

## New method to determine the constituents of magnetic storms

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The magnetic field variation observed on the ground consists of many components.

For example, storm, ring current, geomagnetic solar quiet daily variation field (Sq), Sudden Commencement (SC), field aligned current (FAC) and so on.

The purpose of this study is to evaluate the magnetic field variation observed on the ground and to clarify the cause of magnetic field variation during magnetic storms. We used the data observed magnetic field variation at the MAGDAS/CPMN 210 degree meridian (Yumoto and CPMN group, 2001). By separating the constituents of the magnetic field variation observed on the ground (in this study, sq effects and Dst effects), it is possible to clarify the cause of magnetic field variation during magnetic storms.

As a result, we confirmed two major constituents of the magnetic field variation.

- (i) During magnetic storms, one constituent has latitudinal structure like FAC.
- (ii) During magnetic storms, one constituent has global structure like SC.