

## **MAGNETIC CHANGES PRIOR TO THE SUMMIT COLLAPSE OF MIYAKE-JIMA VOLCANO (JULY 8, 2000) REVISITED.**

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The 2000 eruption of Miyake-jima volcano is characterized by the formation of a caldera with much smaller amount of ejecta from the summit explosion. In particular, the initial stage of the caldera formation was simply a sudden depression of the summit area of the volcano on July 8, 2000. Prominent magnetic changes were observed before, during and after the collapse event by several proton magnetometers well distributed over the volcano edifice (Sasai et al., 2002). However, continuous total intensity data were severely contaminated by natural electromagnetic noises due to local induction effect and motionally-induced magnetic fields in the surrounding ocean. We applied a magnetic cleaning method based on the Kalman filter techniques (Fujii et al., 2007) to delineate true volcanomagnetic changes. Then we sought to obtain magnetic sources for such signals with the aid of genetic algorithm (Currenti et al., 2008). Both the methods are very effective for volcano monitoring.

EM monitoring of volcano, Kalman filter, Genetic algorithm

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