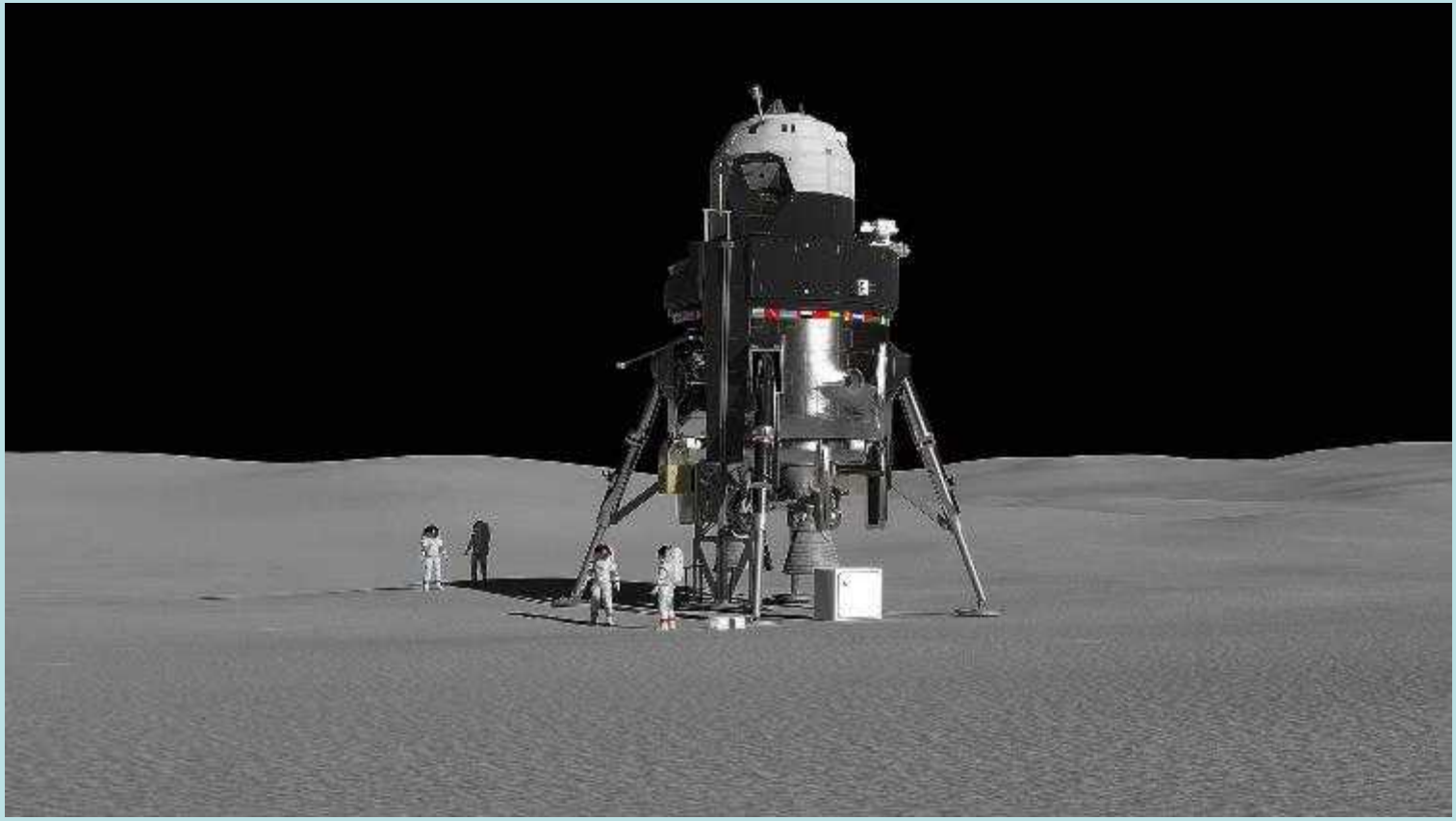
Space News

looking back over

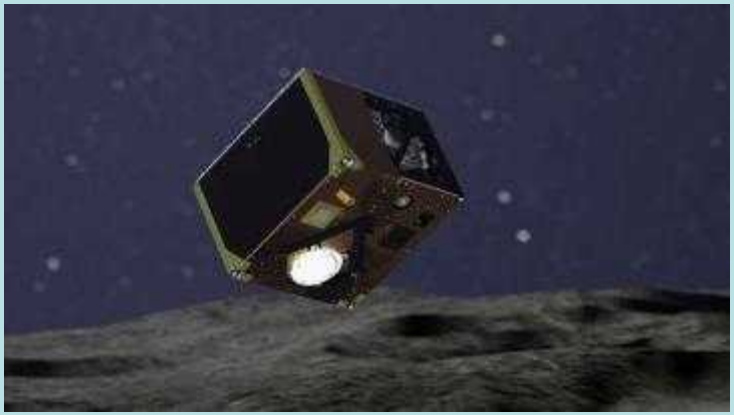
October 2018

New Design for Reusable Moon Lander



October 3rd: Aerospace giant Lockheed Martin has revealed its concept for a reusable, single-stage spaceship capable of ferrying four astronauts and cargo between lunar orbit and the surface of the moon. The Lockheed lander would use as its home base the Lunar Orbital Platform-Gateway, a small space station that NASA aims to start building near the moon in 2022. It will use many of the technologies Lockheed has developed for the Orion Capsule.

Hayabusa Investigating Asteroid Ryugu (1)

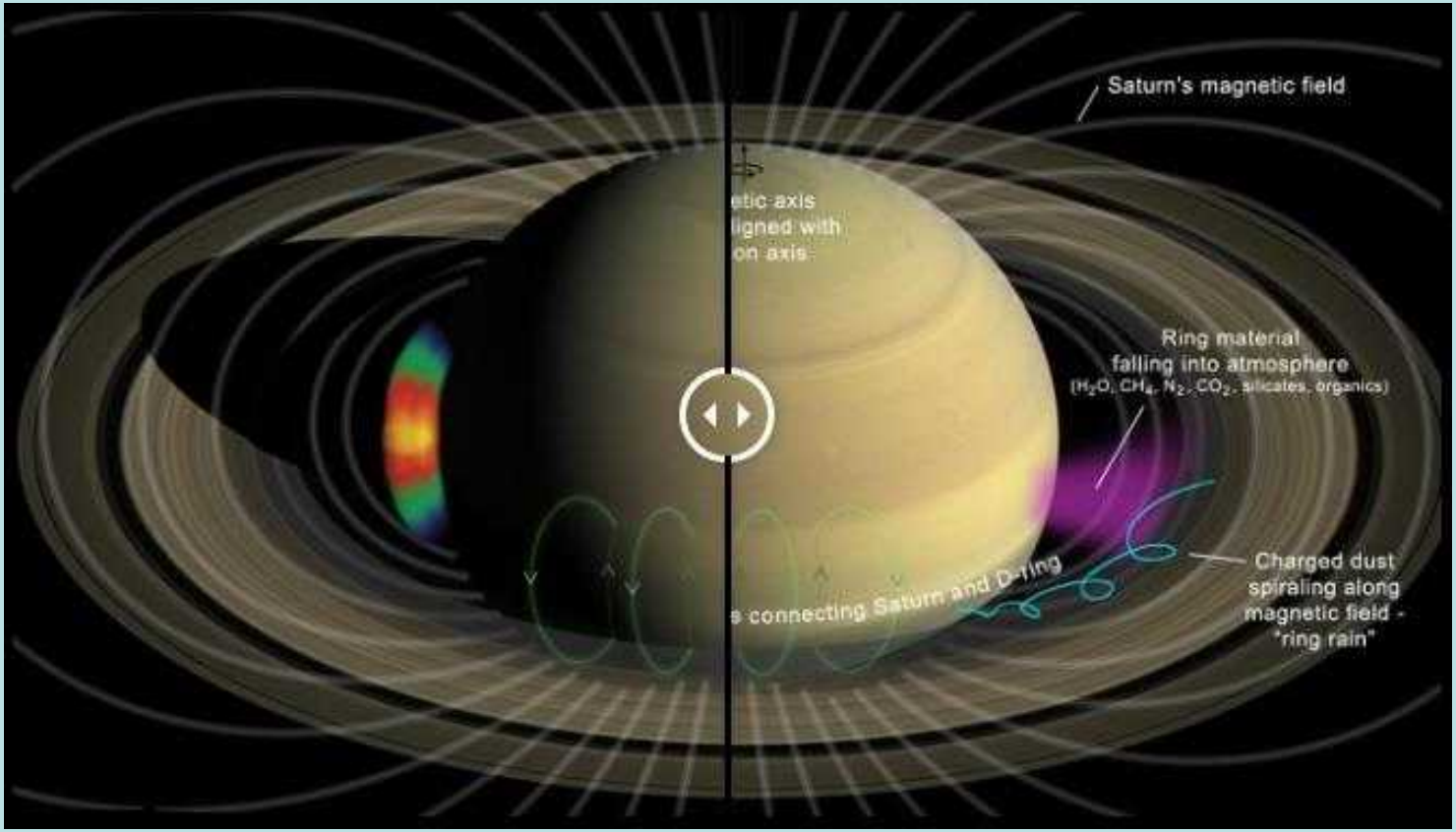


MASCOT Landing envisaged

MASCOT Lander photo during approach to Ryugu. Note its shadow at upper right.

Japan's Hayabusa Spacecraft sent its MASCOT Lander down to the surface of asteroid Ryugu on **October 2nd** and it 'died' early on October 4th. That seems pretty quick, but MASCOT's non-rechargeable lithium-ion battery actually lasted a little longer than its expected 16 hours. The 22-lb MASCOT carried four instruments: camera, spectrometer, magnetometer and radiometer. It made 3 separate 'hops' across the surface and the lander probably beamed a lot of data up to Hayabusa2, which will presumably make it back to Earth soon.

Cassini Data continues to excite

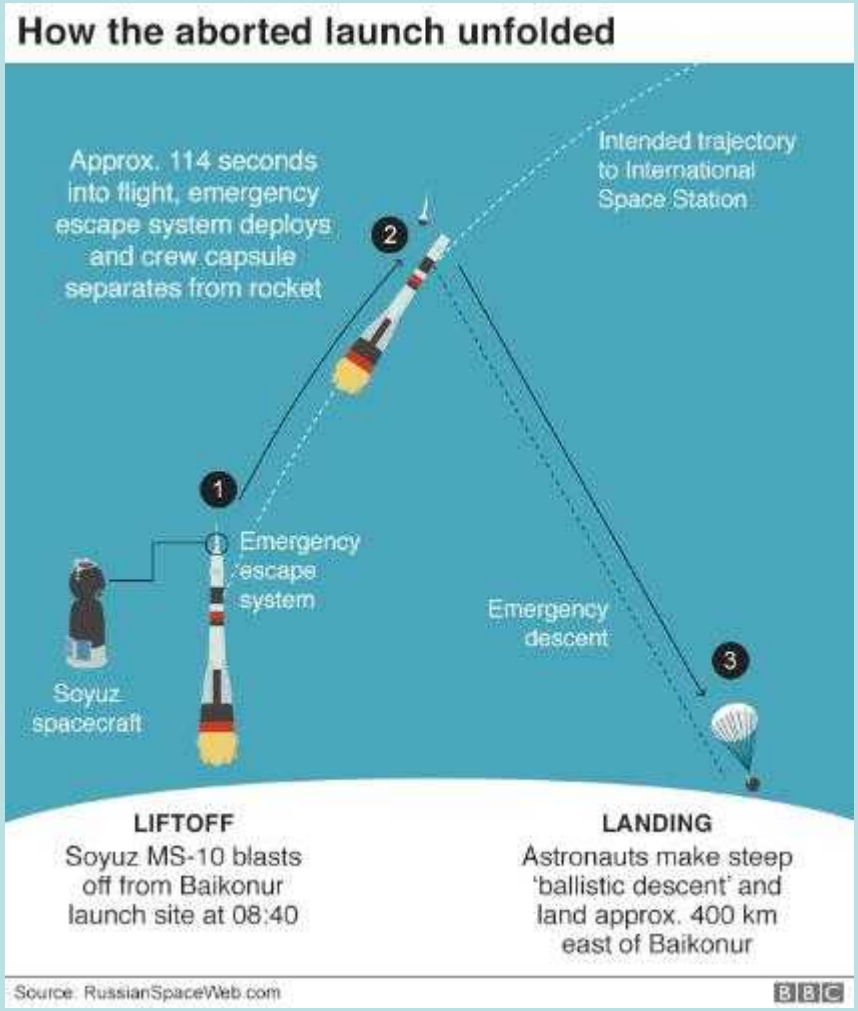


Knowing Cassini's days were numbered, its mission team sent it where it was never designed to go. For the first time, it probed Saturn's magnetized environment, flew through icy, rocky ring particles and sniffed the atmosphere in the 1,200-mile-wide gap between the rings and the cloud tops. Six teams of researchers published their work on **5th October** in 'Science', based on data from Cassini's *Grand Finale* – with some amazing results.

SpaceX Launch Entertains West Coast USA

October 8th: A SpaceX Falcon 9 rocket was launched from VdB AFB in California, deployed Argentinian satellite SAOCOM 1A into orbit and then successfully returned to a first west-coast ground landing. This was the 30th landing of a first-stage booster. [Above is a composite image.]

Soyuz Launch Aborted – Crew Safe



October 11th: Soyuz MS-10 Launch Failure/Aborted but crew recovered by parachute.

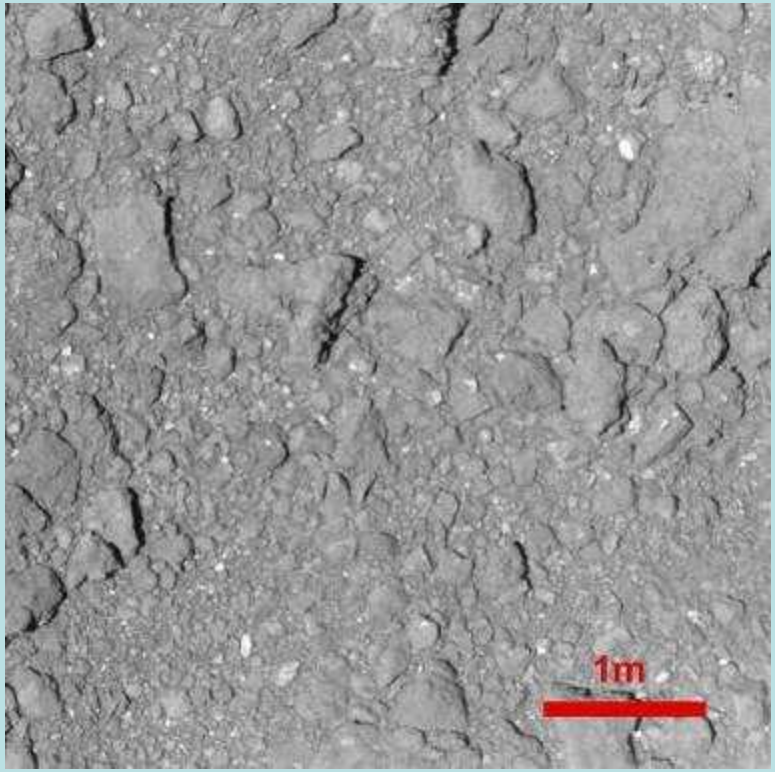
All in a Day's Work ??

Soyuz Launch Failure – Problem Identified?

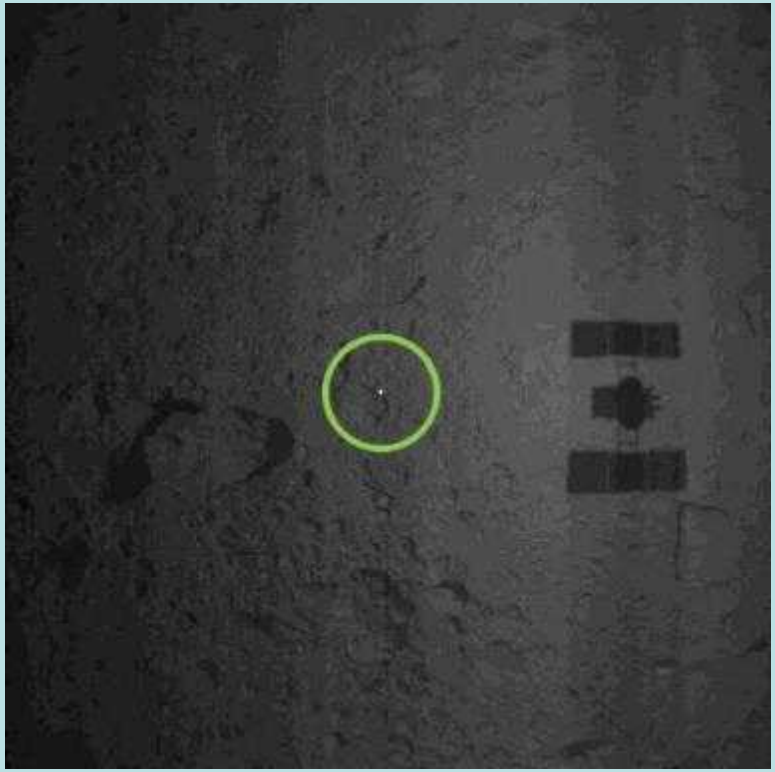
Booster separation failure

Roscosmos will not launch another **crewed** flight until three unmanned launches are successful and the investigation's findings have all been addressed. The problem appears to have been caused by one booster which on separation hit the core fuel tank, which then ruptured and caused loss of control. The capsule escape system pushed them away to parachute down.

Hayabusa Investigating Asteroid Ryugu (2)



Surface photo from 42m above



The target area – about 20m diameter

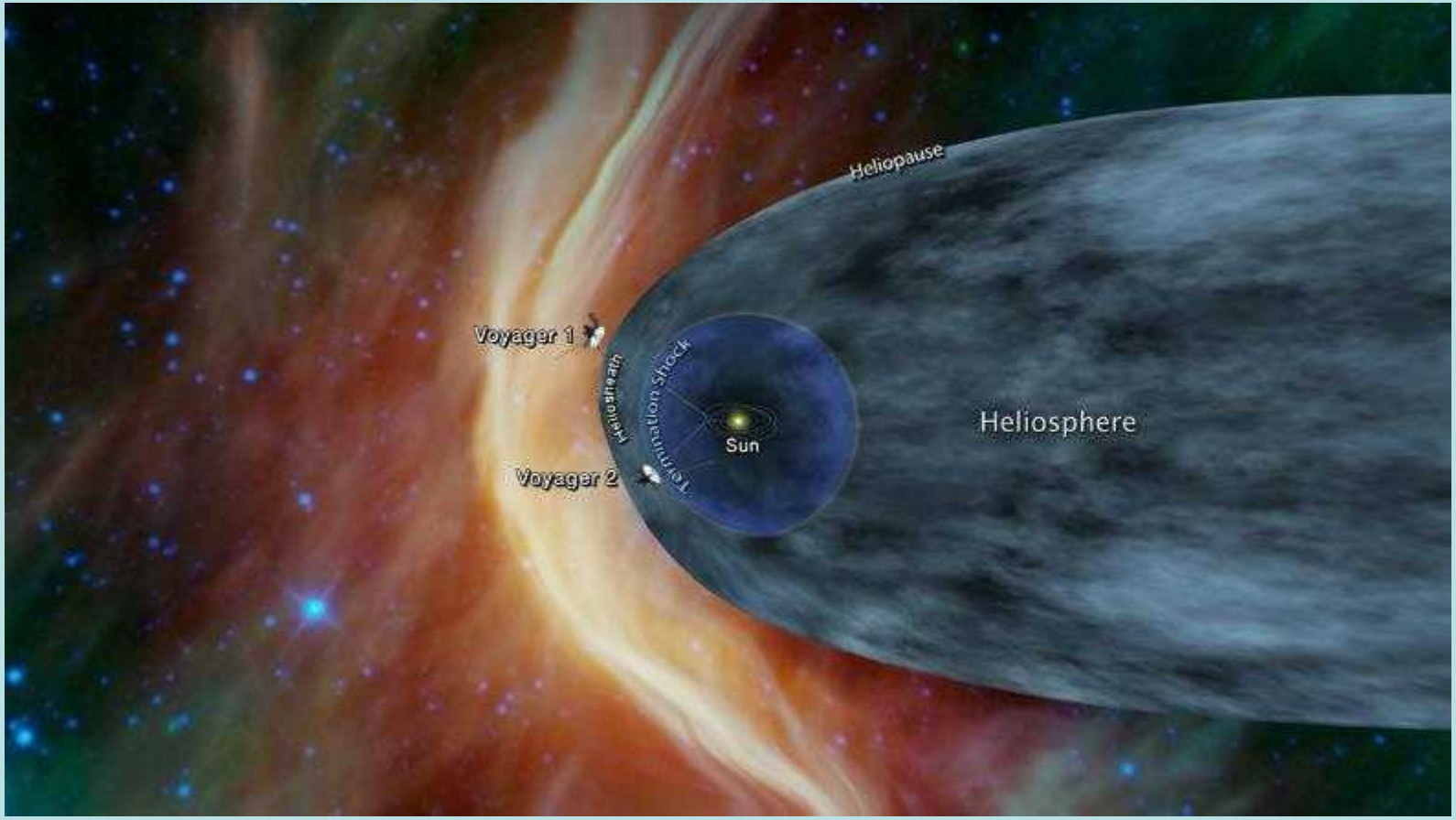
Hayabusa is being prepared for its touchdown on asteroid Ryugu next year. The aim is to carefully collect a rock sample from the surface for return to Earth. As a rehearsal, it was brought down to 42 metres on **October 15th**. With its rubble-strewn surface, it is becoming clear that this part of the mission is not going to be easy. Soon 'they' will pass behind the Sun.

Last Opportunity for “Opportunity”

October 25th: NASA says it will soon end efforts to contact the **Opportunity** Mars rover, now silent for more than four months after a major dust storm, but will continue to listen for signals from the spacecraft in the months to come.

Opportunity, which has been on Mars since January 2004, last contacted Earth on June 10th. A powerful planet-wide dust storm blocked the sun and deprived the rover of solar power, putting it into a low-power mode.

Voyager 2 second into Interstellar Space



Since 2007 Voyager 2 has been traveling through the outermost layer of the heliosphere -- the vast bubble around the Sun and the planets dominated by solar material and magnetic fields. Scientists have been watching for the spacecraft to reach the heliopause. Once Voyager 2 exits the heliosphere, it will become the second human-made object to enter interstellar space.

Spacecraft for One – Anyone?

A spacecraft for one has been proposed by Maryland-based Genesis Engineering Solutions. The astronaut would float inside the spacecraft for several hours and use robotic arms to manipulate equipment. Propulsive thrusters would allow the spacecraft to move close to a target, similar to NASA's earlier Manned Manoeuvring Unit as used by Bruce McCandless in 1984.

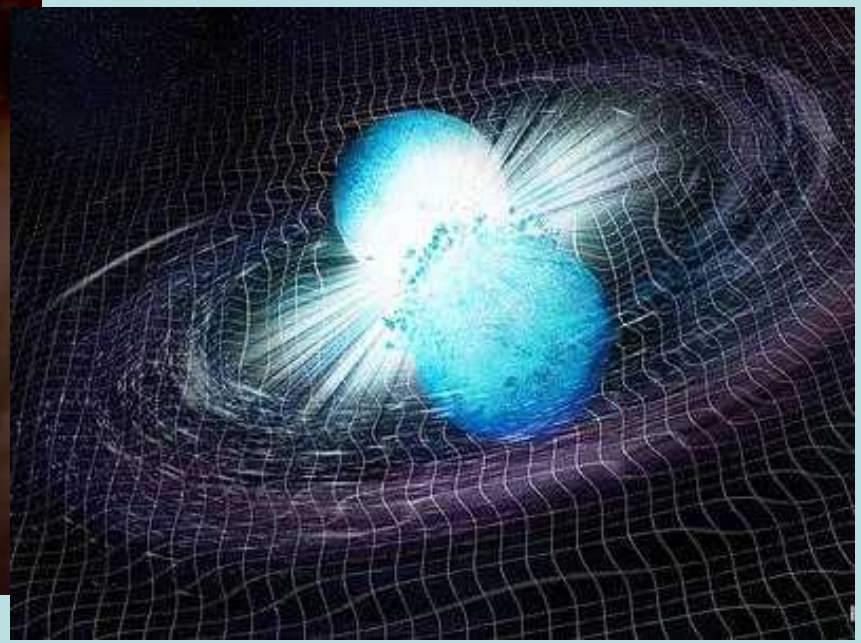
First Exo-Moon spotted by “Double-Transit”?

Using Hubble and Kepler data, astronomers have uncovered evidence of what could be the first discovery of a moon orbiting a planet outside our solar system. This moon candidate, which is 8,000 light-years from Earth in the Cygnus constellation, orbits a gas-giant planet that, in turn, orbits a star called Kepler-1625. Researchers caution that the moon hypothesis is very tentative and must be confirmed by follow-up Hubble observations.

Hubble Resurrected from Malfunction

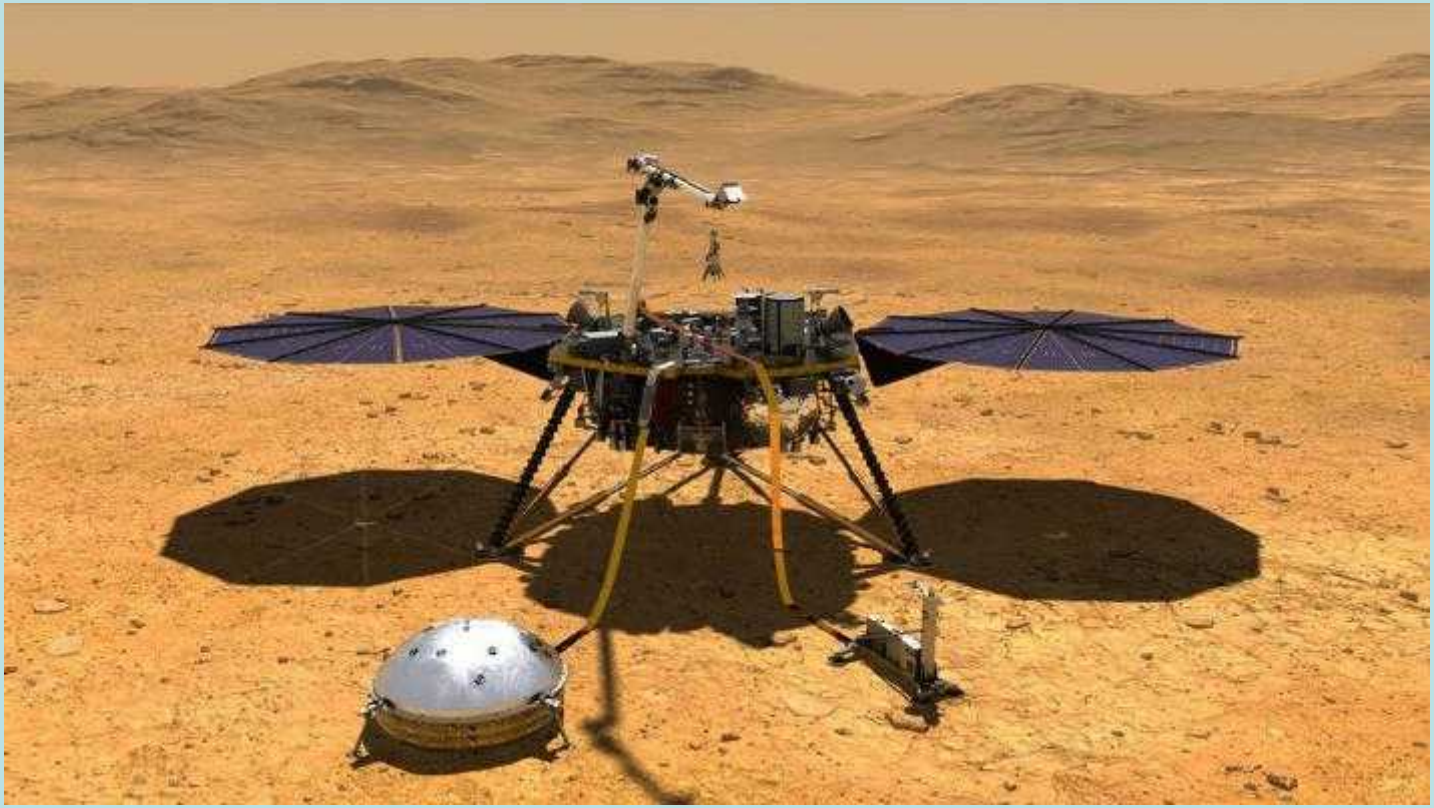
NASA's Hubble Space Telescope returned to normal operations on **Friday, Oct. 26th**, and completed its first science observations on Oct. 27th. The return to operating mode came after successfully recovering a backup gyroscope that had replaced a failed one three weeks earlier. 'Gyros' are essential for alignment on a target. "Recovery" appears to have involved "hardware resets" (turn off/turn on) plus moving the telescope quickly (shake it hard!) until the gyro behaved itself… *Pretty standard engineering techniques!!!*

Chandra X-Ray Telescope has Gyroscope Fix



Very like Hubble, the Chandra space telescope experienced a gyro failure on the **10th October**. Fortunately spare gyros are available, plus a software patch can be uploaded to fix the onboard computer. Chandra is now 19 years old, well beyond its original design life of 5 years. In 2001, NASA extended its lifetime to 10 years, and it is expected to continue carrying out forefront science observations for many years to come.

Mars InSight Lander nearing Touchdown

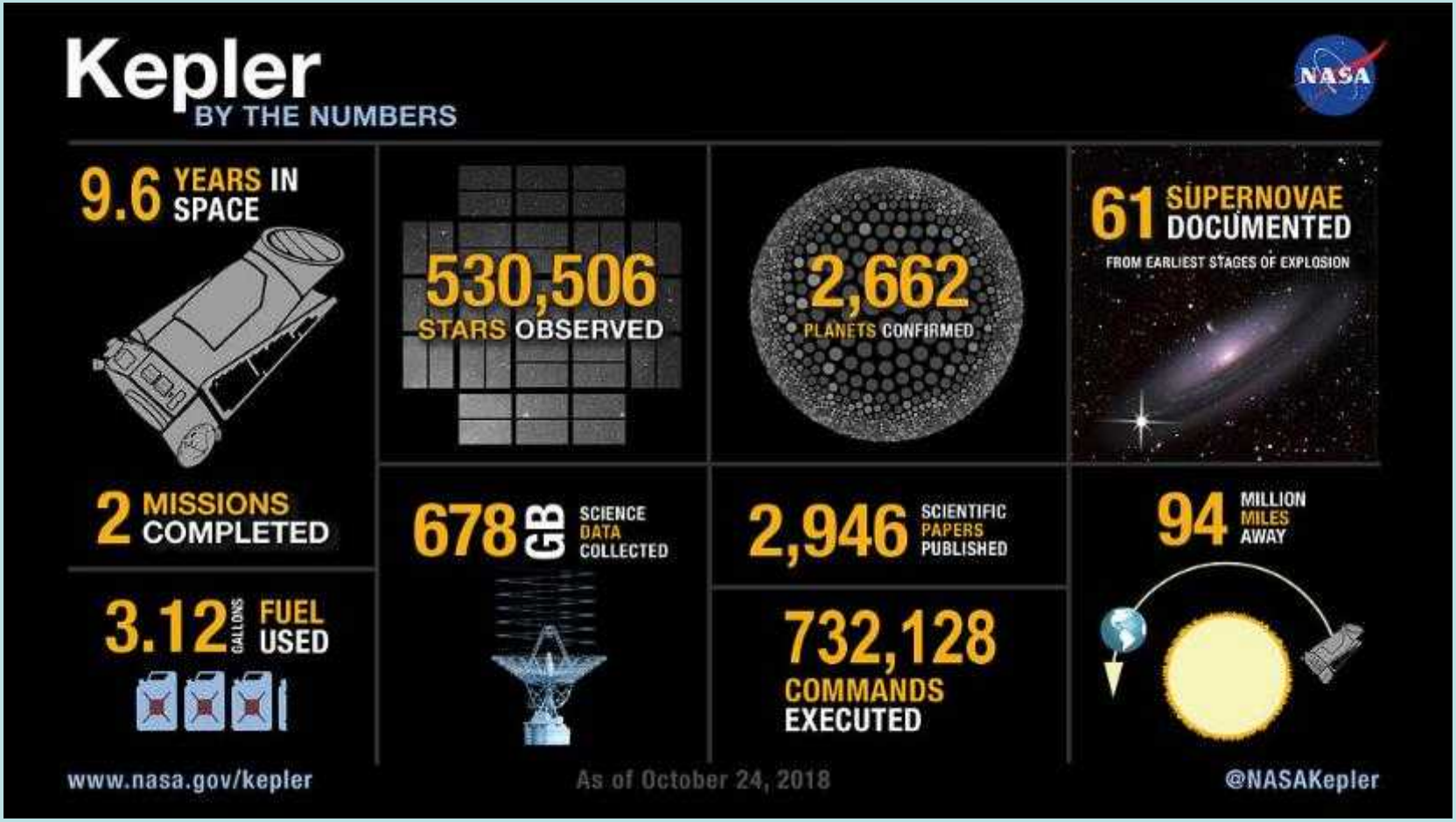


Following its launch on May 5th, **Mars InSight** (plus its faithful MarCO cubesat followers) is due to reach Mars towards the end of November. Look - NO WHEELS! The Lander is very much a Geological Machine, measuring Marsquakes anywhere on the planet, temperatures underground, the weather and the 'Wobble' as Mars rotates on its axis. To do this it will have to sit very still on a boring but safe flat plain called the Elysium Planitia.

Chinese “Fake Moon” to save Streetlighting

20th October: A Chinese company has announced ambitious plans to put a "fake moon" into space to brighten the night sky. According to the People's Daily state newspaper, officials at a private aerospace institute in Chengdu want to launch this "illumination satellite" in orbit by 2020, and say it will be bright enough to replace street lights. Consisting of three huge ‘mirrors’, it would brighten an area up to 50 miles with up to 3 times normal moonlight.

Kepler Spacecraft Retired



October 30th : NASA's Kepler space telescope, which has discovered 70 percent of the 3,800 confirmed alien worlds to date, has run out of fuel. Since Kepler can no longer reorient itself to study cosmic objects or beam its data home to Earth, its work in space is done after nearly a decade. This $600m mission has been hailed as a great success with nearly 3000 planets found.

Did I pack my “Sunbrella”?

On 12th August, Dr Eugene Parker watched the launch of the ‘Solar Probe’ named after him. On **October 31st,** Parker Solar Probe began the first of its 24 solar encounters. This period until November 11th is the time when the spacecraft will be within 0.25 AU, or 23.2 million miles, of the Sun’s centre. Each Solar flypast over the next 7 years will get even closer, beating the record of Helios 2 in 1976 and ultimately reaching 430,000mph.

Send anything interesting you spot during November to:

michael@held.org.uk