

# Water Quality of the Inland Waters in and around Mt.Bandai and Mt.Nekoma

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The purpose of this study is to investigate the chemical characteristics of river, spring water, lake, and hot spring, and to estimate ground water flow systems by using water quality and hydrogen and oxygen isotope ratios of river, spring water, lake and hot spring in and around Mt.Bandai and Mt.Nekoma. The authors carried out the field survey from August 2 to 5 in 2003, and the chemical analysis of water samples.

The results are summarized as follow:

Generally speaking, water qualities of inland water in Mt.Bandai is classified into Ca-HCO<sub>3</sub> type. The dissolved matter increases from the upper stream to the down stream. Because of water at the upper stream has a short residence time, the water quality is almost the same as rain. Water quality in and around the crater of Mt.Bandai is classified into Ca-SO<sub>4</sub> type. Water quality of Mt.Nekoma is classified into Na-HCO<sub>3</sub> type and its origin of chemical components are from the geological sediment.

The result of the hydrogen and oxygen isotope ratios is from -72.0 to -65.0 per mille for dD, from 11.0 to -10.0 per mille for d18O of river, from -74.0 to -66.0 per mille for dD, from -11.5 to -9.0 per mille for d18O of hot spring, and from -75.0 to -62.0 per mille for dD, from -12.0 to -10.0 per mille for d18O of spring. The isotopic ratio of the water near the summits of Mt.Bandai and Mt.Nekoma is the lowest, and the values are from -73.0 to -68.0 per mille for dD, from -11.5 to -11.0 per mille for d18O. dD value and d18O values become large from upper stream to down. Altitude effect per 100m elevation for river and spring water is -1.95 per mille for dD and -0.29 per mille for d18O of river, -1.81 per mille for dD and -0.21 per mille for d18O of spring water. The ratios plotted between  $dD = 8d18O + 10$  and  $dD = 8d18O + 20$ , and there are some altitude effect in these isotopic ratios.