

Geology of northeast part of Fukue Island, Goto islands, Nagasaki Prefecture

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The Goto islands situated in the western part of Japanese islands expose after Lower to Middle Miocene sedimentary (Goto Group) and igneous rocks. The geologic evidences in this area are very important to identify the relation between north west of Kyusyu and Asian continent. Detail stratigraphy and geological structure have not been identified. We focused on the northeast of Fukue Island, and examined stratigraphy and geological structure.

Stratigraphy. In study area, three lithofacies, Fukue rhyolite Group, Goto Group and Goto granite intrusion, are observed. Fukue rhyolite group is reported that the age is 12.4 plus minus 0.6Ma (Kawata et al., 1994), and exposed in large area as the center in Toginokubi district. The thickness reaches about 300m. rock facies are massive structure, and have green color. As this samples are observed by microscope, there are what is rich in feldspar, very rounded quartz, sedimentary rock fragments or volcanic rock fragments. The boundary of Fukue rhyolite Group and Goto Group is looked in western of Togi bay. The Goto Group conformably covers The Fukue rhyolite Group, and total thickness reaches 1300m, divided into two formations, Okuura and Toraku formations. The Okuura Formation has 1000m thick, and divided into three members. Lower Member, about 300m thick, exposes in Togi town and western of Togi bay district, consists of alternation fine-medium sandstone and mud-siltstone. Mostly layers are thin, less than 1m. Middle Member, about 400m thick, exposes in western of Okuura bay, Kishiku town district, consists of mudstone, 1-2m thick, and medium sandstone, about 20m thick, having massive structure. Upper Member, about 300m thick, exposes in western of Kishiku town, Douzaki and Nanngoura district, consists of white and black fine sandstone, alternation of sandstone and mudstone, and sandstone. In this member, coarsening-upward sequence is observed. In the West coast of Hisaka Island, exposes thick sandstone layer and alternation of sandstone and mudstone. Those layers are compared with Middle and Upper members in Fukue Island. The Toraku Formation, more than 300m, exposes Kasinoura, Nanngoura and Toraku district, consists of medium-coarse sandstone that has cross bedding and tuff. These layers were intruded by granite dyke.

Geological structure. In the west side of Toginokubi district, direction of strike is northeast and dipping to west. In the east side, direction of strike is northwest and dipping to east. There are about 10-20 degree plunges into north NE-SW trending folds. On the other hand, direction of strike of Hisaka Island is N-S and dipping to west. This direction is related by granite intrusion.