

Japan Geoscience Union Meeting 2011

(May 22-27 2011 at Makuhari, Chiba, Japan)

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SVC070-P47

Room:Convention Hall

Time:May 23 16:15-18:45

Geomagnetic total intensity monitoring before the 2011 summit eruption at Shinmoe-dake crater in Kirishima volcano

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At Shinmoe-dake crater in Kirishima volcano, a weak summit eruption occurred in 22th, Aug., 2008. Since then, 3 weak eruptions took place in 2010, and intense magmatic activities with generation of lava dome and explosive summit eruptions have started since 26th Jan., 2011. 52 years have passed since the last explosive summit eruptions occurred at the crater in 1959. Since moderate volcanic activities in 1991-1992, we have performed continuous monitoring of geomagnetic total intensities at several sites in the vicinity of the Shinmoe-dake crater, aiming at detecting temporal variation due to thermal magnetic effect or piezo-magnetic effect before and during the main eruptions. Since all the observation sites just near the summit were damaged by the intense volcanic activities from 26th Jan., 2011, we will present temporal variation before the recent eruption and discuss on source of the changes.

Keywords: Shinmoe-dake crater, Kirishima, 2011 summit eruption, geomagnetic total intensity, thermal magnetic effect