



Eastern termination of the Baikal rift system: seismicity, stress field, seismotectonics

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The Baikal Rift System (BRS) extends in SW-NE direction and consists of a number of Cenozoic basins. Its eastern termination is presented by Chara and Tokkinskaya basins. Further east there is a large zone of Temulyakit fault striking S-N that prevents from rift process propagation eastward to the Aldan shield of the Precambrian Siberian craton. To the east of the fault, namely at the right side of the Olekma River, the compression stress field of Stanovoi region has been revealed. There are several strong earthquakes ($M > 6.0$) occurred at the junction of Temulyakit and W-E striking faults of Stanovoi zone. Their focal mechanisms show normal faulting with strike-slip component. But it is unclear yet whether the rift basin development takes place or other processes are responsible for the high seismic activity here. To answer this question and some others, we studied the regional seismicity and seismotectonics and tried to find out the role of basement structures and fault conjunction. The special attention was given to the analysis of seismotectonic position of two seismic sequences located at the eastern mountain side of Tokkinskaya basin. These sequences were presented by a swarm of 1997 and two events with $M_w = 5.8-5.6$ followed by aftershocks in 2005. Movements at the swarm earthquake foci were mainly strike-slip type caused by compression acting in W-E direction and N-S extension. The strong earthquakes of 2005 were normal faulting on W-E oriented planes. We concluded that they are linked with local extensional zones morphostructurally expressed as grabens and limiting the granitoid-gneiss domes, rather than Tokkinskaya basin enlargement. These grabens are reactivated from the forming Y-shape Temulyakit fault under given regional stress field. Besides the type of seismotectonic deformation and strain rate deduced from seismological data were estimated for over the region. The main conclusion of our report is the revealed significant strike-slip component along with rift extension for the eastern termination of the BRS.