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## Stable carbon isotope ratio of n-alkanes and isoprenoids from the Cambrian section in the Three Gorge area, South China

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The Cambrian period (542 ? 488 Ma) is one of the most important intervals for the evolution of life. After the Ediacaran/Cambrian (E/C) boundary, the Cambrian-type shelly biota radiated. In the Atdabanian, almost all of modern phyla had appeared, namely Cambrian Explosion. Although it is expected that the biological evolution influenced geochemical cycle in the ocean, the detail is still ambiguous. Logan et al. (1995) used carbon isotope ratios of n-alkanes and pristane to point that carbon cycles changed around early Cambrian because of the appearance of fecal pellets, which efficiently transport organic matters from sea surface to sea floor. However, the exact timing of the change and relationship between the ratio and carbon isotope values of the biomarkers, and carbon isotope values of carbonate and organic carbon are not obvious yet because of only few analyses in the previous work.

It is important to reveal the relationship of such evolutionary invention and environmental change, and the reason why. We conducted high-resolution analyses of the ratio and carbon isotope values of the biomarkers to determine the exact timing of the change and to estimate the surface environmental change.

Samples are cut out from a pristine drilling core drilled in South China. Its date is from the end of Ediacaran to Atdabanian (Ishikawa et al., 2008). n- Alkanes and isoprenoids are ubiquitously detected from samples, and their stable carbon isotope ratios are measured.

According to Logan et al. (1995), in Precambrian carbon isotope ratio of n-alkanes are higher than that of pristane, but in Cambrian their relation reversed. In this study, such change is found across Nemakit-Daldynian / Tommotian (ND/T) boundary. The carbon isotope ratios of carbonate drastically change to negative around ND/T boundary (Ishikawa et al., 2008), and they interpret the negative shift as an effect of global cooling. Such environmental change might promote mutation evolution, such as inventing fecal pellets.

Keywords: molecular fossil, carbon isotope, Cambrian, South China