



First results from experiment in South China Sea using marine controlled source electromagnetic

Yuan Li, Lipeng Wang, and Ming Deng

School of Geophysics and Information Technology, China University of Geosciences, Beijing, China (athena0071@163.com)

We concentrated on the use of marine controlled-source electromagnetic (CSEM) sounding with a horizontal electric dipole source towed close to the seafloor and receivers anchored on the seafloor. We applied the CSEM method in South China Sea for the first time in 2014, which not only test the application of our instrument, but also test our data processing method. Electromagnetic fields transmitted by a towed electric dipole source in deep sea were measured by a linear array of six seafloor receivers, positioned 600 meter (m) apart. Our results provided two highly resistivity layers beneath the survey line and the gas hydrate saturation profile associated with the anomalous resistivity. In the letter, we discussed some anomalous layers during the interpretation steps. The most plausible explanation of the first resistivity layer anomalies is that large amounts of gas hydrate have accumulated at 200 m depth below the seep sites, and the second layers is considerable volumes of gas hydrate have accumulated the seafloor at survey line according to the conceptual model, during the resistivity compared with other evidence like seismic and well data from the same survey. We should try other observation like heat flow, geochemical or other evidence to test the statement in the future.