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Armenian Seismic Network and Earthquake Catalogue

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Seismic networks are a source of valuable data for seismological research. For a few years in cooperation with the French CEA/DASE broadband seismic network in Armenia has been upgraded. Among various tasks in seismological research, the modern network allows improving the quality of the catalog.

The seismicity of the Armenian Upland relates to the Arabian-Eurasian plate collision, which is characterized by the diffusive distribution of shallow earthquakes of various magnitudes. The strong shallow earthquakes are expressed by well-pronounced active surface faulting. Comparison of seismicity of Armenia and the Caucasus with tectonic setting shows that all the strong earthquakes are associated with the active blocks, their edges, and junctions. The analysis of the focal mechanisms of earthquakes with various magnitudes shows the presence of all fault types in Armenia: strike-slip, normal, reverse, thrust, oblique, normal faulting with various components, and with prevailing strike-slip faulting. The combinations of exposure depend on the relatively neighboring block movements. The quality of the Armenian National Catalogue is discussed and the representativeness is described. A unified and homogeneous earthquake catalog is a base for analysis—determination of catalog completeness, recurrence and activity rates, etc., which are the key input parameters for probabilistic seismic hazard assessment.

Promotional text

A sub-network of 6 stations has been deployed in 2018 and 2019 on the Armenian territory thanks to a technical and scientific collaboration between the RSSP and the CEA/DASE aimed at improving the completeness magnitude of the catalog.

Primary author: Mr MARGARYAN, Sos (Armenian National Survey for Seismic Protection (NSSP), Armenia)

Co-authors: Mr CANO, Yoann (Commissariat à l'énergie atomique et aux énergies alternatives (CEA)); Mr QUEDEC, Corentin (Commissariat à l'énergie atomique et aux énergies alternatives (CEA))

Presenter: Mr MARGARYAN, Sos (Armenian National Survey for Seismic Protection (NSSP), Armenia)

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