

Slab Cracking and Trench Migration, -- Role of Asthenospheric Flow ---

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Stresses within a slab is a key to understand the asthenospheric flow, which would behave an important role for the stress field near the plate boundaries. The horizontal cracking by down-dip extension at depth of about 100 - 150 km within the slab would imply the absolute movement of the trench axis (retrograde motion). The accumulation of the same type of faulting, which is probably caused by the sagging force due to negative buoyancy, could deform the slab. The retrograde motion of Kuril-Japan trench and Nankai trough is compared with the prograde motion of the southern Mariana region. The developed and undeveloped nature of slabs can determine the relative importance of sagging force and asthenospheric flows for deformation of slabs at intermediate depths.