

Format Description

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

Epicenter lines

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. Def, Dist, EvAz) refer to the epicenter location with the highest priority.

Date	Date of the event
Origin Time	Origin time of the event (UTC)
OT_err	Uncertainty (+/-) of origin time determination in seconds
Lat	Geographic latitude of epicenter in degree
Long	Geographic longitude of epicenter in degree
Smajor	Length of the semi-major axis of the 90% location error ellipse in kilometer
Sminor	Length of the semi-minor axis of the 90% location error ellipse in kilometer
Az	Strike of the semi-major axis of the location error ellipse in degree clockwise from North
Depth	Depth of the hypocenter beneath the surface in kilometer Appended flag indicates the method by which the depth was determined: blank free N preset depth of 33 kilometer G geophysicist preset depth
D_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
Mag	Magnitude of the event and magnitude type ML Local magnitude according to C.F. RICHTER's 1935 definition. MD Duration magnitude provided by the Institute for Geophysics, Frankfurt, for the station TNS. The magnitude values are based on the following relation: $MD = 2.85 * \log\tau + 0.0014\Delta - 2.53$ with τ = signal duration [sec], Δ = epicenter distance [km]

Ref Name of authority/station that reported the Mag value or blank indicating the Mag value is an average magnitude

Source Abbreviations of the authorities that provided a hypocenter solution

BGR Bundesanstalt für Geowissenschaften und Rohstoffe, Hannover
SZGRF Central Seismological Observatory, Gräfenberg
LEDBW Landeserdbebendienst Baden–Württemberg, Freiburg
GLA Geologisches Landesamt Nordrhein–Westfalen, Krefeld
IGF Institute für Meteorologie und Geophysik, Frankfurt
ISC International Seismological Centre, Newbury, U.K.
LDG Laboratoire de Detection et de Geophysik, Montrouge, France
NEIC United States Geological Survey, Boulder, Colorado
VIE Zentralanstalt für Meteorologie und Geodynamik, Wien, Austria
SED Schweizer Erdbebendienst, Zürich, Switzerland

Additional station codes referenced in this catalogue:

K–UTEC Kali–Umwelttechnik Sondershausen GmbH
STR Strasbourg/France

Ev_type Type of the event

R regional
L local earthquakes
B blast/chemical explosion
M mining blast
C collapse
I Mining induced
A acoustic source
G ground truth

Appended '?' denotes 'presumably'

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 Medvedev–Sponheuer–Karnik 1964 scale (MSK). The intensity scale MM refers to Modified Mercalli Intensity Scale of 1931.

*Macroseismic
intensity (MSK)*

Observation

1	registered only by seismographs
2	felt by a few, inactive persons
3	felt by some people
4	felt by many, vibration like that due to a passing truck
5	many are awakened, buildings trembled throughout
6	fine cracks in plaster
7	cracked chimneys (considerable) and walls (some)
8	considerable damage to ordinary substantial buildings
9	many buildings collapse, cracked ground conspicuous
10	landslides and cracked ground upto several inches
11	broad fissures, earth slumps and land slips
12	strong changes of the ground surface

Region line

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

A	Austria	B	Belgium
CH	Switzerland	CR	Czech Republic
D	Denmark	F	France
I	Italy	L	Luxembourg
NL	The Netherlands	P	Poland

Phase line

Sta Station code of the reported phase

Phase Preceding flag for the sharpness of the onset of the phase

e	emergent, accurate between +/- (0.2 to 1.0 seconds)
i	impulsive, accurate to +/- 0.2 seconds
w	weak

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).

Component and first motion

Z, N, E: Component where the phase was picked
'+' (compression) means upward, northward, or eastward direction of the initial ground motion
'-' (dilatation) means downward, southward, or westward direction of the initial ground motion, respectively

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

Def Flag 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

S/N Signal to noise ratio of the reported phase

Dist Distance from the epicenter location with the highest priority to the station in kilometer

EvAz Azimuth from the epicenter location with the highest priority to the station in degree

Mag Magnitude type and magnitude reported by the station