

Geochemical characteristics of hot springs in Bulusan Volcanic Complex, Southern Luzon, Philippines.

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Bulusan Volcano located in the southernmost part of the Bicol Peninsula is one of the active volcanoes in the Philippines. This paper reveals geochemical characteristics of hot springs in the Bulusan Volcanic Complex (BVC).

All of the hot springs except Buhang shows the HCO₃-SO₄ and/or HCO₃ types, and also is plotted within the immature water area in the Na-K-Mg diagram, suggesting no strong outflow of neutral Cl-rich deep waters in the BVC. Isotopic compositions (δD and $\delta^{18}O$) of the hot springs indicate the local meteoric water origin. On the other hand, Buhang hot spring shows the Cl-HCO₃ type formed by mixing of meteoric origin CO₂-rich hot fluid and sea water.

Acidic pH of river water was observed during a small lahar caused by heavy rain, probably this is due to erosion of newly sedimented pyroclastics by the rain and dissolving the volcanic gases absorbed on the surface grains of the pyroclastics.

San Benon hot spring was monitored for chloride and sulfate ions to detect any precursor of volcanic eruption. The variation of chloride and sulfate ions were directly proportional with each other, ranging from 81 to 168mg/l and 270 to 601mg/l, respectively. This suggests that these ions are strongly affected by the mixing of groundwater in the area. Therefore, chemical monitoring using chloride and sulfate ions at San Benon will not be recommended.

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