Geophysical Research Abstracts
Vol. 13, EGU2011-4608, 2011
EGU General Assembly 2011

Slope failure and fluid flow in the northern margin of South China Sea

Shu-Kun Hsu, Ching-Hui Tsai, Hsin-Yi Lin, and Song-Chuen Chen
(hsu@ncu.edu.tw)

The continental margin of the northern South China Sea and the area off SW Taiwan is considered as a potential area for gas-hydrate formation. The gas-hydrate signature is indicated by the abundant presence of BSR (Bottom-Simulating-Reflector). High methane concentration is also shown in the bottom water near the seafloor. We have conducted several geophysical surveys to understand the seafloor features associated with the gas hydrate. Pockmarks are found in several places and some are clearly related to gas seeping. Submarine landslides are found in several places and seem to be related to the occurrence of the pockmarks. By examing high-resolution subbottom profilers data, we can observe gas chimneys or gas seepage channels just beneath the sub-seafloor in the slope failure area. Structural faults could provide efficient conduits for fluid to migrate upward. We believe that the gas flow cause the instability of the continental slope and the slope failures. Because the gas seeps or chimneys are mostly found in the water depth less than 550 m, the gas(fluid) flow is inferred to be initiated from dissociation of gas-hydrate. The upward gas flow can even go into water column and create clear gas plume image in EK 500 data.