2025 Workshop: Multi-decadal Variation

Long title
Multi-decadal Variation
CEDAR Regular Workshop
Conveners
Susan Nossal
Julio Urbina
Lauren Ashworth
Joe McInerney
nossal@physics.wisc.edu
Description

There are many causes of long-term variation in the Earth's atmosphere, some of which have profound impacts on the whole Earth system for decades and centuries. The sun is a major source of long-term variation in the upper atmosphere. Knowledge of processes at different altitudes and coupling between atmosphere regions can enhance understanding of the complex whole atmosphere system. We welcome discussion of all types of long term variation. Additionally, we welcome participation from scientists studying the middle and upper atmospheric, as well as the troposphere and other parts of the Earth system. One of the goals of the workshop is to discuss ways that we might further collaborate to advance knowledge of the whole atmosphere system. Additionally, we welcome discussion about strategies for education and outreach related to multi-decadal variation. We plan to hold this session using a hybrid format. For more information and to contribute a presentation, please contact one of the workshop organizers.

Agenda

Welcome!

This is the zoom link for online participation:
https://uwmadison.zoom.us/j/91359215812 .

The times listed below are approximate.

10:00 - 10:10 AM Welcome and Introduction

10:10 - 10:30 AM Matthew Giampoala, AGU Vice President of Publications (Invited), AGU Support of Assessment Science

10:30 - 10:45 AM Jia Yue, HTHH SPARC assessment report: Chapter 6: Upper stratosphere to thermosphere effects and H2O transport in the deep Brewer-Dobson branch

10:45 – 11:05 Wandi Yu (Invited), Multi-decadal Variation of Mesospheric Water Vapor

11:05 - 11:25 AM Joe McInerney, Multi-decadal Changes in the Upper Atmosphere from WACCM-X Simulations

11:25 - 11:40 AM Susan Nossal, Multi-decadal Variation of Thermospheric + Exospheric Hydrogen

11:40 - noon Discussion and Wrap-Up

Justification

Long term variation impacts all regions of the Earth's system from the surface through the magnetosphere. Understanding underlying physical processes of multi-decadal variations can also help explain variability on shorter timescales. Integrating knowledge from scientists studying different regions and components of the Earth's system enhances our overall understanding of its complexity and response to multi-decadal variation.

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
Fuse the knowledge base across disciplines in the geosciences
Workshop format
Short Presentations
Other
Keywords
Multi-decadal Variation, Long-Term Trends, Natural Variability
View PDF