

2023 Workshop: MITM Energetic Particle Interaction

Long title

Neutral/middle atmosphere, energetic particles, and magnetosphere interactions

Conveners

Katrina Bossert

Lynn Harvey

Nithin Sivadas

katrina.bossert@asu.edu

Description

This session will investigate coupling of the magnetosphere with regions of the middle atmosphere including the stratosphere, mesosphere, lower thermosphere, and D-region ionosphere. In these regions, chemistry and dynamics play a significant role, and the effects of energetic particle precipitation are still not fully understood. We encourage those who may not typically sit in on magnetosphere sessions to participate as we explore topics such as tides, gravity waves, and the polar vortex, and the implications that these dynamical processes may play in the interaction with energetic particle precipitation. Talks ranging from observations and observational methods to modeling and theory are welcome. We also encourage talks that investigate interhemispheric asymmetry as it may relate to both the interaction of forcing from above and from below. Topics can include energetic particles, auroral observations and emissions, atmospheric chemistry resulting from energetic particle precipitation, and dynamics that play a role in transport and chemistry due to energetic particle precipitation.

Justification

The full effects of energetic particles in the middle atmosphere are still not fully accounted for, and the role that dynamics on both large and small-scales play is not entirely understood. Furthermore, there are interhemispheric asymmetries in both the magnetosphere and neutral atmosphere due to different coupling processes. This session would also seek to investigate whether these individual differences also play a role in coupling between the magnetosphere and middle atmosphere.

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

energetic particles, interhemispheric asymmetry, MITM coupling

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