



Insights on the European Fault-Source Model (EFSM20) as input to the 2020 update of the European Seismic Hazard Model (ESHM20)

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The H2020 Project SERA (WP25-JRA3; <http://www.sera-eu.org>) is committed to updating and extending the 2013 European Seismic Hazard Model (ESHM13; Woessner et al., 2015, Bull. Earthquake Eng.) to form the basis of the next revision of the European seismic design code (CEN-EC8). Following the probabilistic framework established for ESHM13, the 2020 update (ESHM20) requires a continent-wide seismogenic model based on input from earthquake catalogs, tectonic information, and active faulting. The development of the European Fault-Source Model (EFSM20) fulfills the requirements related to active faulting.

EFSM20 has two main categories of seismogenic faults: crustal faults and subduction systems. Crustal faults are meant to provide the hazard model with seismicity rates in a variety of tectonic contexts, including onshore and offshore active plate margins and plate interiors. Subduction systems are meant to provide the hazard model with both slab interface and intraslab seismicity rates. The model covers an area that encompasses a buffer of 300 km around all target European countries (except for Overseas Countries and Territories, OTCs), and a maximum of 300 km depth for slabs.

The compilation of EFSM20 relies heavily on publicly available datasets and voluntarily contributed datasets spanning large regions, as well as solicited local contributions in specific areas of interest. The current status of the EFSM20 compilation includes 1,256 records of crustal faults for a total length of ~92,906 km and four subduction systems, namely the Gibraltar Arc, Calabrian Arc, Hellenic Arc, and Cyprus Arc.

In this contribution, we present the curation of the main datasets and their associated

information, the criteria for the prioritization and harmonization across the region, and the main strategy for transferring the earthquake fault-source input to the hazard modelers.

The final version of EFSM20 will be made available through standard web services published in the EFEHR (<http://www.efehr.org>) and EPOS (<https://www.seismofaults.eu>) platforms adopting FAIR data principles.

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