2016 Workshop: CEDAR campaigns

Long title
CEDAR science enabled by space weather observational campaigns
CEDAR-GEM
Conveners
Shunrong Zhang
Shasha Zou
Description

Both CMEs and recurrent magnetic activity can trigger geospace disturbances. Over the last a few years, campaigns associated with both types of disturbances were conducted, e.g., (1) March 17-25, 2015 St. Patrick's Day campaign was for a superstorm associated with the overlapping effect of CME and solar wind high speed streams (HSS), and the campaigns in (2) March 31-April 4, 2014, (3) September 24-29, 2014, and more recently (4) March 13-18, 2016 are all periods of HSS with their origins in coronal holes. These data have been available in Madrigal/CEDAR database. We welcome short presentations associated with these (but not limited to) campaigns that can stimulate discussions on the MITM coupling processes of various spatial and temporal scales. Both ground-based radio and optical remote sensing and coincident satellite observations are solicited. Simulation and data assimilation that help understand in depth the mass and energetic exchange processes during those space weather disturbances are also welcome.

Agenda

(Sweeney B, 13:30-15:30, Wed June 22)

1. Shunrong Zhang (MIT) Intro: recent observational campaigns

2. Yongliang Zhang (JHU) GUVI and SSUSI Observations During the 2014-2016 Ground-based Campaigns

3+4. Rob Gillies + Jun Liang (U Calgary) Initial operations of the RISR-C ISR

5. Shasha Zou (U Michigan) PFISR, DMSP, and GPS TEC observations during the March 17, 2015 storm

6. Tom Heine (U Michigan) The March 17, 2015 storm

7. Shikha Raizada (Arecibo) Arecibo observations during the March 17, 2015 storm

8. Anthea Coster (MIT) GPS TEC for the March 2016 CIR event

9. Asti Bhatt (SRI) All-sky image observations

10. Marc Hairston (UT Dallas) Ionospheric observation from DMSP of the St. Patrick Day storm of March 2015 and the HSS event of 13-18 March 2016

11. Burcu Kosar (GSFC) Comparison of Citizen Science Aurora Data and SSUSI Observations for the March 17 2015 Storm

12. Gareth Perry (U Calgary) e-POP

13. Bill Rideout (MIT) DMSP data availability in Madrigal

Justification

Magnetosphere-Ionosphere-Thermosphere-Mesosphere (MITM) coupling processes are some of the main themes of the CEDAR science. Observations from ground-based and space-based instruments are essential for advancing CEDAR sciences and making new discoveries. Historically, observational campaigns were the main mode to collect key parameters from multiple instruments at locations of various geophysical importance during specific geophysical events. The multivariate-system nature of our research requires such simultaneous and carefully coordinated sets of observations spanning the varied aspects and regions of the system utilizing both ground-based sensor networks and satellites. This campaign tradition is continued in recent years, focusing on space weather, with a significant worldwide extension, but the NSF Geospace facilities have been still playing central roles. The goal of this workshop is to address the stormtime coupled SAIR (Space Atmosphere Interaction Region), the target area of the CEDAR science using some of the recent observational campaigns. The proposed workshop addresses the CEDAR Strategic Thrust #2: Explore Exchange Processes at Interfaces and Boundaries.

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