

Interbedded fluid activities induced slope failure in the Kaoping Slope area

Yi-Ching Yeh

Taiwan Ocean Research Institute, National Applied Research Laboratories, Kaohsiung 852,
Taiwan

ycyeh@narlabs.org.tw

In the past decade, numerous multi-channel seismic surveys as well as near seafloor high resolution geophysical investigations were conducted in order to explore and estimate the reserves of the gas hydrate southwestern offshore Taiwan. The previous survey object is focused on searching substitute energy rather than geo-hazards. However, it is suggested that most of the gas hydrate is generally distributed at slope area southwestern offshore Taiwan, which indicates the slope may be failed when steady state was changed such as sea level change or climate change. The slope failure may be furthered induced trunami which often damage the constructions and economics. Thus, it is of great urgency to investigate potential landslide area in particular abundant gas hydrate continental slope in adjacent to populous city like Kaohsiung. In this study, we collected several high resolution multi-channel seismic data with ten second shooting rate and 3.125 meters group interval streamer by using *R/V ORI* and *R/V ORV*. The seismic data was processed by conventional data processing strategy: geometry settings, band-pass filter, de-convolution, surface-related multiple rejection, water velocity stacking and migration. Two major results could be raised as followed: (1) Most of the surface stratigraphy creeping and landslide was occurred lower than 800 meters water depth, which corresponds to gas hydrate dissociation; (2) Some landslides were triggered by mud diaper uplifted, which is evidenced by pockmarks on the seafloor.