



Earthquakes focal mechanism and stress field pattern in the Javakheti volcanic highland

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Javakheti volcanic highland is located in the central part of the Caucasus, belongs to the structure of the Arabia-Eurasia collision zone. Research area is characterized by more active seismicity and volcanism where distribution of earthquakes is diffuse. In the present study, we investigated the source mechanism of earthquakes using the digital waveform data recorded by seismic stations of Armenian, Georgian and adjacent seismic networks. The focal mechanisms are constructed with high reliability based on the polarity of the first motion of P-wave where constructed for a set of earthquakes that occurred during the time period 2005–2016.

A re-location for selected seismic events during the mentioned time was done. The azimuth, incidence angle and polarities of P-phase are used to obtain an initial focal mechanism solution.

The fault plane solutions of the recorded earthquakes are used to determine the actual geometry of the fault, the type of faulting and the stress regime of the separate area.

We combined all of the reliably determine focal mechanisms over the dozens of earthquakes to investigate the current stress status of the crust in Javakheti volcanic highland. All of earthquakes have variety focal mechanisms, and fault planes of those events have different compression and dilatation distributions. The analyzing of focal mechanisms distribution, indicates, that the crust of the study area has different kind of stress status.