

Accretionary age and sandstone provenance of the Hisone unit within the Kurosegawa belt of the Kitagawa area, Tokushima Prefecture, Southwest Japan

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The Kurosegawa belt in the Kitagawa area, located on the eastern side of Shikoku island, consists mainly of Early to Middle Paleozoic granitic rocks and metamorphic rocks, serpentinite, Silurian to Jurassic shallow-marine sediments, and Permian to Early Jurassic accretionary complexes (ACs) (Hara et al., 2013, 2014). The Hisone unit, which is the representative Permian AC in this area, consists of chaotic mélangé-type rocks and broken beds of sandstone with shale. We have investigated radiolarian biostratigraphic dating of shale and the petrography, geochemistry, and detrital zircon U-Pb LA-ICPMS dating of sandstone to constrain the accretionary age and provenance.

The mélangé-type rocks are well exposed at Nakatani and Higashi-Semidani. A Wuchiapingian radiolarian fauna dominated by *Albaillella protolevis* has been recovered yields from a muddy matrix (black shale) of mélangé (Nakamura et al., 2013). We also obtained Capitanian to early Wuchiapingian radiolarians from chert and siliceous mudstone around Nakatani.

We collected 5 sandstone samples from the Hisone unit around Nakatani and Higashi-Semidani. Based on the results of modal analysis, sandstones from Nakatani can be classified as feldspathic arenite. Qm-F-Lt ternary diagram shows that the sandstones from Nakatani plot in the 'basement uplift' and 'dissected arc' fields proposed by Dickinson et al. (1983). Detrital zircon $^{206}\text{Pb}/^{238}\text{U}$ ages of two sandstones collected from Nakatani and Higashi-Semidani yields age peaks of 261.4 ± 3.1 and 247.5 ± 2.7 Ma, respectively. The former age corresponds to Capitanian to Wuchiapingian, indicating that the radiolarian age of shale is in good agreement with the U-Pb zircon date of sandstone. The maximum age of sandstone from Higashi-Semidani corresponds to Early to Middle Triassic. This finding indicate that the accretionary age of the Hisone unit ranges from Late Permian to Triassic.

Keywords: accretionary complex, Permian, U-Pb dating, zircon, radiolarians, sandstone