Session: B7 Oral presentation

A quantitative performance assessment of cloud regimes in climate models

Keith Williams[†]; Mark Webb
[†] Met Office, United Kingdom
Leading author: keith.williams@metoffice.gov.uk

Differences in the radiative feedback from clouds account for much of the variation in climate sensitivity amongst General Circulation Models (GCMs). Therefore metrics of model performance which are demonstrated to be relevant to the climate change response form an important contribution to the overall evaluation of GCMs. A quantitative metric for assessing the present-day simulation of principal cloud regimes has been developed which can be shown to relate to the variation in GCM climate change response. In addition, the components of this metric can be used by model developers to understand the origin of the main cloud radiative biases in their model in terms of the characteristics of particular cloud regimes. This presentation illustrates these aspects of the cloud regime metric and applies it to models submitted to the CMIP3, CMIP5 and transpose-AMIP multi-model datasets.