

Space News

looking back over

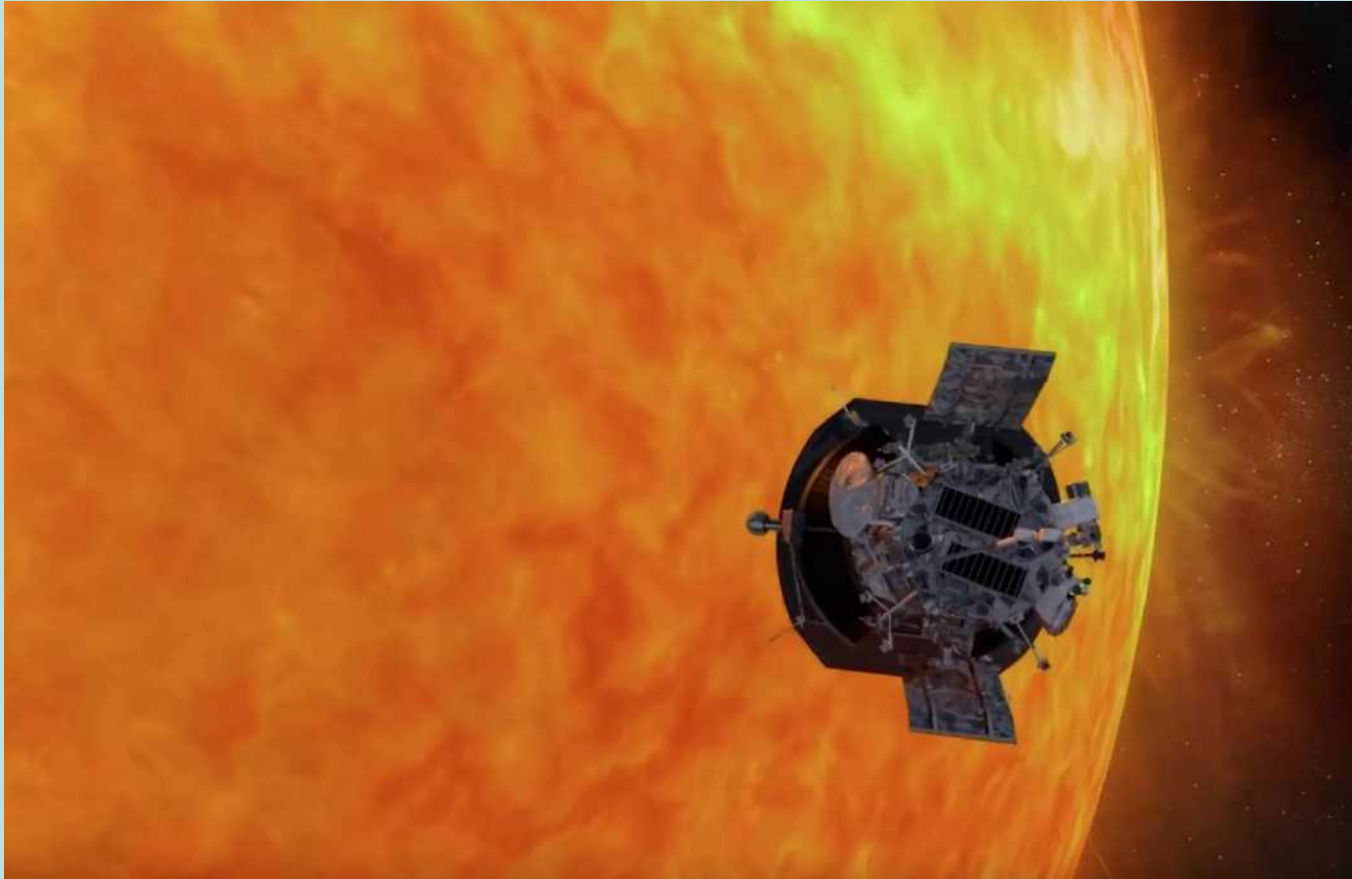
November 2018

Soyuz Rockets undergo Launch Testing . . .



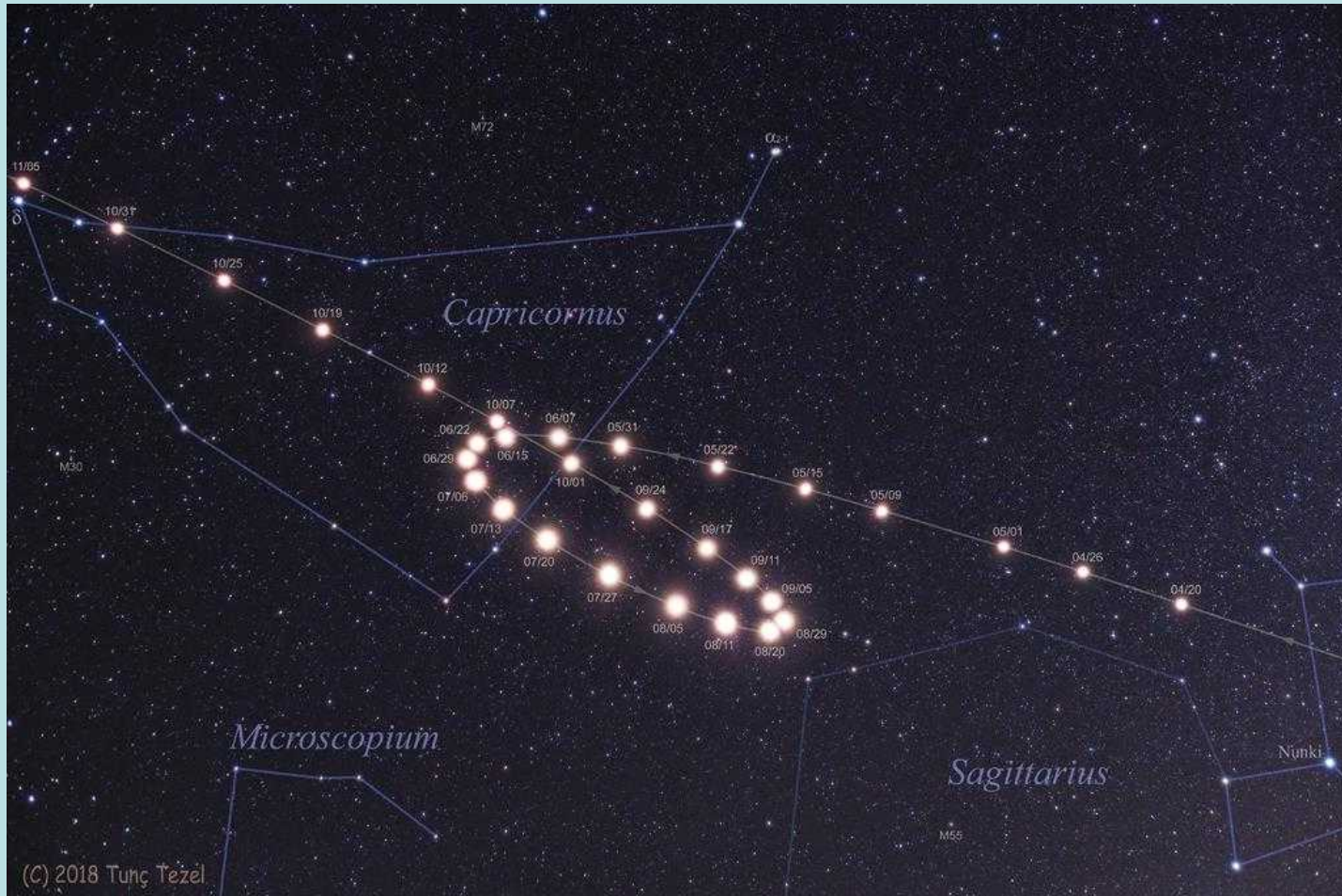
November 3rd: Russia completed its second successful Soyuz launch since the October 11th failed crew launch, with lift-off taking place at 20:17 GMT. The launch, from the Plesetsk Cosmodrome about 500 miles north of Moscow, put a navigation satellite called Glonass-M into orbit. A Soyuz-2.1b rocket was used during the launch — a variation on the model used for crewed flights, including the October 11th failure, which has been fully investigated.

Parker Solar Probe (PSP) passes first test



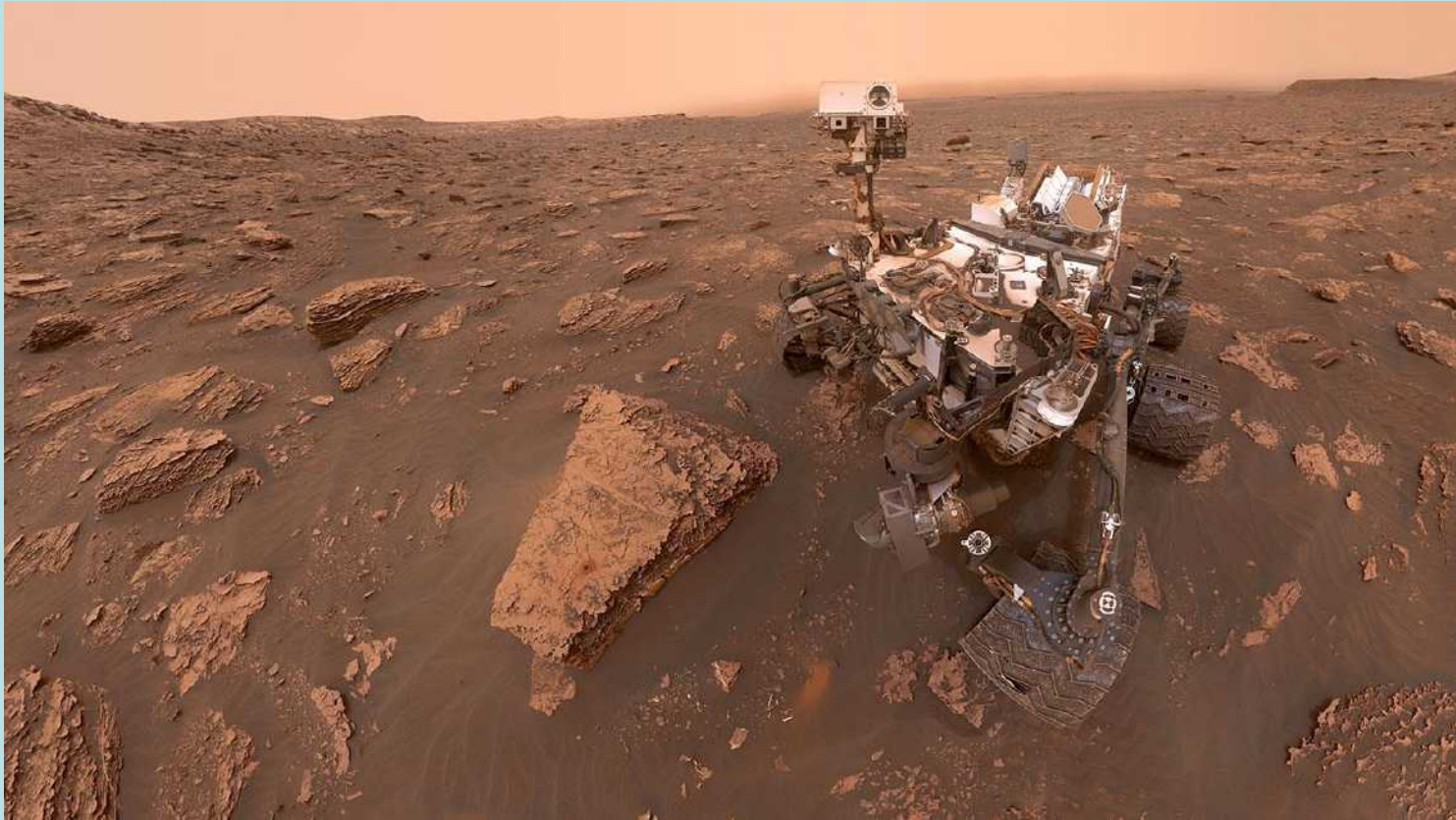
November 5th: The PSP spacecraft zoomed within 15 million miles of the Sun – far closer than any mission had ever gone before. And on the 7th, the probe called home, telling its controllers that it was in good health and continuing to collect science data. During its first solar encounter the spacecraft set a speed record of **213,200 mph** relative to the sun. Over the next 7 years, both these records will be broken as it gets ever closer to the Sun.

“Strictly Sky Dancing”



November 5th: Mars enjoyed a “Waltz around the Sky” between June and October. This motion confused ancient astronomers and caused them to invent the term ‘wandering stars’ for our planets. Nowadays we call it ‘retrograde motion’ and know it is only ‘apparent motion’ because our Earth is moving as well.

Curiosity's Weekend Trek



November 6th: Curiosity drove about 200 feet over the last 2-3 days to a site called *Lake Orcadie*, pushing its total distance since landing to over **12 miles**. This was Curiosity's longest drive since experiencing a memory problem on Sept. 15th. The rover was switched to a spare computer, called the Side-A computer, on Oct. 3rd. After more than two weeks of science operations, and now this latest drive, the mission is back to business. The team plans to drill into a rock target at this new site.

Mar's Battered Moon – Keep your head down!

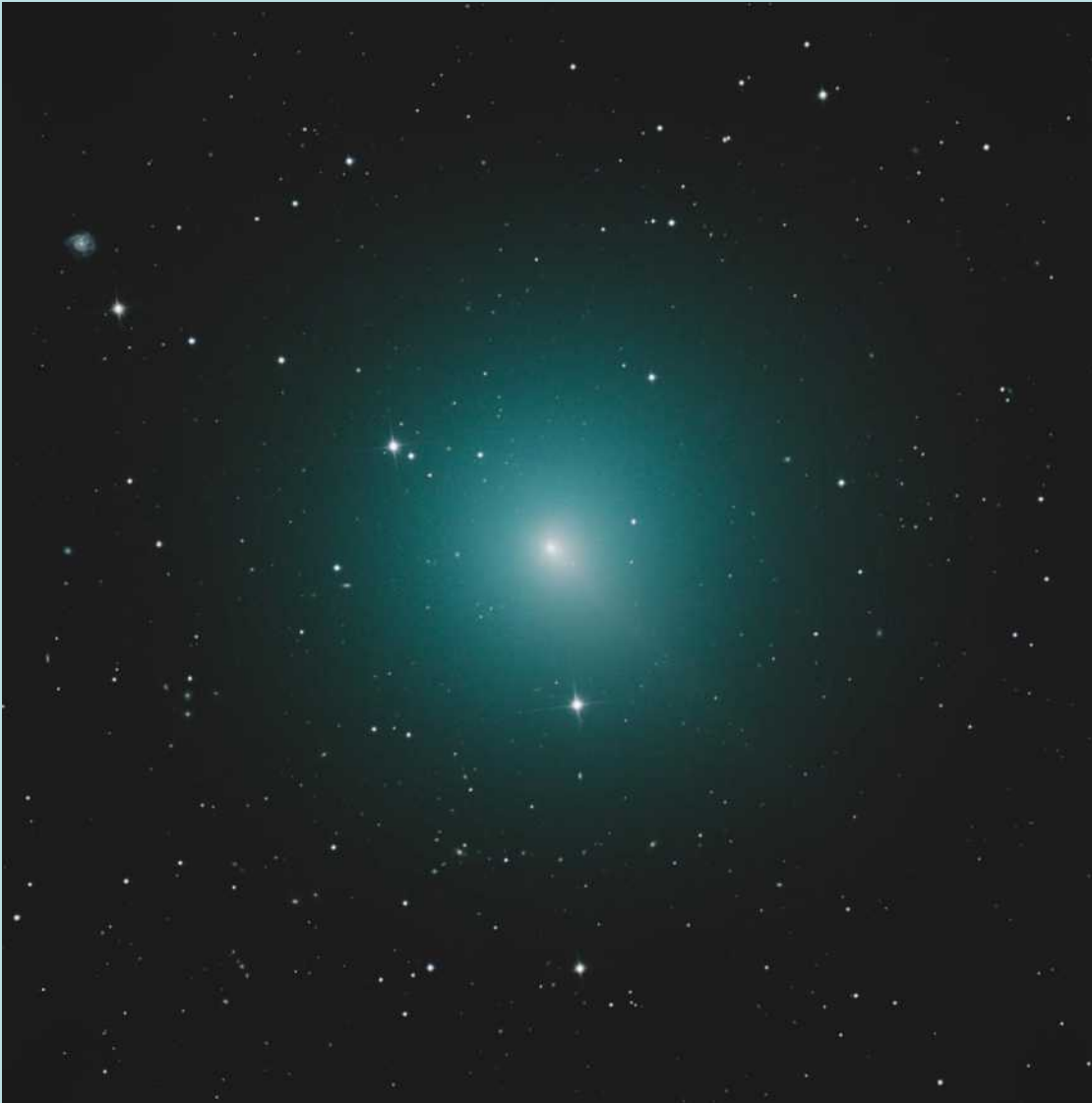


Phobos is the larger of Mars two moons. Yet it is only 25 km in size. A violent collision in the past created “Stickney Crater” on one side.

Orbiting only 5,800 km above the surface its future is to slowly creep nearer and finally break up before crashing onto the surface.

Fortunately this looks like being in 50 million years' time.

Rosetta-Mission Comet returns – but dimly



November 7th:

Periodic comet **46P/Wirtanen** was once the favoured target for ESA's **Rosetta** mission.

It is now the brightest comet in our night sky, but too faint to be seen by eye. Its **5.4 year** long orbit brings it closest to Earth and the Sun in mid-December.

The spherical coma is about half the size of a full moon in this southern hemisphere telescope view.

NZ Space Company Launches Satellites



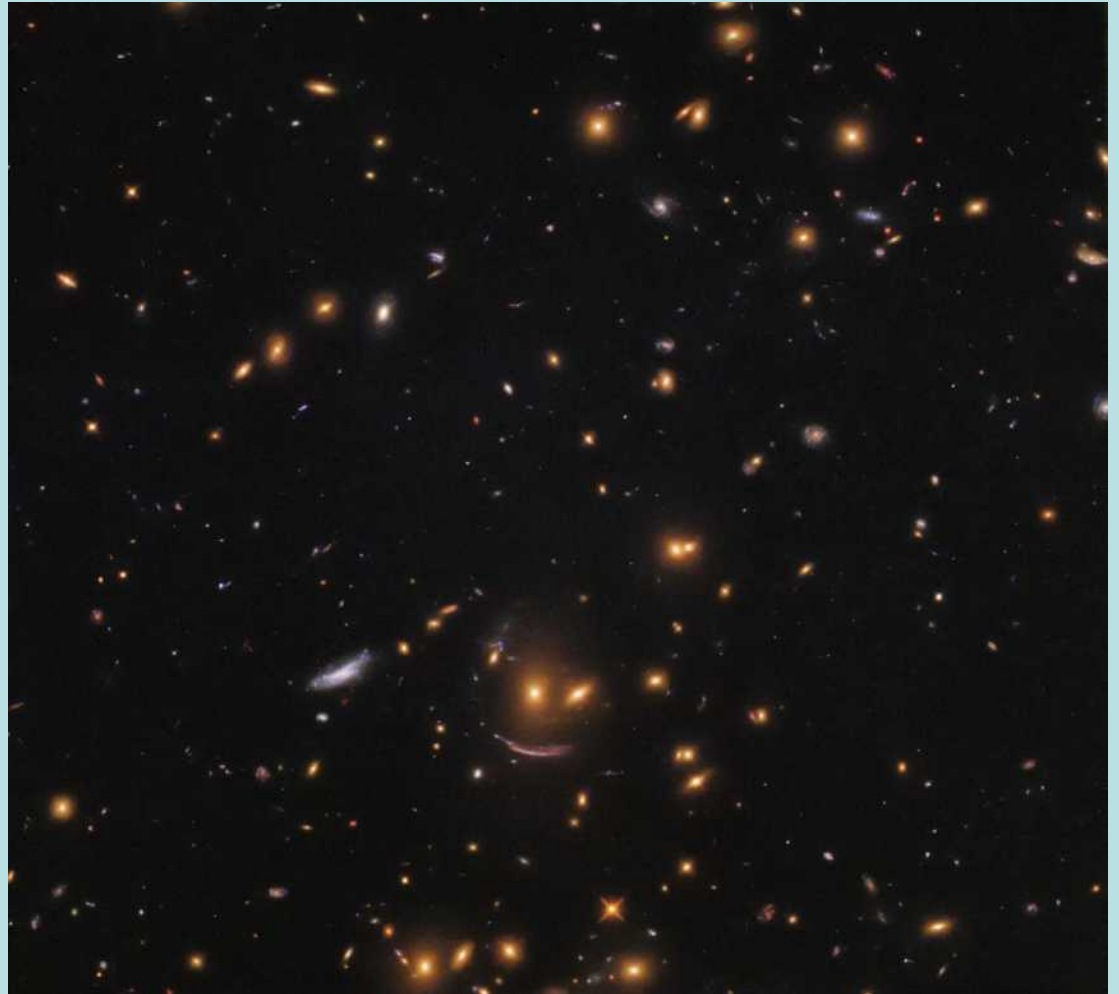
November 11th: Private spaceflight company **Rocket Lab** successfully launched its first commercial mission using its **Electron** booster.

The rocket, called "It's Business Time", launched six small satellites into orbit. In this photo, the Electron blasts off from Rocket Lab's pad on **New Zealand's** Mahia Peninsula at 4:50 p.m. New Zealand time (03:50 GMT).

Hubble finds Something to Smile about

November 13th: Hubble is back in action – and a trio of galaxies form what appears to be a **wry smile** in deep space in this view from Wide Field Camera No3. This image shows galaxies from the SDSS J0952+3434 cluster. The ‘smile’ is of course another galaxy – but its image is distorted due to ‘Gravitational Lensing’.

Hubble is now 28 years old – and has to ‘stick it out’ until the JWST can be launched.



Juno Revisits Jupiter Regularly



Lighter clouds are higher than darker ones...

NASA's Juno Spacecraft has a few more swooping visits across the clouds of Jupiter before its mission is completed. Each elliptical orbit takes **53 days** – but each pass collects images of a different part of the giant planet and its stormy atmosphere. The gases are mainly H and He, but the colours are due to trace chemicals – such as $(\text{NH}_4)\text{HS}$, ammonium hydrosulphide (= 'stink bomb' smell!)

Final Details emerge of Oumuamua's Behaviour...

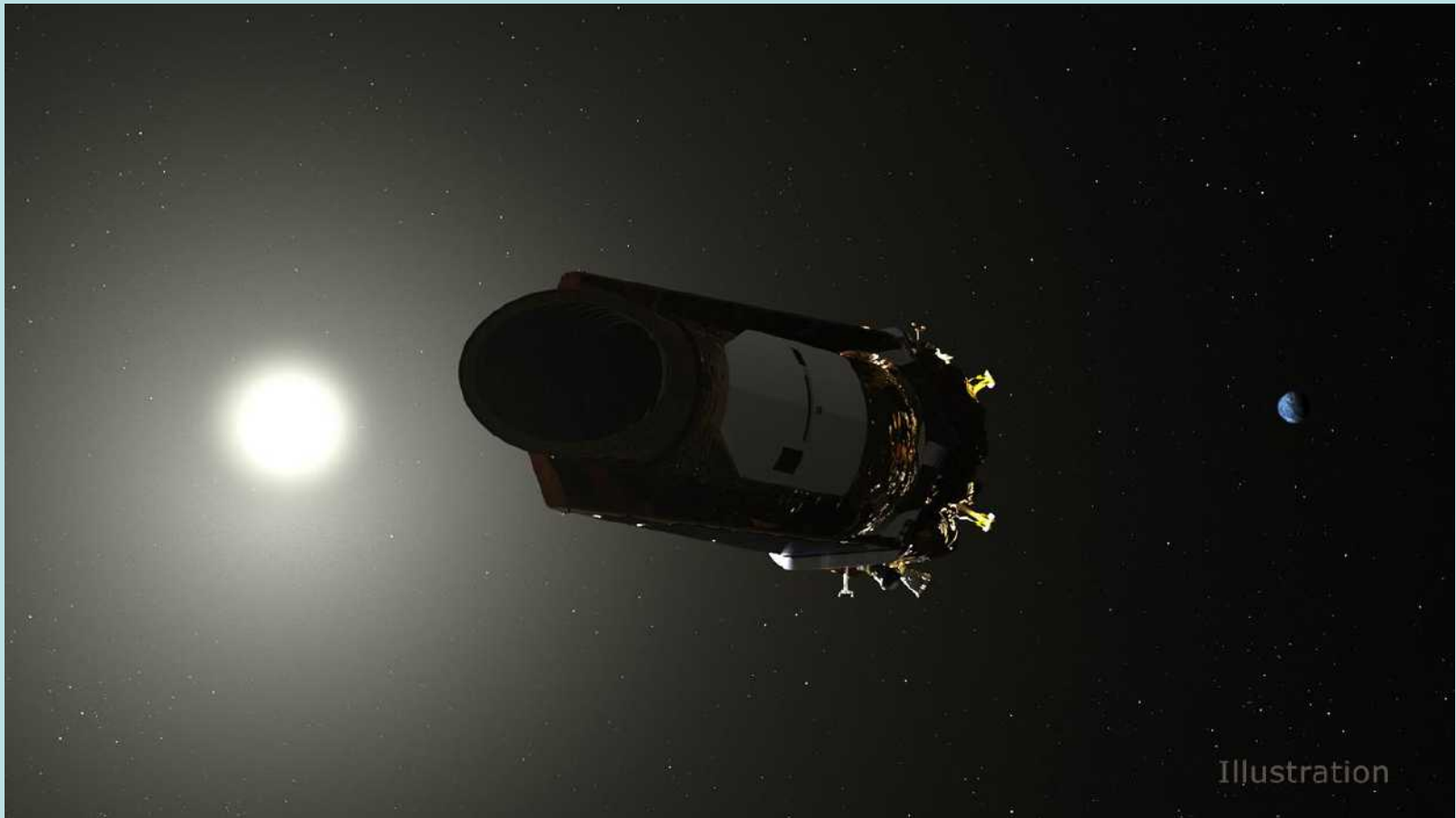
14th November: Now that it has finally disappeared from our Solar system, the strange object called **Oumuamua** has given us its last bit of information.

The Spitzer Space telescope was unable to track it after 2 months, which puts a limit on its overall size. Length less than 800m, diameter 100m to 140m.

Changes in its speed and direction suggest that like a comet it was probably “out-gassing” as shown here.

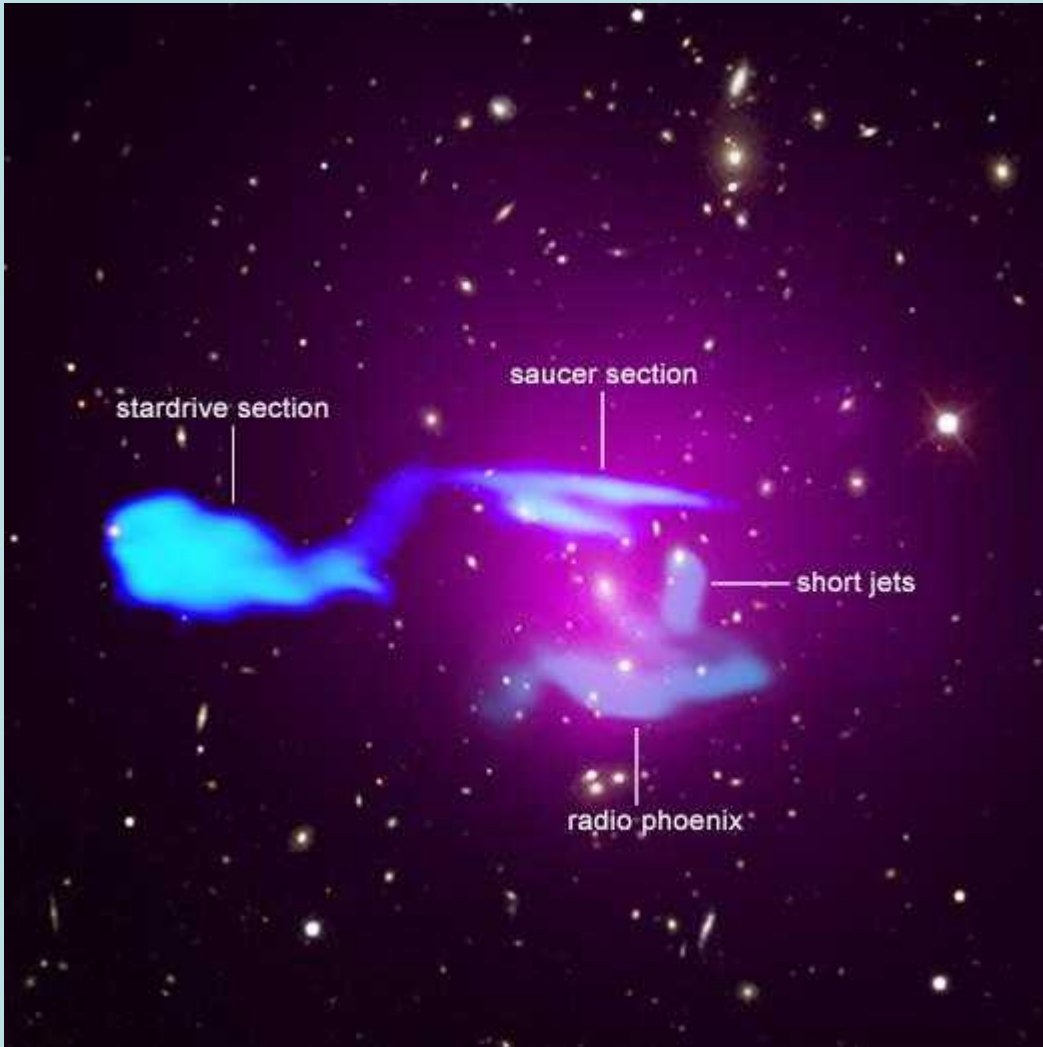


Kepler goes 'Dark'



15th November: NASA's Kepler space telescope received its "goodnight" commands to finalize the spacecraft's retirement, which began on 30th Oct with NASA's announcement that it had run out of fuel and could no longer conduct science. Coincidentally, Kepler's "goodnight" falls on the 388-year anniversary of the death of its namesake, astronomer Johannes Kepler.

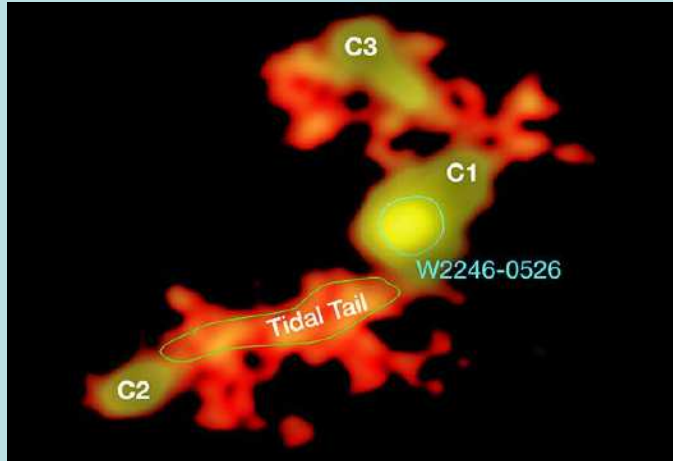
Star-Trekking Type Galaxies ??



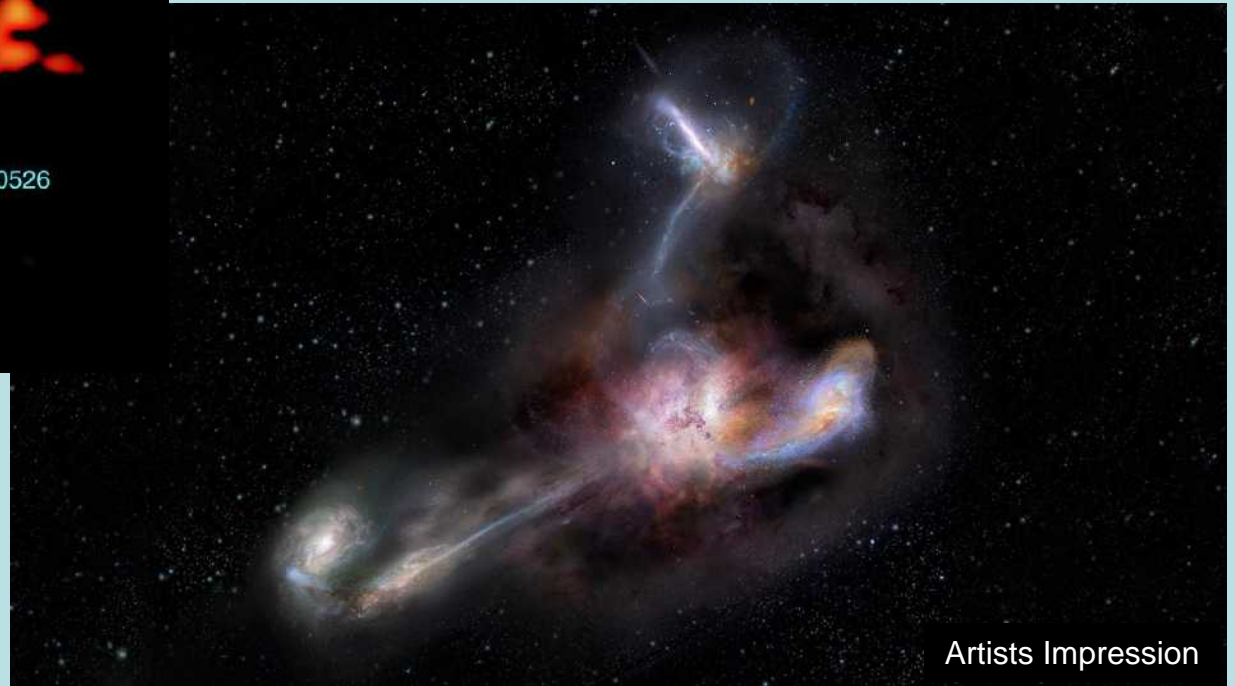
November 15th: Abell 1033: To Boldly Go into Colliding Galaxy Clusters

Galaxy clusters are the largest objects in the Universe held together by gravity. Multi-million-degree gas fills the space in between the individual galaxies. The mass of the hot gas is about **6** times greater than that of all the galaxies combined. This superheated gas is invisible, but an X-ray telescope like NASA's **Chandra** can study it.

Eating Galaxies causes Outbursts of Light



Annotated
Radio-Data Image



Artists Impression

15th November: The most luminous galaxy ever discovered is cannibalizing not one, not two, but at least three of its smaller neighbours, according to a new study published in the journal *Science*. The material that the galaxy is stealing from its neighbours is likely contributing to its super-brightness.

Discovered by WISE in 2015, the galaxy is not the largest or most massive galaxy we know of, but it radiates at **350 trillion times** more than the Sun.

'First Light' from InSight



This first image taken immediately after soft touchdown on the Martian surface is through a lens cap covered in Martian dust.

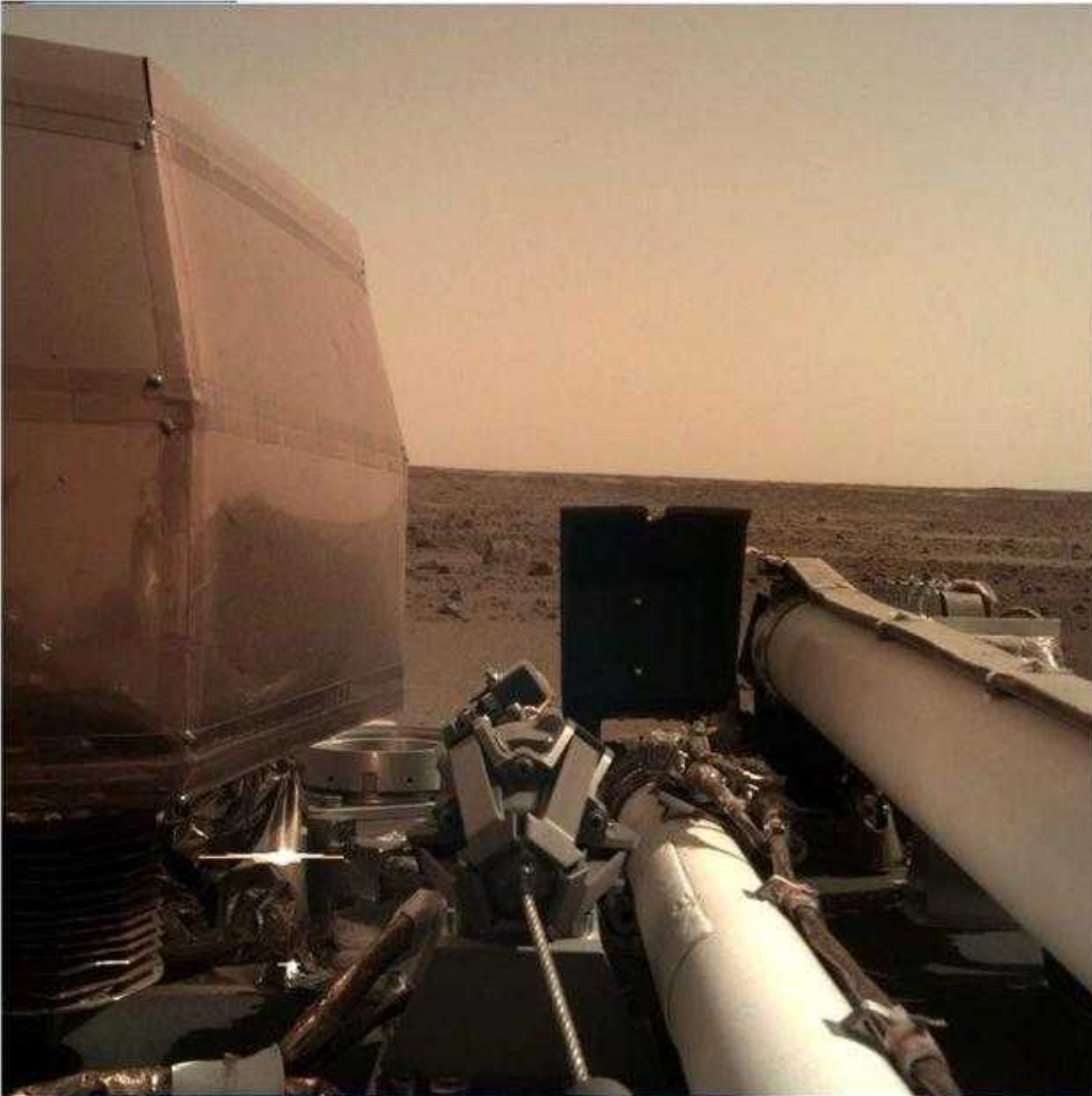
Past the spotty dirt, parts of the lander that are visible include cover bolts at the bottom and a lander footpad on the lower right. Small rocks are visible across the rusty red soil over to the horizon and the murky/dusty sky

Farewell to Mars



November 26th: After cruising along behind NASA's InSight for seven months, the two MarCO cubesats successfully relayed data back down to Earth during the lander's descent to the Martian surface. "EVE" and "WALL-E" flew on past Mars and here is a farewell photo looking back from about 4700 miles.

InSight sits securely on 'Elysium Planitia'



This picture from the robot arm of InSight shows dust settling following its landing about 5½ hours earlier. The clear lens cap stays on until the dust has all settled.

Both solar panels have opened, and will provide 600-700W of power on a bright day. This would power a kitchen blender - but is sufficient to run all the experiments, which will take several weeks to be set-up for 2 years of operation.

India in a hurry to join the Space Experts...

14/28th November: ISRO is India's Space Research Organisation. It achieved 2 successful launches this month.

The powerful new GSLV Mk III rocket launched the GSAT-29 communication satellite on **November 14th**. This is to be followed by a Moon landing robotic mission in January.

On the **28th**, a Polar Satellite Launch Vehicle (PSLV) lofted 31 satellites to Earth orbit – mainly the 840lb HySIS satellite, but also 29 nanosatellites and one microsatellite, which were provided by eight different countries for various Earth-observing missions.



What chance of UK's own "Galileo"?



November 30th: Science and universities minister **Sam Gyimah** has resigned saying a row over involvement in the **EU's Galileo satellite-navigation system** shows the UK will be "hammered" in negotiations over a Brexit deal. He quit after PM Teresa May said the UK was pulling out of Galileo.

After Brexit, the UK will not be allowed access to the part of the system intended for use by government agencies and military. The UK has invested **£1.24bn** so far and says access is vital to its military and security interests.

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