



# ATOC COLLOQUIUM

## Welcome!

Please join us for the ATOC Colloquium on **January 25, 2019** from **11:00am-noon** in **SEEC S228** featuring **Professor Elizabeth Barnes from CSU**. Come early for coffee starting at 10:45am, and lunch will be served after!

## Causal pathways driving sub-seasonal jet-stream variability

Daily variations in the midlatitude jet-stream can lead both to devastating extreme events, or mild weather, and thus, understanding the drivers of jet-stream variations on sub-seasonal timescales in one step toward accurate predictions. Looking to the north and south, variability in the Arctic and tropics have been suggested to drive variations in the jet-stream on weekly timescales and here we apply causal discovery techniques (e.g. Granger causality, probabilistic graphical models) to quantify the extent that this is the case. These causal discovery techniques allow us to quantify the time lags for these interactions and assess the jet-stream sensitivity in the presence of feedbacks. A further benefit of these techniques is that we can make direct comparisons of the sensitivities between observations and models, as well as across a suite of models.

While this talk is focused on causal links driving jet-stream variability we will also use it as an opportunity to provide an overview of causal discovery methods and highlight their relevance for climate dynamics research.



## About the ATOC Colloquium

The Department of Atmospheric and Oceanic Sciences Colloquium is held **every other Friday** from **11:00 AM-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](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.