Geophysical Research Abstracts, Vol. 7, 05534, 2005
SRef-ID: 1607-7962/gra/EGU05-A-05534


# Super-parameterization: progress and prospects

**W. W. Grabowski**
NCAR, Boulder, Colorado, USA

This presentation will discuss the super-parameterization - a novel approach to represent small-scale and mesoscale processes in contemporary climate models. The idea is to apply a two-dimensional cloud-resolving model in each column of a climate model and to include all physical processes (such as radiative transfer, surface exchange, etc) into the cloud-resolving model framework. A climate model with super-parameterization is two to three orders of magnitude more costly than traditional climate models, but at the same time is about three orders of magnitude less expensive than a global cloud-system-resolving model. Results from idealized climate simulations applying this approach, relevant to the mechanisms behind the tropical intraseasonal oscillations, will be presented. In particular, the impact of free-tropospheric humidity - the moisture-convection feedback, and the atmosphere-ocean interactions - the convection-SST feedback, will be discussed. Recent developments to facilitate application of the super-parameterization over land and in midlatitudes will be also presented.