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Sat, 23 Dec, 2017
(Online)

DRDO's homegrown quick reaction missile QRSAM successfully test fired off Odisha coast

By Hemant Kumar Rout

Bhubaneswar: The Defence Research and Development Organisation (DRDO) successfully test fired a Quick Reaction Surface-to-Air Missile (QRSAM) from a defence base off Odisha coast on Friday.

The homegrown canister-based high-speed weapon system, which can deceive enemy radars making it difficult to be detected, is capable of destroying aerial targets, tanks, bunkers and short range missiles.

The short-range weapon system was fired from a canister mounted on a rotatable truck-based launch platform at the Launching Complex-I (LC-I) of the Integrated Test Range (ITR) at Chandipur-on-sea at about 2.30 pm. Defence sources said the trial was conducted to check various parameters in its subsystems and performance of advanced software. It was third test of the newly developed missile, which is yet to get a formal name, and all three have been successful this year.

"All subsystems incorporated in the missile have performed well. Though no target was set for the missile, it covered the entire range as coordinated. The mission was successful and it proved complete indigenisation of surface-to-air systems," said a defence official.

It is a highly mobile air defence system which can destroy multiple targets at a distance of 25 km in less than one minute. Considered to be a unique system in its class, the missile is expected to supplement medium range surface-to-air missile Akash. Since QRSAM is a much better system in terms of performance and lethality, India is more keen on developing high maneuverable and multi-role missiles, which will have 100 per cent kill probability. It is an all-weather and all-terrain missile having electronic counter measures against all known aircraft jammers.

The state-of-the-art missile that uses high-energy solid propellant will have to go through a couple of more development flight trials before going into user phase tests, the sources added.



Fri, 22 Dec, 2017
(Online)

From ISRO's 104 satellites to INS Viraat's retirement: 2017 in India's space and defence

By Monishita Roy

The year 2017 witnessed many break-throughs in the field of Space and Defence. Here are some of the most important events which happened this year.

The year 2017 proved to be quite eventful for India in the field of Space and Defence. From ISRO launching 104 satellites to the decommissioning of INS Viraat, here's a list of all the major events that happened this year.

Agni IV missile test

The year started off with the successful testing of the India's long range, ballistic missile called the Agni IV. It was launched from a road mobile launcher in Odisha's Abdul Kalam Island.

Agni IV is a two stage, surface to surface missile. It has the capacity to travel 4,000 km and has a range of more than 5,000 km. It weighs 17 tons and can carry one ton of nuclear warhead.

The 20 metres long missile was developed by the Defence Research and Development Organisation (DRDO) . It was earlier launched in 2011, 2012, 2014 (twice) and 2015. All the missions were successful.

PSLV C37 launched by ISRO

PSLV, the third generation launch vehicle in India, has many success stories in its bag. This time, it broke records.

The PSLV C37 carried a total of 104 satellites from seven countries and was successful in its mission. It was launched on February 15, 2017 from Sriharikota, Andhra Pradesh.

The maximum number of satellite- 37 launched before this was by Russia's Dnepr in 2014.

The launch mission took 29 minutes in all. With its success, it bagged the world record for launching the largest number of satellites.

INS Viraat decommissioned

Referred as 'mother' in the West, INS Viraat was the world's oldest aircraft carrier. It holds the Guinness world record for the same.

In March 2017, Indian Navy decommissioned it at the Naval Dockyard, Mumbai. The centaur-class carrier served in the navy for 30 years. The motto of INS Viraat is "Jalamev Yasya Balmev Tasya" (one who controls the sea is all powerful).

Before being officially decommissioned in March this year, it sailed for the last time from Mumbai to Kochi in the year 2016.

After the launch of PSLV C37, PSLV C38 followed. It was the 40th mission of the Polar Satellite Launch Vehicle and deployed 31 satellites in space. It carried India's mapping satellite Cartosat 2E.30 other satellites were also included in the same mission.

These satellites were not only from India but also from Japan, Germany, France, United Kingdom, Austria, Italy, etc. Among all the foreign satellites, there was one Indian satellite called NIUSAT that was produced by 200 students from the Noorul Islam University.

DRDO developed 250 KW high power batteries

India's Defence Research and Development Organisation developed 250 KWs silver oxide zinc batteries for the heavy weight torpedo Varunsatra.

Varunsatra is the first indigenous heavy weight electric torpedo. The batteries required to support the same needed to be upgraded from the standard 100KW to 250 KW.

To meet the requirements, DRDO developed its own primary and secondary batteries with large amount of silver.

Mangalyan completes 4 years

Initially designed for only six months, Mangalyan went on to complete its fourth year in space this year. Mars Orbiter Mission (MOM) was launched by ISRO in November 2013 from Sriharikota, Andhra Pradesh.

Although it costed almost a tenth of NASA's Mars mission Maven, it surpassed its expectations. Mangalayan remains as one of the most prestigious achievements of all time, as India became the first country in the world to have successfully reached Mars in a single attempt.

In June 2017, Mangalyan successfully completed 388 orbits around the red planet.

Mi-8 helicopters faded out

MI-8 helicopters, commissioned in the Indian Air Force in 1972, were considered the backbone of the helicopter operations. In December 2017, the helicopter fleet was phased out and the ceremony was held at Bengaluru's Air Force Station at Yelahanka.

The MI-8 helicopters were a part of missions like Operation Meghdoot in Siachen Glacier and Operation Pawan in Sri Lanka.

The fleet had advanced capabilities in its time. It had the capabilities to function in climatic conditions ranging from -50C to 50C. For its special characteristics, it was also used for politician and other VIPs to travel places.

India got its first conventional submarine

In December 2017, Prime Minister Narendra Modi commissioned INS Kalvari, India's 1st modern conventional submarine. The Scorpene submarine is designed by French naval defence and energy company-DCNS.

One of the biggest advantages of having it is that it can undertake multiple missions. From anti- surface warfare to intelligence gathering, mine laying and area surveillance- it can do it all.

The latest technology is also reported to have acoustic silencing techniques, low noise levels and can attack while being either underwater or on the surface.

'Kalvari' got its name after the feared tiger shark, a sea predator found in the Indian Ocean.



*Thu, 21 Dec, 2017
(Online)*

India to seek supply of radars, missiles by 2018

India is all set to take a big stride in exports of arms and equipment with the defence ministry in the process of tying up with Saudi Arabia, Jordan, the United Arab Emirates (UAE), Myanmar and Armenia for supply of radars, helicopters and missiles, and tank upgradation by 2018.

South Block sources confirmed deepening of military ties with these countries with high-level delegations interacting with defence ministry and Defence Research and Development Organisation (DRDO) units in Bengaluru this month.

For the first time, Saudi Arabia is sending 10 of its nationals for training to become officers at the National Defence Academy (NDA) next year.

The proposed tie-ups assume significance as India is the largest importer of arms in the world but figures nowhere in the list of global arms exporters.

Government sources confirmed that two joint committee meetings have already taken place with Riyadh as the latter is interested in a joint venture to manufacture weapons and equipment in Saudi Arabia.

It is understood that the UAE has also shown interest in purchasing DRDO-developed Astra 70-kilometer range air- to-air missile for its Mirage fighters. The beyond visual range missile has been successfully tested by the Indian Air Force on its Su-30 MKI fighter jet and will be soon integrated for test firing on its Mirage 2000 jets.

While Myanmar wants India to upgrade its T-72 main battle tanks, which the former had purchased from Ukraine, Jordan is interested in buying the Kamov 226 T multi-utility helicopter to be built under India-Russia collaboration. Jordan is also looking at the possibility of buying other hardware manufactured by the DRDO.

On its part, Armenia is interested in purchasing DRDO- manufactured radars for battle-field theatre and long-distance artillery ammunition from India.

News

*Fri, 22 Dec, 2017
(Online)*

Indian media: Armenia interested in purchasing India-made radars

India plans to intensify exports of weapons and ammunition with certain countries. Indian defense ministry is tying up with Saudi Arabia, Jordan, the United Arab Emirates (UAE), Myanmar and Armenia for supply of radars, helicopters and missiles, and tank upgradation by 2018, Hindustan Times reported quoting a government source.

South Block sources confirmed deepening of military ties with these countries with high-level delegations interacting with defence ministry and Defence Research and Development Organisation (DRDO) units in Bengaluru this month, the newspaper said.

According to the reports, Armenia is interested in purchasing DRDO- manufactured radars for battle-field theatre and long-distance artillery ammunition from India.

Telangana  Today

*Mon, 25 Dec, 2017
(Online)*

Focus on application-oriented research

The workshop was inaugurated by PK Mehta, DS & Director General-Armament and Combat Engineering (ACE), Prof Appa Rao Podile, Vice-Chancellor, UoH and Director-HEMRL, K P S Murthy.

Hyderabad: A one-day workshop titled ‘Development of Binders and Plasticisers for Energetic Applications’ was organised at the Advanced Centre of Research in High Energy Materials (ACRHEM), a Defence Research and Development Organisation (DRDO) Centre of Excellence at the University of Hyderabad (UoH) in collaboration with the High Energy Materials Research Laboratory (HEMRL)-DRDO, Pune.

The workshop was inaugurated by PK Mehta, DS & Director General-Armament and Combat Engineering (ACE), Prof Appa Rao Podile, Vice-Chancellor, UoH and Director-HEMRL, K P S Murthy.

Speaking on the occasion, Mehta elaborated the need for developing indigenous molecules that can be used for defence and space applications. Prof Appa Rao underscored the computational facilities available at UoH which is need of the hour in the ‘Design & Synthesis of Novel High Energy Molecules’.

The HEMRL Director, KPS Murthy discussed importance of application-oriented research and the role of ACRHEM to focus on product driven R&D activities. Speakers from VSSC-ISRO, IIT Bombay, CSIR-IIT, CSIR-NCL, HEMRL-DRDO and UoH delivered lectures on Development of Binders and Plasticizers for Energetic Applications.

The present scenario of energetic binders and plasticizers at Isro and DRDO were explored in depth. The two lecture sessions, each followed by engaging panel discussions, were chaired by eminent scientists from DRDO, Dr. S N Asthana and Dr Manoj Gupta. About 100 delegates participated in the workshop.



Sun, 24 Dec, 2017
(Online)

Kalam memorial emerges as major tourist attraction

For thousands, pilgrimage to Rameswaram is incomplete sans a visit to Pei Karumbu

For hundreds of thousands of people who visited the historic Rameswaram island, their pilgrimage or tour to the island would not complete without a visit to Dr. A.P.J. Abdul Kalam National Memorial at Pei Karumbu, where the mortal remains of the former president were laid to rest.

The memorial, an iconic structure, built by the Defence Research and Development Organisation (DRDO) and declared open by Prime Minister Narendra Modi on July 27 has emerged as the major tourist attraction as people of all ages and all walks of life make it a point to pay homage to the late leader before leaving the island.

The memorial figured on top, probably next to the Sri Ramanathaswamy temple in the itinerary of the pilgrims and tourists if the visitors' record maintained at the memorial was any indication. The memorial recorded the millionth visitor in just four months on November 21 and an average of 8,722 people visited it every day, Col R Ravindran, Scientist-G, Chief construction engineer, DRDO, said.

“It has been very encouraging and we are happy about the huge turnout day in and day out,” the scientist, who was one of the architects of the memorial, built in a record nine months time, told *The Hindu*. In five days in July after Mr. Modi declared open the memorial, 39,900 people had visited, he said.

A record 46,500 people visited the memorial on a single day on October 1, a Sunday on the eve of Gandhi Jayanthi, he said. A maximum of 2.92 lakh people visited the memorial in the month of October, followed by 2.85 lakh in August, 2.52 lakh in September and 2.26 lakh in November, he said.

Till December 15, 1.45 lakh people have visited the memorial, he added. During the Sabarimala festival season in November and December, the visitors included a large number of Ayappa devotees, officials said.

Visitors were banned from taking pictures inside the memorial, using mobile phones or cameras, but they were free to take pictures and selfies at the outer precincts, they said. The visitors paid homage to the ‘people’s President’ before taking a glimpse of the host of acrylic paintings, portraying the life of Mr Kalam in different stages, right from school days to his stint in DRDO.

B.K. Singh, Additional Chief Engineer, DRDO, said all the pending works in the six display halls inside the memorial, and courtyards have been completed.

Construction of toilet blocks for men, women and differently abled persons and sewage treatment plant to utilise the recycled water for gardening would be completed by the middle of January, he said.

Tue, 26 Dec, 2017

Commercial flight nod for made-in-India plane

By Saurabh Sinha

New Delhi: You may soon be flying regional routes on board a made-in-India aircraft.

The Directorate General of Civil Aviation has allowed Hindustan Aeronautics Ltd (HAL)-manufactured Dornier 228 to be used for civilian flights. The 19-seater aircraft has, till now, been used by defence forces and is the first plane to be made in the country for commercial flights.

The DGCA has given type certification and certificate of airworthiness to HAL's Dornier 228. Now, HAL can sell this plane to airlines in India and it can be used by them for regional flights under the Modi's government's ambitious UDAN scheme, a senior aviation official said. "Some special incentives may be given to operators using this plane. Apart from airlines in India," the official added.

HAL likely to sell Dornier to Nepal and Sri Lanka

HAL may also look at selling this plane for civil use in neighbouring countries such as Nepal and Sri Lanka," the official said.

The HAL describes its 19-seater Dornier 228 as "highly versatile multi-purpose light transport aircraft. It has been developed specifically to meet the manifold requirements of utility and commuter transport, third level services and air-taxi operations, coast guard duties and maritime surveillance." The non-pressurised plane has maximum cruise speed of 428 kmph and a range of 700 km. It is capable of night flying.

HAL successfully carried out test flights of this plane at Kanpur airport this month after which DGCA gave the required nod for it to be used in civil side. HAL has a "transport aircraft division" in Kanpur since 1960. "(It) has core competence in manufacture, maintenance, modification and upgrade of light transport aircraft and trainer aircraft for both domestic and international markets.

The division also carries out maintenance, repair and overhaul of aircraft.... The division has also commenced manufacture of the civil variant of Dornier 228 aircraft," the HAL website says. While the DGCA has now allowed Dornier 228 to be used for commercial flights, HAL says it can also be used for "pollution prevention" and "executive transport".

MAIL TODAY

Tue, 26 Dec, 2017

Bilateral talks may give wing to stuck aero deal

By Ajit K Dubey

India and Israel are likely to discuss the deal to supply two new Airborne Early Warning and Control Systems (AWACS) 'eyes in the sky', worth ₹7,000 crore, which has been stuck for over a year now due to steep price hike, in the forthcoming visit of Prime Minister Benjamin Netanyahu starting January 13. In the previous deal signed in 2003-04, India had acquired three AWACS systems in which the Russian Ilyushin-76 aircraft were equipped with Israel-made sophisticated radars at the cost of \$1.1 billion (over Rs. 7,035 crore) to carry out surveillance of enemy aircraft, drones and cruise missiles at ranges up to 400-500 km inside their territory.

"The price of the two new AWACS has been quoted to be over USD 1.25 billion (₹8,000 crore) by the vendors as they have asked for much more compared to the cost of the three planes bought earlier.

It cannot be agreed to, and that is why the programme has been stalled,” senior government sources told Mail Today. “The main reason behind the steep jump in the price is the almost three-fold increase in the price of the IL-76 planes, on which the radars have to be mounted. The Israelis have also hiked their price much more than what is permitted due to inflation,” official added. The deal is now expected to be discussed during the meeting of the two Prime Ministers.

On several past occasions, the issue of acquiring AWACs has been coming up at meeting of Defence Acquisition Council (DAC), which is the apex body of the Defence ministry, to acquire new weapon systems for the armed forces. With the deal stuck, both Pakistan and China have worked closely to get an edge over India in terms of the surveillance equipment as Beijing has more than 20 of such AWACS planes, both new and old. Pakistan acquired four AEWCS surveillance aircraft four to five years ago from Sweden, and has also started taking the Chinese AWACS planes in its force. India also decided to develop its own AWACS as the DAC has given clearance to a proposal to acquire two Airbus-330 planes and build an AWACS, which can provide 360-degree surveillance like the Israeli radar.

The project would start with two planes, which are likely to take five to six years to be completed, and once successful, the DRDO would take sanction for six more aircrafts. The trials of DRDO developed Airborne Early Warning and Control (AEWC) aircraft is nearing its completion in Bhatinda. These are smaller in size and have 240-degree coverage. After undergoing trials, they would be used for operational flying by the services. The Air Force needs 15 AWACS and smaller AEWCS planes with radars of different capabilities.



Tue, 26 Dec, 2017

‘N Korea’s nuclear tests a threat to our security’

India will participate in the Vancouver dialogue — initiated by the US and Canada and including France, Japan and S Korea — on N Korea on Jan 16

New Delhi: India considers the nuclear proliferation in North Korea as a threat to its “own national security” and will continue to demand an in-depth investigation into how the country acquired nuclear technology, people familiar with the matter in the Indian foreign policy establishment said.

They maintained that New Delhi holds China and Pakistan — both nuclear power nations — responsible for the rise of North Korea’s nuclear and ballistic missile programmes, and wants the linkages between North Korea and China and Pakistan to be probed by the international community.

The government has discussed this with a group of parliamentarians while briefing them on New Delhi’s stance on North Korea, the sources added, asking not to be identified.

India will participate in the Vancouver dialogue — a discussion initiated by the United States and Canada and including France, South Korea and Japan — on North Korea on January 16.

New Delhi’s position assumes significance at a time when Trump administration is raising the pitch against the dictatorial regime amid a series of missile tests by Pyongyang.

On Friday, the United Nations Security Council cleared a fresh set of strict sanctions against North Korea after the Kim Jong-un regime launched its latest ballistic missile, which, Pyongyang claimed, can reach anywhere on the US mainland. The US drafted the resolution after negotiating with China, North Korea’s closest ally.

The people added that Pyongyang is aware of India’s concerns, especially its links with Pakistan, over missile and nuclear technologies.

While India is not a signatory of the Treaty on the Non-Proliferation of Nuclear Weapons or the Non-Proliferation Treaty (NPT), it points out that North Korea, at one point of time, was a signatory. The secretive regime later pulled out.

North Korea has an embassy in Delhi, but negligible trade ties with India. The National Democratic Alliance (NDA) government has maintained close ties with Japan and South Korea, both rivals of Pyongyang.

On September 3, New Delhi issued a press statement after Pyongyang's nuclear test. "India deplores the nuclear test. It is a matter of deep concern that DPRK (Democratic People's Republic of Korea) has once again acted in violation of its international commitments which goes against the objective of the denuclearization of Korean peninsula," the statement said.