The Bremen 3d CTM

- global 3d Chemistry and Transport Model (CTM)
- driven by meteorological data (temperature, pressure, wind fileds)
  - UKMO, ECMWF operational, ECMWF ERA INTERIM, ECMWF ERA 40
- horizontal transport along isentropes calculated from analysed wind fields
- vertical transport across isentropes calculated from diabatic heating rates using the MIDRAD radiation scheme [Shine, 1987]
- transport calculated using the advection scheme of Prather [Prather, 1986]

The Bremen 3d CTM

- neutral chemistry model
- 57 tracer, families (O_x, NO_x, HO_x, ClO_x, BrO_x)
- $\sim$180 gas phase, photochemical, and heterogeneous reactions
- JPL 2006
- ionisation rates from AIMOS model [Wissing et al., 2008]
- parameterised NO_x and HO_x production:
  - 1.25 NO_x (55% NO, 45% N) [Porter et al., 1976]
  - $\leq$ 2 HO_x [Solomon et al., 1981]

The Bremen 3d CTM

- horizontal resolution
  - 96 longitudes
  - 72 latitudes
  - $3.75° \times 2.5°$
- vertical resolution
  - 28 isentropes
  - 10 - 65 km
  - 1 - 4 km
- timestep
  - transport: 30 min
  - chemistry: 15 min

adapted from Jan Aschmann


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