



Tropical Atlantic Ocean Feedbacks in the Kiel Climate Model

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Tropical and subtropical Atlantic climate crucially depends on various air-sea feedbacks. Thus it is important to correctly represent them in climate models. This study is based on previous work in which it was argued that errors in the atmospheric component especially in boreal spring cause eastern tropical Atlantic SST biases via a feedback chain. Two model runs of the coupled Kiel Climate Model (KCM) have been performed which only differ in the configuration of the cumulus convection scheme allowing amongst others more shallow convection in the subtropical upwelling regions. The results show a strong reduction of the eastern tropical Atlantic SST bias via two feedbacks: A local cloud-radiation feedback in the southeastern subtropical Atlantic and one in the tropical Atlantic involving large-scale changes in precipitation and wind patterns.