ATOC COLLOQUIUM

Welcome!

Please join us for the next ATOC Colloquium on **Friday, October 15** from **11:00 AM–12:00 PM,** which will be held in **SEEC S228 and simulcast over Zoom**.. This week's colloquium features **Eric Keenan (ATOC), Nicola Maher (ATOC/CIRES),** and **Danni Du (ATOC)**. Please join us for coffee/conversation 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.**

Eric Keenan ▸ Detailed snow modeling reveals dynamic drivers of Antarctic mass loss

The Antarctic ice sheet is currently undergoing mass loss and therefore contributing to sea level rise. Identifying the dynamic drivers of contemporary mass change is critical to contextualizing future projections. Here we present results from a next generation snow model that can be used to quantify local snow accumulation. This modeled information, once combined with satellite altimetry measurements, can be used to directly attribute local mass change to surface snow processes or dynamic ice thinning.

Nicola Maher ▸ Modulation of ENSO teleconnections over North America by Pacific decadal variability

In this study we investigate whether Pacific Decadal Variability (PDV) can enhance or diminish ENSO temperature and precipitation teleconnections over North America using five single model initial-condition large ensembles. We find that a positive PDV enhances El Niño temperature and precipitation teleconnections and diminishes La Niña teleconnections. A negative PDV has the opposite effect. The modulation of ENSO by the PDV occurs due to differences in the location and strength of the Aleutian low and zonal-mean zonal-wind anomalies during the same type of ENSO event under different phases of the PDV. We additionally find that this modulation is a simple combination of the effects of the PDV and ENSO over North America.

Danni Du ▸ Examination of the impact of ocean subsurface data assimilation on MJO forecasts over the Maritime Continent

In this study we investigate the MJO propagation over the Maritime Continent in ECMWF Subseasonal forecasts with observing system experiments. We find that the subsurface ocean initialization with data assimilation, though having an impact on the forecast ocean mean state, does not help improve the relatively low MJO forecast skill over the Maritime Continent. One possible explanation would be that the atmospheric biases dominate the forecast error growth. Moist Static Energy Budget Analysis is applied to explore the atmospheric biases, and a significant underestimation in the meridional moisture advection is found in the model forecasts. We further analyze the contributors to such an underestimation, and find the intraseasonal meridional wind biases in the model largely accounted for it. This finding suggests that the circulation bias is still one of the major sources of the MJO prediction error, and should be a target of improvement in the subseasonal forecast models.

Zoom: https://cuboulder.zoom.us/j/98416842411   **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). Please visit www.colorado.edu/atoc/colloquium for further details.