

AWARD

2022 Island Arc Award

AWARDED PAPER

Title: A visage of early Paleozoic Japan: Geotectonic and paleobiogeographical significance of Greater South China

Author: Yukio Isozaki

Reference: *Island Arc* (2019), 28, e12296

RECOMMENDATION

Tectonic evolution of Great South China (GSC) during early Paleozoic is fundamental for considering the origin of the Japanese Islands, but has not been fully understood. Nevertheless, zircon U–Pb ages from Paleozoic granitoids and sandstones have provided critical information on the continental margin along which proto-Japan began to grow. Based on currently available dataset of the dating as well as paleogeographic data, Isozaki (2019) reconstructed the early Paleozoic evolution of Japan. He suggested that the tectonic setting changed from a passive continental margin (Stage I) to an active margin (Stage II) during Cambrian when the oldest arc granitoid, high-P/T blueschist, and clastic sediments were formed. The predominant occurrence of Neoproterozoic zircons in Paleozoic rocks indicates that the relevant continental block was a part of South China, which probably formed a northeastern segment of GSC. He estimated that GSC was probably twice as large as the present conterminous South China. In addition, he summarized the faunal characteristics of the Permian marine fauna in Japan, which are in good accordance with the relative position of GSC with respect to the North China block during the late Paleozoic. This extensive summary and novel reconstruction provided clear pictures of the geological history of the Japanese Islands and prospective for future researches to the

readers of *Island Arc*. Therefore, we identified that the paper by Isozaki is suitable for *Island Arc* Award in 2022.



PROFILE OF THE FIRST AUTHOR

Yukio Isozaki, the Professor Emeritus of the University of Tokyo, has broad expertise in historical geology, tectonics, and paleontology. He received his Ph.D from Osaka City University in Geology in 1986. He has worked as an Associate Professor and Professor in Yamaguchi University, Tokyo Institute of Technology, and the University of Tokyo until his retirement in last year. His research started in the analysis of ancient accretionary complexes using microfossils and geochronological dating. By proposing and utilizing the concept/scheme of ocean plate stratigraphy (OPS), he clarified the overall piled nappe structure of Southwest Japan, and synthesized the geological history of the Japanese Islands. His interest expands into the history of life, in particular, on mass extinction events in the past and relevant rapid biodiversification. His main targets include the biggest extinction in history across the Paleozoic–Mesozoic boundary and Cambrian–Ordovician biodiversification. He coined the term “superanoxia” for the long-term oxygen depletion in the Permo–Triassic superocean, a unique C-isotope episode named “Kamura event”; and proposed a possible scenario named “plume winter” for the mass extinction. Considering his extensive contributions, he received Fellow from the Geological Society of America in 2007 and from Japan Geoscience Union in 2019, and Geological Society Medal from the Geological Society of Japan in 2007.