

An Overview of the KAGI 21 Project: the Paleoclimate Study using Indonesian Speleothems

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The group of Kyoto University Active Geosphere Investigations (KAGI21) started the new interdisciplinary project titled "Paleoclimate study using Indonesian speleothems" last December. In this presentation, we will introduce the overview of this project.

We research how climate was in the past, and we may understand what derives climate changes. Although there is meteorological data about 50 years long, it is too short to inform us about climate change that operates on decadal, centennial, millennial timescales. Our project utilizes rainfall tracer (e.g. the thickness of banding, oxygen isotopes, trace element data) recorded in stalagmite, aiming at reconstructing past climate variation. Especially, we focus on Indonesia, which is the Asian equatorial region, in order to elucidate the precipitation anomaly that reflects the El Niño Southern Oscillation (ENSO).

We already performed three-times field trips to West and Central Java, Indonesia. Many stalagmites and stalactites were collected (Matsuoka et al., 2007). Drip water sampling also was performed to understand hydrogeology in these areas (Ohsawa et al. 2007). We performed the band counting of stalagmite (Ueda et al., 2007). Moreover, oxygen and carbon isotopes in these stalagmites will be analyzed for annual time scales. The proxy data will then be compared with meteorological data set, such as local precipitation, in the past 100 years. Finally, we will reconstruct for longer timescales the past climate, particularly the precipitation anomaly, in the region to detect ancient ENSO.