**Title:** Marine biodiversity in space and time:

**Subtitle:** what tiny fossils tell

**Abstract:** Biodiversity has been changing both in space and time. For example, we have more species in the tropics and less species in the Arctic and Antarctic regions, constituting latitudinal diversity gradient, one of the patterns we can see most consistently in this complex world. We know much less regarding the biodiversity gradients with time. This is because it require well designed continuous monitoring program that seldom beyond a few decades. But, luckily, we have remains of ancient organisms, called fossils. Fossils are basically the only direct records of past biodiversity.

**Keywords:** Species, microfossils, ecology, paleontology, biogeography

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**Biographic sketch:** Moriaki Yasuhara is an associate professor in the School of Biological Sciences and the Swire Institute of Marine Science at the University of Hong Kong. He has broad interests in marine palaeoecology and macroecology, especially those using highly resolved micropalaeontological records. His recent research has focused on the spatiotemporal dynamics of large-scale biodiversity patterns, the climatic and temperature impacts on species diversity, and the controlling factor(s) of biodiversity patterns/change in shallow-marine, deep sea and pelagic ecosystems. He is also interested in microfossil-based conservation palaeobiology as well as palaeontology of the Ostracoda in general