Better identification of submerged terraces based on digital terrain analysis

*Hiura Yuki[1], Tetsuya Komatsu[1], Toshihiko Sugai[2]

1. Japan Atomic Energy Agency, 2. Graduate School of Frontier Sciences, The University of Tokyo

One of the primary issues of the geological disposal technology is to advance the techniques associated with investigation/assessment for long-term uplift and erosion in terrestrial-marine transitional zone in Japan. To examine this issue, it is essential to understand the distribution of seafloor landforms indicating uplift and erosion in the continental shelf, which widely emerged during glacial periods. This study introduces a method for better identification of submerged terraces, some of which are expected to be an indicator of regional tectonics, based on analysis of depth-area distribution of seafloor using digital elevation models constructed from digital bathymetric charts of Japan Hydrographic Association (M7000 series). Case studies of 18 sea areas in Japan show the analysis of depth-area distribution of seafloor works effectively to identify submerged terraces in the continental shelfs dominated by slopes less than 1 degree.

Keywords: geological disposal, seafloor landform, submerged terrace, depth-area distribution