

Relation between water component and geological conditions in Izu Islands

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The relationship between the geological characteristic and groundwater compositions was investigated. 147 water samples were collected from Izu Islands, including Izu Oshima, Toshima, Miyakeshima, Hachijoshima, Niijima, and Kouzushima. The water samples were analyzed for cations and anions by using Ion Chromatography and Inductively Coupled Plasma Atomic Emission Spectroscopy. Chemical composition of rock samples at 83 locations on each islands were analyzed by using a X-ray fluorescent spectrometry.

As a result, the water samples in the basaltic volcanic area showed high Mg^{2+} value to compare with the seawater ratio.

Also, it was found that the Mg^{2+}/Ca^{2+} ratio of the water samples in the basaltic volcanic area and the Mg^{2+}/Ca^{2+} ratio of the rock composition are almost the same. However, cation of water samples collected near Fudeshima in Oshima had higher value of Mg^{2+} content, which seems to be related with weathering process of highly porphyritic rocks of Fudeshima volcano.

In addition, comparing the seawater composition ratio of SO_4^{2-}/Cl^- with the water sample, it was found that the water some samples from Oshima and all samples of Miyakejima contained a large amount of SO_4^{2-} originated from volcanic SO_2 .

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