

Lithostratigraphy of mesoproterozoic stratum at Jixian, north China

SAWAKI, Yusuke^{1*} ; ASANUMA, Hisashi¹

¹Tokyo Tech

The Mesoproterozoic (1.6 - 1.0 Ga) has been treated as boring billion through the history of Earth. This is attributed to deficient fossil records in Mesoproterozoic strata, and also it is unlikely that extreme environmental changes had occurred during the period. Recent paleontological studies, however, has discovered many acritarchs from the sedimentary rocks deposited during the Mesoproterozoic. Molecular clock analysis also demonstrates that genetic divergence of metazoan occurred in this period. In addition, it is recently suggested that redox condition in atmosphere-ocean system drastically changed.

Jixian area, North China, is one of the best places to decode surface environments during the Mesoproterozoic, because Mesoproterozoic-Neoproterozoic rocks well crop out there. Shallow marine clastic rocks and carbonates were successively deposited on Archean basement rocks. Age constraints for the succession in the Jixian are insufficient, therefore the purpose of current study is to constrain depositional ages of the sediments, basement gneiss and intrusive granite.

We conducted geological survey at the Jixian and collected these rocks. Sedimentary structures, including stromatolite, cross bedding, ripple, stylonite, storm rock, unconformity and basal conglomerate, indicate that sedimentary environment was shallow, above wave base, throughout the sections. Basement rocks in this area are composed of orthogneiss and hornblende-plagioclase gneiss. The mineral assemblage of the former is Qz-Bt-Grt, and that of the latter is Qz-Hbl-Pl-Grt-Chl. Main constituent minerals in intrusive granite are quartz, feldspar, hornblende and biotite, and its K-feldspar-rich mineral assemblage might imply A-type granite. Rock descriptions and lithostratigraphy of the Jixian area will be introduced in this presentation.

Keywords: Jixian, Mesoproterozoic, Lithostratigraphy