

Geology of the northern part of Goto islands, Nagasaki Prefecture

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The Goto islands are situated in western extremity of the Japanese Islands. This area shows excellent exposure of lower to early Middle Miocene sedimentary sequence (Goto Group). I am doing fieldwork in this area and examining lithostratigraphy and geological structure which may give significant tectonic data between eastern part of the Eurasia continent and Japanese Islands.

Lithostratigraphy: The Goto Group is divided into three formations; Takasaki, Aosagaura and Inoseto Formations. The total thickness of two formations reaches over than 2700m.

The Takasaki Formation, more than 200m thick, consists of volcanic clastic sediment, showing green color. And lamination is well developed. The boundary between the Takasaki and the Aosagaura is not yet found.

The Aosagaura Formation, more than 1000m thick, consists mainly of alternation of sandstone and mudstone. Cross-lamina and ripple marks are well developed in gray to dark brown sandstone. Mudstone and siltstone are black to dark gray color. In the lower part of the Formation, outer 10 meter thick white acid tuff bed interbedded in the thick sandstone. The Inoseto Formation conformably overlies the Aosagaura Formation.

The Inoseto Formation, 1500m thick or more, mostly consists of sandstone. This formation is characterized by upward thickening, and is divided into 4 members on the basis of the extent of sandstone and mudstone alternation; A to D member in ascending order. The sandstone is yellowish orange to light gray color. Well-developed cross bedding and convolute lamination are well presented in the upper portion of these beds. The Inoseto Formation often contains coarse-grained sandstone with rip-up clasts of mudstone. Characteristically, Sandy mudstone of the B Member yields fossil flora and the D Member contains coal-bearing sandstone. The fossil flora from B Member mostly consist of *Salix* sp., indicating that the temperature was not so hot and the environment was meadow. Paleocurrents from the foreset dip of cross-beddings in the Inoseto Formation show NE to NW direction. The direction matches well with that of other Miocene basins in the northern part of Kyushu.

Geological Structure: In general, the beddings are gently dipping with shallow plunges NE-SW trending folds. And two deformation structures are identified. D1 :NE-SW trending Normal fault (F1). D2 :N-W trending left lateral strike-slip fault (F2). The F1 are identified with steeply dipping beds, which contain highly deformed fabrics and fault truncated the uppermost beds of the D member, the Inoseto Formation. It suggests that the deformations which formed the Normal fault are very young deformation which occurred at least late Miocene.