

# 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 parameter in the **phase lines** (i.e. Def, Dist, EvAz) are determined regarding 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 $\tau$ = signal duration [sec], $\Delta$ = 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 authority of the hypocenter solution

BGR Bundesanstalt für Geowissenschaften und Rohstoffe, Hannover  
SZGRF Central Seismological Observatory, Gräfenberg  
LED 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:

DBN – De Bilt/Netherlands STR – Strasbourg/France  
UCC – Station Uccle/Belgium WATA – Walderalm/Austria

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.

### Region line

The geographical region name of 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 $\pm$ (0.2 to 1.0 seconds) i impulsive, accurate to $\pm$ 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.
	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 estimated arrival time regarding the epicenter location with the highest priority in seconds based on the general 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 was found using other stations not reported in this bulletin.
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