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Extratropical transition of Tropical Cyclones: are we able to represent the associated water transport?

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A significant number of tropical cyclones (TCa) move into the midlatitudes and transform into extratropical cyclones. The meridional moisture transport associated with TCs across the North Atlantic tropical-extratropical boundary is investigated in a twin set of AMIP experiments (atmosphere-only simulations forced with observed SSTs) performed at different spatial resolutions, under the framework of the EU-funded PRIMAVERA project and HighresMIP effort. Specifically, the sensitivity of the total moisture carried by the TCs from tropics to extratropics to the horizontal resolution is quantified in the PRIMAVERA multimodel ensamble, and compared to observations. The potential role of the TCs in modulating the precipitation signal over western Europe is also inspected.

Keywords: Tropical Cyclones, Specific Humidity, Extratropical Transition