



How Does Nudging Influence Convection?

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For comparison of results from general circulation model simulations against observed data, it is current practise to apply data assimilation methods, e.g. a weak nudging of the model towards observed/reanalysed meteorology. In such a way realistic synoptic conditions are simulated and a point-to-point comparison between model and data is enabled.

This work examines the effect of nudging earth system models and deals with the question whether nudging affects the stability of the atmosphere. Two model simulations will be compared where one is merely driven by observed sea surface temperature whereas the other one applies the nudging technique to reproduce the observed meteorology. We will analyse the impact of the nudging on the mean convective activity to investigate whether the nudging alters the atmospheric stability, either enhancing or weakening simulated convective storms. Furthermore, beyond modifications of precipitation and convective occurrence patterns we will determine the changes in convective transport using both dynamical analysis of the convective cells and tracer transport characteristics.