Jurassic accretionary complexes of the Kawai-Miyako district in the Kuzumaki-Kamaishi Belt, Northern Kitakami Massif

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http://www.epsu.jp/jmoo2003/

The Northern Kitakami Massif, Northeast Japan comprises mainly the Jurassic accretionary complexes and Early Cretaceous granitic rocks, and subdivided into two belts based on the differences in the ages of the exotic clasts and sandstone composition of the accretionary complexes. They are the Kuzumaki-Kamaishi Belt in the west and Akka-Tanohata Belt in the east which are separated by the Iwaizumi Tectonic Line. The former belt consists of exotic limestones of Carboniferous to Permian (and rare Triassic) ages and chert beds of Permian to Early Jurassic ages, and terrigenous clastic rocks of Middle Jurassic age (Yoshihara et al., 2002). These accretionary complexes are composed of coherent units, forming subnappes stuck subparallel to each other, and mixed rocks. Bedding planes usually dip steeply to the west. In the unit order, however, they usually show low angle geologic structure dipping to the west and, moreover, sometimes dip to the east showing gentle synform and antiform having NNW-SSE fold axes.

Although it had been thought that coherent units are dominant and mixed rocks of incoherent facies are rare in the Northern Kitakami, present survey has revealed that mixed rocks of various types are predominated in the southwest of Miyako. The Jurassic accretionary complexes in the Kawai-Miyako district of the Kuzumaki-Kamaishi Belt can be divided into two tectono-stratigraphic mega-units: the Haratai mega-unit of coherent facies distributed in the western area, and tectonically underlying the Tanesashiyama mega-unit of incoherent mixed facies in the eastern area. The Haratai mega-unit comprises, in ascending order, mudstone dominated unit, sandstone dominant unit, chert unit with limestone lenses, and several repeated units of chert dominant and clastics dominated. The limestone lenses contain Early Permian fusulinoideans. The Tanesashiyama mega-unit comprises two units. The western one consists of thick chert slabs in the mixed rock matrix. The uppermost chert slab contains some lenticular green rocks and limestone conglomerates. The latter includes angular pebbles and boulders of limestone, basalt and chert, and some hexacorals have been found from the limestone boulders (Ehiro et al., 2001). The eastern one is broadly distributed and is composed of mixed rocks intercalated with some chert slabs. Mixed rocks contain chert and sandstone clasts or blocks in the muddy matrix. In addition some limestone lenses, from which some Middle Permian fusulinoideans have been reported (Choi, 1972; Tazawa et al., 1997), are included in the upper horizon.

In general scaly cleavage develops in the mud matrix and mixed rocks of the Tanesashiyama mega-unit are regarded to be melanges. The scaly cleavage is, however, rare or does not develop in some horizons, especially in the uppermost one. So it is considered that some part of the mixed rocks are not a melange but a olistostrome, and some parts of the melanges are thought to be olistostrome origin. The geological structure of the Tanesashiyama mega-unit is fundamentally low-angle one gently dipping to the west based on the data that the scaly cleavage dips about 30 degrees to the west and chert slabs in the melanges also dip 20-30 degrees to the west.