

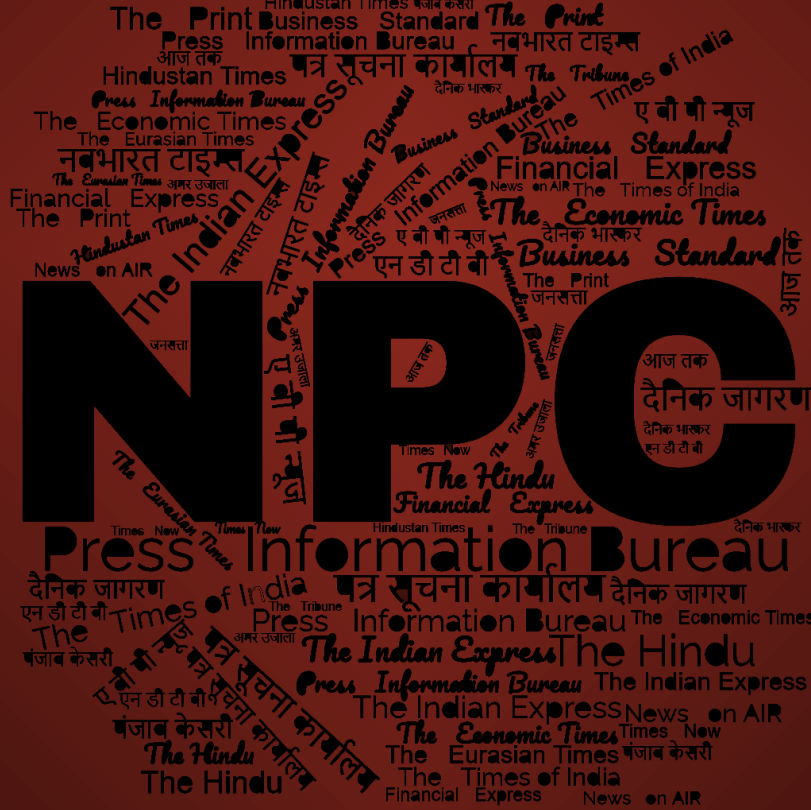
अगस्त
Aug
2023

खंड/Vol. : 48 अंक/Issue : 164
30/08/2023

समाचार पत्रों से चयित 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



रक्षा विज्ञान पुस्तकालय
Defence Science Library
रक्षा वैज्ञानिक सूचना एवं प्रलेखन केंद्र
Defence Scientific Information & Documentation Centre
मेटकॉफ हाउस, दिल्ली - 110 054
Metcalf House, Delhi - 110 054

CONTENTS

S. No.	TITLE	Page No.
DRDO News		1-3
DRDO Technology News		1-3
1.	How Nuclear Capable Agni-VI Missile will be a Force-Multiplier for India	<i>India Today</i> 1
Defence News		4-17
Defence Strategic: National/International		4-17
2.	Raksha Mantri & Kenyan Cabinet Secretary for Defence Discuss Capacity Building & Defence Industry Cooperation During Talks in New Delhi	<i>Press Information Bureau</i> 4
3.	Indian Army Contingent Leaves for Exercise Bright Star-23 Being Held in Egypt	<i>Press Information Bureau</i> 5
4.	General Tomas Miguel Mine Ribeiro Paiva, Commander of Brazilian Army on a Six Day Visit to India to Bolster Defence Ties	<i>Press Information Bureau</i> 6
5.	Visit of UAE Navy SME Delegation to Indian Navy Facilities - 27 Aug to 01 Sep 23	<i>Press Information Bureau</i> 6
6.	Army Signs Deals for 130 Tethered Drones and 19 Tank Driving Simulators	<i>The Hindu</i> 7
7.	MDL's Project 17A Stealth Frigate 'Mahendragiri' to be Launched on September 1	<i>Deccan Herald</i> 8
8.	Goa Shipyard, Kenyan Firm to Collaborate in Ship Design	<i>Hindustan Times</i> 9
9.	Strengthening Maritime Bonds: India-UAE Collaborate on Naval Expertise	<i>Financial Express</i> 10
10.	Tri-Service Staff Talks Bangladesh Acknowledges India's Continued Defence Training Assistance	<i>The Week</i> 11
11.	Rafale-M Deal: French, Indian Officials Hold Meeting to Discuss USD 5.5 Bn Deal	<i>RepublicWorld.com</i> 11
12.	S400 will be Delivered to India on Time, Russian Ambassador Confirms	<i>RepublicWorld.com</i> 12
13.	China Includes Arunachal Pradesh, Aksai Chin in its New 'Standard Map'	<i>The Times of India</i> 13
14.	Empowering Defence Collaboration: Brazil and India Unite to Shape Future Security Landscape	<i>Financial Express</i> 14
15.	US to Deploy AI-Enabled Detection System to Monitor DC Airspace	<i>RepublicWorld.com</i> 16
Science & Technology News		17-21
16.	Chandrayaan Rover Detects Sulphur, other Elements on Moon: ISRO	<i>The Indian Express</i> 17
17.	'Will Fly to Venus, Mars with Private Companies,' Says NITI Aayog Member	<i>Mint</i> 18
18.	Indian Spacetech Start-up GalaxEye Space Offers Cutting-edge Synthetic Aperture Radar Tech for Drones	<i>Business Today</i> 20
19.	Google Unveils Enterprise AI Tools, New AI Chip	<i>Reuters</i> 21



Tue, 29 Aug 2023

How Nuclear Capable Agni-VI Missile will be a Force-Multiplier for India

By Amartya Sinha

India's Agni-V ICBM (Intercontinental-range Ballistic missile) has undergone nine successful trials since its maiden flight in April 2012. On December 15, 2022, India successfully carried out the night trial of the Agni-V missile from the Abdul Kalam Island in Odisha. The test was to validate new technologies and equipment on the weapon system.

Replacing maraging steel (very high tensile steel) with lightweight composite materials made the Agni-V missile 20 per cent lighter than its previous avatars. The launch also proved a striking capability beyond 7,000 km. But an effective Indian credible nuclear deterrence against China still remains unfulfilled due to Agni-V's limited payload carrying capacity of 1.5 tonnes.

India's integrated guided-missile development programme needs to go the extra mile in many aspects.

Meanwhile, Indian scientists and engineers are working on 'DRDO Veda' (Vehicle for Defence Application)- a satellite launch vehicle (SLV). All three wings of the Indian armed forces will be able to launch military satellites into low earth orbit at a very short notice by using DRDO Veda which will significantly decrease their dependence on ISRO and boost their objectives of self-reliance.

DRDO Veda will also implement the method of horizontal stacking of stages and payloads for assembling the launch vehicle before launch, which will be completely different from the vertical stacking method used in ISRO's SSLV rocket. The vehicle will be highly agile and mobile, and can be launched from a multi-axle TEL (Transporter Erector-Launcher) vehicle.

LEGACY OF AGNI-V

While the Agni-V, the nuclear capable intercontinental range ballistic missile (ICBM), has undergone nine successful test flights since 2012, there has been very little movement on the much-awaited Agni-VI missile project. After Agni-V's maiden trial on April 19, 2012, former DRDO Chairman, Dr Vijay Kumar Saraswat had very clearly stated that India had no intention to cap the Agni missile programme and that there would be more missiles in the Agni series as a follow-up of Agni-V in the coming years.

The Agni-V has an effective range of almost 5,500 kms with a 1.5-tonne nuclear warhead. A basic law of physics is that, due to gravity and momentum, there is an inverse relationship between the weight of a warhead and the range of a missile. If the same rocket boosters of Agni-V (better with a

slow burning propellant) for the heavy load is used for a lighter load amounting to a 500 kg warhead, the range of the missile can be enhanced up to 10,000 km.

So, by this theory, the Agni-V is already a 10,000 km-class ICBM albeit with a less powerful warhead. And this is one of the prime gaps in India's nuclear deterrence which the Agni-VI is supposed to plug. Agni-VI is expected to have a range between 9,000 kms and 12,000 kms with a 3-tonne nuclear payload, and a range between 14,000 kms and 16,000 kms with a lighter 1.5 tonne package.

Guidance system of Agni-VI will include inertial navigation system with Ring laser gyroscope, optionally augmented by IRNSS (Indian Regional Navigation Satellite System) along with terminal guidance with possible radar scene correlation (this is a kind of terrain contour mapping which will improve the accuracy of missile).

STRONG CASE OF AGNI-VI

In 2011, IAF's former Chief of Air Staff, Pradeep Vasant Naik, who was also the head of the Chiefs of Staff Committee, had vehemently argued in favour of broadening India's nuclear striking capabilities beyond the immediate neighbourhood. The higher range of Agni-VI will bring at least four of the capitals of major world powers within India's strike envelope.

A 12,000 km-plus range will increase India's flexibility, which is very important for effective deterrence and will also enable the country to hit Chinese ballistic missile submarines (SSBNs), aircraft carriers and warships attempting to hide as far out as the Southern Indian Ocean and Central Pacific Ocean.

This is assuming that India develops more accurate ICBM guidance systems (on the lines of China's DF21D anti-ship ballistic missile) against warships, aircraft carriers and submarines. India must wish that the Agni-VI should have the minimum range of 9000 kms (more than China's JL-2 submarine-launched ballistic missile), which will make the ICBM programme worthy of its stature.

AGNI-VI A BIG FORCE MULTIPLIER

Agni-VI is supposed to be a solid-fuelled multistage ICBM capable of carrying up to ten nuclear/thermonuclear warheads in MIRV (Multiple Independent Re-entry Vehicle) and MaRV (Manoeuvrable Multiple Independent Re-entry Vehicle) configurations. The rocket may also have the capability to carry light decoys and chaffs (radar countermeasures) to beat the most formidable anti-ballistic missile systems (ballistic missile defence units) and to confuse hostile air defences.

As India has reportedly developed a deadly arsenal of double-staged thermonuclear fusion devices and single-stage boosted-fission bombs, each MIRV warhead may have explosive yields of up to 250 kilotons, thus capable of wiping out entire metropolitan areas and vaporising tens of millions of people into thin air with a single strike.

Having a gross weight of up to 70 tonnes, Agni-VI is supposed to be a four-stage rocket made up of composite materials which will also enable the Indian military to launch military satellites into low earth orbit (LEO) during contingencies, thus also validating its FOBS (Fractional Orbital Bombardment System) capability.

Renowned strategic experts like Bharat Karnad, Brahma Chellaney and Rakesh Krishnan Simha have repeatedly argued in the past that India must develop a global striking capability with a credible ICBM force in the near future.

“It is high time for India to develop genuine ICBMs with a 12,000+ kms range. The Agni-VI project should be immediately approved for development. Geopolitical pressures faced by a country are always the result of a nation's will and its strategic vision. The incumbent union government must show the spine to stand up to such pressures without which India can never

aspire to become a great power”, says Bharat Karnad, Emeritus Professor for National Security Studies at the Centre for Policy Research and a popular national security expert.

A large ICBM force consisting of Agni-V and Agni-VI missiles will ensure a very strong security shield for the country on the strategic level battlefield and will severely deter big powers from attempting the Balkanisation of India during future conflicts.

While the erstwhile UPA-1 and UPA-2 governments were considered as ‘pacifist’ by many policymakers, it is high time for the incumbent NDA-3 government to prove its political will by swiftly approving the Agni-VI programme and by test launching the first prototype over the coming years, thus pushing India into the elite league of military superpowers like USA, Russia and China. Such a capability will give India tremendous diplomatic leverage at the global table.

DOING IT SMARTLY

A full-range test of Agni-VI (beyond 9000 km) will probably raise eyebrows in Western media circles. The best way to execute the test is to declare the missile’s official range up to 9000 km (tacitly stating the China-factor), but carry out the flight with a 3-tonne superheavy warhead. This will totally validate the new missile’s capability without creating a diplomatic row with the West.

Moreover, such a test will also yield significant political advantage for the BJP-led central government as the scientific achievement can be narrated by the Prime Minister to the domestic electorate as a major historic milestone (on the lines of the ASAT test carried out in March 2019).

FOLLOWING VAJPAYEE'S FOOTSTEP

As soon as Agni-VI is tested and validated, Prime Minister Narendra Modi may also declare a permanent voluntary moratorium on the development of longer ranged missiles and officially cap the ICBM programme at 9000 km. Former Prime Minister Atal Bihari Vajpayee had declared a similar permanent voluntary moratorium on nuclear tests after the Pokhran-2 series of explosions in May 1998, and this had aided in his rise as a global statesman.

The union government needs to complete and demonstrate the Agni-VI and DRDO Veda projects at the earliest, as without a credible ICBM force, India will always be looked upon as nothing more than a subcontinental bully- a nation that aspires to play hardball with the giants but ends up relegated to the minor league. The ball is now in the ruling dispensation’s court.

<https://www.indiatoday.in/india/story/agni-vi-missile-nuclear-capable-force-multiplier-for-india-2428231-2023-08-29>



Press Information Bureau
Government of India

Ministry of Defence

Tue, 29 Aug 2023

Raksha Mantri & Kenyan Cabinet Secretary for Defence Discuss Capacity Building & Defence Industry Cooperation During Talks in New Delhi

**Goa Shipyard Ltd & Kenya Shipyard Limited sign MoU in capacity building & for
collaboration in ship design & construction**

**Shri Rajnath Singh presents 15 pairs of parachutes manufactured by Gliders India Limited
to Kenya**

Extends support towards setting up of an advanced CT scan facility in the African nation

Raksha Mantri Shri Rajnath Singh held talks with Kenyan Cabinet Secretary for Defence Mr Aden Bare Duale in New Delhi on August 29, 2023. The meeting was a testimony to the increasing depth in the India-Kenya defence partnership. Both the Ministers agreed that the defence relationship between the two countries has evolved from being training-centric to include more strategic aspects.

The Raksha Mantri underscored the importance India attaches to the ties with African nations. In particular, the relationship between India and Kenya has been growing from strength to strength. The two Ministers also concurred on the need for deeper cooperation in maritime security of the Indian Ocean region.

Capacity building and cooperation in defence industry and equipment was also discussed at length by the two sides. A Memorandum of Understanding was signed between Goa Shipyard Ltd and Kenya Shipyard Limited in the field of capacity building and for collaboration in ship design and construction. As a token of friendship, Shri Rajnath Singh presented 15 pairs of parachutes (main and reserve) manufactured by the Gliders India Limited to the Kenyan Cabinet Secretary for Defence for use by the Kenyan Forces. India also extended support towards setting up of an advanced CT scan facility in Kenya.

Mr Aden Bare Duale appreciated the growing prowess of the Indian defence industry, including the private sector, and highlighted the areas in which the Indian industry can support the requirements of the Kenyan Forces. He also suggested 'training of trainers' of Kenyan Forces by the instructors of Indian Armed Forces in order to maintain continuity and extract greater benefit out of such programmes.

Both sides agreed for joint training in counter insurgency and UN peacekeeping domains. Other regional security issues of mutual interest were also discussed during the meeting. Chief of Defence Staff General Anil Chauhan and Defence Secretary Shri Giridhar Aramane also attended the meeting along with senior officials of Ministry of Defence, Ministry of External Affairs and Defence PSUs.

The Kenyan Cabinet Secretary for Defence is on a 3-day visit to India. He will be visiting Indian shipyards and defence industries in Goa and Bengaluru during his stay.

<https://pib.gov.in/PressReleasePage.aspx?PRID=1953231>



Press Information Bureau
Government of India

Ministry of Defence

Tue, 29 Aug 2023

Indian Army Contingent Leaves for Exercise Bright Star- 23 Being Held in Egypt

Indian Army contingent comprising of 137 personnel departed for “Exercise BRIGHT STAR- 23” scheduled to be conducted from 31 August to 14 September 2023 at Mohammed Naguib Military Base in Egypt. It is a multinational tri-services joint military exercise that will be led by US CENTCOM and Egyptian Army. It was initially conceptualized as a bilateral biennial training exercise between the US and Egypt during the Camp David Accord of 1977. The first edition of the Exercise was conducted in the year 1980 in Egypt. From 1995 onwards the Exercise was expanded for participation by other nations. The previous Exercise BRIGHT STAR was conducted in the year 2021 wherein forces of 21 countries had participated.

This year 34 countries will participate in Exercise BRIGHT STAR- 23. It will be the largest ever joint military exercise in Middle East & North Africa region. This is for the first time that Indian Armed Forces are participating in Exercise BRIGHT STAR with a total strength of 549 personnel. The Indian Army is being represented by a contingent from 23 JAT Battalion.

The Exercise will comprise of a large number of training activities focused on combating emerging unconventional threats and enhancing regional partnerships amongst participating nations aimed at maintaining world peace. In addition to the various field and situational training exercises, Exercise BRIGHT STAR- 23 will also include a combined arms live firing exercise based on a tactical setting. A panel discussion on contemporary topics is also planned to be conducted on Cyber Security for which the Indian Armed Forces are the lead force.

Exercise BRIGHT STAR- 23 will provide a unique opportunity to Indian Army to share best practices and experiences with other armies besides enhancing the defence cooperation. Indian Army looks forward to an enriching professional experience from the Exercise.

<https://pib.gov.in/PressReleasePage.aspx?PRID=1953147>



**Press Information Bureau
Government of India**

Ministry of Defence

Tue, 29 Aug 2023

General Tomas Miguel Mine Ribeiro Paiva, Commander of Brazilian Army on a Six Day Visit to India to Bolster Defence Ties

General Tomas Miguel Mine Ribeiro Paiva, Commander of the Brazilian Army, is on a six day visit to India from 28th August to 2nd September 2023. The visit marks a significant milestone in the longstanding relationship between the armed forces of India and Brazil.

The visit commenced with a poignant wreath- laying ceremony at the National War Memorial on 29th August, where General Tomas paid homage to the fallen heroes of the Indian Armed Forces who have made the supreme sacrifice for the nation. This solemn act of remembrance epitomises the shared commitment of both the nations to peace and security. Thereafter, a ceremonial Guard of Honour was presented to General Tomas at the South Block Lawns in New Delhi after which he called on General Manoj Pande, the Chief of the Army Staff. They exchanged ideas and held constructive discussions on various contemporary issues. They also discussed issues pertaining to strengthening bilateral cooperation between the two armies.

General Tomas Miguel Mine Ribeiro Paiva later called on General Anil Chauhan, the Chief of Defence Staff and interacted with Shri Giridhar Aramane, the Defence Secretary. These discussions underscored the shared goals of enhancing defence cooperation and collaboration between the two nations. During his visit, General Tomas also engaged in productive interactions with senior officers at the Army Headquarters, facilitating the exchange of knowledge and ideas. These engagements exemplify the commitment to mutual growth and shared excellence in military best practices. As part of the itinerary, General Tomas Miguel Mine Ribeiro Paiva is also slated to witness manoeuvre and firing of various weapon platforms at the Pokaran Field Firing Ranges. The firing will demonstrate the capabilities of weapon systems possessed by the Indian Army including indigenous weapon systems. The visit of General Tomas Miguel Mine Ribeiro Paiva underlines the deep- rooted bond between the armies of India and Brazil. This visit not only strengthens military cooperation but also reinforces the commitment of both nations to collaborative security efforts, global peace and prosperity.

<https://pib.gov.in/PressReleasePage.aspx?PRID=1953228>



**Press Information Bureau
Government of India**

Ministry of Defence

Tue, 29 Aug 2023

Visit of UAE Navy SME Delegation to Indian Navy Facilities - 27 Aug to 01 Sep 23

A three member UAE Navy Subject Matter Expert Delegation led by Colonel Dr Ali Saif Ali Mehrazi arrived India on 27 Aug 23 for four day visit to specialised Meteorology, Oceanography

and Weather Modelling units of Indian Navy (IN) at Kochi, Goa and New Delhi. This visit signifies beginning of a new chapter in professional cooperation between the two Navies, with the goal of exchanging professional knowledge, expertise, training and collaboration in the fields of Meteorology, Oceanography and Weather/ Ocean modelling.

The IN over the years has accrued knowledge, expertise and skills in the domain of Meteorology and Oceanography. IN, through its dedicated units has also been supporting many countries in the Indian Ocean Region (IOR) with training in the fields as well as daily Weather forecasts services to ensure maritime safety in the region.

The UAE Navy delegation visited Kochi on 28 Aug 23, where they met senior officers of IN for professional interaction at Naval Operations Data Processing and Analysis Centre (NODPAC), which is a dedicated unit for aspects of Oceanography, Ocean State Forecast and Ocean Modelling. They also visited Indian Naval Meteorological Analysis Centre (INMAC) which looks into the aspects of Weather Forecasts and Atmosphere Modelling. The UAE Navy Delegation also visited the School of Naval Oceanology and Meteorology (SNOM), which caters to the Meteorological, Oceanographic and Numerical Weather Prediction (NWP) training needs of IN.

The delegation would also be visiting Air Squadrons and Met Office at INS Hansa, Goa which is the premier Naval Air Station of IN followed by meeting with Commodore (Naval Oceanology and Meteorology) at IHQ MoD (Navy).

The aim of this collaboration is to foster mutual learning and strengthen collective ability to address complex issues related to Meteorology and Oceanography. Both the navies would share their expertise and insights to work out areas for further cooperation.

The expertise, enthusiasm, and commitment of UAE Navy and IN will undoubtedly enrich operational and scientific capabilities of both the navies and will go a long way in furthering professional exchanges to fulfil mutual interests.

<https://pib.gov.in/PressReleasePage.aspx?PRID=1953142>



Tue, 29 Aug 2023

Army Signs Deals for 130 Tethered Drones and 19 Tank Driving Simulators

The Army has signed contracts for the procurement of 130 tethered drones and 19 tank-driving simulators under Emergency Procurement (EP) and they will be delivered in 12 months. The armed forces are currently executing the fourth tranche of EPs sanctioned by the Defence Ministry.

“Indian Army has signed the contract for procurement of 130 Tethered Drones and 19 Tank Driving Simulators. The induction of such new equipment will enhance the overall operational preparedness...,” the Army said in a post on social media. The long-endurance tether drone systems are contracted at an approximate value of ₹250 crore and can be used in high-altitude areas, one official said.

In the last few months, the Army has issued several tenders for a range of drones and technologies including logistics, load-carrying drones, anti-drone systems, and loitering munitions, among others. In the last three years, in the backdrop of the stand-off in Eastern Ladakh, the Army had also concluded a series of contracts with Indian start-ups for small drones for surveillance and load-carrying.

For instance, Noida-based start-up Raphe mPhibr Pvt. Ltd. got two separate orders from the Army, for 48 mR-20 logistics drones which can carry cargo of up to 20 kg in high-altitude areas for the infantry and 100 quadcopter drones for the Armoured Corps, as reported by The Hindu earlier.

Similarly, Mumbai-based drone manufacturer ideaForge won a repeat contract last year from the Army to supply 200 of its Switch Vertical Take Off and Landing (VTOL) mini-Unmanned Aerial Vehicle (UAV) along with its accessories. In January 2021, the Army signed a contract with ideaForge for Switch UAVs in a deal worth \$20 million and also a repeat order for an undisclosed number of Switch UAVs to augment surveillance along the Line of Actual Control (LAC).

Army had earlier contracted drones that can hit targets with 5-10 kg explosives from Bengaluru-based NewSpace Research & Technologies Pvt Ltd which is developing a range of drones including drone swarms.

Under the fourth tranche of EP, the Army has so far signed 49 contracts worth ₹7,600 crore and another 34 contracts of similar amount are lined up and expected to be concluded by end-September, as reported earlier.

Emergency financial powers were granted to the armed forces by the Defence Ministry for the first time after the 2016 Uri terror attack, under which they could procure weapons systems up to ₹300 crore, on an “urgent basis without any further clearances to cut short the procurement cycle”.

<https://www.thehindu.com/news/national/army-signs-deals-for-130-tethered-drones-and-19-tank-driving-simulators/article67248535.ece>



Tue, 29 Aug 2023

MDL's Project 17A Stealth Frigate 'Mahendragiri' to be Launched on September 1

The fourth stealth guided missile frigate of Project 17A 'Mahendragiri' will be launched in Mumbai on September 1, marking a major step in India's defence indigenisation programme. A Nilgiri-class frigate - Mahendragiri - is expected to be commissioned into the Indian Navy in 2027.

Vice President Jagdeep Dhankhar would be the chief guest on the occasion.

The ship is being built by the Mazagon Dock Shipbuilders Limited (MDL) in Mumbai.

The MDL involves four ships of the class - Nilgiri, Udaygiri, Taragiri and Mahendragiri.

The lead ship of the class, Nilgiri was launched on 28 September 2019 and it is expected to be commissioned in 2024.

Udaygiri was launched on 17 May 2022, while Taragiri was launched on 11 September 2022.

Mahendragiri, whose keel was laid on 28 June 2022 is being launched on 1 September 2023.

Udaygiri, Taragiri and Mahendragiri are expected to be commissioned in 2025, 2026 and 2027, respectively. There other ships of Nilgiri-class are being made at the Garden Reach Shipbuilders & Engineers Ltd in Kolkata. These are Himgiri, Dunagiri and Vindhyagiri, which were launched on 14 December 2020, 15 July 2022 and 17 August 2023, respectively and are due for commissioning in 2025-2026. These ships are designed by the Indian Navy's in-house design organization, Bureau of Naval Design.

The 149.02 M long and 17.8 M wide ship, propelled by a CODOG combination of two Gas Turbines and 02 Main Diesel Engines which are designed to achieve a speed of over 28 knots at a displacement of approx. 6670 tons.

The steel used in hull construction of P17A frigates is indigenously developed DMR 249A which is a low carbon micro alloy grade steel manufactured by SAIL. The indigenously designed ships will have state-of-the-art weapons, sensors, an advanced action information system, an integrated platform management system, world class modular living spaces, sophisticated power distribution system and a host of other advanced features. It will be fitted with a supersonic surface-to-surface missile system.

The ship's air defence capability, designed to counter the threat of enemy aircraft and anti-ship cruise missiles will revolve around the vertical launch and long range surface to air missile system. Two 30 mm rapid-fire guns will provide the ship with close-in-defence capability while an SRGM Gun will enable her to provide effective naval gunfire support. Indigenously developed triple tube light weight torpedo launchers and rocket launchers will add punch to the ship's anti-submarine capability.

<https://www.deccanherald.com/india/maharashtra/mdls-project-17a-stealth-frigate-mahendragiri-to-be-launched-on-september-1-2664731>



Tue, 29 Aug 2023

Goa Shipyard, Kenyan Firm to Collaborate in Ship Design

Goa Shipyard Ltd and Kenya Shipyard Ltd on Tuesday signed a memorandum of understanding for capacity building and collaboration in ship design and construction, with the development coming on a day defence minister Rajnath Singh and Kenyan cabinet secretary for defence Aden Bare Duale held talks in Delhi to boost defence cooperation.

Capacity building and defence industrial cooperation was discussed at length at the meeting, the defence ministry said in a statement.

“The meeting was a testimony to the increasing depth in the India-Kenya defence partnership. Both ministers agreed that the defence relationship between the two countries has evolved from being training-centric to include more strategic aspects,” it said.

Singh gifted 15 pairs of parachutes (main and reserve) manufactured by Gliders India Limited to Duale for use by the Kenyan forces. The two ministers also agreed on the need for deeper cooperation in maritime security of the Indian Ocean region, the statement said. Duale, who is on a three-day visit to India, appreciated the growing prowess of the Indian defence industry, including the private sector, and highlighted the areas in which the Indian industry can support the requirements of the Kenyan forces.

“Both sides agreed to joint training in counter insurgency and UN peacekeeping domains. Other regional security issues of mutual interest were also discussed,” the statement added.

<https://www.hindustantimes.com/india-news/goa-shipyard-ltd-and-kenya-shipyard-ltd-sign-mou-for-ship-design-and-construction-boosting-defence-cooperation-101693311595103-amp.html>

Tue, 29 Aug 2023

Strengthening Maritime Bonds: India-UAE Collaborate on Naval Expertise

A team of three UAE Navy experts, led by Colonel Dr Ali Saif Ali Mehrazi, has arrived in India on a weeklong visit. The experts who are here from Aug 27-Sept 01, 2023 are meeting with the specialized units of the Indian Navy (IN) that specialize in Meteorology, Oceanography, and Weather Modeling, located in Kochi, Goa, and New Delhi.

According to the Indian Navy this visit marks the start of an exciting chapter in the professional partnership between the two naval forces. The shared objective is to exchange invaluable professional insights, technical proficiency, training, and collaborative efforts in the dynamic domains of Meteorology, Oceanography, and Weather/Ocean modeling.

The IN has amassed a wealth of knowledge, skills, and acumen in the realm of Meteorology and Oceanography, states the official statement issued by the Indian Navy. Over the years, it has extended support to numerous countries within the Indian Ocean Region (IOR), rendering training and daily Weather forecast services to ensure the safety of maritime activities within the region.

Kochi, played host to the UAE Navy delegation on August 28, 2023 and the visiting delegates engaged in meaningful interactions with senior Indian Navy officers at the Naval Operations Data Processing and Analysis Centre (NODPAC). This dedicated unit specializes in Oceanography, Ocean State Forecasting, and Ocean Modeling. Their explorations also took them to the Indian Naval Meteorological Analysis Centre (INMAC), a hub for Weather Forecasts and Atmosphere Modeling. Additionally, the delegates visited the School of Naval Oceanology and Meteorology (SNOM), an institution catering to the Meteorological, Oceanographic, and Numerical Weather Prediction (NWP) training needs of the IN.

The delegates will also visit INS Hansa, Goa's Naval Air Station, where they will interact and visit Air Squadrons and the Met Office. The final destination during the visit is a meeting with Commodore (Naval Oceanology and Meteorology) at IHQ MoD (Navy).

This collaborative initiative seeks to foster shared learning and fortify the collective capability to address intricate matters within the realms of Meteorology and Oceanography. By merging their expertise and insights, both navies aim to identify avenues for extended cooperation.

The expertise, and dedication exhibited by both the UAE Navy and the Indian Navy are bound to elevate the operational and scientific potential of both naval forces. These efforts are poised to open doors for enduring professional exchanges, thus serving the common interests of both nations.

<https://www.financialexpress.com/business/defence-strengthening-maritime-bonds-india-uae-collaborate-on-naval-expertise-3226532/>

Tri-Service Staff Talks Bangladesh Acknowledges India's Continued Defence Training Assistance

Bangladesh on Tuesday acknowledged India's continued support in training its armed forces, as the military services of the two countries held their third Tri-Service Staff Talks (TSST) here.

The TSST was co-chaired by Bangladesh Armed Forces Division's operations and planning directorate chief Brigadier General Hussain Muhammad Mashiur Rahman and Air Vice Marshal Ashish Vohra of India.

"The continued Indian support for training the armed forces of Bangladesh is very clear," Bangladesh's defence ministry said in a statement after the TSST.

The statement said many Bangladesh Army, Navy and Air Force personnel are trained in different Indian institutions and Bangladesh, as well, hosts training for India's armed forces personnel every year while both the armed forces work together at different levels in UN peacekeeping missions.

"In recent years (Bangladesh's) military and security-related links with India witnessed a notable progress, reaching the bilateral cooperation and friendship to a new height," it said.

The third TSST was held two days after the two countries held their fifth defence dialogue in Bangladesh's capital.

Dhaka hosted the first TSST in 2021 while the second one was held in India in 2022. Officials familiar with the TSST said the dialogue mainly focused on military cooperation, training and bilateral defence issues.

According to the statement after the talks Vohra called on Bangladesh Armed Forces' Division's Principal Staff Office Lieutenant General Waker-Uz-Zaman, who on August 27 led Dhaka in the fifth defence dialogue when the Indian side was led by Defence Secretary Giridhar Aramane.

It said relations between the military, Navy and Air Forces of the two countries were very close and the foundation of the bond was created during Bangladesh's 1971 Liberation War, crucially backed by India.

<https://www.theweek.in/wire-updates/international/2023/08/29/fgn46-bangla-india-talks.html>

Rafale-M Deal: French, Indian Officials Hold Meeting to Discuss USD 5.5 Bn Deal

India cleared a deal to buy 26 Rafale-M fighter jets for the Indian Navy in July this year. These fighter jets will be deployed on its latest aircraft carrier INS Vikrant. A team headed by the French Defence Ministry came to an official visit to India to discuss the deal.

This deal will strengthen the Indian Navy's air superiority over its adversaries. In July this year, the Indian Navy announced a deal to equip the Indian Navy with the latest generation fighter. Similar

to Rafale C the Rafel M is modified to allow operations from CARTOBAR, for career operations, the M Model has a strengthened airframe, a long nose gear leg to provide a more nose-up altitude, a larger tailhook between the engines and built-in boarding ladder, it weighs about 500 Kg more than Rafael C.

French Officials visit India to discuss Rafael-M deal for Indian navy

The French team that came to India was headed by an official who was in charge of Asia in the French Directorate General of Armament. In the negotiations with France, the Indian Navy would be represented by a two-star officer. The two sides have to form a contract negotiation team similar to the deal that took place for the IAF jets in the year 2016.

India announced that it will buy 26 Rafale M fighters after the proposal was cleared by the DAC (Defence Acquisition Council) meeting. The Indian side also has to send a letter of request or request for proposal to the French government for the deal and work is in progress to discuss details of the deal. India and France have held multiple meetings before the approval given by the defence industry and this aircraft defeated the American F-18 Hornet in the 26 fighter jets deal for the Indian Navy.

The French side has also said that if required, it can increase the rate of production to 30 aircraft per year from existing 16 aircraft. India and France have held multiple meetings before the approval given by the defence ministry. The French Rafale has once more defeated the American Fa/18 Super Hornet to bag the Indian Navy contract for 26 fighter jets.

France has also received multiple orders from various countries after India first selected its requirement for 126 multi-role fighter jets. In this, the participants were made to go through rigorous trials. India will request the integration of indigenous missiles including Astra air-to-air missile as part of the package from France. The aircraft is expected to be similar to the IAF.

<https://www.republicworld.com/india-news/general-news/rafale-m-deal-french-indian-officials-hold-meeting-to-discuss-usd-5-dot-5-bn-deal-articleshow.html>

R. REPUBLICWORLD.COM

Tue, 29 Aug 2023

S400 will be Delivered to India on Time, Russian Ambassador Confirms

Denis Alipov, Russian ambassador to India, in a statement has said that delivery of S400 missile defence systems to India will be done on the scheduled time. The S400 is a mobile surface-to-air missile defence system developed by Russia. It was first developed in the 1990s.

S400 missile defence systems are organized around the 30K6E administration system which can coordinate 8 battalions. The 55K6E is a command and control system based on the Ural-532301 vehicle, the 91N6E is a panoramic radar detection system with a 340 Km range and protection against jamming and is mounted on the MZKT-7930 vehicle. Six battalions of 98ZH6E surface-to-air missile systems can track more than six targets on their own, with an additional two battalions if they are within 40 Km range and the 92N6E is a multifunction radar with a 340 KM Range and can track up to 20 targets.

About the delivery of the S400 missile air defence system to India from Russia

Russian Ambassador to India in a statement to ANI mentioned that the S400 missile system deliveries to India are running on scheduled time. The companies involved have assured that India will receive all 5 systems deliveries in the scheduled time. Alipov also recognised that the economic development of both countries is satisfactory and both sides are cooperating in the economy, science and technology sectors.

He also said that Russia is very much satisfied with the economic development of both countries and that both countries are cooperating in various spheres like economy, defence, space, research and many more. He also said that both countries maintain dialogue in various advanced spheres of economy, science and technology. Alipov also mentioned the India-Russia nuclear ties and added that defence cooperation is very much extended and comprehensive between both nations.

He also said Russia actively participates in the Make In India Programme and various sectors apart from defence including civil production and railways. He also talked about India's interests in economic cooperation with Russia. The Russian ambassador also emphasized the problems that have arisen due to sanctions on Russia and said that they have been overcome with dedication.

He further talked about the problems that are faced at the moment like financial transactions, which have been tackled with dedication and with the desire to find ways to overcome the stumbling blocks. Western nations like the US and Europe have imposed sanctions on Russia due to the ongoing Russo-Ukraine war. These sanctions have restricted nations dealing with Russia in dollars from making any important purchases, these systems will ensure India's prowess in defending its territory from any sort of air and missile attacks from its enemies.

<https://www.republicworld.com/world-news/rest-of-the-world-news/s400-will-be-delivered-to-india-on-time-russian-ambassador-confirms-articleshow.html>

THE TIMES OF INDIA

Tue, 29 Aug 2023

China Includes Arunachal Pradesh, Aksai Chin in its New 'Standard Map'

China has released its official "standard map," including state of Arunachal Pradesh and the Aksai Chin region as part of its territory.

Taiwan and the disputed South China Sea have also been included within the Chinese territory in the new map.

The map was released by China's ministry of natural resources during the celebration of Surveying and Mapping Publicity Day and the National Mapping Awareness Publicity Week on Monday in Deqing county, Zhejiang province, as per China Daily newspaper.

This comes months after India rejected attempts by China to rename 11 places in Arunachal Pradesh in the month of April.

"This is not the first time China has made such an attempt. We reject this outright," Arindam Bagchi, the external affairs ministry spokesperson, had said in a Twitter post. "Arunachal Pradesh is, has been and will always be an integral and inalienable part of India. Attempts to assign invented names will not alter this reality," Bagchi had said.

Last week, Prime Minister Narendra Modi were seen engaging a brief interaction at the 15th Brics Summit in Johannesburg.

Before the conference started in earnest, the Prime Minister and the Chinese President were pictured having a brief conversation before taking their designated seats.

Foreign secretary Vinay Kwatra did not call it a bilateral meeting but said the conversation captured the sense of the relationship as PM highlighted India's concerns over the "unresolved issues" along the LAC and both leaders agreed to work towards early disengagement and de-escalation.

India and China have been in a stand-off situation for the last three years and relations at all levels have deteriorated due to tensions on the Line of Actual Control (LAC). The two sides have held 19 rounds of talks so far to address the boundary issues in eastern Ladakh since 2020.

<https://timesofindia.indiatimes.com/india/china-includes-arunachal-pradesh-aksai-chin-in-its-new-standard-map/articleshow/103161206.cms>



Tue, 29 Aug 2023

Empowering Defence Collaboration: Brazil and India Unite to Shape Future Security Landscape

By Huma Siddiqui

Commander of Brazilian Army General Tomas Miguel Ribeiro Paiva accompanied by an official delegation is on a six day visit to India. This is the first time that Commander of the Brazilian Army has travelled to India and this visit comes ahead of the G20 Summit where the President of Brazil will be participating and will ceremonially take over the presidency of G20.

On day one of his maiden visit (August 29, 2023) General Tomas called on General Manoj Pande, the Chief of the Army Staff and they exchanged ideas and held constructive discussions on various contemporary issues.

Both sides also discussed issues pertaining to strengthening bilateral cooperation between the two armies. He later called on General Anil Chauhan, the Chief of Defence Staff and interacted with Giridhar Aramane, the Defence Secretary. These discussions underscored the shared goals of enhancing defence cooperation and collaboration between the two nations. The Brazilian commander also engaged in interactions with senior officers at the Army Headquarters, facilitating the exchange of knowledge and ideas. These engagements exemplify the commitment to mutual growth and shared excellence in military best practices.

The visit is a significant milestone in the longstanding relationship between the armed forces of the two countries. Earlier in the day General Tomas paid homage to the fallen heroes of the Indian Armed Forces at the National War Memorial on August 29. And this was followed by a ceremonial Guard of Honour.

According to the itinerary, on Thursday (Aug 31, 2023) the Brazilian Army General is also slated to witness manoeuvre and firing of various weapon platforms at the Pokhran Field Firing Ranges. The firing will demonstrate the capabilities of weapon systems possessed by the Indian Army including indigenous weapon systems.

The visit of General Tomas Miguel Mine Ribeiro Paiva underlines the deep- rooted bond between the armies of India and Brazil. This visit not only strengthens military cooperation but also

reinforces the commitment of both nations to collaborative security efforts, global peace and prosperity.

Financial Express Online had reported of the visit recently where the primary aim is to enhance the Brazil-India defence partnership, focusing on strategic alliances, technological advancements, and the shared goals of both countries in safeguarding their national sovereignty through cooperation.

These visits closely follow the LAAD (DefExpo) event earlier this year in Rio, where India's Ministry of Defence showcased various defence platforms. Representatives from Defence Research and Development Organisation, Bharat Dynamics Ltd., Yantra India Ltd., Bharat Electronics, Mazagon Dock Shipbuilders Ltd., and the Indo-Russian joint venture BrahMos were present. Private sector was represented by Kanpur based MKU Ltd.

Also, in the month of May a high level delegation led by Joint Secretary Anurag Bajpai was in the South American nation and had meetings with the top leadership in the Ministry of Defense. MDL officials had also visited Brazil and had meetings with the top Brazilian Navy officials.

The focus was on identifying areas in the defence sector where the two countries can collaborate.

The forthcoming delegation, expected to arrive around August 28, will concentrate on missile systems like the Akash and Astra Missiles. They will also explore the Light Combat Aircraft (LCA) 'Tejas,' the LCA mid-air refueling system, and the WhAP platform. Apart from discussions in Delhi, the delegation will visit Hindustan Aeronautics and the Indian Space Research Organisation (ISRO).

Brazil is keen on collaborating in areas such as aircraft manufacturing, satellite building, space control, electronic warfare, cyber defence, and the exchange of raw materials. To overcome challenges in establishing identical factories, both countries aim to leverage their strengths for a productive resource exchange while avoiding trade embargoes.

Early next month the Commander of the Brazilian Navy is scheduled to visit India and the focus will be on Coastal Systems and a contract with Mumbai-based Mazagon Dock Limited (MDL) to acquire Offshore Patrol Vessels is expected to be firmed up. Additionally, Brazil is working on nuclear-powered attack submarines equipped with cruise missile systems and is modernizing its existing submarine fleet. During their visit to MDL, discussions will center on collaborative efforts for submarine maintenance and repairs. This initiative aims to enhance the capabilities of these platforms through mid-life refits and potentially incorporate BrahMos-NG systems.

In an earlier interaction General Luis Antônio Duizit Brito, former Secretary of Defence Products Division in Brazil, highlighted the deepening naval cooperation between the two nations. These visits and interactions underscore the strengthening ties between Brazil and India in defence and technology, as they work together to address common challenges and opportunities on a global stage.

India-Brazil Defence Cooperation

Highlighting the 'Make in India' as an extraordinary opportunity, former ambassador of Brazil to India, Andre Aranha Correa do Lago, had told Financial Express Online that "the defence and security are central components of the Plan of Action of our strategic partnership with India. Our two countries are complementary in this area."

The Plan of Action for the Brazil-India strategic partnership was signed at the end of talks between Prime Minister Narendra Modi and former President Jair Bolsonaro, who was the Chief Guest at the Republic Day Parade in 2020.

The two countries have a multifaceted relationship which is based on values and a convergence of views on many global issues. Both countries are cooperating bilaterally and multilaterally at various foras including the United Nations, BRICS, IBSA, G20, and ISA.

Supported by the missions of Brazil & India, in 2020 a webinar was organized by the Society of Indian Defence Manufacturers (SIDM) & the Brazilian Association of Defence and Security Materials Industries (ABIMDE).

According to the Indian envoy to Brazil, Suresh K Reddy, the focus is on the “Triple-Helix” approach which is followed by the South American nation which lays emphasis on innovation and R&D for its army, navy and air force.

Ambassador Reddy also urged the Indian industries to look at Brazil’s divisional market for technological partnerships and joint ventures.

Joint Ventures in Defence present in India

Besides CBC of Brazil, the world’s second-largest ammunition manufacturer, and SSS Defence, there is another joint venture, another Brazilian company Taurus Armas S.A., and Jindal Defence.

The JV was inked in 2020 on the sidelines of the 1st Brazil–India Defence Industry Dialogue of the India-Brazil Business Forum (IBBF), which was organized by the Ministry of External Affairs and Indian industry chambers.

And, the JV Company set up at Hisar (Haryana) with equity participation from both in the equity ratio of 51:49 is to manufacture small arms under Transfer of Technology from Taurus, and in accordance with the Defence Procurement Procedures (DPP).

Indian Defence Company in Brazil

So far, the only Indian company present in Brazil is UP based MKU Company. The company has been in Brazil for some years now and has executed defence contracts with Federal police, Military Police & Army.

<https://www.financialexpress.com/business/defence-empowering-defence-collaboration-brazil-and-india-unite-to-shape-future-security-landscape-2-3226766/>



Tue, 29 Aug 2023

US to Deploy AI-Enabled Detection System to Monitor DC Airspace

The US Department of Defence will deploy an artificial intelligence-powered airspace monitoring system that is set to be installed to enhance the protection of the US capital. The upgraded visual recognition, identification and warning system delivers a tenfold increase in performance capability compared to systems that were during the September 11 attacks on the US said Air Force Lt Col Kurtis Engelson.

Lt Col Engelson is the material leader for Battle Control Systems. It oversees the national capital region-integrated air defence systems program. It is partnered with the defence innovation unit to utilize the commercial solutions opening solicitation process to rapidly prototype a solution and create a path for the USAF to procure successful prototypes.

About AI Enabled detection systems which will monitor DC

After an 18-month prototype demonstration which was concluded in April, it was announced that Teleidoscope, a first-time non-traditional defence department vendor was awarded a 100 million ceiling production contract. Orders for the systems are already in progress and fielding is to begin this year according to Lt Col Engelson.

Initial prototype and procurement funding was provided by the Accelerate the Procurement and Fielding of Innovative Technologies Programme. It was as part of its mission to accelerate the procurement and fielding of innovative technologies. It helps successful prototypes cross the proverbial valley of death for prototypes and move technology into production faster.

The production efforts focus on upgrading the cameras and eye-safe lasers used for tracking and visually warning aircraft in violation of the special flight rules within the region. The updates significantly improve the ability of the air defence operators ability to positively identify aircraft and aim warning lasers at much greater ranges, according to Engelson. Laser visual warning systems provide those involved with securing the airspace over Washington DC, a rapid means of contacting pilots when communication systems fail.

The auto-tracking capabilities of the system apply to the full motion video feeds, irrespective of the domain, opening the door to augment remotely piloted aircraft video feed tracking capabilities. The software from this prototype has the potential to run on any edge device or cloud-provided full-motion video feed. This technology has broad national defence applicability across the services for defence against asymmetrical threats like unmanned aerial systems and cruise missiles, a DIU programme manager said in a statement.

Washington DC is home to over 6 million people and key military bases. Intelligence agencies, and federal, state and local governments. The skies over the capital are operated by both military and commercial aircraft traffic and an increasing number of privately owned drones. Protecting the metro area from air threats and adversaries is the National Capital Region-Integrated Air Defence System, a component of the North American Aerospace Defence Command.

<https://www.republicworld.com/world-news/us-news/us-to-deploy-ai-enabled-detection-system-to-monitor-dc-airspace-articleshow.html>

Science & Technology News

 **The Indian EXPRESS**

Wed, 30 Aug 2023

Chandrayaan Rover Detects Sulphur, other Elements on Moon: ISRO

After releasing data from an instrument studying the temperature profile of the lunar surface, the Indian Space Research Organisation (ISRO) on Tuesday said another instrument on Chandrayaan-3 had detected the presence of several elements on the Moon.

Notably, it had picked up signals that confirm the presence of Sulphur whose direct evidence was not available yet. “The Laser-Induced Breakdown Spectroscopy (LIBS) instrument onboard Chandrayaan-3 Rover has made the first-ever in-situ measurements on the elemental composition of the lunar surface near the South Pole. These in-situ measurements confirm the presence of

Sulphur (S) in the region unambiguously, something that was not feasible by the instruments onboard the orbiters,” ISRO said in a statement.

“Preliminary analysis... have unveiled the presence of Aluminum (Al), Sulphur (S), Calcium (Ca), Iron (Fe), Chromium (Cr), and Titanium (Ti) on the lunar surface. Further measurements have revealed the presence of Manganese (Mn), Silicon (Si), and Oxygen (O). Thorough investigation regarding the presence of Hydrogen is underway,” it said.

Gathering information about the presence and abundance of different elements on the Moon is one of the major science objectives of the Chandrayaan-3 mission, with more than one instrument working towards this end. The LIBS instrument on the rover, developed by ISRO’s Laboratory for Electro-Optics Systems (LEOS), uses a high-energy pulsar to generate plasma from rocks or soil. In plasma state, elements emit characteristic wavelengths of radiation that can then be used to identify these elements, ISRO said.

The other instrument on the rover, called Alpha Particle X-Ray Spectrometer, is also meant to study the elemental composition of the lunar surface.

The elements detected by the LIBS instrument are all known to occur on the Moon. This data would add to the existing knowledge. For example, evidence of the presence of Sulphur can reveal insights on the formation and evolution of the Moon. Sulphur usually originates in volcanic activities, and its presence on the Moon can offer indications about the Moon’s history and composition. “The data being put out by ISRO from Chandrayaan-3 needs to be processed and analysed to get more meaningful information. What ISRO is doing right now is to offer glimpses into the kind of experiments being performed on the Moon, and the nature of activities of the various instruments,” said Anil Bhardwaj, director of Ahmedabad-based Physical Research Laboratory which has made significant contributions to the Chandrayaan-3 mission, including the development of the ChaSTE (Chandra’s Surface Thermophysical Experiment) that is deployed on the lander module.

“For example, the data about surface temperatures that was released on Sunday was just a small snapshot of the readings being taken by that instrument ChaSTE. Those values would be different at different times. The instruments onboard Chandrayaan-3 are collecting a huge amount of data, making a number of observations, and doing several experiments at once. All this data is being relayed to the ground stations. Once the mission is over, scientists specialising in these areas would analyse these data thoroughly. Only then we would be able to tell what new or revelatory findings have come out from the mission,” he said.

<https://indianexpress.com/article/technology/science/chandrayaan-3-rover-moon-sulphur-hydrogen-isro-8915187/>

mint

Wed, 30 Aug 2023

‘Will Fly to Venus, Mars with Private Companies,’ Says NITI Aayog Member

Private companies will be a major partner in India’s future space missions, including those to Mars and Venus, and India is not behind any world power, including China, in technical capability although the country needs to build scale, NITI Aayog member and defence scientist V.K. Saraswat said in an interview.

Saraswat said India's effort is to capture a larger share of the global space economy and that its space missions have one key goal—unlocking access to critical minerals. According to information available from InvestIndia, a state agency facilitating investments, India's space sector, which was at 2-3% or \$9.6 billion of the global space economy in 2020 is set to reach up to 10% by 2030.

The new era of space—the unfolding of Space 4.0, which all nations want to be part of—offers a market, Saraswat said, adding that this justifies India's efforts to capture at least 10% of that market.

"I am quite certain that the future programmes India is planning to do, for example, the Gaganyaan (manned space mission), the mission to Venus and the mission to Mars will all certainly have a huge participation of the private sector by way of supply of sub-systems, components and devices, and also they may become joint partners in some of the major launches which are precursors to this," said Saraswat. He also defended the government's introduction of a licence regime for importing laptops, saying local production of laptops for domestic consumption and exports will offer gains to the economy compared to importing computers, which only benefits overseas exporters to India.

The former chief of Defence Research and Development Organisation (DRDO) said with the completely indigenous Chandrayaan-3 landing on the south pole of the moon, India has emerged as a very strong and self-reliant space power. "It is a technological feat that India has achieved. A mission of this kind has tremendous impact as far as the nation's psyche is concerned, particularly the industry, the startups and the academia," he said, adding the current euphoria over the moon mission will certainly excite generations of students, startups and industries.

He said private companies have already been participating in the development of various systems, sub-systems, components and now, even some of the fully integrated vehicles. This, of course, is the result of the space policy the government enunciated about two years ago, when it opened up the space sector to private enterprises, he said.

That has led to the emergence of several private companies to work in the areas of satellites, launch vehicles and subsystems for space technologies, to the extent that currently, there are companies that are willing to design rocket engines. There are also companies which make nano satellites, mini satellites, micro satellites and use the vehicles of the Indian Space Research Organisation (Isro) for launching them into space, he said.

Saraswat rejected the notion that China's space programme is ahead of India. "I want to tell you, as far as space technology is concerned, today, I think we are at par with the best in the world. Only thing is our scale has to be increased, nothing else. Succeeding in Gaganyaan, the mission sending man to space, would be the next major achievement for us," he said, explaining that it will open up further possibilities of having a space station or deep space probes. "That is the only area where we need to now demonstrate. For launching, we have got the biggest launch vehicle today available, which is equivalent to the best in the world today. We can go to 5 tons of payload," Saraswat said, adding that India is capable of building all kinds of satellites for defence and civil applications.

Saraswat said the plan to licence imports of laptops and tablets was to promote domestic production. "Today if you see, 95% of the laptops or desktops come from outside. Whatever is being manufactured in India has very poor value addition. Some of them are assembled in India with 90% systems coming from outside. So, there is very little value addition. So, there is no gain to the country, whereas our market is very big today," Saraswat said, adding that with the kind of a domestic market India has, exporters to India are benefiting while India is losing the opportunity to earn foreign exchange.

<https://www.livemint.com/news/india/will-fly-to-venus-mars-with-pvt-cos-11693333944735.html>

Indian Spacetech Start-up GalaxEye Space Offers Cutting-edge Synthetic Aperture Radar Tech for Drones

In a first for India, spacetech start-up GalaxEye Space has offered its cutting-edge Synthetic Aperture Radar (SAR) designed for deployment on its under-development satellite systems for aerial drones as well. The system is capable of conducting exceptionally detailed and high-resolution all-weather imaging, even under rainy or cloudy conditions, the company said in a statement Tuesday.

This makes the Bengaluru-headquartered company the country's only private entity to successfully develop and demonstrate the SAR technology, alongside established organisations such as the Indian Space Research Organisation (ISRO) and Defence Research and Development Organisation (DRDO).

“We had completed the testing of the SAR sensor in December last year. And since there was a lot of interest in this area, we eventually announced it for aerial drones. This is definitely one of the milestones towards the development of our own satellites,” Suyash Singh, Co-founder & CEO told Business Today.

Several drone service providers had approached GalaxEye with a request to develop a SAR version for aerial mapping as well. The technology can be utilised across areas such as insurance, surveillance, precision agriculture, property tax estimations and monitoring utilities like gas pipelines and transmission lines. Usually, most drone companies utilise still or video cameras for this purpose.

“Instead of testing the entire sensor stack in the orbit, the cost-effective and lightweight solution for the aerial platform will also allow us to assess its efficacy here. The next step is to put a space-grade version of this sensor on our satellites,” declared Singh.

Entirely developed in-house, the fusion technology is designed to deliver unprecedented insights and data from space, empowering satellite constellations to conduct all-weather imaging without succumbing to the atmospheric hindrances that plague current single-sensor satellites. It is capable of generating highly detailed images through a compact satellite constellation that can achieve global coverage within a 12-hour time frame.

“GalaxEye has been able to prove their capabilities in such a short period of time and that too with difficult technologies like SAR,” Sudheer Kumar, Director Capacity Building Office at ISRO, noted.

The company is looking at launching its first satellite to be called Drishti Mission by mid-2024, which will be India's first and the world's highest-resolution multi-sensor imaging satellite. Incubated in IIT-Madras, it has inked strategic partnerships and commercial contracts with leading organisations, including the US-based space software provider Antaris, XDLINX Labs, Ananth Technologies and Dassault Systèmes.

<https://www.businesstoday.in/entrepreneurship/start-up/story/indian-spacetech-start-up-galaxeye-space-offers-cutting-edge-synthetic-aperture-radar-tech-for-drones-396139-2023-08-29>

Tue, 29 Aug 2023

Google Unveils Enterprise AI Tools, New AI Chip

Google unveiled a swath of fresh artificial-intelligence technology and partnerships on Tuesday that were geared toward bringing more of the growing technology to large businesses.

The batch of announcements from its Google Next conference in San Francisco included new customers for its cloud software such as General Motors (GM.N) and Estee Lauder Companies (EL.N). The Alphabet (GOOGL.O) subsidiary made public a new version of its custom-built AI chips, unveiled an enterprise-scale tool to watermark and identify images generated with AI - plus tools for security and its office suite.

The flurry of announcements is part of Google's recent effort to showcase its AI plans, after Microsoft (MSFT.O) caught the company off guard with an ambitious AI strategy it has been rolling out since last year.

But its big business customers need to be deliberate and move at a different pace, Google Cloud chief Thomas Kurian said in an interview with Reuters.

"We've generally told enterprise customers, 'Go slowly and methodically because it's important that you treat this as a strategic software development,'" he said. "There's been this sort of FOMO of, 'I need to be in generative AI for generative AI's sake.'"

FOMO refers to fear of missing out, a common refrain in AI in recent months.

To bolster Google's enterprise cloud service it added 20 AI models to its collection, bringing the total to 100. The AI infrastructure includes deals to bring Google Cloud customers access to Meta Platforms' (META.O) AI model LLaMa 2, and to the startup Anthropic's Claude 2.

Google announced new versions of its own foundation AI infrastructure that improve performance and add features. The new version of its text model called PaLM, for example, increased the amount of text users can input to make it easier to process longer documents such as legal briefs and books. Google discussed a tool that adds the capability to watermark AI-generated images. Called SynthID, the technology alters a digital image file in a way invisible to human eyes. It is designed to remain intact after an image is altered or tampered with.

Google also rolled out AI updates to its suite of office software and security tools. The company unveiled an AI-powered tool that can port databases from Oracle (ORCL.N) to an open-source version, a notoriously difficult task.

CUSTOM AI CHIPS

Ahead of the announcement of its full-fledged fifth-generation tensor processing unit (TPU), Google has opened access to a version that is optimized for genAI and large language models.

The new chip, called TPU v5e, is designed to train large models but also efficiently serve content from those models. It is not as powerful as the as yet unlaunched flagship fifth AI generation chip.

Google has stitched together the TPU v5e chips into batches of 256 that it describes as a "supercomputer." Cloud customers can connect several pods together in order to tackle more complex computing problems.

<https://www.reuters.com/technology/google-unveils-enterprise-ai-tools-new-ai-chip-2023-08-29/>

