

Sediment cores recovered from the Sea of Japan/East Sea during IODP Expedition 346 and preliminary result of foraminifer

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Integrated Ocean Drilling Program (IODP) Expedition 346 (29 July-27 September 2013) recovered 6135.3 m of core from seven sites in the Sea of Japan/East Sea and two adjacent sites in the East China Sea. One of the objectives of this expedition is to explore the orbital- and millennial-scale variation and evolution of the East Asian monsoon and its impact on the paleoceanography in the Sea of Japan/East Sea. We recovered centimeter- to meter-scale alternation of dark and light layers in the Pleistocene sediments that could be correlated across the six sites in latitudinal and depth transects of the Sea of Japan/East Sea (U1422-U1426 and U1430), suggesting that the Sea of Japan/East Sea responded as a single system to climatic and/or oceanographic perturbations. Sediments of shallower sites (U1426: 903 mbsl and U1427: 330 mbsl) contain well preserved calcareous fossils and are expected to provide high-quality oxygen isotope stratigraphy that will be a key age controls for the entire region. In particular, high sedimentation rate (~36 cm/kyr) and a complete splice down to ~400 m at Site U1427 make it possible to produce centennial-scale continuous records in shallow water environments for the last ~1.2 Ma. We conducted preliminary oxygen and carbon isotope analyses of benthic and planktonic foraminifera for core catchers from Site U1427A (87 samples). The oxygen isotope variations correspond to lithological change alternating low isotope values in darker clay-rich and high values in light biogenic component-rich sediment and therefore show similar variation to physical properties of the sediment, such as bulk density, magnetic susceptibility, natural gamma ray, and color reflectance. These results confirm high potential of this site for paleoceanographic investigation in orbital, millennial, and centennial timescales.

Expedition 346 Scientists:

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