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Role of Indian Ocean in the modification of ENSO in a hybrid coupled model

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Using a hybrid coupled model, we investigate the impacts of the Indian Ocean sea surface temperature (SST) on the El Nino-Southern Oscillation (ENSO). The hybrid coupled model is composed by the SPEEDY (the simplified parameterization, primitive-equation dynamics) AGCM developed by Molteni and the intermediate ocean model by developed by Cane-Zebiak. The air-sea coupling in the model is only allowed in the tropical Pacific, and the SST in the other areas of the ocean is prescribed. The model ENSO sensitivities to the basin-wide increasing or decreasing the total SST in the Indian Ocean are tested. The results showed that the period of ENSO decreases and the active center of ENSO tends to move to the west as the Indian ocean SST increases. The impacts of Indian ocean basin-wide warming or cooling on the relationship between ENSO and Monsoon are also investigated.