

Internal structure of the Ryokami-yama chert unit of the Kanto Mountains, central Japan

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Pile-nappe and imbricate structures, made by repetition of chert-clastic sequences (CCS), are one of typical structures in Jurassic accretionary complexes (JACs) in Japan. The siliceous claystone near the P/T boundary acted as a decollement in accretionary processes (Nakae, 1993). Permian chert below the P/T boundary should be subducted without being accreted in the above-mentioned processes. However, JACs that contain Permian chert are known somewhere in Japan. Tectonic repetition of CCS is also reported in the Akiyoshi Terrane, Permian accretionary complex (Ito and Matsuoka, 2008). This indicates that a certain horizon within Permian chert possibly acted as a decollement zone like the P/T boundary siliceous claystone. This implies that any paleoceanographic events during the Permian might control accretion processes.

The Ryokami-yama chert unit, a constituent of the Chichibu Terrane, is distributed in the Kanto Mountains, central Japan. The Ryokami-yama chert unit consists mainly of pelagic deposits and terrigenous clastics, which form CCS from Permian to Jurassic. These CCS are stacked up to form a pile-nappe structure. We have investigated internal structure of the Ryokami-yama chert unit to elucidate the accretionary process of JAC that contain Permian chert.

The Ryokami-yama chert unit is divided into three subunits by the Ryokami-yama Thrust and other two sub-horizontal faults (Yoshida and Matsuoka, 2003). These faults are parallel to each other and gently dip northeast. These subunits are called Subunit 1, 2, 3 from bottom to top.

As a result of our research on Subunit 1, various rock types are identified: chert, siliceous mudstone, tuffaceous siliceous mudstone, siliceous claystone, sandstone and greenstone. These rocks strike NW-SE and dip 40 to 70-degree northeast. A few faults with strike and dip similar to the bedding planes are also recognized. The sub-horizontal faults represented by the Ryokami-yama Thrust and subunit boundaries are called alpha-type, whereas the moderate-angled faults are called beta-type. We infer fault-bounded strata are regarded as horses of a duplex structure. The alpha-type faults are floor-thrust and roof-thrust, while the beta-type faults correspond to a fault between the horses.

Triassic and middle Jurassic (JR4) radiolarian assemblages were newly found in chert and siliceous mudstone, respectively.