

2011 Workshop: Dayside FED

Long title

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

CEDAR-GEM

Conveners

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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 $B_Z > 0$ 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.

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