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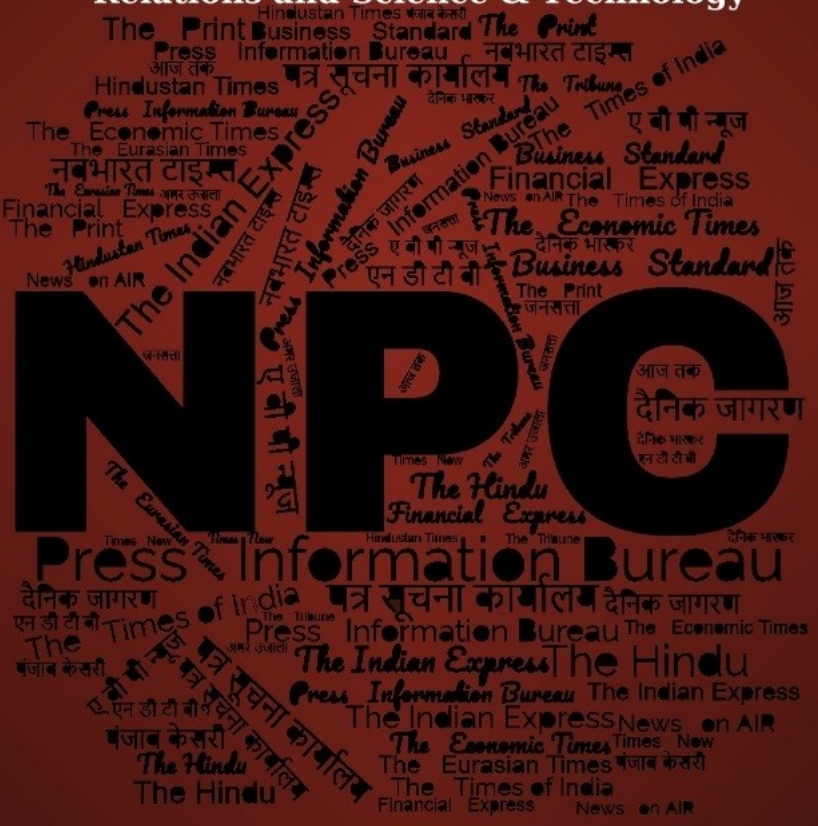
समाचार पत्रों से चयनित अंश
Newspapers Clippings

डीआरडीओ समुदाय को डीआरडीओ प्रौद्योगिकियों, रक्षा प्रौद्योगिकियों, रक्षा नीतियों, अंतर्राष्ट्रीय संबंधों और विज्ञान एवं प्रौद्योगिकी की नूतन जानकारी से अवगत कराने हेतु दैनिक सेवा

A Daily service to keep DRDO Fraternity abreast with DRDO Technologies, Defence Technologies, Defence Policies, International Relations and Science & Technology



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नवभारत टाइम्स

Wed, 14 Aug 2024

सुखोई-30 MKI से हुआ ग्लाइड बम 'गौरव' का सफल परीक्षण, पल भर में दुश्मनों के ठिकाने होंगे तबाह

डीआरडीओ ने मंगलवार को ओडिशा के तट पर भारतीय वायुसेना के सुखोई-30 एमके-आई लड़ाकू विमान से लंबी दूर के ग्लाइड बम 'गौरव' का पहला सफल परीक्षण किया है। इसकी जानकारी रक्षा मंत्रालय की तरफ से दी गई। जिसमें बताया गया कि ओडिशा तट से परीक्षण किया गया। गौरव एक हजार किलोग्राम वर्ग का हवा से छोड़ा जाने वाला ग्लाइड बम है जो लंबी दूरी पर लक्ष्यों को भेदने में सक्षम है। इसे हैदराबाद के रिसर्च सेंटर इमारत द्वारा स्वदेशी रूप से डिजाइन और विकसित किया गया है।

रक्षा मंत्री राजनाथ सिंह ने दी बधाई

उड़ान परीक्षण के दौरान ग्लाइड बम ने लॉन्ग व्हीलर द्वीप पर बनाए गए लक्ष्य को सटीकता से भेद दिया। रक्षा मंत्री राजनाथ सिंह ने सफल उड़ान परीक्षण के लिए DRDO, IAF और उद्योग को बधाई दी। उन्होंने इसे सशस्त्र बलों की क्षमता को और मजबूत करने के लिए स्वदेशी रक्षा प्रौद्योगिकियों को विकसित करने के देश के प्रयासों में एक प्रमुख मील का पत्थर बताया।

गेम चेंजर साबित हो सकता है 'गौरव'

अडानी डिफेंस एंड एयरोस्पेस ने भारतीय रक्षा अनुसंधान एवं विकास संगठन (DRDO) के साथ मिलकर दो अत्याधुनिक ग्लाइड बम विकसित किए हैं - गौरव और गौतम। आज इन्हीं में से एक बम गौरव का सफल परीक्षण किया गया। ये बम हवाई जहाज से छोड़ा जा सकता है और बिना किसी इंजन के लंबी दूरी तक ग्लाइड करते हुए अपने लक्ष्य को भेद सकता है। 'गौरव' भारतीय रक्षा क्षेत्र के लिए एक गेम-चेंजर साबित हो सकता है। ये बम न केवल भारतीय सशस्त्र बलों की क्षमता को बढ़ाएंगा बल्कि देश की रक्षा क्षमताओं को भी मजबूत करेगा।

4 मीटर का बम करेगा दुश्मनों को खत्म

गौरव बम 1000 किलोग्राम का है और इसकी लंबाई लगभग 4 मीटर है। इस बम में पंख लगे हुए हैं जो इसे ग्लाइड करने में मदद करते हैं। जिसके जरिए ये बम 100 किलोमीटर दूर दुश्मनों के ठिकाने को तबाह करता है। इस बम में पावरफुल नेविगेशन सिस्टम लगा है। जिसकी मदद से इसे कंट्रोल किया जाता है और लक्ष्य को भेदा जा सकता है। इस बम की सबसे बड़ी खासियत ये है कि इसके जरिए दुश्मन के ऐसे लक्ष्यों को निशाना बनाने के लिए उपयोग किए जा सकते हैं जो हवाई जहाज की सीमा से बाहर हैं।

https://navbharattimes.indiatimes.com/india/drdo-successfully-tested-gaurav-bomb-from-sukhoi-30-mki/articleshow/112504174.cms

THE HINDU

Tue, 13 Aug 2024

DRDO carries out maiden test of Long Range Glide Bomb from Su-30MKI

The Defence Research and Development Organisation (DRDO) on Tuesday (August 13, 2024) successfully carried out the maiden flight test of the long-range glide bomb (LRGB) Gaurav from a Su-30 MK-I fighter jet of the Indian Air Force.

The test was conducted off the coast of Odisha. “Gaurav is an air-launched 1,000 kg class glide bomb capable of hitting targets at long distances. After being launched, the glide bomb steer towards the target using a highly accurate hybrid navigation scheme,” the DRDO said in a statement.

The LRGB has been designed and developed indigenously by the Research Centre Imarat, Hyderabad. During the flight test, the glide bomb hit the target erected at Long Wheeler’s island with pinpoint accuracy, the DRDO said.

“Complete flight data during the test launch was captured by Telemetry and Electro optical tracking systems deployed by Integrated Test Range along the coastline.”

The flight was monitored by senior DRDO scientists. Adani Defence and Bharat Forge, who are the Development cum Production Partners also participated during the flight trial, the statement added. Defence Minister Rajnath Singh termed the test a major milestone in the country’s effort in developing indigenous defence technologies for further strengthening the capability of the armed forces.

https://www.thehindu.com/news/national/drdo-carries-out-maiden-test-of-long-range-glide-bomb-from-su-30mki/article68521806.ece

TIMES NOW नवभारत

Tue, 13 Aug 2024

DRDO: भारत ने किया पोर्टेबल एंटी टैंक गाइडेड मिसाइल का किया सफल परीक्षण, जानें क्या है खासियत

DRDO ने स्वदेशी रूप से विकसित मानव-पोर्टेबल एंटी-टैंक गाइडेड मिसाइल (MPATGM) हथियार प्रणाली का सफलतापूर्वक फील्ड परीक्षण किया। डीआरडीओ अधिकारी ने बताया कि डीआरडीओ (रक्षा अनुसंधान एवं विकास संगठन) ने हाल ही में राजस्थान के जैसलमेर स्थित फील्ड फायरिंग रेंज में भारत में निर्मित मानव-पोर्टेबल एंटी टैंक गाइडेड मिसाइल (MP-ATGM) का सफलतापूर्वक परीक्षण किया है। जानकारी के अनुसार, इस हथियार प्रणाली को रक्षा अनुसंधान और विकास संगठन (DRDO) ने डिजाइन और विकसित किया है। समग्र प्रणाली में एमपीएटीजीएम, लांचर, लक्ष्य प्राप्ति उपकरण और एक अग्नि नियंत्रण इकाई शामिल है।

डीआरडीओ अधिकारियों ने बताया कि यह परीक्षण राजस्थान के जैसलमेर स्थित फील्ड फायरिंग रेंज में किया गया। एमपी-एटीजीएम एक कंधे से दागी जाने वाली मिसाइल प्रणाली है जिसे दुश्मन के टैंकों और बख्तरबंद वाहनों को बेअसर करने के लिए डिजाइन किया गया है। स्वदेशी रूप से विकसित यह टैंक रोधी मिसाइल कम वजन वाली, दागो और भूल जाओ मिसाइल है, जिसे थर्मल साइट से एकीकृत मानव पोर्टेबल लांचर से प्रक्षेपित किया जाता है।

एंटी टैंक गाइडेड मिसाइल वेपन सिस्टम का भी हो चुका है परीक्षण

मिसाइल में नियंत्रण और मार्गदर्शन के लिए लघु इन्फ्रारेड इमेजिंग सीकर और उन्नत एवियोनिक्स लगाये गये हैं। पहले के परीक्षणों में मिसाइल का प्रदर्शन अधिकतम सीमा तक सिद्ध हो चुका है। रिपोर्टों के अनुसार, एमपीएटीजीएम, जिसे ट्राइपॉड का उपयोग करके प्रक्षेपित किया जाता है, को 2.5 किमी की अधिकतम सीमा के लिए डिजाइन किया गया है, तथा इसका प्रक्षेपण भार 15 किलोग्राम से कम है। इससे पहले अप्रैल में डीआरडीओ और भारतीय सेना ने स्वदेशी मानव पोर्टेबल एंटी टैंक गाइडेड मिसाइल वेपन सिस्टम का सफल परीक्षण किया था। 13 अप्रैल को राजस्थान के पोखरण फील्ड फायरिंग रेंज में वारहेड उड़ान परीक्षण सफलतापूर्वक आयोजित किए गए।

डीआरडीओ ने कहा था कि मिसाइल का प्रदर्शन और वारहेड का प्रदर्शन उल्लेखनीय पाया गया। डीआरडीओ ने कहा था कि एमपीएटीजीएम की टेंडम वारहेड प्रणाली का भेदन परीक्षण सफलतापूर्वक पूरा हो गया है और यह आधुनिक कवच-संरक्षित मुख्य युद्धक टैंक को परास्त करने में सक्षम पाया गया है। उन्होंने कहा कि एटीजीएम प्रणाली दिन/रात तथा शीर्ष हमले की क्षमता से सुसज्जित है।

https://www.timesnowhindi.com/india/drdo-india-successfully-tested-portable-anti-tank-guided-missile-know-its-speciality-article-112489258

THE TIMES OF INDIA

Tue, 13 Aug 2024

DRDO successfully test fires Made-in-India portable anti-tank missile

The defence research and development organisation on Tuesday conducted successful test-firing of the indigenously developed Man-Portable Anti Tank Guided Missile (MP-ATGM). The test took

place at a field firing range located in Jaisalmer, Rajasthan, DRDO officials said. The MP-ATGM is a portable, shoulder-launched missile system designed to neutralize enemy tanks and armored vehicles.

The MP-ATGM is a portable, shoulder-launched missile system designed to neutralize enemy tanks and armored vehicles. The ATGM system is well-equipped with day/night and top attack capability with a dual mode seeker functionality.

The missile succesful trials were were conducted on April 14. The system consisted of the MPATGM, launcher, target acquisition system, and the fire control unit.

The Warhead Flight Trials were successfully conducted at the Pokhran Field Firing Range, Rajasthan on April 13, 2024. Missile performance and warhead performance were found to be remarkable.

https://timesofindia.indiatimes.com/india/drdo-successfully-tests-made-in-india-portable-anti-tank-missile-watch/articleshow/112486862.cms

ANI
South Asia's Leading Multimedia News Agency

Tue, 13 Aug 2024

DRDO showcases made in India weapon systems at exercise Tarang Shakti

The Defence Research and Development Organisation (DRDO) on Tuesday showcased its multiple made-in-India weapon systems at the ongoing Tarang Shakti exercise at Tamilnadu's Sulur.

Chairperson of DRDO Samir V Kamat pointed out that the Tarang Shakti exercise of the Indian Airforce is an opportunity for the DRDO to showcase domestic weapons.

The Defence Research and Development Organisation (DRDO) on Tuesday showcased its multiple made-in-India weapon systems at the ongoing Tarang Shakti exercise at Tamilnadu's Sulur.

Chairperson of DRDO Samir V Kamat pointed out that the Tarang Shakti exercise of the Indian Airforce is an opportunity for the DRDO to showcase domestic weapons.

"Tarang Shakti exercise of the Air Force is a very good example of all domestic products that we are developing and the display of those products gives confidence to all our countrymen that the Air Force is fully capable of saving the country when the need arises," he said.

When asked about the AMCA fighter Jet, which is developed by DRDO, he said, "AMCA is the 5.5 generation fighter, it's a stealth aircraft, we have just started the development project, design is now complete and we hope to complete our development trials by 2034 and it should get inducted by 2035".

He further stated that our country will become Atmanirbhar in defence products soon.

"This is truly a world-class fighter, very few countries operate stealth aircraft and India will be one of the few countries to develop the stealth aircraft. We are displaying some of our products which are required by the Air Force, very hopeful that these products will inducted into service and our country will become Atmanirbhar very soon. It is going to be a very proud moment when the development is complete," he said.

On this occasion, Chief of German Air Force Lieutenant General Ingo Gerhartz said "It was a great experience flying together with the Indian Air Force (/topic/indian-air-force) and doing together with the Spanish Air Force and French Air Force".

Reacting to the interception by LCA Tejas fighter flown by Air Marshal AP Singh he said "It was overwhelming".

"The hospitality in this country is amazing" he added.

On the multinational air exercise 'Tarang Shakti 2024', Brigadier General Guillaume Thomas of the French Air Force said, "It was a brilliant exercise organised by the Indian Air Force. I was very pleased to see the professionalism of the Indian Air Force. We were very happy to be able to fly alongside the Indian aircraft such as Tejas. Our pilots were able to fly onboard 'Tejas'.

" Earlier at the beginning of the Tarang exercise, homegrown LCA Tejas fighter being flown by Air Marshal AP Singh intercepted German, French, and Spanish contingents taking part in the war games. The Royal Air Force is also taking part in the air exercises with the Indian Air Force.

Earlier on August 6, The Indian Air Force began its first-ever multinational exercise on its soil 'Tarang Shakti 2024' in Sulur, Tamil Nadu.

It's the first phase of Tarang Shakti continuing in Sulur, Tamil Nadu, from August 6 to 14, and the second will be in Jodhpur, Rajasthan, from August 29 to September 14. The Chief of the Indian Air Force participated on the first day of the aerial exercise along with his German counterpart Lieutenant General Ingo Gerhartz. Air Chief Marshal VR Chaudhari greeted and welcomed Lieutenant General Ingo Gerhartz, the commander of the German Air Force, along with his team.

Indian Air Force's LCA Tejas, Mirage 2000, and Rafale are taking part in this mega exercise which aims to strengthen strategic relationships with "our friends from the international community.

https://www.aninews.in/news/national/general-news/drdo-showcases-made-in-india-weapon-systems-at-exercise-tarang-shakti20240813133009/

Tue, 13 Aug 2024

India To Induct 5.5-Gen Stealth Fighter Jet AMCA By 2035: DRDO Chairman

DRDO showcased 40 indigenously developed advanced systems and technologies at the International Defence Aviation Exposition IDAX 2024 during the Tarang Shakti exercise at Tamil Nadu's Sulur. On India's first 5.5-generation stealth aircraft, Advanced Medium Combat Aircraft (AMCA), Chairman of the Defence Research and Development Organisation (DRDO), Dr. Samir V. Kamat, said that India's first 5.5-generation stealth aircraft will be inducted by 2035. He further said that India is among the very few nations to develop stealth aircraft. Dr. Samir V. Kamath said, "We are displaying some of our products here that are required by the Air Force. We are hopeful that these products will get into service and that our country will become self-reliant very soon.

The 5.5-Gen AMCA fighter is a stealth aircraft; we have started the development process, and the design is complete. We hope to complete development trials by 2034, and they should be inducted by 2035. India will be one of the few countries that will be able to develop stealth aircraft. It will be a proud moment when development is complete."

https://www.ndtv.com/video/india-to-induct-5-5-gen-stealth-fighter-jet-amca-by-2035-drdo-chairman-825552

Defence News

Defence Strategic: National/International

Hindustan Times

Tue, 13 Aug 2024

India ready to test new SAMAR 2 air defence system

India is preparing to test-fire a new locally produced air defence system called SAMAR 2 (surface-to-air missile for assured retaliation) with a range of almost 30 km, Indian Air Force (IAF) officials associated with the project said on Tuesday.

“The first firing trials will be carried out by December,” said one of the officials cited above, asking not to be named. The IAF has developed the air defence system with two industry partners.

The first variant of the weapon system, SAMAR 1, has been inducted into the IAF and has a range of 8 km. Both systems use Russian-origin air-to-air missiles. SAMAR 1 is equipped with the R-73E, and the new variant under development has the R-27 missile.

The IAF showcased the SAMAR 1 air defence system at the International Defence Aviation Exposition being held on the sidelines of the ongoing Tarang Shakti 2024 exercise, the biggest multilateral air combat drills to be hosted by India. Ten foreign air forces are taking part in the exercise, while 18 countries are participating as observers.

“What is challenging here is that air-to-air missiles, which are past their shelf life and thus unsafe for aerial launch, are being used in a surface-to-air role,” said a second official.

The SAMAR system can destroy aerial threats, including fighter jets, helicopters, and unmanned aerial vehicles, the officials said.

India is also developing an indigenous long-range surface-to-air missile system under Defence Research and Development Organisation (DRDO)’s Project Kusha. It will have a maximum range of 350 km and is expected to be deployed in around four to five years.

DRDO has also developed the Indigenous very short-range air defence system (VSHORADS). It is a man-portable air defence system that can handle low-altitude aerial threats at short ranges. The systems in service include the S-400 air defence missile system and medium-range surface-to-air missile (MRSAM) systems developed jointly with Israel. Also, the other air defence weapons in the Indian arsenal include the Israeli SpyDer, Soviet-origin systems such as Pechora, OSA-AK, Tunguska, Strela and Shilka, Zu-23-2B anti-aircraft guns, upgraded L-70 anti-aircraft guns (a legacy weapon manufactured by Swedish arms firm Bofors AB), and the Igla MANPADS (man-portable air defence system).

https://www.hindustantimes.com/india-news/india-ready-to-test-new-samar-2-air-defence-system-101723530017807.html

THE ECONOMIC TIMES

Tue, 13 Aug 2024

Boeing partners with AIESL to provide services to Indian Navy's P-8I aircraft

US aerospace giant Boeing has partnered with India's AI Engineering Services Ltd to provide overhaul services to the Indian Navy's fleet of 12 P-8I maritime surveillance aircraft. As part of the partnership, the first landing gear overhaul of a P-8I aircraft was recently completed at naval base INS Rajali in Tamil Nadu, Boeing India said on Tuesday.

"This is a first in India and reflects the growth in India's indigenous capabilities for undertaking complex Maintenance, Repair and Overhaul (MRO) services," it said in a statement. The Boeing P-8I, a multi-role long-range maritime reconnaissance antisubmarine warfare (LRMR ASW) aircraft, is integral to the Indian Navy's maritime surveillance missions in the Indian Ocean.

Besides India, the aircraft is being operated by the United States, the United Kingdom, Australia, New Zealand, Norway, South Korea, and Germany. "Through this partnership with AIESL (AI Engineering Services Ltd), we continue to make strategic investments in India's MRO capabilities that enhance mission readiness rates for the Indian Navy," said Salil Gupte, president, Boeing India and South Asia.

"Developing local MRO capabilities is critical for reducing repair turnaround time and aircraft downtime, thereby improving the mission readiness of customer fleets," he said. The Boeing said it partnered with AIESL to provide in-country overhaul services of critical components for 12 Boeing P-8I aircraft of the Indian Navy.

Sharad Agarwal, CEO, AI Engineering Services Limited, said, "We are proud to partner with Boeing, and for successfully completing the landing gear overhaul of the P-8I aircraft, a first in India. It is a significant step towards India's aspirations to become the regional hub for MRO services."

The Boeing India-AIESL partnership is the latest initiative under the Boeing India Repair Development and Sustainment (BIRDS) hub programme. The BIRDS hub is a local network of suppliers working to build a robust MRO ecosystem for defence and commercial aircraft, which aims to establish industry benchmarks in India for maintenance and repair, platform availability, customer satisfaction, and rapid turnaround time, according to Boeing India.

An important aspect of the hub is training programmes to increase skilled manpower by developing sub-tier suppliers and micro, small and medium enterprises (MSMEs) to build top-tier MRO capabilities in India, it said.

https://economictimes.indiatimes.com/news/defence/boeing-partners-with-aiesl-to-provide-services-to-indian-navys-p-8i-aircraft/articleshow/112496004.cms

THE ECONOMIC TIMES

Wed, 14 Aug 2024

Revolutionising Combat: How cutting-edge AI is building the brain of future weapons systems

Warfare has experienced a dramatic transformation driven by technological progress. Modern military operations, previously reliant on traditional methods, are now defined by precision, efficiency, and advanced technologies. Priyanka Singhal, Founder and CEO of Ammunic Systems, sheds light on how these advancements are reshaping contemporary defence strategies.

The Genesis of Ammunic Systems

Ammunic Systems was established in 2019 by Priyanka Singhal, inspired by her practical experience in defence technology during an internship at the Defence Research and Development Organisation (DRDO). What began as a college project evolved into a company focused on developing advanced munitions and electronic fuses. After successfully demonstrating their products to the Army and Navy, Ammunic Systems secured significant orders, marking a substantial entry into the defence sector.

Singhal said, "We began in 2019 and secured our first major order in 2023. The process was extended due to the COVID-19 pandemic, which allowed us to improve our technology before pursuing immediate orders."

"My exposure to blast effects and defence technology during that time inspired me to focus on the defence sector. Initially, we approached the field pragmatically due to the financial challenges of R&D. We started with a college project and gradually moved into developing munitions and electronic fuses. After successful demonstrations and live trials with the Army and Navy, we secured significant orders and expanded our operations," she added.

Modern Technology and Its Impact on Warfare

Precision and Technological Advancements

Likened to building a brain for future defence systems, the integration of technology in warfare has enhanced precision and effectiveness in military operations. Advanced weapons equipped with sensors and GPS capabilities are a testament to this shift. Singhal notes, "We are now in an era where technology plays a crucial role in warfare." Unmanned Aerial Vehicles (UAVs) exemplify this transformation, conducting precision strikes, border patrols, and search-and-rescue missions. Their low operational costs and high precision make them indispensable in contemporary defence strategies.

Robotics and Autonomous Systems: Transforming Military Operations

Robotics and Autonomous Systems (RAS) are revolutionising military operations, significantly reducing risks to personnel and improving operational efficiency. These technologies play a vital role in tasks such as mine clearance, search and rescue, and logistical support. Singhal emphasises, "Robotics and autonomous systems are pivotal in modern warfare. In complex scenarios, such as the Balakot operation, advanced unmanned systems could have improved effectiveness and reduced casualties. These systems allow for more precise operations and can adapt to changing conditions in real-time."

Robotic exoskeletons, for instance, are enhancing soldiers' strength and endurance during demanding tasks. Singhal explains, "Robotic exoskeletons have significantly enhanced soldiers' capabilities by improving their endurance and strength. These systems reduce fatigue and increase mobility, allowing soldiers to perform their tasks more effectively in challenging conditions. The integration of exoskeletons into military operations helps soldiers carry heavier loads and navigate difficult terrain with greater ease."

Advancements in Unmanned Systems

The field of unmanned systems has seen remarkable advancements, particularly in Unmanned Aerial Systems (UAS). These systems, including those with swarm technology, have improved in range, weight capacity, and surveillance capabilities. The evolution of Unmanned Underwater Vehicles (UUVs) and Armed Unmanned Ground Vehicles (AUGVs) is revolutionising naval and ground operations, providing enhanced versatility while reducing human risk.

Singhal said, "Drones have revolutionised military strategies. They conduct precision strikes on high-value targets and minimise collateral damage. Drones can also be used for border patrolling, perimeter security, and searchand-rescue operations. Their ability to operate at lower costs while maintaining high precision has made them indispensable in modern defence strategies." These systems are becoming increasingly accurate, precise, lethal, and operation-specific.

Noteworthy subsets in this field include:

Armed Drones (Loitering Munitions)Integrated with Artificial Intelligence

Loitering Munitions (LMs) have proven their value in recent conflicts, gradually replacing many tactical missiles due to their ease of operation, superior firepower, extended range, and enhanced manoeuvrability. The integration of Artificial Intelligence (AI) into next-generation LMs is set to further enhance their target identification, homing patterns, and course correction capabilities.

Unmanned Armed Underwater Ammunition

Naval warfare is entering a new era with the deployment of Armed Autonomous Underwater Vehicles (AAUVs) and Armed Unmanned Surface Vehicles (AUSVs). These advanced systems are increasingly replacing traditional torpedoes in certain offensive naval missions. The future will likely see the deployment of armed Remotely Operated Underwater Vehicles (ROVs), launched from USVs or AUVs, as the next step in this technological progression.

Singhal commented, "Unmanned Underwater Vehicles (UUVs) and unmanned surface vehicles (USVs) have revolutionised naval warfare by enabling smaller fleets to defeat large enemy ships and reducing human risk in hazardous environments. UUVs, in particular, excel in underwater surveillance, detecting mines, and gathering intelligence without human intervention. Their versatility and reduced risk to human life make them superior to traditional submarines, which have limitations in depth, structure, and cost."

Armed Unmanned Ground Vehicles (AUGVs)

The initial technical challenges in controlling armed Unmanned Ground Vehicles (UGVs) in assault scenarios are being addressed through advancements in control technologies. Enhanced control systems combined with AI are enabling AUGVs to minimise unintended damage while optimising mission efficiency.

Singhal noted, "Unmanned Aerial Systems (UAS) have seen significant upgrades in range, weight capacity, and ISR (Intelligence, Surveillance, and Reconnaissance) capabilities. Enhanced surveillance with high-resolution cameras and extended operational reach are key features of modern UAS. Additionally, swarm technology has enabled these systems to create tactical advantages by confusing and distracting enemies. Despite the cold temperatures affecting battery

life and electronic components, technology has adapted, allowing UAS to operate in high-altitude environments with specific modifications for battery performance."

Conventional Munitions Receive a Facelift

Conventional munitions are also undergoing significant advancements, increasing their effectiveness, precision, and lethality. Key developments include:

Enhanced Explosive Formulations

Innovations in explosive formulations, such as thermobaric explosives, are significantly boosting the blast effect and lethality of conventional munitions. These advanced explosives create powerful shockwaves and heat, making them devastating against fortified structures and personnel.

Advanced Warhead Initiation Technologies

Warhead initiation technologies are advancing with the development of new fuzing systems featuring sophisticated proximity detection capabilities. These systems ensure accurate timing and triggering of explosions, maximising impact on intended targets.

Networked Land Mines with Improved Area Denial Capabilities

Traditional landmines are being transformed into smarter, more strategic weapons through networking capabilities. These networked land mines can coordinate and communicate with each other, offering enhanced area denial by covering larger territories and adapting to battlefield changes in real-time.

Singhal remarked, "Advances in explosive formulations, such as thermobaric explosives, have resulted in weapons that are less sensitive to accidental detonation while being highly lethal. These explosives produce a significant blast effect with high temperatures. Additionally, innovations in electronic fuses and warhead initiation have improved the reliability and effectiveness of modern weapons."

"Mechanical fuses, often bulky and less accurate, are being phased out in favour of purely electronic fuses combined with mechanical safety features. This fusion results in electromechanical systems that are lighter, more accurate, and more compact. For instance, Ammunic has developed an underwater fuse currently used by the Navy. Our new fuse integrates electronic components with mechanical backups, adjusting to real-time conditions such as depth. This approach enhances accuracy and adaptability, with the fuses supplied to the Indian Army being indigenous and featuring advanced warhead and fuse technologies, including proximity sensors and various operational modes."

AI and Ethical Considerations in Warfare

Artificial Intelligence (AI) is playing an increasingly vital role in enhancing the functionality of next-generation munitions. By improving targeting accuracy and adapting to real-time data, AI is making military operations more precise and effective.

AI helps identify specific targets and adjust flight patterns based on real-time data, ensuring more effective operational outcomes and reducing collateral damage. AI also aids in reducing reaction time by processing vast amounts of data quickly. AI algorithms can assess situations, identify

patterns, and make decisions based on complex criteria, ensuring that modern weaponry operates with unprecedented precision and responsiveness.

Ethical Implications

As technology advances, ethical considerations in warfare become increasingly significant. The development and deployment of AI-driven weapons systems necessitate ongoing discussions about their implications. Key concerns include ensuring compliance with international humanitarian laws and preventing unintended harm to civilians.

Singhal underscores the importance of these discussions, stating, "Ethics and international regulations must guide the development and deployment of autonomous and AI-powered systems. Ensuring that these technologies are used responsibly and in compliance with humanitarian standards is crucial."

As technology continues to evolve, its impact on warfare becomes more profound. Innovations in robotics, autonomous systems, and AI are reshaping military operations, offering unprecedented precision, effectiveness, and safety. Ammunic Systems' advancements reflect the broader trends defining modern defence strategies. Looking ahead, the future of warfare will be shaped by continued technological progress, with ethical considerations playing a crucial role in guiding these developments. The integration of cutting-edge technologies into military operations promises to redefine the nature of combat and maintain technological superiority on the battlefield.

https://economictimes.indiatimes.com/news/defence/revolutionising-combat-how-cutting-edge-ai-is-building-the-brain-of-future-weapons-systems/articleshow/112486582.cms

Tue, 13 Aug 2024

LCA proved its mettle in Tarang Shakti drills, says IAF chief

The locally built Tejas light combat aircraft (LCA Mk-1) proved its mettle in Tarang Shakti 2024, the largest multilateral air combat exercise to be hosted by India, while executing a variety of missions along with bigger and modern global fighter jets, Indian Air Force (IAF) chief Air Chief Marshal VR Chaudhari said on Tuesday.

“LCA [the smallest fighter in the drills] showed size does not matter. The aircraft proved its capabilities in realistic combat settings as part of both [friendly] ‘blue force’ and [hostile] ‘red force’,” Chaudhari said at a media briefing on the conclusion of the first phase of the exercise at the Sulur airbase near Coimbatore.

The chiefs of the French and German air forces, General Stephane Mille and Lieutenant General Ingo Gerhartz flew in the LCA Mk-1 on Tuesday. Also, Chaudhari and Spanish air force chief Air General Francisco Braco Carbo flew in the Su-30.

The first phase began on August 6 and involved the air forces of India, France, Germany, the UK, and Spain. The aircraft that took part included Rafales, Typhoons, Su-30s, LCA, A-400 military transport aircraft, and Airbus A330 multi-role tanker transport.

This was the first time the LCA Mk-1 took part in such large force engagements and “we are proud of its performance,” Chaudhari said. “Tejas is the epitome of our success in the self-reliance campaign. We will use the aircraft more in air combat drills both within and outside the country,” he said.

IAF has around 40 LCA Mk-1s and all of them are based in Sulur.

Major Alexis Galouzeau, 38, a French Air Force Rafale pilot who flew missions with and against the LCA Mk-1, was impressed with the capabilities of the Indian fighter jet. “It has fantastic manoeuvrability and can carry out a variety of missions,” he said.

The second and final leg of Tarang Shakti will be conducted in Jodhpur from August 29 to September 14. Just like the first phase, the second leg will also involve the participation of 70-80 aircraft including fighter planes, helicopters, special operations planes, mid-air refuellers, and airborne warning and control system (AWACS) aircraft.

The air forces that are bringing their assets for the second phase include the US, Australia, Greece, the United Arab Emirates, and Singapore. Russia and Israel, two of India’s main defence partners, are not taking part in the drills because of their preoccupation with the ongoing developments back home.

IAF chief endorsed the capabilities of the LCA Mk-1 at a time when its advanced variant LCA Mk-1A is delayed. “If we had adequate numbers of LCA Mk-1As, the aircraft would have taken part in Tarang Shakti,” Chaudhari said in response to a question.

A question mark hangs over Hindustan Aeronautics Limited’s (HAL) ability to meet the delivery timeline of the 83 LCA Mk-1As on order. IAF will have to wait longer for the first aircraft that was supposed to be delivered by March 31, 2024.

The first aircraft is now likely to be delivered only in November 2024. After missing the March 31 deadline, HAL hoped to deliver the first aircraft in July but again revised it to a later date in August.

IAF is unhappy with the current pace of the LCA Mk-1A programme because of the possible risks the delay in the induction of new fighter planes could pose to the air force’s combat effectiveness, and has flagged the hot-button issue to HAL, calling for timely execution of the ₹48,000-crore contract, as first reported by HT on July 12.

HAL had then said it will deliver 16 of these fighters to IAF in FY 2024-25 as per schedule. It also said it hoped to deliver all the 83 aircraft on order by 2028-29. The LCA Mk-1A made its maiden sortie from an HAL facility in Bengaluru on March 28.

Many in the air force are sceptical about the LCA Mk-1A deadlines being met, and one of the main reasons for that is the lingering delay in the supply of the F404 engines to HAL by US firm GE Aerospace. The delivery of the engines is delayed by around 10 months. Also, the certification of

new systems in the aircraft is still pending. The single-engine Mk-1A will be a replacement for the IAF's Mikoyan-Gurevich MiG-21 fighter.

The defence ministry could award HAL a contract for 97 more LCA Mk-1As to strengthen the air force's capabilities by the end of the year, as reported by HT on Tuesday. The contract is estimated to be worth ₹67,000 crore. The upcoming deal will be the second order for the LCA Mk-1A after the ministry awarded HAL the ₹48,000-crore contract for 83 such aircraft in February 2021.

Exercise Tarang Shakti has allowed the country to showcase its indigenous military capabilities to the world, including the Prachand light combat helicopter, Dhruv advanced light helicopter, and its armed version Rudra. The exercise involved within and beyond visual range combat missions, large force engagements, air mobility operations, dynamic targeting, low light operations, high-value aerial asset protection and busting, air-to-air refuelling missions, and combat search and rescue.

Tarang Shakti comes on the back of IAF showcasing its capability to carry out high-tempo operations during Exercise Gagan Shakti 24 from April 1 to April 10, which involved all air force bases and assets scattered across the country. The last of IAF's MiG-21 fighter planes participated in the pan-India drills, their final participation in a major exercise.

The MiG-21, India's first supersonic fighter whose induction began in 1963, will be pulled out of service by 2025, and replaced by the LCA Mk-1A.

Earlier in February, IAF showcased its offensive capabilities by day and night at the Pokhran air-to-ground range near Jaisalmer, during Exercise Vayu Shakti 24, with fighter jets carrying out precision strikes against simulated enemy aircraft and targets on the ground, including runways, bridges, ammunition dumps, radar sites and terror camps, to ensure battlefield superiority.

https://www.hindustantimes.com/india-news/lca-proved-its-mettle-in-tarang-shakti-drills-says-iaf-chief-101723547971515.html

THE HINDU

Wed, 14 Aug 2024

Multilateral air exercise Tarang Shakti to be made a biennial event: IAF Chief

As Phase-I of Tarang Shakti, the largest multilateral air exercise hosted by the Indian Air Force (IAF), comes to a close, IAF chief Air Chief Marshal (ACM) V. R. Chaudhari has announced plans to make the exercise a biennial event. He stressed that it should not be seen as a "challenge to any other nation."

"We will definitely take up the case of having this exercise once in every alternate year. We will take a call later on how many nations we can accommodate. But this is definitely not the last," ACM Chaudhari told the media in Sulur, where Phase-I is being held from August 6 to 14.

Phase-2 is scheduled to be held in Jodhpur from September 1–14. He was accompanied by his counterparts from France, General Stephane Mike, Germany, Lt. General Ingo Gerhartz, and Spain, Air General Francisco Braco Carbo.

ACM Chaudhari said they would collate all the debrief points at the end of phase two and analyse them before taking a call on how many nations could be made a part of the next edition of Tarang Shakti.

At the same time, he also stressed, “This is a training exercise where we learnt how to operate an aircraft with or without a datalink, how to create a common communication protocol, and common tactics and programmmes. There is no other objective.”

In all, the exercise will feature 18 countries, 10 of them with air assets. There will be a total of 150 aircraft, both foreign and IAF, taking part. Invitations had been extended to 51 countries.

LCA praised

The IAF Chief and the Spanish Chief flew sorties in the Russian-origin Su-30MKI, while the German and French chiefs flew the indigenous Light Combat Aircraft (LCA), Tejas. The LCA, the smallest fighter in the exercise, came in for praise from the visiting chiefs.

“We will use the LCA more in air combat drills within and outside the country,” ACM Chaudhari said. Germany, Spain, and the UK fielded their Eurofighter Typhoon while the French deployed the Rafale. This is the first time Germany has joined an air exercise in Indian skies. These air forces joined Phase-I on their return journey home after participating in Exercise Pitch Black, hosted by Australia.

Several indigenous platforms, the LCA, Light Combat Helicopter (LCH), Light Utility Helicopter (LUH), trainer HTT-40, and the aerobatic helicopter team, Sarang, took to the skies over Sulur air force station in an air display.

Phase-2 will see the participation of Australia, Bangladesh, Greece, Singapore, the United Arab Emirates (UAE), the US, and 18 observer countries. Each phase of the exercise includes 70–80 aircraft from both IAF and participating forces.

The IAF will field over 40 aircraft each in both phases. The Indian Navy participated in Phase-1 with its Mig-29K carrier borne fighters.

The IAF has significantly increased its participation in bilateral and multilateral exercises. Since 2001, the IAF has participated in 91 international air exercises. Of these, 32 exercises were hosted by the IAF, and it fielded assets in 42 exercises across the globe.

https://www.thehindu.com/news/national/multilateral-air-exercise-tarang-shakti-to-be-made-a-biennial-event-iaf-chief/article68521776.ece

INDIA TODAY

Tue, 13 Aug 2024

Indian Army awaiting batch delivery of Apache attack helicopters from US

The Indian Army's Aviation Corps is still awaiting the delivery of the first batch of Apache AH-64E attack helicopters from the United States.

Originally, six helicopters were planned to arrive in batches of three. The first batch was expected between May and June. However, the helicopters have yet to reach India, leaving the Army's first Apache Squadron in anticipation.

As part of a $600 million deal signed with the US in 2020, the Indian Army is set to receive six Apache helicopters. The first batch, however, has already faced a delay of over three months.

Sources in the Defence Ministry indicate that this delay is due to technical issues faced by the US. Additionally, there is no clarity on the delivery timeline for the first batch of helicopters.

The Indian Army’s Aviation Corps raised its first Apache Squadron at Nagtalao, Jodhpur, in March this year.

The Apache AH-64E attack helicopters are intended to support the Army’s crucial operations on the Western front. These advanced choppers are known for their agility, firepower, and advanced targeting systems. Unsurprisingly, the Army requires these attack helicopters as a major component of its arsenal.

The Indian Air Force has already inducted 22 Apache helicopters as part of a separate order signed in 2015, while the Indian Army is awaiting these advanced attack helicopters to bolster its capabilities.

The Indian Army's Aviation Corps is a critical component of the Army's operational capabilities, providing essential aerial support for a variety of missions. The assets of the Indian Army's Aviation Corps include:

Helicopters:

•Advanced Light Helicopter (ALH) Dhruv: an Indigenous multi-role helicopter used for various purposes, including transport, reconnaissance, and search and rescue missions.

•Rudra: An armed version of the ALH Dhruv, equipped with weapons for close air support and anti-tank missions.

•Cheetah and Chetak: Light utility helicopters used for reconnaissance, casualty evacuation, and logistics.

•Light Combat Helicopter (LCH): A newer addition designed for high-altitude operations, capable of carrying out offensive missions in support of ground troops.

Fixed-Wing Aircraft:

•Dornier 228: A light transport aircraft used for reconnaissance, logistics, and communication duties.

Unmanned Aerial Vehicles (UAVs):

•Heron: Medium-altitude, long-endurance UAVs used for surveillance and reconnaissance.

•Searcher: Tactical UAVs for shorter-range surveillance and reconnaissance missions.

Transport Helicopters:

•Mi-17: Medium-lift helicopters used for troop transport, logistics, and evacuation missions.

These assets allow the Indian Army's Aviation Corps to conduct a wide range of operations, from battlefield support and reconnaissance to logistics and casualty evacuation, significantly enhancing the Army's overall effectiveness in various terrains and conditions.

https://www.indiatoday.in/india/story/apache-helicopter-delivery-us-delayed-indian-army-2581605-2024-08-13

THE ECONOMIC TIMES

Tue, 13 Aug 2024

Bangladesh unrest: Indian Coast Guard deploys aircraft, hovercraft for maritime border surveillance

The Indian Coast Guard (ICG)'s aircraft and hovercrafts along with other vessels are carrying out surveillance operations along the maritime boundary with Bangladesh to prevent an illegal influx into India amid escalating unrest and the collapse of the government in Bangladesh.

Bangladesh is experiencing a volatile political situation, with Sheikh Hasina resigning from the post of Prime Minister on August 5 amid mounting protests.

The protests, led mainly by students demanding an end to a quota system for government jobs, evolved into anti-government demonstrations. In response to the heightened tensions in the neighbouring country, the ICG has strengthened security along the international maritime boundary line to prevent any illegal intrusions into India.

ICG Deputy Director General Anupam Rai said on Monday that security measures have been intensified to address potential threats.

"After the political unrest in Bangladesh, Indian Coast Guard has enhanced its patrolling and surveillance along the international maritime boundary line...To prevent any hostile act and illegal intrusion we have beefed up the security, positioned two to three ships...Sunderban Creek areas are being patrolled by our air cushion vessels and interceptor boats," Rai told ANI.

He further explained that the Sunderban Creek areas are under close observation, with air cushion vessels and interceptor boats on constant patrol.

The ICG's coastal surveillance radars at Haldia, Paradeep, and Gopalpur are operating 24/7, continuously scanning India's close coasts for any signs of illegal activity.

"Till now no illegal activity has been seen but we have very specifically told our ships to board all fishing boats or any vessels that are close to the IndoBangladesh International Maritime Border Line (IMBL) or in the creek areas," he added.

https://economictimes.indiatimes.com/news/defence/bangladesh-unrest-indian-coast-guard-deploys-aircraft-hovercraft-for-maritime-border-surveillance/articleshow/112499129.cms

THE ECONOMIC TIMES

Tue, 13 Aug 2024

Why China's and Russia's militaries are training together

China and Russia have pressed an informal political and economic alliance against the West. Now they are stepping up the cooperation between their militaries with increasingly provocative joint war games. Chinese and Russian long-range bombers patrolled together near Alaska for the first time last month.

Days earlier, the countries held live-fire naval drills in the hotly contested South China Sea for the first time in eight years. And they have more frequently buzzed the skies and sailed the waters together near Taiwan, Japan and South Korea, where the United States has strategic interests.

The military exercises are, in some ways, the most vivid expression of an alignment between China's top leader, Xi Jinping, and President Vladimir Putin of Russia as they have sought to challenge their chief geopolitical rival, the United States.

China has been frustrated by U.S. trade restrictions and Washington's building of security alliances in Asia. It has pushed back by trying to court European countries with trade and building its influence among poorer countries with investments. But those efforts can go only so far in countering the dominance of the United States.

"Beijing increasingly feels that diplomatic and economic actions are not enough to get its points across to Washington, so it is relying more on its military as a tool for signaling. Partnering with Russia is a way to amplify Beijing's messaging," said Brian Hart, a fellow with the China Power Project at the Center for Strategic and International Studies.

To Washington, the exercises sow doubts about whether the United States could prevail in a war in Asia against the combined forces of China and Russia. While U.S. war planners have long considered scenarios with China and Russia individually, they have paid less attention to the prospect of the two nuclear-armed states fighting together because it had long seemed so unlikely.

The joint Chinese and Russian bomber patrol near Alaska last month underscored the threat. By taking off from a Russian air base, nuclear-capable Chinese bombers were able to fly about 200 miles from the Alaskan coast, a distance that would have been unreachable taking off from China.

Not Just About Fighting

The strengthening alignment between China and Russia has been key to the Kremlin's war on Ukraine. The United States says Putin would not be able to sustain the war effort if China did not continue to buy huge quantities of Russian oil and supply Russia with dual-use technology that can be applied to the battlefield. Beijing needs Russia as its only major-power partner to counterbalance the United States.

"China finds itself in a very difficult geopolitical situation," said Alexander Korolev, an expert on China-Russia relations at the University of New South Wales in Sydney. "It doesn't really have any allies. Russia is the only country that can make a difference."

The biggest difference Russia brings to bear should it join China in any conflict is the threat of its nuclear arsenal, the world's largest. At the same time, "there are many things Russia can do to help China that doesn't include fighting," said Oriana Skylar Mastro, a fellow in international studies at Stanford University and the author of "Upstart: How China Became a Great Power."

Russia's 2,500-mile land border with China could prove critical for the delivery of arms, oil and other supplies if the United States and its allies ever succeeded in imposing a sea blockade on China. Russia could also deny access to airspace near its borders, particularly close to Japan, where the United States maintains bases.

"In a protracted war scenario, that support will make it much harder to get China to capitulate," Mastro said.

Pushing the Limits

To send an effective signal, military exercises typically have to set new precedents. That was the case on July 24 when two Chinese Xi'an H-6 and two Russian Tu-95 "Bear" nuclear-capable strategic bombers conducted a joint patrol near the United States for the first time.

The aircraft were believed to have taken off from Anadyr airfield in Chukotka, an eastern region of Russia, according to the University of Tokyo's Research Center for Advanced Science and Technology, which examined satellite imagery of Chinese military aircraft at Anadyr. The four bombers entered the Alaska Air Defense Identification Zone, a buffer zone in international airspace that would have been out of reach for the Xi'an H-6 if it had taken off from China, because of the plane's 3,700-mile maximum range.

The patrol, which was intercepted by U.S. and Canadian fighter jets, took place two days after the Pentagon released its new Arctic strategy report, which noted increased Chinese and Russian cooperation in the region and the threat it posed to the United States.

The use of a Russian air base by Chinese military planes may be an indication that the two militaries can communicate, work together and use each other's resources, part of what in military speak is known as interoperability. It also reflects a growing level of trust between two countries that have not always been friendly.

The two countries have also hinted at establishing a shared missile defense system, which could provide both China and Russia with an earlier warning of a nuclear strike, allowing them to respond more quickly.

Concern in the United States

China's and Russia's militaries are far from being as integrated as the U.S. military is with its NATO partners, military experts say, but the growing cooperation between them has raised concerns in Washington.

A report released last month by the congressionally mandated Commission on the National Defense Strategy described China's and Russia's deepening alignment as "the most significant strategic development in recent years."

Avril Haines, the director of national intelligence, said at a Senate hearing this year that U.S. officials needed to consider how Russia might help if China decided to invade Taiwan, the self-governing island claimed by Beijing that the United States is widely expected to defend. Such potential help might not necessarily entail joining a conflict in Asia.

Becca Wasser, who runs war games at the Center for a New American Security, said a scenario that often comes up during the center's simulations of a conflict with China is one in which Russia starts a war elsewhere that diverts U.S. forces.

"China could look to Russia, which is increasingly becoming a junior partner in that relationship, to open a second theater to distract the United States and some of its allies," Wasser said.

"That could reduce the amount of resources and attention that are brought to bear on China."

China and Russia have held military exercises together for two decades. China says there is nothing unusual about this military cooperation, and that it does not target any third country. It accuses the United States of being provocative by flying and sailing close to China.

Song Zhongping, an independent defense analyst based in Beijing and a former Chinese military officer, said he expected the exercises, particularly near Alaska, to grow in frequency to counter U.S. pressure.

"Though we say the military exercises do not target any third party, it actually has a target: the hegemony of the U.S., and the bloc that the U.S. built with its alliance for containment against China," Song said.

https://economictimes.indiatimes.com/news/defence/why-chinas-and-russias-militaries-are-training-together/articleshow/112500361.cms

The EurAsian Times

Wed, 14 Aug 2024

Russia Unveils New VTOL Drone At The Army 2024 Forum; China Tests Gigantic 2000 Kg Transport UAV

Russian state arms manufacturer Rostec introduced a new transport drone at the Army 2024 Forum. The drone features long-range capabilities and a substantial cargo capacity.

The United Aircraft Corporation (UAC), which is part of Rostec, presented a Vertical Takeoff and Landing (VTOL) transport drone dubbed 'S-76' that can carry 300 kilograms of cargo over a distance of about 500 kilometers.

The corporation said in a statement that the drone was presented at the off-airfield base during the International Military-Technical Forum. Subsequently, a video was also released, which has since gone viral on social media. The drone is anticipated to be used for a host of civilian and military applications.

The UAC said in a statement (machine translated from Russian): "The United Aircraft Corporation… for the first time demonstrates a full-scale sample of a fundamentally new unmanned transport system off-airfield based with a vertical take-off and landing aircraft S-76. The exhibition presents a full-fledged flight model, which has already passed the first stage of flight experiments to practice the modes of vertical take-off, hanging, and landing."

With its vertical take-off and landing capability, the drone will be able to carry out logistical duties, research, the transportation of commodities, etc., even in the most inaccessible and austere locations. UAC claims that the S-76 project will enable the deployment of autonomous unmanned transport systems in Russia, resulting in significantly more cost-effective and minimal human intervention air cargo transfers.

The aircraft will operate entirely autonomously throughout takeoff, flight, and landing, requiring no operator input at all. Vladimir Artyakov, Deputy General Director of Rostec, said, "The unmanned platform from UAC will allow it to deliver cargo weighing up to 300 kg at a distance of up to 500 km and can provide new logistics opportunities, primarily in hard-to-reach areas. The aircraft does not require specially prepared sites and airfield infrastructure. That is, it is a convenient, fast, and efficient mode of transport."

The S-76 program reportedly consists of several unmanned aircraft, landing zones, ground infrastructure, and a single operational control center that unites UAVs into a single airspace and communicates with end users.

Some reports stated the S-76 family of drones will initially consist of two models: a large version that can transport payloads up to 300 kilograms over a maximum distance of 1,000 kilometers and a compact version that can carry payloads up to 50 kilograms over a distance of 400 kilometers.

However, the EurAsian Times could not independently verify these claims.

With drones assuming a prominent role in modern combat, Russia has developed a variety of drones that can transport heavy cargo. In February 2024, Russia developed the TVS-2MS "Partizan" heavy transport drone, which can carry 1 tonne of cargo over a distance of 1,000 kilometers.

Earlier this year, reports indicated that Russia had developed a transport drone of the aircraft type TrAMP (transport aviation multifunctional platform) that can transport cargo up to 250 kilograms over distances of more than 600 kilometers. The drone is reportedly made to carry out duties considered dangerous for manned aircraft in inclement weather.

In June this year, the Russian battlegroup Dnepr developed the Perun strike-vehicle drone, which can carry large cargo, perform reconnaissance tasks, carry out search and rescue missions, including the evacuation of injured and wounded, and drop landing parties behind enemy lines.

The development of these drones is significant as they can be a more effective and affordable solution for moving vital payloads in high-risk settings compared to manned aircraft. Additionally, such drones can be stationed closer to the front lines than crewed aircraft, potentially cutting down the time needed to identify and evacuate soldiers.

However, Russia is not the only one developing transport drones. China has also developed an uncrewed UAV with long-range and heavy cargo capacity—once again underscoring that unmanned aircraft are the future of warfare.

China's New Transport UAV Is Gigantic

China recently unveiled a twin-engine transport unmanned aircraft with a maximum range of 1,800 kilometers. On August 12, the manufacturer of the unmanned aerial vehicle (UAV) told the Global Times that China's latest domestic twin-engine UAV transport aircraft was a significant advancement in the nation's low-altitude technology.

The development of the UAV, which can load cargo in just 15 minutes, will also greatly increase the efficiency of regional logistics.

The UAV, which was created in response to growing market demand, successfully conducted its first flight test on Sunday, August 11, in Zigong, Sichuan Province, Southwest China. To date, it is the largest unmanned transport aircraft manufactured entirely in the nation.

A company manager who requested anonymity told the Global Times that the aircraft was intended for 600-1,800 km regional logistics routes. The manager said it had been developed to rectify the insufficient payload capacity and range observed in comparable products.

"It proved that large-scale commercial adoption of unmanned regional logistics is feasible and is expected to drive technological advancements in the industry that better meet the expanding market demand," the manager added.

With over 90% of its activities controlled by a single button, it has a high level of automation that streamlines operations and makes it ideal for widespread usage in unmanned cargo transport. The UAV uses 15% more room because it has the biggest payload compartment in its class. It requires only 15 minutes to load and unload freight, accommodates ordinary cargo containers, and integrates with mainline transit without the need for disassembly.

According to the manufacturer, the aircraft is perfect for international cargo transport because it can operate at high altitudes up to 7,000 meters, covering over 90% of feeder routes worldwide. It also has sophisticated safety measures like anti-icing and fireproofing.

To overcome technological difficulties, the manufacturer used a completely composite structure to lighten the UAV and increase payload capacity. Additionally, it used its most recent autopilot technology to improve the UAV's usability.

"This approach, involving the development of a new model from scratch, has proven to be more demanding in terms of product design and manufacturing compared to merely modifying existing models," the manager said.

https://www.eurasiantimes.com/tg-russia-unveils-new-vtol-transpor/

Science & Technology News

The Indian EXPRESS

Tue, 13 Aug 2024

'We're in the middle of an intense geomagnetic storm': What NASA has to say about solar eruptions triggering colourful auroras

The National Oceanic and Atmospheric Administration's (NOAA) weather prediction centre on Monday warned about an extended geomagnetic storm of level G4 (severe). According to NOAA, this could cause fluctuations in weak power grids and impact satellite operations. On the brighter side, it also leads to the visibility of colourful auroras in high-latitude regions in select parts of Canada and the United States.

NASA astronaut Matthew Dominick, currently aboard the International Space Station (ISS) with Sunita Williams and few others, shared a captivating timelapse video. The video shows the "moon setting into streams of red and green aurora", followed by a "sunrise illuminating the Soyuz with a light blue hue". It was captured using an Arri Zeiss 15mm, T1.8 lens mounted onto a Nikon Z9, which was recently delivered to the ISS via the Cygnus cargo spacecraft.

What causes solar flares and auroras?

When solar activity on the Sun's surface reaches its maximum, it results in the eruption of solar flares, also known as coronal mass ejections (CMEs). These are caused by an unstable magnetic field on the surface. CMEs are classified into different categories based on severity, with G1 considered the mildest and G5 as severe. A severe G5 flare was witnessed in May. It could cause massive disruption in power grids, GPS, and radio signals.

When charged particles (CMEs) collide with Earth's atmosphere, they interact with gas, causing the northern lights, also known as aurora borealis, to light up the sky.

A moderate geomagnetic storm, G2, is said to continue until August 14, which means auroras will continue to be visible across different parts of the world.

https://indianexpress.com/article/technology/science/intense-geomagnetic-storm-nasa-9510924/

The Indian EXPRESS

Tue, 13 Aug 2024

Mars may have enough underground water to form a global ocean: New study

A recent study indicates that Mars might hold vast amounts of water beneath its surface, potentially enough to form a global ocean. The research, released on Monday, is based on seismic data from NASA's Mars InSight lander, which recorded over 1,300 marsquakes before ceasing operations two years ago.

According to lead scientist Vashan Wright from the Scripps Institution of Oceanography at the University of California San Diego, this water is likely located between seven to twelve miles (11.5 to 20 kilometers) deep in the Martian crust, ABC news reported.

Wright explained that this water probably seeped into underground cracks billions of years ago when Mars had surface rivers, lakes, and possibly oceans.

ABC News reports that researcher Wright tempered expectations about the discovery of water on Mars, saying, "The presence of water on Mars doesn't automatically mean it supports life. Rather, our findings suggest that there are environments on Mars that have the potential to be habitable."

The team used computer models alongside InSight's seismic readings to conclude that underground water was the most plausible explanation for the observed data. The results were published in the Proceedings of the National Academy of Sciences. Wright added that if the underground water near InSight's location at Elysium Planitia, close to Mars' equator, is representative of the entire planet, it could be enough to fill a global ocean up to two kilometers deep.

However, confirmation would require drilling and other equipment to explore further and search for any signs of microbial life. Although the InSight lander is no longer operational, scientists are still analyzing data collected from 2018 to 2022, seeking more insights into Mars' interior.

Historically, Mars was wet almost all over more than 3 billion years ago, but as its atmosphere thinned, much of its surface water is believed to have either escaped into space or become buried underground.
https://indianexpress.com/article/technology/science/mars-may-have-enough-underground-water-to-form-a-global-ocean-9510447/

ThePrint

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Coastal erosion rapidly affecting Arctic Ocean's ability to absorb CO2 — Nature study

As the world continues to warm at unprecedented rates, the ability of the Arctic Ocean to absorb carbon dioxide is rapidly decreasing due to coastal erosion. Coupled with melting permafrost (ground that remains completely frozen — at zero degrees Celsius or less — for at least two years, and stores massive amounts of carbon), the Arctic Ocean is now likely releasing more carbon dioxide than it absorbs, a new study has found.

The study, conducted by European researchers, was published Tuesday in the journal *Nature Climate Change*.

The research identified multiple hotspots of excessive permafrost erosion posing greatest risk to humans, including in Alaska, Canada and Siberia. It further found that the changes will reduce the ocean's ability to absorb carbon dioxide by a factor of up to two-three in the year 2100.

The study is also the first to include in its modelling the effect of organic matter, nutrients and soil entering into the ocean.

Permafrost melting releases microbes into atmosphere

The paper is the latest to also show that the rate of permafrost melting has been accelerating over the past few decades.

As ice melts during summer, soil is exposed to air and water, leading to weathering and erosion along coastal regions. The melting of permafrost is of particular concern as darker soil absorbs more sunlight, as a result of which ancient microbes long frozen in ice get released into the atmosphere, and large amounts of carbon dioxide and methane escape. This leads to quickly worsening changes in the climate heating cycle.

The risk to the Arctic Ocean is worsened by what is known as the arctic amplification effect, where the poles warm faster than the rest of the planet. The Arctic Ocean is estimated to be warming at a rate that is four times that of the rest of the world. It is the most sensitive region on the planet to warming.

The two poles together are responsible for absorbing about 90 percent of all the carbon dioxide from the atmosphere into the ice.

Sea ice determines impact of coastal erosion

The team found that the reduction in absorption of carbon dioxide due to coastal erosion is equivalent to up to 15 percent of the total amount of carbon dioxide that would have been absorbed by the Arctic Ocean in the absence of coastal erosion. The paper states that the yearly increase in

atmospheric carbon dioxide due to just Arctic coastal erosion is equivalent to about 10 percent of car emissions in Europe for a year.

The authors concluded that the biogeochemical feedback of coastal permafrost erosion due to climate change is dependent on sea ice.

The study found that sea ice protects coastal permafrost, and also determines the impact of coastal permafrost erosion. The more sea ice there is, the more carbon dioxide gets absorbed, preventing the gas from being absorbed by the oxygenated oceanic water.

They also found that seasonal variations occur drastically with sea ice, and as ice-free summers are expected in the near future, there could be large scale changes in climate patterns and impact on people.

https://theprint.in/science/coastal-erosion-rapidly-affecting-arctic-oceans-ability-to-absorb-co2-nature-study/2222049/