SIBUMASU'S LATE CAMBRIAN TRILOBITES: THE KEY TO PALEOGEOGRAPHIC AND BIOSTRATIGRAPHIC RESOLUTION

Shelly Wernette
University of California Riverside, Earth Science, Riverside, CA, USA
swern001@ucr.edu

ABSTRACT

A lack of stratigraphic and paleogeographic resolution currently challenges attempts to understand the late Cambrian (Furongian) of Gondwana. Global scarcity of Furongian volcanic impedes calibrating biostratigraphy using radioisotopically datable zircons. Additionally, post-Devonian tectonics overprinted the Cambrian-Ordovician structural signatures traditionally used to resolve the paleogeography. The Sibumasu block (western Thailand, eastern Myanmar, and the Baoshan region of western Yunnan) is the only region of the world with known late Cambrian volcanics occurring at multiple stratigraphic levels. Those rhyolitic tuffs are interbedded with trilobitic sandstones, thus providing a means of calibrating late Cambrian biostratigraphy of Sibumasu. As Sibumasu's trilobites are biostratigraphically correlative with trilobites on other Gondwanan continents and tectonic blocks (i.e. Australia, North China, South China, and Bhutan), Sibumasu's U/Pb dates will be integrated with global stratigraphy and both trilobites and ashes will be useful in the reconstruction of the biogeographic relationships between marginal Gondwanan continents. The completion of this project requires the collection of detailed measured sections, trilobite fossils, and bulk ash bed samples through field work on Tarutao Island of Thailand, in the Linwe region of the Southern Shan State, Myanmar, and in central Baoshan. U/Pb dating will provide the ages of ash beds. Division of fossiliferous strata into trilobite biozones will apply those dates to calibrating Sibumasu's Furongian biostratigraphic record. Correlation with other regions using the CONOP (Constrained Optimization) software and traditional biozones will calibrate trilobite biostratigraphy across Gondwana. Cluster analysis of Furongian trilobite assemblages across northern Gondwana will reveal the biogeographic relationships between continents.

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