

## Geodynamics of source zones of strong earthquakes in Armenia

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**Abstract** The purpose of the presented work is to determine and evaluate changes in the geodynamic characteristics of the strong earthquake source zone in the Javakheti highlands and central Armenia. The migration of source zones of strong earthquakes is given. A certain pattern has been revealed in the occurrence of destructive earthquakes in the territory of the Armenian Highlands. Active faults and fault zones of the territory of Armenia have been identified. The sources of strong earthquakes are studied according to seismicity data: seismogeodynamics of source zones and their relationship with the occurrence of strong earthquakes. The geodynamic conditions of source zones of strong earthquakes are estimated from the seismicity data of these zones in connection with the occurrence of strong tectonic movements and taking into account stress and strain fields. The periods of seismic calm, the features of changes in the level of groundwater and chemical composition in connection with the preparation of earthquakes are considered. Based on the block structure of the earth's crust of the territory of Armenia, the dynamic parameters of the blocks of the earth's crust (deformation, stress state) are determined. The geodynamics of strong earthquake source zones in the north and in the middle parts of Armenia, where an increase in seismic activity of these parts of the region has been observed in recent years, has been identified and studied. The seismic geodynamics is substantiated on the basis of data from the study of modern movements of the earth's crust and in the historical past, which gives an idea of the dynamics of physical processes occurring in the source zones of earthquakes. A group of mineral water deposits, which is particularly sensitive to seismic events, has been identified. An estimate of the information content of the observational hydrogeodynamic network of Armenia is given. The geodynamic activity of the zone of sources of strong earthquakes in the Javakheti Highlands of the territory of Armenia has been revealed. A seismological section was built along the strike of rocks in order to determine the direction of migration of earthquake sources in the northern part of the region of Armenia.

**Keywords** Earthquakes, depth, epicenter, deformation, stress, seismic, hydrogeodynamics, well, mineral water, hydrogeochemistry.

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