



Atmospheric response to a zonally averaged SST distribution in the North Atlantic

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A less dynamically active ocean will most likely lead to a more zonal sea surface temperature (SST) distribution. In order to identify if, and how, such an effect affects the atmospheric variability, two idealized SST-sensitivity-experiments of 260 years length have been carried out with an Atmospheric General Circulation Model (AGCM) of intermediate complexity. The atmospheric response to a removal of the longitudinal dependence of the SSTs in the North Atlantic is investigated.

The results show that the local time-mean response in boreal summer projects largely on the models positive 1st mode of intrinsic variability characterized by the North Atlantic Oscillation (NAO). In winter, the response is more in accordance with the pattern of intrinsic variability, referred to as the East-Atlantic Pattern (EAP). A decrease in local variability can be found in most areas over the North Atlantic. However, aberrations from this are present, in particular in or close to areas where SST anomalies have a positive sign.