

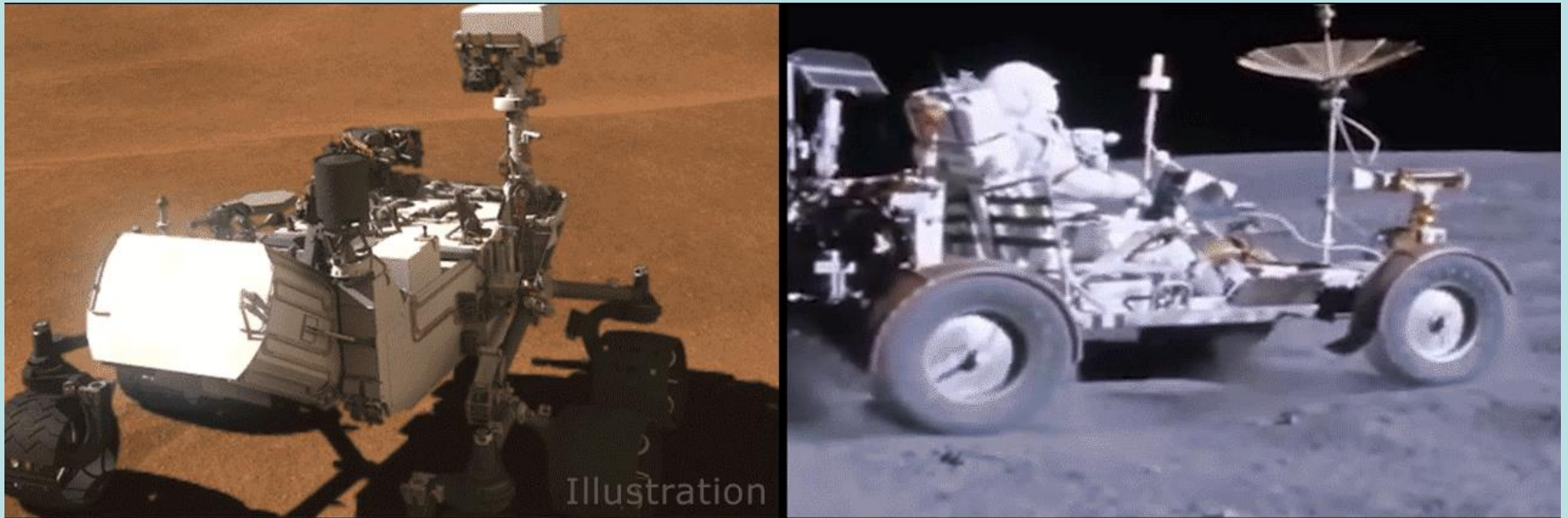
Space News

looking back over

February 2019

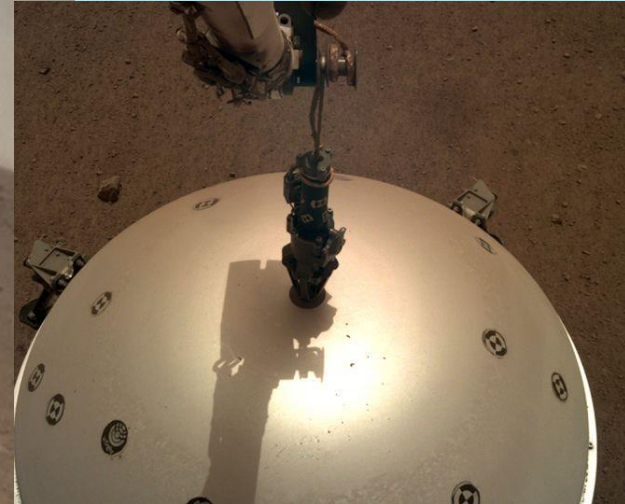
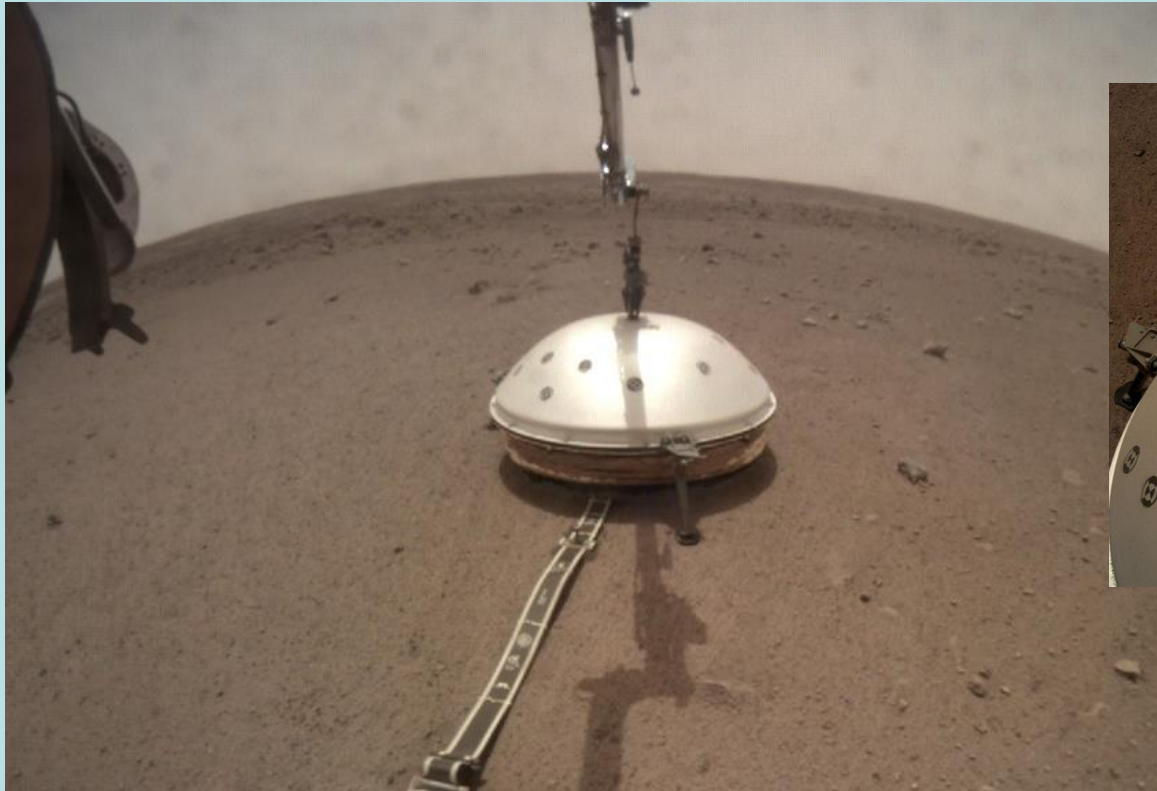
Question: What time is it on the ISS ?

Curiosity repeats Apollo gravity experiment



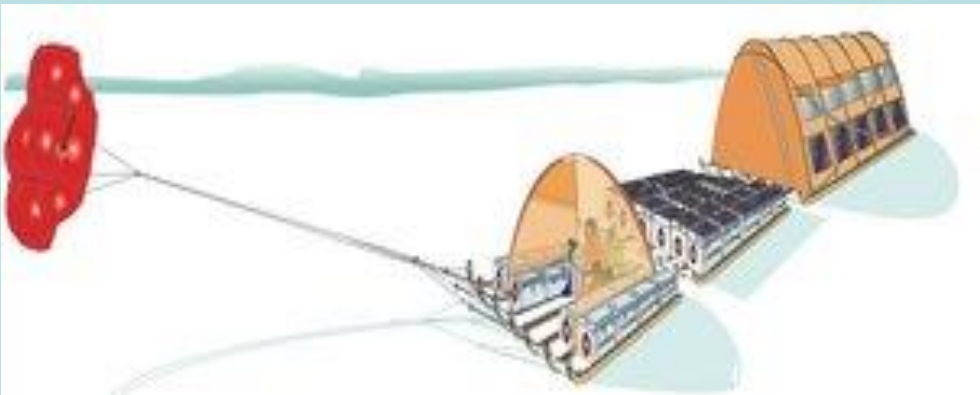
1st February: Apollo 17 astronauts drove a moon buggy across the lunar surface in 1972, measuring gravity with a special instrument. A group of clever researchers realized they have the sensors for similar experiments on Curiosity. This has enabled them to measure the subtle tug from rock layers on lower Mount Sharp, which rises 3 miles from the base of Gale Crater. It turns out the density of those rock layers is much lower than expected. The rover is now moving away from Vera Rubin Ridge, which it has been exploring for 18 months, and is headed towards a clay-bearing trough to the south, which may provide clues about ancient lakes in this area of Mount Sharp.

Marsquake sensor gets its protective 'hat'



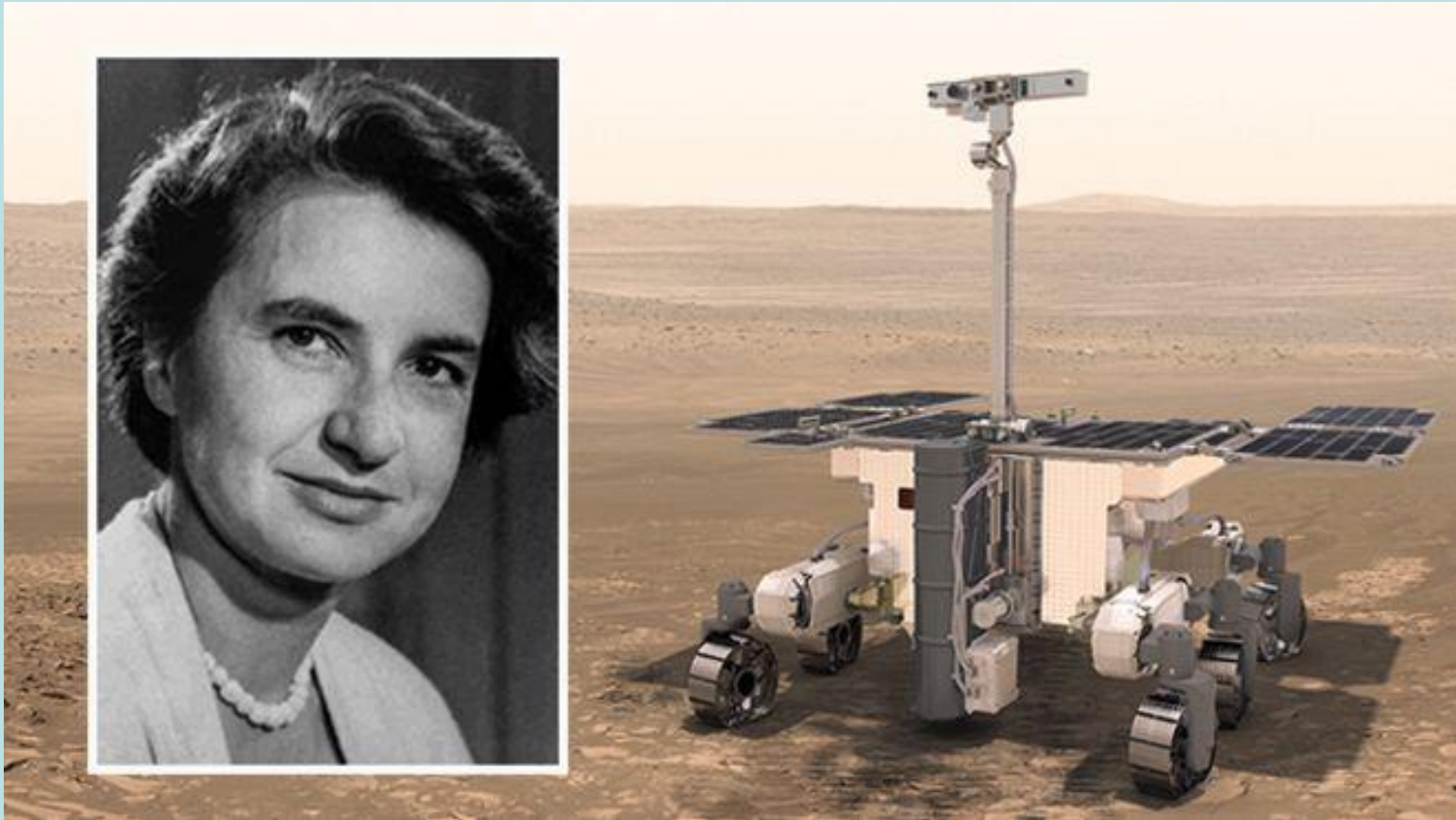
February 4th: NASA's InSight lander has been making adjustments to the seismometer it set on the surface on Dec 19th. Now it has been able to place a domed shield over the seismometer to help the instrument collect accurate information. The Wind and Thermal Shield helps protect the supersensitive instrument from being shaken by passing winds, which can add "noise" to the data and also cope with the extreme range of temperatures in a Martian day.

Kite-Blown Expedition used Galileo for Position Fixing



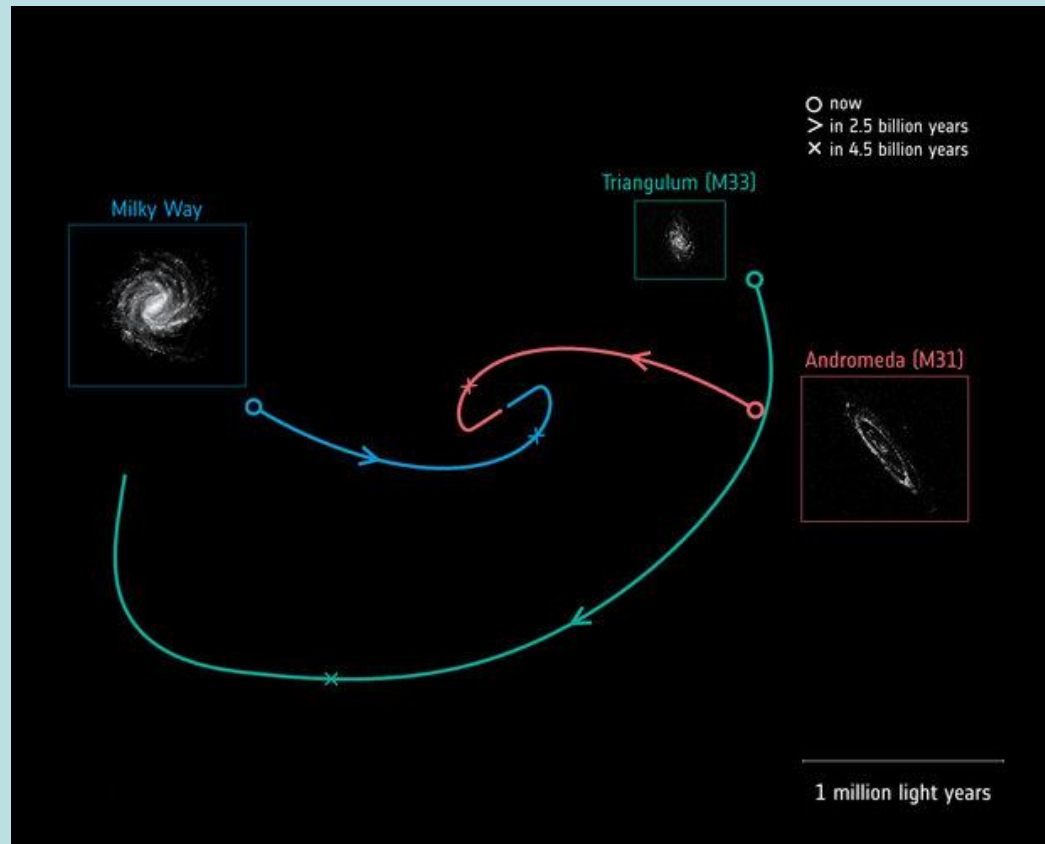
February 4th: A four-man expedition across Antarctica using a wind-powered sledge was able to use the **Galileo** sat-nav system to track its location from these most southerly latitudes (80degS). The *Inuit WindSled* is a multi-part sledge the size of a lorry, complete with mounted tents and solar power panels, pulled across the ice using a mammoth 150 sq. m kite. Covering 2400km in 40 days demonstrated how a non-polluting vehicle can operate in these places.

'ExoMars' Rover now named after DNA Pioneer



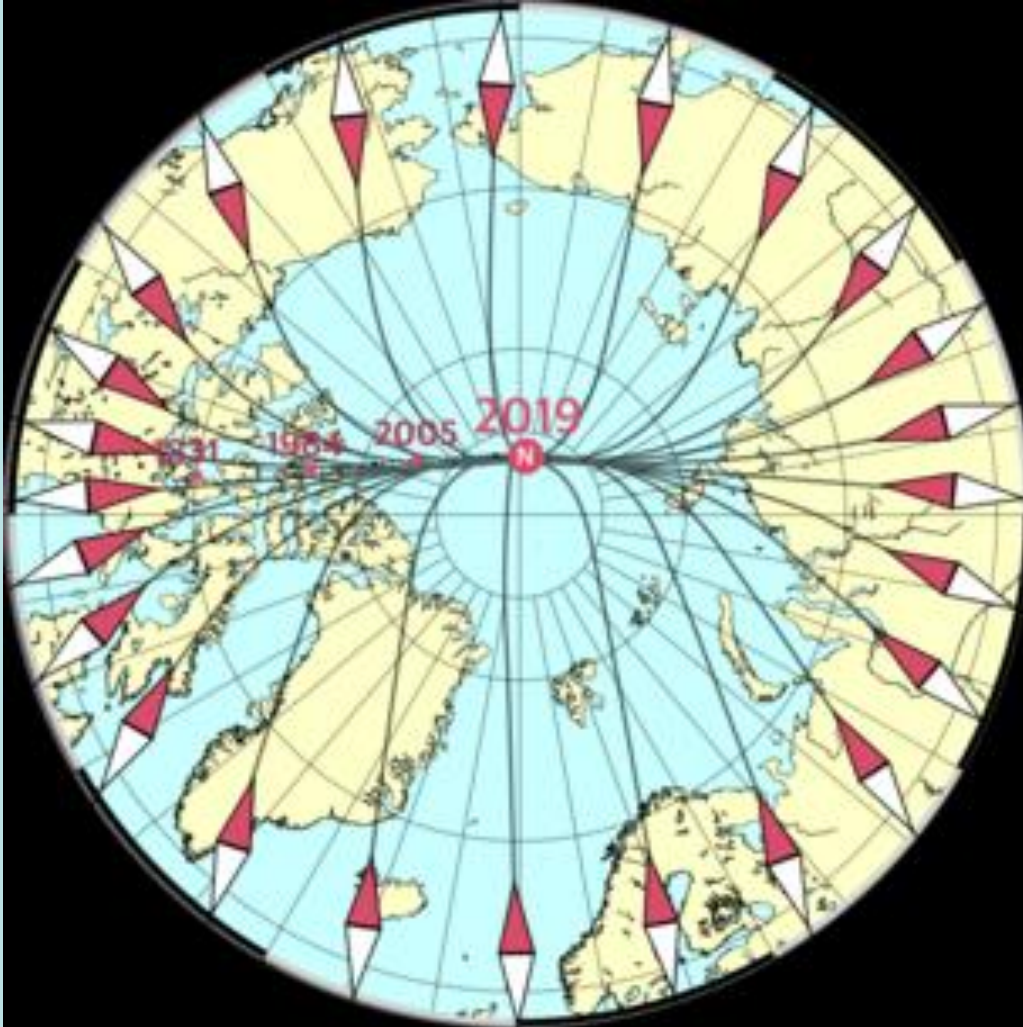
7th February: The UK-assembled rover that will be sent to Mars in 2020 will bear the name of DNA pioneer **Rosalind Franklin** following a public call that drew nearly 36,000 ideas. The six-wheeled vehicle will be equipped with instruments and a drill to search for evidence of past or present life on the Red Planet. Will it find any 'DNA-type' molecules as evidence of life??

GAIA data provides speeds for Galactic Collisions



February 7th: The Milky Way belongs to a gathering of galaxies known as the **Local Group** and, along with the Andromeda and Triangulum galaxies – also referred to as M31 and M33, respectively – makes up the majority of the group's mass. ESA's Gaia satellite has these two nearby galaxies to reveal the stellar motions within them and how they will one day interact and collide with the Milky Way – with surprising results.

Do you trust your Compass/Smartphone?

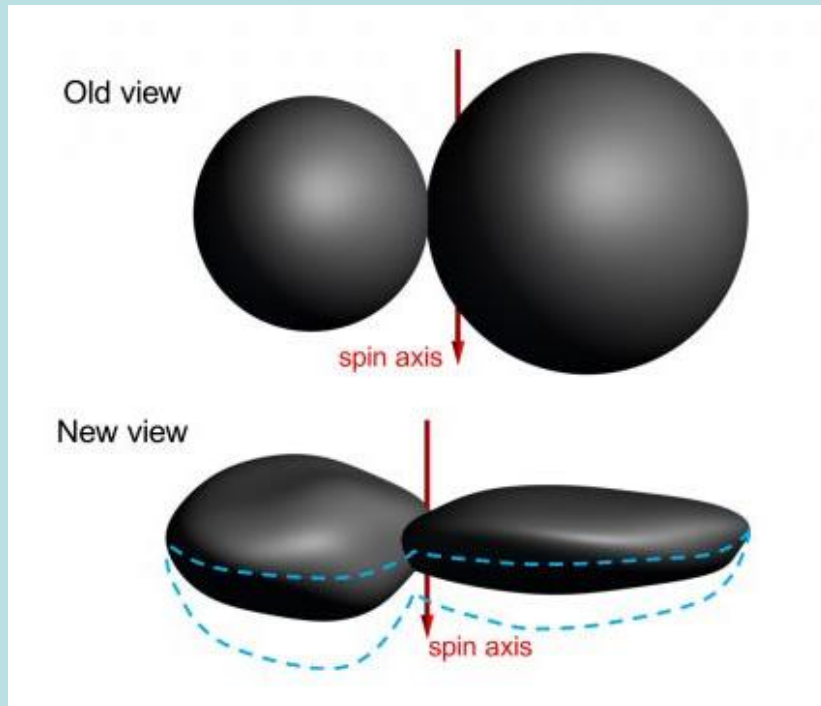


February 8th: Since 1831, we have known that the magnetic north is constantly on the move. However, its tendency to roam has picked up the pace recently – so much so that the **World Magnetic Model** has had to be updated urgently with the pole's new location, vital for navigation on smartphones, for example.

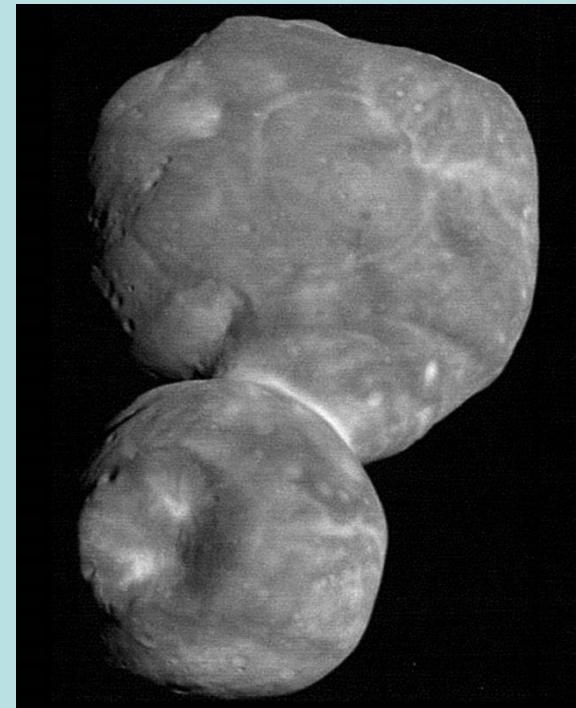
ESA's magnetic field **Swarm** mission has been key for this update.

Around 50yr ago, the pole was moving at ~15 km a year, but now it is whizzing ahead at ~55 km a year!!

It's a FLAT SNOWMAN !!

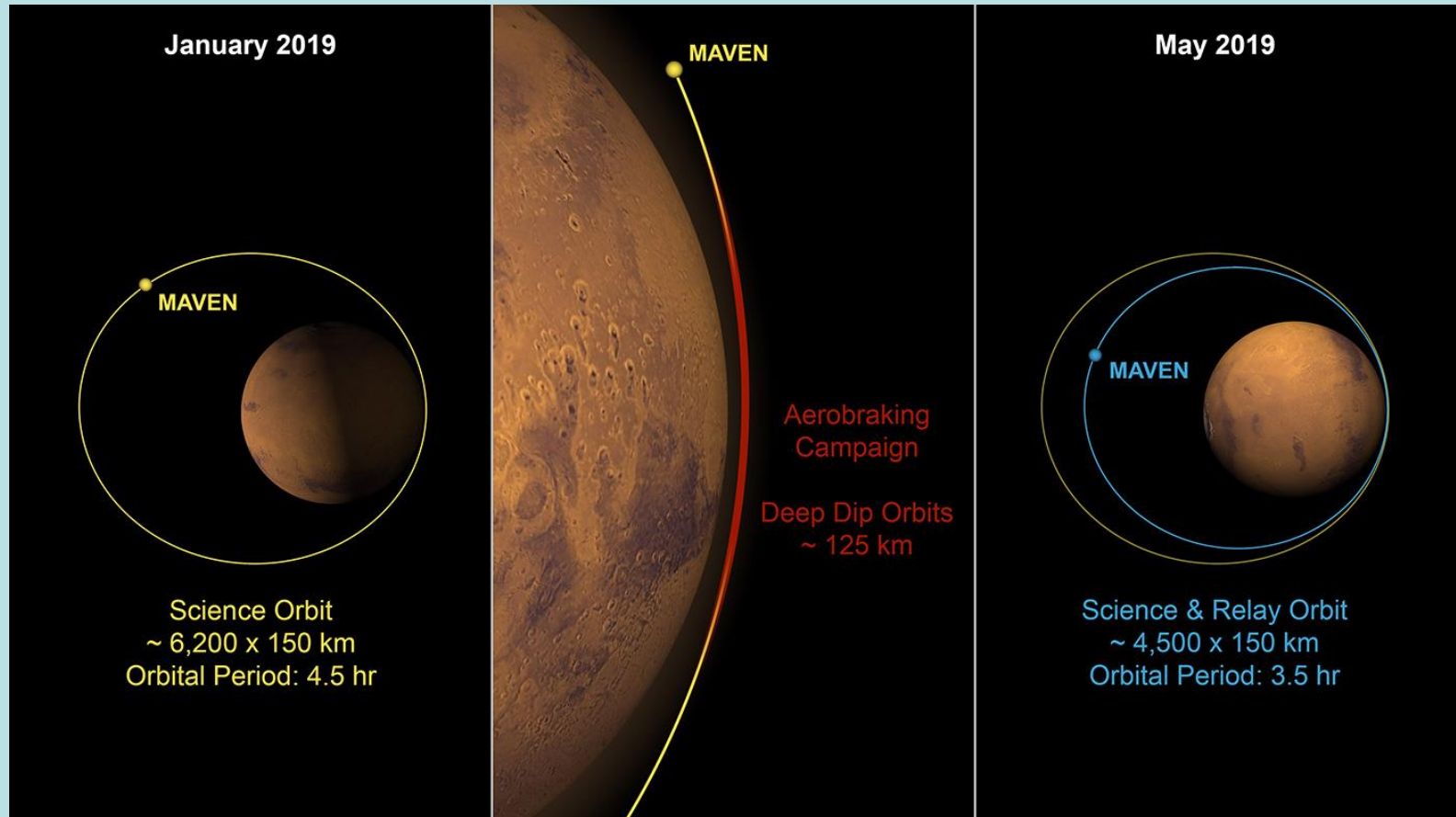


MK Museum



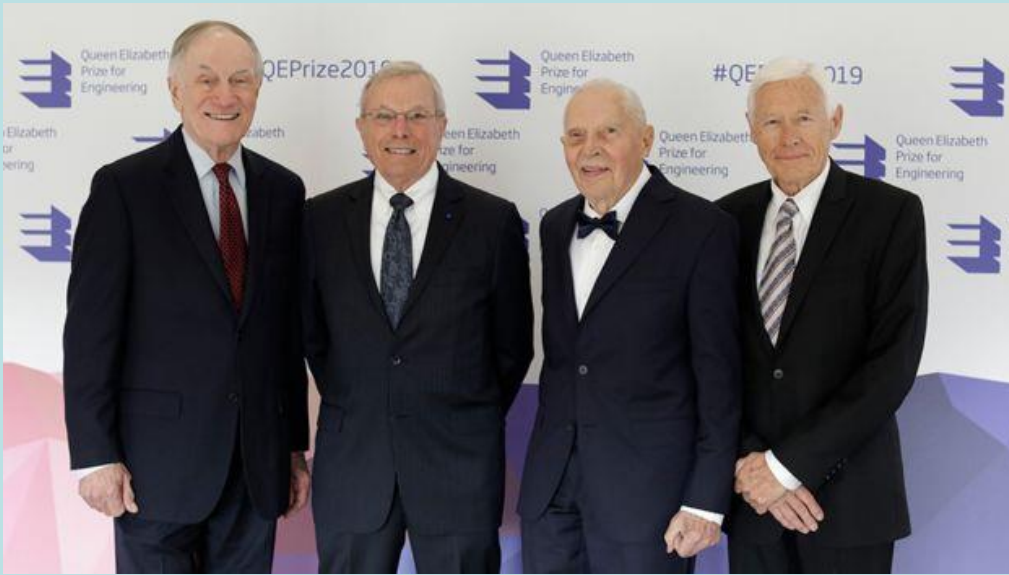
February 10th: 2014MU69 or “Ultima Thule” was initially assumed to be like a snowman – two balls joined together. It is now best described as a “fluffy pancake attached to a dented walnut”. There is still some uncertainty on its actual shape (blue dashes) but no doubt further data downloads (v slow) will provide clarity. This may take until the end of 2020 due to the distance...

'MAVEN' takes on new role as Relay for 2020 Rover



11th February: Having spent 4 years exploring the atmosphere of Mars, the MAVEN orbiter is changing its path around the planet to prepare for its role as a relay station for the Mars 2020 Rover, which launches next year. However, its atmospheric studies will continue, providing scientific data for years to come – with fuel to last until 2030.

GPS Pioneers awarded QE Prize 2019



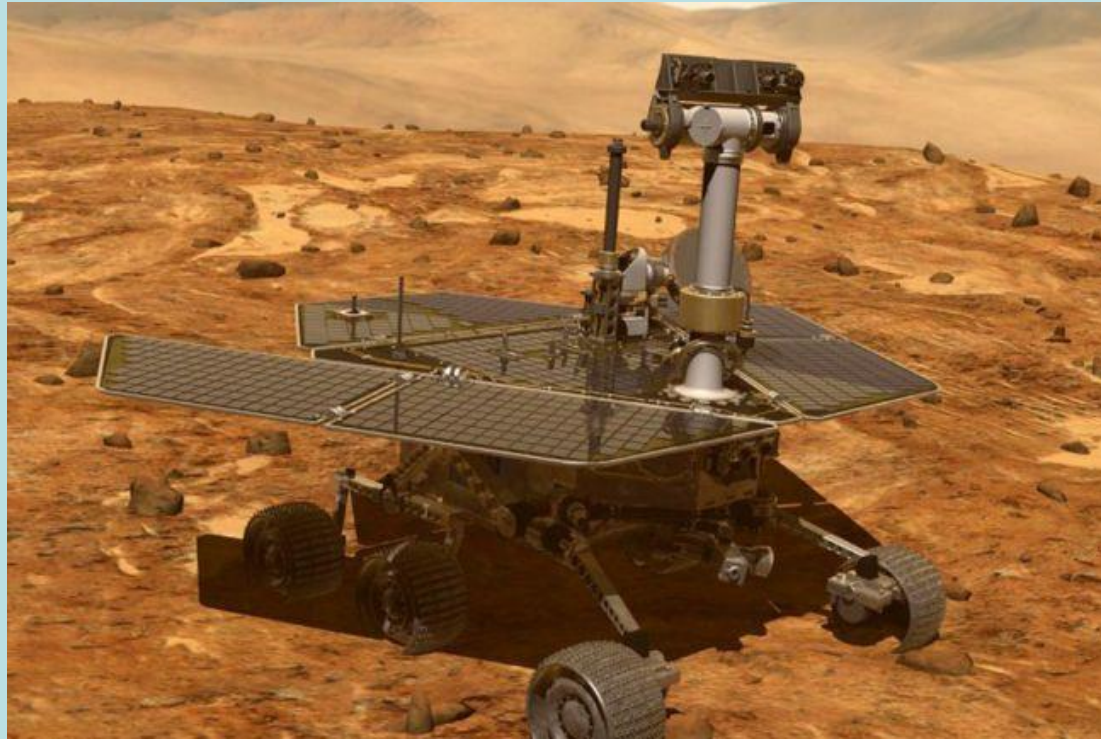
February 12th: This year's £1m QE Engineering Prize was awarded to four individuals who played key roles in developing GPS.

The Americans Brad Parkinson, James Spilker Jr, Hugo Fruehauf, and Richard Schwartz were all present at the London ceremony held to announce the award.

The Global Positioning System began as a military project but has since had a revolutionary impact on wider society, and now underpins hundreds of billions of dollars of economic and research activities.

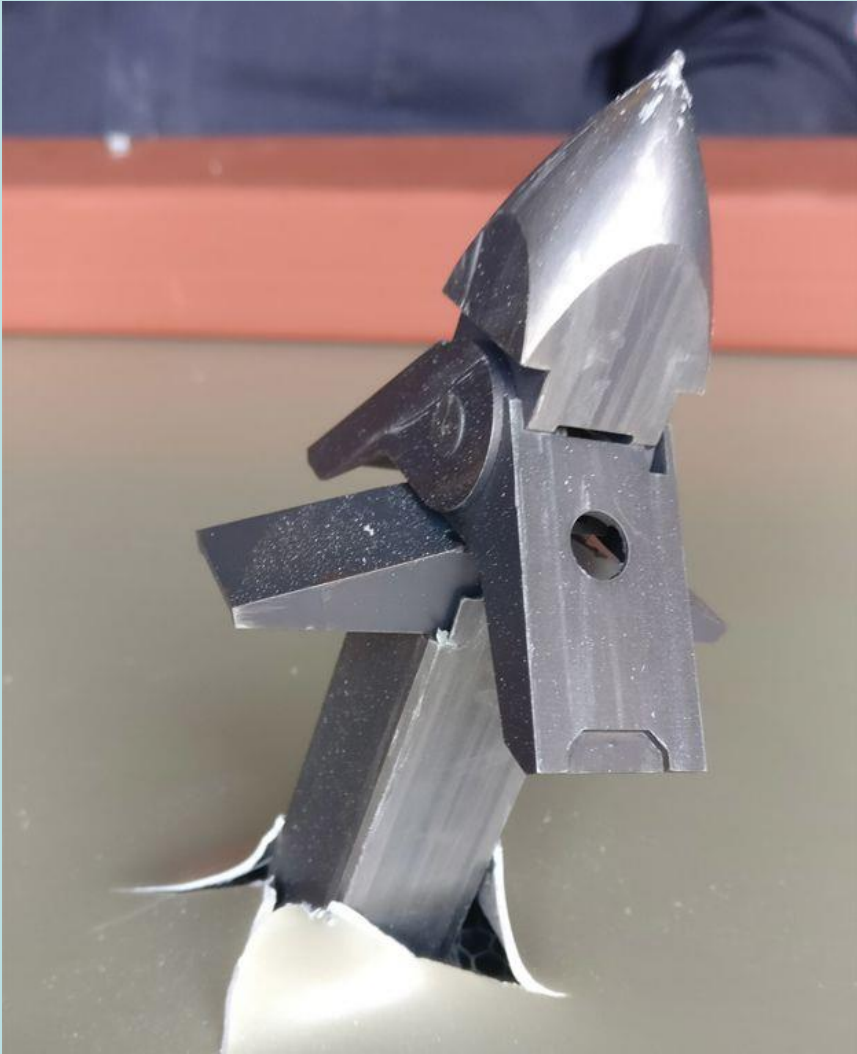


Opportunity Rover – R.I.P.



February 13th: NASA declared its Opportunity Mars rover dead more than eight months after the solar-powered robot went silent during a dust storm on the Red Planet — and a day after the final radio calls to wake it up went unanswered. Opportunity roamed the Martian surface for nearly a decade and a half, covering more than a marathon and finding conclusive evidence that the Red Planet hosted large bodies of liquid water in the ancient past.

Catching “Space-Junk” – Second Method Tested

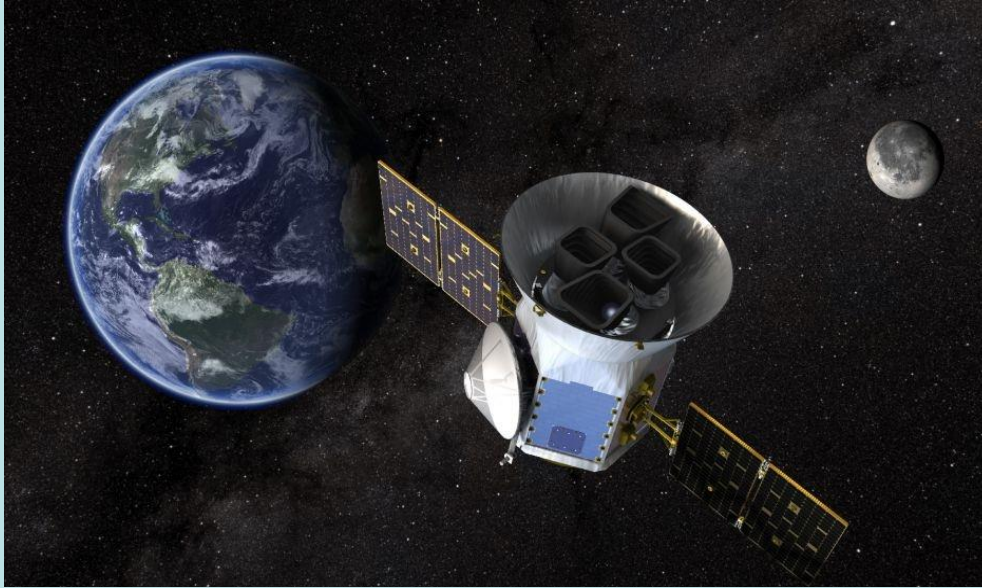


Prototype Harpoon

February 15th: More than 60 years of space activity has resulted in ~8,000 tonnes of material wandering aimlessly around the planet. From old rocket parts to broken fragments of spacecraft - this waste now poses a serious collision hazard to operational satellites and astronauts.

RemoveDebris is a 100kg satellite carrying some demonstration technologies that might be used in the future to snare this sky-high rubbish. It has already shown how a **net** could be used to capture a piece of junk. This time a **harpoon** was fired at a target to show how larger items could be captured and later burnt up in the atmosphere.

TESS searches for more Exoplanets than Kepler



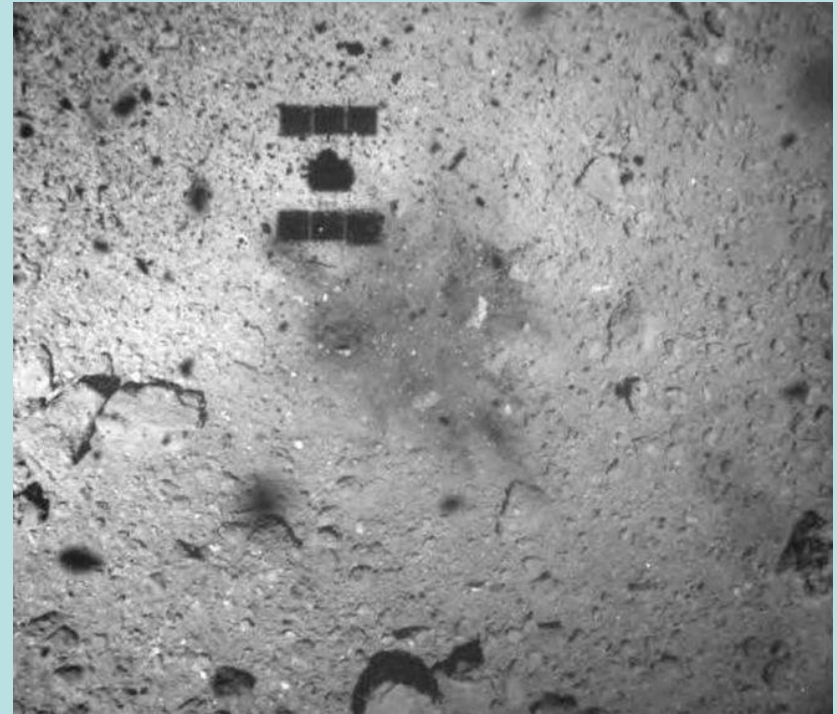
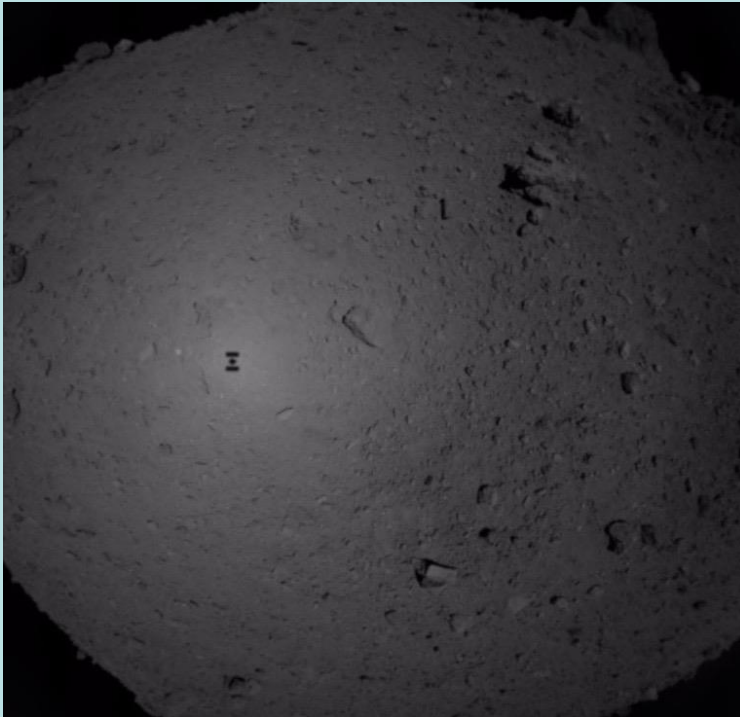
February 19th: Nasa's 'TESS' spacecraft (Transiting Exoplanet Survey Satellite) was launched in April 2018 and will survey 200,000 of the brightest stars near the Sun to search for transiting exoplanets. It is expected to identify thousands of possible exoplanets and vastly increase the current list of known ones. Of these, approximately 300 are expected to be Earth-sized and super-Earth-sized exoplanets, which are worlds no larger than twice the size of Earth. TESS will survey the **entire sky** over the course of two years by breaking it up into 26 different sectors, each 24 degrees by 96 degrees across.

Now another one – even farther out!!!
But it's not "Planet X"...



February 21st: Astronomers have just found an object that lies **140 AU** from the sun. [Pluto orbits the sun at an average distance of about 39.5 AU.] "This is hot off the presses," said Scott Sheppard, of the Carnegie Institution for Science in Washington, D.C. during a public lecture. He said he spotted the object, dubbed **FarFarOut**, just the previous night, as he was going over telescopic imagery of the outer solar system collected in January.

Japanese Mission grabs a piece of Asteroid



22nd February: The Japanese 'Hayabusa2' spacecraft successfully nabbed bits of the 900m-wide asteroid **Ryugu**. Slowly spiralling down to the surface, it fired a 5g tantalum "bullet" into the boulder-strewn rock at close range and collected pieces of the ejected material using its specialized sampling horn. In these images, the shadow of the spacecraft is visible against the surface. The 'after' picture shows the pattern of ejected material after collection of the sample, which is due to return to Earth in December 2020.

Israel's Mission to the Moon – with Bucks' Engines!!

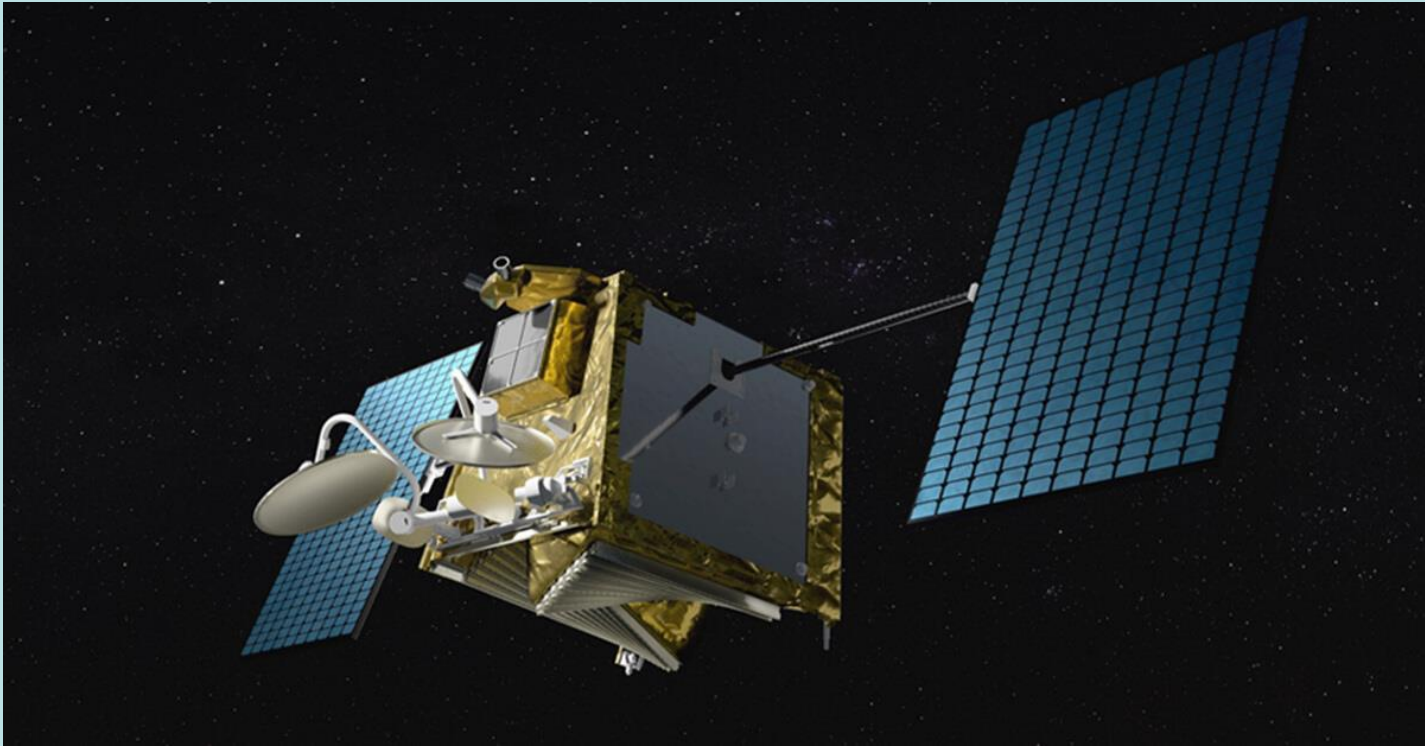


February 22nd: A SpaceX booster has launched a moon mission on behalf of a private Israeli company. After a trip taking two months, **Beresheet**, as it's known, will try to land on the lunar surface, take some pictures and conduct some experiments.

The success of the mission will depend in large part on the spacecraft's UK-sourced **Leros** engine. This power unit, developed by Nammo in **Wescott** near Aylesbury, is normally found on geostationary satellites as they move themselves to the right part of the sky after launch.



OneWeb launches the first of its mega-constellation



February 27th: The first six satellites for **OneWeb**'s mega-constellation have launched on a Soyuz rocket from French Guiana. The spacecraft are the pathfinders in an orbiting network the London-based start-up is building to take high-speed broadband internet to every corner of the globe. Other companies have similar plans, but OneWeb believes it has the advantage with an operational system. To provide global internet coverage, there will need to be **648** units in orbit, but the ultimate number could rise to around **2,000**.

UK Antarctic meteorite hunt returns with good collection



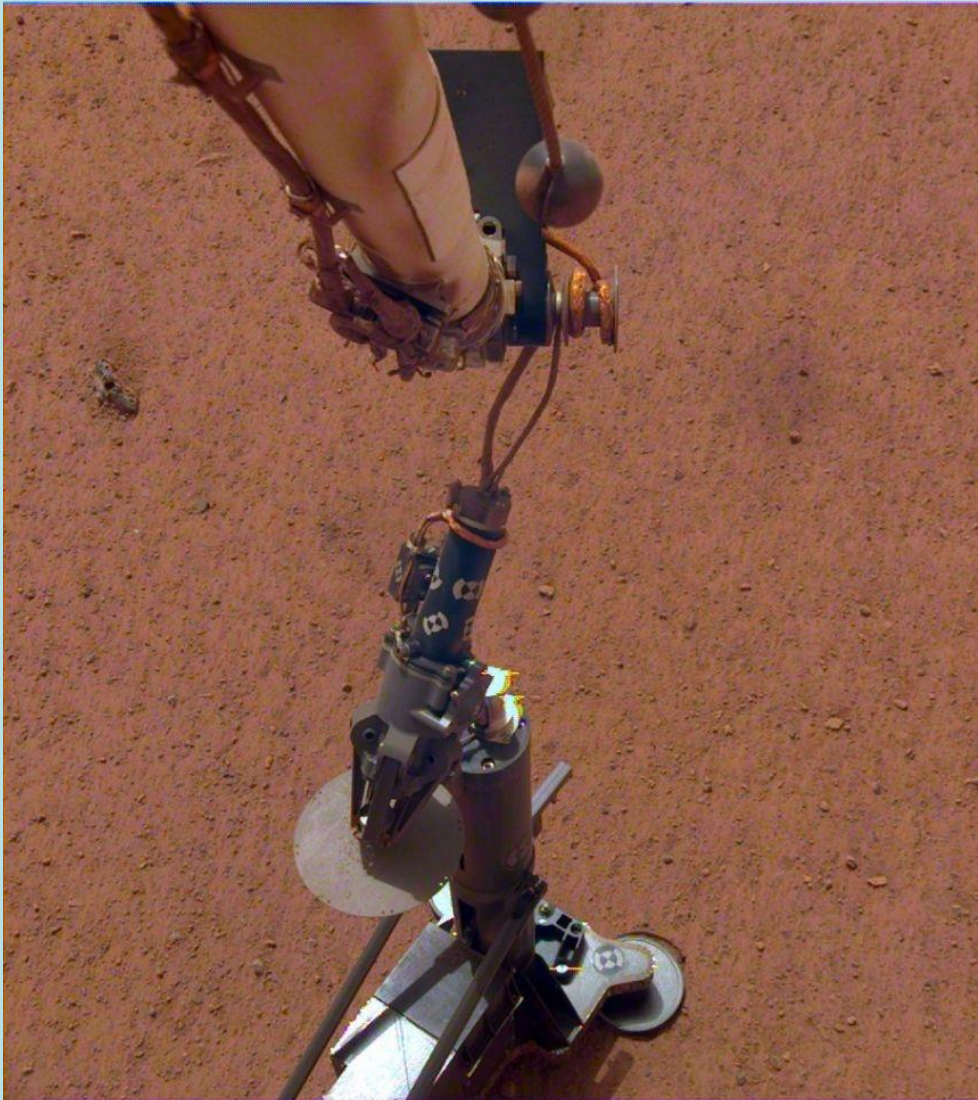
February 27th: Manchester University's Dr Katherine Joy was flown into the field with British Antarctic Survey guide Julie Baum for four weeks.

They spent their days near the Shackleton mountains running across the ice sheet on skidoos looking for out-of-place objects.

This first British-led expedition to gather meteorites in the Antarctic has returned with a haul of **36 space rocks**, ranging from tiny flecks to some as big as a melon.



'Robot Mole' begins digging into the Red Planet



February 27th: InSight's own borrowing 'mole' is now on the surface and has begun to 'hammer' itself into the soil of Mars. Known as HP3, the heat-flow probe was lifted off the deck of the lander with a robot arm and placed next to the SEIS seismometer package.

Together with an onboard radio experiment, these sensor systems will be used to investigate the interior of the planet, to understand its present-day activity and how the sub-surface rocks are layered.

"Wotcha mate!"



Send anything interesting you
spot during
March to:

michael@held.org.uk

2019: 2 Calendars of planned/expected events

[Space Calendar 2019: Launches, Sky Events, etc](https://space.skyrocket.de/doc_chr/lau2019.htm)

https://space.skyrocket.de/doc_chr/lau2019.htm