



Moisture transport associated to Tropical Cyclones: North Atlantic and Maritime continent cases

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Tropical cyclones (TCs) transport energy and moisture along their pathways interacting with the climate system. The meridional moisture transport carried by TCs in the North Atlantic and the impact on June-to-September precipitation due to zonal moisture transport associated with TCs in the Maritime Continent are investigated in a set of AMIP (atmosphere-only simulations forced with observed sea surface temperatures) and coupled simulations performed at different spatial resolutions.

The radial average distribution of specific humidity along the TC tracks is inspected and used in evaluating the TCs meridional moisture transport in the North Atlantic. When compared to observation (IBTRACS and JRA-55 reanalysis), the simulated moisture transport associated to TCs displays reasonably good performance in high-resolution model configuration in Tropical areas. In extra-tropical region, on the contrary, models overestimate the TCs water content compared to observation.

The role of TCs in removing humid air from the Maritime Continent during the boreal summer season is highlighted comparing precipitation and vertically integrated zonal water transport between years with intense TC activity and low TC activity years along the period 1980-2015. This is made evident based on JRA-55 atmospheric reanalysis and confirmed by modelling experiments where results from a TCs resolving model are compared to a lower resolution model.

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