

## **2011 Workshop: Dayside FED**

Long title

CEDAR-GEM Dayside Field Aligned Current and Energy Deposition (FED)

CEDAR-GEM

Conveners

Geoff Crowley

Delores Knipp

Stefan Eriksson

Herb Carlson

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  $B_Z > 0$  and large  $B_Y$  • 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  $B_y$  and neutral to positive IMF  $B_z$ . 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.

[View PDF](#)