

Characteristics of the distribution of $\delta^{18}\text{O}$, δD and d-excess values in groundwater and spring water at Fukushima and Niigata prefecture

*Shiho Yabusaki¹

1.Faculty of Symbiotic Systems Science, Fukushima University

Stable isotopes of oxygen and hydrogen are useful to understanding the recharge area of groundwater and spring water. The object of this study is to grasp the detailed distribution of stable isotopes of oxygen ($\delta^{18}\text{O}$) and hydrogen (δD) in groundwater and spring water at Fukushima and Niigata prefecture.

Stable isotopes of oxygen and hydrogen are relatively high near the coastal area and relatively low at inland area, thus the inland effect is confirmed. And isotopes are relatively low in high altitude area (e.g. mountainous area), the altitude effect and temperature effect are also recognized.

From the distribution map of d-excess values, it is obvious that the d-excess is relatively low at Pacific coastal regions (Fukushima prefecture) and relatively high at coasts of Japan Sea regions (Niigata prefecture). It is assumed that the difference of d-excess values is affected by origin of the water vapor. The d-excess values change near the Ou mountains, and not change near the Abukuma mountains. Elevation of the Ou mountains is higher than Abukuma mountains, hence the water vapor is prevented by the Ou mountains is considered.

Keywords: Fukushima, Niigata, groundwater, spring water, stable isotope, d-excess