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Simulating the Phoenix Lander meteorological conditions with a Mars GCM

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An updated version of the GEM-Mars Global Circulation Model [1] is applied for the simulation of the meteorological conditions at the Phoenix lander site for the time period of the surface operations (Ls=76-150). The simulation results for pressure and temperature at the surface are compared to data from the Phoenix Meteorological Station (MET). The vertical profiles of dust and temperature are compared to Phoenix LIDAR measurements and data from orbit (CRISM and MCS on MRO). The simulated conditions in the PBL are compared to those obtained in a dedicated PBL-Aeolian dust model [2] which was successfully applied to drive a detailed microphysical model [3] for the interpretation of clouds and precipitation observed by the LIDAR on Phoenix [4,5].

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