

## Dating the marine terraces in Southern Wakayama and Southwestern Kochi using in-situ cosmogenic nuclides

NAGANO, Gen<sup>1\*</sup> ; YOKOYAMA, Yusuke<sup>1</sup>

<sup>1</sup>Atmosphere and Ocean Research Institute, The University of Tokyo

Marine terraces are low-relief platforms located along coastal areas. They are formed by waves action with the changes in the relative sea level (RSL) that is affected by combined effects of the eustatic sea level (ESL) and the tectonic movements (e.g. uplift, subsidence and isostatic effect). Therefore, determining the ages and the elevations of the marine terraces allows us to reconstruct the ESL and/or the tectonic history of the study area.

Along the south coast of Japan, particularly at the Kii Peninsula and the southern coast of the Shikoku Island, there exist relatively well-preserved marine terraces. They are now located at the high elevation of ca. 50?100 m, and hence regarded as the suitable counterparts to reconstruct uplift history of the south coast of Japan. However, the ages of these terraces are poorly understood due to the lack of the ash layers that is suitable for the tephrochronology. Here we determine the age of the marine terraces using terrestrial in-situ cosmogenic radionuclides (TCN). This is the first age estimation of the marine terraces in Japan using TCN. Concentrations of TCN in surface rocks have been used for dating the marine terraces in the arid region where negligible erosion is taking place.

The study sites are the Kii Peninsula, Wakayama and the Ashizuri Cape, Kochi, located along the Nankai Trough where the Philippine Sea Plate is subducted under the Eurasian plate. There are several well-preserved marine terraces along the coastal line since the uplift rates of the study area are high owing to the tectonic setting.

Some previous studies tried to estimate the crustal uplift with seismic activity in the Nankai Trough. However, a few studies directly determined the formation age of the marine terraces. We determined the exposure ages and erosion rates in these areas from concentrations of in-situ cosmogenic nuclides.

Keywords: in-situ cosmogenic nuclides, marine terrace, erosion rate