



## **Eddy-diffusivity/Mass-flux parameterization for boundary layer and shallow convection in the global NASA GEOS5 model**

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A realistic simulation of moist convective boundary layers by global climate models is a challenging task. These boundary layers are usually associated with low-level cloudiness. Low-level clouds importantly modulate not only local, but also the global Earth's climate. Therefore, the realistic representation of moist convective boundary layers in global models is a prerequisite for a realistic simulation of the Earth's climate and climate change. Many of the state-of-the-art global circulation models have problems in realistically simulating low-level cloudiness, due to issues related to the parameterization of boundary layer processes.

In this study we improve the boundary layer and shallow convection parameterization in the NASA GEOS5 model. The new parameterization is based on the stochastic Eddy-Diffusivity/Mass-Flux approach and unifies traditionally separated parameterizations. The results of the improved GEOS5 model simulations are shown and compared to observational data-sets.