Geology and tectonic evolution of the Kamikoshikijima area, Kagoshima prefecture

Satoshi Tohnai[1], Shoichi Kiyokawa[2]

[1] Earth and Planetary Sci., Kyushu Univ, [2] Earth & Planetary Sci., Kyushu Univ.

This study aims to reveal tectonic history of the Cretaceous to Tertiary in south-west Japan. Because of best exposure and moderate daformation, we focused to study at the Kamikoshikijima area,Kagoshima prefecture. Kamikoshikijima Island is situated about 20km from the southwestern Kyushu.

(Stratigraphy)

Two stratigraphic groups distributed in this area; Upper Cretaceous Himenoura and Eocene Kamikoshikijima Groups. The Kamikoshikijima Group uncomformably overlies the Himenoura Group. The entire thickness of two groups approximately reaches 2700m. The Himenoura Greoup contains conglomerate, thick sandstone with cross bed and black shale. The Kamikoshikijima Group is divided into two formations. Nakakoshiki Formation contains thick sandstone with cross bed, shiltstone and red bed. Segami Formation consists mainly of shiltstone and mudstone with some sandstone. Granodioritic and quartz porphyritic intrusive rocks, which intruded 13 Ma (K-Ar dating by MILLER et al., 1962), occur in the northern part of the study area.

(Deformation)

WNW-ESE trend and NNE-SSW trend faults is identified in this area. Based on the detailed structural work, we distinguish three fault deformations. The NNE-SSW trend fault is identified in this area. The WNW-ESE trend fault is divided into normal fault (F2-a) and lateral fault (F2-b). NNE-SSW trend fault is normal fault (F3.)

(Tectonic history)

The result of the careful fieldwork revealed that the geotectonic history in this area after the Cretaceous is divided into five stages. 1) Tilting of the Himenoura Group (D1: 65-49Ma); 2) Sedimentation of the Kamikoshikijima Group (49-36Ma); 3) The formation of the WNW trending normal fault (F2-a) (D2: 36-13Ma); 4) Intruding of igneous rocks (13Ma); 5) The formation of the NNE trending normal fault (F3) and horizontal reactivation of F2-a subordinated F3 (F2-b) (D3: 13-0Ma)