2022 Workshop: Polar-cap science

Long title
GEM-CEDAR Joint Workshop - Polar-cap science
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Description

A consensus has emerged from several different decadal survey white paper workshops organized by members of the CEDAR and GEM communities that many questions regarding the coupled magnetosphere-ionosphere-thermosphere system in the polar-caps remain unsolved and will require concerted cross-disciplinary efforts in observation (ground- and space-based) and modeling to achieve science closure. Upcoming spacecraft missions TRACERS and GDC both have a focus on the high-latitude and polar-cap regions, and are two of many examples of a strong investment that has been placed in studying the compelling nature of the polar-cap regions. To foster scientific collaborations between the CEDAR and GEM communities, we invite submissions on the topic of CEDAR and GEM polar-cap science. This will be a joint workshop session to facilitate collaboration with the GEM Focus Group session. The goal is to carry-out the CEDAR and GEM session simultaneously via Webex/Zoom, etc… Both CEDAR and GEM Workshop attendees will be able to present their research.

Agenda

*Note the GEM portion of the session will kick-off at 15:35 CDT, which is partway through the CEDAR coffee break scheduled 15:30 - 16:00 CDT. We hope to have access to the Onyx Ballroom at CEDAR immediately at 15:30 CDT. CDT - 5 hours = HST.

15:35 CDT Hyomin Kim (GEM), NJIT, *Investigation of Deep Polar Cap Dynamics Using an Autonomous Instrument Network*

15:47 CDT Bea Gallardo-Lacourt (GEM), NASA GSFC, *Identifying the polar cap boundary location using redline imaging data and DMSP*

15:59 CDT Nithin Sivadas (GEM), NASA GSFC, *Uncertainty in solar wind forcing and its relation to saturation of geomagnetic indices*

16:11 CDT Asti Bhatt (CEDAR), SRI, *Wave activity observed at RISR-N during Polar summer*

16:23 CDT David Themens (CEDAR), University of Birmingham, *Simplified solar energetic proton ionization and polar cap absorption for the Empirical and Assimilation Canadian High Arctic Ionospheric Models (E-/A-CHAIM)*

16:35 CDT Leslie Lamarche (CEDAR), SRI, *The Modified Apex-Rotated Pole (MARP) Coordinate System*

16:47 CDT Diana Loucks (CEDAR), US Military Academy, *Space weather and high-latitude effects: an Academy perspective*

16:59 CDT Michael Negale (CEDAR), Utah State, *Using ionospheric data assimilations to model polar cap patch airglow intensities*

17:11 CDT Alanah Cardenas-O'Toole (CEDAR), University of Michigan, *Statistical and event analysis of phase and amplitude scintillations associated with polar cap patches*

17:23 CDT Lindsay Goodwin (CEDAR), NJIT/UCAR, *Utilizing Lomb-Scargle Periodograms and Advanced Radar Techniques to Monitor Polar Cap Density Structures*

Link to the sessions talks:
https://drive.google.com/drive/folders/1IKuKK_pkGLUPk3HXcoanQ__ZEANLN943?usp=sharing
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Zoom link: https://unh.zoom.us/j/94191713156

Justification

Both the CEDAR and GEM communities have active projects related to polar-cap science. It is important that community members participating in this research have a venue to disseminate their research findings and foster new collaborations. This is the motivation for organizing a joint session between the two communities.

Related to CEDAR Science Thrusts:
Encourage and undertake a systems perspective of geospace
Fuse the knowledge base across disciplines in the geosciences
Workshop format
Short Presentations
Keywords
CEDAR-GEM, polar-cap, magnetosphere-ionosphere-thermosphere
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