2025 Workshop: CEDAR Science in the Next Decade

Long title
The Science of Ionospheres, Thermospheres and Mesospheres in the Next Decade
Conveners
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Description

In late 2024, the National Academies of Science, Engineering, and Medicine released the latest Decadal Survey in Solar and Space Physics, which presents a strategic vision and comprehensive strategy to guide Heliophysics research in the coming decade. This CEDAR workshop session will focus on the findings of the discipline panel on the Physics of Ionospheres, Thermospheres, and Mesospheres (ITM), whose own report is included in the Decadal Survey as Appendix D. The ITM panel report builds upon and complements the current strategic plan for CEDAR Science, "CEDAR: The New Dimension", which was released in 2011. The session with begin with a brief overview of the ITM science goals identified by the panel as high priority for future investigation and motivate the need for increased research coordination among the CEDAR community as a means to maximize scientific progress toward these goals. The session will end with an open discussion, led by the ITM panel co-chairs, on the future of CEDAR science, particularly with regard to the strategic deployment of heterogeneous sensor networks and their utility for advancing physics-based models of multi-scale phenomena.

Justification

Given the recent release of the latest Decadal Survey in Heliophysics, a presentation and discussion on the findings reported by the discipline panel on the Physics of Ionospheres, Thermospheres, and Mesospheres (ITM) is timely and valuable for the CEDAR community. This session will be led by the co-chairs of the ITM panel, who will summarize the decadal survey's strategic vision and recommendations in the context of the current CEDAR strategic plan. The session will also include a guided discussion among the audience about specific research implementation strategies

identified in the report. In particular, the ITM report indicates that increased coordination among experimentalists, modelers, and theorists is needed to make progress on high priority science goals, and this session would serve as a first step in that direction.

Related to CEDAR Science Thrusts:
Encourage and undertake a systems perspective of geospace
Explore exchange processes at boundaries and transitions in geospace
Explore processes related to geospace evolution
Develop observational and instrumentation strategies for geospace system studies
Fuse the knowledge base across disciplines in the geosciences
Manage, mine, and manipulate geoscience/geospace data and models
Workshop format
Short Presentations
Panel Discussion
Keywords
Heliophysics Decadal Survey, CEDAR strategic plan
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