

Occurrence of fault-related rocks and their implications for tectonic process in ancient accretionary complex, the Shimanto belt

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An accretionary prism has been a focus of study to understand the subduction process for a long time, however little attention has been given to cataclastic deformation which gives a clue of seismic process. The interest of the accretionary prism has been revived from the viewpoint of seismogenic zone in recent years. The Okitsu and Mugi Assemblages of the Shimanto Belt in SW Japan, is one of on-land accretionary prisms that were located under the thermal condition of the seismogenic zone in the past. In the areas, three deformation stages are observed: underthrusting, underplating, and unit boundary thrusting. The stage of underthrusting is not related to cataclastic deformation but deformed mainly by independent particulate flow and pressure solution creep. A cataclastic fault rock is observed along the fault of the second stage. The fault rocks document that a clear cataclastic deformation took place during the underplating, which was associated with breaking and peeling of top of the oceanic crust. The cataclastic deformation is a candidate of seismicity. The pseudotachylyte that is the clearest evidence for seismicity is found in the unit boundary thrust of third stage.