CGD SEMINAR

NCAR

DATE: Tuesday, 7 May 2019

TIME: 11 am – 12 pm

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

TITLE: Does the Atlantic drive the Pacific, or the Pacific drive the Atlantic?

SPEAKER: Gerald Meehl, NCAR

ABSTRACT:

On interannual to decadal timescales, there is evidence that sea surface temperatures and associated precipitation anomalies in the tropical Atlantic can drive SSTs and precipitation over the tropical Pacific, while there is evidence that the converse could be true. This question has direct relevance to initialized predictions on those timescales because if one basin drives the other, then it is only necessary to be able to predict processes in that one basin and prediction skill would then follow in the other basin. With associated teleconnections, that prediction skill could then extend to large areas of the planet. Results are shown from pacemaker experiments where an idealized pattern of SSTs representing decadal timescale variability is specified in either the Atlantic or Pacific while the rest of the climate system is fully coupled and responds to those specified SST patterns. It is found that the tropical Atlantic drives opposite-sign SST anomalies in the tropical Pacific, while the tropical Pacific drives same-sign SST anomalies in the tropical Atlantic. A new paradigm is proposed whereby the Atlantic and Pacific are interactively coupled on decadal timescales. For example, a positive phase in the Pacific could drive a trend to a positive phase in the Atlantic; then that positive phase in the Atlantic could drive a trend to a negative phase in the Pacific, and so on.

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

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