Welcome!

Please join us for the ATOC Colloquium on **Friday, September 20** from **11:00am–Noon** in *****SEEC S372A*** instead of the regular room**. This week's colloquium features ATOC graduate students **Matt Cann, Matt Gentry and Elina Valkonen**. Come early for coffee starting at 10:45am, and lunch will be served after!

Matt Cann ▸ The Role of Moisture Pathways on Snowfall Amount and Distribution in the Southwest Central Mountains of Idaho

We investigate how moist air navigates over or around mountain barriers as it travels from the Pacific Ocean to the southwest Central Mountains during 24 precipitating storms. Airflow blocked by the Sierra Nevada, directed northward along the Central Valley, and through a mountain pass in the northeastern corner of the Central Valley is identified as an important pathway to deliver moisture to the southwest Central Mountains. Air masses associated with this pathway were observed to have stronger horizontal moisture flux, produce deeper cloud systems, and account for more than two-thirds of the snowfall during the 7 January to 17 March 2017 observing period.

Matt Gentry ▸ Considering the Influence of Clouds on Ocean Carbon Uptake

The Southern Ocean is an important region for the exchange of carbon between the atmosphere and the ocean. However, because observations in this notoriously cold, cloudy, stormy region are sparse, the processes contributing to its role in the global carbon cycle are poorly constrained. The net uptake of carbon dioxide over the entire Southern Ocean is estimated at 0.8 +/- 0.55 Pg/Yr. We quantify the differences in this uptake caused by observation-motivated changes to the global spatial distribution of solar radiation resulting from cloud changes in a numerical climate simulation.

Elina Valkonen ▸ A Novel Intensity Metric for Arctic Cyclones – A Comparison with the more Traditional Metrics

The rapid decline of Arctic sea-ice can have strong impacts on the air-sea-ice interactions over the Arctic region. Extratropical cyclones play an integral part in the Arctic climate system, and therefore it is important to understand how cyclones interact with the surface below and how these interactions could change in the warming climate. In this presentation a novel intensity metric is presented, Accumulated Cyclone Energy (ACE). ACE metric has traditionally been used to define tropical cyclone intensities, but its connection to the maximum kinetic energy of the cyclone could make it a valuable tool in assessing Arctic cyclones and their impacts on the ocean surface. We compared two Arctic cyclone climatologies, based on different reanalyses, ERA-Interim and CFSR, for 1979–2015.

About the ATOC Colloquium

The Department of Atmospheric and Oceanic Sciences Colloquium is held **every other Friday** from **11:00 AM-Noon**. Colloquia will alternate between the following formats: (A) Full-length talk by a faculty member or invited speaker, (B) Three conference-length talks by graduate students. 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 and the upcoming schedule.