Modelling the Martian atmospheric boundary layer with 1.5 order turbulence closure schemes

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Based on Savijarvi's (1999) Martian boundary-layer model with a simple mixing-length turbulence closure, several commonly used 1.5 order turbulence closures are implemented. Model results with different turbulence closure schemes are compared with that of mixing-length closure and with the diurnal cycle in the Mars Pathfinder sol 3-6 observed temperature. The model processes concerning surface radiation and heat budget, and the atmospheric radiative and turbulent heating rates will be discussed.