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Supporting Information for

Constraining the potential liquid water environment at Gale crater, Mars

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Introduction

Here we provide the supporting data for the generation of Figures 2, 3, and 4. For Figures 2 and 4, the data is provided in tabulated format. Due to the large size of the matrix used to generate Figure 3, the data is provided as a .mat file, which can be read by MATLAB, Python, and C/C++, and R.

Table 1.

Supporting data for Figure 2.

Ls	Enthalpy	Error	Time period
94.02	33.23	32.16	3am - 6am
76.90	24.71	21.37	3am - 6am
104.70	39.64	38.18	3am - 6am
106.38	50.91	29.58	3am - 6am
108.59	21.14	20.45	3am - 6am
110.85	53.88	34.90	3am - 6am
94.08	34.64	20.97	6am - 9am
99.39	25.25	22.97	6am - 9am
106.10	39.81	24.13	6am - 9am

Table 3.

Supporting data for Figure 4.

Here thermal inertia (across the horizontal) is in J m^{-2} K^{-1} $s^{-1/2}$, and albedo is along the vertical. The data in the matrix is in terms of percent of the martian year. Specifically, the value is the total hours a liquid was possible in the subsurface down to a depth of 1 m for one martian year divided by 16700 hours (total hours in one martian year) multiplied by 100. For example, if in one day at a depth of 1 cm and at a depth of 2 cm, a liquid was possible at each depth for one hour, then the sum of the hours a liquid was possible on that day is two hours.

The matrix presented in this table was used as the base data for Figure 4. MATLAB's interpolation routine was used for the color map shading, where black was set for all values equal to 0% and white was set for all values greater than 4%.

		Thermal Inertia						
		150	**175**	**200**	**225**	**250**	**275**	**300**
Albedo	**0.1**	0.4	0.1	0.0	0.0	0.0	0.0	0.0
	0.15	1.0	0.2	0.1	0.0	0.0	0.0	0.0
	0.2	1.5	0.6	0.2	0.0	0.0	0.0	0.0
	0.25	3.9	1.0	0.5	0.2	0.1	0.0	0.0
	0.3	4.7	2.8	0.9	0.6	0.3	0.2	0.1

Metadata for Figure 3 supporting files.

We provide three .mat files (Figure3a.mat; Figure3b.mat; and Figure3c.mat). Each .mat file contains the supporting data per subfigure. The data structure of each .mat files follows

	Depth = 1 cm		Depth = 2 cm		Depth = 4 cm		Depth = 6 cm	
	T (K)	RH_l (%)	T (K)	RH_l (%)	T (K)	RH_l (%)	T (K)	RH_l (%)
<------ Values								

where *T* is the local temperature in kelvin and *RH_l* is relative humidity with respect to liquid in percent.