Magyarországi földrengések évkönyve
Hungarian Earthquake Bulletin
2011

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GeoRisk
Földrengés Mérnöki Iroda ◆ Earthquake Engineering

Budapest

MAGYARORSZÁGI FÖLDRENGÉSEK ÉVKÖNYVE

HUNGARIAN EARTHQUAKE BULLETIN

2011

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Hivatkozás

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Hátsó borító: A 2011. január 29-i, oroszlányi földrengés (17:41 UTC) számított és makroszeizmikus intenzitás eloszlása (4.5 ML)

Back cover page: Instrumental and macroseismic intensity distribution of Oroszlány earthquake 29th January 2011, 17:41 UTC (4.5 ML)

TARTALOMJEGYZÉK

CONTENTS

BEVEZETÉS

A Pannon-medencében a földrengés aktivitás a lemezperemi területekhez képest mérsékelt, a rengések epicentrumainak eloszlása pedig első pillantásra rendszertelennek látszik. Nehéz eldönteni, hogy a földrengések izolált területeken, vagy szeizmikusan aktív vonalak mentén keletkeznek. Mindenesetre felismerhető néhány terület, ahol viszonylag gyakran fordult elő a múltban földrengés. Ilyenek pl. Eger és környéke, ahol 70 év alatt legalább 16 földrengés és több mint 50 nagyobb utórengés történt. Komárom és Mór környékén, Jászberény, Kecskemét és Dunaharaszti közelében szintén jelentős volt az aktivitás egy-egy bizonyos időszakban. Az alacsony szeizmicitás nem feltétlenül jelenti a földrengések méretének csekélységét: komoly épületkárokat okozó földrengésekről van szó, néhány esetben talajfolyósodást is okozó gyorsulásokkal (pl. 1763 Komárom, M 6.2; 1911 Kecskemét, M 5.6), esetleg a felszínen is megjelenő töréssel (pl. 1834 Érmellék, M 6.2). Ezek a példák azt mutatják, hogy 6.0-6.5 magnitúdójú rengések lehetségesek, de nem gyakoriak a Pannon-medencében (Tóth et al., 2002a).

A földtudományi kutatás fontos eleme a szeizmicitás vizsgálata, annak megismerése, hogy milyen gyakorisággal, hol és mekkora földrengések keletkeznek, továbbá melyek azok a szeizmotektonikai folyamatok, melyek a földrengéseket létrehozzák.

Az általános ismeretszerzésen túlmenően a földrengés elleni védekezéshez is fontos segítséget nyújt a szeizmicitás pontos ismerete. Egy terület földrengés kockázatát csak komplex szeizmológiai, geofizikai, geológiai ismeretek alapján lehet meghatározni. A legfontosabb információ, mely mennyiségileg meghatározza a földrengéskockázatot, a terület földrengés története, illetve a jelenkori rengések ismerete. Ehhez nyújt kardinális fontosságú segítséget a földrengés monitorozás, a földrengések megfigyelése, mérése és paramétereinek meghatározása.

Magyarországon a földrengésmérő állomások száma és minősége 1995-ben érte el azt a szintet, hogy a lakosság által érzékelt valamennyi rengést a hálózat nagy valószínűséggel detektálja. Ez nagyrészt annak a szeizmikus megfigyelő hálózatnak köszönhető, melyet a Nemzetközi Atomenergia Ügynökség javaslatára a Paksi Atomerőmű létesített az atomerőmű telephely tágabb környezetében.

Jelen kiadványunk célja és tartalma pontosan az, amit a címe is jelez: évkönyv, melyben megtalálható minden olyan adat és ismeret, melyet az év során a magyarországi földrengésekkel kapcsolatban összegyűjtöttünk. A célterület a 45.5-49.0É szélesség és 16.0-23.0K hosszúság által határolt földrajzi tartomány. A teljesség kedvéért azonban a világ jelentős földrengéseinek listája is megtalálható a mellékletben. Reméljük, hogy hasznát látják munkánknak mindazok, akik földtudományi kutatásaikban felhasználói a szeizmicitás adatoknak, de azok is, akik csupán egy-egy földrengéssel kapcsolatos kérdésükre keresnek választ kiadványunkban.

INTRODUCTION

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 surface 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 (Tóth et al., 2002b).

The study of the recent seismicity is an important element of seismotectonic research. 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.

Moreover, as one of the chief contributor to seismic hazard at a given area, detailed knowledge of seismicity also plays an important role in earthquake risk reduction. To be useful, accurately located earthquakes are required. While good information about larger historical earthquakes exists for about the past few hundred years, these are not well enough located. Only modern seismic monitoring networks, capable of locating small magnitude local earthquakes provide the necessary information to close this knowledge gap. The developing database of well-located earthquakes can be used, in one hand, to resolve the tectonic framework and required on the other hand to refine our understanding of the level of seismic risk.

1995 was a milestone in the history of Hungarian seismological observations. The Paks Nuclear Power Plant Ltd. installed a network of high quality digital seismographs, following the recommendations by the International Atomic Energy Agency (IAEA). For the first time, this network made it possible to detect and locate such small magnitude local seismic events that it is very unlikely so as to felt events go undetected in most parts of the country.

The present Earthquake Bulletin is a united annual summary report of all Hungarian 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.

ÖSSZEFOGLALÁS

A 2011. év szeizmikus szempontból kiemelkedően aktív időszaknak tekinthető Magyarországon. Az év folyamán 505 szeizmikus eseményről szereztünk tudomást a 45.5-49.0N szélességi és 16.0-23.0E hosszúsági koordináták által határolt területen, amelyek közül 410 volt természetes eredetű földrengés, 95 robbantás. Az események mérete a $-0.7 \leq M_L \leq 4.5$ lokális magnitúdó tartományba esett.

Az évben összesen 8 olyan földrengés volt, melyet a lakosság is érzett, de részletesebb makroszeizmikus jelentés 7 eseményről áll rendelkezésre.

A legnagyobb műszeresen meghatározott magnitúdójú rengés 4.5 M_L, míg a legnagyobb földrengés intenzitás, melyet Magyarország területéről az év folyamán jelentettek 6 EMS fokozatú volt. Ez kisebb épületkárokat is jelentett, jellemzően kémények rongálódtak meg, repedések keletkeztek vakolatban, s néhány esetben szerkezeti falakban is.

A rengések mindegyike többé-kevésbé ismert forrászónához köthető. A legnagyobb számú szeizmikus esemény 2011-ben a január 29-én keletkezett oroszlányi földrengéshez utórengésként köthető. A rengések nagy száma a Komárom – Berhida közé eső területen, a Móri-árok forrászónában keletkezett. Ennek egyik, nem szeizmotektonikai magyarázata az állomáshálózat fokozott érzékenysége ezen a területen.

Az év első érezhető rengését (M_L 2.1) január 26-án este jelezték Komárom-Esztergom megyében, Bana környékén. A rengés intenzitása 4-5 EMS fokra becsülhető az epicentrum térségében. Ugyanerről a területről, Bábolnától délnyugatra, négy érezhető rengést is jeleztek a közelmúltban 2004-ben és 2010-ben.

Az utóbbi évek legnagyobb rengése keletkezett január 29-én Oroszlány közelében. A 4.5 M_L magnitúdójú rengés nagy területen volt érezhető Mosonmagyaróvártól Budapestig, illetve Galántától Siófokig. A rengés az epicentrum környékén jelentős épület károkat is okozott. A kisebb-nagyobb épületkárokkal érintett $I \geq 5$ EMS terület nagysága kb. 1500 km^2 volt.

A január 29-i oroszlányi földrengést több száz kisebb utórengés követte, melyek közül kettő volt érezhető. A január 30-án keletkezett 2.7 M_L magnitúdójú utórengés epicentrális intenzitása 4-5 EMS fokra becsülhető. A július 11-én keletkezett 3.5 M_L magnitúdójú utórengés több településen 5 EMS intenzitású megrázottságot okozott.

A Kapos-vonalhoz köthető a szeptember 3-án, Németkér közelében keletkezett (M_L 2.7) rengés, melynek intenzitása az epicentrumban elérte a 4-5 EMS fokozatot.

Szeptember 7-én éjszaka kisebb (2.3 M_L) földrengést jelentettek Nógrád megyéből. Az esemény csak nagyon kis területen volt érezhető, a legnagyobb intenzitás 4 EMS volt.

3.5 M_L magnitúdójú rengés pattant ki november 2-re virradó éjjel Győr-Moson-Sopron megyében. A rengés érezhető volt mintegy 1000 km^2 területen. A rengés intenzitása Rábapatonán 5-6 EMS volt.

1.

SUMMARY

2011 was a markedly active year for Hungarian seismicity. Out of the 505 seismic events (-0.7≤ M_L ≤4.5) located within the area bounded by latitudes 45.5-49.0N and longitudes 16.0-23.0E, 410 were identified as natural earthquakes and 95 were known quarry blasts.

All together eight earthquakes were reported as felt but detailed macroseismic information is available only for seven events.

The highest magnitude assigned to a shock was 4.5 M_L while the highest intensity reported during the year was 6 EMS. Limited but significant building damage (typically fine cracks in plaster, small pieces of plaster fall, and cracks in walls in some cases) was also reported during the year.

All detected and located earthquakes can be connected to more or less well-known source zones.

In 2011, significant number of seismic events can be assigned to the Oroszlány earthquake on 29th January as aftershocks. Large number of events was located in the Komárom – Berhida region, in the well-known source zone of Mór graben. In addition to the undoubted current activity of this area, the high number of detected low magnitude events is partly due to the increased sensitivity of the network here.

In the evening on January 26th, the first felt event of the year was reported from Bana, Komárom-Esztergom County. The shock was felt 4-5 EMS in a very small an area near to the epicenter. Previously in the near past, four felt earthquakes were reported from the same area in 2004 and 2010.

On January 29th, the strongest earthquake of the last years in Hungary occurred near to the town of Oroszlány. The 4.5 M_L magnitude earthquake was felt in a large area. It was reported to be sensed as far as Mosonmagyaróvár, in most western districts of Budapest, in Galánta (Slovakia) and Siófok. Quite significant damage in buildings was also reported from the epicenter area. The affected area of I ≥ 5 EMS was about 1500 km^2

The Oroszlány earthquake of 29th January was followed by a large number of aftershocks. Two of the larger aftershocks were felt. The 2.7 M_L magnitude aftershock on 30th January was reported felt with intensity 4-5 EMS. The 3.5 M_L magnitude aftershock on 11th July produced reports of 5 EMS.

The M_L 2.7 earthquake on 3rd September was felt 4-5 EMS in and around the locality of Németkér and can be connected to the current tectonic activity of the Kapos-line.

On the night of September 7th, a small magnitude (2.3 M_L) event was felt in Nógrád County and produced reports of intensity 4 EMS.

3.5 M_L magnitude earthquake was reported from Győr-Moson-Sopron County on the night of November 2nd. The earthquake was felt in an area of about 1000 km^2 in NW Hungary. The highest intensity 5-6 EMS were reported from Rábapatona.

2.

FÖLDRENGÉS MEGFIGYELŐ ÁLLOMÁSOK MAGYARORSZÁGON

2011-ben 15 állandó és 3 temporális szeizmográf állomás működött Magyarországon. Az állandó állomások közül kilencet a GeoRisk Földrengés Mérnöki Iroda Kft., hatot az MTA Geodéziai és Geofizikai Kutatóintézet (MTA GGKI) üzemeltetett. Két ideiglenes állomást az Eötvös Loránd Geofizikai Intézet (ELGI), egyet pedig az MTA GGKI telepített (2.1. Táblázat és 2.1. ábra).

Szélessávú állomások

Az év folyamán 5 szélessávú szeizmológiai állomás működött (BEHE, BUD, PSZ, SOP, TRPA), melyek mindegyikén az érzékelő egy 3 komponenses szélessávú Streckeisen STS-2 szeizmométer. Az érzékelő jele EarthData PS-6-24 digitalizáló egységen át jut a SeisComp szoftverrel felszerelt adatgyűjtő számítógépre. Mindegyik állomás internet összeköttetéssel rendelkezik, így az adatok közel valós időben, egy erre a célra kifejlesztett protokoll (SeedLink) felhasználásával jutnak el az adatközpontba, ahol a feldolgozás és archiválás történik. Az adatközpontban az adatok átlagos késése a valós időhöz képest 10 másodperc körüli. Az állomáson tárolt adatok bizonyos idő elteltével törlődnek.

Rövidperiódusú állomások

A 10 rövidperiódusú állomások közül kilenc állomáson Lennartz LE-3D, 1 s sajátperiódusú, 3 komponenses szeizmométer és Lennartz MARS88 digitalizáló és adatgyűjtő működik, folyamatos regisztrálással. Egy állomáson (CSKK) az érzékelő három Kinemetrics SS-1 rövidperiódusú szeizmométer, az adatgyűjtő Kinemetrics K2, szintén folyamatos regisztrálással.

Öt rövidperiódusú állomáson (PKS2, PKS6, PKS7, PKS9, PKSN) az adatok átmeneti tárolása a helyszínen, magneto-optikai lemezeken történik. A lemezek havi cseréjével az adatok legalább két nap, legfeljebb egy hónap késéssel kerülnek az adatközpontba.

További négy rövidperiódusú állomáson (PENC, PKSG, PKSM, PKST) – bár az érzékelő és digitalizáló ugyanaz – az adatgyűjtés on-line történik. Az adatok a helyszínen működő SeisComp rendszerű számítógépbe jutnak, ahol annak merevlemezén tárolódnak, majd interneten keresztül eljutnak az adatközpontba, hasonlóan a szélessávú állomásokhoz. Mivel az itt alkalmazott konfiguráció és a működés részben eltér a szélessávú állomásokétól, ebből adódóan az adatok késése valamivel nagyobb, 10-30 perces. Az állomáson tárolt adatok bizonyos idő elteltével itt is automatikusan törlődnek.

A CSKK állomáson Kinemetrics K2 adatgyűjtő és SeisComP PC biztosítja a helyszíni regisztrálást és a kommunikációt az adatközponttal.

Ideiglenes állomások

A 2011. január 29-én, Oroszlány környékén kipattant jelentős földrengés után, elsősorban az utórengések hipocentrumának pontosabb meghatározására, átmenetileg három ideiglenes állomás (BOKD, SUKH, VSOM) lett telepítve.

2.

SEISMOGRAPH STATIONS IN HUNGARY

In 2011, there were 15 permanent and 3 temporary seismograph stations running in Hungary. Nine of the permanent stations were operated by GeoRisk Earthquake Engineering Ltd. and six of them by Geodetic and Geophysical Research Institute, Hungarian Academy of Sciences (MTA GGKI). Two temporary stations were set up by Eötvös Loránd Geophysical Institute (ELGI) and one by MTA GGKI. (Table 2.1 and Fig. 2.1)

Broadband stations

Five broadband stations (BEHE, BUD, PSZ, SOP, TRPA) were running during the year. All of these stations have Streckeisen STS-2 very broadband seismometers as sensors. Each station is equipped with EarthData PS-6-24 digitizer. Linux PC's with SeisComP software have been used as data acquisition systems. All stations are accessible via Internet in support of near real time data transfer. The average data latency at these stations is typically less than 10 s. SeedLink protocol is used for data collection and all continuous data is archived in the Data Centre.

Short period stations

Nine of the ten short period stations consist of a three component short period seismometer, a digital recorder and time signal receiver. The seismometers used at these stations are LE-3D three directional compact size high sensitivity 1 Hz geophones, and the digital acquisition system is the MARS88 recorder. One of the stations, CSKK has Kinemetrics short period SS-1 sensors. Continuous data are recorded at each short period station.

In case of five stations (PKS2, PKS6, PKS7, PKS9, PKSN) the data is recorded and temporarily stored on-site on rewritable magneto-optical disks, which are collected and transferred to the data center on a monthly basis.

The configuration at four stations (PENC, PKSG, PKSM, PKST) is somewhat different from the rest of the short period stations. Having the same sensor and digitizer, continuous data is recorded on a SeisComP PC connected to the MARS88 data logger. These stations have near real-time data access via Internet using the SeedLink protocol. Data latency is between 10 and 30 minutes due to the operation schedule of the data converter.

Station CSKK has Kinemetrics K2 digitizer and SeisComP PC for recording and communication with the Data Centre.

Temporary stations

After the major earthquake of 29th January, Oroszlány three temporary stations (BOKD, SUKH, VSOM) were installed with the aim of better locating of small magnitude aftershocks.

GeoRisk Adatközpont (www.foldrenges.hu)

Az összes mérőállomáson regisztrált adatot egy központi adatközpontban gyűjtjük és dolgozzuk fel.

Minden állomás digitális adataiból napi szeizmogramok készülnek kép formátumban. A képi szeizmogramok egyrészt az érdeklődők tájékoztatását, másrészt a működés ellenőrzését szolgálják. A mérőállomással fennálló adatátviteli módtól függően ezek a szeizmogramok lehetnek közel valós idejűek, vagy a direkt kommunikációval nem rendelkező állomások esetében több napos késéssel készülők.

Az események hullámfázisainak körültekintő manuális kimérése alapján állítjuk össze havonta a fázisadatokat (kimérési adatokat) tartalmazó jelentést.

A fázisadatok felhasználásával – a saját adatokat kiegészítve a szomszédos országok szeizmológiai intézményeinek hasonló adataival (2.2. ábra) – havonta eseménylista készül (Havi Jelentés), mely a helyi és regionális földrengések hipocentrum adatait tartalmazza.

A mérési adatok, szeizmogramok és a kiértékelés további eredményei nagyrészt nyilvánosan elérhetők az interneten is a *www.foldrenges.hu* oldalon.

Átlagos zaj- (talajnyugtalanság) viszonyokat feltételezve a magyarországi szeizmológiai hálózat jelenlegi észlelési képessége M_L=1.0-2.0 magnitúdó körül van. Ennek becslése azon feltételezésen alapul, hogy az eseményt legalább négy mérőállomás érzékeli, mely a helymeghatározáshoz szükséges minimális állomásszám. Az ország középső részén kissé alacsonyabb, a határok környékén kissé magasabb az érzékenységi küszöb. Ez azt jelenti, hogy az ÉK-i területeket kivéve, a lakosság által érzékelt valamennyi rengést a hálózat nagy valószínűséggel detektálja.

HUN-RENG virtuális szeizmológiai hálózat

A kommunikáció fejlődése, a valós idejű adatátvitel és az azonos adatátviteli protokoll (SeedLink) Európa-szerte elterjedt használata lehetővé tette, hogy idegen állomások adatait is fogadjuk közel valós időben ugyanúgy, mint a saját állomásainkét. Az összes elérhető hazai és külföldi állomások mérési adatainak felhasználásával a földrengések paraméterei még pontosabban, megbízhatóbban számíthatók ki. Ezen kívül a nagyszámú állomás adatához való valós idejű hozzáférés lehetővé tette egy automatikus földrengésjelző rendszer elindítását is. Ez a rendszer automatikusan képes felismerni a földrengéseket, és azok paramétereit néhány percen belül ki is számítja. A térképen és listán automatikusan megjelenített földrengés információ elsősorban gyors tájékoztatásul szolgál (2.2. Táblázat).

GeoRisk Data Centre (www.foldrenges.hu)

All recorded data from each station are transmitted to and processed at the *Data Centre*. Data that are collected by the *Data Centre* are published in a variety of formats on the Internet.

Using digitally recorded data, analogue "live seismograms" are calculated for each station. The main purposes of the "live seismograms" are feeding public interests in one hand, and rapid visualization of the operational status and quality check of the stations on the other. The delay of the "live seismograms" varies from near real time to several days depending on the communication category of the station.

A careful manual offline analysis is used for event identification and picking the phases on each recorded seismogram.

Merging the phase data of the Hungarian network and the same kind of available data sets from neighboring countries, preliminary event lists are calculated on monthly schedule. Based on technical and operational statistics of the stations, list of local and regional seismic events and their hypocenter information, *Monthly Reports* are compiled.

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 1.0-2.0 M_L, somewhat lower in the middle of the country and a little higher towards the border regions. This means that in most parts of the country, not including the NE territory, it is very unlikely that felt events go undetected.

HUN-RENG virtual seismic network

Development in communication technology and standardized communication protocols, software packages made available to access near real time data of stations beyond the domestic network. SeedLink and SeisComP developed at GEOFON became a kind of standard all over Europe. The larger pool of data provided by an extended, "virtual network" of seismic stations helps to have faster and more accurate earthquake locations and parameter determinations. In addition, near real time access to data from large number of stations makes possible to operate automatic rapid earthquake alarm systems. Automatically generated earthquake lists and epicenter maps are the main product of such systems. The present configuration of the *HUN-RENG* virtual seismic network is shown in Table 2.2.

2.1. Táblázat Szeizmológiai állomások, műszerek és alapkőzet
Table 2.1. Seismic stations, instrumentation and lithology

Kód Helység Code Location	Szélesség Latitude (N)	Hosszúság Longitude (E)	Magasság Elevation (m)	Alapkőzet Foundation	Állomás típusa Station type (1)	Érzékelő típusa Sensor type (2)	Regisztrálás Adatgyűjtő Recording mode Equipment (3)	Szerv. Org. (4)
BEHE Becsehely	46,4704	16,7757	298	üledék alluvium	3C BB	STS-2	D–C; PS-6-24+ SeisComP PC	GGKI
BUD Budapest	47,4836	19,0239	196	dolomit dolomite	3C BB	STS-2	D–C; PS-6-24+ SeisComP PC	GGKI
CSKK Csókakő	47,3631	18,2605	319	dolomit dolomite	3C SP	SS-1	D–C; K2+ SeisComP PC	GGKI
PENC* Penc	47,7905	19,2817	250	üledék alluvium	3C SP	LE-3D	D–C; MARS-88MC+ SeisComP PC	GR
PKS2 Kecel	46,4920	19,2131	106	homok sand	3C SP	LE-3D	D–C; MARS-88OC	GR
PKS6 Bócsa	46,5998	19,5645	120	homok sand	3C SP	LE-3D	D–C; MARS-88OC	GR
PKS7 Kunszentmiklós	47,0473	19,1609	95	agyag mud	3C SP	LE-3D	D–C; MARS-88OC	GR
PKS9 Tamási	46,5870	18,2789	240	lösz loess	3C SP	LE-3D	D–C; MARS-88OC	GR
PKSG Gánt	47,3918	18,3907	200	dolomit dolomite	3C SP	LE-3D	D–C; MARS-88MC+ SeisComP PC	GR
PKSM Mórágy	46,2119	18,6413	170	gránit granite	3C SP	LE-3D	D–C; MARS-88MC+ SeisComP PC	GR
PKSN Nyárlőrinc	46,8970	19,8667	110	homok sand	3C SP	LE-3D	D–C; MARS-88OC	GR
PKST Tés	47,2590	18,0343	473	dolomit dolomite	3C SP	LE-3D	D–C; MARS-88MC+ SeisComP PC	GR
PSZ Piszkéstető	47,9184	19,8944	940	andezit andesite	3C BB	STS-2	D–C; PS-6-24+ SeisComP PC	GEO FON /GGKI
SOP Sopron	47,6833	16,5583	260	gneisz gneiss	3C BB	STS-2	D–C; PS-6-24+ SeisComP PC	GGKI
TRPA Tarpa	48,1304	22,5391	113	andezit andesite	3C BB	STS-2	D–C; PS-6-24+ SeisComP PC	GGKI

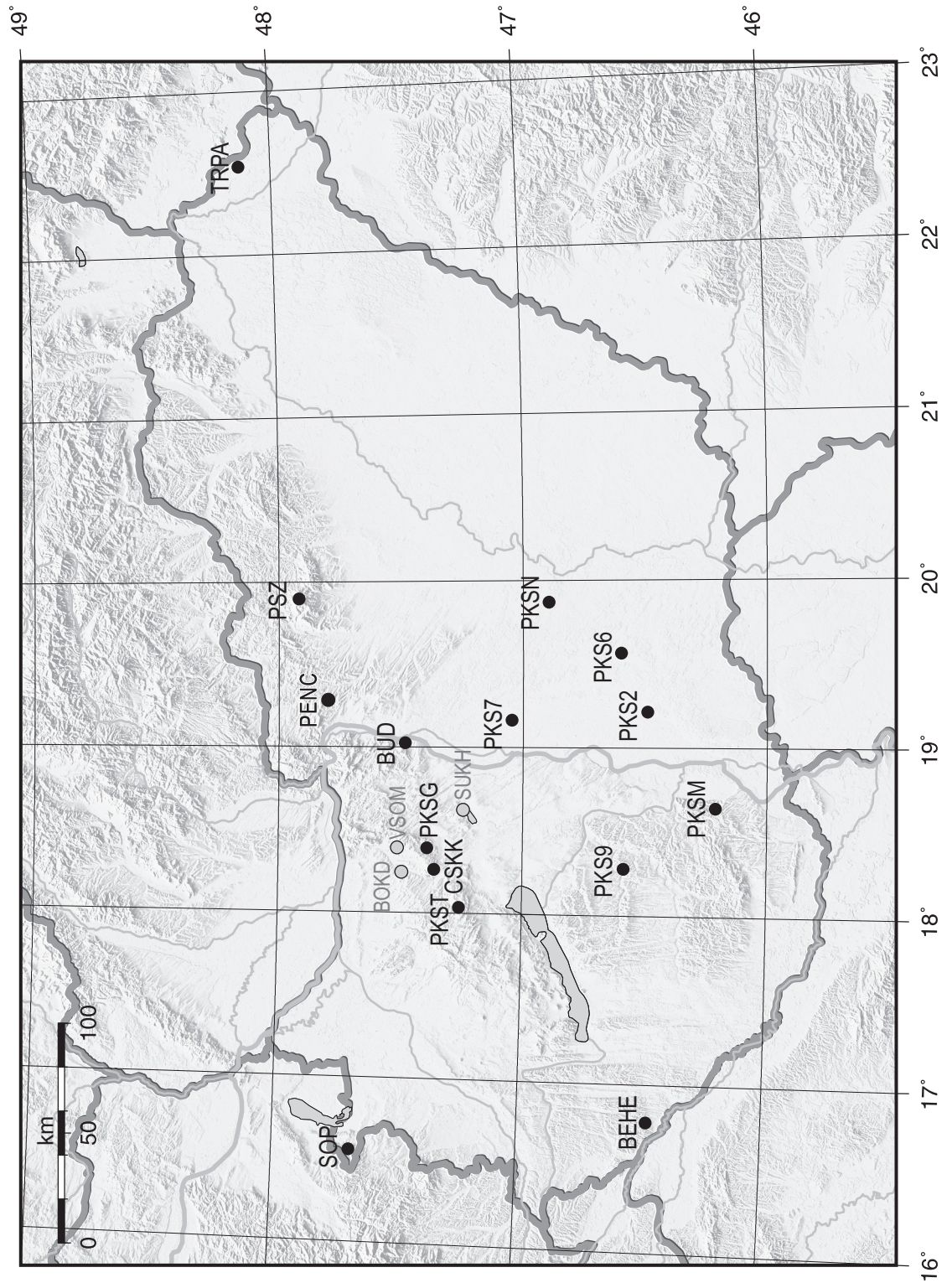
(1) 3C – 3 komponenses szeizmométer / three component seismometer
SP – rövid periódusú szeizmométer / short period seismometer;
BB – széles sávú szeizmométer / broad band seismometer

(2) STS-2 – Streckeisen széles sávú szeizmométer / Streckeisen broad band seismometer
LE-3D – Lennartz 3 komponenses 1Hz-es geofon / Lennartz three directional 1Hz geophone
SS-1 – Kinemetrics SS-1 rövidperiódusú szeizmométer / Kinemetrics SS-1 short period seismometer

(3) D – digitális / digital; C – folyamatos felvétel / continuous recording; PS-6-24 – Earth Data digitalizáló / Earth Data digitizer
Q-380 – Quanterra adatgyűjtő rendszer / Quanterra data acquisition system;
SeisComP – GEOFON Seismological Communication Processor
MARS-88 – Lennartz adatgyűjtő / Lennartz data acquisition system
K2 – Kinemetrics K2 adatgyűjtő / Kinemetrics K2 data acquisition system

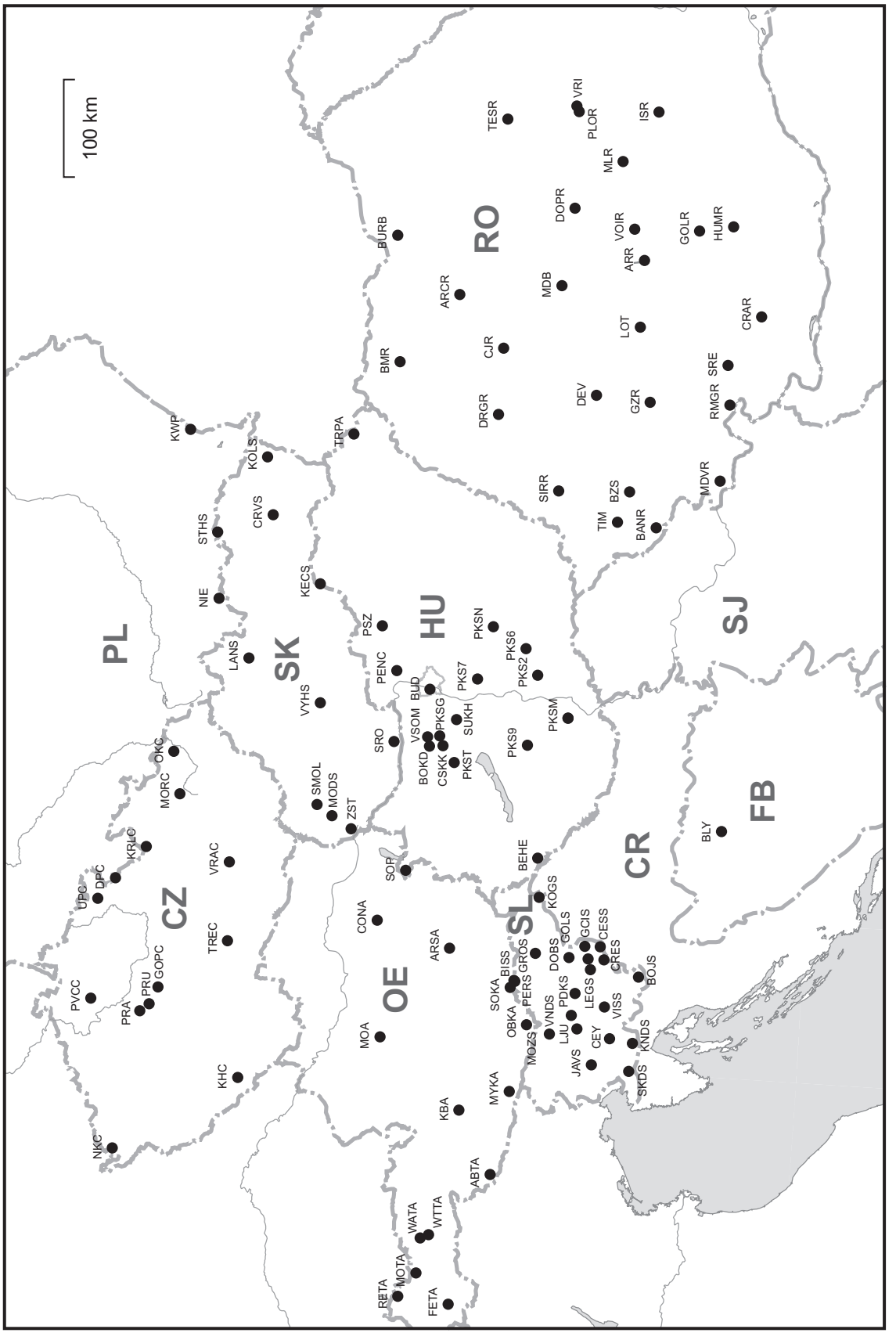
(4) GGKI – MTA Geodéziai és Geofizikai Kutatóintézet / Geodetic and Geophysical Research Institute, HAS
GR – GeoRisk Földrengéskutató Intézet Kft. / GeoRisk Earthquake Research Institute Ltd.

(*) Működés kezdete / Open date: 2011/09/07



2.1. ábra Szeizmológiai állomások Magyarországon 2011-ben (részletek: 2.1. Táblázat)

Figure 2.1. Seismograph stations in Hungary in 2011 (See Table 2.1. for details)



2.2. ábra A hipocentrum meghatározáshoz használt szeizmológiai állomások

Figure 2.2. Seismograph stations used for hypocenter determination

2.2. Táblázat HUN-RENG virtuális szeizmológiai hálózathoz felhasznált fizikai hálózatok
Table 2.2. Physical networks used in HUN-RENG virtual seismic network

Hálózat kódja* **Network code***	**Az üzembentartó hálózat Operating network**
CU	CariUSGS Caribbean Network USGS, Golden, CO
CZ	Czech Seismic Network Geophysical Institute, Czech Academy of Sciences
GE	GEOFON GEOForschungsNetz (Geo Research Network)
GT	Global Telemetered Southern Hemisphere Network USGS Albuquerque Seismological Laboratory
HU	Hungarian Seismological Network Geodetic and Geophysical Research Institute of Hungary
II	IRIS/IDA Network University of California, Scripps Institute of Oceanography
IU	IRIS/USGS Network USGS Albuquerque Seismological Laboratory
JP	Japan Meteorological Agency Seismic Network Japan Meteorological Agency Seismic, Tokyo Japan
MK	Seismological Observatory Skopje, Republic of Macedonia (MK)
MN	MEDNET Instituto Nazionale di Geofisica, Italy
MY	Malaysian National Seismic Network Malaysian Meteorological Service
NZ	New Zealand National Seismograph Network Institute of Geological & Nuclear Sciences, Wellington, New Zealand
OE	Austrian Seismic Network ZAMG - Central Institute for Meteorology and Geodynamics
PL	Polish Seismological Network Polish Academy of Sciences, Warsaw
RO	Romanian Seismic Network National Institute for Earth Physics, Romania
SJ	Serbian Seismological Network Seismological Survey of Serbia
SK	Slovak National Seismic Network Geophysical Institute, Slovak Academy of Sciences
SL	Slovenia Seismic Network Slovenia Geological Survey, Ljubljana

*FDSN (International Federation of Digital Seismograph Networks) kód

3.

ESEMÉNYLISTA

ÉS

FÖLDRENGÉS FÉSZEKPARAMÉTEREK

A FÖLDRENGÉS FÉSZEKPARAMÉTEREK MEGHATÁROZÁSA

A fészekparaméterek rutinszerű kiszámításához a HYPO71PC programot használtuk (Lee and Lahr, 1975). A kimérés és magnitúdó meghatározás a K. Stammler által készített SeismicHandler program segítségével történt.

A fészekparaméterek meghatározásánál mind a magyarországi, mind a szomszédos országok állomásainak adatait felhasználtuk. A számításnál az egyes állomások kimérési adatait az epicentrumtól való távolsággal fordított arányban súlyoztuk. Néhány esetben, amikor elegendő P fázis adat állt rendelkezésre, az S fázis adatokat nem használtuk fel.

SEBESSÉGMODELL

A számításnál felhasznált 3 rétegű sebességmodell több száz helyi és közeli földrengés kéregfázis adatain alapul (Mónus, 1995).

Sebesség (v_P) [km/s]	*Mélység [km]*	*Vastagság [km]*	v_P/v_S
5,60	0,0	20,0	1,78
6,57	20,0	11,0	
8,02	31,0	∞	

3.

LIST OF ORIGINS

AND

HYPOCENTER PARAMETERS

METHOD FOR HYPOCENTER PARAMETER DETERMINATION

HYPO71PC (Lee and Lahr, 1975) was used for the routine calculation of hypocenter parameters. SeismicHandler software package by K. Stammler has been used for phase picking and magnitude determination.

The hypocenter parameters have been calculated using phase readings of seismological stations from Hungary and from the adjoining 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 sufficient number of 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	∞	

ESEMÉNYLISTA / LIST OF EVENTS

Nap	Kipattanási idő UTC óó pp mp	Földrajzi koordináták Lat	Long	Mélys. (km)	ML	I_{MAX} (EMS)	Helyszín
Day	**Origin time UTC hr mn sec**	**Geographic coordinates Lat**	**Long**	**Depth (km)**	**ML**	**I_{MAX} (EMS)**	**Locality or Region**
JANUÁR / JANUARY, 2011							
04	1:25:49.7	47.356N	18.265E	4	0.3	-	Csókakő
12	7:22:44.3	47.307N	18.359E	0	0.6	-	Zámoly (expl.)
12	7:23:00.3	47.420N	18.419E	0	0.8	-	Gánt (expl.)
12	12:07:10.7	47.370N	18.314E	8	1.4	-	Csákberény
15	18:25:17.6	47.346N	18.087E	9	0.5	-	Bakonycsernye
17	8:08:00.5	47.424N	18.428E	0	0.6	-	Csákvár (expl.)
17	8:15:23.4	47.322N	18.361E	0	0.8	-	Zámoly (expl.)
23	8:51:24.0	47.401N	18.188E	12	0.4	-	Mór
24	1:56:57.9	47.304N	18.287E	10	-0.2	-	Söréd
26	9:16:38.8	47.365N	18.387E	0	0.8	-	Gánt
26	9:16:52.0	47.377N	18.399E	0	0.8	-	Gánt
26	20:23:22.6	47.627N	17.960E	5	2.1	4-5	Bana
28	8:16:48.6	47.213N	18.195E	1	0.3	-	Bakonykúti
28	13:10:05.0	47.617N	18.473E	7	1.1	-	Vértestolna
29	17:41:38.2	47.459N	18.361E	9	4.5	6	Oroszlány
29	17:44:14.6	47.345N	18.447E	10	1.1	-	Zámoly
29	17:44:43.3	47.436N	18.360E	9	1.5	-	Oroszlány
29	17:45:03.7	47.451N	18.363E	9	0.9	-	Oroszlány
29	17:46:49.6	47.394N	18.393E	11	0.7	-	Gánt
29	17:47:44.0	47.313N	18.466E	0	0.5	-	Pátka
29	17:50:42.0	47.466N	18.367E	9	0.5	-	Oroszlány
29	17:53:25.5	47.411N	18.359E	8	0.3	-	Gánt
29	17:55:11.7	47.452N	18.372E	9	-0.2	-	Oroszlány
29	17:56:36.5	47.440N	18.353E	9	0.3	-	Oroszlány
29	17:57:31.9	47.312N	18.454E	0	0.0	-	Pátka
29	17:57:43.3	47.444N	18.368E	8	0.1	-	Oroszlány
29	18:05:30.8	47.470N	18.380E	8	1.5	-	Várgesztes
29	18:15:30.3	47.455N	18.358E	8	0.3	-	Oroszlány
29	18:15:59.8	47.430N	18.380E	12	0.4	-	Gánt
29	18:18:34.5	47.432N	18.360E	10	1.7	-	Oroszlány
29	18:20:08.2	47.447N	18.373E	10	-0.1	-	Oroszlány
29	18:32:07.8	47.446N	18.372E	10	0.1	-	Oroszlány
29	18:40:49.9	47.456N	18.360E	9	0.2	-	Oroszlány
29	18:45:57.9	47.441N	18.371E	8	-0.1	-	Oroszlány
29	18:55:21.0	47.320N	18.460E	5	-0.1	-	Pátka
29	18:58:57.4	47.455N	18.358E	9	0.0	-	Oroszlány
29	19:02:17.2	47.439N	18.359E	7	0.0	-	Oroszlány
29	19:08:49.9	47.447N	18.370E	9	0.5	-	Oroszlány
29	19:10:35.7	47.487N	18.350E	6	0.3	-	Oroszlány
29	19:15:04.8	47.439N	18.365E	10	-0.1	-	Oroszlány
29	19:33:02.9	47.280N	18.497E	0	0.2	-	Pátka
29	19:36:41.3	47.451N	18.358E	9	0.1	-	Oroszlány
29	19:40:02.2	47.472N	18.364E	8	1.0	-	Oroszlány
29	19:40:18.5	47.381N	18.240E	15	0.2	-	Mór
29	19:52:13.7	47.303N	18.474E	0	-0.1	-	Pátka
29	19:57:54.0	47.441N	18.353E	9	0.5	-	Oroszlány
29	20:20:40.4	47.447N	18.368E	9	0.0	-	Oroszlány

29	20:32:22.4	47.312N	18.459E	0	-0.1	-	Pátka
29	20:42:20.9	47.442N	18.355E	8	0.5	-	Oroszlány
29	20:43:01.5	47.415N	18.395E	11	0.0	-	Gánt
29	20:48:31.8	47.456N	18.363E	10	0.0	-	Oroszlány
29	20:51:06.9	47.446N	18.364E	8	1.3	-	Oroszlány
29	20:52:46.8	47.451N	18.363E	9	0.9	-	Oroszlány
29	21:06:26.8	47.450N	18.360E	8	0.7	-	Oroszlány
29	21:15:37.7	47.390N	18.401E	11	0.3	-	Gánt
29	21:39:32.3	47.319N	18.424E	7	-0.3	-	Zámoly
29	22:31:07.2	47.313N	18.486E	0	-0.1	-	Pátka
29	23:00:51.2	47.447N	18.367E	10	-0.1	-	Oroszlány
29	23:02:04.9	47.448N	18.361E	10	0.3	-	Oroszlány
29	23:04:10.5	47.316N	18.463E	5	-0.1	-	Pátka
29	23:12:51.7	47.437N	18.364E	10	0.0	-	Oroszlány
29	23:36:48.7	47.453N	18.358E	9	0.4	-	Oroszlány
29	23:50:30.1	47.443N	18.361E	9	0.4	-	Oroszlány
30	0:03:01.7	47.456N	18.359E	8	-0.2	-	Oroszlány
30	0:19:11.9	47.441N	18.355E	8	1.4	-	Oroszlány
30	0:31:09.0	47.414N	18.349E	7	1.1	-	Gánt
30	0:33:33.8	47.434N	18.380E	10	0.1	-	Várgesztes
30	0:45:09.8	47.446N	18.359E	9	0.1	-	Oroszlány
30	0:57:33.9	47.453N	18.375E	10	0.2	-	Várgesztes
30	1:27:49.9	47.444N	18.362E	8	0.4	-	Oroszlány
30	1:32:50.3	47.455N	18.363E	9	0.0	-	Oroszlány
30	1:35:13.0	47.451N	18.354E	8	0.6	-	Oroszlány
30	1:43:32.1	47.456N	18.366E	9	0.1	-	Oroszlány
30	2:07:39.0	47.453N	18.376E	9	-0.4	-	Várgesztes
30	2:32:39.4	47.450N	18.364E	9	0.2	-	Oroszlány
30	2:33:34.8	47.482N	18.344E	4	0.1	-	Oroszlány
30	2:39:27.0	47.445N	18.374E	9	0.0	-	Várgesztes
30	3:30:05.0	47.433N	18.393E	10	-0.1	-	Várgesztes
30	4:41:19.5	47.444N	18.351E	8	0.7	-	Oroszlány
30	5:12:09.1	47.451N	18.376E	10	-0.2	-	Várgesztes
30	6:29:15.4	47.450N	18.370E	9	0.1	-	Oroszlány
30	6:29:37.7	47.452N	18.380E	9	0.2	-	Várgesztes
30	6:32:08.8	47.455N	18.370E	9	0.2	-	Oroszlány
30	7:08:46.0	47.456N	18.366E	8	0.1	-	Oroszlány
30	8:36:24.1	47.454N	18.358E	8	0.4	-	Oroszlány
30	8:56:12.1	47.453N	18.376E	9	0.3	-	Várgesztes
30	9:27:58.1	47.429N	18.392E	10	0.0	-	Gánt
30	10:34:24.9	47.453N	18.356E	9	1.0	-	Oroszlány
30	10:53:30.0	47.317N	18.474E	5	0.1	-	Pátka
30	12:08:10.1	47.430N	18.379E	10	0.0	-	Gánt
30	13:22:07.3	47.459N	18.362E	8	0.4	-	Oroszlány
30	13:34:28.9	47.459N	18.353E	8	2.0	-	Oroszlány
30	14:47:24.0	47.443N	18.364E	8	0.5	-	Oroszlány
30	16:09:54.3	47.410N	18.188E	12	0.2	-	Pusztavám
30	16:51:26.0	47.415N	18.378E	10	0.0	-	Gánt
30	19:30:04.4	47.431N	18.391E	10	-0.3	-	Gánt
30	20:49:56.1	47.431N	18.375E	10	-0.3	-	Gánt
30	20:58:45.7	47.480N	18.340E	7	2.7	4-5	Oroszlány
30	21:09:04.1	47.452N	18.365E	10	0.0	-	Oroszlány
30	21:11:39.3	47.441N	18.359E	9	0.7	-	Oroszlány
30	21:14:54.0	47.321N	18.474E	5	0.0	-	Pátka
30	21:21:33.7	47.457N	18.357E	9	0.3	-	Oroszlány
30	21:22:25.2	47.468N	18.367E	10	-0.2	-	Oroszlány
30	21:26:12.5	47.321N	18.467E	5	0.1	-	Pátka
30	21:43:28.3	47.460N	18.375E	10	-0.1	-	Várgesztes
30	21:57:39.6	47.445N	18.367E	9	0.7	-	Oroszlány
30	22:12:27.7	47.445N	18.370E	9	0.2	-	Oroszlány

30	22:16:31.2	47.473N	18.361E	7	0.3	-	Oroszlány
30	22:25:34.3	47.419N	18.395E	10	-0.4	-	Gánt
30	23:51:54.6	47.420N	18.393E	10	-0.1	-	Gánt
31	0:23:02.2	47.454N	18.379E	10	-0.1	-	Várgesztes
31	0:25:28.5	47.492N	18.340E	8	2.4	-	Oroszlány
31	0:28:25.5	47.449N	18.372E	10	-0.5	-	Oroszlány
31	0:31:28.0	47.424N	18.380E	10	0.1	-	Gánt
31	0:47:23.9	47.439N	18.372E	10	-0.5	-	Oroszlány
31	1:10:38.8	47.441N	18.376E	10	-0.1	-	Várgesztes
31	1:37:57.2	47.437N	18.374E	10	0.6	-	Oroszlány
31	2:15:51.3	47.344N	18.450E	10	0.0	-	Zámoly
31	3:16:41.7	47.444N	18.380E	10	0.1	-	Várgesztes
31	4:20:18.5	47.435N	18.384E	10	0.1	-	Várgesztes
31	6:58:58.7	47.327N	18.467E	5	0.4	-	Lovasberény
31	7:08:16.1	47.357N	18.424E	10	0.1	-	Gánt
31	7:12:40.0	47.324N	18.464E	5	0.1	-	Pátka
31	7:13:57.4	47.447N	18.372E	10	0.2	-	Oroszlány
31	8:53:17.5	47.386N	18.416E	0	1.2	-	Gánt (expl.)
31	9:00:28.8	47.363N	18.368E	0	1.0	-	Gánt (expl.)
31	9:00:38.9	47.386N	18.404E	0	1.3	-	Gánt (expl.)
31	10:05:39.4	47.451N	18.355E	8	1.2	-	Oroszlány
31	13:24:57.4	47.446N	18.378E	11	0.2	-	Várgesztes
31	13:25:49.8	47.452N	18.354E	8	0.9	-	Oroszlány
31	22:55:45.2	47.354N	18.436E	10	0.0	-	Gánt

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01	0:15:44.7	47.413N	18.345E	4	0.4	-	Gánt
01	0:45:39.3	47.444N	18.365E	14	0.3	-	Oroszlány
01	1:26:59.9	47.486N	18.338E	0	-0.2	-	Oroszlány
01	1:54:12.6	47.477N	18.334E	0	-0.7	-	Oroszlány
01	2:02:44.8	47.456N	18.358E	8	0.4	-	Oroszlány
01	2:09:42.6	47.506N	18.347E	0	-0.1	-	Vértessomló
01	2:37:02.5	47.480N	18.332E	0	-0.1	-	Oroszlány
01	2:55:51.5	47.363N	18.264E	10	-0.5	-	Csókakő
01	3:33:20.2	47.437N	18.367E	10	0.0	-	Oroszlány
01	3:40:53.7	47.450N	18.371E	9	-0.2	-	Oroszlány
01	4:16:11.9	47.449N	18.369E	8	0.1	-	Oroszlány
01	10:54:09.6	47.412N	18.235E	1	0.4	-	Pusztavám
01	17:44:39.4	47.471N	18.366E	7	0.2	-	Oroszlány
02	0:27:51.8	47.476N	18.369E	9	0.2	-	Várgesztes
02	1:46:10.0	47.468N	18.359E	7	0.6	-	Oroszlány
02	2:04:56.0	47.467N	18.343E	5	0.5	-	Oroszlány
02	3:30:04.0	47.472N	18.372E	9	1.1	-	Várgesztes
02	3:30:03.9	47.473N	18.371E	9	1.1	-	Várgesztes
02	3:41:06.3	47.467N	18.369E	7	0.3	-	Oroszlány
02	3:42:24.3	47.463N	18.371E	8	0.2	-	Várgesztes
02	3:54:10.2	47.470N	18.364E	8	0.5	-	Oroszlány
02	6:16:45.9	47.468N	18.358E	7	0.0	-	Oroszlány
02	8:21:08.3	47.468N	18.361E	7	0.4	-	Oroszlány
02	8:52:12.7	47.467N	18.470E	0	0.2	-	Bodmér
02	11:29:31.1	47.468N	18.363E	7	1.4	-	Oroszlány
02	16:25:19.5	47.466N	18.357E	7	0.4	-	Oroszlány
03	1:46:00.7	47.468N	18.357E	6	-0.2	-	Oroszlány
03	2:45:17.8	47.482N	18.363E	7	-0.1	-	Oroszlány
03	3:59:58.7	47.468N	18.375E	8	0.1	-	Várgesztes
03	4:42:37.7	47.470N	18.351E	7	-0.3	-	Oroszlány
03	4:48:53.8	47.470N	18.353E	6	0.0	-	Oroszlány
03	8:47:42.0	47.458N	18.354E	6	0.5	-	Oroszlány
04	4:21:55.8	47.467N	18.354E	6	0.1	-	Oroszlány
04	5:37:58.6	47.467N	18.376E	8	0.1	-	Várgesztes

04	13:11:10.6	47.382N	18.239E	3	0.9	-	Mór
04	14:23:20.7	47.462N	18.361E	8	1.0	-	Oroszlány
04	14:58:25.4	47.471N	18.372E	8	0.1	-	Várgesztes
05	0:16:56.0	47.468N	18.369E	6	-0.2	-	Oroszlány
05	10:39:35.6	47.399N	18.200E	1	0.5	-	Mór
05	11:08:36.2	47.479N	18.318E	6	1.4	-	Oroszlány
06	12:45:24.1	47.464N	18.365E	7	1.1	-	Oroszlány
06	21:12:19.1	47.471N	18.369E	7	0.0	-	Várgesztes
06	21:59:16.4	47.465N	18.362E	7	-0.1	-	Oroszlány
07	9:40:44.1	47.719N	18.696E	10	0.8	-	Tokod
08	4:26:48.5	47.461N	18.367E	8	0.6	-	Oroszlány
09	1:28:53.4	47.462N	18.369E	7	1.1	-	Oroszlány
09	5:44:50.5	47.467N	18.358E	10	0.4	-	Oroszlány
09	11:06:52.4	47.500N	17.947E	6	0.7	-	Kerékteleki
09	21:02:26.0	47.466N	18.371E	8	0.5	-	Várgesztes
10	5:02:59.3	47.470N	18.349E	6	-0.4	-	Oroszlány
10	12:41:07.1	47.469N	18.307E	0	0.0	-	Oroszlány
10	13:44:57.5	47.582N	18.453E	8	1.0	-	Tatabánya
10	20:18:34.1	47.461N	18.368E	8	0.3	-	Oroszlány
11	5:03:12.7	47.468N	18.374E	7	-0.2	-	Várgesztes
11	6:07:23.6	47.472N	18.409E	6	-0.1	-	Várgesztes
12	2:29:32.3	47.472N	18.369E	9	0.3	-	Várgesztes
13	23:24:48.6	47.464N	18.368E	10	0.1	-	Oroszlány
13	23:39:01.7	47.463N	18.380E	7	0.1	-	Várgesztes
14	8:17:43.5	47.387N	18.421E	0	0.7	-	Gánt (expl.)
14	8:18:11.2	47.367N	18.423E	0	1.2	-	Gánt (expl.)
14	10:28:38.0	48.027N	19.623E	0	1.1	-	Nagylóc (expl.)
15	1:56:29.3	47.470N	18.369E	8	0.4	-	Oroszlány
15	2:57:34.9	47.466N	18.368E	0	-0.1	-	Oroszlány
15	9:02:38.3	47.466N	18.365E	7	0.8	-	Oroszlány
16	5:15:08.5	47.465N	18.359E	6	0.2	-	Oroszlány
16	20:29:09.9	47.458N	18.351E	6	1.6	-	Oroszlány
16	21:48:40.5	47.468N	18.376E	9	1.8	-	Várgesztes
16	22:25:02.8	47.464N	18.367E	7	1.6	-	Oroszlány
17	22:44:56.6	47.471N	18.400E	14	-0.4	-	Várgesztes
18	2:00:05.5	47.468N	18.357E	9	0.4	-	Oroszlány
18	14:42:16.3	47.468N	18.358E	6	0.3	-	Oroszlány
18	20:47:38.8	47.467N	18.353E	5	-0.1	-	Oroszlány
18	21:43:02.8	47.460N	18.365E	7	0.8	-	Oroszlány
18	22:55:48.8	47.464N	18.372E	9	0.4	-	Várgesztes
18	22:58:04.6	47.465N	18.368E	8	1.0	-	Oroszlány
19	2:51:53.3	47.470N	18.380E	5	-0.3	-	Várgesztes
19	8:51:11.9	47.462N	18.350E	8	0.4	-	Oroszlány
20	8:53:57.8	47.834N	19.145E	10	1.3	-	Ősagárd
21	1:20:20.9	47.468N	18.374E	9	0.7	-	Várgesztes
21	4:52:42.7	47.370N	18.271E	10	0.0	-	Csókakő
22	0:31:30.6	47.766N	16.194E	10	1.5	-	Austria
22	7:22:37.7	47.465N	18.268E	0	-0.4	-	Bokod
23	1:40:21.4	47.472N	18.384E	5	-0.3	-	Várgesztes
23	4:16:13.4	47.466N	18.365E	8	0.6	-	Oroszlány
23	8:40:02.1	47.468N	18.363E	8	0.4	-	Oroszlány
23	9:24:01.8	47.360N	18.392E	0	1.2	-	Gánt (expl.)
23	12:48:54.9	47.508N	18.285E	7	0.6	-	Kecskéd
23	16:50:25.1	47.461N	18.367E	7	1.6	-	Oroszlány
26	4:25:30.5	47.468N	18.344E	6	-0.4	-	Oroszlány
27	7:34:18.2	47.470N	18.405E	6	-0.5	-	Várgesztes
27	10:00:39.0	47.356N	18.260E	4	-0.1	-	Csókakő
27	17:39:07.0	47.387N	18.177E	6	0.1	-	Mór
28	4:21:07.6	47.464N	18.353E	10	0.2	-	Oroszlány
28	4:49:47.8	47.471N	18.332E	5	-0.4	-	Oroszlány

28	6:25:02.0	47.462N	18.368E	7	0.5	-	Oroszlány
28	7:02:44.0	47.461N	18.367E	8	0.8	-	Oroszlány
28	11:45:40.2	47.593N	18.491E	0	0.7	-	Tarján

MÁRCIUS / MARCH, 2011

01	9:01:19.4	47.364N	18.399E	0	1.2	-	Gánt (expl.)
01	9:05:45.5	47.376N	18.392E	0	1.1	-	Gánt (expl.)
01	14:04:46.0	47.469N	18.355E	6	0.2	-	Oroszlány
02	15:35:01.5	47.357N	18.284E	6	0.6	-	Csókakő
03	6:29:13.0	47.477N	18.325E	10	-0.1	-	Oroszlány
03	8:49:15.1	48.389N	19.819E	7	1.7	-	Slovakia
03	9:31:14.9	47.637N	18.025E	17	1.1	-	Bábolna
03	12:02:34.2	47.572N	18.460E	5	0.9	-	Tatabánya
04	19:58:11.9	47.471N	18.348E	6	0.2	-	Oroszlány
04	22:40:08.2	47.474N	18.353E	8	-0.1	-	Oroszlány
05	7:51:28.5	47.470N	18.367E	10	0.0	-	Oroszlány
05	10:33:58.1	47.476N	18.353E	8	-0.2	-	Oroszlány
05	14:31:44.0	48.023N	19.607E	10	1.1	-	Nagylóc
05	16:28:06.8	47.414N	18.203E	8	0.3	-	Pusztavám
05	20:28:04.9	47.347N	18.226E	7	0.4	-	Mór
05	22:31:37.2	47.382N	18.221E	10	-0.1	-	Mór
06	17:50:17.0	47.171N	18.326E	2	0.2	-	Székesfehérvár
07	2:48:17.0	47.470N	18.362E	6	-0.4	-	Oroszlány
07	16:13:44.2	47.471N	18.357E	6	0.0	-	Oroszlány
07	19:31:44.5	47.374N	18.370E	2	0.0	-	Gánt
07	22:26:25.8	47.471N	18.367E	6	-0.4	-	Oroszlány
08	9:11:06.7	47.367N	18.390E	0	1.2	-	Gánt (expl.)
08	9:13:54.0	47.362N	18.379E	0	0.8	-	Gánt (expl.)
08	13:04:31.9	47.453N	18.351E	8	0.5	-	Oroszlány
10	1:06:56.7	47.456N	18.367E	10	0.7	-	Oroszlány
10	13:03:56.7	47.588N	18.425E	0	0.9	-	Tatabánya (expl.)
10	21:40:31.9	47.457N	18.353E	8	0.1	-	Oroszlány
11	1:45:23.5	47.454N	18.306E	10	2.3	-	Oroszlány
11	1:49:39.5	47.459N	18.354E	8	0.3	-	Oroszlány
11	4:16:58.7	47.453N	18.365E	9	0.2	-	Oroszlány
11	9:06:28.2	47.376N	18.073E	10	0.7	-	Súr
11	15:34:52.9	47.500N	18.362E	7	0.9	-	Vértessomló
11	18:52:33.7	47.451N	18.368E	10	0.1	-	Oroszlány
12	2:42:01.4	47.438N	18.371E	12	1.0	-	Oroszlány
12	5:47:01.9	47.566N	19.404E	10	1.7	-	Isaszeg
12	7:41:00.9	47.350N	18.285E	2	0.3	-	Csákberény
12	15:04:33.0	47.426N	18.189E	5	0.5	-	Pusztavám
13	4:20:45.6	47.415N	18.201E	5	0.0	-	Pusztavám
13	22:56:49.0	47.672N	18.123E	7	1.0	-	Kisigmánd
14	0:16:08.2	47.350N	18.152E	10	-0.1	-	Nagyveleg
16	0:49:24.8	47.461N	18.375E	9	-0.1	-	Várgesztes
17	5:57:17.7	47.402N	18.237E	1	1.1	-	Pusztavám
17	10:50:27.2	48.379N	19.827E	0	1.8	-	Slovakia (expl.)
17	13:05:21.8	47.386N	18.255E	3	0.8	-	Mór
18	18:56:26.7	47.468N	18.365E	9	0.9	-	Oroszlány
19	17:57:51.2	47.361N	18.240E	3	-0.1	-	Mór
20	5:27:04.3	47.386N	18.251E	3	0.4	-	Mór
20	20:39:47.6	47.469N	18.345E	7	-0.4	-	Oroszlány
20	22:39:07.3	47.467N	18.355E	7	0.0	-	Oroszlány
21	8:34:06.1	47.437N	18.380E	0	1.1	-	Várgesztes (expl.)
21	8:40:52.3	47.453N	18.320E	0	1.0	-	Oroszlány (expl.)
21	10:27:27.8	48.029N	19.608E	0	1.0	-	Nagylóc (expl.)
24	1:16:47.1	47.500N	18.347E	0	0.0	-	Vértessomló
24	11:15:35.4	47.498N	18.350E	0	0.5	-	Vértessomló
25	9:54:44.5	47.462N	18.329E	0	1.0	-	Oroszlány (expl.)

25	10:02:03.0	47.443N	18.373E	0	1.0	-	Oroszlány (expl.)
25	11:20:10.4	47.450N	18.081E	10	0.6	-	Bakonysárkány
25	15:12:25.0	45.601N	22.805E	2	3.4	-	Romania
25	19:44:59.6	47.424N	18.029E	13	0.6	-	Aka
26	6:48:58.2	47.487N	18.343E	0	0.0	-	Oroszlány
26	6:58:33.9	47.489N	18.343E	1	0.6	-	Oroszlány
26	6:59:02.5	47.465N	18.361E	9	1.1	-	Oroszlány
30	0:11:19.9	47.453N	18.379E	10	-0.1	-	Várgesztes
30	0:25:00.4	47.493N	18.349E	5	-0.5	-	Oroszlány
30	1:50:24.0	47.308N	18.033E	10	0.0	-	Szápár
30	8:48:09.2	47.365N	18.448E	0	1.4	-	Gánt (expl.)
31	21:48:25.6	47.488N	18.342E	0	-0.1	-	Oroszlány
31	23:12:25.5	47.485N	18.341E	0	-0.3	-	Oroszlány

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01	9:51:38.5	47.405N	18.069E	14	0.5	-	Aka
01	10:23:31.2	47.471N	18.364E	8	0.6	-	Oroszlány
01	20:40:08.7	47.454N	18.220E	4	-0.2	-	Bokod
01	20:40:24.6	47.454N	18.211E	9	0.1	-	Bokod
01	20:53:16.0	47.449N	18.230E	6	-0.2	-	Pusztavám
02	23:29:40.0	47.470N	18.371E	8	-0.2	-	Várgesztes
03	0:10:40.0	47.470N	18.368E	7	-0.4	-	Oroszlány
03	2:53:01.6	47.472N	18.368E	8	-0.5	-	Oroszlány
03	3:41:32.6	47.471N	18.375E	7	-0.4	-	Várgesztes
03	16:32:25.4	47.469N	18.358E	6	0.5	-	Oroszlány
03	23:14:20.7	47.469N	18.363E	6	0.4	-	Oroszlány
04	0:32:09.6	47.471N	18.366E	6	-0.3	-	Oroszlány
04	3:06:41.0	47.471N	18.355E	6	0.1	-	Oroszlány
04	7:59:28.0	47.355N	18.400E	0	1.0	-	Gánt (expl.)
04	8:12:21.4	47.339N	18.490E	0	0.8	-	Lovasberény (expl.)
04	8:12:36.4	47.347N	18.419E	0	1.2	-	Zámoly (expl.)
05	6:21:07.1	47.234N	18.341E	1	0.4	-	Moha
05	23:41:31.6	47.475N	18.392E	9	1.3	-	Várgesztes
07	0:09:34.4	47.382N	18.210E	5	-0.2	-	Mór
07	0:30:02.7	47.337N	18.151E	8	0.2	-	Nagyveleg
08	9:20:13.4	47.333N	18.400E	0	1.7	-	Zámoly (expl.)
10	0:31:07.4	47.470N	18.355E	6	-0.4	-	Oroszlány
11	4:29:30.0	47.346N	18.261E	5	0.6	-	Csókakő
12	6:51:08.7	46.051N	16.796E	12	3.0	-	Croatia
12	11:37:19.8	47.565N	18.459E	6		-	Tatabánya
14	10:41:26.1	48.536N	20.326E	0	1.7	-	Slovakia (expl.)
16	11:58:53.4	47.359N	18.087E	10	0.8	-	Nagyveleg
17	11:43:33.6	47.387N	18.224E	9	-0.1	-	Mór
18	11:26:59.8	47.563N	18.459E	0	0.7	-	Tatabánya (expl.)
20	9:54:56.8	47.455N	18.076E	10	0.3	-	Bakonysárkány
22	17:07:35.6	48.057N	19.670E	0	0.6	-	Sóshartyán (expl.)
23	4:36:21.9	47.480N	18.352E	10	2.2	-	Oroszlány
24	17:03:23.1	47.486N	18.324E	9	1.7	-	Oroszlány
25	5:55:00.3	47.468N	18.354E	6	0.6	-	Oroszlány

MÁJUS / MAY, 2011

02	8:33:06.6	47.336N	18.401E	0	1.1	-	Zámoly
02	20:58:02.3	47.332N	18.154E	9	0.1	-	Balinka
02	23:42:59.8	47.393N	18.232E	10	0.0	-	Mór
06	4:38:05.9	47.488N	18.346E	3	0.7	-	Oroszlány
09	8:21:40.1	47.435N	18.376E	0	1.1	-	Várgesztes (expl.)
09	8:33:59.3	47.414N	18.340E	0	0.9	-	Gánt (expl.)
10	15:26:45.4	47.444N	18.353E	10	0.6	-	Oroszlány
11	6:23:55.5	47.423N	18.366E	0	1.4	-	Gánt (expl.)
11	6:24:11.1	47.394N	18.368E	0	1.1	-	Gánt (expl.)

11	10:08:37.5	48.336N	19.038E	0	2.0	-	Slovakia (expl.)
13	7:10:04.1	47.462N	18.379E	0	1.2	-	Várgesztes (expl.)
13	7:10:16.5	47.391N	18.480E	0	1.4	-	Csákvár (expl.)
13	23:39:04.3	47.319N	18.132E	7	0.2	-	Bakonycsernye
14	16:58:20.2	47.382N	18.194E	5	0.1	-	Mór
17	8:14:28.6	48.367N	19.059E	0	1.5	-	Slovakia (expl.)
17	11:31:46.8	47.476N	18.058E	0	0.6	-	Vérteskethely (expl.)
17	15:06:48.0	48.909N	21.040E	0	1.8	-	Slovakia (expl.)
20	9:08:09.1	47.544N	19.899E	10	2.3	3?	Jászdózsa
20	13:22:34.5	48.346N	19.822E	0	2.0	-	Slovakia (expl.)
20	14:35:03.3	47.504N	18.332E	8	1.8	-	Kecskéd
21	13:34:53.1	47.452N	18.373E	9	0.8	-	Várgesztes
22	19:46:05.4	47.452N	18.355E	9	0.2	-	Oroszlány
23	0:11:24.0	47.449N	18.359E	9	0.2	-	Oroszlány
23	8:23:04.7	47.454N	18.373E	0	1.4	-	Várgesztes (expl.)
24	7:44:57.3	47.415N	18.351E	0	1.4	-	Gánt (expl.)
27	11:37:50.6	47.550N	18.374E	0	0.8	-	Vértessomló (expl.)
29	11:22:36.7	47.413N	18.230E	0	1.0	-	Pusztavám
31	23:36:12.3	47.476N	18.361E	5	-0.1	-	Oroszlány

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02	21:52:06.8	47.475N	18.371E	15	1.2	-	Várgesztes
03	7:48:31.1	48.357N	19.840E	0	1.5	-	Slovakia (expl.)
06	21:55:08.7	48.128N	20.359E	10	1.4	-	Bükkmogyorósd
09	8:53:29.3	48.043N	19.574E	0	1.3	-	Nagylóc (expl.)
13	8:37:59.4	48.255N	18.903E	0	1.3	-	Slovakia (expl.)
13	20:34:14.4	47.411N	18.231E	1	0.0	-	Pusztavám
14	15:53:59.4	47.315N	18.245E	9	0.7	-	Bodajk
16	8:32:26.1	48.377N	19.824E	0	2.0	-	Slovakia (expl.)
16	9:01:00.6	47.456N	18.385E	0	1.5	-	Várgesztes (expl.)
18	2:12:21.5	45.800N	21.446E	10	2.3	-	Romania
18	3:47:34.6	47.604N	19.788E	10	1.4	-	Jászágó
21	7:51:48.5	48.398N	19.790E	0	1.7	-	Slovakia (expl.)
22	11:43:46.4	47.492N	18.050E	0	0.4	-	Kisbér (expl.)
22	23:22:41.8	47.363N	18.121E	4	-0.2	-	Nagyveleg
27	11:31:45.6	47.298N	18.316E	0	1.0	-	Magyaralmás

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06	8:17:19.9	48.622N	20.747E	0	1.6	-	Slovakia (expl.)
06	9:38:28.8	48.931N	20.711E	0	1.9	-	Slovakia (expl.)
07	12:05:53.1	48.228N	21.274E	0	1.6	-	Tállya (expl.)
08	21:40:24.8	47.259N	17.900E	7	1.5	-	Olaszfalu
09	0:15:23.5	47.371N	18.110E	2	0.1	-	Nagyveleg
09	9:10:36.9	47.382N	18.258E	0	0.3	-	Mór
10	1:04:38.4	47.303N	18.192E	7	0.0	-	Balinka
10	1:17:08.7	47.437N	18.191E	10	0.5	-	Pusztavám
10	21:53:46.4	47.448N	18.374E	10	-0.3	-	Várgesztes
11	6:05:59.8	47.476N	18.366E	8	3.5	5	Gánt
11	6:40:48.7	47.500N	18.343E	0	0.6	-	Kecskéd
11	8:05:31.4	47.492N	18.342E	0	0.3	-	Oroszlány
11	8:05:55.5	47.301N	18.408E	0	1.0	-	Zámoly (expl.)
11	8:11:06.8	47.418N	18.353E	0	0.9	-	Gánt (expl.)
11	8:11:45.8	47.418N	18.335E	0	1.0	-	Gánt (expl.)
11	9:59:14.3	47.500N	18.346E	0	0.5	-	Vértessomló
11	16:40:01.2	47.422N	18.358E	9	0.5	-	Gánt
11	17:48:39.0	47.489N	18.348E	0	0.5	-	Oroszlány
13	21:53:10.5	46.567N	21.218E	10	2.1	-	Elek
22	1:58:52.8	47.435N	18.244E	10	0.4	-	Pusztavám
25	2:44:52.6	45.628N	18.057E	0	2.8	-	Croatia
26	5:52:26.5	47.915N	19.887E	5	0.8	-	Mátraszentimre

26	20:43:34.2	47.552N	22.314E	1	2.3	-	Romania
27	5:42:37.2	48.221N	21.175E	1	2.0	-	Monok
27	11:23:26.1	47.428N	18.410E	7	2.3	-	Gánt
27	12:49:09.2	47.458N	18.370E	10	2.1	-	Oroszlány
27	18:18:33.7	47.494N	18.347E	0	0.5	-	Oroszlány
29	10:48:15.4	47.478N	18.335E	1	0.4	-	Oroszlány
29	13:37:27.8	47.477N	18.365E	8	1.7	-	Oroszlány
30	17:21:07.1	47.361N	18.260E	5	0.5	-	Csókakő

AUGUSZTUS / AUGUST, 2011

01	22:08:45.3	47.215N	17.675E	8	1.8	-	Németbánya
03	6:10:33.9	47.404N	18.347E	0	1.4	-	Gánt (expl.)
03	7:56:55.5	47.423N	18.201E	5	0.2	-	Pusztavám
03	7:58:45.2	48.384N	19.827E	0	1.9	-	Slovakia (expl.)
04	0:54:51.0	47.582N	22.311E	1	2.0	-	Romania
04	8:52:52.3	48.570N	20.415E	0	1.4	-	Slovakia (expl.)
05	3:02:49.1	46.152N	16.495E	12	2.3	-	Croatia
05	6:33:31.2	47.444N	18.388E	0	1.4	-	Várgesztes (expl.)
05	6:33:46.7	47.471N	18.358E	0	1.3	-	Oroszlány (expl.)
05	17:43:58.1	47.434N	18.190E	10	0.5	-	Pusztavám
06	2:10:34.4	47.429N	18.254E	0	-0.2	-	Pusztavám
07	9:49:32.7	46.542N	17.865E	6	1.9	-	Szentgáloskér
08	1:52:06.7	46.556N	17.973E	10	1.4	-	Igal
08	20:35:14.2	46.590N	18.084E	14	1.2	-	Koppányszántó
11	10:18:07.5	47.483N	18.344E	0	0.6	-	Oroszlány
11	14:29:01.1	47.402N	18.268E	5	0.4	-	Pusztavám
15	5:58:00.5	47.394N	18.008E	10	0.7	-	Ácsteszér
15	14:22:45.8	47.736N	16.166E	10	2.2	-	Austria
18	8:31:16.1	48.352N	19.832E	0	1.8	-	Slovakia (expl.)
21	14:12:36.3	47.181N	18.413E	10	1.0	-	Székesfehérvár
22	9:50:34.2	47.444N	18.439E	7	1.6	-	Várgesztes
29	0:38:11.0	47.356N	18.207E	8	0.4	-	Mór
29	7:30:45.2	45.853N	17.728E	10	2.5	-	Felsőszentmárton

SZEPTEMBER / SEPTEMBER, 2011

02	8:44:32.3	48.626N	20.741E	0	1.5	-	Slovakia (expl.)
03	7:30:33.0	46.689N	18.730E	10	2.7	4-5	Németkér
07	22:38:20.8	47.845N	19.563E	1	2.3	4	Kisbágyon
12	7:43:31.3	47.445N	18.350E	0	1.3	-	Oroszlány (expl.)
12	7:43:41.9	47.477N	18.399E	0	1.7	-	Várgesztes (expl.)
14	2:37:47.7	47.453N	18.205E	7	0.2	-	Bokod
14	9:05:18.5	47.443N	18.380E	0	1.0	-	Várgesztes (expl.)
14	9:13:10.8	47.349N	18.429E	0	1.3	-	Gánt
14	9:13:51.1	47.478N	18.335E	1	0.5	-	Oroszlány
15	3:56:13.2	47.489N	18.348E	1	0.3	-	Oroszlány
15	10:11:28.9	47.436N	18.090E	10	0.7	-	Bakonysárkány
19	8:06:17.6	47.422N	18.399E	0	0.9	-	Gánt (expl.)
19	8:10:03.4	47.446N	18.385E	0	0.8	-	Várgesztes (expl.)
20	11:41:44.5	47.315N	18.133E	0	0.1	-	Bakonycsernye
22	6:39:18.2	47.421N	18.356E	0	1.4	-	Gánt (expl.)
22	6:39:33.7	47.444N	18.374E	0	1.4	-	Várgesztes (expl.)
22	9:15:46.7	48.384N	19.833E	0	1.8	-	Slovakia (expl.)
26	11:30:13.0	48.041N	19.639E	0	0.9	-	Sóshartyán (expl.)
29	12:46:03.7	47.245N	22.774E	0	1.8	-	Romania
30	9:13:41.1	47.437N	18.338E	0	1.1	-	Oroszlány (expl.)
30	9:17:59.8	47.440N	18.377E	0	1.3	-	Várgesztes (expl.)

OKTÓBER / OCTOBER, 2011

07	10:14:04.9	47.473N	18.046E	0	0.8	-	Vérteskethely (expl.)
08	19:12:12.1	47.403N	18.221E	0	0.0	-	Pusztavám

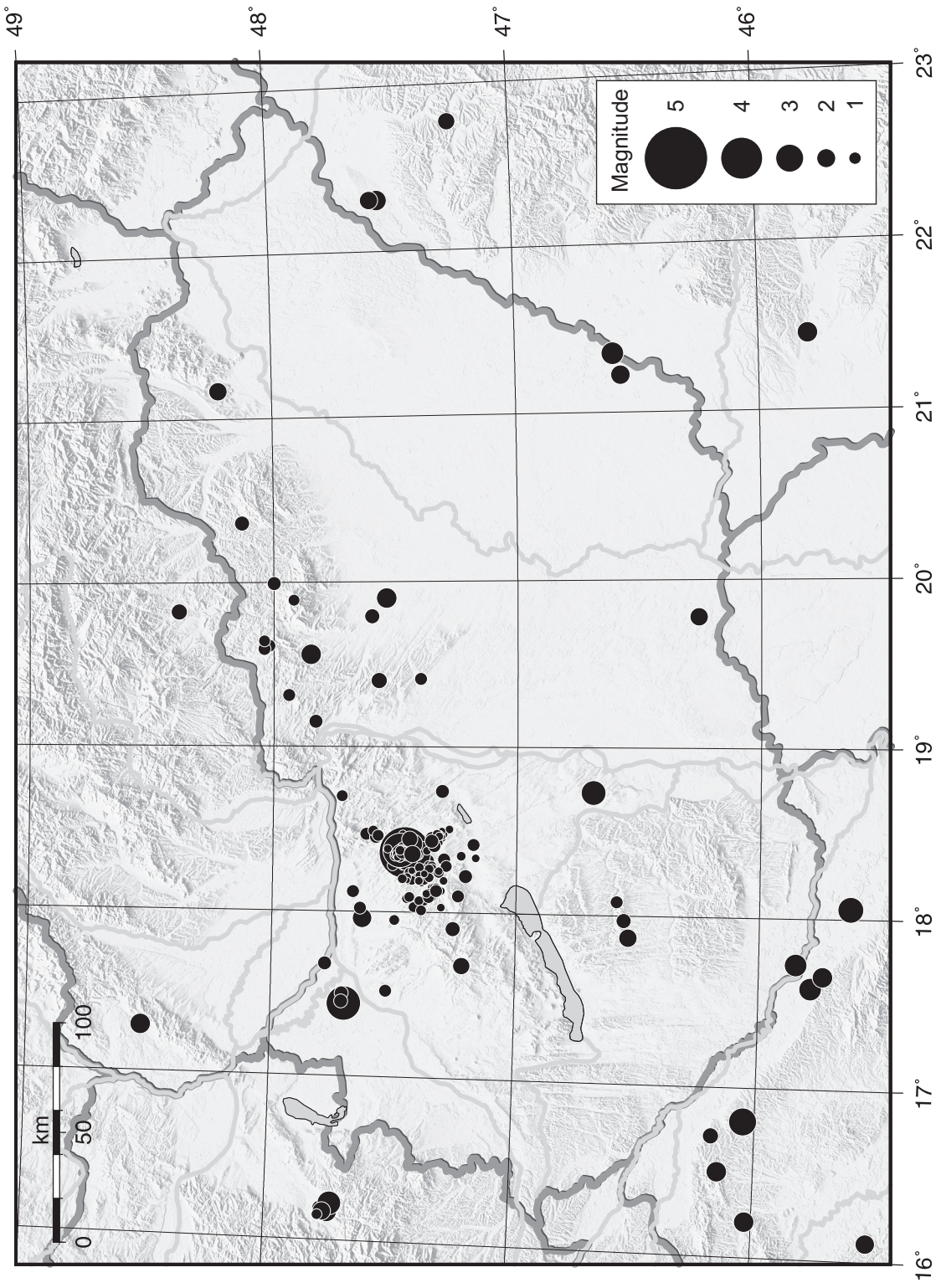
09	23:00:50.3	47.453N	18.189E	1	-0.4	-	Bokod
09	23:53:41.3	47.491N	18.328E	0	-0.2	-	Oroszlány
10	11:50:54.9	47.582N	18.456E	0	1.0	-	Tatabánya (expl.)
10	20:08:20.5	47.403N	18.187E	11	0.2	-	Mór
11	1:23:33.8	47.401N	18.190E	11	0.1	-	Mór
11	2:08:30.0	47.293N	18.282E	4	0.9	-	Fehérvárcsurgó
12	8:48:43.3	48.374N	19.831E	0	2.2	-	Slovakia (expl.)
12	15:15:08.8	46.602N	21.346E	10	2.5	-	Romania (Gyula)
12	20:20:55.1	46.030N	16.206E	10	2.3	-	Croatia
13	7:17:40.3	47.430N	18.441E	0	1.2	-	Csákvár (expl.)
13	7:22:27.6	47.378N	18.390E	0	1.2	-	Gánt (expl.)
14	10:37:52.5	47.436N	18.075E	0	0.6	-	Aka (expl.)
14	22:43:24.7	47.527N	18.383E	0	0.2	-	Vértessomló
15	16:01:53.8	47.469N	18.199E	6	0.5	-	Bokod
16	20:21:21.8	47.318N	18.250E	6	0.0	-	Fehérvárcsurgó
17	13:52:35.2	45.785N	17.588E	3	2.5	-	Croatia
18	10:53:49.2	47.416N	18.370E	0	1.3	-	Gánt (expl.)
21	15:58:40.7	48.528N	17.276E	1	2.3	-	Slovakia
23	2:22:11.2	45.531N	16.106E	4	2.1	-	Croatia
27	9:10:05.5	47.211N	18.223E	10	1.3	-	Csór
27	10:20:12.4	47.459N	18.404E	0	1.4	-	Várgesztes (expl.)
27	19:43:56.4	46.182N	16.706E	7	1.7	-	Croatia
28	9:25:54.3	48.004N	19.990E	2	1.3	-	Mátraterenye
31	14:54:16.1	47.731N	16.224E	1	2.6	-	Austria

NOVEMBER / NOVEMBER, 2011

01	23:56:34.1	47.700N	17.437E	13	3.5	5-6	Rábapatona
02	0:06:19.9	47.535N	17.517E	18	1.0	-	Tét
02	2:16:41.4	47.710N	17.500E	22	1.3	-	Öttevény
02	10:17:58.5	48.414N	19.026E	0	1.7	-	Slovakia (expl.)
03	3:29:27.8	47.399N	19.413E	7	1.2	-	Péteri
03	9:21:03.2	45.740N	17.659E	10	2.2	-	Croatia
06	18:38:17.4	47.466N	18.362E	10	1.0	-	Oroszlány
13	2:14:28.2	47.326N	18.134E	10	1.1	-	Bakonycsernye
13	19:03:08.4	46.263N	19.785E	8	2.0	-	Ruzsa
14	5:38:59.4	47.243N	18.096E	8	1.2	-	Várpalota
14	9:35:35.8	47.397N	18.352E	0	0.9	-	Gánt (expl.)
14	9:36:21.9	47.413N	18.446E	0	1.1	-	Csákvár (expl.)
16	9:05:09.3	47.339N	18.417E	0	1.0	-	Zámoly (expl.)
16	9:12:02.8	47.446N	18.363E	0	1.2	-	Oroszlány (expl.)
18	0:30:35.8	47.780N	17.679E	10	1.3	-	Vámosszabadi
19	23:24:31.5	47.378N	18.229E	8	-0.1	-	Mór
22	0:54:13.7	47.477N	18.372E	10	0.5	-	Várgesztes
22	7:31:10.4	47.420N	18.356E	0	1.6	-	Gánt (expl.)
22	7:31:24.9	47.445N	18.411E	0	2.0	-	Várgesztes (expl.)
22	7:31:59.0	47.437N	18.356E	0	1.5	-	Oroszlány (expl.)
23	3:18:47.8	47.428N	18.353E	12	1.8	-	Oroszlány
25	12:18:10.4	47.980N	19.910E	0	1.1	-	Szuha (expl.)
27	6:54:33.3	47.939N	19.307E	1	1.2	-	Kisecset
28	11:46:26.3	47.307N	18.735E	10	1.3	-	Kajászó

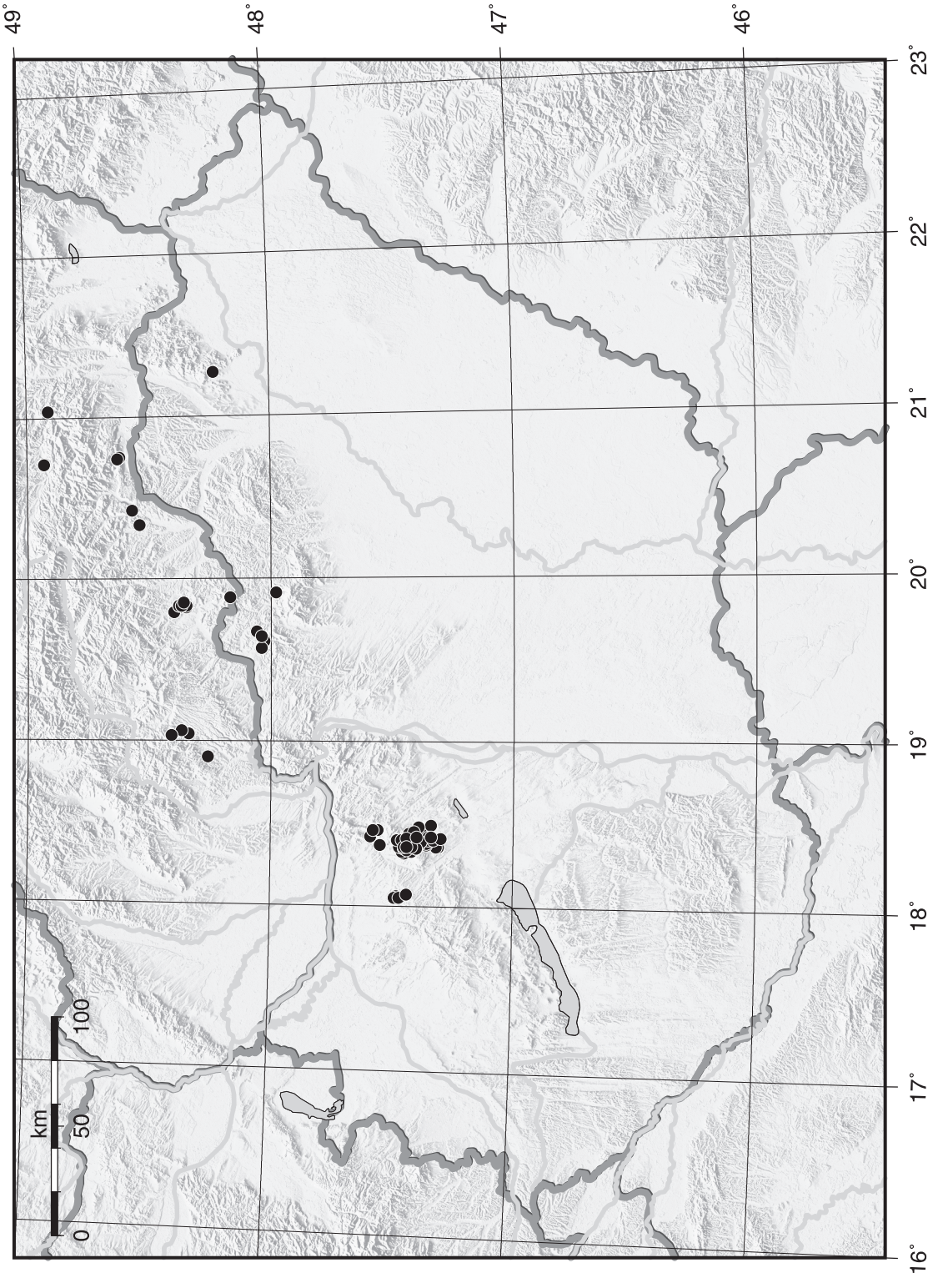
DECEMBER / DECEMBER, 2011

04	9:19:33.0	48.175N	19.883E	0	1.2	-	Salgóbánya (expl.)
06	22:48:06.3	47.756N	16.174E	7	1.9	-	Austria
07	17:53:08.1	47.780N	16.146E	6	0.7	-	Austria
09	8:55:41.7	47.398N	18.417E	0	1.4	-	Gánt (expl.)
09	12:48:11.2	48.363N	19.853E	0	2.3	-	Slovakia (expl.)
18	10:27:27.2	47.713N	17.446E	10	1.3	-	Mosonszentmiklós
28	9:20:30.0	48.036N	19.595E	10	1.0	-	Nagylóc
29	9:07:05.9	48.039N	19.639E	8	0.9	-	Sóshartyán



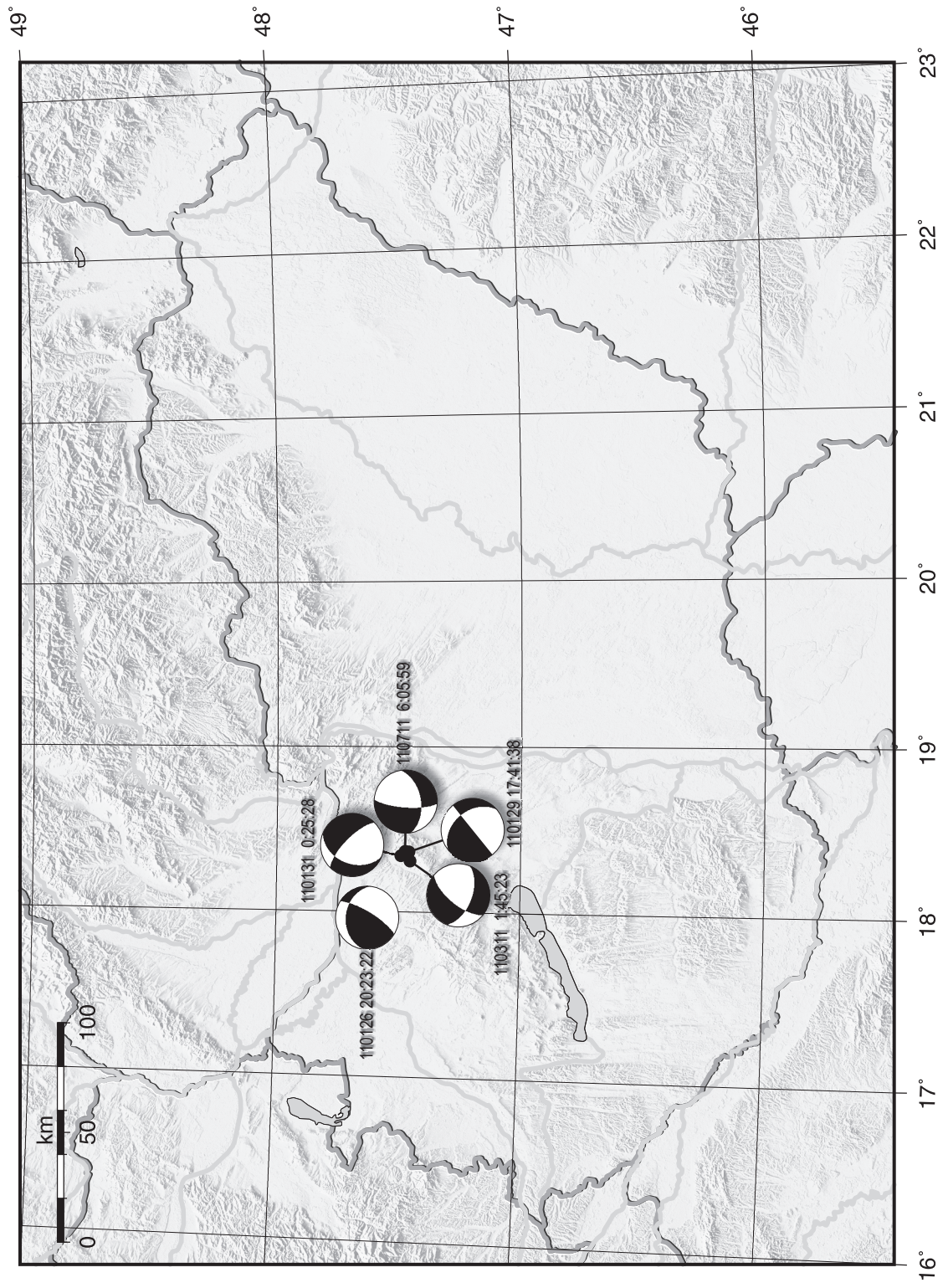
3.1. ábra A 2011-ben regisztrált földrengések epicentrumai

Figure 3.1. Epicenters of 2011 earthquakes



3.2. ábra A 2011-ben regisztrált robbantások epicentrumai

Figure 3.2. Epicenters of 2011 explosions



3.3. ábra A 2011-ben regisztrált földrengések fészekmechanizmusai

Figure 3.3. Fault plane solutions of 2011 earthquakes

FÉSZEKPARAMÉTEREK ÉS FÁZISADATOK

A listában alkalmazott jelek és rövidítések magyarázata:

time: Az esemény kipattanásának ideje (óra:perc:másodperc; UTC).

ML: A rengés Richter-féle lokális magnitúdója.

lat: Az esemény földrajzi szélessége (fok).

lon: Az esemény földrajzi hosszúsága (fok).

h: A fészek mélysége (km).

erh: Horizontális hiba km-ben. ($erh = \sqrt{SDX^2 + SDY^2}$, ahol *SDX* és *SDY* az epicentrum földrajzi szélességének és hosszúságának meghatározási hibái.) Ha *erh* = ---, a kevés rendelkezésre álló adat miatt *erh* nem volt meghatározható.

erz: A fészekmélység meghatározásának hibája (km). *erz* = --- azt jelzi, hogy *erz* nem volt meghatározható a kevés rendelkezésre álló adat miatt.

nr: A számításnál felhasznált fázisadatok száma. Azonos állomásról származó P és S beérkezések 2 adatnak számítanak.

gap: Az állomások közötti legnagyobb irányeltérés (fok).

rms: A számított beérkezési idők átlagnégyzetes hibája (mp). ($rms = \sqrt{\sum R_i^2 / nr}$, ahol R_i az *i* –edik állomás időhibája (reziduál).)

Locality: A rengés földrajzi helyének megnevezése, általában a legközelebbi település neve.

Comments: Az eseménnyel kapcsolatos egyéb közlemény (pl. epicentrális intenzitás).

sta: Az állomás neve. (L. 2. fejezet.)

dist: Az állomás távolsága az epicentrumtól (km).

azm: Az állomás irányszöge az epicentrumból az északi iránytól számítva (fok).

phase: Fázis azonosító; az első betű a kezdetet jellemzi: *e* = lassan emelkedő *i* = hirtelen kitérő; a második és harmadik betű a fázis megnevezése pl. Pn, Pg, Sn, Sg; a negyedik a kitérési irányt jelzi: C=kompresszió/fel, D=dilatáció/le.

hr mn sec: A fázis beérkezési ideje (óra, perc, másodperc).

res: Reziduál (másodperc). ($res = T_{obs} - T_{cal}$, ahol T_{obs} a mért, és T_{cal} a számított menetidő.)

Minden rengésnél, ahol elegendő számú első kitérési adat állt rendelkezésre, megkíséreltük a fészekmechanizmus meghatározását. Az ábrákon az alsó félteke sztereografikus képe látható, **P** a maximális, **T** a minimális feszültségtengely iránya. A fészekmechanizmusokat a 3.3. ábra foglalja össze.

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 fourth 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. Strike, dip and slip values of the nodal planes are also indicated. Calculations were carried out by computer program FPFIT (Reasenberg and Oppenheimer, 1985). The results are summarized in Fig. 3.3.

Hypocenter Parameters **Földrengés paraméterek**

1.

2011-01-04 time: 1:25:49.65 UTC ML= 0.3
lat: 47.356N lon: 18.265E h= 4.1 km
erh= 2.6km erz= 2.0km
nr= 6 gap=137 rms=0.14
Locality: Csókakő
Comments:

sta	dist	azm	phase	hr	mn	sec	res
CSKK	0.9	338	ePgC	1:	25:	50.50	0.10
			eSg		25:	50.90	-0.08
PKST	20.5	238	ePgD	1:	25:	53.20	-0.18
			eSg		25:	56.40	0.11
SUKH	29.4	115	ePgD	1:	25:	55.10	0.15
			eSg		25:	58.90	-0.19

2.

2011-01-12 time: 7:22:44.31 UTC ML= 0.6
lat: 47.307N lon: 18.359E h= 0.0 km
erh= 3.2km erz= 501km
nr= 6 gap=160 rms=0.29
Locality: Zámoly
Comments: probably explosion

sta	dist	azm	phase	hr	mn	sec	res
CSKK	9.7	310	ePg	7:	22:	45.80	-0.24
			eSg		22:	47.80	0.40
SUKH	20.8	110	ePgC	7:	22:	47.90	-0.11
			eSg		22:	51.50	0.60
PKST	25.1	258	ePgD	7:	22:	48.80	0.00
			eSg		22:	54.40	2.10

3.

2011-01-12 time: 7:23:00.28 UTC ML= 0.8
lat: 47.420N lon: 18.419E h= 0.0 km
erh= 5.6km erz= 590km
nr= 6 gap=261 rms=0.35
Locality: Gánt
Comments: probably explosion

sta	dist	azm	phase	hr	mn	sec	res
CSKK	13.6	242	ePgC	7:	23:	02.40	-0.30
			eSg		23:	04.30	-0.29
SUKH	24.8	143	ePgC	7:	23:	04.60	-0.10
			eSg		23:	08.40	0.25
PKST	34.2	238	ePg	7:	23:	07.10	0.72
			eSg		23:	11.10	-0.04

4.

2011-01-12 time: 12:07:10.71 UTC ML= 1.4
lat: 47.370N lon: 18.314E h= 7.8 km
erh= 5.4km erz= 3.7km
nr= 6 gap=223 rms=0.32
Locality: Csákberény
Comments:

sta	dist	azm	phase	hr	mn	sec	res
CSKK	4.1	259	ePgD	12:	07:	12.30	0.00
			eSg		07:	13.60	0.07
PKST	24.5	240	ePgD	12:	07:	15.00	-0.31
			eSg		07:	19.00	0.11
SUKH	26.9	122	ePgD	12:	07:	16.20	0.48
			eSg		07:	19.10	-0.53

5.

2011-01-15 time: 18:25:17.57 UTC ML= 0.5
lat: 47.346N lon: 18.087E h= 8.7 km
erh= ---km erz= ---km
nr= 5 gap=239 rms=0.00
Locality: Bakonycsernye
Comments:

sta	dist	azm	phase	hr	mn	sec	res
PKST	10.5	202	ePgC	18:	25:	20.00	0.00
			eSg		25:	21.90	0.00
CSKK	13.2	82	ePgC	18:	25:	20.40	0.00
			eSg		25:	22.60	0.00
SUKH	41.7	106	eSg	18:	25:	31.10	0.00

6.

2011-01-17 time: 8:08:00.53 UTC ML= 0.6
lat: 47.424N lon: 18.428E h= 0.0 km
erh= 5.7km erz= 577km
nr= 6 gap=263 rms=0.33
Locality: Csákvár
Comments: probably explosion

sta	dist	azm	phase	hr	mn	sec	res
CSKK	14.4	242	ePgC	8:	08:	03.00	-0.10
			eSg		08:	04.60	-0.50
SUKH	24.7	145	ePgC	8:	08:	05.20	0.26
			eSg		08:	08.10	-0.28
PKST	35.0	238	ePgC	8:	08:	06.70	-0.08
			eSg		08:	12.50	0.85

7.

2011-01-17 time: 8:15:23.36 UTC ML= 0.8
lat: 47.322N lon: 18.361E h= 0.0 km
erh= 1.1km erz= 132km
nr= 5 gap=173 rms=0.07
Locality: Zámoly
Comments: probably explosion

sta	dist	azm	phase	hr	mn	sec	res
CSKK	8.9	301	ePgC	8:	15:	24.90	-0.04
			eSg		15:	26.20	0.02
SUKH	21.3	114	ePgC	8:	15:	27.10	-0.06
			eSg		15:	30.30	0.18
PKST	25.7	254	ePgC	8:	15:	28.00	0.06

8.

2011-01-23 time: 8:51:23.97 UTC ML= 0.4
lat: 47.401N lon: 18.188E h= 11.6 km
erh= 1.5km erz= 1.1km
nr= 8 gap=237 rms=0.14
Locality: Mór
Comments:

sta	dist	azm	phase	hr	mn	sec	res
CSKK	6.9	127	ePgD	8:	51:	26.60	0.23
			eSg		51:	28.30	0.06
PKSG	15.3	94	ePgC	8:	51:	27.30	-0.10
			eSg		51:	29.90	-0.17
PKST	19.6	216	ePgD	8:	51:	27.90	-0.13
			eSg		51:	31.10	-0.10
SUKH	36.8	118	ePgC	8:	51:	31.00	0.14
			eSg		51:	36.20	-0.04

9.

2011-01-24 time: 1:56:57.88 UTC ML=-0.2
lat: 47.304N lon: 18.287E h= 10.0 km
erh= 4.9km erz= 3.8km
nr= 6 gap=217 rms=0.13
Locality: Söréd
Comments:

sta	dist	azm	phase	hr mn sec	res
CSKK	6.9	343	ePgC	1:57:00.00	-0.05
			eSg	58:01.60	-0.14
PKSG	12.5	39	ePgC	1:57:00.80	0.05
			eSg	57:03.10	0.12
PKST	19.7	255	ePg	1:57:01.70	-0.13
			eSg	57:05.20	0.28

10.

2011-01-26 time: 9:16:38.76 UTC ML= 0.8
lat: 47.365N lon: 18.387E h= 0.0 km
erh= 1.2km erz= 368km
nr= 7 gap=122 rms=0.25
Locality: Gánt
Comments:

sta	dist	azm	phase	hr mn sec	res
PKSG	3.0	6	ePgC	9:16:39.10	-0.20
			eSg	16:40.10	0.39
CSKK	9.5	269	ePgC	9:16:40.40	-0.06
			eSg	16:42.10	0.31
SUKH	22.1	128	ePgC	9:16:42.60	-0.11
			eSg	16:46.20	0.42
PKST	29.1	246	eSg	9:16:47.70	-0.32

11.

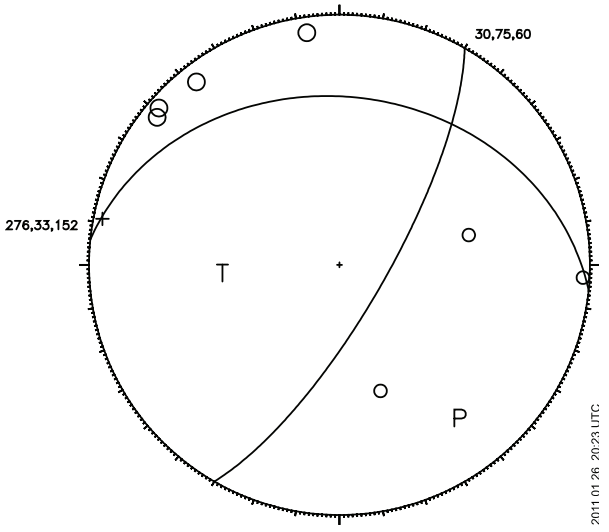
2011-01-26 time: 9:16:52.05 UTC ML= 0.8
lat: 47.377N lon: 18.399E h= 0.0 km
erh= 1.5km erz= 354km
nr= 7 gap=154 rms=0.23
Locality: Gánt
Comments:

sta	dist	azm	phase	hr mn sec	res
PKSG	1.8	338	ePg	9:16:52.40	0.04
CSKK	10.6	262	ePg	9:16:53.80	-0.14
			eSg	16:55.70	0.29
SUKH	22.2	132	ePgD	9:16:56.10	0.09
			eSg	16:59.20	0.09
PKST	30.6	245	ePgD	9:16:57.10	-0.40
			eSg	17:02.10	0.34

12.

2011-01-26 time: 20:23:22.61 UTC ML= 2.1
lat: 47.627N lon: 17.960E h= 5.2 km
erh= 1.8km erz= 1.8km
nr= 20 gap=155 rms=0.41
Locality: Bana
Comments: felt 4-5 EMS

sta	dist	azm	phase	hr mn sec	res
CSKK	37.1	142	ePgD	20:23:29.50	0.20
			eSg	23:35.00	0.49
PKST	41.3	172	ePgD	20:23:30.00	-0.05
			eSg	23:36.40	0.56
PKSG	41.7	129	ePgD	20:23:30.40	0.29
			eSg	23:36.30	0.34
SUKH	65.4	131	ePgD	20:23:34.40	0.07
			eSg	23:42.90	-0.58
BUD	81.7	101	ePgC	20:23:37.20	-0.02
			eSg	23:48.20	-0.42
SOP	105.5	273	ePgD	20:23:40.90	-0.57
PKS7	111.3	125	ePg	20:23:41.80	-0.71
			eSg	23:57.70	-0.34
PSZ	148.6	77	ePnD	20:23:48.20	0.69
			eSn	24:06.20	-0.73
BEHE	157.0	215	ePn	20:23:52.10	3.54
CONA	160.7	282	Pn	20:23:48.90	-0.12
			Sn	24:10.10	0.48
PKSM	165.7	162	ePnD	20:23:49.20	-0.44
ARSA	188.5	257	Pn	20:23:52.60	0.11
			Sn	24:17.50	1.70
DPC	325.7	338	ePn	20:24:09.30	-0.30
			eSn	24:42.90	-3.34
PRU	363.3	316	eSn	20:24:50.60	-3.99
KHC	365.1	297	e n	20:24:18.50	3.98
			eSn	24:52.50	-2.50



13.

2011-01-28 time: 8:16:48.60 UTC ML= 0.3
lat: 47.213N lon: 18.195E h= 1.4 km
erh= ---km erz= ---km
nr= 4 gap=209 rms=0.10
Locality: Bakonykúti
Comments:

sta	dist	azm	phase	hr mn sec	res
PKST	13.2	293	ePgC	8:16:50.90	-0.07
CSKK	17.5	16	ePgD	8:16:51.70	-0.03
SUKH	32.1	84	ePgC	8:16:54.50	0.17
			eSg	16:58.70	-0.11

14.

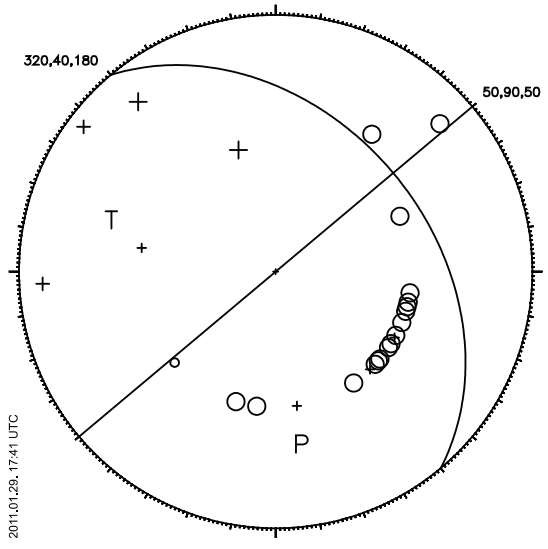
2011-01-28 time: 13:10:05.03 UTC ML= 1.1
lat: 47.617N lon: 18.473E h= 6.6 km
erh= 6.3km erz=23.4km
nr= 6 gap=316 rms=0.21
Locality: Vértestolna
Comments:

sta	dist	azm	phase	hr mn sec	res
PKSG	25.8	194	ePgD	13:10:09.70	-0.08
			eSg	10:13.70	0.22
CSKK	32.4	210	ePgD	13:10:10.80	-0.13
			eSg	10:15.50	-0.04
SUKH	43.0	165	ePgD	13:10:13.10	0.30
			eSg	10:18.50	-0.36

15.

2011-01-29 time: 17:41:38.19 UTC ML= 4.5
lat: 47.459N lon: 18.361E h= 9.1 km
erh= 1.3km erz= 0.9km
nr= 24 gap= 44 rms=0.32
Locality: Oroszlány
Comments: felt 6 EMS

sta	dist	azm	phase	hr mn sec	res
PKSG	7.8	163	ePgC	17:41:40.40	0.06
			eSg	41:41.40	-0.61
CSKK	13.1	215	ePgD	17:41:41.10	0.06
			eSg	41:42.90	-0.36
SUKH	30.9	141	ePgC	17:41:44.10	0.16
			eSg	41:48.70	0.28
PKST	33.2	228	ePgD	17:41:44.00	-0.34
			eSg	41:47.00	-2.14
BUD	50.1	87	ePgC	17:41:47.10	-0.18
			eSg	41:53.70	-0.66
PKS7	75.9	127	ePgC	17:41:51.90	0.06
ZST	124.9	311	ePn	17:41:58.30	-1.32
			eSn	42:13.40	-2.94
PSZ	126.0	66	iPnD	17:41:59.30	-0.46
PKSN	130.2	119	ePnC	17:42:00.30	0.01
			eSn	42:18.50	0.98
PKS6	132.3	136	ePnC	17:42:00.40	-0.15
SMOL	136.4	329	ePn	17:42:01.90	0.84
			eSn	42:17.40	-1.49
SOP	137.9	280	ePnC	17:42:01.10	-0.15
			eSn	42:17.10	-2.13
PKSM	140.3	171	ePnC	17:42:01.40	-0.15
			eSn	42:17.40	-2.37
BEHE	163.2	228	ePnD	17:42:05.20	0.79
			eSn	42:32.00	7.14
CONA	194.7	286	Pn	17:42:08.10	-0.22
			Sn	42:29.90	-1.93
KOGS	196.1	235	iPn	17:42:09.00	0.50
LANS	205.2	24	ePn	17:42:10.30	0.66
			eSn	42:36.00	1.82
ARSA	215.6	264	Pn	17:42:11.20	0.26
			Sn	42:35.60	-0.89
VRAC	243.8	328	iPn	17:42:14.10	-0.35
OKC	265.0	357	iPn	17:42:17.20	0.11
SOKA	267.3	251	Pn	17:42:17.40	0.02
			Sn	42:47.20	-0.76
SIRR	284.3	118	iPn	17:42:19.20	-0.30
CRES	287.0	231	iPn	17:42:19.50	-0.34
TIM	291.0	131	iPnD	17:42:21.20	0.86
STHS	304.8	44	ePn	17:42:23.80	1.74
			eSn	43:11.30	15.03
OBKA	308.6	250	Pn	17:42:22.80	0.26
			Sn	42:56.50	-0.63
BLY	310.6	197	iPnD	17:42:23.60	0.82
MOA	310.7	278	Pn	17:42:23.20	0.41
			Sn	43:08.10	10.52
KRLC	313.2	338	iPn	17:42:24.00	0.89
BANR	314.3	137	iPn	17:42:24.00	0.76
TRPA	321.8	77	ePn	17:42:23.70	-0.48
			eSn	43:15.90	15.84
BZS	323.0	129	iPn	17:42:24.40	0.07
MOZS	325.5	247	iPn	17:42:24.70	0.06
LJU	332.5	242	iPn	17:42:25.60	0.09
			iSn	43:00.20	-2.23
KOLS	333.9	61	ePn	17:42:25.60	-0.08
			eSn	43:20.50	17.77
DRGR	338.4	103	iPnD	17:42:26.50	0.26
DPC	354.6	335	iPn	17:42:28.40	0.14
MYKA	370.3	256	Pn	17:42:30.80	0.57
			Sn	43:11.00	0.19
GOPC	379.2	316	iPn	17:42:30.70	-0.63
			eSn	43:10.80	-1.98
UPC	380.1	333	iPn	17:42:31.50	0.05
KBA	382.0	264	Pn	17:42:32.60	0.92
			Sn	43:12.70	-0.70
BMR	387.2	86	iPn	17:42:32.30	-0.04
MDVR	394.6	139	iPn	17:42:33.80	0.54
PRU	397.6	315	ePn	17:42:32.90	-0.73
			eSn	43:14.10	-2.77
KHC	400.6	298	iPn	17:42:34.50	0.49
			eSn	43:15.40	-2.15
KWP	401.7	53	iPn	17:42:35.50	1.36
CJR	406.3	102	iPn	17:42:35.40	0.69
PRA	409.5	315	iPn	17:42:34.90	-0.22
GZR	409.8	124	iPnD	17:42:35.70	0.55
PVCC	439.9	321	iPn	17:42:38.20	-0.70
ABTA	451.0	260	Pn	17:42:41.50	1.22
ARCR	455.4	95	iPn	17:42:41.40	0.56
RMGR	457.1	133	iPnD	17:42:42.40	1.35
LOT	471.9	118	iPnD	17:42:44.00	1.11
MDB	482.3	108	iPn	17:42:45.50	1.30
SRE	487.0	130	iPnD	17:42:46.70	1.92
WATA	512.4	268	Pn	17:42:48.90	0.96
BURB	516.5	88	iPn	17:42:49.70	1.24
NKC	532.5	305	iPn	17:42:50.10	-0.35
ARR	535.4	116	iPn	17:42:50.40	-0.42
MOTA	548.0	269	Pn	17:42:53.10	0.72
VOIR	561.0	114	iPn	17:42:55.30	1.30
DOPR	562.4	107	iPnD	17:42:54.90	0.72
PDG	563.3	173	iPn	17:42:55.50	1.21
RETA	572.8	270	Pn	17:42:55.90	0.42
FETA	579.9	265	Pn	17:42:57.40	1.04
			Sn	43:55.70	-1.63
HUMR	607.6	122	iPnD	17:43:00.40	0.59
MLR	622.2	111	iPn	17:43:03.20	1.56
TESR	639.3	99	iPnD	17:43:04.70	0.93
DAVA	640.8	268	Pn	17:43:04.10	0.15
VTS	662.3	145	iPnD	17:43:07.00	0.37
VRI	664.4	105	iPnD	17:43:07.40	0.50
ISR	682.1	112	iPnD	17:43:10.50	1.39
TIP	929.1	188	iPnD	17:43:40.60	0.70



16.

2011-01-29 time: 17:44:14.57 UTC ML= 1.1
lat: 47.345N lon: 18.447E h= 10.0 km
erh= 2.0km erz= 2.4km
nr= 7 gap=171 rms=0.19
Locality: Zámoly
Comments:

sta	dist	azm	phase	hr mn sec	res
PKSG	6.7	321	ePgC	17:44:16.90	0.18
			eSg	44:18.40	0.00
CSKK	14.2	278	ePgD	17:44:17.60	-0.08
			eSg	44:19.70	-0.40

```
SUKH  17.2 132   eSg   17:44:20.80   -0.09
PKST  32.6 253   ePg   17:44:20.60   -0.06
                 eSg      44:25.80    0.38
```

17.

```
 2011-01-29  time: 17:44:43.29 UTC  ML= 1.5
   lat: 47.436N  lon: 18.360E  h=  8.9 km
                 erh= 2.1km    erz= 1.3km
   nr=  8        gap=267       rms=0.17
   Locality: Oroszlány
   Comments:

sta   dist azm  phase  hr mn  sec     res
PKSG   5.5 155   ePgC  17:44:45.00   -0.15
                 eSg      44:46.60    0.00
CSKK  11.1 223   ePg   17:44:45.80   -0.02
                 eSg      44:48.00    0.20
SUKH  29.0 138   ePgC  17:44:49.00    0.30
                 eSg      44:52.70   -0.23
PKST  31.5 231   ePgC  17:44:49.00   -0.14
                 eSg      44:53.80    0.10
```

18.

```
 2011-01-29  time: 17:45:03.69 UTC  ML= 0.9
   lat: 47.451N  lon: 18.363E  h=  9.3 km
                 erh= 0.7km    erz= 0.6km
   nr=  7        gap=271       rms=0.05
   Locality: Oroszlány
   Comments:

sta   dist azm  phase  hr mn  sec     res
PKSG   6.9 163   ePgD  17:45:05.80    0.04
                 eSg      45:07.30   -0.07
CSKK  12.5 218   ePgD  17:45:06.50    0.03
                 eSg      45:08.60   -0.03
SUKH  30.1 140   eSg   17:45:13.70    0.01
PKST  32.8 229   ePgD  17:45:09.70   -0.07
                 eSg      45:14.60    0.08
```

19.

```
 2011-01-29  time: 17:46:49.60 UTC  ML= 0.7
   lat: 47.394N  lon: 18.393E  h= 10.8 km
                 erh= 1.4km    erz= 1.0km
   nr=  8        gap=244       rms=0.13
   Locality: Gánt
   Comments:

sta   dist azm  phase  hr mn  sec     res
PKSG   0.3 218   ePgC  17:46:51.40   -0.14
                 eSg      46:53.30    0.25
CSKK  10.5 251   ePgD  17:46:52.20   -0.10
                 eSg      46:54.30   -0.11
SUKH  23.8 135   ePg   17:46:54.40    0.12
                 eSg      46:57.80   -0.13
PKST  31.0 241   ePg   17:46:55.50    0.04
                 eSg      47:00.20    0.17
```

20.

```
 2011-01-29  time: 17:47:43.99 UTC  ML= 0.5
   lat: 47.313N  lon: 18.466E  h=  0.0 km
                 erh= 3.3km    erz= 385km
   nr=  5        gap=293       rms=0.17
   Locality: Pátka
   Comments:

sta   dist azm  phase  hr mn  sec     res
PKSG  10.5 327   ePgC  17:47:45.90    0.04
                 eSg      47:47.50    0.18
CSKK  16.5 290   ePg   17:47:46.80   -0.14
                 eSg      47:49.00   -0.24
PKST  33.2 260   eSg   17:47:54.80    0.26
```

21.

```
 2011-01-29  time: 17:50:42.02 UTC  ML= 0.5
   lat: 47.466N  lon: 18.367E  h=  9.1 km
                 erh= 1.2km    erz= 0.9km
   nr=  8        gap=275       rms=0.09
   Locality: Oroszlány
   Comments:

sta   dist azm  phase  hr mn  sec     res
PKSG   8.4 168   ePgC  17:50:44.30    0.06
                 eSg      50:45.90   -0.07
CSKK  13.9 215   ePgD  17:50:45.10    0.10
                 eSg      50:47.20   -0.12
SUKH  31.2 143   ePg   17:50:47.80   -0.02
                 eSg      50:52.30   -0.04
PKST  34.1 228   ePgC  17:50:48.20   -0.12
                 eSg      50:53.40    0.17
```

22.

```
 2011-01-29  time: 17:53:25.48 UTC  ML= 0.3
   lat: 47.411N  lon: 18.359E  h=  8.5 km
                 erh= 3.5km    erz= 2.1km
   nr=  6        gap=258       rms=0.22
   Locality: Gánt
   Comments:

sta   dist azm  phase  hr mn  sec     res
PKSG   3.2 132   ePgD  17:53:26.90   -0.20
                 eSg      53:28.40    0.04
CSKK   9.2 234   ePgD  17:53:27.60   -0.11
                 eSg      53:29.80    0.35
SUKH  27.0 134   ePg   17:53:30.80    0.27
                 eSg      53:34.20   -0.28
```

23.

```
 2011-01-29  time: 17:55:11.69 UTC  ML=-0.2
   lat: 47.452N  lon: 18.372E  h=  9.3 km
                 erh= 1.0km    erz= 0.8km
   nr=  5        gap=281       rms=0.04
   Locality: Oroszlány
   Comments:

sta   dist azm  phase  hr mn  sec     res
PKSG   6.8 168   ePgD  17:55:13.80    0.05
                 eSg      55:15.30   -0.05
CSKK  13.0 221   ePg   17:55:14.50   -0.05
                 eSg      55:16.80    0.03
SUKH  29.7 142   eSg   17:55:21.60    0.01
```

24.

```
 2011-01-29  time: 17:56:36.46 UTC  ML= 0.3
   lat: 47.440N  lon: 18.353E  h=  8.6 km
                 erh= 1.3km    erz= 0.8km
   nr=  8        gap=268       rms=0.11
   Locality: Oroszlány
   Comments:

sta   dist azm  phase  hr mn  sec     res
PKSG   6.1 152   ePgD  17:56:38.30   -0.04
                 eSg      56:39.80   -0.01
CSKK  11.0 219   ePgD  17:56:38.90   -0.06
                 eSg      56:41.00    0.10
SUKH  29.6 138   ePgD  17:56:42.10    0.12
                 eSg      56:46.10   -0.18
PKST  31.3 230   ePgD  17:56:42.20   -0.07
                 eSg      56:47.10    0.30
```

25.

2011-01-29 time: 17:57:31.86 UTC ML= 0.0
lat: 47.312N lon: 18.454E h= 0.0 km
erh= 3.6km erz= 451km
nr= 5 gap=288 rms=0.17
Locality: Pátka
Comments:

sta	dist	azm	phase	hr	mn	sec	res
PKSG	10.0	332	ePg	17:	57:	33.70	0.05
			eSg		57:	35.30	0.25
CSKK	15.7	291	ePgD	17:	57:	34.50	-0.15
			eSg		57:	36.60	-0.23
PKST	32.3	259	eSg	17:	57:	42.30	0.19

26.

2011-01-29 time: 17:57:43.35 UTC ML= 0.1
lat: 47.444N lon: 18.368E h= 8.3 km
erh= 0.7km erz= 0.5km
nr= 7 gap=269 rms=0.05
Locality: Oroszlány
Comments:

sta	dist	azm	phase	hr	mn	sec	res
PKSG	6.1	163	ePgC	17:	57:	45.20	0.01
			eSg		57:	46.60	-0.02
CSKK	12.1	222	ePgC	17:	57:	45.90	-0.07
			eSg		57:	48.10	0.08
SUKH	29.3	140	eSg	17:	57:	53.00	-0.02
PKST	32.5	231	ePg	17:	57:	49.40	0.05
			eSg		57:	54.00	-0.02

27.

2011-01-29 time: 18:05:30.79 UTC ML= 1.5
lat: 47.470N lon: 18.380E h= 8.3 km
erh= 1.2km erz= 0.8km
nr= 10 gap=220 rms=0.14
Locality: Várgesztes
Comments:

sta	dist	azm	phase	hr	mn	sec	res
PKSG	8.8	175	ePgC	18:	05:	33.10	0.15
			eSg		05:	34.60	-0.03
CSKK	15.0	217	ePgD	18:	05:	33.90	0.05
			eSg		05:	36.20	-0.03
SUKH	31.0	145	ePgC	18:	05:	36.70	0.18
			eSg		05:	40.80	-0.19
PKST	35.1	228	ePgC	18:	05:	37.10	-0.14
			eSg		05:	42.10	-0.17
BUD	48.5	88	eSg	18:	05:	46.20	-0.24
PKSM	141.3	172	ePn	18:	05:	54.50	0.12
			eSn		06:	10.20	-2.58

28.

2011-01-29 time: 18:15:30.29 UTC ML= 0.3
lat: 47.455N lon: 18.358E h= 7.9 km
erh= 1.7km erz= 1.4km
nr= 8 gap=272 rms=0.14
Locality: Oroszlány
Comments:

sta	dist	azm	phase	hr	mn	sec	res
PKSG	7.5	161	ePgC	18:	15:	32.10	-0.13
			eSg		15:	33.70	-0.04
CSKK	12.6	216	ePgD	18:	15:	32.90	-0.04
			eSg		15:	35.20	0.19
SUKH	30.7	140	ePgD	18:	15:	36.20	0.26
			eSg		15:	40.20	-0.15
PKST	32.8	228	ePgD	18:	15:	36.20	-0.10
			eSg		15:	41.10	0.10

29.

2011-01-29 time: 18:15:59.76 UTC ML= 0.4
lat: 47.430N lon: 18.380E h= 11.5 km
erh= 2.4km erz= 1.5km
nr= 7 gap=265 rms=0.17
Locality: Gánt
Comments:

sta	dist	azm	phase	hr	mn	sec	res
PKSG	4.3	169	ePgD	18:	16:	02.00	0.04
			eSg		16:	03.50	-0.18
CSKK	11.7	230	ePgD	18:	16:	02.80	0.11
			eSg		16:	05.00	0.03
SUKH	27.5	139	ePgD	18:	16:	04.90	-0.18
			eSg		16:	09.80	0.57
PKST	32.3	234	eSg	18:	16:	10.60	-0.06

30.

2011-01-29 time: 18:18:34.54 UTC ML= 1.7
lat: 47.432N lon: 18.360E h= 10.4 km
erh= 1.8km erz= 0.9km
nr= 14 gap=193 rms=0.34
Locality: Oroszlány
Comments:

sta	dist	azm	phase	hr	mn	sec	res
PKSG	5.1	153	ePgC	18:	18:	36.50	-0.12
			eSg		18:	38.00	-0.24
CSKK	10.8	224	ePgD	18:	18:	37.20	-0.02
			eSg		18:	39.50	0.19
SUKH	28.7	137	ePgC	18:	18:	40.30	0.31
			eSg		18:	44.40	0.16
PKST	31.3	232	ePgD	18:	18:	40.00	-0.43
			eSg		18:	45.10	0.07
BUD	50.4	84	ePg	18:	18:	44.10	0.37
			eSg		18:	50.10	-0.79
PSZ	127.3	65	ePn	18:	18:	56.00	-0.11
			eSn		19:	12.80	-0.13
PKSM	137.4	171	ePnC	18:	18:	57.90	0.53
			eSn		19:	13.90	-1.28

31.

2011-01-29 time: 18:20:08.20 UTC ML=-0.1
lat: 47.447N lon: 18.373E h= 10.0 km
erh= 1.2km erz= 1.1km
nr= 6 gap=270 rms=0.09
Locality: Oroszlány
Comments:

sta	dist	azm	phase	hr	mn	sec	res
PKSG	6.3	168	ePgD	18:	20:	10.40	0.08
			eSg		20:	11.80	-0.17
CSKK	12.6	222	ePg	18:	20:	11.00	-0.08
			eSg		20:	13.40	0.07
SUKH	29.3	141	eSg	18:	20:	18.10	0.05
PKST	33.1	231	eSg	18:	20:	19.20	0.02

32.

2011-01-29 time: 18:32:07.77 UTC ML= 0.1
lat: 47.446N lon: 18.372E h= 9.6 km
erh= 0.8km erz= 0.6km
nr= 7 gap=270 rms=0.06
Locality: Oroszlány
Comments:

sta	dist	azm	phase	hr	mn	sec	res
PKSG	6.2	167	ePgD	18:	32:	09.80	-0.01
			eSg		32:	11.30	-0.10
CSKK	12.5	222	ePgD	18:	32:	10.60	0.02

```
                  eSg      32:12.90    0.12
SUKH  29.2 141    eSg    18:32:17.60    0.05
PKST  33.0 231    ePg    18:32:13.90    0.00
                  eSg      32:18.60   -0.08
```

33.

```
 2011-01-29  time: 18:40:49.90 UTC  ML= 0.2
   lat: 47.456N  lon: 18.360E  h=  9.4 km
                 erh= 1.1km    erz= 0.9km
   nr=  7        gap=272       rms=0.08
   Locality: Oroszlány
   Comments:

sta   dist azm  phase  hr mn  sec     res
PKSG   7.5 162   ePgC  18:40:52.10    0.06
                 eSg      40:53.60   -0.11
CSKK  12.8 216   ePgD  18:40:52.80    0.07
                 eSg      40:54.90   -0.04
SUKH  30.6 141   eSg   18:41:00.10    0.02
PKST  33.0 228   ePgC  18:40:55.90   -0.12
                 eSg      41:00.90    0.11
```

34.

```
 2011-01-29  time: 18:45:57.92 UTC  ML=-0.1
   lat: 47.441N  lon: 18.371E  h=  7.6 km
                 erh= 0.8km    erz= 0.6km
   nr=  7        gap=268       rms=0.06
   Locality: Oroszlány
   Comments:

sta   dist azm  phase  hr mn  sec     res
PKSG   5.7 165   ePgC  18:45:59.60   -0.01
                 eSg      46:01.00    0.08
CSKK  12.0 224   ePgC  18:46:00.40   -0.06
                 eSg      46:02.40   -0.04
SUKH  28.8 140   ePg   18:46:03.30    0.06
                 eSg      46:07.30   -0.09
PKST  32.5 232   eSg   18:46:08.60    0.07
```

35.

```
 2011-01-29  time: 18:55:21.03 UTC  ML=-0.1
   lat: 47.320N  lon: 18.460E  h=  5.0 km
                 erh= 2.0km    erz= 3.9km
   nr=  5        gap=291       rms=0.21
   Locality: Pátka
   Comments:

sta   dist azm  phase  hr mn  sec     res
PKSG   9.6 327   ePg   18:55:23.10    0.14
                 eSg      55:24.60    0.13
CSKK  15.8 288   ePg   18:55:23.80   -0.20
                 eSg      55:26.00   -0.31
PKST  32.9 258   eSg   18:55:31.90    0.29
```

36.

```
 2011-01-29  time: 18:58:57.44 UTC  ML= 0.0
   lat: 47.455N  lon: 18.358E  h=  9.0 km
                 erh= 0.4km    erz= 0.4km
   nr=  6        gap=272       rms=0.03
   Locality: Oroszlány
   Comments:

sta   dist azm  phase  hr mn  sec     res
PKSG   7.4 161   ePg   18:58:59.50   -0.01
                 eSg      59:01.10   -0.03
CSKK  12.6 216   ePg   18:59:00.20    0.00
                 eSg      59:02.40    0.05
SUKH  30.6 140   eSg   18:59:07.60    0.03
PKST  32.7 228   eSg   18:59:08.20   -0.03
```

37.

```
 2011-01-29  time: 19:02:17.23 UTC  ML= 0.0
   lat: 47.439N  lon: 18.359E  h=  7.3 km
                 erh= 1.5km    erz= 1.0km
   nr=  8        gap=268       rms=0.12
   Locality: Oroszlány
   Comments:

sta   dist azm  phase  hr mn  sec     res
PKSG   5.8 156   ePgC  19:02:18.80   -0.10
                 eSg      02:20.40    0.21
CSKK  11.3 221   ePg   19:02:19.50   -0.13
                 eSg      02:21.40   -0.10
SUKH  29.3 138   ePg   19:02:22.70    0.08
                 eSg      02:26.70   -0.13
PKST  31.7 231   ePgD  19:02:23.10    0.06
                 eSg      02:27.80    0.23
```

38.

```
 2011-01-29  time: 19:08:49.94 UTC  ML= 0.5
   lat: 47.447N  lon: 18.370E  h=  8.5 km
                 erh= 0.7km    erz= 0.5km
   nr=  7        gap=270       rms=0.06
   Locality: Oroszlány
   Comments:

sta   dist azm  phase  hr mn  sec     res
PKSG   6.3 165   ePgC  19:08:51.80   -0.04
                 eSg      08:53.30   -0.02
CSKK  12.4 222   ePgD  19:08:52.60   -0.03
                 eSg      08:54.80    0.07
SUKH  29.4 141   ePgD  19:08:55.50    0.09
                 eSg      08:59.60   -0.07
PKST  32.8 231   eSg   19:09:00.70   -0.02
```

39.

```
 2011-01-29  time: 19:10:35.71 UTC  ML= 0.3
   lat: 47.487N  lon: 18.350E  h=  5.9 km
                 erh= 0.9km    erz= 1.4km
   nr=  7        gap=280       rms=0.07
   Locality: Oroszlány
   Comments:

sta   dist azm  phase  hr mn  sec     res
PKSG  11.0 164   ePgC  19:10:37.90   -0.04
                 eSg      10:39.50   -0.18
CSKK  15.3 206   ePgD  19:10:38.70    0.06
                 eSg      10:41.00    0.08
SUKH  33.9 143   eSg   19:10:46.70    0.07
PKST  34.8 223   ePg   19:10:42.00    0.00
                 eSg      10:46.90   -0.02
```

40.

```
 2011-01-29  time: 19:15:04.77 UTC  ML=-0.1
   lat: 47.439N  lon: 18.365E  h=  9.9 km
                 erh= 0.2km    erz= 0.1km
   nr=  5        gap=276       rms=0.01
   Locality: Oroszlány
   Comments:

sta   dist azm  phase  hr mn  sec     res
PKSG   5.6 160   ePgC  19:15:06.80   -0.01
                 eSg      15:08.40    0.01
CSKK  11.5 223   ePgC  19:15:07.50    0.01
                 eSg      15:09.60   -0.01
SUKH  28.9 139   eSg   19:15:14.50    0.00
```

41.

2011-01-29 time: 19:33:02.94 UTC ML= 0.2
lat: 47.280N lon: 18.497E h= 0.0 km
erh= 5.7km erz= 760km
nr= 6 gap=299 rms=0.40
Locality: Pátka
Comments:

sta	dist	azm	phase	hr	mn	sec	res
PKSG	14.8	327	ePgC	19:33:		06.00	0.41
			eSg		33:	07.60	-0.05
CSKK	20.1	297	ePg	19:33:		06.50	-0.04
			eSg		33:	08.80	-0.54
PKST	35.1	266	ePg	19:33:		08.80	-0.41
			eSg		33:	14.80	0.70

42.

2011-01-29 time: 19:36:41.26 UTC ML= 0.1
lat: 47.451N lon: 18.358E h= 8.7 km
erh= 1.0km erz= 0.7km
nr= 8 gap=271 rms=0.09
Locality: Oroszlány
Comments:

sta	dist	azm	phase	hr	mn	sec	res
PKSG	7.0	159	ePgC	19:36:		43.20	-0.06
			eSg		36:	44.80	-0.02
CSKK	12.2	217	ePg	19:36:		43.90	-0.04
			eSg		36:	46.10	0.07
SUKH	30.3	140	ePg	19:36:		47.00	0.11
			eSg		36:	51.20	-0.08
PKST	32.4	229	ePg	19:36:		47.20	-0.06
			eSg		36:	52.20	0.26

43.

2011-01-29 time: 19:40:02.18 UTC ML= 1.0
lat: 47.472N lon: 18.364E h= 8.2 km
erh= 1.7km erz= 1.9km
nr= 9 gap=222 rms=0.18
Locality: Oroszlány
Comments:

sta	dist	azm	phase	hr	mn	sec	res
PKSG	9.2	167	ePgC	19:40:		04.50	0.12
			eSg		40:	06.10	0.00
CSKK	14.4	213	ePgD	19:40:		05.20	0.05
			eSg		40:	07.30	-0.16
SUKH	31.9	143	ePg	19:40:		08.40	0.33
			eSg		40:	12.50	-0.16
PKST	34.4	226	ePgC	19:40:		08.40	-0.09
			eSg		40:	13.30	-0.12
BUD	49.8	89	eSg	19:40:		17.90	-0.32

44.

2011-01-29 time: 19:40:18.48 UTC ML= 0.2
lat: 47.381N lon: 18.240E h= 14.6 km
erh=14.8km erz=18.9km
nr= 5 gap=215 rms=0.59
Locality: Mór
Comments:

sta	dist	azm	phase	hr	mn	sec	res
CSKK	2.5	142	ePgD	19:40:		21.90	0.78
PKSG	11.4	84	ePg	19:40:		21.20	-0.59
PKST	20.6	229	ePg	19:40:		22.70	-0.29
SUKH	32.4	118	ePg	19:40:		25.30	0.48
			eSg		40:	29.00	-0.76

45.

2011-01-29 time: 19:52:13.71 UTC ML=-0.1
lat: 47.303N lon: 18.474E h= 0.1 km
erh= 3.7km erz= 609km
nr= 6 gap=294 rms=0.21
Locality: Pátka
Comments:

sta	dist	azm	phase	hr	mn	sec	res
PKSG	11.7	327	ePg	19:52:		16.00	0.20
			eSg		52:	17.50	0.07
CSKK	17.5	292	ePg	19:52:		16.70	-0.13
			eSg		52:	18.90	-0.36
PKST	33.6	262	ePg	19:52:		19.60	-0.11
			eSg		52:	24.80	0.40

46.

2011-01-29 time: 19:57:53.99 UTC ML= 0.5
lat: 47.441N lon: 18.353E h= 8.8 km
erh= 1.8km erz= 1.1km
nr= 8 gap=268 rms=0.15
Locality: Oroszlány
Comments:

sta	dist	azm	phase	hr	mn	sec	res
PKSG	6.2	152	ePgC	19:57:		55.80	-0.11
			eSg		57:	57.40	0.00
CSKK	11.1	219	ePgD	19:57:		56.50	-0.02
			eSg		57:	58.60	0.11
SUKH	29.7	138	ePgC	19:57:		59.70	0.18
			eSg		58:	03.60	-0.24
PKST	31.4	230	ePgC	19:57:		59.70	-0.12
			eSg		58:	04.70	0.34

47.

2011-01-29 time: 20:20:40.38 UTC ML= 0.0
lat: 47.447N lon: 18.368E h= 9.2 km
erh= 0.4km erz= 0.3km
nr= 6 gap=270 rms=0.02
Locality: Oroszlány
Comments:

sta	dist	azm	phase	hr	mn	sec	res
PKSG	6.3	164	ePgC	20:20:		42.40	0.02
			eSg		20:	43.90	-0.03
CSKK	12.3	221	ePgC	20:20:		43.10	-0.03
			eSg		20:	45.30	0.03
SUKH	29.5	140	eSg	20:20:		50.20	0.01
PKST	32.7	230	eSg	20:20:		51.20	0.01

48.

2011-01-29 time: 20:32:22.35 UTC ML=-0.1
lat: 47.312N lon: 18.459E h= 0.0 km
erh= 3.4km erz= 421km
nr= 5 gap=290 rms=0.17
Locality: Pátka
Comments:

sta	dist	azm	phase	hr	mn	sec	res
PKSG	10.3	330	ePgC	20:32:		24.30	0.11
			eSg		32:	25.80	0.18
CSKK	16.0	291	ePgD	20:32:		25.00	-0.22
			eSg		32:	27.30	-0.15
PKST	32.7	260	eSg	20:32:		32.90	0.17

49.

2011-01-29 time: 20:42:20.94 UTC ML= 0.5
lat: 47.442N lon: 18.355E h= 7.8 km
erh= 1.8km erz= 1.2km
nr= 8 gap=268 rms=0.14
Locality: Oroszlány
Comments:

sta	dist	azm	phase	hr	mn	sec	res
PKSG	6.1	154	ePgD	20:42:22.70			-0.02
			eSg		42:24.00		-0.11
CSKK	11.3	219	ePgD	20:42:23.30			-0.10
			eSg		42:25.50		0.19
SUKH	29.7	138	ePgC	20:42:26.60			0.18
			eSg		42:30.40		-0.30
PKST	31.6	230	ePgD	20:42:26.70			-0.06
			eSg		42:31.50		0.20

50.

2011-01-29 time: 20:43:01.51 UTC ML= 0.0
lat: 47.415N lon: 18.395E h= 10.9 km
erh= 0.5km erz= 0.3km
nr= 7 gap=258 rms=0.04
Locality: Gánt
Comments:

sta	dist	azm	phase	hr	mn	sec	res
PKSG	2.5	187	ePgC	20:43:03.50			0.00
			eSg		43:05.10		0.05
CSKK	11.6	241	ePgD	20:43:04.30			-0.05
			eSg		43:06.50		-0.06
SUKH	25.4	139	eSg	20:43:10.30			0.00
PKST	32.3	238	ePg	20:43:07.60			0.01
			eSg		43:12.40		0.07

51.

2011-01-29 time: 20:48:31.83 UTC ML= 0.0
lat: 47.456N lon: 18.363E h= 10.0 km
erh= 4.4km erz= 3.2km
nr= 5 gap=295 rms=0.06
Locality: Oroszlány
Comments:

sta	dist	azm	phase	hr	mn	sec	res
PKSG	7.5	163	ePg	20:48:34.10			0.05
			eSg		48:35.70		-0.09
CSKK	12.9	217	ePgD	20:48:34.70			-0.04
			eSg		48:37.10		0.09
PKST	33.1	229	eSg	20:48:42.80			-0.02

52.

2011-01-29 time: 20:51:06.92 UTC ML= 1.3
lat: 47.446N lon: 18.364E h= 8.2 km
erh= 1.3km erz= 0.9km
nr= 8 gap=270 rms=0.11
Locality: Oroszlány
Comments:

sta	dist	azm	phase	hr	mn	sec	res
PKSG	6.4	161	ePgC	20:51:08.70			-0.09
			eSg		51:10.20		-0.04
CSKK	12.1	220	ePgD	20:51:09.50			-0.04
			eSg		51:11.70		0.13
SUKH	29.6	140	ePgC	20:51:12.60			0.18
			eSg		51:16.60		-0.10
PKST	32.5	230	ePgC	20:51:12.80			-0.10
			eSg		51:17.70		0.13

53.

2011-01-29 time: 20:52:46.81 UTC ML= 0.9
lat: 47.451N lon: 18.363E h= 9.2 km
erh= 0.8km erz= 0.6km
nr= 8 gap=271 rms=0.07
Locality: Oroszlány
Comments:

sta	dist	azm	phase	hr	mn	sec	res
PKSG	6.9	163	ePgC	20:52:48.90			0.03
			eSg		52:50.40		-0.07
CSKK	12.5	218	ePgD	20:52:49.60			0.02
			eSg		52:51.80		0.06
SUKH	30.1	140	ePgC	20:52:52.50			0.07
			eSg		52:56.70		-0.11
PKST	32.8	229	ePgC	20:52:52.80			-0.09
			eSg		52:57.70		0.07

54.

2011-01-29 time: 21:06:26.80 UTC ML= 0.7
lat: 47.450N lon: 18.360E h= 8.3 km
erh= 1.0km erz= 0.7km
nr= 8 gap=271 rms=0.09
Locality: Oroszlány
Comments:

sta	dist	azm	phase	hr	mn	sec	res
PKSG	6.9	160	ePgC	21:06:28.70			-0.02
			eSg		06:30.10		-0.13
CSKK	12.2	218	ePgC	21:06:29.40			-0.04
			eSg		06:31.60		0.10
SUKH	30.1	140	ePgD	21:06:32.50			0.12
			eSg		06:36.70		-0.04
PKST	32.5	229	ePgC	21:06:32.70			-0.09
			eSg		06:37.60		0.14

55.

2011-01-29 time: 21:15:37.67 UTC ML= 0.3
lat: 47.390N lon: 18.401E h= 10.6 km
erh= 1.2km erz= 0.8km
nr= 7 gap=208 rms=0.07
Locality: Gánt
Comments:

sta	dist	azm	phase	hr	mn	sec	res
PKSG	0.8	287	ePgC	21:15:39.60			0.04
			eSg		15:41.10		0.06
CSKK	11.0	254	ePgD	21:15:40.30			-0.10
			eSg		15:42.40		-0.12
SUKH	23.1	135	ePgC	21:15:42.20			-0.01
PKST	31.3	242	ePg	21:15:43.60			0.03
			eSg		15:48.30		0.13

56.

2011-01-29 time: 21:39:32.29 UTC ML=-0.3
lat: 47.319N lon: 18.424E h= 6.9 km
erh= 0.7km erz= 1.3km
nr= 5 gap=171 rms=0.04
Locality: Zámoly
Comments:

sta	dist	azm	phase	hr	mn	sec	res
PKSG	8.5	343	ePgC	21:39:34.20			-0.04
			eSg		39:35.80		0.04
CSKK	13.3	292	ePg	21:39:35.00			0.04
			eSg		39:37.00		-0.04
SUKH	16.9	120	eSg	21:39:38.10			0.00

57.

2011-01-29 time: 22:31:07.19 UTC ML=-0.1
lat: 47.313N lon: 18.486E h= 0.0 km
erh= 5.5km erz= 661km
nr= 5 gap=299 rms=0.26
Locality: Pátka
Comments:

sta	dist	azm	phase	hr	mn	sec	res
PKSG	11.3	321	ePgC	22:	31:	09.40	0.19
			eSg		31:	10.90	0.11
CSKK	17.9	288	ePg	22:	31:	10.10	-0.29
			eSg		31:	12.60	-0.28
PKST	34.7	260	eSg	22:	31:	18.60	0.38

58.

2011-01-29 time: 23:00:51.18 UTC ML=-0.1
lat: 47.447N lon: 18.367E h= 9.6 km
erh= 0.5km erz= 0.5km
nr= 6 gap=270 rms=0.04
Locality: Oroszlány
Comments:

sta	dist	azm	phase	hr	mn	sec	res
PKSG	6.5	164	ePgD	23:	00:	53.20	-0.04
			eSg		00:	54.90	0.05
CSKK	12.3	220	ePg	23:	00:	54.00	0.03
			eSg		00:	56.10	-0.04
SUKH	29.6	140	eSg	23:	01:	01.10	0.03
PKST	32.7	230	eSg	23:	01:	02.00	-0.01

59.

2011-01-29 time: 23:02:04.95 UTC ML= 0.3
lat: 47.448N lon: 18.361E h= 9.6 km
erh= 1.1km erz= 0.7km
nr= 8 gap=270 rms=0.09
Locality: Oroszlány
Comments:

sta	dist	azm	phase	hr	mn	sec	res
PKSG	6.6	160	ePgC	23:	02:	07.00	-0.03
			eSg		02:	08.60	-0.06
CSKK	12.1	219	ePgD	23:	02:	07.70	-0.01
			eSg		02:	09.90	0.04
SUKH	29.9	140	ePgC	23:	02:	10.70	0.14
			eSg		02:	14.80	-0.13
PKST	32.4	230	ePgC	23:	02:	10.90	-0.08
			eSg		02:	15.80	0.11

60.

2011-01-29 time: 23:04:10.47 UTC ML=-0.1
lat: 47.316N lon: 18.463E h= 5.0 km
erh= 0.7km erz= 1.5km
nr= 5 gap=292 rms=0.22
Locality: Pátka
Comments:

sta	dist	azm	phase	hr	mn	sec	res
PKSG	10.1	327	ePg	23:	04:	12.60	0.13
			eSg		04:	14.20	0.16
CSKK	16.2	289	ePgD	23:	04:	13.30	-0.19
			eSg		04:	15.50	-0.35
PKST	33.1	259	eSg	23:	04:	21.40	0.31

61.

2011-01-29 time: 23:12:51.67 UTC ML= 0.0
lat: 47.437N lon: 18.364E h= 10.0 km
erh= 2.0km erz= 1.4km
nr= 7 gap=267 rms=0.17
Locality: Oroszlány
Comments:

sta	dist	azm	phase	hr	mn	sec	res
PKSG	5.4	158	ePgD	23:	12:	53.60	-0.09
			eSg		12:	55.10	-0.17
CSKK	11.3	224	ePg	23:	12:	54.60	0.24
			eSg		12:	56.60	0.14
SUKH	28.8	139	eSg	23:	13:	01.40	0.05
PKST	31.8	232	ePg	23:	12:	57.40	-0.22
			eSg		13:	02.40	0.14

62.

2011-01-29 time: 23:36:48.67 UTC ML= 0.4
lat: 47.453N lon: 18.358E h= 8.6 km
erh= 1.2km erz= 0.9km
nr= 8 gap=272 rms=0.10
Locality: Oroszlány
Comments:

sta	dist	azm	phase	hr	mn	sec	res
PKSG	7.2	160	ePgC	23:	36:	50.60	-0.08
			eSg		36:	52.20	-0.04
CSKK	12.4	216	ePg	23:	36:	51.40	0.03
			eSg		36:	53.50	0.03
SUKH	30.5	140	ePg	23:	36:	54.50	0.17
			eSg		36:	58.60	-0.14
PKST	32.6	229	ePgC	23:	36:	54.60	-0.09
			eSg		36:	59.50	0.11

63.

2011-01-29 time: 23:50:30.10 UTC ML= 0.4
lat: 47.443N lon: 18.361E h= 8.9 km
erh= 2.0km erz= 1.3km
nr= 8 gap=269 rms=0.17
Locality: Oroszlány
Comments:

sta	dist	azm	phase	hr	mn	sec	res
PKSG	6.1	159	ePgC	23:	50:	31.90	-0.13
			eSg		50:	33.50	-0.04
CSKK	11.7	220	ePgD	23:	50:	32.70	-0.03
			eSg		50:	35.00	0.22
SUKH	29.5	139	ePgC	23:	50:	35.90	0.30
			eSg		50:	39.70	-0.20
PKST	32.1	230	ePgC	23:	50:	35.90	-0.15
			eSg		50:	40.80	0.12

64.

2011-01-30 time: 0:03:01.68 UTC ML=-0.2
lat: 47.456N lon: 18.359E h= 8.5 km
erh= 0.3km erz= 0.3km
nr= 6 gap=272 rms=0.02
Locality: Oroszlány
Comments:

sta	dist	azm	phase	hr	mn	sec	res
PKSG	7.5	162	ePg	0:	03:	03.70	0.00
			eSg		03:	05.30	0.02
CSKK	12.7	216	ePgD	0:	03:	04.40	-0.01
			eSg		03:	06.50	-0.04
SUKH	30.7	141	eSg	0:	03:	11.80	0.01
PKST	32.9	228	eSg	0:	03:	12.50	0.02

65.

2011-01-30 time: 0:19:11.93 UTC ML= 1.4
lat: 47.441N lon: 18.355E h= 8.4 km
erh= 1.0km erz= 0.9km
nr= 9 gap=215 rms=0.12
Locality: Oroszlány
Comments:

sta	dist	azm	phase	hr	mn	sec	res
PKSG	6.1	154	ePgC	0:19:		13.70	-0.08
			eSg			19:15.20	-0.02
CSKK	11.3	220	ePgD	0:19:		14.40	-0.04
			eSg			19:16.60	0.21
SUKH	29.6	138	ePgD	0:19:		17.50	0.07
			eSg			19:21.60	-0.12
PKST	31.6	230	ePgC	0:19:		17.60	-0.17
			eSg			19:22.50	0.17
BUD	50.6	85	ePg	0:19:		21.20	0.11
			eSg			19:27.00	-1.24

66.

2011-01-30 time: 0:31:09.01 UTC ML= 1.1
lat: 47.414N lon: 18.349E h= 6.9 km
erh= 2.2km erz= 1.8km
nr= 7 gap=207 rms=0.24
Locality: Gánt
Comments:

sta	dist	azm	phase	hr	mn	sec	res
PKSG	4.0	128	ePgC	0:31:		10.20	-0.22
			eSg			31:11.70	0.17
SUKH	27.8	133	ePgD	0:31:		14.00	-0.12
			eSg			31:18.00	-0.11
PKST	29.4	234	ePgD	0:31:		14.20	-0.19
			eSg			31:19.00	0.40
BUD	51.5	81	ePg	0:31:		18.60	0.32
			eSg			31:23.50	-2.01

67.

2011-01-30 time: 0:33:33.82 UTC ML= 0.1
lat: 47.434N lon: 18.380E h= 10.4 km
erh= 0.6km erz= 0.5km
nr= 6 gap=267 rms=0.04
Locality: Várgesztes
Comments:

sta	dist	azm	phase	hr	mn	sec	res
PKSG	4.8	171	ePgC	0:33:		35.90	0.04
			eSg			33:37.40	-0.05
CSKK	12.0	229	ePgD	0:33:		36.60	-0.06
			eSg			33:38.90	0.03
SUKH	27.8	140	eSg	0:33:		43.30	0.05
PKST	32.6	233	eSg	0:33:		44.70	0.00

68.

2011-01-30 time: 0:45:09.83 UTC ML= 0.1
lat: 47.446N lon: 18.359E h= 8.7 km
erh= 0.5km erz= 0.4km
nr= 7 gap=270 rms=0.04
Locality: Oroszlány
Comments:

sta	dist	azm	phase	hr	mn	sec	res
PKSG	6.5	158	ePgC	0:45:		11.80	0.02
			eSg			45:13.30	0.01
CSKK	11.9	219	ePgD	0:45:		12.40	-0.06
			eSg			45:14.50	-0.01
SUKH	29.9	139	eSg	0:45:		19.70	-0.03
PKST	32.2	230	ePgD	0:45:		15.80	0.01
			eSg			45:20.50	0.07

69.

2011-01-30 time: 0:57:33.93 UTC ML= 0.2
lat: 47.453N lon: 18.375E h= 10.0 km
erh= 0.9km erz= 0.8km
nr= 6 gap=272 rms=0.06
Locality: Várgesztes
Comments:

sta	dist	azm	phase	hr	mn	sec	res
PKSG	7.0	170	ePg	0:57:		36.10	-0.01
			eSg			57:37.70	-0.11
CSKK	13.2	221	ePg	0:57:		36.90	0.01
			eSg			57:39.30	0.10
SUKH	29.8	142	eSg	0:57:		44.00	0.09
PKST	33.6	230	eSg	0:57:		45.00	-0.07

70.

2011-01-30 time: 1:27:49.90 UTC ML= 0.4
lat: 47.444N lon: 18.362E h= 8.2 km
erh= 1.6km erz= 1.1km
nr= 8 gap=269 rms=0.13
Locality: Oroszlány
Comments:

sta	dist	azm	phase	hr	mn	sec	res
PKSG	6.2	160	ePg	1:27:		51.60	-0.14
			eSg			27:53.20	0.02
CSKK	11.9	220	ePg	1:27:		52.40	-0.08
			eSg			27:54.70	0.21
SUKH	29.6	139	ePg	1:27:		55.60	0.22
			eSg			27:59.50	-0.15
PKST	32.2	230	ePgC	1:27:		55.80	-0.04
			eSg			28:00.50	0.03

71.

2011-01-30 time: 1:32:50.31 UTC ML= 0.0
lat: 47.455N lon: 18.363E h= 9.0 km
erh= 0.1km erz= 0.1km
nr= 6 gap=272 rms=0.01
Locality: Oroszlány
Comments:

sta	dist	azm	phase	hr	mn	sec	res
PKSG	7.3	163	ePgD	1:32:		52.40	0.01
			eSg			32:54.00	-0.01
CSKK	12.8	217	ePgD	1:32:		53.10	-0.01
			eSg			32:55.30	0.01
SUKH	30.4	141	eSg	1:33:		00.40	0.00
PKST	33.0	229	eSg	1:33:		01.20	0.00

72.

2011-01-30 time: 1:35:12.98 UTC ML= 0.6
lat: 47.451N lon: 18.354E h= 8.2 km
erh= 2.0km erz= 1.5km
nr= 8 gap=271 rms=0.16
Locality: Oroszlány
Comments:

sta	dist	azm	phase	hr	mn	sec	res
PKSG	7.1	157	ePgC	1:35:		14.80	-0.11
			eSg			35:16.40	-0.02
CSKK	12.1	216	ePgD	1:35:		15.50	-0.08
			eSg			35:17.80	0.19
SUKH	30.5	139	ePgC	1:35:		18.90	0.29
			eSg			35:22.80	-0.21
PKST	32.3	229	ePgC	1:35:		18.80	-0.12
			eSg			35:23.70	0.14

73.

2011-01-30 time: 1:43:32.13 UTC ML= 0.1
lat: 47.456N lon: 18.366E h= 9.0 km
erh= 2.3km erz= 1.7km
nr= 8 gap=272 rms=0.19
Locality: Oroszlány
Comments:

sta	dist	azm	phase	hr	mn	sec	res
PKSG	7.3	165	ePgD	1:	43:	34.10	-0.10
			eSg		43:	35.70	-0.12
CSKK	13.0	218	ePgC	1:	43:	34.80	-0.16
			eSg		43:	37.50	0.34
SUKH	30.3	141	ePgC	1:	43:	38.10	0.32
			eSg		43:	42.00	-0.19
PKST	33.3	229	ePgC	1:	43:	38.20	-0.08
			eSg		43:	43.20	0.12

74.

2011-01-30 time: 2:07:38.95 UTC ML=-0.4
lat: 47.453N lon: 18.376E h= 8.7 km
erh= 0.9km erz= 0.8km
nr= 6 gap=272 rms=0.06
Locality: Várgesztes
Comments:

sta	dist	azm	phase	hr	mn	sec	res
PKSG	6.9	171	ePgD	2:	07:	41.00	0.07
			eSg		07:	42.40	-0.07
CSKK	13.2	221	ePgD	2:	07:	41.70	-0.08
			eSg		07:	44.00	0.02
SUKH	29.6	142	eSg	2:	07:	48.80	0.04
PKST	33.6	230	eSg	2:	07:	50.00	0.02

75.

2011-01-30 time: 2:32:39.38 UTC ML= 0.2
lat: 47.450N lon: 18.364E h= 8.9 km
erh= 0.4km erz= 0.3km
nr= 7 gap=271 rms=0.03
Locality: Oroszlány
Comments:

sta	dist	azm	phase	hr	mn	sec	res
PKSG	6.7	162	ePgD	2:	32:	41.40	0.03
			eSg		32:	42.90	-0.02
CSKK	12.4	219	ePgD	2:	32:	42.10	0.00
			eSg		32:	44.20	-0.02
SUKH	29.9	140	eSg	2:	32:	49.30	0.00
PKST	32.7	230	ePgD	2:	32:	45.40	-0.03
			eSg		32:	50.20	0.05

76.

2011-01-30 time: 2:33:34.82 UTC ML= 0.1
lat: 47.482N lon: 18.344E h= 4.4 km
erh= 0.7km erz= 1.2km
nr= 7 gap=279 rms=0.05
Locality: Oroszlány
Comments:

sta	dist	azm	phase	hr	mn	sec	res
PKSG	10.6	161	ePgD	2:	33:	36.90	0.02
			eSg		33:	38.40	-0.08
CSKK	14.6	205	ePgD	2:	33:	37.60	0.05
			eSg		33:	39.70	0.02
SUKH	33.7	142	eSg	2:	33:	45.60	-0.02
PKST	34.1	223	ePgC	2:	33:	40.90	-0.06
			eSg		33:	45.80	0.06

77.

2011-01-30 time: 2:39:27.03 UTC ML= 0.0
lat: 47.445N lon: 18.374E h= 8.8 km
erh= 0.7km erz= 0.6km
nr= 6 gap=270 rms=0.05
Locality: Várgesztes
Comments:

sta	dist	azm	phase	hr	mn	sec	res
PKSG	6.1	168	ePg	2:	39:	29.00	0.06
			eSg		39:	30.40	-0.03
CSKK	12.5	223	ePgD	2:	39:	29.70	-0.06
			eSg		39:	31.90	0.01
SUKH	29.1	141	eSg	2:	39:	36.70	0.01
PKST	33.0	231	eSg	2:	39:	37.90	0.02

78.

2011-01-30 time: 3:30:04.97 UTC ML=-0.1
lat: 47.433N lon: 18.393E h= 10.0 km
erh= 3.6km erz= 1.6km
nr= 5 gap=308 rms=0.06
Locality: Várgesztes
Comments:

sta	dist	azm	phase	hr	mn	sec	res
PKSG	4.6	183	ePg	3:	30:	07.00	0.07
			eSg		30:	08.40	-0.07
CSKK	12.7	232	ePgD	3:	30:	07.80	-0.06
			eSg		30:	10.10	-0.01
PKST	33.4	234	eSg	3:	30:	16.10	0.06

79.

2011-01-30 time: 4:41:19.50 UTC ML= 0.7
lat: 47.444N lon: 18.351E h= 8.2 km
erh= 1.7km erz= 1.2km
nr= 8 gap=269 rms=0.14
Locality: Oroszlány
Comments:

sta	dist	azm	phase	hr	mn	sec	res
PKSG	6.5	153	ePgC	4:	41:	21.30	-0.06
			eSg		41:	22.70	-0.11
CSKK	11.3	218	ePgD	4:	41:	22.00	0.01
			eSg		41:	24.10	0.18
SUKH	30.0	138	ePg	4:	41:	25.30	0.24
			eSg		41:	29.20	-0.19
PKST	31.5	229	ePgC	4:	41:	25.20	-0.12
			eSg		41:	29.90	0.04

80.

2011-01-30 time: 5:12:09.14 UTC ML=-0.2
lat: 47.451N lon: 18.376E h= 9.7 km
erh= 1.5km erz= 1.1km
nr= 5 gap=280 rms=0.06
Locality: Várgesztes
Comments:

sta	dist	azm	phase	hr	mn	sec	res
PKSG	6.7	171	ePg	5:	12:	11.30	0.06
			eSg		12:	12.80	-0.09
CSKK	13.1	222	ePg	5:	12:	12.00	-0.05
			eSg		12:	14.40	0.08
SUKH	29.5	142	eSg	5:	12:	19.00	0.00

81.

2011-01-30 time: 6:29:15.42 UTC ML= 0.1
lat: 47.450N lon: 18.370E h= 8.6 km
erh= 1.3km erz= 1.0km
nr= 7 gap=271 rms=0.09
Locality: Oroszlány
Comments:

sta	dist	azm	phase	hr mn	sec	res
PKSG	6.6	166	ePgC	6:29:17.40		0.05
			eSg	29:18.80		-0.06
CSKK	12.6	221	ePgC	6:29:18.00		-0.14
			eSg	29:20.40		0.13
SUKH	29.6	141	eSg	6:29:25.20		-0.02
PKST	33.0	230	ePgC	6:29:21.60		0.09
			eSg	29:26.20		-0.06

82.

2011-01-30 time: 6:29:37.65 UTC ML= 0.2
lat: 47.452N lon: 18.380E h= 8.6 km
erh= 0.8km erz= 0.7km
nr= 6 gap=272 rms=0.05
Locality: Várgesztes
Comments:

sta	dist	azm	phase	hr mn	sec	res
PKSG	6.8	173	ePgC	6:29:39.60		-0.01
			eSg	29:41.20		0.07
CSKK	13.4	222	ePgC	6:29:40.50		0.00
			eSg	29:42.60		-0.12
SUKH	29.4	143	eSg	6:29:47.40		0.02
PKST	33.8	231	eSg	6:29:48.80		0.05

83.

2011-01-30 time: 6:32:08.81 UTC ML= 0.2
lat: 47.455N lon: 18.370E h= 9.0 km
erh= 0.5km erz= 0.4km
nr= 7 gap=272 rms=0.04
Locality: Oroszlány
Comments:

sta	dist	azm	phase	hr mn	sec	res
PKSG	7.2	167	ePgD	6:32:10.90		0.04
			eSg	32:12.40		-0.06
CSKK	13.1	219	ePg	6:32:11.60		-0.05
			eSg	32:13.90		0.04
SUKH	30.1	142	eSg	6:32:18.80		0.01
PKST	33.4	229	ePg	6:32:15.00		0.01
			eSg	32:19.80		0.00

84.

2011-01-30 time: 7:08:45.98 UTC ML= 0.1
lat: 47.456N lon: 18.366E h= 8.3 km
erh= 0.4km erz= 0.4km
nr= 6 gap=273 rms=0.03
Locality: Oroszlány
Comments:

sta	dist	azm	phase	hr mn	sec	res
PKSG	7.4	165	ePgC	7:08:48.00		0.03
			eSg	08:49.50		-0.02
CSKK	13.0	218	ePgD	7:08:48.70		-0.04
			eSg	08:50.90		0.01
SUKH	30.4	141	eSg	7:08:56.00		0.01
PKST	33.3	229	eSg	7:08:56.90		0.02

85.

2011-01-30 time: 8:36:24.13 UTC ML= 0.4
lat: 47.454N lon: 18.358E h= 8.1 km
erh= 1.8km erz= 1.2km
nr= 6 gap=272 rms=0.11
Locality: Oroszlány
Comments:

sta	dist	azm	phase	hr mn	sec	res
PKSG	7.3	160	ePgC	8:36:26.00		-0.08
			eSg	36:27.60		0.00
SUKH	30.6	140	ePg	8:36:29.90		0.13
			eSg	36:34.00		-0.18
PKST	32.7	228	ePgC	8:36:30.10		-0.04
			eSg	36:35.00		0.17

86.

2011-01-30 time: 8:56:12.15 UTC ML= 0.3
lat: 47.453N lon: 18.376E h= 9.3 km
erh= 1.2km erz= 0.7km
nr= 7 gap=272 rms=0.07
Locality: Várgesztes
Comments:

sta	dist	azm	phase	hr mn	sec	res
PKSG	6.9	171	ePgD	8:56:14.30		0.09
			eSg	56:15.70		-0.11
CSKK	13.2	221	ePgD	8:56:15.00		-0.03
			eSg	56:17.30		0.02
SUKH	29.6	142	ePg	8:56:17.60		-0.09
			eSg	56:22.10		0.09
PKST	33.6	230	ePgD	8:56:18.40		0.03

87.

2011-01-30 time: 9:27:58.06 UTC ML= 0.0
lat: 47.429N lon: 18.392E h= 10.0 km
erh= ---km erz= ---km
nr= 4 gap=306 rms=0.06
Locality: Gánt
Comments:

sta	dist	azm	phase	hr mn	sec	res
PKSG	4.2	181	ePgC	9:28:00.00		0.01
			eSg	28:01.50		0.00
CSKK	12.3	233	eSg	9:28:03.00		-0.10
PKST	33.0	235	eSg	9:28:09.10		0.09

88.

2011-01-30 time: 10:34:24.85 UTC ML= 1.0
lat: 47.453N lon: 18.356E h= 8.6 km
erh= 1.2km erz= 0.9km
nr= 8 gap=272 rms=0.10
Locality: Oroszlány
Comments:

sta	dist	azm	phase	hr mn	sec	res
PKSG	7.3	159	ePgD	10:34:26.80		-0.06
			eSg	34:28.40		-0.04
CSKK	12.3	216	ePgC	10:34:27.50		-0.03
			eSg	34:29.70		0.07
SUKH	30.6	140	ePgD	10:34:30.70		0.17
			eSg	34:34.80		-0.15
PKST	32.5	228	ePgC	10:34:30.80		-0.05
			eSg	34:35.60		0.07

89.

2011-01-30 time: 10:53:30.01 UTC ML= 0.1
lat: 47.317N lon: 18.474E h= 4.9 km
erh= 2.4km erz= 5.2km
nr= 5 gap=296 rms=0.16
Locality: Pátka
Comments:

sta	dist	azm	phase	hr	mn	sec	res
PKSG	10.5	323	ePgC	10:	53:	32.20	0.12
			eSg		53:	33.80	0.11
CSKK	17.0	288	ePgC	10:	53:	33.00	-0.17
			eSg		53:	35.40	-0.23
PKST	33.9	259	eSg	10:	53:	41.10	0.20

90.

2011-01-30 time: 12:08:10.05 UTC ML= 0.0
lat: 47.430N lon: 18.379E h= 10.0 km
erh= ---km erz= ---km
nr= 4 gap=294 rms=0.02
Locality: Gánt
Comments:

sta	dist	azm	phase	hr	mn	sec	res
PKSG	4.3	168	ePgD	12:	08:	12.00	0.01
			eSg		08:	13.50	-0.01
CSKK	11.6	230	eSg	12:	08:	14.90	-0.02
PKST	32.3	234	eSg	12:	08:	20.80	0.02

91.

2011-01-30 time: 13:22:07.26 UTC ML= 0.4
lat: 47.459N lon: 18.362E h= 7.9 km
erh= 3.6km erz= 3.0km
nr= 7 gap=273 rms=0.27
Locality: Oroszlány
Comments:

sta	dist	azm	phase	hr	mn	sec	res
PKSG	7.8	164	ePgC	13:	22:	09.20	-0.06
			eSg		22:	10.80	-0.01
CSKK	13.2	216	ePg	13:	22:	09.70	-0.31
			eSg		22:	12.40	0.25
SUKH	30.9	141	ePgC	13:	22:	13.40	0.45
			eSg		22:	17.10	-0.29
PKST	33.3	228	eSg	13:	22:	18.10	-0.05

92.

2011-01-30 time: 13:34:28.93 UTC ML= 2.0
lat: 47.459N lon: 18.353E h= 7.6 km
erh= 1.3km erz= 0.7km
nr= 18 gap=166 rms=0.33
Locality: Oroszlány
Comments:

sta	dist	azm	phase	hr	mn	sec	res
PKSG	8.0	159	ePgC	13:	34:	30.90	0.00
			eSg		34:	32.40	-0.03
CSKK	12.8	213	ePgD	13:	34:	31.60	0.02
			eSg		34:	33.70	0.05
SUKH	31.3	140	ePgD	13:	34:	34.70	0.03
			eSg		34:	38.90	-0.25
PKST	32.8	227	ePgC	13:	34:	34.80	-0.14
			eSg		34:	39.80	0.17
BUD	50.6	87	ePg	13:	34:	38.40	0.33
			eSg		34:	44.40	-0.80
PKS7	76.4	127	eSg	13:	34:	53.20	-0.13
PKS2	125.9	149	eSn	13:	35:	07.70	0.03
PKSN	130.7	119	eSn	13:	35:	08.90	0.16
PKS6	132.7	136	eSn	13:	35:	10.00	0.81
SOP	137.3	280	ePn	13:	34:	52.50	0.38
			eSn		35:	09.10	-1.11
PKSM	140.4	171	ePnC	13:	34:	52.00	-0.51
BEHE	162.8	228	ePn	13:	34:	55.80	0.50

93.

2011-01-30 time: 14:47:23.96 UTC ML= 0.5
lat: 47.443N lon: 18.364E h= 8.0 km
erh= 1.5km erz= 1.0km
nr= 8 gap=269 rms=0.12
Locality: Oroszlány
Comments:

sta	dist	azm	phase	hr	mn	sec	res
PKSG	6.0	160	ePgC	14:	47:	25.60	-0.15
			eSg		47:	27.20	0.05
CSKK	11.8	221	ePgC	14:	47:	26.50	-0.01
			eSg		47:	28.60	0.11
SUKH	29.4	139	ePgC	14:	47:	29.60	0.20
			eSg		47:	33.50	-0.14
PKST	32.2	231	ePgC	14:	47:	29.80	-0.09
			eSg		47:	34.60	0.09

94.

2011-01-30 time: 16:09:54.30 UTC ML= 0.2
lat: 47.410N lon: 18.188E h= 12.5 km
erh= 1.8km erz= 1.3km
nr= 8 gap=243 rms=0.16
Locality: Pusztavám
Comments:

sta	dist	azm	phase	hr	mn	sec	res
CSKK	7.6	134	ePgC	16:	09:	56.60	-0.30
			eSg		09:	59.00	0.06
PKSG	15.4	98	ePgC	16:	09:	57.90	0.06
			eSg		10:	00.70	0.10
PKST	20.4	215	ePgD	16:	09:	58.50	-0.07
			eSg		10:	02.10	0.19
SUKH	37.4	120	ePg	16:	10:	01.50	0.17
			eSg		10:	06.70	-0.12

95.

2011-01-30 time: 16:51:26.03 UTC ML= 0.0
lat: 47.415N lon: 18.378E h= 10.0 km
erh= ---km erz= ---km
nr= 4 gap=282 rms=0.04
Locality: Gánt
Comments:

sta	dist	azm	phase	hr	mn	sec	res
PKSG	2.8	159	ePg	16:	51:	27.90	0.02
			eSg		51:	29.30	-0.03
CSKK	10.6	237	eSg	16:	51:	30.60	-0.05
PKST	31.2	236	eSg	16:	51:	36.50	0.05

96.

2011-01-30 time: 19:30:04.40 UTC ML=-0.3
lat: 47.431N lon: 18.391E h= 10.0 km
erh= 3.6km erz= 1.5km
nr= 5 gap=306 rms=0.05
Locality: Gánt
Comments:

sta	dist	azm	phase	hr	mn	sec	res
PKSG	4.4	180	ePg	19:	30:	06.40	0.05
			eSg		30:	07.80	-0.07
CSKK	12.4	232	ePg	19:	30:	07.20	-0.05
			eSg		30:	09.50	0.03
PKST	33.1	235	eSg	19:	30:	15.40	0.02

97.

2011-01-30 time: 20:49:56.10 UTC ML=-0.3
lat: 47.431N lon: 18.375E h= 10.0 km
erh= 2.0km erz= 0.8km
nr= 6 gap=291 rms=0.10
Locality: Gánt
Comments:

sta	dist	azm	phase	hr mn	sec	res
PKSG	4.5	164	ePgD	20:49:	58.10	0.04
			eSg		59.50	-0.08
CSKK	11.4	229	ePgD	20:49:	58.70	-0.11
			eSg		50:00.80	-0.13
PKST	32.0	233	ePgD	20:50:	02.20	0.11
			eSg		50:06.90	0.14

98.

2011-01-30 time: 20:58:45.65 UTC ML= 2.7
lat: 47.480N lon: 18.340E h= 7.0 km
erh= 1.7km erz= 1.4km
nr= 21 gap= 80 rms=0.39
Locality: Oroszlány
Comments: felt 4-5 EMS

sta	dist	azm	phase	hr mn	sec	res
PKSG	10.6	159	ePgC	20:58:	47.90	-0.01
			eSg		58:49.30	-0.37
CSKK	14.3	205	ePgD	20:58:	48.60	0.11
			eSg		58:50.80	0.08
SUKH	33.7	142	ePgC	20:58:	51.60	-0.19
			eSg		58:55.80	-0.78
PKST	33.8	223	ePgC	20:58:	51.80	0.00
			eSg		58:56.70	0.10
BUD	51.5	90	ePgD	20:58:	54.90	-0.03
			eSg		59:01.30	-0.88
PKS7	78.6	128	ePg	20:58:	59.80	0.07
			eSg		59:08.60	-2.12
ZST	122.1	311	ePn	20:59:	05.90	-1.12
			eSn		59:20.20	-3.48
PSZ	126.4	67	ePn	20:59:	07.20	-0.35
			eSn		59:23.50	-1.14
PKSN	132.7	119	ePnD	20:59:	09.30	0.97
			eSn		59:25.50	-0.52
SMOL	133.5	329	ePn	20:59:	08.80	0.36
			eSn		59:24.30	-1.91
PKS6	135.1	136	ePn	20:59:	08.80	0.17
			eSn		59:26.30	-0.25
SOP	135.9	280	ePnD	20:59:	08.60	-0.14
			eSn		59:25.20	-1.55
PKSM	142.9	171	ePnC	20:59:	08.90	-0.70
			eSn		59:24.80	-3.49
BEHE	163.7	227	ePnD	20:59:	12.60	0.41
			eSn		59:32.20	-0.70
CONA	192.5	285	Pn	20:59:	15.60	-0.19
ARSA	214.3	263	Pn	20:59:	18.70	0.19
VRAC	240.9	328	iPnD	20:59:	22.40	0.57
MORC	262.1	347	iPn	20:59:	25.60	1.14
OKC	262.5	357	ePn	20:59:	26.50	1.98
			eSn		59:54.90	0.06
SOKA	266.6	250	Pn	20:59:	25.20	0.18
SIRR	286.8	118	iPn	20:59:	27.10	-0.44
TREC	292.2	314	ePn	20:59:	28.60	0.38
			eSn	21:00:	00.00	-1.42
STHS	304.1	45	ePn	20:59:	31.30	1.59
KRLC	310.5	338	ePn	20:59:	31.70	1.20
			eSn	21:00:	05.80	0.31
BZS	325.7	130	iPn	20:59:	32.00	-0.40
DRGR	340.3	103	iPn	20:59:	34.10	-0.12
DPC	351.8	335	ePn	20:59:	36.60	0.95
			eSn	21:00:	12.60	-2.05
GOPC	376.4	316	ePn	20:59:	39.00	0.28
			eSn	21:00:	17.60	-2.51
UPC	377.3	333	ePn	20:59:	40.10	1.27
KBA	380.6	263	Pn	20:59:	40.00	0.76
PRU	394.8	315	ePn	20:59:	41.10	0.09
			eSn	21:00:	21.90	-2.30
MDVR	397.4	139	iPn	20:59:	41.20	-0.14
KHC	398.1	297	ePn	20:59:	42.00	0.57
			eSn	21:00:	23.90	-1.04
GZR	412.4	124	iPn	20:59:	43.60	0.39
PVCC	437.1	321	ePn	20:59:	47.70	1.42
			eSn	21:00:	33.10	-0.48
BURB	517.9	88	iPn	20:59:	57.00	0.64
NKC	529.8	305	ePn	20:59:	57.90	0.05

99.

2011-01-30 time: 21:09:04.10 UTC ML= 0.0
lat: 47.452N lon: 18.365E h= 10.0 km
erh= ---km erz= ---km
nr= 4 gap=295 rms=0.05
Locality: Oroszlány
Comments:

sta	dist	azm	phase	hr mn	sec	res
PKSG	7.0	164	ePg	21:09:	06.30	0.03
			eSg		09:07.90	-0.07
CSKK	12.7	219	eSg	21:09:	09.30	0.07
PKST	33.0	229	eSg	21:09:	15.00	-0.05

100.

2011-01-30 time: 21:11:39.28 UTC ML= 0.7
lat: 47.441N lon: 18.359E h= 9.1 km
erh= 1.8km erz= 1.1km
nr= 8 gap=268 rms=0.15
Locality: Oroszlány
Comments:

sta	dist	azm	phase	hr mn	sec	res
PKSG	5.9	157	ePgD	21:11:	41.10	-0.11
			eSg		11:42.70	-0.02
CSKK	11.4	221	ePgD	21:11:	41.90	0.02
			eSg		11:44.00	0.09
SUKH	29.4	139	ePgD	21:11:	45.00	0.23
			eSg		11:48.90	-0.15
PKST	31.8	231	ePgD	21:11:	45.00	-0.18
			eSg		11:50.00	0.21

101.

2011-01-30 time: 21:14:53.96 UTC ML= 0.0
lat: 47.321N lon: 18.474E h= 5.0 km
erh= 1.1km erz= 2.1km
nr= 5 gap=297 rms=0.20
Locality: Pátka
Comments:

sta	dist	azm	phase	hr mn	sec	res
PKSG	10.1	321	ePgC	21:14:	56.10	0.13
			eSg		14:57.70	0.17
CSKK	16.8	286	ePgD	21:14:	56.90	-0.19
			eSg		14:59.20	-0.32
PKST	33.9	258	eSg	21:15:	05.10	0.23

102.

2011-01-30 time: 21:21:33.68 UTC ML= 0.3
lat: 47.457N lon: 18.357E h= 8.5 km
erh= 2.8km erz= 2.2km
nr= 8 gap=273 rms=0.23
Locality: Oroszlány
Comments:

sta	dist	azm	phase	hr mn	sec	res
PKSG	7.7	161	ePgC	21:21:	35.60	-0.13
			eSg		21:37.20	-0.13

```
CSKK  12.7 215   ePgD  21:21:36.40   -0.02
                 eSg      21:38.80    0.25
SUKH  30.9 141   ePgC  21:21:39.80    0.40
                 eSg      21:43.60   -0.26
PKST  32.9 228   ePgD  21:21:39.50   -0.25
                 eSg      21:44.70    0.23
```

103.

```
 2011-01-30  time: 21:22:25.21 UTC  ML=-0.2
   lat: 47.468N  lon: 18.367E  h= 10.0 km
                 erh=13.4km    erz=11.0km
   nr=  5        gap=301       rms=0.17
   Locality: Oroszlány
   Comments:

sta   dist azm  phase  hr mn  sec     res
PKSG   8.7 168   ePg   21:22:27.80    0.22
                 eSg      22:29.30   -0.13
CSKK  14.2 214   ePg   21:22:28.10   -0.21
                 eSg      22:30.80    0.07
PKST  34.2 227   eSg   21:22:36.60    0.05
```

104.

```
 2011-01-30  time: 21:26:12.47 UTC  ML= 0.1
   lat: 47.321N  lon: 18.467E  h=  5.0 km
                 erh= 3.4km    erz= 6.7km
   nr=  5        gap=294       rms=0.22
   Locality: Pátka
   Comments:

sta   dist azm  phase  hr mn  sec     res
PKSG   9.8 324   ePg   21:26:14.60    0.16
                 eSg      26:16.10    0.13
CSKK  16.3 287   ePgD  21:26:15.30   -0.22
                 eSg      26:17.60   -0.30
PKST  33.5 258   eSg   21:26:23.50    0.27
```

105.

```
 2011-01-30  time: 21:43:28.30 UTC  ML=-0.1
   lat: 47.460N  lon: 18.375E  h= 10.0 km
                 erh= 3.5km    erz= 2.5km
   nr=  5        gap=302       rms=0.07
   Locality: Várgesztes
   Comments:

sta   dist azm  phase  hr mn  sec     res
PKSG   7.7 171   ePg   21:43:30.60    0.05
                 eSg      43:32.20   -0.10
CSKK  13.8 219   ePg   21:43:31.30   -0.04
                 eSg      43:33.70   -0.02
PKST  34.1 229   eSg   21:43:39.70    0.11
```

106.

```
 2011-01-30  time: 21:57:39.57 UTC  ML= 0.7
   lat: 47.445N  lon: 18.367E  h=  8.8 km
                 erh= 1.7km    erz= 1.1km
   nr=  8        gap=270       rms=0.15
   Locality: Oroszlány
   Comments:

sta   dist azm  phase  hr mn  sec     res
PKSG   6.2 163   ePgD  21:57:41.40   -0.10
                 eSg      57:42.90   -0.10
CSKK  12.2 221   ePgD  21:57:42.20   -0.06
                 eSg      57:44.60    0.25
SUKH  29.4 140   ePg   21:57:45.30    0.24
                 eSg      57:49.20   -0.13
PKST  32.6 230   ePgC  21:57:45.50   -0.10
                 eSg      57:50.40    0.09
```

107.

```
 2011-01-30  time: 22:12:27.68 UTC  ML= 0.2
   lat: 47.445N  lon: 18.370E  h=  9.1 km
                 erh= 1.1km    erz= 0.8km
   nr=  7        gap=270       rms=0.08
   Locality: Oroszlány
   Comments:

sta   dist azm  phase  hr mn  sec     res
PKSG   6.2 165   ePg   22:12:29.70    0.05
                 eSg      12:31.10   -0.09
CSKK  12.3 222   ePg   22:12:30.30   -0.12
                 eSg      12:32.70    0.14
SUKH  29.3 140   eSg   22:12:37.40   -0.03
PKST  32.7 231   ePg   22:12:33.80    0.05
                 eSg      12:38.50    0.01
```

108.

```
 2011-01-30  time: 22:16:31.21 UTC  ML= 0.3
   lat: 47.473N  lon: 18.361E  h=  7.4 km
                 erh= 0.8km    erz= 0.9km
   nr=  7        gap=277       rms=0.06
   Locality: Oroszlány
   Comments:

sta   dist azm  phase  hr mn  sec     res
PKSG   9.4 166   ePgC  22:16:33.40    0.06
                 eSg      16:34.90   -0.10
CSKK  14.4 212   ePg   22:16:34.10    0.00
                 eSg      16:36.40    0.05
SUKH  32.2 143   eSg   22:16:41.70    0.01
PKST  34.3 226   ePgC  22:16:37.40   -0.07
                 eSg      16:42.40    0.04
```

109.

```
 2011-01-30  time: 22:25:34.32 UTC  ML=-0.4
   lat: 47.419N  lon: 18.395E  h= 10.0 km
                 erh= ---km    erz= ---km
   nr=  4        gap=307       rms=0.04
   Locality: Gánt
   Comments:

sta   dist azm  phase  hr mn  sec     res
PKSG   3.0 186   ePg   22:25:36.20    0.02
                 eSg      25:37.60   -0.04
CSKK  11.9 239   eSg   22:25:39.20   -0.06
PKST  32.5 237   eSg   22:25:45.20    0.06
```

110.

```
 2011-01-30  time: 23:51:54.62 UTC  ML=-0.1
   lat: 47.420N  lon: 18.393E  h= 10.0 km
                 erh= ---km    erz= ---km
   nr=  4        gap=306       rms=0.04
   Locality: Gánt
   Comments:

sta   dist azm  phase  hr mn  sec     res
PKSG   3.1 184   ePg   23:51:56.50    0.01
                 eSg      51:57.90   -0.05
CSKK  11.8 238   eSg   23:51:59.60    0.05
PKST  32.5 237   eSg   23:52:05.40   -0.02
```

111.

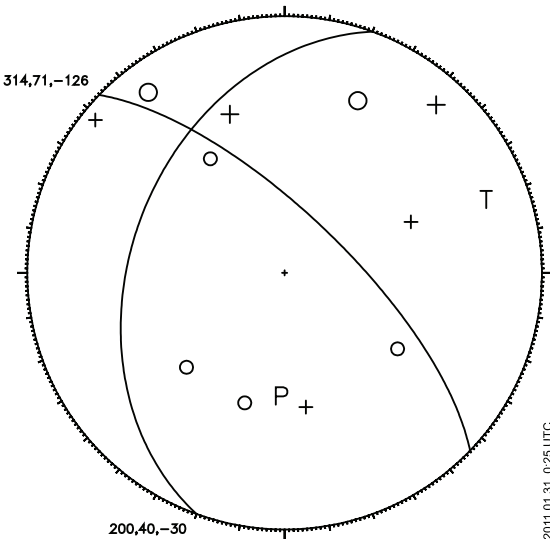
```
 2011-01-31  time:  0:23:02.15 UTC  ML=-0.1
   lat: 47.454N  lon: 18.379E  h= 10.0 km
                 erh= 4.8km    erz= 3.2km
   nr=  5        gap=303       rms=0.07
   Locality: Várgesztes
   Comments:
```

sta	dist	azm	phase	hr mn	sec	res
PKSG	6.9	173	ePg	0:23:04.40		0.08
			eSg	23:05.90		-0.11
CSKK	13.5	222	ePg	0:23:05.10		-0.04
			eSg	23:07.50		0.02
PKST	33.9	230	eSg	0:23:13.40		0.02

112.

2011-01-31 time: 0:25:28.49 UTC ML= 2.4
lat: 47.492N lon: 18.340E h= 8.2 km
erh= 1.7km erz= 1.5km
nr= 23 gap= 81 rms=0.48
Locality: Oroszlány
Comments:

sta	dist	azm	phase	hr mn	sec	res
PKSG	11.8	161	ePgC	0:25:31.10		0.05
			eSg	25:32.50		-0.54
CSKK	15.5	203	ePgD	0:25:31.80		0.18
			eSg	25:34.00		-0.07
SUKH	34.7	143	ePgD	0:25:34.90		0.04
			eSg	25:38.90		-0.92
PKST	34.7	222	ePgC	0:25:35.00		0.14
			eSg	25:39.70		-0.13
BUD	51.5	91	ePg	0:25:38.10		0.29
			eSg	25:44.40		-0.67
PKS7	79.4	129	ePgC	0:25:44.00		1.26
			eSg	25:53.70		-0.15
ZST	121.3	310	ePn	0:25:49.00		-0.61
PSZ	125.9	68	ePnC	0:25:50.50		0.32
			eSn	26:06.90		-0.20
SMOL	132.4	329	ePn	0:25:51.30		0.31
			eSn	26:07.70		-0.84
PKSN	133.3	120	eSn	0:26:09.10		0.37
SOP	135.7	279	eSn	0:26:08.30		-0.97
PKSM	144.2	171	ePnC	0:25:52.10		-0.35
BEHE	164.6	226	ePnD	0:25:55.80		0.80
VRAC	239.8	327	iPnD	0:26:05.00		0.61
MORC	260.8	347	iPn	0:26:06.40		-0.60
KRLC	309.3	338	ePn	0:26:14.90		1.86
			eSn	26:47.90		0.10
BLY	313.6	197	iPnD	0:26:13.90		0.32
BZS	326.5	130	iPn	0:26:15.30		0.11
DRGR	340.6	103	iPn	0:26:17.50		0.55
DPC	350.6	335	ePn	0:26:19.50		1.31
			eSn	26:56.80		-0.16
KHC	397.5	297	ePn	0:26:25.20		1.16
			eSn	27:06.00		-1.37
MDVR	398.4	139	iPn	0:26:24.30		0.15
GZR	413.1	124	iPnD	0:26:25.80		-0.19



113.

2011-01-31 time: 0:28:25.46 UTC ML=-0.5
lat: 47.449N lon: 18.372E h= 10.0 km
erh= ---km erz= ---km
nr= 4 gap=297 rms=0.11
Locality: Oroszlány
Comments:

sta	dist	azm	phase	hr mn	sec	res
PKSG	6.5	167	ePg	0:28:27.60		0.01
			eSg	28:29.10		-0.15
CSKK	12.7	222	eSg	0:28:30.80		0.20
PKST	33.1	230	eSg	0:28:36.40		-0.05

114.

2011-01-31 time: 0:31:27.95 UTC ML= 0.1
lat: 47.424N lon: 18.380E h= 10.2 km
erh= 0.7km erz= 0.4km
nr= 7 gap=264 rms=0.05
Locality: Gánt
Comments:

sta	dist	azm	phase	hr mn	sec	res
PKSG	3.7	168	ePg	0:31:29.90		0.00
			eSg	31:31.40		-0.02
CSKK	11.3	233	ePg	0:31:30.60		-0.08
			eSg	31:32.90		0.10
SUKH	27.0	139	eSg	0:31:37.10		-0.03
PKST	32.0	235	ePg	0:31:34.00		0.06
			eSg	31:38.60		-0.02

115.

2011-01-31 time: 0:47:23.92 UTC ML=-0.5
lat: 47.439N lon: 18.372E h= 10.0 km
erh= ---km erz= ---km
nr= 4 gap=293 rms=0.10
Locality: Oroszlány
Comments:

sta	dist	azm	phase	hr mn	sec	res
PKSG	5.5	165	ePgC	0:47:26.00		0.05
			eSg	47:27.40		-0.14
CSKK	11.9	225	eSg	0:47:29.00		0.14
PKST	32.4	232	eSg	0:47:34.60		-0.10

116.

2011-01-31 time: 1:10:38.81 UTC ML=-0.1
lat: 47.441N lon: 18.376E h= 10.0 km
erh= 3.3km erz= 1.8km
nr= 5 gap=296 rms=0.04
Locality: Várgesztes
Comments:

sta	dist	azm	phase	hr mn	sec	res
PKSG	5.6	168	ePgC	1:10:40.90		0.04
			eSg	10:42.40		-0.05
CSKK	12.3	225	ePgD	1:10:41.60		-0.04
			eSg	10:43.90		0.06
PKST	32.8	232	eSg	1:10:49.70		-0.01

117.

2011-01-31 time: 1:37:57.21 UTC ML= 0.6
lat: 47.437N lon: 18.374E h= 10.0 km
erh= 1.1km erz= 0.5km
nr= 6 gap=294 rms=0.03
Locality: Oroszlány
Comments:

sta	dist	azm	phase	hr	mn	sec	res
PKSG	5.2	166	ePg	1:	37:	59.20	-0.03
			eSg		38:	00.80	0.00
CSKK	11.9	226	ePgD	1:	38:	00.00	0.02
			eSg		38:	02.10	-0.05
PKST	32.4	232	ePgC	1:	38:	03.30	0.03
			eSg		38:	08.00	0.00

118.

2011-01-31 time: 2:15:51.32 UTC ML= 0.0
lat: 47.344N lon: 18.450E h= 10.0 km
erh= 3.4km erz= 2.5km
nr= 6 gap=293 rms=0.16
Locality: Zámoly
Comments:

sta	dist	azm	phase	hr	mn	sec	res
PKSG	6.9	320	ePgC	2:	15:	53.60	0.11
			eSg		15:	55.20	0.01
CSKK	14.4	278	ePgD	2:	15:	54.30	-0.16
			eSg		15:	56.60	-0.31
PKST	32.8	253	ePgC	2:	15:	57.50	0.05
			eSg		16:	02.50	0.27

119.

2011-01-31 time: 3:16:41.72 UTC ML= 0.1
lat: 47.444N lon: 18.380E h= 10.0 km
erh= 0.3km erz= 0.2km
nr= 5 gap=300 rms=0.03
Locality: Várgesztes
Comments:

sta	dist	azm	phase	hr	mn	sec	res
PKSG	5.8	172	ePgC	3:	16:	43.80	0.01
			eSg		16:	45.40	0.00
CSKK	12.7	225	ePgD	3:	16:	44.60	-0.01
			eSg		16:	46.80	-0.06
PKST	33.2	232	eSg	3:	16:	52.80	0.05

120.

2011-01-31 time: 4:20:18.55 UTC ML= 0.1
lat: 47.435N lon: 18.384E h= 10.0 km
erh= 3.1km erz= 1.3km
nr= 6 gap=300 rms=0.06
Locality: Várgesztes
Comments:

sta	dist	azm	phase	hr	mn	sec	res
PKSG	4.8	174	ePgD	4:	20:	20.60	0.07
			eSg		20:	22.00	-0.08
CSKK	12.3	229	ePgD	4:	20:	21.30	-0.07
			eSg		20:	23.60	0.02
PKST	32.9	233	ePg	4:	20:	24.70	0.02
			eSg		20:	29.50	0.03

121.

2011-01-31 time: 6:58:58.74 UTC ML= 0.4
lat: 47.327N lon: 18.467E h= 5.0 km
erh= 0.7km erz= 1.3km
nr= 5 gap=296 rms=0.30
Locality: Lovasberény
Comments:

sta	dist	azm	phase	hr	mn	sec	res
PKSG	9.2	321	ePgC	6:	59:	00.80	0.19
			eSg		59:	02.30	0.22
CSKK	16.1	284	ePg	6:	59:	01.50	-0.25
			eSg		59:	03.60	-0.50
PKST	33.6	257	eSg	6:	59:	09.90	0.37

122.

2011-01-31 time: 7:08:16.09 UTC ML= 0.1
lat: 47.357N lon: 18.424E h= 10.0 km
erh= 4.4km erz= 2.4km
nr= 6 gap=283 rms=0.19
Locality: Gánt
Comments:

sta	dist	azm	phase	hr	mn	sec	res
PKSG	4.6	327	ePg	7:	08:	18.10	0.04
			eSg		08:	19.80	0.21
CSKK	12.4	273	ePg	7:	08:	18.80	-0.14
			eSg		08:	20.70	-0.45
PKST	31.4	250	ePgC	7:	08:	22.00	0.01
			eSg		08:	26.90	0.32

123.

2011-01-31 time: 7:12:40.03 UTC ML= 0.1
lat: 47.324N lon: 18.464E h= 5.0 km
erh= 4.7km erz= 8.9km
nr= 5 gap=294 rms=0.21
Locality: Pátka
Comments:

sta	dist	azm	phase	hr	mn	sec	res
PKSG	9.4	324	ePg	7:	12:	42.10	0.17
			eSg		12:	43.50	0.09
CSKK	16.0	286	ePg	7:	12:	42.80	-0.22
			eSg		12:	45.10	-0.26
PKST	33.3	257	eSg	7:	12:	51.00	0.26

124.

2011-01-31 time: 7:13:57.38 UTC ML= 0.2
lat: 47.447N lon: 18.372E h= 10.0 km
erh= 5.7km erz= 3.5km
nr= 5 gap=297 rms=0.09
Locality: Oroszlány
Comments:

sta	dist	azm	phase	hr	mn	sec	res
PKSG	6.3	167	ePg	7:	13:	59.60	0.10
			eSg		14:	01.00	-0.15
CSKK	12.6	222	ePgD	7:	14:	00.20	-0.06
			eSg		14:	02.50	0.00
PKST	33.0	231	eSg	7:	14:	08.40	0.05

125.

2011-01-31 time: 8:53:17.55 UTC ML= 1.2
lat: 47.386N lon: 18.416E h= 0.0 km
erh= 2.6km erz= 454km
nr= 8 gap=207 rms=0.32
Locality: Gánt
Comments: probably explosion

sta	dist	azm	phase	hr	mn	sec	res
PKSG	2.0	289	ePgC	8:	53:	17.90	-0.02
			eSg		53:	18.70	0.50
CSKK	12.0	258	ePgC	8:	53:	19.30	-0.40
			eSg		53:	21.50	0.12
SUKH	22.0	136	ePgC	8:	53:	21.70	0.22
			eSg		53:	24.60	0.06
PKST	32.1	244	ePgC	8:	53:	22.90	-0.39
			eSg		53:	28.30	0.53

126.

2011-01-31 time: 9:00:28.81 UTC ML= 1.0
lat: 47.363N lon: 18.368E h= 0.0 km
erh= 2.1km erz= 610km
nr= 7 gap=120 rms=0.40
Locality: Gánt
Comments: probably explosion

sta	dist	azm	phase	hr mn	sec	res
PKSG	3.7	27	ePgC	9:00:29.20		-0.26
			eSg	00:29.90		-0.07
CSKK	8.1	270	ePgC	9:00:30.60		0.34
			eSg	00:31.60		0.20
SUKH	23.0	125	ePgC	9:00:33.50		0.58
			eSg	00:35.80		-0.33
PKST	27.8	245	ePgC	9:00:33.20		-0.56

127.

2011-01-31 time: 9:00:38.90 UTC ML= 1.3
lat: 47.386N lon: 18.404E h= 0.0 km
erh= 3.1km erz= 515km
nr= 6 gap=194 rms=0.34
Locality: Gánt
Comments: probably explosion

sta	dist	azm	phase	hr mn	sec	res
PKSG	1.2	301	ePgC	9:00:39.20		0.09
			eSg	00:40.00		0.73
CSKK	11.1	257	ePgC	9:00:40.50		-0.39
			eSg	00:42.30		-0.14
SUKH	22.7	135	ePgC	9:00:42.80		-0.15
			eSg	00:46.60		0.49

128.

2011-01-31 time: 10:05:39.37 UTC ML= 1.2
lat: 47.451N lon: 18.355E h= 8.3 km
erh= 2.2km erz= 1.6km
nr= 8 gap=271 rms=0.18
Locality: Oroszlány
Comments:

sta	dist	azm	phase	hr mn	sec	res
PKSG	7.1	157	ePgC	10:05:41.20		-0.11
			eSg	05:42.70		-0.13
CSKK	12.0	216	ePgD	10:05:42.00		0.02
			eSg	05:44.20		0.19
SUKH	30.4	139	ePgC	10:05:45.30		0.30
			eSg	05:49.20		-0.19
PKST	32.2	229	ePgD	10:05:45.10		-0.21
			eSg	05:50.10		0.15

129.

2011-01-31 time: 13:24:57.40 UTC ML= 0.2
lat: 47.446N lon: 18.378E h= 10.5 km
erh= 0.6km erz= 0.5km
nr= 6 gap=270 rms=0.04
Locality: Várgesztes
Comments:

sta	dist	azm	phase	hr mn	sec	res
PKSG	6.1	171	ePgC	13:24:59.60		0.03
			eSg	25:01.20		-0.06
CSKK	12.7	224	ePgD	13:25:00.30		-0.05
			eSg	25:02.70		0.05
SUKH	28.9	141	eSg	13:25:07.20		0.02
PKST	33.2	231	eSg	13:25:08.50		0.02

130.

2011-01-31 time: 13:25:49.77 UTC ML= 0.9
lat: 47.452N lon: 18.354E h= 8.4 km
erh= 0.8km erz= 0.5km
nr= 8 gap=271 rms=0.06
Locality: Oroszlány
Comments:

sta	dist	azm	phase	hr mn	sec	res
PKSG	7.3	158	ePgD	13:25:51.70		-0.05
			eSg	25:53.30		0.00
CSKK	12.2	215	ePgD	13:25:52.40		0.00
			eSg	25:54.50		0.04
SUKH	30.6	140	ePg	13:25:55.50		0.06
			eSg	25:59.80		-0.06
PKST	32.3	228	ePg	13:25:55.70		-0.03
			eSg	26:00.70		0.32

131.

2011-01-31 time: 22:55:45.19 UTC ML= 0.0
lat: 47.354N lon: 18.436E h= 10.0 km
erh= 2.3km erz= 1.4km
nr= 6 gap=291 rms=0.13
Locality: Gánt
Comments:

sta	dist	azm	phase	hr mn	sec	res
PKSG	5.4	320	ePg	22:55:47.30		0.08
			eSg	55:48.80		0.00
CSKK	13.3	274	ePgD	22:55:48.00		-0.17
			eSg	55:50.30		-0.19
PKST	32.2	251	ePg	22:55:51.30		0.09
			eSg	55:56.10		0.19

132.

2011-02-01 time: 0:15:44.68 UTC ML= 0.4
lat: 47.413N lon: 18.345E h= 4.4 km
erh= 7.0km erz= 4.1km
nr= 6 gap=250 rms=0.39
Locality: Gánt
Comments:

sta	dist	azm	phase	hr mn	sec	res
PKSG	4.2	124	eSg	0:15:46.70		0.09
CSKK	8.4	229	ePgD	0:15:45.90		-0.48
			eSg	15:48.00		0.30
SUKH	27.9	133	ePg	0:15:50.20		0.47
			eSg	15:53.20		-0.47
PKST	29.0	234	eSg	0:15:54.10		0.08

133.

2011-02-01 time: 0:45:39.33 UTC ML= 0.3
lat: 47.444N lon: 18.365E h= 13.7 km
erh= 3.2km erz= 2.1km
nr= 8 gap=269 rms=0.28
Locality: Oroszlány
Comments:

sta	dist	azm	phase	hr mn	sec	res
PKSG	6.1	161	ePgD	0:45:42.10		0.10
			eSg	45:43.50		-0.59
CSKK	11.9	221	ePgD	0:45:42.80		0.23
			eSg	45:45.10		0.00
SUKH	29.3	140	ePg	0:45:45.10		-0.01
			eSg	45:49.80		0.18
PKST	32.3	231	ePgD	0:45:45.20		-0.39
			eSg	45:50.90		0.42

134.

2011-02-01 time: 1:26:59.90 UTC ML=-0.2
lat: 47.486N lon: 18.338E h= 0.0 km
erh= ---km erz= ---km
nr= 4 gap=297 rms=0.05
Locality: Oroszlány
Comments:

sta	dist	azm	phase	hr	mn	sec	res
PKSG	11.2	159	ePgC	1:	27:	01.90	0.00
			eSg		27:	03.40	-0.06
CSKK	14.8	203	eSg	1:	27:	04.70	0.08
PKST	34.1	222	eSg	1:	27:	10.70	-0.03

135.

2011-02-01 time: 1:54:12.61 UTC ML=-0.7
lat: 47.477N lon: 18.334E h= 0.1 km
erh= 6.5km erz= 857km
nr= 5 gap=293 rms=0.24
Locality: Oroszlány
Comments:

sta	dist	azm	phase	hr	mn	sec	res
PKSG	10.3	156	ePgD	1:	54:	14.20	-0.26
			eSg		54:	15.90	0.01
CSKK	13.8	204	ePg	1:	54:	15.40	0.33
			eSg		54:	17.10	0.11
PKST	33.1	223	eSg	1:	54:	22.90	-0.25

136.

2011-02-01 time: 2:02:44.83 UTC ML= 0.4
lat: 47.456N lon: 18.358E h= 7.7 km
erh= 1.8km erz= 1.4km
nr= 8 gap=272 rms=0.14
Locality: Oroszlány
Comments:

sta	dist	azm	phase	hr	mn	sec	res
PKSG	7.6	161	ePgD	2:	02:	46.70	-0.05
			eSg		02:	48.30	0.05
CSKK	12.7	216	ePgD	2:	02:	47.50	0.03
			eSg		02:	49.50	-0.04
SUKH	30.7	141	ePg	2:	02:	50.70	0.22
			eSg		02:	54.60	-0.30
PKST	32.8	228	ePgD	2:	02:	50.70	-0.15
			eSg		02:	55.70	0.15

137.

2011-02-01 time: 2:09:42.60 UTC ML=-0.1
lat: 47.506N lon: 18.347E h= 0.0 km
erh= 2.0km erz= 225km
nr= 5 gap=305 rms=0.10
Locality: Vértessomló
Comments:

sta	dist	azm	phase	hr	mn	sec	res
PKSG	13.2	165	ePgC	2:	09:	45.00	0.05
			eSg		09:	46.60	-0.19
CSKK	17.2	202	ePg	2:	09:	45.70	0.03
			eSg		09:	48.20	0.13
PKST	36.2	221	eSg	2:	09:	54.00	-0.12

138.

2011-02-01 time: 2:37:02.45 UTC ML=-0.1
lat: 47.480N lon: 18.332E h= 0.2 km
erh= 1.5km erz=67.0km
nr= 5 gap=293 rms=0.12
Locality: Oroszlány
Comments:

sta	dist	azm	phase	hr	mn	sec	res
PKSG	10.8	156	ePgC	2:	37:	04.30	-0.08
			eSg		37:	05.80	-0.09
CSKK	14.1	202	ePg	2:	37:	05.10	0.13
			eSg		37:	07.10	0.16
PKST	33.3	222	eSg	2:	37:	12.90	-0.15

139.

2011-02-01 time: 2:55:51.45 UTC ML=-0.5
lat: 47.363N lon: 18.264E h= 10.2 km
erh= 0.7km erz= 0.2km
nr= 5 gap=165 rms=0.02
Locality: Csókakő
Comments:

sta	dist	azm	phase	hr	mn	sec	res
CSKK	0.3	280	ePgC	2:	55:	53.30	0.03
			eSg		55:	54.70	0.00
PKSG	10.1	71	ePgC	2:	55:	54.00	-0.01
			eSg		55:	56.00	-0.01
PKST	20.9	236	eSg	2:	55:	58.80	-0.03

140.

2011-02-01 time: 3:33:20.20 UTC ML= 0.0
lat: 47.437N lon: 18.367E h= 9.5 km
erh= 0.5km erz= 0.4km
nr= 6 gap=267 rms=0.04
Locality: Oroszlány
Comments:

sta	dist	azm	phase	hr	mn	sec	res
PKSG	5.3	160	ePgC	3:	33:	22.10	-0.04
			eSg		33:	23.70	0.04
CSKK	11.5	225	ePgD	3:	33:	22.90	0.04
			eSg		33:	24.90	-0.03
SUKH	28.6	139	eSg	3:	33:	29.80	0.01
PKST	32.0	232	eSg	3:	33:	30.80	0.00

141.

2011-02-01 time: 3:40:53.70 UTC ML=-0.2
lat: 47.450N lon: 18.371E h= 8.6 km
erh= 0.6km erz= 0.6km
nr= 6 gap=271 rms=0.04
Locality: Oroszlány
Comments:

sta	dist	azm	phase	hr	mn	sec	res
PKSG	6.6	167	ePgD	3:	40:	55.70	0.05
			eSg		40:	57.10	-0.06
CSKK	12.7	221	ePgD	3:	40:	56.40	-0.05
			eSg		40:	58.60	0.01
SUKH	29.6	141	eSg	3:	41:	03.50	0.00
PKST	33.1	230	eSg	3:	41:	04.60	0.03

142.

2011-02-01 time: 4:16:11.89 UTC ML= 0.1
lat: 47.449N lon: 18.369E h= 8.5 km
erh= 0.3km erz= 0.2km
nr= 5 gap=295 rms=0.00
Locality: Oroszlány
Comments:

sta	dist	azm	phase	hr	mn	sec	res
PKSG	6.6	165	ePgD	4:	16:	13.80	0.00
			eSg		16:	15.30	0.00
CSKK	12.6	221	ePg	4:	16:	14.60	0.00
			eSg		16:	16.70	-0.01
PKST	32.9	230	eSg	4:	16:	22.70	0.00

143.

2011-02-01 time: 10:54:09.59 UTC ML= 0.4
lat: 47.412N lon: 18.235E h= 0.5 km
erh= 3.0km erz=27.6km
nr= 5 gap=239 rms=0.05
Locality: Pusztavám
Comments:

sta	dist	azm	phase	hr mn sec	res
CSKK	5.8	160	ePg	10:54:10.70	0.07
			eSg	54:11.40	-0.04
PKSG	12.0	101	ePg	10:54:11.70	-0.03
			eSg	54:13.40	0.00
PKST	22.8	222	eSg	10:54:16.80	-0.04

144.

2011-02-01 time: 17:44:39.44 UTC ML= 0.2
lat: 47.471N lon: 18.366E h= 6.8 km
erh= 0.7km erz= 1.0km
nr= 10 gap=143 rms=0.14
Locality: Oroszlány
Comments:

sta	dist	azm	phase	hr mn sec	res
VSOM	4.1	10	ePg	17:44:40.90	0.04
			eSg	44:41.90	-0.07
PKSG	8.9	168	ePgD	17:44:41.50	0.05
			eSg	44:42.90	-0.11
CSKK	14.3	214	ePgD	17:44:42.20	-0.08
			eSg	44:44.60	0.11
SUKH	31.6	143	ePg	17:44:45.50	0.28
			eSg	44:49.40	-0.33
PKST	34.4	227	ePg	17:44:45.60	-0.10
			eSg	44:50.60	0.02

145.

2011-02-02 time: 0:27:51.83 UTC ML= 0.2
lat: 47.476N lon: 18.369E h= 8.5 km
erh= 1.0km erz= 1.2km
nr= 9 gap=142 rms=0.16
Locality: Várgesztes
Comments:

sta	dist	azm	phase	hr mn sec	res
VSOM	3.5	8	ePgD	0:27:53.60	0.13
			eSg	27:54.60	-0.15
PKSG	9.5	170	ePgC	0:27:54.20	0.10
			eSg	27:55.80	-0.07
CSKK	15.0	213	ePgD	0:27:55.00	0.10
			eSg	27:57.10	-0.19
SUKH	32.0	144	eSg	0:28:02.30	-0.04
PKST	34.9	226	ePgC	0:27:58.00	-0.24
			eSg	28:03.50	0.25

146.

2011-02-02 time: 1:46:10.04 UTC ML= 0.6
lat: 47.468N lon: 18.359E h= 7.3 km
erh= 0.9km erz= 1.2km
nr= 10 gap=149 rms=0.17
Locality: Oroszlány
Comments:

sta	dist	azm	phase	hr mn sec	res
VSOM	4.5	16	ePgD	1:46:11.60	0.03
			eSg	46:12.70	-0.07
PKSG	8.8	164	ePgC	1:46:12.10	0.02
			eSg	46:13.70	0.02
CSKK	13.8	213	ePgD	1:46:12.80	-0.04
			eSg	46:15.20	0.18
SUKH	31.7	142	ePgC	1:46:16.20	0.34
			eSg	46:20.10	-0.29
PKST	33.8	227	ePgD	1:46:16.00	-0.22
			eSg	46:21.00	-0.03

147.

2011-02-02 time: 2:04:55.97 UTC ML= 0.5
lat: 47.467N lon: 18.343E h= 5.4 km
erh= 0.3km erz= 0.5km
nr= 10 gap=164 rms=0.06
Locality: Oroszlány
Comments:

sta	dist	azm	phase	hr mn sec	res
VSOM	5.0	29	ePgD	2:04:57.30	0.02
			eSg	04:58.30	-0.01
PKSG	9.1	157	ePgC	2:04:57.80	-0.06
			eSg	04:59.30	-0.03
CSKK	13.1	208	ePgD	2:04:58.50	0.00
			eSg	05:00.60	0.12
SUKH	32.4	140	ePg	2:05:01.90	0.06
			eSg	05:05.80	-0.61
PKST	32.9	225	ePgC	2:05:01.90	-0.02
			eSg	05:06.50	-0.05

148.

2011-02-02 time: 3:30:03.97 UTC ML= 1.1
lat: 47.472N lon: 18.372E h= 8.5 km
erh= 0.7km erz= 0.7km
nr= 12 gap=137 rms=0.16
Locality: Várgesztes
Comments:

sta	dist	azm	phase	hr mn sec	res
VSOM	3.8	4	ePgC	3:30:05.70	0.06
			eSg	30:06.80	-0.14
PKSG	9.1	171	ePgC	3:30:06.30	0.11
			eSg	30:07.80	-0.12
CSKK	14.8	215	ePgD	3:30:07.10	0.09
			eSg	30:09.30	-0.08
SUKH	31.5	144	ePgD	3:30:10.10	0.30
			eSg	30:14.20	-0.15
PKST	34.8	227	ePgC	3:30:10.30	-0.07
			eSg	30:15.10	-0.26
BUD	49.2	89	eSg	3:30:19.60	-0.23
PKSM	141.6	172	ePn	3:30:27.40	-0.17
			eSn	30:43.40	-2.58

149.

2011-02-02 time: 3:30:03.90 UTC ML= 1.1
lat: 47.473N lon: 18.371E h= 9.0 km
erh= 0.8km erz= 0.6km
nr= 12 gap=138 rms=0.16
Locality: Várgesztes
Comments:

sta	dist	azm	phase	hr mn sec	res
VSOM	3.8	5	ePgC	3:30:05.70	0.05
			eSg	30:06.80	-0.21
PKSG	9.1	171	ePgC	3:30:06.30	0.11
			eSg	30:07.80	-0.18
CSKK	14.8	214	ePgD	3:30:07.10	0.11
			eSg	30:09.30	-0.10
SUKH	31.6	144	ePgD	3:30:10.10	0.33
			eSg	30:14.20	-0.15
PKST	34.8	227	ePgC	3:30:10.30	-0.02
			eSg	30:15.10	-0.24
BUD	49.2	89	eSg	3:30:19.60	-0.20
PKSM	141.7	172	ePn	3:30:27.40	-0.05
			eSn	30:43.40	-2.41

150.

2011-02-02 time: 3:41:06.35 UTC ML= 0.3
lat: 47.467N lon: 18.369E h= 7.3 km
erh= 0.9km erz= 1.2km
nr= 9 gap=139 rms=0.14
Locality: Oroszlány
Comments:

sta	dist	azm	phase	hr mn	sec	res
VSOM	4.4	7	ePgD	3:41:07.90		0.02
			eSg		41:08.90	-0.16
PKSG	8.5	169	ePgD	3:41:08.50		0.15
			eSg		41:10.00	0.09
CSKK	14.1	215	ePgD	3:41:09.20		0.01
			eSg		41:11.40	-0.01
SUKH	31.2	143	eSg	3:41:16.20		-0.34
PKST	34.2	228	ePg	3:41:12.70		0.10
			eSg		41:17.20	-0.28

151.

2011-02-02 time: 3:42:24.32 UTC ML= 0.2
lat: 47.463N lon: 18.371E h= 8.2 km
erh= 1.1km erz= 1.7km
nr= 8 gap=139 rms=0.17
Locality: Várgesztes
Comments:

sta	dist	azm	phase	hr mn	sec	res
VSOM	4.9	4	ePgC	3:42:26.00		-0.03
			eSg		42:27.10	-0.27
PKSG	8.0	169	ePgD	3:42:26.60		0.23
			eSg		42:28.10	0.13
CSKK	13.8	217	ePgD	3:42:27.30		0.11
			eSg		42:29.40	-0.04
SUKH	30.7	143	eSg	3:42:34.10		-0.33
PKST	34.0	228	eSg	3:42:35.30		-0.15

152.

2011-02-02 time: 3:54:10.20 UTC ML= 0.5
lat: 47.470N lon: 18.364E h= 7.6 km
erh= 0.7km erz= 1.0km
nr= 9 gap=146 rms=0.11
Locality: Oroszlány
Comments:

sta	dist	azm	phase	hr mn	sec	res
VSOM	4.2	13	ePgD	3:54:11.80		0.05
			eSg		54:12.80	-0.16
PKSG	8.9	167	ePgC	3:54:12.50		0.21
			eSg		54:13.90	-0.02
CSKK	14.2	213	ePgD	3:54:13.10		0.03
			eSg		54:15.30	-0.02
SUKH	31.7	143	eSg	3:54:20.30		-0.26
PKST	34.2	227	ePgC	3:54:16.40		-0.05
			eSg		54:21.30	-0.03

153.

2011-02-02 time: 6:16:45.90 UTC ML= 0.0
lat: 47.468N lon: 18.358E h= 6.5 km
erh= 0.3km erz= 0.5km
nr= 7 gap=151 rms=0.04
Locality: Oroszlány
Comments:

sta	dist	azm	phase	hr mn	sec	res
VSOM	4.5	17	ePgC	6:16:47.30		-0.01
			eSg		16:48.40	-0.01
PKSG	8.8	164	ePg	6:16:47.90		0.05
			eSg		16:49.30	-0.08
CSKK	13.8	212	ePgD	6:16:48.60		-0.02
			eSg		16:50.80	0.06
PKST	33.7	226	eSg	6:16:56.80		-0.02

154.

2011-02-02 time: 8:21:08.33 UTC ML= 0.4
lat: 47.468N lon: 18.361E h= 7.4 km
erh= 0.7km erz= 1.1km
nr= 8 gap=148 rms=0.11
Locality: Oroszlány
Comments:

sta	dist	azm	phase	hr mn	sec	res
VSOM	4.4	15	ePgD	8:21:09.90		0.03
			eSg		21:10.90	-0.18
PKSG	8.8	165	ePgD	8:21:10.50		0.11
			eSg		21:12.00	0.00
CSKK	13.9	213	ePgD	8:21:11.20		0.05
			eSg		21:13.40	0.05
SUKH	31.7	142	eSg	8:21:18.30		-0.38
PKST	33.9	227	eSg	8:21:19.30		-0.07

155.

2011-02-02 time: 8:52:12.70 UTC ML= 0.2
lat: 47.467N lon: 18.470E h= 0.1 km
erh= 0.4km erz=34.1km
nr= 5 gap=274 rms=0.51
Locality: Bodmér
Comments:

sta	dist	azm	phase	hr mn	sec	res
VSOM	8.4	302	ePgD	8:52:14.50		0.31
			eSg		52:15.50	0.14
PKSG	10.3	216	eSg	8:52:16.70		0.73
CSKK	19.6	234	ePg	8:52:15.90		-0.30
			eSg		52:17.90	-1.02

156.

2011-02-02 time: 11:29:31.14 UTC ML= 1.4
lat: 47.468N lon: 18.363E h= 7.2 km
erh= 0.9km erz= 1.1km
nr= 10 gap=145 rms=0.16
Locality: Oroszlány
Comments:

sta	dist	azm	phase	hr mn	sec	res
VSOM	4.4	12	ePgD	11:29:32.70		0.05
			eSg		29:33.70	-0.12
PKSG	8.7	166	ePgD	11:29:33.20		0.04
			eSg		29:34.70	-0.04
CSKK	14.0	214	ePgD	11:29:34.00		0.04
			eSg		29:36.30	0.15
SUKH	31.5	143	ePg	11:29:37.20		0.28
			eSg		29:41.00	-0.43
PKST	34.0	227	ePgC	11:29:37.20		-0.15
			eSg		29:42.00	-0.20

157.

2011-02-02 time: 16:25:19.47 UTC ML= 0.4
lat: 47.466N lon: 18.357E h= 6.6 km
erh= 0.9km erz= 1.2km
nr= 10 gap=150 rms=0.17
Locality: Oroszlány
Comments:

sta	dist	azm	phase	hr mn	sec	res
VSOM	4.8	17	ePgC	16:25:20.90		-0.03
			eSg		25:22.00	-0.06
PKSG	8.6	163	ePgC	16:25:21.50		0.09
			eSg		25:23.00	0.08

```
CSKK  13.5 213   ePg   16:25:24.20    2.04
                 eSg      25:24.30    0.04
SUKH  31.6 142   ePg   16:25:25.40    0.16
                 eSg      25:29.40   -0.34
PKST  33.5 227   ePg   16:25:25.50   -0.07
                 eSg      25:30.20   -0.13
```

158.

```
 2011-02-03  time:  1:46:00.70 UTC  ML=-0.2
   lat: 47.468N  lon: 18.357E  h=  6.2 km
                 erh= 0.4km    erz= 0.5km
   nr=  6        gap=167       rms=0.03
   Locality: Oroszlány
   Comments:

sta   dist azm  phase  hr mn  sec     res
VSOM   4.5  19   ePg    1:46:02.10    0.03
                 eSg      46:03.10   -0.05
PKSG   8.9 163   ePg    1:46:02.60   -0.04
                 eSg      46:04.20    0.05
CSKK  13.8 212   ePg    1:46:03.40    0.00
                 eSg      46:05.50    0.00
```

159.

```
 2011-02-03  time:  2:45:17.75 UTC  ML=-0.1
   lat: 47.482N  lon: 18.363E  h=  6.9 km
                 erh= 1.1km    erz= 1.3km
   nr=  5        gap=253       rms=0.06
   Locality: Oroszlány
   Comments:

sta   dist azm  phase  hr mn  sec     res
BOKD   8.4 275   eSg    2:45:21.20   -0.01
PKSG  10.3 168   ePgC   2:45:20.00    0.04
                 eSg      45:21.60   -0.08
CSKK  15.3 210   ePg    2:45:20.70   -0.05
                 eSg      45:23.20    0.11
```

160.

```
 2011-02-03  time:  3:59:58.69 UTC  ML= 0.1
   lat: 47.468N  lon: 18.375E  h=  8.2 km
                 erh= 0.5km    erz= 0.7km
   nr=  8        gap=143       rms=0.08
   Locality: Várgesztes
   Comments:

sta   dist azm  phase  hr mn  sec     res
VSOM   4.3   1   ePgC   4:00:00.40    0.05
                 eSg      00:01.50   -0.14
PKSG   8.6 172   ePgC   4:00:00.90    0.08
                 eSg      00:02.50    0.03
CSKK  14.5 216   ePgD   4:00:01.70    0.03
                 eSg      00:04.00    0.01
SUKH  31.0 144   eSg    4:00:08.80   -0.10
PKST  34.7 228   eSg    4:00:09.90   -0.12
```

161.

```
 2011-02-03  time:  4:42:37.70 UTC  ML=-0.3
   lat: 47.470N  lon: 18.351E  h=  6.8 km
                 erh= 0.8km    erz= 1.2km
   nr=  7        gap=159       rms=0.09
   Locality: Oroszlány
   Comments:

sta   dist azm  phase  hr mn  sec     res
VSOM   4.5  25   ePgC   4:42:39.20    0.05
                 eSg      42:40.20   -0.09
PKSG   9.2 161   ePg    4:42:39.70   -0.04
                 eSg      42:41.30   -0.04
CSKK  13.7 210   ePg    4:42:40.50    0.07
                 eSg      42:42.70    0.14
PKST  33.5 226   eSg    4:42:48.40   -0.16
```

162.

```
 2011-02-03  time:  4:48:53.77 UTC  ML= 0.0
   lat: 47.470N  lon: 18.353E  h=  6.4 km
                 erh= 0.8km    erz= 1.0km
   nr=  6        gap=172       rms=0.07
   Locality: Oroszlány
   Comments:

sta   dist azm  phase  hr mn  sec     res
VSOM   4.4  22   ePgD   4:48:55.20    0.03
                 eSg      48:56.30    0.05
PKSG   9.1 162   ePgC   4:48:55.80    0.04
                 eSg      48:57.20   -0.11
CSKK  13.8 211   ePgD   4:48:56.40   -0.09
                 eSg      48:58.70    0.10
```

163.

```
 2011-02-03  time:  8:47:42.02 UTC  ML= 0.5
   lat: 47.458N  lon: 18.354E  h=  6.4 km
                 erh= 1.3km    erz= 2.1km
   nr= 11        gap=123       rms=0.29
   Locality: Oroszlány
   Comments:

sta   dist azm  phase  hr mn  sec     res
VSOM   5.7  17   ePgD   8:47:43.30   -0.24
                 eSg      47:44.30   -0.44
PKSG   7.9 159   ePgC   8:47:43.80   -0.03
                 eSg      47:45.30    0.06
BOKD   8.4 294   ePg    8:47:44.70    0.79
CSKK  12.7 214   ePgD   8:47:44.60    0.05
                 eSg      47:46.70    0.17
SUKH  31.1 140   ePg    8:47:47.90    0.21
                 eSg      47:51.90   -0.21
PKST  32.7 227   ePg    8:47:47.70   -0.27
                 eSg      47:52.60   -0.02
```

164.

```
 2011-02-04  time:  4:21:55.77 UTC  ML= 0.1
   lat: 47.467N  lon: 18.354E  h=  6.0 km
                 erh= 0.4km    erz= 0.7km
   nr=  5        gap=154       rms=0.03
   Locality: Oroszlány
   Comments:

sta   dist azm  phase  hr mn  sec     res
VSOM   4.7  20   ePgD   4:21:57.10   -0.02
                 eSg      21:58.20    0.02
PKSG   8.8 162   ePg    4:21:57.70    0.03
                 eSg      21:59.10   -0.05
PKST  33.5 226   eSg    4:22:06.60    0.02
```

165.

```
 2011-02-04  time:  5:37:58.64 UTC  ML= 0.1
   lat: 47.467N  lon: 18.376E  h=  7.8 km
                 erh= 0.5km    erz= 0.7km
   nr=  9        gap=145       rms=0.09
   Locality: Várgesztes
   Comments:

sta   dist azm  phase  hr mn  sec     res
VSOM   4.3 360   ePgD   5:38:00.30    0.07
                 eSg      38:01.30   -0.18
PKSG   8.5 173   ePgC   5:38:00.80    0.10
                 eSg      38:02.30   -0.01
CSKK  14.5 217   ePgD   5:38:01.60    0.02
                 eSg      38:03.90    0.02
```

```
SUKH  30.9 144   eSg    5:38:08.60   -0.17
PKST  34.7 228   ePg    5:38:05.00    0.01
                 eSg      38:09.90   -0.05
```

166.

```
 2011-02-04  time: 13:11:10.63 UTC  ML= 0.9
   lat: 47.382N  lon: 18.239E  h=  3.5 km
                 erh= 0.4km    erz= 0.6km
   nr=  9        gap=168       rms=0.08
   Locality: Mór
   Comments:

sta   dist azm  phase  hr mn  sec     res
CSKK   2.7 142   ePgC  13:11:11.40   -0.01
                 eSg      11:11.90   -0.12
PKSG  11.5  85   ePgD  13:11:12.80    0.02
                 eSg      11:14.50    0.04
VSOM  17.3  37   ePgD  13:11:13.80    0.02
                 eSg      11:16.20   -0.04
PKST  20.6 229   ePgD  13:11:14.30   -0.07
                 eSg      11:17.50    0.22
SUKH  32.5 118   eSg   13:11:21.00   -0.02
```

167.

```
 2011-02-04  time: 14:23:20.71 UTC  ML= 1.0
   lat: 47.462N  lon: 18.361E  h=  8.0 km
                 erh= 0.5km    erz= 0.7km
   nr= 12        gap=129       rms=0.10
   Locality: Oroszlány
   Comments:

sta   dist azm  phase  hr mn  sec     res
VSOM   5.1  13   ePgD  14:23:22.30   -0.11
                 eSg      23:23.30   -0.43
PKSG   8.1 164   ePgC  14:23:22.80    0.05
                 eSg      23:24.30   -0.04
BOKD   8.8 290   ePgC  14:23:22.90    0.07
                 eSg      23:24.60    0.11
CSKK  13.3 215   ePgD  14:23:23.50    0.01
                 eSg      23:25.70    0.04
SUKH  31.1 142   ePgD  14:23:26.60    0.15
                 eSg      23:30.70   -0.23
PKST  33.4 228   ePgD  14:23:26.80   -0.05
                 eSg      23:31.60   -0.04
```

168.

```
 2011-02-04  time: 14:58:25.42 UTC  ML= 0.1
   lat: 47.471N  lon: 18.372E  h=  7.7 km
                 erh= 0.8km    erz= 0.8km
   nr=  6        gap=167       rms=0.06
   Locality: Várgesztes
   Comments:

sta   dist azm  phase  hr mn  sec     res
VSOM   4.0   4   ePg   14:58:27.00    0.04
                 eSg      58:28.10   -0.07
PKSG   8.9 171   ePgD  14:58:27.60    0.08
                 eSg      58:29.10   -0.06
CSKK  14.7 215   ePgD  14:58:28.30   -0.07
                 eSg      58:30.70    0.02
```

169.

```
 2011-02-05  time:  0:16:55.99 UTC  ML=-0.2
   lat: 47.468N  lon: 18.369E  h=  6.1 km
                 erh= 0.5km    erz= 0.6km
   nr=  5        gap=163       rms=0.03
   Locality: Oroszlány
   Comments:

sta   dist azm  phase  hr mn  sec     res
VSOM   4.4   6   ePg    0:16:57.30   -0.03
                 eSg      16:58.40    0.03
PKSG   8.6 169   ePgC   0:16:57.90    0.03
                 eSg      16:59.30   -0.04
CSKK  14.2 215   eSg    0:17:00.90   -0.01
```

170.

```
 2011-02-05  time: 10:39:35.63 UTC  ML= 0.5
   lat: 47.399N  lon: 18.200E  h=  0.6 km
                 erh= 4.1km    erz=34.3km
   nr=  6        gap=235       rms=0.09
   Locality: Mór
   Comments:

sta   dist azm  phase  hr mn  sec     res
CSKK   6.1 131   ePgD  10:39:36.70   -0.02
                 eSg      39:37.20   -0.38
PKSG  14.4  93   ePgD  10:39:38.20   -0.01
                 eSg      39:40.30    0.08
PKST  20.0 219   ePg   10:39:39.20    0.00
                 eSg      39:42.10    0.12
```

171.

```
 2011-02-05  time: 11:08:36.24 UTC  ML= 1.4
   lat: 47.479N  lon: 18.318E  h=  6.3 km
                 erh= 2.0km    erz= 2.8km
   nr= 12        gap=132       rms=0.43
   Locality: Oroszlány
   Comments:

sta   dist azm  phase  hr mn  sec     res
BOKD   5.1 283   ePgC  11:08:36.70   -0.99
                 eSg      08:38.70   -0.12
VSOM   5.3  55   ePgC  11:08:38.00    0.28
                 eSg      08:39.10    0.23
PKSG  11.2 150   ePgC  11:08:38.50   -0.03
                 eSg      08:40.10   -0.22
CSKK  13.6 199   ePgD  11:08:39.20    0.28
                 eSg      08:41.50    0.49
PKST  32.5 221   ePgD  11:08:42.40    0.24
                 eSg      08:47.30    0.53
SUKH  34.7 139   ePgD  11:08:42.40   -0.13
                 eSg      08:46.60   -0.84
```

172.

```
 2011-02-06  time: 12:45:24.13 UTC  ML= 1.1
   lat: 47.464N  lon: 18.365E  h=  7.1 km
                 erh= 0.9km    erz= 1.3km
   nr= 12        gap=133       rms=0.21
   Locality: Oroszlány
   Comments:

sta   dist azm  phase  hr mn  sec     res
VSOM   4.8   9   ePgD  12:45:25.50   -0.17
                 eSg      45:26.50   -0.36
PKSG   8.2 167   ePgC  12:45:26.20    0.13
                 eSg      45:27.60    0.01
BOKD   9.0 288   ePg   12:45:26.30    0.12
                 eSg      45:28.10    0.32
CSKK  13.7 215   ePgD  12:45:26.90    0.01
                 eSg      45:29.20    0.16
SUKH  31.1 142   ePgC  12:45:30.10    0.28
                 eSg      45:33.80   -0.46
PKST  33.8 228   ePgC  12:45:30.10   -0.20
                 eSg      45:35.00   -0.12
```

173.

2011-02-06 time: 21:12:19.09 UTC ML= 0.0
lat: 47.471N lon: 18.369E h= 7.0 km
erh= 0.6km erz= 0.8km
nr= 7 gap=163 rms=0.07
Locality: Várgesztes
Comments:

sta	dist	azm	phase	hr mn sec	res
VSOM	4.0	7	ePgC	21:12:20.50	-0.03
			eSg	12:21.70	0.04
PKSG	8.9	170	ePg	21:12:21.20	0.09
			eSg	12:22.60	-0.09
CSKK	14.5	215	ePg	21:12:21.90	-0.07
			eSg	12:24.20	-0.01
PKST	34.6	227	eSg	21:12:30.40	0.10

174.

2011-02-06 time: 21:59:16.43 UTC ML=-0.1
lat: 47.465N lon: 18.362E h= 7.1 km
erh= 0.5km erz= 0.9km
nr= 8 gap=145 rms=0.09
Locality: Oroszlány
Comments:

sta	dist	azm	phase	hr mn sec	res
VSOM	4.7	13	ePgC	21:59:18.00	0.05
			eSg	59:19.00	-0.13
PKSG	8.5	165	ePg	21:59:18.50	0.10
			eSg	59:20.00	0.07
CSKK	13.7	214	ePgD	21:59:19.20	0.01
			eSg	59:21.30	-0.03
SUKH	31.4	142	eSg	21:59:26.50	-0.15
PKST	33.8	227	eSg	21:59:27.30	-0.10

175.

2011-02-07 time: 9:40:44.13 UTC ML= 0.8
lat: 47.719N lon: 18.696E h= 10.0 km
erh= 6.4km erz=24.3km
nr= 6 gap=322 rms=0.29
Locality: Tokod
Comments:

sta	dist	azm	phase	hr mn sec	res
PKSG	43.0	212	ePg	9:40:51.90	-0.11
			eSg	40:58.60	0.43
SUKH	53.3	186	ePg	9:40:54.20	0.38
			eSg	41:01.00	-0.37
PKST	71.4	224	ePg	9:40:56.90	-0.11
			eSg	41:06.70	-0.35

176.

2011-02-08 time: 4:26:48.52 UTC ML= 0.6
lat: 47.461N lon: 18.367E h= 7.7 km
erh= 1.2km erz= 1.7km
nr= 10 gap=135 rms=0.24
Locality: Oroszlány
Comments:

sta	dist	azm	phase	hr mn sec	res
VSOM	5.1	7	ePgD	4:26:50.00	-0.17
			eSg	26:51.00	-0.46
PKSG	7.9	167	ePgC	4:26:50.60	0.10
			eSg	26:52.10	0.05
BOKD	9.2	289	ePg	4:26:50.80	0.12
			eSg	26:52.60	0.25
SUKH	30.8	142	ePgC	4:26:54.60	0.41
			eSg	26:58.30	-0.31
PKST	33.8	228	ePgC	4:26:54.50	-0.21
			eSg	26:59.50	-0.03

177.

2011-02-09 time: 1:28:53.36 UTC ML= 1.1
lat: 47.462N lon: 18.369E h= 7.1 km
erh= 0.6km erz= 0.9km
nr= 10 gap=136 rms=0.13
Locality: Oroszlány
Comments:

sta	dist	azm	phase	hr mn sec	res
VSOM	5.0	6	ePgD	1:28:54.80	-0.12
			eSg	28:55.90	-0.23
PKSG	8.0	168	ePgC	1:28:55.40	0.13
			eSg	28:56.80	0.04
BOKD	9.3	289	ePgC	1:28:55.60	0.14
			eSg	28:57.20	0.11
SUKH	30.8	142	ePgC	1:28:59.10	0.10
			eSg	29:03.30	-0.10
PKST	33.9	228	ePgC	1:28:59.40	-0.14
			eSg	29:04.30	-0.06

178.

2011-02-09 time: 5:44:50.46 UTC ML= 0.4
lat: 47.467N lon: 18.358E h= 10.0 km
erh= 1.9km erz= 2.3km
nr= 10 gap=125 rms=0.34
Locality: Oroszlány
Comments:

sta	dist	azm	phase	hr mn sec	res
VSOM	4.6	17	ePgC	5:44:52.40	-0.03
			eSg	44:53.50	-0.46
BOKD	8.3	287	ePg	5:44:53.10	0.31
			eSg	44:54.80	0.20
PKSG	8.8	163	ePgD	5:44:52.90	0.06
			eSg	44:54.50	-0.19
SUKH	31.8	142	ePg	5:44:56.80	0.39
			eSg	45:00.90	-0.15
PKST	33.7	226	ePg	5:44:56.00	-0.74
			eSg	45:01.90	0.27

179.

2011-02-09 time: 11:06:52.39 UTC ML= 0.7
lat: 47.500N lon: 17.947E h= 5.6 km
erh= 3.0km erz=12.3km
nr= 8 gap=282 rms=0.29
Locality: Kerékteleki
Comments:

sta	dist	azm	phase	hr mn sec	res
PKST	27.5	166	ePgC	11:06:57.40	-0.01
			eSg	07:01.20	-0.12
VSOM	32.3	89	ePg	11:06:58.00	-0.24
			eSg	07:02.40	-0.40
PKSG	35.5	110	ePgC	11:06:59.30	0.49
			eSg	07:04.30	0.48
SUKH	58.1	119	ePg	11:07:02.70	-0.10
			eSg	07:10.80	-0.13

180.

2011-02-09 time: 21:02:26.03 UTC ML= 0.5
lat: 47.466N lon: 18.371E h= 8.0 km
erh= 1.0km erz= 1.3km
nr= 9 gap=139 rms=0.18
Locality: Várgesztes
Comments:

sta	dist	azm	phase	hr mn sec	res
VSOM	4.6	4	ePgD	21:02:27.60	-0.08
			eSg	02:28.70	-0.26

```
PKSG   8.3 170   ePgC  21:02:28.20    0.11
                 eSg     02:29.80    0.10
BOKD   9.4 286   eSg   21:02:30.20    0.25
SUKH  31.0 143   ePg   21:02:32.00    0.26
                 eSg     02:35.90   -0.30
PKST  34.3 228   ePgC  21:02:32.20   -0.12
                 eSg     02:37.10   -0.12
```

181.

```
 2011-02-10  time:  5:02:59.31 UTC  ML=-0.4
   lat: 47.470N  lon: 18.349E  h=  5.8 km
                 erh= 0.6km    erz= 1.1km
   nr=  5        gap=161       rms=0.05
   Locality: Oroszlány
   Comments:

sta   dist azm  phase  hr mn  sec     res
VSOM   4.5  27   ePgC   5:03:00.60   -0.02
                 eSg      03:01.70    0.05
PKSG   9.3 160   ePg    5:03:01.30    0.03
                 eSg      03:02.70   -0.09
PKST  33.4 225   eSg    5:03:10.10    0.01
```

182.

```
 2011-02-10  time: 12:41:07.13 UTC  ML= 0.0
   lat: 47.469N  lon: 18.307E  h=  0.0 km
                 erh= 2.1km    erz= 534km
   nr=  6        gap=189       rms=0.26
   Locality: Oroszlány
   Comments:

sta   dist azm  phase  hr mn  sec     res
VSOM   6.7  51   ePgD  12:41:08.30   -0.02
                 eSg     41:09.20    -0.05
PKSG  10.6 144   ePgC  12:41:08.90   -0.12
                 eSg     41:10.50    0.00
PKST  31.1 222   ePgD  12:41:13.10    0.41
                 eSg     41:16.50   -0.52
```

183.

```
 2011-02-10  time: 13:44:57.45 UTC  ML= 1.0
   lat: 47.582N  lon: 18.453E  h=  7.7 km
                 erh= 1.7km    erz= 1.9km
   nr=  9        gap=286       rms=0.17
   Locality: Tatabánya
   Comments:

sta   dist azm  phase  hr mn  sec     res
VSOM  10.1 215   ePg   13:44:59.60   -0.13
                 eSg     45:01.50    0.00
BOKD  18.3 236   ePg   13:45:01.30    0.30
PKSG  21.6 193   ePgC  13:45:01.40   -0.15
                 eSg     45:04.60   -0.14
SUKH  39.7 162   ePg   13:45:04.80    0.13
                 eSg     45:10.40    0.11
PKST  47.8 221   ePg   13:45:05.90   -0.20
                 eSg     45:13.00    0.16
```

184.

```
 2011-02-10  time: 20:18:34.14 UTC  ML= 0.3
   lat: 47.461N  lon: 18.368E  h=  8.3 km
                 erh= 0.8km    erz= 1.0km
   nr=  8        gap=136       rms=0.12
   Locality: Oroszlány
   Comments:

sta   dist azm  phase  hr mn  sec     res
VSOM   5.1   7   ePgC  20:18:35.70   -0.19
PKSG   7.9 167   ePgD  20:18:36.30    0.11
                 eSg     18:37.70   -0.08
BOKD   9.3 290   eSg   20:18:38.20    0.09
SUKH  30.7 142   ePgD  20:18:40.00    0.18
                 eSg     18:44.20   -0.05
PKST  33.7 228   ePgD  20:18:40.30   -0.04
                 eSg     18:45.10   -0.08
```

185.

```
 2011-02-11  time:  5:03:12.67 UTC  ML=-0.2
   lat: 47.468N  lon: 18.374E  h=  6.6 km
                 erh= 0.7km    erz= 0.8km
   nr=  6        gap=169       rms=0.06
   Locality: Várgesztes
   Comments:

sta   dist azm  phase  hr mn  sec     res
VSOM   4.3   2   ePgD   5:03:14.10    0.03
                 eSg      03:15.10   -0.06
PKSG   8.6 171   ePgC   5:03:14.60    0.00
                 eSg      03:16.10   -0.01
PKST  34.6 228   ePg    5:03:18.90   -0.06
                 eSg      03:24.00    0.13
```

186.

```
 2011-02-11  time:  6:07:23.59 UTC  ML=-0.1
   lat: 47.472N  lon: 18.409E  h=  5.7 km
                 erh= 0.1km    erz= 0.1km
   nr=  5        gap=182       rms=0.01
   Locality: Várgesztes
   Comments:

sta   dist azm  phase  hr mn  sec     res
VSOM   4.5 327   ePg    6:07:24.90    0.01
                 eSg      07:25.90   -0.01
PKSG   9.1 189   ePgC   6:07:25.50    0.00
                 eSg      07:27.00    0.00
SUKH  30.0 148   eSg    6:07:33.30    0.00
```

187.

```
 2011-02-12  time:  2:29:32.31 UTC  ML= 0.3
   lat: 47.472N  lon: 18.369E  h=  9.2 km
                 erh= 0.9km    erz= 1.1km
   nr=  8        gap=137       rms=0.14
   Locality: Várgesztes
   Comments:

sta   dist azm  phase  hr mn  sec     res
VSOM   3.9   7   ePgD   2:29:34.20    0.11
                 eSg      29:35.10   -0.38
PKSG   9.1 170   ePgC   2:29:34.70    0.08
                 eSg      29:36.30   -0.11
BOKD   9.1 282   eSg    2:29:36.60    0.18
SUKH  31.6 144   eSg    2:29:42.80    0.02
PKST  34.7 227   ePg    2:29:38.60   -0.12
                 eSg      29:43.70   -0.02
```

188.

```
 2011-02-13  time: 23:24:48.59 UTC  ML= 0.1
   lat: 47.464N  lon: 18.368E  h= 10.0 km
                 erh= 1.7km    erz= 2.3km
   nr=  8        gap=136       rms=0.24
   Locality: Oroszlány
   Comments:

sta   dist azm  phase  hr mn  sec     res
VSOM   4.7   7   ePgD  23:24:50.50   -0.07
                 eSg     24:51.60    -0.51
PKSG   8.2 168   ePgD  23:24:51.10    0.20
                 eSg     24:52.70    -0.01
BOKD   9.2 287   ePg   23:24:51.30    0.28
SUKH  31.0 143   eSg   23:24:59.00    0.06
```

```
PKST  34.0 228   ePg   23:24:54.60   -0.32
                 eSg      25:00.00    0.14
```

189.

```
 2011-02-13  time: 23:39:01.69 UTC  ML= 0.1
   lat: 47.463N  lon: 18.380E  h=  7.3 km
                 erh= 1.2km    erz= 1.6km
   nr=  7        gap=148       rms=0.16
   Locality: Várgesztes
   Comments:

sta   dist azm  phase  hr mn  sec     res
VSOM   4.9 356   ePgD  23:39:03.20   -0.07
                 eSg      39:04.30   -0.20
PKSG   7.9 174   ePgD  23:39:03.80    0.18
                 eSg      39:05.30    0.18
SUKH  30.3 144   eSg   23:39:11.40   -0.20
PKST  34.6 229   ePg   23:39:08.10    0.10
                 eSg      39:12.70   -0.23
```

190.

```
 2011-02-14  time:  8:17:43.50 UTC  ML= 0.7
   lat: 47.387N  lon: 18.421E  h=  0.0 km
                 erh= 1.9km    erz= 552km
   nr=  8        gap=152       rms=0.41
   Locality: Gánt
   Comments: probably explosion

sta   dist azm  phase  hr mn  sec     res
PKSG   2.4 284   ePgC   8:17:43.70   -0.23
                 eSg      17:44.50    0.24
VSOM  13.8 346   ePgC   8:17:46.00    0.04
                 eSg      17:49.00    1.12
SUKH  21.8 137   ePgC   8:17:47.30   -0.09
                 eSg      17:50.80    0.37
PKST  32.5 244   ePg    8:17:48.70   -0.61
                 eSg      17:54.30    0.47
```

191.

```
 2011-02-14  time:  8:18:11.23 UTC  ML= 1.2
   lat: 47.367N  lon: 18.423E  h=  0.0 km
                 erh= 2.0km    erz= 615km
   nr= 10        gap=146       rms=0.48
   Locality: Gánt
   Comments: probably explosion

sta   dist azm  phase  hr mn  sec     res
PKSG   3.7 319   ePgC   8:18:11.40   -0.48
                 eSg      18:12.50    0.11
VSOM  15.9 347   ePgC   8:18:13.70   -0.37
                 eSg      18:16.60    0.31
BOKD  18.7 316   ePgC   8:18:15.10    0.53
                 eSg      18:18.90    1.72
SUKH  20.2 133   ePgC   8:18:14.90    0.07
                 eSg      18:18.00    0.36
PKST  31.7 248   ePgC   8:18:16.30   -0.60
                 eSg      18:21.70    0.38
```

192.

```
 2011-02-14  time: 10:28:37.99 UTC  ML= 1.1
   lat: 48.027N  lon: 19.623E  h=  0.0 km
                 erh= 2.2km    erz= 448km
   nr=  6        gap=191       rms=0.29
   Locality: Nagylóc
   Comments: probably explosion

sta   dist azm  phase  hr mn  sec     res
PSZ   23.6 121   ePgC  10:28:42.50    0.30
                 eSg      28:45.10   -0.39
VYHS  78.1 312   ePg   10:28:52.20    0.26
                 eSg      29:02.50   -0.32
KECS  81.7  52   ePg   10:28:52.40   -0.17
                 eSg      29:03.70   -0.25
```

193.

```
 2011-02-15  time:  1:56:29.29 UTC  ML= 0.4
   lat: 47.470N  lon: 18.369E  h=  8.3 km
                 erh= 1.1km    erz= 1.4km
   nr=  9        gap=137       rms=0.17
   Locality: Oroszlány
   Comments:

sta   dist azm  phase  hr mn  sec     res
VSOM   4.1   7   ePgC   1:56:30.90   -0.04
                 eSg      56:32.00   -0.22
PKSG   8.9 170   ePgC   1:56:31.50    0.04
                 eSg      56:33.00   -0.15
BOKD   9.1 283   ePg    1:56:31.60    0.11
                 eSg      56:33.50    0.29
SUKH  31.5 144   eSg    1:56:40.30    0.67
PKST  34.5 227   ePgC   1:56:35.50   -0.13
                 eSg      56:40.50   -0.08
```

194.

```
 2011-02-15  time:  2:57:34.87 UTC  ML=-0.1
   lat: 47.466N  lon: 18.368E  h=  0.2 km
                 erh= 2.7km    erz=97.5km
   nr=  8        gap=161       rms=0.43
   Locality: Oroszlány
   Comments:

sta   dist azm  phase  hr mn  sec     res
VSOM   4.6   7   ePgC   2:57:35.50   -0.19
                 eSg      57:36.50    0.17
PKSG   8.4 168   ePg    2:57:36.20   -0.17
                 eSg      57:37.60    0.06
BOKD   9.1 287   ePgC   2:57:36.30   -0.21
                 eSg      57:37.90    0.12
PKST  34.1 228   ePgC   2:57:41.90    0.94
                 eSg      57:45.00   -0.72
```

195.

```
 2011-02-15  time:  9:02:38.29 UTC  ML= 0.8
   lat: 47.466N  lon: 18.365E  h=  7.1 km
                 erh= 0.9km    erz= 1.2km
   nr=  9        gap=132       rms=0.16
   Locality: Oroszlány
   Comments:

sta   dist azm  phase  hr mn  sec     res
VSOM   4.6  10   ePgD   9:02:39.80    0.01
                 eSg      02:40.70   -0.26
PKSG   8.5 167   ePgC   9:02:40.30    0.04
                 eSg      02:41.90    0.10
BOKD   8.9 287   eSg    9:02:42.00    0.10
SUKH  31.3 143   ePg    9:02:44.30    0.28
                 eSg      02:48.30   -0.19
PKST  34.0 227   ePgC   9:02:44.30   -0.18
                 eSg      02:49.30   -0.02
```

196.

```
 2011-02-16  time:  5:15:08.51 UTC  ML= 0.2
   lat: 47.465N  lon: 18.359E  h=  6.4 km
                 erh= 0.8km    erz= 1.3km
   nr= 10        gap=127       rms=0.16
   Locality: Oroszlány
   Comments:

sta   dist azm  phase  hr mn  sec     res
VSOM   4.8  15   ePgD   5:15:09.90   -0.05
```

```
                  eSg      15:10.80   -0.27
PKSG   8.4 164    ePgC   5:15:10.40    0.00
                  eSg      15:12.00    0.12
BOKD   8.6 289    ePgC   5:15:10.50    0.07
                  eSg      15:12.10    0.18
SUKH  31.4 142    ePgC   5:15:14.50    0.26
                  eSg      15:18.50   -0.20
PKST  33.5 227    ePgC   5:15:14.40   -0.21
                  eSg      15:19.40    0.03
```

197.

```
 2011-02-16  time: 20:29:09.86 UTC  ML= 1.6
   lat: 47.458N  lon: 18.351E  h=  6.0 km
                 erh= 2.5km    erz= 5.1km
   nr=  7        gap= 84       rms=0.31
   Locality: Oroszlány
   Comments:

sta   dist azm  phase  hr mn  sec     res
VSOM   5.8  19   ePgC  20:29:11.10   -0.26
PKSG   7.9 158   ePgD  20:29:11.70    0.06
BOKD   8.2 295   ePgC  20:29:11.80    0.11
SUKH  31.2 140   ePgC  20:29:15.50   -0.05
PKST  32.5 227   ePgC  20:29:15.60   -0.17
BUD   50.8  87   ePg   20:29:19.70    0.69
                 eSg      29:25.60   -0.54
```

198.

```
 2011-02-16  time: 21:48:40.51 UTC  ML= 1.8
   lat: 47.468N  lon: 18.376E  h=  8.7 km
                 erh= 0.6km    erz= 0.8km
   nr= 12        gap= 88       rms=0.14
   Locality: Várgesztes
   Comments:

sta   dist azm  phase  hr mn  sec     res
VSOM   4.3   0   ePgD  21:48:42.20   -0.03
                 eSg      48:43.20   -0.38
PKSG   8.6 172   ePgC  21:48:42.80    0.11
                 eSg      48:44.30   -0.09
BOKD   9.6 284   ePgC  21:48:42.90    0.08
                 eSg      48:44.80    0.17
SUKH  31.0 144   ePgC  21:48:46.40    0.14
                 eSg      48:50.60   -0.14
PKST  34.7 228   ePgC  21:48:46.80   -0.10
                 eSg      48:51.70   -0.19
BUD   48.9  88   ePg   21:48:49.50    0.12
                 eSg      48:56.10   -0.19
```

199.

```
 2011-02-16  time: 22:25:02.85 UTC  ML= 1.6
   lat: 47.464N  lon: 18.367E  h=  7.0 km
                 erh= 1.1km    erz= 1.7km
   nr= 12        gap= 80       rms=0.30
   Locality: Oroszlány
   Comments:

sta   dist azm  phase  hr mn  sec     res
VSOM   4.8   8   ePgD  22:25:04.20   -0.17
                 eSg      25:05.30   -0.25
PKSG   8.2 167   ePgC  22:25:04.70   -0.07
                 eSg      25:06.30    0.03
BOKD   9.1 288   ePgC  22:25:05.00    0.10
                 eSg      25:06.90    0.40
SUKH  31.0 142   ePgD  22:25:08.60    0.08
                 eSg      25:12.70   -0.25
PKST  33.9 228   ePgC  22:25:08.90   -0.13
                 eSg      25:13.80   -0.05
BUD   49.6  87   ePg   22:25:12.60    0.81
                 eSg      25:18.20   -0.57
```

200.

```
 2011-02-17  time: 22:44:56.58 UTC  ML=-0.4
   lat: 47.471N  lon: 18.400E  h= 13.8 km
                 erh= 5.4km    erz= 5.9km
   nr=  7        gap=172       rms=0.63
   Locality: Várgesztes
   Comments:

sta   dist azm  phase  hr mn  sec     res
VSOM   4.4 335   ePgD  22:44:59.50    0.34
                 eSg      45:00.50   -0.67
PKSG   8.8 185   ePgC  22:45:00.10    0.60
                 eSg      45:01.50   -0.28
SUKH  30.2 147   ePgC  22:45:01.50   -1.00
                 eSg      45:07.90    0.78
PKST  36.3 230   eSg   22:45:09.10    0.17
```

201.

```
 2011-02-18  time:  2:00:05.48 UTC  ML= 0.4
   lat: 47.468N  lon: 18.357E  h=  8.5 km
                 erh= 1.4km    erz= 1.8km
   nr= 10        gap=124       rms=0.25
   Locality: Oroszlány
   Comments:

sta   dist azm  phase  hr mn  sec     res
VSOM   4.5  18   ePgD   2:00:07.10   -0.10
                 eSg      00:08.10   -0.44
BOKD   8.3 286   ePgD   2:00:07.90    0.30
                 eSg      00:09.60    0.35
PKSG   8.8 163   ePgC   2:00:07.70    0.03
                 eSg      00:09.20   -0.18
SUKH  31.8 142   ePg    2:00:11.60    0.24
                 eSg      00:15.80   -0.15
PKST  33.7 226   ePgD   2:00:11.30   -0.38
                 eSg      00:16.70    0.17
```

202.

```
 2011-02-18  time: 14:42:16.30 UTC  ML= 0.3
   lat: 47.468N  lon: 18.358E  h=  6.3 km
                 erh= 1.1km    erz= 1.5km
   nr=  8        gap=151       rms=0.17
   Locality: Oroszlány
   Comments:

sta   dist azm  phase  hr mn  sec     res
VSOM   4.4  17   ePgD  14:42:17.70    0.03
                 eSg      42:18.70   -0.04
PKSG   8.9 164   ePgC  14:42:18.20   -0.04
                 eSg      42:19.80    0.05
SUKH  31.8 142   ePg   14:42:22.40    0.31
                 eSg      42:26.20   -0.40
PKST  33.8 226   ePg   14:42:22.30   -0.13
                 eSg      42:27.20   -0.02
```

203.

```
 2011-02-18  time: 20:47:38.77 UTC  ML=-0.1
   lat: 47.467N  lon: 18.353E  h=  5.1 km
                 erh= 0.2km    erz= 0.3km
   nr=  5        gap=155       rms=0.01
   Locality: Oroszlány
   Comments:

sta   dist azm  phase  hr mn  sec     res
VSOM   4.7  21   ePgD  20:47:40.00   -0.01
                 eSg      47:41.00    0.02
PKSG   8.8 161   ePgD  20:47:40.60    0.01
                 eSg      47:42.00   -0.01
PKST  33.4 226   eSg   20:47:49.50    0.00
```

204.

2011-02-18 time: 21:43:02.77 UTC ML= 0.8
lat: 47.460N lon: 18.365E h= 6.8 km
erh= 0.8km erz= 1.2km
nr= 10 gap=133 rms=0.16
Locality: Oroszlány
Comments:

sta	dist	azm	phase	hr	mn	sec	res
VSOM	5.2	9	ePgD	21	43	04.20	-0.11
			eSg		43	05.20	-0.30
PKSG	7.9	166	ePgC	21	43	04.70	0.07
			eSg		43	06.10	0.02
BOKD	9.1	291	ePgC	21	43	04.90	0.09
			eSg		43	06.70	0.30
SUKH	30.8	142	ePg	21	43	08.60	0.20
			eSg		43	12.70	-0.09
PKST	33.5	228	ePgD	21	43	08.70	-0.19
			eSg		43	13.60	-0.05

205.

2011-02-18 time: 22:55:48.85 UTC ML= 0.4
lat: 47.464N lon: 18.372E h= 8.7 km
erh= 1.4km erz= 1.7km
nr= 8 gap=167 rms=0.19
Locality: Várgesztes
Comments:

sta	dist	azm	phase	hr	mn	sec	res
VSOM	4.8	3	ePgD	22	55	50.60	-0.02
			eSg		55	51.60	-0.41
PKSG	8.1	170	ePgC	22	55	51.20	0.23
			eSg		55	52.60	-0.02
BOKD	9.5	287	ePg	22	55	51.30	0.15
			eSg		55	53.10	0.15
PKST	34.2	228	ePgD	22	55	54.90	-0.24
			eSg		56	00.00	-0.06

206.

2011-02-18 time: 22:58:04.59 UTC ML= 1.0
lat: 47.465N lon: 18.368E h= 7.7 km
erh= 0.6km erz= 0.9km
nr= 10 gap=135 rms=0.12
Locality: Oroszlány
Comments:

sta	dist	azm	phase	hr	mn	sec	res
VSOM	4.7	8	ePgD	22	58	06.10	-0.10
			eSg		58	07.00	-0.45
PKSG	8.3	168	ePgC	22	58	06.60	-0.01
			eSg		58	08.20	0.01
BOKD	9.1	287	ePg	22	58	06.80	0.08
			eSg		58	08.50	0.12
SUKH	31.1	143	ePg	22	58	10.50	0.19
			eSg		58	14.70	-0.07
PKST	34.0	228	ePgC	22	58	10.70	-0.12
			eSg		58	15.70	0.02

207.

2011-02-19 time: 2:51:53.28 UTC ML=-0.3
lat: 47.470N lon: 18.380E h= 4.7 km
erh= 0.7km erz= 1.4km
nr= 5 gap=179 rms=0.06
Locality: Várgesztes
Comments:

sta	dist	azm	phase	hr	mn	sec	res
VSOM	4.1	356	ePgD	2	51	54.30	-0.09
			eSg		51	55.30	0.04
PKSG	8.7	175	ePgD	2	51	55.10	0.06
			eSg		51	56.40	-0.02
BOKD	9.9	283	eSg	2	51	56.80	0.04

208.

2011-02-19 time: 8:51:11.92 UTC ML= 0.4
lat: 47.462N lon: 18.350E h= 8.4 km
erh= 1.4km erz= 1.9km
nr= 9 gap=119 rms=0.23
Locality: Oroszlány
Comments:

sta	dist	azm	phase	hr	mn	sec	res
VSOM	5.3	21	ePgC	8	51	13.50	-0.20
BOKD	8.0	292	ePgC	8	51	14.10	0.10
			eSg		51	15.80	0.18
PKSG	8.4	159	ePgC	8	51	14.10	0.06
			eSg		51	15.60	-0.10
SUKH	31.6	140	ePg	8	51	18.20	0.44
			eSg		51	22.00	-0.32
PKST	32.8	227	ePg	8	51	17.70	-0.28
			eSg		51	22.80	0.10

209.

2011-02-20 time: 8:53:57.79 UTC ML= 1.3
lat: 47.834N lon: 19.145E h= 10.0 km
erh= 2.1km erz= 2.3km
nr= 12 gap=131 rms=0.55
Locality: Ősagárd
Comments:

sta	dist	azm	phase	hr	mn	sec	res
PSZ	56.8	81	iPg	8	54	08.10	0.01
			eSg		54	15.50	-0.63
VSOM	68.3	238	eSg	8	54	19.40	-0.34
PKSG	75.1	229	ePg	8	54	11.30	-0.02
			eSg		54	21.90	0.02
VYHS	76.9	343	ePg	8	54	12.60	0.97
			eSg		54	21.80	-0.62
SUKH	76.9	211	ePg	8	54	11.90	0.26
PKST	105.3	233	eP*	8	54	15.90	-0.72
			eS*		54	31.20	-0.11
KECS	123.1	54	ePn	8	54	19.70	0.81
			eSn		54	34.70	-0.65

210.

2011-02-21 time: 1:20:20.91 UTC ML= 0.7
lat: 47.468N lon: 18.374E h= 8.6 km
erh= 0.6km erz= 0.9km
nr= 9 gap=142 rms=0.11
Locality: Várgesztes
Comments:

sta	dist	azm	phase	hr	mn	sec	res
VSOM	4.3	2	ePgC	1	20	22.60	-0.04
			eSg		20	23.70	-0.29
PKSG	8.6	171	ePgC	1	20	23.20	0.11
			eSg		20	24.80	0.02
BOKD	9.5	284	ePgC	1	20	23.30	0.09
			eSg		20	25.10	0.10
SUKH	31.1	144	eSg	1	20	31.20	0.04
PKST	34.6	228	ePgD	1	20	27.20	-0.08
			eSg		20	32.10	-0.15

211.

2011-02-21 time: 4:52:42.68 UTC ML= 0.0
lat: 47.370N lon: 18.271E h= 10.0 km
erh= 1.2km erz= 2.6km
nr= 8 gap=119 rms=0.22
Locality: Csókakő
Comments:

sta	dist	azm	phase	hr mn	sec	res
PKSG	9.4	75	ePgD	4:52:45.20		0.07
			eSg	52:46.70		-0.34
BOKD	13.3	354	eSg	4:52:48.30		0.33
VSOM	17.1	28	ePgD	4:52:46.40		0.18
			eSg	52:48.70		-0.28
PKST	21.7	235	ePg	4:52:46.70		-0.25
			eSg	52:50.50		0.22
SUKH	29.8	119	eSg	4:52:52.70		0.04

212.

2011-02-22 time: 0:31:30.56 UTC ML= 1.5
lat: 47.766N lon: 16.194E h= 10.0 km
erh= 2.2km erz= 1.7km
nr= 23 gap=102 rms=0.81
Locality: Austria
Comments:

sta	dist	azm	phase	hr mn	sec	res
SOP	28.8	109	ePgC	0:31:36.90		0.89
			eSg	31:40.80		0.54
CONA	30.7	306	Pg	0:31:36.60		0.28
			Sg	31:40.50		-0.32
ARSA	76.4	221	Pg	0:31:44.00		-0.32
			Sg	31:53.00		-2.05
ZST	83.0	55	ePg	0:31:44.40		-1.09
			eSg	31:55.10		-2.03
SMOL	123.9	48	ePn	0:31:52.60		0.83
			eSn	32:08.60		0.29
MOA	144.7	274	Pn	0:31:55.30		0.94
			Sn	32:13.20		0.28
SOKA	149.5	216	Pn	0:31:54.80		-0.16
			Sn	32:12.90		-1.09
PKST	149.7	112	ePnC	0:31:55.40		0.43
			eSn	32:13.70		-0.32
VSOM	166.5	100	ePn	0:31:57.70		0.63
PKSG	170.4	104	ePn	0:31:58.00		0.44
			eSn	32:18.20		-0.43
VYHS	212.7	68	ePn	0:32:02.70		-0.14
			eSn	32:26.00		-2.01
PKSM	254.0	133	ePnD	0:32:08.20		0.22
			eSn	32:34.50		-2.68

213.

2011-02-22 time: 7:22:37.70 UTC ML=-0.4
lat: 47.465N lon: 18.268E h= 0.3 km
erh= 0.2km erz= 8.8km
nr= 5 gap=203 rms=0.10
Locality: Bokod
Comments:

sta	dist	azm	phase	hr mn	sec	res
VSOM	9.3	60	ePgD	7:22:39.40		0.03
			eSg	22:40.50		-0.17
PKSG	12.3	131	ePgD	7:22:40.00		0.10
			eSg	22:41.50		-0.11
PKST	28.9	218	eSg	7:22:46.90		0.01

214.

2011-02-23 time: 1:40:21.38 UTC ML=-0.3
lat: 47.472N lon: 18.384E h= 5.5 km
erh= 0.4km erz= 0.7km
nr= 6 gap=155 rms=0.04
Locality: Várgesztes
Comments:

sta	dist	azm	phase	hr mn	sec	res
VSOM	3.9	350	ePgC	1:40:22.60		0.02
			eSg	40:23.50		-0.01
PKSG	8.9	177	ePgD	1:40:23.30		0.05
			eSg	40:24.70		-0.01
BOKD	10.2	281	eSg	1:40:25.00		-0.05
SUKH	31.0	146	eSg	1:40:31.30		-0.08

215.

2011-02-23 time: 4:16:13.36 UTC ML= 0.6
lat: 47.466N lon: 18.365E h= 8.2 km
erh= 0.7km erz= 1.0km
nr= 10 gap=132 rms=0.14
Locality: Oroszlány
Comments:

sta	dist	azm	phase	hr mn	sec	res
VSOM	4.6	10	ePgD	4:16:14.90		-0.13
			eSg	16:15.90		-0.43
PKSG	8.5	167	ePgC	4:16:15.60		0.14
			eSg	16:17.10		0.00
BOKD	8.9	287	ePgC	4:16:15.60		0.08
			eSg	16:17.30		0.10
SUKH	31.3	143	ePg	4:16:19.30		0.16
			eSg	16:23.50		-0.15
PKST	34.0	227	ePgC	4:16:19.50		-0.10
			eSg	16:24.40		-0.06

216.

2011-02-23 time: 8:40:02.14 UTC ML= 0.4
lat: 47.468N lon: 18.363E h= 7.8 km
erh= 1.4km erz= 1.6km
nr= 8 gap=130 rms=0.19
Locality: Oroszlány
Comments:

sta	dist	azm	phase	hr mn	sec	res
VSOM	4.5	13	ePgC	8:40:03.70		-0.03
			eSg	40:04.80		-0.18
PKSG	8.7	166	ePgC	8:40:04.20		-0.02
			eSg	40:05.80		-0.04
BOKD	8.7	286	eSg	8:40:06.10		0.26
SUKH	31.5	143	ePg	8:40:08.30		0.36
			eSg	40:12.20		-0.26
PKST	34.0	227	ePg	8:40:08.20		-0.16

217.

2011-02-23 time: 9:24:01.76 UTC ML= 1.2
lat: 47.360N lon: 18.392E h= 0.0 km
erh= 2.0km erz= 645km
nr= 10 gap=128 rms=0.50
Locality: Gánt
Comments: probably explosion

sta	dist	azm	phase	hr mn	sec	res
PKSG	3.6	359	ePgC	9:24:02.00		-0.40
			eSg	24:02.80		-0.10
VSOM	16.4	356	ePgC	9:24:04.40		-0.29
			eSg	24:06.80		-0.17
BOKD	17.8	324	ePg	9:24:05.60		0.65
			eSg	24:08.20		0.77
SUKH	21.4	127	ePgC	9:24:05.60		0.01
			eSg	24:09.00		0.43
PKST	29.2	247	ePg	9:24:06.20		-0.78
			eSg	24:11.80		0.75

218.

2011-02-23 time: 12:48:54.91 UTC ML= 0.6
lat: 47.508N lon: 18.285E h= 7.3 km
erh= 2.4km erz= 2.9km
nr= 6 gap=237 rms=0.17
Locality: Kecskéd
Comments:

sta	dist	azm	phase	hr mn	sec	res
VSOM	6.9	92	ePgC	12:48:56.50		-0.21
			eSg	48:58.20		0.10
PKSG	15.2	148	ePgC	12:48:58.20		0.27
PKST	33.6	214	eSg	12:49:05.70		-0.14
SUKH	38.8	140	ePg	12:49:02.00		0.04
			eSg	49:07.30		-0.15

219.

2011-02-23 time: 16:50:25.15 UTC ML= 1.6
lat: 47.461N lon: 18.367E h= 6.8 km
erh= 1.2km erz= 1.5km
nr= 10 gap=135 rms=0.21
Locality: Oroszlány
Comments:

sta	dist	azm	phase	hr mn	sec	res
VSOM	5.2	7	ePgD	16:50:26.60		-0.07
			eSg	50:27.60		-0.26
PKSG	7.9	167	ePgC	16:50:27.10		0.09
			eSg	50:28.60		0.15
BOKD	9.2	290	ePgC	16:50:27.30		0.10
			eSg	50:29.10		0.31
SUKH	30.7	142	ePgC	16:50:30.90		0.13
			eSg	50:34.90		-0.25
PKST	33.7	228	ePgC	16:50:31.10		-0.19
			eSg	50:32.80		-3.27

220.

2011-02-26 time: 4:25:30.54 UTC ML=-0.4
lat: 47.468N lon: 18.344E h= 5.9 km
erh= 0.2km erz= 0.3km
nr= 5 gap=164 rms=0.01
Locality: Oroszlány
Comments:

sta	dist	azm	phase	hr mn	sec	res
VSOM	4.9	29	ePgD	4:25:31.90		-0.01
			eSg	25:33.00		0.02
PKSG	9.2	158	ePgD	4:25:32.50		0.01
			eSg	25:34.00		-0.01
PKST	33.0	225	eSg	4:25:41.20		0.00

221.

2011-02-27 time: 7:34:18.22 UTC ML=-0.5
lat: 47.470N lon: 18.405E h= 5.7 km
erh= 0.6km erz= 0.8km
nr= 5 gap=176 rms=0.03
Locality: Várgesztes
Comments:

sta	dist	azm	phase	hr mn	sec	res
VSOM	4.6	332	ePgD	7:34:19.50		-0.03
			eSg	34:20.60		0.05
PKSG	8.7	187	ePgC	7:34:20.10		0.02
			eSg	34:21.50		-0.03
SUKH	29.9	148	eSg	7:34:27.90		0.00

222.

2011-02-27 time: 10:00:39.00 UTC ML=-0.1
lat: 47.356N lon: 18.260E h= 4.0 km
erh= 0.7km erz= 2.8km
nr= 8 gap=150 rms=0.13
Locality: Csókakő
Comments:

sta	dist	azm	phase	hr mn	sec	res
PKSG	10.6	68	ePgD	10:00:40.90		-0.13
			eSg	00:42.60		-0.02
VSOM	18.9	28	ePg	10:00:42.50		0.05
			eSg	00:45.30		0.17
PKST	20.2	238	ePgD	10:00:42.50		-0.18
			eSg	00:45.70		0.15
SUKH	29.8	115	ePgD	10:00:44.50		0.13
			eSg	00:48.50		-0.06

223.

2011-02-27 time: 17:39:07.04 UTC ML= 0.1
lat: 47.387N lon: 18.177E h= 5.9 km
erh= 0.8km erz= 2.7km
nr= 10 gap=169 rms=0.17
Locality: Mór
Comments:

sta	dist	azm	phase	hr mn	sec	res
BOKD	12.7	26	ePg	17:39:09.70		0.16
			eSg	39:11.70		0.21
PKSG	16.1	88	ePgD	17:39:10.10		0.00
			eSg	39:12.30		-0.19
PKST	17.8	217	ePgD	17:39:10.30		-0.09
			eSg	39:12.90		-0.11
VSOM	20.1	48	ePgD	17:39:10.60		-0.17
			eSg	39:13.40		-0.28
SUKH	36.9	116	ePg	17:39:14.00		0.30
			eSg	39:18.90		0.00

224.

2011-02-28 time: 4:21:07.61 UTC ML= 0.2
lat: 47.464N lon: 18.353E h= 10.0 km
erh= 1.2km erz= 1.7km
nr= 9 gap=121 rms=0.21
Locality: Oroszlány
Comments:

sta	dist	azm	phase	hr mn	sec	res
VSOM	5.1	20	ePgD	4:21:09.50		-0.12
			eSg	21:10.50		-0.68
BOKD	8.1	291	ePgD	4:21:10.20		0.29
			eSg	21:11.80		0.09
PKSG	8.5	160	ePgC	4:21:10.10		0.15
			eSg	21:11.60		-0.18
SUKH	31.6	141	eSg	4:21:18.20		0.04
PKST	33.1	227	ePgD	4:21:13.60		-0.19
			eSg	21:18.70		0.10

225.

2011-02-28 time: 4:49:47.76 UTC ML=-0.4
lat: 47.471N lon: 18.332E h= 4.7 km
erh= 0.1km erz= 0.3km
nr= 5 gap=176 rms=0.01
Locality: Oroszlány
Comments:

sta	dist	azm	phase	hr mn	sec	res
VSOM	5.2	40	ePgD	4:49:49.00		-0.01
			eSg	49:50.00		0.02
PKSG	9.8	153	ePg	4:49:49.70		0.00
			eSg	49:51.20		-0.01
PKST	32.5	224	eSg	4:49:58.20		0.00

226.

2011-02-28 time: 6:25:02.01 UTC ML= 0.5
lat: 47.462N lon: 18.368E h= 7.5 km
erh= 0.7km erz= 1.0km
nr= 10 gap=136 rms=0.14
Locality: Oroszlány
Comments:

sta	dist	azm	phase	hr mn	sec	res

```
VSOM   5.0   7   ePgD   6:25:03.50   -0.12
                 eSg      25:04.60   -0.27
PKSG   8.0 168   ePg     6:25:04.10    0.13
                 eSg      25:05.50    0.01
BOKD   9.3 289   ePgC    6:25:04.20    0.06
                 eSg      25:06.10    0.30
SUKH  30.8 142   ePgD    6:25:07.80    0.13
                 eSg      25:12.00   -0.09
PKST  33.8 228   ePgC    6:25:08.10   -0.10
                 eSg      25:12.90   -0.13
```

227.

```
 2011-02-28  time:  7:02:44.02 UTC  ML= 0.8
   lat: 47.461N  lon: 18.367E  h=  8.2 km
                 erh= 0.8km    erz= 1.1km
   nr= 10        gap=135       rms=0.16
   Locality: Oroszlány
   Comments:

sta   dist azm  phase  hr mn  sec     res
VSOM   5.1   7   ePgC   7:02:45.60   -0.14
                 eSg      02:46.60   -0.49
PKSG   7.9 167   ePgC   7:02:46.20    0.15
                 eSg      02:47.60   -0.04
BOKD   9.2 290   ePgC   7:02:46.30    0.08
                 eSg      02:48.10    0.16
SUKH  30.8 142   ePg    7:02:49.90    0.19
                 eSg      02:54.00   -0.14
PKST  33.7 228   ePgC   7:02:50.10   -0.12
                 eSg      02:55.00   -0.05
```

228.

```
 2011-02-28  time: 11:45:40.18 UTC  ML= 0.7
   lat: 47.593N  lon: 18.491E  h=  0.4 km
                 erh= 2.6km    erz=61.8km
   nr=  6        gap=303       rms=0.21
   Locality: Tarján
   Comments:

sta   dist azm  phase  hr mn  sec     res
VSOM  12.9 222   ePgC  11:45:42.60    0.11
                 eSg      45:44.20   -0.10
PKSG  23.6 199   ePgD  11:45:44.30   -0.10
                 eSg      45:47.30   -0.39
SUKH  40.1 166   eSg   11:45:53.00    0.07
PKST  50.7 223   eSg   11:45:56.70    0.42
```

229.

```
 2011-03-01  time:  9:01:19.38 UTC  ML= 1.2
   lat: 47.364N  lon: 18.399E  h=  0.0 km
                 erh= 0.9km    erz= 274km
   nr= 10        gap=136       rms=0.21
   Locality: Gánt
   Comments: probably explosion

sta   dist azm  phase  hr mn  sec     res
PKSG   3.1 349   ePgC   9:01:19.80   -0.13
                 eSg      01:20.30   -0.07
VSOM  15.9 354   ePg    9:01:22.10   -0.12
                 eSg      01:24.50    0.07
BOKD  17.8 321   ePg    9:01:22.70    0.15
                 eSg      01:25.90    0.88
SUKH  21.3 129   ePg    9:01:23.40    0.22
                 eSg      01:26.10   -0.05
PKST  29.9 247   ePgC   9:01:24.40   -0.32
                 eSg      01:29.10    0.21
```

230.

```
 2011-03-01  time:  9:05:45.45 UTC  ML= 1.1
   lat: 47.376N  lon: 18.392E  h=  0.0 km
                 erh= 2.1km    erz= 559km
   nr=  9        gap=116       rms=0.43
   Locality: Gánt
   Comments: probably explosion

sta   dist azm  phase  hr mn  sec     res
PKSG   1.7 356   ePgC   9:05:45.70   -0.06
                 eSg      05:46.10    0.10
VSOM  14.5 355   ePgC   9:05:48.00   -0.05
                 eSg      05:51.30    1.23
SUKH  22.6 131   ePgD   9:05:49.40   -0.08
PKST  30.0 244   ePgC   9:05:50.40   -0.42
                 eSg      05:55.50    0.50
VYHS 128.6  15   ePg    9:06:08.60    0.18
                 eSg      06:24.80   -1.53
```

231.

```
 2011-03-01  time: 14:04:45.97 UTC  ML= 0.2
   lat: 47.469N  lon: 18.355E  h=  6.2 km
                 erh= 0.7km    erz= 1.0km
   nr=  7        gap=154       rms=0.09
   Locality: Oroszlány
   Comments:

sta   dist azm  phase  hr mn  sec     res
VSOM   4.5  20   ePgC  14:04:47.30   -0.04
                 eSg      04:48.40   -0.01
PKSG   8.9 163   ePgC  14:04:47.90   -0.01
                 eSg      04:49.50    0.07
SUKH  32.0 142   ePg   14:04:51.90    0.12
                 eSg      04:56.00   -0.32
PKST  33.6 226   eSg   14:04:56.80   -0.04
```

232.

```
 2011-03-02  time: 15:35:01.51 UTC  ML= 0.6
   lat: 47.357N  lon: 18.284E  h=  5.8 km
                 erh= 0.4km    erz= 0.3km
   nr=  7        gap=175       rms=0.04
   Locality: Csókakő
   Comments:

sta   dist azm  phase  hr mn  sec     res
CSKK   1.9 290   ePgC  15:35:02.60   -0.01
                 eSg      35:03.50    0.04
PKSG   8.9  65   ePgD  15:35:03.40   -0.01
                 eSg      35:04.90    0.00
VSOM  18.0  23   eSg   15:35:07.50   -0.02
PKST  21.8 240   ePgC  15:35:05.60    0.05
                 eSg      35:08.60   -0.09
```

233.

```
 2011-03-03  time:  6:29:12.96 UTC  ML=-0.1
   lat: 47.477N  lon: 18.325E  h= 10.0 km
                 erh= 3.8km    erz= 3.7km
   nr=  7        gap=187       rms=0.31
   Locality: Oroszlány
   Comments:

sta   dist azm  phase  hr mn  sec     res
VSOM   5.0  49   ePgD   6:29:15.10    0.14
                 eSg      29:16.10   -0.42
PKSG  10.7 152   ePgD   6:29:15.80    0.23
                 eSg      29:17.10   -0.51
CSKK  13.5 201   ePgD   6:29:16.30    0.33
                 eSg      29:18.50    0.19
PKST  32.7 222   ePg    6:29:18.70   -0.37
```

234.

2011-03-03 time: 8:49:15.14 UTC ML= 1.7
lat: 48.389N lon: 19.819E h= 7.3 km
erh= 2.1km erz= 2.9km
nr= 11 gap=105 rms=0.56
Locality: Slovakia
Comments:

sta	dist	azm	phase	hr mn	sec	res
KECS	50.4	78	ePg	8:49:24.00		-0.23
			eSg	49:31.70		0.38
PSZ	52.6	174	ePgC	8:49:24.50		-0.12
			eSg	49:31.40		-0.61
VYHS	73.7	279	ePg	8:49:29.20		0.84
			eSg	49:38.80		0.12
LANS	88.6	343	ePg	8:49:30.20		-0.81
			eSg	49:43.50		0.11
CRVS	133.8	65	ePn	8:49:38.80		0.87
			eSn	49:54.90		-0.80
STHS	154.8	42	ePn	8:49:40.50		-0.05

235.

2011-03-03 time: 9:31:14.85 UTC ML= 1.1
lat: 47.637N lon: 18.025E h= 17.1 km
erh= 2.8km erz= 2.9km
nr= 13 gap=213 rms=0.30
Locality: Bábolna
Comments:

sta	dist	azm	phase	hr mn	sec	res
BOKD	23.7	134	eSg	9:31:24.40		0.25
VSOM	30.1	119	ePg	9:31:20.80		-0.24
			eSg	31:25.50		-0.36
CSKK	35.3	150	ePg	9:31:22.10		0.25
			eSg	31:26.90		-0.41
PKSG	38.8	135	ePg	9:31:22.30		-0.12
			eSg	31:29.00		0.68
PKST	42.0	179	ePg	9:31:23.10		0.14
			eSg	31:28.80		-0.48
SUKH	62.6	135	ePg	9:31:26.70		0.26
			eSg	31:35.40		-0.08
VYHS	112.9	32	ePn	9:31:33.70		-0.07
			eSn	31:45.90		-2.62

236.

2011-03-03 time: 12:02:34.22 UTC ML= 0.9
lat: 47.572N lon: 18.460E h= 5.5 km
erh= 3.1km erz= 4.2km
nr= 9 gap=299 rms=0.33
Locality: Tatabánya
Comments:

sta	dist	azm	phase	hr mn	sec	res
VSOM	9.6	221	ePgC	12:02:36.10		-0.10
			eSg	02:37.90		0.15
PKSG	20.7	195	ePg	12:02:37.80		-0.25
			eSg	02:40.90		-0.13
CSKK	27.7	213	ePgC	12:02:39.00		-0.26
			eSg	02:42.90		-0.29
SUKH	38.5	162	eSg	12:02:46.90		0.32
PKST	47.4	223	ePg	12:02:43.50		0.77
			eSg	02:49.40		0.02

237.

2011-03-04 time: 19:58:11.87 UTC ML= 0.2
lat: 47.471N lon: 18.348E h= 5.8 km
erh= 0.2km erz= 0.3km
nr= 10 gap=162 rms=0.04
Locality: Oroszlány
Comments:

sta	dist	azm	phase	hr mn	sec	res
VSOM	4.5	27	ePgD	19:58:13.20		0.02
			eSg	58:14.20		0.00
PKSG	9.3	160	ePgC	19:58:13.80		-0.03
			eSg	58:15.40		0.04
CSKK	13.7	209	ePgD	19:58:14.50		-0.03
			eSg	58:16.60		0.01
SUKH	32.5	141	ePg	19:58:17.80		0.04
			eSg	58:21.80		-0.56
PKST	33.4	225	ePgD	19:58:17.90		-0.03
			eSg	58:22.70		0.05

238.

2011-03-04 time: 22:40:08.19 UTC ML=-0.1
lat: 47.474N lon: 18.353E h= 7.5 km
erh= 0.8km erz= 1.1km
nr= 10 gap=160 rms=0.15
Locality: Oroszlány
Comments:

sta	dist	azm	phase	hr mn	sec	res
VSOM	4.0	25	ePgD	22:40:09.80		0.09
			eSg	40:10.70		-0.19
PKSG	9.6	163	ePg	22:40:10.30		-0.07
			eSg	40:11.90		-0.16
CSKK	14.2	210	ePgD	22:40:11.10		0.04
			eSg	40:13.50		0.20
SUKH	32.6	142	ePg	22:40:14.40		0.24
			eSg	40:18.70		-0.11
PKST	34.0	225	ePgC	22:40:14.20		-0.20
			eSg	40:19.30		0.06

239.

2011-03-05 time: 7:51:28.52 UTC ML= 0.0
lat: 47.470N lon: 18.367E h= 10.0 km
erh= 2.4km erz= 2.9km
nr= 8 gap=142 rms=0.34
Locality: Oroszlány
Comments:

sta	dist	azm	phase	hr mn	sec	res
VSOM	4.2	9	ePgD	7:51:30.50		0.04
			eSg	51:31.60		-0.36
PKSG	8.8	168	ePgC	7:51:31.10		0.20
			eSg	51:32.60		-0.16
CSKK	14.3	214	ePgC	7:51:31.90		0.26
			eSg	51:34.10		0.03
SUKH	31.5	143	eSg	7:51:38.90		-0.12
PKST	34.4	227	ePg	7:51:32.90		-2.01

240.

2011-03-05 time: 10:33:58.11 UTC ML=-0.2
lat: 47.476N lon: 18.353E h= 8.4 km
erh= 1.9km erz= 1.8km
nr= 5 gap=178 rms=0.11
Locality: Oroszlány
Comments:

sta	dist	azm	phase	hr mn	sec	res
VSOM	3.8	27	eSg	10:34:01.10		0.06
PKSG	9.8	163	ePgC	10:34:00.50		0.08
			eSg	34:02.00		-0.22

```
CSKK  14.4 209   ePg   10:34:01.00   -0.09
                 eSg      34:03.50    0.09
```

241.

```
 2011-03-05  time: 14:31:44.01 UTC  ML= 1.1
   lat: 48.023N  lon: 19.607E  h= 10.0 km
                 erh= 3.1km    erz=11.5km
   nr=  6        gap=194       rms=0.31
   Locality: Nagylóc
   Comments:

sta   dist azm  phase  hr mn  sec     res
PSZ   24.4 118   ePgC  14:31:48.90    0.17
                 eSg      31:51.60   -0.81
VYHS  77.6 312   ePg   14:31:58.30    0.32
                 eSg      32:08.40   -0.47
KECS  82.9  52   ePg   14:31:58.70   -0.23
                 eSg      32:10.60    0.03
```

242.

```
 2011-03-05  time: 16:28:06.84 UTC  ML= 0.3
   lat: 47.414N  lon: 18.203E  h=  7.9 km
                 erh= 0.5km    erz= 1.1km
   nr=  9        gap=195       rms=0.09
   Locality: Pusztavám
   Comments:

sta   dist azm  phase  hr mn  sec     res
CSKK   7.1 142   ePgD  16:28:08.80    0.07
                 eSg      28:09.80   -0.41
PKSG  14.3 100   ePgC  16:28:09.80    0.04
                 eSg      28:12.00   -0.04
VSOM  16.6  51   ePgD  16:28:10.10   -0.02
                 eSg      28:12.70    0.02
PKST  21.4 217   ePgD  16:28:10.80   -0.11
                 eSg      28:14.20    0.10
SUKH  36.6 121   eSg   16:28:18.80    0.07
```

243.

```
 2011-03-05  time: 20:28:04.86 UTC  ML= 0.4
   lat: 47.347N  lon: 18.226E  h=  7.0 km
                 erh= 0.3km    erz= 0.6km
   nr= 10        gap=156       rms=0.06
   Locality: Mór
   Comments:

sta   dist azm  phase  hr mn  sec     res
CSKK   3.2  55   ePgD  20:28:06.20   -0.04
                 eSg      28:06.90   -0.41
PKSG  13.4  68   ePgD  20:28:07.50   -0.07
                 eSg      28:09.80    0.13
PKST  17.5 236   ePgD  20:28:08.20   -0.02
                 eSg      28:10.90    0.06
VSOM  21.1  32   ePgD  20:28:08.80   -0.03
                 eSg      28:12.00    0.08
SUKH  31.7 111   ePg   20:28:10.70    0.04
                 eSg      28:15.20    0.01
```

244.

```
 2011-03-05  time: 22:31:37.24 UTC  ML=-0.1
   lat: 47.382N  lon: 18.221E  h= 10.0 km
                 erh= 3.0km    erz= 2.4km
   nr=  7        gap=219       rms=0.26
   Locality: Mór
   Comments:

sta   dist azm  phase  hr mn  sec     res
CSKK   3.6 125   ePg   22:31:39.30    0.16
                 eSg      31:40.20   -0.42
PKSG  12.8  85   ePgC  22:31:40.30    0.15
                 eSg      31:42.40   -0.02
PKST  19.7 226   ePgC  22:31:40.90   -0.28
                 eSg      31:44.80    0.55
SUKH  33.7 117   eSg   22:31:48.30   -0.11
```

245.

```
 2011-03-06  time: 17:50:16.99 UTC  ML= 0.2
   lat: 47.171N  lon: 18.326E  h=  2.1 km
                 erh= 0.4km    erz= 4.9km
   nr=  6        gap=224       rms=0.88
   Locality: Székesfehérvár
   Comments:

sta   dist azm  phase  hr mn  sec     res
CSKK  21.9 347   ePgC  17:50:21.80    0.88
                 eSg      50:23.30   -0.68
SUKH  23.4  70   ePg   17:50:21.40    0.22
                 eSg      50:22.80   -1.66
PKST  24.1 294   ePgD  17:50:21.90    0.59
                 eSg      50:23.50   -1.19
```

246.

```
 2011-03-07  time:  2:48:16.99 UTC  ML=-0.4
   lat: 47.470N  lon: 18.362E  h=  6.2 km
                 erh= 0.7km    erz= 0.9km
   nr=  5        gap=162       rms=0.04
   Locality: Oroszlány
   Comments:

sta   dist azm  phase  hr mn  sec     res
VSOM   4.2  14   ePgC   2:48:18.30   -0.03
                 eSg      48:19.40    0.02
PKSG   9.0 166   ePg    2:48:19.00    0.06
                 eSg      48:20.40   -0.07
CSKK  14.1 213   eSg    2:48:21.90   -0.01
```

247.

```
 2011-03-07  time: 16:13:44.24 UTC  ML= 0.0
   lat: 47.471N  lon: 18.357E  h=  5.7 km
                 erh= 0.5km    erz= 0.6km
   nr=  6        gap=169       rms=0.04
   Locality: Oroszlány
   Comments:

sta   dist azm  phase  hr mn  sec     res
VSOM   4.2  20   ePgC  16:13:45.50    0.00
                 eSg      13:46.50    0.01
PKSG   9.2 164   ePgC  16:13:46.20    0.04
                 eSg      13:47.60   -0.07
CSKK  14.0 211   ePgC  16:13:46.90   -0.04
                 eSg      13:49.10    0.06
```

248.

```
 2011-03-07  time: 19:31:44.47 UTC  ML= 0.0
   lat: 47.374N  lon: 18.370E  h=  1.6 km
                 erh= 2.7km    erz= 4.7km
   nr=  5        gap=224       rms=0.14
   Locality: Gánt
   Comments:

sta   dist azm  phase  hr mn  sec     res
PKSG   2.5  38   ePgD  19:31:44.90   -0.10
                 eSg      31:45.60    0.19
CSKK   8.4 262   ePg   19:31:46.10    0.11
                 eSg      31:46.90   -0.28
VSOM  14.8   2   eSg   19:31:49.20    0.02
```

249.

2011-03-07 time: 22:26:25.79 UTC ML=-0.4
lat: 47.471N lon: 18.367E h= 5.5 km
erh= 0.4km erz= 0.6km
nr= 5 gap=159 rms=0.03
Locality: Oroszlány
Comments:

sta	dist	azm	phase	hr mn	sec	res
VSOM	4.0	9	ePgC	22:26:27.00		-0.02
			eSg	26:28.00		0.03
PKSG	9.0	168	ePgC	22:26:27.70		0.02
			eSg	26:29.10		-0.04
CSKK	14.4	214	eSg	22:26:30.70		0.00

250.

2011-03-08 time: 9:11:06.65 UTC ML= 1.2
lat: 47.367N lon: 18.390E h= 0.0 km
erh= 0.6km erz= 181km
nr= 9 gap=128 rms=0.14
Locality: Gánt
Comments: probably explosion

sta	dist	azm	phase	hr mn	sec	res
PKSG	2.8	0	ePgC	9:11:07.00		-0.15
			eSg	11:07.60		0.06
CSKK	9.8	268	ePgC	9:11:08.40		0.00
			eSg	11:09.60		-0.17
VSOM	15.6	356	ePgC	9:11:09.40		-0.04
			eSg	11:11.80		0.19
SUKH	22.0	129	ePgC	9:11:10.70		0.13
			eSg	11:12.90		-0.73
PKST	29.5	246	ePgC	9:11:12.00		0.09

251.

2011-03-08 time: 9:13:54.02 UTC ML= 0.8
lat: 47.362N lon: 18.379E h= 0.0 km
erh= 0.9km erz= 244km
nr= 8 gap=120 rms=0.18
Locality: Gánt
Comments: probably explosion

sta	dist	azm	phase	hr mn	sec	res
PKSG	3.5	15	ePgC	9:13:54.40		-0.24
			eSg	13:55.20		0.07
CSKK	9.0	271	ePgC	9:13:55.80		0.18
			eSg	13:57.00		0.13
VSOM	16.1	359	ePgD	9:13:56.80		-0.10
			eSg	13:59.30		0.15
SUKH	22.3	126	ePg	9:13:58.20		0.19
PKST	28.5	246	ePg	9:13:58.90		-0.21

252.

2011-03-08 time: 13:04:31.94 UTC ML= 0.5
lat: 47.453N lon: 18.351E h= 8.2 km
erh= 1.4km erz= 1.4km
nr= 7 gap=272 rms=0.10
Locality: Oroszlány
Comments:

sta	dist	azm	phase	hr mn	sec	res
PKSG	7.5	156	ePgC	13:04:33.80		-0.12
CSKK	12.1	214	ePgC	13:04:34.60		0.05
			eSg	04:36.70		0.11
SUKH	30.9	139	ePg	13:04:37.80		0.16
			eSg	04:42.00		-0.10
PKST	32.2	228	ePgC	13:04:37.80		-0.07
			eSg	04:42.50		0.00

253.

2011-03-10 time: 1:06:56.66 UTC ML= 0.7
lat: 47.456N lon: 18.367E h= 10.0 km
erh= 1.7km erz= 1.1km
nr= 12 gap=217 rms=0.29
Locality: Oroszlány
Comments:

sta	dist	azm	phase	hr mn	sec	res
PKSG	7.3	166	ePgC	1:06:58.90		0.03
			eSg	07:00.40		-0.19
CSKK	13.0	218	ePgD	1:06:59.60		0.00
			eSg	07:01.90		0.01
SUKH	30.3	142	ePgC	1:07:02.90		0.55
			eSg	07:07.00		0.21
PKST	33.3	229	ePgC	1:07:02.80		-0.07
			eSg	07:07.70		-0.02
BUD	49.6	86	eSg	1:07:12.20		-0.54
PKS9	96.8	184	eSg	1:07:27.10		-0.49
PKSM	139.8	171	ePn	1:07:19.90		0.05
			eSn	07:36.10		-1.84

254.

2011-03-10 time: 13:03:56.67 UTC ML= 0.9
lat: 47.588N lon: 18.425E h= 0.0 km
erh= 3.5km erz= 436km
nr= 7 gap=300 rms=0.29
Locality: Tatabánya
Comments: probably explosion

sta	dist	azm	phase	hr mn	sec	res
PKSG	21.9	187	ePgC	13:04:00.50		-0.08
			eSg	04:03.40		-0.24
CSKK	27.9	206	ePgC	13:04:01.80		0.16
			eSg	04:06.10		0.57
SUKH	41.0	159	eSg	13:04:09.70		0.00
PKST	46.9	219	ePgD	13:04:05.10		0.05
			eSg	04:10.80		-0.79

255.

2011-03-10 time: 21:40:31.90 UTC ML= 0.1
lat: 47.457N lon: 18.353E h= 8.0 km
erh= 2.5km erz= 2.2km
nr= 7 gap=272 rms=0.20
Locality: Oroszlány
Comments:

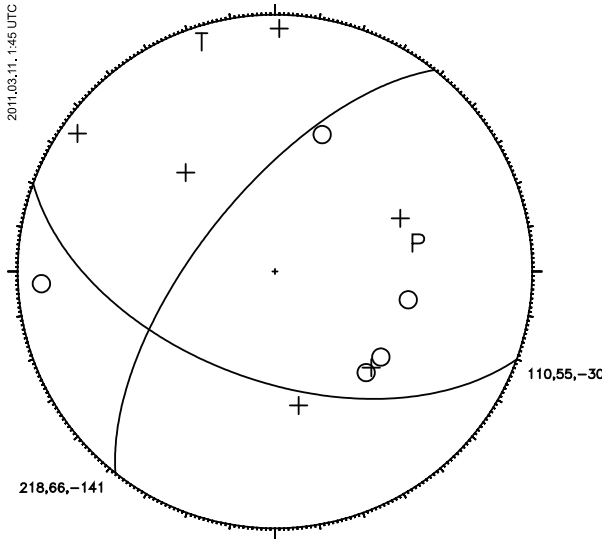
sta	dist	azm	phase	hr mn	sec	res
PKSG	7.8	158	ePgD	21:40:33.90		0.01
			eSg	40:35.40		-0.04
CSKK	12.5	214	ePg	21:40:34.20		-0.35
			eSg	40:36.90		0.29
SUKH	31.1	140	eSg	21:40:42.00		-0.09
PKST	32.6	228	ePg	21:40:38.10		0.21
			eSg	40:42.60		0.04

256.

2011-03-11 time: 1:45:23.46 UTC ML= 2.3
lat: 47.454N lon: 18.306E h= 10.0 km
erh= 3.3km erz= 2.6km
nr= 28 gap= 58 rms=1.19
Locality: Oroszlány
Comments:

sta	dist	azm	phase	hr mn	sec	res
PKSG	9.4	138	ePgC	1:45:25.60		-0.31
CSKK	10.7	199	ePgD	1:45:26.40		0.32
PKST	29.9	223	ePg	1:45:29.30		0.21
SUKH	33.2	135	ePg	1:45:29.40		-0.25
			eSg	45:33.60		-0.89

BUD	54.2	87	ePgD	1:45:32.70	-0.60
PKS7	79.0	125	ePgC	1:45:39.00	1.33
			eSg	45:46.60	-2.15
PKS9	96.5	181	ePgC	1:45:42.30	1.52
			eSg	45:53.60	-0.68
VYHS	122.2	19	ePn	1:45:44.30	-0.14
			eSn	45:57.80	-3.01
ZST	122.2	312	ePn	1:45:43.50	-0.94
			eSn	45:58.50	-2.31
PSZ	129.9	67	ePnC	1:45:45.00	-0.41
			eSn	46:02.50	-0.03
SOP	134.0	281	ePn	1:45:46.50	0.58
			eSn	46:02.20	-1.23
SMOL	134.8	331	ePn	1:45:47.20	1.18
			eSn	46:03.00	-0.61
PKS6	134.8	135	ePnC	1:45:47.00	0.98
			eSn	46:02.10	-1.52
PKSM	140.5	170	ePnC	1:45:46.70	-0.03
			eSn	46:02.70	-2.18
KECS	198.9	55	ePn	1:45:56.20	2.19
			eSn	46:23.80	5.95
LANS	207.3	25	ePn	1:45:58.30	3.24
			eSn	46:23.00	3.28
VRAC	242.1	328	iPn	1:45:59.70	0.31
BZS	325.9	129	iPnD	1:46:10.20	0.35
DRGR	342.3	102	iPnD	1:46:15.00	3.11
MDVR	397.0	138	iPnD	1:46:19.00	0.29
KHC	397.3	298	ePn	1:46:19.80	1.05
			eSn	47:01.40	-0.48
GZR	413.0	124	iPn	1:46:21.10	0.39
BURB	520.6	88	iPn	1:46:34.50	0.37



257.

2011-03-11 time: 1:49:39.48 UTC ML= 0.3
lat: 47.459N lon: 18.354E h= 8.1 km
erh= 1.3km erz= 1.0km
nr= 8 gap=273 rms=0.10
Locality: Oroszlány
Comments:

sta	dist	azm	phase	hr mn	sec	res
PKSG	8.0	160	ePgC	1:49:41.50		-0.02
			eSg	49:43.00		-0.10
CSKK	12.8	213	ePgD	1:49:42.20		0.01
			eSg	49:44.40		0.11
SUKH	31.2	140	ePg	1:49:45.40		0.16
			eSg	49:49.60		-0.13
PKST	32.8	227	ePgC	1:49:45.40		-0.12
			eSg	49:50.30		0.07

258.

2011-03-11 time: 4:16:58.73 UTC ML= 0.2
lat: 47.453N lon: 18.365E h= 8.6 km
erh= 0.7km erz= 0.6km
nr= 7 gap=272 rms=0.05
Locality: Oroszlány
Comments:

sta	dist	azm	phase	hr mn	sec	res
PKSG	7.1	164	ePgD	4:17:00.80		0.09
			eSg	17:02.20		-0.06
CSKK	12.7	218	ePgD	4:17:01.40		-0.07
			eSg	17:03.60		0.00
SUKH	30.1	141	eSg	4:17:08.70		0.01
PKST	33.0	229	ePgD	4:17:04.80		-0.01
			eSg	17:09.60		0.04

259.

2011-03-11 time: 9:06:28.20 UTC ML= 0.7
lat: 47.376N lon: 18.073E h= 10.0 km
erh= 1.4km erz= 0.9km
nr= 5 gap=263 rms=0.78
Locality: Súr
Comments:

sta	dist	azm	phase	hr mn	sec	res
PKST	13.3	193	ePgC	9:06:31.40		0.22
			eSg	06:33.30		-0.20
CSKK	14.2	96	ePgD	9:06:32.10		0.79
			eSg	06:34.30		0.57
SUKH	43.7	110	ePg	9:06:34.90		-1.31

260.

2011-03-11 time: 15:34:52.88 UTC ML= 0.9
lat: 47.500N lon: 18.362E h= 6.6 km
erh= 3.4km erz= 5.2km
nr= 9 gap=229 rms=0.31
Locality: Vértessomló
Comments:

sta	dist	azm	phase	hr mn	sec	res
PKSG	12.2	170	ePgD	15:34:55.60		0.24
			eSg	34:57.20		-0.10
CSKK	17.1	207	ePgD	15:34:56.30		0.16
			eSg	34:58.50		-0.19
SUKH	34.5	146	ePgD	15:34:59.50		0.35
			eSg	35:03.70		-0.34
PKST	36.5	223	ePgD	15:34:59.30		-0.20
			eSg	35:04.50		-0.17
BUD	49.9	92	eSg	15:35:07.10		-1.78

261.

2011-03-11 time: 18:52:33.66 UTC ML= 0.1
lat: 47.451N lon: 18.368E h= 10.0 km
erh= 1.1km erz= 0.8km
nr= 7 gap=271 rms=0.08
Locality: Oroszlány
Comments:

sta	dist	azm	phase	hr mn	sec	res
PKSG	6.8	165	ePgD	18:52:35.90		0.08
			eSg	52:37.30		-0.20
CSKK	12.7	220	ePgD	18:52:36.50		-0.04
			eSg	52:38.90		0.11
SUKH	29.8	141	eSg	18:52:43.70		0.04
PKST	33.0	230	ePgC	18:52:39.80		-0.02
			eSg	52:44.60		-0.02

262.

2011-03-12 time: 2:42:01.37 UTC ML= 1.0
lat: 47.438N lon: 18.371E h= 12.1 km
erh= 1.8km erz= 1.0km
nr= 14 gap=145 rms=0.39
Locality: Oroszlány
Comments:

sta	dist	azm	phase	hr mn	sec	res
PKSG	5.4	164	ePgD	2:42:03.50		-0.22
			eSg	42:05.10		-0.46
CSKK	11.8	225	ePgD	2:42:04.30		-0.08
			eSg	42:06.50		-0.23
SUKH	28.6	140	ePgC	2:42:07.20		0.29
			eSg	42:11.30		0.06
PKST	32.3	232	ePgC	2:42:07.60		0.08
			eSg	42:12.50		0.17
BUD	49.5	84	ePg	2:42:10.90		0.43
			eSg	42:16.90		-0.66
VYHS	122.4	16	ePn	2:42:22.20		0.08
			eSn	42:36.20		-2.11
PKSM	137.9	171	ePn	2:42:24.60		0.54
			eSn	42:40.60		-1.15

263.

2011-03-12 time: 5:47:01.88 UTC ML= 1.7
lat: 47.566N lon: 19.404E h= 10.0 km
erh= 6.0km erz= 3.2km
nr= 16 gap=158 rms=0.82
Locality: Isaszeg
Comments:

sta	dist	azm	phase	hr mn	sec	res
BUD	30.1	252	ePg	5:47:07.10		-0.44
			eSg	47:11.80		-0.16
PSZ	53.7	43	ePg	5:47:11.60		-0.03
			eSg	47:18.70		-0.54
SUKH	69.5	239	ePg	5:47:13.00		-1.42
			eSg	47:23.70		-0.50
PKSG	78.8	256	ePg	5:47:16.80		0.73
			eSg	47:26.00		-1.14
CSKK	89.2	255	ePg	5:47:19.10		1.20
			eSg	47:31.40		1.01
PKST	108.9	252	ePn	5:47:20.80		-0.41
			eSn	47:35.80		-0.49
PKS9	138.4	218	ePnD	5:47:25.20		0.31
			eSn	47:43.60		0.76
PKSM	161.4	201	ePn	5:47:29.20		1.44
			eSn	47:47.10		-0.85

264.

2011-03-12 time: 7:41:00.88 UTC ML= 0.3
lat: 47.350N lon: 18.285E h= 2.3 km
erh= 3.3km erz= 3.8km
nr= 5 gap=182 rms=0.09
Locality: Csákberény
Comments:

sta	dist	azm	phase	hr mn	sec	res
CSKK	2.3	308	ePg	7:41:01.40		-0.05
			eSg	41:01.90		0.00
PKSG	9.2	60	ePg	7:41:02.50		-0.08
			eSg	41:04.10		0.20
PKST	21.5	242	eSg	7:41:07.80		0.06

265.

2011-03-12 time: 15:04:33.00 UTC ML= 0.5
lat: 47.426N lon: 18.189E h= 5.2 km
erh=10.5km erz=16.4km
nr= 6 gap=252 rms=0.17
Locality: Pusztavám
Comments:

sta	dist	azm	phase	hr mn	sec	res
CSKK	8.9	142	ePgC	15:04:35.00		0.17
			eSg	04:36.10		-0.16
PKSG	15.7	104	ePgC	15:04:36.10		0.15
			eSg	04:38.10		-0.15
PKST	22.0	212	ePgC	15:04:36.80		-0.23
			eSg	04:40.30		0.12

266.

2011-03-13 time: 4:20:45.62 UTC ML= 0.0
lat: 47.415N lon: 18.201E h= 4.6 km
erh= 3.2km erz= 4.4km
nr= 5 gap=244 rms=0.04
Locality: Pusztavám
Comments:

sta	dist	azm	phase	hr mn	sec	res
CSKK	7.3	142	ePgC	4:20:47.20		0.04
			eSg	20:48.30		-0.06
PKSG	14.5	100	ePgC	4:20:48.30		-0.04
			eSg	20:50.50		0.04
PKST	21.4	216	eSg	4:20:52.60		0.01

267.

2011-03-13 time: 22:56:48.96 UTC ML= 1.0
lat: 47.672N lon: 18.123E h= 6.5 km
erh= 3.0km erz= 3.4km
nr= 14 gap=202 rms=0.68
Locality: Kisigmánd
Comments:

sta	dist	azm	phase	hr mn	sec	res
CSKK	35.8	163	ePgD	22:56:55.80		0.34
			eSg	57:00.80		0.27
PKSG	37.1	147	ePgD	22:56:55.60		-0.08
			eSg	57:01.40		0.48
PKST	46.4	188	ePgD	22:56:56.80		-0.52
			eSg	57:02.30		-1.54
SUKH	60.5	142	ePgD	22:57:00.00		0.18
			eSg	58:07.80		-0.50
BUD	70.9	107	eSg	22:57:11.20		-0.39
VYHS	105.7	30	ePg	22:57:09.20		1.32
			eSg	57:21.50		-1.14
PKSM	167.0	166	ePn	22:57:15.70		-0.28
			eSn	57:37.90		0.84
CRVS	283.0	61	ePn	22:57:33.10		2.66
STHS	301.2	50	ePn	22:57:32.00		-0.72

268.

2011-03-14 time: 0:16:08.21 UTC ML=-0.1
lat: 47.350N lon: 18.152E h= 10.0 km
erh= 4.5km erz= 1.4km
nr= 6 gap=214 rms=0.09
Locality: Nagyveleg
Comments:

sta	dist	azm	phase	hr mn	sec	res
CSKK	8.3	80	ePg	0:16:10.70		0.17
			eSg	16:12.30		-0.04
PKST	13.5	221	ePgC	0:16:11.20		-0.01
			eSg	16:13.50		-0.05
PKSG	18.6	75	ePgC	0:16:11.90		-0.08

```
                eSg      16:14.90   -0.02
269.
```

```
 2011-03-16  time:  0:49:24.84 UTC  ML=-0.1
   lat: 47.461N  lon: 18.375E  h=  8.6 km
                 erh= 0.9km    erz= 0.7km
   nr=  7        gap=274       rms=0.06
   Locality: Várgesztes
   Comments:

sta   dist azm  phase  hr mn  sec     res
PKSG   7.7 171   ePgC   0:49:26.90   -0.01
                 eSg      49:28.50   -0.01
CSKK  13.9 219   ePgD   0:49:27.70   -0.05
                 eSg      49:30.10    0.08
SUKH  30.4 143   eSg    0:49:34.90    0.03
PKST  34.1 229   ePgD   0:49:31.20    0.07
                 eSg      49:35.90   -0.13
```

```
270.
```

```
 2011-03-17  time:  5:57:17.73 UTC  ML= 1.1
   lat: 47.402N  lon: 18.237E  h=  0.8 km
                 erh= 1.3km    erz= 7.1km
   nr=  6        gap=231       rms=0.09
   Locality: Pusztavám
   Comments:

sta   dist azm  phase  hr mn  sec     res
CSKK   4.6 158   ePg    5:57:18.70    0.13
                 eSg      57:19.20   -0.01
PKSG  11.6  95   ePgD   5:57:19.80   -0.01
                 eSg      57:21.30   -0.13
PKST  22.1 224   ePg    5:57:21.70    0.03
                 eSg      57:24.60   -0.15
```

```
271.
```

```
 2011-03-17  time: 10:50:27.23 UTC  ML= 1.8
   lat: 48.379N  lon: 19.827E  h=  0.0 km
                 erh= 2.1km    erz= 3.8km
   nr= 11        gap=105       rms=0.61
   Locality: Slovakia
   Comments: probably explosion

sta   dist azm  phase  hr mn  sec     res
KECS  50.1  77   ePg   10:50:36.20    0.03
                 eSg      50:42.90   -0.25
PSZ   51.4 174   ePgC  10:50:36.50    0.08
                 eSg      50:43.20   -0.38
VYHS  74.5 280   ePg   10:50:41.10    0.57
                 eSg      50:50.40   -0.50
LANS  89.8 343   eSg   10:50:55.10   -0.68
CRVS 133.7  64   ePn   10:50:50.70   -0.24
                 eSn      51:07.50   -1.93
STHS 155.3  42   ePn   10:50:55.10    1.48
                 eSn      51:15.40    1.19
```

```
272.
```

```
 2011-03-17  time: 13:05:21.77 UTC  ML= 0.8
   lat: 47.386N  lon: 18.255E  h=  3.2 km
                 erh= 1.8km    erz= 1.1km
   nr=  6        gap=216       rms=0.07
   Locality: Mór
   Comments:

sta   dist azm  phase  hr mn  sec     res
CSKK   2.5 170   ePgC  13:05:22.60    0.11
                 eSg      05:23.00   -0.05
PKSG  10.3  86   ePgD  13:05:23.70    0.01
                 eSg      05:25.10   -0.09
PKST  21.8 230   ePgC  13:05:25.70    0.00
                 eSg      05:28.70   -0.07
```

```
273.
```

```
 2011-03-18  time: 18:56:26.69 UTC  ML= 0.9
   lat: 47.468N  lon: 18.365E  h=  9.2 km
                 erh= 1.3km    erz= 0.8km
   nr= 10        gap=150       rms=0.20
   Locality: Oroszlány
   Comments:

sta   dist azm  phase  hr mn  sec     res
PKSG   8.7 167   ePgC  18:56:28.90   -0.05
                 eSg      56:30.50   -0.21
CSKK  14.1 214   ePgD  18:56:29.70    0.00
                 eSg      56:32.00   -0.04
PKST  34.2 227   ePgC  18:56:33.00   -0.01
                 eSg      56:37.80   -0.13
PKS9  98.2 184   eSg   18:56:58.40    0.36
VYHS 119.3  17   ePn   18:56:47.70    0.27
                 eSn      57:02.30   -1.31
PKSM 141.3 171   eSn   18:57:08.20   -0.28
```

```
274.
```

```
 2011-03-19  time: 17:57:51.18 UTC  ML=-0.1
   lat: 47.361N  lon: 18.240E  h=  2.6 km
                 erh= 7.6km    erz= 1.1km
   nr=  6        gap=199       rms=0.12
   Locality: Mór
   Comments:

sta   dist azm  phase  hr mn  sec     res
CSKK   1.6  81   ePg   17:57:51.80    0.08
                 eSg      57:52.10   -0.05
PKSG  11.9  73   ePgD  17:57:53.20   -0.16
                 eSg      57:55.10    0.05
PKST  19.2 234   ePg   17:57:54.80    0.15
                 eSg      57:57.20   -0.15
```

```
275.
```

```
 2011-03-20  time:  5:27:04.32 UTC  ML= 0.4
   lat: 47.386N  lon: 18.251E  h=  2.8 km
                 erh= 1.8km    erz= 1.3km
   nr=  6        gap=217       rms=0.06
   Locality: Mór
   Comments:

sta   dist azm  phase  hr mn  sec     res
CSKK   2.6 164   ePgC   5:27:05.10    0.09
                 eSg      27:05.50   -0.05
PKSG  10.6  86   ePgD   5:27:06.30    0.02
                 eSg      27:07.70   -0.10
PKST  21.6 229   ePg    5:27:08.20   -0.01
                 eSg      27:11.20   -0.05
```

```
276.
```

```
 2011-03-20  time: 20:39:47.59 UTC  ML=-0.4
   lat: 47.469N  lon: 18.345E  h=  6.6 km
                 erh= 5.5km    erz= 6.7km
   nr=  6        gap=293       rms=0.09
   Locality: Oroszlány
   Comments:

sta   dist azm  phase  hr mn  sec     res
PKSG   9.2 158   ePgD  20:39:49.70    0.08
                 eSg      39:50.90   -0.30
CSKK  13.4 209   ePgD  20:39:50.20   -0.06
                 eSg      39:52.40    0.07
PKST  33.1 225   ePg   20:39:53.60   -0.02
                 eSg      39:58.40    0.08
```

277.

2011-03-20 time: 22:39:07.34 UTC ML= 0.0
lat: 47.467N lon: 18.355E h= 6.5 km
erh= 2.0km erz= 2.4km
nr= 6 gap=296 rms=0.04
Locality: Oroszlány
Comments:

sta	dist	azm	phase	hr mn	sec	res
PKSG	8.8	162	ePgC	22:39:09.30		0.00
			eSg	39:10.80		-0.02
CSKK	13.6	212	ePgD	22:39:10.10		0.07
			eSg	39:12.10		-0.04
PKST	33.5	226	ePgD	22:39:13.40		-0.04
			eSg	39:18.20		0.00

278.

2011-03-21 time: 8:34:06.12 UTC ML= 1.1
lat: 47.437N lon: 18.380E h= 0.0 km
erh= 1.6km erz= 191km
nr= 6 gap=298 rms=0.11
Locality: Várgesztes
Comments: probably explosion

sta	dist	azm	phase	hr mn	sec	res
PKSG	5.0	171	ePgC	8:34:07.00		-0.02
			eSg	34:07.70		-0.02
CSKK	12.1	228	ePgC	8:34:08.40		0.11
			eSg	34:10.10		0.12
PKST	32.7	233	ePgC	8:34:11.90		-0.06
			eSg	34:16.20		-0.32

279.

2011-03-21 time: 8:40:52.26 UTC ML= 1.0
lat: 47.453N lon: 18.320E h= 0.0 km
erh= 5.1km erz= 649km
nr= 6 gap=277 rms=0.39
Locality: Oroszlány
Comments: probably explosion

sta	dist	azm	phase	hr mn	sec	res
PKSG	8.7	142	ePgC	8:40:53.60		-0.21
			eSg	40:54.60		-0.41
CSKK	11.0	204	ePgC	8:40:54.90		0.67
			eSg	40:56.10		0.34
PKST	30.6	225	ePg	8:40:57.50		-0.22
			eSg	41:01.70		-0.28

280.

2011-03-21 time: 10:27:27.79 UTC ML= 1.0
lat: 48.029N lon: 19.608E h= 0.0 km
erh= 3.2km erz= 705km
nr= 6 gap=192 rms=0.41
Locality: Nagylóc
Comments: probably explosion

sta	dist	azm	phase	hr mn	sec	res
PSZ	24.7	120	ePgC	10:27:32.30		0.11
			eSg	27:35.60		-0.03
VYHS	77.2	312	ePg	10:27:41.70		0.13
			eSg	27:52.50		0.17
KECS	82.4	52	ePg	10:27:41.60		-0.91
			eSg	27:54.50		0.51

281.

2011-03-24 time: 1:16:47.14 UTC ML= 0.0
lat: 47.500N lon: 18.347E h= 0.1 km
erh= 3.6km erz= 431km
nr= 5 gap=303 rms=0.16
Locality: Vértessomló
Comments:

sta	dist	azm	phase	hr mn	sec	res
PKSG	12.5	165	ePg	1:16:49.40		0.04
			eSg	16:50.80		-0.30
CSKK	16.5	203	ePg	1:16:50.10		0.01
			eSg	16:52.70		0.30
PKST	35.7	221	eSg	1:16:58.40		-0.09

282.

2011-03-24 time: 11:15:35.39 UTC ML= 0.5
lat: 47.498N lon: 18.350E h= 0.4 km
erh= 1.9km erz=46.4km
nr= 6 gap=304 rms=0.06
Locality: Vértessomló
Comments:

sta	dist	azm	phase	hr mn	sec	res
PKSG	12.2	165	ePgC	11:15:37.60		0.03
			eSg	15:39.20		-0.08
CSKK	16.5	204	ePgC	11:15:38.40		0.07
			eSg	15:40.70		0.08
PKST	35.7	222	ePgD	11:15:41.70		-0.07
			eSg	15:46.70		-0.04

283.

2011-03-25 time: 9:54:44.48 UTC ML= 1.0
lat: 47.462N lon: 18.329E h= 0.0 km
erh= 6.9km erz= 886km
nr= 6 gap=285 rms=0.51
Locality: Oroszlány
Comments: probably explosion

sta	dist	azm	phase	hr mn	sec	res
PKSG	9.1	149	ePgC	9:54:46.10		-0.01
			eSg	54:46.80		-0.58
CSKK	12.2	205	ePgC	9:54:47.40		0.74
			eSg	54:48.90		0.54
PKST	31.7	225	ePgC	9:54:49.80		-0.35
			eSg	54:53.90		-0.67

284.

2011-03-25 time: 10:02:03.02 UTC ML= 1.0
lat: 47.443N lon: 18.373E h= 0.0 km
erh= 2.9km erz= 314km
nr= 5 gap=295 rms=0.14
Locality: Oroszlány
Comments: probably explosion

sta	dist	azm	phase	hr mn	sec	res
PKSG	5.9	167	ePgC	10:02:04.10		0.04
			eSg	02:04.70		-0.18
CSKK	12.3	224	ePgC	10:02:05.40		0.19
			eSg	02:07.00		0.07
PKST	32.8	231	ePgC	10:02:08.70		-0.17
			eSg	02:10.90		-2.53

285.

2011-03-25 time: 11:20:10.38 UTC ML= 0.6
lat: 47.450N lon: 18.081E h= 10.0 km
erh= 3.6km erz= 5.5km
nr= 6 gap=276 rms=0.16
Locality: Bakonysárkány
Comments:

sta	dist	azm	phase	hr mn	sec	res
CSKK	16.6	125	ePg	11:20:14.10		0.26
			eSg		20:16.60	0.06
PKST	21.5	190	ePgC	11:20:14.60		-0.01
			eSg		20:17.70	-0.21
PKSG	24.2	105	ePgC	11:20:15.00		-0.06
			eSg		20:18.50	-0.21

286.

2011-03-25 time: 15:12:25.02 UTC ML= 3.4
lat: 45.601N lon: 22.805E h= 2.2 km
erh= 2.7km erz= 3.3km
nr= 26 gap= 38 rms=0.91
Locality: Romania
Comments:

sta	dist	azm	phase	hr mn	sec	res
DEV	32.3	14	iPg	15:12:31.50		0.69
LOT	77.2	103	iPgD	15:12:37.60		-1.22
BZS	92.7	271	iPgD	15:12:41.30		-0.29
RMGR	104.6	185	iPgD	15:12:43.70		-0.01
SRE	109.0	163	iPg	15:12:44.90		0.42
SIRR	115.7	310	iPg	15:12:45.60		-0.09
TIM	124.4	277	iPg	15:12:47.80		0.56
MDVR	125.2	223	iPg	15:12:46.50		-0.88
DRGR	132.6	357	iPn	15:12:47.90		-0.40
BANR	132.8	259	iPnD	15:12:48.90		0.57
MDB	136.3	64	iPnD	15:12:48.40		-0.36
CJR	138.0	26	iPn	15:12:48.30		-0.68
ARR	145.3	100	iPnD	15:12:48.10		-1.79
CRAR	162.0	151	iPnD	15:12:52.60		0.62
VOIR	176.3	96	iPnD	15:12:52.70		-1.05
GOLR	189.4	117	iPn	15:12:57.80		2.41
ARCR	203.6	36	iPn	15:12:57.90		0.74
HUMR	208.7	125	iPn	15:12:59.40		1.61
BMR	236.3	13	iPn	15:13:04.20		2.96
MLR	245.5	93	iPnD	15:13:02.90		0.52
PKS6	274.1	294	ePnD	15:13:04.70		-1.25
			eSn		13:37.50	-0.37
TRPA	281.9	356	ePn	15:13:07.40		0.47
			eSn		13:45.30	5.69
BURB	290.3	40	iPn	15:13:08.70		0.73
PKS7	323.5	300	ePn	15:13:12.30		0.19
PKSM	330.2	282	ePnC	15:13:12.70		-0.24
			eSn		13:47.40	-2.92
PSZ	340.3	319	ePn	15:13:16.00		1.79
			eSn		13:49.60	-2.97
KECS	365.7	331	ePn	15:13:19.00		1.63
			eSn		14:12.10	13.89
PKS9	366.8	287	ePnC	15:13:17.60		0.09
			eSn		13:55.90	-2.55
KOLS	372.7	354	ePn	15:13:21.10		2.86
			eSn		14:12.40	12.65
CRVS	380.9	345	ePn	15:13:20.40		1.14
			eSn		14:15.50	13.93
PKSG	393.1	300	ePn	15:13:21.30		0.52
			eSn		14:03.60	-0.68
PKST	410.4	297	ePnD	15:13:23.60		0.65
			eSn		14:07.50	-0.63
STHS	440.3	345	ePn	15:13:23.60		-3.07
			eSn		14:35.10	20.35
VYHS	440.9	317	ePn	15:13:26.90		0.15
LANS	468.3	327	ePn	15:13:32.40		2.24
			eSn		14:42.60	21.63
ZST	521.6	304	ePn	15:13:41.00		4.19
LEGS	583.7	274	iPn	15:13:44.30		-0.25
ARSA	589.1	288	Pn	15:13:45.50		0.28
CONA	590.1	296	Pn	15:13:42.10		-3.25
PERS	605.4	281	ePn	15:13:47.80		0.54
SOKA	612.4	281	Pn	15:13:47.50		-0.63
JAVS	681.0	273	iPn	15:13:52.00		-4.68

287.

2011-03-25 time: 19:44:59.57 UTC ML= 0.6
lat: 47.424N lon: 18.029E h= 13.5 km
erh= 2.1km erz= 0.8km
nr= 8 gap=279 rms=0.71
Locality: Aka
Comments:

sta	dist	azm	phase	hr mn	sec	res
PKST	18.3	179	ePgC	19:45:04.30		0.67
			eSg		45:06.50	-0.30
CSKK	18.7	111	ePgC	19:45:04.30		0.61
			eSg		45:06.40	-0.50
PKSG	27.5	97	ePgC	19:45:05.40		0.36
			eSg		45:08.40	-0.90
PKSM	142.6	161	ePnD	19:45:21.90		-0.77
			eSn		45:36.80	-3.88

288.

2011-03-26 time: 6:48:58.15 UTC ML= 0.0
lat: 47.487N lon: 18.343E h= 0.2 km
erh= 3.9km erz= 199km
nr= 6 gap=299 rms=0.08
Locality: Oroszlány
Comments:

sta	dist	azm	phase	hr mn	sec	res
PKSG	11.2	161	ePgD	6:49:00.20		0.06
			eSg		49:01.60	-0.09
CSKK	15.1	204	ePgD	6:49:00.80		-0.04
			eSg		49:03.10	0.15
PKST	34.4	223	ePgC	6:49:04.30		0.00
			eSg		49:09.00	-0.10

289.

2011-03-26 time: 6:58:33.94 UTC ML= 0.6
lat: 47.489N lon: 18.343E h= 1.3 km
erh= 1.4km erz=11.4km
nr= 6 gap=299 rms=0.04
Locality: Oroszlány
Comments:

sta	dist	azm	phase	hr mn	sec	res
PKSG	11.4	162	ePgD	6:58:36.00		0.02
			eSg		58:37.50	-0.08
CSKK	15.3	204	ePgD	6:58:36.70		0.02
			eSg		58:38.90	0.08
PKST	34.6	222	ePg	6:58:40.10		-0.02
			eSg		58:44.90	-0.04

290.

2011-03-26 time: 6:59:02.46 UTC ML= 1.1
lat: 47.465N lon: 18.361E h= 8.6 km
erh= 2.9km erz= 2.5km
nr= 7 gap=150 rms=0.05
Locality: Oroszlány
Comments:

sta	dist	azm	phase	hr mn	sec	res
PKSG	8.4	165	ePgD	6:59:04.70		0.09
			eSg		59:06.20	-0.09
CSKK	13.6	214	ePgD	6:59:05.30		-0.04
			eSg		59:07.60	0.01

```
PKST  33.7 227   ePgC   6:59:08.70    0.03
                 eSg      59:13.50   -0.01
VYHS 119.8  17   ePn    6:59:23.30   -0.03
                 eSn      59:37.30   -2.30
```

291.

```
 2011-03-30  time:  0:11:19.93 UTC  ML=-0.1
   lat: 47.453N  lon: 18.379E  h= 10.0 km
                 erh= 1.0km    erz= 0.6km
   nr=  6        gap=302       rms=0.08
   Locality: Várgesztes
   Comments:

sta   dist azm  phase  hr mn  sec     res
PKSG   6.9 173   ePgD   0:11:22.10    0.00
                 eSg      11:23.70   -0.09
CSKK  13.4 222   ePgC   0:11:23.00    0.08
                 eSg      11:25.40    0.15
PKST  33.8 230   ePg    0:11:26.20   -0.03
                 eSg      11:31.00   -0.15
```

292.

```
 2011-03-30  time:  0:25:00.38 UTC  ML=-0.5
   lat: 47.493N  lon: 18.349E  h=  4.7 km
                 erh= 3.3km    erz= 7.5km
   nr=  6        gap=302       rms=0.05
   Locality: Oroszlány
   Comments:

sta   dist azm  phase  hr mn  sec     res
PKSG  11.7 164   ePgD   0:25:02.70    0.07
                 eSg      25:04.30   -0.08
CSKK  15.9 205   ePgD   0:25:03.30   -0.04
                 eSg      25:05.70    0.05
PKST  35.2 222   ePgC   0:25:06.70   -0.03
                 eSg      25:11.70    0.02
```

293.

```
 2011-03-30  time:  1:50:23.98 UTC  ML= 0.0
   lat: 47.308N  lon: 18.033E  h= 10.0 km
                 erh= 0.6km    erz= 0.3km
   nr=  6        gap=251       rms=0.01
   Locality: Szápár
   Comments:

sta   dist azm  phase  hr mn  sec     res
PKST   5.4 179   ePgC   1:50:26.00   -0.01
                 eSg      50:27.60    0.01
CSKK  18.3  70   ePgC   1:50:27.70    0.00
                 eSg      50:30.60    0.00
PKSG  28.6  71   ePgC   1:50:29.40    0.01
                 eSg      50:33.60   -0.01
```

294.

```
 2011-03-30  time:  8:48:09.24 UTC  ML= 1.4
   lat: 47.365N  lon: 18.448E  h=  0.0 km
                 erh= 3.4km    erz= 592km
   nr=  8        gap=236       rms=0.43
   Locality: Gánt
   Comments: probably explosion

sta   dist azm  phase  hr mn  sec     res
PKSG   5.3 304   ePgC   8:48:10.40    0.21
                 eSg      48:11.20    0.28
CSKK  14.2 269   ePgC   8:48:11.80    0.02
                 eSg      48:12.90   -0.86
PKST  33.5 249   ePg    8:48:15.00   -0.22
                 eSg      48:20.00    0.12
VYHS 128.8  13   ePg    8:48:32.80    0.55
                 eSg      48:49.10   -1.09
```

295.

```
 2011-03-31  time: 21:48:25.62 UTC  ML=-0.1
   lat: 47.488N  lon: 18.342E  h=  0.4 km
                 erh= 2.7km    erz=64.9km
   nr=  6        gap=299       rms=0.09
   Locality: Oroszlány
   Comments:

sta   dist azm  phase  hr mn  sec     res
PKSG  11.3 161   ePgD  21:48:27.70    0.06
                 eSg      48:29.10   -0.12
CSKK  15.2 204   ePgD  21:48:28.40    0.06
                 eSg      48:30.60    0.14
PKST  34.5 222   ePgD  21:48:31.70   -0.08
                 eSg      48:36.50   -0.09
```

296.

```
 2011-03-31  time: 23:12:25.47 UTC  ML=-0.3
   lat: 47.485N  lon: 18.341E  h=  0.1 km
                 erh= ---km    erz= ---km
   nr=  4        gap=297       rms=0.11
   Locality: Oroszlány
   Comments:

sta   dist azm  phase  hr mn  sec     res
PKSG  11.0 160   ePgC  23:12:27.40   -0.03
CSKK  14.8 204   ePgD  23:12:28.30    0.18
PKST  34.2 223   ePg   23:12:31.50   -0.07
                 eSg      12:36.20   -0.13
```

297.

```
 2011-04-01  time:  9:51:38.46 UTC  ML= 0.5
   lat: 47.405N  lon: 18.069E  h= 14.0 km
                 erh= 3.2km    erz= 2.9km
   nr=  7        gap=235       rms=0.79
   Locality: Aka
   Comments:

sta   dist azm  phase  hr mn  sec     res
CSKK  15.2 108   ePgC   9:51:42.30    0.16
                 eSg      51:45.10    0.08
PKST  16.4 189   ePgC   9:51:42.50    0.19
                 eSg      51:45.60    0.28
PKSG  24.3  93   ePgC   9:51:43.00   -0.47
                 eSg      51:45.90   -1.47
VSOM  25.7  64   eSg    9:51:50.50    2.73
```

298.

```
 2011-04-01  time: 10:23:31.24 UTC  ML= 0.6
   lat: 47.471N  lon: 18.364E  h=  8.1 km
                 erh= 0.9km    erz= 1.1km
   nr=  9        gap=155       rms=0.12
   Locality: Oroszlány
   Comments:

sta   dist azm  phase  hr mn  sec     res
VSOM   4.0  13   ePgC  10:23:32.80   -0.05
                 eSg      23:33.90   -0.21
BOKD   8.7 283   ePgC  10:23:33.50    0.14
PKSG   9.0 167   ePgC  10:23:33.50    0.10
                 eSg      23:35.00   -0.09
CSKK  14.3 213   ePgD  10:23:34.30    0.13
                 eSg      23:36.50    0.04
PKST  34.3 227   ePgC  10:23:37.40   -0.13
                 eSg      23:42.30   -0.14
```

299.

2011-04-01 time: 20:40:08.72 UTC ML=-0.2
lat: 47.454N lon: 18.220E h= 4.3 km
erh= 1.1km erz= 2.5km
nr= 5 gap=260 rms=0.05
Locality: Bokod
Comments:

sta	dist	azm	phase	hr mn	sec	res
CSKK	10.6	163	ePgC	20:40:	10.70	-0.05
			eSg		40:12.40	0.06
VSOM	13.1	64	eSg	20:40:	13.10	-0.01
PKSG	14.6	118	ePgD	20:40:	11.50	0.06
			eSg		40:13.50	-0.06

300.

2011-04-01 time: 20:40:24.60 UTC ML= 0.1
lat: 47.454N lon: 18.211E h= 9.1 km
erh= 1.3km erz= 2.1km
nr= 8 gap=213 rms=0.12
Locality: Bokod
Comments:

sta	dist	azm	phase	hr mn	sec	res
CSKK	10.8	160	ePgC	20:40:	27.30	0.18
			eSg		40:29.10	0.01
VSOM	13.7	65	ePgD	20:40:	27.50	-0.05
			eSg		40:29.80	-0.04
PKSG	15.2	117	ePgD	20:40:	27.90	0.13
			eSg		40:30.00	-0.24
PKST	25.5	212	ePg	20:40:	29.30	-0.13
			eSg		40:33.20	0.00

301.

2011-04-01 time: 20:53:16.03 UTC ML=-0.2
lat: 47.449N lon: 18.230E h= 6.1 km
erh= 0.1km erz= 0.2km
nr= 5 gap=253 rms=0.01
Locality: Pusztavám
Comments:

sta	dist	azm	phase	hr mn	sec	res
CSKK	9.8	167	ePgC	20:53:	18.10	0.00
			eSg		53:19.70	-0.01
VSOM	12.7	60	eSg	20:53:	20.50	-0.01
PKSG	13.7	118	ePg	20:53:	18.70	0.00
			eSg		53:20.80	0.01

302.

2011-04-02 time: 23:29:40.03 UTC ML=-0.2
lat: 47.470N lon: 18.371E h= 7.5 km
erh= 0.4km erz= 0.4km
nr= 8 gap=166 rms=0.04
Locality: Várgesztes
Comments:

sta	dist	azm	phase	hr mn	sec	res
VSOM	4.1	5	ePgC	23:29:	41.60	0.04
			eSg		29:42.70	-0.05
PKSG	8.8	171	ePgC	23:29:	42.10	-0.01
			eSg		29:43.70	-0.02
CSKK	14.6	215	ePgC	23:29:	43.00	0.04
			eSg		29:45.30	0.06
PKST	34.6	227	ePgC	23:29:	46.30	-0.06
			eSg		29:51.30	0.00

303.

2011-04-03 time: 0:10:40.01 UTC ML=-0.4
lat: 47.470N lon: 18.368E h= 7.4 km
erh= 0.3km erz= 0.4km
nr= 7 gap=161 rms=0.03
Locality: Oroszlány
Comments:

sta	dist	azm	phase	hr mn	sec	res
VSOM	4.1	8	ePg	0:10:	41.50	-0.02
			eSg		10:42.70	0.01
PKSG	8.9	169	ePgD	0:10:	42.10	0.03
			eSg		10:43.60	-0.07
CSKK	14.4	214	ePgD	0:10:	42.90	0.00
			eSg		10:45.20	0.05
PKST	34.5	227	eSg	0:10:	51.20	-0.01

304.

2011-04-03 time: 2:53:01.60 UTC ML=-0.5
lat: 47.472N lon: 18.368E h= 7.5 km
erh= 3.6km erz= 4.8km
nr= 7 gap=161 rms=0.42
Locality: Oroszlány
Comments:

sta	dist	azm	phase	hr mn	sec	res
VSOM	3.9	8	ePg	2:53:	03.10	-0.01
			eSg		53:04.20	-0.08
PKSG	9.1	169	ePgC	2:53:	03.60	-0.11
			eSg		53:05.10	-0.25
CSKK	14.6	214	ePgD	2:53:	06.70	2.17
			eSg		53:06.80	-0.02
PKST	34.6	227	eSg	2:53:	12.80	-0.06

305.

2011-04-03 time: 3:41:32.62 UTC ML=-0.4
lat: 47.471N lon: 18.375E h= 7.2 km
erh= 0.6km erz= 0.6km
nr= 6 gap=171 rms=0.04
Locality: Várgesztes
Comments:

sta	dist	azm	phase	hr mn	sec	res
VSOM	4.0	1	ePgC	3:41:	34.10	0.02
			eSg		41:35.20	-0.02
PKSG	8.9	172	ePgC	3:41:	34.70	0.04
			eSg		41:36.20	-0.05
CSKK	14.8	216	ePgC	3:41:	35.50	-0.05
			eSg		41:37.90	0.06

306.

2011-04-03 time: 16:32:25.40 UTC ML= 0.5
lat: 47.469N lon: 18.358E h= 5.8 km
erh= 0.1km erz= 0.1km
nr= 7 gap=151 rms=0.01
Locality: Oroszlány
Comments:

sta	dist	azm	phase	hr mn	sec	res
VSOM	4.4	18	ePgD	16:32:	26.70	0.00
			eSg		32:27.70	-0.01
PKSG	9.0	164	ePgC	16:32:	27.30	-0.01
			eSg		32:28.80	0.01
CSKK	13.9	212	ePgD	16:32:	28.10	0.01
			eSg		32:30.20	0.01
PKST	33.8	226	eSg	16:32:	36.30	-0.01

307.

2011-04-03 time: 23:14:20.66 UTC ML= 0.4
lat: 47.469N lon: 18.363E h= 6.3 km
erh= 0.3km erz= 0.4km
nr= 8 gap=153 rms=0.03
Locality: Oroszlány
Comments:

sta	dist	azm	phase	hr	mn	sec	res
VSOM	4.3	13	ePgD	23	14	22.00	-0.02
			eSg		14	23.10	0.02
PKSG	8.8	166	ePgD	23	14	22.60	0.00
			eSg		14	24.10	-0.01
CSKK	14.1	213	ePgD	23	14	23.40	-0.02
			eSg		14	25.60	0.04
PKST	34.1	227	ePgC	23	14	26.90	0.05
			eSg		14	31.60	-0.07

308.

2011-04-04 time: 0:32:09.57 UTC ML=-0.3
lat: 47.471N lon: 18.366E h= 6.2 km
erh= 0.8km erz= 1.1km
nr= 7 gap=157 rms=0.08
Locality: Oroszlány
Comments:

sta	dist	azm	phase	hr	mn	sec	res
VSOM	4.1	10	ePg	0	32	10.90	0.01
			eSg		32	11.90	-0.03
PKSG	9.0	168	ePgD	0	32	11.60	0.09
			eSg		32	12.90	-0.13
CSKK	14.3	214	ePg	0	32	12.30	-0.06
			eSg		32	14.70	0.16
PKST	34.4	227	eSg	0	32	20.60	-0.07

309.

2011-04-04 time: 3:06:41.02 UTC ML= 0.1
lat: 47.471N lon: 18.355E h= 6.2 km
erh= 0.5km erz= 0.7km
nr= 8 gap=156 rms=0.07
Locality: Oroszlány
Comments:

sta	dist	azm	phase	hr	mn	sec	res
VSOM	4.3	21	ePgD	3	06	42.40	0.03
			eSg		06	43.40	-0.02
PKSG	9.2	163	ePgC	3	06	43.00	0.00
			eSg		06	44.40	-0.14
CSKK	13.9	211	ePgC	3	06	43.80	0.06
			eSg		06	46.00	0.13
PKST	33.8	226	ePgD	3	06	47.10	-0.05
			eSg		06	51.90	-0.04

310.

2011-04-04 time: 7:59:28.03 UTC ML= 1.0
lat: 47.355N lon: 18.400E h= 0.0 km
erh= 1.2km erz= 165km
nr= 7 gap=255 rms=0.11
Locality: Gánt
Comments: probably explosion

sta	dist	azm	phase	hr	mn	sec	res
PKSG	4.2	350	ePgC	7	59	28.70	-0.07
			eSg		59	29.30	-0.05
CSKK	10.6	275	ePgC	7	59	30.00	0.08
			eSg		59	31.20	-0.20
VSOM	17.0	354	ePg	7	59	31.00	-0.06
			eSg		59	33.70	0.28
PKST	29.7	249	ePgC	7	59	33.40	0.08

311.

2011-04-04 time: 8:12:21.43 UTC ML= 0.8
lat: 47.339N lon: 18.490E h= 0.0 km
erh= 3.9km erz= 571km
nr= 8 gap=280 rms=0.41
Locality: Lovasberény
Comments: probably explosion

sta	dist	azm	phase	hr	mn	sec	res
PKSG	9.6	308	ePgC	8	12	23.40	0.26
			eSg		12	24.00	-0.47
CSKK	17.6	279	ePgC	8	12	24.70	0.13
			eSg		12	25.90	-1.12
VSOM	20.6	335	ePgC	8	12	24.90	-0.21
			eSg		12	28.50	0.53
PKST	35.6	256	ePgC	8	12	27.60	-0.19
			eSg		12	33.40	0.65

312.

2011-04-04 time: 8:12:36.41 UTC ML= 1.2
lat: 47.347N lon: 18.419E h= 0.0 km
erh= 2.1km erz= 320km
nr= 8 gap=262 rms=0.23
Locality: Zámoly
Comments: probably explosion

sta	dist	azm	phase	hr	mn	sec	res
PKSG	5.4	337	ePgC	8	12	37.30	-0.08
			eSg		12	37.90	-0.23
CSKK	12.1	278	ePgC	8	12	38.60	0.02
			eSg		12	40.30	0.04
VSOM	18.0	350	ePgC	8	12	39.80	0.17
			eSg		12	42.30	0.16
PKST	30.7	251	ePgC	8	12	41.70	-0.20
			eSg		12	47.90	1.73

313.

2011-04-05 time: 6:21:07.05 UTC ML= 0.4
lat: 47.234N lon: 18.341E h= 0.9 km
erh= 3.6km erz=54.7km
nr= 5 gap=325 rms=0.28
Locality: Moha
Comments:

sta	dist	azm	phase	hr	mn	sec	res
CSKK	15.6	337	ePg	6	21	10.00	0.16
			eSg		21	11.30	-0.72
PKSG	18.0	12	ePgC	6	21	10.30	0.04
			eSg		21	12.60	-0.17
VSOM	30.5	5	eSg	6	21	17.00	0.27

314.

2011-04-05 time: 23:41:31.61 UTC ML= 1.3
lat: 47.475N lon: 18.392E h= 8.6 km
erh= 1.5km erz= 1.1km
nr= 18 gap= 92 rms=0.47
Locality: Várgesztes
Comments:

sta	dist	azm	phase	hr	mn	sec	res
VSOM	3.7	341	ePgD	23	41	33.50	0.22
			eSg		41	34.50	-0.08
PKSG	9.3	180	ePgC	23	41	34.00	0.13
			eSg		41	35.50	-0.13
BOKD	10.7	278	ePg	23	41	34.20	0.15
			eSg		41	36.10	0.14
CSKK	15.9	218	ePgD	23	41	34.80	-0.04
			eSg		41	37.10	-0.26
PKST	36.2	228	iPg	23	41	38.10	-0.14
			eSg		41	43.10	-0.32

```
BUD   47.7  89   ePg   23:41:39.30   -0.96
                 eSg      41:46.70   -0.30
PKS9  99.1 185   ePg   23:41:51.80    2.42
                 eSg      42:03.40    0.16
VYHS 118.0  16   ePn   23:41:52.60    0.34
                 eSn      42:06.20   -2.17
PSZ  123.1  66   ePn   23:41:53.80    0.91
                 eSn      42:09.70    0.21
```

315.

```
 2011-04-07  time:  0:09:34.38 UTC  ML=-0.2
   lat: 47.382N  lon: 18.210E  h=  5.5 km
                 erh= ---km    erz= ---km
   nr=  4        gap=222       rms=0.02
   Locality: Mór
   Comments:

sta   dist azm  phase  hr mn  sec     res
CSKK   4.4 119   eSg    0:09:36.60   -0.01
PKSG  13.7  86   ePgC   0:09:37.00   -0.01
                 eSg      09:39.10    0.03
PKST  19.1 224   eSg    0:09:40.70    0.00
```

316.

```
 2011-04-07  time:  0:30:02.66 UTC  ML= 0.2
   lat: 47.337N  lon: 18.151E  h=  7.9 km
                 erh= 3.9km    erz= 1.1km
   nr=  6        gap=205       rms=0.07
   Locality: Nagyveleg
   Comments:

sta   dist azm  phase  hr mn  sec     res
CSKK   8.7  71   ePg    0:30:04.80    0.04
                 eSg      30:06.30   -0.10
PKST  12.4 226   ePgD   0:30:05.20   -0.08
                 eSg      30:07.40    0.08
PKSG  19.1  71   ePgD   0:30:06.40    0.06
                 eSg      30:09.20   -0.02
```

317.

```
 2011-04-08  time:  9:20:13.40 UTC  ML= 1.7
   lat: 47.333N  lon: 18.400E  h=  0.0 km
                 erh= 5.0km    erz= 611km
   nr=  6        gap=293       rms=0.37
   Locality: Zámoly
   Comments: probably explosion

sta   dist azm  phase  hr mn  sec     res
PKSG   6.6 354   ePgC   9:20:14.40   -0.17
                 eSg      20:14.90   -0.58
CSKK  11.0 288   ePg    9:20:15.80    0.43
                 eSg      20:16.70   -0.21
VSOM  19.4 355   ePg    9:20:16.70   -0.16
                 eSg      20:20.20    0.64
```

318.

```
 2011-04-10  time:  0:31:07.37 UTC  ML=-0.4
   lat: 47.470N  lon: 18.355E  h=  5.8 km
                 erh= 0.5km    erz= 0.7km
   nr=  6        gap=171       rms=0.04
   Locality: Oroszlány
   Comments:

sta   dist azm  phase  hr mn  sec     res
VSOM   4.4  21   ePgD   0:31:08.70    0.04
                 eSg      31:09.60   -0.06
PKSG   9.1 163   ePg    0:31:09.30    0.00
                 eSg      31:10.80    0.00
CSKK  13.9 211   ePgD   0:31:10.00   -0.05
                 eSg      31:12.20    0.06
```

319.

```
 2011-04-11  time:  4:29:30.03 UTC  ML= 0.6
   lat: 47.346N  lon: 18.261E  h=  5.0 km
                 erh= 1.0km    erz= 0.7km
   nr=  7        gap=178       rms=0.09
   Locality: Csókakő
   Comments:

sta   dist azm  phase  hr mn  sec     res
CSKK   1.9 360   ePgC   4:29:31.10    0.12
                 eSg      29:31.70   -0.03
PKSG  11.0  63   ePgD   4:29:32.20    0.00
                 eSg      29:33.80   -0.09
PKST  19.7 240   ePgD   4:29:33.70    0.04
                 eSg      29:36.30   -0.18
VSOM  19.8  26   eSg    4:29:36.50   -0.03
```

320.

```
 2011-04-12  time:  6:51:08.71 UTC  ML= 3.0
   lat: 46.051N  lon: 16.796E  h= 12.1 km
                 erh= 1.7km    erz= 1.2km
   nr= 49        gap=168       rms=0.63
   Locality: Croatia
   Comments:

sta   dist azm  phase  hr mn  sec     res
BEHE  46.6 358   ePgD   6:51:16.90   -0.42
                 eSg      51:24.30    0.27
KOGS  61.0 316   iPg    6:51:20.00    0.18
                 iSg      51:28.80    0.31
GOLS  90.9 267   ePg    6:51:24.90   -0.18
                 eSg      51:37.90    0.05
GCIS  92.9 257   iPg    6:51:25.20   -0.24
                 eSg      51:38.40   -0.09
DOBS 103.2 276   iP*    6:51:27.00   -0.03
                 iS*      51:41.60    0.29
CESS 103.6 265   iP*    6:51:27.40    0.31
                 eS*      51:41.70    0.28
CRES 106.9 256   iPn    6:51:27.20   -0.32
                 eSn      51:42.00   -0.19
GROS 109.7 295   iPn    6:51:27.70   -0.18
                 eSn      51:41.40   -1.43
LEGS 115.1 264   iPn    6:51:28.40   -0.15
                 eSn      51:44.40    0.38
PKS9 128.8  62   ePn    6:51:29.10   -1.15
                 eSn      51:43.70   -3.35
BOJS 134.6 243   ePn    6:51:30.90   -0.08
BISS 144.6 297   iPn    6:51:32.30    0.07
SOKA 152.6 297    Pn    6:51:33.10   -0.12
                  Sn      51:52.40    0.06
VISS 154.3 260   iPn    6:51:33.80    0.37
VNDS 162.2 272   iPn    6:51:34.40   -0.02
PKST 164.4  35   ePn    6:51:33.20   -1.49
                 eSn      51:54.30   -0.65
ARSA 165.2 324    Pn    6:51:34.70   -0.09
                  Sn      51:53.50   -1.63
OBKA 180.6 286    Pn    6:51:36.70   -0.01
                  Sn      52:03.00    4.45
SOP  182.4 354   ePn    6:51:37.10    0.17
                 eSn      51:59.60    0.65
CSKK 183.9  38   ePn    6:51:37.10   -0.02
                 eSn      52:00.10    0.82
PKSG 192.5  39   ePn    6:51:38.20    0.00
                 eSn      52:03.30    2.10
PKS2 192.6  75   ePnD   6:51:40.40    2.19
                 eSn      52:03.10    1.88
JAVS 212.5 265   iPn    6:51:41.30    0.61
PKS7 212.5  59   eSn    6:52:05.70    0.07
CONA 220.5 341    Pn    6:51:40.80   -0.89
PKS6 221.7  74   ePn    6:51:49.20    7.36
                 eSn      52:10.90    3.22
BUD  233.1  47   ePn    6:51:44.80    1.55
```

```
                  eSn      52:13.20    3.00
MOA  277.7 316    Pn     6:51:49.90    1.09
                  Sn       52:21.00    0.91
KBA  288.3 293    Pn     6:51:50.50    0.36
VYHS 312.4  30    e n    6:51:51.50   -1.65
PSZ  314.1  49    ePn    6:51:50.00   -3.36
                  eSn      52:25.00   -3.18
VRAC 362.5 358    iPn    6:51:54.80   -4.59
BZS  377.6  97    iPn    6:51:58.80   -2.48
KECS 388.7  46    e n    6:52:00.30   -2.36
MDVR 409.9 110    iPn    6:52:03.00   -2.30
KHC  419.4 325    ePn    6:52:07.50    1.02
                  eSn      52:50.50   -1.05
GZR  471.3  99    iPn    6:52:10.70   -2.26
NKC  566.6 325    ePn    6:52:24.70   -0.14
                  eSn      53:22.50   -1.72
```

321.

```
 2011-04-12  time: 11:37:19.78 UTC  ML=
   lat: 47.565N  lon: 18.459E  h=  6.2 km
                 erh= 1.8km    erz= 1.4km
   nr=  7        gap=331       rms=0.11
   Locality: Tatabánya
   Comments:

sta   dist azm  phase  hr mn  sec     res
VSOM   9.0 224   ePgC  11:37:21.80    0.06
                 eSg      37:23.20   -0.07
PKSG  19.9 195   ePgC  11:37:23.60    0.09
                 eSg      37:26.20   -0.22
CSKK  27.0 214   ePgC  11:37:24.70   -0.02
PKST  46.7 223   ePg   11:37:28.10   -0.10
                 eSg      37:35.00    0.23
```

322.

```
 2011-04-14  time: 10:41:26.10 UTC  ML= 1.7
   lat: 48.536N  lon: 20.326E  h=  0.0 km
                 erh= 2.6km    erz= 964km
   nr= 10        gap=107       rms=0.76
   Locality: Slovakia
   Comments: probably explosion

sta   dist azm  phase  hr mn  sec     res
KECS  13.2 117   ePg   10:41:28.10   -0.36
                 eSg      41:29.70   -0.60
PSZ   75.8 205   ePgC  10:41:39.80    0.17
                 eSg      41:49.70   -0.49
LANS  92.9 317   ePg   10:41:44.10    1.42
                 eSg      41:55.10   -0.52
CRVS  93.0  64   ePg   10:41:43.40    0.70
                 eSg      41:55.10   -0.54
VYHS 110.1 268   ePg   10:41:46.70    0.94
                 eSg      41:59.50   -1.60
```

323.

```
 2011-04-16  time: 11:58:53.38 UTC  ML= 0.8
   lat: 47.359N  lon: 18.087E  h= 10.0 km
                 erh= 7.9km    erz= 5.3km
   nr=  6        gap=241       rms=0.12
   Locality: Nagyveleg
   Comments:

sta   dist azm  phase  hr mn  sec     res
PKST  11.8 200   ePgD  11:58:56.20    0.07
                 eSg      58:58.20   -0.09
CSKK  13.1  88   ePgC  11:58:56.40    0.08
                 eSg      58:58.40   -0.22
PKSG  23.2  81   ePgC  11:58:57.80   -0.09
                 eSg      59:01.60    0.19
```

324.

```
 2011-04-17  time: 11:43:33.62 UTC  ML=-0.1
   lat: 47.387N  lon: 18.224E  h=  9.4 km
                 erh= 5.0km    erz= 1.8km
   nr=  6        gap=222       rms=0.08
   Locality: Mór
   Comments:

sta   dist azm  phase  hr mn  sec     res
CSKK   3.8 134   ePgD  11:43:35.50    0.06
                 eSg      43:36.80   -0.05
PKSG  12.6  87   ePgD  11:43:36.50    0.07
                 eSg      43:38.50   -0.12
PKST  20.2 225   ePgD  11:43:37.50   -0.10
                 eSg      43:40.80    0.10
```

325.

```
 2011-04-18  time: 11:26:59.78 UTC  ML= 0.7
   lat: 47.563N  lon: 18.459E  h=  0.0 km
                 erh= 3.3km    erz= 314km
   nr=  6        gap=332       rms=0.18
   Locality: Tatabánya
   Comments: probably explosion

sta   dist azm  phase  hr mn  sec     res
PKSG  19.7 195   ePgC  11:27:03.30   -0.01
                 eSg      27:06.20    0.15
CSKK  26.8 214   ePgC  11:27:04.40   -0.17
                 eSg      27:07.90   -0.40
PKST  46.6 223   ePgC  11:27:08.30    0.20
                 eSg      27:14.70    0.11
```

326.

```
 2011-04-20  time:  9:54:56.79 UTC  ML= 0.3
   lat: 47.455N  lon: 18.076E  h= 10.0 km
                 erh= 1.4km    erz= 2.2km
   nr=  6        gap=278       rms=0.21
   Locality: Bakonysárkány
   Comments:

sta   dist azm  phase  hr mn  sec     res
CSKK  17.3 126   ePg    9:55:00.60    0.24
                 eSg      55:03.40    0.26
PKST  22.0 188   ePgC   9:55:01.10   -0.01
                 eSg      55:04.20   -0.27
PKSG  24.8 106   ePgC   9:55:01.50   -0.06
                 eSg      55:04.90   -0.38
```

327.

```
 2011-04-22  time: 17:07:35.64 UTC  ML= 0.6
   lat: 48.057N  lon: 19.670E  h=  0.0 km
                 erh= ---km    erz= ---km
   nr=  4        gap=176       rms=0.28
   Locality: Sóshartyán
   Comments: probably explosion

sta   dist azm  phase  hr mn  sec     res
PSZ   22.7 133   ePgC  17:07:40.00    0.30
                 eSg      07:42.30   -0.57
KECS  76.9  52   ePg   17:07:49.40    0.03
VYHS  78.7 308   ePg   17:07:49.60   -0.10
```

328.

2011-04-23 time: 4:36:21.93 UTC ML= 2.2
lat: 47.480N lon: 18.352E h= 10.0 km
erh= 2.1km erz= 1.6km
nr= 22 gap= 50 rms=0.69
Locality: Oroszlány
Comments:

sta	dist	azm	phase	hr	mn	sec	res
PKSG	10.3	163	ePgD	4:36:		24.20	-0.29
			eSg		36:	25.70	-0.79
CSKK	14.7	208	ePgD	4:36:		24.90	-0.21
			eSg		36:	27.20	-0.39
PKST	34.4	224	ePg	4:36:		27.80	-0.52
			eSg		36:	33.00	-0.31
BUD	50.7	90	ePg	4:36:		31.30	0.14
			eSg		36:	37.80	-0.55
PKS9	99.5	183	ePgD	4:36:		40.90	1.11
			eSg		36:	53.90	0.19
VYHS	118.4	18	ePn	4:36:		42.90	0.45
			eSn		36:	57.10	-1.35
PSZ	125.6	67	ePn	4:36:		43.90	0.55
			eSn		37:	00.10	0.04
SMOL	134.0	329	ePn	4:36:		45.10	0.71
			eSn		37:	00.90	-1.01
PKS6	134.5	137	eSn	4:37:		02.40	0.38
SOP	136.8	279	ePn	4:36:		45.40	0.66
			eSn		37:	01.10	-1.43
PKSM	142.7	171	ePn	4:36:		45.70	0.21
			eSn		37:	01.40	-2.46
BEHE	164.3	227	ePn	4:36:		52.70	4.52
ARSA	215.2	263	ePn	4:36:		55.70	1.18

329.

2011-04-24 time: 17:03:23.06 UTC ML= 1.7
lat: 47.486N lon: 18.324E h= 8.6 km
erh= 2.0km erz= 1.4km
nr= 18 gap=158 rms=0.52
Locality: Oroszlány
Comments:

sta	dist	azm	phase	hr	mn	sec	res
PKSG	11.6	154	ePgD	17:03:		25.50	-0.14
			eSg		03:	27.00	-0.66
CSKK	14.5	199	ePgD	17:03:		26.20	0.13
			eSg		03:	28.30	-0.11
PKST	33.4	221	ePgD	17:03:		29.10	-0.12
			eSg		03:	34.00	-0.02
BUD	52.8	90	ePg	17:03:		33.00	0.39
			eSg		03:	39.10	-0.96
PKS9	100.0	182	ePgC	17:03:		42.20	1.22
			eSg		03:	55.00	0.03
VYHS	118.4	19	ePn	17:03:		44.20	0.44
			eSn		03:	58.50	-1.40
PSZ	127.3	68	ePn	17:03:		44.90	0.03
			eSn		04:	02.10	0.22
PKS6	136.4	136	eSn	17:04:		04.10	0.21
PKSM	143.7	170	ePn	17:03:		46.90	-0.01
			eSn		04:	02.80	-2.72
KECS	195.8	56	ePn	17:03:		56.00	2.59

330.

2011-04-25 time: 5:55:00.29 UTC ML= 0.6
lat: 47.468N lon: 18.354E h= 6.3 km
erh= 4.1km erz= 5.0km
nr= 6 gap=295 rms=0.08
Locality: Oroszlány
Comments:

sta	dist	azm	phase	hr	mn	sec	res
PKSG	8.9	162	ePgC	5:55:		02.30	0.07
			eSg		55:	03.50	-0.25
CSKK	13.6	211	ePgD	5:55:		03.00	0.04
			eSg		55:	05.10	0.06
PKST	33.5	226	ePgC	5:55:		06.30	-0.06
			eSg		55:	11.10	-0.01

331.

2011-05-02 time: 8:33:06.62 UTC ML= 1.1
lat: 47.336N lon: 18.401E h= 0.0 km
erh= 5.3km erz= ***km
nr= 6 gap=260 rms=0.24
Locality: Zámoly
Comments:

sta	dist	azm	phase	hr	mn	sec	res
PKSG	6.2	353	ePgC	8:33:		07.60	-0.13
			eSg		33:	08.30	-0.29
CSKK	11.0	286	ePgC	8:33:		08.90	0.31
			eSg		33:	09.80	-0.32
PKST	29.0	253	ePgC	8:33:		12.00	0.20
			eSg		33:	15.70	-0.15

332.

2011-05-02 time: 20:58:02.31 UTC ML= 0.1
lat: 47.332N lon: 18.154E h= 8.8 km
erh= 5.6km erz= 1.4km
nr= 6 gap=198 rms=0.13
Locality: Balinka
Comments:

sta	dist	azm	phase	hr	mn	sec	res
CSKK	8.8	66	ePgD	20:58:		04.70	0.17
			eSg		58:	06.20	-0.06
PKST	12.1	228	ePgD	20:58:		05.10	0.11
			eSg		58:	07.00	-0.08
PKSG	19.1	69	ePg	20:58:		05.90	-0.16
			eSg		58:	08.90	-0.09

333.

2011-05-02 time: 23:42:59.85 UTC ML= 0.0
lat: 47.393N lon: 18.232E h= 10.0 km
erh= 9.1km erz= 3.3km
nr= 6 gap=225 rms=0.17
Locality: Mór
Comments:

sta	dist	azm	phase	hr	mn	sec	res
CSKK	3.9	147	ePgC	23:43:		01.80	0.03
			eSg		43:	03.20	-0.07
PKSG	11.9	91	ePg	23:43:		02.90	0.27
			eSg		43:	04.50	-0.31
PKST	21.1	225	ePg	23:43:		03.90	-0.12
			eSg		43:	07.30	0.02

334.

2011-05-06 time: 4:38:05.86 UTC ML= 0.7
lat: 47.488N lon: 18.346E h= 3.2 km
erh= 4.4km erz=13.7km
nr= 6 gap=300 rms=0.08
Locality: Oroszlány
Comments:

sta	dist	azm	phase	hr	mn	sec	res
PKSG	11.2	162	ePg	4:38:		08.00	0.06
			eSg		38:	09.40	-0.16
CSKK	15.3	205	ePgD	4:38:		08.70	0.05
			eSg		38:	10.80	-0.02
PKST	34.6	223	ePg	4:38:		12.00	-0.07
			eSg		38:	17.00	0.08

335.

2011-05-09 time: 8:21:40.09 UTC ML= 1.1
lat: 47.435N lon: 18.376E h= 0.0 km
erh= 2.7km erz= 330km
nr= 6 gap=294 rms=0.19
Locality: Várgesztes
Comments: probably explosion

sta	dist	azm	phase	hr mn sec	res
PKSG	4.9	167	ePgC	8:21:40.90	-0.07
			eSg	21:41.70	0.04
CSKK	11.8	227	ePgC	8:21:42.30	0.10
			eSg	21:43.50	-0.34
PKST	32.4	233	ePg	8:21:45.80	-0.07
			eSg	21:50.90	0.52

336.

2011-05-09 time: 8:33:59.33 UTC ML= 0.9
lat: 47.414N lon: 18.340E h= 0.0 km
erh= 7.8km erz= 743km
nr= 6 gap=249 rms=0.45
Locality: Gánt
Comments: probably explosion

sta	dist	azm	phase	hr mn sec	res
PKSG	4.6	122	ePgC	8:33:59.90	-0.24
			eSg	34:00.60	-0.18
CSKK	8.2	227	ePgC	8:34:01.30	0.50
			eSg	34:02.30	0.36
PKST	28.8	233	ePgC	8:34:04.50	0.03
			eSg	34:07.20	-1.28

337.

2011-05-10 time: 15:26:45.37 UTC ML= 0.6
lat: 47.444N lon: 18.353E h= 10.0 km
erh= 3.2km erz= 1.8km
nr= 6 gap=284 rms=0.31
Locality: Oroszlány
Comments:

sta	dist	azm	phase	hr mn sec	res
PKSG	6.4	154	ePgC	15:26:47.40	-0.09
			eSg	26:48.70	-0.45
CSKK	11.3	218	ePgC	15:26:48.40	0.33
			eSg	26:50.60	0.43
PKST	31.6	230	ePgC	15:26:51.30	0.01
			eSg	26:55.40	-0.51

338.

2011-05-11 time: 6:23:55.54 UTC ML= 1.4
lat: 47.423N lon: 18.366E h= 0.0 km
erh= 1.6km erz= 187km
nr= 6 gap=278 rms=0.11
Locality: Gánt
Comments: probably explosion

sta	dist	azm	phase	hr mn sec	res
PKSG	4.0	152	ePgC	6:23:56.20	-0.05
			eSg	23:56.80	0.00
CSKK	10.4	230	ePgD	6:23:57.60	0.21
			eSg	23:58.70	-0.14
PKST	31.0	234	ePgC	6:24:01.00	-0.07
			eSg	24:05.40	0.01

339.

2011-05-11 time: 6:24:11.05 UTC ML= 1.1
lat: 47.394N lon: 18.368E h= 0.0 km
erh=11.0km erz= 629km
nr= 6 gap=212 rms=0.36
Locality: Gánt
Comments: probably explosion

sta	dist	azm	phase	hr mn sec	res
PKSG	1.7	99	ePgC	6:24:11.10	-0.26
			eSg	24:11.90	0.30
CSKK	8.8	247	ePgD	6:24:12.50	-0.13
			eSg	24:13.70	-0.15
PKST	29.4	239	ePgC	6:24:16.90	0.61
			eSg	24:19.90	-0.48

340.

2011-05-11 time: 10:08:37.50 UTC ML= 2.0
lat: 48.336N lon: 19.038E h= 0.0 km
erh= 2.3km erz= ***km
nr= 14 gap= 71 rms=0.89
Locality: Slovakia
Comments: probably explosion

sta	dist	azm	phase	hr mn sec	res
VYHS	23.0	319	ePg	10:08:42.30	0.68
			eSg	08:45.40	0.57
PSZ	78.9	126	ePgC	10:08:52.60	1.01
			eSg	09:03.10	0.52
BUD	94.8	181	eSg	10:09:06.60	-1.05
LANS	95.9	19	ePg	10:08:55.20	0.58
			eSg	09:06.50	-1.48
KECS	108.4	81	ePg	10:08:57.00	0.14
			eSg	09:10.30	-1.66
PKSG	115.7	205	ePgC	10:08:58.80	0.64
			eSg	09:13.30	-0.98
SMOL	120.8	279	eSg	10:09:15.00	-0.89
CSKK	122.9	208	ePg	10:08:59.90	0.45
			eSg	09:15.30	-1.27

341.

2011-05-13 time: 7:10:04.13 UTC ML= 1.2
lat: 47.462N lon: 18.379E h= 0.0 km
erh= 2.9km erz= 353km
nr= 6 gap=305 rms=0.21
Locality: Várgesztes
Comments: probably explosion

sta	dist	azm	phase	hr mn sec	res
PKSG	7.9	174	ePgC	7:10:05.60	0.07
			eSg	10:06.30	-0.33
CSKK	14.2	219	ePgC	7:10:06.90	0.24
			eSg	10:08.90	0.26
PKST	34.5	229	ePgC	7:10:10.10	-0.19
			eSg	10:14.90	-0.19

342.

2011-05-13 time: 7:10:16.52 UTC ML= 1.4
lat: 47.391N lon: 18.480E h= 0.0 km
erh= 6.5km erz= 542km
nr= 6 gap=336 rms=0.32
Locality: Csákvár
Comments: probably explosion

sta	dist	azm	phase	hr mn sec	res
PKSG	6.8	270	ePgC	7:10:17.90	0.16
			eSg	10:18.80	0.12
CSKK	16.9	259	ePgC	7:10:19.20	-0.34
			eSg	10:21.20	-0.70
PKST	36.8	246	ePgC	7:10:23.30	0.20

```
                eSg      10:28.60    0.38
```

343.

```
 2011-05-13  time: 23:39:04.33 UTC  ML= 0.2
   lat: 47.319N  lon: 18.132E  h=  7.4 km
                 erh= 5.7km    erz= 1.6km
   nr=  6        gap=195       rms=0.11
   Locality: Bakonycsernye
   Comments:

sta   dist azm  phase  hr mn  sec     res
PKST  10.0 228   ePgD  23:39:06.60    0.05
                 eSg      39:08.10   -0.18
CSKK  10.9  63   ePgD  23:39:06.80    0.13
                 eSg      39:08.50   -0.01
PKSG  21.1  67   ePgD  23:39:08.20   -0.13
                 eSg      39:11.50    0.06
```

344.

```
 2011-05-14  time: 16:58:20.17 UTC  ML= 0.1
   lat: 47.382N  lon: 18.194E  h=  5.0 km
                 erh= 3.9km    erz= 2.8km
   nr=  6        gap=225       rms=0.07
   Locality: Mór
   Comments:

sta   dist azm  phase  hr mn  sec     res
CSKK   5.5 113   ePgD  16:58:21.60    0.11
                 eSg      58:22.40   -0.13
PKSG  14.9  86   ePg   16:58:23.00    0.03
                 eSg      58:25.10   -0.06
PKST  18.2 221   ePg   16:58:23.50   -0.05
                 eSg      58:26.20    0.02
```

345.

```
 2011-05-17  time:  8:14:28.65 UTC  ML= 1.5
   lat: 48.367N  lon: 19.059E  h=  0.0 km
                 erh= 4.0km    erz= 971km
   nr=  8        gap=182       rms=0.70
   Locality: Slovakia
   Comments: probably explosion

sta   dist azm  phase  hr mn  sec     res
VYHS  21.7 311   ePg    8:14:32.00   -0.53
                 eSg      14:35.20   -0.35
PSZ   79.7 129   ePg    8:14:43.30    0.42
                 eSg      14:52.80   -1.19
LANS  92.2  19   ePg    8:14:44.60   -0.51
                 eSg      14:58.80    0.84
KECS 106.4  83   ePg    8:14:48.70    1.05
                 eSg      15:01.50   -0.97
```

346.

```
 2011-05-17  time: 11:31:46.83 UTC  ML= 0.6
   lat: 47.476N  lon: 18.058E  h=  0.0 km
                 erh= 2.7km    erz= 338km
   nr=  6        gap=286       rms=0.20
   Locality: Vérteskethely
   Comments: probably explosion

sta   dist azm  phase  hr mn  sec     res
CSKK  19.8 129   ePgC  11:31:50.20   -0.16
                 eSg      31:53.50    0.38
PKST  24.2 184   ePgC  11:31:51.30    0.15
                 eSg      31:54.30   -0.23
PKSG  26.8 110   ePgC  11:31:51.70    0.09
                 eSg      31:55.10   -0.24
```

347.

```
 2011-05-17  time: 15:06:48.05 UTC  ML= 1.8
   lat: 48.909N  lon: 21.040E  h=  0.0 km
                 erh= 2.3km    erz= 3.8km
   nr= 13        gap=126       rms=0.72
   Locality: Slovakia
   Comments: probably explosion

sta   dist azm  phase  hr mn  sec     res
CRVS  30.9  91   ePg   15:06:52.80   -0.77
                 eSg      06:56.70   -1.18
STHS  58.4  15   ePg   15:06:59.00    0.52
                 eSg      07:07.00    0.39
KECS  62.5 221   ePg   15:06:59.50    0.29
                 eSg      07:07.10   -0.82
KOLS  90.4  88   ePg   15:07:04.50    0.30
                 eSg      07:16.20   -0.60
LANS 118.1 283   ePg   15:07:08.50   -0.63
                 eSg      07:24.80   -0.78
PSZ  139.0 218   ePnD  15:07:13.40    0.98
VYHS 168.7 254   ePn   15:07:16.80    0.69
                 eSn      07:36.90   -1.10
```

348.

```
 2011-05-20  time:  9:08:09.12 UTC  ML= 2.3
   lat: 47.544N  lon: 19.899E  h= 10.0 km
                 erh= 4.0km    erz= 2.4km
   nr= 24        gap=114       rms=1.15
   Locality: Jászdózsa
   Comments: felt 3? EMS

sta   dist azm  phase  hr mn  sec     res
PSZ   41.7 360   ePgC   9:08:16.60   -0.17
                 eSg      08:22.80    0.06
BUD   66.2 264   ePg    9:08:20.40   -0.68
                 eSg      08:29.80   -0.61
PKS7  78.5 225   ePgC   9:08:22.60   -0.65
                 eSg      08:34.10   -0.17
KECS 113.3  23   ePn    9:08:28.30   -0.70
                 eSn      08:42.90   -1.61
PKSG 114.9 262   eSn    9:08:42.70   -2.18
CSKK 125.2 261   ePn    9:08:31.00    0.52
                 eSn      08:46.30   -0.84
VYHS 132.1 323   ePn    9:08:31.30   -0.05
                 eSn      08:49.50    0.82
PKST 144.2 257   ePn    9:08:35.00    2.14
                 eSn      08:50.60   -0.78
PKS9 162.6 229   ePn    9:08:37.90    2.74
                 eSn      08:57.40    1.94
LANS 181.5 350   ePn    9:08:39.90    2.39
                 eSn      09:00.90    1.25
CRVS 190.5  38   ePn    9:08:38.40   -0.24
NIE  210.8   8   ePn    9:08:42.40    1.24
DRGR 229.1 111   ePn    9:08:42.00   -1.44
STHS 230.8  26   ePn    9:08:46.60    2.94
                 eSn      09:13.80    3.21
```

349.

```
 2011-05-20  time: 13:22:34.51 UTC  ML= 2.0
   lat: 48.346N  lon: 19.822E  h=  0.0 km
                 erh= 3.5km    erz= 5.0km
   nr= 13        gap=109       rms=1.09
   Locality: Slovakia
   Comments: probably explosion

sta   dist azm  phase  hr mn  sec     res
PSZ   47.8 174   ePgC  13:22:43.20    0.15
                 eSg      22:49.70   -0.01
KECS  51.4  73   ePg   13:22:43.40   -0.29
                 eSg      22:49.40   -1.46
VYHS  74.8 283   ePg   13:22:48.20    0.33
```

			eSg	22:57.60	-0.69
LANS	93.2	344	ePg	13:22:51.30	0.15
			eSg	23:03.10	-1.03
CRVS	135.8	63	ePn	13:22:57.80	-0.67
			eSn	23:14.30	-2.86
STHS	158.3	41	ePn	13:23:04.90	3.62
			eSn	23:23.10	0.94
KOLS	192.1	70	eSn	13:23:31.60	1.94

350.

2011-05-20 time: 14:35:03.28 UTC ML= 1.8
lat: 47.504N lon: 18.332E h= 8.3 km
erh= 3.2km erz= 3.2km
nr= 15 gap=110 rms=0.62
Locality: Kecskéd
Comments:

sta	dist	azm	phase	hr mn	sec	res
PKSG	13.3	160	ePg	14:35:05.80		-0.27
			eSg	35:07.20		-1.04
CSKK	16.6	199	ePgD	14:35:06.50		-0.08
			eSg	35:08.80		-0.36
PKST	35.3	219	ePgC	14:35:09.80		0.05
			eSg	35:14.60		-0.20
BUD	52.2	92	ePg	14:35:13.50		0.78
			eSg	35:19.20		-0.88
PKS9	102.0	182	ePg	14:35:22.70		1.14
			eSg	35:35.40		-0.42
VYHS	116.3	19	ePn	14:35:24.30		0.54
			eSn	35:37.80		-1.94
PSZ	126.0	69	ePn	14:35:25.00		0.03
			eSn	35:41.40		-0.48
SMOL	130.9	329	eSn	14:35:42.90		-0.08

351.

2011-05-21 time: 13:34:53.14 UTC ML= 0.8
lat: 47.452N lon: 18.373E h= 8.6 km
erh= 0.7km erz= 0.5km
nr= 6 gap=299 rms=0.01
Locality: Várgesztes
Comments:

sta	dist	azm	phase	hr mn	sec	res
PKSG	6.8	169	ePg	13:34:55.10		0.01
			eSg	34:56.60		-0.01
CSKK	13.0	221	ePgD	13:34:55.90		-0.02
			eSg	34:58.10		0.01
PKST	33.4	230	ePgC	13:34:59.30		0.01
			eSg	35:04.10		0.00

352.

2011-05-22 time: 19:46:05.43 UTC ML= 0.2
lat: 47.452N lon: 18.355E h= 8.8 km
erh= 1.5km erz= 1.1km
nr= 6 gap=289 rms=0.03
Locality: Oroszlány
Comments:

sta	dist	azm	phase	hr mn	sec	res
PKSG	7.2	158	ePgD	19:46:07.50		0.04
			eSg	46:09.00		-0.05
CSKK	12.2	216	ePgD	19:46:08.10		-0.01
			eSg	46:10.20		0.00
PKST	32.3	228	ePgD	19:46:11.40		-0.01
			eSg	46:16.10		0.02

353.

2011-05-23 time: 0:11:23.96 UTC ML= 0.2
lat: 47.449N lon: 18.359E h= 9.2 km
erh= 3.8km erz= 2.5km
nr= 6 gap=290 rms=0.07
Locality: Oroszlány
Comments:

sta	dist	azm	phase	hr mn	sec	res
PKSG	6.8	160	ePgC	0:11:26.10		0.09
			eSg	11:27.50		-0.10
CSKK	12.1	218	ePgD	0:11:26.70		0.02
			eSg	11:28.80		0.00
PKST	32.4	229	ePgC	0:11:29.90		-0.08
			eSg	11:34.70		0.03

354.

2011-05-23 time: 8:23:04.73 UTC ML= 1.4
lat: 47.454N lon: 18.373E h= 0.0 km
erh= 4.3km erz= 538km
nr= 6 gap=299 rms=0.32
Locality: Várgesztes
Comments: probably explosion

sta	dist	azm	phase	hr mn	sec	res
PKSG	7.1	169	ePgC	8:23:06.10		0.11
			eSg	23:06.60		-0.38
CSKK	13.2	220	ePgC	8:23:07.40		0.31
			eSg	23:09.40		0.47
PKST	33.6	230	ePg	8:23:10.50		-0.22
			eSg	23:14.90		-0.49

355.

2011-05-24 time: 7:44:57.30 UTC ML= 1.4
lat: 47.415N lon: 18.351E h= 0.0 km
erh= 4.5km erz= 448km
nr= 6 gap=257 rms=0.28
Locality: Gánt
Comments: probably explosion

sta	dist	azm	phase	hr mn	sec	res
PKSG	4.0	131	ePgC	7:44:57.90		-0.11
			eSg	44:58.40		-0.16
CSKK	9.0	230	ePgC	7:44:59.20		0.29
			eSg	45:00.40		0.24
PKST	29.6	234	ePgC	7:45:02.60		0.01
			eSg	45:05.90		-0.81

356.

2011-05-27 time: 11:37:50.58 UTC ML= 0.8
lat: 47.550N lon: 18.374E h= 0.0 km
erh= 5.6km erz= 487km
nr= 5 gap=317 rms=0.23
Locality: Vértessomló
Comments: probably explosion

sta	dist	azm	phase	hr mn	sec	res
PKSG	17.6	176	ePgC	11:37:53.60		-0.13
			eSg	37:56.50		0.32
CSKK	22.5	202	ePgC	11:37:54.70		0.11
			eSg	37:57.10		-0.61
PKST	41.3	218	ePgC	11:37:58.00		0.05

357.

2011-05-29 time: 11:22:36.74 UTC ML= 1.0
lat: 47.413N lon: 18.230E h= 0.2 km
erh= 4.9km erz= 138km
nr= 6 gap=240 rms=0.08
Locality: Pusztavám
Comments:

sta	dist	azm	phase	hr	mn	sec	res
CSKK	6.0	157	ePgC	11	22	37.90	0.09
			eSg		22	38.50	-0.14
PKSG	12.4	101	ePgD	11	22	39.00	0.05
			eSg		22	40.60	-0.07
PKST	22.6	221	ePgD	11	22	40.70	-0.08
			eSg		22	44.00	0.07

358.

2011-05-31 time: 23:36:12.33 UTC ML=-0.1
lat: 47.476N lon: 18.361E h= 5.3 km
erh= 1.0km erz= 1.7km
nr= 5 gap=301 rms=0.02
Locality: Oroszlány
Comments:

sta	dist	azm	phase	hr	mn	sec	res
PKSG	9.6	166	ePgC	23	36	14.30	0.01
			eSg		36	15.80	-0.01
CSKK	14.6	211	ePgC	23	36	15.10	-0.01
			eSg		36	17.30	0.03
PKST	34.5	226	eSg	23	36	23.40	-0.02

359.

2011-06-02 time: 21:52:06.79 UTC ML= 1.2
lat: 47.475N lon: 18.371E h= 14.6 km
erh= 4.4km erz= 2.5km
nr= 7 gap=150 rms=0.66
Locality: Várgesztes
Comments:

sta	dist	azm	phase	hr	mn	sec	res
PKSG	9.4	171	ePgC	21	52	09.60	-0.29
PKST	35.0	227	ePgC	21	52	13.40	-0.16
BUD	49.2	89	eSg	21	52	23.00	-0.12
PKS9	99.0	184	eS*	21	52	39.00	1.16
VYHS	118.5	17	ePn	21	52	28.20	1.47
			eSn		52	41.80	-0.49
PKSM	142.0	172	eSn	21	52	46.70	-0.80

360.

2011-06-03 time: 7:48:31.12 UTC ML= 1.5
lat: 48.357N lon: 19.840E h= 0.0 km
erh= 4.4km erz= 7.1km
nr= 7 gap=106 rms=0.80
Locality: Slovakia
Comments: probably explosion

sta	dist	azm	phase	hr	mn	sec	res
PSZ	48.9	175	ePgC	7	48	40.50	0.64
KECS	49.8	74	ePg	7	48	39.30	-0.71
			eSg		48	45.70	-1.25
VYHS	75.9	282	eSg	7	48	54.00	-1.23
LANS	92.4	343	ePg	7	48	48.50	0.88
			eSg		49	01.00	0.51
CRVS	134.0	63	eSn	7	49	13.30	-0.08

361.

2011-06-06 time: 21:55:08.66 UTC ML= 1.4
lat: 48.128N lon: 20.359E h= 10.0 km
erh= 4.2km erz= 2.4km
nr= 9 gap=178 rms=0.62
Locality: Bükkmogyorósd
Comments:

sta	dist	azm	phase	hr	mn	sec	res
KECS	40.6	13	ePg	21	55	15.90	-0.23
			eSg		55	22.10	0.14
PSZ	41.8	236	ePg	21	55	16.20	-0.13
			eSg		55	22.40	0.09
CRVS	118.5	43	ePn	21	55	28.10	-1.10
			eSn		55	42.10	-3.11
VYHS	120.1	290	eSn	21	55	45.50	-0.06
LANS	131.4	330	ePn	21	55	32.20	1.40
KOLS	167.4	58	eSn	21	55	56.80	0.75

362.

2011-06-09 time: 8:53:29.25 UTC ML= 1.3
lat: 48.043N lon: 19.574E h= 0.0 km
erh= 0.7km erz= 116km
nr= 5 gap=192 rms=0.06
Locality: Nagylóc
Comments: probably explosion

sta	dist	azm	phase	hr	mn	sec	res
PSZ	27.7	120	ePgC	8	53	34.20	0.01
VYHS	74.2	312	ePg	8	53	42.50	-0.01
			eSg		53	52.90	0.05
KECS	83.5	54	ePg	8	53	44.20	0.04
			eSg		53	55.60	-0.19

363.

2011-06-13 time: 8:37:59.43 UTC ML= 1.3
lat: 48.255N lon: 18.903E h= 0.0 km
erh= 3.4km erz= 888km
nr= 7 gap=148 rms=0.59
Locality: Slovakia
Comments: probably explosion

sta	dist	azm	phase	hr	mn	sec	res
VYHS	27.0	349	ePg	8	38	03.60	-0.65
			eSg		38	08.00	-0.01
PSZ	82.8	117	ePg	8	38	14.80	0.58
PKSG	103.4	202	ePg	8	38	18.00	0.12
LANS	107.9	23	eSg	8	38	34.60	0.88
KECS	120.0	78	ePg	8	38	21.10	0.25
			eSg		38	36.40	-1.17

364.

2011-06-13 time: 20:34:14.36 UTC ML= 0.0
lat: 47.411N lon: 18.231E h= 1.0 km
erh= 9.1km erz=48.4km
nr= 6 gap=239 rms=0.16
Locality: Pusztavám
Comments:

sta	dist	azm	phase	hr	mn	sec	res
CSKK	5.8	157	ePg	20	34	15.60	0.19
			eSg		34	15.90	-0.33
PKSG	12.3	100	ePgD	20	34	16.60	0.04
			eSg		34	18.10	-0.17
PKST	22.5	221	ePgD	20	34	18.30	-0.09
			eSg		34	21.70	0.17

365.

2011-06-14 time: 15:53:59.37 UTC ML= 0.7
lat: 47.315N lon: 18.245E h= 9.5 km
erh= 2.4km erz= 0.6km
nr= 8 gap=196 rms=0.18
Locality: Bodajk
Comments:

sta	dist	azm	phase	hr mn sec	res
CSKK	5.4	13	ePgC	15:54:01.30	-0.02
			eSg	54:02.60	-0.24
PKSG	13.9	52	ePgC	15:54:02.50	0.13
			eSg	54:04.80	0.08
PKST	17.1	248	ePgD	15:54:02.90	0.04
			eSg	54:05.60	0.01
VYHS	138.3	19	ePn	15:54:22.40	-0.03
			eSn	54:37.30	-3.12

366.

2011-06-16 time: 8:32:26.13 UTC ML= 2.0
lat: 48.377N lon: 19.824E h= 0.0 km
erh= 3.4km erz= 5.0km
nr= 10 gap=106 rms=0.89
Locality: Slovakia
Comments: probably explosion

sta	dist	azm	phase	hr mn sec	res
KECS	50.4	76	ePg	8:32:35.20	0.08
			eSg	32:42.30	0.16
PSZ	51.3	174	ePgC	8:32:35.30	0.01
			eSg	32:41.80	-0.64
VYHS	74.2	280	ePg	8:32:40.40	1.01
			eSg	32:49.50	-0.23
LANS	89.9	343	eSg	8:32:53.70	-1.00
CRVS	134.1	64	eSn	8:33:06.60	-1.80
STHS	155.6	42	eSn	8:33:14.20	1.02
KOLS	190.7	71	eSn	8:33:23.80	2.81

367.

2011-06-16 time: 9:01:00.58 UTC ML= 1.5
lat: 47.456N lon: 18.385E h= 0.0 km
erh= 4.0km erz= 488km
nr= 6 gap=306 rms=0.31
Locality: Várgesztes
Comments: probably explosion

sta	dist	azm	phase	hr mn sec	res
PKSG	7.2	176	ePg	9:01:02.10	0.24
			eSg	01:02.60	-0.26
CSKK	14.0	222	ePg	9:01:03.30	0.23
			eSg	01:04.30	-0.72
PKST	34.4	230	ePg	9:01:06.50	-0.22
			eSg	01:11.80	0.29

368.

2011-06-18 time: 2:12:21.49 UTC ML= 2.3
lat: 45.800N lon: 21.446E h= 10.0 km
erh= 2.8km erz= 2.3km
nr= 17 gap= 45 rms=0.67
Locality: Romania
Comments:

sta	dist	azm	phase	hr mn sec	res
TIM	18.9	248	iPgD	2:12:25.80	0.49
BZS	24.3	147	iPg	2:12:25.80	-0.38
BANR	52.4	208	iPg	2:12:31.20	0.19
SIRR	54.5	18	iPg	2:12:31.20	-0.18
DEV	113.6	85	iPnD	2:12:40.80	-0.60
MDVR	115.1	170	iPn	2:12:40.70	-0.90
DRGR	147.1	41	iPn	2:12:45.60	0.01
PKSN	172.2	315	ePnD	2:12:48.90	0.19
			eSn	13:12.90	2.95
LOT	185.4	102	iPnD	2:12:52.30	1.95
CJR	194.5	59	iPn	2:12:52.00	0.50
PKSM	222.0	282	ePnC	2:12:54.40	-0.53
			eSn	13:25.90	4.89
PKS7	223.8	308	eSn	2:13:25.40	3.99
ARR	253.4	101	iPn	2:13:01.40	2.57
PKS9	259.7	290	ePn	2:13:03.60	3.98
BUD	263.5	315	ePnC	2:13:00.00	-0.10
			eSn	13:30.60	0.39
PSZ	263.5	333	ePnC	2:12:59.80	-0.30
			eSn	13:27.80	-2.42
TRPA	272.1	18	ePn	2:13:01.10	-0.07
VOIR	283.9	98	iPnD	2:13:04.60	1.96
PKSG	293.5	307	ePnD	2:13:03.50	-0.34
			eSn	13:43.20	6.33
KECS	307.1	346	ePn	2:13:06.10	0.57
PKST	308.0	302	ePnC	2:13:05.50	-0.14
CRVS	344.9	0	ePn	2:13:10.80	0.55
BURB	351.9	55	iPnD	2:13:12.10	0.98
KOLS	353.9	10	ePn	2:13:24.80	13.43
			eSn	14:02.10	11.83
VYHS	359.0	327	ePn	2:13:12.00	-0.01
STHS	402.4	358	ePn	2:13:18.20	0.78

369.

2011-06-18 time: 3:47:34.60 UTC ML= 1.4
lat: 47.604N lon: 19.788E h= 10.0 km
erh= 6.1km erz= 3.2km
nr= 15 gap=148 rms=1.21
Locality: Jászágó
Comments:

sta	dist	azm	phase	hr mn sec	res
PSZ	35.8	13	ePgC	3:47:41.10	-0.14
			eSg	47:47.40	0.98
PKS7	78.0	217	ePg	3:47:45.40	-3.24
			eSg	47:58.50	-1.09
PKSN	78.8	176	ePg	3:47:54.10	5.31
PKSG	107.9	257	ePn	3:47:54.50	0.69
			eSn	48:08.40	-0.39
KECS	110.7	28	ePn	3:47:53.50	-0.66
			eSn	48:07.20	-2.22
VYHS	121.8	324	ePn	3:47:55.70	0.16
			eSn	48:13.80	1.93
PKS9	161.0	225	ePn	3:48:02.60	2.17
			eSn	48:21.20	0.63
PKSM	177.7	209	ePn	3:48:02.00	-0.52
			eSn	48:23.60	-0.69

370.

2011-06-21 time: 7:51:48.49 UTC ML= 1.7
lat: 48.398N lon: 19.790E h= 0.0 km
erh= 1.5km erz= 2.2km
nr= 6 gap=147 rms=0.24
Locality: Slovakia
Comments: probably explosion

sta	dist	azm	phase	hr mn sec	res
KECS	52.3	80	ePg	7:51:58.10	0.27
			eSg	52:03.70	-1.41
PSZ	53.9	172	ePgC	7:51:58.10	-0.02
			eSg	52:05.30	-0.33
VYHS	71.4	279	eSg	7:52:11.20	0.02
CRVS	135.3	66	eSn	7:52:30.90	-0.13

371.

2011-06-22 time: 11:43:46.36 UTC ML= 0.4
lat: 47.492N lon: 18.050E h= 0.0 km
erh= 4.1km erz= 510km
nr= 6 gap=291 rms=0.31
Locality: Kisbér
Comments: probably explosion

sta	dist	azm	phase	hr	mn	sec	res
CSKK	21.4	132	ePgC	11	43	50.10	-0.09
			eSg		43	53.60	0.43
PKST	26.0	183	ePgC	11	43	51.30	0.30
			eSg		43	54.00	-0.62
PKSG	28.0	114	ePg	11	43	51.40	0.03
			eSg		43	54.90	-0.37

372.

2011-06-22 time: 23:22:41.75 UTC ML=-0.2
lat: 47.363N lon: 18.121E h= 4.5 km
erh= 2.6km erz= 2.9km
nr= 6 gap=231 rms=0.04
Locality: Nagyveleg
Comments:

sta	dist	azm	phase	hr	mn	sec	res
CSKK	10.5	90	ePg	23	22	43.80	0.00
			eSg		22	45.40	0.01
PKST	13.3	210	ePgD	23	22	44.30	0.05
			eSg		22	46.10	-0.10
PKSG	20.6	81	ePg	23	22	45.50	-0.02
			eSg		22	48.50	0.04

373.

2011-06-27 time: 11:31:45.63 UTC ML= 1.0
lat: 47.298N lon: 18.316E h= 0.1 km
erh= 0.2km erz= 0.2km
nr= 5 gap=162 rms=0.05
Locality: Magyaralmás
Comments:

sta	dist	azm	phase	hr	mn	sec	res
CSKK	8.4	330	eSg	11	31	48.30	-0.01
PKSG	11.9	28	ePgC	11	31	47.70	-0.06
			eSg		31	49.40	-0.02
PKSM	123.2	168	eSg	11	32	24.80	0.00
PSZ	137.3	60	eSn	11	32	28.70	0.09

374.

2011-07-06 time: 8:17:19.92 UTC ML= 1.6
lat: 48.622N lon: 20.747E h= 0.0 km
erh= 1.3km erz= 1.3km
nr= 9 gap=160 rms=0.17
Locality: Slovakia
Comments: probably explosion

sta	dist	azm	phase	hr	mn	sec	res
KECS	24.7	231	ePg	8	17	24.20	-0.21
			eSg		17	28.10	0.18
CRVS	61.1	59	ePg	8	17	30.90	0.04
PSZ	100.6	219	ePg	8	17	37.90	-0.01
			eSg		17	52.20	0.26
LANS	110.7	302	ePg	8	17	39.70	-0.01
			eSg		17	54.00	-1.15
VYHS	141.8	264	ePn	8	17	44.30	0.28
			eSn		18	02.50	-0.32

375.

2011-07-06 time: 9:38:28.84 UTC ML= 1.9
lat: 48.931N lon: 20.711E h= 0.0 km
erh= 4.2km erz= 3.2km
nr= 7 gap=165 rms=0.57
Locality: Slovakia
Comments: probably explosion

sta	dist	azm	phase	hr	mn	sec	res
KECS	52.5	198	ePg	9	38	38.50	0.21
			eSg		38	44.70	-0.96
LANS	94.1	285	ePg	9	38	45.70	0.01
KOLS	114.5	90	eSn	9	39	05.00	-0.25
PSZ	127.8	208	ePnD	9	38	51.70	0.74
			eSn		39	07.80	-0.41
VYHS	146.3	251	eSn	9	39	11.20	-1.11

376.

2011-07-07 time: 12:05:53.06 UTC ML= 1.6
lat: 48.228N lon: 21.274E h= 0.0 km
erh= 4.7km erz= 4.7km
nr= 10 gap=155 rms=0.93
Locality: Tállya
Comments: probably explosion

sta	dist	azm	phase	hr	mn	sec	res
KECS	64.9	296	ePg	12	06	03.70	-0.95
			eSg		06	11.90	-1.79
CRVS	76.2	10	ePg	12	06	07.80	1.13
TRPA	94.8	97	ePg	12	06	09.60	-0.38
			eSg		06	23.20	0.02
PSZ	108.4	251	ePg	12	06	13.10	0.69
			eSg		06	26.50	-1.01
STHS	132.2	359	eSn	12	06	34.40	-0.52
LANS	167.9	308	eSn	12	06	44.70	1.85
VYHS	183.0	279	eSn	12	06	45.60	-0.60

377.

2011-07-08 time: 21:40:24.78 UTC ML= 1.5
lat: 47.259N lon: 17.900E h= 6.8 km
erh= 3.0km erz= 2.7km
nr= 23 gap= 65 rms=0.89
Locality: Olaszfalu
Comments:

sta	dist	azm	phase	hr	mn	sec	res
PKST	10.2	90	ePgD	21	40	26.30	-0.66
			eSg		40	28.00	-0.67
CSKK	29.6	67	ePgD	21	40	29.50	-0.70
			eSg		40	35.10	0.66
PKSG	39.9	68	ePg	21	40	31.50	-0.51
			eSg		40	38.20	0.55
PKS9	80.1	159	ePg	21	40	39.50	0.37
			eSg		40	51.90	1.57
PKS7	98.5	104	eSg	21	40	57.60	1.45
BEHE	122.7	224	ePn	21	40	47.20	0.96
			eSn		41	03.70	0.73
PKSM	129.5	154	ePn	21	40	46.10	-0.99
			eSn		41	01.90	-2.59
SMOL	143.9	346	ePn	21	40	50.20	1.31
			eSn		41	07.40	-0.29
VYHS	154.1	27	ePn	21	40	50.80	0.64
			eSn		41	09.30	-0.66
PSZ	167.0	64	ePn	21	40	51.80	0.04
			eSn		41	13.50	0.69
CONA	170.4	296	Pn	21	40	53.30	1.11
			Sn		41	12.10	-1.46
ARSA	179.9	270	Pn	21	40	54.20	0.82
			Sn		41	14.10	-1.59

378.

2011-07-09 time: 0:15:23.48 UTC ML= 0.1
lat: 47.371N lon: 18.110E h= 1.9 km
erh= 2.8km erz= 9.3km
nr= 6 gap=239 rms=0.04
Locality: Nagyveleg
Comments:

sta	dist	azm	phase	hr mn sec	res
CSKK	11.4	94	ePgD	0:15:25.50	-0.05
			eSg	15:27.20	0.04
PKST	13.7	205	ePgC	0:15:26.00	0.06
			eSg	15:27.80	-0.06
PKSG	21.4	84	ePg	0:15:27.30	-0.01
			eSg	15:30.30	0.01

379.

2011-07-09 time: 9:10:36.93 UTC ML= 0.3
lat: 47.382N lon: 18.258E h= 0.4 km
erh= 1.6km erz= 6.8km
nr= 5 gap=213 rms=0.04
Locality: Mór
Comments:

sta	dist	azm	phase	hr mn sec	res
CSKK	2.1	175	ePgD	9:10:37.30	-0.02
			eSg	10:37.60	-0.01
PKSG	10.1	84	ePgC	9:10:38.70	-0.03
			eSg	10:40.20	0.06
PKST	21.7	231	eSg	9:10:43.90	0.05

380.

2011-07-10 time: 1:04:38.37 UTC ML= 0.0
lat: 47.303N lon: 18.192E h= 7.2 km
erh= 5.6km erz= 3.3km
nr= 6 gap=191 rms=0.10
Locality: Balinka
Comments:

sta	dist	azm	phase	hr mn sec	res
CSKK	8.4	38	ePg	1:04:40.40	0.05
			eSg	04:41.70	-0.19
PKST	12.9	248	ePgD	1:04:40.90	-0.11
			eSg	04:43.20	0.13
PKSG	17.9	57	ePg	1:04:41.90	0.08
			eSg	04:44.50	-0.01

381.

2011-07-10 time: 1:17:08.71 UTC ML= 0.5
lat: 47.437N lon: 18.191E h= 10.0 km
erh= 5.9km erz= 5.4km
nr= 6 gap=257 rms=0.09
Locality: Pusztavám
Comments:

sta	dist	azm	phase	hr mn sec	res
CSKK	9.7	147	ePgD	1:17:11.30	0.10
			eSg	17:13.10	-0.04
PKSG	15.9	108	ePgC	1:17:12.10	0.04
			eSg	17:14.50	-0.17
PKST	23.0	211	ePg	1:17:13.10	-0.10
			eSg	17:16.80	0.10

382.

2011-07-10 time: 21:53:46.36 UTC ML=-0.3
lat: 47.448N lon: 18.374E h= 10.0 km
erh= 4.9km erz= 2.7km
nr= 6 gap=298 rms=0.09
Locality: Várgesztes
Comments:

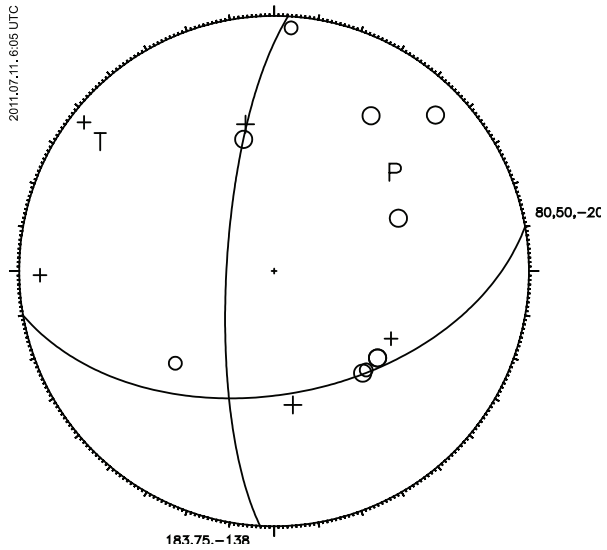
sta	dist	azm	phase	hr mn sec	res
PKSG	6.4	168	ePg	21:53:48.60	0.13
			eSg	53:50.00	-0.12
CSKK	12.7	222	ePgD	21:53:49.20	-0.05
			eSg	53:51.60	0.10
PKST	33.1	231	ePgD	21:53:52.50	-0.04
			eSg	53:57.30	-0.06

383.

2011-07-11 time: 6:05:59.78 UTC ML= 3.5
lat: 47.476N lon: 18.366E h= 8.2 km
erh= 1.7km erz= 1.4km
nr= 41 gap= 42 rms=0.77
Locality: Gánt
Comments: felt 5 EMS

sta	dist	azm	phase	hr mn sec	res
PKSG	9.6	169	ePgC	6:06:02.00	-0.03
			eSg	06:03.40	-0.38
CSKK	14.9	212	ePgD	6:06:02.70	-0.12
			eSg	06:04.80	-0.38
PKST	34.8	226	ePgD	6:06:05.60	-0.57
			eSg	06:10.90	-0.25
BUD	49.6	89	ePgC	6:06:08.80	0.05
			eSg	06:15.30	-0.45
PKS7	76.7	128	ePgC	6:06:13.70	0.14
			eSg	06:24.80	0.49
PKS9	99.1	184	ePgD	6:06:17.40	-0.14
			eSg	06:31.40	0.02
VYHS	118.5	17	ePn	6:06:20.60	0.05
			eSn	06:34.10	-2.64
PSZ	124.8	67	ePnD	6:06:20.90	-0.43
PKSN	130.7	120	ePnC	6:06:23.30	1.23
			eSn	06:40.10	0.64
PKS6	133.4	137	ePnD	6:06:22.40	0.00
			eSn	06:40.60	0.56
SMOL	134.9	329	ePn	6:06:22.50	-0.10
			eSn	06:38.40	-1.99
PKSM	142.1	172	ePnC	6:06:23.10	-0.39
			eSn	06:39.00	-2.99
BEHE	164.8	227	ePnD	6:06:26.80	0.48
			eSn	06:54.80	7.78
KECS	193.8	55	ePn	6:06:30.50	0.56
CONA	194.5	285	Pn	6:06:29.80	-0.23
			Sn	06:53.20	-0.42
KOGS	197.5	235	iPn	6:06:33.40	3.00
			iSn	06:58.40	4.12
LANS	203.3	24	ePn	6:06:32.10	0.98
			eSn	06:57.20	1.63
ARSA	216.2	263	Pn	6:06:33.40	0.67
			Sn	06:59.50	1.06
VRAC	242.4	327	iPn	6:06:35.80	-0.19
MORC	262.9	347	iPnD	6:06:39.90	1.34
OKC	263.1	356	ePn	6:06:39.20	0.62
			eSn	07:06.50	-2.33
SOKA	268.3	251	Pn	6:06:39.50	0.27
			Sn	07:09.20	-0.79
CRVS	279.5	55	ePn	6:06:41.50	0.88
			eSn	07:22.10	9.63
SIRR	284.8	118	iPn	6:06:40.90	-0.38
STHS	303.1	45	ePn	6:06:45.20	1.63
OBKA	309.7	250	Pn	6:06:45.10	0.72
			Sn	07:17.90	-1.27
MOA	310.8	278	Pn	6:06:45.60	1.08
			Sn	07:18.90	-0.52

TRPA	320.9	77	ePn	6:06:45.30	-0.49
			eSn	07:31.90	10.22
BZS	323.9	130	iPnD	6:06:46.10	-0.05
KOLS	332.5	61	ePn	6:06:48.20	0.96
DRGR	338.3	103	iPn	6:06:47.70	-0.26
DPC	353.0	335	ePn	6:06:50.50	0.71
			eSn	07:26.80	-1.99
MYKA	371.1	255	Pn	6:06:53.10	1.05
			Sn	07:33.60	0.79
GOPC	378.1	316	ePn	6:06:52.70	-0.21
			eSn	07:32.50	-1.85
UPC	378.6	333	ePn	6:06:53.80	0.82
			eSn	07:32.80	-1.67
KBA	382.5	263	Pn	6:06:54.60	1.13
			Sn	07:34.60	-0.75
BMR	386.7	87	iPn	6:07:03.70	9.72
MDVR	395.7	139	iPnD	6:06:55.40	0.28
PRU	396.5	315	ePn	6:06:55.00	-0.21
			eSn	07:36.00	-2.45
KHC	400.1	297	ePn	6:06:56.20	0.54
			eSn	07:37.20	-2.04
CJR	406.2	102	iPn	6:06:57.00	0.58
PVCC	438.6	321	ePn	6:07:00.30	-0.17
			eSn	08:00.20	12.40
ABTA	451.7	260	Pn	6:07:17.20	15.11
			Sn	08:13.80	23.11
LOT	472.4	119	iPn	6:07:04.10	-0.57
SRE	487.9	130	iPnD	6:07:08.30	1.70
WTTA	508.9	267	Pn	6:07:09.50	0.28
			Sn	08:01.80	-1.59
BURB	516.0	88	iPn	6:07:10.70	0.59
NKC	531.7	305	ePn	6:07:11.70	-0.36
			eSn	08:29.70	21.26
MOTA	548.3	268	Pn	6:07:14.60	0.46
			Sn	08:10.60	-1.55
VOIR	561.3	114	iPn	6:07:16.00	0.24
PDG	565.1	173	iPn	6:07:16.20	-0.04
FETA	580.4	265	Pn	6:07:18.00	-0.14
			Sn	08:18.00	-1.26
MLR	622.4	111	iPn	6:07:23.10	-0.28



384.

2011-07-11 time: 6:40:48.73 UTC ML= 0.6
lat: 47.500N lon: 18.343E h= 0.3 km
erh= 5.3km erz= 181km
nr= 6 gap=302 rms=0.10
Locality: Kecskéd
Comments:

sta	dist	azm	phase	hr	mn	sec	res
PKSG	12.6	163	ePg	6:40:51.10			0.12
			eSg		40:52.50		-0.23
CSKK	16.4	202	ePgD	6:40:51.70			0.03
			eSg		40:54.00		0.04
PKST	35.5	221	ePg	6:40:55.00			-0.07
			eSg		41:00.00		-0.02

385.

2011-07-11 time: 8:05:31.35 UTC ML= 0.3
lat: 47.492N lon: 18.342E h= 0.3 km
erh= 2.5km erz=81.7km
nr= 6 gap=300 rms=0.06
Locality: Oroszlány
Comments:

sta	dist	azm	phase	hr	mn	sec	res
PKSG	11.8	162	ePgC	8:05:33.50			0.05
			eSg		05:35.00		-0.09
CSKK	15.6	203	ePgD	8:05:34.20			0.05
			eSg		05:36.40		0.08
PKST	34.8	222	ePg	8:05:37.50			-0.08
			eSg		05:42.40		-0.03

386.

2011-07-11 time: 8:05:55.50 UTC ML= 1.0
lat: 47.301N lon: 18.408E h= 0.3 km
erh=11.0km erz= 468km
nr= 6 gap=268 rms=0.46
Locality: Zámoly
Comments: probably explosion

sta	dist	azm	phase	hr	mn	sec	res
PKSG	10.2	352	ePgC	8:05:57.30			-0.02
			eSg		05:57.80		-0.94
CSKK	13.1	302	ePgC	8:05:58.60			0.75
			eSg		05:59.60		-0.08
PKST	28.7	261	ePgC	8:06:00.50			-0.12
			eSg		06:04.40		-0.22

387.

2011-07-11 time: 8:11:06.79 UTC ML= 0.9
lat: 47.418N lon: 18.353E h= 0.0 km
erh= 3.3km erz= 344km
nr= 6 gap=262 rms=0.21
Locality: Gánt
Comments: probably explosion

sta	dist	azm	phase	hr	mn	sec	res
PKSG	4.1	136	ePgC	8:11:07.40			-0.12
			eSg		11:08.10		0.01
CSKK	9.3	229	ePgC	8:11:08.80			0.36
			eSg		11:09.70		-0.04
PKST	29.9	234	ePgC	8:11:12.10			-0.02
			eSg		11:15.90		-0.38

388.

2011-07-11 time: 8:11:45.75 UTC ML= 1.0
lat: 47.418N lon: 18.335E h= 0.0 km
erh= 9.4km erz= 954km
nr= 6 gap=252 rms=0.57
Locality: Gánt
Comments: probably explosion

sta	dist	azm	phase	hr	mn	sec	res
PKSG	5.1	124	ePgC	8:11:46.40			-0.26
			eSg		11:47.00		-0.38
CSKK	8.3	223	ePgC	8:11:47.80			0.57
			eSg		11:49.10		0.72
PKST	28.8	232	ePgC	8:11:50.90			0.02
			eSg		11:53.40		-1.49

389.

2011-07-11 time: 9:59:14.32 UTC ML= 0.5
lat: 47.500N lon: 18.346E h= 0.3 km
erh= 3.8km erz= 142km
nr= 6 gap=303 rms=0.10
Locality: Vértessomló
Comments:

sta	dist	azm	phase	hr mn	sec	res
PKSG	12.5	164	ePgC	9:59:16.60		0.05
			eSg	59:18.10		-0.18
CSKK	16.5	203	ePg	9:59:17.40		0.13
			eSg	59:19.60		0.03
PKST	35.7	221	ePg	9:59:20.60		-0.09
			eSg	59:25.60		-0.06

390.

2011-07-11 time: 16:40:01.17 UTC ML= 0.5
lat: 47.422N lon: 18.358E h= 8.8 km
erh= 4.3km erz= 1.8km
nr= 6 gap=270 rms=0.09
Locality: Gánt
Comments:

sta	dist	azm	phase	hr mn	sec	res
PKSG	4.1	143	ePgC	16:40:02.90		-0.01
			eSg	40:04.20		-0.07
CSKK	9.8	228	ePgD	16:40:03.50		-0.03
			eSg	40:05.60		0.23
PKST	30.4	233	ePgC	16:40:06.90		0.07
			eSg	40:11.10		-0.14

391.

2011-07-11 time: 17:48:39.02 UTC ML= 0.5
lat: 47.489N lon: 18.348E h= 0.2 km
erh= 3.1km erz= 133km
nr= 6 gap=301 rms=0.08
Locality: Oroszlány
Comments:

sta	dist	azm	phase	hr mn	sec	res
PKSG	11.3	163	ePgC	17:48:41.10		0.06
			eSg	48:42.50		-0.11
CSKK	15.5	205	ePgD	17:48:41.80		0.01
			eSg	48:44.10		0.16
PKST	34.9	223	ePg	17:48:45.20		-0.05
			eSg	48:50.00		-0.10

392.

2011-07-13 time: 21:53:10.50 UTC ML= 2.1
lat: 46.567N lon: 21.218E h= 10.0 km
erh= 4.7km erz= 5.9km
nr= 23 gap= 76 rms=1.22
Locality: Elek
Comments:

sta	dist	azm	phase	hr mn	sec	res
SIRR	47.6	134	iPg	21:53:19.10		-0.08
PKSN	109.6	290	ePn	21:53:25.00		-4.92
			eSn	53:43.10		-1.96
BZS	110.0	164	iPn	21:53:29.10		-0.88
DRGR	117.0	78	iPnD	21:53:30.20		-0.64
PKS6	126.8	272	ePn	21:53:33.20		1.13
			eSn	53:49.50		0.62
BANR	131.8	183	iPnD	21:53:33.00		0.31
PSZ	180.6	326	ePn	21:53:38.10		-0.68
			eSn	53:58.40		-2.43
CJR	183.0	85	iPn	21:53:40.20		1.12
TRPA	200.5	30	ePn	21:53:40.40		-0.85
			eSn	54:10.10		4.86
PKSM	202.1	259	ePn	21:53:40.10		-1.35
			eSn	54:08.70		3.10
MDVR	202.2	169	iPn	21:53:42.20		0.74
BMR	212.2	55	iPnD	21:53:44.90		2.18
KECS	220.1	345	ePn	21:53:43.90		0.20
PKS9	225.3	271	ePnC	21:53:49.10		4.75
			eSn	54:16.40		5.65
ARCR	246.1	76	iPnD	21:53:47.40		0.45
VYHS	279.4	320	ePn	21:53:50.90		-0.20
ARR	296.4	117	iPnD	21:53:54.20		0.98
VOIR	322.3	113	iPnD	21:53:57.80		1.35
BURB	325.2	69	iPnD	21:53:57.80		0.99

393.

2011-07-22 time: 1:58:52.75 UTC ML= 0.4
lat: 47.435N lon: 18.244E h= 10.0 km
erh= 6.2km erz= 4.6km
nr= 6 gap=255 rms=0.13
Locality: Pusztavám
Comments:

sta	dist	azm	phase	hr mn	sec	res
CSKK	8.1	171	ePgC	1:58:55.20		0.15
			eSg	58:56.90		0.06
PKSG	12.1	114	ePgC	1:58:55.60		0.05
			eSg	58:57.60		-0.13
PKST	25.2	219	ePgD	1:58:57.40		-0.19
			eSg	59:01.40		0.03

394.

2011-07-25 time: 2:44:52.62 UTC ML= 2.8
lat: 45.628N lon: 18.057E h= 0.3 km
erh= 4.1km erz= 2.5km
nr= 25 gap=200 rms=0.92
Locality: Northwestern Balkan Peninsula
Comments:

sta	dist	azm	phase	hr mn	sec	res
PKSM	79.2	35	ePgD	2:45:05.90		-0.86
			eSg	45:17.60		-0.19
PKS9	108.0	9	ePg	2:45:11.80		-0.10
			eSg	45:27.10		0.16
BEHE	136.4	313	ePnD	2:45:16.70		0.09
			eSn	45:40.40		5.07
PKS7	179.2	28	ePn	2:45:22.80		0.85
			eSn	45:46.10		1.26
CSKK	193.5	5	ePnD	2:45:23.10		-0.64
			eSn	45:46.90		-1.11
PKSG	197.7	7	ePn	2:45:23.40		-0.87
			eSn	45:49.50		0.55
PKSN	198.5	45	ePn	2:45:26.00		1.64
			eSn	45:50.80		1.69
BUD	219.2	20	ePn	2:45:28.30		1.36
			eSn	45:55.80		2.09
SOKA	261.2	297	Pn	2:45:31.70		-0.47
			Sn	46:04.30		1.28
ARSA	265.4	313	Pn	2:45:32.90		0.20
			Sn	46:04.40		0.43
BZS	277.6	90	iPn	2:45:32.40		-1.83
SIRR	288.3	76	iPnD	2:45:35.90		0.35
OBKA	288.6	290	Pn	2:45:35.90		0.31
			Sn	46:15.10		6.00
PSZ	290.7	29	ePnD	2:45:33.90		-1.96
			eSn	46:04.60		-4.99
PSZ	290.7	29	iPn	2:45:32.80		-3.06
MDVR	302.3	108	iPnD	2:45:39.30		2.00
CONA	305.8	327	Pn	2:45:37.70		-0.04
			Sn	46:11.50		-1.43
PDG	368.1	165	iPnD	2:45:44.80		-0.70
MOA	380.7	310	Pn	2:45:48.00		0.92
			Sn	46:30.30		0.75
DRGR	381.8	70	iPnD	2:45:45.60		-1.61

```
MORC 462.9 355   iPn    2:45:50.40   -6.93
KRLC 503.6 349   ePn    2:46:02.90    0.50
                 eSn      46:53.10   -3.74
KHC  515.8 319   ePn    2:46:05.00    1.07
                 eSn      46:56.80   -2.75
```

395.

```
 2011-07-26  time:  5:52:26.49 UTC  ML= 0.8
   lat: 47.915N  lon: 19.887E  h=  5.4 km
                 erh= 8.9km    erz= 6.6km
   nr=  6        gap=254       rms=0.62
   Locality: Mátraszentimre
   Comments:

sta   dist azm  phase  hr mn  sec     res
PSZ    0.6  55   ePgD   5:52:26.90   -0.57
                 eSg      52:28.90    0.67
KECS  77.3  35   ePg    5:52:41.20    0.88
                 eSg      52:50.40   -0.71
VYHS 101.2 309   ePg    5:52:44.90    0.30
                 eSg      52:58.20   -0.52
```

396.

```
 2011-07-26  time: 20:43:34.17 UTC  ML= 2.3
   lat: 47.552N  lon: 22.314E  h=  0.7 km
                 erh= 4.0km    erz= 4.7km
   nr= 22        gap= 74       rms=1.12
   Locality: Romania
   Comments:

sta   dist azm  phase  hr mn  sec     res
TRPA  66.4  15   ePgD  20:43:46.20    0.17
                 eSg      43:53.70   -1.58
DRGR  89.8 160   iPg   20:43:49.80   -0.39
CJR  134.9 134   iPn   20:43:57.20   -0.72
SIRR 151.3 199   iPn   20:43:59.70   -0.27
ARCR 162.7 109   iPn   20:44:02.00    0.61
KECS 171.3 307   ePn   20:44:03.30    0.84
                 eSn      44:24.10   -0.43
PSZ  186.0 283   iPn   20:44:03.40   -0.90
PSZ  186.0 283   ePn   20:44:03.50   -0.80
DEV  190.9 166   iPn   20:44:06.40    1.49
PKSN 199.1 249   ePn   20:44:09.80    3.86
                 eSn      44:38.20    7.48
BURB 218.5  88   iPn   20:44:07.80   -0.55
BZS  221.7 194   iPn   20:44:08.40   -0.35
STHS 221.9 339   ePn   20:44:08.10   -0.68
                 eSn      44:41.20    5.43
PKS7 245.0 257   ePnD  20:44:17.40    5.74
                 eSn      44:49.00    8.10
LANS 275.9 310   ePn   20:44:15.60    0.10
                 eSn      44:53.00    5.25
VYHS 279.8 292   ePn   20:44:10.50   -5.49
                 eSn      44:55.20    6.58
DOPR 293.6 127   iPn   20:44:17.30   -0.42
MDVR 311.5 189   iPn   20:44:19.30   -0.64
VOIR 315.2 138   iPnD  20:44:20.20   -0.21
PKSM 317.2 242   ePnD  20:44:18.90   -1.75
PKST 324.7 264   ePnD  20:44:20.60   -0.99
                 eSn      44:54.00   -4.59
MORC 429.8 305   iPn   20:44:34.10   -0.60
KRLC 493.8 305   ePn   20:44:42.30   -0.38
                 eSn      45:32.60   -3.52
DPC  538.0 305   ePn   20:44:48.30    0.11
                 eSn      45:43.50   -2.43
```

397.

```
 2011-07-27  time:  5:42:37.23 UTC  ML= 2.0
   lat: 48.221N  lon: 21.175E  h=  0.8 km
                 erh= 2.7km    erz= 2.4km
   nr= 14        gap=118       rms=0.77
   Locality: Monok
   Comments:

sta   dist azm  phase  hr mn  sec     res
KECS  58.8 300   ePg    5:42:48.10    0.37
                 eSg      42:55.40   -0.52
PSZ  101.2 251   ePgC   5:42:54.80   -0.50
                 eSg      43:08.90   -0.49
TRPA 102.0  96   ePgD   5:42:55.20   -0.24
                 eSg      43:07.50   -2.14
STHS 133.1   2   ePn    5:43:01.70    0.95
                 eSn      43:18.30   -0.79
LANS 162.7 309   ePn    5:43:05.50    1.05
                 eSn      43:24.80   -0.88
VYHS 176.0 280   ePn    5:43:07.40    1.30
                 eSn      43:27.70   -0.92
PKSN 177.1 214   eSn    5:43:29.20    0.34
PKS7 199.9 229   eSn    5:43:35.00    1.08
```

398.

```
 2011-07-27  time: 11:23:26.07 UTC  ML= 2.3
   lat: 47.428N  lon: 18.410E  h=  6.8 km
                 erh= 2.8km    erz= 2.2km
   nr= 23        gap= 47       rms=1.02
   Locality: Gánt
   Comments:

sta   dist azm  phase  hr mn  sec     res
CSKK  13.4 237   ePgD  11:23:28.50   -0.25
                 eSg      23:30.60   -0.24
PKST  34.0 236   ePgD  11:23:31.30   -0.97
BUD   46.7  82   ePgD  11:23:34.80    0.30
                 eSg      23:41.10    0.03
PKS9  94.0 186   ePg   11:23:43.90    0.99
                 eSg      23:57.00    0.96
VYHS 122.7  15   ePn   11:23:46.50   -1.04
                 eSn      24:00.10   -4.19
PSZ  124.1  64   ePnC  11:23:47.20   -0.51
                 eSn      24:03.40   -1.19
PKSN 125.3 118   eSn   11:24:03.50   -1.35
PKS6 127.2 136   eSn   11:24:05.70    0.42
PKSM 136.4 173   ePnC  11:23:48.90   -0.34
                 eSn      24:04.90   -2.41
SMOL 141.2 329   ePn   11:23:50.10    0.25
                 eSn      24:06.30   -2.09
SOP  142.2 282   eSn   11:24:09.20    0.58
BEHE 163.8 229   ePn   11:23:54.70    2.04
KECS 194.4  53   ePn   11:23:58.30    1.82
                 eSn      24:22.70    2.50
LANS 207.0  22   ePn   11:24:00.40    2.35
                 eSn      24:24.80    1.81
STHS 304.8  43   ePn   11:24:11.90    1.66
DPC  359.2 335   ePn   11:24:16.70   -0.33
KHC  405.6 298   ePn   11:24:22.10   -0.71
                 eSn      25:03.10   -3.96
```

399.

```
 2011-07-27  time: 12:49:09.16 UTC  ML= 2.1
   lat: 47.458N  lon: 18.370E  h= 10.0 km
                 erh= 2.9km    erz= 1.9km
   nr= 23        gap=111       rms=0.94
   Locality: Oroszlány
   Comments:

sta   dist azm  phase  hr mn  sec     res
PKSG   7.5 168   ePg   12:49:11.30   -0.10
```

```
                 eSg      49:12.50   -0.65
CSKK  13.4 218   ePgD  12:49:11.80   -0.35
                 eSg      49:14.10   -0.38
BUD   49.4  87   ePg   12:49:18.20    0.04
                 eSg      49:24.40   -0.78
PKS7  75.3 127   eSg   12:49:33.80    0.49
PKS9  97.1 184   ePgC  12:49:28.20    1.60
                 eSg      49:40.40    0.21
VYHS 120.3  17   ePn   12:49:29.80   -0.12
                 eSn      49:43.50   -2.61
PSZ  125.4  66   ePnD  12:49:30.70    0.15
                 eSn      49:46.70   -0.53
PKS6 131.7 136   ePn   12:49:30.80   -0.54
                 eSn      49:48.90    0.26
SMOL 136.8 329   ePn   12:49:32.70    0.72
                 eSn      49:48.10   -1.67
PKSM 140.1 172   ePnC  12:49:32.20   -0.19
                 eSn      49:48.10   -2.40
KECS 194.8  54   ePn   12:49:41.80    2.59
                 eSn      50:07.10    4.46
LANS 205.0  23   ePn   12:49:43.90    3.41
                 eSn      50:09.20    4.28
```

400.

```
 2011-07-27  time: 18:18:33.70 UTC  ML= 0.5
   lat: 47.494N  lon: 18.347E  h=  0.2 km
                 erh= 2.6km    erz= 155km
   nr=  6        gap=302       rms=0.07
   Locality: Oroszlány
   Comments:

sta   dist azm  phase  hr mn  sec     res
PKSG  11.8 164   ePg   18:18:35.80   -0.01
                 eSg      18:37.40   -0.06
CSKK  15.9 204   ePgD  18:18:36.60    0.06
                 eSg      18:38.80    0.04
PKST  35.2 222   ePgD  18:18:40.00    0.01
                 eSg      18:44.60   -0.29
```

401.

```
 2011-07-29  time: 10:48:15.37 UTC  ML= 0.4
   lat: 47.478N  lon: 18.335E  h=  0.5 km
                 erh= 5.0km    erz=93.8km
   nr=  5        gap=293       rms=0.07
   Locality: Oroszlány
   Comments:

sta   dist azm  phase  hr mn  sec     res
PKSG  10.4 156   ePgD  10:48:17.30    0.07
                 eSg      48:18.60   -0.09
CSKK  13.9 204   ePgD  10:48:17.80   -0.05
                 eSg      48:19.90    0.11
PKST  33.2 223   eSg   10:48:25.90   -0.04
```

402.

```
 2011-07-29  time: 13:37:27.79 UTC  ML= 1.7
   lat: 47.477N  lon: 18.365E  h=  8.2 km
                 erh= 2.4km    erz= 1.8km
   nr= 15        gap=152       rms=0.42
   Locality: Oroszlány
   Comments:

sta   dist azm  phase  hr mn  sec     res
PKSG   9.7 168   ePgC  13:37:30.10    0.04
                 eSg      37:31.60   -0.23
CSKK  14.9 212   ePgD  13:37:30.80   -0.03
                 eSg      37:32.90   -0.30
PKST  34.8 226   ePgC  13:37:33.80   -0.37
                 eSg      37:39.10   -0.05
BUD   49.7  89   ePg   13:37:37.10    0.31
                 eSg      37:43.40   -0.40
PKS9  99.2 184   ePgD  13:37:46.70    1.14
                 eSg      37:59.50    0.07
VYHS 118.4  17   ePn   13:37:48.80    0.26
                 eSn      38:02.30   -2.42
PSZ  124.9  67   ePnD  13:37:49.50    0.16
                 eSn      38:05.60   -0.56
PKSM 142.3 171   ePn   13:37:51.10   -0.41
                 eSn      38:07.20   -2.82
```

403.

```
 2011-07-30  time: 17:21:07.07 UTC  ML= 0.5
   lat: 47.361N  lon: 18.260E  h=  5.2 km
                 erh= 3.5km    erz= 0.8km
   nr=  6        gap=165       rms=0.08
   Locality: Csókakő
   Comments:

sta   dist azm  phase  hr mn  sec     res
CSKK   0.2 358   ePgC  17:21:08.10    0.10
                 eSg      21:08.60   -0.13
PKSG  10.4  71   ePgD  17:21:09.20    0.06
                 eSg      21:10.70   -0.06
PKST  20.6 236   ePgD  17:21:10.80   -0.05
                 eSg      21:13.80   -0.01
```

404.

```
 2011-08-01  time: 22:08:45.34 UTC  ML= 1.8
   lat: 47.215N  lon: 17.675E  h=  8.3 km
                 erh= 2.1km    erz= 2.2km
   nr= 20        gap= 90       rms=0.77
   Locality: Németbánya
   Comments:

sta   dist azm  phase  hr mn  sec     res
PKST  27.6  80   ePgD  22:08:49.50   -0.99
                 eSg      08:53.80   -0.71
CSKK  47.2  70   ePgD  22:08:54.20    0.30
                 eSg      09:01.00    0.42
PKSG  57.5  70   ePgD  22:08:55.40   -0.32
                 eSg      09:04.60    0.78
PKS9  83.6 147   ePg   22:09:01.10    0.75
                 eSg      09:13.10    1.04
SOP   99.0 302   ePg   22:09:01.90   -1.18
                 eSg      09:17.70    0.78
BUD  106.2  74   eSg   22:09:18.90   -0.29
BEHE 107.6 220   ePgD  22:09:05.10    0.49
                 eSg      09:19.30   -0.34
PKS7 114.3  99   eSn   22:09:21.40    0.07
PKSM 133.8 146   ePn   22:09:06.70   -1.30
                 eSn      09:21.40   -4.27
VYHS 166.6  31   ePn   22:09:13.40    1.31
                 eSn      09:33.20    0.25
PSZ  184.4  65   ePn   22:09:15.20    0.90
                 eSn      09:40.50    3.60
```

405.

```
 2011-08-03  time:  6:10:33.87 UTC  ML= 1.4
   lat: 47.404N  lon: 18.347E  h=  0.0 km
                 erh= 5.9km    erz= 457km
   nr=  6        gap=237       rms=0.28
   Locality: Gánt
   Comments: probably explosion

sta   dist azm  phase  hr mn  sec     res
PKSG   3.5 113   ePgC   6:10:34.30   -0.20
                 eSg      10:35.00    0.01
CSKK   8.0 235   ePgC   6:10:35.70    0.40
                 eSg      10:36.60    0.19
PKST  28.7 236   ePg    6:10:38.90   -0.09
                 eSg      10:42.50   -0.48
```

406.

2011-08-03 time: 7:56:55.47 UTC ML= 0.2
lat: 47.423N lon: 18.201E h= 5.2 km
erh= 6.5km erz= 9.1km
nr= 6 gap=249 rms=0.11
Locality: Pusztavám
Comments:

sta	dist	azm	phase	hr	mn	sec	res
CSKK	8.0	146	ePgC	7:56:		57.30	0.13
			eSg			58.40	-0.09
PKSG	14.7	103	ePgD	7:56:		58.30	0.05
			eSg			57:00.30	-0.13
PKST	22.1	215	ePgD	7:56:		59.40	-0.12
			eSg			57:02.80	0.11

407.

2011-08-03 time: 7:58:45.22 UTC ML= 1.9
lat: 48.384N lon: 19.827E h= 0.0 km
erh= 2.0km erz= 3.3km
nr= 10 gap=105 rms=0.63
Locality: Slovakia
Comments: probably explosion

sta	dist	azm	phase	hr	mn	sec	res
KECS	50.0	77	ePg	7:58:		54.10	-0.05
			eSg			59:01.50	0.39
PSZ	52.0	174	ePgD	7:58:		54.60	0.09
			eSg			59:01.50	-0.26
VYHS	74.3	279	ePg	7:58:		58.90	0.41
			eSg			59:08.40	-0.45
LANS	89.2	343	eSg	7:59:		13.80	0.21
CRVS	133.5	64	ePn	7:59:		10.60	1.69
			eSn			59:25.70	-1.68
STHS	154.9	42	eSn	7:59:		31.50	-0.61

408.

2011-08-04 time: 0:54:51.03 UTC ML= 2.0
lat: 47.582N lon: 22.311E h= 0.7 km
erh= 2.1km erz= 2.5km
nr= 9 gap=121 rms=0.34
Locality: Romania
Comments:

sta	dist	azm	phase	hr	mn	sec	res
BMR	89.7	84	iPg	0:55:		06.90	-0.15
DRGR	92.9	161	iPg	0:55:		07.30	-0.33
CJR	137.3	135	iPnD	0:55:		15.30	0.20
CRVS	159.8	337	ePn	0:55:		18.10	0.20
			eSn			55:38.10	-0.76
KECS	169.0	306	ePn	0:55:		19.00	-0.06
			eSn			55:42.00	1.09
PSZ	185.0	282	iPnD	0:55:		21.10	0.05
BURB	218.6	89	iPnD	0:55:		25.70	0.47
STHS	218.8	339	eSn	0:55:		57.40	5.45
VYHS	278.3	291	eSn	0:56:		12.00	6.84

409.

2011-08-04 time: 8:52:52.30 UTC ML= 1.4
lat: 48.570N lon: 20.415E h= 0.0 km
erh= 3.0km erz= ***km
nr= 11 gap= 87 rms=0.83
Locality: Slovakia
Comments: probably explosion

sta	dist	azm	phase	hr	mn	sec	res
KECS	11.0	152	ePg	8:52:		54.10	-0.16
			eSg			52:55.70	-0.09
PSZ	82.1	208	ePgC	8:53:		07.40	0.44
			eSg			53:17.90	-0.50
CRVS	85.4	64	ePg	8:53:		07.50	-0.04
			eSg			53:17.80	-1.63
LANS	94.9	313	ePg	8:53:		09.20	-0.04
			eSg			53:20.00	-2.45
STHS	112.0	33	ePg	8:53:		13.90	1.60
VYHS	116.9	266	ePg	8:53:		13.10	-0.07
			eSg			53:26.40	-3.06

410.

2011-08-05 time: 3:02:49.10 UTC ML= 2.3
lat: 46.152N lon: 16.495E h= 12.0 km
erh= 2.3km erz= 1.6km
nr= 32 gap=146 rms=0.91
Locality: Croatia
Comments:

sta	dist	azm	phase	hr	mn	sec	res
KOGS	38.0	330	iPg	3:02:		56.40	0.19
			iSg			03:01.70	-0.05
BEHE	41.4	31	ePgD	3:02:		56.50	-0.30
			eSg			03:02.70	-0.11
GCIS	74.3	245	iPg	3:03:		02.60	0.06
			iSg			03:13.50	0.48
PDKS	116.1	266	iPn	3:03:		09.10	0.02
			iSn			03:23.80	-0.86
BOJS	120.5	233	iPn	3:03:		09.70	0.07
SOKA	126.8	297	Pn	3:03:		10.20	-0.21
			Sn			03:26.30	-0.73
ARSA	143.0	329	Pn	3:03:		12.40	-0.03
			Sn			03:29.20	-1.43
PKS9	145.5	71	ePn	3:03:		12.50	-0.25
			eSn			03:32.50	1.31
OBKA	155.1	285	Pn	3:03:		14.30	0.36
			Sn			03:34.10	0.79
PKSM	165.8	88	ePn	3:03:		13.00	-2.28
			eSn			03:36.80	1.10
PKST	170.3	44	ePn	3:03:		14.40	-1.44
			eSn			03:38.60	1.91
SOP	170.3	2	ePn	3:03:		14.60	-1.24
			eSn			03:36.40	-0.30
CSKK	190.6	45	ePn	3:03:		20.10	1.73
			eSn			03:46.10	4.91
PKSG	199.9	46	ePn	3:03:		22.20	2.67
			eSn			03:50.90	7.64
CONA	203.3	346	Pn	3:03:		20.50	0.55
			Sn			03:49.40	5.38
MYKA	225.8	284	Sn	3:03:		55.80	6.78
PKS7	227.2	64	eSn	3:03:		51.00	1.68
MOA	253.7	318	Pn	3:03:		27.50	1.26
			Sn			03:56.30	1.09
SMOL	271.9	15	ePn	3:03:		27.30	-1.21
ABTA	313.1	282	Sn	3:04:		09.60	1.21
VYHS	314.8	34	ePn	3:03:		32.70	-1.16
			eSn			04:03.60	-5.17
PSZ	324.5	53	ePn	3:03:		41.00	5.93
KHC	397.2	327	ePn	3:03:		45.60	1.47
			eSn			04:26.10	-0.95

411.

2011-08-05 time: 6:33:31.21 UTC ML= 1.4
lat: 47.444N lon: 18.388E h= 0.0 km
erh= 1.4km erz= 164km
nr= 6 gap=306 rms=0.10
Locality: Várgesztes
Comments: probably explosion

sta	dist	azm	phase	hr	mn	sec	res
PKSG	5.8	178	ePgC	6:33:		32.20	-0.04
			eSg			33:33.10	0.05
CSKK	13.1	227	ePgC	6:33:		33.50	-0.06
			eSg			33:35.20	-0.19
PKST	33.7	232	ePgC	6:33:		37.30	0.07
			eSg			33:42.10	0.18

412.

2011-08-05 time: 6:33:46.67 UTC ML= 1.3
lat: 47.471N lon: 18.358E h= 0.0 km
erh= 3.9km erz= 490km
nr= 6 gap=298 rms=0.29
Locality: Oroszlány
Comments: probably explosion

sta	dist	azm	phase	hr mn	sec	res
PKSG	9.2	164	ePgC	6:33:48.30		-0.01
			eSg	33:49.30		-0.28
CSKK	14.1	212	ePgC	6:33:49.60		0.41
			eSg	33:51.00		-0.15
PKST	34.0	226	ePgC	6:33:52.40		-0.34
			eSg	33:57.80		0.33

413.

2011-08-05 time: 17:43:58.13 UTC ML= 0.5
lat: 47.434N lon: 18.190E h= 10.0 km
erh= 3.2km erz= 2.9km
nr= 6 gap=256 rms=0.09
Locality: Pusztavám
Comments:

sta	dist	azm	phase	hr mn	sec	res
CSKK	9.5	146	ePgC	17:44:00.70		0.11
			eSg	44:02.60		0.09
PKSG	15.9	107	ePgC	17:44:01.50		0.02
			eSg	44:03.90		-0.19
PKST	22.7	211	ePgC	17:44:02.50		-0.06
			eSg	44:06.00		-0.02

414.

2011-08-06 time: 2:10:34.37 UTC ML=-0.2
lat: 47.429N lon: 18.254E h= 0.1 km
erh= 5.7km erz= 623km
nr= 6 gap=251 rms=0.13
Locality: Pusztavám
Comments:

sta	dist	azm	phase	hr mn	sec	res
CSKK	7.3	176	ePgC	2:10:35.80		0.12
			eSg	10:36.50		-0.20
PKSG	11.1	112	ePgD	2:10:36.40		0.04
			eSg	10:37.70		-0.21
PKST	25.1	221	ePg	2:10:38.80		-0.06
			eSg	10:42.50		0.14

415.

2011-08-07 time: 9:49:32.66 UTC ML= 1.9
lat: 46.542N lon: 17.865E h= 5.9 km
erh=23.0km erz= 105km
nr= 8 gap=248 rms=1.63
Locality: Szentgáloskér
Comments:

sta	dist	azm	phase	hr mn	sec	res
PKS9	32.1	81	ePg	9:49:38.00		-0.48
			eSg	49:45.20		2.17
PKSM	70.1	122	ePg	9:49:44.50		-0.72
			eSg	49:53.50		-1.52
PKST	80.7	9	ePg	9:49:47.40		0.30
PKSG	102.5	23	ePg	9:49:50.40		-0.60
			eSg	50:03.50		-1.80
PKS7	113.7	60	ePg	9:49:57.20		4.21

416.

2011-08-08 time: 1:52:06.74 UTC ML= 1.4
lat: 46.556N lon: 17.973E h= 10.0 km
erh= 1.8km erz= 2.3km
nr= 8 gap=137 rms=0.38
Locality: Igal
Comments:

sta	dist	azm	phase	hr mn	sec	res
PKS9	23.7	82	ePgD	1:52:11.40		0.07
			eSg	52:15.00		0.09
PKSM	64.1	127	ePg	1:52:17.90		-0.42
			eSg	52:28.20		0.85
CSKK	92.4	14	ePg	1:52:22.80		-0.53
			eSg	52:36.50		0.23
BEHE	92.4	264	eSg	1:52:36.60		0.31
BUD	130.5	38	eSn	1:52:45.90		-0.04

417.

2011-08-08 time: 20:35:14.21 UTC ML= 1.2
lat: 46.590N lon: 18.084E h= 13.8 km
erh= 6.5km erz= 3.7km
nr= 8 gap=234 rms=0.71
Locality: Koppányszántó
Comments:

sta	dist	azm	phase	hr mn	sec	res
PKS9	14.9	91	ePg	20:35:17.50		-0.33
			eSg	35:21.40		0.74
PKSM	60.0	134	ePg	20:35:24.20		-1.00
			eSg	35:35.00		1.23
CSKK	87.0	9	eS*	20:35:43.30		1.17
PKSG	92.2	15	eP*	20:35:30.40		-0.28
			eS*	35:43.30		-0.23
PKS7	96.6	58	eS*	20:35:44.60		-0.14

418.

2011-08-11 time: 10:18:07.48 UTC ML= 0.6
lat: 47.483N lon: 18.344E h= 0.3 km
erh= 3.8km erz= 113km
nr= 6 gap=297 rms=0.07
Locality: Oroszlány
Comments:

sta	dist	azm	phase	hr mn	sec	res
PKSG	10.7	161	ePg	10:18:09.50		0.11
			eSg	18:10.80		-0.09
CSKK	14.7	205	ePgD	10:18:10.10		0.00
			eSg	18:12.10		-0.05
PKST	34.1	223	ePg	10:18:13.50		-0.07
			eSg	18:18.40		0.08

419.

2011-08-11 time: 14:29:01.07 UTC ML= 0.4
lat: 47.402N lon: 18.268E h= 4.7 km
erh= 3.7km erz= 2.4km
nr= 6 gap=228 rms=0.10
Locality: Pusztavám
Comments:

sta	dist	azm	phase	hr mn	sec	res
CSKK	4.3	187	ePgC	14:29:02.40		0.19
			eSg	29:03.00		-0.10
PKSG	9.3	97	ePgD	14:29:02.90		-0.04
			eSg	29:04.30		-0.10
PKST	23.7	228	ePgD	14:29:05.40		0.01
			eSg	29:08.70		-0.06

420.

2011-08-15 time: 5:58:00.53 UTC ML= 0.7
lat: 47.394N lon: 18.008E h= 10.0 km
erh= 3.8km erz= 4.9km
nr= 5 gap=278 rms=0.16
Locality: Ácsteszér
Comments:

sta	dist	azm	phase	hr	mn	sec	res
PKST	15.1	173	ePgC	5:58:		03.80	0.04
			eSg		58:	06.20	-0.09
CSKK	19.3	100	ePgC	5:58:		04.60	0.18
			eSg		58:	07.50	0.05
PKSG	28.9	90	ePg	5:58:		05.70	-0.29

421.

2011-08-15 time: 14:22:45.76 UTC ML= 2.2
lat: 47.736N lon: 16.166E h= 10.0 km
erh= 3.4km erz= 2.7km
nr= 37 gap= 84 rms=1.72
Locality: Austria
Comments:

sta	dist	azm	phase	hr	mn	sec	res
SOP	30.0	101	ePgC	14:22:		52.70	1.29
			eSg		22:	56.10	0.28
CONA	31.2	313	Pg	14:22:		51.10	-0.51
			Sg		22:	56.10	-0.08
ARSA	72.5	222	Pg	14:22:		57.90	-0.92
			Sg		23:	06.80	-2.22
SMOL	127.8	47	ePn	14:23:		06.90	-0.54
			eSn		23:	20.80	-3.56
MOA	142.9	275	Pn	14:23:		09.50	0.17
			Sn		23:	27.10	-0.62
SOKA	145.6	216	Pn	14:23:		09.90	0.23
			Sn		23:	26.10	-2.22
PKST	150.4	111	ePnC	14:23:		08.50	-1.77
			eSn		23:	27.80	-1.59
CSKK	163.0	105	ePn	14:23:		12.90	1.06
			eSn		23:	33.60	1.42
PKSG	171.7	103	ePnD	14:23:		11.20	-1.73
			eSn		23:	35.90	1.78
TREC	180.5	344	ePn	14:23:		13.90	-0.11
			eSn		23:	34.50	-1.56
OBKA	183.4	222	Pn	14:23:		16.60	2.22
			Sn		23:	39.40	2.69
PKS9	204.9	129	eSn	14:23:		46.90	5.42
VYHS	216.0	67	ePn	14:23:		20.80	2.36
			eSn		23:	47.00	3.06
KBA	225.1	251	Pn	14:23:		23.40	3.82
			Sn		23:	51.30	5.33
KHC	246.5	309	ePn	14:23:		24.10	1.86
			eSn		23:	50.20	-0.50
PKSM	253.4	132	ePn	14:23:		21.30	-1.80
			eSn		23:	46.70	-5.53
GOPC	262.5	337	ePn	14:23:		25.30	1.05
			eSn		23:	58.40	4.13
KRLC	264.1	10	ePn	14:23:		24.00	-0.44
PRU	277.4	335	ePn	14:23:		27.20	1.10
			eSn		24:	03.00	5.43
PRA	289.0	334	eSn	14:24:		07.30	7.15
LANS	290.6	57	ePn	14:23:		32.30	4.56

422.

2011-08-18 time: 8:31:16.07 UTC ML= 1.8
lat: 48.352N lon: 19.832E h= 0.0 km
erh= 2.4km erz= 3.3km
nr= 11 gap=108 rms=0.60
Locality: Slovakia
Comments: probably explosion

sta	dist	azm	phase	hr	mn	sec	res
PSZ	48.4	175	ePg	8:31:		24.90	0.19
KECS	50.5	73	ePg	8:31:		25.20	0.10
			eSg		31:	31.50	-0.64
VYHS	75.4	282	ePg	8:31:		29.70	0.16
			eSg		31:	38.90	-1.14
LANS	92.8	343	ePg	8:31:		33.10	0.45
			eSg		31:	45.60	0.03
CRVS	134.8	63	ePn	8:31:		39.50	-0.41
			eSn		31:	57.20	-1.31
STHS	157.3	41	ePn	8:31:		44.10	1.38
			eSn		32:	03.00	-0.51

423.

2011-08-21 time: 14:12:36.35 UTC ML= 1.0
lat: 47.181N lon: 18.413E h= 10.0 km
erh= 5.8km erz= 5.3km
nr= 7 gap=274 rms=0.66
Locality: Székesfehérvár
Comments:

sta	dist	azm	phase	hr	mn	sec	res
CSKK	23.3	330	ePgD	14:12:		41.10	0.23
			eSg		12:	43.10	-1.30
PKSG	23.5	356	ePgC	14:12:		41.80	0.90
			eSg		12:	44.40	-0.06
PKST	29.9	287	ePgC	14:12:		41.90	-0.09
			eSg		12:	46.50	0.11
VYHS	149.3	12	ePn	14:12:		59.60	-1.13
			eSn		13:	15.90	-3.84

424.

2011-08-22 time: 9:50:34.20 UTC ML= 1.6
lat: 47.444N lon: 18.439E h= 6.7 km
erh=11.5km erz= 3.8km
nr= 6 gap=298 rms=0.63
Locality: Várgesztes
Comments:

sta	dist	azm	phase	hr	mn	sec	res
PKSG	6.9	212	ePgC	9:50:		36.10	0.18
			eSg		50:	36.60	-0.65
PKST	36.9	236	ePg	9:50:		40.30	-0.59
			eSg		50:	47.20	1.09
PKSM	137.9	174	ePn	9:50:		58.20	0.63
			eSn		51:	15.10	-0.70

425.

2011-08-29 time: 0:38:11.00 UTC ML= 0.4
lat: 47.356N lon: 18.207E h= 7.8 km
erh= 4.5km erz= 1.0km
nr= 6 gap=203 rms=0.09
Locality: Mór
Comments:

sta	dist	azm	phase	hr	mn	sec	res
CSKK	4.1	78	ePgD	0:38:		12.60	0.02
			eSg		38:	13.60	-0.21
PKSG	14.4	74	ePgD	0:38:		13.90	-0.03
			eSg		38:	16.40	0.19
PKST	16.9	231	ePgD	0:38:		14.30	-0.03
			eSg		38:	17.00	0.07

426.

2011-08-29 time: 7:30:45.19 UTC ML= 2.5
lat: 45.853N lon: 17.728E h= 10.0 km
erh=17.0km erz=12.3km
nr= 7 gap=242 rms=1.56
Locality: Felsőszentmárton
Comments:

sta	dist	azm	phase	hr mn	sec	res
PKS9	92.0	28	ePg	7:31:00.90		-0.82
			eSg	31:13.70		-0.91
BEHE	100.6	313	ePg	7:31:03.80		0.55
			eSg	31:18.20		0.87
PKST	158.1	9	ePnC	7:31:13.00		2.34
			eSn	31:28.10		-2.42
CRES	176.5	269	iPn	7:31:11.30		-1.65

427.

2011-09-02 time: 8:44:32.31 UTC ML= 1.5
lat: 48.626N lon: 20.741E h= 0.0 km
erh= 1.7km erz= 2.9km
nr= 10 gap=159 rms=0.33
Locality: Slovakia
Comments: probably explosion

sta	dist	azm	phase	hr mn	sec	res
KECS	24.6	230	ePg	8:44:36.80		0.09
			eSg	44:40.30		0.16
CRVS	61.2	60	ePg	8:44:43.30		0.05
			eSg	44:51.40		-0.38
PSZ	100.7	219	ePg	8:44:50.50		0.21
			eSg	45:03.50		-0.82
LANS	110.1	302	ePg	8:44:52.20		0.23
			eSg	45:06.30		-1.00
VYHS	141.3	264	ePn	8:44:57.00		0.03
			eSn	45:14.80		-1.40

428.

2011-09-03 time: 7:30:33.02 UTC ML= 2.7
lat: 46.689N lon: 18.730E h= 10.0 km
erh= 2.5km erz= 2.5km
nr= 22 gap=134 rms=0.86
Locality: Németkér
Comments: felt 4-5 EMS

sta	dist	azm	phase	hr mn	sec	res
PKS9	36.4	252	ePgD	7:30:40.20		0.45
			eSg	30:45.30		0.29
PKS7	51.6	40	ePgD	7:30:42.30		-0.11
PKS6	64.7	99	ePgD	7:30:44.50		-0.20
			eSg	30:53.10		-0.72
PKSG	82.3	342	ePg	7:30:47.80		-0.02
			eSg	30:58.00		-1.37
PKSN	89.9	75	ePgC	7:30:49.80		0.63
			eSg	31:02.00		0.24
BUD	91.1	14	ePgC	7:30:50.00		0.61
			eSg	31:00.80		-1.36
BEHE	151.8	261	ePn	7:30:55.00		-2.70
			eSn	31:19.10		2.15
PSZ	162.6	33	ePnD	7:30:58.20		-0.85
			eSn	31:21.10		1.75
VYHS	200.8	2	e n	7:31:04.10		0.28
			eSn	31:30.40		2.56
SIRR	229.8	102	iPnD	7:31:06.30		-1.13
KECS	239.2	34	ePn	7:31:13.80		5.19
			eSn	31:41.70		5.34
ARSA	251.9	284	Pn	7:31:10.80		0.62
BZS	252.9	118	iPn	7:31:10.00		-0.30
CONA	256.9	302	Pn	7:31:11.70		0.89
			Sn	31:38.20		-2.09
LANS	279.2	11	ePn	7:31:20.80		7.21
MDVR	314.4	132	iPn	7:31:18.00		0.02
CRVS	320.0	40	ePn	7:31:26.70		8.02
MORC	354.5	346	iPnD	7:31:23.80		0.82
STHS	356.5	32	ePn	7:31:32.70		9.47
KRLC	403.3	339	eSn	7:32:11.20		-1.57
KHC	471.2	305	ePn	7:31:37.80		0.27

429.

2011-09-07 time: 22:38:20.80 UTC ML= 2.3
lat: 47.845N lon: 19.563E h= 0.6 km
erh= 2.0km erz= 2.1km
nr= 34 gap= 38 rms=0.94
Locality: Kisbágyon
Comments: felt 4 EMS

sta	dist	azm	phase	hr mn	sec	res
PSZ	26.1	72	ePgD	22:38:25.50		0.05
			eSg	38:29.00		-0.08
BUD	57.1	225	ePgC	22:38:31.10		0.11
			eSg	38:38.90		-0.04
VYHS	90.2	323	ePg	22:38:37.40		0.50
			eSg	38:48.10		-1.37
PKS7	93.8	199	ePgD	22:38:37.10		-0.44
			eSg	38:50.00		-0.60
KECS	98.7	44	ePg	22:38:38.20		-0.22
			eSg	38:50.60		-1.57
PKSG	101.6	240	ePg	22:38:38.40		-0.54
			eSg	38:54.50		1.42
PKST	132.3	240	ePn	22:38:43.50		-0.75
			eSn	39:01.50		-1.04
LANS	145.3	357	ePn	22:38:46.70		0.82
			eSn	39:04.00		-1.44
PKS2	152.8	190	ePnD	22:38:47.30		0.50
			eSn	39:06.80		-0.29
PKS9	170.4	215	ePnD	22:38:50.50		1.50
			eSn	39:12.40		1.40
SMOL	175.3	295	ePn	22:38:50.50		0.88
CRVS	183.3	50	ePn	22:38:52.10		1.49
			eSn	39:15.30		1.44
STHS	214.2	35	ePn	22:38:55.30		0.84
TRPA	224.4	82	ePn	22:38:57.40		1.67
			eSn	39:25.10		2.12
SIRR	236.9	138	iPnD	22:38:55.10		-2.20
BEHE	260.9	234	ePn	22:39:07.20		6.91
			eSn	39:42.50		11.41
MORC	261.1	325	iPn	22:38:59.50		-0.82
DRGR	265.2	116	iPn	22:38:58.60		-2.23
TIM	266.4	152	iPn	22:38:59.40		-1.57
VRAC	273.0	307	iPn	22:39:02.30		0.51
CONA	276.9	272	Pn	22:39:02.40		0.11
			Sn	39:34.70		0.05
BZS	293.3	148	iPn	22:39:02.40		-1.92
ARSA	311.3	258	Pn	22:39:07.20		0.63
			Sn	39:40.70		-1.57
DPC	365.6	320	ePn	22:39:15.10		1.76
MDVR	378.7	154	iPnD	22:39:12.80		-2.17
MOA	396.5	270	Pn	22:39:17.80		0.60
			Sn	40:02.50		1.31
LOT	418.0	130	iPn	22:39:16.80		-3.07
BURB	424.9	93	iPn	22:39:16.10		-4.63
VOIR	498.1	123	iPn	22:39:25.10		-4.76

430.

2011-09-12 time: 7:43:31.25 UTC ML= 1.3
lat: 47.445N lon: 18.350E h= 0.0 km
erh= 3.8km erz= 381km
nr= 6 gap=284 rms=0.22
Locality: Oroszlány
Comments: probably explosion

sta	dist	azm	phase	hr mn	sec	res
PKSG	6.7	153	ePgC	7:43:32.30		-0.15
			eSg	43:33.40		0.02
CSKK	11.4	217	ePgC	7:43:33.60		0.32
			eSg	43:34.70		-0.16
PKST	31.6	229	ePgC	7:43:36.80		-0.10
			eSg	43:39.90		-1.40

431.

2011-09-12 time: 7:43:41.89 UTC ML= 1.7
lat: 47.477N lon: 18.399E h= 0.0 km
erh= 1.9km erz= 190km
nr= 6 gap=315 rms=0.11
Locality: Várgesztes
Comments: probably explosion

sta	dist	azm	phase	hr	mn	sec	res
PKSG	9.5	184	ePgC	7:	43:	43.60	0.02
			eSg		43:	44.80	-0.10
CSKK	16.4	220	ePgC	7:	43:	44.90	0.08
			eSg		43:	47.00	-0.10
PKST	36.7	229	ePg	7:	43:	48.30	-0.14
			eSg		43:	54.30	0.75

432.

2011-09-14 time: 2:37:47.70 UTC ML= 0.2
lat: 47.453N lon: 18.205E h= 7.4 km
erh= 6.2km erz= 8.6km
nr= 6 gap=265 rms=0.13
Locality: Bokod
Comments:

sta	dist	azm	phase	hr	mn	sec	res
CSKK	10.8	157	ePgD	2:	37:	50.20	0.16
			eSg		37:	51.80	-0.06
PKSG	15.5	116	ePg	2:	37:	50.80	0.03
			eSg		37:	52.90	-0.27
PKST	25.1	211	ePgC	2:	37:	52.30	-0.07
			eSg		37:	56.10	0.08

433.

2011-09-14 time: 9:05:18.49 UTC ML= 1.0
lat: 47.443N lon: 18.380E h= 0.0 km
erh= 2.4km erz= 271km
nr= 5 gap=300 rms=0.13
Locality: Várgesztes
Comments: probably explosion

sta	dist	azm	phase	hr	mn	sec	res
PKSG	5.7	172	ePgC	9:	05:	19.50	-0.01
			eSg		05:	20.20	-0.10
CSKK	12.6	226	ePg	9:	05:	21.00	0.26
			eSg		05:	22.50	0.00
PKST	33.1	232	ePgC	9:	05:	24.30	-0.11

434.

2011-09-14 time: 9:13:10.76 UTC ML= 1.3
lat: 47.349N lon: 18.429E h= 0.1 km
erh= 3.5km erz= 399km
nr= 6 gap=283 rms=0.19
Locality: Gánt
Comments:

sta	dist	azm	phase	hr	mn	sec	res
PKSG	5.6	329	ePgC	9:	13:	11.80	0.05
			eSg		13:	12.30	-0.23
CSKK	12.8	277	ePg	9:	13:	13.20	0.15
			eSg		13:	15.00	0.17
PKST	31.5	251	ePgC	9:	13:	16.40	0.02
			eSg		13:	20.20	-0.56

435.

2011-09-14 time: 9:13:51.07 UTC ML= 0.5
lat: 47.478N lon: 18.335E h= 0.5 km
erh= 5.0km erz=93.9km
nr= 5 gap=293 rms=0.07
Locality: Oroszlány
Comments:

sta	dist	azm	phase	hr	mn	sec	res
PKSG	10.4	156	ePgD	9:	13:	53.00	0.07
			eSg		13:	54.30	-0.09
CSKK	13.9	204	ePgD	9:	13:	53.50	-0.05
			eSg		13:	55.60	0.11
PKST	33.2	223	eSg	9:	14:	01.60	-0.04

436.

2011-09-15 time: 3:56:13.17 UTC ML= 0.3
lat: 47.489N lon: 18.348E h= 0.7 km
erh= 4.7km erz=72.3km
nr= 6 gap=301 rms=0.09
Locality: Oroszlány
Comments:

sta	dist	azm	phase	hr	mn	sec	res
PKSG	11.3	163	ePgD	3:	56:	15.30	0.11
			eSg		56:	16.60	-0.17
CSKK	15.5	205	ePgD	3:	56:	15.90	-0.04
			eSg		56:	18.20	0.10
PKST	34.9	223	ePgC	3:	56:	19.40	0.00
			eSg		56:	24.20	-0.06

437.

2011-09-15 time: 10:11:28.87 UTC ML= 0.7
lat: 47.436N lon: 18.090E h= 10.0 km
erh= 9.0km erz=12.3km
nr= 6 gap=270 rms=0.39
Locality: Bakonysárkány
Comments:

sta	dist	azm	phase	hr	mn	sec	res
CSKK	15.2	122	ePgC	10:	11:	32.60	0.49
			eSg		11:	35.10	0.46
PKST	20.1	192	ePgD	10:	11:	32.80	-0.08
			eSg		11:	35.60	-0.40
PKSG	23.2	102	ePg	10:	11:	32.90	-0.48
			eSg		11:	36.50	-0.39

438.

2011-09-19 time: 8:06:17.63 UTC ML= 0.9
lat: 47.422N lon: 18.399E h= 0.0 km
erh= 4.4km erz= 542km
nr= 6 gap=313 rms=0.32
Locality: Gánt
Comments: probably explosion

sta	dist	azm	phase	hr	mn	sec	res
PKSG	3.4	191	ePgC	8:	06:	18.10	-0.13
			eSg		06:	18.70	0.00
CSKK	12.3	238	ePg	8:	06:	19.50	-0.33
			eSg		06:	21.30	-0.25
PKST	33.0	237	ePgC	8:	06:	24.10	0.58
			eSg		06:	28.10	-0.01

439.

2011-09-19 time: 8:10:03.36 UTC ML= 0.8
lat: 47.446N lon: 18.385E h= 0.0 km
erh= 3.0km erz= 320km
nr= 5 gap=304 rms=0.15
Locality: Várgesztes
Comments: probably explosion

sta	dist	azm	phase	hr mn sec	res
PKSG	6.0	176	ePgC	8:10:04.50	0.06
			eSg	10:05.10	-0.18
CSKK	13.2	226	ePgD	8:10:05.90	0.19
			eSg	10:07.60	0.05
PKST	33.7	232	ePgC	8:10:09.20	-0.18

440.

2011-09-20 time: 11:41:44.50 UTC ML= 0.1
lat: 47.315N lon: 18.133E h= 0.2 km
erh= 6.4km erz=73.8km
nr= 6 gap=191 rms=0.22
Locality: Bakonycsernye
Comments:

sta	dist	azm	phase	hr mn sec	res
PKST	9.8	230	ePgD	11:41:46.20	-0.04
			eSg	41:47.40	-0.20
CSKK	11.0	61	ePgD	11:41:46.70	0.24
			eSg	41:47.80	-0.19
PKSG	21.2	66	ePg	11:41:48.60	0.32
			eSg	41:50.90	-0.34

441.

2011-09-22 time: 6:39:18.24 UTC ML= 1.4
lat: 47.421N lon: 18.356E h= 0.0 km
erh= 3.6km erz= 396km
nr= 6 gap=267 rms=0.24
Locality: Gánt
Comments: probably explosion

sta	dist	azm	phase	hr mn sec	res
PKSG	4.2	141	ePgC	6:39:19.00	0.01
			eSg	39:19.40	-0.17
CSKK	9.6	228	ePgC	6:39:20.30	0.33
			eSg	39:21.50	0.19
PKST	30.2	233	ePgC	6:39:23.50	-0.14
			eSg	39:27.40	-0.45

442.

2011-09-22 time: 6:39:33.66 UTC ML= 1.4
lat: 47.444N lon: 18.374E h= 0.0 km
erh= 5.2km erz= 696km
nr= 6 gap=296 rms=0.41
Locality: Várgesztes
Comments: probably explosion

sta	dist	azm	phase	hr mn sec	res
PKSG	5.9	168	ePg	6:39:34.80	0.09
			eSg	39:35.30	-0.23
CSKK	12.4	224	ePg	6:39:36.20	0.33
			eSg	39:38.20	0.61
PKST	32.9	231	ePg	6:39:39.40	-0.13
			eSg	39:43.40	-0.70

443.

2011-09-22 time: 9:15:46.65 UTC ML= 1.8
lat: 48.384N lon: 19.833E h= 0.0 km
erh= 1.0km erz= 2.7km
nr= 7 gap=123 rms=0.43
Locality: Slovakia
Comments: probably explosion

sta	dist	azm	phase	hr mn sec	res
KECS	49.5	77	ePg	9:15:55.50	0.01
			eSg	16:02.00	-0.39
PSZ	52.0	175	ePg	9:15:55.90	-0.04
			eSg	16:03.00	-0.18
VYHS	74.8	279	ePg	9:16:00.10	0.10
			eSg	16:09.90	-0.52
STHS	154.5	42	eSn	9:16:35.50	2.03

444.

2011-09-26 time: 11:30:13.00 UTC ML= 0.9
lat: 48.041N lon: 19.639E h= 0.0 km
erh= 3.0km erz= 425km
nr= 5 gap=184 rms=0.20
Locality: Sóshartyán
Comments: probably explosion

sta	dist	azm	phase	hr mn sec	res
PSZ	23.5	126	ePgD	11:30:17.10	-0.09
			eSg	30:20.90	0.44
VYHS	78.0	310	ePg	11:30:27.20	0.26
			eSg	30:37.60	-0.20
KECS	79.8	52	ePg	11:30:27.10	-0.15

445.

2011-09-29 time: 12:46:03.70 UTC ML= 1.8
lat: 47.245N lon: 22.774E h= 0.4 km
erh= 2.8km erz= 3.1km
nr= 16 gap= 71 rms=0.75
Locality: Romania
Comments:

sta	dist	azm	phase	hr mn sec	res
DRGR	50.7	185	iPg	12:46:12.70	-0.05
BMR	72.3	49	iPgD	12:46:16.10	-0.51
CJR	86.2	133	iPg	12:46:18.20	-0.89
TRPA	100.0	350	iPgD	12:46:21.80	0.25
			eSg	46:34.70	-0.77
SIRR	138.1	218	iPn	12:46:27.40	-0.50
BURB	188.8	77	iPn	12:46:34.80	0.58
BZS	201.7	206	iPn	12:46:35.80	-0.03
GZR	205.9	180	iPn	12:46:37.80	1.45
CRVS	208.6	332	ePn	12:46:41.70	5.01
			eSn	47:02.30	-0.12
LOT	214.0	159	iPn	12:46:38.70	1.34
KECS	219.7	309	ePn	12:46:41.10	3.03
			eSn	47:06.90	2.02
PSZ	229.2	289	iPnD	12:46:38.40	-0.86
ARR	253.2	146	iPnD	12:46:43.00	0.75
VOIR	266.6	139	iPnD	12:46:44.90	0.98

446.

2011-09-30 time: 9:13:41.13 UTC ML= 1.1
lat: 47.437N lon: 18.338E h= 0.0 km
erh= 6.8km erz= 839km
nr= 6 gap=272 rms=0.51
Locality: Oroszlány
Comments: probably explosion

sta	dist	azm	phase	hr mn sec	res
PKSG	6.4	141	ePgC	9:13:42.00	-0.28
			eSg	13:42.80	-0.37

```
CSKK  10.1 215   ePg    9:13:43.40    0.47
                 eSg      13:44.90    0.57
PKST  30.3 229   ePgC   9:13:46.80    0.26
                 eSg      13:49.50   -1.26
```

447.

```
 2011-09-30  time:  9:17:59.85 UTC  ML= 1.3
   lat: 47.440N  lon: 18.377E  h=  0.0 km
                 erh= 4.2km    erz= 518km
   nr=  6        gap=297       rms=0.30
   Locality: Várgesztes
   Comments: probably explosion

sta   dist azm  phase  hr mn  sec     res
PKSG   5.4 169   ePgC   9:18:00.90    0.08
                 eSg      18:01.50   -0.08
CSKK  12.3 226   ePgC   9:18:02.30    0.26
                 eSg      18:04.10    0.35
PKST  32.8 232   ePgC   9:18:05.50   -0.21
                 eSg      18:09.40   -0.88
```

448.

```
 2011-10-07  time: 10:14:04.94 UTC  ML= 0.8
   lat: 47.473N  lon: 18.046E  h=  0.0 km
                 erh= 3.6km    erz= 476km
   nr=  6        gap=287       rms=0.28
   Locality: Vértesketheły
   Comments: probably explosion

sta   dist azm  phase  hr mn  sec     res
CSKK  20.2 127   ePg   10:14:08.80    0.25
                 eSg      14:11.70    0.33
PKST  23.8 182   ePg   10:14:09.30    0.11
                 eSg      14:12.20   -0.31
PKSG  27.5 109   ePg   10:14:09.80   -0.05
                 eSg      14:13.10   -0.58
```

449.

```
 2011-10-08  time: 19:12:12.12 UTC  ML= 0.0
   lat: 47.403N  lon: 18.221E  h=  0.1 km
                 erh= 6.4km    erz= 651km
   nr=  6        gap=234       rms=0.10
   Locality: Pusztavám
   Comments:

sta   dist azm  phase  hr mn  sec     res
CSKK   5.3 146   ePgC  19:12:13.10    0.03
                 eSg      12:13.70   -0.12
PKSG  12.8  96   ePgC  19:12:14.50    0.08
                 eSg      12:16.20   -0.01
PKST  21.3 221   ePgC  19:12:15.80   -0.14
                 eSg      12:19.10    0.19
```

450.

```
 2011-10-09  time: 23:00:50.30 UTC  ML=-0.4
   lat: 47.453N  lon: 18.189E  h=  1.3 km
                 erh= 6.0km    erz=50.4km
   nr=  6        gap=265       rms=0.11
   Locality: Bokod
   Comments:

sta   dist azm  phase  hr mn  sec     res
CSKK  11.3 151   ePgD  23:00:52.40    0.07
                 eSg      00:53.90   -0.02
PKSG  16.7 114   ePg   23:00:53.40    0.12
                 eSg      00:55.30   -0.31
PKST  24.5 208   ePg   23:00:54.60   -0.08
                 eSg      00:58.10    0.01
```

451.

```
 2011-10-09  time: 23:53:41.30 UTC  ML=-0.2
   lat: 47.491N  lon: 18.328E  h=  0.0 km
                 erh= 3.5km    erz= 416km
   nr=  5        gap=296       rms=0.17
   Locality: Oroszlány
   Comments:

sta   dist azm  phase  hr mn  sec     res
PKSG  12.0 157   ePgD  23:53:43.40   -0.04
                 eSg      53:44.90   -0.21
CSKK  15.1 200   ePgC  23:53:44.10    0.11
                 eSg      53:46.40    0.31
PKST  34.0 221   eSg   23:53:51.90   -0.21
```

452.

```
 2011-10-10  time: 11:50:54.91 UTC  ML= 1.0
   lat: 47.582N  lon: 18.456E  h=  0.0 km
                 erh= 5.9km    erz= 500km
   nr=  5        gap=332       rms=0.25
   Locality: Tatabánya
   Comments: probably explosion

sta   dist azm  phase  hr mn  sec     res
PKSG  21.7 193   ePgC  11:50:58.80    0.02
                 eSg      51:01.70   -0.10
CSKK  28.4 211   ePgC  11:51:00.00    0.01
                 eSg      52:03.50   -0.44
PKST  47.9 222   eSg   11:51:10.70    0.55
```

453.

```
 2011-10-10  time: 20:08:20.53 UTC  ML= 0.2
   lat: 47.403N  lon: 18.187E  h= 10.6 km
                 erh= 2.2km    erz= 1.3km
   nr=  6        gap=238       rms=0.08
   Locality: Mór
   Comments:

sta   dist azm  phase  hr mn  sec     res
CSKK   7.1 128   ePgC  20:08:22.90    0.10
                 eSg      08:24.60    0.02
PKSG  15.4  94   ePg   20:08:23.90    0.03
                 eSg      08:26.30   -0.18
PKST  19.7 216   ePgD  20:08:24.50   -0.02
                 eSg      08:27.60   -0.04
```

454.

```
 2011-10-11  time:  1:23:33.75 UTC  ML= 0.1
   lat: 47.401N  lon: 18.190E  h= 10.7 km
                 erh= 3.3km    erz= 1.8km
   nr=  6        gap=237       rms=0.09
   Locality: Mór
   Comments:

sta   dist azm  phase  hr mn  sec     res
CSKK   6.8 128   ePgC   1:23:36.10    0.09
                 eSg      23:37.80    0.03
PKSG  15.2  94   ePgD   1:23:37.10    0.04
                 eSg      23:39.40   -0.25
PKST  19.7 217   ePgD   1:23:37.70   -0.04
                 eSg      23:40.80   -0.06
```

455.

```
 2011-10-11  time:  2:08:29.95 UTC  ML= 0.9
   lat: 47.293N  lon: 18.282E  h=  4.1 km
                 erh= 3.0km    erz= 3.9km
   nr=  9        gap= 98       rms=0.30
   Locality: Fehérvárcsurgó
   Comments:
```

sta	dist	azm	phase	hr mn	sec	res
CSKK	8.0	348	ePgC	2:08:31.50		-0.05
			eSg	08:33.30		0.50
PKSG	13.8	37	ePgD	2:08:32.50		-0.01
			eSg	08:35.00		0.49
PKST	19.1	259	ePgD	2:08:33.10		-0.34
			eSg	08:36.20		0.05
BUD	59.9	69	eSg	2:08:48.80		-0.24
PKSM	123.2	167	ePnD	2:08:52.40		0.57
			eSn	09:08.70		-0.20

456.

2011-10-12 time: 8:48:43.26 UTC ML= 2.2
lat: 48.374N lon: 19.831E h= 0.0 km
erh= 3.6km erz= 5.3km
nr= 11 gap=106 rms=0.97
Locality: Slovakia
Comments: probably explosion

sta	dist	azm	phase	hr mn	sec	res
KECS	49.9	76	ePg	8:48:52.00		-0.17
			eSg	48:59.40		0.27
PSZ	50.8	175	ePg	8:48:52.40		0.06
			eSg	48:59.30		-0.12
VYHS	74.9	280	ePg	8:48:56.50		-0.13
			eSg	49:06.60		-0.45
LANS	90.4	343	ePg	8:49:00.20		0.79
			eSg	49:10.50		-1.50
CRVS	133.7	64	eSn	8:49:23.60		-1.86
STHS	155.5	42	ePn	8:49:12.10		2.42
			eSn	49:31.40		1.11

457.

2011-10-12 time: 15:15:08.84 UTC ML= 2.5
lat: 46.602N lon: 21.346E h= 10.0 km
erh= 4.6km erz= 5.0km
nr= 18 gap= 96 rms=0.97
Locality: Romania
Comments:

sta	dist	azm	phase	hr mn	sec	res
SIRR	44.4	147	iPgD	15:15:16.60		-0.36
TIM	96.7	186	iPg	15:15:26.50		0.30
DRGR	106.6	79	iP*D	15:15:27.70		-0.16
PKSN	117.6	286	eSn	15:15:46.50		1.31
DEV	144.3	124	iPn	15:15:32.30		-0.29
PKS2	164.0	266	ePnD	15:15:34.80		-0.24
			eSn	15:54.40		-1.08
PKS7	173.9	287	eSn	15:15:59.10		1.42
PSZ	182.9	323	ePnD	15:15:35.90		-1.51
			eSn	15:56.00		-3.69
PKSM	212.4	258	ePnD	15:15:42.00		0.92
			eSn	16:05.70		-0.53
KECS	218.9	343	e n	15:15:41.60		-0.29
LOT	227.4	124	iPnD	15:15:45.50		2.56
PKSG	241.3	291	eSn	15:16:17.30		4.66
PKST	262.5	286	ePnD	15:15:45.10		-2.23
			eSn	16:21.40		4.05
VYHS	282.7	318	ePn	15:15:48.50		-1.34
BURB	314.7	69	iPn	15:15:56.30		2.47

458.

2011-10-12 time: 20:20:55.06 UTC ML= 2.3
lat: 46.030N lon: 16.206E h= 10.0 km
erh= 2.7km erz= 1.6km
nr= 33 gap=148 rms=0.79
Locality: Croatia
Comments:

sta	dist	azm	phase	hr mn	sec	res
GOLS	45.1	267	iPgC	20:21:03.60		0.30
			iSg	21:10.70		0.97
KOGS	46.6	4	iSg	20:21:10.30		0.07
GCIS	48.3	248	iPgC	20:21:03.70		-0.18
			iSg	21:10.80		0.05
CESS	57.9	264	iPg	20:21:05.70		0.15
DOBS	58.5	283	iPgC	20:21:05.80		0.14
CRES	62.3	249	iPgC	20:21:05.90		-0.44
BEHE	65.8	42	ePg	20:21:07.10		0.15
			eSg	21:16.00		-0.22
LEGS	69.4	263	iPgC	20:21:07.40		-0.18
			iSg	21:17.30		-0.05
BOJS	94.4	232	iPg	20:21:11.00		-1.02
PERS	107.6	309	iPn	20:21:13.70		-0.53
SOKA	115.5	309	Pn	20:21:14.80		-0.42
			Sn	21:28.80		-2.15
VNDS	116.7	274	iPnC	20:21:15.10		-0.27
			iSn	21:31.40		0.20
OBKA	138.4	293	Pn	20:21:18.90		0.82
			Sn	21:36.50		0.47
MOZS	139.3	282	iPnC	20:21:18.80		0.62
ARSA	145.4	339	Pn	20:21:19.40		0.45
			Sn	21:36.20		-1.39
SOP	185.8	8	ePn	20:21:24.20		0.21
PKSM	189.4	84	ePnC	20:21:22.80		-1.63
			eSn	21:49.80		2.46
PKST	195.6	46	ePnD	20:21:24.30		-0.91
			eSn	21:53.00		4.27
MYKA	208.4	289	Pn	20:21:30.70		3.90
			Sn	21:54.80		3.24
CONA	212.7	353	Pn	20:21:28.60		1.25
			Sn	22:00.50		7.98
MOA	250.5	324	Pn	20:21:33.90		1.85
			Sn	22:01.00		0.10
KHC	397.5	330	ePn	20:21:52.00		1.62
			eSn	22:32.30		-1.22

459.

2011-10-13 time: 7:17:40.33 UTC ML= 1.2
lat: 47.430N lon: 18.441E h= 0.0 km
erh= 7.5km erz= 562km
nr= 6 gap=340 rms=0.41
Locality: Csákvár
Comments: probably explosion

sta	dist	azm	phase	hr mn	sec	res
PKSG	5.7	222	ePgC	7:17:41.80		0.45
			eSg	17:42.30		0.16
CSKK	15.5	241	ePgC	7:17:43.10		0.00
			eSg	17:44.40		-0.86
PKST	36.1	238	ePgC	7:17:46.40		-0.38
			eSg	17:52.20		0.39

460.

2011-10-13 time: 7:22:27.56 UTC ML= 1.2
lat: 47.378N lon: 18.390E h= 0.0 km
erh= 4.1km erz= 403km
nr= 5 gap=241 rms=0.20
Locality: Gánt
Comments: probably explosion

sta	dist	azm	phase	hr mn	sec	res
PKSG	1.5	3	ePgC	7:22:27.80		-0.03
			eSg	22:28.20		0.15
CSKK	9.9	260	ePgC	7:22:29.10		-0.22
			eSg	22:30.50		-0.20
PKST	29.9	244	ePgC	7:22:33.20		0.30

461.

2011-10-14 time: 10:37:52.55 UTC ML= 0.6
lat: 47.436N lon: 18.075E h= 0.0 km
erh= 4.7km erz= 591km
nr= 6 gap=273 rms=0.37
Locality: Aka
Comments: probably explosion

sta	dist	azm	phase	hr	mn	sec	res
CSKK	16.2	120	ePgD	10	37	56.00	0.57
			eSg		37	57.40	-0.28
PKST	19.9	189	ePgD	10	37	56.00	-0.09
			eSg		37	59.00	0.14
PKSG	24.3	102	ePg	10	37	56.80	-0.09
			eSg		37	59.60	-0.68

462.

2011-10-14 time: 22:43:24.71 UTC ML= 0.2
lat: 47.527N lon: 18.383E h= 0.4 km
erh= 2.8km erz=93.2km
nr= 6 gap=316 rms=0.04
Locality: Vértessomló
Comments:

sta	dist	azm	phase	hr	mn	sec	res
PKSG	15.1	178	ePg	22	43	27.40	0.00
			eSg		43	29.50	0.00
CSKK	20.4	207	ePg	22	43	28.40	0.04
			eSg		43	31.10	-0.11
PKST	39.8	221	ePg	22	43	31.80	-0.01
			eSg		43	37.40	0.05

463.

2011-10-15 time: 16:01:53.83 UTC ML= 0.5
lat: 47.469N lon: 18.199E h= 6.4 km
erh= 5.9km erz=11.1km
nr= 6 gap=273 rms=0.11
Locality: Bokod
Comments:

sta	dist	azm	phase	hr	mn	sec	res
CSKK	12.6	159	ePgD	16	01	56.50	0.14
			eSg		01	58.30	-0.03
PKSG	16.8	121	ePgD	16	01	57.10	0.06
			eSg		01	59.30	-0.24
PKST	26.5	208	ePgC	16	01	58.60	-0.09
			eSg		02	02.50	0.01

464.

2011-10-16 time: 20:21:21.80 UTC ML= 0.0
lat: 47.318N lon: 18.250E h= 6.4 km
erh= 5.6km erz= 4.4km
nr= 6 gap=196 rms=0.11
Locality: Fehérvárcsurgó
Comments:

sta	dist	azm	phase	hr	mn	sec	res
CSKK	5.1	8	ePgC	20	21	23.30	0.03
			eSg		21	24.40	-0.01
PKSG	13.4	52	ePgC	20	21	24.60	0.14
			eSg		21	26.20	-0.33
PKST	17.6	248	ePgD	20	21	25.10	-0.04
			eSg		21	27.70	-0.06

465.

2011-10-17 time: 13:52:35.16 UTC ML= 2.5
lat: 45.785N lon: 17.588E h= 3.1 km
erh= 4.3km erz= 3.3km
nr= 28 gap=205 rms=1.12
Locality: Croatia
Comments:

sta	dist	azm	phase	hr	mn	sec	res
PKSM	94.4	60	ePgD	13	52	51.70	-0.32
			eSg		53	02.80	-2.37
BEHE	98.7	320	ePg	13	52	54.10	1.30
			eSg		53	05.60	-0.95
KOGS	127.0	305	iPn	13	52	58.30	0.66
			eSn		53	13.00	-2.17
PKS2	148.1	58	ePn	13	53	01.20	0.93
			eSn		53	20.50	0.64
GCIS	152.6	273	iPn	13	53	00.60	-0.24
GOLS	154.4	279	iPn	13	53	00.80	-0.26
CRES	165.7	272	iPn	13	53	02.20	-0.27
PKST	167.4	12	ePnD	13	53	01.80	-0.87
			eSn		53	23.30	-0.83
LEGS	177.2	276	iPn	13	53	03.40	-0.50
CSKK	182.8	16	ePn	13	53	07.00	2.40
			eSn		53	28.00	0.44
PKS7	185.2	41	eSn	13	53	30.80	2.71
PKSG	188.9	19	ePn	13	53	04.30	-1.06
			eSn		53	30.40	1.49
VISS	213.7	271	iPn	13	53	08.20	-0.26
SOKA	220.7	297	Pn	13	53	11.80	2.48
			Sn		53	34.30	-1.67
ARSA	227.3	316	Pn	13	53	10.40	0.26
			Sn		53	35.50	-1.92
PENC	257.7	30	ePn	13	53	13.00	-0.94
			eSn		53	51.30	7.12
CONA	272.2	331	Pn	13	53	17.40	1.65
			Sn		53	44.10	-3.30
SKDS	279.9	265	iPn	13	53	18.00	1.30
PSZ	295.3	37	eSn	13	54	00.20	7.69
VYHS	315.7	17	ePn	13	53	28.70	7.53
			eSn		53	51.50	-5.55
KBA	356.4	294	Pn	13	53	32.70	6.45
MORC	443.8	360	iPnD	13	53	40.20	3.06
KHC	479.4	321	e n	13	53	46.10	4.52
			eSn		54	30.10	-3.28

466.

2011-10-18 time: 10:53:49.20 UTC ML= 1.3
lat: 47.416N lon: 18.370E h= 0.0 km
erh= 1.4km erz= 155km
nr= 6 gap=275 rms=0.09
Locality: Gánt
Comments: probably explosion

sta	dist	azm	phase	hr	mn	sec	res
PKSG	3.1	150	ePgC	10	53	49.70	-0.06
			eSg		53	50.30	0.11
CSKK	10.2	235	ePgC	10	53	51.00	-0.01
			eSg		53	52.20	-0.23
PKST	30.8	235	ePgC	10	53	54.80	0.10
			eSg		53	59.00	0.01

467.

2011-10-21 time: 15:58:40.74 UTC ML= 2.3
lat: 48.528N lon: 17.276E h= 1.1 km
erh= 2.7km erz= 2.9km
nr= 40 gap= 51 rms=1.51
Locality: Slovakia
Comments:

sta	dist	azm	phase	hr	mn	sec	res

SMOL	11.4	98	ePg	15:58:42.70	-0.08
			eSg	58:45.40	1.03
SOP	108.1	210	ePg	15:59:00.70	0.67
			eSg	59:14.90	-0.19
VYHS	115.3	92	ePg	15:59:00.40	-0.93
			eSg	59:15.60	-1.80
CONA	124.3	238	Pg	15:59:01.60	-1.34
			Sg	59:17.90	-2.36
CSKK	148.9	150	ePn	15:59:06.70	0.50
			eSn	59:25.70	-0.37
PKSG	151.3	147	ePn	15:59:07.40	0.90
			eSn	59:26.10	-0.49
PKST	152.1	158	ePnC	15:59:07.10	0.51
			eSn	59:25.60	-1.16
TREC	156.4	303	ePn	15:59:06.20	-0.94
			eSn	59:24.90	-2.83
OKC	158.9	24	ePn	15:59:06.80	-0.65
			eSn	59:25.50	-2.78
PENC	170.3	119	ePn	15:59:09.90	1.04
LANS	175.2	67	ePn	15:59:08.80	-0.68
KRLC	175.8	348	ePn	15:59:09.50	-0.06
			eSn	59:31.40	-0.64
ARSA	193.3	223	Pn	15:59:12.00	0.27
			Sn	59:37.60	1.69
PSZ	206.0	109	ePn	15:59:17.40	4.08
			eSn	59:42.70	3.96
DPC	214.2	341	ePn	15:59:16.10	1.76
			eSn	59:42.30	1.75
MOA	236.2	251	Pn	15:59:16.40	-0.68
			Sn	59:49.50	4.07
KECS	237.2	91	ePn	15:59:15.00	-2.21
			eSn	59:51.60	5.93
GOPC	238.0	310	ePn	15:59:20.20	2.89
			eSn	59:47.10	1.26
UPC	238.4	337	eSn	15:59:48.50	2.57
PRU	256.9	309	ePn	15:59:24.00	4.33
			eSn	59:52.20	2.17
PKSM	277.4	158	ePn	15:59:22.30	0.08
KHC	279.7	284	ePn	15:59:23.00	0.49
			eSn	16:00:00.50	5.41

468.

2011-10-23 time: 2:22:11.24 UTC ML= 2.1
lat: 45.531N lon: 16.106E h= 4.0 km
erh= 2.1km erz= 1.4km
nr= 31 gap=198 rms=0.55
Locality: Croatia
Comments:

sta	dist	azm	phase	hr mn	sec	res
GCIS	52.8	315	iPg	2:22:21.30		0.61
			iSg	22:28.60		0.54
CRES	60.3	303	iPg	2:22:22.20		0.18
			eSg	22:30.50		0.06
GOLS	65.2	325	iPg	2:22:23.20		0.30
BOJS	66.8	267	iPgC	2:22:23.30		0.11
			iSg	22:32.00		-0.51
CESS	70.1	314	iSg	2:22:33.50		-0.07
DOBS	84.7	324	iPg	2:22:26.50		0.12
KOGS	102.5	6	ePg	2:22:28.90		-0.66
VISS	103.2	287	iPg	2:22:29.30		-0.39
			iSg	22:43.10		-0.98
PDKS	105.5	305	iPg	2:22:30.10		0.01
GROS	113.5	336	iPg	2:22:31.30		-0.21
BEHE	116.5	26	ePgD	2:22:31.90		-0.16
			eSg	22:46.50		-1.80
CEY	133.0	280	iPn	2:22:35.00		0.67
			iSn	22:51.80		-0.55
KNDS	134.8	270	iPn	2:22:34.90		0.34
PERS	144.7	328	iPn	2:22:35.50		-0.30
			eSn	22:52.30		-2.65
SOKA	152.1	327	Pn	2:22:36.40		-0.32
			Sn	22:56.30		-0.30
OBKA	162.4	312	Pn	2:22:38.60		0.60
			Sn	22:59.40		0.53
ARSA	196.3	347	Pn	2:22:42.60		0.37
			Sn	23:08.70		2.29
PKSM	210.9	69	ePnD	2:22:41.90		-2.15
			eSn	23:11.00		1.36
MYKA	226.4	303	Sn	2:23:18.90		5.81
MOA	293.7	331	Pn	2:22:54.80		0.43
			Sn	23:26.10		-1.91

469.

2011-10-27 time: 9:10:05.53 UTC ML= 1.3
lat: 47.211N lon: 18.223E h= 10.0 km
erh=17.7km erz=18.9km
nr= 8 gap=132 rms=0.42
Locality: Csór
Comments:

sta	dist	azm	phase	hr mn	sec	res
PKST	15.2	290	ePgC	9:10:08.50		-0.29
			eSg	10:11.10		-0.23
CSKK	17.1	10	ePgD	9:10:09.40		0.32
			eSg	10:11.30		-0.54
PKSG	23.8	32	ePgC	9:10:10.40		0.26
			eSg	10:13.50		-0.23
PKSM	115.6	164	ePnD	9:10:26.30		0.60
			eSn	10:40.60		-0.84

470.

2011-10-27 time: 10:20:12.41 UTC ML= 1.4
lat: 47.459N lon: 18.404E h= 0.0 km
erh= 3.0km erz= 349km
nr= 6 gap=316 rms=0.20
Locality: Várgesztes
Comments: probably explosion

sta	dist	azm	phase	hr mn	sec	res
PKSG	7.5	188	ePgC	10:20:13.90		0.14
			eSg	20:14.50		-0.30
CSKK	15.2	226	ePgD	10:20:15.30		0.17
			eSg	20:17.30		0.06
PKST	35.7	232	ePgC	10:20:18.50		-0.29
			eSg	20:23.90		0.14

471.

2011-10-27 time: 19:43:56.37 UTC ML= 1.7
lat: 46.182N lon: 16.706E h= 6.6 km
erh= 2.5km erz= 1.7km
nr= 15 gap=159 rms=0.57
Locality: Croatia
Comments:

sta	dist	azm	phase	hr mn	sec	res
BEHE	32.5	9	ePg	19:44:02.40		0.11
			eSg	44:06.80		-0.11
KOGS	45.9	310	iPgD	19:44:05.00		0.34
			iSg	44:10.90		-0.22
GCIS	90.6	247	iPg	19:44:12.90		0.32
DOBS	95.6	268	iPg	19:44:13.10		-0.39
GROS	97.8	289	iPg	19:44:13.30		-0.58
SOKA	140.0	293	Pn	19:44:20.20		0.19
			Sn	44:38.50		0.05
ARSA	149.3	323	Pn	19:44:22.20		1.02
			Sn	44:39.30		-1.23
PKSM	149.4	89	ePn	19:44:19.40		-1.79
			eSn	44:40.80		0.25
PKST	157.0	40	eSn	19:44:42.40		0.17
OBKA	170.0	282	Sn	19:44:46.40		1.28

472.

2011-10-28 time: 9:25:54.29 UTC ML= 1.3
lat: 48.004N lon: 19.990E h= 1.7 km
erh= 7.5km erz=59.1km
nr= 7 gap=182 rms=0.96
Locality: Mátraterenye
Comments:

sta	dist	azm	phase	hr mn	sec	res
PSZ	11.9	217	ePgD	9:25:55.30		-1.14
			eSg	25:58.50		0.38
PENC	58.1	246	ePgD	9:26:06.40		1.74
			eSg	26:13.10		0.35
KECS	64.7	35	eSg	9:26:15.00		0.13
VYHS	101.5	302	ePg	9:26:11.50		-0.92
			eSg	26:26.50		-0.07

473.

2011-10-31 time: 14:54:16.15 UTC ML= 2.6
lat: 47.731N lon: 16.224E h= 1.0 km
erh= 4.2km erz= 5.1km
nr= 27 gap= 33 rms=1.27
Locality: Austria
Comments:

sta	dist	azm	phase	hr mn	sec	res
CONA	34.9	309	Pg	14:54:22.20		-0.18
			Sg	54:27.40		0.15
ARSA	75.1	225	Pg	14:54:28.90		-0.66
			Sg	54:38.60		-1.43
SMOL	125.0	46	e g	14:54:37.80		-0.67
			eSg	54:53.90		-1.98
KOGS	142.6	179	ePn	14:54:40.90		0.07
PKST	146.1	111	ePn	14:54:39.40		-1.87
			eSn	55:01.00		0.13
BEHE	146.3	163	ePn	14:54:45.30		4.01
			eSn	55:05.10		4.20
MOA	147.3	275	Pn	14:54:40.90		-0.52
			Sn	54:59.60		-1.54
SOKA	147.8	218	Pn	14:54:41.30		-0.18
			Sn	54:59.60		-1.64
PERS	147.9	215	iPn	14:54:40.60		-0.89
GROS	151.4	201	ePn	14:54:41.50		-0.44
CSKK	158.6	105	ePn	14:54:43.90		1.07
			eSn	55:05.70		2.05
PKSG	167.3	103	ePnC	14:54:44.30		0.38
			eSn	55:03.70		-1.88
TREC	182.3	343	ePn	14:54:45.10		-0.68
			eSn	55:08.30		-0.59
OBKA	186.0	223	Pn	14:54:47.30		1.05
			Sn	55:10.80		1.07
VYHS	212.2	66	ePn	14:54:49.40		-0.11
			eSn	55:20.70		5.16
BUD	212.3	97	ePnC	14:54:54.90		5.38
			eSn	55:26.00		10.45
KBA	229.1	252	Pn	14:54:51.10		-0.52
			Sn	55:25.10		5.80
PENC	229.3	88	ePn	14:54:51.80		0.15
			eSn	55:17.10		-2.23
MYKA	230.9	238	Pn	14:54:55.20		3.36
			Sn	55:24.20		4.52
PKSM	249.7	133	ePn	14:54:52.40		-1.79
			eSn	55:19.90		-3.95
KHC	250.2	308	ePn	14:54:57.70		3.45
			eSn	55:23.40		-0.57
KRLC	263.9	9	ePn	14:54:55.00		-0.96
			eSn	55:26.30		-0.71
GOPC	264.7	337	ePn	14:54:58.20		2.14
			eSn	55:26.20		-1.00
OKC	273.6	31	ePn	14:54:59.20		2.03
			eSn	55:27.90		-1.26
PSZ	275.6	86	ePn	14:54:57.90		0.48
			eSn	55:27.60		-2.01
PRU	279.8	334	ePn	14:55:00.60		2.66
			eSn	55:31.20		0.66
LANS	287.3	57	eSn	14:55:31.20		-1.00
DPC	291.4	1	ePn	14:55:00.80		1.41
			eSn	55:39.00		5.89
PRA	291.5	333	eSn	14:55:40.30		7.17
ABTA	301.6	249	Sn	14:55:44.50		9.13
UPC	309.2	357	ePn	14:55:02.70		1.10
			eSn	55:43.80		6.74
PVCC	333.7	339	e n	14:55:43.60		38.93
			eSn	55:51.70		9.19
WTTA	349.6	261	Pn	14:55:05.50		-1.14
			Sn	55:59.30		13.27
WATA	352.7	263	Pn	14:55:17.20		10.17
			Sn	55:59.10		12.37
MOTA	387.9	264	Pn	14:55:10.10		-1.32
			Sn	56:09.60		15.06
NKC	392.3	315	e n	14:55:23.70		11.74
			eSn	56:07.30		11.80
RETA	411.6	266	Pn	14:55:13.20		-1.17
			Sn	56:16.20		16.41
FETA	422.4	259	Pn	14:55:15.50		-0.23
			Sn	56:20.20		18.00
DAVA	480.5	264	Pn	14:55:38.40		15.44
			Sn	56:37.10		22.03

474.

2011-11-01 time: 23:56:34.12 UTC ML= 3.5
lat: 47.700N lon: 17.437E h= 12.8 km
erh= 1.4km erz= 1.6km
nr= 28 gap= 47 rms=0.38
Locality: Rábapatona
Comments: felt 5-6 EMS

sta	dist	azm	phase	hr mn	sec	res
PKST	66.5	137	ePg	23:56:46.60		0.38
			eSg	56:54.00		-1.66
CSKK	72.4	121	ePgC	23:56:47.20		-0.05
PKSG	79.5	116	ePgD	23:56:48.30		-0.20
			eSg	56:59.50		-0.22
SMOL	90.5	360	eP*	23:56:49.80		-0.63
			eS*	57:02.40		-0.76
CONA	120.6	282	Pn	23:56:54.50		-0.05
			Sn	57:10.20		-0.29
BUD	121.7	101	ePnC	23:56:54.70		0.01
			eSn	57:09.50		-1.23
VYHS	136.6	50	ePn	23:56:56.20		-0.34
			eSn	57:12.00		-2.03
PENC	138.7	86	ePnC	23:56:56.60		-0.20
			eSn	57:16.10		1.60
PKS9	139.2	153	ePnC	23:56:57.10		0.23
			eSn	57:16.10		1.48
BEHE	145.7	200	ePnD	23:56:58.10		0.43
			eSn	57:18.50		2.45
PKS7	149.0	119	ePnC	23:56:58.20		0.11
			eSn	57:17.40		0.61
ARSA	152.7	251	Pn	23:56:58.60		0.05
			Sn	57:17.80		0.19
KOGS	165.8	213	iPn	23:56:59.50		-0.69
PSZ	185.6	82	ePn	23:57:03.00		0.34
			eSn	57:28.40		3.48
PKSM	189.1	151	ePnC	23:57:02.80		-0.29
			eSn	57:22.80		-2.89
VRAC	189.4	341	iPnD	23:57:03.20		0.07
PKS2	190.3	135	ePnC	23:57:07.90		4.66
			eSn	57:30.10		4.15
GROS	201.4	227	iPn	23:57:04.20		-0.43
PERS	212.0	236	iPn	23:57:05.80		-0.15
SOKA	214.8	238	Pn	23:57:06.20		-0.09
			Sn	57:32.00		0.62
LANS	220.5	43	ePn	23:57:07.20		0.20
			eSn	57:32.70		0.05
TREC	228.5	321	ePn	23:57:08.60		0.59
MORC	231.1	2	iPnD	23:57:08.80		0.47

MOA	238.3	274	Pn	23:57:10.70	1.48
			Sn	57:43.00	6.40
KECS	243.2	69	ePn	23:57:10.30	0.46
			eSn	57:43.70	6.00
OKC	243.4	12	ePn	23:57:10.10	0.24
			eSn	57:36.70	-1.03
OBKA	256.1	239	Pn	23:57:11.80	0.35
			Sn	57:50.10	9.53
KRLC	268.5	350	ePn	23:57:14.40	1.41
DPC	305.8	345	ePn	23:57:17.70	0.06
MYKA	311.4	248	Pn	23:57:19.20	0.86
			Sn	58:06.40	13.56
GOPC	313.9	322	ePn	23:57:20.20	1.55
KBA	316.7	257	Pn	23:57:19.60	0.61
CEY	317.0	227	ePn	23:57:19.40	0.36
KHC	327.0	299	ePn	23:57:21.30	1.01
			eSn	57:55.40	-0.90
CRVS	327.1	66	ePn	23:57:21.00	0.70
			eSn	58:07.80	11.48
UPC	329.1	342	ePn	23:57:20.70	0.15
PRU	331.6	320	ePn	23:57:21.30	0.44
			eSn	57:54.90	-2.41
STHS	339.7	56	ePn	23:57:23.30	1.43
PRA	343.6	320	ePn	23:57:24.30	1.95
			eSn	58:11.10	11.13
SKDS	355.1	228	iPn	23:57:23.80	0.01
SIRR	358.5	116	iPnD	23:57:24.30	0.08
PVCC	377.9	326	ePn	23:57:28.00	1.37
BANR	383.2	132	iPnD	23:57:28.20	0.91
TRPA	384.4	83	ePn	23:57:27.20	-0.24
ABTA	387.8	254	Pn	23:57:28.50	0.64
			Sn	58:27.50	17.72
BZS	394.9	126	iPnD	23:57:28.90	0.15
DRGR	411.8	104	iPn	23:57:31.40	0.54
WTTA	439.9	264	Pn	23:57:36.20	1.84
WATA	443.3	265	Pn	23:57:40.20	5.41
BMR	455.0	90	iPn	23:57:36.10	-0.14
NKC	461.4	308	ePn	23:57:37.30	0.26
			eSn	58:45.00	18.89
DEV	463.6	116	iPnD	23:57:41.20	3.88
MOTA	478.7	265	Pn	23:57:41.20	2.01
CJR	479.5	103	iPn	23:57:39.50	0.20
RETA	502.6	267	Pn	23:57:43.20	1.02
FETA	512.4	262	Pn	23:57:44.40	1.00
ARCR	526.6	97	iPn	23:57:45.40	0.22
LOT	546.2	117	iPn	23:57:49.20	1.59
DAVA	571.3	265	Pn	23:57:51.40	0.65
			Sn	58:53.40	2.88
BURB	584.5	91	iPn	23:57:53.10	0.71
PDG	602.9	166	iPnD	23:57:57.90	3.21
ARR	609.9	115	iPn	23:57:55.60	0.04
VOIR	635.5	113	iPnD	23:57:59.80	1.05
DOPR	636.5	108	iPn	23:57:59.20	0.33
MLR	696.7	111	iPnD	23:58:06.00	-0.38
TESR	711.6	101	iPn	23:58:08.90	0.66
VTS	726.8	141	iPnD	23:58:11.50	1.36
PLOR	733.0	106	iPnD	23:58:11.40	0.49
VRI	738.2	106	iPnD	23:58:11.90	0.35

475.

2011-11-02 time: 0:06:19.87 UTC ML= 1.0
lat: 47.535N lon: 17.517E h= 18.4 km
erh= 5.2km erz= 2.0km
nr= 8 gap=314 rms=0.40
Locality: Tét
Comments:

sta	dist	azm	phase	hr mn	sec	res
PKST	49.7	128	ePgD	0:06:29.50		0.17
			eSg	06:36.70		-0.01
CSKK	59.3	109	eP*	0:06:31.00		0.09
			eS*	06:38.90		-0.62
PKSG	67.8	104	eP*	0:06:31.80		-0.41
			eS*	06:42.90		1.07
PKSM	170.3	150	ePn	0:06:46.00		0.22
			eSn	07:05.70		-0.29

476.

2011-11-02 time: 2:16:41.42 UTC ML= 1.3
lat: 47.710N lon: 17.500E h= 22.5 km
erh= 3.4km erz= 6.1km
nr= 17 gap= 97 rms=0.61
Locality: Öttevény
Comments:

sta	dist	azm	phase	hr mn	sec	res
PKST	64.4	141	ePgC	2:16:53.00		-0.10
			eSg	17:00.30		-1.91
CSKK	69.1	124	ePgC	2:16:53.80		-0.01
			eSg	17:02.80		-0.68
PKSG	75.8	118	ePg	2:16:54.80		-0.04
			eSg	17:06.40		1.09
SMOL	89.5	357	ePn	2:16:56.80		-0.04
			eSn	17:08.40		-0.47
CONA	125.0	281	Pn	2:17:00.90		-0.37
			Sn	17:16.20		-0.55
VYHS	132.3	49	ePn	2:17:03.30		1.12
			eSn	17:18.50		0.14
ARSA	157.5	251	Pn	2:17:05.90		0.57
			Sn	17:25.00		1.03
SOKA	219.4	238	Pn	2:17:12.90		-0.14
			Sn	17:37.40		-0.30
MOA	242.9	274	Pn	2:17:21.30		5.33
			Sn	17:50.00		7.09

477.

2011-11-02 time: 10:17:58.46 UTC ML= 1.7
lat: 48.414N lon: 19.026E h= 0.0 km
erh= 4.6km erz= 8.0km
nr= 9 gap=145 rms=1.15
Locality: Slovakia
Comments: probably explosion

sta	dist	azm	phase	hr mn	sec	res
VYHS	16.6	302	ePg	10:18:01.90		0.47
			eSg	18:05.10		1.35
PSZ	84.9	130	ePg	10:18:13.80		0.17
LANS	88.1	22	ePg	10:18:15.00		0.81
			eSg	18:26.00		-0.46
KECS	108.2	86	ePg	10:18:17.30		-0.49
			eSg	18:30.60		-2.26
SMOL	118.7	275	eSg	10:18:34.20		-1.99
CRVS	187.4	73	eSn	10:18:54.70		2.12

478.

2011-11-03 time: 3:29:27.81 UTC ML= 1.2
lat: 47.399N lon: 19.413E h= 7.1 km
erh= 6.2km erz=26.5km
nr= 7 gap=235 rms=0.89
Locality: Péteri
Comments:

sta	dist	azm	phase	hr mn	sec	res
BUD	30.8	288	ePg	3:29:32.50		-0.96
			eSg	29:36.70		-1.16
PENC	44.6	347	ePg	3:29:36.50		0.62
			eSg	29:41.70		-0.47
PSZ	68.1	32	ePg	3:29:41.20		1.15
			eSg	29:49.00		-0.59
CSKK	87.1	267	eSg	3:29:56.60		1.01

479.

2011-11-03 time: 9:21:03.21 UTC ML= 2.2
lat: 45.740N lon: 17.659E h= 10.0 km
erh= 8.9km erz= 5.8km
nr= 11 gap=265 rms=1.33
Locality: Croatia
Comments:

sta	dist	azm	phase	hr	mn	sec	res
PKSM	92.5	55	ePgD	9:	21:	19.80	-0.03
			eSg		21:	31.00	-1.78
PKS9	105.7	27	eP*	9:	21:	21.50	-0.60
			eS*		21:	36.30	-0.53
BEHE	106.1	320	eP*	9:	21:	22.60	0.44
			eS*		21:	35.00	-1.95
PKST	171.3	10	ePn	9:	21:	31.90	1.57
			eSn		21:	51.80	0.31
CSKK	186.3	14	eSn	9:	21:	58.20	3.40
PKSG	192.0	17	ePn	9:	21:	36.80	3.89
			eSn		21:	58.20	2.12

480.

2011-11-06 time: 18:38:17.35 UTC ML= 1.0
lat: 47.466N lon: 18.362E h= 10.0 km
erh= 3.2km erz= 2.2km
nr= 13 gap=102 rms=0.62
Locality: Oroszlány
Comments:

sta	dist	azm	phase	hr	mn	sec	res
PKSG	8.6	166	ePgC	18:	38:	19.80	0.09
			eSg		38:	21.30	-0.24
CSKK	13.8	214	ePgD	18:	38:	20.50	0.10
			eSg		38:	22.60	-0.18
PKST	33.9	227	ePgC	18:	38:	23.50	-0.16
			eSg		38:	28.30	-0.28
BUD	49.9	88	eSg	18:	38:	33.60	0.07
VYHS	119.6	17	ePn	18:	38:	38.50	0.48
			eSn		38:	52.00	-2.14
SMOL	135.7	329	ePn	18:	38:	42.60	2.57
			eSn		38:	57.10	-0.62
PKSM	141.1	171	ePn	18:	38:	41.20	0.50
			eSn		38:	56.90	-2.02

481.

2011-11-13 time: 2:14:28.21 UTC ML= 1.1
lat: 47.326N lon: 18.134E h= 10.0 km
erh= 3.7km erz= 2.0km
nr= 14 gap=113 rms=0.85
Locality: Bakonycsernye
Comments:

sta	dist	azm	phase	hr	mn	sec	res
CSKK	10.4	67	ePgD	2:	14:	30.50	-0.29
			eSg		14:	32.10	-0.71
PKST	10.6	225	ePgD	2:	14:	30.90	0.08
			eSg		14:	32.70	-0.14
PKSG	20.7	69	ePgC	2:	14:	32.00	-0.33
			eSg		14:	34.90	-0.63
BUD	69.4	75	ePg	2:	14:	42.40	1.66
			eSg		14:	50.80	0.29
PKSM	129.8	163	ePn	2:	14:	49.00	-1.15
			eSn		15:	07.50	0.24
PKSN	139.9	110	eSn	2:	15:	13.80	4.28
VYHS	140.1	22	ePn	2:	14:	53.10	1.66
			eSn		15:	09.60	0.05
SMOL	142.2	338	eSn	2:	15:	09.60	-0.42

482.

2011-11-13 time: 19:03:08.41 UTC ML= 2.0
lat: 46.263N lon: 19.785E h= 8.1 km
erh= 3.0km erz= 2.7km
nr= 23 gap=129 rms=0.98
Locality: Ruzsa
Comments:

sta	dist	azm	phase	hr	mn	sec	res
PKS2	50.8	300	ePg	19:	03:	17.80	0.19
			eSg		03:	25.10	0.32
PKSN	70.8	5	ePgC	19:	03:	21.40	0.26
			eSg		03:	32.30	1.23
PKSM	88.4	266	ePg	19:	03:	24.10	-0.16
			eSg		03:	35.30	-1.33
PKS9	121.3	287	ePn	19:	03:	30.20	0.67
			eSn		03:	46.40	0.40
BANR	143.5	133	iPnD	19:	03:	33.90	1.60
SIRR	144.5	90	iPn	19:	03:	31.50	-0.93
BZS	159.2	117	iPnD	19:	03:	34.50	0.25
PKSG	164.5	320	ePn	19:	03:	34.60	-0.32
			eSn		03:	52.30	-3.30
CSKK	168.8	316	eSn	19:	03:	57.50	0.95
PKST	173.7	310	ePn	19:	03:	36.00	-0.06
			eSn		03:	56.70	-0.92
PENC	174.1	347	eSn	19:	03:	59.70	1.98
PSZ	184.3	3	ePn	19:	03:	35.60	-1.78
			eSn		03:	59.80	-0.17
MDVR	223.1	138	iPn	19:	03:	41.90	-0.33
DRGR	232.1	75	iPnD	19:	03:	41.40	-1.94
VYHS	258.2	344	ePn	19:	03:	44.40	-2.20
			eSn		04:	19.50	3.11

483.

2011-11-14 time: 5:38:59.42 UTC ML= 1.2
lat: 47.243N lon: 18.096E h= 8.3 km
erh=14.6km erz=10.2km
nr= 8 gap=131 rms=0.42
Locality: Várpalota
Comments:

sta	dist	azm	phase	hr	mn	sec	res
PKST	5.0	291	ePgD	5:	39:	01.30	0.15
			eSg		39:	02.20	-0.30
CSKK	18.3	43	ePgD	5:	39:	03.00	0.00
			eSg		39:	05.50	-0.29
PKSG	27.8	53	ePg	5:	39:	04.40	-0.19
			eSg		39:	08.60	-0.02
PKSM	121.9	160	ePnD	5:	39:	21.40	0.81
			eSn		39:	36.10	-1.01

484.

2011-11-14 time: 9:35:35.80 UTC ML= 0.9
lat: 47.397N lon: 18.352E h= 0.0 km
erh= 5.3km erz= 314km
nr= 6 gap=220 rms=0.21
Locality: Gánt
Comments: probably explosion

sta	dist	azm	phase	hr	mn	sec	res
PKSG	3.0	101	ePgD	9:	35:	36.20	-0.13
			eSg		35:	36.70	-0.04
CSKK	7.9	241	ePgD	9:	35:	37.50	0.30
			eSg		35:	38.50	0.20
PKST	28.5	237	ePg	9:	35:	40.80	-0.09
			eSg		35:	44.50	-0.36

485.

2011-11-14 time: 9:36:21.89 UTC ML= 1.1
lat: 47.413N lon: 18.446E h= 0.0 km
erh= 5.6km erz= 192km
nr= 5 gap=352 rms=0.26
Locality: Csákvár
Comments: probably explosion

sta	dist	azm	phase	hr mn sec	res
PKSG	4.8	240	ePgD	9:36:22.90	0.15
			eSg	36:23.80	0.38
CSKK	15.1	248	ePg	9:36:24.40	-0.18
			eSg	36:26.20	-0.48
PKST	35.5	241	eSg	9:36:33.20	0.02

486.

2011-11-16 time: 9:05:09.29 UTC ML= 1.0
lat: 47.339N lon: 18.417E h= 0.0 km
erh= 2.0km erz= 262km
nr= 6 gap=271 rms=0.15
Locality: Zámoly
Comments: probably explosion

sta	dist	azm	phase	hr mn sec	res
PKSG	6.2	342	ePgC	9:05:10.30	-0.10
			eSg	05:11.20	-0.06
CSKK	12.1	283	ePgC	9:05:11.60	0.15
			eSg	05:13.20	0.06
PKST	30.3	253	ePg	9:05:14.80	0.11
			eSg	05:18.50	-0.41

487.

2011-11-16 time: 9:12:02.76 UTC ML= 1.2
lat: 47.446N lon: 18.363E h= 0.0 km
erh= 6.3km erz= 771km
nr= 6 gap=291 rms=0.46
Locality: Oroszlány
Comments: probably explosion

sta	dist	azm	phase	hr mn sec	res
PKSG	6.4	161	ePg	9:12:03.80	-0.10
			eSg	12:04.30	-0.49
CSKK	12.0	220	ePg	9:12:05.30	0.39
			eSg	12:07.50	0.91
PKST	32.4	230	ePg	9:12:08.50	-0.05
			eSg	12:12.20	-0.86

488.

2011-11-18 time: 0:30:35.83 UTC ML= 1.3
lat: 47.780N lon: 17.679E h= 10.0 km
erh= 8.1km erz= 5.9km
nr= 11 gap=192 rms=0.93
Locality: Vámosszabadi
Comments:

sta	dist	azm	phase	hr mn sec	res
CSKK	63.7	137	ePg	0:30:49.00	1.65
			eSg	30:56.40	0.07
PKST	63.8	155	ePgD	0:30:46.80	-0.56
			eSg	30:55.10	-1.25
PKSG	68.8	129	ePg	0:30:48.90	0.66
			eSg	30:57.20	-0.72
SMOL	83.7	347	ePg	0:30:51.50	0.61
			eSg	31:02.80	0.17
VYHS	117.2	47	ePn	0:30:55.10	-1.10
			eSn	31:08.90	-3.18
PENC	120.1	89	eSn	0:31:13.20	0.46

489.

2011-11-19 time: 23:24:31.50 UTC ML=-0.1
lat: 47.378N lon: 18.229E h= 8.4 km
erh= 2.2km erz= 0.6km
nr= 6 gap=215 rms=0.04
Locality: Mór
Comments:

sta	dist	azm	phase	hr mn sec	res
CSKK	2.9	125	ePgC	23:24:33.10	0.01
			eSg	24:34.30	-0.03
PKSG	12.3	83	ePgC	23:24:34.20	0.03
			eSg	24:36.20	-0.04
PKST	19.8	228	ePgC	23:24:35.30	-0.04
			eSg	24:38.40	0.06

490.

2011-11-22 time: 0:54:13.67 UTC ML= 0.5
lat: 47.477N lon: 18.372E h= 10.0 km
erh= 4.8km erz= 3.7km
nr= 7 gap=223 rms=0.12
Locality: Várgesztes
Comments:

sta	dist	azm	phase	hr mn sec	res
PKSG	9.6	172	ePgD	0:54:16.30	0.16
			eSg	54:18.10	0.03
CSKK	15.2	214	ePgD	0:54:16.90	-0.02
			eSg	54:19.10	-0.35
PKST	35.2	226	ePg	0:54:20.20	0.00
			eSg	54:25.30	0.00
BUD	49.1	89	eSg	0:54:29.50	-0.10

491.

2011-11-22 time: 7:31:10.39 UTC ML= 1.6
lat: 47.420N lon: 18.356E h= 0.0 km
erh= 3.6km erz= 391km
nr= 6 gap=267 rms=0.23
Locality: Gánt
Comments: probably explosion

sta	dist	azm	phase	hr mn sec	res
PKSG	4.1	140	ePg	7:31:11.00	-0.12
			eSg	31:11.60	-0.08
CSKK	9.6	229	ePgC	7:31:12.30	0.19
			eSg	31:13.70	0.25
PKST	30.2	234	ePgC	7:31:15.80	0.01
			eSg	31:19.30	-0.70

492.

2011-11-22 time: 7:31:24.94 UTC ML= 2.0
lat: 47.445N lon: 18.411E h= 0.0 km
erh= 8.3km erz= 956km
nr= 6 gap=320 rms=0.58
Locality: Várgesztes
Comments: probably explosion

sta	dist	azm	phase	hr mn sec	res
PKSG	6.1	194	ePg	7:31:25.90	-0.13
			eSg	31:26.70	-0.17
CSKK	14.5	231	ePgC	7:31:27.20	-0.33
			eSg	31:28.40	-1.16
PKST	35.1	234	ePgC	7:31:31.90	0.68
			eSg	31:36.80	0.69

493.

2011-11-22 time: 7:31:58.99 UTC ML= 1.5
lat: 47.437N lon: 18.356E h= 0.0 km
erh= 2.4km erz= 294km
nr= 6 gap=282 rms=0.18
Locality: Oroszlány
Comments: probably explosion

sta	dist	azm	phase	hr	mn	sec	res
PKSG	5.7	152	ePg	7:	31:	59.90	-0.11
			eSg		32:	00.70	-0.10
CSKK	10.9	221	ePgC	7:	32:	01.20	0.26
			eSg		32:	02.60	0.14
PKST	31.3	231	ePg	7:	32:	04.50	-0.09
			eSg		32:	08.70	-0.25

494.

2011-11-23 time: 3:18:47.79 UTC ML= 1.8
lat: 47.428N lon: 18.353E h= 12.0 km
erh= 3.6km erz= 2.0km
nr= 25 gap= 61 rms=1.24
Locality: Oroszlány
Comments:

sta	dist	azm	phase	hr	mn	sec	res
PKSG	4.9	144	ePgC	3:	18:	50.00	-0.11
			eSg		18:	51.50	-0.42
BUD	51.0	83	ePg	3:	18:	57.30	0.15
			eSg		19:	03.40	-1.05
VYHS	124.0	17	ePn	3:	19:	08.70	-0.04
			eSn		19:	22.20	-2.89
ZST	126.8	312	ePn	3:	19:	08.10	-0.99
			eSn		19:	22.20	-3.51
PSZ	128.0	65	ePnC	3:	19:	09.50	0.25
			eSn		19:	25.60	-0.39
PKSM	136.9	171	ePnC	3:	19:	11.20	0.84
			eSn		19:	27.10	-0.87
SMOL	139.1	330	ePn	3:	19:	11.10	0.47
			eSn		19:	26.60	-1.85
BEHE	160.4	228	ePn	3:	19:	15.20	1.91
CONA	195.1	287	Pn	3:	19:	22.00	4.39
			Sn		19:	39.00	-1.88
KECS	197.9	54	ePn	3:	19:	18.90	0.94
			eSn		19:	45.20	3.70
LANS	208.7	23	ePn	3:	19:	22.50	3.19
			eSn		19:	46.70	2.80
ARSA	214.7	265	Sn	3:	19:	46.20	0.96
SOKA	265.7	252	Sn	3:	19:	57.10	0.56
KHC	401.8	298	ePn	3:	19:	52.50	9.11
			eSn		20:	26.70	-0.06

495.

2011-11-25 time: 12:18:10.43 UTC ML= 1.1
lat: 47.980N lon: 19.910E h= 0.0 km
erh= 4.6km erz= 9.8km
nr= 6 gap=152 rms=0.93
Locality: Szuha
Comments: probably explosion

sta	dist	azm	phase	hr	mn	sec	res
PSZ	7.0	190	ePgC	12:	18:	11.20	-0.47
			eSg		18:	13.00	0.36
KECS	70.4	37	ePg	12:	18:	24.10	1.10
			eSg		18:	31.40	-1.41
VYHS	98.2	306	eSg	12:	18:	41.60	-0.03
STHS	187.5	32	eSn	12:	19:	06.80	2.24

496.

2011-11-27 time: 6:54:33.31 UTC ML= 1.2
lat: 47.939N lon: 19.307E h= 0.9 km
erh= 5.0km erz= 215km
nr= 6 gap=237 rms=0.74
Locality: Kisecset
Comments:

sta	dist	azm	phase	hr	mn	sec	res
PSZ	44.0	93	ePg	6:	54:	40.40	-0.76
			eSg		54:	47.00	-0.29
VYHS	71.0	330	ePg	6:	54:	46.10	0.12
			eSg		54:	54.60	-1.26
KECS	106.5	55	ePg	6:	54:	53.10	0.78
			eSg		55:	08.40	1.25

497.

2011-11-28 time: 11:46:26.33 UTC ML= 1.3
lat: 47.307N lon: 18.735E h= 10.0 km
erh= 5.6km erz= 4.6km
nr= 11 gap=131 rms=0.92
Locality: Kajászó
Comments:

sta	dist	azm	phase	hr	mn	sec	res
PKSG	27.7	290	ePgC	11:	46:	30.20	-1.38
			eSg		46:	36.00	0.32
BUD	29.4	48	ePgC	11:	46:	31.80	-0.07
			eSg		46:	35.80	-0.39
CSKK	36.4	280	ePgC	11:	46:	33.60	0.53
			eSg		46:	39.70	1.38
PSZ	110.6	52	ePn	11:	46:	46.90	1.03
			eSn		47:	00.00	-1.11
PKSM	121.9	183	eSn	11:	47:	06.50	2.86

498.

2011-12-04 time: 9:19:33.02 UTC ML= 1.2
lat: 48.175N lon: 19.883E h= 0.0 km
erh= ---km erz= ---km
nr= 4 gap=126 rms=0.52
Locality: Salgóbánya
Comments: probably explosion

sta	dist	azm	phase	hr	mn	sec	res
PSZ	28.5	178	ePgC	9:	19:	38.70	0.58
			eSg		19:	41.30	-0.80
KECS	56.3	53	eSg	9:	19:	50.70	-0.23
VYHS	85.3	295	ePg	9:	19:	48.10	-0.16

499.

2011-12-06 time: 22:48:06.33 UTC ML= 1.9
lat: 47.756N lon: 16.174E h= 7.4 km
erh= 2.9km erz= 2.6km
nr= 34 gap= 80 rms=1.41
Locality: Austria
Comments:

sta	dist	azm	phase	hr	mn	sec	res
SOP	30.0	106	ePgD	22:	48:	12.60	0.76
			eSg		48:	16.10	-0.05
CONA	30.2	310	Pg	22:	48:	12.40	0.51
			Sg		48:	16.50	0.28
ARSA	74.5	221	Pg	22:	48:	19.20	-0.51
			Sg		48:	28.00	-2.14
ZST	84.9	55	ePg	22:	48:	20.30	-1.25
			eSg		48:	30.80	-2.63
MODS	107.2	50	ePg	22:	48:	24.20	-1.32
			eSg		48:	37.70	-2.79
SMOL	125.8	48	ePn	22:	48:	28.40	0.29
			eSn		48:	44.60	-0.49

```
MOA  143.3 274    Pn   22:48:31.20    0.92
                  Sn      48:48.30   -0.66
SOKA 147.7 216    Pn   22:48:31.20    0.37
                  Sn      48:47.50   -2.44
PERS 148.0 213   iPn   22:48:31.10    0.23
                 iSn      48:48.10   -1.91
PKST 150.7 111   ePnC  22:48:31.10   -0.10
                 eSn      48:50.50   -0.10
CSKK 163.0 106   ePn   22:48:35.60    2.86
                 eSn      48:54.90    1.56
PKSG 171.6 104   ePn   22:48:33.20   -0.62
                 eSn      48:57.90    2.64
OBKA 185.5 222    Pn   22:48:38.40    2.86
                  Sn      49:00.00    1.68
VYHS 214.6  67   ePn   22:48:42.20    3.03
MYKA 229.1 237    Pn   22:48:46.40    5.42
KHC  245.5 309   ePn   22:48:45.10    2.08
                 eSn      49:15.20    3.55
PKSM 254.4 132   ePnD  22:48:43.90   -0.23
                 eSn      49:09.80   -3.81
PRU  275.7 334   ePn   22:48:52.10    5.31
                 eSn      49:23.50    5.16
```

500.

```
 2011-12-07  time: 17:53:08.08 UTC  ML= 0.7
   lat: 47.780N  lon: 16.146E  h=  6.3 km
                 erh= 2.1km    erz= 2.1km
   nr= 15        gap=105       rms=0.65
   Locality: Austria
   Comments:

sta   dist azm  phase  hr mn  sec     res
CONA  26.9 308    Pg   17:53:13.30    0.29
                  Sg      53:16.80   -0.05
SOP   32.7 109   ePgC  17:53:14.50    0.47
                 eSg      53:18.60   -0.08
ARSA  75.3 219    Pg   17:53:21.50   -0.07
                  Sg      53:31.00   -1.09
MODS 107.1  52   ePg   17:53:25.80   -1.43
                 eSg      53:38.00   -4.17
SMOL 125.6  49   ePn   17:53:30.10    0.14
                 eSn      53:42.10   -4.93
MOA  141.0 273    Pn   17:53:32.30    0.42
                  Sn      53:50.10   -0.36
SOKA 148.7 215    Pn   17:53:33.10    0.25
                  Sn      53:51.90   -0.27
OBKA 186.1 221    Pn   17:53:39.00    1.49
                  Sn      54:00.00   -0.47
```

501.

```
 2011-12-09  time:  8:55:41.70 UTC  ML= 1.4
   lat: 47.398N  lon: 18.417E  h=  0.0 km
                 erh= 7.2km    erz= 546km
   nr=  6        gap=236       rms=0.34
   Locality: Gánt
   Comments: probably explosion

sta   dist azm  phase  hr mn  sec     res
PKSG   2.1 251   ePgC   8:55:42.30    0.22
                 eSg      55:42.80    0.42
CSKK  12.5 252   ePgC   8:55:43.70   -0.22
                 eSg      55:45.10   -0.56
VYHS 125.8  14   ePg    8:56:04.50    0.34
                 eSg      56:21.30   -0.38
```

502.

```
 2011-12-09  time: 12:48:11.20 UTC  ML= 2.3
   lat: 48.363N  lon: 19.853E  h=  0.0 km
                 erh= 2.3km    erz= 3.3km
   nr= 12        gap=102       rms=0.75
   Locality: Slovakia
   Comments: probably explosion

sta   dist azm  phase  hr mn  sec     res
KECS  48.7  74   ePg   12:48:19.70   -0.20
                 eSg      48:26.20   -0.48
PSZ   49.6 176   ePgD  12:48:20.10    0.04
                 eSg      48:27.30    0.34
VYHS  76.7 281   ePg   12:48:24.80   -0.09
                 eSg      48:34.50   -1.07
LANS  92.0 342   ePg   12:48:28.90    1.27
                 eSg      48:39.70   -0.75
CRVS 132.8  63   ePn   12:48:34.70   -0.10
                 eSn      48:52.00   -1.20
STHS 155.3  41   eSn   12:48:59.70    1.51
MODS 190.9 270   eSn   12:49:07.40    1.32
```

503.

```
 2011-12-18  time: 10:27:27.20 UTC  ML= 1.3
   lat: 47.713N  lon: 17.446E  h= 10.0 km
                 erh= 3.8km    erz= 4.7km
   nr= 14        gap=112       rms=0.87
   Locality: Mosonszentmiklós
   Comments:

sta   dist azm  phase  hr mn  sec     res
SRO   66.0  80   ePg   10:27:39.80    0.69
                 eSg      27:48.10   -0.30
PKST  67.2 139   ePgC  10:27:39.50    0.18
                 eSg      27:47.00   -1.78
CSKK  72.6 122   ePgD  10:27:41.10    0.82
                 eSg      27:49.20   -1.29
SMOL  89.1 359   ePg   10:27:43.70    0.50
                 eSg      27:54.90   -0.79
CONA 121.0 281    Pn   10:27:48.10    0.06
                  Sn      28:03.30   -0.99
VYHS 135.1  50   ePn   10:27:49.90    0.10
                 eSn      28:04.90   -2.53
ARSA 153.8 250    Pn   10:27:53.40    1.27
                  Sn      28:11.10   -0.47
```

504.

```
 2011-12-28  time:  9:20:30.02 UTC  ML= 1.0
   lat: 48.036N  lon: 19.595E  h= 10.0 km
                 erh= 6.4km    erz=16.3km
   nr=  5        gap=192       rms=0.51
   Locality: Nagylóc
   Comments:

sta   dist azm  phase  hr mn  sec     res
PSZ   25.9 120   ePgC   9:20:35.30    0.32
                 eSg      20:38.50   -0.34
VYHS  76.0 312   ePg    9:20:44.50    0.80
                 eSg      20:53.00   -1.38
KECS  82.8  53   ePg    9:20:44.60   -0.31
```

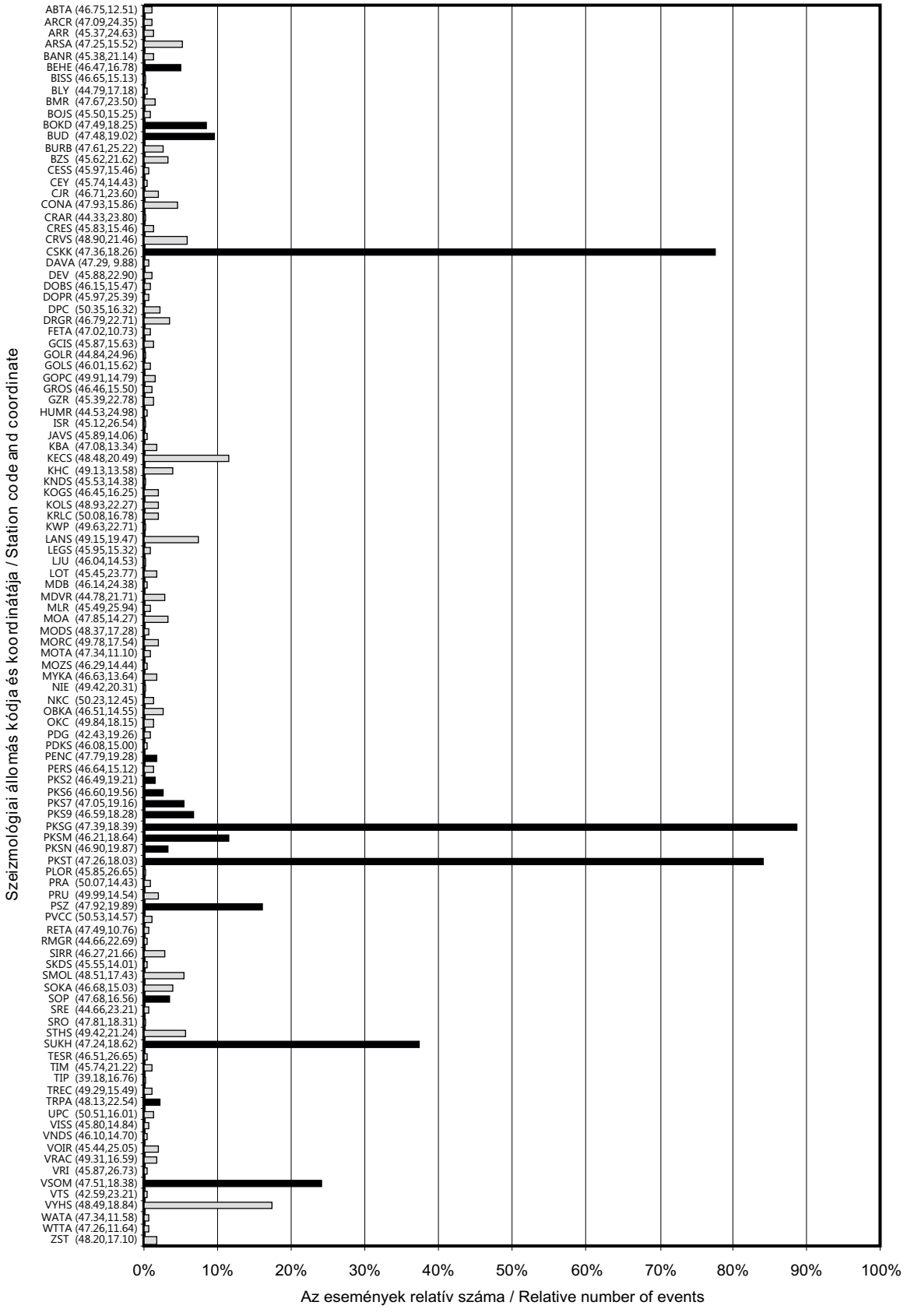
505.

```
 2011-12-29  time:  9:07:05.89 UTC  ML= 0.9
   lat: 48.039N  lon: 19.639E  h=  7.8 km
                 erh= 3.9km    erz=11.5km
   nr=  5        gap=185       rms=0.20
   Locality: Sóshartyán
   Comments:

sta   dist azm  phase  hr mn  sec     res
```

Hypocenter Parameters **Földrengés paraméterek**

PSZ	23.3	125	ePgC	9:07:10.30	0.01
			eSg	07:13.70	-0.01
VYHS	78.2	310	ePg	9:07:20.50	0.57
			eSg	07:30.70	-0.17
KECS	79.9	52	ePg	9:07:20.10	-0.13



3.4. ábra Az egyes állomások részvétele a hipocentrum meghatározásban

Figure 3.4. Contribution of individual stations to the hypocenter determination

4.

JELENTŐS FÖLDRENGÉSEK 2011-BEN
(Magyarországon érezhető földrengések)

2011. január 26.	–	Bana
2011. január 29.	–	Oroszlány
2011. január 30.	–	Oroszlány
2011. július 11.	–	Gánt
2011. szeptember 3.	–	Németkér
2011. szeptember 7.	–	Kisbágyon
2011. november 1.	–	Rábapatona

A MAKROSZEIZMIKUS INTENZITÁS MEGHATÁROZÁSA

A földrengés érezhető és az épített környezetben okozott hatásainak felmérése kérdőívek segítségével történt. Az összegyűjtött válaszok alapján került meghatározásra az intenzitás értéke (Zsíros et al, 1990 és Zsíros, 1994).

Az intenzitás leírása az *Európai Makroszeizmikus Skála (EMS)* szerint történik, mely részletesen megtalálható Grünthal (1998) munkájában. (*A Melléklet*)

4.

SIGNIFICANT EARTHQUAKES IN 2011
(Earthquakes felt in Hungary)

26 January 2011	–	Bana
29 January 2011	–	Oroszlány
30 January 2011	–	Oroszlány
11 July 2011	–	Gánt
3 September 2011	–	Németkér
7 September 2011	–	Kisbágyon
1 November 2011	–	Rábapatona

METHOD USED FOR ESTIMATION OF INTENSITY

The earthquake effects (macroseismic observations) were evaluated by 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)

2011. január 26. - Bana / 26 January 2011 - Bana

FÉSZEKPARAMÉTEREK / HYPOCENTER PARAMETERS

Dátum / Date:	2011/01/26
Kipattanási idő / Origin Time:	20:23:22.6 UTC
Szélesség és hosszúság / Latitude and Longitude:	47.627 N 17.960 E (S.D. 1.8 km)
Mélység / Depth:	5.2 km (S.D. 1.8 km)
Magnitúdó / Magnitude:	2.1 ML
Maximális intenzitás / Maximum Intensity:	4-5 EMS

LEÍRÁS

Január 26-án este 2.1 M_L magnitúdójú földrengést éreztek Komárom-Esztergom megyében, Bana környékén. A rengés intenzitása 4-5 EMS fokra becsülhető az epicentrum térségében. A rengés csak nagyon kis területen volt érezhető. Ugyanerről a területről, Bábolnától délnyugatra, négy érezhető rengést is jeleztek a közelmúltban (2004, 2010).

Az esemény szeizmogramja a 4.1. ábrán látható.

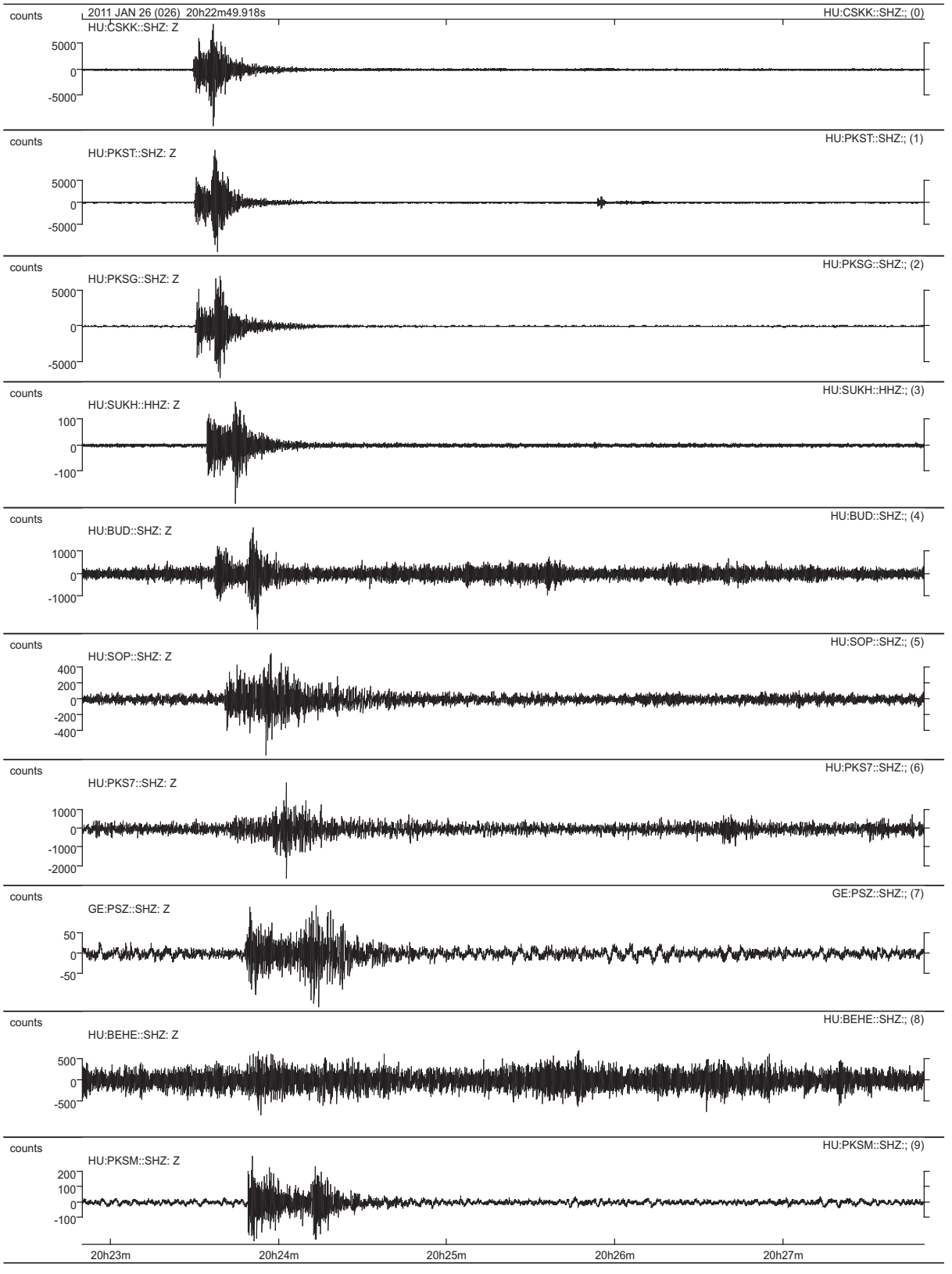
A rengés intenzitás eloszlását a 4.1. táblázat tartalmazza és a 4.2. ábra mutatja.

DISCUSSION

In the evening of January 26th, a 2.1 M_L magnitude earthquake was reported from Bana, Komárom-Esztergom County. The shock was felt 4-5 EMS in a very small an area near to the epicenter. Previously four felt earthquakes were reported from the same area in the near past (2004, 2010).

Seismograms of the event are shown in Figure 4.1.

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



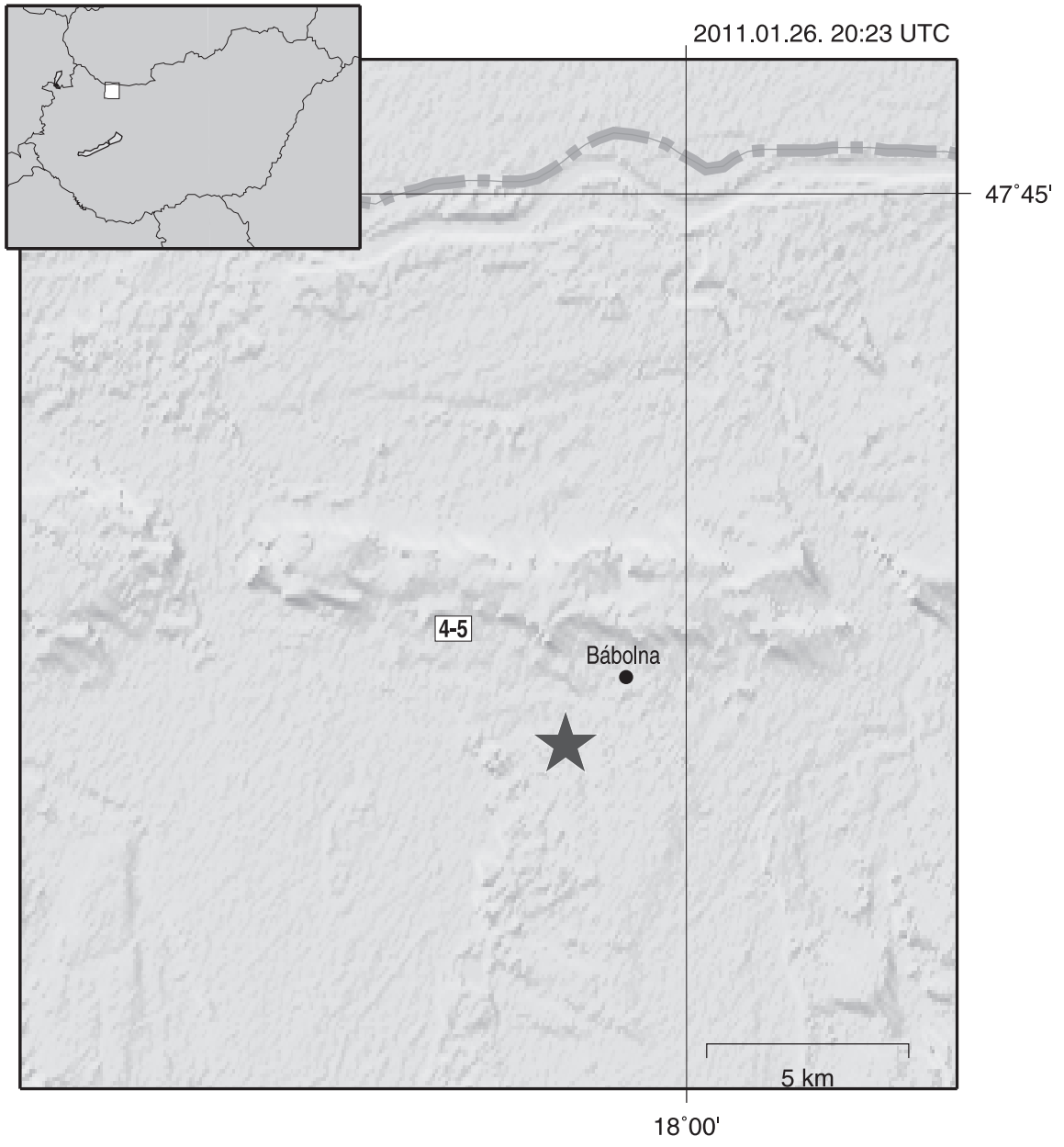
4.1. ábra A 2011. január 26-i, banai földrengés (20:23 UTC) szeizmogramjai

Figure 4.1. Seismograms of the Bana earthquake 26th January 2011 (20:23 UTC)

4.1. Táblázat
A 2011. január 26-i, banai földrengés (20:23 UTC) intenzitás eloszlása

Table 4.1.
Intensity distribution of the Bana earthquake 26th January 2011 (20:23 UTC)

	Helység / Location	Koordináta Coordinates		I	R	N
		Szélesség Latitude (N)	Hosszúság Longitude (E)	Intenzitás Intensity	Rel. megbízhatóság Rel. reliability	Jelentések száma No. of reports
1	Bana	47.653	17.923	4.5	35%	1



4.2. ábra A 2011. január 26-i, banai földrengés (20:23 UTC) intenzitás eloszlása (a csillag a műszeresen meghatározott epicentrumot jelöli)

Figure 4.2. Intensity distribution of the Bana earthquake 26th January 2011 (20:23 UTC) (star - instrumental epicentre)

2011. január 29. - Oroszlány / 29 January 2011 - Oroszlány

FÉSZEKPARAMÉTEREK / HYPOCENTER PARAMETERS

Dátum / Date:	2011/01/29
Kipattanási idő / Origin Time:	17:41:38.2 UTC
Szélesség és hosszúság / Latitude and Longitude:	47.459 N 18.361 E (S.D. 1.3 km)
Mélység / Depth:	9.1 km (S.D. 0.9 km)
Magnitúdó / Magnitude:	4.5 ML
Maximális intenzitás / Maximum Intensity:	6 EMS

LEÍRÁS

Az utóbbi évek legnagyobb rengése keletkezett január 29-én Oroszlány közelében. A 4.5 M_L magnitúdójú rengés több mint harmincezer km^2 területen volt érezhető a Mosonmagyaróvártól Budapestig, illetve a Galántától Siófokig terjedő területen. A legnagyobb megrázottságot (6 EMS) Bokod, Kecskéd, Oroszlány, Várgesztes, Vérteskozma és Vértessomló településekről jelentették. A rengés az epicentrum környékén jelentős épület károkat is okozott. Jellemzően kémények rongálódtak meg, repedések keletkeztek vakolatban, s néhány esetben szerkezeti falakban is. A kisebb-nagyobb épületkárokkal érintett $I \geq 5$ EMS terület nagysága kb. 1500 km^2 (lásd hátsó borító ábra).

Az esemény szeizmogramja a 4.3. ábrán látható.

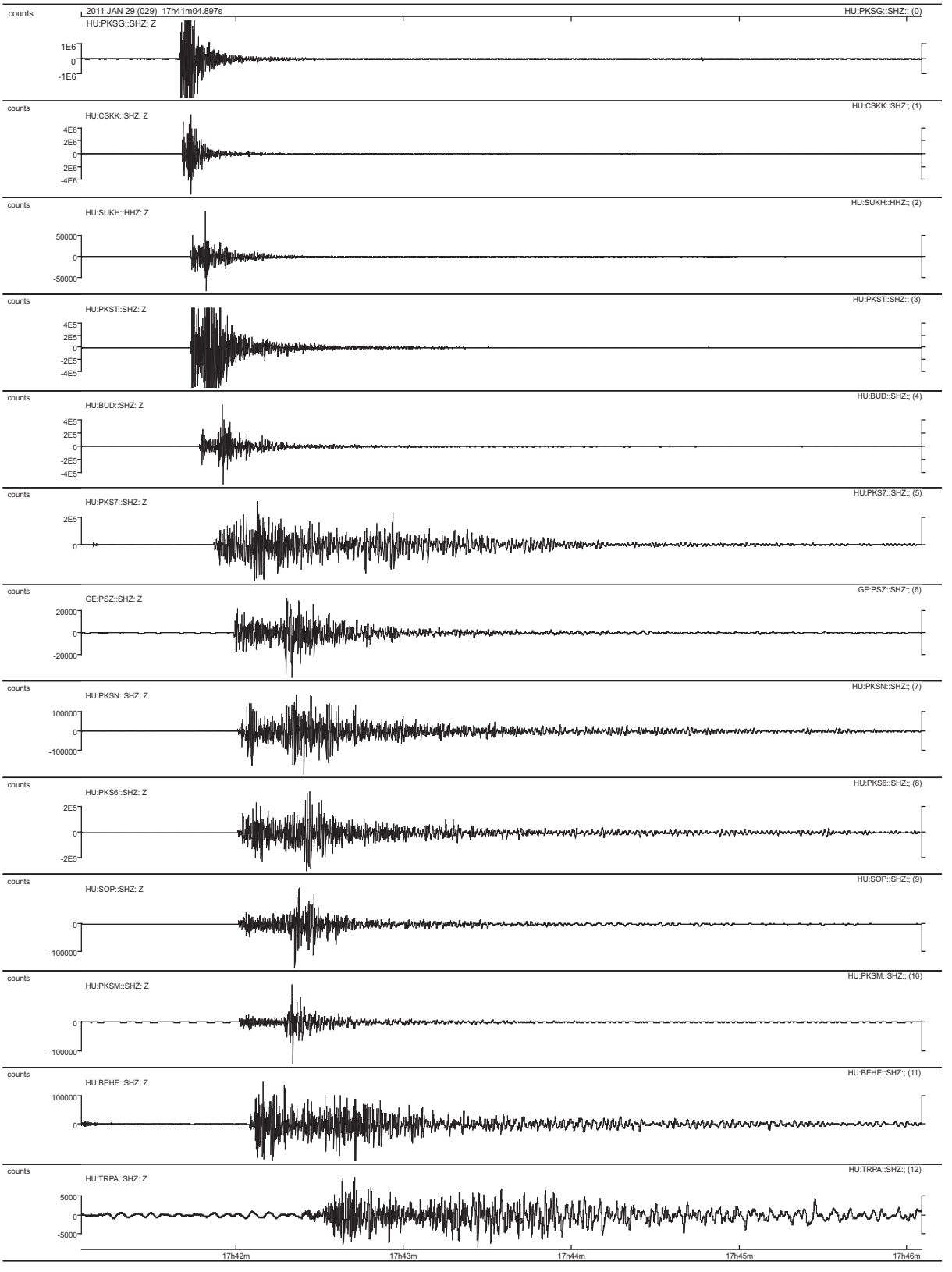
A rengés intenzitás eloszlását a 4.2. táblázat tartalmazza és a 4.4. ábra mutatja.

DISCUSSION

On January 29th, the strongest earthquake of the last years in Hungary occurred near to the town of Oroszlány. The 4.5 M_L magnitude earthquake was felt in a relatively large area of more than 30,000 km^2. It was reported to be sensed as far as Mosonmagyaróvár to the West, in most western districts of Budapest to the East, in Galánta (Slovakia) to the North and Siófok to the South. Highest intensities (6 EMS) were reported from Bokod, Kecskéd, Oroszlány, Várgesztes, Vérteskozma and Vértessomló settlements. Quite significant damage in buildings was also reported from the epicenter area: typically fine cracks in plaster, small pieces of plaster fall, and cracks in walls in some cases. The affected area of $I \geq 5$ EMS was about 1500 km^2 (see figure in back cover page).

Seismograms of the event are shown in Figure 4.3.

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



4.3. ábra A 2011. január 29-i, oroszlányi földrengés (17:41 UTC) szeizmogramjai

Figure 4.3. Seismograms of the Oroszlány earthquake 29th January 2011 (17:41 UTC)

4.2. Táblázat
A 2011. január 29-i, oroszlányi földrengés (17:41 UTC) intenzitás eloszlása

Table 4.2.
Intensity distribution of the Oroszlány earthquake 29th January 2011 (17:41 UTC)

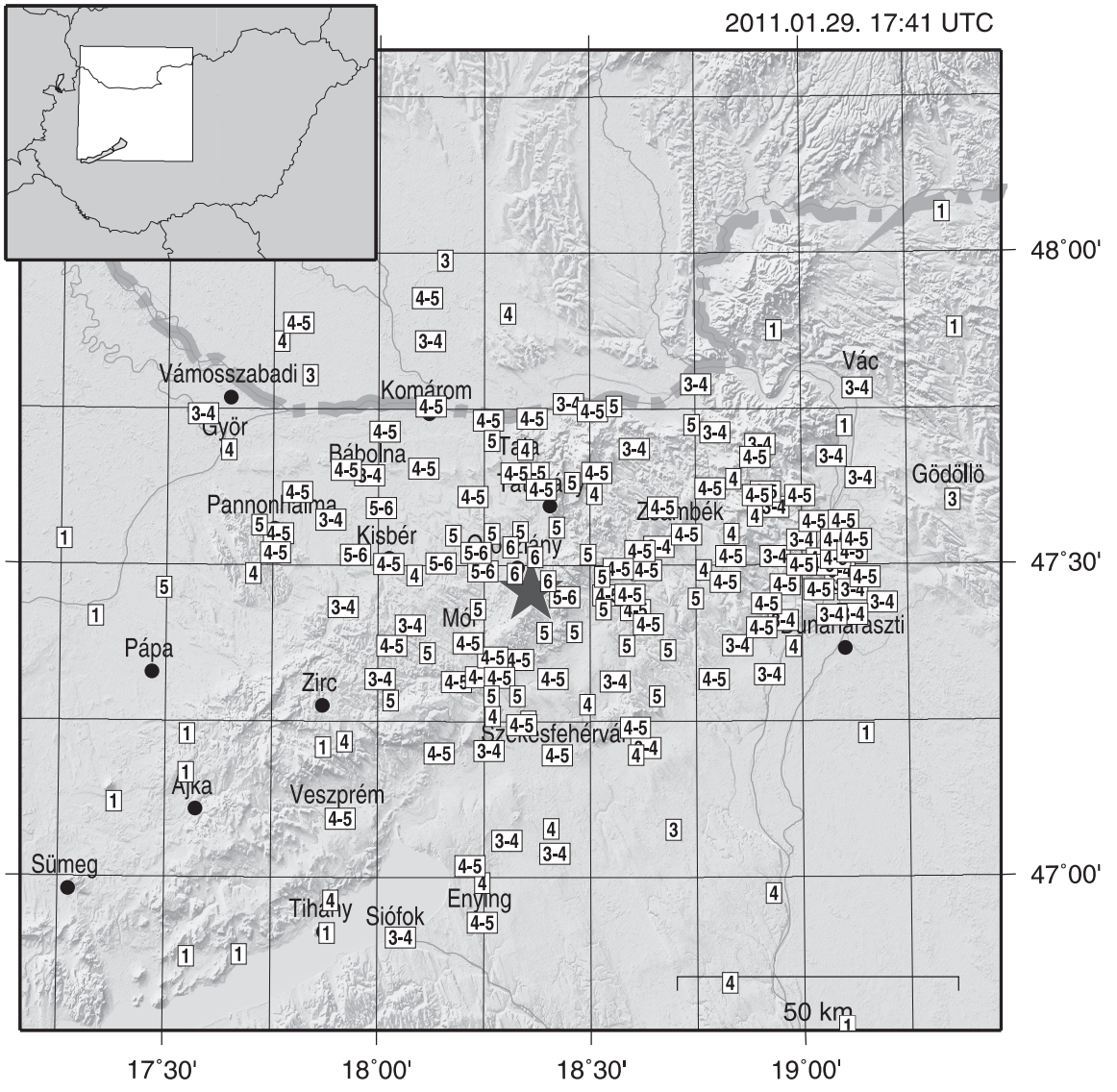
Helység / Location		Koordináta Coordinates		I	R	N
		Szélesség Latitude (N)	Hosszúság Longitude (E)	Intenzitás Intensity	Rel. megbízhatóság Rel. reliability	Jelentések száma No. of reports
1	Agárd	47.196	18.607	4.0	50%	1
2	Aka	47.404	18.076	3.5	32%	1
3	Alcsútdoboz	47.429	18.607	4.5	37%	1
4	Almásfüzitő	47.732	18.259	4.5	36%	2
5	Aparhant	46.339	18.452	1.0	0%	2
6	Aszód	47.649	19.483	1.0	0%	1
7	Ács	47.714	18.014	4.5	37%	1
8	Baj	47.649	18.368	4.5	38%	1
9	Balatonfőkajár	47.019	18.218	4.5	38%	2
10	Balatonfüred	46.963	17.891	4.0	48%	1
11	Balinka	47.314	18.185	4.5	39%	1
12	Bana	47.653	17.923	4.5	43%	1
13	Bábolna	47.644	17.979	3.5	33%	1
14	Biatorbágy	47.473	18.820	4.5	34%	6
15	Bicske	47.493	18.634	4.5	34%	5
16	Bodajk	47.322	18.241	4.5	35%	2
17	Bodmér	47.452	18.542	4.5	32%	1
18	Bokod	47.491	18.247	5.5	41%	1
19	Budakeszi	47.514	18.937	3.5	35%	5
20	Budaörs	47.469	18.961	4.5	34%	7
21	Budapest I	47.510	19.030	4.0	40%	3
22	Budapest II	47.540	19.000	3.5	34%	6
23	Budapest III	47.570	19.030	4.5	33%	28
24	Budapest IV	47.570	19.100	4.5	35%	9
25	Budapest V	47.500	19.050	4.5	34%	4
26	Budapest VI	47.520	19.070	4.0	47%	5
27	Budapest VII	47.510	19.080	4.5	36%	6
28	Budapest VIII	47.490	19.090	3.5	32%	4
29	Budapest IX	47.470	19.100	3.5	35%	3
30	Budapest X	47.480	19.150	4.5	36%	3
31	Budapest XI	47.460	19.040	4.5	33%	19
32	Budapest XII	47.500	19.000	4.5	34%	6
33	Budapest XIII	47.540	19.080	4.5	35%	15
34	Budapest XIV	47.520	19.120	4.5	33%	3
35	Budapest XV	47.540	19.130	4.5	35%	3
36	Budapest XVIII	47.440	19.190	3.5	26%	2
37	Budapest XIX	47.460	19.120	3.5	38%	2

38	Budapest XX	47.420	19.120	3.5	41%	2
39	Budapest XXI	47.420	19.070	3.5	35%	4
40	Bugyi	47.230	19.149	1.0	0%	1
41	Csabdi	47.523	18.618	4.5	34%	1
42	Csákberény	47.349	18.331	4.5	36%	2
43	Csákvár	47.393	18.464	5.0	45%	2
44	Császár	47.504	18.148	5.5	34%	4
45	Csetény	47.318	18.005	3.5	39%	1
46	Csókakő	47.353	18.271	4.5	33%	2
47	Csór	47.203	18.262	3.5	36%	1
48	Csörötnek	46.948	16.374	1.0	0%	1
49	Csősz	47.039	18.416	3.5	38%	1
50	Dad	47.521	18.231	5.5	35%	3
51	Dalmand	46.494	18.191	1.0	0%	2
52	Diósd	47.411	18.956	3.5	38%	1
53	Dombóvár	46.380	18.142	1.0	0%	1
54	Dorog	47.725	18.741	5.0	72%	1
55	Döbrönte	47.229	17.551	1.0	0%	1
56	Dunakeszi	47.639	19.140	3.5	37%	3
57	Dunatetétlen	46.760	19.098	1.0	0%	1
58	Dunaújváros	46.974	18.928	4.0	32%	1
59	Egyházaskesző	47.417	17.334	1.0	0%	2
60	Ekecs	47.888	17.809	4.5	31%	1
61	Előszállás	46.831	18.825	4.0	38%	1
62	Enying	46.928	18.246	4.5	34%	1
63	Eplény	47.217	17.922	4.0	40%	1
64	Etyek	47.447	18.750	5.0	47%	1
65	Esztergom	47.790	18.752	3.5	39%	1
66	Écs	47.564	17.719	5.0	61%	1
67	Érd	47.400	18.904	4.5	32%	7
68	Érsekújvár	47.988	18.157	3.0	41%	1
69	Fehérvárcsurgó	47.291	18.268	5.0	39%	1
70	Felcsút	47.453	18.594	4.5	34%	3
71	Galánta	48.192	17.727	3.0	40%	1
72	Gánt	47.392	18.392	5.0	38%	2
73	Gárdony	47.208	18.631	3.5	37%	1
74	Gödöllő	47.603	19.358	3.0	33%	1
75	Gyarmat	47.463	17.494	5.0	69%	2
76	Győr	47.684	17.645	4.0	43%	10
77	Győrzámoly	47.742	17.584	3.5	42%	1
78	Halásztelek	47.369	18.980	4.0	46%	1
79	Helvécia	46.835	19.618	1.0	0%	1
80	Herceghalom	47.492	18.769	4.0	39%	2
81	Héreg	47.649	18.516	4.5	37%	1
82	Jásd	47.284	18.030	5.0	24%	1
83	Jászárokszállás	47.644	19.972	1.0	0%	2
84	Kapuvár	47.593	17.036	1.0	0%	1

85	Kecskéd	47.529	18.312	6.0	29%	3
86	Kerékteleki	47.517	17.946	5.5	35%	1
87	Kesztölc	47.713	18.797	3.5	40%	1
88	Kincsesbánya	47.258	18.271	4.0	52%	1
89	Kisbér	47.502	18.025	4.5	34%	1
90	Kisigmánd	47.655	18.106	4.5	33%	2
91	Kisrécse	46.503	17.064	1.0	0%	1
92	Kocs	47.610	18.224	4.5	36%	1
93	Komárom	47.755	18.124	4.5	34%	12
94	Kóspallag	47.876	18.938	1.0	0%	1
95	Kömlőd	47.551	18.268	5.0	23%	1
96	Környe	47.554	18.335	5.0	28%	3
97	Kunfehértó	46.362	19.407	1.0	0%	2
98	Lábatlan	47.747	18.507	4.5	35%	1
99	Lepsény	46.991	18.246	4.0	39%	1
100	Lovasberény	47.314	18.558	3.5	37%	3
101	Lókút	47.208	17.871	1.0	0%	2
102	Lucfalva	48.031	19.686	1.0	0%	1
103	Magyaralmás	47.291	18.329	5.0	45%	2
104	Magyarpolány	47.167	17.550	1.0	0%	1
105	Martonvásár	47.318	18.792	4.5	34%	2
106	Martos	47.859	18.122	3.5	39%	1
107	Mány	47.530	18.663	3.5	38%	1
108	Máriakéménd	46.028	18.462	1.0	0%	1
109	Mezőörs	47.573	17.887	3.5	36%	1
110	Mindszentkálla	46.873	17.554	1.0	0%	1
111	Moha	47.245	18.339	4.5	37%	1
112	Mór	47.376	18.212	4.5	35%	4
113	Nagykanizsa	46.459	16.990	1.0	0%	3
114	Nagykovácsi	47.578	18.890	4.0	43%	1
115	Nagymegyer	47.858	17.769	4.0	38%	1
116	Nagysáp	47.687	18.606	3.5	38%	1
117	Nagyveleg	47.360	18.117	5.0	52%	2
118	Naszály	47.700	18.269	5.0	37%	1
119	Naszvad	47.928	18.115	4.5	34%	1
120	Neszmély	47.735	18.363	4.5	37%	1
121	Nógrádkövesd	47.878	19.368	1.0	0%	1
122	Nyergesújfalu	47.755	18.557	5.0	26%	2
123	Oroszlány	47.487	18.323	6.0	26%	6
124	Óbarok	47.495	18.567	4.5	36%	1
125	Pannonhalma	47.551	17.764	4.5	35%	1
126	Patvarc	48.064	19.341	1.0	0%	2
127	Pátka	47.277	18.494	4.0	50%	1
128	Páty	47.515	18.833	4.5	36%	3
129	Pázmánd	47.291	18.657	5.0	42%	2
130	Perbete	47.903	18.306	4.0	48%	1
131	Pér	47.617	17.808	4.5	34%	2

132	Pilisborosjenő	47.611	18.997	4.5	36%	1
133	Piliscsaba	47.638	18.840	4.0	40%	1
134	Pilisszántó	47.673	18.892	4.5	39%	1
135	Pilisszentiván	47.612	18.897	4.5	36%	3
136	Pilisszentkereszt	47.694	18.904	3.5	40%	1
137	Pilisvörösvár	47.618	18.916	4.5	37%	2
138	Polgárdi	47.059	18.304	3.5	41%	1
139	Pócsmegyer	47.722	19.104	1.0	0%	2
140	Pusztavám	47.430	18.235	5.0	25%	4
141	Ravazd	47.520	17.756	4.5	37%	1
142	Réde	47.433	17.917	3.5	42%	2
143	Rózsaszentmárton	47.790	19.736	1.0	0%	1
144	Sárkeresztes	47.251	18.355	4.0	55%	1
145	Siófok	46.904	18.055	3.5	36%	1
146	Sokorópátka	47.486	17.705	4.0	50%	1
147	Solymár	47.593	18.936	3.5	36%	3
148	Somlóvásárhely	47.120	17.381	1.0	0%	1
149	Somorja 1	48.028	17.307	3.5	40%	1
150	Sopron	47.682	16.593	1.0	0%	1
151	Sopronhorpács	47.481	16.744	1.0	0%	1
152	Söréd	47.321	18.286	4.5	31%	1
153	Sukoró	47.240	18.606	4.5	34%	1
154	Súr	47.371	18.033	4.5	33%	2
155	Süttő	47.759	18.450	3.5	35%	2
156	Szabadegyháza	47.077	18.694	3.0	39%	1
157	Szank	46.550	19.663	1.0	0%	1
158	Szakony	47.428	16.716	1.0	0%	1
159	Székszend	47.548	18.177	5.0	38%	3
160	Szár	47.482	18.529	5.0	35%	3
161	Szárliget	47.518	18.495	5.0	36%	1
162	Százhalombatta	47.325	18.922	3.5	34%	3
163	Szentendre	47.674	19.073	3.5	39%	2
164	Szentpéterfa	47.096	16.488	1.0	0%	2
165	Székesfehérvár	47.196	18.423	4.5	34%	20
166	Szilsárkány	47.540	17.258	1.0	0%	2
167	Szomód	47.685	18.347	4.0	45%	1
168	Szomor	47.593	18.672	4.5	38%	2
169	Tabajd	47.406	18.637	4.5	35%	2
170	Tany	47.804	17.837	3.0	25%	1
171	Tarján	47.614	18.511	4.0	45%	3
172	Tata	47.648	18.325	4.5	34%	6
173	Tatabánya	47.561	18.421	5.0	24%	29
174	Tác	47.078	18.407	4.0	50%	2
175	Tápiószecső	47.454	19.596	1.0	0%	2
176	Tárkány	47.592	18.007	5.5	37%	1
177	Tárnok	47.372	18.848	3.5	39%	1
178	Telki	47.550	18.835	4.0	49%	3

179	Tihany	46.911	17.882	1.0	0%	1
180	Tinnye	47.623	18.785	4.5	31%	3
181	Tiszakécske	46.934	20.096	1.0	0%	1
182	Törökbálint	47.438	18.916	4.5	35%	3
183	Valkó	47.567	19.509	1.0	0%	1
184	Vác	47.783	19.135	3.5	38%	1
185	Vál	47.364	18.684	5.0	72%	1
186	Várgesztes	47.475	18.401	6.0	25%	4
187	Várpalota	47.199	18.145	4.5	36%	3
188	Veszprém	47.094	17.913	4.5	33%	6
189	Vértesacsa	47.372	18.586	5.0	60%	1
190	Vértesboglár	47.430	18.532	5.0	51%	2
191	Vérteskethely	47.484	18.086	4.0	38%	2
192	Vérteskozma	47.450	18.440	5.5	50%	1
193	Vértessomló	47.514	18.371	6.0	28%	3
194	Vértesszőlős	47.622	18.385	4.5	34%	2
195	Vértestolna	47.633	18.458	5.0	37%	1
196	Zalaegerszeg	46.844	16.844	1.0	0%	1
197	Zalaszentlászló	46.867	17.117	1.0	0%	1
198	Zámoly	47.319	18.412	4.5	31%	1
199	Zánka	46.876	17.677	1.0	0%	1
200	Zsámbék	47.549	18.729	4.5	35%	2



4.4. ábra A 2011. január 29-i, oroszlányi földrengés (17:41 UTC) intenzitás eloszlása (a csillag a műszeresen meghatározott epicentrumot jelöli)

Figure 4.4. Intensity distribution of the Oroszlány earthquake 29th January 2011 (17:41 UTC) (star - instrumental epicentre)

2011. január 30. - Oroszlány / 30 January 2011 - Oroszlány

FÉSZEKPARAMÉTEREK / HYPOCENTER PARAMETERS

Dátum / Date:	2011/01/30
Kipattanási idő / Origin Time:	20:58:45.7 UTC
Szélesség és hosszúság / Latitude and Longitude:	47.480 N 18.340 E (S.D. 1.7 km)
Mélység / Depth:	7.0 km (S.D. 1.4 km)
Magnitúdó / Magnitude:	2.7 ML
Maximális intenzitás / Maximum Intensity:	4-5 EMS

LEÍRÁS

A január 29-i oroszlányi földrengést több száz kisebb utórengés követte. Ezek közül kettő volt érezhető, de további épületkárokat egyik utórengés sem okozott. A január 30-án keletkezett 2.7 M_L magnitúdójú utórengést néhány településen érezték (Környe, Oroszlány, Tatabánya, Vértessomló). A rengés epicentrális intenzitása 4-5 EMS fokra becsülhető.

Az esemény szeizmogramja a 4.5. ábrán látható.

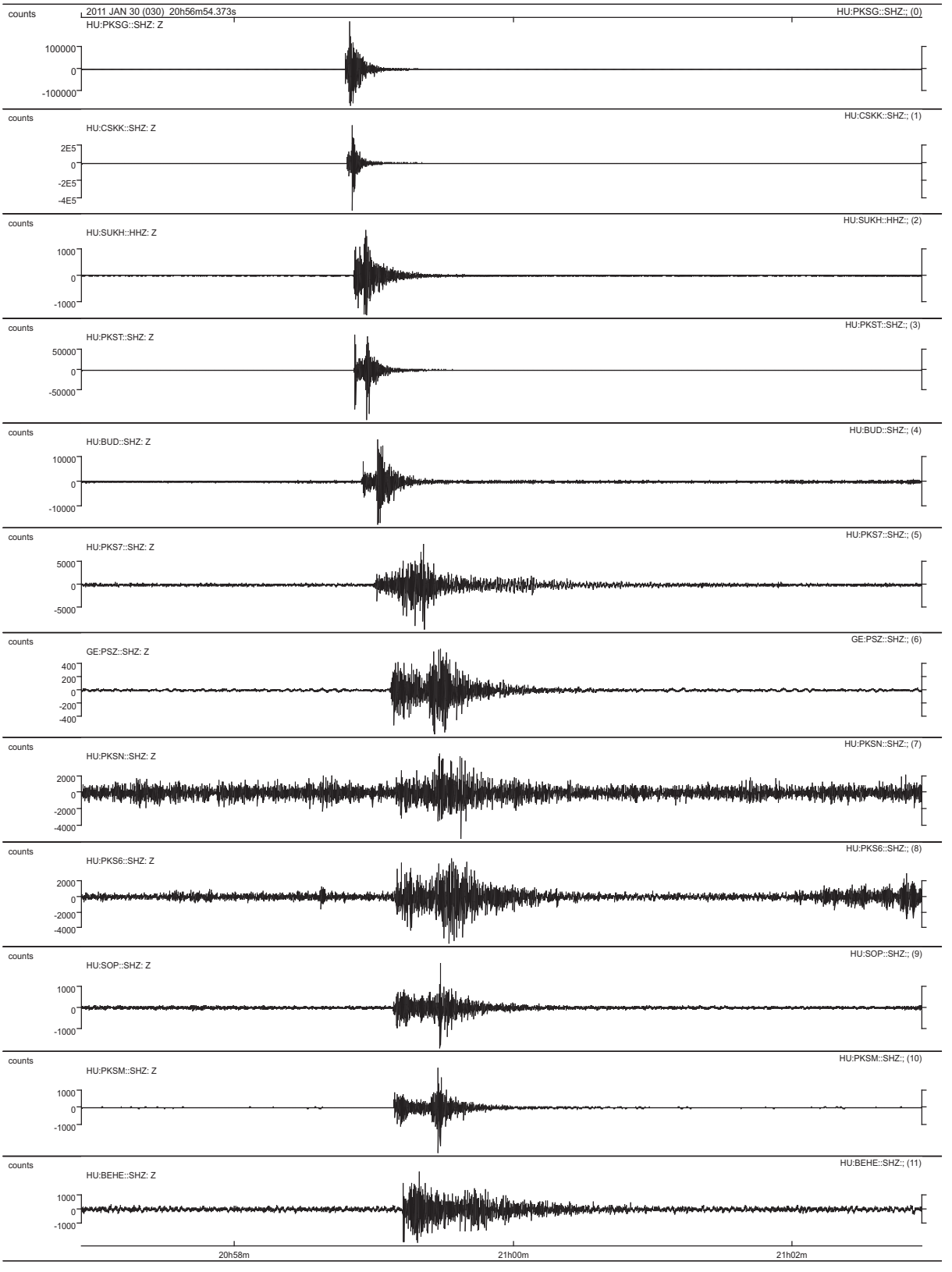
A rengés intenzitás eloszlását a 4.3. táblázat tartalmazza és a 4.6. ábra mutatja.

DISCUSSION

The Oroszlány earthquake of 29th January was followed by hundreds of smaller aftershocks. Two of the aftershocks were felt but no further damage was caused. The 2.7 M_L magnitude aftershock on 30th January was reported as felt from a few settlements (Környe, Oroszlány, Tatabánya, Vértessomló). The highest intensity assigned is 4-5 EMS.

Seismograms of the event are shown in Figure 4.5.

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



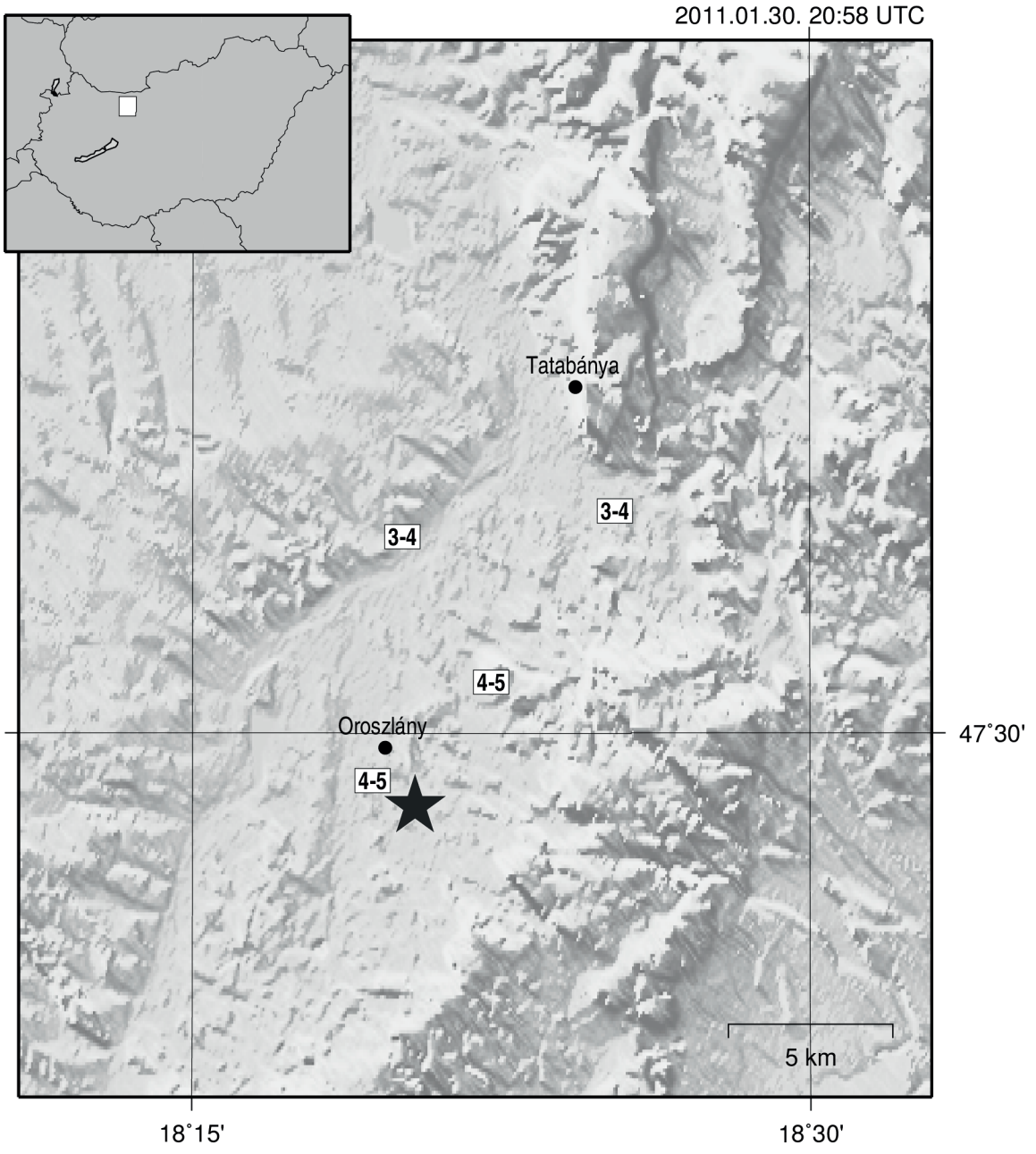
4.5. ábra A 2011. január 30-i, oroszlányi földrengés (20:58 UTC) szeizmogramjai

Figure 4.5. Seismograms of the Oroszlány earthquake 30th January 2011 (20:58 UTC)

4.3. Táblázat
A 2011. január 30-i, oroszlányi földrengés (20:58 UTC) intenzitás eloszlása

Table 4.3.
Intensity distribution of the Oroszlány earthquake 30th January 2011 (20:58 UTC)

Helység / Location		Koordináta Coordinates		I	R	N
		Szélesség Latitude (N)	Hosszúság Longitude (E)	Intenzitás Intensity	Rel. megbízhatóság Rel. reliability	Jelentések száma No. of reports
1	Környe	47.554	18.335	3.5	37%	1
2	Oroszlány	47.487	18.323	4.5	33%	11
3	Tatabánya	47.561	18.421	3.5	34%	5
4	Vértessomló	47.514	18.371	4.5	34%	1



4.6. ábra A 2011. január 30-i, oroszlányi földrengés (20:58 UTC) intenzitás eloszlása
(a csillag a műszeresen meghatározott epicentrumot jelöli)

Figure 4.6. Intensity distribution of the Bábolna earthquake 30th January 2011 (20:58 UTC)
(star - instrumental epicentre)

2011. július 11. - Gánt / 11 July 2011 - Gánt

FÉSZEKPARAMÉTEREK / HYPOCENTER PARAMETERS

Dátum / Date:	2011/07/11
Kipattanási idő / Origin Time:	6:05:59.8 UTC
Szélesség és hosszúság / Latitude and Longitude:	47.476 N 18.366 E (S.D. 1.7 km)
Mélység / Depth:	8.2 km (S.D. 1.4 km)
Magnitúdó / Magnitude:	3.5 ML
Maximális intenzitás / Maximum Intensity:	5 EMS

LEÍRÁS

A január 29-i oroszlányi földrengést több száz kisebb utórengés követte. Ezek közül kettő volt érezhető, de további épületkárokat egyik utórengés sem okozott. A július 11-én keletkezett 3.5 M_L magnitúdójú utórengést viszonylag nagy, kb. 9000 km^2 területen, a Tatabánya – Székesfehérvár – Budapest körzetben érezték. A legnagyobb megrázottságot Csákvár, Gánt, Felcsút településekről jelentették. A rengés epicentrális intenzitása 5 EMS fokra becsülhető.

Az esemény szeizmogramja a 4.7. ábrán látható.

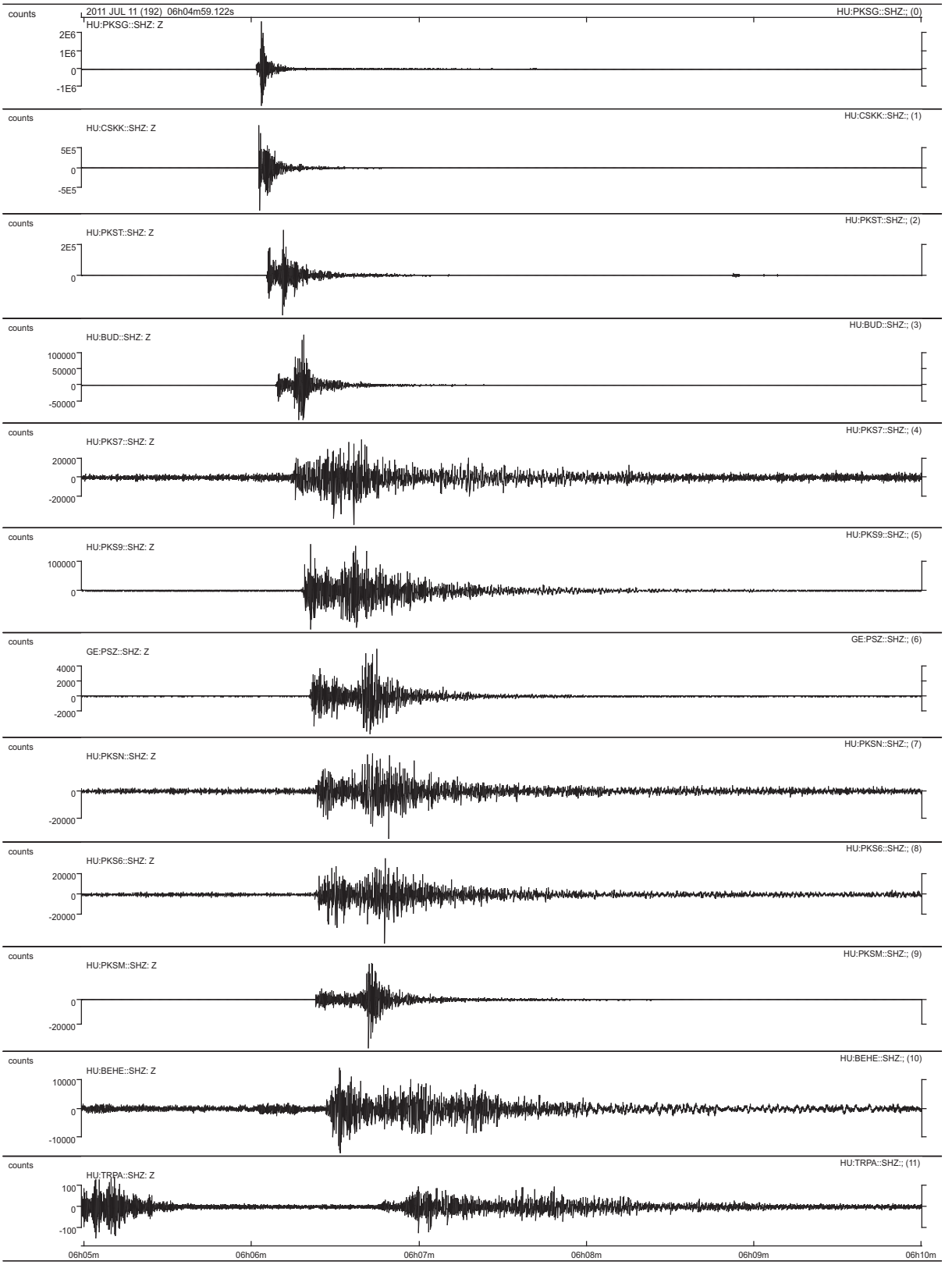
A rengés intenzitás eloszlását a 4.4. táblázat tartalmazza és a 4.8. ábra mutatja.

DISCUSSION

The Oroszlány earthquake of 29th January was followed by hundreds of smaller aftershocks. Two of the aftershocks were felt but no further damage was caused. The 3.5 M_L magnitude aftershock on 11th July was reported felt from a relatively large (some 9000 km^2) area of Tatabánya – Székesfehérvár – Budapest region. The highest intensity assigned is 5 EMS (Csákvár, Gánt, Felcsút).

Seismograms of the event are shown in Figure 4.7.

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



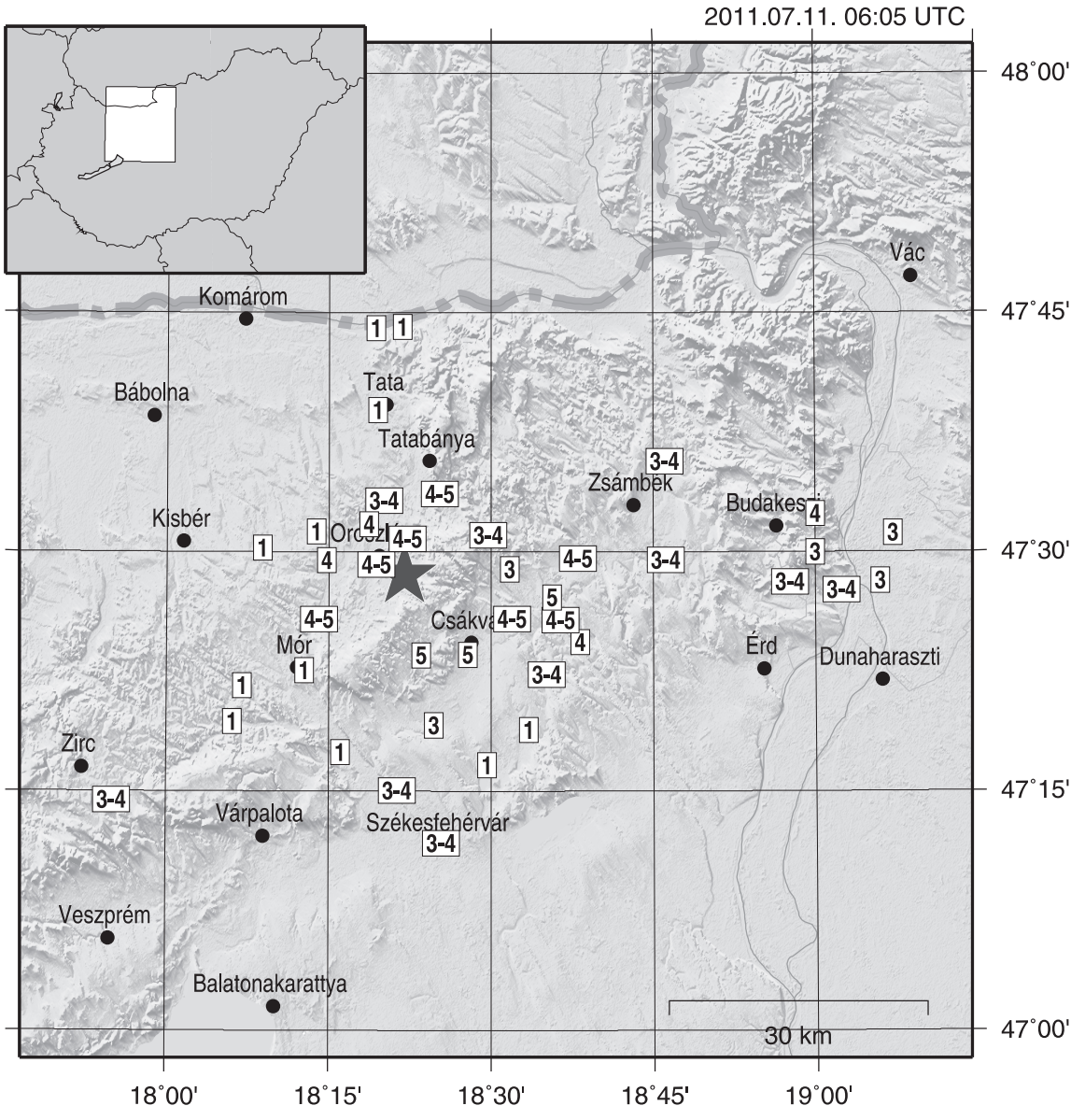
4.7. ábra A 2011. július 11-i, gánti földrengés (06:06 UTC) szeizmogramjai

Figure 4.7. Seismograms of the Gánt earthquake 11th July 2011 (06:06 UTC)

4.4. Táblázat
A 2011. július 11-i, gánti földrengés (06:06 UTC) intenzitás eloszlása

Table 4.4.
Intensity distribution of the Gánt earthquake 11th July 2011 (06:06 UTC)

Helység / Location		Koordináta Coordinates		I
		Szélesség Latitude (N)	Hosszúság Longitude (E)	Intenzitás Intensity
1	Alcsútdoboz	47.429	18.607	4.5
2	Bakonycsernye	47.323	18.101	1.0
3	Bicske	47.493	18.634	4.5
4	Bokod	47.491	18.247	4.0
5	Budaörs	47.469	18.961	3.5
6	Budapest II	47.540	19.000	4.0
7	Budapest IX	47.470	19.100	3.0
8	Budapest XI	47.460	19.040	3.5
9	Budapest XII	47.500	19.000	3.0
10	Budapest XIV	47.520	19.120	3.0
11	Csákvár	47.393	18.464	5.0
12	Császár	47.504	18.148	1.0
13	Dad	47.521	18.231	1.0
14	Dunaalmás	47.734	18.322	1.0
15	Fehérvárcsurgó	47.291	18.268	1.0
16	Felcsút	47.453	18.594	5.0
17	Gánt	47.392	18.392	5.0
18	Herceghalom	47.492	18.769	3.5
19	Kecskéd	47.529	18.312	4.0
20	Környe	47.554	18.335	3.5
21	Lovasberény	47.314	18.558	1.0
22	Mór	47.376	18.212	1.0
23	Nagyveleg	47.360	18.117	1.0
24	Neszmély	47.735	18.363	1.0
25	Olaszfalu	47.241	17.917	3.5
26	Oroszlány	47.487	18.323	4.5
27	Pátka	47.277	18.494	1.0
28	Perbál	47.595	18.768	3.5
29	Pusztavám	47.430	18.235	4.5
30	Sárkeresztes	47.251	18.355	3.5
31	Szár	47.482	18.529	3.0
32	Szárliget	47.518	18.495	3.5
33	Székesfehérvár	47.196	18.423	3.5
34	Tabajd	47.406	18.637	4.0
35	Tata	47.648	18.325	1.0
36	Tatabánya	47.561	18.421	4.5
37	Vértesacsa	47.372	18.586	3.5
38	Vértesboglár	47.430	18.532	4.5
39	Vértessomló	47.514	18.371	4.5
40	Zámoly	47.319	18.412	3.0



4.8. ábra A 2011. július 11-i, gánti földrengés (06:06 UTC) intenzitás eloszlása (a csillag a műszeresen meghatározott epicentrumot jelöli)

Figure 4.8. Intensity distribution of the Gánt earthquake 11th July 2011 (06:06 UTC) (star - instrumental epicentre)

2011. szeptember 3. - Németkér / 3 September 2011 - Németkér

FÉSZEKPARAMÉTEREK / HYPOCENTER PARAMETERS

Dátum / Date:	2011/09/03
Kipattanási idő / Origin Time:	7:30:33.0 UTC
Szélesség és hosszúság / Latitude and Longitude:	46.689 N 18.730 E (S.D. 2.5 km)
Mélység / Depth:	10 km (S.D. 2.5 km)
Magnitúdó / Magnitude:	2.7 ML
Maximális intenzitás / Maximum Intensity:	4-5 EMS

LEÍRÁS

Szeptember 3-án délelőtt 2.7 M_L magnitúdójú földrengés keletkezett Paks környékén, Németkér közelében. A rengés kis területen, csak az epicentrum közvetlen környékén (Németkér, Györköny) volt érezhető. Az epicentrális intenzitás 4-5 EMS-re tehető.

Az esemény szeizmogramja a 4.9. ábrán látható.

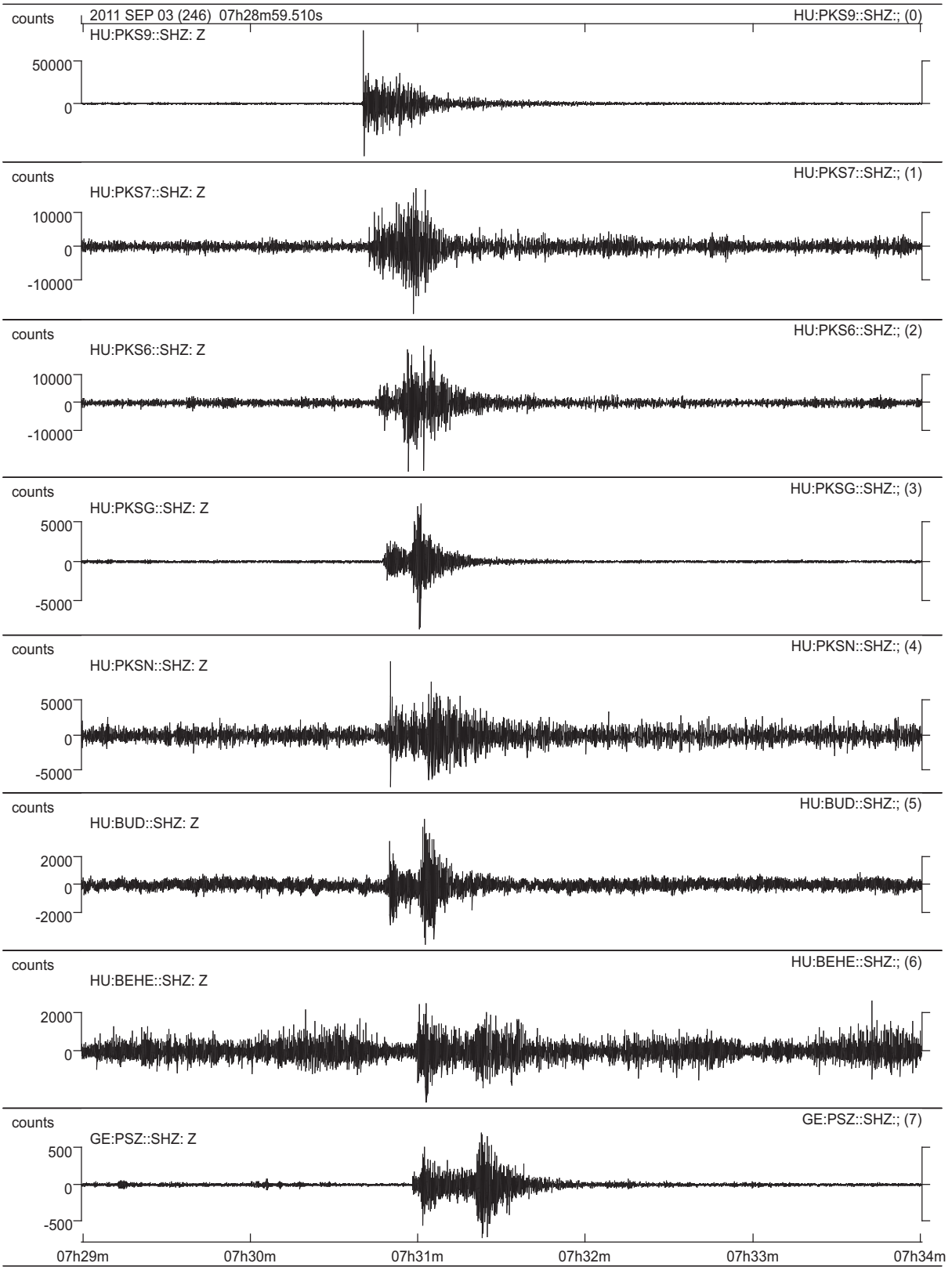
A rengés intenzitás eloszlását a 4.5. táblázat tartalmazza és a 4.10. ábra mutatja.

DISCUSSION

On September 3rd, a 2.7 M_L earthquake was felt near to Németkér in Paks region. The event was felt only in a small area near to the epicenter (Németkér, Györköny) and produced reports of max intensity 4-5 EMS.

Seismograms of the event are shown in Figure 4.9.

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



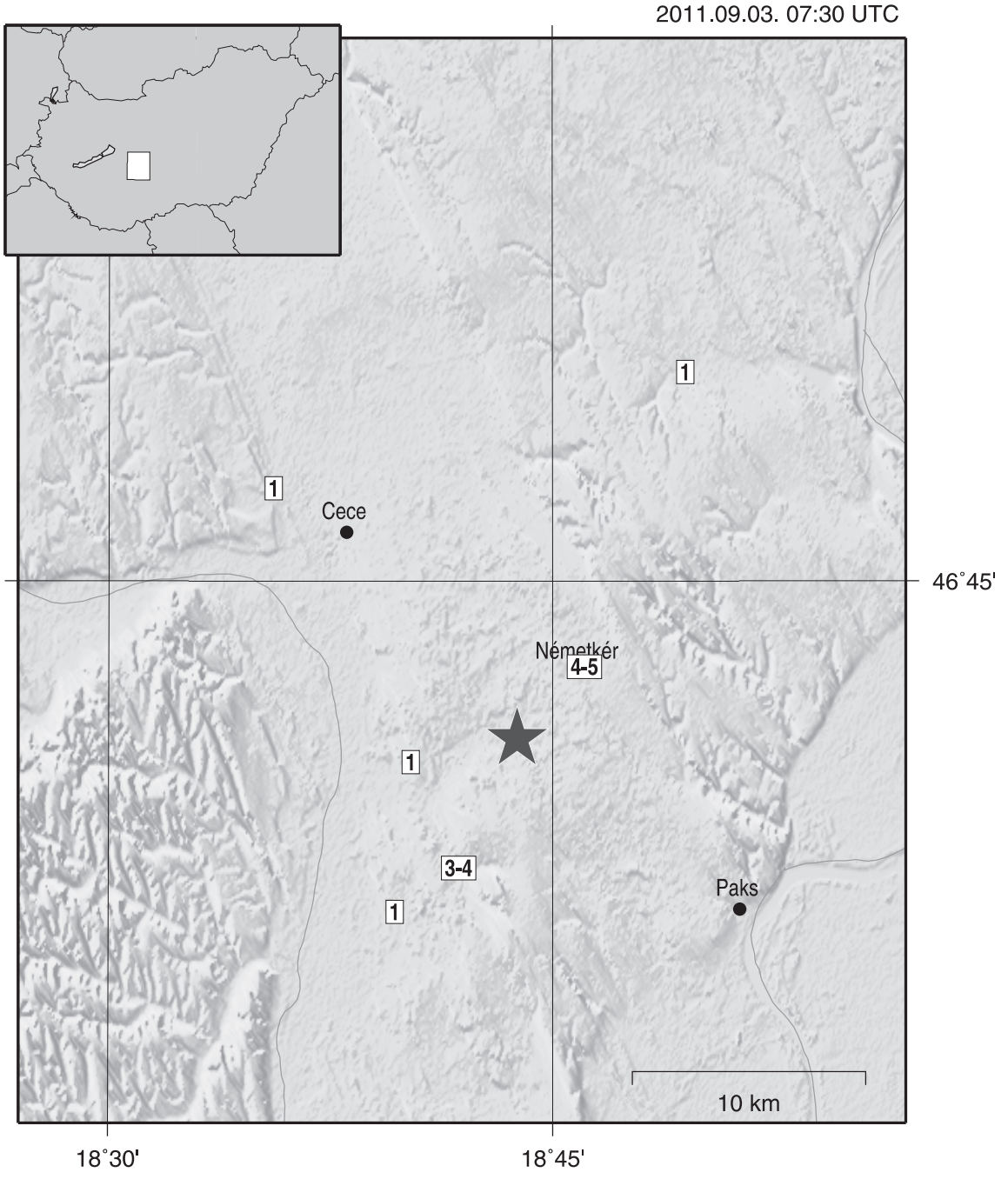
4.9. ábra A 2011. szeptember 3-i, németkéri földrengés (07:30 UTC) szeizmogramjai

Figure 4.9. Seismograms of the Németkér earthquake 3rd September 2011 (07:30 UTC)

4.5. Táblázat
A 2011. szeptember 3-i, németkéri földrengés (07:30 UTC) intenzitás eloszlása

Table 4.5.
Intensity distribution of the Németkér earthquake 3rd September 2011 (07:30 UTC)

Helység / Location		Koordináta Coordinates		I
		Szélesség Latitude (N)	Hosszúság Longitude (E)	Intenzitás Intensity
1	Bikács	46.680	18.670	1.0
2	Előszállás	46.831	18.825	1.0
3	Györköny	46.639	18.697	3.5
4	Nagydorog	46.622	18.661	1.0
5	Németkér	46.717	18.768	4.5
6	Sáregres	46.786	18.593	1.0



4.10. ábra A 2011. szeptember 3-i, németkéri földrengés (07:30 UTC) intenzitás eloszlása
(a csillag a műszeresen meghatározott epicentrumot jelöli)

Figure 4.10. Intensity distribution of the Németkér earthquake 3rd September 2011 (07:30 UTC)
(star - instrumental epicentre)

2011. szeptember 7. - Kisbágyon / 7 September 2011 - Kisbágyon

FÉSZEKPARAMÉTEREK / HYPOCENTER PARAMETERS

Dátum / Date:	2011/09/07
Kipattanási idő / Origin Time:	22:38:20.8 UTC
Szélesség és hosszúság / Latitude and Longitude:	47.845 N 19.563 E (S.D. 2.0 km)
Mélység / Depth:	0.6 km (S.D. 2.1 km)
Magnitúdó / Magnitude:	2.3 ML
Maximális intenzitás / Maximum Intensity:	4 EMS

LEÍRÁS

Szeptember 7-én éjszaka kisebb (2.3 M_L) földrengést éreztek és jelentettek Nógrád megyéből, Héhalom – Kisbágyon – Zagyvaszántó környékéről. Az esemény nagyon kis területen volt érezhető, a legnagyobb intenzitás 4 EMS volt.

Az esemény szeizmogramja a 4.11. ábrán látható.

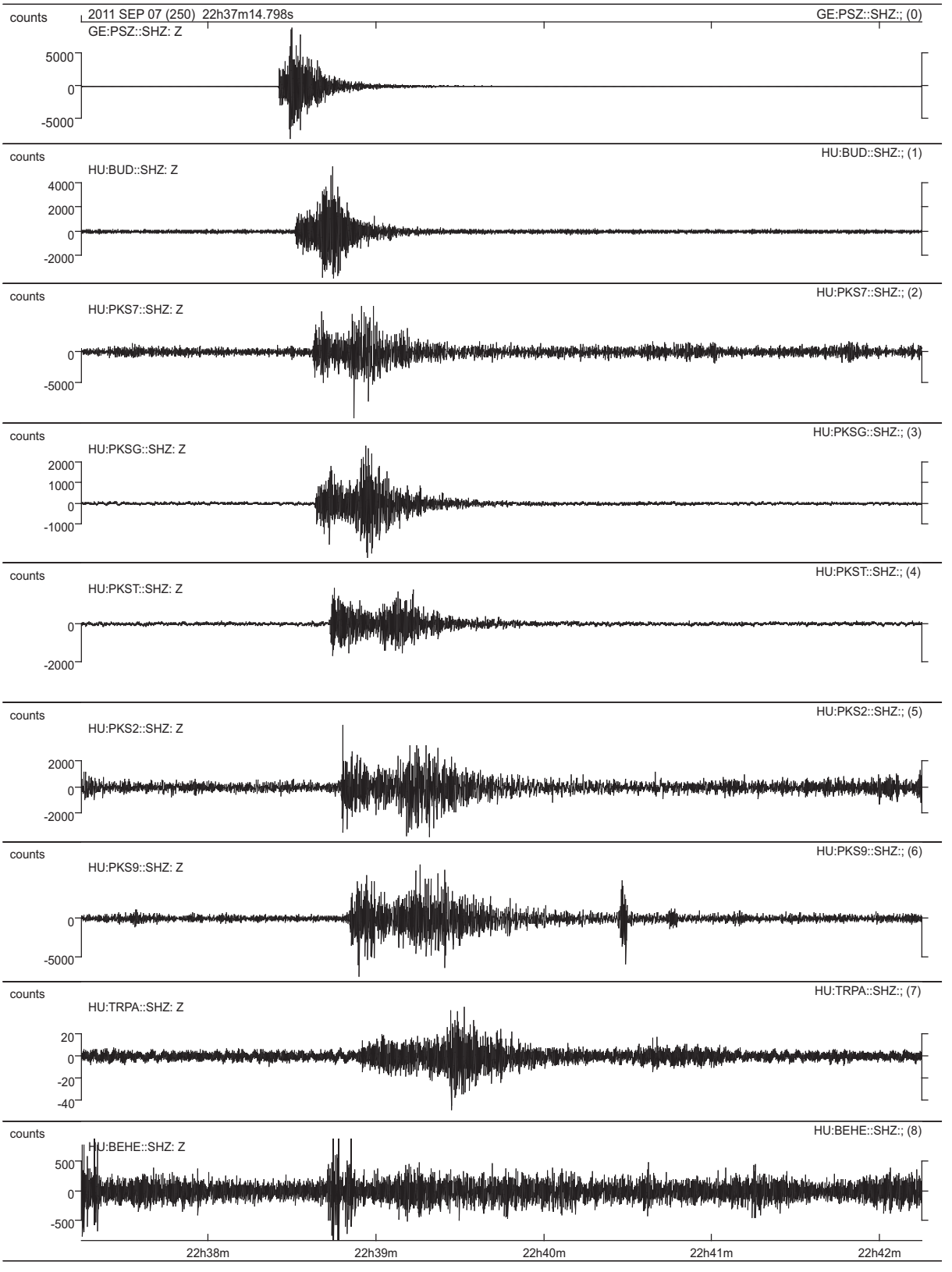
A rengés intenzitás eloszlását a 4.6. táblázat tartalmazza és a 4.12. ábra mutatja.

DISCUSSION

On the night of September 7th, a small magnitude (2.3 M_L) event was felt in Nógrád County and produced reports of intensity 4 EMS from a very small epicentral area at Héhalom – Kisbágyon – Zagyvaszántó.

Seismograms of the event are shown in Figure 4.11.

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



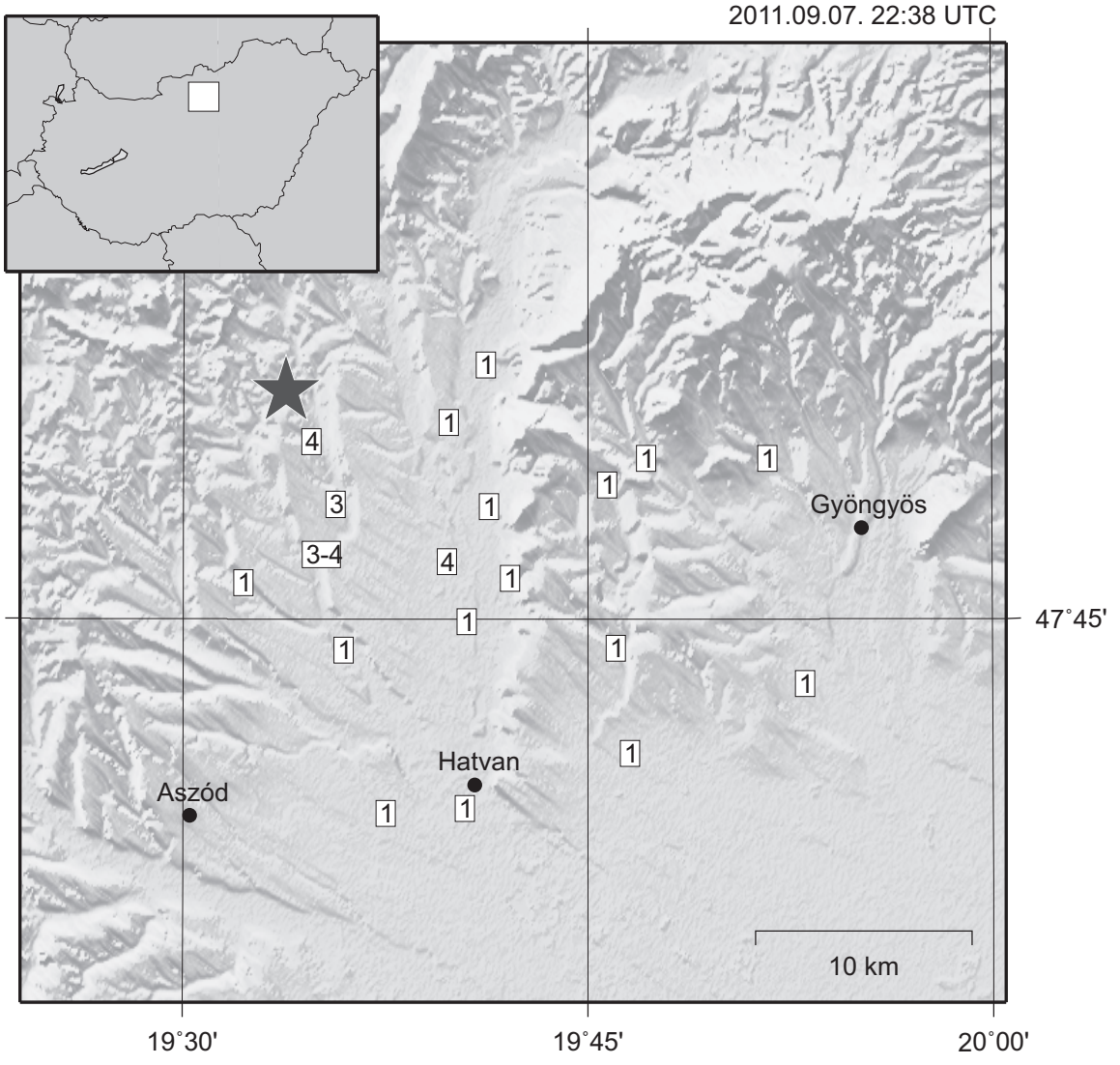
4.11. ábra A 2011. szeptember 7-i, kisbágyoni földrengés (22:38 UTC) szeizmogramjai

Figure 4.11. Seismograms of the Kisbágyon earthquake 7th September 2011 (22:38 UTC)

4.6. Táblázat
A 2011. szeptember 7-i, kisbágyoni földrengés (22:38 UTC) intenzitás eloszlása

Table 4.6.
Intensity distribution of the Kisbágyon earthquake 7th September 2011 (22:38 UTC)

Helység / Location		Koordináta Coordinates		I
		Szélesség Latitude (N)	Hosszúság Longitude (E)	Intenzitás Intensity
1	Alap	46.809	18.686	1.0
2	Apc	47.797	19.689	1.0
3	Atkár	47.723	19.884	1.0
4	Ecséd	47.738	19.767	1.0
5	Erdőtarcsa	47.765	19.537	1.0
6	Gyöngyöspata	47.817	19.786	1.0
7	Gyöngyöstarján	47.817	19.861	1.0
8	Györköny	46.639	18.697	1.0
9	Hatvan	47.671	19.674	1.0
10	Héhalom	47.777	19.585	3.5
11	Hort	47.694	19.776	1.0
12	Jobbágyi	47.832	19.664	1.0
13	Kerekharaszt	47.669	19.625	1.0
14	Kisbágyon	47.824	19.579	4.0
15	Lőrinci	47.749	19.675	1.0
16	Nagykökényes	47.737	19.599	1.0
17	Palotás	47.798	19.594	3.0
18	Petőfibánya	47.767	19.702	1.0
19	Szurdokpüspöki	47.856	19.687	1.0
20	Szűcsi	47.806	19.762	1.0
21	Zagyvaszántó	47.774	19.663	4.0



4.12. ábra A 2011. szeptember 7-i, kisbágyoni földrengés (22:38 UTC) intenzitás eloszlása
(a csillag a műszeresen meghatározott epicentrumot jelöli)

Figure 4.12. Intensity distribution of the Kisbágyon earthquake 7th September 2011 (22:38 UTC)
(star - instrumental epicentre)

2011. november 1. - Rábapatona / 1 November 2011 - Rábapatona

FÉSZEKPARAMÉTEREK / HYPOCENTER PARAMETERS

Dátum / Date:	2011/11/01
Kipattanási idő / Origin Time:	23:56:34.1 UTC
Szélesség és hosszúság / Latitude and Longitude:	47.700 N 17.437 E (S.D. 1.4 km)
Mélység / Depth:	12.8 km (S.D. 1.6 km)
Magnitúdó / Magnitude:	3.5 ML
Maximális intenzitás / Maximum Intensity:	5-6 EMS

LEÍRÁS

Az év egyik legerősebb magyarországi rengése november 2-re virradó éjjel pattant ki Győr-Moson-Sopron megyében, Győrtől néhány km-re, nyugatra. A 3.5 M_L magnitúdójú rengés érezhető volt mintegy 1000 km^2 területen. A legnagyobb megrázottságot (5-6 EMS) Rábapatona, Ikrény, Bezi és Kóny településekről jelentették. A rengés Rábapatonán jelentéktelen épület károkat (hajszálrepedések a falakban) is okozott.

Az esemény szeizmogramja a 4.13. ábrán látható.

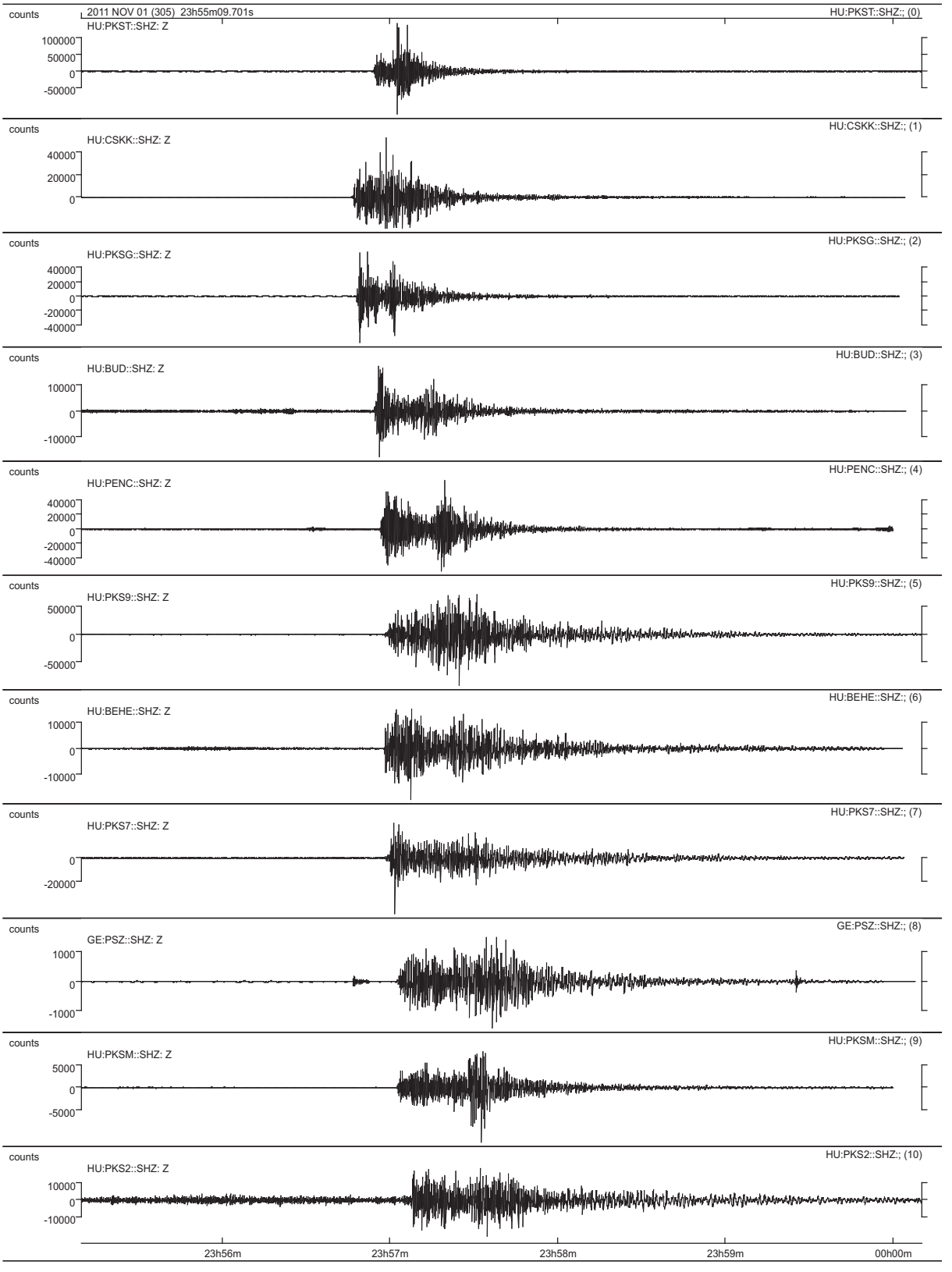
A rengés intenzitás eloszlását a 4.7. táblázat tartalmazza és a 4.14. ábra mutatja.

DISCUSSION

One of the highest magnitude (3.5 M_L) earthquakes of the year was reported from a few km west of Győr, Győr-Moson-Sopron County on the night of November 2nd. The earthquake was felt in an area of about 1000 km^2 in NW Hungary. The highest intensity values (5-6 and 5 EMS) were reported from Rábapatona, Ikrény, Bezi and Kóny. Minor damage (small cracks in walls) was reported from Rábapatona.

Seismograms of the event are shown in Figure 4.13.

The intensity distribution of the event is shown in Table 4.7 and Figure 4.14.



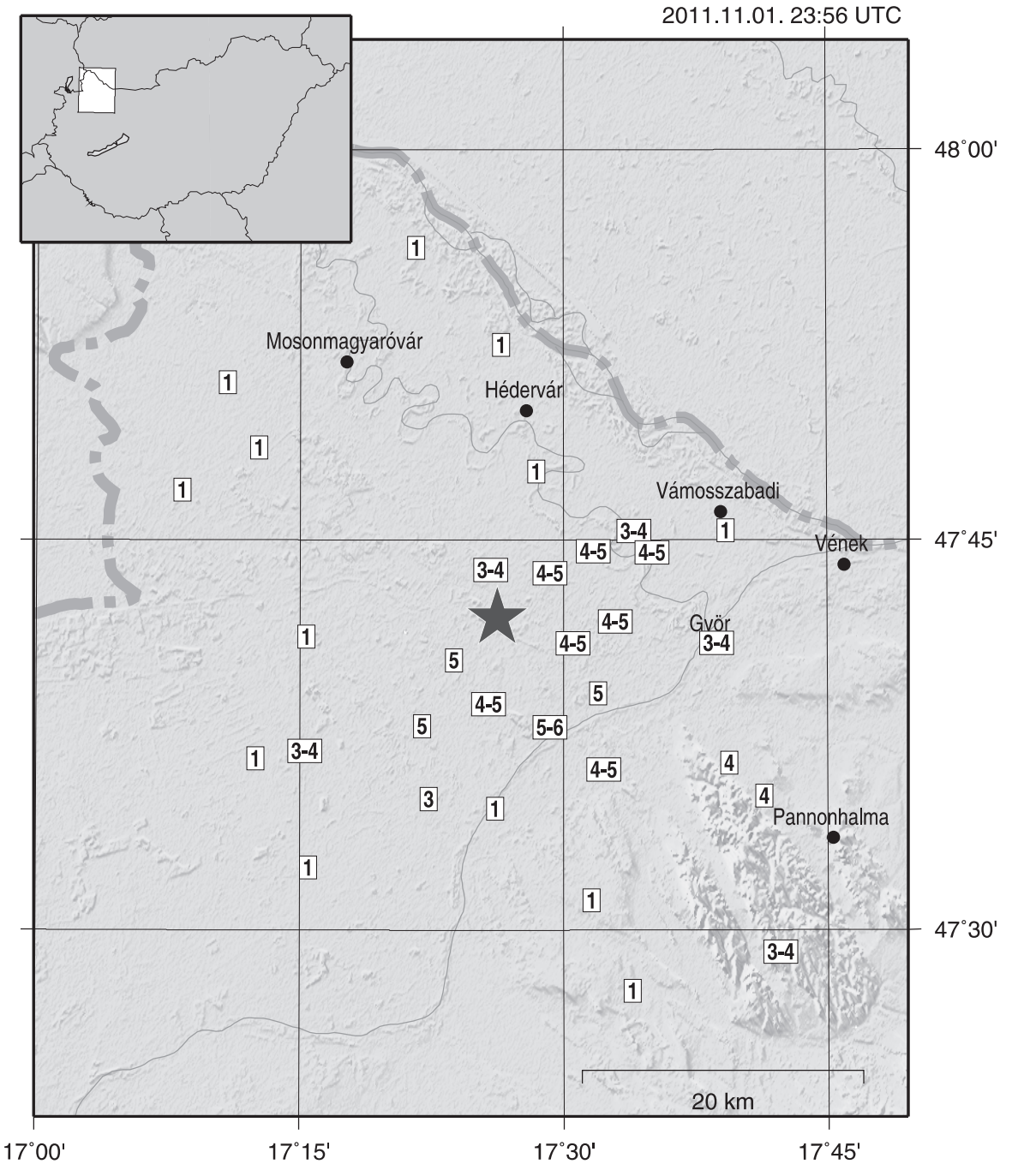
4.13. ábra A 2011. november 1-i, rábapatonai földrengés (23:56 UTC) szeizmogramjai

Figure 4.13. Seismograms of the Rábapatona earthquake 1st November 2011 (23:56 UTC)

4.7. Táblázat
A 2011. november 1-i, rábapatonai földrengés (23:56 UTC) intenzitás eloszlása

Table 4.7.
Intensity distribution of the Rábapatona earthquake 1st November 2011 (23:56 UTC)

Helység / Location		Koordináta Coordinates		I
		Szélesség Latitude (N)	Hosszúság Longitude (E)	Intenzitás Intensity
1	Abda	47.698	17.549	4.5
2	Bágyogszovát	47.584	17.372	3.0
3	Bezi	47.673	17.396	5.0
4	Börcs	47.684	17.509	4.5
5	Bősárkány	47.688	17.256	1.0
6	Csorna	47.615	17.255	3.5
7	Dunaremete	47.875	17.441	1.0
8	Dunasziget	47.937	17.360	1.0
9	Enese	47.645	17.429	4.5
10	Farád	47.610	17.208	1.0
11	Győr	47.684	17.645	3.5
12	Győrladamér	47.756	17.567	3.5
13	Győrújbarát	47.607	17.657	4.0
14	Győrzámoly	47.742	17.584	4.5
15	Ikrény	47.652	17.533	5.0
16	Jánossomorja	47.782	17.138	1.0
17	Kóny	47.631	17.366	5.0
18	Koroncó	47.603	17.538	4.5
19	Kunsziget	47.743	17.528	4.5
20	Mecsér	47.794	17.474	1.0
21	Mosonszentmiklós	47.731	17.431	3.5
22	Mosonszolnok	47.851	17.181	1.0
23	Nyúl	47.586	17.690	4.0
24	Öttevény	47.729	17.487	4.5
25	Rábapatona	47.630	17.487	5.5
26	Rábaszentmihály	47.578	17.435	1.0
27	Sokorópátka	47.486	17.705	3.5
28	Szerecseny	47.461	17.565	1.0
29	Szilsárkány	47.540	17.258	1.0
30	Tét	47.519	17.526	1.0
31	Újrónafő	47.809	17.211	1.0
32	Vámosszabadi	47.756	17.654	1.0



4.14. ábra A 2011. november 1-i, rábapatonai földrengés (23:56 UTC) intenzitás eloszlása (a csillag a műszeresen meghatározott epicentrumot jelöli)

Figure 4.14. Intensity distribution of the Rábapatona earthquake 1st November 2011 (23:56 UTC) (star - instrumental epicentre)

HIVATKOZÁSOK / REFERENCES

Bulletin of the Kövesligethy Rado Seismological Observatory, 2011, MTA CSFK GGI, 2012

Grünthal, G. (editor), 1998. European Macroseismic Scale 1998. Conseil de L'Europe, Luxembourg, 1998. pp. 99.

Győri, E., Tóth, L., Mónus P., Bus Z., 2010. Budapest földrengés-veszélyeztetettsége, "Új utak a földtudományban" előadássorozat, Óriásvárosok: mélyebbre hatolni, biztonságosabban építkezni. Budapest, MÁELGI, 2010. december 15.

Lee, W.H.K. and J.C. Lahr, 1975. HYPO71 (Revised): A computer program for determining hypocenter, magnitude, and first motion pattern of local earthquakes. U. S. Geological Survey Open-file report 75-311.

Mónus, P., 1995. Travel time curves and crustal velocity model for the Pannonian basin. MTA GGKI Technical report

Reasenberg, P.A. and D. Oppenheimer, 1985. FPFIT, FPPLOT and FPPAGE: Fortan computer programs for calculating and displaying earthquake fault-plane solutions, USGS Open File Report No. 85-739.

Tóth, L. and P. Mónus, 1997. The micro-seismic monitoring network of the Paks NPP, in: Seismic Safety of the Paks Nuclear Power Plant, Akadémiai Kiadó, Budapest, 1997, pp. 113-121.

Tóth, L., P. Mónus, T. Zsíros and M. Kiszely, 2002a. A Pannon-medence szeizmicitása, Földtani Közlöny 132/különszám, 327-337

Tóth, L., P. Mónus, T. Zsíros and M. Kiszely, 2002b. Seismicity in the Pannonian Region - earthquake data, EGU Stephan Mueller Special Publication Series, 3, 9-28

Tóth L., Mónus P., Bus Z., Győri E., 2008. Seismicity of the Pannonian Basin, In: E.S. Husebye (ed.), Earthquake Monitoring and Seismic Hazard Mitigation in Balkan Countries, Springer Verlag, NATO ARW Series, Vol. 81, p. 97-108.

Zsíros, T., P. Mónus and L. Tóth, 1990. Computer estimation of intensities; the 1985 Berhida, Hungary, earthquake, PAGEOPH, 132, 533-543.

Zsíros, T., 1994. Macroseismic observations in Hungary (1989-1993), Seismological Observatory, Geodetic and Geophysical Research Institute, Budapest, 1994. pp. 44.

A MELLÉKLET

EURÓPAI MAKROSZEIZMIKUS SKÁLA (EMS)

1 ☞ **Nem érezhető**

Nem érezhető, még a legkedvezőbb körülmények között sem.

2 ☞ **Alig érezhető**

A rezgést csak egy-egy, elsősorban fekvő ember érzi, különösen magas épületek felsőbb emeletein.

3 ☞ **Gyenge**

A rezgés gyenge, néhány ember érzi, főleg épületen belül. A fekvő emberek lengést vagy gyenge remegést éreznek.

4 ☞ **Széles körben érezhető**

A rengést épületen belül sokan érzik, a szabadban kevesen. Néhány ember felébred. A rezgés mértéke nem ijesztő. Ablakok, ajtók, edények megcsörrennek, felfüggesztett tárgyak lengenek.

5 ☞ **Erős**

A rengést épületen belül a legtöbben érzik, a szabadban csak néhányan. Sok alvó ember felébred, néhányan a szabadba menekülnek. Az egész épület remeg, a felfüggesztett tárgyak nagyon lengenek. Tányérok, poharak összekoccannak. A rezgés erős. Felül nehéz tárgyak felborulnak. Ajtók, ablakok kinyílanak vagy bezáródnak.

6 ☞ **Kisebb károkat okozó**

Épületen belül szinte mindenki, szabadban sokan érzik. Épületben tartózkodók közül sokan megijednek, és a szabadba menekülnek. Kisebb tárgyak leesnek. Hagyományos épületek közül sokban keletkezik kisebb kár, hajszálrepedés a vakolatban, kisebb vakolatdarabok lehullanak.

7 ☞ **Károkat okozó**

A legtöbb ember megrémül, és a szabadba menekül. Bútorok elmozdulnak, a polcokról sok tárgy leesik. Sok hagyományos épület szenved mérsékelt sérülést: kisebb repedések keletkeznek a falakban, kémények ledőlnek.

8 ☞ **Súlyos károkat okozó**

Bútorok felborulnak. Sok hagyományos épület megsérül: kémények ledőlnek, a falakban nagy repedések keletkeznek, néhány épület részlegesen összedől.

9 ☞ **Pusztító**

Oszlopok, műemlékek ledőlnek vagy elferdülnek. Sok hagyományos épület részlegesen, néhány teljesen rombadől.

10 ☞ **Nagyon pusztító**

Sok hagyományos épület összedől.

11 ☞ **Elsöprő**

A legtöbb épület összedől.

12 ☞ **Teljesen elsöprő**

Gyakorlatilag minden építmény megsemmisül.

(Részletesen lásd: Grünthal, 1998)

APPENDIX A

EUROPEAN MACROSEISMIC SCALE (EMS)

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)

B MELLÉKLET

A VILÁG JELENTŐS FÖLDRENGÉSEI

2011

Forrás:

U.S. Geological Survey
National Earthquake Information Center
(USGS - NEIC)

APPENDIX B

SIGNIFICANT EARTHQUAKES OF THE WORLD

2011

Source:

U.S. Geological Survey
National Earthquake Information Center
(USGS - NEIC)

Halálos áldozatot követelő földrengések a világon 2011-ben

Deaths from Earthquakes in 2011

Dátum Date	Ország, terület Region	Magnitúdó Magnitude	Áldozatok száma Number killed
2011 01 18	Southwestern Pakistan	7.2	3
2011 02 04	Myanmar-India border region	6.2	1
2011 02 21	South Island of New Zealand	6.1	181
2011 03 10	Myanmar-China border region	5.5	25
2011 03 11	Near East Coast of Honshu, Japan	9.0	20352
2011 03 24	Myanmar	6.9	74
2011 04 07	Near East Coast of Honshu, Japan	7.1	3
2011 04 11	Eastern Honshu, Japan	6.6	7
2011 05 11	Spain	5.1	10
2011 07 19	Kyrgyzstan	6.1	14
2011 09 05	Northern Sumatra, Indonesia	6.7	10
2011 09 18	Sikkim, India	6.9	111
2011 09 19	Guatemala	5.6	1
2011 10 23	Eastern Turkey	7.1	601
2011 10 28	Near the coast of central Peru	6.9	1
2011 11 09	Eastern Turkey	5.6	8
2011 12 11	Guerrero, Mexico	6.5	2
	Összesen / Total		**21.404**

A 7.0 vagy annál nagyobb magnitúdójú földrengések a világon 2011-ben

Earthquakes of magnitude 7.0 and greater in 2011

	Év Year	Hónap Month	Nap Day	Idő Time (UTC)	Szélesség Latitude	Hosszúság Longitude	Mélység Depth (km)	Magnitúdó Magnitude	Ország, terület Region
1.	2011	01	01	09:56:58	-26.803	-63.136	577	7.0	Santiago del Estero, Argentina
2.	2011	01	02	20:20:17	-38.355	-73.326	24	7.2	Araucania, Chile
3.	2011	01	13	16:16:41	-20.628	168.471	9	7.0	Loyalty Islands
4.	2011	01	18	20:23:23	28.777	63.951	68	7.2	Southwestern Pakistan
5.	2011	03	09	02:45:20	38.435	142.842	32	7.3	Near East Coast of Honshu, Japan
6.	2011	03	11	05:46:24	38.297	142.373	29	9.0	Near East Coast of Honshu, Japan
7.	2011	03	11	06:15:40	36.281	141.111	43	7.9	Near East Coast of Honshu, Japan
8.	2011	03	11	06:25:50	38.058	144.590	19	7.7	Near East Coast of Honshu, Japan
9.	2011	04	07	14:32:43	38.276	141.588	42	7.1	Near East Coast of Honshu, Japan
10.	2011	06	24	03:09:39	52.050	-171.836	52	7.3	Fox Islands, Aleutian Islands
11.	2011	07	06	19:03:18	-29.539	-176.340	17	7.6	Kermadec Islands region
12.	2011	07	10	00:57:10	38.034	143.264	23	7.0	East Coast of Honshu, Japan
13.	2011	08	20	16:55:02	-18.365	168.143	32	7.2	Vanuatu
14.	2011	08	20	18:19:23	-18.311	168.218	28	7.1	Vanuatu
15.	2011	08	24	17:46:11	-7.641	-74.525	147	7.0	Northern Peru
16.	2011	09	03	22:55:40	-20.671	169.716	185	7.0	Vanuatu
17.	2011	09	15	19:31:04	-21.611	-179.528	645	7.3	Fiji region
18.	2011	10	21	17:57:16	-29.035	-176.216	33	7.4	Kermadec Islands region
19.	2011	10	23	10:41:21	38.691	43.497	16	7.1	Eastern Turkey
20.	2011	12	14	05:05:00	-7.572	146.806	148	7.1	Eastern New Guinea region, P.N.G.

A 6.5 vagy annál nagyobb magnitúdójú, és a jelentősebb károkat okozó földrengések a világon 2011-ben

Earthquakes of magnitude 6.5 or greater or ones that caused fatalities, injuries or substantial damage in 2011

DÁTUM	IDŐ ÓÓ MM SEC	KOORDINÁTA SZÉL	LONG	MÉLYS.	MAG	ÁLL. SZÁM	RÉGIÓ, TOVÁBBI MAGNITÚDÓK, MEGJEGYZÉSEK
DATE UTC	ORIGIN TIME UTC HR MN SEC	GEOGRAPHIC COORDINATES LAT	LONG	DEPTH	MAG SD	NO. STA USED	REGION, ADDITIONAL MAGNITUDES AND COMMENTS
JAN 01	09 56 58.1	26.803 S	63.136 W	577 D	7.0 0.9	607	SANTIAGO DEL ESTERO, ARGENTINA. MW 7.0 (WCMT), 7.0 (UCMT), 7.0 (GCMT). mb 6.8 (GS). MD 7.0 (SJA). Mo 3.9*10**19 Nm (WCMT), 4.3*10**19 Nm (UCMT), 4.4*10**19 Nm (GCMT). Felt (V) at Santiago del Estero and (III) in Cordoba, Corrientes and La Rioja. Also felt at Rosario and San Juan. Felt (III) at Campinas, Brazil. Also felt at Brasilia, Londrina, Marilia, Nova Friburgo, Rio Negro and Sao Paulo. Felt (III) at Mejillones and Pozo Almonte; (II) at Antofagasta, Arica, Coquimbo, Huara, La Serena and Vina del Mar, Chile. Also felt at Calama, Chillan, Quilpue and Valparaiso.
JAN 02	20 20 17.7	38.355 S	73.326 W	24 G	7.2 1.1	397	ARAUCANIA, CHILE. MW 7.2 (WCMT), 7.1 (UCMT), 7.0 (GS), 7.1 (GCMT). mb 6.6 (GS). MS 7.1 (GS). ME 7.4 (GS). ML 6.9 (GUC). Mo 7.8*10**19 Nm (WCMT), 5.3*10**19 Nm (UCMT), 3.8*10**19 Nm (GS), 5.6*10**19 Nm (GCMT), 6.3*10**19 Nm (PPT). Es 3.0*10**15 Nm (GS). Felt (VII) at Nueva Imperial; (VI) at Curanilahue, Lebu and Tirua; (V) at Angol, Canete, Chiguayante, Coelemu, Concepcion, Hualqi, La Laja, Los Alamos, Los Angeles, San Pedro de la Paz, San Rosendo, Talcahuano and Temuco. Felt throughout central Chile from Santiago to Isla Chiloe. Felt (III) at San Carlos de Bariloche and Neuquen and (II) at Cutral Co, Argentina.
JAN 09	10 03 44.2	19.157 S	168.311 E	24 G	6.5 1.0	408	VANUATU. MW 6.5 (WCMT), 6.6 (UCMT), 6.5 (GCMT). mb 6.1 (GS). MS 6.4 (GS). ME 6.4 (GS). Mo 7.2*10**18 Nm (WCMT), 1.0*10**19 Nm (UCMT), 6.7*10**18 Nm (GCMT), 1.3*10**19 Nm (PPT). Es 1.0*10**14 Nm (GS). Felt (III) at Port-Vila. Also felt at Isangel. Felt at Noumea, New Caledonia.
JAN 13	16 16 41.5	20.628 S	168.471 E	9 G	7.0 1.0	578	LOYALTY ISLANDS. MW 7.0 (WCMT), 7.0 (UCMT), 6.9 (GCMT). mb 6.6 (GS). MS 7.1 (GS). ME 7.2 (GS). Mo 3.7*10**19 Nm (WCMT), 3.9*10**19 Nm (UCMT), 2.7*10**19 Nm (GCMT), 5.3*10**19 Nm (PPT). Es 1.5*10**15 Nm (GS). Felt (II) at Noumea, New Caledonia. Also felt at Bouloupari.
JAN 18	20 23 23.4	28.777 N	63.951 E	68 G	7.2 1.3	372	SOUTHWESTERN PAKISTAN. MW 7.2 (WCMT), 7.1 (GS), 7.2 (GCMT). mb 6.7 (GS). ME 7.9 (GS). Mo 7.4*10**19 Nm (WCMT), 5.3*10**19 Nm (GS), 8.6*10**19 Nm (GCMT). Es 1.4*10**16 Nm (GS). One person killed at Garhi Khairo and two people died from heart attacks, one each at Jacobabad and Quetta. Several people injured and at least 200 buildings damaged (V) in Balochistan, expecially in the Dalbandin area. Damage also occurred in Sindh and in southern Punjab. Felt (IV) at Bahawalpur, Karachi and Quetta; (III) at Hyderabad, Islamabad, Khairpur and Lahore. Slight damage occurred in parts of western India. Felt (IV) at Ghaziabad, Gurgaon, New Delhi and Pilani; (III) at Amritsar, Chandigarh, Delhi, Jaipur and Noida. Felt (IV) at Chenaran and (III) at Bandar `Abbas and Zahedan, Iran. Also felt (IV) at Ra's al Khaymah and (III) at Abu Dhabi, Ajman, Dubai and Sharjah, United Arab Emirates. Felt (III) at Kabul and Kandahar, Afghanistan, at Manama, Bahrain and at Muscat, Oman. Felt (II) at Doha, Qatar and at Riyadh, Saudi Arabia. Felt in 11 countries of southern Asia from Ashgabat, Turkmenistan and Samarqand, Uzbekistan to Bangalore, India and from Haridwar, India to Buraydah, Saudi Arabia.

FEB 01 07 11 26.0 24.693 N 97.943 E 31 4.8 1.0 75 MYANMAR-CHINA BORDER REGION. mb 4.8 (GS). At least 1 person injured at Pingyuan and at least 700 houses damaged or destroyed and 80,000 people displaced in the Yingjiang area, China.

FEB 04 13 53 46.2 24.618 N 94.680 E 85 G 6.2 1.0 555 MYANMAR-INDIA BORDER REGION. MW 6.2 (WCMT), 6.2 (GS), 6.3 (GCMT). mb 6.4 (GS). Mo 2.4*10**18 Nm (WCMT), 2.2*10**18 Nm (GS), 3.2*10**18 Nm (GCMT). One person killed and several buildings and bridges damaged in the Monywa area, Myanmar. Felt strongly in the Maungdaw area. Also felt at Mandalay and Taunggyi. Slight damage occurred in Assam, Manipur and Nagaland, India. Felt (V) at Manipur and Shillong; (IV) at Agartala, Guwahati and Tezpur; (III) at Aizawl and Shiliguri; (II) at Calcutta. Felt throughout northeastern India. Felt (V) at Sylhet and (IV) at Chittagong and Dhaka, Bangladesh. Felt in much of Bangladesh. Also felt in Bhutan.

FEB 10 14 39 27.7 4.195 N 122.974 E 523 D 6.5 1.1 488 CELEBES SEA. MW 6.5 (WCMT), 6.5 (GS), 6.5 (GCMT). mb 6.1 (GS). Mo 6.7*10**18 Nm (WCMT), 8.4*10**18 Nm (GS), 7.6*10**18 Nm (GCMT). Felt (III) at Labuha and on Pulau Ternate, Indonesia. Felt (III PIVS) at Davao and (II PIVS) at General Santos and Kidapawan, Philippines. Also felt at Panabo.

FEB 10 14 41 58.8 4.077 N 123.039 E 525 D 6.6 1.4 262 CELEBES SEA. MW 6.6 (GS), 6.5 (GCMT). mb 6.3 (GS). Mo 8.8*10**18 Nm (GS), 7.5*10**18 Nm (GCMT). Felt at Manado and on Pulau Ternate, Indonesia. Felt (III) at Davao, Philippines. Also felt at Dadiangas and Panabo.

FEB 11 20 05 30.7 36.474 S 73.125 W 28 6.9 1.2 366 OFFSHORE BIO-BIO, CHILE. MW 6.9 (WCMT), 6.8 (GS), 6.8 (GCMT). mb 6.0 (GS). ME 7.2 (GS). ML 6.9 (GUC). Mo 3.2*10**19 Nm (WCMT), 1.7*10**19 Nm (GS), 1.9*10**19 Nm (GCMT), 2.0*10**19 Nm (PPT). Es 1.4*10**15 Nm (GS). Power outages occurred at Constitucion, Curanipe and Pelluhue. A local tsunami with a wave height of 0.3 meters observed at Talcahuano. Felt (VI) at Arauco, Cauquenes, Chanco, Colbun, Concepcion, Constitucion, Curico, Empedrado, La Laja, Linares, Longavi, Molina, Pelluhue, Retiro, Romeral, San Clemente, San Javier, Talca, Talcahuano and Yerbas Buenas; (V) at Angol, Chepica, Chillan, Iloca, Los Sauces, Melipeuco, Paredones, Parral, Rancagua, Renaico, Rio Claro, Santa Cruz and Yumbel; (IV) at Los Angeles, San Vicente and Vina del Mar; (III) at Santiago and Temuco. Felt in much of central Chile from La Ligua to Valdivia. Felt (II) at Buenos Aires, Argentina. Also felt at Cutral Co, Mendoza, Neuquen, San Carlos de Bariloche and San Juan.

FEB 14 03 40 09.9 35.380 S 72.834 W 21 G 6.7 1.0 358 OFFSHORE MAULE, CHILE. MW 6.7 (WCMT), 6.6 (UCMT), 6.5 (GS), 6.6 (GCMT). mb 5.9 (GS). MS 6.6 (GS). ME 6.9 (GS). ML 6.2 (GUC). Mo 1.5*10**19 Nm (WCMT), 8.8*10**18 Nm (UCMT), 7.0*10**18 Nm (GS), 1.1*10**19 Nm (GCMT), 1.3*10**19 Nm (PPT). Es 4.4*10**14 Nm (GS). Felt (V) at Cauquenes, Chillan, Cobquecura, Concepcion, Longavi, Parral, Penco, Retiro, Talcahuano and Tome; (IV) at Chanco, Constitucion, Romeral and San Pedro de la Paz; (II) as far as Quillota and Valdivia. Felt in much of central Chile. Also felt at Mendoza, Argentina.

FEB 21 10 57 52.4 26.142 S 178.394 E 558 6.5 0.9 610 SOUTH OF THE FIJI ISLANDS. MW 6.5 (WCMT), 6.6 (GS), 6.5 (GCMT). mb 6.3 (GS). Mo 6.9*10**18 Nm (WCMT), 1.0*10**19 Nm (GS), 7.8*10**18 Nm (GCMT).

FEB 21 23 51 42.3& 43.583 S 172.680 E 6 6.1 323 SOUTH ISLAND OF NEW ZEALAND. <WEL>. MW 6.1 (WCMT), 6.1 (UCMT), 6.1 (GCMT). mb 6.1 (GS). MS 6.3 (GS). ME 6.7 (GS). ML 6.3 (WEL). Mo 2.0*10**18 Nm (WCMT), 1.9*10**18 Nm (UCMT), 1.9*10**18 Nm (GCMT). Es 2.6*10**14 Nm (GS). At least 181 people killed, 1,500 injured and about 100,000 buildings destroyed or damaged (VIII) in the Christchurch-Lyttleton area. Landslides and liquefaction occurred in the area. Felt in much of Canterbury and as far as Invercargill and Palmerston North.

MAR 06 14 32 36.0 56.422 S 27.063 W 88 D 6.5 1.0 407 SOUTH SANDWICH ISLANDS REGION. MW 6.5 (WCMT), 6.5 (UCMT), 6.5 (GS), 6.5 (GCMT). mb 6.6 (GS). Mo 8.4*10**18 Nm (WCMT), 8.2*10**18 Nm (UCMT), 6.8*10**18 Nm (GS), 8.1*10**18 Nm (GCMT), 1.0*10**19 Nm (PPT).

MAR 09 02 45 20.3 38.435 N 142.842 E 32 G 7.3 1.0 550 NEAR THE EAST COAST OF HONSHU, JAPAN. MW 7.3 (WCMT), 7.5 (GCMT). mb 6.4 (GS). MS 7.3 (GS). ME 7.2 (GS). Mo 9.9*10**19 Nm (WCMT), 2.1*10**20 Nm (GCMT), 9.4*10**19 Nm (PPT). Es 1.3*10**15 Nm (GS). Felt (IV) at Misawa, Sendai and Utsunomiya; (III) at Tokyo, Tsukuba, Yokohama and Yokosuka; (II) at Narita and Sagamihara. Felt throughout central and northern Honshu and southern Hokkaido. Recorded (5L JMA) in Miyagi.

MAR 10 04 58 16.0 24.719 N 97.969 E 26 5.5 0.9 185 MYANMAR-CHINA BORDER REGION. MW 5.5 (GCMT). mb 5.4 (GS). MS 5.3 (GS). ML 5.4 (BJI). Mo 2.0*10**17 Nm (GCMT). Twenty-five people killed, 250 injured, 1,039 homes destroyed, 12,528 buildings damaged, several roads damaged and electricity and telecommunications disrupted in the Pingyuan area, China. Felt at Dali. Also felt at Khonsa, India.

MAR 10 17 08 36.8 6.873 S 116.720 E 511 6.5 1.0 492 BALI SEA. MW 6.5 (WCMT), 6.6 (GCMT). mb 6.2 (GS). Mo 8.3*10**18 Nm (WCMT), 8.9*10**18 Nm (GCMT). Felt (IV) at Denpasar and (III) at Kuta, Tabanan and Ubud, Bali. Also felt at Karangasem and Singaraja. Felt (III) at Mataram, Lombok. Felt at Blitar, Jember and Sidoarjo, Java.

MAR 11 05 46 24.1 38.297 N 142.373 E 29 G 9.0 1.2 541 NEAR THE EAST COAST OF HONSHU, JAPAN. MW 9.0 (WCMT), 9.0 (UCMT), 9.1 (GCMT). mb 7.2 (GS). MS 8.3 (GS). ME 8.9 (GS). Mo 3.9*10**22 Nm (WCMT), 4.5*10**22 Nm (UCMT), 5.3*10**22 Nm (GCMT), 3.0*10**22 Nm (PPT). Es 5.1*10**17 Nm (GS). At least 15,550 people killed, 5,344 missing, 5,314 injured, 130,927 displaced and at least 332,395 buildings, 2,126 roads, 56 bridges and 26 railways destroyed or damaged by the earthquake and tsunami along the entire east coast of Honshu from Chiba to Aomori. The majority of casualties and damage occurred in Iwate, Miyagi and Fukushima from a Pacific-wide tsunami with a maximum runup height of 37.88 m at Miyako. The total economic loss in Japan was estimated at 309 billion US dollars. Electricity, gas and water supplies, telecommunications and railway service disrupted and several reactors severely damaged at a nuclear power plant near Okuma. Several fires occurred in Chiba and Miyagi. At least 1,800 houses destroyed when a dam failed in Fukushima. Maximum acceleration of 2.93 g recorded at Tsukidate. Horizontal displacement and subsidence observed. Landslides occurred in Miyagi. Liquefaction observed at Chiba, Odaiba, Tokyo and Urayasu. The tsunami destroyed or severely damaged many coastal towns in the Kuji-Minamisanriku-Nami area. One person killed and several houses destroyed at Jayapura, Indonesia by a tsunami with a wave height of 2 m. One person killed south of Crescent City, California and several boats and docks destroyed or damaged at Crescent City by a tsunami with a recorded wave height of 247 cm. Several houses, boats and docks destroyed or damaged at Santa Cruz, California; Brookings, Oregon; Hale`iwa, Kailua Kona and Kealakekua, Hawaii. Some buildings damaged slightly in the Galapagos Islands, Ecuador by a tsunami with a recorded wave height of 208 cm at Santa Cruz. Several houses destroyed at Pisco, Peru. Several buildings destroyed at Dichato and several boats damaged at Puerto Viejo and on Isla Chiloe, Chile. Felt (VIII) at Fukushima, (VII) at Agui, Hiratsuka, Kiryu, Komae, Oyama, Sendai and Tsukuba and (VI) in much of eastern Honshu, including the Tokyo-Yokohama area, Japan. Felt from Hokkaido to Kyushu. Recorded (7 JMA) in Miyagi. Felt in Northern Mariana Islands, North Korea, South Korea, Taiwan, northeastern China and southeastern Russia as far as Kaohsiung, Beijing and Petropavlovsk-Kamchatskiy. Seiches observed at Leikanger, Norway. Water fluctuations observed in a well in Newfoundland, Canada. The tsunami had maximum runup heights of 29.6 m at Ofunato, 18.4 m at Onagawa and 9.4 m at Iwaki. Wave

heights in centimeters (above sea level) were recorded at the following selected tide gauges: 250 at Arica, Chile; 282 at Hanasaki and 157 at Omaezaki, Japan; 163 at Manzanillo, Mexico; 156 on Midway Island; 97 on Chatham Island, New Zealand; 109 at Manus, Papua New Guinea; 173 at Callao, Peru; 250 at Kahului, Hawaii, USA; 202 at Port Orford, Oregon; 157 at Shemya, Alaska.

MAR 11 06 08 29.6 38.969 N 143.370 E 3 * 6.7 1.1 122 OFF THE EAST COAST OF HONSHU, JAPAN. mb 6.7 (GS).

MAR 11 06 15 40.2 36.281 N 141.111 E 43 7.9 1.4 163 NEAR THE EAST COAST OF HONSHU, JAPAN. MW 7.9 (UCMT), 7.9 (GCMT). mb 6.8 (GS). Mo 7.8*10**20 Nm (UCMT), 8.5*10**20 Nm (GCMT). Felt (V) at Tokyo and (IV) at Misawa and Yokosuka. Also felt at Ayase, Fussa, Hamamatsu, Hamura, Nagoya-shi, Nisshin, Oizumi, Osaka, Sodegaura, Tachikawa, Tokorozawa and Yokohama. Recorded (6L JMA) in Ibaraki.

MAR 11 06 18 49.5 36.023 N 142.269 E 16 * 6.6 0.9 57 OFF THE EAST COAST OF HONSHU, JAPAN. mb 6.6 (GS).

MAR 11 06 20 04.1 36.004 N 142.067 E 49 6.5 0.9 43 OFF THE EAST COAST OF HONSHU, JAPAN. mb 6.5 (GS).

MAR 11 06 25 50.3 38.058 N 144.590 E 19 7.7 0.9 507 OFF THE EAST COAST OF HONSHU, JAPAN. MW 7.7 (UCMT), 7.6 (GCMT). mb 7.1 (GS). Mo 4.4*10**20 Nm (UCMT), 3.1*10**20 Nm (GCMT). Felt at Abiko, Akishima, Atsugi, Chiba, Chofu, Fussa, Kawasaki, Misawa, Mizuho, Nara, Narita, Osaka, Tokyo, Ueno, Yokosuka and Zama. Also felt at Sapporo, Hokkaido. Recorded (4 JMA) in Akita, Aomori, Fukushima, Ibaraki, Iwate, Miyagi, Saitama and Yamagata. Also recorded (4 JMA) in southeastern Hokkaido.

MAR 11 08 19 24.3 36.166 N 141.562 E 7 6.5 0.9 369 NEAR THE EAST COAST OF HONSHU, JAPAN. mb 6.5 (GS). Felt at Yokosuka. Recorded (4 JMA) in Chiba, Fukushima, Ibaraki, Saitama and Tochigi.

MAR 11 11 36 40.9 39.241 N 142.463 E 26 6.6 1.1 668 NEAR THE EAST COAST OF HONSHU, JAPAN. mb 6.5 (GS). MS 6.6 (GS). Felt at Kashiwa, Misawa, Tokyo, Urayasu and Yokohama. Recorded (5L JMA) in Iwate.

MAR 12 01 47 15.4 37.594 N 142.648 E 20 G 6.5 0.9 472 OFF THE EAST COAST OF HONSHU, JAPAN. MW 6.5 (WCMT), 6.5 (GS), 6.5 (GCMT). mb 6.2 (GS). MS 6.4 (GS). Mo 6.3*10**18 Nm (WCMT), 6.2*10**18 Nm (GS), 7.7*10**18 Nm (GCMT). Recorded (3 JMA) in Fukushima, Ibaraki, Iwate, Miyagi, Nagano and Yamagata.

MAR 24 13 55 12.0 20.687 N 99.822 E 8 G 6.9 1.1 335 MYANMAR. MW 6.9 (WCMT), 6.8 (UCMT), 6.7 (GS), 6.8 (GCMT). mb 6.3 (GS). MS 7.1 (GS). ME 7.3 (GS). ML 7.2 (BJI). Mo 2.5*10**19 Nm (WCMT), 2.1*10**19 Nm (UCMT), 1.3*10**19 Nm (GS), 2.3*10**19 Nm (GCMT), 2.9*10**19 Nm (PPT). Es 2.2*10**15 Nm (GS). At least 74 people killed, 111 injured, 413 buildings damaged and one bridge collapsed in Shan. Landslides occurred in the area. Felt (VI) at Kengtung and (II) at Rangoon. Also felt at Mandalay and Taunggyi. One person killed in northern Thailand. Felt (VI) at Mae Sai; (IV) at Amnat Charoen, Chiang Rai, Lamphun, Mae Chan, Mae Rim, Nan, Nonthaburi, Phayao and Pong; (III) at Bangkok, Chiang Mai, Hang Dong, Lampang, Mae Hong Son, San Kamphaeng, San Pa Tong and San Sai. Twelve people injured, 9,496 people displaced and 9,691 houses, 136 reservoirs and 35 roads damaged in Yunnan, China. Felt (IV) at Jinghong, (III) at Nanning and (II) at Kunming. Felt (IV) at Louang Namtha and (II) at Louangphabang and Vientiane, Laos. Felt (III) at Hanoi, Vietnam. Also felt at Ho Chi Minh City. Felt widely in Laos, Myanmar, Thailand, Vietnam and southern China. Also felt at Phnom Penh, Cambodia and in Singapore. Felt at Dhaka, Bangladesh and Aizawl, India.

APR 03 20 06 40.3 9.848 S 107.693 E 14 G 6.7 1.1 270 SOUTH OF JAVA, INDONESIA. MW 6.7 (WCMT), 6.8 (UCMT), 6.7 (GCMT). mb 6.4 (GS). MS 6.3 (GS). ME 7.0 (GS). Mo 1.4*10**19 Nm (WCMT), 2.0*10**19 Nm (UCMT), 1.5*10**19 Nm (GCMT). Es 6.6*10**14 Nm (GS). Felt (V) at Tasikmalaya and Wonosobo; (IV) at Cilacap and Pangandaran; (III) at Bandung, Bogor and Sleman; (II) at Cisarua, Jakarta, Karangkates, Purworejo and Yogyakarta. Felt

(II) at Denpasar, Kuta and Ubud, Bali. Felt in much of Bali and Java. Also felt in Singapore.

APR 07 13 11 22.4& 17.208 N 94.338 W 166 6.6 518 VERACRUZ, MEXICO. <UNM>. MW 6.6 (WCMT), 6.6 (GS), 6.7 (GCMT). mb 6.1 (GS). MD 6.7 (UNM). Mo 1.1*10**19 Nm (WCMT), 1.1*10**19 Nm (GS), 1.3*10**19 Nm (GCMT), 1.9*10**19 Nm (PPT). Felt (V) at Cordoba and Tuxtla Gutierrez; (IV) at Coatzacoalcos, Huatulco, Jalapa, Minatitlan and Tehuacan; (III) at Coatepec, Oaxaca, Puebla, Puerto Escondido, San Cristobal de Las Casas and Villahermosa; (II) at Boca del Rio, Cuernavaca and Mexico. Felt (II) at Antigua Guatemala, Guatemala and Quetzaltenango, Guatemala. Felt widely in southern Mexico and in western Guatemala.

APR 07 14 32 43.2 38.276 N 141.588 E 42 G 7.1 0.9 446 NEAR THE EAST COAST OF HONSHU, JAPAN. MW 7.1 (WCMT), 7.1 (UCMT), 7.1 (GS), 7.1 (GCMT). mb 6.9 (GS). MS 7.0 (GS). ME 7.3 (GS). Mo 5.6*10**19 Nm (WCMT), 6.1*10**19 Nm (UCMT), 5.5*10**19 Nm (GS), 5.9*10**19 Nm (GCMT), 5.9*10**19 Nm (PPT). Es 2.0*10**15 Nm (GS). Two people killed, 132 injured and several roads damaged in the Ishinomaki-Onagawa area. One person died in Yamagata when a power outage interrupted oxygen supply. Felt (VII) at Sendai, (V) at Misawa and (IV) in the Tokyo-Yokohama area. Felt (V) at Sapporo, Hokkaido. Felt widely in central and northern Honshu and in southern Hokkaido. Recorded (6U JMA) in Miyagi.

APR 11 08 16 12.7 37.001 N 140.401 E 11 G 6.6 0.8 586 EASTERN HONSHU, JAPAN. MW 6.6 (WCMT), 6.6 (UCMT), 6.6 (GCMT). mb 6.4 (GS). MS 6.5 (GS). ME 6.8 (GS). Mo 9.0*10**18 Nm (WCMT), 1.0*10**19 Nm (UCMT), 1.0*10**19 Nm (GCMT). Es 3.0*10**14 Nm (GS). Six people killed by landslides at Iwaki and one person killed in Ibaraki. Felt (V) at Misawa and (IV) at Akiruno, Tokyo, Yokohama, Yokosuka and Zama. Felt in much of central and northern Honshu. Recorded (6L JMA) in Fukushima and Ibaraki.

APR 18 13 03 02.7 34.336 S 179.874 E 86 G 6.6 1.1 467 SOUTH OF THE KERMADEC ISLANDS. MW 6.6 (WCMT), 6.6 (GS), 6.5 (GCMT). mb 6.2 (GS). ME 6.6 (GS). Mo 8.9*10**18 Nm (WCMT), 9.5*10**18 Nm (GS), 7.8*10**18 Nm (GCMT), 9.6*10**18 Nm (PPT). Es 1.7*10**14 Nm (GS). Felt (II) at Christchurch, Lower Hutt and Wellington, New Zealand. Felt in many parts of the North Island and in a few places on the South Island.

APR 23 04 16 54.7 10.375 S 161.200 E 79 G 6.8 1.0 445 SOLOMON ISLANDS. MW 6.8 (WCMT), 6.8 (UCMT), 6.8 (GS), 6.8 (GCMT). mb 6.7 (GS). ME 7.4 (GS). Mo 1.9*10**19 Nm (WCMT), 2.1*10**19 Nm (UCMT), 1.8*10**19 Nm (GS), 2.1*10**19 Nm (GCMT), 1.1*10**19 Nm (PPT). Es 2.6*10**15 Nm (GS). Felt (V) at Honiara. Also felt at Tulagi.

MAY 10 08 55 08.9 20.244 S 168.226 E 11 G 6.8 1.1 519 LOYALTY ISLANDS. MW 6.8 (WCMT), 6.9 (UCMT), 6.7 (GS), 6.8 (GCMT). mb 6.4 (GS). MS 6.8 (GS). ME 6.8 (GS). Mo 2.0*10**19 Nm (WCMT), 2.4*10**19 Nm (UCMT), 1.2*10**19 Nm (GS), 1.7*10**19 Nm (GCMT), 3.9*10**19 Nm (PPT). Es 3.0*10**14 Nm (GS). Felt at Tadine and We. Felt (II) at Dumbea and Noumea, New Caledonia. Also felt at Bourail, Mont-Dore and Yate. Felt (II) at Port-Vila, Vanuatu. Also felt at Isangel.

MAY 11 16 47 25.7& 37.699 N 1.672 W 1 5.1 397 SPAIN. <MDD>. MW 5.1 (GCMT), 5.1 (RMT), 5.1 (MDD). mb 5.3 (GS). ML 5.6 (LDG). Mo 5.4*10**16 Nm (GCMT), 5.1*10**16 Nm (RMT). At least ten people killed and dozens injured in the Lorca area. Felt (VI) at Lorca, (V) at Alhama de Murcia and (IV) at Huercal-Overa, Mazarron, Murcia, Lumbreras and Totana. Felt in much of southeastern Spain and in the Madrid area.

MAY 15 18 37 10.3 6.126 S 154.408 E 40 G 6.5 1.3 254 BOUGAINVILLE REGION, PAPUA NEW GUINEA. MW 6.5 (GS), 6.5 (UCMT), 6.4 (GCMT), 6.4 (WCMT). MS 6.2 (GS). ME 6.4 (GS). Mo 7.2*10**18 Nm (UCMT), 6.6*10**18 Nm (GS), 5.9*10**18 Nm (GCMT), 5.5*10**18 Nm (WCMT), 1.1*10**19 Nm (PPT). Es 9.7*10**13 Nm (GS).

JUN 08 01 53 26.0 43.015 N 88.247 E 21 5.3 0.8 301 NORTHERN XINJIANG, CHINA. mb 5.3 (GS). At least eight people injured, 50 homes damaged and landslides occurred in the

Dabancheng area. Felt (III) at Urumqi. Also felt at Korla.

JUN 13 02 20 49.3& 43.564 S 172.743 E 6 5.9 280 SOUTH ISLAND OF NEW ZEALAND. <WEL>. MW 5.9 (WCMT), 5.9 (GS), 6.0 (GCMT), 5.9 (RMT). mb 6.0 (GS). MS 6.0 (GS). ME 6.7 (GS). ML 6.3 (WEL). Mo 9.2*10**17 Nm (WCMT), 8.2*10**17 Nm (GS), 1.1*10**18 Nm (GCMT), 9.6*10**17 Nm (RMT). Es 2.7*10**14 Nm (GS). Forty-five people injured, 100 previously-damaged buildings destroyed, many roads damaged, one bridge destroyed, utilities disrupted, widespread liquefaction and landslides observed (VII) in the Christchurch area. Seaport damaged at Lyttelton. Total damage in Canterbury estimated at 3 to 5 billion U.S. dollars. Felt (IV) at Westport and (III) at Dunedin. Felt in much of Canterbury and as far as Invercargill and Wellington.

JUN 20 10 16 55.2 25.075 N 98.721 E 39 5.3 0.9 203 MYANMAR-CHINA BORDER REGION. mb 5.3 (GS). Four people injured and moderate damage at Baoshan, China.

JUN 22 21 50 52.3 39.955 N 142.205 E 33 G 6.7 0.9 592 NEAR THE EAST COAST OF HONSHU, JAPAN. MW 6.7 (WCMT), 6.7 (UCMT), 6.6 (GS), 6.7 (GCMT). mb 6.1 (GS). MS 6.7 (GS). ME 6.9 (GS). Mo 1.5*10**19 Nm (WCMT), 1.6*10**19 Nm (UCMT), 1.0*10**19 Nm (GS), 1.5*10**19 Nm (GCMT), 1.9*10**19 Nm (PPT). Es 4.5*10**14 Nm (GS). Felt (V) at Misawa and (II) at Morioka. Also felt at Ichinoseki, Kawasaki, Kizukuri, Narita, Ota, Sendai, Tokyo and Yokohama. Felt (II) at Sapporo, Hokkaido. Also felt at Obihiro. Recorded (5L JMA) in Aomori and Iwate, Honshu.

JUN 24 03 09 39.4 52.050 N 171.836 W 52 G 7.3 1.0 791 FOX ISLANDS, ALEUTIAN ISLANDS, ALASKA. MW 7.3 (WCMT), 7.3 (UCMT), 7.3 (GCMT). mb 6.9 (GS). ME 7.9 (GS). ML 6.7 (AEIC). Mo 9.5*10**19 Nm (WCMT), 1.1*10**20 Nm (UCMT), 9.7*10**19 Nm (GCMT), 1.8*10**20 Nm (PPT). Es 1.6*10**16 Nm (GS). Felt (VI) at Nikolski and (II) at Dutch Harbor. Also felt at Adak, Anchorage, Cold Bay, Elmendorf AFB, Homer and Unalaska. Tsunami generated with wave heights (peak-to-trough) recorded at the following selected tide stations: 6 cm on Adak, 4 cm on Akutan, 10 cm at Nikolski and 9 cm at Saint Paul; 4 cm on Midway; 6 cm at Hilo and 4 cm at Nawiliwili, Hawaii.

JUN 24 14 06 45.4* 18.335 N 72.406 W 10 G 3.5 1.3 8 HAITI REGION. ML 3.5 (GS). Seven people injured when they were caught up in panicking crowd. Felt (III) at Port- au-Prince and Petionville. Also felt at Carrefour and Saint-Marc.

JUN 29 23 16 40.1 36.261 N 137.679 E 10 G 4.9 1.2 172 EASTERN HONSHU, JAPAN. mb 4.9 (GS). At least 7 people injured at Nagano. Felt at Matsumoto and Nishin. Recorded (5U JMA) in Nagano.

JUL 06 19 03 18.2 29.539 S 176.340 W 17 G 7.6 1.2 567 KERMADEC ISLANDS REGION. MW 7.6 (WCMT), 7.6 (GCMT). mb 7.0 (GS). MS 7.8 (GS). ME 8.2 (GS). Mo 2.8*10**20 Nm (WCMT), 2.9*10**20 Nm (GCMT), 4.0*10**20 Nm (PPT). Es 4.0*10**16 Nm (GS). Felt (II) at Wellington, New Zealand. Also felt at Auckland, Christchurch, Gisborne, Hastings and Manukau. Felt at Brisbane and Gold Coast, Australia, at Suva, Fiji and at Nuku`alofa, Tonga.

JUL 10 00 57 10.8 38.034 N 143.264 E 23 G 7.0 1.0 531 OFF THE EAST COAST OF HONSHU, JAPAN. MW 7.0 (WCMT), 7.0 (UCMT), 7.0 (GS), 7.0 (GCMT). mb 6.6 (GS). MS 7.0 (GS). ME 7.7 (GS). Mo 3.5*10**19 Nm (WCMT), 3.8*10**19 Nm (UCMT), 3.4*10**19 Nm (GS), 4.0*10**19 Nm (GCMT). Es 9.3*10**15 Nm (GS). Felt (V) at Sendai, (IV) at Kashiwa and (III) at Kawasaki, Misawa, Tachikawa, Tokyo, Yokohama and Yokosuka. Felt in much of eastern Honshu and on Hokkaido. Recorded (4 JMA) in Fukushima, Iwate and Miyagi.

JUL 19 19 35 43.4 40.081 N 71.410 E 20 G 6.1 0.9 510 KYRGYZSTAN. MW 6.1 (WCMT), 6.0 (GS), 6.1 (GCMT). mb 6.1 (GS). MS 6.2 (GS). ME 6.5 (GS). Mo 1.5*10**18 Nm (WCMT), 1.3*10**18 Nm (GS), 1.9*10**18 Nm (GCMT). Es 1.4*10**14 Nm (GS). At least 13 people killed, 86 people injured and several buildings destroyed in Farg`ona, Uzbekistan. Felt (IV) at Tashkent. Also felt at Andijon and Urgut. At least one person killed in Khujand, Tajikistan. Felt (III) at Dushanbe. Also felt at Chkalovsk and Gharm. Power outages occurred at Batken, Kyrgyzstan. Felt (IV)

at Osh. Also felt at Bishkek and Jalal-Abad. Felt at Shymkent, Kazakhstan.

JUL 29 07 42 22.6 23.784 S 179.760 E 523 G 6.7 1.0 614 SOUTH OF THE FIJI ISLANDS. MW 6.7 (WCMT), 6.7 (UCMT), 6.7 (GS), 6.7 (GCMT). mb 6.2 (GS). Mo 1.3*10**19 Nm (WCMT), 1.6*10**19 Nm (GS), 1.5*10**19 Nm (UCMT), 1.5*10**19 Nm (GCMT), 1.5*10**19 Nm (PPT).

JUL 31 23 38 56.6 3.518 S 144.828 E 10 G 6.6 1.0 229 NEAR NORTH COAST OF NEW GUINEA, P.N.G. MW 6.6 (WCMT), 6.6 (UCMT), 6.5 (GS), 6.6 (GCMT). mb 6.2 (GS). MS 6.6 (GS). Mo 9.5*10**18 Nm (WCMT), 6.7*10**18 Nm (GS), 1.1*10**19 Nm (UCMT), 1.0*10**19 Nm (GCMT), 1.6*10**19 Nm (PPT). Felt (III) at Port Moresby. Also felt at Goroka, Tari and Wewak. Felt at Rabaul, New Britain.

AUG 11 10 06 29.3 39.955 N 77.028 E 10 G 5.6 0.9 239 SOUTHERN XINJIANG, CHINA. MW 5.6 (WCMT), 5.4 (GS), 5.7 (GCMT). mb 5.3 (GS). MS 5.3 (GS). Mo 3.6*10**17 Nm (WCMT), 1.5*10**17 Nm (GS), 3.9*10**17 Nm (GCMT). Twenty-one people injured and moderate damage at Kashi.

AUG 20 16 55 02.8 18.365 S 168.143 E 32 G 7.2 1.3 280 VANUATU. MW 7.2 (WCMT), 7.1 (UCMT), 7.0 (GS), 7.1 (GCMT). mb 6.2 (GS). MS 7.1 (GS). ME 6.4 (GS). Mo 7.0*10**19 Nm (WCMT), 6.3*10**19 Nm (UCMT), 4.3*10**19 Nm (GS), 5.7*10**19 Nm (GCMT), 8.0*10**19 Nm (PPT). Es 1.0*10**14 Nm (GS). Felt (V) at Port-Vila. Also felt at Lakatoro. Felt at Noumea, New Caledonia.

AUG 20 17 13 06.3 18.308 S 168.156 E 35 G 6.5 1.1 322 VANUATU. MW 6.5 (GCMT). mb 5.9 (GS). Mo 7.7*10**18 Nm (GCMT).

AUG 20 18 19 23.5 18.311 S 168.218 E 28 G 7.1 1.1 564 VANUATU. MW 7.1 (WCMT), 7.1 (UCMT), 7.0 (GS), 7.0 (GCMT). mb 6.4 (GS). MS 7.1 (GS). ME 7.3 (GS). Mo 5.5*10**19 Nm (WCMT), 4.8*10**19 Nm (UCMT), 3.4*10**19 Nm (GS), 4.1*10**19 Nm (GCMT), 6.6*10**19 Nm (PPT). Es 1.9*10**15 Nm (GS). Felt (V) at Port-Vila. Also felt at Luganville.

AUG 24 17 46 11.6 7.641 S 74.525 W 147 D 7.0 0.9 471 NORTHERN PERU. MW 7.0 (WCMT), 7.0 (GCMT). mb 6.8 (GS). MD 6.9 (QUI). Mo 4.2*10**19 Nm (WCMT), 4.4*10**19 Nm (GCMT), 3.7*10**19 Nm (PPT). Felt (VI) at Contamana and Tingo Maria; (V) at Pucallpa; (IV) at Ambo, Chilca, Huanuco, Imperial, Moyobamba, Puerto Maldonado and Tarapoto; (III) at Bagua Grande, Barranca, Chosica, Ica, Iquitos, Lima and Mala; (II) at Ayacucho, Talara and Trujillo. Felt (III) at Guayaquil and Loja and (II) at Cuenca, Ecuador. Felt in much of Peru and southern Ecuador. Felt (IV) at Cruzeiro do Sul and Rio Branco, Brazil. Also felt at Feijo. Felt (II) at Bogota, Colombia. Also felt at Leticia. Felt at Cobija and La Paz, Bolivia.

AUG 30 06 57 41.6 6.362 S 126.752 E 470 6.9 0.9 468 BANDA SEA. MW 6.9 (WCMT), 6.9 (UCMT), 6.9 (GS), 6.9 (GCMT). mb 6.0 (GS). Mo 2.6*10**19 Nm (WCMT), 2.5*10**19 Nm (GS), 2.4*10**19 Nm (UCMT), 2.6*10**19 Nm (GCMT), 1.5*10**19 Nm (PPT). Felt (III) at Dili, Timor-Leste. Also felt at Ainaro. Felt (III) at Atambua, Kupang and Soe and (II) at Sorong, Indonesia. Felt (II) at Darwin, Australia and (II PIVS) at Davao, Philippines.

SEP 02 10 55 53.5 52.171 N 171.708 W 32 G 6.9 1.4 779 FOX ISLANDS, ALEUTIAN ISLANDS, ALASKA. MW 6.9 (WCMT), 6.8 (UCMT), 6.8 (GS), 6.8 (GCMT). mb 6.5 (GS). MS 6.9 (GS). ME 7.0 (GS). Mo 2.6*10**19 Nm (WCMT), 2.2*10**19 Nm (UCMT), 1.8*10**19 Nm (GS), 2.2*10**19 Nm (GCMT), 2.0*10**19 Nm (PPT). Es 7.0*10**14 Nm (GS). Felt throughout the Aleutian Islands. A tsunami with a wave height of 6 cm was recorded at Atka.

SEP 02 13 47 09.6 28.398 S 63.029 W 579 6.7 0.9 532 SANTIAGO DEL ESTERO, ARGENTINA. MW 6.7 (WCMT), 6.7 (UCMT), 6.7 (GS), 6.7 (GCMT). mb 6.4 (GS). MD 6.9 (SJA). Mo 1.3*10**19 Nm (WCMT), 1.5*10**19 Nm (GS), 1.4*10**19 Nm (UCMT), 1.4*10**19 Nm (GCMT). Felt (III) at Buenos Aires, Catamarca, Cordoba, La Rioja, Mendoza, San Juan and San Miguel de Tucuman. Also felt at Mar del Plata, Parana, Rosario and Santiago del Estero. Felt at Cascavel and Passo Fundo, Brazil; Copiapo and Santiago, Chile; Asuncion, Paraguay.

SEP 03 22 55 40.9 20.671 S 169.716 E 185 7.0 1.0 406 VANUATU. MW 7.0 (WCMT), 7.0 (UCMT), 7.0 (GS), 7.0 (GCMT). mb 6.4 (GS). Mo 4.1*10**19 Nm (WCMT), 4.6*10**19 Nm (UCMT), 4.0*10**19 Nm (GS), 4.3*10**19 Nm (GCMT), 3.6*10**19 Nm (PPT). Felt at Isangel and Port-Vila. Felt (III) at Yate, New Caledonia. Also felt at Noumea, Tadine and We.

SEP 05 17 55 11.2 2.965 N 97.893 E 91 G 6.7 1.0 447 NORTHERN SUMATRA, INDONESIA. MW 6.7 (WCMT), 6.7 (GS), 6.7 (GCMT). mb 6.6 (GS). ME 7.0 (GS). Mo 1.2*10**19 Nm (WCMT), 1.3*10**19 Nm (GS), 1.4*10**19 Nm (GCMT), 8.1*10**18 Nm (PPT). Es 6.3*10**14 Nm (GS). At least 10 people killed in Aceh. Some homes damaged and power outages occurred at Singkil. Felt (IV) at Medan, Parapat, Sibolga and Singkil; (III) at Banda Aceh, Pariaman and Sinabang. Also felt (IV) on Pulau Samosir and (III) on Pulau Nias and Pulau Simuelue. Felt (IV) at Tanjung Tokong and (III) at Bukit Mertajam, Butterworth, George Town, Kepala Batas and Perai, Malaysia. Felt throughout northern Sumatra and western Malaysia. Felt (II) at Hat Yai and Kathu, Thailand and in Singapore.

SEP 07 17 58 18.7* 28.724 N 77.189 E 10 G 4.3 1.1 20 HARYANA-DELHI-UTTAR PRADESH REG., INDIA. mb 4.3 (GS). One person injured and minor damage in the Delhi area. Felt (IV) at Delhi, Faridabad, Ghaziabad, New Delhi and Noida; (III) at Delhi Cantonment, Gurgaon and Sonipat; (II) at Alipur. Also felt at Dehra Dun, Deoli, Gokalpur and Tigri.

SEP 15 19 31 04.0 21.611 S 179.528 W 645 D 7.3 1.1 646 FIJI REGION. MW 7.3 (WCMT), 7.3 (UCMT), 7.3 (GS), 7.3 (GCMT). mb 6.1 (GS). Mo 1.2*10**20 Nm (WCMT), 1.3*10**20 Nm (UCMT), 1.1*10**20 Nm (GS), 1.2*10**20 Nm (GCMT), 1.1*10**20 Nm (PPT). Felt (II) at Nandi. Also felt at Suva. Felt (II) at Nuku`alofa, Tonga. Also felt at Neiafu.

SEP 16 19 26 40.9 40.271 N 142.780 E 35 G 6.7 0.9 668 NEAR THE EAST COAST OF HONSHU, JAPAN. MW 6.7 (WCMT), 6.7 (UCMT), 6.7 (GS), 6.7 (GCMT). mb 6.0 (GS). MS 6.5 (GS). Mo 1.3*10**19 Nm (WCMT), 1.4*10**19 Nm (UCMT), 1.3*10**19 Nm (GS), 1.5*10**19 Nm (GCMT), 1.5*10**19 Nm (PPT). Felt (III) at Misawa. Also felt at Ichinoseki, Narita and Tokyo. Felt at Sapporo, Hokkaido. Recorded (4 JMA) in Iwate, Honshu.

SEP 18 12 40 51.7 27.718 N 88.136 E 50 G 6.9 1.0 373 SIKKIM, INDIA. MW 6.9 (WCMT), 6.9 (UCMT), 6.9 (GCMT). mb 6.6 (GS). MS 6.7 (GS). ME 7.7 (GS). Mo 2.5*10**19 Nm (WCMT), 2.7*10**19 Nm (UCMT), 2.8*10**19 Nm (GCMT). Es 9.0*10**15 Nm (GS). At least 94 people killed, several injured and 5,000 displaced and several thousand buildings and many roads and bridges destroyed or damaged in the Sikkim-Bihar-West Bengal area; 6 people killed and 25 injured and at least 4,300 buildings destroyed or damaged in Bhojpur, Ilam, Panchthar and Sankhuwasabha, Nepal; 7 people killed and 136 injured in Tibet, China; 1 person killed and 16 injured and at least 6,000 buildings damaged in the Paro-Thimphu region, Bhutan; minor damage to several buildings in Dhaka, Bangladesh. Total economic loss in India estimated at 22.3 billion US dollars. Electricity, telecommunications and water supplies disrupted and landslides and mudslides occurred in Sikkim, India, eastern Nepal and the Paro-Thimphu region, Bhutan. Felt (VII) at Gangtok and Shiliguri; (VI) at Jalpaiguri; (V) at Bandel, Baranagar, Barddhaman, Koch Bihar, Darjiling, Dispur and Guwahati; (IV) at Barakpur, Calcutta, Dhanbad, Durgapur, Haora, Iranagar, Muzaffarpur, Nagaon, Patna, Ranchi, Shillong and Tura; (III) at Delhi, Dam Dam, Faizabad, Ghaziabad, Gurgaon, Jaipur, Kharagpur, Lucknow, Noida, Rurki and Silchar; (II) at Agartala and Jamshedpur, India. Felt northwest to Chandigarh, southwest to Bhopal, south to Bhubaneshwar and east to Nahorkatiya. Felt (VI) at Damak, (V) at Biratnagar, Dhulikhel, Kathmandu and Pokhara, (IV) at Bhaktapur, Bharatpur, Patan and Tansen and (III) at Kirtipur, Nepal; (VI) at Thimphu and (V) at Paro, Bhutan; (V) at Lhasa, China; (IV) at Barguna, Chittagong, Dhaka, Rajshahi and Sylhet, Bangladesh. Felt in much of Bangladesh, Bhutan and eastern Nepal.

SEP 19 18 33 55.8 14.186 N 90.238 W 9 G 5.6 1.4 286 GUATEMALA. MW 5.6 (GCMT), 5.6 (RMT). mb 5.1 (GS). MD 5.0 (SNET). Mo 3.6*10**17 Nm (GCMT), 3.5*10**17 Nm (RMT). At least one person killed at Guatemala. Felt (V) at Petapa; (IV) at Amatitlan, Cahabon, Fraijanes, Guatemala, Mixco and Santa Catarina Pinula; (III) at Antigua Guatemala. Also felt at Chichicastenango, Chimaltenango, Cuidad Vieja, Cotzumalguapa, Escuintla, Nahuala, Panajachel, San Andres Sojcabaja, San Jose Pinula, San Lucas Sacatepequez, Villa Canales and Villa Nueva. Felt (III) at San Salvador, El Salvador. Also felt at Ahuachapan, Antiguo Cuscatlan and Santa Ana. Felt (II) at Copan and San Pedro Sula, Honduras. Also felt at Comayagua. Felt at Belmopan, Dangriga and San Ignacio, Belize.

OCT 13 03 16 24.7 9.339 S 114.593 E 3 D 6.1 1.1 390 SOUTH OF BALI, INDONESIA. MW 6.1 (WCMT), 6.1 (GS), 6.2 (GCMT), 6.1 (GS). ME 6.2 (GS). Mo 2.0*10**18 Nm (WCMT), 1.7*10**18 Nm (GS), 2.2*10**18 Nm (GCMT). Es 4.6*10**13 Nm (GS). At least 43 people injured in southern Bali. Felt (V) at Denpasar and Kuta.

OCT 14 03 35 14.8 6.570 S 147.881 E 37 G 6.5 1.1 423 EASTERN NEW GUINEA REG, PAPUA NEW GUINEA. MW 6.5 (WCMT), 6.5 (UCMT), 6.3 (GS), 6.5 (GCMT). mb 5.7 (GS). MS 6.5 (GS). ME 5.7 (GS). Mo 7.5*10**18 Nm (WCMT), 8.0*10**18 Nm (UCMT), 3.3*10**18 Nm (GS), 6.2*10**18 Nm (GCMT), 6.3*10**18 Nm (PPT). Es 8.1*10**12 Nm (GS). Felt at Kainantu, Lae, Madang, Mount Hagen, Port Moresby and Wau.

OCT 21 17 57 16.7 29.035 S 176.216 W 33 G 7.4 0.9 564 KERMADEC ISLANDS REGION. MW 7.4 (WCMT), 7.4 (UCMT), 7.4 (GS), 7.4 (GCMT). mb 6.9 (GS). MS 7.7 (GS). ME 7.2 (GS). Mo 1.5*10**20 Nm (WCMT), 1.6*10**20 Nm (GS), 1.5*10**20 Nm (UCMT), 1.5*10**20 Nm (GCMT), 1.6*10**20 Nm (PPT). Es 1.4*10**15 Nm (GS). Felt (III) at Gisborne. Also felt at Napier and Wellington, New Zealand. Felt at Nuku`alofa, Tonga.

OCT 23 10 41 21.0& 38.691 N 43.497 E 16 G 7.1 698 EASTERN TURKEY. <SPEC>. MW 7.1 (WCMT), 7.3 (UCMT), 7.1 (GS), 7.1 (GCMT). mb 6.9 (GS). MS 7.3 (GS). ME 7.2 (GS). ML 6.6 (ISK). Mo 5.6*10**19 Nm (WCMT), 9.9*10**19 Nm (UCMT), 6.4*10**19 Nm (GS), 6.4*10**19 Nm (GCMT). Es 1.2*10**15 Nm (GS). At least 601 people killed, 2,608 injured, 5,739 buildings destroyed and 4,882 buildings damaged in the Ercis-Tabanli-Van area. Telecommunications, electricity and water services disrupted. Felt throughout eastern Turkey, Armenia, Georgia, Azerbaijan and northwestern Iran and in parts of Iraq, Syria, Lebanon, Jordan and Israel.

OCT 28 18 54 34.0 14.442 S 75.970 W 24 G 6.9 1.0 439 NEAR THE COAST OF CENTRAL PERU. MW 6.9 (WCMT), 6.9 (UCMT), 6.8 (GS), 6.9 (GCMT). mb 6.5 (GS). MS 6.9 (GS). ME 6.7 (GS). Mo 2.7*10**19 Nm (WCMT), 2.9*10**19 Nm (UCMT), 1.9*10**19 Nm (GS), 3.2*10**19 Nm (GCMT), 3.2*10**19 Nm (PPT). Es 2.6*10**14 Nm (GS). One person killed in San Vicente de Canete, 103 people injured and 134 buildings destroyed at Ica. Felt (V) at Acari, Ica and Palpa; (IV) at Huancavelica and Santa Maria; (III) at Arequipa, Barranca, Chosica, Cusco, Pucallpa, San Luis and San Vicente de Canete. Felt widely in western and central Peru.

NOV 06 03 53 10.0& 35.532 N 96.766 W 5 5.6 474 OKLAHOMA. <TUL>. MW 5.6 (WCMT), 5.7 (GCMT), 5.6 (RMT), 5.6 (RMT). Mo 3.7*10**17 Nm (WCMT), 4.9*10**17 Nm (GCMT), 3.3*10**17 Nm (RMT). At least 2 people injured; 14 homes destroyed and many homes damaged; US Highway 62 buckled in the Shawnee-Sparks area. Felt (VII) at Meeker and Prague; (VI) at Castle, Indianola, McLoud, Sentinel, Shawnee, Sparks and Tupelo. Felt strongly in much of Oklahoma, southern Kansas, southwestern Missouri and northern Texas. Felt throughout the central US from southern Wisconsin to southern Texas, west to Dodge City, Kansas and east to Saint Louis, Missouri.

NOV 08 02 59 07.7 27.285 N 125.744 E 217 6.9 1.0 261 NORTHEAST OF TAIWAN. MW 6.9 (WCMT), 6.9 (UCMT), 6.9 (GS), 6.9 (GCMT). Mo 2.9*10**19 Nm (WCMT), 2.7*10**19 Nm (UCMT), 2.6*10**19 Nm (GS), 3.0*10**19 Nm (GCMT).

NOV 22 18 48 16.5 15.339 S 65.164 W 555 6.6 1.4 744 BENI, BOLIVIA. MW 6.6 (WCMT), 6.6 (UCMT), 6.6 (GS), 6.6 (GCMT). mb 6.2 (GS). Mo 1.1*10**19 Nm (WCMT), 8.6*10**18 Nm (UCMT), 1.1*10**19 Nm (GS), 9.5*10**18 Nm (GCMT). Felt (III) at Cochabamba and La Paz. Also felt at Santa Cruz and Trinidad. Felt (III) at Arica and Iquique, Chile. Also felt at Antofagasta and Calama. Felt at Arequipa and Tacna, Peru and at Cuiaba, Porto Velho and Rio Branco, Brazil.

DEC 11 01 47 25.5 17.987 N 99.779 W 59 G 6.5 0.9 564 GUERRERO, MEXICO. MW 6.5 (WCMT), 6.5 (UCMT), 6.4 (GS), 6.4 (GCMT). mb 6.2 (GS). ME 6.2 (GS). Mo 6.5*10**18 Nm (WCMT), 6.3*10**18 Nm (UCMT), 5.0*10**18 Nm (GS), 5.7*10**18 Nm (GCMT), 4.2*10**18 Nm (PPT). Es 4.3*10**13 Nm (GS). At least 2 people killed, 4 people injured, 50 homes damaged, power outages in Mexico City and landslides in Guerrero. Felt (VII) at Chilapa and Iguala and (VI) at Chilpancingo. Felt throughout Aguascalientes, Colima, Distrito Federal, Guanajuato, Guerrero, Hidalgo, Jalisco, Michoacan, Morelia, Oaxaca, Puebla, Queretaro, San Luis Potosi, southern Tamaulipas, Tlaxcala and Veracruz.

DEC 14 05 05 00.0 7.572 S 146.806 E 148 D 7.1 0.8 470 EASTERN NEW GUINEA REG, PAPUA NEW GUINEA. MW 7.1 (WCMT), 7.1 (UCMT), 7.1 (GS), 7.1 (GCMT). mb 6.6 (GS). Mo 5.1*10**19 Nm (WCMT), 4.9*10**19 Nm (UCMT), 4.8*10**19 Nm (GS), 5.2*10**19 Nm (GCMT), 8.4*10**19 Nm (PPT). Felt (VI) at Kainantu and Lae; (IV) at Goroka, Madang, Mount Hagen and Port Moresby. Also felt at Kerema, Kimbe, Mendi, Popondetta, Tari and Wau. Felt at Atherton, Cairns, Cairns Northern Beaches, Australia.

DEC 15 03 40 47.4& 47.469 N 115.801 W 3 2.2 16 NORTHERN IDAHO. <BUT>. MD 2.2 (BUT). Seven miners injured by a rockburst in a mine near Mullan, Idaho.

DEC 23 00 58 37.1 43.519 S 172.968 E 8 G 5.8 1.0 243 SOUTH ISLAND OF NEW ZEALAND. MW 5.8 (WCMT), 5.7 (GS), 5.8 (GCMT). mb 5.7 (GS). MS 5.6 (GS). ME 5.6 (GS). ML 5.8 (WEL). Mo 7.2*10**17 Nm (WCMT), 3.9*10**17 Nm (GS), 5.5*10**17 Nm (GCMT). Es 4.9*10**12 Nm (GS). Sixty people injured, a few buildings damaged, cracks and potholes appeared in roads in the Christchurch area. Rockslides and liquefaction observed in the eastern suburbs of the city. Power supplies cut, freight and passenger trains suspended and the airport closed temporarily. Felt (VI) at Christchurch and (II) at Dunedin. Felt in much of Canterbury.

DEC 27 15 21 56.8 51.840 N 95.917 E 15 G 6.6 0.8 543 SOUTHWESTERN SIBERIA, RUSSIA. MW 6.6 (WCMT), 6.6 (GS), 6.7 (GCMT). mb 6.1 (GS). ME 7.1 (GS). Mo 8.9*10**18 Nm (WCMT), 1.1*10**19 Nm (GS), 1.3*10**19 Nm (GCMT), 5.8*10**18 Nm (PPT). Es 8.7*10**14 Nm (GS).

Compiled by Pamela J. Benfield and NEIC Operations Staff.

JEGYZETEK / NOTES

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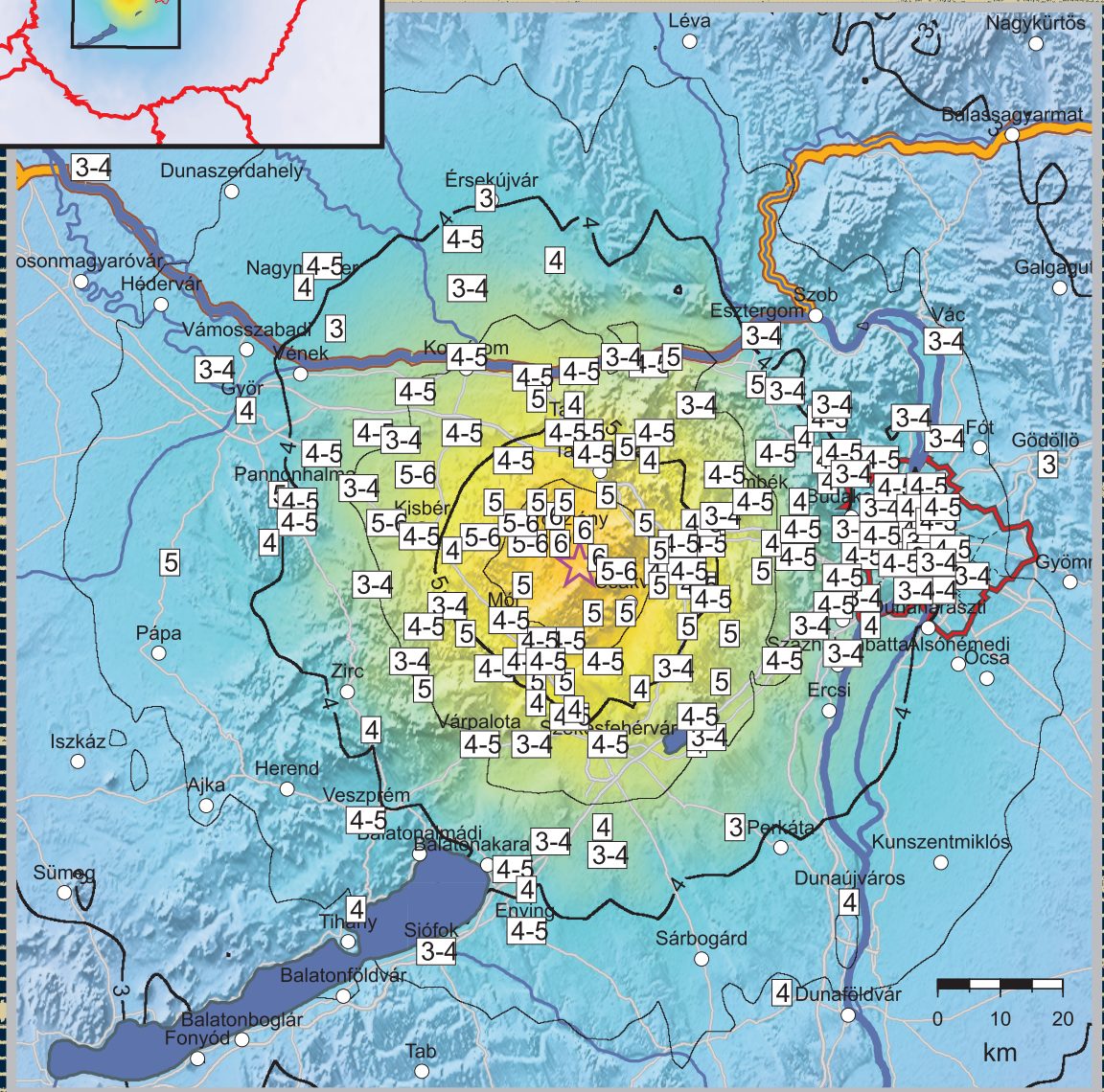
2011. 01. 29. 17:41 UTC 4.5 ML



ÉREZHETŐSÉG	nem érezhető	gyenge	enyhe	mérsékelt	erős	nagyon erős	súlyos	nagyon súlyos	különösen súlyos
POTENCIÁLIS KÁR	nincs	nincs	nincs	nagyon csekély	csekély	mérsékelt	mérsékelt nagy	nagy	nagyon nagy
GYORSULÁS (m/s^2)	< 0.017	0.017-0.14	0.14-0.39	0.39-0.92	0.92-1.8	1.8-3.4	3.4-6.5	6.5-12.4	>12.4
SEBESSÉG (m/s)	< 0.001	0.001-0.011	0.011-0.034	0.034-0.081	0.081-0.16	0.16-0.31	0.31-0.60	0.60-1.16	>1.16
INTENZITÁS (SZÁMÍTOTT)	I	II-III	IV	V	VI	VII	VIII	IX	X+

A 2011. január 29-i, oroszlányi földrengés számított és makroszeizmikus intenzitás eloszlása

Instrumental and macroseismic intensity distribution of the Oroszlány earthquake 29th January 2011