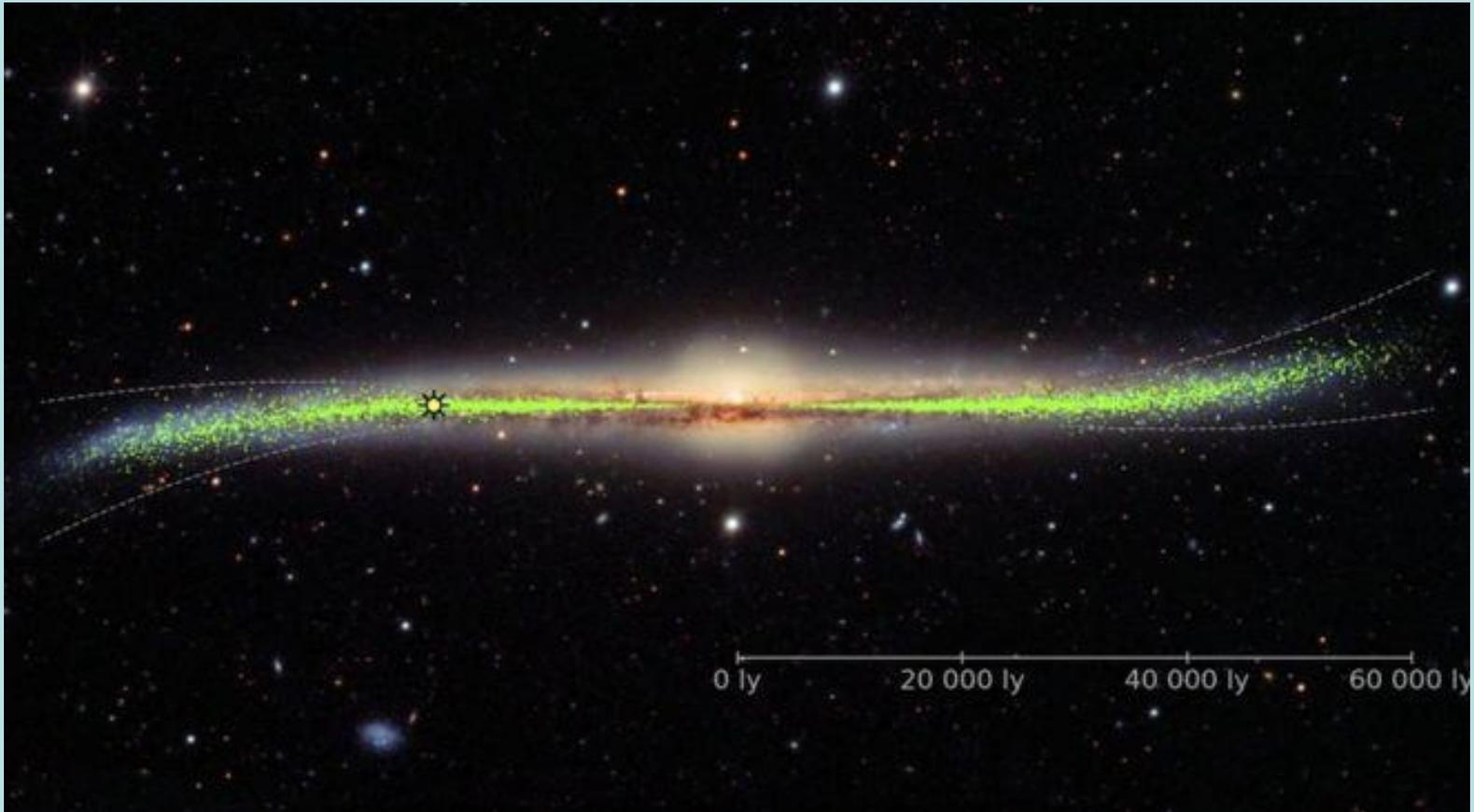


Space News

looking back over

August 2019

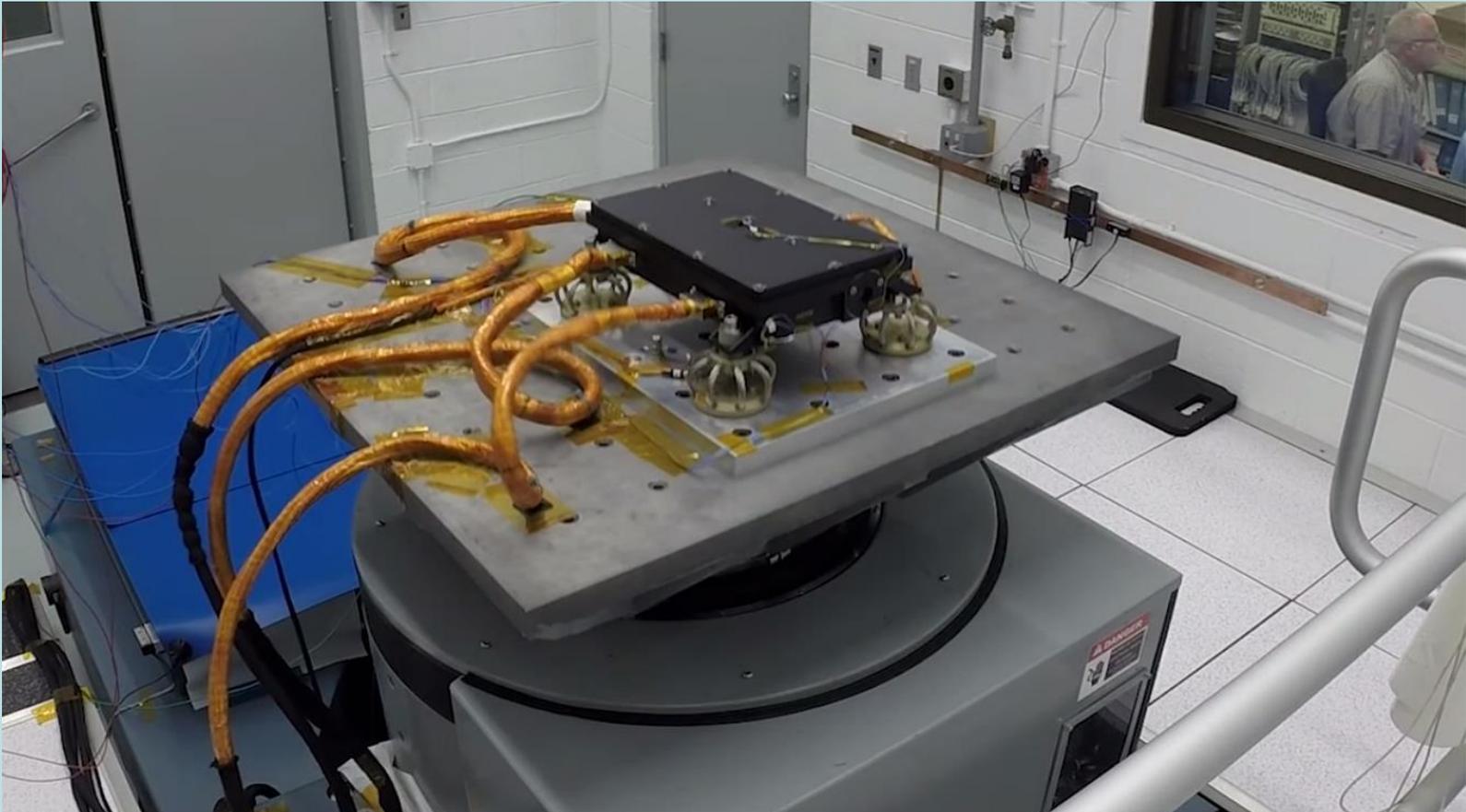
Our Galaxy is Warped!



1st Aug: Analysis of the brightest stars in the galaxy shows that they do not lie on a flat plane as shown in academic texts and popular science books.

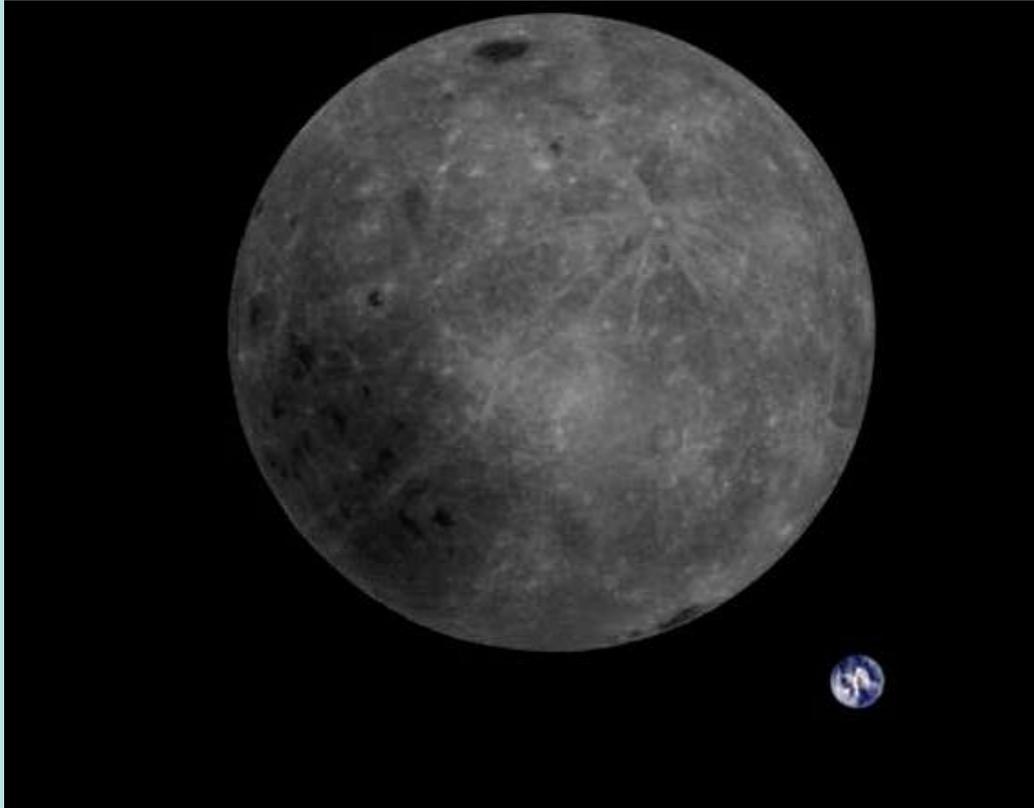
It appears that the Milky Way is "warped and twisted" and not flat as previously thought. Astronomers from Warsaw University speculate that it was probably bent into this shape by past interactions with nearby galaxies.

Shake it all About



2nd Aug: All space equipment needs to be thoroughly tested before launch to give confidence that it will work when required. The picture here shows the Mars Entry, Descent and Landing Instrumentation 2 (**MEDLI2**) being set-up on a vibration tester to ensure it will survive the forces of launch and then the landing on Mars. Its role will be to monitor the performance of the NASA **Mars 2020** mission during the descent and landing phase.

Moon gains a Man-made Crater



Earth photobombs the **far side** of the Moon in this photo taken by China's Longjiang-2 microsatellite on February 4th.

3rd Aug: Part of China's recent Moon mission completed its role and was crashed into the far side of the Moon, adding to its craters. The 47kg Longjiang-2 was sent into space on 21st May, 2018, along with the Chang'e 4 lunar probe's relay satellite, and entered orbit around the moon. The small spacecraft operated in orbit for 437 Earth days, exceeding its one-year designed lifespan. It was then brought down in a controlled fashion

Mars 2020 gets an Eye-test



5th Aug: Engineers test cameras on the top of the Mars 2020 rover's mast and front chassis. This measurement is critical for accurate stereo vision, which is an important capability of the vehicle. The rover contains a range of imaging capabilities, from wide-angle landscape cameras to narrow-angle high-resolution zoom lens cameras, all necessary for navigation, hazard-spotting and target examination.

New Finds for Curiosity, seven Years After Landing



5th Aug: Curiosity rover has come a long way since touching down on Mars seven years ago. It has travelled a total of 13 miles and ascended 1,207 feet to its current location at 'Teal Ridge'. Billions of years ago, there were streams and lakes within the crater. Water altered the sediment deposited within the lakes, leaving behind an area of clay minerals.

Europe launches second space laser satellite



Nicknamed
The “Space
Data Highway”
and operated by
Airbus Space
and Defence

6th Aug: ESA has another ‘Data Relay Satellite’ in orbit. A third is expected before 2025. Sitting in geostationary orbit some 36,000km high, it is possible to track and communicate with satellites in lower orbits almost all the time. They are also in direct contact with ground stations across Europe. Using 1.8-gigabit laser links between all nodes, images can be seen on the ground within 15-20 minutes of being acquired – ideal in emergency situations.

Three launches and Out...



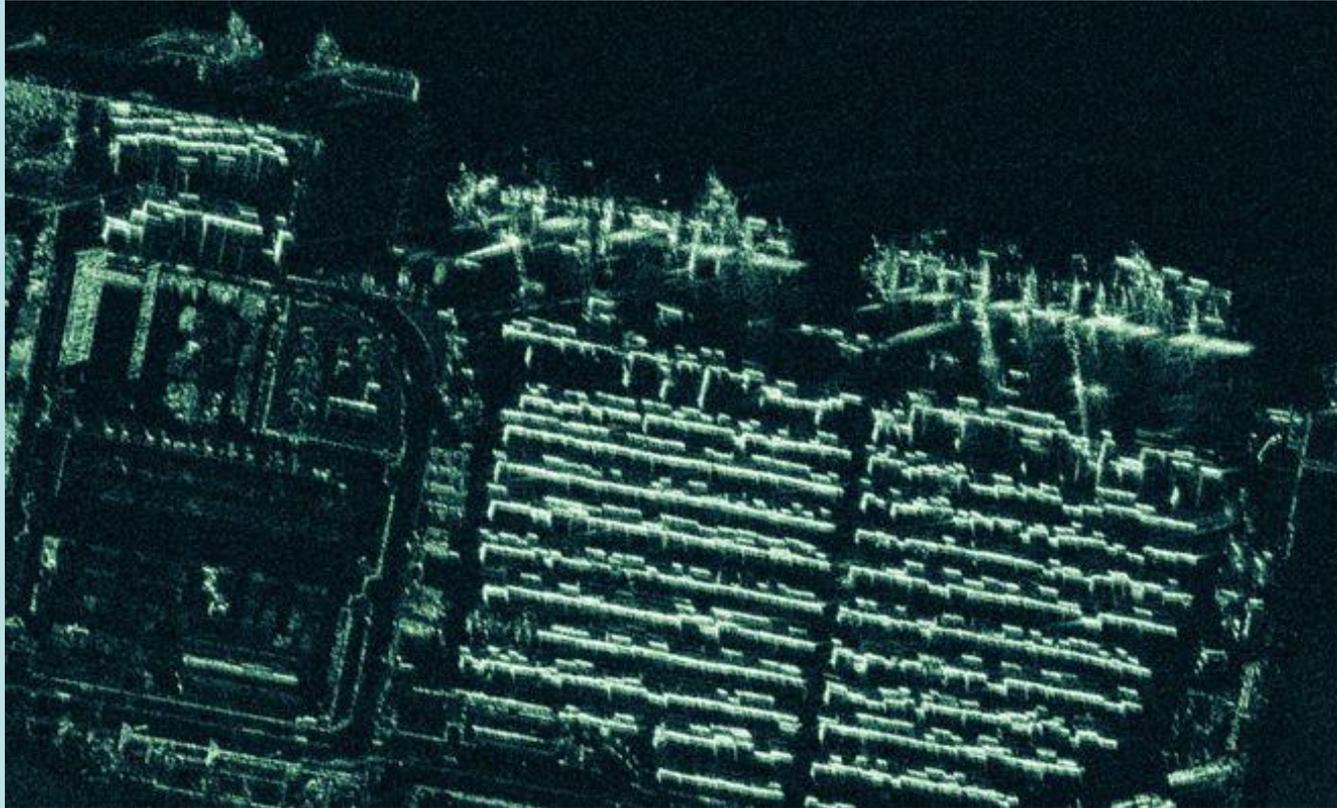
6th Aug: SpaceX used one of its Falcon rockets for the *third and last* time on August 6th to launch a very heavy (6.5 tonne) Israeli communications satellite. This was the ninth Falcon launch of the year. This booster had been used previously in July and November 2018. This time the heavy payload meant that no spare fuel was available to recover the booster, so this ‘elderly’ one was used. The satellite, **Amos-17** costing \$250million, is owned by Israel’s Spacecom. It is expected to last 20 years

ESA's Mars Rover gets its last parts added



8th Aug: The "**Rosalind Franklin**" Mars rover is in its final stages of construction. Engineers at Airbus (UK) are running through the end tasks of assembly and expect to get the six-wheeled vehicle out the door before the end of August. Among the last items to be attached are the robot's solar panels, its mast and camera system. After launch from Earth in July 2020 and arrival in 2021, the joint European-Russian mission will search for life.

Finnish Mini-Satellites offer Sub-1m Radar Images



Container Terminal, Port Harcourt, Nigeria

9th Aug: Finnish space company **Iceye** has once again provided an impressive demonstration of its novel technology's capabilities, with sub-1m resolution images of the Earth's surface – a level of performance usually expected from spacecraft that weigh a ton or more and cost over €100m. Iceye's breakthrough satellites are the size of a suitcase and cost only a couple of million to build. Four satellites are now in orbit...

MarCOs win “Space Oscar”



9th Aug: NASA’s tiny cube-sats, MarCO1 and MarCO2 have been awarded the **Small Satellite of the Year** by the AIAA (American Institute of Aeronautics and Astronautics) for their role in the Mars InSight landing.

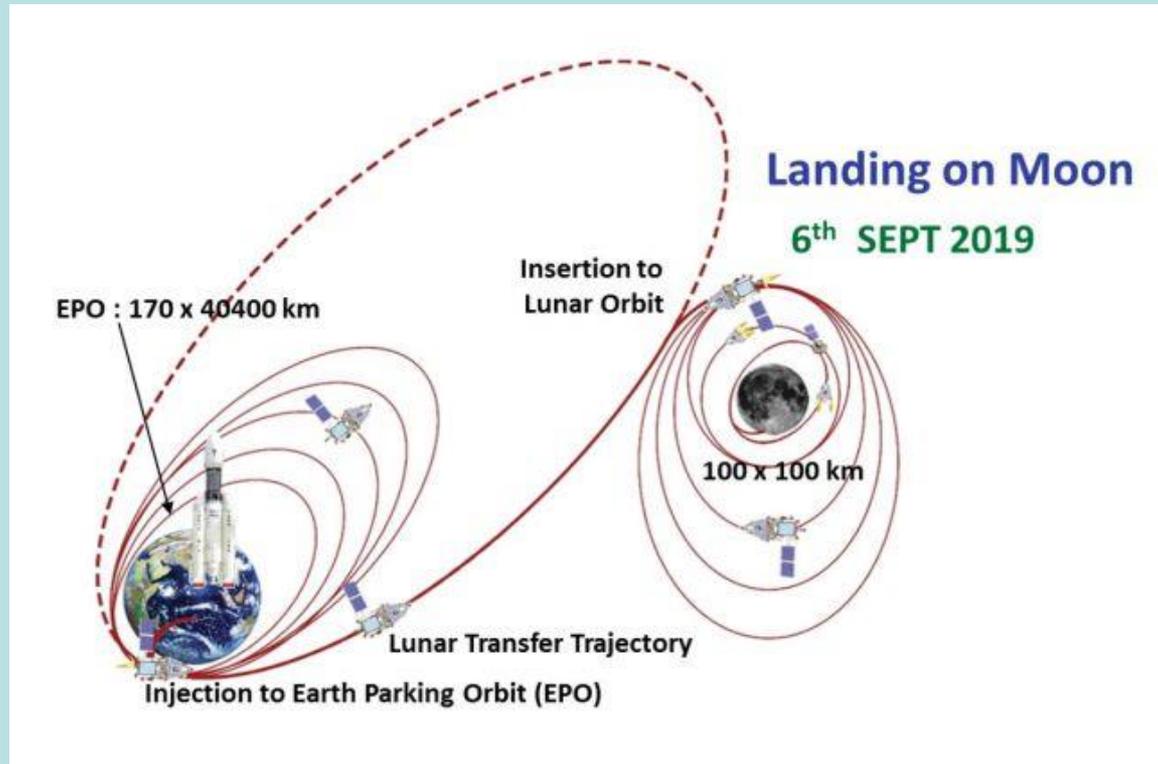
Flying behind the InSight lander as it cruised to the Red Planet last year for its November descent to the Martian surface, WALL-E and EVE enabled the InSight team to monitor the landing in near-real time, all at a very low cost.

North or South – Wait and See...



10th Aug: The last reversal of Earth's magnetic poles happened long before human records. Volcanic records show that Earth's last magnetic-field reversal occurred about **780,000** years ago. New research on the flow of ancient lava has helped scientists estimate the duration of this strange phenomenon – and this flip may have taken much longer than researchers previously thought. It's not instantaneous!

India takes the Long Way to the Moon



11th Aug: India launched the **Chandrayaan-2** mission to the Moon on 22nd July. The mission consists of an orbiter, lander and rover to explore the moon's **south** pole. Chandrayaan-2's **Vikram** lander is expected to land on Friday 6th September. Having only a medium-powered launch vehicle (normally used for Earth satellites), the route will necessarily take longer, as shown here. The same route was used earlier this year by the failed Israeli Moon mission.

ExoMars mission threatened by Parachute Failure



13th Aug: The European-Russian effort to land on Mars has been hit by another parachute failure, during a drop test in Sweden. It's the second test mishap involving the parachutes, so with launch planned for July 2020, the Exomars project cannot afford another failure.

The plan is to land a Russian surface platform (**Kazachok**, above) and the **Rosalind Franklin** rover on the Martian surface.

Weightless DJ presents show from Space



14th Aug: ESA astronaut Luca Parmitano made space (and music) history on 13th August when he broadcast the first DJ music set from the orbiting ISS, performing to an audience of over 3000 people as part of the **BigCityBeats WORLD CLUB DOME** Cruise Edition.

The results of his work were beamed to the main stage on board the cruise ship *Norwegian Pearl* moored at the Spanish island of Ibiza.

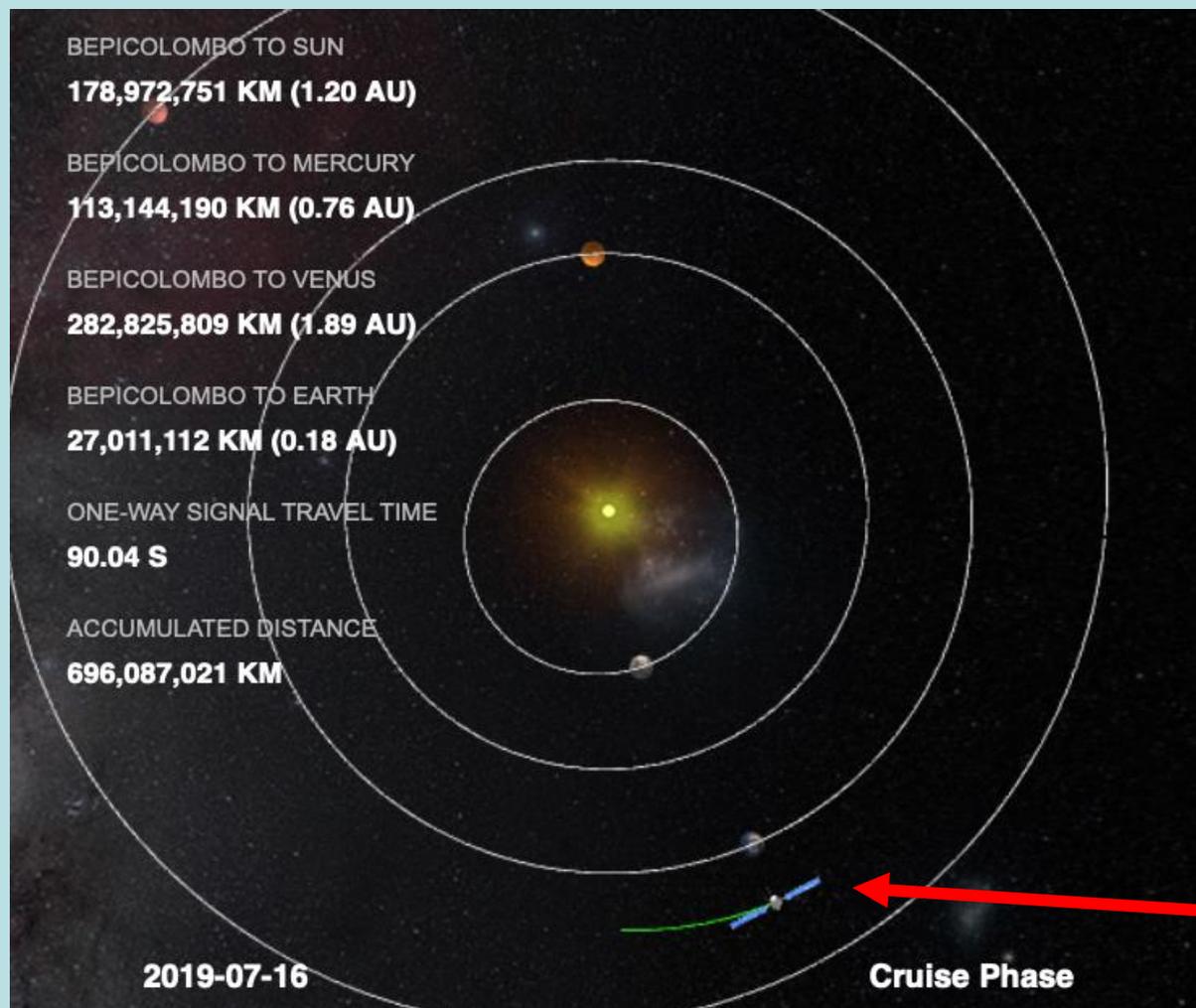
Dream Chaser gets its prayers answered



14th Aug: **Dream Chaser** is a space plane that can land on a runway – just like the Shuttles. It has yet to go into space, but now it has a launch vehicle that can take it there. Sierra Nevada, the private company that builds the spaceplane, has chosen the new **Vulcan** rocket as its ride into orbit.

The company hopes to start launching missions by 2021, to deliver supplies to astronauts on the ISS.

Where is BepiColombo Today?



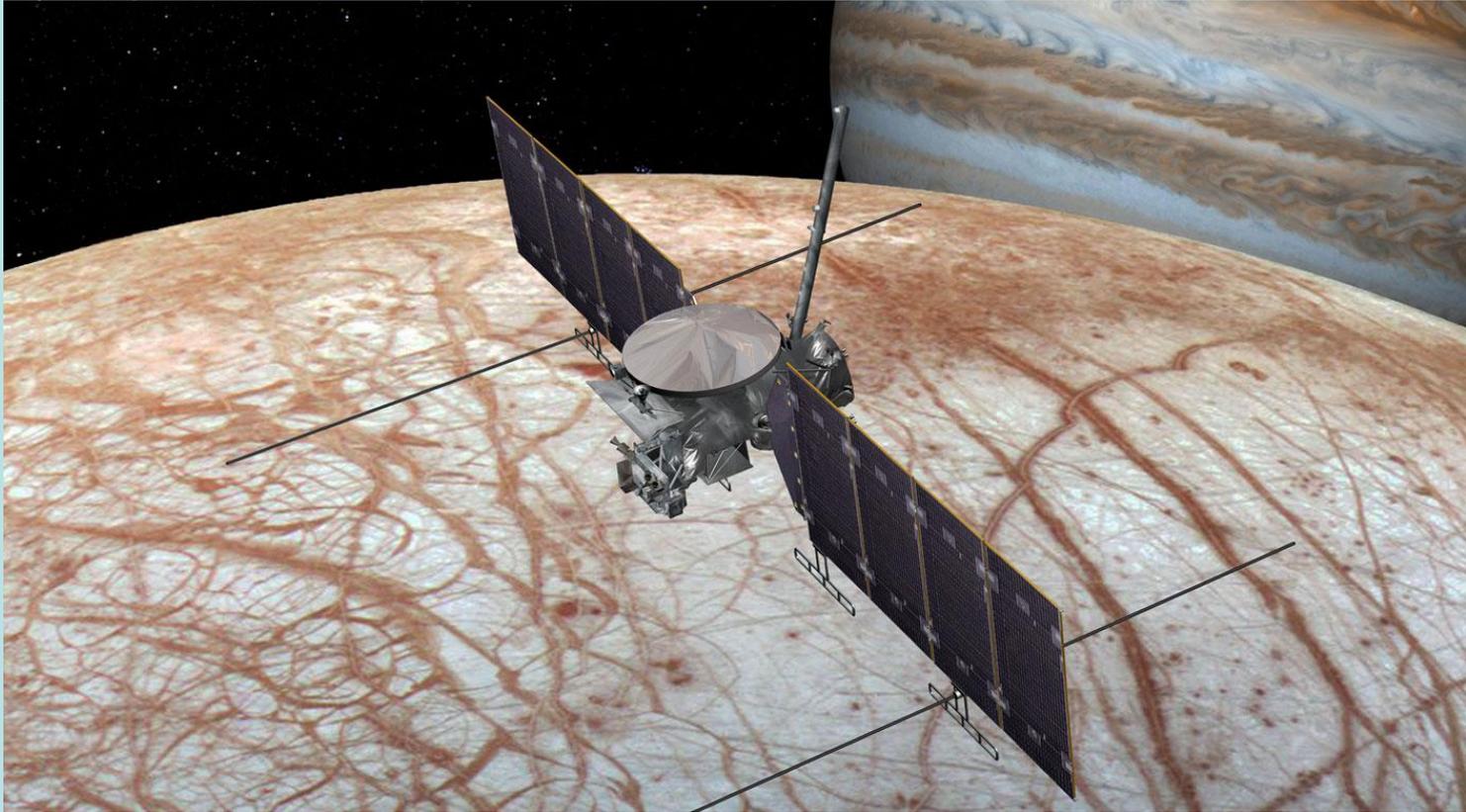
15th Aug: In July, the Bepicolombo spacecraft reached its farthest distance from the Sun, just beyond the orbit of Earth.

Next big milestone is the flyby of Earth next April.

Use the interactive website below to track its progress.

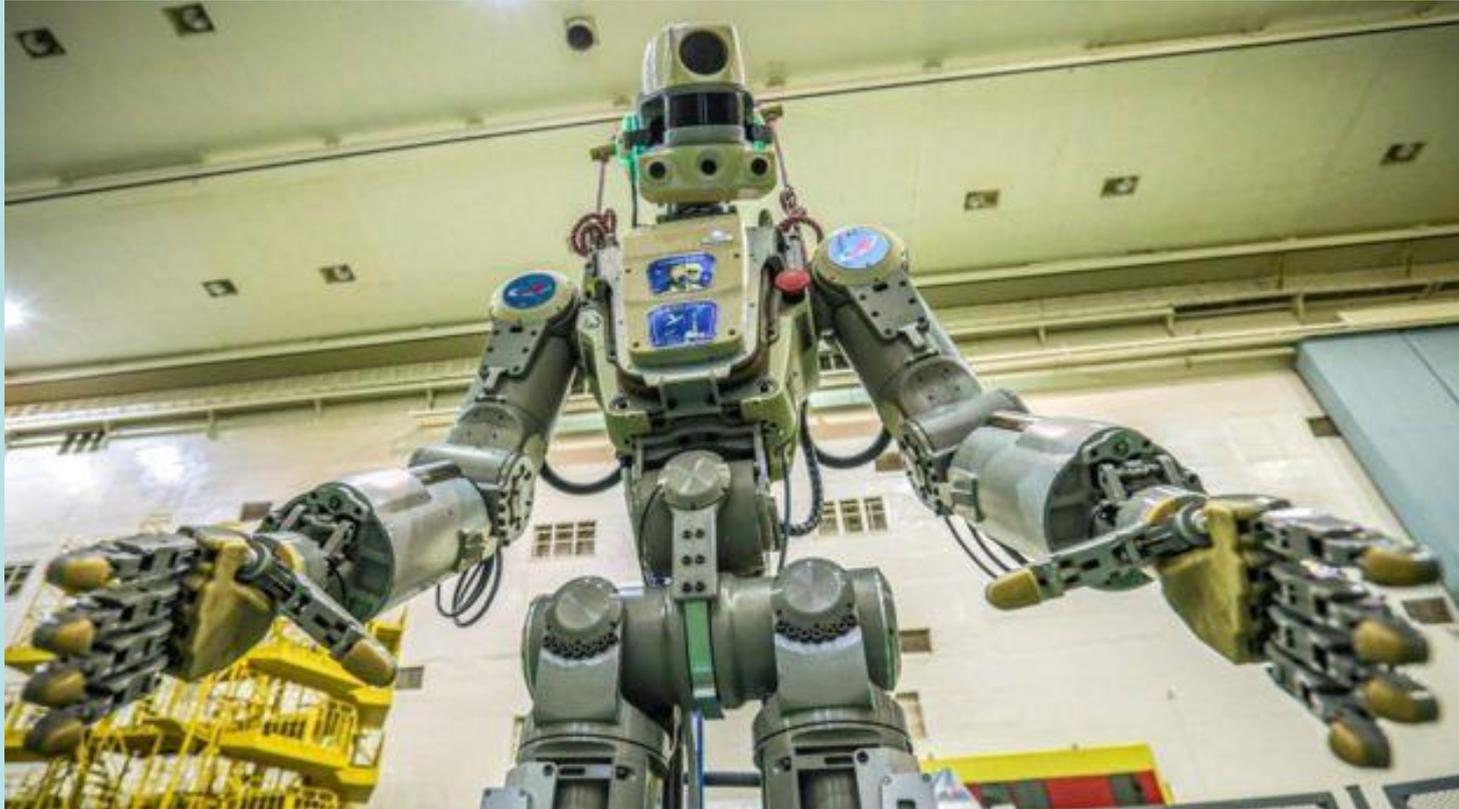
<https://www.cosmos.esa.int/web/bepicolombo>

Mission to Jupiter's Icy Moon Confirmed



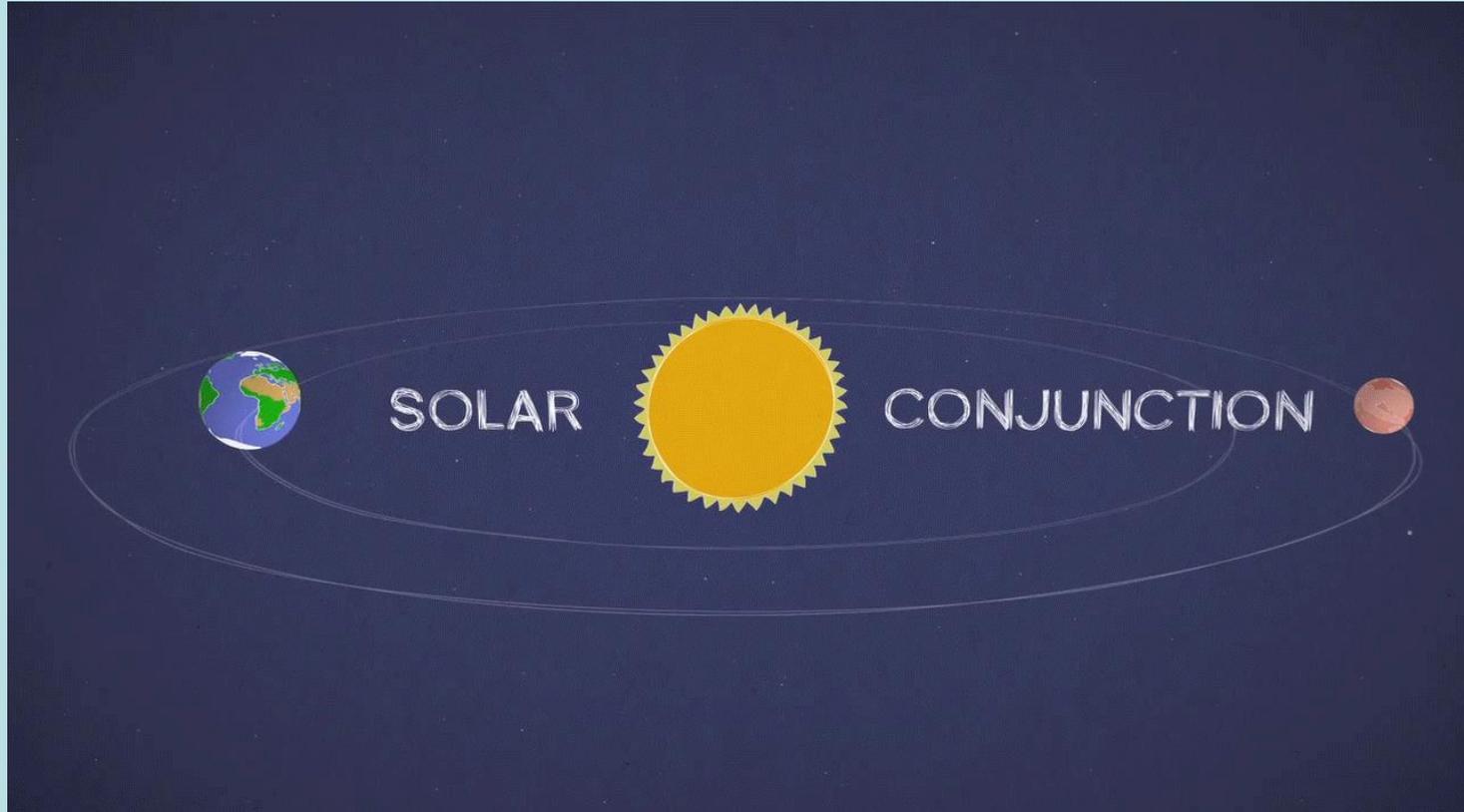
19th Aug: The **Europa Clipper** mission will conduct an in-depth exploration of Jupiter's moon Europa and investigate whether the icy moon could have conditions suitable for life. NASA is targeting to have the spacecraft complete and ready for launch as early as 2023 – but maybe not until two years later. Design work continues at the JPL in Pasadena, California.

Russian Robot Launched to ISS



22th Aug: The robot, named **Fedor** (Experimental Demonstration Object Research), was launched from Baikonur in Kazakhstan and docked at the station on Tuesday 27th. In order to test a new emergency rescue system, the robot was the Soyuz rocket's only passenger. Fedor stands 5ft 11" tall and weighs 350lbs.

No-one's talking to Mars for now...



28th Aug: Mars and Earth are currently on opposite sides of the Sun, a Mars solar conjunction. As a result, direct communication will not be possible until 7th September. Spacecraft on and in orbit around Mars will still be collecting data, but will have to store it until communications is back again. Some missions will have stopped commanding their spacecraft in preparation for this moratorium. This occurs every two years.

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