

Pliocene-Present tectonic evolution of the forearc region near the triple trench junction of the central Boso Peninsula, Japan

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Crustal stress estimation in the forearc region is essential for studying plate subduction earthquake. The purpose of this study is to examine stress/strain history in the forearc region of Sagami trough subduction zone in the central Boso Peninsula. The multiple inverse method (Yamaji, 2000; Otsubo and Yamaji, 2006) for fault-slip data is applied to meso-scale faults observed in mid-Quaternary fore-arc sediments near the triple trench junction of the Boso Peninsula, Japan. As a result, there are stress/strain historical differences between the Ushibo area (western part of the central Boso Peninsula) and the Sotobo area (eastern part of the central Boso Peninsula).

Tectonics in the forearc is controlled by (1) basal shear traction by subducting slab to drag arcward and thicken the forearc wedge, (2) gravitational force for the seaward collapse of the wedge and (3) the mechanical strength of the wedge to sustain the forces (Davis et al., 1983; Zhao et al., 1986; Platt, 1993; Wang and He, 1999). The author discusses relationship between the stress history and these control factors.