

## Dating marine terraces by terrestrial cosmogenic nuclides: applicability and limitations

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This study overviews methodology for application of terrestrial cosmogenic nuclides for dating marine terraces. Accumulation of in-situ produced cosmogenic nuclides in near-surface bedrock reflects several factors such as exposure duration, sedimentation, and denudation of the landform. For cases of uplifted coastal surfaces, inheritance accumulated under pre-emergence erosional environment also affects the age accuracy, which can be inferred from the nuclide concentration of a representative modern wave-cut bench. We simulated evolution of subsurface depth profiles of cosmogenic  $^{10}\text{Be}$  concentration in quartz in terrace bedrock emerged at marine isotope stages (MIS) 1, 5e, 7, 11, and 13 with different parameter settings. Applicability and limitation of this method were then tested by comparing those model curves to actual depth-concentration profiles measured using boring cores extracted at two uplifted marine terraces in Muroto Peninsula, southern-east Shikoku, Japan, elevated to ~160 m above the present sea level.

**Acknowledgements:** This study was carried out under a contract with METI (Ministry of Economy, Trade and Industry) as part of its R&D supporting program for developing geological disposal technology.

**Keywords:** terrestrial cosmogenic nuclide, marine terrace, exposure dating, uplift rate