

Sandstone unit conformably overlaid by Carboniferous limestone-greenstone successions, Kawakami Area, Akiyoshi Terrane

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The oldest fossil record of the Akiyoshi Terrane, Lower Carboniferous (Visean) was obtained from the upper part of greenstone which has transitional contact with upper limestone. The limestone-greenstone successions have been interpreted as seamounts on an oceanic crust. Precise fieldwork to determine a lowermost boundary of the greenstone has brought discovery of older sandstone formation in three routes. The study area is located western part of Kawakami Town, Takahashi City, Okayama Prefecture where is occupied by Lower Carboniferous to Middle Permian Koyama Group (Yokoyama et al., 1979), Permian Yoshii Group (Sano et al., 1987) and Triassic Nariwa Group which unconformably covers Paleozoic successions (Otoh, 1985). The names of three routes are Hoya, Matsubara and Takase.

The Hoya Route is composed of sandstone unit (120m+), greenstone unit (260m) and limestone unit (300m+) from the bottom to top. The sandstone unit is mainly composed of massive medium- to fine-grained wacke sandstone. Alternation of mudstone and sandstone is intercalated. The greenstone unit conformably overlay the sandstone unit. At the bottom of the greenstone unit, thin (1 to 5 cm) sandstone lenses are associated in basaltic tuff. The greenstone unit mainly comprises basaltic lava and tuff. Two layer of greenish rhyolitic tuff is intercalated in middle part of the unit. Upper part of the unit is characterized by a calcareous basaltic tuff which contains fragments of limestone and crinoid. Limestone lenses are also associated. The contact between greenstone unit and limestone unit is transitional. The Lower Carboniferous fossil assemblage (Endothyra Zone) was obtained from the unit (Yokoyama et al., 1979).

The Matsubara Route is composed of sandstone unit (70m+), greenstone unit (30 m) and the Nariwa Group (30m+) from the bottom to top. There is unconformity between greenstone unit and the Nariwa Group (Otoh, 1985). The sandstone unit comprise massive medium- to fine grained wacke sandstone. The greenstone unit comprises basaltic tuff and lava. The basaltic tuff which contact with the sandstone unit has fractures oblique to the contact plane. However no shear zone and fault rock are observed. The boundary between the sandstone unit and the greenstone unit is considered to be conformable as Otoh (1985) was described in his sketch.

The Takase Route is composed of sandstone unit (30m+), greenstone unit (15m) and limestone unit (35m+) from the bottom to top. The sandstone unit comprises massive fine- to medium-grained sandstone. The greenstone unit comprises basaltic tuff and lava. In the lower most part of the unit, sandstone layer (2m) is intercalated. The upper boundary of the sandstone layer has 2 cm thick fault rock. However there is no shear zone and fault rock are observed at the contact between the sandstone unit and the greenstone unit.

The sandstone modal compositions of the samples from the three Routes are plotted on the same domain in QFR diagram. The sandstone is characterized by containing clasts of potassium feldspar and granite. The rhyolitic tuffs are intercalated in the greenstone unit which conformably overlay the sandstone unit. It is considered that these units are deposited in a marginal area of continent.

Keywords: Akiyoshi Terrane, Carboniferous, sandstone unit