

## Sedimentary Rhythms in the Middle Miocene Onnagawa Formation in Northern Japan

KUROKAWA, Shunsuke<sup>1\*</sup> ; TADA, Ryuji<sup>1</sup> ; TAKAHASHI, Satoshi<sup>1</sup> ; MIZUTANI, Akane<sup>1</sup> ; KUBOKI, Yui<sup>1</sup>

<sup>1</sup>Department of Earth and Planetary Science, Graduate School of Science, The University of Tokyo

The Middle to Late Miocene bedded siliceous rocks, are widely distributed in the Pacific rim. Typical examples are the Monterey Formation, distributed along the coast of California, and the Onnagawa Formation in northern Japan. The Onnagawa Formation is mainly composed by alterations of porcellanite and siliceous mudstone, called "hard-soft alternation", and finer alternations of light and dark porcellanites, in which parallel lamination is relatively well preserved. These alternations show centimeter- to meter-scale rhythms, where meter-scale rhythm is interpreted as reflecting variations in the water mass structure within the Japan Sea induced by sea-level oscillations paced by Milankovitch cycles (Tada, 1991). On the other hand, centimeter-scale rhythm reflects millennial-scale changes whose origin and cyclicity are still poorly understood.

In this study, we aim to reveal origin and cyclicity of light-dark alternation in the Onnagawa Formation, their relationship with variation of water mass structure in the Japan Sea, and implication to global climatic change.

We will create the perfectly continuous column of the Onnagawa Formation and construct detailed age model based on microfossil biostratigraphy and cyclo-stratigraphy. Then we will calculate the silica and detritus fluxes, respectively, from chemical composition of the siliceous rocks. We will discuss temporal variation of the water mass structure in the Japan Sea and its relation with global climatic changes.

In this presentation, we will introduce the results of our field study in Yashima area in northern Japan.

Keywords: Miocene, Onnagawa formation, Sedimentary rhythm