

3D structural analysis of large-scale submarine landslide on a very gentle continental slope off Shimokita Peninsula

Yuki Nakamura^{1*}, Sumito Morita², Juichiro Ashi¹

¹Atmosphere and Ocean Research Institute, The University of Tokyo, ²National Institute of Advanced Industrial Science and Technology

Submarine landslides can be found even on very low angle slope well below the angle of repose, and are often greater in size and migration length than onshore landslides. Morita et al. (2011) analyzed METI's 3D seismic data 'Sanrikuoki 3D' obtained off Shimokita Peninsula, and found a number of large-scale submarine landslide deposits in the Pliocene and upper formations. The slump deposits features generally indicate layer-parallel slip on a very gentle and flat continental slope, and often exhibits imbrication structure formed by repeated thrusting of slided sedimentary sheets and related dewatering structure standing on the slip planes. In order to clarify the deformation and fluid migration systems, we have proceeded further analysis of the 3D seismic data and have outlined the morphostructure of slump deposits. Characteristics of the internal structure and dewatering structure are considered to be associated with the slumping system occurring on such very gentle and flat continental slope. In addition, gas hydrate BSR (Bottom Simulating Reflector) is prominently recognized within the slump layers, whereas BSR is not clear in surrounding normal formation. This means that there is a good contrast of acoustic impedance at the depth of the BSR, and gas hydrate may accumulate within the slump deposits, relatively easier than in surrounding formation. This may suggest a typical fluid migration system in the sedimentary basin. In this session, we introduce latest results of structural analysis especially with respect to distribution and morphology of the submarine landslides in the survey area.

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