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हिन्दुस्तान

Wed, 21 Aug 2024

‘ऐरीज, डीआरडीओ के वैज्ञानिक करेंगे जिज्ञासाओं को शांत

अंतरिक्ष दिवस के मौके पर एसएसजेमेंदो दिवसीय कार्यक्रम का आयोजन होगा। आज सेशुरु होनेवाले कार्यक्रम में ऐरीज, डीआरडीओ आदि के वैज्ञानिक अंतरिक्ष संबंधी जिज्ञासाओं को शांत करेंगे। यह बात बुधवार को प्रेसवातमिंकेंद्रीय संचार ब्यूरो के अधिकारियों ने कही। नगर के एक होटल में हुई प्रेसवातमिंकेंद्रीय सूचना ब्यूरो के क्षेत्रीय प्रचार अधिकारी नीरज भट्ट ने कहा कि भारत इस साल अपना पहला राष्ट्रीय अंतरिक्ष दिवस मनाने जा रहा है।

पिछले साल ही 23 अगस्त को भारत के चंद्रयान ने चंद्रमा के दक्षिणी ध्रुव पर कदम रखा था। इसी मौके पर एसएसजेपरिसर के दृश्य कला संकाय में भी दो दिवसीय कार्यक्रम होना है।

उन्होंने कहा कि इस कार्यक्रम का शुभारंभ गुरुगुवार को होगा। कार्यक्रम में डीआरडीओ, ऐरीज और मानसखंड विज्ञान केंद्र के वैज्ञानिक व्याख्यान देंगे। विज्ञान और अंतरिक्ष के संबंध में जानकारी दी जाएगी। ताकि, लोगों और छात्रों में विज्ञान के प्रति रुचि बढ़ाई जा सके। कहा कि कार्यक्रम में अंतरिक्ष से संबंधित चित्रों की प्रदर्शनी भी लगेगी।

इसके अलावा पेंटिंग, भाषण, निबंध वाद-विवाद आदि प्रतियोगिताएं और सांस्कृतिक कार्यक्रम भी होंगे। यहां श्रद्धा गुरुगुरानी, भास्कर जोशी भी मौजूद रहे।

<https://www.livehindustan.com/uttarakhand/almora/story-ssj-to-host-two-day-space-day-event-with-top-scientists-from-drdo-and-aries-201724250710958.html>



Press Information Bureau
Government of India

Ministry of Defence

Wed, 21 Aug 2024

Visit Of Admiral Marcos Sampaio Olsen, Commander Brazilian Navy

Admiral Marcos Sampaio Olsen, Commander of Brazilian Navy is on an official visit to India from 19 to 24 Aug 24. The visit aims to enhance maritime cooperation between the two countries as well as showcase the commitment of like-minded navies to collaborate and cooperate on shared challenges in the maritime security.

Adm Marcos Sampaio Olsen called on Adm Dinesh K Tripathi, Chief of the Naval Staff on 21 Aug 24 at New Delhi and held discussions on various aspects encompassing operational engagements, technical cooperation, and training. He was received with a ceremonial Guard of Honour at the South Block Lawns.

Indian Navy cooperates with the Brazilian Navy through various initiatives, which include operational interactions, training cooperation and other maritime avenues. The two navies have also been interacting in multilateral forums like MILAN and India-Brazil-South Africa Maritime (IBSAMAR). Bilateral Defence Cooperation between the two countries is conducted through the Joint Defence Committee, steered by respective Ministries of Defence. As part of his official engagements, the Commander of Brazilian Navy is also scheduled to meet Defence Secretary, National Maritime Security Coordinator, and Vice Chief of Army Staff in Delhi. During this visit, Admiral Marcos Sampaio Olsen would also visit Information Fusion Centre – Indian Ocean Region (IFC-IOR) at Gurugram and will hold interaction with various Defence Industry representatives.

In addition to New Delhi, the Commander of Brazilian Navy, would also visit Mumbai, where he would be interacting with Flag Officer Commanding-in-Chief, Western Naval Command, as well as visit indigenous warships & submarines; Naval Dockyard; and Mazagon Dock Shipbuilders limited.

<https://pib.gov.in/PressReleasePage.aspx?PRID=2047230>



**Press Information Bureau
Government of India**

Ministry of Defence

Wed, 21 Aug 2024

ICGS Sujay makes port call in Indonesia for a two-day visit as part of overseas deployment to East Asia

In a first, two women officers participate in foreign engagements

Indian Coast Guard (ICG) Offshore Patrol Vessel Sujay, with an integral helicopter, on August 21, 2024, made a port call at Jakarta, Indonesia for a two-day visit, as part of its ongoing overseas deployment to East Asia. In a maiden initiative, two women ICG officers onboard the ship embarked on the Overseas Deployment to represent 'Women in Maritime Security and Safety'. They will interact & participate in bilateral cooperative engagements.

During the visit, the crew of ICGS Sujay will engage in professional interactions focusing on Marine Pollution Response, Maritime Search and Rescue and Maritime Law Enforcement. The activities also include professional interactions with Badan Keamanan Laut Republik Indonesia (BAKMALA) i.e., Indonesia Coast Guard, Cross deck training, joint yoga sessions, friendly sports events and Passage Sea Exercise with the BAKAMLA.

Additionally, 10 NCC cadets aboard ICGS Sujay will participate in an environment protection walkathon towards marine plastic pollution in collaboration with local youth organisations, contributing to the Government's 'Puneet Sagar Abhiyan' and enhancing international outreach.

ICG, on July 06, 2020, signed an MoU with BAKAMLA towards enhanced maritime cooperation and institutionalised its engagements. The overseas deployment is in line with the ICG's commitment to foster bilateral relationships under the ambit of the MoU. It also holds significance in reinforcing bilateral relationships with key maritime agencies, crucial for ensuring the safety, security, and environmental sustainability of the seas in the region, while addressing contemporary maritime challenges.

<https://pib.gov.in/PressReleasePage.aspx?PRID=2047352>



**Press Information Bureau
Government of India**

Ministry of Defence

Wed, 21 Aug 2024

**Defence Minister Rajnath Singh to visit US this week for
acquiring Predator drones, missiles and guided bombs**

**Shri Sanjay Seth lauds Indian Navy's robust presence in the
Indian Ocean Region & its contribution to regional stability**

Raksha Rajya Mantri Shri Sanjay Seth visited Naval Base Karwar, Karnataka on August 20-21, 2024. He was briefed on the operational capabilities of the base and the ongoing infrastructure projects. He reviewed 'Project Seabird', India's largest naval infrastructure project which is integral to enhancing the Indian Navy's blue-water capabilities, with plans to further develop the base into one of the most advanced naval bases in Asia.

Shri Sanjay Seth also visited Naval Civilian Housing Colony at Amadalli and interacted with Defence Civilians of Indian Navy. He emphasised the Government's focus on ensuring the welfare of the Armed Forces and ensured them of continued support in addressing any operational or infrastructural challenges.

Shri Sanjay Seth also interacted with the men and women of the Western Fleet. He commended the Navy's robust presence in the Indian Ocean Region, highlighting its vital contribution to regional stability and the protection of national interests. He exhorted the Naval personnel and Defence Civilians to continue giving their best and appreciated the efforts put in by them.

The Raksha Rajya Mantri also paid his respects to the Naval personnel who sacrificed their lives in liberation of Anjadip Island during the 1961 liberation operations.

Shri Sanjay Seth was accompanied by Deputy Chief of the Naval Staff Vice Admiral Tarun Sobti and received by Flag Officer Commanding Karnataka Naval Area Rear Admiral KM Ramakrishnan. Upon his arrival, he was accorded a ceremonial Guard of Honour. The visit underscored the Government's commitment towards strengthening the country's maritime security and operational readiness.

<https://pib.gov.in/PressReleasePage.aspx?PRID=2047366>



**Press Information Bureau
Government of India**

Ministry of Defence

Wed, 21 Aug 2024

Raksha Mantri to be on an official visit to US from August 23-26, 2024

Shri Rajnath Singh to hold a bilateral meeting with US Secretary of Defence Mr Lloyd Austin

The visit aims to further deepen India-US Comprehensive Global Strategic Partnership

Raksha Mantri Shri Rajnath Singh will be undertaking an official visit to US from August 23 to 26, 2024, on the invitation of the US Secretary of Defence Mr Lloyd Austin. During the visit, the Raksha Mantri will hold a bilateral meeting with his US counterpart Secretary Austin. He will also meet the US Assistant to the President for National Security Affairs Mr Jake Sullivan.

The visit comes in the backdrop of the growing momentum in India-US relations and defence engagements at multiple levels. The visit is expected to further deepen and broaden the India-US Comprehensive Global Strategic Partnership.

Shri Rajnath Singh will also chair a high-level roundtable meeting with the US defence industry on the ongoing and future defence collaborations. He will also interact with the Indian community during the visit.

<https://pib.gov.in/PressReleasePage.aspx?PRID=2047127>

THE ECONOMIC TIMES

Wed, 21 Aug 2024

Defence Minister Rajnath Singh to visit US this week for acquiring Predator drones, missiles and guided bombs

Defence Minister Rajnath Singh will embark on a four-day visit to the US beginning August 23 to strengthen the India-US Comprehensive Global Strategic Partnership. During the visit, Singh will engage in talks with US Defence Secretary Lloyd Austin and National Security Advisor Jake Sullivan, focusing on key defence cooperation initiatives, including the procurement of 31 MQ-9B

Predator drones, joint manufacturing of Stryker infantry combat vehicles, and the coproduction of GE F414 engines in India.

The Defence Ministry announced that Singh's visit aims to deepen and broaden the India-US Comprehensive Global Strategic Partnership, in light of the growing momentum in bilateral relations and defence engagements. Officials highlighted the significance of Singh's meetings, noting that the Indian Defence Acquisition Council (DAC) has recently cleared the MQ-9B Predator drone deal with certain amendments, and the Indian Navy's partnership with HawkEye 360 as part of the QUAD Indo-Pacific Partnership of Maritime Domain Awareness (IPMDA).

"The visit is expected to further deepen and broaden the India-US Comprehensive Global Strategic Partnership," the Defence Ministry stated while announcing Singh's trip to the US from August 23 to 26.

Singh will also chair a high-level roundtable meeting with the US defence industry, discussing ongoing and future defence collaborations. Furthermore, he will interact with the Indian community during his visit.

Upon adding amendments to the MQ-9B Predator drone deal, the DAC has crystallized the India-US armed UAV agreement, involving the acquisition of 31 UAVs by India at a cost of \$3.9 billion, inclusive of missiles and guided bombs. The amendments pertain to the percentage of indigenization, now set at 30%, and a decision against integrating a DRDO-developed missile onto the Predator due to the high costs demanded by the manufacturer, General Atomics.

Apart from the Predator deal, the Indian Navy's participation in the IPMDA signifies further defence cooperation between the QUAD nations. Announced in May 2022, the IPMDA aims to ensure transparency in the Indo-Pacific through satellite surveillance provided by HawkEye 360. The company, which operates around 36 satellites, will supply detailed information to QUAD nations on dark shipping, terrorism, drug trafficking, arms trafficking, and adversaries' vessels conducting covert surveillance.

The satellites from HawkEye 360 can detect any radio frequency emission from vessels that have turned off their transponders, a tactic often used by pirates and terrorists for covert operations in regions such as the Gulf of Aden and the Arabian Sea. The IPMDA is intended to maintain a unified stance among QUAD nations in the Indo-Pacific and to safeguard the freedom of navigation in South-East Asia. The Indian Navy is expected to establish its tieup with HawkEye 360 once it receives instructions from the government.

Regarding India-US collaboration on GE-414 engine technology transfer, which is crucial for powering the Tejas Mark II aircraft, the project is progressing as scheduled. However, there is a noted delay in the delivery of off-the-shelf GE-404 engines, which are needed for the Tejas Mark IA fighter aircraft.

The issue has been raised with US officials, and Singh is expected to underscore the urgency of this requirement during his visit. During the trip from August 23-26, Singh will also exchange notes on the geopolitical dynamics in Asia, including the rise of powers like China and the use of drones by non-state actors for maritime threats following the conflict in Gaza. Singh's visit to the US coincides with Prime Minister Narendra Modi's state visits to Poland and war-torn Ukraine,

underscoring India's active engagement in international diplomatic and strategic initiatives. The Defence Ministry has framed Singh's discussions in the US as vital steps to bolster the defence ties between India and the US, amid an evolving global strategic landscape.

<https://economictimes.indiatimes.com/news/defence/defence-minister-rajnath-to-visit-us-this-week-for-acquiring-predator-drones-missiles-and-guided-bombs/articleshow/112671677.cms>

THE TIMES OF INDIA

Wed, 21 Aug 2024

More firepower! Indian Army to acquire nextgeneration advanced 155mm/52 caliber artillery guns for around Rs 7,000 crore

The Indian Army has released a tender for the acquisition of nextgeneration artillery guns, which will be designed, developed, and manufactured domestically. In the initial phase, the army requires 400 of these gun systems, but the demand is expected to increase significantly in the coming years as older equipment is replaced. Private defence manufacturing companies that have made substantial investments in developing artillery systems in recent years are showing strong interest in the estimated Rs 7,000 crore acquisition of new Towed Gun Systems.

The procurement route for these guns mandates that the system must be designed in India and have more than 50% indigenous content based on the contract value.

According to an ET report, among the top contenders for the contract are Larsen & Toubro, which has already supplied K9 Vajra Self Propelled artillery guns to the army, as well as Bharat Forge and Tata Advanced Systems Ltd, which have developed the Advanced Towed Artillery Gun System (ATAGS) in collaboration with the Defence Research and Development Organisation and are currently vying for an army order. The advanced 155mm/52 caliber guns will be lighter and more versatile than the current artillery guns, including the ATAGS. The army is seeking higher automation and accuracy compared to the current systems in service, as well as the ability to fire a wider range of specialised ammunition, keeping the future in mind.

Currently, the majority of India's artillery consists of 130 mm field guns, which are gradually being upgraded to 155mm under the Sharang project. Although the army's tender specifies a requirement of 400 guns, it has a total need for over 1,200 artillery guns of the same type. Sources indicate that the acquisition is being carried out in batches due to budgetary considerations, as the army is currently working on upgrading its artillery firepower with several acquisitions in the pipeline, including the processing of a contract for the 155mm/52 Caliber ATAGS.

<https://timesofindia.indiatimes.com/business/india-business/indian-army-to-acquire-next-generation-advanced-155mm/52-caliber-artillery-guns-for-around-rs-7000-crore/articleshow/112677649.cms>

EndureAir joins hands with 5 defence PSUs to establish advanced testing facilities under DIT Scheme

Unmanned aerial vehicle (UAV) maker EndureAir said on Wednesday it has collaborated with five defence PSUs for establishing advanced testing facilities under the DIT Scheme of the Ministry of Defence.

The ministry has signed a memorandum of understanding (MoU) to set up these testing facilities within the Uttar Pradesh Defence Industrial Corridor (UPDIC) to drive technological advancements and provide essential infrastructure to test and refine niche defence technologies, particularly in unmanned aerial systems, EndureAir said.

Launched by Defence Minister Rajnath Singh with an outlay of Rs 400 crore in May 2020, the Defence Testing Infrastructure (DTI) Scheme is aimed at setting up testing facilities in collaboration with private industry and central or state government, promoting indigenous defence production, reducing military equipment imports and enhancing self-reliance.

One of these facilities is dedicated to Unmanned Aerial Systems (UAS), which will be in Technopark IIT Kanpur, marking a significant milestone in the drone industry and the advancement of indigenous defence technologies in India, the company said.

EndureAir also said it is the sole private firm involved alongside the five Defence PSUs -- Hindustan Aeronautics Ltd, Bharat Electronics Ltd, Gliders India Ltd, Yantra India Ltd, and BEML.

The MoU represents a crucial step towards enhancing self-reliance and reducing dependency on imports within the defence sector by facilitating certification of UAS and subsystems to meet international standards, the company said.

For EndureAir, and the broader drone industry, this development marks a crucial opportunity to leverage advanced testing infrastructure to drive innovation and enhance the global competitiveness of Indian-made UAVs, the company said.

<https://economictimes.indiatimes.com/news/defence/endureair-joins-hands-with-5-defence-psus-to-establish-advanced-testing-facilities-under-dit-scheme/articleshow/112689408.cms>

Indo-Japan defence pact revision hinges on Tokyo's rules

Sixteen years after India and Japan made a “joint declaration on security cooperation”, the two countries have agreed to revise it to widen cooperation. New Delhi is hoping that Japan will find a way around its own rules restricting the sale of lethal weapons.

A joint statement after the “2+2” India-Japan dialogue on Wednesday night said the two sides intended to revise the 2008 “Joint Declaration on Security Cooperation” to address security challenges. Japan holds cutting-edge technology in making jet engines, submarines and has latest techniques of building warships.

Speaking after the “2+2” dialogue in New Delhi, External Affairs Minister S Jaishankar was candid: “Requested Japanese colleagues to look into the regulatory bottlenecks that currently exist.”

Japanese Defence Minister Minoru Kihara, Foreign Minister Yoko Kamikawa and Indian Defence Minister Rajnath Singh were also present at the event. Jaishankar was referring to restrictions under Japan’s “implementation guidelines for three principles on transfer of defence, equipment and technology”, last amended in December 2023.

The guidelines limit exports to countries which have signed a ‘transfer agreement’ with Japan and prohibit exports to a country involved in a conflict. India, gets ruled out on both counts, said an official. Former Indian Naval officer Capt Sarabjeet S Parmar (retd), now a Distinguished Fellow at the Council of Strategic and Defence Research, said: “Japan has to find a way out. He cited Tokyo’s guidelines that allow exports for active promotion of peace contribution and international cooperation.”

Sources in defence sector said India had a reference point to work with Japan. In March 2024, Tokyo allowed the export of next-generation combat aircraft under the Global Combat Air Programme – that has UK, Italy and Japan as partners.

Yesterday, Japanese Defence Minister Kihara offered a stealth antenna used on naval ships. Called the NORA-50 antenna, dubbed ‘Unicorn’, it is classified as a non-lethal equipment. The two sides also discussed maintenance of Japanese Maritime Self-Defence Force ships in India. The Japanese side said they were looking at new areas to cooperate so certain technologies could be transferred to “like-minded countries”.

<https://www.tribuneindia.com/news/india/indo-japan-defence-pact-revision-hinges-on-tokyos-rules/>

PM Modi's Ukraine visit is not just about geopolitics. India wants to upgrade its warships

Prime Minister Narendra Modi's visit to Kyiv on 23 August, which coincides with Ukraine's National Flag Day, marks a historic first for an Indian prime minister. This visit takes place against the backdrop of the ongoing Russia-Ukraine war, which has reshaped not only global geopolitics but also poses significant challenges to India's defence capabilities. The visit presents a unique opportunity for India to explore strategic partnerships with Ukraine, particularly in the realm of defence manufacturing.

This will be a win-win for both countries. India needs marine engines for its warships, and upgrade its large air transport fleet and technologies—particularly propulsion. Ukraine knows that cooperation with India will bring in much-needed money for its defence companies, which are struggling financially and are severely impacted by the war with Russia. Factories of key Ukrainian defence companies—Antonov Serial Production Plant in Kyiv and the Zorya-Mashproekt complex in Mykolaiv—have been bombed by Russia.

The Indian Air Force's (IAF) large fleet of An-32 military transports, which was slated for an upgrade under a 2009 contract, has been particularly impacted. The Antonov plant produces the model. The contract involved upgrading 40 aircraft in Ukraine and another 65 in India under Ukrainian supervision.

However, the supply chain has been disrupted due to Russia's refusal to supply spare parts. Due to this the last five of the 40 aircraft that were to be upgraded in Ukraine are reportedly stuck in Kyiv, and the local upgrade in India was stalled due to the departure of Ukrainian engineers and the shortage of spare parts.

The Zorya-Mashproekt complex in Mykolaiv, vital for the production of turbines used by navies worldwide, including India's, was targeted by Russian forces in March 2022, severely crippling its operational capabilities. The ongoing war has only exacerbated these challenges, with Mykolaiv's strategic location making it a frequent target of shelling and infrastructure damage. The impact on Zorya-Mashproekt is particularly significant for India, which relies on these turbines for its warships.

Given these disruptions, Modi's visit to Kyiv offers a strategic opportunity for India to explore new avenues of cooperation with Ukraine. One potential area of collaboration is the establishment of joint ventures in India, where Ukrainian technicians can work alongside Indian counterparts to set up manufacturing units. Bharat Forge's recent acquisition of a 51 per cent stake in Zorya's India arm could be a foundation for such a partnership.

Not a zero-sum game

Russia is also struggling to respond to Ukraine's advances in Kursk, raising the stakes for Modi's trip. The Indian government has maintained a consistent stance on the conflict, emphasising the need for dialogue and diplomacy. The Ministry of External Affairs has reiterated that India's engagements with both Ukraine and Russia are independent and substantive and not a zero-sum game. This nuanced approach will likely guide the discussions in Kyiv, where Modi is expected to meet with President Volodymyr Zelenskyy.

Zelenskyy may engage in some hard talk regarding India's neutral stance on the Russia-Ukraine war, but welcoming Modi to Kyiv and announcing that several agreements will be signed signals a readiness to focus on broader, strategic issues.

Modi's visit on Ukraine's National Flag Day—23 August—highlights the importance of this meeting. As Modi and Zelenskyy discuss bilateral and multilateral cooperation, there is a strong possibility that they will address not only the ongoing conflict but also explore ways to deepen industrial and defence ties.

Given the volatile situation, Ukraine might stage a significant action to coincide with Modi's visit. Just as Russia launched a missile strike on a children's hospital in Kyiv during Modi's visit to Moscow. India may have sought assurances from Ukraine that no provocative actions would take place during the visit, ensuring that efforts for a strategic partnership won't be overshadowed by military escalations.

By leveraging this visit to negotiate strategic partnerships in defence manufacturing and engage in a candid dialogue on the ongoing conflict, India can position itself as a key player in shaping the future of the region.

<https://theprint.in/opinion/pm-modis-ukraine-visit-is-not-just-about-geopolitics-india-wants-to-upgrade-its-warships/2232636/>



Thu, 22 Aug 2024

ASTRA: India Targets 'Russian Customers' For Its Indigenous BVR Missiles; S.E Asia Top Export Market

India's defense sector has reached a key milestone with the ASTRA Missile. This missile is set to enhance air combat capabilities and make its mark in the global arms market. The question now is: which countries might be interested in the ASTRA?

India's ASTRA Missile

The Astra, India's first indigenously developed beyond-visual-range air-to-air missile (BVRAAM), marks a significant milestone in the country's defense capabilities. Engineered by the Defence Research and Development Organisation (DRDO) and manufactured by Bharat Dynamics Limited (BDL), the Astra is positioned as a superior alternative to the widely-used Russian R-77 missile.

Vinod Kumar, General Manager of New Projects at BDL, recently stated, “Astra is currently in production, and we anticipate receiving additional orders. We are also exploring the possibility of exporting the Astra missile.” This statement underscores India’s growing confidence in its indigenous defense technology and its ambitions in the global arms market.

The Astra has successfully completed rigorous testing and integration with the Sukhoi-30 fighter jet and is now fully operational. Plans are underway to expand its deployment, including integration with India’s homegrown Light Combat Aircraft (LCA) Tejas. In August 2023, the Tejas LSP-7 successfully test-fired the Astra missile off the coast of Goa, demonstrating its capability to engage targets beyond 100 kilometers.

Building on this success, the Indian Air Force has cleared BDL to produce an additional 200 Astra-Mark 1 missiles. The Defense Acquisition Council approved this project, valued at over Rs 2,900 crore (\$362.5 million), in 2022-23. Once produced, these Astra missiles will be integrated into both the Russian-origin Su-30 and the indigenous LCA Tejas fighter aircraft.

ASTRA’s Capabilities

The ASTRA missile system represents a significant leap forward in India’s air combat capabilities. Developed indigenously, it offers a cost-effective alternative to imported missiles while delivering impressive performance. According to BDL, the missile has demonstrated an accuracy rate exceeding 90% during trials and an operational range of over 100 kilometers.

ASTRA’s advanced features make it a formidable weapon in aerial warfare. Its extended range allows for true beyond-visual-range (BVR) engagements, enabling pilots to target adversaries well beyond their line of sight. The missile’s operational ceiling of up to 20 kilometers ensures it can effectively engage threats across a wide spectrum of combat scenarios. The missile’s design prioritizes effectiveness and efficiency. Measuring 3840 mm in length and 178 mm in diameter, ASTRA’s sleek, aerodynamic profile enhances its maneuverability in flight. Its high-explosive pre-fragmented warhead delivers a lethal impact on the target.

ASTRA’s performance characteristics are equally impressive. Capable of achieving speeds up to Mach 4.5, the missile provides rapid response and interception capabilities crucial in modern air combat. With a flight duration of 100 to 120 seconds, ASTRA can swiftly neutralize threats, a capability thoroughly validated through extensive trials conducted by DRDO on various platforms, including the indigenous Tejas fighter.

The sophistication of ASTRA extends to its guidance system. Utilizing a combination of inertial guidance, mid-course updates, and terminal active radar homing (effective at 13 km), the missile ensures high precision in target engagement. This advanced guidance, coupled with its resistance to electronic countermeasures (ECM), significantly enhances the Indian Air Force’s combat effectiveness. ASTRA’s combination of cost-effectiveness, accuracy, and advanced features makes ASTRA a competitive option in the global arms market.

Potential Customers For ASTRA Missiles

As India’s ASTRA missile system gains recognition for its advanced capabilities, BDL is actively exploring export opportunities. The primary focus for potential customers centers on nations that operate Sukhoi-30 fighter aircraft, as the ASTRA has been successfully integrated and tested on

this platform. Reports indicate that BDL has already initiated discussions with at least one Sukhoi-30 operator regarding the potential export of the indigenously developed ASTRA BVRAAM. This development also signals growing international interest in India's defense technology.

The list of potential customers spans multiple continents, including countries in Southeast Asia, South America, and Africa. Nations such as Vietnam, Myanmar, Malaysia, Venezuela, Uganda, Indonesia, Angola, and Algeria are among those that could potentially benefit from the ASTRA system. These countries currently operate Sukhoi-30 variants, making the integration of ASTRA a feasible and attractive option for enhancing their air combat capabilities.

What makes the ASTRA particularly appealing to these nations is its compatibility with Russian-made aircraft, coupled with its reported superiority over the widely-used R-77 missile. This combination of familiarity and enhanced performance could provide a compelling argument for countries looking to upgrade their air-to-air missile capabilities without extensive modifications to their existing fighter fleets.

'Made in India' Sukhoi-30 for Export

India's ambitious defense sector plans extend beyond missile systems to include the production of advanced fighter aircraft for export. According to a July 2024 Financial Express report, Hindustan Aeronautics Limited (HAL), India's state-owned aerospace company, is in negotiations with Russia to manufacture Sukhoi Su-30 fighters for the international market.

These discussions center around utilizing HAL's Nashik facility for the production of these renowned fighter jets. Russia, the original developer of the Sukhoi aircraft, has reportedly agreed to support this endeavor, further strengthening the strategic partnership between the two nations.

The IAF currently operates a substantial fleet of approximately 260 Sukhoi-30MKI aircraft. Of these, 40 were directly procured from Russia, while HAL locally manufactured the remaining 222 fighters. To maintain squadron strength and address attrition losses, the Indian government approved a budget in September 2023 for the acquisition of an additional 12 Su-30 MKIs. HAL has demonstrated its capabilities not only in production but also in maintenance and upgrades. The company has achieved the capacity to perform major maintenance on 20 Su-30 fighters annually.

Furthermore, HAL is preparing to initiate a comprehensive modernization program for the IAF's entire Su-30MKI fleet. This ambitious project aims to elevate these aircraft to a technological level comparable with advanced Western fighters like the F-15EX, Rafale F4, Gripen NG, and the proposed Eurofighter LTE, particularly in terms of avionics and electronics.

The technology transfer and extended license manufacturing agreement between India and Russia could have far-reaching implications. Beyond facilitating maintenance and modernization work on India's own fighter jets, it opens up exciting possibilities in the international market. This development could position India as a potential supplier for other countries operating Su-30 variants, offering not just the aircraft but also comprehensive maintenance and upgrade packages.

Global Ambitions

India's defense sector is making bold strides towards establishing itself as a global player, with ambitious plans that span both aircraft and missile technologies. The synergy between these

developments is positioning India to offer comprehensive defense packages on the international market. The ASTRA missile program, spearheaded by the Defense Research and Development Organisation (DRDO) and the Indian Air Force (IAF), continues to advance steadily.

Current efforts are focused on the development and testing of the ASTRA-Mark 2 variant, which aims to extend the missile's range to approximately 130 kilometers. Even more ambitious plans are underway to create a long-range version of the ASTRA, with a projected strike capability of up to 300 kilometers. These advancements in missile technology, coupled with India's progress in fighter aircraft production, could create a powerful combination for potential exports. The ability to offer advanced Sukhoi Su-30 fighters equipped with cutting-edge ASTRA missiles presents a compelling package for international buyers.

The potential for indigenous ASTRA exports represents more than just a business opportunity; it signifies India's growing self-reliance in defense technologies and its emergence as a significant player in the international arms trade. These developments also highlight the rapidly growing capabilities of India's domestic aerospace industry. It demonstrates the country's transition from being primarily an importer of defense technology to becoming a developer and exporter of advanced military systems.

The combination of indigenous fighter aircraft production, advanced missile systems, and a growing focus on exports signals India's determination to establish itself as a major force in the international defense industry.

<https://www.eurasiantimes.com/astra-missile-india-targets-russian-customers/>



Wed, 21 Aug 2024

ideaForge's Q6 V2 Drone Secures DGCA Certification, Sets New Industry Standard

ideaForge Technology Limited, has announced that its latest unmanned aerial vehicle (UAV), the Q6 V2, has received type certification from the Directorate General of Civil Aviation (DGCA). This achievement marks a significant milestone for the company, reinforcing its commitment to delivering top-tier UAV solutions.

The Q6 V2 is an advanced version of the well-regarded Q6 drone, recognized for its exceptional performance and versatility across various sectors, including Defence, Civil, and Enterprise. The recent DGCA certification affirms that the Q6 V2 meets the highest safety and quality standards, further establishing ideaForge as a dominant force in the drone industry.

The Q6 V2 is equipped with a range of advanced payload capabilities, such as daylight and thermal surveillance cameras, a 24.3 MP photogrammetry camera, and a 16 MP multispectral 4-band camera. These features provide the UAV with impressive operational flexibility, making it suitable

for a wide array of applications. The drone offers a maximum flight endurance of 72 minutes and a range of 2.0 kilometers for visual line of sight (VLOS), with radio line-of-sight capability extending up to 10 kilometers.

Sunil Jha, Senior Director of Engineering at ideaForge, highlighted the significance of this achievement, stating, "Securing the DGCA type certification for the Q6 V2 is a significant milestone for us. This accomplishment not only underscores our unwavering commitment to innovation and reliability but also solidifies the Q6 V2 as a benchmark in unmanned aerial technology."

With this latest certification, ideaForge now has four DGCA-type certified drones in its portfolio, positioning the Q6 V2 as a key asset in modern aerial operations. Its cutting-edge features and exceptional performance are expected to play a crucial role in industries such as surveillance, mapping, and critical inspections. As ideaForge continues to innovate, the Q6 V2 stands out as a testament to the company's pursuit of excellence in UAV technology.

<https://www.financialexpress.com/business/defence-ideaforges-q6-v2-drone-secures-dgca-certification-sets-new-industry-standard-3588611/>

THE ECONOMIC TIMES

Wed, 21 Aug 2024

China says it is 'seriously concerned' about US nuclear strategic report

China is seriously concerned about a report that said the United States approved a nuclear strategic plan to focus on China's rapid expansion in its nuclear arsenal, the Chinese foreign ministry said on Wednesday. "The U.S. is peddling the China nuclear threat narrative, finding excuses to seek strategic advantage," a Chinese foreign ministry spokesperson said. According to a report by the New York Times, U.S. President Joe Biden approved in March a highly classified nuclear strategic plan that focused on China's quickly growing arsenal, but also seeks to prepare the U.S for possible coordinated nuclear challenges from China, Russia and North Korea.

"China is seriously concerned about the relevant report, and the facts have fully proved that the United States has constantly stirred up the so-called China nuclear threat theory in recent years," said Chinese foreign ministry spokesperson Mao Ning at a regular press briefing.

The White House said on Tuesday that the classified nuclear strategic plan approved by Biden this year is not a response to a single country or threat. The U.S. has consistently pointed to China's expansive and growing nuclear weaponry. An annual report by the Pentagon last October said China had more than 500 operational nuclear warheads in its arsenal, and will probably have over 1,000 warheads by 2030.

<https://economictimes.indiatimes.com/news/defence/china-says-it-is-seriously-concerned-about-us-nuclear-strategic-report/articleshow/112676127.cms>

THE ECONOMIC TIMES

Wed, 21 Aug 2024

Indian astronaut likely to fly to International Space Station by April next year: Jitendra Singh

An Indian astronaut is likely to fly to the International Space Station by April next year as part of the NASA-ISRO collaborative initiative, Science and Technology Minister Jitendra Singh said on Wednesday.

Two Indian astronaut-designates Group Captains Shubhanshu Shukla and Prashanth Balakrishnan Nair are undergoing training in the US for the Axiom Space Ax-4 mission. ISRO has assigned Shukla for the Ax-4 mission while Nair would be the backup candidate.

"An Indian astronaut will travel to the ISS by April next year," Singh told a press conference here ahead of the first-ever National Space Day celebrations to mark the landing of Vikram lander on the Moon on August 23 last year. The theme for the National Space Day is 'Touching Lives while Touching the Moon: India's Space Saga'. On the occasion, ISRO will release on August 23 the scientific data collected by the Chandrayaan-3 mission that could be used by researchers.

More than one thousand events have been organised across the country over the last two months. President Droupadi Murmu will participate in the National Space Day celebrations at the Bharat Mandapam here and give away prizes to the winners of the Bharatiya Antariksh Hackathon and ISRO Robotics Challenge.

Briefing reporters on the upcoming space missions, ISRO Scientific Secretary Shantanu Bhatawdekar said the ISRO-NASA joint mission NISAR was expected to be launched after February next year. The 12-meter reflector of the earth observation satellite, billed as the most expensive ever built, had developed an anomaly and was sent back to the US for corrective measures.

The reflector is expected to be back in India by October and integrated with the satellite. "Since November to January is the period of solar eclipses, NISAR cannot be launched before February," Bhatawdekar said. The Chandrayaan-4 mission is expected to be launched in 2027 subject to approval from the government, he said, adding the aim of the mission was to bring back samples of lunar rock and soil to Earth.

The ISRO-Japan Aerospace Exploration Agency (JAXA) mission to explore the polar region of the moon has been designated as Chandrayaan-5, Bhatawdekar said. The Lunar Polar Exploration (LUPEX) project is an international cooperative project, with JAXA in charge of the lunar rover

and ISRO responsible for the lander that will carry the rover. Observation instruments from NASA and the European Space Agency will also be mounted on the rover.

<https://economictimes.indiatimes.com/news/science/indian-astronaut-likely-to-fly-to-international-space-station-by-april-next-year-jitendra-singh/articleshow/112683981.cms>

THE ECONOMIC TIMES

Wed, 21 Aug 2024

Moon's surface once an ocean of magma, Chandrayaan-3 data suggests

Data from ISRO's Chandrayaan-3 mission supports the theory that the Moon was once covered in an ocean of magma, or a 'magma ocean', an analysis, published in the journal Nature, has suggested.

The analysis pertained to measurements of the lunar soil, recorded by the Pragyan rover and taken at multiple points along a 100-metre track on the surface. The rover was deployed by the Vikram lander, which made a soft landing near the south pole of the Moon on August 23, 2023.

Chandrayaan-3, consisting of the lander and rover, was launched by the Indian Space Research Organisation (ISRO), Bengaluru. The study's authors, including those from the Physical Research Laboratory, Ahmedabad, said that previous missions, such as NASA's Apollo and the Soviet Union's Luna, have mainly relied on samples of soil taken from equatorial and mid-latitude regions of the Moon, respectively.

Analysing Pragyan's data, which came from the Moon's south pole, the researchers found that the samples suggested that the lunar soil was uniformly composed of a single rock type - ferroan anorthosite, or FAN. The authors said that their results were similar to those from analysis of samples taken from the equatorial and mid-latitude regions.

Further, the similar composition of samples taken from geographically distant locations supports the lunar magma ocean hypothesis, a widely accepted scenario for Moon's early evolution, they said. The hypothesis provides one of the possible explanations of how the Moon's crust, mantle, and core formed.

According to the hypothesis, Moon was formed as a result of collision between two protoplanets (stage preceding planet formation). While the bigger planet became the Earth, the smaller became the Moon. As a result, the Moon became very hot, thereby, melting its entire mantle into a 'magma ocean,' the theory suggests.

It further states that as the Moon cooled while it was forming, less dense FAN floated to the surface, whereas heavier minerals sank to form the mantle, which lies underneath the crust. Therefore, the theory posits that the Moon's crust is largely made of FAN.

However, the analysis also revealed that Pragyan detected magnesium in the lunar soil, which the researchers said could not be explained by the lunar magma ocean, or LMO, hypothesis. They added that the hypothesis has been questioned by some studies based on recent re-analysis of many samples procured during Apollo's mission.

"Although alternative scenarios exist, the APXS-measured composition, its uniformity over regional scales and the geological context support the LMO hypothesis," the authors wrote. An Alpha Particle X-ray Spectrometer, or APXS, aboard the Pragyan rover was used to collect information about elements in the soil in the vicinity of the Chandrayaan-3 landing site, which was named the 'Shiv Shakti Point' on August 26, 2023.

<https://economictimes.indiatimes.com/news/science/moons-surface-once-an-ocean-of-magma-chandrayaan-3-data-suggests/articleshow/112689395.cms>

The Tribune

Thu, 22 Aug 2024

ISRO to launch 1st uncrewed Gaganyaan test flight in December

The first robot-manned test flight of Gaganyaan, India's human spaceflight project, is scheduled for December this year.

Revealing the much-awaited timeline ahead of India's maiden National Space Day on August 23, ISRO chairman S Somanath said all preparations had been made for the December test flight.

National Space Day will mark one year since the successful soft landing of Chandrayaan-3 on the lunar South Pole in 2023, making India the only country to do so.

Minister of State for Space Jitendra Singh said precursor flights to ensure the safety of Gaganyaan mission before humans are sent to space were underway and on track.

On Tuesday, the Department of Space held a high-level meeting with Navy Chief Admiral DK Tripathi on preparations for retrieval of our astronauts once the human spaceflight of Gaganyaan goes into space.

"Naval and coast guards will be deployed for retrieval of our team when it returns," Jitendra Singh said.

The Gaganyaan project envisages the demonstration of human spaceflight capability by launching a crew of three members into an orbit of 400 km for a three-day mission and bring them back safely to earth, by landing in Indian Sea. Preparations for the same are in advanced stages with precursor trials already underway.

ISRO has planned two preliminary missions before the actual human mission to space. Ahead of the human spaceflight, a female robot named Vayumitra, which would mimic humans, would be

sent to space. Humans would be sent after she returns safely. Precursor unmanned missions would prove the safety and reliability of all systems and lay the ground for human spaceflight. “The challenge is not just about sending humans to space, but to also bring them back safely,” said Singh. Meanwhile, on the first National Space Day, ISRO will release key data from Chandrayaan-3 for research purposes.

Indian astronaut may fly to ISS by April 2025

- As part of a NASA-ISRO collaboration, an Indian astronaut is likely to fly to the International Space Station (ISS) by April next, Minister of State for Space Jitendra Singh said on Wednesday
- Two Group Captains, Shubhanshu Shukla and Prashanth Balakrishnan Nair, are currently training for Axiom Space Ax-4 mission
- ISRO has deputed Shukla for the Ax-4 mission and Nair as a backup candidate. Singh said India was aiming to set up its own space station — Bhartiya Antriksh Station — by 2035

<https://www.tribuneindia.com/news/india/isro-to-launch-1st-uncrewed-gaganyaan-test-flight-in-december/>



Thu, 22 Aug 2024

To avoid eclipses, joint NASA-ISRO observatory NISAR won't take flight before February 2025

India's first solar mission Aditya-L1 spacecraft completed its first halo orbit around the Sun-Earth L1 point on Tuesday, ISRO said.

The space agency said its station-keeping manoeuvre on Tuesday ensured its seamless transition into the second halo orbit.

The Aditya-L1 mission, which is an Indian solar observatory at Lagrangian point L1, was launched on September 2, 2023 and was inserted in its targeted halo orbit on January 6, 2024.

According to ISRO, Aditya-L1 spacecraft in the halo orbit takes 178 days to complete a revolution around the L1 point.

During its travel in the halo orbit, Aditya-L1 spacecraft will be subjected to various perturbing forces that will cause it to depart from the targeted orbit, the space agency said.

“Aditya-L1 underwent two station-keeping manoeuvres on February 22 and June 7, respectively, to maintain this orbit. Today's third station-keeping manoeuvre has ensured that its travel continued in the second halo orbit path around L1,” ISRO said.

The agency explained that Aditya L1's journey around Sun-Earth L1 Lagrangian point involves modeling of complex dynamics.

The understanding of various perturbing forces acting on the spacecraft helped in determining the trajectory accurately and planning precise orbit manoeuvres, it added.

“With today’s manoeuvre, the state-of-the-art flight dynamics software developed in-house at URSC-ISRO for the Aditya-L1 missions stands fully validated,” ISRO said.

<https://indianexpress.com/article/technology/science/isros-aditya-completes-first-halo-orbit-around-sun-earth-point-9430955/>

ThePrint

Wed, 21 Aug 2024

Space tech course in Science institutes soon, from missile design to space economics

From launch vehicle and missile designs to spaceflight mechanisms and remote sensing, science institutes in India will soon offer a dedicated curriculum for space education at the undergraduate and postgraduate level.

The All India Council for Technical Education (AICTE) and Indian National Space Promotion and Authorisation Centre (IN-SPACe) — an autonomous single-window nodal agency in the Department of Space — Tuesday launched a model curriculum for a minor degree in space technology.

The chairman of the Indian Space Research Organisation (ISRO), S. Somanath said that the curriculum aims to promote early development of skills among students in the field of space technology. This, he said, would be an investment in the country’s space programme.

“Space technology is not something that can be bought. It requires developing knowledge and skills within our system and institutions,” Somanath said. “This model space curriculum will be crucial in producing the next generation of space scientists, engineers, and leaders who will carry forward ISRO’s legacy of excellence.”

What the curriculum entails

A copy of the course structure accessed by ThePrint shows that the new space module will have six courses, providing students with a Minor or Honours Degree in Space Technology.

The curriculum would include an introductory course in space technology, launch vehicle systems and technologies, spaceflight mechanics and attitude dynamics, spacecraft systems engineering, space data products and services, and an optional course on space economics, laws, policies and benefits.

Senior officials from the Department of Space confirmed that a National Committee for the Adoption of Space Technology Education, headed by IN-SPACe’s director of promotions, Vinod

Kumar, was set up last year and tasked with introducing the curriculum in different institutes in the country.

Pilots of this curriculum have received positive responses from students in various institutes, according to officials. Different versions of space courses are currently available at IIT Madras and Bombay (single introductory course), IIT Roorkee and Ajeenkya DY Patil University (Masters in Space Technology), and IIT Indore (Bachelors in Space Technology).

Some of these have also been offering dual degree programmes and a PhD in space tech education since last year.

IIT Madras enrolled 70 students for undergraduate level courses last year, while IIT Bombay received over 100 applications for about 48 seats.

“The idea behind developing and promoting this curriculum is to develop strategies to introduce and enhance space technology education at various academic levels — BTech and MTech etc — and to foster partnerships between educational institutes, government bodies and industry experts to facilitate learning opportunities, internships and research collaborations,” Kumar told ThePrint.

Along with providing students with the basics of space technology, the course will also detail digital image processing, geographical and information system (GIS), data processing, space finance and insurance.

<https://theprint.in/science/space-tech-course-in-science-institutes-soon-from-missile-design-to-space-economics/2231466/>



Thu, 22 Aug 2024

ISRO's small rocket can be a game-changer

The successful launch of the EOS-08 Earth Observation Satellite on board the Small Satellite Launch Vehicle (SSLV-D3) from Sriharikota marked another important event in the Indian Space Research Organisation's operations. It was the third and final development launch of the SSLV and it is now ready for commercial use.

Universities, companies and research organisations and other bodies have wanted to use satellites and satellite data for many purposes. It is not possible for them to make use of the legacy facilities of large space organisations like ISRO.

The plan to transfer SSLV technology to smaller players who will be able to build these rockets and provide services to small customers can lead to a revolution in the use of space technology in weather forecasting, communications, navigation and applications that haven't even been thought of today.

Space technology is expanding and its applications are increasing at a fast pace. The US, China and Russia are leaders in the field now but India is a rising player. The country's space policy now allows and encourages private players. Start-ups like Chennai's Agnikul and Hyderabad-based Skyroot hold high promise for the future. ISRO Chairman S Somanath has said that some 10 companies have shown interest in manufacturing the SSLV and that some of them are being shortlisted for transfer of technology.

The selected companies will first develop two SSLVs with assistance from ISRO over a two-year period. They will then be in a position to build their own rockets to place small satellites in low-earth orbits.

As the companies develop over time, an ecosystem and network of space technology enterprises will develop. The credit for creating such a system will go to ISRO. There will be commercial gains also because the demand for launches will rise in the coming years.

Yet, it is also true that ISRO itself needs to build its own capabilities on the other end of the spectrum – large rockets that can carry several tonnes of payload, a capability that the US and China have and which will become key as the space economy beyond low-earth orbits develops.

<https://www.deccanherald.com/opinion/editorial/isro-s-small-rocket-can-be-a-game-changer-3159311>

