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पंजाब केसरी

Thu, 21 Nov 2019

भारत ने किया दो पृथ्वी बैलिस्टिक मिसाइलों का सफल रात्रि-परीक्षण

भुवनेश्वर, (एजैसी): भारत ने ओडिशा के तट से दो पृथ्वी बैलिस्टिक मिसाइलों का रात्रि-परीक्षण सफलतापूर्वक किया है। स्ट्रैटेजिक फोर्सेस कमांड द्वारा 300 किलोमीटर की दूरी तक मार करने वाली दो मिसाइलों का परीक्षण किया गया है। इससे पहले भारत ने 2,000 किलोमीटर की मारक क्षमता वाली अग्नि-2 बैलिस्टिक मिसाइल का ओडिशा के बालासोर से सफल रात्रि-परीक्षण किया था। रक्षा सूत्रों ने कहा था कि सतह से सतह पर मार करने वाली मिसाइल का परीक्षण समन्वित परीक्षण रेंज (आईटीआर) से किया गया। अग्नि-2 मिसाइल का

तीन हजार किमी तक मार करने में सक्षम

परीक्षण पिछले साल ही कर लिया गया था लेकिन रात के समय इसका परीक्षण पहली बार हुआ। इसकी मारक क्षमता को दो हजार से बढ़ाकर तीन हजार किमी तक किया जा सकता है। अग्नि-2 मिसाइल न्यूक्लियर हथियार ले जा सकने में सक्षम है।

THE ECONOMIC TIMES
WWW.ECONOMICTIMES.COM

Thu, 21 Nov 2019

Akash Missile: All about India's first home-made supersonic missile

The nuclear-capable missile can fly at a speed of up to Mach 2.5 (nearly 860 meter per second) at a maximum height of 18 km. It can strike enemy aerial targets like fighter jets, drones, cruise missiles, air-to-surface missiles as well as ballisti..

Akash is India's first indigenously produced medium range Surface to Air missile that can engage multiple targets from multiple directions. The all-weather missile can engage targets at a speed 2.5 times more than the speed of sound and can detect and destroy targets flying at low, medium and high altitudes.

The Akash missile system has been designed and developed as part of India's 30-yearold integrated guided-missile development programme (IGMDP) which also includes other missiles like Nag, Agni, Trishul and Prithvi.

Here is everything about Akash's salient features, its range and why it is one of the best surface-to-air defence missiles in the world.

1. What is Akash missile's range and capability?

The nuclear-capable missile can fly at a speed of up to Mach 2.5 (nearly 860 meter per second) at a maximum height of 18 km. It can strike enemy aerial targets like fighter jets, drones, cruise missiles, air-to-surface missiles as well as ballistic missiles from a distance of 30 km.

2. What's the length and weight of Akash?

The missile has a launch weight of 720 kg, a wingspan of 1,105 mm, length of 5.8 m and a diameter of 350 mm. It can carry a warhead of 50-60kg.

3. What are the unique features of Akash?

* The missile is unique in the way that it can be launched from mobile platforms like battle tanks or wheeled trucks.

* It's unique all-the-way-powered missile system has nearly 90 per cent kill probability. Akash has a kill probability of 88 per cent for the first missile and 99 per cent for the second.

*The missile is supported by the indigenously developed radar called 'Rajendra' that can handle highly-manoeuvring multiple targets from multiple directions in group or autonomous mode. The missile is reportedly cheaper and more accurate than US' Patriot missiles due to its solid-fuel technology and high-tech radars. Akash uses ramjet propulsion system which can intercept the target at supersonic speed without deceleration. The ramjet propulsion and its electronic couter-counter measure equipment also help it break any electronic jamming system.

4. What are the components of the complete Akash missile defence system?

* Akash missile system has seven components. It contains integral ramjet propulsion; a switchable guidance antenna system; a command guidance unit; an onboard power supply; a system arming and detonation mechanism; digital autopilot; multi-function Rajendra phased-array radar; 3D passive electronically scanned array Rajendra radar (PESA) and command centres.

* Akash contains four Rajendra radars and four launchers are interlinked together and controlled by the group control centre. Each launcher, equipped with three missiles and one radar, can track 16 targets. So in total, the radar can track 64 targets and simultaneously launch 12 Akash missiles.

5. Who manufactures Akash? The missile system is designed and developed by DRDO. But Bharat Dynamics (BDL) manufacturer the missiles, while Bharat Electronics produces its hi-tech 'Rajendra phased array radar'.

https://economictimes.indiatimes.com/news/defence/akash-missile-all-about-indias-first-home-made-supersonic-missile/articleshow/72119996.cms

THE ECONOMIC TIMES
WWW.ECONOMICTIMES.COM

Thu, 21 Nov 2019

Now, IIT & IISc will help forces to get futuristic defence technologies

DRDO has already identified over 60 specific projects, many of which will give armed forces a lethal edge

By Anubhuti Vishnoi

New Delhi: The government has set up a national task force to help bring in the country's premier technical and scientific institutes to work on 'futuristic defence technologies' and address defence and security requirements of the country indigenously.

The task force on 'DRDO-Academia Interaction for achieving leadership in futuristic technologies' was set up last week to identify niche domains and dual use technologies for current and futuristic requirements of defence and security, as well as to identify higher education Institutions that can work on developing these, people aware of the development said.

Chaired by director of Indian Institute of Technology (IIT) Delhi, the task force has on board director of Indian Institute of Science, Bangalore, director of National Institute of Technology (NIT) Durgapur, Vice chancellor of University of Hyderabad, and top officials of Defence Research and Development Organisation (DRDO).

DRDO has already identified more than 60 specific projects, many of which would give armed forces access to cutting edge technology, people aware of the plan said.

Under discussion are bullet proof vests that are at least 25per cent lighter, robotic exoskeletons, and full body armours to help soldiers operate swifter than ever, advanced weaponisation for Hindustan Aeronautics' Dhruv helicopters, artificial intelligence (AI)-based cyber defence system, and technology for automatic change detection in satellite imagery.

There is also considerable focus on health concerns of defence personnel. DRDO has sought help with detection of pathology in images of slides to detect chronic diseases like cancer and analysis of health data of young adults for early indications of high altitude sickness, acute mountain sickness and acute myocardial infraction that may cause serious health problems to those posted in hostile terrains, sources said.

Among other identified areas are a range of advanced aircraft applications and instruments, drones for high altitude areas, perimeter security solutions, robotic solutions for disposal of misfire of ammunition, and AI-based aerial target recognition system.

Leading technical and scientific institutes will look to find solutions to these challenges.

Besides helping create a larger research ecosystem to address India's security challenges, the taskforce will also look at bringing PhD scholars from higher education institutes to work in DRDO laboratories on specific projects on deputation and for joint R&D projects.

This committee will submit its report to the government by December 15 for further action, people cited earlier said. It will also suggest mechanisms to set up new defence and security-related centres of excellence at higher education institutes and bring in place monitoring and review mechanism for R&D collaborations.

https://economictimes.indiatimes.com/news/defence/task-force-to-help-iits-iisc-work-for-defence/articleshow/72135370.cms

पंजाब केसरी

Thu, 21 Nov 2019

जनवरी तक मिलेगा पहला चीफ ऑफ डिफेंस स्टाफ

नई दिल्ली,(भाषा): राष्ट्रीय सुरक्षा सलाहकार अजित डोभाल की अध्यक्षता वाली समिति अगले तीन सप्ताह के भीतर चीफ ऑफ डिफेंस स्टाफ (सीडीएस) की नियुक्ति के तौर-तरीकों को अंतिम रूप देगी। इससे सरकार को जनवरी तक एकीकृत सैन्य सलाहकार मिलने का रास्ता साफ हो जाएगा, जिसका सुझाव 1999 में करगिल समीक्षा समिति ने दिया था। सेना के आधिकारिक सूत्रों ने बताया कि थलसेना, नौसेना और वायुसेना पहले ही इस नये पद के लिये अपने वरिष्ठतम कमांडरों के नामों की सिफारिश रक्षा मंत्रालय को भेज चुकी है। सीडीएस की नियुक्त का मकसद भारत के सामने आने वाली सुरक्षा चुनौतियों से निपटने के लिए तीनों सेनाओं के बीच तालमेल बढ़ाना है। प्रधानमंत्री नरेन्द्र मोदी ने 15 अगस्त को ऐतिहासिक सैन्य सुधार की घोषणा करते हुए कहा था कि भारत की तीनों सेना के लिये एक प्रमुख होगा, जिसे सीडीएस कहा जाएगा। प्रधानमंत्री की घोषणा के बाद राष्ट्रीय सुरक्षा सलाहकार अजित डोभाल की अध्यक्षता में एक कार्यान्वयन समिति का गठन किया गया जो सीडीएस की नियुक्ति के तौर-तरीकों और उसकी जिम्मेदारियों को अंतिम रूप देगी।

- अजित डोभाल की अध्यक्षता वाली समिति अगले तीन सप्ताह में नियुक्ति के तौर-तरीकों को अंतिम रूप देगी

सेना प्रमुख बिपिन रावत इस पद की दौड़ में सबसे आगे

सूत्रों ने कहा कि समिति ने जमीनी कामकाज पूरा कर लिया है और वह तीन सप्ताह के भीतर अंतिम रूपरेखा पेश करेगी। सेना प्रमुख बिपिन रावत इस पद की दौड़ में सबसे आगे हैं जो 31 दिसंबर को सेवानिवृत हो रहे हैं। शीर्ष सरकारी सूत्रों ने कहा कि अगर सब कुछ योजना के अनुसार चलता रहा तो सरकार उन्हें सेवानिवृत होने से पहले देश का पहला सीडीएस घोषित कर देगी। सूत्रों ने कहा कि सीडीएस का पद 'फोर स्टार" जनरल के समकक्ष होगा और सभी सेनाओं के प्रमुखों में सबसे ऊपर होगा। प्रोटोकॉल के मामले में भी सीडीएस सबसे ऊपर रहेगा।सीडीएस मुख्यत: रक्षा और रणनीतिक मामलों में प्रधानमंत्री और रक्षा मंत्री के एकीकृत सैन्य सलाहकार के रूप में काम करेगा। 1999 के करगिल युद्ध के मद्देनजर देश की सुरक्षा प्रणाली में खामियों की समीक्षा के लिये बनाई गई समिति ने रक्षा मंत्री के एकीकृत सैन्य सलाहकार के रूप में सीडीएस की नियुक्ति का सुझाव दिया था।

The Indian EXPRESS

Thu, 21 Nov 2019

Chief of Defence Staff should play the role of the primary military adviser

The Chief of Defence Staff should not become another interposed level between the Raksha Mantri and the service chiefs, whose access to the minister should remain as prevalent

By J S Sandhu

Consequent to Prime Minister Narendra Modi's announcement from the ramparts of Red Fort, the proposed structure for the Chief of Defence Staff (CDS) has been deliberated upon. We should soon be seeing the first CDS take charge. The proposed charter of the CDS, his powers and status, etc, has been debated intensely. One school of thought recommends an evolutionary, incremental expansion of the role, while some feel he should be given greater operational control ab initio. Like many bureaucratic approval processes, turf battles often cloud judgements, the resistance to change tends to only marginally alter the existing status quo. In this case, too, Service HQs prefer to retain their powers, resources and establishments. Hence, to avoid a dilution of their spheres, they are in favour of the CDS taking charge of new organisations, domains, and also to handle the integrated structures.

Existing single-service responsibilities would remain largely undisturbed.

What should be the answer to this dilemma? A logical appraisal is warranted: Retention of existing warfighting structures, while the CDS takes control of newer organisations being set up for tackling future threats, has some merit. Development of future technologies and means to face emerging threats in the cyber, space, missiles domain, nurturing of AI-based platforms, usage of drones for various roles and such modern conflict realities is indeed important. These advancements are extremely costly, and the CDS can facilitate optimal, cost-effective integrated development and deployment of such structures.

Modern war and warfighting has tremendous economic costs. Defence budgets are invariably inadequate to meet the "wishlists", and intense prioritisation of capabilities is inevitable. The CDS can be the vital fulcrum to undertake such prioritisation and rationalisation, and, therefore, can play a stellar role in the perspective planning and development function. Considering the high cost of future technology, the CDS can also contribute towards optimisation of existing structures. Such review of existing establishments and manpower should also be an assigned task for him.

But should the CDS be utilised only in capability building and cost cutting, and optimisation measures? Future conflict situations would possibly need integrated application of fighting formations and resources, with unitary operational control of deployed elements. The CDS would be better placed for integrated employment of war fighting potential, and therefore logically needs to be part of the operational control chain.

In the debates on CDS, one often heard the designated profile as "providing single-point military advice". National security decisions are always taken after a multitude of advisory inputs from a number of agencies, duly analysing ramifications and end state probabilities. The CDS is better termed as the primary military advisor, with the service chiefs also remaining important military advisors. The CDS should not become another interposed level between the Raksha Mantri and the service chiefs, whose access to the minister should remain as prevalent.

In effect, the CDS should be in charge of newer domains and organisations, and be well poised to optimise, cut costs and prioritise different service demands. He could be an effective mentor for realising our military-industrial power potential, and for modernisation and capability enhancement. His tri-service position makes him the most suited driver for the integrated application of warfighting

resources and facilitates unitary control in integrated operations. The CDS also has a primary advisory role, and therefore should not be boxed into administrative efficiency roles, but must be in the operational control chain. In the interim, the CDS may not override the operational responsibility of the service chiefs, and in due course, his operational responsibility can expand and become more "hands-on".

Thus, it is clear that the CDS would play a far more critical role in the national security apparatus, than the three service chiefs. Our higher defence organisation would finally mature, and be more in tune with our rising power ranking. From being the "first among equals", I would like to see the CDS graduate to "first above the others".

(The writer was General officer Commanding of the Indian Army's Chinar Corps in Kashmir. Views are personal.)

https://indianexpress.com/article/opinion/columns/chief-of-defence-staff-cds-exam-6129257/

Thu, 21 Nov 2019

Navy inducting large no. of state-of-art assets: Prez

Kannur: Indian Navy is inducting a large number of highly capable and state-of-the-art assets and equipment, President Ram Nath Kovind said on Wednesday as he highlighted the strategic importance of the seas in the well- being of people of the country.

Addressing the Naval cadets after awarding the President's Colour to the Indian Naval Academy, the President said that India is a maritime nation and highlighted the strategic values of its long coastline and several islands which are acting as the country's "national outposts".

"A significant proportion of India's trade and energy needs are met through the medium of the oceans.

Safety of the seas and maritime commons, therefore, remains a critical requirement to ensure the economic and infrastructure development on land, as also to ensure well- being of its people," he said at a function organised at the Ezhimala Naval Academy in the district.

Underscoring the security challenges — both in the conventional and asymmetric domains — facing the country today, Kovind said, "The country looks upon you to deliver, each and everytime, whether it is a full fledged conflict, natural calamity, law and order challenge or our diplomatic mission."

Hailing the Indian Navy as the country's prime instrument to ensure maritime security, Kovind said, "You will be pleased to know that our Navy is inducting a large number of highly capable and state-of the-art assets and equipment".

https://www.dailypioneer.com/2019/india/navy-inducting-large-no--of-state-of-art-assets--prez.html

पंजाब केसरी

Thu, 21 Nov 2019

भारतीय नौसेना अपने बेड़े में अत्याधुनिक संसाधन शामिल कर रही है : राष्ट्रपति

कन्नूर (केरल), (भाषा): राष्ट्रपति रामनाथ कोविंद ने बुधवार को कहा कि भारतीय वायु सेना उच्च क्षमता वाले तथा अत्याधुनिक संसाधन एवं उपकरण अपने बेड़े में शामिल कर रही है।राष्ट्रपति ने देशवासियों के कल्याण में समुद्रों की सामरिक अहमियत को भी रेखांकित किया।

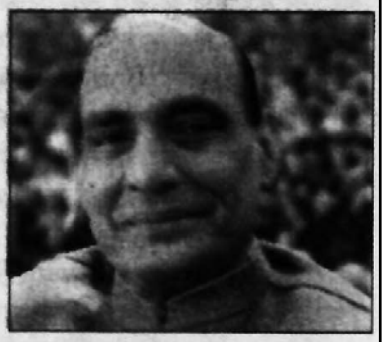
भारतीय नौसेना अकादमी को ध्वज प्रदान करके सम्मानित करने के बाद कोविंद ने कहा कि भारत समुद्री राष्ट्र है। उन्होंने देश की लंबी तटरेखा और कई द्वीपों के रणनीतिक मूल्यों को रेखांकित किया जो देश के लिए ''राष्ट्रीय चौकियों' के रूप में काम कर रहे हैं।उन्होंने कहा, ''समुद्र के माध्यम से भारत की व्यापार और ऊर्जा जरूरतों के बड़े हिस्से की पूर्ति की जाती है।'' उन्होंने कहा कि भूमि पर आर्थिक और आधारभूत संरचना विकास और लोगों का कल्याण सुनिश्चित करने के लिए समुद्रों की सुरक्षा महत्वपूर्ण जरूरत बनी हुई है।देश के समक्ष पारंपरिक और गैर पारंपरिक सुरक्षा चुनौतियों को रेखांकित करते हुए कोविंद ने कहा ''चाहे पूर्ण संघर्ष हो, प्राकृतिक आपदा हो, कानून एवं व्यवस्था की चुनौती हो या फिर हमारा राजनयिक मिशन हो, हर बार देश सेवा के लिए आप की ओर देखता है।'' समुद्र सुरक्षा सुनिश्चित करने के लिए नौसेना की प्रशंसा करते हुए राष्ट्रपति ने कहा, '' आपको जानकर खुशी होगी कि हमारी नौसेना बड़ी संख्या में उच्च क्षमता वाले और अत्याधुनिक संसाधन और उपकरण अपने बेड़े में शामिल कर रही है।'' उन्होंने कहा, '' हम डिजिटल युग में रहते हैं और भविष्य के युद्ध भी सूचना एवं प्रौद्योगिकी के क्षेत्र में लड़े जाएंगे।'' राष्ट्रपति ने कमांडेन्ट, सभी प्रशिक्षकों और अधिकारियों को नौसेना के लिए बहु आयामी अधिकारी तैयार करने की बधाई दी।

पंजाब केसरी

Thu, 21 Nov 2019

किसी देश के लिए पहली बार भारत खोलेगा चांदीपुर टेस्ट रेंज

- **रक्षा मंत्री राजनाथ सिंह के सिंगापुर दौरे पर दोनों देशों के बीच लेटर ऑफ इंटेंट पर हस्ताक्षर**



सिंगापुर, (एजैसी): भारत और सिंगापुर ने बुधवार को ओडिशा के चांदीपुर परीक्षण केंद्र से स्पाइडर एयर डिफेंस सिस्टम जैसे मिसाइल की लाइव फायरिंग का रास्ता साफ करने की दिशा में ' लेटर ऑफ इंटेंट' (आशय पत्र) पर हस्ताक्षर किया। सिंगापुर ने मांग की थी कि वह एक छोटा देश है लिहाजा वह स्पाइडर जैसे मिसाइल सिस्टम को लॉन्च नहीं कर सकता, लिहाजा भारत उसे अपने चांदीपुर टेस्ट रेंज का इस्तेमाल करने की सुविधा प्रदान करे। चौथे भारत-सिंगापुर डिफेंस मिनिस्टर्स डायलॉग में बुधवार को इस पर फैसला किया गया जिसकी अध्यक्षता गृह मंत्री राजनाथ सिंह और उनके सिंगापुर के समकक्ष एन.ई.हेन ने की। यह संभवत: पहली बार होगा भारत अपने चांदीपुर इंटिग्रेटेड टेस्ट रेंज को किसी देश के लिए खोलेगा। 'छोटा देश, नहीं कर सकते टेस्ट फाटर': सिंगापुर के रक्षा मंत्री हेन ने कहा कि स्पाइडर ग्राउंड बेस्ट एयर डिफेंस सिस्टम जैसे मिसाइल को सिंगापुर से फायर करना मुश्किल है, क्योंकि हम एक छोटे देश हैं। उन्होंने कहा, 'इसलिए हम यह सुविधा उपलब्ध कराने के लिए आभारी हैं। भारत बड़ा देश है और उसका एरिया बड़ा है, हम यह भी समझते हैं कि यह उनका महत्वपूर्ण रुख होगा।

रक्षा सहयोग पर महत्वपूर्ण चर्चा

राजनाथ ने चांदीपुर टेस्ट रेंज के इस्तेमाल और मानवीय सहायता एवं आपदा राहत (एचएडीआर) पर अपने सिंगापुर के समकक्ष के साथ विस्तृत चर्चा की। दोनों के बीच रक्षा साझीदारी, सूचना का आदान-प्रदान, भारत में छोटे सैटलाइट की प्रक्षेपण, डेटा शेयरिंग, आर्टिफिशल इंटेलिजेंस और साइबर सिक्योरिटी पर भी बात हुई। राजनाथ ने आगामी डिफेंस इंडस्ट्रियल कॉरिडोर को देखते हुए सिंगापुर को शोध, विकास और टेस्टिंग फेसिलिटी के क्षेत्र में निवेश के लिए आमंत्रिकत किया।

THE ASIAN AGE

Thu, 21 Nov 2019

Singapore to use Indian facility to test-fire missiles

Both ministers commended the progress in defence technology collaboration

New Delhi: Singapore defence forces will soon use the integrated test range at Chandipur in Odisha for the firing of missiles.

Defence minister Rajnath Singh and defence minister of Singapore Dr N.G. Eng Hen co-chaired the 4th Singapore-India Defence Ministers' Dialogue in Singapore on Wednesday.

Both ministers commended the progress in defence technology collaboration. "They witnessed the exchange of a Letter of Intent to register both sides' commitment to conclude a Memorandum of Understanding to facilitate the use of Chandipur Integrated Test Range by the Singapore defence establishment," said a defence ministry release.

Mr Singh also offered setting up of a Joint Test Facilities under the Defence Testing Infrastructure Scheme of India. Dr N.G. agreed to explore opportunities for joint collaboration. The ministers also agreed to explore co-operation in the fields of Artificial Intelligence, Geo-Spatial Data Sharing and Cyber Security. Sinagpore's military has been using India's facility for training of its defence forces including airbase for its F-16s.

Both ministers expressed satisfaction at the deepening defence ties between India and Singapore and reaffirmed their commitment to support further initiatives that would promote stability to the region. Singapore's defence minister appreciated India's continued support for the training of the Singapore Armed Forces in India. "Of note, in commemoration of the 10th anniversary of the Singapore Air Force-Indian Air Force Joint Military Training this year, the exercise was expanded to include an air-sea training component for the first time," defence ministry said.

The increasing degree of complexity of the bilateral exercises reflects the growing confidence and mutual respect for each other's professional capabilities," said defence ministry.

https://asianage.com/india/all-india/211119/singapore-to-use-indian-facility-to-test-fire-missiles.html

hindustantimes

Thu, 21 Nov 2019

US government clears sale of $1 billion worth of Naval guns to India

The MK-45 Gun System will provide the capability to conduct anti-surface warfare and anti-air defense missions while enhancing interoperability with US and other allied forces, the Defense Security Cooperation Agency said in a statement

By Yashwant Raj

Washington: The United States on Wednesday cleared the sale of 13 MK 45 anti-surface and anti-air naval gun systems, along with ammunition and related add-ons, to India for an estimated cost of $1.02 billion.

“This proposed sale will support the foreign policy and national security of the United States by improving the security of a strategic regional partner,” the Defense Security Cooperation Agency, a pat of the US department of defense, said in a statement on Wednesday.

US congress was notified of the proposed sale on Tuesday.

“The proposed sale will improve India’s capability to meet current and future threats from enemy weapon systems,” the DSCA said further in the statement.

The DSCA states that the MK-45 Gun System will provide the capability to conduct anti-surface warfare and anti-air defense missions while enhancing interoperability with US and other allied forces. “India will use the enhanced capability as a deterrent to regional threats and to strengthen its homeland defense,” the statement read.

The gun systems are made by BAE Systems Land. No delivery dates have been made available yet.

The gun systems are currently being used by the US navy and the navies of South Korea, Japan and Denmark, according to BAE website, which added that gun’s range more than 20 nautical miles (36 km).

India has stepped up defense purchases from the United States in recent years as part of a growing defense relationship that includes greater interoperability and joint exercises — the first tri-services exercises are currently under way in India.

From zero in 2008, India-US defense trade went up to $15 billion in 2018, facilitated by the signing of key foundational agreements to enhance interoperability and changes in the US export regime, upgrading India to the status of NATO allies for the sale of sensitive defense equipment.

https://www.hindustantimes.com/world-news/trump-administration-approves-sale-of-usd-1-billion-worth-of-naval-guns-to-india/story-Yaa5s8SYuqKcJSNGpadTVK.html

नवभारत टाइम्स

Thu, 21 Nov 2019

भारत को 7100 करोड़ रुपये की नेवी तोपें बेचेगा अमेरिका, ट्रंप प्रशासन ने दी फैसले को मंजूरी

ट्रंप प्रशासन ने भारत को 1 अरब डॉलर यानी करीब 7100 रुपये की मोड-4 नेवी तोपों को बेचने के फैसले को मंजूरी दी है। इनका इस्तेमाल युद्धक जहाजों, ऐंटी-एयरक्राफ्ट और किनारे पर बमबारी करने में सक्षम जहाजों पर तैनात किया जाएगा।

वॉशिंगटन/नई दिल्ली: *अमेरिका ने भारत को 1 अरब डॉलर की नौसैन्य तोपें बेचने का फैसला लिया है। ट्रंप प्रशासन ने अमेरिकी कांग्रेस को दी गई जानकारी में कहा कि उसने भारत को 1 अरब डॉलर यानी करीब 7100 रुपये की एमओडी-4 नेवी तोपों को बेचने के फैसले को मंजूरी दी है। इन्हें युद्धक जहाजों, ऐंटी-एयरक्राफ्ट और किनारे पर बमबारी करने में सक्षम जहाजों पर तैनात किया जाएगा।*

इन तोपों का इस्तेमाल युद्ध पोतों तथा युद्धक विमानों के खिलाफ और तटों पर बमबारी के लिए किया जाता है और इससे भारतीय नौसेना की मारक क्षमताओं में बढ़ोतरी होगी। रक्षा सुरक्षा सहयोग एजेंसी ने मंगलवार को जारी अपनी अधिसूचना में कहा कि 13 एमके-45 पांच इंच/62 कैलिबर (एमओडी 4) नौसैनिक तोपों और उनसे संबंधित उपकरणों की प्रस्तावित विदेशी सैन्य बिक्री की अनुमानित लागत 1 अरब डॉलर है।

जनरल रावत बनेंगे चीफ ऑफ डिफेंस स्टाफ?

इन हथियारों को हासिल करने से भारतीय नौसेना की मारक क्षमता में बड़ा इजाफा होगा।ट्रंप प्रशासन के नोटिफिकेशन के मुताबिक इन्हें BAE सिस्टम्स लैंड ऐंड आर्मामेंट्स ने तैयार किया है। इससे भारत की क्षमता में इजाफा होगा और नौसेना मौजूदा एवं भविष्य के खतरों से बेहतर ढंग से निपटने में सक्षम होगी।

तीन साल में 5.67 अरब डॉलर के 21 करार

गौरतलब है कि बीते तीन सालों में भारत ने करीब 5.67 अरब डॉलर के रक्षा समझौते किए हैं। लोकसभा में रक्षा राज्य मंत्री श्रीपद नाइक ने कहा कि दोनों देशों के बीच 21 रक्षा सौदे हुए हैं।

मई 2020 में आएंगे 4 राफेल विमान

इस बीच फ्रांस ने तीन राफेल लड़ाकू विमान भारत को सौंप दिए हैं। अब इन पर एयरफोर्स के पायलटों और इंजिनियरों को ट्रेनिंग दी जाएगी। बता दें कि 8 अक्टूबर को रक्षा मंत्री राजनाथ सिंह को पैरिस में पहला राफेल जेट सौंपा था। 4 राफेल लड़ाकू विमानों की पहली खेप मई 2020 में भारत आएगी।

https://navbharattimes.indiatimes.com/india/trump-administration-approves-sale-of-usd-1-billion-worth-of-naval-guns/articleshow/72148877.cms

The Tribune
VOICE OF THE PEOPLE

Thu, 21 Nov 2019

Vietnam to get another US ship for patrolling in South China Sea

Hanoi: The United States today announced it would provide Vietnam with another coast guard cutter for its growing fleet of ships, boosting Hanoi's ability to patrol the South China Sea amid tensions with China.

US Defense Secretary Mark Esper disclosed the decision during an address in Vietnam, which has emerged as the most vocal opponent in Asia of China's territorial claims in the South China Sea. In his speech, Esper took aim at China, which he accused of "bullying" neighbours.

"China's unilateral efforts to assert illegitimate maritime claims threaten other nations' access to vital natural resources, undermine the stability of regional energy markets and increase the risk of conflict," Esper told students at the Diplomatic Academy of Vietnam.

The vessel will be Vietnam's second cutter from the US Coast Guard, which just two years ago transferred a Hamilton-class cutter to Vietnam. The US hopes to enable Vietnam to assert its sovereignty and deter China.

More than four decades after the Vietnam War ended, ties between the United States and Vietnam are increasingly focused on shared concerns over Chinese expansion. China claims 90% of the potentially energy-rich South China Sea, but Brunei, Malaysia, the Philippines, Taiwan and Vietnam also lay claim to parts of it, through which about $3 trillion of trade passes each year.

Beijing in July sent a ship for a month-long seismic survey to an area internationally designated as Vietnam's exclusive economic zone (EEZ) but also claimed by China.

Vietnam said earlier this month it could explore legal action in the dispute, a move previously taken by the Philippines - where Esper visited earlier this week. In 2016, the Philippines won a ruling from the Permanent Court of Arbitration in The Hague that invalidated China's claim over most of the South China Sea.

Speaking earlier at Vietnam's defence ministry, Esper said the international rules-based order "has come under duress." — Reuters

https://www.tribuneindia.com/news/world/vietnam-to-get-another-us-ship-for-patrolling-in-south-china-sea/863900.html

The Indian EXPRESS

Thu, 21 Nov 2019

Chandrayaan-2: Finally, ISRO makes it Official -Vikram made a hard-landing

ISRO, however, had so far avoided any comment on the fate of the Vikram lander. It had maintained that communication with the lander was lost when it was 355 metres above the moon, and efforts were being made to restore contact

By Amitabh Sinha

Pune: Two-and-a-half months later, the Indian Space Research Organisation (ISRO) has finally admitted publicly that the Vikram lander on Chandrayaan-2 mission made a "hard-landing" on the moon.

In a written answer to a question posed to the Department of Space in Lok Sabha, Minister of State in the Prime Minister's Office (PMO) Jitendra Singh said the "reduction in velocity" of the Vikram lander during the final phase of its descent on the moon's surface "was more than the designed value". As a result, Vikram "hard-landed" on the moon "within 500 metres of the designated landing site", he said.

The fact that Vikram, which was supposed to touch down on the moon's surface in the early hours of September 7, had crash-landed was no secret. That was the only fate possible after it was seen to be unable to slow down its velocity at the required rate when it was barely 2 km from the moon's surface.

ISRO, however, had so far avoided any comment on the fate of the Vikram lander. It had maintained that communication with the lander was lost when it was 355 metres above the moon, and efforts were being made to restore contact. Three days after the incident, ISRO had said the Orbiter module of Chandrayaan-2, which is functioning normally and circling the moon, had spotted Vikram and taken thermal images, but did not say anything about the condition of the lander. At that time too, it had said that it was trying to re-establish communication signal.

Early in the morning of September 7, the Vikram lander, which had already separated from the main spacecraft a few days earlier, had begun its descent to the moon from an orbit about 30 km from the lunar surface. A soft landing on the moon involved the slowing down of Vikram from a speed of 1,683 metres per second (over 6,000 km per hour) with which it was moving just before the descent to about 2 metres per second (5 to 7 km per hour) ahead of touchdown.

The descent had proceeded smoothly till Vikram was about 2.1 km from the surface, after which it was unable to slow down at the required rate. When the lander was 355 metres above the moon, the ground control room lost its communication link with it. At the time the communication was lost, Vikram was hurtling towards the moon at a speed of over 200 km per hour.

"The first phase of descent was performed nominally from an altitude of 30 km to 7.4 km above the moon surface. The velocity was reduced from 1,683 m/s to 146 m/s. During the second phase of descent, the reduction in velocity was more than the designed value. Due to this deviation, the initial conditions at the start of the fine braking phase (final phase below 7.4 km altitude) were beyond the designed parameters. As a result, Vikram hard-landed within 500 m of the designated landing site," the minister said in a written answer in the Lok Sabha.

The minister said apart from the landing, most of the objectives of the Chandrayaan-2 mission, which was India's first attempt to soft-land on the moon, were successful.

"Most of the components of technology demonstration, including the launch, orbital critical manoeuvres, lander separation, de-boost and rough braking phase were successfully accomplished. With regards to scientific objectives, all the eight state-of-the-art scientific instruments of the Orbiter

are performing as per the design and providing valuable scientific data. Due to the precise launch and orbital manoeuvres, the mission life of the Orbiter is increased to seven years. The data received from the Orbiter is being provided continuously to the scientific community. The same was recently reviewed in an all-India user meet organised in New Delhi," the minister said.

https://indianexpress.com/article/india/chandrayaan-2-vikram-hard-landed-within-500-mts-of-landing-site-says-govt-6129208/

THE HINDU

Thu, 21 Nov 2019

ISRO uses satellite data to gauge N. Korea's 2017 nuclear test impact

'Equal to 17 times that of Hiroshima explosion'

By Jacob Koshy

Scientists at the Indian Space Research Organisation (ISRO) have used a novel mathematical technique and analysed satellite images to estimate the strength of North Korea's underground nuclear test of September 2017. Those tests are considered the most powerful thermonuclear devices to have been exploded by the country.

In the normal course, the detection and estimation of nuclear device explosions is based on the reading of earthquake monitoring sensors. However, North Korea's relative isolation has meant that there were no accessible seismic stations near the test site at Mount Mantap, Punggye-ri, to accurately gauge the intensity of the explosion, and how deep into the earth the device was detonated. Such information is also important for determining the type of bomb, and consequently, the degree of know-how the detonating country possesses.

Test site

"We inferred the location of the source as 129.0764°E, 41.0324°N at a depth of about 540 m below Mt. Mantap. The explosive yield estimated (245-271 kt) is about 17 times that of the Hiroshima explosion," the authors noted. "We inferred that the uncertainties in yield and source depth estimated using the Bayesian modelling of InSAR data were significantly less than that of seismic methods."

The findings were published in the *Geophysical Journal International*. For the analysis, researchers K.M. Sreejith, Ritesh Agrawal and A.S. Rajawat used images of the location after the explosion, sourced from the ALOS-2, a Japanese satellite, and Sentinel 1B, a European radar imaging satellite. InSAR refers to the interferometric synthetic aperture radar and is a radar technique used to generate maps of how a place would look after an earthquake, or a detonation.

While other groups have also used InSAR based approaches to estimate impact from a detonation, the ISRO group claims to have used a mathematical technique called Bayesian inversion that can correct for errors associated with InSAR data.

These estimates, of a yield of 250 kiloton, are in line with an assessment this June by U.S. scientists, who said that the 2017 test was about 10 times more powerful than the tests first conducted by North Korea in 2016.

Sound waves

"North Korea detonated a nuclear device in 2017 equivalent to about 250 kilotons of TNT, creating an explosion 16 times the size of the bomb the United States detonated over Hiroshima, Japan, in 1945," noted the American scientists' paper published in the *Journal of Geophysical Research*. Their

approach, however, relied on studying the signature of sound waves from an explosion when it travels through rock at the test site, and how it affected sensors around the world.

"...The Bayesian modelling of the InSAR data reduced the uncertainties in the yield and depth by 25-85% and 40-97%, [respectively]" the ISRO team underlined.

https://www.thehindu.com/news/national/isro-uses-satellite-data-to-gauge-n-koreas-2017-nuclear-test-impact/article30030137.ece

The Tribune
VOICE OF THE PEOPLE

Thu, 21 Nov 2019

'Sugar molecules that spurred life on earth found in space rocks'

Tokyo: Researchers have, for the first time, found the presence of sugar molecules involved in the formation of early life in meteorites, an advance that sheds more light on the potential role played by space rocks in sparking life on the Earth.

The study, published in the journal PNAS, suggests that sugars important for biological processes, such as ribose, can form in space, and the arrival of such sugars on Earth may have sparked the formation of some of the earliest complex biological molecules.

The researchers, including Yoshihiro Furukawa from Tohoku University in Japan, analysed three stony, non-metallic, carbon rich meteorites—one of them being the Murchison meteorite that landed in Australia in 1969.

They said extraterrestrial samples containing amino acids and other biological building blocks were found in earlier studies, and added that sugars were some of the essential elements of biological systems.

The study revealed that ribose—a foundational component of ribonucleic acid (RNA)—was present in the meteorites, as well as other biologically important sugars.

"Ribose is particularly essential as a building block of RNA, which could have both stored information and catalysed reactions in primitive life on Earth," the researchers wrote in the study.

With further analysis, they also found that the sugars were extraterrestrial in origin, and not the result of contamination here on the Earth.

The researchers also conducted a laboratory simulation experiment of a potential sugar formation reaction in space.

The presence of pentoses (sugar molecules containing five carbon atoms) in meteorites, and the composition of the products of the laboratory simulation suggest that the sugars found in the space rocks were formed by a process called formose reaction, the researchers said in the study.

The sugars may have formed before, or immediately after the formation of the asteroids from which the meteorites originated, the study said.

The researchers suggest that early life forming molecules, such as ribose, may have been delivered to an early Earth by space rocks. — PTI

https://www.tribuneindia.com/news/-sugar-molecules-that-spurred-life-on-earth-found-in-space-rocks/863557.html

Mon, 18 Nov 2019

NASA Scientists confirm water vapor on Europa

By Lonnie Shekhtman

Forty years ago, a Voyager spacecraft snapped the first closeup images of Europa, one of Jupiter's 79 moons. These revealed brownish cracks slicing the moon's icy surface, which give Europa the look of a veiny eyeball. Missions to the outer solar system in the decades since have amassed enough additional information about Europa to make it a high-priority target of investigation in NASA's search for life.

What makes this moon so alluring is the possibility that it may possess all of the ingredients necessary for life. Scientists have evidence that one of these ingredients, liquid water, is present under the icy surface and may sometimes erupt into space in huge geysers. But no one has been able to confirm the presence of water in these plumes by directly measuring the water molecule itself. Now, an international research team led out of NASA's Goddard Space Flight Center in Greenbelt, Maryland, has detected the water vapor for the first time above Europa's surface. The team measured the vapor by peering at Europa through one of the world's biggest telescopes in Hawaii.

Confirming that water vapor is present above Europa helps scientists better understand the inner workings of the moon. For example, it helps support an idea, of which scientists are confident, that there's a liquid water ocean, possibly twice as big as Earth's, sloshing beneath this moon's miles-thick ice shell. Another source of water for the plumes, some scientists suspect, could be shallow reservoirs of melted water ice not far below Europa's surface. It's also possible that Jupiter's strong radiation field is stripping water particles from Europa's ice shell, though the recent investigation argued against this mechanism as the source of the observed water.

"Essential chemical elements (carbon, hydrogen, oxygen, nitrogen, phosphorus, and sulfur) and sources of energy, two of three requirements for life, are found all over the solar system. But the third — liquid water — is somewhat hard to find beyond Earth," said Lucas Paganini, a NASA planetary scientist who led the water detection investigation. "While scientists have not yet detected liquid water directly, we've found the next best thing: water in vapor form."

Paganini and his team reported in the journal Nature Astronomy on November 18 that they detected enough water releasing from Europa (5,202 pounds, or 2,360 kilograms, per second) to fill an Olympic-size swimming pool within minutes. Yet, the scientists also found that the water appears infrequently, at least in amounts large enough to detect from Earth, said Paganini: "For me, the interesting thing about this work is not only the first direct detection of water above Europa, but also the lack thereof within the limits of our detection method."

Indeed, Paganini's team detected the faint yet distinct signal of water vapor just once throughout 17 nights of observations between 2016 and 2017. Looking at the moon from the W. M. Keck Observatory atop the dormant Mauna Kea volcano in Hawaii, the scientists saw water molecules at Europa's leading hemisphere, or the side of the moon that's always facing in the direction of the moon's orbit around Jupiter. (Europa, like Earth's moon, is gravitationally locked to its host planet, so the leading hemisphere always faces the direction of the orbit, while the trailing hemisphere always faces in the opposite direction.)

They used a spectrograph at the Keck Observatory that measures the chemical composition of planetary atmospheres through the infrared light they emit or absorb. Molecules such as water emit specific frequencies of infrared light as they interact with solar radiation.

Mounting Evidence for Water

Before the recent water vapor detection, there have been many tantalizing findings on Europa. The first came from NASA's Galileo spacecraft, which measured perturbations in Jupiter's magnetic field near Europa while orbiting the gas giant planet between 1995 and 2003. The measurements suggested to scientists that electrically conductive fluid, likely a salty ocean beneath Europa's ice layer, was causing the magnetic disturbances. When researchers analyzed the magnetic disturbances more closely in 2018, they found evidence of possible plumes.

In the meantime, scientists announced in 2013 that they had used NASA's Hubble Space Telescope to detect the chemical elements hydrogen (H) and oxygen (O) — components of water (H_2O) — in plume-like configurations in Europa's atmosphere. And a few years later, other scientists used Hubble to gather more evidence of possible plume eruptions when they snapped photos of finger-like projections that appeared in silhouette as the moon passed in front of Jupiter.

"This first direct identification of water vapor on Europa is a critical confirmation of our original detections of atomic species, and it highlights the apparent sparsity of large plumes on this icy world" said Lorenz Roth, an astronomer and physicist from KTH Royal Institute of Technology in Stockholm who led the 2013 Hubble study and was a co-author of this recent investigation.

Roth's research, along with other previous Europa findings, have only measured components of water above the surface. The trouble is that detecting water vapor at other worlds is challenging. Existing spacecraft have limited capabilities to detect it, and scientists using ground-based telescopes to look for water in deep space have to account for the distorting effect of water in Earth's atmosphere. To minimize this effect, Paganini's team used complex mathematical and computer modeling to simulate the conditions of Earth's atmosphere so they could differentiate Earth's atmospheric water from Europa's in data returned by the Keck spectrograph.

"We performed diligent safety checks to remove possible contaminants in ground-based observations," said Avi Mandell, a Goddard planetary scientist on Paganini's team. "But, eventually, we'll have to get closer to Europa to see what's really going on."

Scientists will soon be able get close enough to Europa to settle their lingering questions about the inner and outer workings of this possibly habitable world. The forthcoming Europa Clipper mission, expected to launch in the mid-2020s, will round out half a century of scientific discovery that started with a modest photo of a mysterious, veiny eyeball.

When it arrives at Europa, the Clipper orbiter will conduct a detailed survey of Europa's surface, deep interior, thin atmosphere, subsurface ocean, and potentially even smaller active vents. Clipper will try to take images of any plumes and sample the molecules it finds in the atmosphere with its mass spectrometers. It will also seek out a fruitful site from which a future Europa lander could collect a sample. These efforts should further unlock the secrets of Europa and its potential for life.

Other Goddard researchers on Paganini's team included Geronimo Villanueva, Michael Mumma, and Terry Hurford. Kurt Retherford, from Southwest Research Institute, also contributed to the research.

https://www.nasa.gov/feature/goddard/2019/nasa-scientists-confirm-water-vapor-on-europa