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New data on the latest stress state of the earth's crust on Sakhalin Island (based on structural and geomorphological indicators of tectonic stress)

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Abstract. To verify the ideas about neotectonic and modern stresses of Sakhalin, we analyze structural and geomorphological signs of the stress state of this region, discovered during field work in 2019–2020. Along with updated field measurements using the structural-geomorphological method, data on crustal deformation based on GPS/GLONASS measurements are presented. Data from geophysical studies (seismological and borehole methods) are given. The identification of three types of areas with different geodynamic regime: transtension, transpression and strike-slip (simple shift) is confirmed. Variations of the current stress field at the boundaries of regions with different geodynamic regime for the formation of new faults are noted. Northern Sakhalin has specific directions of compression axes of neotectonic stresses, expressed in North-Eastern orientations, in contrast to the prevailing sublatitudinal orientations on the entire island. Studies have shown that in the south of Sakhalin, the border between the Amur and Okhotsk microplates runs along the West Sakhalin fault rather than the Central Sakhalin fault.

Keywords:
the Sakhalin, fault zone, neotectonics, neotectonic and modern stresses, slickenlines, boudinage, focal mechanisms of earthquakes, geodynamic regime, Amur and Okhotsk microplates border

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