
[JJ] Evening Poster | M (Multidisciplinary and Interdisciplinary) | M-IS Intersection

[M-IS09] Electromagnetic phenomena associated with seismic and volcanic activities

convener: Tetsuya Kodama (Research Unit I, Research and Development Directorate, Japan Space Exploration Agency), Toshiyasu Nagao (Institute of Oceanic Research and development, Tokai University), Yasuhide Hobara (電気通信大学 大学院情報理工学研究科)

Tue. May 22, 2018 5:15 PM - 6:30 PM Poster Hall (International Exhibition Hall7, Makuhari Messe)

This session deals with reviews and contributions on the recent studies of electromagnetic (EM) phenomena associated with earthquakes and volcanic eruptions. One of the main targets of the session is to clarify the mechanism of seismo-EM emission and Lithosphere-Atmosphere-Ionosphere (LAI) coupling.

[MIS09-P03] Study of anomalous behaviors of geomagnetic diurnal variations prior to earthquake

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Keywords: Geomagnetic diurnal variation, Seismo-magnetic phenomena, Kumamoto earthquake

For short-term earthquake forecasting, the seismo-electromagnetic phenomena have been considered as one of the most promising analysis for several decades. In this study, we have investigated pre-seismic ionospheric disturbances by using the geomagnetic diurnal variations in the vertical component, following Xu et al. (2013).

To validate the result of Xu et al. (2013), we investigated the geomagnetic data associated with the Kumamoto earthquake (2016) and Fukushima earthquake (2016). Geomagnetic data of two observations in Kyushu area have been analyzed using the same method in Xu et al. (2013). Ratios of diurnal variation range between the target station Kuju (KUJ) which is about 55 km from the epicenter and the remote reference station Kanoya (KNY) about 150 km distant to the epicenter have been computed. The ratios of diurnal variation range between KAK and ESA indicated several anomalies because of continuing earthquakes during years. Therefore we also have investigated the geomagnetic data associated with the Toyama area, where earthquakes rarely occur, to compare with where earthquakes occurred frequently such as the Fukushima area.