

## A role of the environmental change through the Mississippian-Pennsylvanian boundary in constructing process of the Akiyo

Keiichiro Higa<sup>1\*</sup>, Tetsuo Sugiyama<sup>1</sup>

<sup>1</sup>Fukuoka University

The Mississippian-Pennsylvanian (P/M) boundary is well known as a representative of global climate change from green house to ice house. The Akiyoshi limestone, an organic reef complex in Late Paleozoic, also remains some characteristic deposits caused by emergence event and biostratigraphic faunal change, which were derived from the eventual cool down through the P/M boundary.

The lithological facies of the limestones in the measured section were stratigraphically divided into three parts; the bioclastic grainstone/packstone and oolitic grainstone facies (the lower part), the rudstone/floatstone facies with black pebbles and tidal flat deposits (the middle part), and the boundstone facies containing frame building metazoans such as rugose corals and chaetetids (the upper part). The bioclastic packstones altered by freshwater diagenesis found in the uppermost part of the lower facies, and the black pebbles found in the lowermost part of the middle facies are typical evidences of the emergence events.

According to the conodont study, the fauna changes from the Serpukhovian one to the Late Bashkirian one beyond the emergence event level. The typical tidal flat deposits occurred in the middle facies, which was characterized by lime-mudstone to wackestone with poor and simple biota composed of only ostracods. These remarkable deposits suggest that a wave registrant system was constructed by frame work builders around the edge of flat basement appeared after the emergence event through the P/M boundary.

The boundstone facies of the upper part contain abundant reef frameworks constructed by Chaetetes and compound rugose corals. The environmental change of the P/M boundary performed an important role for comprising the Akiyoshi Organic Reef Complex.

**Keywords:** Akiyoshi limestone, Mississippian-Pennsylvanian boundary, tidal-flat deposits, reef-building organisms