The Ediacaran Ice-Age: The key node in the history of Earth system

Ruimin Wang*[1], Zongjun Yin†[2], and Bing Shen‡[1]

[1]Peking University – China
[2]Nanjing Institute of Geology and Palaeontology, Chinese Academy of Sciences – China

Abstract

Glacial deposition is widely reported from late Ediacaran strata all over the world, but the temporal and spatial distributions of the Ediacaran glaciations remain poorly constrained, preventing our further understanding the nature and consequence of the Ediacaran Ice-Age. In this study, we reviewed global Ediacaran glacial depositions. We found that the Ediacaran Ice-Age might have extended from $>$ 580 Ma to $<$ 560 Ma, yet their paleogeographic distributions cannot be resolved by the non-Snowball Earth climatic model. In addition, the Ediacaran Ice-Age bracketed the Shuram Excursion (SE), the largest negative carbonate carbon isotope excursion in Earth's history, which has been attributed to the massive oxidation of dissolved organic carbon (DOC) or methane in the deep ocean, as well as witnessed the disappearance of large acanthomorphic acritarchs, the putative eukaryotic phytoplankton, and the diversification of Ediacaran biota. Termination of the Ediacaran Ice-Age after 550 Ma brought metazoans in the fossil records, starting the prelude of 'Cambrian Explosion'.

Keywords: Ediacaran Ice Age, Shuram Excursion, True power wandor

*Speaker
†Corresponding author: zjyin@nigpas.ac.cn
‡Corresponding author: bingshen@pku.edu.cn