



## **A high-resolution study of isotopic compositions of precipitation**

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Isotopic compositions of precipitation have been used to understand moisture transport in the atmosphere and interactions between precipitation and groundwater. Isotopic compositions of speleothems and ice cores, so called, “paleoarchives”, can be utilized to interpret climate of the past and global circulation models (GCMs), which are able to explain the paleoarchives, can be validated by the precipitation isotopes. The developments of stable isotope analyzers make high-resolution isotopic studies feasible and a high-resolution study of precipitation isotopes is needed. For this study, precipitation samples were collected for every 5 to 15 minutes, depending on precipitation rates, using an auto-sampler for precipitation isotopes near coastal area. The isotopic compositions of precipitation range from  $-5.7\text{‰}$  ( $-40.1\text{‰}$ ) to  $-10.8\text{‰}$  ( $-74.3\text{‰}$ ) for oxygen (hydrogen). The slope of  $\delta^{18}\text{O}$ - $\delta\text{D}$  diagram for the whole period is 6.8, but that of each storm is 5.1, 4.2, 7.9 and 7.7, respectively. It indicates that evaporation occurred during the first two storms, while the latter two storms did not experience any evaporation. The isotopic fractionations of precipitation has significant implications for the water cycle and high-resolution data of precipitation isotopes will be needed for the future studies related to the precipitation isotopes.