



Faults paragenesis and paleostress state in the zone of actively propagating continental strike-slip on the example of North Khangai fault (Northern Mongolia)

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Sublatitudinal North Khangai fault extends from Ubsunuur basin to the eastern part of the Selenga corridor trough 800 km. It is the northern boundary of the massive Mongolian block and limits of the Baikal rift system structures propagation in the south (Logatchev, 2003). Late Cenozoic and present-day fault activity are expressed in the left-lateral displacements of a different order of river valleys and high seismicity. We have carried out studies of the kinematics of active faults and palaeostresses reconstruction in the zone of the dynamic influence of North Khangai fault, the width of which varies along the strike and can exceeds 100 km. The result shows that the fault zone has a longitudinal and a transverse zoning. Longitudinal zonation presented gradual change from west to east regions of compression and transpression regimes (Khan-Khukhey ridge) to strike-slip regime (Bolnay ridge) and strike-slip and transtensive regimes (west of Selenga corridor). Strike-slip zones are represented by linearly concentrated rupture deformations. In contrast, near the termination of the fault the cluster fault deformation formed. Here, from north to south, there are radical changes in the palaeostress state. In the north-western sector (east of Selenga corridor) strike-slip faults, strike-slip faults with normal components and normal faults are dominated. For this sector the stress tensors of extensive, transtension and strike-slip regimes are typical. South-western sector is separated from the north-eastern one by massive Buren Nuruu ridge within which the active faults are not identified. In the south-western sector between the Orkhon and Tola rivers the cluster of NW thrusts and N-S strike-slip faults with reverse component are discovered. The faults are perfectly expressed by NW and N-S scarps in the relief. The most structures dip to the east and north-east. Holocene fault activity is demonstrated by the hanging river valleys and horizontal displacements with amplitudes up to 15-25 m along the scarps. The type of displacements and the ratio of vertical and horizontal components in the NW and N-S zones of studied faults are similar to those established for Mogod earthquake seismodislocations (1967, M=7.0). According to paleostress states reconstructions the stress tensors of compression and strike-slip regimes are dominated in this area. The resulting pattern of faults distribution and palaeostresses reflects one of the stages of the North Khangai strike-slip zone development during Late Cenozoic under the conditions of its gradual propagation to the east. At the eastern fault termination the complex picture of the stress state corresponds to the situation typical for the termination of the left-lateral strike-slip, developing in an elastic half-space modeled by D.Osokina (Osokina, 1977, 2008).

RFBR project No. 13-05-01097