Welcome!

Please join us for the ATOC colloquium on **November 16, 2018** from **11:00am-noon** featuring ATOC graduate students **Riley Brady**, **Guo Lin** and visiting scholar **Maaike Izeboud**. Note that this colloquium will be in ****SEEL 303**** instead of the regular room. Come early for coffee starting at 10:45am, and lunch will be served after!

Riley Brady ▸ On the role of climate modes in modulating the air-sea CO_2 fluxes in Eastern Boundary Upwelling Systems

The air-sea CO_2 fluxes in Eastern Boundary Upwelling Systems (EBUS) vary strongly in time and space with some of the highest flux densities globally. The processes controlling this variability have not yet been investigated consistently across all four major EBUS, i.e. the California (CalCS), Humboldt (HumCS), Canary (CanCS), and Benguela (BenCS) Current Systems. In this study, we diagnose the physical and biological mechanisms that contribute to historical (1920–2015) CO_2 flux variability in these regions using simulation results from the Community Earth System Model Large Ensemble (CESM-LENS). A better understanding of the sensitivity of EBUS CO_2 fluxes to modes of climate variability may improve our ability to predict the ocean–atmosphere carbon cycle in EBUS, which are particularly susceptible to ocean acidification.

Guo Lin ▸ Interactions Between a Nocturnal MCS and the Stable Boundary Layer, as Observed by an Airborne Compact Raman Lidar During PECAN

Small-scale variations within the low-level outflow and inflow of a MCS can either support or deter the upscale growth and maintenance of the MCS. However, this interaction has remained poorly described due to a lack of detailed measurements of the thermodynamic vertical structure of the outflow. A Compact Raman Lidar (CRL) deployed on the University of Wyoming King Air (UWKA) directly sampled temperature and water vapor profiles at unprecedented vertical and along-track resolutions along the southern inflow region of a pair of mature nocturnal MCSs on 1 July 2015 during the Plains Elevated Convection at Night (PECAN) campaign. The interaction between the cold-pool outflow and inflow of moist stratified air is favorable for MCS maintenance, enhanced CAPE and reduced CIN above the surface, thereby sustaining the nocturnal MCS.

Maaike Izeboud ▸ Response of Greenland Ice Sheet firn to cloud radiative forcing

Conflicting studies argue either that clouds reduce surface melt on the Greenland Ice Sheet through their radiative effect by blocking SW radiation or enhance surface melt by reducing meltwater refreezing. By separating the response of the firn in a short-term and long-term component, it is shown that both processes occur in their own time scale and magnitude. The enhancing of meltwater runoff by cloud radiation is dominant in summer months through a long-term response of the firn, bringing attention to the importance of initial firn conditions for cloud radiation studies.

About the ATOC Colloquium

The Department of Atmospheric and Oceanic Sciences Colloquium will be held **every other Friday** from **11:00am-noon** in **SEEC S228**. 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.