

BPT011-05

Room: 301B

Time: May 24 16:30-16:45

The earliest Cambrian biodiversification: detailed stratigraphy of the Hongjiachong section, Chengjiang, South China

Tomohiko Sato^{1*}, Yukio Isozaki¹, Tsuyoshi Komiya¹, Shigenori Maruyama², Degan Shu³

¹ESA, Komaba, Univ. Tokyo, ²EPS, TITech, ³Northwest Univ., China

Eastern Yunnan in South China exposes a continuous shallow-marine sequence of Ediacaran to Cambrian System. As the lowermost Cambrian phosphorite beds contain abundant fossils, the region is the best place to study the earliest Cambrian biodiversification. We studied the detailed lithostratigraphy of the lowermost Cambrian phosphorite of the Hongjiachong section in the south part of the Chengjiang area.

The Hongjiachong section is composed of the upper Ediacaran Dengying Fm (dolomite; more than 100 m), the Lower Cambrian Zhujiaping Fm (ca. 80 m), Shiyantou Fm (black mudstone; 75 m), and Yuanshan Fm (silty shale with trilobites; more than 100 m) in ascending order. The Zhujiaping Fm is composed of Daibu Mb (dolomite, siliceous rock; ca. 45 m), Zhongyicun Mb (phosphorite; ca. 35 m), and Dahai Mb (dolomite; ca. 1 m). We studied the high-resolution stratigraphy in the Hongjiachong section by investigating the outcrops and the boring core samples in the Hongjiachong section.

We examined the lithology and classified the Zhongyicun Mb into 5 units as the following. Unit A: ca. 15 m. Gray phosphorite. Phosphate rich, 5-20 cm bedded. Sometimes interbedded by dolomitic sandstone (ca. 10 cm). The uppermost part is composed of phosphate nodular layer (ca. 2 cm) and dolomitic sandstone-phosphatic mudstone alteration (ca. 9 cm). Unit B: ca. 2.5 m. Dark gray phosphorite (ca. 10 cm) and dolomitic sandstone (ca. 5 cm) clear alteration. There are black phosphatic nodular bands (ca. 1-2 mm) in single phosphorite bed. The uppermost part is SSF-rich sandstone (ca. 20 cm). the boundary between Unit B and Unit C is an angular unconformity. Unit C: ca. 4.5 m. Gray phosphorite (ca. 10 cm) and dolomitic sandstone (ca. 5 cm) clear alteration. There are black phosphatic nodular bands (ca. 1-2 mm) in single phosphorite bed. The uppermost part is phosphatic sandstone (ca. 4 cm) with phosphate nodules. Unit D: ca. 7.7 m. Grayish brown sandy phosphorite (ca. 20-30 cm) and dolomitic sandstone or mudstone (ca. 5 cm) clear alteration. Unit E: ca. 5.3 m. Dark gray phosphorite. Phosphate rich, 2-cm bedded fossiliferous. There is a slumping (ca. 30 cm) at the middle part. The uppermost part is 10 cm-thick bedded (ca. 1.5 m) and contains relatively smaller amount of phosphate.

Here we report the lithostratigraphy of the Hongjiachong Section and discuss the depositional environment.

Keywords: phosphorite, Cambrian, Chengjiang, South China