2020 Workshop: Cold Plasma

Long title
Cold Plasma Populations Throughout the Geospace System
Conveners
Roger Varney
Gian Luca Delzanno
Description

This workshop will establish potential areas of collaboration between the CEDAR community and the new GEM focus group on "The impact of the cold plasma on magnetospheric physics." A wide variety of cold plasma populations impact magnetospheric dynamics, and most of these populations are originally of ionospheric origin. These populations include (1) plasmaspheric ions (including the plume), (2) plasmaspheric electrons (including the plume), (3) cloak ions, (4) oxygen torus, (5) cloak electrons, (6) outflowing cold electrons, (7) outflowing cold ions and (8) charge-exchange-byproduct cold protons (CHEX protons). Given that most of these populations originate in the ionosphere, understanding their evolution requires collaboration with the ionosphere and thermosphere community.

Agenda

11:00-11:10: Introduction (Roger Varney)

11:10-12:10: Distributed Tutorial

Our panel of experts for the distributed tutorial will be:

1. Rick Chappell: Ways the ionosphere populates the magnetosphere

2. Alex Glocer: Ion Outflow and Global Modeling

3. Phil Erickson: The Geospace Plume

4. Shasha Zou: Polar Cap Patches

5. Brian Walsh: Cold Plasma Impacts on Reconnection

6. Jacob Bortnik: Cold Plasma Impacts on Plasma Waves

Contributed Talks:

12:10-12:20 Jonathan Krall: Does ring current heating generate the observed O+ shell?

12:20-12:30 Jiaen Ren: Occurrence rate of ion upflow observed by the Poker Flat Incoherent Scatter Radar (PFISR)

Group Discussion and Focus Group Future Planning

12:30-13:00 Discussion led by Gian Luca Delzanno

Summary

This workshop will consist of three sections: 1) A distributed tutorial on impacts of cold plasma populations by a panel of experts, 2) Contributed talks, and 3) Group discussion about future directions for CEDAR-GEM collaborations related to the new GEM Cold Plasma focus group.

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