2019 Workshop: Light Atoms Across Atmospheric Regions

Long title
Light Atoms Across Atmospheric Regions
Conveners
Ed Mierkiewicz
S. Nossal
Description

Light atoms play key roles in determining the dynamics and composition of the middle and upper atmosphere, as well as for the ionosphere and plasmasphere through charge exchange reactions. Neutral hydrogen is a by-product of methane and water vapor below, two principal gases involved in the radiative balance of the Earth's atmosphere. We invite presentations relating to modeling and observational studies of light atoms (H, O, He) in and/or across any of the atmospheric regions. There will also be time for informal discussion.

Agenda

Mierkiewicz Intro to Session

McArthur "Mack" Jones - On the role of mesospheric and lower thermospheric oxygen chemistry in regulating the thermosphere and ionosphere semiannual oscillations.

Pratik Joshi - Quantification of the vertical transport and escape of atomic hydrogen in the terrestrial upper atmosphere

Gonzalo Cucho-Padin -Time-dependent Response of the Terrestrial Exosphere to a Geomagnetic Storm

Joe McInerney - Looking at H as part of WACCM-X long timeline simulations

Andrea Hughes- Phenomenology of Proton Aurora at Mars as Observed by MAVEN/IUVS

Linda Hunt- SABER H data review and update (pdf)

Edwin Mierkiewicz -Observed seasonal trends in Hα intensity and line width: Signatures of thermospheric-exospheric coupling.

Susan Nossal- Long-term changes and trends.

Justification

Knowledge of light atoms is important to understanding processes shaping the neutral atmosphere and the ionosphere and plasmasphere. This workshop contributes to the following CEDAR plan strategic thrusts: Strategic Thrust #1:Encourage and Undertake a Systems Perspective to Geospace Strategic Thrust #2: Explore Exchange Processes at Boundaries and Transitions Strategic Thrust #3: Explore Processes Related to Geospace Evolution Strategic Thrust #4: Develop Observational and Instrumentation Strategies for Geospace System Studies

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