

## Principle component analysis of geomagnetic data associated with the 2011 Tohoku earthquake (Mw 9.0)

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The seismo-magnetic phenomena associated with the 2011 Tohoku earthquake have been reported in a number of previous studies. To verify the geomagnetic diurnal variation changes and investigate absolute geomagnetic field variations related to this mega event, a principle component analysis (PCA) has been applied to the geomagnetic data observed in Japan. The PCA method enables one to decompose observations into different components which are orthogonal to each other and may originate from different sources. Thus it may be useful in revealing regional seismo-magnetic signals by eliminating the contributions of common global sources. The detailed results will be shown in our presentation.

Keywords: Principle component analysis, geomagnetic data, the 2011 Tohoku earthquake