



Tropical Pacific ocean response to remote SST forcing from the Tropical Indian Ocean

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Several studies have suggested that Sea Surface Temperature (SST) in the Indian Ocean can affect the evolution of ENSO through atmospheric teleconnections. In the present paper, we explore the oceanic response to remotely influenced winds over the Pacific Ocean. To that end, we use a shallow water model of the equatorial Pacific with a simple SST equation, which realistically simulates Nino3.4 SST variations. This shallow water model is then forced by wind perturbations over the Pacific Ocean obtained from ensembles of AGCM experiments with SST perturbations applied over the Indian Ocean. This set of experiments shows a significant response of central Pacific SST (in following spring) to typical Indian Ocean SST anomalies (the Indian Ocean Dipole (IOD) in fall and the basin wide warming in spring). These experiments further allow us to better understand the mechanisms at play, and notably to quantify the relative importance of horizontal and vertical oceanic processes. The possible links with ENSO diversity will be discussed.