

**Can Indian Ocean SST anomalies influence South American rainfall?**

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In this study we examine the impact of the Indian Ocean sea surface temperature (SST) variability onto South American circulation. Previous studies have shown that the Indian Ocean Dipole (IOD) mode can affect climate over remote regions across the globe, including over South America. Here we show that such link exists not only with the IOD, but also with the Indian Ocean basin-wide warming (IOBW). The IOBW, a response of El Niño events, tends to reinforce the South American anomalous circulation associated with the warm events in the Pacific, leading to increased rainfall in the La Plata basin and below-average precipitation over the northern regions of the continent. In addition, the IOBW is suggested to be an important factor modulating the persistence of dry conditions over northeast Brazil during austral autumn. The link between the IOBW and South American climate occurs via alterations of the Walker circulation pattern and via a mid-latitude wave-train teleconnection. Numerical simulations using a global circulation model have also confirmed these results.