

Mon, 29 April 2019

ASAT a testimony to Indian technological capabilities: DRDO Chairman

Congratulates DRDO labs and team members on Mission Shakti's success

Hyderabad: The Anti-Satellite Test (ASAT) has demonstrated the capabilities of indigenously-developed Indian technologies to carry out a critical mission with high degree of precision, said G. Satheesh Reddy, Chairman of DRDO, here on Sunday.

All the critical systems, including the software and sensors, were developed by a team of scientists from various specialisations who worked in complete synergy day and night for six months, culminating in the successful launch, he explained. Dr. Reddy was speaking at the 'Technical Meet and Aerospace Luminary Lecture' organised by The Aeronautical Society of India at the DRDL. "The most important challenge during the mission was to ensure that all the systems cohesively responded to the changing dynamics," he said and congratulated all the DRDO labs and team members associated with Mission Shakti. Programme Director U. Rajababu highlighted the mission objectives and the criticalities of Mission Shakti and said the high altitude and high velocity interception pose many technological challenges as high levels of precision was required when relative velocity of the systems involved is around 10 km/sec.

By using accurate sensors and on-board seeker, the ASAT missile was guided towards the target to ensure direct hit without employing any warhead, he said.

Y. Sreenivas Rao, Project Director, AD (Exo) and Secretary, AeSI, congratulated the industry partners for their involvement. The Dr. A.P.J. Abdul Kalam Missile Complex led the mission with the support of ITR, Chandipur, and multiple other DRDO labs.

V. Ramgopal Rao, Director of IIT-Delhi, delivered a talk on 'Connecting Academic R&D with Product Innovation: A Roadmap for the Future'. V. Kamakoti, professor at IIT-Chennai, in his lecture spoke of 'Data Libre', an initiative taken by the IIT-Chennai in data analytics for the financial world which can be customised for real-time data processing for the financial sector.

<https://www.thehindu.com/news/national/telangana/asat-a-testimony-to-indian-technological-capabilities-drdo-chairman/article26974437.ece>

Hyderabad: Scientists rubbish worries on A-Satellite debris

DRDO chief says a lakh pieces of debris are already floating in space

Hyderabad: Responding to criticism from some quarters that the debris from Mission Shakti, the anti-satellite missile, that India tested recently will pose a threat to international space stations, senior scientists working with the DRDO on the anti-satellite missile programme said there were one lakh pieces of debris floating in space.

“Satellites launched by different countries turn into debris. Are they not a threat? Why is India’s anti-satellite missile only a threat?” queried a scientist, who worked on Mission Shakti.

The Aeronautical Society of India, the premier body that works on aeronautical dynamics, and Defence Research and Development Laboratories (DRDL) scientists met on Sunday at the DRDL in connection with Mission Shakti.

Congratulating the DRDO Labs and members associated with Mission Shakti, Dr G. Satheesh Reddy, the chairman of DRDO and Aeronautical Society of India, said, “The A-SAT test has demonstrated Indian technological capabilities to carry out such a critical mission with very high degree of precision.”

Dr Reddy said that critical systems including software and sensors were indigenously developed and a team of scientists from various specialisations have worked in complete synergy day and night for six months culminating in the successful launch. The most important challenge during the mission was to ensure that all the systems cohesively responded to the ever changing dynamics.

The chairman was speaking to a cluster of scientists working with DRDO Laboratories.

Highlighting the objectives and criticalities of Mission Shakti, senior scientist U. Rajababu, programme director, ‘AD’ mission, said, “The high altitude and high velocity interception poses many technological challenges in respect of seekers for early detection and trajectory correction systems for finer corrections before engagement. When the relative velocity of the systems involved is around 10 km/second there is a pertinent need for high levels of precision.”

“The booster needs to provide the requisite velocities, the technologies such as dome opening, heat shield etc need to be precise and smooth, apart from the highly accurate and secured data communication systems. Using accurate sensors and onboard seeker, the A-SAT missile was guided towards the target to ensure direct hit without employing any warhead,” he said.

<https://www.deccanchronicle.com/nation/current-affairs/290419/hyderabad-scientists-rubbish-worries-on-a-satellite-debris.html>

my nation

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DRDO prepares air-launched BrahMos missile that can hit targets deep inside Pakistan

According to a senior official, Hindustan Aeronautics Limited is working to equip Sukhoi aircraft to carry and launch BrahMos missiles. Once successful,

Su-30 MKIs could easily carry out the long-range strike

New Delhi: Post the Balakot air strike carried-out by Indian Air Force (IAF) in Pakistan which destroyed Jaish-e-Mohammed's (JeM) terror facility in Pakistan, IAF has been looking for new options to increase its firepower. As a result, IAF along with DRDO may soon test-fire air-launched version of the BrahMos supersonic cruise missile soon.

According to a senior official, Hindustan Aeronautics Limited (HAL) is working to equip Sukhoi aircraft to carry and launch BrahMos missiles. Once successful, Su-30 MKIs could easily carry out the long-range strike.

Hence, in the case of Balakot like situation these lethal missiles can be fired from within the country as it has a high strike range of 290 km.

During Balakot airstrikes, the IAF had used the Spice-2000 bombs launched from a Mirage-2000 fighter aircraft for striking Jaish-e Mohammed (JeM) terror camp in Pakistan. With the availability of BrahMos missile developed by DRDO, the IAF would be able to destroy similar targets from at least 150 km inside the Indian territory.

As per the plan, the team is working to make the missiles lighter so that it can be carried in a fighter plane and 40 such Sukhoi jet will be fitted with deadly missiles.

Up until now, only two IAF Su-30 MKI fighters have been converted to fire the new 2.5-tonne supersonic air-to-surface cruise missile. Due to the size and weight of the BrahMos-A, each Su-30 MKI can only carry one missile in a transport launch canister. The world's fastest supersonic cruise missile was first flight tested in July 2018 over the Bay of Bengal from a Su-30MKI only.

The IAF test fired a BrahMos-A from a Su-30 MKI in November successfully destroying a naval target. The IAF has conducted several tests of the BrahMos-A in 2016 and 2017. Sources said that IAF is keen to fast-track the process.

Modifications in order for the Su-30 MKI to carry and launch the BrahMos-A include reinforcing the aircraft's undercarriage in addition to various mechanical, electrical and software upgrades

What is BrahMos

- BrahMos missile has a strike range of around 290 km and is world's fastest supersonic cruise missile, from land, sea and air, completing the tactical cruise missile triad for the country.
- The missile has two stages---first is solid and the second one is a ramjet liquid propellant.
- It operates on 'fire and forget principal' and is capable of being launched from land, sea, underwater, and air against sea and land targets.
- It is capable of carrying a warhead of 300 kg (both conventional as well as nuclear) and has a top supersonic speed of Mach 2.8 to 3 (roughly three times speed of sound).
- The missile is highly versatile and its unmatched speed, precision and power make it the ultimate modern weapon. Developers say that the missile has a strike accuracy rate of 99.99 per cent.
- BrahMos follows a variety of trajectories like high, high-low, low, surface-skim etc. unlike ballistic missiles which are powered for half the journey times and follow an ellipsoidal trajectory. Moreover, because its trajectory cannot be predicted it is difficult to defend against.
- With INS Rajput, the first version of BrahMos missile system was inducted into the Navy in 2005. It is now fully operational with two regiments of the Army.

<https://www.mynation.com/security/pulwama-aftermath-no-public-vehicle-movement-on-national-highway-on-sunday-wednesday-pplbnr>