

Electric field generation associated with upflows of volcanic gas

Tsuneo Ishido[1]

[1] Geol.Surv.Japan

Numerical simulation of electrokinetic potentials was performed to understand relatively short-term SP generation associated with high pressure upflows of volcanic gas. Negative SP appears as long as the top of high pressure gas remains around the depth of an impermeable layer (500 m deep). As the high pressure gas within the conduit reaches the ground surface, large amplitude negative and positive SP's appear corresponding spatially to the crater and surrounding area, respectively. This anomaly is strongly dependent on the terrain around the crater. The present mechanism probably explains the observed changes in SP at Miyake-jima volcano in August 2000.