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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

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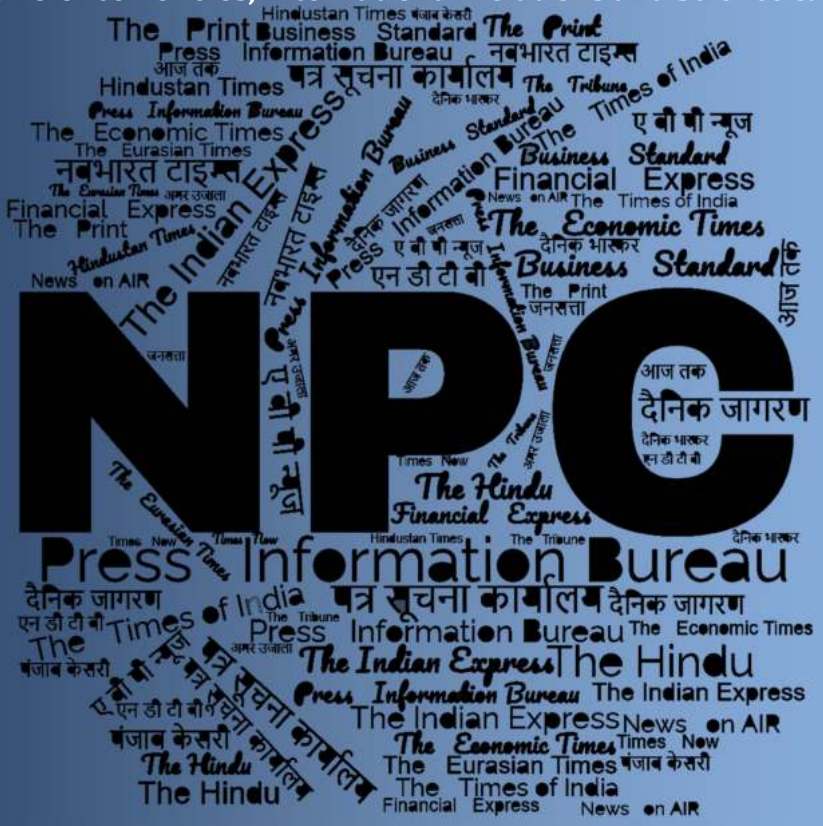

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Sat, 15 Apr 2023

CVRDE Celebrates it's Raising Day

AMAGB Bearings were handed over by Combat Vehicles Research and Development Establishment (CVRDE), Chennai to Hindustan Aeronautics Limited (Engines) Bangalore

Combat Vehicles Research and Development Establishment (CVRDE), a lab under DRDO, has celebrated its annual raising day on 15th April 2023 at Arjun Auditorium of CVRDE. This function was presided over by DR. Samir. V. Kamat, Secretary, DD R&D and Chairman DRDO. Apart from Director General (ACE), most of the senior dignitaries from ADA, CEMILAC, HAL and other allied establishments ie. HVF, OCF, Engine Factory (Avadi), CRPF, DQA and AVNL HQ were participated. During this function some of the indigenously developed products of CVRDE related to Aircraft projects were handed over and the brief of the same is given below.

Design/Development of Indigenous Aircraft Quality Bearings

Combat Vehicles Research & Development Establishment (CVRDE), DRDO, Chennai has designed and developed the High Speed, High Precision, Aircraft quality bearings of LCA-Tejas successfully first time in the country, making Aatma Nirbhar Bharat in Aerospace Bearing Technology. ADA, CEMILAC, DAGQA and the manufacturing partner M/s Austin Engineering Company Ltd., Gujarat teamed together along with CVRDE and accomplished this great success.

After successful conduct of flight trials on the indigenous AMAGB-bearings in LCA-Tejas, the production clearance is accorded by CEMILAC and the same was handed over by Honourable RM during Aero India-2023. And HAL(Engines) has already initiated action for obtaining these indigenous bearings.

On this day, 15th April 2023, two sets of CVRDE developed AMAGB Bearings were handed over by Director-CVRDE, Chennai to GM-HAL (Engines), Bangalore in the august presence of Secretary DD(R&D) & Chairman DRDO for use in the production series of LCA Tejas.

With this achievement, CVRDE has established the development of High speed, high precision Aerospace Bearings within the country making India Aatma Nirbharta in Aerospace Bearing Technology. CVRDE has already taken up development of Aero Engine Bearings and is geared up to meet the requirements of aerospace bearings in the country.

PTO Shaft of LCA Tejas

The indigenous Power Take Off (PTO) shaft designed and developed by CVRDE, DRDO, Chennai with unique innovative patented "Frequency Spanning Technique (FST)" was test flown with LCA - Tejas LSP-3 aircraft on 14th March 2023.

Today flight clearance certificate for PTO Shaft is handed over by CE-CEMILAC to Director-CVRDE and a PTO Shaft is handed over by Director-CVRDE to DG-ADA in August presence of Chairman DRDO for flight trials in LCA-Tejas.

Landing Gear Seals

CVRDE has successfully designed, developed, qualified and delivered Landing Gear Systems for TAPAS and SWiFT UAVs and are undergoing flight trails. The Shock absorber Strut of Landing Gear system has to absorb high kinetic energy during landing and take-off and also effectively isolate the vibration during taxiing on ground. These indigenously designed and developed Hydro-gas technology based Shock Absorber Struts are of telescopic design with a Floating piston separating gas and oil chambers. The dynamic seals used in the shock struts need to withstand high fluid pressures of the order of 450 bar, extreme operating temperatures from -40 °C to 200 °C and surface velocities of 6m/s during aircraft landing and are made of five Polymeric and Elastomer materials and are process intensive.

These dynamic Seals are indigenously Designed, Developed and qualified by CVRDE and manufactured through M/s Fluoro Carbon Seals Pvt. Ltd., Chennai for the first time in the country for Landing Gear application with due coordination by CEMILAC and DGAQA. Based on this CEMILAC issued Clearances for Pre-Production Phase of five Seal Materials for Aeronautical application to CVRDE and M/s Fluoro Carbon Seals, Chennai.

This development made India Aatma nirbharta in Aerospace seal technology.

https://pib.gov.in/PressReleasePage.aspx?PRID=1916919

THE TIMES OF INDIA

Sat, 15 Apr 2023

Production of Tejas LCA Gets Fillip

Production and flight trials of Tejas light combat aircraft have got a fillip. HAL, which is gearing up to start manufacture of Tejas light combat aircraft, has now got design for aircraft bearings and a flight clearance certificate for a take-off component of the aircraft from Combat Vehicles Research and Development Establishment (CVRDE), a lab under DRDO, in Avadi. This will help in the start of manufacture and further trials of the aircraft.

CVRDE designed aircraft quality bearings (AMAGB Bearings) and power take off (PTO) shaft for the plane. The defence lab has designed and developed the high speed, high precision, aircraft quality bearings of Tejas in Aerospace Bearing Technology in association with Indian private companies and public sector units, said a press release. Flight trials in LCA-Tejas had already been completed and the production clearance is accorded by Centre for Military Airworthiness

and Certification (CEMILAC), a regulatory body. It was handed over by defence minister Rajnath Singh during Aero India 2023.

CEMILAC also issued clearances for pre-production of landing gear seals for aeronautical application to CVRDE and M/s Fluoro Carbon Seals, Chennai.

CVRDE has successfully designed, developed, qualified and delivered landing gear systems for TAPAS and SWiFT UAVs which are undergoing flight trials.

https://timesofindia.indiatimes.com/business/india-business/production-of-tejas-lca-gets-fillip/articleshow/99520799.cms

THE HINDU

Mon, 17 Apr 2023

DRDO CoE Inaugurated at IIT-H

DIA-CoE being inaugurated at IIT-H in Sangareddy on Sunday. | Photo Credit: MOHD ARIF

Defence Research and Development Organisation (DRDO)'s collaboration with the Indian Institute of Technology-Hyderabad (IIT-H) started in 2020 with the former's research cell transformed into a Centre of Excellence as DIA-CoE.

This centre was inaugurated on Sunday by chairman of DRDO Samir V. Kamat in the presence of IIT-H director B.S. Murty and director of DIA-CoE G. Ramaguru at Technology Research Park, IITH. There are seven verticals of technology projects that will be undertaken at DIA-CoE, including ultra-high temperature materials, additive manufacturing, space technologies, AI for defence, image processing, seekers and homing technologies and nano-ornithocopter technologies. Mr. Murty said, "This centre is a major step towards Atmanirbhar Bharat in the defence sector. I am happy that this CoE will take shape under the leadership of Dr. Ramaguru,

who has experience in managing strategic projects. I am looking forward to the faculty of IIT-H working together with DRDO to make India a global leader in each of the verticals assigned to the CoE". Praising IIT-H for cutting-edge research, Mr. Kamat said, "DRDO and IIT-H will work together and identify target projects in each domain and execute them in 3-5 years. DIA CoE at IIT-H is the country's largest centre among all 15 DIA-CoEs and has many verticals".

https://www.thehindu.com/news/national/telangana/drdo-coe-inaugurated-at-iit-h/article66745104.ece

DRDO on Twitter

DRDO
@DRDO_India

#DRDOUpdates | Glimpses of dignitaries visits to #DRDO stall at India pavilion during the Leading Latin American Defence & Security Exhibition at Rio De Janiero, Brazil.
#LAAD2023
@SpokespersonMoD
@DefenceMinIndia

11:25 PM · Apr 14, 2023 · **10.7K** Views

Defence News

Defence Strategic : National/International

Press Information Bureau
Government of India

Ministry of Defence

Sat, 15 Apr 2023

Army Commanders Conference to be Organised in Hybrid Format from 17 April 2023

Army Commanders' Conference (ACC) is an apex-level biannual event which is an institutional platform for conceptual level deliberations, culminating in making important policy decisions for the Indian Army. The first ACC for the year 2023 is scheduled from 17 to 21 April 2023. For the first time, the ACC is being conducted in Hybrid format exploiting available technology for secure communication, wherein Army Commanders and other senior functionaries will meet virtually on the first day and then travel to Delhi for balance physical meetings on matters which require detailed deliberations.

On the first-day of the conference, agenda points sponsored by various Command Headquarters will be discussed, followed by an update from Commander-in-Chief Andaman and Nicobar Command and sessions by Principal Staff Officers of the Army Headquarters. The forum will also review the progress on the activities charted out as part of 'Year of Transformation-2023' along with progress on Agnipath Scheme, digitisation & automation initiatives, Combat Engineers tasks, work aspects and budget management.

The apex leadership will also brainstorm current / emerging security scenario and review operational preparedness of Indian Army.

The Hon'ble RM is scheduled to address the conference on 19 April 2023, where he will also review an equipment display focussing on niche techcology, innovation, solutions for surveillance, Artificial Intelligence, Training, Robotics, Virtual Reality, Operational Logistics etc. The senior officers will also be addressed by the Chief of Defence Staff, Chief of the Naval Staff and the Chief of the Air Staff.

A talk on future contours of Indo China relations by Mr Vijay Gokhale, former Ambassador to China is also planned during the conference.

https://pib.gov.in/PressReleasePage.aspx?PRID=1916931

Press Information Bureau
Government of India

Ministry of Defence

Fri, 14 Apr 2023

Three-day International Conference on Defence Finance & Economics Concludes in New Delhi

The three-day International Conference on Defence Finance and Economics (ICDFE-2023) concluded in New Delhi on April 14, 2023. Chief of the Air Staff Air Chief Marshal VR Chaudhari was the Chief Guest at the valedictory session of the conference. Financial Adviser (Defence Services) Smt Rasika Chaube, Additional CGDA Shri SG Dastidar and Senior Joint CGDAs Ms Devika Raghuvanshi & Shri AN Das were also present.

Raksha Mantri Shri Rajnath Singh had inaugurated the conference on April 12, 2023. Organised by Ministry of Defence (Finance), it witnessed participation of over 350 eminent policy makers, academics and government officials from within the country and abroad. Delegates from USA, UK, Japan, Australia, Sri Lanka, Bangladesh and Kenya attended the conference, across eight business sessions.

Discussions ranged from international perspective on strategic allocation of defence budget, the importance of human resource management in Defence and the significance of defence spending for a state's national security. The panelists also discussed the defence finance perspective, including the significance of defence procurement and timely payments including the implementation of a faceless bill processing and payment system that the Defence Accounts Department is currently implementing.

The eminent speakers included Chief of Defence Staff General Anil Chauhan, Chief of the Naval Staff Admiral R Hari Kumar, Defence Secretary Shri Giridhar Aramane, Finance Secretary Shri TV Somanathan, Secretary (Ex-Servicemen Welfare) Shri Vijoy Kumar Singh, Secretary, Department of Defence R&D & Chairman DRDO Dr Samir V Kamat and Comptroller and Auditor General of India Shri Girish Chandra Murmu.

During the session 'Defence Strategies & Economics', the Chief of Defence Staff emphasised the necessity of aligning economic growth with defence spending. He advocated for civil military integration and financial discipline in the Armed Forces and urged for financial prudence in utilising the defence budget.

The Chief of the Naval Staff addressed a session on 'Defence Diplomacy'. He emphasised its importance during 'Amrit Kaal' particularly in light of India hosting the G-20 Summit and the ensuing message of 'Vasudhaive Kutumbakam'. He stressed the importance of defence diplomacy for India since it is well on course to become the fourth largest global economy soon.

During the session 'Defence International Acquisition Issues', the Defence Secretary highlighted the role of the defence sector in boosting economic growth and strategic autonomy as well as generating employment opportunities for India's young population. He also discussed some of the challenges in Defence Acquisitions and urged the Ministry and the Defence Accounts

Department to work towards optimal resource utilisation. The DRDO Chairman stressed on India's growing self-reliance in the field of defence production over the last few years.

The business session on "Pay & Allowances and Veteran Welfare" featured a keynote address by Secretary (Ex-Servicemen Welfare), who described the main features of important schemes for veteran welfare, such as those run by Kendriya Sainik Board, ECHS, Pradhan Mantri Scholarship Scheme, Paraplegic Rehabilitation Board, War Memorial Hostels and others.

The Finance Secretary, in his address, discussed the optimal resource allocation in defence and emphasised on two aspects of it: how much budget should be allocated to defence and how to distribute the resources among different services, highlighting the need to take decisions based on practical considerations.

The Comptroller and Auditor General of India spoke about the challenges of meeting the developmental needs of India with limited financial resources and the need to prioritise various activities accordingly. He said that audit plays a vital role in ensuring accountability and transparency in defence management and helps in taking right decisions for achieving the security objectives of the country.

Ms Afroza Sultana Saleh, Sr Finance Controller of Defence Purchase at the Defence Finance Department of Bangladesh shared the Bangladesh Perspective on Defence Audit and Finance, the common shared history of the Departments across the Indian sub-continent. Maj Gen Sheikh Pasha Habib Uddin, DG, BIISS from Bangladesh elaborated on the changing role of Armed Forces over the years. His presentation touched upon various discourses about defence diplomacy and trends of defence diplomacy particularly in context of Bangladesh; and the way forward.

Dr Satoru Nagao from Hudson Institute, Tokyo shared his views on the international perspective on strategic allocation of defence budget. He drew upon historical lessons to evaluate the defence priorities and stressed the importance of making optimal resource mobilisation decisions.

An external perspective on how to allocate resources in defence effectively by identifying priorities and goals was provided by Mr Karl Dewey from IISS, UK. He also discussed the various changes in India's Defence sector and highlighted the different aspects of India's strategic vision. Mr Suyash Rai from Carnegie India, discussed the challenges of resource scarcity and the widening gap with China in terms of resources. He argued that India should pursue 'Capabilities with efficiency' – 'Constraints but Capable' as a guiding principle for its defence policy.

Mr Dhruva Kumar, from Curriculum Marine, Glasgow, UK shared his insights on four key challenges in Defence Acquisition process related with Transfer of Technology, Industrial and MoD capabilities, Supplier performances, incentive & contracting and Program management approach. Mr Alan Merbaum from the Defence Security Cooperation University, USA highlighted the significance of the collaboration between India and US as the oldest and largest democracies in the world and shared some insights into the US Defence sector and its acquisition process and suggested some best practices that India could adopt.

Mr Andrew Dowse from RAND Institute, Australia explained the Planning, Programming, Budgeting and Execution system of the USA and also described the Australian approach to defence resources planning.

Brig. Gen. Ahmad Mohammad (Retd.) from Kenya posed questions about the necessity of Pay and Allowances that are affordable, equitable, and dignified. He pointed out that each country

has its own distinctive Military Pay and Allowances, and that the factors that make up the Pay and Allowances should vary according to each country. He shared the Kenyan experience and made factual comparisons with the Indian situation, urging policymakers to avoid the temptation to compare Military and Civilian Pay, emphasising that they have different demands and duties.

https://pib.gov.in/PressReleasePage.aspx?PRID=1916648

THE ECONOMIC TIMES

Thu, 13 Apr 2023

Need to Counter 'An Adversary's' Rapid Advances in Space Sector: CDS Chauhan

Chief of Defence Staff (CDS) Gen Anil Chauhan on Thursday said India needs to sharpen its focus on developing space capabilities to counter the rapid advances in the sector made by "an adversary", an apparent reference to China. Addressing the valedictory session of the Indian DefSpace Symposium, Gen Chauhan also stressed on the need to focus on protecting the country's space assets to ensure that they are resilient as well as sustainable in case of a future space war.

The CDS said it was important for India to build its own cyber-secure, space-based, high-speed resilient communication by leveraging quantum encryption.

"We are discussing the capabilities of another adversary, which it was said was galloping very fast and will soon overtake the space capabilities of its nearest competitor. That only goes to indicate that we need to sharpen our focus on the capabilities being developed and capability that we can use to counter them. That is important for us," Chauhan said.

He said the time has come now to leverage the full potential offered by affordable low Earth orbit satellites, miniaturised sensors and reusable rockets or putting in place multi sensor ISR constellations to serve us real time, accurate, precise and persistent dual intelligence pictures along with precision methodological inputs.

"It is also important that we build our own cyber-secure, space-based, high-speed resilient communication, leveraging quantum encryption, covering the entire area of interest to enable the full spectrum of operations in a seamless manner," Chauhan said.

"A secure, reliable and resilient NavIC to address our PNT requirements and chemical weapon systems including strategic missiles need special attention. We also need to focus on protecting our space assets and to ensure that both are resilient as well as sustainable. In case of a future space war. We must have a defensive as well as deterrent component in-built into this particular system," the CDS said.

As of May 2022, China has 541 active satellites in orbit as against 29 of India, which include six built by universities and start-ups. In terms of launch attempts, China made 64 such attempts in 2022 as against five by India, experts said.

The CDS also unveiled an indigenously developed chip that could form the core of the navigation, positioning and timing applications in India.

"The chip works using Navigation with Indian Constellation (NavIC) or the Indian Regional Navigation Satellite System (IRNSS) satellites," Elena Geo Systems founder Lt Col V S Velan said. The first chips were handed over to the Chief of Defence Staff, Defence Research and Development Organization (DRDO), Samir V Kamat, and Chief of Air Staff Air Chief Marshal Vivek Ram Chaudhari.

https://economictimes.indiatimes.com/news/defence/need-to-counter-an-adversarys-rapid-advances-in-space-sector-cds-chauhan/articleshow/99472653.cms?from=mdr

DECCAN HERALD

Thu, 13 Apr 2023

Chief of Defence Staff Visits Western Naval Command Headquarters in Mumbai

General Anil Chauhan, Chief of Defence Staff visited the Mumbai-headquartered Western Naval Command (WNC), the sword arm of the Indian Navy on Friday. During the visit, he interacted with Vice Admiral Dinesh K Tripathi, Flag Officer Commanding-in-Chief, WNC.

He was briefed on the role, responsibilities and operational preparedness of the WNC and measures instituted to safeguard the Western seaboard. The CDS addressed and interacted with the senior officers of the three services at Mumbai, including officers from Indian Army's Maharashtra Gujarat and Goa Area and Indian Air Force's Maritime Air Operations.

He provided his guidance on the armed forces to be ready, resurgent and relevant in the current era. He also discussed the way ahead on jointmanship, integration and theaterisation, and the crucial role of Aatmanirbharta.

The CDS visited the latest frontline destroyer INS Mormugao, submarine INS Vela and the facilities at the Naval Dockyard, Mumbai. He was also familiarised with the progress in naval shipbuilding and indigenisation during his visit to MDL.

https://www.deccanherald.com/national/west/chief-of-defence-staff-visits-western-naval-command-headquarters-in-mumbai-1209973.html

THE HINDU

Thu, 13 Apr 2023

Indigenous Chip for NavIC-based Satellite Navigation Launched

In a step towards expanding usage of indigenous satellite-based Navigation, NavIC, a chip that can form the core of the Navigation, Positioning and Timing applications developed by Elena Geo Systems, a Bengaluru-based space technology company, was unveiled at the Defence Space

Symposium on Thursday. The chip works using Navigation with Indian Constellation (NavIC) or the Indian Regional Navigation Satellite System (IRNSS) satellites.

A chip was formally handed over by Lt. Col. V.S. Velan (retd.), founder and Chief Technology Officer of Elena Geo Systems, to Chief of Defence Staff (CDS) General Anil Chauhan.

"We are thrilled to present India's first fully designed and developed NavIC chip. The processor will give India a huge edge as both the government and private sector can move away from their dependence on the American Global Positioning System (GPS). Elena is in the process of patenting the technology and the product which has been developed by our dedicated R&D team," Lt. Col. Velan said.

The chip has many cores that service the requirements of signal acquisition, regeneration, processing and the output interface and hence it is has been named as the NavIC processor, he stated. "We will be manufacturing 10,000 chips in the first batch," he told The Hindu. He said they had demonstrated several of their products to the armed forces and were supplying 200 NavIC receivers to the Army through Bharat Electronics Limited.

High precision

The chips will enable high precision and accuracy for all the three types of applications such as navigation, positioning and timing, providing self-reliance, Lt. Col. Vasan said, adding that they have been pursuing advance technologies to manufacture these chips and modules; some of which have been supplied to the Indian Army and some private entities.

Elena Geo Systems was incubated at IIT-Kharagpur in 2012 and is now a member of the Delhi-based Indian Space Association (InSA) which organised the symposium in association with the Defence Research and Development Organisation (DRDO).

Elena demonstrated its first processor in April 2019, which could receive and process signals of NavIC S-band, L5 band, GAGAN, GPS and Russian GLONASS. In the last two years, Elena successfully demonstrated its capability across devices and applications for reference stations, DSM map display system with IRNSS for the Army, map display system for patrol boats, marine NavIC receivers, intelligent vehicle tracking devices, NavIC drone navigation units and NavIC-based atomic clock, Lt. Col. Velan added.

https://www.thehindu.com/news/national/indigenous-chip-for-navic-based-satellite-navigation-launched/article66733899.ece

ThePrint

Sat, 15 Apr 2023

India Moving towards Creating Rocket Force, Defence Services to Acquire Around 250 More 'Pralay' Ballistic Missiles

In a giant leap towards creating a strong rocket force to tackle the threat from the northern borders, Indian defence forces are set to place orders for two more units of the Pralay ballistic missiles at the cost of over Rs 7,500 crore.

The move comes after the Defence Ministry in December last year cleared one unit of these missiles for the Indian Air Force.

"Two more units of the Pralay ballistic missiles are going to be acquired for the defence forces, which are on their way towards creating a Rocket force including assets of all three forces," Defence sources told ANI.

The proposal for the acquisition of these missiles for ground forces is at an advanced stage and is expected to be cleared soon, they said.

The Pralay ballistic missiles can take out targets at 150 to 500 kms and are extremely difficult to intercept for the enemy through interceptor missiles.

Work is also on to increase the range of these missiles by another few hundred kilometres to give a stronger capability to forces, the sources said.

Both China and Pakistan have ballistic missiles which are for tactical roles. The missile developed by the Defence Research and Development Organisation is being further developed, the sources said.

The missile system started getting development around 2015 and the development of such a capability was given a push by the late Gen Bipin Rawat as Chief of Army Staff.

The missile was successfully tested twice on consecutive days last year on December 21 and December 22 in 2021.

A quasi-ballistic surface-to-surface missile, 'Pralay' has been developed in a way to be able to defeat interceptor missiles. It has the ability to change its path after covering a certain range in midair.

'Pralay' is powered by a solid propellant rocket motor and other new technologies. The missile guidance system includes state-of-the-art navigation and integrated avionics.

The missile would be first inducted into the Indian Air Force and would be followed by the Indian Army.

https://theprint.in/india/india-moving-towards-creating-rocket-force-defence-services-to-acquire-around-250-more-pralay-ballistic-missiles/1520887/

Business Standard

Fri, 14 Apr 2023

L&T gets Order to Build Prototype of Light Tank for Sino-India Border

With the Indian Army on a major drive to equip itself adequately on the Sino-Indian border, the Defence Research & Development Organisation (DRDO) and Larsen & Toubro (L&T) have joined hands to develop an indigenous light tank that is optimised for the extreme cold and high altitude of Ladakh and Arunachal Pradesh.

Having co-designed an indigenous, 25-tonne, light tank, the DRDO has placed a development order on L&T to build the first prototype, say Army sources.

Meanwhile, the Defence Acquisition Council (DAC) — the Ministry of Defence's (MoD's) apex body for capital purchases — has granted an Acceptance of Necessity (AoN), or in-principle agreement, for seven light tank regiments, each equipped with 45 tanks.

The AoN requires L&T — the MoD's development partner — to build one regiment of light tanks, while the MoD acquires the other six regiments under the "Make" procedure. The light tank will have a hull, co-developed by DRDO and L&T, that will house an 800 horsepower (HP) engine optimised for high altitudes. The engine will be provided by German firm MTU, which is a subsidiary of Rolls-Royce.

Mounted on this hull will be a 105-millimetre gun turret, procured ready-built from Belgian firm, John Cockerill.

It is intended to marry the DRDO's expertise in tank design, created while developing the Arjun tank, with the heavy engineering capability of L&T, which is already building the K-9 Vajra self-propelled artillery gun system for the army.

The indigenous light tank was initially planned to be built on the chassis of the K-9 Vajra. This, however, was ruled out because the Army placed a weight limit of 25 tonnes on the light tank, while the Vajra's heavy chassis would take its weight to at least 34-35 tonnes.

The armoured challenge from the People's Liberation Army (PLA) in Ladakh is centred on China's new light tank, the agile and versatile ZTQ 105 — also known as the Type 15 – developed by China's North Industries Group Corporation (NORINCO) and unveiled during the Zhuhai Air Show in 2016.

The ZTQ 105 has a 105-mm rifled gun that can destroy enemy tanks at ranges of two-to-three kilometres (km). It also fires anti-tank guided missiles to knock out tanks at ranges of five km.

The Indian Army currently uses Russian T-72 and T-90 tanks on the Sino-Indian border. But these hefty, 42-45-tonne main battle tanks are designed for the plains. Movement is difficult for them on steep and narrow mountain roads.

There are also limitations on how much their heavy 120-mm guns can be depressed or elevated, sometimes preventing them from engaging targets on hilltops or in valleys. That is why the Army took only small numbers of T-72 and T-90 tanks into Ladakh to counter the Chinese intrusions in 2020, and used them only sparingly.

In contrast, the Army has a formidable combat tradition of using light tanks in the mountains. In 1944, it used Stuart and Sherman tanks in the battle of Kohima. In 1948, these same tanks pushed back Pakistan forces in the Zoji-la pass. Against China in 1962, the Army used light AMX-13 tanks in the battle of Gurung Hill near Pangong Tso and deployed them in Bomdila and Dirang in Arunachal Pradesh. In the 1971 Bangladesh campaign, French AMX-13 and Soviet PT-76 tanks played a stellar role in the battle of Garibpur.

Although the K-9 Vajra artillery gun is designed for use in plains terrain, the Sino-Indian border tensions in 2020 saw a full regiment of these long-range, self-propelled guns deployed in eastern Ladakh, to increase the army's long-range firepower.

Their successful deployment prompted the Army to consider diverting significant numbers of K-9 Vajras for use in mountainous terrain. This requires L&T to build 100 more K-9 Vajras; as well as induction of the Ordnance Factory Board's indigenous 155 mm, 45 calibre Dhanush howitzers, and imported M777 ultralight guns.

To cater for this enhanced firepower, L&T has built 100 K-9 Vajras in Hazira, near Surat, with technology transferred from South Korean defence major Hanwha Defense. It handed over the 100th SP howitzer on February 18, 2021, ahead of its contracted date. Now the MoD is pursuing the "Vajra repeat programme", which requires L&T to build another 100 K-9 Vajra howitzers. L&T's proposal is currently before the MoD's "technical evaluation committee." The commercial bid is likely to be opened this month.

https://www.business-standard.com/india-news/mod-orders-l-t-to-build-light-tank-prototype-for-sino-india-border-123041400817_1.html

THE TIMES OF INDIA

Fri, 14 Apr 2023

Eye on China, Army & IAF Carry out Special Operation Drills

Continuing with the flurry of combat exercises to practice battle readiness and synergised contingency operations in the eastern theatre, the Army and IAF have now conducted drills for "multi-mode insertion of strategic forces" into the region.

"Such special operations exercises are a mix of conventional and unconventional military actions that are undertaken by specially designated, selected, trained and equipped units," an officer said.

Amid the continuing heightened tensions along the Line of Actual Control with China, chief of defence staff General Anil Chauhan had also visited the eastern sector over the last weekend to review the military preparedness. India has strengthened defences in the region, with a special focus on the strategically-vulnerable Siliguri Corridor, as was reported by TOI.

The latest exercise saw IAF strategic airlifters like C-17 Globemaster-IIIs as well as Chinook and Mi-17 helicopters undertake rapid insertion of Special Forces and other troops into designated greenfield landing or drop zones.

Such specialised forces, which included paratroopers from the Agra-based Shatrujeet Brigade, are meant for "kinetic actions" to provide "a surge to ongoing operations by regular land forces" during a conflict situation.

"The exercise showcased the operational preparedness and synergy of strategic forces and troops of the Army's Eastern Command to undertake integrated multi-domain operations in high-altitude and mountainous areas," the officer said.

"It also demonstrated speed, agility and lethality of the specialised troops showcasing their ability to rapidly deploy into a hostile environment, secure landing zones and engage the enemy with precision and speed as per the tactical setting," he added.

While there are no signs yet of any de-escalation in the three-year-old military confrontation with China in eastern Ladakh, where both sides continue to forward deploy over 50,000 troops each with heavy weaponry, tensions have also spiked along the LAC stretch in Sikkim-Arunachal Pradesh since the rival troops clashed at Yangtse in the crucial Tawang sector on December 9.

https://timesofindia.indiatimes.com/india/eye-on-china-army-iaf-carry-out-special-operation-drills/articleshow/99478793.cms

Business Standard

Thu, 13 Apr 2023

IAF to Deploy Four Rafale Jets in First Overseas Exercise in France

India will deploy four Rafale jets, two C-17 aircraft and two IL-78 mid-air refuellers for a nearly three-week multinational air exercise at France's Mont-de-Marsan military base.

It will be the first overseas exercise for the Indian Air Force's Rafale jets.

The contingent of the Indian Air Force will leave for France on Friday. "An Indian Air Force (IAF) contingent will be departing tomorrow for France to participate in Exercise Orion at Mont-de-Marsan," the IAF said. "The exercise will be conducted from April 17 to May 5 with the IAF contingent comprising four Rafale jets, two C-17, two ll-78 aircraft and 165 air warriors.

Besides the IAF and the French Air and Space Force (FASF), the exercise will be participated by air forces from Germany, Greece, Italy, the Netherlands, the United Kingdom, Spain and the United States. "Participation in this exercise would further enrich the employment philosophy of the India Air Force, by imbibing the best practices from other Air Forces," the IAF said in a statement.

https://www.business-standard.com/india-news/iaf-to-deploy-four-rafale-jets-in-first-overseas-exercise-in-france-123041301278_1.html

THE ECONOMIC TIMES

Fri, 14 Apr 2023

Are the B-1s Heavy Bomber Jets Coming!?

By Ashish Dangwal

The US bringing in two B-1 heavy bomber jets, a fleet of F-15E fighter jets and C-130 and C-17 transport aircraft for its April 10-21 joint Exercise Cope India 2023, in Kalaikunda, West Bengal, has some experts believe that it is attempting to court India by promoting its military equipment as a substitute for Russian defence products and, thereby, become New Delhi's foremost defence ally....

The Indian Air Force (IAF) values the need to acquire a cruise missile carrier urgently. Relying on a few Su-30MKIs, which can carry just a single BrahMos each, is not enough, military analyst Vijainder K Thakur said.

The US Air Force (USAF) Global Strike Command has retired 17 B-1 bombers from its fleet of 62. The remaining 45 will serve until the new B-21 stealth bomber arrives. Some of the retired B-1Bs require repairs. A USAF official says, 'It would have taken $10-30 million per aircraft to get back to a status quo fleet in the short term until the B-21 comes online.'

Simply put, the IAF could lease or acquire a squadron of B-1B bombers and cruise missiles to go with them for around $1 billion! Purely to boost its strike power to a level where it can deter Chinese aggressiveness, a B-1B bomber squadron would be the most cost-effective, powerful option available to India.

From 'B-1 Bombers: India Ready With All 'Pacts & Papers' To Acquire US Bombers; Will It Become 1st Country To Get One?', The EurAsian Times

https://economictimes.indiatimes.com/opinion/et-citings/are-the-b-1s-heavy-bomber-jets-coming/articleshow/99501700.cms

THE HINDU

Sun, 16 Apr 2023

Chinese Dual Use Facilities in Myanmar and Sri Lanka Raises Security Concerns in India

The construction of a military facility on Coco Islands in Myanmar and a proposed remote satellite receiving ground station system in Sri Lanka, both coming up with Chinese help, have raised concerns in India of possible surveillance across the region.

Recent satellite images show the construction of a military facility on Coco Islands, located very close to India's Andaman and Nicobar island chain. In the second case, sources said China has proposed setting up a remote satellite receiving ground station system through a collaborative effort between the Aerospace Information Research Institute under the Chinese Academy of Sciences and the University of Ruhuna in southern Sri Lanka. Given its critical location, it can be used to spy on Indian assets and intercept sensitive information and also across the region, sources in the security establishment said.

A source in the security establishment, on the condition of anonymity, cited intelligence inputs on what is believed to be a complete military base being built entirely by the Chinese in the Coco Islands, about 60km from the Andaman and Nicobar Islands. "There are obvious concerns. There was a radome [dome-shaped structure to protect radars] spotted on the island recently through satellite images," the source said, adding that the island is being connected to the southern landmass using a new bridge that is 175m in length and approximately 8m wide. The facility can always be used by the Chinese military when required, the source stated.

Hangars and causeway

Last month, London-based think tank Chatham House published a report based on the satellite imagery of January 2023 from Maxar Technologies, which showed large-scale construction activity on the strategic archipelago. "Visible are two new hangars, a new causeway and what appears to be an accommodation block, all of which are visible in proximity to a freshly lengthened 2,300-metre runway and radar station. Visible as of late March on the southern tip of

Great Coco, just beyond the causeway connecting the islands, is evidence of land clearing efforts indicating construction work to come," the report said.

In the past, there have been reports that China had set up a signals intelligence facility operational since the 1990s.

Noting that satellite tracking facilities are inherently dual-use in nature, sources said that the Chinese civil space programme is known to work closely with the Chinese military. China's expanding ground stations in the region could potentially be used to intercept sensitive information about Indian assets, another source said on condition of anonymity. The source said that India's satellite launch facilities in Sriharikota and the integrated missile test range in Odisha could come under the scanner of the ground station, and launches from there could be tracked to obtain sensitive data. China is also expanding its network of ground stations in South America and, in February, announced setting up one such station in Antarctica.

Referring to the recent instance of a Chinese research and survey vessel docking at Hambantota in Sri Lanka, sources said the stations are likely to work in coordination with such vessels to gather vital information in the region.

For example, space tracking and surveillance ships can perform many of the same functions as ground stations, with the added benefit of mobility, the source noted.

For instance, the Espacio Lejano ground station in Neuquén, Argentina, which came online in 2017 has been the subject of attention and controversy since it was proposed in 2012. According to a report on China's space programme by the U.S. think tank Center for Strategic and International Studies (CSIS), the contract between Argentina and China stipulates that Argentina "not interfere or interrupt" activities which only fuelled suspicions of spying.

In August 2022, the docking of Chinese spy ship 'Yuan Wang-5' at Hambantota created a major diplomatic showdown between India and Sri Lanka. Later in November, another vessel 'Yuan Wang-6' had entered the Indian Ocean Region, coinciding with a planned Indian long-range missile launch but the launch was deferred and the vessel had re-entered the IOR in December when the missile test was rescheduled.

https://www.thehindu.com/news/national/chinese-dual-use-facilities-in-myanmar-and-sri-lanka-raises-security-concerns-in-india/article66741343.ece

THE ECONOMIC TIMES

Fri, 14 Apr 2023

Russia's Pacific Fleet put on High Alert for Snap Drills

The entire Russian Pacific Fleet was put on high alert on Friday for snap drills that will involve practice missile launches in a massive show of force amid the tensions with the West over the fighting in Ukraine. Defence Minister Sergei Shoigu said the goal of the war games was to test the capability of Russia's armed forces to mount a response to aggression.

Along with the missile launches, the drills will also involve nuclear-capable strategic bombers and other warplanes besides ones from the Pacific Fleet's air arm, Shoigu said.

The Russian military has concentrated the bulk of its forces on the front lines in Ukraine, but also continued conducting regular drills across Russia to train its forces and demonstrate their readiness.

Shoigu said the scenario for Friday's maneuvers envisages a response to an adversary's attempt to make a landing on Sakhalin Island and the southern Kuril Islands.

Japan asserts territorial rights to the Kuril Islands, which it calls the Northern Territories. The Soviet Union took them in the final days of World War II, and the dispute has kept the countries from signing a peace treaty formally ending their hostilities.

Last year, Russia announced it had suspended peace talks with Japan to protest Tokyo's sanctions against Moscow over its action in Ukraine.

Russia has built up its military presence on the islands in recent years, deploying advanced fighter jets, anti-ship missiles and air defence systems there.

The Pacific Fleet drills started days before a planned trip to Moscow by Chinese Defence Minister Gen. Li Shangfu.

A three-day visit to Moscow by Chinese President Xi Jinping last month demonstrated the two nations' partnership in the face of Western efforts to isolate Russia over Ukraine.

Both Moscow and Beijing have accused Washington of trying to isolate them and to hold back their development as they challenge the US for regional and global leadership.

Putin and Xi said they would increase contacts between their militaries and stage more joint sea and air patrols and drills, but there was no hint that China would help Russia with weapons, as the US and other Western allies feared.

https://economictimes.indiatimes.com/news/defence/russias-pacific-fleet-put-on-high-alert-for-snap-drills/articleshow/99490531.cms

THE ECONOMIC TIMES

Fri, 14 Apr 2023

Ukraine will 'Test and Use' Any Non-banned Weapons to Retake Crimea: Official

Ukraine will "test and use" any non-banned weapons to liberate its territory, including Russian-occupied Crimea, the head of its National Security and Defence Council said on Friday.

Oleksiy Danilov's comment comes with Kyiv expected to mount a counteroffensive in the coming weeks or months aimed at retaking Russian-held territory in the south and east.

"Crimea is the territory of Ukraine, and we will test and use there any weapons not prohibited by international laws, that will help liberate our territories," he tweeted.

Kyiv's Western partners have provided crucial military support, including modern battle tanks and armoured vehicles, since Russia's full-scale invasion last year.

But they have stopped short of providing heavier weapons, such as F-16 fighter jets, which Ukraine has asked for.

Kyiv has also been developing its own weapons, such as drones and the Neptune missile, which it says it used to sink the flagship of Russia's Black Sea Fleet last year.

Russia seized control of the Crimean peninsula in 2014.

https://economictimes.indiatimes.com/news/defence/ukraine-will-test-and-use-any-non-banned-weapons-to-retake-crimea-official/articleshow/99492993.cms

THE ECONOMIC TIMES

Thu, 13 Apr 2023

Japan to Offer Military Aid to Like-minded Countries in a Bid to Counter China

Japan has unveiled a new plan to provide "like-minded" countries especially in Asia with military aid as it looks to expand its influence in the Indo-Pacific region to counter China's aggressive push over Taiwan and the South China Sea issues. The guidelines announced by Tokyo early this month included a new programme to strengthen the militaries of like-minded countries by providing "official security assistance" - a move that breaks with its previous policy of avoiding the use of development aid for military purposes other than disaster relief, the Japan Times reported.

Japanese Foreign Ministry officials said the Philippines will be one of the first beneficiaries of Overseas Security Assistance (OSA), with Malaysia, Bangladesh and Fiji also among those being considered, the report said.

Japan, a member of the Quad alliance consisting of the US, India and Australia, is actively pursuing the Indo-Pacific strategy which China claims aimed at countering its rise.

Tokyo's decision to use international aid for military purposes is a 'paradigm shift' but won't lead to an arms race in Asia, the Hong Kong-based South China Morning Post reported on Thursday.

The move will not only build up the defence capabilities of Asian nations amid 'changing security dynamics', but boost the competitiveness of Japan's defence sector, it said.

Japan's new policy of defence aid to neighbours was announced after this month's visit of Japanese Foreign Minister Yoshimasa Hayashi to China.

In his talks with Hayashi on April 2, Chinese Foreign Minister Qin Gang said Japan should not "help a villain do evil", apparently referring to Tokyo's close ties with Washington.

This was the first visit by the Japanese Foreign Minister to China since 2019.

China and Japan have a long-festering dispute over uninhabited East China Sea islands controlled by Japan but claimed by China.

The islands are known as the Senkakus by Japan, while China named them as Diaoyu.

Taiwan also claims the islands but has forged agreements with Japan to avoid any conflict as Tokyo maintains close defence ties with Taipei.

The purpose of Tokyo's new initiative is to "contribute to the creation of a desirable security environment for Japan," while maintaining Japan's "basic principles as a peaceful nation," according to the Japanese ministry statement.

The OSA is being presented as an expansion of Japan's official development assistance (ODA) - one of the world's largest foreign aid programs - to cover projects "for the benefit of armed forces and other related organisations," the Japan Times report said.

The new framework was revealed as Tokyo moves away from a strict non-military approach to ties with its neighbours and looks to realise its vision of a Free and Open Indo-Pacific (FOIP), it said.

According to its fiscal 2023 budget, the Japanese government has set aside two billion Japanese Yen (USD15 million) for OSA. Funding will be separate from the Yen 570.9 billion in economic and social development assistance that Tokyo provides to developing countries.

While this year's modest OSA budget appears largely symbolic, especially compared with the ODA funds, experts say the decision to launch the program is significant, as it marks another step in Japan's march toward a more robust and proactive defence posture that could ultimately allow it more leeway in defence transfers, Japan Times report said.

Tokyo has traditionally exercised self-restraint on arms exports and defense technology transfers.

Stephen Nagy, politics and international studies professor at the International Christian University in Tokyo, said Japan's decision was due to the "changing security dynamics within the region".

"I do not see this as a fundamental departure of international aid; rather, I see it as a continuation of the use of strategic partnerships to help build the security capabilities of like-minded countries," Nagy told the Post.

Under existing partnerships, Japan had provided coastguard vessels and maritime domain awareness capabilities to various Southeast Asian countries including the Philippines, Malaysia and Indonesia.

https://economictimes.indiatimes.com/news/defence/japan-to-offer-military-aid-to-like-minded-countries-in-a-bid-to-counter-china/articleshow/99465800.cms?from=mdr

NDTV

Thu, 13 Apr 2023

China Revises Wartime Military Recruitment Rules amid Tensions over Taiwan

China has released a new set of revised rules for military recruitment in wartime, including giving priority to the veterans, drafting high-calibre soldiers and optimising conscription procedures, which an analyst described as combat readiness for a war over Taiwan.

A set of revised rules regarding military recruitment has been released by the State Council and the Central Military Commission (CMC) - the high command of the Chinese military headed by

President Xi Jinping - aiming to provide institutional guarantees for consolidating national defence and building strong armed forces, state-run Xinhua news agency reported on Wednesday. The new regulation, with 74 articles in 11 chapters, focuses on recruiting more high-calibre soldiers, standardising and optimising conscription procedures, and improving the system's efficiency, it said in a brief report.

The new rules will come into effect next month.

The regulations said recruitment should "focus on preparing for war" and increase efficiency by calling up "high calibre" recruits, the Hong Kong-based South China Morning Post newspaper reported. For the first time, a separate chapter on wartime recruitment has been included in the regulations, which state that ex-servicemen would be prioritised and expected to join their original units or similar positions.

The new rules were framed as Beijing is facing geopolitical tensions on several fronts, including in the South China Sea, especially in the Taiwan Strait, according to the report.

The People's Liberation Army (PLA) broke new ground in its latest drill around Taiwan by testing its capacity to blockade the self-ruled island.

The three-day exercises which ended on Monday followed Taiwanese President Tsai Ing-wen's meeting with US House Speaker Kevin McCarthy. China views Taiwan as a breakaway province. Beijing has not ruled out the possible use of force to reunify the self-ruled island with the mainland. China views any official exchanges between foreign governments and Taiwan as an infringement on Beijing's claims of sovereignty over the island.

Though the exercises ended, the PLA maintained a substantial presence in the Taiwan Strait, keeping Taipei on tenterhooks. During a visit to the PLA's Southern Theatre Command on Wednesday, President Xi stressed the importance of accelerating the transformation into a modern fighting force through "real combat-oriented exercises" and innovative warfare concepts.

He asked the military to resolutely defend China's sovereignty and maritime rights and interests, and strive to maintain the overall stability of the neighbouring regions amid rising tensions over Taiwan and the South China Sea.

China claims nearly all of the disputed South China Sea, though Taiwan, the Philippines, Brunei, Malaysia and Vietnam all claim parts of it. Beijing has built artificial islands and military installations in the South China Sea.

Chinese and Indian troops are also locked in a nearly three-year confrontation in certain friction points in eastern Ladakh even as the two sides completed disengagement of troops from several areas following extensive diplomatic and military talks.

India has been maintaining that its ties with China cannot be normal unless there is peace in the border areas.

Explaining the addition of the "wartime recruitment" chapter to the military regulations, a CMC official said, "in order to ensure the normal replacement of troops and the supplementary needs of soldiers in wartime, the regulations refer to the common practices of various countries ... and set up a special chapter to regulate the issue of wartime recruitment." Citizens who receive a recruitment notice during wartime must go to the designated place on time to enlist or face punishment, according to the regulations, the Post report said.

During wartime, the regulations say the State Council and the CMC may adjust recruitment conditions and methods "within the scope prescribed by law," leaving space for further changes.

The amendment is part of consecutive efforts by Beijing to adjust and improve its legal system to better support wartime arrangements in the face of increasing geopolitical pressure, while at the same time exerting its military presence in the Taiwan Strait, the Post report said. In February, Chinese lawmakers approved a resolution giving the military the power to change how the Criminal Procedure Law is applied during wartime, "to safeguard military missions and "improve [the PLA's] ability to win in combat".

Beijing-based military law expert Xie Dan said the amendment filled a gap in China's wartime legislation, but was also driven by the need for military preparations, including against Taiwan.

"The Anti-Secession Law clarifies the conditions for resolving the Taiwan issue by non-peaceful means. Improving relevant military regulations is undoubtedly one of the important contents of current military preparations," Xie told the Post.

China's military laws - especially relating to wartime - have become "weak points" over the decades of peace since China was last involved in a war, he said.

In addition to its 2021 amendment to the military service law, Beijing also amended the Reservist Law in December to improve the development of reserve forces, which refers to the pre-assigned citizens who will become important components of the PLA during wartime.

According to Xie, the new recruitment regulations offer more operational and detailed rules for wartime mobilisation. The prioritisation of veterans was necessary because of their skills and experience in operating hi-tech weapons, he said.

The PLA recruitment is also focused on college students and graduates, especially those with science and engineering backgrounds, to fulfil Xi's goal of building a world-class military by 2050.

Former PLA instructor Song Zhongping played down the implications of the regulation change for any possible military action by Beijing. The goal of the amendment was to "enhance the legalisation of recruitment work" as part of the military reforms, he told the Post.

https://www.ndtv.com/world-news/china-revises-wartime-military-recruitment-rules-amid-tensions-over-taiwan-3945127

INDIA TODAY

Sat, 15 Apr 2023

China Conducts Mid-course Missile Interception Test

China said it carried out a successful ground-based mid-course missile interception test in an apparent sign of progress in its ability to bring down weapons incoming from space.

The Defence Ministry says the operation was carried out late Friday night within Chinese territory and achieved “the desired test objective.” The test was "defensive in nature and not targeted against any country," the ministry said, giving no other details such as whether it actually struck an object, how many interceptors were fired and where they landed.

Such systems, which consist of ground-based interceptor missiles and a huge array of radars and fire control systems, aim to bring down ballistic missiles, including ICBMs carrying nuclear or other warheads, while they are flying in space mid-course on the way to their targets. Referred to by the US as ground-based mid-course defence, or GMD, such systems are hugely complex and expensive to build, test and maintain, and China's capabilities in the field are not well known.

Previously, the Defence Ministry issued a near-identical statement announcing it had conducted just such a test on February 4, 2021, which it said had also met its goals. Another Chinese test reportedly took place in 2018.

Such "kinetic-kill" interceptors can also be used as anti-satellite weapons, and China sparked considerable criticism when it used such a missile to destroy a defunct Chinese weather observation satellite in early 2007. China did not announce the operation and the explosion left a massive debris field that continues to imperil objects in orbit, including China's own space station, Tiangong. China's military-run space program and missile development efforts are intimately linked and it is believed to have used satellite launch centres to conduct missile tests.

China already has one of the world's largest arsenals of all types of missiles and is believed to be expanding it rapidly. A Pentagon report released last year said China currently has about 400 nuclear warheads and that number could grow to 1,500 by 2035.

GMD forms a major component of missile defence for the US military, which has put it through additional testing in response to North Korea's increasing number of missile tests.

The US has 44 interceptors deployed at Fort Greely, Alaska and Vandenberg Air Force Base, California intended to cover the entire American homeland, according to the US Department of Defence's Missile Defence Agency. That is enough to counter a rogue attack from a country such as North Korea, which is developing missiles that could strike the continental United States, but would be easily overwhelmed by a large-scale attack from Russia or China.

North Korea said on Friday it flight-tested a solid-fuel intercontinental ballistic missile for the first time, a possible breakthrough in its efforts to acquire a more powerful, harder-to-detect weapon targeting the continental United States.

US tests have shown such systems are far from infallible and that roughly three interceptors must be fired to bring down one incoming missile. The US also operates the Patriot and THAAD anti-missile systems that cover a smaller geographic area.

https://www.indiatoday.in/world/story/china-missile-interception-test-2360404-2023-04-15

THE HINDU

Fri, 14 Apr 2023

North Korea says it Tested New Solid-Fuel Long-Range Missile

North Korea said on April 14 it has successfully test-launched a new intercontinental ballistic missile powered by solid propellants, a development that if confirmed could provide the country with a harder-to-detect weapon targeting the continental United States.

North Korea’s official Korean Central News Agency issued the report a day after the country's neighbours detected a launch of a long-range missile from near Pyongyang, which extended a run of weapons displays involving more than 100 missiles fired into sea since the start of 2022.

KCNA said the launch was supervised on site by North Korean leader Kim Jong Un, who described the missile — named Hwasong-18 — as the most powerful weapon of his nuclear forces that would enhance its counterattack abilities in the face of external threats created by the military activities of the United States and its regional allies.

Mr. Kim pledged to further expand his nuclear arsenal to “constantly strike extreme uneasiness and horror” in his rivals and make them feel regret for their wrong choices.

North Korea has justified its weapons demonstrations as a response to the expanding military exercises between the United States and South Korea, which the North condemns as invasion rehearsals while using them as a pretext to push further its own weapons development.

Mr. Kim added that the Hwasong-18 would rapidly advance North Korea’s nuclear response posture and further support an aggressive military strategy that vows to maintain “frontal confrontation” against its rivals.

North Korea has tested various intercontinental missiles since 2017 that demonstrated the potential range to reach the U.S. mainland, but the others use liquid fuel that must be added relatively close to the launch and they cannot remain fueled for prolonged periods.

An ICBM with built-in solid propellants would be easier to move and hide and could be fired faster, reducing the opportunities for opponents to detect and counter the launch. It's not immediately clear how close the North is to having a functional solid-fuel ICBM capable of striking the U.S. mainland.

South Korea’s Defense Ministry maintains North Korea's technological advancements haven't reached the point where it can protect its ICMB warheads from the harsh conditions of atmospheric reentry. Last month, South Korean Defense Minister Lee Jong-Sup also told lawmakers that North Korea likely hasn’t yet mastered the technology to place nuclear warheads on its most advanced short-range missiles targeting South Korea, though he acknowledged the country was making considerable progress on it.

“This is a significant breakthrough for the North Koreans, but not an unexpected one,” said Ankit Panda, an expert with the Carnegie Endowment for International Peace.

“The primary significance of solid-fuel ICBMs is in terms of what they’ll do for the survivability of North Korea’s overall ICBM force," he said.

“Because these missiles are fueled at the time of manufacture and are thus ready to use as needed, they will be much more rapidly useable in a crisis or conflict, depriving South Korea and the United States of valuable time that could be useful to preemptively hunt and destroy such missiles.” North Korean state media published photos of the missile blasting off from a launch vehicle at a test site inside a forest as Kim watched from an observation post along with military officials and his daughter.

KCNA described the Hwasong-18 as a three-stage missile with the first stage tested at a standard ballistic trajectory and the others programmed to fly at higher angles after separation to avoid North Korea's neighbours. It wasn’t immediately clear how the third stage was tested, where the warhead would theoretically be placed. The agency said the test didn’t threaten the security of

other countries as the first and second stages fell into waters off the country's eastern coast. It provided no details about what happened to the third stage, although the official Rodong Sinmun newspaper published an aerial photo of an object it described as the third stage following separation.

Kim Dong-yub, a professor at the University of North Korean Studies in Seoul, said North Korea for the test likely designed the third stage as an empty device and simply let it fall after separation. He noted that North Korea didn't release details about how high the missile went, which suggests it wasn't tested at the weapon's full capacity and range, and said the North likely will test the system several more times. Soo Kim, an expert with Virginia-based consultancy LMI and a former CIA analyst, said each successive test by North Korea "seems to demonstrate greater options for the regime to provoke and threaten the region".

"With the Day of the Sun festivities coming up, and a U.S.-South Korean summit around the corner, the timing is also ripe for a North Korean provocation for (Kim Jong Un) to yet again remind us that his weapons are getting bigger, better, and all the more challenging for the U.S., South Korea, and the international community to deal with," she said.

She was referring to the birth anniversary of Kim's state-founding grandfather, Kim Il Sung, which falls on Saturday, and a planned summit in Washington this month between President Joe Biden and South Korean President Yoon Suk Yeol.

Solid-fuel ICBMs highlighted an extensive wish list Mr. Kim announced under a five-year arms development plan in 2021, which also included tactical nuclear weapons, hypersonic missiles, nuclear-powered submarines and spy satellites.

The North has fired around 30 missiles this year alone over 12 different launch events as both the pace of its weapons development and the U.S.-South Korean military exercises increase in a cycle of tit-for-tat. The U.S. and South Korean militaries conducted their biggest field exercises in years last month and separately held joint naval and air force drills involving a U.S. aircraft carrier strike group and nuclear-capable U.S. bombers.

North Korea claimed the drills simulated an all-out war against North Korea and communicated threats against it. The United States and South Korea have said their exercises are defensive in nature and expanding them was necessary to cope with the North's evolving threats.

https://www.thehindu.com/news/international/north-korea-says-it-tested-new-solid-fuel-long-range-missile/article66736185.ece

mint

Sat, 15 Apr 2023

Russia-North Korea Deal 'Food for Weapons' Raises Geopolitical Concerns

Information has come to light regarding an arrangement between the Russian Federation and North Korea, also known as the Democratic People's Republic of Korea (DPRK), involving the exchange of food supplies for weapons. As per a report by ORF, the implications of this deal

extend beyond Russia's ongoing invasion of Ukraine, raising concerns about potential geopolitical ramifications.

The Russians find themselves in a situation where they are compelled to seek assistance from North Korea to replenish their diminishing ammunition supplies, which is not surprising.

As per media reports, it is widely known and documented that Russia's Wagner group of mercenaries has obtained military provisions from Pyongyang, including missiles and rockets for use in battlefield situations. The Wagner group has been actively involved in hostilities in Ukraine, including their current presence in Bakhmut.

Additionally, the North Korean participation in the supply arrangement can be attributed to the Russian defense industry's failure to adequately meet the operational and supply needs of their forces engaged in combat in Ukraine.

This could be seen as a manifestation of Russia's desperation to sustain the ongoing conflict against Ukraine, but it also serves as a foreboding indication of potential future developments.

Additionally, the North Korean participation in the supply arrangement can be attributed to the Russian defense industry's failure to adequately meet the operational and supply needs of their forces engaged in combat in Ukraine. This could be seen as a manifestation of Russia's desperation to sustain the ongoing conflict against Ukraine, but it also serves as a foreboding indication of potential future developments.

According to U.S. security officials, as reported by Fox News, North Korea is reportedly looking to strike a deal with Russia where it would exchange its surplus weapons for essential food supplies.

"Any arms deal between North Korea and Russia would directly violate a series of U.N. Security Council resolutions. We've taken note of North Korea's recent statements that they will not provide or sell arms to Russia, and we are continuing to monitor this closely," National Security Council (NSC) coordinator John Kirby made the assertion during a press conference.

As a U.S. aircraft carrier strike group arrived in South Korea, North Korea unveiled smaller nuclear warheads on Tuesday, according to reports.

According to experts, the recent unveiling of the Hwasan-31 weapons by North Korea indicates potential progress in developing smaller yet powerful warheads that could potentially be mounted on intercontinental ballistic missiles capable of reaching the United States, as reported by Reuters.

Impact on India

The trade between North Korea and Russia highlights the urgent need for New Delhi to break free from Moscow's dominant influence over its military requirements.

As a recent statement by a former Indian Foreign Secretary pointed out, China's ability to pressure Moscow into withholding military equipment, ammunition, and spare parts for India's existing Russian-origin weapon systems has increased significantly.

In the future, New Delhi must adopt a strategy that combines closer alignment with countries such as the United States (US), Western Europe, Israel, Japan, South Korea, and Australia, along with an increased emphasis on the indigenous development of military equipment where

possible. This approach is necessary to mitigate the negative consequences of India's reliance on Russian military hardware.

To meet the need for reverse engineering and manufacturing of components and spares for Russian-origin weapon systems and platforms used by the Indian armed services, the government will need to depend not only on DRDO, its subsidiaries, and DPSUs but also on private sector enterprises in India.

https://www.livemint.com/news/world/russianorth-korea-deal-food-for-weapons-raises-geopolitical-concerns-11681543498449.html

THE ECONOMIC TIMES

Mon, 17 Apr 2023

South Korea, US, Japan Hold Missile Defence Drills in East Sea

South Korea, the United States and Japan on Monday began a trilateral missile defence exercise in the international waters of the East Sea, Seoul's Navy said. This comes amid increased efforts to sharpen deterrence against North Korean threats, Yonhap News Agency reported.

According to Yonhap News Agency, the three nations have been reinforcing security coordination following Pyongyang's provocative acts, such as the launch of a purportedly solid-fuel intercontinental ballistic missile last Thursday.

According to the armed service, the latest exercise features three Aegis-equipped destroyers, the South's ROKS Yulgok Yi I, the US' USS Benfold and the Japan Maritime Self-Defense Force's JS Atago.

The exercise focused on practicing procedures to detect and track a computer-simulated ballistic missile target, and share related information, as per Yonhap News Agency.

A South Korean Navy official said: "This was an opportunity to strengthen security cooperation among the South, the U.S. and Japan against the North's advancing nuclear and missile threats, and firm up our Navy's capabilities to respond to ballistic missile launches."

The three countries last held such a three-way missile defense exercise in February.

The countries during senior-level defence dialogue, called the Defense Trilateral Talks, last week, agreed to hold missile defense and anti-submarine exercises regularly to counter the North's threats.

https://economictimes.indiatimes.com/news/defence/south-korea-us-japan-hold-missile-defence-drills-in-east-sea/articleshow/99544723.cms?from=mdr

Press Information Bureau
Government of India

Ministry of Science & Technology

Fri, 14 Apr 2023

A High Level US Delegation, Led by US Senator Todd Young, Called on Union Minister for Science & Technology, Dr Jitendra Singh and Sought Deeper Bilateral Cooperation in Various Fields like AI, Quantum etc.

Both the countries to scale up collaboration and explore opportunities to partner in quantum technology, ocean science, nuclear energy, semiconductors, supercomputing and other latest emerging technologies : Senator Todd Young

A high level US delegation, led by US Senator Todd Young, called on Union Minister of State (Independent Charge) Science & Technology; Minister of State (Independent Charge) Earth Sciences; MoS PMO, Personnel, Public Grievances, Pensions, Atomic Energy and Space, Dr Jitendra Singh and sought deeper bilateral cooperation with India in areas like Artificial Intelligence (AI), Quantum, Cyber Security, Semiconductor, Clean Energy, Advanced Wireless, Biotechnology, Geosciences, Astrophysics and Defence, etc.

Dr Jitendra Singh told the US Delegation that Prime Minister Narendra Modi, in the last 9 years, took personal interest in Science, Technology and Innovation, and tried pro-actively to implement social sector schemes through science based solutions to bring Ease of Living for the common man.

The Minister said, the patronage received from Modi has opened new opportunities and possibilities in all areas of scientific endeavours, but more so in areas of Space, Biotech, Geospatial and Sustainable StartUps. He pointed out that since 2014, in every Independence Day speech, PM Modi has flagged key scientific challenges and projects like Cleanliness, Hydrogen Mission, Digital Health Care system, Deep Ocean Mission, Clean Energy and StartUps.

Senator Todd Young suggested scaling up collaboration and exploring opportunities to partner in quantum technology, ocean science, nuclear energy, semiconductors, supercomputing and other latest emerging technologies.

An official from the Department of Science and Technology informed the Minister that a total of 35 joint projects have been identified which will be implemented by the Technology Innovation Hubs (TIHs) and research institutions from USA. Six TIHs under NM-ICPS have been identified for collaborative research and development with NSF-supported institutions. The Hubs are part of a five-year, nearly $430 million investment by DST under the National Mission on Interdisciplinary Cyber-Physical Systems and comprise academic researchers and industry

partners. Additionally, the Indo-U.S. joint clean Energy R&D programme is a joint initiative of the Ministry of Science and Technology, Govt. of India and the U.S. Department of Energy which has been ongoing.

Senator Todd Young informed that the US looks forward to a greater synergy and collaboration between the DST launched Technology Innovation Hubs and National Science Foundation as NSF has a foundation of academic expertise and core commercial competencies.

Talking about another area of collaboration, Dr Jitendra Singh said that he was happy to inform that the Union Cabinet has approved the LIGO-India project to build an advanced gravitational-wave detector in Maharashtra at an estimated cost of Rs 2,600 crore. The facility's construction is expected to be completed by 2030. The observatory will be the third of its kind, made to the exact specifications of the twin Laser Interferometer Gravitational-wave Observatories (LIGO), in Louisiana and Washington in the U.S. LIGO-India will work in tandem with them.

The Minister and the Senator were also informed about five potential areas of collaboration between Geological Survey of India and United States Geological Survey for setting in place an MoU. Dr Jitendra Singh also promised complete support from the Science and Technology Ministry for Indo-US collaboration in budding and promising StartUps in Bio-tech, Dairy and Agri-tech sectors.

Dr Jitendra Singh said, these are the best of the times for both India and America to forge a durable and strong bond for global leadership in fighting global challenges. He said, there is much of ease in the relationships and a clear sign of willingness and optimism to achieve the desirable goals.

The Minister hoped that the US will come to the aid of its natural ally (the oldest and largest democracies of the world) when it comes for technology transfer in critical areas, as there is no other option but to collaborate. Prof. Ajay Kumar Sood, Principal Scientific Adviser (PSA) to the Government of India and other senior functionaries of the Department of S&T and Department of Atomic Energy joined the meeting.

https://pib.gov.in/PressReleasePage.aspx?PRID=1916521

Press Information Bureau
Government of India

Ministry of Science & Technology

Sat, 15 Apr 2023

Union Minister Dr Jitendra Singh Says, India is all set to Lead Diabetes Research in the World

Union Minister of State (Independent Charge) Science & Technology; Minister of State (Independent Charge) Earth Sciences; MoS PMO, Personnel, Public Grievances, Pensions, Atomic Energy and Space, Dr Jitendra Singh today said that In times to come, India is all set to lead the Diabetes research in the world.

Delivering inaugural address at the 3-day World Diabetes Meet organised by the coveted professional organisation "Diabetes India" here today, Dr Jitendra Singh, who is also a renowned Diabetologist, said that India has a huge resource pool of patients with different manifestations of diseases at different stages and at the same time there is no dearth of calibre, capacity and acumen on the part of our researchers. It is therefore the right time to generate as much Indian data as possible because the goal should be to develop Indian treatment regimens for Indian patients, Indian solutions for Indian problems. He said this is also important because the Indian phenotype is different from the westerners and the genetic preponderance is also quite different. As a result, the pathogenesis and progress of Type 2 diabetes mellitus and other related metabolic disorders is not the same as in the western populations, he added.

Citing research evidence, Dr Jitendra Singh said it has now been proven beyond doubt that Indian origin diaspora living in European countries for several generations still continue to have higher preponderance to develop Type 2 diabetes mellitus even though they were no longer living in India and the environmental conditions they are living in is different.

Referring to some of the important risk factors prevalent in Indians, Dr Jitendra Singh said that our central obesity profile is also different from others. For example, in India, prevalence of central obesity is high and almost equal in both males and females whereas in the western population, the individual may be apparently looking obese but has general visceral fat, he said.

Lauding Prime Minister Narendra Modi for the high priority given to healthcare, the Minister said that it was because of the personal interest and intervention of Prime Minister Modi that within two years, India not only managed the Covid pandemic successfully better than much smaller countries, but also succeeded in coming out with a DNA vaccine and providing it to the other countries as well.

Referring to Prime Minister Modi's support to indigenous medical research, Dr Jitendra Singh said that time has come to integrate the traditional Indian knowledge with the modern scientific inferences and also to seek a synergy of different systems of medicine including Ayurveda, Yoga and Naturopathy for optimum and maximum benefits in the control and prevention of diabetes.

Dr Jitendra Singh concluded by saying that prevention of diabetes is not only our duty towards healthcare but also our duty towards nation building because this is a country with 70% population below the age of 40 and the youth of today are going to be the prime citizens of India@2047. We cannot afford to let their energy go waste in incapacitating complications occurring as a result of Type 2 diabetes and other related disorders.

https://pib.gov.in/PressReleasePage.aspx?PRID=1916915

THE ECONOMIC TIMES

Sat, 15 Apr 2023

Gaganyaan Not One-off Mission, Government Approved Sustained Human Spaceflight Programme: ISRO Official

India's Gaganyaan mission will not be a "one-off" mission as the government has granted approval for a "sustained human space flight programme", a senior ISRO official said on Saturday. Addressing the 'Be Inspired: Festival of Ideas' event here, Imtiaz Ali Khan, director of

ISRO's Directorate of Human Spaceflight Programme, said the follow-on space missions of Gaganyaan may include civilians such as doctors and scientists.

Ali said for the first human spaceflight, planned for launch late next year, four Indian Air Force pilots have been selected and were undergoing extensive training for the mission.

"Gaganyaan will not be a one-off mission as the government has given us approval for a sustained human spaceflight (HSF) programme," Ali said, adding that the future missions will be decided after ISRO demonstrates its capabilities by carrying out India's first successful human spaceflight. He said the kind of benefit one expected from the HSF programme requires a longer stay in microgravity and there was a need to develop new technologies such as rendezvous, docking among others. Ali said the subsequent missions will have non-pilot people, including civilians, women, doctors, and scientists drawn from different fields for carrying out science experiments in outer space.

He said age was not a very strict criteria for undertaking space missions as the person has to be agile, fit, able to understand procedures and work well on simulators during the training sessions.

ISRO plans to send at least two astronauts into a low-earth orbit in 2024 after assessing the outcome of the two orbital test flights.

Last week, ISRO completed the final long-duration hot test of the human-rated L110-G Vikas engine, a major achievement in the development of the Gaganyaan human spaceflight programme.

Prime Minister Narendra Modi announced the Gaganyaan mission in his Independence Day address in 2018 at a cost of Rs 10,000 crore.

https://economictimes.indiatimes.com/news/science/gaganyaan-not-one-off-mission-government-approved-sustained-human-spaceflight-programme-isro-official/articleshow/99521675.cms

THE HINDU

Fri, 14 Apr 2023

NISAR Satellite to Map Himalayas' Seismic Zones

A forthcoming satellite, NISAR, jointly developed by the Indian Space Research Organisation (ISRO) and the National Aeronautics and Space Administration (NASA) of the U.S. will map the most earthquake-prone regions in the Himalayas with unprecedented regularity. The data this will generate can potentially give advance warning of land subsidence, as recently observed in Joshimath, Uttarakhand, as well point to places that are at greatest risk from earthquakes.

The NISAR satellite, expected to cost approximately $900 million (with ISRO contributing about one-tenth) will use two frequency bands: the L-band and S-band to image the seismically active Himalayan region that will, every 12 days, create a "deformation map", said Prakash Chauhan, Director, ISRO-National Remote Sensing Centre at a seminar here this week.

"The geoscience community can use this to determine how strain is building up in various parts of the Himalayas," he said. These two frequency bands will together provide high-resolution, all-

weather data from the satellite that is expected to follow a sun-synchronous orbit and will be launched in January 2024.

Strain refers to the deformation that occurs in rocks when it is under pressure from other rocks, usually due to movements of continental plates that are sliding, colliding, or subducting against each other. The Indian Plate, for instance, collided into the Eurasian plate forming the Himalayas and continues to incrementally push it upwards.

Based on the intensity of past earthquakes, the knowledge of the speed at which plates move and the locations at which plates interact (called faults) can help geologists and seismologists map out regions that are most vulnerable to earthquakes and estimate how far the resultant tremors can spread. What can't be deduced however is the timing. Ground-based observatories can pick up underground waves that result from an earthquake and provide early warning. Satellites, depending on how they are positioned and by virtue of their distance from the Earth can image a wide swathe and, if monitored frequently, can show how mountains and geological formations are changing over time.

Scientists from the Geological Survey of India in 2021 published a "strain map" of the Himalayas based on data from 1,252 GPS stations along the Himalayas. It identified regions that had the greatest odds of generating earthquakes of magnitude above 8 and their extent. " These many stations are still too few and there's only one satellite (Sentinel) that we rely on…with NISAR, the costliest space mission ever, we can have a game-changer in earth-science observation," said Dr. Chauhan.

While satellite imagery to study deformation in land is already employed, the frequency at which observations are taken and the clarity of the images are critical, V.K. Gahalaut, of the National Geophysical Research Institute (NGRI), told The Hindu. "With a frequency of 12 days and the ability to be able to provide images even under cloudy conditions, NISAR would be a valuable tool to study deformation patterns, such as in Joshimath," he added.

Land subsidence or the loosening of the sub-surface had caused several parts of Uttarakhand to "sink" and this caused water to seep via cracks and crevices into houses. In 2021, a large landslide of rock and ice triggered a flash flood in Chamoli, Uttarakhand that claimed close to 200 lives and destroyed two hydropower projects. It was satellite imagery that helped scientists decipher the cause of the flash floods.

https://www.thehindu.com/news/national/nisar-satellite-to-map-himalayas-seismic-zones/article66738274.ece

Hindustan Times

Sun, 16 Apr 2023

China Launches Weather Satellite, Flights Avoid No-fly Zone in Northern Taiwan

China launched a weather satellite on Sunday as civilian flights altered their routes to avoid a Chinese-imposed no fly zone to the north of Taiwan which Beijing put in place because of the

possibility of falling rocket debris. Taiwan's transport ministry said Beijing had initially notified Taipei it would impose a no-fly zone from Sunday to Tuesday but later said that period had been reduced to 27 minutes on Sunday morning after Taiwan protested.

The no-fly announcement rattled regional nerves as it followed shortly after China staged new war games around Taiwan, which Beijing views as sovereign Chinese territory. The China Aerospace Science and Technology Corporation, China's main contractor for its space programme, said the weather satellite Fengyun 3G had successfully launched from the northwestern province of Gansu at 9:36 a.m. (0136 GMT).

It did not say what the flight path of the rocket carrying it was, but the time coincides with China's previous announcement about the no-fly zone.

China has said it is inaccurate to call it a no-fly zone, though Taiwan has issued a notice to airmen, or NOTAM, that uses the wording "airspace blocked due to aerospace flight activity".

Flights to and from Taiwan and China, Taiwan and South Korea and Taiwan and Japan were amongst those detouring around the zone on Sunday morning, according to routes tracked on Flightradar24.

The zone is in an area over the East China Sea slightly northeast of Taiwan that routinely sees heavy civilian flight traffic.

Taiwan has said it expected around 33 flights to be affected and has warned shipping to stay away.

https://www.hindustantimes.com/world-news/china-launches-weather-satellite-flights-avoid-no-fly-zone-in-northern-taiwan-101681612539755.html

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