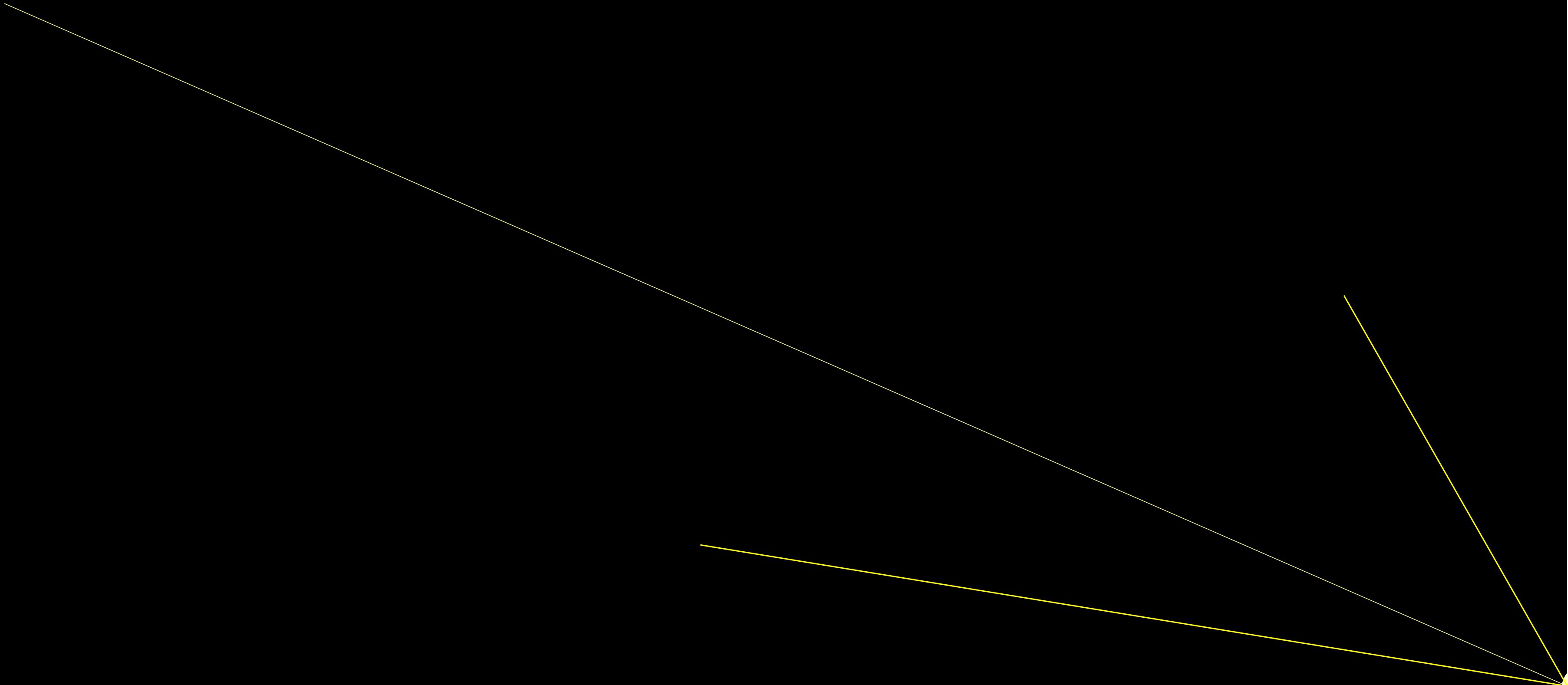

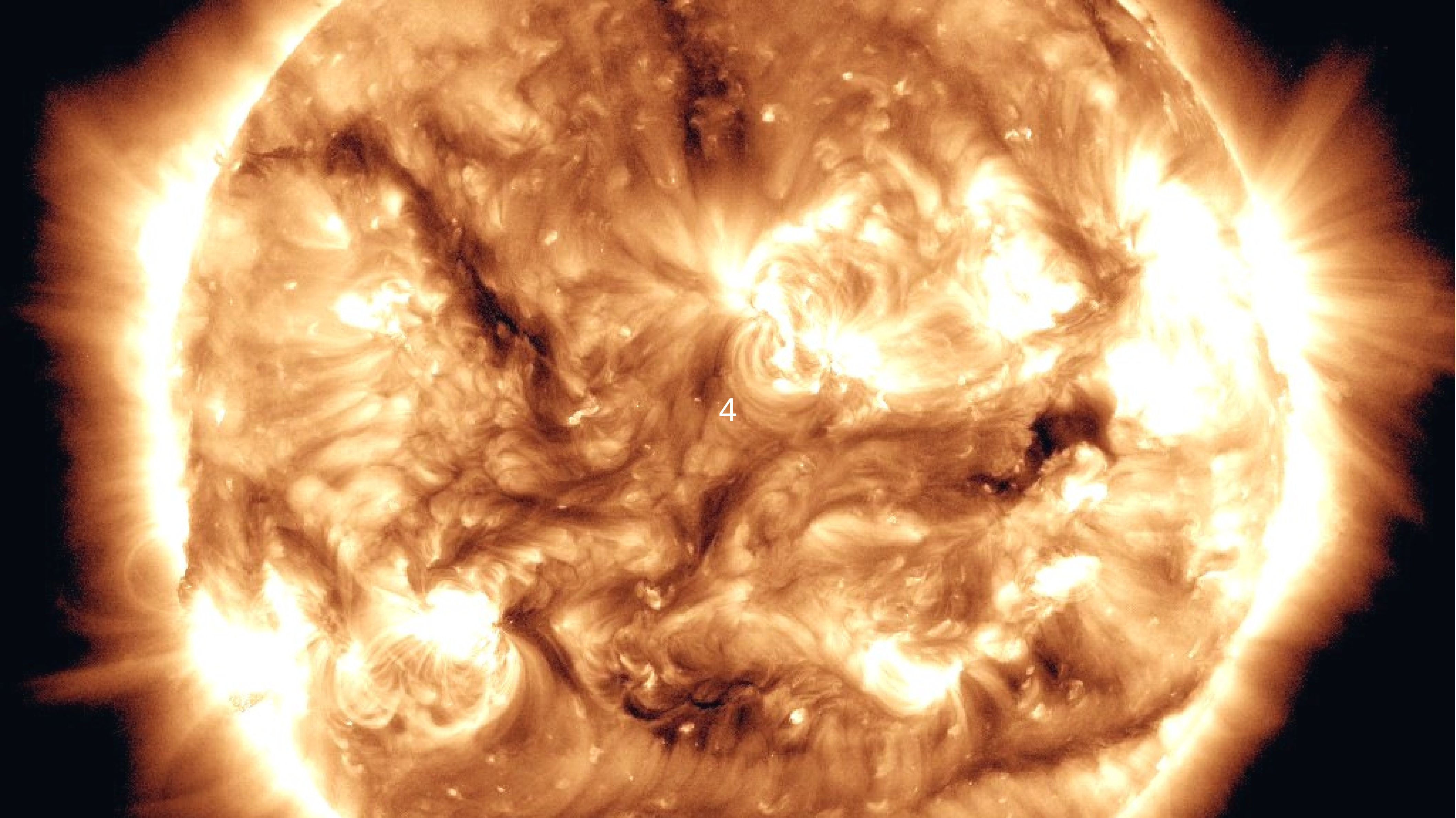

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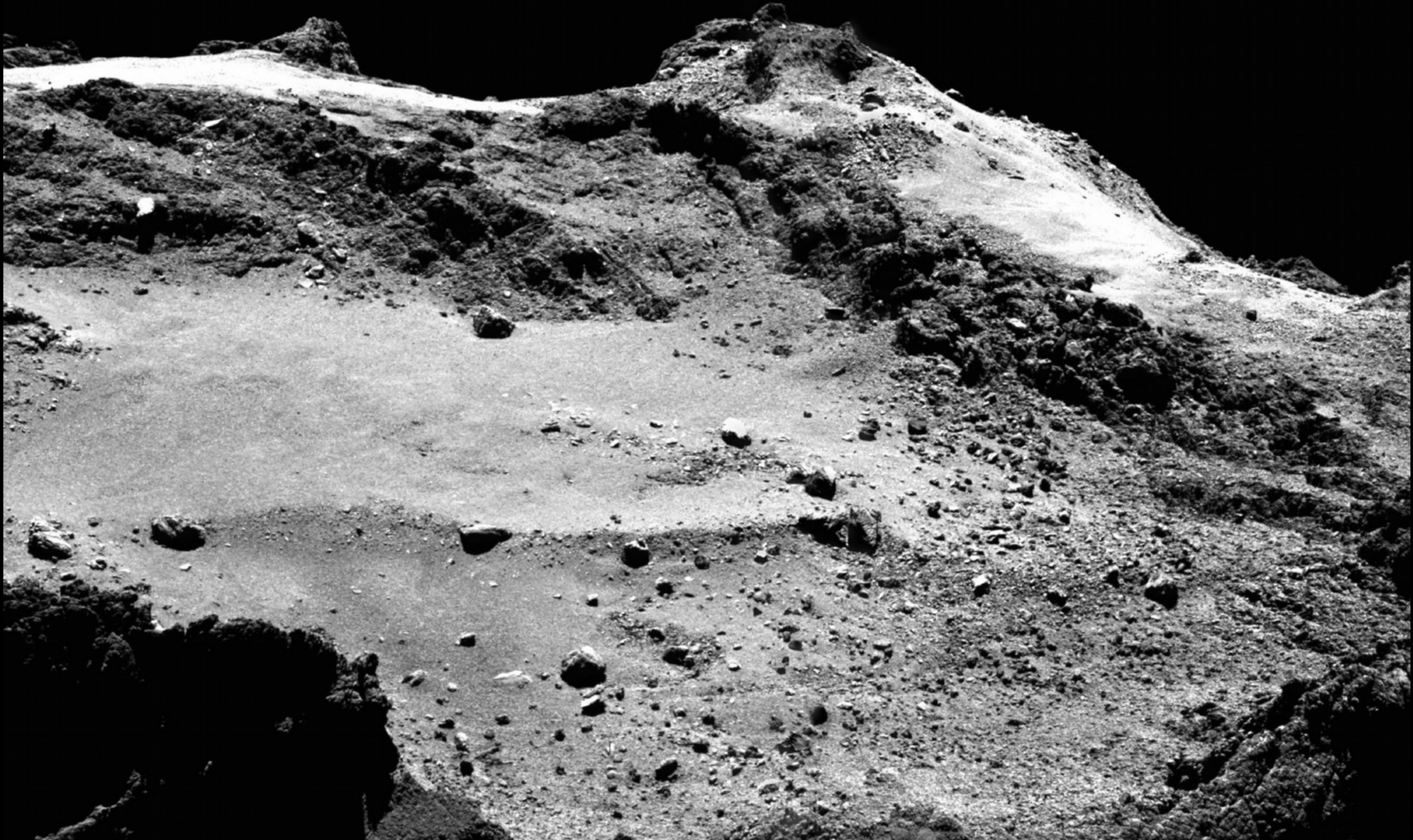
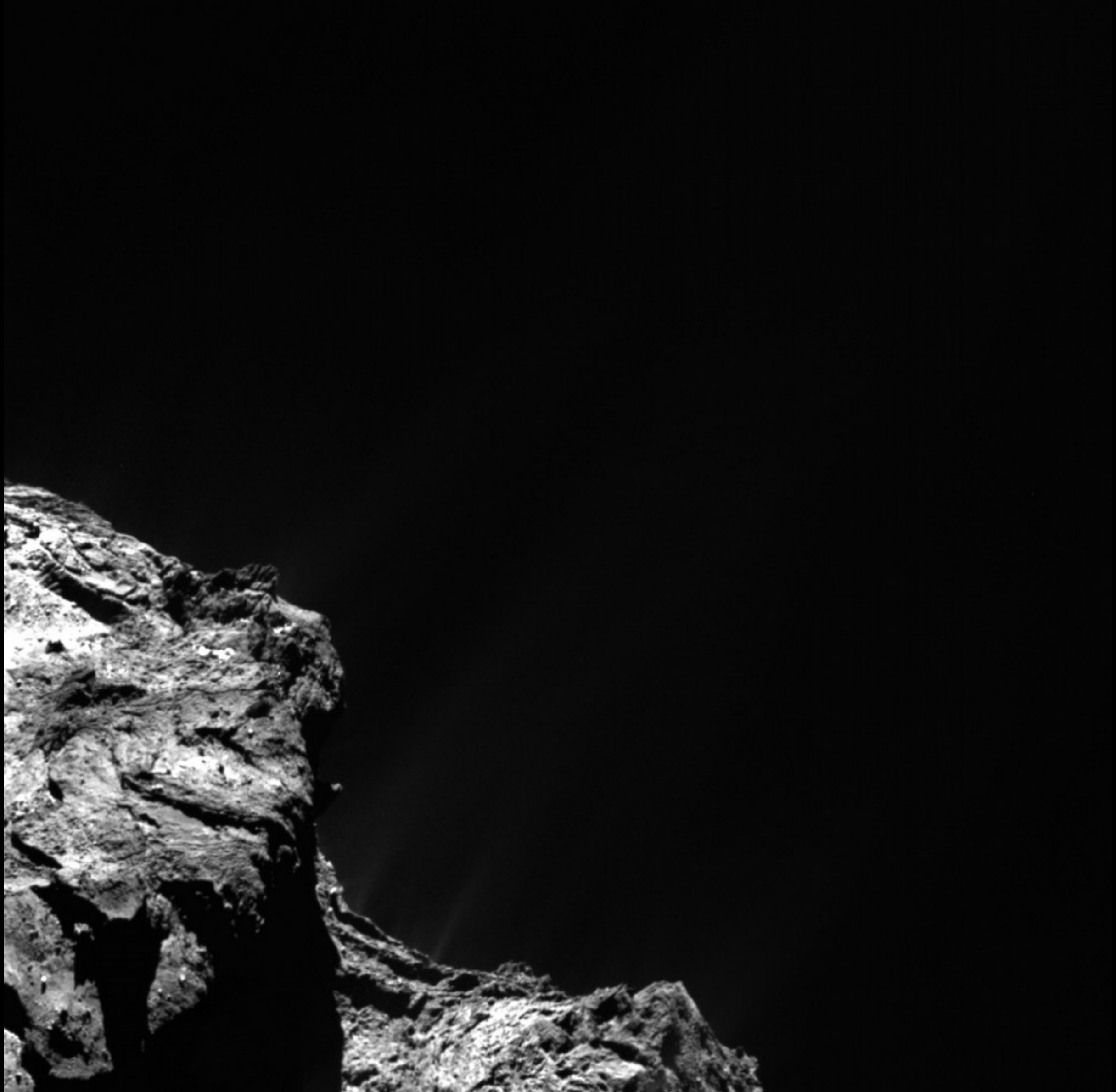
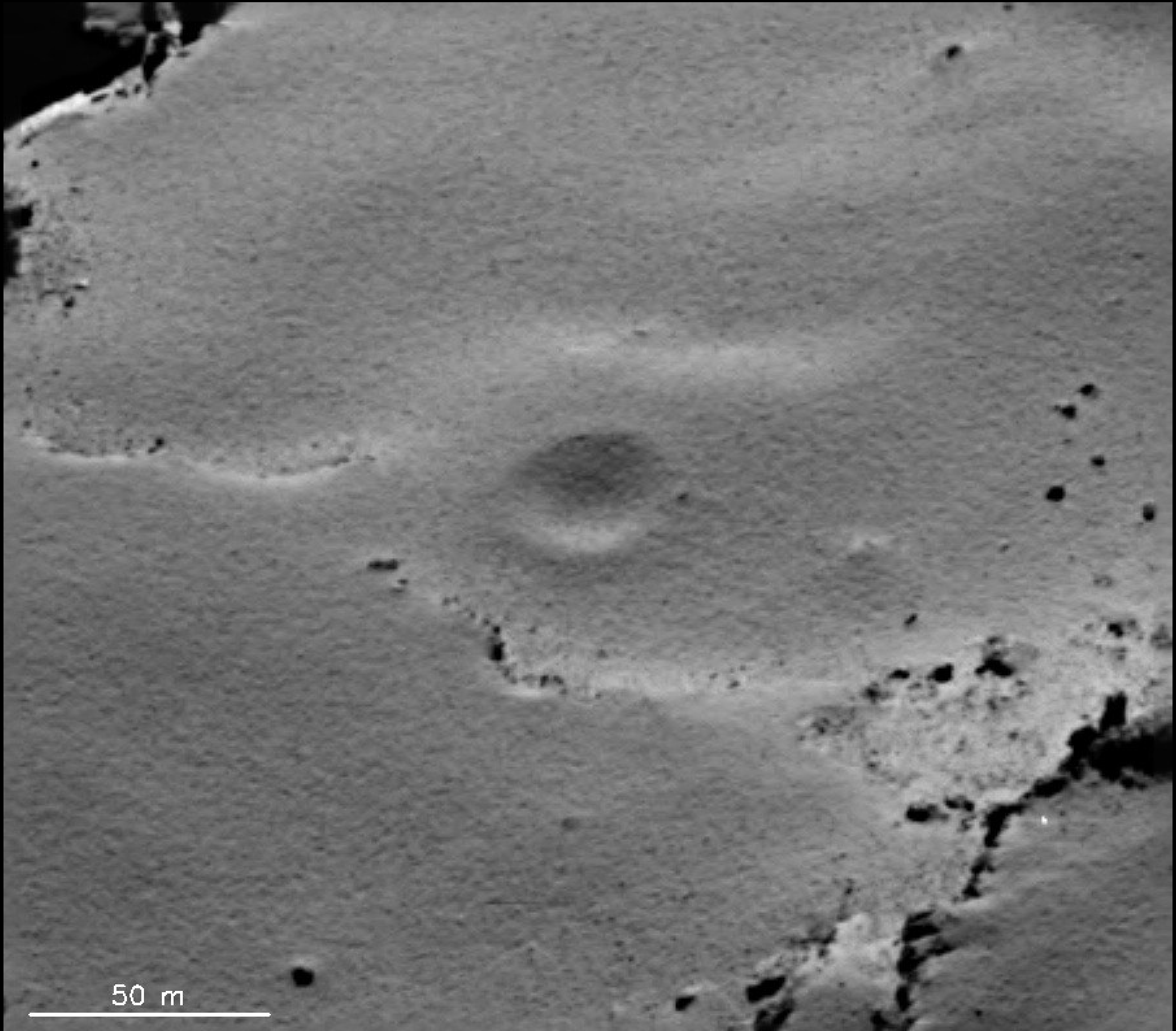
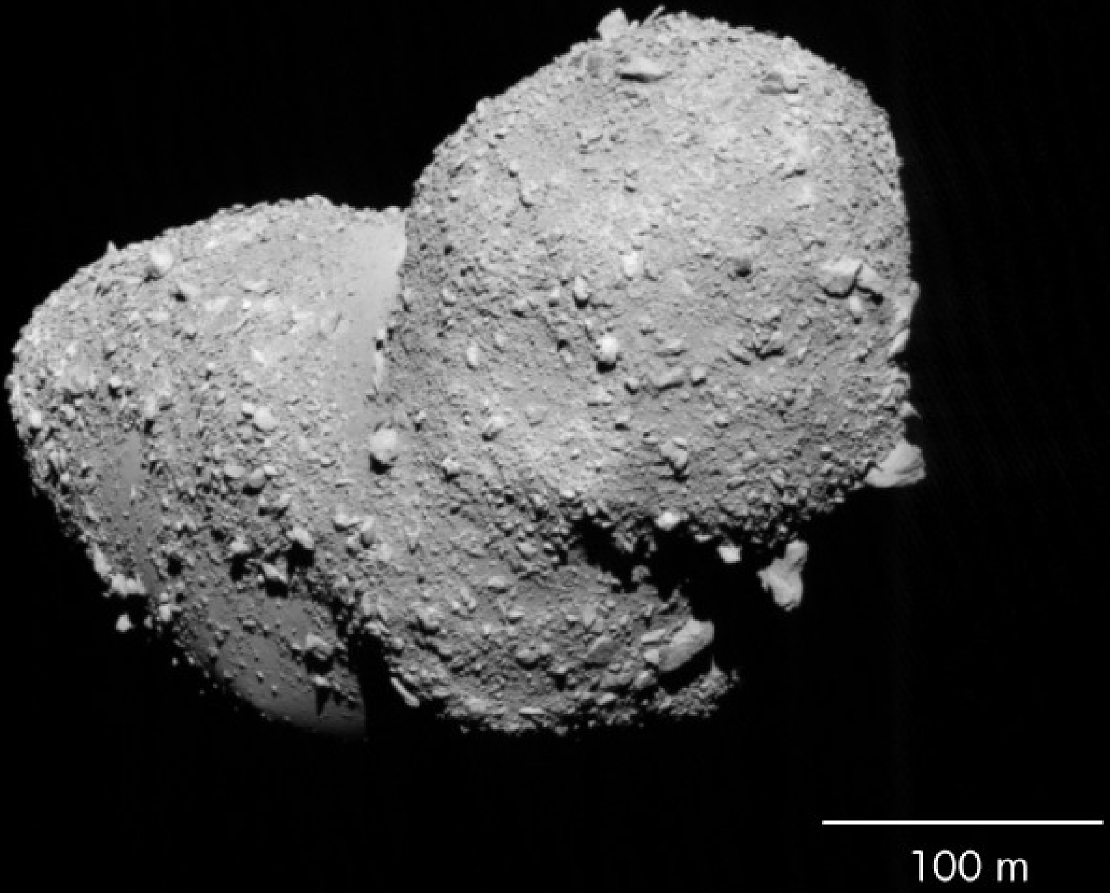


Merci à Pierre Thomas




50 m


100 m

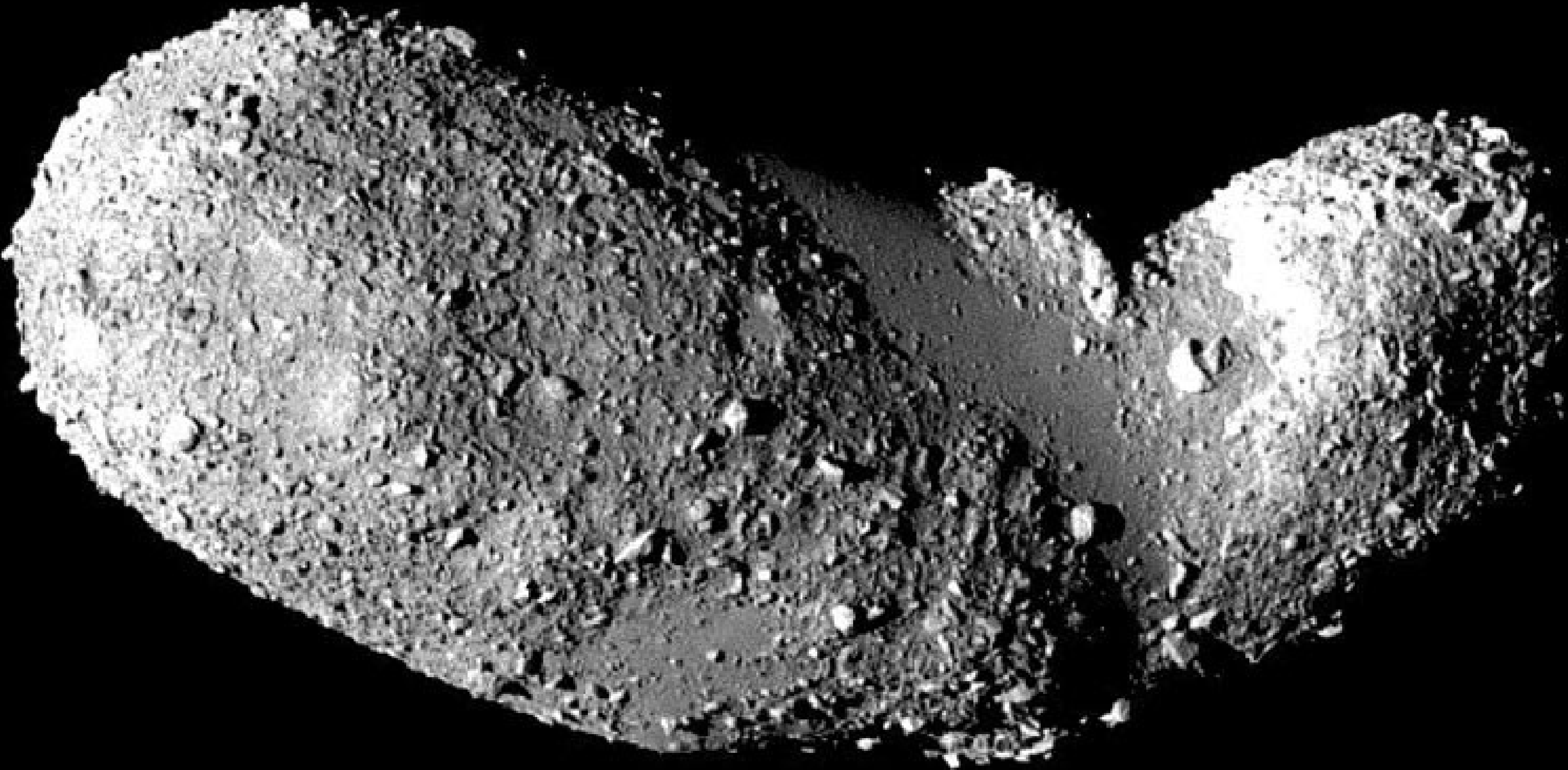
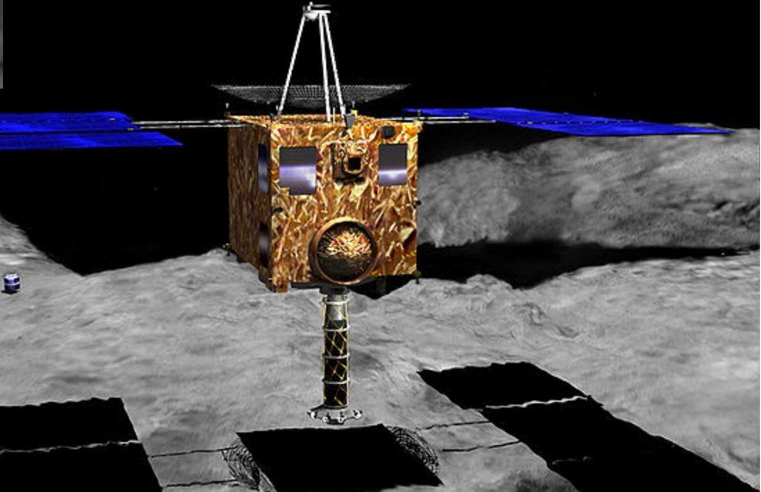
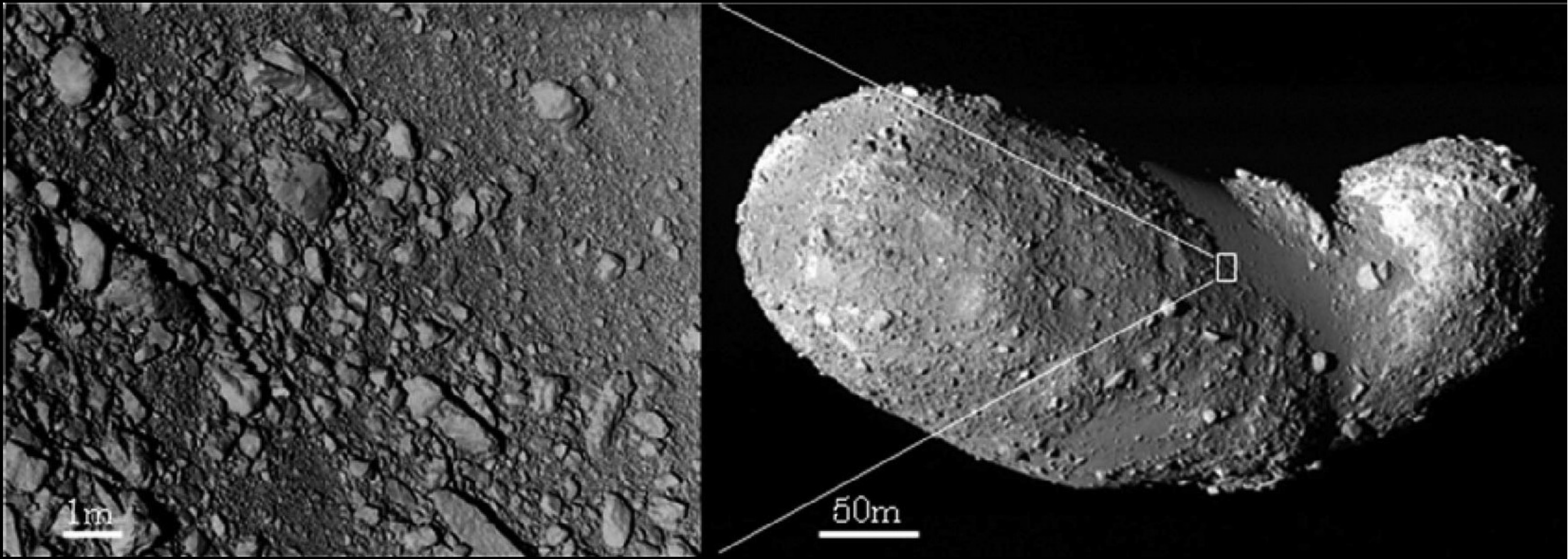


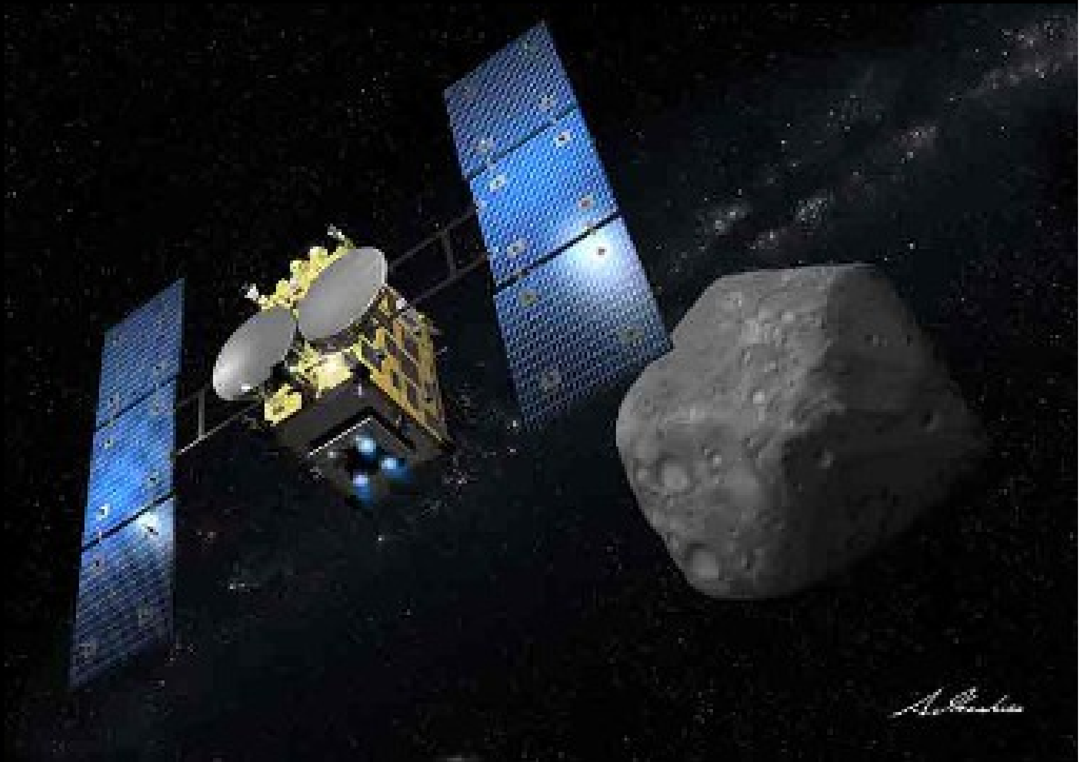
image by ISAS/JAXA

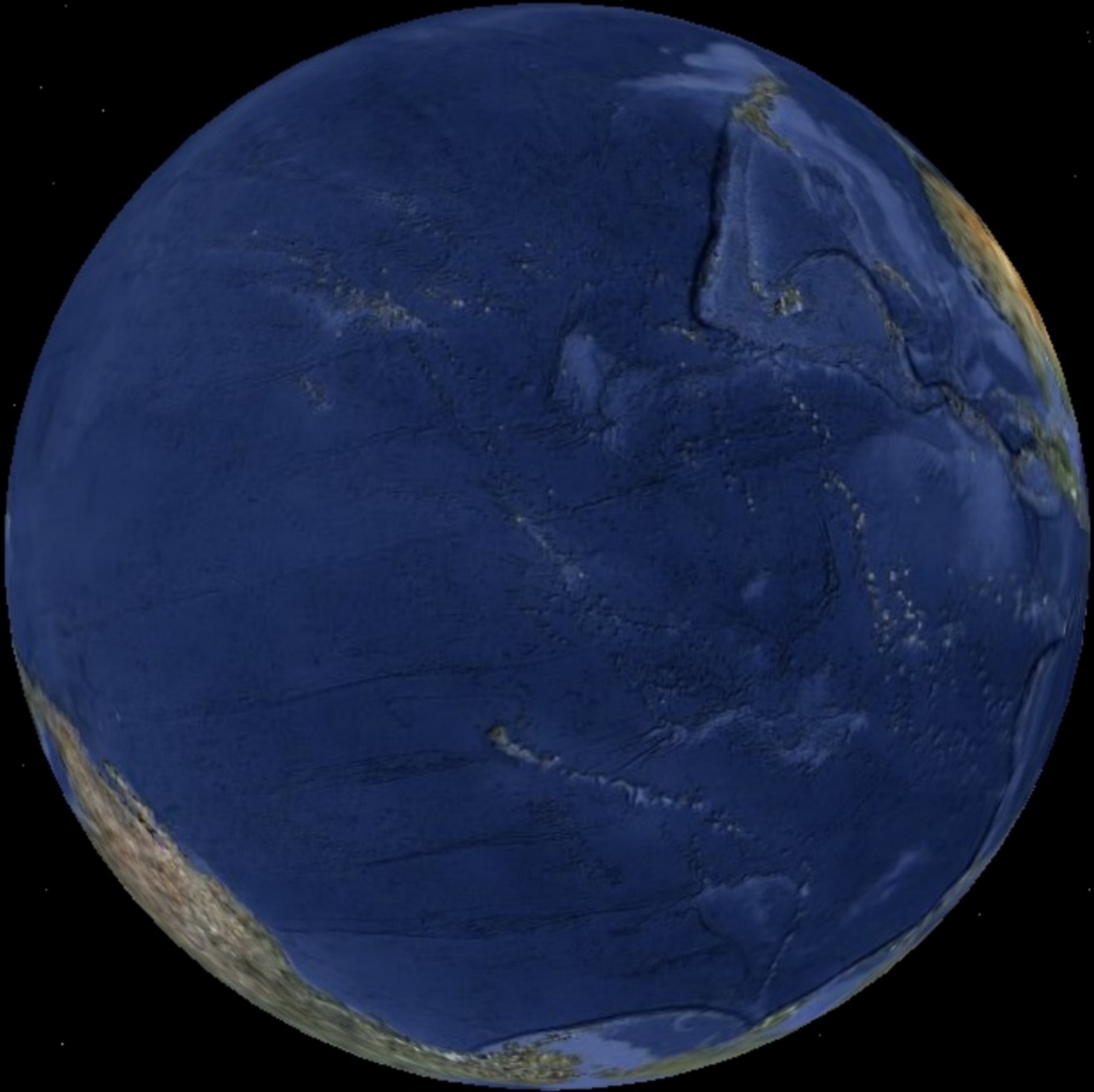


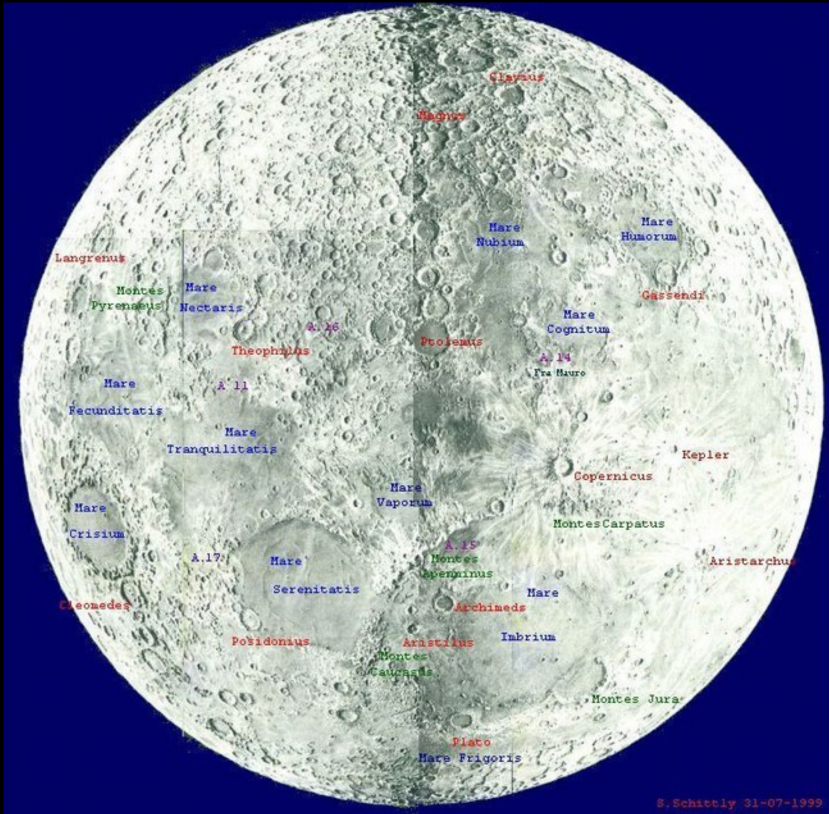

1m
50m

162173 (1999) JU3

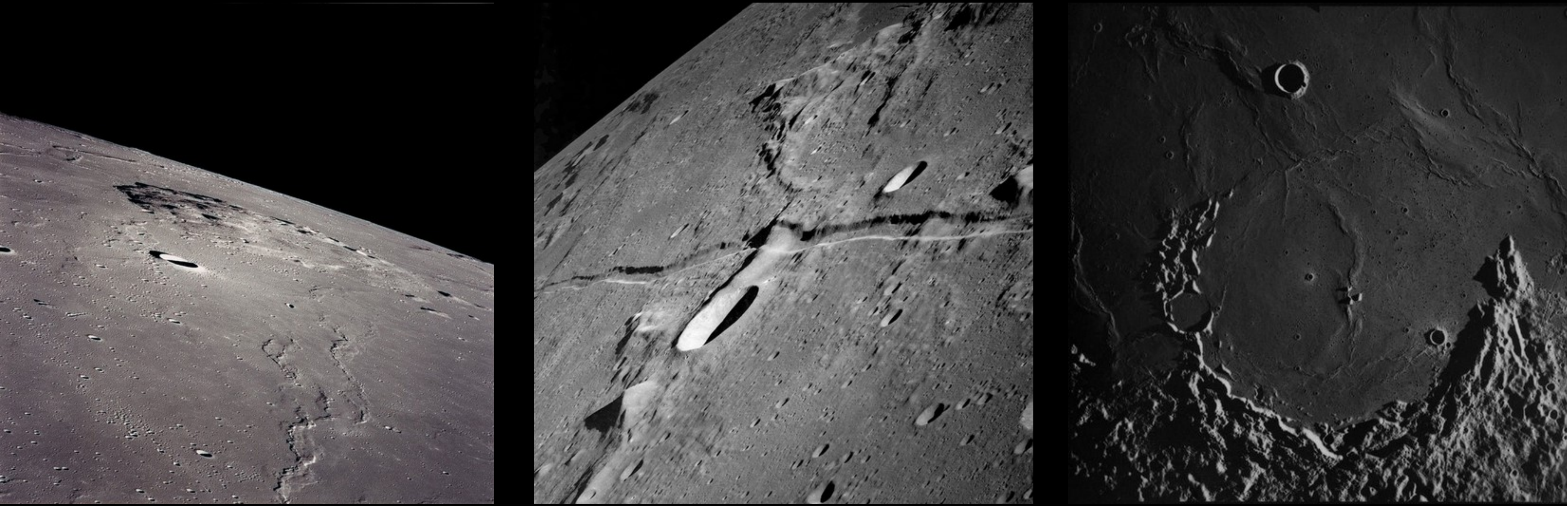
Sold out / Épuisé






Clavius
Magnus
Mare Nubium
Mare Humorum
Langrenus
Montes Pyrenaeus
Mare Nectaris
Gassendi
Mare Cognitum
A.16
Theophilus
Ptolemus
A.14
Fra Mauro
Mare Fecunditatis
A 11
Mare Tranquilitatis
Kepler
Copernicus
Mare Vaporum
Mare Crisium
MontesCarpatus
A.15
A.17
Mare Serenitatis
Montes Apenninus
Aristarchus
Mare Imbrium
Archimeds
Cleomedes
Posidonius
Aristilus
Montes Caucasus
Montes Jura
Plato
Mare Frigoris
S.Schittly 31-07-1999

23

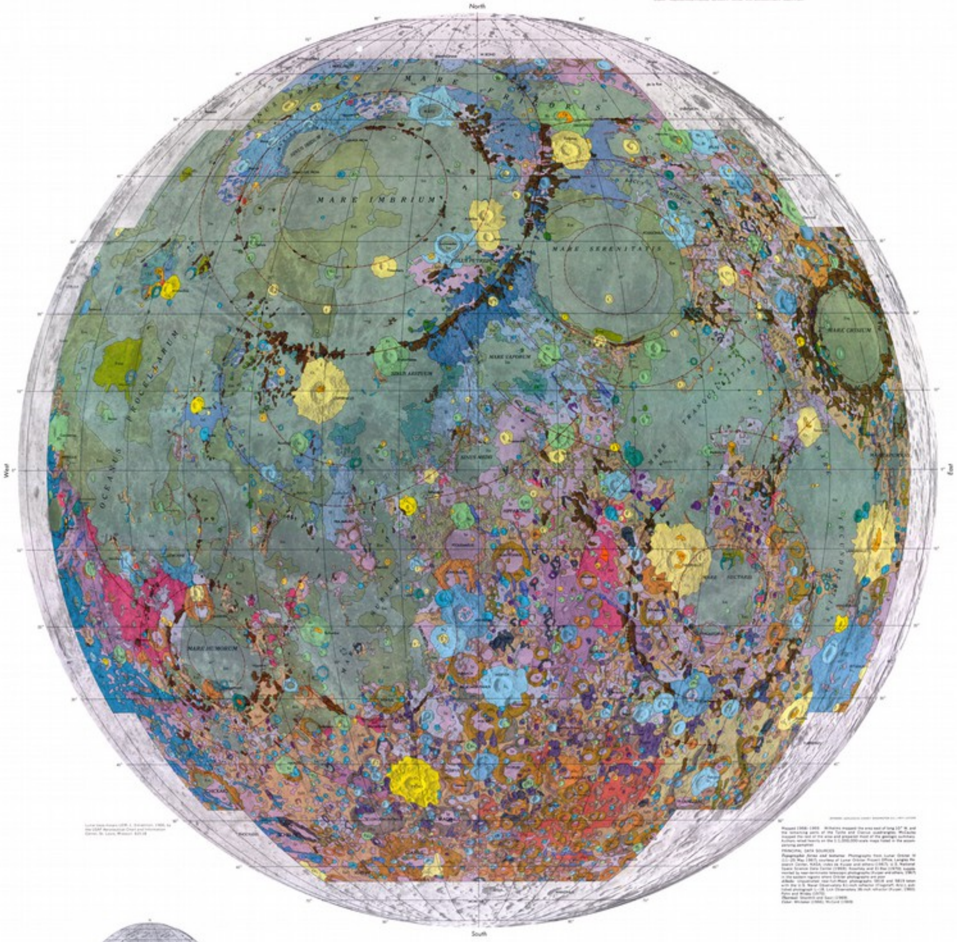


DEPARTMENT OF THE INTERIOR
UNITED STATES GEOLOGICAL SURVEY

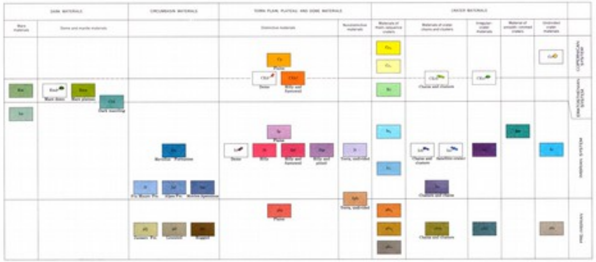
PREPARED ON BEHALF OF THE
NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
AND IN COOPERATION WITH THE
USAF AERONAUTICAL CHART AND INFORMATION CENTER

GEOLOGIC ATLAS OF THE MOON
NEAR SIDE OF THE MOON
I-703

GEOLOGIC SUMMARY


North
South
West
East
MARE FRIGORIS
MARE IMBRIUM
MARE SERENITATIS
MARE CRISIUM
MARE VAPORUM
MARE TRANQUILLITATIS
OCEANUS PROCELLARUM
SINUS MEDII
MARE NECTARIS
MARE HUMORUM

EXPLANATION



DESCRIPTION OF UNITS

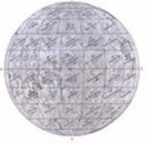
DARK MATERIALS

TERRA PLAIN, PLATEAU, AND DOME MATERIALS

CIRCUMBASIN MATERIALS

CRATER MATERIALS

NOTES TO DESCRIPTION OF UNITS



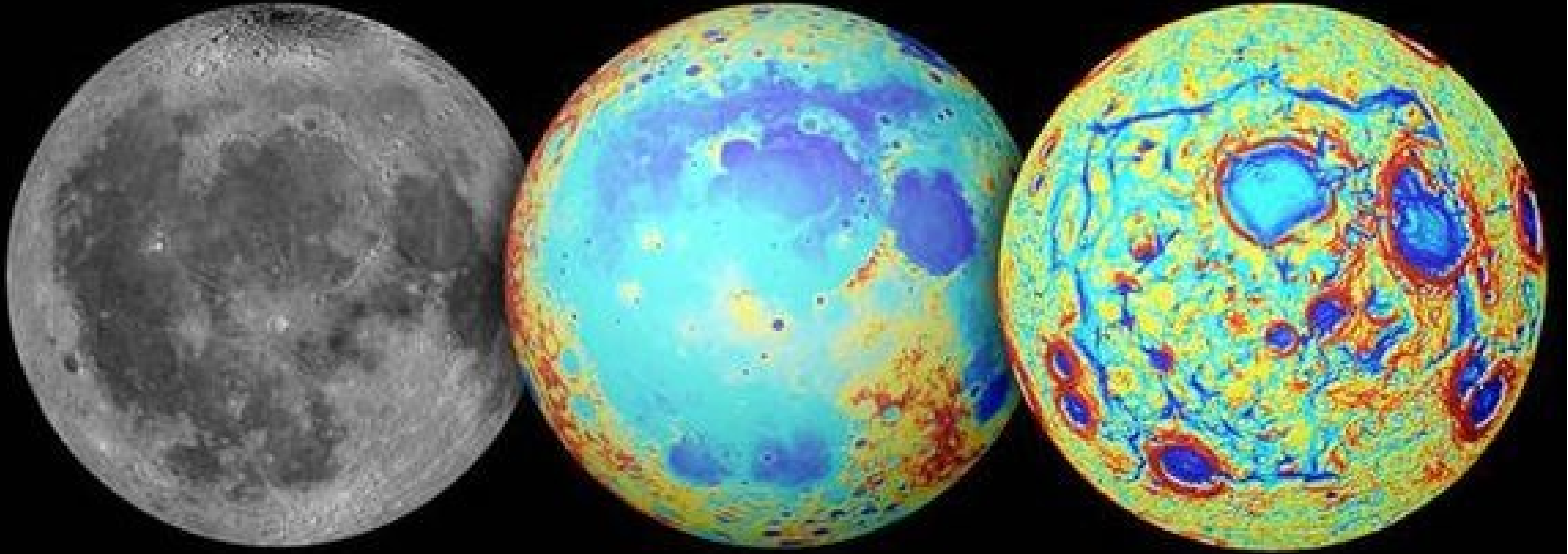
INDEX MAP OF THE NEAR SIDE OF THE MOON

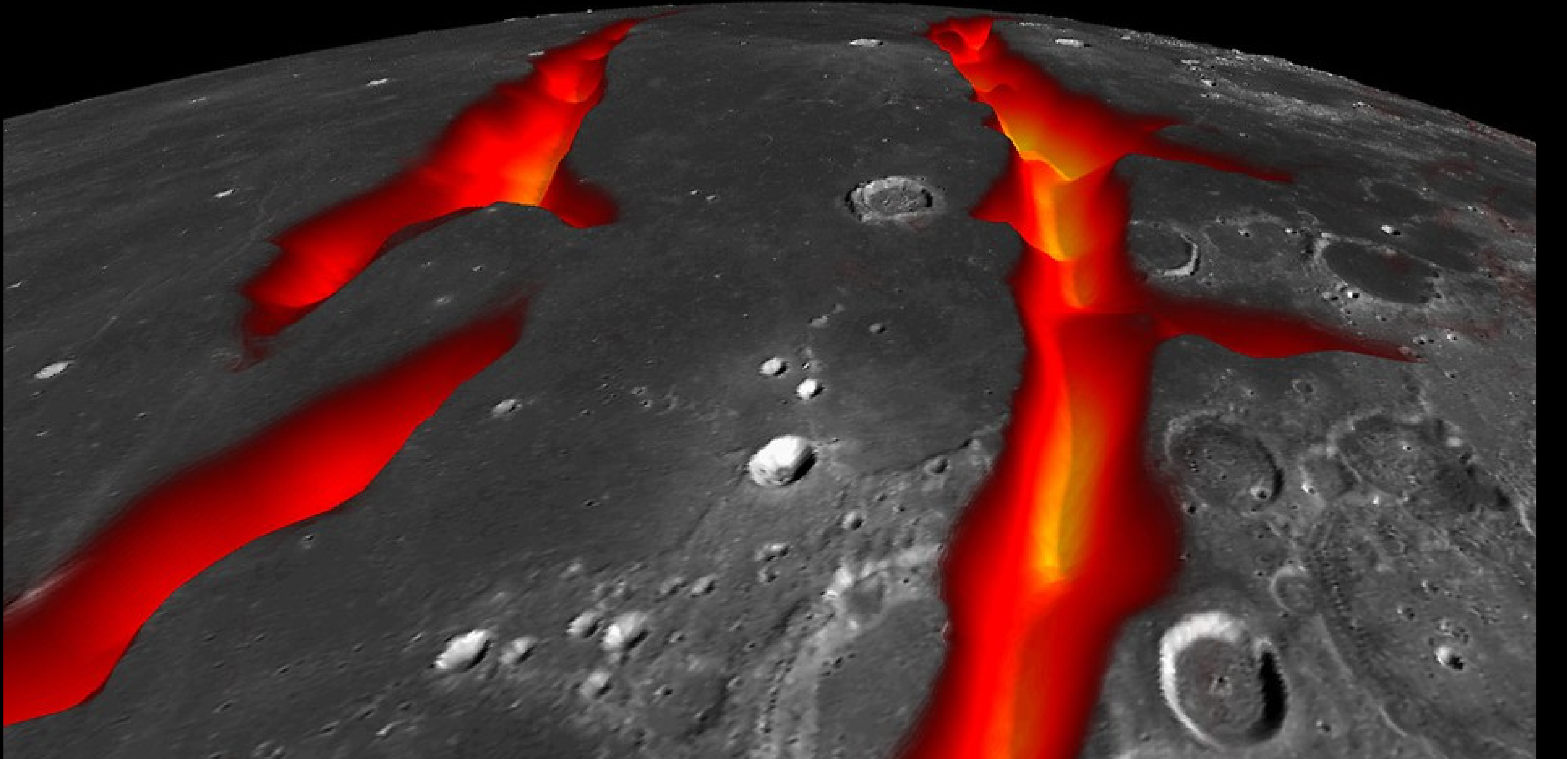
GEOLOGIC MAP OF THE NEAR SIDE OF THE MOON

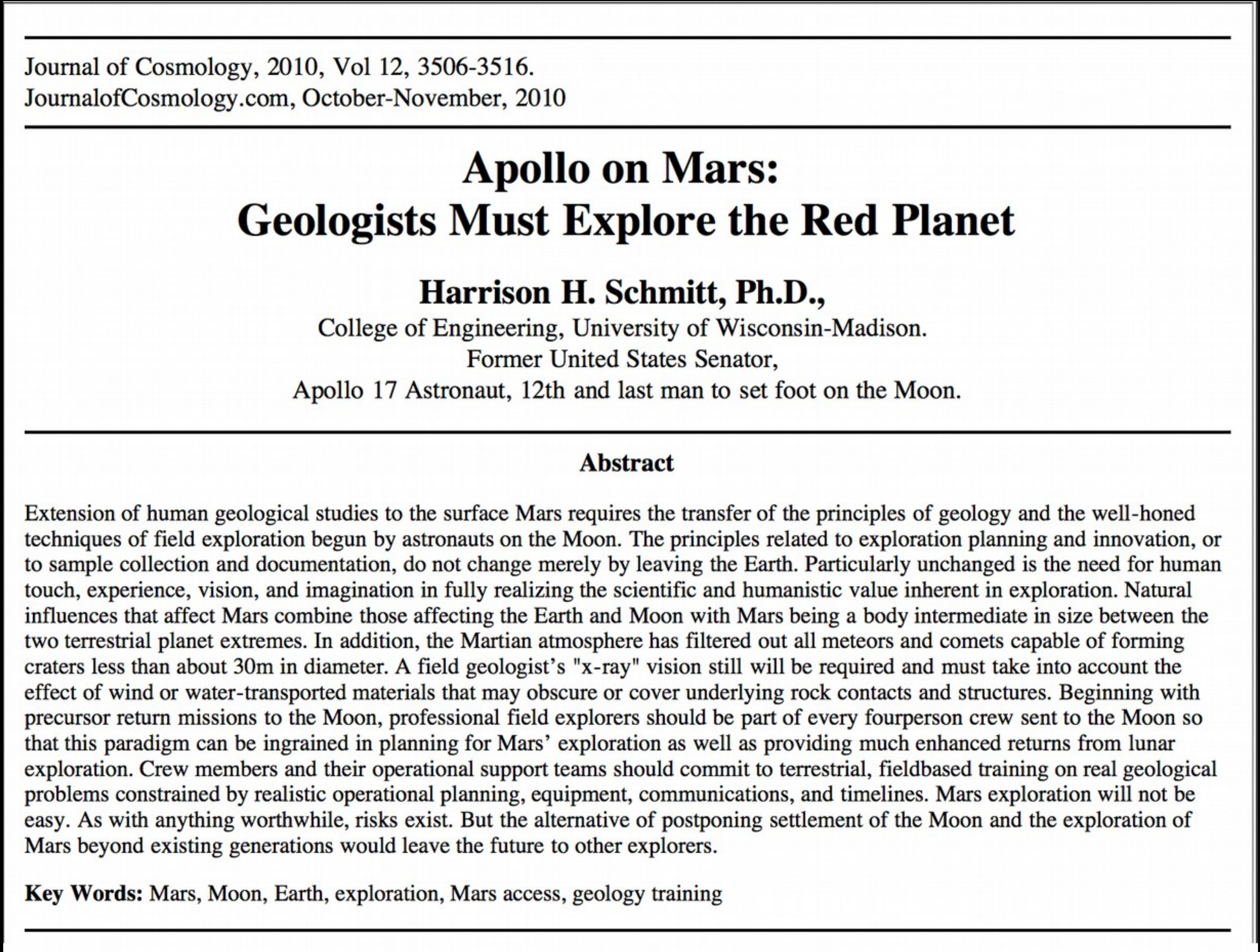
By

Don E. Wilhelms and John F. McCauley

1971







Journal of Cosmology, 2010, Vol 12, 3506-3516.
JournalofCosmology.com, October-November, 2010

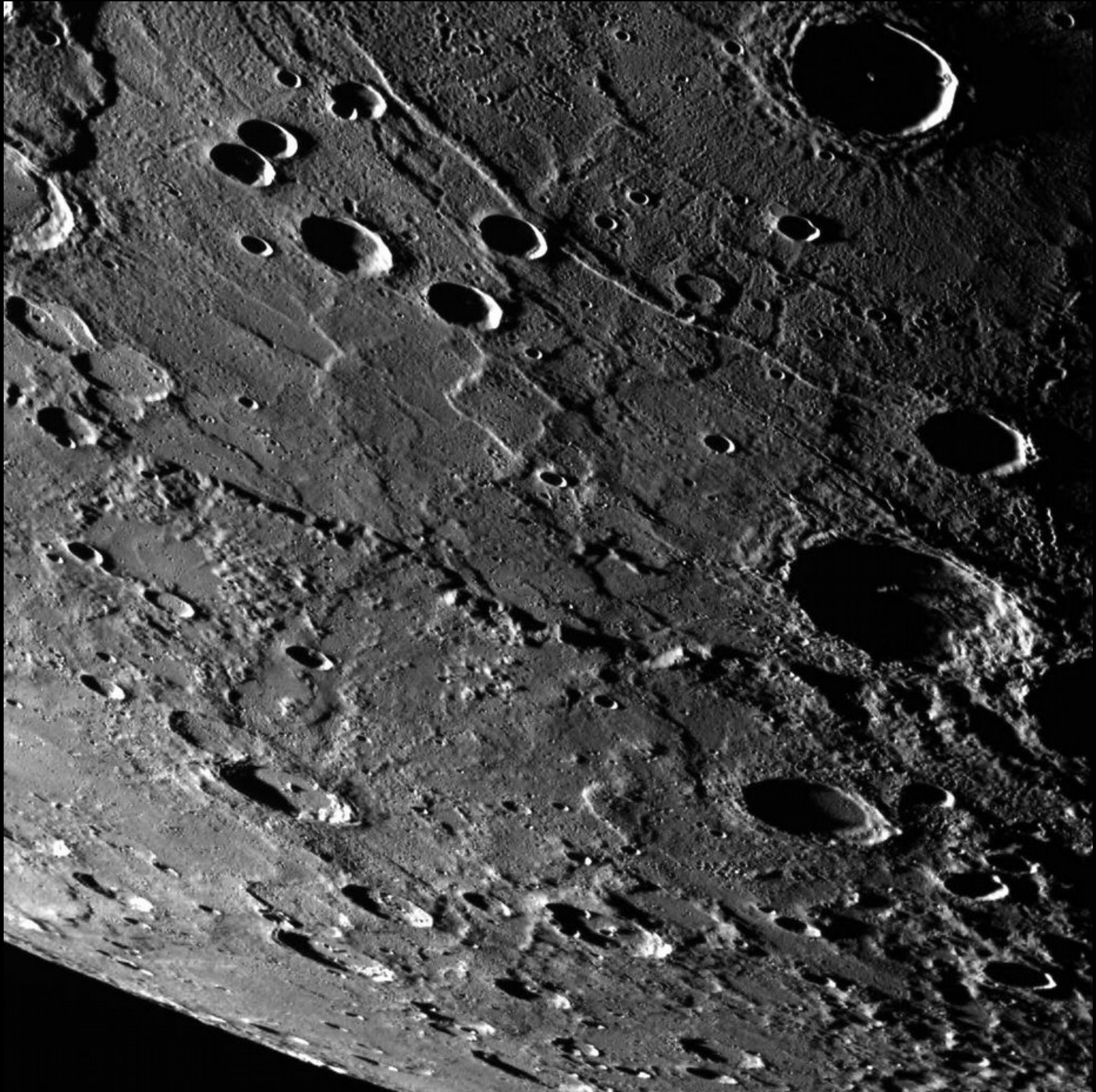
Apollo on Mars: Geologists Must Explore the Red Planet

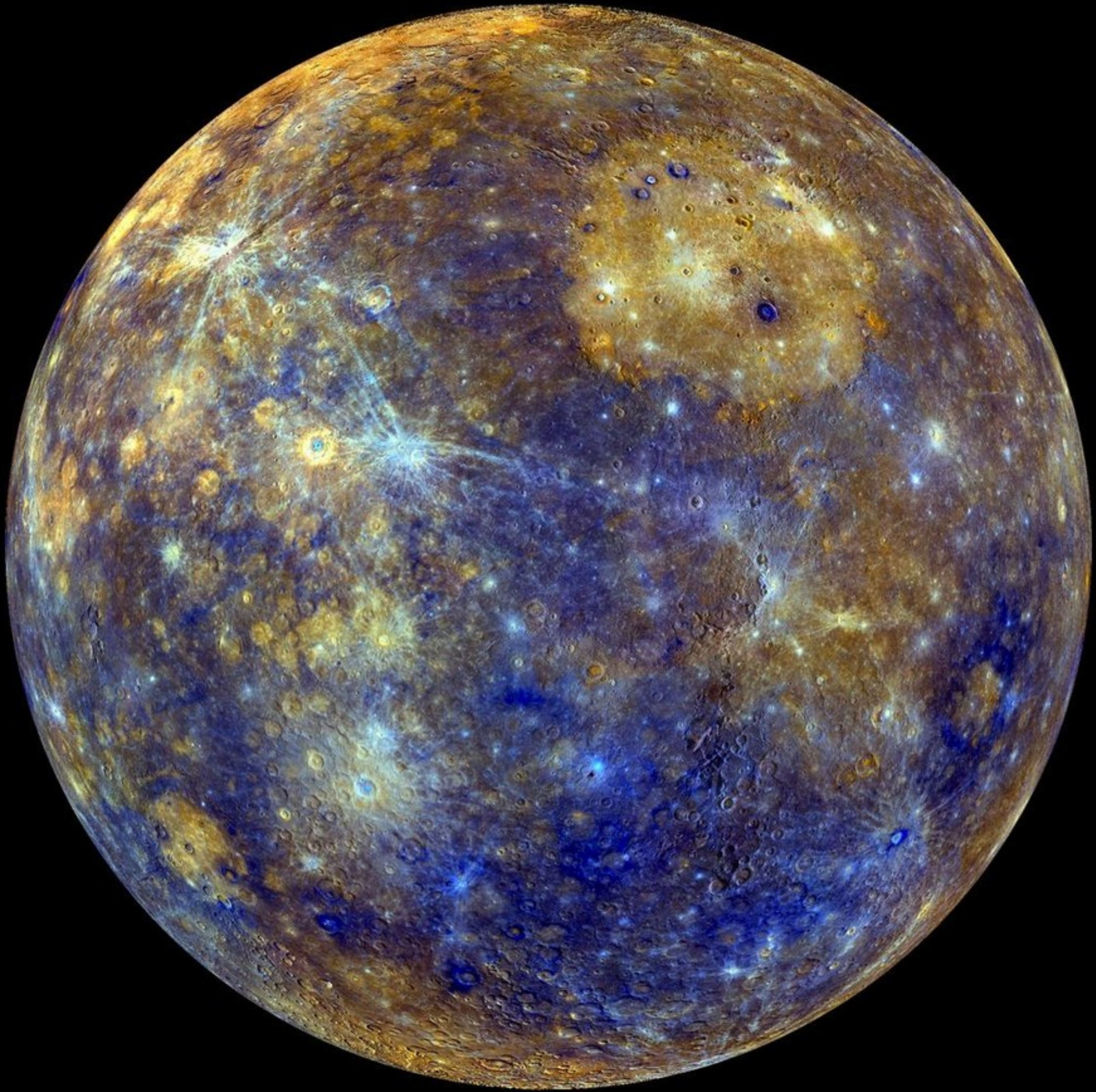
Harrison H. Schmitt, Ph.D.,
College of Engineering, University of Wisconsin-Madison.
Former United States Senator,
Apollo 17 Astronaut, 12th and last man to set foot on the Moon.

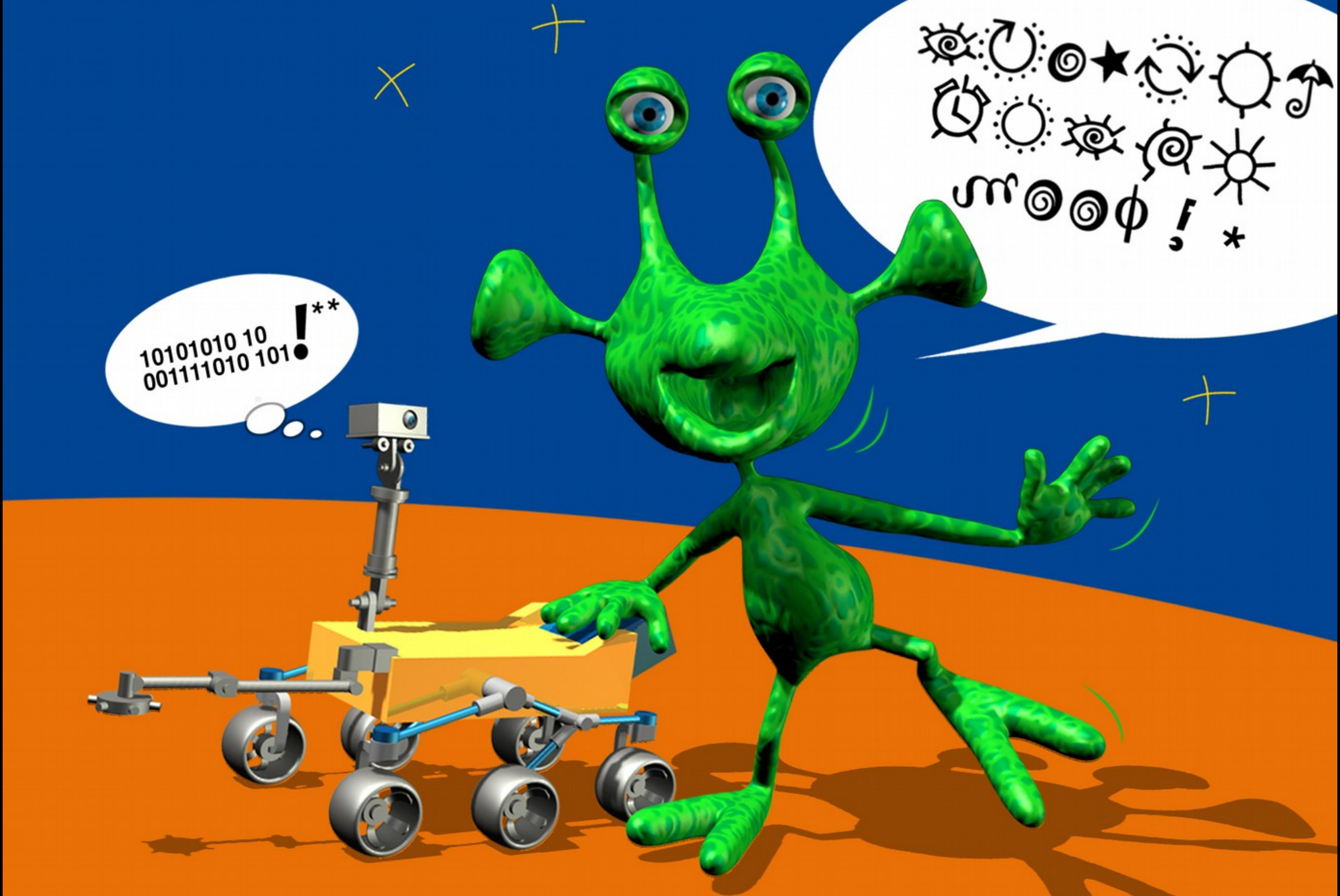
Abstract

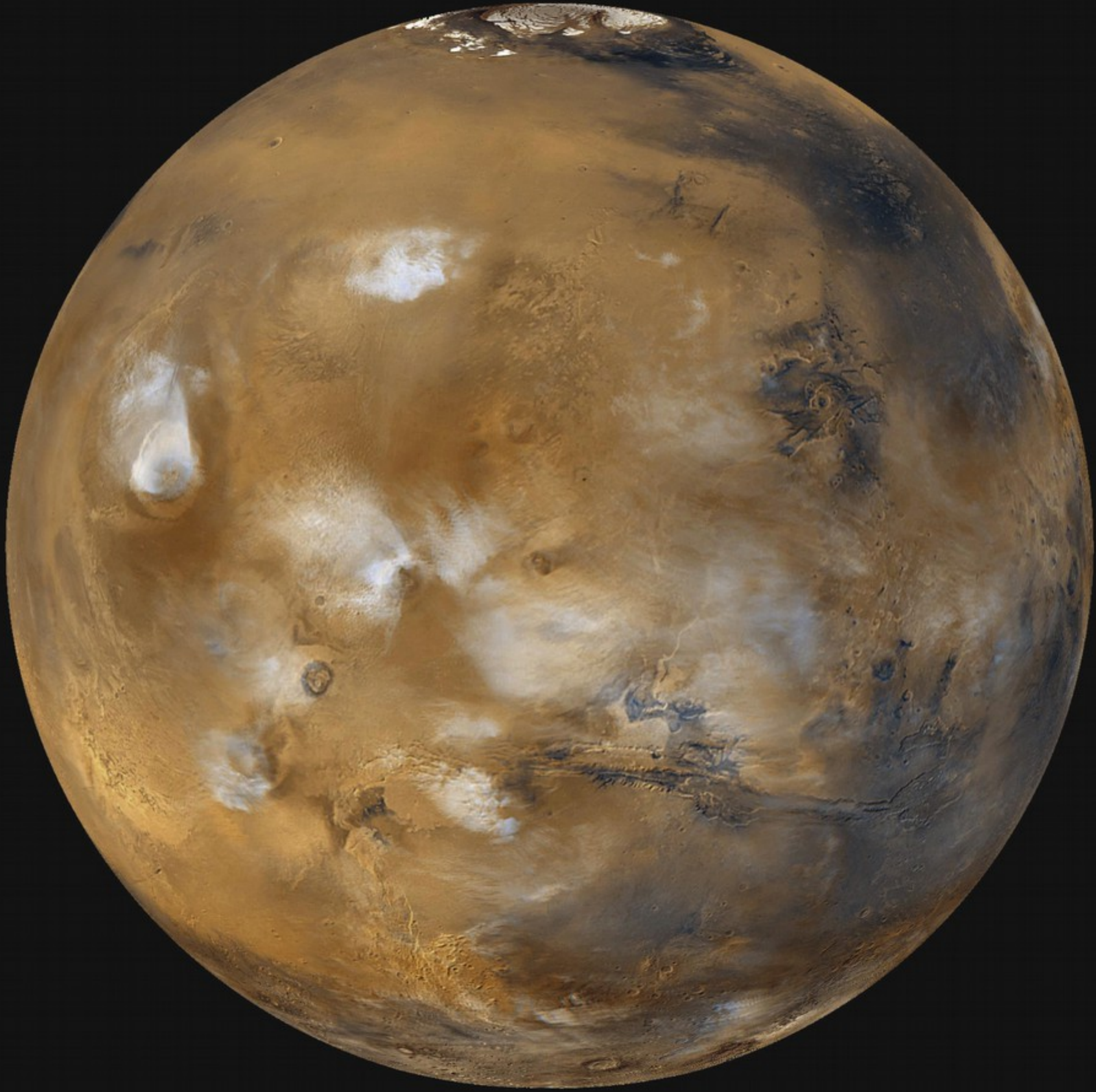
Extension of human geological studies to the surface Mars requires the transfer of the principles of geology and the well-honed techniques of field exploration begun by astronauts on the Moon. The principles related to exploration planning and innovation, or to sample collection and documentation, do not change merely by leaving the Earth. Particularly unchanged is the need for human touch, experience, vision, and imagination in fully realizing the scientific and humanistic value inherent in exploration. Natural influences that affect Mars combine those affecting the Earth and Moon with Mars being a body intermediate in size between the two terrestrial planet extremes. In addition, the Martian atmosphere has filtered out all meteors and comets capable of forming craters less than about 30m in diameter. A field geologist's "x-ray" vision still will be required and must take into account the effect of wind or water-transported materials that may obscure or cover underlying rock contacts and structures. Beginning with precursor return missions to the Moon, professional field explorers should be part of every fourperson crew sent to the Moon so that this paradigm can be ingrained in planning for Mars' exploration as well as providing much enhanced returns from lunar exploration. Crew members and their operational support teams should commit to terrestrial, fieldbased training on real geological problems constrained by realistic operational planning, equipment, communications, and timelines. Mars exploration will not be easy. As with anything worthwhile, risks exist. But the alternative of postponing settlement of the Moon and the exploration of Mars beyond existing generations would leave the future to other explorers.

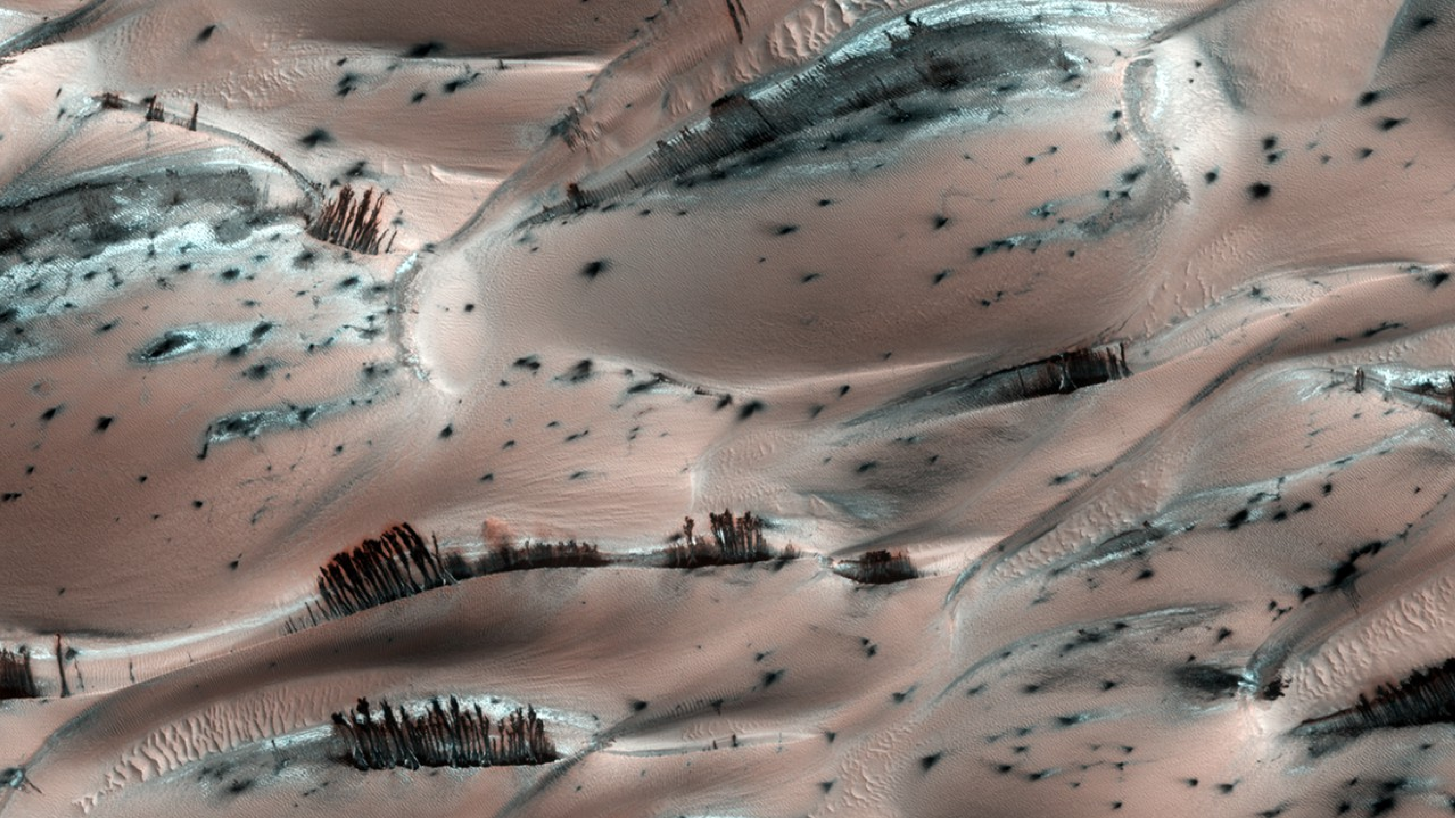
Key Words: Mars, Moon, Earth, exploration, Mars access, geology training



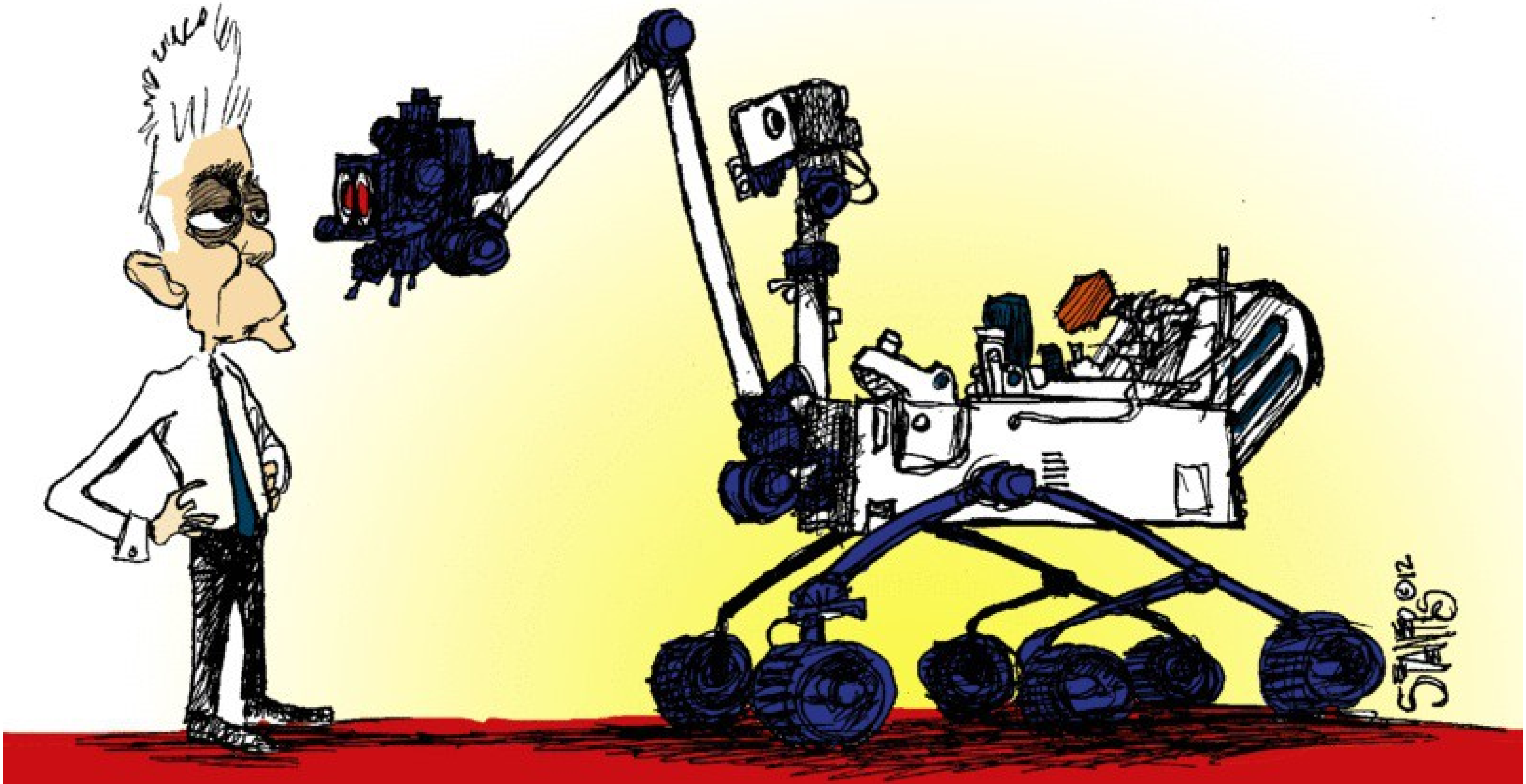


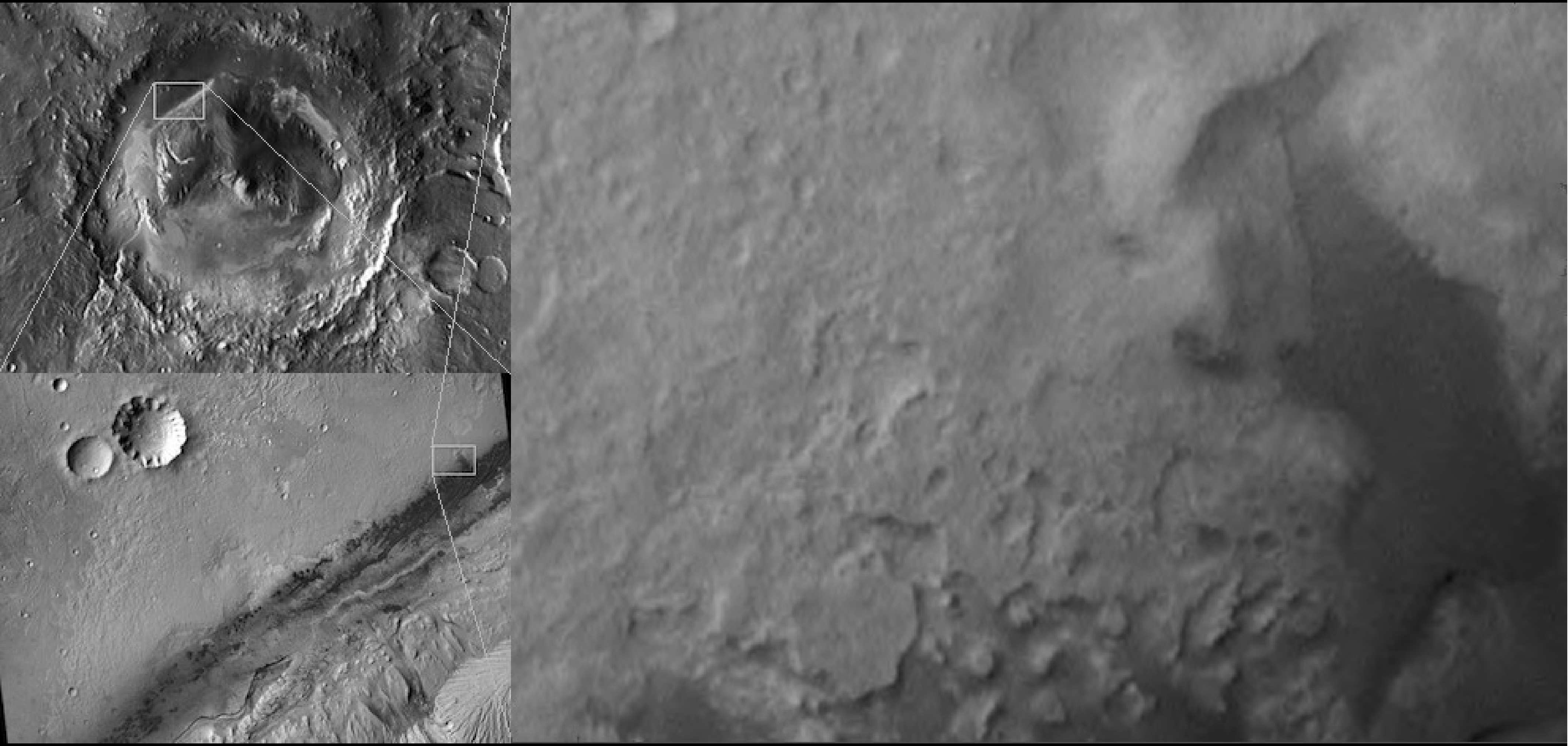

10101010 10
001111010 101!**

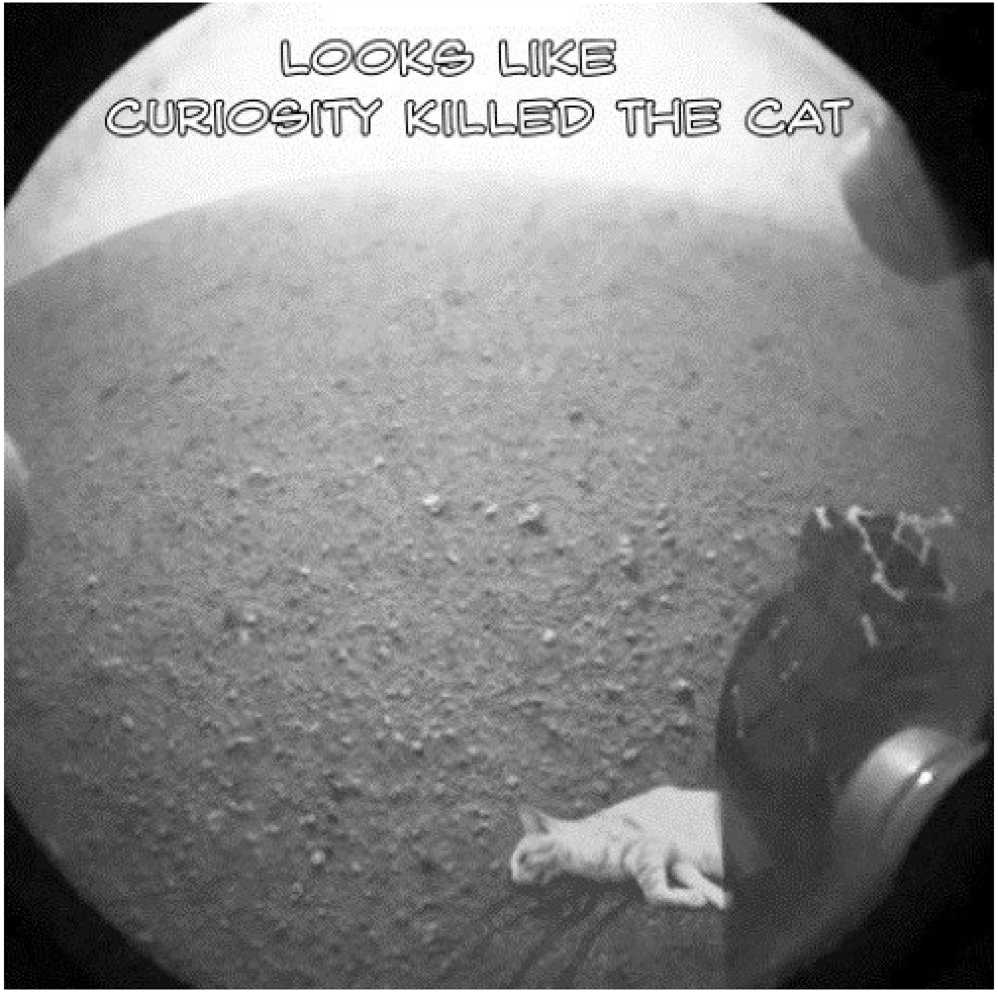


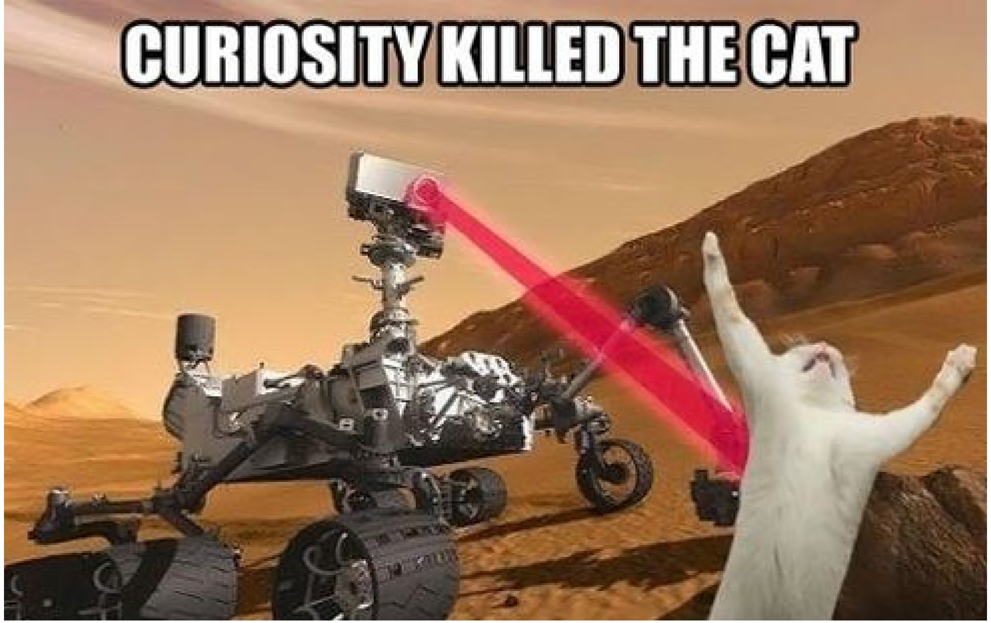


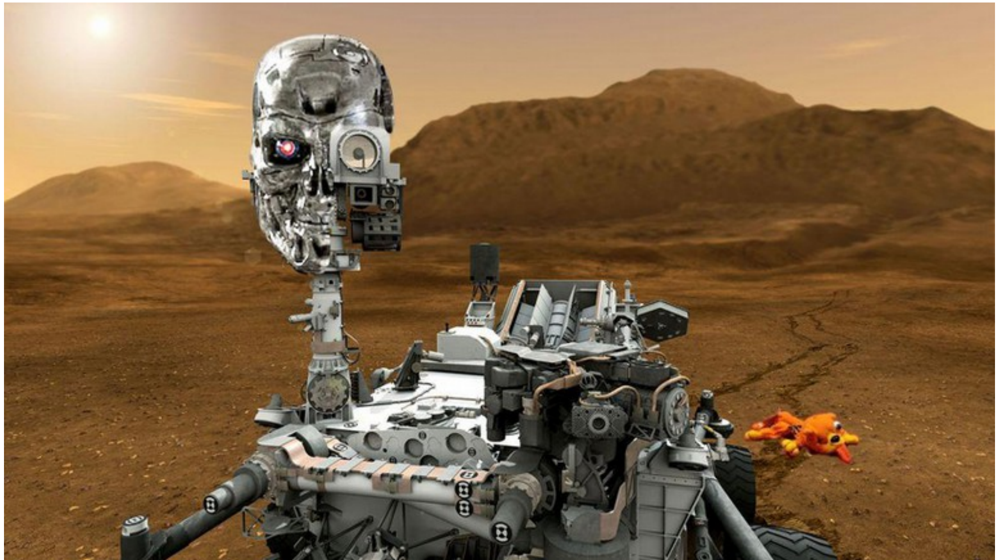
Actus de Curiosity sur Mars, le journal


STANTIS ©2012



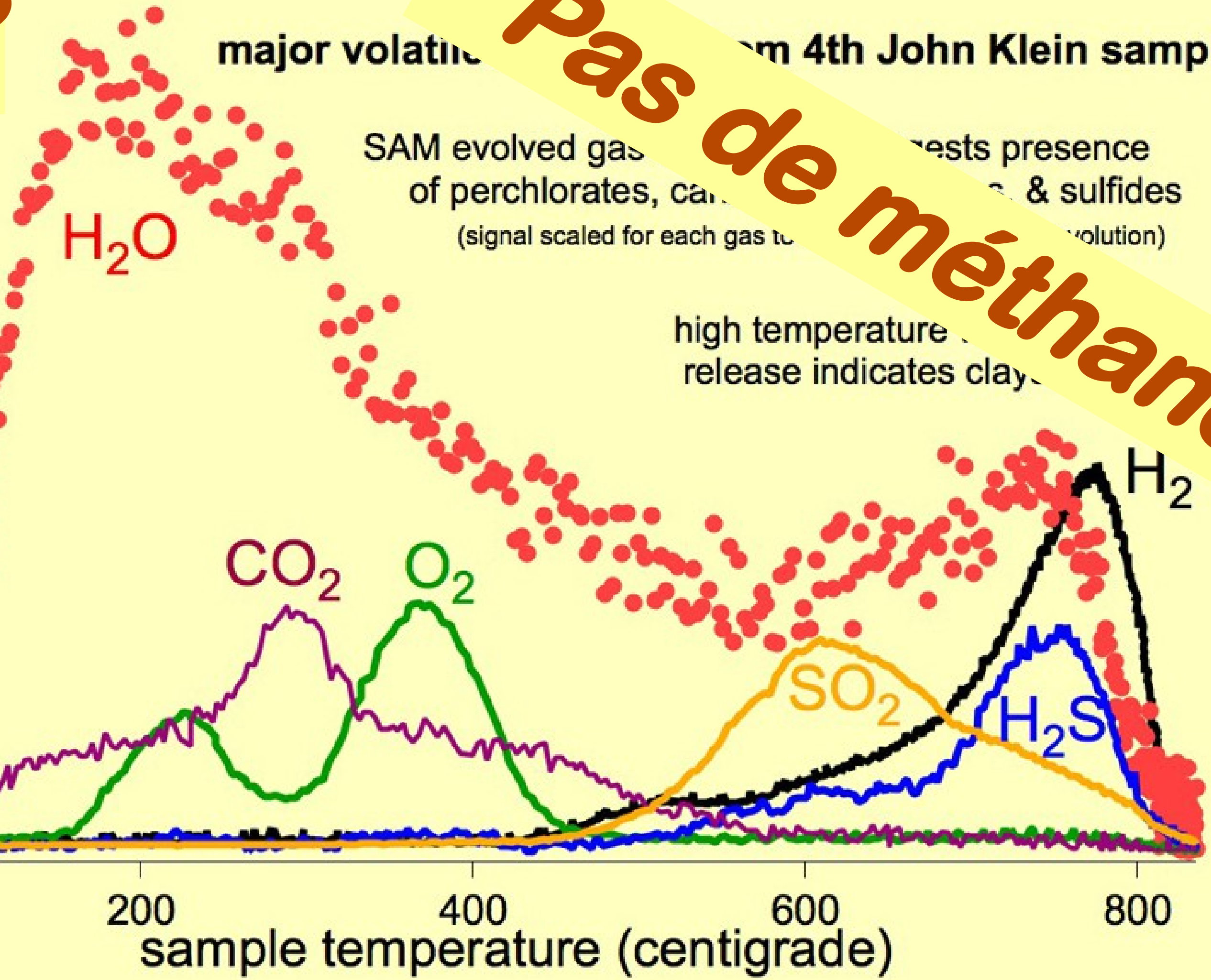

LOOKS LIKE
CURIOSITY KILLED THE CAT

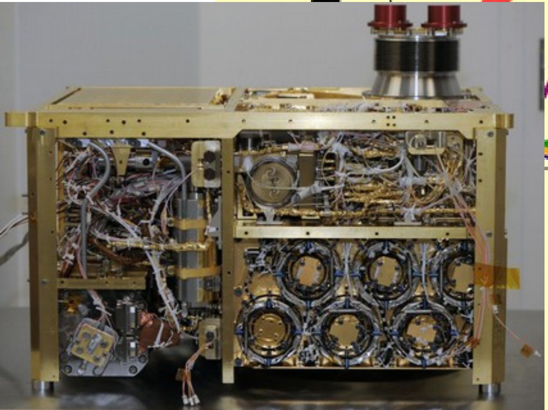

CURIOSITY KILLED THE CAT

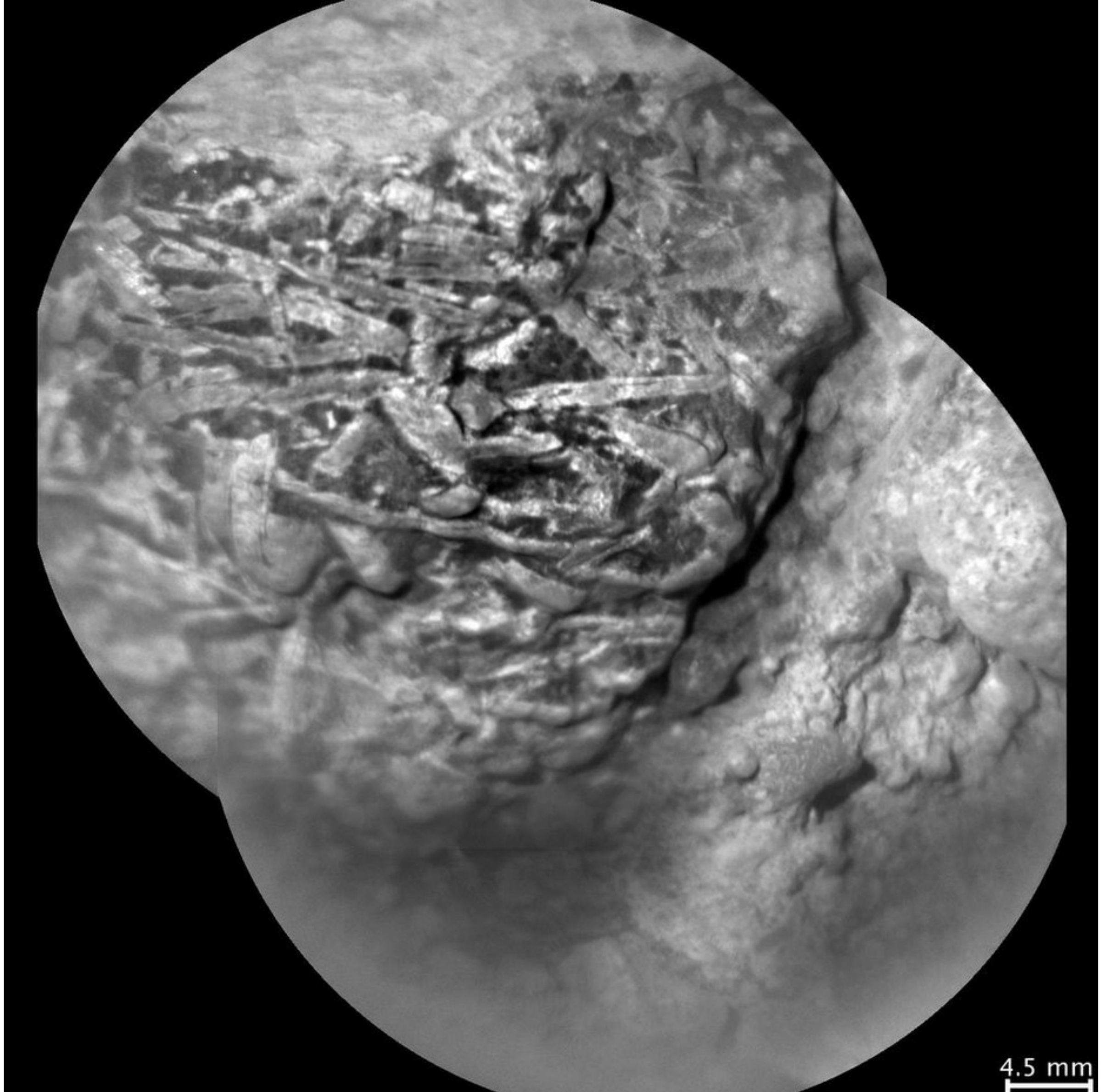


La cata ?

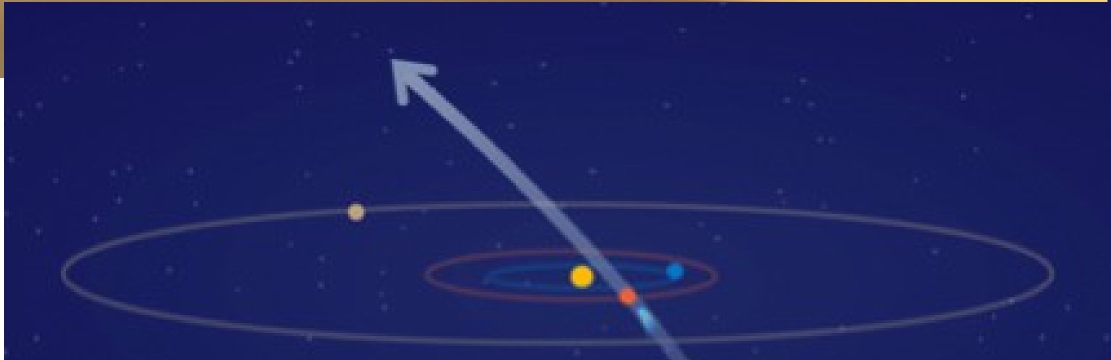
Pas de méthane !...

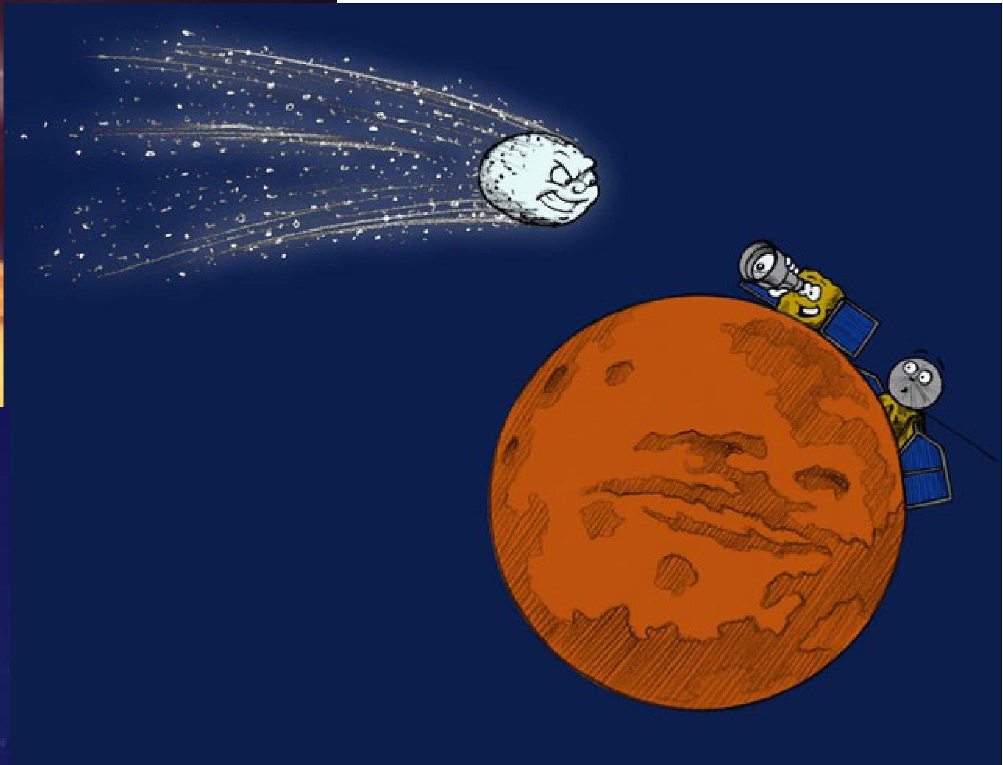




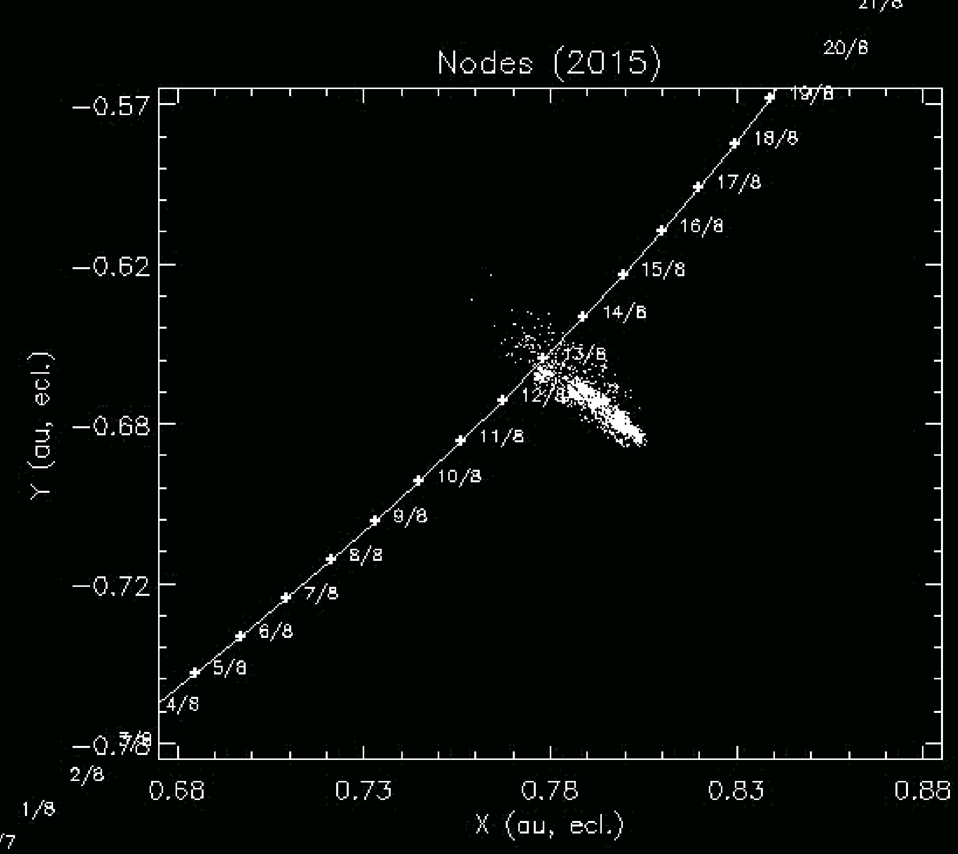

4.5 mm

Siding Spring
19 octobre 2o14

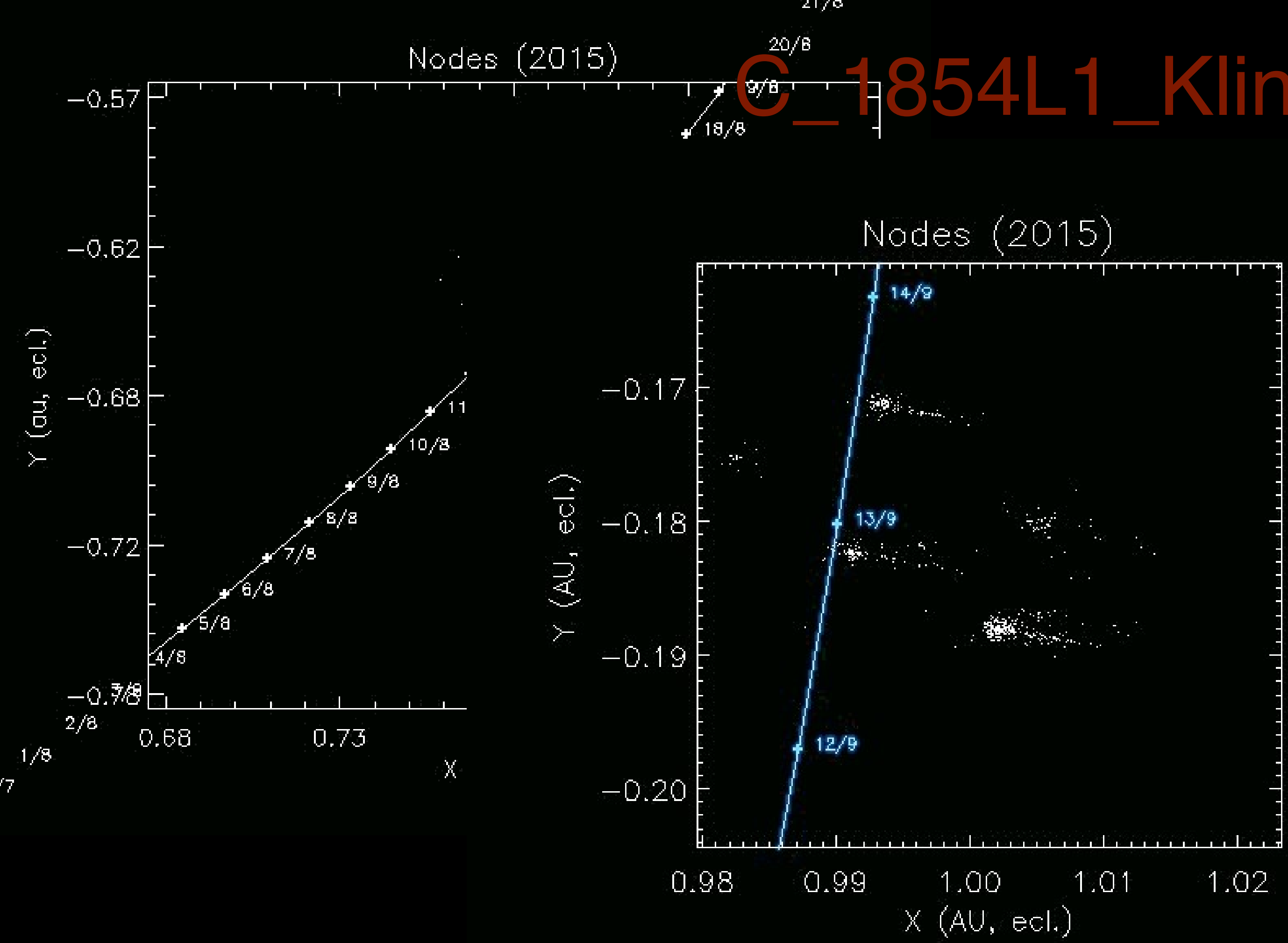




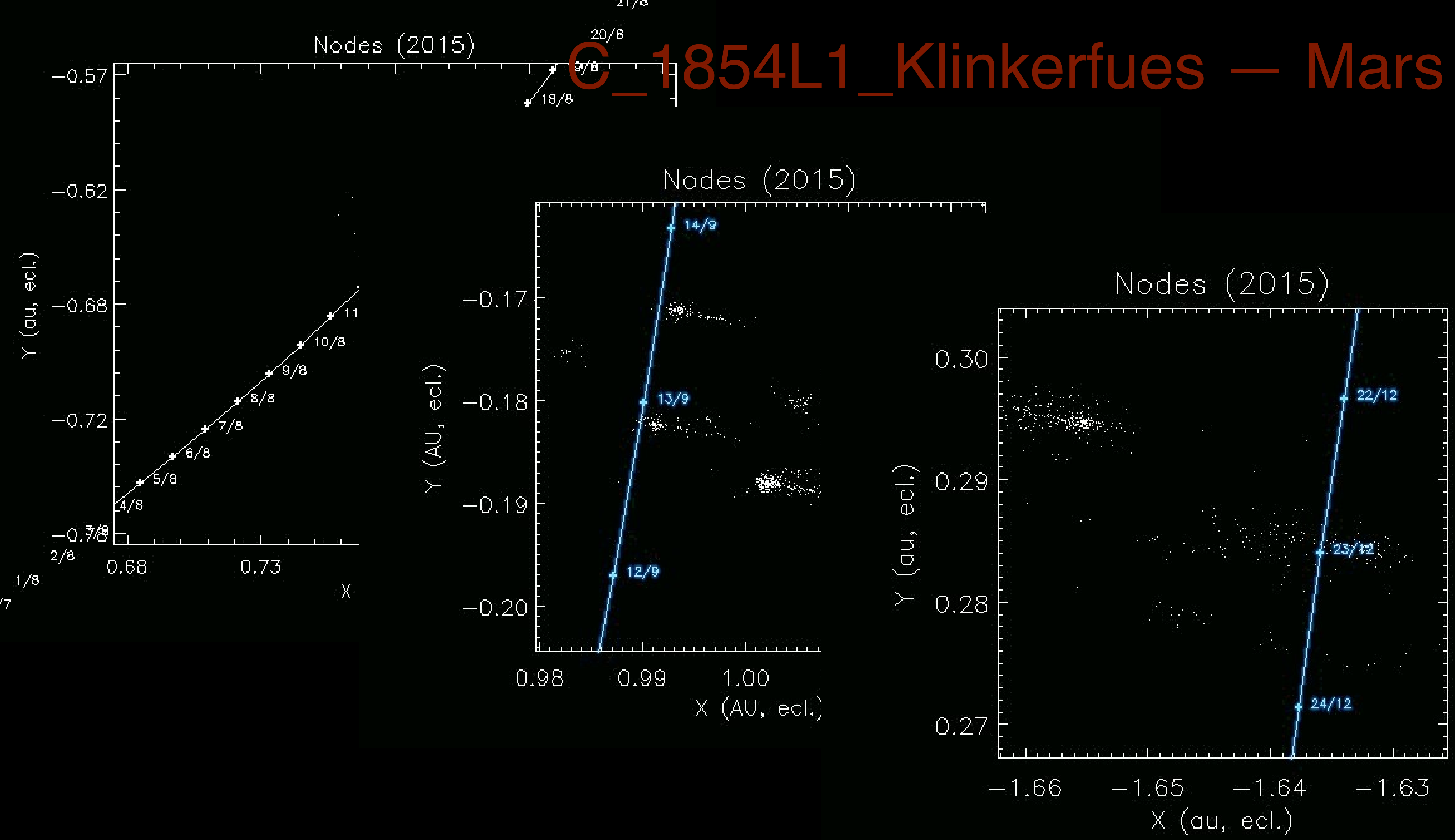
Perséïdes — Terre



C_1854L1_Klinkerfues — Terre



C_1854L1_Klinkerfues — Mars



D 15
MARS

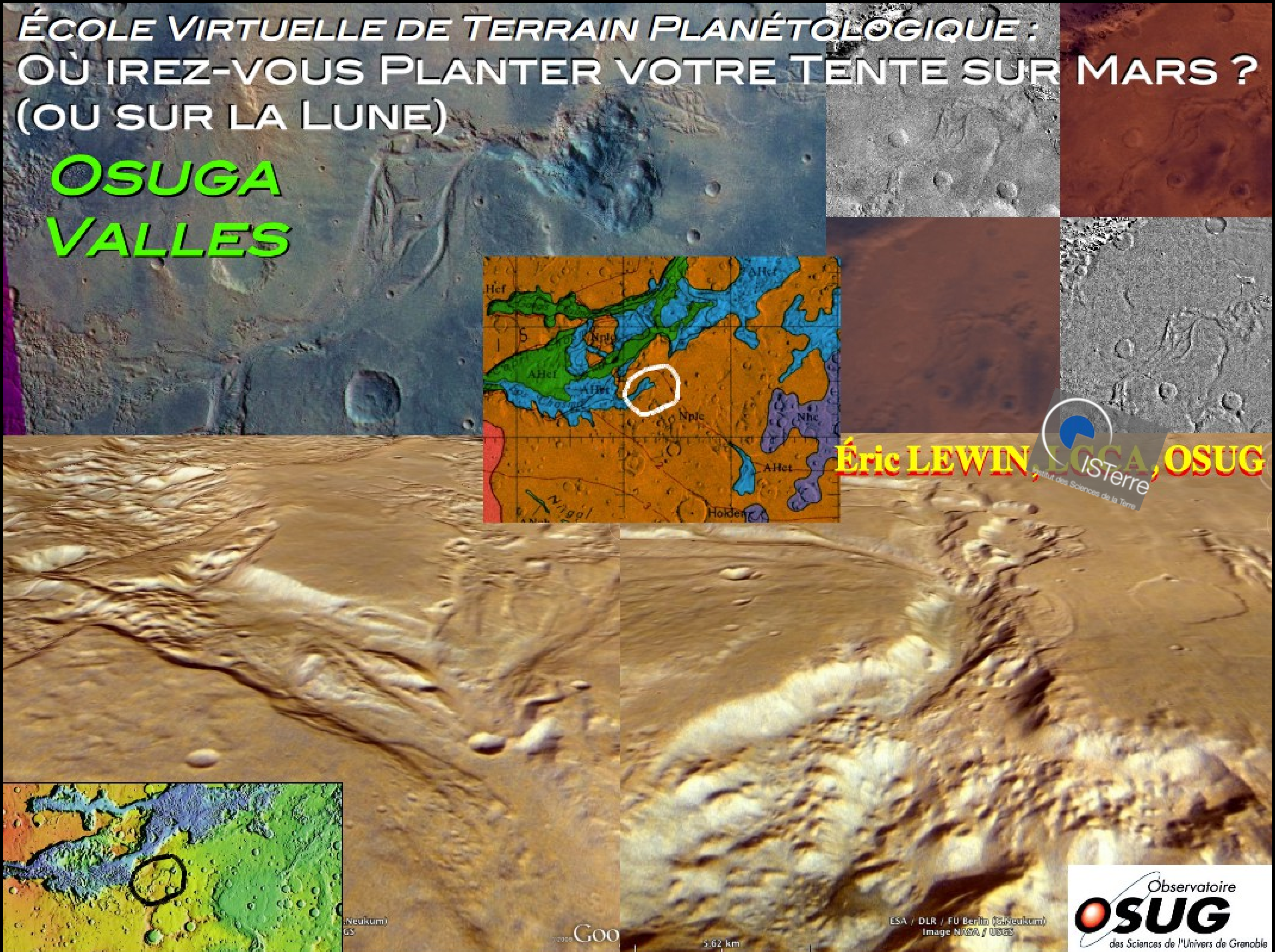
Depuis Gale, Mars

Bonne soirée !

Éric

École Virtuelle de Terrain Planétologique :
Où irez-vous Planter votre Tente sur Mars ?
(ou sur la Lune)

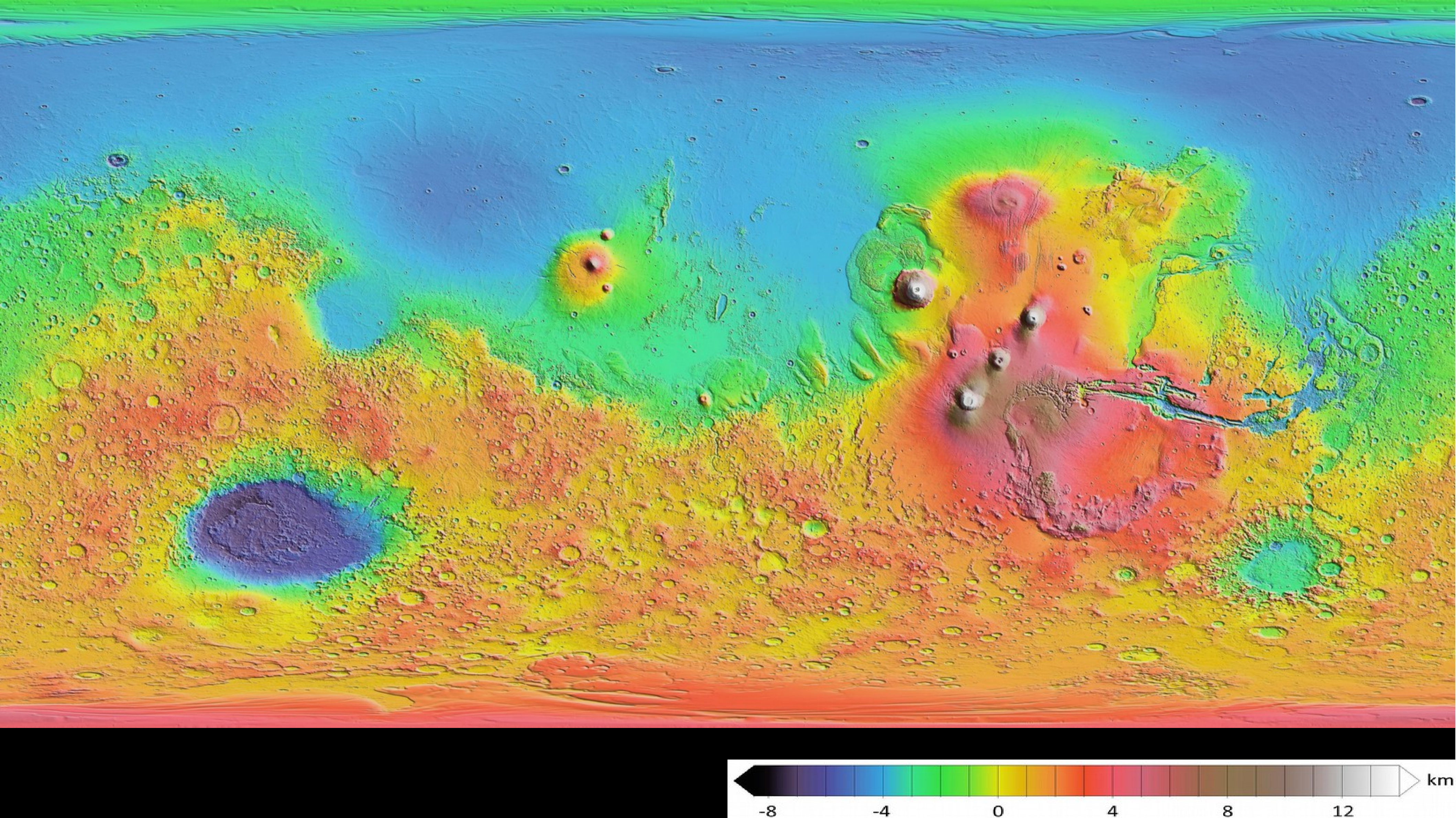
Osuga Valles


Hcf
AHcf
Nplc
AHct
Nplc
Nhc
AHct
Holden
Niggol
.Neukum)
GS
Goo
5.62 km
ESA / DLR / FU Berlin (G.Neukum)
Image NASA / USGS

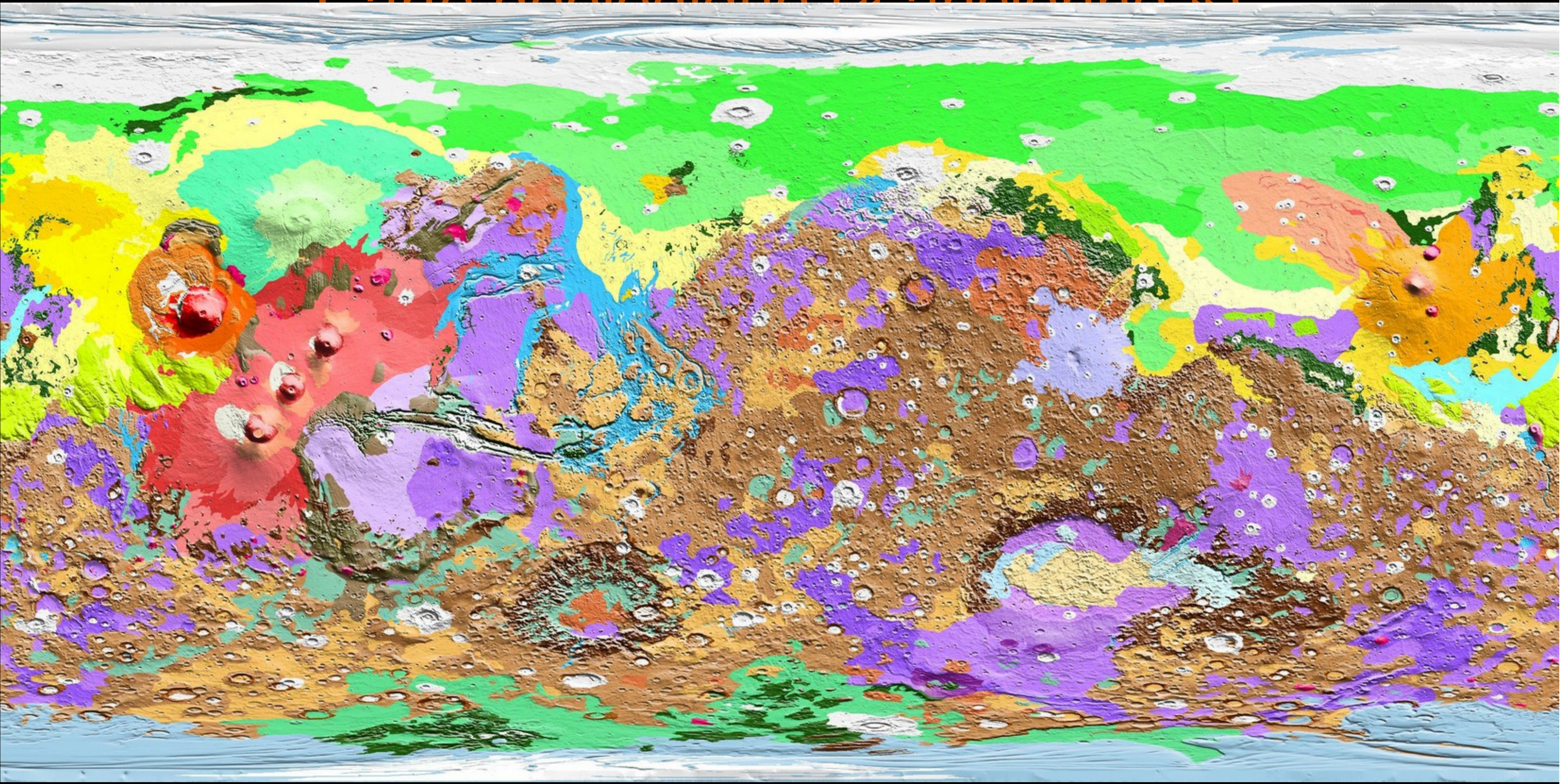
Éric LEWIN, LGCA, OSUG

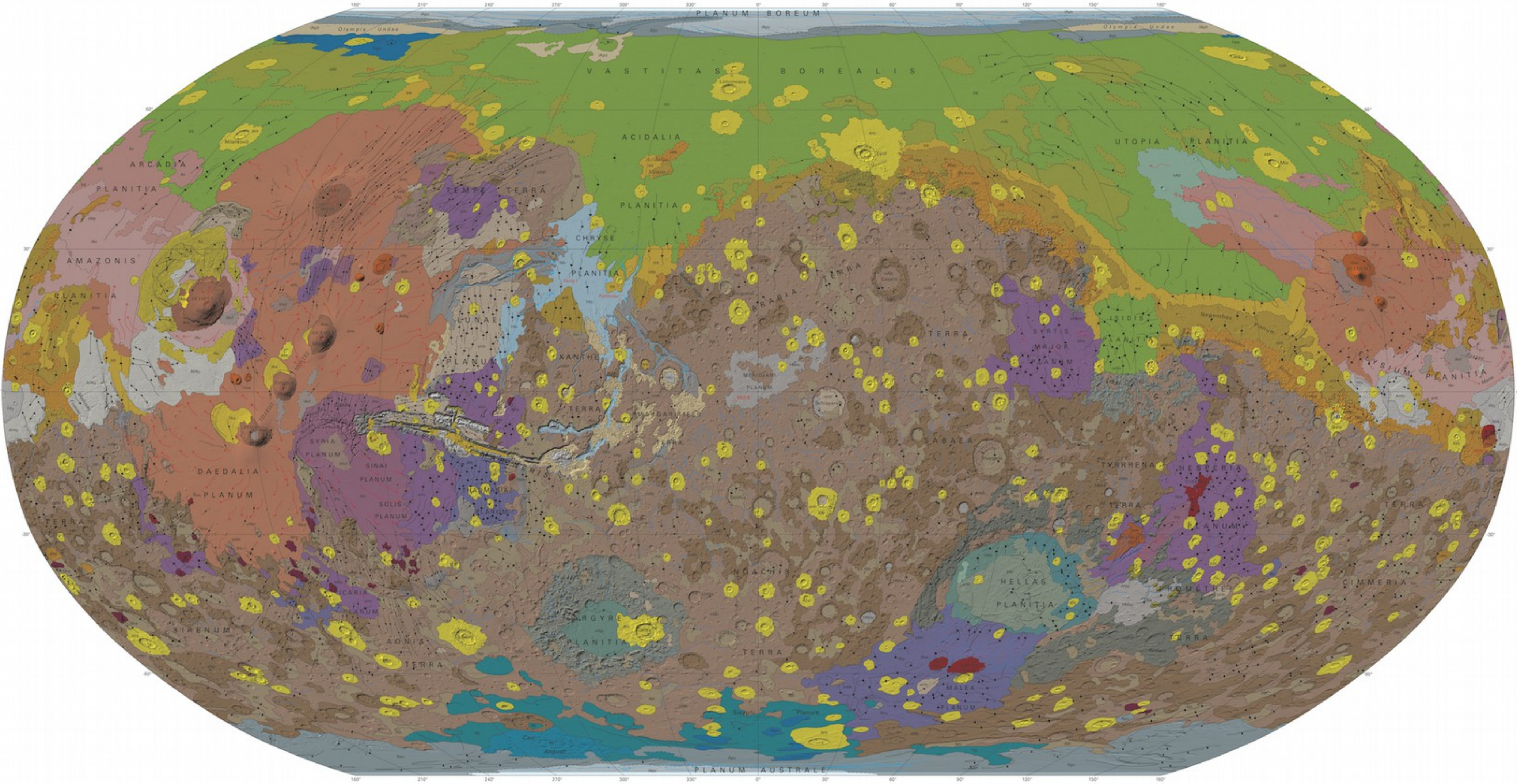
ISTerre
Institut des Sciences de la Terre

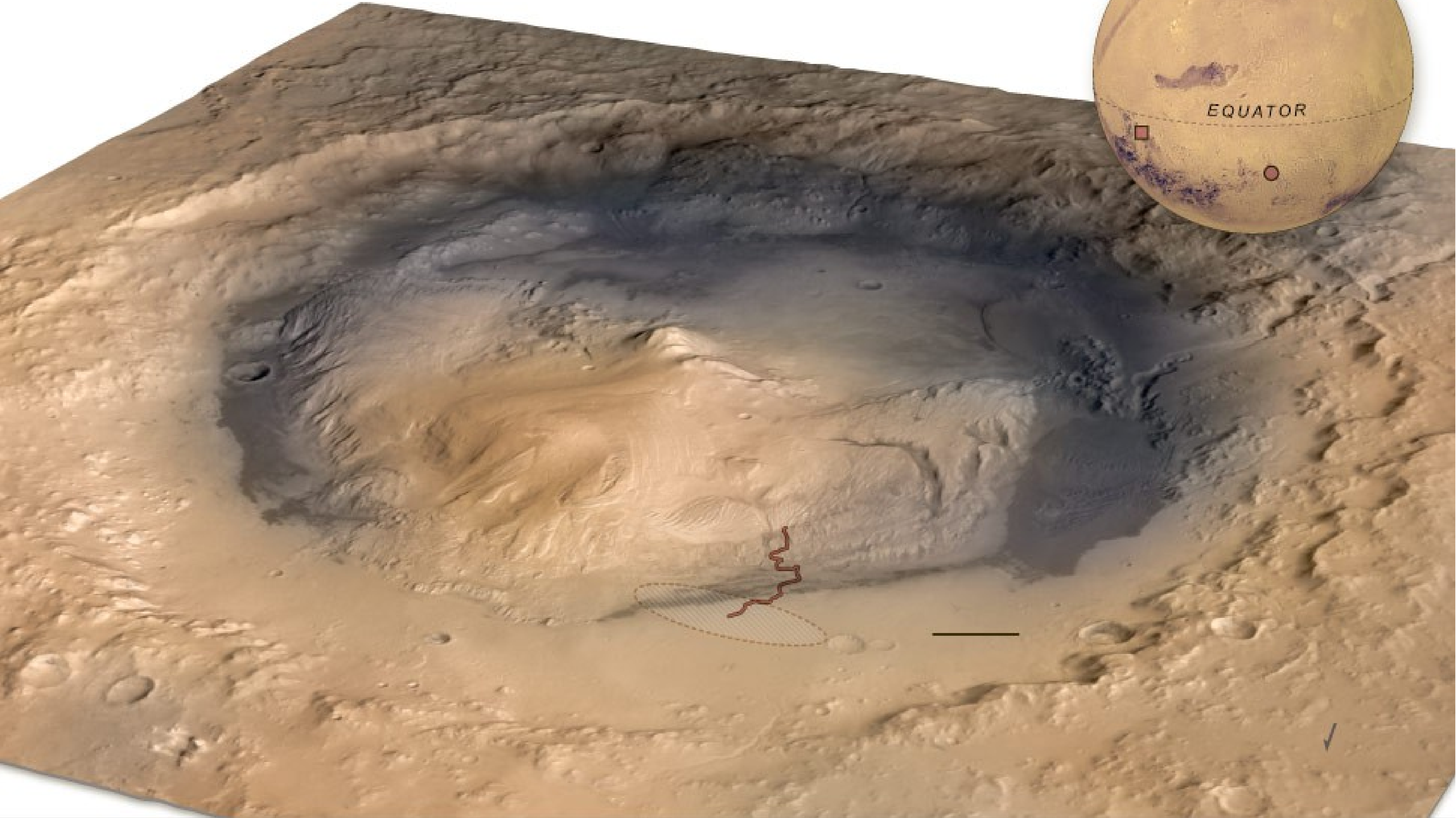
Observatoire
OSUG
des Sciences de l'Univers de Grenoble

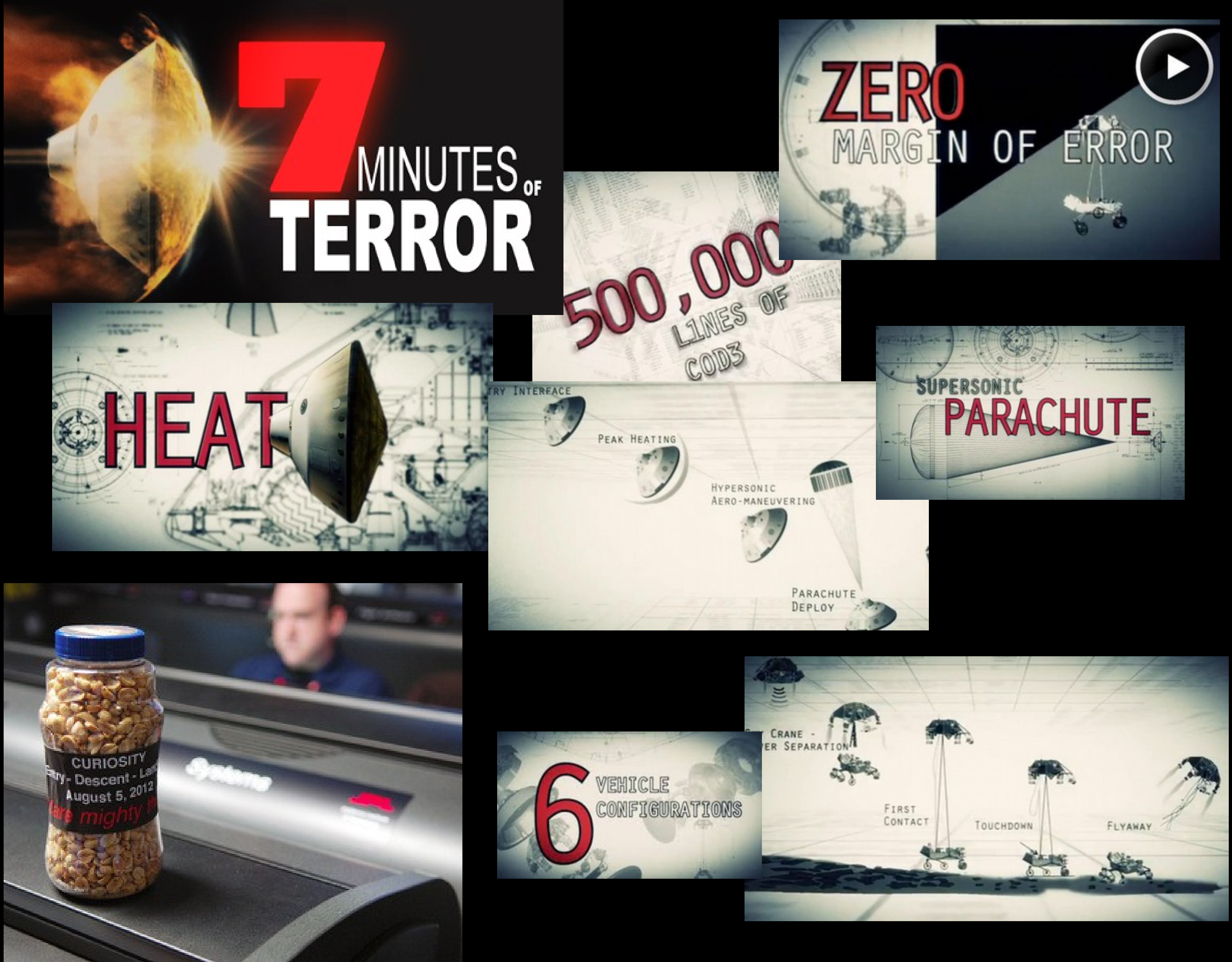

-8
-4
0
4
8
12
km

Carte géologique (« ancienne »)

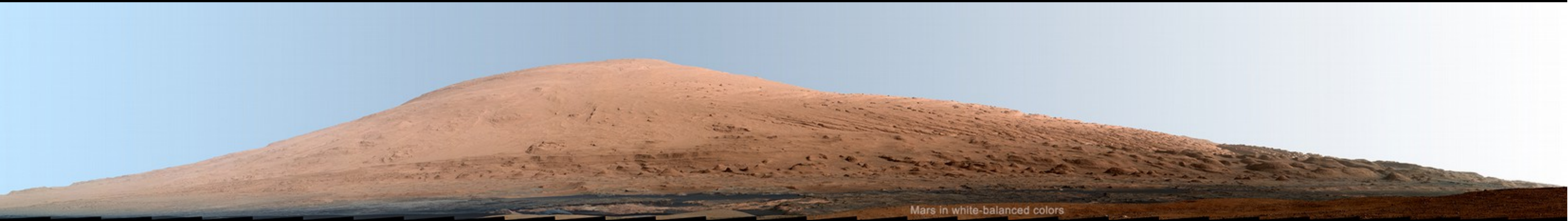


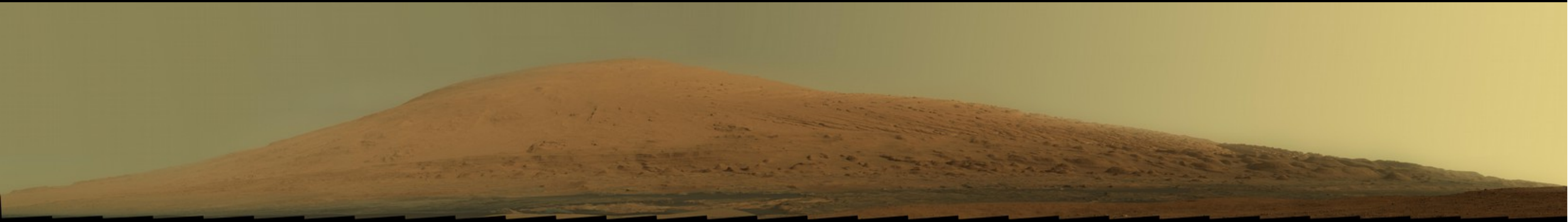

180°
210°
240°
270°
300°
330°
0°
30°
60°
90°
120°
150°
180°
60°
30°
0°
-30°
-60°
PLANUM BOREUM
Olympia Undae
VASTITAS BOREALIS
Lomonosov
Milankovič
Lyot
ARCADIA PLANITIA
AMAZONIS PLANITIA
TEMPE TERRA
ACIDALIA PLANITIA
CHRYSE PLANITIA
Viking 1
Pathfinder
UTOPIA PLANITIA
Mie
ARABIA TERRA
Cassini
LUNAE PLANUM
XANTHE TERRA
MERIDIANI PLANUM
Schiaparelli
MARGARITIFER TERRA
SYRTIS MAJOR PLANUM
ISIDIS PLANITIA
Nepenthes Planum
ELYSIUM PLANITIA
SYRIA PLANUM
SINAI PLANUM
SOLIS PLANUM
THAUMASIA PLANUM
DAEDALIA PLANUM
TERRA SABAEA
TYRRHENA TERRA
HESPERIA PLANUM
TERRA CIMMERIA
NOACHIS TERRA
HELLAS PLANITIA
PROMETHEI TERRA
ICARIA PLANUM
TERRA SIRENUM
AONIA TERRA
ARGYRE PLANITIA
MALEA PLANUM
Sisyphi Planum
Cavi Angusti
PLANUM AUSTRALE

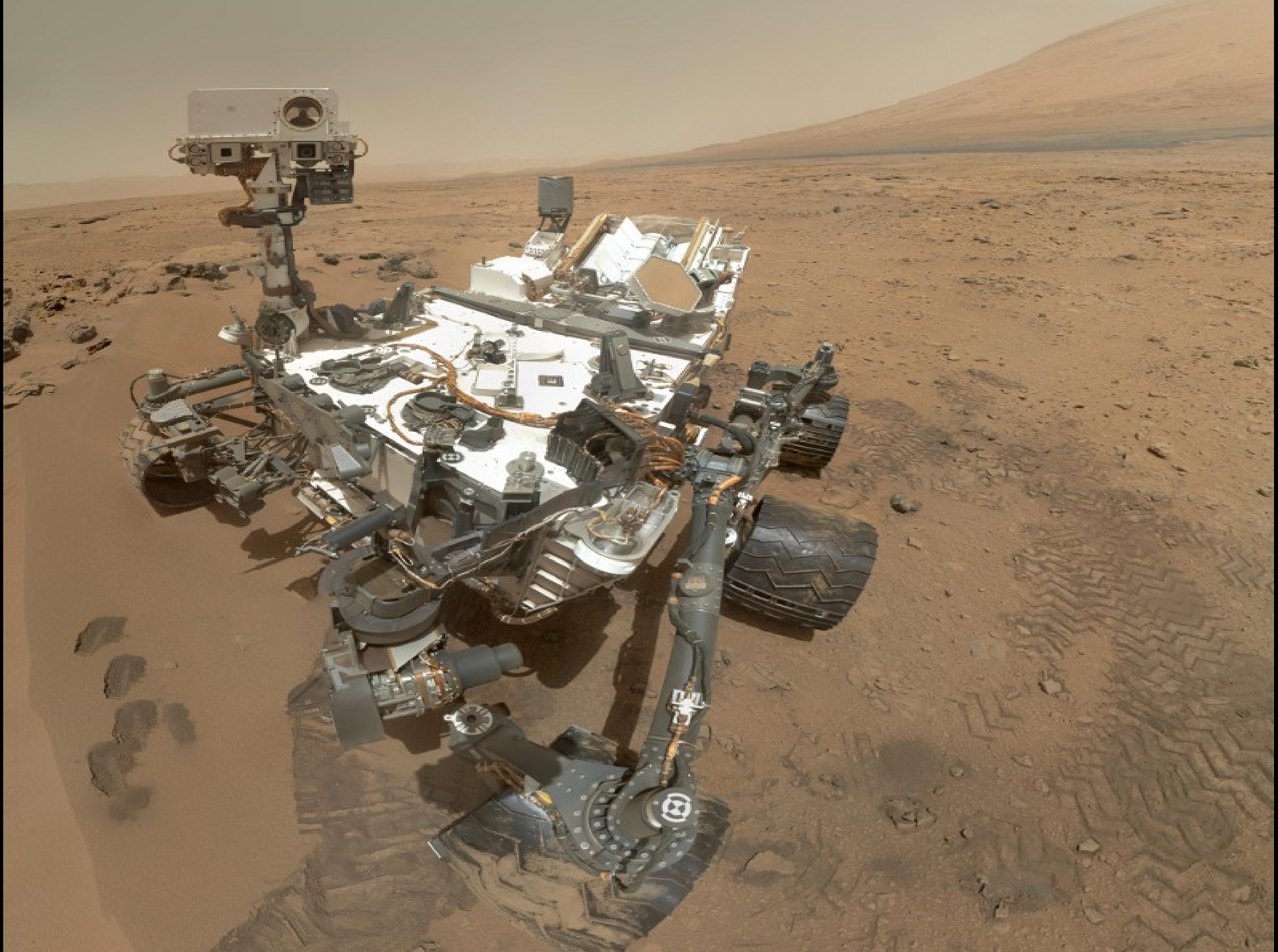

EQUATOR


7 MINUTES OF TERROR
ZERO
MARGIN OF ERROR
500,000
LINES OF
COD3
HEAT
TRY INTERFACE
PEAK HEATING
HYPERSONIC
AERO-MANEUVERING
PARACHUTE
DEPLOY
SUPERSONIC
PARACHUTE
CURIOSITY
try - Descent - Land
August 5, 2012
are mighty
Systems
6
VEHICLE
CONFIGURATIONS
CRANE -
ER SEPARATION
FIRST
CONTACT
TOUCHDOWN
FLYAWAY

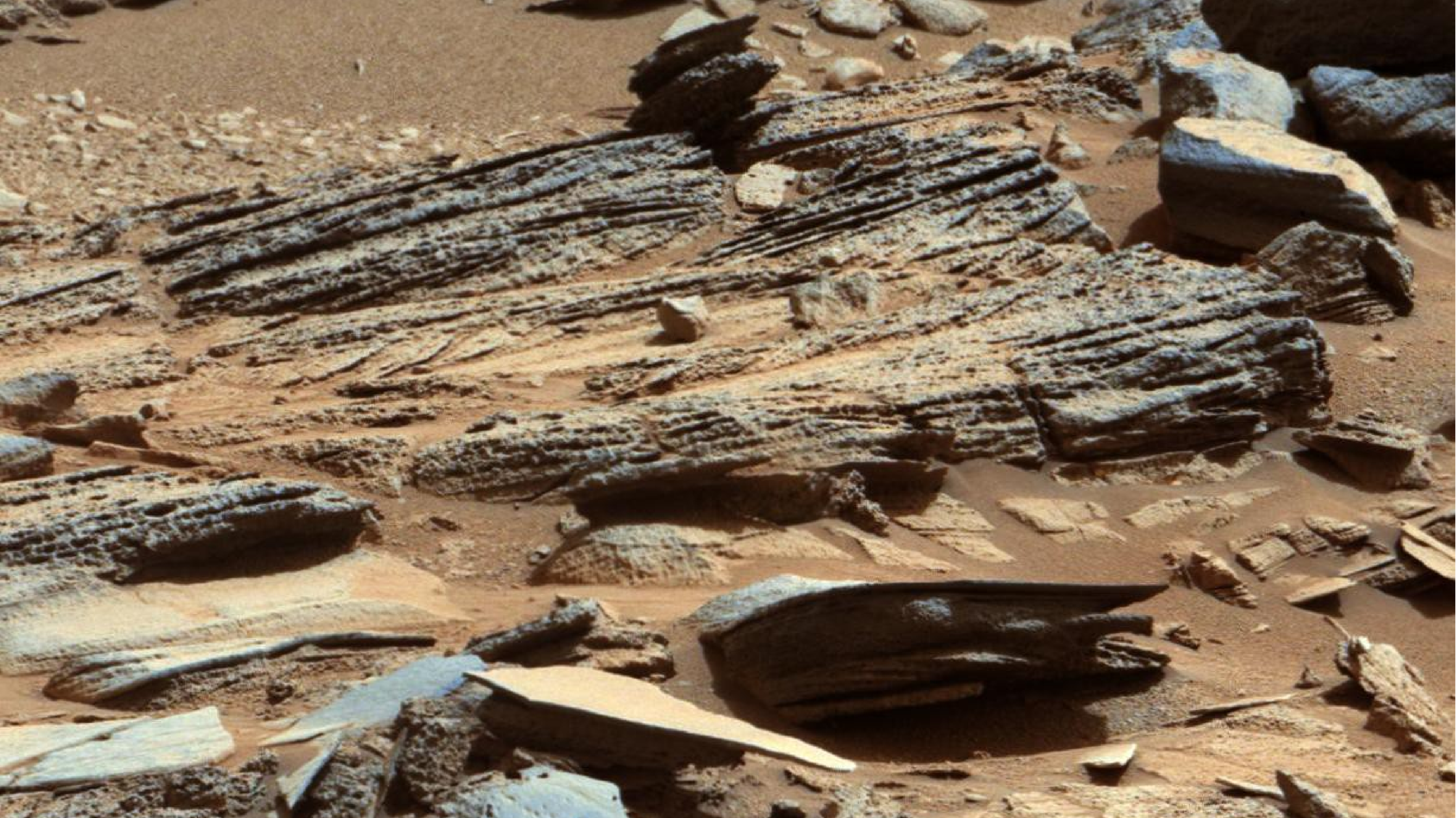
Le Mont Sharp

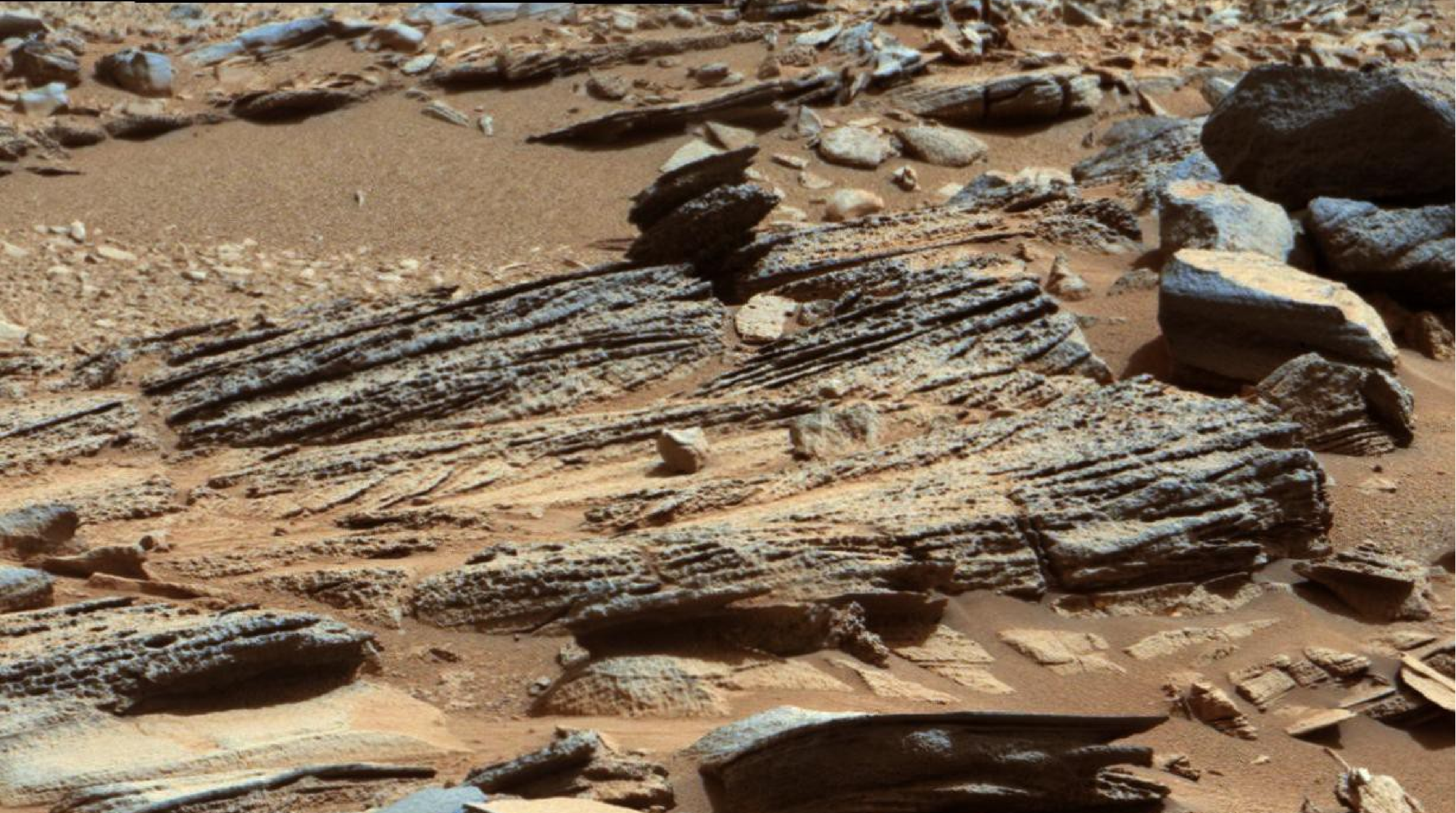

Mars in white-balanced colors

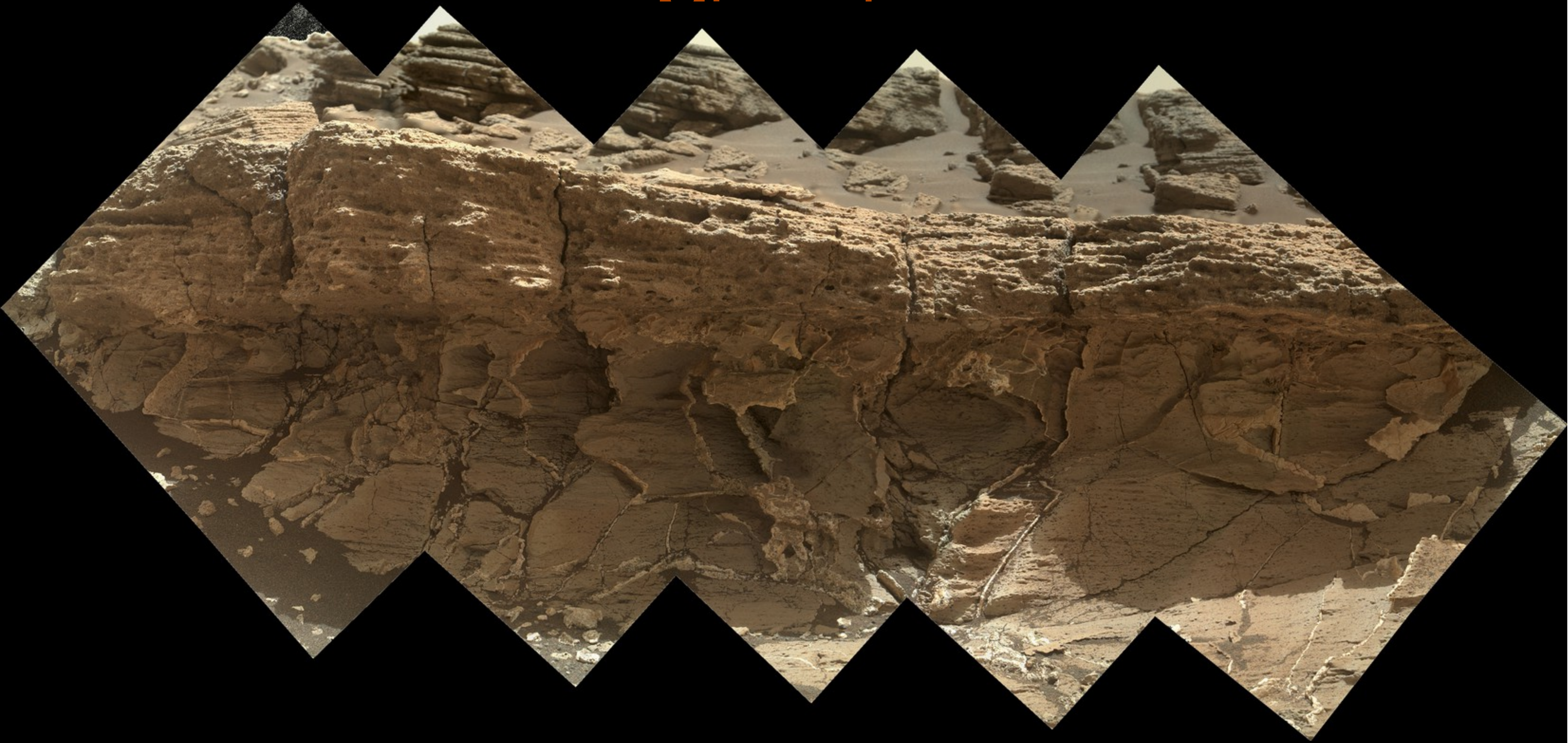


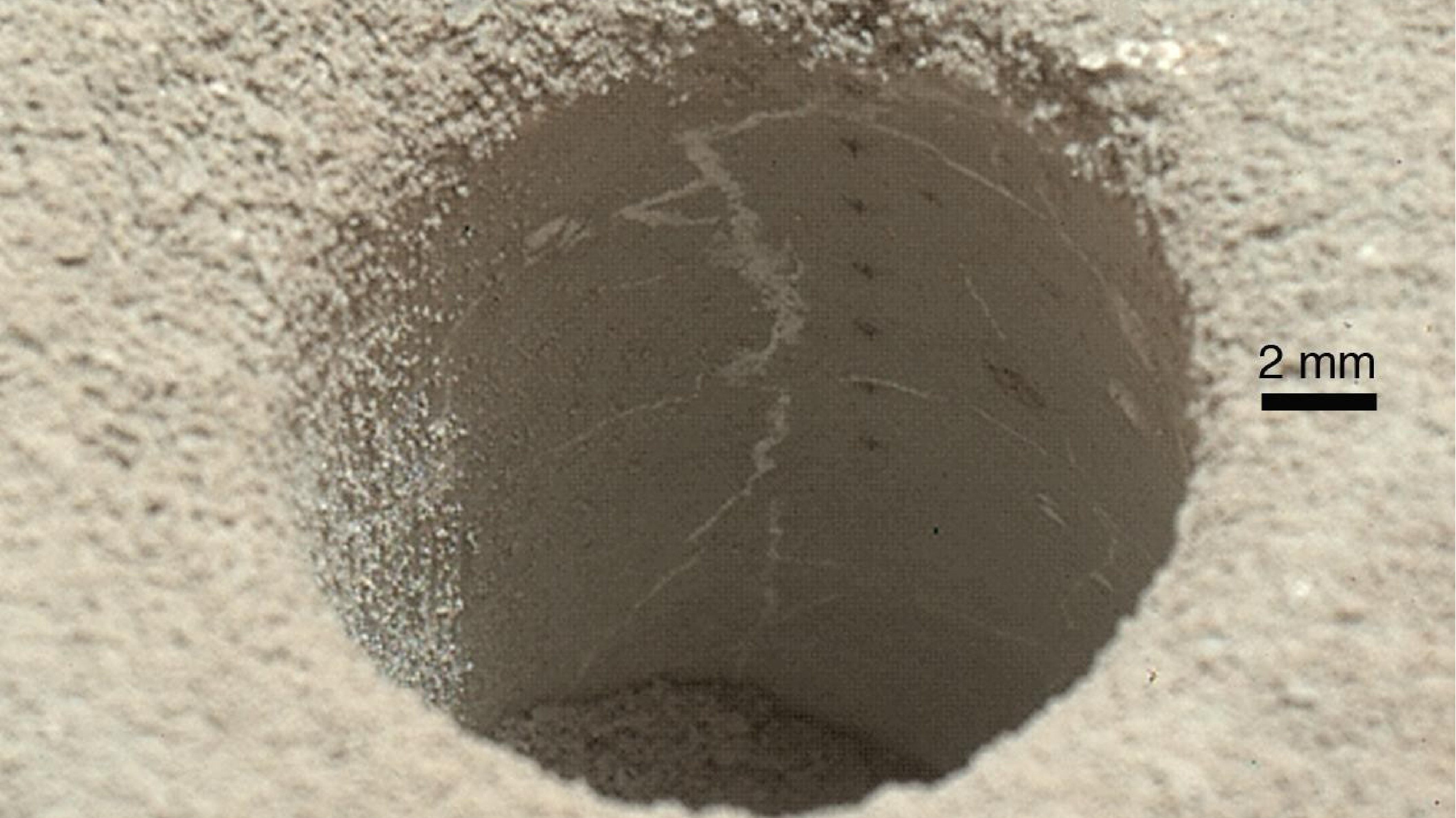


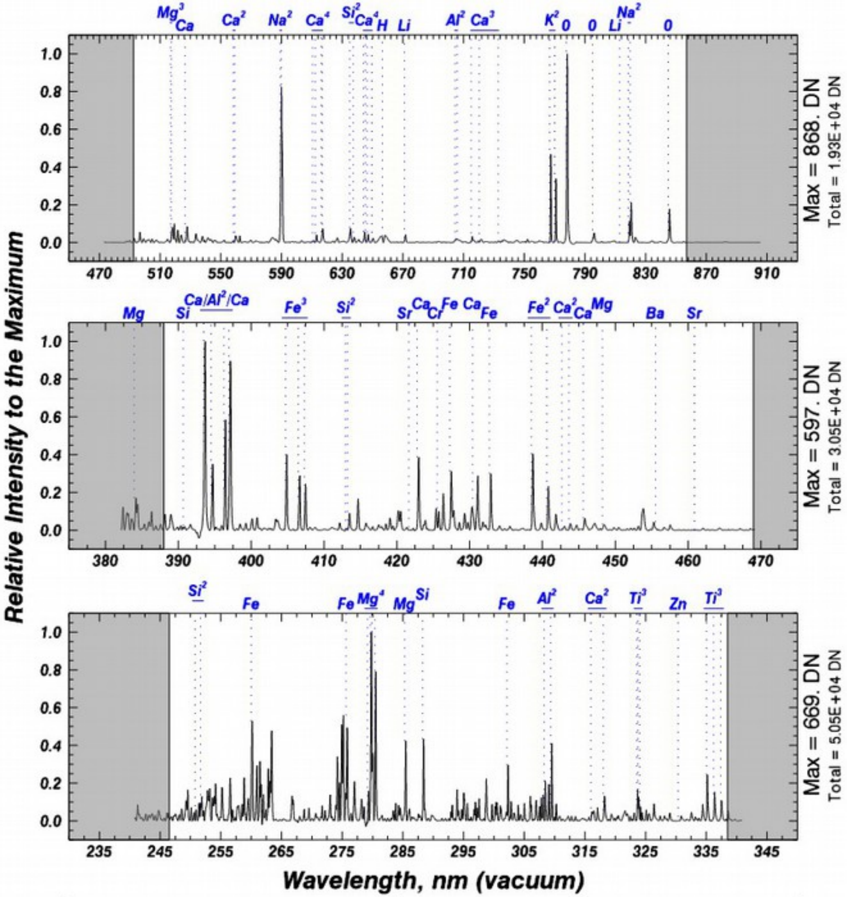
90
100
110
120
130
140
150
160
170
180
190
200
210
220
230
240
10
0
-10
-20








2 mm



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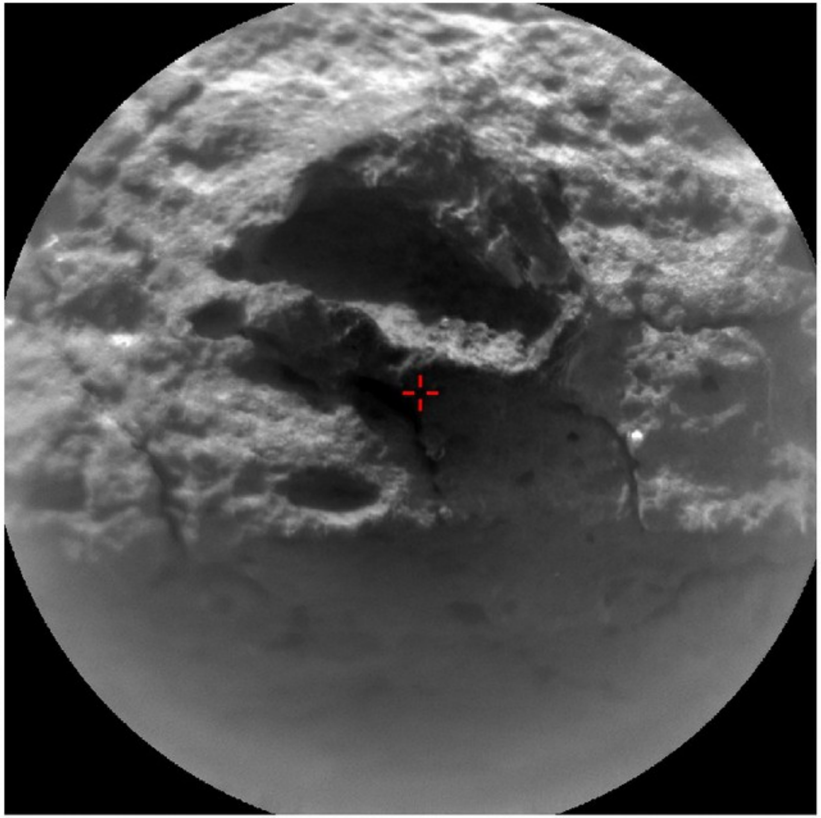
(from: CL5_424298003EDR_F0060410CCAM01302M1.DAT)

Target: Knob_Lake
Sol: 00302
LTST: 10:25:06
sclk: 424298003
SeqID: ccam01302

Distance: 4.85m
# shots: 30
Laser IF T: -31.1 C
Spec. B T: -20.3 C
Rov.mot. #: (6,410,6)

☐ Sanity Check
☐ Dark substraction
☒ Average
☒ Denoise removal
☒ Continuum subst.
☐ Transmission
☒ Wave calibration
☐ Resampling
Wave. calib. from Sol: 00027

NASA/JPL-Caltech/LANL/IRAP - http://www.msl-chemcam.com



Scale (image width, cm): 9.6
+ co-aligned LIBS laser position

ChemCam RMI Quicklook
Generated: Wed Oct 30 22:52:07 2013
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(from: CR0_424298997EDR_F0060410CCAM02302M1.IMG)

Target: Athole_Point
Sol: 302
LTST: 10:41:14
sclk: 424298997
SeqID: ccam02302

Distance, m: 4.707
Tel. temp, °C: -29.2
Exposure, ms: 25
Rov.mot. #: (6,410,6)

☒ Linearity correction
☒ Dark substraction
☒ Smearing correction
☒ Ghost removal
☒ Flat field correction (FLIGHT32)
☒ Bad pixels process.
☒ Mask applied
☒ Contrast enhancement

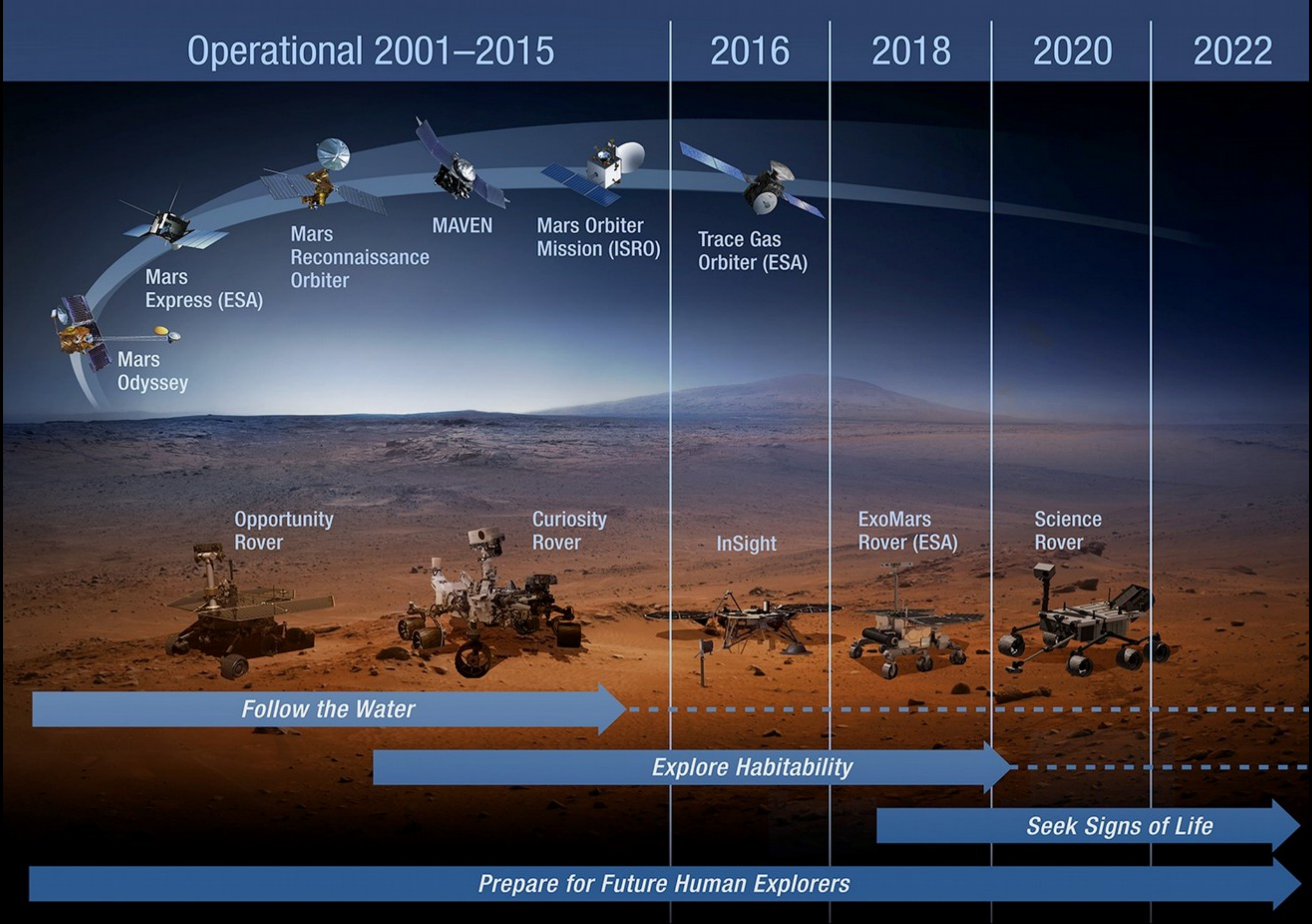
NASA/JPL-Caltech/LANL/IRAP/IAS - http://www.msl-chemcam.com

March 2014

ChemCam Calendar

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
2	3	4	5	6	7	1/8
Sol 558	Sol 559	Sol 560	Sol 561	Sol 562	Sol 563	Sol 564
9	10	11	12	13	14	15
Sol 565	Sol 566	Sol 567	Sol 568	Sol 569	Sol 570	Sol 571
16	17	18	19	20	21	22
Sol 572	Sol 573	Sol 574	Sol 575	Sol 576	Sol 577	Sol 578
23	24	25	26	27	28	29
Sol 579	Sol 580	Sol 581	Sol 582	Sol 583	Sol 584	
30	31					
Sol 585	Sol 586					

A year on Mars!



Operational 2001–2015

2016

2018

2020

2022

Mars Odyssey

Mars Express (ESA)

Mars Reconnaissance Orbiter

MAVEN

Mars Orbiter Mission (ISRO)

Trace Gas Orbiter (ESA)

Opportunity Rover

Curiosity Rover

InSight

ExoMars Rover (ESA)

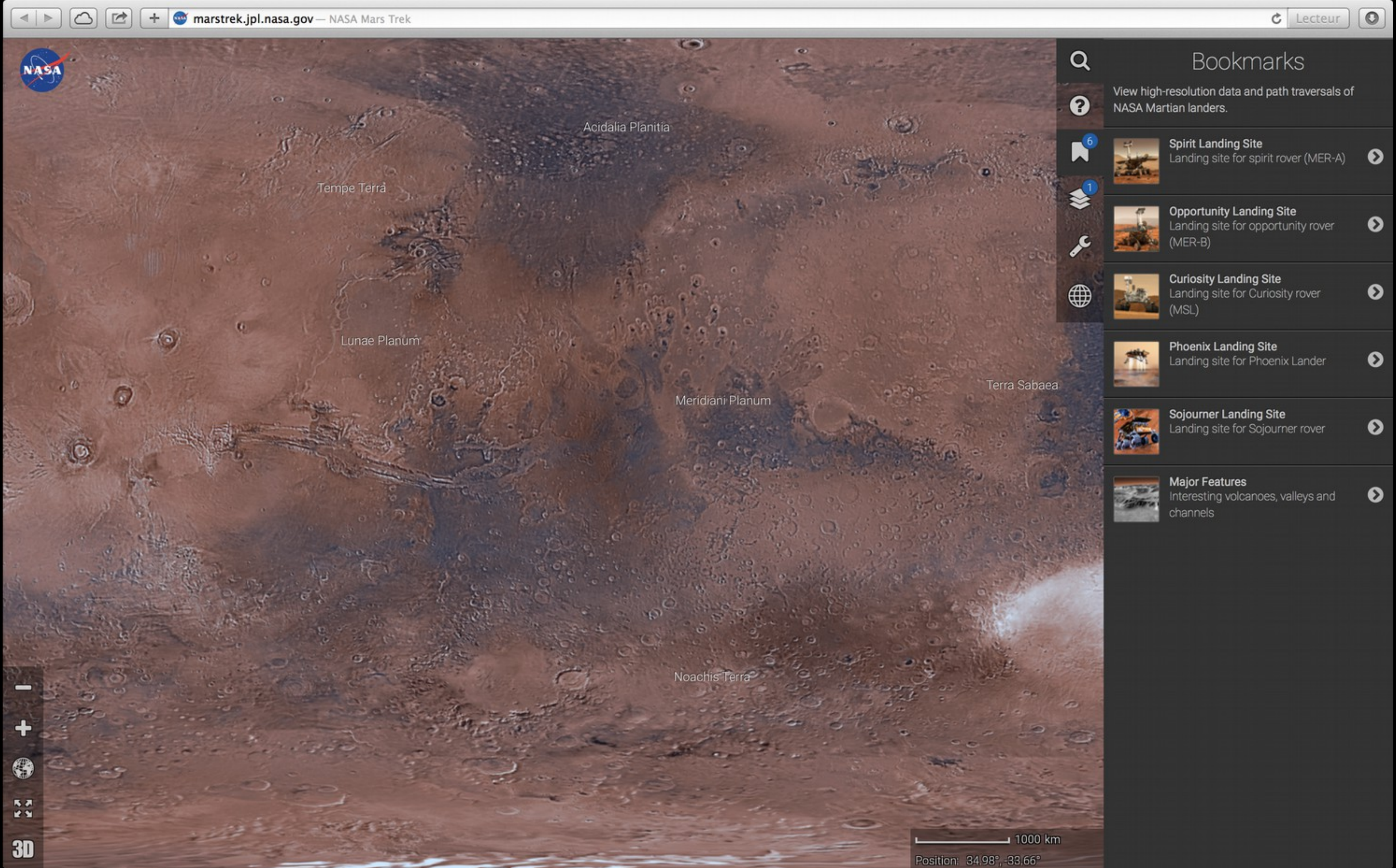
Science Rover

Follow the Water

Explore Habitability

Seek Signs of Life

Prepare for Future Human Explorers



marstrek.jpl.nasa.gov — NASA Mars Trek

Bookmarks

View high-resolution data and path traversals of NASA Martian landers.

Spirit Landing Site
Landing site for spirit rover (MER-A)

Opportunity Landing Site
Landing site for opportunity rover (MER-B)

Curiosity Landing Site
Landing site for Curiosity rover (MSL)

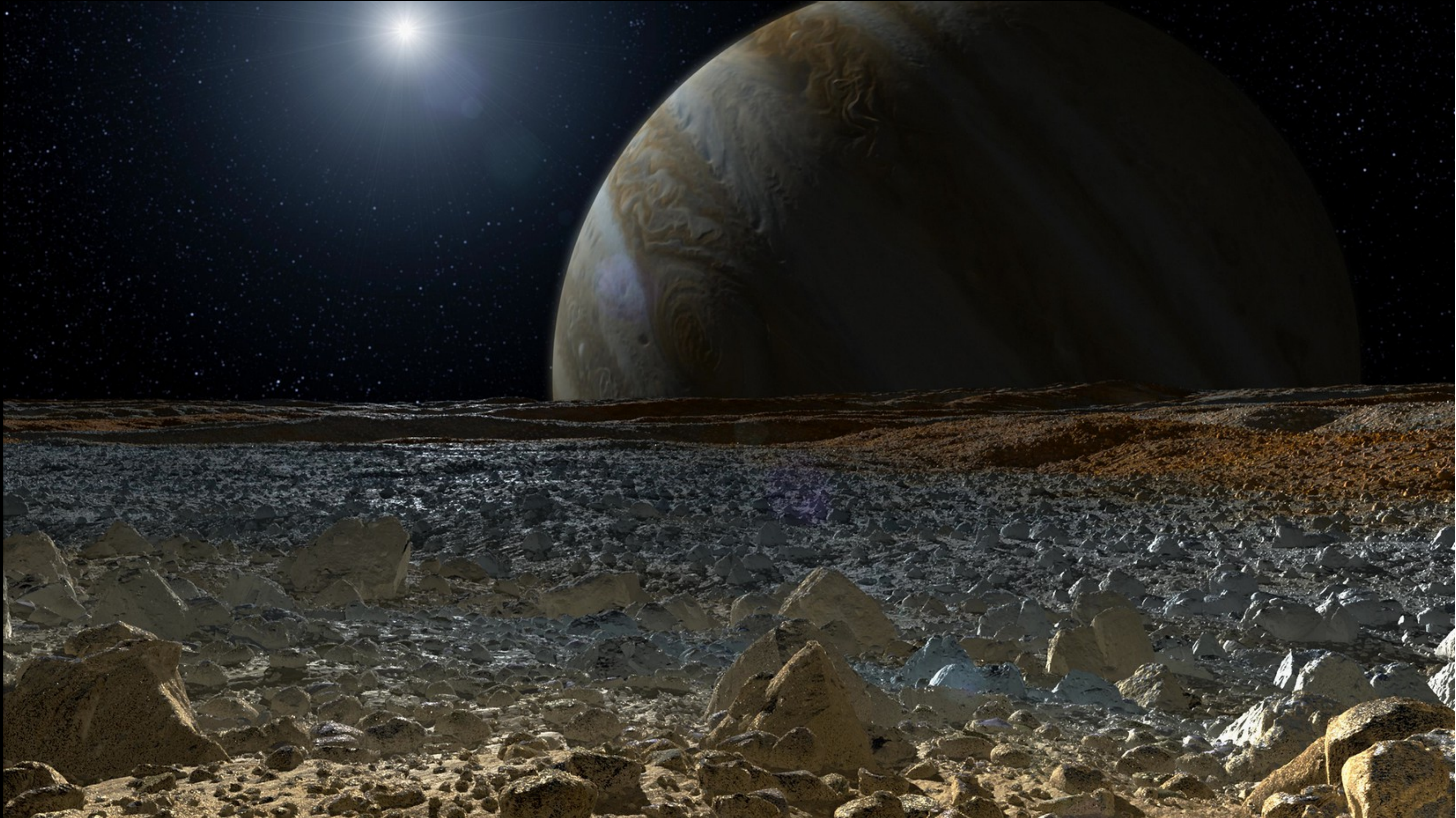
Phoenix Landing Site
Landing site for Phoenix Lander

Sojourner Landing Site
Landing site for Sojourner rover

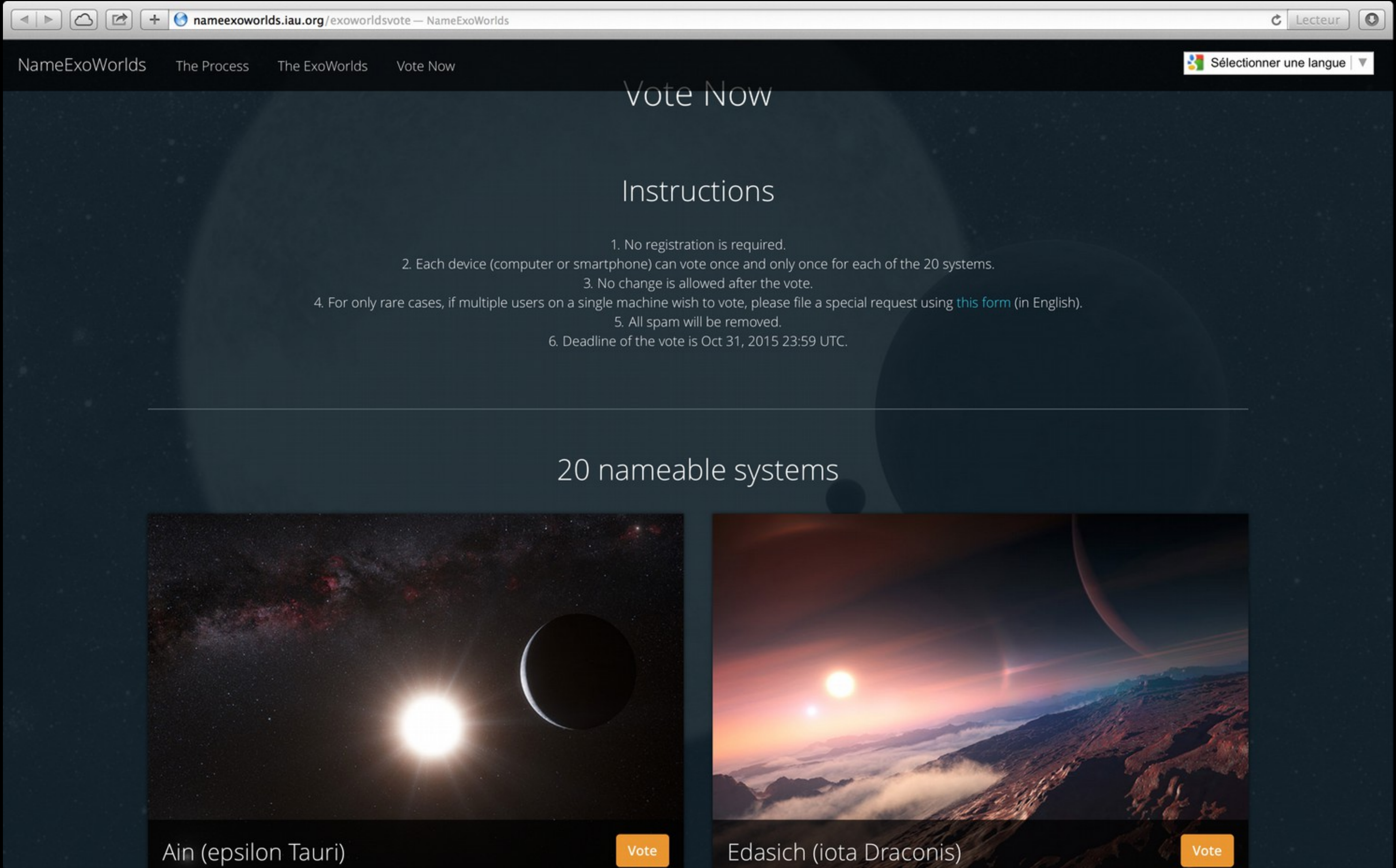
Major Features
Interesting volcanoes, valleys and channels

Position: 34.98°, -33.66°

Lecteur
NASA
6
1
Acidalia Planitia
Tempe Terra
Lunae Planum
Meridiani Planum
Terra Sabaea
Noachis Terra
1000 km
3D



FERMÉ


nameexoworlds.iau.org/exoworldsvote — NameExoWorlds
Lecteur
NameExoWorlds
The Process
The ExoWorlds
Vote Now
Sélectionner une langue

Vote Now

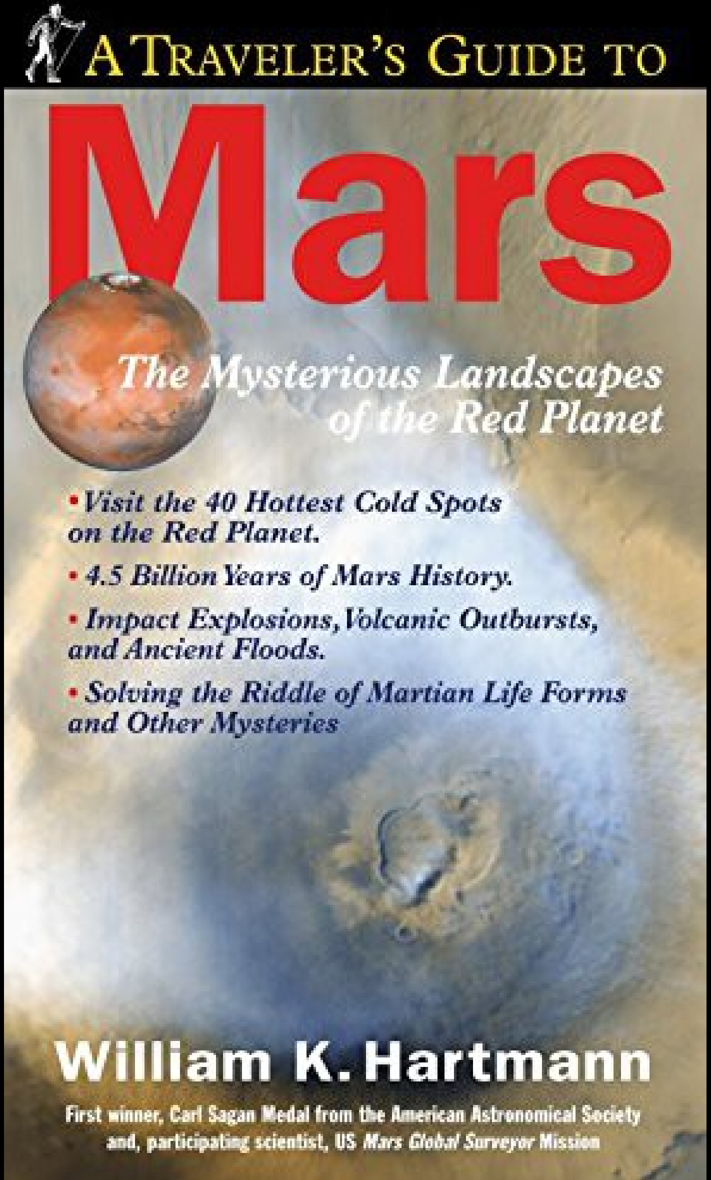
Instructions

1. No registration is required.
2. Each device (computer or smartphone) can vote once and only once for each of the 20 systems.
3. No change is allowed after the vote.
4. For only rare cases, if multiple users on a single machine wish to vote, please file a special request using this form (in English).
5. All spam will be removed.
6. Deadline of the vote is Oct 31, 2015 23:59 UTC.

20 nameable systems

Ain (epsilon Tauri)
Vote
Edasich (iota Draconis)
Vote

Biblio



A TRAVELER'S GUIDE TO

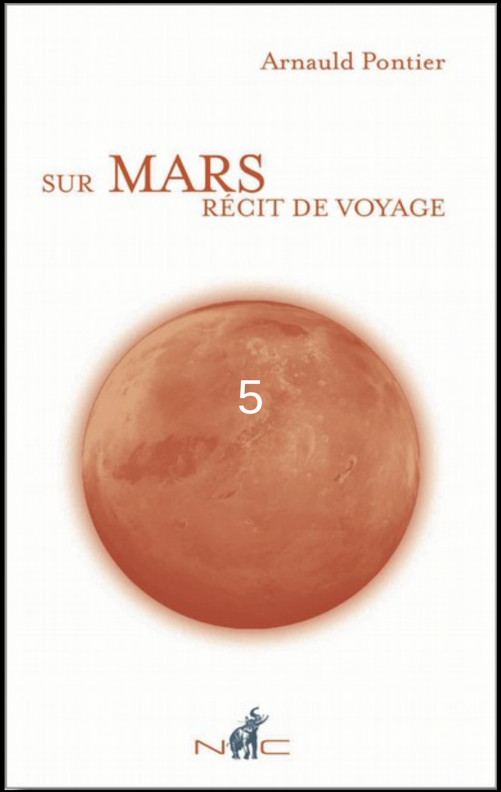
Mars

The Mysterious Landscapes of the Red Planet

- *Visit the 40 Hottest Cold Spots on the Red Planet.*
- *4.5 Billion Years of Mars History.*
- *Impact Explosions, Volcanic Outbursts, and Ancient Floods.*
- *Solving the Riddle of Martian Life Forms and Other Mysteries*

William K. Hartmann

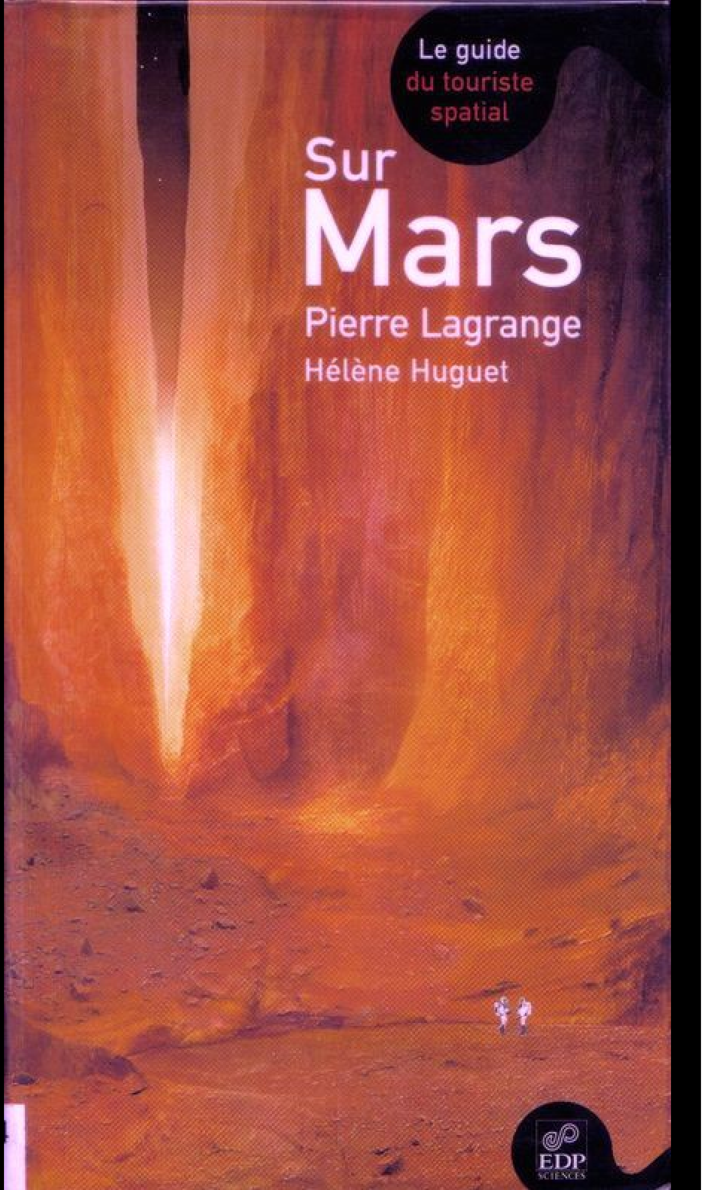
First winner, Carl Sagan Medal from the American Astronomical Society and, participating scientist, US *Mars Global Surveyor* Mission



Arnauld Pontier

SUR MARS RÉCIT DE VOYAGE

NiL



Le guide du touriste spatial

Sur Mars

Pierre Lagrange

Hélène Huguet

EDP SCIENCES

Weblio

- Applettes « Google Mars », « Google Earth » (+Lune, Mars, ciel), « Mars Globe », « Midnight Planets », …
- Sites NASA : « Be a martian », « Mars trek », « Mars.NASA.gov », « MSL-ChemCam.com »…
- Sites « SpaceWeather.com », « CuriosityRover.com », « DB-Prods.net », Flickr(Thomas.Appéré), …
- Forums de discussion Webastro, UnmannedSpaceFlight.com (aka “UmSF”)…