



Convective self-aggregation and model set-up

Cathy Hohenegger and Bjorn Stevens

Max Planck Institute for Meteorology, Hamburg, Germany (cathy.hohenegger@mpimet.mpg.de)

Past studies of deep convection in radiative convective equilibrium performed with cloud-resolving models using km resolution, fixed sea surface temperature and fixed insolation have revealed the tendency of convection to self-aggregate. In this study we investigate the effect of different model set-ups on the aggregation of convection. The set-ups considered are: with and without a diurnally varying insolation, with and without interactive sea surface temperature, and various horizontal resolutions. The sea surface temperature is allowed to freely vary by coupling a cloud-resolving model to a mixed layer ocean model. The impacts of different mixed layer depths are explored. A particular emphasis is on the dependency of the time it takes for convection to self-aggregate on such modeling choices.