

# Impact of tropical instability waves on large-scale atmospheric circulation

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Climatic impacts of tropical instability waves (TIWs) on the large-scale atmosphere circulation are investigated using an earth system model MRI-ESM1 where a high-resolution tropical ocean model is nested. It is known that, due to the realistic representation of tropical instability waves (TIWs), the simulated eddy heat flux in the ocean improves tropical oceanic mean states. On the other hand, the impacts of eddy-scale atmospheric responses on atmospheric mean states have not been understood so far. In this study, by conducting two kinds of sensitive experiments based on the nested version MRI-ESM1, it is revealed that atmospheric eddy fluxes converge into the northern off-equator and shift the intertropical convergence zone (ITCZ) northward.

Keywords: Earth system model, eddy resolving ocean general circulation model, tropical instability waves