

## Format Description (IASPEI Seismic Format)

Each event is reported by a **region line**, several **epicenter lines** with possible **comment lines**, a block of **magnitude lines**, and a block of **phase lines**.

### Region line

A geographical region name which approximately describes the epicenter location with the highest priority (#PRIME) epicenter line. Following abbreviations for country names are used:

A	Austria	B	Belgium
CH	Switzerland	CR	Czech Republic
F	France	LUX	Luxembourg
NL	The Netherlands		

### Epicenter line

Epicenter locations from more than one authority may be reported. The epicenter location with the highest priority (i.e. the most reliable one) is written in the undermost epicenter line. The **region line** and all origin related parameters in the **phase lines** (i.e. Dist, EvAz, Tres, AzRes, Sres, Def) refer to the epicenter location with the highest priority.

Date	Date of the event
Time	Origin time of the event (UTC)
Err	Uncertainty (+/-) of origin time determination in seconds
RMS	Root mean square of the time residual in seconds
Latitude	Geographic latitude of epicenter in degree
Longitude	Geographic longitude of epicenter in degree
Smaj	Length of the semi-major axis of the 90% location error ellipse in kilometer
Smin	Length of the semi-minor axis of the 90% location error ellipse in kilometer
Az	Azimuth of the semi-major axis of the location error ellipse in degree
Depth	Depth of the hypocenter beneath the surface in kilometer Appended 'f' indicates the the depth was preset by geophysicist.
Err	Uncertainty (+/-) of free depth determination in kilometer
Ndef	Number of phases used for calculating the epicenter location
Nsta	Number of stations used for calculating the epicenter location
Gap	Maximum gap in azimuth coverage of the stations used in degree
mdist	Distance from epicenter location to nearest reporting station in degree
Mdist	Distance from epicenter location to furthest reporting station in degree
Qual	Three codes denoting - analysis type (a=automatic, m>manual, g= guess),

- location method  
(i=inversion, p=pattern recognition, g=ground truth, o=other),
- type of the event  
(uk=unknown, ke=known earthquake, se=suspected earthquake, ki=known induced event, si=suspected induced event, km=known mine explosion, sm=suspected mine explosion)

Author Abbreviations of the authorities that provided a hypocenter solution

AGS	Zentralanstalt für Meteorologie und Geodynamik, Wien, Austria
BGR	Bundesanstalt für Geowissenschaften und Rohstoffe, Hannover
BNS	Universität zu Köln, Erdbebenstation Bensberg
ISC	International Seismological Centre, Newbury, U.K.
KNMI	Royal Dutch Meteorological Institute, Netherlands
LDG	Laboratoire de Detection et de Geophysik, Montrouge, France
LEDBW	Landesamt für Geologie, Rohstoffe und Bergbau Baden-Württemberg
LER	Landesamt für Geologie und Bergbau Rheinland-Pfalz
NEIC	United States Geological Survey, Boulder, Colorado
PIDC	Provisional International Data Center, CTBTO, Washington
RUB	Ruhr Universität Bochum
SED	Schweizer Erdbebendienst, Zürich, Switzerland
TUWIEN	Technische Universität Wien, Austria

OrigID Origin identification

### Comment line

Each epicenter line can be followed by a comment line concerning the epicenter and/or its intensity submitted by the preceding authority. Intensity indications without specification refer to the European Macroseismic Scale (EMS). The intensity scale MSK refer to the Medvedev-Sponheuer-Karnik 1964 scale.

<i>Macroseismic intensity (EMS)</i>	<i>Definition</i>
1	not felt
2	scarcely felt
3	weak
4	largely observed
5	strong
6	slightly damaging
7	damaging
8	heavily damaging
9	destructive
10	very destructive
11	devastating
12	completely devastating

### Magnitude line

Magnitude Magnitude of the event and magnitude type  
 ML Local magnitude  
 MD Duration magnitude  
 mb Body wave magnitude  
 Ms Surface wave magnitude

Err Standard magnitude error

Nsta Number of stations used to calculate the magnitude

Author Authority providing the magnitude

OrigID Corresponding origin identification in the epicenter lines

## Phase line

Sta	Station code of the reported phase
Dist	Distance from the station to the epicenter location with the highest priority in degree
EvAz	Azimuth from the epicenter location with the highest priority to the station in degree
Phase	ISC phase code The nomenclature of the phases corresponds to the code list of supplementary phases published by the International Seismological Center (Ref.: 1995, Bulletin of the International Seismological Center, Vol. 33, Nos. 1-12).
Time	Arrival time of the reported phase (UTC)
TRes	Difference between the observed arrival time and the theoretical arrival time regarding the epicenter location with the highest priority in seconds based on the general 2-layer velocity-depth model of the BGR: for P-waves 5.9 m/s upto 30 km depth, there beneath 8.2 m/s; for S-waves 3.5 m/s upto 30 km depth, there beneath 4.73 m/s
Azim	Backazimuth: observed azimuth from the station to the epicenter location in degree
AzRes	Difference between the observed backazimuth and the theoretical backazimuth regarding the epicenter location with the highest priority in degree
Slowness	Observed slowness: inverse of the apparent horizontal velocity in seconds/degree
Sres	Difference between the observed slowness and the theoretical slowness regarding the epicenter location with the highest priority in seconds/degree
Def	Three letter code showing if a phase was used to calculate the epicenter with the highest priority T phase was used time defining A phase was used azimuth defining S phase was used slowness defining If there are no defining phases, the epicenter location with the highest priority used phase picks from stations that were not reported or refer to seismograph stations operated by other foreign agencies
SNR	Signal to noise ratio of the reported phase
Amp	Amplitude of the largest peak of the reported phase in nanometers
Per	Period of the largest peak of the reported phase in seconds
Qual	Three letter code denoting - type of pick (a=automatic, m=manual), - direction of initial ground motion (c=compression means upward, northward, or eastward direction, d=dilatation means downward, southward, or westward direction) - sharpness of the onset of the phase (e=emergent, accurate between +/- 0.2 to +/-1.0 seconds, i=impulsive, accurate to +/- 0.2 seconds)
Magnitude	Magnitude type and magnitude reported by the station