

# Space News

looking back over

June, July, August 2018

# Nasty Bump !



A Soyuz capsule spacecraft carrying three crew members home from 168 days on board the ISS returned to Earth on Sunday June 3<sup>rd</sup>. Cosmonaut Anton Shkaplerov, Norishige "Neemo" Kanai of the JAXA and astronaut Scott "Maker" Tingle of NASA touched down on the steppe of Kazakhstan. **OUCH!!**

# Another Replacement Crew for ISS



A replacement crew for the ISS was launched on June 6<sup>th</sup>.

NASA's Serena Auñón-Chancellor, cosmonaut Sergey Prokopyev and ESA astronaut Alexander Gerst launched aboard a Russian Soyuz MS-09 spacecraft from Baikonur Cosmodrome in Kazakhstan. The Soyuz rocket carrying their spacecraft lifted off at 11:12 GMT.

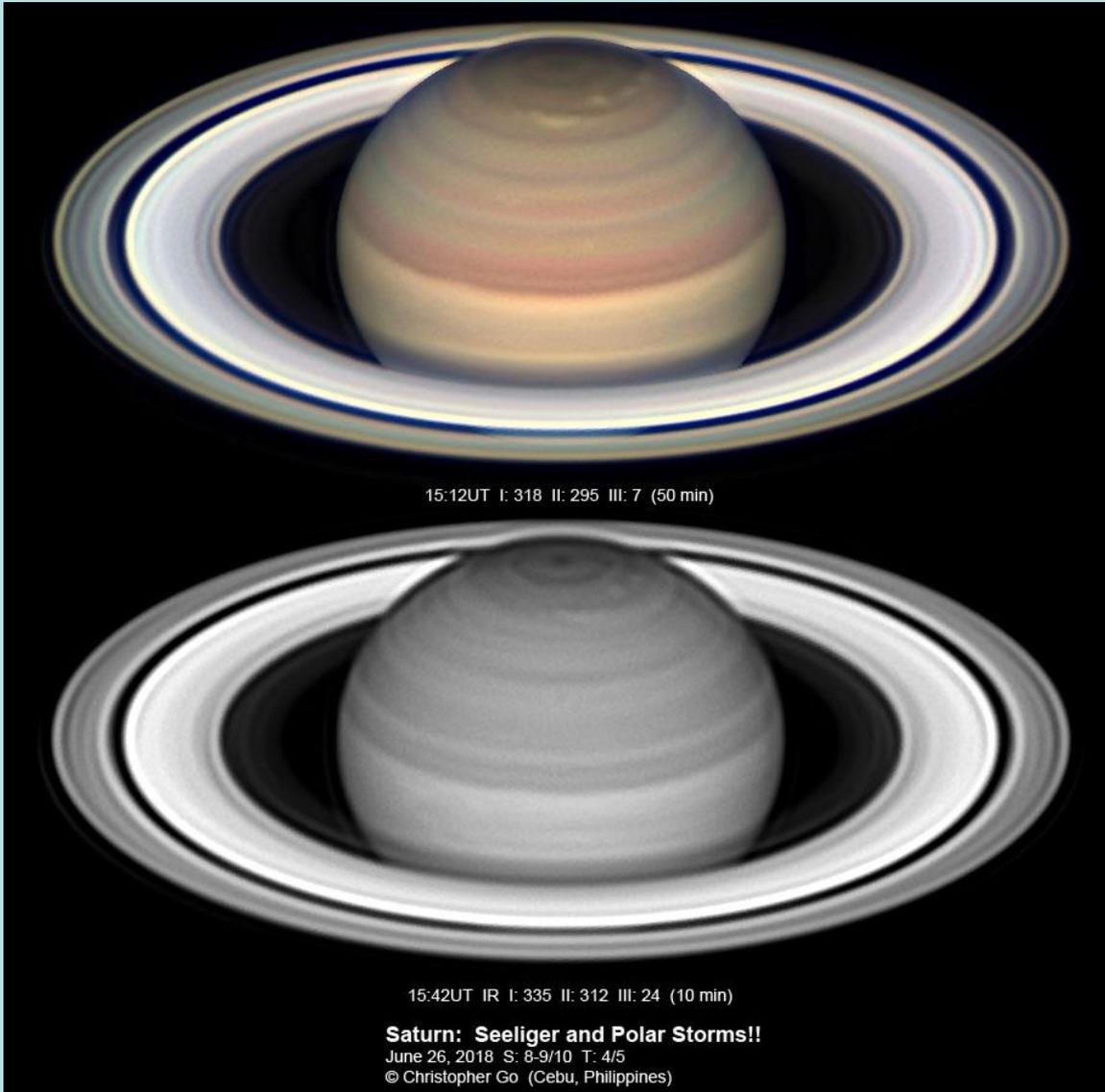
Gerst, a geophysicist, is on his second visit to the space station.

# Gamma-Ray Detector moves into Space – June 11th



This Delta II rocket left Cape Canaveral Air Force Station's launch pad 17-B at 12:05 pm EDT on June 11, 2008. In the payload section was **GLAST**, the Gamma-ray Large Area Space Telescope. GLAST's detector technology was developed for use in terrestrial particle accelerators. In Earth orbit, GLAST can detect gamma-rays from extreme environments above the Earth and across the distant Universe, including supermassive black holes at the centres of distant active galaxies, and the sources of powerful gamma-ray bursts.

# Saturn at Opposition



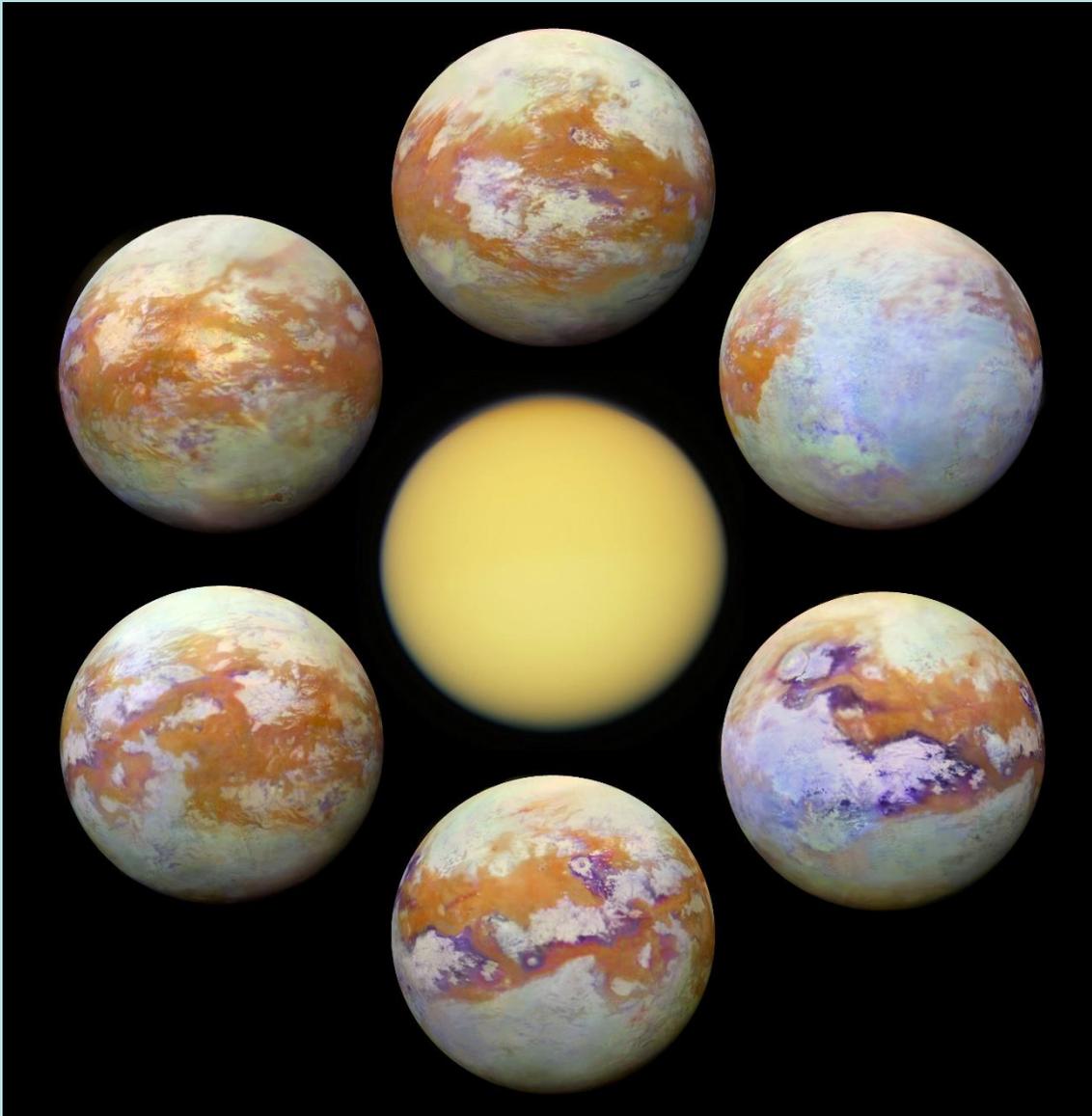
Saturn reached Opposition on 27<sup>th</sup> June. The rings appear wide open from Earth at the moment.

This angle allowed Christopher Go of the Philippines to take these images on the 26<sup>th</sup>.

The top one shows a polar storm active.

Both show the effective brightening of the rings caused by the 'Seeliger Effect'. This is due to 'coherent backscatter' and 'shadow hiding' and was proposed by Hugo von Seeliger in 1887.

# Seeing Titan through a Haze with IR



An impenetrable haze, strongly scattering light at visible wavelengths is hiding Titan's surface features from prying eyes.

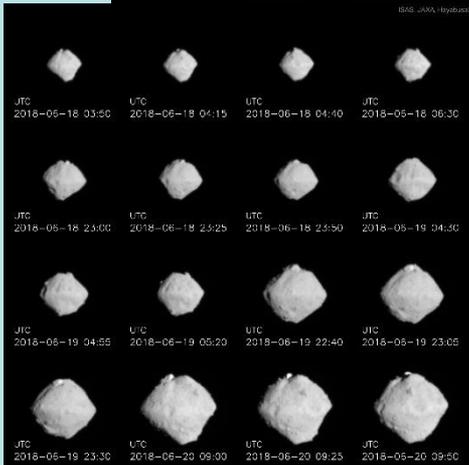
Titan's surface is better imaged using infrared wavelengths where scattering is weaker and atmospheric absorption is reduced.

The six outer images are the result of processing 13 years of infrared image data from the Visual and Infrared Mapping Spectrometer on board the Cassini spacecraft.

# Asteroid 'Ryugu' awaits its visitor

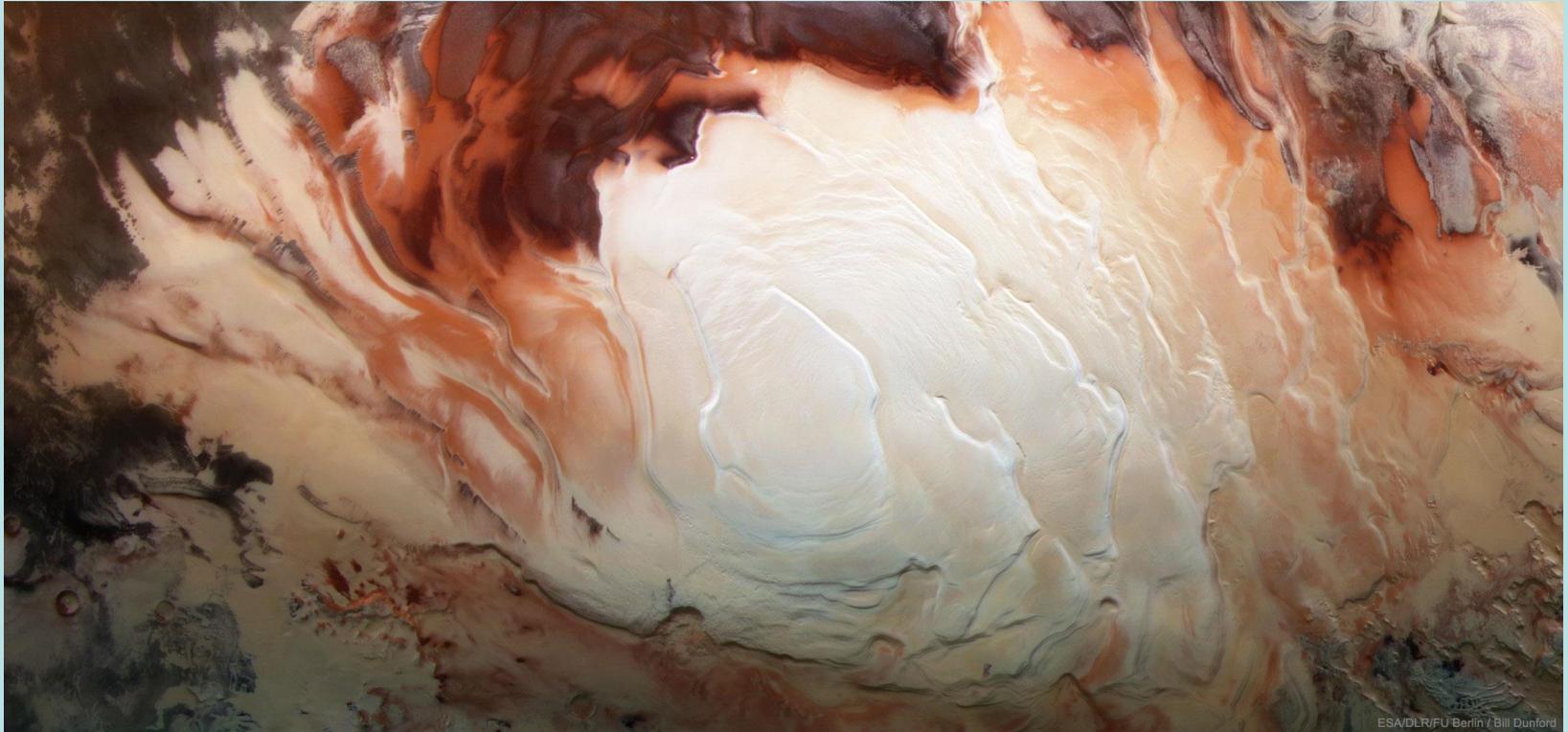
JAXA's Hayabusa2 spacecraft arrived at Ryugu on June 27<sup>th</sup> carrying a host of separate probes;- 2 impactors, 4 small close-proximity hoverers, 3 small surface hoppers, and the Mobile Asteroid Surface Scout (MASCOT) which will land, study, and move around on Ryugu's surface.

Hayabusa2 itself will collect surface samples for return to Earth and detailed analysis near the end of 2020



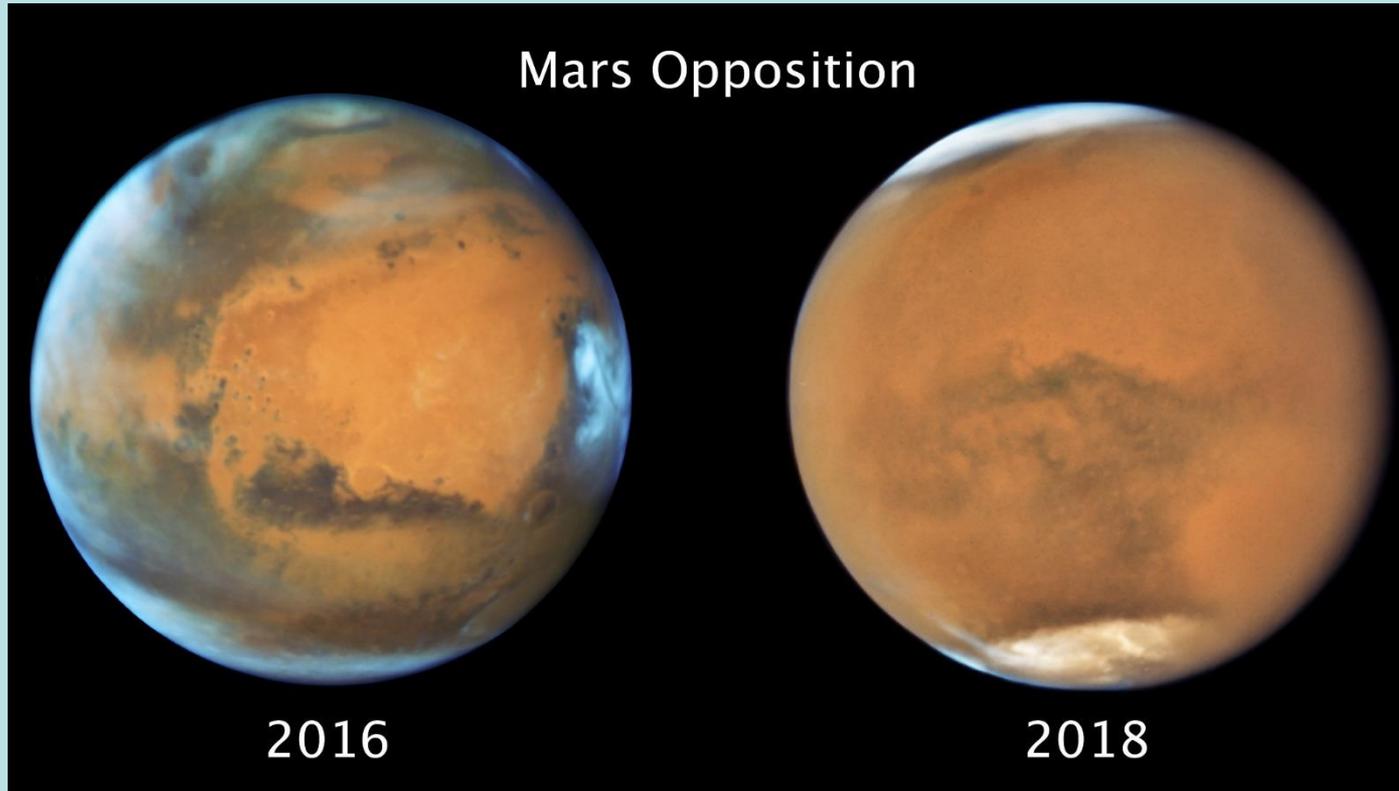
Photos taken during approach

# Mars' Version of Antarctica



**ESA's Mars Express** orbiter has recorded this view of the South Pole. Its ground-penetrating radar has detected a bright reflection layer consistent with an underground lake of salty water. The reflection comes from about 1.5km down and covers an area 20km across. Such a confined liquid layer, protected from the sun and evaporation, could be a possible host for life such as microbes.

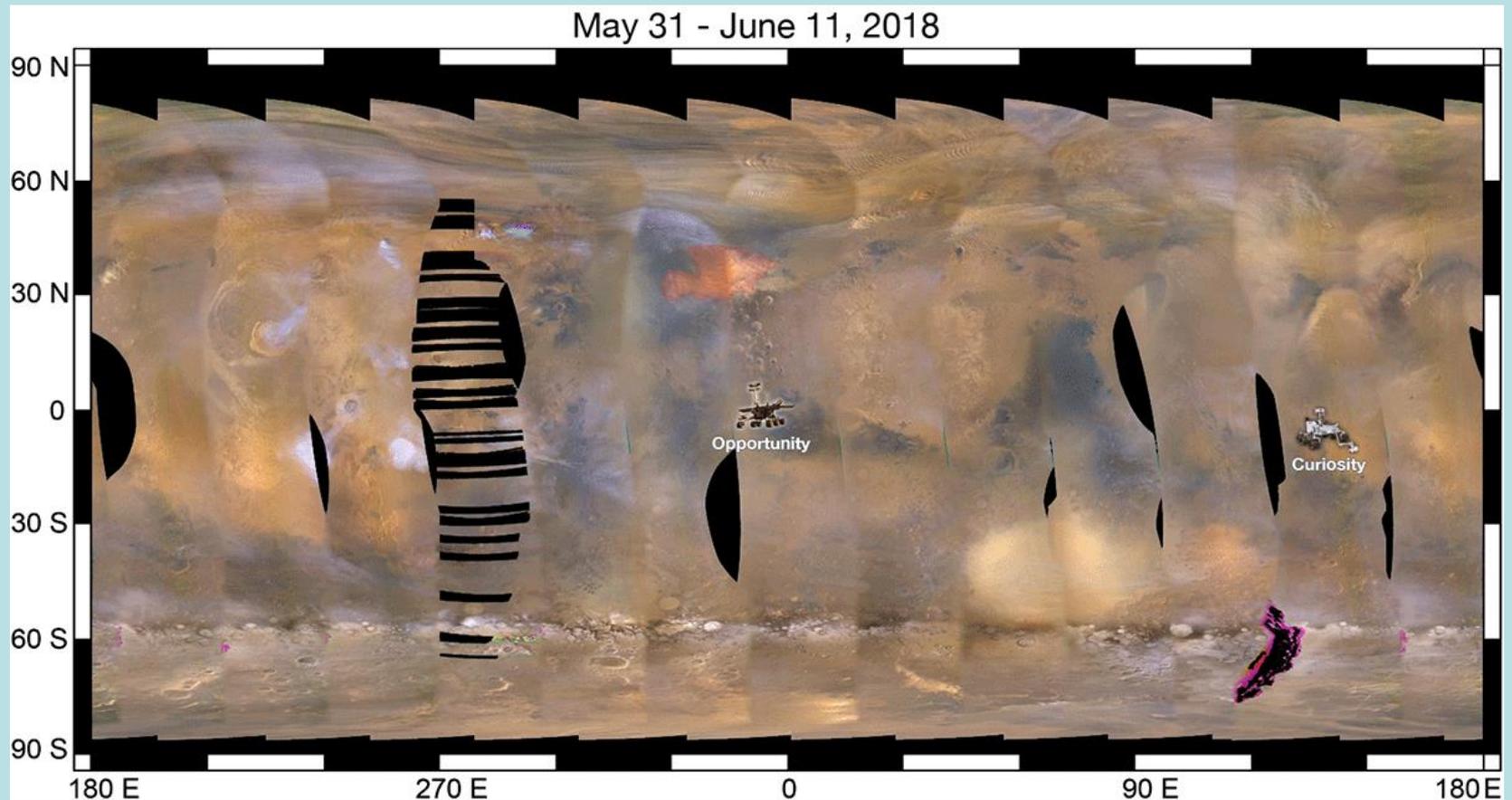
# Compare Mars at Opposition over 2 Years



Hubble photographed Mars on July 18th, near its closest approach to Earth since 2003 (on the 27<sup>th</sup>). This gives the Red Planet its brightest appearance in the night sky since 2003. It's springtime in Mars' southern hemisphere, where a dust storm erupted and is now blanketing the entire planet. Even so, several distinctive features can be identified.

The large oval area at the lower right is the bright Hellas Basin. Many global dust storms originate in this region, the deepest feature on Mars.

# Dust Storm on Mars

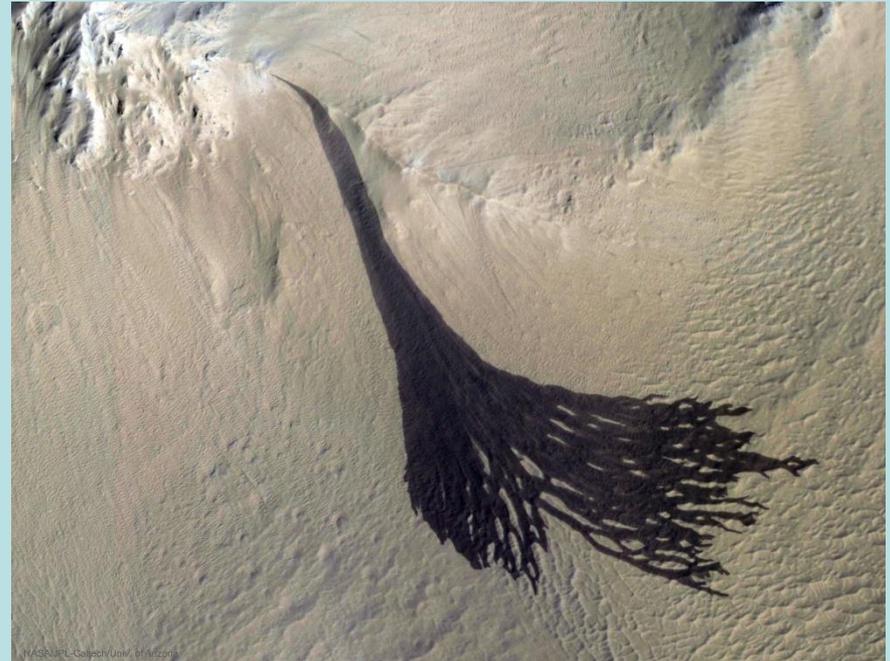


Both of NASA's rovers were blinded by the planet-wide dust storms that began in June. MRO first detected the storm on Wednesday, May 30<sup>th</sup>. When the orbiter team saw the storm nearing **Opportunity**, the rover's team began to prepare contingency plans. In a matter of days, the storm had ballooned to cover more than 7 million sq. miles, i.e. greater than North America -- and includes Opportunity's current location at Perseverance Valley.

# Martian Atmospherics and Geology



Martian dust storm – a view from the Curiosity Rover on June 10<sup>th</sup>. The rim of Gale crater about 20 miles away is just visible. In the low Martian gravity the dust takes quite a time to settle.



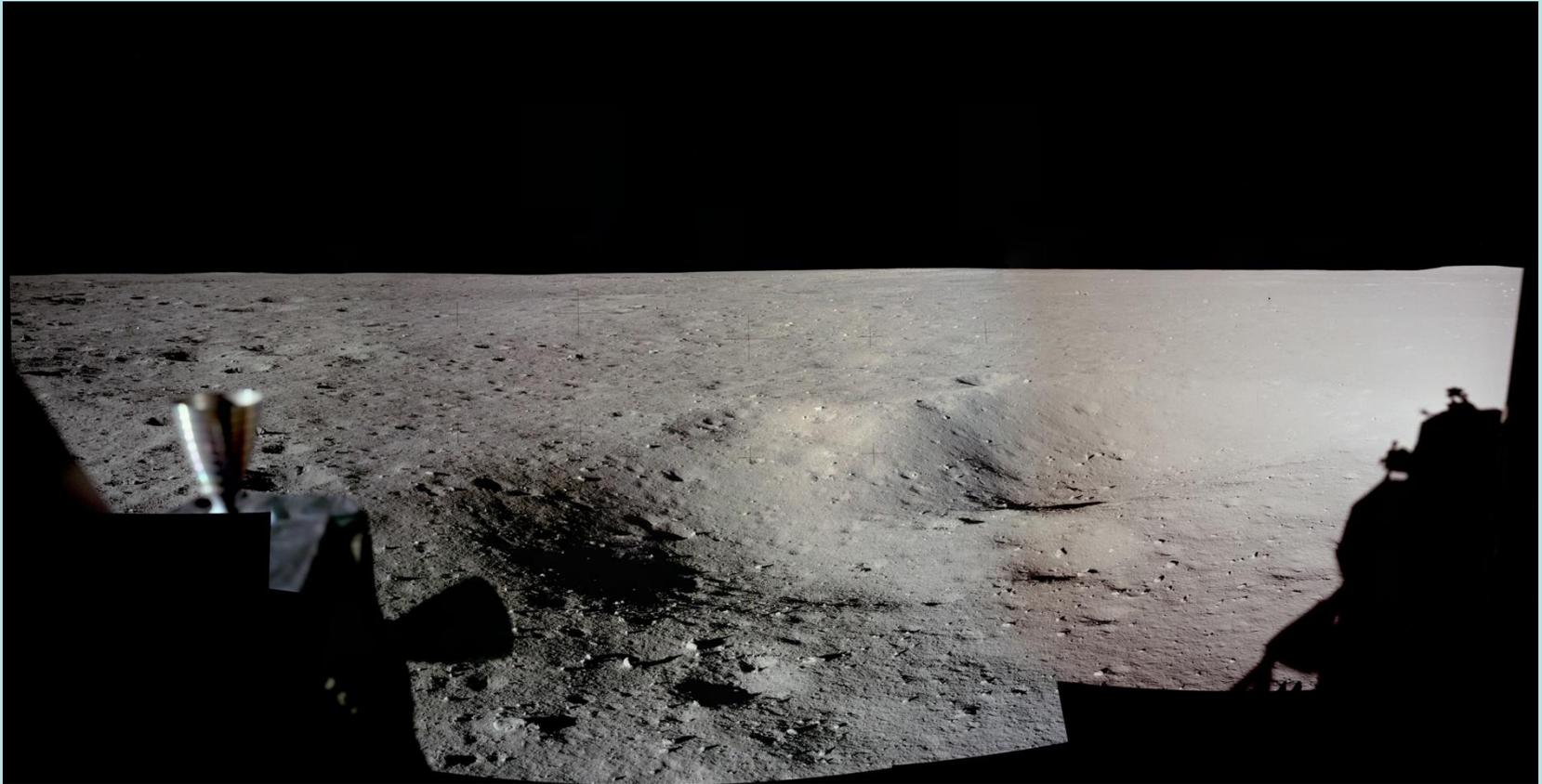
Martian landslide? These dark streaks ‘flowing’ down a hillside on Mars seem to indicate that something has occurred to loosen the Martian soil... Water flows, Dry Ice sublimation or avalanche??

# Blood-Moon Eclipse over the Sugar-Loaf



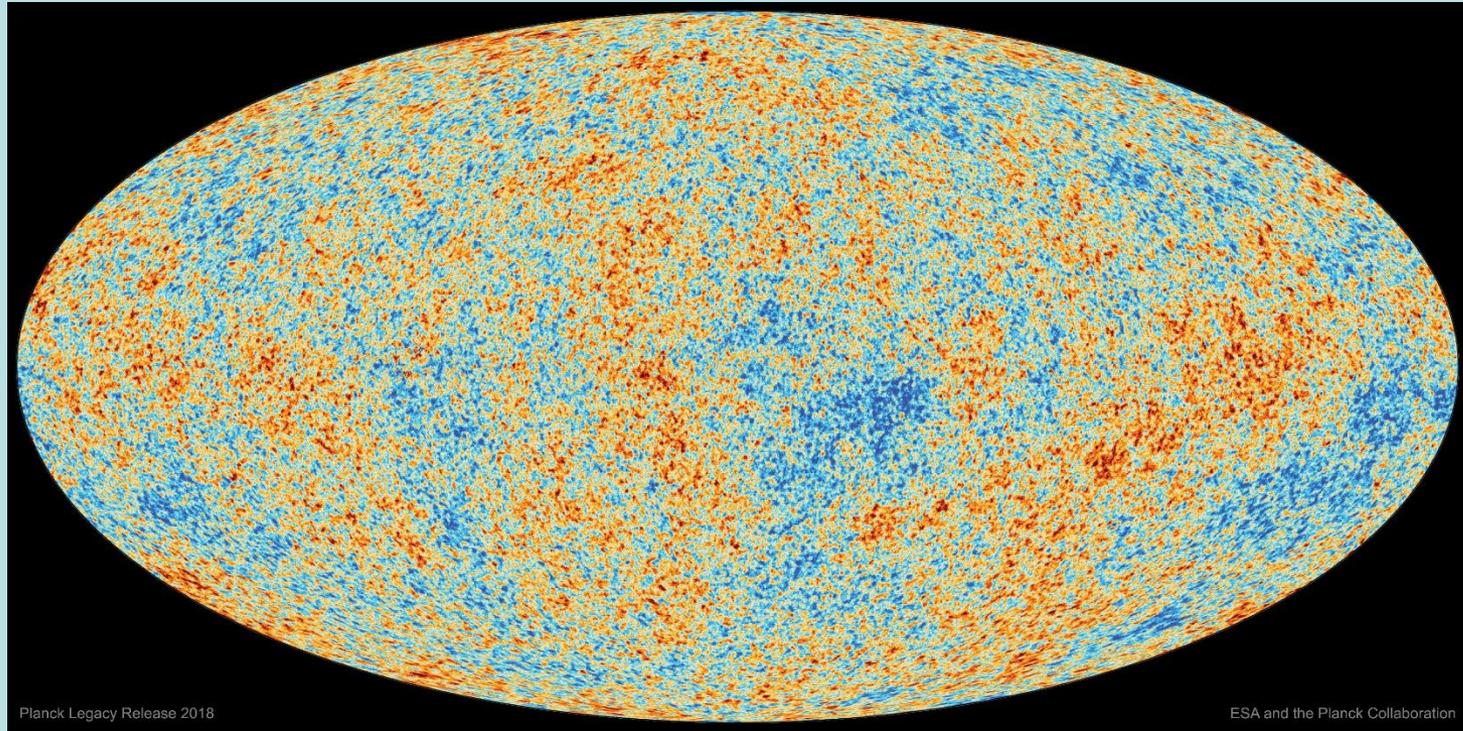
Visitors to Copacabana beach in RdJ will have had a double sighting on Friday 27<sup>th</sup> July, with both a copper-coloured eclipsed Moon and the Red Planet appearing behind the Sugar Loaf Mountain.

# 49<sup>th</sup> Anniversary of Apollo 11



Assembled from high-res scans of the original frames, this panorama sweeps across the empty desolation of the Apollo 11 landing site on the Moon's Sea of Tranquillity. The images were taken by Neil Armstrong looking out his window of the 'Eagle' Lunar Module about an hour and a half after the **July 20<sup>th</sup> 1969** landing and were intended to document the landing site in case an early departure was necessary. The crater to right is ~12m diameter.

# CMB – Updated from Planck Data



An updated map of the **Cosmic Microwave Background** (temperature of the universe) has been released following work on data from the Planck spacecraft. In orbit from 2009 – 2013, its final results confirm that most of our universe is mostly composed of mysterious and strange **dark energy**, and that even most of the remaining matter is strangely dark. Additionally, the "final" 2018 Planck data put the age of the universe at about 13.8 billion years and the local expansion rate (the **Hubble constant**) at 67.4 km/sec/Mpc, slightly lower than other results (!!)

# “Off you go Parker” “Yes, My Lady”

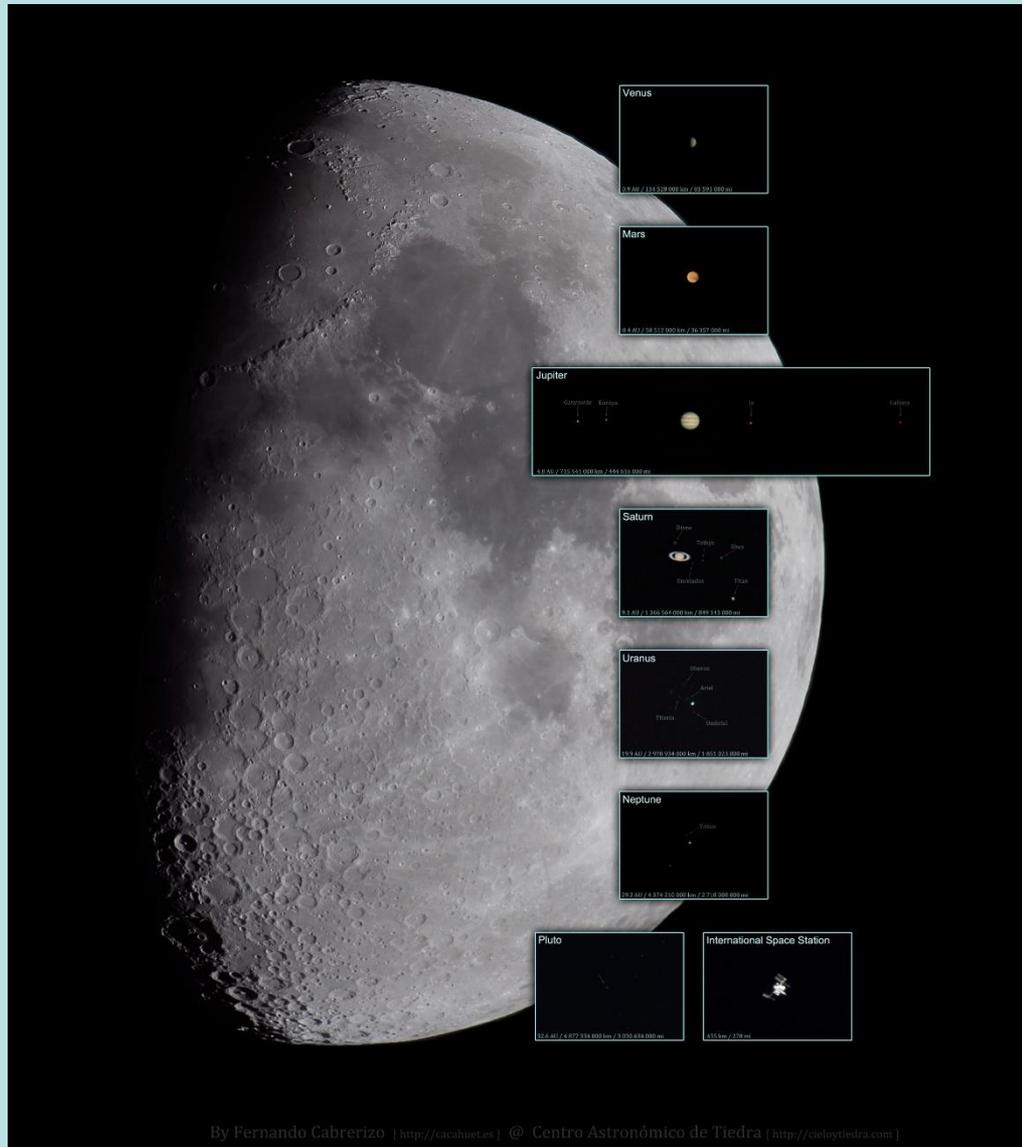


‘Parker Solar Probe’ is a mission to get close to the Sun and find out more about its corona.

It will approach to within 8.86 solar radii (3.85 million miles) from the photosphere and will travel as fast as 430,000 mph.

Johns Hopkins University applied physics lab designed and built the spacecraft, which was launched on August 12th 2018 (at night!) on a ‘Delta Heavy’ rocket.

# One Night, One Telescope, One Camera



The Challenge: Take images of all the planets and the Moon on the same night from the same place.

This pretty impressive result was achieved at the Tiedra Astronomical Centre near Valladolid in NW Spain on July 21<sup>st</sup>.

Only Mercury was missed, being too close to the horizon and behind clouds.

To replace it, the ISS was added to the mix.

This mosaic puts it all into perspective, showing their apparent sizes from Earth.

Send anything interesting you  
spot during  
September to:  
[michael@held.org.uk](mailto:michael@held.org.uk)