Geophysical Research Abstracts
Vol. 19, EGU2017-6022, 2017
EGU General Assembly 2017

Composition of Oxygen and Hydrogen Isotope in Precipitation and Analysis of Moisture Sources in Hemuqiao Basin

Simin Qu, Yifan Wang, Peng Shi, and Shuai Shan
Hohai University, Nanjiang, China, wanily@hhu.edu.cn

Abstract: The stable isotopes of oxygen and hydrogen in water cycle have become an important tool to study run-off formation, hydrograph separations and origin of precipitation. Conducting an assessment of precipitation based on isotopic data has a potential implication on moisture sources. In the study, precipitation samples collected from four rainfall events were analyzed for stable isotope composition to provide implication of isotopic characteristics and moisture sources in Hemuqiao basin within Taihu drainage basin, eastern China. In these events, stable oxygen and hydrogen isotopic composition of precipitation had marked variation. According to research of meteoric water line and deuterium excess of different rainfall types, we could get some information of moisture source for selected rainfall events. Moisture transport pathways were traced using HYSPLIT model to verify the linkage with isotopic composition and moisture source. The typhoon events' moisture source mostly derived from tropical ocean air with higher isotopic value; while the Meiyu rainfall event's moisture source came from near-source local air with lower isotopic value.
Keyword: isotopes; precipitation; meteoric water line; deuterium excess; moisture source; HYSPLIT model.