

Japan Geoscience Union Meeting 2011

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

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STT054-P05

Room:Convention Hall

Time:May 24 14:00-16:30

Observations of temperature distributions in Sakurajima volcano crater using airborne hyperspectral scanner

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Brightness temperature distributions in Sakurajima Volcano were acquired by using airborne hyperspectral scanners (ARTS). They revealed a significant temporal change of geothermal activity in the Sakurajima Volcano crater from Nov. 2008 to Nov. 2010. ARTS images were acquired over the Sakurajima Volcano crater on 8 April 2008, 26 November 2008, and 21 November 2010. ARTS was flown on a clear day at 4,000m ASL (8 April 2008, 26 November 2008) and at 5,000m ASL (21 November 2010). Brightness temperature distributions in the Sakurajima Volcano crater were acquired with a spatial resolution of 3.6 to 4.8m. The geo-corrected image was calculated directly using the data from the GPS/IMU system. We could detect the geothermal activities of Sakurajima crater (Minamidake A-crater and Showa crater) from these data. We calculated the heat flux at the Sakurajima Volcano crater from the Sekioka equation. The estimated heat flux at the Minamidake A-crater was 16.4MW at 1518 (UTC+9) 26 Nov. 2008 and 0.8MW at 1126 (UTC+9) 21 Nov. 2010. The estimated heat flux at the Showa crater was 4.2MW at 1518 (UTC+9) 26 Nov. 2008 and 57.3MW at 1126 (UTC+9) 21 Nov. 2010. These results indicated both the increase of geothermal activity of the Showa crater and the decrease of the geothermal activity of the Minamidake A-crater from Nov. 2008 to Nov. 2010.

Keywords: hyperspectral sensor, airborne, geothermal distribution