

Impact of atmospheric variability on Indian Ocean Dipole mode

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Some preceding studies investigated tropical atmospheric internal variability such as Madden-Julian oscillation on the formation of Indian Ocean Dipole mode (IOD), but still number of the studies remains few, and their relationship remains unknown. In this study, we focused on the impact of atmospheric variability especially intraseasonal variability. To reveal the impact, we conducted sensitivity experiments for the IOD during 1980-2009, using an ocean general circulation model and difference atmospheric forcing data, such as (1) climatological forcing, (2) same as (1) but with yearly anomalies, (3) same as (1) but with seasonal anomalies, (4) same as (1) but with monthly anomalies, (5) 90-day low-pass filtered forcing. The simulated Dipole mode index (DMI) indicates that the sensitivity case of (1) could not reproduced realistic DMI at all, (2) and (3) reproduced decreased DMI amplitudes, and (4) and (5) reproduced similar DMI which was simulated with daily forcing data. In this presentation, possible mechanisms that caused different features of simulated IODs will be explained, focusing on the relationship between the variabilities of ocean and atmosphere.

Keywords: Indian Ocean Dipole mode, atmospheric internal variability