Geophysical Research Abstracts, Vol. 9, 09932, 2007
SRef-ID: 1607-7962/gra/EGU2007-A-09932

Modelling the quasi-biennial oscillation in the UK Met Office middle atmosphere GCM

A. Bushell

Met Office, Exeter, United Kingdom (andrew.bushell@metoffice.gov.uk / Phone: +44-1392-884064)

Although the operational numerical weather prediction (NWP) model run at the Met Office has 50 vertical levels and a top at the stratopause (63km), the standard climate configuration HadGAM1, which is based on a semi-Lagrangian dynamical core developed at the Met Office, only reaches 40km with 38 vertical levels. However, an extended climate configuration has been developed from the standard HadGAM1 package which has 60 vertical levels and a top at 84km, close to the mesopause.

The 60-level model is run with a non-orographic gravity wave parametrization scheme based on the concept of Warner and McIntyre (1999) and is able to represent a quasi-biennial oscillation (QBO) with reasonable amplitude and periodicity. Unlike in the real world, however, an experimenter can alter the QBO period by changing the model configuration and the response of the model can offer insight into which processes have the strongest influence in the model world and possibly even in reality.