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インドネシア・ジャワ島の石筍における過去400年間の炭素・酸素同位体比変動

Carbon and Oxygen isotopic variations of Indonesian stalagmite for the last 400 years

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It is critical that we reconstruct tropical climate variability over the last several centuries because the tropics appear to play an important role in global climate (Garreaud and Battisti, 1999; Linsley et al., 2000; Evans et al., 2001). In order to reconstruct anciencet precipitation for the tropics, we performed the systematic comparison between temporal variation in precipitation and those in stable isotopic ratios (i.e., d18O and d13C) of a stalagimite, which is collected in Ciawitali Cave, West Java, Indonesia, and also reconstructed precipitaion variation for the last 400 years based on isotopic data.

First, we analyzed a stalagmite collected in Ciawitali Cave, and found that the number of growth bands is coincident with the uranium series disequilibrium age within the error. Next, annual variations of isotopic data were compared with that of precipitation since 1950, showing significant, negative correlations. These results suggest that stable isotopic ratios in stalagmites are applicable as effective proxies for ancient precipitation in this study area. Furthermore, we measured carbon and oxygen isotopic ratios of the stalagmite for the last 400 years. In this presentation, we will present the comparison between various climatic factors and isotopic variations of the stalagmite over the last several centuries.

キーワード:鍾乳石,同位体,年代測定

Keywords: Speleothem, isotope, dating