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A Study on the Numerical Simulation of TBO in CMIP5

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Tropospheric biennial oscillation (TBO) is deemed to be a kind of interannual variability of the annual movement of the convective maximum in the tropical Indo-Pacific Ocean region. It is a natural variability of the coupled atmosphere-ocean-land system, of which the basic components are the Indian monsoon system, the Australian monsoon system, the Walker Circulation, and oceanic wave processes. It has been seemed as the second most important interannual variability signal in the global climate system next to ENSO, and has an effect on regions not only in the tropics but also in the mid-latitudes.
A preliminary study of the CMIP5 outputs shows that there are great discrepancies among models in their abilities to simulate the TBO phenomenon, as far as period length and spatial distribution are concerned. Further study has been done to look into different parts of the TBO cycle in detail in different CMIP5 models. It helps to explain why different models may give rise to differences in the spectral structure of the simulated tropical climate system. It seems that a correct climate background plays a very important role in the simulation of TBO.