

Changes of the geomagnetic signals linked to tohoku earthquake on march 11th 2011

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Abstrak

The geomagnetic fields in the atmosphere can be affected by phenomena in the Earth, so that changes of geomagnetic intensity might be used as an indicator of earthquake occurrences. Variations of geomagnetic data have been analyzed in association with the Tohoku Earthquake on March 11th 2011. The Geomagnetic data have been derived from Memambetsu (MMB), Kakioka (KAK) and Kanoya (KNY) Observatories, which are INTERMAGNET observatories. The analysis was performed by calculating the power spectral density (psd) of the ULF signal of Z and H components and then polarizations are observed by comparing the psd of Z and of H. The results showed the difference psd of Z and of H between the KAK observatory (the nearest position to the epicenter) with MMB and KNY (at some greater distance from the epicenter) is quite significant, which can be observed over a period of 10 days before the earthquake occurrence. The polarizations of Z/H in KAK indicate a highest change of intensity which occurred at 18 days prior to the earthquake.