Benthic biotic response to Quaternary climate changes in the Sea of Japan and other Asian regions

*Moriaki Yasuhara[1]

1. University of Hong Kong

The Sea of Japan is a marginal sea, connecting to adjacent seas by four shallow straits (water depths <130 m). Marginal seas are ideal for studying biotic responses to large-scale environmental changes as they often are sensitive to glacial-interglacial and stadial-interstadial climatic cycles. However, only a limited number of studies cover time periods beyond the last two glacial-interglacial cycles. In this presentation, I will show long Quaternary records of benthic biotic response to paleoceanographic changes in the southern Sea of Japan, covering many glacial-interglacial cycles, based on ostracode assemblages at the Integrated Ocean Drilling Program (IODP) Site U1427 and U1426. The results indicate that orbital-scale oxygen variability in the bottom water has been the major control impacting the marginal-sea biota, and secular-scale faunal transitions are likely associated with the mid-Brunhes event (~0.43 Ma) and the onset of the Tsushima Warm Current (~1.7 Ma). Benthic ecosystems in marginal seas are sensitive and vulnerable to both short- and long-term climatic changes, and the mid-Brunhes event is suggested to be a global biotic event affecting benthic ecosystems substantially. I will also introduce other recent examples of Asian biotic response studies.

