2020 Workshop: Multi scale IT System Dynamics

Long title
Grand Challenge: Multi scale IT System Dynamics
Grand Challenge
Conveners
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Aaron Ridley
Description

Determining the effects of mass, momentum and energy exchange across different spatial and temporal scales is important in the I-T system but a critical challenge since observational and modeling methodologies for bridging different scales do not presently exist. We discuss a wide range of coupling processes in the I-T system from global to local processes. We also discuss progresses of observation and modeling of the challenge events selected in year-2. Relevant topics include (but are not limited to) (1) density structures and temperature gradients (polar cap, cusp, plume, trough, irregularities); (2) convection (flow channels, SAPS) and FAC; (3) energy transfer and deposition by precipitation, conductivity, aurora, and heating; (4) inter-hemispheric processes and (5) coupling and feedback into the magnetosphere.

Agenda

June 24 Wednesday, 9:30-11:30 am MDT

10-min talks

- **Yue Deng** (University of Texas Arlington) GITM multi-scale simulation
- **Andres Spicher** (University of Oslo) Cusp rocket experiment of density structures
- **Xian Lu** (Clemson University) Simulation of Ionosphere-Thermosphere system responses to the St. Patrick's Day Storm using observed aurora and electric fields
- **Leslie Lamarche** (SRI) Polar cap patch instability observations and modeling

- **Doga Ozturk** (JPL) GITM simulations with High-latitude Input for Meso-scale Electrodynamics (HIME)

5-min talks

- **Yu Hong** (University of Texas Arlington) Hemispheric asymmetries and their effects on Earth’s high-latitude I-T system with GITM
- **Dong Lin** (NCAR) Diffuse Auroral Precipitation Effects on Ionospheric Convection
- **William Bristow** (University of Alaska Fairbanks) High-resolution SuperDARN observations

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