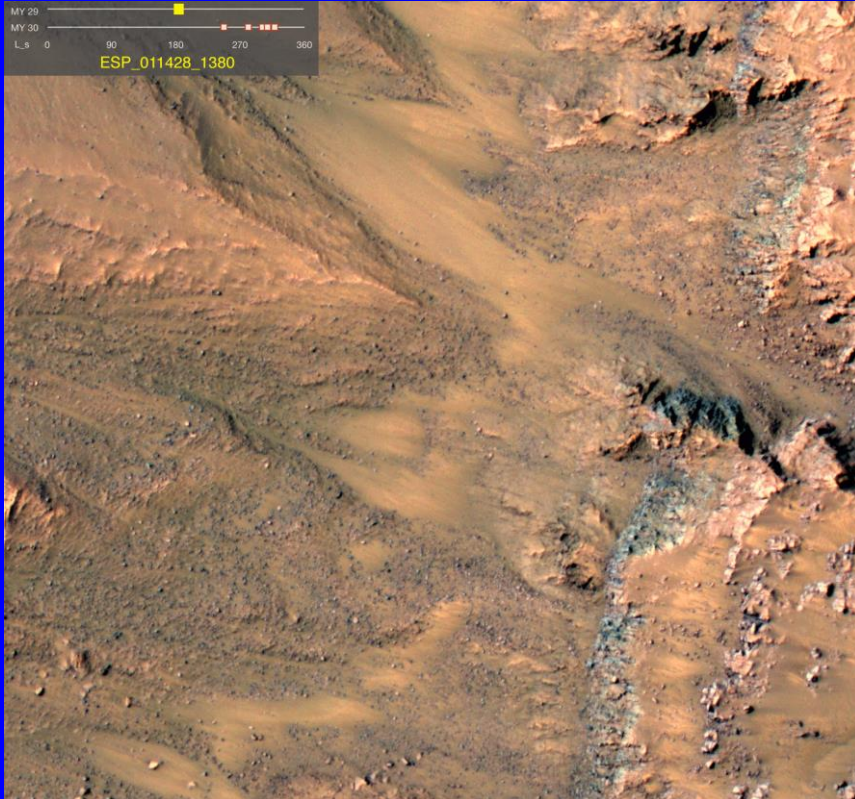


MARS CORRECT? MARS IS WET!



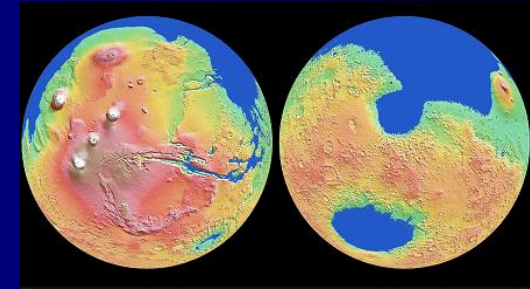
Critique of All NASA Mars Weather Data

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

Updated August 24, 2017

Why go to or care about Mars?

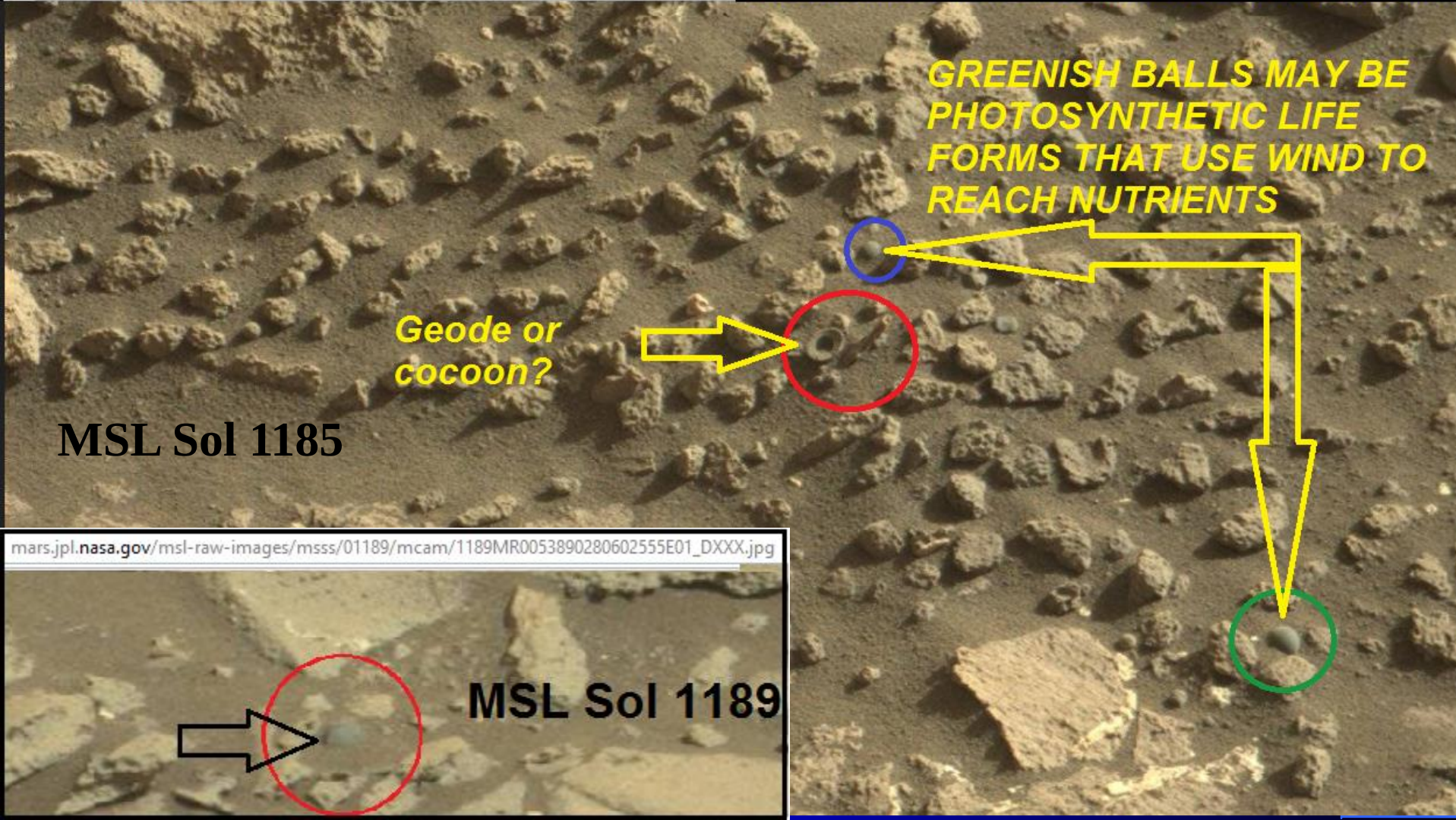
Many think life started on Mars, came here via meteorites



- ❑ 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.**

Photos taken by Mars Science Laboratory on its sols 1185 and 1189 might show spherical life forms on Mars

SOL 1185 anomaly - mars... 1185MR0053760000602491... ANOMALIES AT MSL ON ITS SOL 1,185.
OBJECT SIZES ~ 0.5 TO 0.75 CM. FOUND BY DAVID KIEPKE.



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

- **Areoid is Mars equivalent of Sea Level.**

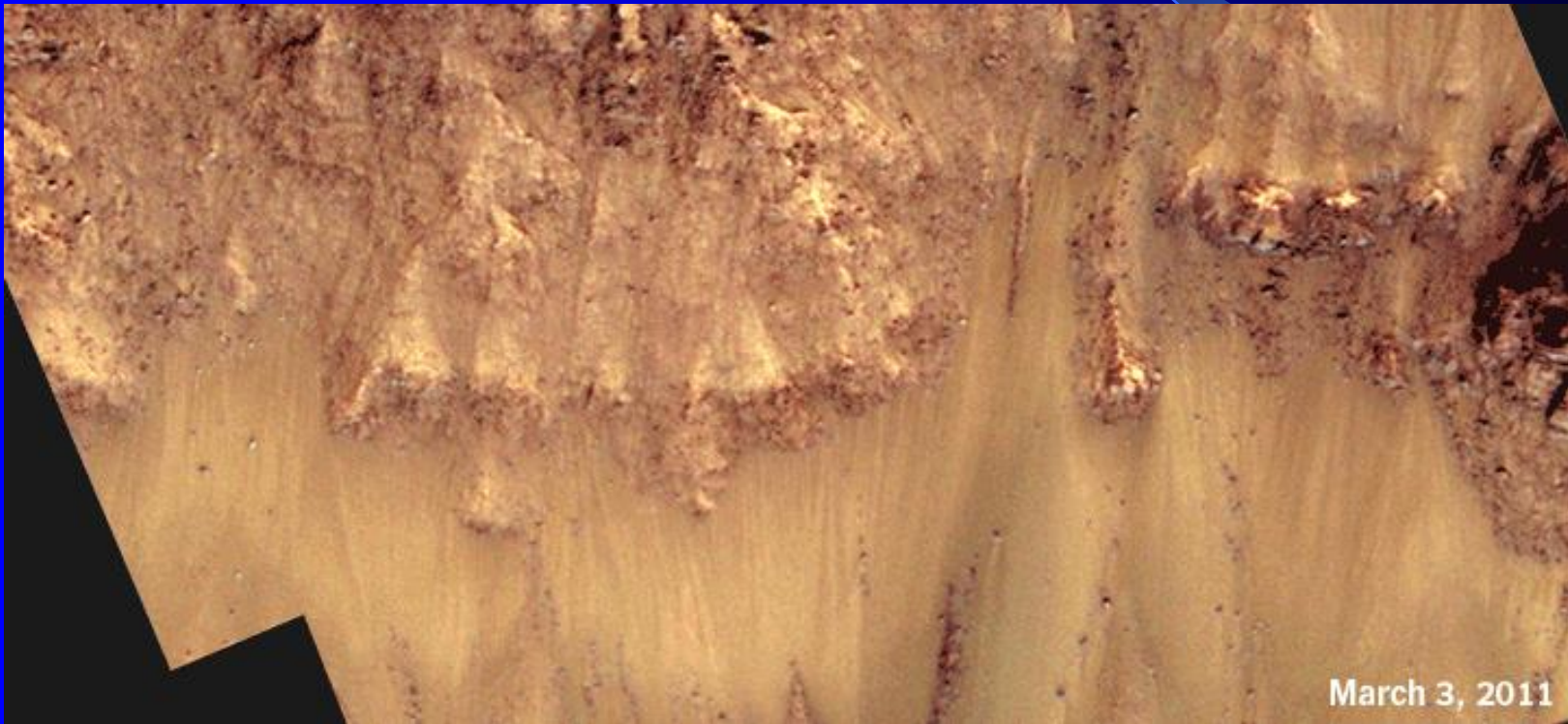
- **Average Earth sea level pressure = 1,013.25 Mbar.**



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

Why Question Pressure?

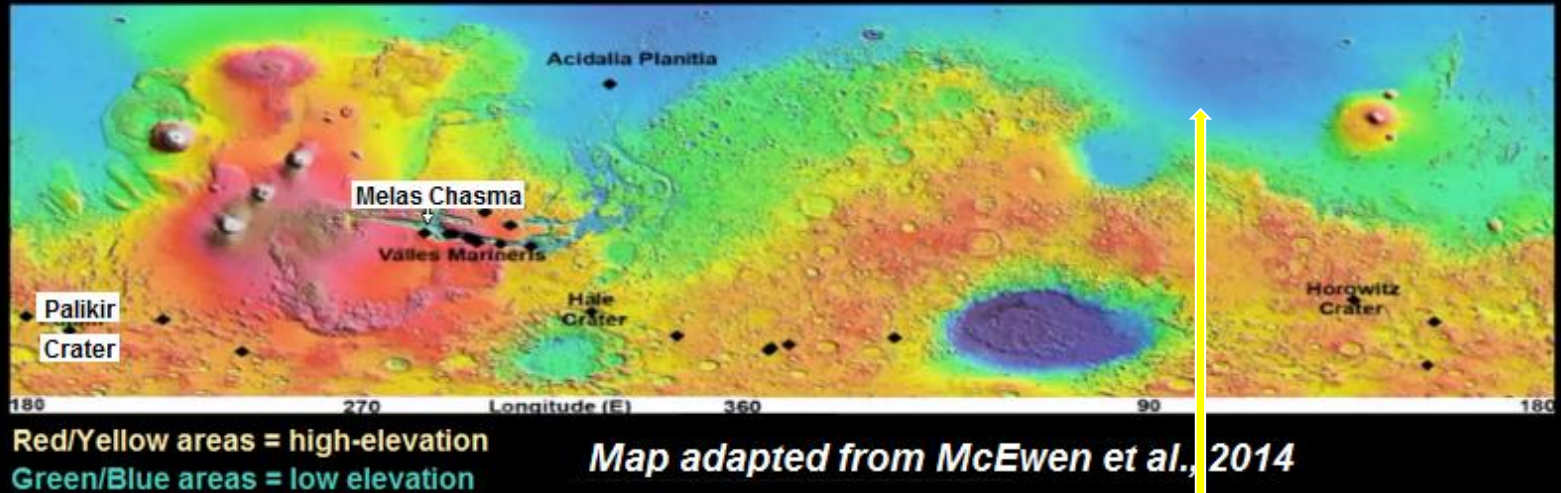
Running water isn't likely to be found on the surface of a planet with a near-vacuum surface. Water would boil off too fast. But Mars has thousands of these streams.



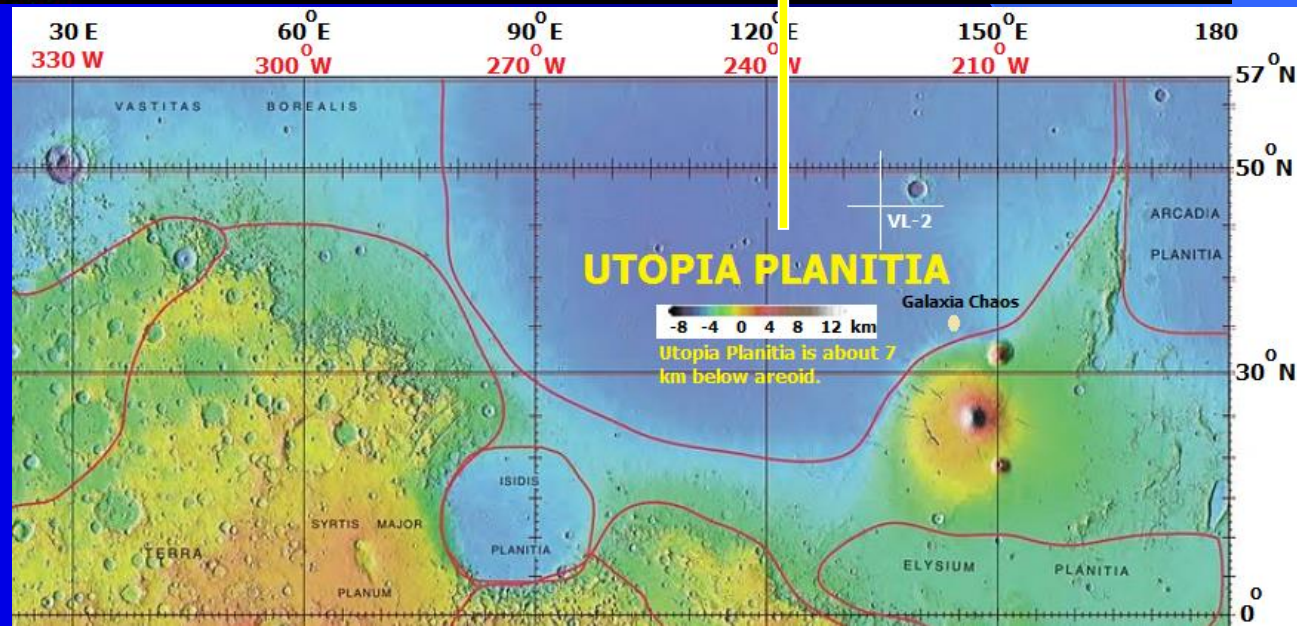
Palikir Crater inside Newton Crater

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

Location of RSL on Mars



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



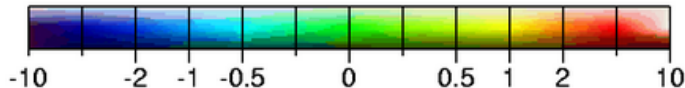
Estimated Boiling Points for Places Where There Is Running Water On Mars

ESTIMATED BOILING POINT OF PURE WATER ON AN AVERAGE DAY IN PALIKIR CRATER INSIDE NEWTON CRATER

What is the local barometric pressure? ☐	Millibars 7.34
The boiling point temperature of water is	-30.235 °F
The boiling point temperature of water is	-34.575 °C
The boiling point temperature of water is	238.575 K

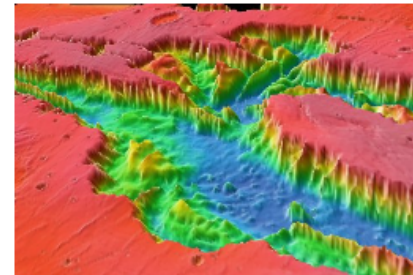
NEWTON CRATER

B.P. 238.7K if blue,
(-2 km) or lower if green
 ALTITUDES IN KILOMETERS



ESTIMATED BOILING POINT OF PURE WATER ON AN AVERAGE DAY IN THE VALLES MARINERIS

What is the local barometric pressure? ☐	Millibars 15.397
The boiling point temperature of water is	6.185 °F
The boiling point temperature of water is	-14.342 °C
The boiling point temperature of water is	258.808 K



COPRATES
 CHASMA OF THE
 VALLES
 MARINERIS

B.P. 258.8K
(6.2° F,
-14.3 ° C)

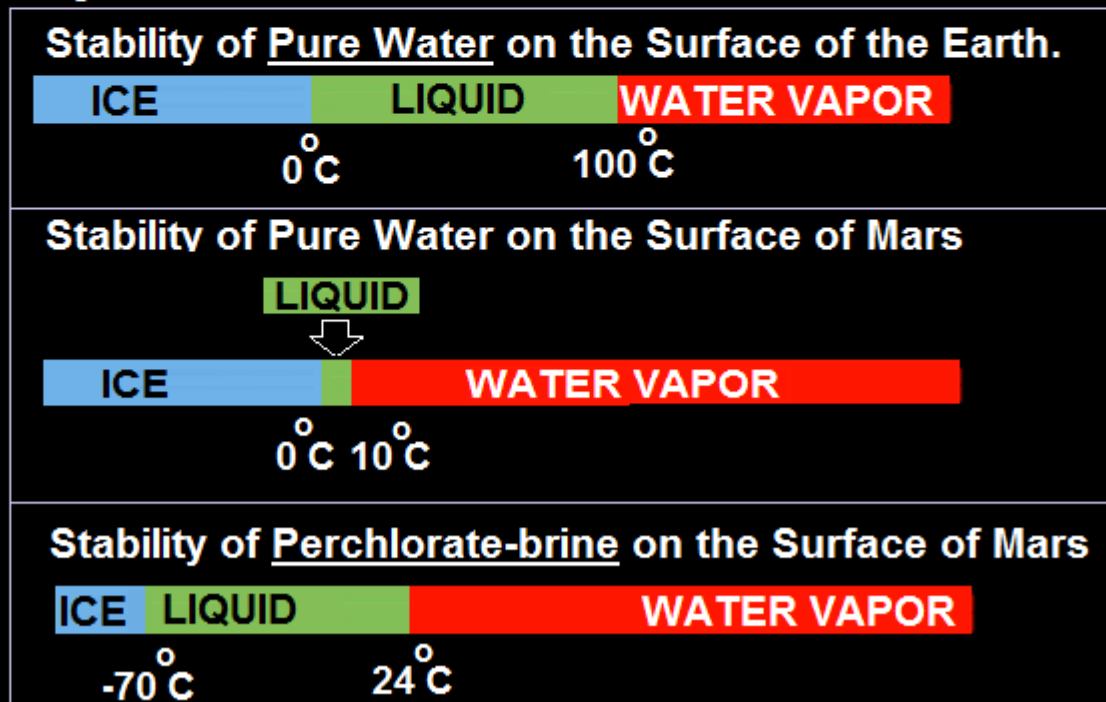
A	B	C	D	E	F	G
ENTERING ARGUMENTS SCALE HEIGHT 10.8 KM AND AVERAGE MARTIAN PRESSURE 6.1 MBAR						
KILOMETERS	10.8 km Scale	RATIO A/B	=EXP(C value)	1/D value	PRESSURE	PRESSURE IN
	Height (MARS)				MARS BARS	MBAR
PALIKIR CRATER -2	10.8	-0.185185185	-0.83095039	-1.203441279	1.203441279	7.340991802
MEAN AREOID 0	10.8	0	-1	-1	1	6.1
VALLES MARINERIS -10	10.8	-0.925925926	-0.39616443	-2.524204405	2.524204405	15.39764687

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.

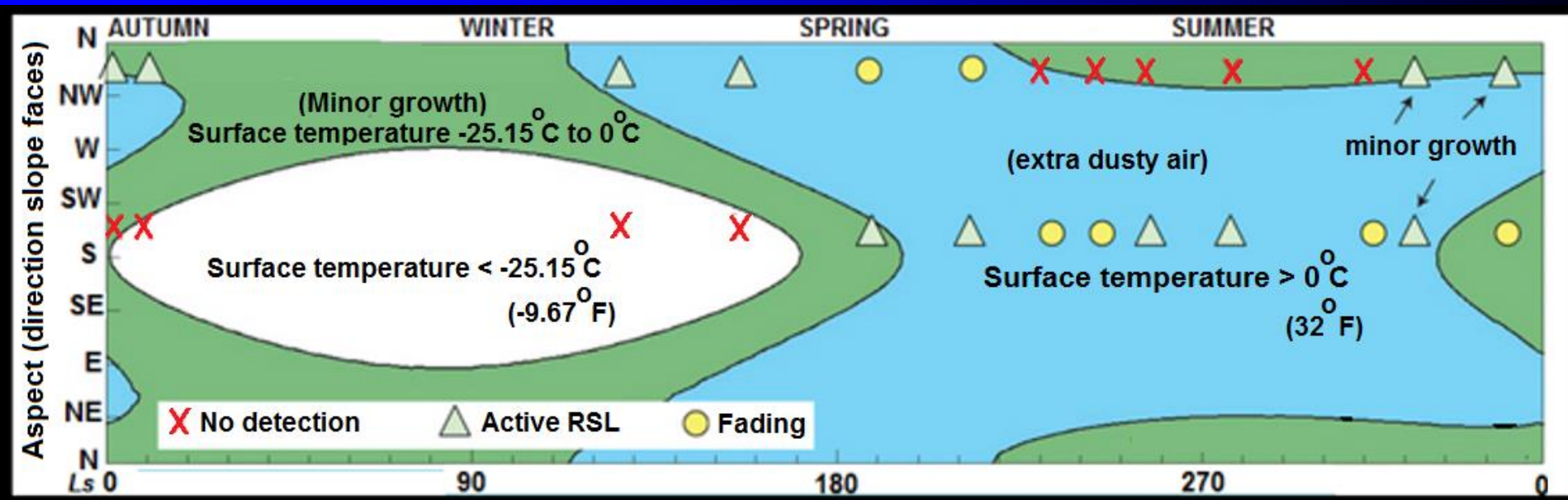


Luju Ojha
Georgia Institute of Technology
Ph.D. Candidate



What temperatures are associated with RSL?

9

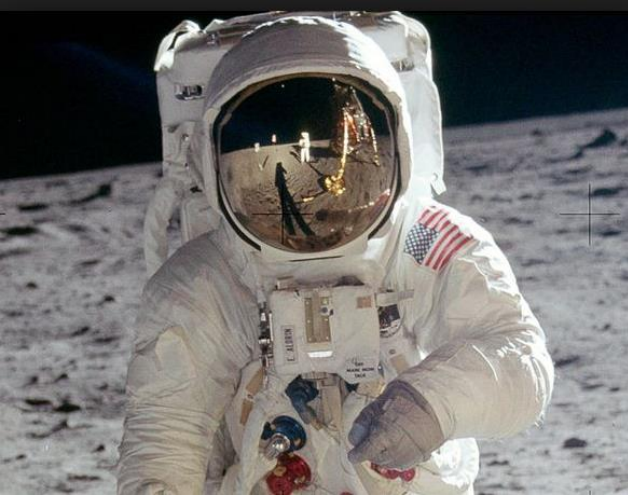


- Generally close to or above the freezing point of water (0° C) on Earth.
- Where below 0° C perchlorate salts allow for lower freezing points (but this seems rare).

9

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.

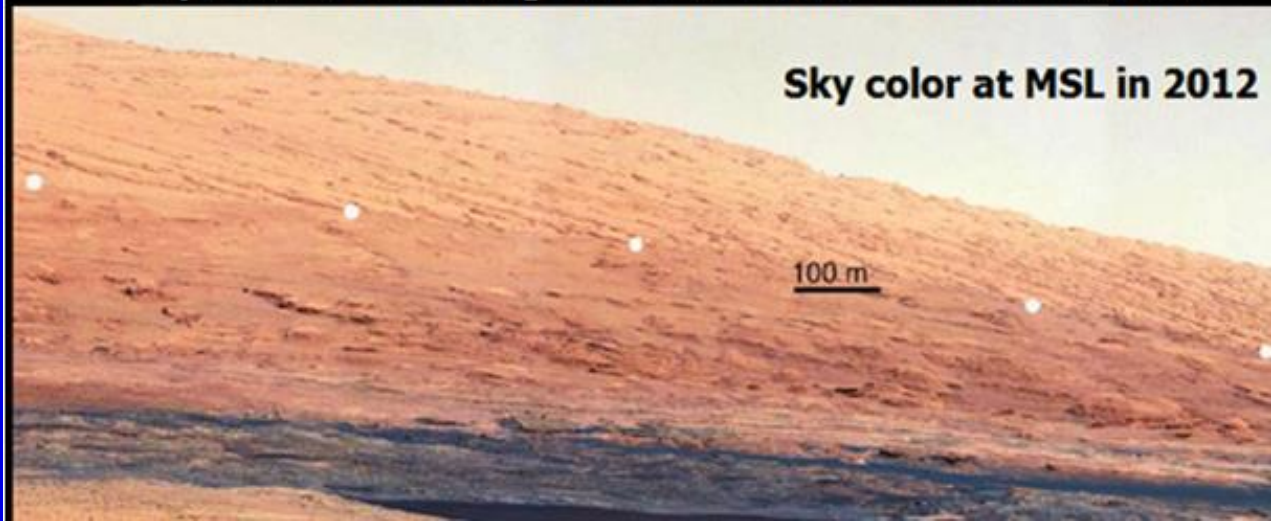
**Why is the Martian sky so bright with under 10 mbar pressure
What color really is it anyway?**

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



Sky color at MSL in 2012

100 m

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

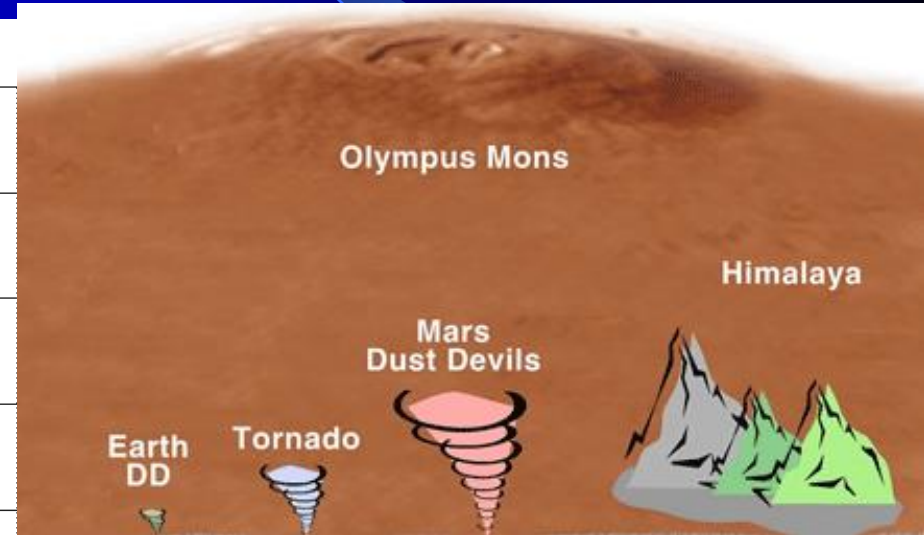
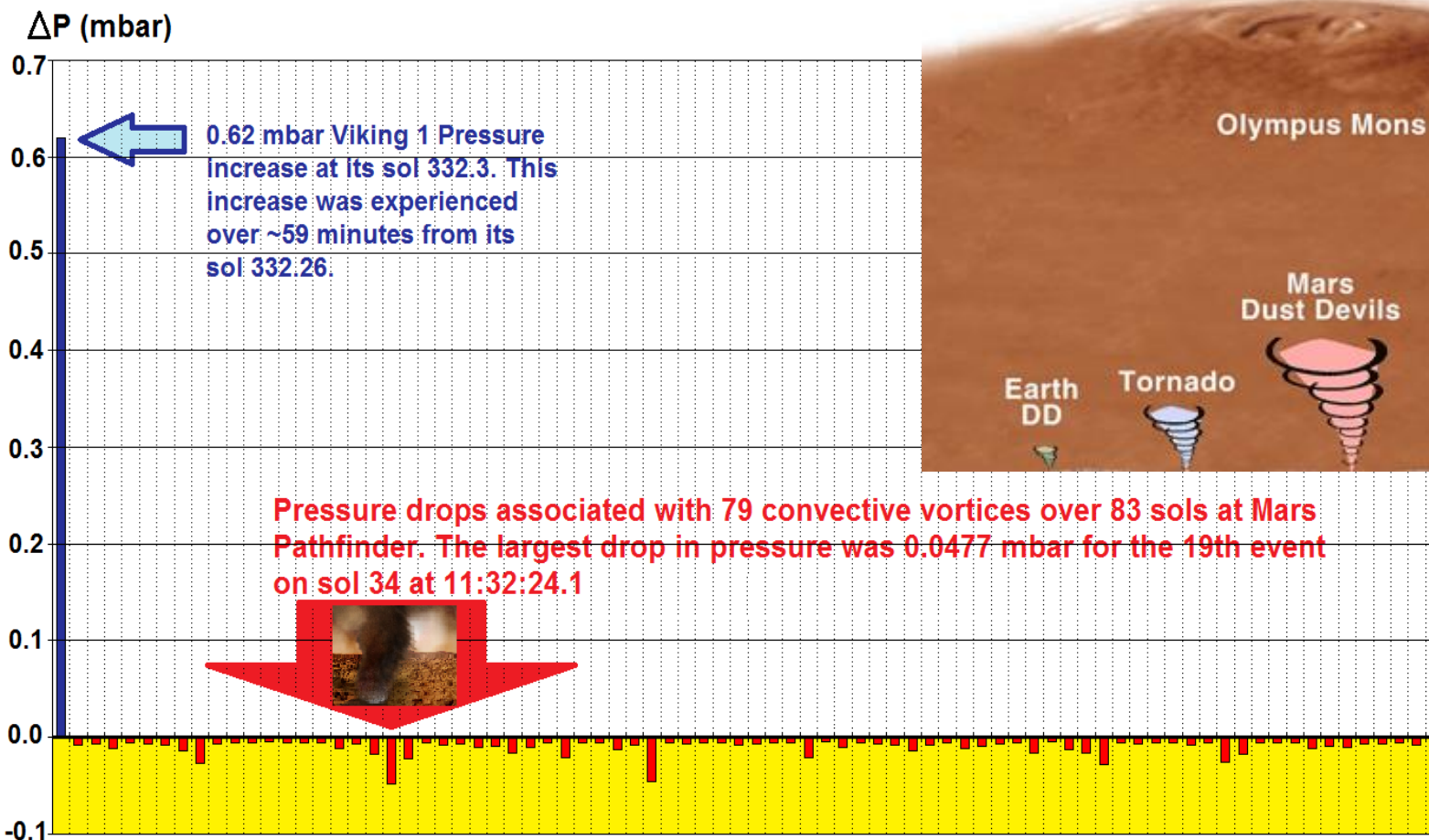


Similar dust particle size (.001 mm). But at 6.1 mbar pressure, an impossible 1,118 MPH wind is required to lift dust.

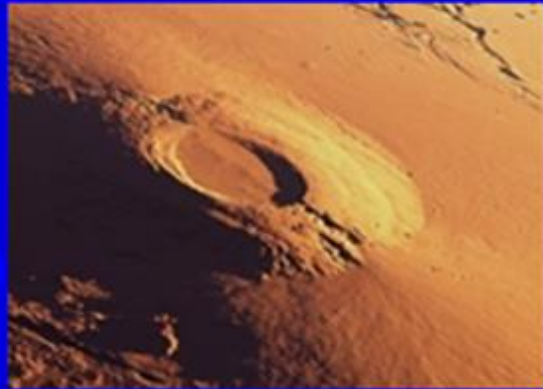


DUST DEVILS ARE THE MOST OBVIOUS WEATHER ODDITY

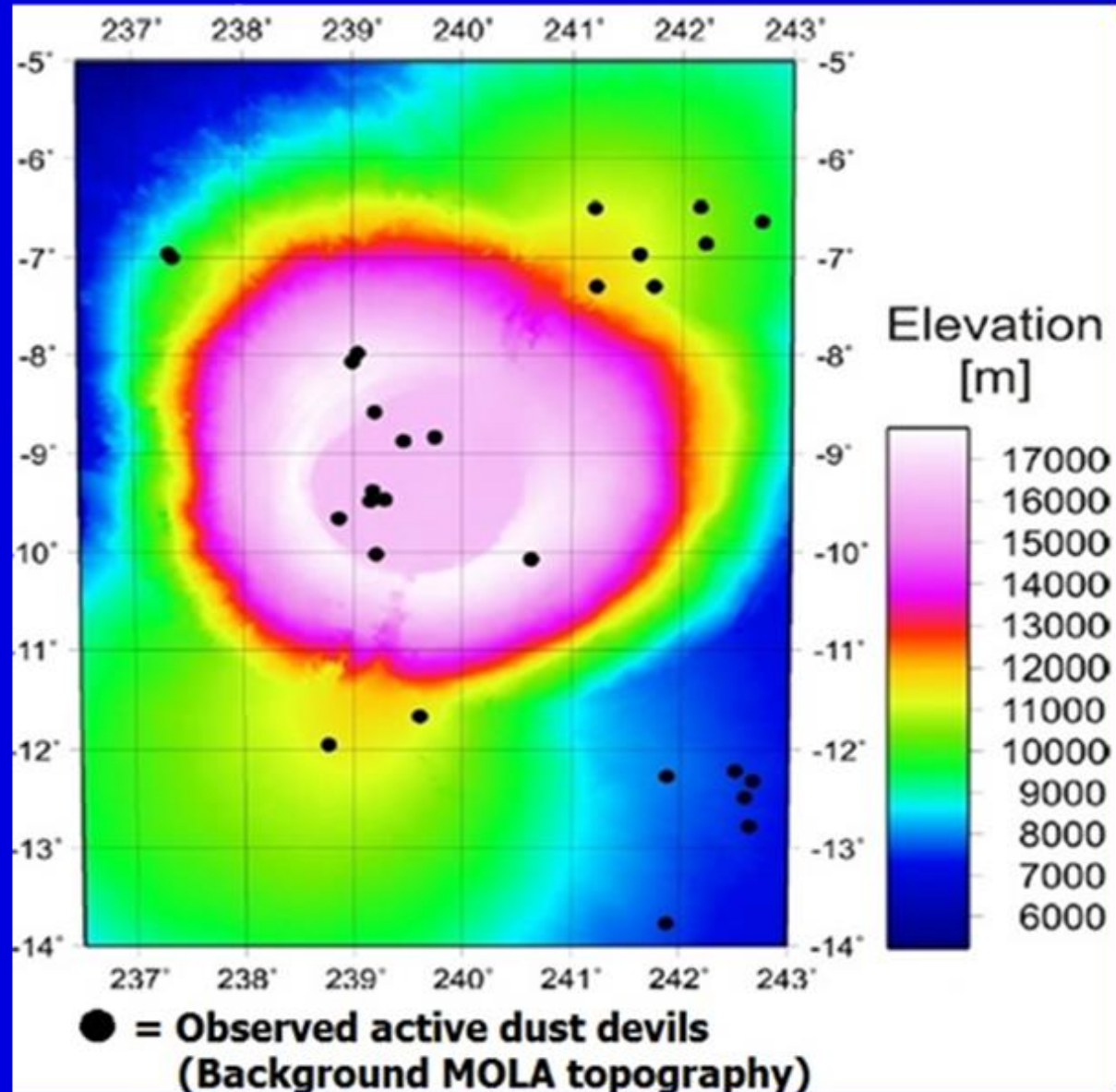
With so little air on Mars, how can there be enough change in pressure to form them at all?



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.

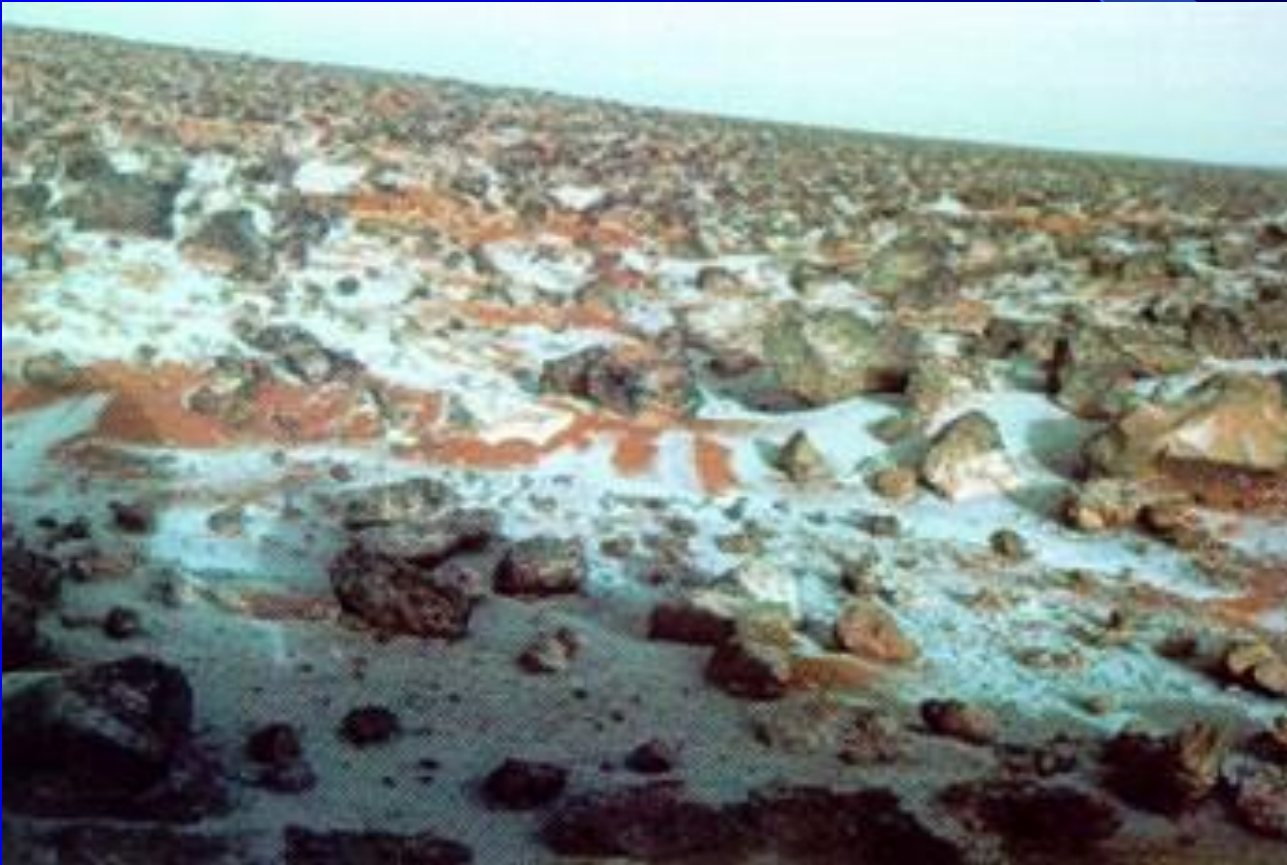


Pressure measured on MSL was at least 9.25 mbar. That + 6.6 mbar = 15.85 mbar. **Initially NASA claimed MSL couldn't measure over 11.5 mbar, but this figure changed in 2017 to 14 mbar (still too low).**

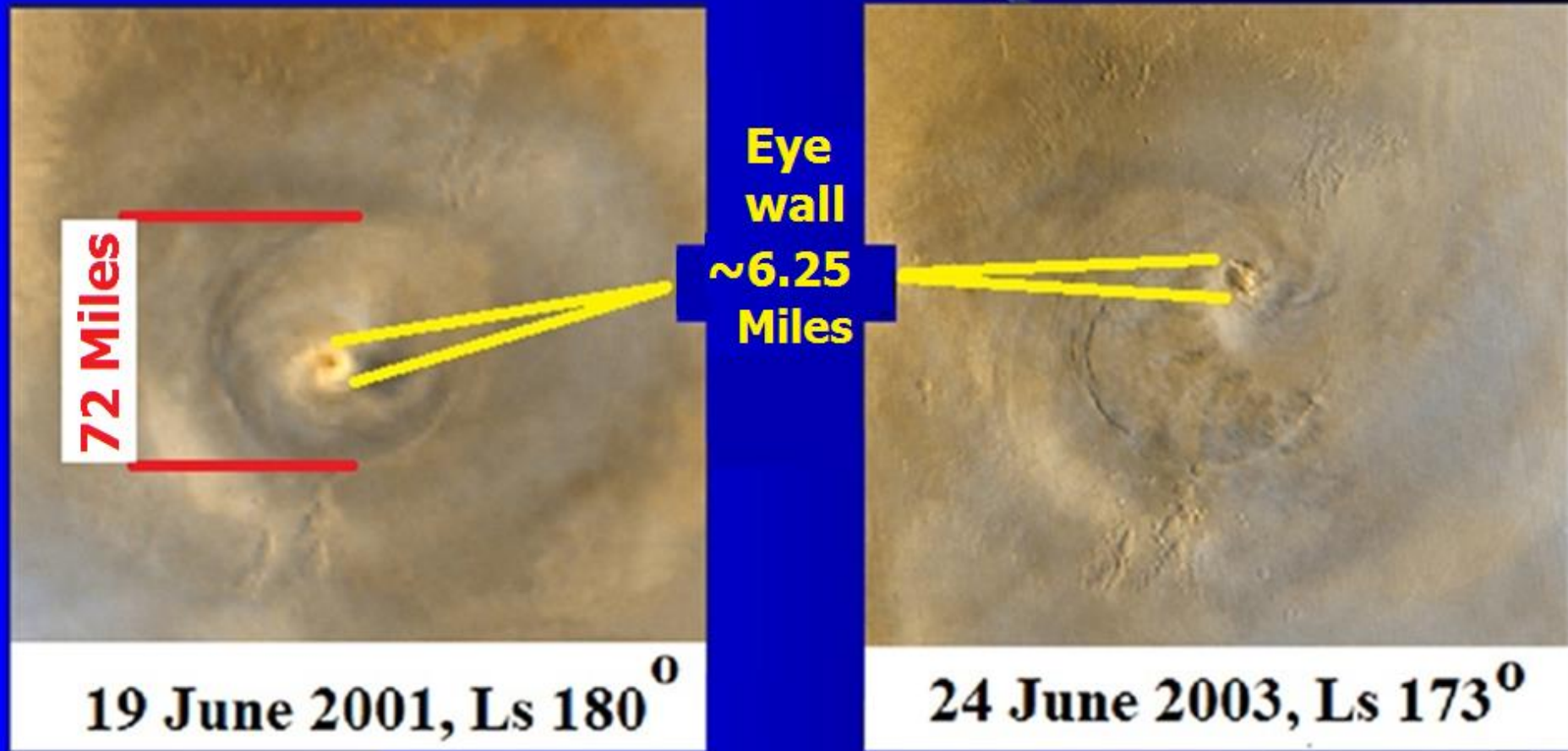
• **The true sensor ability? 0 to 1,025 mbar!** (Abstract to the American Geophysical Union for the Fall 2012 meeting: Pressure and Humidity Measurements at the MSL Landing Site Supported by Modeling of the Atmospheric Conditions).

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 $\sim .07$ Mbar – too low to support such weather.

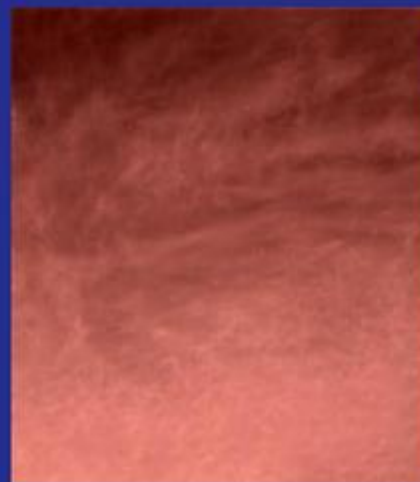
STRATUS CLOUDS 16 KM ABOVE MARS SUGGEST A PRESSURE AT AREOID OF 511 MBAR AND AT HELLIS BASIN HIGHER THAN PRESSURES ON EARTH AT SEA LEVEL.

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



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



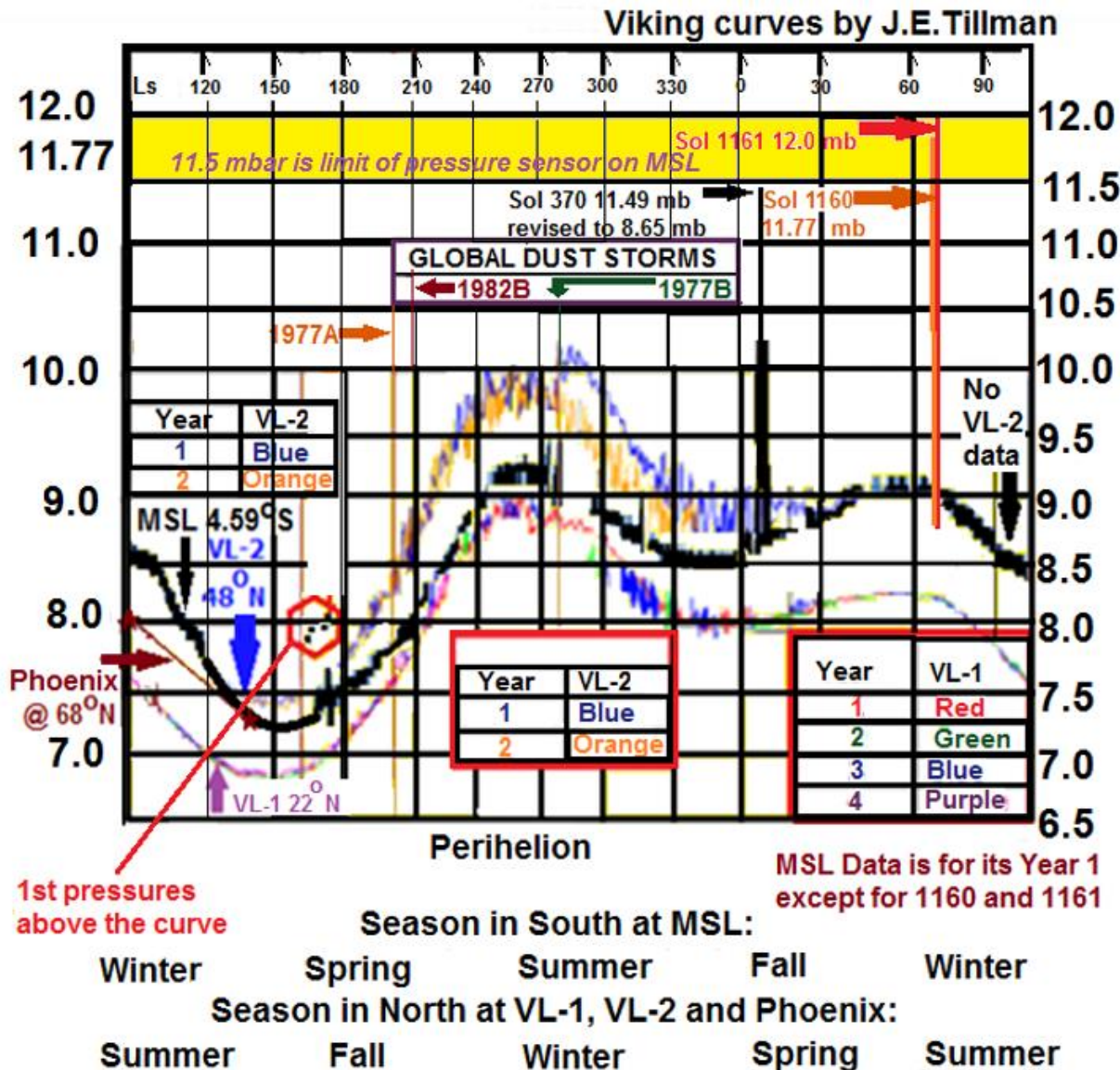
3. STRATUS CLOUDS ON MARS AT ALTITUDE OF 16,000 METERS ABOVE MARS PATHFINDER. PHOTO TAKEN 1 HOUR 40 MINUTES BEFORE SUNRISE ON 7/19/1997!

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).



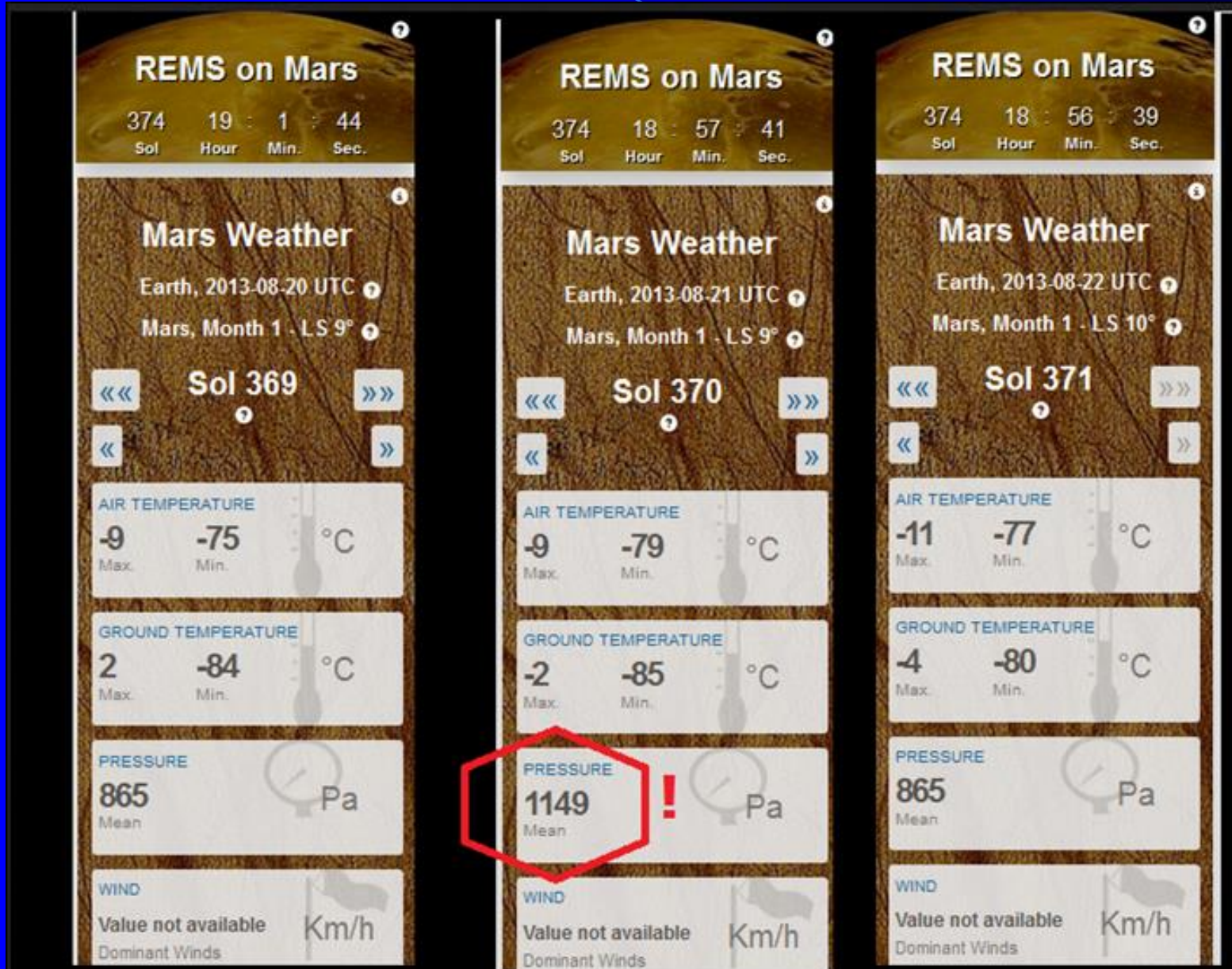
	A	B	C	D	E	F	G	H	I
1	CALCULATIONS BASED ON	ENTERING ARGUMENTS SCALE HEIGHT 10.8 KM AND 163.33 mbar at 12,318 meters							
2	MARS PATHFINDER	KILOMETERS	10.8km Scale	RATIO B/C	=-EXP(D VALUE)	1/E value	-F VALUE = PRESSURE	PERCENT OF	PRESSURE IN
3	VIEW OF STRATUS CLOUDS		Height (MARS)				MULTIPLE OF	PRESSURE 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	-0.7111111581	-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

Often MSL pressures were well above the expected curve.



When we pointed them out to NASA, NASA dropped them back to the curve.

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

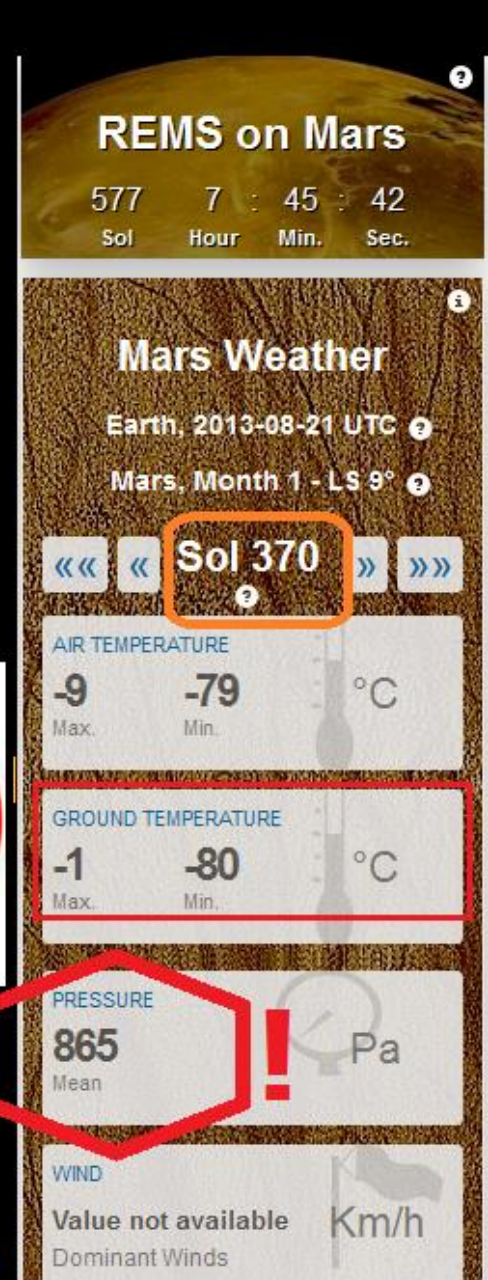


REMS Team/ NASA/JPL Critical Data changes After Hearing from the Roffman Mars Correct Team.

**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!**



**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.**

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

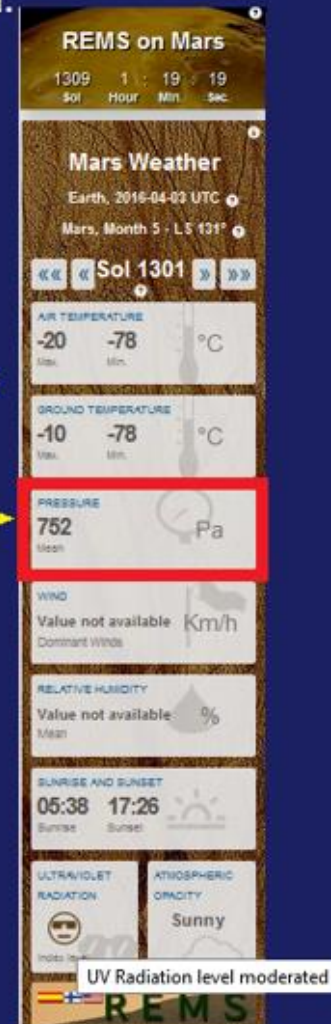
Pressure was 753 Pa and falling on Sol 1299. It was 751 on Sol 1302. So when challenged, JPL/REMS reduced high values for Sols 1300 (945 Pa) and 1301 (1,154 Pa) to an intermediate value of 752 Pa.



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!

VIKING 1 PRESSURE CHANGES ON ITS 305TH TO 350TH DAYS

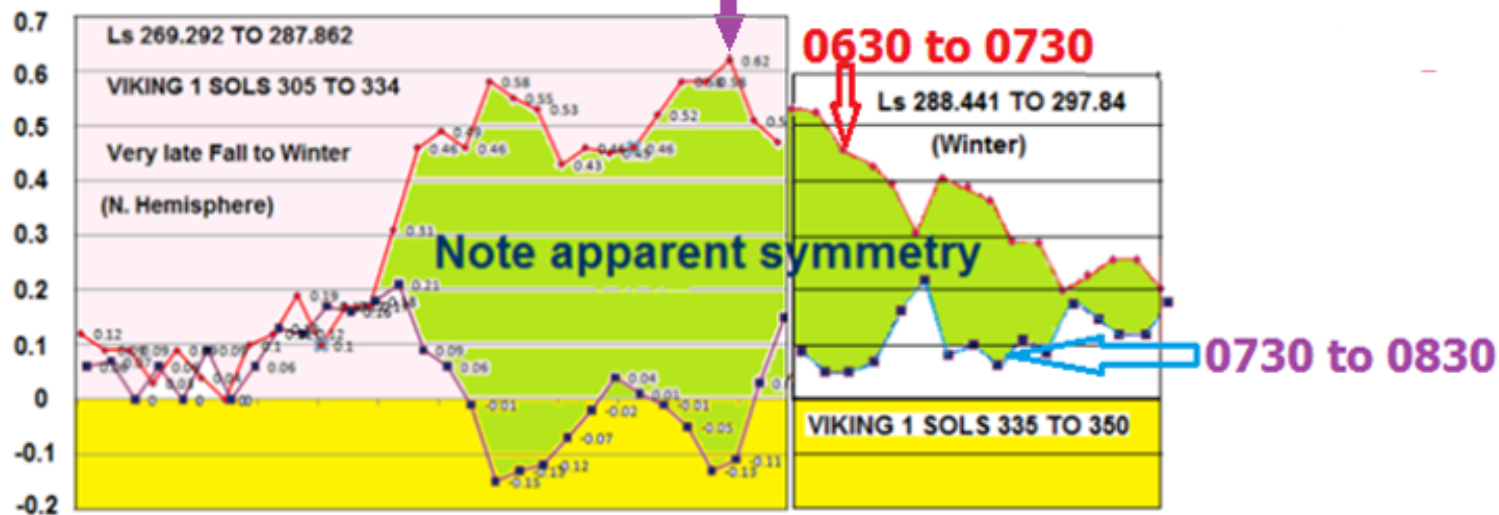
PRESSURE
CHANGE MBAR



PRESSURE CHANGE 6:30 AM TO 7:30 AM MARS TIME

PRESSURE CHANGE 7:30 AM TO 8:30 AM MARS TIME

0.62 MBAR INCREASE



TINY DUST FILTERS HAD NO CLEANING MECHANISM

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



DIME SURFACE
AREA = $\sim 251.9 \text{ mm}^2$



TAVIS DUST FILTER FOR VIKING = $\sim 40 \text{ mm}^2$ ●

TAVIS DUST FILTER FOR PATHFINDER = $\sim 3.14 \text{ mm}^2$ ●

VAISALA DUST FILTER FOR PHOENIX OR MSL = $\sim 10 \text{ mm}^2$ ●

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.

 <http://www.1728.com/gaspres.htm>

VIKING 1 YEAR 1

solve for:

$$\frac{P_1}{T_1} = \frac{P_2}{T_2}$$

Temperature 1 Equals >> VL1 SOL 292.96, Ls 260.849

Temperature 2 Equals >> VL1 SOL 102.5, Ls 146.385

Pressure 1 Equals >> VL1 SOL 110.66 (and others), Ls 150.662

Pressure 2 Equals >>>>

ACTUAL VL1 MAX PRESSURE = 9.57 MBAR
AT SOL 318.34, Ls 277.724 (98.19% OF PREDICTED VALUE)

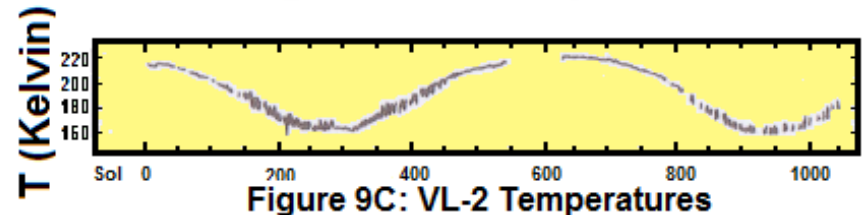
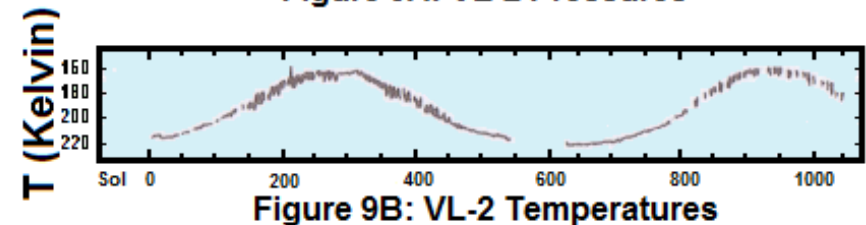
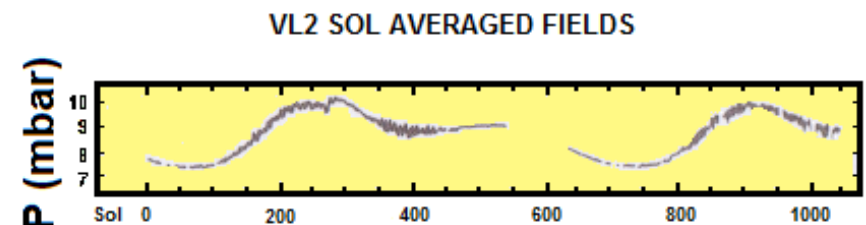
Note: 177.19 K = -137.128° F
255.77 K = +0.716° F

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

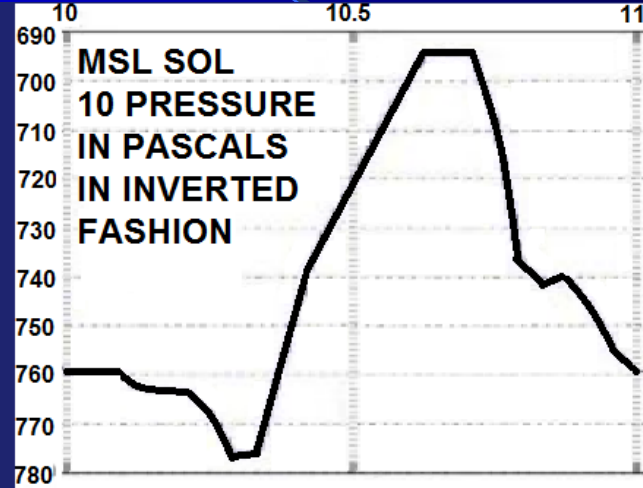
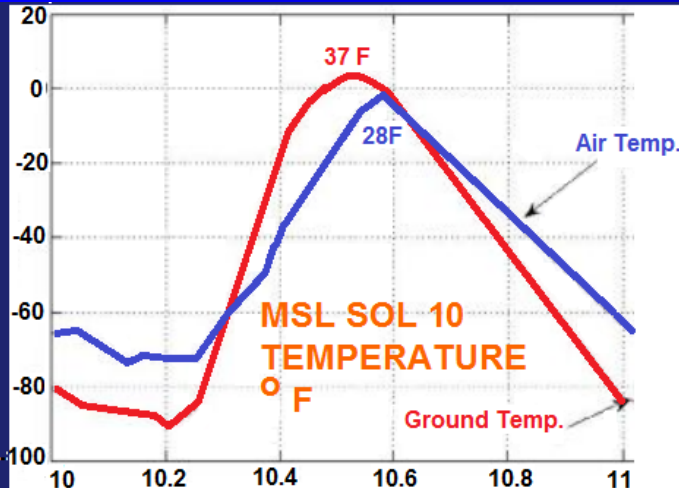
Figures 9A and 9C show that as temperature fell pressure recorded rose.

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

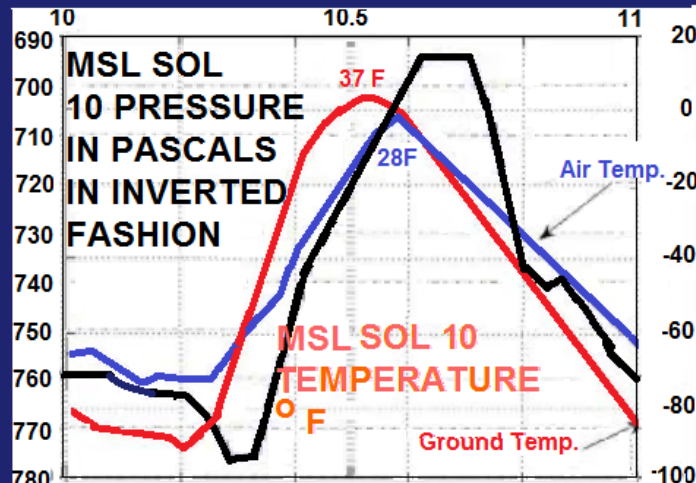
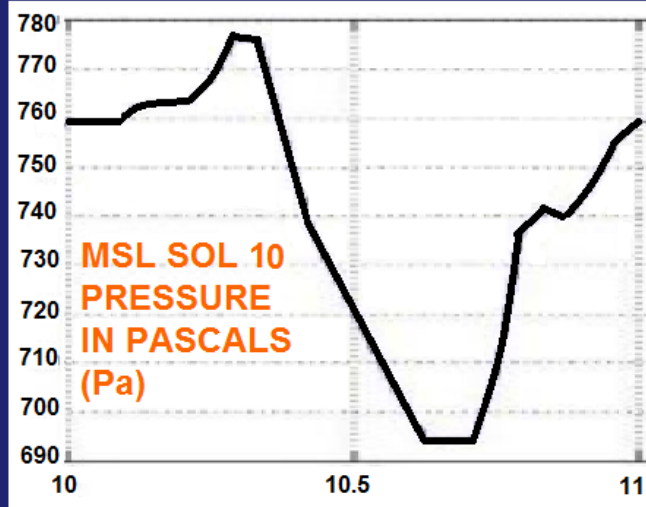
Hypothesis: Above annual trend will be matched at the hourly level when RTG heaters are on & increasing pressure behind a dust clot.



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



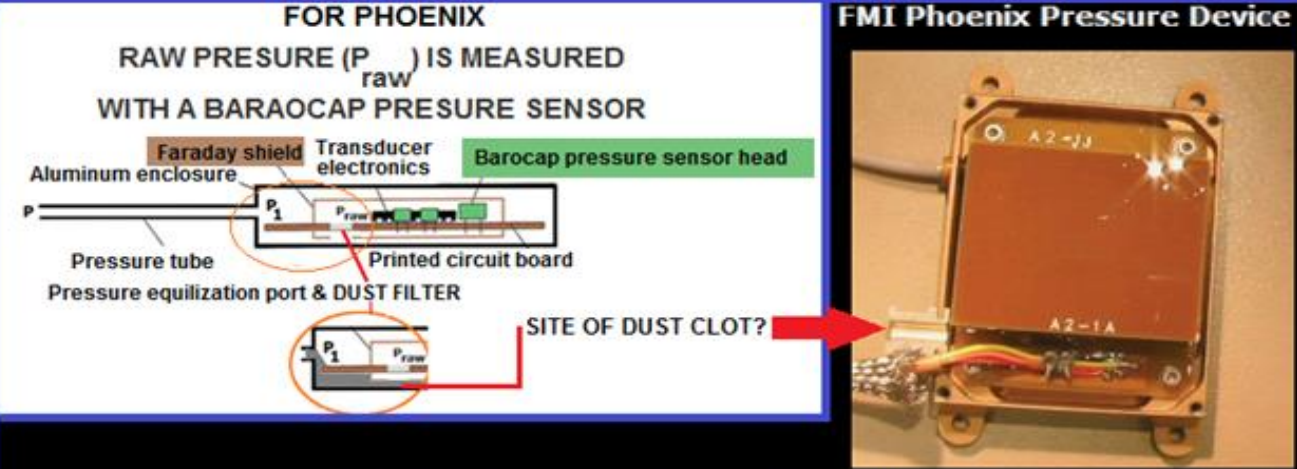
ARE DAILY PRESSURE CYCLES RELATED TO THE INVERSE OF TEMPERATURES OUTSIDE THE MSL AS WITH VIKINGS?



FMI knew it had a problem with Phoenix

FOR PHOENIX

RAW PRESURE (P_{raw}) IS MEASURED
WITH A BAROACAP PRESURE SENSOR

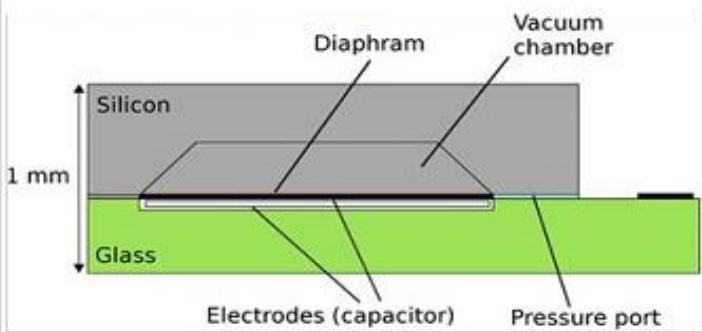


Pressure device is small and light weighted pressure sensing instrument. The main dimensions of the device are approximately 55x45x20 mm and the weight is less than 30 grams.

MSL Vaisala Transducer



Credit: FMI



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



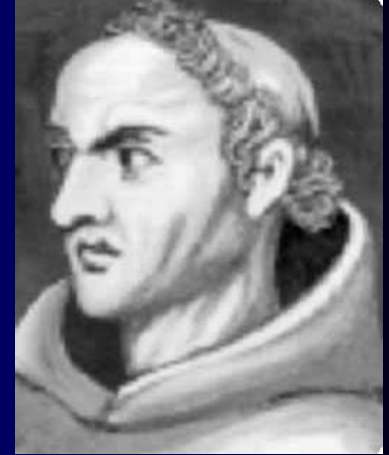


International Traffic in Arms Regulations (ITAR)

- *"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

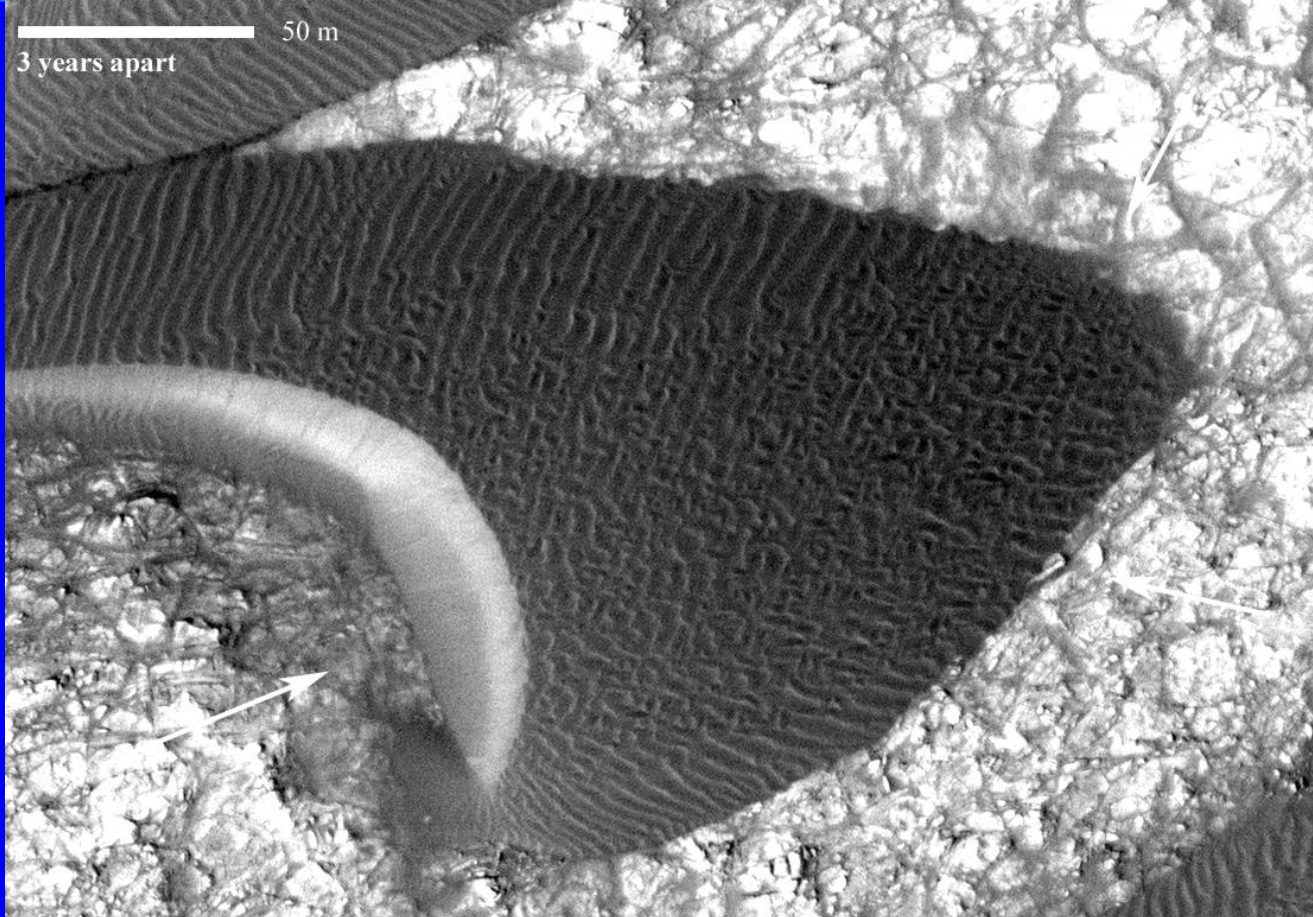


VL1 SOL	0.02	0.06	0.1	0.14	0.18	0.22	0.26	0.3	0.34	0.38	0.42	0.46	0.5	0.54	0.58	0.62	0.66	0.7	0.74	0.78	0.82	0.86	0.9	0.94	0.98	VL1 SOL			
228	198							194									215			204							228		
229								196	199	BLOCKS IN RED ARE WITHIN 2% OF PREDICTIONS BASED ON GAY- LUSSAC/AMONTON'S GAS LAWS. FORMULA USED IS $P = \frac{6.51 \text{ mbar} \cdot 255.17 \text{ K}}{T}$ T Measured in cell K								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		28K Temperature range for accurate pressure predictions this page (185 to 213K)											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
 $P = 6.51 \text{ mbar} \cdot \frac{255.17 \text{ K}}{T}$
T Measured in cell
K

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

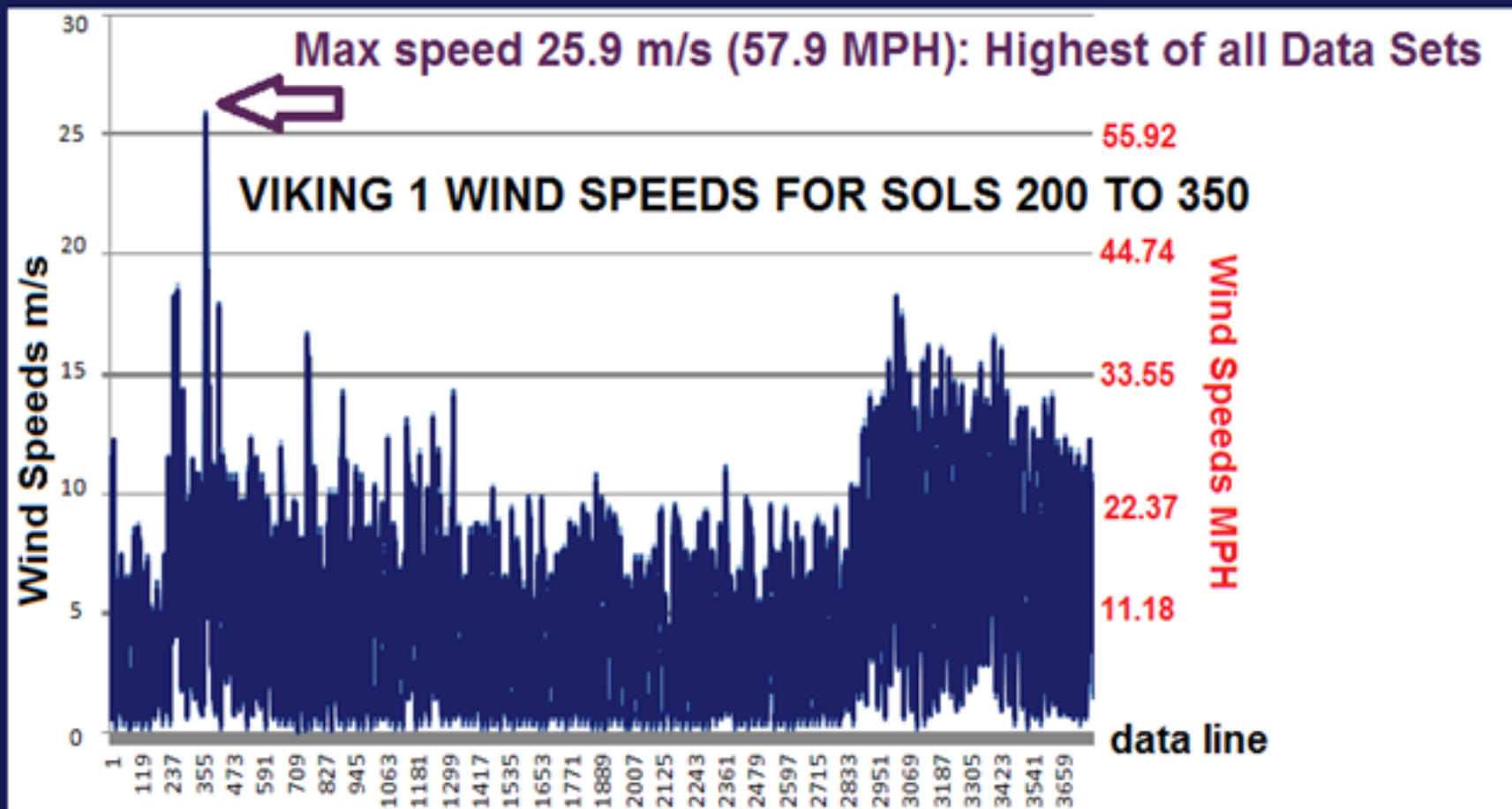


Why Trash Occam?

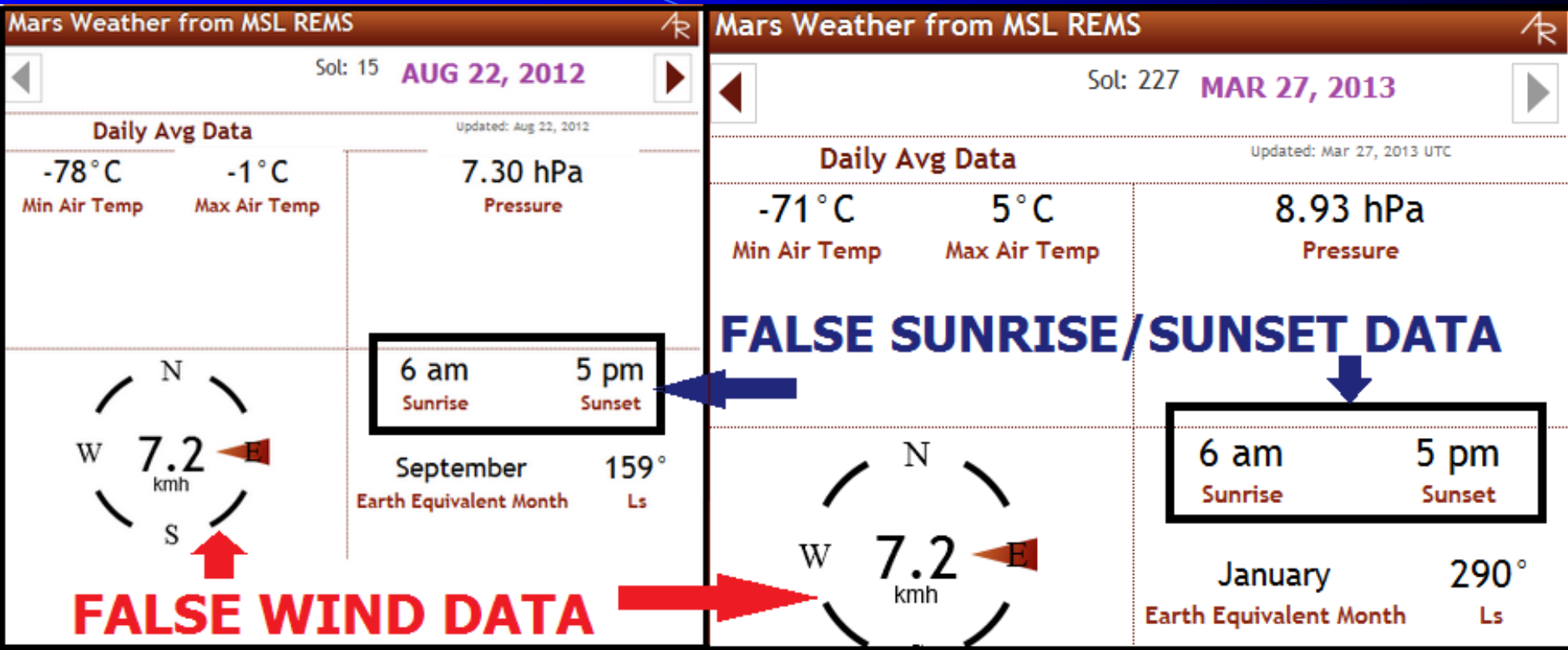
- Wind-tunnel trials show a patch of sand would take wind 80 mph to move on Mars (vs. 10 mph on Earth). No lander ever saw wind so high on Mars. JPL: Spirit rover detected shifting sand in 2004.
- Sand was filmed moving under Curiosity in January, 2017 (see <https://photojournal.jpl.nasa.gov/archive/PIA21143.gif>).



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.

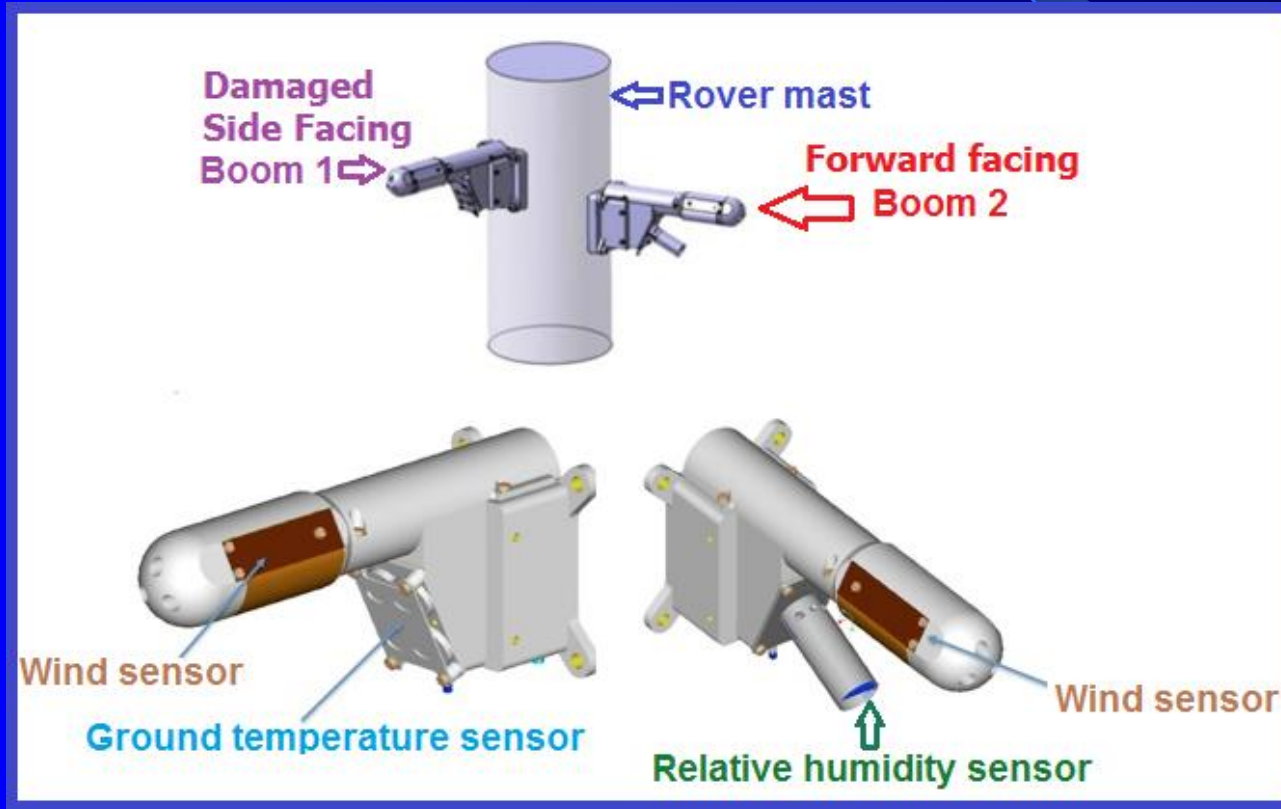
We told JPL that there could not be only 11 hours of daylight at MSL. David Roffman did the math. There is as much as 12 hours 19 minutes of daylight and little as 11 hours 43 minutes. NASA accepted the fix.

	A	B	C	D	E	F	G	H	I
1	λ_{sun}	Latitude			Day Length =	Daylight	Half Sol	difference	DAVID'S
2	(0 for spring	(phi)	$\delta_{\text{degrees}} =$	$H = \arccos((\sin(-.17) - \sin(lw) \cdot \sin(\delta)) / (\cos(lw) \cdot \cos(\delta)))$	$2 \cdot 1.027491 \cdot H / 360$	In Hours	in Hours	Half day -	Mars
3	in northern		$\arcsin((\sin(25.19) \cdot \sin(\lambda_{\text{sun}}))$			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)**



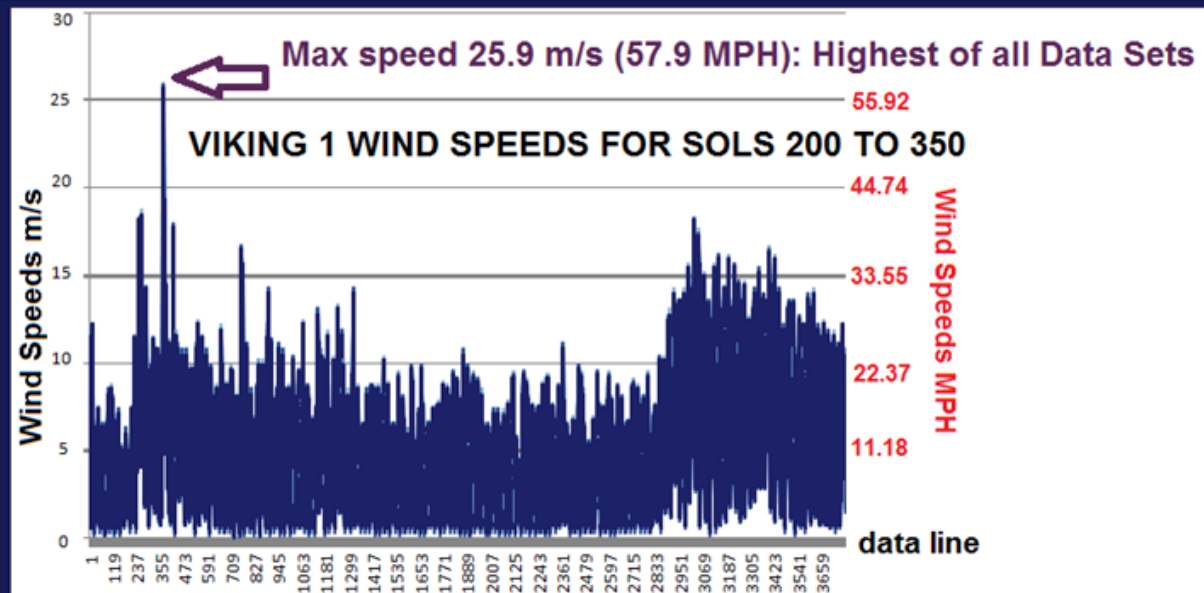
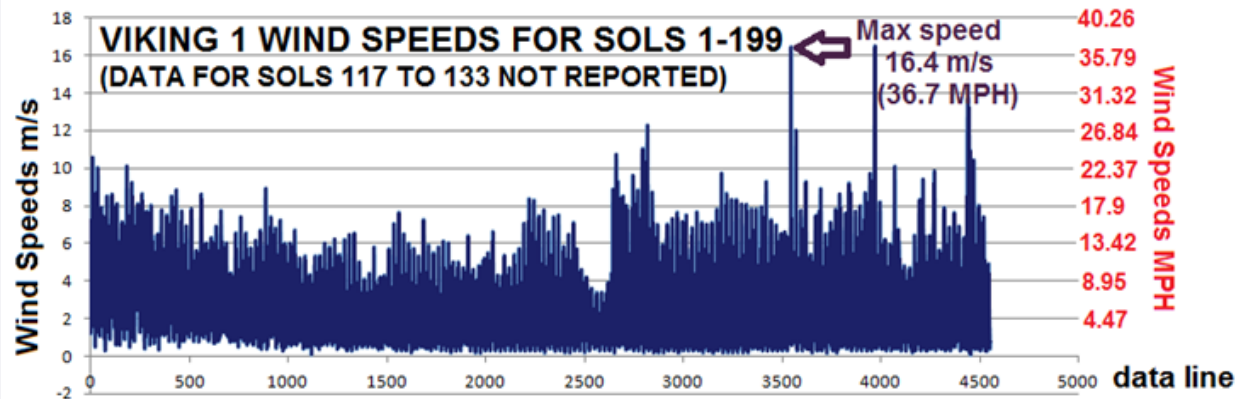
One of the REMS Booms broke on Landing. It would have been more honest to list winds as *Not Available*.



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

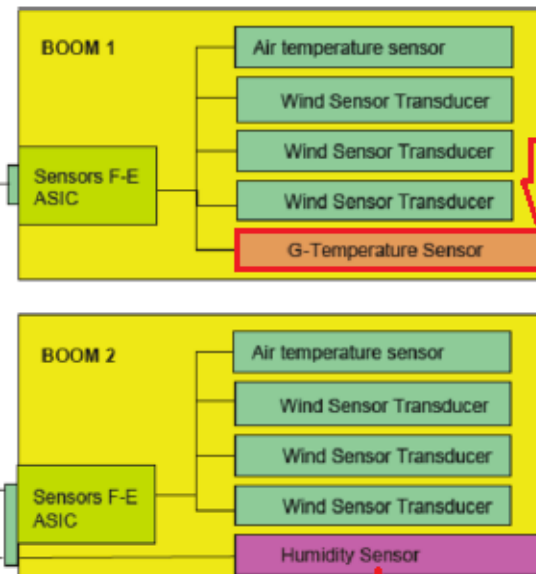
Profile of the windiest Viking day on Mars with the greatest wind gust recorded at VL-1 sol 214.78. 



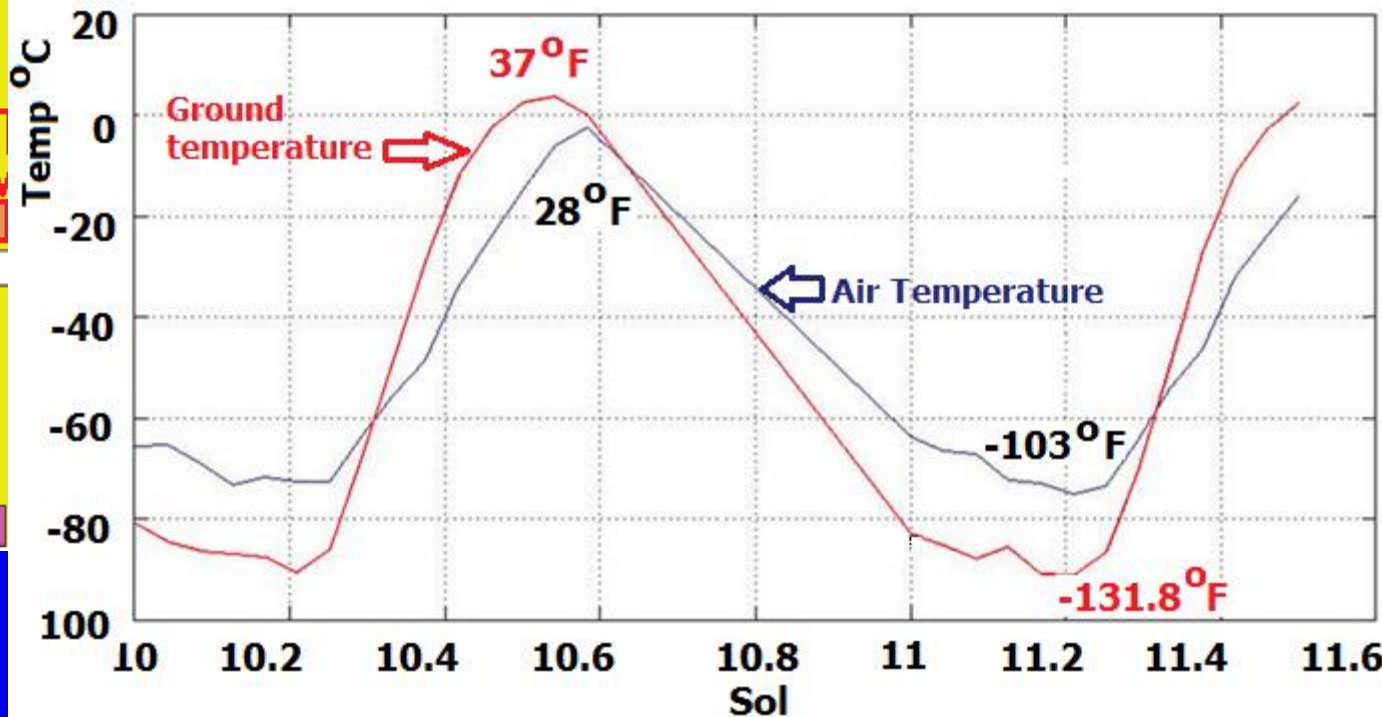
BOGUS GROUND TEMPERATURES?

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

REMS Block Diagram



GROUND AND AIR TEMPERATURE SENSOR



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.

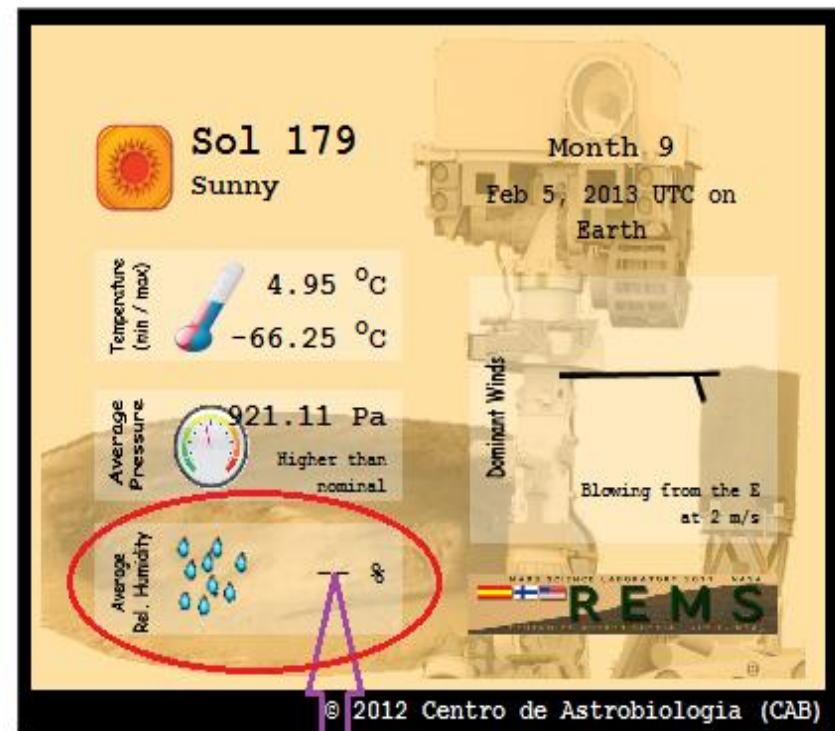
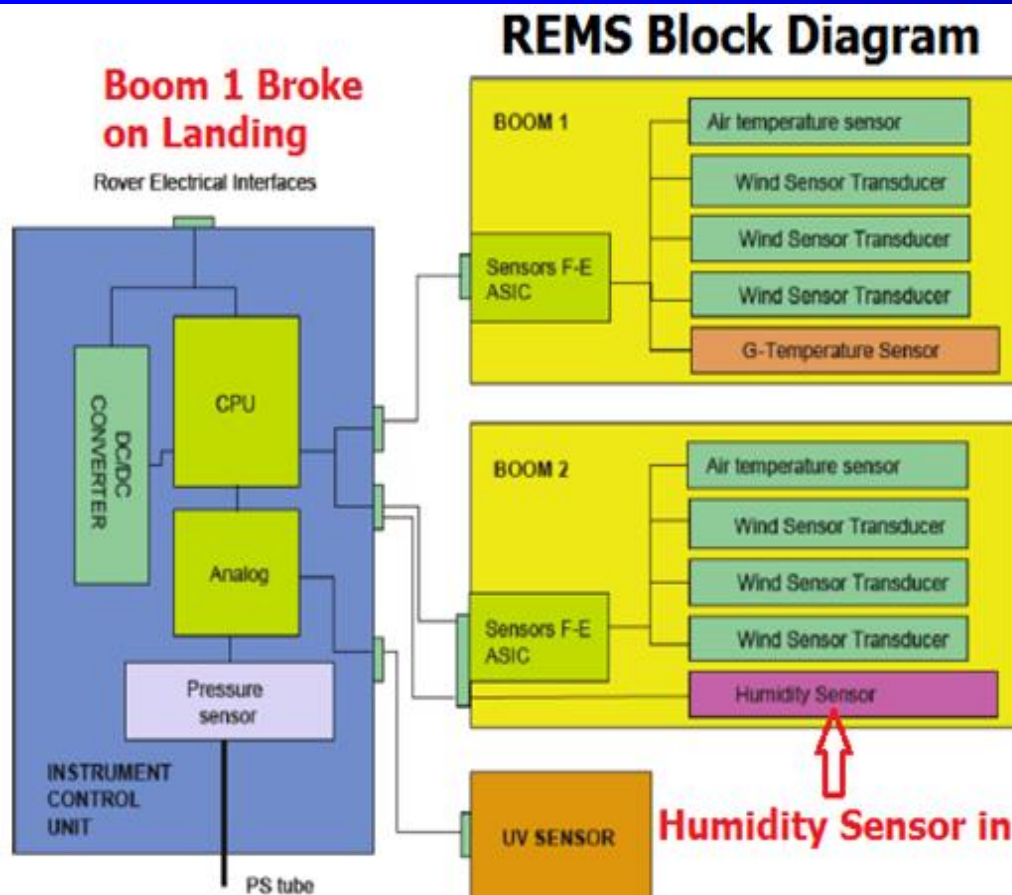
But the weak ground temperature answer did not address altered air temperatures. Who is killing warm days on Mars, and why?

A	B	C	D	A	B	C	D
SOL	ORIGINAL MAX AIR TEMP TEMP $\geq 0^{\circ}\text{C}$ REDUCED TO TEMP $\leq 0^{\circ}\text{C}$	NEW MAX AIR TEMP $^{\circ}\text{C}$	CHANGE $^{\circ}\text{C}$	SOL	ORIGINAL MAX AIR TEMP TEMP $\geq 0^{\circ}\text{C}$ REDUCED TO TEMP $\leq 0^{\circ}\text{C}$	NEW MAX AIR TEMP C	CHANGE $^{\circ}\text{C}$
23	0	-16	16	49	4	-10	14
26	2	-14	16	50	0	-10	10
27	-1	-15	14	51	3	-7	10
31	-3	-23	20	52	7	-7	14
38	-3	-13	10	53	5	-5	10
40	2	-12	14	54	5	-9	14
41	2	-12	14	102	8	-3	11
42	5	-7	12	112	5	-8	13
43	3	-12	15	116	5	-6	11
44	4	-10	14	118	4.53	-6	10.53
45	3	-9	12	123	2.1	-10	12.1
46	4	-12	16	124	5.4	-5	10.4
47	6	-9	15	179	5	-7	12

REMS Relative Humidity Sensor

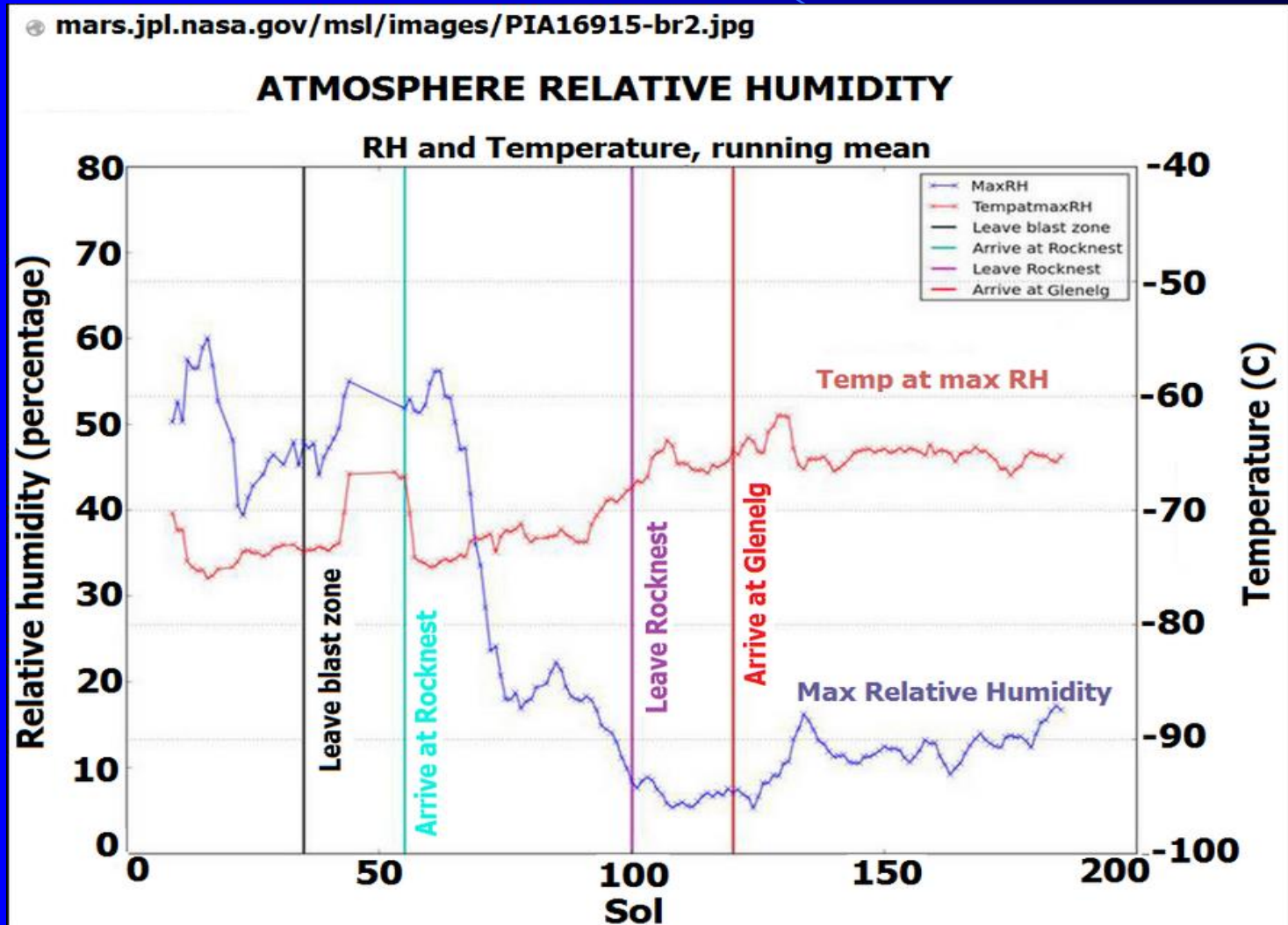
Only Boom 1 broke on Landing. Why no relative humidity reported from Boom 2? Calibration problems with the Thermal and Electrical Conductivity Probe?

G.M. Martinez et al., 2013



REMS Reports always show no relative humidity

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

← mars.jpl.nasa.gov/msl/images/MSL_TraverseMap_Sol0313_fcalef-br2.jpg

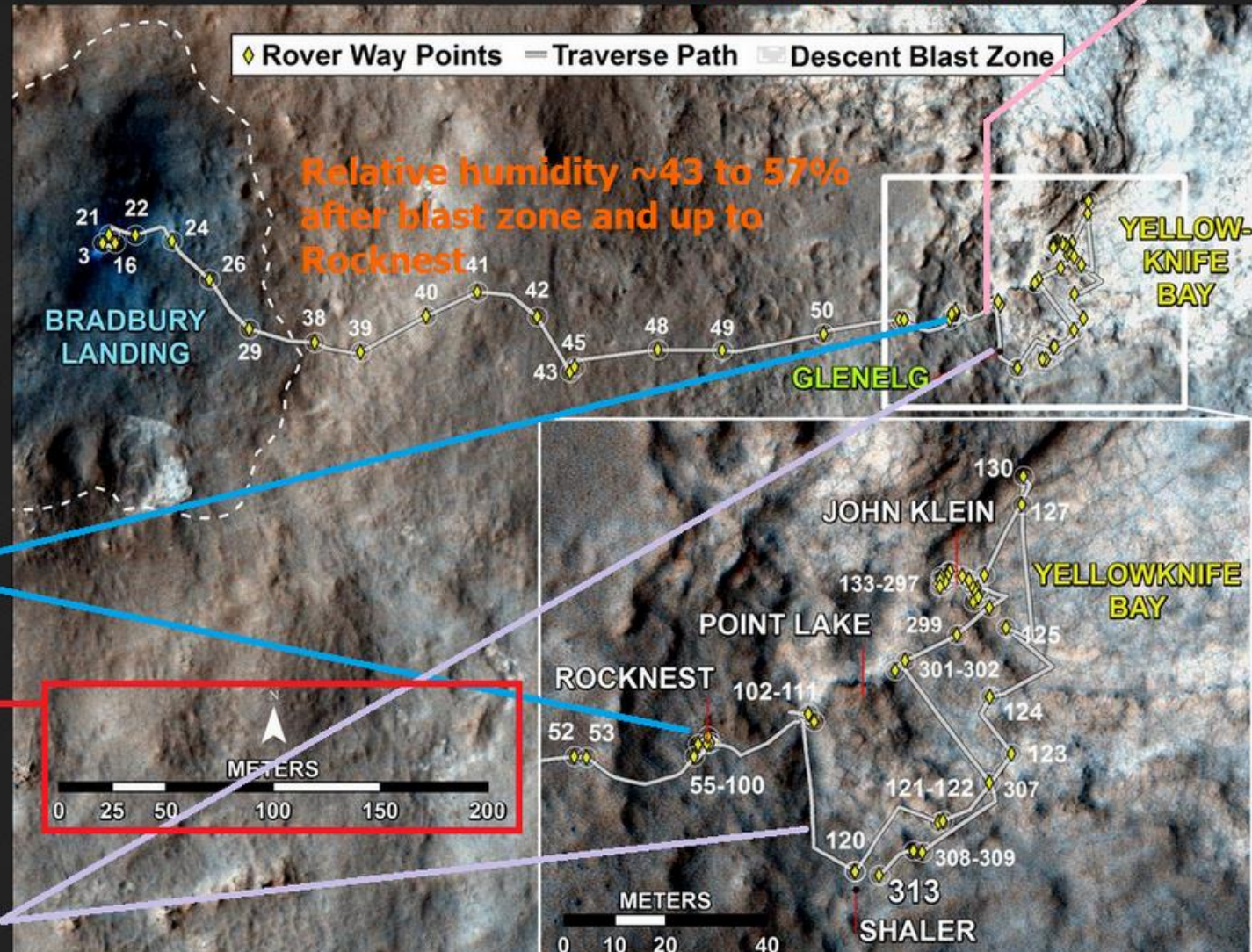
Between Rocknest & Glenelg RH was about 6 to 9%.

Relative humidity = ~40 to 60% in landing blast zone.

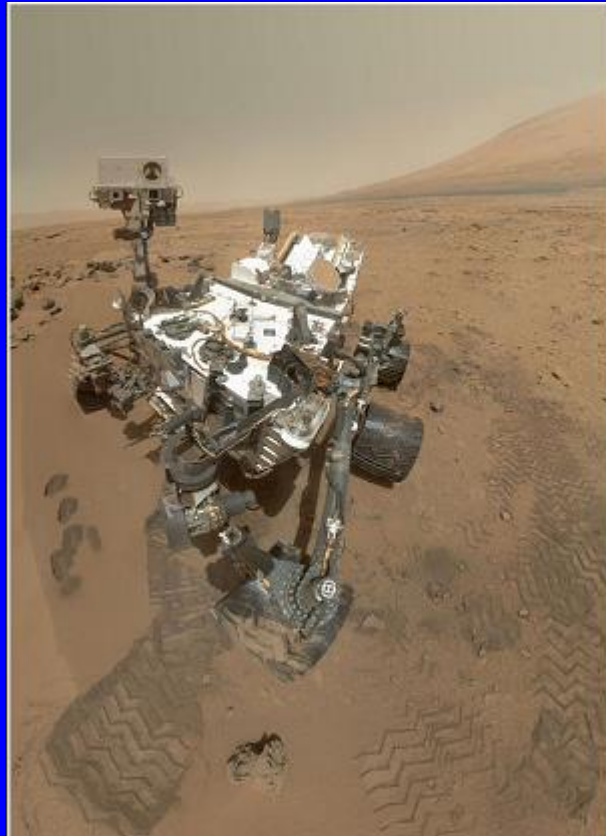
At Rocknest relative humidity drops from about 58% to ~9 % over 50 sols.

Note distance scale. Changes in RH over ~400 m.

At Glenelg RH varies from about 6% to 17%.



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

Aug 29, 2012



Sol 23
Sunny

WRONG MONTH

End of month 3

Aug 29, 2012 on Earth

Temperature
(min / max) 0 °C
-73 °C

Average
Pressure 7.4 hPa
Lower than nominal

Average
Atm Humidity XX %

Dominant Winds

Blowing from the E
at 2 m/s

REMS

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.

Sept. 5, 2012



Sol 29
Sunny

Right month

Month 6

Sept. 5, 2012 on Earth

Temperature
(min / max) -2 °C
-75 °C

Average
Pressure 747 hPa
Higher than nominal

Average
Rel. Humidity -- %

Dominant Winds

Blowing from the E
at 2 m/s

REMS

**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**

PRESSURE 1% OF YESTERDAY'S REPORT



Sol 30
Sunny

Month 6

Sept. 6, 2012 on Earth

Temperature
(min / max) -3 °C
-74 °C

Average
Pressure 747 Pa
Higher than nominal

Average
Rel. Humidity -- %

Dominant Winds

Blowing from the E
at 2 m/s

REMS

**DAILY WEATHER NEVER
INCLUDES RELATIVE HUMIDITY**

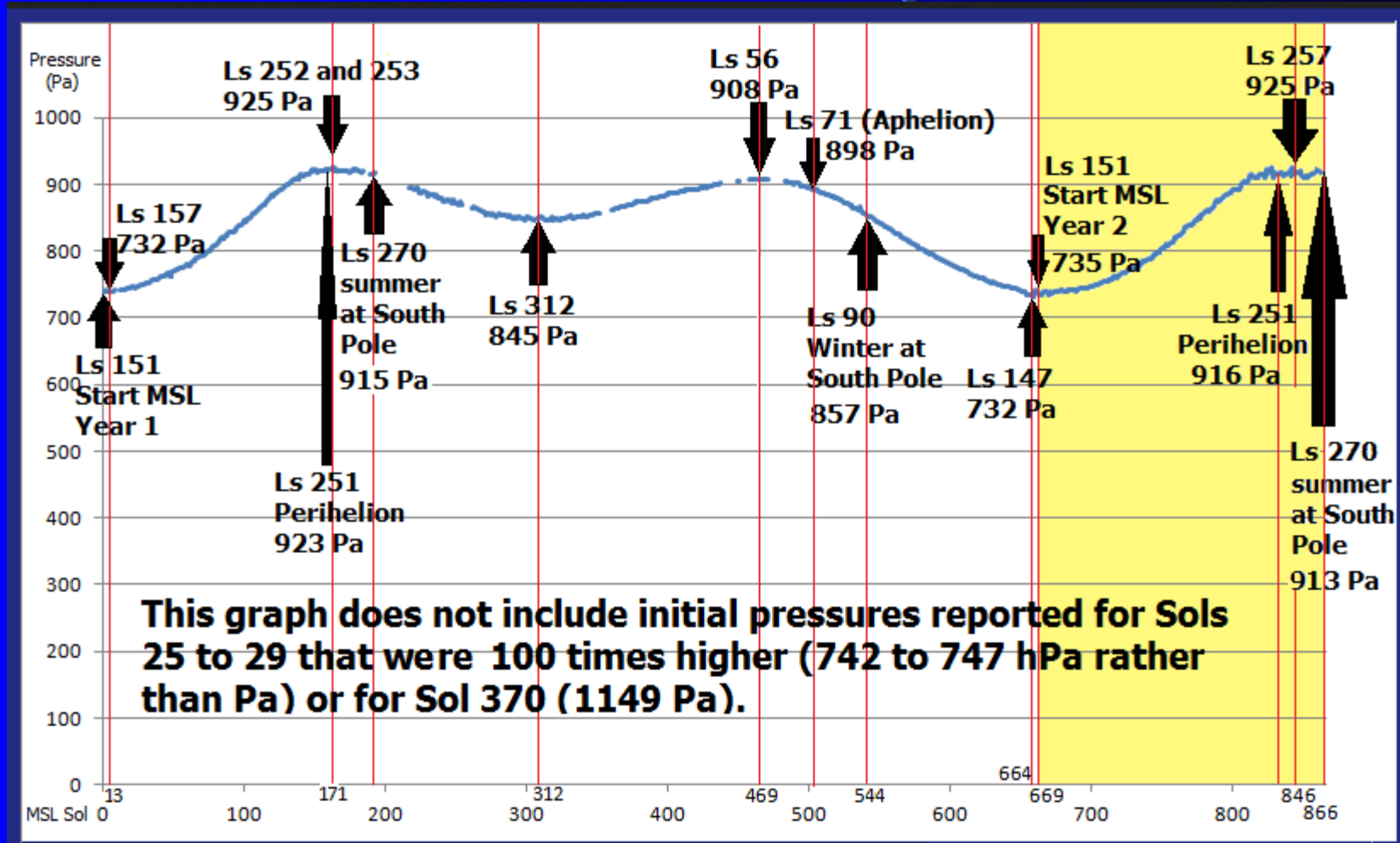
**ALL WINDS (2 M/S) REPORTED
← WRONG UNTIL MAY 2013**

Why Trash Occam?

- **Weather doesn't match low pressure values**
 - Running water
 - Dust Devils
 - Dust Storms
 - Eye walls on huge storms over Arsia 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 Occam?

- Viking pressures suspicious due to exact repeat over 4 yrs. Ditto for MSL shown below.



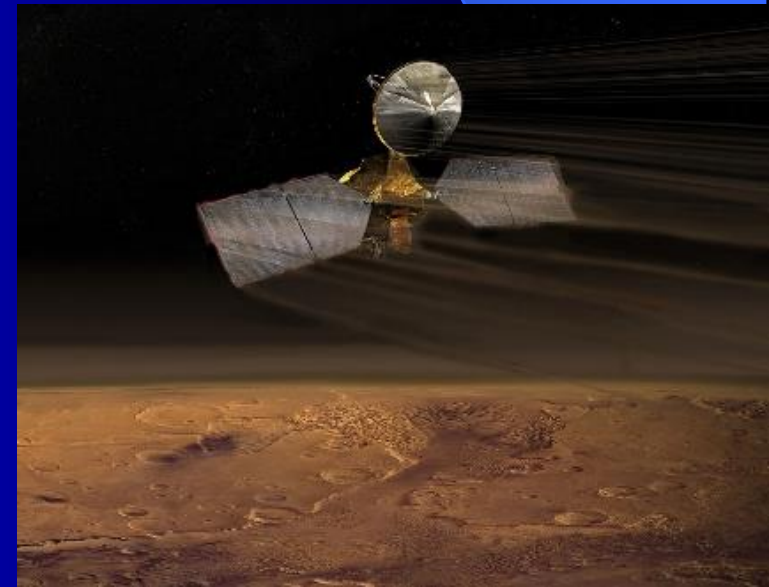
WHY TRASH OCCUM? MRO AEROBRAKING

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

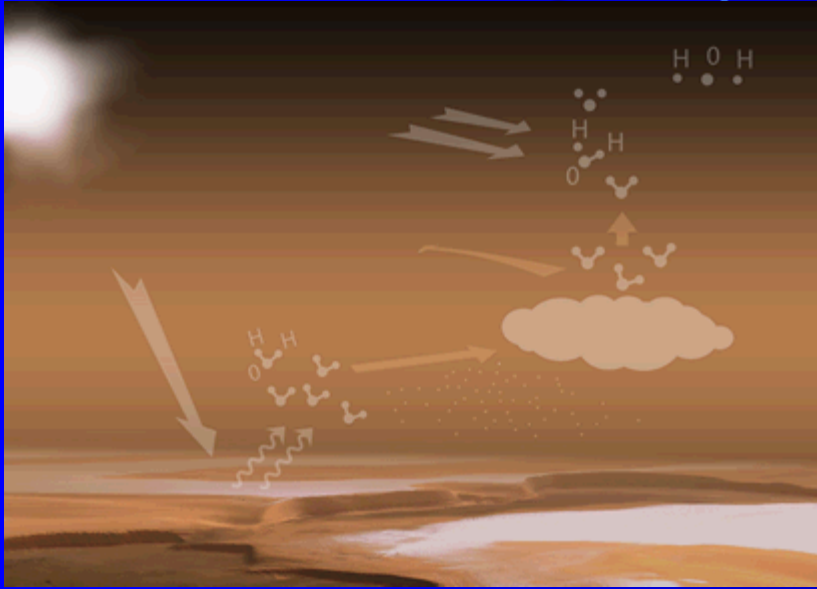
around the south pole

it was 350% off the model."

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



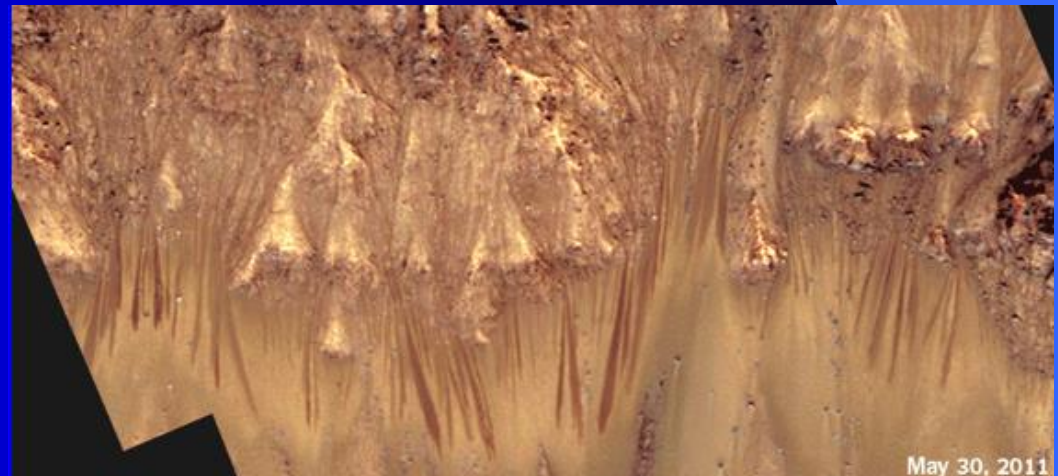
Why Trash Occam?



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

10 to 100 times more H₂O than expected at 20 to 50 km. Partial pressures imply denser air too.

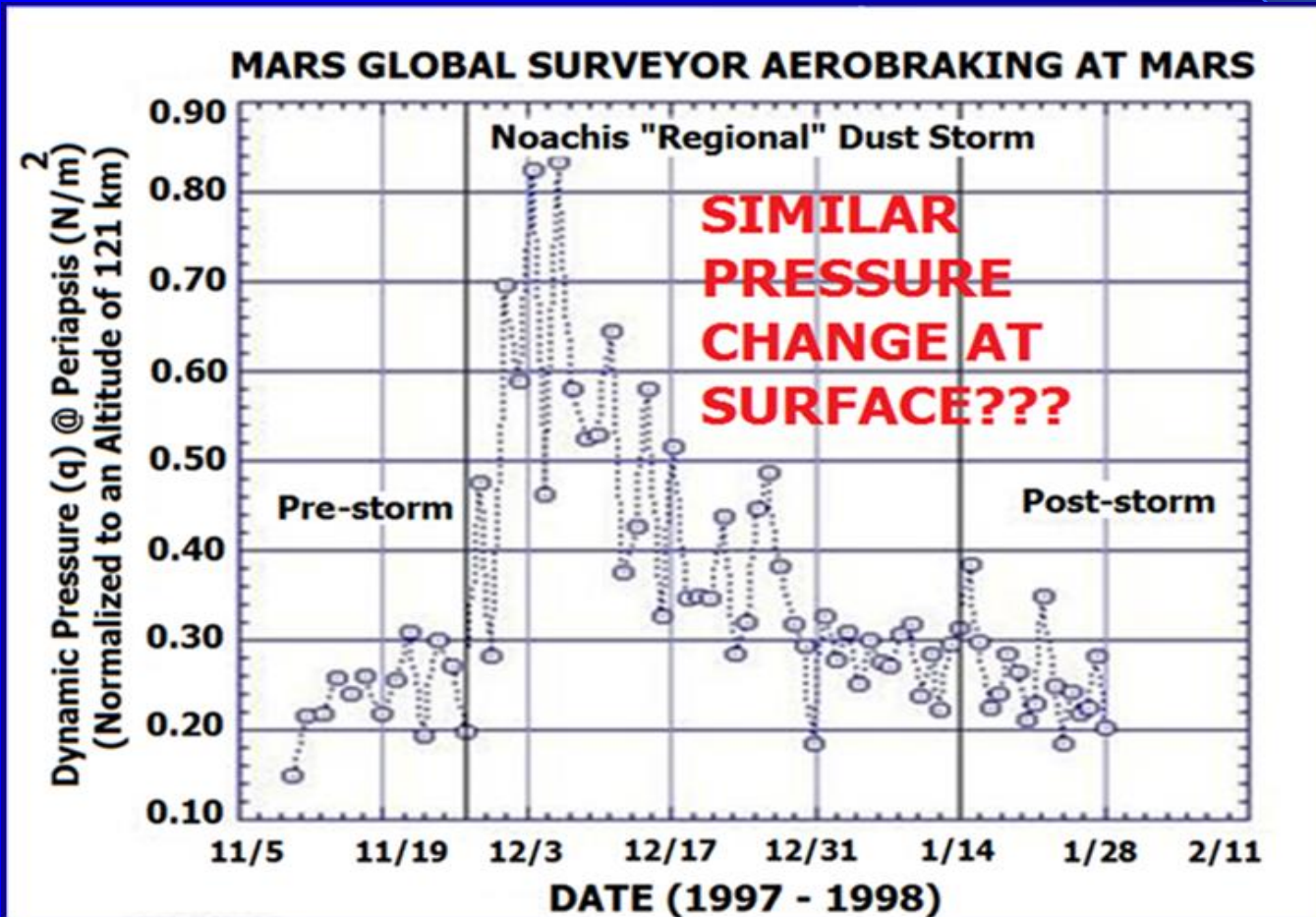
Since then running water has been found at many sites on Mars on 28 Sep 2015.



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)

**UNCONTROLLED COPY
SUBJECT TO REVISION**

(0 to 1,034 mbar) 0-15 PSIA

(0 to 12 mbar) 0-0.174 PSIA

For Pathfinder, the 0.174 PSIA is believed to be what was sent. The 15 PSIA transducer is good for Earth-like pressures - but why was it ordered?

REV	ZONE	DESCRIPTION	DATE
A		REDRAWN W/CHANGE SIX 600 5000	4/08-8-14

Tavis
Standard
Configuration
Level ... C

SPECIFICATIONS

GENERAL

PRESSURE RANGE
PROOF PRESSURE
BURST PRESSURE
WEIGHT
SENSING MEDIA

SEE TABLE 1
SEE TABLE 1
SEE TABLE 1
477 GRAMS MAX
COMPATIBLE WITH 410 SST,
17-4 PH SST, INCONEL 600

ELECTRICAL

INPUT VOLTAGE
INPUT CURRENT
OUTPUT VOLTAGE
OUTPUT NOISE
OUTPUT IMPEDANCE
ISOLATION RESISTANCE
INSULATION RESISTANCE

30±6 VDC
10 mA MAX
0.0 TO 5.0 VDC
0.8mV RMS/Hz @ 5Hz, 15mV P-P MAX
1000 OHMS MAX
GREATER THAN 50 MEGOHMS AT 50 VDC
GREATER THAN 50 MEGOHMS AT 50 VDC

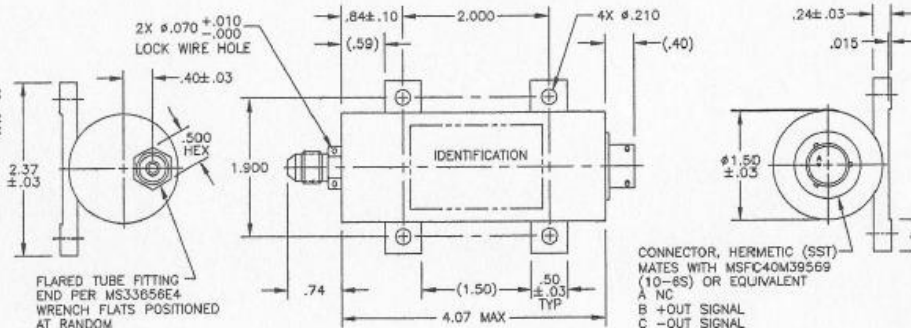
PERFORMANCE

STATIC ERROR BAND
COMPENSATED TEMPERATURE RANGE
FREQUENCY RESPONSE
SHOCK

±0.5% FULL SCALE
-50°C TO +50°C
FROM DC, -1dB @ 5Hz, -3dB @ 10Hz
100 G's FOR 30 ms

STATIC ERROR BAND IS DEFINED AS THE MAXIMUM ALLOWED DEVIATION FROM A BEST FIT STRAIGHT LINE WHICH MINIMIZES THE ERRORS DUE TO NON-LINEARITY, REPEATABILITY, HYSTERESIS AND RESOLUTION.

TEMPERATURE ERROR SHALL BE ±2.0% FS. TEMPERATURE ERROR IS DEFINED AS THE MAXIMUM ALLOWED DEVIATION FROM A BEST FIT STRAIGHT LINE WHICH MINIMIZES THE ERRORS DUE TO TEMPERATURE OVER THE RANGE OF -50°C TO +50°C.



CONNECTOR, HERMETIC (SST)
MATES WITH MSFC40M39569
(10-6S) OR EQUIVALENT
A NC
B +OUT SIGNAL
C -OUT SIGNAL
D CASE GROUND
E -IN
F +IN

TABLE 1

TAVIS DASH NO.	PRESSURE RANGE (PSIA)	PROOF PRESSURE (PSIA)	BURST PRESSURE (PSIA)
-1	0-15	30	>200
-2	0-.174	20	>200

DATE CODE	REV	PART OR IDENTIFICATION NO.	NONCATEGORICAL OR DESCRIPTION	NATIONAL SPECIFICATION	ITEM NO.
001					
PARTS LIST					
VALUES OF OTHERS SPECIFIED DIMENSIONS ARE IN INCHES (DIMENSIONS ARE IN INCHES) CAD GENERATED DRAWING APPROVAL, AUTHORITY NUMBER 003336 STABLE CAD DRAWING FILE NUMBER 10484C.DWG REF. TEMP. REQUIRED ORIGINAL DRAWING					
TAVIS Corporation Malibu, California 90338 OUTLINE & SPECIFICATION PRESSURE TRANSDUCER SIZE: C CASE CODE: 54174 DWG NO.: 10484 SCALE: FULL RELEASE DATE: 84-8-22 SHEET 1 OF 1					

**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?**

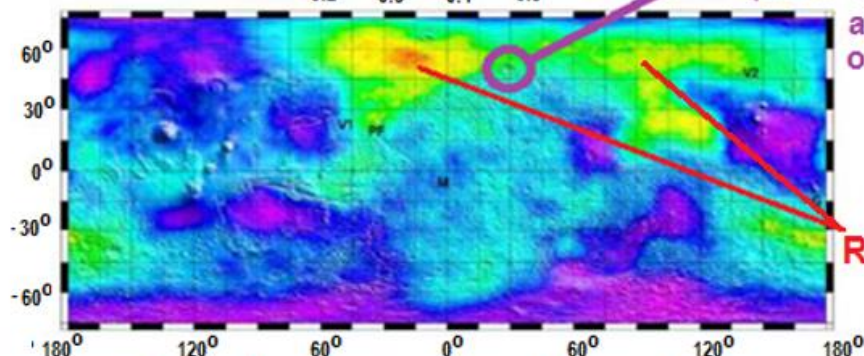
Highest-Resolution View of "Face on Mars"

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



Do radioactive sites on Mars = Disinformation?

Radioactive Potassium - 40 (Percentage by Mass)
(half-life = 1.251 billion years)



Lyot impact crater at 50 North, 29.3 East (330.7 W) is where Brandenburg thinks an asteroid hit that destroyed Martian oceans.



Radioactive Hot Spots



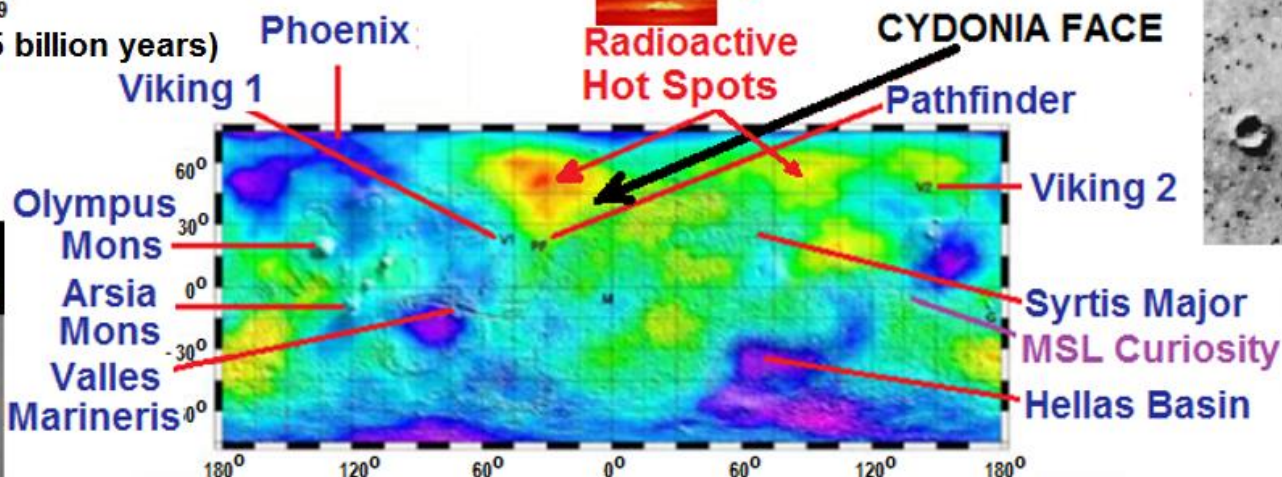
Distribution of radioactive potassium on Mars

Adapted from Brandenburg, 2011 to relate radioactive hot spots to landers that had meteorology instruments, Cydonia "face" and geographic landmarks.

Thorium-232 (part per million)



(half-life = 14.05 billion years)



Radioactive Hot Spots

1976 Viking view



2001 MGS view



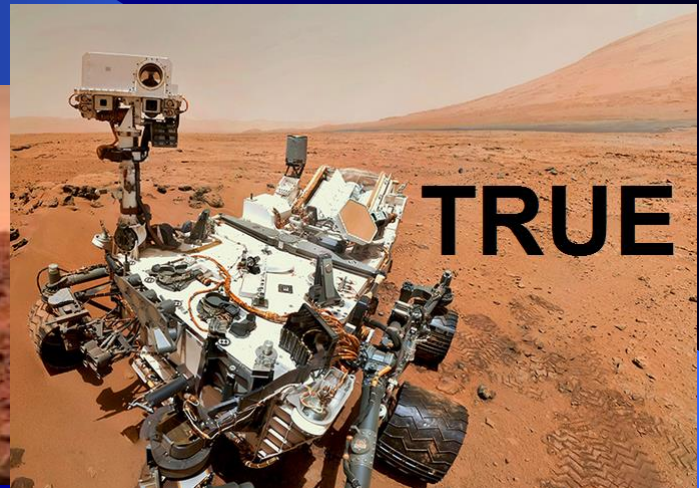
Distribution of Thorium on Mars

1976 Viking view



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.



NASA MONITORS ROFFMAN MARS RESEARCH CONSTANTLY

(Below: Partial list IP addresses 5 to 30 May 2016)

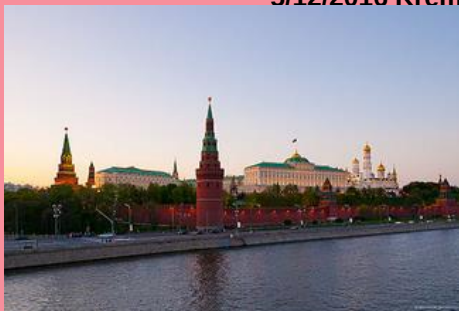
60

128.219.49.13	AS50 Oak Ridge National Laboratory 5/5/2016	http://arkcode.com/photo4_10.html	Mars Base
64.233.172.xxx	Ames AS15169 Google Inc. 5/6/2016	http://marscorrect.com/photo4_5.html	Vaisala sensors used on Phoenix and MSL
66.102.x.xx4	Ames AS15169 Google Inc. 5/10/2016	http://marscorrect.com/photo2.html	Report 2.6 to 4.1
130.206.92.101	Instituto Nacional De Tecnica Aeroespacial (Spanish Space Agency) 5/11/2016	http://davidaroffman.com/photo2_34.html	High and low temperatures vs. daylight hours
66.102.6.xxx	Ames AS15169 Google Inc. 5/12/2016	http://marscorrect.com/photo5_1.html	Wind booms and disinformation
130.206.92.101	Instituto Nacional De Tecnica Aeroespacial (Spanish Space Agency) 5/13/2016	http://davidaroffman.com/photo2_34.html	High and low temperatures vs. daylight hours
66.102.6.xxx	Ames AS15169 Google Inc. 5/14/2016	http://davidaroffman.com/photo4_9.html	Desai's challenge on atmospheric models
66.102.9.xxx	Ames AS15169 Google Inc. 5/16/2016	http://davidaroffman.com/custom3_35.html	Viking 1 and Viking 2 pressure and temperature changes (time bins 0.26 to 0.3 and 0.3 to 0.34)
131.176.243.12	AS 288 European Space Agency (ESA) 5/18/2016	http://davidaroffman.com/rich_text_9.html	MOLA Alitude on Mars
66.102.2.xxx	Ames AS15169 Google Inc. 5/24/2016	http://davidaroffman.com/custom3_50.html	Relative humidity
66.102.2.xxx	Ames AS15169 Google Inc. 5/27/2016	http://davidaroffman.com/photo2_7.html	Mars MAVEN
130.206.92.100	Instituto Nacional De Tecnica Aeroespacial (Spanish Space Agency) 5/30/2016	http://davidaroffman.com/custom3_13.html	Chapt Charac Capac



SO DOES THE KREMLIN - Here is a partial list of Russian IP addresses for 12-29 May 2016. They wouldn't bother if we are wrong.

193.232.27.101	5/12/2016 05:23:56 MST7MDT IP ROSNIIROS Russian Institute for Public Networks AS3218 Space Research Institute of Russian Academy of Science	http://marscorrect.com/photo5.html	Annex G of Report - Tavid Sensor Suspicious
176.195.117.205	5/12/2016 Kremlin AS12714 Net By Net Holding LLC	http://davidaroffman.com/photo2_16.html	Organic chemicals found on Mars
176.77.71.67	5/12/2016 Kremlin AS12714 Net By C	http://davidaroffman.com/photo4_14.html	MSL initial analysis shows another clogged filter
109.252.52.23	lin AS25513 Moscow network	http://davidaroffman.com/photo4_24.html	Dust storm nonsense
176.195.102.34	lin AS12714 Net By C	http://davidaroffman.com/photo4_14.html	MSL initial analysis shows another clogged filter
176.193.97.217	lin AS12714 Net By Net Holding LLC	http://davidaroffman.com/custom3_1.html	Frontiers in Propulsion Science Home
46.242.30.103	5/28/2016 Kremlin AS42610 PJSC Rostelecom	http://davidaroffman.com/custom3_20.html	Extracting energy from the Quantum Vacuum
5.228.17.50	5/29/2016 Kremlin AS42610 PJSC Rostelecom	http://davidaroffman.com/photo2_4.html	Proof Viking Sensors failed
176.77.8.23	5/29/2016 Kremlin AS12714 Net By Net Holding LLC	http://davidaroffman.com/photo4_9.html	Parachutes and EDL
109.173.59.148	5/29/2016 Kremlin AS42610 PJSC Rostelecom	http://davidaroffman.com/custom3_14.html	Inertial Mass from Stochastic Electrodynamics
95.221.243.165	5/29/2016 Kremlin AS12714 Net By Net Holding LLC	http://davidaroffman.com/photo4_9.html	Parachutes and EDL
	5/29/2016 Kremlin Beeline AS8402 OJSC Vimpelcom	http://davidaroffman.com/photo2_4.html	Proof Viking Sensors failed



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/12%20May%202017%20Mars%20Correct%20Basic%20Report.pdf>