CGD SEMINAR

NCAR

DATE: Monday, 1 October 2018

TIME: 11 a.m.

LOCATION: NCAR, 1850 Table Mesa Drive
Mesa Lab, Main Seminar Room

TITLE: Modelled and observed multi-decadal variability in the North Atlantic jet stream

SPEAKER: Isla Simpson, NCAR

ABSTRACT:

An analysis of multi-decadal variability in the North Atlantic jet stream in reanalysis products of the 20th Century and general circulation models (GCMs) will be presented. It if found that almost all GCMs exhibit multi-decadal jet stream variability that is entirely consistent with the sampling of white noise year-to-year atmospheric fluctuations. In the observed record, however, the variability displays a pronounced seasonality within the winter months, with greatly enhanced multidecadal variability toward the late winter. This late winter variability exceeds that found in any GCM and greatly exceeds expectations from the sampling of atmospheric noise, motivating the need for an underlying explanation.

The potential roles of both external forcings and internal coupled ocean-atmosphere processes will be considered. While the late winter variability is not found to be closely connected with external forcings, it is found to be strongly related to the internally generated component of Atlantic Multidecadal Variability (AMV) in Sea Surface Temperatures (SSTs). In fact, consideration of the seasonality of the jet stream variability within the winter months reveals that the AMV is far more strongly connected to jet stream variability during March than the early winter months or the winter season as a whole. Reasoning is put forward for why this connection likely represents a driving of the jet stream variability by the SSTs, although the dynamics involved remain to be understood. This analysis reveals a fundamental mismatch between late winter jet stream variability in observations and GCMs and a potential source of long term predictability of the late winter Atlantic atmospheric circulation.

Live webcast: http://ucarconnect.ucar.edu/live

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