



Forecasting the Dst index through IMF data only: EDDA algorithm.

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The prediction of geomagnetic storms is of great importance in space weather. To this regard, in the past years several operational Dst forecasting algorithms have been developed and widely used, all based on both IMF and on solar wind plasma parameters. However, under strong solar disturbances, plasma analyzers can be saturated and the plasma parameters corrupted. In such occasions, those algorithms can not issue valid forecasts. Here we describe EDDA, an artificial neural network which calculates the Dst index on the basis of IMF data only and is, therefore, capable of overcoming this problem. We illustrate the network training and testing and discuss its performance over a large set of hourly averages of IMF and Dst data. Moreover, we briefly discuss the physical grounds which allow the Dst forecast on IMF only.