



Modern sedimentation and extreme event in the South China Sea

Yu-Huang Chen and Chih-Chieh Su

Institute of Oceanography, National Taiwan University, Taipei, Taiwan (donccsu@ntu.edu.tw)

The South China Sea is the largest marginal sea of the northwest Pacific. It is situated at the plate boundary of the Eurasian, Philippine Sea, and Indian plates and also on the North Western Pacific corridor of typhoons. The unique tectonic and climatic environment makes it has to face the potential of seafloor destructions, like submarine landslides and slumps, and high sediment discharges which induced by typhoon from Philippine. In this study, we analysis the sediment properties of modern extreme event records in cores and attempt to evaluate the history of extreme events in the South China Sea. Twelve gravity cores were collected in the central South China Sea basin and around Taiping island by using R/V Ocean Research 1 from 2014 to 2015 and a series of analysis including multi-sensor core logger, XRF core scanner (Itrax), core surface images, X-radiographs, bulk density, grain size, Pb-210 chronology and X-ray diffractometer were conducted in this study. On core surface images, an obvious brownish oxidized layer exist in core top with higher Pb-210 activity beneath this oxidized layer, and we speculate this layer is caused by nature hazard. According to the sampling time, we conjecture the oxidized layer might formed by typhoon Haiyan in 2013. In addition, the Itrax data shows high manganese content only exist in this layer which might related to the modern industrial pollution delivered by typhoon induced flooding from Philippine. The sedimentation rate of the non-event years in these cores which derived from Pb-210 chronology method is about 0.02 ~0.03 cm/yr. On contrary, the event layer caused by Haiyan with a recorded maximum 87cm deposits in the South China Sea. This study aims to characterize the typhoon induced deposits in the turbidite layer and use it to identify whether the other event layers recorded in these cores were related to typhoon activities and to reconstruct the strong tropical cyclone history in the western Pacific.