

A Madden-Julian Oscillation simulation using a global cloud-resolving model

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A global cloud-resolving model has been developed at the Frontier Research Center for Global Change in Japan. We have used the model to simulate a Madden-Julian Oscillation (MJO) event that occurred in December 2006 and January 2007. The slow eastward movement of the convectively active region of the MJO event was reproduced at least marginally. The eastward shift of the convective center, from the Indian Ocean to the Pacific Ocean, was probably related to the equatorial Rossby wave, which brought abundant moisture from the east. Tropical depression-type disturbances might account for the strong eastward propagating signals inside the envelope of active convection. A sensitivity run suggested that the time change in the sea surface temperature did not modulate the eastward movement speed very much.