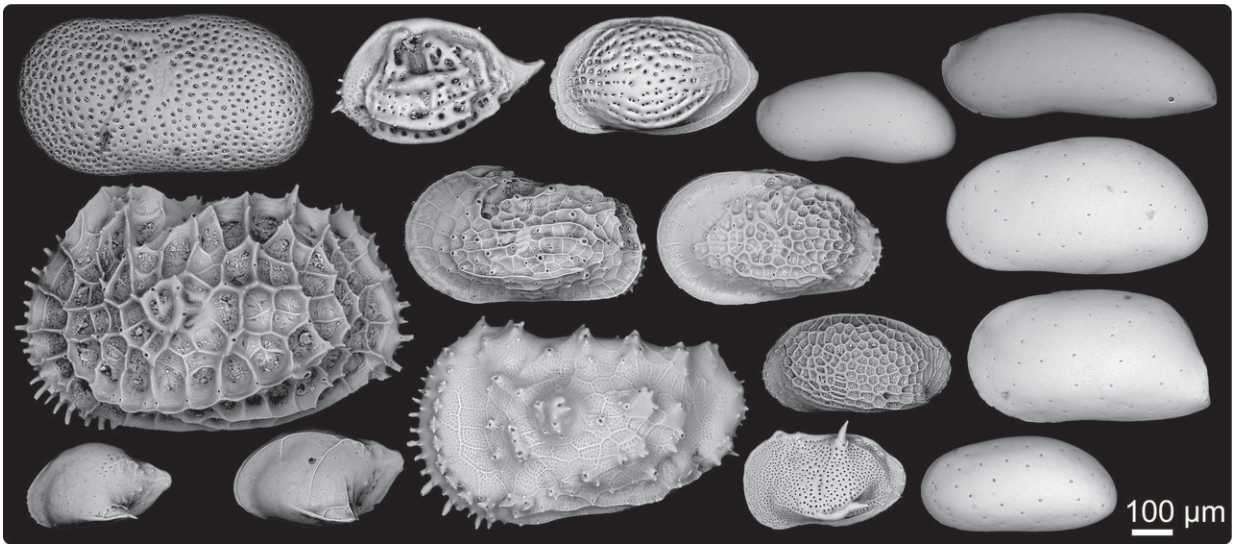


Past deep-water dynamics in the western tropical Pacific

August 29 2018



Scanning Electron Microscopy image of selected fossil ostracods from the study site Credit: @The University of Hong Kong

Dr. Hokuto Iwatani and Dr. Moriaki Yasuhara from School of Biological Sciences and Swire Institute of Marine Science, The University of Hong Kong), in collaboration with scientists at Rutgers, the State University of New Jersey, and Lamont-Doherty Earth Observatory of Columbia University, have reported their discovery on past deep-water dynamics in the western tropical Pacific in *Geology*.

The western tropical Pacific has the world's highest [sea-surface](#)

[temperature](#). A major surface sea current in this region is known as the Indonesian Throughflow, and transfers a significant amount of heat and water from the Pacific to the Indian Ocean. The throughflow plays a vital role in the dynamics of global climate and marine ecosystems. However, the effect of deep-sea water contribution to this region over time remains poorly investigated, and is not well understood. Dr. Iwatani, Dr. Yasuhara and their collaborators revealed that deep-sea fauna and biodiversity in this region rapidly changed during a rapid climate change event known as the Younger Dryas about 12,000 years ago due to the weakened Indonesian Throughflow. They also found a significant environmental overturn at around 7,000 years ago, probably due to the mixing of different deep-sea waters from both hemispheres. These are important findings for better understanding the tropical climate in our rapidly changing world.

The research group used fossil Ostracoda preserved in a sediment core as a model organism to reconstruct the ecosystem, biodiversity, and marine environment of the Earth in the past, as this small (usually

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