

## Influence of water-rock interaction on the chemistry of river water in volcanic areas

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Located in an island-arc trench system, the Japan archipelago is prominent due to its active volcanoes, and Quaternary volcanic rocks widely cover the land. The major surface water basins are found in volcanic areas. However, hydrochemical research in volcanic areas is relatively rare for non-geothermal surface water; in particular, little attention has been paid to the major chemical components which control the fundamental water chemistry. Under such research circumstances, the presenters have been conducting hydrochemical researches in various volcanic areas. In this study, the presenters investigated mainly rivers in volcanic areas of Kyushu Island in addition to the area of southern Kyushu Island that is covered by almost a single ignimbrite layer. The aim of this research is to extract the underlying factors of the hydrochemical processes in the volcanic area, and to derive the theoretical expressions that explain the quantitative correlations among solutes. On the basis of the thermodynamic and stoichiometric calculation based on water-rock interaction, the water chemistry was successfully demonstrated by theoretical simple equations; eg.  $[\text{Si}] = 2[\text{Na}^+] + [\text{Mg}^{2+}]$  for water chemistry on the ignimbrite plateau.