

The relationship among the Takatsuki Formation, the Ultra Tamba Terrane and the Tamba Terrane in the Kyoto Nishiyama area

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The late Paleozoic and Mesozoic geologic bodies are widely distributed in the Nishiyama area, SW Kyoto and NE Osaka, Southwest Japan. Kusunoki et al (1998) summarized the stratigraphy and geologic structure of the late Paleozoic and Mesozoic geologic bodies in this area. However, the age of Takatsuki Formation has been unknown, and it has been doubtful whether the Permian accretionary complex exists or not. In this study, these bodies are divided into two tectonostratigraphic units and one lithostratigraphic unit, namely (1) the Ultra-Tamba Terrane, (2) the Tamba Terranes, and (3) the Takatsuki Formation on the basis of lithologic association, depositional age and structural features.

(1) The Ultra-Tamba Terrane in the study area is represented by the Todaiji Complex (newly defined). This complex is a small geologic body tectonically intruded into the Takatsuki Formation, and consists of siliceous mudstone bearing Late Permian radiolarians (An'yoji et al., 1987; this study). The Todaiji Complex is correlated with the UT2 unit of the Ultra-Tamba Terrane.

(2) The Tamba Terrane in the study area is divided into two tectonostratigraphic units, namely (a) the Honzanji Complex (redefined) and (b) the Izuriha Complex (redefined). The former complex tectonically overlies the latter complex.

(a) The Honzanji Complex is thought to be the accretionary complex formed during late Triassic time. Although the part of this complex was regarded as the Permian accretionary complex (Nakae, 1993), this part belongs to this complex, because Middle Triassic radiolarians were discovered from muddy chert in this part. This complex is subdivided into two subcomplexes, (a1) the Osawa Subcomplex (tentatively named), and (a2) the Yanagidani Subcomplex (tentatively named), in tectonically descending order. The Osawa Subcomplex forms a large-scale synform structure slightly plunging westward.

(a1) The Osawa Subcomplex is the mixed facies which consists of muddy mixed rock containing sandstone, chert and greenstone as the clast and the slab. Permian and Middle Triassic radiolarians were extracted from cherts, and Middle Triassic radiolarians from muddy chert and siliceous mudstones (Musashino and Tamba Belt Research Group, 1993; Kusunoki et al., 1998; Kusunoki et al., 2001; this study).

(a2) The Yanagidani Subcomplex is the coherent broken facies which is composed of sandstone and mudstone with minor amounts of tuff. Late Triassic radiolarians were reported from mudstone (Kusunoki, 1994), and Middle Triassic radiolarians were reported from siliceous mudstone (Tamba Belt Research Group, 1995).

(b) The Izuriha Complex is the mixed facies which is composed of sandstone and mudstone with chert, greenstone and limestone as the clast and the slab. Permian and Late Triassic fossils were reported from some blocks of this complex (Honda and Tamba Belt Research Group, 1991; Kusunoki et al., 2001; etc.). This complex is thought to be the early Jurassic accretionary complex because Jurassic type radiolarians were discovered from red siliceous mudstone in this study.

(3) The Takatsuki Formation tectonically overlies the Honzanji Complex by the thrust fault, and forms a synclinal structure gently plunging westward. The synclinal axis of this formation accords with the synform axis of the Honzanji Complex. The Takatsuki formation consists of sandstone, mudstone, interbedded sandstone and mudstone, and broken beds of sandstone and mudstone. Middle Triassic radiolarians were extracted from the nodules in mudstone in this study. This formation is correlated with the Ajima Formation which is distributed in the Sasayama area and unconformably covers the UT1 unit of the Ultra-Tamba Terrane (Tokura and Takashiroshima Research Group, 1987). The Takatsuki Formation is thought to be originally the Middle Triassic fore-arc sediments covered the Ultra-Tamba Terrane.