

Luminescence dating of marine terrace deposits in Noto Peninsula and inferred uplift rate

*Kazumi Ito¹, Toru Tamura¹

1. Geological Survey of Japan, AIST

Marine terraces formed in relations to sea-level highstand are important for understanding tectonics in the coastal area. Their chronology, along with paleo sea-level indicator, plays a critical role in estimating the uplift rate. Marine terraces have been correlated to Marine Isotope Stage (MIS) 5c, 5e, 7 and 9 in the Noto Peninsula, but no comprehensive absolute dating has been practiced except for U/Th dating of coral materials in the northern part. We carried out the pIRIR_{200/290} dating of K-rich feldspar from marine deposits comprising the marine terraces to check the correlation. The depositional succession of the MIS 5c terrace in the northern part consists of the lower muddy incised-valley unit and upper sandy shallow-marine unit, the boundary of which is characterized by an erosional surface. The pIRIR ages of the lower and upper units are 137 ± 7 ka and 102 ± 3 ka, respectively. Considering the error range, the lower and upper units are thought to have been formed in MIS5e and MIS5c, respectively. This is concordant with the U/Th age of the lower part and tephrochronology. These ages further indicate a significant hiatus across the erosional boundary. No distinct marker of paleo sea level is observed in the succession, and only the minimum uplift rate is estimated as 0.41 m/ky from the level of marine deposit and highstand sea level in MIS 5c. Ocean current despots are identified below marine terraces correlated to MIS 7 and 9 in the southeastern part of the peninsula, and their pIRIR ages are 220 ± 18 ka and 317 ± 27 ka, being concordant to the terrace correlation, respectively. These suggest that there used to be a strait between the Noto Peninsula and Honshu Island at least during the interglacial sea-level highstand before MIS 7, allowing the northeastward ocean current. The strait was then closed due to the subsequent uplift. No distinct sea-level marker is not obtained in these terrace deposits, and the minimum uplift rates are estimated as 0.17 m/ky after MIS 7. Another marine depositional succession below the terrace correlated to MIS 9 is dated 293 ± 21 ka, appearing to be slightly underestimated than MIS 9. Assuming that the terrace was formed during MIS 9, the minimum uplift rate is 0.13 m/ky. Our pIRIR ages of marine terrace of MIS5c, 7 and 9 are concordant with the previous correlation, and suggest the higher uplift rate in the northern part of the Noto Peninsula.

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