

ANNEX S TO MARS CORRECT: CRITIQUE OF ALL NASA MARS WEATHER DATA Two Martian Years of MSL High Air and Ground Temperatures

This Annex documents all Mars Science Laboratory (MSL) high air and ground temperatures weather data for MSL's first two Martian years on the planet (1,338 sols). It also reveals what the Roffman Team sees as temperature anomalies, and how the REMS Team and JPL altered their data after we color-highlighted what was off the expected temperature and pressure curves.

Revisions and Inconsistent High Air and Ground Temperatures Call MSL Temperature Data into Question. Updated on May 16, 2016.

On September 29, 2015 NASA's Jet Propulsion Agency announced that they had found evidence of thousands of running (briny) water streams on the surface of Mars. While not yet confirmed, JPL (<http://www.americaspace.com/?p=86717>) let us know that, "Dark streaks seen on the slopes of Mount Sharp in Gale crater may also be RSL. It was noted in the press conference, but that hasn't been confirmed yet, and if they are, it's still unknown whether the Curiosity rover could get close enough to study them." JPL made a major effort to use the presence of perchlorates to explain how running water could be found on the surface of such a cold planet with such low atmospheric pressure. We vigorously challenge their air pressure contentions throughout this site, but with respect to the temperatures as is shown on Tables 1 and 2 below, the high ground temperatures and to a lesser degree the high air temperatures where the Mars Science Laboratory (MSL) roams at Gale Crater are often above the freezing normal point of water freezing. All such on Table 2 **temperatures at MSL that are above 0° C are indicated with bold red fonts**. Table 2 shows the first Martian year (669 sols) on the left and the on-going second Martian year on the right side. Columns J and K show changes in high temperatures between the first and second years. If Mars had no atmosphere we would expect to see little change between the two years on sols that are at the same solar longitude (Ls). The more the variation the more it appears that the atmosphere is dense enough to bring about significant variation in weather. Further explanation of Table 2 is found below the Table. A calculator to convert Earth to Mars dates and to find the dates of Mars at various solar longitudes may be found at http://www-mars.lmd.jussieu.fr/mars/time/martian_time.html. MSL will complete its second Martian year on May 11, 2016. We plan on presenting a very detailed analysis of how the two years differed from each other at that time.

The Temperatures Involved: Here is data that we gathered and placed in our article: **As of May 14, 2016 (two full Martian Years) it appears that the high air or ground temperature is above 0° C at Gale Crater on 411 days of the 669 sols in a Martian year.** This number surprisingly increased in early winter of **MSL Year 2** on **16 sols** between Ls 95 and 104 with above freezing ground temperatures of **+1, +1, +2, +1, +1, +1, +1, +1, +1, +2, +2, +2, +3, +1, +2 and +1 °C** found where in **Year 1** the ground temperatures on those days were **-7, -6, -3, -6, -5, -9, -11, -8, -8, -13, -7, -7, -8, -8, -10 and -9° C**. There were also five sols (1222, 1223, 1230, 1237 and 1244) at Ls 94, 98, 101 and 104 where **the ground temperature in Year 2 was 0° C** while **in Year 1 it was only -10, -7 -5, -9 and -10° C**. A quick summary for this 24-sol period each year is as follows:

TABLE 1								
USUALLY WARM GROUND TEMPERATURES EARLY IN THE WINTER OF MSL YEAR 2								
Msl Year	Ls Range	Sol Range (24 Sols)	Average Day Air Temp Hi ° C	Average Night Air Temp Lo ° C	Average Drop In Air Temp Day To Night	Average Day Ground Temp Hi ° C	Average Night Ground Temp Lo ° C	Average Drop In Ground Temp Day To Night
1	93 TO 104	552 TO 575	-26.66667	-84.9583	-58.2916	-8.45833	-90.79167	-82.3233
2	93 TO 104	1,221 TO 1,244	-26.79167	-87.45833	-60.6666	+0.79167	-96.54167	-97.3333

MARS SCIENCE LABORATORY HIGH AIR AND GROUND TEMPERATURES

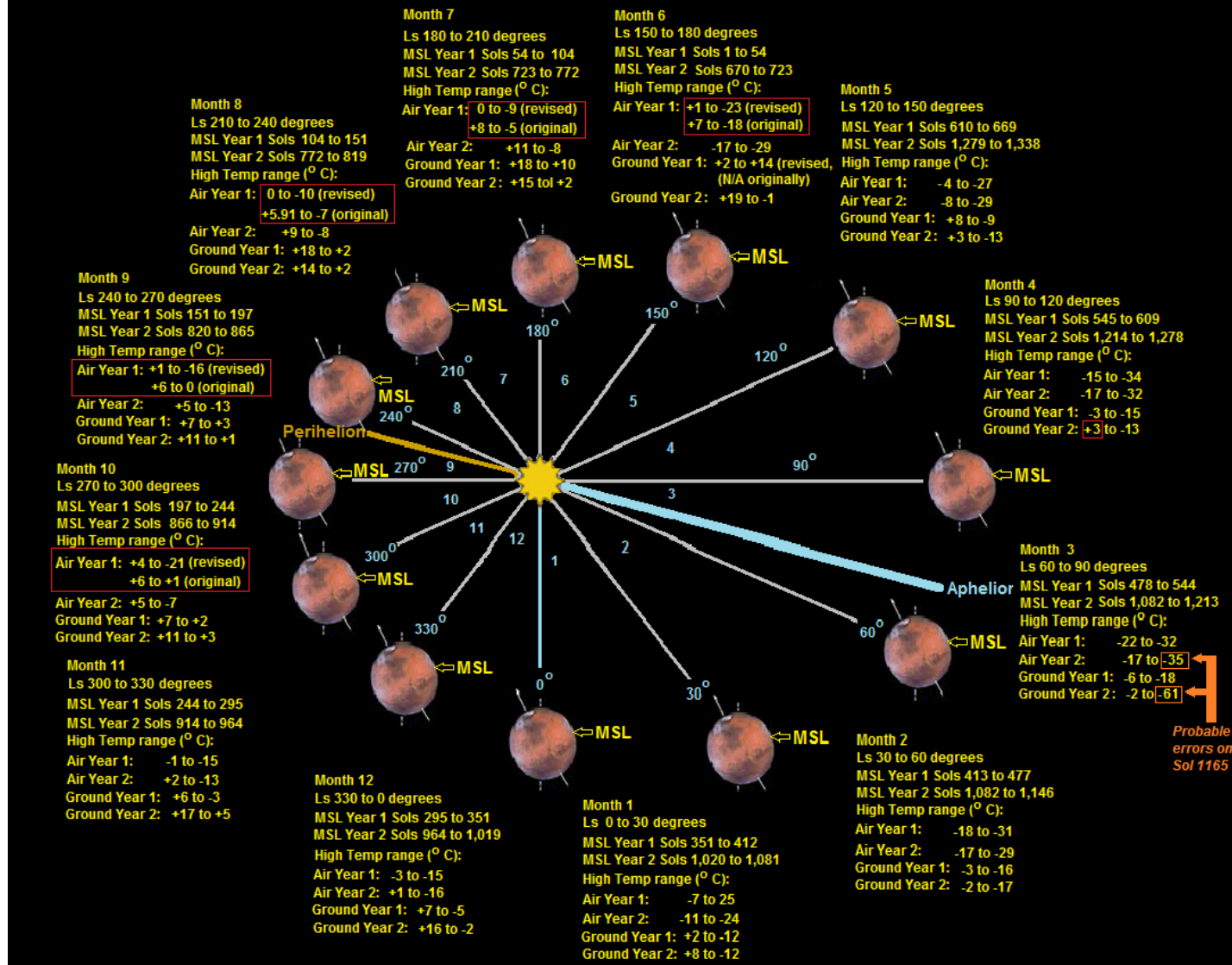


Figure 1 above - Range of high air and ground temperatures through MSL Years 1 and 2.

On Table 2 column subjects and color codings are as follows:

Column A (Sol) for MSL Year 1. The Martian day is about 39 minutes longer than the terrestrial day.

Column B is solar longitude (Ls) for MSL Year 1. MSL is in the Southern Hemisphere on Mars. The landing was at Ls 150 in winter. Ls 180 begins the spring there. Ls 270 starts summer, Ls 0 starts the fall. Ls 90 starts the winter.

Column C shows the maximum air temperature MSL Year 1. **Temperatures above 0°C are shown with red bold fonts.** With respect to the freezing point, from 0° C at 1 atm pressure it will increase up to 0.01° C at 0.006 atm (which is about the average pressure on Mars as given by NASA). This is the triple point of water. At pressures below this, water will never be liquid. It will change directly between solid and gas phase (sublimation). The temperature for this phase change, the sublimation point, will decrease as the pressure is further decreased

Column D shows original maximum air temperature for MSL Year 1. **Temperatures above 0°C are shown with red bold fonts.** A serious issue here is that JPL took so long to revise the temperatures that it allegedly found at Gale Crater that they raise serious questions about the quality of any temperature instruments sent to Mars. In general when maximum temperatures were far above the freezing point of water, JPL knocked them down. It's also true that JPL added 4 or 5 °C between sols 10 and sol 443 (August 16, 2012 to November 3, 2013. All the temperature data appears to have been artificially manipulated. See Table 1 at [MSL Year 1 Mars Weather Data and Data Revisions](#).

Column E shows maximum ground temperature. **Temperatures above 0°C are shown with red bold fonts.** As with terrestrial deserts, the ground on Mars heats more during the day than the air does, and it cools more at night than the air does.

Column F (Sol) for MSL Year 2.

Column G is solar longitude (Ls) for MSL Year 1.

Column H shows the maximum air temperature MSL Year 2. **Temperatures above 0°C are shown with red bold fonts.**

Column I shows maximum ground temperature MSL Year 2. As with terrestrial deserts, the ground on Mars heats more during the day than the air does, and it cools more at night than the air does. **Temperatures above 0°C are shown with red bold fonts.**

Column J shows the change in high air temperatures for the same Ls between MSL Years 1 and 2. The hypothesis is that where there is little or no air (like on the Moon) temperatures at the same LS should be extremely similar between MSL Years 1 and 2 unless there is a significant increase or decrease in energy coming from the sun.

Column K shows the change in high ground temperatures for the same Ls between MSL Years 1 and 2. The hypothesis is that where there is little or no air (like on the Moon) temperatures at the same LS should be extremely similar between MSL Years 1 and 2 unless there is a significant increase or decrease in energy coming from the sun or unless there are significant differences in the nature of the rock or soil (or what is under the soil, such as briny water) being exposed to the sun. Great differences may be used to detect certain substances (like water). There is some indication that running surface water from RSL may exist at Gale crater, but it is not yet certain that MSL will confirm this by going there.

A	B	C	D	E	F	G	H	I	J	K
YEAR 1 SOL	~LS	Max Air Temp. °C	Original Max Air Temp. °C	Max Ground Temp °C	YEAR 2 SOL	~LS	Max Air Temp °C	Max Ground Temp °C	Δ Air High °C	Δ Ground High °C

A	B	C	D	E	F	G	H	I	J	K
YEAR 1 SOL	~LS	Max Air Temp. °C	Original Max Air Temp. °C	Max Ground Temp °C	YEAR 2 SOL	~LS	Max Air Temp °C	Max Ground Temp °C	Δ Air High	Δ Ground High
1	150	N/A	-6	21 changed to N/A	670	151	-7	4 changed to N/A	N/A	N/A
2	151	N/A	N/A	N/A	671	151	-15	6	N/A	N/A
3	152	N/A	N/A	N/A	672	152	-16	7	N/A	N/A
4	152	N/A	N/A	N/A	673	152	-16	8	N/A	N/A
5	153	N/A	N/A	N/A	674	153	-17	7	N/A	N/A
6	153	N/A	N/A	N/A	675	153	-12	10	N/A	N/A
7	154	N/A	N/A	N/A	676	154	-17	9	N/A	N/A
8	155	N/A	N/A	N/A	677	154	-12	0	N/A	N/A
9	155	N/A	-13	17	678	155	-17	-1	N/A	N/A
10	155	-16		8	679	155	-13	1	3	-7
11	156	-11		9	680	156	-15	1	-4	-8
12	156	-18		8	681	156	-17	2	1	-6
13	157	-15		8	682	157	-16	2	-1	-6
14	157	-16		8	683	158	-7	8	9	0
15	158	-15		8	684	158	-9	6	6	-2
16	158	0	-1	9	685	159	-2	8	-2	-1

A	B	C	D	E	F	G	H	I	J	K
YEAR 1 SOL	~LS	Max Air Temp. °C	Original Max Air Temp. °C	Max Ground Temp °C	YEAR 2 SOL	~LS	Max Air Temp °C	Max Ground Temp °C	Δ Air High °C	Δ Ground High °C
17	159	-4	0	6	686	159	-4	2	0	-4
18	160	-21		2	687	160	-2	3	19	1
19	160	-3	-18	7	688	160	-5	8	-2	-1
20	161	-1		8	689	161	-6	6	-5	-2
21	161	-3	0	7	690	161	-7	5	-4	-2
22	162	-6	3	8	691	162	-8	4	-2	-4
23	162	-16	0	8	692	162	-4	6	12	-2
24	163	-7	0	6	693	163	-2	2	5	-4
25	163	-11		6	694	164	-1	2	10	-4
26	164	-14	2	5	695	164	-1	11	13	6
27	164	-15	-1	5	696	165	-2	9	13	4
28	165	-15	-6	5	697	165	-4	8	8	11
29	166	-2	-7	6	698	166	-3	9	-1	3
30	166	-3	-2	6	699	166	-2	9	1	3
31	167	-23	-3	1	700	167	-2	8	21	7
32	167	-2		6	701	167	-1	8	1	2
33	168	-2		5	702	168	-2	8	0	3
34	168	1	0	5	703	169	-6	9	-7	4
35	169	-1	-2	6	704	169	-5	12	-4	6
36	169	-1	5	6	705	170	-9	14	-8	8
37	170	0	0	6	706	170	0	8	0	2
38	171	-13	-3	7	707	171	1	5	14	-2
39	171	-8	-3	7	708	171	1	5	9	-2
40	172	-12	2	7	709	172	-11	16	1	9

A	B	C	D	E	F	G	H	I	J	K
YEAR 1 SOL	~LS	Max Air Temp. °C	Original Max Air Temp. °C	Max Ground Temp °C	YEAR 2 SOL	~LS	Max Air Temp °C	Max Ground Temp °C	Δ Air High °C	Δ Ground High °C
41	172	-12	2	7	710	172	-12	15	0	8
42	173	-7	5	7	711	173	-11	18	-4	11
43	173	-12	3	9	712	174	-10	18	2	9
44	174	-10	4	13	713	174	-12	19	-2	6
45	175	-9	3	11	714	175	2	8	11	-3
46	175	-12	4	13	715	175	2	3	14	-10
47	176	-9	6	13	716	176	2	6	11	-7
48	176	0	4	11	717	176	5	11	5	0
49	177	-10	4	9	718	177	3	12	13	3
50	177	-10	0	11	719	178	-1	12	9	1
51	178	-7	3	13	720	178	-1	13	6	0
52	179	-7	7	12	721	179	-5	12	2	0
53	179	-5	5	11	722	179	1	14	6	0
54	180 Spring begins	-9	5	10	723	180 Spring begins	2	14	11	4
55	180	-2	-1	10	724	181	1	14	3	4
56	181	-4	-3.8	10	725	181	-5	13	-1	3
57	181	-3	-3.8	12	726	182	1	14	4	2
58	182	-3	-3	11	727	182	1	14	4	3
59	183	-1	-1	11	728	183	1	14	2	3
60	183	-2	-2	12	729	183	3	13	5	1
61	184	-2	-1	12	730	184	3	12	5	0
62	184	-1	-1	11	731	185	4	12	5	1
63	185	0	-1	11	732	185	-8	13	-8	2

A	B	C	D	E	F	G	H	I	J	K
YEAR 1 SOL	~LS	Max Air Temp. °C	Original Max Air Temp. °C	Max Ground Temp °C	YEAR 2 SOL	~LS	Max Air Temp °C	Max Ground Temp °C	Δ Air High °C	Δ Ground High °C
64	186	0	-1	12	733	186	-2	15	-2	3
65	186	-2	-2	12	734	186	-3	15	-1	3
66	187	-2	-5	11	735	187	1	14	3	3
67	187	-6	-1	13	736	188	0	0	6	13
68	188	-2		12	737	188	3	9	5	=3
69	189	0		12	738	189	0	7	0	-4
70	189	-1	-2	13	739	189	-1	4	0	-9
71	190	-2		12	740	190	-2	2	0	-10
72	190	-2	0	12	741	191	-1	4	1	-8
73	191	0	-2	13	742	191	0	4	0	-9
74	192	-5		13	743	192	0	14	5	1
75	192	-1	-1	12	744	192	-2	10	-1	-2
76	193	-1	-1	14	745	193	1	13	2	-1
77	193	0	-1	14	746	194	2	14	2	0
78	194	0	0	13	747	194	6	15	6	2
79	195	-1	-2	13	748	195	5	10	6	-3
80	195	-3	-1	14	749	195	3	7	6	-7
81	196	-2	-1.5	13	750	196	4	8	6	-5
82	196	0	-0.4	13	751	197	-6	13	-6	0
83	197	0	-0.5	15	752	197	-3	8	-3	-7
84	198	0	-0.5	15	753	198	8	12	8	-3
85	198	-1	-0.9	14	754	198	6	14	7	-3
86	199	-4	-4	15	755	199	2	14	6	0
87	199	-2	-4	15	756	200	3	15	5	0
88	200	-2		15	757	200	5	14	7	-1

A	B	C	D	E	F	G	H	I	J	K
YEAR 1 SOL	~LS	Max Air Temp. °C	Original Max Air Temp. °C	Max Ground Temp °C	YEAR 2 SOL	~LS	Max Air Temp °C	Max Ground Temp °C	Δ Air High °C	Δ Ground High °C
89	201	-1	-1	15	758	201	3	14	4	-1
90	201	0	-0.4	16	759	201	8	13	8	-3
91	202	-1	-0.8	15	760	202	11	14	12	-1
92	202	-1	0	15	761	203	7	14	8	-1
93	203	-1		15	762	203	7	14	8	-1
94	204	0		15	763	204	6	15	6	0
95	204	0		14	764	205	4	14	4	0
96	205	2	2	15	765	205	5	14	3	-1
97	206	-3		14	766	206	8	14	11	0
98	206	-1		15	767	206	9	14	10	-1
99	207	-1	-1	13	768	207	2	14	3	1
100	207	-1	-1	13	769	208	4	15	5	2
101	208	-2		16	770	208	2	14	4	-2
102	209	-3	8	17	771	209	9	14	12	-3
103	209	-3		19	772	210	8	13	11	-6
104	210	-5	4.7	18	773	210	8	14	13	-4
105	211	-6		17	774	211	1	14	7	-3
106	211	-8		17	775	211	-9 altered to +3	-10 altered to +14	11	-3
107	212	-5		17	776	212	5	13	10	-4
108	212	-4	5	17	777	213	8	14	12	3
109	213	-3		16	778	213	6	13	9	-3
110	214	-5		17	779	214	6	14	11	-3
111	214	-4		18	780	215	0	14	4	-3
112	215	-8	5	18	781	215	-5	9	3	-9

A	B	C	D	E	F	G	H	I	J	K
YEAR 1 SOL	~LS	Max Air Temp. °C	Original Max Air Temp. °C	Max Ground Temp °C	YEAR 2 SOL	~LS	Max Air Temp °C	Max Ground Temp °C	Δ Air High °C	Δ Ground High °C
113	216	-6	3	16	782	216	9	8	15	-8
114	216	-6	3	18	783	216	6	8	12	-10
115	217	-8	1	17	784	217	-4	9	4	-8
116	217	-6	5	18	785	218	-1	6	5	-12
117	218	-5	3.45	18	786	218	-4	5	1	-13
118	219	-6	4.53	18	787	219	-7	5	-1	-13
119	219	-6	3.12	19	788	220	-5	5	1	=14
120	220	-3	5.91	16	789	220	-4	5	-1	-11
121	221	0	1.31	9	790	221	2	7	2	-2
122	221	-3		3	791	222	0	4	3	1
123	222	-10	2.1	2	792	222	0	3	10	1
124	223	-5	5.4	6	793	223	0	4	5	-2
125	223	-5	3.4	7	794	223	-5	6	0	-1
126	224	-4	-5	7	795	224	1	6	5	-1
127	224	-1		7	796	225	1	5	2	-2
128	225	-3	-4	6	797	225	-1	11	2	5
129	226	-2	-4	6	798	226	0	10	2	4
130	226	-9	-6	5	799	227	-4	14	5	9
131	227	-8	-7	6	800	227	-2	13	6	7
132	228	-6	-6.8	5	801	228	3	13	9	8

A	B	C	D	E	F	G	H	I	J	K
YEAR 1 SOL	~LS	Max Air Temp. °C	Original Max Air Temp. °C	Max Ground Temp °C	YEAR 2 SOL	~LS	Max Air Temp °C	Max Ground Temp °C	Δ Air High °C	Δ Ground High °C
133	228	1	0.6	6	802	229	7	13	6	7
134	229	-1	-0.62	7	803	229	0	13	1	6
135	230	-5	-4.66	8	804	230	0	12	5	4
136	230	-1		7	805	231	1	12	2	5
137	231	-1		8	806	231	2	12	3	4
138	232	-1		8	807	232	1	11	2	3
139	232	0		9	808	232	7	3	7	-6
140	233	-2		8	809	233	-2	4	0	-4
141	233	-2		8	810	234	3	3	5	-5
142	234	0		8	811	234	-6	4	-6	-4
143	235	-2	-3	8	812	235	3	4	5	-4
144	235	2		7	813	236	2	2	4	
145	236	-1	-2	7	814	236	-3	2	-2	-5
146	237	-1		8	815	237	-8	3	-7	-5
147	237	0		6	816	238	-7	3	-7	-5
148	238	3		5	817	238	0	2	-3	-3
149	239	0	3	4	818	239	0	4	0	0
150	239	-3	2	6	819	240	0	4	3	-2
151	240	-3		5	820	240	-1	2	2	-3

A	B	C	D	E	F	G	H	I	J	K
YEAR 1 SOL	~LS	Max Air Temp. °C	Original Max Air Temp. °C	Max Ground Temp °C	YEAR 2 SOL	~LS	Max Air Temp °C	Max Ground Temp °C	Δ Air High °C	Δ Ground High °C
152	241	1	3.85	6	821	241	2	1	1	-5
153	241	1	3	4	822	242	1	3	0	-1
154	242	-2	1.45	4	823	242	0	2	2	-2
155	243	0	2.15	4	824	243	2	2	2	-2
156	243	0	2	5	825	243	1	3	1	-2
157	244	-2	1.75	5	826	244	0	3	2	-2
158	245	-3	3	4	827	245	0	2	3	-2
159	245	-4	3.51	5	828	245	-1	3	3	-2
160	246	-3		6	829	246	-12 altered to -2	-9 altered to +3	1	-3
161	246	-2	0	5	830	247	-1	3	1	-2
162	247	-1	1	7	831	247	-6	3	-5	-4
163	248	-1	0	6	832	248	-2	4	-1	-2
164	248	-1	0	7	833	248	-1	4	0	-3
165	249	-3	0	4	834	249	-3	4	0	0
166	250	-5	3	4	835	250	-1	4	4	0
167	250	-3	4	6	836	250	-1	5	2	-1
168	251	1	5	7	837	251	4	6	3	-1

A	B	C	D	E	F	G	H	I	J	K
YEAR 1 SOL	~LS	Max Air Temp. °C	Original Max Air Temp. °C	Max Ground Temp °C	YEAR 2 SOL	~LS	Max Air Temp °C	Max Ground Temp °C	Δ Air High °C	Δ Ground High °C
169	252	0	4	6	838	252	-1	4	-1	-2
170	252	0		5	839	253	-1	2	-1	-3
171	253	1	6	6	840	253	-4	3	-5	-3
172	254	0	6	6	841	254	-7	5	-7	-1
173	254	0	5	6	842	255	-6	5	-6	-1
174	255	0	5	7	843	255	1	4	1	-3
175	256	-4		6	844	256	5	3	9	-3
176	256	0	5	6	845	257	0	3	0	-3
177	257	-1	5.2	5	846	257	-7	3	-6	-2
178	258	-2		6	847	258	-8	4	-6	-2
179	258	-7	5	5	848	258	-4	3	3	-2
180	259	-1	4	6	849	259	-1	2	0	-4
181	260	1	N/A	6	850	260	-1	2	-2	-4
182	260	0	6	7	851	260	-6	2	-6	-5
183	261	-1		6	852	261	-3	4	-2	-2
184	261	0	3	6	853	262	0	2	0	-4

A	B	C	D	E	F	G	H	I	J	K
YEAR 1 SOL	~LS	Max Air Temp. °C	Original Max Air Temp. °C	Max Ground Temp °C	YEAR 2 SOL	~LS	Max Air Temp °C	Max Ground Temp °C	Δ Air High °C	Δ Ground High °C
185	263	-5	4	7	854	262	3	2	8	-5
186	263	-2	4	5	855	263	0	3	2	-2
187	264	-1	6	7	856	264	-3	3	-2	-4
188	264	-3	2	7	857	264	0	3	3	-4
189	265	-2		6	858	265	-6	4	-4	-2
190	265	-3		7	859	266	-8	3	-5	-4
191	266	-3		7	860	266	-8	3	-5	-4
192	267	-16		N/A	861	267	-7	3	9	N/A
193	267	N/A		N/A	862	268	-2	11	N/A	N/A
194	268	N/A		N/A	863	268	-13	3	N/A	N/A
195	269	N/A	1	N/A	864	269	-1	3	N/A	N/A
196	269	-3		7	865	270	-5	4	-2	-3
197	270 Summer begins	-3		5	866	270 Summer begins	-4	4	-1	-1
198	271	-2	5	6	867	271	-2	4	0	-2
199	271	0	6	4	868	271	-4	3	-4	-1

A	B	C	D	E	F	G	H	I	J	K
YEAR 1 SOL	~LS	Max Air Temp. °C	Original Max Air Temp. °C	Max Ground Temp °C	YEAR 2 SOL	~LS	Max Air Temp °C	Max Ground Temp °C	Δ Air High °C	Δ Ground High °C
200	272	N/A	-21	N/A	869	272	-4	5	N/A	N/A
201		N/A	N/A	N/A	870	273	-6	4	N/A	N/A
202		N/A	N/A	N/A	871	273	-7	3	N/A	N/A
203		N/A	N/A	N/A	872	274	1	5	N/A	N/A
204		N/A	N/A	N/A	873	275	N/A	N/A	N/A	N/A
205		N/A	N/A	N/A	874	275	N/A	N/A	N/A	N/A
206		N/A	N/A	N/A	875	276	N/A	N/A	N/A	N/A
207		N/A	N/A	N/A	876	277	N/A	N/A	N/A	N/A
208		N/A	N/A	N/A	877	277	N/A	N/A	N/A	N/A
209		N/A	N/A	N/A	878	278	N/A	N/A	N/A	N/A
210		N/A	N/A	N/A	879	279	N/A	N/A	N/A	N/A
211		N/A	N/A	N/A	880	279	N/A	N/A	N/A	N/A
212		N/A	N/A	N/A	881	279	-4	4	N/A	N/A
213		N/A	N/A	N/A	882	280	-4	3	N/A	N/A
214		N/A	N/A	N/A	883	280	-6	3	N/A	N/A
215	281	N/A	-4	7 CHANGED TO N/A	884	281	-5	5	N/A	N/A
216		N/A	N/A	N/A	885	282	-4	4	N/A	N/A
217		N/A	N/A	N/A	886	282	-6	4	N/A	N/A
218		N/A	N/A	N/A	887	283	-4	5	N/A	N/A
219		N/A	N/A	N/A	888	284	-5	3	N/A	N/A
220		N/A	N/A	N/A	889	284	2	4	N/A	N/A
221		N/A	N/A	N/A	890	285	-4	5	N/A	N/A

A	B	C	D	E	F	G	H	I	J	K
YEAR 1 SOL	~LS	Max Air Temp. °C	Original Max Air Temp. °C	Max Ground Temp °C	YEAR 2 SOL	~LS	Max Air Temp °C	Max Ground Temp °C	Δ Air High °C	Δ Ground High °C
222	286	N/A	-3	6 CHANGED TO N/A	891	286	-3	5	N/A	N/A
223	287	-5		6	892	286	-3	5	2	-1
224	287	-1	3	6	893	287	2	4	3	-2
225	288	-8	1	7	894	287	-4	4	4	-3
226	288	1	4	6	895	288	-4	5	5	-1
227	289	4	5	7	896	289	1	8	-3	1
228	290	3	2	7	897	289	5	7	2	0
229	290	-4	1	7	898	290	2	7	6	0
230	291	0		7	899	291	-1	7	-1	0
231	292	-6	2	7	900	291	1	7	7	0
232	292	-5	2	6	901	292	-2	11	3	5
233	293	-3	5	6	902	292	0	5	3	-1
234	293	-4		5	903	293	-2	6	2	1
235	294	0		7	904	294	0	8	0	1
236	295	-3		6	905	294	-2	8	1	2

A	B	C	D	E	F	G	H	I	J	K
YEAR 1 SOL	~LS	Max Air Temp. °C	Original Max Air Temp. °C	Max Ground Temp °C	YEAR 2 SOL	~LS	Max Air Temp °C	Max Ground Temp °C	Δ Air High °C	Δ Ground High °C
237	295	-5		6	906	295	-3	9	2	3
238	296	-2		7	907	296	-1	8	1	1
239	297	-1		5	908	296	-3	8	-2	3
240	297	-6		5	909	297	-2	8	4	3
241	298	0		5	910	297	0	9	0	4
242	298	-7		6	911	298	0	8	7	2
243	299	-7		6	912	299	-4	8	3	2
244	300	-6		7	913	299	-4	10	2	3
245	300	-6		6	914	300	0	8	6	2
246	301	-1		6	915	300	-4	9	-3	3
247	301	-4		6	916	301	-5	9	-1	3
248	302	-4		3	917	302	-1	9	3	6
249	303	-3		5	918	302	0	9	3	4
250	303	-2		5	919	303	-3	9	-1	4
251	304	-2		7	920	304	-2	9	0	2
252	304	-8		5	921	304	-2	9	6	4
253	305	-6		5	922	305	-2	9	4	4
254	306	-3		4	923	305	-5	14	-2	10
255	306	-5		6	924	306	-1	10	4	4
256	307	-2		5	925	307	-2	9	0	4
257	308	-1		5	926	307	-2	10	-1	5
258	308	-9		6	927	308	-2	11	7	5

A	B	C	D	E	F	G	H	I	J	K
YEAR 1 SOL	~LS	Max Air Temp. °C	Original Max Air Temp. °C	Max Ground Temp °C	YEAR 2 SOL	~LS	Max Air Temp °C	Max Ground Temp °C	Δ Air High °C	Δ Ground High °C
259	309	-3		6	928	308	0	9	3	3
260	309	-11		2	929	309	0	11	11	9
261	310	-4		4	930	310	-1	10	3	6
262	311	N/A		N/A	931	310	-1	10	N/A	N/A
263		N/A	N/A	N/A	932	311	1	10	N/A	N/A
264		N/A	N/A	N/A	933	311	-4	11	N/A	N/A
265		N/A	N/A	N/A	934	312	1	11	N/A	N/A
266		N/A	N/A	N/A	935	313	-2	10	N/A	N/A
267	313	N/A	N/A	N/A	936	313	-3	9	N/A	N/A
268	314	-5		2	937	314	0	10	5	8
269	315	-3		2	938	314	0	10	3	8
270	315	-6		1	939	315	N/A	N/A	N/A	N/A
271	316	-6		2	940	316	-2	8	4	6
272	316	-5		-1	941	317	0	6	5	7
273	317	-4		-1	942	317	-1	6	3	7
274	318	-1		-1	943	318	-1	5	0	6
275	318	-6		-1	944	318	0	6	6	9
276	319	-4		0	945	319	-1	5	3	5
277	319	-4		-1	946	320	-2	6	2	7
278	320	-3		-1	947	320	-3	6	0	7
279	321	-5		-1	948	321	-8	6	-3	7

A	B	C	D	E	F	G	H	I	J	K
YEAR 1 SOL	~LS	Max Air Temp. °C	Original Max Air Temp. °C	Max Ground Temp °C	YEAR 2 SOL	~LS	Max Air Temp °C	Max Ground Temp °C	Δ Air High °C	Δ Ground High °C
280	321	-4		0	949	321	-4	9	0	9
281	322	-2		0	950	322	0	13	2	13
282	322	-2		-1	951	323	-4	14	-2	15
283	323	-4		1	952	323	-6	14	-2	13
284	323	-3		-1	953	324	-5	12	-2	13
285	324	-5		0	954	324	-3	11	2	11
286	325	-2		-1	955	325	N/A	N/A	N/A	N/A
287	325	-3		-1	956	325	N/A	N/A	N/A	N/A
288	326	-4		0	957	326	N/A	N/A	N/A	N/A
289	326	-3		0	958	327	-9	17	1	17
290	327	-3		0	959	327	-4	14	-1	14
291	327	-4		0	960	328	-8	15	-4	15
292	328	-1		-1	961	328	-3	11	-2	12
293	329	-4		0	962	329	-2	11	2	11
294	329	-4		-1	963	329	-5	10	-1	11
295	330	-15		-1	964	330	-13	9	2	10
296	330	-9		1	965	331	-10	8	-1	7
297	331	-7		2	966	331	-12	9	-5	7
298	331	-3		3	967	332	-2	12	-1	9
299	332	-9		-1	968	332	-3	11	6	12

A	B	C	D	E	F	G	H	I	J	K
YEAR 1 SOL	~LS	Max Air Temp. °C	Original Max Air Temp. °C	Max Ground Temp °C	YEAR 2 SOL	~LS	Max Air Temp °C	Max Ground Temp °C	Δ Air High °C	Δ Ground High °C
300	333	-8		-2	969	333	-2	11	6	13
301	333	-6		-4	970	333	-4	11	2	15
302	334	-3		1	971	334	-3	14	0	13
303	334	-8		1	972	334	-3	14	5	13
304	335	-6		1	973	335	-4	16	2	15
305	335	-5		1	974	336	-3	14	2	13
306	336	-8		2	975	336	-3	14	5	12
307	336	-8		-3	976	337	-6	10	2	13
308	337	-5		-1	977	337	-4	10	1	11
309	338	-7		-2	978	338	-2	10	5	12
310	338	-9	-71	-2	979	338	-4	11	5	13
311	339	-8		-2	980	339	1	11	9	13
312	340	-11		-1	981	339	-3	8	8	9
313	340	-14		2	982	340	-4	7	10	5
314	340	-11		2	983	340	-6	12	5	10
315	341	-10		3	984	341	-6	11	4	8
316	341	-16		2	985	342	-5	9	11	7
317	342	-4		2	986	342	-1	9	3	7
318	342	-4		3	987	343	-7	9	-3	6
319	343	-3		4	988	343	-10	8	-7	4

A	B	C	D	E	F	G	H	I	J	K
YEAR 1 SOL	~LS	Max Air Temp. °C	Original Max Air Temp. °C	Max Ground Temp °C	YEAR 2 SOL	~LS	Max Air Temp °C	Max Ground Temp °C	Δ Air High °C	Δ Ground High °C
320	344	-4		3	989	344	-10	9	-6	6
321	344	-5		3	990	345	-1	9	4	6
322	345	-5		3	991	345	-3	4	2	1
323	345	-6		4	992	345	-6	4	0	0
324	346	-8		8	993	346	-8	3	0	-5
325	346	-8	N/A	8	994	346	-5	3	3	-5
326	347	-5	N/A	5	995	347	-4	5	1	0
327	347	-8	N/A	7	996	348	-4	2	4	-5
328	348			8	997	348	-13	1		-7
329	348	-7		7	998	348	-8	1	-1	-6
330	349	-5		8	999	349	N/A	N/A	N/A	N/A
331	349	-3	N/A	6	1000	350	-12	1	-9	-5
332	350	-5	N/A	4	1001	350	-12	2	-7	-2
333	350	-5		2	1002	351	-12	1	-7	-1
334	351	-6	N/A	1	1003	351	-10	1	-4	0
335	352	-7	N/A	5	1004	352	-9	1	-2	-4
336	352	-8	N/A	4	1005	352	-12	1	-4	-3
337	353	-7	N/A	3	1006	353	-13	0	-6	-3
338	353	-7	N/A	2	1007	353	-12	1	-5	-1
339	354	-8	N/A	3	1008	354	-12	2	-4	-1
340	354	-6	N/A	5	1009	354	-12	1	-6	-4
341	354	-6	N/A	4	1010	355	-11	-1	-5	-5

A	B	C	D	E	F	G	H	I	J	K
YEAR 1 SOL	~LS	Max Air Temp. °C	Original Max Air Temp. °C	Max Ground Temp °C	YEAR 2 SOL	~LS	Max Air Temp °C	Max Ground Temp °C	Δ Air High °C	Δ Ground High °C
342	355	-7	N/A	2	1011	355	-12	0	-5	-2
343	356	-11	N/A	2	1012	356	-16	-1	-5	-3
344	356	-6	N/A	2	1013	356	-12	0	-6	-2
345	357	-7	N/A	3	1014	356	-14	0	-7	-3
346	357	-7	N/A	1	1015	357	-13	1	-6	0
347	358	-9	N/A	2	1016	358	-11	0	-2	-2
348	358	-8	N/A	1	1017	359	-12	-1	-4	-2
349	359	-12	N/A	-1	1018	359	-15	-1	-3	0
350	359	-6	N/A	0	1019	0	-14	-2	-8	-2
351	0 Fall begins	-12	N/A	-4	1020	0 Fall begins	-12	1	0	5
352	0	-9	N/A	-3	1021	1	-14	-1	-5	-2
353	1	-8	N/A	-4	1022	1	-12	-2	-4	2
354	1	-13	N/A	-1	1023	2	-15	-1	-2	0
355	2	-7	N/A	0	1024	2	-15	-1	-8	-1
356	2	-7	N/A	-1	1025	3	-14	-1	-7	0
357	3	-7	N/A	-1	1026	3	-16	-1	-9	0
358	3	N/A	N/A	N/A	1027		N/A	N/A	N/A	N/A
359	4	N/A	N/A	N/A	1028	4	-15	-2	N/A	N/A
360	4	N/A	N/A	N/A	1029	5	-14	-2	N/A	N/A
361	5	N/A	N/A	N/A	1030	5	-15	-1	N/A	N/A
362	5	N/A	N/A	N/A	1031	6	-15	0	N/A	N/A

A	B	C	D	E	F	G	H	I	J	K
YEAR 1 SOL	~LS	Max Air Temp. °C	Original Max Air Temp. °C	Max Ground Temp °C	YEAR 2 SOL	~LS	Max Air Temp °C	Max Ground Temp °C	Δ Air High °C	Δ Ground High °C
363	6	N/A	N/A	N/A	1032	6	-16	0	N/A	N/A
364	6	N/A	N/A	N/A	1033	7	-14	-2	N/A	N/A
365	7	N/A	N/A	N/A	1034	7	-14	-1	N/A	N/A
366	7	-12	N/A	-3	1035	8	-12	6	0	9
367	8	-9	N/A	-2	1036	8	-17	4	-8	6
368	8	-9	N/A	-3	1037	9	-21	-1	-12	-2
369	9	-9	N/A	3	1038	9	-21	-1	-12	-4
370	9	-9	N/A	-1	1039	10	-21	-1	-12	0
371	10	-11	N/A	-3	1040	10	-21	0	-10	3
372	10	-9	N/A	2	1041	11	-22	0	-13	-2
373	11	-8	N/A	0	1042	11	-20	-4	-12	-4
374	11	-9	N/A	0	1043	12	-20	-3	-11	-3
375	12	-9	N/A	-1	1044	12	-20	-3	-11	2
376	12	-11	N/A	-2	1045	13	-13	1	-2	3
377	13	-12	N/A	2	1046	13	-12	2	0	0
378	13	-18	N/A	-4	1047	14	-14	2	4	6
379	14	-12	N/A	-2	1048	14	-15	-2	-3	0
380	14	-13	N/A	-4	1049	15	-21	5	-8	9
381	15	-13	N/A	-4	1050	15	-22	6	-9	10
382	15	-14	N/A	-4	1051	16	-20	4	-6	8
383	16	-12	N/A	-6	1052	16	-12	1	0	7
384	16	-12	N/A	-4	1053	17	-11	8	1	12
385	17	-12	N/A	-3	1054	17	-11	6	1	9

A	B	C	D	E	F	G	H	I	J	K
YEAR 1 SOL	~LS	Max Air Temp. °C	Original Max Air Temp. °C	Max Ground Temp °C	YEAR 2 SOL	~LS	Max Air Temp °C	Max Ground Temp °C	Δ Air High °C	Δ Ground High °C
386	17	-12	N/A	-7	1055	17	-20	6	-8	13
387	18	-13	N/A	-7	1056	18	-21	4	-8	11
388	18	-13	N/A	-6	1057	18	-22	6	-9	12
389	19	-14	N/A	-7	1058	19	-22	1	-8	8
390	19	-16	N/A	-1	1059	19	-20	2	-4	3
391	20	-17	N/A	-9	1060	20	-16	2	1	11
392	20	-17	N/A	-4	1061	20	-23	3	-6	7
393	21	-18	N/A	-5	1062	21	-24	2	-6	7
394	21	-18	N/A	-4	1063	21	-19	1	-1	5
395	22	-20	N/A	-5	1064	22	-22	2	-2	7
396	22	-15	N/A	-5	1065	22	-19	2	-4	7
397	23	-15	N/A	-7	1066	23	-14	0	1	7
398	23	-14	N/A	-6	1067	23	-24	1	10	7
399	24	-16	N/A	-4	1068	24	-23	-3	-7	1
400	24	-16	N/A	-6	1069	24	-22	-4	-6	2
401	25	-15	N/A	-5	1070	25	-14	-5	1	0
402	25	-18	N/A	-3	1071	25	-16	-4	2	-1
403	25	-18	N/A	-5	1072	26	-15	2	3	7

A	B	C	D	E	F	G	H	I	J	K
YEAR 1 SOL	~LS	Max Air Temp. °C	Original Max Air Temp. °C	Max Ground Temp °C	YEAR 2 SOL	~LS	Max Air Temp °C	Max Ground Temp °C	Δ Air High °C	Δ Ground High °C
404	26	-20	N/A	-6	1073	26	-15	1	5	7
405	26	-25	N/A	-6	1074	27	-14	-2	11	4
406	27	-15	N/A	1	1075	27	-13	-3	2	-4
407	27	-17	N/A	0	1076	28	-14	-1	3	-1
408	28	-16	N/A	0	1077	28	-16	-2	0	-2
409	28	-17	N/A	-2	1078	29	-18	1	-1	3
410	29	-14	N/A	-7	1079	29	-21	-3	-7	4
411	29	-17	N/A	-8	1080	29	-17	-3	0	5
412	30	-22	N/A	-2	1081	30	-18	-7	4	-5
413	30	-22	N/A	-2	1082	30	-17	-7	5	-5
414	31	-18	N/A	-4	1083	31	-20	-7	-2	-3
415	31	-19	N/A	-4	1084	31	-22	-9	-3	-5
416	32	-18	N/A	-6	1085	32	-23	-10	-5	-4
417	32	-21	N/A	-2	1086	32	-25	-2	-4	0
418	33	-21	N/A	-3	1087	33	-19	-3	-2	0
419	33	-24	N/A	-5	1088	33	-19	-7	-5	-2
420	33	-19	N/A	-7	1089	34	-19	-7	0	0
421	34	-24	N/A	-7	1090	34	-20	-6	4	1
422	34	-20	N/A	-7	1091	35	-21	-7	-1	0
423	35	-24	N/A	-11	1092	35	-23	-8	1	3
424	35	-22	N/A	-4	1093	36	-21	-4	1	0
425	36	-21	N/A	-5	1094	36	-20	-7	1	-2
426	36	-22	N/A	-5	1095	36	-24	-8	-2	-3
427	37	-21	N/A	-4	1096	37	-24	-7	-3	3

A	B	C	D	E	F	G	H	I	J	K
YEAR 1 SOL	~LS	Max Air Temp. °C	Original Max Air Temp. °C	Max Ground Temp °C	YEAR 2 SOL	~LS	Max Air Temp °C	Max Ground Temp °C	Δ Air High °C	Δ Ground High °C
428	37	-23	N/A	-6	1097	37	-27	-8	-4	-2
429	38	-21	N/A	-5	1098	38	-26	-10	-5	-5
430	38	-24	N/A	-5	1099	38	-24	-7	0	-2
431	39	-24	N/A	-9	1100	39	-22	-8	2	1
432	39	-26	N/A	-9	1101	39	-23	-4	3	5
433	40	-26	N/A	-9	1102	40	-25	-6	1	3
434	40	-25	N/A	-11	1103	40	-26	-5	-1	6
435	40	-24	N/A	-9	1104	41	-25	-6	-1	3
436	41	-24	N/A	-7	1105	41	-25	-9	-1	-2
437	41	-27	N/A	-10	1106	42	-22	-8	5	2
438	42	-26	N/A	-14	1107	42	-24	-7	2	7
439	42	-21	N/A	-15	1108	42	-25	-6	-4	9
440	43	-25	N/A	-11	1109	43	-26	-7	-1	4
441	43	-23	N/A	-10	1110	43	-25	-8	-2	2
442	44	-22	N/A	-9	1111	44	-26	-13	-4	-4
443	44	-24	N/A	-11	1112	44	-24	-10	0	1
444	45	N/A	N/A	N/A	1113	45	-24	-12	N/A	N/A
445	45	N/A	N/A	N/A	1114	45	-25	-12	N/A	N/A
446	46	N/A	N/A	N/A	1115	46	-21	-11	N/A	N/A
447	46	N/A	N/A	N/A	1116	46	-26	-13	N/A	N/A
448	47	N/A	N/A	N/A	1117	47	-25	-12	N/A	N/A
449	47	N/A	N/A	N/A	1118	47	-25	-13	N/A	N/A
450	48	N/A	N/A	N/A	1119	48	-22	-12	N/A	N/A
451	48	N/A	N/A	N/A	1120	48	-24	-11	N/A	N/A
452	49	N/A	N/A	N/A	1121	48	-25	-13	N/A	N/A

A	B	C	D	E	F	G	H	I	J	K
YEAR 1 SOL	~LS	Max Air Temp. °C	Original Max Air Temp. °C	Max Ground Temp °C	YEAR 2 SOL	~LS	Max Air Temp °C	Max Ground Temp °C	Δ Air High °C	Δ Ground High °C
453	49	N/A	N/A	N/A	1122	49	-26	-13	N/A	N/A
454	50	N/A	N/A	N/A	1123	49	-27	-12	N/A	N/A
455	50	-28	N/A	-12	1124	50	-26	-12	2	0
456	50	-26	N/A	-12	1125	50	-22	-13	4	-1
457	51	N/A	N/A	N/A	1126	51	-21	-12	N/A	N/A
458	51	N/A	N/A	N/A	1127	51	-27	-13	N/A	N/A
459	52	N/A	N/A	N/A	1128	52	-27	-13	N/A	N/A
460	52	N/A	N/A	N/A	1129	52	-23	-14	N/A	N/A
461	53	N/A	N/A	N/A	1130	53	-25	-13	N/A	N/A
462	53	N/A	N/A	N/A	1131	53	-28	-14	N/A	N/A
463	53	-26	N/A	-13	1132	53	-27	-14	-1	-1
464	54	-26	N/A	-13	1133	54	-26	-14	0	-1
465	54	-23	N/A	-13	1134	54	-27	-14	-4	-1
466	55	-26	N/A	-12	1135	55	-27	-15	-1	-3
467	55	-28	N/A	-11	1136	55	-23	-14	5	-3
468	55	-29	N/A	-14	1137	56	-26	-14	0	0
469	56	-29	N/A	-12	1138	56	-29	-15	0	-3
470	56	N/A revised to -26	N/A	N/A revised to -9	1139	57	-25	-14	N/A	-5
471	57	N/A revised to -26	N/A	N/A revised to -12	1140	57	-26	-16	N/A	-4

A	B	C	D	E	F	G	H	I	J	K
YEAR 1 SOL	~LS	Max Air Temp. °C	Original Max Air Temp. °C	Max Ground Temp °C	YEAR 2 SOL	~LS	Max Air Temp °C	Max Ground Temp °C	Δ Air High °C	Δ Ground High °C
472	57	-31	N/A	-10	1141	57	-28	-12	3	-2
473	58	-29	N/A	-8	1142	58	-23	-14	6	-6
474	58	-26	N/A	-9	1143	58	-29	-17	-3	-8
475	59	-28	N/A	-9	1144	59	-28	-10	0	-1
476	59	-25	N/A	-7	1145	59	-29	-12	-4	-5
477	60	-26	N/A	-9	1146	60	-28	-16	-2	-7
478	60	N/A	N/A	N/A	1147	60	-29	-17	N/A	N/A
479	61	N/A	N/A	N/A	1148	61	-28	-15	N/A	N/A
480	61	N/A	N/A	N/A	1149	61	-23	-17	N/A	N/A
481	62	N/A	N/A	N/A	1150	62	-29	-17	N/A	N/A
482	62	N/A	N/A	N/A	1151	62	-31	-17	N/A	N/A
483	63	N/A	N/A	N/A	1152	62	-30	-17	N/A	N/A
484	63	N/A	N/A	N/A	1153	63	-31	-16	N/A	N/A
485	63	N/A	N/A	N/A	1154	63	-29	-13	N/A	N/A
486	64	-31	N/A	-12	1155	64	-26	-13	5	-1
487	64	N/A revised to -30	N/A	N/A revised to -8	1156	64	-30	-13	0	-5
488	64	N/A revised to -23	N/A	N/A revised to -11	1157	65	-32	-14	-9	-3
489	65	-29	N/A	-11	1158	65	-28	-12	1	-1
490	65	-31	N/A	-10	1159	66	-28	-14	3	-4

A	B	C	D	E	F	G	H	I	J	K
YEAR 1 SOL	~LS	Max Air Temp. °C	Original Max Air Temp. °C	Max Ground Temp °C	YEAR 2 SOL	~LS	Max Air Temp °C	Max Ground Temp °C	Δ Air High °C	Δ Ground High °C
491	66	-30	N/A	-13	1160	66	-28	-15	2	-2
492	66	-30	N/A	-13	1161	66	-26	-13	4	0
493	67	-32	N/A	-14	1162	67	-27	-12	5	2
494	67	-24	N/A	-9	1163	67	-29	-12	-5	-3
495	68	-26	N/A	-10	1164	68	-35	-14	-9	-4
496	68	-26	N/A	-10	1165	68	-35	-61	-9	-51
497	69	-30	N/A	-9	1166	69	-31	-12	-1	-3
498	69	-28	N/A	-10	1167	69	-25	-13	3	-3
499	69	-30	N/A	-9	1168	70	-29	-10	1	-1
500	70	-23	N/A	-11	1169	70	-32	-16	-9	-5
501	70	-28	N/A	-10	1170	71	-31	-15	-3	-5
502	71	-30	N/A	-8	1171	71	-29	-15	1	-7
503	71	N/A revised to -28	N/A	N/A revised to -10	1172	71	-26	-13	2	-3
504	72	-29	N/A	-9	1173	72	-31	-14	-5	-5
505	72	-29	N/A	-8	1174	72	-25	-8	4	0

A	B	C	D	E	F	G	H	I	J	K
YEAR 1 SOL	~LS	Max Air Temp. °C	Original Max Air Temp. °C	Max Ground Temp °C	YEAR 2 SOL	~LS	Max Air Temp °C	Max Ground Temp °C	Δ Air High °C	Δ Ground High °C
506	73	-27	N/A	-9	1175	73	-23	-11	4	-2
507	73	-25	N/A	-10	1176	73	-31	-12	-6	-2
508	73	-29	N/A	-11	1177	74	-27	-12	2	-1
509	74	-30	N/A	-13	1178	74	-23	-13	7	0
510	74	-31	N/A	-13	1179	75	-25	-12	6	1
511	75	-31	N/A	-10	1180	75	-27	-11	4	-1
512	75	-24	N/A	-9	1181	75	-24	-7	0	2
513	76	-29	N/A	-10	1182	76	-29	-6	0	4
514	76	-28	N/A	-10	1183	76	-26	-5	2	5
515	77	-23	N/A	-6	1184	77	-28	-4	-5	2
516	77	-25	N/A	-6	1185	77	-24	-3	1	3
517	77	-27	N/A	-6	1186	78	-28	-8	-1	-2
518	78	-29	N/A	-9	1187	78	-29	-8	0	1
519	78	-25	N/A	-11	1188	79	-31	-11	-6	0
520	79	-24	N/A	-9	1189	79	-24	-10	0	-1

A	B	C	D	E	F	G	H	I	J	K
YEAR 1 SOL	~LS	Max Air Temp. °C	Original Max Air Temp. °C	Max Ground Temp °C	YEAR 2 SOL	~LS	Max Air Temp °C	Max Ground Temp °C	Δ Air High °C	Δ Ground High °C
521	79	-26	N/A	-7	1190	79	-29	-12	-3	-5
522	80	-26	N/A	-7	1191	80	-28	-11	-2	-4
523	80	-25	N/A	-7	1192	80	-24	-10	1	-3
524	81	-27	N/A	-7	1193	81	-28	-10	-1	-3
525	81	-29	N/A	-11	1194	81	-29	-5	0	6
526	82	-24	N/A	-10	1195	82	-32	-6	-8	4
527	82	-23	N/A	-7	1196	82	-27	-7	-4	0
528	82	-26	N/A	-9	1197	83	-26	-13	0	-4
529	83	-23	N/A	-11	1198	83	-23	-13	0	-2
530	83	-28	N/A	-11	1199	84	-29	-14	-1	-3
531	84	-22	N/A	-12	1200	84	-27	-12	-5	0
532	84	-23	N/A	-10	1201	84	-29	-13	-6	-3
533	85	-30	N/A	-7	1202	85	-22	-12	8	-5
534	85	-29	N/A	-6	1203	85	-23	-13	6	-7

A	B	C	D	E	F	G	H	I	J	K
YEAR 1 SOL	~LS	Max Air Temp. °C	Original Max Air Temp. °C	Max Ground Temp °C	YEAR 2 SOL	~LS	Max Air Temp °C	Max Ground Temp °C	Δ Air High °C	Δ Ground High °C
535	86	-29	N/A	-7	1204	86	-25	-12	4	-5
536	86	-29	N/A	-12	1205	86	-26	-13	3	-1
537	86	-28	N/A	-11	1206	87	-24	-13	4	-2
538	87	-25	N/A	-8	1207	87	-25	-13	0	-5
539	87	-23	N/A	-17	1208	88	-24	-12	-1	5
540	88	-29	N/A	-18	1209	88	-24	-12	5	6
541	88	-27	N/A	-11	1210	88	-23	-12	4	-1
542	89	-29	N/A	-11	1211	89	-22	-12	7	-1
543	89	-26	N/A	-16	1212	89	-28	-13	-2	3
544	90 WINTER	-27	N/A	-16	1213	90	-27	-12	0	4
545	90 WINTER	-29	N/A	-14	1214	90	-24	-12	5	2
546	91	-34	N/A	-13	1215	91	-27	-3	7	10
547	91	-29	N/A	-10	1216	91	-28	-6	1	4
548	91	-28	N/A	-10	1217	92	-27	-3	1	7
549	92	-23	N/A	-12	1218	92	-32	-6	-9	6

A	B	C	D	E	F	G	H	I	J	K
YEAR 1 SOL	~LS	Max Air Temp. °C	Original Max Air Temp. °C	Max Ground Temp °C	YEAR 2 SOL	~LS	Max Air Temp °C	Max Ground Temp °C	Δ Air High °C	Δ Ground High °C
550	92	-27	N/A	-9	1219	93	-27	-4	0	5
551	93	-28	N/A	-11	1220	93	-28	-3	0	8
552	93	-29	N/A	-11	1221	93	-28	-1	1	10
553	94	-26	N/A	-10	1222	94	-28	0	-2	10
554	94	-22	N/A	-7	1223	94	-26	0	-4	7
555	95	-31	N/A	-9	1224	95	-29	1	2	10
556	95	-29	N/A	-7	1225	95	-28	-1	1	6
557	96	-29	N/A	-6	1226	96	-24	1	5	7
558	96	-26	N/A	-6	1227	96	-26	2	0	8
559	96	-27	N/A	-3	1228	97	-28	1	-1	4
560	97	-23	N/A	-6	1229	97	-26	1	-3	7
561	97	-23	N/A	-5	1230	98	-26	0	-3	5
562	98	-23	N/A	-11	1231	98	-26	1	-3	12
563	98	-31	N/A	-9	1232	99	-28	1	-3	10
564	99	-27	N/A	-11	1233	99	-27	1	0	12
565	99	-27	N/A	-8	1234	99	-26	2	1	10

A	B	C	D	E	F	G	H	I	J	K
YEAR 1 SOL	~LS	Max Air Temp. °C	Original Max Air Temp. °C	Max Ground Temp °C	YEAR 2 SOL	~LS	Max Air Temp °C	Max Ground Temp °C	Δ Air High °C	Δ Ground High °C
566	100	-27	N/A	-13	1235	100	-28	-1	-1	12
567	100	-28	N/A	-13	1236	100	-26	1	2	14
568	101	-28	N/A	-9	1237	101	-29	0	-1	9
569	101	-27	N/A	-7	1238	101	-26	2	1	9
570	102	-26	N/A	-7	1239	102	-26	2	0	9
571	102	-26	N/A	-8	1240	102	-24	3	2	11
572	102	-27	N/A	-8	1241	103	-28	1	-1	9
573	102	-27	N/A	-10	1242	103	-26	2	1	12
574	103	-23	N/A	-9	1243	104	-26	1	-3	10
575	104	-26	N/A	-10	1244	104	-26	0	0	10
576	104	-26	N/A	-8	1245	105	-26	-4	0	4
577	105	-27	N/A	-11	1246	105	-25	-3	2	8
578	105	-23	N/A	-9	1247	105	-25	-3	-2	6
579	106	-22	N/A	-8	1248	106	-23	-4	-1	4
580	106	-24	N/A	-10	1249	106	-32	-9	-8	1
581	107	-28	N/A	-9	1250	107	-28	-11	0	-2

A	B	C	D	E	F	G	H	I	J	K
YEAR 1 SOL	~LS	Max Air Temp. °C	Original Max Air Temp. °C	Max Ground Temp °C	YEAR 2 SOL	~LS	Max Air Temp °C	Max Ground Temp °C	Δ Air High °C	Δ Ground High °C
582	107	-27	N/A	-9	1251	107	-27	-11	0	-2
583	108	-27	N/A	-10	1252	108	-31	-9	-4	1
584	108	-25	N/A	-8	1253	108	-26	-10	-1	-2
585	109	-26	N/A	-9	1254	109	-29	-11	-3	-2
586	109	-24	N/A	-8	1255	109	-25	-10	-1	-2
587	109	-28	N/A	-9	1256	110	-27	-10	1	-1
588	110	-24	N/A	-8	1257	110	-21	-8	3	0
589	110	-27	N/A	-10	1258	111	-23	-13	4	-3
590	111	-26	N/A	-11	1259	111	-25	-12	1	-1
591	111	-26	N/A	-11	1260	112	-23	-12	3	-1
592	112	-26	N/A	-11	1261	112	-25	-12	1	-1
593	112	-23	N/A	-11	1262	112	-29	-12	-6	-1
594	113	-22	N/A	-15	1263	113	-29	-10	-7	5
595	113	-25	N/A	-12	1264	113	-27	-7	-2	5

A	B	C	D	E	F	G	H	I	J	K
YEAR 1 SOL	~LS	Max Air Temp. °C	Original Max Air Temp. °C	Max Ground Temp °C	YEAR 2 SOL	~LS	Max Air Temp °C	Max Ground Temp °C	Δ Air High °C	Δ Ground High °C
596	114	-24	N/A	-10	1265	114	-28	-7	-4	3
597	114	-26	N/A	-11	1266	114	-27	-8	-1	3
598	115	-25	N/A	-10	1267	115	-24	-11	1	-1
599	115	-20	N/A	-9	1268	115	-24	-11	-4	-2
600	116	-25	N/A	-14	1269	116	-17	-12	8	2
601	116	-25	N/A	-8	1270	116	-18	-11	7	-3
602	117	-22	N/A	-11	1271	117	-22	-12	0	-1
603	117	-15	N/A	-9	1272	117	-23	-12	-8	-3
604	118	-17	N/A	-9	1273	118	-19	-12	-2	-3
605	118	-22	N/A	-9	1274	118	-17	-2	5	7
606	118	-27	N/A	-8	1275	119	-17	-3	10	5
607	119	-28	N/A	-5	1276	119	-20	-3	8	2
608	119	-21	N/A	-4	1277	120	-28	-5	-7	-1
609	120	-20	N/A	-5	1278	120	-37 revised to -29	-8 revised to -7	-17 revised to -9	-3 revised to -2

A	B	C	D	E	F	G	H	I	J	K
YEAR 1 SOL	~LS	Max Air Temp. °C	Original Max Air Temp. °C	Max Ground Temp °C	YEAR 2 SOL	~LS	Max Air Temp °C	Max Ground Temp °C	Δ Air High °C	Δ Ground High °C
610	120	-20	N/A	-5	1279	121	-29	-7	-9	-2
611	121	-23	N/A	-5	1280	121	-23	-7	0	-2
612	121	-27	N/A	-4	1281	122	-22	-5	5	-1
613	122	-21	N/A	-4	1282	122	-16	-6	5	-2
614	122	-19	N/A	-5	1283	123	-20	-8	-1	-3
615	123	-23	N/A	-4	1284	123	-21	-11	2	-7
616	123	-19	N/A	-4	1285	123	-13	-10	6	-6
617	124	-19	N/A	-4	1286	124	-19	-11	0	-7
618	124	-23	N/A	-3	1287	124	-18	-11	5	-8
619	125	-22	N/A	-3	1288	125	-16	-10	6	-7
620	125	-19	N/A	-4	1289	125	N/A	N/A	N/A	N/A
621	126	-21	N/A	-3	1290	126	N/A	N/A	N/A	N/A
622	126	-19	N/A	-3	1291	126	-21	-10	-2	-7
623	127	-21	N/A	-2	1292	127	-22	-12	-1	-10
624	127	-19	N/A	-2	1293	127	-21	-12	-2	-10
625	128	-24	N/A	-4	1294	128	-16	-7	8	-3

A	B	C	D	E	F	G	H	I	J	K
YEAR 1 SOL	~LS	Max Air Temp. °C	Original Max Air Temp. °C	Max Ground Temp °C	YEAR 2 SOL	~LS	Max Air Temp °C	Max Ground Temp °C	Δ Air High °C	Δ Ground High °C
626	128	-21	N/A	-3	1295	128	-20	-9	1	-6
627	129	-19	N/A	-3	1296	129	-25	-7	-6	-4
628	129	-23	N/A	-2	1297	129	-24	-9	-1	-7
629	130	-24	N/A	-3	1298	130	-17	-9	7	-6
630	130	-20	N/A	-2	1299	130	-19	-13	1	-11
631	131	-18	N/A	-1	1300	131	-16	-13	2	-12
632	131	-18	N/A	-4	1301	131	-20	-10	-2	-6
633	132	-15	N/A	-3	1302	132	-24	-11	-9	-8
634	132	-20	N/A	4	1303	132	-26	-11	-6	-15
635	133	-10	N/A	-3	1304	133	-22	-9	-12	-6
636	133	-19	N/A	0	1305	133	-21	-9	-2	-9
637	134	-18	N/A	-5	1306	134	-23	-7	-5	-2
638	134	-12	N/A	-9	1307	134	-27	-9	-15	0
639	135	-16	N/A	-9	1308	135	-23	-9	-7	0
640	135	-11	N/A	-7	1309	135	-19	-8	-8	-1
641	136	-19	N/A	-2	1310	136	-15	-4	4	-2

A	B	C	D	E	F	G	H	I	J	K
YEAR 1 SOL	~LS	Max Air Temp. °C	Original Max Air Temp. °C	Max Ground Temp °C	YEAR 2 SOL	~LS	Max Air Temp °C	Max Ground Temp °C	Δ Air High °C	Δ Ground High °C
642	136	-19	N/A	-2	1311	136	-11	1	8	3
643	137	-14	N/A	-2	1312	137	-12	3	2	5
644	137	-19	N/A	0	1313	137	-14	1	5	1
645	138	-8	N/A	0	1314	138	-14	1	6	1
646	138	-16	N/A	0	1315	138	-14	3	2	3
647	139	-19	N/A	-2	1316	139	-20	2	-1	4
648	139	-20	N/A	-2	1317	139	-15	-6	5	-4
649	140	-14	N/A	-3	1318	140	-15	-9	-1	-6
650	140	-11	N/A	0	1319	140	-8	-7	3	-7
651	141	-8	N/A	2	1320	141	-11	-7	-3	-9
652	141	-12	N/A	-3	1321	141	-15	-8	-3	-5
653	142	-13	N/A	-4	1322	142	-10	-5	3	-1
654	142	-8	N/A	-4	1323	142	-11	-5	-3	-1
655	143	-14	N/A	0	1324	143	-9	-7	5	-7
656	143	-13	N/A	-3	1325	144	-14	-6	-1	-3
657	144	-6	N/A	1	1326	144	-15	-7	-9	-8

A	B	C	D	E	F	G	H	I	J	K
YEAR 1 SOL	~LS	Max Air Temp. °C	Original Max Air Temp. °C	Max Ground Temp °C	YEAR 2 SOL	~LS	Max Air Temp °C	Max Ground Temp °C	Δ Air High °C	Δ Ground High °C
658	144	-10	N/A	1	1327	145	-11	-6	-1	-7
659	145	-14	N/A	1	1328	145	-12	-7	2	-8
660	145	-12	N/A	1	1329	146	-15	-2	-3	-3
661	146	-10	N/A	1	1330	146	-14	-1	-4	-2
662	146	-11	N/A	4	1331	147	-19	0	-8	-4
663	147	-10	N/A	4	1332	147	-11	0	-1	4
664	147	-8	N/A	0	1333	148	-18	0	-10	0
665	148	-16	N/A	7	1334	148	-12	0	4	-7
666	148	-7	N/A	0	1335	149	-10	1	-3	1
667	149	-7	N/A	0	1336	149	-12	1	-5	1
668	150	-4	N/A	6	1337	150	-13	1	-9	-5
669	150	-4	N/A	8	1338	150	-18	0	-14	-8

RECORD WARM HIGH DAY WINTER GROUND TEMPERATURES FOR MSL SOLS 1234 TO 1241 - ALONG WITH RECORD LOW NIGHT GROUND TEMPS

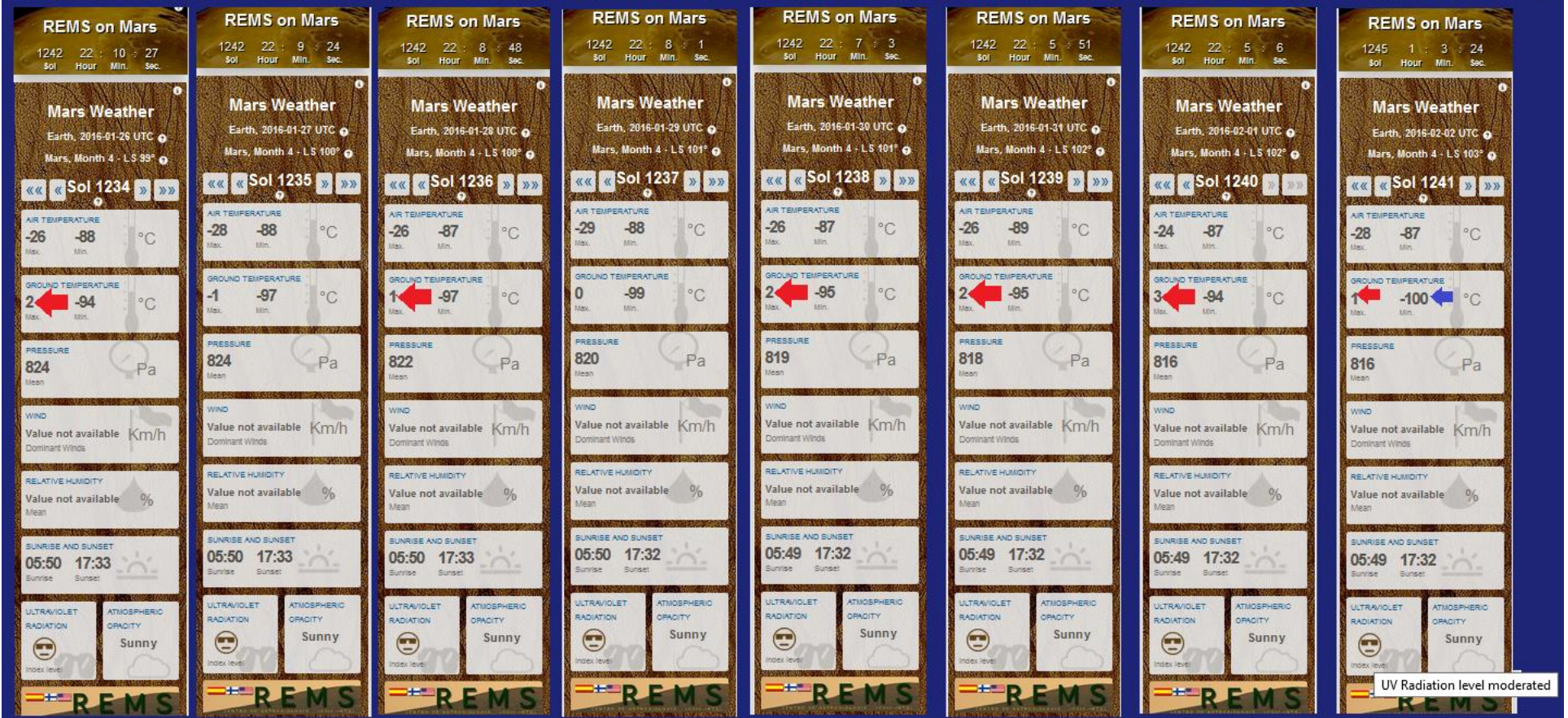


Figure 2: REMS weather reports published for MSL Sols 1234 to 1241. Note all the ground temperature highs above 0 degrees Celsius and the incredibly low ground temperature at night - down to -100 degrees Celsius on Sol 1241. We think this is evidence for broken ground temperature sensors, or failure to factor in the very poor accuracy of the ground temperature sensor (10K/10 degrees Celsius/18 degrees Fahrenheit).