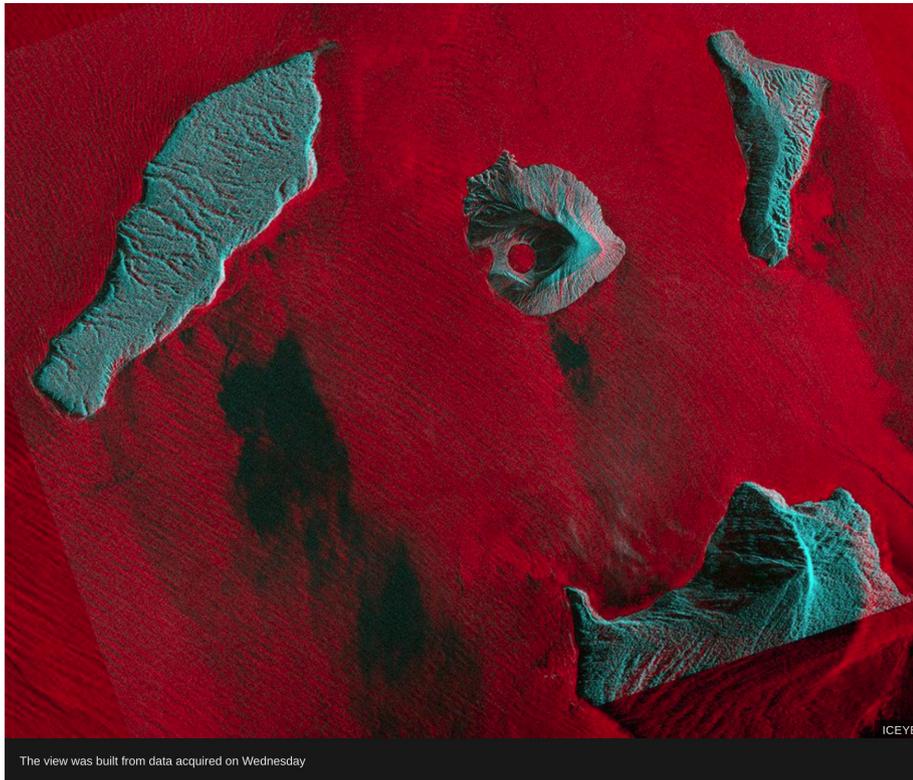


Anak Krakatau: Finnish radar satellite eyes tsunami volcano

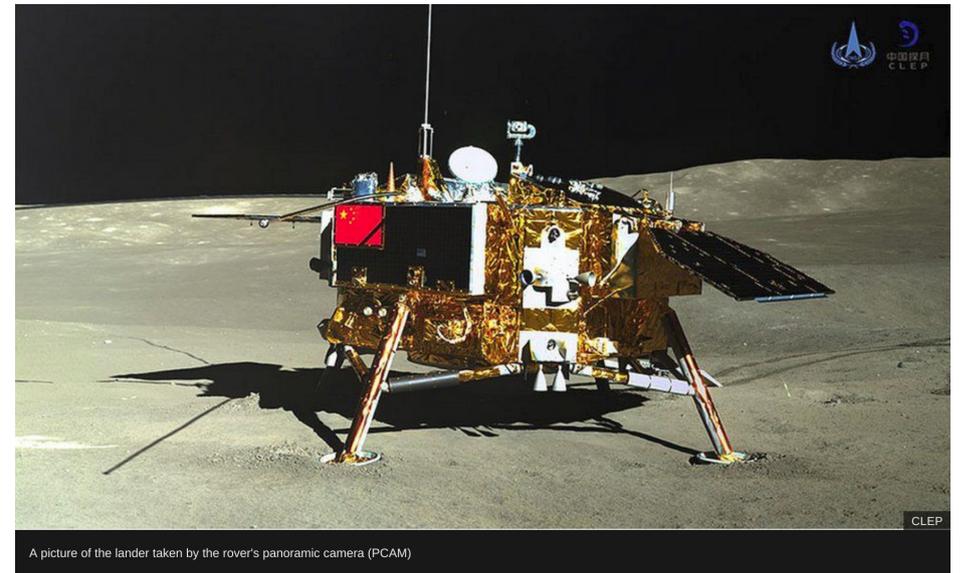
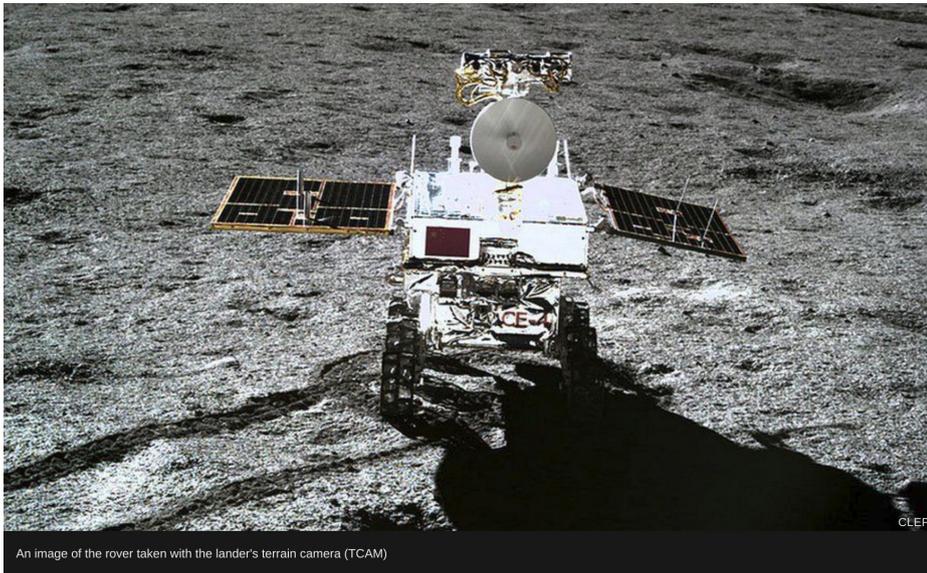


Here's a new view of Anak Krakatau, the collapsed Indonesian volcano that generated the 22 December tsunami that devastated local coastlines.

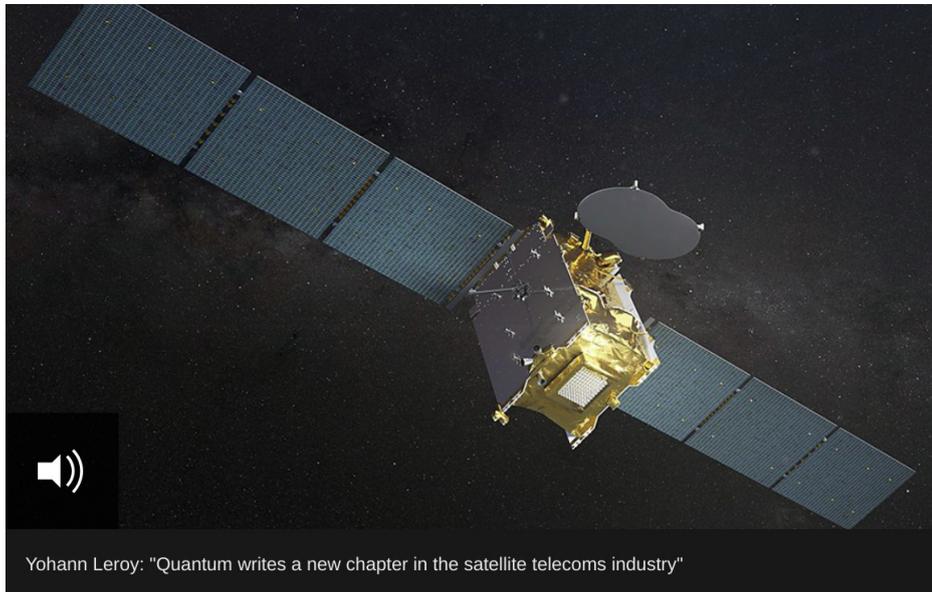
The picture was assembled from radar images acquired on Wednesday by the [ICEYE-X2 satellite](#).

- The volcano continues to evolve, following the cone's catastrophic failure.
- Its original height of 340m was reduced to just 110m in the disaster, but further eruptions have since begun to re-model the remnant structure.
- "This image indicates the edifice is in a building phase, with the crater no longer connected to the sea as it was in images from a week or so ago," observed Prof Andy Hooper from Leeds University, UK.

Chang'e-4: China Moon probes take snaps of each other



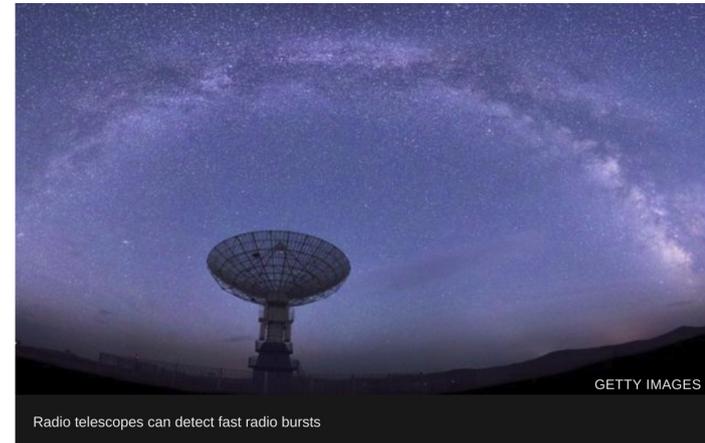
Quantum: Handover for fully flexible satellite



- Eutelsat Quantum is the first satellite capable of being completely reprogrammed after launch.
- It is nicknamed the 'chameleon' satellite because of its software-driven approach, meaning all manner of changes can be made to the mission while it is in orbit, like adjusting the satellite's coverage, frequency, power, and even orbital position.

Signals from space: Five theories on what they are

- Mysterious signals have been picked up from distant galaxies.
- When fast radio bursts or FRBs, as they are called, reach Earth's telescopes they shine brightly for a few milliseconds, then disappear.
- Astronomers have detected dozens over the past decade - and have just announced they've found more of them, including a rare repeating signal.
- We don't know exactly what they are or where they're from, but here are five suspects.



- A rapidly spinning neutron star
- Two stars merging
- Blitzar – neutron star collapsing
- Black hole
- Alien life form

Citizen Scientists Find New World with NASA Telescope

- Using data from NASA's Kepler space telescope, citizen scientists have discovered a planet roughly twice the size of Earth located within its star's habitable zone, the range of orbital distances where liquid water may exist on the planet's surface. The new world, known as K2-288Bb, could be rocky or could be a gas-rich planet similar to Neptune. Its size is rare among exoplanets - planets beyond our solar system.

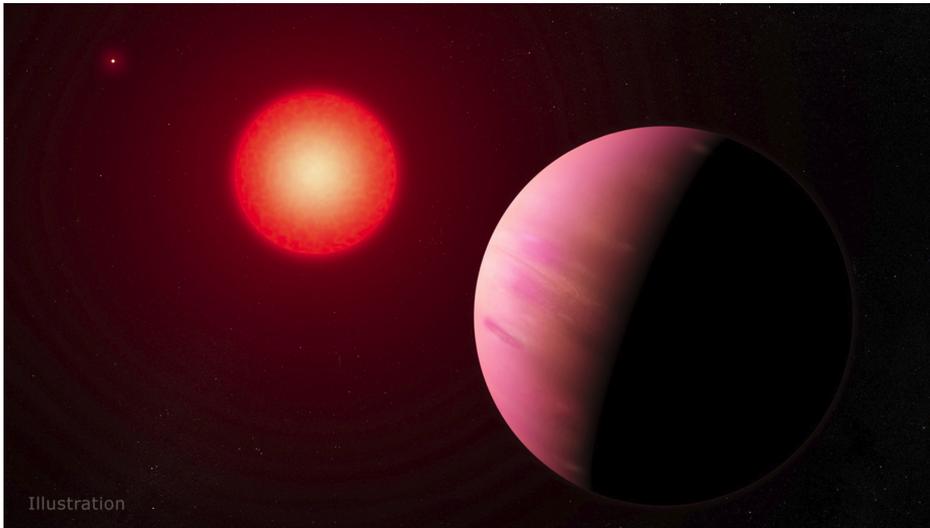
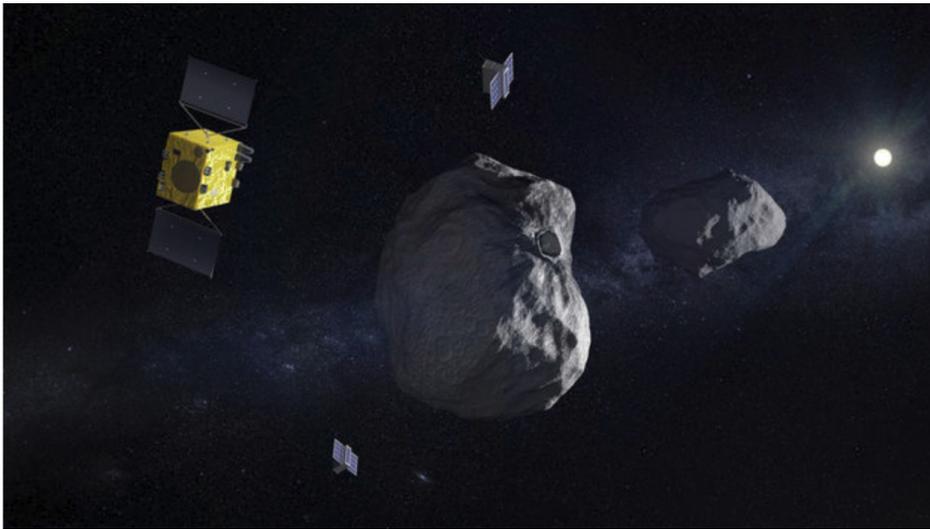


Illustration
The newfound planet K2-288Bb, illustrated here, is slightly smaller than Neptune. Located about 226 light-years away, it orbits the fainter member of a pair of cool M-type stars every 31.3 days. Credit: NASA's Goddard Space Flight Center/Francis Reddy

Cubesats joining Hera mission to asteroid system



- When ESA's planned Hera mission journeys to its target binary asteroid system, it will not be alone. The spacecraft will carry two tiny CubeSats for deployment around – and eventual landing on – the Didymos asteroids. Each companion spacecraft will be small enough to fit inside a briefcase, as compared to the desk-sized Hera.
- CubeSats are nanosatellites based on standardised 10 cm-sized units. Hera has room to deliver two 'six-unit' CubeSat missions to the Didymos asteroid system – a 780 m-diameter mountain-sized main body is orbited by a 160 m moon, informally called 'Didymoon', about the same size as the Great Pyramid of Giza.

Quadrantids



- Named for a forgotten constellation, the Quadrantid Meteor Shower is an annual event for planet Earth's northern hemisphere skygazers. It usually peaks briefly in the cold, early morning hours of January 4. The shower's radiant on the sky lies within the old, astronomically obsolete constellation Quadrans Muralis. That position is situated near the boundaries of the modern constellations Hercules, Bootes, and Draco. About 30 Quadrantid meteors can be counted in this skyscape composed of digital frames recorded in dark and moonless skies between 2:30am and local dawn. The shower's radiant is rising just to the right of the Canary Island of Tenerife's Teide volcano, and just below the familiar stars of the Big Dipper on the northern sky. A likely source of the dust stream that produces Quadrantid meteors was identified in 2003 as an asteroid. Look carefully and you can also spot a small, telltale greenish coma above the volcanic peak and near the top of the frame. That's the 2018 Christmas visitor to planet Earth's skies, Comet Wirtanen.

Partial Solar eclipse



- On January 6 the New Moon rose in silhouette with the Sun seen from northeastern Asia. Near maximum, the dramatic partial solar eclipse is captured in this telephoto view through hazy skies. In the foreground, the hill top Wanchun pavilion overlooking central Beijing's popular Forbidden City hosts eclipse-watching early morning risers. This was the first of five, three solar and two lunar, eclipses for 2019.

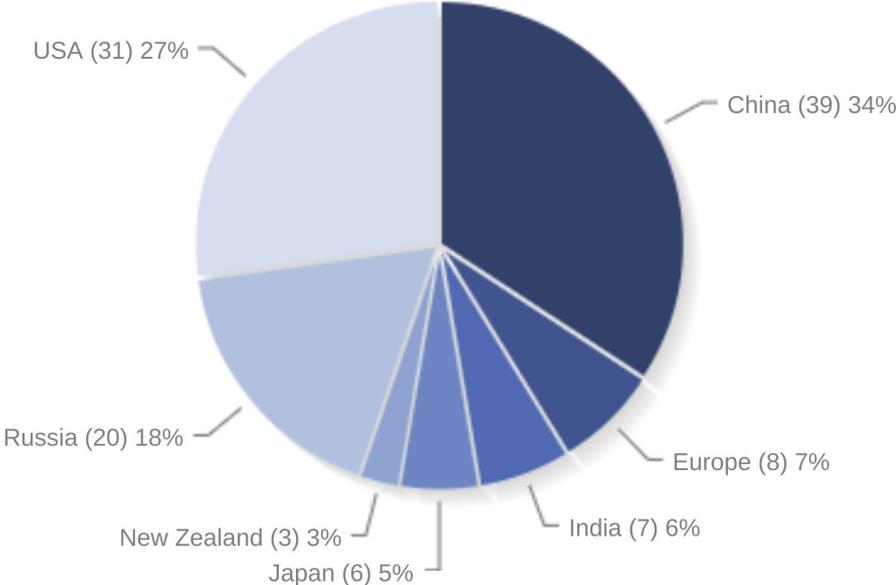
Skywatchers see 'super blood wolf moon'



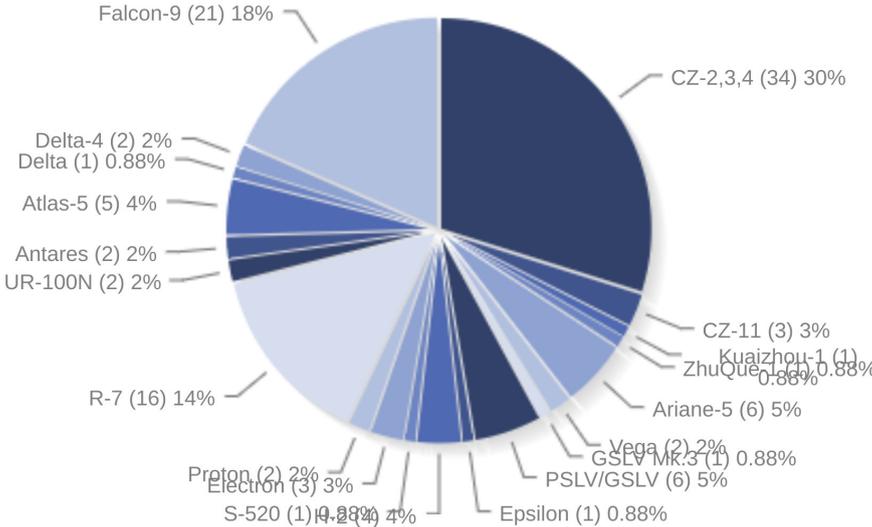
- A lunar eclipse, which some are referring to as a "super blood wolf moon", has delighted skywatchers around the world.
- During the spectacular event, the Earth's natural satellite turns a striking shade of red.
- The entire eclipse was visible from North and South America, as well as parts of western Europe (including the UK) and north Africa.

Orbital launches of 2018

Orbital launches by country:



Orbital launches by launch vehicle family:



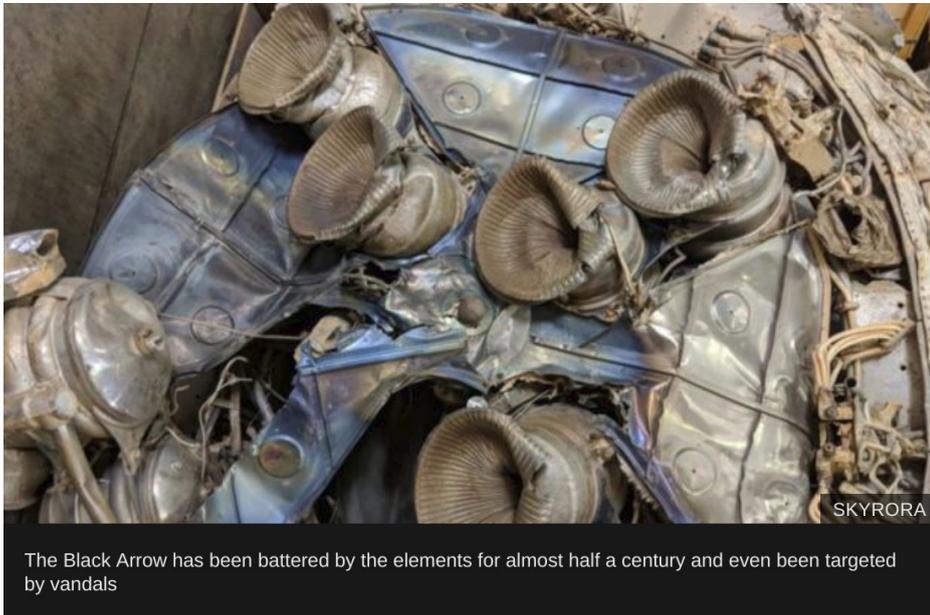
US spy satellite launch



The mobile service tower rolls back from the United Launch Alliance (ULA) Delta IV Heavy rocket carrying NRO's NROL-71 mission in preparation for launch from Space Launch Complex 6 at Vandenberg Air Force Base in California. Liftoff is targeted for Jan. 19, 2018.

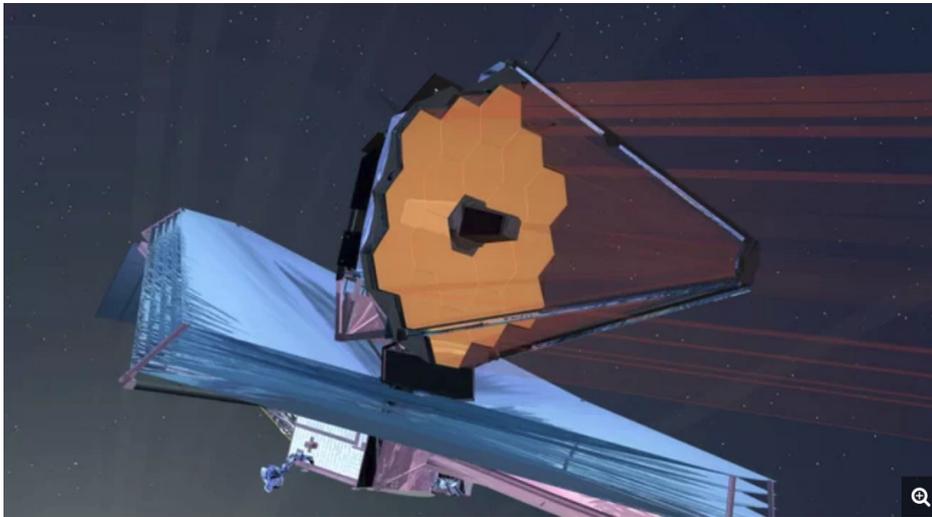
- NROL-71 will be operated by the U.S. National Reconnaissance Office (NRO), which is in charge of the country's fleet of spy satellites. NRO missions are generally classified, and this one is no different; very little is known about NROL-71 or what exactly it will do.

Black Arrow returns



- The UK's only rocket to successfully launch a satellite into orbit is to be unveiled in Scotland after a 10,000-mile journey back home.
- The Black Arrow projectile had lain at its crash landing site in the South Australian outback for 48 years.
- Over time it was damaged by extreme weather and vandalism before space technology firm Skyrora stepped in.
- The historic rocket is set to go on display in Penicuik, Midlothian, later this month.

House Spending Bill Fires Warning Shot at James Webb Space Telescope



The report accompanying a new House appropriations bill expresses "profound disappointment" in NASA and its contractors for the latest JWST overruns.

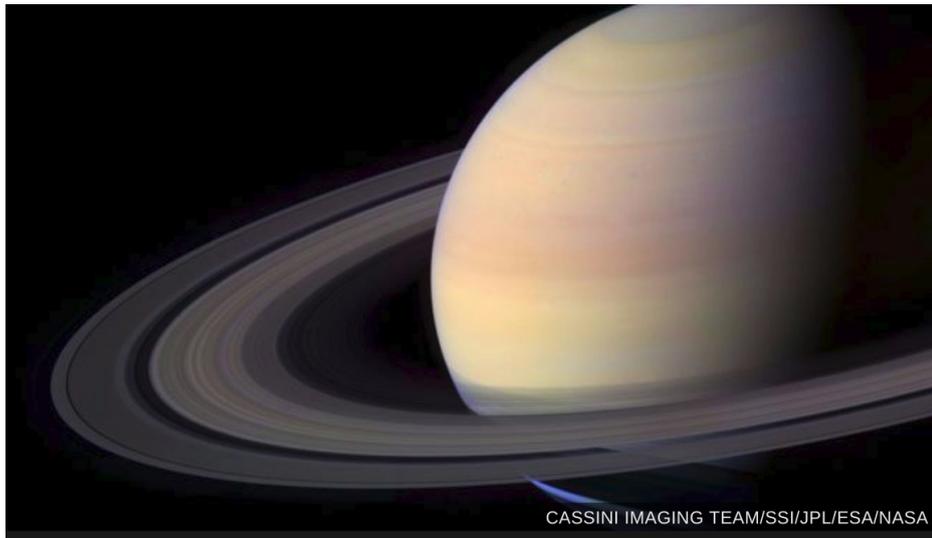
- A new appropriations bill the House plans to vote on next week would provide \$21.5 billion for NASA in 2019 but warns that any further problems with the James Webb Space Telescope could lead to its cancellation.

Nasa's New Horizons: Best image yet of 'space snowman' Ultima Thule



- The New Horizons probe has sent back its best picture yet of the small, icy object Ultima Thule, which it flew past on New Year's Day.
- The image was acquired when the Nasa spacecraft was just 6,700km from its target, which scientists think is two bodies lightly fused together - giving the look of a snowman.

Saturn's spectacular rings are 'very young'



- We're looking at Saturn at a very special time in the history of the Solar System, according to scientists.
- They've confirmed the planet's iconic rings are very young - no more than 100 million years old, when dinosaurs still walked the Earth.

SpaceX Launches 10 Iridium Satellites Into Orbit



- A SpaceX Falcon 9 rocket carrying the final 10 Iridium Next communications satellites for a new constellation launches from Space Launch Complex 4E of Vandenberg Air Force Base in California on Jan. 11, 2019.

Spektr-R: Russia's only space telescope 'not responding'



- Russia's only space radio telescope is no longer responding to commands from Earth, officials say.
- Astro Space Centre chief Nikolai Kardashev said some of the Spektr-R satellite's communication systems had stopped working.
- But it was still transmitting scientific data, RIA Novosti news agency reports.
- The telescope has been operational way beyond its expected five-year lifespan, Russia's space agency Roskosmos says.
- Specialists had repeatedly tried and failed to fix the lost connection, Mr Kardashev said.
- Yuri Kovalev, head of research for the Spektr-R project, said the link went down on the morning of 11 January, but added that "there is still hope".

Satellites saw rapid Greenland ice loss



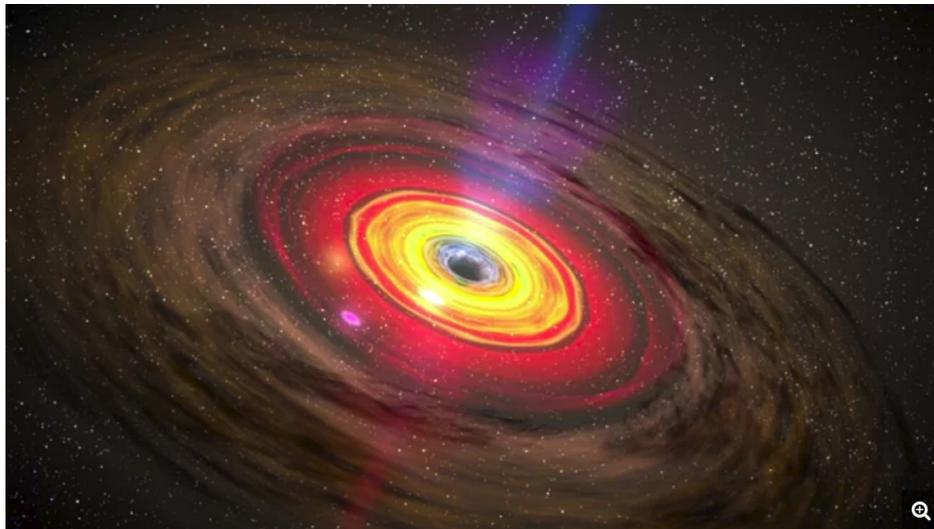
- Greenland has gone through an "unprecedented" period of ice loss within the last two decades.
- The Grace satellites revealed a four-fold increase in mass being lost from Greenland's ice sheet from 2003-2013.
- The study in Proceedings of the National Academy of Sciences shows that ice loss subsequently stalled for 12-18 months.
- Scientists concerned about sea levels have long focused on Greenland's south-east and north-west regions, where glaciers continually force large chunks of ice into the Atlantic Ocean.
- But the largest sustained acceleration in ice loss from early 2003 to mid-2013 occurred in south-west Greenland, which is largely devoid of these large glaciers.
- "Whatever this was, it couldn't be explained by glaciers, because there aren't many there," said the study's lead author Michael Bevis, from The Ohio State University.
- "It had to be the surface mass - the ice was melting inland from the coastline."

Jeff Bezos' New Shepard rocket system flies for 10th time



- The New Shepard rocket reached a top speed of 3,582km/h (2,226mph) as it sent the capsule to an apogee of 106.92km (350,775ft) - above the so-called Kármán line, the most widely accepted boundary of space. Unity on its test flight last month got to a height of 82.7km
- The eight Nasa experiments aboard the New Shepard capsule were demonstrating a range of new space applications - including electronics, environmental sensors and fuel-handling technologies.
- They would have experienced a few minutes of weightlessness around the top of New Shepard's climb into the sky.

A Rare Kind of Black Hole May Be Wandering Around Our Milky Way



An artist's depiction of a black hole.

Credit: NASA's Goddard Space Flight Center

- Scientists think that they've spotted a rare, Jupiter-size black hole casually strolling through the Milky Way galaxy.
- Of course, scientists can't see any black holes directly — but new research tracking a celestial cloud structure saw strange behavior that may have been caused by just such an invisible object. That data came courtesy of the Atacama Large Millimeter/submillimeter Array (ALMA), a set of 66 telescopes scattered across the Atacama Desert in northern Chile.