



Modelling Mars Chemistry and Meteorology with the GEM-Mars GCM

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The GEM-Mars model is a three-dimensional global climate model (GCM) for the Martian atmosphere. The dynamical core is based on the GEM (Global Environmental Multiscale) operational weather forecast model for Canada (Côté et al., 1998). The model has been adapted for Mars (Moudden and McConnell, 2005) and includes a water cycle with a 14-layer regolith slab and bulk ice clouds (Akingunola, 2008). Calculations include absorption and scattering of radiation by seasonally and latitudinally varying dust in the atmosphere. Carbon dioxide condensation and sublimation are also included. The current chemical scheme is comprised of 13 species, 15 photolysis reactions and 31 chemical reactions (García-Muñoz et al., 2005) as opposed to the chemical scheme of Moudden and McConnell (2007).

Results will be shown from simulations at a horizontal resolution of 4x4 degrees with 101 vertical levels up to approximately 140 km. Model results will be compared to selected observational datasets for meteorology and chemistry.

References

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