**ATS/CIRA Colloquium**

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**Visiting from NCAR**

# Multi-decadal variability in the North Atlantic jet stream, its connection to ocean variability and the implications for decadal prediction

**Hosted by Jim Hurrell**

**3 p.m. Thursday, Jan. 30**
**ATS room 101**

The characteristics of the North Atlantic jet stream play a key role in the weather and climate of western Europe. While much of the year to year variability in the jet stream arises from internal atmospheric processes that are inherently unpredictable on timescales beyond a few days to weeks, any low frequency variability that can be considered forced by slowly varying boundary conditions offers the potential for extended range predictability of climatological conditions in western Europe. Here it will be demonstrated that over the historical record, the North Atlantic jet stream has displayed pronounced multi-decadal variability in the late winter with implications for precipitation in western Europe. This jet stream variability far exceeds that found in state-of-the-art climate models and far exceeds expectations from the sampling of atmospheric noise. It is found that over the observational record there is a strong connection between Sea Surface Temperature (SST) variability and jet stream variability in the North Atlantic and that this connection appears to be absent in models. Nevertheless, given that models can predict SST variability at long lead time, the observed SST-jet stream-precipitation relationship combined with model predicted SST variability offers the potential for extended range predictability of low frequency precipitation variability in western Europe.

Link to colloquia page: https://www.atmos.colostate.edu/colloquia/