

# **MODELLING OF DST FOR MAGNETIC STORMS USING INTERPLANETARY PARAMETERS – CHARACTERISTICS OF GROWTH AND DECAY**

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The relationship between the interplanetary parameters (southward directed interplanetary magnetic field  $B_z$ , solar wind velocity, Ion density and the interplanetary electric field  $E_y$ ) and the ring current is well established. Using an analytical study of the energy rate balance equation – the commencement, main phase and recovery phases of selected storms, even multiple events, were modelled. Due to the lack of availability of the interplanetary parameters data during many of the storms (1986-2004), an attempt was made to calculate these parameters from the proxies formulated from ground data. This involved estimating the new indices - IHV and IDV for each storm and location of the observatory. From these averaged values of interplanetary parameters, a good simulation of most storms could be made. Results for about 15 storms, including multiple events and complex recovery processes are presented and discussed. The efficacy of formulating the conditions of storm generation, even in the absence of satellite data is extremely useful in studying storm processes.

Dst, storm

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