



**BULLETIN  
OF THE SLOVAK  
SEISMOGRAPHIC  
STATIONS**

**BRATISLAVA  
ŠROBÁROVÁ  
HURBANOVO  
AND  
SKALNATÉ PLESO  
FOR THE YEAR 1977**

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The seismological bulletin for the year 1977 contains the results of the interpretation of records from the network of seismograph stations on the territory of Slovakia: BRATISLAVA (BRA), BRATISLAVA-ŽELEZNÁ STUDNIČKA (ZST), ŠROBÁROVÁ (SRO), HURBANOVO (HRB) and SKALNATÉ PLESO (SPC).

The records from the network are collected at the Geophysical Institute of the Slovak Academy of Sciences in Bratislava, where they are analysed. The preliminary results of the interpretation were published in ten-day preliminary bulletins for stations Bratislava, Šrobárová and Skalnaté Pleso. The ten-day preliminary bulletins were exchanged with about twenty seismological institutions from various parts of the world. The times of the onsets of the important earthquake phases appearing on the Bratislava and Šrobárová seismograms were sent to the seismological centre in Strasbourg twice a week by telex. The earthquake data obtained from the Bratislava and Šrobárová seismograms were also punched on cards which were regularly supplied to the International Seismological Centre in Newbury.

This annual bulletin contains the final analysis of the records and the completed and revised parameters of earthquakes and explosions. The sources of informations regarding epicentres, origin times, depth of foci and shock magnitudes, frequently quoted are as follows: Bulletin of ISC, Vol. 14, 1977; Bulletin of BCIS, 1977; Quarterly Bulletin of the Academy of Sciences of the U. S. S. R, 1977. The time standard used throughout is Greenwich Mean Time.

The epicentres of almost all earthquakes or explosions occurring in Czechoslovakia were determined at the Geophysical Institute of the Czechoslovak Academy of Sciences in Prague or at the Geophysical Institute of the Slovak Academy of Sciences in Bratislava.

The processing of data and numerical calculations were carried out according a program completed by Mrs. K. Mrázová, using the computer CDC 3300 in the Computing Centre, Bratislava. The program has been written in USASI FORTRAN /MASTER [9].

For calculating the surface-wave magnitudes the standard calibrating functions [5] were used. Station corrections were ignored, as was the calculation of surface-wave magnitudes at distances less than  $6^\circ$ . Surface wave magnitudes were calculated for earthquakes with focal depths less or equal 800km. The values of body-wave magnitudes from P waves in the distance interval  $[16^\circ, 100^\circ]$  were calculated on the basis of Q-functions [6]. The values of the amplitudes of short period P-waves registered on the vertical component are given in nanometers while the values of AEW and ANS for calculating surface-wave magnitudes are given in micrometers.

An earthquake magnitude formula, giving the closest possible fit to surface-wave magnitudes determined by NEIS had been developed for the station Šrobárová [8]. The value of station correction for Šrobárová is -0.22 and

the standard error  $\pm 0.03$ . For the determination of magnitudes the station correction was not taken into consideration.

For the measurements of microseisms the records of the Mainka horizontal seismograph at the station Hurbanovo were used. The maximum microseismic trace amplitudes were measured on the NS and EW components four times per day at 0 h, 06 h, 12 h, and 18 h G. M. T. Using a short computer program the trace amplitudes were converted into ground amplitudes in micrometers and tabulated. The period was determined by measuring the length to 0.1 mm of 2-4 whole periods in a well developed maximum group. The periods are given in whole seconds. The trace amplitudes were measured from peak to peak, halved and the corresponding ground motion given to 0.1  $\mu\text{m}$ .

In preparing this bulletin the author has been in different parts assisted by Mrs. N. Hupková, Mrs. Z. Ferechová and Mrs. A. Stranovská. The investigation of macroseismic observations of earthquakes felt on the territory of Slovakia was carried out by Mr. I. Brouček.

The content of this bulletin is in accordance with the recommendations given in [7].

## List of Seismic Phases

### P h a s e

In Bulletin	Usual	
PN, SN	Pn, Sn	longitudinal and transverse waves refracted below the crust
PG, SG	Pg, Sg	waves in the upper crust
PB, SB	Pb, Sb	waves in the lower crust
P, S	P, S	direct longitudinal or transverse waves propagating in the mantle
PKIKP	PKIKP	direct longitudinal wave propagating through the inner core, travel-time branch DF [1]
PKHKP	PKHKP	direct longitudinal wave refracted in the intermediate zone between the inner and outer core; phase symbol according to Bolt [4], travel-time branch GH
PKP2	PKP2	direct longitudinal wave propagating only through the outer core, travel-time branch AB [1]
PP	PP	P waves reflected once at the Earth's surface
PCP	PcP	P waves reflected at the Earth's core boundary
SCS	ScS	S waves reflected at the Earth's core boundary
SKS	SKS	S waves passing through the core as P waves
SKSDE	SKS	transformed back into S waves in the mantle; the letter DE designates the branch DE according to [1]
PKSAB	PKS	P wave transformed into S on the refraction when leaving the core; AB, BC and DF designate the branches according to [1]
PKSBC	PKS	
PKSDF	PKS	
SKPAB	SKP	S wave transformed into P on the refraction when leaving the core; AB, BC and DF designate the branches according to [1]
SKPBC	SKP	
SKPDF	SKP	
PS, SP	PS, SP	P and S waves reflected and transformed at the Earth's surface
SS	SS	S waves reflected once at the Earth's surface
AP	pP	P waves reflected from the surface as P waves, supposing deep focus earthquake
XP	sP	S waves reflected from the surface as P waves, supposing deep focus earthquake
XS	sS	S waves reflected from the surface as S waves, supposing deep focus earthquake

APKP	pPKP	PKP waves reflected from the surface, supposing deep-focus earthquake
APKIKP	pPKIKP	PKIKP waves reflected from the surface, supposing deep-focus earthquake
APKIKP	pPKP2	PKP2 waves reflected from the surface, supposing deep-focus earthquake
APKIKP	pPKHKP	PKHKP waves reflected from the surface, supposing deep-focus earthquake
FDIFF	Pdiff	P waves diffracted on the core boundary
PKPEX	-	PKIKP waves /extrapolation of travel-times for the distance range [105, 110)/
LMH, LMV	Lm	waves of maximum amplitude in the surface wave group, on the horizontal or vertical component

List of Abbreviations Used in this Bulletin

A	length of recording arm
Az	azimuth of station with respect to the epicentre
Dc	epicentral distance
Dg	damping constant of the galvanometer
Ds	damping constant of the seismometer
e	poorly distinguishable beginning of a phase
$\epsilon : 1$	damping ratio
H	origin time
h	depth of focus in km
i	impulsive beginning of a phase
K	characteristics of microseisms:
1	disturbance showing microseisms in groups
2	continuous disturbance
3	disturbance of a mixed and irregular character
0	no microseismic movement
0.0	very weak microseismic movement, amplitude less than 0.1 micrometer
tt	disturbance could not be measured because of earthquake
v	disturbance could not be measured because of gusts of wind
...	disturbance could not be measured for other reasons
Kg	moment of inertia of the galvanometer
Ks	moment of inertia of the seismometer
l	reduced pendulum length
MB	body-wave magnitude given by ISC
MLH	surface-wave magnitude
MPV	body-wave magnitude calculated from short period P waves
r	max. deviation due to friction
$\tau^2$	coupling coefficient
Tg	free period of the galvanometer
Ts	free period of the seismometer
Vo	static magnification
Vm	max. dynamic magnification
+ and -	compressional or dilatational motion in a longitudinal wave
NE	nuclear explosion

Station Instrumentation  
Coordinates of the Seismographic Stations

Station	Latitude	Longitude	Altitude	Lithologic foundation
Bratislava (BRA)	48°10'06"N	17°06'18"E	270 m	Granite
Bratislava (ZST)	48°11'46"N	17°06'09"E	250 m	Granodiorite
Šrobárová (SRO)	47°48'48"N	18°18'48"E	150 m	Bed of Sand
Hurbanovo (HRB)	47°52'25"N	18°11'34"E	115 m	Bed of Sand
Skalná Pleso (SPC)	49°11'20"N	20°14'32"E	1 772 m	Granite

Constants for the Year 1977

HURBANOVO

"MAINKA", horizontal seismograph, M = 210 kg, air damping  
mechanical registration

Month	Component	Ts [s]	Vo	r [mm]	c:1	Paper speed
January-February	E-W	8.0	51.4	0.2	3.8	30 mm/min
	N-S	8.0	41.3	-0.9	2.9	
March-May	E-W	8.0	50.1	0.2	3.4	30 mm/min
	N-S	8.0	49.3	-0.9	3.9	
June-August	E-W	8.4	58.0	0.7	3.6	30 mm/min
	N-S	7.6	54.3	0.9	3.7	
September-October	E-W	8.5	51.9	0.6	3.7	30 mm/min
	N-S	7.5	50.2	0.4	3.7	
November-December	E-W	8.5	52.9	0.5	3.5	30 mm/min
	N-S	7.3	50.3	0.4	3.4	

BRATISLAVA BRA

"VEGIK", electromagnetic seismograph with galvanometric registration

Component	Ts [s]	Tg [s]	Ds	Dg	r <sup>2</sup>	A [m]	l [m]	K1 [kg m <sup>2</sup> ]	K2 [kg m <sup>2</sup> x 10 <sup>8</sup> ]	Paper speed
Z	1.80	1.99	0.62	1.72	0.280	1.21	0.0940	0.0098	0.12591	15 mm/min
E-W	2.12	1.76	0.80	1.00	0.084	1.11	0.094	0.0100	0.01499	15 mm/min
N-S	2.10	1.85	0.79	0.98	0.094	1.13	0.0934	0.0101	0.01556	15 mm/min

BRATISLAVA ZST

"KIRNOS", short period electromagnetic seismograph with galvanometric registration

Component	Ts [s]	Tg [s]	Ds	Dg	r <sup>2</sup>	A [m]	l [m]	K1 [kg m <sup>2</sup> ]	K2 [kg m <sup>2</sup> x 10 <sup>8</sup> ]	Vm	Paper speed
Z	1.04	0.363	0.61	1.90	0.092	1.00	0.177	0.312	1.4302	56934	60 mm/min

ŠROBÁROVÁ

"KIRNOS", electromagnetic seismograph with galvanometric registration, class "C" according to [7]

Component	$T_B$ [s]	$T_G$ [s]	$D_B$	$\tau^2$	A [m]	$l$ [m]	$K_1$ [kg m <sup>2</sup> ]	$K_2$ [kg m <sup>2</sup> · 10 <sup>-8</sup> ]	Paper speed
Z	21.2	1.18	0.51	0.244	0.98	0.488	0.362	0.469	15 mm/min
N-S	19.3	1.20	0.42	0.241	0.98	0.488	0.358	0.433	15 mm/min
E-W	24.6	1.15	0.54	0.244	0.98	0.499	0.358	0.390	15 mm/min

SKAINATÉ PLESO

"VEGIK", electromagnetic seismograph with galvanometric registration  
July 5, 1976-March 31, 1977

Component	$T_B$ [s]	$T_G$ [s]	$D_B$	$\tau^2$	A [m]	$l$ [m]	$K_1$ [kgm <sup>2</sup> ]	$K_2$ [kgm <sup>2</sup> · 10 <sup>-8</sup> ]	$V_m$ $T_m=1.20$	Paper speed
Z	1.80	2.07	1.00	0.302	1.08	0.094	0.0103	1.1264	7512	60 mm/min

April 1, 1977 - December 31, 1977

Component	$T_B$ [s]	$T_G$ [s]	$D_B$	$\tau^2$	A [m]	$l$ [m]	$K_1$ [kgm <sup>2</sup> ]	$K_2$ [kgm <sup>2</sup> · 10 <sup>-8</sup> ]	$V_m$ $T_m=1.20$	Paper speed
Z	1.69	2.08	0.98	0.292	1.08	0.094	0.0103	1.1952	7292	60 mm/min

List of Quoted Agencies Reporting Epicentral Parameters

Code	Agency
ATH	Athens, Seismological Institute, National Observatory, Athens, Greece
BCIS	Bureau Central International de Seismologie, Strasbourg, France
BRA	Bratislava, Geophysical Institute, Slovak Academy of Sciences, Bratislava, Czechoslovakia
ISC	International Seismological Centre, Newbury, United Kingdom
LJU	Ljubljana, Astronomical and Geophysical Observatory, University of Ljubljana, Ljubljana, Jugoslavia
MOS	Academy of Sciences of the U. S. S. R., Institute of Physics of the Earth, Moscow, U. S. S. R
NEIS	National Earthquake Information Service, Denver, Colorado, U. S. A
PRU	Průhonice, Geophysical Institute, Czechoslovak Academy of Sciences, Prague, Czechoslovakia
UPP	Uppsala, Seismological Institute, Uppsala, Sweden
USAEC	U. S Atomic Energy Commission, Washington, U. S. A
VIE	Vienna, Zentralanstalt für Meteorologie und Geodynamik, Wien, Österreich
WAR	Warsaw, Geophysical Institute of the Polish Academy of Sciences, Warsaw, Poland
ING	Istituto Nazionale di Geofisica, Roma, Italy

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Earthquake Observations

at the Stations B r a t i s l a v a (BRA)  
B r a t i s l a v a (ZST)  
Š r o b á r o v á (SRO)  
H u r b a n o v o (HRB) a n d  
S k a l n a t é P l e s o (SPC)  
for the Year 1977

No.	Date	Stat. Code	Phase	GMT		RES O-C	Z			E-W			N-S			MPV	MLH	Delta	Azimuth	Remarks
				h	m		s	A	T	A	T	A	T	A	T					
1	JAN 1	SPC	E	2	45	8.0											3.41	236.87	No determination of epicentre Northern Italy 46.23 N 12.99 E H = 17 Depth = 10 km	
2	JAN 1	BRA	EPB	17	10	8.5	1.7										97.09	93.88	Java 7.90 S 109.00 E H = 17 Depth = 112 km MB = 5.8	
3	JAN 1	BRA	EPFP	17	49	15.5	-0.0										104.86	76.87	Ceram Sea 2.51 S 126.68 E H = 19 Depth = 27 km MB = 5.9	
4	JAN 1	BRA	EAP EPP	19 15 19 20	53.6 8.6	-0.7 -0.1											52.84	71.78	Southern Sinkiang Prov., China 38.19 N 90.97 E H = 21 Depth = 43 km MB = 5.8	
5	JAN 1	ZST	EP E	21 48 22 8	56.0 20.0	-1.4											20.92	105.22	Turkey 39.35 N 43.48 E H = 22 Depth = 24 km MB = 4.7	
6	JAN 1	ZST	EP	22 31	23.8	-1.5														
7	JAN 2	ZST	EPP	10 13	52.0	-11.6											105.45	87.98	Sumba Island Region 10.16 S 119.03 E H = 9 Depth = 19 km MB = 5.7	
8	JAN 2	SPC ZST	EP EP	19 41 19 42	51.0 7.4	-0.2 -1.4											19.38 21.04	111.91 105.19	Turkey 39.29 N 43.62 E H = 19 Depth = 46 km MB = 4.9	
9	JAN 4	SPC BRA	EP EP	16 15 16 15	33.0 41.0	2.1 -3.3											26.14 27.61	117.48 111.59	Western Iran 33.14 N 48.01 E H = 16 Depth = 52 km MB = 5.0	
10	JAN 5	SPC ZST	EP EP EPP	5 51 5 51 5 53	34.0 45.4 22.4	1.1 -0.6 11.1											35.13 36.67	114.81 110.09	Southern Iran 27.47 N 56.25 E H = 5 Depth = 35 km MB = 5.5	
11	JAN 5	SPC ZST	EPKP2 EPKHP IPKHP IPKP2	13 48 13 48 13 48 13 48	32.0 29.3 34.3 43.3	-4.5 -0.6 4.4 -1.3											148.13 150.08	34.22 29.80	Fiji Islands Region 20.89 S 178.27 W H = 13 Depth = 566 km MB = 5.3	

12	JAN 6	SPC	EAPKIP EPP LMV	6 30 6 31 7 24	28.0 23.0 0.0	-1.1 2.4											114.60 116.35 116.91	65.13 64.01 62.76	Near North Coast of New Guinea 3.65 S 144.50 E H = 6 Depth = 33 km MB = 5.9
			BRA	6 30 6 31 6 33 7 24	28.8 42.8 34.8 0.0	-4.7 6.1 -19.5											116.92	62.78	
			BRA	6 30 6 33 7 24	31.2 40.2 0.0	-2.3 3.4 -14.3											116.92	62.78	
13	JAN 6	ZST	EP	16 14	16.5	0.8											80.20	7.95	Andreanof Islands, Aleutian Is. 51.40 N 175.47 W H = 16 Depth = 35 km MB = 5.3
14	JAN 6	ZST SPC	+IP EP	18 42 18 42	49.4 54.0	-0.5 0.2											51.53 52.04	165.19 169.31	Lake Tanganyika Region 2.54 S 28.66 E H = 18 Depth = 13 km MB = 5.2
15	JAN 6	SPC ZST	EP EP	21 59 21 59	26.0 40.3	1.6 -0.2											52.95 55.15	83.25 80.40	Tibet 31.25 N 87.98 E H = 21 Depth = 25 km MB = 5.0
16	JAN 7	ZST	E	12 30	9.0														No determination of epicentre
17	JAN 7	ZST	IPG ISG	12 37 12 37	58.4 59.9														No determination of epicentre
18	JAN 7	ZST	-IPG ESG	13 9 13 9	22.4 24.4														No determination of epicentre
19	JAN 7	ZST	EPFP	14 50	55.0	0.8											83.71	205.87	South Atlantic Ridge 31.30 S 13.34 W H = 14 Depth = 33 km MB = 5.0
20	JAN 7	SPC ZST	EP EP	19 48 19 49	58.2 11.7	0.8 2.3											80.51 82.81	68.70 66.33	Taiwan Region 21.20 N 120.25 E H = 19 Depth = 35 km MB = 5.5
21	JAN 8	SPC ZST	EP EP	6 53 6 53	43.0 53.2	-5.3 -6.2											85.92 88.22	71.30 68.93	Iwson, Philippine Islands 15.38 N 121.89 E H = 6 MB = 5.4

No.	Date	Stat. Code	Phase	GMT		RES O-C	Z		E-W		N-S		MPV	MLH	Delta	Azimuth	Remarks
				h	m		A	T	A	T	A	T					
22	JAN 8	ZST	EAPKHP EAPKHP	7 59	57.1	-3.5 -3.7								135.13	45.62	Santa Cruz Islands 11.41 S 166.15 E Depth = 43 km H = 7 MB = 5.5	40 46.5 /ISC/
23	JAN 8	ZST	EKP2 EAPKHP	21 56	52.6	-0.9 1.3								146.45	48.92	Loyalty Islands Region 22.25 S 170.38 E Depth = 56 km H = 21 MB = 5.2	37 15.7 /ISC/
24	JAN 9	ZST	EP EAP	9 38	7.1	-5.7 -0.2								70.44	211.84	South Atlantic Ridge 16.77 S 14.16 W MB = 5.1	26 54.7 /ISC/
25	JAN 9	ZST	EPN IPG ISG	14 27	21.0	-0.7 -2.8 0.3								3.35	236.38	Austria 46.27 N 13.08 E Depth = 0 km H = 14	26 27.0 /ISC/
26	JAN 10	ZST	EAPK2	23 4	17.0	-2.7								157.77	33.58	Kermadec Islands Region 28.66 S 176.67 W Depth = 33 km H = 22	43 41.3 /ISC/
27	JAN 10	ZST	EKP2	23 37	44.6	0.3								144.99	50.57	Loyalty Islands 21.53 S 168.68 E Depth = 13 km H = 23 MB = 5.1	18 6.0 /ISC/
28	JAN 12	SPC ZST	EP IAP IPCP IAP	23 47	22.0	1.7 -1.1 3.0 2.8								82.00 83.97	96.88 94.38	Northern Sumatra 1.57 N 99.82 E Depth = 191 km H = 23 MB = 5.6	35 20.5 /ISC/
29	JAN 13	HRB ZST	EPN ISE -IPN IPN EPB ISN EPN EPG ISG	9 20	17.1	0.8 -5.4 -4.5 -1.7 5.2 -5.0 -1.9 1.1 3.9								4.37 4.63	190.38 179.93	Yugoslavia 43.57 N 17.11 E Depth = 25 km H = 9 MB = 5.1	19 7.1 /ISC/
30	JAN 14	BRA	IPG	12 30	14.7											No determination of epicentre	
31	JAN 14	SPC BRA	EKP2 EAPKHP	18 17	50.0	7.0 4.8								147.48 149.40	32.26 27.81	Fiji Islands Region 19.88 S 177.51 W Depth = 353 km H = 17 MB = 5.2	58 35.3 /ISC/

32	JAN 16	SRO	E	9 23	22.0									10.53	159.50	Southern Greece 37.84 N 22.84 E Depth = 45 km H = 9 MB = 4.8	16 48.8 /ISC/
33	JAN 17	SPC SRO BRA	EP EAP ESS EP	5 23	54.0	3.4 -2.7 -14.6 -0.3								19.44 20.22 21.09	111.84 105.63 105.08	Turkey 39.27 N 43.70 E Depth = 39 km H = 5 MB = 5.0	19 24.7 /ISC/
34	JAN 17	SPC SRO BRA	EPCP EPCP ES EPCP	6 36	32.0	3.4 0.2 -0.3 -0.4								88.62 90.49 90.85	49.00 47.56 46.66	Bonin Islands Region 26.80 N 142.66 E Depth = 72 km H = 6 MB = 5.4	23 40.5 /ISC/
35	JAN 17	BRA	EPG	11 2	42.6											No determination of epicentre	
36	JAN 17	SRO BRA	EAPKHP EAPKHP	19 24	13.0	0.9 0.7								144.70 144.73	-26.56 24.41	Fiji Islands Region 14.84 S 177.18 W Depth = 22 km H = 19 MB = 5.4	4 35.0 /ISC/
37	JAN 17	BRA SRO SPC	E EPP E EPP ESKS E IPP I	21 44	37.2	-7.8 -0.4 5.9 -15.9								105.46 106.11 107.76	249.97 250.70 252.41	Chile-Argentina Border Region 24.92 S 68.68 W Depth = 67 km H = 21 MB = 6.0	27 16.3 /ISC/
38	JAN 18	SPC BRA	EPKHP EPKHP	6 1	43.0	-1.4 -2.7								160.40 162.66	77.48 76.71	Cook Strait, New Zealand 41.74 S 174.30 E Depth = 22 km H = 5 MB = 5.9	41 46.8 /ISC/
39	JAN 18	SPC BRA	EP EP	8 54	31.0	5.2 -1.2								26.16 27.62	117.54 111.65	Western Iran 33.11 N 48.00 E Depth = 49 km H = 8 MB = 5.2	48 54.3 /ISC/
40	JAN 19	SPC SRO BRA	+IP IAP +IP ESP LMV EP EAP E	0 55	43.2	-0.3 0.7 -1.0 -1.0 -0.9 0.5 19.0								54.26 55.92 56.56	72.66 70.59 70.10	Chingai Province, China 37.02 N 92.73 E Depth = 15 km H = 0 MB = 5.8	46 15.8 /ISC/

No.	Date	Stat. Code	Phase	GMT		RES O-C	Z			E-W			N-S			MPV	MIH	Delta	Azimuth	Remarks
				h	m		A	T	A	T	A	T	A	T						
41	JAN 19	SPC SRO BRA	E IMV LMH EAP EPP	14 12 14 50 14 12 14 50 14 7 14 11	3.0 0.0 3.0 0.0 54.9 56.0	-3.0 9.1											96.81 98.43 99.09	74.26 72.95 71.96	Mindanao, Philippine Islands 5.04 N 126.63 E H = 13 Depth = 55 km MB = 5.8	
42	JAN 19	BRA SRO	EP EP E	20 50 20 50 20 54	2.0 3.0 35.0	-0.8 -1.9											13.25 13.42	211.99 216.56	Tunisia 36.55 N 8.43 E H = 20 Depth = 21 km MB = 4.9	
43	JAN 20	ZST	E	3 24	25.0														No determination of epicentre	
44	JAN 20	ZST	IPG	12 35	35.6														No determination of epicentre	
45	JAN 21	SPC	EPN E	0 23 0 24	46.7 7.0														No determination of epicentre	
46	JAN	SPC SRO ZST BRA	EPKIKP EAPKIKP IPKIKP EAPKP2 +IPKP2 ISKPDF IPKIKP	6 29 6 32 6 29 6 32 6 29 6 32 6 29	37.0 1.0 43.0 3.0 48.3 9.0 40.2	1.5 5.8 4.4 2.0 -0.2 -7.2 1.5											145.49 147.34 147.40 147.42	32.41 30.40 28.10 28.13	Fiji Islands Region 18.06 S 178.37 W H = 6 Depth = 601 km MB = 5.7	
47	JAN 24	ZST	IPG ISG	13 2 13 2	26.1 28.6														No determination of epicentre	
48	JAN 25	ZST	EPP	1 10	8.0	1.5											111.36	243.30	Mendoza Province, Argentina 33.59 S 68.27 W H = 0 Depth = 20 km MB = 5.4	
49	JAN 25	ZST	E	6 7	11.0														No determination of epicentre	
50	JAN 25	ZST	EAPKIKP	10 50	37.0	5.6											134.04	47.08	Santa Cruz Islands Region 10.97 S 164.68 E H = 10 Depth = 34 km MB = 5.6	
51	JAN 26	ZST	EPG ESG	10 28 10 28	53.4 59.4														No determination of epicentre	

52	JAN 26	ZST	IPG ISG	11 3 11 3	4.4 6.4														No determination of epicentre
53	JAN 26	ZST	E	12 19	44.0														No determination of epicentre
54	JAN 26	ZST	EPG ESG	12 38 12 38	25.3 27.3														No determination of epicentre
55	JAN 26	ZST	EPG EPG ESG	15 34 15 35 15 35	53.0 0.0 39.0	-2.6 4.4 1.1											3.23	236.35	Austria 46.34 N 13.22 E H = 15 Depth = 10 km
56	JAN 27	ZST	E	11 0	44.0														No determination of epicentre
57	JAN 27	ZST	EPKIKP	14 18	41.5	4.1											124.05	56.80	New Britain Region 6.51 S 152.86 E H = 13 Depth = 37 km MB = 5.7
58	JAN 27	ZST	IPG ISG	16 16 16 16	14.4 19.4														No determination of epicentre
59	JAN 28	SPC ZST	IPN ESN ESN EPB EPB ESN	3 5 3 6 3 6 3 6 3 6 3 6	57.3 16.8 21.8 20.7 22.7 41.2	-3.9 -8.0 -3.0 -0.9 1.1 -12.5											1.77 2.91	335.82 25.80	Poland 50.80 N 19.10 E H = 3 Depth = 0 km
60	JAN 28	ZST	E	15 14	59.0														No determination of epicentre
61	JAN 28	SRO ZST	LMH EAPKIKP	19 19 18 20	0.0 29.0	3.6											141.23 141.58	48.85 46.91	New Hebrides 17.46 S 168.71 E H = 18 Depth = 7 km MB = 5.5
62	JAN 29	ZST	EP	14 8	53.0	-4.3											88.79	148.26	Atlantic-Indian Ridge 33.77 S 56.25 E H = 13 Depth = 33 km MB = 5.1
63	JAN 30	ZST	IPG ISG	21 18 21 20	51.0 4.0	-4.6 12.8											4.24	191.91	Yugoslavia 44.04 N 15.89 E H = 21 Depth = 10 km

No.	Date	Stat. Code	Phase	GMT		RES O-C	Z		E-W		N-S		MPV	MLH	Delta	Azimuth	Remarks		
				h	m		A	T	A	T	A	T							
64	JAN 31	SPC	IP	14	33	-0.1									36.53	84.82	Tadzhik SSR 40.11 N 70.86 E H = 14 Depth = 15 km MB = 6.0 26 15.1 /ISC/		
				14	35	8.8										37.96		81.77	
				14	33	32.0													
				14	34	48.0													
				14	39	28.0													
65	JAN 31	ZST	ESS	14	41	-5.5											Tonga Islands 16.00 S 175.35 W H = 20 Depth = 80 km MB = 5.0 37 24.0 /ISC/		
				14	41	56.0													
				14	43	16.0													
				14	53	0.0													
				14	33	46.8													
66	FEB 1	ZST	IPG	14	34	0.3											No determination of epicentre		
				14	34	56.0													
				14	35	11.0													
				14	37	9.0													
				14	38	52.0													
67	FEB 1	ZST	IPG	14	39	-2.8											No determination of epicentre		
				14	39	41.0													
				20	57	1.5													
				11	2	7.4													
				11	2	14.0													
68	FEB 2	ZST	IPG	13	58	45.0											No determination of epicentre		
				13	58	50.0													
				13	58	54.0													
				11	19	7.0													
				11	19	20.0													
69	FEB 3	ZST	EP	20	16	57.0											No determination of epicentre		
				20	17	8.0													
				20	17	15.0													
				7	59	30.0													
				7	59	31.0													
70	FEB 4	ZST	EP	8	1	35.0											Salta Province, Argentina 24.66 S 63.39 W H = 7 Depth = 555 km MB = 5.9 46 34.1 /ISC/		
				8	3	40.5													
				8	9	15.0													
				7	59	45.0													
				8	4	9.0													

71	FEB 5	ZST	EPKIKP	3	48	40.0											Southern Pacific Ocean 66.49 S 82.45 W H = 3 Depth = 31 km MB = 6.1 29 19.0 /ISC/		
				3	48	43.0													
				3	51	23.0													
72	FEB 6	ZST	EPKIKP	4	1	30.0											Tonga 21.79 S 175.24 W H = 3 Depth = 56 km MB = 5.5 9 17.0 /ISC/		
				4	3	27.0													
				3	48	47.0													
				3	29	5.0													
				3	29	3.0													
73	FEB 6	ZST	IPG	21	45	21.5											Austria 48.04 N 16.90 E H = 21 Depth = 10 km MB = 5.9 45 18.7 /ISC/		
				21	45	23.5													
				21	45	27.0													
74	FEB 7	ZST	ESG	11	1	56.4											No determination of epicentre		
				23	48	0.0													
75	FEB 7	ZST	EPKIKP	5	6	53.0											Tonga 15.37 S 173.97 W H = 23 Depth = 170 km MB = 5.2 28 42.4 /ISC/		
				2	59	49.9													
76	FEB 8	ZST	EPKIKP	3	0	11.0											No determination of epicentre		
				3	46	37.0													
				3	46	41.0													
77	FEB 9	ZST	EPKIKP	8	15	33.0											Loyalty Islands Region 21.86 S 169.93 E H = 3 Depth = 39 km MB = 4.7 26 59.5 /ISC/		
				8	15	45.0													
				8	15	32.5													
				8	15	44.5													
				8	15	52.4													
78	FEB 10	ZST	EPKIKP	10	13	7.7											Loyalty Islands Region 21.85 S 169.93 E H = 7 Depth = 46 km MB = 5.4 55 57.5 /ISC/		
				10	13	20.7													
				11	23	16.7													
79	FEB 10	ZST	EPKIKP	11	23	20.7											Hungary 46.36 N 17.22 E H = 10 Depth = 10 km MB = 5.4 12 33.5 /ISC/		
				11	23	20.7													
80	FEB 10	ZST	EPKIKP	11	23	20.7											No determination of epicentre		
				11	23	20.7													

No.	Date	Stat. Code	Phase	GMT		RBS O-C	Z		E-W		N-S		MPV	MLH	Delta	Azimuth	Remarks
				h	m s		A	T	A	T	A	T					
82	FEB 11	ZST	ESB ESG	18 36 18 36	41.7 48.7	6.3 -0.8								5.41	274.33	Germany 48.32 N 9.00 E H = 18 Depth = 10 km	
83	FEB 12	ZST	EPKP2	4 26	32.7	-1.1								145.93	49.51	Loyalty Islands Region 21.99 S 169.78 E H = 4 Depth = 34 km	
84	FEB 12	SPC ZST	EP EP EPCP	4 56 4 56 4 58	31.0 47.7 57.7	1.0 0.1 8.6								38.41 40.54	88.66 85.23	Afghanistan-USSR Border Region 37.12 N 71.24 E H = 4 Depth = 86 km MB = 5.3	
85	FEB 13	ZST	EPKP2 EAPKIKP	1 48 1 48	29.8 55.0	-0.5 17.1								145.93	49.57	Loyalty Islands Region 22.01 S 169.75 E H = 1 Depth = 33 km	
86	FEB 13	SPC ZST	EP EP	4 19 4 19	43.0 52.9	0.3 -1.1								84.00 86.28	73.07 70.69	Luzon 15.70 N 119.20 E H = 4 Depth = 33 km MB = 5.7	
87	FEB 13	ZST	EAPKHKP	7 54	36.8	0.9								145.86	49.41	Loyalty Islands Region 21.90 S 169.79 E H = 7 Depth = 33 km	
88	FEB 13	SPC ZST	EPCP EP	13 20 13 20	34.0 43.6	1.0 0.6								99.75 102.00	78.72 76.47	Molucca Sea 0.08 S 125.11 E H = 13 Depth = 70 km MB = 5.7	
89	FEB 13	ZST	EPKP2 EAPKHKP EAPKIKP	14 21 14 21 14 21	45.5 50.5 55.5	-1.2 -0.7 0.3								145.97	49.37	Loyalty Islands Region 21.98 S 169.87 E H = 14 Depth = 37 km MB = 5.3	
90	FEB 14	SPC	EP	0 30	28.2	1.2								41.84	91.50	Pakistan 33.60 N 73.27 E H = 0 Depth = 27 km MB = 5.2	
91	FEB 14	ZST	EPG ESG	11 38 11 38	37.8 39.6											No determination of epicentre	
92	FEB 15	ZST	EP	1 15	24.0											No determination of epicentre	
93	FEB 15	SPC	EPN E	13 3 13 3	28.2 39.5											No determination of epicentre	

94	FEB 16	ZST SPC	+IP EP	0 57 0 57	7.5 26.7	-0.2 0.3								40.37 42.65	252.43 254.38	North Atlantic Ocean 25.96 N 26.21 W H = 0 Depth = 36 km MB = 5.4
95	FEB 16	SPC ZST	EPCP EXP EP	10 54 10 54 10 54	6.0 22.0 15.0	2.6 -1.4 1.5								99.88 102.14	77.59 75.33	Molucca Passage 0.54 N 126.05 E H = 10 Depth = 49 km MB = 6.1
96	FEB 16	ZST	IPG ESG	11 3 11 3	7.3 9.7											No determination of epicentre
97	FEB 16	BRA ZST	EPN EPG ESG +IPN EPG EPG ESN ISB ISG ISG EPN ESG	19 34 19 35 19 35 19 35 19 35 19 35 19 35 19 35 19 35 19 35 19 35 19 36	49.8 0.5 30.3 49.5 3.0 10.0 20.5 26.5 31.5 23.0 45.0	-3.1 1.1 0.2 -3.8 3.1 10.1 -3.0 -0.4 0.6 6.1 2.0 9.6							2.35 2.37	198.48 198.23	Yugoslavia 45.94 N 16.04 E H = 19 Depth = 15 km	
98	FEB 17	ZST	E	13 12	53.0											No determination of epicentre
99	FEB 17	SPC ZST	EP EP	13 43 13 43	29.0 41.8	-2.7 0.2								68.23 69.83	19.39 17.67	Kamchatka 58.89 N 163.82 E H = 13 Depth = 18 km MB = 5.1
100	FEB 18	SPC ZST	EAPKIKP EAPKIKP	2 16 2 16	42.0 45.0	-1.9 -1.5								152.48 154.39	33.08 28.15	South of Iouga 24.68 S 175.85 W H = 1 Depth = 33 km MB = 5.0
101	FEB 18	SPC SRO ZST	EP EP ESP LMV EP EPCP	4 20 4 20 4 30 4 58 4 20 4 20	7.0 16.5 44.0 0.0 16.2 20.2	3.8 2.8 0.3 1.3 -4.4								76.08 77.96	41.15 39.73	Hokkaido Region 41.57 N 141.90 E H = 4 Depth = 45 km MB = 5.4
102	FEB 18	SPC ZST	EPKHKP EPKP2	6 51 6 51	8.0 25.7	7.0 0.8								152.08 154.01	33.52 28.67	South of Fiji 24.40 S 176.23 W H = 6 Depth = 123 km MB = 5.1
103	FEB 18	SPC	EP	18 1	19.0											No determination of epicentre

No.	Date	Stat. Code	Phase	GMT			RES O-C	Z			E-W			N-S			MPV	MLH	Delta	Azimuth	Remarks
				h	m	s		A	T	A	T	A	T	A	T						
104	FEB 18	SRO	-IFCP EXP EPP IS LMH +IP EPP	21 21 21 21 21 21	4 4 7 14 37 4	4.0 17.0 20.0 24.0 0.0 1.3 18.5	0.5 -1.4 3.1 2.9 0.2 -0.8		10.2	20.0	10.4	20.0		6.4		84.48 84.77	45.14 44.33	Off East Coast of Honshu 33.15 N 141.06 E H = 20 Depth = 46 km MB = 5.0			
105	FEB 19	SPC ZST	EP EP	4 4	14 14	42.0 54.6	-1.3 0.3									82.59 84.35	46.62 44.35	Off East Coast of Honshu 33.15 N 141.03 E H = 4 Depth = 47 km MB = 5.1			
106	FEB 19	SPC	EP	5	6	46.0												No determination of epicentre			
107	FEB 19	SPC	EP	5	59	8.0												No determination of epicentre			
108	FEB 19	SPC ZST	E EAP EP	6 6 6	23 23 24	16.0 49.0 8.6	-11.3 3.1									46.35 48.47	89.58 86.38	Tibet-India Border Region 31.80 N 78.43 E H = 6 Depth = 40 km MB = 5.4			
109	FEB 19	SPC ZST BRA SRO	EP IAP EPP LMV +IP IFCP EP ESKS LMH +IP ES LMH	22 22 22 23 22 22 22 22 22 22 22 23	45 45 48 30 23 45 45 55 55 54 23 45 55 23	41.0 48.0 30.0 0.0 50.3 55.8 51.0 54.0 0.0 51.8 40.0 0.0	0.0 -5.9 0.2 0.3 -6.6 0.9 1.9 1.1 9.8		32.9	18.0	36.9	18.0		6.9 7.1		76.06 76.08 76.19	16.29 16.29 16.97	Komandorsky Islands Region 53.54 N 169.96 E H = 22 Depth = 44 km MB = 6.1			
110	FEB 20	ZST	ESG	11	22	17.0	-2.1									4.21	191.50	Yugoslavia 44.07 N 15.94 E H = 11 Depth = 33 km			
111	FEB 21	ZST	EP	13	6	46.0	0.7									18.43	108.23	Turkey 39.90 N 40.08 E H = 13 Depth = 33 km MB = 4.8			
112	FEB 22	ZST	IFG ESG	11 11	1	29.4 31.4												No determination of epicentre			

113	FEB 22	ZST SRO SPC	EP EP E	19 19 19	56 57 56	55.0 2.0 11.0	0.5 0.9									45.60 46.42 47.64	271.29 272.53 272.64	North Atlantic Ridge 32.23 N 40.33 W H = 19 Depth = 21 km MB = 5.2
114	FEB 23	ZST SRO	IAPKIKP IAPKIKP EAPKIKP	0 0 0	27 27 27	11.4 20.4 10.0	0.1 9.1 -1.5									146.02 146.11	18.26 20.49	Tonga 15.24 S 173.35 W H = 0 Depth = 56 km MB = 4.8
115	FEB 24	ZST SPC	EAP EAP	9 9	2 2	7.0 20.0	-3.2 -3.0									65.57 67.57	213.14 216.00	Ascension Island Region 11.77 S 13.45 W H = 8 Depth = 33 km MB = 5.1
116	FEB 24	ZST	EPG ESG	9 9	24 24	48.3 49.3										77.74	38.11	No determination of epicentre
117	FEB 24	ZST	EP EXP	11 11	51 52	50.8 8.8	0.2 -1.9											Hokkaido Region 42.43 N 142.55 E H = 11 Depth = 50 km MB = 5.4
118	FEB 24	ZST	IFG ESG	12 12	14 14	16.3 17.3												No determination of epicentre
119	FEB 24	ZST	EPKIP2	16	29	47.8	-3.6									146.88	28.75	Fiji Region 17.68 S 178.90 W H = 16 Depth = 551 km MB = 5.0
120	FEB 24	SPC ZST	EAP E IXP	20 20 20	50 54 50	12.5 17.0 15.0 23.0	-1.7 -0.5 0.2									11.90 12.31	150.60 137.65	Turkey 38.55 N 27.66 E H = 20 Depth = 20 km MB = 5.0
121	FEB 25	ZST	EPKIKP	1	18	28.0	2.7									120.92	61.65	Eastern New Guinea Region 6.32 S 147.68 E H = 0 Depth = 58 km MB = 5.5
122	FEB 25	ZST	EPKIKP	1	37	41.0	1.5									120.83	61.70	Eastern New Guinea Region 6.27 S 147.59 E H = 1 Depth = 54 km MB = 5.9
123	FEB 25	ZST	EP	4	43	11.0	-0.5									28.87	110.89	Western Iran 32.56 N 49.39 E H = 4 Depth = 66 km MB = 4.9
124	FEB 25	ZST	EPG ISG	10 10	44 44	30.0 33.0												No determination of epicentre

No.	Date	Stat. Code	Phase	GMT		RES O-C	Z		E-W		N-S		MPV	MLH	Delta	Azimuth	Remarks
				h	m		s	A	T	A	T	A					
125	FEB 26	SPC	EPN I E	8 4	37.0												No determination of epicentre
126	FEB 26	SPC ZST	EAPKIKP +IAPKIKP	14 27	36.3	-1.0 -0.3								145.97 147.82	29.90 25.42		Fiji Region 18.00 S 176.80 W H = 14 Depth = 73 km MB = 4.9
127	FEB 26	ZST	-IP	22 50	44.7	-0.5								35.17	249.88		Canary Islands Region 28.52 N 20.82 W H = 22 Depth = 10 km MB = 4.6
128	FEB 27	SPC ZST	-IP EP	9 29	14.9	2.1 0.9								38.84 41.01	86.35 83.04		Tadzhikistan 38.07 N 72.71 E H = 9 Depth = 107 km MB = 5.1
129	FEB 28	SPC	EPCP	2 3	42.2	0.7								93.30	71.96		Mindanao 9.23 N 126.18 E H = 1 Depth = 76 km MB = 5.6
130	FEB 28	SPC ZST	EP IP	8 52	7.4	1.7 -0.5								44.51 45.61	128.24 123.86		Arabian Sea 14.78 N 54.94 E H = 8 Depth = 33 km MB = 5.1
131	FEB 28	SPC SRO ZST	EP EP ESP LMV EP	17 43 17 43 17 50 17 4 17 43	20.7 19.5 3.5 0.0 27.0	3.2 0.3 2.7 0.7								44.58 44.79 45.68	128.12 124.78 123.75		Arabian Sea 14.77 N 55.05 E H = 17 Depth = 33 km MB = 5.1
132	FEB 28	BRA	EP	18 2	54.0	1.0								77.68	34.21		Kurile Islands 44.57 N 146.89 E H = 17 Depth = 18 km MB = 5.1
133	MAR 1	SPC	EP	4 24	18.0												No determination of epicentre
134	MAR 2	ZST	EKP2 IAPKIKP EAPKIKP	5 24 5 25 5 25	58.8 4.8 23.8	0.6 -2.1 16.9								144.52	32.97		Fiji 16.33 S 177.90 E H = 5 Depth = 28 km MB = 5.5

135	MAR 2	SPC SRO ZST	EP IAP IPP +IPCP IAP IPP EPS LMH EPCP EAP EPP	10 6 10 6 10 10 10 6 10 6 10 10 10 19 10 53 10 6 10 7 10 10	35.4 51.2 30.4 44.0 56.0 38.0 24.0 0.0 46.7 1.0 43.7	0.0 0.7 6.8 0.8 -1.9 2.6 3.7 0.5 0.0 2.9											Mindanao 6.74 N 123.74 E H = 9 Depth = 52 km MB = 6.3	
136	MAR 2	ZST	EFG ESG	11 1 11 2	59.7 1.7													No determination of epicentre
137	MAR 2	ZST	EP	13 0	29.6													No determination of epicentre
138	MAR 2	ZST	EPN ESG	17 31 17 31	19.6 53.6	-0.3 -1.5									2.24	238.79		Yugoslavia 47.00 N 14.30 E H = 17 Depth = 0 km
139	MAR 2	ZST	EP	23 12	33.5													No determination of epicentre
140	MAR 4	ZST	EFG ESG	12 13 12 13	44.4 48.4													No determination of epicentre
141	MAR 4	SPC SRO HRB BRA ZST	-IP -IP IP IS -IP -IP I IS	19 23 19 23 19 23 19 24 19 23 19 23 19 23 19 24	16.4 24.2 28.5 24.0 35.8 35.8 39.6 45.0	1.0 0.9 3.6 -10.8 0.2 0.2 -9.3								5.53 6.10 6.20	125.02 105.88 106.12		Romania 45.83 N 26.72 E H = 19 Depth = 86 km MB = 6.1	
142	MAR 5	ZST	EPN IPN	0 2 0 2	31.1 41.6	-3.0 7.5								7.34	107.51		Romania 45.54 N 27.09 E H = 0 Depth = 10 km MB = 4.7	
143	MAR 5	SPC	EP	17 23	35.0													No determination of epicentre
144	MAR 7	SPC SRO ZST	EP EP EP	0 39 0 39 0 39	32.2 47.0 49.0	0.3 3.5 2.7								65.80 67.64 68.08	56.27 54.66 54.08		North-Eastern China 40.10 N 118.74 E H = 0 Depth = 34 km MB = 5.2	



No.	Date	Stat. Code	Phase	GMT h m s	RES O-C	Z			E-W			N-S			MPV	MLH	Delta	Azimuth	Remarks
						A	T		A	T		A	T						
145	MAR 7	ZST	E E E	8 20 32.6 8 21 24.6 8 21 32.6												6.24	292.09	Germany 50.20 N 8.08 E H = 8 Depth = 34 km 18 16.9 /ISC/	
146	MAR 7	ZST	EP	10 49 28.0	-1.8											60.39	245.86	Central Mid-Atlantic Ridge 7.48 N 36.04 W H = 10 Depth = 33 km MB = 5.0 39 21.4 /ISC/	
147	MAR 7	ZST	E	12 45 5.4														No determination of epicentre	
148	MAR 7	ZST	E	16 1 11.0														No determination of epicentre	
149	MAR 7	ZST	-IPG E I	18 31 13.2 18 31 14.0 18 31 15.6														No determination of epicentre	
150	MAR 8	ZST	E	11 4 0.8														No determination of epicentre	
151	MAR 8	ZST	EPCP	13 22 38.0	1.9											99.91	262.65	Peru 12.33 S 74.16 W H = 13 Depth = 41 km MB = 5.6 8 54.3 /ISC/	
152	MAR 8	ZST	EPN EPB EPN	19 19 34.8 19 19 48.8 19 19 40.7	-3.7 -1.7 -2.3											5.59 5.91	149.66 174.85	Yugoslavia 43.30 N 20.97 E H = 19 Depth = 20 km 18 12.0 /ISC/	
153	MAR 8	ZST	EP	22 59 49.0	-0.4											99.75	262.67	Peru 12.20 S 74.06 W H = 22 Depth = 14 km MB = 5.6 46 4.4 /ISC/	
154	MAR 8	SPC SRO	EP EPCP EKS LMH EP EXP	23 29 55.4 23 30 4.0 23 40 40.0 0 14 0.0 23 30 4.2 23 30 30.0	2.6 1.2 3.6 1.5 13.3											82.90 84.01 84.86	97.57 95.95 95.08	Northern Sumatra 0.44 N 99.89 E H = 23 Depth = 32 km MB = 5.5 17 30.0 /ISC/	
155	MAR 9	ZST	ESG	0 12 31.6	-0.3											3.27	235.93	Austria 46.30 N 13.20 E H = 0 Depth = 0 km 10 44.0 /ISC/	

156	MAR 9	SPC ZST	EP EP	4 11 18.0 4 11 27.2	1.8 0.5											76.50 78.40	31.00 28.94	Kurile Islands 46.50 N 153.78 E H = 3 Depth = 37 km MB = 5.2 59 28.3 /ISC/
157	MAR 9	ZST	EP	4 27 1.2	2.4											78.38	28.95	Kurile Islands 46.51 N 153.75 E H = 4 Depth = 40 km MB = 5.1 15 0.8 /ISC/
158	MAR 9	SRO	IP IAP IPP ES IS IXS I I	14 38 32.8 14 40 32.8 14 21 24.8 14 47 5.0 14 47 17.0 14 50 49.0 15 11 33.0 15 13 36.0 14 38 30.9 14 38 33.2 14 39 2.7 14 40 29.7 14 41 28.7 14 38 33.2 14 40 29.4 14 41 29.0 14 47 15.0	2.4 5.7 0.6 -7.5 4.5 11.8 -1.3 -12.4 17.1 0.7 1.9 0.9 0.3 2.0 -1.1										72.90	46.31	Sea of Japan 41.66 N 131.05 E H = 14 Depth = 556 km MB = 5.9 27 56.2 /ISC/	
159	MAR 10	ZST	EP	17 50 7.0	-0.1											82.49	288.52	Caribbean Sea 18.04 N 81.76 W H = 17 Depth = 30 km MB = 4.9 37 46.0 /ISC/
160	MAR 11	ZST	IPG I	9 0 6.3 9 0 6.8														No determination of epicentre
161	MAR 11	ZST	IPG ISC	10 51 5.7 10 51 8.0														No determination of epicentre
162	MAR 12	ZST	IP IAP +IP ESP LMH EP	3 7 16.5 3 7 26.5 3 7 22.3 3 15 10.0 3 29 0.0 3 7 33.0	-0.4 1.1 -0.4 -2.5 0.7											54.32 55.11 56.44	266.59 267.78 268.32	North Atlantic Ridge 23.79 N 45.17 W H = 2 Depth = 28 km MB = 5.4 57 50.7 /ISC/
163	MAR 13	ZST	EPOP	21 27 46.5	-0.1											96.94	265.74	Peru-Brazil Border Region 8.05 S 74.41 W H = 21 Depth = 161 km MB = 5.2 14 32.3 /ISC/
164	MAR 14	ZST	IPG ISC	12 24 39.8 12 24 41.8														No determination of epicentre

No.	Date	Stat. Code	Phase	GMT		RES O-C	Z		E-W		N-S		MPV	MLH	Delta	Azimuth	Remarks
				h	m		A	T	A	T	A	T					
165	MAR 14	SPC ZST	EKPK2 IPKHKP IPKHKP IPKPK2 EAPKPK2	19 21 50.5 19 21 48.9 19 21 54.0 19 22 4.8 19 24 17.0		-4.5 0.2 5.3 1.6 6.1								147.92 149.87	34.49 30.10	P111 Region 20.75 S 178.50 W H = 19 Depth = 574 km MB = 5.4	
166	MAR 15	ZST	EAPKIKP	4 31 42.0		1.6									146.16	18.10	Tonga 15.35 S 173.23 W H = 4 Depth = 47 km MB = 4.8
167	MAR 15	ZST	E EPP	9 13 25.0 9 14 6.0		5.5								109.52	75.07	Banda Sea 4.96 S 131.03 E H = 8 Depth = 56 km MB = 5.8	
168	MAR 15	ZST	EPKIKP	20 14 43.5		2.8								125.49	54.85	Solomon Islands 6.81 S 155.00 E H = 19 Depth = 49 km MB = 5.4	
169	MAR 16	ZST	EP	15 14 6.0													No determination of epicentre
170	MAR 17	SPC ZST	EP EP	0 5 33.5 0 5 49.2		-2.0 -0.6								64.29 66.52	79.73 77.12	Yunnan Province 25.80 N 99.80 E H = 23 Depth = 33 km MB = 5.0	
171	MAR 17	ZST	E	10 49 5.0													No determination of epicentre
172	MAR 17	ZST	IPKHKP	13 0 37.5		4.9								137.95	42.82	Santa Cruz Islands Region 12.98 S 169.26 E H = 12 Depth = 662 km MB = 5.0	
173	MAR 17	ZST	IPB ISN ESN	17 55 13.9 17 55 33.6 17 55 42.6		-0.2 0.1 9.1								1.38	150.41	Hungary 46.99 N 18.10 E H = 17 Depth = 0 km	
174	MAR 17	ZST	IPB IPG ISN ESN	18 1 48.3 18 1 50.3 18 2 10.2 18 2 17.3		0.3 1.5 3.9								1.24	142.95	Hungary 47.20 N 18.20 E H = 18 Depth = 0 km	
175	MAR 18	SPC SRO	+IP LMV +IP LMV	21 56 26.8 22 42 0.0 21 56 35.4 22 43 0.0		0.6 1.0								85.14 86.83	70.13 68.63	Luzon 16.73 N 122.29 E H = 21 Depth = 40 km MB = 6.2	

175	MAR 18	HRB ZST	EPCP EXS LMH EPCP IAP LMV +IP I LMV	21 56 37.2 22 7 32.5 22 45 0.0 21 56 38.6 22 42 0.0 21 56 36.0 21 7 23.0 22 42 0.0		-0.1 3.4 -1.2 -1.1 -1.4												
176	MAR 19	SPC ZST	EP EP	0 10 13.0 0 10 24.8		0.4 1.0									86.88 87.44	68.55 67.77	Luzon 16.81 N 122.51 E H = 23 Depth = 48 km MB = 5.3	
177	MAR 19	SPC ZST	EPCP EP	0 53 50.0 0 53 55.0		3.8 1.2									85.09 87.39	70.02 67.65	Luzon 16.84 N 122.35 E H = 0 Depth = 48 km MB = 5.3	
178	MAR 19	SPC ZST	EP EP	2 5 51.0 2 6 2.0		1.1 0.9									69.83 67.46	69.83 67.46	Luzon 16.97 N 122.50 E H = 1 Depth = 57 km MB = 5.3	
179	MAR 19	SPC ZST	EP EP	3 15 17.1 3 15 27.1		1.4 0.1									84.93 87.23	69.75 67.38	Luzon 17.14 N 122.46 E H = 3 Depth = 53 km MB = 5.2	
180	MAR 19	ZST	EPCP	8 35 2.0		-1.0									87.49	67.68	Luzon 16.75 N 122.39 E H = 8 Depth = 63 km MB = 5.1	
181	MAR 19	ZST	EP	8 36 5.0		8.0									28.46	354.38	Svalbard Region 76.18 N 5.90 E H = 8 Depth = 10 km MB = 4.7	
182	MAR 19	ZST	EPKPK2	9 42 9.7		-2.3									148.11	21.60	Tonga 17.71 S 174.67 W H = 9 Depth = 219 km MB = 5.0	
183	MAR 19	SPC SRO ZST	+IP +IPCP +IP IXP	11 8 9.9 11 8 29.7 11 8 21.9 11 8 37.0		0.7 0.6 1.6 -1.1												
184	MAR 19	SPC ZST	EP EPCP	12 29 39.7 12 29 51.0		1.3 -0.9									85.28 87.58	70.11 67.75	Luzon 16.64 N 122.40 E H = 12 Depth = 44 km MB = 5.3	

No.	Date	Stat. Code	Phase	GMT		RES O-C	Z		E-W		N-S		MPV	MLH	Delta	Azimuth	Remarks
				h	m s		A	T	A	T	A	T					
185	MAR 19	SPC ZST	ERCP EFCF	13 8 42.0 13 8 52.0		-0.3 -0.3								85.28 87.58	70.06 67.70	Luzon 16.67 N 122.44 E H = 12 Depth = 35 km MB = 5.3	56 56 /ISC/
186	MAR 19	SPC SRO ZST	+IP IP ISCS LMH EP	19 47 42.2 19 47 50.7 19 58 35.0 20 29 0.0 19 47 53.6		0.8 1.0 7.0 1.0		3.2	20.0	4.0	20.0	5.9		85.12 86.61 87.42	70.05 68.55 67.69	Luzon 16.80 N 122.34 E H = 19 Depth = 53 km MB = 5.6	35 35 /ISC/
187	MAR 19	ZST SPC SRO	-IAPKIP IPKP2 EKP2 EAPKIP	23 20 44.2 23 20 47.0 23 20 48.0 23 20 46.2		2.4 -1.5 -3.0 3.0								147.51 148.15 148.35	315.46 321.33 316.87	Tuamotu Archipelago Region 21.69 S 138.96 W H = 23 Depth = 0 km MB = 5.8	0 0 /ISC/
188	MAR 20	ZST	EPN ESG	7 42 58.7 7 44 27.0		4.7 2.1								5.20	167.82	Yugoslavia 43.10 N 18.60 E H = 7 Depth = 0 km	41 41 /ISC/
189	MAR 21	ZST	EPB	1 27 20.4		-2.2								3.21	237.36	Austria 46.40 N 13.20 E H = 1 Depth = 33 km	26 26 /ISC/
190	MAR 21	SPC HRB BRA ZST	EP ES LMV EP ES LMH EP ES LMV +IP IXP IXP LMV	21 25 46.0 21 31 15.0 21 50 0.0 21 25 53.7 21 31 35.0 21 44 0.0 21 26 1.0 21 31 28.0 21 44 0.0 21 26 0.4 21 26 9.4 21 26 17.4 21 44 0.0		-1.2 -2.8 0.1 5.5 0.7 -13.6 0.0 -0.9 7.1	106.8	11.0	46.3	10.0	6.9			35.12 35.87 36.66 36.67	114.52 110.55 109.77 109.81	Southern Iran 27.59 N 56.38 E H = 21 Depth = 24 km MB = 6.2	18 18 /ISC/
191	MAR 21	SPC ZST	EP EPP +IP	22 49 0.0 22 50 29.0 22 49 11.5		0.9 10.5 -0.7								35.16 36.72	114.36 109.66	Southern Iran 27.62 N 56.49 E H = 22 Depth = 37 km MB = 5.7	42 42 /ISC/
192	MAR 22	ZST	EP	2 33 2.0												No determination of epicentre	
193	MAR 22	SPC ZST	EPKIKP EPKP2 EPKIKP EPKP2	2 42 36.0 2 43 12.0 2 42 36.8 2 43 19.5		0.1 -1.0 -1.5 -2.5								157.94 160.19	53.23 49.50	South of Kermadec Islands 33.68 S 179.10 E H = 2 Depth = 282 km MB = 5.6	23 23 /ISC/

194	MAR 22	ZST SPC	EP EP	4 22 27.0 4 22 42.0		-1.0 1.3								66.78 68.80	214.07 216.88	South Atlantic Ridge 12.58 S 14.72 W H = 4 Depth = 17 km MB = 5.1	11 11 /ISC/
195	MAR 22	ZST	EPG ESG	7 39 34.1 7 39 40.1												No determination of epicentre	
196	MAR 22	ZST	EP EAP E	9 21 45.2 9 21 50.2 9 22 27.2		-1.2 -8.4								36.78	109.49	Southern Iran 27.55 N 56.62 E H = 9 Depth = 45 km MB = 5.0	14 14 /ISC/
197	MAR 22	ZST	EPG ESG	11 2 34.2 11 2 36.2												No determination of epicentre	
198	MAR 22	ZST SPC	EPN IPN I I I	11 44 34.2 11 44 2.4 11 44 17.8 11 44 29.3 11 44 35.2												No determination of epicentre	
199	MAR 22	SPC SRO BRA ZST	EP LMV EP IPP IS LMH +IP EPP IS LMV +IP LAP IXP IS	12 4 24.7 12 23 0.0 12 4 30.6 12 5 59.0 12 10 3.0 12 22 0.0 12 4 37.0 12 6 16.0 12 10 19.0 12 23 0.0 12 4 35.3 12 4 39.3 12 4 49.0 12 10 18.3		1.5 1.8 8.7 -0.6 0.7 14.4 1.8 -1.1 -5.9 0.2	9.1	14.0	25.4	14.0	6.2			35.14 35.80 36.69 36.70	114.45 110.53 109.71 109.74	Southern Iran 27.60 N 56.43 E H = 11 Depth = 30 km MB = 5.7	57 57 /ISC/
200	MAR 22	ZST	EPN I I	19 30 48.5 19 30 54.5 19 30 58.5												No determination of epicentre	
201	MAR 22	ZST	EP	21 38 12.6		4.7								36.63	109.74	Southern Iran 27.65 N 56.38 E H = 21 Depth = 50 km MB = 4.8	31 31 /ISC/
202	MAR 23	ZST	IP	0 24 54.7		-1.7								36.70	109.85	Southern Iran 27.55 N 56.38 E H = 0 Depth = 47 km MB = 4.9	17 17 /ISC/

No.	Date	Stat. Code	Phase	GMT			RES O-C	Z			E-W			N-S			MPV	MLH	Delta	Azimuth	Remarks
				h	m	s		A	T	A	T	A	T	A	T						
203	MAR 23	ZST	IP IAP	2 23	32.7		-0.1										85.09	274.60	Northern Colombia 6.77 N 73.02 W H = 2 Depth = 171 km MB = 5.4	11 15.1 /ISC/	
204	MAR 23	SPC ZST	EP IP IAP	3 57	53.0		2.6										76.65 78.68	36.95 34.84	Kurile Islands 43.38 N 146.91 E H = 3 Depth = 37 km MB = 5.2	46 1.6 /ISC/	
205	MAR 23	ZST	EAPKHKP	5 20	17.8		-1.9										144.65	25.64	Fiji Region 15.00 S 177.91 W H = 5 Depth = 33 km MB = 5.1	0 40.9 /ISC/	
206	MAR 23	SPC ZST	EAPKIKP EAPKHKP EPP EPPKHKP LAPKHKP LMV	7 38 7 38 7 41 7 38 8 48	48.4 49.6 44.6 41.0 0.0		-2.8 0.6 -18.9 2.5 -1.1										142.60 144.45 144.47	29.77 25.54 25.57	Fiji Region 14.79 S 177.92 W H = 7 Depth = 33 km MB = 5.5	19 10.8 /ISC/	
207	MAR 23	ZST	IPG ISG	11 4 11 4	8.1 10.1														No determination of epicentre		
208	MAR 23	SPC ZST	EAPKHKP EAPKIKP EAPKHKP LMV	17 30 17 30 17 30 18 38	0.0 7.5 3.0 0.0		1.3 -1.8 -0.8										142.47 144.32 144.34	29.74 25.53 25.55	Fiji Region 14.66 S 177.95 W H = 17 Depth = 40 km MB = 5.6	10 25.0 /ISC/	
209	MAR 23	SPC ZST	EPPF2 EAPKHKP IAPKIKP	19 17 19 17 19 17	10.0 23.8 42.3		1.9 1.2 16.1										144.56 146.22	22.82 18.15	Tonga 15.42 S 173.24 W H = 18 Depth = 53 km MB = 5.2	57 37.0 /ISC/	
210	MAR 23	ZST	EXP	20 48	33.0		13.8										36.76	109.80	Southern Iran 27.53 N 56.45 E H = 20 Depth = 40 km MB = 5.0	40 57.8 /ISC/	
211	MAR 23	SPC ZST	EP EPP +IAP IXP EPCP	23 58 23 59 23 58 23 58 0 0	9.0 9.0 30.8 48.0 55.0		0.3 10.8 -1.2 11.8 10.9										35.21 36.77	114.24 109.55	Southern Iran 27.63 N 56.58 E H = 23 Depth = 35 km MB = 5.7	51 15.8 /ISC/	
212	MAR 24	ZST	EAP	0 21	5.0		-4.4										36.73	109.69	Southern Iran 27.60 N 56.48 E H = 0 Depth = 45 km MB = 5.2	13 52.6 /ISC/	

213	MAR 24	ZST	EAP	4 49	38.7		-3.5										36.78	109.49	Southern Iran 27.65 N 56.62 E H = 4 Depth = 40 km MB = 5.2	42 25.4 /ISC/
214	MAR 24	ZST	-IPG IPG ISN ISG ESG EPP IPG ISE ISG LMV	7 33 7 33 7 33 7 34 7 34 7 33 7 33 7 34 7 34	29.8 35.8 54.8 16.2 35.0 23.8 36.0 54.9 14.3 25.8 28.0		-2.1 3.9 -6.1 0.3 19.1 1.5 0.5 -10.5 0.5 4.1										3.36 3.53	348.69 312.07	Poland 51.48 N 16.05 E H = 7 Depth = 1 km MB = 4.8	32 25.0 /ISC/
215	MAR 25	SPC SRO ZST	EAP EP ESS LMH EP	2 44 2 44 2 47 2 53 2 44	11.4 14.0 46.0 0.0 25.2		-0.6 2.0 -9.7		4.0	12.0	5.3	12.0	5.1				17.72 18.28 19.17	119.34 112.36 111.61	Turkey 38.58 N 40.03 E H = 2 Depth = 29 km MB = 5.0	39 58.9 /ISC/
216	MAR 25	ZST	EPG	10 8	24.0														No determination of epicentre	
217	MAR 25	ZST	IPG ESG	10 50 10 50	6.0 8.0														No determination of epicentre	
218	MAR 26	SPC ZST	+IP +IP +IP IPCP ESCS LMV IP IP ISCS LMH	4 48 4 48 4 48 4 48 4 58 5 35 4 48 5 33	15.4 21.3 21.6 31.1 39.5 0.0 22.0 42.0 0.0		1.1 0.8 0.9 2.6 4.2 -0.3 4.2		8.0	16.0	8.1	16.0	6.3				78.59 79.73 79.76 80.06	5.25 3.28 3.29 4.03	Fox Islands 52.35 N 168.17 W H = 4 Depth = 70 km MB = 5.7	36 18.7 /ISC/
219	MAR 26	SPC ZST	EP EP	5 9 5 9	1.0 20.0		-0.6 0.7										19.28 20.94	111.96 105.22	Turkey 39.34 N 43.50 E H = 5 Depth = 25 km MB = 4.8	4 36.0 /ISC/
220	MAR 26	SPC ZST	EPKIKP EPKIKP E	8 38 8 38 8 39	52.0 53.6 56.6		2.9 1.7										147.22 148.97	25.91 21.13	Tonga 18.48 S 174.19 W H = 8 Depth = 42 km MB = 5.7	19 12.7 /ISC/

No.	Date	Stat. Code	Phase	GMT			RES O-C	Z			E-W			N-S			MPV	MLH	Delta	Azimuth	Remarks
				h	m	s		A	T	A	T	A	T	A	T						
221	MAR 26	ZST SRO SPC	IP EPP EXS IMH EP	22 36 22 38 22 44 22 59 22 36	29.2 36.0 30.0 0.0 46.0	-1.4 -0.5 -0.1				2.5	20.0	4.5	20.0	5.6	55.71 55.93 57.81	218.03 219.52 221.02			North of Ascension Islands 0.97 S 13.50 W H = 22 Depth = 26 km MB = 5.3		
222	MAR 28	ZST	EPKIKP	1 34	57.1	2.5									138.48	46.85			New Hebrides 14.76 S 167.11 E H = 1 Depth = 119 km MB = 5.8		
223	MAR 28	ZST	E	1 38	21.0														No determination of epicentre		
224	MAR 29	SPC ZST	EPKP2 EPKHKP EPKP2	18 2 18 2 18 2	10.0 11.8 19.8	-3.1 4.5 -1.4									147.79 149.72	33.73 29.31			Fiji Region 20.47 S 178.16 W H = 17 Depth = 523 km MB = 4.9		
225	MAR 29	ZST	EPG ESG	20 36 20 36	19.2 22.7														No determination of epicentre		
226	MAR 29	ZST	EP	22 36	20.1	-2.1									36.67	109.76			Southern Iran 27.61 N 56.40 E H = 22 Depth = 36 km MB = 5.1		
227	MAR 30	ZST	EPG ESG	2 59 2 59	8.8 14.3														No determination of epicentre		
228	MAR 30	SPC BRA	EPCP EPCP	11 33 11 33	8.0 17.0	-0.4 -1.1									83.64 85.86	48.17 45.88			South of Honshu 31.40 N 140.25 E H = 11 Depth = 6 km MB = 5.3		
229	MAR 30	ZST	EP	12 35	25.2														No determination of epicentre		
230	MAR 30	ZST	ESG	17 45	38.0	1.0									3.29	236.43			Austria 46.31 N 13.15 E H = 17 Depth = 10 km		
231	MAR 30	SPC ZST	EP +IP EPCP	17 53 17 53 17 53	26.0 32.7 43.7	2.4 0.5 0.8									75.97 77.50	17.07 15.12			Near Islands 52.51 N 172.48 E H = 17 Depth = 22 km MB = 5.1		
232	MAR 30	ZST	EP	21 45	38.7	-0.5									54.50	266.07			North Atlantic Ridge 23.36 N 45.00 W H = 21 Depth = 10 km		

233	MAR 31	ZST	EP	19 18	24.7	-0.2									36.61	109.93			Southern Iran 27.58 N 56.27 E H = 19 Depth = 46 km MB = 4.8
234	APR 1	ZST	EPG ISG	10 49 10 49	26.8 28.8														No determination of epicentre
235	APR 1	SPC SRO ZST	EP EPP E IPKIKP IPKP2 IAPKIKP IMV	13 43 13 43 13 49 14 4 13 43 13 43 13 49	20.0 24.6 5.0 0.0 29.5 43.5 13.5	2.4 1.5 -4.3 -1.2 3.3 1.6	245	1.2					5.8		35.08 35.74	114.63 110.71			Southern Iran 27.57 N 55.30 E H = 13 Depth = 23 km MB = 5.9
236	APR 2	SPC ZST	EPKP2 EPP E IPKIKP IPKP2 IAPKIKP IMV	7 35 7 38 7 43 7 35 7 35 7 35 8 49	2.0 16.0 26.0 3.4 6.4 15.4 0.0	-0.5 -10.0 2.0 -2.5 3.2									146.18 147.80	21.44 16.56			Samoa Region 16.79 S 172.02 W H = 7 Depth = 33 km MB = 6.4
237	APR 2	ZST	EPKIKP IMH EPPK2 SRO	7 35 8 37 7 35 7 35	4.1 0.0 29.2 2.0	2.7 0.5 9.4 0.4									147.82 147.88 147.91	16.57 18.63 18.87			Samoa Region 16.49 S 172.50 W H = 7 Depth = 116 km
238	APR 2	ZST	EPKP2	11 13	43.2	-2.3									147.52	17.11			Samoa Region 16.58 S 172.38 W H = 10 Depth = 33 km MB = 4.9
239	APR 2	ZST	EP	16 10	3.0	-1.1									23.76	249.56			North Atlantic Ridge 36.06 N 10.67 W H = 16 Depth = 12 km MB = 4.5
240	APR 2	ZST	EPKIKP	20 14	14.5	0.3									147.24	16.73			Samoa Region 16.26 S 172.23 W H = 19 Depth = 11 km MB = 4.8
241	APR 2	ZST	IP	20 51	39.5	-0.6									90.26	295.84			Chiapas, Mexico 16.86 N 92.86 W H = 20 Depth = 237 km MB = 4.9

No.	Date	Stat. Code	Phase	GMT		RES O-C	Z			E-W			N-S			MPV	MLH	Delta	Azimuth	Remarks
				h	m		A	T	A	T	A	T	A	T						
242	APR 3	ZST	E	0	25 59.0														No determination of epicentre	
243	APR 3	ZST	-IPN EPN EPB ESN ESB ESN ESN ESN EPN	3 19 3 19 3 19 3 19 3 20 3 20 3 20 3 19	6.3 10.8 15.0 48.8 0.8 7.6 32.5 39.4	-4.5 -0.0 -1.2 -3.0 1.5 3.5 9.8 -4.0													Austria 46.25 N 13.13 E H = 3 Depth = 33 km	
244	APR 3	SPC ZST	EPN IPN ISN EPB	19 56 19 56 19 56 19 56	3.2 6.5 25.0 22.0	-4.3 -1.0 -4.8 1.4													Poland 50.40 N 18.50 E H = 19 Depth = 0 km	
245	APR 4	ZST	EPKIKP	4 49	46.0	0.3													New Hebrides 14.35 S 167.62 E H = 4 Depth = 30 km MB = 5.2	
246	APR 4	ZST	EPG ESG	11 48 11 48	38.2 41.2														No determination of epicentre	
247	APR 4	ZST SRO SPC	EP +IP ES IMH EP IMV	18 2 18 2 18 10 18 29 18 2 18 26	22.6 28.0 40.0 0.0 38.8 0.0	-1.5 -0.0 1.8 -0.9	9.5	20.0	3.9	20.0									Central Mid-Atlantic Ridge 7.39 N 34.87 W H = 17 Depth = 36 km MB = 5.6	
248	APR 4	ZST	EP	19 19	5.5	-10.3													Southern Sumatra 2.78 S 102.26 E H = 19 Depth = 126 km MB = 5.3	
249	APR 5	ZST SPC	+IP EP	15 12 15 12	40.5 42.2	-0.0 -0.2													Southern Nevada, N.E. 37.12 N 116.06 W H = 15 Depth = 33 km MB = 5.1	
250	APR 6	ZST	EAPKIKP	7 55	46.5	8.2													South Sandwich Islands Region 60.60 S 26.30 W H = 7 Depth = 33 km MB = 5.1	

251	APR 6	SPC SRO ZST	EP E EP ES IMV EP ESS	13 42 13 49 13 42 13 47 13 55 13 42 13 49	32.4 30.0 39.0 35.0 0.0 44.8 17.0	0.7 1.7 9.7 -0.5 -1.8													Iran 31.99 N 50.70 E H = 13 Depth = 43 km MB = 5.4
252	APR 6	ZST	EP I	19 35 19 36	37.1 8.1	5.9													Norwegian Sea 61.73 N 2.30 E H = 19 Depth = 10 km MB = 4.4
253	APR 7	ZST	EP	3 41	46.0	-0.3													Southern Iran 28.27 N 57.06 E H = 3 Depth = 60 km MB = 4.9
254	APR 7	SPC	EPN	9 7	13.0														No determination of epicentre
255	APR 7	ZST	EPKIP2	11 27	8.0	14.4													Tonga 17.62 S 173.10 W H = 11 Depth = 181 km MB = 4.7
256	APR 8	ZST	IPG ESG	10 47 10 47	12.7 14.0														No determination of epicentre
257	APR 8	ZST SPC	EPN EPN ESG	17 21 17 21 17 21	45.0 16.3 37.0														No determination of epicentre
258	APR 9	BRA	EPOP	4 16	45.6	3.7													Peru-Brazil Border Region 10.03 S 71.23 W H = 4 Depth = 569 km MB = 5.3
259	APR 9	ZST	E ES	10 59 11 0	12.0 27.0	0.8													Northern Italy 44.13 N 10.12 E H = 10 Depth = 58 km
260	APR 9	BRA	EAPKIKP	21 35	51.0	1.4													New Hebrides 19.09 S 169.58 E H = 21 Depth = 28 km MB = 5.5
261	APR 10	SPC ZST	EP -IP EXP	8 43 8 43 8 44	14.0 23.0 10.0	1.1 -1.0 16.3													Kurile Islands 44.37 N 147.63 E H = 8 Depth = 78 km MB = 5.3

No.	Date	Stat. Code	Phase	GMT		RES O-C	Z		E-W		N-S		MPV	MLH	Delta	Azimuth	Remarks
				h	m		A	T	A	T	A	T					
262	APR 11	BRA	EPKIKP EPP	2 34	26.0	1.5								129.79	127.50	South of Australia 36.24 S 114.66 E Depth = 33 km H = 2 MB = 5.4 15 /ISC/	
263	APR 11	SFC BRA	EP EP	16 26	27.8	5.0								14.45 15.05	144.23 133.37	Turkey 36.21 N 30.73 E Depth = 90 km H = 16 MB = 4.7 23 /ISC/	
264	APR 12	ZST	EP EPOP	10 51	2.6	0.2								81.21	51.59	Kyushu 31.80 N 131.68 E Depth = 51 km H = 10 MB = 5.1 38 50.5 /ISC/	
265	APR 12	SRO	E	11 29	24.0											No determination of epicentre	
266	APR 13	SFC SRO ZST	IP IXP ES +IP EXP ESS EP EXT IPP E I	11 40 11 42 11 46 11 41 11 41 11 42 11 50 11 41 11 42 11 42 11 43 11 46	58.4 5.8 34.0 8.7 17.0 4.0 15.8 23.3 55.3 35.0 40.3	1.4 5.2 -3.8 0.8 5.3 8.2 1.4 5.0 0.8	29	0.8						38.54 39.87 40.66	69.80 86.72 86.33	Hindu Kush Region 36.46 N 70.86 E Depth = 195 km H = 11 MB = 5.1 33 51.8 /ISC/	
267	APR 13	SFC ZST	EP EP EPP	13 3 12 59 13 3	17.0 26.0 34.0	0.9 1.4 0.7								97.89 100.17	74.87 72.58	Iceland Islands 3.81 N 126.85 E Depth = 56 km H = 12 MB = 5.6 45 43.5 /ISC/	
268	APR 13	ZST	EPN	14 4	15.4	0.1								5.38	166.34	Yugoslavia 42.92 N 18.58 E Depth = 10 km H = 14 2 51.9 /ISC/	
269	APR 14	SFC ZST	EPKF2 EPKIKP IPKF2 IPKF2	4 24 4 24 4 24 4 24	10.0 12.4 15.0 19.0	-0.8 2.3 -3.4 0.6								145.05 146.97	32.65 28.38	Fiji Region 17.70 S 176.67 W Depth = 546 km H = 4 MB = 5.2 5 32.1 /ISC/	
270	APR 14	ZST	IPG ESG	7 8 7 8	38.9 40.9											No determination of epicentre	
271	APR 15	ZST	EPG ISG	10 53 10 53	12.0 14.0											No determination of epicentre	

272	APR 16	ZST	EP I	6 34 6 35	59.3 9.3											No determination of epicentre
273	APR 18	SFC SRO ZST BRA	+IP EP EAP EXP EPP E ESS +IP IPP IPP +IP IPP	0 20 0 20 0 21 0 21 0 22 0 24 0 29 0 20 0 22 0 22 0 22 0 22	9.3 20.0 4.0 36.0 0.0 0.0 20.0 24.8 4.8 12.8 26.0 3.7	1.9 1.7 0.2 8.0 2.6 14.9 0.0 -0.3 7.7 1.2 -1.4							38.49 39.82	89.92 86.83	Hindu Kush Region 36.43 N 70.76 E Depth = 215 km H = 0 MB = 5.3 13 4.5 /ISC/	
274	APR 18	ZST	EP	13 24	52.8											No determination of epicentre
275	APR 18	ZST	EPOP	19 10	5.0	0.9								93.90	303.35	Guerrero, Mexico 18.56 N 101.43 W Depth = 86 km H = 18 MB = 5.1 56 54.4 /ISC/
276	APR 19	ZST	E	2 24	57.2									5.10	174.00	Yugoslavia 43.12 N 17.83 E Depth = 71 km H = 2 23 43.5 /ISC/
277	APR 19	SFC ZST	EP EP	6 27 6 27	3.0 13.2	0.4 0.2								79.70 81.86	44.98 42.76	Near East Coast of Honshu 36.45 N 140.64 E Depth = 66 km H = 6 MB = 5.2 14 59.5 /ISC/
278	APR 19	ZST	EP	9 50	44.5											No determination of epicentre
279	APR 19	ZST	IPB I ISG	11 1 11 1 11 1	4.3 8.3 15.0											No determination of epicentre
280	APR 20	SRO HRB ZST	IPN IPG ISB ISG LMH EPN ISN ISG -IPN IPB IPG IPG	0 32 0 32 0 33 0 33 0 35 0 32 0 33 0 33 0 32 0 32 0 33 0 33	40.1 53.7 25.7 41.7 0.0 42.0 14.8 33.5 42.5 49.5 0.5 6.0	-1.4 2.0 0.5 10.4 -0.1 -5.2 0.8 -3.4 -1.8 2.6 8.1							3.02	193.38	Yugoslavia 44.87 N 17.33 E Depth = 10 km H = 0 MB = 4.7 31 51.5 /ISC/	
														3.06	191.56	
														3.33	177.21	

No.	Date	Stat. Code	Phase	GMT		RES O-C	Z		E-W		N-S		MPV	MLH	Delta	Azimuth	Remarks	
				h	m		A	T	A	T	A	T						
280	APR 20	ZST	ISN ISN ISN ISB ISG I EPN EPG ESB	0 33 0 33 0 33 0 33 0 33 0 34 0 33 0 33 0 34	13.5 17.0 24.5 37.5 48.5 2.5 6.0 26.0 14.0	-13.3 -9.8 -2.3 3.2 6.9 -0.2 -0.5 -2.7								4.76	205.85			
281	APR 20	BRA ZST	EP EP	4 29 4 29	29.0 30.2	0.1 1.2									36.50 36.51	111.47 111.50	Southern Iran 26.99 N 55.45 E H = 4 Depth = 35 km MB = 5.1	22 25.1 /ISC/
282	APR 20	SPC ZST	EPCP EP EPCP EAP	20 16 20 16 20 16 20 18	5.2 13.3 32.8 11.8	-1.5 -0.5 16.4 8.0									83.00 85.22	50.47 48.18	South of Honshu 30.60 N 137.64 E H = 20 Depth = 494 km MB = 5.6	4 29.3 /ISC/
283	APR 20	SPC ZST BRA	EPKIKP EP EPKIKP EP EPKIKP IPKIKP EP EPKIKP EP ESKPDF	23 32 23 34 23 32 23 34 23 32 23 32 23 34 23 35	17.5 27.0 19.9 41.0 17.3 20.6 43.0 50.0	3.1 1.4 1.2 0.6 -1.5 1.8 2.5 1.6								128.72 130.98 130.99	53.95 51.19 51.22	Solomon Islands 9.90 S 160.44 E H = 23 Depth = 49 km MB = 6.3	13 12.3 /ISC/	
284	APR 21	SPC HRB ZST BRA	EAPKIKP ESKPDF I ESKPEC EAPKIKP EP EPKSDP I LMV EAPKIKP E EPKSDP E E E LMH	0 2 0 5 0 8 0 5 0 2 0 4 0 5 0 8 1 0 0 2 0 4 0 5 0 8 0 11 0 11 0 59	17.7 29.0 30.0 18.0 19.0 39.0 49.0 34.0 0.0 23.8 46.0 43.0 22.0 49.0 0.0	9.6 0.4 -4.4 6.6 15.8 12.4 11.4 6.4		85.4	24.0	137.7	24.0	7.6		128.78 130.66 131.03 131.05	53.93 52.60 51.18 51.20	Solomon Islands 9.94 S 160.48 E H = 23 Depth = 33 km MB = 6.1	42 53.0 /ISC/	
285	APR 21	ZST	EAPKIKP	1 3	53.0	-1.2								130.43	52.34	Solomon Islands 9.90 S 159.40 E H = 0 Depth = 33 km MB = 5.6	44 36.0 /ISC/	

286	APR 21	SPC ZST BRA	EP EP EP EP EP ESKS	1 58 1 58 2 2 1 58 2 2 2 9	41.0 51.0 36.0 51.6 34.0 15.0	0.1 -0.4 6.4 0.2 4.3 -3.6								88.57 90.78 90.80	48.98 46.63 46.64	Bonin Islands Region 26.85 N 142.65 E H = 1 Depth = 34 km MB = 5.7	45 50.4 /ISC/	
287	APR 21	SPC HRB ZST BRA	EPKIKP EP LMV EPKSEC EPKIKP IAPKIKP EP EPKSEC IPKSDP IPKIKP IPP ISKPDF LMH	4 43 4 45 5 48 4 46 4 43 4 43 4 45 4 46 4 43 4 45 4 46 5 48	16.0 32.0 0.0 42.0 19.2 37.2 40.0 44.0 57.2 19.2 33.0 50.0 0.0	2.0 5.8 -1.4 0.9 8.8 -0.7 -0.7 4.0 0.9 -7.8 0.3		15.0	22.0	67.0	22.0	7.3		128.98 130.86 131.23 131.25	53.66 52.32 50.90 50.92	Solomon Islands 10.00 S 160.77 E H = 4 Depth = 31 km MB = 6.4	24 9.0 /ISC/	
288	APR 21	SPC BRA	EPKIKP EAPKHP	5 25 5 25	35.0 40.0	2.0 1.7								129.14 131.41	53.84 51.10	Solomon Islands 10.21 S 160.74 E H = 5 Depth = 63 km MB = 5.8	6 31.8 /ISC/	
289	APR 21	ZST	EP	10 4	50.0												No determination of epicentre	
290	APR 21	ZST	E	10 59	2.0												No determination of epicentre	
291	APR 21	SPC ZST	EXP EP	17 33 17 33	47.0 46.0	4.5 -1.6								88.61 90.82	49.28 46.92	Bonin Islands Region 26.66 N 142.40 E H = 17 Depth = 12 km MB = 5.2	20 43.0 /ISC/	
292	APR 22	SPC ZST	EP IP	1 2 1 2	43.0 52.6	0.2 -0.9								71.59 73.43	28.03 26.11	North-West of Kurile Islands 52.17 N 153.87 E H = 0 Depth = 390 km MB = 4.8	52 1.3 /ISC/	
293	APR 22	ZST	EAPKIKP	3 30	16.0	-8.0								131.34	51.17	Solomon Islands 10.20 S 160.65 E H = 3 Depth = 57 km MB = 5.5	11 1.0 /ISC/	
294	APR 22	ZST	EP	6 34	59.7	-0.5								83.32	336.37	Off Coast of Oregon 44.24 N 129.26 W H = 6 Depth = 17 km MB = 4.8	22 32.8 /ISC/	





No.	Date	Stat. Code	Phase	GMT		RES O-C	Z			E-W			N-S			MLH	Delta	Azimuth	Remarks
				h	m		a	A	T	A	T	A	T	A	T				
316	MAY 1	ZST	EP	3	38	39.9	1.3								81.82	95.98	Northern Sumatra 2.12 N 97.20 E H = 3 Depth = 53 km MB = 5.0	26 23.8 /ISC/	
317	MAY 1	ZST	EPKIKP	18	58	24.0	2.3								125.53	55.71	Solomon Islands 7.24 S 154.44 E H = 18 Depth = 40 km MB = 5.5	39 24.6 /ISC/	
318	MAY 2	SPC ZST	EAP EXP	15 23	45.7	0.3	0.3								28.07 29.96	102.31 97.54	Iran-USSR Border Region 37.06 N 55.33 E H = 15 Depth = 19 km MB = 5.1	17 48.5 /ISC/	
319	MAY 2	ZST	EAP	18	59	53.0	-4.2								21.24	104.20	North-Western Iran-USSR Border 39.48 N 44.09 E H = 18 Depth = 38 km MB = 5.5	55 2.4 /ISC/	
320	MAY 2	SPC SRO	EPQP EPQP EPP EKS EPCP EPP	22 7 12.4 22 7 18.0 22 11 10.0 22 18 38.0 22 7 24.4 22 11 20.0	0.7 2.7 -4.0 7.7	2.2	2.2								93.01 94.61	75.49 74.11	Mindanao 7.20 N 123.25 E H = 21 Depth = 33 km MB = 5.7	53 58.0 /ISC/	
321	MAY 2	ZST	EAPKHKP	22	55	0.0	1.2								145.55	24.69	Fiji Region 15.70 S 177.10 W H = 22 Depth = 33 km MB = 5.1	35 17.6 /ISC/	
322	MAY 3	ZST	+IPOP	3	27	30.7	-0.1								89.18	48.08	Bonin Islands Region 27.39 N 140.31 E H = 3 Depth = 325 km MB = 5.1	15 9.1 /ISC/	
323	MAY 4	SPC ZST	EP EP EAP	2 7 25.1 2 7 33.9 2 7 51.0	3.2 -1.6 2.4	3.2	3.2								28.78 30.31	115.72 110.31	Iran 31.80 N 50.87 E H = 2 Depth = 51 km MB = 4.9	1 26.8 /ISC/	
324	MAY 4	SPC ZST	EAP EPP EP EPP	2 45 23.0 2 46 31.0 2 45 21.0 2 46 51.0	1.5 -0.7 6.6 -2.2	1.5	1.5								38.64 40.77	88.70 85.28	Afghanistan-USSR Border Region 36.97 N 71.45 E H = 2 Depth = 107 km MB = 5.0	37 42.4 /ISC/	
325	MAY 5	ZST	IFG ISG	9 8	20.8 27.8													No determination of epicentre	

326	MAY 5	SPC ZST	EP E E IF IXP I	22 26 18.0 22 27 3.0 22 29 48.0 22 26 28.4 22 27 5.4 22 29 50.4	2.0 0.8 10.8	2.0	2.0							75.99 78.08	40.60 36.47	Hokkaido Region 41.95 N 142.41 E H = 22 Depth = 70 km MB = 5.1	14 34.8 /ISC/	
327	MAY 5	SPC	EPN I ISH ESG	22 42 59.2 22 43 18.0 22 43 20.0 22 43 27.0													No determination of epicentre	
328	MAY 6	SPC ZST	IP IP IPOP	4 5 19.5 4 5 29.3 4 5 41.5	0.8 -0.1 2.6	0.8	0.8								76.43 78.36	32.35 30.28	Kurile Islands Region 45.91 N 152.09 E H = 3 Depth = 54 km MB = 5.4	53 33.2 /ISC/
329	MAY 7	SPC	EPN ESH	0 31 0.0 0 31 25.0													No determination of epicentre	
330	MAY 7	SPC ZST SRO	EP IP EKS IMH	2 18 53.0 2 18 56.2 2 19 4.0 2 23 50.0 2 28 0.0	0.5 -0.4 2.1 13.0	0.5	0.5								24.79 25.21 25.78	343.92 348.43 345.86	Jan Mayen Island Region 71.82 N 1.47 N H = 2 Depth = 19 km MB = 5.1	13 30.4 /ISC/
331	MAY 7	SPC ZST	EPKPE2 EPKIKP	15 31 22.0 15 31 20.0	0.3 1.7	0.3	0.3								147.16 148.61	22.39 17.44	Tonga Region 17.88 S 172.28 W H = 15 Depth = 39 km MB = 5.0	11 39.0 /ISC/
332	MAY 7	ZST	EPG ESC	15 41 22.2 15 41 25.2													No determination of epicentre	
333	MAY 7	ZST	EP	16 7 10.0	-4.8	-4.8	-4.8								78.13	28.75	Kurile Islands 46.82 N 153.84 E H = 15 Depth = 18 km MB = 5.0	55 15.0 /ISC/
334	MAY 7	SPC ZST	EPKPE2 EPKIKP	19 55 16.0 19 55 14.0	0.1 1.4	0.1	0.1								147.12 148.78	22.80 17.88	Tonga Region 17.90 S 172.52 W H = 19 Depth = 33 km MB = 5.0	35 32.6 /ISC/
335	MAY 8	SPC	EAPKHKP	0 16 22.0	-1.7	-1.7	-1.7								145.47	22.14	Samoa Region 16.20 S 172.60 W H = 23 Depth = 33 km MB = 4.4	56 42.7 /ISC/
336	MAY 8	ZST	EPKIKP EPKIKP IAPKIKP	4 57 8.7 4 57 13.2 4 57 20.7	-4.7 -0.2 -3.5	-4.7	-4.7								149.56	24.83	Tonga 19.58 S 175.94 W H = 4 Depth = 33 km MB = 4.9	37 32.1 /ISC/

No.	Date	Stat. Code	Phase	GMT		RES O-C	Z		E-W		N-S		MPV	MLH	Delta	Azimuth	Remarks	
				h	m		s	A	T	A	T	A						T
337	MAY 8	ZST	EPN IPG ISG	10 4 6.0 10 4 36.8 10 5 35.8		-0.1 8.0 -0.8								5.18	165.70	Yugoslavia 43.16 N 18.85 E H = 10 Depth = 33 km	2 45.4 /ISC/	
338	MAY 8	SPC	EPN ESN	14 14 38.4 14 15 7.0													No determination of epicentre	
339	MAY 8	ZST	EPCP	16 58 45.0		0.9								96.33	275.27	Off Coast of Ecuador 1.20 S 81.04 W H = 16 Depth = 27 km MB = 5.0	45 16.3 /ISC/	
340	MAY 9	SPC ZST	EP EP	15 14 43.0 15 14 54.0		0.7 -0.3								79.81 82.11	60.25 57.93	East China Sea 27.15 N 125.71 E H = 15 Depth = 141 km MB = 5.2	2 48.2 /ISC/	
341	MAY 10	ZST	EPG E	11 5 51.7 11 5 54.7													No determination of epicentre	
342	MAY 10	ZST	EPG E	16 34 14.9 16 34 15.8													No determination of epicentre	
343	MAY 11	ZST	EPG ESG	11 2 28.4 11 2 29.9													No determination of epicentre	
344	MAY 11	ZST	E	15 40 42.7													No determination of epicentre	
345	MAY 11	SPC ZST	EP EP	23 51 50.3 23 51 52.2	1.2 -10.5									26.07 27.55	117.56 111.70	Western Iran 33.17 N 47.92 E H = 23 Depth = 41 km MB = 4.9	46 17.7 /ISC/	
346	MAY 12	SPC ZST	EPCP E	8 22 45.7 8 23 24.0	1.4									87.57 89.86	72.89 70.53	Mindoro 13.08 N 121.73 E H = 8 Depth = 22 km MB = 5.2	9 54.3 /ISC/	
347	MAY 12	SPC SRO ZST	-IP IMV EP LMH -IP IPCP	11 28 39.6 11 53 30.0 11 28 50.0 11 55 0.0 11 28 53.5 11 29 0.5	0.9 -0.3 0.3 -18.8		13.2	17.0	15.2	17.0				65.81 67.64 68.09	57.52 55.88 55.30	North-Eastern China 39.29 N 117.71 E H = 11 Depth = 3 km MB = 5.6	17 50.0 /ISC/	
348	MAY 12	SPC SRO	EP EAP EAP	12 30 24.3 12 30 36.1 12 30 43.0	0.4 0.7 -1.3									62.71 64.07	87.91 85.81	Burma-Bangladesh Border 21.68 N 92.36 E H = 12 Depth = 39 km MB = 5.1	20 0.6 /ISC/	



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No.	Date	Stat. Code	Phase	GMT		RES O-C	Z		E-W		N-S		MLH	Delta	Azimuth	Remarks	
				h	m s		A	T	A	T	A	T					
357	MAY 14	ZST	EP	21	48 3.0	-1.0								19.09	111.19	Turkey 38.74 N 40.05 E H = 21 Depth = 4 km MB = 4.5	43 38.0 /ISC/
358	MAY 15	ZST	EP EAP	0 32 0 33	21.0 16.0	1.8 1.8								75.41	27.96	North-West of Kurile Islands 49.58 N 152.91 E H = 0 Depth = 232 km MB = 5.0	20 59.4 /ISC/
359	MAY 15	ZST	+IP	16	2 53.4	0.6								79.55	3.15	Fox Islands 52.54 N 167.98 W H = 15 Depth = 38 km MB = 5.3	50 48.2 /ISC/
360	MAY 15	ZST	EPKHKP IPKHKP IPKP2 EAPKP2	23 31 23 31 23 31 23 33	40.3 44.3 50.3 42.3	0.9 4.9 -1.1 -1.8								148.59	27.54	Fiji Region 19.09 S 177.66 W H = 23 Depth = 493 km MB = 5.3	12 53.4 /ISC/
361	MAY 16	ZST	EPKIKP	11 34	0.0	1.5								141.05	48.04	New Hebrides 17.37 S 167.79 E H = 11 Depth = 40 km MB = 5.0	14 32.4 /ISC/
362	MAY 17	ZST	IPG ISG	11 3 11 3	12.4 14.8											No determination of epicentre	
363	MAY 17	ZST	IP	14 28	14.6	1.1								87.91	278.59	Panama-Colombia Border Region 7.34 N 77.90 W H = 14 Depth = 8 km MB = 5.0	15 22.0 /ISC/
364	MAY 17	ZST	E	15 36	26.6											No determination of epicentre	
365	MAY 18	SPG ZST	EP IP	4 8 4 8	13.2 21.9	0.1 -1.3								70.43 72.12	22.45 20.63	Kamchatka 55.68 N 160.80 E H = 3 Depth = 160 km MB = 5.0	57 14.5 /ISC/
366	MAY 18	ZST	EPKP2	7 2	27.0	-1.1								143.06	47.58	New Hebrides 18.95 S 169.15 E H = 6 Depth = 216 km MB = 5.2	43 21.8 /ISC/
367	MAY 19	ZST	IP	0 14	38.8	-0.8								31.88	112.71	Southern Iran 29.81 N 51.20 E H = 4 Depth = 39 km MB = 4.8	8 15.8 /ISC/
368	MAY 19	ZST	E	4 14	39.1											No determination of epicentre	


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Seismological  
Centre

369	MAY 19	ZST	EPG ESG	7 49 1.6 7 49 3.0															No determination of epicentre
370	MAY 19	SPC	IFG ISG	9 44 32.7 9 44 36.3															No determination of epicentre
371	MAY 19	ZST	I	11 2 33.5															No determination of epicentre
372	MAY 19	ZST	EPKHKP	19 7 40.6	6.3														Fiji Region 19.31 S 177.57 W H = 18 Depth = 572 km MB = 4.8 48 55.5 /ISC/
373	MAY 19	SPC ZST	EP EP	23 5 22.6 23 5 33.6	1.3 -0.4														Southern Iran 27.15 N 55.33 E H = 22 Depth = 34 km MB = 5.2 58 31.6 /ISC/
374	MAY 19	SPC ZST	EP +IP	23 11 43.7 23 11 55.6	0.6 -0.3														Southern Iran 27.15 N 55.31 E H = 23 Depth = 30 km MB = 5.2 4 53.0 /ISC/
375	MAY 20	SPC	+IPG ISG	1 6 30.6 1 6 34.4															No determination of epicentre
376	MAY 20	ZST	+IPKHKP	14 30 43.8	6.4														Fiji Region 20.40 S 177.76 W H = 14 Depth = 532 km MB = 4.9 11 52.2 /ISC/
377	MAY 20	ZST	EPKHKP	21 24 44.9	1.7														South of Fiji 23.85 S 176.40 W H = 21 Depth = 46 km MB = 5.5 4 57.8 /ISC/
378	MAY 20	SRO ZST	IP ISCS EPCP	23 4 6.0 23 14 52.8 23 4 12.0	-0.2 -0.9 0.3														Southern Sumatra 4.46 S 101.93 E H = 22 Depth = 36 km MB = 5.6 51 13.9 /ISC/
379	MAY 21	SRO ZST BRA	IP ISKS -IP IPCP EPP -IP EPP ESCS	5 47 46.1 5 57 56.7 5 47 49.0 5 48 9.0 5 51 19.0 5 47 49.3 5 51 21.3 5 58 15.0	0.3 5.7 0.2 18.1 0.6 0.5 2.8 -0.6														Luzon 15.64 N 120.85 E H = 5 Depth = 197 km MB = 5.6 35 23.0 /ISC/
380	MAY 21	SPC ZST	EP EP	13 53 2.2 13 53 12.9	0.4 0.6														Bonin Islands Region 27.58 N 140.11 E H = 13 Depth = 355 km MB = 5.1 40 54.5 /ISC/



No.	Date	Stat. Code	Phase	GMT			RES O-C	Z			E-W			N-S			MPV	MLH	Delta	Azimuth	Remarks
				h	m	s		A	T	A	T	A	T	A	T						
381	MAY 22	SPC ZST	EAPKP2 EAPKHP EAPKP2	23	46	9.3	-1.8 5.2 2.9											147.19 149.07	31.45 26.95	Fiji Region 19.45 S 177.19 W H = 23 Depth = 331 km MB = 5.2	
382	MAY 23	SPC ZST	+IP EAP EXP +IP EAP	22	8	12.4	-1.9 -2.9 3.4 -3.6 -2.8											81.92 83.87	98.34 95.84	Northern Sumatra 0.68 N 98.67 E H = 21 Depth = 40 km MB = 5.4	
383	MAY 24	SPC ZST	EP +IP	7	59	13.6	0.4 -0.4											89.70 91.92	49.84 47.48	Volcano Islands Region 25.43 N 142.55 E H = 7 Depth = 33 km MB = 5.6	
384	MAY 24	SPC ZST	EAP E EPCP EAP E	10 10 10 10 10	37 41 36 37 41	32.6 24.1 47.7 35.0 38.0	6.6 4.0 -1.1										96.73 98.96	51.18 48.75	Marianas 18.78 N 145.49 E H = 10 Depth = 212 km MB = 5.6		
385	MAY 24	ZST	EP	12	50	30.2	-0.8											36.44	111.39	Southern Iran 27.09 N 55.44 E H = 12 Depth = 42 km MB = 4.7	
386	MAY 24	ZST	EP	13	6	14.0	-0.4											36.47	111.33	Southern Iran 27.09 N 55.50 E H = 12 Depth = 8 km MB = 4.7	
387	MAY 24	ZST	+IPG ISG	14	43	10.8														No determination of epicentre	
388	MAY 25	ZST	EAPKIKP	6	9	35.0	1.1											146.75	25.19	Fiji Region 16.94 S 177.01 W H = 5 Depth = 34 km MB = 4.8	
389	MAY 25	ZST	EAPKIKP	6	41	51.0	-0.3											146.79	24.89	Fiji Region 16.93 S 176.83 W H = 6 Depth = 33 km MB = 4.7	
390	MAY 25	ZST	IPG ISG	11	3	43.2														No determination of epicentre	
391	MAY 25	SPC ZST	EP EP	11	7	33.3	2.7 -1.7											27.36 29.07	109.48 104.23	Iran 34.91 N 52.06 E H = 13 Depth = 41 km MB = 5.3	



392	MAY 25	ZST	EPKP2 EPKP2	12 28 41.3 12 28 44.8	-4.2 -0.7														147.14	28.38	Fiji Region 17.86 S 178.61 W H = 12 Depth = 572 km	10 0.8 /ISC/
393	MAY 25	SPC ZST	+IP EXP +IP EPCP ES	15 7 36.6 15 7 58.7 15 7 45.0 15 7 59.5 15 17 40.5	0.1 -0.6 -2.2 3.9 -1.1	121	1.0	5.8	77.35 79.30	98.29 95.68											Northern Sumatra 4.21 N 95.74 E H = 14 Depth = 58 km MB = 5.7	55 46.3 /ISC/
394	MAY 25	BRA	E	15 34 42.5																	No determination of epicentre	
395	MAY 25	ZST	I E	16 20 38.6 16 20 41.1																	No determination of epicentre	
396	MAY 25	ZST	EPG ESG	16 29 11.1 16 29 16.1																	No determination of epicentre	
397	MAY 25	ZST SPC	EP EP	17 12 39.1 17 12 41.1	-0.6 -0.5				85.39 85.76	324.19 326.37											Southern Nevada 37.10 N 116.06 W H = 16 Depth = 0 km MB = 5.3	59 59.3 /ISC/
398	MAY 26	SPC BRA ZST	EP IP IPP IP	1 39 47.6 1 40 3.0 1 40 30.0 1 40 2.7	0.9 -0.6 0.8 -1.0				20.07 21.72 21.73	111.65 105.04 105.11											Turkey-Iran Border Region 38.93 N 44.38 E H = 1 Depth = 38 km MB = 5.2	35 13.9 /ISC/
399	MAY 26	ZST	EPCP	6 33 19.0	4.5				96.76	275.00											Off Coast of Ecuador 1.71 S 81.13 W H = 6 Depth = 10 km MB = 5.1	19 42.0 /ISC/
400	MAY 26	SPC ZST	EP EP EPP	9 54 57.8 9 55 16.3 9 55 43.3	0.6 2.2 3.4				20.07 21.73	111.78 105.23											Turkey-Iran Border Region 38.89 N 44.35 E H = 9 Depth = 40 km MB = 4.9	50 24.5 /ISC/
401	MAY 26	ZST	IPG	12 27 24.2																	No determination of epicentre	
402	MAY 27	SPC ZST	EP EP EPP	2 39 41.0 2 39 58.0 2 41 33.0	1.1 0.4 -3.9				38.74 40.90	87.20 83.85											Tadzhikistan 37.68 N 72.23 E H = 2 Depth = 118 km MB = 4.9	32 25.7 /ISC/
403	MAY 27	SPC	ESKPAB	5 23 16.0	-4.4				137.88	50.12											New Hebrides 16.22 S 167.85 E H = 5 Depth = 182 km MB = 5.1	0 50.3 /ISC/



No.	Date	Stat. Code	Phase	GMT			RES O-C	Z		E-W		N-S		MPV	MLH	Delta	Azimuth	Remarks
				h	m	s		A	T	A	T	A	T					
404	MAY 27	ZST	ESG ESG	8 25	32.9	0.3									3.11	322.06	Czechoslovakia 50.61 N 14.10 E H = 8 23 49.8 Depth = 0 km	
405	MAY 27	ZST	EPG E ISG	10 45	39.9 43.9 46.9												No determination of epicentre	
406	MAY 27	ZST	E	11 45	2.0												No determination of epicentre	
407	MAY 27	ZST	EP	22 35	17.7	2.2									14.85	148.22	Crete 35.11 N 26.58 E H = 22 31 47.9 Depth = 65 km MB = 4.7	
408	MAY 28	SPC SRO ZST	EAP EPP E EPP	6 5 6 9 6 19 6 9	33.2 33.0 17.0 27.7	-0.4 8.4 -13.5									98.05 99.50 100.25	83.44 82.19 81.20	Sulawesi 1.82 S 120.46 E H = 5 51 48.4 Depth = 35 km MB = 5.9	
409	MAY 28	SPC ZST	EPKP2 EPKP2	15 30 15 30	47.0 47.2	-1.8 -2.1									159.49 159.60	149.79 153.62	Balleney Islands Region 65.04 S 175.70 E H = 15 10 13.5 Depth = 33 km MB = 5.6	
410	MAY 29	SPC  ZST	IP E I EPP EPP +IP E EPP	3 4 3 4 3 4 3 5 3 5 3 4 3 4 3 5	13.4 26.0 35.0 27.6 35.2 31.2 42.7 59.7	1.3 -11.2 -3.6 -0.3 -6.3									37.20  39.50	66.03  63.65	Eastern Kazakhstan 49.86 N 78.84 E H = 2 56 57.5 Depth = 0 km MB = 5.8	
411	MAY 30	SPC ZST SRO	EP +IP IP EKS LMH	15 28 15 28 15 28 15 38 16 6	1.0 7.7 10.0 24.0 0.0	-0.1 0.1 0.7 0.5									78.40 79.58 79.90	6.24 4.27 5.02	Fox Islands 52.43 N 169.77 W H = 15 16 1.0 Depth = 25 km MB = 5.5	
412	MAY 31	ZST	IPG ISG	7 48 7 48	20.4 21.9													No determination of epicentre
413	MAY 31	SPC ZST	EPKIKP EPKIKP EAPKIKP EPP	15 7 15 7 15 7 15 9	1.0 4.3 43.3 44.3	-1.8 -2.5 -0.6 -5.8									133.45 135.65	48.69 45.66	Santa Cruz Islands 11.88 S 166.39 E H = 14 48 2.8 Depth = 138 km MB = 5.5	



No.	Date	Stat. Code	Phase	GMT		RES O-C	Z		E-W		N-S		MPV	MLH	Delta	Azimuth	Remarks			
				h	m s		A	T	A	T	A	T								
421	JUN 3	SPC	EP	1	12	36.2	0.0								37.23	84.37	Tadzhikistan 39.97 N 71.82 E H = 1 Depth = 12 km MB = 5.0 5 23.0 /ISC/			
			IAP	1	12	39.5	-0.2									38.67		81.38		
			EAP	1	12	52.0	0.2									39.42		81.10		
			EP	1	12	56.0	1.5													
			EPP	1	14	30.0	0.8													
422	JUN 3	SPC	EP	1	12	56.0	1.5											Hindu Kush Region 36.42 N 70.76 E H = 2 Depth = 207 km MB = 5.4 31 4.4 /ISC/		
			EPP	1	14	20.0	-9.2													
			+IP	2	38	10.2	2.1													
			IAP	2	38	55.4	3.5													
			IP	2	38	20.1	1.1													
			EAP	2	39	6.0	3.0													
			IS	2	44	8.0	0.5													
			LXS	2	45	26.0	1.2													
			ESS	2	47	18.0	12.0													
			+IP	2	38	27.3	1.8													
423	JUN 3	SPC	IAP	2	39	11.8	2.2											No determination of epicentre		
			IPP	2	40	6.3	0.6													
			IPP	2	40	12.8	7.1													
			E	2	43	52.0														
			+IP	2	38	24.0	-1.5													
			IAP	2	39	9.0	-0.6													
			IPP	2	40	0.0	-5.7													
			IPCP	2	40	21.0	-2.8													
			E	2	41	3.0														
			ESCS	2	48	3.0	-4.0													
424	JUN 3	ZST	IPG	8	0	8.3											No determination of epicentre			
			ISG	8	0	14.1														
425	JUN 3	ZST	IPG	11	49	15.9											No determination of epicentre			
			ESG	11	49	17.1														
426	JUN 3	SPC	EPG	12	10	1.7											Fiji Region 18.99 S 177.63 W H = 14 Depth = 572 km MB = 5.3 33 6.6 /ISC/			
			E	12	10	8.7														
			E	12	10	33.7														
			E	12	9	32.0														
			E	12	9	46.0														
427	JUN 3	ZST	EPKP2	14	51	46.0	-3.1										New Hebrides 14.10 S 166.63 E H = 15 Depth = 39 km MB = 5.2 17 25.5 /ISC/			
			EPKP2	14	51	52.0	-4.9													
			EPKP2	14	51	58.0	1.1													
			EPKP2	14	51	51.6	-5.4													
428	JUN 3	ZST	EPKP2	14	51	58.0	1.0													
			EPKP2	14	51	58.0	1.0													
429	JUN 3	ZST	EAPKHKP	15	36	48.4	2.5										No determination of epicentre			
			EPKSAB	15	40	36.4	7.6													





No.	Date	Stat. Code	Phase	GMT			RES O-C	Z		E-W		N-S		MPV	MLH	Delta	Azimuth	Remarks
				h	m	s		A	T	A	T	A	T					
437	JUN 5	ZST	ESG	15	17	0.0	5.2								3.16	236.04	Austria 46.37 N 13.32 E H = 15 Depth = 10 km	
438	JUN 5	ZST	E	23	23	14.0									8.65	171.10	Southern Italy 39.63 N 18.83 E H = 23 Depth = 10 km	
439	JUN 6	ZST	EP	6	50	16.7	0.1								73.51	280.84	Dominican Republic Region 19.49 N 69.50 W H = 6 Depth = 30 km MB = 4.8	
440	JUN 6	ZST	EP	10	53	15.6	1.4								17.36	239.64	Spain 37.66 N 1.83 W H = 10 Depth = 10 km MB = 4.1	
441	JUN 6	ZST	EPKP2 EAPKIP	13 13	5 6	32.5 33.0	-5.5 4.0								149.29	24.11	Tonga 19.21 S 175.65 W H = 12 Depth = 246 km MB = 5.1	
442	JUN 6	ZST	EP E E	18 18 18	1 2 4	2.4 6.4 3.0	11.2								101.83	255.13	Northern Chile 18.81 S 69.90 W H = 17 Depth = 104 km MB = 4.9	
443	JUN 6	ZST	EP	18	46	12.4	-0.1								31.87	112.85	Southern Iran 29.77 N 51.13 E H = 18 Depth = 31 km MB = 4.9	
444	JUN 7	BRA	EAPKIP	8	26	9.0	-4.2								160.92	44.04	Kermadec Islands 33.18 S 178.62 W H = 8 Depth = 33 km MB = 5.0	
445	JUN 7	ZST	EPKIP	9	0	29.0	2.2								134.48	45.48	Santa Cruz Islands 10.79 S 165.92 E H = 8 Depth = 101 km MB = 5.2	
446	JUN 8	ZST	IPG ISG	10 10	14 14	32.9 34.0												No determination of epicentre
447	JUN 8	ZST	EPP	13	43	7.2	-7.6								102.61	251.04	Chile-Bolivia Border Region 22.12 S 67.35 W H = 13 Depth = 156 km MB = 5.3	

448	JUN 8	SPC ZST	-IPKP2 -IPKHKP IPKFP2	14 25 5.5 14 25 7.7 14 25 31.7	-4.8 4.9 13.3														149.76 151.67	32.97 28.32	South of Fiji 22.14 S 176.95 W H = 14 Depth = 221 km MB = 5.2	5 38.6 /ISC/
449	JUN 8	SPC ZST	EP EPP EP EXP	14 37 39.8 14 40 40.0 14 37 52.0 14 38 18.7	-0.3 -0.3 0.4 -1.2														78.39 80.52	43.13 40.94	Near East Coast of Honshu 38.57 N 141.57 E H = 14 Depth = 74 km MB = 5.4	25 46.0 /ISC/
450	JUN 9	SRO ZST	EPN -IFC E E ISG	11 29 2.0 11 29 8.1 11 29 16.1 11 29 21.1 11 29 23.1																	No determination of epicentre	
451	JUN 9	ZST	EP E	13 49 5.6 13 49 28.1																	No determination of epicentre	
452	JUN 10	ZST	E	2 40 15.9																	No determination of epicentre	
453	JUN 10	SPC SRO ZST	EP EPCP ESCS IPCP EAP	2 47 55.7 2 48 3.0 2 58 43.0 2 48 6.5 2 48 21.0	0.5 0.4 3.6 0.1 -5.2														86.63 87.71 88.56	98.62 97.10 96.21	Southern Sumatra 3.10 S 101.52 E H = 2 Depth = 79 km MB = 5.3	35 19.4 /ISC/
454	JUN 10	ZST	-IPKP2	3 42 53.0	-3.5														147.72	27.65	Fiji Region 18.28 S 178.02 W H = 3 Depth = 528 km MB = 5.0	24 5.4 /ISC/
455	JUN 10	SPC BRA ZST	EP EP EP IPP	5 48 48.4 5 48 57.6 5 48 57.9 5 50 46.0	-0.6 0.1 0.3 -6.8														48.56 49.66 49.68	127.45 123.33 123.35	Arabian Sea 11.64 N 57.65 E H = 5 Depth = 34 km MB = 5.1	40 7.1 /ISC/
456	JUN 10	SRO	E	16 43 10.0																	No determination of epicentre	
457	JUN 11	BRA	EP	20 41 52.0	17.1														43.85	271.78	North Atlantic Ridge 33.55 N 38.91 W H = 20 Depth = 10 km MB = 4.7	33 26.8 /ISC/
458	JUN 12	ZST	EP	8 59 32.5	0.3														77.58	38.32	Hokkaido Region 42.45 N 142.20 E H = 8 Depth = 102 km MB = 5.0	8 45.8 /ISC/



No.	Date	Stat. Code	Phase	GMT		RES O-C	Z		E-W		N-S		MPV	MLB	Delta	Azimuth	Remarks	
				h	m		s	A	T	A	T	A						T
459	JUN 13	SPC ZST SRO	EPKP2 EPKIKP EAPKP2 IPKIKP	10 28 10 28 10 29 10 28	28 29 5 31	28.1 29.7 5.7 31.3	-2.8 2.7 8.2 4.3										Tonga S 173.97 W H = 10 Depth = 70 km MB = 5.4	
460	JUN 13	SPC SRO ZST	EP E EPP EAP ESCS EPCP EXP	12 0 12 1 12 4 12 0 12 11 12 0 12 1	36.0 19.0 8.0 50.0 38.0 47.0 9.0	0.8 -0.3 -5.5 1.0 -0.0 5.9											Luzon 124.69 E H = 11 Depth = 41 km MB = 5.6	
461	JUN 13	SPC	EP	13 48	8.3	3.0											Afghanistan-USSR Border Region 36.41 N 71.32 E H = 13 Depth = 112 km MB = 5.1	
462	JUN 14	ZST	IPKP2 IPKP2	8 56 8 56	32.2 36.7	-3.2 1.3											Tonga Region 18.09 S 175.01 W H = 8 Depth = 227 km MB = 5.0	
463	JUN 14	ZST	IPG ISG	11 4 11 4	17.3 18.3												No determination of epicentre	
464	JUN 14	BRA SRO SPC	IP EPP IP IXS IMH EP	21 50 21 53 21 50 21 59 22 21 21 50	33.0 0.0 35.8 40.0 0.0 47.0	-0.5 -5.5 1.3 -2.8 1.1 331											South Atlantic Ridge H = 21 14.02 S 14.49 W MB = 5.8 Depth = 21 km	
465	JUN 15	ERA SPC	EP EP	0 3 0 4	57.0 14.7	-1.4 1.5												North Atlantic Ridge H = 23 16.63 N 46.63 W MB = 5.2 Depth = 33 km
466	JUN 16	SPC ZST	IP I IP	2 27 2 27 2 27	32.4 43.3 49.8	0.8 -1.1												Romania 45.77 N 26.63 E H = 2 Depth = 148 km
467	JUN 16	SPC	EPN ESN ISG	3 46 3 46 3 46	26.7 45.9 48.5													No determination of epicentre
468	JUN 16	SPC ZST	EPKP2 EPKP2	4 37 4 37	10.0 13.9	1.4 -0.9												Samoa Region 15.37 S 172.79 W H = 5.0 Depth = 36 km MB = 5.0





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No.	Date	Stat. Code	Phase	GMT		RES O-C	Z		E-W		N-S		MPV	MLH	Delta	Azimuth	Remarks		
				h	m s		A	T	A	T	A	T							
480	JUN 20	SPC SRO ZST	EPKP2 EPKP2 EPKP2 E	20 27 35.5 20 27 41.5 20 27 40.8 20 28 21.0		0.9 -0.2 -2.4								144.75 146.61 146.99	52.21 51.19 49.04	Loyalty Islands Region 22.74 S 170.64 E H = 20 Depth = 47 km MB = 5.2	8 2.1 /ISC/		
481	JUN 21	ZST	EPKIKP EAPKIKP	9 17 25.6 9 18 43.0		2.0 1.5								145.99	20.94	Tonga 15.56 S 174.87 W H = 8 Depth = 309 km MB = 4.9	58 21.6 /ISC/		
482	JUN 21	ZST	E	10 55 21.7													No determination of epicentre		
483	JUN 21	ZST	EPG ESG	12 27 17.8 12 27 19.0														No determination of epicentre	
484	JUN 21	ZST	+IPKP2 EAPKIKP	19 10 31.2 19 10 41.2		-1.0 2.0								146.04	49.01	Loyalty Islands Region 21.93 S 170.10 E H = 18 Depth = 32 km	50 53.0 /ISC/		
485	JUN 21	ZST	EPP	19 17 10.2		1.9								15.73	139.38	Eastern Mediterranean Sea 35.47 N 29.59 E H = 19 Depth = 44 km MB = 4.7	13 25.2 /ISC/		
486	JUN 22	SPC HRB SRO ZST ERA	-IPKHKP LMV EPKHKP LAPKHKP -IPKIKP IPKP2 EPP E E I LMV IPKIKP E E E LMH	12 28 14.6 13 36 0.0 12 28 19.4 12 28 38.5 12 32 30.0 13 26 0.0 12 28 18.3 12 28 41.3 12 28 15.7 12 28 35.7 12 32 4.0 12 35 43.0 12 36 18.0 12 36 47.0 13 30 0.0 12 28 15.8 12 39 57.0 12 41 14.0 12 49 15.0 13 30 0.0		0.3 0.3 -0.3 -0.8 2.5 0.5 -0.1 -5.8 0.5								150.89 152.71 152.72 152.77	31.46 28.96 29.25 26.61	Tonga Region 22.91 S 175.74 W H = 12 Depth = 69 km MB = 6.3	8 33.7 /ISC/		
487	JUN 22	SPC IPG ISG	17 4 30.7 17 4 31.0				182.1	24.0	163.1	24.0		7.8		152.79	26.64		No determination of epicentre		





No.	Date	Stat. Code	Phase	GMT		RES O-C	Z		E-W		N-S		MPV	MLH	Delta	Azimuth	Remarks	
				h	m s		A	T	A	T	A	T						
498	JUN 27	ZST	EAPKIKP EPKP2	14 31	36.6	1.5								153.67	29.57	South of Fiji 24.22 S 176.77 W Depth = 2 km	H = 14 MB = 5.1 11 42.0 /ISC/	
499	JUN 27	ZST	EAPKHKP	16 26	39.0	-1.2								153.57	29.46	South of Fiji 24.11 S 176.76 W Depth = 32 km	H = 16 MB = 4.9 6 37.5 /ISC/	
500	JUN 27	ZST	EP	23 39	16.7	-0.4								62.18	254.04	North Atlantic Ridge 10.68 N 42.80 W Depth = 33 km	H = 23 MB = 4.8 28 56.7 /ISC/	
501	JUN 28	SPC ZST	EPKP2 EPKHKP EPKIKP EPKP2	1 43	24.0	-1.4								149.15 150.99	29.67 24.89	Tonga 20.96 S 175.51 W Depth = 133 km	H = 1 MB = 4.9 23 46.0 /ISC/	
502	JUN 28	ZST	EP	3 51	56.9	-1.3								36.55	110.06	Southern Iran 27.57 N 56.16 E Depth = 55 km	H = 3 MB = 4.9 44 56.0 /ISC/	
503	JUN 28	SR0 ZST	-IP I -IP I I -IP I	7 15 7 17 7 15 7 15 7 15 7 15 7 15	3.8 52.0 5.0 12.0 16.0 25.7 30.9	0.8 -0.2 0.9								9.58 11.31	197.27 202.71	Sicily 38.60 N 14.70 E Depth = 257 km	H = 7 MB = 5.0 12 49.0 /ISC/	
504	JUN 28	ZST	IPG ESG	11 3	25.1												No determination of epicentre	
505	JUN 28	ZST SR0 SPC	EP IXP IP ESP EP	15 48 15 48 15 48 15 56 15 48	7.6 40.1 14.0 6.0 24.0	-0.9 17.6 -0.1 -2.4 0.1								55.04 55.83 57.18	265.49 266.69 267.27	North Atlantic Ridge 22.64 N 45.07 W Depth = 33 km	H = 15 MB = 5.3 38 37.8 /ISC/	
506	JUN 28	ZST SR0	EP E EP E ESP	16 27 16 28 16 27 16 29 16 35	45.0 25.0 50.0 34.0 42.0	-1.5 -2.1 -4.2								55.04 55.83	265.61 266.80	North Atlantic Ridge 22.71 N 45.14 W Depth = 35 km	H = 16 MB = 5.5 18 16.0 /ISC/	



No.	Date	Stat. Code	Phase	GMT			RES O-C	Z		E-W		N-S		MPV	MLH	Delta	Azimuth	Remarks
				h	m	s		A	T	A	T	A	T					
518	JUN 30	ZST	E EPN EPG EPG IPG	16 16 16 16 16	6 7 7 7 7	54.3 23.0 38.0 41.3 47.3	5.8 -6.6 -3.3 2.7								6.00	233.20	Northern Italy 44.40 N 10.40 E H = 16 Depth = 0 km	
519	JUN 30	ZST	EPP	19 31	17.0	1.4									10.38	202.88	Siolily 38.50 N 11.98 E H = 19 Depth = 8 km MB = 4.7	
520	JUL 1	SPC BRA	EP EAP EP EPP	14 51 14 52 14 51 14 53	13.6 6.0 30.0 12.0	2.1 1.1 1.2 1.4									38.70 40.82	89.62 86.14	Afghanistan-USSR Border Region 36.46 N 71.10 E H + 14 Depth = 260 km MB = 4.6	
521	JUL 1	BRA	EP	21 53	57.0	0.7									20.54	93.43	Eastern Caucasus 43.16 N 45.70 E H = 21 Depth = 53 km	
522	JUL 2	BRA	EPKIKP	1 14	19.0	-1.9									131.08	51.13	Solomon Islands 9.94 S 160.54 E H = 0 Depth = 19 km MB = 5.7	
523	JUL 2	SPC	IPG E E ESG	15 36 15 36 15 36 15 36	21.7 24.0 26.0 27.7												No determination of epicentre	
524	JUL 3	ZST	EPB EPG ESN ISB	11 45 11 46 11 46 11 46	59.0 5.0 35.0 44.0	1.7 0.9 1.7 2.9									3.39	236.94	Northern Italy 46.27 N 13.00 E H = 11 Depth = 10 km	
525	JUL 3	ZST	ESB E	12 17 12 18	13.0 17.0	-14.0									8.00	248.60	France 44.78 N 6.62 E H = 12 Depth = 10 km	
526	JUL 3	SPC ZST	EP IP	13 7 13 7	41.8 47.4	1.2 0.6									78.44 79.57	4.80 2.84	Fox Islands 52.54 N 167.47 W H = 12 Depth = 43 km MB = 5.0	
527	JUL 3	SPC SRO ZST BRA	EPCP IP ISKS EP EP EPP	14 52 14 53 15 3 14 53 14 53 14 57	54.0 2.0 37.0 7.0 8.0 26.0	0.9 2.0 2.9 3.9 4.9 9.7									99.41 100.99 101.67 101.68	76.78 75.53 74.51 74.52	Molucca Passage 1.42 N 126.36 E H = 12 Depth = 44 km MB = 6.0	



No.	Date	Stat. Code	Phase	GMT		RES O-C	Z		E-W		N-S		MPV	MLH	Delta	Azimuth	Remarks
				h	m		s	A	T	A	T	A					
538	JUL 8	ZST	EP EPCP	6 30	49.2	0.4									41.53	145.46	Ethiopia 11.08 N 39.62 E H = 6 23 Depth = 34 km MB = 5.0 /ISC/
539	JUL 9	ZST	EPB E ESB ESN	2 55 2 55 2 55 2 55	1.4 7.4 15.4 18.4												No determination of epicentre
540	JUL 9	ZST	EPE E EPN ESB ESN	8 59 8 59 8 59 9 0 9 0	52.3 54.1 56.8 10.8 12.8												No determination of epicentre
541	JUL 9	ZST	ESG	10 0	51.3												No determination of epicentre
542	JUL 9	ZST	EPN ESN E E	16 31 16 31 16 31 16 31	18.6 42.6 49.6 53.6												No determination of epicentre
543	JUL 9	SPC ZST	EPKP2 EPKHKP EAPKHKP	17 4 17 3 17 4	2.0 58.3 16.0	-5.5 -0.7 0.1								150.76 152.60	29.83 24.89		Tonga Region 22.50 S 174.99 W H = 16 44 Depth = 58 km MB = 5.4 /ISC/
544	JUL 10	ZST SPC	EP EP	0 28 0 28	58.6 59.0	0.2 0.3								90.47 90.53	154.84 157.17		Atlantic-Indian Ridge 37.90 S 49.61 E H = 0 15 Depth = 33 km MB = 5.3 /ISC/
545	JUL 10	ZST	EAPKIKP	2 1	24.0	-3.5								110.52	204.89		South Sandwich Islands Region 56.17 S 27.70 W H = 1 42 Depth = 120 km MB = 6.1 /ISC/
546	JUL 10	SPC ZST	EAPKIKP EPKSEC EPKIKP	2 56 3 0 2 56	50.3 32.0 48.0	-4.5 0.5 0.1								140.58 142.82	51.84 48.77		New Hebrides 19.12 S 168.37 E H = 2 37 Depth = 33 km MB = 5.5 /ISC/
547	JUL 10	SPC ZST	EPKP2 EAPKP2 EPKHKP EAPKP2	4 39 4 41 4 39 4 41	9.7 31.0 14.0 32.0	-5.3 4.6 6.1 -2.6								148.55 150.55	36.56 32.24		Fiji Region 21.78 S 179.29 W H = 4 20 Depth = 593 km MB = 5.3 /ISC/







No.	Date	Stat. Code	Phase	GMT		RES O-C	Z		E-W		N-S		MPV	MLH	Delta	Azimuth	Remarks			
				h	m		s	A	T	A	T	A						T		
559	JUL 14	ZST	EP	7	21	0.8	3.9							24.72	323.95	Iceland 64.48 N 17.52 W H = 7 Depth = 33 km MB = 4.8	15 37.4 /ISC/			
560	JUL	BRA 14	IPG	12	26	20.0											No determination of epicentre			
561	JUL 14	ZST	EP	16	40	21.5	-1.0							21.98	93.38	Eastern Caucasus 42.60 N 47.50 E H = 16 Depth = 33 km MB = 4.7	35 29.8 /ISC/			
562	JUL 14	ZST	EP	17	44	14.5	-0.6							75.43	208.48	South Atlantic Ridge 22.61 S 12.86 W H = 17 Depth = 33 km MB = 5.0	32 32.8 /ISC/			
563	JUL 15	SPC	EP	2	25	0.6	1.1								79.50	65.45	Taiwan Region 24.07 N 122.16 E H = 2 Depth = 50 km MB = 5.6	12 56.6 /ISC/		
				2	25	22.0	2.4													
				2	25	9.6	0.8													
				2	28	22.0	5.1													
				2	35	20.0	1.0					2.0	16.0	2.5	16.0	5.8				
				3	5	0.0														
				2	25	12.2	0.5													
2	25	29.1	-2.7																	
2	27	4.1																		
2	27	56.1	-0.4																	
2	28	21.0																		
2	30	33.0																		
564	JUL 15	BRA	EPP	5	8	13.0	-5.2							137.29	277.31	Easter Island Region 29.38 S 112.47 W H = 4 Depth = 21 km MB = 5.2	46 7.3 /ISC/			
565	JUL 16	BRA	EPKIKP	11	36	12.0	2.8							148.78	18.66	Tonga Region 17.96 S 172.93 W H = 11 Depth = 51 km MB = 5.0	16 31.4 /ISC/			
566	JUL 16	SPC	EPN	13	14	11.9	-4.0								2.70	227.45	Yugoslavia 46.31 N 14.24 E H = 13 Depth = 6 km	13 30.6 /ISC/		
				13	14	16.8	0.9													
				13	14	21.1	1.6													
				13	14	31.9	7.6													
				13	14	41.1	-8.7													
				13	14	47.6	-2.2													
				13	14	55.6	1.0													
				13	14	45.8	-2.5													
				13	14	50.0	1.7													
				13	15	16.7	6.9													
				13	15	36.0	-11.3													
				4.97	236.84															









No.	Date	Stat. Code	Phase	GMT		RES O-C	Z		E-W		N-S		MPV	MLH	Delta	Azimuth	Remarks	
				h	m s		A	T	A	T	A	T						
595	JUL 28	SPC ZST SRO	EP EP EP EXS LMH	15 34 15 34 15 34 15 45 16 16	46.9 48.0 50.0 19.0 0.0	1.1 1.7 0.2 -1.3		2.6	18.0	2.6	18.0			83.22 83.33 84.01	338.30 336.21 337.04	Off Coast of Oregon 44.17 N 129.07 W Depth = 15 km H = 15 MB = 5.0	22 18.6 /ISC/	
596	JUL 28	ZST	EPKP2	16 30	39.0	-0.1								154.08	26.89	South of Tonga 24.20 S 175.40 W Depth = 33 km H = 16 MB = 5.1	10 27.0 /ISC/	
597	JUL 28	SPC	EPN ESN	20 10 20 11	51.2 11.2												No determination of epicentre	
598	JUL 29	SPC ZST	EP +IP EPP	9 21 9 21 9 23	31.2 56.2 37.2	-6.4 0.7 -1.4								40.38 42.57	84.44 81.26	Southern Sinkiang Province 38.22 N 75.19 E Depth = 114 km H = 9 MB = 5.3	14 9.5 /ISC/	
599	JUL 29	SPC ZST BRA	EAPKIKP LMV EAPKIKP EPP LMV +LAPKIKP EPP E E LMV	11 34 12 30 11 34 11 36 12 30 11 34 11 36 11 42 11 49 12 30	43.5 0.0 47.1 43.0 0.0 49.8 39.4 31.0 8.0 0.0	0.5 -0.2 -4.4 2.4 -8.1							124.53 126.81 126.83	57.70 55.12 55.13	Solomon Islands 8.04 S 155.56 E Depth = 3 km H = 11 MB = 6.3	15 41.0 /ISC/		
600	JUL 29	ZST	-IPKP2	17 10	42.9	-5.2								149.70	22.99	Tonga 19.45 S 174.95 W Depth = 143 km H = 16 MB = 5.1	51 7.6 /ISC/	
601	JUL 29	ZST	EP	18 22	32.9												No determination of epicentre	
602	JUL 29	SRO BRA ZST	ESN ESB EPN EPG ESG -IPN IPN IPG ISN ESG EPN	21 56 21 56 21 55 21 55 21 56 21 55 21 55 21 56 21 56 21 56	15.0 23.0 39.2 51.2 51.2 40.2 44.0 55.8 19.5 47.0 6.4	0.5 2.7 -2.8 -2.3 15.3 -2.2 1.6 1.7 -3.1 10.2 3.9							2.94 3.24 3.26	192.87 176.41 176.41	Yugoslavia 44.94 N 17.39 E Depth = 6 km H = 21 MB = 49.0 /ISC/			



603	JUL 30	ZST	EP EPP	7 40 33.8 7 42 53.8	-19.6 -8.4															57.28	215.56	North of Ascension Island 3.25 S 12.24 W H = 7 Depth = 33 km MB = 5.0	31 /ISC/ 6.6
604	JUL 30	ZST	EP	16 14 50.8	-17.8															25.32	346.54	Jan Mayen Island Region 71.93 N 1.50 W H = 16 Depth = 20 km MB = 4.3	9 /ISC/ 41.6
605	JUL 30	SRO ZST	E EP E	19 58 7.0 19 54 21.0 19 58 23.1	-5.1															11.27 11.87	166.26 126.05	Southern Greece 36.80 N 21.63 E H = 19 Depth = 49 km MB = 4.9	51 /ISC/ 37.0
606	JUL 31	ZST	EPKHKP	3 1 1.2	-9.0															146.49	38.06	South of Fiji 19.32 S 175.98 E H = 2 Depth = 15 km MB = 4.9	41 /ISC/ 34.1
607	JUL 31	BRA	EP	11 36 57.0																		No determination of epicentre	
608	JUL 31	BRA	EP	11 45 18.0																		No determination of epicentre	
609	AUG 1	ZST	EP	4 40 4.4																		No determination of epicentre	
610	AUG 1	ZST	EAPKP2	10 40 54.4	-1.5															147.31	50.00	Loyalty Islands Region 23.29 S 170.36 E H = 10 Depth = 42 km MB = 5.3	21 /ISC/ 0.2
611	AUG 1	SPC ZST	EPKIKP EPKSDF EPKIKP	13 52 10.2 13 55 37.4 13 52 12.5	1.5 -5.6 -0.1															142.38 144.61	51.41 48.27	New Hebrides 20.49 S 169.65 E H = 13 Depth = 112 km MB = 5.6	32 /ISC/ 49.4
612	AUG 1	SPC ZST	EPKP2 EPKHKP IPKHKP IPKP2	19 30 36.4 19 30 35.4 19 30 40.4 19 30 47.9	-4.3 0.5 5.5 -0.8															147.44 149.37	33.56 29.15	Fiji Region 20.11 S 178.21 W H = 19 Depth = 597 km MB = 5.3	11 /ISC/ 57.0
613	AUG 2	SPC ZST	EPKP2 EPKP2	0 34 43.6 0 34 48.3	-1.1 -4.0															145.09 147.01	32.80 28.54	Fiji Region 17.77 S 178.74 W H = 0 Depth = 537 km MB = 5.0	16 /ISC/ 5.0
614	AUG 2	ZST	EP	0 42 51.4																		No determination of epicentre	







No.	Date	Stat. Code	Phase	GMT		RES O-C	Z		E-W		N-S		MPV	MLH	Delta	Azimuth	Remarks
				h	m		s	A	T	A	T	A					
636	AUG 11	SPC	EPKP2 IPKP2 LAPKIKP LAPKIKP LAPKIKP EPKSDP +IPKIKP LAPKIP2 I EPKSBG ESKPAB EAPKP2 ISS	2 2 2 2 2 2 2 2 2 2 2 2 2	23.5 26.3 35.9 56.3 58.0 25.7 1.7 40.0 47.0 28.0 6.0 58.0	-1.3 1.5 -0.6 19.8 3.5 2.2 14.6 -18.5 -1.0 18.7 -0.4								146.31	25.75	Tonga S 174.39 W H = 6.2 Depth = 53 km MB = 6.2	
637	AUG 11	ZST	E	11	1	46.5									148.05	21.05	No determination of epicentre
638	AUG 12	SPC ZST	IPKIKP IPKIKP	0 0	26 26	44.9 47.9	3.0 1.6							122.99 125.27	57.26 54.68		Solomon Islands 6.55 S 155.00 E H = 5.9 Depth = 62 km MB = 5.9
639	AUG 12	ZST	IRG I ISG	2 2 2	50 51 51	59.8 0.7 3.8											No determination of epicentre
640	AUG 13	ZST	EP	19	45	6.9	1.7							78.38	35.81		Hokkaido Region 43.13 N 145.58 E H = 19 Depth = 62 km MB = 5.0
641	AUG 14	ZST SPC	EP EPCP EAP EAP EP	4 4 4 4 4	34 34 34 34 34	21.1 31.0 47.0 51.0 34.6	0.9 -2.8 -1.3 2.7 2.7							74.91 76.98	269.57 271.67		Near Coast of Venezuela 10.94 N 62.36 W H = 4 Depth = 110 km MB = 4.9
642	AUG 14	ZST SRO SPC	EP E ESP EP E	19 19 19 19 19	15 16 25 15 16	26.7 2.7 41.0 37.8 14.0	-0.4 -0.9 -0.0							75.53 75.59 77.42	208.34 209.47 211.01		South Atlantic Ridge 22.75 S 12.76 W H = 19 Depth = 33 km MB = 4.8
643	AUG 14	SPC SRO ZST	EPCP EPP ESKS EPCP EAP EPP	21 21 22 21 21 21	52 56 2 52 52 56	8.6 5.0 49.0 17.1 31.1 10.0	0.2 -0.6 7.1 0.1 -2.7 -2.3							94.15 95.27 96.11	97.18 95.86 94.93		JAVA 7.89 S 107.55 E H = 21 Depth = 60 km MB = 5.8



No.	Date	Stat. Code	Phase	GMT			RES O-C	Z		E-W		N-S		MPV	MLH	Delta	Azimuth	Remarks
				h	m	s		A	T	A	T	A	T					
654	AUG 18	ZST	IP	9	30	52.3	-2.8								13.77	157.40	Kurile Islands 46.76 N 153.63 E H = 11 Depth = 36 km MB = 5.8	
			EAP	9	30	57.3	-6.4								14.12	168.95		
655	AUG 18	SPC	EP	12	11	27.4	-1.1								76.22	30.96	No determination of epicentre	
		SRO	+IP	12	11	38.4	-0.4							78.06	29.61			
		ZST	+IP	12	11	40.0	0.9							78.12	28.91			
656	AUG 18	ZST	IPG	12	33	9.8											Aleutian Islands Region 50.91 N 174.68 E H = 12 Depth = 32 km MB = 5.3	
			ISG	12	33	13.3									77.91	16.22		
657	AUG 18	SPC	EP	13	8	48.5	0.5								79.41	14.22	Central Mid-Atlantic Ridge 3.67 N 32.05 W H = 14 Depth = 33 km	
		ZST	-IP	13	8	57.3	1.1											
			IAP	13	9	7.7	1.4								61.05	239.62		
658	AUG 18	ZST	EP	14	45	38.0	0.2										No determination of epicentre	
659	AUG 18	ZST	IPG	17	14	44.9											South of Sumbawa 11.21 S 118.43 E H = 5 Depth = 54 km MB = 5.8	
			I	17	14	45.9												
			ISG	17	14	46.9												
660	AUG 19	ZST	-IPP	5	27	12.3	-3.7								105.81	89.17	Sumbawa 11.16 S 118.41 E H = 6 Depth = 33 km MB = 6.8	
			IPP	5	27	27.3	11.3											
661	AUG 19	SPC	EP	6	22	55.0	0.7								103.68	91.24	No determination of epicentre	
		SRO	IPP	6	27	26.0	12.4											
			EP	6	23	2.0	2.1											
			EXP	6	23	14.0	-0.4											
			E	6	25	10.0												
			E	6	26	6.0												
			IPP	6	27	38.0	14.6											
			IPS	6	36	54.0	19.7											
		HRB	E	6	23	50.0												
			E	6	27	54.0												
662	AUG 19	E	E	6	28	42.0									105.03	90.04	No determination of epicentre	
		E	E	6	37	12.0												
		LMH	LMH	7	23	0.0	-0.5											
		EPDIPF	EPDIPF	6	23	3.0												
		E	E	6	26	42.0												
663	AUG 19	EP	EP	6	27	37.0	7.9								105.76	89.16	No determination of epicentre	
		LMH	LMH	7	10	0.0												
664	AUG 19	ZST	EPDIPF	6	23	4.2	0.7								105.76	89.15	No determination of epicentre	
			EPDIPF	6	23	20.2	16.7											
		E	E	6	26	31.2												



1977

No.	Date	Stat. Code	Phase	GMT		RES O-C	Z		E-W		N-S		MPV	MLH	Delta	Azimuth	Remarks
				h	m		s	A	T	A	T	A					
672	AUG 20	SPC ZST	E EPP	9 39 9 40	34.4 16.0	-12.7									104.18 106.27	90.71 88.62	South of Sumba 11.19 S 119.14 E H = 9 Depth = 33 km MB = 5.7
673	AUG 20	SPC SRO ZST	E EPP E	19 34 19 34 19 34	3.2 58.0 13.8	-6.2									104.09 105.37 106.17	90.68 89.60 88.60	South of Sumba 11.10 S 119.09 E H = 19 Depth = 33 km MB = 5.9
674	AUG 20	ZST	IPG I ISG E	22 9 22 9 22 9 22 10	57.5 58.0 59.0 2.0												No determination of epicentre
675	AUG 21	SPC ZST	EAPKHKP EPKP2	5 4 5 4	7.7 9.8	-1.7 -0.5									144.23 145.89	22.84 18.19	Tonga 15.10 S 173.34 W H = 4 Depth = 33 km MB = 4.9
676	AUG 21	SPC ZST	EP EP EXP EPP	5 31 5 31 5 32 5 35	46.9 57.3 5.3 9.3	0.9 0.1 -1.1 -1.0									80.96 83.12	45.21 42.96	Near East Coast of Honshu 35.29 N 141.30 E H = 5 Depth = 21 km MB = 5.5
677	AUG 21	ZST	EAPKIKP	13 56	36.1	-3.8									161.87	238.29	South Pacific Cordillera 54.84 S 135.67 W H = 13 Depth = 33 km MB = 5.2
678	AUG 21	ZST	EPKIKP EPKP2	19 54 19 55	56.9 32.9	0.4 -1.7									158.76	37.76	Kermadec Islands 30.24 S 177.75 W H = 19 Depth = 33 km MB = 5.7
679	AUG 23	ZST	IAPKHKP IPKP2	8 27 8 27	24.5 28.5	1.7 0.6									155.35	29.61	South of Fiji 25.80 S 176.11 W H = 8 Depth = 54 km MB = 5.4
680	AUG 23	SPC	EP	9 6	5.5												No determination of epicentre
681	AUG 23	SPC ZST	EPP EPP	10 42 10 42	24.0 45.5	-4.8 1.2									103.43 105.50	92.08 89.99	South of Sumbawa 11.52 S 117.62 E H = 10 Depth = 33 km MB = 5.5
682	AUG 24	ZST	EP	3 57	14.6	-2.6									84.09	55.72	Ryukyu Islands Region 26.99 N 130.02 E H = 3 Depth = 5 km MB = 5.1



No.	Date	Stat. Code	Phase	GMT		RES O-C	Z		E-W		N-S		MPV	MLH	Delta	Azimuth	Remarks
				h	m s		A	T	A	T	A	T					
694	AUG 26	SPC	EP	13	4 23.6												No determination of epicentre
695	AUG 26	ZST	+IPKIKP	14	25 35.0	-0.1									144.73	48.07	New Hebrides 20.53 S 169.82 E H = 14 Depth = 159 km MB = 5.1 6 17.5 /ISC/
696	AUG 26	SRO	E EPP IPS	20 20 20	4 9 18 50 58 25 19 14 52 4 42 9 15 19 54 9 28 19 55	-1.0 3.7 12.3											South-Western Atlantic Ocean 59.54 S 20.59 W H = 19 Depth = 33 km MB = 6.3 50 2.3 /ISC/
		ZST	E ISS E LMH	20 20 20 20	19 19 14 52		23.5	22.0	16.9	22.0		6.8			111.62	200.13	
		ZST	E IPP	20 20	4 42	-4.4									111.70	199.59	
		SPC	E LMV EPP E LMV	20 20 20 20 20	54 9 28 19 55	-4.4									113.36	201.28	
697	AUG 27	SPC	EPDIPP	7	26 33.8	-0.6											Timor 8.10 S 125.38 E H = 7 Depth = 4 km MB = 6.2 12 20.0 /ISC/
		SRO	E EPP LMV EPDIPP	7 7 7 8	29 31 1.0 31 0.0 26 43 29 59 7 30 59 31 15 40 19 41 35 45 51 19 0.0 26 48 29 57 31 17 42 8.0	0.8 2.1 -12.3 3.7 -9.0 -6.3 4.0 0.7											
		ZST	E EPP IPP ISP I ESS LMH EPDIPP	7 7 7 7 7 7 8	41 35 51 0.0 19 0.0 26 48 29 57 31 17 42 8.0		32.3	23.0	19.2	23.0		6.9			108.17	81.70	
698	AUG 28	ZST	IP	9	48 6.0	-0.8											Western Mediterranean Sea 38.24 N 8.19 E H = 9 Depth = 7 km MB = 5.1 45 14.0 /ISC/
		SRO	E EP E E LMH	9 9 9 9 9	51 48 49 51 53 48 48 51 55	2.3 3.1 0.5 2.9											
		SPC	EP EPP ESS LMV	9 9 9 9	48 48 46 46 30 0.0		12.2	10.0	9.4	10.0		5.3			13.97	222.93	





No.	Date	Stat. Code	Phase	GMT		RES O-C	Z		E-W		N-S		MPV	MLH	Delta	Azimuth	Remarks
				h	m s		A	T	A	T	A	T					
708	AUG 31	ZST	IP	9	16 29.0												No determination of epicentre
709	AUG 31	ZST	IPG ISG	11 2 46.2 11 2 49.2													No determination of epicentre
710	AUG 31	SPC	EPB EPG I ISG	12 44 25.9 12 44 27.7 12 44 33.6 12 44 38.3													No determination of epicentre
711	AUG 31	SPC	EPB ESB ESN	17 45 12.3 17 45 32.7 17 45 38.3	-3.2 0.1 4.3									1.27	331.50		Poland 50.30 N 19.30 E H = 17 Depth = 33 km 44 51.0 /ISC/
712	SEP 1	SPC	EP I EPP E EPCP +IP	3 5 56.3 3 6 17.6 3 6 43.2 3 8 16.5 3 9 10.3 3 6 11.9	-0.3 -4.7 1.4 0.3									28.47 30.15	19.83 20.33		Novaya Zemlya 73.37 N 54.41 E H = 2 Depth = 0 km MB = 5.7 59 57.8 /ISC/
713	SEP 1	ZST	EPCP	17 49 56.8	2.5									86.78	277.38		Northern Colombia 7.38 N 76.23 W H = 17 Depth = 39 km MB = 5.2 37 10.3 /ISC/
714	SEP 2	SPC BRA	EP EP	5 53 46.5 5 53 59.0	1.6 2.0									80.16 82.47	60.97 58.64		Ryukyu Islands 26.43 N 126.35 E H = 5 Depth = 106 km MB = 5.5 41 45.0 /ISC/
715	SEP 2	SPC SRO ZST	E E E EPDIFF EPP	10 53 53.0 10 54 19.0 11 0 43.0 10 50 39.0 10 55 11.5	0.7 6.1									104.09 105.38 106.18	90.58 89.50 88.49		South of Sumba 11.04 S 119.17 E H = 10 Depth = 74 km MB = 5.8 36 32.5 /ISC/
716	SEP 2	ZST	EPN EPG ESN ESB ISB	22 48 32.3 22 48 52.3 22 49 19.3 22 49 48.3 22 49 57.8	-2.6 -6.1 -18.4 -5.7 3.8									5.31	270.28		Germany 47.95 N 9.19 E H = 22 Depth = 10 km 47 12.4 /ISC/
717	SEP 3	ZST	E E	12 9 1.3 12 9 14.3													No determination of epicentre

718	SEP 3	ZST	EAPK2 EAPK1KP	12 15 58.3 12 16 14.3	-1.9 1.7													146.23	17.85	Tonga 15.39 S 173.07 W H = 11 Depth = 55 km MB = 5.3	56 23.1 /ISC/
719	SEP 3	ZST	EP	15 45 25.4	1.6													75.46	281.21	Dominican Republic Region 18.33 N 71.20 W H = 15 Depth = 38 km MB = 4.6	33 42.0 /ISC/
720	SEP 3	ZST	EAP	22 46 12.0	-9.8													90.28	289.12	Near Coast of Nicaragua 12.53 N 87.53 W H = 22 Depth = 79 km MB = 5.2	33 6.9 /ISC/
721	SEP 4	SPC	EP	8 22 30.0	2.6													17.39	213.45	Tunisia 34.00 N 8.81 E H = 8 Depth = 33 km MB = 4.5	18 25.9 /ISC/
722	SEP 4	SPC SRO ZST	EPKIKP IAPKHKP IPP EPKIKP IPP E E LMH +IPKIKP IPP IPKSBC E	9 7 56.1 9 7 59.4 9 10 33.0 9 7 59.0 9 10 43.0 9 23 32.0 10 7 0.0 10 7 0.0 9 8 1.1 9 10 46.6 9 11 33.1 9 20 28.0	0.4 1.4 -2.9 -0.1 -4.3  1.3 -3.1 -0.3												135.21 137.09 137.43	49.59 48.35 46.55	New Hebrides 13.74 S 166.74 E H = 8 Depth = 55 km MB = 6.0	48 42.1 /ISC/	
723	SEP 4	SPC ZST SRO	EP LMV -IP ESP -IP ISKS	15 52 55.0 16 35 0.0 15 53 5.5 16 3 47.0 15 53 5.4 16 3 14.0	-0.6 2.1 -1.5 0.9 -1.7	99	1.2	5.6										78.35 79.78 79.98	13.86 11.86 12.60	Rat Islands 51.11 N 178.39 E H = 15 Depth = 20 km MB = 5.6	40 55.0 /ISC/
724	SEP 4	ZST	EP	16 5 48.0	0.6													79.78	11.78	Rat Islands 51.13 N 178.51 E H = 15 Depth = 53 km MB = 5.0	53 43.3 /ISC/
725	SEP 4	SPC ZST	EP EP EPP	16 52 12.4 16 52 22.0 16 55 40.0	1.8 0.3 1.2													82.29 84.48	46.62 44.35	South of Honshu 33.39 N 140.83 E H = 16 Depth = 22 km MB = 5.5	39 49.3 /ISC/
726	SEP 4	ZST	EP	16 56 34.0	-0.1													80.10	11.90	Rat Islands 50.79 N 178.43 E H = 16 Depth = 14 km MB = 5.3	44 23.0 /ISC/



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Centre

No.	Date	Stat. Code	Phase	GMT		RES O-C	Z		E-W		N-S		MPV	MLH	Delta	Azimuth	Remarks
				h	m s		A	T	A	T	A	T					
727	SEP 4	ZST EP	EP	17	0 52.0	0.7									79.82	11.90	Rat Islands 51.06 N 178.35 E H = 16 Depth = 36 km MB = 5.1 48 /ISC/
728	SEP 4	SPC ZST EP EP	EP EP	17 22 29.0 17 22 38.0	-0.6 0.6										78.31 79.75	13.95 11.95	Rat Islands 51.12 N 178.24 E H = 17 Depth = 6 km MB = 5.6 10 /ISC/
729	SEP 4	ZST EP	EP	17 28 22.0	1.0										79.76	11.98	Rat Islands 51.10 N 178.20 E H = 17 Depth = 33 km MB = 5.4 16 /ISC/
730	SEP 4	SPC ZST EP I EPP +IP EPP LMV	EP	17 36 45.0 17 37 29.0 17 39 34.0 17 36 53.0 17 39 59.0 18 19 0.0	-0.1 -9.6 0.0 3.9										78.08 79.52	14.11 12.11	Rat Islands 51.31 N 177.91 E H = 17 Depth = 24 km MB = 5.8 24 /ISC/
731	SEP	ZST EP	EP	17 50 29.0	0.1										79.62	12.23	Rat Islands 51.18 N 177.77 E H = 17 Depth = 38 km MB = 5.3 38 /ISC/
732	SEP 4	SPC ZST EP EP	EP EP	18 12 8.0 18 12 18.0	-1.0 1.2										78.37 79.80	13.89 11.88	Rat Islands 51.08 N 178.36 E H = 18 Depth = 40 km MB = 4.9 0 /ISC/
733	SEP 4	ZST -IP	-IP	18 37 55.0	0.8										79.67	12.20	Rat Islands 51.14 N 177.84 E H = 18 Depth = 41 km MB = 5.3 25 /ISC/
734	SEP 4	ZST EP	EP	18 50 30.0	-0.0										79.75	11.94	Rat Islands 51.12 N 178.26 E H = 18 Depth = 15 km MB = 5.1 38 /ISC/
735	SEP 4	ZST EP	EP	19 35 8.0	1.6										79.69	12.30	Rat Islands 51.10 N 177.68 E H = 19 Depth = 17 km MB = 5.1 22 /ISC/
736	SEP 4	SPC ZST EP IP	EP IP	23 32 43.0 23 32 51.7	-1.0 -0.1										78.33 79.77	13.92 11.92	Rat Islands 51.11 N 178.30 E H = 23 Depth = 26 km MB = 5.5 20 /ISC/
737	SEP 5	ZST EP	EP	1 10 22.0	3.7										79.78	12.27	Rat Islands 51.02 N 177.77 E H = 0 Depth = 36 km MB = 4.9 58 /ISC/



No.	Date	Stat. Code	Phase	GMT		RES O-C	Z		E-W		N-S		MPV	MLH	Delta	Azimuth	Remarks
				h	m s		A	T	A	T	A	T					
749	SEP 9	ZST	EP	2	45 37.0	1.1								72.47	44.62	E.Russia-N.E.China Border Region 42.88 N 131.43 E H = 2 35 Depth = 530 km MB = 4.8 /ISC/	
750	SEP 9	ZST	ESB	9	6 43.6	-1.4								2.82	315.34	Czechoslovakia 50.16 N 14.02 E H = 9 5 Depth = 0 km /ISC/	
751	SEP 9	ZST	IPG ESG	10	51 43.9 10 51 45.4											No determination of epicentre	
752	SEP 9	ZST	E	12	27 9.3											No determination of epicentre	
753	SEP 9	ZST	EPKHKP	17	57 0.5	2.3							149.55	28.14	Fiji Region 20.10 S 177.63 W H = 17 38 Depth = 561 km MB = 4.7 /ISC/		
754	SEP 10	ZST	EPB ESN ESG	0 55 28.4 0 55 59.0 0 56 7.4	0.4 1.7 1.1								2.58	202.34	Yugoslavia 45.80 N 15.70 E H = 0 54 Depth = 0 km /ISC/		
755	SEP 10	SRO ZST SPC	EP ESS EP EPP E EAP	6 34 52.0 6 37 30.0 6 34 57.8 6 35 17.0 6 35 42.8 6 35 13.5	-0.7 -7.1 -3.1 4.7 1.7								13.36 13.98 14.40	162.77 159.23 170.56	Crete 34.93 N 23.09 E H = 6 31 Depth = 24 km MB = 4.9 /ISC/		
756	SEP 10	ZST	EPCP	10 34 14.0	1.2								91.79	293.16	Near Coast of Guatemala 13.97 N 91.71 W H = 10 21 Depth = 72 km MB = 5.3 /ISC/		
757	SEP 10	SPC ZST	EP EPCP IAP	13 52 3.0 13 52 12.9 13 52 49.5	-0.4 0.1 -1.7								92.89 94.87	96.69 94.41	Java 6.61 S 107.09 E H = 13 39 Depth = 152 km MB = 5.7 /ISC/		
758	SEP 11	SPC ZST	EAPKIKP EAPKIKP	5 27 19.0 5 27 20.6	-3.4 -3.3								149.76 150.72	129.30 130.62	West of Macquarie Island 59.63 S 150.17 E H = 5 5 Depth = 33 km MB = 5.2 /ISC/		
759	SEP 11	SPC ZST SRO	EPKP2 IPKP2 +IPKP2 EAPKHKP	14 27 41.1 14 27 45.5 14 27 45.5 14 27 54.5	2.8 0.9 0.6 1.3								144.67 146.32 146.42	22.53 17.83 20.07	Tonga 15.48 S 173.04 W H = 14 8 Depth = 54 km MB = 5.2 /ISC/		



No.	Date	Stat. Code	Phase	GMT		RES O-C	Z		E-W		N-S		MPV	MLH	Delta	Azimuth	Remarks
				h	m		s	A	T	A	T	A					
770	SEP 14	ZST	EPN ESG	8 52 8 53	12.7 39.7	4.8 -4.2								5.47	157.97	Yugoslavia 43.09 N 19.90 E H = 8 Depth = 0 km	50 43.2 /ISC/
771	SEP 14	ZST	EPG ESG	11 3 11 3	31.9 33.7											No determination of epicentre	
772	SEP 14	ZST	EPB ESG	13 39 13 40	17.7 4.7	0.1 -2.5								3.29	236.86	Austria 46.33 N 13.13 E H = 13 Depth = 10 km	38 18.6 /ISC/
773	SEP 14	ZST	EAP EXP ES	18 52 18 52 18 55	29.6 37.7 16.0	0.0 -0.2 4.1								14.05 14.47	159.38 170.67	Crete 34.86 N 23.07 E H = 18 Depth = 19 km MB = 5.0	49 5.0 /ISC/
774	SEP 14	ZST	E	19 14	53.6											No determination of epicentre	
775	SEP 15	ZST	EP E	15 56 17 57	57.0 10.8	-0.4								13.95 14.38	159.37 170.72	Crete 34.95 N 23.04 E H = 15 Depth = 50 km MB = 4.6	53 40.7 /ISC/
776	SEP 16	SPC ZST	EPKIKP EPKIKP EPKP2	3 29 3 29 3 30	35.0 34.0 10.0	2.7 -1.1 -1.8								155.84 157.97	43.73 39.26	Kermadec Islands 29.81 S 178.75 W H = 3 Depth = 204 km MB = 4.9	10 3.3 /ISC/
777	SEP 16	BRA HRB	IPN EPN IPB ESN ESG IMH +IPN IPG ISN IMH EPN IPB IMV	23 49 23 49 23 49 23 49 23 50 23 52 23 49 23 49 23 49 23 53 23 49 23 49 23 52	2.2 8.6 21.0 53.5 25.6 0.0 8.9 25.9 58.0 30.0 33.5 45.3 30.0	-1.1 -2.0 3.4 -4.3 8.5 -2.5 -1.1 -1.2 -2.6 -3.1								3.39 3.90	237.62 247.81	Northern Italy 46.28 N 12.98 E H = 23 Depth = 21 km MB = 5.1	48 8.1 /ISC/
		SRO					122.3	5.0	113.6	6.0				3.96	249.15		
		SPC												5.70	242.03		
778	SEP 17	SPC	EP E	5 37 5 40	19.7 43.0	0.6 2.8								101.27	56.98	South of the Marianas 11.80 N 143.12 E H = 5 Depth = 43 km MB = 5.8	5 31.5 /ISC/
		SRO	+IP EPP ESP IMH EP	5 37 5 41 5 50 6 27 5 37	30.0 46.0 46.0 30.0 29.3	0.9 -0.4 0.1								103.10	55.63		
		ZST					6.3	18.0	7.2	18.0		6.4		103.55	54.55		





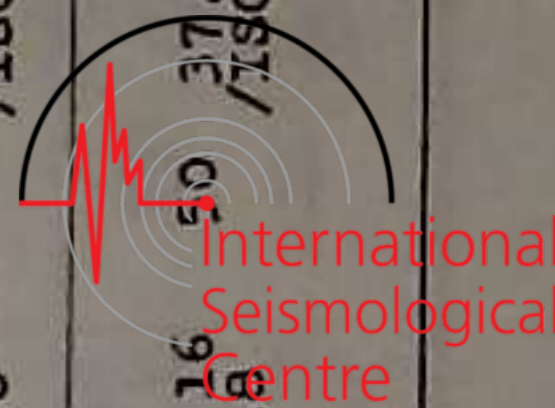


No.	Date	Stat. Code	Phase	GMT			RES O-C	Z		E-W		N-S		MPV	MLH	Delta	Azimuth	Remarks
				h	m	s		A	T	A	T	A	T					
790	SEP 19	ZST	EAPKHKP	6	31	31.4	-0.1								146.92	16.63	Samoa Region 15.93 S 172.24 W H = 6 Depth = 33 km MB = 4.7	11 46.5 /ISC/
791	SEP 19	ZST	EPKP2	13	9	21.6	0.2								144.50	32.86	Fiji 16.28 S 177.95 E H = 12 Depth = 20 km MB = 5.4	49 46.0 /ISC/
792	SEP 19	ZST	EPKIKP IPKP2	14 37 14 37	25.6 55.6	1.5 -1.1									156.65	35.36	Kermadec Islands Region 27.94 S 177.92 W H = 14 Depth = 173 km MB = 5.1	17 50.3 /ISC/
793	SEP 19	ZST	EP	14	49	52.7	-0.4								78.73	32.61	Kurile Islands 44.46 N 149.54 E H = 14 Depth = 24 km MB = 4.9	37 51.0 /ISC/
794	SEP 20	ZST	EP EKP	2 11 2 12	57.5 15.5	0.2 -1.9									79.00	32.95	Kurile Islands 44.06 N 149.32 E H = 1 Depth = 50 km MB = 4.8	59 57.1 /ISC/
795	SEP 20	ZST	EPG ESG	11 1 11 1	39.0 41.0												No determination of epicentre	
796	SEP 20	ZST	EPN	20	23	4.0	-0.4								5.38	167.40	Yugoslavia 42.93 N 18.70 E H = 20 Depth = 10 km	21 40.9 /ISC/
797	SEP 20	SR0 ZST SPC	EPN ESB ESG EPN PN EPB	20 29 20 30 20 30 20 29 20 29 20 29	36.0 40.0 56.0 34.5 40.0 59.0	4.6 -1.2 3.0 -3.9 1.6 -6.8									4.71 5.20 6.18	176.82 167.24 190.78	Yugoslavia 43.11 N 18.67 E H = 20 Depth = 10 km	28 17.4 /ISC/
798	SEP 21	SPC ZST	EAPKHKP EPKIKP EPKP2	9 47 9 47 9 48	56.3 51.8 13.8	1.8 2.1 1.7									151.64 153.51	30.93 25.96	Tonga Region 23.52 S 175.18 W H = 9 Depth = 15 km MB = 5.4	27 59.6 /ISC/
799	SEP 21	SPC ZST	EP EP	17 50 17 51	53.0 1.5	-0.5 -1.9									70.80 72.46	21.69 19.87	Near East Coast of Kamchatka 55.66 N 162.22 E H = 17 Depth = 48 km MB = 5.1	39 40.1 /ISC/



No.	Date	Stat. Code	Phase	GMT			RES O-C	Z		E-W		N-S		MPV	MLH	Delta	Azimuth	Remarks
				h	m	s		A	T	A	T	A	T					
808	SEP 23	ZST	E	21	3	53.0									108.71	77.34	Banda Sea 5.75 S 128.87 E H = 20 Depth = 311 km MB = 5.4 45 56.1 /ISC/	
809	SEP 24	ZST	ESG	0	51	48.0	6.6								3.32	237.91	Austria 46.36 N 13.04 E H = 0 49 51.7 /ISC/ Depth = 0 km	
810	SEP 24	ZST	I I I I	9	35	35.8 9 35 46.8 9 35 57.7 9 36 49.8											No determination of epicentre	
811	SEP 24	ZST	E	10	43	59.7											No determination of epicentre	
812	SEP 24	ZST SPC	EP EXP EAP	20	46	29.0 20 46 43.0 20 46 36.0	4.0 1.4 -3.2								13.99 14.39	158.67 170.02	Crete 34.96 N 23.25 E H = 20 43 7.8 /ISC/ Depth = 51 km MB = 4.5	
813	SEP 25	SPC SRO ZST	+IPG IPG ISB ISG ISG EPG ESB I EPN EPB EPG ISG	8 25 40.1 8 25 44.1 8 26 4.9 8 26 9.4 8 26 12.7 8 26 5.0 8 26 43.0 8 27 25.0 8 26 3.8 8 26 16.3 8 26 27.0 8 27 10.0	-1.2 2.8 0.5 2.3 5.6 -0.8 2.0 -1.3 4.1 6.3 -2.3									1.97 3.20 3.94	111.33 76.97 84.26	South-Western Russia 48.44 N 23.00 E H = 8 25 2.0 /ISC/ Depth = 15 km MB = 4.5		
814	SEP 25	SPC ZST	IPKHKP -IPKHKP IPKP2 EAPKP2	16 33 47.0 16 33 51.7 16 34 1.7 16 36 18.0	5.6 4.9 -0.6 4.0									148.53 150.54	36.86 32.56	Fiji Region 21.83 S 179.45 W H = 16 15 5.6 /ISC/ Depth = 596 km MB = 5.4		
815	SEP 25	ZST	EXP	20	0	24.0	2.0								13.90	128.30	Turkey 38.64 N 31.03 E H = 19 56 56.9 /ISC/ Depth = 18 km MB = 4.4	
816	SEP 25	ZST	EAPKHKP	20	57	47.7	-0.3								145.75	19.30	Tonga 15.10 S 174.00 W H = 20 38 6.3 /ISC/ Depth = 33 km	

817	SEP 26	ZST	EAPKIKP	5 16 51.6	0.2														151.02	131.72	West of Macquarie Island 60.15 S 150.80 E H = 4 Depth = 33 km MB = 5.2	56 /ISC/ 57.1
818	SEP 26	ZST	EP	8 32 55.5	0.5														74.23	21.70	Near East Coast of Kamchatka 53.34 N 160.71 E H = 8 Depth = 56 km MB = 4.8	21 /ISC/ 22.3
819	SEP 27	SPC	E	5 40 5.3																	No determination of epicentre	
820	SEP 27	ZST	IPG ISG	8 3 2.1 8 3 4.1																	No determination of epicentre	
821	SEP 28	ZST	EPM IPB IPG ESG	1 44 10.6 1 44 19.6 1 44 30.6 1 45 6.6	-0.2 3.1 7.0 -2.4														3.47	236.81	Northern Italy 46.22 N 12.92 E H = 1 Depth = 10 km	43 /ISC/ 14.4
822	SEP 28	ZST	EPG ESG	1 57 45.6 1 58 29.6	-0.3 -1.3														3.44	236.60	Northern Italy 46.23 N 12.97 E H = 1 Depth = 10 km	56 /ISC/ 37.4
823	SEP 28	SPC ZST	EPKP2 EPKHKP	12 32 1.0 12 31 57.4	-4.2 0.3														150.19 151.98	28.05 23.07	Tonga 21.66 S 174.31 W H = 12 Depth = 122 km MB = 5.4	12 /ISC/ 20.2
824	SEP 28	SPC	E	13 2 26.4																	No determination of epicentre	
825	SEP 28	ZST	-ISG	13 41 54.4	-2.8														3.46	236.74	Northern Italy 46.22 N 12.93 E H = 13 Depth = 10 km	40 /ISC/ 2.8
826	SEP 29	SPC ZST	EPKP2 -IAPKHKP IAPKIKP	18 51 14.0 18 51 17.2 18 51 21.2	0.1 -3.1 0.5														147.44 149.12	23.41 18.48	Tonga Region 18.30 S 172.76 W H = 18 Depth = 33 km MB = 5.2	31 /ISC/ 29.3
827	SEP 30	SPC BRA	EAPKHKP EPKHKP	11 57 24.3 11 57 17.0	-1.8 -3.1														145.36 147.03	22.24 17.49	Samoa Region 16.11 S 172.69 W H = 11 Depth = 33 km MB = 5.0	37 /ISC/ 45.4
828	SEP 30	SPC BRA	EP EPP EP	16 55 12.6 16 55 33.7 16 55 38.0	1.1 3.7 8.3														19.79 21.54	108.18 101.79	Eastern Caucasus 40.04 N 45.02 E H = 16 Depth = 1 km MB = 4.8	50 /ISC/ 37.0



No.	Date	Stat. Code	Phase	GMT		RES O-C	Z		E-W		N-S		MPV	MLH	Delta	Azimuth	Remarks
				h	m		A	T	A	T	A	T					
829	SEP 30	BR	EXP	19	26	29.0	-17.5								40.74	80.89	Tadzhikistan-Sinkiang 39.39 N 73.36 E H = 19 Depth = 917 km MB = 8.5
830	SEP 30	SPC BR SRO	+IAPKHKP IAPKHKP +IPKP2 EPP	21	42	34.3	-0.1								145.27 146.95 147.02	22.41 17.67 19.92	Samoa Region 16.05 S 172.81 W H = 21 Depth = 23 km MB = 5.4
831	OCT 1	ZST	IP EAP	13	17	33.4	0.1								74.03	93.46	Nicobar Islands Region 9.60 N 93.78 E H = 13 Depth = 132 km MB = 4.9
832	OCT 2	SPC ZST	EXP EXP	13	15	55.0	-1.4								88.61 90.90	73.93 71.58	Peney 11.60 N 121.60 E H = 13 Depth = 26 km MB = 5.4
833	OCT 3	SPC	EP	2	39	10.9											No determination of epicentre
834	OCT 3	ZST	IPN ISG	9	2	33.5											No determination of epicentre
835	OCT 3	ZST	EPN	15	11	44.0											No determination of epicentre
836	OCT 3	ZST	EPKIKP	19	55	28.8	4.1							159.07	35.87		Kermadec Islands Region 30.20 S 176.89 W H = 19 Depth = 46 km MB = 4.9
837	OCT 3	SPC ZST	IP -IP	22	57	14.8	0.9								82.11 84.05	98.46 95.96	Northern Sumatra 0.46 N 98.70 E H = 22 Depth = 35 km MB = 5.4
838	OCT 4	ZST	+IP	13	56	32.1	-3.0								75.29	269.14	Near Coast of Venezuela 10.38 N 62.32 W H = 13 Depth = 42 km MB = 5.1
839	OCT 4	SPC ZST	EP EP	15	51	1.0	2.7								79.61 81.78	45.70 43.47	Honshu 36.12 N 139.86 E H = 15 Depth = 66 km MB = 5.3





No.	Date	Stat. Code	Phase	GMT		RES O-C	Z		E-W		N-S		MPV	MLH	Delta	Azimuth	Remarks	
				h	m s		A	T	A	T	A	T						
849	OCT 7	ZST	EPP	21	54 27.0	-6.1								104.13	89.16	Sumbawa Region 9.97 S 117.27 E H = 21 Depth = 36 km MB = 5.7	36 11.4 /ISC/	
850	OCT 8	ZST	IAP	3	17 49.0	0.6								98.17	264.91	Peru 9.53 S 74.63 W H = 3 Depth = 129 km MB = 5.4	3 51.6 /ISC/	
851	OCT 8	SPC ZST	EPCP E EPP EAP EXP	21 19 47.8 21 20 30.0 21 23 17.0 21 20 3.0 21 20 24.0		-0.8 -2.4 -2.9 15.1								89.09 91.39	70.77 68.42	Luzon 13.27 N 124.40 E H = 21 Depth = 26 km MB = 5.5	6 52.6 /ISC/	
852	OCT 9	ZST	EP	4	18 29.5	-0.4								74.14	18.14	Komandorsky Islands Region 54.74 N 166.01 E H = 4 Depth = 42 km MB = 4.8	6 56.1 /ISC/	
853	OCT 10	ZST	E E	6 12 44.5 6 13 22.3										12.82	266.75	France 45.94 N 1.40 W H = 6 Depth = 10 km	5 54.2 /ISC/	
854	OCT 10	ZST	EPG	11	2 46.3												No determination of epicentre	
855	OCT 10	SPC HRB SRO ZST BRA	EAPKHKP EPP LMV EPKIKP EPKP2 LMH -IAPKHKP IAPKHKP LMH IPKIKP IAPKIKP IAPKP2 EPP LMV -IPKIKP IPP E LMV	12 13 53.6 12 17 39.3 13 35 0.0 12 13 47.0 12 14 9.0 13 36 0.0 12 13 55.9 12 13 59.1 13 30 0.0 12 13 46.3 12 13 53.3 12 14 17.8 12 17 42.0 13 35 0.0 12 13 45.0 12 17 44.0 12 26 43.0 13 31 0.0		-1.2 -1.4 2.8 -3.8 -3.2 0.0 2.0 1.1 -3.0 -9.2 0.6 -7.3								153.74 155.58 155.59 155.66	33.23 30.73 31.04 28.16	South of Tonga 25.87 S 175.37 W H = 11 Depth = 24 km MB = 6.4	53 52.9 /ISC/	
856	OCT 10	ZST	EP I	13 22 14.0 13 22 39.3										155.68	28.20		No determination of epicentre	



857	OCT 10	ZST	EPKHKP	13 28 35.0	-3.0														South of Tonga 25.98 S 175.50 W H = 13 Depth = 36 km MB = 5.4	8	41.3 /ISC/
858	OCT 10	SPC	IPN	15 5 44.3	-3.3													Poland 50.40 N 19.00 E H = 15 Depth = 0 km	5	20.0 /ISC/	
		ZST	ISB ISG E EPG	15 6 6.3 15 6 27.5 15 6 46.1 15 6 8.3	-0.9 19.4 -2.2																
859	OCT 11	ZST	EP	5 15 21.4	0.5													Andreevof Islands 51.13 N 176.78 W H = 5 Depth = 52 km MB = 4.6	3	13.7 /ISC/	
860	OCT 11	SRO	IPG	10 16 40.0														No determination of epicentre			
861	OCT 11	SRO	IPG	10 17 52.0														No determination of epicentre			
862	OCT 11	ZST	EPG ESG	12 49 30.4 12 49 34.2														No determination of epicentre			
863	OCT 11	SRO	BPG	14 35 40.0														No determination of epicentre			
864	OCT 11	ZST	ESG	19 11 30.4	0.2													Germany 51.20 N 11.60 E H = 19 Depth = 33 km	8	56.0 /ISC/	
865	OCT 12	ZST	EPG ESG	8 6 29.5 8 6 32.5														No determination of epicentre			
		ZST	E	9 12 55.5														No determination of epicentre			
866	OCT 12	ZST	IPB I ESG E E ESN	23 38 15.6 23 38 17.4 23 38 22.0 23 38 24.0 23 38 26.4 23 38 28.4														No determination of epicentre			
		ZST	EPKP2 EAPK1KP	0 59 14.0 0 59 27.4	-0.6 2.3														West of Macquarie Island 54.43 S 143.90 E H = 0 Depth = 33 km MB = 5.4	39	37.3 /ISC/
868	OCT 13	SPC ZST																			

1977

No.	Date	Stat. Code	Phase	GMT			RES O-C	Z		E-W		N-S		MPV	MLH	Delta	Azimuth	Remarks
				h	m	s		A	T	A	T	A	T					
869	OCT 13	ZST	IPKP2	1	4	35.4	-4.6								147.49	28.22	Fiji Region 18.17 S 178.40 W H = 0 Depth = 596 km MB = 5.1	45 56.0 /ISC/
870	OCT 13	ZST	IP	7	9	3.0	-0.2								74.23	93.49	Nicobar Islands Region 9.43 N 93.90 E H = 6 Depth = 21 km MB = 5.0	57 26.0 /ISC/
871	OCT 13	ZST	EAP	8	2	25.0	-2.7								74.25	93.59	Nicobar Islands Region 9.35 N 93.84 E H = 7 Depth = 33 km MB = 4.7	50 41.8 /ISC/
872	OCT 13	ZST	IPKP2	9	22	10.4	1.0								145.75	26.39	Fiji Region 16.18 S 177.99 W H = 9 Depth = 196 km MB = 4.5	2 51.0 /ISC/
873	OCT 13	SPC ZST	EP EAP EP IAP	11 42 11 42 11 42 11 42	17.4 40.0 37.0 53.0	-5.8 0.4 -0.5 -1.0									61.70 63.86	86.21 83.44	Burma-India Border Region 23.47 N 93.33 E H = 11 Depth = 61 km MB = 5.2	32 9.1 /ISC/
874	OCT 13	ZST	EPN E	15 8 15 9	46.4 7.4												No determination of epicentre	
875	OCT 13	ZST	EP	21 30	30.3	-2.5									74.14	93.57	Nicobar Islands Region 9.45 N 93.78 E H = 21 Depth = 20 km MB = 5.0	18 56.0 /ISC/
876	OCT 14	SPC ZST SRO	+IPKP2 -IPKP2 EAPKHKP +IPKIKP	5 15 5 15 5 15 5 15	10.6 14.0 18.0 12.7	1.1 -1.8 -0.6 1.5									144.97 146.62 146.72	22.62 17.89 20.15	Tonga 15.78 S 173.01 W H = 4 Depth = 33 km MB = 5.9	55 34.5 /ISC/
877	OCT 14	ZST	EPKP2	11 11	40.0	-5.8									149.09	24.03	Tonga 19.01 S 175.67 W H = 10 Depth = 250 km MB = 5.2	52 20.1 /ISC/
878	OCT 14	ZST	EPKIKP	12 48	27.5	1.7									139.17	46.92	New Hebrides 15.38 S 167.43 E H = 12 Depth = 131 km MB = 5.7	29 14.5 /ISC/
879	OCT 14	ZST	-IP	13 0	54.5												No determination of epicentre	

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No.	Date	Stat. Code	Phase	GMT			RES O-C	Z		E-W		N-S		MPV	MLH	Delta	Azimuth	Remarks
				h	m	s		A	T	A	T	A	T					
890	OCT 18	SPC ZST	EPKP2 -IPKP2 EAPKP2	23 23 23	43 43 45	12.6 18.0 39.0	-1.4 -3.7 3.3									145.45 147.36	32.56 28.26	P111 Region 18.05 S 178.47 W H = 23 Depth = 608 km MB = 5.3
891	OCT 19	ZST	EP	2	26	58.0	0.2									68.85	353.96	Central Alaska 62.87 N 150.54 W H = 2 Depth = 108 km MB = 5.1
892	OCT 19	SPC ZST	EAPKHKP EAPKHKP EAPKP2	2 2 2	41 41 41	23.8 33.0 47.0	0.5 5.0 5.1									149.41 151.17	26.70 21.73	Tonga 20.70 S 173.89 W H = 2 Depth = 5 km MB = 5.3
893	OCT 19	SPC ZST	E EP EXP	6 6 6	41 42 42	23.8 7.5 29.0	0.1 6.0									34.10 35.61	115.97 111.11	Southern Iran 27.80 N 54.92 E H = 6 Depth = 39 km MB = 5.5
894	OCT 19	ZST	-IPKP2 IPKP2	8 8	1 1	42.0 46.0	-4.0 0.0									148.35	22.91	Tonga 18.13 S 175.30 W H = 7 Depth = 270 km MB = 5.1
895	OCT 19	SPC	IPG	11	1	49.3												No determination of epicentre
896	OCT 19	ZST	EP	11	48	37.0	1.6									78.09	28.48	Kurile Islands Region 46.98 N 154.14 E H = 11 Depth = 42 km MB = 5.0
897	OCT 19	ZST	E I	12 12	17 17	0.0 14.0												No determination of epicentre
898	OCT 19	SPC BRA	EP EP	21 21	32 32	17.3 24.4	1.2 -2.3									74.68 76.54	28.46 26.46	Kurile Islands 49.28 N 155.67 E H = 21 Depth = 62 km MB = 5.3
899	OCT 19	SPC BRA	EP EP	22 22	51 51	30.1 41.4	1.3 0.5									80.27 82.58	66.76 64.40	Taiwan Region 22.64 N 121.64 E H = 22 Depth = 143 km MB = 5.5
900	OCT 20	SPC ZST BRA	EP IAP EP	5 5 5	51 52 52	50.6 6.0 2.5	-0.1 -1.5 1.2									76.06 77.95 77.97	30.46 28.41 28.41	Kurile Islands 47.14 N 154.14 E H = 5.4 Depth = 20 km MB = 5.4
901	OCT 20	ZST	EAP	6	17	24.1	-1.0									77.89	28.35	Kurile Islands 47.22 N 154.17 E H = 6 Depth = 18 km MB = 5.0





No.	Date	Stat. Code	Phase	GMT		RES O-C	Z		E-W		N-E		MPV	MLH	Delta	Azimuth	Remarks
				h	m		s	A	T	A	T	A					
913	OCT 22	ZST	IAP	1	36	26.5	0.2								84.72	274.79	Northern Colombia 7.17 N 72.91 W H = 1 Depth = 174 km MB = 5.0 23 27.5 /ISC/
914	OCT 22	ZST	IPG I I I	1	49	40.0 46.5 55.5 3.5											No determination of epicentre
915	OCT 22	ZST	IPG IPG IPB	9	0	9.6 12.5 15.0	-2.6 0.3 1.3								0.45	23.19	Czechoslovakia 48.61 N 17.37 E H = 9 Depth = 0 km 0 3.2 /ISC/
916	OCT 22	SRO ZST SPC	EP E E IP IAP I I EAP	10 10 10 10 10 10 10 10	5 9 11 5 5 6 9 5	15.0 41.5 9.0 24.5 35.5 29.5 41.0	-4.1 -2.9 1.8 1.9							13.40 14.03 14.44	162.56 159.04 170.35	Crete 34.90 N 23.16 E H = 10 Depth = 28 km MB = 5.1 2 8.3 /ISC/	
917	OCT 22	ZST SRO SPC	I I IAP IXP IPP E E EAP IPP I ISKS ISP E EPP	18 18 18 18 18 18 18 18 18 18 18 18 18	10 10 12 13 14 16 17 12 14 16 20 23 12 14	18.0 23.7 10.5 43.0 40.0 37.0 3.5 37.5 42.0 39.0 2.0 10.0 45.6 57.8	-16.5 18.5 -7.0 8.0 -9.5 -0.3 4.4 -6.2						104.07 104.83 106.37	243.88 244.60 246.24	Santiago Del Estero Province 27.96 S 62.82 W H = 17 Depth = 592 km MB = 6.0 57 15.6 /ISC/		
918	OCT 22	ZST	EP	18	26	6.5											No determination of epicentre
919	OCT 23	ZST	IP	0	20	53.0											No determination of epicentre
920	OCT 23	ZST	IPN I I	1 1 1	46 46 46	34.5 38.5 50.0											No determination of epicentre



No.	Date	Stat. Code	Phase	GMT			RES O-C	Z		E-W		N-S		MPV	MLH	Delta	Azimuth	Remarks
				h	m	s		A	T	A	T	A	T					
932	OCT 27	SRO SPC ZST	EAP E EAP EAP EPP E E	22	46	30.4	-0.9								12.16 12.59 12.97	141.35 151.15 138.76	Turkey 37.87 N 27.88 E H = 22 Depth = 16 km MB = 4.7	43 32.2 /ISC/
933	OCT 28	ZST	IPB I ESB ESG	22	1	57.3												No determination of epicentre
934	OCT 28	ZST	EPB ISG	22	7	44.3												No determination of epicentre
935	OCT 28	SPC ZST	IPKHKP EPKHKP	23	33	27.9	5.6								150.03 152.08	38.99 34.70	South of Fiji 23.66 S 179.80 W H = 23 Depth = 517 km MB = 4.8	14 34.9 /ISC/
936	OCT 29	ZST	ESN ESG	2	50	38.0	-2.0								2.56	218.75	Yugoslavia 46.18 N 14.80 E H = 2 Depth = 10 km	49 24.4 /ISC/
937	OCT 29	SPC ZST	-IP I EPP +IP I EPP	3	14	11.8	-5.4								37.14 39.45	65.71 63.35	Eastern Kazakhstan, N.E. 50.06 N 78.87 E H = 3 Depth = 0 km MB = 5.6	7 3.0 /ISC/
938	OCT 29	ZST	EPKIKP	10	34	20.0	4.7								138.24	46.44	New Hebrides 14.41 S 167.23 E H = 10 Depth = 185 km MB = 5.1	15 12.2 /ISC/
939	OCT 29	ZST	EPKP2	18	46	41.0	-0.3								145.86	25.88	Fiji Region 16.20 S 177.67 W H = 18 Depth = 33 km MB = 4.8	27 2.9 /ISC/
940	OCT 29	ZST	EAPKIKP E	20	34	55.0	2.8								120.23	62.52	Eastern New Guinea Region 6.21 S 146.66 E H = 20 Depth = 103 km MB = 5.9	15 44.8 /ISC/
941	OCT 29	ZST	EPCP	21	26	20.0	1.1								88.19	278.90	Panama 7.34 N 78.32 W H = 24 Depth = 40 km MB = 4.8	13 28.8 /ISC/



942	OCT 30	ZST	EPB ESN	0 34 51.2 0 35 51.2	-2.5 -4.6														6.61	159.93	Albania 41.94 N 20.14 E H = 0 Depth = 10 km	32 57.8 /ISC/
943	OCT 30	ZST	EPP	2 9 29.3	-1.8														105.44	88.32	South of Sumbawa 10.38 S 118.78 E H = 1 Depth = 51 km MB = 5.6	51 1.0 /ISC/
944	OCT 30	SPC ZST	EPKP2 -IPKHKP IPKP2 EAPKP2	6 44 9.6 6 44 13.5 6 44 21.5 6 46 33.5	-4.6 5.1 -0.8 -0.0														147.53 149.48	34.28 29.90	Fiji Region 20.35 S 178.55 W H = 6 Depth = 593 km MB = 5.6	25 29.8 /ISC/
945	OCT 30	SPC ZST	EPKIKP ESKPAB EPKIKP EAPKIKP ESKPAB	13 12 35.2 13 16 0.0 13 12 40.4 13 13 6.4 13 16 5.4	2.9 -0.9 4.0 0.8														136.29 138.51	50.18 47.14	New Hebrides 14.88 S 166.95 E H = 12 Depth = 106 km MB = 5.6	53 23.2 /ISC/
946	OCT 30	ZST	EPKIKP	16 45 49.0	1.9														156.64	31.85	Kermadec Islands Region 27.35 S 176.50 W H = 16 Depth = 47 km MB = 5.2	25 57.6 /ISC/
947	OCT 31	SPC ZST	EPKP2 E EPKHKP	13 27 7.4 13 25 25.1 13 27 11.0	-4.8 7.3														150.69 152.52	29.50 24.55	Tonga Region 22.38 S 174.85 W H = 13 Depth = 71 km MB = 4.8	7 19.0 /ISC/
948	OCT 31	ZST	EP I	17 40 34.3 17 40 36.8																	No determination of epicentre	
949	NOV 2	ZST	EPKIKP	1 39 5.0	0.1														146.13	17.88	Tonga 15.30 S 173.11 W H = 1 Depth = 26 km MB = 5.2	19 28.0 /ISC/
950	NOV 2	ZST	EPG ESG	13 56 40.7 13 56 42.7																	No determination of epicentre	
951	NOV 2	SPC ZST	EPKP2 -IPKP2	23 55 39.1 23 55 43.8	0.2 -2.7														144.47 146.39	33.24 29.04	Fiji Region 17.28 S 179.23 W H = 23 Depth = 556 km MB = 5.0	37 3.4 /ISC/
952	NOV 3	SRO HRB	IPN EPG EPG ESN ESN EPB LMH	2 24 42.8 2 25 7.0 2 25 35.0 2 25 47.0 2 26 15.0 2 25 5.5 2 28 0.0	0.7 -8.3 19.7 -16.3 11.7 5.6														6.99	142.47	Bulgaria 42.12 N 24.03 E H = 2 Depth = 11 km MB = 5.2	22 58.0 /ISC/
																			7.08	142.16		



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No.	Date	Stat. Code	Phase	GMT		RES O-C	Z		E-W		N-S		MPV	MLH	Delta	Azimuth	Remarks	
				h	m s		A	T	A	T	A	T						
952	NOV 3	SPC	EPN	2	24	51.1	1.1								7.55	158.05		
			EPN	2	24	55.3	5.3											
			IPB	2	25	6.4	-1.5											
			EPG	2	25	20.9	-5.7											
			EPG	2	25	36.0	9.4											
			ESN	2	26	22.0	4.7											
			LMV	2	27	0.0												
			EPN	2	24	49.0	-4.2											
			EPG	2	25	25.3	-5.9											
			ESN	2	26	11.6	-11.5											
953	NOV 3	ZST	ESB	2	26	39.0	-11.9											Poland 50.50 N 19.10 E H = 7 44 42.0 Depth = 0 km
			ESG	2	27	12.0	-1.0											
			EPN	2	24	51.8	-1.7											
			IPB	2	25	6.3	-5.9											
			IPG	2	25	22.3	-9.3											
			ESN	2	26	14.0	-9.6											
			ISB	2	26	51.8	0.2											
			ESG	2	27	17.5	3.8											
			EPG	7	45	32.8	-2.0											
			ESG	7	46	22.0	12.4											
954	NOV 3	BRA	EP	9	6	46.0	-2.7										Yugoslavia 42.74 N 20.68 E H = 9 5 16.0 Depth = 37 km	
			E	9	9	34.0												
			IP	9	6	45.8	-3.2											
			E	9	6	54.3												
955	NOV 3	ZST	EP	9	6	52.7	-3.0										No determination of epicentre	
			EPG	9	25	42.0												
			ESG	9	25	45.8												
956	NOV 3	ZST	E	9	25	47.3											No determination of epicentre	
			IPG	10	38	12.9												
			ISG	10	38	16.4												
957	NOV 3	ZST	E	11	1	32.9											No determination of epicentre	
			EPN	12	20	14.0												
958	NOV 3	ZST	E	15	25	37.0											No determination of epicentre	
			EPN	18	41	35.1												
959	NOV 3	ZST	E	18	41	37.4											No determination of epicentre	
			EPN	18	41	41.0												
			IPB	18	41	41.0												
960	NOV 3	ZST	E	18	41	35.1											No determination of epicentre	
			EPN	18	41	37.4												
			IPB	18	41	41.0												





No.	Date	Stat. Code	Phase	GMT		RES O-C	Z		E-W		N-S		MPV	MLH	Delta	Azimuth	Remarks	
				h	m s		A	T	A	T	A	T						
970	NOV 6	ZST	ESG	1	26 44.0	-8.2								7.29	295.91	Germany 50.93 N Depth = 27 km	6.71 E H = 1 22 51.3 /ISC/	
971	NOV 6	SRO SPC ZST	ESG EPN EPN EPB EPB ESN	2 52 45.0 2 50 47.0 2 50 43.2 2 50 55.0 2 51 9.0 2 52 10.0	6.9 7.1 -0.7 -7.7 6.3 -4.6									7.04 7.57 7.85	141.71 157.28 137.95	Bulgaria 42.13 N Depth = 23 km	24.17 E H = 2 MB = 4.6 48 45.6 /ISC/	
972	NOV 6	ZST	-IP	7 46 34.4	2.1									79.94	10.70	Andreeanof Islands 51.19 N Depth = 48 km	179.78 W H = 7 MB = 5.0 34 26.8 /ISC/	
973	NOV 7	ZST	IPB ISB ISG	8 24 45.5 0 25 52.5 0 26 3.5	5.5 4.1 1.1									5.34	270.53	Germany 47.97 N Depth = 2 km	9.14 E H = 0 23 5.9 /ISC/	
974	NOV 7	SPC ZST	EP EP	8 31 14.8 8 31 30.5	-4.2 0.9									76.30 78.21	31.35 29.29	Kurille Islands 46.50 N Depth = 38 km	153.21 E H = 8 MB = 5.0 19 32.3 /ISC/	
975	NOV 7	ZST	EAPKIKP	13 41 23.0	-1.0									146.47	20.99	Tonga 16.03 S Depth = 33 km	174.77 W H = 13 MB = 4.7 21 36.9 /ISC/	
976	NOV 7	SPC ZST	EPKIKP EAPKIKP IPKIKP EAPKIKP	23 16 2.6 23 16 19.2 23 16 11.7 23 16 27.6	-3.1 -6.6 1.7 -2.6									124.08 126.36	56.58 53.96	Solomon Islands 7.15 S Depth = 70 km	156.09 E H = 22 MB = 5.7 57 15.1 /ISC/	
977	NOV 8	SPC ZST	EP EAP	4 0 17.2 4 0 34.0	0.7 -3.7									89.59 91.89	71.78 69.43	Luzon 12.23 N Depth = 33 km	123.93 E H = 3 MB = 5.4 47 21.0 /ISC/	
978	NOV 8	ZST	ESG	10 53 25.4													No determination of epicentre	
979	NOV 8	ZST	EAPKHKP	11 57 43.0	-3.2									149.45	18.84	Tonga Region 18.67 S Depth = 33 km	172.87 W H = 11 MB = 5.1 37 54.3 /ISC/	
980	NOV 8	SPC ZST	+IP +IP	15 10 51.0 15 11 6.7	-4.4 0.8									75.65 77.73	30.23 28.19	Kurille Islands 47.43 N Depth = 22 km	154.27 E H = 14 MB = 5.5 59 9.0 /ISC/	



No.	Date	Stat. Code	Phase	GMT		RES O-C	Z		E-W		N-S		MPV	MLH	Delta	Azimuth	Remarks
				h	m		s	A	T	A	T	A					
993	NOV 17	ZST	IPG ISG	8	26	28.6											No determination of epicentre
994	NOV 17	ZST	ESG	11	0	57.6											No determination of epicentre
995	NOV 17	ZST	EPG	14	0	41.6											No determination of epicentre
996	NOV 17	SPC ZST	EPCP EPCP	17	31	28.5	0.6										Sunda Strait 6.16 S 104.68 E H = 17 Depth = 47 km MB = 5.4 18 26.4 /ISC/
997	NOV 17	SPC ZST	EP EP EAP EXP E	17	32	40.5	0.7										South of Honshu 33.71 N 140.09 E H = 17 Depth = 112 km MB = 5.5 20 32.6 /ISC/
998	NOV 18	ZST	EPKP2	3	18	43.6	0.1										Kermadec Islands Region 28.35 S 176.58 W H = 2 Depth = 63 km MB = 4.9 58 20.3 /ISC/
999	NOV	SPC	+IP LAP EPS LMV	5	29	23.1	0.8	1022	2.0								Tibet 32.65 N 88.39 E H = 5 Depth = 24 km MB = 5.7 20 10.3 /ISC/
		SRO	+IP LAP IXS LMH	5	29	32.2	-1.2										
		ZST BRA	+IP LAP IXP LMV	5	29	37.8	-0.9			33.6	16.0	33.9	16.0				
1000	NOV 18	ZST	IPG ISG	9	5	42.9											No determination of epicentre
1001	NOV 18	ZST	EP	9	57	43.9											No determination of epicentre
1002	NOV 18	SPC SRO	EP IPCP IXP EPP IS	10	30	28.9	0.4										Southern Sumatra 4.42 S 101.99 E H = 10 Depth = 21 km MB = 5.7 17 29.0 /ISC/

1003	NOV 18	ZST	EPG ESG	10 49 12.9 10 49 15.9															No determination of epicentre
1004	NOV 18	ZST	E	15 0 12.4															No determination of epicentre
1005	NOV 19	ZST	EPG ESG	21 42 53.3 21 43 36.0	0.4 3.8														Austria 47.48 N 12.78 E H = 21 41 53.1 Depth = 11 km /ISC/
1006	NOV 19	ZST	ESN ESG	23 45 55.4 23 46 8.0	2.1 2.7														Austria 47.49 N 12.81 E H = 23 44 27.0 Depth = 6 km /ISC/
1007	NOV 21	ZST	E EPP	11 55 35.0 11 56 9.5	0.4														Mindanao 6.82 N 123.58 E H = 11 39 40.4 Depth = 603 km MB = 5.7 /ISC/
1008	NOV 21	ZST	ESG	12 51 6.0	13.1														Poland 50.15 N 19.00 E H = 12 49 36.3 Depth = 0 km /ISC/
1009	NOV 22	ZST	EPKP2	8 59 16.9	3.3														Fiji Region 18.80 S 177.11 W H = 8 39 31.8 Depth = 90 km MB = 4.9 /ISC/
1010	NOV 22	ZST	IPG I I I	12 0 40.8 12 0 46.0 12 0 48.0 12 0 52.0															No determination of epicentre
1011	NOV 22	ZST	+IP I	14 44 48.0 14 51 3.0															No determination of epicentre
1012	NOV 22	SPC SRO  ZST	EPKIKP EPP EPKIKP E IPP I I ESP IMH IPKIKP IAPKIKP ISKPDF	16 18 45.4 16 18 57.6 16 15 43.0 16 16 40.0 16 18 7.0 17 18 35.0 16 26 1.0 16 28 11.0 17 8 0.0 16 15 49.7 16 16 9.5 16 19 7.7	3.6 1.0 -2.4 -1.7  3.9  3.6 -3.1 -3.4														Solomon Islands 10.20 S 161.16 E H = 15 56 44.3 Depth = 95 km MB = 5.9 /ISC/



No.	Date	Stat. Code	Phase	GMT		RES O-C	Z		E-W		N-S		MPV	MLH	Delta	Azimuth	Remarks	
				h	m s		A	T	A	T	A	T						
1013	NOV 22	ZST SPC	EPCP EAP	21 28	38.0	-0.4 -0.5									86.01 86.13	330.36 332.56	Coast of Northern California 39.38 N 123.37 W H = 21 Depth = 14 km MB = 5.2 15 53.9 /ISC/	
1014	NOV 23	ZST	EPDIFF E E EPP E ESKS EPS E LMV	9 41 9 44 9 45 9 45 9 46 9 51 9 55 9 56 10 30	12.6 30.0 6.0 32.0 6.0 46.0 6.0 30.0 0.0	19.8 3.4 14.6 16.6 -1.3											San Juan Province, Argentina 31.04 S 67.76 W H = 9 Depth = 4 km MB = 6.4 26 23.4 /ISC/	
		HRB		9 45	31.0	-1.3												
		SRO	IPDIFF	10 32	0.0	3.6												
		SPC	IPP E IPP I ESKPDF LMV	9 40 9 45 9 41 9 45 9 46 9 48 10 39	59.0 35.0 26.3 49.9 7.1 19.9 0.0	2.3 5.1 -14.2												
1015	NOV 23	ZST	I	10 0	19.0													No determination of epicentre
1016	NOV 23	ZST	E	12 17	6.0													No determination of epicentre
1017	NOV 23	ZST	E	12 31	29.0													No determination of epicentre
1018	NOV 23	SPC ZST	EP IP	17 7 17 7	16.6 24.1	-0.9 -0.1									78.52 79.74	7.36 5.38	Fox Islands 52.17 N 171.52 W H = 16 Depth = 66 km MB = 5.4 55 21.8 /ISC/	
1019	NOV 24	ZST SPC	EPP E EPP	2 16 2 17 2 16	20.0 29.0 44.6	-15.3 -6.9									109.57 111.88	244.46 246.83	San Juan Province, Argentina 31.56 S 67.67 W H = 1 Depth = 19 km MB = 5.5 57 30.2 /ISC/	
1020	NOV 24	ZST SPC	EPP EPP	2 21 2 21	30.0 47.5	-6.4 -5.1									109.58 111.89	244.48 246.85	San Juan Province, Argentina 31.55 S 67.69 W H = 2 Depth = 24 km MB = 5.7 57 32.0 /ISC/	
1021	NOV 24	ZST	EAPKHP	3 5	13.0	-1.2									146.55	17.35	Samoa Region 15.65 S 172.72 W H = 5.0 Depth = 33 km MB = 5.0 45 30.3 /ISC/	



1022	NOV 24	ZST	E	11 39 3.0															No determination of epicentre
1023	NOV 24	ZST	E	14 39 43.0															No determination of epicentre
1024	NOV 24	ZST	IPN	15 24 41.7															No determination of epicentre
1025	NOV 24	ZST	EPN ESN	16 28 53.0 16 29 45.0															No determination of epicentre
1026	NOV 24	ZST SPC	IAPKIKP IPKP2 E IAPKIKP IPKP2 IAPKP2	17 19 44.2 17 19 46.2 17 22 30.0 17 19 47.0 17 19 49.2 17 19 55.0	2.2 -2.3 4.0 -1.9 3.9														Tuamotu Archipelago Region 21.86 S 138.94 W H = 16 Depth = 0 km MB = 6.0 59 58.6 /ISC/
1027	NOV 24	ZST	IPN E	17 38 4.2 17 38 25.7															No determination of epicentre
1028	NOV 24	ZST	IPKP2	20 30 30.8	-4.0														Fiji Region 17.92 S 178.68 W H = 20 Depth = 545 km MB = 5.4 11 47.5 /ISC/
1029	NOV 26	ZST	+IPKP2 IAPKHKP	9 34 15.8 9 34 55.0	-1.3 1.7														Tonga Region 15.29 S 174.32 W H = 9 Depth = 166 km MB = 5.2 14 54.8 /ISC/
1030	NOV 26	ZST	EXP	13 22 41.0	14.5														Greece 38.36 N 20.30 E H = 13 Depth = 48 km MB = 4.7 19 45.9 /ISC/
1031	NOV 26	ZST	EAPKIKP EAPKIKP	15 43 42.8 15 43 52.0	4.9 14.1														Tonga 15.23 S 173.51 W H = 15 Depth = 33 km 23 51.6 /ISC/
1032	NOV 27	SRO	+IP LMH	8 48 5.8 9 28 0.0	1.9	8.4	18.0	6.2	18.0	18.0	6.3	78.28	30.05						Kurile Islands 46.36 N 153.24 E H = 8 Depth = 4 km MB = 5.5 36 6.6 /ISC/
1033	NOV 27	SPC	I I I	10 33 40.0 10 33 44.0 10 33 47.0															No determination of epicentre





No.	Date	Stat. Code	Phase	GMT			RES O-C	Z		E-W		N-S		MPV	MLH	Delta	Azimuth	Remarks
				h	m	s		A	T	A	T	A	T					
1054	DEC 6	SPC	IPG E	5	18	54.0												No determination of epicentre
1055	DEC 6	SPC ZST	EP EP IPP	10 11 11	59 0 1	43.3 6.0 37.2	-2.5 1.6 5.3											Kirgiziya 41.55 N 69.71 E H = 10 Depth = 25 km MB = 5.2 52 53.0 /ISC/
1056	DEC 6	ZST	EPP IPP ISKPDF	17 17 17	24 24 26	10.0 17.0 53.0	-1.1 5.9 -15.8											San Juan Province, Argentina 31.24 S 67.90 W H = 17 Depth = 21 km MB = 5.9 5 6.9 /ISC/
1057	DEC 6	ZST	EPP	18	11	9.0	-0.2											South of Sumbawa 11.34 S 118.22 E H = 17 Depth = 43 km MB = 5.5 52 35.9 /ISC/
1058	DEC 7	ZST	IPG I I	11 11 11	49 49 49	47.6 51.6 56.6												No determination of epicentre
1059	DEC 7	ZST	IPB IPB IPG ISN ISB ISG	19 19 19 19 19 19	22 22 22 22 22 23	5.3 8.8 18.8 35.3 51.3 7.0	-0.7 2.8 6.1 -6.2 2.2 10.7											Austria 46.26 N 13.13 E H = 19 Depth = 10 km 21 6.3 /ISC/
1060	DEC 8	ZST	EAP	0	44	4.0	-4.1											Crete 35.13 N 23.48 E H = 0 Depth = 55 km MB = 4.6 40 43.1 /ISC/
1061	DEC 8	SPC ZST	EAPKIKP IPKP2 EPKHKP LAPKP2	6 6 6 6	35 35 35 35	11.0 22.0 7.0 43.0	-2.6 2.1 -2.6 3.3											South of Tonga 24.09 S 175.65 W H = 6 Depth = 38 km MB = 5.5 15 17.2 /ISC/
1062	DEC 8	ZST	IPKP2	12	33	36.2	1.9											Tonga 17.48 S 173.75 W H = 12 Depth = 126 km MB = 5.1 13 58.4 /ISC/
1063	DEC 9	SPC ZST	EAPKIKP EPKP2 EAPKHKP	5 5 5	21 21 21	33.0 39.0 39.0	0.4 -0.7 -1.4											Tonga Region 23.84 S 175.41 W H = 5 Depth = 33 km MB = 5.1 1 37.0 /ISC/





No.	Date	Stat. Code	Phase	GMT		RES O-C	Z		E-W		N-S		MPV	MLH	Delta	Azimuth	Remarks
				h	m s		A	T	A	T	A	T					
1073	DEC 13	ZST	IPKP2	3	26 32.2	-3.4								147.03	28.62		Fiji Region 17.80 S 178.78 W H = 3 Depth = 531 km MB = 5.3 7 47.6 /ISC/
1074	DEC 13	ZST	EPKIKP EAPKP2	6 47 6 47	22.5 39.0	4.5 -1.9								149.16	20.33		Tonga 18.57 S 173.72 W H = 6 Depth = 39 km MB = 5.1 27 38.1 /ISC/
1075	DEC 13	ZST	IPG I I I	11 1 11 1 11 1 11 1	53.5 55.5 57.5 59.5												No determination of epicentre
1076	DEC 14	ZST	ESG ESG	1 49 1 49	16.7 21.7	1.3 6.3								3.26	236.07		Austria 46.31 N 13.20 E H = 1 Depth = 10 km 47 27.7 /ISC/
1077	DEC 14	SPC ZST	IP IP IPCP IXP IXP	3 13 3 13 3 13 3 13 3 13	7.3 9.0 14.5 24.5 40.5	-0.6 -0.1 3.7 1.3 17.3								89.22	149.37		Atlantic-Indian Ridge 33.84 S 57.98 E H = 3 Depth = 32 km MB = 5.5 0 14.0 /ISC/
1078	DEC 14	SPC ZST	EAPKIKP EAPKHKP EPKIKP EPKHKP EAPKHKP EAPKP2	5 1 5 1 5 1 5 1 5 1 5 1	18.5 27.0 14.7 22.2 32.2 51.2	-1.5 1.5 1.8 0.4 0.6 -1.2								153.95 156.02	40.02 35.44		Kermadec Islands Region 27.38 S 178.27 W H = 4 Depth = 30 km MB = 5.1 41 22.0 /ISC/
1079	DEC 14	ZST	EP	9 7	54.0	0.6								79.73	34.97		Off Coast of Hokkaido 42.41 N 147.50 E H = 8 Depth = 16 km MB = 5.1 55 44.6 /ISC/
1080	DEC 14	ZST	EPKP2 IAPKIKP	10 38 10 38	13.4 19.0	0.5 -1.2								146.06	17.57		Samoa Region 15.19 S 172.95 W H = 10 Depth = 33 km MB = 4.9 18 33.8 /ISC/
1081	DEC 14	ZST SPC	+IP IXP	15 42 15 42	39.4 43.3	-1.2 0.9								85.37 85.74	324.23 326.40		Southern Nevada, N.E. 37.13 N 116.09 W H = 15 30 0.2 /ISC/
1082	DEC 14	SPC SRO ZST	-IPKIKP IPKP2 EAPKP2 EPKHKP EPKIKP	19 11 19 11 19 13 19 11 19 11	8.8 16.3 45.0 15.4 8.1	4.7 0.6 7.4 6.7 0.9								147.94 149.80 149.92	35.74 33.85 31.42		Fiji Region 21.04 S 179.14 W H = 18 Depth = 654 km MB = 5.5 52 34.9 /ISC/



1083	DEC 15	ZST	IPKHKP IPKP2	19 11 13.4 19 11 23.3	4.3 -0.8															No determination of epicentre	
1084	DEC 15	SPC	EP	4 12 30.0																No determination of epicentre	
1085	DEC 16	SPC ZST	EP IP IPCP IXP IXP	7 23 32.0 7 23 44.5 7 23 49.1 7 23 56.6 7 24 5.1	1.6 2.8 -1.6 0.6 9.1															Kurile Islands 43.21 N 146.73 E H = 7 Depth = 33 km MB = 5.4	11 40.8 /ISC/
1086	DEC 16	SRO SPC ZST	E IMH EP E IP IXP LPP I E E	7 43 24.0 7 44 0.0 7 40 19.0 7 41 13.0 7 40 25.1 7 40 34.1 7 40 39.1 7 44 7.1 7 44 49.0 7 45 14.5	-1.3 0.2 0.5 4.0	23.5	10.0	13.6	10.0	5.5										Turkey 38.41 N 27.19 E H = 7 Depth = 24 km MB = 5.3	37 29.3 /ISC/
1087	DEC 16	ZST	IPG ISG	8 34 3.6 8 34 6.6																No determination of epicentre	
1088	DEC 16	ZST	EPG ESG ESG	10 35 23.6 10 36 7.6 10 36 15.6	0.7 3.6 11.6															Austria 46.40 N 13.32 E H = 10 Depth = 10 km	34 20.3 /ISC/
1089	DEC 16	ZST	IP IAP EPP EPP	15 22 46.2 15 22 59.0 15 25 52.0 15 26 12.0	2.2 -0.1 -2.0 18.0															Near East Coast of Honshu 36.65 N 141.07 E H = 15 Depth = 53 km MB = 5.6	10 28.8 /ISC/
1090	DEC 17	ZST	EPN I	10 13 39.5 10 13 42.0																No determination of epicentre	
1091	DEC 17	ZST	IPG I	10 58 56.4 10 58 58.4																No determination of epicentre	



No.	Date	Stat. Code	Phase	GMT			RES O-C	Z			E-W			N-S			MPV	MLB	Delta	Azimuth	Remarks
				h	m	s		A	T	A	T	A	T	A	T						
1092	DEC 17	ZST	EP EXP E E	11 11 11 11	44 44 45 45	33.0 42.0 2.6 10.6	3.3 1.0											79.82	4.52	Fox Islands 52.17 N 170.14 W H = 11 Depth = 26 km MB = 5.0 32 22.0 /ISC/	
1093	DEC 17	SPC ZST	EPKP2 EPKP2 EPKP2	16 16 16	21 21 21	41.0 47.1 56.0	-5.3 -7.4 1.5											148.14 150.11	35.12 30.74	Fiji Region 21.09 S 178.73 W H = 16 Depth = 596 km MB = 5.1 2 59.6 /ISC/	
1094	DEC 17	SPC ZST	EP IP KXP E	17 17 17 17	39 39 39 40	25.0 36.4 49.0 2.0	-2.2 2.7 7.1											78.61 79.79	6.47 4.49	Fox Islands 52.20 N 170.09 W H = 17 Depth = 19 km MB = 5.3 27 25.0 /ISC/	
1095	DEC 18	SPC ZST	EP EAP EXP EP EAP EPP	0 0 0 0 0 0	6 6 6 6 6 8	5.0 11.0 19.0 8.5 15.8 2.8	4.6 0.8 4.9 0.9 -1.6 9.6											43.93 44.82	134.10 129.57	Eastern Gulf of Aden 13.19 N 51.01 E H = 23 Depth = 33 km MB = 5.0 57 55.0 /ISC/	
1096	DEC 18	SPC SRO ZST	EAP EXP EXS EP EPP ESS EP EAP EPP EPP E E LMV	16 16 17 16 16 17 16 16 16 16 16 17	55 55 1 55 56 4 55 55 56 57 59 1 16	2.5 23.0 38.0 12.5 56.0 48.0 16.3 19.3 58.3 2.3 40.3 8.3 0.0	-1.6 16.5 20.0 2.3 4.4 14.7 0.2 -3.0 -0.4 3.6										40.85 42.36 43.08	80.95 78.24 77.93	Southern Sinkiang Province 39.86 N 77.30 E H = 16 Depth = 21 km MB = 5.3 47 15.8 /ISC/		
1097	DEC 19	ZST	EP	11	4	45.4	-0.6											80.32	8.62	Andreanof Islands 51.18 N 176.47 W H = 10 Depth = 40 km MB = 5.1 52 37.5 /ISC/	
1098	DEC 19	ZST	IP IXP EPP	23 23 23	41 41 42	21.1 36.6 47.6	0.1 4.9 10.5											34.46	105.53	Iran 30.93 N 56.48 E H = 23 Depth = 26 km MB = 5.3 34 33.3 /ISC/	
1099	DEC 20	SPC ZST	IP IP IPCP IPCP	9 9 9 9	2 2 2 2	3.6 13.8 20.3 25.3	1.1 0.7 -4.3 -0.7											74.46 76.34	30.38 28.37	Kurile Islands 48.57 N 153.06 E H = 8 Depth = 153 km MB = 5.7 50 39.4 /ISC/	





No.	Date	Stat. Code	Phase	GMT		RES O-C	Z		E-W		N-S		MPV	MLH	Delta	Azimuth	Remarks
				h	m		s	A	T	A	T	A					
1109	DEC 23	SPC ZST	EP EP	11	21	11.6								24.61 25.12	345.93 348.43	Norwegian Sea 72.13 N 1.10 E H = 11 Depth = 10 km MB = 4.6	15 43.8 /ISC/
1110	DEC 23	SPC SRO ZST	IP LMV ES LMH IP EXP	21	14	11.7								78.61 80.49 80.72	41.69 40.25 39.50	Off East Coast of Honshu 39.19 N 143.22 E H = 21 Depth = 20 km MB = 5.6	2 8.0 /ISC/
1111	DEC 23	SPC ZST	EP IP	21	21	25.0								78.59 80.70	41.71 39.52	Off East Coast of Honshu 39.20 N 143.18 E H = 21 Depth = 22 km MB = 5.3	9 21.9 /ISC/
1112	DEC 23	SPC ZST	EP IP	21	26	27.0								78.61 80.72	41.70 39.52	Off East Coast of Honshu 39.18 N 143.20 E H = 21 Depth = 10 km MB = 5.4	14 22.6 /ISC/
1113	DEC 23	SPC ZST	EP EP EXP	22	22	39.0								78.84 80.95	41.62 39.43	Off East Coast of Honshu 39.04 N 143.45 E H = 22 Depth = 20 km MB = 5.1	10 34.6 /ISC/
1114	DEC 23	ZST	EP	23	19	37.7								80.86	39.40	Off East Coast of Honshu 39.13 N 143.42 E H = 23 Depth = 22 km MB = 5.0	7 23.9 /ISC/
1115	DEC 24	ZST	EPKP2	16	8	45.0								154.51	28.14	South of Tonga 24.79 S 175.80 W H = 15 Depth = 33 km MB = 4.9	48 33.0 /ISC/
1116	DEC 25	ZST	-IPKP2	4	44	59.8								146.26	48.10	Loyalty Islands Region 21.84 S 170.68 E H = 4 Depth = 112 km MB = 4.8	25 31.5 /ISC/
1117	DEC 25	SPC ZST	EP -IP E EPP	16	26	7.5								37.07 39.23	86.68 83.29	Afghanistan-USSR Border Region 38.88 N 70.68 E H = 16 Depth = 7 km MB = 5.3	18 51.0 /ISC/
1118	DEC 25	ZST	EP	18	32	36.5								80.84	39.39	Off East Coast of Honshu 39.15 N 143.43 E H = 18 Depth = 26 km MB = 5.0	20 22.6 /ISC/

1119	DEC 26	ZST	EPKP2	1 17 18.0	-2.3															South of Tonga 24.40 S 175.48 W H = 0 Depth = 33 km MB = 4.5	27.20	57 /ISC/
1120	DEC 26	ZST	E	6 48 16.0																No determination of epicentre		
1121	DEC 27	ZST	IPG I ISG LMV	11 1 1.0 11 1 2.3 11 1 3.4 11 1 5.5																No determination of epicentre		
1122	DEC 27	SPC ZST	EPKP2 +IPKP2 EAPKP2	11 56 58.8 11 57 3.7 11 59 13.5	-1.3 -4.1 0.0															Fiji Region 17.97 S 178.61 W H = 11 Depth = 560 km MB = 5.2	32.73 28.45	38 21.6 /ISC/
1123	DEC 27	ZST	EPB E I ISG LGV	14 31 59.4 14 32 1.4 14 32 3.4 14 32 4.6 14 32 5.9																No determination of epicentre		
1124	DEC 27	SPC ZST	EP IXP EP IAP	15 20 48.4 15 21 43.5 15 20 55.3 15 21 36.8	-1.2 -4.9 0.6 1.5															Southern Alaska 60.40 N 153.70 W H = 15 Depth = 168 km MB = 5.1	356.82 355.20	9 50.5 /ISC/
1125	DEC 28	SRO SPC ZST	IPP IS LMH EP I I ES IP I I ES	2 54 3.8 2 58 20.0 3 9 0.0 2 52 39.1 2 52 41.3 2 52 45.5 2 58 31.0 2 52 42.8 2 52 45.3 2 52 48.8 2 58 33.0	5.1 4.7 -0.8 10.0 -0.7 5.4	29.5 1.8 2069	18.0 27.3 18.0	6.2 6.6												Red Sea 16.54 N 40.32 E H = 2 Depth = 10 km MB = 5.9	142.37 146.33 140.93	45 33.1 /ISC/
1126	DEC 28	SPC ZST	EAPKIP EAPKP2	11 39 7.4 11 39 35.6	-4.0 -1.5															Tonga Region 23.86 S 175.24 W H = 11 Depth = 50 km MB = 4.8	31.30 26.32	19 13.5 /ISC/
1127	DEC 28	ZST SPC SRO	EP EP IPP IS LMH	20 38 4.2 20 38 8.6 20 38 26.5 20 42 47.5 20 49 0.0	1.1 1.2 -18.8 12.3	3.5 16.0 4.8 16.0		5.2												Iceland 64.64 N 17.26 W H = 20 Depth = 10 km MB = 5.2	324.41 321.89 324.37	32 40.7 /ISC/

No.	Date	Stat. Code	Phase	GMT			RES O-C	Z			E-W			N-S			MPV	MLH	Delta	Azimuth	Remarks
				h	m	s		A	T	A	T	A	T	A	T						
1128	DEC 29	SPC	EFN E	0	59	56.8														No determination of epicentre	
1129	DEC 29	ZST	EPG ISG	10	6	45.0														No determination of epicentre	
1130	DEC 29	ZST	EPPK2	10	39	20.0	-3.4											148.54	20.16	Tonga 17.94 S 173.79 W H = 10 Depth = 102 km MB = 5.3 19 42.9 /ISC/	
1131	DEC 29	ZST SPC	EP EP EXP	11	59	24.0	-2.0											48.89	163.72	Zaire 0.27 N 29.30 E H = 11 Depth = 33 km MB = 4.7 50 41.4 /ISC/	
1132	DEC 29	ZST	EPB I I	12	49	0.0														No determination of epicentre	
1133	DEC 29	ZST	E	13	28	3.0														No determination of epicentre	
1134	DEC 29	ZST	E	14	33	56.0														No determination of epicentre	
1135	DEC 29	SR0 ZST SPC	ESS E EXP EXP E EP	16	56	43.0	-14.3											9.94	161.77	Greece 38.29 N 22.25 E H = 16 Depth = 37 km MB = 4.8 52 58.8 /ISC/	
1136	DEC 29	SPC ZST	EAP IP EAP	19	59	6.0	-0.7											10.59	157.40	Bonin Islands Region 28.51 N 138.51 E H = 19 Depth = 541 km MB = 5.1 45 28.5 /ISC/	
1137	DEC 30	ZST	-IP IAP	9	14	51.0	0.3											10.99	171.70	Fox Islands 52.27 N 169.74 W H = 9 Depth = 35 km MB = 5.1 2 44.7 /ISC/	
1138	DEC 30	ZST	EPKIKP IAPKIKP	10	57	9.0	2.3											122.32	56.93	New Britain Region 5.13 S 151.79 E H = 10 Depth = 86 km MB = 6.0 21.6 /ISC/	



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COMPONENT EW

GMT Date	00 h			06 h			12 h			18 h		
	K	T	A	K	T	A	K	T	A	K	T	A
1	0.0			3	4	4.2	3	6	7.0	2	6	8.4
2	0.0			0.0			0.0			0		
3	0.0			3	4	5.0	1	5	9.1	0.0		
4	0.0			1	5	7.6	1	5	7.6	3	5	9.1
5	1	5	9.1	2	5	7.6	1	6	8.4	3	3	5.4
6	3	4	7.5	1	5	11.4	1	6	8.4	1	6	7.0
7	3	3	8.1	3	3	5.4	3	4	8.3	0.0		
8	0.0			2	3	9.0	2	4	8.3	3	3	8.1
9	3	3	9.0	3	4	7.5	1	5	7.6	0.0		
10	0.0			1	3	5.4	1	4	8.3	3	4	5.0
11	3	2	9.5	2	3	4.5	1	3	5.4	3	4	7.5
12	0.0			TT			1	5	7.6	3	5	9.1
13	3	2	9.5	1	4	5.0	1	4	5.0	0.0		
14	0.0			3	4	8.3	3	3	5.4	0.0		
15	0.0			0.0			3	4	5.0	0		
16	3	3	4.5	1	4	8.3	1	5	6.8	0.0		
17	3	3	5	1	4	8.3	1	4	8.3	3	3	4.5
18	3	3	4.5	2	5	7.6	1	5	6.8	0.0		
19	3	2	3.8	2	4	5.0	1	4	7.5	0.0		
20	0.0			1	4	4.2	1	4	5.0	0.0		
21	0.0			3	4	8.3	3	4	8.3	0.0		
22	3	3	5.4	0.0			3	3	5.4	0.0		
23	3	3	9.0	1	3	5.4	1	3	5.4	0.0		
24	3	4	7.5	1	4	5.0	1	4	5.0	3	4	7.5
25	3	4	5.0	1	4	7.5	1	4	5.0	3	4	10.0
26	3	4	8.3	1	4	5.0	1	4	8.3	3	5	7.6
27	3	5	7.6	1	4	7.5	1	4	5.0	3	3	4.5
28	0.0			3	3	4.5	3	3	4.5	0.0		
29	0.0			3	4	7.5	0.0			3	3	4.5
30	0.0			2	4	3.3	3	7	5.4	0.0		
31	0.0			0.0			0.0			0.0		

COMPONENT NS



GMT Date	00 h			06 h			12 h			18 h					
	K	T	A	K	T	A	K	T	A	K	T	A			
1	0.0			3	3	9.2	0.0				1	4	6.9		
2	0.0			3	5	12.0	0.0				0				
3	0			3	5	7.2		3	3	7.4	0.0				
4		3	4	8.6	1	4	8.6		1	6	11.3	1	5	8.0	
5		3	6	9.0	0.0			0.0			0				
6	0.0			1	6	7.5		3	3	5.5	0.0				
7	0.0			1	4	8.6		1	3	9.2	0				
8	0.0			3	3	5.5	0.0				0				
9	0.0			3	5	8.0		3	4	7.7	0.0				
10		3	5	8.0	3	5	9.6		3	3	5.5	0.0			
11		3	4	8.6	1	5	8.0		3	5	7.2		3	4	7.7
12		3	5	8.0	3	4	7.7		3	4	8.6	0.0			
13	0.0			TT				3	4	5.2	0.0				
14	0.0			3	3	5.5		3	4	7.7		3	3	5.5	
15		3	3	5.5	3	4	8.6	0.0			0.0				
16	0			0.0				0			0				
17	0.0			1	4	7.7		1	4	5.2		3	5	12.0	
18		3	4	8.6	3	3	5.5		1	5	8.0		3	4	7.7
19		3	4	7.7	2	4	5.2		1	4	7.7		3	4	8.6
20	0.0			3	4	5.2		3	3	5.5	0.0				
21		3	3	4.6	3	4	8.6		3	5	8.0	0.0			
22		3	3	5.5	0.0			0.0			0				
23	0.0			0.0					3	3	4.6	0.0			
24	0.0			3	3	4.6			3	4	4.3	0			
25	0.0			3	3	8.3			1	3	5.5	0.0			
26		3	3	9.2	2	3	4.6		2	4	5.2	0.0			
27		3	3	9.2	1	5	9.6		1	5	8.0		3	3	5.5
28	0.0			1	3	9.2			1	3	5.5	0.0			
29		3	4	8.6	3	3	3.7	0.0			0				
30	0.0			3	3	9.2		0.0			0				
31	0			1	5	4.0			3	5	4.0		3	4	1.7



MICROSEISMIC ACTIVITY

FEBRUARY 1977



COMPONENT EW

GMT Date	00 h			06 h			12 h			18 h		
	K	T	A	K	T	A	K	T	A	K	T	A
1	3	5	2.3	2	3	1.8	1	4	5.0	0.0		
2	3	5	3.0	2	5	4.5	1	5	4.5	0.0		
3	3	4	8.3	2	5	3.8	2	4	4.2	3	5	6.1
4	3	4	4.2	1	4	8.3	1	4	7.5	3	3	5.4
5	3	4	8.3	3	5	6.8	0.0			0.0		
6	0.0			0.0			0.0			3	5	9.1
7	3	3	5.4	1	4	5.0	1	5	7.6	3	3	8.1
8	0.0			3	3	4.5	3	4	5.0	0.0		
9	3	3	4.5	3	3	4.5	3	3	4.5	3	5	7.6
10	0.0			3	4	5.0	3	4	5.0	3	6	7.0
11	3	5	7.6	3	4	5.0	1	3	4.5	3	5	7.6
12	0.0			0.0			0.0			3	5	6.8
13	0.0			0.0			0.0			0		
14	0.0			3	4	4.2	3	3	4.5	0.0		
15	0.0			3	3	4.5	3	3	4.5	0.0		
16	0.0			3	3	4.5	3	3	4.5	3	5	6.8
17	3	5	4.5	0.0			0.0			0		
18	0.0			0.0			0.0			0		
19	0.0			0.0			0.0			0		
20	0.0			0.0			3	3	4.5	0.0		
21	0.0			0.0			3	4	5.0	0.0		
22	0.0			3	3	4.5	3	3	4.5	3	5	7.6
23	0.0			3	4	5.0	3	4	7.5	0.0		
24	0.0			1	4	5.0	1	4	7.5	0.0		
25	3	6	4.2	2	4	4.2	2	6	7.0	3	7	6.8
26	3	4	4.2	0.0			3	4	8.3	3	5	6.1
27	3	3	4.5	3	4	8.3	3	5	7.6	3	4	4.2
28	3	5	7.6	0.0			2	5	3.8	3	3	7.2
				1	6	3.5	2	6	2.8	3	5	3.8

COMPONENT NS



GMT Date	00 h			06 h			12 h			18 h		
	K	T	A	K	T	A	K	T	A	K	T	A
1	3	4	4.3	1	6	4.5	1	5	4.0	3	6	3.0
2	3	4	5.2	2	5	8.0	2	2	9.7	1	6	6.0
3	1	4	4.3	2	3	9.2	1	4	8.6	3	4	4.3
4	3	4	6.0	1	4	7.7	1	5	9.6	3	4	5.2
5	3	4	8.6	3	5	7.2	3	7	8.9	0.0		
6	0.0			3	4	7.7	3	5	8.0	0.0		
7	3	3	5.5	1	7	8.9	1	7	6.7	3	5	7.2
8	3	6	7.5	1	4	8.6	1	4	8.6	3	4	8.6
9	3	4	5.2	1	6	9.0	1	5	8.0	1	6	6.8
10	3	5	8.0	1	4	8.6	1	4	7.7	3	3	8.3
11	3	4	4.3	3	6	4.5	0.0			0.0		
12	3	4	8.6	3	4	7.7	3	3	5.5	3	4	8.6
13	0.0			3	5	8.0	0.0			3	3	5.5
14	0.0			1	4	8.6	1	4	8.6	3	3	5.5
15	3	5	4.8	1	3	8.3	1	5	8.0	3	4	7.7
16	0.0			1	6	9.0	3	3	9.2	3	4	8.6
17	3	5	8.0	1	5	7.2	1	4	7.7	3	4	8.6
18	3	5	7.2	3	4	8.6	3	4	7.7	3	5	8.0
19	3	4	5.2	3	4	5.2	3	5	8.0	0.0		
20	0.0			3	5	8.0	3	6	9.0	0.0		
21	0.0			1	5	7.2	1	5	8.0	3	4	7.7
22	0.0			1	5	7.2	1	5	8.0	3	4	8.6
23	3	4	5.2	1	5	4.0	1	4	6.0	3	6	4.5
24	3	6	7.5	1	5	12.0	1	6	9.0	3	4	4.3
25	3	6	11.3	1	6	7.5	3	5	4.0	3	4	8.6
26	3	4	4.3	3	6	7.5	2	3	7.4	3	3	4.6
27	3	6	7.5	2	5	8.0	2	5	8.0	3	5	8.0
28	3	4	8.6	3	5	8.0	3	5	4.0	3	3	3.7

MICROSEISMIC ACTIVITY

MARCH 1977

COMPONENT EW



GMT Date	00 h			06 h			12 h			18 h		
	K	T	A	K	T	A	K	T	A	K	T	A
1	3	6	3.5	2	4	2.5	2	4	2.5	3	6	2.8
2	2	6	2.1	1	6	3.5	3	5	2.3	0.0		
3	3	5	3.0	2	5	3.0	1	5	2.3	3	5	3.8
4	3	4	3.3	0.0			0.0			0.0		
5	3	4	3.3	2	5	3.8	2	5	3.0	2	5	3.0
6	1	5	3.0	1	5	3.0	2	5	4.5	1	5	3.0
7	3	4	2.5	1	5	3.8	1	5	3.0	1	5	3.0
8	1	5	4.5	1	5	3.0	2	5	3.0	3	5	3.0
9	3	5	3.0	2	5	3.0	2	5	3.0	2	5	2.3
10	1	5	3.0	2	5	3.0	2	5	1.5	1	4	2.5
11	1	4	3.3	2	5	3.0	2	5	3.8	2	5	3.0
12	2	5	3.0	1	5	2.3	1	4	1.7	0.0		
13	0.0			0.0			3	4	1.7	3	4	2.5
14	3	5	2.3	1	5	3.0	1	5	3.0	1	6	2.8
15	1	5	2.3	2	5	3.0	1	5	2.3	1	6	2.8
16	1	5	3.0	1	5	2.3	2	5	3.8	3	5	2.3
17	2	4	1.7	2	4	3.3	2	4	5.0	0.0		
18	2	4	5.8	1	4	4.2	1	5	3.8	0.0		
19	0.0			0.0			0.0			0.0		
20	3	4	12.5	3	4	8.3	0.0			0.0		
21	0.0			0.0			0.0			0.0		
22	0.0			0.0			0.0			0.0		
23	0.0			TT			0.0			0.0		
24	3	4	3.3	0.0			3	3	3.6	3	3	5.4
25	3	3	4.5	1	4	4.2	1	5	3.8	3	5	4.5
26	0.0			3	3	3.6	3	3	3.6	0.0		
27	3	3	3.6	3	3	3.6	0.0			0		
28	0.0			3	3	5.4	3	3	3.6	0.0		
29	0.0			TT			0.0			0.0		
30	0.0			3	4	3.3	3	5	4.5	0		
31	2	6	7.0	1	4	5.0	1	4	5.0	2	5	7.6
				2	5	7.6	2	5	7.6	2	6	7.0

COMPONENT NS



GMT Date	00 h			06 h			12 h			18 h		
	K	T	A	K	T	A	K	T	A	K	T	A
1	3	5	4.0	3	5	4.0	2	5	4.0	2	5	4.0
2	2	5	4.0	2	5	4.0	2	5	3.2	3	4	2.6
3	1	5	3.2	2	5	5.6	1	5	4.0	1	5	7.2
4	1	5	4.0	2	5	5.6	2	5	4.8	2	5	4.0
5	2	6	3.8	2	6	3.8	2	6	4.5	2	6	4.5
6	2	5	4.0	1	5	7.2	2	6	3.8	2	6	6.8
7	1	5	4.0	1	5	4.0	1	5	3.2	1	5	4.8
8	1	5	4.0	1	6	3.8	2	6	3.0	1	5	3.2
9	1	5	2.4	2	6	4.5	1	5	4.0	1	6	3.8
10	1	6	3.8	2	6	6.8	2	5	3.2	1	5	3.2
11	1	5	4.0	1	6	3.8	2	5	4.8	1	5	4.8
12	1	5	3.2	1	5	4.8	1	5	5.6	1	5	2.4
13	1	5	4.0	3	5	3.2	3	4	2.6	3	4	3.4
14	1	5	3.2	2	5	4.0	2	5	4.0	1	5	3.2
15	1	6	4.5	2	5	4.0	2	5	4.0	1	5	3.2
16	3	4	2.6	1	5	4.0	1	5	3.2	1	5	3.2
17	3	5	3.2	2	5	2.4	2	5	1.6	3	4	3.4
18	2	5	3.2	1	4	8.6	3	3	7.4	3	3	5.5
19	0.0			0.0			0.0			0.0		
20	3	4	8.6	1	5	8.0	0.0			0.0		
21	3	2	4.9	3	2	4.9	3	2	4.9	3	2	4.9
22	0.0			0.0			0.0			0.0		
23	0.0			0.0			0.0			0.0		
24	3	5	4.0	1	5	4.8	1	4	5.2	1	6	7.5
25	1	4	4.3	1	5	7.2	3	4	4.3	0.0		
26	0			3	3	4.6	3	3	4.6	0.0		
27	3	4	7.7	1	5	4.0	1	5	4.8	3	4	3.4
28	3	5	4.0	3	5	4.0	3	4	4.3	0.0		
29	3	3	3.7	0.0			3	3	3.7	0.0		
30	3	3	2.8	2	5	8.0	2	5	8.0	2	6	6.8
31	2	6	6.8	2	5	8.0	2	7	8.9	2	6	9.0



GMT Date	00 h			06 h			12 h			18 h		
	K	T	A	K	T	A	K	T	A	K	T	A
1	2	6	3.1	2	6	3.1	2	5	6.8	2	5	3.4
2	2	5	6.8	3	6	6.3	3	5	4.1	0.0		
3	3	4	4.4	3	6	9.4	0.0			0.0		
4	3	4	4.4	3	4	7.4	3	4	3.7	3	4	3.7
5	3	4	3.7	1	5	4.1	3	4	7.4	3	4	4.4
6	3	5	6.8	3	4	7.4	3	5	6.8	0.0		
7	3	4	7.4	3	5	8.1	3	6	6.3	0.0		
8	3	4	7.4	3	6	3.8	0.0			0.0		
9	3	2	4.1	3	5	3.4	0.0			0.0		
10	0.0			3	6	6.3	0.0			0.0		
11	3	6	7.5	0.0			0.0			0.0		
12	3	2	5.0	3	6	7.5	3	4	3.7	3	5	3.4
13	3	6	7.5	3	5	6.8	3	4	4.4	3	3	3.1
14	0.0			3	4	2.9	3	4	2.9	3	3	3.1
15	0.0			3	3	3.1	3	4	2.9	0.0		
16	0.0			1	4	3.7	1	4	3.7	0.0		
17	3	3	3.1	0.0			0.0			0.0		
18	0.0			0.0			0.0			0.0		
19	0.0			0.0			0.0			0.0		
20	0.0			0.0			0.0			0.0		
21	0.0			0.0			0.0			0.0		
22	0.0			TT			3	4	6.6	0.0		
23	0.0			3	4	2.9	3	3	3.1	3	3	3.1
24	0.0			3	3	3.1	3	3	3.1	0.0		
25	0.0			0.0			0.0			0.0		
26	0.0			0.0			0.0			0.0		
27	3	3	3.1	3	4	2.9	3	4	3.7	3	4	2.9
28	0.0			1	3	2.4	1	3	2.4	0.0		
29	0.0			0.0			0.0			0.0		
30	0.0			0.0			3	3	2.4	0.0		
				0.0			0.0			0.0		

MICROSEISMIC ACTIVITY

APRIL 1977

COMPONENT NS



GMT Date	00 h			06 h			12 h			18 h		
	K	T	A	K	T	A	K	T	A	K	T	A
1	2	6	4.6	2	6	6.6	2	6	3.3	2	6	3.3
2	2	5	4.2	3	4	3.1	3	5	4.2	3	6	3.3
3	3	4	7.6	3	5	7.0	3	5	5.6	3	5	3.5
4	3	5	4.9	2	4	4.6	1	3	4.1	1	4	3.1
5	1	4	3.8	1	4	7.6	1	4	4.6	3	4	3.8
6	3	4	5.3	1	4	7.6	0.0			0.0		
7	3	4	3.8	3	4	3.8	1	5	7.0	0.0		
8	3	4	7.6	3	2	4.4	0.0			0.0		
9	3	6	6.6	3	3	4.1	3	3	4.1	0.0		
10	0.0			0.0			0.0			0.0		
11	0.0			0.0			0.0			0		
12	3	4	7.6	3	3	3.3	3	3	3.3	0.0		
13	0.0			3	4	3.1	3	4	3.8	3	3	3.3
14	0.0			3	3	3.3	3	3	3.3	0.0		
15	0.0			3	3	3.3	3	3	3.3	0.0		
16	0.0			3	4	4.6	3	4	4.6	0.0		
17	0.0			3	5	7.0	0.0			0.0		
18	0.0			3	3	4.1	3	3	3.3	0.0		
19	0.0			0.0			0.0			0.0		
20	0.0			0.0			0.0			0.0		
21	0.0			3	3	4.1	3	4	3.8	0.0		
22	0.0			3	3	4.1	3	3	5.0	3	3	4.1
23	3	3	4.1	3	3	4.1	3	3	4.1	0.0		
24	3	5	4.2	0.0			0.0			0.0		
25	3	3	3.3	3	3	4.1	3	4	3.8	3	3	5.0
26	0.0			3	3	5.0	3	4	4.6	3	3	3.3
27	0.0			3	3	5.0	3	4	4.6	0.0		
28	0.0			3	4	6.9	3	4	3.8	0.0		
29	0.0			0.0			0.0			0.0		
30	0.0			3	4	3.8	0.0			0.0		
				0.0			0.0			0.0		

MICROSEISMIC ACTIVITY

MAY 1977



COMPONENT EW

GMT Date	00 h			06 h			12 h			18 h		
	K	T	A	K	T	A	K	T	A	K	T	A
1	0.0			0.0			0.0			0		
2	0.0			0.0			0.0			0		
3	0.0			0.0			0.0			0		
4	0.0			0.0			0.0			0.0		
5	0.0			0.0			0.0			0		
6	0.0			0.0			0.0			0		
7	0.0			0.0			0.0			0.0		
8	0.0			0.0			0.0			0		
9	0.0			0.0			0.0			0		
10	0.0			0.0			0.0			0		
11	0.0			0.0			0.0			0		
12	0.0			TT			0.0			0		
13	0.0			3	3	7.9	TT			0.0		
14	0.0			0.0			0.0			0.0		
15	0			0			0.0			0.0		
16	0			3	3	2.4	0.0			0.0		
17	0.0			0.0			0.0			0		
18	0.0			0.0			0.0			0		
19	0.0			0.0			0.0			0		
20	3	5	6.1	0.0			0.0			0.0		
21	0.0			0.0			0.0			0		
22	0.0			0.0			0.0			0		
23	0.0			0.0			0.0			0		
24	0.0			0.0			0.0			0		
25	0.0			0.0			0.0			0.0		
26	TT			0.0			0.0			0.0		
27	0.0			0.0			0.0			0.0		
28	0.0			0.0			0.0			0		
29	0.0			3	4	4.4	0.0			0.0		
30	0.0			0.0			0.0			0		
31	0.0			0.0			0.0			0.0		
	0.0			0.0			0.0			0.0		

MICROSEISMIC ACTIVITY

MAY 1977

COMPONENT NS



GMT Date	00 h			06 h			12 h			18 h		
	K	T	A	K	T	A	K	T	A	K	T	A
1	0.0			0.0			0.0					
2	0.0			0.0			0.0					0
3	0.0			0.0			0.0					0
4	0.0			0.0			0.0					0.0
5		3	2.5	0.0			0					0.0
6		3	3.3	0.0			0.0					0.0
7	0.0			0.0			0.0					0.0
8	0.0			0			0.0					0
9	0.0			0.0			0.0					0.0
10	0.0			0.0			0.0					0.0
11	0.0			TT			0.0					0
12	0.0			TT			0.0					0.0
13	0.0			0.0			0.0					0.0
14	0.0			0.0			0.0					0.0
15	0			0			0.0					0.0
16	0			0.0			0.0					0
17	0.0			0.0			0.0					0
18	0.0			0			0.0					0.0
19	0			0			0.0					0.0
20	0.0			0.0			0.0					0.0
21	0.0			0.0			0.0					0.0
22	0.0			0			0.0					0.0
23	0.0			0			0.0					0
24	0.0				3	2.5		3	2.5			0.0
25	0.0			0.0			0.0					0.0
26	TT			0.0			0.0					0.0
27	0.0			0.0			0.0					0.0
28	0.0			0.0			0.0					0.0
29	0.0			0.0			0.0					0.0
30	0.0			0.0			0.0					0.0
31	0.0			0.0			0.0					0.0



MICROSEISMIC ACTIVITY

JUNE 1977



COMPONENT EW

GMT Date	00 h			06 h			12 h			18 h		
	K	T	A	K	T	A	K	T	A	K	T	A
1	0.0			0.0			0.0			0.0		
2	0.0			0.0			0.0			0.0		
3	TT			0.0			0.0			0.0		
4	0.0			0.0			0.0			0.0		
5	TT			0.0			0.0			0		
6	0.0			0.0			0.0			0		
7	0.0			0.0			0.0			0		
8	0.0			0.0			0.0			0		
9	0.0			0.0			0.0			0		
10	0.0			0.0			0.0			0.0		
11	0.0			0.0			0.0			0.0		
12	0.0			0.0			0.0			0		
13	0.0			0.0			0.0			0		
14	0.0			...			...			...		
15	...			...			...			...		
16	...			1 6 7.5			1 6 6.3			3 5 6.8		
17	1 6 7.5			1 4 4.4			1 4 3.7			0.0		
18	3 4 3.7			3 4 4.4			3 5 6.8			3 5 6.8		
19	3 3 3.9			3 5 6.1			3 5 6.8			3 5 4.1		
20	3 5 6.8			2 6 6.3			2 6 6.3			3 5 6.1		
21	1 4 8.8			2 4 7.4			2 4 6.6			1 4 6.6		
22	3 4 6.6			1 6 2.5			TT			3 6 3.8		
23	3 4 4.4			2 5 6.1			2 5 6.8			3 4 4.4		
24	1 5 4.1			2 4 7.4			2 4 7.4			3 4 7.4		
25	3 5 3.4			1 5 4.1			1 5 6.1			3 6 6.3		
26	3 4 7.4			3 4 4.4			3 4 6.6			3 4 6.6		
27	3 5 4.1			2 4 7.4			2 4 7.4			3 4 3.7		
28	3 4 4.4			1 6 3.1			3 5 2.7			3 6 2.5		
29	3 6 3.8			2 5 4.1			2 4 2.9			3 4 2.9		
30	3 5 2.7			2 5 2.7			1 5 2.7			0.0		

MICROSEISMIC ACTIVITY

JUNE 1977

COMPONENT NS



GMT Date	00 h			06 h			12 h			18 h		
	K	T	A	K	T	A	K	T	A	K	T	A
1	0.0			0.0			0.0			0.0		
2	0.0			0.0			0.0			0.0		
3	1	3	2.5	0.0			0.0			0.0		
4	0.0			0.0			0.0			0.0		
5	TT			0.0			0.0			0.0		
6	0.0			3	5	7.0	3	3	4.1	0		
7	3	3	4.1	0.0			3	4	6.9	3	3	4.1
8	3	3	4.1	3	3	5.0	3	3	4.1	0.0		
9	0.0			0.0			0.0			0.0		
10	0.0			0.0			0.0			0.0		
11	0.0			0			0.0			0		
12	0.0			0.0			0.0			3	3	4.1
13	0.0			0.0			...			...		
14	...			...			...			...		
15	...			...			...			...		
16	...			3	4	6.9	0.0			0.0		
17	3	5	7.0	0.0			0.0			0		
18	0.0			0.0			0.0			0.0		
19	0.0			0.0			0.0			0.0		
20	0.0			0.0			0.0			0.0		
21	0.0			0.0			0.0			0.0		
22	0.0			0.0			TT			0.0		
23	0.0			0.0			0.0			0.0		
24	0.0			0.0			0.0			0.0		
25	0.0			0.0			0.0			0.0		
26	0.0			0.0			0.0			0.0		
27	0.0			0.0			0.0			0		
28	0.0			0.0			0.0			0.0		
29	0.0			0.0			0.0			0		
30	0			0.0			0.0			0.0		

MICROSEISMIC ACTIVITY

JULY 1977

COMPONENT EW



GMT Date	00 h			06 h			12 h			18 h		
	K	T	A	K	T	A	K	T	A	K	T	A
1	3	5	3.1	1	7	8.2	3	4	4.1	3	5	3.8
2	0.0			3	4	4.1	3	5	3.8	3	5	3.8
3	0.0			3	4	4.1	3	5	7.7	3	4	4.1
4	0.0			2	6	7.1	1	5	7.7	3	4	4.1
5	3	4	4.1	1	6	7.1	1	7	10.3	3	5	3.8
6	3	4	8.3	2	5	7.7	2	8	10.6	3	5	7.7
7	3	5	7.7	2	6	10.7	2	7	10.3	3	4	8.3
8	3	4	8.3	1	6	7.1	1	6	7.1	3	5	11.5
9	3	5	3.8	3	7	6.8	3	7	6.8	3	6	7.1
10	3	5	3.8	3	6	7.1	3	6	7.1	3	4	4.1
11	3	5	3.8	2	7	6.8	2	7	10.3	3	5	7.7
12	1	5	3.8	2	6	7.1	2	7	6.8	3	4	4.1
13	3	4	4.1	2	6	7.1	2	6	7.1	3	4	4.1
14	3	4	4.1	2	5	7.7	2	6	7.1	3	4	4.1
15	3	4	4.1	1	7	6.8	2	5	7.7	3	4	4.1
16	3	4	4.1	1	6	7.1	TT			3	5	3.8
17	3	4	8.3	3	6	7.1	3	7	6.8	3	5	7.7
18	3	5	3.8	1	6	7.1	1	6	7.1	3	6	7.1
19	3	4	4.1	2	5	7.7	2	7	6.8	3	4	8.3
20	3	4	4.1	2	7	3.4	2	6	3.6	0.0		
21	3	4	4.1	1	5	3.8	0.0			TT		
22	3	3	4.4	2	4	8.3	2	4	8.3	3	3	4.4
23	3	4	4.1	3	7	6.8	3	5	7.7	3	4	8.3
24	3	5	3.8	3	3	4.4	3	4	4.1	3	4	4.1
25	3	4	4.1	2	6	7.1	2	6	7.1	3	5	3.8
26	3	4	4.1	2	5	7.7	2	7	3.4	3	4	4.1
27	3	5	7.7	1	7	10.3	1	6	7.1	3	5	3.8
28	3	5	3.8	2	7	6.8	2	7	6.8	3	4	4.1
29	2	5	3.8	TT			1	6	3.6	3	6	7.1
30	3	5	3.8	1	7	10.3	1	8	3.5	3	7	3.4
31	3	6	3.6	3	7	6.8	3	4	4.1	3	4	4.1

MICROSEISMIC ACTIVITY

JULY 1977

COMPONENT NS



GMT Date	00 h			06 h			12 h			18 h		
	K	T	A	K	T	A	K	T	A	K	T	A
1	0.0			0.0			0.0			0.0		
2	0.0			0.0			0.0			0.0		
3	0.0			0.0			0.0			0		
4	0.0			0.0			0.0			0.0		
5	0.0			0.0			0.0			0.0		
6	0.0			0.0			0.0			0		
7	0.0			0.0			0.0			0.0		
8	0			0.0			0.0			0.0		
9	0			0.0			0.0			0		
10	0.0			0.0			TT			0.0		
11	0.0			0.0			0.0			0.0		
12	0.0			0.0			0.0			0.0		
13	0.0			0.0			0.0			0.0		
14	0.0			0.0			0.0			0.0		
15	0.0			0.0			0.0			0.0		
16	0.0			0.0			TT			0		
17	0.0			TT			0.0			0.0		
18	0.0			0.0			0.0			0.0		
19	0.0			0.0			0.0			0		
20	0			0.0			0.0			0.0		
21	0.0			0.0			0.0			0		
22	0.0			0.0			0.0			0		
23	0.0			0.0			0.0			0		
24	0.0			0.0			0.0			0		
25	0.0			0.0			0.0			0		
26	0.0			0.0			0.0			0.0		
27	0.0			0.0			0.0			0.0		
28	0.0			0.0			0.0			0		
29	0.0			0.0			0.0			0		
30	0.0			0.0			0.0			0		
31	0.0			0.0			0.0			0		

COMPONENT EW



GMT Date	00 h			06 h			12 h			18 h			
	K	T	A	K	T	A	K	T	A	K	T	A	
1	0			0			0			0			
2	3	7	6.8	3	7	6.2	3	6	7.1	0.0			
3	0.0			0			3	5	4.6	0			
4	0			2	6	3.6	2	6	3.6	0.0			
5	0.0			0.0			0			0			
6	1	6	6.4	1	9	4.3	1	6	4.3	0.0			
7	3	8	5.6	3	8	5.6	0.0			0.0			
8	1	7	5.5	1	7	4.1	0.0				1	8	2.8
9	3	5	6.1	3	5	6.1	3	7	6.8	3	6	7.1	
10	3	6	5.0	3	6	7.1	0.0			3	6	5.0	
11	2	5	3.8	2	5	3.8	3	5	3.8	3	5	3.8	
12	3	7	2.7	3	8	2.8	3	8	4.2	3	7	3.4	
13	3	6	2.8	3	6	2.8	3	6	2.1	3	6	2.1	
14	3	6	5.7	3	7	3.4	3	7	2.1	3	8	2.8	
15	3	6	1.4	3	6	1.4	0.0			0.0			
16	3	7	2.1	3	7	2.1	0.0			3	7	2.7	
17	2	6	4.3	2	6	4.3	3	6	4.3	0.0			
18	0.0			0.0			0.0			0.0			
19	0.0			0.0			0.0			0.0			
20	0.0			0.0			0.0			0.0			
21	0			3	5	2.3	3	5	2.3	3	5	2.3	
22	0			0			0			0			
23	0.0			0			0			0			
24	0.0			0			0			0.0			
25	0			0			0			0.0			
26	3	8	5.6	3	8	5.6	3	8	5.6	3	7	5.5	
27	2	8	5.6	0.0			0			0			
28	3	7	6.8	0.0			0.0			3	5	3.1	
29	3	8	2.8	3	7	4.1	3	8	3.5	3	7	2.7	
30	0			0.0			0.0			3	8	6.4	
31	3	6	7.1	3	7	4.8	0.0			0.0			

MICROSEISMIC ACTIVITY

AUGUST 1977



COMPONENT NS

GMT Date	00 h			06 h			12 h			18 h		
	K	T	A	K	T	A	K	T	A	K	T	A
1	0			0.0			0.0			0.0		
2	0			0			0			0		
3	0			1	5	6.0	1	5	6.0	0		
4	0.0			0.0			0			0		
5	3	5	3.0	3	5	3.0	0.0			0.0		
6	0			0			0			0		
7	0			0.0			0.0			0.0		
8	3	5	6.0	...			...			...		
9	0.0			0.0			0			0		
10	0.0			0.0			0.0			0.0		
11	3	5	3.0	0.0			0.0			3	8	8.3
12	0.0			...			...			...		
13	0			0			0			0.0		
14	0			0			0			0.0		
15	0			0			0			0		
16	0.0			0.0			0.0			0.0		
17	0.0			0.0			0.0			0.0		
18	0.0			0.0			0.0			0.0		
19	0.0			3	5	3.0	0.0			0.0		
20	0.0			0.0			0.0			0.0		
21	0			0			0			0		
22	0			0			0			0		
23	0.0			0			0			0		
24	0			0			0			0		
25	0			3	5	5.3	0			3	6	2.8
26	3	5	6.0	3	5	5.3	0			0		
27	2	8	5.8	2	8	5.8	3	6	3.5	0.0		
28	3	5	3.0	0.0			3	6	2.8	0.0		
29	3	5	2.3	3	5	2.3	0.0			0		
30	0.0			0.0			0.0			0.0		
31	0.0			0.0			0.0			0.0		



COMPONENT EW

GMT Date	00 h			06 h			12 h			18 h		
	K	T	A	K	T	A	K	T	A	K	T	A
1	3	5	2.3	0.0			0.0			0		
2	0.0			0.0			0.0			0.0		
3	3	7	5.5	3	7	3.4	0.0			0		
4	3	6	2.8	3	8	2.8	0.0			3	7	3.4
5	3	7	2.7	2	8	2.1	2	8	2.1	3	7	4.1
6	0.0			0.0			0.0			0.0		
7	0.0			0.0			0.0			0.0		
8	0.0			0.0			0			0.0		
9	3	8	2.8	3	7	2.1	0.0			3	7	3.4
10	0			0			0			0		
11	0.0			0.0			0.0			0.0		
12	0			0			0			0		
13	0.0			3	7	2.7	3	7	2.7	3	7	2.7
14	2	6	7.1	2	6	5.7	2	7	5.5	2	7	6.8
15	2	7	6.8	2	6	5.7	2	7	3.4	2	6	4.3
16	2	7	5.5	3	6	5.0	3	7	2.7	0.0		
17	0.0			0.0			0.0			0.0		
18	0			0.0			0.0			0.0		
19	3	8	5.6	3	7	2.7	0.0			0.0		
20	3	7	8.2	0.0			0.0			3	5	3.1
21	0			0			0			0		
22	3	8	5.6	0.0			0.0			0.0		
23	3	7	2.7	0.0			0			0.0		
24	3	8	2.8	3	8	2.8	0.0			0.0		
25	3	8	3.5	3	8	1.4	0.0			0.0		
26	0.0			0.0			0			0		
27	3	8	4.2	3	7	2.1	0.0			3	7	2.1
28	0.0			0.0			0.0			0.0		
29	2	8	4.2	2	8	3.5	0.0			2	8	2.8
30	2	8	2.8	2	9	4.0	2	7	2.1	2	7	2.1

COMPONENT NS



GMT Date	00 h			06 h			12 h			18 h		
	K	T	A	K	T	A	K	T	A	K	T	A
1	0.0			0.0			0			0		
2	2	8	3.3	2	8	3.3	2	8	3.3	0.0		
3	0			0			0			0		
4	3	7	4.4	3	6	2.8	0.0			0.0		
5	0.0			0.0			0.0			0.0		
6	0.0			0.0			0.0			0.0		
7	0.0			0.0			0.0			0.0		
8	3	7	2.9	3	7	2.2	0.0			0.0		
9	0.0			0			0			0.0		
10	0			0			0			0		
11	0			0			0			0.0		
12	0.0			0.0			0.0			0.0		
13	3	7	5.8	3	6	4.3	2	7	5.1	3	7	6.5
14	2	7	7.3	2	7	8.7	0.0			0.0		
15	2	7	7.3	2	7	7.3	0.0			0.0		
16	3	7	4.4	3	6	2.8	0.0			0.0		
17	0			0			0.0			0		
18	0			0			0			0		
19	0.0			0.0			0			0.0		
20	0			0			0			0		
21	0			0			0.0			0.0		
22	0.0			0.0			0			0		
23	0.0			0.0			0			0		
24	0.0			0.0			0.0			0.0		
25	0.0			0.0			0			0		
26	0.0			0.0			0			0		
27	0			0			2	7	4.4	2	7	5.8
28	2	8	3.3	2	8	4.1	0.0			0.0		
29	0.0			0.0			0.0			3	7	1.5
30	3	8	2.5	3	8	2.5	0.0					



MICROSEISMIC ACTIVITY

OCTOBER 1977



COMPONENT EW

GMT Date	00 h			06 h			12 h			18 h		
	K	T	A	K	T	A	K	T	A	K	T	A
1	0.0			0.0			0.0			0.0		
2	3	4	4.0	3	4	4.0	3	4	4.0	0.0		
3	0.0			1	5	7.4	1	5	7.4	3	5	3.7
4	3	4	4.0	0.0			0.0			0.0		
5	TT			2	7	9.8	2	6	10.3	3	4	4.0
6	3	5	3.7	2	7	3.3	2	7	6.5	3	5	3.7
7	1	6	3.4	2	8	6.7	2	7	6.5	3	5	7.4
8	1	5	7.4	2	6	3.4	2	7	3.3	1	6	6.8
9	3	5	3.7	3	6	3.4	3	5	3.7	0.0		
10	3	6	3.4	0.0			TT			0.0		
11	0.0			2	8	6.7	2	7	9.8	3	7	9.8
12	3	5	7.4	2	8	6.7	2	8	6.7	3	5	7.4
13	3	5	7.4	2	7	6.5	2	6	6.8	3	5	7.4
14	3	6	3.4	1	7	6.5	1	7	6.5	3	8	6.7
15	3	7	3.3	3	7	3.3	3	6	3.4	1	6	3.4
16	3	4	4.0	3	7	6.5	3	7	6.5	3	7	3.3
17	3	5	3.7	3	6	3.4	TT			0.0		
18	0.0			0.0			0.0			0.0		
19	0.0			0.0			0.0			0.0		
20	0.0			0.0			0.0			0.0		
21	0.0			0.0			0.0			0		
22	0.0			0.0			0.0			0		
23	0.0			0.0			0.0			0.0		
24	0.0			0.0			0.0			0		
25	0			0.0			0.0			0		
26	0.0			3	6	3.4	3	6	3.4	0.0		
27	3	7	3.3	2	6	3.4	2	6	3.4	0.0		
28	2	6	3.4	2	6	6.8	2	6	6.8	1	8	10.0
29	2	6	3.4	2	6	6.8	2	7	6.5	1	7	6.5
30	2	6	3.4	2	6	3.4	2	6	3.4	2	6	3.4
31	2	6	6.8	2	7	6.5	2	7	6.5	2	6	6.8
	2	6	6.8	2	7	3.3	2	7	6.5	1	5	3.7

MICROSEISMIC ACTIVITY

OCTOBER 1977

COMPONENT NS



GMT Date	00 h			06 h			12 h			18 h			
	K	T	A	K	T	A	K	T	A	K	T	A	
1	0.0			1	4	4.0	1	4	4.0	0.0			
2		3	4	4.0	3	4	4.0	3	4	4.0	0.0		
3	0.0			0.0			0.0			0			
4	0.0			0.0			0.0			0.0			
5	0.0			0.0			0.0			0.0			
6	0.0			0.0			0.0			0.0			
7	0.0			0.0			0.0			0.0			
8	0.0			0.0			0.0			0.0			
9	0.0			0.0			0.0			0.0			
10	0.0			0.0			TT			0.0			
11	0.0			0.0			0.0			0.0			
12	0.0			1	7	3.5	1	6	3.4	0.0			
13		1	5	3.6	3	4	4.0	3	4	4.0	0.0		
14	0.0			1	4	4.0	0.0			0.0			
15	0.0			0.0			0.0			0.0			
16	0.0			0.0			0.0			0.0			
17	0.0			0.0			TT			0.0			
18	0.0			0.0			0.0			0.0			
19	TT			0.0			0.0			0.0			
20	0.0			0.0			0.0			0			
21	0.0			0.0			0.0			0			
22	0.0			3	6	3.4	0.0			0.0			
23	0.0			0			0.0			0			
24	0.0			0.0			0.0			0			
25	0			3	4	4.0	0.0			1	5	3.6	
26	0			1	6	3.4	1	5	3.6	2	7	7.0	
27		2	6	3.4	2	6	6.8	2	7	7.0	2	7	7.0
28		2	7	7.0	2	7	7.0	2	7	7.0	2	7	7.0
29		2	7	7.0	2	6	6.8	2	7	7.0	2	7	7.0
30		2	8	8.2	2	6	6.8	2	6	6.8	2	5	7.2
31		2	4	8.0	2	7	7.0	2	7	7.0	2	5	3.6

COMPONENT EW



GMT Date	00 h			06 h			12 h			18 h						
	K	T	A	K	T	A	K	T	A	K	T	A				
1		2	5	3.7		2	6	6.8		2	6	6.8		3	5	3.7
2		3	5	3.7		0.0				0.0				0.0		
3		TT				1	7	3.3		1	7	3.3		3	5	3.7
4		1	5	3.7		2	5	3.7		2	5	3.7		3	6	3.4
5		3	6	3.4		3	8	3.3		3	6	3.4		3	5	3.7
6		0.0				0.0				3	5	3.7		3	5	7.4
7		3	6	3.4		1	5	7.4		1	6	6.8		0.0		
8		3	4	4.0		1	4	4.0		1	5	3.7		3	6	6.8
9		3	5	3.7		1	5	6.7		2	5	7.4		1	5	10.4
10		3	6	3.4		2	6	3.4		1	6	3.4		3	6	6.8
11		3	7	3.3		2	6	6.8		1	6	6.8		3	5	7.4
12		3	5	3.7		2	7	6.5		2	7	6.5		3	5	3.7
13		3	6	6.8		3	6	6.8		3	6	6.8		3	6	6.8
14		3	6	6.8		2	7	6.5		2	7	6.5		3	6	3.4
15		1	6	3.4		2	7	6.5		2	6	6.8		3	6	3.4
16		3	5	3.7		2	7	6.5		2	8	6.7		0.0		
17		0.0				2	7	6.5		2	6	6.8		3	6	3.4
18		TT				2	7	6.5		2	7	6.5		3	6	3.4
19		3	5	3.7		1	8	6.7		1	7	6.5		3	7	3.3
20		3	6	3.4		3	5	3.7		0.0				0.0		
21		3	4	4.0		2	5	7.4		2	5	3.7		1	5	3.7
22		1	5	3.7		2	7	6.5		1	6	6.8		3	5	3.7
23		3	5	3.7		3	5	3.7		3	5	3.7		3	5	3.7
24		3	5	3.7		1	6	6.8		1	6	6.8		3	4	4.0
25		3	4	4.0		2	7	6.5		2	7	6.5		3	4	4.0
26		3	5	3.7		3	5	3.7		1	6	3.4		1	7	3.3
27		3	5	3.7		3	7	3.3		0.0				0.0		
28		3	6	3.4		1	7	6.5		2	7	6.5		3	7	3.3
29		3	5	3.7		1	7	3.3		1	7	3.3		3	6	6.8
30		3	6	3.4		1	8	10.0		1	7	6.5		3	6	3.4

MICROSEISMIC ACTIVITY

NOVEMBER 1977

COMPONENT NS



GMT Date	00 h			06 h			12 h			18 h						
	K	T	A	K	T	A	K	T	A	K	T	A				
1		2	4	4.0		2	5	3.6		3	7	3.5		3	5	3.6
2		3	4	4.0		0.0				0.0				0.0		
3		TT				0.0				0.0				0.0		
4		0.0				0.0				0.0				0.0		
5		0.0				0.0				0.0				0.0		
6		0.0				0.0				0.0				3	5	3.6
7		3	4	4.0		1	5	3.6		1	5	3.6		0.0		
8		0.0				0.0				0.0				0.0		
9		0.0				0.0				0.0				0.0		
10		0.0				0.0				0.0				0.0		
11		0.0				0.0				0.0				0.0		
12		0.0				2	6	6.8		2	6	6.8		3	5	3.6
13		3	5	3.6		3	6	6.8		3	6	6.8		3	5	3.6
14		3	4	4.0		2	6	3.4		2	6	3.4		3	5	3.6
15		3	5	3.6		2	8	4.1		2	7	3.5		0.0		
16		0.0				1	4	4.0		1	4	4.0		0.0		
17		0.0				0.0				0.0				0.0		
18		TT				0.0				0.0				0.0		
19		0.0				0.0				0.0				0.0		
20		0.0				0.0				0.0				0.0		
21		0.0				0.0				0.0				0.0		
22		0.0				0.0				0.0				0.0		
23		0.0				0.0				0.0				0.0		
24		0.0				0.0				0.0				0.0		
25		0.0				3	5	3.6		0.0				3	5	3.6
26		0.0				0.0				0.0				0.0		
27		0.0				0.0				0.0				0.0		
28		0.0				0.0				0.0				0		
29		0.0				0.0				0.0				0.0		
30		0				0.0				0.0				0.0		



GMT Date	00 h			06 h			12 h			18 h		
	K	T	A	K	T	A	K	T	A	K	T	A
1	3	6	3.4	1	8	6.7	1	8	6.7	3	7	6.5
2	3	6	6.8	2	8	6.7	2	8	6.7	3	7	3.3
3	3	7	6.5	1	7	3.3	3	7	6.5	3	7	6.5
4	3	5	3.7	3	7	3.3	3	7	3.3	3	6	3.4
5	3	5	3.7	1	5	3.7	1	5	3.7	3	4	4.0
6	0.0			1	6	3.4	1	5	3.7	3	4	4.0
7	3	4	4.0	2	5	7.4	2	6	6.8	3	5	3.7
8	3	5	3.7	2	6	3.4	2	7	6.5	3	5	3.7
9	3	5	3.7	2	8	6.7	2	7	6.5	3	5	3.7
10	3	6	6.8	1	5	3.7	1	6	6.8	3	5	3.7
11	3	4	4.0	3	5	3.7	3	4	4.0	3	4	4.0
12	3	4	4.0	2	7	6.5	2	8	6.7	3	6	6.8
13	3	5	3.7	2	7	6.5	2	7	6.5	3	6	3.4
14	3	6	3.4	2	7	6.5	2	7	3.3	3	6	6.8
15	1	6	3.4	2	7	6.5	2	7	6.5	3	6	3.4
16	1	7	6.5	2	8	10.0	2	8	10.0	1	5	3.7
17	1	6	6.8	2	8	10.0	1	7	6.5	1	8	10.0
18	3	6	6.8	1	6	6.8	1	6	6.8	1	6	6.8
19	1	7	9.8	2	7	9.8	2	8	10.0	2	7	9.8
20	2	7	9.8	2	7	9.8	2	7	6.5	1	8	10.0
21	1	8	10.0	1	7	6.5	1	8	6.7	3	7	9.8
22	3	6	6.8	2	7	6.5	2	6	6.8	3	6	3.4
23	3	5	3.7	2	6	6.8	2	6	6.8	1	6	6.8
24	3	5	3.7	3	7	6.5	1	6	6.8	3	6	3.4
25	3	4	4.0	3	5	3.7	3	5	3.7	0.0		
26	0.0			3	7	3.3	3	6	3.4	3	6	3.4
27	3	6	3.4	2	8	6.7	2	7	6.5	3	7	3.3
28	TT			2	7	6.5	2	6	6.8	3	6	3.4
29	3	5	3.7	2	6	6.8	2	6	6.8	3	5	3.7
30	1	6	6.8	1	6	6.8	0.0			0.0		
31	3	5	3.7	1	6	6.8	1	6	6.8	3	5	3.7



GMT Date	00 h			06 h			12 h			18 h		
	K	T	A	K	T	A	K	T	A	K	T	A
1	0.0			0.0			0.0			0.0		
2	0.0			3	4	4.0	3	4	4.0	0.0		
3	0.0			0.0			0.0			0.0		
4	3	4	4.0	3	6	3.4	3	7	7.0	0.0		
5	0.0			0.0			0.0			0.0		
6	0.0			3	4	4.0	0.0			0.0		
7	3	4	4.0	3	4	4.0	0.0			0		
8	0.0			3	4	4.0	3	4	4.0	0.0		
9	0.0			0.0			0.0			0.0		
10	0.0			0.0			0.0			0.0		
11	0.0			0.0			0.0			0.0		
12	0.0			0.0			3	4	4.0	0.0		
13	0.0			0.0			0.0			0.0		
14	0.0			0.0			0.0			0		
15	0.0			1	6	3.4	1	6	3.4	3	5	3.6
16	3	6	6.8	2	7	10.4	2	7	7.0	1	6	6.8
17	1	6	6.8	1	6	6.8	1	7	7.0	1	6	6.8
18	3	6	3.4	1	6	3.4	1	5	3.6	1	4	4.0
19	1	7	7.0	2	7	7.0	2	6	6.8	2	8	8.2
20	2	8	8.2	2	7	7.0	2	7	10.4	1	6	6.8
21	1	7	7.0	1	6	6.8	1	6	3.4	3	5	3.6
22	3	5	3.6	2	6	6.8	2	6	6.8	3	6	3.4
23	3	5	3.6	3	4	4.0	3	5	3.6	3	4	4.0
24	0.0			3	5	3.6	0.0			3	5	3.6
25	0.0			0.0			0.0			0		
26	0			0.0			0.0			0.0		
27	0.0			0.0			0.0			3	7	3.5
28	TT			0.0			0.0			0.0		
29	3	6	3.4	0.0			0.0			3	6	6.8
30	1	7	7.0	3	4	4.0	3	4	4.0	3	4	4.0
31	0.0			3	4	4.0	0.0			0.0		

Macroseismic Observations  
of Earthquakes on the Territory  
of Slovakia in the Year 1977



Date	Origin time	Location	Latitude North	Longitude East	Focal depth/km/	Shaken area/km <sup>2</sup> /	Epicentral Int./MCS/	Felt at
February 06	21 45	Österreich	47.84°	16.54°	10		5°	I = 4° Bratislava  I = 2.5° Rožná nad Parnou (District of Bratislava)
March 04	19 21	Rumunsko	45.78°	26.78°	112		9°	I = 5° Nová Kamenica (District of Prešov)  I = 4.5° Slančik (District of Trebišov)  I = 4° Veľké Ripňany (District of Topoľčany) Podolie (District of Trenčín) Rožňava Revúca (District of Rožňava)



Date	Origin time	Location	Latitude North	Longitude East	Focal depth/km/	Shaken area/km <sup>2</sup> /	Epicentral Int./MCS/	Felt at
								<p>Liptovský Trnovec (District of Lipt.Mikuláš)</p> <p>Vyšná Hutka (District of Košice, Humenné, Trebišov, Zempl. Branč (District of Trebišov)</p>
								<p><math>I = 3.5^0</math></p> <p>Dunajská Streda, Martin, Topoľčany, Košice, Prešov, Michalovce</p> <p>Uherský Brod (District of Uherské Hrad.)</p> <p>Senec (District of Bratis.)</p> <p>Jacovce (District of Topoľčany)</p> <p>Nováky, Lehota pod Vtáč- nikom (District of Prie- vidza)</p> <p>Trenčianská Turna (District of Trenčín)</p> <p>Detva (District of Zvolen)</p> <p>Čečejevce (District of Košice)</p> <p>Vranov nad Topľou (District of Humenné)</p>

Macroseismic Observation 1977

Date	Origin time	Location	Latitude North	Longitude East	Focal depth/km/	Shaken area/km <sup>2</sup> /	Epicentral Int./MCS/	Felt at
								Velké Kapušany (District of Trebišov)
								I = 3 <sup>0</sup> Bratislava, Trnava, Zvolen, Lipt. Mikuláš, Dolný Kubín, Nitra, Nové Zámky, Komárno, Pezinok, (District of Bratislava) Dojč (District of Senica) Hrubonovo (District of Nitra) Príbelce (District of Veľký Krtíš)
April 11	00 55	Little Carpat- hians	48.50°	17.50°			4.5°	I = 4.5° Naháč (District of Trnava)

Vydal: Geofyzikálny ústav SAV, Bratislava

Zostavila: RNDr. Klára Mrázová, CSc.

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Vytlačilo: Malotirážne stredisko VEDY, Vydavateľstva SAV

v Bratislave

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