2014 Workshop: Synergies with EXOCUBE density data

Long title
Synergistic investigations using in situ neutral and ion composition data from the NSF EXOCUBE mission
Conveners
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Description

Improved understanding of the coupled thermosphere, ionosphere, exosphere, and plasmasphere demands simultaneous empirical quantification of constituent species' densities. This long-overdue requirement will finally be met by the NSF EXOCUBE small satellite mission. Scheduled for launch in November of 2014 into an elliptical orbit ranging in altitude from 450-675 km, EXOCUBE is anticipated to acquire, via gated time-of-flight spectrometry at one second time resolution, coincident measurements of both neutral and ionized atomic oxygen, helium, and hydrogen throughout the topside region. This workshop is aimed at exploring collaborative and synergistic investigations using the anticipated density data, whether observational or modeling (physics-based or assimilative), for unprecedented characterization of global atmospheric chemistry and dynamics under both quiet and storm-time conditions.

Justification

This workshop directly addresses several strategic thrusts identified in the CEDAR Strategic Plan. Its focus is on promoting collaborative, synergistic investigations of the upper thermosphere and exosphere that incorporate the unprecedented density and composition measurements that are anticipated by the upcoming NSF EXOCUBE small satellite mission. Thus, it is directly relevant to CEDAR strategic thrust #4 (to develop observational and instrumentation strategies for geospace system studies) and thrust #2 (to explore exchange processes at boundaries and transitions).

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