Hungarian Earthquake Bulletin

2000

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GeoRisk

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Budapest

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Back cover page: Seismic Hazard Map of the Carpathian Basin. Peak Ground Accelerations (m/s^2), 6% probability of exceedance in 50 years.
From Zsíros Tibor: A Kárpát-medence szeizmicitása és földrengés veszélyessége, Magyar földrengés katalógus (456-1995), MTA FKK GGKI, Budapest, 2000.

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Public Agency for Radioactive Waste Management (PURAM)

Data interchange with a number of seismic stations from the neighboring countries contributed to the accuracy of event locations. Those are *Austria, Croatia, Czech Republic, Germany, Romania, Slovakia, Slovenia and Yugoslavia*.

INTRODUCTION

The Pannonian region occupy the territory between the Mediterranean area, what seismically is one of the most active regions in the world, and the East European Platform what can be treated as nearly aseismic. The Pannonian basin is bounded on the north to the east by the Carpathian mountain belt, on the south by the Dinarides mountain belt and on the west by the Eastern Alps. The area is tectonically rather complex and has been studied intensively for the last twenty years. Development of the Carpathian mountain belt and the Pannonian basin is attributed to collision between the Eurasian Plate and the African Plate between the Paleocene and Middle-Late Miocene. Different authors basically agree that the present-day deformation in the Pannonian basin system is controlled by the northward movement and counterclockwise rotation of the Adriatic micro plate relative to Europe.

The study of the current tectonics requires input data from the seismic activity of the area: if existing tectonic features are active in the present, or were active in the near past, this necessarily should be reflected in current seismicity. By definition, areas where earthquakes occur are areas of active tectonics. Earthquakes represent the sudden release of slowly accumulated strain energy and hence provide direct evidence of active tectonic processes. However, low and moderate seismicity at intraplate areas generally precludes reliable statistical correlation between epicenters and geological features.

Seismicity in the Pannonian basin is relatively low comparing to the peripherals and the distribution of earthquake epicenters shows a rather scattered pattern at the first glance. It is particularly difficult to decide whether the epicenters occur at isolated places or along elongated zones however, at several single places earthquakes occur repeatedly. For example, near to Eger (47.9N; 20.4E) at least sixteen earthquakes with more than fifty greater aftershocks occurred over a time interval of some 70 years. Komárom and Mór area (47.4-47.8N; 18.2E), Jászberény (47.5N; 20.0E), Kecskemét (46.9N; 19.7E) and Dunaharaszti (47.4; 19.0E) also produced significant activity over a certain but limited period of time. Moderate seismicity does not necessarily mean moderate size of earthquakes: reports of major earthquakes often refer to heavy building damage, liquefaction (e.g. 1763 Komárom earthquake, M 6.2; 1911 Kecskemét earthquake, M 5.6) and sometimes the possibility of fault rupture (e.g. 1834 Érmellék earthquake, M 6.2). These observations indicate that magnitude 6.0-6.5 earthquakes are possible but not frequent in the Pannonian basin. Several authors have shown the difficulty in constructing any meaningful geographical pattern of epicenter distribution when the statistical significance of the data is so low. Using only historical and early instrumental data, it really has been very problematic to find strong correlation between known tectonic structures and earthquakes. The recent high quality earthquake observations and locations may gradually change this situation.

The *Paks Micro-seismic Monitoring Network* has been operational since 1995. In 1999, a new set of stations (*Üveghuta Micro-seismic Monitoring Network*) has been installed with primary purpose of monitoring a potential nuclear waste disposal site. The typical detection threshold of the current local networks, supported by other existing stations, is around 1.5-2.0 ML, somewhat lower in the middle of the country and a little higher towards the border regions. This means that in most part of the country it is very unlikely that felt earthquakes go undetected.

In 2000, some 400 seismic events have been recorded by the monitoring networks and 150 of them happened in the monitored geographic window given below. The developing database of these well-located earthquakes can be used, in one hand, to resolve the tectonic framework in the Pannonian Basin and required on the other hand to refine our understanding of the level of seismic risk in Hungary.

Further to the better understanding of the seismic hazard, the seismic monitoring project has been successful in accumulating seismic data to accuracy not before possible, giving a significant contribution to improve the understanding of the earthquake mechanisms within the whole Pannonian Basin.

This Earthquake Bulletin is a united annual summary report of all earthquake-monitoring projects. The information in the Bulletin is based on all available earthquake related data provided by different organizations. The geographic region covered is bounded by latitudes 45.5-49.0N and longitudes 16.0-23.0E.

1.

SUMMARY OF 2000 SEISMICITY

2000 was an average year for Hungarian seismicity. There were 150 seismic events ($0.6 \leq ML \leq 4.4$) located within the area bounded by latitudes 45.5-49.0N and longitudes 16.0-23.0E. Six earthquakes were reported as felt. None of the earthquakes caused any damage. The highest magnitudes (ML) assigned to a shock was 4.4 in E-Austria, near to the Hungarian border.

The highest intensity reported during the year was 4 EMS, no earthquake damage was reported.

Reviewing the more notable earthquakes of the year in chronological order, a shock of magnitude 2.7 ML on the 2nd of March at Füzesgyarmat produced reports of intensity 3-4 EMS. On May 1st, an earthquake near to the Hungarian – Slovak border with a magnitude of 2.6 ML was felt at Vámosszabadi with maximum intensity of 4 EMS. On June 2nd an earthquake (2.6 ML) at Nagykőrös gave rise to reports of intensity 3-4 EMS. This quake was preceded by a pre-shock (some 15 minutes earlier) and followed by an 1.3 ML aftershock. On June 28th 4 EMS (2.6 ML) was reported again from Vámosszabadi. The 4.4 ML earthquake in E-Austria on July 11th had intensity 6 EMS at the epicenter area and was felt with 4 EMS in W-Hungary. In early morning, October 7th a minor earthquake (2.1 ML) was reported as felt from the XVI-th and XVII-th district of Budapest.

2.

SEISMOGRAPH STATIONS IN HUNGARY

In 2000, there has been no significant changes with the Hungarian earthquake monitoring network compared to the previous year, one new digital three component short period seismograph station has been installed at Etyek.

The micro-seismic monitoring network established by the *Paks Nuclear Power Plant Ltd.* in 1995, has been operational throughout the year. In 1999, the network has been slightly reconfigured and extended (*Üveghuta network*) to monitor micro-seismic activity at a potential nuclear waste disposal site vicinity.

In addition to the information from the 12 station *Paks* and *Üveghuta* micro-seismic monitoring network, data is contributed by 5 stations operated by the *Seismological Observatory, GGKI.* Of those, one belongs to the *Ministry of Foreign Affairs* and is operated in cooperation with the German GEOFON network.

Data interchange with stations from the neighboring countries and international data centers was also important.

The estimated detection capabilities of the present network with average noise conditions, supposing that at least four stations is needed for origin determination, is typically around 1.5-2.0 ML, somewhat lower in the middle of the country and a little higher towards the border regions. (See Fig. 2.4) This means that in most parts of the country it is very unlikely that felt events go undetected.

During the reporting period, we also had access to six strong motion accelerograph stations belonging to and operated by different organizations such as *Paks Nuclear Power Plant, GeoRisk, GGKI, Ministry of Environment* and *MOL RT.*

Seismograph Stations

Table 2.1.
Seismic stations, instrumentation and lithology

Code	Latitude (N)	Longitude (E)	Elevation (m)	Foundation	Type of station (1)	Sensor type (2)	Recording (3)	Org. (4)
BUD	47,4836	19,0239	196	dolomite	3C LP	Kirnos	A - C	GGKI
BUDA	47,4836	19,0239	196	dolomite	3C SP	LE-3D	D - E	GR
ETYK*	47.4404	18.7449	250	marl	3C SP	SS-1	D - E	GGKI
GYL	46,5981	21,1718	92	sand	3C SP	SS-1	D - E	GGKI
PENC	47,7905	19,2817	250	alluvium	3C SP	LE-3D	D - E	GGKI
PKS2	46,4920	19,2131	106	sand	3C SP	LE-3D	D - E	GR
PKS6	46,5998	19,5645	120	sand	3C SP	LE-3D	D - E	GR
PKS7	47,0473	19,1609	95	mud	3C SP	LE-3D	D - E	GR
PKS8	46,8787	18,6765	135	rhyolite tuff	3C SP	LE-3D	D - E	GR
PKS9	46,5870	18,2789	240	loess	3C SP	LE-3D	D - E	GR
PKSc	47,3806	18,4371	200	dolomite	3C SP	LE-3D	D - E	GR
PKSm	46,2119	18,6413	170	granite	3C SP	LE-3D	D - E	GR
PKSn	46,8972	19,8673	110	sand	3C SP	LE-3D	D - E	GR
PSZ	47,9184	19,8944	940	andesite	3C BB	STS-2	D - C	GGKI
RHK1	46,0948	18,0720	297	limestone	3C SP	LE-3D	D - E	GGKI-GR
RHK2	46,1270	18,7799	147	loess	3C SP	LE-3D	D - E	GGKI-GR
RHK3	45,8885	18,2521	420	limestone	3C SP	LE-3D	D - E	GGKI-GR
SOP	47,6833	16,5583	260	gneiss	3C SP	SS-1	D - E	GGKI

(1) 1C - one component vertical seismometer, 3C - three component seismometer
SP - short period seismometer, BB - broad band seismometer, SM - strong motion accelerograph

(2) STS-2 - Streckeisen broad band seismometer, LE-3D - Lennartz three directional 1Hz geophone,
SS-1 - Kinemetrics 1Hz seismometer, Kirnos - 12 s long period seismometer

(3) A - analogue, D - digital, C - continuous recording, E - event recording

(4) GGKI - Geodetic and Geophysical Research Institute, GR - GeoRisk Ltd., PART - Paks Nuclear Power Plant Ltd.

(*) ETYK on date 2000/02/03

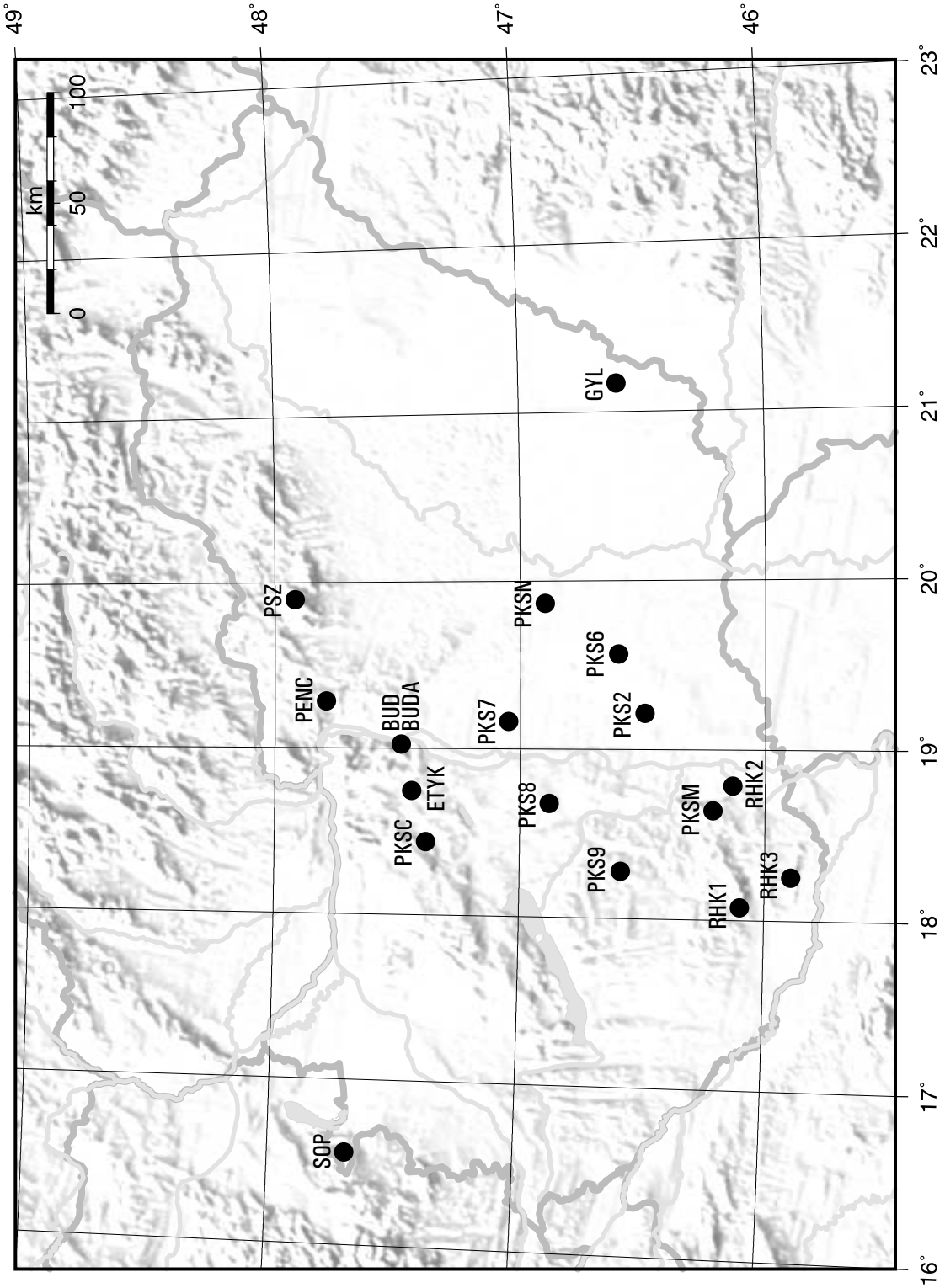


Figure 2.1.
Seismograph stations in Hungary
(See Table 2.1. for detailes)

Seismograph Stations

Table 2.2.
Strong motion accelerograph stations

Code	Latitude (N)	Longitude (E)	Elevation (m)	Foundation	Type of station (1)	Sensor type (2)	Recording (3)	Org. (4)
ALGY	46.3332	20.2092	90	loose sand	3C SM	AC-23	D - E	MO-GR
BOD	47.322	18.241	250	limestone	3C SM	AC-23	D - E	GR
BPGY	47.4836	19.0239	196	dolomite	3C SM	AC-23	D - E	GGKI
PAKB	46.5743	18.8587	100	sand	3C SM	AC-23	D - E	PART
PAKK	46.5743	18.8449	100	loose sand	3C SM	AC-23	D - E	GGKI
TLK	47.5500	18.8300	220	limestone	3C SM	AC-23	D - E	GGKI

(1) 3C - three component seismometer
SM - strong motion accelerograph

(2) AC-23 - triaxial accelerometer package (full scale 0.5g)

(3) D - digital, E - event recording

(4) GGKI - Geodetic and Geophysical Research Institute, GR - GeoRisk Ltd., MO – MOL Hungarian Oil Company Ltd.
PART - Paks Nuclear Power Plant Ltd.

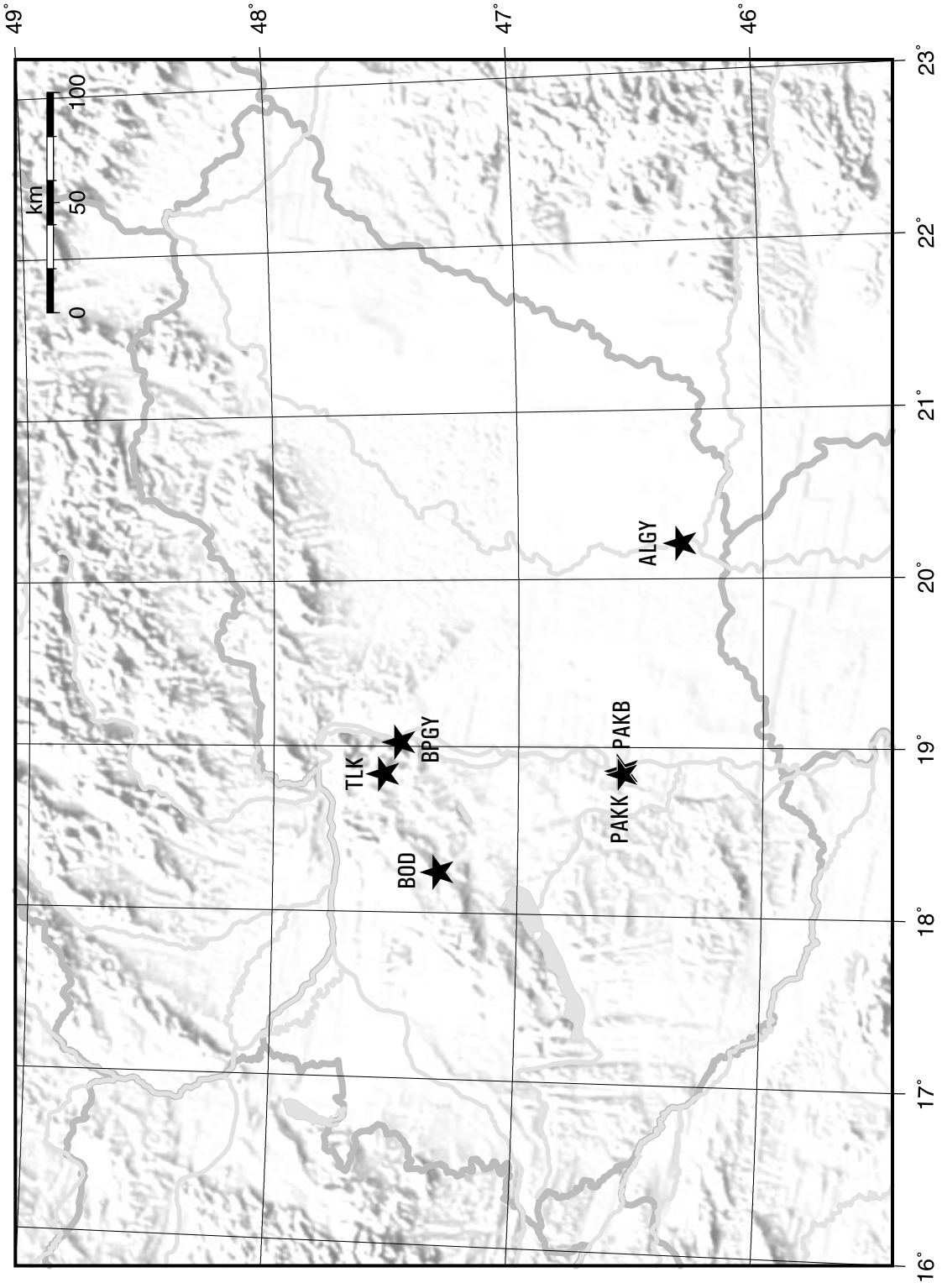


Figure 2.2.
Strong motion accelerograph stations in Hungary
(See Table 2.2. for detailes)

Seismograph Stations

PAKS MICRO-SEISMIC MONITORING NETWORK

The system comprises of a network of eight seismometer stations, located within a radius of about 100 km from the Power Plant at Paks (situated in the center of Hungary) and one additional station in Budapest where the data center is set up and collected data analyzed (Tóth and Mónus, 1997).

The field stations each consist of a three component short period seismometer located in a pit, with a digital recorder and time signal receiver housed nearby in a heat insulated steel container building.

The seismometers used are the LE-3D three directional compact size high sensitivity 1 Hz geophones. The digital acquisition system is the MARS-88 recorder that uses 20 bit AD converters sampling the data 62.5 times per second. The recorder also performs signal detection by its internal STA/LTA algorithm. The stations store event and continuous monitor channel data on rewritable magneto-optical disks, which are collected and transferred to the data center on a weekly basis. Most of the stations are powered by solar panels, and absolute time is provided by DCF-77 time code receivers.

At the data center a SUN workstation with sufficient on-line disk capacity serves as a powerful tool for the routine data processing and analysis. Lennartz M88 database software is used for the data management and XPITSA for advanced seismogram analysis. All recorded data are archived on CDs. Both waveform and bulletin data are available over the INTERNET for authorized remote users.

The *PAKS micro-seismic monitoring network* is currently operated and its data processed and analyzed by *GeoRisk Ltd.*

Extensive noise survey has been carried out at those station sites where magneto-optical disks storage allowed to store large amount of data. Noise segments of 3 minutes has been recorded with 11 hours shifts. Figure 2.3. shows the vertical components of the very long term averaged (near to one year) noise power spectra. There is a clear separation of the rocky sites (PKSm, PKSc and PKS8) from those of having loose sediments (PKSn, PKS2, PKS6, PKS7, PKS9).

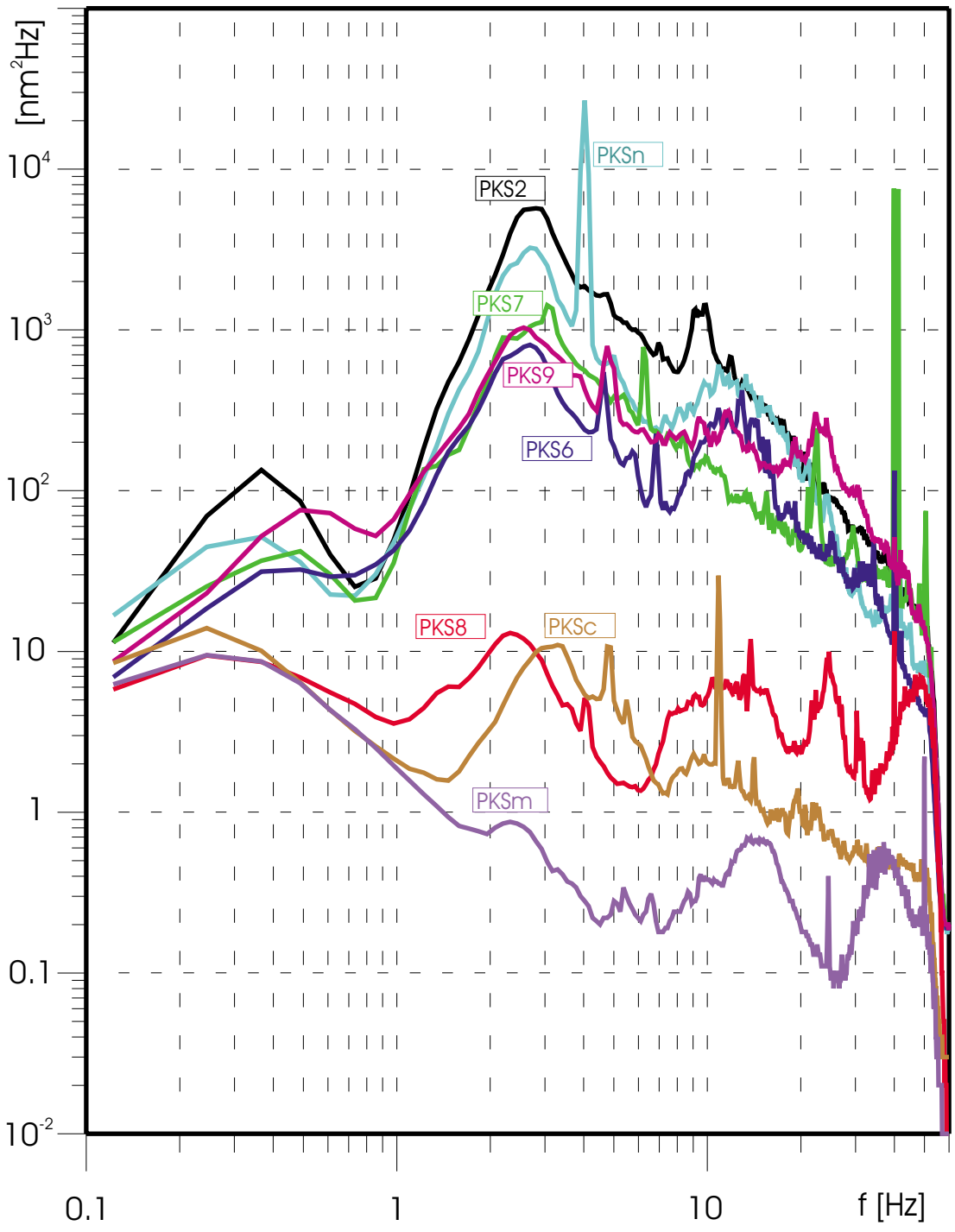


Figure 2.3.
Average noise power spectra for seismograph stations
(See text for detailes)

Seismograph Stations

ÜVEGHUTA MICRO-SEISMIC MONITORING NETWORK

Two relocated stations from the PAKS network and one additionally installed station forms the *Üveghuta micro-seismic monitoring network*.

The system comprises of a network of three seismometer stations, located in the potential nuclear waste disposal vicinity at Üveghuta (situated in southern part of Hungary).

The field stations hardware are just like the PAKS stations, each consist of a three component short period seismometer, with a digital recorder and time signal receiver housed in a nearby building.

The stations are accessible over commercial telephone lines. Event data are collected and transferred to the Budapest data center on a daily basis and analyzed jointly with the Paks network data.

The network is currently operated and its data processed and analyzed by *GGKI* and *GeoRisk Ltd.*

STATIONS OPERATED BY GGKI

During 2000 *GGKI* operated five digital and one analogue seismological stations.

Station *Piszkés (PSZ)* has been installed as an 'Open Station' under a cooperation between the Ministries for Foreign Affairs of Hungary and of Germany with the primary goal of nuclear test ban monitoring (Tóth, 1992). The station is equipped with a triaxial Streckeisen STS-2 broad-band seismometer and Quanterra's data acquisition system with a 24 bit, 80 Hz high resolution digitizer. Three component continuous data streams are recorded in circular buffers on magnetic disks and archived on tape cartridge. Continuous data is available on-line for more than a month. All data can be accessed directly and retrieved either in interactive or automatic mode. In 2000 PSZ also contributed data to GEOFON Project.

GYL and SOP are three component short period stations installed in 1994. Kinemetrics SSR-1 16bit digitizers and event recorders sample and record the output of three component SS-1 Ranger seismometers. Data of recorded events are collected via commercial telephone links.

A long period analogue recording seismograph has been operated at the *Seismological Observatory* in Budapest mostly for demonstration purposes.

STRONG MOTION STATIONS

Although the six strong motion accelerograph stations belong to three different organizations, they are all equipped with the same instrumentation: AC-23 triaxial accelerometer package (full scale 0.5g) and an SM-2 digital event recorder (manufactured by SIG^{SA}, Switzerland).

During 2000, we had access to all of these stations.

Seismograph Stations

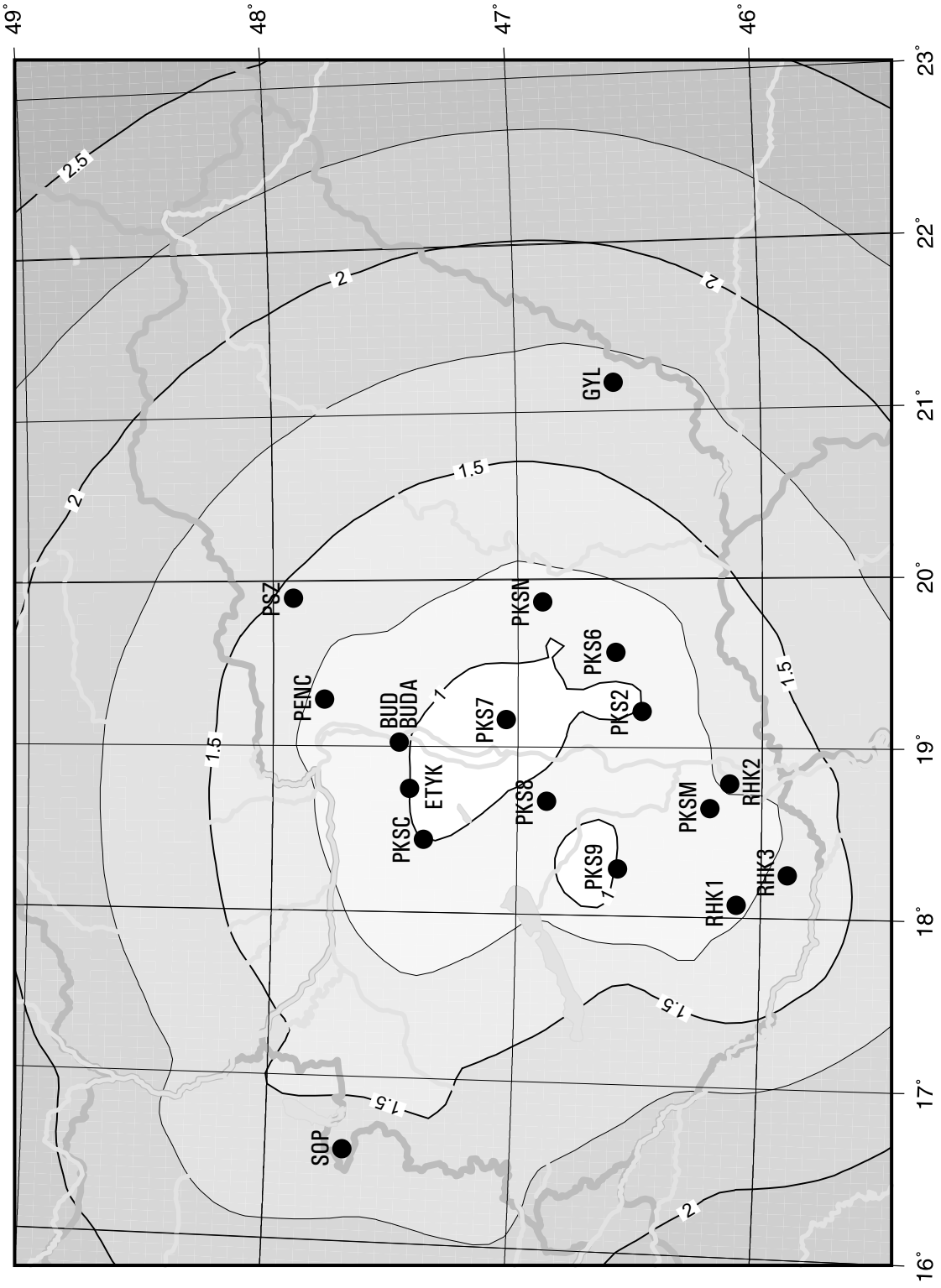


Figure 2.4.
Detection capability at average noise conditions.
Contour values are Richter local magnitudes (ML).

3.

List of Origins / Hypocenter Parameters

Hypocenter Parameters

METHOD FOR HYPOCENTER PARAMETER DETERMINATION

HYPO71PC (Lee and Lahr, 1975) was used for the routine calculation of hypocenter parameters. The original program has been modified and a routine for Richter local magnitude calculation implemented. For the magnitude calculations, the method published by Bakun and Joyner (1984) has been used.

The hypocenter parameters have been calculated using phase readings of seismological stations from Hungary and from the neighboring countries. However, a distance weighting has been applied, phase data from stations with epicenter distance greater than 450 km have been weighted out. In some cases, when enough P readings were available, S phase readings were not used in the calculations.

CRUSTAL VELOCITY MODEL

The three-layer crustal velocity model used in the hypocenter calculations has been derived from crustal phase travel times of several hundreds of local earthquakes (Mónus, 1995).

Velocity (v_P) [km/s]	*Depth [km]*	*Thickness [km]*	v_P/v_S
5.60	0.0	20.0	1.78
6.57	20.0	11.0	
8.02	31.0	∞	

LIST OF EVENTS

Day	Origin time UTC hr mn sec	Geographic coordinates Lat	Long	Depth (km)	ML	I_{MAX} (EMS)	Locality/Region
JANUARY, 2000							
02	6:50:58.8	46.442N	17.802E	16	1.4	-	Somogyaszaló
05	11:37:11.6	47.437N	18.446E	10	1.4	-	Vértes mt. (expl)
12	1:07:44.3	46.033N	17.671E	10	2.0	-	Nagydobsza
FEBRUARY, 2000							
04	12:20:07.7	47.716N	18.528E	14	1.8	-	Nyergesújfalu
15	11:09:30.9	45.873N	18.383E	10	0.1	-	Villányi mt. (exp)
16	13:22:26.4	47.525N	18.478E	13	2.4	-	Szárliget
23	11:52:46.6	47.453N	18.718E	10	1.0	-	Etyek
24	18:03:33.4	47.685N	18.506E	10	0.6	-	Héreg
26	19:28:24.3	45.667N	17.255E	15	1.8	-	Croatia
27	1:31:40.9	47.546N	18.484E	10	1.3	-	Szárliget
MARCH, 2000							
02	6:15:38.3	47.011N	21.608E	10	2.7	3.5	Füzesgyarmat
09	0:10:23.9	46.631N	16.504E	7	1.6	-	Lenti
11	0:56:44.8	45.930N	16.242E	8	1.9	-	Croatia
11	18:14:38.9	46.988N	18.256E	18	1.0	-	Lepsény
12	18:58:08.7	45.765N	16.165E	2	2.6	-	Croatia
22	10:54:04.2	47.487N	18.420E	7	1.5	-	Vértes mt. (expl)
29	9:52:20.3	47.329N	18.306E	0	1.8	-	Vértes mt. (expl)
APRIL, 2000							
01	22:14:34.2	46.992N	21.333E	34	1.9	-	Újiráz
03	9:45:27.1	47.406N	18.444E	10	2.7	-	Vértes mt. (expl)
04	10:27:53.6	47.468N	18.730E	9	1.0	-	Etyek
05	8:48:34.8	48.124N	16.753E	0	2.6	-	Austria
18	8:18:45.9	47.444N	18.575E	4	1.4	-	Vértes mt. (expl)
26	2:50:08.1	47.687N	19.281E	10	0.9	-	Őrbottyán
MAY, 2000							
01	0:32:34.3	47.036N	19.097E	6	1.4	-	Kunszentmiklós

Hypocenter Parameters

01	17:54:42.0	47.759N	17.665E	4	2.6	4.0	Vámosszabadi
01	19:07:40.6	47.735N	17.733E	10	1.6	-	Vének
02	2:09:52.7	47.806N	17.721E	6	1.5	-	Hung-Slov border
02	6:08:43.9	45.839N	19.664E	5	2.0	-	Yugoslavia
02	11:17:58.2	47.220N	18.891E	10		-	Szigetújfalu
03	8:43:31.2	45.833N	18.420E	2	0.3	-	Villányi mt. (exp)
03	9:15:25.8	47.445N	18.374E	0	1.8	-	Vértes mt. (expl)
04	5:06:24.0	45.900N	18.134E	10	0.6	-	Babarcszőlős
09	7:53:51.9	45.842N	18.427E	0	0.3	-	Villányi mt. (exp)
10	8:32:41.0	47.370N	18.548E	0	1.5	-	Vértes mt. (expl)
10	10:48:21.6	47.441N	18.490E	10	1.5	-	Vértes mt. (expl)
15	8:54:32.5	47.373N	18.529E	0	1.5	-	Vértes mt. (expl)
16	9:05:40.4	45.834N	18.399E	10	0.2	-	Villányi mt. (exp)
22	12:02:31.1	47.487N	18.529E	0	1.7	-	Vértes mt. (expl)
22	12:04:25.4	47.424N	18.556E	4	1.5	-	Vértes mt. (expl)
25	4:47:40.1	47.823N	18.601E	10	1.5	-	Hung-Slov border
25	9:10:30.8	45.836N	18.420E	0	0.1	-	Villányi mt. (exp)
25	10:09:14.7	47.318N	18.501E	0	1.4	-	Vértes mt. (expl)
28	7:14:26.6	48.505N	17.417E	1	2.3	-	Slovakia
31	9:28:14.0	47.491N	18.514E	0	1.8	-	Vértes mt. (expl)
31	10:02:45.5	45.812N	18.432E	0	0.2	-	Villányi mt. (exp)
JUNE, 2000							
02	15:02:18.6	47.118N	19.733E	10	1.9	-	Nagykőrös
02	15:17:30.2	47.105N	19.769E	17	2.6	3.5	Nagykőrös
02	15:19:49.8	47.132N	19.716E	10	1.3	-	Nagykőrös
06	8:19:01.0	47.390N	18.539E	0	1.9	-	Vértes mt. (expl)
07	21:15:02.2	47.332N	19.704E	16	1.4	-	Nagykáta (expl)
08	10:51:18.2	45.798N	18.992E	1	1.1	-	Yugoslavia
08	12:01:49.9	47.460N	18.512E	5	1.7	-	Vértes mt. (expl)
09	8:24:59.8	47.815N	18.514E	10	1.6	-	Hung-Slov border
09	22:39:47.2	46.807N	19.126E	7	1.2	-	Dunatetétlen
13	3:05:43.8	47.442N	18.871E	10	1.9	-	Biatorbágy
13	7:39:27.1	47.435N	18.844E	10	1.6	-	Biatorbágy
14	21:39:21.3	46.434N	19.295E	9	0.9	-	Császártöltés
23	21:14:59.9	46.763N	16.517E	0	1.3	-	Kerkakutas (expl)
23	21:30:00.1	47.385N	17.233E	0	1.8	-	Kemenessztp. (exp)
23	21:45:04.2	46.970N	18.382E	0	0.7	-	Kisláng (expl)
23	22:30:00.3	47.663N	18.193E	10	2.6	-	Mocsa (expl)
24	0:45:00.4	47.495N	16.898E	0	1.5	-	Pusztacsalád (exp)
24	1:29:59.3	46.283N	16.989E	0	1.6	-	Somogybükkösd (ex)
24	21:14:59.7	46.158N	17.281E	0	2.1	-	Tarany (expl)

24	21:30:00.5	47.151N	19.491E	0	2.3	-	Pusztavacs (expl)
24	21:45:00.2	46.353N	18.488E	0	1.6	-	Bonyhádvarasd (ex)
25	0:00:00.9	46.120N	17.507E	0	1.7	-	Homokszentgy (exp)
25	2:27:02.7	47.791N	17.701E	7	2.5	-	Hung-Slov border
25	21:14:58.9	46.108N	18.853E	0	1.8	-	Dunafalva (expl)
25	21:30:00.2	46.670N	18.280E	0	2.0	-	Tamási (expl)
25	21:45:00.3	46.797N	18.028E	0	1.3	-	Lulla (expl)
25	22:15:00.5	46.391N	18.883E	0	1.5	-	Bogyiszló (expl)
26	13:08:40.7	47.583N	16.346E	5	0.9	-	Austria
28	19:19:16.1	47.799N	17.689E	8	2.6	4.0	Vámosszabadi
JULY, 2000							
03	9:58:12.8	45.837N	18.419E	0	0.1	-	Villányi mt. (exp)
03	11:14:20.4	45.971N	18.640E	10	0.6	-	Mohács
04	1:59:35.4	46.723N	17.896E	8	1.8	-	Somogymeggyes
10	11:07:00.5	47.492N	18.506E	0	1.5	-	Vértes mt. (expl)
11	2:49:48.4	47.917N	16.475E	1	4.4	6.0	Austria
11	6:47:16.0	47.928N	16.426E	5	1.3	3.5	Austria
11	10:56:04.9	47.962N	16.498E	10	3.8	5.0	Austria
12	0:13:24.6	45.910N	19.278E	10	1.4	-	Yugoslavia
12	7:55:57.0	47.922N	16.464E	6	1.8	3.5	Austria
12	21:19:54.3	47.937N	16.401E	1	2.3	4.0	Austria
13	10:10:14.6	47.403N	18.467E	9	1.5	-	Vértes mt. (expl)
15	1:06:59.3	47.922N	16.403E	5	0.9	-	Austria
16	2:28:06.3	47.912N	16.449E	4	1.8	3.0	Austria
16	4:34:54.4	47.833N	17.728E	2	1.9	-	Hung-Slov border
16	4:55:42.8	47.920N	16.433E	8	1.0	-	Austria
17	10:30:49.1	47.415N	18.500E	5	1.5	-	Vértes mt. (expl)
22	7:23:37.3	45.739N	21.389E	10	3.2	-	Romania
22	7:51:03.5	45.685N	21.338E	2	2.9	-	Romania
25	9:54:41.9	47.346N	18.353E	5	1.7	-	Vértes mt. (expl)
26	13:09:36.3	47.437N	16.298E	1		-	Austria
28	8:48:14.7	47.387N	18.783E	6	0.7	-	Pusztazámor
31	10:09:34.6	47.364N	18.568E	0	2.0	-	Vértes mt. (expl)
AUGUST, 2000							
02	18:49:38.1	47.204N	17.942E	10	1.5	-	Eplény
03	9:20:45.0	45.852N	18.416E	0	-0.1	-	Villányi mt. (exp)
04	9:39:55.3	47.401N	18.549E	10	1.1	-	Vértes mt. (expl)
07	9:32:14.4	47.379N	18.281E	10	2.2	-	Vértes mt. (expl)
10	10:27:33.1	47.367N	18.298E	6	2.4	-	Vértes mt. (expl)
15	10:11:33.2	47.946N	19.104E	13	1.9	-	Tolmács

Hypocenter Parameters

16	22:13:58.7	45.507N	21.147E	1	2.8	-	Romania
21	9:20:31.6	45.671N	18.535E	0	1.3	-	Croatia
21	9:35:14.6	47.488N	18.433E	10	2.3	-	Vértes mt. (expl)
21	9:37:33.1	47.482N	18.444E	10	2.3	-	Vértes mt. (expl)
29	10:12:20.0	47.431N	18.414E	10	2.0	-	Vértes mt. (expl)
29	10:25:07.7	47.484N	18.444E	10	1.8	-	Vértes mt. (expl)
SEPTEMBER, 2000							
01	12:30:36.7	47.764N	19.460E	10	1.6	-	Erdőkürt
05	23:54:42.7	47.937N	16.455E	6	1.5	-	Austria
08	9:59:47.3	47.400N	18.257E	7	2.7	-	Vértes mt. (expl)
13	9:33:40.5	47.484N	18.492E	10	1.6	-	Vértes mt. (expl)
18	8:58:09.2	45.830N	18.449E	1	0.3	-	Villányi mt. (exp)
18	13:44:56.9	47.278N	19.243E	10	1.8	-	Ócsa
19	8:19:45.1	45.808N	18.449E	5	-0.1	-	Villányi mt. (exp)
19	10:52:43.9	45.903N	18.715E	5	0.9	-	Hung-Croatia bord
20	9:42:07.1	47.400N	18.348E	7	1.8	-	Vértes mt. (expl)
20	10:17:56.3	47.720N	17.960E	10	1.4	-	Ács
22	5:28:55.0	45.680N	18.836E	8	1.8	-	Croatia
23	0:08:15.5	46.585N	20.008E	10	1.8	-	Pusztaszer
26	9:18:37.5	47.371N	18.434E	10	1.4	-	Vértes mt. (expl)
29	22:09:14.4	47.846N	17.324E	1	1.9	-	Máriakálnok
OCTOBER, 2000							
04	14:18:48.9	47.657N	16.070E	10	1.5	4.0	Austria
05	23:04:11.9	45.750N	21.366E	10	3.3	-	Romania
07	0:42:11.8	47.390N	19.135E	13	2.1	4.0	Budapest
08	15:33:40.9	45.720N	17.492E	10	1.8	-	Croatia
09	10:21:54.2	47.354N	18.328E	4	1.4	-	Vértes mt. (expl)
11	9:57:02.4	47.363N	18.439E	8	1.3	-	Vértes mt. (expl)
13	11:41:19.6	45.805N	17.885E	3	2.6	-	Zaláta
13	11:55:47.8	45.690N	18.093E	19	1.9	-	Croatia
16	9:55:49.9	47.368N	18.430E	7	1.6	-	Vértes mt. (expl)
20	9:53:29.6	47.463N	18.493E	7	1.3	-	Vértes mt. (expl)
22	6:22:55.1	46.960N	19.347E	10	1.2	-	Kunbaracs
24	9:55:09.4	47.381N	18.263E	5	1.5	-	Vértes mt. (expl)
30	10:14:18.5	47.385N	18.459E	8	1.3	-	Vértes mt. (expl)
NOVEMBER, 2000							
01	22:18:42.5	45.690N	17.646E	10	1.8	-	Croatia
02	10:10:27.7	45.819N	18.385E	10	-0.1	-	Villányi mt. (exp)
06	13:58:14.2	47.699N	18.443E	12	1.5	-	Dunaszentmiklós

13	10:18:36.1	47.385N	18.331E	10	2.0	-	Vértes mt. (expl)
16	11:13:40.4	47.401N	18.299E	10	1.4	-	Vértes mt. (expl)
20	10:47:27.0	47.462N	18.440E	0	1.5	-	Vértes mt. (expl)
23	2:32:14.8	46.908N	19.153E	10	2.1	-	Kunadacs
23	12:30:35.9	47.569N	18.736E	4	1.1	-	Tök
DECEMBER, 2000							
01	3:35:45.9	47.344N	18.467E	1	2.0	-	Csákvár
04	4:01:50.2	46.585N	21.289E	19	2.1	-	Elek
04	10:51:25.3	47.366N	18.310E	6	1.5	-	Vértes mt. (expl)
05	11:41:08.7	45.810N	18.420E	0	0.0	-	Villányi mt. (exp)
07	9:50:26.0	45.795N	18.457E	1	0.0	-	Villányi mt. (exp)
18	22:37:05.5	47.342N	19.665E	13	1.7	-	Tápiószentmárton
23	21:26:28.9	47.796N	20.022E	10	2.0	-	Visonta

Hypocenter Parameters

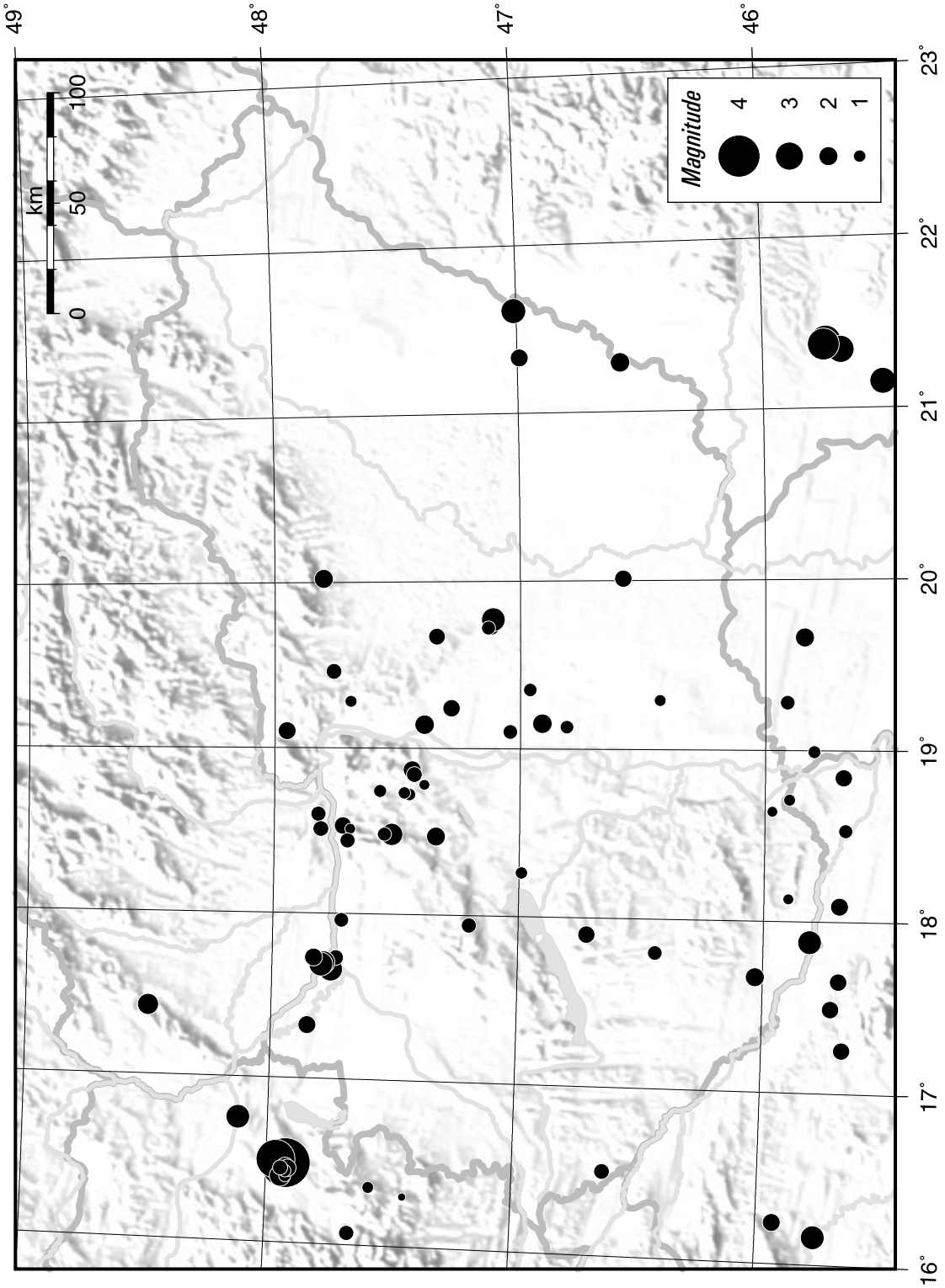


Figure 3.1.
Epicenters of 2000 earthquakes

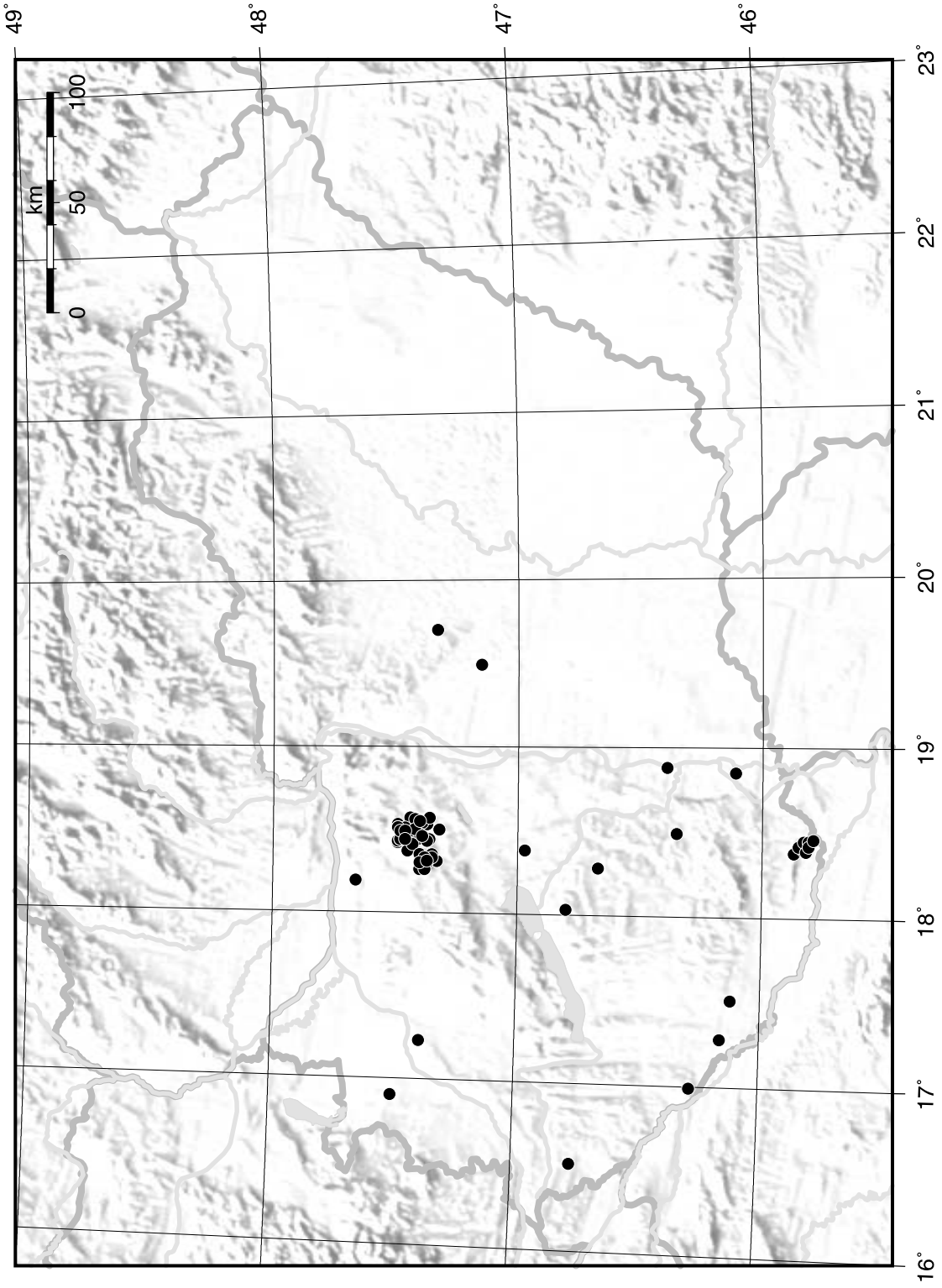


Figure 3.2.
Epicenters of 2000 explosions

Hypocenter Parameters

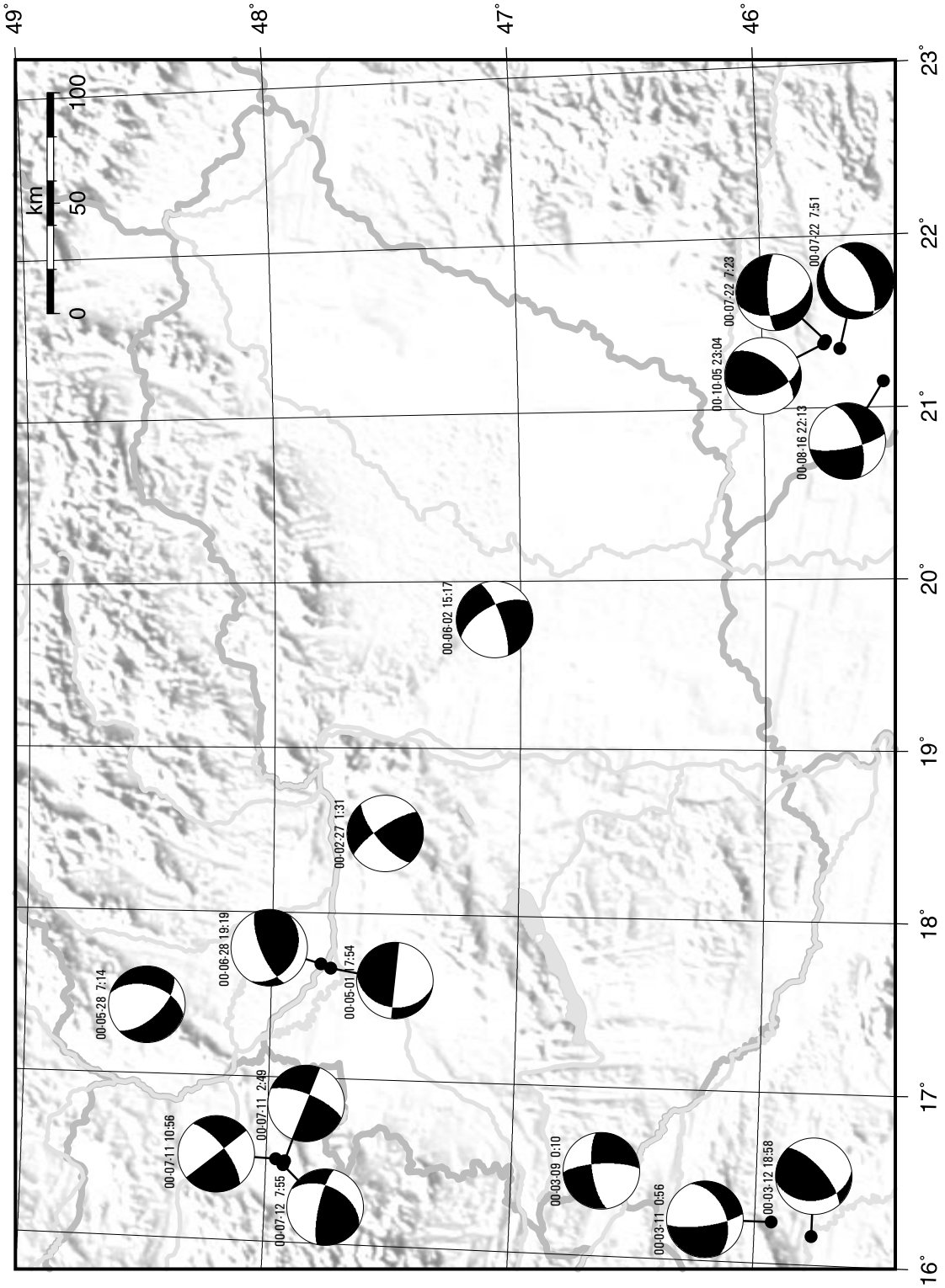


Figure 3.3.
Fault plane solutions of 2000 earthquakes

PHASE DATA

Key to phase data encoding

time:	Time of occurrence of event in hours, mins and secs (UTC).
ML:	Richter local magnitude of the earthquake.
lat:	Latitude of the event in degrees.
lon:	Longitude of the event in degrees.
h:	Depth of the hypocenter in km.
erh:	Standard error of the epicenter in km. ($erh = \sqrt{SDX^2 + SDY^2}$, where *SDX* and *SDY* are the standard errors in latitude and longitude respectively, of the epicenter.) If *erh* = ---, this means that *erh* could not be computed because of insufficient data.
erz:	Standard error of the focal depth in km. If *erz* = ---, this means that *erz* could not be computed either because focal depth is fixed in the solution or because of insufficient data.
nr:	Number of station readings used in locating the earthquake. P and S arrivals for the same stations are regarded as 2 readings.
gap:	Largest azimuthal separation in degrees between stations.
rms:	Root mean square error of time residuals in seconds. ($rms = \sqrt{\sum R_i^2 / nr}$, where R_i is the time residual of the i^{th} station.
Locality:	A geographical indication of the epicenter area, usually the nearest settlement.
Comments:	Additional comments about the event, eg. maximum EMS intensity
sta:	Station name. (For details see Chapter 2.)
dist:	Distance from earthquake epicenter to station in km.
azm:	Azimuthal angle between epicenter to station measured from North in degrees.
phase:	Phase identifier; the first letter characterizes onset *e* = emergent *i* = impulsive, the second and third indicate the phase eg. Pn, Pg, Sn and Sg, the forth indicates the polarity C=compression/up D=dilatation/down.
hr mn sec:	Arrival time of the phase from input data.
res:	Residual of the phase in secs. ($res = T_{obs} - T_{cal}$, where T_{obs} is the observed and T_{cal} is the calculated travel time respectively.

Fault plane solutions were attempted for each event where any information for the stress field could be drawn. Stereographic projections of the lower focal hemisphere are shown, P and T are the main compression and tension axes respectively.

Hypocenter Parameters

1.

```
 2000- 1-02  time:  6:50:58.78 UTC  ML= 1.4
   lat: 46.442N  lon: 17.802E  h= 16.2 km
                 erh= 8.3km    erz= 3.6km
   nr=  7        gap=270       rms=0.61
   Locality: Somogyaszaló
   Comments:

sta   dist azm  phase  hr mn  sec     res
PKS9  40.0  66   iPgC   6:51:06.80    0.31
                 eSg      51:13.00    0.49
PKSM  69.5 112   iPgD   6:51:11.20   -0.33
                 iSg      51:20.90   -0.57
RHK2  83.5 114   iS*    6:51:26.50    1.13
PKSC 115.1  25   iPnC   6:51:18.60    0.50
                 iSn      51:32.20   -0.96
```

2.

```
 2000- 1-05  time: 11:37:11.65 UTC  ML= 1.4
   lat: 47.437N  lon: 18.446E  h= 10.0 km
                 erh=17.3km    erz= 1.6km
   nr=  5        gap=346       rms=0.28
   Locality: Vértes mt.
   Comments: explosion

sta   dist azm  phase  hr mn  sec     res
PKSC   6.4 186   iPgC  11:37:13.70   -0.06
                 iSg      37:15.20   -0.21
PKS9  95.4 188   ePg   11:37:29.20    0.42
PKSM 137.1 174   ePnC  11:37:34.80    0.31
                 eSn      37:51.70   -0.61
```

3.

```
 2000- 1-12  time:  1:07:44.30 UTC  ML= 2.0
   lat: 46.033N  lon: 17.671E  h= 10.0 km
                 erh=38.3km    erz= 285km
   nr=  6        gap=314       rms=0.33
   Locality: Nagydobsza
   Comments:

sta   dist azm  phase  hr mn  sec     res
PKS9  77.4  37   iPgC   1:07:58.20   -0.04
                 eSg      08:09.70    0.58
PKSM  77.6  75   ePgC   1:07:57.80   -0.48
                 eSg      08:08.90   -0.28
RHK2  87.1  83   ePg    1:08:00.40    0.43
                 iSg      08:12.20    0.02
```

4.

```
 2000- 2-04  time: 12:20:07.68 UTC  ML= 1.8
   lat: 47.716N  lon: 18.528E  h= 13.7 km
                 erh= 9.5km    erz= 3.1km
   nr=  9        gap=302       rms=0.82
   Locality: Nyergesújfalu
   Comments:

sta   dist azm  phase  hr mn  sec     res
ETYK  34.7 152   iPgD  12:20:14.79    0.45
                 iSg      20:19.50   -0.04
PKSC  37.9 190   iPgC  12:20:14.40   -0.48
                 eSg      20:20.00   -0.49
PKS9 126.9 189   ePn   12:20:29.70    0.91
                 eSn      20:46.00    0.74
PKSN 136.2 132   iPnD  12:20:23.90   -6.04
PKSM 167.4 177   iPnD  12:20:34.30    0.46
                 iSn      20:53.50   -0.75
```

5.

```
 2000- 2-15  time: 11:09:30.86 UTC  ML= 0.1
   lat: 45.873N  lon: 18.383E  h= 10.0 km
                 erh= 5.9km    erz= 3.6km
   nr=  5        gap=254       rms=1.07
   Locality: Villányi mt.
   Comments: explosion

sta   dist azm  phase  hr mn  sec     res
RHK3  10.2 282   ePgD  11:09:32.90   -0.51
                 iSg      09:34.80   -0.60
PKSM  42.7  28   ePgC  11:09:38.60   -0.09
                 iSg      09:43.70   -1.09
PKS9  79.8 354   iPgC  11:09:46.90    1.68
```

6.

```
 2000- 2-16  time: 13:22:26.38 UTC  ML= 2.4
   lat: 47.525N  lon: 18.478E  h= 13.3 km
                 erh= 2.8km    erz= 1.4km
   nr= 14        gap=122       rms=0.59
   Locality: Szárliget
   Comments:

sta   dist azm  phase  hr mn  sec     res
PKSC  16.3 191   ePgD  13:22:29.60   -0.53
                 iSg      22:32.60   -0.46
ETYK  22.2 115   iPgC  13:22:31.10    0.10
                 iSg      22:34.90    0.29
BUD   41.4  96   ePg   13:22:34.00   -0.14
                 eSg      22:40.00   -0.20
PKS9 105.4 188   iPnD  13:22:46.20    1.35
                 iSn      22:58.90   -0.36
PSZ  115.0  68   iPnD  13:22:46.30    0.25
                 iSn      23:00.70   -0.70
ZST  127.1 306   ePn   13:22:48.20    0.64
                 eSn      23:02.90   -1.19
PKSM 146.5 175   iPnC  13:22:50.40    0.42
                 eSn      23:07.20   -1.20
```

7.

```
 2000- 2-23  time: 11:52:46.58 UTC  ML= 1.0
   lat: 47.453N  lon: 18.718E  h= 10.0 km
                 erh=25.7km    erz= 9.6km
   nr=  8        gap=170       rms=1.10
   Locality: Etyek
   Comments:

sta   dist azm  phase  hr mn  sec     res
ETYK   2.5 125   iPgC  11:52:47.81   -0.61
                 iSg      52:50.80    0.95
PKSC  22.7 249   iPgD  11:52:50.70   -0.30
                 eSg      52:54.50    0.05
BUD   23.3  82   ePgD  11:52:46.60   -4.51
                 eSg      52:54.90    0.26
PSZ  102.4  60   iPgC  11:53:05.90    0.95
                 eSg      53:19.30    0.02
```

8.

```
 2000- 2-24  time: 18:03:33.43 UTC  ML= 0.6
   lat: 47.685N  lon: 18.506E  h= 10.0 km
                 erh=19.1km    erz=24.2km
   nr=  6        gap=247       rms=1.05
   Locality: Héreg
   Comments:

sta   dist azm  phase  hr mn  sec     res
```

ETYK	32.6	147	iPgD	18:03:38.63	-0.89
			iSg	03:44.80	0.52
PKSC	34.3	189	iPgC	18:03:40.30	0.49
			iSg	03:43.60	-1.18
PSZ	107.2	76	iP*D	18:03:54.30	1.75
			iS*	04:06.50	-0.95

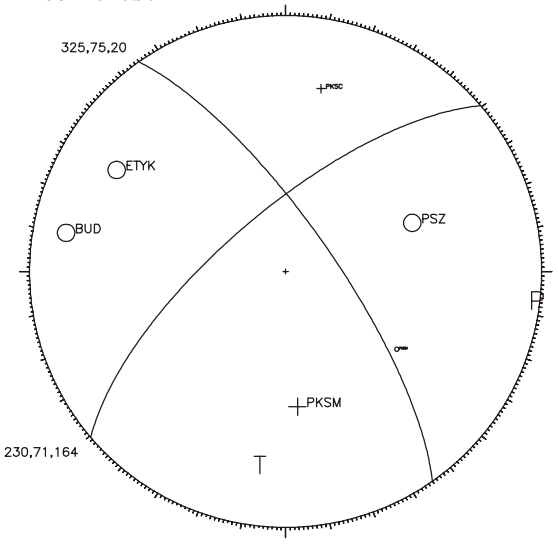
9.

2000- 2-26 time: 19:28:24.27 UTC ML= 1.8
lat: 45.667N lon: 17.255E h= 14.8 km
erh=20.5km erz= 9.7km
nr= 10 gap=213 rms=1.21
Locality: Croatia
Comments:

sta	dist	azm	phase	hr mn	sec	res
RHK3	81.6	72	iP*C	19:28:38.70		-0.35
			eS*	28:48.50		-2.07
PTJ	103.2	285	iPn	19:28:42.40		0.11
			iSn	28:54.00		-2.34
PKSM	123.4	61	iPnC	19:28:44.60		-0.20
			iSn	28:59.80		-1.01
PKS9	129.3	38	iPnC	19:28:47.70		2.16
RHK2	129.7	67	iPnC	19:28:46.70		1.11
			eSn	29:02.30		0.09
PKS2	177.1	59	eSn	19:29:12.20		-0.52
PKSN	243.4	56	iPn	19:28:50.40		-9.36

10.

2000- 2-27 time: 1:31:40.89 UTC ML= 1.3
lat: 47.546N lon: 18.484E h= 10.0 km
erh= 4.8km erz= 2.5km
nr= 12 gap=238 rms=0.69
Locality: Szárliget
Comments:



sta	dist	azm	phase	hr mn	sec	res
PKSC	18.7	191	ePgC	1:31:44.20		-0.48
			iSg	31:47.20		-0.43
ETYK	22.9	121	iPgD	1:31:45.84		0.49
			iSg	31:49.40		0.56
BUD	41.3	100	iPgD	1:31:48.60		0.13
			iSg	31:53.80		-0.59
PSZ	113.6	69	iPnD	1:32:00.80		-0.02
			eSn	32:14.80		-1.56
PKSN	127.2	125	iPnD	1:31:54.10		-8.41
PKS2	129.6	155	ePn	1:32:04.20		1.39
			eSn	32:20.80		0.89
PKSM	148.8	175	iPnC	1:32:05.20		0.00
			eSn	32:21.80		-2.36

11.

2000- 3-02 time: 6:15:38.31 UTC ML= 2.7
lat: 47.011N lon: 21.608E h= 10.0 km
erh=25.7km erz=26.7km
nr= 12 gap=301 rms=0.46
Locality: Füzesgyarmat
Comments: felt 3-4 EMS

sta	dist	azm	phase	hr mn	sec	res
PSZ	164.0	308	iPnU	6:16:04.43		-0.08
BUD	202.6	285	ePn	6:16:13.00		3.67
ETYK	222.1	282	iPn	6:16:11.40		-0.36
			iSn	16:37.30		-0.55
PKS8	223.7	266	iPnC	6:16:11.60		-0.36
			eSn	16:38.20		-0.01
PKSC	243.8	280	iPnC	6:16:15.00		0.53
			eSn	16:43.30		0.63
PKSM	244.1	249	iPnC	6:16:14.60		0.10
			eSn	16:45.90		3.18
PKS9	258.5	259	iPnC	6:16:16.20		-0.10
SRO	264.2	290	ePn	6:16:18.10		1.09
ARSA	462.5	273	iPnC	6:16:42.00		0.27
KHC	643.2	291	ePn	6:17:01.00		-3.27
			eSn	18:12.50		1.18

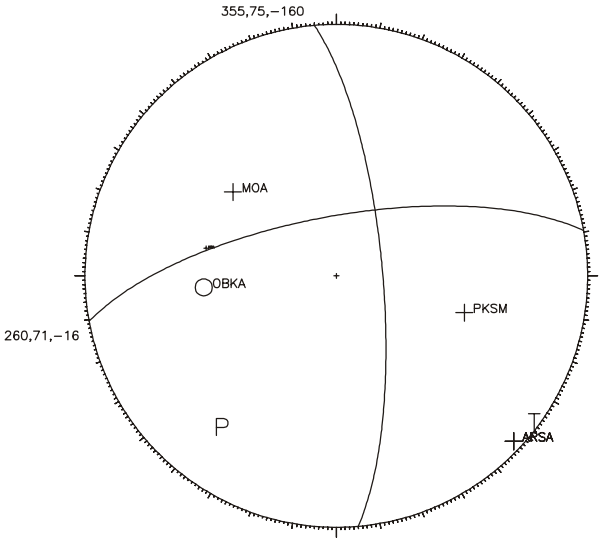
12.

2000- 3-09 time: 0:10:23.87 UTC ML= 1.6
lat: 46.631N lon: 16.504E h= 7.0 km
erh= 4.4km erz= 4.6km
nr= 17 gap= 99 rms=0.94
Locality: Lenti
Comments:

sta	dist	azm	phase	hr mn	sec	res
PTJ	90.1	207	iPg	0:10:40.52		0.51
			iSg	10:51.93		-0.67
DOBS	95.9	236	iPg	0:10:40.20		-0.85
			iSg	10:53.20		-1.25
DOBS	95.9	236	iPg	0:10:40.26		-0.79
			iSg	10:53.20		-1.25
ZAG	97.5	204	iPg	0:10:42.15		0.83
			iSg	10:53.60		-1.33
ARSA	101.6	313	iPgC	0:10:42.00		-0.06
			iSg	10:55.70		-0.54
ARSA	101.6	313	iPgC	0:10:42.00		-0.06
			iSg	10:55.70		-0.54
CESS	108.5	228	iPg	0:10:42.70		-0.59
			iSg	10:56.60		-1.84
PKS9	136.0	92	ePn	0:10:47.50		0.53
			Sn	11:05.60		0.61
OBKA	150.5	265	iPnD	0:10:48.60		-0.18
			iSn	11:08.90		0.70
LJU	165.6	247	iPn	0:10:52.40		1.74
			iSn	11:12.10		0.55
PKS8	168.2	81	ePn	0:10:54.00		3.01
PKSC	169.0	60	ePn	0:10:50.50		-0.58
			eSn	11:08.90		-3.40
PKSM	170.8	106	iPnC	0:10:49.60		-1.70
			Sn	11:08.30		-4.40
CEY	188.6	238	iPn	0:10:53.30		-0.22
			iSn	11:18.70		2.05
VOY	211.8	252	ePn	0:10:59.30		2.88
			eSn	11:27.20		5.40
MOA	217.0	309	iPnC	0:10:57.90		0.84
			iSn	11:22.90		-0.05

Hypocenter Parameters

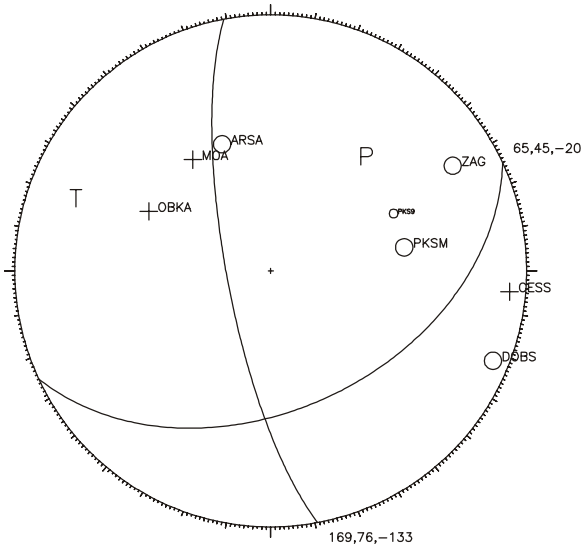
KBA	246.0	282	iPnC	0:11:06.10	5.41
			iSn	11:36.00	6.60
KHC	353.8	322	ePn	0:11:16.00	1.88
			eSn	12:03.00	9.68



13.

2000- 3-11 time: 0:56:44.81 UTC ML= 1.9
lat: 45.930N lon: 16.242E h= 7.6 km
erh= 4.0km erz= 3.0km
nr= 16 gap=158 rms=0.60
Locality: Croatia
Comments:

sta	dist	azm	phase	hr mn	sec	res
PTJ	21.0	264	iPg	0:56:48.88		0.09
			iSg	56:51.35		-0.55
ZAG	22.3	240	iPgD	0:56:50.00		0.99
			iSg	56:53.25		0.96
CESS	60.5	275	iPgC	0:56:55.26		-0.44
			iSg	57:02.04		-2.16
DOBS	64.6	292	iPgD	0:56:55.47		-0.95
			iSg	57:02.59		-2.88
VBY	90.1	238	iPg	0:57:00.82		-0.13
			iSg	57:12.62		-0.93
LJU	133.4	275	iPn	0:57:06.61		-0.89
			iSn	57:23.12		-2.08
CEY	142.6	261	iPn	0:57:08.70		0.05
			iSn	57:27.61		0.37
OBKA	145.6	296	iPnC	0:57:09.40		0.38
			iSn	57:26.80		-1.11
ARSA	156.8	339	iPnD	0:57:10.70		0.29
			iSn	57:28.90		-1.49
PKS9	173.2	65	ePnD	0:57:12.10		-0.37
			eSn	57:37.70		3.66
VOY	182.3	274	ePn	0:57:15.40		1.80
			eSn	57:38.30		2.24
PKSM	188.3	80	iPnD	0:57:14.10		-0.24
			iSn	57:42.20		4.82
PKSC	232.9	46	ePn	0:57:20.70		0.79
			eSn	57:57.60		10.31
PKS2	237.7	75	ePn	0:57:20.70		0.20
MOA	261.2	325	iPnC	0:57:24.40		0.97
			iSn	57:51.90		-1.65
KHC	408.5	331	ePn	0:57:41.50		-0.30
			eSn	58:23.50		-2.76



14.

2000- 3-11 time: 18:14:38.86 UTC ML= 1.0
lat: 46.988N lon: 18.256E h= 18.1 km
erh= 3.5km erz= 2.6km
nr= 8 gap=200 rms=0.49
Locality: Lepsény
Comments:

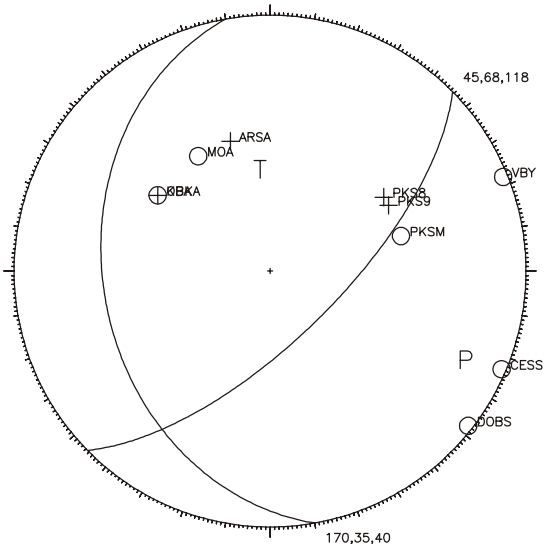
sta	dist	azm	phase	hr mn	sec	res
PKS8	34.3	111	iPgD	18:14:46.30		0.52
			iSg	14:51.00		-0.19
PKS9	44.6	178	iPgC	18:14:47.90		0.44
			iSg	14:54.00		-0.17
PKSC	45.8	18	iPgC	18:14:47.70		0.05
			iSg	14:53.70		-0.80
PKSM	91.2	161	iP*D	18:14:55.20		0.41
			iS*	15:06.30		-0.91

15.

2000- 3-12 time: 18:58:08.74 UTC ML= 2.6
lat: 45.765N lon: 16.165E h= 2.5 km
erh= 2.5km erz= 2.0km
nr= 18 gap=172 rms=0.41
Locality: Croatia
Comments:

sta	dist	azm	phase	hr mn	sec	res
ZAG	15.1	298	iPg	18:58:11.80		0.33
			iSg	58:13.40		-0.19
PTJ	21.9	317	iPg	18:58:12.47		-0.20
CESS	59.2	293	iPgD	18:58:19.49		0.17
			iSg	58:25.89		-1.68
DOBS	68.8	308	iPgD	18:58:20.50		-0.54
			eSg	58:28.46		-2.17
VBY	76.5	248	iPgD	18:58:22.38		-0.03
LJU	130.8	284	ePn	18:58:31.22		-0.55
			eSn	58:46.19		-3.54
CEY	135.3	269	iPn	18:58:32.18		-0.15
			iSn	58:48.85		-1.87
OBKA	149.8	304	iPnD	18:58:34.00		-0.14
			iSn	58:52.40		-1.54
ARSA	172.3	343	iPnC	18:58:36.80		-0.15
			iSn	58:57.00		-1.95
VOY	178.8	280	ePn	18:58:38.80		1.05
			eSn	59:00.70		0.33
PKS9	187.1	61	iPnC	18:58:38.80		0.01

			iSn	59:09.20	6.98
PKSM	198.2	75	iPnD	18:58:40.20	0.02
			iSn	59:02.40	-2.30
PKS8	229.7	57	iPnC	18:58:43.50	-0.60
			eSn	59:18.80	7.12
PKS2	249.1	71	ePn	18:58:46.80	0.28
			eSn	59:14.00	-1.98
PKSC	250.2	44	ePn	18:58:49.60	2.94
KBA	261.4	304	iPnC	18:58:48.30	0.25
			iSn	59:19.10	0.39
MOA	273.3	328	iPnD	18:58:50.50	0.96
			iSn	59:20.10	-1.27
PKS6	278.4	71	ePn	18:58:53.90	3.72
			eSn	59:34.60	12.10
KHC	422.0	332	ePn	18:59:08.40	0.32
			eSn	59:51.00	-3.37



16.

2000- 3-22 time: 10:54:04.22 UTC ML= 1.5
lat: 47.487N lon: 18.420E h= 7.4 km
erh=14.8km erz= 5.3km
nr= 7 gap=276 rms=0.79
Locality: Vértes mt.
Comments: explosion

sta	dist	azm	phase	hr mn	sec	res
PKSC	11.9	174	iPgC	10:54:06.40		-0.32
			iSg	54:08.00		-0.67
ETYK	25.0	102	iPgD	10:54:09.00		0.12
PKS8	70.3	164	ePg	10:54:18.70		1.85
PKS9	100.6	186	iPgC	10:54:22.80		0.57
PKSM	142.7	173	ePnC	10:54:27.50		-0.60
			eSn	54:45.00		-1.73

17.

2000- 3-29 time: 9:52:20.25 UTC ML= 1.8
lat: 47.329N lon: 18.306E h= 0.0 km
erh= ***km erz= ***km
nr= 6 gap=238 rms=1.10
Locality: Vértes mt.
Comments: explosion

sta	dist	azm	phase	hr mn	sec	res
PKSC	11.5	60	iPgC	9:52:21.90		-0.40
			iSg	52:23.30		-0.60
ETYK	35.4	70	eSg	9:52:32.10		0.60
PKS9	82.5	181	iPgC	9:52:38.30		3.32
PKSM	126.8	168	ePg	9:52:43.40		0.51
			iSg	52:59.60		-0.95

18.

2000- 4-01 time: 22:14:34.17 UTC ML= 1.9
lat: 46.992N lon: 21.333E h= 33.9 km
erh= ***km erz= ***km
nr= 6 gap=339 rms=0.74
Locality: Újiráz
Comments:

sta	dist	azm	phase	hr mn	sec	res
PKS6	141.9	252	iPgC	22:14:55.10		-0.29
			Sg	15:12.80		0.86
PKS7	165.3	272	iPgD	22:14:58.00		-0.31
			eSg	15:17.10		-0.04
PKS2	171.3	251	iPgC	22:15:00.10		1.04
			iSg	15:17.30		-1.18

19.

2000- 4-03 time: 9:45:27.07 UTC ML= 2.7
lat: 47.406N lon: 18.444E h= 10.0 km
erh= 9.3km erz= 2.9km
nr= 6 gap=251 rms=0.45
Locality: Vértes mt.
Comments: explosion

sta	dist	azm	phase	hr mn	sec	res
PKSC	2.9	190	iPgC	9:45:28.80		-0.13
			iSg	45:30.00		-0.38
ETYK	23.0	80	eSg	9:45:35.10		0.04
PKS8	61.2	163	ePg	9:45:39.40		1.25
PKSM	133.6	174	ePnC	9:45:49.90		0.41
			iSn	46:06.70		-0.27

20.

2000- 4-04 time: 10:27:53.59 UTC ML= 1.0
lat: 47.468N lon: 18.730E h= 9.4 km
erh= 0.8km erz= 0.2km
nr= 6 gap=273 rms=0.05
Locality: Etyek
Comments:

sta	dist	azm	phase	hr mn	sec	res
ETYK	3.3	160	iPgD	10:27:55.40		0.02
			iSg	27:56.70		-0.07
BUD	22.2	85	ePg	10:27:58.50		0.59
PKSC	24.1	246	iPgD	10:27:58.30		0.08
			iSg	28:01.80		-0.03
PKSM	139.8	183	iPnC	10:28:16.80		-0.05
			iSn	28:35.00		0.01

21.

2000- 4-05 time: 8:48:34.76 UTC ML= 2.6
lat: 48.124N lon: 16.753E h= 0.4 km
erh=19.5km erz=14.6km
nr= 6 gap=287 rms=0.21
Locality: Austria
Comments:

sta	dist	azm	phase	hr mn	sec	res
ZST	27.2	73	ePg	8:48:39.60		-0.02
			eSg	48:43.50		0.09
PKSC	150.9	123	iPnC	8:49:00.40		-0.16
			iSn	49:20.80		0.12
PKSM	256.3	146	iPnC	8:49:14.60		0.90
			eSn	49:43.60		-0.47

Hypocenter Parameters

22.

2000- 4-18 time: 8:18:45.91 UTC ML= 1.4
lat: 47.444N lon: 18.575E h= 3.9 km
erh= 6.4km erz= 5.7km
nr= 6 gap=302 rms=0.58
Locality: Vértes mt.
Comments: explosion

sta	dist	azm	phase	hr mn sec	res
PKSC	12.5	236	iPgC	8:18:48.20	-0.06
			iSg	18:49.80	-0.29
PKS9	97.9	193	iPgC	8:19:04.70	1.29
			eSg	19:17.20	0.15
PKSM	137.1	178	iPnC	8:19:09.20	-0.34
			eSn	19:25.10	-2.87

23.

2000- 4-26 time: 2:50:08.12 UTC ML= 0.9
lat: 47.687N lon: 19.281E h= 10.0 km
erh= ---km erz= ---km
nr= 4 gap=299 rms=0.17
Locality: Őrbottyán
Comments:

sta	dist	azm	phase	hr mn sec	res
PENC	11.5	0	iPgD	2:50:10.80	-0.04
			iSg	50:12.96	-0.01
PSZ	52.7	61	ePg?	2:50:18.06	0.37
			iSg	50:24.96	-0.19

24.

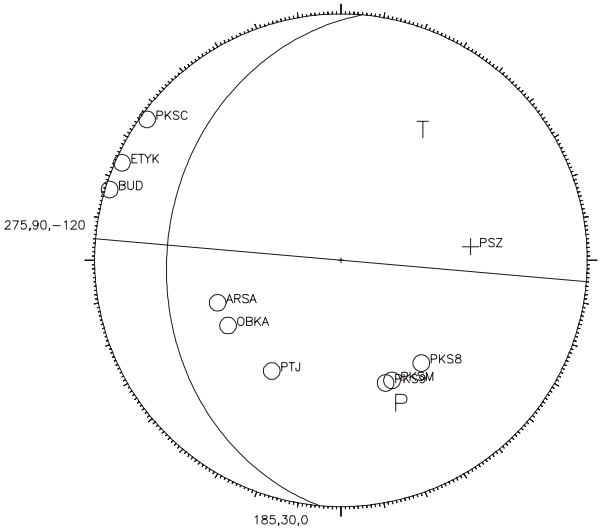
2000- 5-01 time: 0:32:34.29 UTC ML= 1.4
lat: 47.036N lon: 19.097E h= 5.9 km
erh=10.9km erz=97.4km
nr= 6 gap=191 rms=0.64
Locality: Kunszentmiklós
Comments:

sta	dist	azm	phase	hr mn sec	res
PKS2	61.1	172	iPgD	0:32:43.84	-1.42
			eSg	32:54.10	0.29
PKSM	98.0	201	Pg	0:32:51.74	-0.09
			eSg	33:06.11	0.60
PSZ	115.1	31	ePg?	0:32:55.21	0.34
			iSg	33:11.06	0.15

25.

2000- 5-01 time: 17:54:41.95 UTC ML= 2.6
lat: 47.759N lon: 17.665E h= 4.2 km
erh= 2.5km erz= 2.2km
nr= 13 gap=124 rms=0.34
Locality: Vámosszabadi
Comments: felt 4 EMS

sta	dist	azm	phase	hr mn sec	res
SRO	49.0	83	Pg	17:54:50.60	-0.12
			eSg	54:57.10	-0.47
ZST	64.2	319	ePg	17:54:53.30	-0.14
			eSg	55:01.40	-1.00
PKSC	71.7	126	iPgD	17:54:54.70	-0.08
			iSg	55:04.70	-0.09
ETYK	88.6	114	iPgD	17:54:58.30	0.51
			iSg	55:10.80	0.66
BUD	106.6	107	iPgD	17:55:00.70	-0.30
			iSg	55:14.50	-1.37
PKS8	124.2	142	iPnD	17:55:03.60	-0.34
			iSn	55:18.80	-2.29
PKS9	138.4	160	iPnD	17:55:06.10	0.40
			iSn	55:24.00	-0.23
PSZ	167.9	84	iPnC	17:55:09.80	0.42
			iSn	55:30.00	-0.77
ARSA	171.0	251	iPnD	17:55:09.70	-0.07
			iSn	55:32.50	1.03
PKS2	183.4	140	ePn	17:55:11.80	0.48
			Sn	55:36.90	2.67
PKSM	187.4	157	iPnD	17:55:11.40	-0.41
			iSn	55:32.10	-3.00
PTJ	242.8	212	iPnD	17:55:18.10	-0.62
			iSn	55:52.20	4.79
OBKA	274.2	240	iPnD	17:55:23.00	0.36
			iSn	55:54.30	-0.08
DPC	303.3	342	e n	17:55:26.40	0.14
			eSn	55:57.20	-3.63
PRU	337.6	317	ePn	17:55:40.00	9.46
			Sn	56:04.50	-3.94
KHC	338.7	297	ePn	17:55:30.00	-0.68
			Sn	56:05.50	-3.19



26.

2000- 5-01 time: 19:07:40.63 UTC ML= 1.6
lat: 47.735N lon: 17.733E h= 10.0 km
erh= 4.4km erz= 3.0km
nr= 13 gap=187 rms=0.79
Locality: Vének
Comments:

sta	dist	azm	phase	hr mn sec	res
SRO	44.4	79	Pg	19:07:48.20	-0.55
			eSg	07:54.20	-0.89
PKSC	66.0	127	iPgD	19:07:52.20	-0.36
			iSg	08:02.30	0.44
ETYK	82.9	113	iPg	19:07:55.70	0.16
			iSg	08:08.10	0.94
PKS8	119.0	143	iPnC	19:08:01.60	0.38
			iSn	08:15.50	-1.78
PKS9	134.2	162	ePn	19:08:07.10	3.99
PSZ	163.1	83	ePnC	19:08:07.60	0.87
			iSn	08:27.40	0.32
ARSA	175.0	252	iPnC	19:08:07.40	-0.81
			iSn	08:30.60	0.88
KHC	344.4	297	ePn	19:08:20.00	-9.33
			eSn	09:16.50	9.18

27.

2000- 5-02 time: 2:09:52.68 UTC ML= 1.5
lat: 47.806N lon: 17.721E h= 5.9 km
erh= 3.8km erz= 3.1km
nr= 17 gap=132 rms=0.82
Locality: Hungary-Slovakia border
Comments:

sta	dist	azm	phase	hr mn sec	res
SRO	44.4	89	Pg	2:10:01.30	0.62
			eSg	10:07.50	0.58
ZST	63.3	313	ePg	2:10:03.80	-0.23
			eSg	10:11.70	-1.19
PKSC	71.7	131	iPgC	2:10:05.20	-0.34
			iSg	10:15.00	-0.56
ETYK	87.1	118	iPgD	2:10:08.00	-0.27
			iSg	10:21.10	0.67
PKS8	125.9	145	iPnC	2:10:14.20	-0.47
			eSn	10:29.20	-2.62
PKS9	142.0	163	ePn	2:10:20.30	3.62
			eSn	10:34.40	-0.99
PSZ	163.1	86	ePnD	2:10:19.10	-0.21
			eSn	10:40.40	0.32
ARSA	176.6	250	iPnD	2:10:23.00	2.01
			iSn	10:42.90	-0.18
PKSM	190.6	158	eSn	2:10:46.20	0.02
KHC	339.9	296	e n	2:11:08.50	27.15
			eSn	11:31.50	12.19

28.

2000- 5-02 time: 6:08:43.86 UTC ML= 2.0
lat: 45.839N lon: 19.664E h= 4.7 km
erh= ---km erz= ---km
nr= 4 gap=350 rms=0.15
Locality: Yugoslavia
Comments:

sta	dist	azm	phase	hr mn sec	res
PKSM	89.4	298	iPgC	6:08:59.80	-0.04
			iSg	09:12.30	-0.01
PKS9	135.4	308	ePn	6:09:07.50	0.31
			eSn	09:25.10	-0.28

29.

2000- 5-02 time: 11:17:58.18 UTC ML=
lat: 47.220N lon: 18.891E h= 10.0 km
erh= ---km erz= ---km
nr= 3 gap=317 rms=0.00
Locality: Szigetújfalu
Comments:

sta	dist	azm	phase	hr mn sec	res
ETYK	26.9	336	ePg	11:18:03.30	0.00
			eSg	18:07.30	0.00
BUD	31.0	19	ePg	11:18:04.00	0.00

30.

2000- 5-03 time: 8:43:31.23 UTC ML= 0.3
lat: 45.833N lon: 18.420E h= 1.5 km
erh= ---km erz= ---km
nr= 4 gap=275 rms=0.15
Locality: Villányi mt.
Comments: explosion

sta	dist	azm	phase	hr mn sec	res
RHK3	14.5	297	iPgD	8:43:33.70	-0.13
			iSg	43:35.90	0.04
PKSM	45.5	22	iPgC	8:43:39.50	0.15
			eSg	43:45.20	-0.49

31.

2000- 5-03 time: 9:15:25.79 UTC ML= 1.8
lat: 47.445N lon: 18.374E h= 0.0 km
erh=57.8km erz=46.7km
nr= 5 gap=267 rms=1.47
Locality: Vértes mt.
Comments: explosion

sta	dist	azm	phase	hr mn sec	res
PKSC	8.6	147	iPgC	9:15:26.50	-0.83
			iSg	15:28.00	-0.53
ETYK	27.9	91	ePg	9:15:31.30	0.52
			Sg	15:36.80	2.12
PKS8	67.1	160	Pg	9:15:41.00	3.23
PKS9	95.7	184	iPgC	9:15:43.00	0.12
PKSM	138.7	172	iPnC	9:15:47.60	-2.51
			eSn	16:04.40	-4.68

32.

2000- 5-04 time: 5:06:23.96 UTC ML= 0.6
lat: 45.900N lon: 18.134E h= 10.0 km
erh= ---km erz= ---km
nr= 3 gap=313 rms=0.00
Locality: Babarcszőlős
Comments:

sta	dist	azm	phase	hr mn sec	res
RHK3	9.3	96	ePg	5:06:26.40	0.00
			iSg	06:28.30	0.00
PKSM	52.3	49	eSg	5:06:40.90	0.00

33.

2000- 5-09 time: 7:53:51.88 UTC ML= 0.3
lat: 45.842N lon: 18.427E h= 0.3 km
erh= ---km erz= ---km
nr= 4 gap=270 rms=0.01
Locality: Villányi mt.
Comments: explosion

sta	dist	azm	phase	hr mn sec	res
RHK3	14.6	292	ePgC	7:53:54.50	0.01
			eSg	53:56.50	-0.02
PKSM	44.4	22	iPgD	7:53:59.80	-0.01
			eSg	54:06.00	0.01

34.

2000- 5-10 time: 8:32:41.01 UTC ML= 1.5
lat: 47.370N lon: 18.548E h= 0.0 km
erh= ---km erz= ---km
nr= 3 gap=275 rms=0.02
Locality: Vértes mt.
Comments: explosion

sta	dist	azm	phase	hr mn sec	res
PKSC	8.4	278	iPgC	8:32:42.50	-0.02
			iSg	32:43.70	0.01
PKS9	89.4	193	ePg	8:32:57.00	0.02

35.

2000- 5-10 time: 10:48:21.57 UTC ML= 1.5
lat: 47.441N lon: 18.490E h= 10.0 km
erh=13.3km erz= 4.4km
nr= 7 gap=316 rms=0.71
Locality: Vértes mt.
Comments: explosion

Hypocenter Parameters

```
sta   dist azm  phase  hr mn  sec     res
PKSC   7.8 211   iPgC  10:48:23.50   -0.33
                 iSg      48:25.00   -0.59
PKS8  64.1 167   ePg   10:48:33.10   -0.05
                 eSg      48:42.80    0.62
PKS9  96.3 190   iPgC  10:48:40.00    1.15
                 eSg      48:52.20   -0.13
PKSM 137.1 175   eSn   10:49:01.30   -0.94
```

36.

```
 2000- 5-15  time:  8:54:32.51 UTC  ML= 1.5
   lat: 47.373N  lon: 18.529E  h=  0.0 km
                 erh= ***km    erz= ***km
   nr=  8        gap=148       rms=0.95
   Locality: Vértes mt.
   Comments: explosion

sta   dist azm  phase  hr mn  sec     res
PKSC   7.0 277   iPgC   8:54:33.50   -0.26
                 iSg      54:34.50   -0.23
ETYK  17.9  65   iPgC   8:54:35.60   -0.12
                 eSg      54:44.70    6.48
PKS8  56.1 168   iPgC   8:54:44.10    1.57
                 eSg      54:50.80    0.46
PKSM 129.4 176   iPgC   8:54:55.10   -0.51
                 iSg      55:11.30   -2.33
```

37.

```
 2000- 5-16  time:  9:05:40.39 UTC  ML= 0.2
   lat: 45.834N  lon: 18.399E  h= 10.0 km
                 erh= 6.3km    erz= 7.5km
   nr=  5        gap=275       rms=0.45
   Locality: Villányi mt.
   Comments: explosion

sta   dist azm  phase  hr mn  sec     res
RHK3  12.9 299   ePg    9:05:43.10   -0.21
                 eSg      05:45.30   -0.28
PKSM  46.0  24   iPgC   9:05:48.90    0.11
                 eSg      05:54.90   -0.44
PKS9  84.2 354   iPgC   9:05:57.40    1.88
```

38.

```
 2000- 5-22  time: 12:02:31.09 UTC  ML= 1.7
   lat: 47.487N  lon: 18.529E  h=  0.0 km
                 erh=14.8km    erz=11.0km
   nr=  5        gap=326       rms=0.50
   Locality: Vértes mt.
   Comments: explosion

sta   dist azm  phase  hr mn  sec     res
PKSC  13.7 210   iPgC  12:02:33.50   -0.04
                 iSg      02:35.40   -0.04
PKS9 101.9 191   iPgC  12:02:50.00    0.72
                 eSg      03:02.00   -1.46
PKSM 142.0 177   iPnC  12:02:55.50   -0.33
                 eSn      03:10.70   -4.43
```

39.

```
 2000- 5-22  time: 12:04:25.38 UTC  ML= 1.5
   lat: 47.424N  lon: 18.556E  h=  3.9 km
                 erh= 3.3km    erz= 2.4km
   nr=  6        gap=296       rms=0.77
   Locality: Vértes mt.
   Comments: explosion

sta   dist azm  phase  hr mn  sec     res
PKSC  10.1 242   iPgU  12:04:27.30   -0.02
                 iSg      04:28.19   -0.64
PKS9  95.4 193   iPgU  12:04:43.74    1.31
                 eSg      04:56.22    0.49
PKSM 134.9 177   iPnU  12:04:48.56   -0.18
                 eSn      05:05.62   -1.34
```

40.

```
 2000- 5-25  time:  4:47:40.11 UTC  ML= 1.5
   lat: 47.823N  lon: 18.601E  h= 10.0 km
                 erh= 2.1km    erz= 3.1km
   nr=  7        gap=176       rms=0.37
   Locality: Hungary-Slovakia border
   Comments:

sta   dist azm  phase  hr mn  sec     res
SRO   21.5 267   eSg    4:47:47.30   -0.36
BUD   49.3 140   eSg    4:47:56.00   -0.10
PKSC  50.7 194   ePgD   4:47:49.90    0.57
                 iSg      47:56.40   -0.12
PSZ   97.4  84   iPgC   4:47:58.00    0.41
                 iSg      48:11.00   -0.23
PKSM 179.1 179   eSn    4:48:29.30   -0.80
```

41.

```
 2000- 5-25  time:  9:10:30.81 UTC  ML= 0.1
   lat: 45.836N  lon: 18.420E  h=  0.0 km
                 erh= ---km    erz= ---km
   nr=  4        gap=273       rms=0.19
   Locality: Villányi mt.
   Comments: explosion

sta   dist azm  phase  hr mn  sec     res
RHK3  14.3 295   iPgC   9:10:33.30   -0.06
                 eSg      10:35.40    0.05
PKSM  45.1  22   iPgD   9:10:39.10    0.23
                 iSg      10:44.90   -0.25
```

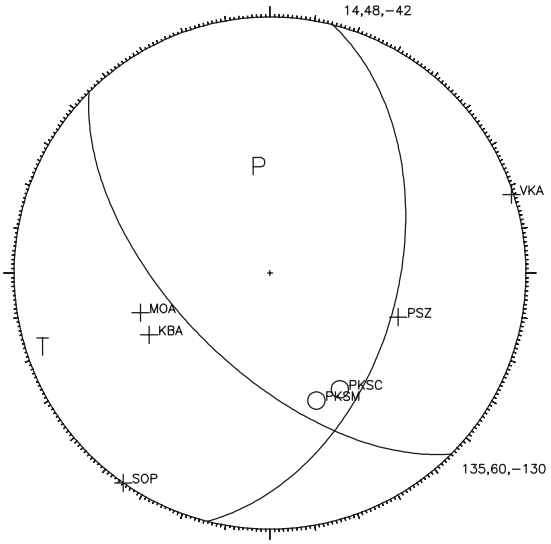
42.

```
 2000- 5-25  time: 10:09:14.69 UTC  ML= 1.4
   lat: 47.318N  lon: 18.501E  h=  0.0 km
                 erh= ---km    erz= ---km
   nr=  4        gap=210       rms=0.37
   Locality: Vértes mt.
   Comments: explosion

sta   dist azm  phase  hr mn  sec     res
PKSC   8.5 325   iPgC  10:09:16.10   -0.11
                 eSg      09:17.50    0.10
PKSM 123.4 175   ePg   10:09:37.40    0.67
                 eSg      09:53.00   -0.92
```

43.

```
 2000- 5-28  time:  7:14:26.60 UTC  ML= 2.3
   lat: 48.505N  lon: 17.417E  h=  0.9 km
                 erh= 4.8km    erz= 5.3km
   nr= 11        gap=143       rms=0.85
   Locality: Slovakia
   Comments:

sta   dist azm  phase  hr mn  sec     res
ZST   41.5 214    Pg    7:14:34.20    0.19
                  Sg      14:39.70   -0.08
VKA   85.6 252   iPgC   7:14:42.80    0.91
                 iSg      14:56.40    2.58
SRO  101.8 139    Pg    7:14:44.80    0.03
                 eSg      14:57.60   -1.35
VRAC 107.9 326    Pg    7:14:44.50   -1.36
                  Sg      14:58.00   -2.89
```

SOP	111.5	215	iPgC	7:14:45.50	-1.01
			Sg	15:00.40	-1.64
PKSC	146.4	149	iPnD	7:14:51.70	-0.08
			iSn	15:08.10	-3.32
PSZ	195.3	109	iPnC	7:14:59.50	1.62
			iSn	15:21.50	-0.78
ARSA	198.8	225	iPn	7:14:58.70	0.39
			iSn	15:25.60	2.56
MOA	245.4	253	iPnC	7:15:04.30	0.17
			iSn	15:29.30	-4.10
PRU	266.6	308	Pn	7:15:11.50	4.74
			Sn	15:44.00	5.91
PKSM	271.2	160	iPnD	7:15:06.20	-1.14
			eSn	15:32.20	-6.91
KHC	290.4	284	e n	7:15:10.00	0.26
			eSn	15:40.00	-3.38
KBA	343.9	243	iPnC	7:15:17.90	1.50
			iSn	16:09.30	14.05



44.

2000- 5-31 time: 9:28:14.02 UTC ML= 1.8
lat: 47.491N lon: 18.514E h= 0.0 km
erh= 6.9km erz= 4.4km
nr= 5 gap=331 rms=0.64
Locality: Vértes mt.
Comments: explosion

sta	dist	azm	phase	hr mn	sec	res
PKSC	13.6	205	iPgC	9:28:16.70		0.25
			iSg	28:17.90		-0.44
PKS9	102.1	190	iPgC	9:28:33.20		0.95
			eSg	28:46.20		-0.27
PKSM	142.6	176	iPn	9:28:37.90		-0.93
			eSn	28:53.90		-4.28

45.

2000- 5-31 time: 10:02:45.50 UTC ML= 0.2
lat: 45.812N lon: 18.432E h= 0.0 km
erh= ---km erz= ---km
nr= 4 gap=283 rms=0.17
Locality: Villányi mt.
Comments: explosion

sta	dist	azm	phase	hr mn	sec	res
RHK3	16.4	303	iPgD	10:02:48.40		-0.04
			eSg	02:50.70		-0.03
PKSM	47.3	20	ePgC	10:02:54.20		0.24
			eSg	03:00.20		-0.35

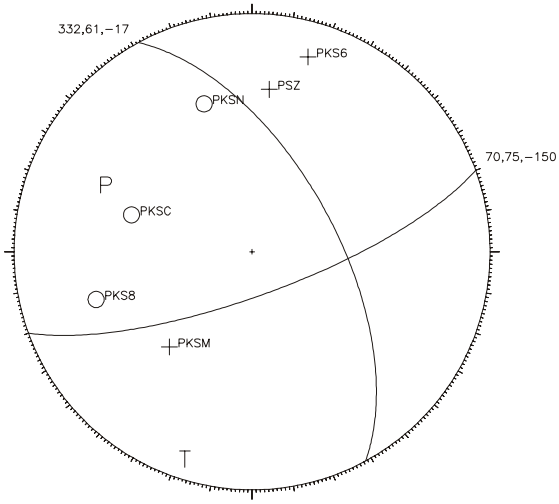
46.

2000- 6-02 time: 15:02:18.59 UTC ML= 1.9
lat: 47.118N lon: 19.733E h= 10.0 km
erh= 2.3km erz= 3.5km
nr= 11 gap=150 rms=0.63
Locality: Nagykőrös
Comments:

sta	dist	azm	phase	hr mn	sec	res
PKSN	26.6	157	iPgC	15:02:23.90		0.23
			iSg	02:27.80		0.18
PKS8	84.7	252	iPgC	15:02:34.00		0.18
			iSg	02:45.00		-0.70
PSZ	89.8	8	iPgD	15:02:34.90		0.17
			iSg	02:46.10		-1.21
PKSC	102.4	287	iPgD	15:02:37.90		0.94
			eSg	02:51.40		0.11
PKS9	125.7	242	ePn	15:02:40.50		0.48
PKSM	130.9	220	ePn	15:02:39.90		-0.77
			eSn	02:56.40		-1.49

47.

2000- 6-02 time: 15:17:30.21 UTC ML= 2.6
lat: 47.105N lon: 19.769E h= 16.9 km
erh= 5.4km erz= 4.8km
nr= 14 gap=156 rms=0.68
Locality: Nagykőrös
Comments: felt 3-4 EMS



sta	dist	azm	phase	hr mn	sec	res
PKSN	24.3	162	iPgD	15:17:35.50		0.00
			iSg	17:39.50		-0.12
PKS6	58.3	196	iPgC	15:17:41.10		0.05
			eSg	17:49.50		-0.01
PKS8	86.9	253	iP*D	15:17:45.50		-0.08
			iS*	17:57.30		-0.28
PSZ	90.9	6	iP*C	15:17:46.60		0.40
			iS*	17:57.70		-0.97
PKSC	105.4	287	iPnD	15:17:49.60		1.38
			eSn	18:03.10		0.83
PKS9	127.4	243	iPn	15:17:51.30		0.33
			eSn	18:07.20		0.03
PKSM	131.6	221	iPnC	15:17:49.70		-1.79
			eSn	18:08.10		0.01

Hypocenter Parameters

48.

2000- 6-02 time: 15:19:49.76 UTC ML= 1.3
lat: 47.132N lon: 19.716E h= 10.0 km
erh= 2.3km erz= 2.2km
nr= 10 gap=148 rms=0.47
Locality: Nagykőrös
Comments:

sta	dist	azm	phase	hr mn	sec	res
PKSN	28.5	156	iPgC	15:19:55.20		0.04
			eSg	19:59.40		0.03
PKS8	84.0	250	iPgC	15:20:05.00		0.14
			eSg	20:16.20		-0.43
PSZ	88.4	9	iPgC	15:20:06.20		0.55
			iSg	20:17.50		-0.55
PKS9	125.3	241	ePnC	15:20:12.90		1.77
			eSn	20:28.00		0.19
PKSM	131.3	219	ePnC	15:20:11.20		-0.69
			iSn	20:28.80		-0.34

49.

2000- 6-06 time: 8:19:01.05 UTC ML= 1.9
lat: 47.390N lon: 18.539E h= 0.0 km
erh= ***km erz= ***km
nr= 6 gap=267 rms=0.82
Locality: Vértes mt.
Comments: explosion

sta	dist	azm	phase	hr mn	sec	res
PKSC	7.7	262	iPgC	8:19:02.20		-0.23
			iSg	19:03.60		0.09
PKS8	57.8	170	ePg	8:19:11.90		0.53
			Sg	19:17.00		-2.42
PKS9	91.4	192	iPgC	8:19:18.70		1.32
			eSg	19:29.00		-1.11

50.

2000- 6-07 time: 21:15:02.23 UTC ML= 1.4
lat: 47.332N lon: 19.704E h= 15.5 km
erh= 4.4km erz= 1.3km
nr= 7 gap=246 rms=0.15
Locality: Nagykáta
Comments: explosion No. 1-505-0, felt

sta	dist	azm	phase	hr mn	sec	res
PKSN	49.9	166	ePgC	21:15:11.60		0.03
			eSg	15:17.10		-1.75
ETYK	73.4	279	ePg	21:15:15.60		-0.03
PKS6	82.1	187	eP*	21:15:17.10		0.09
PKS8	92.9	237	iP*C	21:15:18.80		0.15
			eS*	15:31.10		-0.35
PKSC	95.8	273	iP*C	21:15:19.00		-0.10
			eS*	15:31.20		-1.06
PKS9	136.5	233	iPnC	21:15:24.40		0.11
			eSn	15:41.60		0.10
PKSM	148.7	213	iPnC	21:15:25.50		-0.31
			eSn	15:42.90		-1.30

51.

2000- 6-08 time: 10:51:18.21 UTC ML= 1.1
lat: 45.798N lon: 18.992E h= 0.8 km
erh= ---km erz= ---km
nr= 4 gap=311 rms=0.05
Locality: Yugoslavia
Comments:

sta	dist	azm	phase	hr mn	sec	res
PKSM	53.4	329	ePgC	10:51:27.80		0.05
			eSg	51:35.10		-0.09
RHK3	58.3	280	iPgC	10:51:28.60		-0.02
			eSg	51:36.80		0.06

52.

2000- 6-08 time: 12:01:49.86 UTC ML= 1.7
lat: 47.460N lon: 18.512E h= 4.7 km
erh= 8.0km erz= 5.5km
nr= 8 gap=316 rms=0.55
Locality: Vértes mt.
Comments: explosion

sta	dist	azm	phase	hr mn	sec	res
PKSC	10.5	213	iPgC	12:01:51.90		-0.02
			iSg	01:53.30		-0.22
PKS8	65.8	169	ePg	12:02:01.70		0.05
			eSg	02:10.00		-0.85
PKS9	98.7	190	iPgC	12:02:08.40		0.89
			eSg	02:21.50		0.23
PKSM	139.1	176	iPnC	12:02:13.00		-0.64
			eSn	02:29.30		-2.89

53.

2000- 6-09 time: 8:24:59.77 UTC ML= 1.6
lat: 47.815N lon: 18.514E h= 10.0 km
erh= 3.3km erz= 1.7km
nr= 10 gap=248 rms=0.32
Locality: Hungary-Slovakia border
Comments:

sta	dist	azm	phase	hr mn	sec	res
SRO	15.0	269	ePg	8:25:02.80		-0.20
			eSg	25:05.50		-0.01
ETYK	45.1	157	iPgD	8:25:08.10		0.08
			iSg	25:14.20		-0.26
PKSC	48.6	187	iPgC	8:25:08.90		0.27
			eSg	25:15.10		-0.44
PKS8	104.8	173	iP*C	8:25:18.80		0.28
			eS*	25:30.60		-2.55
PKSM	178.5	177	ePn	8:25:27.50		-0.28
			eSn	25:47.70		-1.93

54.

2000- 6-09 time: 22:39:47.20 UTC ML= 1.2
lat: 46.807N lon: 19.126E h= 7.1 km
erh= 1.7km erz=12.0km
nr= 12 gap=119 rms=0.45
Locality: Dunatetétlen
Comments:

sta	dist	azm	phase	hr mn	sec	res
PKS8	35.2	283	iPgD	22:39:53.80		0.19
			eSg	39:58.20		-0.42
PKS2	35.6	169	ePgD	22:39:54.00		0.31
			eSg	39:58.50		-0.26
PKSN	57.4	80	ePg	22:39:57.80		0.26
			eSg	40:05.20		-0.40
PKS9	69.2	249	iPgC	22:39:59.90		0.27
			eSg	40:09.80		0.47
PKSM	75.9	209	ePgD	22:40:00.00		-0.81
			eSg	41:09.90		-1.53
PKSC	82.5	321	iPgC	22:40:02.10		0.12
			eSg	40:11.90		-1.62

55.

2000- 6-13 time: 3:05:43.75 UTC ML= 1.9
lat: 47.442N lon: 18.871E h= 10.0 km
erh= 3.1km erz= 3.7km
nr= 10 gap=130 rms=0.47
Locality: Biatorbágy
Comments:

sta	dist	azm	phase	hr mn	sec	res
ETYK	9.5	269	iPgC	3:05:46.20		-0.02
			eSg	05:47.40		-0.74
BUD	12.4	68	iPgD	3:05:47.20		0.60
			eSg	05:49.50		0.69
PENC	49.5	39	iPgC	3:05:53.10		0.33
			eSg	06:00.10		0.29
PKS8	64.3	193	iPgC	3:05:55.40		0.02
			eSg	06:03.60		-0.85
PSZ	93.3	55	iPgC	3:06:00.30		-0.21
			iSg	06:12.70		-0.89

56.

2000- 6-13 time: 7:39:27.08 UTC ML= 1.6
lat: 47.435N lon: 18.844E h= 10.0 km
erh= 2.0km erz= 2.1km
nr= 8 gap=141 rms=0.25
Locality: Biatorbágy
Comments:

sta	dist	azm	phase	hr mn	sec	res
ETYK	7.5	275	ePgD	7:39:29.50		0.19
			iSg	39:30.80		-0.25
BUD	14.6	68	iPgD	7:39:30.50		0.25
			iSg	39:32.80		0.08
PKS8	63.1	192	iPgC	7:39:38.60		0.11
			eSg	39:47.00		-0.39
PSZ	95.5	56	ePg	7:39:43.80		-0.43
			eSg	39:56.00		-1.61

57.

2000- 6-14 time: 21:39:21.30 UTC ML= 0.9
lat: 46.434N lon: 19.295E h= 8.9 km
erh= ---km erz= ---km
nr= 4 gap=268 rms=0.02
Locality: Császártöltés
Comments:

sta	dist	azm	phase	hr mn	sec	res
PKS2	9.0	316	ePg	21:39:23.60		0.03
			eSg	39:25.30		-0.04
PKS6	27.8	48	iPgD	21:39:26.50		-0.01
			eSg	39:30.60		0.03

58.

2000- 6-23 time: 21:14:59.87 UTC ML= 1.3
lat: 46.763N lon: 16.517E h= 0.0 km
erh= 3.4km erz= 3.3km
nr= 6 gap=149 rms=0.56
Locality: Kerkakutas
Comments: explosion No. 1-703-0

sta	dist	azm	phase	hr mn	sec	res
ARSA	93.1	306	iPgC	21:15:15.90		-0.59
PKS9	136.2	98	ePnC	21:15:24.00		0.11
			eSn	15:38.30		-4.32
OBKA	153.3	259	iPnC	21:15:26.40		0.38
PKSC	161.2	65	ePnC	21:15:27.10		0.09
PKSM	174.2	111	ePnC	21:15:28.00		-0.63
			eSn	15:39.10		-11.95
MOA	208.8	305	iPnD	21:15:34.00		1.06

59.

2000- 6-23 time: 21:30:00.14 UTC ML= 1.8
lat: 47.385N lon: 17.233E h= 0.0 km
erh= 3.0km erz= 3.2km
nr= 10 gap=123 rms=0.63
Locality: Kemenesszentpéter
Comments: explosion No. 1-804-0

sta	dist	azm	phase	hr mn	sec	res
PKSC	91.0	90	iPgC	21:30:16.80		0.42
			eSg	30:26.50		-2.55
MOD	110.0	2	ePg	21:30:19.80		0.02
ETYK	114.3	87	ePgC	21:30:21.20		0.65
PKS9	119.2	138	ePg	21:30:22.10		0.67
			eSg	30:35.40		-2.63
ARSA	130.1	263	iPgC	21:30:23.40		0.02
PKSM	169.1	140	iPnC	21:30:27.50		-0.75
			eSn	30:45.00		-5.18
VYH	171.9	44	Pn	21:30:27.00		-1.61
			Sn	30:29.00		-21.81
PKS2	180.6	123	iPnC	21:30:29.40		-0.29
PSZ	208.6	73	iPnC	21:30:32.70		-0.48
MOA	228.9	283	iPnC	21:30:36.70		0.98

60.

2000- 6-23 time: 21:45:04.23 UTC ML= 0.7
lat: 46.970N lon: 18.382E h= 0.0 km
erh= ---km erz= ---km
nr= 4 gap=175 rms=0.12
Locality: Kisláng
Comments: explosion No. 1-806-0

sta	dist	azm	phase	hr mn	sec	res
PKS9	43.3	191	iPgD	21:45:12.00		0.03
			eSg	45:17.00		-1.01
PKSC	45.8	5	ePgC	21:45:12.30		-0.11
			eSg	45:16.70		-2.10
PKSM	86.6	167	ePg	21:45:19.60		-0.10
			eSg	45:29.90		-1.86
PSZ	155.3	47	ePnC	21:45:30.90		0.27

61.

2000- 6-23 time: 22:30:00.26 UTC ML= 2.6
lat: 47.663N lon: 18.193E h= 9.5 km
erh= 2.3km erz= 2.7km
nr= 12 gap= 93 rms=0.46
Locality: Mocsa
Comments: explosion No. 1-103-1

sta	dist	azm	phase	hr mn	sec	res
PKSC	36.4	150	ePgC	22:30:06.60		-0.38
			eSg	30:10.10		-2.13
ETYK	48.4	121	ePgC	22:30:09.90		0.83
			eSg	30:16.60		0.66
VYH	104.1	27	Pg	22:30:18.80		-0.12
			eSg	30:33.30		-0.18
MOD	104.4	319	Pg	22:30:19.10		0.12
			eSg	30:33.50		-0.09
PKS9	119.8	177	iPn	22:30:21.20		0.18
PKSM	164.9	168	iPnC	22:30:26.20		-0.44
			eSn	30:44.70		-2.52
ARSA	206.5	257	iPnC	22:30:31.90		0.08

Hypocenter Parameters

62.

2000- 6-24 time: 0:45:00.36 UTC ML= 1.5
lat: 47.495N lon: 16.898E h= 0.0 km
erh= 4.2km erz= 5.2km
nr= 11 gap=118 rms=0.76
Locality: Pusztacsalád
Comments: explosion No. 1-803-0

sta	dist	azm	phase	hr mn	sec	res
SOP	33.0	309	iPgC	0:45:05.80		-0.46
			eSg	45:13.20		2.35
VKA	95.9	333	iPgC	0:45:17.80		0.31
MOD	101.7	16	e g	0:45:17.50		-1.01
ARSA	107.4	255	iPgD	0:45:19.00		-0.53
			iSg	45:33.00		-1.49
PKSC	116.8	96	iPgC	0:45:21.40		0.19
			eSg	45:36.70		-0.78
ETYK	139.3	93	iPnC	0:45:25.90		1.13
PKS9	145.6	134	ePn	0:45:25.60		0.05
			eSn	45:43.50		-1.70
VYH	182.3	52	Pn	0:45:27.60		-2.53
			Sn	45:52.90		-0.44
PKSM	195.0	137	iPnC	0:45:31.60		-0.11
			eSn	45:49.90		-6.26
MOA	201.6	281	iPnC	0:45:34.00		1.47
			iSn	45:58.60		0.98
PSZ	229.7	78	iPnC	0:45:35.80		-0.24
KHC	306.2	306	ePn	0:45:49.10		3.53
			eSn	46:28.40		7.57
PRU	327.0	328	Pn	0:45:54.20		6.04
			Sn	46:32.20		6.76

63.

2000- 6-24 time: 1:29:59.28 UTC ML= 1.6
lat: 46.283N lon: 16.989E h= 0.0 km
erh= 9.1km erz=12.2km
nr= 8 gap=288 rms=0.73
Locality: Somogybükkösd
Comments: explosion No. 1-705-0

sta	dist	azm	phase	hr mn	sec	res
PKS9	104.7	71	iPgC	1:30:18.30		0.32
			eSg	30:33.60		1.03
RHK3	107.1	114	iPgC	1:30:19.10		0.70
			eSg	30:33.40		0.08
PKSM	127.7	94	iPgC	1:30:21.00		-1.08
			eSg	30:38.90		-0.96
PKSC	164.6	42	ePn	1:30:26.50		-0.34
PSZ	285.9	51	ePn	1:30:40.30		-1.66

64.

2000- 6-24 time: 21:14:59.68 UTC ML= 2.1
lat: 46.158N lon: 17.281E h= 0.0 km
erh= 6.1km erz= 4.9km
nr= 13 gap=169 rms=1.00
Locality: Tarany
Comments: explosion No. 1-706-0

sta	dist	azm	phase	hr mn	sec	res
RHK3	80.9	111	Pg	21:15:16.20		2.07
			eSg	15:26.30		0.89
PKS9	90.4	58	iPgC	21:15:17.30		1.47
			eSg	15:28.20		-0.22
PKSM	105.2	87	ePgC	21:15:18.80		0.33
			eSg	15:29.80		-3.32
RHK2	116.5	91	ePgC	21:15:20.50		0.01
			eSg	15:34.00		-2.71
PKS2	153.4	76	iPnC	21:15:25.30		-0.54
			eSn	15:44.20		-2.04
PKSC	162.1	33	iPnC	21:15:26.80		-0.13
			eSn	15:46.30		-1.89
ARSA	181.2	312	iPnC	21:15:29.40		0.09
PKS6	182.4	74	iPnC	21:15:28.60		-0.86
			eSn	15:50.10		-2.59
OBKA	214.0	281	iPnC	21:15:32.90		-0.50
PKSN	214.8	67	ePn	21:15:30.90		-2.60
PSZ	278.9	45	ePn	21:15:38.90		-2.59
VYH	285.1	24	Pn	21:15:42.20		-0.07
			eSn	15:51.80		-23.68
MOA	296.6	309	iPnC	21:15:45.00		1.30

65.

2000- 6-24 time: 21:30:00.54 UTC ML= 2.3
lat: 47.151N lon: 19.491E h= 0.0 km
erh= 4.0km erz=10.5km
nr= 10 gap=115 rms=0.79
Locality: Pusztavacs
Comments: explosion No. 1-504-0

sta	dist	azm	phase	hr mn	sec	res
PKSN	40.2	135	iPgC	21:30:08.10		0.39
			Sg	30:14.20		0.89
PKS6	61.5	175	iPgC	21:30:12.00		0.47
			eSg	30:20.30		0.21
ETYK	65.0	300	iPgD	21:30:13.20		1.06
PENC	72.8	347	ePgC	21:30:14.20		0.65
			eSg	30:25.10		1.40
PKS2	76.3	196	iPgC	21:30:14.70		0.54
			eSg	30:25.90		1.12
PKSC	83.8	288	iPgC	21:30:15.70		0.20
			eSg	30:25.60		-1.56
PSZ	90.6	20	iPgC	21:30:15.80		-0.92
			iSg	30:28.90		-0.44
PKS9	111.7	236	iPgC	21:30:20.10		-0.38
			iSg	30:33.00		-3.04
PKSM	123.0	212	iPgC	21:30:20.80		-1.70
			eSg	30:34.70		-4.93
VYH	157.2	342	Pn	21:30:26.20		-0.98
			Sn	30:45.30		-2.65

66.

2000- 6-24 time: 21:45:00.23 UTC ML= 1.6
lat: 46.353N lon: 18.488E h= 0.0 km
erh= 1.8km erz=22.4km
nr= 10 gap=129 rms=0.37
Locality: Bonyhádvarasd
Comments: explosion No. 1-809-0

sta	dist	azm	phase	hr mn	sec	res
PKSM	19.6	143	iPgC	21:45:03.80		0.07
			eSg	45:05.90		-0.56
PKS9	30.6	328	iPgC	21:45:06.10		0.41
			eSg	45:09.70		-0.26
RHK2	33.8	137	iPgC	21:45:06.30		0.03
			eSg	45:10.90		-0.07
RHK3	54.4	199	iPgC	21:45:09.70		-0.24
			eSg	45:15.00		-2.51
PKS2	57.8	74	iPgC	21:45:10.80		0.24
			eSg	45:19.10		0.49
PKS6	87.1	72	iPgC	21:45:16.10		0.32
			eSg	45:27.10		-0.81
PKSC	114.3	358	iPgC	21:45:20.40		-0.25
			eSg	45:33.70		-2.87
PKSN	121.7	60	ePgC	21:45:20.80		-1.17
			eSg	45:37.60		-1.32
ETYK	122.5	9	iPgC	21:45:22.00		-0.10
PSZ	204.2	32	iPnC	21:45:30.30		-2.42

67.

2000- 6-25 time: 0:00:00.92 UTC ML= 1.7
lat: 46.120N lon: 17.507E h= 0.0 km
erh= 4.5km erz= 4.4km
nr= 9 gap=194 rms=0.72
Locality: Homokszentgyörgy
Comments: explosion No. 1-707-0

sta	dist	azm	phase	hr mn	sec	res
RHK3	63.2	114	iPgC	0:00:11.70		-0.51
			eSg	00:28.00		6.99
PKS9	78.9	49	ePgC	0:00:17.10		2.10
			eSg	00:28.20		2.21
PKSM	88.2	83	iPgD	0:00:16.90		0.23
			eSg	00:27.40		-1.56
RHK2	99.1	89	iPgC	0:00:19.30		0.69
			eSg	00:31.60		-0.80
PKSC	157.1	27	iPnC	0:00:27.80		0.26
			eSn	00:48.60		0.30
PKS6	167.1	71	iPnC	0:00:27.80		-0.99
			eSn	00:50.10		-0.42
ARSA	197.0	310	iPnC	0:00:32.00		-0.52
PKSN	200.7	65	eSn	0:00:59.40		1.42
PSZ	270.0	42	ePnD	0:00:40.70		-0.92
			eSn	00:51.30		-22.07
MOA	312.6	308	iPnC	0:00:47.50		0.56

68.

2000- 6-25 time: 2:27:02.65 UTC ML= 2.5
lat: 47.791N lon: 17.701E h= 7.4 km
erh= 2.9km erz= 2.3km
nr= 14 gap= 88 rms=0.51
Locality: Hungary-Slovakia border
Comments:

sta	dist	azm	phase	hr mn	sec	res
ZST	63.4	315	Pg	2:27:13.90		-0.15
PKSC	71.8	129	iPgC	2:27:15.40		-0.13
			iSg	27:26.10		0.52
SOP	86.5	262	ePg	2:27:18.30		0.15
			iSg	27:28.00		-2.24
ETYK	87.7	116	ePgC	2:27:18.70		0.34
			eSg	27:30.50		-0.11
BUD	105.2	109	ePg	2:27:21.10		-0.37
			eSg	27:31.90		-4.25
VKA	115.8	297	iPnC	2:27:23.00		-0.18
			iSn	27:40.10		0.91
PENC	118.5	90	ePnC	2:27:22.90		-0.61
			eSn	27:39.50		-0.29
PKS9	140.8	162	iPnC	2:27:28.70		2.40
			iSn	27:45.30		0.55
PSZ	164.8	85	iPnC	2:27:30.50		1.21
			eSn	27:48.30		-1.77
ARSA	174.6	250	iPnC	2:27:30.40		-0.12
			iSn	27:51.40		-0.85
VRAC	187.5	334	Pn	2:27:31.40		-0.72
			Sn	27:52.40		-2.71
PKSM	189.6	158	iPnC	2:27:32.20		-0.18
			iSn	27:53.40		-2.16
OKC	230.0	8	ePn	2:27:38.10		0.69
MOA	257.3	271	iPnC	2:27:42.10		1.28
			iSn	28:16.00		5.40
DPC	300.7	342	eSn	2:28:18.10		-2.13
GEC2	318.9	292	ePn	2:27:48.50		-0.01
			eSn	28:32.10		7.82
PRU	336.7	317	ePn	2:28:02.50		11.77
			Sn	28:38.60		10.37
KHC	339.4	296	ePn	2:27:50.50		-0.55
			eSn	28:25.00		-3.81

69.

2000- 6-25 time: 21:14:58.89 UTC ML= 1.8
lat: 46.108N lon: 18.853E h= 0.0 km
erh= 3.9km erz= 3.2km
nr= 11 gap=201 rms=0.59
Locality: Dunafalva
Comments: explosion No. 1-501-0

sta	dist	azm	phase	hr mn	sec	res
RHK2	5.6	297	ePgC	21:15:01.20		1.31
			eSg	15:02.30		1.63
PKSM	20.0	305	iPgC	21:15:02.40		-0.06
			eSg	15:04.80		-0.45
RHK3	52.3	243	iPgC	21:15:08.00		-0.23
			eSg	15:14.10		-1.41
PKS9	69.2	320	iPgC	21:15:11.50		0.25
			eSg	15:19.30		-1.59
PKSN	117.3	42	ePg	21:15:21.50		1.66
			eSg	15:35.90		-0.28
PKSC	145.0	347	iPnC	21:15:23.50		-0.51
			eSn	15:40.60		-2.99
ETYK	148.3	357	ePn	21:15:24.30		-0.12
			eSn	15:41.70		-2.64
PSZ	216.3	21	iPnC	21:15:32.70		-0.20
MOD	278.7	335	e n	21:15:40.60		-0.08
ARSA	284.7	296	iPnD	21:15:40.50		-0.92
MOA	399.1	299	iPnC	21:15:56.40		0.71

70.

2000- 6-25 time: 21:30:00.17 UTC ML= 2.0
lat: 46.670N lon: 18.280E h= 0.0 km
erh= 4.6km erz= 5.0km
nr= 10 gap=112 rms=0.77
Locality: Tamási
Comments: explosion No. 1-808-0

sta	dist	azm	phase	hr mn	sec	res
PKS9	9.2	181	iPgC	21:30:02.90		1.10
			eSg	30:04.40		1.32
PKSM	58.0	151	iPgC	21:30:10.60		0.09
			eSg	30:19.40		0.81
RHK2	71.5	147	ePgC	21:30:13.00		0.07
			Sg	30:19.90		-2.99
PKSC	79.9	9	ePgC	21:30:14.90		0.46
			eSg	30:23.70		-1.88
RHK3	86.5	181	ePg	21:30:14.70		-0.91
			Sg	30:24.90		-2.76
ETYK	92.7	22	ePg	21:30:18.00		1.29
PSZ	184.9	41	iPnD	21:30:29.10		-1.15
MOD	204.0	338	e n	21:30:31.90		-0.73
VYH	207.1	12	ePn	21:30:33.50		0.48
			eSn	30:36.30		-22.35
MOA	331.0	293	iPnC	21:30:47.80		-0.67

71.

2000- 6-25 time: 21:45:00.28 UTC ML= 1.3
lat: 46.797N lon: 18.028E h= 0.0 km
erh= 6.1km erz= 6.6km
nr= 9 gap=122 rms=0.72
Locality: Lulla
Comments: explosion No. 1-807-0

sta	dist	azm	phase	hr mn	sec	res
PKS9	30.2	141	iPgC	21:45:06.80		1.13
			eSg	45:12.50		2.63
PKSC	72.0	26	iPg	21:45:13.20		0.07
			eSg	45:24.70		1.55
PKSM	80.3	144	ePg	21:45:14.30		-0.31
			eSg	45:25.60		-0.19

Hypocenter Parameters

```
ETYK  89.9  37   ePgC  21:45:17.20    0.87
                 eSg      45:31.00    2.15
RHK2  94.3 142   iPgC  21:45:17.30    0.19
                 eSg      45:29.70   -0.54
RHK3 102.1 170   iPgC  21:45:17.80   -0.71
                 eSg      45:31.90   -0.84
PSZ  188.2  49   iPnC  21:45:29.60   -1.18
VYH  198.2  18    Pn   21:45:31.50   -0.53
MOA  307.6 292   iPnD  21:45:46.20    0.54
```

72.

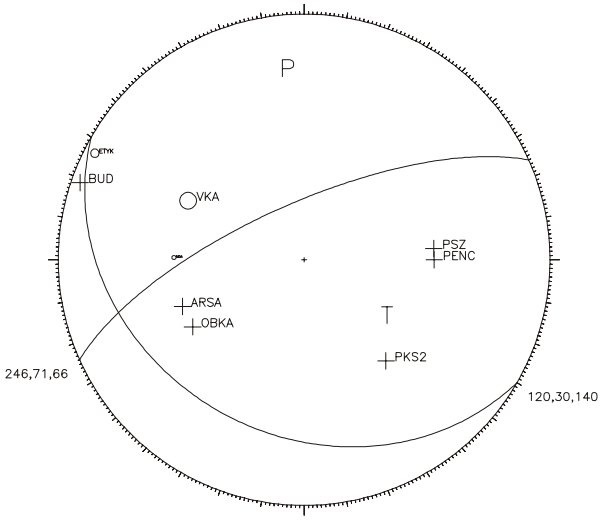
```
2000- 6-25  time: 22:15:00.46 UTC  ML= 1.5
   lat: 46.391N  lon: 18.883E  h=  0.0 km
                 erh= 3.1km    erz=40.6km
   nr=  7        gap=141       rms=0.40
   Locality: Bogyiszló
   Comments: explosion No. 1-502-0

sta   dist azm  phase  hr mn  sec     res
PKSM  27.3 223   iPgC  22:15:05.30   -0.04
                 iSg      15:09.20    0.06
RHK2  29.9 194   iPgC  22:15:05.80    0.01
                 eSg      15:09.60   -0.35
PKS9  51.2 295   iPgC  22:15:10.10    0.49
                 eSg      15:15.70   -1.04
RHK3  73.8 221   ePgC  22:15:13.20   -0.45
                 eSg      15:22.40   -1.53
PKSN  94.0  53   ePg   22:15:17.80    0.55
PKSC 115.1 343   iPgC  22:15:20.50   -0.51
                 eSg      15:33.60   -3.44
PSZ  186.3  24   ePnC  22:15:27.90   -2.82
```

73.

```
 2000- 6-26  time: 13:08:40.68 UTC  ML= 0.9
   lat: 47.583N  lon: 16.346E  h=  5.2 km
                 erh=12.0km    erz= 6.9km
   nr=  8        gap=184       rms=0.91
   Locality: Austria
   Comments:

sta   dist azm  phase  hr mn  sec     res
SOP   19.5  55   iPgC  13:08:44.30    0.02
                 iSg      08:47.40    0.30
ARSA  72.2 239   iPgC  13:08:53.30   -0.31
                 iSg      09:02.50   -1.19
ZST   88.7  40   ePg   13:08:55.50   -1.04
                 eSg      09:07.90   -1.01
MOA  158.9 281   iPnC  13:09:08.40    1.54
                 iSn      09:28.70    1.42
```

74.

```
 2000- 6-28  time: 19:19:16.07 UTC  ML= 2.6
   lat: 47.799N  lon: 17.689E  h=  8.2 km
                 erh= 3.3km    erz= 2.5km
   nr= 14        gap= 77       rms=0.58
   Locality: Vámosszabadi
   Comments: felt 4 EMS

sta   dist azm  phase  hr mn  sec     res
SRO   46.8  88   iPg   19:19:24.60    0.04
                 eSg      19:30.40   -0.78
ZST   62.2 315   iPg   19:19:27.20   -0.07
                 iSg      19:35.30   -0.70
SOP   85.7 261   ePg   19:19:31.40   -0.05
                 iSg      19:41.20   -2.25
ETYK  88.9 117   ePgD  19:19:32.20    0.19
                 eSg      19:44.10   -0.34
BUD  106.3 109   iPgC  19:19:34.60   -0.51
                 eSg      19:46.00   -3.96
VKA  114.6 297   iPnD  19:19:36.60    0.26
                 iSn      19:51.50   -0.65
PENC 119.4  90   iPnC  19:19:36.20   -0.74
                 eSn      19:52.60   -0.61
PSZ  165.6  85   iPnC  19:19:43.80    1.10
                 eSn      20:01.90   -1.57
ARSA 174.1 249   iPnC  19:19:43.50   -0.26
                 iSn      20:07.10    1.74
PKS2 185.7 141   iPnC  19:19:46.70    1.49
                 eSn      20:10.10    2.16
VRAC 186.3 334    Pn   19:19:44.80   -0.48
                  Sn      20:05.90   -2.17
OKC  229.2   8   ePn   19:19:51.00    0.37
PTJ  247.5 212   ePn   19:19:51.60   -1.32
MOA  256.4 271   iPnD  19:19:56.50    2.48
                 iSn      20:28.70    5.08
OBKA 278.0 239   iPnC  19:19:56.90    0.19
                 iSn      20:37.90    9.49
DPC  299.5 342   eSn   19:20:31.20   -2.00
PRU  335.5 317    Pn   19:20:10.70    6.82
                  Sn      20:37.90   -3.27
KHC  338.2 296   ePn   19:20:04.40    0.18
                 eSn      20:39.90   -1.87
```



75.

```
 2000- 7-03  time:  9:58:12.81 UTC  ML= 0.1
   lat: 45.837N  lon: 18.419E  h=  0.4 km
                 erh=26.5km    erz= 983km
   nr=  5        gap=273       rms=0.15
   Locality: Villányi mt.
   Comments: explosion

sta   dist azm  phase  hr mn  sec     res
RHK3  14.2 295   iPg    9:58:15.20   -0.13
                 iSg      58:17.40    0.09
PKSM  45.1  22   iPgC   9:58:21.00    0.15
                 iSg      58:27.00   -0.13
PKS9  84.0 353   ePg    9:58:29.40    1.59
```

76.

```
 2000- 7-03  time: 11:14:20.44 UTC  ML= 0.6
   lat: 45.971N  lon: 18.640E  h= 10.0 km
                 erh= ---km    erz= ---km
   nr=  4        gap=253       rms=0.20
   Locality: Mohács
   Comments:

sta   dist azm  phase  hr mn  sec     res
```

PKSM	26.8	0	ePg	11:14:25.40	-0.14
			eSg	14:29.80	0.28
RHK3	31.2	254	iPgC	11:14:26.50	0.21
			Sg	14:30.60	-0.26

77.

2000- 7-04 time: 1:59:35.38 UTC ML= 1.8
lat: 46.723N lon: 17.896E h= 7.8 km
erh= 2.9km erz= 3.1km
nr= 13 gap=226 rms=0.55
Locality: Somogymeggyes
Comments:

sta	dist	azm	phase	hr mn	sec	res
PKS9	33.0	117	ePgC	1:59:42.10		0.66
			iSg	59:46.70		0.54
PKSM	80.7	135	iPgC	1:59:49.50		-0.36
			eSg	59:59.80		-1.35
PKSC	83.9	29	iPgC	1:59:50.30		-0.13
			eSg	2:00:01.10		-1.07
RHK2	95.1	134	iPgC	1:59:52.40		-0.02
			iSg	2:00:04.80		-0.90
RHK3	96.4	163	iPgC	1:59:53.20		0.54
			iSg	2:00:06.10		-0.04
ETYK	102.6	39	ePgC	1:59:54.60		0.85
			eSg	2:00:07.30		-0.78
PKS6	128.5	96	iSn	1:60:15.00		0.36

78.

2000- 7-10 time: 11:07:00.53 UTC ML= 1.5
lat: 47.492N lon: 18.506E h= 0.0 km
erh= 6.0km erz= 2.7km
nr= 5 gap=333 rms=0.66
Locality: Vértes mt.
Comments: explosion

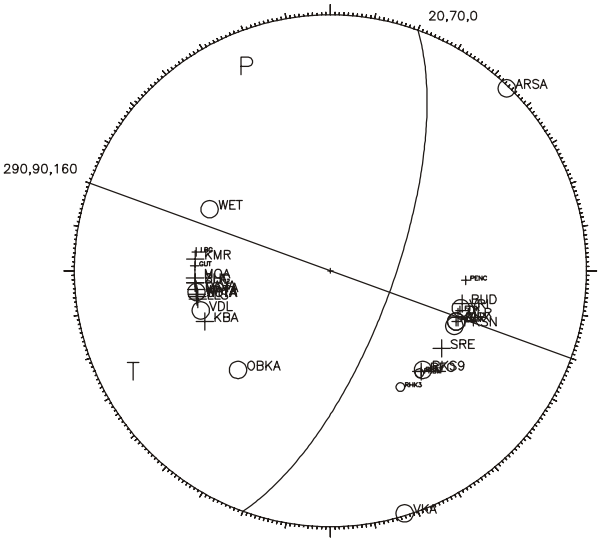
sta	dist	azm	phase	hr mn	sec	res
PKSC	13.4	203	iPgC	11:07:03.00		0.07
			iSg	07:04.40		-0.40
PKS9	102.1	190	iPgC	11:07:19.50		0.74
PKSM	142.7	176	ePn	11:07:24.20		-1.16
			eSn	07:40.30		-4.43

79.

2000- 7-11 time: 2:49:48.44 UTC ML= 4.4
lat: 47.917N lon: 16.475E h= 1.0 km
erh= 1.1km erz= 1.4km
nr= 27 gap= 73 rms=0.35
Locality: Austria
Comments: felt 6 EMS

sta	dist	azm	phase	hr mn	sec	res
VKA	40.4	343	iPgD	2:49:55.60		-0.05
ZST	56.1	56	Pg	2:49:58.80		0.34
			Sg	50:05.70		-0.58
ARSA	103.1	224	iPgD	2:50:06.60		-0.25
			iSg	50:19.70		-1.51
SRO	138.0	95	ePn	2:50:11.60		-0.96
			eSn	50:32.20		0.83
PKSC	159.0	112	ePnC	2:50:14.80		-0.38
			eSn	50:32.80		-3.23
MOA	165.4	267	iPnC	2:50:15.60		-0.37
			iSn	50:36.90		-0.55
BISS	174.1	216	ePn	2:50:17.10		0.04
			iSn	50:39.20		-0.18
KMR	175.6	275	iPn+	2:50:17.50		0.26
			iSn	50:39.90		0.20
ETYK	178.5	107	ePnC	2:50:17.60		0.00
			eSn	50:42.80		2.45
BUD	197.3	104	iPnC	2:50:20.00		0.05
			iSn	50:48.00		3.48
PKS9	201.3	137	iPnD	2:50:20.80		0.35
			iSn	50:50.10		4.69
PENC	210.5	94	ePnC	2:50:21.30		-0.29
			eSn	50:54.60		7.15
DOBS	210.9	201	ePn	2:50:21.50		-0.14
			eSn	50:51.50		3.96
OBKA	214.0	223	iPnD	2:50:22.50		0.47
			iSn	50:53.60		5.37
CESS	229.5	200	ePn	2:50:24.10		0.14
			eSn	50:55.60		3.94
PKSM	251.1	139	ePnD	2:50:26.40		-0.25
			eSn	50:52.30		-4.16
KHC	253.0	302	ePn	2:50:26.50		-0.39
			eSn	50:54.20		-2.68
KBA	253.7	248	iPnC	2:50:27.80		0.83
			iSn	51:00.80		3.77
LJU	255.6	215	ePn	2:50:27.90		0.68
			eSn	51:02.70		5.23
RHK3	262.9	149	ePnD	2:50:28.10		-0.02
			eSn	51:05.20		6.13
RHK2	265.3	138	ePnC	2:50:28.40		-0.02
BHG	270.2	265	iPnC	2:50:29.00		-0.04
PRU	270.4	328	Pn	2:50:27.30		-1.76
			Sn	51:00.50		-0.24
DPC	271.5	359	ePn	2:50:27.50		-1.70
			eSn	51:01.10		0.11
PKSN	280.0	114	iPnD	2:50:30.70		0.44
VBY	284.0	199	ePn	2:50:31.20		0.45
			eSn	51:11.20		7.45
VOY	287.3	223	ePn	2:50:31.80		0.63
CEY	288.3	213	ePn	2:50:31.70		0.41
			iSn	51:10.10		5.39
WET	298.6	297	iPnD	2:50:31.90		-0.68
WTTA	371.1	259	iPnC	2:50:41.80		0.18
			iSn	51:34.10		10.99
WATA	373.9	260	iPnC	2:50:42.70		0.74
			iSn	51:34.90		11.19
SQTA	403.8	259	iPnC	2:50:46.60		0.91
			iSn	51:44.30		13.95
MOTA	408.7	261	iPnD	2:50:46.20		-0.11
			iSn	51:44.20		12.76
BEO	460.7	138	iPnC	2:50:52.50		-0.29
			iSn	52:02.50		19.52
DAVA	500.9	262	iPnC	2:50:57.70		-0.10
			iSn	52:11.70		19.80
GUT	549.6	272	ePnC	2:51:02.80		-1.07
			eSn	51:56.60		-6.11
VDL	554.1	253	iPnD	2:51:05.70		1.26
LBG	576.0	278	ePnC	2:51:06.10		-1.06
LLS	576.5	258	iPnC	2:51:07.20		-0.03
ZLA	608.9	265	iPnC	2:51:10.20		-1.06
SRE	632.4	125	iPnC	2:51:17.42		3.22
MTUR	723.2	114	iPn	2:51:31.20		5.68
SNX	748.4	112	iPnD	2:51:28.96		0.29
MLR	772.7	110	iPnC	2:51:32.03		0.34
VRI	813.6	106	iPnD	2:51:37.03		0.23
ISR	832.1	112	iPnD	2:51:44.28		5.18
CFR	945.7	109	iPn	2:51:51.70		-1.57

Hypocenter Parameters



80.

2000- 7-11 time: 6:47:15.96 UTC ML= 1.3
lat: 47.928N lon: 16.426E h= 5.3 km
erh= 3.2km erz= 4.2km
nr= 13 gap=101 rms=0.70
Locality: Austria
Comments: felt 3-4 EMS

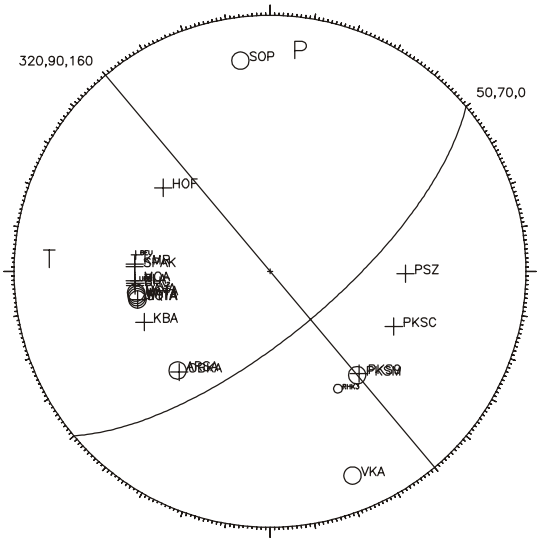
sta	dist	azm	phase	hr mn sec	res
SOP	28.9	160	iPgD	6:47:22.00	0.79
			iSg	47:25.60	0.29
ZST	58.6	59	iPg	6:47:26.10	-0.37
			eSg	47:33.50	-1.17
ARSA	101.4	222	iPgD	6:47:34.10	0.01
			iSg	47:47.10	-1.13
MOA	161.8	267	iPnC	6:47:43.50	1.02
			iSn	48:03.10	-0.06
GEC2	226.1	297	ePn	6:47:53.50	3.00
			eSn	48:16.70	-0.74
KHC	249.3	302	ePn	6:47:53.00	-0.39
			eSn	48:22.00	-0.59
PRU	267.5	329	ePn	6:47:59.20	3.54
			Sn	48:25.80	-0.83
DPC	270.3	360	eSn	6:48:32.70	5.45

81.

2000- 7-11 time: 10:56:04.94 UTC ML= 3.8
lat: 47.962N lon: 16.498E h= 10.0 km
erh= 1.3km erz= 1.2km
nr= 34 gap= 31 rms=0.48
Locality: Austria
Comments: felt 5 EMS

sta	dist	azm	phase	hr mn sec	res
SOP	31.3	172	iPgD	10:56:10.60	-0.21
			iSg	56:14.40	-0.99
VKA	36.3	338	iPgD	10:56:11.60	-0.06
ZST	52.0	60	iPg	10:56:14.60	0.20
			eSg	56:21.50	-0.28
ARSA	107.9	223	iPnD	10:56:21.90	-2.25
			iSn	56:34.50	-4.63
SRO	136.8	97	iPn	10:56:27.30	-0.45
			eSn	56:47.30	1.76
VRAC	150.0	3	Pn	10:56:28.80	-0.60
PKSC	159.3	114	iPnC	10:56:30.60	0.03
			eSn	56:47.30	-3.25
MOA	167.4	266	iPnC	10:56:31.30	-0.27
			iSn	56:52.00	-0.33
KMR	176.9	273	iPn	10:56:33.40	0.65
			iSn	56:55.80	1.36
KMR	176.9	273	iPn+	10:56:33.40	0.65
			iSn	56:55.80	1.36
ETYK	178.3	109	ePn	10:56:33.40	0.46
			eSn	56:57.40	2.63
BISS	179.2	215	iPn	10:56:32.80	-0.24
			iSn	56:53.70	-1.25
BUD	196.8	106	ePn	10:56:35.00	-0.24
PKS9	203.8	139	iPnC	10:56:36.70	0.59
			eSn	57:04.80	4.38
DOBS	216.1	201	iPn	10:56:37.50	-0.15
OBKA	218.8	222	iPnC	10:56:38.50	0.52
			iSn	57:08.80	5.05
GERE	229.2	295	Pn	10:56:39.20	-0.08
CESS	234.7	200	iPn	10:56:40.40	0.44
			iSn	57:11.80	4.52
OKC	241.1	30	ePn	10:56:41.10	0.34
			eSn	57:07.20	-1.50
KHC	251.8	301	ePn	10:56:41.10	-0.99
			eSn	57:07.20	-3.86
KHC	251.8	301	ePn	10:56:41.80	-0.29
			eSn	57:09.90	-1.16
PKSM	253.7	140	iPnD	10:56:42.00	-0.33
			eSn	57:18.40	6.91
PSZ	253.8	91	iPnC	10:56:42.50	0.15
			eSn	57:25.40	13.88
KBA	257.0	248	iPnC	10:56:43.60	0.85
			iSn	57:16.30	4.07
LJU	260.7	215	iPn	10:56:43.70	0.50
			iSn	57:19.20	6.16
RHK3	266.2	150	ePnD	10:56:43.90	0.01
			iSn	57:24.20	9.93
DPC	266.6	359	ePn	10:56:43.40	-0.54
			eSn	57:12.60	-1.76
DPC	266.6	359	ePn	10:56:43.40	-0.54
PRU	267.0	328	Pn	10:56:44.00	0.01
			Sn	57:15.20	0.75
BHG	272.2	264	iPnC	10:56:44.80	0.16
VBY	289.2	199	iPn	10:56:47.00	0.24
			eSn	57:26.30	6.92
VOY	292.1	223	ePn	10:56:47.70	0.58
			eSn	57:20.50	0.49
CEY	293.3	213	iPn	10:56:47.70	0.43
			iSn	57:27.20	6.91
WET	297.8	296	ePn	10:56:47.60	-0.23
KSP	320.8	357	ePn	10:56:50.30	-0.40
OJC	348.1	44	ePn	10:56:55.00	0.90
			iSn	57:26.10	-6.34
BRG	373.1	330	ePn	10:56:56.70	-0.52
WTTA	373.7	258	iPnC	10:56:57.60	0.31
			iSn	57:49.40	11.27
ROTZ	373.9	303	ePn	10:56:57.20	-0.12
WATA	376.3	259	iPnD	10:56:58.80	1.18
			iSn	57:50.10	11.40
FUR	389.9	273	ePn	10:56:59.50	0.19
SQTA	406.3	258	iPnD	10:57:02.40	1.04
			iSn	57:59.80	14.43
MOTA	411.0	260	iPnD	10:57:02.70	0.75
			iSn	57:59.70	13.28
HOF	426.7	308	iPnC	10:57:05.10	1.19
GRF	432.6	296	ePn	10:57:06.70	2.06
			eSn	58:07.10	15.91
GRA1	432.6	296	ePn	10:57:06.70	2.06
			eSn	58:07.10	15.91
CLL	449.9	326	iPn	10:57:07.10	0.30
BEO	463.2	139	iPn	10:57:16.00	7.55
MOX	463.9	310	ePn	10:57:10.30	1.76
HDH	472.1	278	Pn	10:57:09.30	-0.27
			Sn	57:55.10	-4.87
UBR	479.5	266	ePnC	10:57:10.70	0.21

		Sn	57:57.80	-3.82
OSS	500.9 254	ePn	10:57:14.20	1.05
DAVA	503.1 261	iPnD	10:57:13.70	0.27
		iSn	58:27.10	20.25
BEU	530.3 277	ePnC	10:57:16.30	-0.52
		Sn	58:07.70	-5.19
SPAK	575.4 272	iPnC	10:57:21.90	-0.54
ZLA	610.7 265	iPnC	10:57:26.00	-0.85



82.

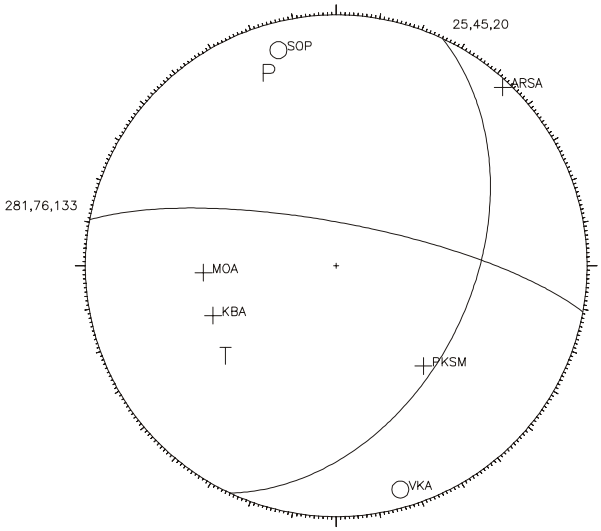
2000- 7-12 time: 0:13:24.59 UTC ML= 1.4
lat: 45.910N lon: 19.278E h= 10.0 km
erh= ---km erz= ---km
nr= 4 gap=359 rms=0.61
Locality: Yugoslavia
Comments:

sta	dist	azm	phase	hr mn sec	res
RHK2	45.2	303	ePg	0:13:33.20	0.35
			eSg	13:39.30	0.00
PKSM	59.6	304	ePg	0:13:35.20	-0.18
			Sg	13:40.40	-3.40

83.

2000- 7-12 time: 7:55:57.03 UTC ML= 1.8
lat: 47.922N lon: 16.464E h= 5.6 km
erh= 2.9km erz= 3.5km
nr= 9 gap= 73 rms=0.53
Locality: Austria
Comments: felt 3-4 EMS

sta	dist	azm	phase	hr mn sec	res
SOP	27.5	165	iPgD	7:56:02.70	0.67
			iSg	56:06.60	0.66
VKA	39.6	344	iPgD	7:56:04.10	-0.08
			iSg	56:09.90	0.14
ZST	56.5	57	iPg	7:56:07.00	-0.17
			eSg	56:14.30	-0.77
ARSA	102.9	223	iPgC	7:56:14.70	-0.73
			iSg	56:27.90	-1.88
PKSC	160.0	112	ePn	7:56:23.40	0.11
			Sn	56:44.10	0.32
MOA	164.6	267	iPnC	7:56:23.90	0.03
			iSn	56:44.10	-0.71
PKSM	252.0	139	iPnC	7:56:34.50	-0.27
			Sn	57:00.20	-4.00
KHC	252.0	302	eSn	7:56:59.60	-4.61
KBA	253.1	248	iPnC	7:56:36.90	2.00
			iSn	57:10.80	6.35
PRU	269.5	328	ePn	7:56:38.40	1.45
			Sn	57:05.50	-2.59
DPC	271.0	359	ePn	7:56:40.60	3.47
			eSn	57:12.40	3.99



84.

2000- 7-12 time: 21:19:54.32 UTC ML= 2.3
lat: 47.937N lon: 16.401E h= 1.5 km
erh= 2.7km erz= 3.1km
nr= 16 gap= 50 rms=0.66
Locality: Austria
Comments: felt 4 EMS

sta	dist	azm	phase	hr mn sec	res
SOP	30.6	157	iPgD	21:20:00.00	0.22
			iSg	21:03.80	-0.24
VKA	37.0	350	iPgD	21:20:01.40	0.47
			iSg	20:07.00	0.92
ZST	59.7	61	iPg	21:20:04.30	-0.68
ARSA	100.9	221	iPgD	21:20:11.80	-0.54
			iSg	20:24.90	-1.50
MOA	160.0	267	iPnC	21:20:20.70	-0.41
			iSn	20:41.50	-0.51
KMR	169.9	274	iPn+	21:20:23.10	0.76
			iSn	20:44.40	0.19
BISS	172.7	214	ePn	21:20:21.90	-0.80
ETYK	184.4	107	ePnD	21:20:25.60	1.44
			eSn	20:48.70	1.27
BUD	203.2	104	ePn	21:20:34.00	7.51
DOBS	211.0	200	ePn	21:20:27.20	-0.27
OBKA	211.9	221	iPnC	21:20:28.10	0.52
			iSn	20:59.40	5.88
OKC	247.1	31	ePn	21:20:30.70	-1.27
KHC	247.2	302	ePn	21:20:33.10	1.12
			eSn	20:58.90	-2.46
KBA	249.3	247	iPnC	21:20:33.00	0.76
			iSn	21:07.70	5.87
PRU	265.7	329	Pn	21:20:33.60	-0.69
			Sn	21:02.80	-2.67
DPC	269.3	0	ePn	21:20:33.30	-1.44
			eSn	21:09.80	3.53
CEY	287.1	212	ePn	21:20:37.10	0.14
WET	292.7	297	iPnD	21:20:43.60	5.94

Hypocenter Parameters

```
KSP  323.3 359   ePn   21:20:40.40   -1.08
WTTA 366.1 258   iPnC  21:20:48.30    1.49
                 iSn      21:42.60   14.85
BRG  372.1 331   iPn   21:20:56.60    9.04
MOTA 403.5 261   iPnD  21:20:52.60    1.13
                 iSn      21:49.20   13.14
CLL  448.4 327   iPn   21:20:57.40    0.33
MOX  460.4 311   ePn   21:20:59.20    0.63
                 iSn      22:01.40   12.72
DAVA 495.6 262   iPnC  21:21:03.40    0.44
                 iSn      22:16.00   19.50
```

85.

```
 2000- 7-13  time: 10:10:14.62 UTC  ML= 1.5
   lat: 47.403N  lon: 18.467E  h=  8.7 km
                 erh= ---km    erz= ---km
   nr=  4        gap=313       rms=0.37
   Locality: Vértes mt.
   Comments: explosion

sta   dist azm  phase  hr mn  sec     res
PKSC   3.3 222   iPgC  10:10:16.00   -0.29
                 iSg      10:17.80    0.21
PKSM 133.1 174   ePnC  10:10:37.90    0.76
                  Sn      10:54.40   -0.30
```

86.

```
 2000- 7-15  time:  1:06:59.31 UTC  ML= 0.9
   lat: 47.922N  lon: 16.403E  h=  4.8 km
                 erh= 2.5km    erz= 2.9km
   nr= 12        gap= 97       rms=0.61
   Locality: Austria
   Comments:

sta   dist azm  phase  hr mn  sec     res
SOP   29.0 156   iPgD   1:07:05.20    0.64
                 eSg      07:09.10    0.45
VKA   38.6 351   iPgC   1:07:06.30    0.04
                 iSg      07:11.90    0.22
ZST   60.4  60   ePg    1:07:09.00   -1.13
                 eSg      07:16.40   -2.17
ARSA  99.8 222   iPg    1:07:17.30    0.16
                 iSg      07:30.00   -1.06
MOA  160.0 267   iPnC   1:07:26.10    0.42
                 iSn      07:46.10   -0.16
KHC  248.2 303   eSn    1:08:06.90    1.08
PRU  267.1 329    Sn    1:08:09.10   -0.94
```

87.

```
 2000- 7-16  time:  2:28:06.30 UTC  ML= 1.8
   lat: 47.912N  lon: 16.449E  h=  3.9 km
                 erh= 2.3km    erz= 2.6km
   nr= 10        gap= 85       rms=0.40
   Locality: Austria
   Comments: felt 3 EMS

sta   dist azm  phase  hr mn  sec     res
VKA   40.4 346   iPgD   2:28:13.70    0.15
                 iSg      28:19.80    0.59
ZST   58.1  57   iPg    2:28:16.60   -0.09
                 eSg      28:23.70   -1.10
ARSA 101.3 223   iPgC   2:28:24.30   -0.10
                 iSg      28:37.40   -1.12
SRO  139.9  95   ePn    2:28:29.30   -0.98
PKSC 160.7 112   ePn    2:28:33.30    0.44
                 eSn      28:55.90    2.32
MOA  163.4 268   iPnC   2:28:33.10   -0.11
                 iSn      28:54.30    0.10
ETYK 180.2 107   ePn    2:28:41.20    5.90
                 eSn      29:01.30    3.38
PKS9 202.2 137   iPnC   2:28:38.70    0.65
KHC  251.7 303    Pn    2:28:45.50    1.29
                  Sn      29:12.80   -0.98
PKSM 251.9 139   ePnD   2:28:44.10   -0.14
                 eSn      29:10.00   -3.84
PRU  269.9 329   ePn    2:28:46.00   -0.48
                 eSn      29:15.30   -2.52
DPC  272.1 359   ePn    2:28:52.50    5.75
                 eSn      29:22.10    3.79
WET  297.1 297   ePn    2:28:56.30    6.42
BRG  376.2 331   ePn    2:29:08.40    8.66
MOX  464.9 311   ePn    2:29:13.10    2.31
```

88.

```
 2000- 7-16  time:  4:34:54.40 UTC  ML= 1.9
   lat: 47.833N  lon: 17.728E  h=  1.7 km
                 erh= 4.8km    erz= 4.4km
   nr=  9        gap=169       rms=0.58
   Locality: Hungary-Slovakia border
   Comments:

sta   dist azm  phase  hr mn  sec     res
ZST   61.7 311   ePg    4:35:05.70    0.29
                 eSg      35:13.30   -0.71
PKSC  73.3 133   ePgC   4:35:07.20   -0.30
                 eSg      35:16.30   -1.42
ETYK  88.1 120   iPgC   4:35:10.60    0.48
                 eSg      35:22.60    0.21
SOP   89.2 259   iPgD   4:35:10.00   -0.34
ARSA 178.2 249   iPnC   4:35:24.60    1.18
                 iSn      35:45.40   -0.67
```

89.

```
 2000- 7-16  time:  4:55:42.76 UTC  ML= 1.0
   lat: 47.920N  lon: 16.433E  h=  7.6 km
                 erh= 2.3km    erz= 2.8km
   nr= 15        gap=102       rms=0.72
   Locality: Austria
   Comments:

sta   dist azm  phase  hr mn  sec     res
SOP   28.0 160   iPgD   4:55:48.80    0.86
                 iSg      55:52.60    0.62
VKA   39.3 347   iPgD   4:55:50.20    0.30
                 iSg      55:55.50    0.03
ZST   58.6  58   iPg    4:55:52.70   -0.61
                 eSg      55:59.90   -1.65
ARSA 101.1 223   iPgC   4:56:00.50   -0.37
                 iSg      56:13.70   -1.30
MOA  162.2 267   iPnC   4:56:09.40    0.35
                 iSn      56:29.80    0.25
OKC  247.5  31   ePn    4:56:20.00    0.32
                 eSn      56:45.80   -2.68
KHC  250.2 303   ePn    4:56:22.50    2.49
                  Sn      56:50.50    1.43
PRU  268.5 329   ePn    4:56:27.20    4.91
                 eSn      56:53.10   -0.03
```

90.

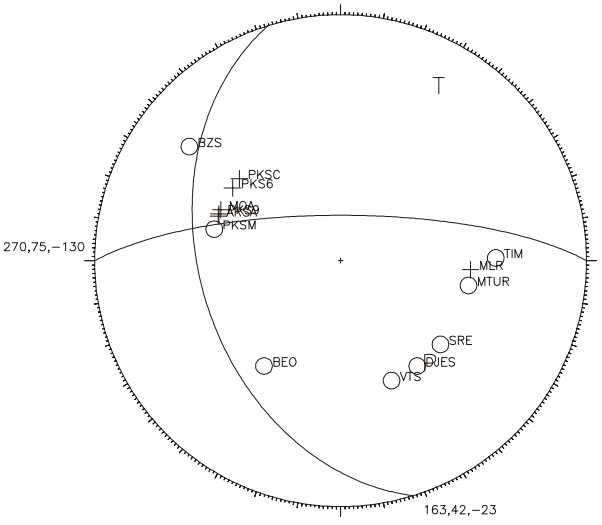
```
 2000- 7-17  time: 10:30:49.06 UTC  ML= 1.5
   lat: 47.415N  lon: 18.500E  h=  4.7 km
                 erh=18.4km    erz=12.3km
   nr=  5        gap=304       rms=0.90
   Locality: Vértes mt.
   Comments: explosion

sta   dist azm  phase  hr mn  sec     res
PKSC   6.1 231   iPgC  10:30:50.10   -0.34
                 eSg      30:51.70    0.19
PKS9  93.6 190   iPgC  10:31:06.60    0.80
```

		eSg	31:18.80	-0.05
PKSM	134.2	175	eSn	10:31:26.50	-3.80

91.

2000- 7-22 time: 7:23:37.25 UTC ML= 3.2
lat: 45.739N lon: 21.389E h= 10.0 km
erh= 5.2km erz= 2.0km
nr= 11 gap=171 rms=0.56
Locality: Romania
Comments:

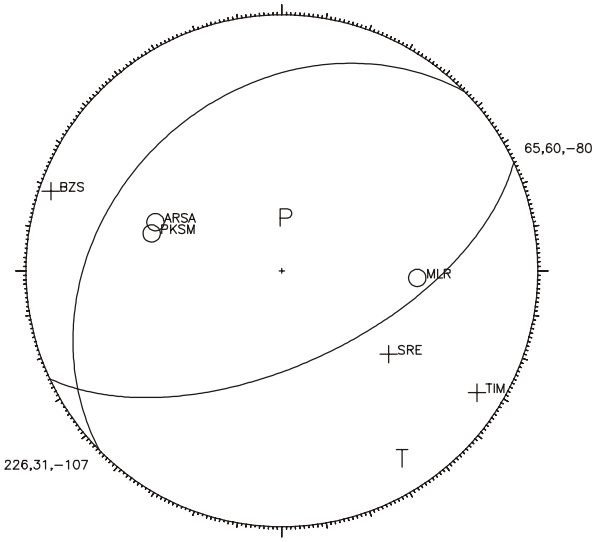
sta	dist	azm	phase	hr mn sec	res
TIM	13.1	269	iPgD	7:23:40.50	0.31
			iSg	23:42.70	0.22
BZS	22.3	127	iPgD	7:23:40.90	-0.71
BEO	125.6	216	iPnD	7:23:58.50	-0.16
			iSn	24:13.50	-1.86
DJES	151.9	144	iPnD	7:24:02.20	0.26
			iSn	24:18.20	-3.01
PKS6	170.3	304	iPnC	7:24:04.30	0.06
SRE	186.3	130	iPnD	7:24:08.08	1.85
			eSn	24:31.64	2.81
PKS2	187.9	296	iPn	7:24:06.60	0.17
PKSM	219.3	284	iPnD	7:24:09.70	-0.65
PKS9	258.1	291	iPnC	7:24:14.90	-0.28
			iSn	24:54.20	9.43
BUD	265.4	317	ePn	7:24:16.00	-0.10
PKSC	290.8	309	iPnC	7:24:19.00	-0.26
			iSn	25:02.00	9.98
MTUR	292.9	101	iPnD	7:24:22.10	2.58
			eSn	24:55.01	2.52
SNX	324.9	98	iPn	7:24:27.40	3.88
MLR	356.3	94	iPnC	7:24:29.43	2.00
VTS	378.8	157	iPnD	7:24:29.50	-0.73
PGB	418.3	148	ePn	7:24:35.00	-0.16
KKB	451.3	162	ePn	7:24:39.00	-0.28
SZH	454.0	127	ePn	7:24:38.50	-1.11
ARSA	480.7	290	iPnC	7:24:42.90	-0.04
			iSn	25:31.60	-2.57
MMB	498.2	158	ePn	7:24:45.00	-0.12
OJC	512.1	347	ePn	7:24:48.50	1.64
RZN	523.9	149	ePn	7:24:47.50	-0.83
MOA	592.3	293	iPnC	7:24:58.80	1.94
			iSn	25:58.90	-0.05
KHC	699.6	303	ePn	7:25:13.00	2.76
			eSn	26:32.00	9.23



92.

2000- 7-22 time: 7:51:03.52 UTC ML= 2.9
lat: 45.685N lon: 21.338E h= 2.1 km
erh= 8.7km erz= 6.3km
nr= 9 gap=151 rms=1.04
Locality: Romania
Comments:

sta	dist	azm	phase	hr mn sec	res
TIM	10.7	302	iPgC	7:51:06.00	0.53
			eSg	51:08.50	1.51
BZS	23.0	109	iPgC	7:51:06.70	-0.94
BEO	118.3	216	iPg	7:51:26.00	1.35
			eSg	51:41.50	0.36
DJES	149.6	141	iPn	7:51:28.30	-0.64
			iSn	51:45.70	-3.07
SRE	185.7	128	iPnC	7:51:34.58	1.14
			eSn	51:59.34	2.56
PKS2	187.2	299	eSn	7:51:59.40	2.28
PKSM	217.1	286	iPnD	7:51:36.10	-1.26
PKS9	256.8	293	ePn	7:51:41.00	-1.31
PKSC	291.6	310	iSn	7:52:28.20	7.90
SNX	328.3	96	iPn	7:51:52.90	1.67
MLR	360.0	93	iPnD	7:51:56.92	1.74
ARSA	479.3	291	iPnD	7:52:09.10	-0.96
			iSn	52:57.40	-4.56



93.

2000- 7-25 time: 9:54:41.88 UTC ML= 1.7
lat: 47.346N lon: 18.353E h= 5.2 km
erh= 5.7km erz= 3.0km
nr= 5 gap=249 rms=0.60
Locality: Vértes mt.
Comments: explosion

sta	dist	azm	phase	hr mn sec	res
PKSC	7.5	59	iPgC	9:54:43.10	-0.40
			iSg	54:44.10	-0.66
ETYK	31.4	70	iPgD	9:54:48.30	0.74
			eSg	54:52.90	0.91
PKSM	128.0	170	ePnC	9:55:04.10	-0.11

Hypocenter Parameters

94.

```
 2000- 7-26  time: 13:09:36.26 UTC  ML=
   lat: 47.437N  lon: 16.298E  h=  1.3 km
                 erh= 9.3km    erz= 4.3km
   nr=  5        gap=215       rms=0.31
   Locality: Austria
   Comments:

sta   dist azm  phase  hr mn  sec     res
SOP   33.7  36   ePg   13:09:42.00   -0.28
ARSA  62.1 250   iPgC  13:09:47.10   -0.26
                 iSg      09:55.90   -0.12
MOA  159.5 287   iPnC  13:10:03.50    0.49
                 iSn      10:24.20    0.33
```

95.

```
 2000- 7-28  time:  8:48:14.72 UTC  ML= 0.7
   lat: 47.387N  lon: 18.783E  h=  5.5 km
                 erh=37.4km    erz=37.6km
   nr=  6        gap=214       rms=0.62
   Locality: Pusztazámor
   Comments:

sta   dist azm  phase  hr mn  sec     res
ETYK   6.6 334   ePgD   8:48:16.00   -0.26
                 eSg      48:18.00    0.54
BUD   21.1  59   ePg    8:48:25.00    6.38
PKSC  26.1 268   iPgD   8:48:19.00   -0.49
                 iSg      48:23.00   -0.21
PSZ  102.3  55   iPgC   8:48:34.10    1.08
                 iSg      48:46.70   -0.59
```

96.

```
 2000- 7-31  time: 10:09:34.60 UTC  ML= 2.0
   lat: 47.364N  lon: 18.568E  h=  0.0 km
                 erh= ---km    erz= ---km
   nr=  3        gap=257       rms=0.00
   Locality: Vértes mt.
   Comments: explosion

sta   dist azm  phase  hr mn  sec     res
PKSC  10.1 280   iPgC  10:09:36.40    0.00
                 iSg      09:37.80    0.00
PKSM 128.2 178   iPgC  10:09:57.50    0.00
```

97.

```
 2000- 8-02  time: 18:49:38.07 UTC  ML= 1.5
   lat: 47.204N  lon: 17.942E  h= 10.0 km
                 erh=20.7km    erz=92.0km
   nr=  8        gap=223       rms=1.52
   Locality: Eplény
   Comments:

sta   dist azm  phase  hr mn  sec     res
PKSC  42.3  62   iPgC  18:49:46.60    0.77
                 eSg      49:49.50   -2.39
ETYK  66.2  67   ePg   18:49:47.70   -2.32
                 eSg      50:01.00    1.66
PKS9  73.2 159   iPgD  18:49:51.10   -0.17
                 eSg      50:03.30    1.73
SRO   73.3  22   e g   18:49:51.70    0.42
BUD   87.5  69   ePg   18:49:58.00    4.21
```

98.

```
 2000- 8-03  time:  9:20:44.99 UTC  ML=-0.1
   lat: 45.852N  lon: 18.416E  h=  0.3 km
                 erh= ---km    erz= ---km
   nr=  4        gap=266       rms=0.16
   Locality: Villányi mt.
   Comments: explosion

sta   dist azm  phase  hr mn  sec     res
RHK3  13.4 289   iPgC   9:20:47.30   -0.08
                 eSg      20:49.40    0.16
PKSM  43.7  24   ePgC   9:20:53.00    0.21
                 eSg      20:58.60   -0.28
```

99.

```
 2000- 8-04  time:  9:39:55.26 UTC  ML= 1.1
   lat: 47.401N  lon: 18.549E  h= 10.0 km
                 erh= ---km    erz= ---km
   nr=  4        gap=282       rms=0.74
   Locality: Vértes mt.
   Comments: explosion

sta   dist azm  phase  hr mn  sec     res
PKSC   8.7 255   iPgC   9:39:57.30   -0.33
                 eSg      39:58.00   -1.48
PKSM 132.4 177   iPnC   9:40:18.40    0.88
                 eSn      40:34.50   -0.38
```

100.

```
 2000- 8-07  time:  9:32:14.39 UTC  ML= 2.2
   lat: 47.379N  lon: 18.281E  h= 10.0 km
                 erh= 2.7km    erz= 1.2km
   nr=  6        gap=271       rms=0.63
   Locality: Vértes mt.
   Comments: explosion

sta   dist azm  phase  hr mn  sec     res
PKSC  11.8  89   iPgC   9:32:16.70   -0.46
                 eSg      32:17.60   -1.71
ETYK  35.7  79   iPgC   9:32:21.60    0.59
                 eSg      32:26.10   -0.08
PKSM 132.6 168   ePn    9:32:37.30    0.62
                 eSn      32:53.50   -0.56
```

101.

```
 2000- 8-10  time: 10:27:33.09 UTC  ML= 2.4
   lat: 47.367N  lon: 18.298E  h=  6.5 km
                 erh= 4.2km    erz= 2.3km
   nr=  6        gap=268       rms=0.53
   Locality: Vértes mt.
   Comments: explosion

sta   dist azm  phase  hr mn  sec     res
PKSC  10.6  82   iPgC  10:27:34.80   -0.51
                 eSg      27:35.60   -1.44
ETYK  34.7  76   iPgC  10:27:39.80    0.41
                 eSg      27:45.10    0.79
PKSM 131.1 168   iPnC  10:27:55.90    0.25
                 eSn      28:12.80   -0.44
```

102.

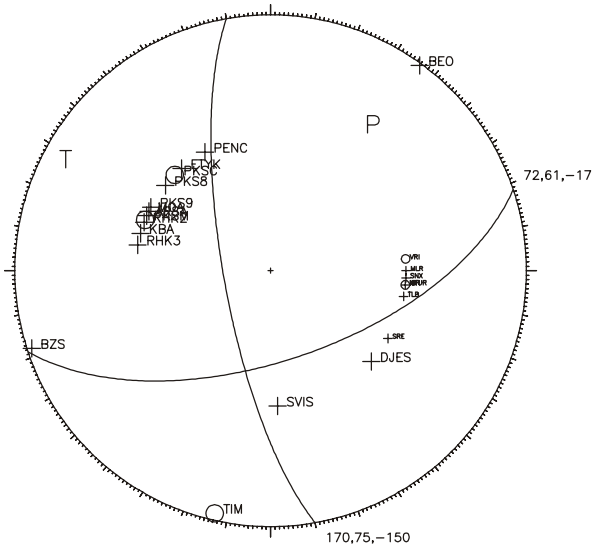
```
 2000- 8-15  time: 10:11:33.15 UTC  ML= 1.9
   lat: 47.946N  lon: 19.104E  h= 13.4 km
                 erh= 2.7km    erz= 1.3km
   nr=  6        gap=284       rms=0.18
   Locality: Tolmács
   Comments:
```

sta	dist	azm	phase	hr mn	sec	res
PENC	21.8	143	iPgC	10:11:37.70		-0.02
			eSg	11:41.20		-0.09
ETYK	62.4	206	eSg	10:11:53.60		0.16
PKSC	80.4	219	ePgC	10:11:47.80		0.09
			eSg	11:57.80		-1.26
PKS9	163.5	202	eSn	10:12:18.80		-0.12

103.

2000- 8-16 time: 22:13:58.70 UTC ML= 2.8
lat: 45.507N lon: 21.147E h= 1.4 km
erh= 3.1km erz= 3.9km
nr= 26 gap= 61 rms=0.93
Locality: Romania
Comments:

sta	dist	azm	phase	hr mn	sec	res
TIM	26.1	13	iPgD	22:14:03.40		0.04
			eSg	14:10.00		3.00
BZS	38.6	72	iPgC	22:14:04.40		-1.20
BEO	93.6	216	iPgC	22:14:16.20		0.78
			iSg	14:30.20		1.73
SVIS	134.7	177	iPnC	22:14:22.10		-0.26
			iSn	14:39.80		-1.01
DJES	145.6	132	iPnC	22:14:22.70		-1.02
			iSn	14:38.70		-4.53
PTNS	169.7	214	iPn	22:14:24.20		-2.52
			iSn	14:49.40		0.83
PKSN	183.4	327	ePn	22:14:29.40		0.98
SRE	187.3	120	ePnC	22:14:31.10		2.19
			eSn	14:52.02		-0.46
RHK2	196.0	291	iPnC	22:14:30.30		0.30
PKSM	209.8	292	iPnD	22:14:31.70		-0.01
			eSn	14:55.50		-1.97
RHK3	229.4	281	iPnC	22:14:34.00		-0.16
			eSn	15:08.50		6.69
PKS8	244.2	309	iPnC	22:14:35.80		-0.20
			eSn	15:01.40		-3.70
PKS9	252.4	298	iPnC	22:14:37.00		-0.03
			eSn	15:04.10		-2.82
ETYK	283.2	319	iPnC	22:14:41.10		0.23
PENC	291.2	331	iPnC	22:14:41.50		-0.37
PKSC	294.5	315	iPnD	22:14:42.10		-0.18
			eSn	15:13.20		-3.07
MTUR	308.4	96	ePnD	22:14:47.23		3.22
SNX	342.1	93	ePnC	22:14:51.85		3.64
			iSn	15:30.73		3.90
MLR	374.9	90	ePnC	22:14:53.21		0.91
SKO	393.5	177	ePn	22:15:01.00		6.38
PTJ	405.4	276	ePn	22:14:56.10		-0.01
			eSn	15:39.50		-1.38
ISR	425.2	96	ePnC	22:14:59.93		1.36
ZST	429.6	314	e n	22:14:58.00		-1.12
VRI	436.4	85	ePnD	22:15:01.33		1.36
ARSA	474.1	294	iPnC	22:15:05.00		0.33
			iSn	15:54.30		-1.83
VAY	479.2	166	ePn	22:15:04.50		-0.80
OHR	489.2	183	ePn	22:15:08.60		2.04
OKC	531.6	335	ePn	22:15:13.40		1.56
TLB	552.0	101	ePnC	22:15:13.49		-0.90
VOY	567.3	276	eSn	22:16:44.30		27.49
MOA	587.4	296	iPnC	22:15:20.10		1.30
			iSn	16:20.80		-0.47
KBA	626.1	286	iPnC	22:15:23.60		-0.02
			iSn	16:28.10		-1.76
KHC	699.9	305	ePn	22:15:32.00		-0.82
			eSn	16:41.50		-4.73
PRU	702.6	315	Pn	22:15:31.90		-1.26
			eSn	16:52.90		6.06



104.

2000- 8-21 time: 9:20:31.61 UTC ML= 1.3
lat: 45.671N lon: 18.535E h= 0.1 km
erh= ***km erz= ***km
nr= 5 gap=310 rms=1.03
Locality: Croatia
Comments:

sta	dist	azm	phase	hr mn	sec	res
RHK3	32.8	318	ePg	9:20:37.50		0.03
			eSg	20:40.30		-1.75
PKSM	60.7	8	ePgC	9:20:42.90		0.45
			eSg	20:49.20		-1.70
PKS9	103.7	349	eSg	9:21:05.70		1.12

105.

2000- 8-21 time: 9:35:14.59 UTC ML= 2.3
lat: 47.488N lon: 18.433E h= 10.0 km
erh= 8.7km erz= 1.0km
nr= 5 gap=347 rms=0.82
Locality: Vértes mt.
Comments: explosion

sta	dist	azm	phase	hr mn	sec	res
PKSC	12.0	179	iPgC	9:35:17.10		-0.28
			eSg	35:17.90		-1.66
PKS9	100.9	187	iPgC	9:35:33.60		0.90
PKSM	142.8	174	Pn	9:35:38.20		0.04
			eSn	35:54.60		-1.94

106.

2000- 8-21 time: 9:37:33.12 UTC ML= 2.3
lat: 47.482N lon: 18.444E h= 10.0 km
erh=18.1km erz= 2.1km
nr= 6 gap=347 rms=0.60
Locality: Vértes mt.
Comments: explosion

sta	dist	azm	phase	hr mn	sec	res
PKSC	11.3	182	iPgC	9:37:35.50		-0.32
			eSg	37:36.90		-1.02
PKS9	100.3	187	iPgC	9:37:52.00		0.87
			eSg	38:04.50		-0.67
PKSM	142.0	174	iPnC	9:37:56.60		0.01
			eSn	38:14.30		-0.59

Hypocenter Parameters

107.

2000- 8-29 time: 10:12:19.99 UTC ML= 2.0
lat: 47.431N lon: 18.414E h= 10.0 km
erh=12.3km erz= 1.5km
nr= 6 gap=336 rms=0.90
Locality: Vértes mt.
Comments: explosion

sta	dist	azm	phase	hr mn	sec	res
PKSC	5.8	163	iPgC	10:12:21.60		-0.46
			eSg	12:22.20		-1.47
PKS9	94.3	186	iPgC	10:12:38.10		1.17
			eSg	12:50.10		-0.05
PKSM	136.6	173	iPnC	10:12:42.70		-0.08
			eSn	12:57.80		-2.75

108.

2000- 8-29 time: 10:25:07.69 UTC ML= 1.8
lat: 47.484N lon: 18.444E h= 10.0 km
erh=12.6km erz= 1.5km
nr= 6 gap=347 rms=0.55
Locality: Vértes mt.
Comments: explosion

sta	dist	azm	phase	hr mn	sec	res
PKSC	11.5	182	iPgC	10:25:10.10		-0.31
			eSg	25:11.30		-1.23
PKS9	100.5	187	iPgC	10:25:26.50		0.77
			eSg	25:39.40		-0.39
PKSM	142.2	174	iPnC	10:25:31.20		0.02
			eSn	25:49.00		-0.50

109.

2000- 9-01 time: 12:30:36.74 UTC ML= 1.6
lat: 47.764N lon: 19.460E h= 10.0 km
erh= ---km erz= ---km
nr= 4 gap=289 rms=0.75
Locality: Erdőkürt
Comments:

sta	dist	azm	phase	hr mn	sec	res
PENC	13.7	282	iPgC	12:30:39.40		-0.37
			eSg	30:42.50		0.37
PKS8	114.9	211	ePn	12:30:57.90		1.08
			eSn	31:10.80		-1.69

110.

2000- 9-05 time: 23:54:42.68 UTC ML= 1.5
lat: 47.937N lon: 16.455E h= 6.3 km
erh= 3.3km erz= 3.7km
nr= 11 gap= 58 rms=0.67
Locality: Austria
Comments:

sta	dist	azm	phase	hr mn	sec	res
SOP	29.3	165	iPgD	23:54:48.50		0.47
			iSg	54:52.50		0.30
VKA	37.8	344	iPgC	23:54:49.90		0.38
			iSg	54:55.00		0.14
ZST	56.2	59	iPg	23:54:52.50		-0.28
			eSg	54:59.80		-0.86
ARSA	103.6	223	iPgC	23:55:00.50		-0.72
			iSg	55:13.00		-2.68
VRAC	152.9	4	Pn	23:55:07.00		-0.97
			Sn	55:24.70		-3.00
PKSC	161.3	113	ePn	23:55:09.10		0.08
			eSn	55:29.90		0.33
MOA	164.0	267	iPnC	23:55:09.40		0.04
			iSn	55:29.40		-0.77
ETYK	180.6	108	iPnC	23:55:15.20		3.77
			eSn	55:36.30		2.44
GEC2	227.5	296	ePn	23:55:19.30		2.02
			eSn	55:44.70		0.43
OKC	244.7	30	eSn	23:55:45.30		-2.78
KHC	250.5	302	ePn	23:55:22.00		1.86
			eSn	55:50.00		0.63
PRU	267.7	328	Pn	23:55:22.50		0.21
			Sn	55:52.30		-0.88
DPC	269.3	359	eSn	23:55:58.80		5.27

111.

2000- 9-08 time: 9:59:47.32 UTC ML= 2.7
lat: 47.400N lon: 18.257E h= 7.4 km
erh= 7.5km erz= 4.6km
nr= 6 gap=276 rms=0.73
Locality: Vértes mt.
Comments: explosion

sta	dist	azm	phase	hr mn	sec	res
PKSC	13.8	99	iPgC	9:59:49.80		-0.31
			iSg	59:51.40		-0.89
ETYK	37.1	83	ePg	9:59:54.70		0.63
			eSg	10:00:01.00		1.66
PKSM	135.3	167	iPnC	9:60:10.90		0.63
			eSn	60:27.30		-0.87

112.

2000- 9-13 time: 9:33:40.55 UTC ML= 1.6
lat: 47.484N lon: 18.492E h= 10.0 km
erh=32.0km erz= 7.4km
nr= 6 gap=336 rms=0.72
Locality: Vértes mt.
Comments: explosion

sta	dist	azm	phase	hr mn	sec	res
PKSC	12.2	200	iPgC	9:33:43.00		-0.37
			eSg	33:43.70		-1.86
PKS9	101.0	189	iPgC	9:33:59.50		0.82
			eSg	34:13.50		0.69
PKSM	141.8	175	iPnC	9:34:03.90		-0.10
			eSn	34:21.00		-1.28

113.

2000- 9-18 time: 8:58:09.16 UTC ML= 0.3
lat: 45.830N lon: 18.449E h= 1.4 km
erh= ---km erz= ---km
nr= 4 gap=275 rms=0.14
Locality: Villányi mt.
Comments: explosion

sta	dist	azm	phase	hr mn	sec	res
RHK3	16.6	294	ePgC	8:58:12.00		-0.14
			eSg	58:14.60		0.13
PKSM	45.0	19	iPgD	8:58:17.30		0.10
			eSg	58:23.20		-0.28

114.

2000- 9-18 time: 13:44:56.88 UTC ML= 1.8
lat: 47.278N lon: 19.243E h= 10.0 km
erh=13.7km erz=34.0km
nr= 8 gap=278 rms=0.85
Locality: Ócsa
Comments:

sta	dist	azm	phase	hr mn	sec	res
BUD	28.2	324	PgD	13:45:02.00		-0.22

```
                  eSg       45:07.00     0.62
ETYK  41.7 296    iPgC   13:45:05.30     0.76
                  eSg       45:09.40    -1.11
PENC  57.0   3    iPgD   13:45:07.40     0.19
                  eSg       45:13.00    -2.27
PKSC  62.0 281    ePgD   13:45:08.10     0.02
                  eSg       45:14.40    -2.42

115.
```

```
 2000- 9-19  time:  8:19:45.10 UTC  ML=-0.1
   lat: 45.808N  lon: 18.449E  h=  5.3 km
                 erh= ---km    erz= ---km
   nr=  4        gap=283       rms=0.01
   Locality: Villányi mt.
   Comments: explosion

sta   dist azm  phase  hr mn  sec     res
RHK3  17.8 301   iPgD    8:19:48.40   -0.01
                 eSg       19:51.00    0.01
PKSM  47.3  18   iPgC    8:19:53.60    0.01
                 eSg       20:00.20   -0.02

116.
```

```
 2000- 9-19  time: 10:52:43.93 UTC  ML= 0.9
   lat: 45.903N  lon: 18.715E  h=  4.9 km
                 erh= ---km    erz= ---km
   nr=  4        gap=277       rms=0.01
   Locality: Hungary-Croatia border
   Comments:

sta   dist azm  phase  hr mn  sec     res
PKSM  34.8 351   iPgD  10:52:50.20   -0.01
                 eSg       52:55.10    0.00
RHK3  35.8 268   ePg   10:52:50.40    0.02
                 eSg       52:55.40   -0.02

117.
```

```
 2000- 9-20  time:  9:42:07.09 UTC  ML= 1.8
   lat: 47.400N  lon: 18.348E  h=  6.8 km
                 erh=13.7km    erz= 5.4km
   nr=  8        gap=258       rms=0.97
   Locality: Vértes mt.
   Comments: explosion

sta   dist azm  phase  hr mn  sec     res
PKSC   7.1 108   iPgC   9:42:08.40   -0.44
                 iSg       42:09.30   -0.91
ETYK  30.3  82   ePgC   9:42:13.40    0.77
                 eSg       42:18.00    1.04
PKS9  90.6 183   iPgD   9:42:24.80    1.50
                 eSg       42:37.80    1.85
PKSM 134.0 170   iPnC   9:42:29.60   -0.36
                 eSn       42:45.60   -2.20

118.
```

```
 2000- 9-20  time: 10:17:56.25 UTC  ML= 1.4
   lat: 47.720N  lon: 17.960E  h= 10.0 km
                 erh=52.2km    erz=33.1km
   nr=  5        gap=260       rms=1.08
   Locality: Ács
   Comments:

sta   dist azm  phase  hr mn  sec     res
SRO   28.5  69   e g    10:18:01.20   -0.44
PKSC  52.1 136   iPgC   10:18:04.50   -1.22
                 eSg       18:09.60   -3.51
ETYK  66.7 118   ePgD   10:18:09.20    0.90
PKS9 128.3 169   ePn    10:18:20.10    2.10
PKSM 175.5 163   iPnC   10:18:23.90    0.01
                 eSn       18:42.90   -2.55

119.
```

```
 2000- 9-22  time:  5:28:54.98 UTC  ML= 1.8
   lat: 45.680N  lon: 18.836E  h=  7.9 km
                 erh= 5.1km    erz=28.6km
   nr=  6        gap=312       rms=0.25
   Locality: Croatia
   Comments:

sta   dist azm  phase  hr mn  sec     res
RHK3  51.0 297   iPgD   5:29:04.10   -0.09
                 eSg       29:11.60    0.22
PKSM  61.0 346   iPgC   5:29:05.90   -0.06
                 eSg       29:14.40   -0.12
PKS9 109.6 337   ePgC   5:29:15.20    0.60
                 eSg       29:29.50   -0.40

120.
```

```
 2000- 9-23  time:  0:08:15.48 UTC  ML= 1.8
   lat: 46.585N  lon: 20.008E  h= 10.0 km
                 erh=17.7km    erz=14.8km
   nr=  8        gap=295       rms=0.63
   Locality: Pusztaszer
   Comments:

sta   dist azm  phase  hr mn  sec     res
RHK2 106.5 242   iP*D   0:08:34.70    0.20
                 eS*       08:51.20    1.87
PKSM 113.0 248   iPnC   0:08:34.90   -0.42
                 eSn       08:50.80    0.00
PKS9 132.5 270   iPnD   0:08:37.30   -0.46
                 iSn       08:54.80   -0.33
PKSC 148.7 307   ePn    0:08:41.40    1.63
                 eSn       08:59.30    0.58

121.
```

```
 2000- 9-26  time:  9:18:37.46 UTC  ML= 1.4
   lat: 47.371N  lon: 18.434E  h= 10.0 km
                 erh= ---km    erz= ---km
   nr=  4        gap=198       rms=0.49
   Locality: Vértes mt.
   Comments: explosion

sta   dist azm  phase  hr mn  sec     res
PKSC   1.1  11   iPgC   9:18:38.90   -0.35
                 eSg       18:40.70    0.05
PKSM 129.8 173   iPnC   9:19:00.00    0.60
                 eSn       19:15.70   -0.81

122.
```

```
 2000- 9-29  time: 22:09:14.35 UTC  ML= 1.9
   lat: 47.846N  lon: 17.324E  h=  1.1 km
                 erh= 4.8km    erz= 6.4km
   nr=  6        gap=136       rms=0.43
   Locality: Máriakálnok
   Comments:

sta   dist azm  phase  hr mn  sec     res
ZST   42.3 337   ePg    22:09:21.80   -0.11
                 eSg       09:27.80    0.00
SOP   60.2 253   iPgD   22:09:25.00   -0.10
                 eSg       09:31.30   -2.18
PKSC  98.4 122   iPgD   22:09:31.60   -0.32
                 eSg       09:43.50   -2.13
ETYK 115.9 113   iPgC   22:09:35.40    0.35
ARSA 150.8 244   iPnC   22:09:40.10    0.05
```

Hypocenter Parameters

		iSn	09:58.30	-1.79
MOA	228.9	270	iPnC	22:09:54.70	4.92
			iSn	10:22.90	5.49

123.

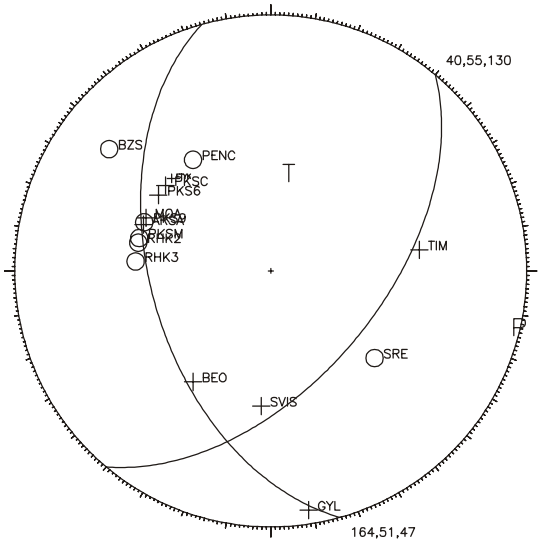
2000-10-04 time: 14:18:48.88 UTC ML= 1.5
lat: 47.657N lon: 16.070E h= 10.0 km
erh= 8.2km erz= 6.5km
nr= 15 gap=137 rms=2.03
Locality: Austria
Comments: felt 4 EMS

sta	dist	azm	phase	hr mn	sec	res
SOP	36.8	85	iPgC	14:18:56.80		1.12
			iSg	19:01.90		0.91
ARSA	61.2	222	iPgC	14:18:59.40		-0.55
			iSg	19:06.30		-2.29
ZST	97.7	52	iPg	14:19:03.20		-3.22
			eSg	19:15.30		-4.80
MOA	137.0	279	iPnC	14:19:11.70		-0.02
			iSn	19:27.40		-2.13
OBKA	172.1	222	iPnC	14:19:18.80		2.70
			iSn	19:39.00		1.67
KBA	215.7	253	iPnC	14:19:23.10		1.57
			iSn	19:50.90		3.90
KHC	246.9	312	ePn	14:19:27.60		2.19
			eSn	19:56.50		2.59
PRU	282.5	337	Pn	14:19:36.80		6.94
			Sn	20:05.30		3.47
DPC	301.5	5	eSn	14:20:13.80		7.77
WTTA	337.2	263	iPnC	14:19:39.10		2.42
			iSn	20:13.80		-0.16

124.

2000-10-05 time: 23:04:11.92 UTC ML= 3.3
lat: 45.750N lon: 21.366E h= 10.0 km
erh= 6.2km erz= 3.9km
nr= 15 gap=111 rms=1.26
Locality: Romania
Comments:

sta	dist	azm	phase	hr mn	sec	res
TIM	11.4	262	iPgC	23:04:15.14		0.52
BZS	24.5	127	iPgD	23:04:15.73		-0.91
GYL	95.4	351	iPgC	23:04:29.50		0.45
			iSg	04:42.70		0.28
BEO	125.5	215	iPnC	23:04:32.00		-1.32
			iSn	04:50.10		0.08
SVIS	162.0	184	iPnC	23:04:44.10		6.23
			iSn	05:04.60		6.48
PKS6	168.1	304	iPnC	23:04:38.80		0.17
			iSn	04:58.90		-0.57
SRE	188.5	130	iPnD	23:04:42.50		1.33
RHK2	204.3	282	iPnD	23:04:42.50		-0.65
PKSM	217.3	284	iPnD	23:04:44.10		-0.66
			eSn	05:07.60		-2.78
RHK3	242.3	274	iPnD	23:04:47.10		-0.79
			eSn	05:20.40		4.45
PKS9	255.9	291	iPnD	23:04:49.20		-0.38
			iSn	05:17.90		-1.06
ETYK	275.0	313	ePnC	23:04:52.40		0.44
			iSn	05:31.90		8.70
PENC	277.1	325	iPnD	23:04:52.30		0.08
PKSC	288.6	309	iPnC	23:04:53.30		-0.35
			eSn	05:35.50		9.30
MTUR	294.9	101	iPn	23:04:56.50		2.06
SRO	327.0	315	ePn	23:04:59.70		1.25
			eSn	05:48.00		13.26
MLR	358.2	95	ePn	23:05:03.50		1.17
ISR	410.9	100	iPn	23:05:11.00		2.10
PTJ	419.4	272	ePn	23:05:09.50		-0.47
			eSn	05:59.50		4.25
ZST	423.3	310	ePn	23:05:07.40		-3.05
			eSn	05:49.20		-6.91
ARSA	478.5	290	iPnC	23:05:17.30		-0.04
			iSn	06:05.20		-3.16
MOA	590.1	293	iPnC	23:05:32.60		1.35
			iSn	06:33.20		0.06



125.

2000-10-07 time: 0:42:11.77 UTC ML= 2.1
lat: 47.390N lon: 19.135E h= 12.6 km
erh= 6.1km erz= 5.0km
nr= 11 gap=198 rms=0.47
Locality: Budapest
Comments: felt 4 EMS

sta	dist	azm	phase	hr mn	sec	res
BUD	13.4	321	iPgD	0:42:14.70		-0.36
ETYK	30.0	281	iPgD	0:42:17.70		0.12
			iSg	42:23.00		0.89
PKSC	52.7	269	iPg	0:42:21.40		-0.05
			iSg	42:28.80		-0.20
PKS6	93.7	160	iP*C	0:42:28.80		0.22
			eS*	42:42.10		0.40
PKS9	110.5	216	iPnD	0:42:31.10		0.13
			iSn	42:47.10		1.16
PKSM	136.3	196	iPnD	0:42:33.80		-0.38
			iSn	42:50.60		-1.06
GYL	178.0	120	eSn	0:43:03.60		2.68

126.

2000-10-08 time: 15:33:40.86 UTC ML= 1.8
lat: 45.720N lon: 17.492E h= 10.0 km
erh=20.6km erz=11.4km
nr= 8 gap=219 rms=1.00
Locality: Croatia
Comments:

sta	dist	azm	phase	hr mn	sec	res
RHK3	62.2	72	iPgD	15:33:51.20		-0.91
			eSg	34:11.20		10.31
PKSM	104.5	58	iP*D	15:33:59.90		0.33
			eS*	34:23.80		9.64
PKS9	113.9	32	ePn	15:34:01.80		0.98
			eSn	34:38.40		22.02
PKSC	198.3	21	ePn	15:34:12.40		1.06
			eSn	35:00.90		25.79

```
ARSA 227.6 318   iPnC  15:34:14.00   -0.99
                 iSn      34:49.20    7.59
OBKA 243.8 291   iPnC  15:34:18.40    1.39
                 iSn      34:57.60   12.38
MOA  341.6 314   iPnC  15:34:28.00   -1.21
                 iSn      35:15.20    8.27
KHC  480.6 322   ePn   15:34:44.50   -2.04
```

127.

```
 2000-10-09  time: 10:21:54.24 UTC  ML= 1.4
   lat: 47.354N  lon: 18.328E  h=  4.0 km
                 erh= 6.6km    erz= 5.0km
   nr=  6        gap=261       rms=0.39
   Locality: Vértes mt.
   Comments: explosion

sta   dist azm  phase  hr mn  sec     res
PKSC   8.8  70   iPgC  10:21:55.80   -0.16
                 iSg      21:57.00   -0.30
ETYK  32.9  73   ePgD  10:22:00.70    0.55
                 eSg      22:06.00    1.23
PKSM 129.2 169   iPnC  10:22:17.00    0.14
                 eSn      22:33.80   -0.71
```

128.

```
 2000-10-11  time:  9:57:02.37 UTC  ML= 1.3
   lat: 47.363N  lon: 18.439E  h=  7.6 km
                 erh= ---km    erz= ---km
   nr=  4        gap=184       rms=0.03
   Locality: Vértes mt.
   Comments: explosion

sta   dist azm  phase  hr mn  sec     res
PKSC   1.9 357   ePgC   9:57:03.80    0.04
                 eSg      57:04.80   -0.05
PKSM 128.9 173   ePnC   9:57:24.50   -0.02
                 eSn      57:41.80    0.01
```

129.

```
 2000-10-13  time: 11:41:19.60 UTC  ML= 2.6
   lat: 45.805N  lon: 17.885E  h=  3.1 km
                 erh= 3.4km    erz= 2.1km
   nr=  8        gap=240       rms=0.38
   Locality: Zaláta
   Comments:

sta   dist azm  phase  hr mn  sec     res
RHK3  30.3  72   ePgD  11:41:25.10    0.07
                 eSg      41:29.50    0.23
PKSM  74.0  52   ePgD  11:41:32.50   -0.33
                 eSg      41:42.30   -0.85
PKS9  92.1  19   ePgD  11:41:36.50    0.45
                 eSg      41:49.00    0.12
PKS2 127.9  53   eSn   11:42:00.10    0.30
ARSA 242.2 312   iPnD  11:41:55.90   -0.53
VOY  310.7 275   ePn   11:42:12.20    7.23
                 eSn      42:52.10   11.74
MOA  357.6 309   iPnC  11:42:10.80   -0.02
```

130.

```
 2000-10-13  time: 11:55:47.79 UTC  ML= 1.9
   lat: 45.690N  lon: 18.093E  h= 18.5 km
                 erh= 3.6km    erz= 0.7km
   nr=  6        gap=332       rms=0.13
   Locality: Croatia
   Comments:

sta   dist azm  phase  hr mn  sec     res
RHK3  25.7  29   iPgD  11:55:53.40   -0.04
                 eSg      55:57.90    0.06
PKSM  71.9  36   iP*D  11:56:00.90    0.16
                 eS*      56:10.60   -0.24
PKS9 100.7   8   iPnC  11:56:04.90   -0.12
                 eSn      56:18.60    0.15
```

131.

```
 2000-10-16  time:  9:55:49.86 UTC  ML= 1.6
   lat: 47.368N  lon: 18.430E  h=  7.0 km
                 erh= ---km    erz= ---km
   nr=  4        gap=209       rms=0.06
   Locality: Vértes mt.
   Comments: explosion

sta   dist azm  phase  hr mn  sec     res
PKSC   1.6  22   iPgC   9:55:51.10   -0.04
                 eSg      55:52.20    0.07
PKSM 129.5 173   iPnD   9:56:12.20    0.05
                 eSn      56:29.40   -0.13
```

132.

```
 2000-10-20  time:  9:53:29.58 UTC  ML= 1.3
   lat: 47.463N  lon: 18.493E  h=  6.9 km
                 erh=12.3km    erz= 5.7km
   nr=  7        gap=323       rms=0.51
   Locality: Vértes mt.
   Comments: explosion

sta   dist azm  phase  hr mn  sec     res
PKSC  10.1 205   iPgC   9:53:31.50   -0.25
                 eSg      53:32.60   -0.85
PKS8  66.4 168   ePg    9:53:41.60    0.10
                 eSg      53:50.90    0.09
PKS9  98.7 189   iPgC   9:53:47.90    0.65
PKSM 139.6 175   ePnC   9:53:52.60   -0.53
                 eSn      54:08.10   -3.41
```

133.

```
 2000-10-22  time:  6:22:55.12 UTC  ML= 1.2
   lat: 46.960N  lon: 19.347E  h= 10.0 km
                 erh= 4.3km    erz=27.1km
   nr= 10        gap=156       rms=0.91
   Locality: Kunbaracs
   Comments:

sta   dist azm  phase  hr mn  sec     res
PKSN  40.3 100   ePg    6:23:02.00   -0.52
                 eSg      23:09.70    1.40
PKS8  51.8 260   iPgD   6:23:04.60    0.06
                 eSg      23:09.60   -2.30
PKSC  83.3 304   iPgC   6:23:10.60    0.49
                 eSg      23:20.10   -1.70
PKS9  91.5 243   iPgD   6:23:12.70    1.15
                 eSg      23:24.00   -0.37
PKSM  99.2 213   iPgD   6:23:12.40   -0.51
                 eSg      23:25.00   -1.79
```

134.

```
 2000-10-24  time:  9:55:09.45 UTC  ML= 1.5
   lat: 47.381N  lon: 18.263E  h=  5.1 km
                 erh= 6.4km    erz= 5.4km
   nr=  7        gap=272       rms=0.47
   Locality: Vértes mt.
   Comments: explosion

sta   dist azm  phase  hr mn  sec     res
PKSC  13.1  90   iPgC   9:55:11.70   -0.26
```

Hypocenter Parameters

```
                 eSg      55:13.10   -0.82
ETYK  37.0  80   ePgC   9:55:16.30    0.19
                 eSg      55:21.90    0.60
PKS8  64.0 151   eSg    9:55:30.20    0.34
PKSM 133.1 167   ePnC   9:55:32.90    0.47
                 eSn      55:49.10   -1.26

135.
```

```
 2000-10-30  time: 10:14:18.50 UTC  ML= 1.3
   lat: 47.385N  lon: 18.459E  h=  8.3 km
                 erh= ---km    erz= ---km
   nr=  4        gap=281       rms=0.22
   Locality: Vértes mt.
   Comments: explosion

sta   dist azm  phase  hr mn  sec     res
PKSC   1.8 253   ePgC  10:14:20.00   -0.02
                 eSg      14:21.10   -0.10
PKSM 131.2 174   ePnC  10:14:41.10    0.27
                 eSn      14:57.80   -0.45

136.
```

```
 2000-11-01  time: 22:18:42.47 UTC  ML= 1.8
   lat: 45.690N  lon: 17.646E  h= 10.0 km
                 erh=18.0km    erz= 7.9km
   nr=  9        gap=317       rms=0.43
   Locality: Croatia
   Comments:

sta   dist azm  phase  hr mn  sec     res
PKSM  96.5  53   iPgD  22:19:00.00    0.20
                 eSg      20:11.90   -1.41
RHK2 101.3  61   ePgC  22:19:01.00    0.36
                 eSg      19:14.60   -0.22
PKS9 111.0  26   iPnD  22:19:02.60    0.53
                 iSn      19:17.60    0.25
PKS8 154.1  31   iPnD  22:19:06.80   -0.64
                 eSn      19:26.70   -0.22
PKSC 197.5  18   iPnC  22:19:12.60   -0.24

137.
```

```
 2000-11-02  time: 10:10:27.74 UTC  ML=-0.1
   lat: 45.819N  lon: 18.385E  h= 10.0 km
                 erh= 5.0km    erz= 5.1km
   nr=  5        gap=284       rms=0.65
   Locality: Villányi mt.
   Comments: explosion

sta   dist azm  phase  hr mn  sec     res
RHK3  13.0 308   ePg   10:10:30.50   -0.18
                 eSg      10:32.90   -0.07
PKSM  48.0  24   iPgD  10:10:36.30   -0.20
                 eSg      10:42.30   -1.03
PKS9  85.8 355   ePg   10:10:44.50    1.33

138.
```

```
 2000-11-06  time: 13:58:14.18 UTC  ML= 1.5
   lat: 47.699N  lon: 18.443E  h= 11.7 km
                 erh= 3.0km    erz= 1.8km
   nr=  7        gap=321       rms=0.17
   Locality: Dunaszentmiklós
   Comments:

sta   dist azm  phase  hr mn  sec     res
PKSC  35.4 181   ePgD  13:58:20.60   -0.23
                 eSg      58:26.20    0.18
ETYK  36.6 142   ePgD  13:58:21.00   -0.04
                 eSg      58:26.30   -0.10
PKS8  92.9 169   iPgD  13:58:31.10    0.20
                 eSg      58:43.60   -0.33
PKSM 166.0 175   iPnD  13:58:40.40   -0.02
139.
```

```
 2000-11-13  time: 10:18:36.13 UTC  ML= 2.0
   lat: 47.385N  lon: 18.331E  h= 10.0 km
                 erh= 1.3km    erz= 0.4km
   nr=  5        gap=269       rms=0.77
   Locality: Vértes mt.
   Comments: explosion

sta   dist azm  phase  hr mn  sec     res
PKSC   8.0  93   iPgC  10:18:38.20   -0.21
                 iSg      18:39.40   -0.80
ETYK  31.8  79   ePgC  10:18:43.30    1.22
                 eSg      18:48.20    1.48
PKSM 132.5 170   eSn   10:19:15.60   -0.18

140.
```

```
 2000-11-16  time: 11:13:40.44 UTC  ML= 1.4
   lat: 47.401N  lon: 18.299E  h= 10.0 km
                 erh= 2.4km    erz= 1.0km
   nr=  6        gap=274       rms=0.81
   Locality: Vértes mt.
   Comments: explosion

sta   dist azm  phase  hr mn  sec     res
PKSC  10.7 102   iPgC  11:13:42.30   -0.76
                 eSg      13:43.30   -1.79
ETYK  33.9  83   iPgC  11:13:47.50    0.74
                 eSg      13:52.50    0.81
PKSM 134.7 169   ePn   11:14:03.50    0.50
                 eSn      14:20.30   -0.29

141.
```

```
 2000-11-20  time: 10:47:26.98 UTC  ML= 1.5
   lat: 47.462N  lon: 18.440E  h=  0.1 km
                 erh= ---km    erz= ---km
   nr=  4        gap=343       rms=0.05
   Locality: Vértes mt.
   Comments: explosion

sta   dist azm  phase  hr mn  sec     res
PKSC   9.0 181   iPgC  10:47:28.60    0.01
                 eSg      47:29.70   -0.14
PKS8  67.2 165   iPgC  10:47:39.00    0.01
                 eSg      47:48.40    0.05

142.
```

```
 2000-11-23  time:  2:32:14.83 UTC  ML= 2.1
   lat: 46.908N  lon: 19.153E  h= 10.0 km
                 erh= 3.1km    erz= 3.0km
   nr= 12        gap=207       rms=0.46
   Locality: Kunadacs
   Comments: felt

sta   dist azm  phase  hr mn  sec     res
PKS8  36.5 265   iPgD   2:32:22.50    0.92
                 eSg      32:26.10   -0.75
BUD   64.7 351   iPg    2:32:26.50   -0.03
                 iSg      32:36.00    0.35
ETYK  66.8 332   iPgC   2:32:26.50   -0.39
                 eSg      32:36.10   -0.19
PKSC  75.6 314   iPgC   2:32:28.50    0.06
                 eSg      32:37.80   -1.26
RHK2  90.8 198   ePgD   2:32:31.10   -0.04
                 eSg      32:43.30   -0.56
RHK3 132.5 211   iPnD   2:32:36.80   -0.30
                 eSn      32:55.00    0.52
```

143.

2000-11-23 time: 12:30:35.92 UTC ML= 1.1
lat: 47.569N lon: 18.736E h= 4.1 km
erh= 1.6km erz= 3.5km
nr= 5 gap=310 rms=0.05
Locality: Tök
Comments:

sta	dist	azm	phase	hr mn	sec	res
ETYK	14.3	177	ePgC	12:30:38.50		-0.08
			eSg	30:40.70		0.05
PKSC	30.8	227	iPgD	12:30:41.50		0.04
			eSg	30:45.70		-0.09
PKS8	76.9	183	ePg	12:30:49.70		0.03

144.

2000-12-01 time: 3:35:45.92 UTC ML= 2.0
lat: 47.344N lon: 18.467E h= 0.9 km
erh= 6.2km erz=53.2km
nr= 7 gap=141 rms=0.62
Locality: Csákvár
Comments:

sta	dist	azm	phase	hr mn	sec	res
PKSC	4.6	331	iPgD	3:35:46.40		-0.37
			eSg	35:47.90		0.47
ETYK	23.5	63	iPgC	3:35:50.70		0.58
			iSg	35:52.60		-0.80
PKS9	85.4	190	iPgD	3:36:01.20		0.03
			eSg	36:12.00		-1.07
PKSN	117.3	115	eSg	3:36:24.40		1.19

145.

2000-12-04 time: 4:01:50.19 UTC ML= 2.1
lat: 46.585N lon: 21.289E h= 19.1 km
erh= 6.6km erz= 1.6km
nr= 12 gap=235 rms=0.75
Locality: Elek
Comments:

sta	dist	azm	phase	hr mn	sec	res
GYL	9.3	279	iPgC	4:01:53.65		-0.35
			iSg	01:57.20		0.23
TIM	94.5	183	iS*	4:02:19.50		0.24
BZS	110.5	167	iPnC	4:02:08.60		0.04
			iSn	02:22.50		-0.38
PKSN	114.1	288	iPnC	4:02:08.80		-0.20
			eSn	02:23.00		-0.68
RHK2	199.0	255	ePnC	4:02:22.70		3.11
PKSM	207.8	258	ePn	4:02:19.70		-0.99
			eSn	02:47.10		2.62
PKS9	230.7	270	ePnC	4:02:28.30		4.75
			eSn	02:55.20		5.64
PKSC	234.3	292	iPnC	4:02:23.40		-0.60
			eSn	02:57.80		7.43

146.

2000-12-04 time: 10:51:25.33 UTC ML= 1.5
lat: 47.366N lon: 18.310E h= 6.4 km
erh= 2.6km erz= 1.4km
nr= 6 gap=267 rms=0.44
Locality: Vértes mt.
Comments: explosion

sta	dist	azm	phase	hr mn	sec	res
PKSC	9.8	80	iPgC	10:51:27.00		-0.41
			eSg	51:28.00		-1.04
ETYK	33.9	76	iPgC	10:51:31.80		0.32
			eSg	51:37.00		0.72
PKSM	130.7	169	ePnC	10:51:48.10		0.26
			eSn	52:05.40		-0.01

147.

2000-12-05 time: 11:41:08.73 UTC ML= 0.0
lat: 45.810N lon: 18.420E h= 0.4 km
erh= 3.4km erz=99.3km
nr= 5 gap=284 rms=0.58
Locality: Villányi mt.
Comments: explosion

sta	dist	azm	phase	hr mn	sec	res
RHK3	15.8	305	ePgC	11:41:11.40		-0.15
			eSg	41:13.30		-0.45
PKSM	47.9	21	iPgC	11:41:17.20		-0.08
			eSg	41:23.00		-0.94
PKS9	87.1	353	ePgC	11:41:25.40		1.12

148.

2000-12-07 time: 9:50:26.05 UTC ML= 0.0
lat: 45.795N lon: 18.457E h= 0.6 km
erh= 1.4km erz=30.0km
nr= 5 gap=287 rms=0.47
Locality: Villányi mt.
Comments: explosion

sta	dist	azm	phase	hr mn	sec	res
RHK3	19.1	304	ePgC	9:50:29.30		-0.16
			eSg	50:31.90		-0.22
PKSM	48.5	17	ePgC	9:50:34.50		-0.20
			eSg	50:40.90		-0.55
PKS9	89.1	351	ePg	9:50:42.80		0.84

149.

2000-12-18 time: 22:37:05.47 UTC ML= 1.7
lat: 47.342N lon: 19.665E h= 12.7 km
erh= 5.5km erz= 3.7km
nr= 10 gap=250 rms=0.46
Locality: Tápiószentmárton
Comments:

sta	dist	azm	phase	hr mn	sec	res
PKSN	51.8	163	iPgD	22:37:14.90		-0.10
			eSg	37:22.30		-0.13
PKS6	82.9	185	iPgD	22:37:20.70		0.25
			eSg	37:32.20		0.07
PKSC	92.9	273	iP*C	22:37:22.60		0.44
			eS*	37:34.30		-0.87
PKS9	134.8	231	iPnD	22:37:27.10		-0.59
			eSn	37:46.20		1.17
PKSM	148.0	212	ePn	22:37:28.80		-0.54
			eSn	37:48.70		0.75

150.

2000-12-23 time: 21:26:28.85 UTC ML= 2.0
lat: 47.796N lon: 20.022E h= 10.3 km
erh= 9.9km erz= 5.9km
nr= 12 gap=298 rms=1.08
Locality: Visonta
Comments: felt

sta	dist	azm	phase	hr mn	sec	res
PKSN	100.6	187	iPgD	21:26:46.70		-0.21
			eSg	27:01.50		0.50
ETYK	103.9	248	eP*C	21:26:47.30		-0.13
			eS*	27:02.40		0.47
PKSC	127.9	249	ePn	21:26:51.00		0.49
			eSn	27:09.20		1.79
PKS6	137.4	195	ePnC	21:26:52.90		1.20
			eSn	27:09.20		-0.33
PKS8	144.1	225	iPnC	21:26:51.10		-1.43
			eSn	27:09.50		-1.50
PKS9	188.5	225	iPnC	21:27:01.40		3.33
PKSM	205.1	211	iPnC	21:26:58.40		-1.74

Hypocenter Parameters

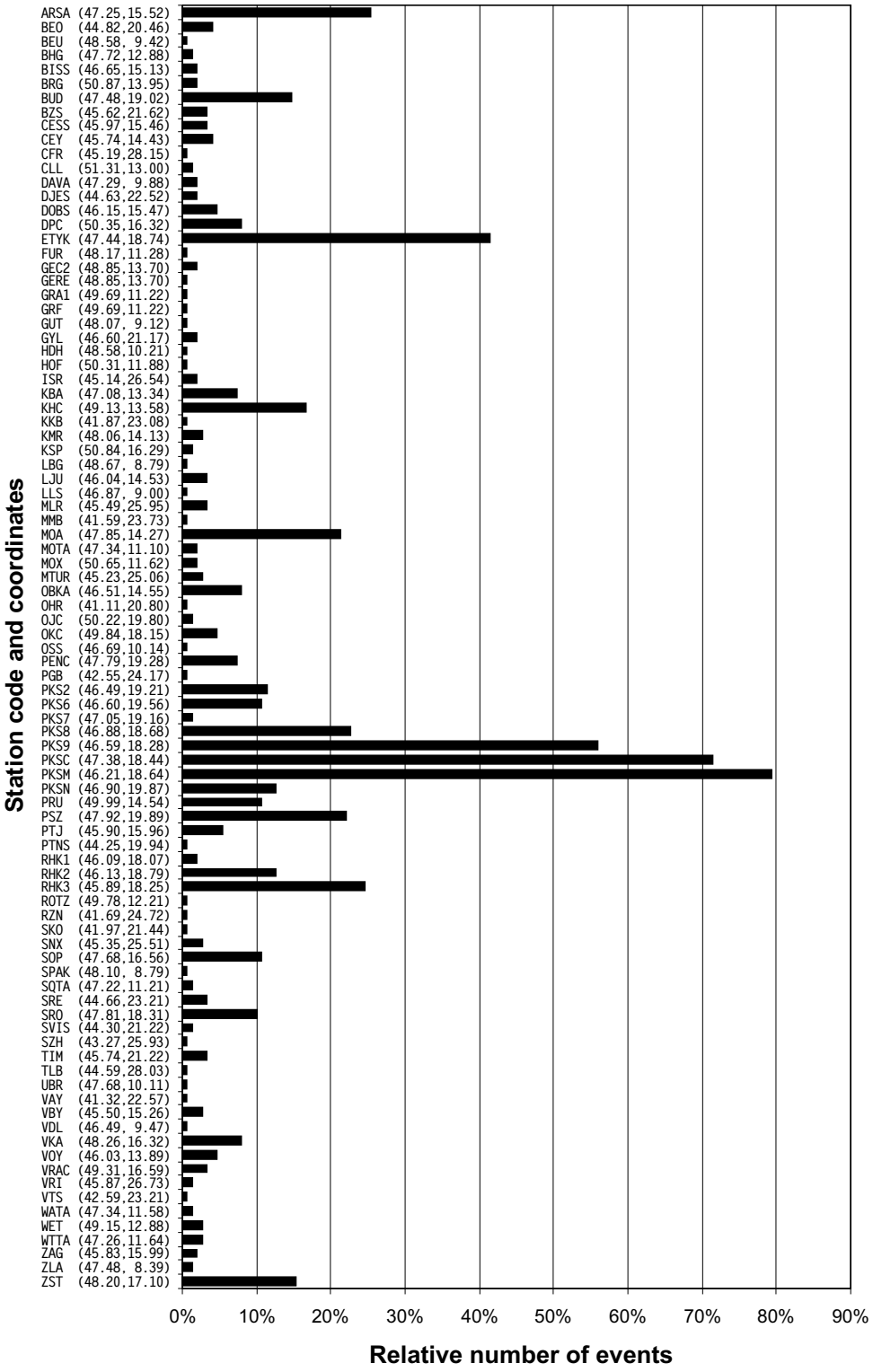


Figure 3.4.
Contribution of stations to hypocenter determination

CELEBRATION 2000

During the year a large scale international experiment CELEBRATION 2000 (*Central European Lithospheric Experiment Based on Refraction*) provided ground truth information for testing the detection and location capability of the seismic network. More than 30 experimental shots were exploded in the territory of Hungary ranging from 300 to750 kg in yield. (Source: E. Hegedűs, ELGI, personal communication)

ID	Latitude (N)	Longitude (E)	Elev. (m)	Date and Time (UTC)	Charge (kg)
1-101-0	46.52661	16.85280	240	2000. 06. 14. 22:00:00	500
1-101-1	46.52661	16.85280	240	2000. 06. 23. 22:15:00	500
1-102-0	47.18431	17.56434	310	2000. 06. 24. 00:00:00	300
1-103-0	47.62941	18.15415	130	2000. 06. 14. 21:45:00	600
1-103-1	47.62941	18.15415	130	2000. 06. 23. 22:30:00	750
1-412-0	48.47741	21.08012	280	2000. 06. 08. 21:15:00	500
1-413-0	48.24999	21.16824	124	2000. 06. 09. 01:30:00	400
1-414-0	47.99742	21.28671	94	2000. 06. 09. 21:30:00	500
1-415-0	47.72016	21.42468	98	2000. 06. 07. 21:45:00	500
1-416-0	47.43034	21.57549	102	2000. 06. 08. 02:00:00	500
1-417-0	47.17635	21.68382	96	2000. 06. 07. 22:00:00	700
1-501-0	46.11364	18.70811	110	2000. 06. 25. 21:15:00	750
1-502-0	46.38794	18.91357	90	2000. 06. 25. 22:15:00	400
1-504-0	47.15566	19.54133	140	2000. 06. 24. 21:30:00	750
1-505-0	47.41651	19.78320	101	2000. 06. 07. 21:15:00	300
1-507-0	47.83388	20.17310	145	2000. 06. 08. 01:30:00	400
1-508-0	48.09726	20.33531	330	2000. 06. 07. 21:30:00	500
1-509-0	48.33754	20.51403	270	2000. 06. 08. 21:45:00	400
1-510-0	48.48067	20.64792	272	2000. 06. 08. 21:30:00	300
1-665-0	48.28456	22.06876	99	2000. 06. 09. 22:15:00	500
1-666-0	48.03173	22.20916	140	2000. 06. 09. 21:00:00	500
1-667-0	47.78679	22.33337	125	2000. 06. 09. 21:15:00	500
1-670-0	47.30394	20.83486	87	2000. 06. 07. 22:15:00	400
1-702-0	46.99319	16.37015	232	2000. 06. 24. 00:30:00	300
1-703-0	46.78577	16.50535	230	2000. 06. 23. 21:15:00	500
1-705-0	46.33048	17.03203	220	2000. 06. 24. 01:30:00	450
1-706-0	46.13066	17.27291	140	2000. 06. 24. 21:15:00	450
1-707-0	45.98846	17.44764	120	2000. 06. 25. 00:00:00	450
1-803-0	47.55032	16.90479	150	2000. 06. 24. 00:45:00	750
1-804-0	47.40271	17.28358	128	2000. 06. 23. 21:30:00	500
1-806-0	46.99708	17.71941	245	2000. 06. 23. 21:45:00	400
1-807-0	46.79357	17.98522	168	2000. 06. 25. 21:45:00	450
1-808-0	46.63882	18.17284	130	2000. 06. 25. 21:30:00	450
1-809-0	46.34944	18.47971	142	2000. 06. 24. 21:45:00	500

Hypocenter Parameters

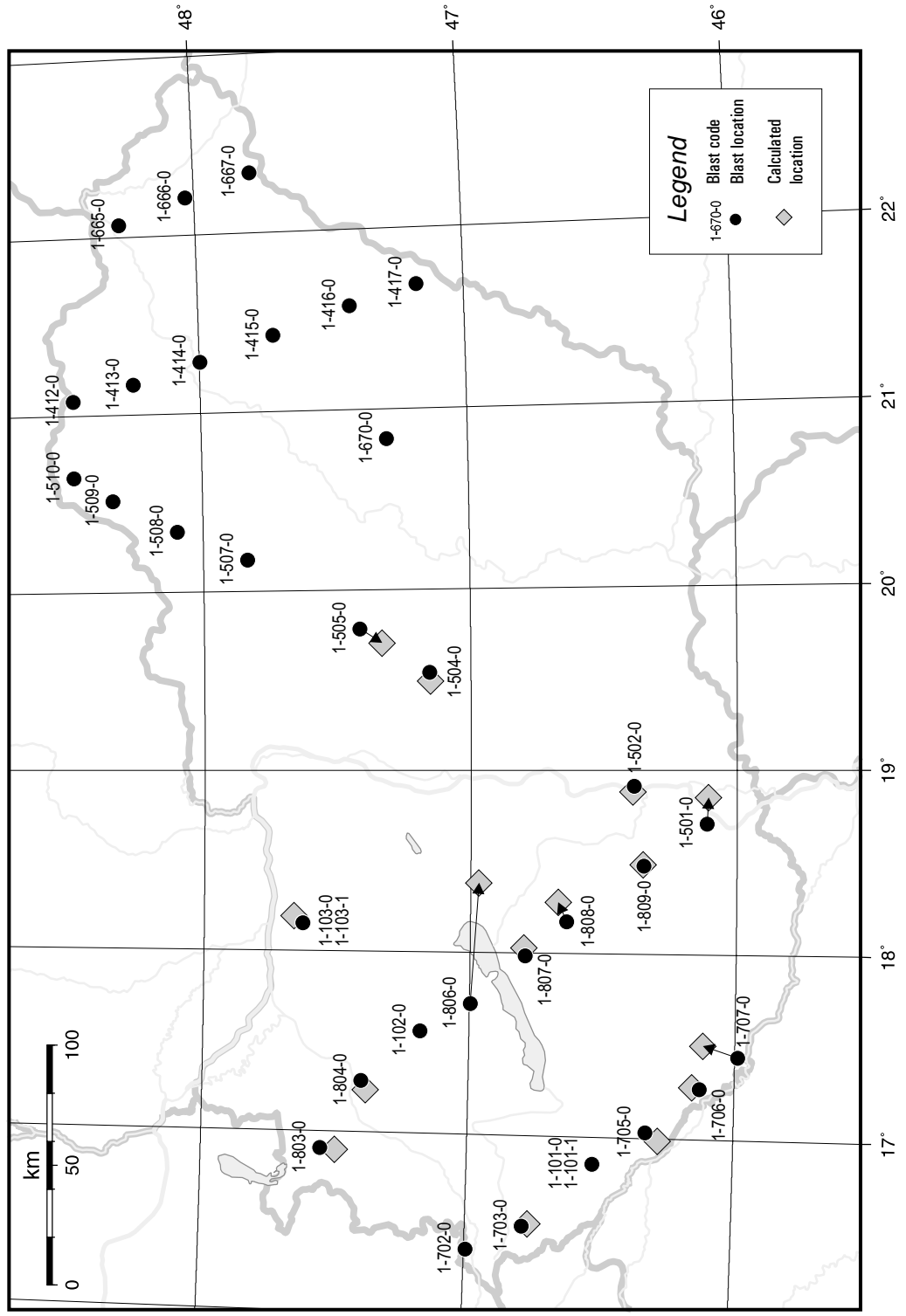


Figure 3.5.
CELEBRATION 2000 experimental shots (black dots)
and their calculated epicenters (gray squares)

4.

SIGNIFICANT EARTHQUAKES IN 2000

(Earthquakes that was felt in Hungary)

2 March 2000	- Füzesgyarmat
1 May 2000	- Vámosszabadi
2 June 2000	- Nagykőrös
28 June 2000	- Vámosszabadi
11 July 2000	- Austria
7 October 2000	- Budapest

METHOD USED FOR ESTIMATION OF INTENSITY

The earthquake effects (macroseismic observations) are usually gathered on questionnaires. Based on these reports the intensity values were estimated by a computer algorithm (Zsíros et al, 1990 and Zsíros 1994).

The assigned intensities correspond to the *European Macroseismic Scale 1998 (EMS)* edited by Grünthal (1998). (APPENDIX A)

HYPOCENTER PARAMETERS

2 March 2000 - Füzesgyarmat

Date:	2000/03/02
Origin Time:	06:15:38.3 UTC
Latitude and Longitude:	47.011N 21.608E (S.D. 25.7 km)
Depth:	10.0 km (S.D. 27 km)
Magnitude:	2.7 ML
Maximum Intensity:	3.5

DISCUSSION

On March 2nd, an earthquake with a magnitude of 2.7 ML was felt at Füzesgyarmat area of about 150-200 km^2, with a maximum intensity of 3-4 EMS. The extremely large deviation of instrumental and macroseismic epicenter (some 20 km) is probably due to the sparse station coverage in the area.

Seismograms of the event is shown in Figure 4.1.

The intensity distribution of the event is shown in Table 4.1. and Figure 4.2.

2 March 2000 - Füzesgyarmat

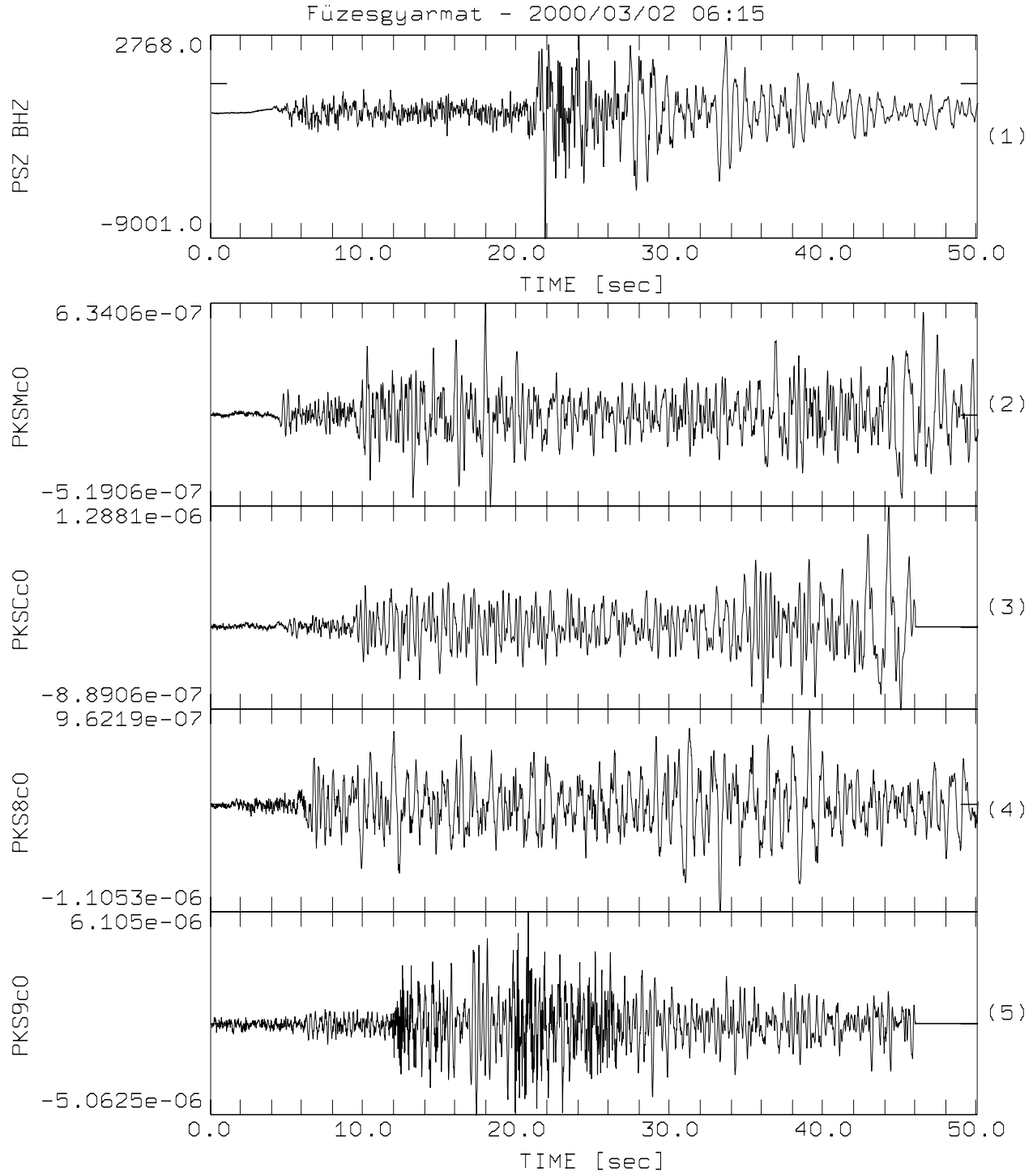


Figure 4.1.
Seismograms of the Füzesgyarmat earthquake 2nd March 2000, 6:15:38 UTC
(PSZ, PKSM, PKSC, PKS8 and PKS9 vertical components)
The vertical axis is ground velocity in m/s.

2 March 2000 - Füzesgyarmat

Table 4.1.
Intensity distribution of the Füzesgyarmat Earthquake 2nd March 2000 (6:15:38 UTC)

Location		Coordinates		I	R	N
		Latitude (N)	Longitude (E)	Intensity	Relative reliability	Number of reports
1	Biharnagybajom	47.207	21.229	3.5	30%	2
2	Bucsa	47.204	21.000	3.0	31%	2
3	Csökmő	47.028	21.284	1.0	0%	2
4	Darvas	47.105	21.335	1.0	0%	2
5	Dévaványa	47.030	20.952	1.0	0%	1
6	Ecsegfalva	47.147	20.916	1.0	0%	2
7	Füzesgyarmat	47.104	21.207	3.5	35%	4
8	Kertészsziget	47.150	21.051	1.0	0%	1
9	Kőrösladány	46.960	21.077	1.0	0%	2
10	Kőröstarcsa	46.878	21.020	1.0	0%	2
11	Nagyrábé	47.201	21.328	1.0	0%	2
12	Szeghalom	47.022	21.169	2.5	41%	2
13	Szerep	47.230	21.139	1.0	0%	3
14	Újirász	46.985	21.350	1.0	0%	1
15	Vésztő	46.916	21.253	1.0	0%	2
16	Zsáka	47.133	21.427	1.0	0%	1

2 March 2000 - Füzesgyarmat

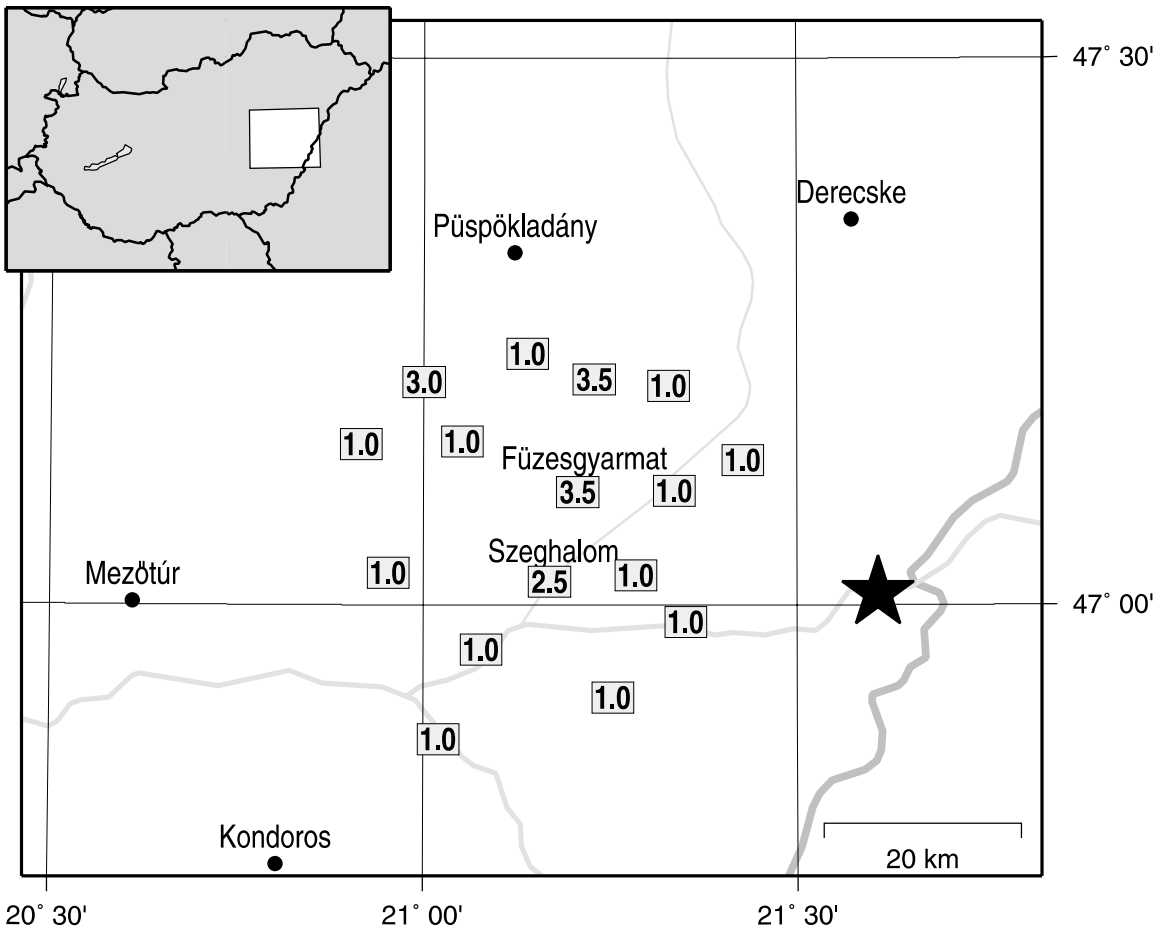


Figure 4.2.
Intensity distribution
of the Füzesgyarmat earthquake 2nd March 2000, 6:15:38 UTC
(star - instrumental epicentre)

HYPOCENTER PARAMETERS

1 May 2000 - Vámosszabadi

Date:	2000/05/01
Origin Time:	17:54:41.9 UTC
Latitude and Longitude:	47.759N 17.665E (S.D. 2.5 km)
Depth:	4.2 km (S.D. 2.2 km)
Magnitude:	2.6 ML
Maximum Intensity:	4

DISCUSSION

On May 1st, an earthquake with a magnitude of 2.6 ML occurred near to the Hungarian - Slovakian border. Maximum intensity of 4 was reported from Vámosszabadi. The event was felt in a small area of about 100 km^2

Seismograms of the event is shown in Figure 4.3.

The intensity distribution of the event is shown in Table 4.2. and Figure 4.4.

1 May 2000 - Vámosszabadi

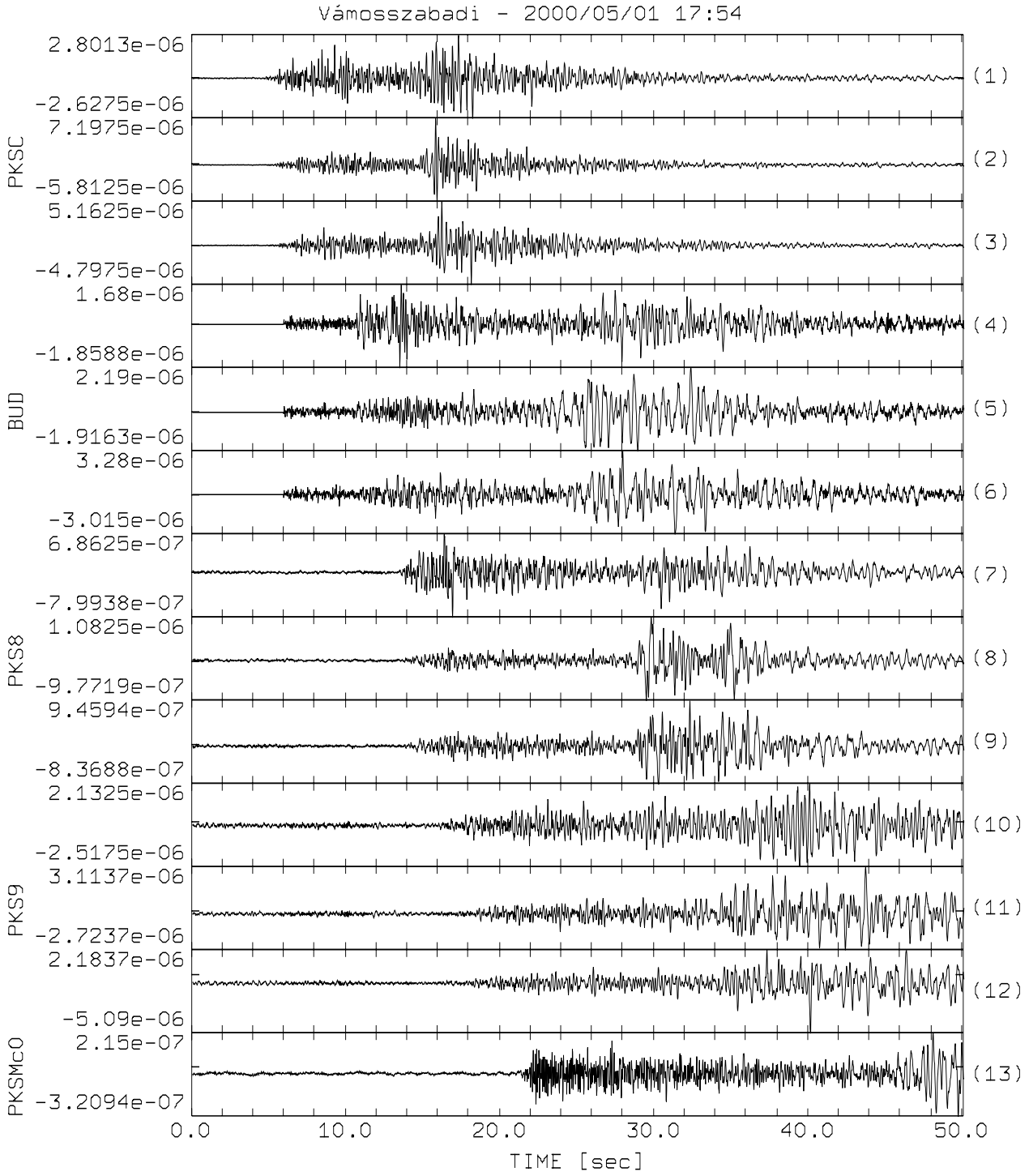


Figure 4.3.
Seismograms of the Vámosszabadi earthquake 1st May 2000, 17:54:42 UTC
(PKSC, BUD, PKS8, PKS9 three components, PKSM vertical component)
The vertical axis is ground velocity in m/s.

1 May 2000 - Vámosszabadi

Table 4.2.
Intensity distribution of the Vámosszabadi Earthquake 1st May 2000 (17:54:42 UTC)

Location		Coordinates		I	R	N
		Latitude (N)	Longitude (E)	Intensity	Relative reliability	Number of reports
1	Abda	47.698	17.549	1.0	0%	2
2	Dunaszeg	47.770	17.546	1.0	0%	2
3	Győr	47.684	17.645	1.0	0%	1
4	Győrladamér	47.756	17.567	3.0	33%	2
5	Győrújfalu	47.723	17.610	3.5	37%	2
6	Kisbajcs	47.747	17.682	4.0	32%	3
7	Kunsziget	47.743	17.528	1.0	0%	2
8	Vámosszabadi	47.756	17.654	4.0	32%	2
9	Győrzámoly	47.742	17.584	4.0	21%	1
10	Vének	47.740	17.764	1.0	0%	1

1 May 2000 - Vámosszabadi

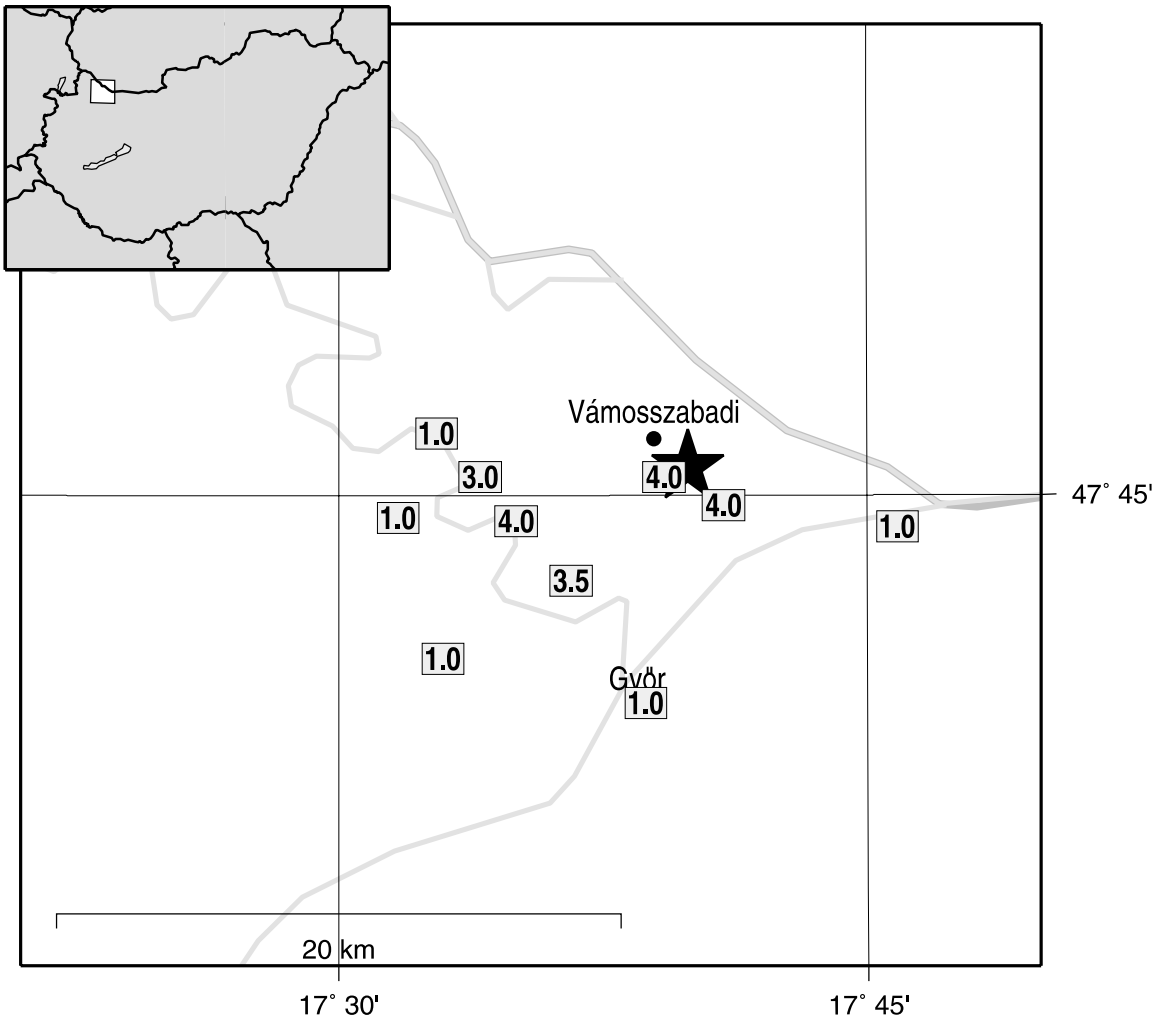


Figure 4.4.
Intensity distribution
of the Vámosszabadi earthquake 1st May 2000, 17:54:42 UTC
(star - instrumental epicentre)

HYPOCENTER PARAMETERS

2 June 2000 - Nagykőrös

Date:	2000/06/02
Origin Time:	15:17:30.2 UTC
Latitude and Longitude:	47.105N 19.769E (S.D. 5.4 km)
Depth:	16.9 km (S.D. 4.8 km)
Magnitude:	2.6 ML
Maximum Intensity:	3-4

DISCUSSION

The Nagykőrös earthquake of 2nd June with a magnitude of 2.6 ML was slightly felt at the epicenter area with a maximum intensity of 3-4 EMS.

Seismograms of the event is shown in Figure 4.5.

The intensity distribution of the event is shown in Table 4.3. and Figure 4.6.

2 June 2000 - Nagykőrös

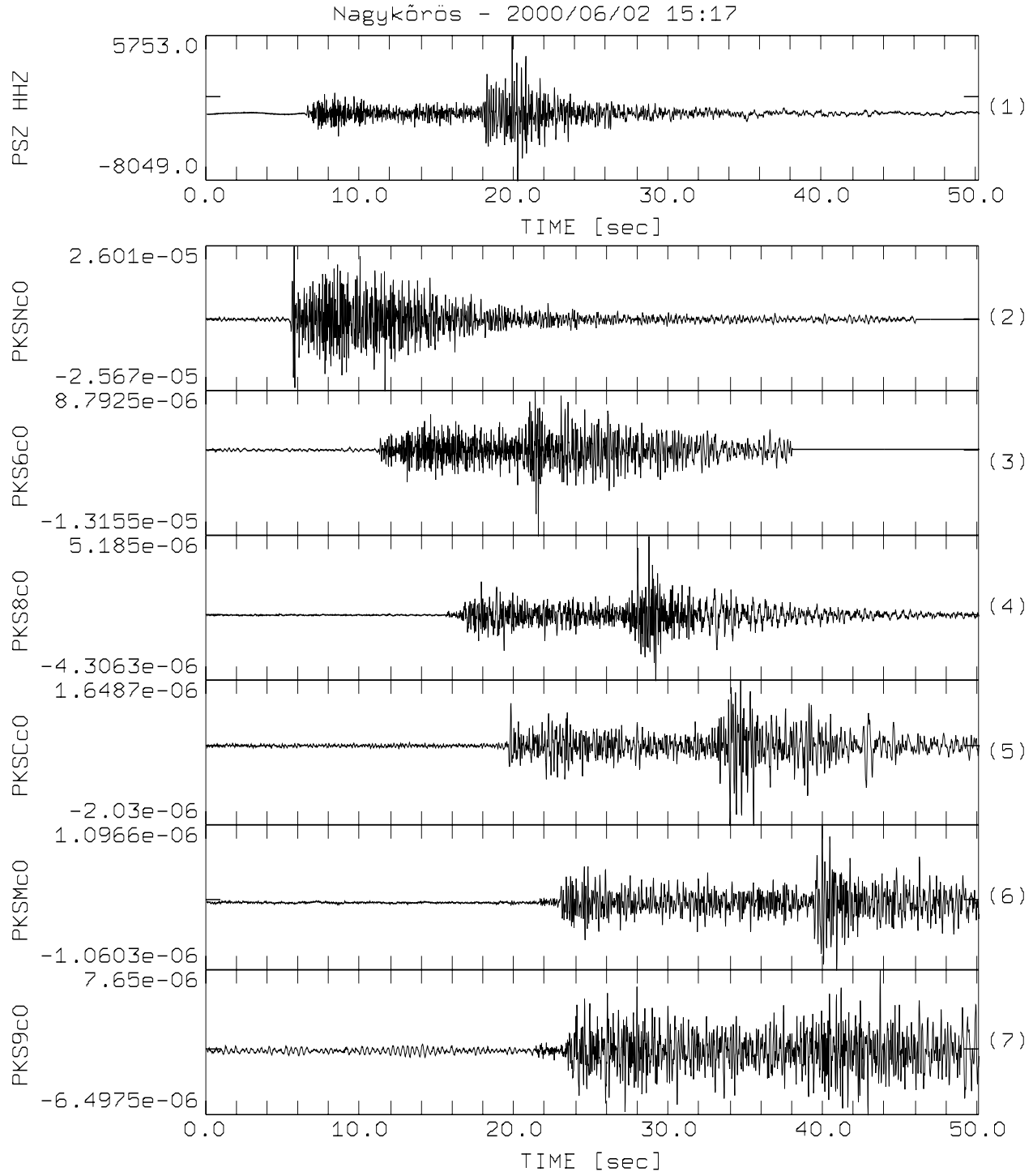


Figure 4.5.
Seismograms of the Nagykőrös earthquake 2nd June 2000, 15:17:30 UTC
(PSZ, PKSN, PKS6, PKS8, PKSC, PKSM and PKS9 vertical components)
The vertical axis is ground velocity in m/s.

Table 4.3.
Intensity distribution of the Nagykőrös Earthquake 2nd June 2000 (15:17:30 UTC)

Location		Coordinates		I	R	N
		Latitude (N)	Longitude (E)	Intensity	Relative reliability	Number of reports
1	Csemő	47.118	19.688	1.0	0%	2
2	Kocsér	47.000	19.915	1.0	0%	2
3	Nagykőrös	47.033	19.779	3.5	40%	2
4	Törtel	47.120	19.929	1.0	0%	1

2 June 2000 - Nagykőrös

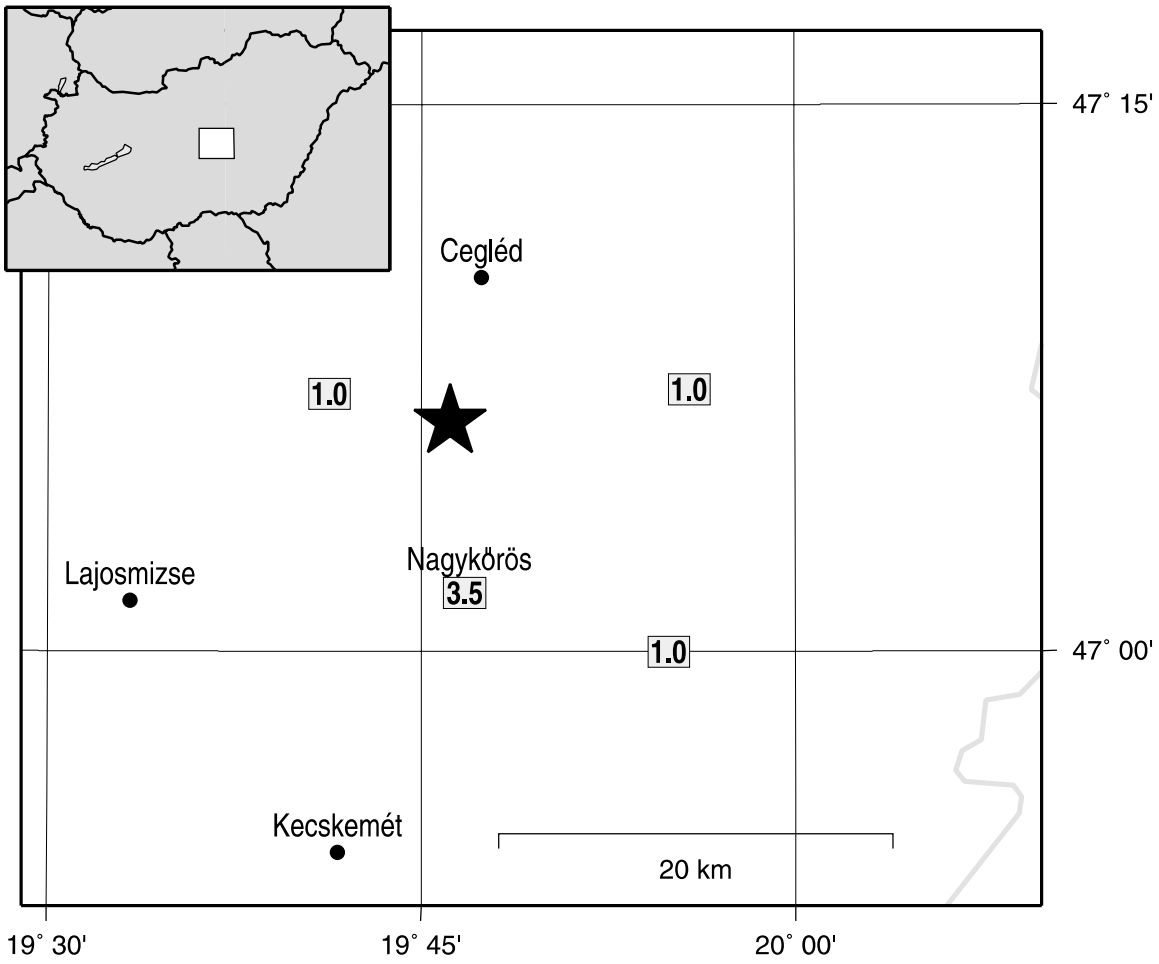


Figure 4.6.
Intensity distribution
of the Nagykőrös earthquake 2nd June 2000, 15:17:30 UTC
(star - instrumental epicentre)

HYPOCENTER PARAMETERS

28 June 2000 - Vámosszabadi

Date:	2000/06/28
Origin Time:	19:19:16.1 UTC
Latitude and Longitude:	47.799N 17.689E (S.D. 3.3 km)
Depth:	8.2 km (S.D. 2.5 km)
Magnitude:	2.6 ML
Maximum Intensity:	4

DISCUSSION

The Vámosszabadi earthquake of 1st May was followed by a similar size event (probable aftershock) on 28th June. The earthquake was slightly felt with intensity 4 EMS at the epicenter area.

Seismograms of the event is shown in Figure 4.7.

The intensity distribution of the event is shown in Table 4.4. and Figure 4.8.

28 June 2000 - Vámosszabadi

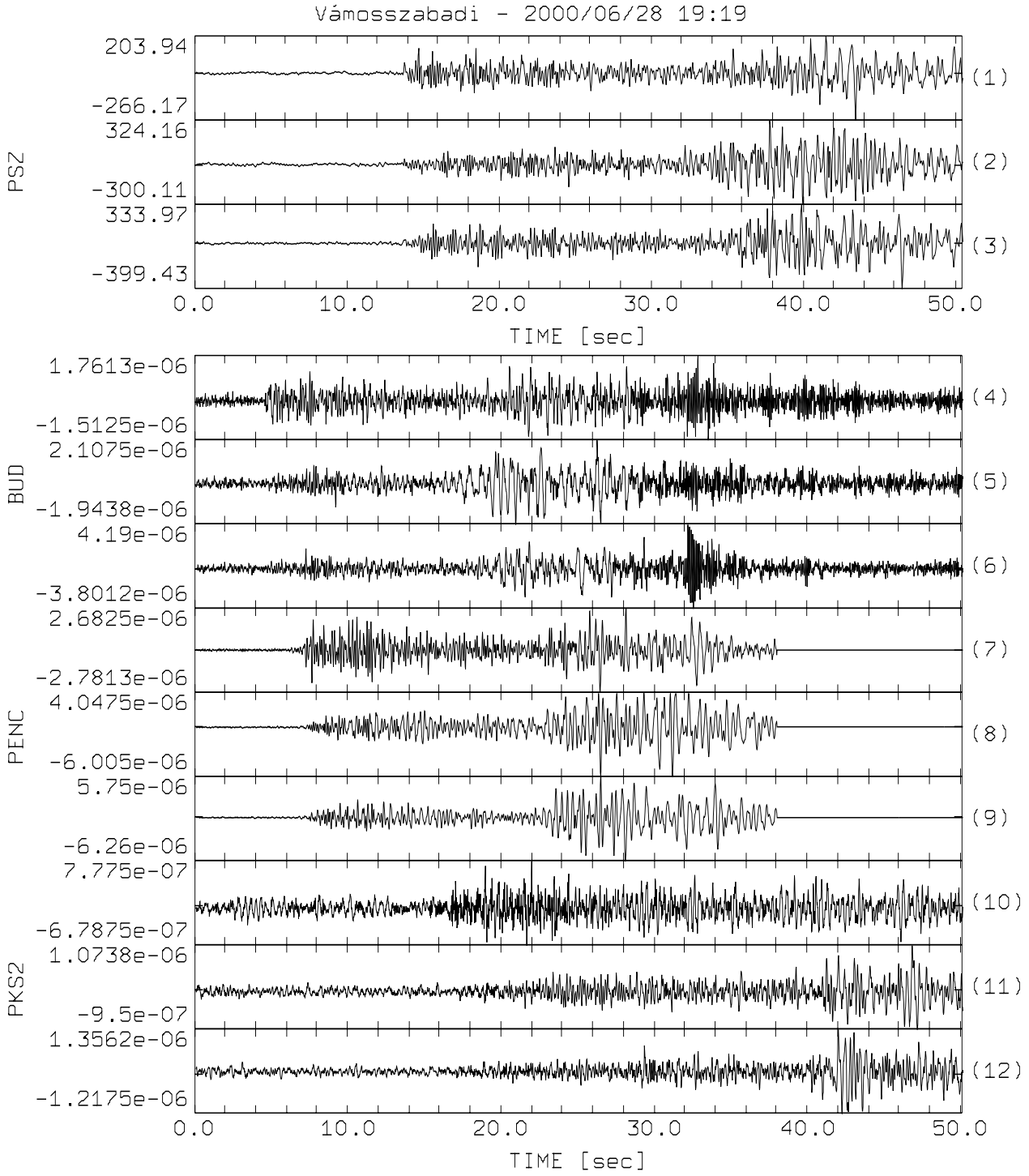


Figure 4.7.
Seismograms of the Vámosszabadi earthquake 28th june 2000, 19:19:16 UTC
(PSZ, BUD, PENC and PKS2 three components)
The vertical axis is ground velocity in m/s.

Table 4.4.
Intensity distribution of the Vámosszabadi Earthquake 28th June 2000 (19:19:16 UTC)

Location		Coordinates		I	R	N
		Latitude (N)	Longitude (E)	Intensity	Relative reliability	Number of reports
1	Abda	47.698	17.549	1.0	0%	1
2	Dunaszeg	47.770	17.546	1.0	0%	2
3	Győr	47.684	17.645	2.5	43%	3
4	Győrladamér	47.756	17.567	1.0	0%	1
5	Győrszentiván	47.699	17.750	1.0	0%	1
6	Győrzámoly	47.742	17.584	1.0	0%	2
7	Kisbajcs	47.747	17.682	4.0	33%	2
8	Kunsziget	47.743	17.528	1.0	0%	2
9	Nagybajcs	47.769	17.691	4.0	47%	1
10	Vámosszabadi	47.756	17.654	3.0	36%	2
11	Vének	47.740	17.764	3.5	35%	1

28 June 2000 - Vámosszabadi

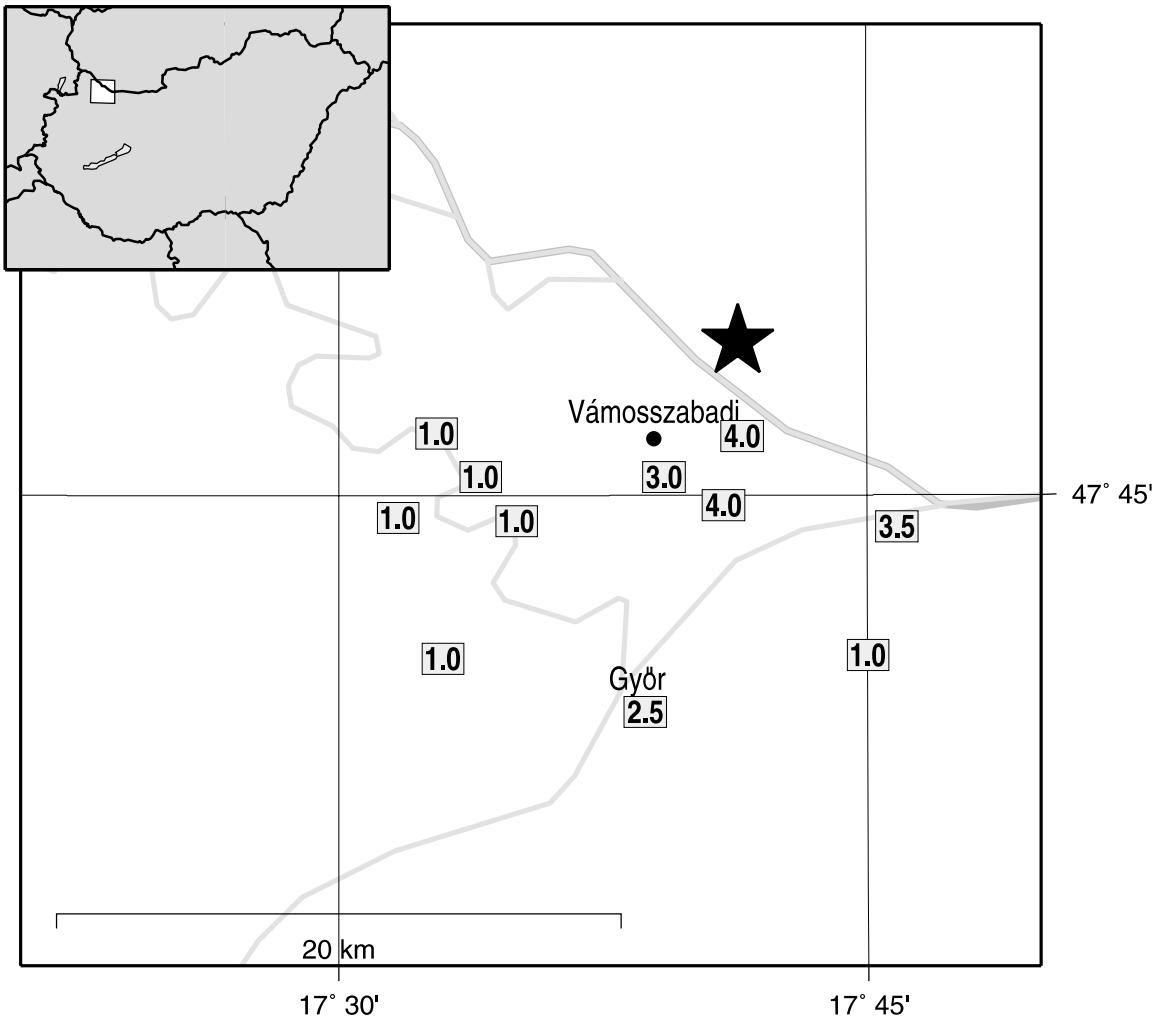


Figure 4.8.
Intensity distribution
of the Vámosszabadi earthquake 28th June 2000, 19:19:16 UTC
(star - instrumental epicentre)

HYPOCENTER PARAMETERS

11 July 2000 - Austria

Date:	2000/07/11
Origin Time:	02:49:48.4 UTC
Latitude and Longitude:	47.917N 16.475E (S.D. 1.1 km)
Depth:	1.0 km (S.D. 1.4 km)
Magnitude:	4.4 ML
Maximum Intensity:	6 (4-5 in Hungary)

DISCUSSION

The earthquake of 11th July in E Austria was widely felt in Sopron-Kőszeg-Hédervár area (2500 km^2) in NW Hungary. Maximum intensity of 4-5 EMS was reported from the border region.

Seismograms of the event is shown in Figure 4.9.

The intensity distribution of the event is shown in Table 4.5. and Figure 4.10.

11 July 2000 - Austria

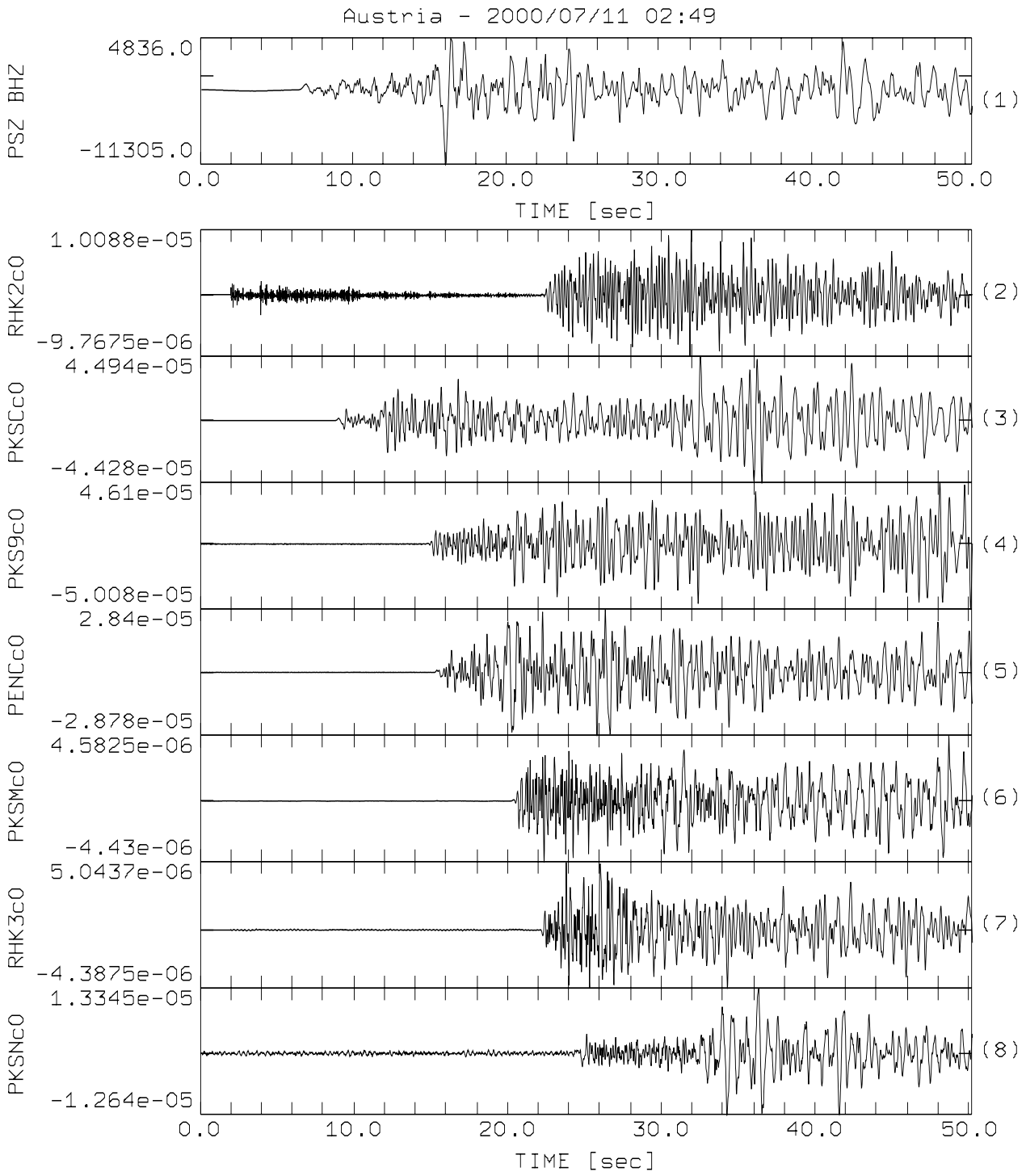


Figure 4.9.
Seismograms of the Austria earthquake 11th July 2000, 2:49:48 UTC
(PSZ, RHK2, PKSC, PKS9, PENC, PKSM, RHK3 and PKSN vertical components)
The vertical axis is ground velocity in m/s.

Table 4.5.
Intensity distribution of the Austria Earthquake 11th July 2000 (2:49:48 UTC)

Location		Coordinates		I	R	N
		Latitude (N)	Longitude (E)	Intensity	Relative reliability	Number of reports
1	Ágfalva	47.689	16.522	4.0	34%	2
2	Bezenye	47.959	17.223	3.5	45%	2
3	Bősárkány	47.688	17.256	3.0	50%	2
4	Csapod	47.518	16.931	3.0	34%	1
5	Csorna	47.615	17.255	3.5	40%	1
6	Fertőrákos	47.722	16.655	3.5	36%	1
7	Fertőszentmiklós	47.587	16.885	4.0	38%	2
8	Győrladamér	47.756	17.567	1.0	0%	1
9	Győrújfalu	47.723	17.610	1.0	0%	1
10	Halászi	47.889	17.330	2.5	50%	2
11	Hegyeshalom	47.910	17.166	1.0	0%	2
12	Jánossomorja	47.782	17.138	3.5	40%	2
13	Kapuvár	47.593	17.036	4.5	34%	2
14	Kőszeg	47.390	16.548	3.5	35%	5
15	Mihályi	47.515	17.101	3.5	35%	4
16	Mosonmagyaróvár	47.866	17.272	4.0	40%	2
17	Nagycenk	47.607	16.697	3.5	43%	1
18	Rajka	47.995	17.205	3.0	44%	1
19	Sopron	47.682	16.593	4.0	34%	3
20	Sopronhorpács	47.481	16.744	3.5	35%	2
21	Sopronkövesd	47.547	16.746	1.0	0%	1

11 July 2000 - Austria

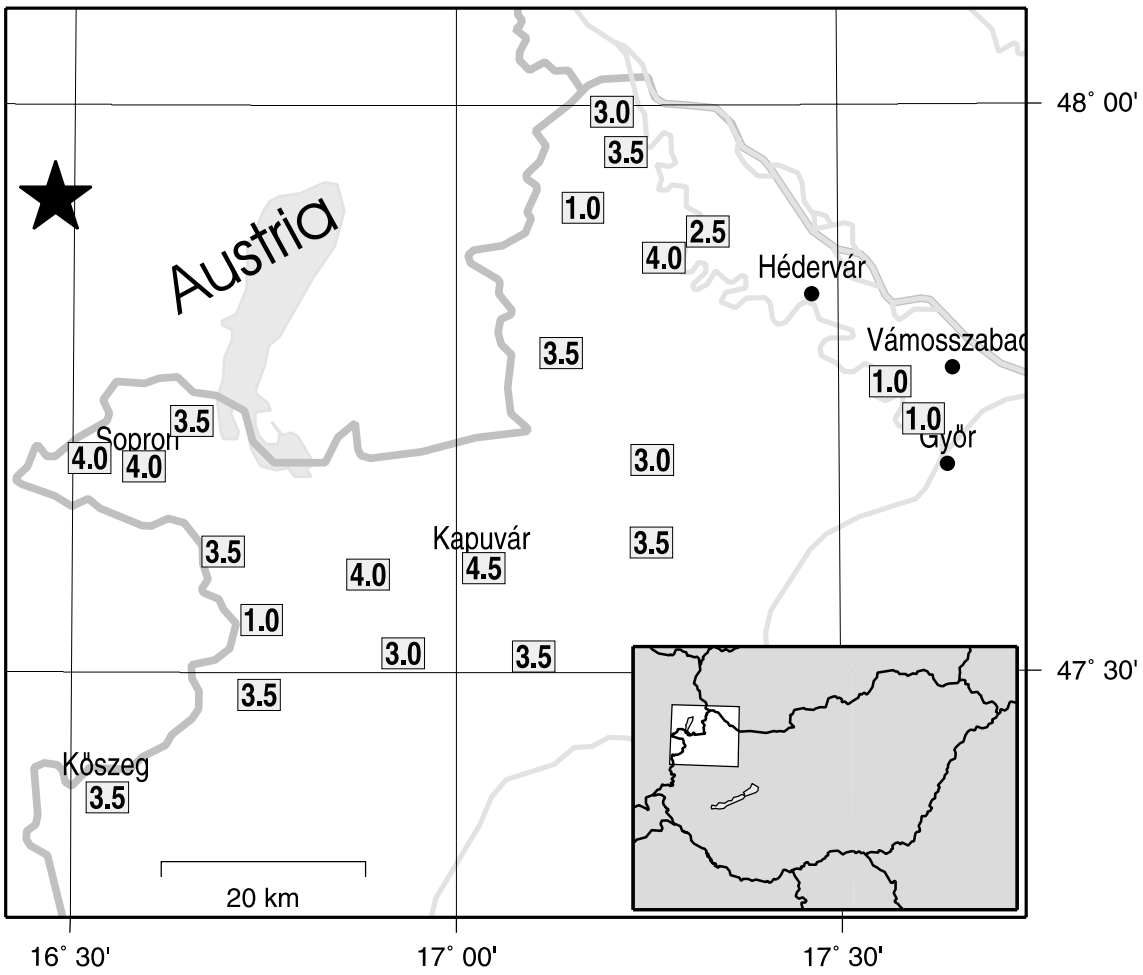


Figure 4.10.
Intensity distribution
of the Austria earthquake 11th July 2000, 2:49:48 UTC
(star - instrumental epicentre)

HYPOCENTER PARAMETERS

7 October 2000 - Budapest

Date:	2000/10/07
Origin Time:	00:42:11.8 UTC
Latitude and Longitude:	47.390N 19.135E (S.D. 6.1 km)
Depth:	12.6 km (S.D. 5.0 km)
Magnitude:	2.1 ML
Maximum Intensity:	4

DISCUSSION

On early morning 7th October a smaller size earthquake was felt in the XVI-th and XVII-th district in Budapest but no damage was reported. The instrumental epicenter has been located somewhat South (Csepel) from the felt area.

Seismograms of the event is shown in Figure 4.11.

The intensity distribution of the event is shown in Table 4.6. and Figure 4.12.

7 October 2000 - Budapest

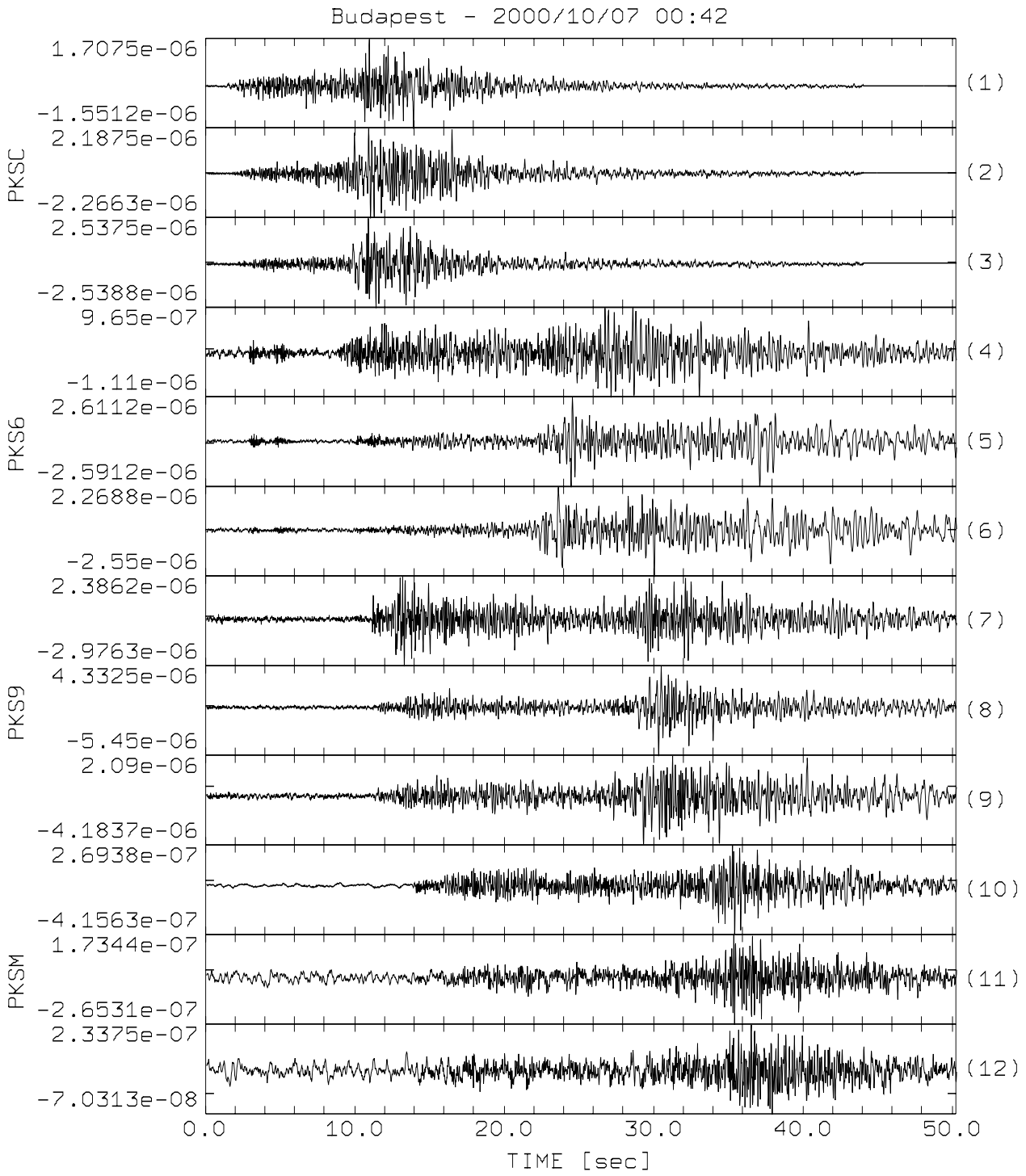


Figure 4.11.
Seismograms of the Budapest earthquake 7th October 2000, 0:42:12 UTC
(PKSC, PKS6, PKS9, and PKSM three components)
The vertical axis is ground velocity in m/s.

Table 4.6.
Intensity distribution of the Budapest Earthquake 7th October 2000 (0:42:12 UTC)

Location		Coordinates		I	R	N
		Latitude (N)	Longitude (E)	Intensity	Relative reliability	Number of reports
1	Budapest X. ker.	47.486	19.160	4.0	55%	1
2	Budapest XVI. ker.	47.509	19.205	4.0	40%	2
3	Budapest XVII. ker.	47.486	19.299	3.5	35%	3
4	Budapest XIX. ker.	47.456	19.138	1.0	0%	1

7 October 2000 - Budapest

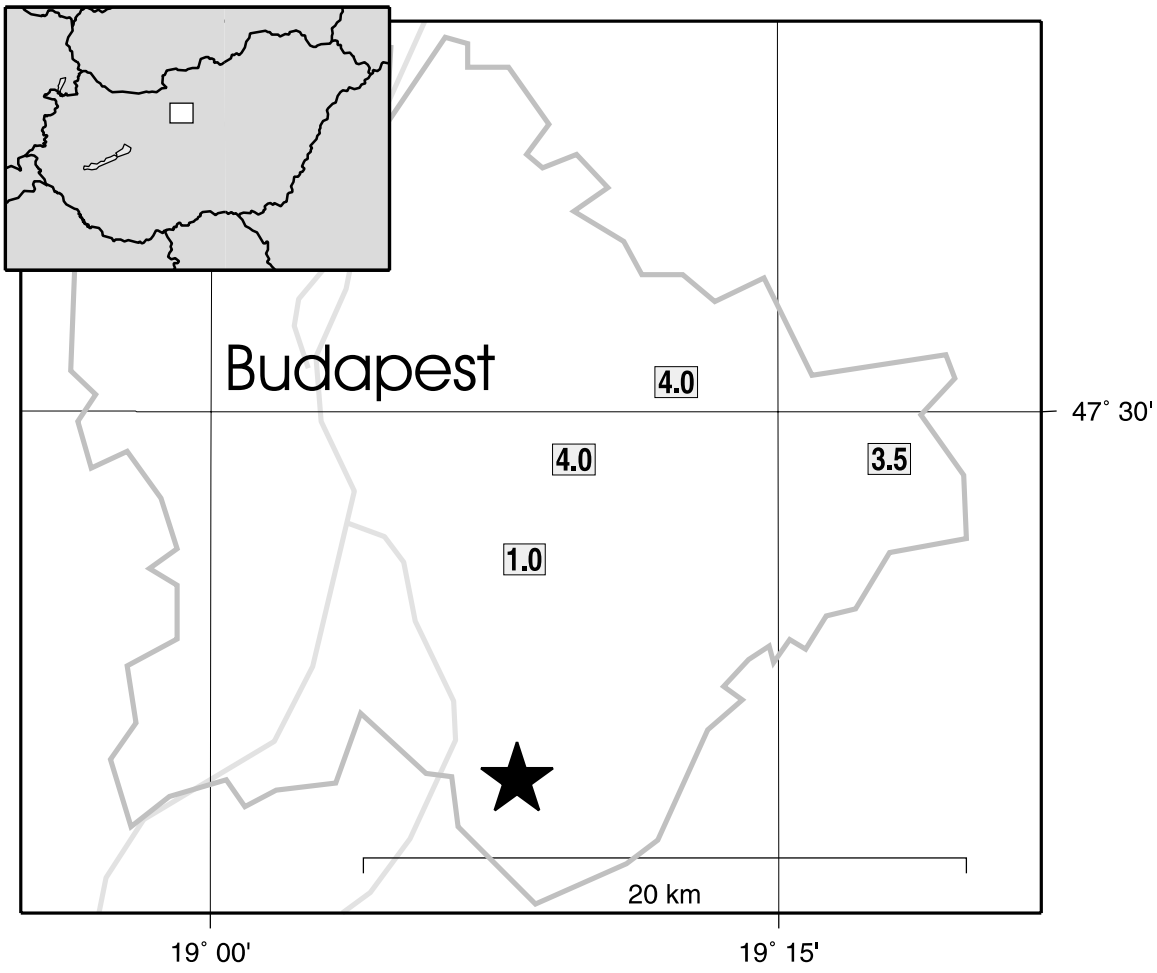


Figure 4.12.
Intensity distribution
of the Budapest earthquake 7th October 2000, 0:42:12 UTC
(star - instrumental epicentre)

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APPENDIX A

EUROPEAN MACROSEISMIC SCALE (EMS)

EMS INTENSITY SCALE

1 ☞ Not felt

Not felt, even the most favourable circumstances.

2 ☞ Scarcely felt

Vibration is felt only by individual people at rest in houses, especially on upper floors of buildings.

3 ☞ Weak

The vibration is weak and is felt indoors by a few people. People at rest feel a swaying or light trembling.

4 ☞ Largely observed

The earthquake is felt indoors by many people, outdoors by very few. A few people are awakened. The level of vibration is not frightening. Windows, doors and dishes rattle. Hanging objects swing.

5 ☞ Strong

The earthquake is felt indoors by most, outdoors by few. Many sleeping people awake. A few run outdoors. Buildings tremble throughout. Hanging objects swing considerably. China and glasses clatter together. The vibration is strong. Top heavy objects topple over. Doors and windows swing open or shut.

6 ☞ Slightly damaging

Felt by most indoors and many outdoors. Many people in buildings are frightened and run outdoors. Small objects fall. Slight damage to many ordinary buildings eg. fine cracks in plaster and small pieces of plaster fall.

7 ☞ Damaging

Most people are frightened and run outdoors. Furniture is shifted and objects fall from shelves in large numbers. Many ordinary buildings suffer moderate damage: small cracks in walls, partial collapse of chimneys.

8 ☞ Heavily damaging

Furniture may be overturned. Many ordinary buildings suffer damage: chimneys fall, large cracks appear in walls and few buildings may partially collapse.

9 ☞ Destructive

Monuments and columns fall or are twisted. Many ordinary buildings partially collapse and few collapse completely.

10 ☞ Very destructive

Many ordinary buildings collapse.

11 ☞ Devastating

Most ordinary buildings collapse.

12 ☞ Completely devastating

Practically all structures above and below ground are heavily damaged or destroyed.

(For details see Grünthal, 1998)

APPENDIX B

SIGNIFICANT EARTHQUAKES OF THE WORLD

2000

Earthquakes of magnitude 6.5 or greater or ones that caused fatalities, injuries or substantial damage.

Source: U.S. Geological Survey
National Earthquake Information Center

DATE	ORIGIN TIME UTC HR MN SEC	GEOGRAPHIC COORDINATES LAT	LONG	DEPTH	MAGNITUDES GS MB	Msz	SD	NO. STA USED	REGION, CONTRIBUTED MAGNITUDES AND COMMENTS
JAN 08	16 47 20.5	16.925 S	174.248 W	183 D	6.5	6.6	1.3	396	TONGA ISLANDS. Mw 7.2 (GS), 7.2 (HRV). Me 7.0 (GS). Es=6.8*10**14 Nm (GS). Mo=6.1*10**19 Nm (GS). Mo=6.9*10**19 Nm (HRV). Felt (V) at Afiamalu and (III) at Apia, Samoa. Also felt on Tutuila, American Samoa. Complex earthquake. A small event is followed by a much larger one about 6 seconds later.
JAN 09	21 54 40.4	18.823 S	174.370 E	33 N	5.6	6.4	1.0	208	FIJI ISLANDS REGION. Mw 6.5 (GS), 6.4 (HRV). Me 6.9 (GS). Es=4.5*10**14 Nm (GS). Mo=5.7*10**18 Nm (GS). Mo=4.8*10**18 Nm (HRV).
JAN 11	23 43 56.4	40.498 N	122.994 E	10 G	4.9	4.7	1.2	67	NORTHEASTERN CHINA. Mw 5.1 (HRV). Mo=4.9*10**16 Nm (HRV). Thirty people injured, 3,600 housing units destroyed and 8,800 housing units damaged in Liaoning Province. Felt at Anshan, Dandong, Liaoyang, Panjin and Shenyang.
JAN 14	23 37 07.8	25.607 N	101.063 E	33 N	5.4	5.9	1.0	180	YUNNAN, CHINA. Mw 5.8 (GS), 5.9 (HRV). ML 5.5 (BJI). Mo=5.9*10**17 Nm (GS). Mo=8.3*10**17 Nm (HRV). Seven people killed, 2,528 injured, 92,479 homeless and more than 41,000 houses destroyed in central Yunnan Province.
JAN 26	20 55 19.1	24.263 N	103.797 E	33 N	4.9	4.5	0.9	59	YUNNAN, CHINA. Two people injured and roads and houses damaged in the Mile-Qiubei area.
JAN 28	14 21 07.3	43.046 N	146.837 E	61 D	6.7	6.6	0.9	546	KURIL ISLANDS. Mw 6.8 (GS), 6.8 (HRV), 6.4 (OBN). Me 6.8 (GS). Es=3.0*10**14 Nm (GS). Mo=1.9*10**19 Nm (GS). Mo=2.0*10**19 Nm (HRV). Mo=5.2*10**18 Nm (OBN). Mo=2.7*10**19 Nm (PPT). Felt (VI) at Yuzhno-Kurilsk, Kunashir and (V) on Shikotan and at Kurilsk, Iturup. Two people injured at Nemuro, Hokkaido. Felt at Misawa and Yokosuka, Honshu. Recorded (4 JMA) at Akkeshi, Betsukai, Kushiro, Naka-shibetsu and Nemuro; (3 JMA) at Kitami and Obihiro, Hokkaido. Also recorded (3 JMA) in Aomori and Iwate Prefectures, Honshu. Recorded (1 JMA) in much of Hokkaido and northern Honshu as far as the Tokyo area.
FEB 02	22 58 01.5	35.288 N	58.218 E	33 N	5.1	5.3	0.9	116	NORTHERN AND CENTRAL IRAN. Mw 5.2 (GS), 5.3 (HRV). ML 5.4 (TEH). Mo=6.1*10**16 Nm (GS). Mo=9.9*10**16 (Nm) (HRV). One person killed and at least 15 injured; 100 houses destroyed and 300 houses slightly damaged in the Bardaskan-Kashmar area.
FEB 06	11 33 52.2	5.844 S	150.876 E	33 N	6.6	6.8	0.9	493	NEW BRITAIN REGION, P.N.G. Mw 6.6 (GS), 6.6 (HRV). Me 6.4 (GS). Es=7.8*10**13 Nm (GS). Mo=9.7*10**18 Nm (GS). Mo=9.4*10**18 Nm (HRV). Felt strongly at Kimbe and Rabaul. Also felt at Port Moresby, New Guinea.
FEB 07	19 34 57.0*	26.288 S	30.888 E	5 G	4.5		0.9	21	SOUTH AFRICA. One person injured, moderate damage and landslides in the Mbabane-Manzini area, Swaziland. Also felt at Paulpietersburg.
FEB 25	01 43 58.6	19.528 S	173.818 E	33 N	6.1	7.1	1.2	393	VANUATU ISLANDS REGION. Mw 7.0 (GS), 7.1 (HRV). Me 7.5 (GS). Es= 4.7*10**15 Nm (GS). Mo=3.6*10**19 Nm (GS). Mo=5.1*10**19 Nm (HRV).
FEB 26	08 11 48.4	13.795 N	144.782 E	132 D	6.0	5.4	1.1	320	MARIANA ISLANDS. Mw 6.2 (GS), 6.2 (HRV). Me 5.6 (GS). Es=6.4*10**12 Nm (GS). Mo=2.2*10**18 Nm (GS). Mo=2.1*10**18 Nm (HRV). Several people slightly injured on Guam. Minor damage to one school at Santa Rita. Power outage and water line broken in the Yona area. Felt strongly on Guam and Saipan. Two events about 1.5 seconds apart. Depth based on first event.
MAR 03	22 22 40.7	6.817 S	143.807 E	10 G	6.3	6.7	1.1	356	NEW GUINEA, PAPUA NEW GUINEA. Mw 6.5 (GS), 6.6 (HRV). Me 6.4 (GS). ML 6.1 (PMG). Es=9.6*10**13 Nm (GS). Mo=6.9*10**18 Nm (GS). Mo=8.5*10**18 Nm (HRV). Felt in the Lake Kutubu area.

MAR 28	11 00 22.5	22.338 N	143.730 E	127	D	6.8	7.6	1.2	538	VOLCANO ISLANDS, JAPAN REGION. Mw 7.6 (GS), 7.6 (HRV). Me 7.4 (GS). Es=3.2*10**15 Nm (GS). Mo=3.2*10**20 Nm (GS). Mo=3.2*10**20 Nm (HRV). Felt on Chichi-jima.
APR 23	09 27 23.3	28.307 S	62.990 W	609	D	6.6		0.9	568	SANTIAGO DEL ESTERO PROVINCE, ARGENTINA. Mw 7.0 (GS), 7.0 (HRV). Me 6.9 (GS). Es=4.7*10**14 Nm (GS). Mo=3.2*10**19 Nm (GS). Mo=3.1*10**19 Nm (HRV). Felt in La Rioja Province.
MAY 04	04 21 16.2	1.105 S	123.573 E	26	G	6.7	7.5	1.1	430	SULAWESI, INDONESIA. Mw 7.4 (GS), 7.6 (HRV). 7.2 (OBN). Me 7.6 (GS). Es=4.9*10**15 Nm (GS). Mo=1.6*10**20 Nm (GS). Mo=2.4*10**20 Nm (HRV). Mo=8.0*10**19 Nm (OBN). At least 46 people killed, 264 injured, 30,000 homeless, extensive damage and power outages occurred in the Luwuk area, Sulawesi and on nearby islands. Eighty percent of buildings were damaged or destroyed on Banggai. Damage also occurred on Peleng. Dozens of houses damaged (VII) and a local market destroyed by fire at Luwuk. Much of the damage east of Luwuk and on Peleng was caused by a local tsunami with estimated wave heights up to 6 meters. Felt (V) at Gorontalo and Palu; (IV) at Manado and Tolitoli, Sulawesi. Felt (IV) at Balikpapan, Borneo. Felt (III) on Ternate. Also felt at Tawau, Malaysia.
MAY 04	20 36 32.4	17.914 S	178.522 W	516	D	5.6		0.9	370	FIJI ISLANDS REGION. Mw 6.4 (GS), 6.5 (HRV). Me 6.4 (GS). Es=7.7*10**13 Nm (GS). Mo=4.2*10**18 Nm (GS). Mo=5.8*10**18 Nm (HRV). Two events about 2.5 seconds apart. Depth based on first event.
MAY 07	23 10 54.1&	38.164 N	38.777 E	5		4.5	4.1		122	TURKEY. MD 4.5 (ISK). One person injured and 200 homes damaged in the Doganyol-Puturge area.
MAY 12	03 01 44.4	37.049 N	36.085 E	10	G	4.7		1.1	169	TURKEY. MD 4.8 (ISK). ML 4.6 (CSS). Some people injured and buildings damaged at Osmaniye. Felt at Adana, Antakya and Gaziantep.
MAY 12	18 43 18.1	23.548 S	66.452 W	225		6.2		0.9	232	JUJUY PROVINCE, ARGENTINA. Mw 7.1 (GS), 7.2 (HRV). Me 6.7 (GS). Es=2.6*10**14 Nm (GS). Mo=5.9*10**19 Nm (GS). Mo=6.6*10**19 Nm (HRV). Mo=7.5*10**19 Nm (PPT). One person killed at the Manto Verde Mine in the Atacama region, Chile. Felt (VI) at Antofagasta, Calama, Chuquicamata, Copiapo, Mejillones and Sierra Gorda; (V) at Caldera, Chanaral, Diego de Almagro, Iquique, Tierra Amarilla and Tocopilla; (IV) at Arica, Pozo Almonte and Potrerillos; (III) at Parinacota, Chile. Also felt in northern Argentina. Complex earthquake. A small event is followed by a larger one about 2 seconds later.
MAY 17	03 25 48.7	24.223 N	121.058 E	10	G	5.4	5.3	1.0	186	TAIWAN. Mw 5.4 (HRV). Mo=1.6*10**17 Nm (HRV). At least three people killed, 13 injured and landslides in Tai-chung County. Felt as far as Taipei. Recorded (4 TAP) in eastern Tai-chung County; (3 TAP) at Chang-hua and Tai-chung; (2 TAP) at Hua-lien and Miao-li. Also recorded (1 TAP) throughout central and northern Taiwan.
JUN 03	08 54 49.2	35.552 N	140.464 E	62		5.6	5.6	0.9	413	NEAR EAST COAST OF HONSHU, JAPAN. Mw 6.1 (GS), 6.1 (HRV). Mo=1.5*10**18 Nm (GS). Mo=1.7*10**18 Nm (HRV). One person injured and minor damage in northeastern Chiba. Felt in the Tokyo area. Recorded (5L JMA) at Tako and in other parts of northern Chiba; (4 JMA) in southern Chiba and southern Ibaraki Prefectures.
JUN 04	16 28 26.1	4.721 S	102.087 E	33	N	6.8	8.0	1.1	381	SOUTHERN SUMATERA, INDONESIA. Mw 7.7 (GS), 7.9 (HRV). Mo=4.0*10**20 Nm (GS). Mo=7.2*10**20 Nm (HRV). At least 103 people killed, 2,174 injured, extensive damage (VI) and landslides in the Bengkulu area; minor injuries and damage on Enggano. Felt (IV) in Lampung Province and at Palembang. Felt (III) at Jakarta, Jawa. Felt in much of southern Sumatera. Felt throughout Singapore. Also felt at Johor Bahru, Kuala Lumpur and Petaling Jaya, Malaysia.
JUN 04	16 39 45.6	4.646 S	102.102 E	33	N	6.7		1.3	147	SOUTHERN SUMATERA, INDONESIA.

JUN	04	17 52 15.9	28.723 N	65.383 E	33	N	6.0	1.2	331	PAKISTAN. Felt at Duki, Harnai, Karachi, Quetta, Sibi and Ziarat.
JUN	06	02 41 49.8	40.693 N	32.992 E	10	G	5.5 6.1	1.0	418	TURKEY. Mw 6.1 (GS), 6.0 (HRV), 5.9 (CSEM). Mo=1.5*10**18 Nm (GS). Mo=1.2*10**18 Nm (HRV). Mo=7.9*10**17 Nm (CSEM). At least two people killed, more than 80 people injured and at least 4,600 homes destroyed or damaged in the Cerkes-Cubuk-Orta area. Felt strongly in the Ankara area. Also felt in much of north-central Turkey and along the Black Sea coast.
JUN	06	10 59 09.7	37.012 N	103.791 E	10	G	5.2 5.6	1.2	210	GANSU, CHINA. Mw 5.7 (HRV). Mo=3.8*10**17 Nm (HRV). At least 20 people injured and damage in the Baiyin area. Felt strongly in much of northern Gansu Province.
JUN	06	21 16 42.4	36.829 N	135.464 E	10	G	5.7 5.3	0.9	395	SEA OF JAPAN. Mw 5.8 (GS), 5.9 (HRV). Mo=6.4*10**17 Nm (GS). Mo=8.9*10**17 Nm (HRV). Three people injured in the epicentral area. Recorded (5L JMA) at Komatsu. Also recorded (4 JMA) in northern Fukui, central and northern Ishikawa; (3 JMA) in western Fukui, southern Kyoto and western Toyama Prefectures, Honshu.
JUN	07	21 46 55.9	26.856 N	97.238 E	33	N	6.3 6.5	0.9	403	MYANMAR. Mw 6.4 (GS), 6.4 (HRV). Mo=4.4*10**18 Nm (GS). Mo=3.8*10**18 Nm (HRV). Many buildings damaged at Liuku, China. Felt in northern Myanmar and in the state of Arunachal Pradesh, India.
JUN	07	23 45 26.6	4.612 S	101.905 E	33	N	6.1 6.7	1.2	353	SOUTHERN SUMATERA, INDONESIA. Mw 6.5 (GS), 6.7 (HRV). Mo=6.0*10**18 Nm (GS). Mo=1.2*10**19 Nm (HRV). One person killed and at least 600 buildings damaged at Lahat. Felt (V) at Bengkulu. Felt at Pelembang. Also felt (II) at Jakarta, Jawa.
JUN	10	18 23 29.3	23.843 N	121.225 E	33	N	6.2 6.2	1.0	379	TAIWAN. Mw 6.3 (GS), 6.4 (HRV). Mo=3.1*10**18 Nm (GS). Mo=4.8*10**18 Nm (HRV). Two people died from heart attacks and 36 injured in the Nan-tou area. Landslides and rockslides blocked a number of highways in central Taiwan. Felt throughout Taiwan. Also felt (IV) in Hong Kong. Recorded (6 TAP) in western Nan-tou and (5 TAP) in Yun-lin, western Tai-nan and northern Tai-tung Counties. Recorded (5 TAP) at Chang-hua, Chia-i and Hua-lien; (4 TAP) at Cheng-kung, Miao-li and Tai-chung; (3 TAP) at I-lan, Kao-hsiung, Tai-nan and Taipei. Also recorded (4 TAP) at Ma-kung Peng-hu Tao; (1 JMA) on Iriomote-jima and Yonaguni-jima, Ryukyu Islands.
JUN	11	11 55 12.3	50.579 S	139.550 E	10	G	5.9 6.4	1.2	160	WESTERN INDIAN-ANTARCTIC RIDGE. Mw 6.4 (GS), 6.6 (HRV). Mo=4.8*10**18 Nm (GS). Mo=7.8*10**18 Nm (HRV).
JUN	16	07 55 35.3	33.877 S	70.088 W	120	D	6.2	1.0	369	CHILE-ARGENTINA BORDER REGION. Mw 6.5 (GS), 6.4 (HRV). MD 6.1 (GUC). Mo=5.6*10**18 Nm (GS). Mo=5.3*10**18 Nm (HRV). Felt (VI) at Rancagua, San Fernando and Valparaiso; (V) at Curico, Parral, Quillota, Quilpue, San Antonio, Santiago, Santo Domingo, Talca and Villa Alemana; (IV) at Concepcion, Los Andes, Petorca and San Felipe; (III) at Illapel, La Serena and Ovalle; (II) at Los Angeles, Chile. Power outages occurred at Curico, Rancagua, Santiago and Valparaiso, Chile. Landslides occurred in the San Jose de Maipo area, Chile. Also felt (IV) at Mendoza and San Juan, Argentina.
JUN	17	15 40 41.7	63.966 N	20.487 W	10	G	5.7 6.6	1.0	407	ICELAND. 6.5 (GS), 6.5 (HRV), Mw 6.8 (CSEM). Mo=6.0*10**18 Nm (GS). Mo=7.1*10**18 Nm (HRV). Mo=1.7*10**19 Nm (CSEM). One person injured and rockslides closed some roads at Vestmannaeyjar. At least 11 houses destroyed, 19 damaged, serious damage to a glass factory and utilities disrupted at Hella. Felt throughout western Iceland.
JUN	18	14 44 13.3	13.802 S	97.453 E	10	G	6.8 7.8	1.2	408	SOUTH INDIAN OCEAN. Mw 7.6 (GS), 7.8 (HRV). Mo=2.7*10**20 Nm (GS). Mo=6.0*10**20 Nm (HRV). Mo=7.8*10**20 Nm (PPT). Small items knocked from shelves and a local tsunami generated with an estimated wave height of 30 cm in the Cocos Islands. Felt (II) at Bengkulu, Jakarta and

											Padangpanjang, Indonesia.
JUN	21	00 51 46.8	63.980 N	20.758 W	10 G	6.1	6.6	0.9	352	ICELAND. Mw 6.4 (GS), 6.5 (HRV), 6.4 (CSEM). Mo=5.2*10**18 Nm (GS). Mo=5.5*10**18 Nm (HRV). Mo=4.3*10**18 Nm (CSEM). About 12 houses destroyed and 24 severely damaged in the Grimsnes region. Water pipes damaged in the Selfoss-Eyrarbakki-Stokkseyri area. Felt in southwestern Iceland and as far north as Isafjorour.
JUL	01	07 01 55.5	34.221 N	139.131 E	10 G	6.0	6.1	1.0	356	NEAR S. COAST OF HONSHU, JAPAN. Mw 6.2 (GS), 6.2 (HRV). Mo=2.3*10**18 Nm (GS). Mo=1.9*10**18 Nm (HRV). One person killed by a landslide, several injured, minor damage and power outages on Kozu-shima. Recorded (6L JMA) on Kozu-shima, (5L JMA) on Nii-jima, (4 JMA) on Miyake-jima, (3 JMA) on O-shima and (2 JMA) on Hachijo-jima. Also recorded (4 JMA) at Kawazu; (3 JMA) in the Tateyama area and at Yokohama; (2 JMA) in the Tokyo area. A local tsunami generated with a recorded wave height of 7 cm at Minamiizu.
JUL	06	19 30 20.3	11.884 N	85.988 W	33	5.0	5.1	1.2	183	NICARAGUA. MD 5.1 (CASC). Seven people killed, 42 injured, 357 houses destroyed and 1,130 houses damaged in the Masaya area. Felt throughout Nicaragua.
JUL	07	00 15 30.9&	40.837 N	29.218 E	9	4.2			89	TURKEY. . MD 4.2 (ISK). One person died from a heart attack and seven people injured in the Gebze area. Twenty-seven people injured in the Kartal area. Felt strongly in the Istanbul area.
JUL	11	01 32 28.5&	57.369 N	154.206 W	44	6.3	6.2		666	KODIAK ISLAND REGION, ALASKA. . Mw 6.7 (GS), 6.5 (HRV). Me 6.8 (GS). ML 6.3 (AEIC), 6.6 (PMR). Es=4.2*10**14 Nm (GS). Mo=1.3*10**19 Nm (GS). Mo=6.6*10**18 Nm (HRV). Some minor damage on Kodiak. Felt (V) at Karluk, Kodiak and Larsen Bay; (III) at Naknek and Perryville; (II) at Anchorage, Cordova and Palmer. Felt throughout southern Alaska and as far north as Fairbanks. Two events about 1.5 seconds apart.
JUL	12	01 10 42.6	6.675 S	106.845 E	33 N	5.2	5.0	1.2	103	JAWA, INDONESIA. Six people injured and 200 houses damaged at Cijeruk; three buildings damaged at Bandung; twelve houses destroyed and twenty damaged at Cibadak; one building damaged at Cimandiri; many houses damaged at Kadudampit; one house damaged at Sukajadi. Felt (III) at Jakarta.
JUL	15	01 30 30.5	34.319 N	139.260 E	10 G	5.5	5.9	0.9	275	NEAR S. COAST OF HONSHU, JAPAN. Mw 6.0 (GS), 6.1 (HRV). Mo=1.2*10**18 Nm (GS). Mo=1.4*10**18 Nm (HRV). Ten people injured, 20 homes damaged, landslides and power outages occurred on Nii-jima. Recorded (6L JMA) on Nii-jima, (5L JMA) on O-shima, (4 JMA) on Kozu-shima, (3 JMA) on Miyake-jima and (2 JMA) on Hachijo-jima. Also recorded (4 JMA) at Tateyama and Yokohama; (3 JMA) at Ito, Sagamihara, Shimoda, Suwa, Tokyo and Yokosuka.
JUL	16	03 21 45.5	20.253 N	122.043 E	33 N	6.1	6.3	1.2	304	PHILIPPINE ISLANDS REGION. Mw 6.4 (GS), 6.4 (HRV). Mo=5.2*10**18 Nm (GS). Mo=4.3*10**18 Nm (HRV). Six people injured, many houses damaged and utilities disrupted; a church and some houses damaged at Basco; a highway blocked by a landslide on Mount Irada, Batan Islands. Recorded (1 JMA) on Iriomote-jima, Ryukyu Islands.
JUL	16	03 57 45.5	7.747 S	150.917 E	10 G	6.3	6.4	0.9	372	NEW BRITAIN REGION, P.N.G. Mw 6.6 (GS), 6.6 (HRV). Mo=8.0*10**18 Nm (GS). Mo=9.3*10**18 Nm (HRV).
JUL	17	22 53 47.3	36.283 N	70.924 E	141 D	6.0		1.1	420	HINDU KUSH REGION, AFGHANISTAN. Mw 6.4 (GS), 6.3 (HRV). Mo=4.6*10**18 Nm (GS). Mo=3.7*10**18 Nm (HRV). Two people killed at Peshawar, Pakistan when a three-story building collapsed. Felt in Kashmir, northern India, northern Pakistan and as far as Kabul, Afghanistan.
JUL	28	20 28 12.7	23.359 N	120.915 E	33 N	5.6	5.6	1.3	263	TAIWAN. Mw 5.7 (GS), 5.6 (HRV). Mo=4.7*10**17 Nm (GS). Mo=2.8*10**17 Nm (HRV). One person injured and 2 buildings destroyed by rockslides in Nan-tou County. Rockslides blocked a highway in Chia-i County. Felt as far as Taipei and Kao-hsiung. Recorded (4 TAP) at Chia-i and in many

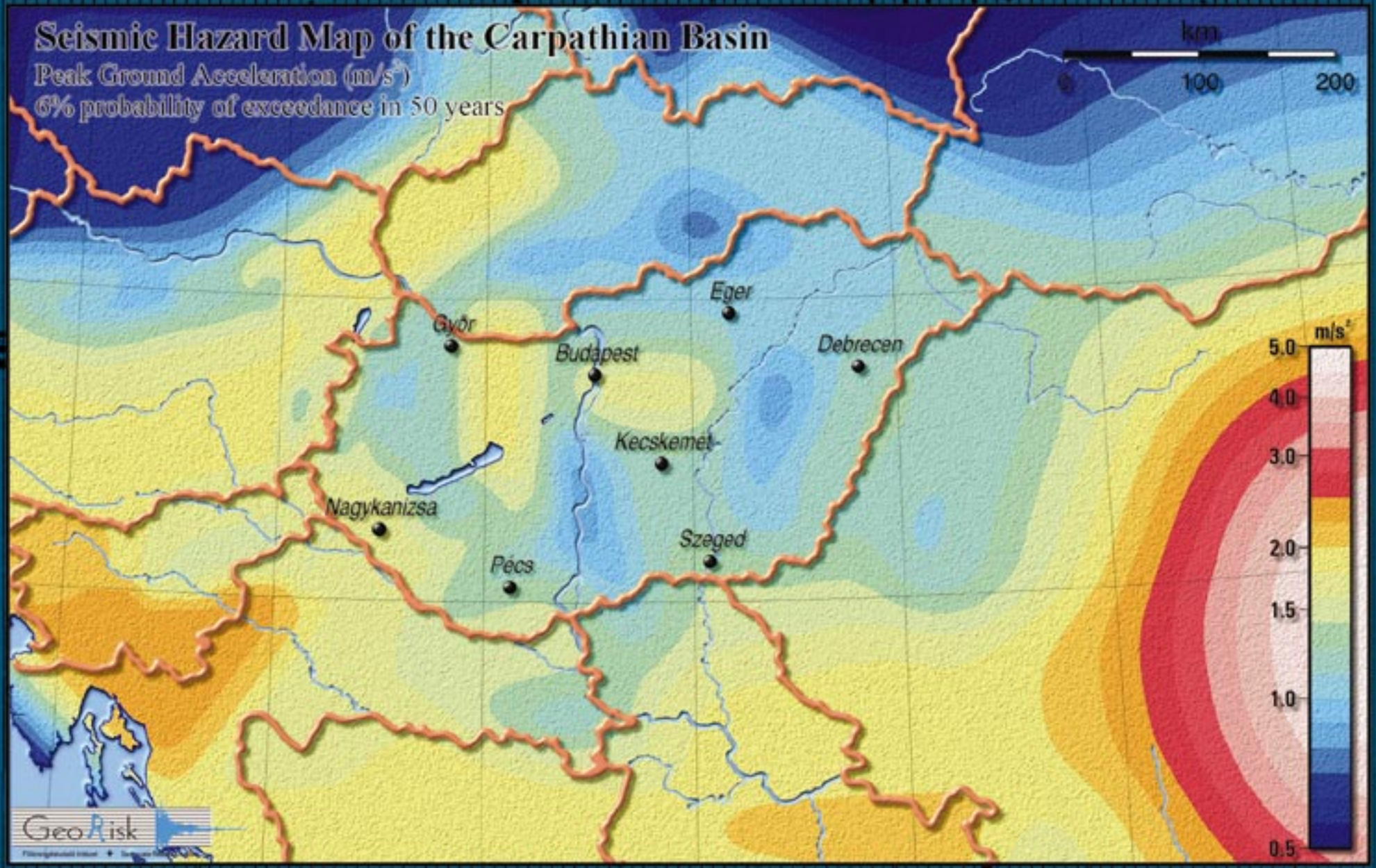
												other parts of central Taiwan; (3 TAP) at Chang-hua, Cheng-kung and Hua-lien; (2 TAP) at I-lan, Kao-hsiung, Miao-li, Tai-chung, Taipei and Tai-tung. Also recorded (1 TAP) on Lan Yu and at Ma-kung, Peng-hu Tao.
JUL	30	12 25 45.5	33.901 N	139.376 E	10	G	6.0	6.5	0.9	429	SOUTHEAST OF HONSHU, JAPAN. Mw 6.5 (GS), 6.5 (HRV). Mo=6.1*10**18 Nm (GS). Mo=6.0*10**18 Nm (HRV). Mo=7.9*10**18 Nm (PPT). One person injured, road damage and landslides on Miyake-jima. Felt in the Tokyo area. Recorded (6L JMA) on Miyake-jima; 5L JMA) on Kozu-shima and Nii-jima; (3 JMA) on Hachijo-jima and O-shima. Also recorded (3 JMA) in southern Chiba, eastern Kanagawa and eastern Shizuoka Prefectures. Recorded (1 JMA) as far as Hyogo and Wakayama Prefectures.
AUG	03	01 09 38.9	12.037 S	166.448 E	33	N	5.7	6.5	1.0	220	SANTA CRUZ ISLANDS. Mw 6.7 (GS), 6.6 (HRV). Mo=1.1*10**19 Nm (GS). Mo=8.6*10**18 Nm (HRV). Felt at Lata.
AUG	04	21 13 02.7	48.786 N	142.246 E	10	G	6.3	7.1	0.9	598	SAKHALIN ISLAND, RUSSIA. Mw 6.7 (GS), 6.8 (HRV). Mo=1.3*10**19 Nm (GS). Mo=1.9*10**19 Nm (HRV). Mo=2.4*10**19 Nm (PPT). Eight people injured, 19,100 homeless, 1,390 buildings damaged and a landslide destroyed roads and power lines in the Uglegorsk-Makarov area. Estimated 920,000 US dollars damage. Recorded (1 JMA) in the Wakkanai area, Hokkaido and on Rishiri-to, Japan.
AUG	06	07 27 12.9	28.856 N	139.556 E	395	D	6.3		0.9	591	BONIN ISLANDS, JAPAN REGION. Mw 7.3 (GS), 7.3 (HRV). Mo=9.3*10**19 Nm (GS). Mo=1.1*10**20 Nm (HRV). Mo=1.1*10**20 Nm (PPT). Felt at Misawa, Honshu. Recorded (3 JMA) on Hachijo-jima and in southern Chiba, northeastern Fukushima and eastern Kanagawa Prefectures, Honshu. Recorded (1 JMA) as far as southern Aomori Prefecture, Honshu.
AUG	07	14 33 55.9	7.018 S	123.357 E	649	D	6.5		0.9	578	BANDA SEA. Mw 6.5 (GS), 6.5 (HRV). Mo=6.0*10**18 Nm (GS). Mo=6.0*10**18 Nm (HRV).
AUG	09	11 41 47.9	18.198 N	102.480 W	46		6.1	6.5	1.0	487	MICHOACAN, MEXICO. Mw 6.4 (GS), 6.5 (HRV). Mo=4.9*10**18 Nm (GS). Mo=6.9*10**18 Nm (HRV). Mo=1.0*10**19 Nm (PPT). One person injured, some damage to buildings and power outages occurred at Lazaro Cardenas. Felt strongly in Michoacan and adjoining states. Felt strongly in Mexico City. Also felt throughout central and southern Mexico.
AUG	15	04 30 08.8	31.511 S	179.725 E	358	D	6.0		0.9	473	KERMADEC ISLANDS REGION. Mw 6.6 (GS), 6.6 (HRV). Mo=9.4*10**18 Nm (GS). Mo=8.9*10**18 Nm (HRV). Mo=1.4*10**19 Nm (PPT).
AUG	19	21 26 15.5?	39.70 N	41.13 E	33	N	4.1		1.5	7	TURKEY. Nine people injured in the Erzurum area.
AUG	21	13 25 44.5	25.826 N	102.194 E	33	N	4.9	4.2	1.0	119	YUNNAN, CHINA. One person killed, 406 injured, over 169,000 homeless and extensive damage in the Wuding County area.
AUG	23	13 41 28.1&	0.680 N	30.720 E	15		5.2	4.9		353	TURKEY. . ML 5.8 (ISK). At least 22 people injured in the Adapazari area. Felt in the Adapazari, Bursa, Istanbul and Yalova areas.
AUG	28	15 05 47.9	4.110 S	127.394 E	16	G	6.5	6.8	1.0	344	BANDA SEA. Mw 6.6 (GS), 6.8 (HRV). Me 6.7 (GS). Es=2.2*10**14 Nm (GS). Mo=8.2*10**18 Nm (GS). Mo=1.8*10**19 Nm (HRV). Felt on Ambon, Indonesia.
AUG	28	19 29 32.3	4.124 S	127.027 E	33	N	6.5	6.4	1.0	168	BANDA SEA. Mw 6.3 (GS), 6.4 (HRV). Mo=2.9*10**18 Nm (GS). Mo=4.7*10**18 Nm (HRV).
SEP	03	08 36 30.0&	38.379 N	122.413 W	10		4.9	4.9		146	NORTHERN CALIFORNIA. ML 5.2 (NC). Mw 5.0 (BRK). At least 41 people injured in the Napa area. Considerable damage damage (VII) at Napa. Felt (V) at Boyes Hot Springs, El Verano, Freestone, Rutherford, Sonoma, Vallejo and Yountville; (IV) at American Canyon, Benicia, Birds Landing, Calistoga, Canyon, Concord, Crockett, Deer Park, Duncans Mills, Fairfield, Guerneville, Lafayette, Marshall,

											Martinez, Montgomery Village, Novato, Penngrove, Pittsburg, Port Costa, Rohnert Park, San Bruno, San Francisco, Santa Rosa, Suisun City, Vacaville, Villa Grande, Winters and Woodacre. Felt in much of northern California from Sacramento to Santa Rosa and south to the San Francisco Bay area.
SEP	20	08 37 16.3	1.885 S	80.461 W	33	N	5.4 4.8	1.1	223	NEAR COAST OF ECUADOR. Mw 5.5 (GS), 5.5 (HRV). Mo=1.7*10**17 Nm (GS). Mo=2.0*10**17 Nm (HRV). One person killed and some structural damage in Manabi Province. Felt at Guayaquil.
SEP	28	23 23 43.3	0.215 S	80.582 W	23		5.8 6.0	0.9	388	NEAR COAST OF ECUADOR. Mw 6.6 (GS), 6.4 (HRV). Mo=7.8*10**18 Nm (GS). Mo=3.8*10**18 Nm (HRV). Mo=2.6*10**18 Nm (PPT). Minor damage at Chone and Quito. Felt throughout Ecuador.
OCT	02	02 25 31.3	7.977 S	30.709 E	34	G	6.1 6.7	1.1	416	LAKE TANGANYIKA REGION. Mw 6.5 (GS), 6.5 (HRV). Me 6.2 (GS). Es=4.0*10**13 Nm (GS). Mo=6.6*10**18 Nm (GS). Mo=5.6*10**18 Nm (HRV). Six people injured, at least 7 houses destroyed and 150 damaged in Nkansi District, Rukwa Region, Tanzania. Felt strongly in much of Rukwa Region. Also felt in Copperbelt, Luapula and Northern Provinces, Zambia and in eastern Katanga Province, Democratic Republic of the Congo.
OCT	04	02 33 57.0&	37.918 N	29.046 E	8		4.6 4.0		172	TURKEY. . MD 4.7 (ISK), 4.6 (ATH). At least 31 people injured in the Denizli area.
OCT	04	16 58 44.3	15.421 S	166.910 E	23	G	6.1 6.9	1.2	357	VANUATU ISLANDS. Mw 6.7 (GS), 6.8 (HRV). Me 6.5 (GS). Es-1.1*10**14 Nm (GS). Mo=1.4*10**19 Nm (GS). Mo=1.7*10**19 Nm (HRV). Mo=2.5*10**19 Nm (PPT).
OCT	06	04 30 19.1	35.456 N	133.134 E	10	G	5.8 6.8	1.0	390	WESTERN HONSHU, JAPAN. Mw 6.5 (GS), 6.7 (HRV). Me 7.0 (GS). Es=7.3*10**14 (GS). Mo=7.4*10**18 Nm (GS). Mo=1.1*10**19 Nm (HRV). At least 130 people injured, 2230 structures damaged, 104 houses destroyed, seven bridges collapsed and 65 landslides reported in the Okayama-Tottori area. Recorded (6U JMA) in Tottori; (5U JMA) in northern Okayama; (5L JMA) in northeastern Shimane, southern Hiroshima and Okayama; (4 JMA) in much of southwestern Honshu; (3 JMA) in other parts of southwestern Honshu; (2 JMA) as far north as Saitama and Toyama Prefectures. Recorded (5U JMA) in eastern Kagawa; (5L JMA) in Tokushima and western Kagawa; (4 JMA) in southern Tokushima, northern Ehime and Kochi; (3 JMA) in southern Ehime Prefectures; (2 JMA) in other parts of Shikoku. Also recorded (3 JMA) in northern Kyushu and (2 JMA) in other parts of Kyushu.
OCT	25	09 32 24.0	6.507 S	105.604 E	38	G	6.3 6.6	0.9	231	SUNDA STRAIT, INDONESIA. Mw 6.8 (GS), 6.8 (HRV). Me 6.7 (GS). Es=2.5*10**14 Nm (GS). Mo=1.5*10**19 Nm (GS). Mo=1.8*10**19 Nm (HRV). Slight damage at Banten, Jakarta and Pandeglang, Jawa. Felt (IV) at Serang, Jawa. Felt at Bandung, Garut, Sukabumi and Tasikmalaya, Jawa and at Bandar Lampung, Sumatera. Also felt by people in high-rise buildings in Singapore. Complex earthquake. A small event is followed by a larger one about 3 seconds later.
OCT	29	08 37 08.7	4.766 S	153.945 E	50	G	6.1 6.3	1.0	60	NEW IRELAND REGION, P.N.G. Mw 6.9 (GS), 6.9 (HRV). Me 6.3 (GS). Es=5.8*10**13 Nm (GS). Mo=2.3*10**19 Nm (GS). Mo=2.6*10**19 Nm (HRV). Mo=2.6*10**19 Nm (PPT). Complex earthquake.
OCT	30	16 42 51.7	34.300 N	136.214 E	35	D	5.4 5.1	0.9	121	WESTERN HONSHU, JAPAN. Four people injured in Mie, 1 in Aichi, 1 in Gifu and 1 in Nara Prefectures. Felt at Hamamatsu. Recorded (4 JMA) in Aichi, Mie, northern Nara and southern Shiga; (3 JMA) in Kyoto, Osaka, Wakayama, southern Hyogo, southern Fukui and Gifu and other parts of Aichi and Shiga Prefectures. Recorded (2 JMA) in much of south-central Honshu and (1 JMA) from Hiroshima to Nagano, Kanagawa and northern Fukui Prefectures. Also recorded (2 JMA) in the Tokushima area and (1 JMA) in eastern Shikoku.
NOV	07	00 18 04.9	55.627 S	29.876 W	10	G	6.7	1.3	190	SOUTH SANDWICH ISLANDS REGION. Mw 6.6 (GS), 6.8 (HRV). Mo=1.0*10**19 Nm (GS). Mo=1.9*10**19 Nm (HRV). Mo=1.7*10**19 Nm (PPT).

NOV 08	06 59 58.8	7.042 N	77.829 W	17 G	6.0	6.4	1.0	462	PANAMA-COLOMBIA BORDER REGION. Mw 6.5 (GS), 6.5 (HRV). Me 6.2 (GS). ML 6.2 (RSNC). Es=5.0*10**13 Nm (GS). Mo=5.5*10**18 Nm (GS). Mo=6.8*10**18 Nm (HRV). Mo=9.0*10**18 Nm (PPT). Two people slightly injured; 86 houses and some municipal buildings damaged in the Jurado area, Colombia. Also felt by people in high-rise buildings at Medellin and Cali. Minor cracks in some buildings at Boca de Cupe, Panama.
NOV 10	20 10 53.3	36.601 N	4.773 E	10 G	5.8	5.5	1.1	426	NORTHERN ALGERIA. Mw 5.7 (GS), 5.7 (HRV). Mo=3.7*10**17 Nm (GS). Mo=4.1*10**17 Nm (HRV). One person killed at Bouga and one at Chemini. Twelve people injured and at least seven houses destroyed in Beni Ourtilane.
NOV 16	04 54 56.7	3.980 S	152.169 E	33 N	6.0	8.2	1.2	254	NEW IRELAND REGION, P.N.G. Mw 7.6 (GS), 8.0 (HRV). Me 8.0 (GS). Es=2.5*10**16 Nm (GS). Mo=2.4*10**20 Nm (GS). Mo=1.1*10**21 Nm (HRV). Mo=2.2*10**21 Nm (PPT). One person killed on Duke of York and one killed by a landslide on New Ireland. At least 5,000 people homeless on Bougainville, Buka, Duke of York, New Britain and New Ireland. Extensive damage from the earthquake and tsunami on Duke of York, New Britain and New Ireland. Numerous landslides occurred in southern New Ireland. Tsunami damage also observed along the west coast of Bougainville and on Buka. Also felt on Lihir Island. As much as 2-3 meters of subsidence occurred over several hundred meters at the mouth of the Kamdaru River, New Ireland and seiches up to 1 meter high were observed in water tanks and swimming pools at Rabaul, New Britain. Estimated wave heights (in meters) were as follows: 3 on Bougainville and Buka; 3 along the southwestern coast of New Ireland; 1 at Kokopo and Rabaul; 1 in the Trobriand Islands; 1 at Gizo and Noro, Solomon Islands. Complex event.
NOV 16	07 42 16.9	5.233 S	153.102 E	30 G	6.2	7.8	1.3	294	NEW IRELAND REGION, P.N.G. Mw 7.4 (GS), 7.6 (HRV). Me 7.3 (GS). Es=1.7*10**15 Nm (GS). Mo=1.2*10**20 Nm (GS). Mo=2.6*10**20 Nm (HRV). Additional damage in New Ireland, Bougainville and eastern New Britain. Complex earthquake. A small event is followed by a large one about 10 seconds later.
NOV 16	07 45 32.9	4.827 S	153.226 E	33 N	6.5	7.2	1.0	71	NEW IRELAND REGION, P.N.G.
NOV 17	21 01 56.4	5.496 S	151.781 E	33 N	6.2	8.0	1.1	349	NEW BRITAIN REGION, P.N.G. Mw 7.6 (GS), 7.5 (HRV). Me 6.9 (GS). Es=5.2*10**14 Nm (GS). Mo=2.4*10**20 Nm (GS). Mo=2.3*10**20 Nm (HRV). Mo=1.5*10**20 Nm (PPT). Felt in the New Britain area. Complex event.
NOV 18	02 05 48.8	5.097 S	153.181 E	33 N	5.9	6.6	1.1	270	NEW IRELAND REGION, P.N.G. Mw 6.9 (GS), 6.7 (HRV). Me 6.4 (GS). Es=8.1*10**13 Nm (GS). Mo=2.3*10**19 Nm (GS). Mo=1.2*10**19 Nm (HRV).
NOV 18	06 54 58.3	5.228 S	151.771 E	33 N	6.2	6.6	1.0	406	NEW BRITAIN REGION, P.N.G. Mw 6.8 (GS), 6.8 (HRV). Mo=1.5*10**19 Nm (GS). Mo=1.7*10**19 Nm (HRV).
NOV 25	18 09 11.4	40.245 N	49.946 E	50	5.8		1.0	447	EASTERN CAUCASUS. Mw 6.3 (GS). Mo=2.7*10**18 Nm (GS). Mo=1.0*10**19 Nm (OBN). Five people killed by falling debris, 23 more died from heart attacks, more than 430 injured and some damage (VI) in the Baku area, Azerbaijan. Three more people were killed the next day by an explosion caused by natural gas leaking from a valve damaged in the main shocks. Felt (VI) at Sumqayit, Azerbaijan and (V) at Bekdash, Turkmenistan. Felt (V) at Izberbash; (IV) at Derbent, Makhachkala and Sergokala; (III) at Khasavyurt and Kumukh; (II) at Buynaksk, Russia. Also felt at Tbilisi, Georgia and in northern Iran.
DEC 06	17 11 06.7	39.625 N	54.772 E	30 G	6.6	7.5	1.0	300	TURKMENISTAN. Mw 7.0 (GS), 7.0 (HRV). Me 6.9 (GS). Es=5.5*10**14 Nm (GS). Mo=3.3*10**19 Nm (GS). Mo=3.9*10**19 Nm (HRV). At least 11 people reported killed, several injured and damage in the Nebitdag-Turkmenbashi area. Felt in much of Turkmenistan and southern Russia including

											Moscow. Also felt in northern Iran; Baku, Azerbaijan; Spitak, Armenia. Complex earthquake.
DEC	06	22 57 40.4	4.184	S	152.771	E	31 G	6.1 6.6	0.8	126	NEW BRITAIN REGION, P.N.G. Mw 6.5 (GS), 6.6 (HRV). Me 6.2 (GS). Es=4.0*10**13 Nm (GS). Mo=5.5*10**18 Nm (GS). Mo=7.7*10**18 Nm (HRV). Mo=1.0*10**19 Nm (PPT).
DEC	15	16 44 44.9	38.608	N	31.058	E	10 G	5.6 5.8	1.0	41	TURKEY. Mw 6.0 (GS), 6.1 (HRV). Mo=1.1*10**18 Nm (GS). Mo=1.4*10**18 Nm (HRV). At least six people killed, 41 injured and damage in the Afyon-Bolvadin area. Felt strongly in the epicentral area.
DEC	18	01 19 20.0	21.107	S	179.072	W	600 G	6.3	0.9	211	FIJI ISLANDS REGION. Mw 6.5 (GS), 6.6 (HRV). Mo=6.1*10**18 Nm (GS). Mo=7.7*10**18 Nm (HRV).
DEC	20	16 49 43.2	9.231	S	154.328	E	33 N	5.8 6.3	1.5	71	D'ENTRECASTEAUX ISLANDS REGION. Mw 6.5 (GS), 6.6 (HRV). Mo=5.9*10**18 Nm (GS). Mo=9.2*10**18 Nm (HRV). Mo=5.5*10**18 Nm (PPT).
DEC	21	01 01 27.8	5.740	S	151.126	E	33 N	6.4 6.5	0.9	126	NEW BRITAIN REGION, P.N.G. Mw 6.4 (GS). Mo=4.8*10**18 Nm (GS). Mo=4.7*10**18 Nm (PPT).

Compiled by Waverly J. Person --- 2001/02/02


Seismic Hazard Map of the Carpathian Basin
Peak Ground Acceleration (m/s²)
6% probability of exceedance in 50 years
km
0
100
200
Eger
Győr
Budapest
Debrecen
Kecskemét
Nagykanizsa
Szeged
Pécs
m/s²
5.0
4.0
3.0
2.0
1.5
1.0
0.5
GeoRisk