

# समाचार पत्रों से चयित अंश Newspapers Clippings

दैनिक सामयिक अभिज्ञता सेवा  
A Daily Current Awareness Service

Vol. 44 No. 85 02 May 2019



रक्षा विज्ञान पुस्तकालय  
Defence Science Library  
रक्षा वैज्ञानिक सूचना एवं प्रलेखन केन्द्र  
Defence Scientific Information & Documentation Centre  
मैटकॉफ हाऊस, दिल्ली - 110 054  
Metcalf House, Delhi - 110 054

## **India prepares for cyber war with Pakistan, China; India Defense Cyber Agency will launch in May**

*By Malvika Gurung*

With all the development going about in the defense sector, concerning technology, the launch of Rafael, the successful succession of 'Mission Shakti', the Ministry of Defense (MoD) is now set to establish the defense Cyber Agency, among the three new tri-service agencies to outstand on the grounds of cyber warfare, space, and special operations. The defense Cyber Agency, along with space agencies will launch on May, in the capital city, Delhi, as per the clearance given by PM Modi, during the Combined Commanders' Conference in Jodhpur last year.

Indian defense is well bolstered under its vigorous and save-raise regimes. It now aims to tackle the threats of cyberspace, posed by hackers from mainly China and Pakistan, to breach the security protocols for stealing information and creating disruption.

The new tri-services include the defense Cyber Agency, defense Space Agency and a Special Operations Division, each of which will be headed by officers ranking Major General and equivalent positions in Navy and IAF. The cyber department we are focussing here, will be headed by senior Navy officer, Rear Admiral Mohit Gupta, marking the first-ever head of this agency.

Shedding more light into the ins and outs of the defense Cyber Agency, it will operate closely with the National Cyber Security Advisor and is to work only in the interest of military cyber-issues and not civilian counterparts. It is set to incorporate as many as 1000 personnel from all the three disciplines of defense – Army, Navy, and IAF. It has many a time been reported that cyber threats coming in from all around the world have started increasing at an exponential rate. At such a time, India is required to be equipped with technological skills and backup to combat the same.

Understanding the criticalities of such cyber security, the foundation has set up a task force headed by Lt. Gen. Davinder Kumar (retired) to suggest a road map for the same. Similarly, the Space Agency is set to work under close collaborations with ISRO and DRDO for better utilization and integration of satellites and elaborate information sharing. The Special Forces Division will have two SF battalion at its core, along with teams of Marcos and Garud.

The truth is with such a major involvement of every hemisphere in the cyberspace, threats of this kind have a hauntingly paranoid effect, marking large scales and territories. India, finally taking such an initiative will help it better guard all the security codes and documents.

<https://trak.in/tags/business/2019/05/01/india-prepares-for-cyber-war-with-pakistan-china-india-defense-cyber-agency-will-launch-in-may/>

## Private players cry foul as HAL submits 2 bids for mega Navy chopper deal

*State-owned HAL has filed one bid on its own and one with Russian Helicopters for the Naval Utility Helicopter. The Indian Navy wants to purchase 111 NUHs*

*By Snehash Alex Philip*

New Delhi: The Naval Utility Helicopter (NUH), the first defence programme being pursued under the much-touted Strategic Partnership (SP) policy, seems to be flying into rough weather. Indian private industry is stumped by the fact that the state-run Hindustan Aeronautics Limited (HAL) has made two bids, while there are also doubts over one particular platform being preferred by the force.

The Indian Navy has so far received eight responses to the Expression of Interest (EOI) issued in February as part of its plan to purchase 111 helicopters for Rs 21,738 crore, sources in the defence establishment told ThePrint.

Private companies that have submitted the bids include Mahindra, Tata, Reliance, Adani, Bharat Forge and Coimbatore-based Lakshmi Machine Works. Sources say HAL has submitted two bids — one by itself and another through its joint venture with Russian Helicopters to produce the Kamov chopper.

Larsen & Toubro, which had shown initial interest, has not responded to the EOI, which will pave the way for the issuance of a Request for Proposal (RFP).

### **What is the NUH?**

The NUH is set to replace the Chetak of 1960s vintage, and is to be utilised for multiple roles, including search and rescue, casualty evacuation and low-intensity maritime operations, besides torpedo drops.

The Navy felt that with changing security dynamics, more reliable twin-engine choppers were needed, which could carry out limited anti-submarine warfare as well.

The Chetak is a single-engine helicopter and is used only when extremely necessary due to risks of flying it over sea.

Of the 111 helicopters, 95 are to be manufactured in India by the selected Indian partner, while the rest are to be bought off the shelf.

The NUH project envisages a high level of indigenisation, with about 60 per cent of each helicopter to be made in the country.

### **Concerns of private players**

A top official of a private company, who did not wish to be identified, said HAL's double bid "kills the very basis of Strategic Partnership, which was aimed at creating capabilities in the private sector, over and above the existing capabilities in the public sector".

Industry watchers said this is the final nail in the Strategic Partnership coffin — the first one was when the MoD went back on the original recommendation of having a Strategic Partnership for one category of weapon systems/platforms. Now, this stands restricted to only one programme at a time.

"Effectively, this has resulted in the SP programme getting converted to 'Buy and Make' with an additional restriction, wherein the MoD will make the choice of OEMs (original equipment manufacturers) for Indian vendors," an industry source said.

Concerns raised by Indian industry include absence of level-playing field with participation of Defence Public Sector Undertakings, which already have the required infrastructure built at government cost, and a feeling that naval requirements have been customised for one particular OEM.

Some OEM officials, on the condition of anonymity, said the model as envisaged is not workable, particularly if the number of shortlisted Indian vendors is less than the available OEMs.

“This can result in arm-twisting by the Indian vendors as they can eliminate one or more OEMs from participation. Even for the MoD, it will be disastrous as it will result in sub-optimal competition and resultant higher price of acquisition,” a source said.

Sources said that after the elections, it is possible that the Strategic Partnership policy might go in for a full review to make it more workable.

#### **HAL’s NUH variant and lack of platforms**

HAL had put on display its variant of NUH at the Aero India Expo in February. However, sources at the Naval Headquarters said the helicopter does not have foldable blades, a basic requirement of naval helicopters.

Sources said HAL is already working on foldable blades, and will present the option soon to the Navy. And if an indigenous option like HAL is available, sources said the defence ministry would need to go for the Buy IDDM (indigenously designed, developed and manufactures) classification, which is accorded highest priority under the Defence Procurement Procedure.

Even if the programme was to be pursued under Strategic Partnership, the lack of available platforms internationally may lead to a single bid situation, sources said.

Of the international OEMs, Leonardo is currently blacklisted. The Russians are also in the race, but the Navy doesn’t seem too keen on the Kamov choppers. Bell Helicopter’s Bell 429 and Sikorsky’s S-76 have certain non-compliance issues with respect to the Navy’s specific requirements. The companies could carry out changes, but this would involve expenditure.

The front-runner seems to be Airbus, which is trying to push AS565, a platform that’s more than 30 years old.

OEMs have a deadline of 15 May to respond to the EOI issued to them.

<https://theprint.in/defence/private-players-cry-foul-as-hal-submits-2-bids-for-mega-navy-chopper-deal/229335/>



*Thu, 02 May 2019*

## **French Navy Rafales to dogfight Indian MiGs in largest-ever exercises**

*The war games, part of the Garuda series of Naval exercises between India and France, involve a number of frontline warships and submarines of both sides*

New Delhi: In the biggest-ever Naval war games between India and France, Indian Navy MiG-29K fighters will be going head-to-head against French Navy Rafale fighters for the first time.

India's MiGs will be deployed onboard aircraft carrier INS Vikramaditya while the French Navy's Rafales will be flying off the deck of their nuclear-powered aircraft carrier, the FNS Charles De Gaulle.

The war games, part of the Garuda series of Naval exercises between India and France, involve a number of frontline warships and submarines of both sides.

In addition to its aircraft carrier, the French Navy has deployed two destroyers, the FNS Forbin and the FNS Provence in addition to the frigate FNS Latouche-Treville. The French Navy is also operating a nuclear-powered attack submarine. The French fleet is accompanied by a fleet tanker, FNS Marne.

The Indian Navy will be operating its destroyer, INS Mumbai, the Teg class frigate, INS Tarkash, the Shishumar class submarine INS Shankul and the fleet tanker INS Deepak.

The exercises are being held in two phases. The harbour phase is being held in Goa while the sea-phase will involve air to air exercises involving the Navy's MiGs and the French Rafales.

Both sides will sail out to the Horn of Africa for the final phase of the exercises in Djibouti where the French armed forces operate a major base.

France is a major strategic ally of India and both Navies have been working towards interoperability in the Indian Ocean since the Varuna series of exercises began in 2001.

The highlight of these exercises is likely to be the air combat exercises between the frontline jets of both sides. Since India acquired the Russian-built INS Vikramaditya in 2013, the Navy has substantially increased the number of its pilots fully qualified to operate off the INS Vikramaditya. A number of these pilots are also night-qualified, giving them the ability to launch from the deck of the aircraft carrier in most weather conditions, by day or by night to intercept enemy aircraft.

The exercises which will be held during the sea phase, are likely to test the skills of the fleets in offensive and defensive operations. Several fighters will be simultaneously deployed in the exercises which will be held by day and night. Airborne warning aircraft of both sides (France operates the US-made Hawkeye and the Indian Navy operates the Russian Ka-31 helicopter) will coordinate the air battle which will also see the two fighters dogfighting against each other. Depending on their assigned roles, the fighters would also be targeting ships in the formation. Details of the specific exercises which are to be held are still being discussed between the participants.

The Rafale fighter, being operated by the French Navy, is a variant of the Rafale fighter being acquired by the Indian Air Force from September onwards and has been operational with the French Navy since December 2000. These aircraft have been heavily involved in combat operations in Libya, Afghanistan and Syria and are flown by some of France's most experienced combat aviators.

The Indian Navy MiG-29K is a development of the fighter which first entered service with the Indian Air Force in the eighties. A multi-role jet, the MiG-29K is designed to take on opposing aircraft in addition to hitting targets out at sea using anti-ship missiles when required.

The Indian Navy operates 45 MiG-29Ks, which are also meant to be deployed onboard the INS Vikrant, the new aircraft carrier being constructed in Kochi.

The MiG-29K has been plagued by serviceability issues in Indian Navy service. A Comptroller and Auditor General report stated that the jets were available for operations only between 15.9 to 37.6 per cent of the time between 2010 and 2014, depending on the variant of the fighter being used. The Navy has said that these were teething problems that it has been working to overcome.

The Indian Navy is also considering the purchase of other carrier-borne fighter jets, a multi-billion dollar competition for a deal which will involve a fly-off between jets like the Dassault Rafale and the Boeing F/A-18 E/F Super Hornet.

<https://www.ndtv.com/india-news/french-navy-rafales-to-dogfight-indian-migs-in-largest-ever-exercises-2031394>

## **Air Marshal Rakesh Singh takes charge as new IAF Vice Chief**

*Air Marshal Singh, an alumnus of the National Defence Academy, was commissioned in the fighter stream of IAF on 15 Jun 1980*

New Delhi: Air Marshal Rakesh Kumar Singh Bhadauria today assumed charge as Vice Chief of the Air Staff, succeeding Air Marshal Anil Khosla.

Air Marshal Singh, an alumnus of the National Defence Academy, was commissioned in the fighter stream of IAF on 15 Jun 1980. He has over 4,250 hours of flying experience on 26 types of fighters and transport aircraft.

Air Marshal Singh did his Masters in Defence Studies from Command and Staff College, Bangladesh. He has held a number of important positions in the IAF which included commanding a Jaguar squadron and heading a premier Air Force station.

He was extensively involved in the initial prototype flight tests on the Light Combat Aircraft Tejas.

Air Marshal Bhadauria was also the Air Attache at Indian embassy, Moscow. Prior to assuming charge as Vice Chief of IAF, he was the Air Officer Commanding-in-Chief of Training Command.

During his career, he was commended by the Chief of Air Staff and has been awarded Param Vishist Seva Medal, Ati Vishist Seva Medal and Vayu Sena Medal.

Air Marshal Khosla retired on Monday after an illustrious career spanning four decades.

<https://www.ndtv.com/india-news/air-marshal-rakesh-singh-takes-charge-as-new-iaf-vice-chief-2031574>

## **THE TIMES OF INDIA**

## **Chandrayaan-2 spacecraft will have 13 payloads, rover will roll out on Moon surface for 400m: ISRO**

*By Surendra Singh*

New Delhi: India's highly ambitious Rs 800-crore Chandrayaan-2 mission will be launched between July 9 and July 16. The spacecraft, involving an orbiter, a lander called Vikram and a rover named Pragyan, is expected to land on the moon on September 6.

The orbiter and lander modules will be stacked as an integrated module and accommodated inside an advanced GSLV MK-III launch vehicle. The rover will be housed inside the lander. After the launch from Sriharikota into the earth-bound orbit by GSLV MK-III between July 9 and 16, the integrated module will reach the moon orbit using an orbiter propulsion module, a statement from Indian Space Research Organisation (Isro) said. The journey from the earth to the moon will take around 45-50 days.

Once Chandrayaan-2 spacecraft reaches the lunar orbit, Vikram will separate from the orbiter and soft-land at the predetermined site close to the south pole, which had not been explored by other countries.

Talking to TOI, Isro chairman K Sivan said, "Once Vikram lands on the lunar surface on September 6, rover Prayan will come out of it and roll out on the lunar surface for 300-400 metre. It will spend 14 earth days on the moon for carrying out different scientific experiments."

Sivan said, "Altogether, there will be 13 payloads in the spacecraft. Three payloads in rover Pragyan and rest 10 payloads in lander Vikram and orbiter." The rover will analyse the content of the lunar surface and send data and images back to the Earth through the orbiter within 15 minutes, he said.

The launch of India's second lunar mission was initially planned in April last year but Isro kept deferring it because of the complexities involved in the mission. In fact, the four-legged Vikram lander suffered a fracture in one of its legs during a test earlier this year. India had also almost lost the race to Israel to become the fourth country in the world after Russia, US and China to land the spacecraft on the moon. However, with Israel's Beresheet failing to land on the moon on April 12 this year, Chandrayaan-2's moon-landing on September 6, if successful, will make India the fourth country in the world to land on the moon.

The landing of 3,290-kg Chandrayaan-2 craft will be much more difficult than Israel's Beresheet. While Beresheet tried to touch down on a plain of solidified lava, known as the Sea of Serenity, which has a flattened surface and more exposure to the sun, Chandrayaan-2 will explore the south pole, an uncharted territory. Only China's Chang'e 4 spacecraft had recently in January landed on the moon's far side, also known as the dark side because it faces away from the Earth and remains comparatively unknown.

India had first launched its moon mission Chandrayaan-1, which involved only an orbiter, on October 22, 2008. The spacecraft made more than 3,400 orbits around the moon during which it took hundreds of images of the moon. The Rs 386-crore mission concluded when the communication with the spacecraft was lost on August 29, 2009. Chandrayaan operated for 312 days as opposed to the intended two years but the mission achieved 95% of its planned objectives.

<https://timesofindia.indiatimes.com/india/chandrayaan-2-spacecraft-will-have-13-payloads-rover-will-roll-out-on-moon-surface-for-400m-isro/articleshow/69134907.cms>

TECH EXPLORIST

Thu, 02 May 2019

## Dark matter exists, confirms study

*Observations disprove alternate explanations*

*By Amit Malewar*

Most of the universe is made up of dark energy, a mysterious force that drives the accelerating expansion of the universe. The next largest ingredient is dark matter, which only interacts with the rest of the universe through its gravity.

Astronomers cannot see dark matter directly but can study its effects. They can see light bent from the gravity of invisible objects (called gravitational lensing). They can also measure that stars are orbiting around in their galaxies faster than they should be.

Almost 90% of the matter in the Universe, but its existence has been demonstrated only indirectly and recently called into question. Now, a new study has denied the observations that cast doubt on the existence of the dark matter. It offers detailed insights on the understanding the nature of dark matter and its relationship with ordinary matter.

The universe is in a constant state of change. From the expansion of the universe to the movement of stars in the galaxies, the phenomena are many, which, the presence of ordinary matter alone,

namely that composed by atoms, is unable to explain. The attractive force it generates is not sufficient. This had led to the theory of the existence of dark matter, namely undetectable, and the idea that galaxies are embedded in its spherical halo.

Chiara Di Paolo, a doctoral student of astrophysics at SISSA said, “Three years ago, a few colleagues of the Case Western Reserve University strongly questioned our understanding of the universe and the in-depth work of many researchers, casting doubt on the existence of dark matter in the galaxies.”

“Analysing the rotation curves of 153 galaxies, principally the ‘classical’ spiral kind, they obtained an empirical relationship between the total gravitational acceleration of the stars (observed) and the component which we would observe in the presence of sole ordinary matter in the classical Newtonian theory.”

“This empirical relationship which seemed valid in all the galaxies they analyzed and at any galactic radius, motivated the explanation of gravitational acceleration without necessarily calling into question dark matter, but involving for example theories of modified gravity such as MOND (Modified Newtonian Dynamics).”

Astronomers suggest, dark matter is present in each observable galaxy and could be responsible for the creation of the galaxies. Furthermore, dark matter is believed to be the glue which holds the visible matter within these galaxies together.

Because of this, astronomers were surprised in 2018 to discover galaxy NGC 1052-DF2 only held about 1/400th of the expected amount of dark matter.

Pieter van Dokkum of Yale University said: “We thought that every galaxy had dark matter and that dark matter is how a galaxy begins. This invisible, mysterious substance is the most dominant aspect of any galaxy.”

“So finding a galaxy without it is unexpected. It challenges the standard ideas of how we think galaxies work, and it shows that dark matter is real: it has its own separate existence apart from other components of galaxies. This result also suggests that there may be more than one way to form a galaxy.”

Moreover, dark matter existence in galaxies can explain how stars move around and cluster together in a way, which ordinary matter cannot explain.

However, scientists wanted to verify the relationship by analyzing the rotation curves of galaxies other than the “classical” spiral kind: 72 galaxies with low surface brightness (LSB) and 34 dwarf disc galaxies.

They produced more extended results, finding a relationship, which, besides total gravitational acceleration and its ordinary component, also involves the galactic radius and the morphology of the galaxies.

Paolo Salucci, professor of astrophysics at SISSA and one of the research authors said, “We have studied the relationship between total acceleration and its ordinary component in 106 galaxies, obtaining different results from those that had been previously observed. This not only demonstrates the inexactness of the empirical relationship previously described but removes doubts on the existence of dark matter in the galaxies. Furthermore, the new relationship found could provide crucial information on the understanding of the nature of this indefinite component.”

*(The study is published in the Astrophysical Journal.)*

<https://www.techexplorist.com/dark-matter-exists-confirms-study/22709/>