Response of isotopic composition of Okinawa's precipitation to changes in climate and circulation

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The oxygen and hydrogen isotopic composition ($\delta^{18}O$, δD) in precipitation have been widely used as tracers of hydrological cycle and proxy for the past climate. Many paleoclimate proxies (i.e., isotopic composition in the stalagmites and trees ring) are affected by changes in the isotopic composition in precipitation. However, variations of isotopic composition in precipitation are controlled by many factors and it is not straight forward to interpret their variations. For example, large-scale atmospheric-ocean circulation such as ENSO affects the variation of isotopic composition in precipitation in China (Tan, 2012) and the Galapagos (Martin et al., 2017). Thus, it is essential for understanding of the mechanism of isotope variations in precipitation to interpret the paleoclimate proxies. Hear, to understand factors controlling the isotopic composition at a maritime island in the Asian monsoon area, we measured the isotopic composition in precipitation on Okinawa-jima (Japan). Precipitation samples were collected every day over 7 years (Jan. 2011– Dec. 2017) in Okinawa, Japan. This extends the previous weekly observation over 3-year (2008–2011; Uemura et al., 2012) and daily data allows us to evaluate relationship between meteorological factors and isotope composition. The $\delta^{18}O$ and δD of water were measured using a cavity ring-down spectroscopy. In the presentation we will compare the measured isotopic composition of precipitation with meteorological data and related climate indexes.
References: Martin et al. (2017), *Jour. Geophys. Res. Atmospheres*, **123**, 1–15; Tan (2012), *Clime. Dyn.*, **42**, 1067–1077; Uemura et al. (2012), *Jour. Hydrol.*, **475**, 314–322.

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