

U-Pb ages of detrital zircons from the Ashidani Formation in the Kuzuryu area, the Hida Gaien Belt

MATSUMOTO, Takayuki^{1*}

¹Kansai Geological Survey co.

The Hida Gaien Belt lies between the Hida Belt and the Mino Belt, and is sporadically traced from the Oumi area, through the Renge, Hapoone, Asahi-Shiroumadake, Fukuji, Takayama, and Naradani, to the Kuzuryu area. The Hida Gaien Belt in the Kuzuryu region, the sedimentological and chronological study of the Motodo Formation, radiolarian fossil study of Silurian-Devonian, and stratigraphic and chronological study of the Tomedoro and Konogidani formations, the results of recent years are remarkable geological. For these studies, the Ashidani Formation in the Kuzuryu area since 1967, has not been studied at all. In addition, in the Kuzuryu area, the Ashidani Formation is a stratum has been left as the only age-unknown formation because it does not produce fossil. Based on the above situation, the present study, re-examine the Stratigraphy of the Ashidani Formation, and was carried out U-Pb dating of detrital zircons in order to estimate the geological age.

The Ashidani Formation is distributed almost in east-west direction on the north of the Lake Kuzuryu-ko. The formation strikes N50W to E-W, and dips steeply to the south, with some exceptions of north-dipping sites. The Ashidani Formation is subdivided into three parts: the Lower, Middle, and Upper members.

The Lower Member consists mostly of black shale alternating with thin sandstone layers. The Middle Member is a sandstone-rich member and varies in thickness from 100 m to 250 m. Fine- to coarse-grained and grey to green schistose sandstone is characteristic in the Middle Member. The granite gravels are included in the Middle Member. The Upper Member consists mostly of shale rarely intercalating sandstone layers. The upper limit of the member is cut by a fault, and the thickness of the member is 170 m or more. The shale of the Upper Member is generally phyllitic black shale.

Separating the detrital zircons from two samples (A-1, A-2) of green schistose sandstone of the Middle Member, and was carried out SHRIMP U-Pb dating. A-1 sample is sandstone with a weakly schistose structure. A-2 sample is strongly schistose structure, which is sandy schist. The measurement results of detrital zircon ages are 280-220 Ma with both samples, they is largely concentrated in the 280-250 Ma. The Ashidani Formation is limited to the Triassic to Paleogene, because it is intruded into the Neogene andesite.

According to the existing data, has been reported the Yakuno Group of the Maizuru Belt is that there is a peak of detrital zircon ages to 280-210 Ma. The Ashidani Formation is likely correlated with the Yakuno Group, because of detrital zircon ages the Ashidani Formation obtained in this study are included in the range of 280-210 Ma. However, because the sandstone of the Yakuno Group is fine-grained and dark gray to blue-gray sandstone in general, can't correlate the Ashidani Formation and Yakuno Group promptly. On the other hand, the Ashidani Formation may be able to correlate with the Triassic of the Ultra-Tamba Belt, because the Triassic of the Ultra-Tamba Belt contain the green sandstone. In any case, it is considered the Ashidani Formation is the Triassic, but a detailed determination of the geological age is an issue in the future.

Keywords: Ashidani Formation, detrital zircon, Hida Gaien Belt, Kuzuryu area, U-Pb age