

Space News

looking back over

October 2019

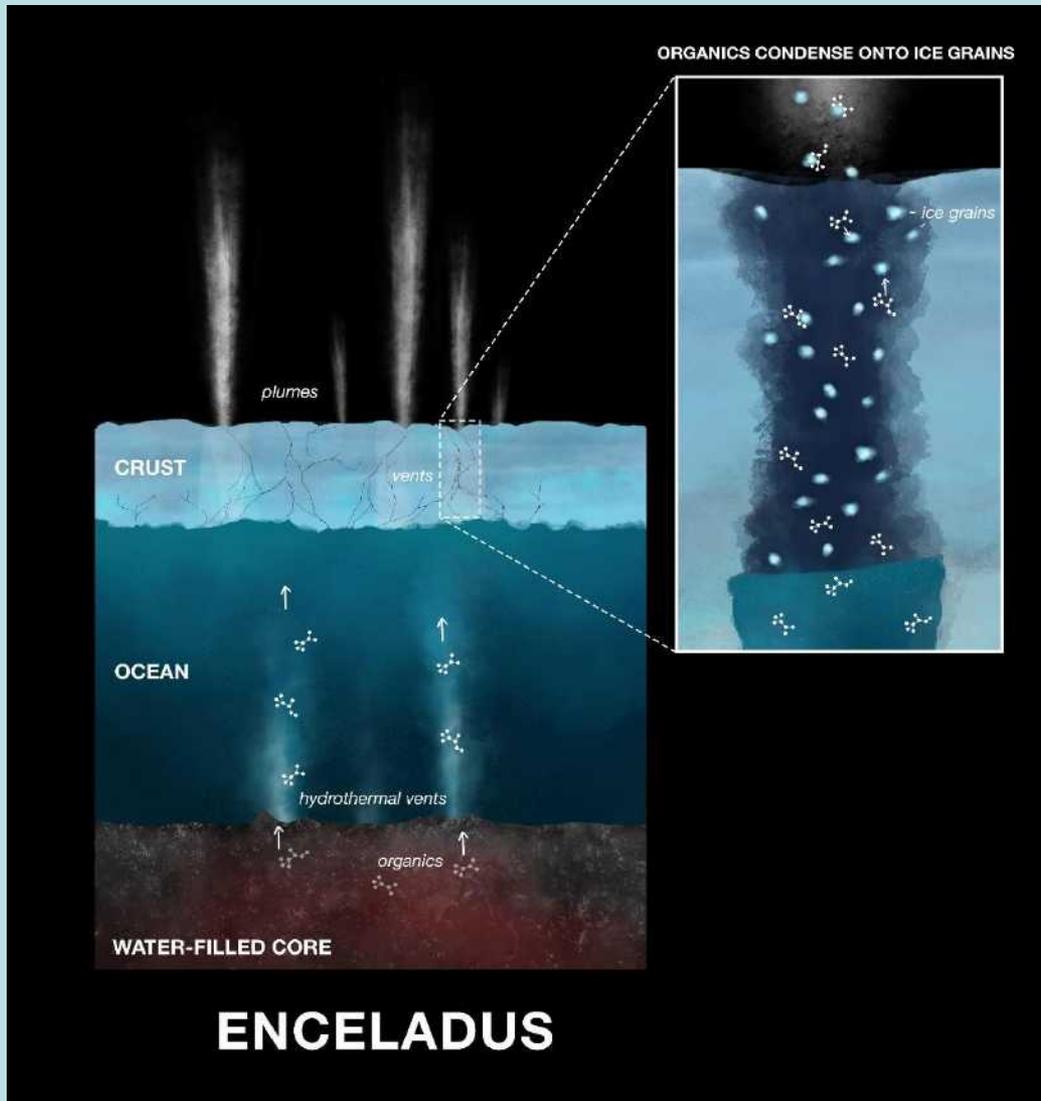
New ESA Commander for ISS



1st Oct: The departure of 3 crew members last month and the arrival of a new trio on 25th Sept marks the start of **Expedition 61** on the ISS.

The role of ISS Commander has passed to Luca Parmitano, an ESA astronaut. Previously he spent six months on board the Station as a member of the Expedition 36/37 crew in 2013. During that 'Volare' Mission, Luca conducted experiments in the station's laboratories. He also took part in two spacewalks. Luca is a Major in the Italian Air Force.

Organic compounds found in Water Plumes



2nd Oct: New kinds of organic compounds, the ingredients of **amino acids**, have been detected in the plumes bursting from Saturn's moon **Enceladus**. The findings are the result of studying data from NASA's **Cassini** mission. Powerful hydrothermal vents eject material from Enceladus' core, which mixes with water from the moon's subsurface ocean before it is released into space as water vapor and ice grains. The newly discovered molecules were condensed onto the ice grains.

What's in the Parcel?



4th Oct: In this time-lapse video, taken at NASA's Jet Propulsion Laboratory in California, engineers remove the inner layer of protective antistatic foil on NASA's **Mars 2020** rover after the vehicle was moved from JPL's Spacecraft Assembly Facility to the Simulator Building for testing. To prevent any contamination, the rover must be fully covered as it is transported about. It is due to collect samples for future return to Earth.

InSight gets help with its Mole...



3rd Oct: NASA's InSight lander, which is on a mission to explore the deep interior of Mars, positioned its robotic arm and scoop to assist the spacecraft's self-hammering heat probe. Known as "the mole," the probe has been unable to dig more than about 14 inches deep since it began burying itself into the ground in February. The problem is one of friction, which is not enough to keep the mole firmly in its hole.

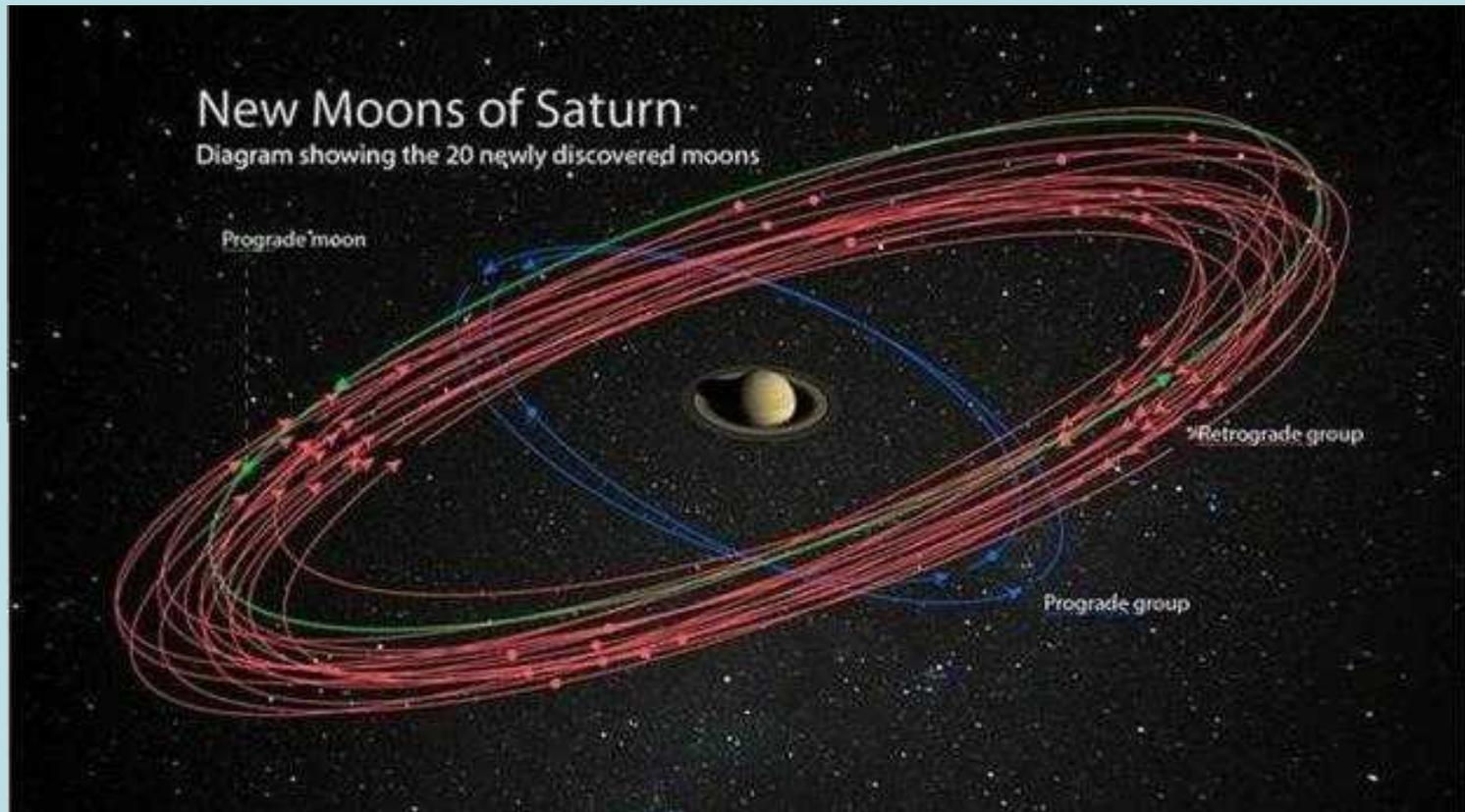
Whole Galaxy Exploded 3.5m year ago



Artists
impression

6th Oct: The discovery that the Milky Way's centre was more dynamic than previously thought may lead to a complete reinterpretation of its evolution. A cataclysmic **Seyfert flare** ripped through our galaxy about 3.5 million years ago. It started near the supermassive black hole (Sagittarius A^{*}) in the centre of the galaxy and it was felt 200,000 light-years away, creating the gas trail called the 'Magellanic Stream'.

More Tiny Moons

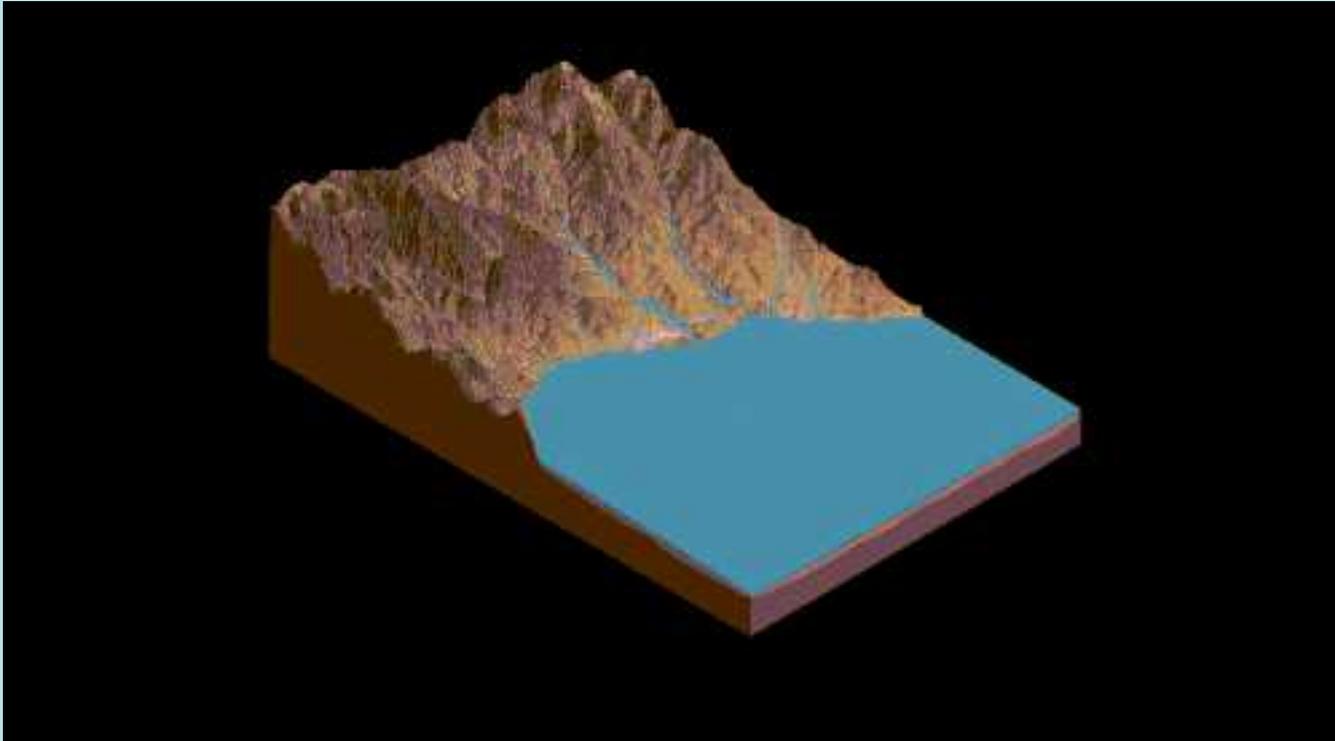


*Also see
The last
Slide...*

7th Oct: 20 new moons have been discovered orbiting Saturn, bringing its total to 82; Jupiter, by contrast, has a mere 79 natural satellites. The moons were discovered using the **Subaru** telescope on Maunakea, Hawaii.

Each of the newly discovered objects in orbit around Saturn is about three miles in diameter; 17 of them orbit the planet "backwards" or in a retrograde direction ←. The other three moons orbit prograde → the same as Saturn.

Mars' version of the Dead Sea



7th Oct: Gale Crater, currently the home of the Curiosity Rover, once contained lakes and streams of liquid water. Around 4.2 billion years ago. Mars lost its global magnetic field, which had protected the atmosphere from the solar wind. Mars then lost the vast majority of its air to space by about 3.7 billion years ago, causing the planet to become much colder and drier. Curiosity has found high levels of **sulphate** salts left by the complete evaporation of these lakes as the planet lost its water

Starship Assembled – but what about Crew Dragon?



Ready by
February
2020 ???



9m diameter
50m high

Sits on top
68m high
launcher

7th Oct: The SpaceX '**Crew Dragon**' spacecraft built to carry crews to ISS is yet to carry a live person into space. NASA is frustrated that it is delayed while Elon Musk is proceeding with the work on his interplanetary **Starship** spacecraft and its launch vehicle. Meanwhile NASA is having to pay Roscosmos for rides to orbit at \$85m each. The Starship is to be made of stainless steel, not carbon fibre as planned earlier.

India's Lunar Mission Partly Successful



8th Oct: ISRO launched its **Chandrayaan-2** moon mission in July, designed to tackle a host of questions about the moon, with a particularly sharp eye on the water ice the spacecraft's predecessor spotted at the south pole. The orbiter carries two cameras, both of which have been hard at work. The HD camera has a resolution of 30cm per pixel, showing individual boulders from orbit. Although their '**Vikram**' lander was lost, the science continues...

Citizen Science – Where is this?



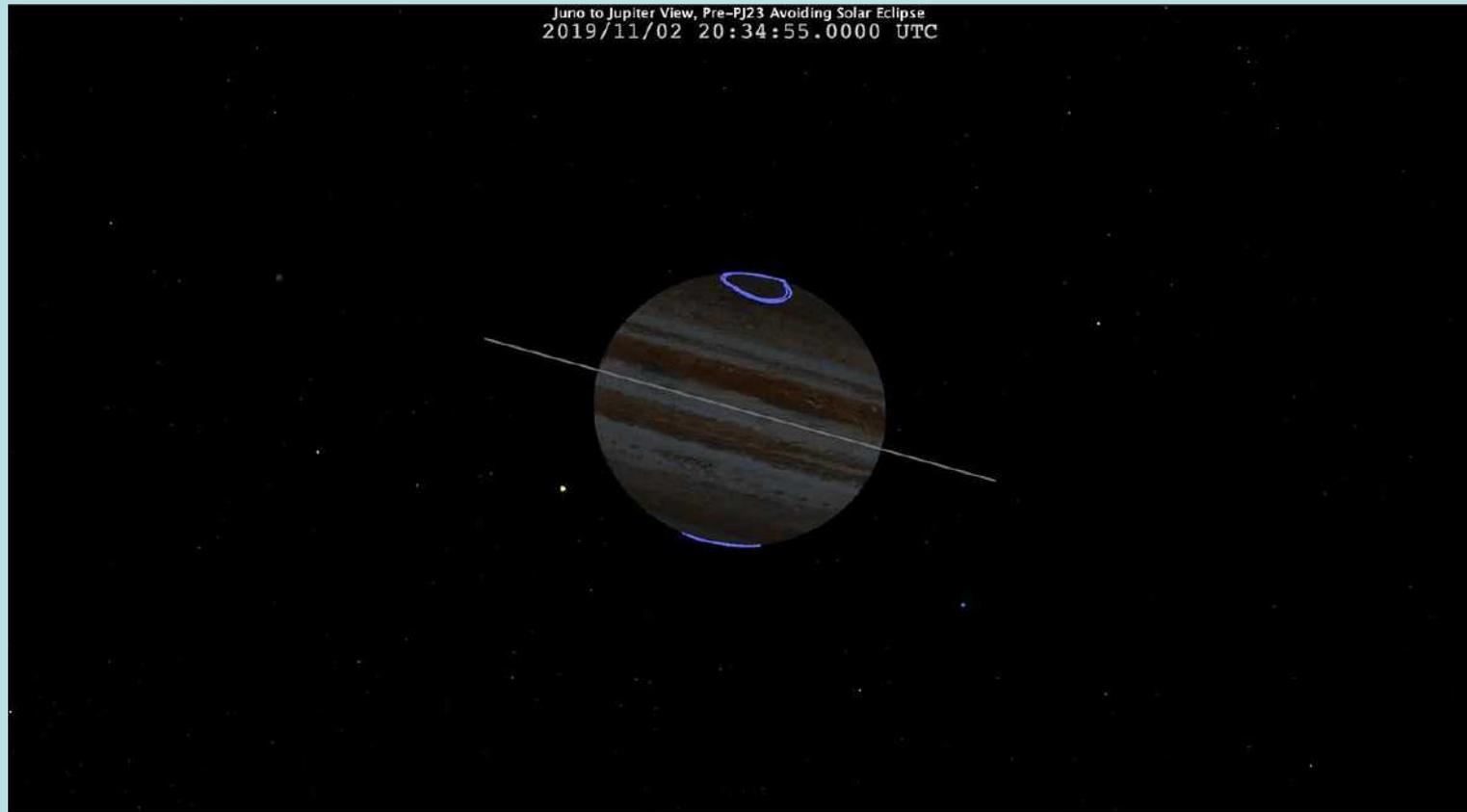
9th Oct: The astronauts aboard the International Space Station often take colour photographs of the **Earth at night**. The NASA archive of ISS photos has over 1 million such images, which largely sit unused. We want to change that.

The problem is that a lot of the images in the archive are uncatalogued, and do not have a location assigned to them.

Visit '<https://lostatnight.org/>' to view a selection of images and help to identify where they are.

Changes over time will show how light pollution is spreading.

Keep out of the Shadow...!!



10th Oct: The Juno spacecraft was forced to perform a long ‘burn’ in order to avoid being eclipsed by Jupiter. The loss of direct sunlight on its solar panels could have ended the mission as the batteries would have totally drained, with the loss of heating and freezing the spacecraft.

The 10.5 hour manoeuvre to slow Juno cost it 73kg of fuel.

Leonov, first space walker



11th Oct: Soviet cosmonaut Alexei Leonov, who in 1965 became the first person in history to spacewalk, has died aged 85. Tethered to his spaceship by a 16ft cable, the Russian floated above the Earth for 12 minutes.

"You just can't comprehend it. Only out there can you feel the greatness - the huge size of all that surrounds us," Leonov said. But the outing nearly ended in disaster as his spacesuit inflated and he struggled to get back into the spaceship!

Curiosity – The Mars Chemist takes a selfie



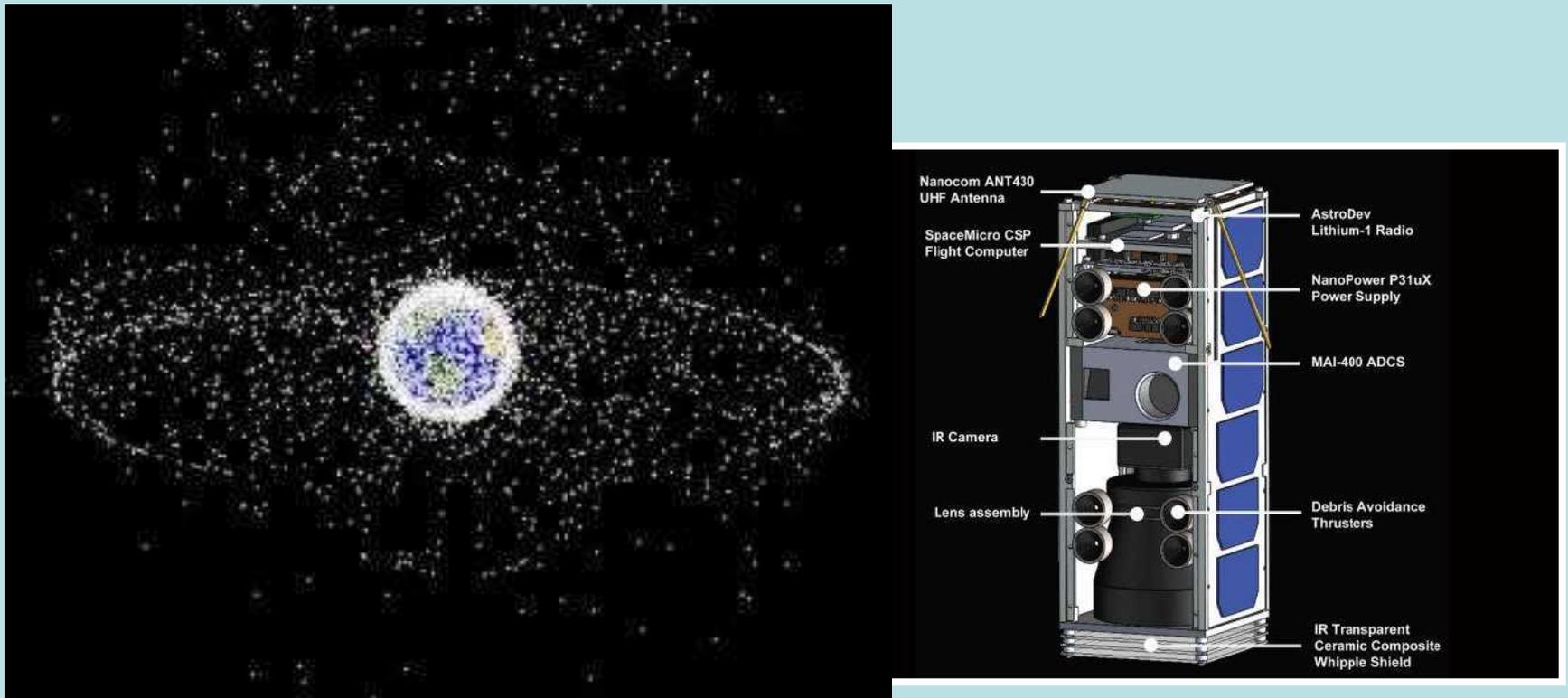
11th Oct: Curiosity is now at an important location in Gale Crater – the “Clay Bearing Unit” now named “Glen Etive”. Visible to the left are two drilled holes where samples have been taken for the internal chemical analysis equipment. This is only the second time that this type of ‘wet’ chemistry has been performed, as the number of tests of this type are limited. Clays are known to hold and preserve other compounds, maybe some organics???

Private UK Walking Robot on the Moon in 2021



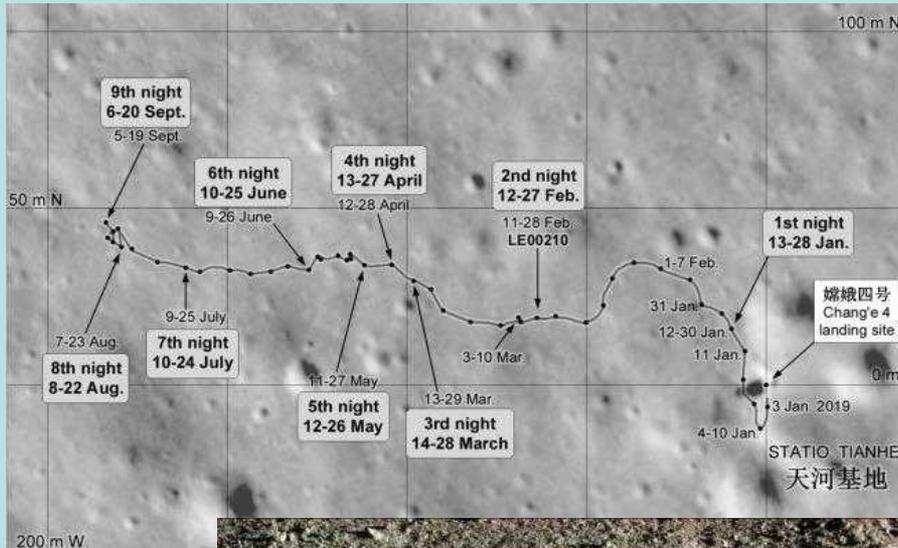
14th Oct: The United Kingdom is set to make its own giant leap soon, with a very small rover. A 1kg four-legged robot built by London-based **Spacebit** will launch aboard **Astrobotic's Peregrine** moon lander in July of 2021, representatives of both companies announced recently. It will be a flight of firsts — the first mission for both Peregrine and its rocket, **United Launch Alliance's** new **Vulcan Centaur** and definitely the first time a legged robot has explored another world.

New Satellite Tech to Dodge Space Junk



14th Oct: Space Debris is increasing – and with more launches will only grow. Each collision between satellites creates more tiny particles, hard to detect and thus avoid. Collision speeds are typically 22,000 mph. One proposed solution is to fit satellites with a device to detect approaching debris and thrusters to quickly move out of the way. Such a test satellite is shown above.

Chinese Moon mission continues 'round the back'

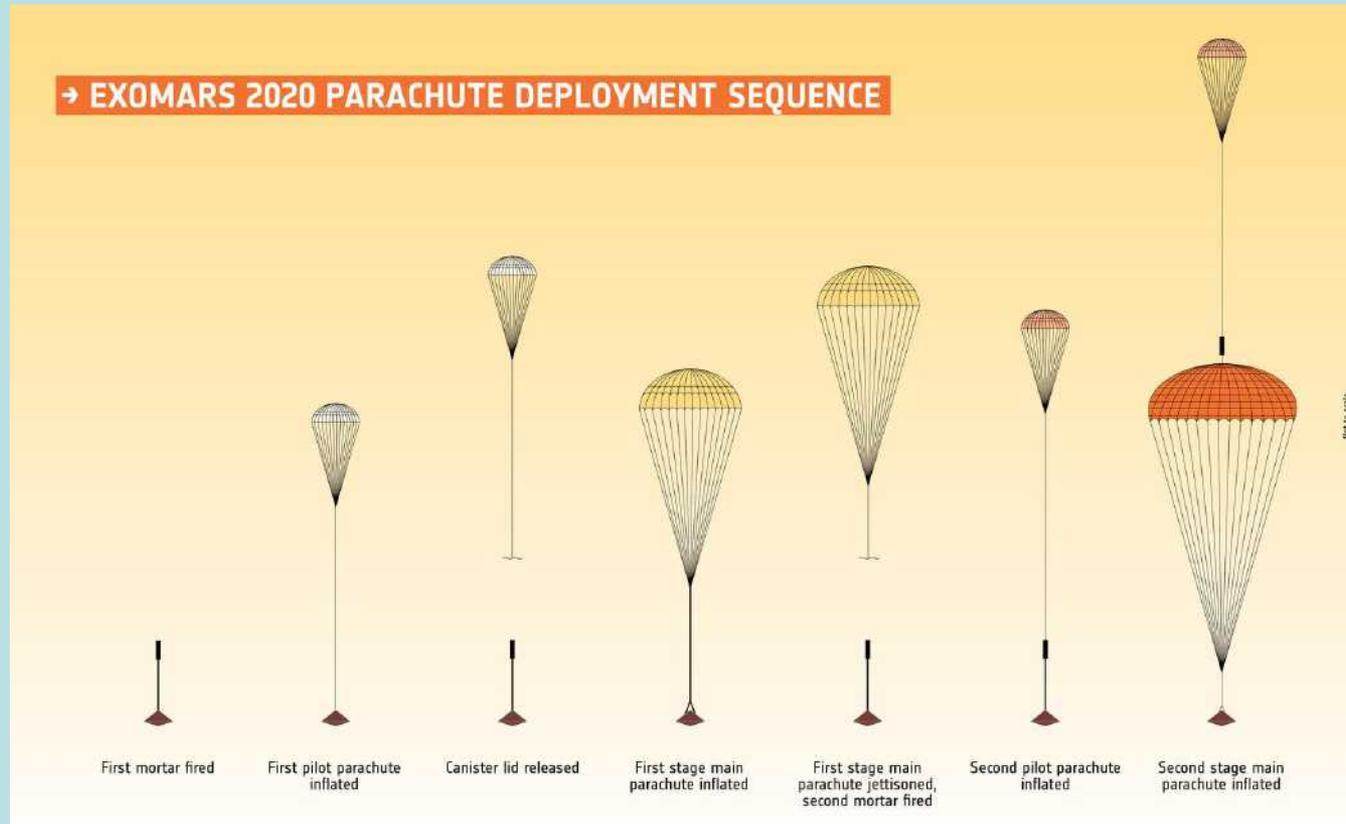


15th Oct: China's **Chang'e 4** mission completed **10 lunar days** of activity on the far side of the moon, returning new images and carrying out science tasks.



Both the Chang'e 4 lander and the Yutu 2 rover entered a dormant state on Oct 5th in preparation to survive a 10th lunar night, where the temperature drops to -190°C

ESA's ExoMars Mission dependent on Parachutes



15th Oct: The descent needs two parachutes – each with its own pilot chute for extraction – to help slow the module for landing on Mars. Tests to date have only been partially successful, with damage to both chutes. Further design changes will be drop-tested in the new year before a final acceptance review in April. The launch window is late July – early August.

Rocket launch seen from above



Sept: A Chinese remote sensing satellite captured stunning footage of a suborbital rocket launch taking place at the Jiuquan Satellite Launch Centre in the Gobi Desert. The Jilin-1 satellite was orbiting at around 535 kilometres above the Earth as **OneSpace's OS-X1** rocket lifted off. The video was shared on the Chinese social media site Weibo, but is now on twitter.

<https://twitter.com/dafengcao/status/1038033917020786689>

Ladies fit new batteries in Space



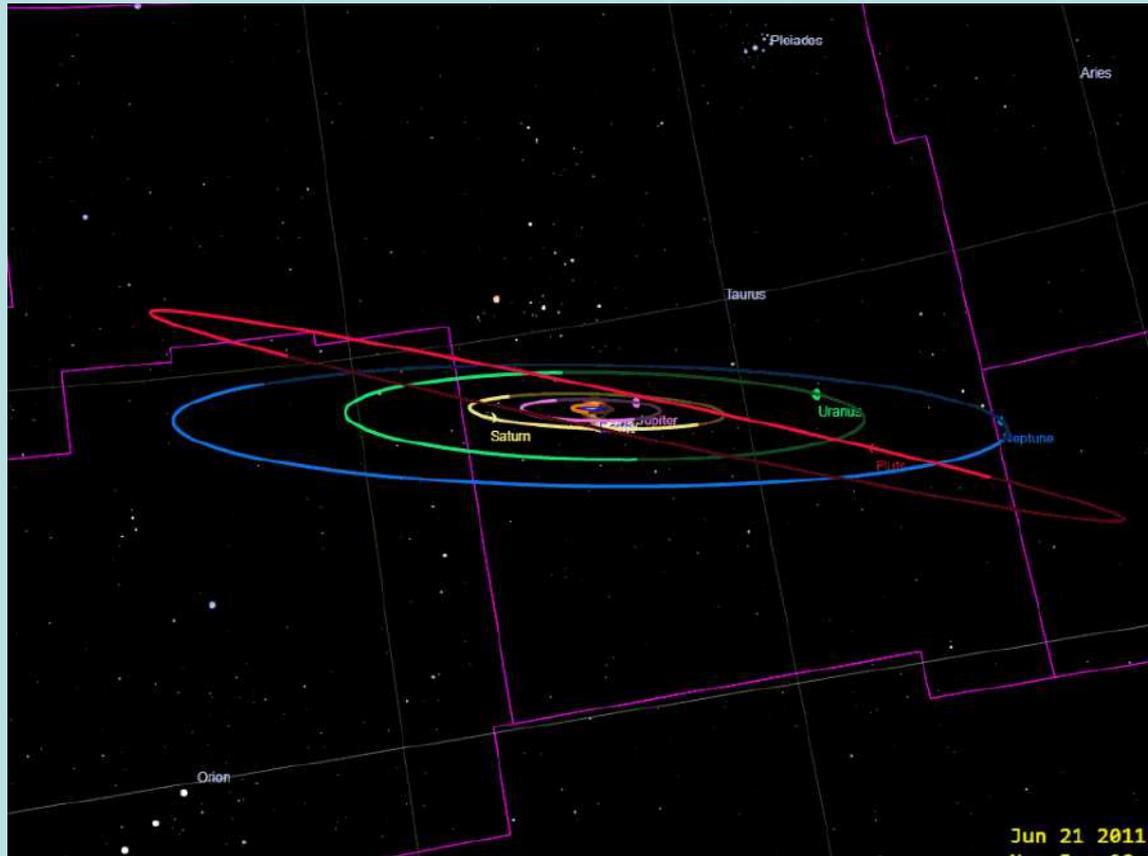
18th Oct: Nasa astronauts Christina Koch and Jessica Meir have made history by completing the first ever all-female spacewalk. They spent seven hours outside the International Space Station (ISS) replacing a failed power control unit. Ms Koch had already carried out four spacewalks but it was the first such mission for Dr Meir, who became the 15th woman to walk in space.

Going SoLO to the Sun



18th Oct: The ESA spacecraft that aims to take the closest ever pictures of the Sun is built and ready for launch. The Solar Orbiter, or SoLO, probe will put itself inside the orbit of Planet Mercury to train its telescopes on the surface of our star. Assembled in Stevenage, UK, with the past year spent in Germany for testing, it will be launched from Florida in February.

I won't take my coat off... I'm not stopping



Aug – Sept 2020: This interstellar comet is named 2I/Borisov after its discoverer, Gennadiy Borisov using his own 'home-made' 65cm telescope. This is like the discovery of Pluto... Unlike our previous visitor, Oumuamua, it appears to be a true comet, with a coma – a cloud of dust and gas. Moving at 32km/s, it will pass closest to the Sun on December 8th and will be observable until at least next September.

Send anything interesting you
spot during
November to:
michael@held.org.uk

Suggest names for the newly-discovered Saturnian moons:

<https://www.skyandtelescope.com/astronomy-news/help-name-saturns-20-newfound-moons/>