



## Local Dst/Dcx indices: New space weather products from the SOTERIA project

K. Mursula, L. Holappa, and A. Karinen

Physics Dept., University of Oulu, Finland (kalevi.mursula@oulu.fi)

The Dst index is one of the most used geomagnetic indices that is constructed to monitor the most dramatic events in the near-Earth space, the geomagnetic storms. The Dst index is calculated as an average of disturbances observed at four low-latitude stations, roughly equally distributed in longitude. However, in addition to the ring current, other current systems like the tail current, magnetopause current and partial ring current contribute to the Dst index, leading to the fact that the local disturbances at the four stations are very often quite different. Moreover, because of the problematic Dst recipe, the different Dst stations contribute to the Dst index with systematically different weights. We have calculated a revised version of the Dst index, the so called Dcx index, where the different stations contribute with equal weights.

So far, the Dst/Dcx indices have been based only on four stations. Such a coarse longitudinal accuracy does not allow for a detailed study of the local time structure of storm time disturbances due to asymmetric current systems like the partial ring current and the tail current. Therefore, we have increased the number of stations used to calculate the Dcx index to 16/17 stations. Within the FP7 SOTERIA project both the global and the local Dcx indices observed at each contributing station will be made available. This offers a large range of new possibilities for detailed studies of storm time disturbances and currents.