



Influence of the Indian Ocean Dipole on following year's El Niño - a story of David and Goliath?

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El Niño-Southern Oscillation (ENSO) consists of irregular episodes of warm (El Niño) and cold (La Niña) conditions in the tropical Pacific Ocean, with major socioeconomic and environmental impacts globally. Forecasting ENSO at long lead times remains a challenging issue. The Indian Ocean also exhibits interannual climate fluctuations known as "Indian Ocean Dipole" (IOD). Positive (negative) phases of the IOD tend to co-occur with El Niño (La Niña), and previous works have explored the interactions between simultaneous IOD and ENSO events. Here, we show that a negative (positive) IOD is an efficient predictor of El Niño (La Niña) 14 months before its peak, as demonstrated by a simple linear hindcast model. Observations and model analyses suggest that the IOD modulates the strength of the Walker circulation in fall. The quick IOD demise in November-December induces a sudden collapse of anomalous zonal winds over the Pacific. This external forcing eventually leads to ENSO development through the advective-reflective conceptual model. This study hence suggests that improving the observing system and simulation of interannual variability in the Indian Ocean will benefit to ENSO forecasts.