

Paper Number: 5183

Map and database of active faults in Slovenia

Jure Atanackov¹, Petra Jamšek Rupnik¹, Jernej Jež¹, Blaž Milanič¹, Bogomir Celarc¹, Matevž Novak¹, Anže Markelj¹ & Miloš Bavec¹

¹Geological survey of Slovenia. Dimičeva ulica 14. SI-1000 Ljubljana, Slovenia. milos.bavec@geo-zs.si

A new seismic hazard map of Slovenia is being prepared that will be based on geologic characteristics instead of historic seismicity. As a first step, a map and a database of active faults is being prepared. Slovenia is characterized by moderate seismic activity. The strongest known historic earthquakes were M 6.8 Idrija 1511, M 6.4 Villach 1348, M 6.1 Ljubljana 1895, M 5.9 Villach 1690, M 5.7 Brežice 1917 and M 5.7 Bovec 1998. Seismic activity is driven by faulting at the contact of the Adriatic microplate and the European plate. Active faults form five zones: a) South Alpine thrust zone, b) Istria-Friuli thrust zone, c) Dinaric strike-slip fault zone, d) Periadriatic strike-slip fault zone and e) Zagreb Mid-Hungarian shear zone.).

To provide an improved basis for assessment of earthquake hazard, active and potentially active faults have now been systematically mapped and seismotectonically parametrized into a single database. Active faults with surface traces longer than 5 km were included. Surface trace definition and seismotectonic parametrization was based on the compilation and critical synthesis of available geologic, geomorphologic, paleoseismic, geodynamic, geophysical, geodetic and seismologic data. The SHARE - Seismic Hazard Harmonization in Europe project database format was also used, with each fault and its individual segments described with: fault name, type, strike, dip, rake, depth, length, width, area, segmentation type, slip rate and possible maximum earthquake magnitude [1]. Quality designators were assigned to each parameter. In addition to providing a basis for future assessments of seismic hazard, the database also produced a number of potential paleoseismic trenching sites on a several major active faults. At the current stage the map and database contains 89 faults and 217 segments. The map is to be refined and finalized within the next year.

References:

[1] Basili, R., Kastelic, V., Demircioglu, M. B., Garcia Moreno, D., Nemser, E. S., Petricca, P., Sboras, S. P., Besana-Ostman, G. M., Cabral, J., Camelbeeck, T., Caputo, R., Danciu, L., Domac, H., Fonseca, J., García-Mayordomo, J., Giardini, D., Glavatic, B., Gulen, L., Ince, Y., Pavlides, S., Sesetyan, K., Tarabusi, G., Tiberti, M. M., Utkucu, M., Valensise, G., Vanneste, K., Vilanova, S., Wössner, J. 2013. The European Database of Seismogenic Faults (EDSF) compiled in the framework of the Project SHARE. <http://diss.rm.ingv.it/share-edsf/>

