



# ATOC COLLOQUIUM

## Welcome!

Please join us for the next ATOC Colloquium on **Friday, February 4** from **11:00 AM–12:00 PM**, which will be held in **SEEC S228 and simulcast over Zoom**. This week's colloquium features **Mikell Warms (ATOC)**, **Megan Thompson-Munson (ATOC)**, and **Chris Wyburn-Powell (ATOC/INSTAAR)**. Please join us for coffee beginning at 10:45 AM and stay for lunch from Illegal Pete's afterwards. **In CU Buildings, please wear a mask if not actively eating/drinking.**

### **Mikell Warms ▶ Distribution of Snowfall in the Payette Mountains based on a High-Resolution Model: Implications for Cloud-Seeding**

To evaluate the efficacy of cloud seeding for a particular mountain range, it is necessary to consider the unique characteristics of that region. In this study, snowfall events were identified in the 2016-2017 winter season in the Payette Mountains of western Idaho using a 900-m resolution WRF model reanalysis that provides hourly data between October and April. I analyze the synoptic setting for each snow event--the local and background dynamics, thermodynamics, and cloud microphysical processes (particularly supercooled liquid water content)--and link them to (1) the variability of snowfall spatially and (2) the potential impacts on cloud-seeding operations throughout the winter season.

### **Megan Thompson-Munson ▶ Observed and modeled firn properties on the Greenland Ice Sheet**

The Greenland Ice Sheet's porous firn layer stores meltwater generated at the surface. Since firn can buffer the ice sheet's contribution to sea level rise, it's important to understand the processes that control the amount of air-filled pore space within the firn. Here we use a large dataset of in-situ observations along with two firn models driven by atmospheric reanalysis to investigate key firn properties such as firn air content and density. We find that the firn models perform very well in Greenland and we can use them to simulate firn properties across the entire ice sheet. This work sets the foundation for using models to predict how Greenland's firn may evolve in a warming climate.

### **Chris Wyburn-Powell ▶ Understanding Simulated and Observed Internal Variability in Arctic Sea Ice**

Internal variability has likely strengthened the rapid decline of Arctic sea ice over the last few decades, and is the dominant cause of medium-term projection uncertainty. Here I show that CMIP5 large ensembles are broadly consistent with observational interannual variability, but with high regional and temporal heterogeneity. I will also present an argument for separately constraining the lower-frequency part of internal variability.

**Zoom:** <https://cuboulder.zoom.us/j/94830648475>

**Passcode:** ATOC

## About the ATOC Colloquium

The Department of Atmospheric and Oceanic Sciences (ATOC) Colloquium is typically held **every other Friday** from **11:00 AM–12:00 PM**. Colloquia alternate between the following formats: (A) Full-length talk by a faculty member or invited speaker, (B) Three conference-length talks by graduate students or postdocs. If you would like to nominate a speaker (including self), please email the ATOC Colloquium Committee Chair, Prof. Jan Lenaerts ([jan.lenaerts@colorado.edu](mailto:jan.lenaerts@colorado.edu)). Please visit [www.colorado.edu/atoc/colloquium](http://www.colorado.edu/atoc/colloquium) for further details.