2011 Workshop: Dayside FED

Long title
CEDAR-GEM Dayside Field Aligned Current and Energy Deposition (FED)
CEDAR-GEM
Conveners
Geoff Crowley
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Description

GOAL: Explain sources of enhanced dayside thermospheric density and their relation to enhanced dayside field-aligned currents and Poynting flux, their sources in the solar wind and their impacts in the ionosphere-thermosphere system.

Topics: • Dayside field-aligned current systems for large in-the-ecliptic IMF • The nature of Poynting and particle energy deposition for IMF BZ>0 and large BY • Dayside energy sources and transport for such events • The role of enhanced solar wind density and speed during such events • The relation of such events to cusp region thermospheric density anomalies • Comparison of dayside energy sources within the context of the IMF • Methods for detecting such disturbances; indices vs. space based monitors • MHD and empirical modeling of related disturbances • Overall magnetospheric structure during in-the-ecliptic IMF disturbances

This workshop will provide a venue for joint CEDAR-GEM discussion of roles and means of the dayside energy deposition in changing the environment in which many space-based assets operate. It will serve as a platform to 1) explore the importance of various modes of magnetospheric behavior on the thermosphere and to 2) explore the feedback the ionosphere/thermosphere may provide to the magnetosphere.

Justification

In 2009 GEM established a Focus Area on Dayside Field Aligned Current and Energy Deposition in recognition of newly discovered localized energy deposition regimes

during intervals of strong IMF By and neutral to positive IMF Bz. Efforts on both the magnetospheric and thermospheric ends of the problem reveal that significant energy is entering the thermosphere on the dayside, hence the impetus to have a joint GEM-CEDAR session. This workshop aims to investigate both magnetospheric and thermospheric implications of this energy source during quiet and disturbed intervals.

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