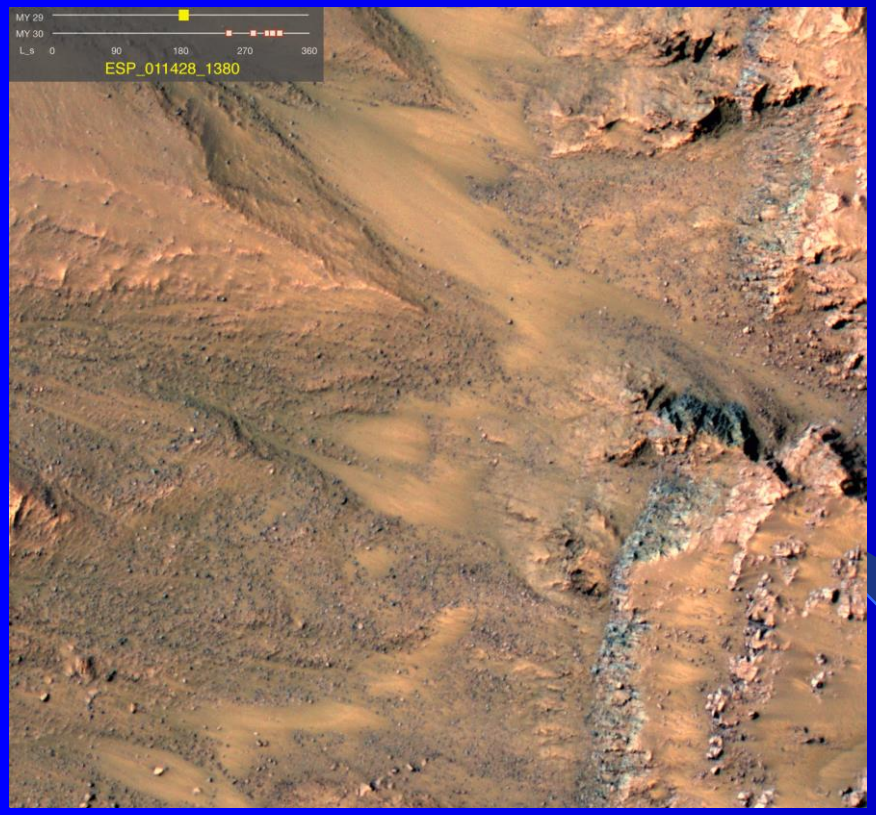
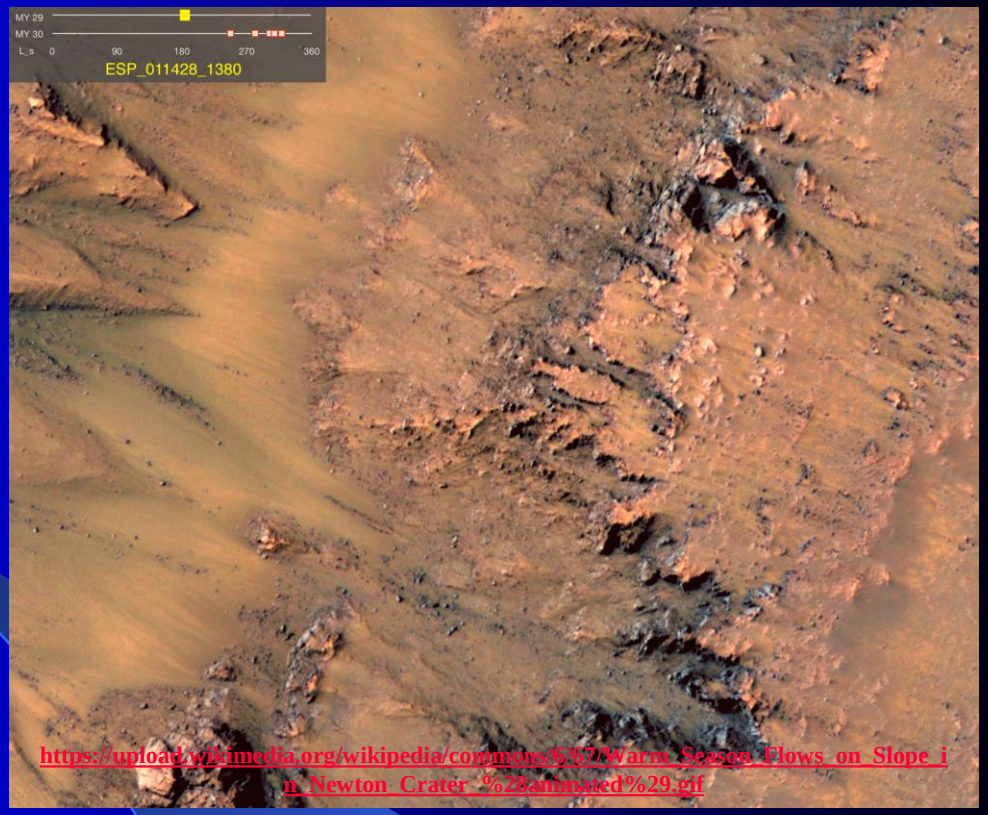
MARS CORRECT? MARS IS WET!





https://upload.wikimedia.org/wikipedia/commons/6/67/Warm_Season_Flows_on_Slope_in_Newton_Crater_%28animated%29.gif

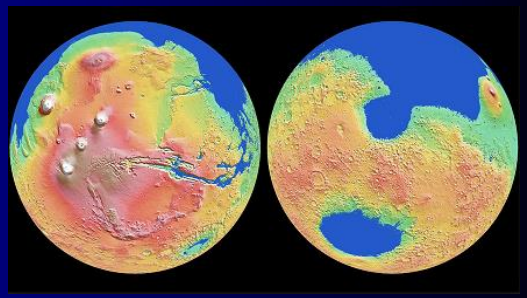
Critique of All NASA Mars Weather Data

By Barry S. Roffman,
Lieutenant, USCG-Retired
and David A. Roffman (PhD, Physics)

Updated July 17, 2018

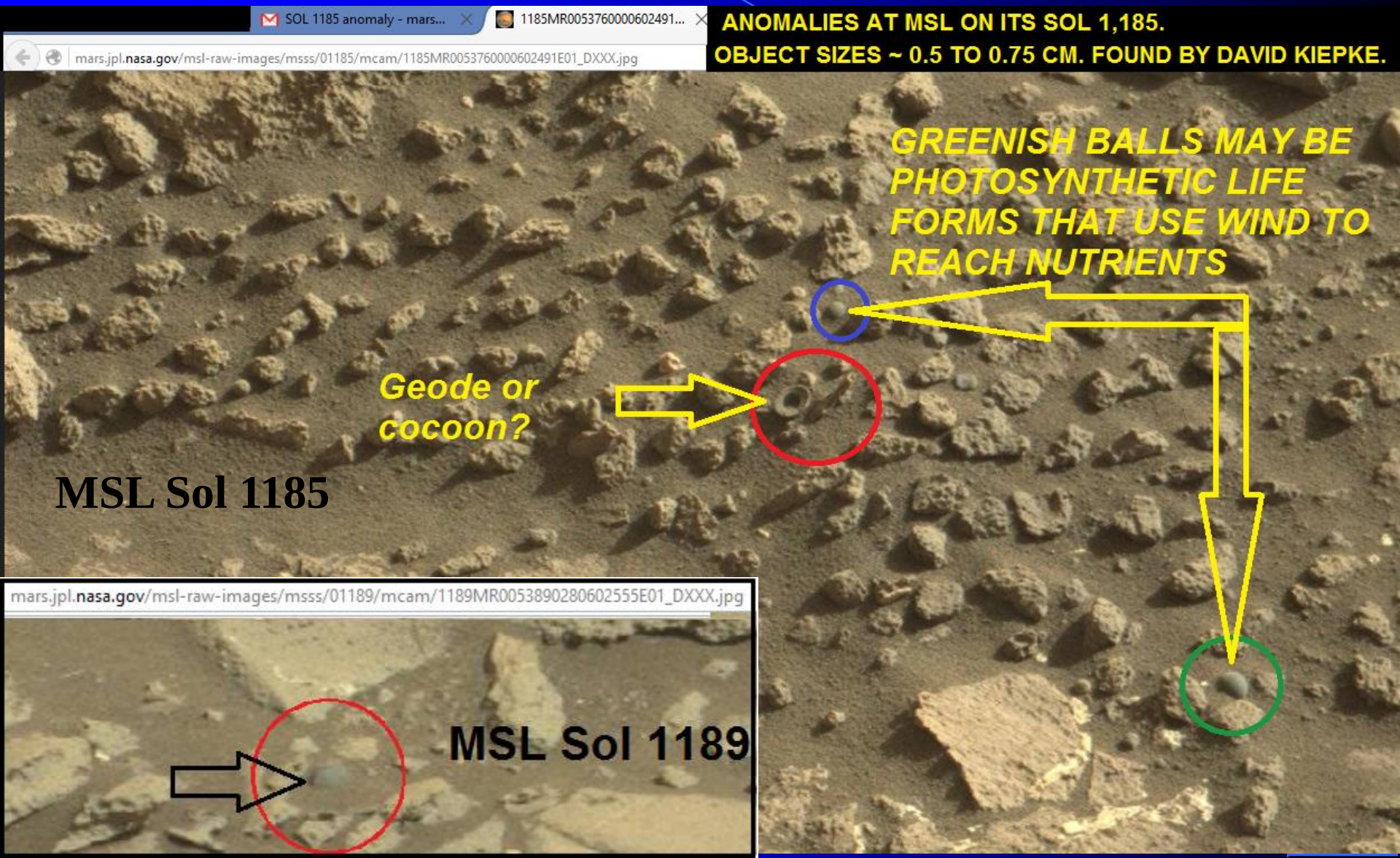
Why go to or care about Mars?

Many think life started on Mars, came here via meteorites



- An asteroid or comet probably wiped out dinosaurs here.
- We have all our survival “eggs” in 1 basket (Earth).
- **Mars has natural resources including running water**. It once had oceans, and still has a frozen sea at Utopia Planitia.
- **Viking 1 and 2 found evidence that it has life. MSL may also have found it on its Sol 1185.**

Photos from MSL on its sols 1185 and 1189 might show spherical life forms on Mars



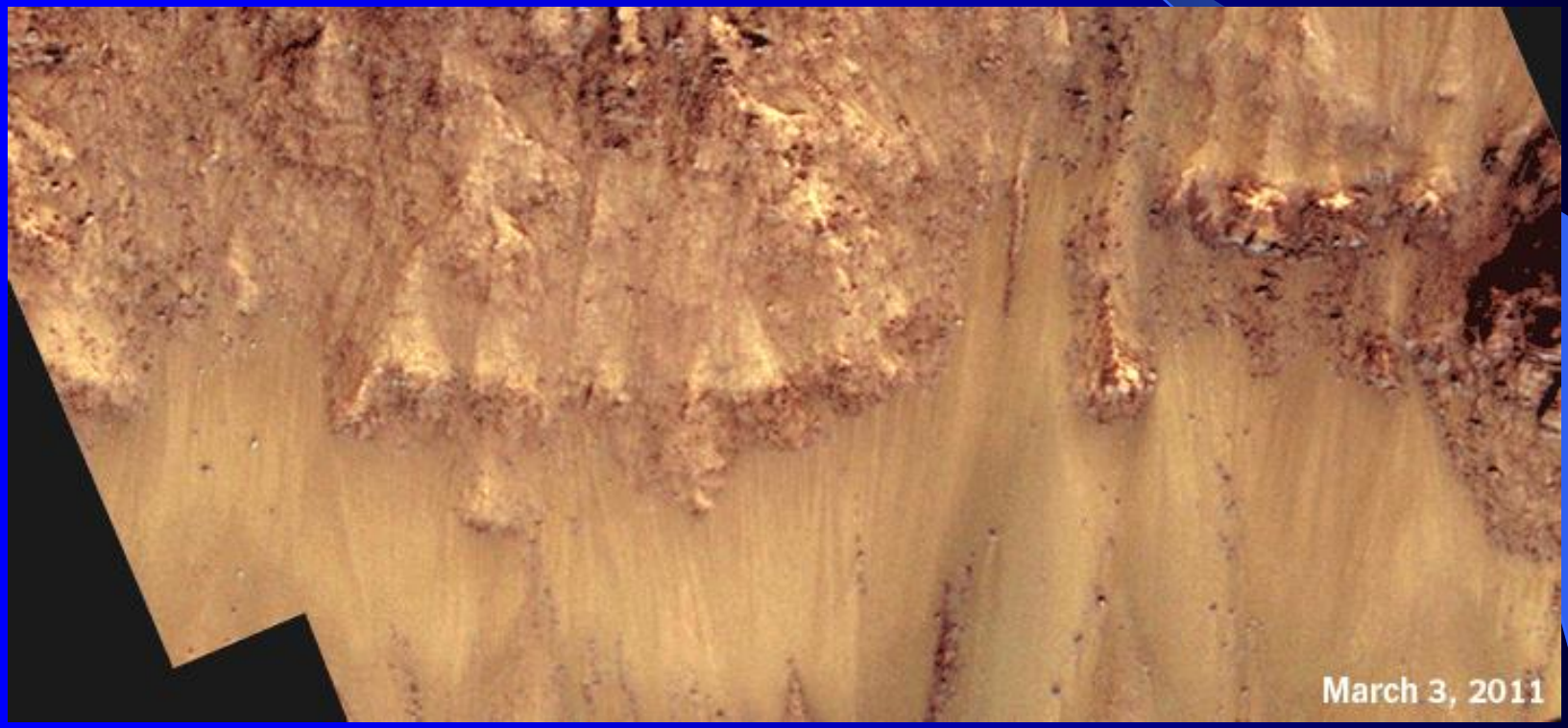
Sufficient air pressure is essential for life. We dispute NASA's 6.1 mbar Mars areoid pressure.

- Areoid is Mars equivalent of Sea Level.
- Average Earth sea level pressure = 1,013.25 Mbar.

- 6.1 Mbar is nearly a vacuum – no fun to experience.

Why Question Pressure?

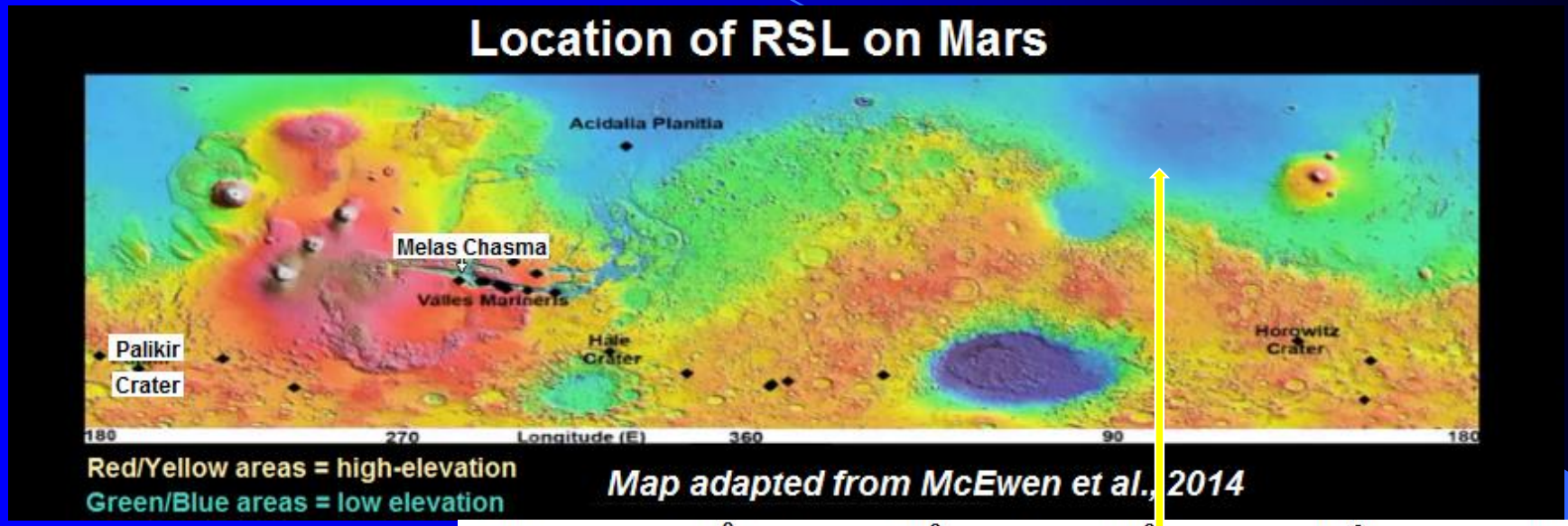
Running water isn't likely to be found on the surface of a planet with a near-vacuum surface. Water would boil off too fast. But Mars has thousands of these streams.



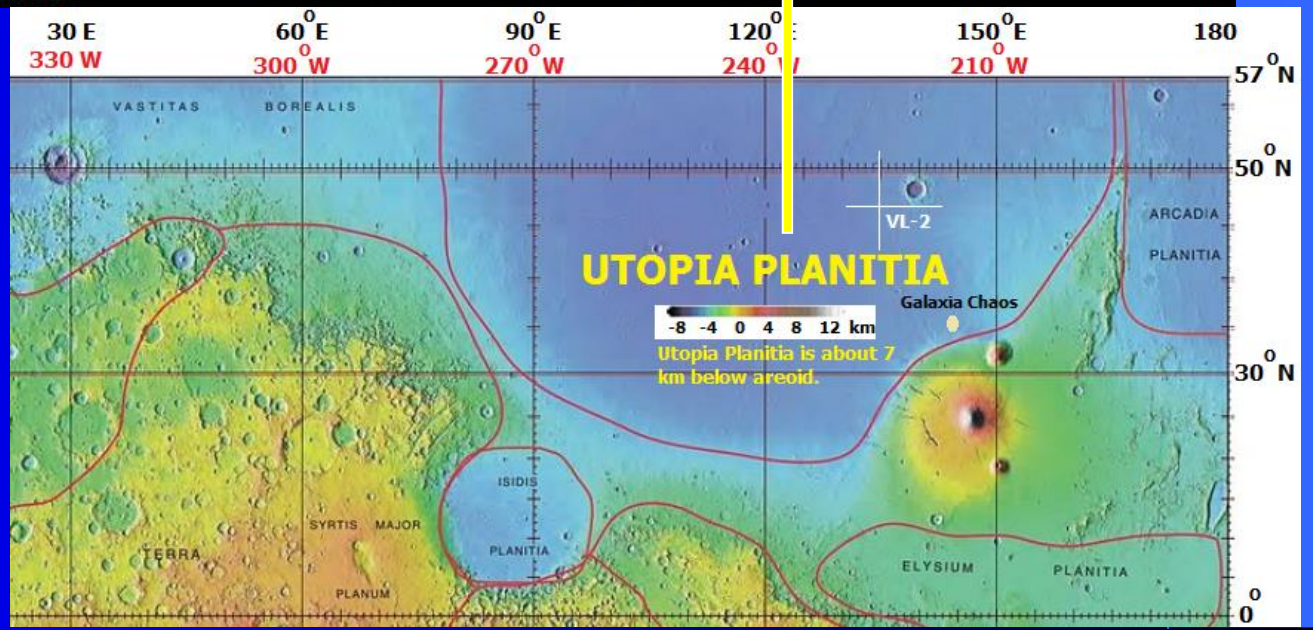
Palikir Crater inside Newton Crater

http://graphics8.nytimes.com/newsgraphics/2015/09/28/mars-water/d910b431eb0ab62d9a5542dd1c10f5373df35383/images/flows.gif

Surface water is associated with Recurring Slope Lineae (RSL). Where are they on Mars?



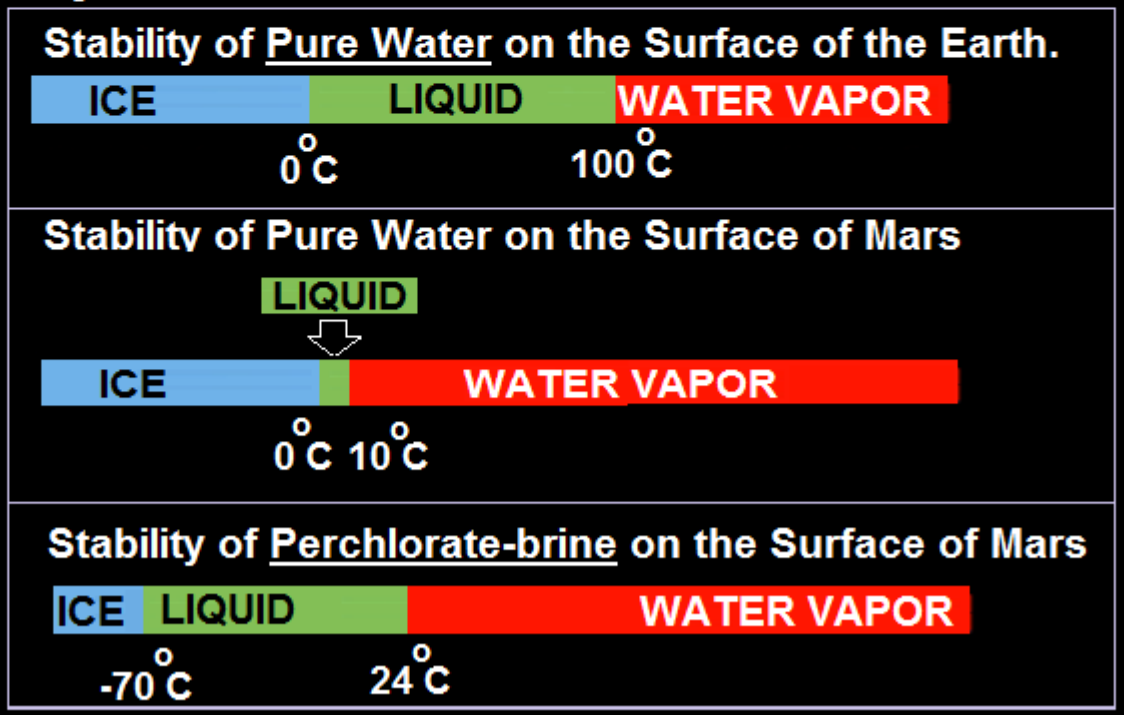
The frozen sea at Utopia Planitia has the volume of Lake Superior on Earth.



Luju Ojha *proved* running water on Mars is linked to perchlorate salts. They should raise boiling points and lower freezing points on Mars.

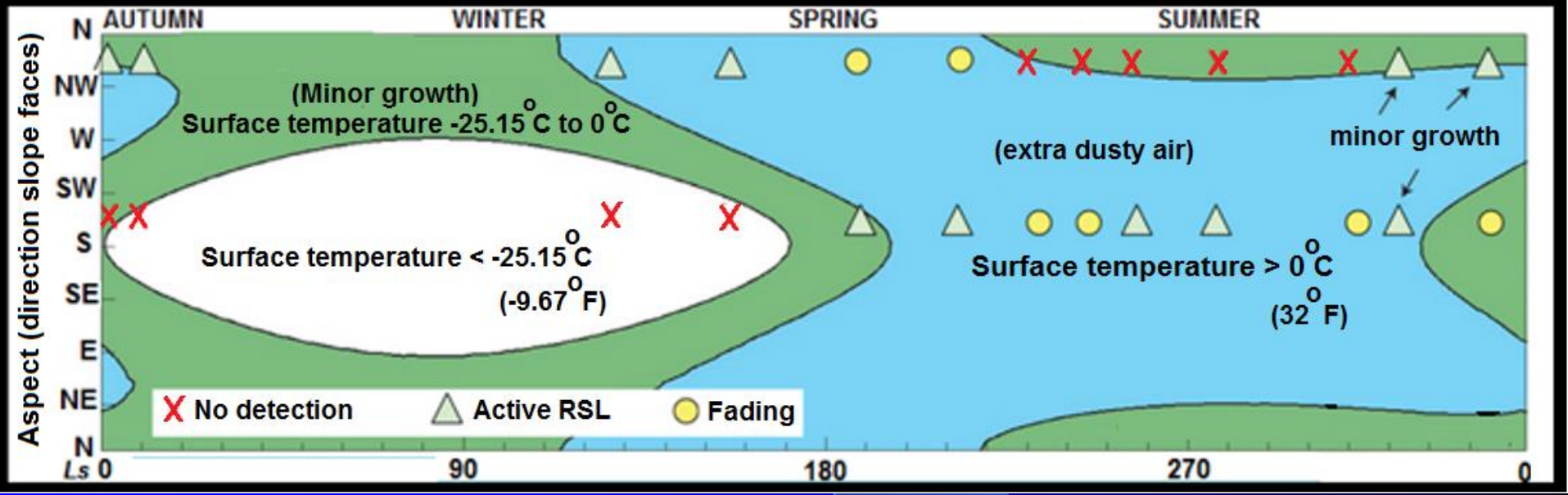
But water found on Mars matches what is expected for pure water there, not salty water.

Luju Ojha
Georgia Institute of Technology
Ph.D. Candidate



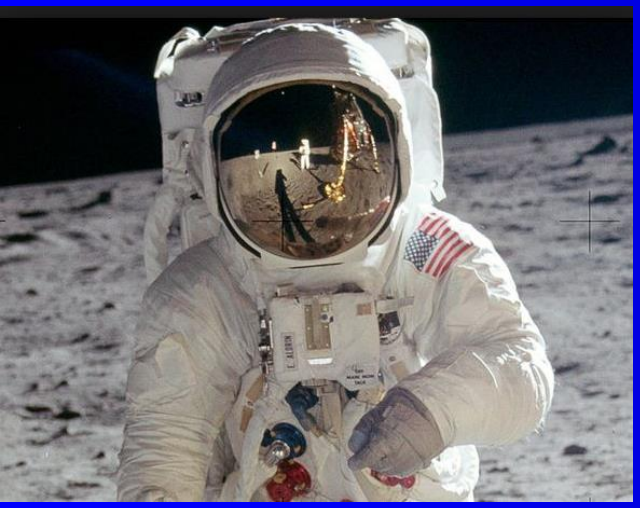
Adapted from mars.nasa.gov/news/whatsnew/index.cfm?FuseAction=ShowNews&NewsID=1858

What temperatures are associated with RSL?

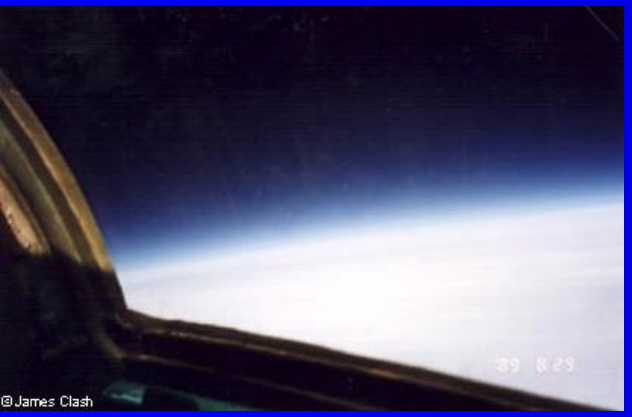


- Generally close to or above the freezing point of water (0° C) on Earth.
- Where below 0° C perchlorate salts allow for lower freezing points (but this seems rare).

Martian Sky Color is an Issue.



In the Moon's vacuum the sky is black.



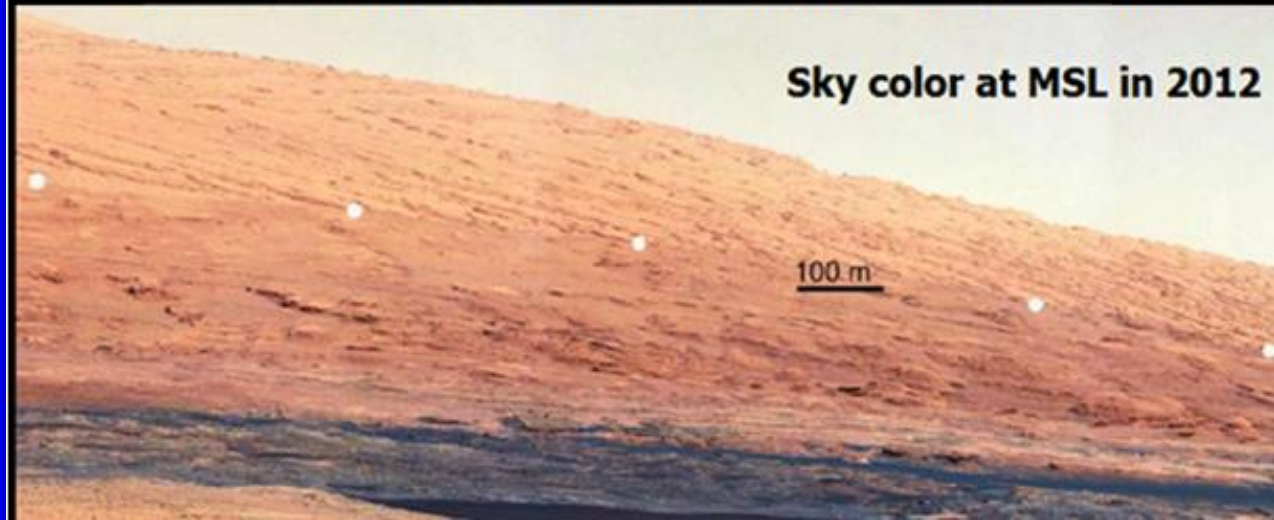
At high altitudes over Earth, like 83,600 feet , (with 11.3 mbar) our sky goes black.

Why is the Martian sky so bright with under 10 mbar pressure What color really is it anyway?

Original color seen.

Sky color after order to alter color monitors by NASA Administrator Dr. James Fletcher.

Sky color seen at Viking 1 in 1976 - before and after alteration



Initial Cause to Question Accepted Pressure

- **Dust devils on Mars and Earth are similar.**

  (timing, electricity, core temperature rises, and often size but they can be much bigger on Mars)

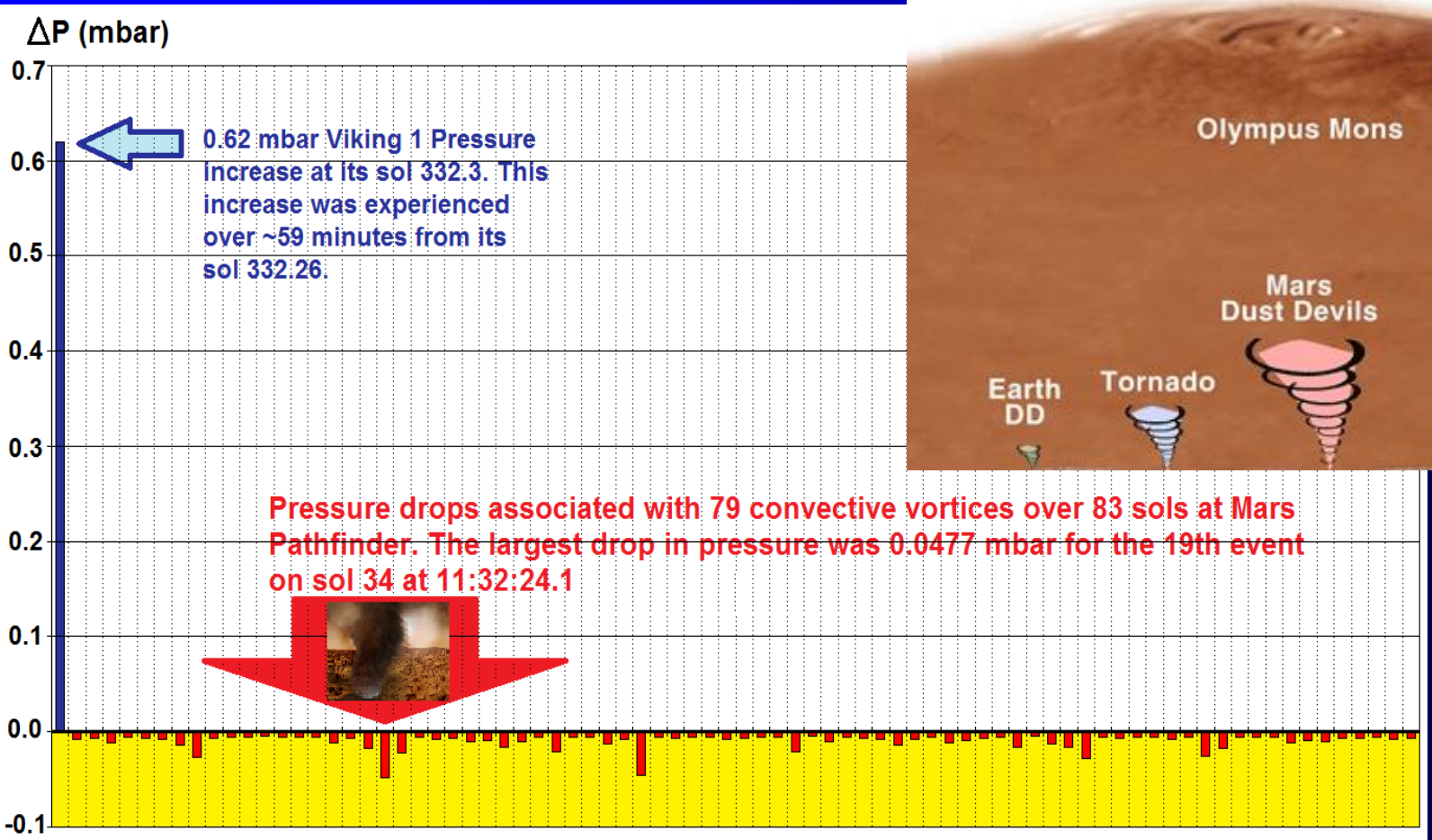
Mars: http://mars.nasa.gov/mer/gallery/press/spirit/20050819a/dd_enhanced_568b-B558R1.gif

Earth

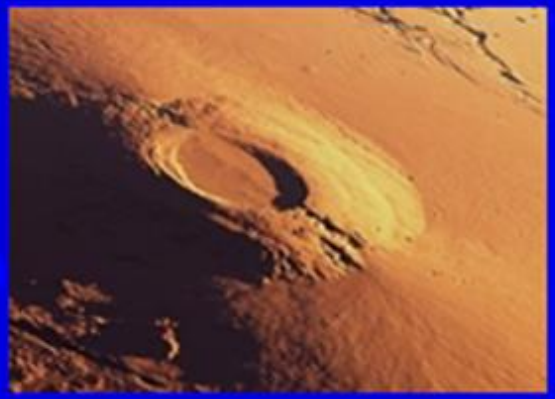
Similar dust particle size (.001 mm). But at 6.1 mbar pressure, an impossible 1,118 MPH wind is required to lift dust.

DUST DEVILS ARE THE MOST OBVIOUS WEATHER ODDITY

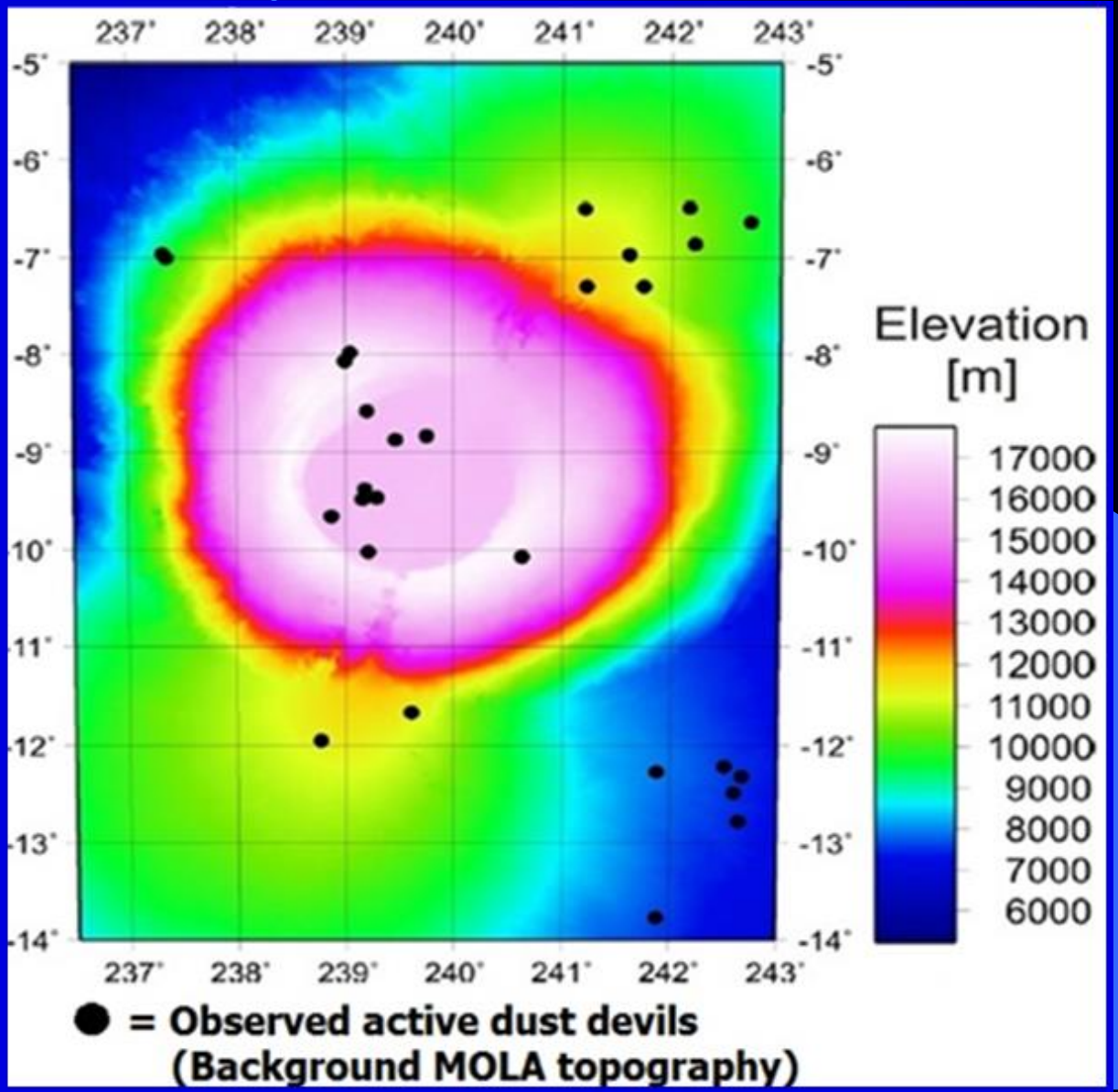
With so little air on Mars, how can there be enough change in pressure to form them at all?



Why Question Pressure?



Dust devils even form at a height of 10.6 miles (17 km) on the Arsia Mons mountain where pressure should only be 1/1000 th of Earth's pressure.



Why Question Pressure?

Dust storms increase air pressure and can block 99% of light on Mars (and Earth).

Mars_dust_opacities_MER-B_Sol_1205_to_1235.jpg (800 × 533 pixels, file size: 39 KB, MIME type: image/jpeg)

Phoenix, AZ Dust Storm of 5 July 2011

- **Pressure increased by 6.6 mbar – more than average 6.1 mbar pressure on Mars.**

Pressure measured on MSL was at least 9.25 mbar. That + 6.6 mbar = 15.85 mbar. Initially NASA claimed MSL couldn't measure over 11.5 mbar, but this figure changed in 2017 to 14 mbar (still too low).

- **The true sensor ability? 0 to 1,025 mbar!**

Abstract to the American Geophysical Union for the Fall 2012 meeting

Or is the maximum pressure 102500 Pa/ 1025 hPa/ 1025 mbar?

adsabs.harvard.edu/abs/2012AGUFM.P21G..06H

Title: Pressure and Humidity Measurements at the MSL Landing Site Supported by Modeling of the Atmospheric Conditions

Authors: Harri, A. ; Savijarvi, H. I. ; Schmidt, W. ; Genzer, M. ; Paton, M. ; Kauhanen, J. ; Atlaskin, E. ; Polkko, J. ; Kahanpaa, H. ; Kemppinen, O. ; Haukka, H.

Affiliation: AA(Finnish Meteorological Institute, Helsinki, Finland; Ari-Matti.Harri@fmi.fi), AB(University of Helsinki, Helsinki, Finland; hannu.savijarvi@helsinki.fi), AC(Finnish Meteorological Institute, Helsinki, Finland; Walter.Schmidt@fmi.fi), AD(Finnish Meteorological Institute, Helsinki, Finland; Maria.Genzer@fmi.fi), AE(Finnish Meteorological Institute, Helsinki, Finland; Mark.Paton@fmi.fi), AF(Finnish Meteorological Institute, Helsinki, Finland; janne.kauhanen@fmi.fi), AG(Finnish Meteorological Institute, Helsinki, Finland; evgeny.atlaskin@fmi.fi), AH(Finnish Meteorological Institute, Helsinki, Finland; Jouni.Polkko@fmi.fi), AI(Finnish Meteorological Institute, Helsinki, Finland; Henrik.Kahanpaa@fmi.fi), AJ(Finnish Meteorological Institute, Helsinki, Finland; Osku.Kemppinen@fmi.fi), AK(Finnish Meteorological Institute, Helsinki, Finland; Harri.Haukka@fmi.fi)

Publication: American Geophysical Union, Fall Meeting 2012, abstract #P21G-06

Publication Date: 12/2012

Origin: AGU

Keywords: 0343 ATMOSPHERIC COMPOSITION AND STRUCTURE / Planetary atmospheres

Bibliographic Code: 2012AGUFM.P21G..06H

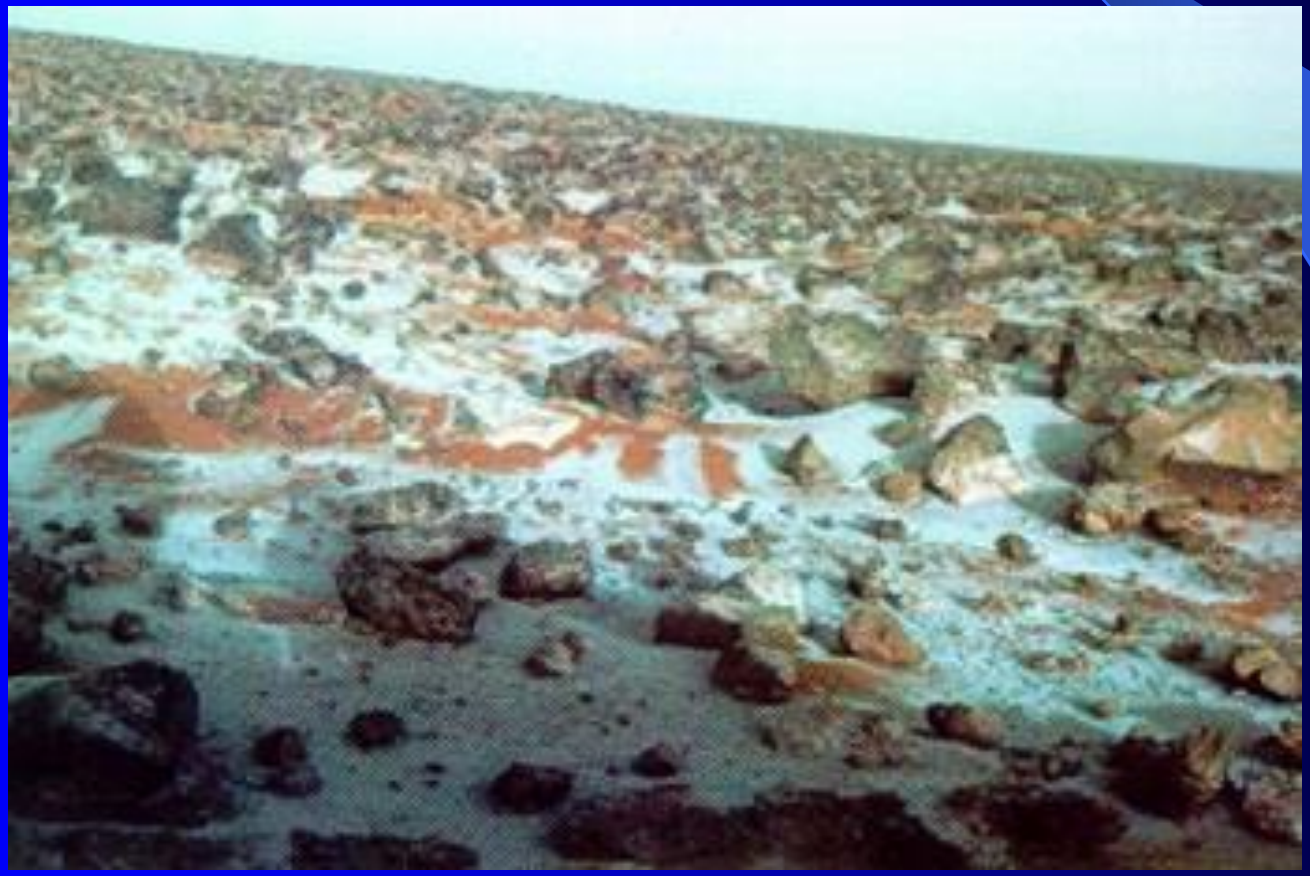
Abstract

The Mars Science Laboratory (MSL) called Curiosity Rover landed safely on the Martian surface at the Gale crater on 6th August 2012. Among the MSL scientific objectives are investigations of the Martian environment that will be addressed by the Rover Environmental Monitoring Station (REMS) instrument. It will investigate habitability conditions at the Martian surface by performing a versatile set of environmental measurements including accurate observations of pressure and humidity of the Martian atmosphere. This paper describes the instrumental implementation of the MSL pressure and humidity measurement devices and briefly analyzes the atmospheric conditions at the Gale crater by modeling efforts using an atmospheric modeling tools. MSL humidity and pressure devices are based on proprietary technology of Vaisala, Inc. Humidity observations make use of Vaisala Humicap® relative humidity sensor heads and Vaisala Barocap® sensor heads are used for pressure observations. Vaisala Thermocap® temperature sensors heads are mounted in a close proximity of Humicap® and Barocap® sensor heads to enable accurate temperature measurements needed for interpretation of Humicap® and Barocap® readings. The sensor heads are capacitive. The pressure and humidity devices are lightweight and are based on a low-power transducer controlled by a dedicated ASIC. The transducer is designed to measure small capacitances in order of a few pF with resolution in order of 0.1fF (femtoFarad). The transducer design has a good spaceflight heritage, as it has been used in several previous missions, for example Mars mission Phoenix as well as the Cassini Huygens mission. The humidity device has overall dimensions of 40 x 25 x 55 mm. It weighs18 g, and consumes 15 mW of power. It includes 3 Humicap® sensor heads and 1 Thermocap®. The transducer electronics and the sensor heads are placed on a single multi-layer PCB protected by a metallic Faraday cage. The Humidity device has measurement range of 0 - 100%RH in temperature range of -70°C - +25°C. Its survival temperature is as low as -135°C. The pressure device has overall dimensions of 62 x 55 x 17 mm. It weighs 35 g, and consumes 15 mW of power. The sensor makes use of two transducers placed on a single multi-layer PCB and protected by box-like FR4 Faraday cages. The transducers of the pressure device can be used in turn, thus providing redundancy and improved reliability. The pressure device measurement range is 0 - 1025 hPa in temperature range of -45°C - +55°C, but its calibration is optimized for the Martian pressure range of 4 - 12 hPa. In support of the in situ measurements we have analyzed the atmospheric conditions at the MSL landing site at the Gale crater by utilizing mesoscale and limited area models. The compatibility of the results of these modeling tools with the actual environmental conditions will be discussed.

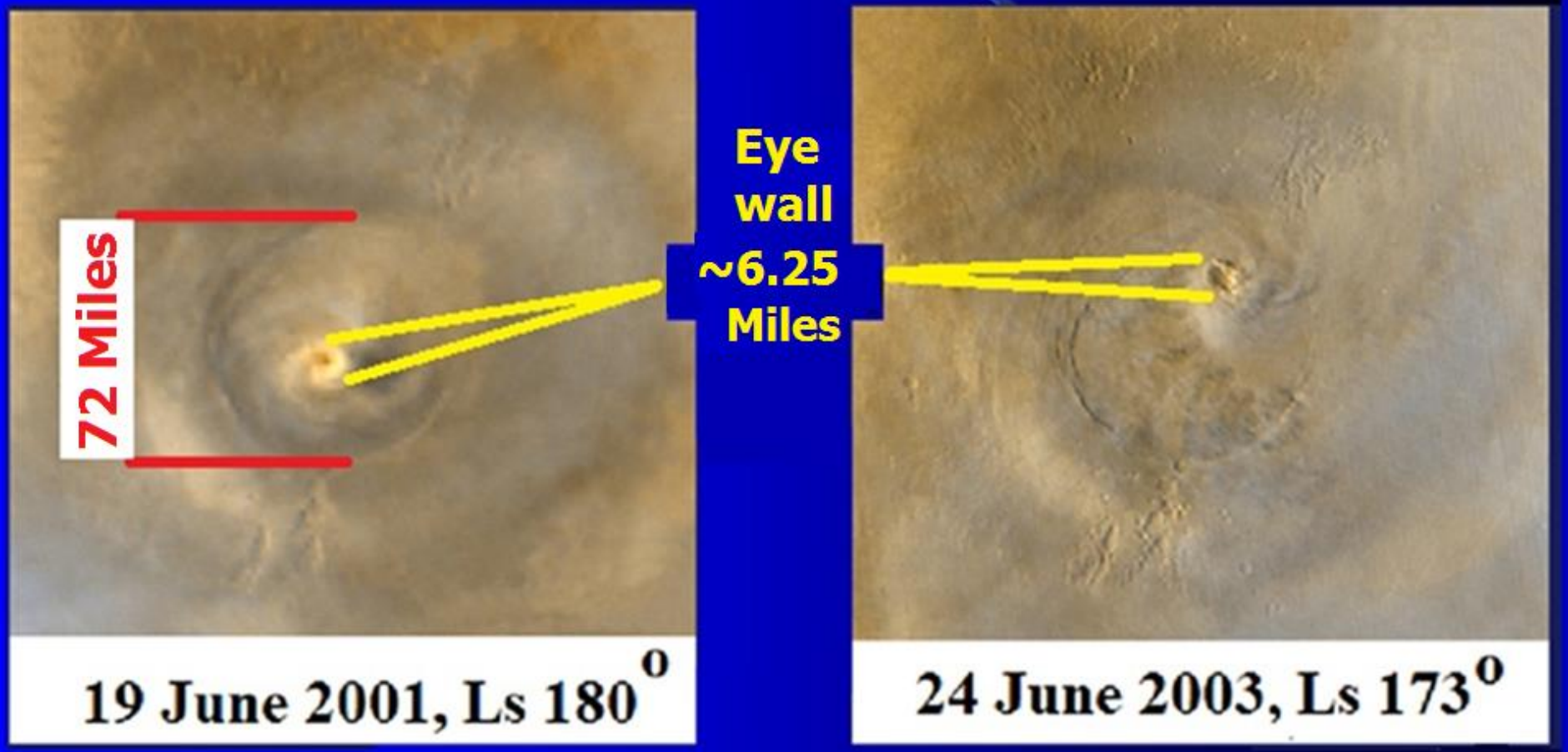
Print-screen (recorded on July 23, 2017) of the FMI Abstract entitled *Pressure and Humidity Measurements at the MSL Landing Site Supported by Modeling of the Atmospheric Conditions.*

Why Question Pressure?

- Snow on Mars with ice particles in clouds ten times too small for accepted pressure.



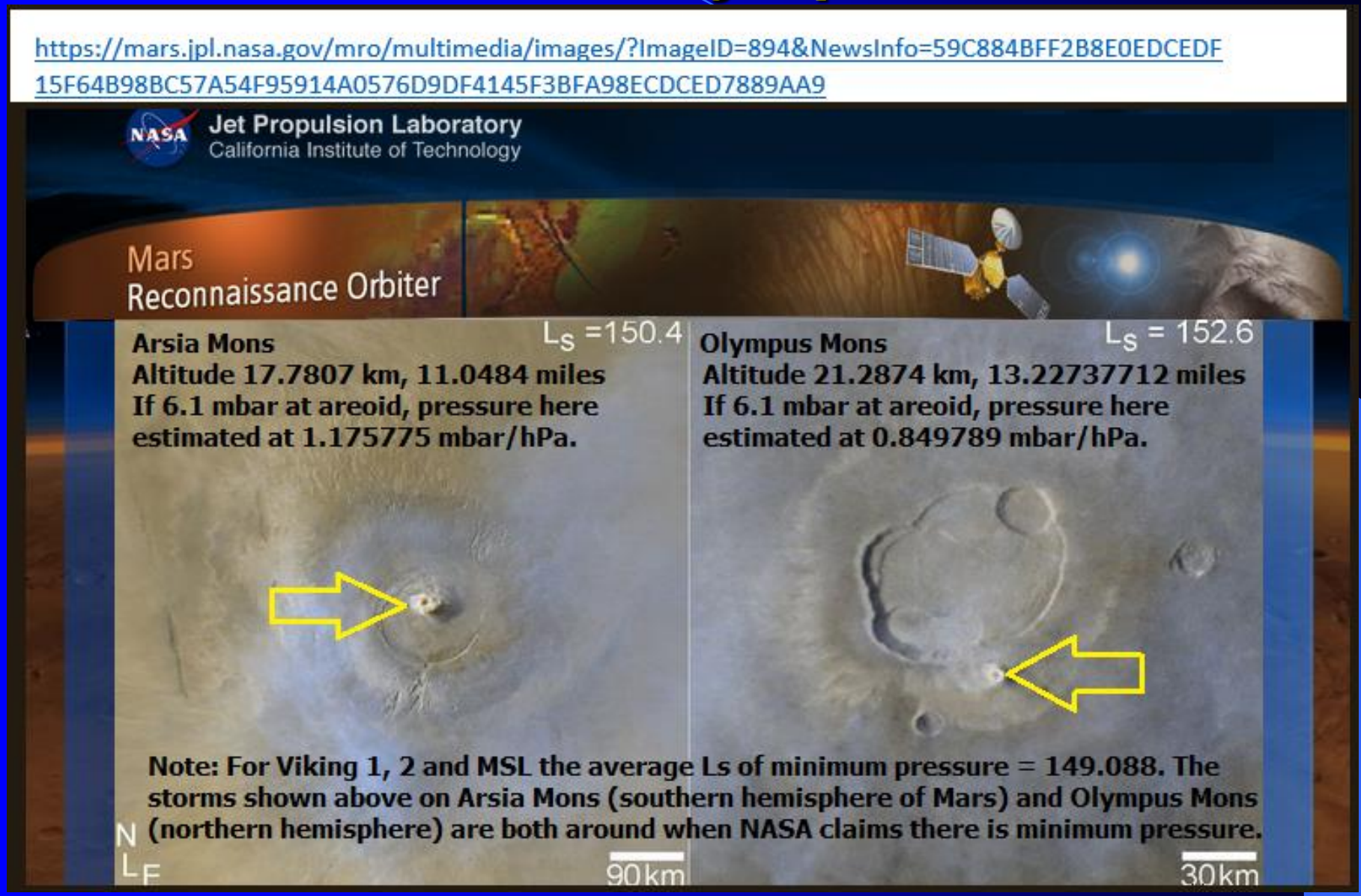
Spiral Clouds on Arsia Mons look like Hurricane Eye Walls. 1 mbar NASA claim seems too low.



These clouds go up 18.75 miles above Arsia Mons. Believe NASA, and pressure there is only ~.07 Mbar – too low to support such weather.

These storms even occur at higher altitudes on Olympus Mons!

https://mars.jpl.nasa.gov/mro/multimedia/images/?ImageID=894&NewsInfo=59C884BFF2B8E0EDCEDF15F64B98BC57A54F95914A0576D9DF4145F3BFA98ECDCED7889AA9



STRATUS CLOUDS 16 KM ABOVE MARS SUGGEST A PRESSURE AT AREOID OF 511 MBAR AND AT HELLIS BASIN HIGHER THAN PRESSURES ON EARTH AT SEA LEVEL.

1. CIRROSTRATUS CLOUDS ARE FOUND ON EARTH UP TO 13,000 METERS HIGH.

3. STRATUS CLOUDS ON MARS AT ALTITUDE OF 16,000 METERS ABOVE MARS PATHFINDER.

PHOTO TAKEN 1 HOUR 40 MINUTES BEFORE SUNRISE ON 7/19/1997!

Meteorology Calculator Version 1.5.9			
Pressure Altitude Required Data Entry			
Station Pressure	163.33	in of Hg / mm of Hg / millibars (hPa)	

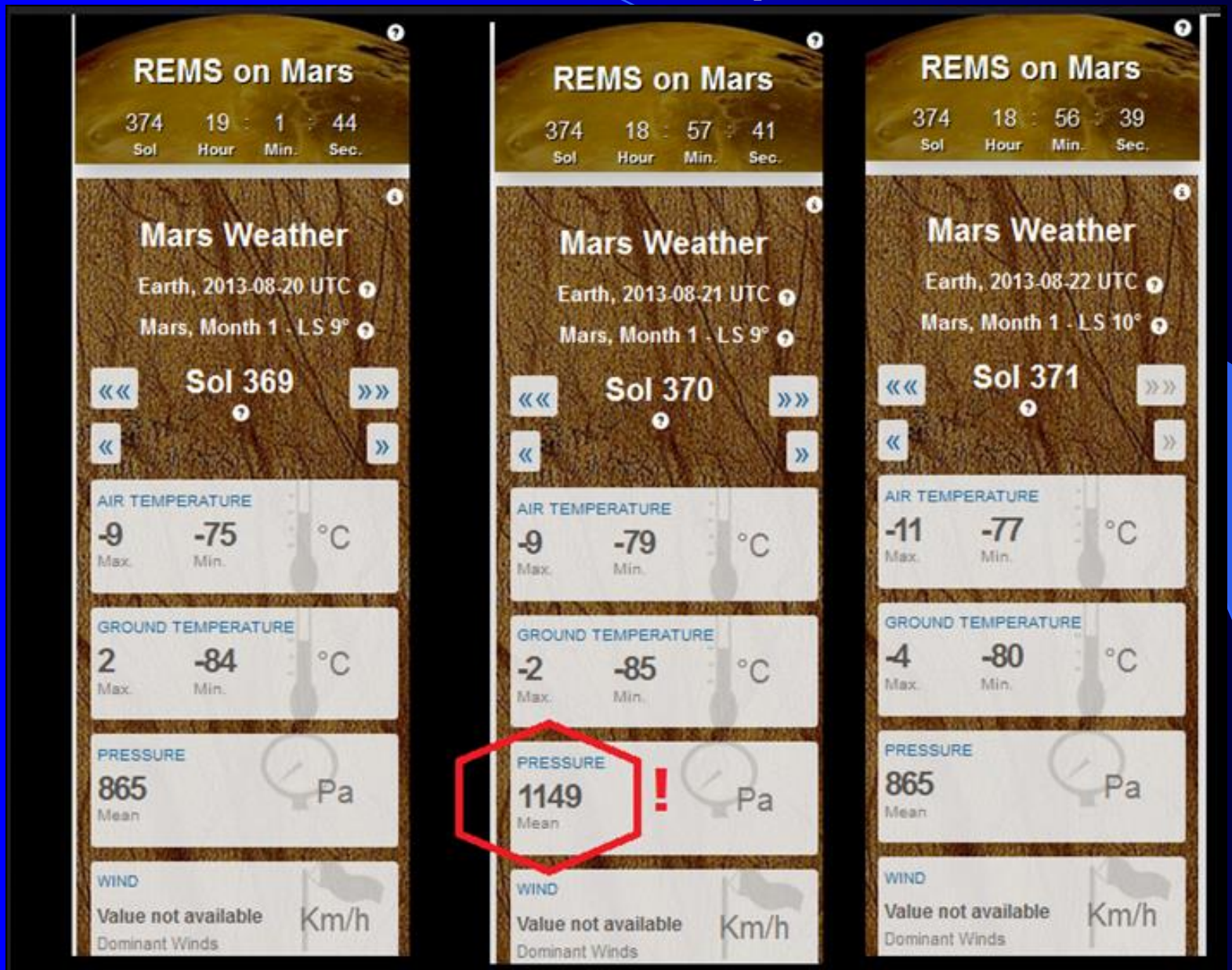
Calculated Results		
Pressure Altitude Calculation	42651.1	ft
Pressure Altitude Calculation	13000	m

2. PRESSURE AT 13,000 METERS IS ABOUT 163 MILLIBARS

4. Pathfinder was 3,682 m below areoid. 16,000 m above that is 12,318 m. Table assumes stratus clouds cannot form at pressures lower than on Earth (163 mbar).

	A	B	C	D	E	F	G	H	I
1	CALCULATIONS BASED ON	ENTERING ARGUMENTS SCALE HEIGHT 10.8 KM AND 163.33 mbar at 12,318 meters							
2	MARS PATHFINDER	KILOMETERS	10.8km Scale	RATIO B/C	=-EXP(D VALUE)	1/E value	-F VALUE = PRESSURE	PERCENT OF	PRESSURE IN
3	VIEW OF STRATUS CLOUDS		Height (MARS)				MULTIPLE OF	PRESSURE AT	MILLIBARS
4							6.1 MBAR MEAN	MEAN AREOID	
5	CLOUDS 16 KM ABOVE MPF	12.318	10.8	1.140555556	-3.128505941	-0.319641394	0.319641394	31.96413939	163.3303595
6	MARS PATHFINDER (MPF)	-3.682	10.8	-0.340925926	-0.711111581	-1.40624907	1.40624907	140.624907	718.56515
7	MEAN AREOID	0	10.8	0	-1	-1	1	100	510.98
8	VALLES MARINERIS	-5.31	10.8	-0.491666667	-0.611606201	-1.635039015	1.635039015	163.5039015	835.4722361
9	HELLAS BASIN	-7.825	10.8	-0.724537037	-0.484548845	-2.063775427	2.063775427	206.3775427	1054.547968

On Sol 369 pressure was 865 Pascals (8.65 mbar). The next day a record high of 1149 Pa was recorded – then most the sensor could measure. We called JPL. The next day it was back to 865 Pa.



REMS Team/ NASA/JPL Critical Data changes After Hearing from the Roffman Mars Correct Team.

REMS on Mars
374 Sol 18 : 57 : 41 Hour Min. Sec.

Mars Weather
Earth, 2013-08-21 UTC
Mars, Month 1 - LS 9°
Sol 370
AIR TEMPERATURE
-9 Max. -79 Min. °C
GROUND TEMPERATURE
-2 Max. -85 Min. °C
PRESSURE
1149 Mean ! Pa
WIND
Value not available
Dominant Winds Km/h

Pressure reported as 1149 Pa BEFORE we brought it to JPL's attention.

About 7 months after we brought the 1149 Pa pressure to JPL's attention, they changed it to 865 Pa!

REMS on Mars
577 Sol 7 : 45 : 42 Hour Min. Sec.

Mars Weather
Earth, 2013-08-21 UTC
Mars, Month 1 - LS 9°
Sol 370
AIR TEMPERATURE
-9 Max. -79 Min. °C
GROUND TEMPERATURE
-1 Max. -80 Min. °C
PRESSURE
865 Mean ! Pa
WIND
Value not available
Dominant Winds Km/h

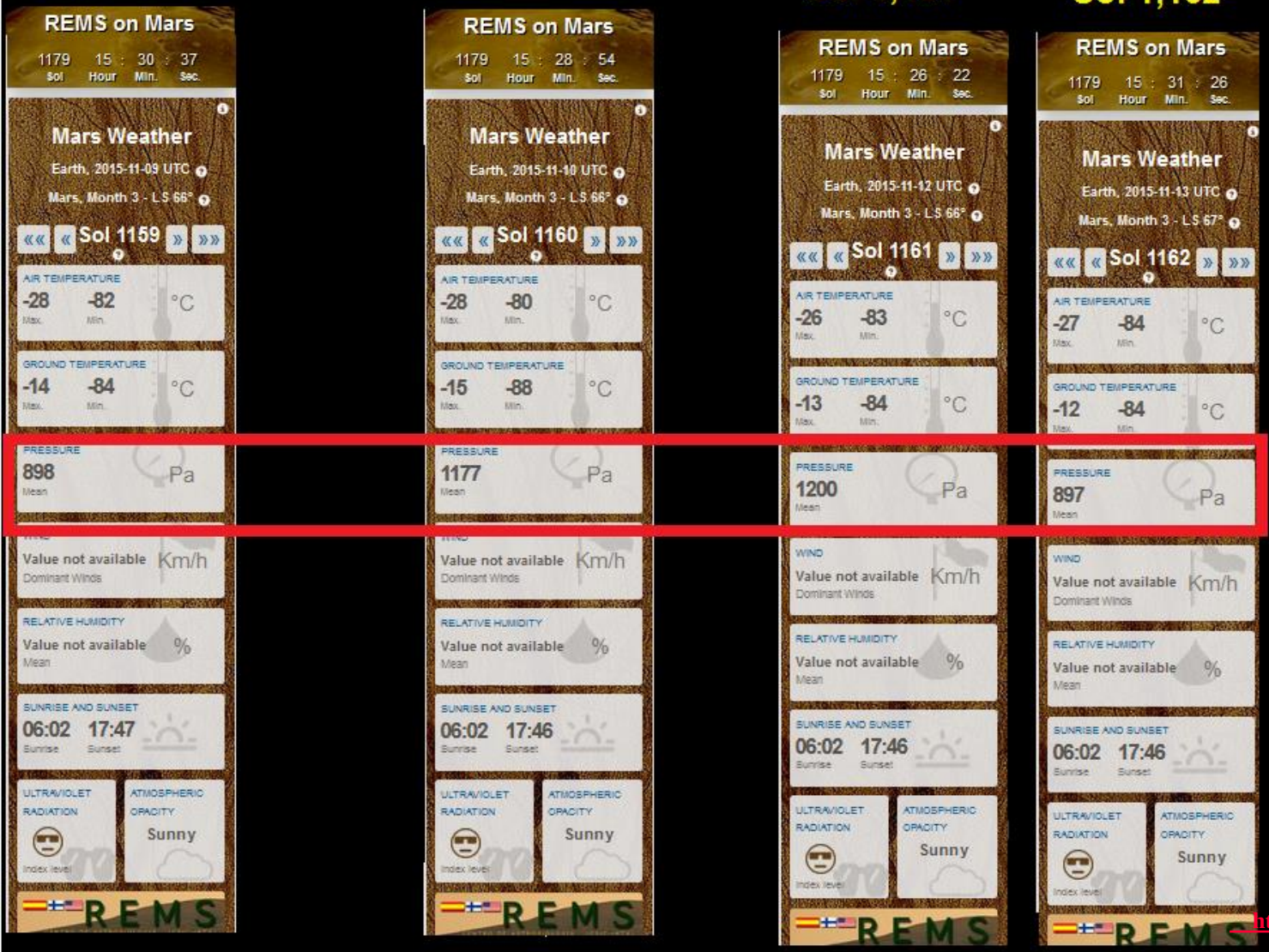
HERE WE GO AGAIN WITH PRESSURES GREATER THAN MSL CAN MEASURE.

898 Pa is normal pressure on Sol 1159

1,177 Pa is higher than sensor capabaility on Sol 1,160

1,200 Pa is higher still on Sol 1,161

897 Pa is back to normal on Sol 1,162



NASA later altered 1177 Pa to 899 Pa and 1200 Pa to 898 Pa.

http://marscorrect.com/photo2_28.html

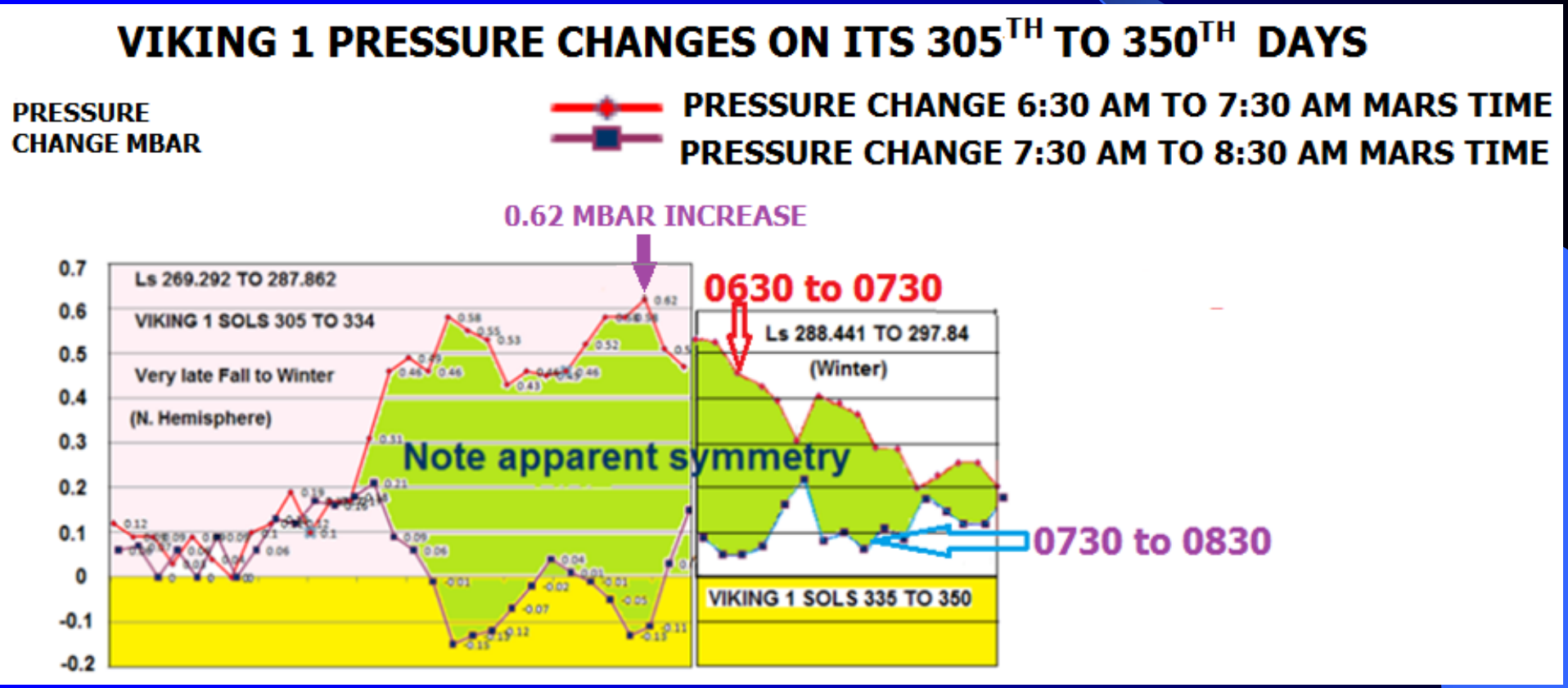
Once again we force NASA to reduce high pressures on Sols 1300 and 1301

Pressure was 753 Pa and falling on Sol 1299. It was 751 on Sol 1302. So when challenged, JPL changed high values for Sols 1300 (945 Pa) and 1301 (1,154 Pa) to an intermediate value of 752 Pa.

After we pointed out unusually high pressures for sols 1300 and 1301 JPL/REMS reduced them. 945 Pa on Sol 1300 was dropped to 752 Pa.

1154 Pa on Sol 1301 was reduced to 752 Pa.

Viking pressure spikes at 6:30 to 7:30 am were evidence for internal (heater-related) processes at work. Thus they were **not** measuring outside air pressure!



TINY DUST FILTERS HAD NO CLEANING MECHANISM

Mars is very dusty. All dust filters likely clogged immediately on landing.

DIME SURFACE AREA = ~251.9 mm^2

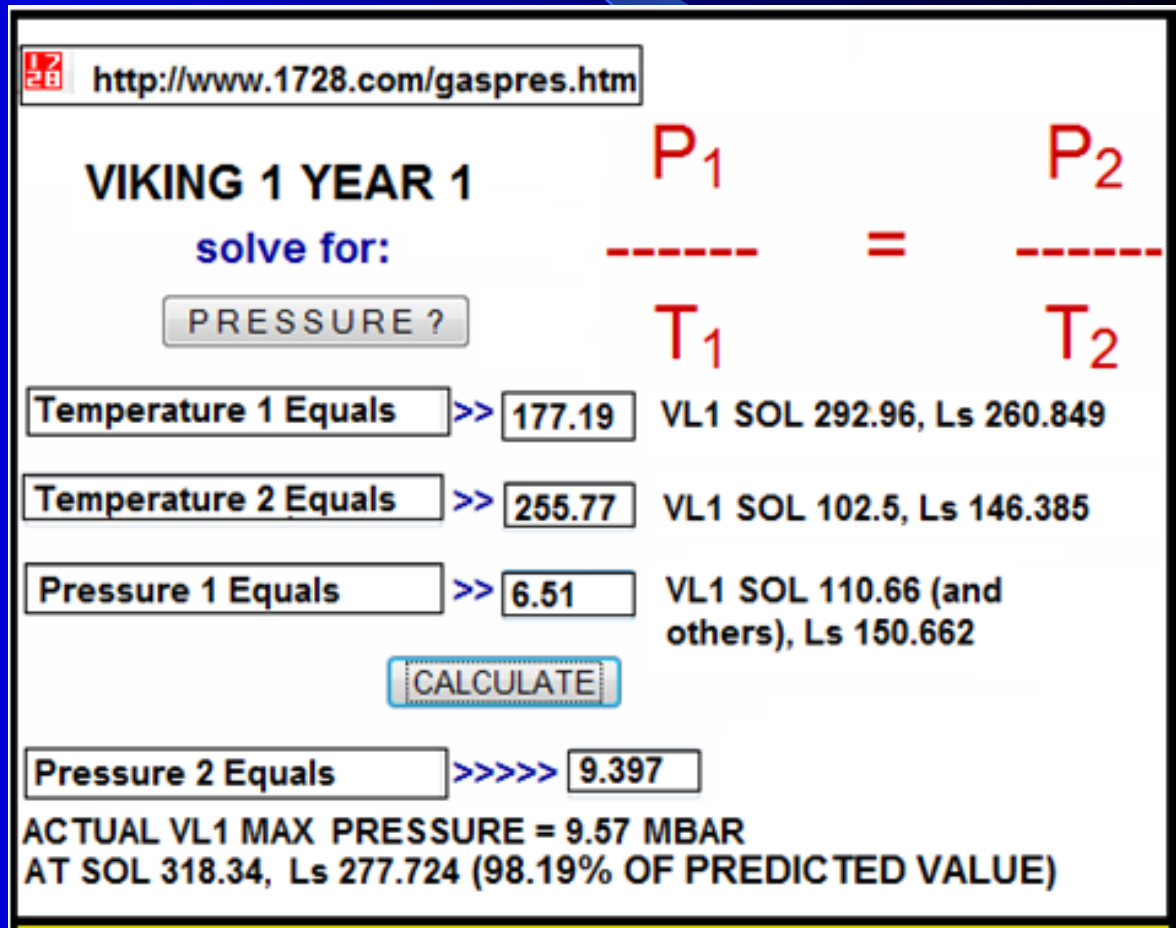
TAVIS DUST FILTER FOR VIKING = ~40 mm^2

TAVIS DUST FILTER FOR PATHFINDER= ~ 3.14 mm^2

VAISALA DUST FILTER FOR PHOENIX OR MSL = ~10 mm^2

Viking Pressures & Outside Temperature

Pressure varied inversely with outside temperature. This suggests heating of the gas behind a dust clot that isolated the pressure sensor from Martian air.



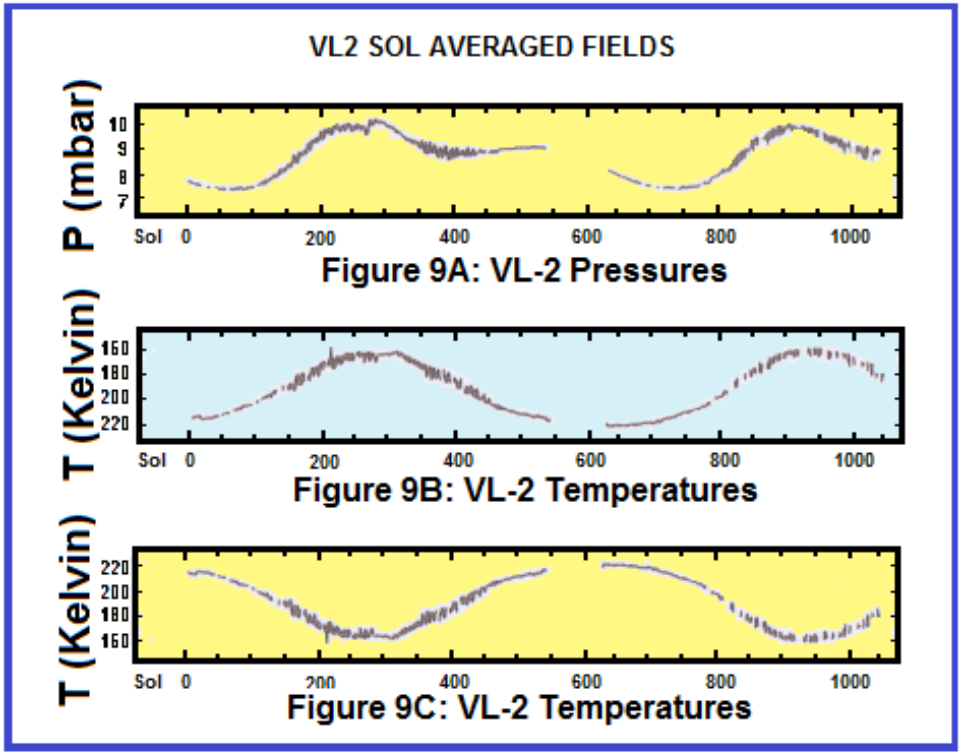
Note: 177.19 K = -137.128° F
255.77 K = +0.716° F

Evidence for clogged dust filters: Viking pressure data for over a Martian year

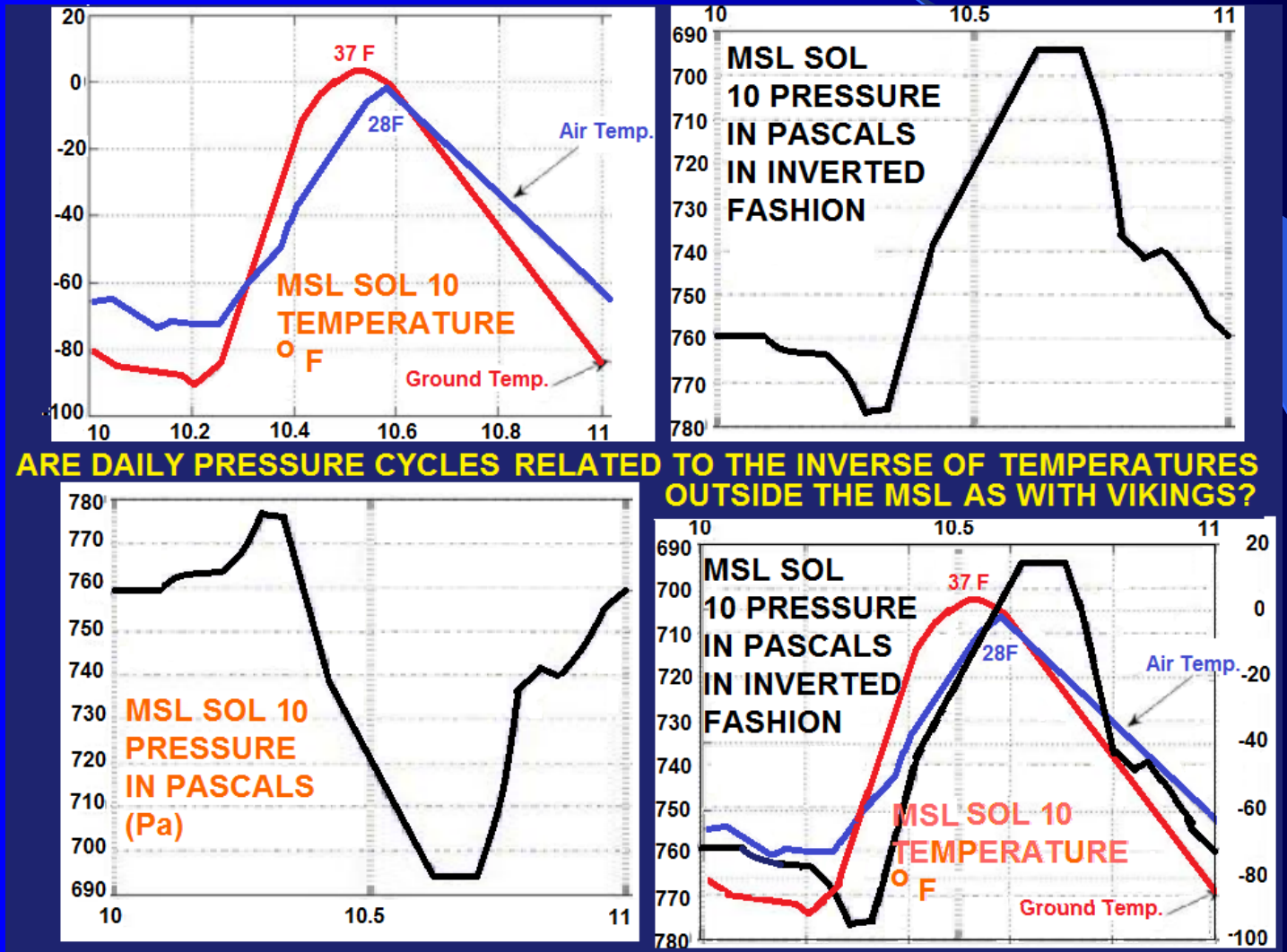
Figures 9A and 9C show that as temperature fell pressure recorded rose.

Figure 9B is 9C inverted to show quality of pressure and temperature link.

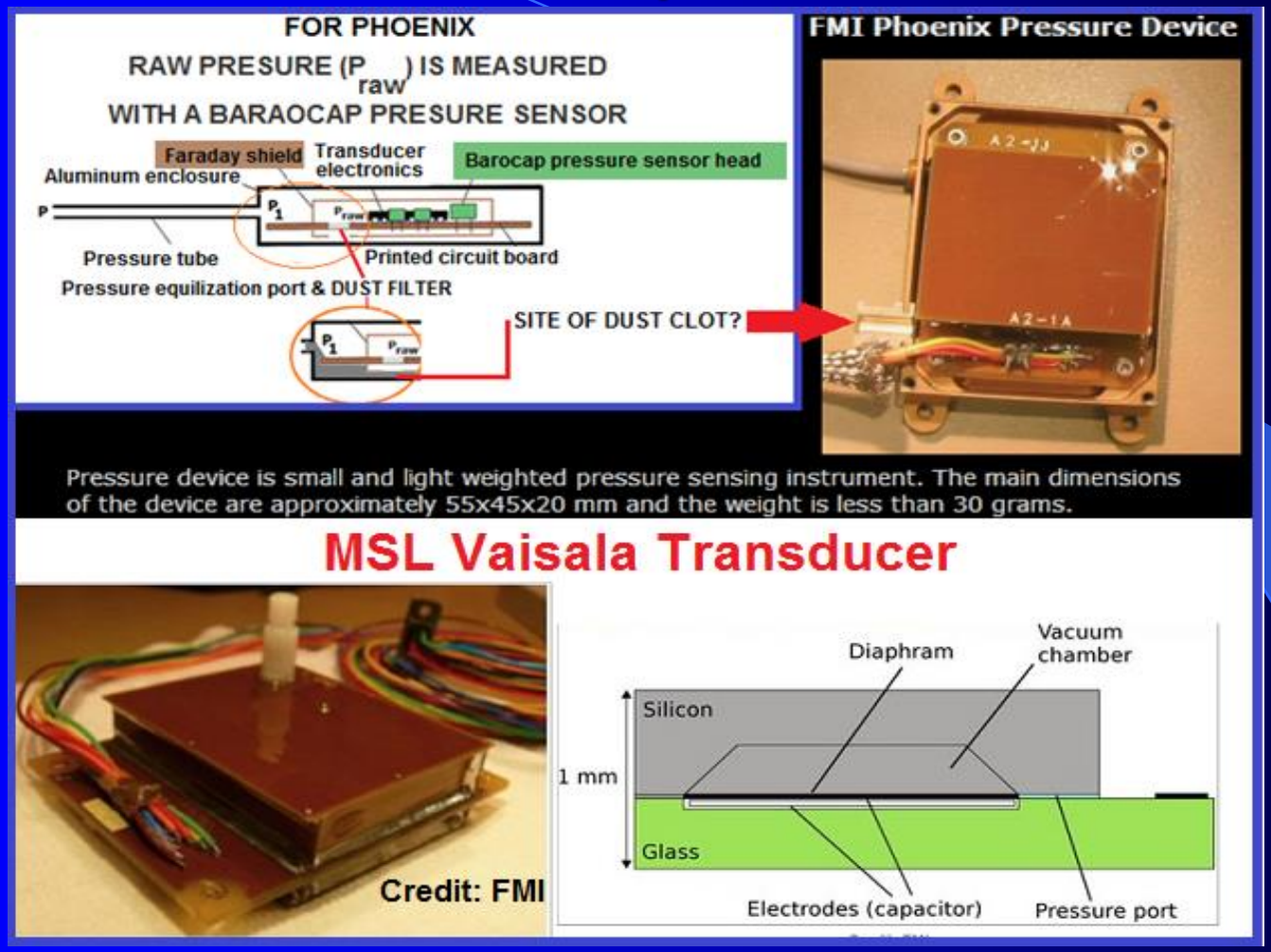
Hypothesis: Above annual trend will be matched at the hourly level when RTG heaters are on & increasing pressure behind a dust clot.



Initial MSL daily pressure also varied inversely with outside temperature. This reinforces the dust clot idea.



FMI knew it had a problem with Phoenix



In 2009 they wrote, *"We should find out how the pressure tube is mounted in the spacecraft and if there are additional filters etc."* FMI designed the sensor.

KENRIK KAHANPÄÄ: MAN AT THE CENTER OF PHOENIX AND MSL PRESSURE CONTROVERSY

"That we at FMI did not know how our sensor was mounted in the spacecraft and how many filters there were shows that the exchange of information between NASA and the foreign subcontractors did not work optimally in this mission!"

(Kahanpää [FMI]
Personal communication,
December 15, 2009)

Henrik Kahanpää and REMS- Pressure measuring device. Photo: Jouni Polkko / Finnish Meteorological Institute

International Traffic in Arms Regulations (ITAR)

- *"After Phoenix landed… the actual thermal environment was worse than the expected worse case…* ***Information on re-location of the heat source had not been provided due to ITAR restrictions."*** (Taylor, P.A., et al, 2009)

Occam's Razor

The simplest solution is usually correct.

This suggests repeatable pressure data should be believed. But, consistent pressures measured by all landers may only exist because they all had pressure sensor air access tubes clog in similar fashion (or because, as was just shown, the data has been altered).

Red boxes show pressures each day that were within 2% of our predictions based a formula that presumed dust clots. 0.3 = 6:30 am to 7:30 am

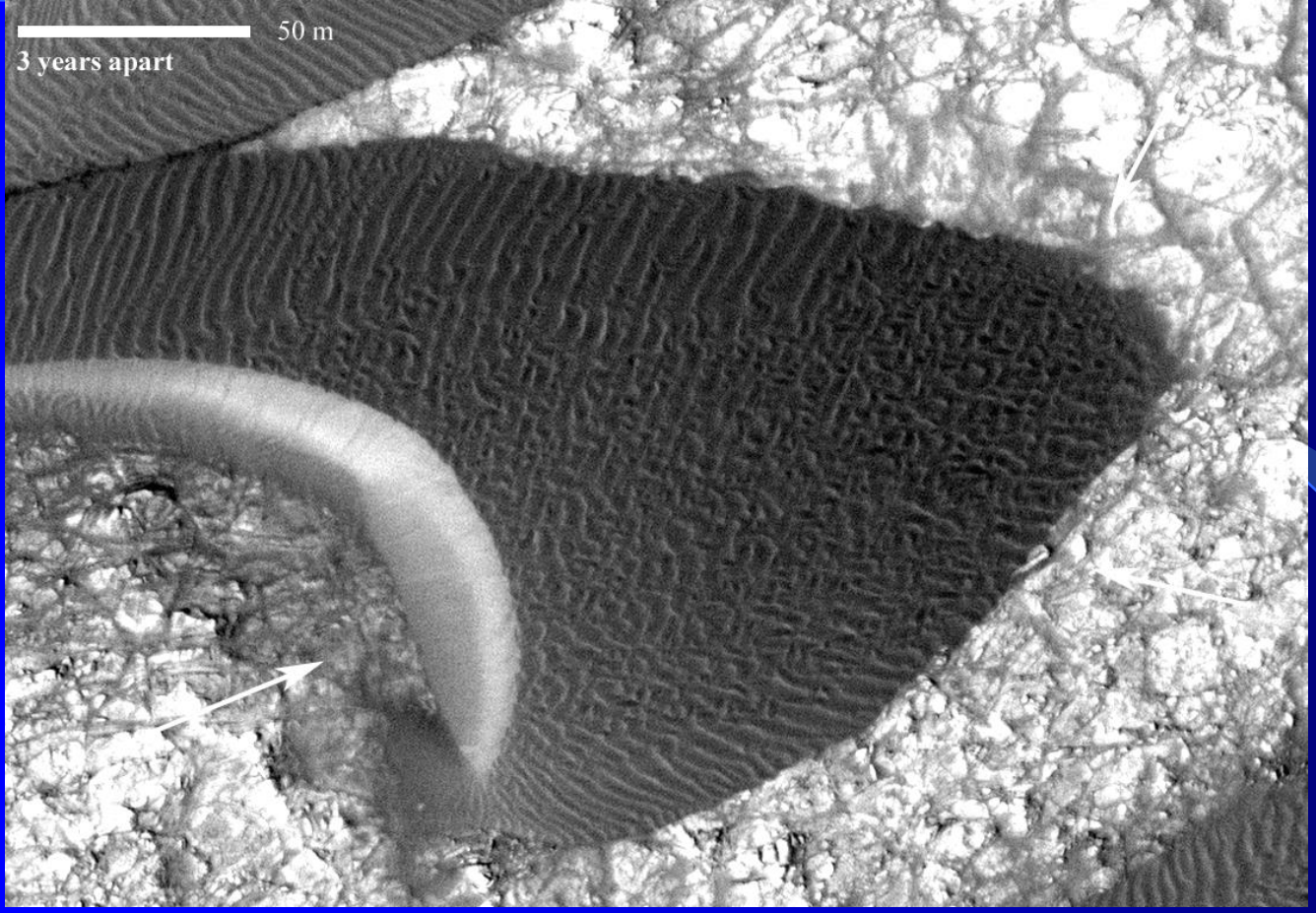
VL1 SOL	0.02	0.06	0.1	0.14	0.18	0.22	0.26	0.3	0.34	0.38	0.42	0.46	0.5	0.54	0.58	0.62	0.66	0.7	0.74	0.78	0.82	0.86	0.9	0.94	0.98	Vl1 SOL
228	198							194									215			204						228
229								196	199									215	210	204			200	199	202	229
230								192	197									209	204	201	198	196	198	199	198	230
231	196							192	196									210	206	202	200					231
232								193	199									209		203	200			197	199	232
233								193	199									211		203	200	198	198	200	198	233
234	197							193	199									211		304	201	200				234
235								195	201									211	205	203	201	198	196	197	198	235
236	195							191	197									213	207	203	200	197	197	195	198	236
237	198	197						192										212	207	204	201	198	198	200		237
238	195	193					193	192	192										206	203	200	197	197	196	194	238
239	195	196						192										213	205	203	200	197	195	196	196	239
240	197	193						190										209	205	202	198	195	194	194	193	240
241	195	195						189												203	200	197	195	195	197	241
242	196	194						191											206			197	196			242
243	194	191						190											206			197	195	197		243
244	197	197						191											206	203	200	197	197	196	195	244
245	196	196	195					192													199	197	194	192	191	245
246	190	189					186	189														195	193			246
247		193	189				187	189													198	196	194	192	190	247
248	192	194	192					189										208			199	196	195	194	192	248
249	193	194	191					189															193	192	191	249
250	190	189	187				185	187													197	194			194	250

BLOCKS IN RED ARE WITHIN 2% OF PREDICTIONS BASED ON GAY-LUSSAC/AMONTON'S GAS LAWS.

FORMULA USED IS

$$P = \frac{6.51 \text{ mbar} * 255.17\text{K}}{T_K \text{ Measured in cell}}$$

28K Temperature range for accurate pressure predictions this page (185 to 213K)



Why Trash Occam?

Moving Sand Dunes on Mars.

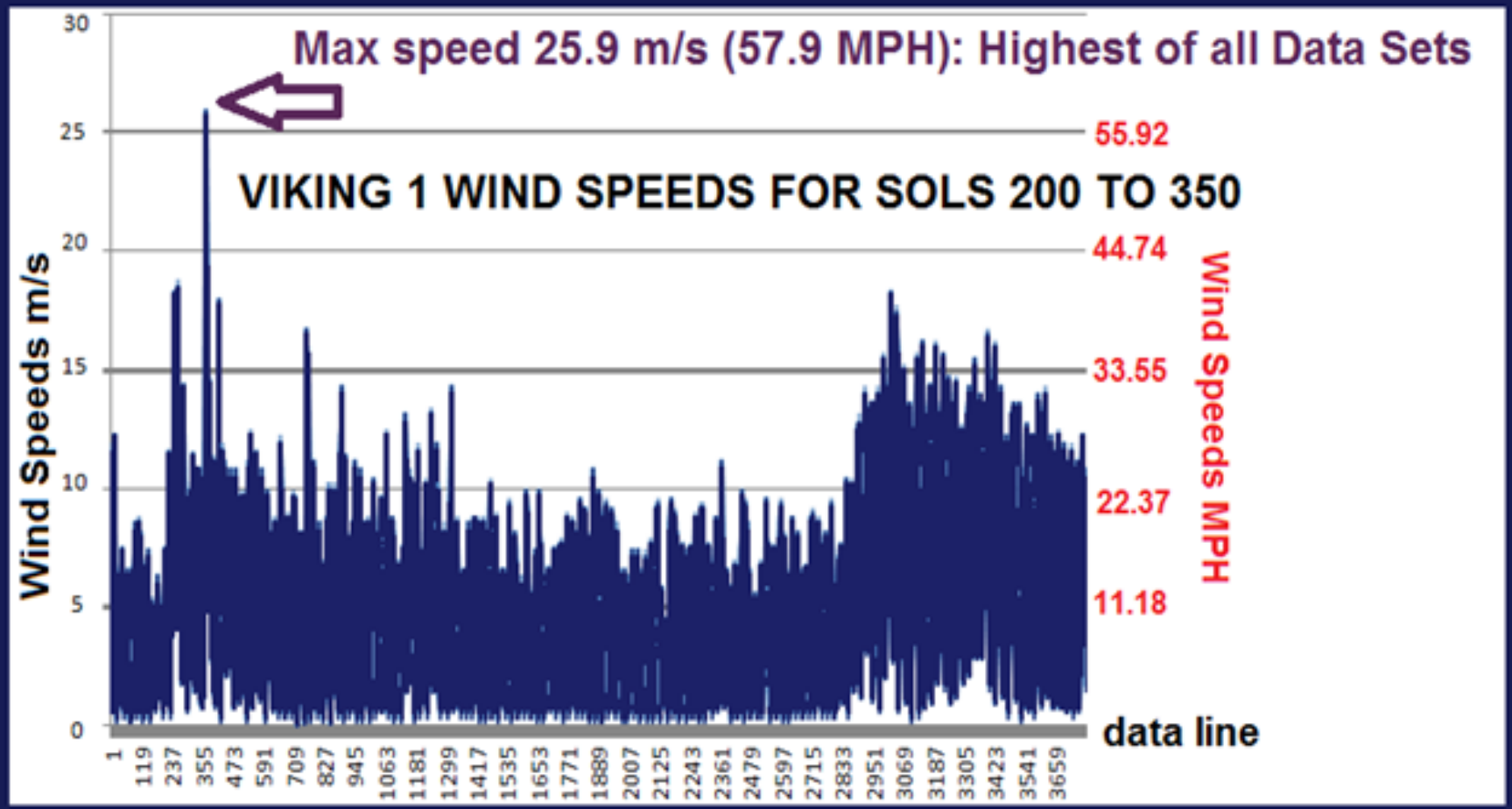
"Mars either has more gusts of wind than we knew about before, or the winds are capable of transporting more sand."

Nathan Bridges,
Planetary scientist, Johns Hopkins University's Applied Physics Laboratory

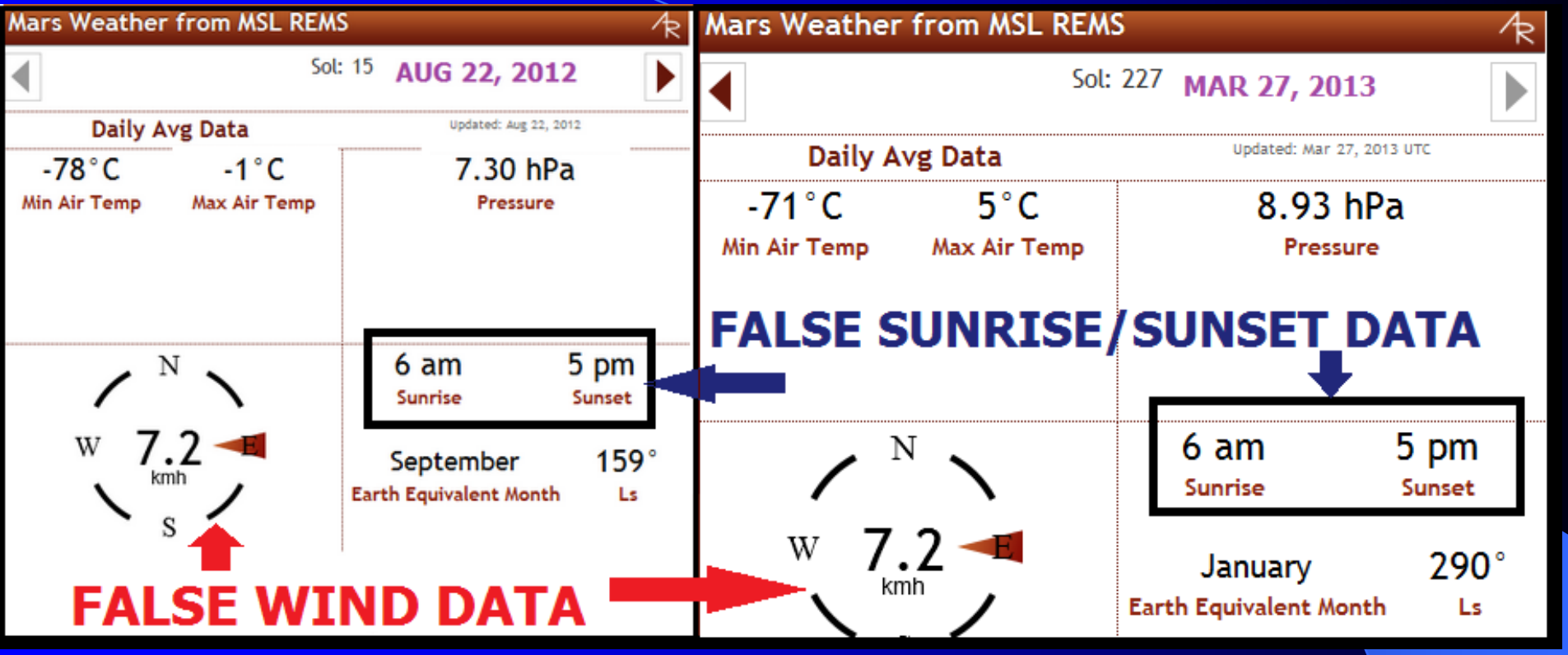
Why Trash Occam?

- **Wind-tunnel trials show a patch of sand would take wind 80 mph to move on Mars (vs. 10 mph on Earth). No lander ever saw wind so high on Mars. JPL: Spirit rover detected shifting sand in 2004.**
- **Sand was filmed moving under Curiosity in January, 2017 (see https://photojournal.jpl.nasa.gov/archive/PIA21143.gif).**

Viking wind never reached 80 mph needed to move sand at low pressure. Highest wind? 57.9 mph. As sand does move, pressure MUST be higher.



Data Reporting Fiasco



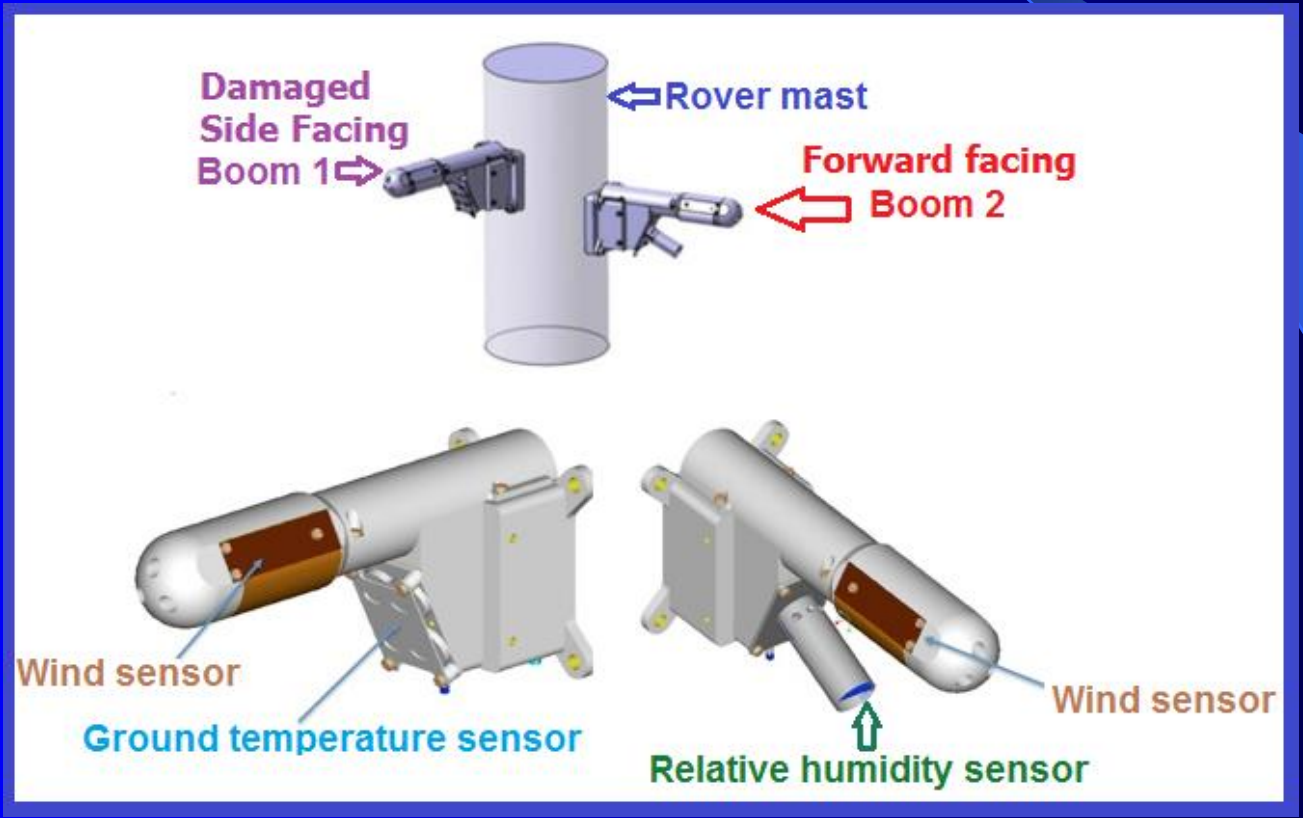
From August 22, 2012 until April 2, 2013 ALL wind data published by REMS and Ashima Research was wrong. All sunset/sunset times were also wrong.

We told JPL that there could not be only 11 hours of daylight at MSL. David Roffman did the math. There is as much as 12 hours 19 minutes of daylight and little as 11 hours 43 minutes. NASA accepted the fix.

	A	B	C	D	E	F	G	H	I
1	λsun	Latitude			Day Length =	Daylight	Half Sol	difference	DAVID'S
2	(0 for spring	(phi)	δdegrees =	H = arccos((SIN(-.17) - SIN(lw)*SIN(δ))/(COS(lw)*COS(δ)))	2*1.027491*H/360	In Hours	in Hours	Half day -	Mars
3	in northern		arcsin((sin(25.19)*sin(λsun))			David's		Daylight	Daylight
4	hemisphere)					Calculation		(G-F)	Hours
5	(Ls)					(=E value * 24)			
6	0	-4.59	0	90.17054697	0.51471903	12.35325673	12.3299	0.0233617	12:01.4
7	150	-4.59	12.28711642	89.17267137	0.509022874	12.21654897	12.3299	-0.113346	11:53.2
8	180	-4.59	2.98768E-15	90.17054697	0.51471903	12.35325673	12.3299	0.0233617	12:01.4
9	210	-4.59	-12.28711642	91.17647243	0.520461138	12.49106731	12.3299	0.1611723	12:09.7
10	240	-4.59	-21.62923453	92.00779835	0.525206582	12.60495796	12.3299	0.275063	12:16.5
11	270	-4.59	-25.19	92.35267298	0.527175224	12.65220537	12.3299	0.3223104	12:19.3
12	300	-4.59	-21.62923453	92.00779835	0.525206582	12.60495796	12.3299	0.275063	12:16.5
13	330	-4.59	-12.28711642	91.17647243	0.520461138	12.49106731	12.3299	0.1611723	12:09.7
14	0	-4.59	0	90.17054697	0.51471903	12.35325673	12.3299	0.0233617	12:01.4
15	30	-4.59	12.28711642	89.17267137	0.509022874	12.21654897	12.3299	-0.113346	11:53.0
16	60	-4.59	21.62923453	88.35931782	0.504380021	12.10512051	12.3299	-0.2247745	11:46.5
17	90	-4.59	25.19	88.02453664	0.502468995	12.05925589	12.3299	-0.2706391	11:43.8
18	120	-4.59	21.62923453	88.35931782	0.504380021	12.10512051	12.3299	-0.2247745	11:46.5

Best estimate of the length of daylight at MSL (4.59 South on Mars)

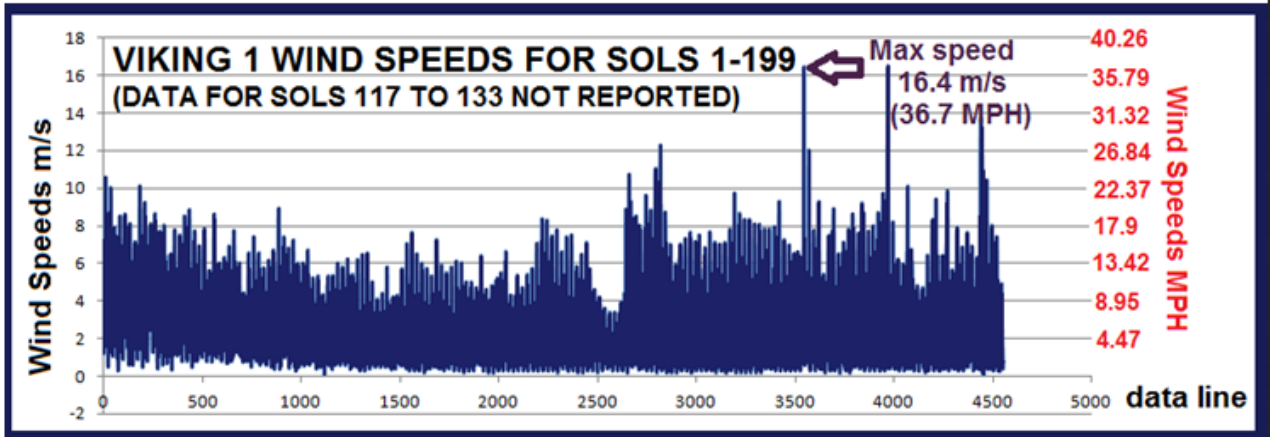
One of the REMS Booms broke on Landing. It would have been more honest to list winds as *Not Available*.

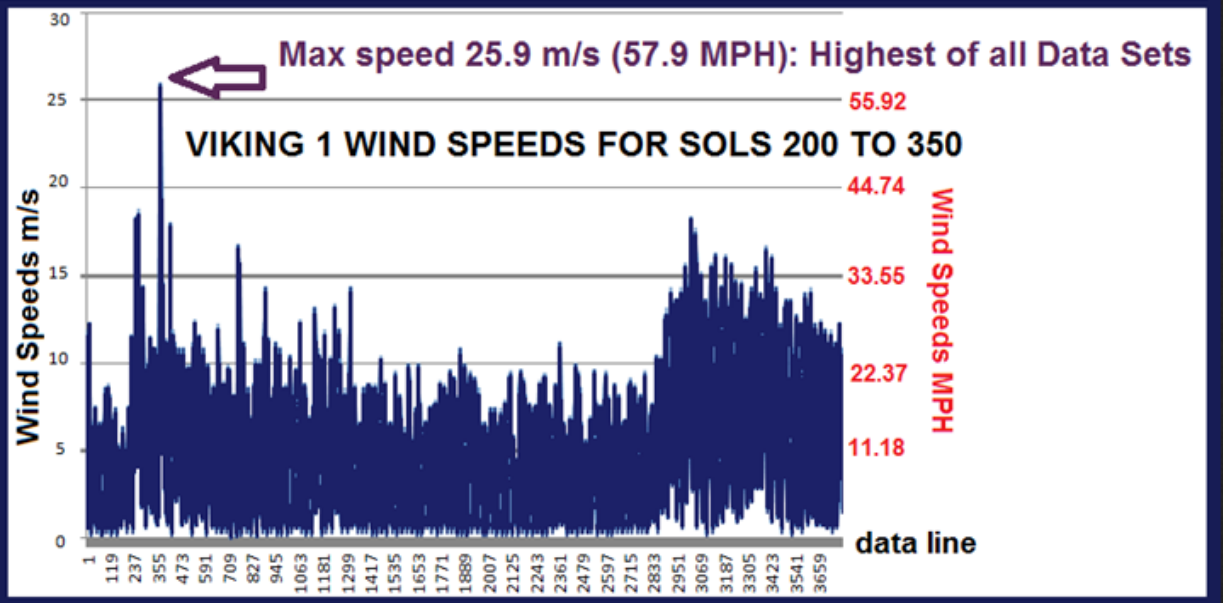


We know from the Vikings that there is an enormous amount of variation in winds.

VL-1 SOL	LS`	Wind direction	Wind Speed M/S	Wind Speed MPH
214.38	210.621	290	1.2	2.68
214.42	210.646	249	2.6	5.82
214.46	210.671	254	4.6	10.29
214.5	210.696	283	7.6	17.00
214.54	210.721	305	9.4	21.03
214.58	210.746	331	19.9	44.52
214.62	210.771	343	22.5	50.33
214.66	210.796	356	22.6	50.55
214.7	210.821	6	21.2	47.42
214.74	210.847	19	17.8	39.82
214.78	**210.872**	**19**	**25.9**	**57.94**
214.82	210.897	24	25.2	56.37
214.86	210.922	25	18.8	42.05
214.9	210.947	29	13.8	30.87
214.94	210.972	33	9.2	20.58
214.98	210.997	355	4.9	10.96

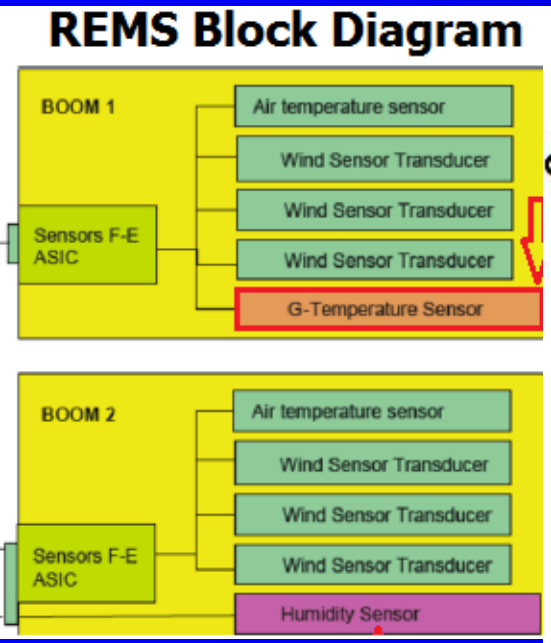
Profile of the windiest Viking day on Mars with the greatest wind gust recorded at VL-1 sol 214.78.

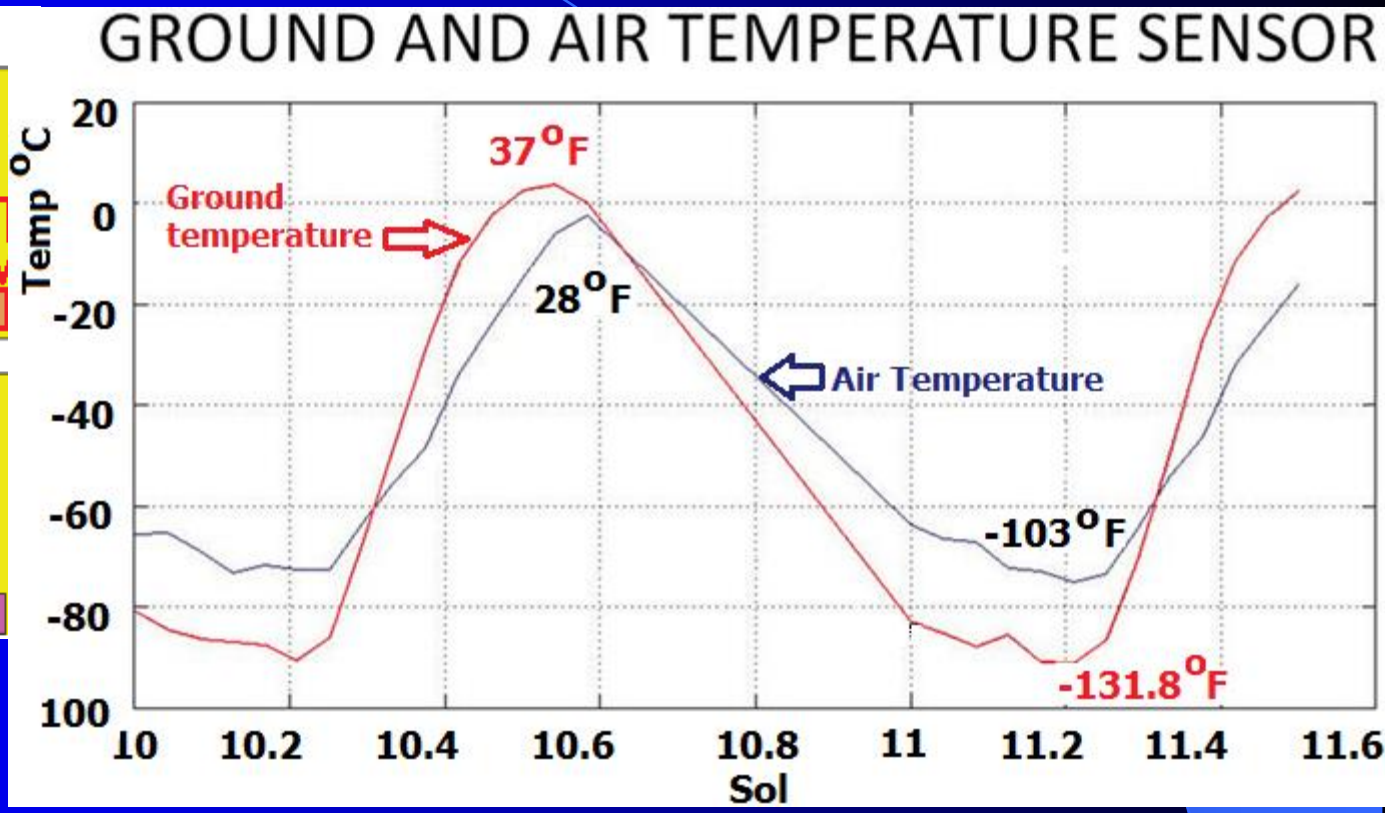




BOGUS GROUND TEMPERATURES?

Boom 1 broke. It alone measures ground temperature but with accuracy of only 18 Fahrenheit.





Guy Webster (JPL) claims: "Damage on landing did not include the Infrared sensor that provides ground-temp information." But an accuracy of 18 degrees Fahrenheit is almost worthless.

But the weak ground temperature answer did not address altered air temperatures. Who is killing warm days on Mars, and why?

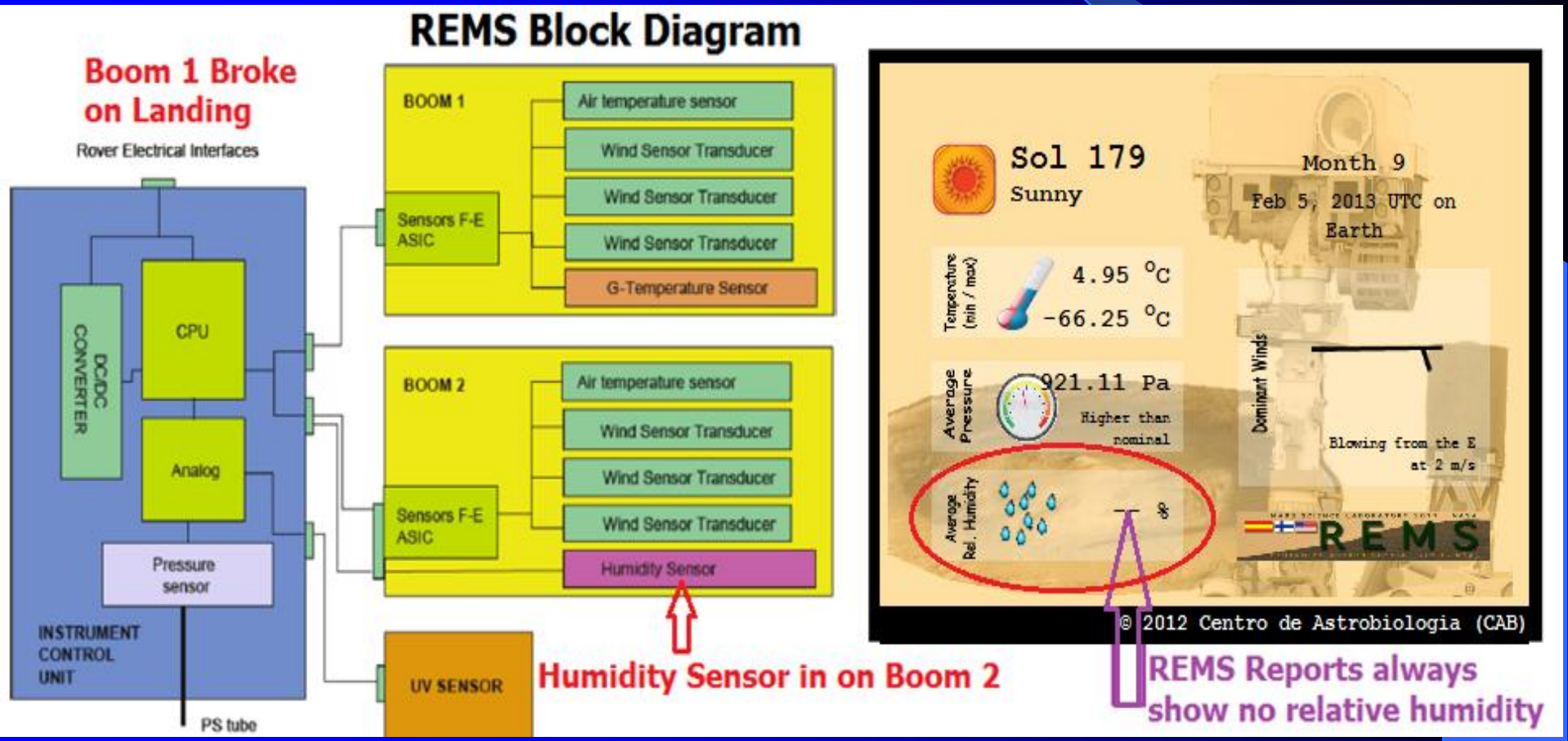
A	B	C	D
SOL	ORIGINAL MAX AIR TEMP TEMP ≥ 0°C REDUCED TO TEMP ≤ 0°C	NEW MAX AIR TEMP °C	CHANGE °C
23	0	-16	16
26	2	-14	16
27	-1	-15	14
31	-3	-23	20
38	-3	-13	10
40	2	-12	14
41	2	-12	14
42	5	-7	12
43	3	-12	15
44	4	-10	14
45	3	-9	12
46	4	-12	16
47	6	-9	15

A	B	C	D
SOL	ORIGINAL MAX AIR TEMP TEMP ≥ 0°C REDUCED TO TEMP ≤ 0°C	NEW MAX AIR TEMP C	CHANGE °C
49	4	-10	14
50	0	-10	10
51	3	-7	10
52	7	-7	14
53	5	-5	10
54	5	-9	14
102	8	-3	11
112	5	-8	13
116	5	-6	11
118	4.53	-6	10.53
123	2.1	-10	12.1
124	5.4	-5	10.4
179	5	-7	12

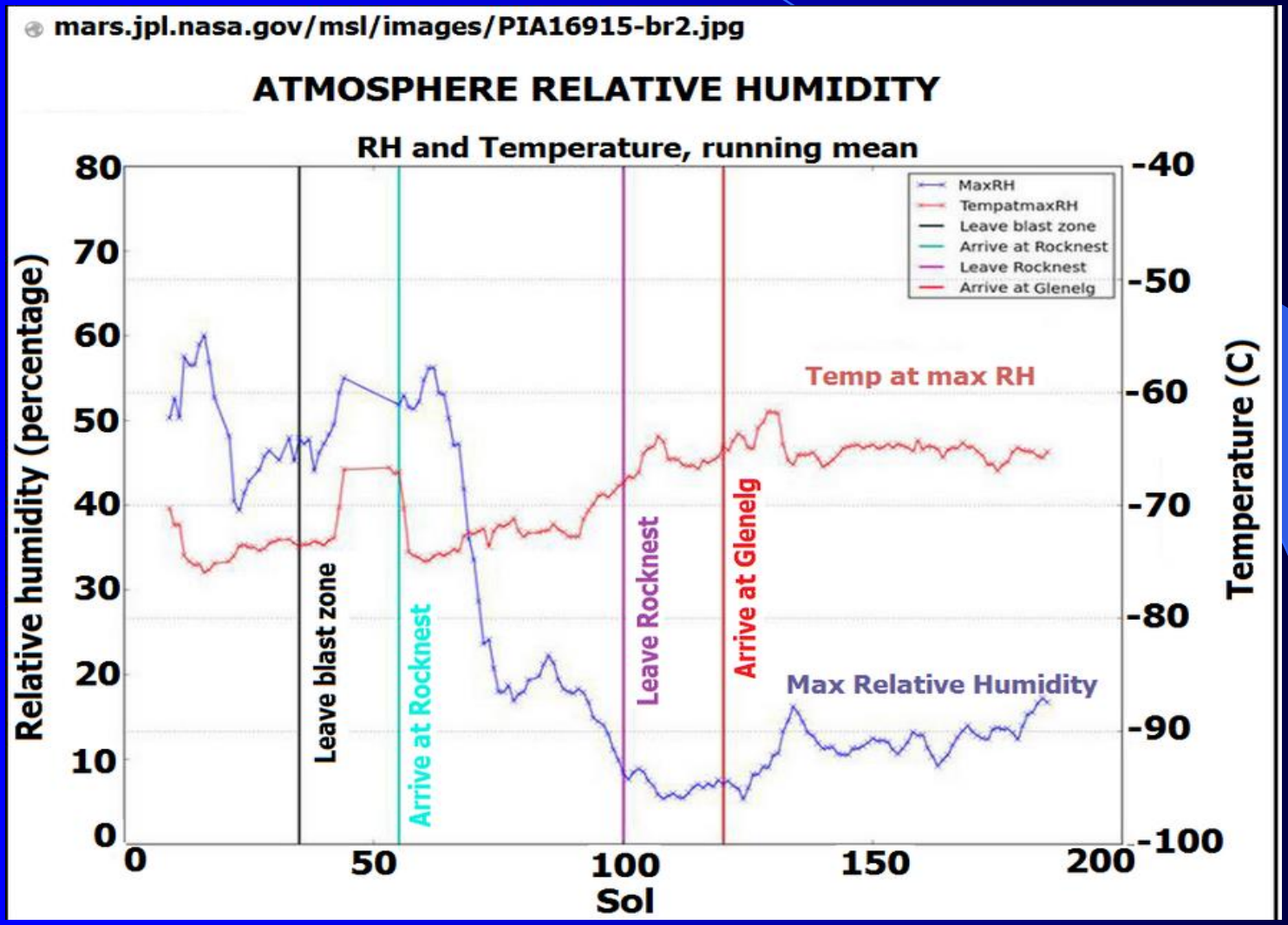
REMS Relative Humidity Sensor

Only Boom 1 broke on Landing. Why no relative humidity reported from Boom 2? Calibration problems with the Thermal and Electrical Conductivity Probe?

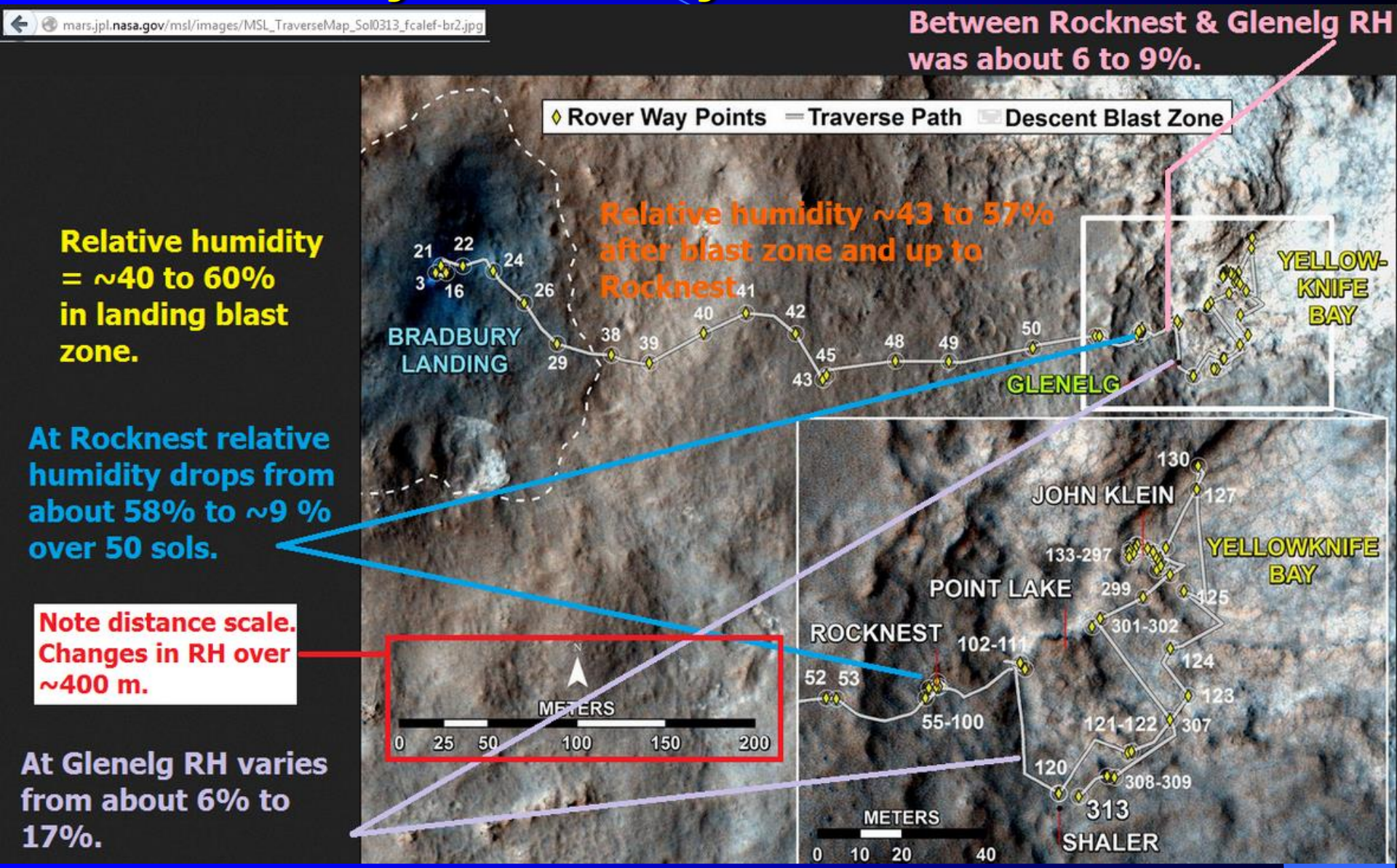
G.M. Martinez et al., 2013



The REMS Team leaves Relative Humidity off daily reports, but published this on 6/27/2013:



REMS Asserts Huge Changes in Relative Humidity Over Very Short Distances



If temperature and pressure measurements are wrong, as shown earlier, RELATIVE HUMIDITY READINGS WILL BE WRONG TOO.

- September 26, 2013 JPL announces there are 2 pints of water in every cubic foot of soil. If pressure was as low as NASA claims, water should have evaporated out of the soil, not absorbed it from the atmosphere.

(Note: NASA claims about perchlorates and deliquescence are discussed at slides 5 to 9 and at http://marscorrect.com/photo5_9.html).

Early Problems with MSL Weather Reports

1. Sunrise/Sunset times wrong until May, 2013.
2. Constant winds wrong.
3. Relative Humidity always missing.
4. Day numbering wrong & temperatures revised.
5. Early wrong month labeling = wrong place in orbit & wrong distance from the sun.
6. Exact ground temperatures issued when accuracy (18° F) was worthless.
7. Wrong pressure units used or pressures off the curve from 2012 to 2017.
8. Consistently wrong pressure sensor range 0 to 11.5 mbar vs. real range of 0 to 1,025 mbar.

Data Reporting Fiasco

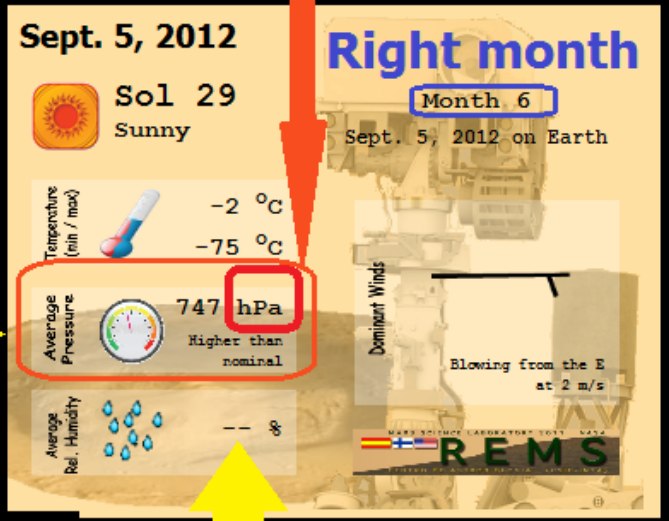
REMS Reported 6 Days of Earth-like Pressure

PRESSURE REPORTED INCREASED 100 FOLD

2012 Centro de Astrobiologia (CAB)

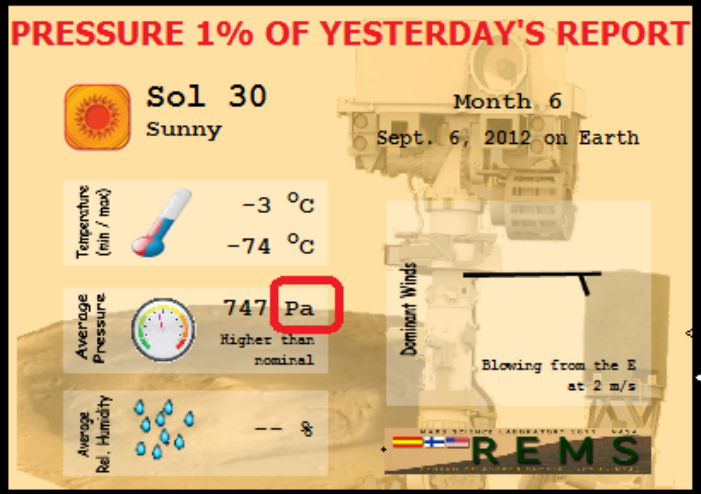
DID MSL LAND AT GALE ON MARS OR VAIL IN COLORADO?

Pressure like Earth at 8,192.6 feet above sea level.



DAILY WEATHER NEVER INCLUDES RELATIVE HUMIDITY

100 Pa = 1 hPa = 1 Mbar.
Sol 29 was first given as 747 hPa, while Sol 30 was given as 747 Pa (7.47 hPa) after questions by us and others



ALL WINDS (2 M/S) REPORTED WRONG UNTIL MAY 2013

cab.inta-csic.es/rems/marsweather.html

Why Trash Occam?

- **Weather doesn't match low pressure values**
  - **Running water**
  - **Dust Devils**
  - **Dust Storms**
  - **Eye walls on big storms over Arsia Mons and Olympus Mons**
  - **Stratus clouds at 16 km.**
  - **Too much sand movement for low pressure**
  - **Light in the sky 1 hr 40 min before sunrise and after sunset. Just due to high dust, or a denser atmosphere?**

WHY TRASH OCCUM?
MRO AEROBRAKING

"At some points in the atmosphere, we saw a difference in the atmospheric density ... 30% higher than the model, but ...

around the south pole

it was 350% off the model."

Han You,
Navigation Team Chief for
Mars Reconnaissance Orbiter (MRO).

The ESA EXOMARS 2016 Schiaparelli Anomaly Inquiry mentions atmospheric density as a concern.
In fact, trust in NASA's low pressure values was likely the direct cause of the crash.

6.2.2.2 High angular rate due to natural phenomenon

With respect to this branch of the failure tree, it has to be noted that hypersonic parachute deployment is a very complex and dynamic phenomenon affected by several uncertainties (**winds**, wake, etc.) and therefore very difficult to predict (and model).

The following aspects, on which the investigation has focused, have been identified as potentially contributing to the high angular rates at parachute deployment

1. Mach number different than estimated, potentially due to

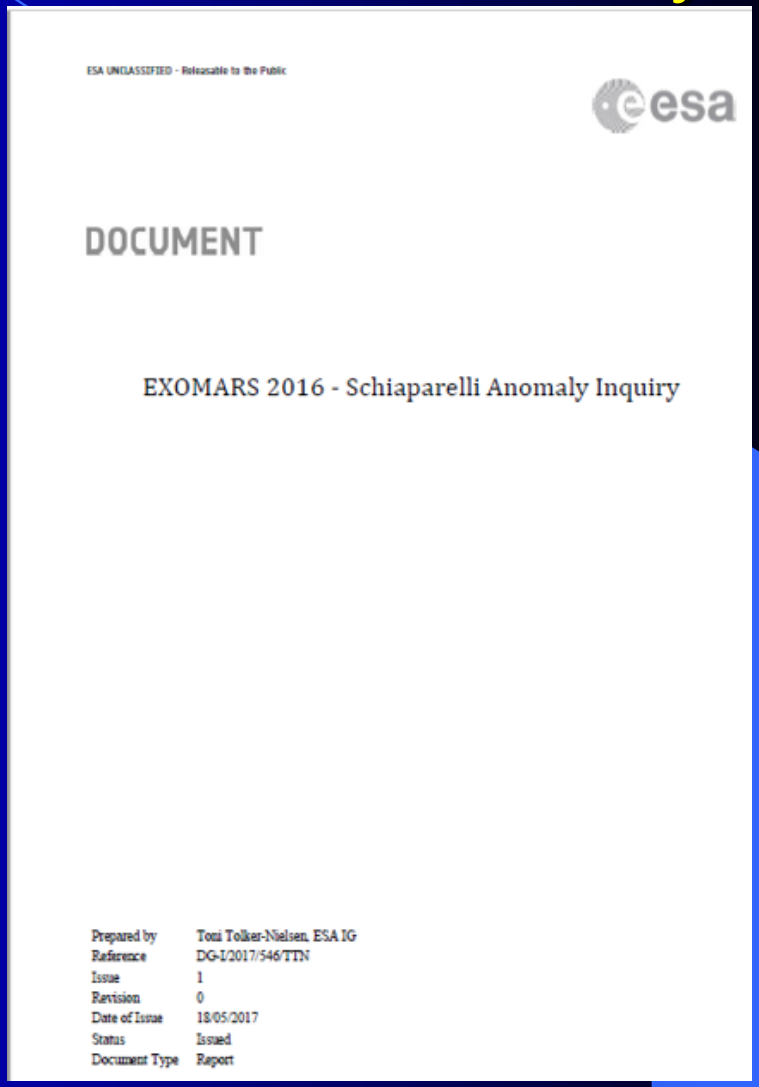
a. **Atmospheric** dispersion (**density**/temperature)

2. Propagation error from accelerometers into position and velocity

We further note:

Each of the potential contributors to high angular rates have been analyzed. The main contributors appears to be:

2.a Presence of **Wind/Gust**



ESA UNCLASSIFIED - Releasable to the Public

esa

DOCUMENT

EXOMARS 2016 - Schiaparelli Anomaly Inquiry

Prepared by	Toni Tolker-Nielsen, ESA IG
Reference	DG-I/2017/546/TTN
Issue	1
Revision	0
Date of Issue	18/05/2017
Status	Issued
Document Type	Report

Hooo Hoooo

http://blogs.esa.int/rocketscience/2017/10/19/exomars-successful-flux-reduction-manoeuvre

blogs.esa.int/rocketscience/2017/10/19/exomars-successful-flux-reduction-manoeuvre/ Search

rocket science blog

news from the edge of gravity

esa

Posted on 19 October 2017 by Giulia

→ EXOMARS SUCCESSFUL FLUX REDUCTION MANOEUVRE

ExoMars Spacecraft Operations Engineer tracks TGO's orbits

ExoMars has successfully performed a Flux Reduction Manoeuvre (FRM) for the first time. The manoeuvre was triggered by the excessive density of Mars' atmosphere, which had slowed the spacecraft above the limit the operations team normally allows.

The manoeuvre happened on 19 September, just a month before ExoMars' first arrival anniversary. (*Editor's note: Cool!*)

FRM together with the so-called 'Popup' manoeuvre are the spacecraft's automatic responses meant to save it from critical conditions that could cause damage, such as excessive heat or deceleration.

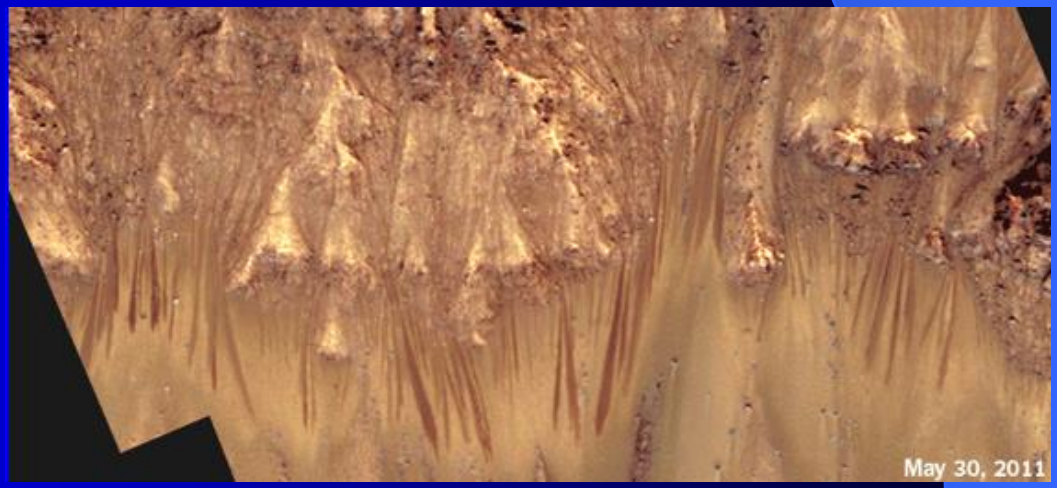
On September 19, 2017 ExoMars was forced to raise its orbit "due to excessive density of Mars' Air.

Why Trash Occam?

Mars Express spacecraft reveals Mars air is supersaturated with water vapor (29 Sep 2011).

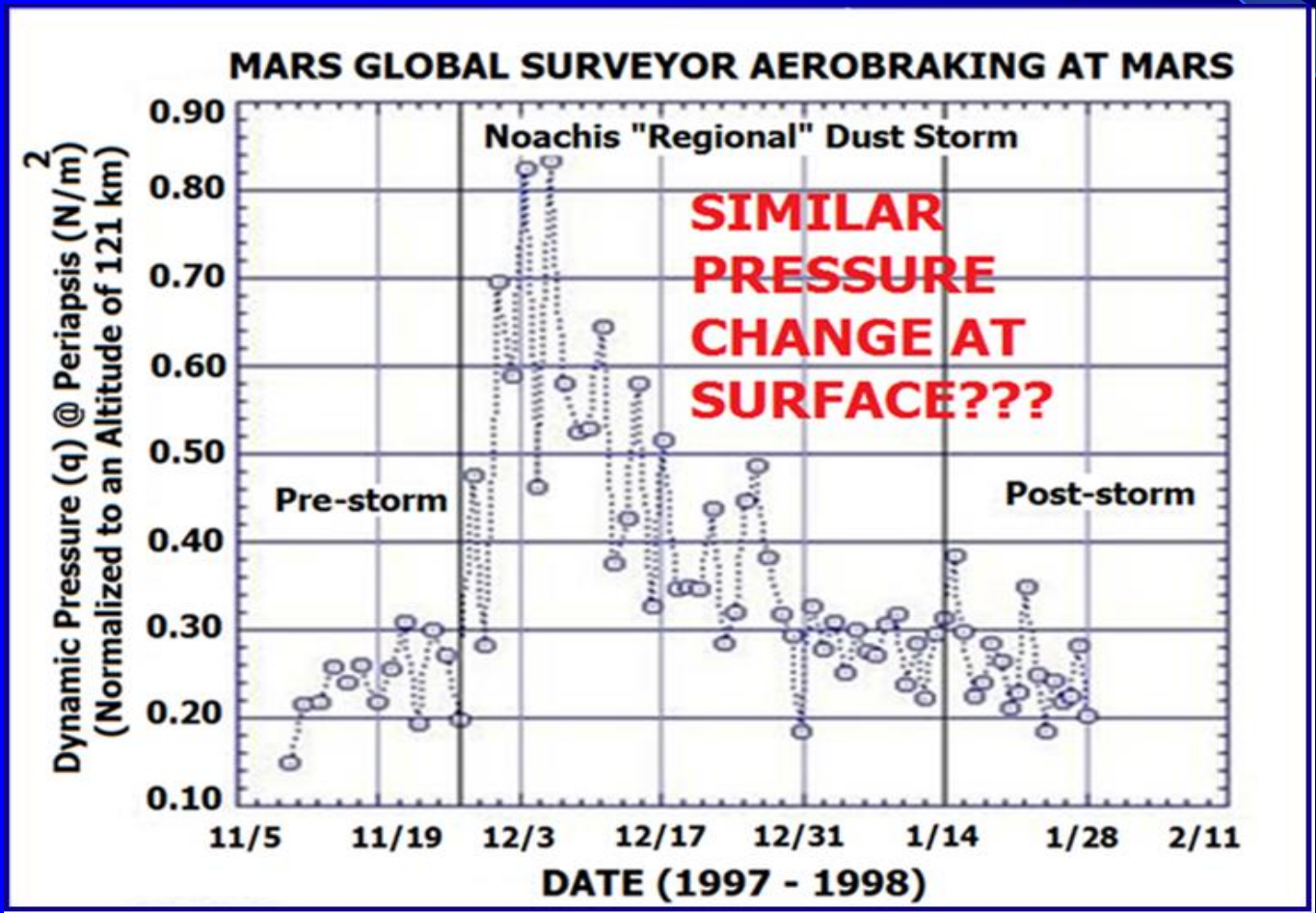
10 to 100 times more H_2O than expected at 20 to 50 km. Partial pressures imply denser air too.

Since then running water has been found at many sites on Mars on 28 Sep 2015.



WHY TRASH OCCAM?
MGS Dynamic Pressure Spike @ 75 mile altitude Due to Dust Storms.

Pressure Doubles in 48 Hours, Up 5.6 Fold in 4 Weeks.



Why Trash Occam?

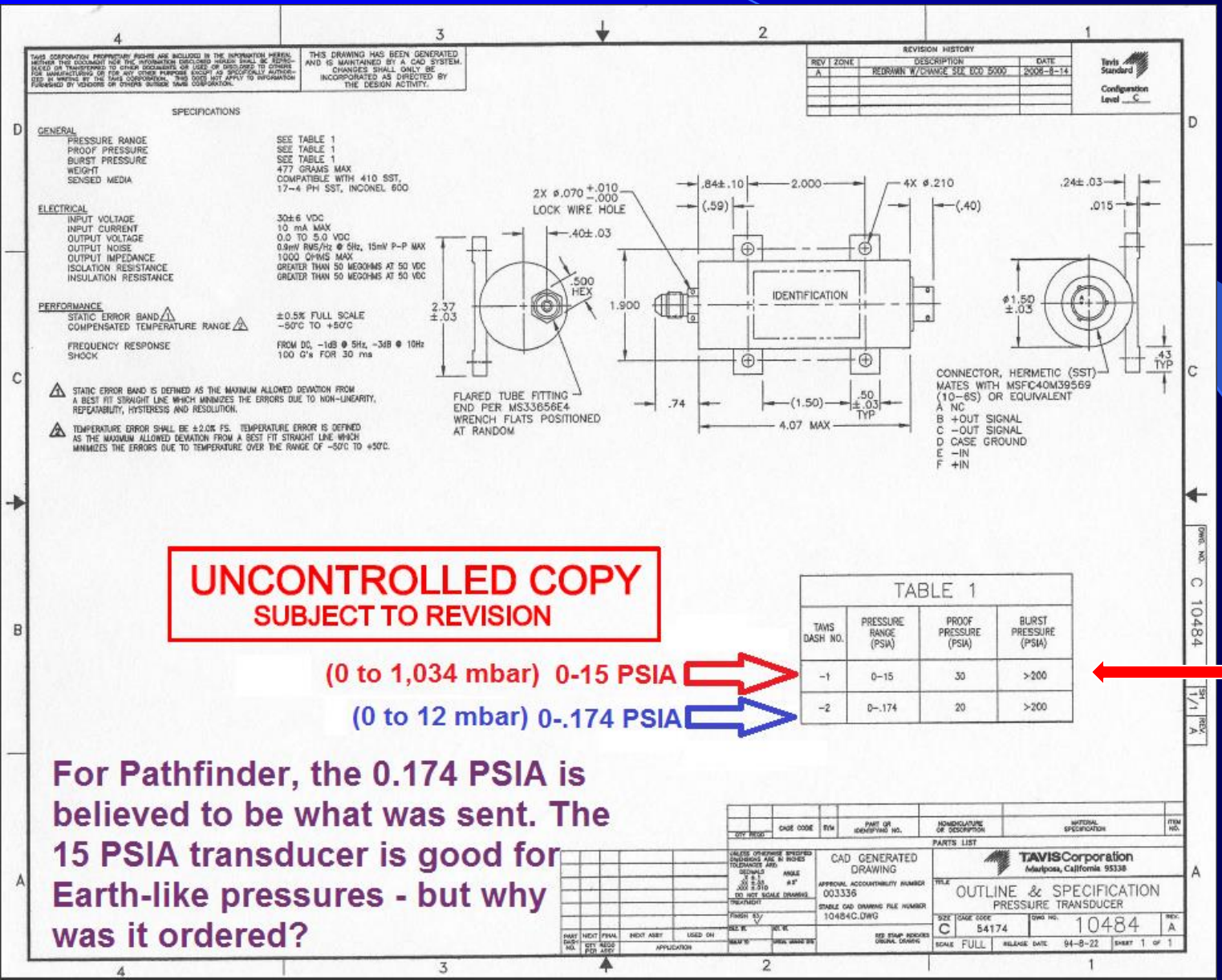
- **Pathfinder wind sensors went uncalibrated.**
  - **True again with MSL.**

- **Phoenix & MSL pressure sensor design problems. FMI delivered the MSL pressure sensor to NASA in 2008 (before ITAR problems could be fixed)!**
  http://space.fmi.fi/solar.htm

- **No pressure sensor sent to Mars could measure pressure that would explain the weather seen.**

- **No way to change Viking, MPF, Phoenix & MSL dust filters that could clog.**

There is an issue with which Tavis Pressure Transducers were actually sent to Mars.



The sensor labeled Tavis Dash No. 1 could Measure Earth-like Pressure! (1,034 mbar)

Are JPL errors mistakes; or is NASA putting off manned missions to Mars to hide the truth about Cydonia, where the famous "face" was clearly seen by a Viking orbiter in 1976, but not later?

Highest-Resolution View of "Face on Mars"

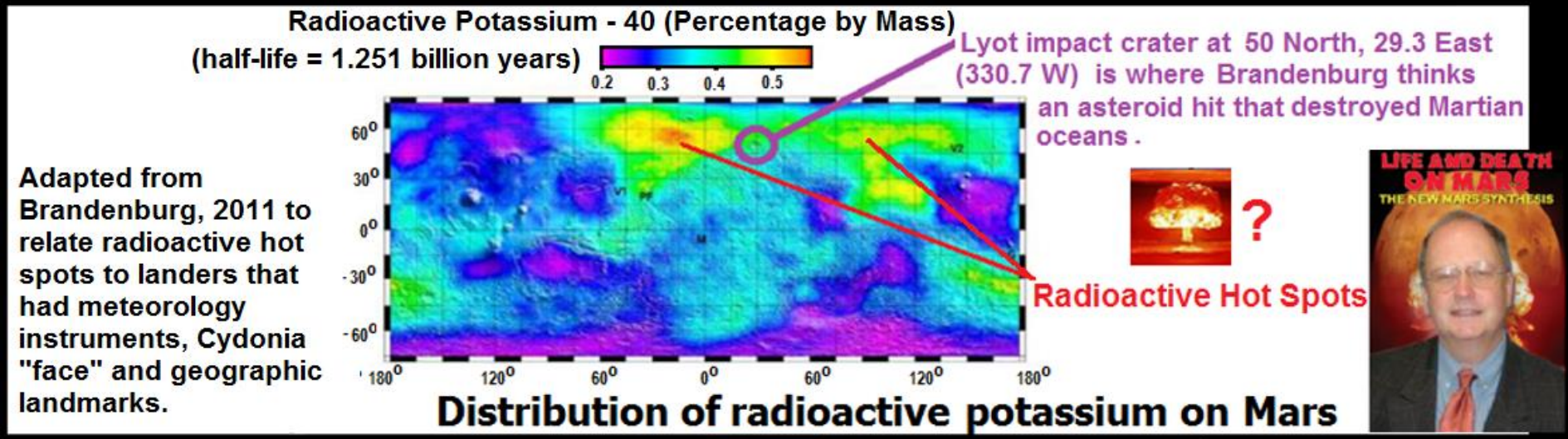
MGS MOC Release No. MOC2-283, 24 May 2001

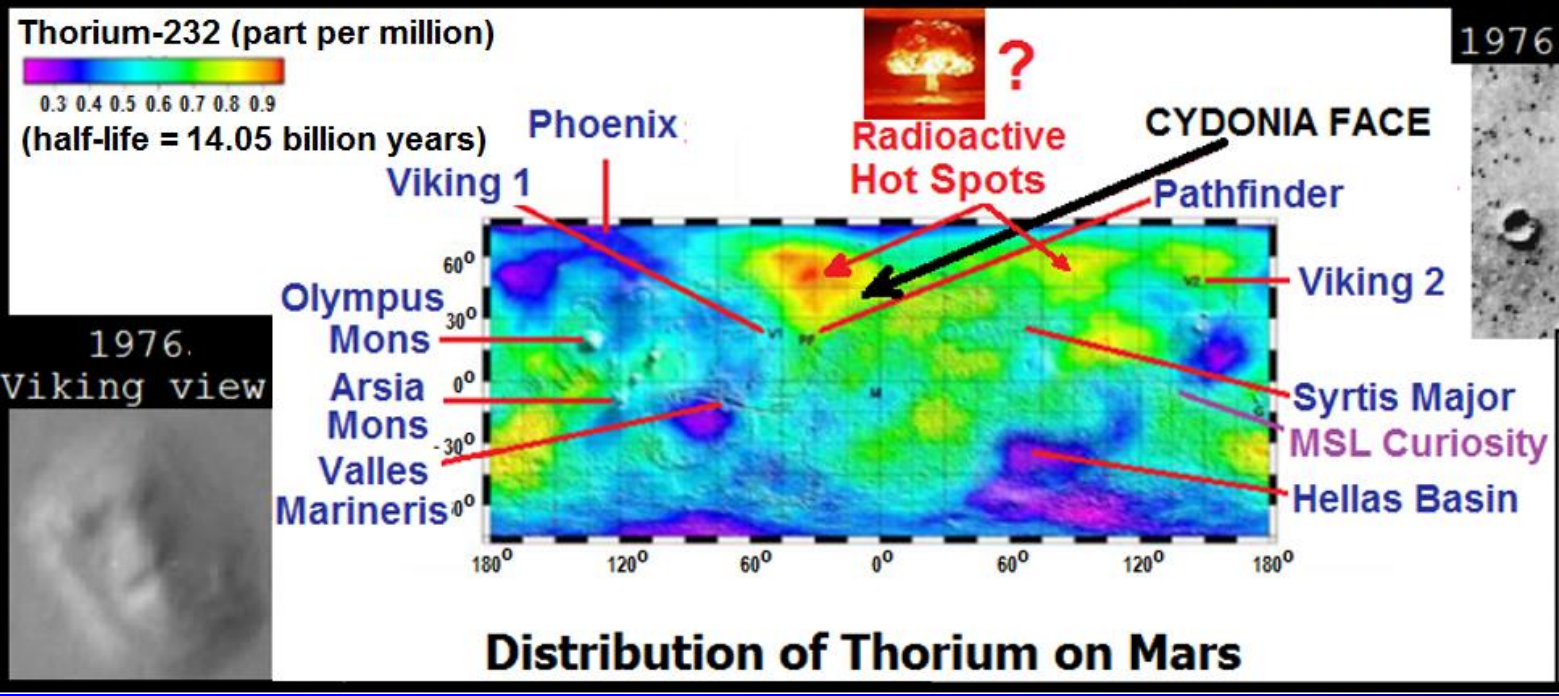
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
SOL	~LS	PRESSURE Pa	EARTH DATE	MAX AIR TEMP °C	MIN AIR TEMP °C	AIR TEMP RANGE °C	AIR TEMP RANGE °C/40	MAX GROUND TEMP °C	MIN GROUND TEMP °C	Δ GROUND TEMP DAY TO NIGHT	DAYTIME CHANGE IN TEMP °C AIR TO GROUND	NIGHTTIME CHANGE IN TEMP °C AIR TO GROUND	PRESSURE AT 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	MSL YEAR 2 SOL FOR THIS LS/ COMMENTS
1978	136	727	2/28/2018	-14	-78	64	1.6	4	-81	-85	18	-3	745	-18	136	N/A	H	M. Year 1 was H.	(1310)
1979	136	726	3/1/2018	-14	-76	62	1.55	4	-82	-86	18	-6	745	-19	136	N/A	H	H Year 1 was H.	(1311)
1980	137	725	3/2/2018	-11	-77	66	1.65	5	-82	-87	16	-5	745	-20	137	N/A	H	H Year 1 was H.	(1312)
1981	137	725	3/3/2018	-10	-75	65	1.625	4	-84	-86	14	-9	745	-20	137	N/A	H	H Year 1 was H.	(1313)
1982	138	724	3/4/2018	-7	-77	70	1.75	6	-82	-88	13	-5	744	-20	138	N/A	H	H Year 1 was H.	(1314)
1983	138	723	3/5/2018	-8	-76	68	1.7	5	-82	-87	13	-6	744	-21	138	N/A	H	H Year 1 was H.	(1315)
1984	139	723	3/6/2018	-11	-77	66	1.65	6	-81	-87	17	-4	744	-21	139	N/A	H	H Year 1 was H.	(1316)
1985	139	723	3/7/2018	-6	-77	71	1.775	6	-83	-89	12	-6	743	-20	139	N/A	H	H Year 1 was H.	(1317)
1986	140	723	3/8/2018	-9	-74	65	1.625	7	-79	-86	16	-5	743	-20	140	N/A	VH	H Year 1 was H.	(1318) (Note: altitude on Sol 1986 was -4,151 meters. This is 4 meters lower than on Sol 1962.
1987	140	723	3/9/2018	-11	-76	65	1.625	1	-80	-81	12	-4	742	-19	140	N/A	VH	H Year 1 was H.	(1319)
1988	141	722	3/10/2018	-10	-73	63	1.575	2	-78	-80	12	-5	741	-19	141	N/A	H	H Year 1 was H.	(1320)
1989	141	721	3/11/2018	-6	-75	69	1.725	3	-82	-85	9	-7	740	-19	141	N/A	H	H Year 1 was H.	(1321)
1990	142	720	3/12/2018	-6	-74	68	1.7	2	-76	-78	8	-2	740	-20	142	N/A	VH	H Year 1 was H.	(1322)
1991	142	721	3/13/2018	-8	-74	66	1.65	4	-78	-82	12	-4	738	-17	142	N/A	VH	H Year 1 was H.	(1323)
1992	143	720	3/14/2018	-9	-76	67	1.675	4	-81	-85	13	-5	738	-18	143	N/A	H	H Year 1 was H.	(1324)
1993	143	727	3/15/2018	-15	-75	60	1.5	4	-80	-84	19	-5	738	-11	144	N/A	H	H Year 1 was M.	(1325) (Note: altitude on Sol 1993 was -4,154 meters. This is 7 meters lower than on Sol 1962.
1994	144	718	3/16/2018	-6	-75	69	1.725	4	-77	-81	10	-2	738	20	144	N/A	VH	H Year 1 was H.	(1326)
1995	144	718	3/17/2018	-6	-73	67	1.675	4	-77	-81	10	-4	736	-18	145	N/A	VH	H Year 1 was M.	(1327)
1996	145	719	3/18/2018	-11	-76	65	1.625	4	-76	-80	15	0	735	-16	145	N/A	VH	H Year 1	(1328) Note: altitude on Sol 1996 was -4,155 meters
1997	145	717	3/19/2018	-11	-74	63	1.575	5	-82	-87	16	-8	735	-18	146	N/A	H	H Year 1 was M.	(1329)
1998	146	716 Lowest	3/21/2018	-5	-72	67	1.675	6	-81	-87	11	-9	734	-18	146	N/A	H	H Year 1 was H.	(1330) Note: altitude on Sol 1998 was -4,158 meters. Altitude on Sol 1330 was -4,430 meters.
1999	146	717	3/22/2018	-10	-72	62	1.55	7	-78	-85	17	-6	734	-17	147	N/A	H	H Year 1 was H.	(1331) Note: altitude on Sol 1331 was -4,130 meters. Note: This chart was accessed by NASA Ames on 3/24/2018
2000	147	717	3/23/2018	-7	-76	69	1.725	5	-77	-82	12	-1	734	-17	147	N/A	VH	H Year 1 was H.	(1332)
2001	147	913 ?	3/24/2018	-8	-75	67	1.675	4	-77	-81	12	-2	733	+180	148	N/A	VH	H Year 1 was H.	(1333)
2002 PER	148	1167 ?	3/25/2018	-10	-75	65	1.625	5	-76	-81	15	-1	732	+435	148	N/A	VH	H Year 1 was H	(1334) Note: altitude on Sol 1998 was -4,159 meters.

On February 28, 2018 we predicted a published minimum annual pressure of 711 to 713 Pa on March 25, 2018 (Sol 2002). On March 21 the pressure was down to 716 Pa. After NASA accessed this prediction, the REMS Team then published the highest pressure ever seen but not revised!

On February 28, 2018 based on the rate of pressure decrease we predicted that the REMS TEAM would publish a minimum annual pressure of about 711 to 713 Pascals (7.11 to 7.13 hPa/mbar) on or near to Sol 2002 on March 25, 2018. On Sol 1998 the pressure was down to 716 Pa - only 3 Pa (0.03 mbar) above our minimum prediction with 4 sols to go. But on Sol 2001 REMS raised the pressure to 913 Pa and on Sol 2002 they published 1,167 Pa, higher than any pressure ever published but not altered. We take this as an admission that the data is manufactured bullshit!

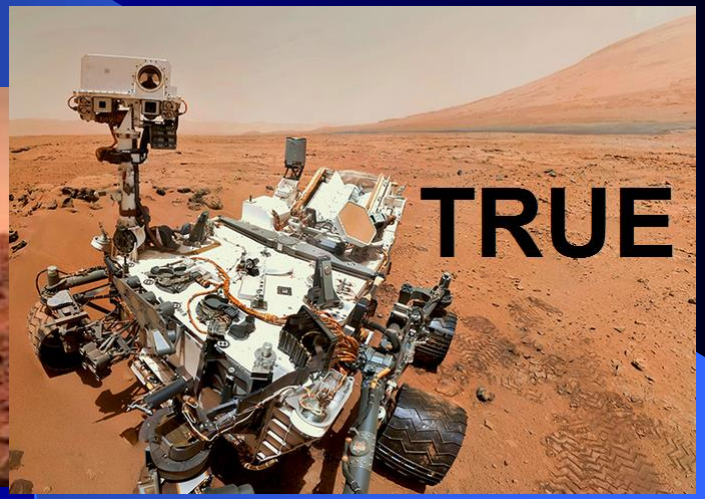
Do radioactive sites on Mars = Disinformation?





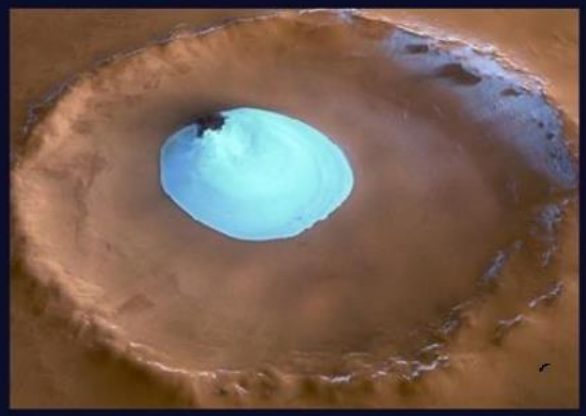
Why did NASA Administrator James Fletcher order the alteration of Martian sky color in 1976?

- Every picture of Mars sky color was wrong for 36 years after his order until MSL in August 2012.
- He kept our astronauts in low orbit to this day.



The Cydonia face is an issue, the nuclear past is questionable, but evidence for much higher pressure and sloppy handling of Mars weather data is irrefutable.

CRATER LAKE, OREGON
(Maximum diameter = 9.7 km, Maximum depth = 594 meters, average height of rim above lake = 305 meters



VASTITAS BOREALIS, MARS
(Maximum width = 35 km)
Imaged centered at 70.1° North latitude, 103.21° East longitude

Mars is more like Earth than we have been told.

Our latest Basic Report is at

http://marscorrect.com/5%20July%202018%20Mars%20Correct%20Basic%20Report%20Barry.pdf