

A new diagnostic cloud scheme for heterogeneous moist parameterisations

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In the ICON model parameterisations of microphysics, turbulence and convection provide a heterogeneous set of information acting on moisture and cloud that is then fed to radiation through a filter called the cloud cover parameterisation.

We are presenting a concept for a new cloud cover parameterisation that is based on a total water PDF with at least three moments - mean, variance and skewness - such as provided by a double-Gaussian or beta function. These three moments are then determined as follows: the mean uses grid mean water quantities from the dynamical core, the variance comes from the TKE turbulence scheme and the skewness is based on statistics from the convection scheme.

First SCM model results evaluated against LES will be presented as well as impacts on radiative fluxes in a set of global ICON simulations.