



Investigating the morphology of large landslide deposits on the Hikurangi margin, offshore New Zealand

Benjamin Couvin (1), Aggeliki Georgiopoulou (2), Joshu Mountjoy (3), Gareth Crutchley (4), and IODP expeditions 372 and 375 participants ()

(1) University College Dublin, iCRAG, School of Earth Sciences, Ireland (benjamin.couvin@ucdconnect.ie), (2) University of Brighton, Brighton and Hove, United Kingdom of Great Britain and Northern Ireland, (3) National Institute for Water and Atmospheric Research, Wellington, New Zealand, (4) GEOMAR - Helmholtz-Zentrum für Ozeanforschung, Kiel, Germany

The vast majority of recorded landslides on Earth consist of catastrophic collapses of slope material flowing downslope, driven by gravity. The Tuaheni Landslide Complex (TLC) on the Hikurangi Margin offshore New Zealand, however, shows evidence of repeated deformation: the movement of these landslides is interpreted as slow and incremental. 3D Seismic reflection data, bathymetry data, coring and Logging While Drilling (LWD) from IODP expedition 372, obtained at the TLC, are used in order to get a better understanding of the internal structures, deformation mechanisms and depositional processes of the landslide deposits. Seismic data show a two-part structure to the TLC. Five distinct sedimentary units characterise core U1517C from IODP expedition 372. Unit II (3 to 40.74 mbsf) and Unit III (40.74 to 66.38 mbsf) correspond to the two seismic units seen on the 3D seismic data and are thought to be two distinct parts of the TLC, consisting of the Upper debris unit and the Lower debris unit respectively. The interface between them generates a distinct seismic reflector of strong negative impedance called the Intra-Debris Reflector (IDR). However, after investigation of the seismic data, the Lower debris unit, as such Unit III of U1517C, seems to show continuity with sediments located under the mid-Tuaheni ridge Quaternary succession, suggesting that this unit might actually be in situ, despite its chaotic seismic facies. We interpret the extent of this unit in seismic data, its depositional mechanism and its relationship with the overriding slide deposit from seismic and drilling results.