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Variation of volcanic gas compositions at Kuchinoerabujima Volcano

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In order to evaluate volcanic gas plumbing system and its interaction with groundwater, volcanic gas compositions of Kuchinoerabu volcano were investigated. New fumaroles formed inside the Shindake crater and not are discharging majority of the volcanic gases from the volcano. The Shindake crater gases show the typical composition of high-temperature volcanic gases, and those are also resemble to the gas composition of the Shindake east fumaroles, which were active 20 years ago, suggesting a common and stable source volcanic gases. In contrast, the Shindake south fumarolic gases show contrasting features of high-T (from high H2/H2O ratio) and low-T (from high CO2/S and isotopic composition of H2O) gases. These contrasting features might be created by the rapid but efficient cooling of high-temperature volcanic gases at near surface by injection to the groundwater, which might also cause the large variation in the composition as observed in the Shindake south gases.

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