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Influence of different convection parameterisations in a GCM

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Abstract. In global models of the atmosphere convection is parameterised, since the typical scale of this process is smaller than the model resolution. Here we address some of the uncertainties arising from the selection of different algorithms to simulate this process. Four different parameterisations for atmospheric convection, all used in state-of-the-art models, are implemented in the model system ECHAM5/MESy for a consistent inter-comparison and evaluation against observations. Relatively large differences are found in the simulated precipitation patterns, whereas simulated water vapour columns distributions are quite similar and close to observations. The effects on the hydrological cycle and on the simulated meteorological conditions are discussed.

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