

Geotectonic history of the Tamanoura region, Goto Islands, Nagasaki Prefecture

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Goto Islands which located in western part of Kyushu has importance to recognize the tectonic connection between Japan Island and Asian Continent and tectonic history. We did detailed mapping in Tamanoura region, southwestern margin of Goto Islands to notice stratigraphy and deformations. Continuous outcrop about 18km long and 100m high bluff preserved along the coast.

Tamanoura region is made up of Goto Group composed of Daiho Formation and Tamanoura Formation, from bottom to top and intruded granitic porphyry. Daiho Formation has approximately 1500m in thickness, and massive tuff breccia, accretionary lapilli and volcanic sand. Tamanoura Formation has 900m in total thickness in this region, is composed of sandstone and shale which are meandering river and lake sediment. Basement of the Tamanoura Formation includes fragments of volcanoclastics. The Tamanoura Formation and the Daiho Formation are separated by faults in this region.

We reported the depositional age of the Daiho Formation is 17.4 ± 0.9 , 16.2 ± 0.9 Ma by Fission Track dating. Granitic porphyry is 13.2 ± 1.0 Ma by K-Ar age in Kawada et al. (1994).

Three stage deformations are identified as three types faults. D1) NE-SW trending, NW dipping normal fault (F1). F1 is identified alongside high angle dipping beds. D2) NE-SW trending right lateral strike-slip fault (F2). D3) NW-SE trending left lateral strike-slip fault (F3). F2 and F3 divide this region into 7 blocks; Tanna, Kawaraura, Shimayamajima, Imochi, Ohsezaki, Daiho and Tomie blocks from north to south. For exceptional instance one F1 which has 800m vertical displacement and ultra-cataclastic fault rock divides Ohsezaki and Daiho block.

These results indicate that the Goto Group deposited and D1 activated between rifting of Japan Sea (20-15Ma), D2 activated as west margin of this rifting, rhyolitic igneous activity occurred in 13-12Ma, and D3 timing identified with inversion tectonics after rifting of Japan Sea.