

## Hydrological environment of Mt. Daisen volcano using stable isotopes

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The purpose of this study is to understand hydrological environment of Mt. Daisen volcano, which is the largest volcano in the Chugoku region and faces the Sea of Japan. Surface water, groundwater, and hot springs (deep groundwater) were collected and major dissolved ions and stable isotopes of O, H, and C of these samples were measured. In this presentation, isotopic property of groundwater and hot springs located in the northwestern slope of Mt. Daisen will be mainly reported.

### Spring & River water

Delta-18O and delta-D values of spring water and river water with small catchment area in the northwestern slope (EL: 8 to 1,035m) vary range from -7.5 to -9.9per-mill and from -45.6 to -55.6per-mill. Both isotopic ratios decrease with increasing altitude, and observed altitude effect of delta-18O and delta-D are -0.23 per-mill/100m and -1.2 per-mill/100m, respectively. On the other hand, d-value of these samples becomes large with increasing altitude (range from 15 to 20 in low altitude and from 20 to 25 in high altitude). Changes of d-value with altitude suggest the difference of main recharge season of groundwater.

### Hot spring (deep groundwater)

Water quality of hot springs located in the north and the northwestern slope are different. For example, Cl and HCO<sub>3</sub> concentrations of these samples vary range from 15.4 to 2,240mg/l and 78.6 to 1,832mg/l.

Delta-18O and delta-D values of hot springs vary range from -8.9 to -10.5per-mill and -56.8 to -65.6per-mill. These values suggest that the origin of deep groundwater is meteoric water. However, one sample with high Cl and HCO<sub>3</sub> concentrations (Cl: 2,240mg/l, HCO<sub>3</sub>: 1,832mg/l) showed high delta-13C value of -5.4per-mill. Therefore, chemical and isotopic component of this deep groundwater is possibly affected by groundwater that comes from more deep part.