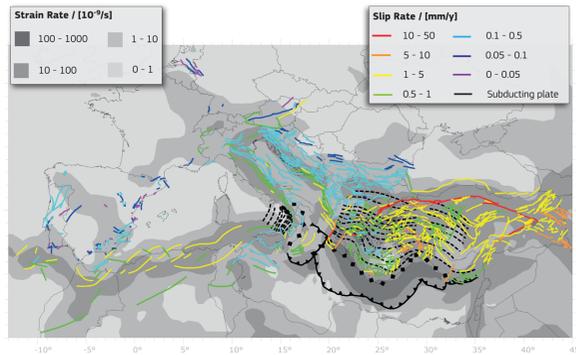


The EU-FP7 SHARE Project

Europe has a long history of destructive earthquakes, and seismic risk can severely affect our modern society, as recently shown by the 1999 Izmit (Turkey) and the 2009 L'Aquila (Italy) events. Seismic hazard defines the likelihood of ground shaking associated with the occurrence of future earthquakes, and is the first step to evaluate seismic risk, the likelihood of damage and loss depending on vulnerability factors (e.g., the type, age and value of buildings and infrastructures, population density and land use). High hazard does not necessarily imply high risk: frequent large earthquakes result in high hazard but pose limited risk if they occur in remote areas, while even moderate earthquakes may expose densely populated areas to high seismic risk.

The collaborative project "Seismic Hazard Harmonization in Europe (SHARE)" was supported by the EU-FP7 to deliver the first state-of-the-art reference hazard model for Europe, replacing older maps. The SHARE hazard contributes to the Global Earthquake Model (GEM) and serves as input for risk mitigation policies such as the design of earthquake-resistant multi-storey buildings and critical infrastructures such as bridges or dams.

Active Faults in Euro-Mediterranean Region



Active faults and subducting plates in the Euro-Mediterranean region, differentiated by color from rapidly slipping (red) to slowly slipping (violet). Over 1,100 active faults have been mapped, covering more than 64,000 km of fault length. The background depicts the estimated rate of deformation of the Earth's crust derived from geologic and geodetic data.

Map Content

The European Seismic Hazard Map displays the ground shaking (i.e. Peak Horizontal Ground Acceleration) to be reached or exceeded with a 10% probability in 50 years, corresponding to the average recurrence of such ground motions every 475 years, as prescribed by the national building codes in Europe for standard buildings. SHARE maps also the higher ground shaking recurring only every 1,000-5,000 years, of importance for critical infrastructures such as dams or bridges.

The ground shaking values depicted in the map reach over 0.5g (g is the gravitational acceleration). Low hazard areas (PGA ≤ 0.1g) are colored in blue-green, moderate hazard areas in yellow-orange and high hazard areas (PGA > 0.25g) in red.

The SHARE seismic hazard is assessed with a time-independent, probabilistic approach. Models of future ground shaking are based on the history of earthquakes of the past 1,000 years, on the knowledge of active faults mapped in the field, on the style and rate of deformation of the Earth's crust from GPS measurements, and on the instrumental recordings of strong ground shaking generated by past earthquakes.

The SHARE results do not replace the existing national design regulations and seismic provisions, which must be obeyed for today's design and construction of buildings.

Acknowledgements

Supported by the EU 7th Framework Program, the 4-year SHARE program brought together a core-team of over 50 leading scientists from 18 research institutions and 12 countries from Europe, North Africa and Turkey, and more than 250 additional European experts participating in workshops, providing their expertise and data.

SHARE was funded by the EU-FP7 (2007-2013) under grant agreement no. 226967.

SHARE hazard was computed using the GEM OpenQuake software. Maps were created using GMT (Wessels and Smith, 1991) and the poster was produced with Adobe Illustrator CS5.

Cite this map with:

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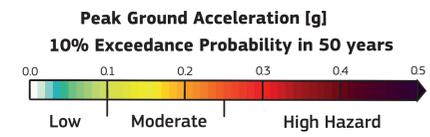
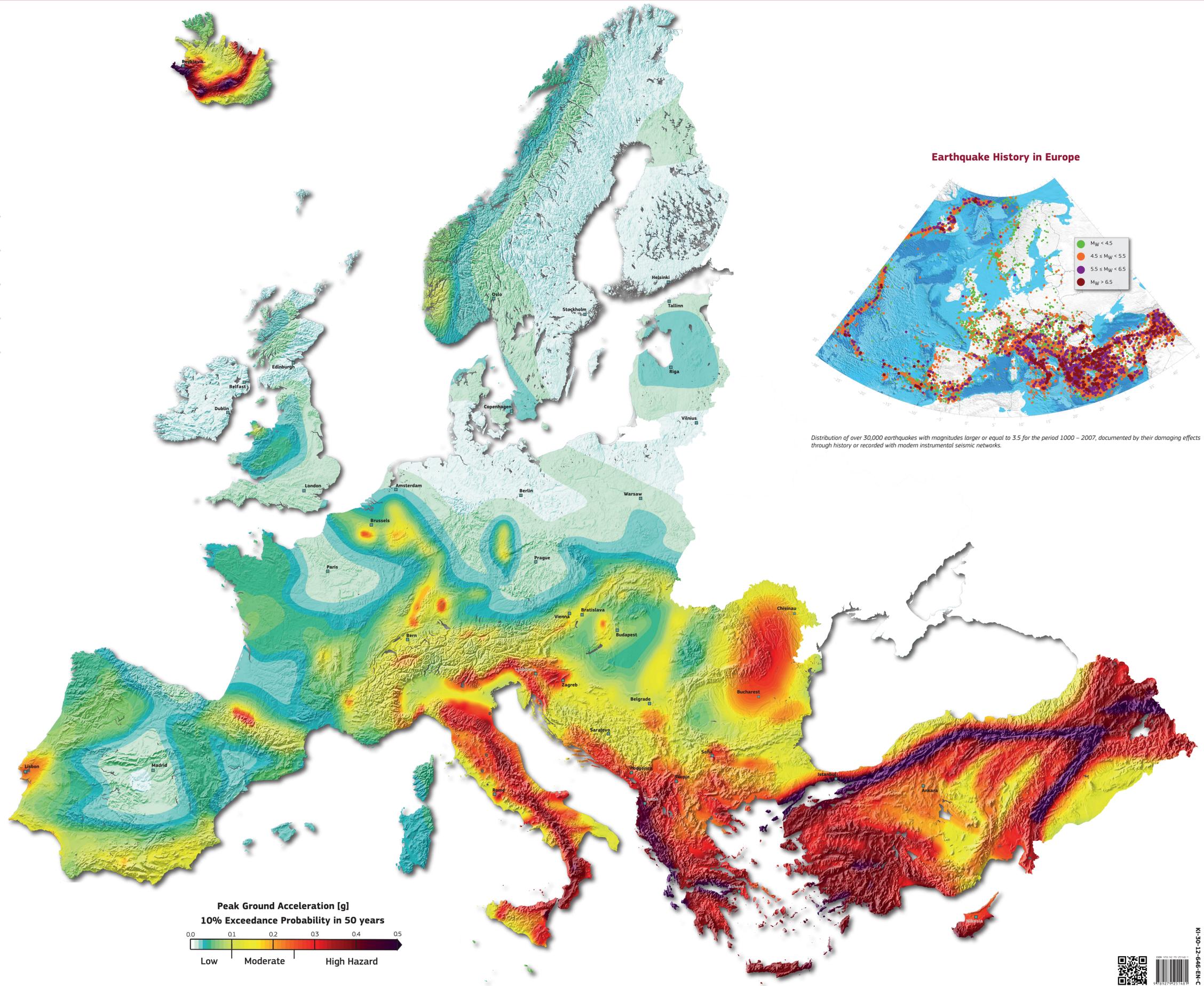
Online Access

All SHARE products, data and results, are provided through the project website at www.share-eu.org and the European Facility for Earthquake Hazard and Risk at www.efeh.org.

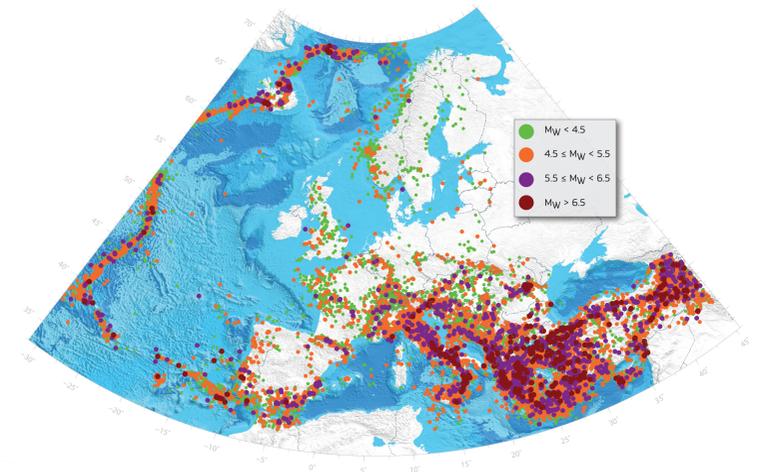
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SHARE Partners



Earthquake History in Europe



Distribution of over 30,000 earthquakes with magnitudes larger or equal to 3.5 for the period 1000 – 2007, documented by their damaging effects through history or recorded with modern instrumental seismic networks.