SPACE BEACON

INDIAN TECHNOLOGY CONGRESS

Beyond every week

13 MAY 2026

Issue 95



Calm galaxy cluster hides violent cosmic past

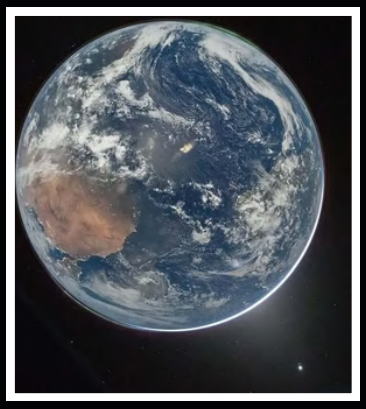
A galaxy cluster once thought calm, Abell 2029, shows evidence of a massive collision with another cluster around 4 billion years ago, revealing shockwaves, hot gas structures, and turbulent motion still settling across its vast scale.

ORBITAL

YOUR WEEKLY ORBIT THROUGH THE COSMOS' BOLDEST UPDATES

Space trivia alert

Earth's moon is just "the Moon," though its Latin name "Luna" is more poetic.



space.com

Earth seen like never before from Artemis 2 journey

NASA's Artemis 2 mission has delivered a stunning visual archive from deep space, including a timelapse built from over 12,000 images captured during the crewed lunar flyby. The footage reveals Earth shifting through daylight, darkness, auroras, and satellite trails from a rare lunar-distance perspective. These visuals help scientists and the public better understand Earth's appearance from deep space while showcasing the scale of human exploration beyond low Earth orbit. The release highlights both scientific value and the emotional impact of seeing our planet from afar.



dailygalaxy.com

Cosmic map unveils universe in extraordinary detail

Astronomers have produced the most detailed large-scale map of the universe ever created, charting tens of millions of galaxies and quasars across vast cosmic distances. The survey reveals how matter is arranged in a web-like structure of filaments and voids spanning billions of light-years. Scientists use this data to study dark energy and how the universe's expansion has changed over time. It also helps compare early and modern cosmic structure, offering a clearer view of how galaxies formed and clustered throughout cosmic history.



wionews.com

Apollo Astronauts Report Lunar Anomalies

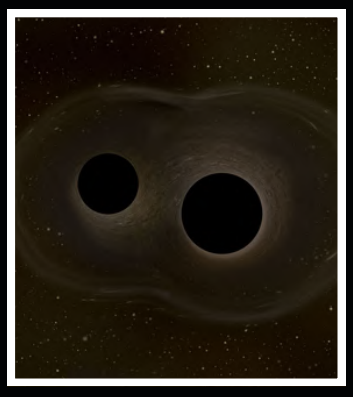
Declassified NASA and Pentagon records now online show Apollo-era crews described unexplained lights and objects while on and around the Moon. In Apollo 12's 1969 mission, astronauts reported flashes and particles seemingly "sailing off" the lunar surface. Transcripts from Apollo 17 include references to bright sparks resembling "Fourth of July" fireworks. These documents are part of a broader 162-file release of Unidentified Anomalous Phenomena (UAP) records by the U.S. Department of Defense. Scientists emphasize there's no confirmed evidence of alien life despite intrigue over the lunar sightings.



indiatoday.in

NASA's Psyche probe readies Mars gravity boost maneuver

NASA's Psyche spacecraft is about to execute a critical gravity-assist flyby of Mars on May 15, 2026, skimming just about 2,800 miles (4,500 km) above the Red Planet at roughly 12,300 mph to gain speed and fine-tune its trajectory toward the metal-rich asteroid 16 Psyche in the asteroid belt. The maneuver saves fuel and gives the mission team a rare chance to gather data and calibrate instruments. The probe has already captured a striking crescent Mars image during approach. Arrival at the asteroid is expected in 2029, when scientists hope to study what might be the exposed core of an early planet.



sciencenews.org

Massive black holes collide in record-shattering event

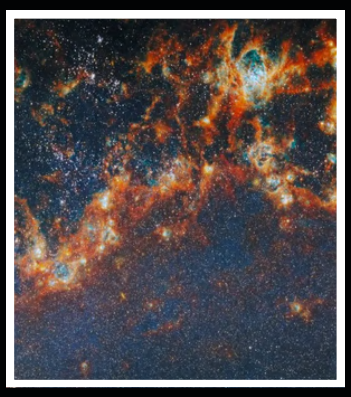
Scientists have detected the largest black-hole merger ever observed, smashing together two supermassive black holes to form a single titan about 142 times the mass of our Sun. This cosmic collision, caught through gravitational waves by the LIGO and Virgo detectors, pushes the boundaries of how massive stellar black holes can grow. The event challenges existing theories of how black holes evolve and may hint at new pathways for their formation. This discovery offers a rare glimpse into extreme astrophysical processes shaping the universe.



skyatnightmagazine.com

Capture Venus and Jupiter's spectacular sky show

Skywatchers and photographers have a rare chance to photograph an eye-catching Venus-Jupiter conjunction on 9 June 2026, when the two brightest planets will sit just about 1.6° apart in the western twilight roughly the width of a finger held at arm's length. They'll be close enough to frame together after sunset, offering a striking celestial scene. For a standout shot, plan your location with an interesting foreground and use a stable tripod with appropriate settings. This event unfolds over weeks, so practice and timing matter for great astrophotos.



space.com

James Webb reveals how star clusters reshape galaxies

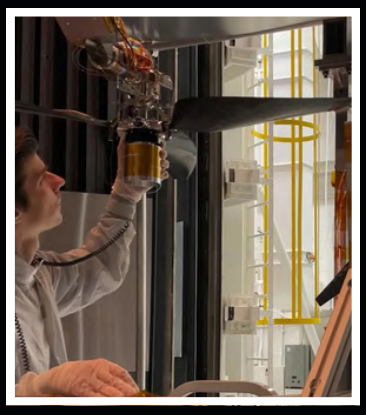
New images from the James Webb Space Telescope show how massive star clusters dramatically influence their galactic environments. These clusters, packed with young, hot stars, unleash intense radiation and powerful stellar winds that carve out cavities in galactic gas and trigger waves of new star formation. Webb's infrared vision reveals structures and flows previously invisible, offering fresh insight into how galaxies evolve over time. By studying these dynamic stellar nurseries, astronomers are learning how feedback from stars helps regulate the life cycle of galaxies across the universe.

GENSPACE

EXPLORING HUMANITY'S REACH BEYOND EARTH'S PAST, PRESENT, AND POTENTIAL

Space trivia alert

Saturn is so light it could float on water - it's the least dense planet in the solar system.



nasa.gov

NASA's Mars helicopter rotor blades break sound barrier

NASA engineers have pushed the rotor blades for future Mars helicopters past the speed of sound in simulated Martian conditions, a major step toward heavier, more capable aerial explorers on the Red Planet. In March tests at the Jet Propulsion Laboratory's 25-Foot Space Simulator, rotor tips accelerated beyond 1 Mach without breaking apart, providing data from 137 runs for advanced design work. The breakthrough promises aircraft that can carry science payloads rather than just demonstrate flight, building on the legacy of the Ingenuity helicopter. Future missions like SkyFall could leverage this tech to expand low-altitude exploration.



sciencedaily.com

Blue Origin lander pushes closer to lunar missions

Blue Origin's Blue Moon MK1 "Endurance" lunar lander has completed critical environmental testing at NASA's Johnson Space Center, proving it can survive the extreme vacuum and temperature swings of space. The uncrewed spacecraft is designed to validate key technologies like precision landing, autonomous navigation, and cryogenic propulsion for future Artemis missions. It will also carry NASA payloads to the Moon's south pole, supporting scientific experiments and helping reduce risk for future human lunar landings under NASA's commercial partnership model.



iadb.in

Space strengthens India's defence strategy

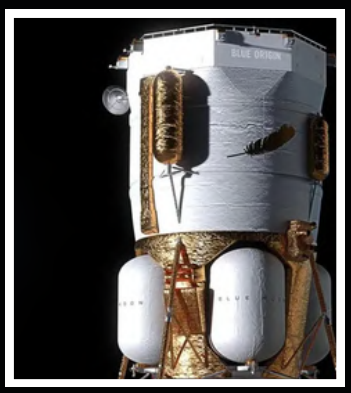
India is repositioning its defence strategy to treat space as a core domain of military power, not just support. Senior leaders at the Indian DefSpace Symposium 2026 argued that dominance in orbit will dictate future warfare outcomes, driving shifts from traditional terrestrial forces toward resilient LEO satellite networks, AI-enhanced data use, and private-sector integration. This "space-first" doctrine seeks redundant, distributed constellations, in-space servicing, and hardened quantum-secure links to maintain battlefield visibility and secure sovereignty. The approach aims at technological autonomy and defence readiness in contested orbital environments.



nasa.gov

NASA, SpaceX gear up for vital ISS cargo launch

NASA and SpaceX are preparing the 34th Commercial Resupply Services mission to the International Space Station, targeting a mid-May liftoff. A Falcon 9 rocket will launch SpaceX's Dragon spacecraft carrying about 6,500 pounds of research, crew supplies, and critical equipment from Cape Canaveral, Florida. After reaching orbit, Dragon will autonomously dock to the ISS, bringing new science experiments and hardware that support long-duration research in microgravity. The mission strengthens continuous international research efforts and sustains the orbiting lab's operations.



space.com

Private lunar missions surge toward 2026 landing race

A wave of private spacecraft missions is heading toward the Moon in 2026, marking a sharp acceleration in commercial lunar exploration. Companies including Intuitive Machines, Firefly Aerospace, and Blue Origin are planning robotic landings carrying science payloads for NASA and international partners. These missions will test new landing systems, communication relays, and surface technologies. Success could reshape lunar access, but past missions show that precision landings remain extremely difficult and failure risk is still high.



livescience.com

NASA unveils bold moon base and nuclear spacecraft plans

NASA has announced an extremely ambitious overhaul of its space exploration strategy, including a $20 billion plan to build a permanent lunar base and develop humanity's first nuclear-powered interplanetary spacecraft. The program shifts focus away from the Lunar Gateway station and toward sustained surface operations on the Moon, with infrastructure built in phases over the next decade. Alongside this, NASA aims to test nuclear propulsion systems for Mars missions by 2028, signaling a major leap in deep-space capability and long-term human expansion beyond Earth.



arstechnica.com

NASA scraps Gateway for nuclear Mars mission shift

NASA has reportedly scrapped its Lunar Gateway space station plan and redirected key hardware and funding toward a far more ambitious deep-space strategy. The repurposed components, including propulsion systems, are expected to support a new nuclear-powered spacecraft designed for a Mars-bound mission. Officials describe the shift as part of a broader push toward nuclear electric propulsion, enabling faster and more efficient interplanetary travel. The move also signals a strategic pivot from lunar orbit infrastructure to direct planetary exploration beyond the Moon.

SATELLOGY

TRACKING THE PULSE OF SATELLITE INNOVATION AND ASCENT

Space trivia alert

Morocco launched MOHAMMED VI-A, becoming the third African nation with an Earth observation satellite.



iceye.com

ICEYE expands global intelligence with satellite surge

ICEYE has successfully launched six new high-resolution synthetic aperture radar (SAR) satellites aboard SpaceX's Transporter-16 mission, strengthening its growing Earth observation constellation. These satellites enhance sovereign intelligence capabilities for multiple nations, supporting defense, maritime monitoring, and disaster response operations. Built for rapid deployment and all-weather imaging, the satellites join existing fleets serving both commercial and government missions. The launch further reinforces ICEYE's strategy of scaling persistent space-based surveillance infrastructure at high speed to meet increasing global demand for real-time intelligence.



nasdaq.com

MDA Space gains 41 CHORUS customer commitments

MDA Space has secured strong early commercial traction for its upcoming MDA CHORUS Earth observation constellation, announcing nine signed customer contracts and 32 additional letters of interest ahead of its planned late-2026 launch. The demand spans defence, maritime awareness, energy, mining, and environmental monitoring sectors across global regions including Asia-Pacific, Europe, and the Americas. The interest signals growing market confidence in next-generation radar-based Earth observation services that deliver near real-time, all-weather imaging for mission-critical applications.



indiatimes.com

Telecom sector drives India's digital growth

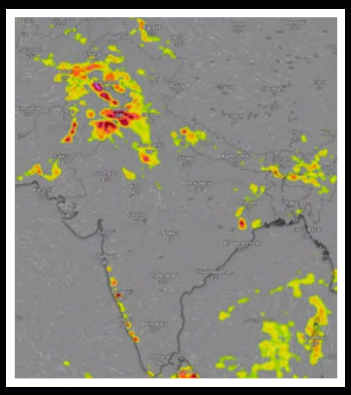
ET Telecom is a leading Indian telecom news platform under Economic Times that covers industry updates, policy changes, 5G developments, enterprise connectivity, satellite communication, and digital infrastructure trends. It delivers real-time news, expert analysis, and sector insights for telecom professionals, investors, and policymakers. The platform also tracks market shifts among major operators like Jio, Airtel, and Vodafone Idea, along with emerging technologies such as AI, cloud networks, and data centers. It serves as a key information hub for India's fast-changing telecom ecosystem and digital economy growth.



esa.int

Celeste expands Europe's LEO navigation breakthrough

ESA's Celeste mission has launched its first satellites to build a low Earth orbit navigation layer designed to strengthen Europe's existing Galileo system. The initial spacecraft will test new positioning signals, frequency bands, and services that could improve accuracy, resilience, and availability of navigation data. Flying closer to Earth allows stronger signals and better performance in challenging environments. The project also supports future autonomous transport, emergency response systems, and secure positioning services across multiple industries.



indiatoday.in

Dust storm cloud signals rain over North India skies

Satellite images from ISRO's INSAT-3DS have detected a fast-moving dust storm system and rapidly developing thunderclouds approaching North India. The weather pattern shows strong cloud formation over northwest regions, indicating likely thunderstorms and light to moderate rain in coming hours. Meteorologists warn that gusty winds and lightning may accompany the system as it moves across states, including Punjab, Haryana, and Delhi-NCR. The developing atmospheric activity suggests a short-term pre-monsoon weather shift with potential disruptions in visibility, travel, and daily outdoor activities.



developingtelecoms.com

Space42 and Skylo power satellite phone connectivity

Space42 is preparing to launch its Thuraya-4 direct-to-device (D2D) service powered by Skylo's 3GPP-compliant non-terrestrial network platform. The system enables standard smartphones to connect directly to satellites without modified SIMs or hardware. Real-time voice and data tests have been demonstrated successfully. The service will roll out across 37 countries after regulatory approvals, integrating satellite and terrestrial networks into a unified system. This marks a major step toward mainstream satellite-enabled mobile connectivity and expands coverage into remote underserved regions globally.



planetary.org

NASA sparks bold shift toward moon, Mars and more

At its "Ignition" event, NASA unveiled a sweeping set of strategic initiatives to transform its exploration programs and advance U.S. space leadership. The plans refocus lunar exploration on establishing a surface base, pause the Lunar Gateway to free up resources, and increase mission cadence using commercially procured technologies. NASA also outlined expanded robotic science missions and new technologies including nuclear electric propulsion for Mars. These moves aim to accelerate human and scientific exploration across the solar system.

CUBETECH

PIONEERING THE FUTURE WITH COMPACT COSMIC INNOVATION

Space trivia alert

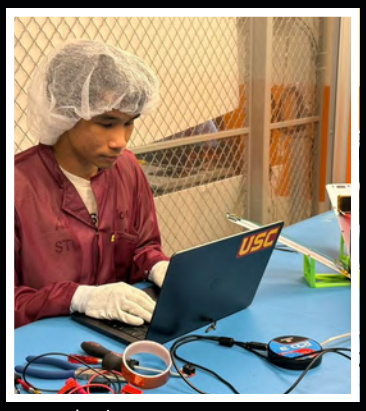
Berlin Technical University students built Beesat, Germany's first CubeSat for technology demonstrations.



miragenews.com

NASA-backed CubeSat unlocks new solar science era

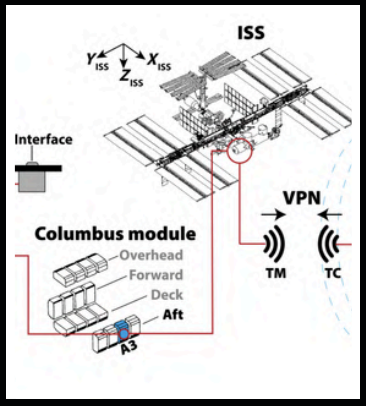
NASA-backed small spacecraft SNAPPY has launched aboard a SpaceX Falcon 9 to study solar neutrinos tiny, nearly massless particles streaming through space at extreme speeds. The CubeSat aims to improve understanding of how the Sun produces and emits these particles and how they interact across the solar system. Built with university collaboration, the mission highlights how low-cost small satellites are now handling high-value astrophysics research. It was deployed via Exolaunch from Vandenberg Space Force Base, marking another step in distributed space science missions.



theborneopost.com

Sarawak CubeSat vision for data-driven future space

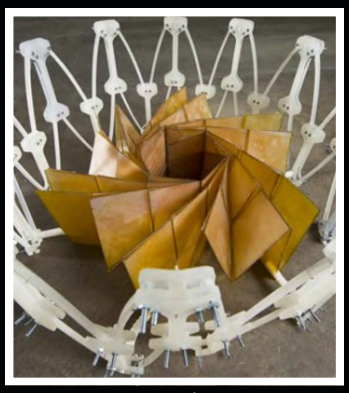
Sarawak is being encouraged to develop its own CubeSat programme to reduce dependence on foreign satellite data and strengthen local control over Earth observation, maritime monitoring, and environmental intelligence. The article argues that a state-level nanosatellite mission is no longer unrealistic because CubeSats are low-cost, modular, and built using commercially available components. A first mission could focus on practical use cases like fisheries tracking, flood monitoring, and coastal surveillance. Beyond technology, the real value lies in building local expertise, ground infrastructure, and a continuous pipeline of trained engineers for long-term aerospace capability.



thequantuminsider.com

Grapefruit-sized quantum sensor maps Earth field

A grapefruit-sized quantum device called OSCAR-QUBE successfully measured and mapped Earth's magnetic field from the International Space Station. Built around a diamond with atomic defects, the sensor uses quantum effects to detect magnetic variations with high precision. Over a 10-month mission, its readings closely matched established geomagnetic models, proving that compact quantum instruments can survive space conditions and still deliver reliable scientific data. The experiment highlights how next-generation CubeSat-scale sensors could replace bulky satellites in future Earth observation and navigation systems.



vozpopuli.com

Japan's origami cubesat ushers low-cost antenna era

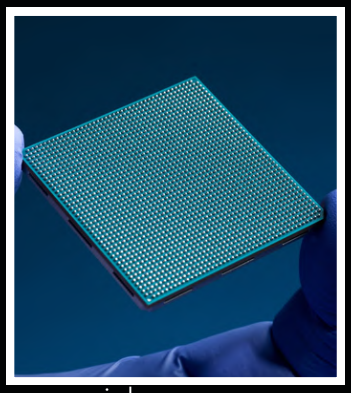
Japan has launched a groundbreaking CubeSat featuring an origami-style expandable antenna that expands up to 25 times its packed size once in orbit. This innovation promises to replace bulky traditional antennas with compact, efficient deployables suitable for small satellites, reducing cost and launch constraints. The mission aims to validate the design and performance in space, potentially revolutionizing communications and remote sensing for nanosat fleets. This step could accelerate affordable, scalable space infrastructure worldwide.



taiwannews.com

Taiwan university CubeSat strengthens space training push

National Cheng Kung University (NCKU) has successfully launched its Gemini-Pollux CubeSat from Vandenberg Space Force Base aboard a SpaceX Falcon 9. The satellite, developed over four years by students and faculty, is designed for environmental and weather monitoring. It also validates full in-house capability in spacecraft design, testing, and ground communication systems. The mission gives students hands-on experience in real satellite engineering and strengthens Taiwan's growing university-led space ecosystem.



jpl.nasa.gov

Hello Universe space chip undergoes extreme testing

NASA's Jet Propulsion Laboratory is testing a next-generation space processor designed to dramatically boost onboard computing power for future spacecraft. The chip, developed under the High Performance Spaceflight Computing project, is radiation-hardened and built to operate in extreme space environments. It delivers far higher processing capability than current flight computers, enabling real-time decision-making for autonomous missions. Engineers are subjecting it to radiation, thermal, and vibration tests to ensure reliability before deployment in upcoming lunar and deep-space exploration missions.



finviz.com

WISE Space Advanced Technologies strengthens space push

WISeKey is repositioning its WISeSat.Space subsidiary as "WISE Space Advanced Technologies," highlighting its shift toward a European quantum-secure space technology company. The update reflects the company's push to scale its low-Earth-orbit satellite constellation for secure IoT connectivity, post-quantum communications, and data services. With multiple CubeSat launches already completed, the firm is integrating advanced cryptographic hardware and expanding partnerships to strengthen its presence in the growing space cybersecurity and satellite infrastructure market.

THE 75SSM

FROM LAB TO LAUNCH: INSIDE ITCA'S VANGUARD VISION

Space trivia alert

The Boomerang Nebula is the coldest known place in the universe, just 1°C above absolute zero.

Why SPI remains essential in embedded systems



SPI (Serial Peripheral Interface) is a synchronous communication protocol designed for rapid data exchange between a master device and one or more slaves. Unlike UART, it relies on a clock generated by the master, ensuring tightly synchronized transmission and reception. This precise timing allows higher speeds and improved reliability in embedded systems.

SPI uses four primary lines: SCLK for timing, MOSI for master-to-slave data, MISO for slave-to-master data, and a dedicated CS/SS line for each slave. When the Chip Select line is pulled LOW, the chosen slave becomes active and communicates using the shared clock. Because SPI supports full-duplex transfer, data flows in both directions simultaneously. This makes it ideal for sensors, displays, memory chips, and high-performance subsystems.

SPACE@INDIA

TRACKING INDIA'S INDOMITABLE SPIRIT, RISING THROUGH SPACE

Space trivia alert

India's SROSS satellites studied the upper atmosphere and cosmic gamma rays in the 1980s.



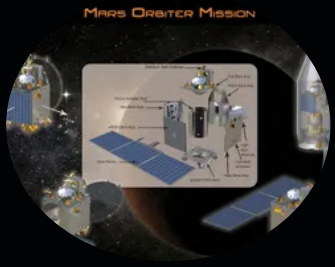
India's Aditya-L1 solar spacecraft completed its first 178-day halo orbit around the Sun-Earth L1 point, proving precise orbital control.
Read more at: ddnews.gov.in



ISRO partners to expand Ladakh's Hope Habitat for Gaganyaan astronaut training, simulating space stress, isolation and physiology ahead of missions.
Read more at: indiatoday.in



NASA-ISRO's NISAR mission's early data, radar design and Earth insights will be highlighted at the Pickering Lecture during ASCEND 2026.
Read more:aerospaceamerica.aiaa.org



The Mars Orbiter Mission, or Mangalyaan, became India's first interplanetary spacecraft, reaching Mars orbit after its 2013 launch and studying the Red Planet.
Read More: britannica.com



Maharashtra's Vidyarthi Vigyan Vari scheme funds top school students' educational visits to NASA and ISRO to boost real-world science exposure.
Read more at: mid-day.com



India's Pathfinder mission will host powerful GPUs in orbit to process AI data directly in space instead of Earth.
Read more at:thehindu.com

75 Students' Satellites Mission

ITCA's Engineering Prowess and Ingenuity

ITCA: Pioneering India's Tech Future

For 25 years, ITCA has advanced India's tech presence, leading the 75 Students' Satellites Mission across space technology, Industry 4.0, and temple engineering.



Upcoming events

ICASS Conference
11-12 May, 2026 in Las Vegas, United States
waset.org

International Conference on Aeronautical and Aerospace Engineering ICAAAE
25-26 May, 2026 in Melbourne, Australia
conferenceindex.org

EUROPE'S LARGEST SMALLSAT CONFERENCE
26-28 May, 2026 | RAI, Amsterdam
smallsateurope.com

Slogan of the week

"Purpose in Design. Power in Execution."
– The ITCA Way

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