2014 Workshop: Daytime Dynamo Mid Lat Electrodynamics

Long title
Exploring the Daytime Dynamo -- A new look at the Sq Current System and Mid- and Low-latitude Daytime Electrodynamics
Conveners
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Description

This workshop invites a fresh look at the daytime dynamo or Sq current system and its related electrodynamics. Whereas it is generally accepted that atmospheric tides account for the forcing through which the Sq dynamo currents are set up, recent rocket measurements in the mid-latitude, daytime ionosphere of winds, currents, and DC electric fields, as well as ground-based measurements shed new light on this essential global phenomenon and its variability, even during quiet times. Further, advances in modeling, the increased prevalence of ground based magnetometers, and expected new observations from NASA's recently selected ICON mission, suggest that future research activities will be well positioned to advance our understanding of the daytime electrodynamics of the lower ionosphere at mid and low latitudes. This workshop sets the stage for a critical evaluation of what we know and don't know about the dynamo current system, and to articulate what measurements are most urgently needed to advance our understanding of this global phenomenon. We encourage modelers, theorists, and experimentalists to attend and discuss the current status of the daytime dynamo, in light of the latest rocket and ground-based observations as well as modeling results. The theme of the workshop is to challenge our existing assumptions/perceptions regarding the electrodynamics of the lower ionosphere during the daytime.

Justification

This workshop is at the core of our efforts to understand planetary electrodynamics and ion/neutral interactions, articulated as main focus areas of the Decadal Survey. Its basis is that of the first CEDAR Strategic Thrust to undertake a systems

perspective of Geospace as well as to understand space-atmosphere interactions.

It also promotes CEDAR Strategic Thrust #4: Develop Observations and Instrumentation Strategies for Geospace System Studies.

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