Coupled oxygen isotope records of inclusion water and carbonate from a stalagmite in Hoshino Cave, Okinawa

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The last deglaciation is the most recent natural global warming period. An abrupt climate change occurred during a transition from the Last Glacial Maximum (LGM) to Bølling-Allerød (BA) in Northern hemisphere. However, the island climate change in East Asian Monsoon region is unclear due to sparsity of the high-time resolution paleoclimate record. In this study, we have measured isotope ratios of fluid inclusions and the calcium carbonate of a speleothem in a subtropical island.

A stalagmite sample, HSN2 was collected in Hoshino cave at Minami Daito Island, Okinawa, Japan (25°N 51' 29''; 131°E 13' 28''). The isolated island (30.57 km^2) is located in the western Pacific Ocean. Isotope ratios of the fluid inclusions were measured using the CRDS-based isotope measurement system [1].

The stalagmite covers the transition period from the LGM to BA. There are visible patterns of dark/transparent stripes on the cross section of the sample. The pattern does not correlate oxygen isotope ratio of carbonate, but correlates with water content. There is weak correlation between the oxygen isotope composition of the fluid inclusions and that of calcium carbonate. Further results with additional data will be discussed in the conference.

[1] Uemura *et al*. (2016) *Geochim. et Cosmochim. Acta*, 172, 159–176