ANNEX V TO
MARS CORRECT: CRITIQUE OFF ALL NASA MARS WEATHER DATA
MSL Year 3 Summer Weather Data (LS 270 to 0, Sols 1,534 to 1,687)

This Annex reveals all Mars Science Laboratory (MSL) weather data for MSL's Mars Year 3 summer. It shows what was published by the Rover Environmental Monitoring Station (REMS) Team and JPL. It also reveals what the Roffman Team sees as weather anomalies, and how the REMS Team and JPL altered their data after we color-highlighted what was off the expected temperature and pressure curves.

On Table 1 column subjects and color codings are as follows:

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

Column B is solar longitude (Ls). 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 pressure reported by the REMS Team.

Column D shows the date on Earth.

Column E shows the maximum air temperature. 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 F shows minimum air temperature.

Column G shows the air temperature range for each sol. On Earth temperatures can vary by 40 °C in deserts. In column G where the range is 59 °C or less yellow background coloring points that out. The National Park Service claims the world record in a diurnal temperature variation is 102 °F (57 °C) (from 46 °F (8 °C) to −56 °F (−49 °C)) in Browning, Montana (elevation 4,377 feet/1,334 meters) on January 23 to 24, 1916. There were 2 days in Montana where the temperature changed by 57 °C.

Column H shows temperature range divided by 40. This allows us to compare terrestrial deserts with Gale Crater, Mars. How much cooling occurs at night is related to the density of the atmosphere. Here we see the ratio of cooling on a Mars sol to the typical 40 °C cooling figure for Earth's deserts shown with a green background when that ratio is under 1.5. For MSL Year 1 when we altered the devisor from 40 °C to 57 °C then 88 of the ratios were altered to 1 or less than 1, meaning that Martian air pressure is indeed likely much higher than NASA claims.

Column I shows maximum ground temperature. 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. In Column K when the maximum ground temperature is given by REMS is above 0°C it is shown with a red background.

Column J shows the minimum ground temperature. When it is -90 °C or colder the background is in purple. The ground temperatures are not very precise. The requirement was to measure ground brightness temperature over the range from 150 to 300 K with a resolution of 2 K and an accuracy of 10 K.

Column K. Drop in ground temperature from day to night.

Column L shows the increase in temperature from the mast 1.5 meters above the ground down to the ground during the daylight hours. In column N anytime there is an increase in temperature of 11 °C or more this in indicated with a dark blue background.

Column M shows the decrease in temperature from the ground to the air at nights. If the data were valid we would expect similar heating or cooling to occur over the set distance from ground to boom. A quick survey of the data immediately shows that this was not found. In column L we see a variation in heating between 0 °C and at least 15 °C with a 54 °C anomaly on Sol 1,070. For nighttime cooling any variation from 11°C to 19°C is shown with a medium blue background. More than that is shown with a dark blue background.

Column N shows the pressure for the same Ls in MSL Year 1.

Column O shows the absolute value of the change in pressure in Pascals from the same Ls in the previous year (Column [M] - [C]).

Column P shows the original pressure for the same Ls in MSL Year 1 before JPL revised their data.

Column Q shows the Ls during Year 1.

Column R shows the UV for the sol in Year 2.

Column S shows the UV for the sol in Year 1. All sols in MSL Year 1 and Year 2 have opacity listed as "sunny" which seems dubious.

Column T shows comments, if any.

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
SOL	~LS	PRESSURE Pa	EARTH DATE	MAX AIR TEMP °C	MIN AIR TEMP °C	AIR TEMP RANGE °C	AIR TEMP RANGE °C/40	MAX GROUND TEMP °C	MIN GROUND TEMP °C	Δ GROUND TEMP DAY TO NIGHT	DAYTIME CHANGE IN TEMP °C AIR TO GROUND	NIGHTTIME CHANGE IN TEMP °C AIR TO GROUND	PRESSURE AT SAME LS IN MSL YEAR 2	Δ PRESSURE YEAR 3 TO YEAR 2 SAME LS	~LS Year 2	PRESSURE YEAR 1 BEFORE REVISION	UV YR 3	UV YR 2	NOTES and Year 2 Sol for this LS
						YELLOW IF <60 °C	GREEN IF <1.5	RED IF > 0 °C	PURPLE = >-90°C OR COLDER	Yellow numbers = -80 to -89 °C, red background = -90°C or colder drop	BLUE = >10°C	PURPLE = >10°C		YELLOW = > 7 Pa)					
1534	270	898	11/29/2016	-2	-73	71	1.775	13	-76	-89	15	-3	911	-13	270	N/A	H	M, Year 1 was H	(866) MSL first day of summer
1535	270	900	11/30/2016	-1	-73	72	1.8	12	-77	-89	13	-4	910	-10	271	N/A	H	M, Year 1 was H	(867)
1536	271	901	12/1/2016	-4	-71	67	1.675	12	-78	-90	16	-7	908	-7	272	N/A	H	M, Year 1 was H	(868)
1537	272	900	12/2/2016	-7	-74	67	1.675	12	-78	-90	19	-4	906	-6	272	N/A	H	M, Year 1 was N/A	(869)
1538	272	898	12/3/2016	-3	-73	70	1.75	13	-77	-90	16	-4	909	-11	273	N/A	H	M, Year 1 was N/A	(870)
1539	273	896	12/4/2016	-1	-74	73	1.825	13	-78	-91	14	-4	903	-7	273	N/A	H	M, Year 1 was N/A	(871)
1540	274	896	12/5/2016	-3	-74	71	1.775	13	-76	-89	16	-2	902	-6	274	N/A	H	M, Year 1 was N/A	(872)
1541	274	895	12/6/2016	-8	-76	68	1.7	13	-78	-91	21	-2	N/A	N/A	275	N/A	H	N/A. Year 1 also N/A	(873)
1542	275	895	12/7/2016	-9	-73	64	1.6	12	-79	-91	21	-6	N/A	N/A	275	N/A	H	N/A. Year 1 also N/A	(874)
1543	276	896	12/8/2016	-7	-74	67	1.675	12	-78	-90	19	-4	N/A	N/A	276	N/A	H	N/A. Year 1 also N/A	(875)
1544	276	894	12/9/2016	1	-71	72	1.8	12	-76	-88	11	-5	N/A	N/A	277	N/A	H	N/A. Year 1 also N/A	(876)

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
SOL	~LS	PRESSURE Pa	EARTH DATE	MAX AIR TEMP °C	MIN AIR TEMP °C	AIR TEMP RANGE °C	AIR TEMP RANGE °C/40	MAX GROUND TEMP °C	MIN GROUND TEMP °C	Δ GROUND TEMP DAY TO NIGHT	DAYTIME CHANGE IN TEMP °C AIR TO GROUND	NIGHTTIME CHANGE IN TEMP °C AIR TO GROUND	PRESSURE AT SAME LS IN MSL YEAR 2	Δ PRESSURE YEAR 3 TO YEAR 2 SAME LS	~LS Year 2	PRESSURE YEAR 1 BEFORE REVISION	UV YR 3	UV YR 2	NOTES and Year 2 Sol for this LS
						YELLOW IF <60 °C	GREEN IF <1.5	RED IF > 0 °C	PURPLE = >-90°C OR COLDER	Yellow numbers = -80 to -89 °C, red background = -90°C or colder drop	BLUE = >10°C	PURPLE = >10°C		YELLOW = > 7 Pa)					
1545	276	891	12/10/2016	3	-73	76	1.9	13	-76	-89	10	-3	N/A	N/A	277	N/A	H	N/A. Year 1 also N/A	(877)
1546	277	889	12/11/2016	-7	-73	66	1.65	13	-76	-89	20	-3	N/A	N/A	278	N/A	H	N/A. Year 1 also N/A	(878)
1547	278	887	12/12/2016	-8	-75	67	1.675	14	-77	-91	22	-2	N/A	N/A	279	N/A	H	N/A. Year 1 also N/A	(879)
1548	279	887	12/13/2016	-8	-76	68	1.7	13	-77	-90	21	-1	872	+15	279	858 later revised to N/A	M	N/A (was M). Year 1 also N/A	(880)
1549	279	887	12/14/2016	-2	-76	74	1.85	14	-76	-90	16	0	895	-8	280	899	H	M. Year 1 was N/A	(881)
1550	280	888	12/15/2016	-1	-71	70	1.75	13	-77	-90	14	-6	901	-13	280	N/A	H	M. Year 1 was N/A	(882)
1551	281	886	12/16/2016	0	-71	71	1.775	14	-78	-92	14	-7	897	-11	281	N/A	H	M. Year 1 was N/A	(883)
1552	281	886	12/17/2016	-6	-74	68	1.7	14	-77	-91	20	-3	897	-11	282	N/A	H	M. Year 1 was N/A	(884)
1553	282	884	12/17/2016	-9	-77	68	1.7	13	-80	-93	22	-3	895	-11	282	N/A	VH	M. Year 1 was N/A	(885)

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SOL	~LS	PRESSURE Pa	EARTH DATE	MAX AIR TEMP °C	MIN AIR TEMP °C	AIR TEMP RANGE °C	AIR TEMP RANGE °C/40	MAX GROUND TEMP °C	MIN GROUND TEMP °C	Δ GROUND TEMP DAY TO NIGHT	DAYTIME CHANGE IN TEMP °C AIR TO GROUND	NIGHTTIME CHANGE IN TEMP °C AIR TO GROUND	PRESSURE AT SAME LS IN MSL YEAR 2	Δ PRESSURE YEAR 3 TO YEAR 2 SAME LS	~LS Year 2	PRESSURE YEAR 1 BEFORE REVISION	UV YR 3	UV YR 2	NOTES and Year 2 Sol for this LS
						YELLOW IF <60 °C	GREEN IF <1.5	RED IF > 0 °C	PURPLE = >-90°C OR COLDER	Yellow numbers = -80 to -89 °C, red background = -90°C or colder drop	BLUE = >10°C	PURPLE = >10°C		YELLOW = > 7 Pa)					
1554	283	894	12/19/2016	-19	-70	51	1.275	11	-75	-86	30	-5	894	0	283	N/A	VH	M. Year 1 was N/A	(886) The Sol 1554 data is apparently odd in numerous ways. Watch for JPL to revise 10 Pa pressure rise and 30K change in max air temp to max ground temp. In the past errors like these also were noted for sols with VH UV values. See Figure 1.
1554 REVISED	283	882	12/19/2016	-7	-70	63	1.575	12	-75	-87	19	-5	894	-12	283	N/A	VH	M. Year 1 was N/A	(886) THE PREDICTION ABOVE THAT JPL WOULD REVISE DATA FOR FOR 1554 WAS CORRECT. SEE FIGURE 1.
1555	283	883	12/20/2016	-6	-71	65	1.625	13	-76	-89	19	-5	897	-14	284	N/A	VH	M. Year 1 was N/A	(887)
1556	284	883	12/21/2016	-5	-72	67	1.675	13	-74	-87	18	-2	896	-13	284	N/A	VH	H. Year 1 was N/A	(888)
1557	284	883	12/22/2016	-6	-74	68	1.7	13	-74	-87	19	0	895	-12	285	N/A	VH	H. Year 1 was N/A	(889)
1558	285	880	12/23/2016	-6	-72	66	1.65	13	-75	-88	19	-3	892	-12	286	N/A	H changed to VH	H. Year 1 was N/A	(890)

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
SOL	~LS	PRESSURE Pa	EARTH DATE	MAX AIR TEMP °C	MIN AIR TEMP °C	AIR TEMP RANGE °C	AIR TEMP RANGE °C/40	MAX GROUND TEMP °C	MIN GROUND TEMP °C	Δ GROUND TEMP DAY TO NIGHT	DAYTIME CHANGE IN TEMP °C AIR TO GROUND	NIGHTTIME CHANGE IN TEMP °C AIR TO GROUND	PRESSURE AT SAME LS IN MSL YEAR 2	Δ PRESSURE YEAR 3 TO YEAR 2 SAME LS	~LS Year 2	PRESSURE YEAR 1 BEFORE REVISION	UV YR 3	UV YR 2	NOTES and Year 2 Sol for this LS
						YELLOW IF <60 °C	GREEN IF <1.5	RED IF > 0 °C	PURPLE = >-90°C OR COLDER	Yellow numbers = -80 to -89 °C, red background = -90°C or colder drop	BLUE = >10°C	PURPLE = >10°C		YELLOW = > 7 Pa)					
1559	286	879	12/24/2016	-7	-76	69	1.725	14	-76	-90	21	0	892	-13	286	N/A	VH	H. Year 1 was N/A	(891)
1560	286	877	12/25/2016	-10	-76	66	1.65	13	-76	-89	23	0	892	-15	287	N/A	VH	H. Year 1 was VH	(892)
1561	287	877	12/27/2016	-8	-77	69	1.725	13	-77	-90	21	0	890	-13	287	N/A	VH	H. Year 1 was VH	(893)
1562	288	877	12/28/2016	-5	-73	68	1.7	14	-74	-88	19	-1	891	-14	288	N/A	VH	M. Year 1 was VH	(894)
1563	288	879	12/29/2016	-6	-75	69	1.725	14	-77	-91	20	-2	889	-12	289	N/A	VH	H. Year 1 was VH	(895)
1564	289	872	12/30/2016	-7	-70	63	1.575	12	-74	-86	19	-4	888	-16	289	N/A	VH	H. Year 1 was VH	(896)
1565	290	874	12/31/2016	-6	-72	66	1.65	13	-77	-90	19	-5	884	-10	290	N/A	VH	H. Year 1 was VH	(897)
1566	290	876	1/1/2017	-6	-76	70	1.75	13	-76	-89	19	0	883	-7	291	N/A	VH	VH. Year 1 was VH	(898)
1567	291	870	1/2/2017	-5	-70	65	1.625	13	-75	-88	18	-5	881	-11	291	N/A	VH	VH. Year 1 was VH	(899)
1568	291	876	1/3/2017	-5	-71	66	1.65	14	-75	-89	19	4	883	-7	292	N/A	VH	H. Year 1 was VH	(900)

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						YELLOW IF <60 °C	GREEN IF <1.5	RED IF > 0 °C	PURPLE = >-90°C OR COLDER	Yellow numbers = -80 to -89 °C, red background = -90°C or colder drop	BLUE = >10°C	PURPLE = >10°C		YELLOW = > 7 Pa)					
1569	292	873	1/4/2017	-5	-70	65	1.625	12	-75	-87	17	-5	885	-12	292	N/A	VH	H. Year 1 was VH	(901)
1570	293	873	1/5/2017	-6	-71	65	1.625	13	-74	-87	19	-3	883	-10	293	N/A	VH	H. Year 1 was VH	(902)
1571	293	873	1/6/2017	-3	-70	67	1.675	18	-75	-93	21	-5	882	-9	294	N/A	VH	H. Year 1 was VH	(903)
1572	294	869	1/7/2017	-6	-81	75	1.875	13	-80	-94	19	1	878	-9	294	N/A	H	H. Year 1 was VH	(904) Possible frontal passage may be indicated by colder night temps after an unusually high ground temp on the previous sol.
1573	295	872	1/8/2017	-2	-74	72	1.8	13	-75	-88	15	-1	880	-8	295	N/A	H	H. Year 1 was VH	(905)
1574	295	868	1/9/2017	4	-72	76	1.9	15	-76	-91	11	-4	878	-10	296	N/A	VH	H. Year 1 was VH	(906)
1575	296	860	1/10/2017	0	-58	58	1.45	17	-62	79	17	-4	879	-19	297	N/A	H	H. Year 1 was VH	(907) Unusually warm low air and ground temperatures. 19 Pa pressure difference from MSL Year 2 is off the curve. Watch for JPL to alter their report (shown below as Figure 2) for Sol 1575.

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
SOL	~LS	PRESSURE Pa	EARTH DATE	MAX AIR TEMP °C	MIN AIR TEMP °C	AIR TEMP RANGE °C	AIR TEMP RANGE °C/40	MAX GROUND TEMP °C	MIN GROUND TEMP °C	Δ GROUND TEMP DAY TO NIGHT	DAYTIME CHANGE IN TEMP °C AIR TO GROUND	NIGHTTIME CHANGE IN TEMP °C AIR TO GROUND	PRESSURE AT SAME LS IN MSL YEAR 2	Δ PRESSURE YEAR 3 TO YEAR 2 SAME LS	~LS Year 2	PRESSURE YEAR 1 BEFORE REVISION	UV YR 3	UV YR 2	NOTES and Year 2 Sol for this LS
						YELLOW IF <60 °C	GREEN IF <1.5	RED IF > 0 °C	PURPLE = >-90°C OR COLDER	Yellow numbers = -80 to -89 °C, red background = -90°C or colder drop	BLUE = >10°C	PURPLE = >10°C		YELLOW = > 7 Pa)					
1575 Revised	296	871	1/10/2017 Revised as predicted	0	-73	73	1.825	17	-76	-93	17	-3	879	-8	297	N/A	H	H. Year 1 was VH	(907) Bingo! Predicted changes in pressure and temperature above were carried out by NASA one day after the prediction. During this day this chart was first accessed by someone in Scottsdale, AZ believed to be associated with NASA. See Figure 2 again.
1576	296	869	1/11/2017	-1	-72	71	1.775	16	-77	-93	17	-5	878	-9	297	N/A	VH	H. Year 1 was VH	(909)
1577	297	866	1/12/2017	-3	-72	69	1.725	17	-80	-97	20	-8	878	-12	298	N/A	H	H. Year 1 was VH	(910)
1578	298	868	1/13/2017	-5	-74	69	1.725	17	-80	-97	22	-6	874	-6	299	N/A	VH	H. Year 1 was VH	(911)
1579	298	862	1/14/2017	-3	-73	70	1.75	16	-79	-95	19	-6	875	-13	299	N/A	H	H. Year 1 was VH	(912)
1580	299	867	1/15/2017	-2	-72	70	1.75	16	-77	-93	18	-5	871	-4	300	N/A	H	H. Year 1 was VH	(913)
1581	299	862	1/16/2017	-1	-72	71	1.775	16	-78	-94	17	-6	874	-12	300	N/A	H	H. Year 1 was VH	(914)

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						YELLOW IF <60 °C	GREEN IF <1.5	RED IF > 0 °C	PURPLE = >-90°C OR COLDER	Yellow numbers = -80 to -89 °C, red background = -90°C or colder drop	BLUE = >10°C	PURPLE = >10°C		YELLOW = > 7 Pa)					
1582	300	862	1/17/2017	-1	-74	73	1.825	20	-75	-95	21	-1	878	-16	301	N/A	H	H. Year 1 was VH	(915)
1583	301	862	1/18/2017	-4	-75	71	1.775	17	-79	-96	21	-4	872	-10	302	N/A	VH	H. Year 1 was VH.	(916)
1584	301	863	1/19/2017	-2	-77	75	1.875	17	-79	-96	19	-2	871	-8	302	N/A	VH	H. Year 1 was H.	(917)
1585	302	864	1/20/2017	-2	-76	74	1.85	13	-76	-89	15	0	867	-3	303	N/A	VH	H. Year 1 was H.	(918)
1586	303	858	1/21/2017	-1	-72	71	1.775	14	-77	-91	15	-5	870	-12	304	N/A	VH	H. Year 1 was VH.	(919)
1587	303	860	1/22/2017	-1	-73	72	1.8	16	-77	-93	17	-4	868	-8	304	N/A	VH	H. Year 1 was VH.	(920)
1588	304	858	1/23/2017	0	-72	72	1.8	12	-76	-88	12	-4	867	-9	305	N/A	VH	VH. Year 1 was VH.	(921)
1589	304	857	1/24/2017	-2	-72	70	1.75	12	-78	-90	14	-6	870	-13	305	N/A	VH	VH. Year 1 was VH.	(922)
1590	305	860 (changed fron 864)	1/25/2017	-1	-76	75	1.875	15	-79	-94	16	-3	867	-7 (changed from -3)	306	N/A	M (changed from VH)	VH. Year 1 was VH.	(923)
1591	306	852	1/26/2017	-1	-73	72	1.8	15	-78	-93	16	-5	867	-15	307	N/A	M	VH. Year 1 was VH.	(924)
1592	306	857	1/27/2017	0	-71	71	1.775	18	-79	-97	18	-8	862	-5	307	N/A	M	H. Year 1 was VH.	(925)

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						YELLOW IF <60 °C	GREEN IF <1.5	RED IF > 0 °C	PURPLE = >-90°C OR COLDER	Yellow numbers = -80 to -89 °C, red background = -90°C or colder drop	BLUE = >10°C	PURPLE = >10°C		YELLOW = > 7 Pa)					
1593	307	852	1/28/2017	-1	-72	71	1.775	16	-80	-96 V	17	-8	864	-12	308	N/A	M	H. Year 1 was VH.	(926)
1594	307	855	1/29/2017	-6	-74	68	1.7	15	-78	-93	21	-4	862	-7	308	N/A	H	VH. Year 1 was VH.	(927)
1595	308	855	1/30/2017	-7	-71	64	1.6	14	-79	-93	21	-8	862	-7	309	N/A	H	VH. Year 1 was H.	(928)
1596	309	850	1/31/2017	-6	-74	68	1.7	13	-78	-91	19	-4	866	-16	310	N/A	VH	VH. Year 1 was H	(929)
1597	309	855	2/1/2017	-8	-73	65	1.625	15	-76	-91	23 \3	-3	865	-10	310	N/A	VH	VH. Year 1 was H	(930)
1598	310	849	2/3/2017	-4	-70	66	1.65	14	-78	-92	18	-8	864	-15	311	N/A	VH	VH. Year 1 was N/A	(931)
1599	310	853	2/4/2017	-7	-72	65	1.625	13	-76	-89	20	-4	859	-6	311	N/A	VH	VH. Year 1 was N/A	(932)
1600	311	850	2/5/2017	-7	-71	64	1.6	12	-76	-88	19	-5	863	-13	312	N/A	VH	VH. Year 1 was N/A	(933)
1601	312	853	2/6/2017	-2	-71	69	1.725	14	-78	-92	16	-7	858	-5	313	874	H	VH. Year 1 was N/A	(934)
1602	312	852	2/7/2017	-5	-77	72	1.8	15	-79	-94	20	-2	862	-10	313	N/A	VH	VH. Year 1 was N/A	(935)
1603	313	847	2/8/2017	-5	-76	71	1.775	14	-78	-92	19	-2	865	-18	314	N/A	VH	VH. Year 1 was N/A	(936)
1604	313	850	2/9/2017	-11	-77	66		15	-77	-92	26	0	865	-15	314	N/A	H	VH. Year 1 was H	(937)

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
SOL	~LS	PRESSURE Pa	EARTH DATE	MAX AIR TEMP °C	MIN AIR TEMP °C	AIR TEMP RANGE °C	AIR TEMP RANGE °C/40	MAX GROUND TEMP °C	MIN GROUND TEMP °C	Δ GROUND TEMP DAY TO NIGHT	DAYTIME CHANGE IN TEMP °C AIR TO GROUND	NIGHTTIME CHANGE IN TEMP °C AIR TO GROUND	PRESSURE AT SAME LS IN MSL YEAR 2	Δ PRESSURE YEAR 3 TO YEAR 2 SAME LS	~LS Year 2	PRESSURE YEAR 1 BEFORE REVISION	UV YR 3	UV YR 2	NOTES and Year 2 Sol for this LS
						YELLOW IF <60 °C	GREEN IF <1.5	RED IF > 0 °C	PURPLE = >-90°C OR COLDER	Yellow numbers = -80 to -89 °C, red background = -90°C or colder drop	BLUE = >10°C	PURPLE = >10°C		YELLOW = > 7 Pa)					
1605	314	815	2/10/2017	-13	-54	41	1.025	10	-61	-71	23	-7	N/A	N/A	315	N/A	H	N/A. Year 1 was H	(938) Pressure looks too low, low temps look too high. Watch for changes by JPL. See Figure 3.
1605 Revised	314	846	2/10/2017	-13	-73	60	1.5	14	-78	-92	27	-5	N/A	N/A	315	N/A	VH	N/A. Year 1 was H	(938) Pressure and low temperatures revised as predicted above. UV also revised. . See Figure 3.
1606	315	850	2/11/2017	-10	-75	65	1.625	9	-77	-86	19	-2	827. This pressure was not revised by JPL but looks too low	+23	316	N/A	H	N/A changed from low. Year 1 was H	(939) Low year looked too low.
1607	315	846	2/12/2017	-12	-77	65	1.625	11	-78	-89	23	-1	861	-15	316	N/A	H	VH. Year 1 was H.	(940)
1608	316	847	2/13/2017	-8	-72	64	1.6	10	-78	-88	18	-6	857	-10	317	N/A	H	H. Year 1 was H.	(941)
1609	316	847	2/14/2017	-7	-71	64	1.6	10	-75	-85	17	-4	857	-10	317	N/A	VH	H. Year 1 was H.	(942)
1610	317	864	2/15/2017	-49	-75	26	0.65	-38	-74	-36	11	-1	854	-10	318	N/A	L	H. Year 1 was H.	(943) This sols's data will likely be revised by JPL. high temps are too cold, all previous L uV has been revised and presure increase of 17 Pa from

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
SOL	~LS	PRESSURE Pa	EARTH DATE	MAX AIR TEMP °C	MIN AIR TEMP °C	AIR TEMP RANGE °C	AIR TEMP RANGE °C/40	MAX GROUND TEMP °C	MIN GROUND TEMP °C	Δ GROUND TEMP DAY TO NIGHT	DAYTIME CHANGE IN TEMP °C AIR TO GROUND	NIGHTTIME CHANGE IN TEMP °C AIR TO GROUND	PRESSURE AT SAME LS IN MSL YEAR 2	Δ PRESSURE YEAR 3 TO YEAR 2 SAME LS	~LS Year 2	PRESSURE YEAR 1 BEFORE REVISION	UV YR 3	UV YR 2	NOTES and Year 2 Sol for this LS
						YELLOW IF <60 °C	GREEN IF <1.5	RED IF > 0 °C	PURPLE = >-90°C OR COLDER	Yellow numbers = -80 to -89 °C, red background = -90°C or colder drop	BLUE = >10°C	PURPLE = >10°C		YELLOW = > 7 Pa)					
																			previous sol is large. See Figure 4.
1610 revised as predicted	317	N/A	2/15/2017	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	854	-10	318	N/A	N/A	N/A	(943) This sol was revised as predicted. Once again the low UV is wiped out.
1611	318	798	2/16/2017	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	852	-54	318	318	L	H. Year 1 was H.	(944) Apparent malfunction. uV still low. Pressure drop of 54 Pa from Year 2 unlikely to be real.
1611 revised	318	N/A	2/16/2017	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		852	-54	318	318	N/A	H. Year 1 was H	(944) This sol was revised as predicted, once again wiped out a low UV.
1612	318	812	2/17/2017	-11	-53	44	1.1	15	-23	-38	26	+30	851	-39	319	N/A	H	H. Year 1 was H.	(945) Minimum temperatures too warm. Pressure drop of 39 Pa from Year 2 unlikely to be real.
1612 revised	318	N/A	2/17/2017	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	851	851	319	N/A	N/A	H. Year 1 was H.	(945) This sol was revised as predicted,
1613	319	846	2/18/2017	-2	-72	70	1.75	15	-84	-99	17	-12	850	-4	320	N/A	H	H. Year 1 was H.	(946)

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
SOL	~LS	PRESSURE Pa	EARTH DATE	MAX AIR TEMP °C	MIN AIR TEMP °C	AIR TEMP RANGE °C	AIR TEMP RANGE °C/40	MAX GROUND TEMP °C	MIN GROUND TEMP °C	Δ GROUND TEMP DAY TO NIGHT	DAYTIME CHANGE IN TEMP °C AIR TO GROUND	NIGHTTIME CHANGE IN TEMP °C AIR TO GROUND	PRESSURE AT SAME LS IN MSL YEAR 2	Δ PRESSURE YEAR 3 TO YEAR 2 SAME LS	~LS Year 2	PRESSURE YEAR 1 BEFORE REVISION	UV YR 3	UV YR 2	NOTES and Year 2 Sol for this LS
						YELLOW IF <60 °C	GREEN IF <1.5	RED IF > 0 °C	PURPLE = >-90°C OR COLDER	Yellow numbers = -80 to -89 °C, red background = -90°C or colder drop	BLUE = >10°C	PURPLE = >10°C		YELLOW = > 7 Pa)					
1614	319	837	2/19/2017	-8	-73	65	1.625	14	-87	-101	22	-14	853	-16	320	N/A	H	H. Year 1 was H.	(947) Drop of 101 degrees from day to night would tie previous record.
1615	320	842	2/20/2017	-5	-73	68	1.7	14	-79	-93	19	-6	854	-12	321	N/A	H	H. Year 1 was H.	(948)
1616	320	848	2/21/2017	-8	-73	65	1.625	13	-85	-98	21	-14	851	-3	321	N/A	H	H. Year 1 was H.	(949)
1617	321	840	2/22/2017	-8	-72	64	1.6	18	-80	-98	26	-8	850	-10	322	N/A	VH	H. Year 1 was H.	(950)
1618	322	845	2/23/2017	-7	-71	64	1.6	12	-78	-90	19	-7	849	-4	323	N/A	VH	H. Year 1 was H.	(951)
1619	322	841	2/24/2017	-8	-73	65	1.625	11	-89	-100	19	-16	847	-6	323	N/A	VH	H. Year 1 was H.	(952)
1620	323	844	2/25/2017	-9	-70	61	1.525	12	-86	-98	21	-16	847	-3	324	N/A	VH	H. Year 1 was H.	(953)
1621	323	842	2/26/2017	-13	-73	60	1.5	10	-85	-95	23	-12	847	-5	324	N/A	H	H. Year 1 was H.	(954)
1622	324	841	2/27/2017	-9	-71	62	1.55	10	-76	-86	19	-5	N/A	N/A	324	N/A	H	N/A. Year 1 was H.	(955)

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
SOL	~LS	PRESSURE Pa	EARTH DATE	MAX AIR TEMP °C	MIN AIR TEMP °C	AIR TEMP RANGE °C	AIR TEMP RANGE °C/40	MAX GROUND TEMP °C	MIN GROUND TEMP °C	Δ GROUND TEMP DAY TO NIGHT	DAYTIME CHANGE IN TEMP °C AIR TO GROUND	NIGHTTIME CHANGE IN TEMP °C AIR TO GROUND	PRESSURE AT SAME LS IN MSL YEAR 2	Δ PRESSURE YEAR 3 TO YEAR 2 SAME LS	~LS Year 2	PRESSURE YEAR 1 BEFORE REVISION	UV YR 3	UV YR 2	NOTES and Year 2 Sol for this LS
						YELLOW IF <60 °C	GREEN IF <1.5	RED IF > 0 °C	PURPLE = >-90°C OR COLDER	Yellow numbers = -80 to -89 °C, red background = -90°C or colder drop	BLUE = >10°C	PURPLE = >10°C		YELLOW = > 7 Pa)					
1623	324	840	2/28/2017	-10	-71	61	1.525	10	-76	-86	20	-5	N/A	N/A	325	N/A	H	N/A. Year 1 was H.	(956)
1624	325	836	3/1/2017	-8	-72	64	1.6	9	-76	-85	17	-4	N/A (changed from 823)	N/A	326	N/A	H	N/A (changed from H). Year 1 was H.	(957)
1625	326	839	3/2/2017	-8	-71	63	1.575	10	-77	-87	18	-6	848	-9	327	N/A	H	H. Year 1 was H.	(958)
1626	326	839	3/3/2017	-11	-71	60	1.5	10	-76	-86	21	-5	846	-7	327	N/A	H	H. Year 1 was H.	(959)
1627	327	838	3/4/2017	-9	-72	63	1.575	10	-75	-85	19	-3	846	-8	328	N/A	H	H. Year 1 was H.	(960)
1628	327	839	3/5/2017	-8	-71	63	1.575	9	-81	-90	17	-10	845	-6	328	N/A	H	H. Year 1 was H.	(961)
1629	328	837	3/6/2017	-8	-74	66	1.65	9	-77	-86	17	-3	849	-12	329	N/A	H	H. Year 1 was H.	(962)
1630	328	838	3/7/2017	-6	-77	71	1.775	8	-77	-85	14	0	850	-12	329	N/A	H	H. Year 1 was H.	(963)
1631	329	837	3/8/2017	-6	-77	71	1.775	12	-78	-90	18	-1	847	-10	330	N/A	H	H. Year 1 was H.	(964)
1632	330	836	3/9/2017	-4	-72	68	1.7	12	-78	-90	16	-6	847	-10	330	N/A	H	H. Year 1 was H.	(964 again) For the last Martian month the Ls from MSL Year 2 has

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
SOL	~LS	PRESSURE Pa	EARTH DATE	MAX AIR TEMP °C	MIN AIR TEMP °C	AIR TEMP RANGE °C	AIR TEMP RANGE °C/40	MAX GROUND TEMP °C	MIN GROUND TEMP °C	Δ GROUND TEMP DAY TO NIGHT	DAYTIME CHANGE IN TEMP °C AIR TO GROUND	NIGHTTIME CHANGE IN TEMP °C AIR TO GROUND	PRESSURE AT SAME LS IN MSL YEAR 2	Δ PRESSURE YEAR 3 TO YEAR 2 SAME LS	~LS Year 2	PRESSURE YEAR 1 BEFORE REVISION	UV YR 3	UV YR 2	NOTES and Year 2 Sol for this LS
						YELLOW IF <60 °C	GREEN IF <1.5	RED IF > 0 °C	PURPLE = >-90°C OR COLDER	Yellow numbers = -80 to -89 °C, red background = -90°C or colder drop	BLUE = >10°C	PURPLE = >10°C		YELLOW = > 7 Pa)					
																			differed from the Ls in Year 3 by one half to one degree. Therefore instead of using Ls 331 data from Sol 965 of Year 2 here, the data from Sol 964 is repeated.
1633	330	834	3/10/2017	-4	-75	71	1.775	13	-78	-91	17	-3	847	-13	331	N/A	H	H. Year 1 was H.	(965)
1634	331	834	3/12/2017	-5	-72	67	1.675	12	-83	-95	17	-11	850	-16	331	N/A	H	H. Year 1 was H.	(966)
1635	331	833	3/13/2017	-7	-73	66	1.65	16	-79	-95	23	-6	844	-11	332	N/A	H	H. Year 1 was H.	(967)
1636	332	834	3/14/2017	-14	-72	58	1.45	16	-80	-96	30	-8	848	-14	332	N/A	H	H. Year 1 was H.	(968). The 30 degree increase in temp air to ground is extraordimary. Watch for a modifcation by JPL.
1637	332	833	3/15/2017	-10	-73	63	1.575	15	-83	-98	25	-11	844	-11	333	N/A	H	H. Year 1 was H.	(969)
1638	333	833	3/16/2017	-9	-73	64	1.6	15	-81	-96	24	-8	849	-16	333	N/A	H	H. Year 1 was H.	(970)
1639	334	832	3/17/2017	-6	-71	65	1.625	13	-80	-93	19	-9	848	-16	334	N/A	H	M. Year 1 was H.	(971)

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
SOL	~LS	PRESSURE Pa	EARTH DATE	MAX AIR TEMP °C	MIN AIR TEMP °C	AIR TEMP RANGE °C	AIR TEMP RANGE °C/40	MAX GROUND TEMP °C	MIN GROUND TEMP °C	Δ GROUND TEMP DAY TO NIGHT	DAYTIME CHANGE IN TEMP °C AIR TO GROUND	NIGHTTIME CHANGE IN TEMP °C AIR TO GROUND	PRESSURE AT SAME LS IN MSL YEAR 2	Δ PRESSURE YEAR 3 TO YEAR 2 SAME LS	~LS Year 2	PRESSURE YEAR 1 BEFORE REVISION	UV YR 3	UV YR 2	NOTES and Year 2 Sol for this LS
						YELLOW IF <60 °C	GREEN IF <1.5	RED IF > 0 °C	PURPLE = >-90°C OR COLDER	Yellow numbers = -80 to -89 °C, red background = -90°C or colder drop	BLUE = >10°C	PURPLE = >10°C		YELLOW = > 7 Pa)					
1640	334	828	3/18/2017	-8	-72	64	1.6	13	-98	-111	21	-26	847	-19	334	N/A	H	H. Year 1 was H.	(972) The low ground question is hard to accept. There is no corresponding great drop in air temp. Watch for a revision. Greatest variation in ground temp. ever! See Figure 5.
1641	335	831	3/19/2017	-6	-72	66	1.65	15	-82	-97	21	-10	844	-13	335	N/A	H	H. Year 1 was H.	(973)
1642	335	829	3/20/2017	-13	-72	59	1.475	11	-81	-92	24	-9	842	-13	336	N/A	H	H. Year 1 was H.	(974)
1643	336	832	3/21/2017	-11	-74	63	1.575	14	-81	-95	25	-7	843	-11	336	N/A	H	H. Year 1 was H.	(975)
1644	336	832	3/22/2017	-10	-74	64	1.6	13	-102	-115	23	-28	842	-10	337	N/A	H	M. Year 1 was H.	(976) Once more the low ground question is hard to accept. There is no corresponding great drop in air temp. Watch for a revision. Greatest variation in ground temp. ever!
1645	337	832	3/23/2017	-3	-74	71	1.775	14	-83	-97	17	-9	841	-9	337	N/A	H	M Year 1 was H.	(977)

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
SOL	~LS	PRESSURE Pa	EARTH DATE	MAX AIR TEMP °C	MIN AIR TEMP °C	AIR TEMP RANGE °C	AIR TEMP RANGE °C/40	MAX GROUND TEMP °C	MIN GROUND TEMP °C	Δ GROUND TEMP DAY TO NIGHT	DAYTIME CHANGE IN TEMP °C AIR TO GROUND	NIGHTTIME CHANGE IN TEMP °C AIR TO GROUND	PRESSURE AT SAME LS IN MSL YEAR 2	Δ PRESSURE YEAR 3 TO YEAR 2 SAME LS	~LS Year 2	PRESSURE YEAR 1 BEFORE REVISION	UV YR 3	UV YR 2	NOTES and Year 2 Sol for this LS
						YELLOW IF <60 °C	GREEN IF <1.5	RED IF > 0 °C	PURPLE = >-90°C OR COLDER	Yellow numbers = -80 to -89 °C, red background = -90°C or colder drop	BLUE = >10°C	PURPLE = >10°C		YELLOW = > 7 Pa)					
1646	338	831	3/24/2017	-8	-74	66	1.65	11	-93	-104	19	-19	842	-11	338	N/A	H	M Year 1 was H.	(978) This night time low in ground temperature is not backed by a corresponding low in air temperature.
1647	338	831	3/25/2017	-3	-73	70	1.75	6	-78	-84	9	-5	841	-10	338	N/A	H	M Year 1 was H.	(979)
1648	339	830	3/26/2017	-14	-73	59	1.475	7	-79	-86	21	-6	840	-10	339	N/A	H	M Year 1 was H.	(980)
1649	339	831	3/27/2017	-14	-74	60	1.5	11	-93	-104	25	-19	841	-10	339	N/A	H	M Year 1 was H.	(981)
1650	340	833	3/28/2017	-8	-75	67	1.675	12	-110	-122	20	-35	840	-7	340	N/A	H	M Year 1 was H.	(982) The record 35 degree night time decrease in temp air to ground is extraordinary. See Figure 6. This is equal to a 63 degree Fahrenheit drop in 1.5 meters. Unless there is a machine generating this great cold, this must be an error.

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SOL	~LS	PRESSURE Pa	EARTH DATE	MAX AIR TEMP °C	MIN AIR TEMP °C	AIR TEMP RANGE °C	AIR TEMP RANGE °C/40	MAX GROUND TEMP °C	MIN GROUND TEMP °C	Δ GROUND TEMP DAY TO NIGHT	DAYTIME CHANGE IN TEMP °C AIR TO GROUND	NIGHTTIME CHANGE IN TEMP °C AIR TO GROUND	PRESSURE AT SAME LS IN MSL YEAR 2	Δ PRESSURE YEAR 3 TO YEAR 2 SAME LS	~LS Year 2	PRESSURE YEAR 1 BEFORE REVISION	UV YR 3	UV YR 2	NOTES and Year 2 Sol for this LS
						YELLOW IF <60 °C	GREEN IF <1.5	RED IF > 0 °C	PURPLE = >-90°C OR COLDER	Yellow numbers = -80 to -89 °C, red background = -90°C or colder drop	BLUE = >10°C	PURPLE = >10°C		YELLOW = > 7 Pa)					
1651	340	833	3/29/2017	-8	-77	69	1.725	11	-105	-116	19	-28	840	-7	340	N/A	H	M .Year 1 was H.	(983) Anomolous ground temperature lows continue.
1652	341	834	3/30/2017	-15	-76	61	1.525	12	-92	-104	27	-166	840	-6	341	N/A	H	M Year 1 was H.	(984)
1653	341	833	3/31/2017	-15	-75	60	1.5	12	-84	-96	27	-9	840	-7	342	N/A	H	M. Year 1 was H.	(985) Back to a more normal low ground temp.
1654	342	829	4/1/2017	-17	-75	60	1.5	13	-84	-97	30	-9	840	-11	342	N/A	H	M. Year 1 was H.	(986)
1655	342	831	4/2/2017	-14	-76	62	1.55	12	-99	-111	26	-23	839	-8	343	N/A	H	M. Year 1 was H.	(987)
1656	343	832	4/3/2017	-3	-75	72	1.8	12	-105	-117	15	-30	840	-8	343	N/A	H	M. Year 1 was H.	(988) Unbelievably cold low ground temperature
1657	343	836	4/4/2017	-9	-75	66	1.65	12	-66	-78	21	+9	841	-5	344	N/A	H	M. Year 1 was H.	(989) Unbelievably warm low ground temperature
1658	344	835	4/5/2017	-8	-77	69	1.725	12	-111	-123	20	-34	839	-4	344	N/A	H	H. Year 1 was H.	(990) Unbelievably cold low ground temperature
1659	345	832	4/6/2017	-7	-77	70	1.75	13	-88	-101	20	-11	840	-8	345	N/A	H	H. Year 1 was H.	(991)
1660	345	832	4/7/2017	-5	-74	69	1.725	15	-85	-100	20	-11	842	-10	345	N/A	H	H. Year 1 was H.	(992)

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SOL	~LS	PRESSURE Pa	EARTH DATE	MAX AIR TEMP °C	MIN AIR TEMP °C	AIR TEMP RANGE °C	AIR TEMP RANGE °C/40	MAX GROUND TEMP °C	MIN GROUND TEMP °C	Δ GROUND TEMP DAY TO NIGHT	DAYTIME CHANGE IN TEMP °C AIR TO GROUND	NIGHTTIME CHANGE IN TEMP °C AIR TO GROUND	PRESSURE AT SAME LS IN MSL YEAR 2	Δ PRESSURE YEAR 3 TO YEAR 2 SAME LS	~LS Year 2	PRESSURE YEAR 1 BEFORE REVISION	UV YR 3	UV YR 2	NOTES and Year 2 Sol for this LS
						YELLOW IF <60 °C	GREEN IF <1.5	RED IF > 0 °C	PURPLE = >-90°C OR COLDER	Yellow numbers = -80 to -89 °C, red background = -90°C or colder drop	BLUE = >10°C	PURPLE = >10°C		YELLOW = > 7 Pa)					
1661	346	831	4/8/2017	-5	-75	70	1.75	14	-103	-117	19	-28	840	-9	346	N/A	H	H. Year 1 was H.	(993) Unbelievably cold low ground temperature
1662	346	831	4/9/2017	-3	-75	72	1.8	13	-83	-96	16	-8	842	-11	346	N/A	H	H. Year 1 was H.	(994)
1663	347	832	4/10/2017	-6	-74	68	1.7	10	-82	-92	16	-8	842	-10	347	N/A	H	H. Year 1 was H.	(995)
1664	347	832	4/11/2017	-8	-74	66	1.65	10	-103	-113	18	-27	842	-10	348	N/A	H	H. Year 1 was VH.	(996)
1665	348	833	4/12/2017	-7	-76	69	1.725	8	-106	-114	15	-30	842	-9	348	N/A	H	H. Year 1 was H.	(997)
1666	348	834	4/13/2017	-8	-76	68	1.7	7	-104	-111	15	-277	842	-8	349	N/A	H	H. Year 1 was H.	(998)
1667	349	833	4/14/2017	-9	-76	67	1.675	6	-103	-109	15	-28	N/A	N/A	349	N/A	H	H. Year 1 was H.	(999)
1668	349	831	4/15/2017	-4	-77	73	1.75	7	-104	-111	11	-30	841	-10	350	N/A	H	H. Year 1 was H.	(1000)
1669	350	833	4/16/2017	-12	-74	62	1.55	6	-104	-110	18	-30	853 revised to 841	-20 revised to -8	350	N/A	H	H. Year 1 was H.	(1001)
1670	350	834	4/18/2017	-12	-76	64	1.6	6	-116	-122	18	-40	844	-10	351	N/A	H	H. Year 1 was H.	(1002) Unbelievably cold low ground temperature.

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
SOL	~LS	PRESSURE Pa	EARTH DATE	MAX AIR TEMP °C	MIN AIR TEMP °C	AIR TEMP RANGE °C	AIR TEMP RANGE °C/40	MAX GROUND TEMP °C	MIN GROUND TEMP °C	Δ GROUND TEMP DAY TO NIGHT	DAYTIME CHANGE IN TEMP °C AIR TO GROUND	NIGHTTIME CHANGE IN TEMP °C AIR TO GROUND	PRESSURE AT SAME LS IN MSL YEAR 2	Δ PRESSURE YEAR 3 TO YEAR 2 SAME LS	~LS Year 2	PRESSURE YEAR 1 BEFORE REVISION	UV YR 3	UV YR 2	NOTES and Year 2 Sol for this LS
						YELLOW IF <60 °C	GREEN IF <1.5	RED IF > 0 °C	PURPLE = >-90°C OR COLDER	Yellow numbers = -80 to -89 °C, red background = -90°C or colder drop	BLUE = >10°C	PURPLE = >10°C		YELLOW = > 7 Pa)					
																			Note: The coldest ground temperature low for the summer of MSL Years 1 and 2 was -87°C.
1671	351	832	4/19/2017	-7	-76	69	1.725	7	-86	-93	144	-10	843	-11	351	N/A	H	H. Year 1 was H.	(1003)
1672	351	833	4/20/2017	-5	-74	69	1.725	9	-93	-99	14	-19	842	-9	352	N/A	H	H. Year 1 was H.	(1004)
1673	352	836	4/21/2017	-6	-75	69	1.725	6	-109	-115	12	-34	843	-7	352	N/A	H	H. Year 1 was H.	(1005)
1674	352	835	4/22/2017	-6	-75	69	1.725	2	-109	-111	8	-34	844	-9	353	870	H	L revised to H. Year 1 was H.	(1006)
1675	353	835	4/23/2017	-6	-75	69	1.725	4	-94	-98	10	-19	845	-10	353	832	H	L revised to H. Year 1 was H.	(1007)
1676	354	837	4/24/2017	-11	-76	65	1.625	10	-113	-123	21	-37	844	-7	354	867	H	L revised to H. Year 1 was H.	(1008)

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
SOL	~LS	PRESSURE Pa	EARTH DATE	MAX AIR TEMP °C	MIN AIR TEMP °C	AIR TEMP RANGE °C	AIR TEMP RANGE °C/40	MAX GROUND TEMP °C	MIN GROUND TEMP °C	Δ GROUND TEMP DAY TO NIGHT	DAYTIME CHANGE IN TEMP °C AIR TO GROUND	NIGHTTIME CHANGE IN TEMP °C AIR TO GROUND	PRESSURE AT SAME LS IN MSL YEAR 2	Δ PRESSURE YEAR 3 TO YEAR 2 SAME LS	~LS Year 2	PRESSURE YEAR 1 BEFORE REVISION	UV YR 3	UV YR 2	NOTES and Year 2 Sol for this LS
						YELLOW IF <60 °C	GREEN IF <1.5	RED IF > 0 °C	PURPLE = >-90°C OR COLDER	Yellow numbers = -80 to -89 °C, red background = -90°C or colder drop	BLUE = >10°C	PURPLE = >10°C		YELLOW = > 7 Pa)					
1677	354	835	4/25/2017	-8	-74	66	1.65	7	-84	-91	15	-10	845	-10	354	N/A	H	H. Year 1 was H.	(1009) Low ground temp back to "normal."
1678	355	836	4/26/2017	-11	-74	63	1.575	6	-84	-90	17	-10	846	-10	355	N/A	H	H. Year 1 was H.	(1010)
1679	355	836	4/27/2017	-12	-75	63	1.575	10	-84	-94	22	-9	845	-9	355	N/A	H	H. Year 1 was H.	(1011)
1680	356	835	4/28/2017	-11	-74	63	1.575	6	-88	-94	17	-14	846	-11	356	N/A	H	H. Year 1 was H.	(1012)
1681	356	837	4/29/2017	-12	-74	62	1.55	6	-85	-91	18	-11	846	-9	356	N/A	H	H. Year 1 was H.	(1013)
1682	357	839	4/30/2017	-13	-76	63	1.575	5	-115	-120	18	-39	846	-7	356	N/A	H	H. Year 1 was H.	(1014) Again, an unbelievably low ground temperature not really backed by the air temperature low.
1683	357	837	5/1/2017	-15	-75	60	1.5	5	-91	-96	20	-16	847	-10	357	N/A	H	H. Year 1 was H.	(1015)
1684	358	837	5/2/2017	-14	-75	61	1.525	5	-89	-94	19	-14	847	-10	358	N/A	H	H. Year 1 was H.	(1016)
1685	358	838	5/3/2017	-14	-77	63	1.575	8	-101	-109	22	-24	850	-12	359	N/A	H	H. Year 1 was H.	(1017)
1686	359	838	5/4/2017	-13	-75	62	1.55	6	-108	-114	19	-33	850	-12	359	N/A	H	H. Year 1 was H.	(1018)

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
SOL	~LS	PRESSURE Pa	EARTH DATE	MAX AIR TEMP °C	MIN AIR TEMP °C	AIR TEMP RANGE °C	AIR TEMP RANGE °C/40	MAX GROUND TEMP °C	MIN GROUND TEMP °C	Δ GROUND TEMP DAY TO NIGHT	DAYTIME CHANGE IN TEMP °C AIR TO GROUND	NIGHTTIME CHANGE IN TEMP °C AIR TO GROUND	PRESSURE AT SAME LS IN MSL YEAR 2	Δ PRESSURE YEAR 3 TO YEAR 2 SAME LS	~LS Year 2	PRESSURE YEAR 1 BEFORE REVISION	UV YR 3	UV YR 2	NOTES and Year 2 Sol for this LS
						YELLOW IF <60 °C	GREEN IF <1.5	RED IF > 0 °C	PURPLE = >-90°C OR COLDER	Yellow numbers = -80 to -89 °C, red background = -90°C or colder drop	BLUE = >10°C	PURPLE = >10°C		YELLOW = > 7 Pa)					
1687	359	838	5/5/2017	-11	-75	64	1.6	6	-82	-88	17	-7	853	-15	0	819	H	M. Year 1 was H.	(1019) last day of Summer
SOL	~LS	PRESSURE Pa	EARTH DATE	MAX AIR TEMP °C	MIN AIR TEMP °C	AIR TEMP RANGE °C	AIR TEMP RANGE °C/40	MAX GROUND TEMP °C	MIN GROUND TEMP °C	Δ GROUND TEMP DAY TO NIGHT	DAYTIME CHANGE IN TEMP °C AIR TO GROUND	NIGHTTIME CHANGE IN TEMP °C AIR TO GROUND	PRESSURE AT SAME LS IN MSL YEAR 2	Δ PRESSURE YEAR 2 TO YEAR 3 SAME LS	~LS Year 2	PRESSURE YEAR 2 BEFORE REVISION	UV YR 3	UV YR 2	

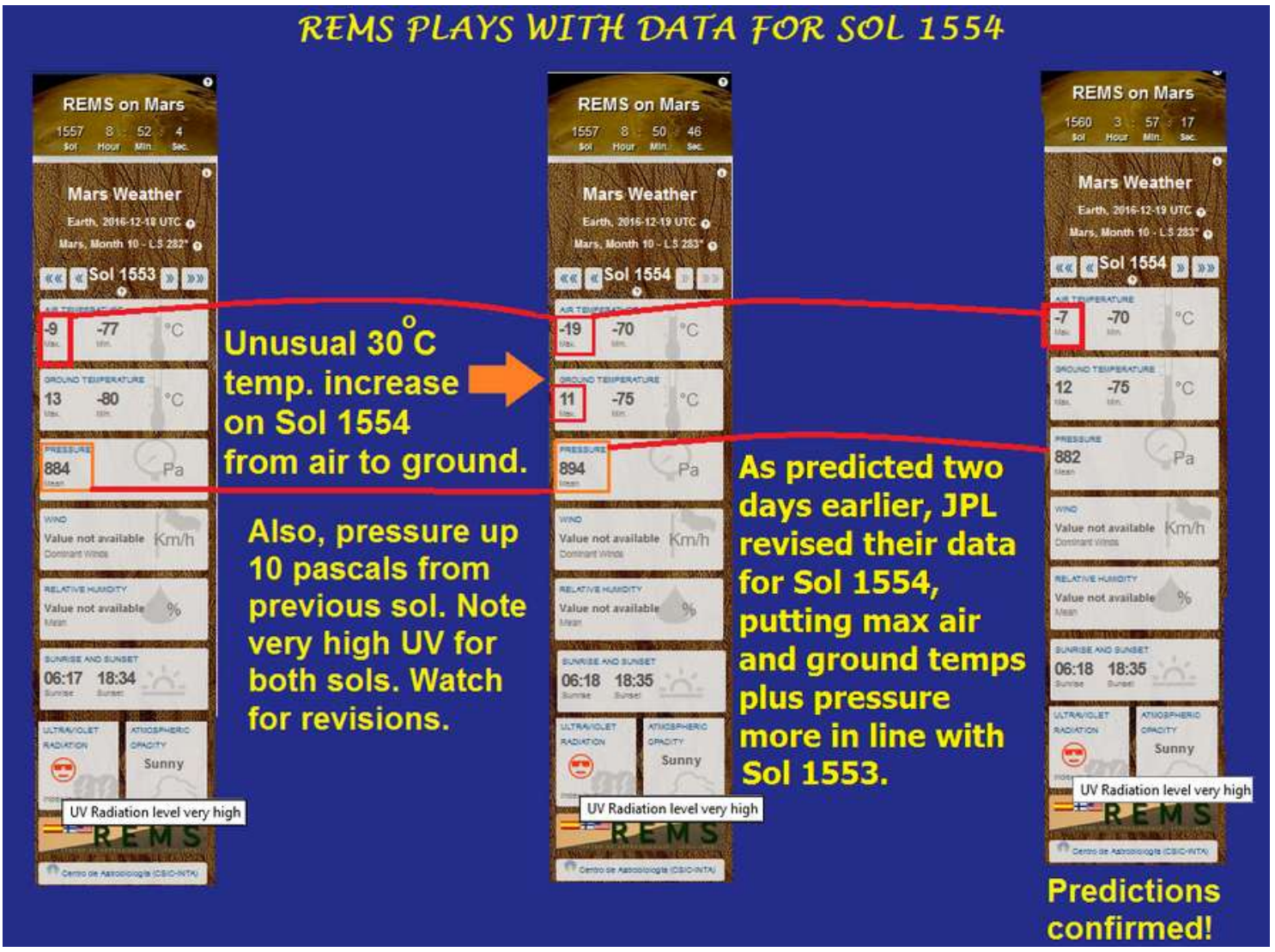

Figure 1 - Sol 1553 to 1554 temperature and pressure anomalies and JPL fix after we highlighted the problem with Sol 1554 pressure and max temperatures.

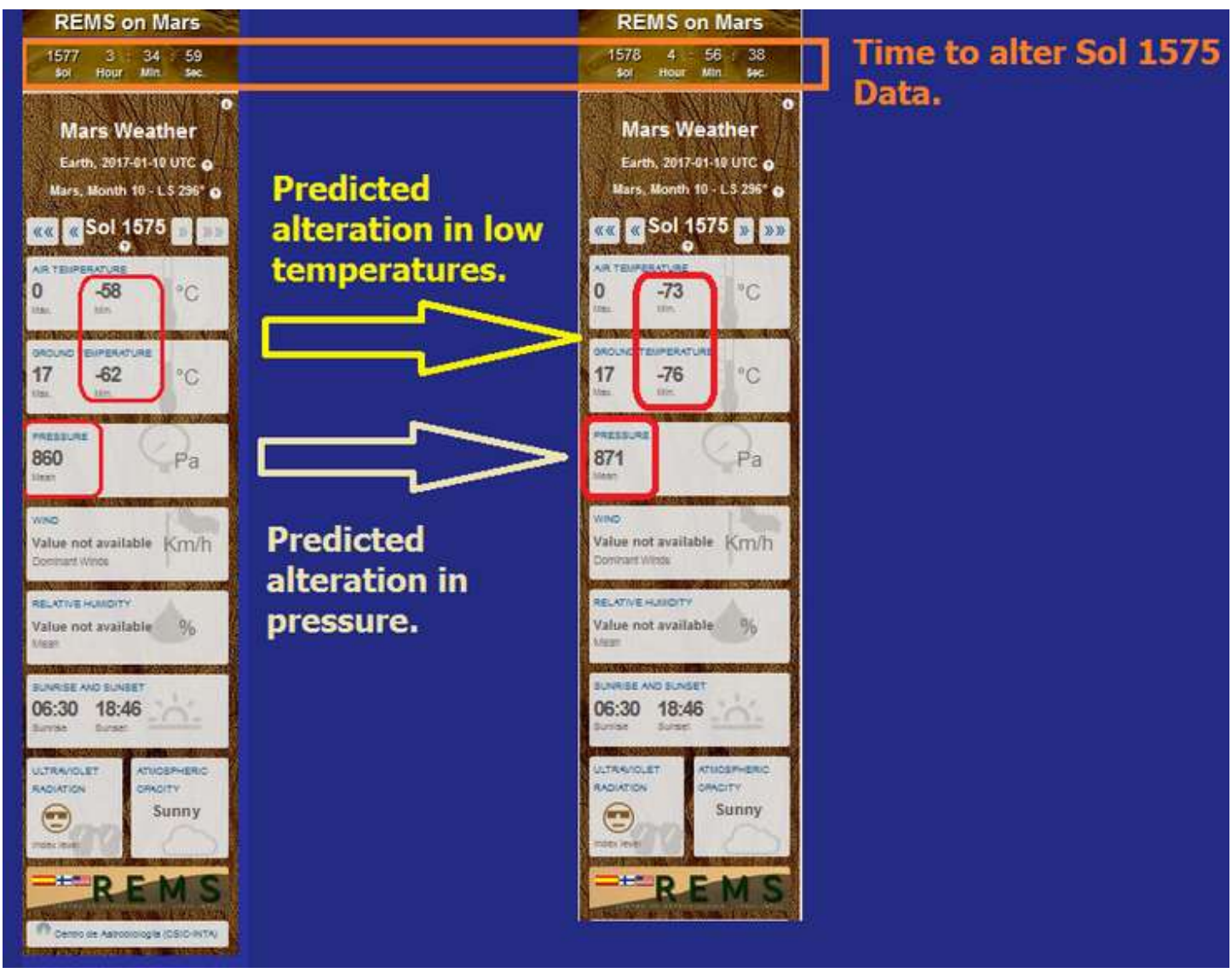

Figure 2 - REMS report for Sol 1575.

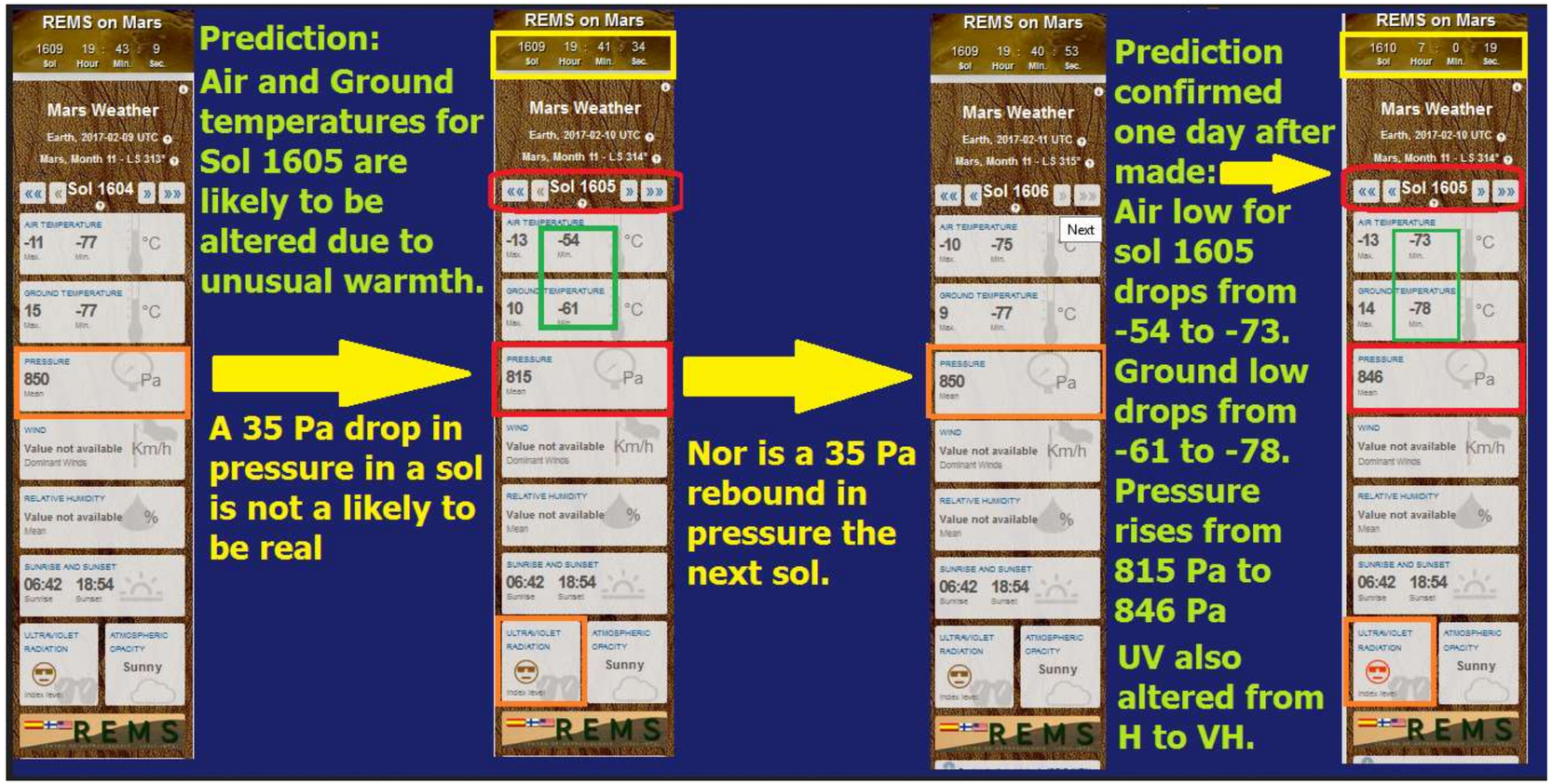

Figure 3 - The 35 Pa pressure drop and warm low temperatures on Sol 1605 was altered as predicted.

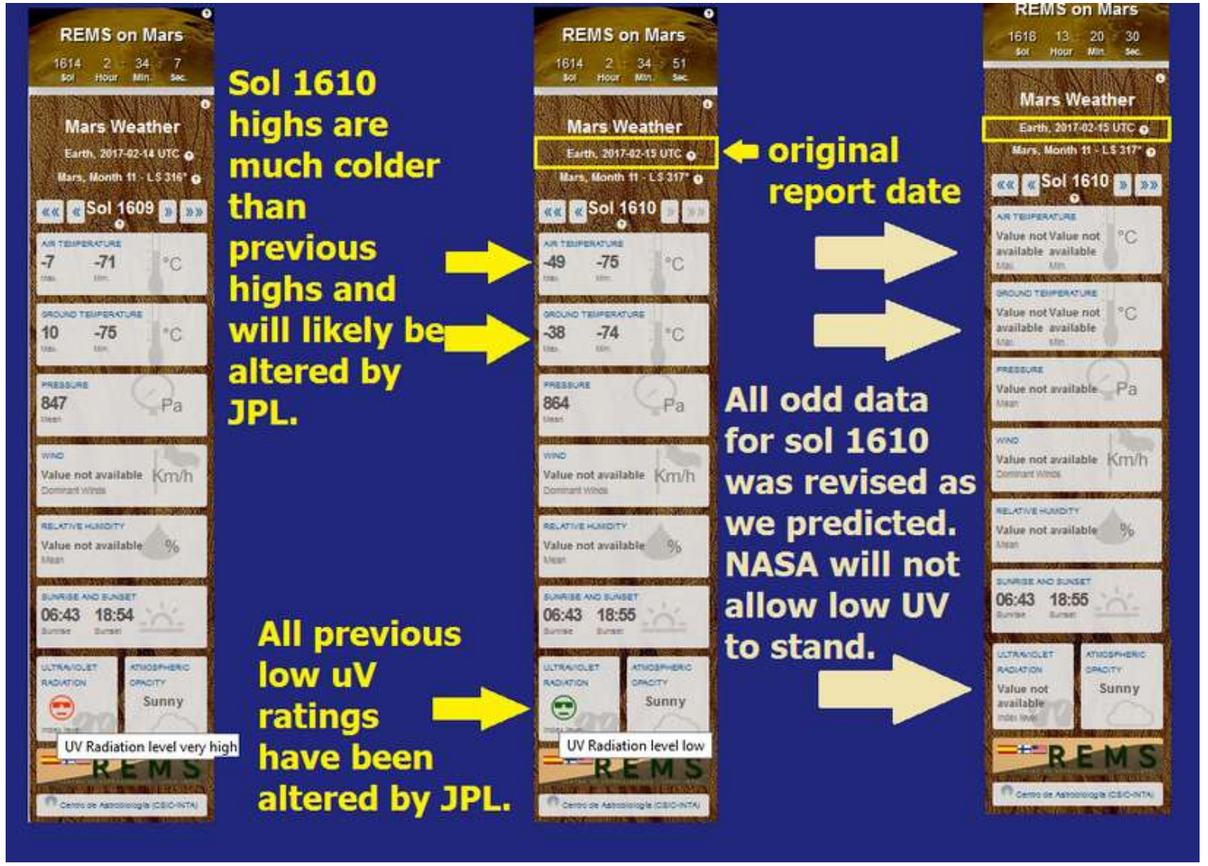

Figure 4 – As predicted, odd data for Sol 1610 was altered – in this case totally deleted.

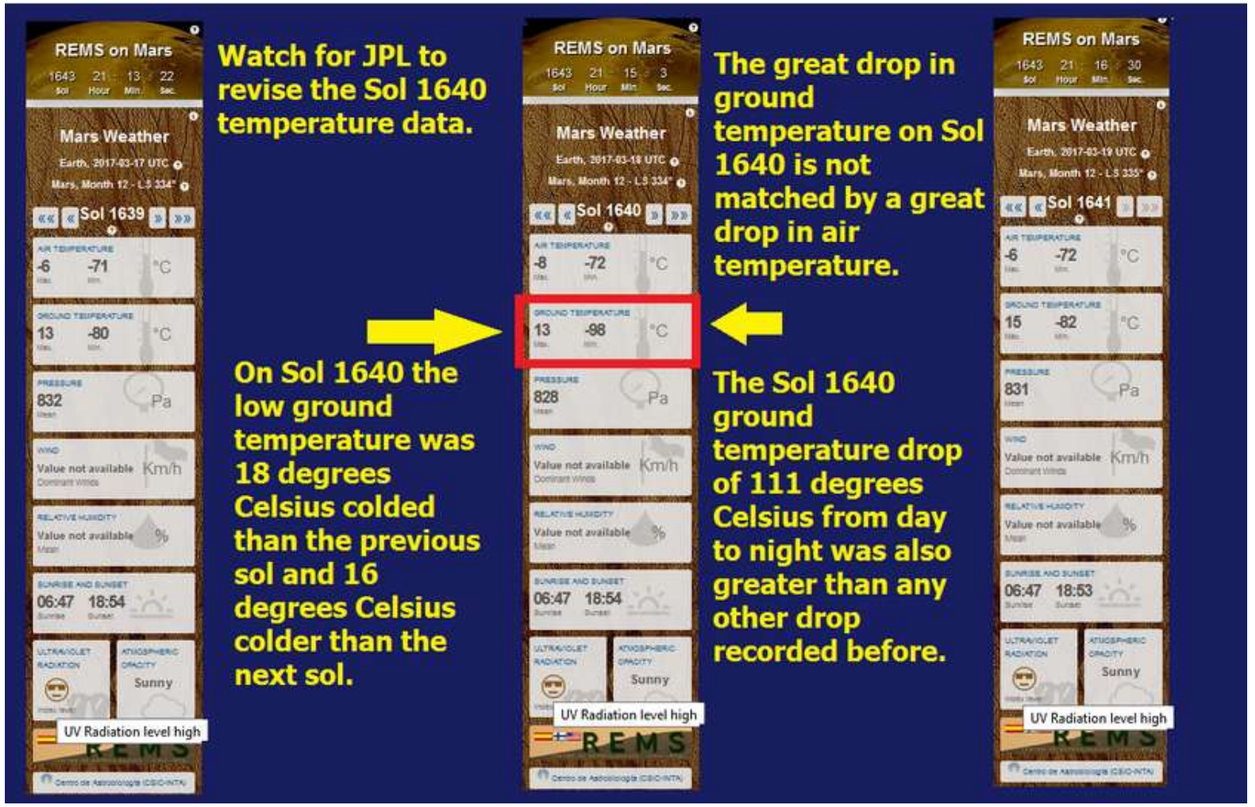

Figure 5 - The ground temperature drop for Sol 1640 was not revised. This marked the beginning of strangely cold temperatures that went unchanged.

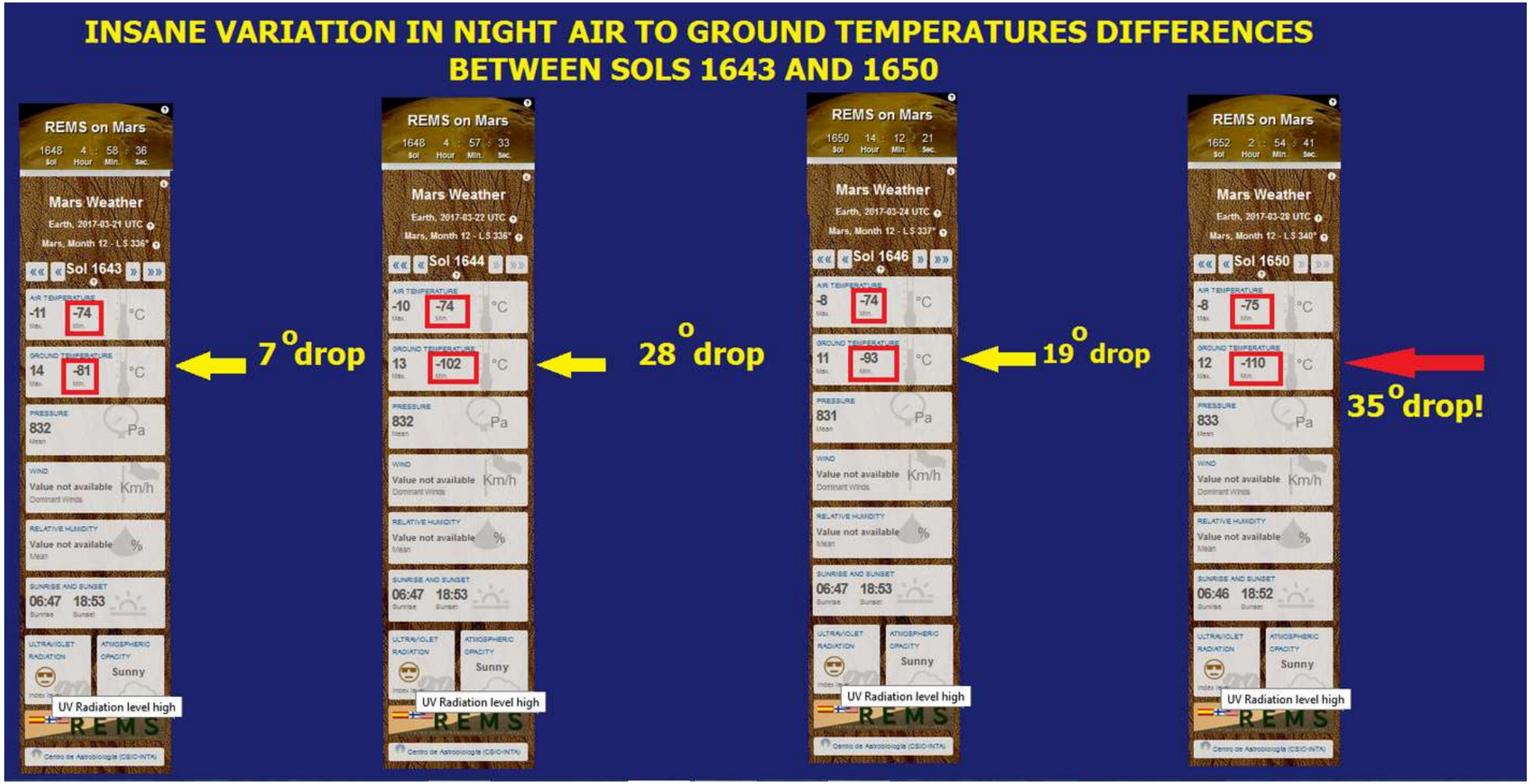

Figure 6 - Insane variation in night air to ground temperatures between MSL Sols 1643 and 1650.

What was the length of daylight hours at MSL when a record ground temperature low of -110° C was recorded at Ls 340? The REMS report indicated a sunrise at 06:46 and a sunset at 18:52. That's 12 hours 6 minutes. REMS did not post correct times until after we had proven their partner (Ashima Research) posted times that are totally bogus (in fact, impossible). We posted all the correct times at http://davidaroffman.com/photo4_26.html. REMS then matched them, and Ashima Research went on to take down their site. The David Roffman calculation for Ls 340 is given below. It shows a day length of 12 hours 6.98 minutes, less than a minute off of the REMS post (which rounds off sunrise and sunset times to the nearest minute). Table 4 shows the spreadsheet calculation we used for Ls 340.

A	B	C	D	E	F	G	H	I	J	K
Λsun (270 to 359 is summer in southern hemisphere) **This is Ls.**	**Latitude (phi)**	**δdegrees = arcsin((sin(25.19)*sin(λsun))**	**H = arccos((SIN(-.17) - SIN(lw)*SIN(δ))/(COS(lw)*COS(δ))**	**Day Length =2*1.027491*H/360**	**Daylight in Hours David's Calculation (E Value*24)**	**Half Sol in Hours**	**Difference Half day – Daylight (G-F)**	**Minutes above or below 12 hours for daylight**	**Hours of daylight**	**Plus minutes**
340	**-4.59**	**-8.370350533**	**90.84922794**	**0.518593134**	**12.44623521**	**12.329895**	**0.11634**	**6.98041177**	**12 hr**	**6.98041177**