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## A chemostratigraphy of organic nitrogen isotope ratio from Ediacaran to Cambrian

Ryouhei Kikumoto<sup>1\*</sup>, Manabu Nishizawa<sup>2</sup>, Miyuki Tahata<sup>1</sup>, Ken Takai<sup>2</sup>, Tsuyoshi Komiya<sup>3</sup>

<sup>1</sup>Dept. of Earth and Planetary Sciences, <sup>2</sup>Precambrian Ecosystem Laboratory JAMSTEC, <sup>3</sup>Dept. of Earth Science & Astronomy

The Ediacaran is one of the most important periods in the history of evolving life when multicellular animals firstly appeared on Earth. However, it is still unclear what caused the emergence of the animals and biological evolution at that time.

Nitrogen is one of the essential elements of life and the limiting nutrients, which include nitrogen, phosphorus, silica and iron at present. Therefore, reconstruction of past nitrogen cycle from the Ediacaran to early Cambrian is important to understand bioactivity and biological evolution at the time, though data of nitrogen isotopic ratio of organic matters in the Ediacaran to Cambrian still lacks. This work presents the nitrogen isotope ratios of drill core samples from the Ediacaran to the early Cambrian in order to estimate transition of seawater nutrients in the Ediacaran to Cambrian.

It is well known that the Three Gorges area section in South China still preserves fresh and continuous strata from the Ediacaran to Cambrian. We collected drill core samples from the latest Cryogenian Nantuo tillite through Doushantuo and Dengying Formations (Fms) in the Ediacaran to the early Cambrian Yanjiahe and Shuijingtuo Fms in ascending order (e.g. Ishikawa et al., 2008; Sawaki et al., 2010). We analyzed nitrogen and carbon isotope ratios of organic matters of black shale, limestone and dolostone in the drill core sample from the Doushantuo to the Shuijingtuo Fms with EA-IRMS at JAMSTEC.

The  $\delta^{15}\text{N}$  values are scattered around +6 per mil in the lower and middle Doushantuo Fm., and they gradually decrease from ca. +6 per mil in the upper Doushantuo Fm through ca. 1 per mil in the lower Yanjiahe Fm and 0 per mil around the Yanjiahe/Shuijingtuo boundary to -1 per mil in the middle Shuijingtuo Fm. On the other hand,  $\delta^{13}\text{C}_{\text{org}}$  values are settled around -30 per mil in the lower and middle Doushantuo Fm, and fall to -38.7 per mil just below the Doushantuo/Dengying Fm boundary. They rise back to ca. -30 per mil in the Dengying Fm, and stay around -30 per mil to the Shuijintuo Fm. The correlation between  $\delta^{15}\text{N}$  and  $\delta^{13}\text{C}_{\text{org}}$  values is obscure. The  $\delta^{15}\text{N}$  values are scattered around +4 per mil in middle and late Cambrian.