

SEISMOLOGICAL BULLETIN OF SYOWA STATION, ANTARCTICA, 1994

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1. Introduction

Seismic observations at Syowa Station (69.0° S, 39.6° E), East Antarctica started by using short-period seismometers with a 1.0 s natural period in 1959 (Eto, 1962). Phase readings of the teleseismic events, detected from the three-component short- and long- period seismograms, have been regularly reported 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) (Tsuboi, 1995). All of these observation systems were maintained by one of the authors, K. Nawa, throughout the wintering season of JARE-35.

2. Observations

2.1. Short- and long- periods of seismographs

Seismic observations at Syowa Station have been carried out mainly by two types of seismometers, one called HES-type with a 1.0 s natural period of the pendulum and the other called PELS-type with a 12.0 s natural period. The three-component short-period and long-period seismographs had been operated since 1961 and 1967, respectively (Kaminuma *et al.*, 1968). The current seismographic vault was constructed in March 1970 (Kaminuma and Chiba, 1973). The old type of long-period seismometer (Press-Ewing-type) was replaced by PELS in 1982. The geodetic coordinates of the seismographic vault are 69°00'31.7"S, 39°35'31.6"E and the elevation is 20 m above mean sea level, respectively. Seismic signals of the short- and long-period seismometers in the vault are transmitted by 700 m analog cables to the Earth Science Laboratory (ESL) where two sets of thermal pen-recorders have been operated for monitoring (Fig. 1). The overall frequency responses and the magnifications of the short- and long-period seismometers are shown in Fig. 2.

2.2. Broadband seismographs

A set of STS seismometers has wide dynamic-range of 140 dB and three outputs of different frequency characteristics. Velocity output (BRoadBand; 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. The digital recording system for the BRB output started from May 1990 (Nagasaka *et al.*, 1992), and from February 1992 for the LP output (Kanao and Kaminuma, 1994), respectively. Boom-POSition (POS) output is analog-monitored, which is proportional to the offset of the null position of the pendulum. The amplitude and phase responses for the BRB output are shown in Fig. 3 (after Streckeisen and Messegeraete, 1987). The block diagram of the recording system

at Syowa Station is illustrated in Fig. 4. The system reference clock has been calibrated to the Coordinated Universal Time (UTC) from a Global Positioning System (GPS) receiver.

2.3. Data transmission via the satellite telecommunication system

Transmission of the digital waveform data by a broadband seismographs from Syowa Station to the National Institute of Polar Research (NIPR) has been successfully made since 1993 via the INMARSAT telecommunication link. The UUCP protocol has been used for the file transfer. Block diagram of the off-line editing and data transmission system is illustrated in Fig. 5. In addition, *e-mail* communication started from May 1995, and phase read-out data can be sent to the National Earthquake Information Center (NEIC) in the 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 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. 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 for shear waves only clear phases were scaled on the horizontal components. These phases were identified by comparing the observed travel time with the calculation one which is

within 3 s difference. The most arrival times consist of *P*- and *S*- phases and 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 from calculation. 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.

3.2. List of teleseismic events

Figure 6 shows the hypocenters of 727 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 the authors.

Examples of digital waveforms on the BRB outputs for the large 37 events are given in the Appendix. The digital records of these events can be distributed upon request. 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.

Data Processing Staff

The seismic observation system at Syowa Station was designed by M. Kanao, K. Kaminuma, and K. Shibuya of the National Institute of Polar Research. Ms. A. Ibaraki and M. Minegishi prepared this manuscript. The authors express their thanks for their cooperation.

References

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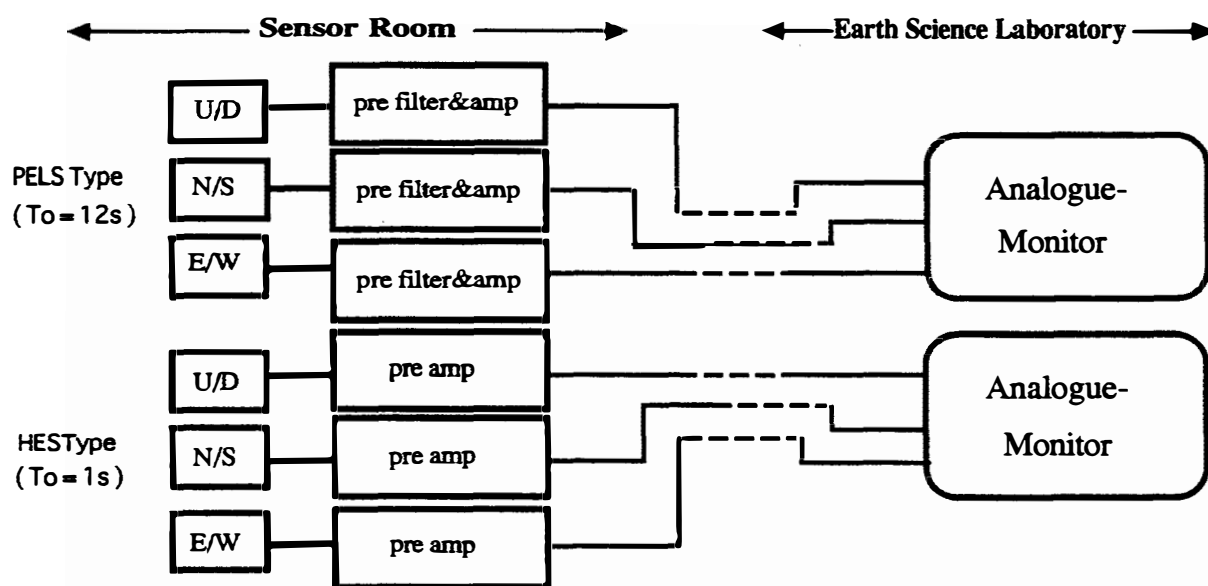


Fig. 1. Block diagram of on-line recording system for the three-component short-period (HES-type) and long-period (PELS-type) seismographs at Syowa Station.

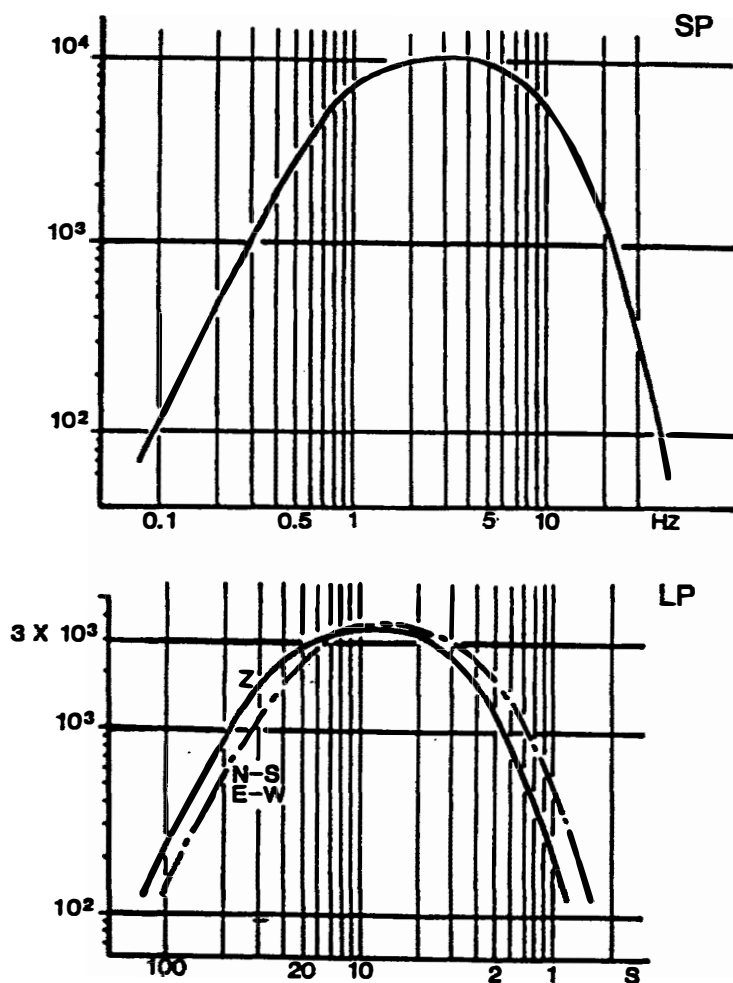


Fig. 2. Over-all frequency responses of the short- and long-period seismographs.

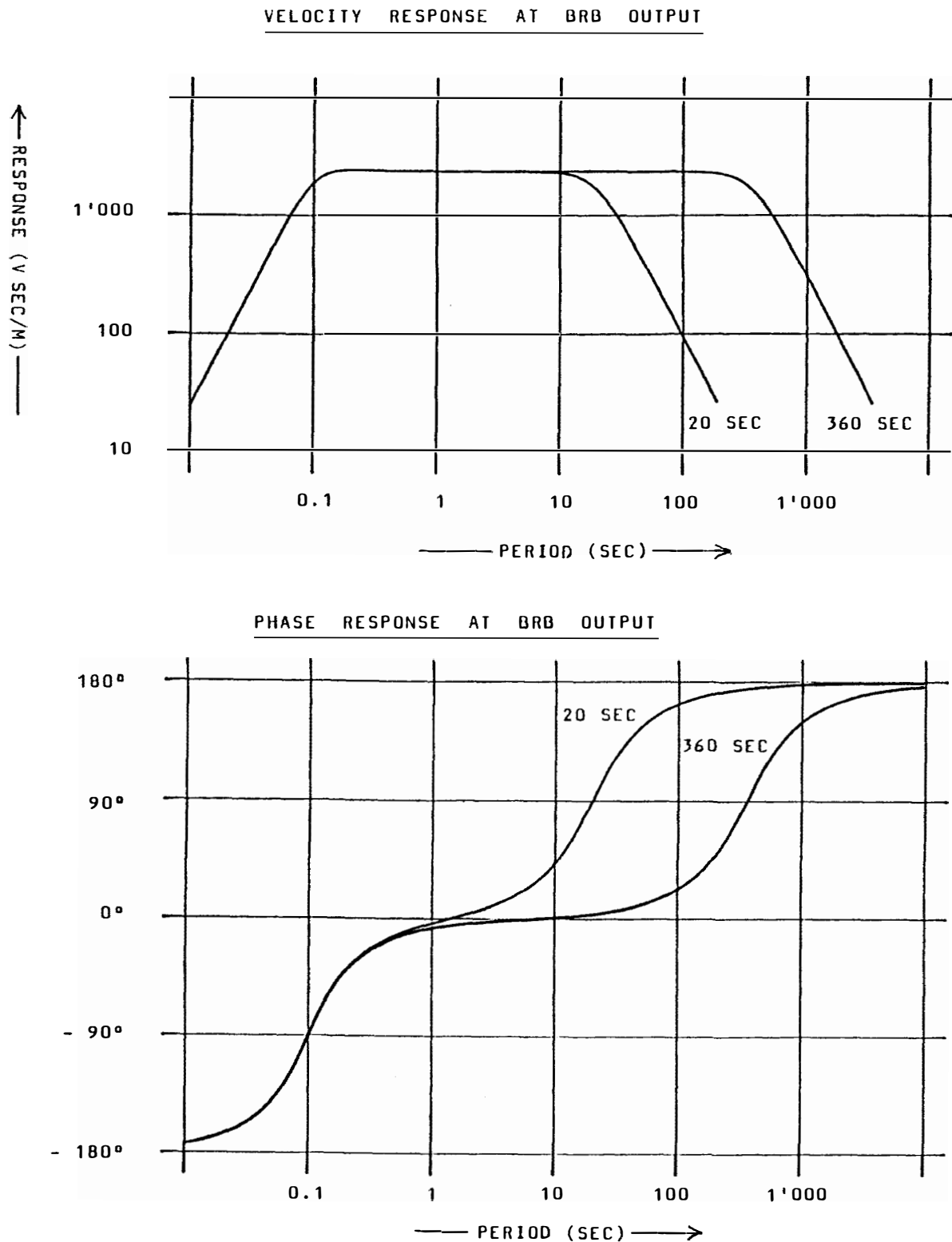


Fig. 3. Amplitude responses (upper figure) and phase responses (lower figure) for the velocity (BRB) output of the broadband seismograph (STS) in the two distinct signal modes of 20-s and 360-s (after Streckeisen and Messergeraete, 1987).

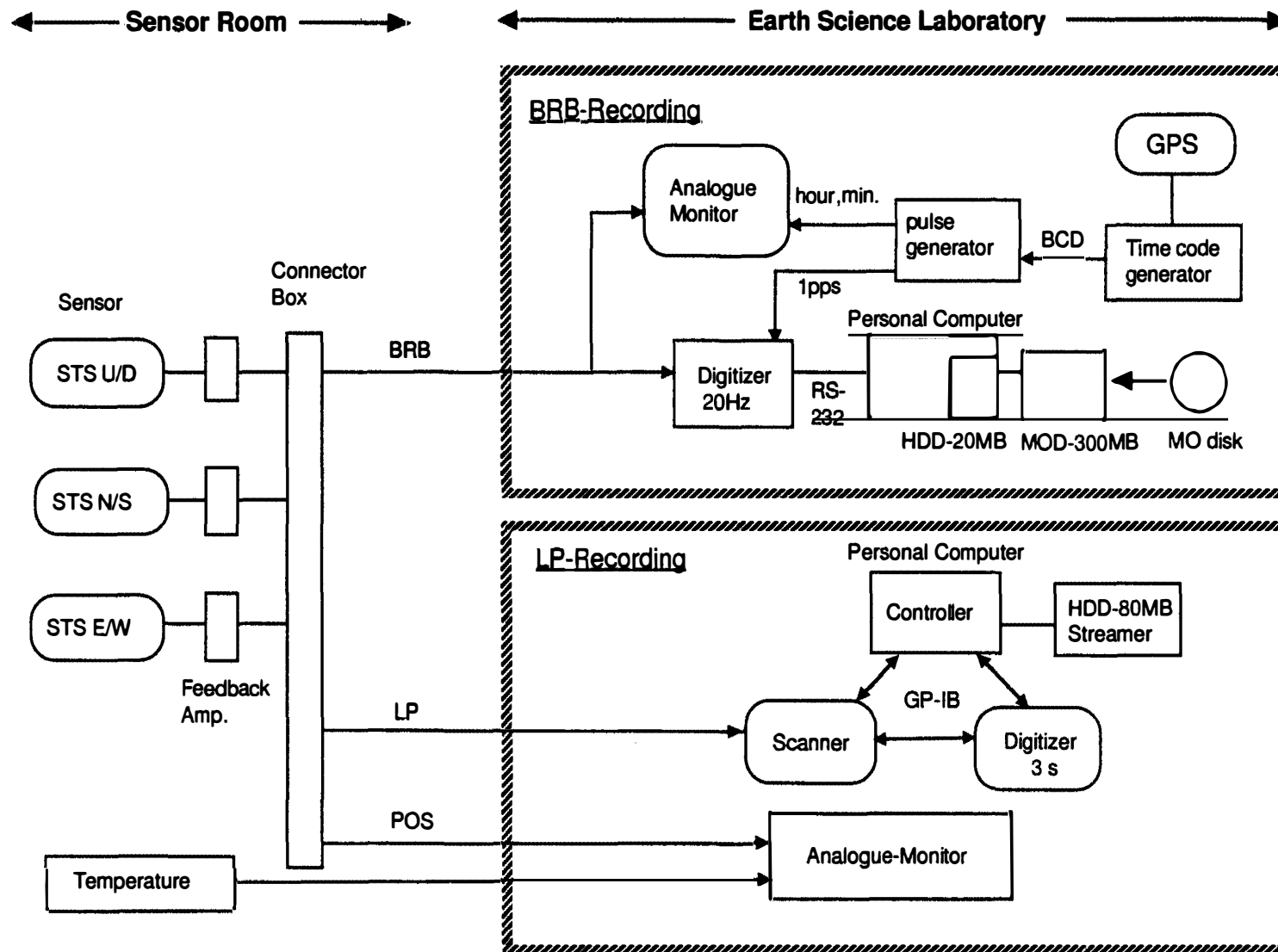


Fig. 4. Block diagram of on-line recording system for the STS seismograph at Syowa Station. Upper figure: recording system of BRB output ; Lower figure: recording system of LP and POS outputs.

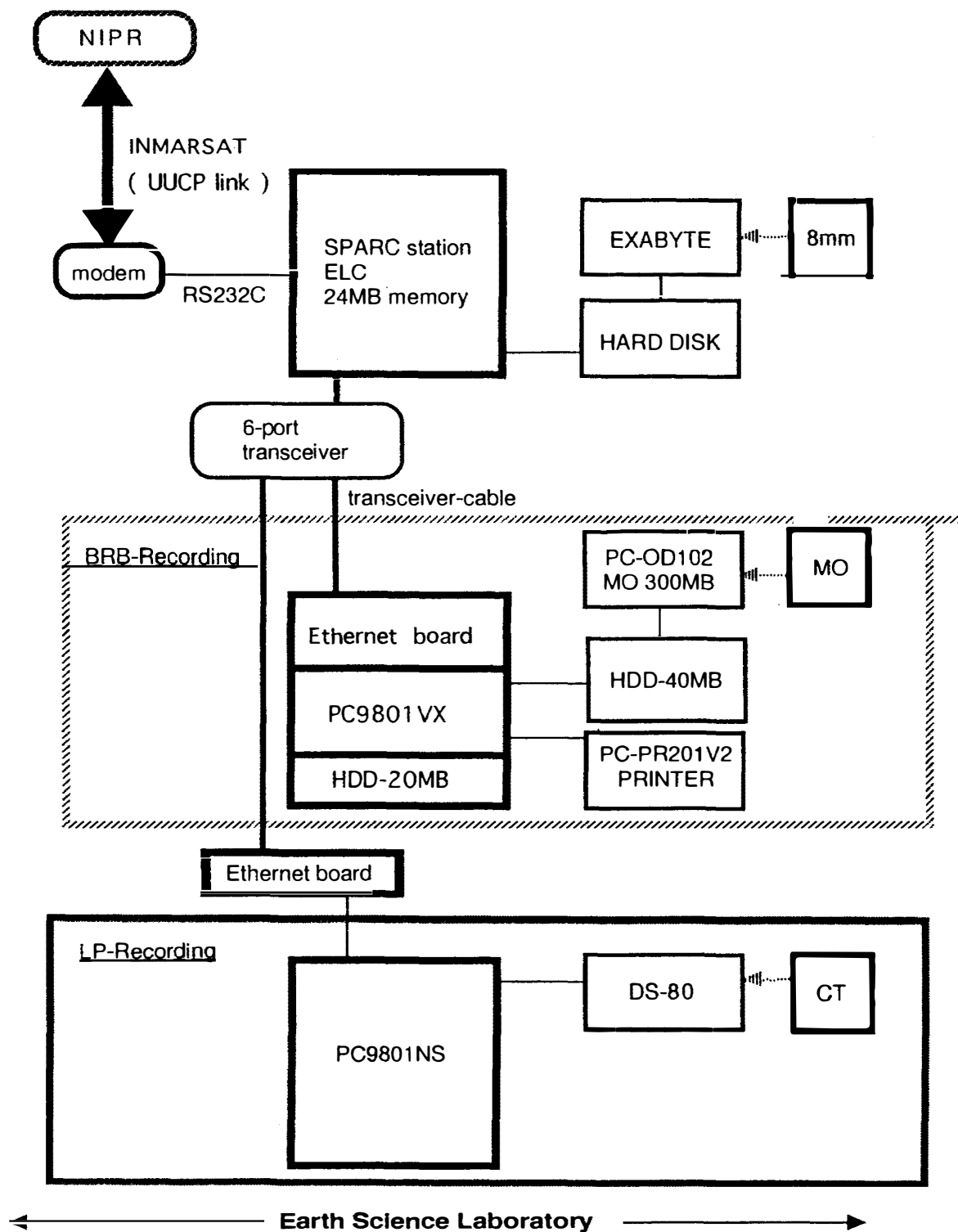


Fig. 5. Block diagram of off-line editing and data transmission system at Syowa Station.

Digital data have been successfully transmitted from the Earth Science Laboratory (ESL) at Syowa Station to the National Institute of Polar Research (NIPR) from 1994 via the satellite telecommunication link.

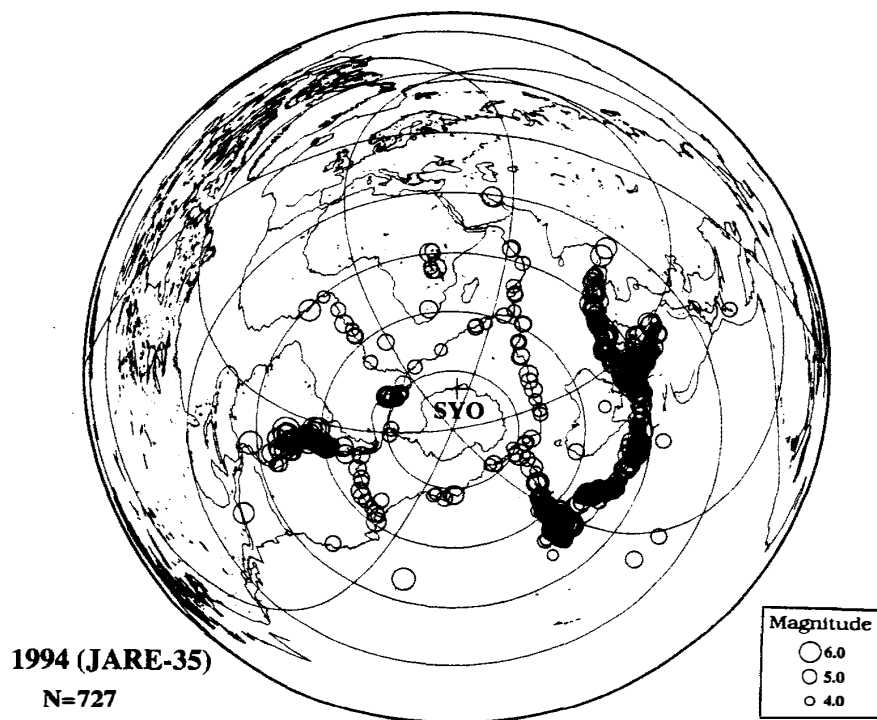
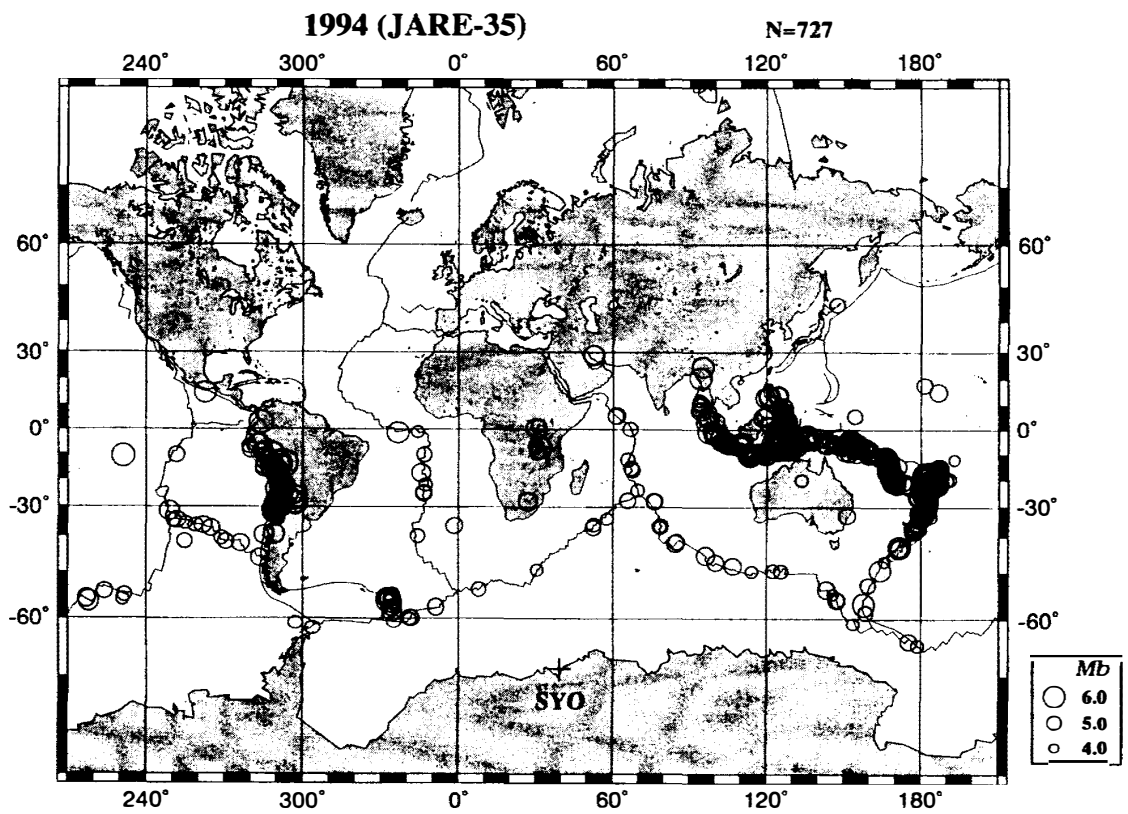


Fig. 6. Epicenters of the 727 earthquakes recorded at Syowa Station. The sizes of earthquake circles are proportional to the body-wave magnitude (M_b) determined by the National Earthquake Information Center (NEIC).

Table 1. List of phase arrival-time data.

DATE	PHASE	ARRIVAL TIME	REMARKS	DATE	PHASE	ARRIVAL TIME	REMARKS
		h m s				h m s	
JAN 01	+EPZ	0245 16.1	#-1	JAN 10	-EXZ	1035 17.9	#-20
JAN 02	(NIL)				+EPZ	1605 20.1	#-21
JAN 03	-EPZ	0611 06.2			ESH	1614 43.0	
	-EPZ	1259 35.4	#-2		-EPZ	1831 37.4	#-22
	+EPZ	1333 47.7	#-3		-EPZ	2129 15.3	
	ESH	1341 46.5		JAN 11	-EPZ	1511 39.8	#-23
	-EXZ	1459 59.0	#-4	JAN 12	-EPZ	0637 15.4	#-24
	+EPZ	1910 55.4	#-5		+EPZ	1016 27.0	#-25
JAN 04	-EPZ	0845 27.1	#-6		+EPZ	1657 22.0	#-26
	-EPZ	1501 00.8	#-7		+EPZ	2135 27.6	#-27
	-EPZ	1944 49.0	#-8	JAN 13	+EPZ	0953 25.5	#-28
	-EPZ	2004 31.9	#-9		-EPZ	2039 49.5	#-29
JAN 05	+EPZ	0741 37.4	#-10		-EXZ	2347 53.5	#-30
	+EPZ	1438 38.0	#-11	JAN 14	+EXZ	0221 39.5	#-31
JAN 06	-EPZ	0312 58.6	#-12		+EPZ	1451 14.7	
	-EPZ	1335 35.8		JAN 15	-EPZ	0354 35.4	
	+EPZ	2050 25.2			-EPZ	0755 26.3	#-32
JAN 07	-EPZ	0148 05.4	#-13		-EPZ	1716 14.8	#-33
	-EPZ	0212 25.4	#-14		+EPZ	2017 51.6	#-34
	ESH	0222 01.3			+EPZ	2319 45.6	#-35
	-EPZ	0402 20.0		JAN 16	+EPZ	1158 49.6	#-36
	-EPZ	0748 31.0	#-15		+EPZ	1532 29.5	#-37
	-EPZ	1117 32.0	#-16		+EPZ	1924 38.0	#-38
	+EPZ	1935 55.4	#-17		+EPZ	2024 27.8	#-39
	-EPZ	2200 06.5			ESH	2034 32.0	
JAN 08	-EPZ	0340 05.7	#-18	JAN 17	+EPZ	1250 22.0	
	+EPZ	1137 21.8			-EPZ	2352 59.7	
JAN 09	+EPZ	1255 35.7	#-19	JAN 18	+EPZ	0657 44.7	#-40
	-EPZ	2148 23.5		JAN 19	-EPZ	0206 30.2	#-41

DATE	PHASE	ARRIVAL TIME	REMARKS	DATE	PHASE	ARRIVAL TIME	REMARKS
		h m s				h m s	
	+EPZ	1029 30.6	#-42	FEB 1	-EPZ	0616 44.0	
	+EPZ	1638 47.8	#-43		-EPZ	1019 16.8	
	+EPZ	1949 49.9	#-44		+EPZ	1641 28.0	#-68
JAN 20	+EPZ	0848 39.8	#-45		-EPZ	2227 24.5	#-69
	-EPZ	0919 55.8	#-46	FEB 2	(NIL)		
JAN 21	-EPZ	0237 28.6	#-47	FEB 3	+IPZ	0925 54.3	
	ESH	0248 24.6			+EPZ	1036 19.5	#-70
	+EPZ	1811 58.1	#-48		-IPZ	1550 41.6	#-71
JAN 22	+EPZ	0549 40.2	#-49		-IPZ	1614 20.5	#-72
	-EXZ	0622 22.4	#-50	FEB 4	-EPZ	0302 01.7	
JAN 24	+EPZ	0355 23.9	#-51	FEB 5	+EPZ	0025 42.5	
	-EPZ	0706 57.7	#-52		-EPZ	1653 53.6	#-73
	-EPZ	1624 23.4	#-53		-EPZ	2316 29.2	#-74
	-EPZ	1902 26.2			-IPZ	2345 22.2	#-75
JAN 25	-EPZ	0901 07.0		FEB 6	+EPZ	0912 23.0	#-76
JAN 26	-EPZ	1227 03.7			-IPZ	1032 10.9	#-77
	-EPZ	2348 47.6	#-54	FEB 7	+EPZ	1454 19.4	#-78
JAN 27	-EPZ	0030 47.1	#-55		+EXZ	1654 22.8	#-79
	+EPZ	0041 10.7	#-56	FEB 8	-EPZ	0508 31.4	#-80
	+EXZ	0439 19.3	#-57		+EPZ	1542 35.0	#-81
	+EPZ	1120 16.6	#-58	FEB 9	-EPZ	1939 54.1	#-82
JAN 28	-EXZ	0204 07.6	#-59	FEB 10	(NIL)		
JAN 29	-IPZ	1308 56.4	#-60	FEB 11	+EPZ	0100 49.4	#-83
	+EPZ	1558 44.3	#-61		+EXZ	1519 40.8	
	-EPZ	2130 05.9	#-62		+IPZ	2129 45.4	#-84
	+EPZ	2239 15.5	#-63	FEB 12	-EXZ	0042 00.6	
JAN 30	+EPZ	1616 13.5	#-64		+EPZ	0430 14.4	#-85
	+EPZ	1827 01.7	#-65		+EXZ	0814 15.5	#-86
	+EPZ	2109 38.6	#-66		+EPZ	1810 50.5	#-87
JAN 31	+EPZ	1004 09.9	#-67	FEB 13	-EPZ	1022 06.4	#-88

DATE	PHASE	ARRIVAL TIME	REMARKS	DATE	PHASE	ARRIVAL TIME	REMARKS
		h m s				h m s	
	-EPZ	1432 03.4	#-89	FEB 25	-EPZ	0053 18.6	#-116
	+EXZ	2213 00.0	#-90		-EPZ	0242 56.8	
FEB 14	+EPZ	1134 04.3		FEB 26	-IPZ	1758 29.2	#-117
FEB 15	+IPZ	1520 44.4	#-91	FEB 27	-EXZ	1112 22.3	#-118
	+EPZ	1719 34.3	#-92	FEB 28	-EPZ	0642 32.2	
	+EPZ	2050 07.3	#-93	MAR 01	-EPZ	0402 41.4	#-119
	-EPZ	2124 25.0	#-94	MAR 02	+IPZ	1929 50.4	#-120
	-EPZ	2353 36.0	#-95	MAR 03	-EPZ	1100 30.7	#-121
FEB 16	+IPZ	0400 02.3	#-96		+IPZ	1736 35.5	
	-EPZ	0659 28.3	#-97	MAR 04	+EPZ	2155 20.2	#-122
	+EXZ	0911 37.9	#-98	MAR 05	+EPZ	1120 30.5	#-123
	-EPZ	1121 14.5	#-99	MAR 06	-IPZ	0351 19.7	#-124
	-EPZ	2215 38.8	#-100	MAR 07	(NIL)		
	+EPZ	2259 30.9	#-101	MAR 08	+EXZ	0208 57.3	
FEB 17	-EPZ	0305 33.6	#-102		+EPZ	1531 49.2	#-125
	+EPZ	0448 39.3	#-103		+EPZ	1606 33.6	#-126
	-EXZ	1124 14.4	#-104	MAR 09	+EPZ	0133 21.5	#-127
	-EPZ	2114 21.6	#-105		-EPZ	1035 19.5	#-128
	+EXZ	2205 46.8	#-106		-EPZ	1221 30.0	#-129
FEB 18	-EPZ	0426 15.0	#-107		-EPZ	1711 44.0	#-130
	+EPZ	0742 03.0			-IPZ	1922 54.6	#-131
	+EPZ	1353 56.0	#-108		-IPZ	2340 03.5	#-132
FEB 19	-EPZ	1725 29.9	#-109	MAR 10	+IPZ	0002 19.3	#-133
FEB 20	-EPZ	0207 38.5	#-110		+EPZ	0203 29.6	#-134
	-EPZ	0546 01.4	#-111		-EPZ	0813 58.5	#-135
	-EPZ	2201 36.0	#-112		+IPZ	1237 37.0	
FEB 21	+EPZ	1516 53.7	#-113	MAR 11	-EPZ	0641 42.8	#-136
FEB 22	(NIL)			MAR 12	-EPZ	0200 58.9	#-137
FEB 23	-EPZ	1813 28.8	#-114		+EPZ	0951 43.9	#-138
FEB 24	-EPZ	1538 19.6	#-115		-EPZ	1535 28.5	#-139

DATE	PHASE	ARRIVAL TIME	REMARKS	DATE	PHASE	ARRIVAL TIME	REMARKS
		h m s				h m s	
	+EXZ	2157 00.8	#-140		ESH	2303 04.0	
MAR 13		0331 40.0		APR 01	+IPZ	0024 21.2	#-156
MAR 14	-EPZ	0442 25.5	#-141		-IXZ	0850 00.2	#-157
	+EXZ	0916 24.0	#-142		+EPZ	1727 51.0	#-158
	-EPZ	2109 53.5		APR 02	(NIL)		
MAR 15	-IPZ	1810 57.7		APR 03	+EPZ	0411 35.5	#-159
MAR 16	-EPZ	0800 43.8	#-143		+IPZ	1308 53.1	#-160
	-EXZ	0906 17.0	#-144	APR 04	+EPZ	0150 14.0	#-161
	-EXZ	1912 53.8	#-145	APR 05	-IPZ	0955 51.7	
	-IPZ	2345 24.5		APR 06	+IPZ	1226 27.6	#-162
MAR 17	+IPZ	0332 18.0	#-146		+EPZ	1232 42.0	#-163
	+EXZ	1734 12.0	#-147	APR 07	(NIL)		
MAR 18	-EPZ	0031 12.1		APR 08	(NIL)		
	-EPZ	0159 48.9	#-148	APR 09	-EPZ	0141 47.6	#-164
MAR 19	-EPZ	0144 23.0			+EPZ	0746 51.5	
MAR 20	(NIL)			APR 10	(NIL)		
MAR 21	(NIL)			APR 11	(NIL)		
MAR 22	+EPZ	0123 54.0	#-149	APR 12	(NIL)		
MAR 23	+IPZ	2011 47.0	#-150	APR 13	-EXZ	2215 35.3	#-165
MAR 24	+IXZ	1730 02.8			+EXZ	2235 29.8	#-166
	+EPZ	2231 26.9	#-151	APR 14	+EPZ	0340 38.9	#-167
MAR 25	+EPZ	1303 34.5	#-152		+EPZ	2028 48.3	#-168
MAR 26	(NIL)			APR 15	+EPZ	0724 55.0	#-169
MAR 27	(NIL)			APR 16	-EPZ	1006 16.0	#-170
MAR 28	+EPZ	0623 45.4			+EPZ	1529 28.9	#-171
MAR 29	+EXZ	1429 33.1			+EPZ	1730 39.7	#-172
MAR 30	+EPZ	1342 40.3	#-153	APR 17	-EPZ	0627 24.2	#-173
MAR 31	+EPZ	1204 08.1	#-154		+EPZ	0919 51.4	#-174
	-IXZ	1454 54.2			+IPZ	1348 35.0	#-175
	+IPZ	2252 27.4	#-155	APR 18	+EPZ	1743 04.8	#-176

DATE	PHASE	ARRIVAL TIME	REMARKS	DATE	PHASE	ARRIVAL TIME	REMARKS
		h m s				h m s	
	+EPZ	2151 25.4	#-177	APR 28	-EPZ	1655 09.1	#-202
	ESH	2201 09.0		APR 29	-EPZ	0721 34.0	#-203
APR 19	-EPZ	0601 01.0	#-178		ESH	0729 49.0	
	+EPZ	0840 19.8	#-179	APR 30	(NIL)		
	-EPZ	2351 41.6	#-180	MAY 01	-EPZ	1411 45.6	#-204
APR 20	-EPZ	0311 13.0	#-181	MAY 02	+EPZ	1215 44.8	
	-EPZ	0331 19.5	#-182		+EPZ	1725 59.4	#-205
	-EPZ	0844 14.5	#-183		+EPZ	2023 56.4	#-206
	-EPZ	1632 58.9		MAY 03	-EPZ	2153 47.2	#-207
	+EPZ	1837 59.3	#-184	MAY 04	+IPZ	0649 56.8	#-208
	-EPZ	2347 28.1	#-185	MAY 05	+EPZ	2357 38.0	#-209
APR 21	-EPZ	0255 26.3	#-186	MAY 06	+EPZ	0308 57.8	#-210
	+EPZ	0404 55.8	#-187		-EPZ	1607 56.8	#-211
	-EPZ	1715 19.6			+EPZ	1826 06.8	#-212
APR 22	+EPZ	0949 25.6	#-188		-EPZ	2252 38.7	#-213
APR 23	-EPZ	1513 48.7	#-189	MAY 07	+EPZ	0118 29.0	
	-EPZ	1522 02.2	#-190		+EPZ	0603 30.4	#-214
APR 24	-EPZ	0253 10.0	#-191		+EPZ	0851 14.1	
	ESH	0302 53.0			+EPZ	1257 20.8	#-215
	+EPZ	1003 04.6	#-192		-EPZ	2329 30.6	#-216
APR 25	-EPZ	0040 21.1		MAY 08	-EPZ	0356 38.3	#-217
	-EXZ	1755 47.7	#-193		+EPZ	1309 44.6	#-218
	-EPZ	2233 27.6	#-194	MAY 09	+EPZ	1248 33.3	#-219
APR 26	-EPZ	0441 01.3	#-195	MAY 10	+EPZ	0200 57.7	#-220
	+EPZ	0828 58.6	#-196		+IPZ	0646 28.6	#-221
	+EPZ	2349 12.7	#-197		ESH	0655 27.0	
APR 27	+EPZ	0936 07.0	#-198	MAY 11	+EPZ	0830 12.8	#-222
	-EPZ	1425 24.4	#-199		+EPZ	1742 31.0	#-223
	+EPZ	1736 01.9	#-200		+EPZ	2126 28.5	#-224
	+EPZ	2150 48.0	#-201	MAY 12	+EPZ	1511 44.7	#-225

DATE	PHASE	ARRIVAL TIME	REMARKS	DATE	PHASE	ARRIVAL TIME	REMARKS
		h m s				h m s	
MAY 13	+EPZ	0834 39.8	#-226	MAY 28	(NIL)		
MAY 14	-EPZ	0415 24.1	#-227	MAY 29	-EPZ	1238 16.0	#-246
	-EPZ	1616 54.6			-EPZ	1425 20.6	#-247
MAY 15	(NIL)			MAY 30	-IPZ	0206 35.3	#-248
MAY 16	(NIL)				-EPZ	0826 48.3	#-249
MAY 17	(NIL)				-EPZ	1007 27.0	#-250
MAY 18	(NIL)				-EPZ	1849 22.0	#-251
MAY 19	-EXZ	1804 33.0	#-228		-EPZ	2050 20.3	#-252
	+EPZ	2353 54.9	#-229		+EPZ	2306 58.2	#-253
MAY 20	+EXZ	0113 21.0	#-230	MAY 31	+EPZ	1736 15.6	
	-EPZ	0450 47.8	#-231			1800	
	+EPZ	0456 24.2	#-232		+EPZ	1951 47.1	#-254
	+EPZ	0615 15.3	#-233	JUN 01	+EPZ	1054 58.0	#-255
	+EPZ	1019 13.3	#-234	JUN 02	-EPZ	0353 12.3	#-256
	+EXZ	1038 28.9	#-235		VLP-EPZ	1829 03.0	
MAY 21	(NIL)			JUN 03	-EXZ	0506 33.6	#-257
MAY 22	+EPZ	0019 09.8	#-236		+EPZ	1644 51.2	#-258
	-IPZ	0308 24.7	#-237		-EXZ	1827 51.4	#-259
MAY 23		0200			-EXZ	2118 33.5	#-260
MAY 24	-EPZ	0218 21.6	#-238		-EPZ	2131 23.0	#-261
		0419			+EXZ	2132 40.5	#-262
	-EPZ	2133 00.0			+EPZ	2313 38.1	#-263
MAY 25	-EPZ	0416 33.2	#-239		-EPZ	2354 05.6	#-264
	-EPZ	1854 55.5	#-240	JUN 04	+EPZ	0105 19.3	#-265
	+EPZ	2117 02.8	#-241		+IPZ	0109 27.5	#-266
	-EXZ	2126 45.5	#-242		+EPZ	0606 04.8	#-267
	+EPZ	2225 21.6	#-243		-EPZ	1130 25.7	#-268
MAY 26	+EPZ	0025 33.0			+EPZ	1148 09.2	#-269
MAY 27	+EPZ	0705 24.4	#-244		-EPZ	1216 01.9	#-270
	+EPZ	1053 59.6	#-245		-EPZ	1509 33.2	#-271

DATE	PHASE	ARRIVAL TIME	REMARKS	DATE	PHASE	ARRIVAL TIME	REMARKS
		h m s				h m s	
	-EPZ	2021 07.3	#-272		+EPZ	2300 05.0	#-299
	-EPZ	2159 10.5	#-273	JUN 14	-EXZ	1032 09.6	#-300
JUN 05	-EPZ	0156 38.5	#-274		+EPZ	2114 53.3	#-301
	+EXZ	0608 18.8	#-275	JUN 15	+EPZ	0630 25.7	#-302
	-EPZ	1803 29.4	#-276		-EPZ	0934 33.5	#-303
JUN 06	+IPZ	0120 04.5	#-277		-EPZ	1002 02.8	#-304
	+EPZ	0544 30.2	#-278		+EPZ	1040 27.5	#-305
	+EPZ	0631 56.0	#-279		+EXZ	1222 40.0	#-306
	+EPZ	0829 44.0	#-280		-EPZ	2041 01.6	
	-EPZ	2101 34.5	#-281	JUN 16	+EPZ	0058 13.0	
	-EXZ	2105 39.0			+IPZ	1024 59.0	#-307
JUN 07	+EPZ	0802 02.5	#-282		ESH	1035 03.0	
	+EPZ	2319 14.7	#-283		-EPZ	1853 29.0	#-308
JUN 08	(NIL)				+IPZ	2223 04.5	
JUN 09	+EPZ	0044 36.8	#-284	JUN 17	(NIL)		
	-EPZ	0126 39.8	#-285	JUN 18	+EPZ	0122 52.6	#-309
	+IPZ	0537 51.0	#-286		+EPZ	0233 42.8	#-310
	+EPZ	1649 22.6	#-287		-IPZ	0335 41.4	#-311
JUN 10	-EPZ	1751 59.7			-EXZ	2249 53.0	#-312
	-EPZ	1922 50.5	#-288	JUN 19	+EPZ	1308 37.7	#-313
JUN 11	-EPZ	1132 55.7	#-289		-EPZ	1354 16.4	#-314
JUN 12	-EXZ	0146 53.7	#-290		+EXZ	1856 50.4	#-315
	+EPZ	0158 52.8	#-291	JUN 20	-EPZ	0922 41.4	#-316
	-EPZ	1404 39.6	#-292		+EPZ	0956 47.8	#-317
JUN 13	-EPZ	0428 50.0	#-293	JUN 21	-EPZ	0228 48.7	#-318
	-EXZ	1119 46.4	#-294		+EPZ	0526 38.0	#-319
	-EPZ	2115 46.7	#-295		-EPZ	0903 09.9	#-320
	-EXZ	2121 37.6	#-296		-EPZ	2316 07.4	#-321
	+EPZ	2128 13.0	#-297	JUN 22	-EPZ	1630 50.2	#-322
	+IPZ	2206 38.8	#-298	JUN 23	-EPZ	0212 44.4	#-323

DATE	PHASE	ARRIVAL TIME	REMARKS	DATE	PHASE	ARRIVAL TIME	REMARKS
		h m s				h m s	
	+EPZ	0538 07.4	#-324		-EPZ	1721 40.3	#-348
JUN 24	(NIL)			JUL 09	-EPZ	0359 18.3	#-349
JUN 25	-EPZ	0829 51.2	#-325		+EPZ	0430 12.8	#-350
	+EPZ	1401 12.1	#-326		-EPZ	1609 02.4	#-351
JUN 26	-EPZ	0015 22.2	#-327	JUL 10	+EPZ	0311 09.4	#-352
	-EPZ	0626 09.9	#-328		-EPZ	2129 49.9	#-353
JUN 27	-EXZ	0421 24.0	#-329	JUL 11	-EPZ	0112 05.2	#-354
	+IPZ	0738 34.9	#-330	JUL 12	-EXZ	1157 56.4	#-355
	-EXZ	1212 36.6	#-331		-EPZ	1210 11.6	#-356
JUN 28	+EPZ	1622 55.5	#-332		-EPZ	2252 09.4	#-357
JUN 29	+EPZ	1234 10.8	#-333	JUL 13	-EPZ	0037 57.9	#-358
	+EPZ	2311 48.5	#-334		+EPZ	0248 38.9	#-359
JUN 30	-IXZ	0941 21.5			-EPZ	0822 32.5	#-360
JUL 01	+EPZ	0209 30.0	#-335		+IPZ	1157 29.5	#-361
JUL 02	+EPZ	0241 16.8			ESH	1207 27.6	
	-EPZ	0521 12.4	#-336		EXZ	1215 54.0	
	-EPZ	0558 35.6	#-337		EXZ	1224 00.0	
	ESH	0608 17.0			-EPZ	1400 51.5	#-362
	-EPZ	0654 56.9	#-338		-EPZ	2315 41.5	#-363
	ESH	0704 39.5		JUL 14	-EPZ	0022 09.5	#-364
	+EPZ	0927 11.5	#-339		+EPZ	0117 18.4	#-365
	ESH	0937 31.2			-EXZ	0723 47.8	#-366
JUL 03	-EXZ	0302 17.3	#-340		-EPZ	0805 46.6	#-367
JUL 04	+EPZ	2140 50.1	#-341		-EPZ	0820 17.3	#-368
	-EXZ	2156 57.3	#-342		-EPZ	0838 20.2	#-369
JUL 05	-EPZ	0312 01.3	#-343		-EPZ	1139 17.8	#-370
	-EPZ	1341 21.8	#-344		-EPZ	1551 18.0	#-371
JUL 06	+EPZ	0926 12.5	#-345		-EPZ	1816 05.8	#-372
JUL 07	+EPZ	0031 58.0	#-346	JUL 15	-EPZ	1617 14.0	#-373
JUL 08	-EPZ	1019 06.1	#-347		-EPZ	1726 57.3	#-374

DATE	PHASE	ARRIVAL TIME	REMARKS	DATE	PHASE	ARRIVAL TIME	REMARKS
		h m s				h m s	
	-EPZ	1806 16.8	#-375	JUL 26	-EXZ	0158 08.0	#-403
JUL 16	-EPZ	1802 47.0	#-376	JUL 27	(NIL)		
	-IPZ	1816 49.9	#-377	JUL 28	+EXZ	0810 01.0	#-404
JUL 17	-EPZ	2217 39.8	#-378		-EPZ	2022 54.4	#-405
JUL 18	+EXZ	0236 34.8	#-379		-EPZ	2108 42.4	#-406
	+EPZ	0536 00.0	#-380	JUL 29	+EPZ	0806 12.6	#-407
	-EPZ	1122 04.8	#-381		+EPZ	1255 05.3	#-408
	-EPZ	1410 21.8	#-382		+EPZ	1325 32.0	#-409
	+EPZ	1645 39.8	#-383	JUL 30	-EXZ	0624 08.5	#-410
	-EPZ	1813 02.8	#-384	JUL 31	+EPZ	0637 58.3	#-411
	+EPZ	2204 34.4	#-385		-EPZ	1224 05.5	#-412
JUL 19	+EPZ	1212 10.5	#-386		-EPZ	1450 13.8	#-413
JUL 20	(NIL)				-EPZ	1933 18.0	#-414
JUL 21	-EXZ	0739 45.4	#-387	AUG 01	(NIL)		
	+IPZ	1854 46.7		AUG 02	-EPZ	0202 32.3	#-415
JUL 22	-EPZ	1710 59.6	#-388		ESH	0211 51.2	
JUL 23	-EPZ	1311 09.0	#-389		-EPZ	0749 39.0	#-416
	-EPZ	1352 38.9	#-390		+EPZ	1437 18.0	
JUL 24	-EPZ	0244 15.9	#-391	AUG 03	+EPZ	0135 28.0	#-417
	+EPZ	0620 12.3	#-392		-EPZ	1836 39.7	#-418
	-EPZ	0919 02.7	#-393	AUG 04	-EPZ	0121 18.2	#-419
	-EPZ	1436 04.7	#-394		-EPZ	2228 11.4	#-420
	-EPZ	1808 23.0	#-395		ESH	2238 34.0	
	-EPZ	2050 31.3	#-396	AUG 05	-EPZ	0350 54.0	#-421
	-EPZ	2209 01.8	#-397		-EPZ	1014 39.8	#-422
JUL 25	-EPZ	0221 33.9	#-398		-EPZ	1951 34.2	#-423
	-EPZ	0445 26.8	#-399	AUG 06	-EXZ	0336 53.4	#-424
	+EPZ	1121 28.4	#-400		+EPZ	1114 44.9	#-425
	+EPZ	1559 54.4	#-401	AUG 07	-EPZ	0604 16.7	#-426
	+EPZ	2206 36.8	#-402		-EPZ	0709 20.3	#-427

DATE	PHASE	ARRIVAL TIME	REMARKS	DATE	PHASE	ARRIVAL TIME	REMARKS
		h m s				h m s	
AUG 08	+IPZ	0807 05.4	#-428	AUG 19	-IPZ	1013 07.2	#-450
	ESH	0816 36.3			EXZ	1040 59.0	
	+EPZ	2122 11.0	#-429	AUG 20		0458	
AUG 09	-EPZ	0408 03.7	#-430		-EPZ	1831 28.4	#-451
	-EPZ	2347 47.0	#-431	AUG 21	+EPZ	0928 40.6	#-452
AUG 10	-EPZ	0152 16.1	#-432			1615	
	-EPZ	0941 44.5	#-433	AUG 22	+EPZ	1739 27.7	#-453
	-EXZ	1419 34.1	#-434	AUG 23	-IPZ	0633 35.6	#-454
	-EPZ	1503 46.0	#-435		ESH	0643 08.7	
AUG 11	-EPZ	0100 57.1	#-436	AUG 24	-EPZ	0148 08.2	
	-EPZ	0258 11.8	#-437		-EPZ	0358 54.7	#-455
	-EPZ	0507 07.2	#-438		-EXZ	0905 25.5	#-456
	+EPZ	1945 11.7	#-439		-EPZ	1527 05.0	#-457
	ESH	1955 18.0			-EPZ	2217 26.0	#-458
	+EPZ	2054 50.1	#-440	AUG 25	(NIL)		
AUG 12	(NIL)			AUG 26	-EPZ	0409 48.0	#-459
AUG 13	-EPZ	2251 06.5	#-441		-EPZ	0455 44.3	#-460
AUG 14	EXZ	0105 40.0		AUG 27	-EPZ	0313 42.5	#-461
	EXZ	0150 35.0			-EPZ	0941 49.4	#-462
	+EPZ	1109 24.5	#-442		+EPZ	1617 10.2	#-463
AUG 15	-EPZ	1111 31.3	#-443	AUG 28	-EPZ	0636 23.0	#-464
AUG 16	+EPZ	0249 44.8	#-444		+EPZ	0754 51.4	#-465
		1028			+EPZ	1554 41.3	#-466
	-EPZ	1145 30.2	#-445		EXZ	1856 42.0	
	-EPZ	1427 32.0	#-446		+EXZ	2014 49.6	#-467
	+EPZ	2156 22.6	#-447	AUG 29	-EPZ	0844 19.8	#-468
AUG 17	(NIL)				-EPZ	0937 29.6	#-469
AUG 18	-EPZ	0056 05.0	#-448		-EPZ	0943 44.0	#-470
	-EPZ	0153 27.4	#-449		+EPZ	1103 43.0	#-471
	EXZ	0502 30.0		AUG 30	+EPZ	1027 40.6	#-472

DATE	PHASE	ARRIVAL TIME	REMARKS	DATE	PHASE	ARRIVAL TIME	REMARKS
		h m s				h m s	
	-EPZ	1211 54.0	#-473		+EPZ	0534 59.2	#-495
	+EPZ	1954 03.4	#-474		+EPZ	0903 34.0	#-496
	ESH	2003 24.9			-EPZ	0948 16.6	#-497
	+EPZ	2133 40.7	#-475	SEP 09	+EPZ	0119 59.0	#-498
AUG 31	+EPZ	0540 30.4	#-476		+EPZ	0945 36.5	#-499
	EXZ	0926		SEP 10	+EPZ	0507 29.3	#-500
	-EPZ	1511 17.2	#-477		+EXZ	0943 20.4	#-501
	-EPZ	2349 46.7	#-478	SEP 11	+EXZ	1213 57.2	#-502
SEP 01	-EPZ	1035 22.0	#-479		+EXZ	1603 07.5	#-503
	-EPZ	1138 01.0	#-480	SEP 12	+EXZ	0640 53.0	#-504
	-EPZ	1535 44.5			ESH	0649 48.8	
	+EPZ	1551 47.1	#-481		-EPZ	1140 05.2	#-505
	ESH	1602 06.5			-EPZ	1243 27.0	
		2026			-EPZ	2257 03.0	#-506
	+EPZ	2103 32.8	#-482		-EPZ	2302 19.4	#-507
SEP 02	+EPZ	0601 27.3	#-483		+EPZ	2317 58.4	#-508
	-EPZ	1408 35.8	#-484	SEP 13	+EPZ	0016 54.8	
	-EPZ	1609 02.4	#-485		+EPZ	0322 26.5	#-509
SEP 03	-EPZ	0352 27.7	#-486			0446	
	+EPZ	0914 50.9	#-487		-EPZ	1020 02.0	
	-EPZ	1420 10.6	#-488		+EPZ	1234 36.9	#-510
	+EPZ	1759 09.4	#-489		-EPZ	1438 03.4	#-511
	ESH	1809 37.4		SEP 14	+EPZ	0513 10.2	#-512
SEP 04	(NIL)				-EPZ	1158 23.5	#-513
SEP 05	-EPZ	0728 06.4	#-490	SEP 15	+EPZ	2352 40.9	#-514
SEP 06	+EPZ	1240 56.5	#-491	SEP 16	EXZ	0638	
	-EPZ	1338 43.1	#-492		EXZ	0649	
SEP 07	-EPZ	1212 43.4	#-493		-EPZ	0827 40.5	#-515
SEP 08	-IPZ	0240 25.1	#-494		-EPZ	2356 50.0	#-516
	ESH	0248 52.2		SEP 17	-EPZ	0014 15.6	#-517

DATE	PHASE	ARRIVAL TIME	REMARKS	DATE	PHASE	ARRIVAL TIME	REMARKS
		h m s				h m s	
	+EPZ	1233 07.5	#-518		ESH	1753 52.6	
	+EPZ	1244 41.7	#-519		-EXZ	2133 50.0	#-541
	+EPZ	1522 25.8	#-520	SEP 29	(NIL)		
SEP 18	(NIL)			SEP 30	+EPZ	0330 55.0	#-542
SEP 19	+EPZ	1321 13.6	#-521		+EPZ	0657 48.4	#-543
	ESH	1331 17.8			-IPZ	1941 52.0	#-544
	-EPZ	1454 09.5	#-522		ESH	1951 28.5	
	-EPZ	1815 48.8	#-523	OCT 01	-EPZ	1516 10.8	#-545
SEP 20	+EPZ	0700 03.0	#-524		-EPZ	1648 00.0	#-546
	+EPZ	0858 48.2	#-525		ESH	1658 35.0	
SEP 21	+EPZ	0622 02.3	#-526		+EPZ	1742 10.0	#-547
	-EPZ	1627 18.3	#-527		+EPZ	1759 15.0	#-548
	-EPZ	1944 10.0	#-528		-EPZ	1806 51.0	#-549
SEP 22	-EXZ	0059 02.0	#-529		-EPZ	1828 56.9	#-550
	-EPZ	0107 17.3	#-530		-EXZ	1832 43.2	#-551
	+EPZ	1435 28.1	#-531		-EPZ	2024 55.1	#-552
	EXZ	1503			-EPZ	2051 42.8	#-553
SEP 23	-EXZ	0812 52.9	#-532		-EPZ	2114 08.6	#-554
	ESH	0824 02.0			-EPZ	2216 45.4	#-555
SEP 24	+EPZ	0338 28.3	#-533	OCT 02	-EPZ	0006 34.6	#-556
SEP 25	-EPZ	0133 00.0	#-534		-EPZ	0108 11.1	#-557
SEP 26	+EPZ	2143 58.0	#-535		+EPZ	0339 34.4	#-558
SEP 27	-EPZ	0229 46.0	#-536		-EPZ	1027 15.4	#-559
	+EPZ	1712 23.1	#-537		-EPZ	1047 09.6	#-560
	-EPZ	2322 15.6	#-538		-EPZ	1048 21.9	#-561
SEP 28	-IPZ	1650 46.2	#-539		-EPZ	1201 22.3	#-562
	ESH	1659 47.1			+EPZ	2043 56.3	#-563
	EXZ	1717			+EPZ	2222 54.4	#-564
	EXZ	1720		OCT 03	-EPZ	0025 04.2	#-565
	-IPZ	1744 53.4	#-540	OCT 04	-EPZ	1005 14.4	#-566

DATE	PHASE	ARRIVAL TIME	REMARKS	DATE	PHASE	ARRIVAL TIME	REMARKS
		h m s				h m s	
	-EPZ	1221 23.5	#-567	OCT 14	(NIL)		
	-EXZ	1340 27.0		OCT 15	-EPZ	0052 46.2	#-589
	-EPZ	1543 28.7	#-568		-EPZ	0656 15.4	#-590
	-EPZ	1817 58.0	#-569		-EPZ	0822 17.0	#-591
OCT 05	+EPZ	1736 15.8	#-570		-EPZ	1917 14.9	#-592
	+EPZ	1848 10.8	#-571	OCT 16	-EPZ	0019 35.8	#-593
	EXZ	2056 47.3			EXZ	0529 03.0	
OCT 06	EXZ	1551 43.9	#-572	OCT 17	+EPZ	1938 51.7	#-594
OCT 07	EXZ	0255 20.0			+EPZ	2136 07.4	#-595
	+EPZ	0344 43.0		OCT 18	+EPZ	0322 39.8	#-596
	+EPZ	1305 30.9	#-573		-EPZ	0842 28.1	#-597
	+EPZ	1530 32.8	#-574		-EPZ	1525 47.8	#-598
	-EPZ	2251 36.0	#-575		EXZ	1732 02.0	
	+EPZ	2338 34.0	#-576		-EPZ	2106 37.8	#-599
OCT 08	EXZ	2156 53.8	#-577		+EPZ	2343 34.8	#-600
	ESH	2207 38.9		OCT 19	+EPZ	1000 17.4	#-601
OCT 09	EXZ	0814 58.0			-EPZ	1300 56.3	#-602
	EXZ	0908		OCT 20	+EPZ	0125 10.0	#-603
OCT 10	-EPZ	1440 11.1	#-578		+EPZ	0418 11.2	#-604
		2126			-EPZ	1337 42.4	#-605
OCT 11	EXZ	0148 09.5	#-579	OCT 21	-EPZ	1220 02.0	#-606
	+EPZ	1721 05.2	#-580		+EPZ	2240 04.0	
	+EPZ	2112 57.2	#-581	OCT 22	+EPZ	1856 41.2	#-607
OCT 12	-EPZ	0616 38.3	#-582	OCT 23	(NIL)		
	-EPZ	0657 29.5	#-583	OCT 24	-EPZ	0215 32.2	#-608
	+EPZ	0736 42.2	#-584		+EPZ	0424 19.0	
	+EPZ	1656 34.2	#-585		-EPZ	1945 44.2	
OCT 13	-EPZ	0517 17.5	#-586	OCT 25	EXZ	0112 35.0	
	-EPZ	1536 37.6	#-587		+EPZ	0450 44.3	#-609
	-EPZ	2358 39.8	#-588		-IPZ	2110 50.0	

DATE	PHASE	ARRIVAL TIME	REMARKS	DATE	PHASE	ARRIVAL TIME	REMARKS
		h m s				h m s	
OCT 26	+EPZ	0343 09.6	#-610		+EPZ	1609 51.4	#-634
	-EPZ	0500 27.5	#-611		-EPZ	1920 22.0	
OCT 27	EXZ	1805 51.0			EXZ	2021 39.0	
	-EPZ	2231 47.9	#-612	NOV 07	+EPZ	0530 55.8	#-635
	+EPZ	2358 59.0	#-613		-EPZ	1112 09.4	#-636
OCT 28	EXZ	0920 00.0	#-614		EXZ	1956 44.0	
	-EPZ	2110 01.5	#-615		EXZ	2008 15.0	
OCT 29	+EPZ	1605 53.2	#-616	NOV 08	-IXZ	0722 22.6	#-637
OCT 30	-EPZ	0614 18.7	#-617		+EXZ	1712 08.9	#-638
	-EPZ	0823 32.7	#-618	NOV 09	-EXZ	0748 50.6	#-639
	ESH	0833 35.3			-EPZ	1452 40.3	#-640
	-EPZ	1633 50.4	#-619		EXZ	1840 17.0	
	+EPZ	1733 15.7	#-620	NOV 10	+EPZ	0316 35.4	#-641
	ESH	1743 17.1			-EPZ	0343 11.1	#-642
OCT 31	-EPZ	1200 30.8	#-621		+EPZ	0614 30.4	#-643
	-EPZ	2132 09.7	#-622		-EPZ	1101 32.0	#-644
	-EPZ	2317 06.3	#-623	NOV 11	-EPZ	0900 44.0	#-645
NOV 01	+EPZ	1152 58.2	#-624		ESH	0910 54.8	
NOV 02	+EPZ	0156 54.0	#-625	NOV 12	-EPZ	1228 25.7	#-646
	-EPZ	2312 16.8	#-626	NOV 13	+EPZ	0920 00.0	#-647
NOV 03	+EPZ	0320 13.3	#-627	NOV 14	+EPZ	1537 19.8	#-648
NOV 04	-IPZ	0125 11.4	#-628		-EPZ	1929 12.0	#-649
	ESH	0134 59.0		NOV 15	+EPZ	0005 48.3	#-650
	-EPZ	0839 05.3	#-629		-IPZ	2029 12.7	#-651
	+EPZ	1206 13.4	#-630		ESH	2038 16.8	
NOV 05	+EPZ	0224 27.3	#-631	NOV 16	-EPZ	0302 47.0	#-652
	-IPZ	1217 19.6	#-632		+EXZ	0703 33.8	#-653
	ESH	1227 11.2			-EPZ	2145 50.4	#-654
NOV 06	-EPZ	1206 18.3	#-633	NOV 17	+EPZ	0025 49.8	#-655

DATE	PHASE	ARRIVAL TIME	REMARKS	DATE	PHASE	ARRIVAL TIME	REMARKS
		h m s				h m s	
	-EPZ	0546 45.0	#-656	NOV 27	-EXZ	1840 18.8	#-676
NOV 18	+EPZ	0543 07.5	#-657	NOV 28	-EPZ	0250 04.5	#-677
	-EPZ	2314 16.3	#-658	NOV 29	-EPZ	0834 24.9	#-678
NOV 19	(NIL)				-EPZ	1956 32.3	#-679
NOV 20	-EPZ	0310 19.4	#-659		+EPZ	2045 13.0	#-680
	ESH	0321 03.0		NOV 30	-EXZ	0649 08.9	#-681
	+EPZ	0651 55.1	#-660	DEC 01	-EPZ	0623 17.3	#-682
	+EPZ	1712 07.9	#-661		+EPZ	1130 30.1	#-683
	ESH	1723 01.0		DEC 02	-EPZ	1223 15.4	#-684
	+EPZ	1846 44.4	#-662	DEC 03	(NIL)		
	ESH	1856 50.0		DEC 04	-EPZ	0838 28.5	#-685
	-EPZ	2013 56.4	#-663		+EPZ	2217 00.6	#-686
NOV 21	+EPZ	0234 09.7	#-664	DEC 05	-EPZ	1630 12.9	#-687
	-EPZ	0333 22.9	#-665	DEC 06	(NIL)		
	EXZ	0834 46.0		DEC 07	-IPZ	0349 06.8	#-688
NOV 22	-IPZ	0516 06.4	#-666		ESH	0358 21.0	
	ESH	0525 57.5			+EPZ	2035 04.6	#-689
	EXZ	1131 14.0		DEC 08	+EPZ	0521 30.8	#-690
	-EPZ	1231 25.3	#-667		-EPZ	0843 17.7	#-691
	-EPZ	1518 00.0	#-668	DEC 09	-EXZ	1822 47.9	#-692
	-EPZ	1924 26.7	#-669		+EPZ	1930 30.4	
NOV 23	-EPZ	0605 51.9	#-670		-EPZ	2317 54.5	#-693
	-EPZ	1923 38.4	#-671	DEC 10	+EPZ	0200 28.0	#-694
	+EPZ	2206 52.1			+EPZ	0351 11.0	#-695
NOV 24	-EPZ	1334 10.9	#-672		ESH	0401 05.5	
	+EPZ	1955 20.5	#-673		EXZ	1636 30.0	
NOV 25	(NIL)			DEC 11	-EXZ	0237 25.3	#-696
NOV 26	+EPZ	0623 37.9	#-674		+EPZ	0940 40.0	#-697
	-EPZ	1133 30.4	#-675		ESH	0950 21.5	

DATE	PHASE	ARRIVAL TIME	REMARKS	DATE	PHASE	ARRIVAL TIME	REMARKS
		h m s				h m s	
DEC 12	-EPZ	0753 51.8	#-698	DEC 25	+EPZ	1155 35.8	#-721
	ESH	0803 46.6			-EPZ	2332 35.2	
	+EPZ	1504 46.5	#-699	DEC 26	-EPZ	1137 12.4	#-722
DEC 13	-EPZ	1438 01.3	#-700		EXZ	1430 26.0	
	+EXZ	2040 35.3	#-701		-EPZ	2009 27.0	#-723
DEC 14	+EPZ	0742 01.0	#-702	DEC 27	-EPZ	1744 09.0	#-724
	-EPZ	1957 34.0	#-703		ESH	1753 24.0	
	+EPZ	2233 11.7	#-704		+EPZ	2212 44.1	#-725
DEC 15	+EPZ	1131 27.3	#-705	DEC 28	EXZ	1238 36.0	
	-EPZ	1709 10.6	#-706			2111	
DEC 16	-EPZ	0009 01.2	#-707		+EPZ	2149 30.0	
DEC 17	-EPZ	0105 17.1	#-708		-EPZ	2235 27.4	#-726
	-EPZ	1615 36.9	#-709	DEC 29	-EXZ	0445 40.2	#-727
	+EPZ	2120 05.3	#-710	DEC 30	-EPZ	1230 23.8	
DEC 18	+IPZ	2050 30.0	#-711			1530	
	ESH	2100 28.3		DEC 31	(NIL)		
DEC 19	+EPZ	0248 09.9	#-712				
	-EPZ	0930 23.3	#-713				
	-EPZ	1211 58.9	#-714				
	-EPZ	1320 19.2	#-715				
	-EPZ	1753 08.7	#-716				
	ESH	1802 42.6					
DEC 20		1047 24.5					
	-EXZ	1120 40.0	#-717				
	-EPZ	1515 50.0	#-718				
DEC 21	+EPZ	1756 25.8	#-719				
DEC 22	(NIL)						
DEC 23	+EXZ	0041 21.7	#-720				
DEC 24	+EPZ	2106 06.6					

Table 2. List of hypocenters of teleseismic events detected at Syowa Station. The total number of events are 727.

Data No.	Origin time			Geographic Coordinates		Region	Depth (km)	Magnitude (Mb)	Epicentral distance (degree)
	Date	U T C		Latitude (degree)	Longitude (degree)				
1	01/01	02 32 12.4		4.627 N	127.640 E	TALAUD ISLANDS, INDONESIA.	123	5.1	93.649
2	01/03	12 46 55.7		17.536 S	167.682 E	VANUATU ISLAND	33	4.9	86.149
3	01/03	13 24 13.8		49.265 S	164.222 E	AUCKLAND ISLANDS REGION	16	6.0	55.182
4	01/03	14 48 01.6		28.760 S	177.270 W	KERMADEC ISLANDS REGION	101	4.6	78.829
5	01/03	18 59 15.8		32.703 S	178.213 W	SOUTH OF KERMADEC ISLANDS	33	5.1	74.815
6	01/04	08 33 29.9		18.563 S	178.114 W	FIJI ISLANDS REGION	517	4.4	88.570
7	01/04	14 49 15.9		32.000 S	177.480 W	KERMADEC ISLANDS REGION	33	5.1	75.638
8	01/04	19 31 59.8		4.301 S	135.145 E	IRIAN JAYA REGION, INDONESIA	11	5.8	88.063
9	01/04	19 51 40.1		4.172 S	135.220 E	IRIAN JAYA REGION, INDONESIA	17	5.5	88.209
10	01/05	07 30 35.9		30.656 S	72.154 W	OFF COAST OF CENTRAL CHILE	42	5.0	68.918
11	01/05	14 25 45.2		6.163 S	146.392 E	EASTERN NEW GUINEA REG, P.N.G.	81	5.3	90.273
12	01/06	03 02 18.2		31.951 S	69.026 W	SAN JUAN PROVINCE, ARGENTINA	123	4.8	66.739

13	01/07	01 36 17.7	21.766 S	70.291 W	NEAR COAST OF NORTHERN CHILE	33	4.8	76.619
14	01/07	02 00 52.2	22.345 S	179.531 W	SOUTH OF FIJI ISLANDS	586	5.2	84.604
15	01/07	07 36 04.2	19.900 S	169.910 W	VANUATU ISLANDS	50	4.6	84.479
16	01/07	11 05 22.5	4.842 N	96.402 E	NORTHERN SUMATERA, INDONESIA	173	5.4	83.283
17	01/07	19 23 53.3	0.591 S	98.601 E	SOUTHERN SUMATERA, INDONESIA	30	5.6	78.827
18	01/08	03 27 17.5	0.225 S	125.833 E	SOUTHERN MOLUCCA SEA	33	4.8	88.501
19	01/09	12 43 38.3	16.913 S	69.590 W	PERU-BOLIVIA BORDER REGION	170	4.9	80.922
20	01/10	10 22 35.4	23.130 S	173.730 W	TONGA ISLANDS REGION	33	5.2	84.978
21	01/10	15 53 50.1	13.339 S	69.446 W	PERU-BOLIVIA BORDER REGION	596	6.4	84.213
22	01/10	18 21 58.0	45.958 S	76.527 W	OFF COAST SOUTHERN CHILE	19	5.4	56.003
23	01/11	14 58 34.2	11.986 S	167.289 W	SANTA CRUZ ISLANDS	19	4.4	91.335
24	01/12	06 29 49.2	61.017 S	62.778 W	DRAKE PASSAGE	10	5.0	38.888
25	01/12	10 10 25.8	57.940 S	25.655 W	SOUTH SANDWICH ISLANDS REGION	33	5.2	29.481
26	01/12	16 45 51.5	22.361 S	179.271 E	SOUTH OF FIJI ISLANDS	595	4.8	84.333
27	01/12	21 22 37.2	4.182 S	142.147 E	NEW GUINEA, PAPUA NEW GUINEA	119	5.0	90.650
28	01/13	09 43 06.5	17.350 S	14.486 W	SOUTHERN MID-ATLANTIC RIDGE	10	5.7	61.383
29	01/13	20 26 42.9	2.716 N	127.170 E	NORTHERN MOLUCCA SEA	22	5.3	91.708
30	01/13	23 34 50.4	1.580 S	133.070 E	IRIAN JAYA REGION, INDONESIA	37	4.9	89.844
31	01/14	02 08 54.8	3.481 S	131.119 E	IRIAN JAYA REGION, INDONESIA	63	5.2	87.300
32	01/15	07 42 24.5	1.979 N	126.845 E	NORTHERN MOLUCCA SEA	28	5.6	90.908

33	01/15	17 03 31.0	20.849 S	173.926 W	TONGA ISLANDS	36	5.5	87.168
34	01/15	20 05 18.9	5.567 S	130.695 E	BANDA SEA	33	5.0	85.295
35	01/15	23 07 09.0	0.070 N	123.648 E	MINAHASSA PENINSULA, SULAWESI	129	5.3	87.991
36	01/16	11 46 33.5	8.708 S	127.313 E	TIMOR REGION, INDONESIA	28	4.8	81.170
37	01/16	15 19 25.4	11.540 S	164.731 E	SANTA CRUZ ISLANDS REGION	33	5.0	91.037
38	01/16	19 12 58.1	8.750 S	114.700 E	BALI REGION, INDONESIA	115	5.0	76.620
39	01/16	20 12 18.7	7.483 S	128.449 E	BANDA SEA	145	5.2	82.713
40	01/18	06 46 10.1	8.364 S	113.187 E	JAWA, INDONESIA	141	5.2	76.445
41	01/19	01 53 34.9	3.176 S	135.970 E	IRIAN JAYA REGION, INDONESIA	23	6.1	89.401
42	01/19	10 17 46.3	20.545 S	178.373 W	FIJI ISLANDS REGION	564	5.3	86.592
43	01/19	16 26 48.0	17.584 S	178.495 W	FIJI ISLANDS REGION	533	5.4	89.440
44	01/19	19 43 25.0	55.776 S	27.910 W	SOUTH SANDWICH ISLANDS REGION	33	5.2	31.942
45	01/20	08 36 07.0	5.628 S	130.882 E	BANDA SEA	56	5.1	85.306
46	01/20	09 06 52.7	6.002 S	77.052 W	NORTHERN PERU	123	5.8	93.581
47	01/21	02 24 29.9	1.015 N	127.733 E	HALMAHERA, INDONESIA	20	6.2	90.333
48	01/21	18 00 17.6	4.859 S	103.664 E	SOUTHERN SUMATERA, INDONESIA	90	6.1	76.453
49	01/22	05 37 01.1	17.692 S	167.904 E	VANUATU ISLANDS	33	5.0	86.060
50	01/22	06 15 26.1	62.106 S	56.121 W	SOUTH SHETLAND ISLANDS	10	5.1	36.140
51	01/24	03 44 23.4	31.177 S	70.105 W	CHILE-ARGENTINA BORDER REGION	12	5.0	67.796

52	01/24	07 02 17.8	49.262 S	30.442 E	SOUTH OF AFRICA	10	4.7	20.280
53	01/24	16 11 24.1	1.005 N	127.785 E	HALMAHERA, INDONESIA	25	5.1	90.343
54	01/26	23 36 20.5	15.957 S	167.693 E	VANUATU ISLANDS	168	4.9	87.659
55	01/27	00 18 05.4	21.715 S	173.937 W	TONGA ISLANDS	33	5.4	86.321
56	01/27	00 28 37.2	0.044 N	123.598 E	MINAHASSA PENINSULA, SULAWESI	159	5.1	87.949
57	01/27	04 28 44.1	40.330 S	91.190 W	WEST CHILE RISE	10	4.9	64.981
58	01/27	11 07 34.0	3.230 S	129.810 E	SERAM, INDONESIA	68	4.7	87.144
59	01/28	01 52 15.9	19.560 S	69.048 W	NORTHERN CHILE	116	5.2	78.272
60	01/29	12 56 24.4	13.269 S	75.079 W	CENTRAL PERU	104	4.9	86.117
61	01/29	15 46 01.9	11.713 S	72.443 W	CENTRAL PERU	33	5.2	86.724
62	01/29	21 18 31.7	21.531 S	179.343 W	FIJI ISLANDS REGION	620	5.0	85.433
63	01/29	22 27 06.0	7.345 S	128.643 E	BANDA SEA	142	4.7	82.910
64	01/30	16 04 50.6	24.982 S	68.993 W	CHILE-ARGENTINA BORDER REGION	90	4.5	73.201
65	01/30	18 15 44.7	33.880 S	179.080 W	SOUTH OF KERMADEC ISLANDS	165	4.7	73.505
66	01/30	20 57 43.4	29.184 S	177.589 W	KERMADEC ISLANDS, NEW ZEALAND	61	5.6	78.355
67	01/31	09 57 35.7	37.132 S	52.395 E	SOUTH INDIAN OCEAN	10	5.2	32.737
68	02/01	16 29 37.3	21.501 S	70.030 W	NEAR COAST OF NORTHERN CHILE	52	5.0	76.782
69	02/01	22 14 23.3	11.315 S	163.863 E	SOLOMON ISLANDS	38	5.5	90.999
70	02/03	10 23 30.7	15.413 S	166.961 E	VANUATU ISLANDS	23	5.6	87.977
71	02/03	15 43 43.8	41.886 S	84.490 E	SOUTHEAST INDIAN RIDGE	10	5.4	35.845

72	02/03	16 07 25.8	41.478 S	84.861 E	SOUTHEAST INDIAN RIDGE	10	5.2	36.334
73	02/05	16 45 43.2	27.649 S	65.628 E	SOUTH INDIAN OCEAN	10	5.2	44.184
74	02/05	23 05 02.9	24.030 S	179.790 W	SOUTH OF FIJI ISLANDS	587	4.8	82.916
75	02/05	23 34 09.9	0.593 N	30.037 E	UGANDA	14	5.8	69.812
76	02/06	08 59 47.0	13.589 S	167.189 E	VANUATU ISLANDS	204	5.1	89.779
77	02/06	10 20 18.0	16.797 S	68.994 W	PERU-BOLIVIA BORDER REGION	174	4.9	80.833
78	02/07	14 42 00.9	23.987 S	176.338 W	SOUTH OF FIJI ISLANDS	115	4.8	83.653
79	02/07	16 43 53.3	32.470 S	70.600 W	CHILE-ARGENTINA BORDER REGION	100		66.751
80	02/08	04 56 38.8	20.786 S	177.805 W	FIJI ISLANDS REGION	470	5.1	86.475
81	02/08	15 31 01.3	20.015 S	133.530 E	NORTHERN TERRITORY, AUSTRALIA	10	4.7	72.937
82	02/09	19 27 08.8	21.126 S	174.091 W	TONGA ISLANDS	26	5.7	86.867
83	02/11	00 48 42.9	18.426 S	70.885 W	NEAR COAST OF NORTHERN CHILE	36	5.2	79.932
84	02/11	21 17 31.1	18.773 S	169.169 E	VANUATU ISLANDS	206	6.4	85.364
85	02/12	04 16 26.8	10.786 S	128.798 W	SOUTH PACIFIC OCEAN	15	6.3	99.919
86	02/12	08 01 20.2	10.411 S	161.497 E	SOLOMON ISLANDS	59	4.8	91.158
87	02/12	17 58 23.9	20.553 S	169.361 E	VANUATU ISLANDS	28	6.4	83.712
88	02/13	10 09 38.7	20.825 S	169.422 E	VANUATU ISLANDS	25	4.6	83.468
89	02/13	14 21 28.5	41.446 S	89.421 W	SOUTHERN PACIFIC OCEAN	10	5.2	63.508
90	02/13	22 00 28.6	20.559 S	168.917 E	LOYALTY ISLANDS	28	5.5	83.590

91	02/15	15 08 17.7	20.563 S	169.393 E	VANUATU ISLANDS	30	5.8	83.711
92	02/15	17 07 43.8	4.967 S	104.302 E	SOUTHERN SUMATERA, INDONESIA	23	5.9	76.564
93	02/15	20 37 40.6	20.473 S	168.886 E	LOYALTY ISLANDS	33	5.2	83.664
94	02/15	21 11 56.4	20.399 S	168.866 E	LOYALTY ISLANDS	20	5.7	83.730
95	02/15	23 41 43.0	10.120 S	118.899 E	SOUTH OF SUMBAWA, INDONESIA	26	5.2	76.842
96	02/16	03 48 52.4	26.271 S	178.273 E	SOUTH OF FIJI ISLANDS	606	5.4	80.334
97	02/16	06 46 57.0	20.094 S	168.906 E	LOYALTY ISLANDS	13	5.7	84.032
98	02/16	08 59 05.6	20.254 S	168.698 E	LOYALTY ISLANDS	33	4.8	83.824
99	02/16	11 08 45.8	20.111 S	168.875 E	LOYALTY ISLANDS	26	5.3	84.007
100	02	16 22 03 08.9	20.230 S	168.925 E	LOYALTY ISLANDS	11	5.7	83.907
101	02/16	22 47 01.3	20.010 S	168.743 E	LOYALTY ISLANDS	23	4.7	84.069
102	02/17	02 54 11.5	5.410 S	106.575 E	JAWA, INDONESIA	289	4.7	76.913
103	02/17	04 37 27.6	23.258 S	66.530 W	JUJUY PROVINCE, ARGENTINA	223	5.4	73.999
104	02/17	11 11 39.6	20.081 S	168.482 E	LOYALTY ISLANDS	22	5.1	83.933
105	02/17	21 01 30.1	9.645 S	152.025 E	D'ENTRECASTEAUX ISLANDS REGION	30	5.2	88.903
106	02/17	21 52 47.3	9.506 S	152.083 E	D'ENTRECASTEAUX ISLANDS REGION	20	5.5	89.052
107	02/18	04 19 07.5	45.330 S	96.232 E	SOUTHEAST INDIAN RIDGE	10	5.6	36.815
108	02/18	13 41 27.7	20.493 S	169.072 E	VANUATU ISLANDS	13	5.5	83.694
109	02/19	17 12 12.6	5.834 N	126.787 E	MINDANAO, PHILIPPINE ISLANDS	30	5.1	94.462
110	02/20	01 54 35.7	2.059 N	126.475 E	NORTHERN MOLUCCA SEA	28	5.6	90.850

111	02/20	05 39 47.8	56.406 S	25.627 W	SOUTH SANDWICH ISLANDS REGION	33	5.4	30.642
112	02/20	21 48 12.5	13.691 N	120.787 E	MINDORO, PHILIPPINE ISLANDS	207	5.6	99.618
113	02/21	15 04 35.6	22.304 S	170.509 E	LOYALTY ISLANDS REGION	33	5.3	82.331
114	02/23	18 00 29.2	17.454 S	174.287 W	TONGA ISLANDS	33	5.6	90.411
115	02/24	15 25 35.8	17.421 S	174.287 W	TONGA ISLANDS	124	5.7	87.957
116	02/25	00 40 29.3	17.420 S	174.271 W	TONGA ISLANDS	121	5.6	90.447
117	02/26	17 45 50.3	17.646 S	167.779 E	VANUATU ISLANDS	28	5.3	86.070
118	02/27	10 59 53.5	6.862 S	129.087 E	BANDA SEA	58	4.9	83.517
119	03/01	03 49 00.8	29.096 N	52.617 E	SOUTHERN IRAN	13	5.8	98.353
120	03/02	19 17 15.3	19.851 S	175.043 W	TONGA ISLANDS	158	5.2	87.931
121	03/03	10 47 41.3	4.338 S	144.306 E	NEAR N COAST OF NEW GUINEA, P.N.G.	152	4.9	91.257
122	03/04	21 42 29.7	14.918 S	166.786 E	VANUATU ISLANDS	29	5.4	88.401
123	03/05	11 12 39.7	61.126 S	153.746 E	BALLENY ISLANDS REGION	10	4.6	41.894
124	03/06	03 39 38.0	31.750 S	178.949 W	KERMADEC ISLANDS REGION	33	5.1	75.597
125	03/08	15 19 30.6	15.121 S	72.990 W	SOUTHERN PERU	99	4.5	83.708
126	03/08	15 53 40.1	18.821 S	173.825 W	TONGA ISLANDS	40	5.3	89.165
127	03/09	01 21 27.8	1.056 S	15.988 W	NORTH OF ASCENSION ISLAND	10	4.7	77.223
128	03/09	10 23 54.2	22.271 S	67.891 W	CHILE-BOLIVIA BORDER REGION	167	4.4	75.366

129	03/09	12 08 34.5	9.580 S	154.986 E	D'ENTRECASTEAUX ISLANDS REGION	38	5.7	89.922
130	03/09	16 58 37.6	9.444 S	159.604 E	SOLOMON ISLANDS	10	5.6	91.498
131	03/09	19 15 49.7	34.101 S	57.537 E	SOUTH INDIAN OCEAN	10	4.7	36.433
132	03/09	23 28 06.7	18.039 S	178.413 W	FIJI ISLANDS REGION	563	6.6	89.016
133	03/09	23 50 24.2	17.985 S	178.257 W	FIJI ISLANDS REGION	591	6.0	89.101
134	03/10	01 51 40.5	18.121 S	178.382 W	FIJI ISLANDS REGION	654	5.0	88.943
135	03/10	08 02 37.6	25.632 S	64.620 W	SALTA PROVINCE, ARGENTINA	33	4.8	71.163
136	03/11	06 28 38.1	6.088 S	154.606 E	SOLOMON ISLANDS	93	4.8	93.083
137	03/12	01 49 02.4	14.503 S	171.085 E	VANUATU ISLANDS REGION	612	5.3	89.951
138	03/12	09 39 27.7	20.344 S	176.398 W	FIJI ISLANDS REGION	278	5.0	87.187
139	03/12	15 22 54.1	13.333 S	167.159 E	VANUATU ISLANDS	240	4.7	90.015
140	03/12	21 45 57.3	34.282 S	179.270 E	SOUTH OF KERMADEC ISLANDS	283	5.1	72.789
141	03/14	04 30 15.7	1.278 S	23.569 W	CENTRAL MID-ATLANTIC RIDGE	10	6.2	79.403
142	03/14	09 04 37.3	19.022 S	68.747 W	CHILE-BOLIVIA BORDER REGION	118	5.0	78.675
143	03/16	07 49 34.5	22.390 S	65.940 W	JUJUY PROVINCE, ARGENTINA	274	4.8	74.610
144	03/16	08 54 23.9	30.854 S	177.343 W	KERMADEC ISLANDS, NEW ZEALAND	43	5.1	76.778
145	03/16	19 00 59.8	30.544 S	177.335 W	KERMADEC ISLANDS, NEW ZEALAND	33	5.1	77.081
146	03/17	03 21 03.6	23.994 S	66.920 W	JUJUY PROVINCE, ARGENTINA	188	4.5	73.444
147	03/17	17 27 32.4	36.154 S	52.427 E	SOUTHWEST INDIAN RIDGE	10	4.9	33.708
148	03/18	01 53 27.9	56.098 S	27.149 W	SOUTH SANDWICH ISLANDS REGION	33	5.2	31.421

149	03/22	01 12 59.5	41.363 S	105.090 W	SOUTHERN EAST PACIFIC RISE	10	5.1	66.782
150	03/23	20 00 51.2	31.370 S	179.940 E	KERMADEC ISLANDS REGION	552	5.1	75.745
151	03/24	22 18 34.3	18.368 S	172.318 W	TONGA ISLANDS REGION	66	5.0	89.884
152	03/25	12 51 58.4	8.769 S	111.799 E	JAWA, INDONESIA	97	4.8	75.582
153	03/30	13 29 11.3	9.003 N	126.254 E	MINDANAO, PHILIPPINE ISLANDS	40	5.9	97.209
154	03/31	11 53 12.4	38.288 S	177.026 E	NORTH ISLAND, NEW ZEALAND	83	5.2	68.462
155	03/31	22 40 52.1	22.057 S	179.533 W	SOUTH OF FIJI ISLANDS	580	6.1	84.883
156	04/01	00 12 46.3	22.058 S	179.421 W	SOUTH OF FIJI ISLANDS	589	5.1	84.905
157	04/01	08 38 08.9	19.397 S	177.505 W	FIJI ISLANDS REGION	559	5.0	87.885
158	04/01	17 16 05.7	24.260 S	178.982 W	SOUTH OF FIJI ISLANDS	378	5.4	82.861
159	04/03	04 04 08.8	36.646 S	78.528 E	MID-INDIAN RIDGE	10	5.2	38.813
160	04/03	12 56 42.6	27.185 S	176.583 W	KERMADEC ISLANDS REGION	34	5.2	80.493
161	04/04	01 37 02.8	15.468 S	173.014 W	TONGA ISLANDS	24	5.7	92.588
162	04/06	12 13 44.9	17.371 S	167.816 E	VANUATU ISLANDS	17	5.6	86.343
163	04/06	12 19 58.3	17.428 S	167.760 E	VANUATU ISLANDS	10	5.2	86.273
164	04/09	01 29 00.8	0.572 S	123.238 E	MINAHASSA PENINSULA, SULAWESI	29	5.2	87.249
165	04/13	22 04 19.6	23.134 S	66.390 W	JUJUY PROVINCE, ARGENTINA	238	4.6	74.068
166	04/13	22 22 29.9	3.136 S	135.968 E	IRIAN JAYA REGION, INDONESIA	29	6.0	89.437
167	04/14	03 28 26.5	6.587 S	129.771 E	BANDA SEA	166	5.8	84.018

168	04/14 20 15 39.6	7.015 S	155.885 E	SOLOMON ISLANDS	40	5.7	92.623
169	04/15 07 12 16.1	15.406 S	167.468 E	VANUATU ISLANDS	113	5.3	88.123
170	04/16 09 55 20.5	31.570 S	71.247 W	NEAR COAST OF CENTRAL CHILE	36	5.5	67.788
171	04/16 15 16 35.0	1.877 N	127.382 E	HALMAHERA, INDONESIA	100	5.3	91.006
172	04/16 17 17 30.8	6.661 S	155.198 E	SOLOMON ISLANDS	35	5.6	92.735
173	04/17 06 14 39.1	15.905 S	167.510 E	VANUATU ISLANDS	40	5.5	87.659
174	04/17 09 13 30.2	56.208 S	27.379 W	SOUTH SANDWICH ISLANDS REGION	33	5.3	31.417
175	04/17 13 37 02.0	23.652 S	179.933 W	SOUTH OF FIJI ISLANDS	517	5.1	83.252
176	04/18 17 29 54.1	6.470 S	154.934 E	SOLOMON ISLANDS	26	6.6	92.830
177	04/18 21 39 42.9	21.412 S	178.800 W	FIJI ISLANDS REGION	541	5.4	85.662
178	04/19 05 48 07.5	1.228 N	123.361 E	MINAHASSA PENINSULA, SULAWESI	26	5.0	88.963
179	04/19 08 28 37.9	22.789 S	69.689 W	NORTHERN CHILE	49	5.1	75.469
180	04/19 23 39 06.2	10.851 N	93.609 E	ANDAMAN ISLANDS, INDIA	144	4.8	88.162
181	04/20 02 59 11.8	15.004 S	70.459 W	SOUTHERN PERU	207	5.0	82.992
182	04/20 03 19 02.0	22.718 S	171.465 E	LOYALTY ISLANDS REGION	33	4.5	82.174
183	04/20 08 32 45.5	25.345 S	70.524 W	NEAR COAST OF NORTHERN CHILE	33	4.7	73.355
184	04/20 18 25 36.5	21.117 S	169.670 E	LOYALTY ISLANDS REGION	36	5.4	83.252
185	04/20 23 35 30.2	17.800 S	178.404 W	FIJI ISLANDS REGION	543	5.6	89.250
186	04/21 02 42 15.4	5.617 S	154.067 E	SOLOMON ISLANDS	38	5.5	93.350
187	04/21 03 51 44.5	5.702 S	154.120 E	SOLOMON ISLANDS	28	5.9	93.287

188	04/22 09 36 39.9	20.593 S	175.292 W	TONGA ISLANDS	17	5.3	87.160
189	04/23 15 00 52.7	14.175 S	167.537 E	VANUATU ISLANDS	11	6.0	89.316
190	04/23 15 09 09.0	14.196 S	167.609 E	VANUATU ISLANDS	33	5.4	89.316
191	04/24 02 41 30.7	21.015 S	178.690 W	FIJI ISLANDS REGION	584	5.3	86.070
192	04/24 09 52 57.6	9.052 S	30.396 E	LAKE TANGANYIKA REGION	30	5.1	60.223
193	04/25 17 43 08.5	15.241 S	167.186 E	VANUATU ISLANDS	77	5.2	88.203
194	04/25 22 21 51.5	9.343 S	113.058 E	SOUTH OF JAWA, INDONESIA	68	5.5	75.490
195	04/26 04 29 20.9	9.500 S	112.883 E	SOUTH OF JAWA, INDONESIA	33	5.2	75.283
196	04/26 08 17 29.9	26.656 S	71.861 W	OFF COAST OF NORTHERN CHILE	10	4.2	72.556
197	04/26 23 36 45.1	16.019 S	167.991 E	VANUATU ISLANDS	185	5.8	87.680
198	04/27 09 23 26.2	21.515 S	173.667 W	TONGA ISLANDS	28	6.2	86.566
199	04/27 14 11 45.1	13.074 N	119.545 E	PHILIPPINE ISLANDS REGION	10	5.8	98.611
200	04/27 17 22 54.2	5.758 S	154.128 E	SOLOMON ISLANDS	65	5.4	93.237
201	04/27 21 39 35.2	7.264 S	120.425 E	FLORES SEA	553	5.0	80.035
202	04/28 16 44 54.4	39.312 S	74.756 W	OFF COAST OF CENTRAL CHILE	27	5.7	61.652
203	04/29 07 11 29.6	28.299 S	63.252 W	SANTIAGO DEL ESTERO PROV, ARG	562	6.3	68.241
204	05/01 13 59 10.0	15.406 S	167.427 E	VANUATU ISLANDS	128	5.1	88.112
205	05/02 17 14 00.8	1.116 S	97.487 E	SOUTHWEST OF SUMATERA, INDONESIA	15	6.2	77.982

206	05/02	20 11 57.8	19.013 S	69.700 W	NORTHERN CHILE	56	5.1	78.997
207	05/03	21 40 58.9	8.411 S	74.869 W	PERU-BRZIL BORDER REGION	134	5.2	90.612
208	05/04	06 37 36.0	17.047 S	168.265 E	VANUATU ISLANDS	206	5.8	86.773
209	05/05	23 45 43.3	21.120 S	177.800 W	FIJI ISLANDS REGION	427	4.2	86.151
210	05/06	02 56 41.5	19.275 S	169.119 E	VANUATU ISLANDS	161	5.1	84.871
211	05/06	16 02 27.4	60.129 S	18.826 W	SOUTHWESTERN ATLANTIC OCEAN	10	4.8	25.455
212	05/06	18 20 37.8	59.982 S	18.550 W	SOUTHWESTERN ATLANTIC OCEAN	10	5.4	25.461
213	05/06	22 39 26.5	4.681 S	153.099 E	NEW IRELAND REGION, P.N.G.	49	5.8	93.911
214	05/07	05 51 11.7	18.930 S	168.974 E	VANUATU ISLANDS	152	5.0	85.162
215	05/07	12 44 13.6	15.300 S	173.356 W	TONGA ISLANDS	58	5.5	92.688
216	05/07	23 16 46.3	5.485 S	147.094 E	EASTERN NEW GUINEA REG, P.N.G.	178	5.0	91.146
217	05/08	03 48 25.4	56.381 S	147.096 E	WEST OF MACQUARIE ISLAND	10	5.2	44.347
218	05/08	12 56 51.4	4.519 N	125.840 E	TALAUD ISLANDS, INDONESIA	177	5.0	92.904
219	05/09	12 36 37.2	2.060 S	99.731 E	SOUTHERN SUMATERA, INDONESIA	28	6.0	77.801
220	05/10	01 49 03.4	19.613 S	69.792 W	NORTHERN CHILE	52	5.8	78.466
221	05/10	06 36 28.3	28.501 S	63.096 W	SANTIAGO DEL ESTERO PROV, ARG	601	6.4	68.003
222	05/11	08 18 15.6	2.008 S	99.770 E	SOUTHERN SUMATERA, INDONESIA	21	6.0	77.862
223	05/11	17 31 03.3	24.086 S	179.945 W	SOUTH OF FIJI ISLANDS	553	5.2	82.829
224	05/11	21 14 33.7	2.056 S	99.669 E	SOUTHERN SUMATERA, INDONESIA	28	5.9	77.785
225	05/12	15 00 13.7	23.744 S	179.979 E	SOUTH OF FIJI ISLANDS	518	5.1	83.145
226	05/13	08 22 35.5	22.610 S	176.000 W	SOUTH OF FIJI ISLANDS	298	5.1	85.059

227	05/14	04 03 33.8	30.990 S	177.740 W	KERMADEC ISLANDS, NEW ZEALAND	33	4.9	76.570
228	05/19	17 52 55.4	29.063 S	178.376 W	KERMADEC ISLANDS, NEW ZEALAND	258	5.2	78.319
229	05/19	23 41 43.4	8.204 S	124.813 E	TIMOR REGION, INDONESIA	33	5.4	80.738
230	05/20	01 01 12.9	8.188 S	124.849 E	TIMOR REGION, INDONESIA	22	4.9	80.766
231	05/20	04 38 32.8	8.189 S	124.766 E	TIMOR REGION, INDONESIA	25	5.3	80.735
232	05/20	04 44 11.9	8.144 S	124.816 E	TIMOR REGION, INDONESIA	33	5.5	80.794
233	05/20	06 02 34.5	4.997 S	131.968 E	BANDA SEA	24	5.2	86.280
234	05/20	10 06 36.7	15.419 S	167.417 E	VANUATU ISLANDS	132	5.0	88.097
235	05/20	10 26 28.2	1.971 S	99.532 E	SOUTHERN SUMATERA, INDONESIA	24	5.2	77.821
236	05/22	00 07 49.7	25.970 S	179.300 E	SOUTH OF FIJI ISLANDS	508	4.8	80.845
237	05/22	02 57 15.4	24.232 S	66.852 W	SALTA PROVINCE, ARGENTINA	192	5.3	73.200
238	05/24	02 05 56.6	15.607 S	74.735 W	NEAR COAST OF PERU	34	5.6	83.811
239	05/25	04 03 41.2	4.199 S	135.489 E	IRIAN JAYA REGION, INDONESIA	33	6.0	88.280
240	05/25	18 42 19.3	7.646 N	94.279 E	NICOBAR ISLANDS, INDIA	25	5.7	85.310
241	05/25	21 04 59.1	20.809 S	177.646 W	FIJI ISLANDS REGION	365	5.4	86.485
242	05/25	21 14 52.6	5.589 N	61.186 E	CARLSBERG RIDGE	10	5.2	75.994
243	05/25	22 13 32.7	5.776 N	61.413 E	CARLSBERG RIDGE	10	5.4	76.209
244	05/27	06 53 04.9	6.221 S	130.450 E	BANDA SEA	128	5.3	84.601
245	05/27	10 41 51.8	25.670 S	176.867 W	SOUTH OF FIJI ISLANDS	122	5.0	81.913

246	05/29	12 25 39.2	15.295 S	167.512 E	VANUATU ISLANDS	125	5.3	88.241
247	05/29	14 11 50.9	20.556 N	94.160 E	MYANMAR	36	6.2	97.547
248	05/30	01 55 19.1	28.366 S	72.068 W	OFF COAST OF CENTRAL CHILE	41	4.8	71.026
249	05/30	08 14 15.9	14.192 S	167.070 E	VANUATU ISLANDS	194	5.0	89.172
250	05/30	09 55 33.4	8.795 S	122.993 E	FLORES REGION, INDONESIA	122	4.9	79.537
251	05/30	18 35 46.7	10.289 S	108.354 W	CENTRAL EAST PACIFIC RISE	10	5.2	97.682
252	05/30	20 37 28.4	4.085 N	125.830 E	TALAUD ISLANDS, INDONESIA	180	5.0	92.497
253	05/30	22 55 25.3	31.460 S	178.570 W	KERMADEC ISLANDS REGION	132	5.2	75.953
254	05/31	19 40 10.4	20.180 S	178.840 W	FIJI ISLANDS REGION	670	4.5	86.849
255	06/01	10 43 09.7	30.619 S	178.262 W	KERMADEC ISLANDS, NEW ZEALAND	33	5.0	76.830
256	06/02	03 40 34.2	4.997 S	131.349 E	BANDA SEA	35	5.1	86.058
257	06/03	04 54 50.0	10.391 S	112.998 E	SOUTH OF JAWA, INDONESIA	43	5.4	74.496
258	06/03	16 33 10.5	9.440 S	113.045 E	SOUTH OF JAWA, INDONESIA	28	5.3	75.395
259	06/03	18 16 19.0	10.468 S	112.962 E	SOUTH OF JAWA, INDONESIA	40	5.6	74.412
260	06/03	21 06 59.8	10.362 S	112.892 E	SOUTH OF JAWA, INDONESIA	26	6.1	74.485
261	06/03	21 19 50.1	10.548 S	112.873 E	SOUTH OF JAWA, INDONESIA	33	5.3	74.306
262	06/03	21 21 09.5	10.416 S	112.897 E	SOUTH OF JAWA, INDONESIA	44	5.9	74.437
263	06/03	23 02 00.5	10.395 S	113.588 E	SOUTH OF JAWA, INDONESIA	24	5.6	74.700
264	06/03	23 42 31.0	10.473 S	112.810 E	SOUTH OF JAWA, INDONESIA	32	5.5	74.354
265	06/04	00 52 35.7	2.984 S	129.127 E	SERAM, INDONESIA	22	5.3	87.126

266	06/04	00 57 50.6	10.777 S	113.366 E	SOUTH OF JAWA, INDONESIA	11	6.0	74.267
267	06/04	05 54 29.3	10.567 S	113.186 E	SOUTH OF JAWA, INDONESIA	33	5.4	74.399
268	06/04	11 18 53.0	10.790 S	113.338 E	SOUTH OF JAWA, INDONESIA	31	5.2	74.245
269	06/04	11 36 36.0	10.831 S	113.225 E	SOUTH OF JAWA, INDONESIA	34	5.6	74.167
270	06/04	12 04 27.8	10.696 S	113.555 E	SOUTH OF JAWA, INDONESIA	29	5.7	74.409
271	06/04	14 57 59.6	10.559 S	112.889 E	SOUTH OF JAWA, INDONESIA	33	5.3	74.301
272	06/04	20 09 34.7	10.826 S	113.199 E	SOUTH OF JAWA, INDONESIA	30	5.7	74.163
273	06/04	21 51 52.0	48.199 S	106.829 E	SOUTHEAST INDIAN RIDGE	10	5.4	38.159
274	06/05	01 45 02.1	10.349 S	113.398 E	SOUTH OF JAWA, INDONESIA	26	5.8	74.676
275	06/05	05 56 45.3	10.717 S	113.492 E	SOUTH OF JAWA, INDONESIA	33	5.6	74.367
276	06/05	17 51 57.0	10.645 S	112.654 E	SOUTH OF JAWA, INDONESIA	40	5.6	74.139
277	06/06	01 08 31.2	10.812 S	113.324 E	SOUTH OF JAWA, INDONESIA	34	5.5	74.220
278	06/06	05 32 54.8	10.587 S	112.618 E	SOUTH OF JAWA, INDONESIA	21	5.5	74.180
279	06/06	06 20 20.9	11.081 S	113.084 E	SOUTH OF JAWA, INDONESIA	33	5.2	73.886
280	06/06	08 18 11.4	10.832 S	113.148 E	SOUTH OF JAWA, INDONESIA	42	5.1	74.139
281	06/06	20 47 40.5	2.917 N	76.057 W	COLOMBIA	12	6.4	101.634
282	06/07	07 50 39.5	7.535 S	120.074 E	FLORES SEA	415	5.0	79.658
283	06/07	23 07 41.5	10.583 S	112.808 E	SOUTH OF JAWA, INDONESIA	38	4.8	74.251
284	06/09	00 33 16.2	13.841 S	67.553 W	NORTHERN BOLIVIA	631	7.0	83.111

285	06/09 01 15 17.8	14.360 S	68.440 W	PERU-BOLIVIA BORDER REGION	650	6.1	82.924
286	06/09 05 26 30.4	13.860 S	67.264 W	NORTHERN BOLIVIA	631	5.2	82.996
287	06/09 16 37 46.5	10.143 S	113.623 E	SOUTH OF JAWA, INDONESIA	33	5.8	74.946
288	06/10 19 11 16.6	10.391 S	112.726 E	SOUTH OF JAWA, INDONESIA	29	5.3	74.400
289	06/11 11 19 32.4	7.297 N	126.923 E	MINDANAO, PHILIPPINE ISLANDS	37	5.1	95.867
290	06/12 01 35 21.4	10.460 S	112.830 E	SOUTH OF JAWA, INDONESIA	33	5.2	74.373
291	06/12 01 47 19.1	10.575 S	112.783 E	SOUTH OF JAWA, INDONESIA	33	5.3	74.249
292	06/12 13 53 07.5	10.615 S	112.600 E	SOUTH OF JAWA, INDONESIA	34	5.3	74.148
293	06/13 04 17 30.0	25.169 S	179.355 E	SOUTH OF FIJI ISLANDS	553	5.1	81.632
294	06/13 11 07 00.5	15.140 S	175.180 W	TONGA ISLANDS	306	4.3	92.493
295	06/13 21 04 09.4	10.285 S	113.491 E	SOUTH OF JAWA, INDONESIA	24	5.7	74.768
296	06/13 21 10 06.1	10.233 S	113.569 E	SOUTH OF JAWA, INDONESIA	33	5.4	74.844
297	06/13 21 15 02.6	5.472 S	151.841 E	NEW BRITAIN REGION, P.N.G.	18	5.8	92.755
298	06/13 21 53 29.8	3.922 N	128.169 E	NORTH OF HALMAHERA, INDONESIA	55	5.6	93.185
299	06/13 22 48 27.5	10.328 S	113.621 E	SOUTH OF JAWA, INDONESIA	26	5.6	74.774
300	06/14 10 24 07.0	49.558 S	125.719 E	SOUTH OF AUSTRALIA	10	5.0	43.644
301	06/14 21 01 55.4	1.525 N	126.305 E	NORHTERN MOLUCCA SEA	33	5.7	90.293
302	06/15 06 18 45.1	9.438 S	113.066 E	SOUTH OF JAWA, INDONESIA	29	5.1	75.405
303	06/15 09 22 57.2	10.335 S	113.660 E	SOUTH OF JAWA, INDONESIA	20	6.0	74.781
304	06/15 09 50 23.0	10.149 S	113.686 E	SOUTH OF JAWA, INDONESIA	29	5.5	74.963

305	06/15	10 28 50.6	10.168 S	113.749 E	SOUTH OF JAWA, INDONESIA	29	5.7	74.968
306	06/15	12 10 56.4	10.498 S	113.441 E	SOUTH OF JAWA, INDONESIA	25	5.2	74.553
307	06/16	10 12 46.9	7.391 S	128.125 E	BANDA SEA	109	6.0	82.682
308	06/16	18 41 28.2	15.250 S	70.294 W	SOUTHERN PERU	200	5.6	82.708
309	06/18	01 10 44.8	21.250 S	170.382 E	LOYALTY ISLANDS REGION	170	4.7	83.308
310	06/18	02 22 06.3	30.289 S	178.286 W	KERMADEC ISLANDS, NEW ZEALAND	156	5.2	77.146
311	06/18	03 25 15.8	42.963 S	171.658 E	SOUTH ISLAND, NEW ZEALAND	14	6.2	62.834
312	06/18	22 38 19.0	10.150 S	113.632 E	SOUTH OF JAWA, INDONESIA	46	5.6	74.943
313	06/19	12 57 01.2	10.346 S	113.479 E	SOUTH OF JAWA, INDONESIA	33	5.3	74.707
314	06/19	13 43 51.1	43.273 S	171.611 E	SOUTH ISLAND, NEW ZEALAND	10	5.7	62.528
315	06/19	18 48 41.9	56.496 S	147.847 E	WEST OF MACQUARIE ISLAND	10	4.9	44.450
316	06/20	09 09 02.9	28.968 N	52.614 E	SOUTHERN IRAN	9	5.9	98.226
317	06/20	09 44 45.0	28.779 S	176.749 W	KERMADEC ISLANDS REGION	23	5.2	78.910
318	06/21	02 18 23.3	43.208 S	171.594 E	SOUTH ISLAND, NEW ZEALAND	10	5.3	62.587
319	06/21	05 14 00.2	17.643 S	167.887 E	VANUATU ISLANDS	33	4.5	86.102
320	06/21	08 50 23.3	15.690 S	167.255 E	VANUATU ISLANDS	29	5.0	87.794
321	06/21	23 08 05.8	65.272 S	178.517 E	BALLENY ISLANDS REGION	10	4.7	43.304
322	06/22	16 18 25.7	6.043 S	130.905 E	BANDA SEA	106	5.2	84.929
323	06/23	01 59 56.4	15.841 S	168.307 E	VANUATU ISLANDS	26	4.9	87.936

324	06/23 05 30 07.1	64.519 S	175.220 E	BALLENY ISLANDS REGION	10	5.3	43.093
325	06/25 08 18 27.4	34.772 S	179.889 W	SOUTH OF KERMADEC ISLANDS	33	5.1	72.530
326	06/25 13 54 58.8	56.074 S	27.675 W	SOUTH SANDWICH ISLANDS REGION	110	5.6	31.626
327	06/26 00 03 22.1	28.739 S	176.844 W	KERMADEC ISLANDS REGION	33	5.3	78.931
328	06/26 06 14 36.2	10.770 S	113.311 E	SOUTH OF JAWA, INDONESIA	33	5.0	74.254
329	06/27 04 10 09.3	36.236 S	98.189 W	SOUTHERN PACIFIC OCEAN	10	5.4	70.444
330	06/27 07 26 53.4	20.506 S	68.629 W	CHILE-BOLIVIA BORDER REGION	109	5.3	77.252
331	06/27 12 03 03.0	16.122 S	67.484 E	MID-INDIAN RIDGE	10	5.1	55.766
332	06/28 16 10 18.0	21.737 S	174.404 W	TONGA ISLANDS	33	5.0	86.213
333	06/29 12 21 02.2	15.278 S	173.495 W	TONGA ISLANDS	33	5.1	92.683
334	06/29 22 59 38.8	7.486 S	128.607 E	BANDA SEA	132	5.1	82.767
335	07/01 01 57 57.1	7.960 S	109.137 E	JAWA, INDONESIA	101	4.9	75.410
336	07/02 05 08 08.0	10.555 S	163.063 E	SOLOMON ISLANDS	28	5.4	91.486
337	07/02 05 46 54.1	21.071 S	178.695 W	FIJI ISLANDS REGION	567	5.3	86.015
338	07/02 06 43 15.8	21.115 S	178.729 W	FIJI ISLANDS REGION	577	5.1	85.965
339	07/02 09 14 43.0	5.763 S	131.103 E	BANDA SEA	88	5.9	85.260
340	07/03 02 49 54.7	19.472 S	175.595 W	TONGA ISLANDS	220	4.9	88.193
341	07/04 21 27 52.8	5.569 S	154.332 E	SOLOMON ISLANDS	166	5.1	93.481
342	07/04 21 36 41.9	14.888 N	97.322 W	OFF COAST OF OAXACA, MEXICO	15	6.1	119.441
343	07/05 02 59 42.4	16.301 S	177.472 W	FIJI ISLANDS REGION	414	5.4	90.900

344	07/05	13 31 17.2	12.154 S	65.670 E	MID-INDIAN RIDGE	10	5.0	59.295
345	07/06	09 13 10.1	5.983 N	125.929 E	MINDANAO, PHILIPPINE ISLANDS	151	5.7	94.293
346	07/07	00 19 25.4	19.300 S	169.806 E	VANUATU ISLANDS	33	5.2	85.026
347	07/08	10 11 10.0	49.493 S	122.447 E	SOUTH OF AUSTRALIA	10	5.0	42.583
348	07/08	17 10 14.2	0.256 N	66.740 E	CARLSBERG RIDGE	10	5.1	71.621
349	07/09	03 47 00.9	16.694 S	73.084 W	NEAR COAST OF PERU	64	5.0	82.264
350	07/09	04 18 08.7	7.949 S	120.269 E	FLORES SEA	33	4.8	79.344
351	07/09	15 57 58.6	37.217 S	95.101 W	SOUTHERN PACIFIC OCEAN	26	5.4	68.839
352	07/10	02 58 33.6	13.770 S	167.165 E	VANUATU ISLANDS	199	5.4	89.600
353	07/10	21 17 46.1	9.853 S	124.442 E	TIMOR REGION, INDONESIA	33	4.8	79.078
354	07/11	00 59 20.1	3.033 S	129.952 E	SERAM, INDONESIA	33	4.9	87.377
355	07/12	11 45 57.5	30.440 S	176.110 W	KERMADEC ISLANDS REGION	33	4.2	77.413
356	07/12	11 58 12.9	29.530 S	176.490 W	KERMADEC ISLANDS REGION	33	4.2	78.228
357	07/12	22 40 24.4	6.199 S	105.445 E	SUNDA STRAIT	33	5.0	75.794
358	07/13	00 25 14.4	16.644 S	167.469 E	VANUATU ISLANDS	33	5.4	86.942
359	07/13	02 35 56.0	16.620 S	167.518 E	VANUATU ISLANDS	33	6.4	86.979
360	07/13	08 09 51.7	16.573 S	167.223 E	VANUATU ISLANDS	30	5.3	86.943
361	07/13	11 45 23.3	7.532 S	127.770 E	BANDA SEA	159	6.5	82.423
362	07/13	13 48 07.9	16.571 S	167.424 E	VANUATU ISLANDS	26	5.3	87.000

363	07/13	23 02 58.8	17.142 S	167.747 E	VANUATU ISLANDS	31	4.9	86.543
364	07/14	00 09 24.7	16.582 S	167.452 E	VANUATU ISLANDS	20	5.6	86.997
365	07/14	01 04 31.1	16.565 S	167.760 E	VANUATU ISLANDS	25	4.3	87.097
366	07/14	07 10 59.9	5.437 S	133.782 E	ARU ISLANDS REGION, INDONESIA	28	5.1	86.522
367	07/14	07 53 06.3	17.127 S	167.587 E	VANUATU ISLANDS	36	5.1	86.514
368	07/14	08 07 38.6	17.213 S	167.599 E	VANUATU ISLANDS	33	4.8	86.435
369	07/14	08 25 38.7	16.709 S	167.366 E	VANUATU ISLANDS	30	5.3	86.852
370	07/14	11 26 33.4	16.797 S	167.423 E	VANUATU ISLANDS	21	5.1	86.784
371	07/14	15 38 41.8	22.590 S	174.161 W	TONGA ISLANDS REGION	33	5.4	85.426
372	07/14	18 03 25.9	17.230 S	167.640 E	VANUATU ISLANDS	33	4.2	86.430
373	07/15	16 04 30.4	16.559 S	167.476 E	VANUATU ISLANDS	33	5.2	87.025
374	07/15	17 14 14.1	17.050 S	167.570 E	VANUATU ISLANDS	33	4.8	86.582
375	07/15	17 53 41.6	18.281 S	168.083 E	VANUATU ISLANDS	29	4.7	85.546
376	07/16	17 51 39.3	29.754 S	71.849 W	NEAR COAST OF CENTRAL CHILE	33	4.7	69.664
377	07/16	18 05 05.6	4.619 S	125.615 E	BANDA SEA	443	5.8	84.348
378	07/17	22 04 58.0	16.680 S	167.383 E	VANUATU ISLANDS	33	5.4	86.885
379	07/18	02 24 38.7	29.573 S	177.318 W	KERMADEC ISLANDS	38	5.4	76.937
380	07/18	05 24 21.2	9.740 S	112.493 E	SOUTH OF JAWA, INDONESIA	33	5.4	74.923
381	07/18	11 09 24.9	17.219 S	167.258 E	VANUATU ISLANDS	27	4.8	86.422
382	07/18	13 58 42.7	20.977 S	178.722 W	FIJI ISLANDS REGION	574	5.1	85.553

383	07/18	16 33 59.8	9.591 S	112.939 E	SOUTH OF JAWA, INDONESIA	33	5.6	75.218
384	07/18	18 01 18.9	29.540 S	177.490 W	KERMADEC ISLANDS, NEW ZEALAND	138	5.0	78.028
385	07/18	21 52 41.9	30.102 S	176.973 W	KERMADEC ISLANDS REGION	33	5.2	77.580
386	07/19	11 59 44.5	23.438 S	175.470 W	TONGA ISLANDS REGION	50	5.3	84.354
387	07/21	07 27 21.3	24.003 S	175.191 W	SOUTH OF TONGA ISLANDS	33	5.0	83.856
388	07/22	16 57 48.4	7.777 S	158.417 E	SOLOMON ISLANDS	19	5.9	92.705
389	07/23	12 58 01.2	15.788 S	173.030 W	TONGA ISLANDS	41	5.3	92.273
390	07/23	13 39 56.4	16.792 S	167.036 E	VANUATU ISLANDS	33	5.1	86.683
391	07/24	02 32 06.9	7.323 S	127.956 E	BANDA SEA	108	5.0	82.684
392	07/24	06 07 02.3	5.726 S	153.983 E	NEW IRELAND REGION, P.N.G.	51	5.4	93.220
393	07/24	09 06 05.6	17.889 S	172.967 W	TONGA ISLANDS REGION	33	5.3	90.234
394	07/24	14 24 43.8	36.182 S	101.041 W	SOUTHERN PACIFIC OCEAN	10	4.9	71.072
395	07/24	17 55 40.3	16.966 S	167.574 E	VANUATU ISLANDS	21	5.9	86.664
396	07/24	20 37 52.4	16.984 S	167.388 E	VANUATU ISLANDS	33	4.9	86.596
397	07/24	21 57 27.4	10.654 S	113.269 E	SOUTH OF JAWA, INDONESIA	34	6.0	74.347
398	07/25	02 08 51.5	17.062 S	167.675 E	VANUATU ISLANDS	33	4.9	86.599
399	07/25	04 39 17.4	56.967 S	25.497 W	SOUTH SANDWICH ISLANDS REGION	33	5.6	30.164
400	07/25	11 08 50.2	12.305 S	166.769 E	SANTA CRUZ ISLANDS	225	5.0	90.886
401	07/25	15 46 45.8	7.758 S	158.452 E	SOLOMON ISLANDS	29	5.6	92.734

402	07/25	22 00 22.9	56.362 S	27.365 W	SOUTH SANDWICH ISLANDS REGION	81	6.3	31.293
403	07/26	01 46 33.1	10.263 S	113.590 E	SOUTH OF JAWA, INDONESIA	33	5.7	74.823
404	07/28	08 03 01.8	47.278 S	100.224 E	SOUTHEAST INDIAN RIDGE	10	5.3	36.566
405	07/28	20 10 02.5	16.667 S	174.182 W	TONGA ISLANDS	123	5.0	91.199
406	07/28	20 58 56.8	54.530 S	135.850 W	PACIFIC-ANTARCTIC RIDGE	10	5.2	56.649
407	07/29	07 53 28.4	16.984 S	167.739 E	VANUATU ISLANDS	14	5.7	86.691
408	07/29	12 42 24.0	16.951 S	167.632 E	VANUATU ISLANDS	33	5.3	86.694
409	07/29	13 12 51.2	16.920 S	167.742 E	VANUATU ISLANDS	36	5.2	86.753
410	07/30	06 11 45.6	23.887 S	175.337 W	TONGA ISLANDS REGION	42	5.0	83.942
411	07 31	06 26 44.1	23.091 S	66.497 W	JUJUY PROVINCE, ARGENTINA	242	4.7	74.143
412	07/31	12 12 50.6	23.017 S	66.469 W	JUJUY PROVINCE, ARGENTINA	230	4.6	74.203
413	07/31	14 44 33.1	60.694 S	24.863 W	SOUTH SANDWICH ISLANDS REGION	33	5.0	27.183
414	07/31	19 20 37.4	17.033 S	167.945 E	VANUATU ISLANDS	33	4.8	86.703
415	08/02	01 51 22.2	24.045 S	66.790 W	SALTA PROVINCE, ARGENTINA	200	5.1	73.353
416	08/02	07 37 52.8	10.422 S	117.005 E	SOUTH OF SUMBAWA, INDONESIA	49	5.1	75.887
417	08/03	01 22 20.0	6.363 S	154.943 E	SOLOMON ISLANDS	54	5.5	92.933
418	08/03	18 24 01.1	17.310 S	167.313 E	VANUANTU ISLANDS	40	5.0	86.265
419	08/04	01 09 36.2	9.857 S	112.711 E	SOUTH OF JAWA, INDONESIA	23	5.1	74.874
420	08/04	22 15 37.7	6.338 S	131.575 E	TANIMBAR ISLANDS REGION	33	6.2	84.896
421	08/05	03 39 05.2	3.177 S	101.466 E	SOUTHERN SUMATERA, INDONESIA	69	5.5	77.309

422	08/05	10 01 49.2	9.227 S	150.237 E	EASTERN NEW GUINEA REG, P.N.G.	39	5.3	88.705
423	08/05	19 41 56.7	55.370 S	128.152 W	PACIFIC-ANTARCTIC RIDGE	10	5.0	55.522
424	08/06	03 27 15.5	56.310 S	128.940 W	PACIFIC-ANTARCTIC RIDGE	10	4.6	54.624
425	08/06	11 03 51.8	32.956 S	151.228 E	NEAR S.E. COAST OF AUSTRALIA	10	5.3	66.848
426	08/07	05 52 27.6	10.271 S	119.978 E	SUMBA REGION, INDONESIA	26	5.7	77.088
427	08/07	06 57 47.6	11.197 S	113.193 E	SOUTH OF JAWA, INDONESIA	33	4.7	73.816
428	08/08	07 55 39.2	13.817 S	68.369 W	PERU-BOLOVIA BORDER REGION	598	5.4	83.407
429	08/08	21 08 31.6	24.721 W	95.200 E	MYANMAR	122	6.0	101.792
430	08/09	03 55 21.7	16.683 S	167.185 E	VANUATU ISLANDS	33	4.2	86.828
431	08/09	23 34 56.7	10.634 N	94.382 E	ANDAMAN ISLANDS, INDIA	33	5.3	88.179
432	08/10	01 39 29.6	10.517 N	94.360 E	ANDAMAN ISLANDS, INDIA	33	5.3	88.061
433	08/10	09 29 18.5	13.885 S	72.621 W	CENTRAL PERU	87	4.8	84.747
434	08/10	14 06 57.0	16.889 S	167.189 E	VANUATU ISLANDS	33	4.9	86.633
435	08/10	14 57 49.2	58.756 S	25.538 W	SOUTH SANDWICH ISLANDS REGION	33	5.6	28.829
436	08/11	00 48 32.6	20.568 S	168.394 E	LOYALTY ISLANDS	38	5.6	83.444
437	08/11	02 45 15.2	3.697 S	153.400 E	NEW IRELAND REGION, P.N.G.	231	5.5	94.934
438	08/11	04 54 27.7	16.747 S	167.196 E	VANUATU ISLANDS	27	4.9	86.770
439	08/11	19 32 52.1	21.840 S	176.708 W	FIJI ISLANDS REGION	179	5.5	85.670
440	08/11	20 42 08.9	21.600 S	173.768 W	TONGA ISLANDS	31	5.9	86.464

441	08/13	22 38 24.1	16.902 S	166.971 E	VANUATU ISLANDS	25	4.9	86.561
442	08/14	10 58 19.7	29.808 S	71.594 W	NEAR COAST OF CENTRAL CHILE	42	5.5	69.534
443	08/15	10 58 53.8	17.624 S	167.795 E	VANUATU ISLANDS	33	5.4	86.096
444	08/16	02 38 31.2	24.025 S	66.769 W	SALTA PROVINCE, ARGENTINA	182	4.6	73.365
445	08/16	11 33 04.0	20.424 S	167.941 E	LOYALTY ISLANDS	33	5.1	83.462
446	08/16	14 14 41.7	18.460 S	176.372 W	FIJI ISLANDS REGION	33	5.0	89.025
447	08/16	21 43 53.6	20.071 S	175.243 W	TONGA ISLANDS	193	4.9	87.678
448	08/18	00 45 47.2	7.433 S	31.751 E	LAKE TANGANYIKA REGION	25	6.0	61.749
449	08/18	01 42 13.7	7.214 S	120.501 E	FLORES SEA	551	4.9	80.108
450	08/19	10 02 51.8	26.642 S	63.421 W	SANTIAGO DEL ESTERO PROV, ARG.	564	6.4	69.828
451	08/20	18 18 25.4	3.120 N	127.420 E	TALAUD ISLANDS, INDONESIA	77	5.2	92.173
452	08/21	09 15 48.1	6.492 S	143.433 E	NEW GUINEA, PAPUA NEW GUINEA	31	5.3	88.947
453	08/22	17 26 37.5	11.509 S	166.452 E	SANTA CRUZ ISLANDS	142	6.2	91.556
454	08/23	06 22 04.8	23.786 S	179.992 E	SOUTH OF FIJI ISLANDS	521	5.3	83.107
455	08/24	03 46 22.3	15.877 S	175.071 W	TONGA ISLANDS	314	4.8	91.796
456	08/24	08 53 48.9	10.939 S	112.886 E	SOUTH OF JAWA, INDONESIA	33	5.2	73.948
457	08/24	15 17 40.3	25.076 S	13.594 W	SOUTHERN MID-ATLANTIC RIDGE	10	5.3	53.870
458	08/24	22 05 58.1	35.483 S	104.892 W	SOUTHERN PACIFIC OCEAN	10	4.8	72.473
459	08/26	03 56 43.6	5.612 S	145.724 E	EASTERN NEW GUINEA REG, P.N.G.	9	3.8	90.558
460	08/26	04 44 30.0	23.335 S	66.322 W	JUJUY PROVINCE, ARGENTINA	214	4.9	73.858

461	08/27	03 01 19.4	20.417 S	168.412 E	LOYALTY ISLANDS	39	5.3	83.593
462	08/27	09 30 01.4	26.925 S	176.489 W	SOUTH OF FIJI ISLANDS	207	4.2	80.764
463	08/27	16 03 56.3	6.802 N	126.729 E	MINDANAO, PHILIPPINE ISLANDS	100	5.4	95.355
464	08/28	06 24 12.6	7.256 S	129.239 E	BANDA SEA	147	5.5	83.207
465	08/28	07 24 03.6	20.273 S	173.600 W	TONGA ISLANDS	33	5.6	87.790
466	08/28	15 41 29.2	5.659 N	126.234 E	MINDANAO, PHILIPPINE ISLANDS	69	5.6	94.102
467	08/28	20 03 19.0	33.949 S	178.891 W	SOUTH OF KERMADEC ISLANDS	33	5.1	73.474
468	08/29	08 31 44.4	22.646 S	175.098 W	TONGA ISLANDS REGION	33	5.4	85.196
469	08/29	09 24 55.2	22.657 S	175.064 W	TONGA ISLANDS REGION	33	4.5	85.192
470	08/29	09 31 09.2	22.652 S	175.082 W	TONGA ISLANDS REGION	33	5.3	85.194
471	08/29	10 51 07.8	22.599 S	175.163 W	TONGA ISLANDS REGION	33	5.0	85.230
472	08/30	10 14 30.3	15.248 S	173.340 W	TONGA ISLANDS	33	5.4	92.742
473	08/30	12 00 51.1	30.260 S	71.281 W	NEAR COAST OF CENTRAL CHILE	33	4.7	69.016
474	08/30	19 42 46.5	6.965 S	124.111 E	BANDA SEA	596	5.9	81.633
475	08/30	21 21 05.9	22.518 S	174.834 W	TONGA ISLANDS REGION	33	5.1	85.371
476	08/31	05 27 27.7	5.534 S	145.899 E	EASTERN NEW GUINEA REG, P.N.G.	19	5.0	90.691
477	08/31	14 59 56.9	1.603 N	31.002 E	UGANDA	10	5.0	70.757
478	08/31	23 38 56.7	32.583 S	71.645 W	NEAR COAST OF CENTRAL CHILE	38	5.0	66.969
479	09/01	10 26 53.1	27.950 S	76.092 E	MID-INDIAN RIDGE	10	5.1	46.339

480	09/01 11 28 36.0	24.908 S	13.658 W	SOUTHERN MID-ATLANTIC RIDGE	10	5.1	54.047
481	09/01 15 38 54.6	10.944 S	166.246 E	SANTA CRUZ ISLANDS	152	5.9	92.036
482	09/01 20 50 39.0	18.462 S	172.905 W	TONGA ISLANDS REGION	49	5.5	89.686
483	09/02 05 48 56.7	22.745 S	175.762 W	TONGA ISLANDS REGION	59	5.2	84.974
484	09/02 13 55 27.7	4.901 N	127.522 E	TALAUD ISLANDS, INDONESIA	97	5.2	93.861
485	09/02 15 56 15.7	3.309 S	130.790 E	SERAM, INDONESIA	39	5.5	87.423
486	09/03 03 43 59.0	27.867 S	76.130 E	MID-INDIAN RIDGE	10	5.3	46.428
487	09/03 09 02 53.7	31.422 S	111.028 W	EASTER ISLAND REGION	7	5.8	77.471
488	09/03 14 07 06.0	4.782 S	154.019 E	SOLOMON ISLANDS	106	5.4	94.118
489	09/03 17 46 41.5	21.212 S	173.640 E	VANUATU ISLANDS REGION	33	5.8	84.153
490	09/05 07 15 05.2	12.030 S	166.166 E	SANTA CRUZ ISLANDS	33	5.1	90.979
491	09/06 12 29 31.6	34.270 S	179.537 E	SOUTH OF KERMADEC ISLANDS	33	5.2	72.861
492	09/06 13 27 18.7	34.116 S	179.470 E	SOUTH OF KERMADEC ISLANDS	33	4.6	72.990
493	09/07 12 02 04.2	31.673 S	68.372 W	SAN JUAN PROVINCE, ARGENTINA	122	4.5	66.789
494	09/08 02 30 09.2	26.622 S	63.337 W	SANTIAGO DEL ESTERO PROV, ARG.	558	4.9	69.819
495	09/08 05 21 58.7	11.911 S	166.234 E	SANTA CRUZ ISLANDS	26	5.4	91.112
496	09/08 08 50 42.3	0.540 N	126.173 E	NORTHERN MOLUCCA SEA	52	5.7	89.332
497	09/08 09 36 16.2	15.337 S	70.169 W	SOUTHERN PERU	223	4.5	82.585
498	09/09 01 06 54.7	16.448 S	172.415 W	SAMOA ISLANDS REGION	32	5.2	91.742
499	09/09 09 32 34.8	11.915 S	166.213 E	SANTA CRUZ ISLANDS	33	5.1	91.102

500	09/10	04 54 10.4	7.552 N	126.599 E	MINDANAO, PHILIPPINE ISLANDS	79	5.6	95.988
501	09/10	09 32 19.8	37.469 S	176.838 E	NORTH ISLAND, NEW ZEALAND	33	5.0	69.213
502	09/11	12 01 13.1	16.048 S	166.690 E	VANUATU ISLANDS	33	5.6	87.298
503	09/11	15 49 54.3	5.197 S	153.219 E	NEW IRELAND REGION, P.N.G.	33	5.2	93.467
504	09/12	06 29 54.9	31.103 S	71.706 W	NEAR COAST OF CENTRAL CHILE	40	5.9	68.364
505	09/12	11 27 12.3	1.251 N	123.069 E	MINAMASSA PENINSULA, SULAWESI	33	4.8	88.880
506	09/12	22 43 50.7	15.455 S	172.990 W	SAMOA ISLANDS REGION	15	5.6	92.605
507	09/12	22 49 08.6	15.535 S	172.933 W	SAMOA ISLANDS REGION	33	5.4	92.538
508	09/12	23 07 08.7	32.655 S	71.707 W	NEAR COAST OF CENTRAL CHILE	33	4.9	66.921
509	09/13	03 09 46.8	13.025 S	166.944 E	VANUATU ISLANDS	188	5.0	90.249
510	09/13	12 22 12.8	22.278 S	174.687 E	LOYALTY ISLANDS REGION	33	5.4	83.378
511	09/13	14 25 59.3	28.090 S	176.481 W	KERMADEC ISLANDS REGION	40	4.8	79.632
512	09/14	05 02 12.3	31.251 S	71.658 W	NEAR COAST OF CENTRL CHILE	38	5.1	68.211
513	09/14	11 45 17.8	16.521 S	172.998 W	SAMOA ISLANDS REGION	33	5.2	91.563
514	09/15	23 47 30.5	57.803 S	8.769 W	SOUTHWESTERN ATLANTIC OCEAN	10	5.2	23.531
515	09/16	08 15 58.9	5.347 S	102.831 E	SOUTHERN SUMATERA, INDONESIA	33	5.4	75.719
516	09/16	23 47 07.1	15.423 S	67.128 E	MID-INDIAN RIDGE	10	5.1	56.377
517	09/17	00 04 33.0	15.449 S	67.038 E	MID-INDIAN RIDGE	10	5.1	56.335
518	09/17	12 22 14.8	32.186 S	71.680 W	NEAR COAST OF CENTRAL CHILE	28	5.7	67.349

519	09/17 12 33 49.7	32.278 S	71.920 W	NEAR COAST OF CENTRAL CHILE	33	5.2	67.337
520	09/17 15 11 32.0	32.215 S	72.043 W	OFF COAST OF CENTRAL CHILE	33	5.0	67.434
521	09/19 13 09 05.0	7.467 S	128.397 E	BANDA SEA	150	5.5	82.709
522	09/19 14 47 49.3	55.466 S	25.743 W	SOUTH SANDWICH ISLANDS REGION	33	5.1	31.415
523	09/19 18 03 24.0	7.702 S	130.126 E	TANIMBAR ISLANDS REG, INDONESIA	33	5.0	83.112
524	09/20 06 48 35.5	34.440 S	179.380 W	SOUTH OF KERMADEC ISLANDS	33	4.8	72.903
525	09/20 08 45 26.2	7.433 N	126.748 E	MINDANAO, PHILIPPINE ISLANDS	51	5.4	95.931
526	09/21 06 09 17.0	1.091 N	127.161 E	HALMAHERA, INDONESIA	143	5.5	90.198
527	09/21 16 16 25.2	32.252 S	71.974 W	NEAR COAST OF CENTRAL CHILE	43	4.9	67.378
528	09/21 19 31 27.9	16.764 S	167.434 E	VANUATU ISLANDS	33	4.4	86.818
529	09/22 00 48 04.0	38.303 S	177.919 E	NORTH ISLAND, NEW ZEALAND	33	5.1	68.629
530	09/22 00 57 35.4	22.000 S	12.800 W	SOUTHERN MID-ATLANTIC RIDGE	10	4.8	56.489
531	09/22 14 24 33.9	32.240 S	71.836 W	NEAR COAST OF CENTRAL CHILE	27	5.6	67.347
532	09/23 07 59 38.9	3.379 S	148.537 E	BISMARCK SEA	33	5.7	93.604
533	09/24 03 25 37.3	14.477 S	166.644 E	VANUATU ISLANDS	33	5.1	88.782
534	09/25 01 22 05.9	30.901 S	68.124 W	SAN JUAN PROVINCE, ARGENTINA	10	5.1	67.425
535	09/26 21 31 19.9	3.125 S	127.468 E	SERAM, INDONESIA	33	5.2	86.399
536	09/27 02 17 17.1	20.920 S	174.640 W	TONGA ISLANDS	145	4.5	86.965
537	09/27 16 59 27.2	1.134 N	126.198 E	NORTHERN MOLUCCA SEA	46	5.2	89.892
538	09/27 23 14 31.9	39.670 S	15.716 W	TRISTAN DA CUNHA REGION	10	4.9	41.218

539	09/28 16 39 51.6	5.786 S	110.352 E	JAVA SEA	638	5.9	77.855
540	09/28 17 33 58.2	5.731 S	110.364 E	JAVA SEA	628	5.5	77.911
541	09/28 21 22 10.8	4.708 S	102.200 E	SOUTHERN SUMATERA, INDONESIA	46	5.3	76.111
542	09/30 03 17 45.4	5.192 N	127.327 E	PHILIPPINE ISLANDS REGION	89	5.0	94.061
543	09/30 06 45 09.5	3.166 S	127.410 E	SERAM, INDONESIA	27	5.1	86.340
544	09/30 19 30 18.4	21.217 S	179.293 W	FIJI ISLANDS REGION	643	5.3	85.748
545	10/01 15 03 31.3	17.849 S	167.805 E	VANUATU ISLANDS	26	5.4	85.883
546	10/01 16 35 20.7	17.745 S	167.682 E	VANUATU ISLANDS	17	5.9	85.950
547	10/01 17 29 32.3	17.884 S	167.845 E	VANUATU ISLANDS	33	4.7	85.861
548	10/01 17 46 37.5	17.768 S	167.830 E	VANUATU ISLANDS	33	5.8	85.968
549	10/01 17 54 16.7	17.962 S	167.321 E	VANUATU ISLANDS	33	5.1	85.645
550	10/01 18 16 22.2	18.040 S	167.365 E	VANUATU ISLANDS	33	5.1	85.583
551	10/01 18 20 11.1	17.801 S	167.835 E	VANUATU ISLANDS	33	4.7	85.937
552	10/01 20 12 19.0	17.984 S	167.520 E	VANUATU ISLANDS	33	4.9	85.678
553	10/01 20 39 05.4	18.128 S	167.388 E	VANUATU ISLANDS	33	4.8	85.505
554	10/01 21 01 28.3	17.806 S	167.790 E	VANUATU ISLANDS	25	5.3	85.921
555	10/01 22 04 09.5	18.041 S	167.572 E	VANUATU ISLANDS	33	4.8	85.637
556	10/01 23 53 59.4	17.884 S	167.436 E	VANUATU ISLANDS	33	4.9	85.751
557	10/02 00 55 37.4	8.121 N	93.935 E	NICOBAR ISLANDS, INDIA	33	5.1	85.661

558	10/02	03 26	54.6	17.847 S	167.966 E	VANUATU ISLANDS	33	4.9	85.929
559	10/02	10 14	32.3	17.563 S	168.053 E	VANUATU ISLANDS	10	5.3	86.223
560	10/02	10 34	31.9	17.838 S	167.876 E	VANUATU ISLANDS	33	4.3	85.913
561	10/02	10 35	45.4	17.780 S	167.645 E	VANUATU ISLANDS	33	5.2	85.906
562	10/02	11 48	45.3	17.589 S	167.673 E	VANUATU ISLANDS	33	4.7	86.096
563	10/02	20 31	19.7	17.768 S	167.813 E	VANUATU ISLANDS	33	4.8	85.963
564	10/02	22 10	39.6	25.327 S	177.081 W	SOUTH OF FIJI ISLANDS	65	5.4	82.205
565	10/03	00 12	23.9	17.470 S	169.500 E	VANUATU ISLANDS	33	4.6	86.697
566	10/04	09 54	20.7	5.958 S	110.220 E	JAVA SEA	652	5.0	77.650
567	10/04	12 09	40.1	6.218 S	104.891 E	SUNDA STRAIT	24	5.6	75.590
568	10/04	15 21	10.5	44.890 N	147.276 E	KURIL ISLANDS	33	5.1	137.307
569	10/04	18 06	46.7	23.950 S	66.850 W	JUJUY PROVINCE, ARGENTINA	203	-	73.461
570	10/05	17 24	34.2	7.492 S	107.145 E	JAWA, INDONESIA	33	4.8	75.163
571	10/05	18 35	01.3	15.395 S	173.308 W	TONGA ISLANDS	33	5.3	92.605
572	10/06	15 42	14.1	56.628 S	141.923 W	PACIFIC-ANTARCTIC RIDGE	10	5.8	54.590
573	10/07	12 54	10.8	32.106 S	179.137 E	OFF E. COAST OF N. ISLAND, N.Z.	33	5.4	71.965
574	10/07	15 17	47.9	1.378 N	127.222 E	HALMAHERA, INDONESIA	160	5.3	90.486
575	10/07	22 42	52.3	23.952 S	69.515 E	MID-INDIAN RIDGE	10	4.8	48.587
576	10/07	23 26	38.2	8.297 S	116.763 E	SUMBAWA REGION, INDONESIA	33	5.0	77.771
577	10/08	21 44	07.2	1.258 S	127.980 E	HALMAHERA, INDONESIA	17	6.4	88.314

578	10/10	14 27 22.3	5.360 S	150.122 E	NEW BRITAIN REGION, P.N.G.	194	5.0	92.287
579	10/11	01 37 20.3	32.100 S	71.447 W	NEAR COAST OF CENTRAL CHILE	47	5.7	67.357
580	10/11	17 08 03.1	11.444 S	166.196 E	SANTA CRUZ ISLANDS	50	5.0	91.546
581	10/11	21 04 41.3	55.186 S	145.909 E	WEST OF MACQARIE ISLAND	14	4.3	45.066
582	10/12	06 02 49.9	13.765 N	124.538 E	LUZON, PHILIPPINE ISLANDS	27	5.5	101.009
583	10/12	06 43 39.7	13.773 N	124.529 E	LUZON, PHILIPPINE ISLANDS	16	5.8	101.013
584	10/12	07 23 55.4	3.473 S	130.872 E	SERAM, INDONESIA	27	5.0	87.300
585	10/12	16 43 27.0	6.936 S	155.781 E	SOLOMON ISLANDS	49	5.5	92.664
586	10/13	05 04 24.9	1.212 S	127.912 E	HALMAHERA, INDONESIA	11	6.1	88.332
587	10/13	15 24 20.3	19.131 S	169.161 E	VANUANTU ISLANDS	172	5.0	85.019
588	10/13	23 47 57.4	31.366 S	68.683 W	SAN JUAN PROVINCE, ARGENTINA	110	4.0	67.173
589	10/15	00 39 25.4	3.804 S	152.148 E	NEW IRELAND REGION, P.N.G	9	5.6	94.420
590	10/15	06 48 00.2	58.823 S	158.601 E	MACQUARIE ISLANDS REGION	33	4.9	45.079
591	10/15	08 09 00.0	6.220 N	126.000 E	MINDANAO, PHILIPPINE ISLANDS	33	4.9	94.538
592	10/15	19 04 25.5	1.394 S	127.546 E	HALMAHERA, INDONESIA	19	4.8	88.032
593	10/16	00 06 49.1	9.297 S	75.775 W	CENTRAL PERU	128	5.4	90.072
594	10/17	19 25 53.5	5.888 S	154.618 E	SOLOMON ISLANDS	146	5.4	93.274
595	10/17	21 23 16.0	4.370 S	142.230 E	NEW GUINEA, PAPUA NEW GUINEA	104	4.8	90.504
596	10/18	03 10 38.8	17.350 S	178.660 W	FIJI ISLANDS REGION	531	4.9	89.632

597	10/18 08 30 51.1	33.235 S	176.679 W	SOUTH OF KERMADEC ISLANDS	33	5.0	74.586
598	10/18 15 13 04.2	10.752 S	75.260 W	CENTRAL PERU	71	5.0	88.539
599	10/18 20 55 27.6	37.199 S	179.136 E	OFF E. COAST OF N. ISLAND, N.Z.	32	5.2	69.939
600	10/18 23 31 25.9	19.039 S	169.407 E	VANUATU ISLANDS	235	4.9	85.172
601	10/19 09 47 09.1	5.129 S	151.808 E	NEW BRITAIN REGION, P. N. G.	54	5.2	93.065
602	10/19 12 48 24.8	15.648 S	167.620 E	VANUATU ISLANDS	153	4.7	87.934
603	10/20 01 15 16.1	39.187 S	70.811 W	SOUTHERN ARGENTINA	162	5.8	60.603
604	10/20 04 05 33.2	21.917 S	175.058 W	TONGA ISLANDS	33	5.2	85.914
605	10/20 13 26 05.0	21.340 S	68.166 W	CHILE-BOLIVIA BORDER REGION	123	5.2	76.323
606	10/21 12 08 27.7	30.040 S	177.960 W	KERMADEC ISLANDS, NEW ZEALAND	207	4.7	77.451
607	10/22 18 43 49.3	0.578 S	127.721 E	HALMAHERA, INDONESIA	33	4.9	88.852
608	10/24 02 02 20.9	4.594 N	127.991 E	TALAUD ISLANDS, INDONESIA	69	5.2	93.745
609	10/25 04 37 45.0	1.830 N	126.023 E	NORTHERN MOLUCCA SEA	41	5.2	90.475
610	10/26 03 31 16.8	27.520 S	176.909 W	KERMADEC ISLANDS REGION	168	4.9	80.105
611	10/26 04 48 48.6	5.278 S	101.426 E	SOUTHWEST OF SUMATERA, INDONESIA	33	5.0	75.323
612	10/27 22 20 28.5	25.778 S	179.339 E	SOUTH OF FIJI ISLANDS	519	5.9	81.039
613	10/27 23 46 29.8	15.002 S	75.264 W	NEAR COAST OF PERU	45	5.1	84.547
614	10/28 09 06 51.8	6.190 S	154.480 E	SOLOMON ISLANDS	59	5.0	92.946
615	10/28 20 59 25.1	33.306 S	70.206 W	CHILE-ARGENTINA BORDER REGION	106	4.9	65.853

616	10/29	15 53 19.8	14.092 S	167.160 E	VANUATU ISLANDS	200	4.9	89.292
617	10/30	06 06 27.4	28.032 S	26.738 E	REPUBLIC OF SOUTH AFRICA	5	5.6	41.711
618	10/30	08 11 29.8	6.183 S	129.446 E	BANDA SEA	264	5.6	84.276
619	10/30	16 29 07.9	54.100 S	7.840 E	BOUVET ISLAND REGION	10	5.0	20.790
620	10/30	17 21 08.2	6.868 S	129.023 E	BANDA SEA	191	5.0	83.489
621	10/31	11 48 13.9	3.019 N	96.192 E	NORTHERN SUMATERA, INDONESIA	29	5.7	81.493
622	10/31	21 19 07.8	2.358 S	138.376 E	IRIAN JAYA, INDONESIA	10	5.2	91.017
623	10/31	23 04 07.6	17.876 S	172.883 W	TONGA ISLANDS REGION	33	5.2	90.262
624	11/01	11 41 16.7	8.760 S	117.951 E	SUMBAWA REGION, INDONESIA	137	4.6	77.764
625	11/02	01 43 55.5	5.099 N	118.643 E	BORNEO	55	5.7	90.884
626	11/02	23 00 24.3	9.683 S	118.598 E	SUMBAWA REGION, INDONESIA	32	4.8	77.140
627	11/03	03 07 21.5	10.931 S	166.247 E	SANTA CRUZ ISLANDS	156	5.4	92.048
628	11/04	01 13 20.1	9.379 S	71.334 W	PERU-BRAZIL BORDER REGION	591	5.8	88.545
629	11/04	08 27 30.6	21.473 S	179.341 W	FIJI ISLANDS REGION	616	5.3	85.490
630	11/04	11 53 27.8	13.048 S	166.747 E	VANUATU ISLANDS	135	5.1	90.172
631	11/05	02 16 03.3	57.193 S	157.858 E	MACQUARIE ISLANDS REGION	25	6.1	46.374
632	11/05	12 05 28.5	9.386 S	71.335 W	PERU-BRAZIL BORDER REGION	597	5.7	88.538
633	11/06	11 52 54.5	7.273 N	126.980 E	MINDANAO, PHILIPPINE ISLANDS	42	5.3	95.865
634	11/06	15 57 34.7	21.088 S	169.906 E	LOYALTY ISLANDS REGION	102	5.3	83.341

635	11/07 05 17 39.5	6.985 S	80.629 W	NEAR COAST OF NORTHERN PERU	24	5.0	93.782
636	11/07 10 59 22.4	10.215 N	93.774 E	ANDAMAN ISLANDS, INDIA	33	5.0	87.605
637	11/08 07 10 48.6	22.703 S	68.321 W	NORTHERN CHILE	115	4.8	75.104
638	11/08 16 58 08.6	34.895 N	26.501 E	CRETE	10	-	104.099
639	11/09 07 36 04.9	16.754 S	167.501 E	VANUATU ISLANDS	33	3.9	86.846
640	11/09 14 41 23.0	23.199 S	178.787 E	SOUTH OF FIJI ISLANDS	685	5.1	83.417
641	11/10 03 03 23.1	5.719 S	154.186 E	SOLOMON ISLANDS	33	5.4	93.293
642	11/10 03 30 08.9	2.981 N	128.073 E	HALMAHERA, INDONESIA	89	5.0	92.278
643	11/10 06 02 13.0	7.236 S	129.272 E	BANDA SEA	96	5.2	83.237
644	11/10 10 48 23.5	7.761 S	158.354 E	SOLOMON ISLANDS	33	5.2	92.700
645	11/11 08 48 29.9	15.626 S	72.535 W	SOUTHERN PERU	121	5.6	83.087
646	11/12 12 18 00.0	6.947 S	29.916 E	LAKE TANGANYIKA REGION	22	4.9	62.342
647	11/13 09 07 12.1	0.221 S	124.424 E	SOUTHERN MOLUCCA SEA	35	5.3	87.999
648	11/14 15 24 38.9	21.231 S	174.639 W	TONGA ISLANDS	54	5.2	86.662
649	11/14 19 15 30.6	13.525 N	121.067 E	MINDORO, PHILIPPINE ISLANDS	32	6.1	99.562
650	11/14 23 53 06.2	11.934 N	93.766 E	ANDAMAN ISLANDS, INDIA	141	4.6	89.237
651	11/15 20 18 11.3	5.589 S	110.186 E	JAVA SEA	561	6.2	77.982
652	11/16 02 52 04.9	34.082 S	70.046 W	CHILE-ARGENTINA BORDER REGION	8	5.1	65.085
653	11/16 06 54 03.1	56.173 S	142.612 W	PACIFIC-ANTARCTIC RIDGE	10	5.4	55.041
654	11/16 21 34 52.0	10.182 S	13.258 W	ASCENSION ISLAND REGION	10	5.1	67.757

655	11/17	00 13 10.7	21.812 S	174.663 W	TONGA ISLANDS	33	5.1	86.091
656	11/17	05 35 32.8	22.440 S	66.020 W	JUJUY PROVINCE, ARGENTINA	274	5.1	74.590
657	11/18	05 32 47.8	41.938 S	83.784 W	WEST CHILE RISE	10	5.4	61.660
658	11/18	23 02 41.1	30.660 S	178.790 W	KERMADEC ISLANDS, NEW ZEALAND	150	5.0	76.687
659	11/20	02 57 15.6	9.794 S	159.712 E	SOLOMON ISLANDS	24	5.8	91.201
660	11/20	06 39 21.8	20.766 S	172.748 E	VANUATU ISLANDS REGION	24	5.5	84.365
661	11/20	16 59 05.6	2.001 S	135.932 E	IRIAN JAYA REGION, INDONESIA	16	5.8	90.478
662	11/20	18 34 34.4	4.330 N	97.591 E	NORTHERN SUMATERA, INDONESIA	153	5.7	83.161
663	11/20	20 02 31.0	27.272 S	179.212 W	KERMADEC ISLANDS REGION	411	5.1	79.891
664	11/21	02 21 30.7	14.976 S	167.243 E	VANUATU ISLANDS	126	5.6	88.472
665	11/21	03 25 57.8	36.663 S	78.547 E	MID-INDIAN RIDGE	10	4.6	38.802
666	11/22	05 04 22.0	20.790 S	178.390 W	FIJI ISLANDS REGION	555	5.3	86.351
667	11/22	12 19 49.3	23.260 S	69.409 W	NORTHERN CHILE	67	4.9	74.940
668	11/22	15 05 02.6	3.235 N	127.922 E	TALAUD ISLANDS, INDONESIA	138	5.1	92.460
669	11/22	19 13 34.2	27.992 S	66.434 W	CATAMARCA PROVINCE, ARGENTINA	189	4.6	69.574
670	11/23	05 56 51.2	53.070 S	159.456 E	MACQUARIE ISLANDS REGION	10	5.1	50.514
671	11/23	19 10 26.6	7.016 S	156.676 E	SOLOMON ISLANDS	23	5.4	92.874
672	11/24	13 21 15.5	5.294 S	150.461 E	NEW BRITAIN REGION, P.N.G.	142	5.5	92.462
673	11/24	19 42 44.6	13.099 S	167.100 E	VANUATU ISLANDS	218	5.6	90.222

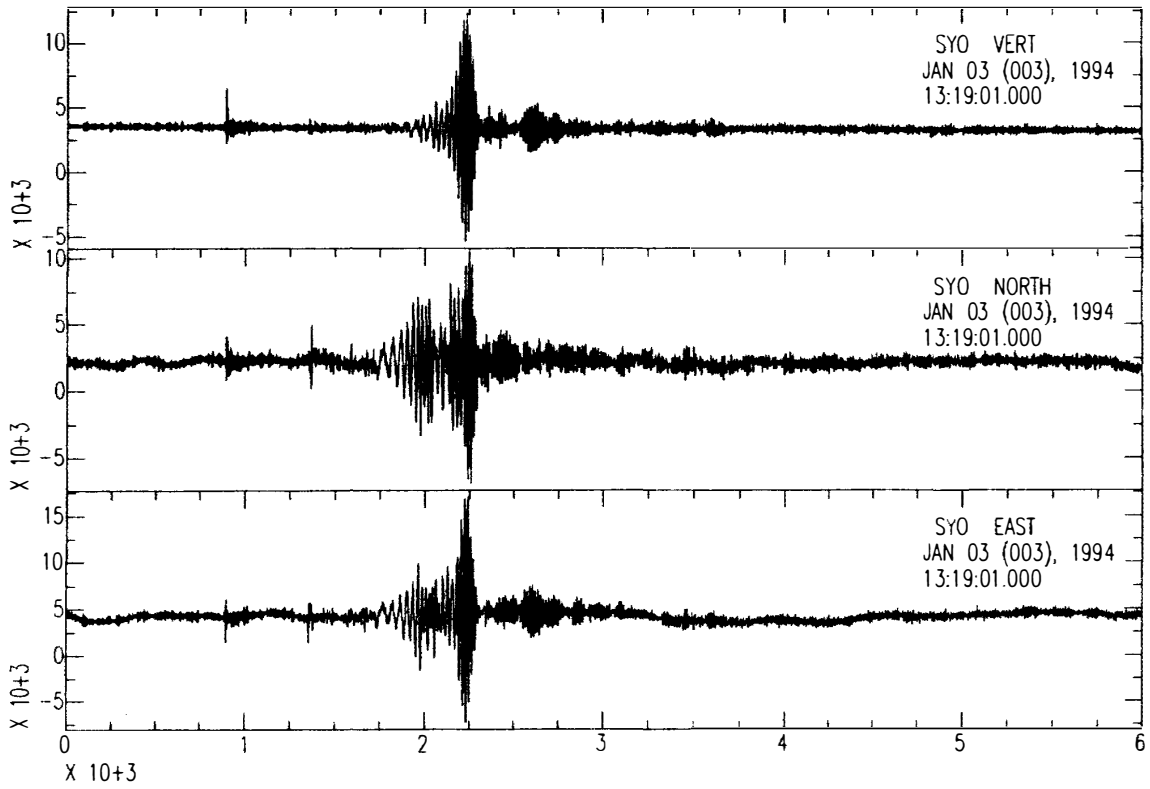
674	11/26 06 11 10.2	20.126 S	169.126 E	VANUATU ISLANDS	36	5.8	84.059
675	11/26 11 21 00.8	0.147 N	123.681 E	MINAHASSA PENINSULA, SULAWESI	199	5.2	88.074
676	11/27 18 27 08.0	5.768 N	119.324 E	SULU ARCHIPELAGO	27	5.4	91.746
677	11/28 02 37 46.8	19.588 S	169.175 W	VANUATU ISLANDS	142	4.9	84.586
678	11/29 08 21 54.7	22.126 S	175.894 W	TONGA ISLANDS REGION	88	5.2	85.551
679	11/29 19 48 58.1	36.495 S	1.555 W	SOUTH ATLANTIC OCEAN	10	5.3	39.506
680	11/29 20 32 44.9	20.150 S	168.925 E	LOYALTY ISLANDS	33	5.2	83.983
681	11/30 06 37 14.8	18.001 S	178.374 W	FIJI ISLANDS REGION	565	5.2	89.061
682	12/01 06 11 01.4	7.639 S	128.173 E	BANDA SEA	84	5.6	82.469
683	12/01 11 18 19.5	7.468 S	128.546 E	BANDA SEA	135	5.4	82.762
684	12/02 12 10 24.0	1.955 N	120.837 E	MINAHASSA PENINSULA, SULAWESI	36	5.2	88.738
685	12/04 08 30 55.1	49.730 S	114.210 E	SOUTH OF AUSTRALIA	10	4.7	39.506
686	12/04 22 05 57.3	35.587 S	178.431 E	OFF E. COAST OF N. ISLAND, N.Z.	160	5.4	71.357
687	12/05 16 20 09.3	8.576 S	159.833 E	SOLOMON ISLANDS	49	5.8	92.389
688	12/07 03 37 54.8	23.422 S	66.639 W	JUJUY PROVINCE, ARGENTINA	245	5.6	73.882
689	12/07 20 22 18.3	3.459 S	130.940 E	SERAM, INDONESIA	33	5.2	87.337
690	12/08 05 09 08.2	19.426 S	168.954 E	VANUATU ISLANDS	114	5.3	84.683
691	12/08 08 30 26.8	1.967 N	120.844 E	MINAHASSA PENINSULA, SULAWESI	38	5.5	88.752
692	12/09 18 10 21.3	21.696 S	175.311 W	TONGA ISLANDS	93	4.8	86.082
693	12/09 23 04 58.2	6.530 S	147.149 E	EASTERN NEW GUINEA REG, P.N.G.	54	5.0	90.189

694	12/10	01 54 16.4	56.196 S	27.167 W	SOUTH SANDWICH ISLANDS REGION	110	5.4	31.351
695	12/10	03 39 31.7	23.534 S	70.591 W	NEAR COAST OF NORTHERN CHILE	37	5.8	75.065
696	12/11	02 25 46.3	5.829 S	104.661 E	SOUTHERN SUMATERA, INDONESIA	51	5.7	75.877
697	12/11	09 29 01.4	24.855 S	179.112 W	SOUTH OF FIJI ISLANDS	391	5.5	82.256
698	12/12	07 41 55.4	17.477 S	69.598 W	PERU-BOLIVIA BORDER REGION	148	5.9	80.397
699	12/12	14 52 53.3	9.975 S	119.199 E	SUMBA REGION, INDONESIA	26	5.9	77.084
700	12/13	14 26 37.7	24.126 S	67.847 W	CHILE-ARGENTINA BORDER REGION	104	4.9	73.625
701	12/13	20 27 47.6	3.166 S	130.534 E	SERAM, INDONESIA	25	5.3	91.368
702	12/14	07 28 53.2	9.519 S	159.411 E	SOLOMON ISLANDS	16	5.8	91.368
703	12/14	19 44 31.0	2.729 N	128.158 E	HALMAHERA, INDONESIA	56	5.4	92.075
704	12/14	22 20 02.4	8.485 S	80.185 W	OFF COAST OF NORTHERN PERU	33	5.2	92.228
705	12/15	11 20 22.1	37.282 S	177.523 E	OFF E. COAST OF N. ISLAND, N.Z.	33	5.9	69.534
706	12/15	16 58 04.5	37.544 S	177.547 E	OFF E. COAST OF N. ISLAND, N.Z.	18	4.9	69.286
707	12/15	23 56 11.4	3.262 S	139.842 E	IRIAN JAYA, INDONESIA	114	5.7	90.696
708	12/17	00 58 58.9	56.060 S	25.900 W	SOUTH SANDWICH ISLANDS REGION	31	4.8	31.007
709	12/17	16 04 03.8	22.216 S	179.547 W	SOUTH OF FIJI ISLANDS	590	4.7	84.726
710	12/17	21 07 57.9	27.320 S	176.715 W	KERMADEC ISLANDS REGION	35	5.2	80.337

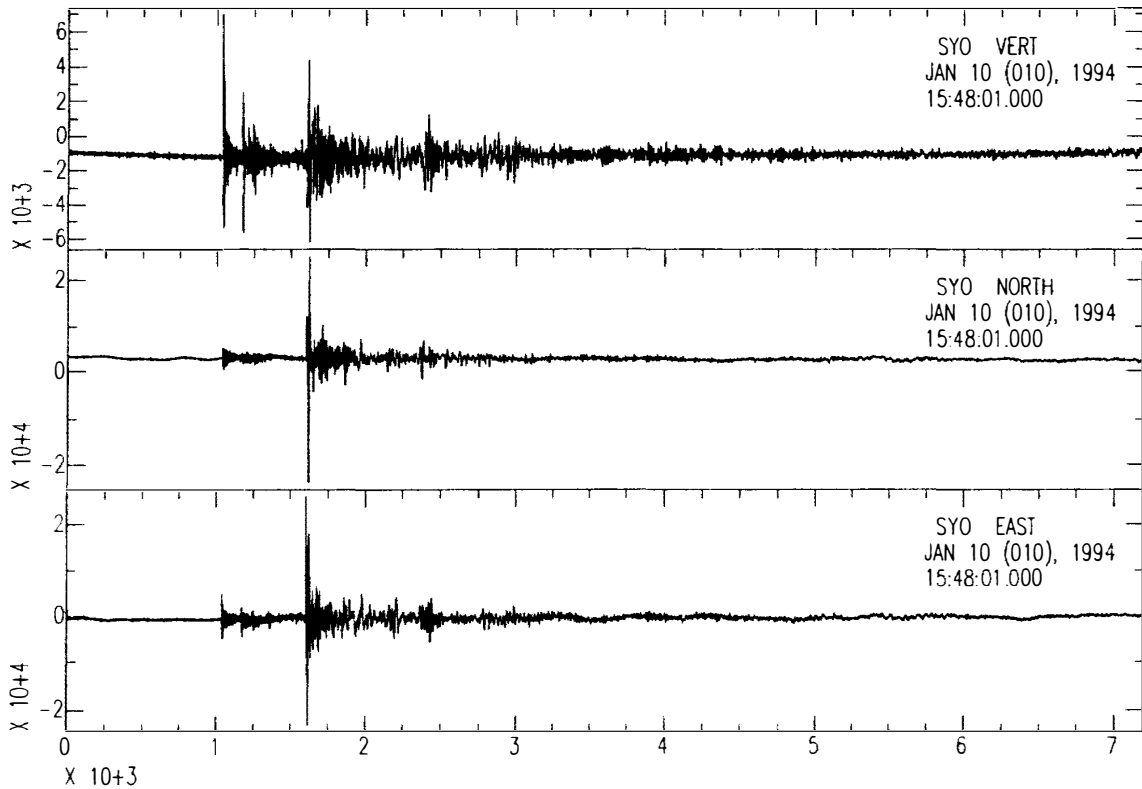
711	12/18	20 38 32.0	17.838 S	178.703 W	FIJI ISLANDS REGION	545	5.6	89.150
712	12/19	02 36 34.4	22.050 S	179.580 W	SOUTH OF FIJI ISLANDS	557	4.8	84.880
713	12/19	09 22 04.5	54.103 S	143.412 E	WEST OF MACQUARIE ISLAND	10	5.4	45.304
714	12/19	12 00 21.7	34.659 S	109.348 W	SOUTHERN EAST PACIFIC RISE	10	5.0	74.034
715	12/19	13 08 43.5	34.458 S	108.234 W	SOUTHERN EAST PACIFIC RISE	10	5.4	74.050
716	12/19	17 41 15.4	17.820 S	178.631 W	FIJI ISLANDS REGION	578	5.2	89.183
717	12/20	11 08 50.6	6.134 S	103.933 E	SOUTHWEST OF SUMATERA, INDONESIA	37	5.5	75.348
718	12/20	15 05 18.1	34.305 S	70.774 W	CHILE-ARGENTINA BORDER REGION	90	-	65.103
719	12/21	17 43 30.3	0.816 N	126.230 E	NORTHERN MOLUCCA SEA	36	5.3	89.609
720	12/23	00 28 28.6	4.995 S	133.503 E	IRIAN JAYA REGION, INDONESIA	33	5.1	86.832
721	12/25	11 43 48.8	30.085 S	178.351 W	KERMADEC ISLANDS, NEW ZEALAND	66	5.1	77.331
722	12/26	11 27 26.8	46.911 S	165.764 E	OFF W. COAST OF S. ISLAND, N.Z.	60	4.3	57.752
723	12/26	19 57 00.7	15.537 S	71.757 W	SOUTHERN PERU	10	5.0	82.885
724	12/27	17 32 50.8	31.965 S	179.860 E	KERMADEC ISLANDS REGION	212	6.0	75.152
725	12/27	21 59 50.5	4.295 N	125.924 E	TALAUD ISLANDS, INDONESIA	182	4.9	92.726
726	12/28	22 23 55.8	32.961 S	179.862 E	SOUTH OF KERMADEC ISLANDS	54	5.6	74.187
727	12/29	04 33 53.0	5.112 S	102.689 E	SOUTHERN SUMATERA, INDONESIA	61	5.4	75.893

APPENDIX

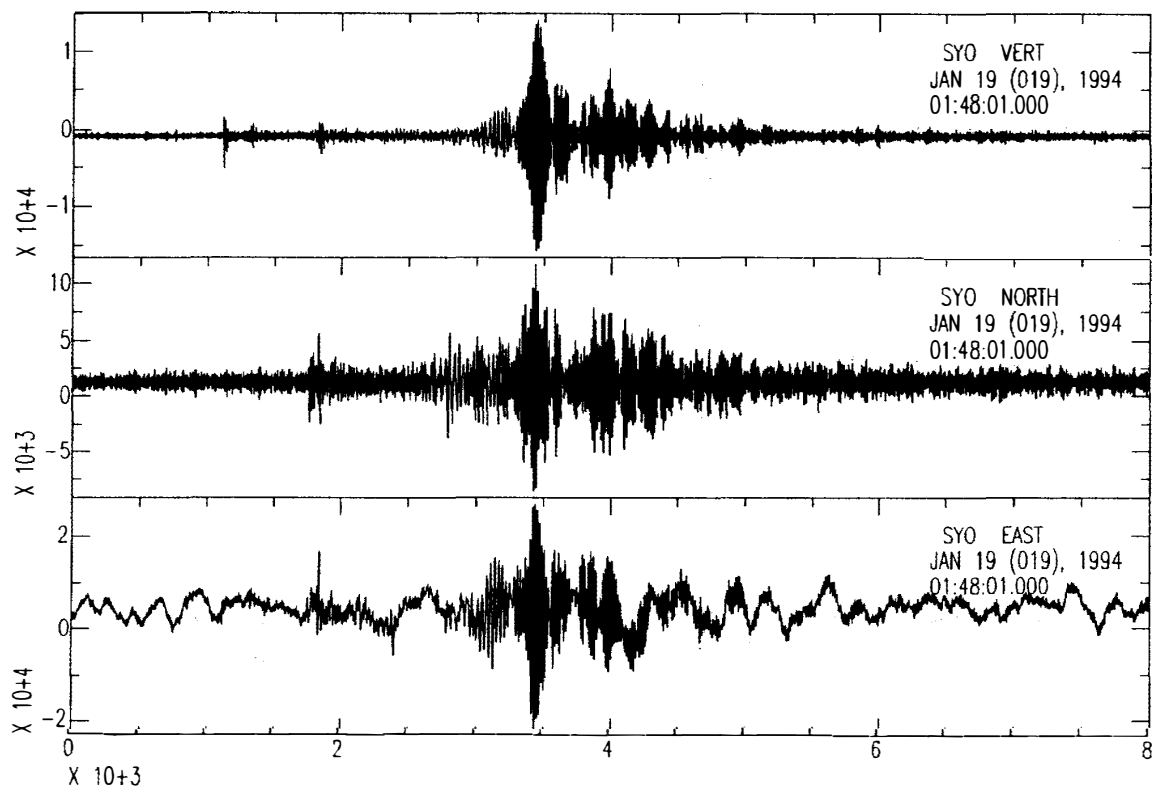
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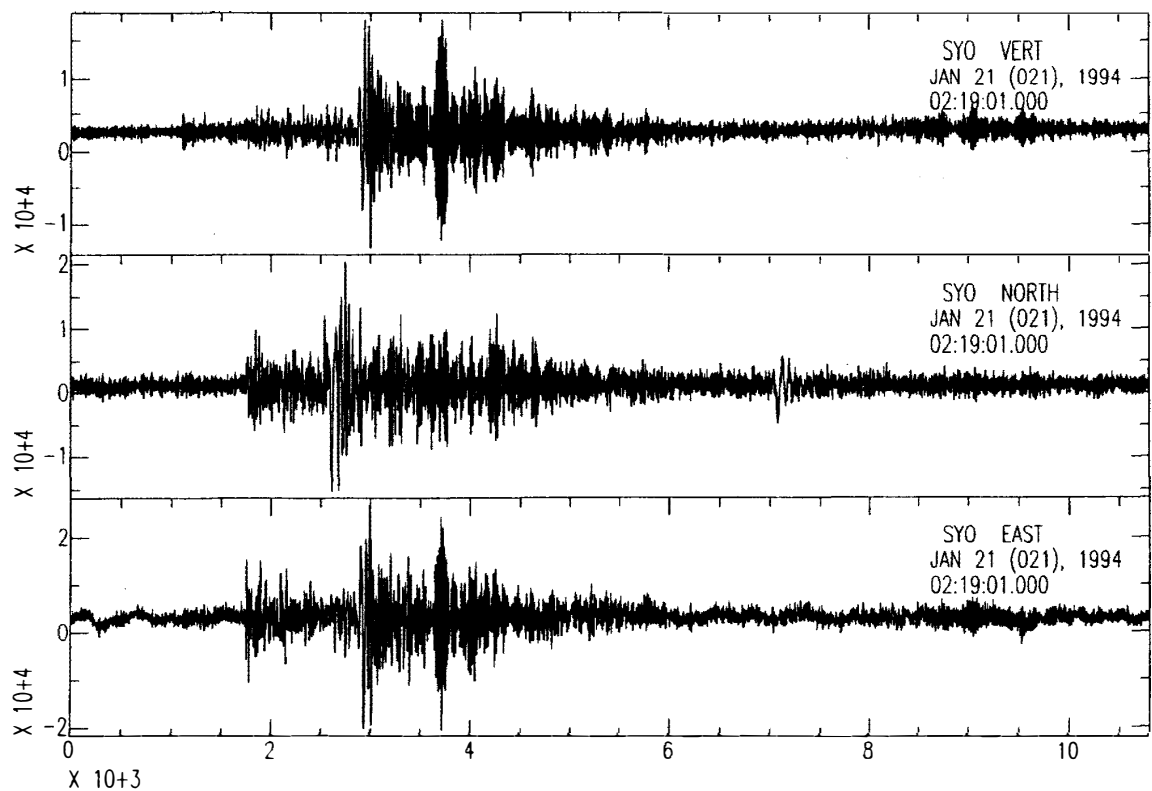
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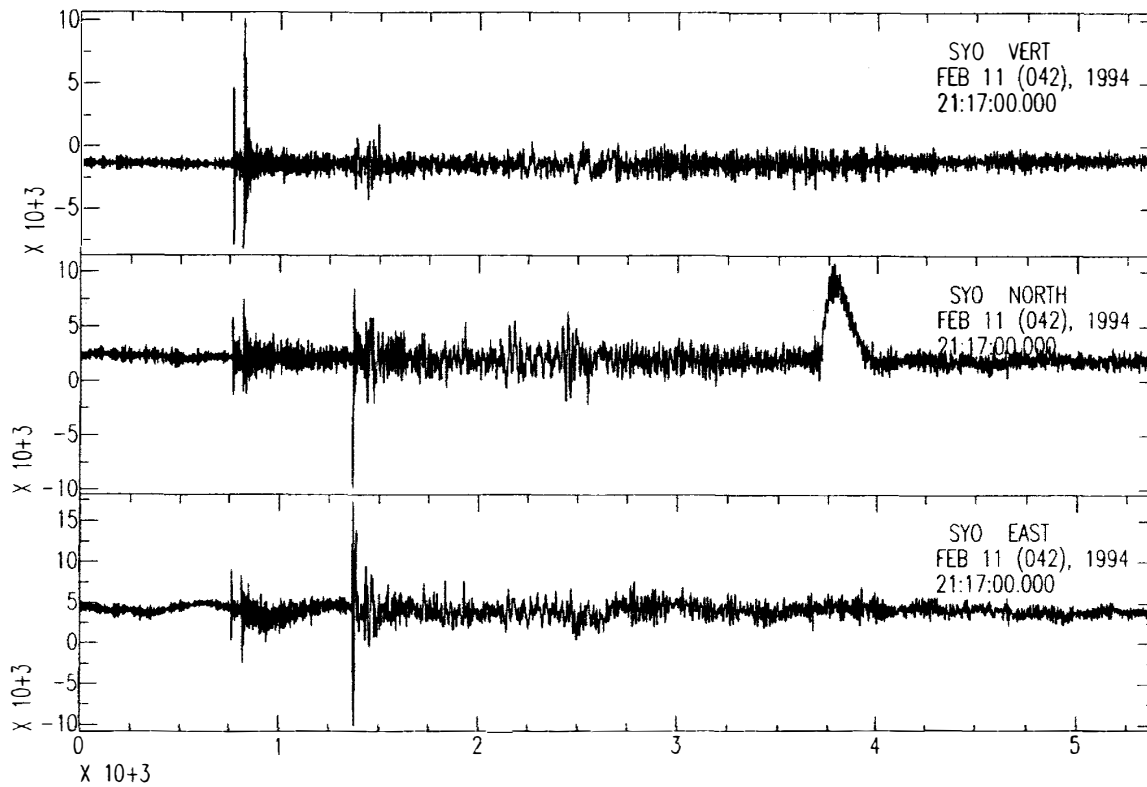
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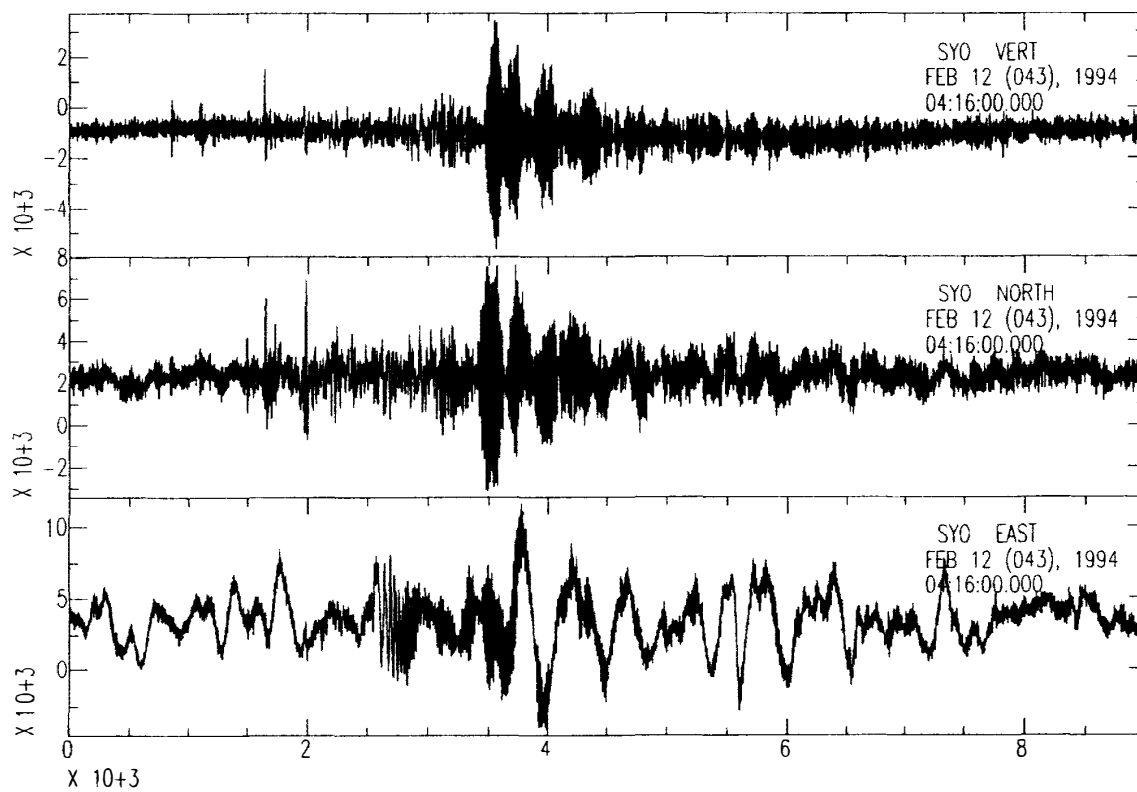
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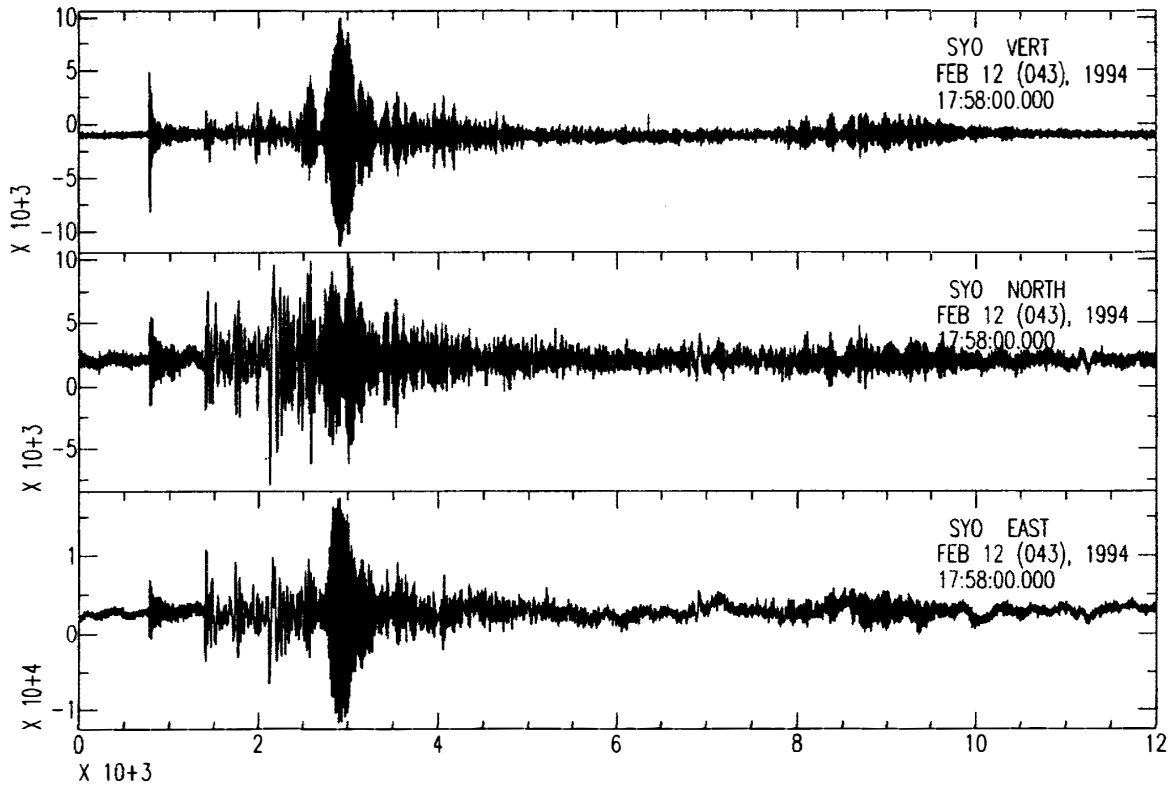
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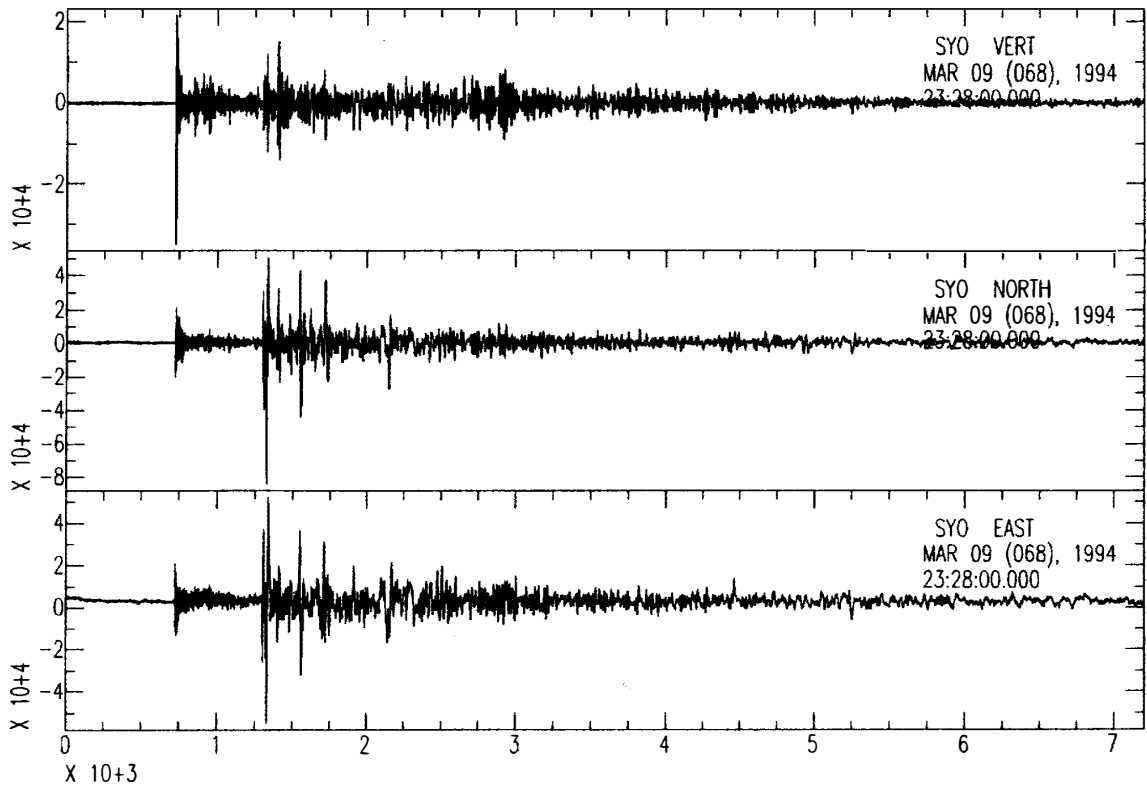
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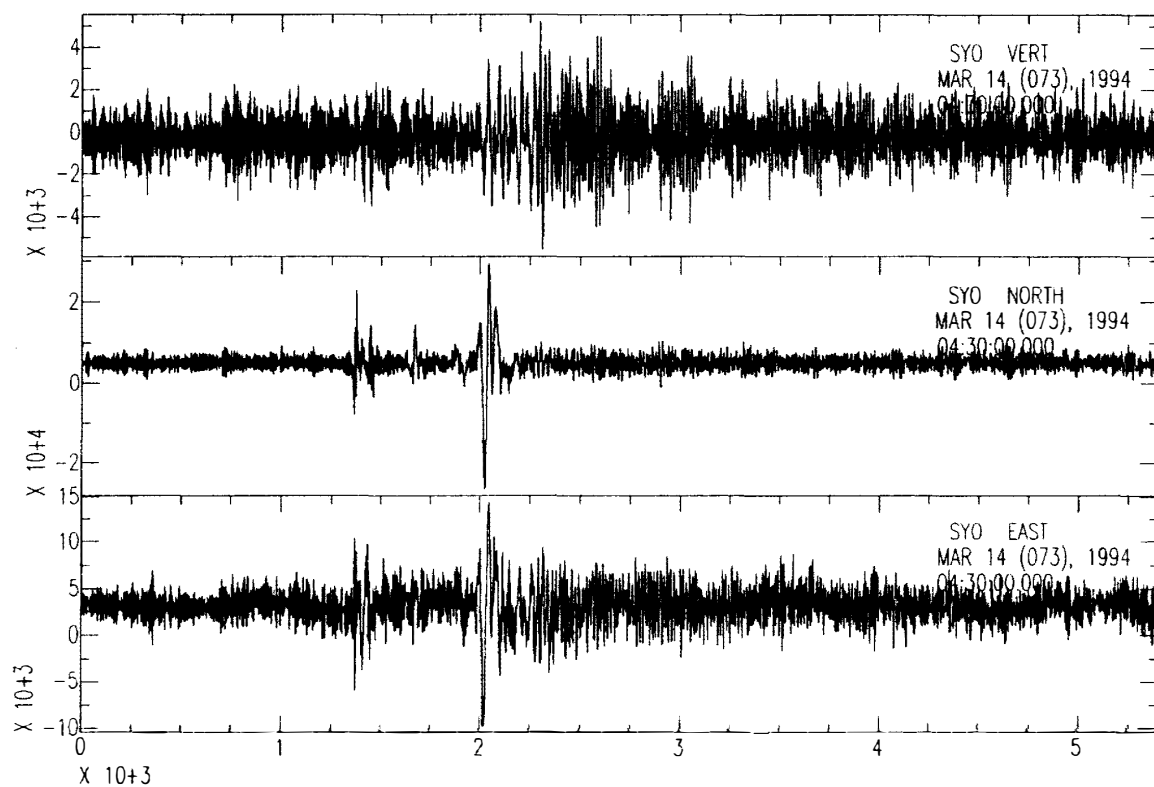
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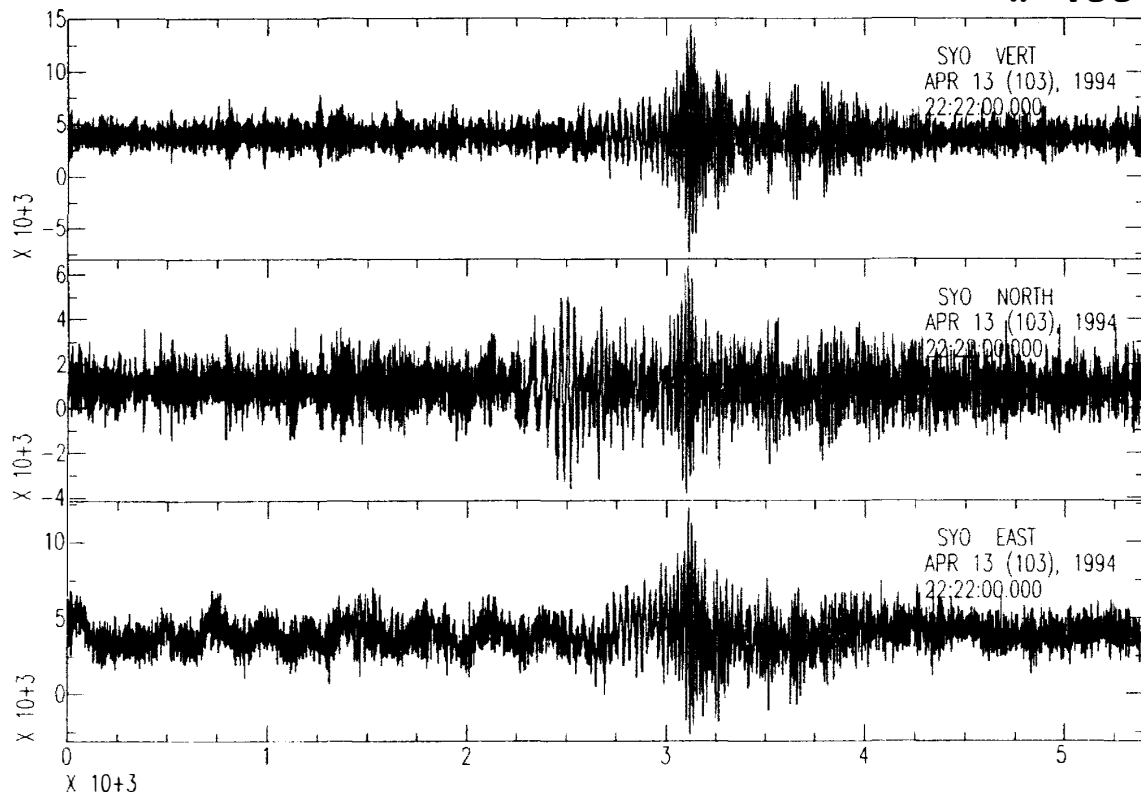
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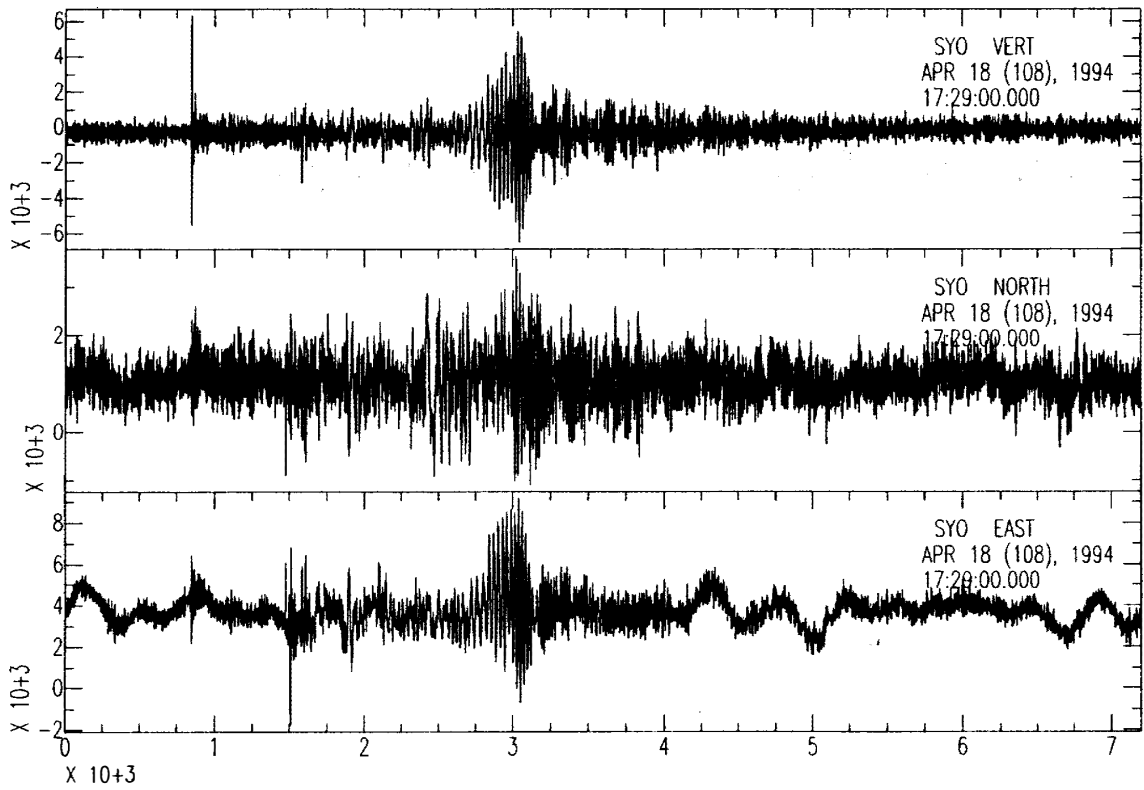
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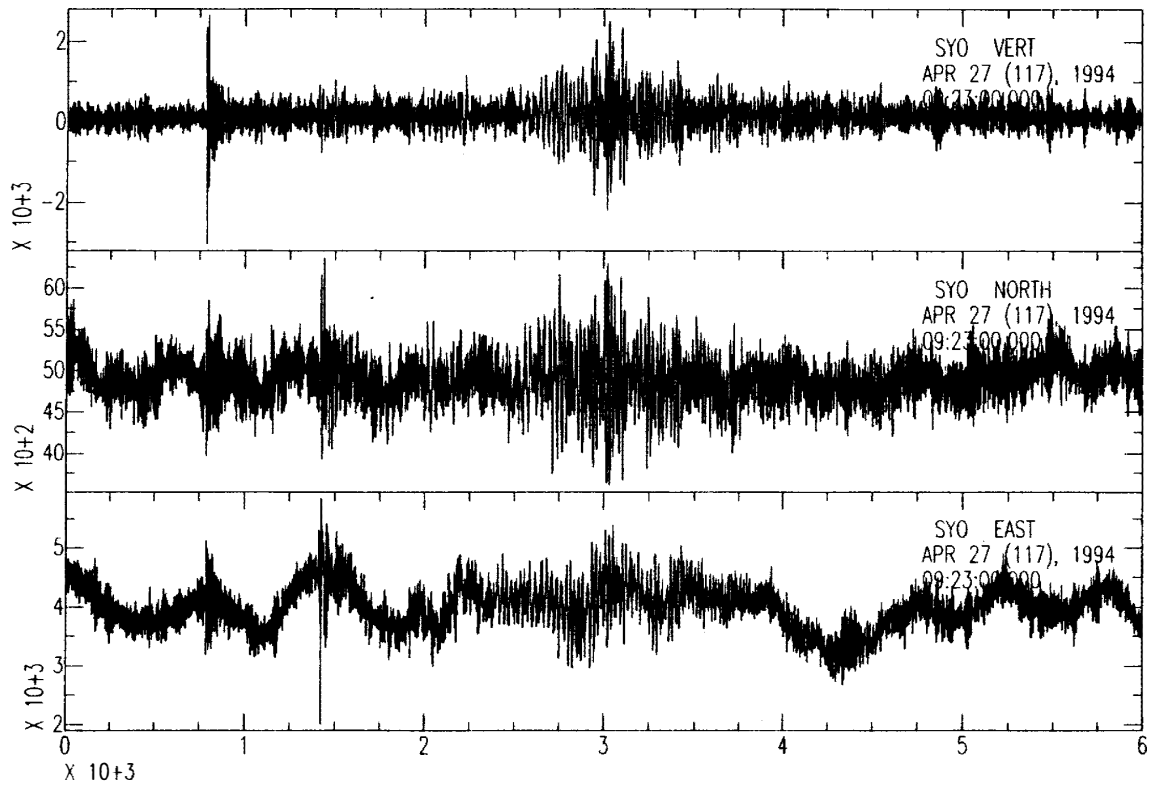
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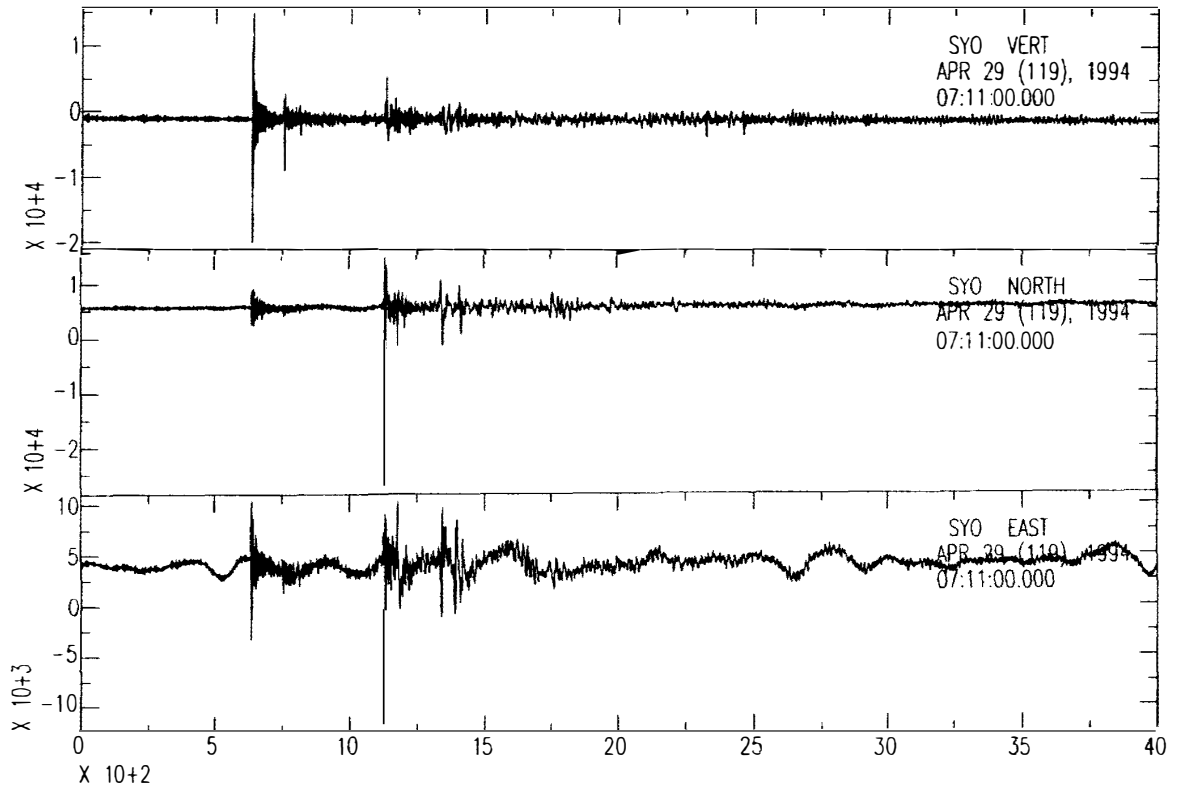
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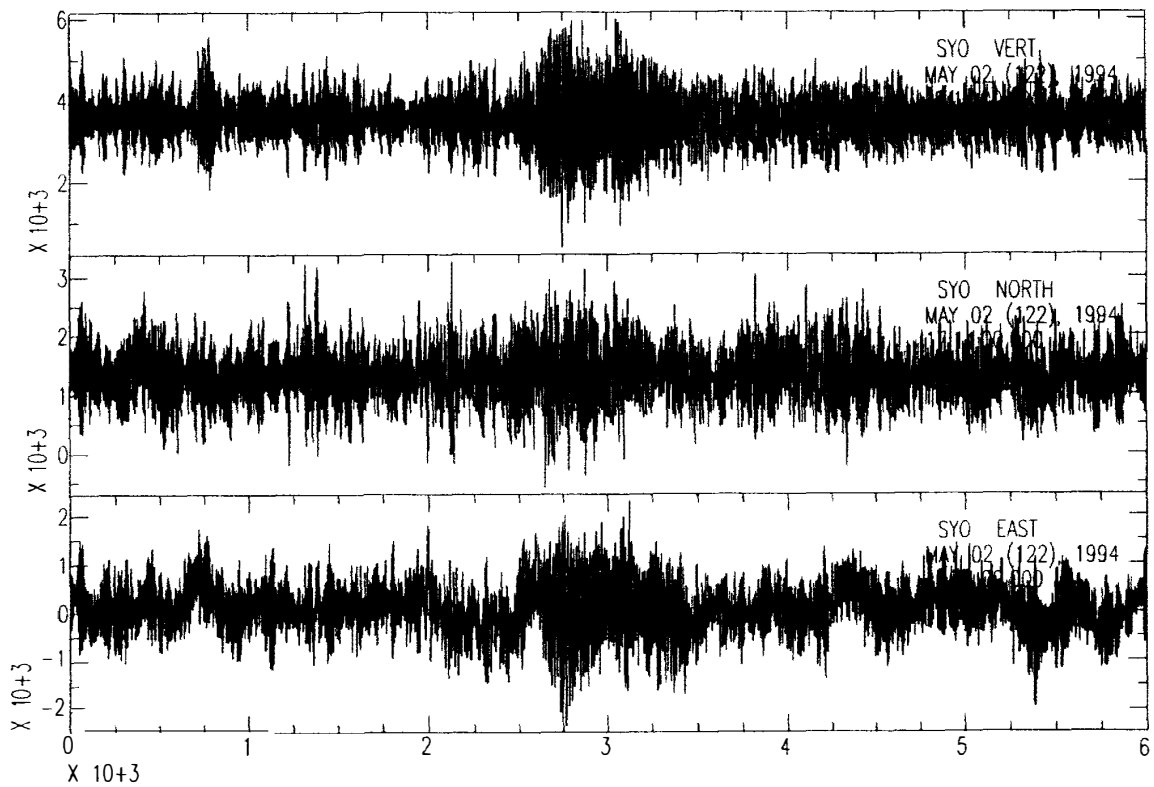
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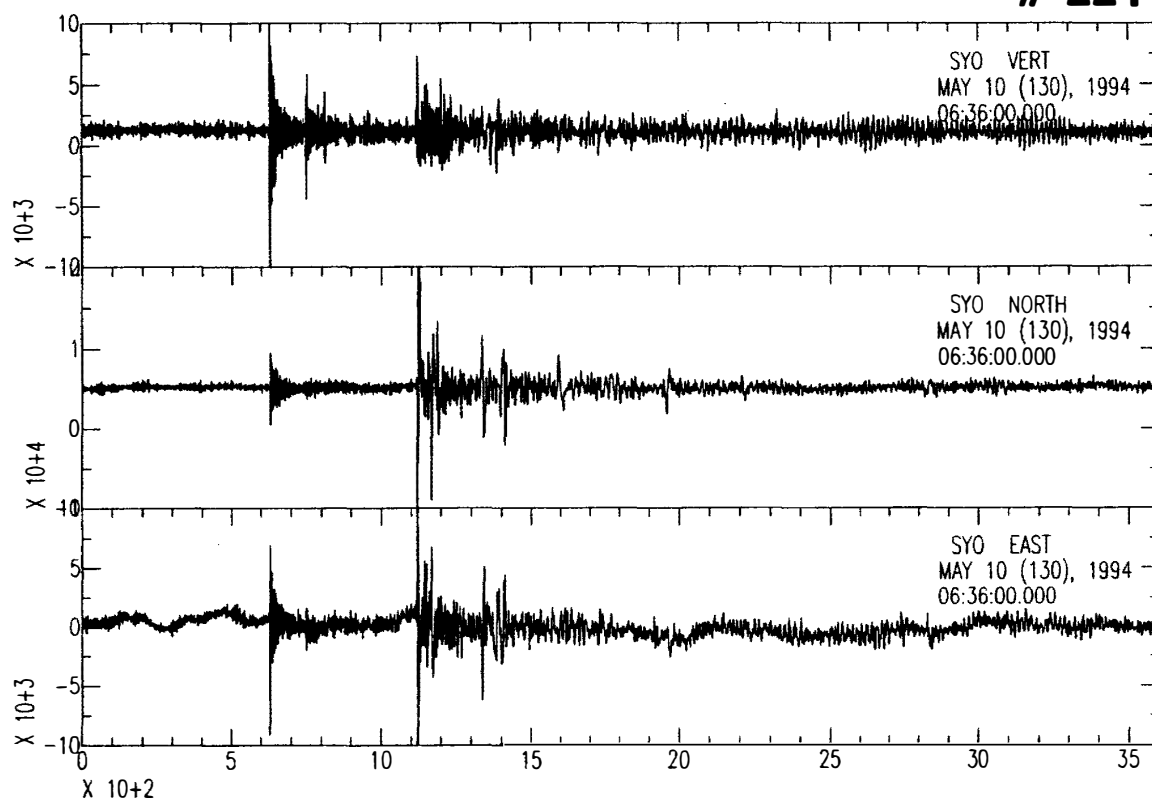
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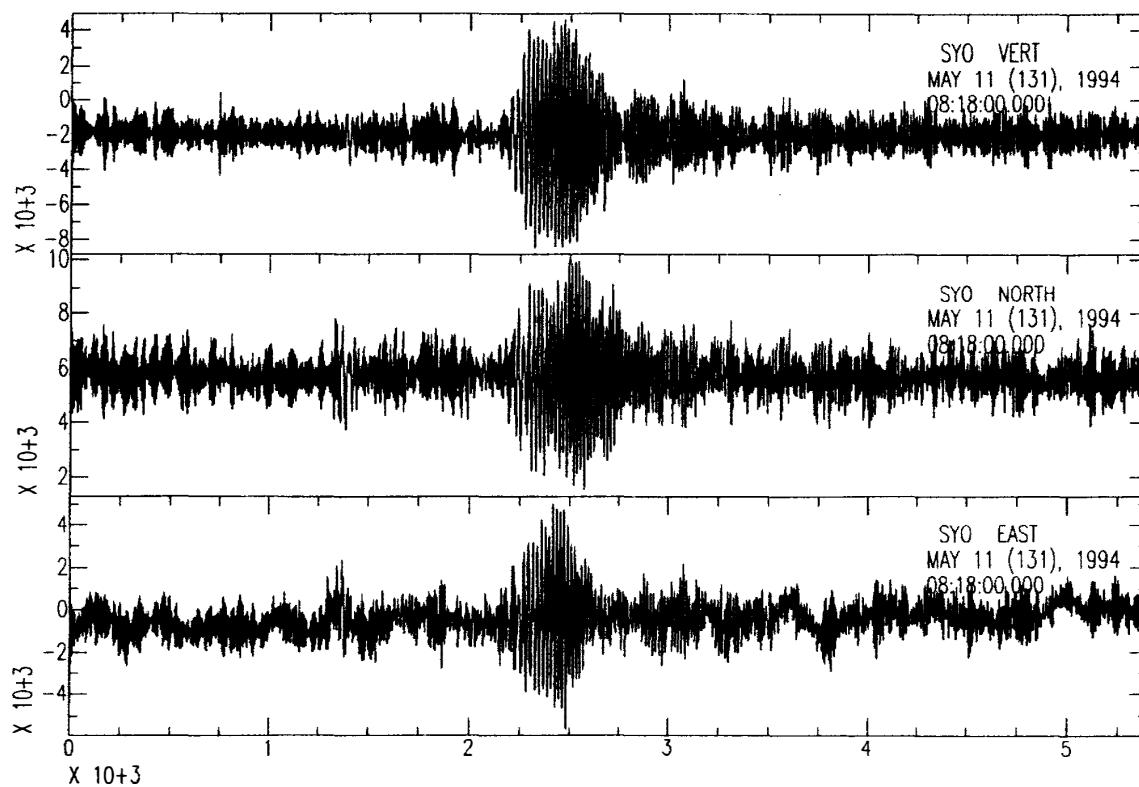
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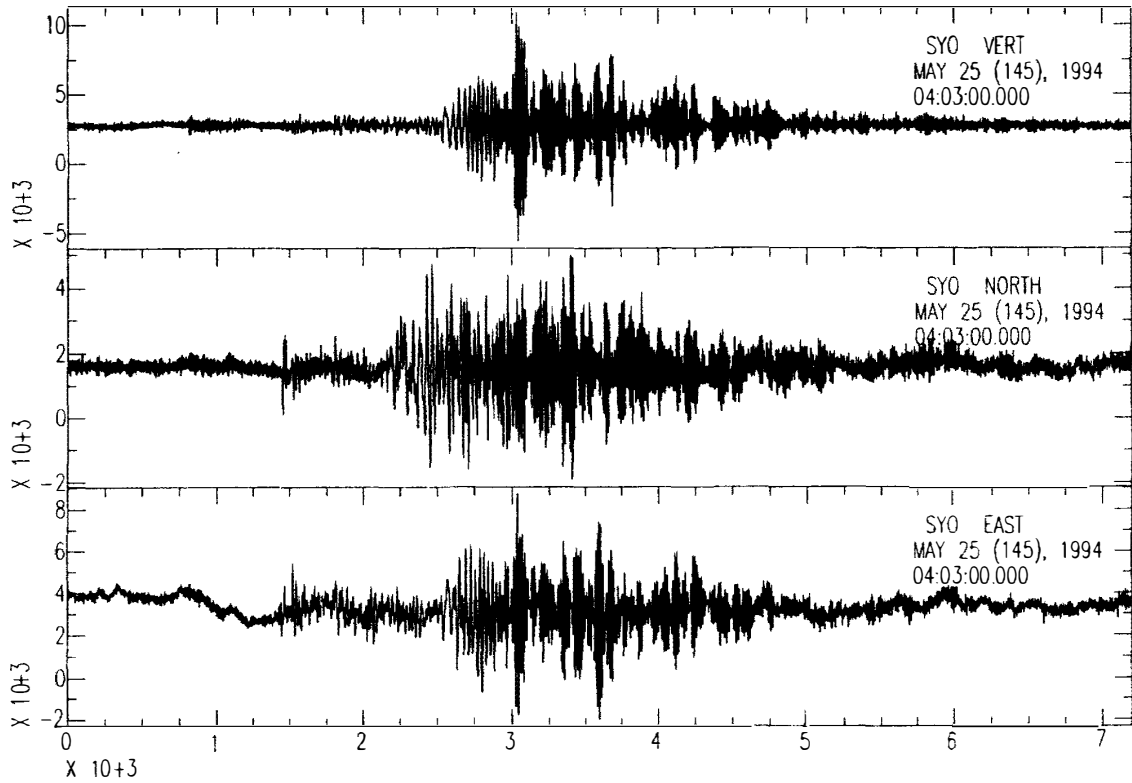
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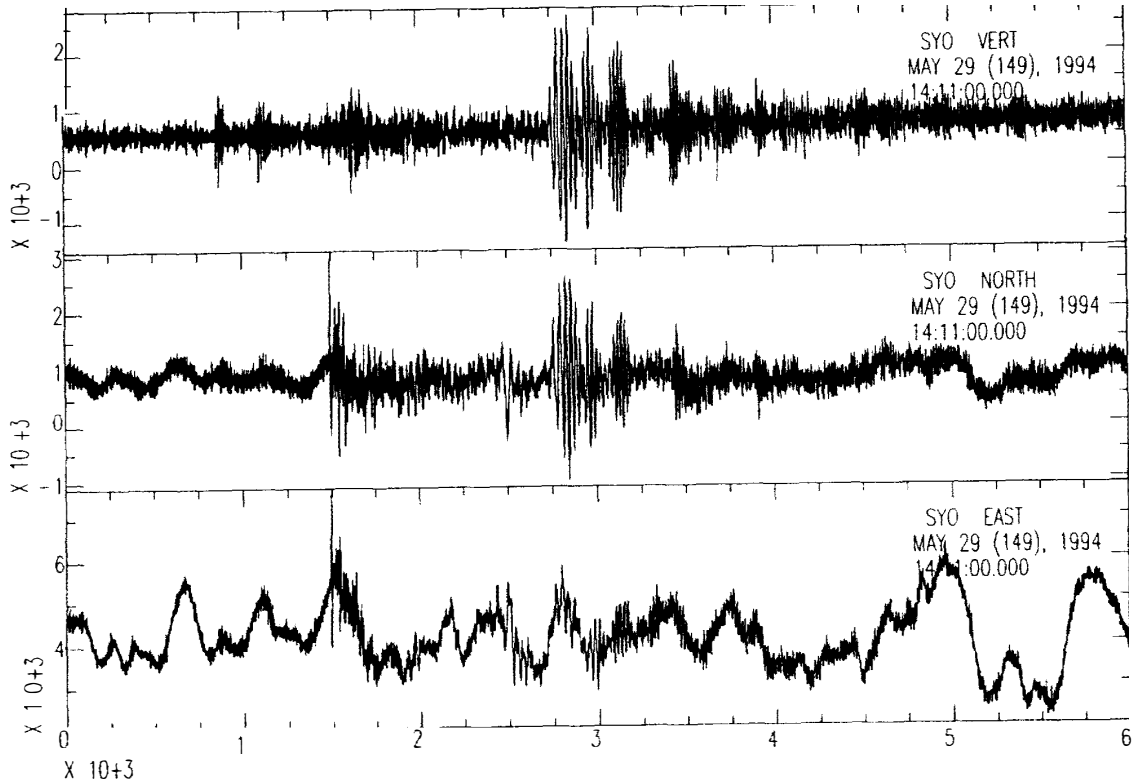
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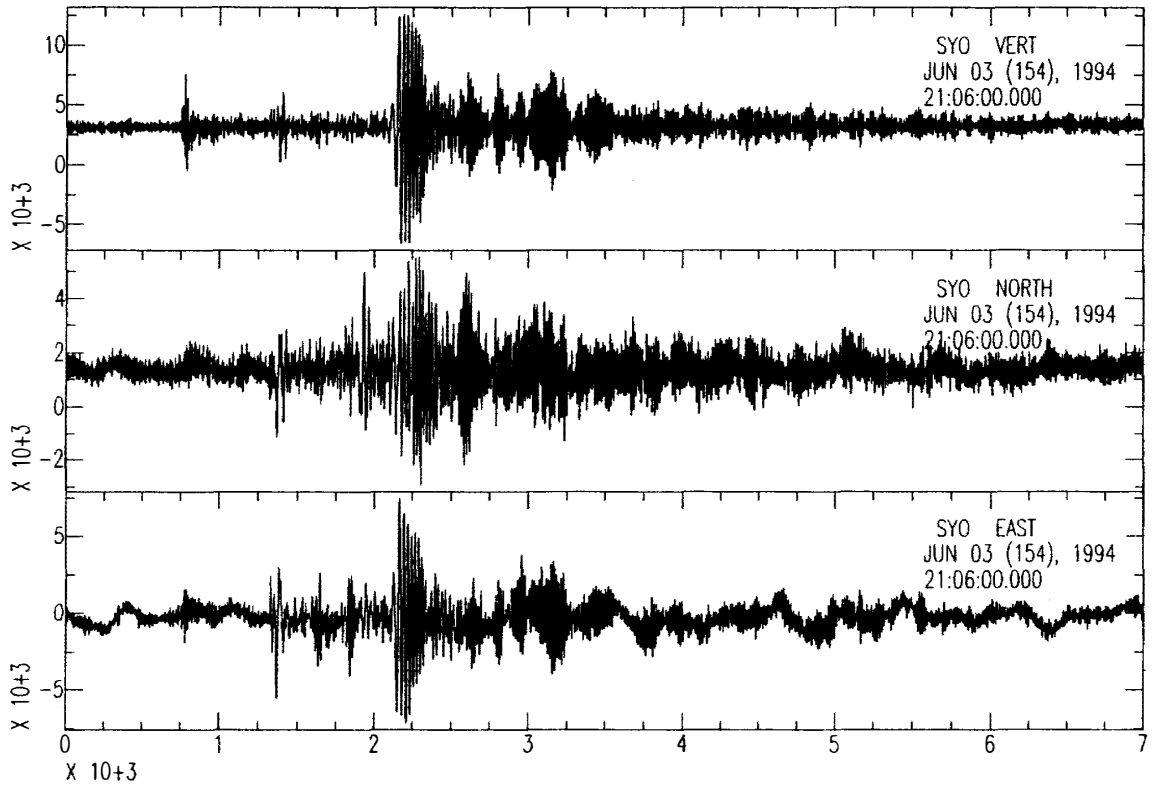
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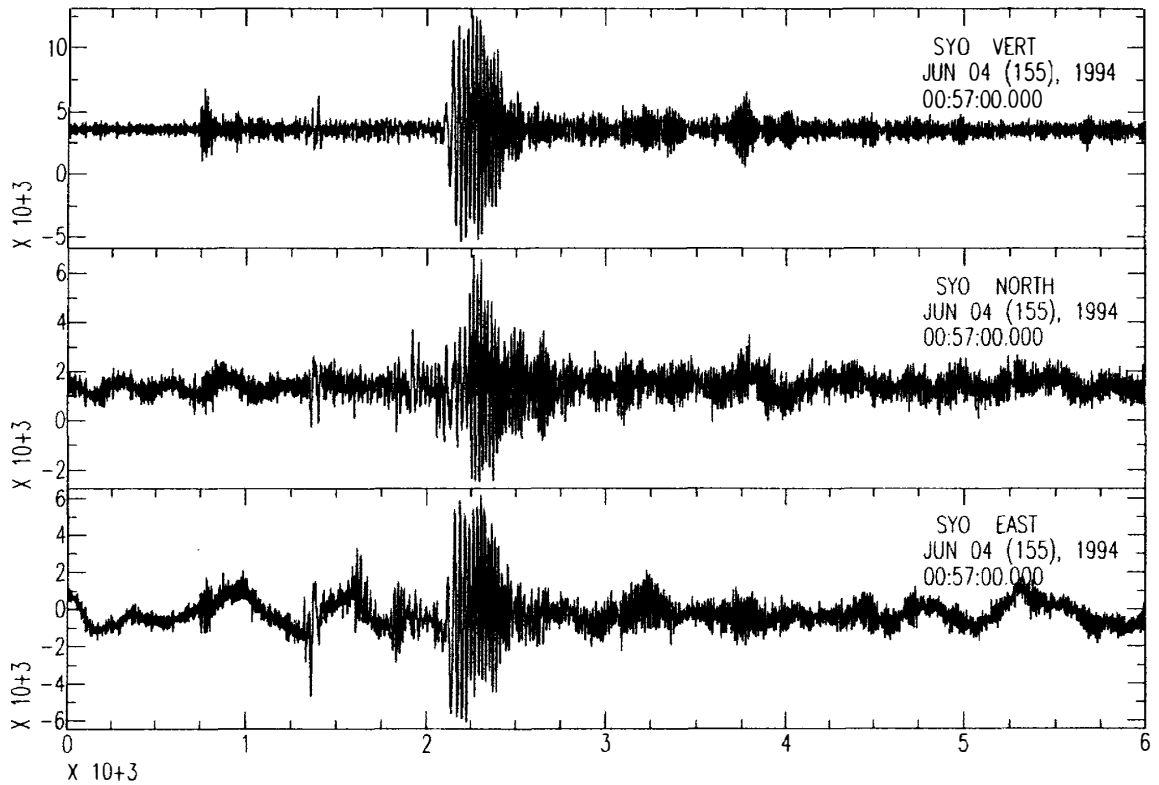
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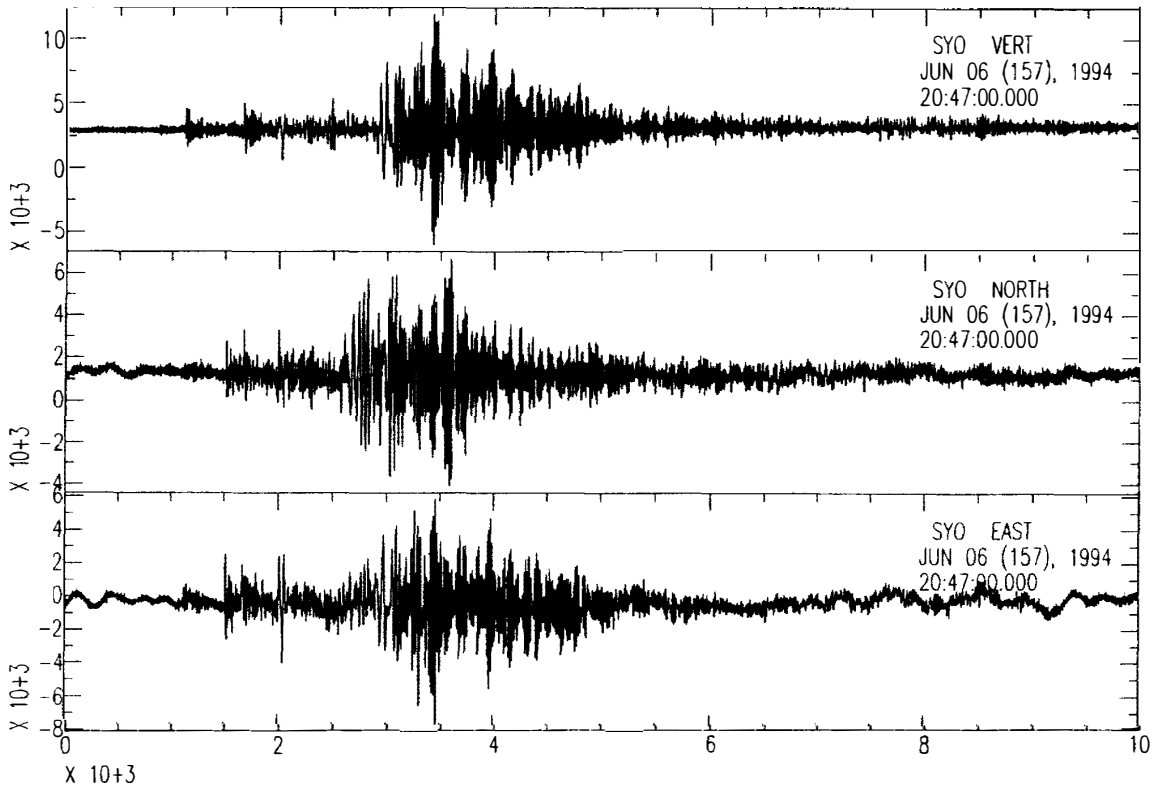
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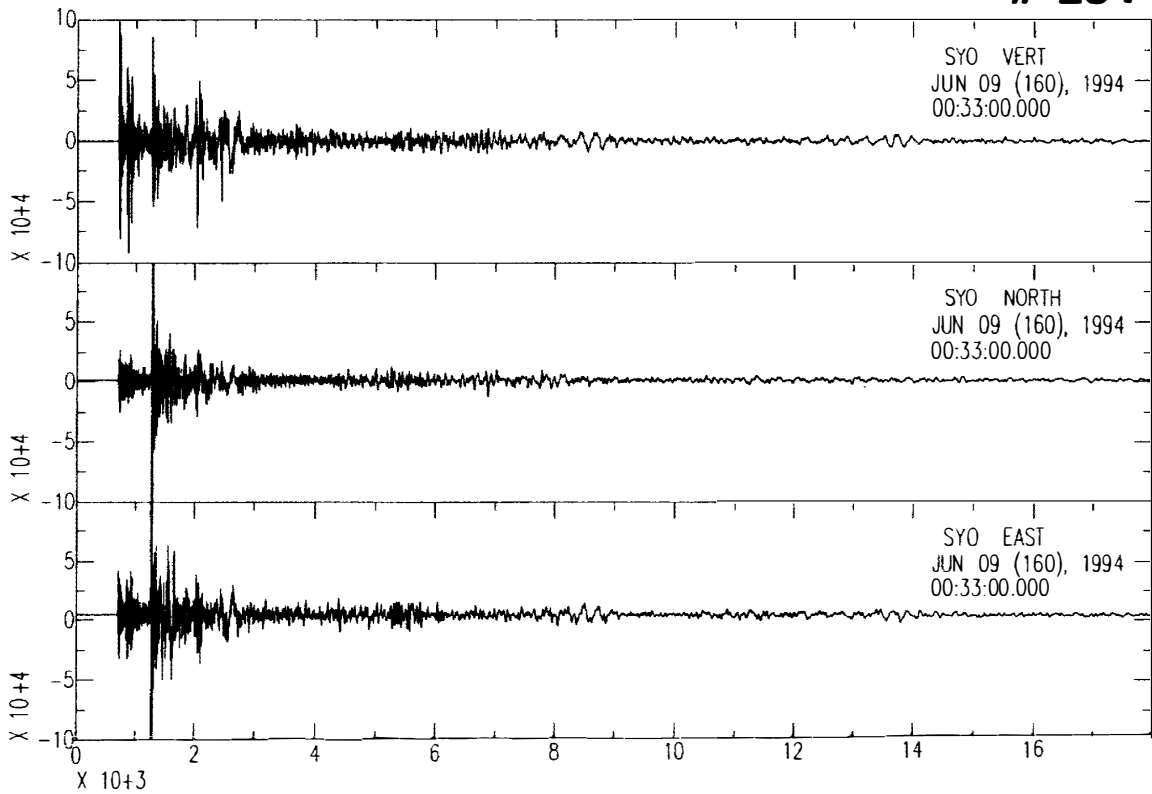
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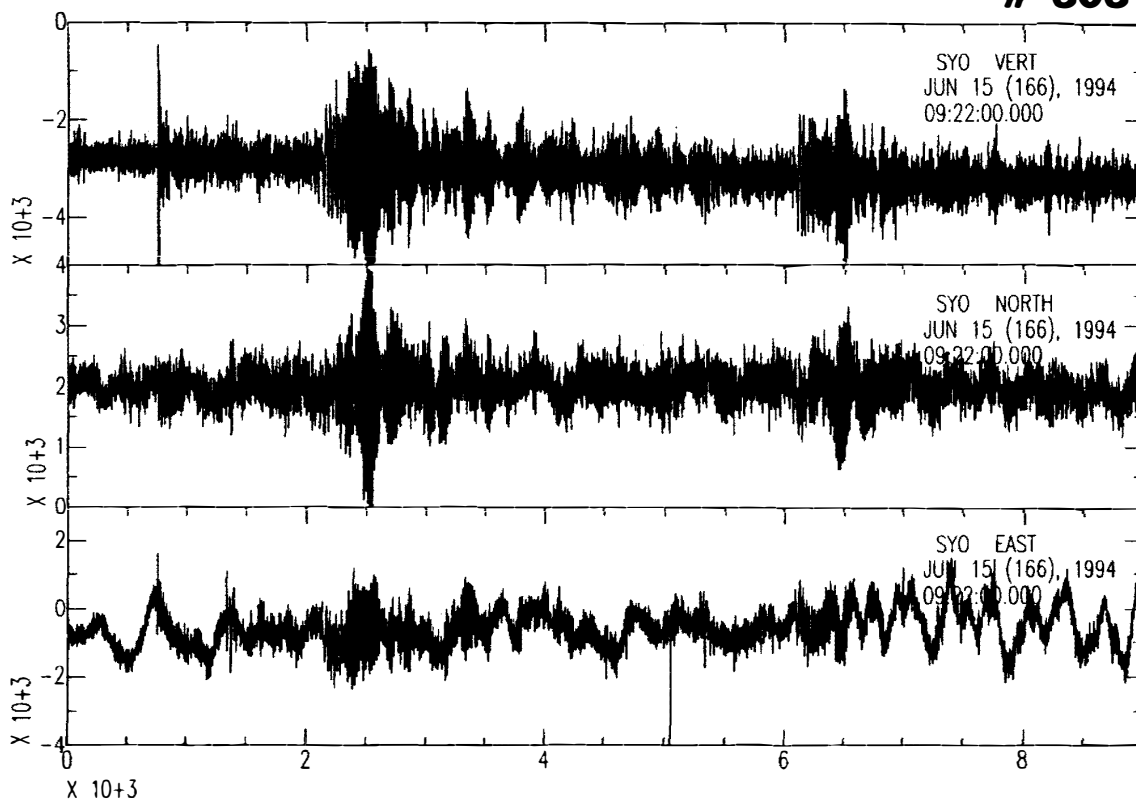
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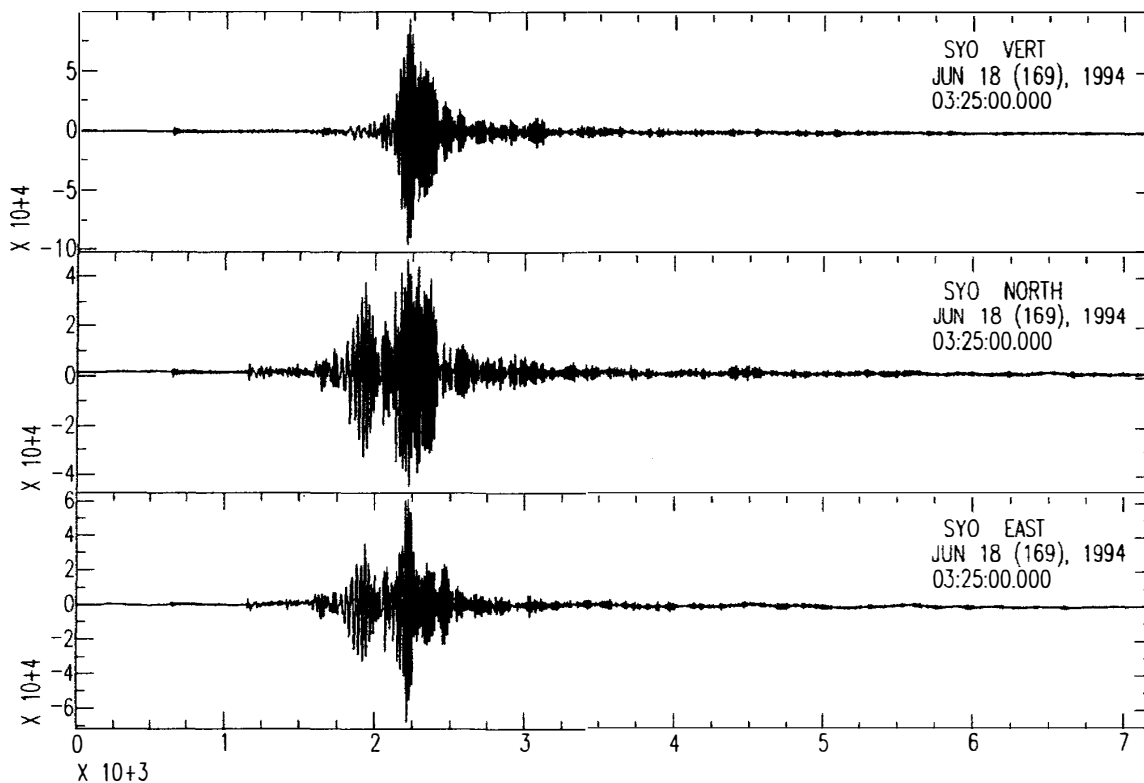
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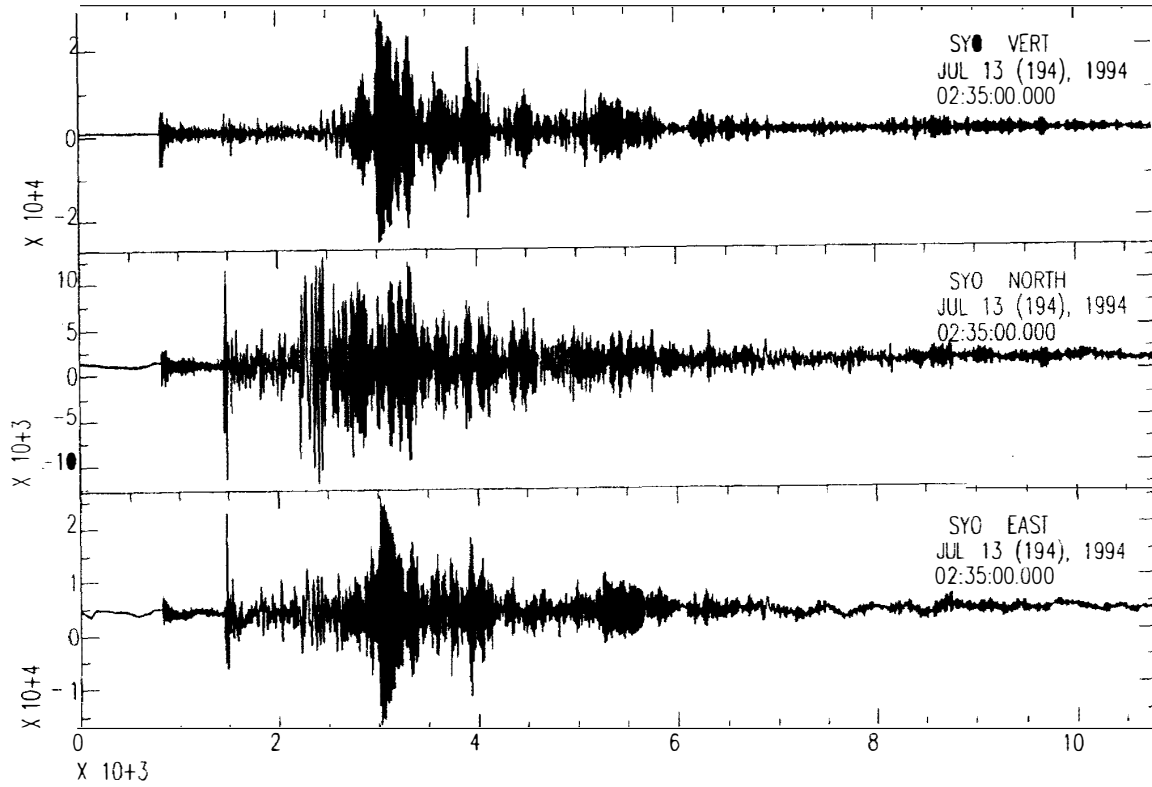
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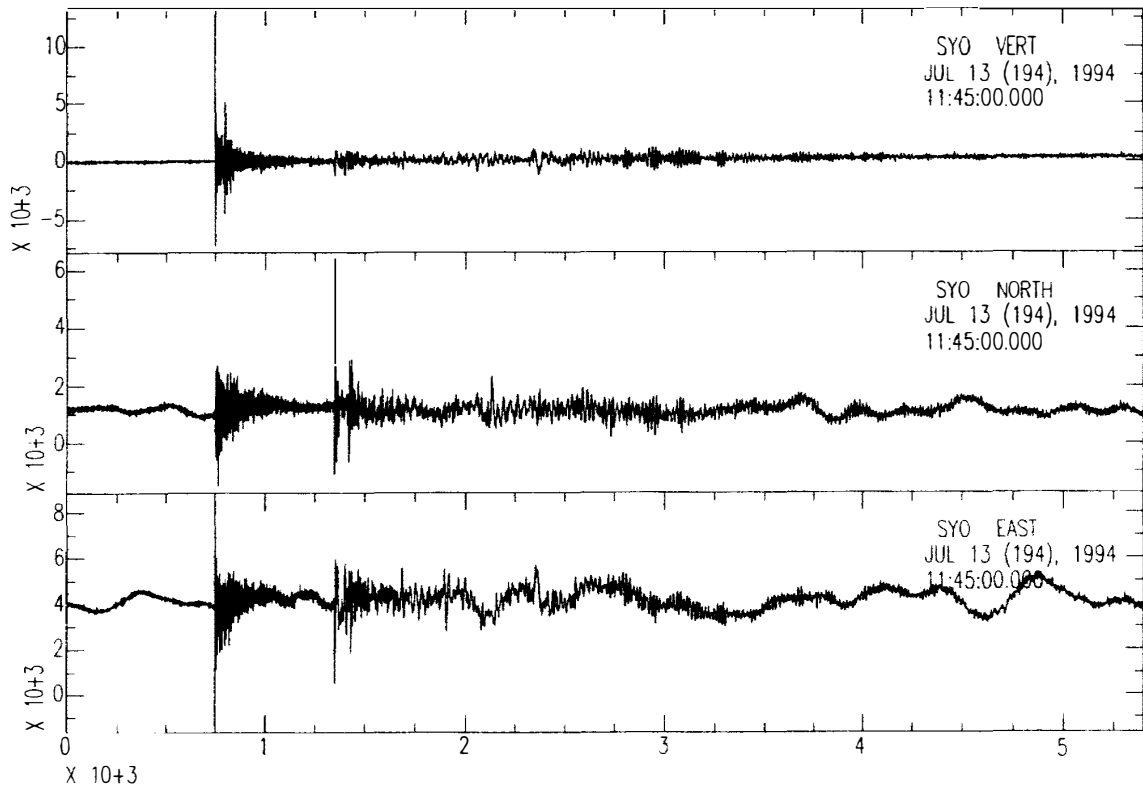
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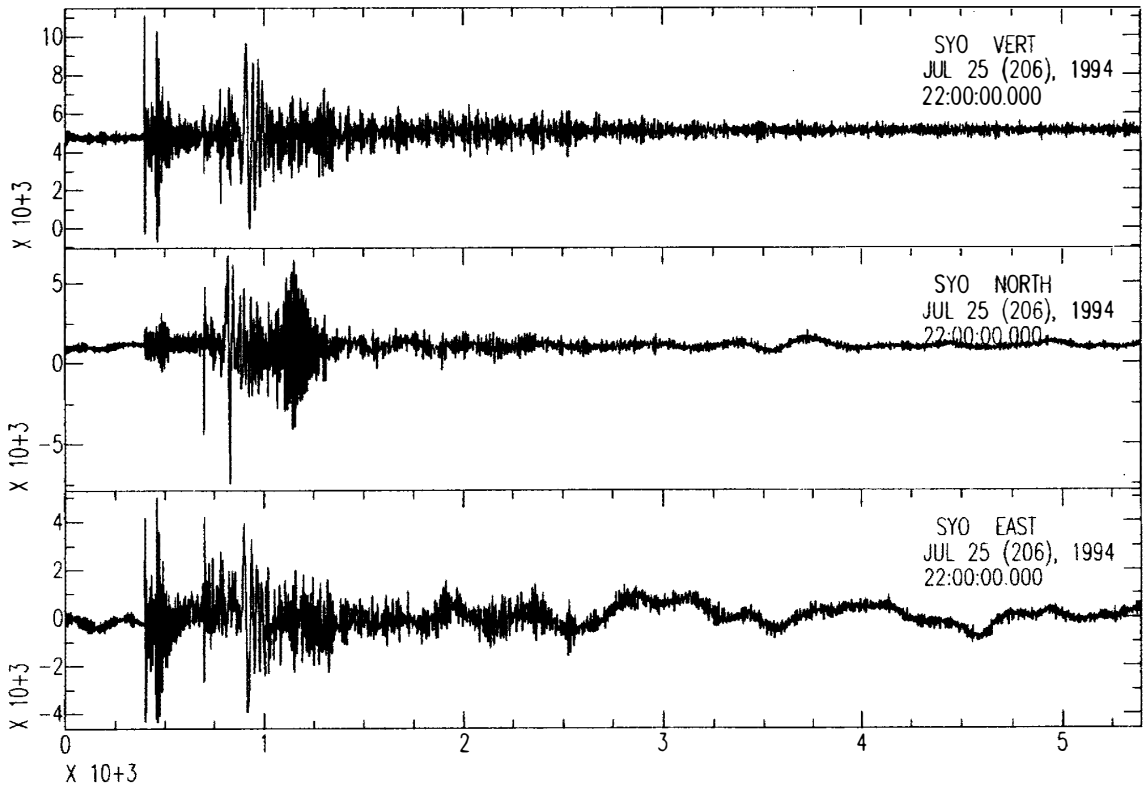
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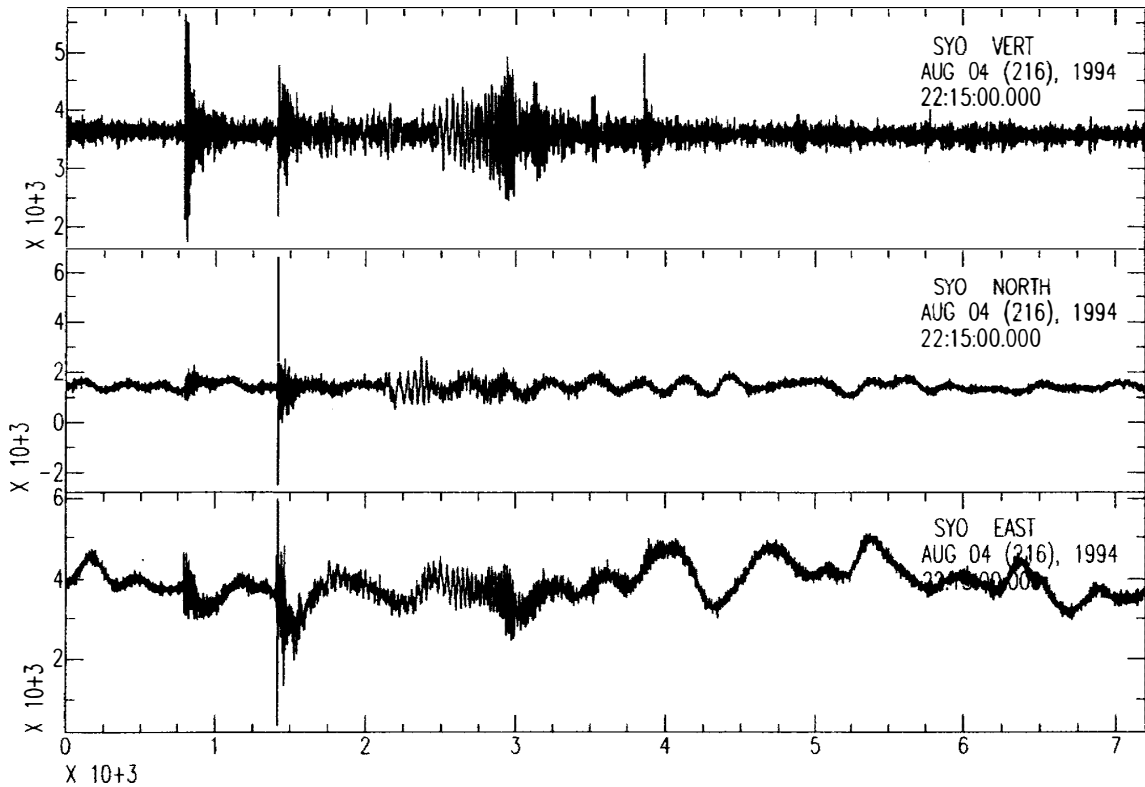
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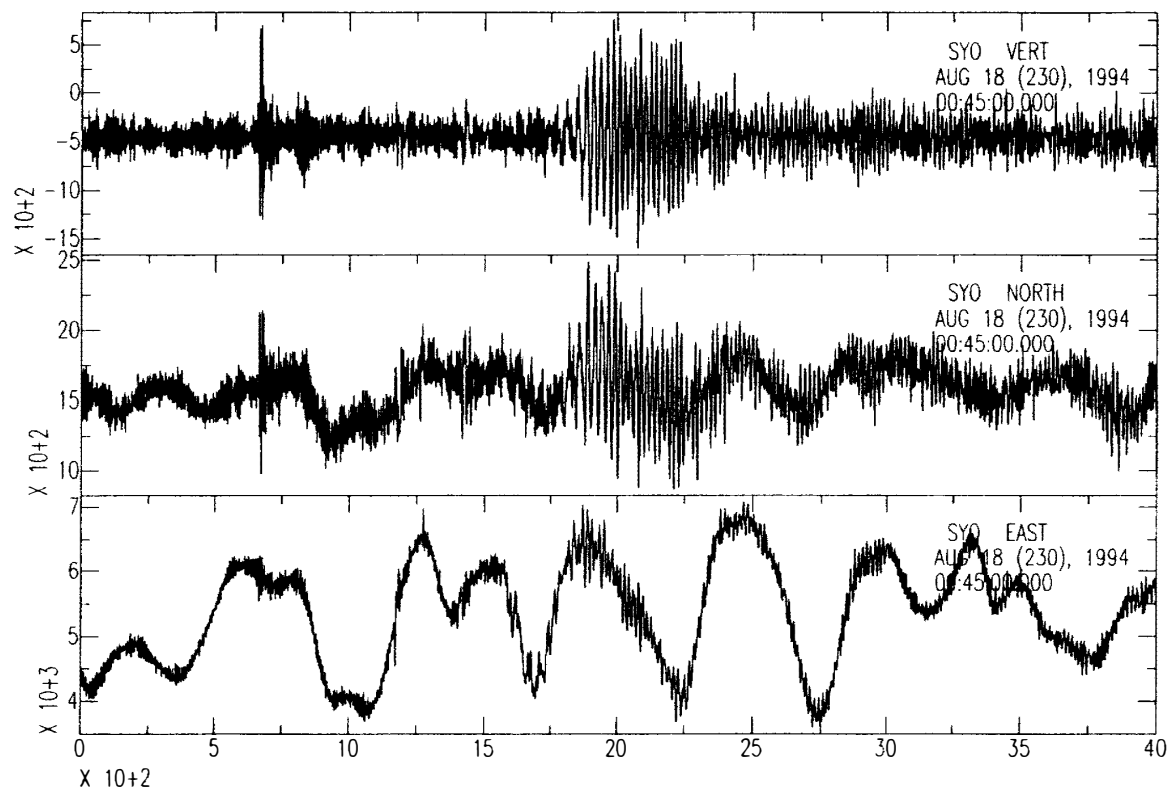
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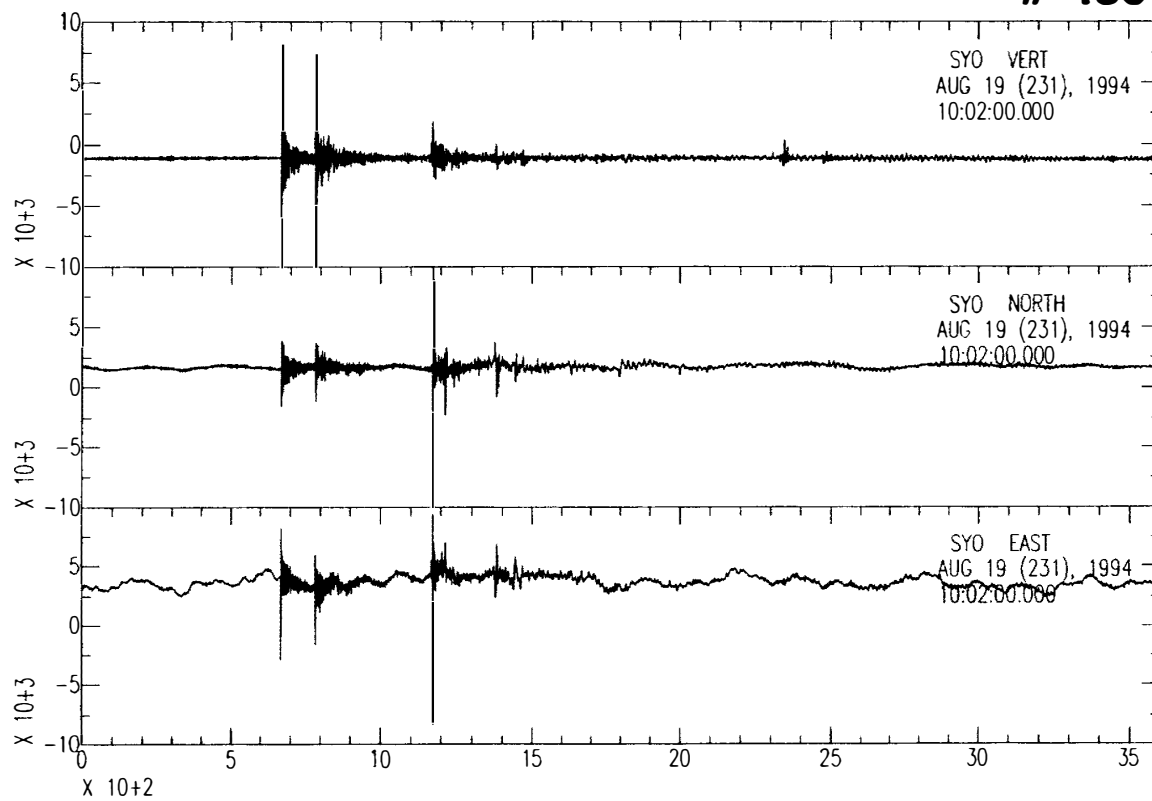
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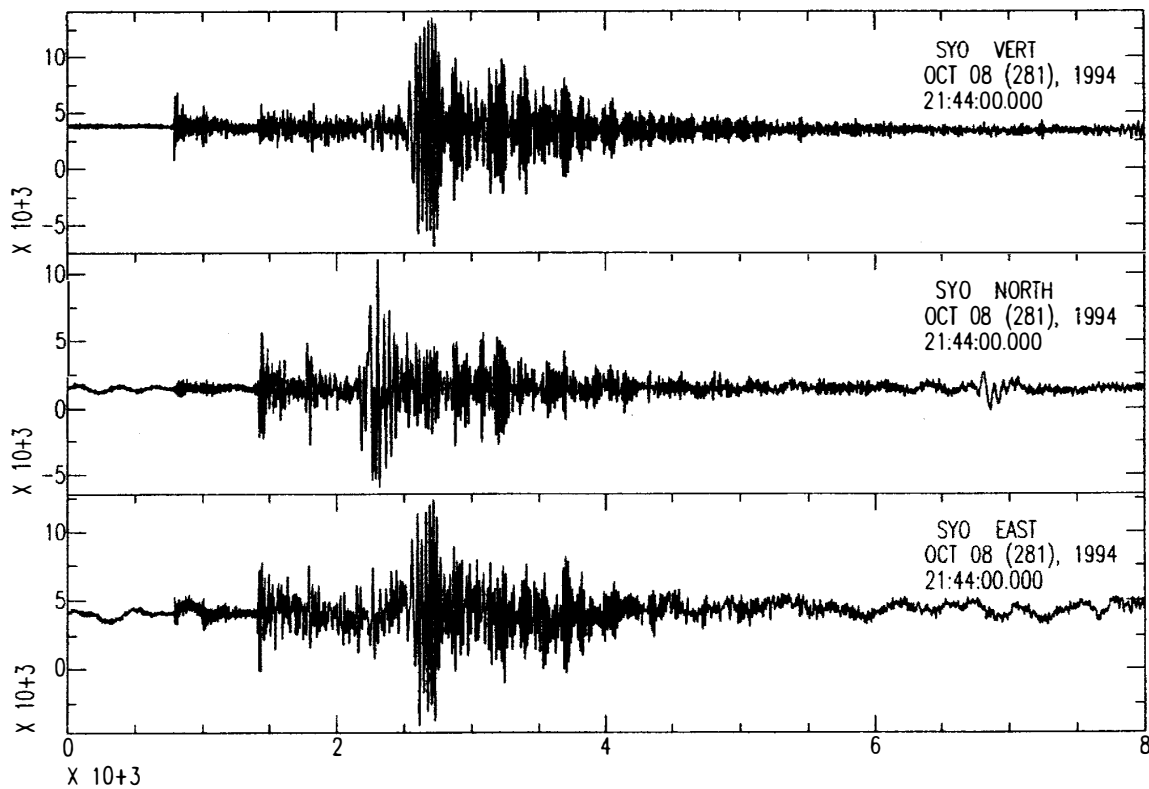
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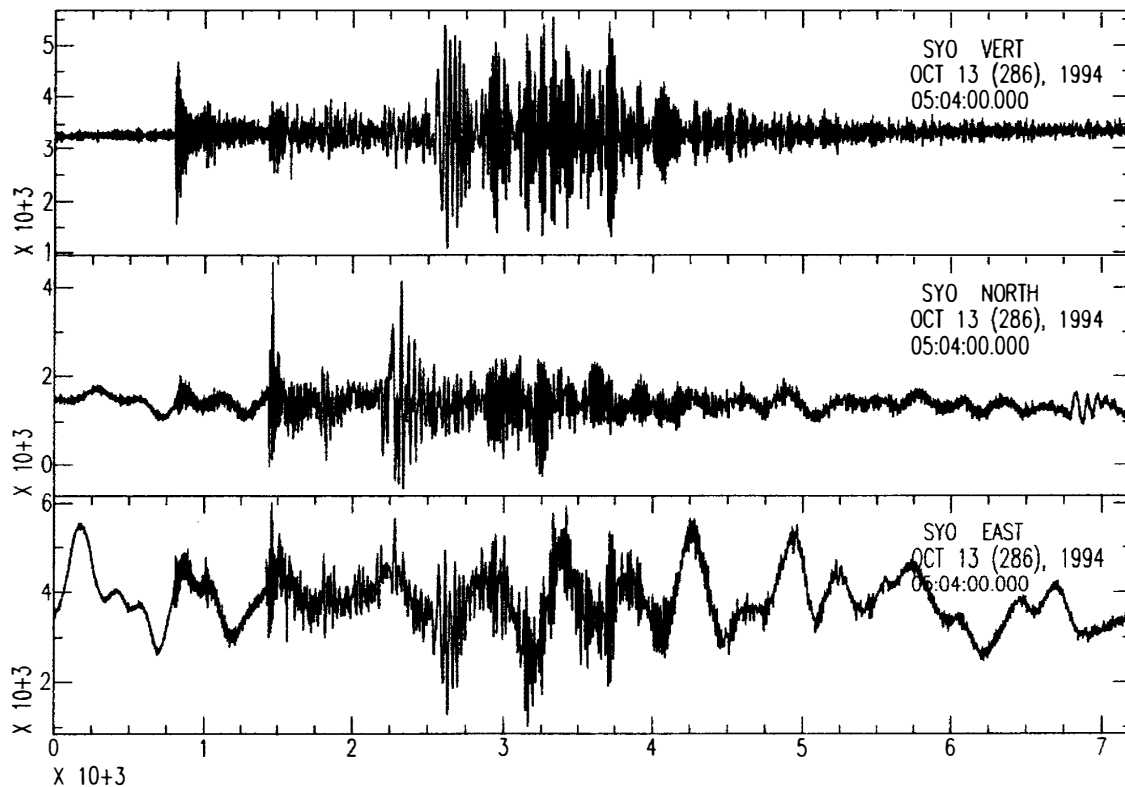
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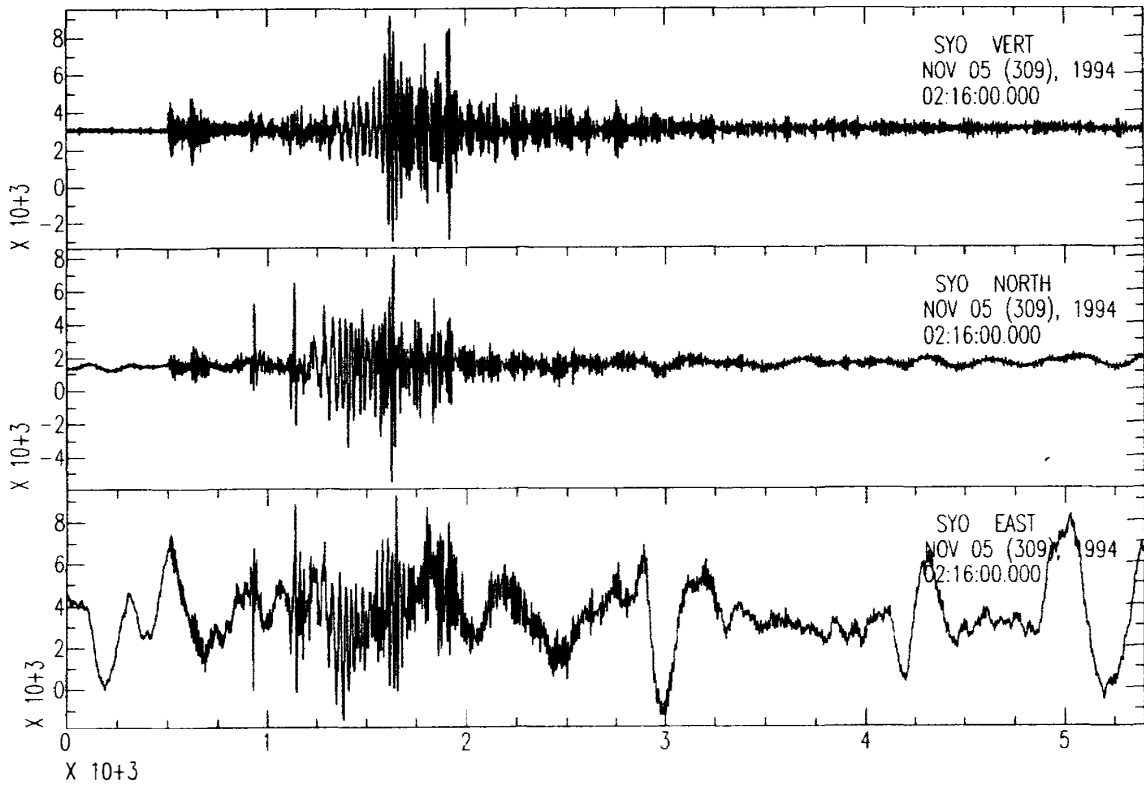
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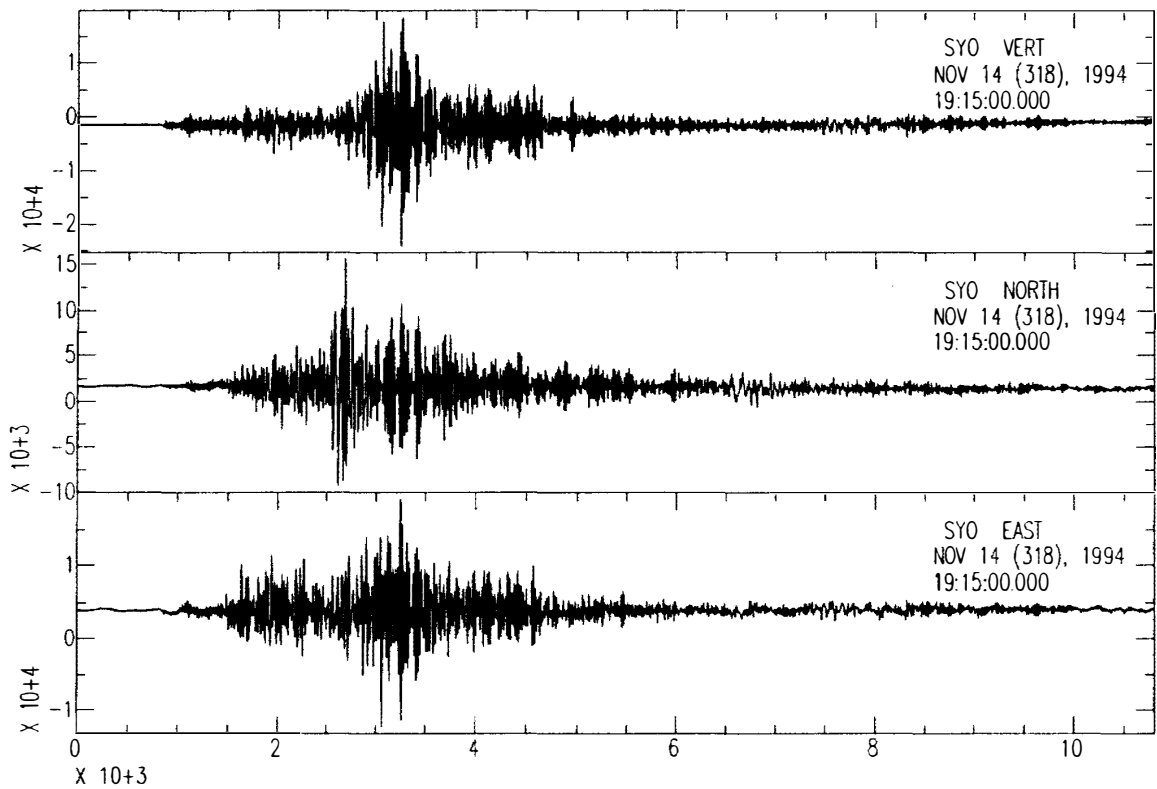
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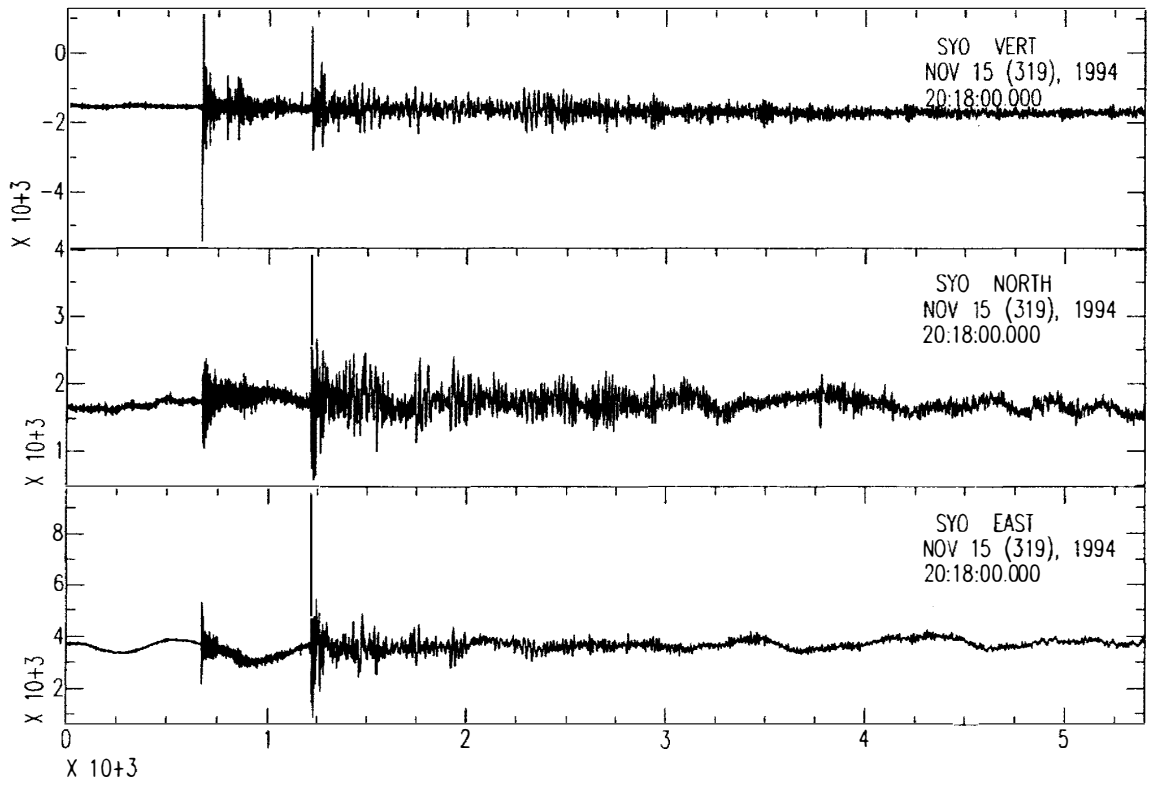
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