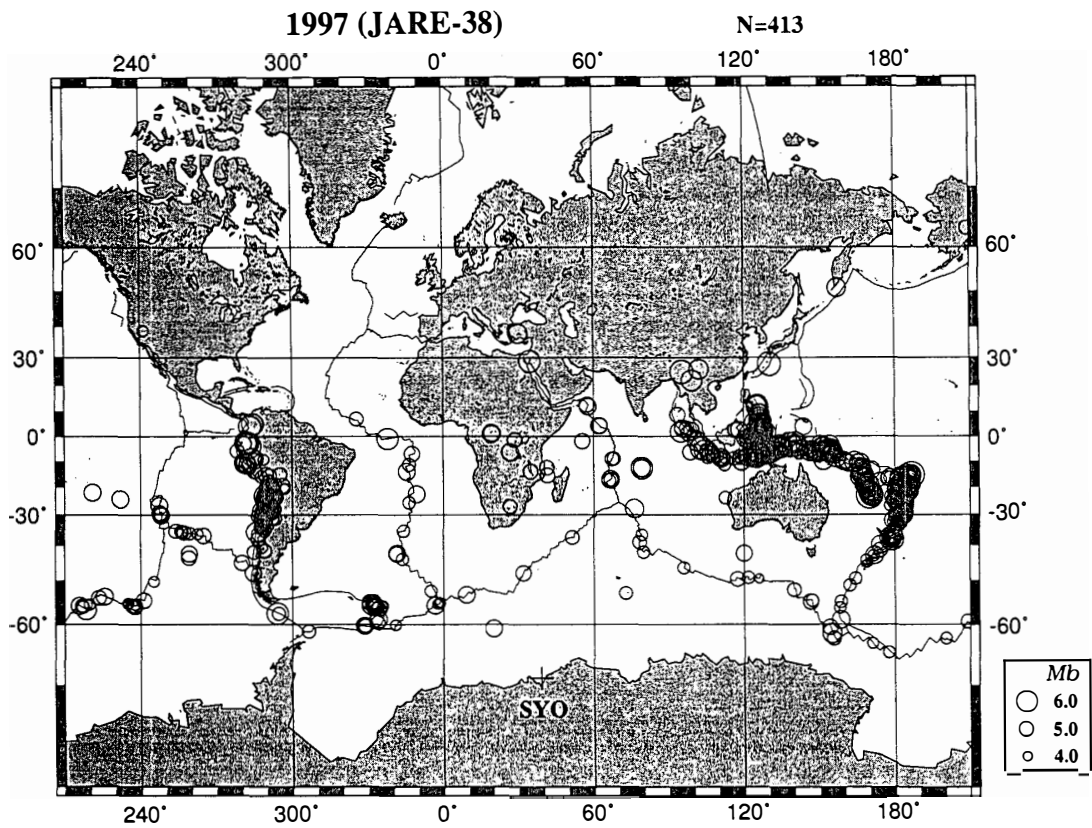


Fig. 4. Epicenters of the 413 earthquakes recorded at Syowa Station. The sizes of earthquake circles are proportional to the body-wave magnitude (M_b) determined by the National Earthquake Information Center (NEIC).

Table 1. List of phase arrival-time data.

Date	Phase	UTC time	Remarks	Date	Phase	UTC time	Remarks
		h m s				h m s	
JAN.01	-EPZ	1158 25.2			-EPZ	1813 45.2	#-21
	-EXZ	1505 31.4	#-1	08	-EPZ	1008 31.1	#-22
	+EPZ	2008 35.5	#-2		-EPZ	2305 08.7	#-23
	+IPZ	2245 10.3	#-3	09	+EPZ	0842 00.8	#-24
	ESH	2255 43.0			+EPZ	1153 59.7	#-25
02	-EPZ	1105 21.4	#-4		-EPZ	1527 15.3	#-26
	-EPZ	1244 07.0	#-5		ESH	1536 50.0	
	+EPZ	1833 14.2	#-6	10	-EPZ	0820 34.4	#-27
	-EPZ	2109 15.7	#-7		-EPZ	0858 08.7	#-28
	+EPZ	2143 10.9			-EPZ	1354 54.8	#-29
	-EXZ	2224 30.5	#-8		-EPZ	1844 26.7	#-30
03	+EPZ	0411 00.2	#-9		+EPZ	1953 43.9	#-31
	ESH	0421 34.4		11	+EXZ	1447 55.5	#-32
	-EPZ	0436 03.4	#-10		-EPZ	2047 23.2	
	+EPZ	1253 20.0	#-11		ESH	2057 18.1	
	-EPZ	2211 55.8			-EPZ	2100 01.5	
	-EPZ	2359 54.4			-EPZ	2100 42.0	
04	-EPZ	0913 47.3	#-12	12	-EPZ	0633 56.0	
	-EPZ	1010 22.4	#-13		-EPZ	0707 54.8	
	ESH	1022 01.0			-EPZ	0841 11.6	#-33
	+EXZ	1132 59.3	#-14	13	-EPZ	0112 03.3	
	-EPZ	1341 39.8	#-15		ESH	0122 02.4	
	-EPZ	1703 01.5	#-16		-EPZ	0708 54.0	
05	+EPZ	0029 37.6	#-17		+EPZ	2349 05.9	#-34
	-EPZ	1242 27.8	#-18	14	+EPZ	0832 31.4	
06	+EPZ	2022 27.6			-IPZ	0927 47.7	#-35
	+EPZ	2332 47.8	#-19		+EPZ	1052 09.4	
07	-EPZ	0422 12.7	#-20	15	-IPZ	1304 56.9	#-36

Date	Phase	UTC time	Remarks
		h m s	
16	+EXZ	1053 15.4	#-37
	-EPZ	2200 04.2	
17	-IPZ	1132 19.0	#-38
	ISH	1142 08.3	
	-EPZ	1202 15.3	
	+EPZ	1611 54.7	
	+EXZ	2126 35.1	#-39
	+IPZ	2330 52.2	#-40
18	-IPZ	0419 47.2	#-41
19	-EPZ	0238 07.4	#-42
	-EXZ	1042 38.0	#-43
	+EPZ	1106 15.8	#-44
	-EPZ	1507 17.4	#-45
	+EPZ	2141 01.5	#-46
	+EPZ	2202 28.3	#-47
	-EPZ	2354 18.2	#-48
20	+EPZ	0830 29.1	
	+EPZ	0845 11.6	#-49
	+EPZ	1733 29.7	#-50
	+EPZ	1849 26.2	
21	+EPZ	1109 27.8	
22	-EPZ	0436 37.6	#-51
	-EPZ	0737 08.5	
23	+EPZ	0104 07.7	#-52
	+IPZ	0226 33.7	#-53
	ISH	0235 50.5	
	+EPZ	0810 07.8	
24	-EPZ	0530 37.8	#-54

Date	Phase	UTC time	Remarks
		h m s	
25	+IPZ	0905 55.2	
	+IPZ	1117 17.2	#-55
	+EPZ	1209 51.8	
26	-EPZ	0817 55.9	
	-EPZ	1158 42.7	
	-EPZ	1453 57.5	#-56
27	+EPZ	0031 32.1	
	-EPZ	0349 20.2	
	-EPZ	1618 39.6	#-57
	+EPZ	1618 49.9	
28	+EPZ	1423 39.9	#-58
	-EPZ	1642 48.3	#-59
29	-EPZ	0155 25.8	
	+EPZ	1830 55.3	#-60
31	+EPZ	1603 50.3	
	+EPZ	2336 28.0	
Feb.04	+IPZ	0412 20.1	#-61
	-EPZ	1643 15.2	#-62
07	EPZ	0845 43.7	
	+IPZ	0854 03.0	#-63
08	-IPZ	0208 54.6	#-64
09	+IPZ	1245 12.4	#-65
	ESH	1255 44.2	
	+EPZ	1509 54.9	#-66
	+EPZ	1521 53.7	#-67
	+EPKP	1917 16.6	
	+IPZ	1917 27.3	
10	+IPZ	1102 41.0	#-68

Date	Phase	UTC time	Remarks	Date	Phase	UTC time	Remarks
		h m s				h m s	
	-IPcP	1103 16.5			+EPdiff	2121 53.6	
	EXZ	1618 29.7	#-69	28	+EPZ	0706 30.4	
	EPZ	1620 45.3		MAR.02	EPZ	1218 38.9	
	-EPZ	1937 21.3			+IPZ	1444 09.7	
12	-IPKPdf	0538 52.6			-EPZ	2018 09.4	#-80
14	-EPZ	1748 30.4	#-70	03	-EXZ	0246 34.4	#-81
	+EPZ	2349 50.9	#-71		-EPZ	1424 46.3	#-82
	EpP	2350 25.0	(the same above)		-EPZ	1818 39.0	#-83
	+EPcP	2352 38.9	(the same above)		-EXZ	2246 56.5	#-84
15	+EPZ	1222 46.5	#-72	04	+EPZ	0451 54.5	
17	-EPZ	2014 48.8			-EXZ	0752 11.4	#-85
	-EPZ	2027 49.5		05	-EPZ	1408 48.4	#-86
18	-EPZ	0455 12.0			-EPZ	1859 22.4	
19	-EPZ	1354 18.5	#-73	06	-EXZ	0247 26.2	#-87
20	-IPdiff	0811 10.0			-IPKPdf	0639 12.6	
22	EPZ	1535 24.2	#-74	07	-EPZ	0014 12.0	#-88
23	-EPZ	2006 31.3	#-75		-EXZ	0316 29.5	#-89
24	-EPZ	0202 21.2			-EPZ	0954 24.4	#-90
	-EPZ	0332 38.2			+EPZ	1947 27.5	#-91
	-EPZ	0349 37.8		09	-IPZ	1154 50.6	#-92
25	-EPZ	0347 43.6			-EPZ	2208 51.2	#-93
	-EPZ	1322 11.4		10	+EPZ	0404 06.4	#-94
	-EPZ	1419 22.2	#-76		-EPZ	1418 14.9	#-95
	-IPZ	1957 30.4	#-77	11	-EPZ	0325 41.6	#-96
26	-EPZ	1832 45.2			-IPZ	0537 49.2	
27	+EPZ	1303 46.3	#-78		-IPZ	1850 32.0	#-97
	pP	1303 57.9	(the same above)		-EPZ	1934 42.4	
	-EPZ	2027 30.5	#-79		ESH	1947 04.6	

Date	Phase	UTC time	Remarks	Date	Phase	UTC time	Remarks
		h m s				h m s	
12	+EPZ	1541 40.8	#-98	26	+EPKPdf	0228 54.2	
	-EPZ	2306 00.7	#-99		+EPZ	1831 31.0	#-114
13	-EPZ	0018 36.3	#-100	27	-EPZ	2009 22.8	
	-EPZ	0548 04.8			+EPZ	2354 25.5	#-115
	-EPZ	0639 11.8	#-101	28	-EPZ	2252 19.7	#-116
	-EPZ	2054 12.3	#-102	29	+EPZ	2343 51.0	
14	-EXZ	0954 41.8	#-103	30	+IPZ	1417 53.8	#-117
	-EPZ	1107 15.7			+EPZ	1903 45.7	#-118
15	-EXZ	0559 28.8	#-104		+EPKP	2326 09.7	
	+EPZ	2233 06.0		31	-EPKPdf	1159 03.7	
16	-EPZ	0636 53.4	#-105	APR.01	-EPZ	0106 51.8	#-119
17	-EPZ	0817 29.3	#-106		-IPZ	0638 58.6	#-120
	ESH	0828 05.7			-EPZ	1445 44.8	#-121
	-EPZ	0847 53.3			+IPZ	1846 29.4	
	-EPZ	2009 49.4			-IPZ	1854 10.9	
21	EPZ	0142 14.8		03	-EPdiff	0533 52.1	
	-IPZ	0142 15.7			+EPZ	1801 44.8	
	-IPZ	1218 16.3	#-107	05	-EPZ	1236 24.7	#-122
23	+EPZ	1602 12.1	#-108	06	-EPZ	2021 33.0	
24	-EPZ	1729 34.5		07	-EPZ	1653 44.4	
	-EXZ	2234 39.8	#-109		-IPZ	1654 19.0	
25	-EPZ	0025 22.7	#-110	08	+IPZ	0136 50.7	#-123
	-IPZ	0025 32.2			+EPP?	0506 36.8	
	-EXZ	0229 01.2	#-111		-EPZ	0932 31.7	
	-EPZ	0406 37.4	#-112		-EPZ	1301 33.8	
	-EPZ	0536 28.4			+EPZ	1610 16.2	
	+IPZ	1656 24.1	#-113		-EPdiff	1725 56.7	
	+IPZ	1938 46.1			-EPdiff	1821 05.7	

Date	Phase	UTC time	Remarks	Date	Phase	UTC time	Remarks
		h m s				h m s	
	+EPZ	2305	48.6				
09	-EPZ	0534	34.6				
10	-EPZ	2056	32.6				
11	-IPZ	1010	25.1				
	+IPZ	1010	43.9				
	-EPZ	2107	40.9				
12	-IPZ	0933	42.0	#-124			
	ESH	0944	23.7				
13	-EPZ	1924	41.0	#-125			
	-EPZ	2332	43.4	#-126			
14	-EPZ	0113	55.2				
	-EXZ	0559	50.4	#-127			
	+EPZ	0935	48.7	#-128			
15	-EPZ	1252	41.0				
16	-EPZ	0644	44.7				
17	-EPZ	0132	02.1				
	-EPZ	1103	41.6				
18	+EPZ	0916	25.6				
	-EPZ	1140	35.5				
	-EPZ	1518	34.2	#-129			
	-EPZ	2203	15.7				
19	-EPZ	1046	46.5				
	+EPZ	1423	30.0				
	+IPZ	1521	33.3	#-130			
	+IPZ	2019	20.2				
20	-EPZ	1018	44.6				
	-EPZ	2003	48.2	#-131			
	-IPZ	2003	54.2				
				21	EPZ	1055	59.7
					-IPZ	1215	26.3
					-IPZ	1412	57.9
					+EXZ	2250	34.3
					ESH	2319	36.0
				22	+IPZ	0235	43.1
					+EPZ	0607	44.6
					+EPZ	1611	40.2
					-EPZ	1704	51.6
					+EPZ	1757	08.7
					+EPZ	1836	11.9
					+EPZ	2008	11.3
				23	-EPZ	0400	20.5
					+EPZ	1250	30.0
					+EPZ	1446	32.0
				25	+EPZ	0916	59.3
				26	EPZ	1346	50.3
					+EPZ	1456	52.0
					EPZ	2010	34.5
				27	-IPZ	0044	04.3
					EPZ	1850	37.6
				28	-EPZ	1104	38.7
					-IPZ	1213	32.1
				29	-EPZ	0120	39.9
					-EPZ	0145	23.7
					+EPZ	0156	33.3
					-EPZ	0348	41.8
					+IPZ	0348	50.0

Date	Phase	UTC time	Remarks
		h m s	
	-EPZ	0410 07.0	
MAY 01	-EPZ	1656 21.5	
	-EPZ	2007 50.0	#-140
	-EPZ	2012 08.0	
02	-EPZ	0241 59.5	
	-EPZ	0507 54.5	
	-EPZ	1445 11.9	
03	-EPZ	0033 20.8	
	+EPZ	0535 31.4	
	-EXZ	1054 07.2	#-141
	-EPZ	1108 11.8	
	+IPZ	1659 34.7	
	-EPZ	1724 27.4	
	+EXZ	2342 08.4	#-142
04	-EPZ	0410 56.8	#-143
	-EPZ	0949 22.8	#-144
05	+EPZ	1306 49.8	
07	-EPZ	1513 12.3	
08	+IPZ	0608 37.3	#-145
	+EPZ	1216 12.8	
	+EPZ	1458 48.2	
	-EPZ	1901 31.0	
09	-IPZ	0143 53.3	#-146
	-EPZ	0639 21.3	#-147
	-EPZ	0653 25.7	
10	EPZ	0815 43.0	
	EPZ	1905 56.1	
	+IPZ	2125 14.4	#-148

Date	Phase	UTC time	Remarks
		h m s	
	-IPZ	0707 38.2	#-149
	+IPZ	1600 37.0	#-150
	+EPZ	2024 20.8	#-151
	-EPZ	2227 28.9	#-152
12	-EPZ	1137 41.7	
	-EPZ	1358 54.2	#-153
	+EPZ	1906 40.3	
	-EPZ	1909 38.2	
13	-EPZ	0428 13.0	
	+IPP	1431 49.7	
	+EPZ	1443 04.8	
14	-EPZ	1558 45.7	
	-EPZ	1728 27.2	
15	-EPZ	1607 52.2	#-154
	-EPZ	1813 54.7	
16	-EPZ	0931 12.3	#-155
	-EPZ	1812 38.9	
	-EPZ	2300 54.1	
17	+IPZ	0221 29.0	#-156
18	+EPZ	0510 26.2	
	-EPZ	1620 31.7	#-157
	-EPZ	1739 29.5	#-158
	+EPZ	2026 01.8	
	-EPZ	2051 38.2	
	+EPZ	2220 31.3	
19	+EPZ	0753 29.2	
	+EPZ	1051 10.4	
	+EPZ	2336 47.5	

Date	Phase	UTC time	Remarks
		h m s	
20	-EPZ	0432 13.5	#-159
	-IPZ	1951 37.9	
	-EPZ	2045 46.5	
21	+EPZ	0021 17.4	#-160
	-EPZ	1422 49.9	#-161
	ESH	1433 07.4	
	-EPZ	1509 41.8	
	-EPZ	1639 03.4	#-162
	-EPZ	1706 24.7	#-163
22	+EPZ	0809 44.8	
24	+EPZ	0534 37.5	
25	+IPZ	1909 13.7	#-164
	-IPZ	2333 38.6	#-165
26	+IPZ	1059 57.7	#-166
	+IPZ	1640 48.2	#-167
27	+EPZ	0324 43.3	#-168
	+EPZ	0620 14.0	#-169
	+EPZ	0813 41.8	#-170
28	EXZ	1751 55.5	#-171
	-IXZ	1752 09.8	#-172
29	+EPZ	0018 52.5	#-173
	-EPZ	1451 53.3	
	+EPZ	1503 27.4	#-174
	-EPZ	1542 43.3	
	-IPZ	1714 03.2	#-175
	ESH	1723 22.7	
	+EPZ	1835 46.2	
30	-EPZ	2040 16.3	#-176

Date	Phase	UTC time	Remarks
		h m s	
JUN.01	+EPZ	1129 15.6	
	-EPZ	1224 31.5	
	+EPZ	1615 09.4	
02	-EPZ	0733 53.1	
	-EPZ	0741 03.6	
	-EPZ	0815 38.5	
	+EPZ	1602 24.6	
	-EPZ	2130 41.0	#-177
03	-EPZ	1236 20.0	#-178
04	-EPZ	0618 07.9	
05	+EPZ	1805 53.8	
	+EPZ	2029 51.9	
	-EPZ	2318 28.9	
06	+EPZ	0039 34.0	
	-EPZ	2001 45.5	
	-EPZ	2209 17.5	
07	-EPZ	1409 09.4	
08	-EPZ	0442 05.4	#-179
	-EPZ	2111 21.9	
09	-EPZ	0736 37.6	
	-EPZ	1456 20.5	#-180
	-EPZ	2111 40.1	
10	EPZ	0420 17.0	
	+EPZ	1147 20.3	#-181
	-EPZ	2205 25.8	#-182
11	+EPZ	0344 45.5	
	+EPZ	0941 32.6	#-183
	+IPP?	0942 14.6	(the same above)

Date	Phase	UTC time	Remarks
		h m s	
	-EPZ	1205 28.2	#-184
	+EPZ	1924 42.3	#-185
12	-EPZ	1220 33.3	#-186
	ESH	1231 23.0	
13	-IPZ	0811 58.1	#-187
	-EPZ	2008 18.4	
15	-IPZ	0057 22.0	#-188
	-EPZ	0144 15.5	#-189
	-EPZ	1307 18.8	#-190
	+EPZ	1353 44.2	#-191
	+EPZ	1719 27.6	#-192
	-EPZ	2228 49.3	
16	-EPZ	0233 41.7	
	-EPZ	0839 08.4	
	+EPZ	1551 56.4	#-193
	-EPKPdf	2303 46.3	
17	+EPZ	0511 02.7	#-194
	+EPKPdf	2123 27.7	
	-IPZ	2225 24.2	#-195
18	EPZ	1943 32.6	#-196
19	+EPZ	0035 30.0	#-197
	-IPZ	1231 39.6	#-198
	+IPZ	2338 12.6	#-199
20	EPZ	1545 41.7	
21	+EPZ	1946 25.8	#-200
	-IPZ	2357 06.6	#-201
24	+EPZ	0816 10.6	
	+EXZ	1216 28.5	#-202

Date	Phase	UTC time	Remarks
		h m s	
	+EPZ	1629 40.0	#-203
	-IPZ	2317 39.8	#-204
	ESH	2328 19.5	
25	-EXZ	0407 21.5	#-205
	+EPZ	0538 10.5	
	+EPZ	1246 08.9	
26	+IPZ	0519 54.3	#-206
	-IPZ	1213 29.0	#-207
	-EPZ	1615 18.4	
	-EPZ	1808 04.8	#-208
	-EPZ	1931 13.5	#-209
27	+IPZ	0111 18.6	
	+EPZ	0626 08.5	
28	+EPZ	0817 10.5	#-210
29	-EPZ	0109 36.5	
	-EPZ	1418 35.9	
	EPZ	1517 44.3	
	-EPZ	1735 15.5	#-211
	-IPZ	2015 12.7	#-212
30	+EPZ	0752 54.2	#-213
	+IXZ	0919 27.0	#-214
	-EPZ	1238 13.3	#-215
	+EPZ	1909 55.7	#-216
JUL .01	-EPZ	2013 14.3	#-217
	02	+EPZ 0711 04.9	#-218
	03	-EPZ 0712 31.3	
		-IPKPdf 1816 45.1	
	04	-IPZ 0959 22.6	#-219

Date	Phase	UTC time	Remarks	Date	Phase	UTC time	Remarks
		h m s				h m s	
		-EPZ 1123 50.9				-EPZ 0405 25.4	#-238
05		-EPZ 1342 20.4	#-220			-EPZ 1202 34.8	
		+EPZ 2124 18.8				-EPZ 1746 50.6	#-239
		+EXZ 2259 47.4	#-221			-EPZ 2305 07.9	
		+IPZ 2333 05.7	#-222	16		-EPZ 1447 51.9	#-240
		ESH 2342 44.0				+IPZ 1643 19.8	#-241
06		+EPZ 1005 07.0	#-223			+IXZ 2046 40.7	#-242
		-EPZ 2326 26.3	#-224			-EPZ 2238 56.2	
07		-EXZ 0957 36.3	#-225			+EPZ 2358 21.2	
		-EPZ 1136 46.6	#-226	17		(NIL)	
		-EPZ 2202 28.3		18		-EPZ 1351 04.7	
08		+EPZ 0123 50.7	#-227			+EPZ 1451 29.6	#-243
		+EPZ 0953 32.6	#-228	19		-IPZ 1234 09.0	#-244
		+EPZ 1231 04.6				+EPZ 1622 31.8	#-245
		-EPZ 1328 01.4	#-229			-EPZ 2307 16.9	#-246
10		-EPZ 0650 50.2		20		-IXZ 1025 35.6	#-247
		-IPZ 0715 26.4	#-230			ESH 1034 50.3	
		-IXZ 0715 36.8	#-230			-EPZ 1102 31.3	#-248
		+IPZ 1322 23.7	#-231	21		-EPZ 0214 37.6	#-249
11		+EPZ 0244 37.7	#-232			-EPZ 2048 15.5	
		+IPZ 1006 13.6	#-233			-EPZ 2330 44.9	#-250
		ESH 1015 17.5		22		-EPZ 0220 36.9	#-251
12		+IPZ 1635 48.6	#-234			-EPZ 1030 03.7	#-252
13		-EPZ 1454 50.9	#-235			-EPZ 2236 36.2	#-253
		+IXZ 1821 46.4	#-236	23		+EPZ 0115 10.5	
14		-EPZ 1628 42.1				-IPZ 0336 20.3	
15		-EXZ 0343 13.5	#-237			-EPZ 1416 43.0	#-254
		-EPZ 0346 05.8		24		-EPZ 2005 44.4	#-255

Date	Phase	UTC time	Remarks
		h m s	
25	+EPZ	0658 07.2	#-256
	ESH	0707 15.0	
	-IPZ	0744 34.0	#-257
26	-IPZ	0905 14.1	#-258
	+EPZ	1123 01.5	#-259
	+IPZ	2055 31.5	#-260
27	-IPZ	0532 33.6	#-261
	-EPZ	0646 12.5	#-262
29	-EPZ	0042 25.6	#-263
	+EPZ	1747 12.5	#-264
31	-EPZ	0325 13.8	
	-IXZ	2206 50.3	#-265
	ESH	2217 02.5	
AUG. 01	+IXZ	1533 14.8	#-266
02	-EPZ	0040 30.4	
03	-EPZ	0303 07.0	
04	-EXZ	0040 59.2	#-267
	-IPZ	0719 17.2	#-268
	ESH	0729 25.2	
	-EPZ	0912 23.0	
	-EPZ	1907 07.1	#-269
	-EXZ	2252 09.3	#-270
05	-EPZ	1121 25.2	#-271
06	-EPZ	0214 15.2	
	+EPZ	1121 12.5	
	-EPZ	1336 11.4	
	-EPZ	1703 25.0	
07	+IPZ	0115 38.5	#-272

Date	Phase	UTC time	Remarks
		h m s	
	ESH	0125 04.0	
	-EPZ	1302 36.5	
08	-EXZ	1208 57.2	#-273
	-EPZ	1721 43.8	#-274
	-EPZ	2240 26.0	#-275
09	-EPZ	1651 54.8	#-276
10	-EPZ	0932 03.0	#-277
	+EPZ	1426 24.6	#-278
	-IPZ	2209 45.8	#-279
11	EPZ	0439 50.2	
12	-EPZ	0600 26.7	
13	-EPZ	1049 14.2	
14	+EPZ	2033 04.6	
15	-EPZ	2234 40.7	
16	+EXZ	1422 59.4	#-280
	EPZ	1439 47.0	
	+EPZ	2000 12.6	
18	-EPZ	1022 22.4	#-281
	-EPZ	1109 39.3	#-282
	-EPZ	1235 32.5	#-283
	-EPZ	1450 54.5	#-284
	-EPZ	1808 11.7	
19	+EPZ	1855 39.5	
20	-EPZ	0618 53.7	
	+EXZ	0727 40.9	#-285
	-EPZ	1358 06.2	#-286
	+EPZ	2239 54.7	#-287
21	-EPZ	2030 18.1	

Date	Phase	UTC time	Remarks
		h m s	
22	+EPZ	0258 16.3	#-288
24	EPZ	1722 16.7	
25	-EPZ	0123 45.1	#-289
	+EPZ	0419 19.0	
	-EPZ	0532 40.4	
	-EPZ	0604 03.7	
	-EPZ	1210 23.7	
26	-EPZ	0333 41.2	#-290
	-EPZ	0855 03.5	#-291
	-EXZ	0909 53.8	#-292
	+EPZ	1329 25.0	#-293
	-EPZ	1335 32.5	
	+IPZ	1533 23.1	#-294
	ESH	1542 40.5	
27	-EPZ	1008 12.8	#-295
	+EPZ	1355 54.7	#-296
28	-IPZ	2154 48.0	#-297
29	-IPZ	0517 33.3	#-298
	-EPZ	0707 07.7	#-299
	-EPZ	0827 19.0	#-300
31	-IPZ	1111 47.3	#-301
SEP.01	-EPZ	1248 20.2	#-302
	EPZ	1630 18.3	
02	+EPZ	0959 24.0	#-303
	-EPZ	1226 58.2	
	ESH	1237 16.3	
03	-EPZ	0332 11.7	
	-EPZ	0411 11.5	#-304

Date	Phase	UTC time	Remarks
		h m s	
	+EPZ	0632 20.5	#-305
	+EPZ	1936 24.3	#-306
04	-IPZ	0434 44.4	#-307
	-IPZ	0613 32.9	#-308
	ESH	0622 44.0	
	+IPZ	2105 38.6	
	ESH	2115 32.2	
05	+EPZ	0329 34.6	#-309
	ESH	0340 06.0	
06	+IPZ	0045 10.3	#-310
07	-IPZ	1309 35.8	#-311
	ESH	1319 26.2	
08	+EPZ	0408 09.5	#-312
10	+EPZ	1309 52.2	#-313
	-EPZ	2032 01.0	#-314
	-EPZ	2233 47.2	#-315
11	-EPZ	0052 54.9	#-316
	+EPZ	0115 24.6	#-317
12	-IPZ	1417 35.8	#-318
15	-IPZ	0151 24.3	#-319
	+EPZ	1319 07.9	#-320
16	+EPZ	1755 01.7	
17	-IPZ	0553 53.9	
	-EPZ	0712 23.0	
	-EPZ	1404 37.9	
	-IPZ	1503 38.2	
18	-IPZ	0311 28.9	
	+EPZ	1825 22.2	#-321

Date	Phase	UTC time	Remarks
		h m s	
	-EPZ	2146 08.7	
	+IPZ	2316 07.6	#-322
20	-IPZ	1623 33.2	#-323
	+EPZ	1822 56.1	
21	-EPZ	1823 41.7	#-324
23	-IPZ	1759 22.5	#-325
24	-EPZ	0926 58.0	#-326
	-EXZ	1529 13.4	#-327
25	-EPZ	1430 40.5	#-328
	-IPZ	2007 03.8	
	+EPZ	2339 03.3	#-329
26	-IPZ	1600 42.5	#-330
	ESH	1610 38.1	
27	-EXZ	0734 43.4	#-331
	+IPZ	1220 28.3	#-332
28	-IPZ	0150 52.6	#-333
30	-IPZ	0438 24.3	#-334
OCT.01	EPZ	0555 28.3	
02	+IXZ	0149 04.2	#-335
	-EPZ	1403 09.0	
03	-EPZ	0250 38.3	#-336
04	-EPZ	1117 28.0	
	+IPZ	1843 13.3	#-337
	-EPZ	2137 24.4	
05	+EPZ	1408 09.0	#-338
	-IPZ	1810 12.3	#-339
	-IPZ	1912 55.7	#-340
06	-EPZ	0710 13.0	#-341

Date	Phase	UTC time	Remarks
		h m s	
	+EPZ	1243 29.9	
	+EPZ	1845 59.2	
07	+EPZ	0355 44.0	#-342
	-EPZ	1327 37.3	#-343
	ESH	1337 18.0	
	EPZ	1757 08.4	#-344
	+EXZ	2203 06.0	#-345
08	+IPZ	0702 38.7	#-346
	+IPZ	1058 45.3	#-347
	ESH	1107 44.2	
	-EPZ	2346 41.5	
09	-IPZ	0813 57.3	#-348
	-EPZ	1615 20.0	
11	-IPZ	0313 43.4	
13	-EPZ	1358 03.5	
14	-IPZ	1005 38.1	#-349
	EPZ	1051 53.8	
	-EPZ	1641 54.0	#-350
15	+IPZ	0114 29.6	#-351
	-EPZ	0142 02.9	
	-EPZ	0306 42.4	#-352
	-EPZ	0439 42.8	#-353
16	+EPZ	0056 32.1	#-354
18	-EPZ	1504 53.8	
19	+EXZ	1214 29.2	#-355
	+EPZ	1606 17.7	#-356
	ESH	1616 50.0	
20	-EPZ	0342 08.2	#-357

Date	Phase	UTC time	Remarks	Date	Phase	UTC time	Remarks
		h m s				h m s	
	-EXZ	0406 13.8	#-358	08	-EPZ	1021 57.2	
	-EPZ	0526 58.8	#-359	09	-EPZ	2034 48.0	#-379
22	-EPZ	0354 51.9	#-360		+EPZ	2315 06.3	
	+EPZ	2225 17.8	#-361	10	-EPZ	2325 32.0	
23	+IPZ	0127 41.7	#-362	12	+EPZ	0338 52.1	
25	-EPZ	0530 30.8	#-363	14	ESH	0909 35.4	
26	+EPZ	0147 00.1	#-364		+EPZ	1616 55.0	#-380
	+EPZ	0856 56.2	#-365	15	-EPZ	1912 03.2	#-381
	-EPZ	1405 20.5	#-366		ESH	1922 41.5	#-382
27	-IPZ	0944 49.4	#-367	17	+EPZ	0638 18.2	#-383
28	-EPZ	0627 56.4		18	-EPZ	1326 17.4	
	+EPZ	0645 23.0			-IPZ	1553 25.4	#-384
29	+IPZ	1334 23.7	#-368		ESH	1603 36.0	
30	-EPZ	0455 43.6		20	+EXZ	0614 14.6	#-385
	-IPZ	0635 24.4	#-369		-IPZ	1649 15.7	
	-EPZ	0952 25.3		21	-EPZ	1136 42.1	
31	-EPZ	1242 30.8	#-370	22	-EPZ	1352 21.3	#-386
	+EPZ	2304 04.8	#-371	23	-IPZ	0009 34.5	#-387
NOV.01	-IPZ	0944 23.4	#-372		-EPZ	0030 08.5	#-388
	EPZ	1246 07.2			-EPZ	1849 47.5	#-389
	+EPZ	1517 09.8		24	-EXZ	1316 30.6	#-390
02	-EPZ	1754 22.6			+EPZ	1550 16.9	#-391
03	-IPZ	0549 30.9	#-373	25	-IPZ	1227 25.7	#-392
	-IPZ	1928 33.5	#-374		ESH	1238 17.1	
	-EPZ	2023 51.0	#-375	28	-IPZ	2305 10.7	#-393
	+EPZ	2149 47.8	#-376	29	+IXZ	0254 09.3	#-394
04	+EPZ	0041 17.1	#-377		-IXZ	2114 03.3	#-395
07	-EPZ	2240 53.0	#-378	DEC.01	+EXZ	0701 21.8	#-396

Date	Phase	UTC time	Remarks	Date	Phase	UTC time	Remarks
		h m s				h m s	
	-EPZ	0838 32.3			-EPZ	1757 12.1	
	+IPZ	1832 07.8			-EPZ	2007 26.0	
	-EPZ	1909 21.9			+IPZ	2007 26.7	
	-EPZ	2040 14.7		07	-EPZ	1334 34.0	
03	-EPZ	0005 55.0			+EPZ	1416 18.8	
04	+EPZ	2304 55.8			-EPZ	1816 04.0	
05	+EPZ	0829 41.3			+EPZ	2325 38.0	
	-EPZ	1146 10.8		08	+EPZ	2126 01.8	
	-EPZ	1442 51.3		09	+IPZ	1435 28.6	#-397
	-IPZ	1549 06.5		11	-EPZ	0814 09.3	
	+EPZ	1645 41.2			ESH	0820 26.4	
	+EPZ	1908 06.0			-EPZ	1016 48.0	
	-IPZ	1923 54.0		12	+EPZ	0727 45.7	#-398
	+EPZ	2026 35.2			+IPZ	1719 31.0	#-399
	+EPZ	2040 43.4		13	-EPZ	1933 28.7	#-400
	-IPZ	2144 08.8		14	-EPZ	0245 12.7	#-401
	-EPZ	2257 13.7			-EPZ	0905 29.4	#-402
06	+EPZ	0017 07.8			-EPZ	1233 08.1	#-403
	+EPZ	0025 13.3			-EPZ	2323 08.8	
	-EPZ	0044 47.9		15	-IPZ	1318 16.8	#-404
	-EPZ	0226 50.4			-IPZ	1318 29.7	
	-EPZ	0529 39.4			+EPZ	1439 25.0	#-405
	-EPZ	0657 56.8		16	-EPZ	2051 40.3	#-406
	-IPZ	0658 49.8		17	+EPZ	0458 49.4	
	-EPZ	1024 47.2			+EPZ	1103 23.0	
	-IPZ	1118 57.8		18	-IPZ	1520 23.6	
	-EPZ	1257 10.8		20	-EPZ	1345 02.1	
	+EPZ	1303 17.8		22	+IPZ	0218 37.4	#-407

Date	Phase	UTC time	Remarks
		h m s	
26	EPZ	0545 50.0	#-408
27	+EPZ	2016 12.4	#-409
	EPZ	2040 53.4	#-410
28	-IPZ	0338 29.7	#-411
	+EsP	0338 43.0	(the same above)
	EPZ	2056 14.4	
	EPZ	2137 50.0	
29	-EPZ	0247 55.2	#-412
	-IPZ	0516 29.8	#-413
	+EPZ	0533 0.02	
31	EPZ	0905 41.7	
	EPZ	2256	

Table 2. List of hypocenters of teleseismic events detected at Syowa Station.

The total number of events are 413.

Data		Origin time			Geographic Coordinates		Region	Depth (km)	Epicentral distance (deg)	Magnitude (Mb)
No.	Date	h	m	s	Latitude (deg)	Longitude (deg)				
1	1 1	14	55.0	53.0	-16.591	67.023	MID-INDIAN RIDGE	10	55.154237	4.7
2	1 1	19	57.0	11.4	-23.713	179.784	SOUTH OF FIJI ISLANDS	600	83.145699	4.9
3	1 1	22	32.0	32.3	-0.127	123.823	MINAHASSA PENINSULA, SULAWESI	115	87.806694	5.9
4	1 2	10	52.0	35.0	10.568	92.742	ANDAMAN ISLANDS, INDIA	33	87.564795	5.1
5	1 2	12	31.0	14.3	0.449	126.442	NORTHERN MOLUCCA SEA	41	89.281656	5.1
6	1 2	18	20.0	20.8	-14.167	166.836	VANUATU ISLANDS	33	89.119988	5.1
7	1 2	20	58.0	38.9	-31.866	-67.166	SAN JUAN PROVINCE, ARGENTINA	128	66.315743	4.5
8	1 2	22	13.0	7.4	-32.480	-179.050	SOUTH OF KERMADEC ISLANDS	200	74.889382	4.6
9	1 3	3	58.0	22.1	-19.224	-174.838	TONGA ISLANDS	140	88.596522	5.7
10	1 3	4	23.0	1.5	-11.980	166.146	SANTA CRUZ ISLANDS	33	91.007909	4.9
11	1 3	12	40.0	18.7	-11.953	166.206	SANTA CRUZ ISLANDS	33	91.050585	4.9
12	1 4	9	1.0	10.7	-4.011	128.131	BANDA SEA	33	85.75741	5.1
13	1 4	9	59.0	6.7	-7.116	122.612	FLORES SEA	579	80.894724	5.1

Data		Origin time			Geographic Coordinates		Region	Depth	Epicentral Magnitude	
No.	Date	UTC			Latitude	Longitude			distance	(Mb)
		h	m	s	(deg)	(deg)		(km)	(deg)	
14	1 4	11	21.0	45.2	-29.940	-71.575	NEAR COAST OF CENTRAL CHILE	39	69.494532	4.8
15	1 4	13	29.0	30.5	-7.355	128.341	BANDA SEA	150	82.736406	5.2
16	1 4	16	51.0	9.3	-18.125	-178.170	FIJI ISLANDS REGION	600	88.99415	5.3
17	1 5	0	17.0	48.5	-17.831	-178.547	FIJI ISLANDS REGION	650	89.199766	4.6
18	1 5	12	29.0	27.3	-5.695	154.521	SOLOMON ISLANDS	130	93.392377	5.1
19	1 6	23	21.0	15.4	-22.070	-179.549	SOUTH OF FIJI ISLANDS	600	84.878698	4.8
20	1 7	4	17.0	2.8	-55.547	-3.432	SOUTHERN MID-ATLANTIC RIDGE	10	23.473342	4.9
21	1 7	18	0.0	51.8	-18.687	-174.741	TONGA ISLANDS	33	89.138184	5.2
22	1 8	9	57.0	1.1	-34.000	-179.070	SOUTH OF KERMADEC ISLANDS	33	73.411625	4.4
23	1 8	13	12.0	23.1	-4.540	143.933	SOUTH OF KERMADEC ISLANDS	94	90.895089	4.2
24	1 9	8	29.0	31.2	-17.691	168.322	VANUATU ISLANDS	108	86.166885	4.9
25	1 9	11	40.0	59.5	-5.652	151.008	NEW BRITAIN REGION, P.N.G.	100	92.273407	5.1
26	1 9	15	15.0	42.8	-23.780	-179.937	SOUTH OF FIJI ISLANDS	500	83.140042	4.8

Data		Origin time			Geographic Coordinates		Region	Depth	Epicentral Magnitude	
No.	Date	h	m	s	Latitude (deg)	Longitude (deg)		(km)	distance (deg)	(Mb)
27	1 10	8	9.0	10.8	-34.556	-179.837	SOUTH OF KERMADEC ISLANDS	58	72.72215	5.0
28	1 10	8	46.0	41.7	-23.044	-68.383	NORTHERN CHILE	100	74.891369	4.1
29	1 10	13	49.0	41.6	-54.060	-1.870	BOUVET ISLAND REGION	10	24.122057	4.9
30	1 10	18	32.0	41.5	-5.885	105.584	SUNDA STRAIT	33	76.063563	5.0
31	1 10	19	42.0	8.8	-20.979	-178.969	FIJI ISLANDS REGION	650	86.058512	4.5
32	1 11	14	35.0	12.0	8.858	93.695	NICOBAR ISLANDS, INDIA	33	86.211854	4.7
33	1 12	8	30.0	16.4	-27.901	-66.611	CATAMARCA PROVINCE, ARGENTINA	150	69.803286	4.5
34	1 13	23	37.0	38.2	-30.501	-178.480	KERMADEC ISLANDS, NEW ZEALAND	250	76.921421	4.8
35	1 14	9	15.0	26.8	-22.182	171.552	LOYALTY ISLANDS REGION	33	82.710736	5.2
36	1 15	12	53.0	20.6	-21.641	-68.296	CHILE-BOLIVIA BORDER REGION	119	76.168713	4.8
37	1 16	10	40.0	58.2	-26.970	-176.640	SOUTH OF FIJI ISLANDS	33	80.710327	4.8
38	1 17	11	20.0	22.0	-8.899	123.542	FLORES REGION, INDONESIA	111	79.578761	6.2
39	1 17	21	14.0	15.8	0.908	-27.653	CENTRAL MID-ATLANTIC RIDGE	10	82.838726	4.9

Data		Origin time			Geographic Coordinates		Region	Depth	Epicentral Magnitude	
No.	Date	h	m	s	Latitude (deg)	Longitude (deg)		(km)	distance (deg)	(Mb)
40	1 17	23	24.0	9.8	-47.416	-13.451	SOUTHERN MID-ATLANTIC RIDGE	10	33.71276	5.4
41	1 18	4	6.0	42.0	5.848	126.252	MINDANAO, PHILIPPINE ISLANDS	135	94.216905	5.1
42	1 19	2	27.0	13.6	-5.028	108.403	JAVA SEA	651	77.821995	5.1
43	1 19	10	30.0	2.1	-5.581	129.964	BANDA SEA	30	84.963476	5.0
44	1 19	10	54.0	12.3	-17.287	-178.897	FIJI ISLANDS REGION	500	89.65252	4.5
45	1 19	14	56.0	19.8	-37.874	178.659	OFF E. COAST OF N. ISLAND, N.Z.	100	69.21362	4.6
46	1 19	21	29.0	46.6	-23.181	-66.325	JUJUY PROVINCE, ARGENTINA	215	74.086319	4.3
47	1 19	21	49.0	27.0	-11.974	166.217	SANTA CRUZ ISLANDS	33	91.033719	4.9
48	1 19	23	41.0	14.5	-11.905	166.184	SANTA CRUZ ISLANDS	20	91.090022	4.9
49	1 20	8	34.0	18.1	-31.450	179.470	KERMADEC ISLANDS REGION	500	75.589831	4.8
50	1 20	17	22.0	8.6	-24.341	179.389	SOUTH OF FIJI ISLANDS	600	82.453475	4.7
51	1 22	4	24.0	1.5	-22.177	-175.714	TONGA ISLANDS REGION	33	85.552429	5.0
52	1 23	0	51.0	14.1	-3.023	136.475	IRIAN JAYA, INDONESIA	54	89.6708	4.9

Data		Origin time			Geographic Coordinates		Region	Depth	Epicentral Magnitude	
No.	Date	h	m	s	Latitude (deg)	Longitude (deg)		(km)	distance (deg)	(Mb)
53	1 23	2	15.0	22.9	-21.999	-65.719	SOUTHERN BOLIVIA	276	74.982181	6.4
54	1 24	5	17.0	29.7	-5.614	153.836	NEW IRELAND REGION, P.N.G	71	93.244659	5.4
55	1 25	11	4.0	48.0	-16.095	167.946	VANUATU ISLANDS	181	87.587867	4.9
56	1 26	14	41.0	16.6	-17.181	167.768	VANUATU ISLANDS	38	86.503853	5.0
57	1 27	16	7.0	2.6	-24.072	-70.425	NEAR COAST OF NORTHERN CHILE	33	74.595644	4.9
58	1 28	14	11.0	37.2	-26.794	-177.099	SOUTH OF FIJI ISLANDS	100	80.792514	4.6
59	1 28	16	30.0	18.2	-27.629	-136.155	SOUTH PACIFIC OCEAN	10	83.597095	5.2
60	1 29	18	19.0	33.6	-23.995	178.647	SOUTH OF FIJI ISLANDS	600	82.627989	5.1
61	2 4	4	0.0	40.4	-29.940	-178.307	KERMADEC ISLANDS, NEW ZEALAND	153	77.499958	5.0
62	2 4	16	30.0	33.4	-5.500	147.356	EASTERN NEW GUINEA REG., P.N.G.	205	91.18118	5.3
63	2 7	8	41.0	13.4	-19.859	-173.289	TONGA ISLANDS	28	88.269373	6.0
64	2 8	1	55.0	55.7	-8.473	158.957	SOLOMON ISLANDS	101	92.191207	5.8
65	2 9	12	32.0	36.2	-14.486	-76.276	NEAR COAST OF PERU	33	85.433878	5.7

Data		Origin time			Geographic Coordinates		Region	Depth	Epicentral Magnitude	
No.	Date	h	m	s	Latitude (deg)	Longitude (deg)		(km)	distance (deg)	(Mb)
66	2 9	14	57.0	20.3	-14.534	-76.241	NEAR COAST OF PERU	33	85.377728	4.9
67	2 9	15	9.0	17.9	-14.466	-76.197	NEAR COAST OF PERU	33	85.427782	5.0
68	2 10	10	52.0	9.9	-32.926	-68.755	MENDOZA PROVINCE, ARGENTINA	149	65.841435	5.0
69	2 10	16	10.0	28.6	-27.022	26.702	REPUBLIC OF SOUTH AFRICA	5	42.703201	5.2
70	2 14	17	36.0	29.5	-28.237	-176.843	KERMADEC ISLANDS REGION	50	79.439148	5.1
71	2 14	23	43.0	43.3	-56.370	-27.399	SOUTH SANDWICH ISLANDS REGION	143	31.409713	5.4
72	2 15	12	11.0	14.7	-7.782	117.413	BALI SEA	274	78.416177	5.6
73	2 19	13	42.0	25.3	-17.685	-178.924	FIJI ISLANDS REGION	600	89.261014	4.8
74	2 22	15	22.0	52.8	0.460	122.236	MINAHASSA PENINSULA, SULAWESI	164	87.782617	5.0
75	2 23	19	54.0	59.5	-21.973	-179.589	FIJI ISLANDS REGION	612	84.964199	5.0
76	2 25	14	7.0	47.1	-21.340	-179.130	FIJI ISLANDS REGION	600	85.674664	4.0
77	2 25	19	45.0	7.0	-21.186	169.615	LOYALTY ISLANDS REGION	33	83.170255	5.7
78	2 27	12	51.0	11.0	-22.481	-174.872	TONGA ISLANDS REGION	33	85.417571	5.4

Data		Origin time			Geographic Coordinates		Region	Depth	Epicentral Magnitude	
No.	Date	h	m	s	Latitude (deg)	Longitude (deg)		(km)	distance (deg)	(Mb)
79	2 27	20	22.0	55.2	-52.199	16.789	SOUTHWEST OF AFRICA	10	20.008696	6.3
80	3 2	20	7.0	25.5	-36.430	177.500	OFF E. COAST OF N. ISLAND, N.Z.	300	70.371883	4.6
81	3 3	2	35.0	51.6	-36.560	177.576	OFF E. COAST OF N. ISLAND, N.Z.	200	70.262173	4.8
82	3 3	14	13.0	35.6	-36.757	177.627	OFF E. COAST OF N. ISLAND, N.Z.	33	70.082629	4.8
83	3 3	18	6.0	38.7	-7.842	117.627	BALI SEA	33	78.436813	5.1
84	3 3	22	33.0	43.8	-6.481	156.405	SOLOMON ISLANDS	48	93.262221	5.6
85	3 4	7	41.0	13.5	-26.387	178.216	SOUTH OF FIJI ISLANDS	650	80.222116	4.5
86	3 5	13	55.0	52.1	-13.377	166.452	VANUATU ISLANDS	33	89.764829	5.5
87	3 7	0	1.0	40.0	-23.172	-175.413	TONGA ISLANDS REGION	33	84.641722	4.9
88	3 7	3	4.0	0.0	-22.378	-175.895	TONGA ISLANDS REGION	33	85.321724	5.1
89	3 7	9	42.0	23.6	-6.485	-71.217	WESTERN BRAZIL	628	91.291061	4.9
90	3 7	19	34.0	42.5	-11.103	-73.956	CENTRAL PERU	33	87.868608	5.1
91	3 9	11	43.0	43.2	-29.815	-71.147	NEAR COAST OF CENTRAL CHILE	33	69.477241	5.5

Data		Origin time			Geographic Coordinates		Region	Depth	Epicentral Magnitude	
No.	Date	h	m	s	Latitude (deg)	Longitude (deg)		(km)	distance (deg)	(Mb)
92	3 9	21	56.0	0.7	-0.663	127.417	HALMAHERA, INDONESIA	33	88.602119	5.1
93	3 10	3	53.0	0.3	-29.681	-71.144	NEAR COAST OF CENTRAL CHILE	33	69.600909	5.2
94	3 10	14	7.0	6.1	-36.742	177.663	OFF E. COAST OF N. ISLAND, N.Z.	33	70.104507	4.6
95	3 11	3	13.0	59.4	-21.134	-178.863	FIJI ISLANDS REGION	553	85.9305	5.2
96	3 11	5	25.0	57.7	-31.078	-177.732	KERMADEC ISLANDS REGION	10	76.506929	5.6
97	3 11	18	38.0	15.9	-18.167	-176.717	FIJI ISLANDS REGION	352	89.253237	5.0
98	3 12	15	30.0	26.9	-36.218	179.451	OFF E. COAST OF N. ISLAND, N.Z.	60	70.972262	5.0
99	3 12	22	54.0	27.6	-31.361	-178.031	KERMADEC ISLANDS REGION	150	76.174297	4.9
100	3 13	0	6.0	48.9	-31.149	-177.637	KERMADEC ISLANDS REGION	33	76.456245	4.9
101	3 13	6	27.0	58.0	-36.468	-97.671	WEST CHILE RISE	10	70.200991	4.9
102	3 13	20	41.0	21.5	-4.219	143.044	NEW GUINEA, PAPUA NEW GUINEA	118	90.883744	5.6
103	3 14	9	42.0	58.6	-34.127	-109.529	SOUTHERN EAST PACIFIC RISE	10	74.667717	5.1
104	3 15	5	51.0	33.3	-59.849	149.902	WEST OF MACQUARIE ISLAND	10	42.087576	5.0

Data		Origin time			Geographic Coordinates		Region	Depth	Epicentral Magnitude	
No.	Date	h	m	s	Latitude (deg)	Longitude (deg)		(km)	distance (deg)	(Mb)
105	3 16	6	23.0	46.3	-3.808	145.185	NEAR N. COAST OF NEW GUINEA, P.	33	92.011531	5.0
106	3 17	8	5.0	48.4	-6.614	105.514	SUNDA STRAIT	33	75.358729	5.8
107	3 21	12	7.0	17.6	-31.163	179.624	KERMADEC ISLANDS REGION	449	75.899163	5.6
108	3 23	15	49.0	39.6	-19.169	168.736	VANUATU ISLANDS	33	84.866592	5.3
109	3 24	22	21.0	56.0	0.824	125.884	NORTHERN MOLUCCA SEA	33	89.428526	5.3
110	3 25	0	14.0	44.6	-33.480	-70.548	CHILE-ARGENTINA BORDER REGION	84	65.889084	5.5
111	3 25	2	18.0	0.8	-37.018	177.651	OFF E. COAST OF N. ISLAND, N.Z.	100	69.835766	5.2
112	3 25	3	53.0	59.5	-14.599	167.290	VANUATU ISLANDS	150	88.834294	5.1
113	3 25	16	44.0	32.6	-9.063	-71.295	PERU-BRAZIL BORDER REGION	603	88.905305	5.4
114	3 26	18	18.0	34.7	2.803	128.237	HALMAHERA, INDONESIA	127	92.109118	5.7
115	3 27	23	47.0	59.6	-55.511	-27.683	SOUTH SANDWICH ISLANDS REGION	33	32.179035	5.0
116	3 28	22	40.0	25.2	-17.805	-178.952	FIJI ISLANDS REGION	554	89.138725	5.0
117	3 30	14	5.0	40.1	-21.978	-177.197	FIJI ISLANDS REGION	217	85.453394	5.3

Data		Origin time			Geographic Coordinates		Region	Depth	Epicentral Magnitude	
No.	Date	h	m	s	Latitude (deg)	Longitude (deg)		(km)	distance (deg)	(Mb)
118	3 30	18	52.0	9.3	-32.960	-178.800	SOUTH OF KERMADEC ISLANDS	33	74.472891	4.9
119	4 1	0	54.0	32.3	-6.419	129.981	BANDA SEA	122	84.193521	5.2
120	4 1	6	26.0	49.5	-7.076	129.121	BANDA SEA	176	83.275593	4.5
121	4 1	14	34.0	9.3	-33.134	-178.941	SOUTH OF KERMADEC ISLANDS	33	74.276572	5.0
122	4 5	12	23.0	30.5	-6.485	147.408	EASTERN NEW GUINEA REG., P.N.G.	69	90.28	6.1
123	4 8	1	25.0	38.2	-23.938	-66.701	JUJUY PROVINCE, ARGENTINA	196	73.51	4.6
124	4 12	9	21.0	56.4	-28.171	-178.369	KERMADEC ISLANDS REGION	184	79.20	5.8
125	4 13	19	13.0	11.5	-33.435	-179.460	SOUTH OF KERMADEC ISLANDS	53	73.88	5.3
126	4 13	23	20.0	33.3	-18.371	-71.255	OFF COAST OF NORTHERN CHILE	33	80.19	5.1
127	4 14	5	53.0	33.3	-37.965	48.565	SOUTHWEST INDIAN RIDGE	10	31.49	5.1
128	4 14	9	29.0	26.6	-38.074	48.482	SOUTHWEST INDIAN RIDGE	10	31.37	5.1
129	4 19	15	10.0	26.2	-32.496	179.843	SOUTH OF KERMADEC ISLANDS	300	74.6531	4.3
130	4 20	19	53.0	15.5	-34.040	-69.984	CHILE-ARGENTINA BORDER REGION	105	65.195758	5.3

Data		Origin time			Geographic Coordinates		Region	Depth	Epicentral Magnitude	
No.	Date	h	m	s	Latitude (deg)	Longitude (deg)		(km)	distance (deg)	(Mb)
131	4 21	12	2.0	26.4	-12.584	166.676	SANTA CRUZ ISLANDS	33	90.582541	6.4
132	4 21	14	1.0	24.3	-7.382	125.715	BANDA SEA	432	81.765329	5.9
133	4 21	22	41.0	23.7	-48.925	-75.781	SOUTHERN CHILE	33	53.177238	5.1
134	4 22	5	55.0	59.3	-3.370	102.144	SOUTHERN SUMATERA, INDONESIA	108	77.275274	5.6
135	4 22	16	51.0	53.5	-13.221	166.450	VANUATU ISLANDS	33	89.912749	5.5
136	4 23	3	47.0	18.3	-13.599	166.390	VANUATU ISLANDS	33	89.536137	5.5
137	4 27	0	31.0	32.5	-19.171	168.728	VANUATU ISLANDS	42	84.86256	5.8
138	4 28	10	56.0	51.6	-29.638	60.818	SOUTHWEST INDIAN RIDGE	10	41.291355	5.2
139	4 28	12	7.0	37.8	-42.504	42.686	PRINCE EDWARD ISLANDS REGION	10	26.618318	5.7
140	5 1	20	0.0	16.6	-20.076	-178.135	FIJI ISLANDS REGION	500	87.108593	4.4
141	5 3	10	42.0	5.8	-27.205	-176.508	KERMADEC ISLANDS REGION	33	80.507116	5.2
142	5 3	23	32.0	31.2	-22.564	-10.645	SOUTHERN MID-ATLANTIC RIDGE	10	55.32496	5.0
143	5 4	3	58.0	21.1	-22.114	-175.763	TONGA ISLANDS REGION	33	85.604248	5.2

Data		Origin time			Geographic Coordinates		Region	Depth	Epicentral Magnitude	
No.	Date	h	m	s	Latitude (deg)	Longitude (deg)		(km)	distance (deg)	(Mb)
144	5 4	9	37.0	55.9	-31.816	-179.492	KERMADEC ISLANDS REGION	150	75.445391	5.0
145	5 8	5	56.0	10.1	-19.429	-175.833	TONGA ISLANDS	218	88.20308	5.1
146	5 9	1	32.0	45.5	-24.315	-66.865	SALTA PROVINCE, ARGENTINA	194	73.211851	4.9
147	5 9	6	31.0	4.4	-44.750	117.769	SOUTH OF AUSTRALIA	10	45.000346	5.2
148	5 10	21	14.0	16.1	-5.909	110.676	JAVA SEA	600	77.784433	5.0
149	5 11	6	55.0	52.3	-31.236	-178.242	KERMADEC ISLANDS REGION	33	76.254652	5.3
150	5 11	15	49.0	24.9	-24.603	-66.928	SALTA PROVINCE, ARGENTINA	193	72.965202	4.9
151	5 11	20	11.0	29.0	-5.744	147.844	EASTERN NEW GUINEA REG., P.N.G.	126	91.119918	5.4
152	5 11	22	16.0	13.9	-36.383	-97.703	WEST CHILE RISE	10	70.289613	5.6
153	5 12	13	45.0	26.3	10.184	121.657	PANAY, PHILIPPINE ISLANDS	33	96.597717	5.5
154	5 15	15	54.0	50.3	-16.960	-173.520	TONGA ISLANDS	33	91.053707	5.4
155	5 16	9	25.0	40.3	-59.981	-18.646	SOUTHWESTERN ATLANTIC OCEAN	10	25.617099	4.9
156	5 17	2	10.0	18.9	-27.162	-69.499	NORTHERN CHILE	106	71.422363	5.5

Data		Origin time			Geographic Coordinates		Region	Depth	Epicentral Magnitude	
No.	Date	h	m	s	Latitude (deg)	Longitude (deg)		(km)	distance (deg)	(Mb)
157	5 18	16	8.0	46.9	-7.968	120.171	FLORES SEA	201	79.229468	5.3
158	5 18	17	27.0	37.3	-30.240	-177.520	KERMADEC ISLANDS, NEW ZEALAND	33	77.361915	4.9
159	5 20	4	27.0	55.8	-52.814	20.530	SOUTH OF AFRICA	10	18.550126	4.5
160	5 21	0	8.0	46.4	-20.805	-175.467	TONGA ISLANDS	70	86.935672	5.4
161	5 21	14	10.0	26.2	-20.438	169.287	VANUATU ISLANDS	57	83.79966	5.9
162	5 21	16	26.0	24.7	-18.902	175.947	FIJI ISLANDS REGION	33	86.931042	5.3
163	5 21	16	53.0	59.0	-24.255	-176.124	SOUTH OF FIJI ISLANDS	41	83.450985	4.9
164	5 25	18	57.0	30.0	-22.889	36.945	NEAR COAST OF NORTHERN CHILE	36	46.157718	5.2
165	5 25	23	22.0	33.1	-32.115	179.791	SOUTH OF KERMADEC ISLANDS	333	75.011486	6.2
166	5 26	10	50.0	11.2	-47.429	165.961	OFF W. COAST OF S. ISLAND, N.Z.	33	57.330324	5.5
167	5 26	16	29.0	52.0	-27.830	-66.764	CATAMARCA PROVINCE, ARGENTINA	150	69.918943	4.4
168	5 27	3	13.0	58.5	-37.337	176.729	NORTH ISLAND, NEW ZEALAND	200	69.337326	4.7
169	5 27	6	10.0	31.7	-54.925	-136.170	PACIFIC-ANTARCTIC RIDGE	10	56.336087	5.3

Data		Origin time			Geographic Coordinates		Region	Depth	Epicentral Magnitude	
No.	Date	h	m	s	Latitude (deg)	Longitude (deg)		(km)	distance (deg)	(Mb)
170	5 27	8	0.0	29.0	-15.212	-173.328	TONGA ISLANDS	14	92.794179	5.6
171	5 28	17	47.0	11.7	-47.852	32.459	PRINCE EDWARD ISLANDS REGION	10	21.515848	5.0
172	5 28	17	47.0	11.7	-47.852	32.459	PRINCE EDWARD ISLANDS REGION	10	21.515848	5.0
173	5 29	0	12.0	30.2	-55.651	-26.806	SOUTH SANDWICH ISLANDS REGION	33	31.75799	5.2
174	5 29	14	59.0	30.8	-53.510	24.910	SOUTH OF AFRICA	10	16.991913	
175	5 29	17	2.0	38.7	-35.964	-102.511	SOUTHERN PACIFIC OCEAN	10	71.65357	5.6
176	5 30	20	35.0	28.2	-54.096	6.049	BOUVET ISLAND REGION	10	21.451295	5.1
177	6 2	21	24.0	38.4	-57.776	-25.466	SOUTH SANDWICH ISLANDS REGION	33	29.652035	5.9
178	6 3	12	23.0	49.9	-2.193	120.159	SULAWESI, INDONESIA	33	84.579389	4.9
179	6 8	4	37.0	13.6	-47.730	31.962	SOUTH OF AFRICA	10	21.679101	4.6
180	6 9	14	45.0	28.5	-31.889	-71.634	NEAR COAST OF CENTRAL CHILE	62	67.700917	4.9
181	6 10	11	35.0	9.3	-21.767	170.726	LOYALTY ISLANDS REGION	127	82.899795	4.8
182	6 10	21	53.0	55.0	-35.815	-108.135	SOUTHERN EAST PACIFIC RISE	10	72.791505	5.8

Data		Origin time			Geographic Coordinates		Region	Depth	Epicentral Magnitude	
No.	Date	h	m	s	Latitude (deg)	Longitude (deg)		(km)	distance (deg)	(Mb)
183	6 11	9	29.0	23.4	-23.970	-177.509	SOUTH OF FIJI ISLANDS	164	83.455639	5.4
184	6 11	11	53.0	32.7	-17.814	-178.836	FIJI ISLANDS REGION	573	89.154784	4.9
185	6 11	19	12.0	28.6	2.882	97.329	NORTHERN SUMATERA, INDONESIA	57	81.633474	5.2
186	6 12	12	7.0	33.6	-5.951	147.026	EASTERN NEW GUINEA REG., P.N.G.	33	90.647607	5.7
187	6 13	8	7.0	11.5	-53.134	9.372	SOUTHWEST OF AFRICA	10	21.237706	5.0
188	6 15	0	45.0	30.9	-20.317	-177.867	FIJI ISLANDS REGION	502	86.93011	4.8
189	6 15	1	32.0	48.3	-32.940	-178.791	SOUTH OF KERMADEC ISLANDS	100	74.494048	4.8
190	6 15	13	1.0	10.8	-56.845	-24.962	SOUTH SANDWICH ISLANDS REGION	33	30.179677	5.0
191	6 15	13	40.0	36.1	-6.288	154.885	SOLOMON ISLANDS	55	92.953895	5.0
192	6 15	17	6.0	18.8	-7.146	155.674	IRIAN JAYA REGION, INDONESIA	33	92.402499	4.9
193	6 16	15	40.0	22.7	-32.905	-178.542	SOUTH OF KERMADEC ISLANDS	33	74.576482	4.8
194	6 17	4	59.0	27.8	-33.122	-178.477	SOUTH OF KERMADEC ISLANDS	33	74.378519	4.9
195	6 17	22	14.0	17.3	-27.744	-64.753	SANTIAGO DEL ESTERO PROV., ARG.	28	69.338191	5.6

Data		Origin time			Geographic Coordinates		Region	Depth	Epicentral Magnitude	
No.	Date	h	m	s	Latitude (deg)	Longitude (deg)		(km)	distance (deg)	(Mb)
196	6 18	19	31.0	54.6	-32.853	-178.340	SOUTH OF KERMADEC ISLANDS	33	74.66608	5.0
197	6 19	0	24.0	1.1	-30.663	-178.998	KERMADEC ISLANDS, NEW ZEALAND	200	76.661721	5.2
198	6 19	12	21.0	3.1	-33.200	-70.142	CHILE-ARGENTINA BORDER REGION	106	66.022363	5.4
199	6 19	23	26.0	10.5	-8.732	122.420	FLORES REGION, INDONESIA	50	79.329601	5.4
200	6 21	19	34.0	48.7	-32.875	-179.200	SOUTH OF KERMADEC ISLANDS	33	74.476839	5.0
201	6 21	23	45.0	0.6	3.410	122.941	CELEBES SEA	548	90.771058	4.9
202	6 24	12	6.0	52.0	-22.604	-10.653	SOUTHERN MID-ATLANTIC RIDGE	10	55.289967	4.8
203	6 24	16	17.0	9.4	-20.703	174.178	VANUATU ISLANDS REGION	33	84.775854	5.2
204	6 24	23	4.0	53.1	-1.924	127.899	HALMAHERA, INDONESIA	33	87.607298	5.9
205	6 25	3	54.0	12.2	-16.018	-173.047	TONGA ISLANDS	33	92.061089	5.1
206	6 26	5	8.0	5.5	-4.094	102.151	SOUTHERN SUMATERA, INDONESIA	33	76.598224	5.1
207	6 26	12	6.0	4.6	-31.950	57.290	SOUTHWEST INDIAN RIDGE	10	38.459268	5.1
208	6 26	17	56.0	49.5	-22.981	-66.592	JUJUY PROVINCE, ARGENTINA	220	74.360527	4.3

Data		Origin time			Geographic Coordinates		Region	Depth	Epicentral Magnitude	
No.	Date	h	m	s	Latitude (deg)	Longitude (deg)		(km)	distance (deg)	(Mb)
209	6 26	19	21.0	8.8	-49.692	-114.570	SOUTHERN EAST PACIFIC RISE	10	60.082298	5.4
210	6 28	8	5.0	37.4	-23.824	-179.758	SOUTH OF FIJI ISLANDS	500	83.135219	5.0
211	6 29	17	22.0	39.1	-14.885	167.323	VANUATU ISLANDS	151	88.570866	4.9
212	6 29	20	2.0	53.8	-6.920	129.726	BANDA SEA	100	83.637828	5.6
213	6 30	7	41.0	32.8	-21.449	-66.634	SOUTHERN BOLIVIA	240	75.79802	4.6
214	6 30	9	7.0	57.7	-24.457	-69.326	NORTHERN CHILE	80	73.88298	4.8
215	6 30	12	26.0	32.6	-32.325	-178.003	SOUTH OF KERMADEC ISLANDS	33	75.243658	4.9
216	6 30	18	56.0	27.4	-4.161	-80.926	PERU-ECUADOR BORDER REGION	33	96.618393	5.3
217	7 1	20	0.0	34.6	0.072	123.362	MINAHASSA PENINSULA, SULAWESI	100	87.825905	4.7
218	7 2	6	59.0	34.1	-34.000	-179.505	SOUTH OF KERMADEC ISLANDS	33	73.326326	4.7
219	7 4	9	54.0	2.7	-58.055	-11.180	SOUTHWESTERN ATLANTIC OCEAN	10	24.326396	5.5
220	7 5	13	29.0	51.4	-6.378	154.748	SOLOMON ISLANDS	408	92.824936	4.6
221	7 5	22	46.0	41.0	-11.547	164.802	SANTA CRUZ ISLANDS REGION	33	91.035225	5.5

Data		Origin time			Geographic Coordinates		Region	Depth	Epicentral Magnitude	
No.	Date	h	m	s	Latitude (deg)	Longitude (deg)		(km)	distance (deg)	(Mb)
222	7 5	23	21.0	30.1	-22.022	-179.326	SOUTH OF FIJI ISLANDS	587	84.972337	4.9
223	7 6	9	54.0	0.7	-30.058	-71.872	NEAR COAST OF CENTRAL CHILE	19	69.477077	5.8
224	7 6	23	15.0	20.4	-30.164	-71.863	NEAR COAST OF CENTRAL CHILE	33	69.375647	5.3
225	7 7	9	44.0	33.0	-2.725	138.886	IRIAN JAYA, INDONESIA	33	90.806289	5.1
226	7 7	11	24.0	37.7	1.070	97.595	NORTHERN SUMATERA, INDONESIA	29	80.003881	5.4
227	7 8	1	10.0	57.1	-4.360	153.669	NEW IRELAND REGION, P.N.G.	242	94.366017	5.0
228	7 8	9	48.0	18.5	-57.912	-9.249	SOUTHWESTERN ATLANTIC OCEAN	10	23.736918	4.5
229	7 8	13	18.0	16.0	-54.146	-133.445	PACIFIC-ANTARCTIC RIDGE	29	57.049241	4.8
230	7 10	7	10.0	32.9	-47.658	32.103	PRINCE EDWARD ISLANDS REGION	10	21.738344	4.4
231	7 10	13	10.0	48.1	-10.747	113.716	SOUTH OF JAWA, INDONESIA	33	74.354689	5.1
232	7 11	2	32.0	42.2	-18.859	-69.444	NORTHERN CHILE	106	79.138665	5.1
233	7 11	9	55.0	12.5	-5.697	110.796	JAVA SEA	574	78.023456	5.6
234	7 12	16	24.0	10.3	-21.231	-68.154	CHILE-BOLIVIA BORDER REGION	123	76.503726	5.2

Data		Origin time			Geographic Coordinates		Region	Depth	Epicentral Magnitude	
No.	Date	h	m	s	Latitude (deg)	Longitude (deg)		(km)	distance (deg)	(Mb)
235	7 13	14	43.0	0.9	-7.353	126.692	BANDA SEA	296	82.144176	5.0
236	7 13	18	10.0	19.9	-23.626	-68.118	NORTHERN CHILE	125	74.263296	5.2
237	7 15	3	30.0	27.0	-3.693	131.467	IRIAN JAYA REGION, INDONESIA	33	87.253399	4.9
238	7 15	3	53.0	58.3	-23.183	-63.424	SALTA PROVINCE, ARGENTINA	33	73.113703	4.7
239	7 15	17	35.0	34.3	-23.411	-66.662	JUJUY PROVINCE, ARGENTINA	200	73.984312	4.4
240	7 16	14	35.0	27.8	-7.468	129.440	BANDA SEA	33	83.027526	4.9
241	7 16	16	31.0	53.6	-22.642	-67.920	CHILE-BOLIVIA BORDER REGION	157	75.11364	4.5
242	7 16	20	35.0	20.4	-23.331	-66.872	JUJUY PROVINCE, ARGENTINA	180	74.128002	4.6
243	7 18	14	45.0	51.2	-60.534	-24.975	SOUTH SANDWICH ISLANDS REGION	33	27.458194	4.9
244	7 19	12	22.0	57.3	-29.281	-71.684	NEAR COAST OF CENTRAL CHILE	26	70.141738	5.8
245	7 19	16	10.0	16.5	-22.959	169.862	LOYALTY ISLANDS REGION	33	81.538966	5.7
246	7 19	22	55.0	22.6	-29.910	-177.642	KERMADEC ISLANDS, NEW ZEALAND	33	77.658946	4.8
247	7 20	10	14.0	22.8	-22.982	-66.301	JUJUY PROVINCE, ARGENTINA	256	74.26314	5.7

Data		Origin time			Geographic Coordinates		Region	Depth	Epicentral Magnitude	
No.	Date	h	m	s	Latitude (deg)	Longitude (deg)		(km)	distance (deg)	(Mb)
248	7 20	10	49.0	43.8	-6.114	145.370	NEW GUINEA, PAPUA NEW GUINEA	122	89.926984	5.0
249	7 21	2	4.0	56.6	-54.861	-129.621	PACIFIC-ANTARCTIC RIDGE	10	56.185908	4.9
250	7 21	23	19.0	39.3	-30.328	-71.917	NEAR COAST OF CENTRAL CHILE	33	69.239798	5.2
251	7 22	2	9.0	31.7	-30.358	-71.827	NEAR COAST OF CENTRAL CHILE	33	69.18398	4.9
252	7 22	10	16.0	54.2	-6.226	154.682	SOLOMON ISLANDS	51	92.946231	5.6
253	7 22	22	28.0	19.2	-50.153	131.432	SOUTH OF AUSTRALIA	10	45.027377	4.5
254	7 23	14	3.0	29.9	-6.098	-75.947	NORTHERN PERU	30	93.212058	5.3
255	7 24	19	54.0	39.6	-30.578	-72.021	OFF COAST OF CENTRAL CHILE	33	69.039395	5.0
256	7 25	6	47.0	2.6	-30.462	-71.906	NEAR COAST OF CENTRAL CHILE	33	69.111715	5.6
257	7 25	7	33.0	29.0	-30.554	-72.016	OFF COAST OF CENTRAL CHILE	33	69.060178	5.1
258	7 26	8	53.0	48.3	-24.710	-179.885	SOUTH OF FIJI ISLANDS	550	82.25021	4.8
259	7 26	11	11.0	57.4	-30.638	-72.021	OFF COAST OF CENTRAL CHILE	33	68.983571	4.8
260	7 26	20	44.0	20.8	-7.309	120.369	FLORES SEA	587	79.910881	5.2

Data		Origin time			Geographic Coordinates		Region	Depth	Epicentral Magnitude	
No.	Date	h	m	s	Latitude (deg)	Longitude (deg)		(km)	distance (deg)	(Mb)
261	7 27	5	21.0	29.2	-30.517	-71.862	NEAR COAST OF CENTRAL CHILE	33	69.046915	5.6
262	7 27	6	35.0	7.3	-30.558	-72.021	OFF COAST OF CENTRAL CHILE	33	69.058003	4.9
263	7 29	0	31.0	20.7	-30.613	-72.134	OFF COAST OF CENTRAL CHILE	33	69.041766	4.9
264	7 29	17	35.0	38.9	-22.761	-68.810	NORTHERN CHILE	107	75.294251	4.9
265	7 31	21	54.0	21.5	-6.637	130.917	BANDA SEA	59	84.328374	5.9
266	8 1	15	21.0	37.0	-5.066	105.086	SUNDA STRAIT	148	76.661709	4.8
267	8 4	0	32.0	59.6	-65.123	177.054	BALLENY ISLANDS REGION	33	42.86421	4.6
268	8 4	7	6.0	54.3	-6.261	130.143	BANDA SEA	110	84.398141	5.5
269	8 4	18	53.0	58.9	-15.160	-175.273	TONGA ISLANDS	33	92.467124	5.5
270	8 4	22	40.0	54.3	-35.363	179.557	OFF E. COAST OF N. ISLAND, N.Z.	100	71.820567	4.9
271	8 5	11	9.0	46.7	-20.690	-178.933	FIJI ISLANDS REGION	620	86.346266	4.8
272	8 7	1	4.0	8.7	-23.507	179.104	SOUTH OF FIJI ISLANDS	550	83.199129	4.9
273	8 8	11	57.0	18.5	-21.778	-68.436	CHILE-BOLIVIA BORDER REGION	112	76.087124	4.7

Data		Origin time			Geographic Coordinates		Region	Depth	Epicentral Magnitude	
No.	Date	h	m	s	Latitude (deg)	Longitude (deg)		(km)	distance (deg)	(Mb)
274	8 8	17	16.0	23.2	-44.603	35.404	PRINCE EDWARD ISLANDS REGION	10	24.565258	5.0
275	8 8	22	27.0	19.8	-15.477	-179.140	FIJI ISLANDS REGION	10	91.353778	5.7
276	8 9	16	40.0	49.5	-30.527	-71.844	NEAR COAST OF CENTRAL CHILE	26	69.032035	4.7
277	8 10	9	20.0	30.9	-16.013	124.329	WESTERN AUSTRALIA	10	73.290558	5.9
278	8 10	14	13.0	8.2	6.232	126.373	MINDANAO, PHILIPPINE ISLANDS	61	94.616113	5.3
279	8 10	22	3.0	31.4	-56.234	-27.189	SOUTH SANDWICH ISLAND REGION	94	31.440582	5.3
280	8 16	14	12.0	10.8	-37.528	177.027	OFF E. COAST OF N. ISLAND, N.Z.	200	69.215279	4.2
281	8 18	10	10.0	55.3	-23.991	-68.537	NORTHERN CHILE	103	74.060558	4.6
282	8 18	10	56.0	38.5	-13.635	167.314	VANUATU ISLANDS	33	89.759477	5.0
283	8 18	12	24.0	26.2	-29.931	-72.006	OFF COAST OF CENTRAL CHILE	33	69.636856	5.0
284	8 18	14	37.0	49.2	-16.678	-173.177	TONGA ISLANDS	33	91.393072	4.8
285	8 20	7	15.0	15.9	4.358	96.494	NORTHERN SUMATERA, INDONESIA	33	82.774208	5.9
286	8 20	13	51.0	16.6	-41.715	80.134	MID-INDIAN RIDGE	10	34.573379	5.6

Data		Origin time			Geographic Coordinates		Region	Depth	Epicentral Magnitude	
No.	Date	h	m	s	Latitude (deg)	Longitude (deg)		(km)	distance (deg)	(Mb)
287	8 20	22	28.0	54.1	-29.529	-70.322	CENTRAL CHILE	93	69.484045	4.7
288	8 22	2	45.0	21.7	3.381	127.957	TALAUD ISLANDS, INDONESIA	145	92.543879	5.2
289	8 25	1	10.0	39.8	5.733	126.322	MINDANAO, PHILIPPINE ISLANDS	135	94.135468	5.2
290	8 26	3	27.0	41.7	-58.294	-25.332	SOUTH SANDWICH ISLANDS REGION	33	29.216425	5.4
291	8 26	8	43.0	27.2	-6.998	-21.898	SOUTH ATLANTIC OCEAN	10	73.523841	5.4
292	8 26	8	58.0	27.1	-33.740	-179.173	SOUTH OF KERMADEC ISLANDS	33	73.643559	4.8
293	8 26	13	17.0	47.8	-21.139	-68.184	CHILE-BOLIVIA BORDER REGION	134	76.599261	4.9
294	8 26	15	22.0	9.1	-25.511	178.331	SOUTH OF FIJI ISLANDS	610	81.09371	5.5
295	8 27	9	55.0	45.8	-7.361	130.591	TANIMBAR ISLANDS REG., INDONESIA	33	83.540707	5.3
296	8 27	13	42.0	52.7	-6.015	148.568	NEW BRITAIN REGION, P.N.G.	33	91.11286	5.7
297	8 28	21	42.0	7.6	-17.398	167.908	VANUATU ISLANDS	33	86.334829	4.9
298	8 29	5	5.0	57.9	-22.061	-68.434	NORTHERN CHILE	117	75.822988	5.3
299	8 29	6	54.0	0.2	-15.235	-175.576	TONGA ISLANDS	33	92.333637	5.6

Data		Origin time			Geographic Coordinates		Region	Depth	Epicentral distance	Magnitude
No.	Date	h	m	s	Latitude (deg)	Longitude (deg)		(km)	(deg)	(Mb)
300	8 29	8	14.0	9.9	-3.562	144.362	NEAR N COAST OF NEW GUINEA, P.N	23	91.954861	5.8
301	8 31	10	59.0	57.5	-30.287	-177.993	KERMADEC ISLANDS, NEW ZEALAND	55	77.224565	5.1
302	9 1	12	36.0	29.5	-1.590	-15.572	NORTH OF ASCENSION ISLAND	10	76.617551	5.1
303	9 2	9	46.0	58.5	-21.769	-176.185	FIJI ISLANDS REGION	139	85.857574	4.8
304	9 3	4	0.0	42.4	-33.736	-70.167	CHILE-ARGENTINA BORDER REGION	107	65.533887	4.3
305	9 3	6	22.0	44.2	-55.190	-128.989	PACIFIC-ANTARCTIC RIDGE	10	55.82686	5.1
306	9 3	19	24.0	26.6	-17.870	-178.523	FIJI ISLANDS REGION	550	89.167036	4.4
307	9 4	4	23.0	37.0	-26.569	178.336	SOUTH OF FIJI ISLANDS	625	80.072185	6.3
308	9 4	6	2.0	24.5	-26.176	178.210	SOUTH OF FIJI ISLANDS	628	80.424726	5.1
309	9 4	3	23.0	14.4	-56.262	-27.822	SOUTH SANDWICH ISLANDS REGION	33	31.643058	5.2
310	9 6	0	32.0	49.5	-6.003	130.596	BANDA SEA	146	84.800088	5.1
311	9 7	12	57.0	6.7	-6.017	154.458	SOLOMON ISLANDS	421	93.069595	5.6
312	9 8	3	59.0	52.3	-50.142	131.191	SOUTH OF AUSTRALIA	10	44.957875	4.9

Data		Origin time			Geographic Coordinates		Region	Depth	Epicentral Magnitude	
No.	Date	h	m	s	Latitude (deg)	Longitude (deg)		(km)	distance (deg)	(Mb)
313	9 10	12	57.0	7.0	-21.349	-174.386	TONGA ISLANDS	10	86.61227	5.7
314	9 10	20	27.0	41.0	-52.797	19.683	SOUTHWEST OF AFRICA	10	18.75912	5.1
315	9 10	22	29.0	26.7	-52.905	19.715	SOUTHWEST OF AFRICA	10	18.651725	5.3
316	9 11	0	47.0	26.5	-59.053	-16.665	SOUTHWESTERN ATLANTIC OCEAN	10	25.572302	5.1
317	9 11	1	11.0	2.8	-52.765	19.526	SOUTHWEST OF AFRICA	10	18.825202	4.9
318	9 12	14	9.0	3.0	-63.122	-164.321	PACIFIC-ANTARCTIC RIDGE	10	47.061964	5.0
319	9 15	1	39.0	52.9	-31.396	-178.673	KERMADEC ISLANDS REGION	158	76.015002	4.7
320	9 15	13	5.0	42.7	8.098	126.642	MINDANAO, PHILIPPINE ISLANDS	51	<u>96.441131</u>	5.8
321	9 18	18	19.0	41.3	-60.722	-24.479	SOUTH SANDWICH ISLANDS REGION	33	27.151853	5.4
322	9 18	23	3.0	28.3	-13.092	167.089	VANUATU ISLANDS	204	90.214267	4.9
323	9 20	16	11.0	32.1	-28.682	-177.624	KERMADEC ISLANDS REGION	30	78.855425	6.1
324	9 21	18	13.0	22.7	-7.360	30.370	LAKE TANGANYIKA REGION	10	61.870237	5.7
325	9 23	17	51.0	23.4	-65.526	178.813	BALLENY ISLANDS REGION	10	42.745671	5.0

Data		Origin time			Geographic Coordinates		Region	Depth	Epicentral Magnitude	
No.	Date	h	m	s	Latitude (deg)	Longitude (deg)		(km)	distance (deg)	(Mb)
326	9 24	9	14.0	50.7	-19.357	-177.806	FIJI ISLANDS REGION	386	87.87451	4.6
327	9 24	15	16.0	28.3	-21.024	-174.273	TONGA ISLANDS	33	86.95027	4.9
328	9 25	14	20.0	48.9	-13.761	66.248	MID-INDIAN RIDGE	10	57.765863	5.3
329	9 25	23	26.0	53.3	-27.092	-176.779	KERMADEC ISLANDS REGION	41	80.564877	5.3
330	9 26	15	48.0	34.2	-5.385	128.994	BANDA SEA	254	84.795693	5.8
331	9 27	7	22.0	50.9	-29.555	-176.906	KERMADEC ISLANDS REGION	33	78.145498	5.1
332	9 27	12	9.0	33.8	-27.885	-66.664	CATAMARCA PROVINCE, ARGENTINA	176	69.835394	5.0
333	9 28	1	38.0	28.6	-3.776	119.727	SULAWESI, INDONESIA	33	82.95659	5.6
334	9 30	4	26.0	30.7	-30.062	-177.734	KERMADEC ISLANDS, NEW ZEALAND	33	77.493452	4.9
335	10 2	1	36.0	57.6	-7.556	127.505	BANDA SEA	160	82.249193	4.9
336	10 3	2	42.0	31.8	-53.610	140.400	WEST OF MACQUARIE ISLAND	10	44.855401	5.3
337	10 4	18	31.0	41.0	-35.286	-106.708	SOUTHERN EAST PACIFIC RISE	10	73.06933	4.9
338	10 5	14	0.0	33.4	-35.509	78.395	MID-INDIAN RIDGE	10	39.781316	4.7

Data		Origin time			Geographic Coordinates		Region	Depth	Epicentral Magnitude	
No.	Date	h	m	s	Latitude (deg)	Longitude (deg)		(km)	distance (deg)	(Mb)
339	10 5	18	4.0	30.0	-59.739	-29.198	SOUTH SANDWICH ISLANDS REGION	274	29.498928	6.0
340	10 5	19	0.0	2.3	5.679	125.453	MINDANAO, PHILIPPINE ISLANDS	224	93.773763	5.6
341	10 6	6	57.0	14.4	-16.327	178.195	FIJI ISLANDS	23	89.936997	5.0
342	10 7	3	44.0	6.7	-31.302	-178.255	KERMADEC ISLANDS REGION	100	76.18805	4.8
343	10 7	13	15.0	53.3	-31.845	-178.318	KERMADEC ISLANDS REGION	33	75.648709	5.5
344	10 7	17	53.0	32.2	-52.117	15.166	SOUTHWEST OF AFRICA	10	20.500193	5.3
345	10 7	21	50.0	26.3	-3.421	131.016	IRIAN JAYA REGION, INDONESIA	33	87.343116	5.3
346	10 8	6	50.0	53.6	-31.521	-178.055	KERMADEC ISLANDS REGION	33	76.014291	4.8
347	10 8	10	47.0	49.9	-29.250	178.355	KERMADEC ISLANDS REGION	617	77.484916	5.5
348	10 9	8	2.0	24.8	-28.826	-178.660	KERMADEC ISLANDS REGION	278	78.511061	5.4
349	10 14	9	53.0	18.1	-22.101	-176.772	SOUTH OF FIJI ISLANDS	167	85.41879	6.7
350	10 14	16	28.0	48.3	-10.813	165.886	SANTA CRUZ ISLANDS	48	92.043914	5.0
351	10 15	1	3.0	33.4	-30.933	-71.220	NEAR COAST OF CENTRAL CHILE	58	68.460805	6.8

Data		Origin time			Geographic Coordinates		Region	Depth	Epicentral Magnitude	
No.	Date	h	m	s	Latitude (deg)	Longitude (deg)		(km)	distance (deg)	(Mb)
352	10 15	2	54.0	20.8	-16.119	-73.587	NEAR COAST OF PERU	56	83.046081	5.7
353	10 15	4	28.0	47.0	-30.809	-71.251	NEAR COAST OF CENTRAL CHILE	48	68.585678	5.5
354	10 16	0	45.0	37.2	-30.993	-71.129	NEAR COAST OF CENTRAL CHILE	64	68.376738	5.4
355	10 19	12	3.0	3.5	-23.266	-70.422	NEAR COAST OF NORTHERN CHILE	80	75.346101	4.9
356	10 19	15	53.0	38.9	-21.795	-175.014	TONGA ISLANDS	33	86.058831	5.6
357	10 20	3	31.0	8.5	-30.712	-71.349	NEAR COAST OF CENTRAL CHILE	45	68.70632	5.0
358	10 20	3	54.0	9.8	-7.626	127.332	BANDA SEA	178	82.122073	5.2
359	10 20	5	14.0	40.3	-25.611	-176.815	SOUTH OF FIJI ISLANDS	33	81.997952	5.2
360	10 22	3	41.0	46.3	5.992	125.979	MINDANAO, PHILIPPINE ISLANDS	138	94.252401	5.1
361	10 22	22	20.0	28.3	-54.243	5.996	BOUVET ISLAND REGION	10	21.344906	
362	10 23	1	16.0	1.8	-8.666	117.017	SUMBAWA REGION, INDONESIA	160	77.455639	5.5
363	10 25	5	18.0	30.1	-17.647	-178.880	FIJI ISLANDS REGION	531	89.307252	5.0
364	10 26	1	35.0	38.2	-26.331	-70.153	NEAR COAST OF NORTHERN CHILE	58	72.404402	5.1

Data		Origin time			Geographic Coordinates		Region	Depth	Epicentral Magnitude	
No.	Date	h	m	s	Latitude (deg)	Longitude (deg)		(km)	distance (deg)	(Mb)
365	10 26	8	43.0	30.7	7.145	127.439	PHILIPPINE ISLANDS REGION	33	95.844531	5.6
366	10 26	13	55.0	33.1	-54.121	-132.967	PACIFIC-ANTARCTIC RIDGE	10	57.059116	5.1
367	10 27	9	32.0	59.5	-30.759	-178.451	KERMADEC ISLANDS, NEW ZEALAND	33	76.676742	5.5
368	10 29	13	22.0	23.3	-17.415	-179.057	FIJI ISLANDS REGION	541	89.494152	5.3
369	10 30	6	31.0	13.6	-52.936	22.375	SOUTH OF AFRICA	10	18.03634	4.8
370	10 31	12	29.0	49.8	-13.115	166.920	VANUATU ISLANDS	183	90.145239	5.4
371	10 31	22	53.0	12.9	-38.061	176.889	NORTH ISLAND, NEW ZEALAND	127	68.673108	4.5
372	11 1	9	32.0	48.7	-21.075	-179.237	FIJI ISLANDS REGION	650	85.908922	4.8
373	11 3	5	37.0	48.7	-20.397	-178.743	FIJI ISLANDS REGION	600	86.670303	5.1
374	11 3	19	17.0	33.8	-30.744	-71.224	NEAR COAST OF CENTRAL CHILE	45	68.637679	6.2
375	11 3	20	12.0	52.0	-30.772	-71.335	NEAR COAST OF CENTRAL CHILE	45	68.646198	5.6
376	11 3	21	37.0	15.1	-19.963	-175.356	TONGA ISLANDS	152	87.77681	5.2
377	11 4	0	28.0	58.0	-17.002	-72.983	NEAR COAST OF PERU	33	82.024777	5.1

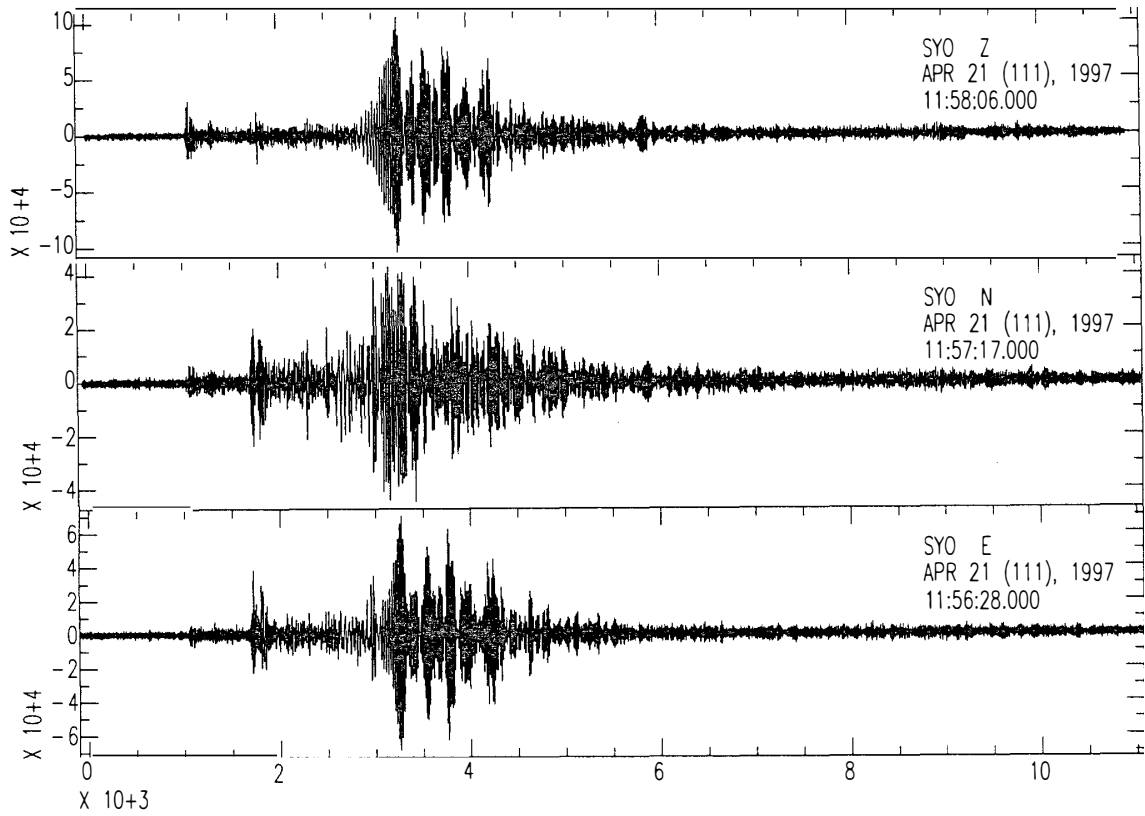
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378	11 7	22	30.0	4.1	-40.312	176.547	NORTH ISLAND, NEW ZEALAND	33	66.43524	5.0
379	11 9	20	23.0	40.5	-30.024	-71.873	NEAR COAST OF CENTRAL CHILE	28	69.509027	5.2
380	11 14	16	4.0	34.6	3.506	123.797	CELEBES SEA	425	91.166187	4.9
381	11 15	18	59.0	24.3	-15.145	167.375	VANUATU ISLANDS	123	88.337412	6.4
382	11 17	6	25.0	33.3	-20.830	-174.320	TONGA ISLANDS	33	87.130515	4.9
383	11 18	15	41.0	29.5	-29.059	-177.654	KERMADEC ISLANDS, NEW ZEALAND	52	78.483332	5.7
384	11 20	6	8.0	10.3	-59.057	-25.511	SOUTH SANDWICH ISLANDS REGION	33	28.714397	5.2
385	11 22	13	41.0	8.3	-28.852	-71.375	NEAR COAST OF CENTRAL CHILE	33	70.444467	5.2
386	11 22	23	56.0	56.6	-15.249	167.540	VANUATU ISLANDS	140	88.283621	5.0
387	11 23	0	17.0	45.9	-21.688	170.337	LOYALTY ISLANDS REGION	33	82.876187	5.2
388	11 23	18	36.0	37.6	-3.411	145.754	NEAR N. COAST OF NEW GUINEA, P.	33	92.578379	5.2
389	11 24	13	11.0	48.3	-52.782	12.900	SOUTHWEST OF AFRICA	10	20.518636	4.7
390	11 24	15	37.0	9.2	-13.187	174.779	FIJI ISLANDS REGION	33	92.148841	5.2

Data		Origin time			Geographic Coordinates		Region	Depth	Epicentral Magnitude	
No.	Date	h	m	s	Latitude (deg)	Longitude (deg)		(km)	distance (deg)	(Mb)
391	11 25	12	14.0	33.6	1.241	122.536	MINAHASSA PENINSULA, SULAWESI	24	88.61436	6.1
392	11 28	22	53.0	41.5	-13.740	-68.788	PERU-BOLIVIA BORDER REGION	586	83.698435	6.4
393	11 29	2	42.0	27.3	-21.030	-178.758	FIJI ISLANDS REGION	581	86.053344	5.2
394	11 29	21	3.0	31.8	-41.208	173.542	SOUTH ISLAND, NEW ZEALAND	104	64.94226	5.3
395	12 1	6	48.0	23.7	1.673	126.435	NORTHERN MOLUCCA SEA	61	90.413541	5.2
396	12 9	14	23.0	45.2	-20.236	-68.365	CHILE-BOLIVIA BORDER REGION	133	77.499883	5.7
397	12 12	7	15.0	6.8	-13.704	-76.371	NEAR COAST OF PERU	38	86.199025	5.4
398	12 12	17	7.0	57.7	-23.641	-69.453	NORTHERN CHILE	81	74.683825	5.0
399	12 13	19	22.0	58.7	-41.397	-87.444	WEST CHILE RISE	10	63.176035	5.7
400	12 14	2	39.0	17.4	-59.574	-26.186	SOUTH SANDWICH ISLANDS REGION	33	28.572531	5.0
401	12 14	8	59.0	7.3	-55.796	-26.883	SOUTH SANDWICH ISLANDS REGION	33	31.672271	5.0
402	12 14	12	21.0	38.2	-30.660	-178.923	KERMADEC ISLANDS, NEW ZEALAND	200	76.679545	4.5
403	12 14	23	10.0	3.9	-15.571	-173.173	TONGA ISLANDS	33	92.473388	5.2

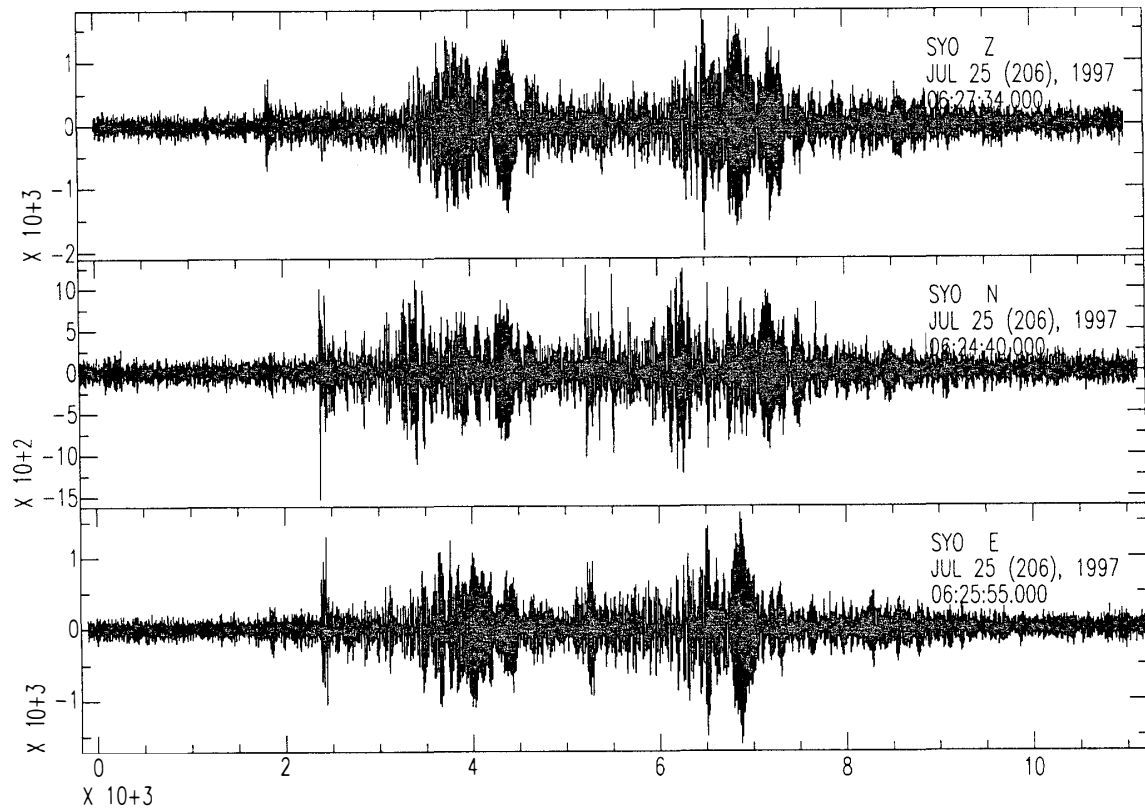
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404	12 15	13	7.0	36.5	-34.393	-71.858	NEAR COAST OF CENTRAL CHILE	44	65.445522	4.9
405	12 15	14	27.0	56.1	-24.380	-69.521	NORTHERN CHILE	82	74.017671	5.0
406	12 16	20	40.0	9.2	-35.500	-105.920	SOUTHERN EAST PACIFIC RISE	10	72.724581	5.2
407	12 22	2	5.0	50.0	-5.495	147.867	EASTERN NEW GUINEA REG., P.N.G.	179	91.36018	6.3
408	12 26	5	34.0	24.7	-22.338	-179.690	SOUTH OF FIJI ISLANDS	588	84.589166	5.3
409	12 27	20	11.0	1.3	-55.783	-4.218	SOUTHERN MID-ATLANTIC RIDGE	10	23.56421	5.4
410	12 27	20	27.0	54.4	-17.596	-174.834	TONGA ISLANDS	33	90.182595	5.3
411	12 28	3	25.0	13.1	-4.411	152.950	NEW BRITAIN REGION, P.N.G.	33	94.081069	5.4
412	12 29	2	39.0	48.0	-49.570	125.865	SOUTH OF AUSTRALIA	10	43.671631	4.7
413	12 29	5	12.0	21.5	-52.145	28.096	SOUTH OF AFRICA	10	17.778399	5.1

APPENDIX

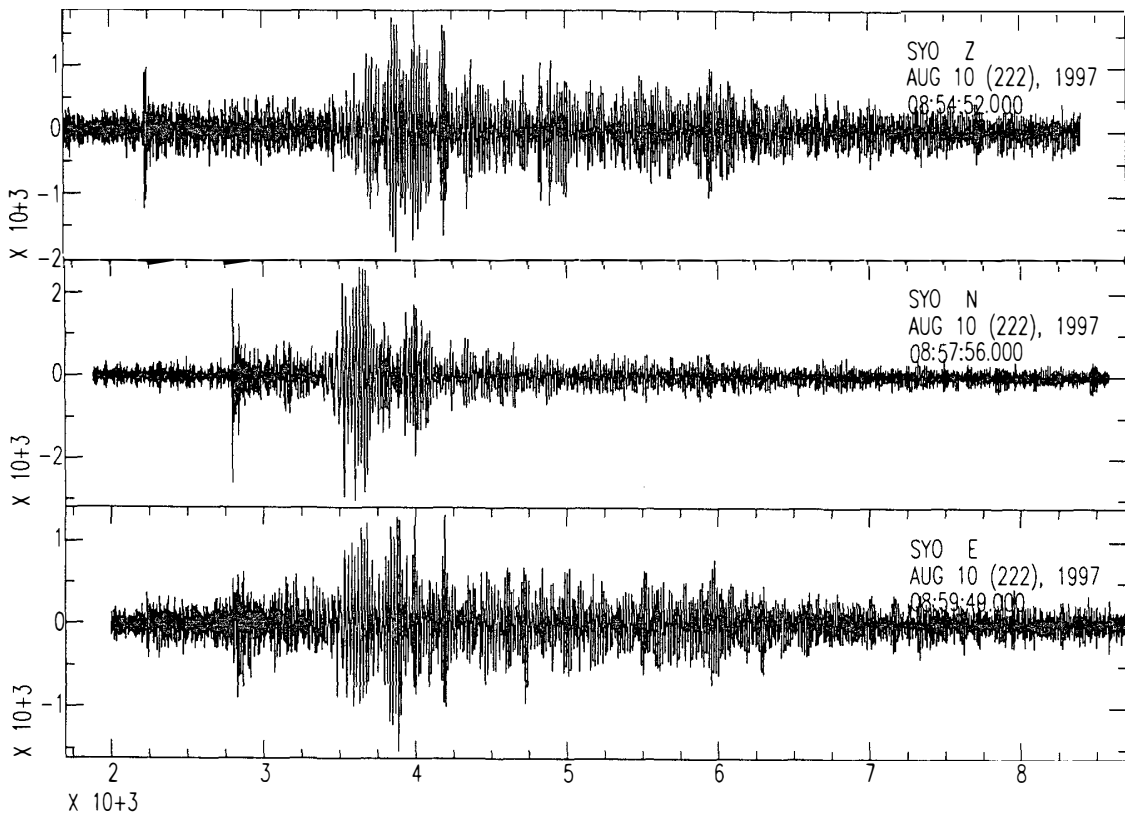
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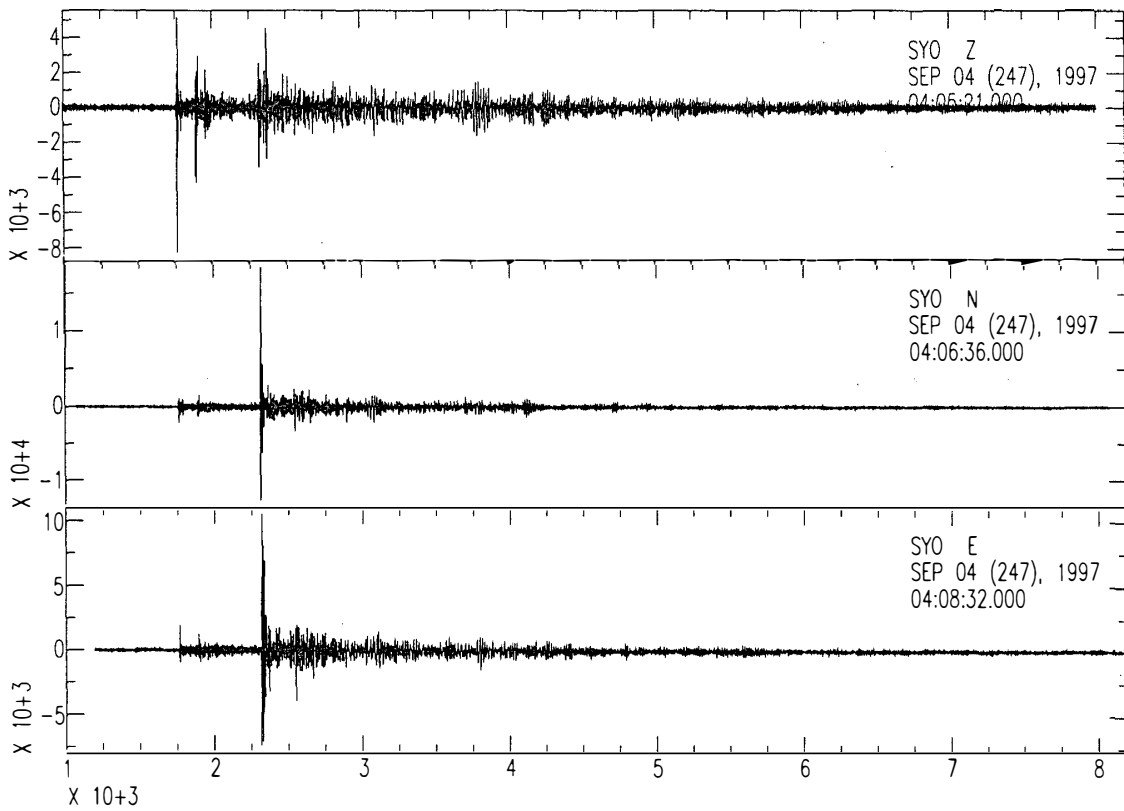
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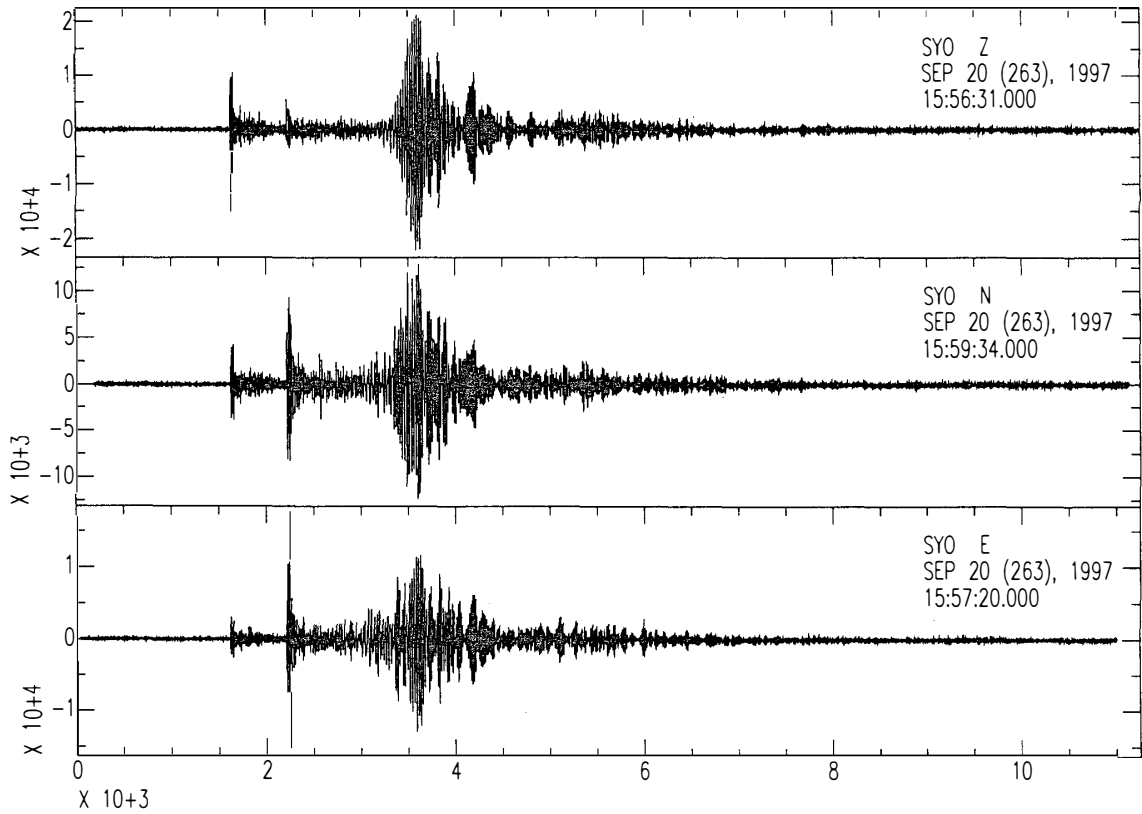
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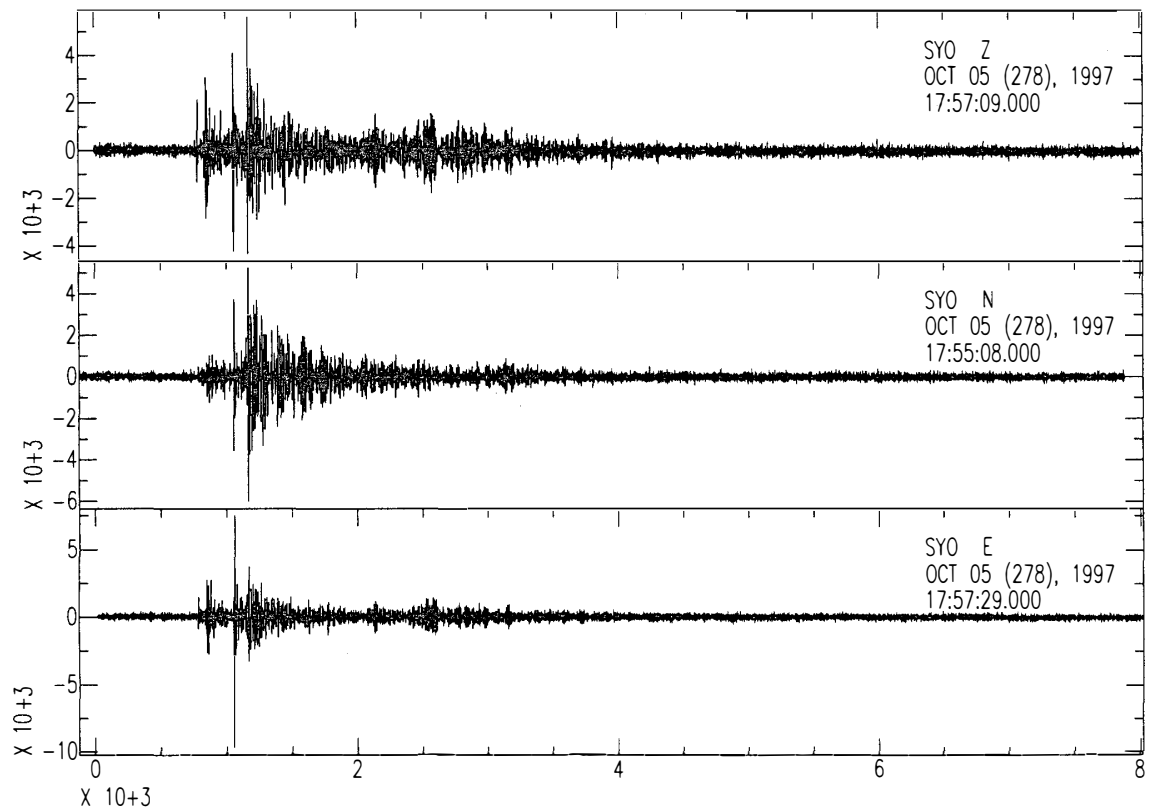
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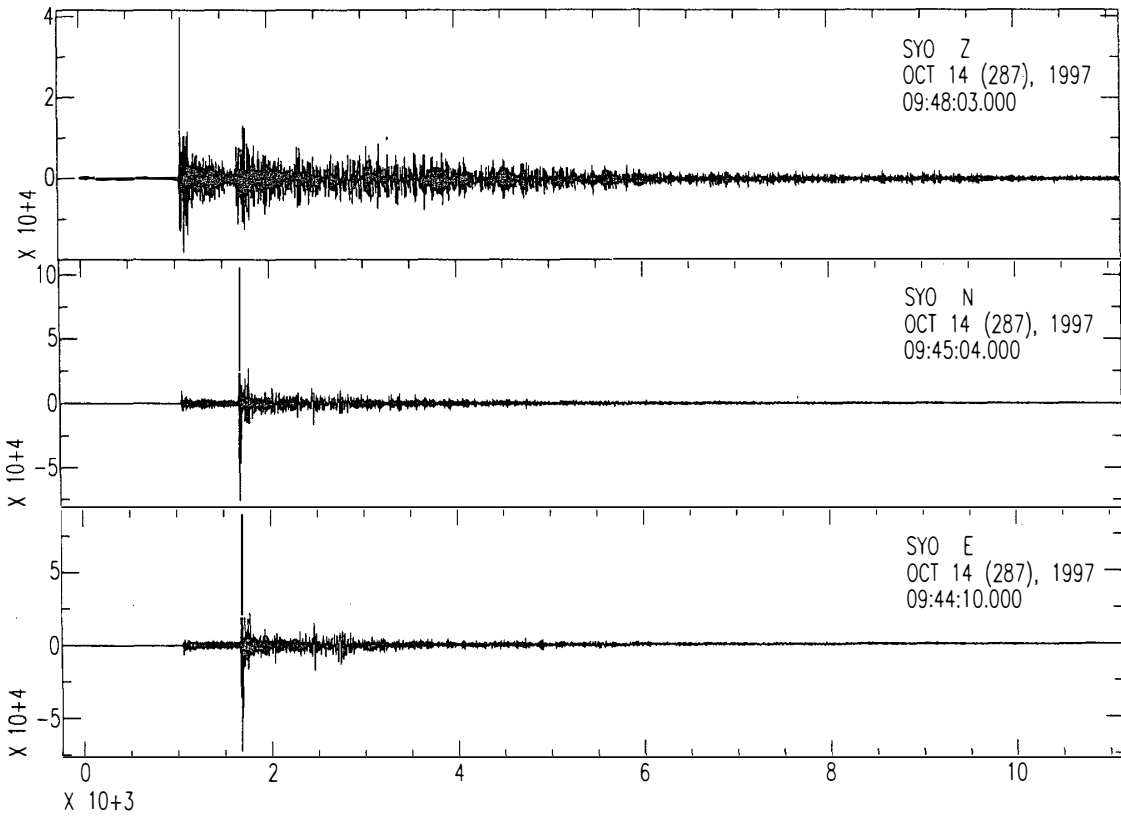
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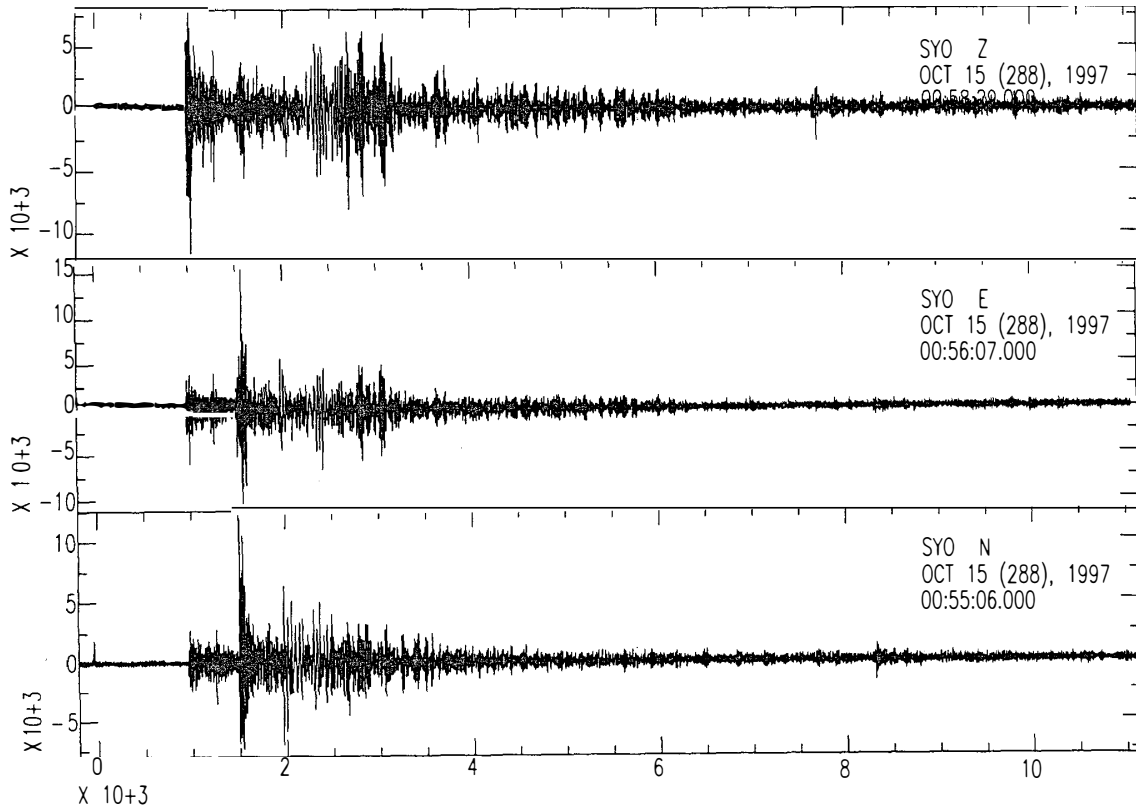
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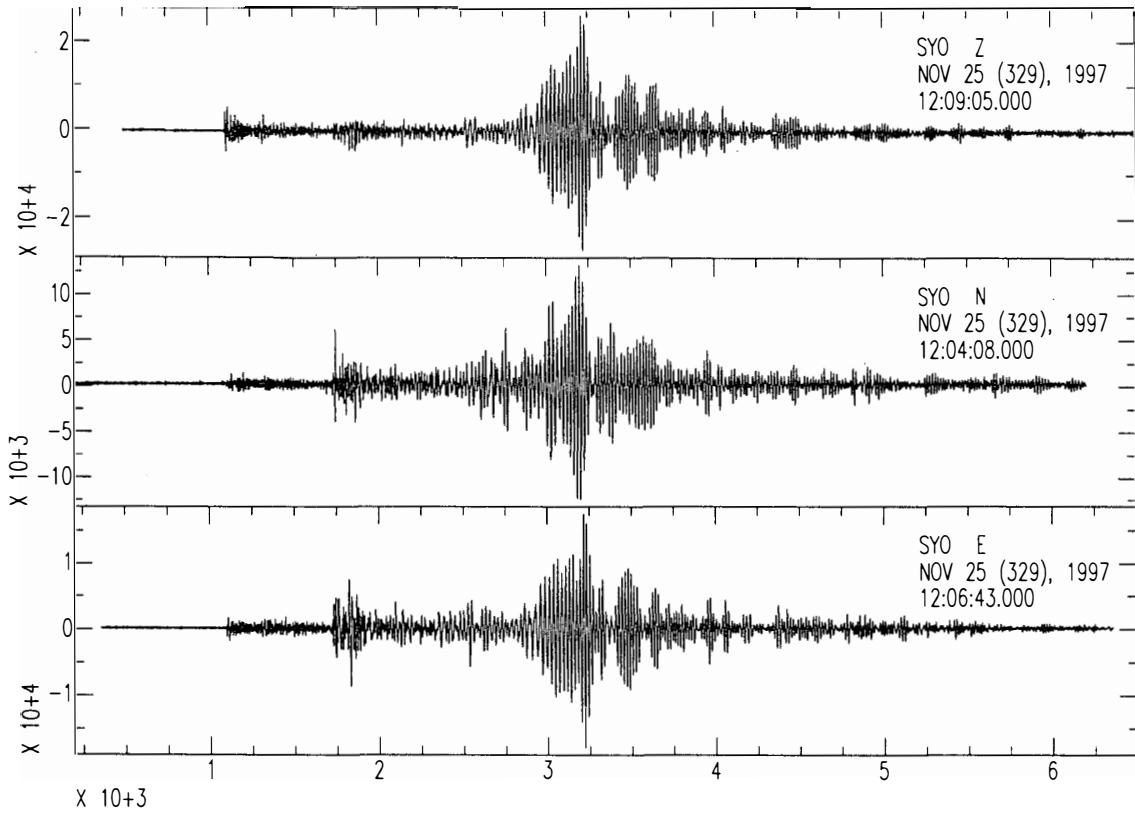
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