

Paleostress analysis in the most southern part of the Boso Peninsula, central Japan.

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The most southern part of the Boso Peninsula has been situated under the special geologic setting that is a forearc basin fill close to the only T-T-T type triple junction associated with the collision zone between the Izu-Bonin arc and the Japanese island arc. Therefore, to reconstruct a paleostress history in this area has a key to understand a kinematic history of Philippine Sea plate which is thought to have controlled the tectonic development in this area. However, because of complex geologic structures in this area, quite a few studies have been done to reconstruct histories for paleostress and forming of geologic structure in this area. In this study, the authors applied the multiple inversion method (Yamaji, 2000; Otsubo and Yamaji, 2006) for fault-slip data to meso-scale faults observed in the southern most part of the Boso Peninsula to reconstruct a paleostress history developed in this area.

The authors collected fault slip data from the Nishizaki, Shiramazu, Mera and Hata Formations to use for the multiple inversion method. As the results, reverse faulting regimes with a NE-SE trending σ_1 -axis are obtained from the Nishizaki Formation, strike-slip faulting regimes with a NE-SW trending σ_1 -axis and reverse faulting regimes with a NW-SE trending σ_1 -axis are from the Shiramazu Formation. On the other hand, strike-slip faulting regimes with a NNW-SSE trending σ_1 -axis and with the N-S trending σ_1 -axis are obtained from the Mera Formation, normal faulting regimes with a SW trending σ_3 -axis are from the Hata Formation. The authors observed that reverse faults strike-slip cut faults in the coast outcrops of the Shiramazu Formation.

Observations mentioned above suggest that the paleostress has developed through the time in this area as follows; a NE-SW horizontal compression as the first stage, a NNW-SSE horizontal compression as the second stage, then a NE-SW horizontal extension as the last stage. The authors suppose that the transition of paleostress observed between the first and the second stages probably be related to the directional change of the Philippine Sea plate motion.

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