



Atmospheric responses to anomalies of SST seasonal variations in the Northeastern Tropical Atlantic

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The north-eastern Tropical Atlantic sea surface temperature (SST) becomes very warm in boreal summer, north of the seasonal equatorial cold tongue, with a maximum in the vicinity of the InterTropical Convergence Zone (ITCZ). The ITCZ has a significant contribution in the functioning and partitioning of the water cycle over the ocean, but also over West Africa. Using the regional Weather Research and Forecasting Model (WRF), this study aims to describe and quantify the influence of the warm SST band on the ITCZ: two simulations examine independently the cases when the SST is not warming or not cooling regarding its regular seasonal evolution. It then allows to separate the influences of northern and southern SST fronts (where the meridional gradients are most intense) on surface winds and precipitation. The seasonal SST distribution impact on the ITCZ is indeed found to be very strong, with significant consequences on the moisture flux within the marine ITCZ and toward West Africa.