

Scientist

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Model Name and History

Long name: GFDL AM2/LM2
Short name: GFDL
No Predecessor

Physical Parameterizations

Surface fluxes: Monin-Obukhov similarity with enhanced mixing in very stable conditions
Longwave radiation: Simplified Exchange Approximation (Schwarzkopf and Ramaswamy 1999)
Shortwave radiation: Exponential Sum Fit, 18 bands (Freidenreich and Ramaswamy 1999)
Cloud parameterization: For cloud macrophysics a prognostic cloud fraction is used (Tiedtke 1993)
For cloud microphysics, cloud liquid and ice are separate prognostic variables and the microphysics follows (Rotstayn 1997 and Rotstayn et al. 2000)
Convection parameterization: Relaxed Arakawa Schubert (1992) with many local modifications, including the Tokioka lower bound on lateral entrainment rates, and modified low level critical cloud work functions
No downdrafts
Turbulence parameterization: Convective boundary layers and strato-cumulus layers are treated a K-profile scheme with prescribed entrainment fluxes at the top of the PBL (Lock et al. 2000)
Stable mixing is handled with conventional Louis (1979) mixing functions above the lowest kilometer.

Reference

The GFDL Global Atmospheric Model Development Team, 2004:
The new GFDL global atmosphere and land model AM2/LM2: Evaluation with prescribed SST simulations. Journal of Climate, 17, 4641-4673.