

The History and the Opportunity of Geocorona Research

The physics of light gas escape from planetary atmospheres has been a focus of theoretical aeronomy since the inception of the discipline. Dynamics in the transition from a gravitationally bound atmosphere to interplanetary space dictates the chemical evolution and sustenance of a terrestrial atmosphere. Today, that fundamental intrigue is enhanced by Space Weather challenges, because the source of most matter in the magnetosphere is the geocorona. Renewed interest is driven by efforts to understand the source and transport of cold plasma that insulates reconnection response, and to understand the formation and evolution of total electron content (TEC) irregularities in the topside ionosphere – as two examples.

In this discussion, the theoretical and observational status of our modern description of the exosphere establishes a context for new observational opportunities. Specific questions surround the transport of H during storms, the consequences of ion-neutral charge exchange above the exobase and climatological winds near the exobase. Ground-based and space-based observational techniques that are now emerging are described, including the deployment of miniature ion-neutral mass spectrometers, imaging Fabry-Perot interferometers, and monochromatic imager initiatives. In 2021, observational geocoronal research is an exciting research path.



Thursday, March 25th

4:00-5:00 p.m.

See website for Zoom information

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