

# CGD SEMINAR



DATE: **Monday**, 17 September 2018

TIME: 11 a.m.

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

TITLE: Ningaloo Niño and its role in the inter-basin coupling

SPEAKER: Lei Zhang, University of Colorado

## ABSTRACT:

The Ningaloo Niño refers to the evident interannual variability of sea surface temperature anomalies (SSTA) in the southeast Indian Ocean (SEIO). Using ocean and atmosphere general circulation model experiments, this study investigates the generation mechanism of the Ningaloo Niño and its role in the inter-basin coupling in the Indo-Pacific region. Consistent with previous studies, northerly wind anomalies off the West Australian coast are critical in generating warm SSTA of the Ningaloo Niño by decreasing the surface wind speed, enhancing the Leeuwin Current heat transport, and weakening the coastal upwelling. Our results further reveal that northerly wind anomalies suppress the transport of cold and dry air from the Southern Ocean to the Ningaloo Niño region, reducing the surface turbulent heat loss. A positive cloud-radiation feedback is also found to play a role.

Ningaloo Niño can be caused by both the remote La Niña forcing as well as the Indian Ocean intrinsic processes, such as the positive Indian Ocean Dipole. Further, the Ningaloo Niño can also actively impact on the tropical Pacific. The SSTA associated with the Ningaloo Niño induces negative sea level pressure anomalies extending from the SEIO to the Maritime Continent, strengthens western Pacific trade winds, and thus cools the central tropical Pacific. In turn, the central Pacific cooling anomalies generate cyclonic wind anomalies over the SEIO, and the strengthened trades enhance the Indonesian throughflow, with both enhancing the Ningaloo Niño. Hence, the Ningaloo Niño plays an important role in the inter-basin coupling between the SEIO and the tropical Pacific.

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

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