

The Role of Ocean-Atmosphere Coupling in the Indian Ocean on Simulation of the Intraseasonal Oscillations in a Coupled General Circulation Model

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The role of ocean-atmosphere coupling in simulation of intraseasonal oscillations (ISO) is investigated with a coupled general circulation model (CGCM). A series of CGCM experiments are carried out to examine the importance of ocean-atmosphere coupling to ISO characteristics in the Indian-Pacific Ocean sectors. A total of four CGCM simulations are performed: the global Run, western Pacific Run, eastern Pacific Run, and Indian Ocean Run. In each CGCM run, air-sea interactions are restricted to a certain portion of the Indian-Pacific Ocean by including only that portion of the ocean in the ocean model component of the CGCM. Our CGCM results suggest that (1) ocean-atmosphere coupling in neither western Pacific nor eastern Pacific has any significant influence on model ISO characteristics. (2) Indian Ocean air-sea interactions completely explain the characteristics (both amplitude and phase propagation) of ISO.