

Chronology of marine terraces of the northern part of the Noto Peninsula, central Japan

HAMADA, Masaaki^{1*}, HIRAMATSU, Yoshihiro¹, ODA, Mitsuhiro², HATTORI, Takashi², YAMAGUCHI, Hiroyuki³, TAKASE, Nobukazu⁴, SAKAKURA, Norihiko⁴

¹Kanazawa University, ²Hokuriku Electric Power Company, ³Daiwa Geological Laboratory, Inc., ⁴Dia Consultants Co., Ltd.

We investigate the distribution pattern and chronology of marine terrace in the northwest wedge of the Okunoto hill, the northern part of the Noto Peninsula, central Japan, based on the topography of the 1m-digital elevation model (1m-DEM) measured by airborne LiDAR and the tephrochronology of widespread tephra on marine terraces. The topography shows the horizontal and vertical distributions of each marine terrace and the heights of their former shorelines. Five widespread tephra, AT, Aso-4, K-Tz, SK, and Kkt, are found from the terrace deposits and covered soils with coloring of 2.5-5YR in the Munsell system color classification.

The topographic investigation and tephrochronology enable us to distinguish the middle marine terrace corresponding to sea level of 125ka (Marine Isotope Stage 5e) from the other marine terraces. The middle marine terrace is characterized by a broader distribution than the other marine terraces. The detection of K-Tz tephra (95ka) from the middle to lower part of covered soils distinguishes the middle marine terrace from the older and younger terraces. In the older terraces, Kkt tephra (330-340ka) is found from the terrace deposit underlying soils with mottling coloring of 2.5YR. In younger terraces corresponding to Marine Isotope Stage 5c, SK tephra (110-115ka) is found from the terrace deposit.

We trace the former shoreline of the middle marine terrace corresponding to Marine Isotope Stage 5e, and measure the altitude of the former shoreline along the northern coast of the Noto Peninsula. The altitude distribution shows a relative upheaval in the two separated areas. In the west part, the altitude became high from the Wajima area to the Machino area. In the east part, the altitude became high from the Uji area placed the east end of the Noto Peninsula to the Orito area. As the result, we suggest that each area has been formed by the cumulative crustal deformation due to offshore active faults, the Wajima-oki and Suzu-oki segments.

Keywords: the Noto Peninsula, tephra, marine terraces, Airborne LiDAR, SK tephra, Kkt tephra