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DRDO News

DRDO On Twitter



DRDO ✓
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Dr G Satheesh Reddy, Secy DDR&D and Chairman DRDO addressed the IIT Jodhpur fraternity followed by an informal interaction with the students and faculty. Prof Santanu Chaudhury Director IIT and other senior members of the institute were present .



9:08 PM · Apr 4, 2022 · Twitter for iPhone



पत्र सूचना कार्यालय
भारत सरकार

रक्षा मंत्रालय

Mon, 04 Apr 2022 11:28 AM

वरुण अभ्यास- 2022 का समापन

भारत-फ्रांस द्विपक्षीय नौसेना अभ्यास 'वरुण-2022' के 20वें संस्करण का समापन 3 अप्रैल, 2022 को हुआ। इस साल किए गए अभ्यास के विस्तृत दायरे में समुद्री परिचालन के व्यापक श्रेणियों (स्पेक्ट्रम) को शामिल किया गया। वरुण अभ्यास के महत्वपूर्ण सामरिक समुद्री चरण में उन्नत पनडुब्बी-रोधी युद्ध रणनीति, गनरी (तोप बंदुक शास्त्र) शूट, नाविक ज्ञान का विकास, सामरिक युद्धाभ्यास और व्यापक हवाई परिचालन पर प्राथमिक ध्यान केंद्रित किया गया। इसमें बटालियनों ने एकीकृत हेलीकॉप्टरों के जरिए क्रॉस डेक लैंडिंग भी की, जो उनके बीच उच्च स्तर की अंतःक्रियाशीलता को दिखाता है। इसके अलावा पोतों के बीच गन फायरिंग और इसे फिर से भरने की प्रक्रियाओं का भी अभ्यास किया गया।

वरुण अभ्यास का अंतिम चरण उन्नत पनडुब्बी-रोधी युद्ध (एएसडब्ल्यू) अभ्यासों पर ध्यान केंद्रित करने के साथ आगे बढ़ा। इसके अलावा आईएनएस चेन्नई सी किंग एमके 42बी, समुद्री गश्ती विमान पी8आई, फ्रांसीसी नौसेना फ्रिगेट एफएस कोर्टबेट, सपोर्ट वेसल एफएस लॉयर और अन्य इकाइयों के साथ एएसडब्ल्यू परिचालन की व्यापक श्रेणियों का अभ्यास किया गया। वहीं, इस अभ्यास के बाद के हिस्से में समुद्र में पोत चालकों का आदान-प्रदान भी शामिल था।

वरुण अभ्यास के अंतिम दिन (03 अप्रैल 22) कर्मियों का क्रॉस विजिट (आपसी दौरा), समुद्री सवारों का क्रॉस एम्बार्केशन (आपसी लदान) और एक समापन सत्र आयोजित किया गया। इस अभ्यास में हिस्सा लेने वाली बटालियों के प्रतिभागियों और परिचालन टीमों ने एक व्यापक जानकारी के लिए आईएनएस चेन्नई पोत पर मुलाकात की। इसके तहत अभ्यास के आगामी संस्करणों में संभावित समावेशन के विकल्पों के साथ समुद्र में किए गए सभी क्रमिक विकासों पर चर्चा की गई। वहीं, डिब्रीफ (अभ्यास समाप्त होने के बाद सवाल-जवाब की एक श्रृंखला) के बाद इस अभ्यास का समापन दोनों नौसेनाओं के जहाजों के बीच पारंपरिक स्टीम पास्ट से किया गया। आईएनएस चेन्नई पोत ने कर्मियों के साथ आगे की यात्रा के

लिए अनुकूल हवाओं व समुद्र का अनुसरण करते हुए फ्रांसीसी युद्धपोतों के कतार को नजदीक से पार किया। निर्बाध समन्वय, युद्धाभ्यास का सटीक कार्यान्वयन और जटिल पनडुब्बी-रोधी युद्ध अभ्यासों का तय समय पर निष्पादन वरुण अभ्यास -2022 की विशेषता रही है। इस अभ्यास के सभी परिचालन उद्देश्यों को प्रतिभागियों की ओर से पूर्ण रूप से पूरा किया गया है। यह अभ्यास भारतीय नौसेना और फ्रांसीसी नौसेना के बीच उच्चस्तरीय समन्वय और आपसी समझ को दिखाता है। यह जरूरत होने पर समुद्री क्षेत्र में संयुक्त परिचालन करने की उनकी क्षमता को बढ़ाएगा। वरुण-2022, भारत और फ्रांस के बीच रणनीतिक साझेदारी को मजबूत करने में एक लंबी यात्रा तय करेगा।

<https://pib.gov.in/PressReleasePage.aspx?PRID=1813149>



Press Information Bureau
Government of India

Ministry of Defence

Mon, 04 Apr 2022 11:28 AM

Exercise Varuna 2022 culminated

The culmination of the 20th edition of the Indo-French bilateral Naval exercise ‘Varuna-2022’ took place on 03 Apr 22. The exercise this year has an expanded scope cover a broad spectrum of maritime operations. The eventful tactical sea phase of the exercise laid primary focus on advanced anti-submarine warfare tactics, gunnery shoots, seamanship evolutions, tactical manoeuvres and extensive air operations. The units also undertook cross deck landings by integral helicopters, showcasing a high level of interoperability between them. Gun firing and underway replenishment procedures were also exercised between ships.

The final phase of the exercise progressed with tapered focus on advanced anti-submarine warfare (ASW) exercises. INS Chennai with Sea King Mk 42B, maritime patrol aircraft P8i, French Navy frigate FS Courbet, support vessel FS Loire, and other units exercised on full spectrum of ASW operations. The later part of the exercise also included exchange of sea-riders at sea.

The last day (03 Apr 22) of the exercise had cross visits of personnel, cross embarkation of sea-riders and a closing session was conducted. Participants and operations teams of Participating units met onboard INS Chennai for a comprehensive debrief. All evolutions conducted at sea were discussed with options for possible inclusions in the future editions of the exercise. After debrief, culmination of the exercise was marked by the traditional steam past between ships of both navies. INS Chennai passed the column of French warships at close range with personnel bidding each other favourable winds and following seas for the journey ahead. Seamless coordination, precise execution of manoeuvres, and clockwork execution of complex anti-submarine warfare exercises characterized the conduct of Varuna-2022. All operational objectives of the exercise were accomplished by the participants in full measure. The exercise

reflected high synergy and mutual understanding between the Indian Navy and French Navy that will bolster their ability to undertake joint operations in maritime theatre, when required. Varuna-2022 will go a long way in strengthening the strategic partnership between India and France.

<https://pib.gov.in/PressReleasePage.aspx?PRID=1813062>



**Press Information Bureau
Government of India**

Ministry of Defence

Mon, 04 Apr 2022 03:16 PM

New procurement policy

Ministry of Defence, after holding stakeholder consultations with Industry Associations, Think Tanks, Services and other government agencies, promulgated Defence Acquisition Procedure (DAP)-2020 with effect from 01 October 2020. Following are the salient features of DAP-2020 promoting 'Aatmanirbhar Bharat' and 'Make in India':

- Notification of positive indigenisation lists in respect of weapons/platforms to ensure that equipment as mentioned in the list is not procured ex-import post prescribed timelines.
- Highest priority to procurement under Buy (Indian-Indigenous Design, Development & Manufacture[IDDMM]) category.
- Indigenisation of imported spares through Make-III process introduced with the aim of enhancing self-reliance through import substitution.
- Reservation for MSMEs and small shipyards for orders up to Rs 100 crore/year.
- Increased Indigenous Content (IC) in various categories of procurement under DAP-2020.
- Reservation for Indian Vendors with ownership and control by resident Indians in procurement under the categories viz. Buy (Indian-IDDMM) [Chapter-2], Make-I & Make-II [Chapter-3] and Strategic Partnership (SP) Model [Chapter-7] of DAP-2020.
- Introduction of new category of Buy (Global-Manufacture in India) to give push to 'Make in India' initiative of the Government.

To provide further impetus to domestic defence industry, Defence Acquisition Council (DAC) has approved on 22 March 2022 following amendments in DAP-2020:

- It has been decided that any import of defence equipment/sourcing from Foreign industry, irrespective of value and type of acquisition should only be an exception requiring specific approval of DAC/Raksha Mantri.

- To reduce financial burden on Indian Industry Integrity Pact Bank Guarantee (IPBG) has been dispensed with. Earnest Money Deposit (EMD) has been introduced as a bid security and Pre-Contract Integrity Pact (PCIP) cover till conclusion of contract. Post conclusion of contract, Performance cum Warranty Bank Guarantee (PWBG) to provide the PCIP cover. For projects upto Rs. 100 crore and for MSMEs & start-ups, EMD requirement has been waived.
- Procedure for acquisition through iDEX and Make-II has been simplified with compression of timelines.

This information was given by Raksha Rajya Mantri Shri Ajay Bhatt in a written reply to Shri Irrana Kadadi in Rajya Sabha on April 04, 2022.

<https://pib.gov.in/PressReleasePage.aspx?PRID=1813159>



Mon, 04 Apr 2022

Gaganyaan mission gets a boost as HAL delivers key hardware to ISRO, vehicle integration facility inaugurated

The Hindustan Aeronautics Limited (HAL) on Monday delivered the first set of hardware for India's maiden manned mission to space. The hardware will be used by the Indian Space & Research Organisation (Isro) in the ambitious Gaganyaan mission that is likely to see the maiden uncrewed flight later this year.

HAL, India's premier aerospace manufacturer, has been working with Isro in providing a key set of equipment for the Gaganyaan mission. Isro chief S Somnath also inaugurated a vehicle integration facility in Bengaluru that will be used to bring together the primary and secondary stages of the mission before they are rolled onto the launch pad.

"HAL hands over the first set of Gaganyaan hardware to ISRO, also PS2/GS2 stage integration facility inaugurated in Bengaluru," HAL said in a tweet.

HAL has been working with Isro in the development of its big launcher, the PSLV, and the GSLV. The aerospace unit in 2021 delivered the heaviest semi-cryogenic propellant tank (SC120- LOX) ever fabricated to be used in the Mk-III launch vehicle for future missions. It has in the past also delivered tanks, and satellite structures for the PSLV, GSLV-Mk-II, and GSLV-Mk III launch vehicles. Various projects like PS2/GS2 integration, semi-cryo structure fabrication, and manufacturing of cryo and semi-cryo engines are being taken up at HAL.

The latest development comes weeks after Minister for Science & Technology Dr Jitendra Singh said that the work on the space mission has picked up pace. Isro has commissioned an astronaut training facility in Bengaluru and the training of the four, undisclosed Indian Air Force Officers, is underway.

The minister said that the design of all systems and sub-systems for Gaganyaan has been completed and the construction of the integration facility for Orbital module preparation is nearing completion. He added that roles and responsibilities for crew recovery operations and rehearsals have also been finalised and detailed operational requirements for nominal missions scenarios worked out.

Isro is meanwhile working on activities related to the development of microgravity experiments and a conceptual design for experiments is under review. The Indian space agency had in January successfully conducted the third long-duration hot test on the liquid propellant Vikas engine that would launch the Gaganyaan mission. The engine was fired for 240 seconds at the test facility of Isro Propulsion Complex (IPRC), Mahendragiri in Tamil Nadu.

<https://www.indiatoday.in/science/story/isro-gaganyaan-mission-hal-gslv-vehicle-integration-s-somnath-1933353-2022-04-04>



Tue, 05 Apr 2022

India issues multiple NOTAM for missile tests

India has issued four Notices to Airmen (NOTAM) for this month for a launch of an experimental flight vehicle in the Bay of Bengal this month for the period from 08-16 April 2022 as per information provided by Twitter user @detresfa_. All four missile tests have been labeled as Experimental which are usually reserved for missiles that are still under development.

Designated areas that have been notified for all four experimental tests are different but the missile that is likely to be tested might be of the same type as developmental trials usually cover a full spectrum of different ranges and altitudes that are required before a new missile system is cleared for production.

<https://idrw.org/india-issues-multiple-notam-for-missile-tests/#more-280440>



Tue, 05 Apr 2022

CSIR-NAL to test Scale down model of HAPs

CSIR-NAL has developed a scaled-down model of the solar-powered unmanned aerial vehicle (UAV) and trials of the same will begin later this year proof of concept will be proved throughout 2023 as per the latest media report by "The Print". National Aerospace Laboratories (NAL) has confirmed to idrw.org that the High-altitude platform station (HAPS) that their working on is funded by the Ministry of Science and Technology and is a separate program from HAL funded one.

According to NAL, the Estimated date of completion of the project will take place in mid-2025. NAL claims says that the HAPS will work as a pseudo satellite for telecommunication applications in the 5G & 6G spectrum and can also be used for surveillance and reconnaissance missions when equipped with multi-spectral cameras. CSIR-funded project is carrying out research, detailed design, engineering development, and manufacturing of two prototypes, a subscale (1:3) vehicle which would demonstrate Reynolds number equivalent flight at 3km altitude and a full-scale prototype which would demonstrate flight at 20km.

<https://idrw.org/csir-nal-to-test-scale-down-model-of-haps/#more-280444>



Tue, 05 Apr 2022

Encouraged by India's effort to diversify its military or defense articles: Pentagon

The United States is encouraged by Indian efforts to diversify the purchase of its military or defense articles, the Pentagon has said. It, however, also expressed concerns over the decision of New Delhi to purchase the S-400 missile defense system from Russia.

"We have been very clear with our Indian partners about our concerns over this purchase and encouraging them, as we urge many others not to purchase Russian equipment," Pentagon Press Secretary John Kirby told reporters at a news conference on Monday.

“We remain encouraged by India’s continued diversification of their defense equipment over just the past decade. So, we will continue to have that conversation with India’s needs,” he said in response to a question.

“We have made it very clear to India about our concern on this particular purchase,” he said when asked about India’s decision in this regard. In October 2018, India had signed a USD 5 billion deal with Russia to buy five units of the S-400 air defence missile systems, despite a warning from the then Trump administration that going ahead with the contract might invite US sanctions.

<https://www.financialexpress.com/defence/encouraged-by-indias-effort-to-diversify-its-military-or-defense-articles-pentagon/2481833/lite/>



Tue, 05 Apr 2022

India and Australia launch Defence exchange program named after general Bipin Rawat

The Young Defence Officer Exchange Program aims to facilitate exchange of young officers of the Indian and Australian armed forces for joint training and military-to-military exposure. During the recently concluded India-Australia virtual summit between Prime Minister Narendra Modi and his Australian counterpart Scott Morrison on March 21, both leaders had discussed the Russia-Ukraine conflict, issues in the Indo-Pacific region and also talked about strengthening bilateral trade relations.

After the summit, the Indian Ministry of External Affairs had also announced the list of documents signed, that included launching of the young defence officer exchange program. The exchange program has been named after India’s first Chief of Defence Staff General Bipin Rawat, who was killed in a helicopter crash in December last year. General Rawat was India’s first chief of defence staff, a position established to oversee reforms to the military and the civilian-military bureaucracy. He took up the role in January 2020 after serving as India’s top army officer.

In a Twitter post yesterday, Australia’s High Commissioner to India, Barry O’Farrell has hailed the contributions made by General Rawat and announced that the Australia-India Young Defence Officer Exchange Program was to be named in his honour. The post further carried the salient points of the program: “In a befitting tribute to General Bipin Rawat, Australia and India announced the establishment of Young Defence Officers’ Exchange programme, naming it after India’s first Chief of Defence Staff”, it read.

It also added that the exchange program will facilitate the exchange of young officers of the Indian and Australian armed forces for joint training and military-to-military exposure and

improve training opportunities, enhance information sharing on maritime security and promote ties and understanding between Australian and Indian defence forces.

Earlier on June 4, 2020, the Prime Minister of Australia Scott Morrison and Prime Minister of India Narendra Modi had discussed maritime cooperation between the two Indo-Pacific partners during the first-ever bilateral Virtual Summit between the powers. The two countries had decided on Maritime Cooperation in the Indo-Pacific region the year before, at the 2+2 Secretary Level Dialogue, where both countries had discussed the Mutual Logistics Support Agreement in New Delhi and for deeper military ties.

In November 2020, Australia had joined India, Japan and the United States for Exercise MALABAR 2020, a major joint maritime exercise that was aimed to establish a secure, open, and inclusive Indo-Pacific region. Indian Navy's Ranvijay, Shivalik, Shakti, Sukanya & submarine Sindhuraj participated in naval manoeuvres in Bay of Bengal with USS John S McCain, HMAS Ballarat & JMSDF Ship JS Onami. The four participating navies conducted a range of high-end training, including air defence and anti-submarine exercises, aviation, communications and at-sea replenishment between ships.

<http://www.indiandefensenews.in/2022/04/india-and-australia-launch-defence.html>

Science & Technology News



Mon, 04 Apr 2022

Jupiter has an identical twin, 17,000 light-years away

The near-identical twin is also around the same distance from its star as Jupiter is from the Sun. K2-2016-BLG-0005Lb is 420 million miles away from its star, while Jupiter is 462 million miles away. Astronomers have discovered a planet that is nearly identical to Jupiter, circling a star 17,000 light-years away from the Earth. In terms of mass, the exoplanet, dubbed K2-2016-BLG-0005Lb, is nearly the same as Jupiter. While K2-2016-BLG-0005Lb has a mass of 1.1 times that of Jupiter, the star that it orbits has a mass of about 60 per cent of the Sun.

The near-identical twin is also around the same distance from its star as Jupiter is from the Sun. K2-2016-BLG-0005Lb is 420 million miles away from its star, while Jupiter is 462 million miles away. The planet and its star are located in the constellation Sagittarius. An international team of astrophysicists discovered the exoplanet using data from NASA's Kepler satellite telescope collected in 2016. In the Milky Way galaxy, the telescope has discovered over 2,700 verified planets so far, but this system is twice as far away as any ever discovered by Kepler.

The astrophysicists used Albert Einstein's Theory of Relativity and a technique known as gravitational microlensing to discover the system. The study has been submitted to the journal

Monthly Notices of the Royal Astronomical Society and is available as a preprint on ArXiv.org. David Specht, a PhD student at The University of Manchester, is the study's lead author. To locate an exoplanet utilising the microlensing method, the researchers looked through Kepler's data from April to July 2016, when the spacecraft was regularly monitoring millions of stars around the Galaxy's centre. The goal was to find evidence of an exoplanet and its host star bending and amplifying the light from a background star as it passed through the line of sight.

Dr Eamonn Kerins, the principal investigator for the Science and Technology Facilities Council grant that funded the work, said in a statement that to see the effect at all, the foreground planetary system must be nearly perfectly aligned with a background star. The odds of a planet affecting a background star in this way are in tens to hundreds of millions to one against. However, at the centre of our Galaxy, there are hundreds of millions of stars. So, for three months, Kepler just watched them, added Dr Kerins. At the same time as Kepler, five other ground-based surveys also looked at the same area of the sky. However, Kepler, which orbits the Earth at a distance of roughly 135 million kilometres, saw the anomaly slightly earlier and for a longer period of time than the other teams watching from Earth.

<https://www.ndtv.com/world-news/jupiter-has-an-identical-twin-17-000-light-years-away-2862008>



Mon, 04 Apr 2022

Don't miss: Mars-Saturn and Jupiter-Venus conjunctions happening this month!

Skywatchers, you have the opportunity to see not just one, but two planetary conjunctions during the month of April 2022. A conjunction is a celestial event in which two planets, a planet and the Moon, or a planet and a star appear close together in Earth's night sky. Conjunctions have no profound astronomical significance, but they are nice to view. In our Solar System, conjunctions occur frequently between planets because the planets orbit around the Sun in approximately the same plane – the ecliptic plane – and thus trace similar paths across our sky.

The first planetary meet up occurs on the mornings of April 4 and 5 before sunrise and includes Mars and Saturn, with Saturn being the brightest. These two planets will come together, appearing as almost a single point of light. However, if you grab your binoculars, you'll easily see the scene with the planets switching positions on each morning.

We will also see a bright Jupiter ascend quickly in the morning twilight, heading towards Venus in the final week of April. Catch a great view of the planets on the morning of April 27, which will include a waxing Moon. Jupiter and Venus will then meet in conjunction during the morning of April 30 – appearing to nearly collide into each other. Due to the glare from both planets, observers will see them merge into one very bright, spectacular glow!

Venus's orbit is closer to the Sun than the Earth's, and Jupiter's orbit is much farther away, so the proximity is an illusion, occurring only because Earth, Venus, and Jupiter happen to be approximately aligned. This celestial event will continue on the morning of May 1, but the positions of the planets, Jupiter and Venus, will be reversed.

<https://scitechdaily.com/dont-miss-mars-saturn-and-jupiter-venus-conjunctions-happening-this-month/>



Mon, 04 Apr 2022

NASA's Artemis 1 moon mission: live updates

NASA's Artemis 1 moon mission will be the agency's first big step toward returning astronauts to the lunar surface. Formerly known as Exploration Mission 1 (EM-1), Artemis 1 will be the first test flight of the agency's new Space Launch System megarocket and the Orion crew capsule. The SLS rocket will launch the uncrewed Orion spacecraft on an approximately 26-day mission, during which it will spend six days orbiting the moon before returning to Earth.

Artemis 1 is currently scheduled to launch no earlier than late May 2022, from Launch Complex 39B at NASA's Kennedy Space Center in Florida. Check back here for live updates on the mission.

<https://www.space.com/news/live/nasa-artemis-1-moon-mission-updates>

