

# INCREASED LOCAL TIME ACCURACY OF THE CORRECTED DST INDEX

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The Dst index is one of the most used geomagnetic indices which has been constructed to monitor the most dramatic events in the near-Earth space, the geomagnetic storms. However, the Dst index includes some random and systematic errors, e.g., an excessive, seasonally varying quiet-time level, which have been corrected in the revised version of the Dst index, the so called Dcx index. So far, the Dst/Dcx indices have been based only on four stations. Such a coarse longitudinal accuracy does not allow for a sufficiently detailed study of the local time structure of global disturbances during storms, in particular current systems like the asymmetric ring current and the tail current.

Here we reconstruct, based on the corrected method implemented in the Dcx index, a longitudinally enhanced index called the Dcx16 index, which is based on data from 16 low and mid-latitude stations. We study the detailed local time structure of storm-time disturbances in 2000-2005 and calculate the maximum momentary asymmetry in the disturbance level. We also compare results based on Dcx16 with similar results for Dst and Dcx based on the four stations.

Magnetic storms, Dst index, local time asymmetry

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