2023 Workshop: MITM Energetic Particle Interaction

Long title
Neutral/middle atmosphere, energetic particles, and magnetosphere interactions
Conveners
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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.

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Workshop format
Short Presentations
Keywords
energetic particles, interhemispheric asymmetry, MITM coupling
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