

Mention of a speleothem collected at Iriomote Island –Observation of laminae and laminae counting–

*Tatsuhiko Watanabe¹, Yumiko Watanabe¹, Hiroshige Matsuoka¹, Takahiro Tagami¹

1. Graduate School of science, Kyoto University

Reconstructing ancient climates can contribute to predicting the future climates, so that there are a lot of studies to reconstruct past climates all over the world using many proxies. Stalagmite is one of the powerful proxies to deduce ancient climates in land area. However, there are few studies where stalagmite is used for the reconstruction in Japan.

A stalagmite grows on the floor of the cave due to the accumulation of CaCO₃ deposited from the drip water which comes from groundwater which dissolves the limestone of the host rock. Stalagmites have growth laminae and some of them are annual. In that case, they have annual climate data and we can obtain highly scale paleoclimate data. Moreover, we can obtain high time resolution information from one using U-Th dating method. This high resolution information is also useful to reconstruct past climates. In this study, we used a stalagmite (TK04) as a sample, collected at Takana Cave in Iriomote Island, Okinawa, Japan, in order to reconstruct the ancient climate around there. As the first step of this study, we performed the observation of its laminae using a transmission microscope and a luminescent microscope, and counted the number of them.

As a result, two types of laminae (type a, b) and one type of structure (type c). Note that a lamina is composed of two parts: transparent part, and black part. In type a, a lamina is occupied by more black part than transparent part, and the width of the lamina is about 50 μm . In type b, a lamina is occupied by less black part than transparent part, and the width of the lamina is about 100 μm or over. In type C, the structure appears to be homogeneous and few laminae are observed. Whereas type a is observed only near the top portion of TK04, type b is observed almost all portions of it, and type c is observed around the hole of TK04.

Because type a is altered to type b clearly, it is assumed that the stalagmite's growth was stopped temporarily or the environment of the cave was changed. So we counted the number of laminae near the top portion, where type a is observed. As a result, we observed 15 to 18 laminae there.

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