

EMEC-2021 – The European-Mediterranean Earthquake Catalogue (<https://doi.org/10.5880/GFZ.EMEC.2021.001>)

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2. Citation

When using the data please cite:

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3. Data Description

This catalogue is the extended version of the catalogue Grünthal, G., Wahlström, R. (2012) “**The European-Mediterranean Earthquake Catalogue (EMEC) for the last millennium. J Seismol 16, 535–570.**” <https://doi.org/10.1007/s10950-012-9302-y>.

It is an earthquake catalogue for tectonic events in the area of European Mediterranean, including the Mid-Atlantic ridge down to the Azores, extends in the south to Africa north of the Sahara, in the north to the Arctic Sea, and in the east to the Levant, eastern Turkey, and the Caucasus. This areal coverage gave the name to the catalogue: EMEC—The European-Mediterranean Earthquake Catalogue.

It extends the previous version by the years 2007 to 2021 and thus contains tectonic events for the period AD 1000 to 2021 with a uniform magnitude M_w from the threshold of 3.5.

The dataset contains 71271 entries.

4. Versions

- EMEC – first version from 2012 by Grünthal and Wahlström (2012), for the period AD 1000 – 2006
- EMEC-2014 (Lammers et al., 2019) in ESHM20 – Version from 2019 as part of “ESHM20 - The 2020 update of the European Seismic Hazard Model, for the period AD 1000 – 2014” (Danciu et al., 2021), EMEC-2021 – extended Version for the period AD 1000 – 2021
- EMEC-2021 (this version) – extended Version for the period AD 1000 - 2021
- Further annual updated of EMEC catalogues are planned.

5. File description

5.1. File inventory

- EMEC-2021_events.csv** – EMEC catalogue including 70.498 entries
- EMEC-2021_polygons.shp** – List of coordinates for the used country polygons
- EMEC-2021_conversions.pdf** – List of conversions used for EMEC catalogue
- EMEC-2021_references.pdf** – List of references used for EMEC catalogue
- EMEC-2021_documentation.pdf** – Overview of catalogue details per polygon

5.2. Description of data files

A EMEC catalogue: EMEC-2021_events.csv file

column header	description
event_id	event identifier GFZ
year	Origin time: year
month	origin time: month
day	origin time: day
hour	origin time: hour
minute	origin time: minute
second	origin time: second
latitude	epicentral latitude
longitude	epicentral longitude
depth	focal depth in km
mw	moment magnitude
mw_conversion	conversion code of converted magnitude
originalmag	source magnitude
originalmagtype	source type of magnitude
reference	reference code
polygon	computed country code
isc_id	record identifier in ISC

B Polygons: EMEC-2021_polygons.shp file

This shape file contains the coordinates of each country polygon as a list of latitude and longitude value pairs as follows:

Allocation of polygon codes

Code	Name
A	Austria
AL	Albania
AOC	East Atlantic Ocean and the Canaries
AOI	North Atlantic Ocean and Iceland
BG	Bulgaria
BIH	Bosnia and Herzegovina
BL	Belgium and Luxembourg
BY	Belorussia
Cau	Caucasus
CH	Switzerland
CRO	Croatia
CY	Cyprus
CZ	Czech Republic
D	Germany
DZ	Algeria
E	Spain
F	France
FEN	Fennoscandia, Balticum, Kola Peninsula and adjacent waters
GR	Greece
H	Hungary
I	Italy
LWE	Lybia
MA	Marocco
MD	Moldavia
MK	Mazedonia
NL	The Netherlands
P	Portugal
PL	Poland
RO	Romania
SEM	SE Mediterranean area
SK	Slovakia
SLO	Slowenia
TN	SE Mediterranean
TR	Turkey
UA	Ukraine
UK	United Kingdom and adjacent waters
YU	Serbia / Montenegro

C Conversions: EMEC-2021_conversions.pdf

column header	description
code	internal code of conversion
formula	formula of conversion
reference	reference of conversion

D *References: EMEC-2021_references.pdf*

column header	description
code	internal code of reference
author	author of reference
title	full reference of conversion
DOI/URL	DOI or URL of the reference

6. References

Danciu, L., Nandan, S., Reyes, C., Basili, R., Weatherill, G., Beauval, C., Rovida, A., Vilanova, S., Sesetyan, K., Bard, P.-Y., Cotton, F., Wiemer, S., & Giardini, D. (2021). The 2020 update of the European Seismic Hazard Model - ESHM20: Model Overview. EFEHR European Facilities of Earthquake Hazard and Risk. <https://doi.org/10.12686/A15>

Grünthal, G., & Wahlström, R. (2012). The European-Mediterranean Earthquake Catalogue (EMEC) for the last millennium. *Journal of Seismology*, 16(3), 535–570. <https://doi.org/10.1007/s10950-012-9302-y>

A full list of references for the EMEC-2019 catalogue is provided in the file “**EMEC-2021_references.pdf**”