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Diversity and Characteristics of Benthic Foraminifera in Cold Seep Areas in the Active Margin of the northeastern South China Sea

Meng-Ting Chiang (1), Ellen Thomas (2,3), Kuo-Yen Wei (1), Yu-Shih Lin (4), Saulwood Lin (5), and Andrew Tien-Shun Lin (6)

(1) Department of Geosciences, National Taiwan University, Taipei, Taiwan (r02224104@ntu.edu.tw), (2) Department of Geology and Geophysics, Yale University, CT, USA, (3) Department of Earth Environmental Sciences, Wesleyan University, Middletown CT, USA, (4) Institution of Oceanography, National Sun Yat-sen University, Kaohsiung, Taiwan, (5) Institution of Oceanography, National Taiwan University, Taipei, Taiwan, (6) Department of Earth Sciences, National Central University, Taoyuan, Taiwan

The active continental margin in northeastern South China Sea (SCS) has been considered to have high potential to be a reservoir of gas hydrate, based on geographic features, geophysical evidences, as well as geochemical analyses of samples from the water column, pore water and sediments. Compared to a typical sea floor area, cold seep areas have more food for benthos and more diverse habitats. As a result, we can expect a higher species diversity of benthic organisms in cold seep areas of the SCS. Based on preliminary results of species identification of benthic foraminiferal assemblages in the upper most sediments (0-5 cm) of box cores collected around cold seeps at water depth ~1300m, the species diversity is significantly higher at seep sites (Shannon-Wiener index = 274) than at background sites (Shannon-Wiener index = 3). The faunal assemblages consist of ~68% calcareous benthic foraminifera (CBF) and ~32% agglutinated benthic foraminifera (ABF) at seep sites. On the other hand, faunal assemblages are composed of only ~24% CBF and ~76% ABF at background sites. By staining the sample with rose Bengal-ethanol solution, we were able to recognize in-situ individuals which were alive at the time of collection, and separate them from dead specimens. Among the living individuals, the most abundant CBF species in seep sites is *Bulimina aculeata* (~51% in the living CBF fauna), followed by the typical "shelf-species," *Lenticulina inornata*, (~10%) and the common "brackish-species," *Miliolinella subrotunda*, (~9%), while the most abundant ABF species is *Cribrostomoides subglobosus* (~19% in the living ABF fauna). The most common species thus are typical for shallower, more food rich environments.