

समाचार पत्रों से चयित अंश Newspapers Clippings

दैनिक सामयिक अभिज्ञता सेवा
A daily Current Awareness Service

Vol. 44 No. 14, 18 January 2019



रक्षा विज्ञान पुस्तकालय
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Fri, 18 Jan 2019

ISRO set to launch satellite to help MHA secure borders

A satellite will be launched by the Indian Space Research Organisation (ISRO) exclusively for the Home Ministry to help it further strengthen its frontiers. The move is part of recommendations made by a task force on the use of space technology in improving border management which have been accepted by Home Minister Rajnath Singh. Later speaking to media, Union Minister for State for Space Jitendra Singh and ISRO Chief K Sivan said that India has developed a border management technology. Speaking at the launch of a programme called UNNATI, an initiative of the Indian Space Research Organisation, Singh said, "I was amazed the other day that we have actually started a technology the integrated comprehensive border management — which is a pioneer project started in the international border of Pakistan.

You can virtually enter inside the house of a person living across the border. So such minute precision has been made by the camera." He said space technology is used in infrastructure works, construction of roads, intersection of Railway network, manning of railway lines and disaster management. UNNATI (UNISpace Nanosatellite Assembly and Training by ISRO) is a capacity building programme on nanosatellite development.

It provides opportunities to the participants from developing countries to strengthen their capabilities in assembling, integrating and testing of nanosatellites, ISRO said in a statement. UNNATI programme is planned for three years in three batches and will target to benefit 90 delegates from 45 countries, the space agency said.

Each batch will be for 8-week duration and will comprise theoretical course work on nanosatellite definition, utility, laws governing their impact on space debris, design drivers, reliability and quality assurance and hands-on training on assembly, integration and testing of nanosatellites. To execute the project in a time bound manner, a short, medium and long-term plan has been proposed for implementation in five years in close coordination with the ISRO and the Defence Ministry. "Major recommendations of the report are to build capacity in border guarding forces to use space resources for security, operational planning and border infrastructure development," the statement issued by the Home Ministry said.

In short term, immediate needs of border guarding forces will be met by procurement of high resolution imagery and hiring of bandwidth for communications, it said. "In mid-term, one satellite is being launched by the ISRO for exclusive use of the MHA," the statement said. The task force headed by Joint Secretary (Border Management), having members from the BSF, the Department of Space and BM division of the Home Ministry, consulted all stakeholders including border guarding forces, the ISRO, National Security Council Secretariat (NSCS) and the Ministry of Defence to finalise the report.

Fri, 18 Jan 2019

IAF's AN-32 aircraft lands in strategically-important airfield

Globemaster -- had landed at Arunachal Pradesh's Tuting airfield which is close to the Chinese border. In a first, an AN-32 transport aircraft of the Indian Air Force has carried out a successful landing at Sikkim's Pakyong, one of the highest airfields in the country. The military aircraft landed at the airport, located around 60 km from the India-China border, on Wednesday. "This is the first landing by an AN-32 class of aircraft at this airfield, which is one of the highest airfields in India," a senior IAF official said. The crew was led by Wing Commander SK Singh.

The Pakyong, situated at 4,500 ft above sea level, was inaugurated by Prime Minister Narendra Modi in September last year. A Dornier aircraft of the IAF had landed at the airport last year. On January 14, a C-130J aircraft of the IAF had for the first time landed at the Tezu airfield in Arunachal Pradesh. The landing was carried out both during the day and at night with an aim to boost mobility of troops and material in the region, officials said. Following the Doklam standoff in 2017, India has been ramping up infrastructure along the nearly 4,000 km border with China. In March last year, the IAF's largest transport aircraft -- C-17



Fri, 18 Jan 2019

HAL-built LCH completes weapon trials

Amidst controversy, the Hindustan Aeronautics Limited (HAL), a Defence Public Sector Undertaking has achieved a milestone on its desi built Light Combat Helicopter. The LCH carried out air to air missile firing on a moving aerial target. According to a press release issued by HAL in Bengaluru on Thursday the tests conducted in integrated test range at Chandipur, Odisha recently. "Wg Cdr Subash P John, VM (Retd), test pilot, Col Ranjit Chitale, (Retd), Flight Test Engineer from HAL and Gp Capt Rajeev Dubey, test pilot from IAF executed a flawless mission and achieved a direct hit on the aerial target, destroying it completely," the release added. The Light Combat Helicopter (LCH) is indigenously designed and developed by HAL and proved its capabilities to the requirements of the defence forces.

R Madhavan, CMD-HAL said "this is the first time in the country that a helicopter has carried out air to air missile engagement. None of the helicopters with the military services in the country has demonstrated such a capability. With this, LCH has successfully completed all weapon integration tests and is ready for operational induction".

Other weapons on LCH include a 20mm Turret gun and 70 mm Rockets, the firing trials of which have already been completed last year. The release said "LCH is the only attack helicopter in the world capable of operating at altitudes as high as Siachen glacier. Designed and developed by Rotary Wing Research & Design Centre (RWRDC) of HAL in response to the operational needs of Indian Armed Forces and its capabilities far exceed that of contemporary attack helicopters of its class".

Equipped with Helmet mounted sight and a forward looking infrared sighting system, LCH pilots can now detect and destroy any target on ground or in the air. Using these sights, pilots can now launch a missile onto any target without having to turn the helicopter. The fire and forget missile is effective against all types of aerial threat, including UAVs and micro light aircraft. Capable of operating from dispersed locations and flying at ultra-low levels, LCH can now effectively provide a protective umbrella from all aerial threats. The DAC has accorded approval for procurement of initial batch of 15 LCHs (10 for IAF and 5 for Army).



Fri, 18 Jan 2019

China will launch 90 earth observation satellites for an Argentinian company which, according to a Chinese space official, will be a landmark achievement for the country in the international space market. China has been using its space rockets to put satellites of several countries including Pakistan. China Great Wall Industry Corp, the international arm of State-owned space conglomerate China Aerospace Science and Technology Corp, said on Wednesday that it recently signed a multiple launch services agreement with Satellogic, a private Argentinian company specialising in Earth-observation satellites. According to the contract, Great Wall will use multiple Long March 6 missions to deploy 90 of Satellogic's small, remote-sensing satellites from the Taiyuan Satellite Launch Centre in Shanxi province. The Chinese firm is planning the first launch this year to deliver 13 Satellogic satellites to low-Earth orbit, state-run China Daily said,

citing a statement of the firm. After the company's satellites are in orbit, they will form an Earth observation satellite constellation capable of imaging the entire world with a 1-meter resolution on a weekly basis, the statement said. That is expected to dramatically reduce the cost of high-frequency geospatial analytics, it said. Gao Ruofei, executive vice-president of Great Wall, said that Satellogic's constellation "will introduce a new era of affordable Earth observation, just as the Long March 6 will open new opportunities for the global space industry".

Though financial terms of the deal were not disclosed, Fu Zhiheng, vice-president of Great Wall, told China Daily that the deal is at the level of hundreds of millions of US dollars. That makes it one of the largest contracts China has obtained in the international space market in the past several years. It is also the first time that China will launch such a large number of satellites for a foreign client, Fu said, adding Great Wall will continue to promote the Long March 6 in the international market. Zhang Weidong, the Long March 6's chief designer at the Shanghai Academy of Spaceflight Technology, claimed that the Chinese rocket has a shorter preparation time, higher efficiency, better reliability and stronger satellite compatibility than its foreign competitors. The 29.3-metre rocket is capable of placing about 1 metric ton of payload into a sun-synchronous orbit 700 kms above the ground.



Fri, 18 Jan 2019

NASA's Space Launch System is the Rocket for the Ride to Mars

NASA is going to Mars, and here on Earth, the agency's Marshall Space Flight Center in Huntsville, Alabama, is the first stop for building the world's most powerful rocket for the ride – the Space Launch System (SLS). The SLS will be NASA's first exploration-class vehicle since the Saturn V took American astronauts to the moon more than 40 years ago. It will expand our reach in the solar system, launching crews aboard the new Orion spacecraft to explore multiple, deep-space destinations. A fleet of robotic spacecraft and rovers are already on and around Mars, but to fly to and land humans safely on Mars requires a next-generation spacecraft – Orion. SLS will ensure it gets there.

The first SLS rocket, known as the Block I configuration with a 70-metric-ton (77 ton) lift capability, will be powered by twin boosters and four RS-25 engines. The next planned evolution of the SLS, Block 1B, would use a more powerful exploration upper stage to enable more ambitious missions and a 105-metric-ton lift capacity, while a later evolution, Block 2, would add a pair of advanced solid or liquid propellant boosters to provide a 130-metric-ton (143-ton) lift capacity. In each configuration, SLS will continue to use the same core stage and four RS-25 engines.

The initial Block 1 configuration of SLS will stand 322 feet tall, higher than the Statue of Liberty. It will produce 8.4 million pounds of thrust at liftoff, the equivalent of 13,400 locomotive engines, and be capable of carrying 154,000 pounds of payload, about the same as 12 fully grown elephants. Block 1B and Block 2 each will be more than 363 feet tall, which is taller than the Saturn V rocket. The Block 2 configuration will provide 9.2 million pounds of thrust at liftoff and weigh 6.5 million pounds.

Marshall manages the SLS Program for the agency and has unique capabilities for the design and testing of different parts of the rocket. Marshall is the hub for work on several structural test articles for both the core and the upper stage of the rocket. Teledyne Brown Engineering of Huntsville is the prime contractor for the launch vehicle stage adapter, which connects the SLS core stage and the upper stage.

Two new test stands also are being built at Marshall to perform structural loads testing for the core stage, which is being manufactured at NASA's Michoud Assembly Facility in New Orleans. Avionics and the flight computer also will be housed in the SLS core stage. Marshall has installed a structure and simulation capability to test the avionics system and model the environments the vehicle will experience during launch. The Boeing Company of Chicago is the prime contractor for the SLS core stage, including its avionics.

Marshall also oversees RS-25 testing at NASA's Stennis Space Center near Bay St. Louis, Mississippi, and booster qualification testing at prime contractor Orbital ATK's test facility in Promontory, Utah. The SLS Program has an inventory of 16 RS-25 flight engines being upgraded for SLS specifications, built by prime contractor Aerojet Rocketdyne of Sacramento, California. On the program side, SLS recently completed its critical design review at Marshall. The in-depth review – the first in almost 40 years for a NASA exploration class vehicle -- provides a final

look at the design and development of the integrated rocket before full-scale fabrication begins. "We've picked the right vehicle for the journey to Mars," said Garry Lyles, chief engineer for the SLS Program Office at the Marshall Center.



Fri, 18 Jan 2019

N korea still a threat: U.S. defence review

President Donald Trump unveiled a revamped U.S. missile defense strategy on Thursday that called North Korea an ongoing and "extraordinary threat," seven months after he declared the threat posed by Pyongyang had been eliminated. The plan, which also detailed concerns about the burgeoning capabilities of Iran, Russia and China, called for developing space-based sensors to detect incoming enemy missiles and exploring space-based weapons to shoot down missiles among other steps to shield the United States. The open acknowledgment in the Missile Defense Review of U.S. plans to counter Russian and Chinese technological advances likely will alarm those nations. It marked a departure from the approach taken by Republican Trump's Democratic predecessor, Barack Obama, to tamp down concerns by major nuclear powers about expanding U.S. missile defenses.

"Our goal is simple: To ensure we can detect and destroy any missile launched against the United States - anywhere, anytime, anyplace," Mr. Trump said at the Pentagon.

Mr. Trump did not mention the North Korean missile threat in his remarks. But acting U.S. Defense Secretary Patrick Shanahan called North Korea's missiles a "significant concern." "While a possible new avenue to peace now exists with North Korea, it continues to pose an extraordinary threat and the United States must remain vigilant," the report said.



Fri, 18 Jan 2019

China's moon cotton experiment ends in freezing lunar night

A cotton seedling that sprouted on the moon has been left to die as China's historic lunar lander continues a freezing night-time nap that will last as long as two earth weeks, scientists said. The Chinese space agency announced earlier this week that the seed had germinated inside a special canister aboard the Chang'e-4 probe, after the spacecraft on January 3 made the first-ever landing on the far side of the moon.

The mini biosphere - which operated for over 212 hours - was shut down as planned on Saturday, said Chongqing University, which designed the experiment. The lander also carried potato and arabidopsis seeds - a plant of the mustard family - as well as fruit fly eggs and yeast.

Temperatures inside the ecosystem were expected to plunge below minus 52 degrees Celsius (minus 61.6 degrees Fahrenheit), and the organisms will be "in a frozen state", the university said in a statement on Tuesday. The experiment ended hours before Chang'e-4 entered "sleep mode" on Sunday as the first lunar night fell since the probe's landing. Temperatures plummet to about minus 170 degrees Celsius (minus 274 degrees Fahrenheit). A lunar night lasts for about two earth weeks, after which the probe is expected to wake up, the statement said.

