

A study on the effects of volcanic products on the water environment and its long-term changes by remotesensing and water quality observation in Miyake Island, Japan

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Miyakejima is a volcanic island located about 180 km south of Tokyo. Mt. Oyama in the center of the island has erupted repeatedly, most recently in 1983 and 2000, forcing islanders to evacuate the island. The geology is covered with basalt, but sediment runoff from the surface is likely to occur in the wasteland affected by the eruption. There are no constant rivers on the island due to the high permeability of the soil. For this reason, groundwater is mostly used for daily life on the island. The main groundwater system of the island is considered to have a partial groundwater system with a lava layer as an impermeable layer and an aquifer above the lava layer as an aquifer on the hillside (Arai, eds., 1977), which is considered to be greatly influenced by past eruptions.

According to measurements by the Geographical Survey Institute Miyakejima, the total amount of eruptions in the 1983 eruption was 20 million tons, consisting of 5,700,000m³ of lava flow and 6,000,000 m³ of volcanic ash. The total amount of the spouting material in 2000 was about 11 million m³.

On Miyakejima Island, volcanic eruptions had been studied before, but from the viewpoint of the water environment, the influence of volcanic products has not been studied in recent years, and in addition, the changes in the preceding and following eruptive events have not yet been studied.

Therefore, in this study, in addition to the water quality observation that our laboratory is continuously working on, we will consider the effects of volcanic products generated by volcanic activities on the water environment of Miyakejima Island using remote sensing.

Keywords: Water Environment , Remotesensing, Volcanic Products , Miyakejima

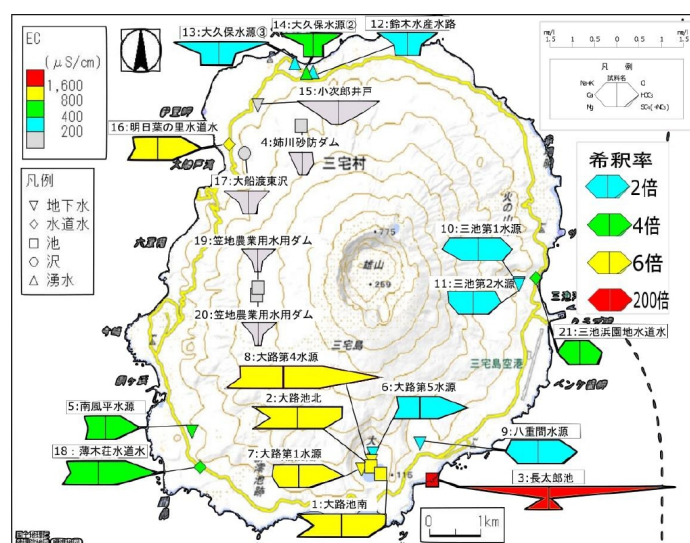


図1 電気伝導度と水質空間分布 (2019年11月)

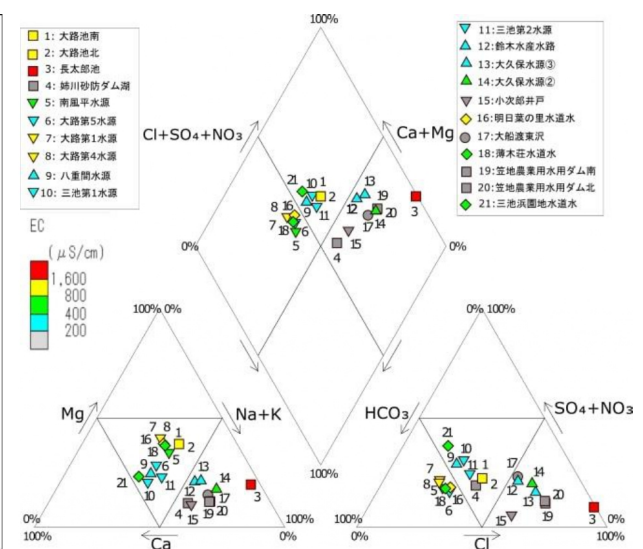


図2 トリリニアダイアグラム (2019年11月)