

## Stress due to the collision of forearc sliver at the junction of the Kuril and northeast Japan arcs

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A significant number of earthquakes occurring at the junction of the Kuril and northeast Japan arcs are characterized by the focal mechanisms with P-axes sub-parallel to the arc trend. In order to explain the stress irregularity, we invoked the transcurrent movement of forearc sliver along the southern Kuril arc whose reality in geologic past is well established. We modeled the transcurrent movement with the strike-slip dislocations on the boundaries of the wedge-shaped forearc sliver. The stress calculated for the model shows a strong trench-parallel compression within the continental lithosphere at its leading margin, thus being able to explain the anomalous focal mechanisms at the junction. Based on the model of oblique convergence, however, the deflections of slip vectors of interplate earthquakes from the direction of relative plate motion along the southern Kuril arc off Hokkaido predict a small rate of the transcurrent movement of the forearc sliver. The surface deformation associated with the transcurrent movement of the forearc sliver was not resolved from the GPS data in the last decade. Although the present-day rate of transcurrent movement of the forearc sliver is small, the stress accumulated by the tectonic process for a long time period may be producing the anomalous focal mechanisms at the junction.