

Characteristics of event-based oxygen isotopic composition in precipitation at western part of Kanagawa prefecture

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Stable isotopes in precipitation are useful tool for understanding the hydrological cycle. Precipitation samples for every events have been collected at Hot Springs Research Institute located in the eastern foot of Mt. Hakone, and those oxygen isotopic compositions are analyzed 79 samples collected from Dec. 1, 2012 to Nov. 30, 2013. Annual volume-weighted mean value oxygen isotopic composition in 2013 was -7.62 per mill, and seasonal ones are -11.10 per mill in winter, -5.76 per mill in spring, -8.52 per mill in the Baiu, -6.63 per mill in summer, -7.02 per mill in the Shurin, -5.81 per mill in autumn. Weighted mean value in winter and the Baiu is lower than annual one, while that in other seasons is higher. Thus, a clear seasonal variation is found in 2013. The purpose of this study is to estimate the factor which has lower isotopic composition in winter and the Baiu. Lower isotopic composition in winter resulted from the precipitation by low pressure. When depe southern coast low pressure passed, the tendency which indicates one compared with the very low isotope ratio was seen. The influence of temperature effect is considered as a decline factor in winter. The intensity of rainfall brought by the Baiu front is large. Therefore, it is considered that amount effect was reflected increased. A clear correlation ($R^2=0.83$) was seen between the precipitation and compared with the oxygen isotope, and the phenomenon which represent rain amount effect was confirmed. However, event of precipitation more than 100 mm amount of precipitation 3 times in case of a typhoon in the Shurin, and the low isotopic ratio is high -5.2 per mill, -6.5 per mill and -9.3 per mill of respectively. Though there was a lot of precipitation, the isotope didn't shows low value. Thus the typhoon isotopic ratio is complicated.

Keywords: Mt. Hakone, oxygen isotope, amount effect , precipitation event