

## Zn and Sr isotope systematics of carbonates after the end of Marinoan glaciation

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The Ediacaran was a time of great change in the atmosphere and hydrosphere of the Earth. Biological evolution accompanied physical-chemical changes after the end of Marinoan glaciation. The Doushantuo Formation (ca. 635-551 Ma) as the intensively investigated Ediacaran stratigraphic unit in South China has well-preserved multicellular fossil records including early animals [1]. Carbonates of the Doushantuo Formation distribute continuously in time and space which probably record physical-chemical change of ocean and biological events. Zn isotope patterns of seawater are affected by internal biogeochemical process and additional processes, such as water mass mixing, atmospheric inputs and/or adsorption [2]. Our study aims to trace the change of biomass by Zn isotopes and the geochemical events by Sr isotopes, and eventually to link the biological with physical-chemical changes. Before isotopic analysis, a leaching procedure is established to get the Sr and Zn isotopic compositions of the primitive carbonate.

We have analyzed Zn and Sr isotopic compositions of the 'cap carbonates' (Member 1 of the Doushantuo Formation) and the part of Member 2 from different profiles in South China. The associated variations of Zn and Sr isotopes in 'cap carbonate' are largely controlled by the input of continental weathering. Above the 'cap carbonate', the increasing of heavy Zn isotopes and relatively constant  $^{87}\text{Sr}/^{86}\text{Sr}$  evidences the rise of biomass which is also proved by fossil records. The data suggest that the increased riverine delivery to oceans likely promoted the subsequently enhanced primary bioproductivity and microbial bloom.

[1] Jiang et al., (2011) *Gonwana Res.* **19**(4), 831-849.

[2] Zhao, et al. (2014) *Geochim. Cosmochim. Acta* **125**, 653-672.