

# CGD SEMINAR



**DATE:** Tuesday, 25 April 2017

**TIME:** 11 a.m.

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

**TITLE:** Antarctic sea ice should be melting but it's not:  
Connections to global temperature trends and  
decadal variability in the tropical Pacific

**SPEAKER:** Gerald Meehl, NCAR/CGD

## **ABSTRACT:**

Antarctic sea ice extent has been slowly increasing in the satellite record since it began in 1979. Since the late 1990s, the increase has accelerated, but the average of all climate models shows a retreat of Antarctic sea ice as could intuitively be expected in a warming climate. Meanwhile, the Interdecadal Pacific Oscillation, an internally-generated mode of climate variability, transitioned from positive to negative about the time Antarctic sea ice retreat accelerated, with an average cooling of tropical Pacific sea surface temperatures, a slowdown of the global warming trend, and a deepening of the Amundsen Sea low near Antarctica that has contributed to regional circulation changes in the Ross Sea region and expansion of sea ice. Here we show that the negative phase of the Interdecadal Pacific Oscillation in global coupled climate models is characterized by anomalies similar to the observed sea level pressure and near-surface 850 hPa wind changes near Antarctica since 2000. These are conducive to expanding Antarctic sea ice extent, particularly in the Ross Sea region in all seasons, involving a deepening of the Amundsen Sea Low. These atmospheric circulation changes, and thus the expansion of Antarctic sea ice, are shown mainly to be driven by internally-generated IPO-related precipitation and convective heating anomalies in the equatorial eastern Pacific, with additional contributions from convective heating anomalies in the South Pacific Convergence Zone and tropical Atlantic regions.

**Live webcast:** <http://www.fin.ucar.edu/it/mms/ml-live.htm>

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