

Magnetic disturbance resulted from typhoons in Pacific Ocean in September 2008

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Geomagnetic total intensity fields recorded by 3 stations are utilized to examine magnetic pulsations induced by 3 typhoons in the Pacific Ocean in September 2008. To determine whether magnetic variations resulted from space weather or typhoons, time-series data of magnetic total intensity fields recorded at 2 monitor and 1 remote stations are examined and cross-compared. The correlation coefficient is applied to determine the discrepancy of amplitudes at different frequency bands due to magnetic pulsations. It is found that magnetic pulsations at the anomalous frequency band of between 0.0025 and 0.007 Hz appear when typhoons with category 4 are closest to monitor stations. The anomalous frequency band is different with frequency characteristics of either ocean waves or swells reported in previous studies and consistent with magnetic pulsations triggered by acoustic gravity waves due to either gravity waves of swells or upward vertical motions of typhoons.

Keywords: Magnetic pulsations, Typhoons, Acoustic gravity waves