Geophysical Research Abstracts, Vol. 7, 04825, 2005
SRef-ID: 1607-7962/gra/EGU05-A-04825

Modelling climate and climate change using HadGEM1

T. C. Johns, C. F. Durman and A. Jones

Hadley Centre, Met Office, Exeter EX1 3PB, UK (tim.johns@metoffice.gov.uk)

The Hadley Centre has recently performed a set of climate experiments with a new comprehensive coupled climate model - HadGEM1. These experiments are relevant to the IPCC Fourth Assessment Report (AR4) and EU ENSEMBLES consortium. Increased spatial resolution and other advances implemented in HadGEM1 relative to its predecessor, HadCM3, are intended to allow a more faithful representation of present day climate through physically more realistic small scale processes plus improved coupling between the atmosphere, land, ocean and sea ice model sub-components. Evidence that this objective is realised will be presented, a statistical "climate prediction index" being used to summarise global improvements in model skill. We illustrate improvements in HadGEM1 via specific examples of dynamics, heat and freshwater cycles, tracer transport, clouds and cloud-radiative properties. Some other characteristics of HadGEM1 will also be discussed such as its equilibrium climate sensitivity, feedbacks and response to anthropogenic forcings, including atmospheric aerosol effects.