

## Geomagnetic total intensity variations associated with vertical crustal movement in the eastern part of Izu Peninsula

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In order to detect geomagnetic changes associated with the earthquake swarm and anomalous crustal activities, continuous observations of the geomagnetic total intensity have been conducted in the eastern part of Izu Peninsula. The continuous data of the geomagnetic total intensity were utilized after an analysis of removing the effect of external magnetic field from those data during 2010 - 2012. An association between the geomagnetic field variation and the vertical crustal movement was examined comparing the day-to-day variation of the geomagnetic total intensity with that of the geodetic height measured by GPS (Global Positioning System). It is found that the day-to-day variation in the geomagnetic total intensity shows each seasonal change on the quiet seismic period during 2010 and on the relatively active seismic period during 2011 and shows no significant change on the quiet seismic period during 2012, though the day-to-day variation in the vertical crustal movement shows seasonal changes during 2010 - 2012. It is inferred that the hydrothermal activity related to the Dec. 2009 earthquake swarm caused by magma injection had been lasting up to less than two years and the hydrothermal movement associated with the vertical crustal movement had caused the seasonal changes in the geomagnetic total intensity during 2010 - 2011. This suggests the observed variations of the geomagnetic total intensity were not directly associated with seismic faulting. The continuous observation of the geomagnetic total intensity is expected to have a monitoring advantage in predicting the course of the earthquake swarm activity in the eastern part of Izu Peninsula.

Keywords: eastern part of Izu Peninsula, geomagnetic total intensity, crustal movement, hydrothermal activity