Geophysical Research Abstracts,
Vol. 10, EGU2008-A-06351, 2008
SRef-ID: 1607-7962/gra/EGU2008-A-06351
EGU General Assembly 2008

Processes controlling the initiation of convection

J. H. Marsham (1)

(1) University of Leeds, UK (jmarsham@env.leeds.ac.uk)

Forecasting moist convection and the associated precipitation is one of the outstanding problems in numerical weather prediction (NWP), and poor forecasts limit our ability to forecast natural hazards such as floods and land-slides. The representation of convective clouds is also one of the major sources of uncertainty in climate models. Recently three field campaigns have aimed to improve our understanding of the initiation of deep convection in three different regions: IHOP_2002, COPS and the Convective Storm Initiation Project (CSIP), which took place in southern England during the summer of 2005. Combined with the new generation of non-hydrostatic NWP models, these projects are allowing progress in addressing these issues.

CSIP has highlighted how, in the mid-latitude maritime environment of the UK, poorly resolved convective storms are often forced by well resolved mesoscale forcings, and are therefore relatively predictable, even when secondary initiation via convectively generated cold pools occurs. This is not always the case however. The role of less well resolved processes and less predictable processes, such as boundary-layer convection, mid-level convection and cloud microphysics will be examined. The implications of these results for representing moist convection in climate models (and in particular the importance of mesoscale circulations in climate models) will be discussed. Conclusions will be contrasted with those so far drawn from IHOP_2002, COPS and other field campaigns, which took place in different climatic regimes.