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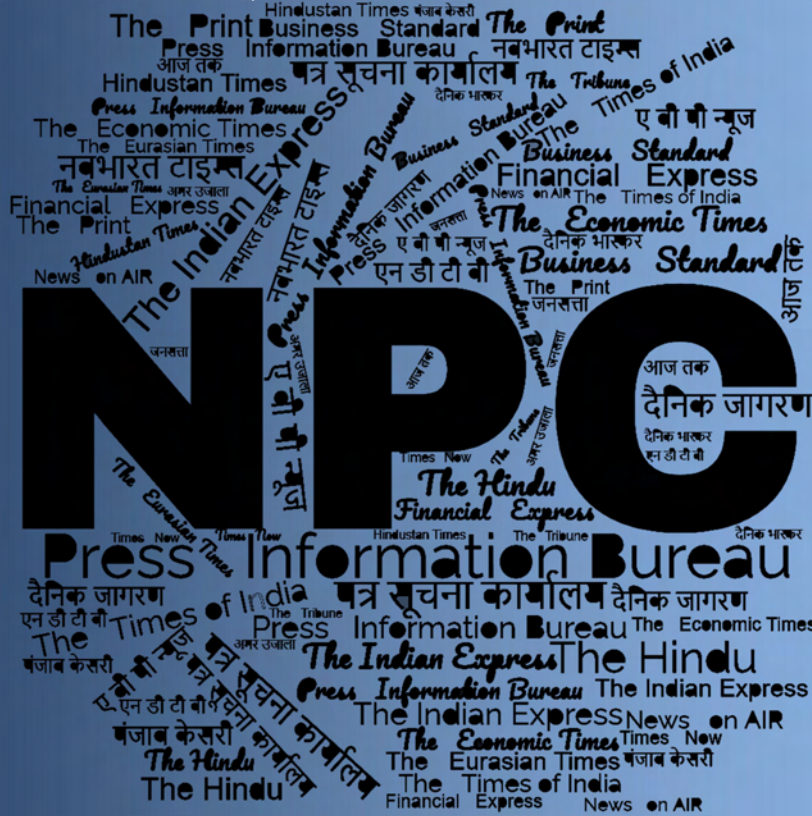
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Millet Awareness Programme Organized in Tezpur



R&D Centre Tawang of Defence Research Laboratory (DRL) DRDO organized a “Millet Awareness Programme (MAP)” under International Year of Millets (IYOM) and Training on Improved Hill Farming Techniques. The main mandate of this training is to raise awareness about the modern aspects of improving millet productivity through scientific cultivation technology and the importance of millets in human diet and rural economy. A total of 35 farmers including locals participated in the training. The participants were briefed about the status, importance and challenges of millets in India by Dr. Ankit, Scientist, DRL Tezpur.

Millets are highly nutritious cereal and have a lower glycemic index compared to other grains, making them an ideal food for people with diabetes and other metabolic disorders. Millets are also an important source of income for many marginal farmers, particularly in developing

countries. By using these technologies and promoting the consumption of millets, it can improve food security, support marginal farmers, and promote sustainable agriculture. Besides, lectures on nursery management, organic farming of millets, cultivation practices of finger millet and food processing were also delivered.

These topics covered a wide range of areas related to millet cultivation, from the initial stages of seedling production to the final stages of processing and consumption. It is important for farmers to have a comprehensive understanding of all these aspects in order to produce high quality millets. As an encouragement to adopt the improved hill farming practices, the local farmers were provided with strawberry runners and seed kits.

<https://www.sentinelassam.com/north-east-india-news/assam-news/millet-awareness-programme-organized-in-tezpur-646055>

Defence News

Defence Strategic : National/International



Press Information Bureau
Government of India

Ministry of Defence

Tue, 18 Apr 2023

MoD Initiates Reforms in AHSP to Further Promote Ease of Doing Business

Industry can now bring timely improvement in their products & own final designs/specifications as AHSP

Raksha Mantri Shri Rajnath Singh has approved a proposal for bringing in industry-friendly reform related to Authority Holding Sealed Particulars (AHSP). The AHSP is the authority which is responsible for generating, maintaining, updating or declaring obsolete the entire history and technical information of defence products.

So far, Directorate General of Quality Assurance (DGQA) was the AHSP for majority of defence items designed, developed and manufactured by various DPSUs and Private Industries. Under the existing procedure, certain bottlenecks were experienced by the industry to bring timely improvements in their products and technologies in line with changing times. Therefore, the Ministry has decided now to liberalise the AHSP procedures and make it industry-friendly.

The Indian defence companies, which have developed products, systems, subsystems, components on their own indigenous capabilities (except critical stores), will now be allowed to own and account for their final designs and specification as AHSP. In case of any change in the sealed particulars, a simplified mechanism representing all the concerned stakeholders, including

the industry, will take a decision. The DGQA will notify the detailed procedure in this regard within two months.

The DGQA has also been asked to examine all AHSPs with them and rationalise the entire list within two months. They have been, further, advised to transfer the AHSP to the industry at the earliest. It will be another significant step of the Government to further encourage Ease of Doing Business.

<https://pib.gov.in/PressReleasePage.aspx?PRID=1917701>



Tue, 18 Apr 2023

Supersonic Punch, Hypersonic Killer Boost India's Cruise Missile Capability

By Amartya Sinha

The last century was a transformative and transitional period in the history of contemporary warfare as a new generation of kinetic strike weapons took to the skies after the Second World War. Starting right from the first Gulf War in 1990 and ending with the Afghanistan, Iraq, Libya and Syria campaigns in the first two decades of the 21st century, and now as visible in the ongoing Russia-Ukraine War, the world has witnessed the usage of game-changing aerial weapons which tipped the balance in the aggressor's favour in the opening hours of the war.

Such weapons play a very pivotal role not just in maintaining conventional-level deterrence, but also in executing tactical-level nuclear strikes on the enemy's ground-based infantry battalions and armoured mobile formations in case of an escalation.

The emergence of turbofan engine-powered terrain-hugging cruise missiles which can fly at lower altitudes (below hostile radar coverage) and at treetop heights, are some of the most formidable and destructive weapons on the conventional battlefield. A heavy barrage of air-launched, ship-launched, submarine-launched and ground-launched cruise missiles during wars can take out the enemy's airfields, dams, bridges, railheads, army garrisons, anti-aircraft positions, heavy-artillery bases, underground nuclear weapon storage facilities and other important strategic installations in the opening hours of the war thus clearing the way for an aerial kinetic bombardment campaign and simultaneous ground incursion inside hostile territory.

Unlike heavyweight ballistic missiles which have a larger Circular Error Probability (CEP) and can be used for devastating nuclear strikes on enemy cities, cruise missiles are lightweight, tremendously maneuverable and highly accurate.

Such weapons are jet-propelled flying bombs raining surprise death on the enemy. Whereas some cruise missiles with larger RCS (Radar Cross Section) can be engaged with ground-based Surface-to-Air Air-Defence (AD) missile units, the task becomes almost impossible if the incoming missile is flying at supersonic speeds. At lower altitudes and at subsonic speeds, such deadly flying weapons can be engaged Within Visual Range (WVR) with the help of high-

calibre anti-aircraft machine guns like the CIWS, L-60 and L-70 systems through Line of Sight (LOS) automatic fire target engagement. But a supersonic missile flying at speeds of Mach 2.8 (almost 3500 km an hour) will give very little reaction-time to the enemy for a counterattack and counter-engagement of the projectile in mid-course flight. Moreover, if the weapon is launched in an air-launched configuration from a fighter jet or a bomber aircraft, the high-velocity release of the missile and increased range provides extra kinetic energy to the package for long range Beyond Visual Range (BVR) target engagements from aerial platforms.

So, it can be confidently stated that an air-launched supersonic cruise missile is the enemy's worst nightmare in the 21st century tactical level conventional battlefield, as the enemy will be dead even before they come to know what actually hit them.

A deadly supersonic punch

India's cruise missile capability has largely evolved as a credible conventional level deterrence since the turn of the new millennium. The ramjet powered BrahMos supersonic cruise missile with a proven range of up to 280 km, which was further enhanced to 450 km during recent tests, and having a maximum potential range of up to 800 km, has been serving as the primary heavy-strike weapon of the Indian Army and the Indian Navy for the last two decades.

The terrain-hugging missile, powered by a first stage solid-propulsion-based booster motor and a liquid-fuelled ramjet second stage engine, can fly at treetop heights and execute sharp manoeuvres before high velocity impact on the target with speeds of up to Mach 3 (3700 km an hour).

The high Mach numbers ensure a deadly impact on the pre-designated target in 'fire and forget' mode and enhances its role as a kinetic kill weapon against high value enemy targets. Developed from the Russian 'P-800 Oniks' anti-ship missile system, BrahMos can prove to be a great force multiplier on the conventional battlefield.

While compared to other tactical cruise missiles in its class, the BrahMos flies at almost three times more velocity and has almost 2.5 times more range. The missile also carries the USP (unique selling proposition) of having four times more seeker range and nine times more kinetic energy in the terminal phase while being compared to other widely used cruise missiles.

The TNT-based conventional warhead weighing up to 300 kg acts as a high-explosive device which can even take out deep underground bunkers of the enemy. BrahMos is also capable of carrying anti-armour warheads which can wipe out entire mechanised infantry columns and tank units of the enemy.

With slight customisation, BrahMos is capable of carrying tactical nuclear warheads in pure-fission and compact boosted-fission configurations which can land devastating punches on hostile garrisons, cantonments, railheads and airbases. The ground-based launchers of BrahMos are based on a TEL (Transporter-Erector-launcher) vehicle-based Mobile Autonomous launcher (MAL)-based canister packages made from maraging steel which gives the user a rapid shoot and scoot capability.

The sealed canister package enhances mobility of the TEL truck and also increases the missile's shelf life. India and Russia have decided to jointly manufacture up to 2000 BrahMos missiles by the middle of the current decade, of which 50 percent can be exported to various nations. At present, the Indian Navy has 100 such missiles deployed onboard warships whereas 100 have been kept as backup inventory.

At present, the Rajput-class destroyer- INS Rajput has four BrahMos missiles in two twin inclined launchers whereas INS Ranvir and INS Ranvijay are armed with one 8-cell Brahmos VLS launcher, leading to a total of 16 missiles. The Talwar-class frigates- INS Teg, INS Tarkash, INS Trikand and three Shivalik-class frigates are also armed with one 8-cell Brahmos VLS launcher, amounting to a total of 48 missiles. Each of the Kolkata-class and Visakhapatnam-class destroyers also position the 8-cell Brahmos VLS launchers, leading to a total of 32 missiles. Moreover, the submarine-launched version of BrahMos is also undergoing rigorous testing after the maiden flight test was successfully executed from an underwater pontoon in 2013. All six future diesel-electric conventional submarines being planned under 'Project-75I' will be equipped with VLS launchers and the Submarine Launched Cruise Missile version of BrahMos.

The Indian Army also boasts of having a devastating weapon in its arsenal. More than 288 BrahMos cruise missiles are actively fielded by the army whereas 288 more have been kept as backup reserves. The Indian Army possesses one regiment of BrahMos Block-1, two regiments of BrahMos Block-2 along with a single regiment of Block-3 of the weapon system.

The Indian Army's Rajasthan based Regiments- 861, 862 and 863 and Arunachal Pradesh based Regiment- 864 possess 72 missiles each. Regiment-861 is armed with the Block-1 version whereas Regiments- 862 and 863 are armed with the more advanced Block-2 versions. Only Regiment-864 boasts the latest Block-3 version of BrahMos.

Recently, 40 Sukhoi-30MKI fighter jets of the Indian Air Force have been upgraded to carry the air-launched cruise missile version of the weapon (named BrahMos-A). More than 200 BrahMos-A missiles are currently undergoing the acquisition process. Plans are also underway for deploying BrahMos-A onboard the Indian Navy's Ilyushin Il-38 and Tupolev Tu-142 maritime patrol and anti-submarine warfare (ASW) aircrafts. A lighter Next Generation (NG) variant of the missile is planned to be developed for deployment onboard the IAF's LCA-Tejas, MiG-29 and the Dassault Rafale fighter jets.

Meanwhile, all tests of BrahMos ALCM (Air Launched Cruise Missile) from a Sukhoi-30 fighter jet have been successfully completed. With the conclusion of the tests, the ALCM version of BrahMos has been operationally deployed with the Indian Air Force in battle-ready configurations in peninsular India. Moreover, the upcoming NG (Next Generation) version of the missile will be ready for integration with Tejas and MiG-29 fighter-bombers of the Indian Airforce.

In the future, each Sukhoi-30MKI and MiG-29 jet will be able to carry two BrahMos NG missiles, whereas each upgraded Sukhoi-30 fighter-bomber will be capable of carrying five BrahMos NG weapons. The NG version will make the weapon system capable of integration over multiple platforms, including tactical bombers and even helicopters. Work is also under progress on developing an air-to-air version of BrahMos which will be capable of taking out enemy AWACS (Airborne Early Warning and Control System) aircraft and mid-air refueller tanker planes from standoff ranges.

Battleship-based weapons

With a range of up to 124 km and capable of carrying a warhead weighing 221 kg, the Harpoon is a formidable air-launched stand-off weapon system. The missile is also capable of executing ground-strike roles and is in the process of integration with IAF's Jaguar fighter bombers and the

Indian Navy's P8I maritime aircraft. India has already ordered 24 Harpoon Block-2 missiles for the navy and another 22 missiles for the IAF. Plans are also afoot to arm the Shishumar-class diesel-electric submarines with Harpoon missiles.

Another weapon system which is in widespread deployment with the Indian Navy is the Exocet cruise missile system. Designed and manufactured by MBDA, the Exocet is the mainstay weapon of the Kalvari-class of conventional diesel-electric submarines which are being built for the Indian Navy under 'Project-75'. All six Kalvari-class submarines, i.e. INS Kalvari, INS Khanderi, INS Karanj, INS Vela, INS Vagir and INS Vagsheer will be armed with the Exocet missile system. The subsonic missile having a launch mass of 670 kg is designed to carry a 165 kg warhead up to 180 km range.

Over 40 Exocet missiles are on order for the Indian Navy, whereas 40 such missiles are already deployed onboard IAF's Mirage-2000 fighter-bombers. Moreover, MBDA is in the process of forging a joint venture partnership with Larsen & Toubro for manufacturing the Exocet MM-40 missile for fulfilling the medium range anti-ship missile requirement of the Indian Armed Forces under the union government's 'Make in India' programme. The MBDA-L&T Joint Venture has already proposed the missile to the Indian Armed Forces while responding to an RFI.

Indigenous hypersonic killer

The ongoing HSTDV (Hypersonic Technology Demonstrator Vehicle) project will be one of the most devastating tactical level hypersonic cruise missiles in India's arsenal when it is commissioned into the Indian Armed forces after long-duration flight-testing of prototypes in the near future. Powered by an indigenously developed scramjet engine and capable of flying at potential speeds of up to Mach-12 (14,817 km per hour), it can evade any kind of anti-aircraft and current generation endo-atmospheric anti-missile systems in the world due to its super-hypersonic velocity. The first prototype was a 5.6-meter-long aerial vehicle which featured a flattened octagonal cross section with mid-body stub-wings and raked tail fins along with a 3.7-meter rectangular section air intake. The scramjet engine in the missile is located under the mid-body, with the aft-body serving as part of the exhaust nozzle.

Two parallel fences in the forebody are meant to reduce spillage and increase thrust. Part span flaps are provided at the trailing edge of the wings for roll control. A deflectable nozzle cowl at the combustor end can deflect up to 25 degrees to ensure satisfactory performance during power-off and power-on phases. Surfaces of the airframe's bottom, wings and tail are made up of Titanium alloy, while Aluminium alloy comprises the top surface. The inner surface of the double-wall engine is Niobium alloy and the outer surface is made from Nimonic alloy. Designing and ground testing of technologies regarding aerodynamics, aerothermodynamics, engines and hot-structures of the weapon system is already complete.

Work is currently in progress on mechanical and electrical integration, control and guidance systems along with their packaging, checkout system, HILS (Hardware in Loop Simulation) and launch readiness. HSTDV will be capable of carrying conventional, nuclear and thermonuclear warheads up to unspecified ranges. According to credible sources in the DRDO, the fifth prototype is ready for a longer duration flight endurance test which can be executed soon.

The preparations for the fifth test come after the missile was successfully tested for a duration of up to 20 seconds on September 7, 2020 during its second test. As per various reports, the third

and fourth tests of the missile were not successful. The fifth test (codenamed- HS-05) may witness the launch of a modified booster with slow burning propellant.

With further enhancement and miniaturisation of the vehicle, it won't be a surprise if India develops a scramjet rocket-powered manoeuvrable hypersonic atmospheric re-entry vehicle which can act as a nuclear/thermonuclear payload onboard the Agni-V and the upcoming Agni-VI Intercontinental range Ballistic Missiles (ICBMs), thus proving to be a huge strategic-level force multiplier for the nation in the long run.

Must take the legacy forward

At a time when India is emerging as a great 21st century world power with blue-water naval capabilities along with rapidly transforming ground and air forces, next generation hypersonic strike weapons can give the country a true global-strike capability in terms of FOBS (Fractional Orbital Bombardment System) in ballistic missiles and long-range cruise missiles.

Improved research and development activities in hypersonic rocket propulsion will not just provide devastating firepower to the Indian Armed Forces, but can also pave the way towards low-cost access to space for launching satellites into low earth orbit. While India is somehow on the right path, policymaking still remains in a quagmire due to possible geopolitical pressures and involvement of various vested interest groups including arms control lobbies.

With Pakistan and China in the neighbourhood, the Indian government must not bow down before pressure groups. The process of India's rigorous and widespread weaponisation should continue rapidly in an unabated manner over the coming years.

<https://www.indiatoday.in/india/story/supersonic-punch-hypersonic-killer-boost-india-cruise-missile-capability-2361624-2023-04-18>



Wed, 19 Apr 2023

Focus on Integration, Jointness: Amid India-China Border Row, Rajnath Singh to Address Army Commanders' Conference Today

Amid the ongoing border row with China and a few Chinese activities along the Line of Actual Control (LAC), Defence Minister Rajnath Singh will address the Army Commanders' Conference on Wednesday.

Rajnath Singh and Chief of Defence Staff Gen Anil Chauhan will address the top brass of the force at the conference and are expected to give direction on the initiatives towards enhancing integration and jointness, army officials said.

During the course of the conference from April 17 to 21, the commanders are expected to carry out an extensive review of the overall situation along the Line of Actual Control (LAC) in view of the three-year border row in eastern Ladakh.

The Army Commanders' Conference is also expected to discuss the prevailing security situation in and around the country, they said. Rajnath Singh will also review an equipment display focussing on niche technology, innovation, solutions for surveillance, artificial intelligence, virtual reality and operational logistics, according to the army, reported PTI.

The regional security situation and geopolitical implications of the Russia-Ukraine war may also figure at the conference, the officials told PTI. The anti-terror operation in Jammu and Kashmir as well as the overall situation in the Union territory will also be deliberated upon extensively at the conference.

The senior officers will also be addressed by Chief of the Naval Staff Admiral R Hari Kumar and Air Chief Marshal V R Chaudhari.

ARMY COMMANDERS' CONFERENCE

The 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.

For the first time, the ACC is being conducted in a 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 to balance physical meetings on matters which require detailed deliberations.

On the first day of the conference, agenda points proposed by various Command Headquarters were 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 the Agnipath Scheme, digitisation and automation initiatives, Combat Engineers tasks, work aspects and budget management. The apex leadership will also brainstorm current and emerging security scenarios and review operational preparedness of the Indian Army.

<https://www.indiatoday.in/amp/india/story/india-china-border-row-rajnath-singh-to-address-army-commanders-conference-2361754-2023-04-19>

ThePrint

Tue, 18 Apr 2023

US Air Force's Rockwell B1 Lancer Participates in Exercise Cope India 2023

The Rockwell B1 Lancer of the US Air Force participated in the ongoing Exercise Cope India 2023 which began on April 13, the Indian Air Force said in a tweet. The Rockwell B1 Lancer also known as "Bone" used by the US Air Force participated along with other fighter aircraft in Exercise Cope India 2023.

Taking to its official Twitter handle, the Indian Air Force said, "The USAF's 'Strategic Swingwing' over the old home of IAF Swing Wings. The 'Bone' Rockwell B1 Lancer of the

@usairforce flying with other participating fighter aircraft during the ongoing #ExCopeIndia 23.”

Exercise Cope India 23, a bilateral Air Exercise between the Indian Air Force (IAF) and the United States Air Force (USAF) started at Air Force Stations Arjan Singh (Panagarh), Kalaikunda and Agra on April 10. The exercise aims to enhance mutual understanding between the two Air Forces of two forces and share their best practices, the Ministry of Defence said in the press release.

During the first phase of the exercise, both sides fielded the C-130J and C-17 aircraft, with the USAF operating an MC-130J. The exercise included the presence of the Japanese Air Self Defence Force aircrew, who will participate in the capacity of observers.

The next phase of Exercise Cope India 23 commenced at Air Force Station Kalaikunda on April 13. The phase of the exercise witnessed the participation of B1B bombers of the United States Air Force (USAF). F-15 fighter aircraft of the USAF will join the exercise subsequently.

The Indian Air Force (IAF) element will include the Su-30 MKI, Rafale, Tejas and Jaguar fighter aircraft, as per the press release. The exercise will be supported by aerial refuellers, an Airborne Warning and Control systems and Airborne Early Warning and Control aircraft of the IAF. The exercise will conclude on 24 April 2023.

The Ministry of Defence in the press release said, “Like the air mobility component of the Ex Cope-India -23, this phase will also help enhance professional relations between the two air forces, while sharing the best practices between them. Personnel from the Japanese Air Self Defence Force will also observe the exercise and interact with the two participating air forces.”

<https://theprint.in/world/us-air-forces-rockwell-b1-lancer-participates-in-exercise-cope-india-2023/1526421/>



Tue, 18 Apr 2023

How Indian Military is Planning 'Rocket Force' to Counter China's Aggression

By Pradip R. Sagar

Two years ago, the country's first chief of defence staff (CDS), the late General Bipin Rawat, had warned that China was getting very aggressive and would soon step into Afghanistan after friendly overtures to Iran and Turkey. Gen. Rawat went on to quote the "clash of civilisations" theory and described China's growing ties with the Islamic world vis a vis the West.

While pitching for an integrated war-fighting machinery, Gen. Rawat had also revealed India's plans to have a 'rocket force'. Having a force like this was on the lines of creating theatre commands. Now, the Indian military is working tirelessly towards integration by adopting the theatre commands mechanism and having a dedicated rocket force on the lines of China's PLA (People's Liberation Army) Rocket Force, which controls Beijing's arsenal of land-based ballistic missiles-both nuclear and conventional.

Military planners believe the command and control of the 'rocket force' can initially be vested within a single service, i.e. the Indian Army, and subsequently can be made rotational to other services.

India's arsenal of homegrown conventional and nuclear-capable missiles, such as Agni, Prithvi, BrahMos, Nag, Pralay and Pradyumna, can be part of the 'rocket force' in the medium and long-range missile category. Successful testing of the Pralay missile a few months ago and the defence ministry's efforts to procure over 200 such missiles take forward India's plans to have an integrated rocket force, which will demonstrate the country's non-contact war-fighting capability. It will be an answer to the PLA's growing aggression on the border. Pralay is propelled by a solid-propellant rocket motor and has a range of 150-500 km.

Frank O'Donnell, deputy director at the Washington-based Stimson Center's South Asia Region, said China was fielding precision-strike conventional missiles in the India-facing Western Theatre Command, including the KD-63 air-launched cruise missile and KD-10 anti-tank guided missile. He added that the new H-6K strategic bomber has also been seen in Xinjiang, which, if armed with CJ-20 cruise missiles, could have a potential maximum strike range of up to 4,000 km. "Importantly, the PLA is treating the tense LAC (Line of Actual Control) as an opportunity for forces to gain rare experience of operating under not just adverse climactic but military conditions," O'Donnell said, adding that India was taking measures to counter these emerging technology threats, including deploying BrahMos missiles near the LAC and recently ordering short-range Pralay ballistic missiles to the region.

Military planners maintained that Indian forces were also deploying Heron surveillance UAVs in Ladakh, and seeking to boost its numbers of MQ-9 reconnaissance and strike drones against China.

<https://www.indiatoday.in/amp/india-today-insight/story/how-indian-military-is-planning-rocket-force-to-counter-chinas-aggression-2361607-2023-04-18>



Tue, 18 Apr 2023

Jaishankar, Russian Dy PM Review Time-Tested Defence, Strategic Ties

India and Russia on Monday here reviewed their time-tested defence and strategic ties during talks between Deputy Prime Minister Denis Manturov and Indian political leadership including External Affairs Minister S Jaishankar and National Security Advisor(NSA)Ajit Doval.

Noting that the India-Russia relationship is among the “steadiest” of major global relations, Jaishankar batted for addressing the issue of trade imbalance while enhancing bilateral economic cooperation.

Addressing an event attended by the Russian Deputy Prime Minister, Jaishankar said Russia’s resources and technology can make a powerful contribution to India’s growth as Moscow is looking more towards Asia and stressed that there is scope to expand the bilateral engagement in diverse areas. At the same time, Jaishankar referred to “understandable concern” about the “trade

imbalance” in the economic engagement between India and Russia, noting that it needs to be addressed on an urgent basis.

And addressing the imbalance means addressing the impediments, whether they are market access, non-tariff barriers, issues related to payments or logistics, he said.

Trade ties between India and Russia are on an upswing notwithstanding the increasing disquiet from Western powers over New Delhi’s continuing economic engagement with Moscow even after the Russian military action in Ukraine.

<https://www.dailypioneer.com/2023/india/jaishankar--russian-dy-pm-review-time-tested-defence--strategic-ties.html>



Tue, 18 Apr 2023

India to Host More SCO Ministerial Meetings. Invites Sent to Pakistan and China

As a run up to the Shanghai Cooperation Organisation (SCO) summit in the month of July, India is all set to host two important meetings – Environment & Emergency ministers (Emergency Prevention) meeting later this week. These meetings are a part of a series of meetings hosted by India as it holds the presidency of SCO this year. The environment ministers of the SCO grouping are meeting today and India’s environment minister Bhupender Yadav is chairing the meeting which is taking place in the virtual format.

Later this week on April 20, 2023 the Emergency Minister’s meeting is scheduled to take place and Pakistan is expected to attend the meeting virtually and China will be sending a Deputy minister to participate in the discussions in New Delhi.

Under its presidency India has sent invitations to all the members of the grouping including China and Pakistan.

Which meetings are scheduled in April & May?

India became a member of SCO back in 2017 and is hosting for the first time summit level meeting as well as other ministerials. Later this month India will be hosting the SCO Defence Ministers Meeting in New Delhi from April 27-29 and then early May the foreign ministers of SCO will be meeting in Goa for a meeting.

Will there be any physical representation from Pakistan?

There is no clarity from the Pakistan side of whether their ministers will attend the Defence and Foreign Ministers meeting in –person. And if they come then it will be the first ministerial from Islamabad to New Delhi after the special status of erstwhile Jammu and Kashmir was removed by India.

About SCO

This grouping was set up almost two decades ago and the purpose was to promote military, economic and political cooperation among member countries including Russia, India, China, Pakistan, Kyrgyzstan, Tajikistan, Uzbekistan and Kazakhstan. And altogether the 'Tan' nations cover almost 60 percent of the Eurasian landmass.

<https://www.financialexpress.com/business/india-to-host-more-sco-ministerial-meetings-invites-sent-to-pakistan-and-china-3052465/>



Wed, 19 Apr 2023

UK's Cyber Defence Organisation Issues Warning about Russian Hackers Targeting Western Critical Infrastructure

On Wednesday, the UK government's cyber defence organisation issued a warning about a growing threat from hackers who support Russia and its conflict with Ukraine to Western essential national assets.

Russian-aligned "hacktivists" have run generally non-lethal internet campaigns that have taken down or damaged well-known public websites. However, according to a warning from the British National Cyber Security Centre (NCSC), a division of the eavesdropping spy agency GCHQ, some of those organisations have been actively planning methods to do greater physical harm.

"Some have stated a desire to achieve a more disruptive and destructive impact against western critical national infrastructure, including in the UK," the NCSC said.

"We expect these groups to look for opportunities to create such an impact, particularly if systems are poorly protected," said the alert, which was released to the press at a two-day conference hosted by the NCSC and GCHQ in Belfast.

Although such groups are ideologically motivated and align themselves with Russian state interests, they are "not subject to formal state control," the alert said.

"This makes them less predictable", it said.

A successful cyberattack on critical national infrastructure such as an energy grid or water supply could be highly destructive, and do serious real-world damage.

The NCSC alert said such attacks, which typically require very high levels of technical skill and resources to carry out, would be "unlikely" to be achieved by hacktivist groups "without external assistance", but warned that they "may become more effective over time".

That assistance may already be in place, however.

Among the dozens of highly classified US intelligence documents which were posted online in recent weeks was one marked "Top Secret" that warned a pro-Russia hacking group named "Zarya" had infiltrated networks within Canada's gas infrastructure.

According to that "Top Secret" document, a copy of which was reviewed by Reuters, the group offered screenshots to officers of Russia's FSB as proof that they were able to "increase valve

pressure, disable alarms, and initiate an emergency shutdown of an unspecified gas distribution station”.

Reuters has not independently verified the document’s authenticity. A number of countries have questioned the veracity of some of the documents, including Britain, which said there was “a serious level of inaccuracy” in the information.

<https://www.firstpost.com/world/uks-cyber-defence-organisation-issues-warning-about-russian-hackers-targeting-western-critical-infrastructure-12474322.html>



Wed, 19 Apr 2023

Pentagon Spends \$1 Billion Every Year to Develop ‘Directed Energy’ Weapons

A report by the United States Government Accountability Office (GAO) found that the US Department of Defense (DOD) spends around one billion dollars every year to develop what is known as “directed energy” weapons.

The weapons in question essentially fire concentrated electromagnetic energy or simply known as lasers. However, this military technology is also something that the American taxpayers are now paying at least a billion dollars for. So this is how it is being used.

According to the report, the DOD has developed high-energy lasers that have “successfully shot down drones in demonstrations.” The GAO who reportedly visited these defence facilities also found how the US military is working on making laser weapons small and light enough to be used by one person.

The Pentagon too is experimenting with high-powered microwave weapons which could potentially penetrate solid objects and this technology has several implications including, disrupting the enemy’s power source, sensors and other electronics, said the GAO.

Similarly, a Congressional Research Service (CRS), a non-partisan organisation which conducts research for lawmakers, in its analysis, last year, found that these high-energy lasers and microwave weapons could be useful for short-range air defence, against drones as well as to counter rocket, artillery and mortar fire, reported CBS News.

The CRS also found that these lasers are not only affordable but also more efficient than conventional weapons. Meanwhile, the GAO noted how various branches of the US military have already tested these powerful lasers. Reportedly, the US Navy has tested them on drones and small boats while the Air Force has developed a laser which can be attached to its aircraft.

“DOD has pursued these potentially transformative technologies for decades because they could provide considerable advantages,” stated the GAO, in its report. It added, “They can deliver destructive or disruptive effects to targets at the speed of light and have potentially significant advantages over kinetic weapons, such as missiles, including lower per-use cost.”

However, the GAO report finds that the departments have had difficulty “getting these technologies out of the lab and into the field for several reasons” which include determining how

to use them for different missions. Additionally, the DOD's "efforts to transition prototypes to acquisition programs face challenges," said the government agency.

But this is not the only hurdle that these weapons face, as directed energy weapons also have legal and functional limitations, including some laser systems being restricted under international treaties. For example, the United Nations has banned laser weapons specifically designed to cause permanent blindness, while previous prototypes have reportedly been affected by atmospheric conditions like rain or fog.

Therefore, before these "direct energy" weapons can be put to actual use on missions, simply powering them remains a challenge, not to mention the development of new tactics to deploy this novel weaponry. "As a novel technology, (directed energy) weapons require the development of new tactics, techniques and procedures — processes by which the warfighter knows how best to use a particular technology in an operational environment," the GAO noted.

<https://www.wionews.com/world/pentagon-spends-1-billion-every-year-to-develop-directed-energy-weapons-583865>

THE ECONOMIC TIMES

Tue, 18 Apr 2023

China's Military Chief Vows to Bolster Ties with Russia

The Chinese defence chief vowed Tuesday to take military cooperation with Moscow to a new level, a statement that reflects increasingly close Russia-China ties amid the fighting in Ukraine. Chinese Defence Minister Gen. Li Shangfu held talks with his Russian counterpart Sergei Shoigu after attending a meeting Sunday with Russian President Vladimir Putin in the Kremlin.

"The armed forces of China and Russia will implement the agreements reached by the heads of state and expand military cooperation, military-technical ties and arms trade," Li said in opening remarks at Tuesday's meeting with Shoigu. "We will certainly take them to a new level."

Li's trip follows last month's three-day state visit to the Russian capital by Chinese leader Xi Jinping, reflecting China's strengthening engagement with Russia. Moscow and Beijing have closely aligned their policies in attempt to reshape the world order to diminish the influence of the United States and its Western allies.

China has refused to criticise Russia's actions in Ukraine and blamed the U.S. and NATO for provoking Moscow. Xi's visit to Moscow gave a strong political boost to Putin, sending a message to Western leaders that their efforts to isolate Russia have fallen short. After the talks, Putin and Xi issued joint declarations pledging to further bolster their "strategic cooperation," develop cooperation in energy, high-tech industries and other spheres and expand the use of their currencies in mutual trade to reduce dependence on the West.

After more than a year of fighting in Ukraine and bruising Western sanctions, Russia's dependence on China has increased significantly. Facing Western restrictions on its oil, gas and other exports, Russia has shifted its energy flows to China and sharply expanded other exports, resulting in a 30 per cent hike in bilateral trade. Last month, Putin and Xi also vowed to further develop military cooperation between Moscow and Beijing and conduct more joint sea and air patrols.

However, there was no mention of any prospective Chinese weapons supplies to Russia that the U.S. and other Western allies feared, and the Chinese foreign minister reaffirmed Friday that Beijing wouldn't sell weapons to either side in the conflict in Ukraine.

<https://economictimes.indiatimes.com/news/defence/chinas-military-chief-vows-to-bolster-ties-with-russia/articleshow/99591744.cms>

Science & Technology News



Press Information Bureau
Government of India

Ministry of Science & Technology

Tue, 18 Apr 2023

Scientists Probe Characteristics of a Form of Plasma Wave Identified in the Indian Antarctic Station, Maitri

Scientists have identified Electromagnetic Ion Cyclotron (EMIC) waves, a form of plasma waves in the Indian Antarctic station, Maitri, and studied its characteristics. These waves play an important role in precipitation of killer electrons (electrons having speed close to speed of light, which form the radiation belt of planet Earth), which are hazardous to our space-borne technology/instruments. The study can help understand the impact of energetic particles in the radiation belts on the low orbiting satellites.

More than 99% of the matter in the visible universe consists of plasma. Our Sun, solar wind, the interplanetary medium, near-Earth region, magnetosphere (the cavity in which the Earth lies and stays protected from the wrath of the Sun), and upper part of our atmosphere all consist of plasma—the fourth state of matter. The study of plasma waves provides us with information on regions inaccessible to us, transport mass and energy across different regions, how they interact with charged particles, and control the overall dynamics of the Earth's magnetosphere.

One such wave is the Electromagnetic Ion Cyclotron (EMIC), traversing plasma waves observed in the Earth's magnetosphere. They can resonate with electrons with a wide energy range --- from 500 keV to hundreds of MeV, and make them precipitate to high-latitude atmosphere.

A team of scientists from the Indian Institute of Geomagnetism (IIG), an autonomous institute of DST, analysed data collected between 2011 and 2017 by the Induction Coil Magnetometer data, installed at the Indian Antarctic station Maitri to bring out several aspects of the ground observation of the EMIC waves. They found the location of the generation of the waves in space and also suggested that the lower-frequency waves modulate the higher-frequency waves.

This first attempt to investigate the modulation characteristics using large data to present a statistical scenario of modulation of EMIC waves at ground station Maitri, published in the journal JGR Space Physics showed that the short-period modulation of such wave events is common and dependent on EMIC wave frequency. Besides, the short period decreases with an

increase in the peak frequency of the EMIC wave, and stronger EMIC wave events were likely to have a higher peak frequency. Such study is important to improve our understanding of EMIC wave modulation and how they interact with energetic particles that impact satellites and their communication.

Reference: A Statistical Study of Modulation of Electromagnetic Ion Cyclotron Waves Observed on Ground, A Upadhyay, B Kakad, A Kakad, R Rawat, Journal of Geophysical Research: Space Physics 127 (8), e2022JA030340

<https://pib.gov.in/PressReleasePage.aspx?PRID=1917575>



Wed, 19 Apr 2023

ISRO to Launch Singaporean Earth Observation Satellite TeLEOS-02 on Saturday

The Indian Space Research Organisation (Isro) is gearing up for another commercial launch Saturday when it will carry the Singaporean Earth Observation satellite TeLEOS-02 on board the workhorse Polar Satellite Launch Vehicle. The launch will take place on April 22 at 2.19 pm from the first launch pad at the country's only spaceport Sriharikota.

The satellite on board will be TeLEOS 2—a 750kg earth observation satellite that has synthetic aperture radar capable of providing data in 1-metre resolution. The satellites had arrived in India in February.

This will be the third launch of the year for Isro—all three using different launch vehicles. The first launch took place in February when the new Small Satellite Launch Vehicle (SSLV) successfully deployed three satellites and was declared operational by the space agency. The second launch took place in March when India's heaviest LVM3 launched 36 OneWeb satellites in a purely commercial mission.

With another commercial mission underway, the space agency is reinforcing the government's plan to increase India's share in the commercial market, increasing it from the current 2 per cent.

After the SSLV launch, Isro chairman S Somanath had said the launch campaign for the next mission of the NewSpace India Limited, the space agency's commercial arm, that will take place "probably by the end of March" was underway with the rocket being placed at the launch pedestal. He had said that a new facility was going to be used for Polar Satellite Launch Vehicle (PSLV) C55 mission.

PSLV C-55 was assembled in a new Integration facility that has been developed at the spaceport.

This will be the 57th launch of PSLV which has proven to be one of Isro's most reliable vehicles, having launched hundreds of satellites and only three failures or partial failures since 1993. The launch vehicle has also carried onboard India's big-ticket missions like Chandrayaan-1, Mangalyaan, and AstroSat.

<https://indianexpress.com/article/technology/science/isro-singaporean-earth-observation-satellite-teleos-02-8562806/>



और क्या-क्या

Nytimes ने इन 35 तरह के कामों की पहचान की है, जो AI के जरिए लोग कर रहे हैं

गार्डन प्लानिंग, कर्कआउट्स, गिफ्ट, स्पेशलिप के कलपुर्जों की डिजाइनिंग, डेस्कटॉप मैनेजमेंट, वेडिंग स्पीच, ईमेल, डेविल्स एडवोकेट, थीसिस रिसर्च, अकादमिक लेख, ADHD में मदद, डिसलेक्सिया में मदद, क्लिनिकल नोट्स, इश्योरेंस की अपील, एक्सल के फॉर्म्युले, होमवर्क, चाइनीज सीखने में, इंग्लिश सीखने में, ऐप बनाने में, कोडिंग में बस्स फ्रिक्विंग, पॉंग गेम खेलने में, 3डी गेम खेलने में, नया गेम बनाने में, तकनीकी प्रफेशनल बनने में, बेहतरीन आर्टिस्ट, ड्रैगन का संस्कार, स्पॉटिफ़ाई प्लेलिस्ट बनाने, भाषाओं से खेलने में।

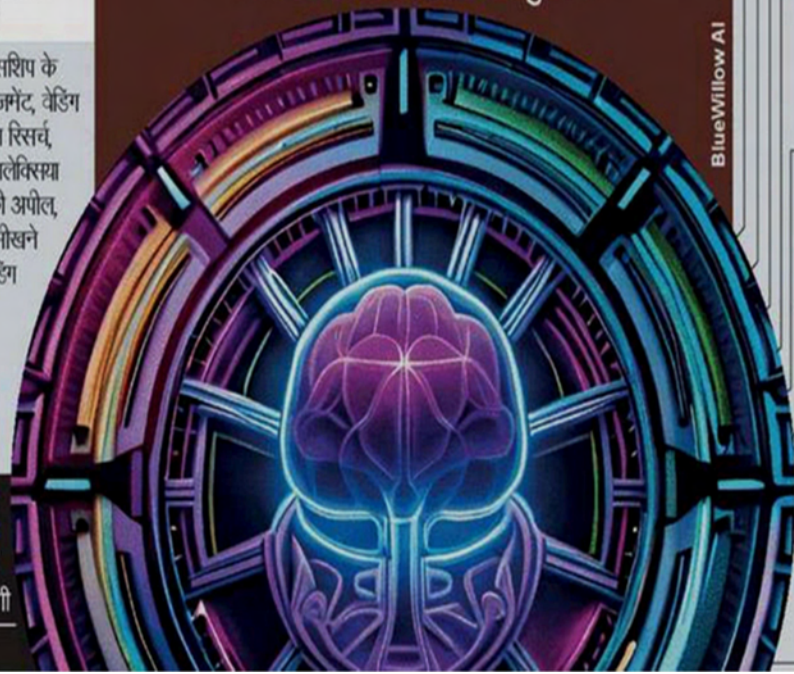
Job सीन 2025 तक

8.5 करोड़ की नौकरी जाएगी। 9.7 करोड़ नौकरियां पैदा होंगी

स्रोत: वर्ल्ड इकॉनॉमिक फोरम

AI बदल रही है हमारी जिंदगी

AI के ChatGPT दौर ने आते ही तकनीक की दुनिया में बड़ा धमाका कर दिया। अब तकनीक के सहारे लोग उन क्षेत्रों में भी अपना वक्त और श्रम बचा रहे हैं, जिनमें यह नामुमकिन था। मगर नए दौर के इस AI के खतरे भी कम नहीं। रोजगार पर संकट तो सिर्फ एक पहलू है, मानव व्यवहार के स्तर पर आ रहा बदलाव भी बड़ी चुनौती साबित हो सकता है। देखते हैं AI के प्रभाव में कैसा रूप ले रही है दुनिया:



BlueWillow AI

उपन्यास की समीक्षा: लोग अपना उपन्यास लिखने के बाद ChatGPT को इसे पढ़ने, इसकी समीक्षा बनाने और समीक्षा करने के लिए दे रहे हैं।

केले के पौधे में बीमारी: AI से चलने वाले ऐसे कई ऐप आ गए हैं जो पौधों की फोटो से उनकी बीमारी का पता लगा रहे हैं। ऐसे ही तुमैनी नाम का एक AI ऐप केलों की बीमारी पता लगाता है।

मरे हुए लोगों की फोटो: गूगल के एक इंजीनियर डेनियल पैट ने फोटो सर्व की एक ऐसी AI बनाई है, जिससे लोग आपदा या युद्ध में मरे लोगों या रिश्तेदारों को खोज रहे हैं।

हर मिनट एक नई कविता: बहुत से लोग कविताओं के बड़े शौकीन होते हैं। ChatGPT का पोएम टाउन हर मिनट या सेट किए वक्त पर उन्हें एक नई कविता देता है।

खाने में क्या बने: रेजमर्रा के सबसे मुश्किल सबल में होता है कि आज खाने में क्या बने। लोग इसका आइडिया ChatGPT से ले रहे हैं।

पहला पाठक: कुछ भी लिखने के बाद लेखक की इच्छा होती है कि वह किसी को पढ़कर पता करे कि उसने लिखा कैसा है। अब यह काम लोग ChatGPT से करा रहे हैं।

नया प्रोटीन बनाने में: पहले वैज्ञानिकों को कोई प्रोटीन बनाने से पहले उसका ब्लूप्रिंट बनाना पड़ता था, मगर अब AI इसे चुटकियों में कर दे रही है।

AI पर बैन: इसी महीने इटली आर्टिफिशियल इंटेलिजेंस पर बैन लगाने वाला पहला देश बना।

क्या आपकी नौकरी के लिए खतरा है ChatGPT? इस पर लेख पढ़ने के लिए यहां क्लिक करें और navbharatgold.com पर जाएं



AI का बाजार

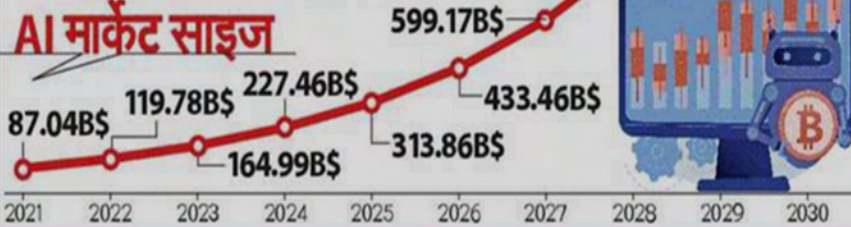
- 2023 तक हमें 800 करोड़ AI पावर्ड वॉइस अरिस्टेंट।
- 2023 तक AI के चलते ग्लोबल GDP \$15.7 लाख करोड़ डॉलर तक बढ़ेगी।
- AI 40% तक बढ़ती है बिजनेस प्रॉडक्टिविटी।
- दो दशकों में 14 गुना बढ़े AI स्टार्टअप।
- आज 77% डिवाइसों में यूज होती है AI
- साल 2000 की तुलना में AI में निवेश 6 गुना बढ़ा।



AI यूज करती कंपनियां

Year	AI यूजर	AI पर विचार करती कंपनियां	स्रोत: IBM
2020	34	39	
2021	31	43	
2022	35	42	

AI मार्केट साइज



कॉन्टेंट: राहुल पाण्डेय, ग्राफिक्स: अर्जुन सिंह

