Seismic process accompanying the formation of Chuya-Kuray fault zone. Mathematical modelling

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Comprehensive seismic hazard assessment in earthquake prone areas is usually based on recorded and historical seismicity, but can be improved by modeling the dynamics of active faults and associated earthquakes.

In the work, the formation of the Chui-Kurai fault zone was simulated with the activation of a deep fault. Based on the literature data on geophysical fields in the Chuya-Kurai region, the spatial and temporal features of the seismic process - the Chuya earthquake and aftershocks, the formed surface structures and the application of GIS technology, a full-size three-dimensional model of the Chuy-Kurai region was created with taking into account the modern relief, as well as the hierarchical structure [1-7].

On the basis of adapted mathematical models of the behavior of loaded geological media [8–10], modeling of the formation of the fault zone and the seismic process accompanying its formation was performed. The stages of formation of the fault zone, the spatial and temporal structure of the seismic process were obtained. Calculations indicate a substantial heterogeneity of the development of the deformation process, both in space and in time, and seismicity is the final catastrophic stage in the evolution of the state of stress-strain of loaded geomedia on different scales.

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