

# Fault tectonics and seismicity of the Amur region

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According to geological data in recent years, the faults of the Amur region, distinguished by different authors, are mainly dominated by faults of the northeastern direction, which is caused by the high activity of the Tan-Lu faults during the Mesozoic-Cenozoic time. The study of modern seismic activity shows that seismic lineaments and zones of maximum seismic released energy do not agree with fault zones established on the surface. To study zones of tectonic disturbance, lineaments obtained from heterogeneous data are used. Lineament analysis of geophysical fields and relief, together with seismic analysis, was carried out using the COSCADE-3D [2], WinLESSA [5], ArcGis programs. Structures of submeridional, sublatitudinal and northwestern strike are obtained. Gaps in the submeridional and sublatitudinal directions are manifested in geophysical fields reflecting the structure of the lithosphere deepest horizons: regional anomalies of the gravitational and magnetic fields, anomalous values of the  $V_p / V_s$  ratio, which indicates a significant depth of their occurrence. The faults of these directions are quite well expressed in the relief lineaments. Latitudinal and submeridional faults are seismogenic active structures in the Amur region, along with which the earthquakes occur. They control the seismic lineaments and zones of maximum seismic energy release. Mostly earthquakes with  $M \geq 5$  occur at the intersections of submeridional and sublatitudinal fractures. Hidden seismically active faults of the submeridional direction are distinguished in the adjacent territories: the Aldan shield, northeastern Russia [1,3,4].

The hidden north-west gaps are mainly reflected in the magnetic field anomalies and the relief lineaments.

The deep structures also determine the metallogenic zonality of the region and large ore clusters. Submeridional orientation of deposits and ore bodies obliquely intersecting structures of a younger age was noted for many objects of Primorye and the Khabarovsk Territory, which confirms the important mineralizing role of SM and NL lineaments. Geological studies, taking into account data on deep submeridional and sublatitudinal structures, can change the direction of exploration and expand the forecast of the resource base. The study was carried out with the financial Russian Science Foundation support (project No. 16-17-00015) and within the framework of the state task ITIG FEB RAS.

## Literature

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