

Geologic structure and active tectonics of Nishikubiki area in Niigata Prefecture

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The Nishikubiki area is located in the northern-most part of north Fossa Magna region and contacts with the Sea of Japan. In the-offshore area to the north, the Nishikubiki-oki Uplifts consists of a folds and faults structure with axial trends in NW-SW to N-S directions (Okamura et al., 1994). It was pointed out that this area is compressive stress field from observation of GPS (Sagiya et al., 2000).

In this study, seismic profiles were interpreted with a technique of sequence stratigraphy in order to make clear the start time of fold's activity. In addition, in the coastal place of the Nishikubiki mountains area, there are marine terraces (Akahane and Kato, 1989). The recent tendency of active tectonics in this area was studied it as a result of field research.

The strata of off shore area were divided into two depositional sequence (A,B) by sequence boundary set on Seismic profiles. In addition, the lower and upper stratum were correlated with the Nishiyama formation (the late Pliocene) and the Haizume formation (the Pleistocene) analyzed by well drilling. Regarding the thickness of strata, edge form of reflection side, and characteristics of sedimentation processes, it is thought that folds started at late the Pliocene, and it is thought that a field of activity moved to NW side.

Marine terraces confirmed in this area, were divided into three groups in elevation. The middle and lower terraces were corrected to the Ainokaze terrace (older than 100ka) and the Hirayama terrace (100ka) distributed in the western margin of Takada plains. The averaged rate of vertical displacement tends to become largest in a neighborhood of Torigakubi Promontory.

Conclusively, the activity of geologic structures in this area began in the last Pliocene, and they are still active.