

Locally amplified Ningaloo Nino off the western coast of Australia

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Using observational and reanalysis data, the mechanism of a new climate mode off western Australia called "Ningaloo Nino" is investigated. It is associated with positive sea surface temperature (SST) anomalies and peaks during austral summer. There are two types of Ningaloo Nino: The "locally amplified" and "non-locally amplified" events. The former can develop through an intrinsic unstable air-sea interaction off western Australia; an anomalous cyclone generated by positive SST anomalies forces northerly alongshore wind anomalies, which induce coastal downwelling anomalies, and enhance the warm SST anomalies.

It is found that the locally amplified Ningaloo Nino cause positive rainfall anomalies along the coast of western Australia, but the signals are subtle and the northern part tends to become drier because of a weaker monsoon.

Keywords: Ningaloo Nino, unstable air-sea interaction, coastal upwelling, western Australia, precipitation