



1 Evaluation of Diurnal Cycle of Convection in ECHAM5 General Circulation Model with Satellite Data

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Clouds are one of the most important components of the climate system, regulating the radiation budget of the earth. In the simulation of the global climate using General Circulation Models (GCM), cloud feedbacks contribute to a major uncertainty on account of poorly represented cloud related processes in the model. In particular, the representation of convection and convective clouds constitutes at the same time a crucial component of GCMs and a main source of uncertainty. Satellite observations provide the most comprehensive view of cloud related quantities at a global scale, and are an important data source for the evaluation of parameterization schemes.

We present here some experiments with ECHAM5 GCM and their comparison with satellite observations. This study focuses on the diurnal cycle of convection for monsoon months over two regions in the Indian subcontinent. The first area being over land and the other in the ocean, the model's capability in producing two distinct behaviors is analyzed. Sensitivity studies with ECHAM5 are carried out in order to examine the influence of different parameters of the convection parameterization in this model. The International Satellite Cloud Climatology Project (ISCCP) products and data from the MODerate Resolution Imaging Spectroradiometer (MODIS) instrument are used as verification data.