

Space News Update – February 2015

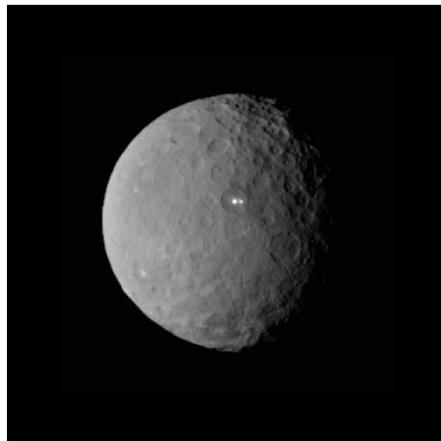
By Pat Williams

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Disclaimer - I claim no authorship for the printed material; except where noted.

CERES PUZZLES SCIENTISTS AS DAWN NEARS DWARF PLANET



This image was taken by NASA's Dawn spacecraft of dwarf planet Ceres on Feb. 19 from a distance of nearly 29,000 miles (46,000 kilometers). It shows that the brightest spot on Ceres has a dimmer companion, which apparently lies in the same basin. Credit: NASA/JPL-Caltech/UCLA/MPS/DLR/IDA

['Bright Spot' on Ceres has dimmer companion](#) (25 February 2015)

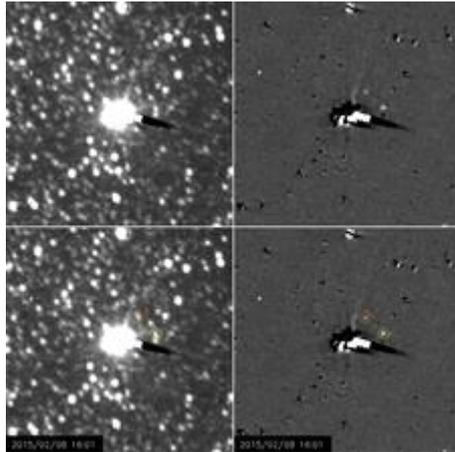
[Dawn captures sharper images of Ceres](#) (17 February 2015)

Dwarf planet Ceres continues to puzzle scientists as NASA's Dawn spacecraft gets closer to being captured into orbit around the object. Craters and mysterious bright spots are beginning to pop out in the latest images of Ceres. These images, taken Feb. 12 at a distance of 52,000 miles (83,000 kilometers) from the dwarf planet, pose intriguing questions for the science team to explore as the spacecraft nears its destination.

Dawn will be gently captured into orbit around Ceres on March 6. As the spacecraft delivers better images and other data, the science team will be investigating the nature and composition of the dwarf planet, including the nature of the craters and bright spots that are coming into focus. The latest images, which have a resolution of 4.9 miles (7.8 kilometers) per pixel, represent the sharpest views of Ceres to date.

The spacecraft explored the giant asteroid Vesta for 14 months during 2011 and 2012. Scientists gained numerous insights about the geological history of this body and saw its cratered surface in fine detail. By comparing Vesta and Ceres, they will develop a better understanding of the formation of the solar system.

NEW HORIZONS IMAGES PLUTO'S SMALL MOONS NIX AND HYDRA



The moons Nix and Hydra are visible in a series of images taken by the New Horizons spacecraft.

Image Credit: NASA/Johns Hopkins APL/Southwest Research Institute

[New Horizons images Pluto's small moons](#) (18 February 2015)

Exactly 85 years after Clyde Tombaugh's historic discovery of Pluto, the NASA spacecraft set to encounter the icy planet this summer is providing its first views of the small moons orbiting Pluto. The moons Nix and Hydra are visible in a series of images taken by the New Horizons spacecraft from Jan. 27-Feb. 8, at distances ranging from about 125 million to 115 million miles (201 million to 186 million kilometers). The long-exposure images offer New Horizons' best view yet of these two small moons circling Pluto which Tombaugh discovered at Lowell Observatory in Flagstaff, Arizona, on Feb. 18, 1930.

Hydra and Nix were discovered by New Horizons team members in Hubble Space Telescope images taken in 2005. Hydra, Pluto's outermost known moon, orbits Pluto every 38 days at a distance of approximately 40,200 miles (64,700 km), while Nix orbits every 25 days at a distance of 30,260 miles (48,700 km). Each moon is probably between 25-95 miles (approximately 40- 150 kilometers) in diameter, but scientists won't know their sizes more precisely until New Horizons obtains close-up pictures of both of them in July. Pluto's two other small moons, Styx and Kerberos are still smaller and too faint to be seen by New Horizons at its current range to Pluto; they will become visible in the months to come

[ESA'S CARGO FERRY BURNS UP ON RE-ENTRY AS PLANNED](#)



ATV Docking

[Last ATV re-entry leaves legacy for future space exploration](#) (15 February 2015)

ESA's fifth and last Automated Transfer Vehicle, *Georges Lemaître*, undocked from the International Space Station. Less than 30 hours later the spacecraft burnt up harmlessly in a controlled re-entry over the Pacific Ocean, marking the end of the programme. The spacecraft formed part of the Station's supply fleet, alongside Russia's Progress and Soyuz, Japan's HII Transfer Vehicle and America's Dragon and Cygnus commercial ferries.

ATVs delivered more than 31 500 kg of supplies over the course of their five missions. They boosted the Station to raise its orbit numerous times and similarly moved it out of the way of space debris.

After the space shuttle, the 34-foot-long (10.3 meter) ATV was the largest spacecraft to resupply the space station, with enough volume to hold a double-decker bus. Powered by four solar panels in an "X-Wing" configuration, the ATV used a laser imaging system to autonomously dock to the orbiting outpost's Russian Zvezda service module.

The first ATV, which flew from March to September 2008, was named for French science fiction author *Jules Verne*. Nearly three years later, the *Johannes Kepler* lifted off in honour of the German astronomer.

ATV-3, which flew to the station in 2012, was christened for *Edoardo Amaldi*, the "father of Italian space research" and one of the few scientists who advocated for what later became the European Space Agency.

The fourth ATV, launched in June 2013, was named after the genius *Albert Einstein*, who is best known for his theories concerning relativity.



*"Final view ATV-5 entering Earth's atmosphere. It was surprising to see how high the smoke trail was."
Credit: Terry Virts. (NASA)*

In total, the five ATVs spent a total of 776 days docked to the space station delivering 70,550 pounds (32,000 kg.) of cargo and science experiments.

In its final act, the *Georges Lemaître* was set to record its own demise. Packed among the refuse was ESA's Break-Up Camera, a special infrared device designed to capture still frames as the vehicle is destroyed during re-entry. The camera itself will not survive, but its communications transmitter, encased inside a ceramic sphere, is expected to relay the data via satellite before impacting the Pacific Ocean somewhere between New Zealand and Chile. If it works, ESA expects the images to be released after their analysis in the next two weeks.

[ATV's internal camera delivered data, but not images](#) (20 February 2015)

A prototype 'blackbox for spacecraft' running inside ESA's cargo ferry as it burned up in the atmosphere managed to return data to the ground but, sadly, the images it took were lost in transit.

Estonia and Hungary acceded to ESA during February
[Estonia accedes to ESA Convention](#) (4 February 2015)

Estonia took a step further in its relations with ESA by signing the Accession Agreement to the ESA Convention on 4 February 2015, to become the 21st ESA Member State.

[Hungary accedes to ESA Convention](#) (24 February 2015)

Hungary signed the Accession Agreement to the ESA Convention on 24 February 2015.

SUB ORBITAL SPACE – ESA’S SPACE FERRY IXV



IXV Recovery

[Experimental spaceplane completes research flight](#) (11 February 2015)

An experimental vehicle to develop an autonomous European re-entry capability for future reusable space transportation has completed its mission. In a world first, Europe has launched and landed an unmanned spaceplane that has no wings but instead features an aerodynamic shape that produces the lift to fly through the atmosphere. Flaps and thrusters autonomously steered it back to a splashdown at a precise point in the Pacific Ocean.

[IXV: 100 minutes of critical teamwork](#) (3 February 2015) 11th Feb.

During its brief but crucial mission, experts on three continents and the high seas will work in close cooperation for ESA’s IXV spaceplane mission, monitoring its free flight in space, spectacular re-entry and safe splashdown in the Pacific.

[What's new about Europe's re-entry mission?](#) (6 February 2015)

ESA’s experimental spaceplane, poised for lift off on Vega, is set to showcase the latest technologies and critical systems to extend Europe’s capability for space exploration.

[Europe's experimental spacecraft IXV is ready for launch](#) (6 February 2015)

Europe’s experimental space ferry IXV (Intermediate eXperimental Vehicle) is ready for take-off.

[ESA's spaceplane is coming home](#) (24 February 2015)

ESA’s IXV spaceplane, launched on a Vega rocket on 11 February, is now on its way to Europe for detailed study in Italy.

THANKS TO SPACE, SOME PARISIAN METRO RIDERS ENJOY A VERY COOL COMMUTE



Paris Metro Line One

[Cool ride](#) (17 February 2015)

Thanks to space, some Parisian Metro riders now enjoy a very high-tech commute. A satellite spin-off is paving the way for more comfortable journeys.

Tourists and locals alike are familiar with Metro Line One: traversing the length of the French capital, this underground line is the city's busiest. More than 213 million journeys are made yearly on its 16.6 km track, which serves 25 stations. What riders might not know is that, for the last year and a half, trains travelling along this route have been equipped with an advanced new cooling system. The technology used comes straight from space – thanks to ESA. Typically, metro trains use large mechanical fans to keep their electric power suppliers from overheating. But, looking to create more room for passengers by reducing the space taken up by machinery, the French transportation company Alstom decided to turn to space, where they found a high-tech alternative.

Learning from cooling systems in space

Because there is no air in space, fans cannot be used to cool electric and other types of equipment on spacecraft. Instead, when it comes to cooling, 'heat pipes' are standard. These rely on liquid. Circulating through a pipe formed in a closed loop, the liquid carries heat away from a hot spot. The basic idea is simple. One part of the loop is placed next to the heat source, while another part is next to a cold spot, perhaps the satellite's outer wall. The challenge is to keep the liquid circulating without the help of mechanical pumps, which are vulnerable to breaking down. "In space, technology has to last for years or decades, without maintenance or repair," said Michel Ganseman, CEO at Euro Heat Pipes, or EHP, a company that provides heat-pipe cooling for some three quarters of all European scientific and Earth observation satellites.

LIKE SUGAR CUBES IN COFFEE

Heat-pipes solve this problem by placing a special porous material in one part of the loop. Using something called the capillary system; this material's microstructures automatically suck up the liquid in the pipe. "Picture dipping the tip of a sugar cube in coffee," explained Michel. "The coffee is quickly drawn up into the sugar, through the pores, because of what's known as 'capillary' action." Of course, a heat pipe's capillary material – made of copper, stainless steel or plastic – is far more efficient than sugar, and produces an almost inexhaustible capillary force. Once the cool liquid has been sucked up through this capillary material, it nears the heat source. There, the liquid turns to vapour. Further along the loop, the vapour encounters the cold source, and turns to liquid. The capillary material then sucks up this liquid, bringing it to the heat source, and the cycle begins again. "It's a way to quickly transport liquid from one place to another without pumps or applying extra energy. "No mobile part is used, eliminating any risk of wearing parts and potential breakdowns of the system."

One challenge that had to be overcome in the technology transfer was the fact that in space, the capillary system does not have to work against gravity. "There's gravity on Earth," said Michel. "But we managed it."

SPACE TRAVEL MAY IMPAIR BRAIN BLOOD FLOW



Mice sent into space for 30 days on a Russian satellite return to Earth.

[Exploring vision complications for astronauts](#) (11 February 2015)

In recent years, NASA has become interested in investigating vision problems observed in astronauts returning from space. On shorter trips, astronauts have often experienced minor vision changes that eventually self-correct. But longer visits to space have caused more substantial issues. An international partnership between Florida State University and a team from the Russian Academy of Sciences has found that space travel may severely impair the body's ability to regulate blood rushing to the brain, which could contribute to the temporary or permanent vision problems experienced by astronauts. Mice were sent into space for 30 days on a Russian satellite, the Bion-M1. When the satellite returned to Earth, the mice were whisked by ambulance to laboratories at the Institute for Biomedical Problems in Moscow, where the research team hunkered down for hours, investigating arteries that control blood flow to muscle, skin and the brain of the small creatures. They soon discovered that the brain held the most interesting responses to the spaceflight. "Without gravity pulling body fluids down toward the feet, fluid will rise toward the brain. When spaceflight alters the function of arteries that precisely regulate blood flow to the brain, it could severely affect many things, including vision."

The issue remains how to solve that problem.

The partners are already setting the stage for future experiments that may yield more answers and possible solutions. In May, another group of mice will be sent to the International Space Station for observation.

LINKS TO OTHER SPACE AND ASTRONOMY NEWS PUBLISHED IN FEBRUARY 2015

BLACK HOLES

[Giving shape to furious black hole winds](#) (19 February 2015)

NASA's Nuclear Spectroscopic Telescope Array (NuSTAR) and ESA's XMM-Newton telescope are showing that fierce winds from a supermassive black hole blow outward in all directions -- a phenomenon that had been suspected, but difficult to prove until now.

[Monster black hole discovered at cosmic dawn](#) (24 February 2015)

Scientists have discovered the brightest quasar in the early universe, powered by the most massive black hole yet known at that time.

[Pockets of calm protect molecules around a supermassive black hole](#) (26 February 2015)

Researchers using the Atacama Large Millimeter/submillimeter Array (ALMA) have discovered regions where certain organic molecules endure the intense radiation near the supermassive black hole at the centre of galaxy NGC 1068, also known to amateur stargazers as M77.

[New insight found in black hole collisions](#) (26 February 2015)

New research by a UT Dallas astrophysicist provides revelations about the most energetic event in the universe — the merging of two spinning, orbiting black holes into a much larger black hole.

COMET

[Philae lander – waiting for a sign of life](#) (3 February 2015)

The Lander Control Center (LCC) at the German Aerospace Center (Deutsches Zentrum für Luft- und Raumfahrt; DLR) is quiet.

[Rosetta swoops in for a close encounter](#) (4 February 2015)

ESA's Rosetta probe is preparing to make a close encounter with its comet on 14 February, passing just 6 km from the surface.

[Comet 67P/Churyumov-Gerasimenko 'shedding its skin' in the heat of the south](#)

(9 February 2015)

Comet 67P/Churyumov-Gerasimenko could lose up to 20 metres of surface material from its previously unilluminated south side when it heats up, starting in May 2015.

[Why comets are like deep fried ice cream](#) (10 February 2015)

Astronomers tinkering with ice and organics in the lab may have discovered why comets are encased in a hard, outer crust.

[SOHO sees unusual comet near the Sun](#) (24 February 2015)

An unusual comet skimmed past the sun on Feb 18-21, 2015, as captured by the European Space Agency (ESA) and NASA's Solar and Heliospheric Observatory, or SOHO.

DARK MATTER

[Evidence for dark matter in the inner Milky Way](#) (9 February 2015)

A new study is providing evidence for the presence of dark matter in the innermost part of the Milky Way, including in our own cosmic neighbourhood and the Earth's location.

[Dark matter guides growth of supermassive black holes](#) (18 February 2015)

Every massive galaxy has a black hole at its centre, and the heftier the galaxy, the bigger the hole.

EARTH

[Plant power from above](#) (3 February 2015)

Field experiments have shown how ESA's potential FLEX mission could identify vegetation that is suffering degrees of stress invisible to the naked eye.

[NOAA's new deep space solar monitoring satellite launches](#) (11 February 2015)

NOAA's Deep Space Climate Observatory (DSCOVR) lifted off from Cape Canaveral, Florida, at 6:03 p.m. EST on its way to an orbit one million miles from Earth.

[DSCOVR: Deep Space Climate Observatory](#)

[Satellite images reveal ocean acidification from space](#) (16 February 2015)



The European Space Agency's Soil Moisture and Ocean Salinity (SMOS) satellite can be used to measure ocean acidification. Credit ESA/AOES Medialab

Pioneering techniques that use satellites to monitor ocean acidification are set to revolutionise the way that marine biologists and climate scientists study the ocean.

<http://pubs.acs.org/doi/abs/10.1021/es504849s>

EXOPLANETS

[Scientists predict Earth-like planets around most stars](#) (5 February 2015)

Planetary scientists have calculated that there are hundreds of billions of Earth-like planets in our galaxy which might support life.

[Heidelberg astronomers discover rare planet](#) (12 February 2015)

Two research groups of Heidelberg astronomers have independently of each other discovered a rare planet.

[Earth-like planets are more likely to orbit Sun-like stars rather than lower-mass stars](#)

(17 February 2015)

Simulations by researchers at Tokyo Institute of Technology and Tsinghua University indicate that Earth-like planets are more likely to be found orbiting Sun-like stars rather than lower-mass stars that are currently targeted, in terms of water contents of planets.

[Disintegrating rocky exoplanet could unlock secrets to how our solar system was formed](#)

(17 February 2015)

Exciting new research by astronomers at The Open University (OU) and the Universities of Warwick and Sheffield has opened up the chance to find out what distant planets are made of.

[Hubble gets best view of a circumstellar debris disk distorted by a planet](#)

(19 February 2015)
Astronomers have used NASA's Hubble Space Telescope to take the most detailed picture to date of a large, edge-on, gas-and-dust disk encircling the 20-million-year-old star Beta Pictoris.

FUTURE MISSIONS

[ESA's biomass satellite goes ahead](#)

(19 February 2015)
Following the initial selection in 2013 for Biomass to become ESA's seventh Earth Explorer mission and the completion of preparatory activities, ESA Member States yesterday gave the green light for its full implementation for launch in 2020.

GALAXIES

[Live fast die young galaxies lose the gas that keeps them alive](#)

(2 February 2015)
Galaxies can die early because the gas they need to make new stars is suddenly ejected, research published today suggests.

[Astronomers find new details in first known spiral galaxy](#)

(3 February 2015)
Case Western Reserve University astronomers peered deep into space to discover new features of a galaxy that's been sketched and photographed for 170 years.

[Unexpected "storm" at galaxy's core](#)

(11 February 2015)
Astronomers using the National Science Foundation's Very Large Array (VLA) found surprisingly energetic activity in what they otherwise considered a "boring" galaxy, and their discovery provides important insight on how supermassive black holes can have a catastrophic effect on the galaxies in which they reside.

[Why do starburst galaxies 'burst'?](#)

(15 February 2015)
Starburst galaxies transmute gas into new stars at a dizzying pace – up to 1,000 times faster than typical spiral galaxies like the Milky Way.

INTERNATIONAL SPACE STATION

[Zebrafish flex their muscles for research aboard the International Space Station](#)

(2 February 2015)

Although zebrafish are not deadlifting weights in orbit, they are helping researchers learn about muscle changes during their stay aboard the International Space Station.

[How spaceflight ages the immune system prematurely](#)

(2 February 2015)
New research published online in The FASEB Journal, shows that spaceflight may be associated with a process of accelerated aging of the immune system.

[Camera to record doomed ATV's disintegration - from inside](#)

(6 February 2015)
Next Monday, ESA astronaut Samantha Christoforetti will float into Europe's space ferry to install a special infrared camera, set to capture unique interior views of the spacecraft's break-up on re-entry.

[Critical NASA science returns to Earth aboard SpaceX Dragon spacecraft](#)

(10 February 2015)
SpaceX's Dragon cargo spacecraft splashed down in the Pacific Ocean about 7:44 p.m. EST Tuesday 259 miles southwest of Long Beach, California, with nearly 3,700 pounds of NASA cargo, science and first-of-its-kind technology demonstration samples from the International Space Station.

JUPITER AND MOONS

[Jupiter, a laboratory for studying exoplanets](#)

(18 February 2015)

In a study published in Astrophysical Journal Letters, Jupiter is presented as an ideal laboratory for research into exoplanets which are similar.

MARS

[Mystery Mars plume baffles scientists](#) (16 February 2015)

Plumes seen reaching high above the surface of Mars are causing a stir among scientists studying the atmosphere on the Red Planet.

[MAVEN spacecraft completes first deep dip campaign](#) (19 February 2015)

NASA'S Mars Atmosphere and Volatile Evolution has completed the first of five deep-dip manoeuvres designed to gather measurements closer to the lower end of the Martian upper atmosphere.

[Scientists identify mineral that destroys organic compounds, with implications for Mars Curiosity Mission](#) (20 February 2015)

Scientists have discovered that the mineral jarosite breaks down organic compounds when it is flash-heated, with implications for Mars research.

MICROGRAVITY

[Successful launch of cryogenic liquid experiment](#) (23 February 2015)

For the first time in Europe, an experiment studying the behaviour of liquid hydrogen in microgravity was carried out in space.

MOON

[LRO discovers lunar hydrogen more abundant on Moon's pole-facing slopes](#) (4 February 2015)

Recent observations by NASA's Lunar Reconnaissance Orbiter (LRO) spacecraft indicate hydrogen deposits may be slightly more abundant on crater slopes in the southern hemisphere that face the lunar South Pole.

[Moon Express continues lander flight tests under NASA lunar CATALYST program](#) (6 February 2015)

Moon Express (MoonEx) has announced that it will continue flight tests at Kennedy Space Center using the newest version of its lunar lander test vehicle later this month.

[Research on Apollo samples refines lunar impact history](#) (12 February 2015)

It's been more than 40 years since astronauts returned the last Apollo samples from the moon, and since then those samples have undergone some of the most extensive and comprehensive analysis of any geological collection.

NEUTRINOS

[How the heart of a dark-matter detector was built at UAlberta](#) (3 February 2015)

This spring, scientists at SNOLAB will switch on a dark-matter detector that was designed and built at the University of Alberta. ([Argon – a noble gas, atomic number 18](#))

OORT CLOUD

[Closest known flyby of a star to our solar system](#) (16 February 2015)

A group of astronomers from the US, Europe, Chile and South Africa have determined that 70,000 years ago a recently discovered dim star is likely to have passed through the solar system's distant cloud of comets, the Oort Cloud. <http://www.universetoday.com/119038/a-star-passed-through-the-solar-system-just-70000-years-ago/>

SATURN AND MOONS

[A new way to view Titan: 'despeckle' it](#) (12 February 2015)

During 10 years of discovery, NASA's Cassini spacecraft has pulled back the smoggy veil that obscures the surface of Titan, Saturn's largest moon.

[Life 'not as we know it' possible on Saturn's moon Titan](#) (27 February 2015)

Liquid water is a requirement for life on Earth. But in other, much colder worlds, life might exist beyond the bounds of water-based chemistry.

STARS AND STAR CLUSTERS

[Planck reveals first stars were born late](#) (5 February 2015)

New maps from ESA's Planck satellite uncover the 'polarised' light from the early Universe across the entire sky, revealing that the first stars formed much later than previously thought. [See picture below](#)

[First pair of merging stars destined to become supernova found](#) (9 February 2014)

Astronomers using ESO facilities in combination with telescopes in the Canary Islands have identified two surprisingly massive stars at the heart of the planetary nebula Henize 2-428.

[In a first, astronomers catch a multiple star system in the process of forming](#)

(11 February 2015)

This week an international team of astronomers reports the first multiple-star system to be observed during the earliest stage of formation.

[Mismatched twin stars spotted in the delivery room](#) (12 February 2015)

The majority of stars in our galaxy come in pairs. In particular, the most massive stars usually have a companion.

[Stars akin to the sun also explode when they die](#) (16 February 2015)

The birth of planetary nebulae, resulting from the death of low and intermediate mass stars, is usually thought of as a slow process, in contrast with the intense supernovae that massive stars produce.

[Strange case of the missing brown dwarf](#) (18 February 2015)

The new SPHERE instrument on ESO's Very Large Telescope has been used to search for a brown dwarf expected to be orbiting the unusual double star V471 Tauri.

SUPERNOVA

[Classical nova explosions are major lithium factories in the universe](#) (18 February 2015)

A team of astronomers from National Astronomical Observatory of Japan (NAOJ), Osaka Kyoiku University, Nagoya University, and Kyoto Sangyo University observed Nova Delphini 2013 which occurred on August 14, 2013.

[Getting a grip on exotic atomic nuclei](#) (18 February 2015)

A new model describing atomic nuclei, proposed by a physicist from the University of Warsaw Faculty of Physics, more accurately predicts the properties of various exotic isotopes that are created in supernova explosions or inside nuclear reactors.

SUN

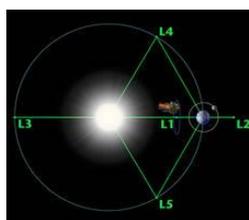


Diagram of the five Lagrange points associated with the sun-Earth system, showing DSCOVR orbiting the L-1 point. Image is not to scale. Image Credit: NASA/WMAP Science Team

[DSCOVR: Offering a new view of the solar wind](#) (6 February 2015)

There's a fascinating spot some 932,000 miles away from Earth where the gravity between the sun and Earth is perfectly balanced.

[Queen's University Belfast plays leading role in construction of the world's biggest solar telescope](#) (10 February 2015)

Queen's University Belfast and Belfast business Andor Technology are playing a leading role in the construction of the world's biggest and most revolutionary solar telescope.

[Origin of the magnetic field covering the Sun has been discovered](#) (19 February 2015)

The magnetic field that covers the Sun and determines its behaviour – the eleven year cycles no less than such conspicuous phenomena as solar spots and solar storms – also has another side to it: a magnetic web that covers the entire surface of the Sun at rest and whose net magnetic flow is greater than that of the active areas.

[Astrophysical jets driven by the sun](#) (19 February 2015)

As the sun skims through the galaxy, it flings out charged particles in a stream of plasma called the solar wind.

[For the first time, spacecraft catch a solar shockwave in the act](#) (19 February 2015)

Oct. 8, 2013, an explosion on the sun's surface sent a supersonic blast wave of solar wind into space.

TECHNOLOGY

[Astronomers breathe new life into venerable instrument](#) (6 February 2015)

The Half-wave Spectropolarimeter (HPOL) is an instrument designed by Wisconsin astronomer Dr. Kenneth Nordsieck in 1989.

[Elbit Systems delivers Venus Space Camera to French space agency](#) (9 February 2015)

Elbit Systems has delivered the Venus Space Camera to the French Space Agency, Centre National d'Etudes Spatiales (CNES).

[NASA prepares new sounding rocket motor for first test firing](#) (9 February 2015)

NASA engineers are preparing a new Peregrine sounding rocket motor for its first hot-fire test set for February 10 in the east test area at NASA's Marshall Space Flight Center in Huntsville, Alabama.

[Twinkle on fast-track mission to unveil exoplanet atmospheres](#) (6 February 2015)

A team of UK scientists and engineers have announced plans for a small satellite, named 'Twinkle' that will give radical new insights into the chemistry, formation and evolution of planets orbiting other stars. [Twinkle](#)

[Anti-geyser testing completed for SLS liquid oxygen tank](#) (9 February 2015)

NASA engineers have successfully finished anti-geyser testing for the liquid oxygen tank that will help fuel the agency's new rocket, the Space Launch System, on the journey to Mars.

[UAH scientists ship instrument that will expand view of global lightning](#) (10 February 2015)

An expanded view of lightning around the globe is coming closer for scientists at The University of Alabama in Huntsville (UAH), thanks to a repurposed measuring instrument.

[New Lockheed Martin instrument gives 'big picture' of Earth's evolving climate](#)

(11 February 2015)

A new Lockheed Martin instrument is about to make a world of difference for climate scientists.

[From space junk to asteroids, dark energy camera unveils small objects in our solar system](#)

(11 February 2015)

The Dark Energy Camera, or DECam, peers deep into space from its mount on the 4-meter Victor Blanco Telescope high in the Chilean Andes.

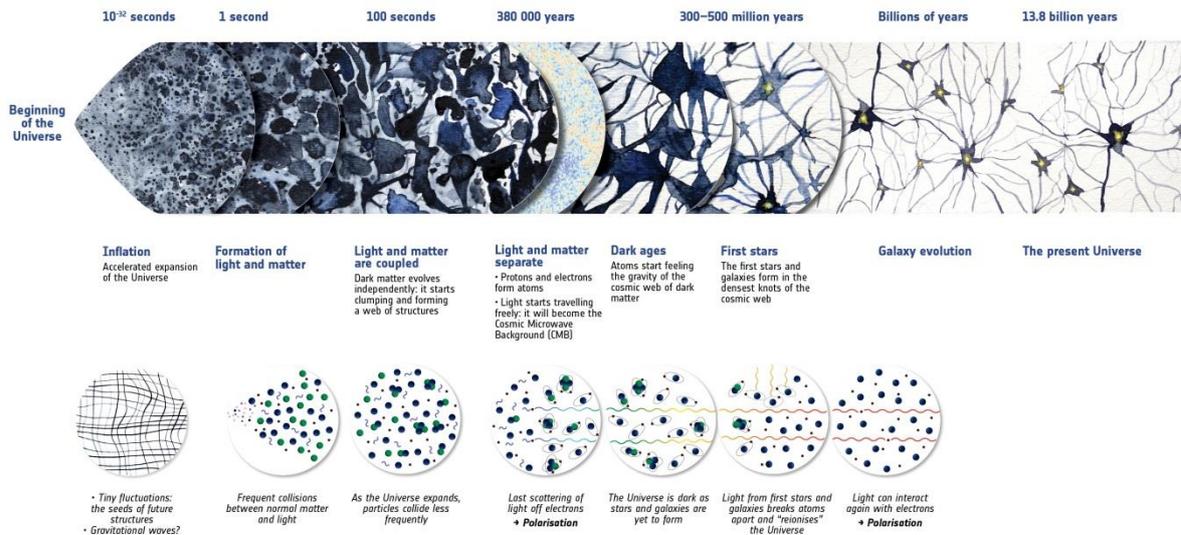
[Laser 'ruler' holds promise for hunting exoplanets](#) (17 February 2015)

The hunt for Earth-like planets around distant stars could soon become a lot easier thanks to a technique developed by researchers in Germany.

[Improved vision for James Webb Space Telescope](#) (25 February 2015)

Key science elements of the James Webb Space Telescope have been upgraded ahead of the observatory's launch in 2018.

Pat Williams. February 2015



www.esa.int

European Space Agency