



# ATOC COLLOQUIUM

## Welcome!

Please join us for the first ATOC Colloquium of the 2019–2020 academic year on **Friday, September 6**, from **11:00 AM–Noon** in **SEEL 303** with **Prof. Jeffrey Weiss** from the **University of Colorado Boulder**. Come early for coffee at 10:45 AM; lunch will be served after.

## Climate Oscillations and Non-Equilibrium Physics

Natural climate variability is dominated by coherent spatio-temporal climate oscillations: the El-Niño Southern Oscillation, the Madden-Julian Oscillation, the North Atlantic Oscillation, the Pacific Decadal Oscillation, and more. These complex patterns are more difficult for climate models to capture than the mean climate state and their behavior under climate change has large uncertainties. The climate system, forced by incoming solar radiation and outgoing long wave radiation, can be considered to be in a non-equilibrium steady-state coupled to two thermal reservoirs at different temperatures: the hot Sun and the cold vacuum of space. Here we explore the connection between non-equilibrium physics and climate oscillations and describe a new diagnostic that can be used to compare climate oscillations between models and observations and for model intercomparison.



## About the ATOC Colloquium

The Department of Atmospheric and Oceanic Sciences Colloquium is held **every other Friday** from **11:00 AM-noon**, usually in **SEEL 303**. 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](mailto:jan.lenaerts@colorado.edu)). Please visit [www.colorado.edu/atoc/colloquium](http://www.colorado.edu/atoc/colloquium) for further details and the upcoming schedule.