Welcome!

Please join us for the next ATOC Colloquium on **Friday, October 27** from **11:00 AM–12:00 PM,** which will be held in **SEEC S228 and simulcast over Zoom**. This week's colloquium features ATOC graduate students **Emily Wein, Giovanni Seijo, and Brandon Molina.**

Emily Wein ▸ Developing a Water Vapor Spectrometer for Measurements of Atmospheric Water Vapor and Future Applications of this Technology

Water vapor is an immensely important atmospheric constituent but difficult to measure within the atmosphere due to its highly varied sources, sinks and transport over space and time. In light of this, a newly developed water vapor sensor based on laser spectroscopy is presented here. It combines recent developments in microcontroller technology and low power laser diodes into an instrument that does not suffer in reduced sensitivity or accuracy while being portable and is low cost.

Giovanni Seijo ▸ A CESM/MOM6 Regional Configuration of the Caribbean Sea

The Modular Ocean Model 6 (MOM6) is the new ocean component for the Community Earth System Model (CESM) which allows for regional ocean configurations and opens the door to new avenues of research within the CESM framework. For example, we have developed a 1/12 degree configuration of the Caribbean Sea to study present and future drivers of salinity in the Caribbean Sea. In this presentation, I will first give a quick overview on creating your own regional configuration. The second part will show preliminary results from our Caribbean Sea configuration.

Brandon Molina ▸ Changes in the Mean State of the Tropical Pacific can Influence the Oscillatory Behavior of El Niño-Southern Oscillation (ENSO)

ENSO — the recurring large-scale climate phenomenon that originates in the tropical Pacific — is expected to change due to global warming. Model predictions are starting to converge regarding a future increase in the overall levels of variability; however, very little is known regarding changes in the temporal evolution of ENSO. In this talk, I present some results from my first research project of my PhD in which I address this issue by comparing the consistency of the sea-surface temperature (SST) phase transitions and the coupling between the thermocline depth and SSTs from simulations performed with CESM1 of colder/warmer climates from today. This way, I can investigate how changes in the mean state affect the periodicity of ENSO through the dynamics of the delayed thermocline feedback. I find that the thermocline-SST coupling increases under warmer climate conditions and decreases under colder conditions. Our results suggest that as ENSO dynamics becomes more oscillatory, the predictability of El Niño and La Niña events will increase, offering an avenue for mitigating its increasing climatic impacts.

Zoom: https://cuboulder.zoom.us/j/98582201579 **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. Andrew Winters (andrew.c.winters@colorado.edu). Please visit www.colorado.edu/atoc/colloquium for further details.