40万年間の東シナ海のMg/Ca水温および酸素同位体比に基づく東アジア夏季モンスーン変動
Variations in East Asian summer monsoon in the last 400 ky deduced from results of Mg/Ca-sea surface temperature and oxygen isotope of IODP Site U1429

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The East Asian summer monsoon (EASM) system is involved in the hydrological cycle and in latent heat and energy transport, and thus plays a crucial role in the regional and global climate system. Modern summer sea surface salinity in the northern part of the East China Sea (ECS) is mainly controlled by the discharge of the Yangtze River, which reflects East Asian summer monsoon (EASM) precipitation in the drainage area of the Yangtze River. Site U1429 was drilled by Integrated Ocean Drilling Program (IODP) Expedition 346 in the northern part of the ECS to reconstruct the Yangtze River discharge in high temporal resolution (~100 year resolution). A ~200 m long sediment succession was recovered, which covers the last 400 ky based on a benthic foraminiferal oxygen isotope. A record of oxygen isotope of seawater ($\delta^{18}O_w$) was reconstructed, based on high-resolution Mg/Ca and oxygen isotope measurements of the planktic foraminifera *Globigerinoides ruber*. The $\delta^{18}O_w$ shows variations that have been in concert with Chinese spleothem oxygen isotope records on millennial to orbital scales. However, comparison with a global mean $\delta^{18}O_w$ reveals that the $\delta^{18}O_w$ of U1429 follows the global mean except from MIS 7.3 to MIS 6.4 and from MIS 5.4 to MIS 4, when the $\delta^{18}O_w$ of U1429 was higher than the global mean during MIS 7.2, 6.4, 5.4, 5.2, 4 and lower during MIS 7.3, 7.1, 6.5, 5.3, 5.1. These intervals correspond to higher eccentricity periods during the last 400 ky. During these time periods, the amplitude variations of the regional $\delta^{18}O_w$ increased, suggesting that the 23 ky amplitude of the EASM precipitation was also enhanced. These results suggest that the 23 ky amplitude of the EASM precipitation has been modulated by the eccentricity.

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