Geophysical Research Abstracts
Vol. 18, EGU2016-14160, 2016
EGU General Assembly 2016

How new fault data and models affect seismic hazard results? Examples from southeast Spain

Jorge M. Gaspar-Escribano, M. Belén Benito, Alejandra Staller, Sandra Ruiz Barajas, and Ligia E. Quirós
Universidad Politécnica de Madrid, ETSI Topografia, Geodesia y Cartografia, Madrid, Spain (jorge.gaspar@upm.es)

In this work, we study the impact of different approaches to incorporate faults in a seismic hazard assessment analysis. Firstly, we consider two different methods to distribute the seismicity of the study area into faults and area-sources, based on magnitude partitioning and on moment rate distribution. We use two recurrence models to characterize fault activity: the characteristic earthquake model and the modified Gutenberg-Richter exponential frequency-magnitude distribution.
An application of the work is developed in the region of Murcia (southeastern Spain), due to the availability of fault data and because is one of the areas in Spain with higher seismic hazard. The parameters used to model fault sources are derived from paleoseismological and field studies obtained from the literature and online repositories. Additionally, for some significant faults only, geodetically-derived slip rates are used to compute recurrence periods.
The results of all the seismic hazard computations carried out using different models and data are represented in maps of expected peak ground accelerations for a return period of 475 years. Maps of coefficients of variation are presented to constraint the variability of the end-results to different input models and values.
Additionally, the different hazard maps obtained in this study are compared with the seismic hazard maps obtained in previous work for the entire Spanish territory and more specifically for the region of Murcia.
This work is developed in the context of the MERISUR project (ref. CGL2013-40492-R), with funding from the Spanish Ministry of Economy and Competitiveness.