



Preliminary analyses of the REMS Ground temperature data in Gale: exploring thermodynamic processes behind the diurnal variability

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The Mars surface skin temperature monitored by the Ground Temperature Sensor on REMS, responds to solar forcing and the interactions between atmospheric, surface, and subterranean properties. We present the evolution of the minimum, maximum, and mean temperatures for the first 100 sols. We also give a brief description of the GTS performance. Finally we explore how the diurnal cycle of ground temperatures relates to energy fluxes due to incident solar radiation fluxes, atmospheric thermal emission, wind driven heat exchanges, heat dissipation into the soil, surface properties, and heat fluxes associated to the rover influence. The analysis helps understand the type of possible thermodynamic interactions occurring between the lower atmosphere and the soil.