

Project Details

ROSES ID: NRA-02-OSS-01

Selection Year: 2003

Program Element: Independent Investigation: LWS

Project Title:

The geoeffectiveness of solar cycle 23 as inferred from a physics-based storm model

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Summary:

The energization of the ring current and its subsequent decay is the central aspect of geomagnetic activity. However, what mechanisms are responsible for energizing particles and for causing their loss, and how the relative importance of these mechanisms depends on the field and flow parameters in the near-Earth interplanetary (IP) medium as it varies over the solar cycle, are issues not well understood. In this proposal we aim at investigating these issues for solar cycle 23 using the continuous coverage of IP parameters provided by NASA's ACE and Wind satellites. By selecting a representative variety of temporal profiles of IP parameters during geomagnetic storms of Dst