

Repeated survey of ground temperature and hot springs around Iwo-yama, Kirishima Volcanic Group (2)

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Iwo-yama Volcano is located in the northwest of Karaguni-dake Volcano, central part of Kirishima Volcanic Group. This area had intense fumarolic activity before 1990s. After 1990s, fumarolic activity disappeared but hot spring activity has continued. However, volcanic tremors occurred frequently after 2014. And fumarolic activity appeared again at the summit of Iwo-yama in December 2015. The authors have carried out ground temperature observation and repeated measurements of electrical conductivity of hot spring waters; Western and Northeastern Flank of Iwo-yama and Ashiyu hot spring. Chemical composition was also analyzed. Ground temperature at 1m depth indicates the increase after October 2015, just before the reappearance of fumaroles, and after October 2016 (corresponds the increase of H₂S emission). Repeated measurements of electrical conductivity of spring water indicate EC of the W&NE springs are affected by rain water, but EC of Ashiyu water shows a significant change; 225 mS/m in 2008, 235-245 mS/m after the eruption of Shinmoe-dake in 2011, 256 mS/m in December 2015. According to the chemical analysis, SO₄ ion increased from 1060 mg/l to 1450 mg/l in Ashiyu, while the ratio of Cl/SO₄ changed from 0.12 to 0.07. On the other hand, Cl/SO₄ increased from 0.002 to 0.06 in the W Flank of Iwo-yama. This means SO₄ ion increased in Ashiyu after the beginning of volcanic tremor in August 2014, but in W Flank of Iwo-yama, both SO₄ ion and Cl ion increased. These evidences mean an increase of supply of volcanic gas beneath Iwo-Yama.

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