2019 Workshop: GEM CEDAR Global Modeling Challenge

Long title
GEM-CEDAR Modeling Challenge: TEC and Scintillation
Conveners
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Description

To date the ionosphere/thermosphere model validation efforts carried out under the umbrella of the "International Forum for Space Weather Capabilities Assessment" has made much progress. Based on this success our efforts for this year will focus on ionospheric disturbances including their observations and modeling efforts.

Specifically, our focus for this year will be TEC disturbances and Scintillation Studies.

Topics for presentations and discussions:

- Observations and source analysis of Traveling Ionospheric Disturbances during geomagnetic and quiet periods: Olusegun Jonah, MIT Haystack Observatory
- GPS TEC and Scintillations: Anthea Coster, MIT Haystack Observatory
- Scintillation Effects on Satellite Navigation : Seebany Datta-Barua, Illinois Institute of Technology
- Statistical analysis of the high latitude scintillation using CHAIN data during the 24th solar cycle: Anton Kashcheyev, Univ. of New Brunswick
- Mid-Latitude Irregularities: Joe Huba, Syntek Technologies
- Modeling ESF and bubbles with SAMI3: Kate Zawdie, NRL
- Discussions:
  - Data collections
  - Preparation of the data for model-data comparison
  - Future plans and action items

Justification

Ionosphere/thermosphere and geospace research relies on numerical simulations for context, understanding, and prediction. In recognition that model validation is a challenging research task requiring collaborative use of data and models across physical and spatial regimes, the CEDAR and GEM communities initiated community wide model validation activities: GEM GGCM (in 2008) and CEDAR Electrodynamics Thermosphere Ionosphere (in 2009) Model Validation Challenges. The GEM-CEDAR Model Validation Challenge, built upon the GEM GGCM and CEDAR ETI Challenges, was initiated during a previous Joint GEM-CEDAR Workshop in 2011. The GEM-CEDAR Challenge focuses on physical parameters, spatial domains, and aspects of model validation of interest to both communities. This session focuses on validation of global ionospheric parameters, particularly TEC and Scintillation.

This workshop will address CEDAR Strategic Thrust #5 as the workshop will facilitate collaboration among modelers, data providers and research communities in order to address the differences between various modeling approaches, to track model improvements over time, and to provide feedback for further model improvement.

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