



Fossilized plate boundary fault rock – Mélange and its seismogenic roof thrust in the ancient accretionary complex

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A tectonic mélange of an ancient accretionary complex was investigated by structural analysis and magnetic fabric measurement that shows a fault rock in the subducting plate boundary zone. The studied Mugi mélange in the Shimanto Belt, Japan shows systematic Y-P-R deformation fabrics formed by micro shear and pressure solution that penetrate throughout the mélange pile. P-T condition of the mélange suggests a depth of upper part of seismogenic zone. The mélange preserves an ocean floor stratigraphy in each and characterized by thrust-stacking packages. The Mugi mélange is divided into two sections and separated from overlying coherent unit in the roof. Recent works reveal that the former one shows a thermal gap while the latter does not.

The intra-mélange thrust is characterized by unconsolidated gouge, whereas the roof thrust is lithified and includes ultracataclasite and pseudotachylyte. The mélange pile between the thrusts shows close composite planar fabrics. The magnetic ellipsoids obtained from the anisotropy of magnetic susceptibility (AMS) are highly oblate and in accordance with deformation fabrics.

Consequently we suggest the scenario that is; mélanges formed in the subducting plate boundary, seismogenic slips occur at the roof boundary of the mélange and in the period of uplifting, some out-of-sequence thrust cut through the mélange.