2015 Workshop: Energy input and partitioning

Long title
Energy input and partitioning in the ionosphere-thermosphere system
Conveners
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Description

The workshop welcomes short, focused presentations, typically comprised of 5 slices or so of the following topics related to energy inputs in the upper thermosphere: solar cycle, seasonal and diurnal variations; altitude and latitude dependence of energy deposition; relative roles of energy input into IT from above and from below; the role of pre-conditioning for IT dynamics; and the major factors affecting IT energetics. Presentations relating to both observations and modeling are welcome.

Agenda

1. Yanshi Huang: Poynting flux and particle data about Aug. 6, 2011 storm

2. Aaron Ridley: GITM high-resolution simulations for the response of the thermosphere to substorms

3. Donald Hampton: technique for electron aurora energy input mapping from ground-based optical instruments

4. Cheng Sheng: Poynting flux and soft particle precipitation in the dayside polar cap boundary regions, such as cusp

5. Joshua Semeter: Multi-scale nature of substorm energy dissipation

6. Wenbin Wang Alan Burns, Jing Liu, Guangming Chen and Jiyao Xu: the Effects of CIR-associated Geomagnetic Storms on the Upper Atmosphere

7. Cissi Lin: NO local-time variation from both observation and model

8. Jing Liu: implement the anomalous heating sources in the TIEGCM

9. Olga Verkhoglyadova: Ionosphere-Thermosphere Coupling and Energy Partitioning During Two HSS Events

10. Delores Knipp: Assigning uncertainty to Poynting flux measurements (Skype)

Justification

Energy exchange is the key to understanding the dynamics of the ionosphere-thermosphere (IT) system. The main purpose of this session is to initiate a broad discussion on energy input into IT and energy partitioning within IT. The topics to be discussed include new methods of evaluating the main energy sources and sinks in the IT system based on observations, empirical and numerical modeling. The workshop directly addresses CEDAR Strategic Thrust #1 (systems perspective to geospace). It also addresses Science Goal #2 of the National Research Council's Decadal Survey report for Solar and Space Physics: determine the dynamics and coupling of Earth's magnetosphere, ionosphere, and atmosphere and their response to solar and terrestrial inputs.

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