

## Rapid change in magnetic field associated with the 2000 eruption of the Miyake-jima Volcano

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Some rapid changes in magnetic field were observed associated with the 2000 activity of the Miyake-jima Volcano. The 2000 activity of the Miyake-jima Volcano was accompanied with the big depression at the summit and the caldera formation. This is the first case occurring caldera formation with precise geophysical observations. So it is very important to clarify what kind of physical process developed beneath volcano during the depression at the summit. Geomagnetic observation at Miyake-jima detected a rapid change before the first depression at the summit and other anomalous changes associated with the tilt-step event.

The precise examinations of these changes found following results.

Every tilt-step events associated large geomagnetic changes more than 10nT near the summit. But some changes were detected without tilt-step. While the first depression on July 8 and tilt-step on July 9 associated significant changes at most observation points in Miyake-jima, no remarkable changes were detected except the points near the summit after July 10.

These changes were negative at northern part while positive at southern part in most cases, but sometimes these change turn over. This evidence indicates that the position of the source moved if other conditions are the same.