



EVERYDAY CURRENT AFFAIRS – MARCH 28, 2019

TAMIL NADU

- **Anna University – created a new world record for hovering an unmanned aerial vehicle (UAV) for the longest duration of six hours, seven minutes and 45 seconds**



- ✓ This record pertains to multi-rotor UAV in the 5kg to 25kg category.
- ✓ The record was declared by Fédération Aéronautique Internationale (FAI), the body governing air sports' across the world
- ✓ The attempt was made in last July by a UAV developed by the Centre for Aerospace Research at Madras Institute of Technology functioning under Anna University

NATIONAL

- **The Union Cabinet - approved the continuation of the 'Biomedical Research Career Programme' for another five year term from 2019-20 to 2023-24**

- ✓ The programme is run by the Department of Biotechnology and UK- based biomedical research charity, Wellcome Trust
- ✓ The programme was initially commenced for a 10 year term from 2008-09 to 2018-19
- ✓ The total financial implication of the same will be Rs 1092 crore with DBT and WT contributing Rs 728 crore and Rs 364 crore respectively
- **Election Commission (EC)- is likely to approve a Rural Development Ministry request to revise the wages under Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) from April 1**
- ✓ The wages paid under the MGNREGA are linked with the Consumer Price Index for agricultural labourers
- ✓ For Tamil Nadu, Rs 229 has been fixed as the wage per day to be given under the scheme
- ✓ New Wages for various States

மத்திய ஊரக வளர்ச்சித் துறை கூந்த 2013, பிப்ரவரி 26-இல் வெளியிட்ட அறிவிக்கையில் திருத்தம் மேற்கொள்ளப்பட்டுள்ளது. இதன்படி மாநிலங்கள் வாரியாக மகாத்மா காந்தி தேசிய ஊரக வேலை உறுதித் திட்டத்தின் கீழ் வேலைபார்க்கும் தொழிலாளர்களுக்கு நாளொன்றுக்கு நிர்ணயிக்கப்பட்டுள்ள ஊதியம் விவரம் வருமாறு:

ஆந்திர பிரதேசம்-ரூ. 211, அருணாச்சல பிரதேசம்-ரூ.192, அஸ்ஸாம்-ரூ.193, பிகார்-ரூ.171, சத்தீஸ்கர்-ரூ.176, கோவா-ரூ.254, குஜராத்-ரூ.199, ஹரியானா - ரூ. 284, ஹரிமாசல பிரதேசம் - (பட்டியல் அல்லாத பகுதிகளில்) ரூ. 185, பிற பகுதிகளில் ரூ. 231, ஜம்மு- காஷ்மீர் -ரூ.189, ஜார்க்கண்ட் - ரூ. 171, கர்நாடகம் - ரூ.249, கேரளம்-ரூ.271, மத்திய பிரதேசம் -ரூ.176, மகாராஷ்டிரம் -ரூ.206, மணிப்பூர்-ரூ.219, மேகாலயா ரூ. 187, மிசோரம்-ரூ.211, நாகாலாந்து -ரூ.192, ஒடிஸா -ரூ.188, பஞ்சாப்-ரூ.241, ராஜஸ்தான் -ரூ.199, சிக்கிம் -ரூ.192, தமிழ்நாடு -ரூ.229, தெலங்கானா ரூ.211, திரிபுரா ரூ.192, உத்தர பிரதேசம்-ரூ.182, உத்தரகண்ட் -ரூ.182, மேற்கு வங்கம் -ரூ.191, புதுச்சேரி -ரூ.229.

- ✓ The Mahendra Dev Committee, formed in 2014, had recommended that the MGNREGA wages be linked to the state's minimum wage.
- ✓ Another committee formed under Nagesh Singh rejected the earlier recommendations of linking the MGNREGA wages to the state's minimum wages, but suggested that the MGNREGA wages be linked to CPI-Rural instead of CPI-Agriculture labourer.
- ✓ A recently constituted committee under Anoop Satpathy has also recommended in January 2019 that the MGNREGA wages be linked to the CPI-Rural, suggesting a national minimum wage rate be fixed at Rs 375
- ✓ Presently, the MGNREGA wage rates of 18 states are below the minimum wage rates
- ✓ The Government in this year's interim budget had proposed to allocate Rs 60,000 crore for rural employment scheme under MGNREGA for the year 2019-20 as against Rs 55,000 crore for 2018-19
- ✓ The revised estimate for the year 2018-19 was Rs 61,084.09 crore

- ✓ MGNREGA, a rural job guarantee scheme introduced in 2005, now covers all the rural districts of the country
- ✓ The main objective of the scheme involves providing up to 100 days of unskilled manual work in a financial year to every household in rural areas
- **Union Ministry of Environment, Forest and Climate Change - notified Island Protection Zone (IPZ) 2019 for Andaman and Nicobar**
 - ✓ It brings the norms for Andaman and Nicobar at par with Coastal Regulation Zone (CRZ) 2018 norms for other islands close to the mainland and backwater islands where a No Development Zone (NDZ) is only 20 meters from high tide line (HTL)
 - ✓ It allows for eco-tourism activities like mangrove walks, tree huts and nature trails in island coastal regulation zone (ICRZ)
 - ✓ The notification also allows for construction of roads, public utilities or strategic purposes in eco-sensitive zones.
 - ✓ Previously, IPZ 2011 stipulated an NDZ of 200 meters from the HTL for all islands.
- **Adani Port and Special Economic Zone (APSEZ), a part of Gautam Adani-led Adani Group - becomes the first Indian port operator to achieve a new record of handle 200 million tonnes (MT) cargo movement in 2018-19**
 - ✓ Adani Port and Special Economic Zone (APSEZ) has 10 ports and terminals, including the one at Ennore in Chennai
 - ✓ It has also set an aim to double growth up to 400 MT by 2025.

INDIA AND OTHER COUNTRIES

- **India and the African Union - signed a MoU to establish an India-Africa health sciences collaborative platform**



- ✓ It will pave the way for cooperation in research and development, capacity building, health services, pharmaceutical trade and manufacturing capabilities for drugs and diagnostics
 - ✓ The ICMR had taken up the initiative to strengthen the cooperation in the health sector by establishing the forum
 - ✓ The Ministry of External Affairs along with the Indian Council of Medical Research (ICMR) had jointly organised the first India-Africa Health Sciences Meet in 2016 in New Delhi
 - ✓ The African Union (AU) is a continental union consisting of 55 member states located in the continent of Africa
 - ✓ It was founded on 26 May 2001 in Addis Ababa, Ethiopia and launched on 9 July 2002 in South Africa
- **India and the United States - signed an Inter-Governmental Agreement for Exchange of Country-by-Country (CbC) Reports between the countries**



- ✓ The Agreement was signed by PC Mody, Chairman of the Central Board of Direct Taxes and Kenneth I Juster, Ambassador of the United States to India.
- ✓ A Country-by-Country (CbC) Report contains aggregated country-by-country information relating to the global allocation of income, the taxes paid, and certain other indicators of a multi-national company.

COMMITTEES

- **Election Commission - appointed a committee of senior officers to look whether PM's address to the nation violated the model code of conduct**

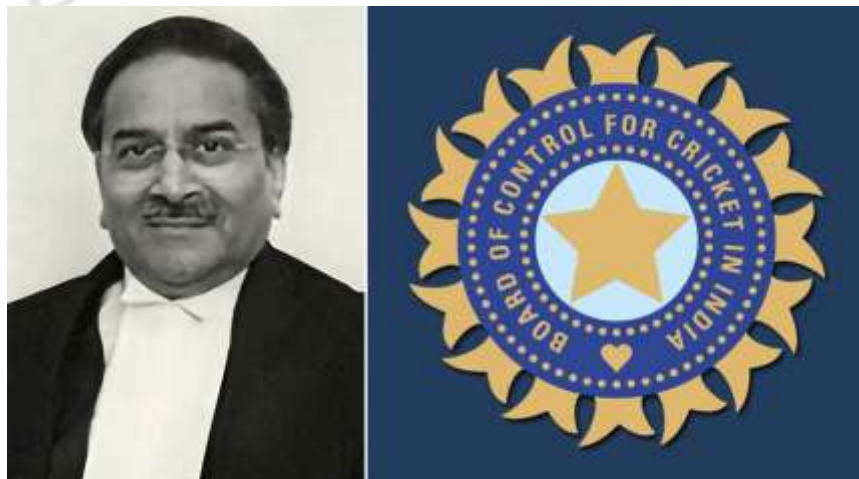
- ✓ The address was relayed first via Narendra Modi's exclusive YouTube channel and not state-owned public broadcasters, Doordarshan or All India Radio, thus involving no cost to the exchequer and hence no violation of model code of conduct
- ✓ Later, a link/feed of the same was shared with Doordarshan and AIR and other electronic media networks



- ✓ The EC committee will be headed by deputy election commissioner in charge of model code of conduct matters, Sandeep Saxena

APPOINTMENTS

- **Retired Justice DK Jain, ombudsman of the BCCI (Board of Control for Cricket in India) - has been appointed as BCCI's ad-hoc Ethics Officer till the permanent appointment takes place**



- ✓ He will look into all the conflict of interest cases

AWARDS

- **Yoshua Bengio, Geoffrey Hinton and Yann LeCun, Pioneers of Artificial Intelligence technology – rewarded with the 2018 ACM A.M.Turing Award, an honour that is the technology industry’s version of the Nobel Prize**



- ✓ The winners will share \$1mn prize funded entirely by Google
- ✓ Hinton is VP and Engineering Fellow of Google.
- ✓ He is also a faculty member in the University of Toronto and Brain researcher of Google.
- ✓ LeCun is VP and Chief AI Scientist at Facebook and a professor at New York University (NYU)
- ✓ Bengio is Scientific Director at Mila and has signed deals with IBM and Microsoft
- ✓ He is also a professor at the University of Montreal and founder of AI company called Element AI.
- ✓ The three were named as the “Fathers of the Deep Learning Revolution” by the Association for Computing Machinery
- ✓ Yoshua Bengio, Geoffrey Hinton and Yann LeCun have worked together by developing Deep Learning for Artificial Intelligence by using neural networks for computing.
- ✓ Self-driving cars, voice assistants and facial recognition technology are a few examples of development made possible by the works of Hinton, LeCun, and Bengio
- ✓ By 2010, Hinton helped Microsoft, IBM, and Google push the boundaries of speech recognition, followed by the image recognition.
- ✓ Neural networks are the electronic engines that led to some of the greatest advances in modern computer science such as facial and speech recognition.

- ✓ The ACM A.M. Turing Award was introduced in 1966 and is regarded as the “Nobel Prize of Computing”
 - ✓ The honour is named after Alan Turing, a British mathematician and reader in mathematics at the University of Manchester.
 - ✓ The first recipient of the award was Alan Perlis and the first female recipient was Frances E. Allen, who was honoured in 2006
 - ✓ Artificial intelligence (AI) is the intelligence demonstrated by machines, which includes facial recognition, speech recognition, etc.
 - ✓ It was founded as an academic discipline in 1956
- **Singapore’s Changi Airport - named as the world’s best aviation hub for the seventh time in a row**



- ✓ Tokyo International Airport was ranked at the second spot whereas Incheon International Airport ranked at the third spot.
 - ✓ Indira Gandhi International (IGI) Airport, New Delhi climbed 8 places to rank at 59th Position
 - ✓ The Skytrax World Airport Awards are voted for by customers in a global airport customer satisfaction survey
- **Nobel Prize-winning economist Amartya Sen - has been honoured with the prestigious Bodley Medal, the highest honour bestowed by the University of Oxford’s world-famous Bodleian Libraries**



- ✓ The award recognizes his contribution in literature, culture, science, and communication.
- ✓ In 1998, He was awarded the prestigious Nobel Prize in Economic Sciences for his work in welfare economics and social choice theory
- ✓ The past winners of the Bodley Medal includes physicist Stephen Hawking, inventor of the World Wide Web Tim Berners-Lee and others
- **The Indian Green Building Council - awarded the Gold Rating to Vijayawada railway station, which is known as the busiest railway junctions in India for Green Measures**



- ✓ This Railway Station was ranked fourth in the Indian Railways for cleanliness among A-1 category stations

- ✓ It has 100% LED lighting, five star rated fans, pumps, and motors and solar water heating systems.
- ✓ With the help of the Environment Directorate of Indian Railways, the IGBC-CII developed the Green Railway Stations Rating System

SPORTS

- **Indian Shooting sensations, Saurabh Chaudhary (16 years) and Manu Bhaker (17 years) - claimed the senior World qualification record and gold in the 10m air pistol mixed team event at the 12th Asian Airgun Championships in Taoyuan, Taipei**



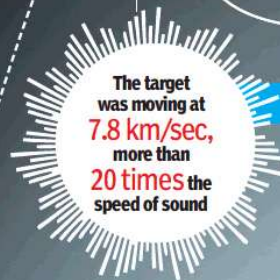
- ✓ The pair shot a combined score of 784 in the qualification round and later shot 484.8 in the final to win gold
- ✓ Out of 784, the Meerut shooter scored 396, while Manu shot 388.
- ✓ The Indians broke the record set by Russians Vitalina Batsarashkina and Artem Chernousov at the European Championships five days ago
- ✓ The mixed team had won gold at the ISSF World Cup in Delhi last month
- ✓ They also have the junior qualification and final records already registered in their name

MISSION SHAKTI – A REPORT

THE BIG HIT IN DEEP SKY

ALL YOU WANTED TO KNOW ABOUT MISSION SHAKTI

Around 11am, India launched an interceptor missile from the Balasore range in Odisha. Three minutes later, the missile hit and killed Microsat-R, a live satellite in a low earth orbit



> The satellite spent only **8-10 minutes** a day over the Indian sub-continent



WHY IT'S A BIG DEAL



> This leaves very little time to **detect, prepare and intercept** when you have it in sight

> It takes a fast vehicle and strong manoeuvring capabilities

> The actual time for interception is less than a second while overall preparation time would be in a few minutes

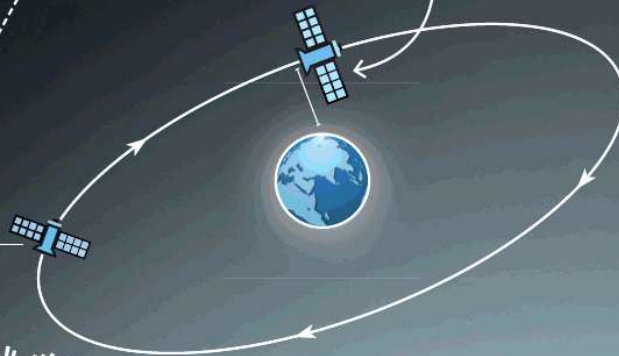
> Only the **US, the USSR and China** have demonstrated similar capabilities

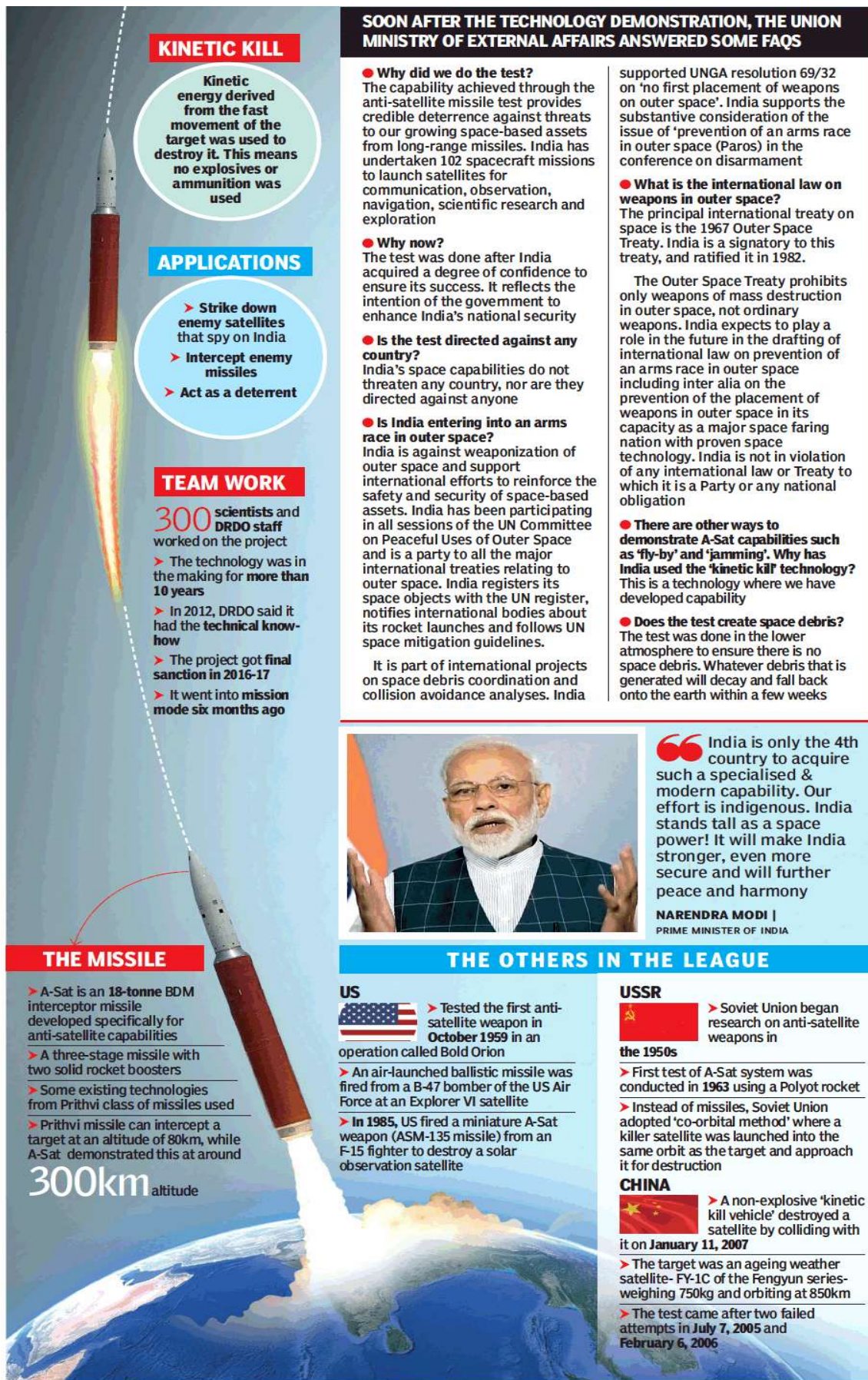


THE TARGET

Microsat, an earth observation satellite launched on **January 24, 2019**

The **740kg**-satellite was orbiting earth at an altitude of **274km**





KINETIC KILL

Kinetic energy derived from the fast movement of the target was used to destroy it. This means no explosives or ammunition was used

APPLICATIONS

- Strike down enemy satellites that spy on India
- Intercept enemy missiles
- Act as a deterrent

TEAM WORK

300 scientists and DRDO staff worked on the project

- The technology was in the making for more than 10 years
- In 2012, DRDO said it had the technical know-how
- The project got final sanction in 2016-17
- It went into mission mode six months ago

THE MISSILE

- A-Sat is an 18-tonne BDM interceptor missile developed specifically for anti-satellite capabilities
- A three-stage missile with two solid rocket boosters
- Some existing technologies from Prithvi class of missiles used
- Prithvi missile can intercept a target at an altitude of 80km, while A-Sat demonstrated this at around

300km altitude

SOON AFTER THE TECHNOLOGY DEMONSTRATION, THE UNION MINISTRY OF EXTERNAL AFFAIRS ANSWERED SOME FAQs

- **Why did we do the test?**
The capability achieved through the anti-satellite missile test provides credible deterrence against threats to our growing space-based assets from long-range missiles. India has undertaken 102 spacecraft missions to launch satellites for communication, observation, navigation, scientific research and exploration
 - **Why now?**
The test was done after India acquired a degree of confidence to ensure its success. It reflects the intention of the government to enhance India's national security
 - **Is the test directed against any country?**
India's space capabilities do not threaten any country, nor are they directed against anyone
 - **Is India entering into an arms race in outer space?**
India is against weaponization of outer space and support international efforts to reinforce the safety and security of space-based assets. India has been participating in all sessions of the UN Committee on Peaceful Uses of Outer Space and is a party to all the major international treaties relating to outer space. India registers its space objects with the UN register, notifies international bodies about its rocket launches and follows UN space mitigation guidelines.
- It is part of international projects on space debris coordination and collision avoidance analyses. India

- supported UNGA resolution 69/32 on 'no first placement of weapons on outer space'. India supports the substantive consideration of the issue of 'prevention of an arms race in outer space (Paros) in the conference on disarmament
- **What is the international law on weapons in outer space?**
The principal international treaty on space is the 1967 Outer Space Treaty. India is a signatory to this treaty, and ratified it in 1982.
- The Outer Space Treaty prohibits only weapons of mass destruction in outer space, not ordinary weapons. India expects to play a role in the future in the drafting of international law on prevention of an arms race in outer space including inter alia on the prevention of the placement of weapons in outer space in its capacity as a major space faring nation with proven space technology. India is not in violation of any international law or Treaty to which it is a Party or any national obligation
- **There are other ways to demonstrate A-Sat capabilities such as 'fly-by' and 'jamming'. Why has India used the 'kinetic kill' technology?**
This is a technology where we have developed capability
 - **Does the test create space debris?**
The test was done in the lower atmosphere to ensure there is no space debris. Whatever debris that is generated will decay and fall back onto the earth within a few weeks



“India is only the 4th country to acquire such a specialised & modern capability. Our effort is indigenous. India stands tall as a space power! It will make India stronger, even more secure and will further peace and harmony

NARENDRA MODI |
PRIME MINISTER OF INDIA

THE OTHERS IN THE LEAGUE

- US**
- Tested the first anti-satellite weapon in **October 1959** in an operation called Bold Orion
 - An air-launched ballistic missile was fired from a B-47 bomber of the US Air Force at an Explorer VI satellite
 - **In 1985**, US fired a miniature A-Sat weapon (ASM-135 missile) from an F-15 fighter to destroy a solar observation satellite

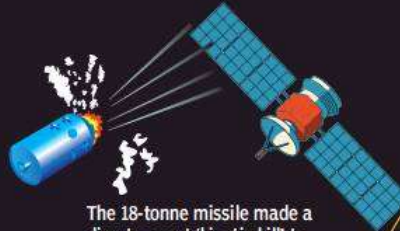
- USSR**
- Soviet Union began research on anti-satellite weapons in **the 1950s**
 - First test of A-Sat system was conducted in **1963** using a Polyot rocket
 - Instead of missiles, Soviet Union adopted 'co-orbital method' where a killer satellite was launched into the same orbit as the target and approach it for destruction

- CHINA**
- A non-explosive 'kinetic kill vehicle' destroyed a satellite by colliding with it on **January 11, 2007**
 - The target was an ageing weather satellite- FY-1C of the Fengyun series-weighing 750kg and orbiting at 850km
 - The test came after two failed attempts in **July 7, 2005** and **February 6, 2006**

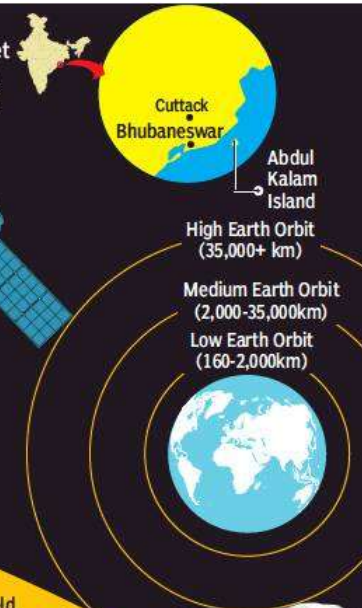
THE SATKILLER

3-stage interceptor missile with 2 solid rocket boosters launched from Abdul Kalam Island, Balasore, off the coast of Odisha, at 11.10am

India had the 'building blocks' for A-Sat capability through spin-offs from the 5,000km-plus Agni-V strategic missile programme for several years. But didn't cross the red line till Modi gave the green signal. 300 DRDO scientists started work 2 years ago, and were in mission mode for last 6 months. Only 5-6 people knew about the timing of the mission. India's last secret test was at Pokhran in May 1998, to refine its N-capability



The 18-tonne missile made a direct-ascent 'kinetic kill' to destroy a 740kg Microsat-R satellite 274km away. The satellite was launched by Isro into low earth orbit on Jan 24 for the purpose of the test



Soaring at Balasore

Can Strike Up To 1,000km: DRDO

- It's very difficult to hit a satellite because of its high velocity and small size. Also, there's very little time to collect data
- India can now disrupt a country's surveillance, communications & navigation capabilities, rendering enemy forces 'deaf and blind' on battlefield
- A-Sat will also boost India's ability to tackle high-altitude incoming missiles
- While India tested A-Sat at less than 300km, DRDO scientists say it can hit up to 1,000km away. Incidentally, no A-Sat power has ever used its missiles against another country

WE ARE AGAINST WEAPONISATION OF SPACE... OUR OBJECTIVE IS TO MAINTAIN PEACE, NOT CREATE AN ATMOSPHERE OF WAR — Modi in only his 2nd televised address as PM



COUNTDOWN TO LAUNCH DAY

Anti-satellite warfare capabilities are located at the intersection of defence and space research. India started its space programme in the late 60s and its missile development programme was launched in the early 80s. While the A-Sat weapon prowess came via a series of incremental steps, here's a look at the immediate stages leading to Wednesday's test...

THE CHINA TRIGGER

JAN 2007: The Indian defence and space establishment note the importance of developing space military capabilities after launch by China of an anti-satellite missile

DEC 2007: India tests its Advanced Air Defence system as part of its anti-ballistic missile defence programme. Technologies linked to this programme, begun in 1999, play a key role in the country's A-Sat weapons system

THE BUILDING BLOCKS

MAR 2009: First testing of Swordfish, a long-range tracking radar that's a key element of the ballistic missile shield. The radar had a range of 600km with upgrades to take it to 1,500km

2010: Defence ministry drafts 15-year roadmap that also focused on development of A-Sat weapons for "electronic or physical destruction of satellites and GEO-synchronous orbits"

APR 2012: After testing of the Agni-V missile, the then DRDO chief VK Saraswat says,

“India has achieved ability to build ASAT weapons 'on demand'”

AUG 2013: India launches first satellite created specifically for the military, the GSAT-7 communications satellite. It was followed by GSAT-6, launched in August 2015

ALL SET FOR LAUNCH

JAN 2014: Launch of GSLV-D5 powered by indigenous cryogenic engine gives India ability to launch satellites weighing in excess of two tons, an important requirement for deployment of any space weapons system

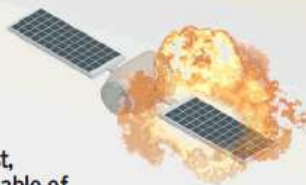
JUN 2017: After launch of the Cartosat 2E+ Earth observation satellite, India puts in place 13 satellites being used for military purposes

Source: Media reports



INDIA JOINS 3 SUPERPOWERS

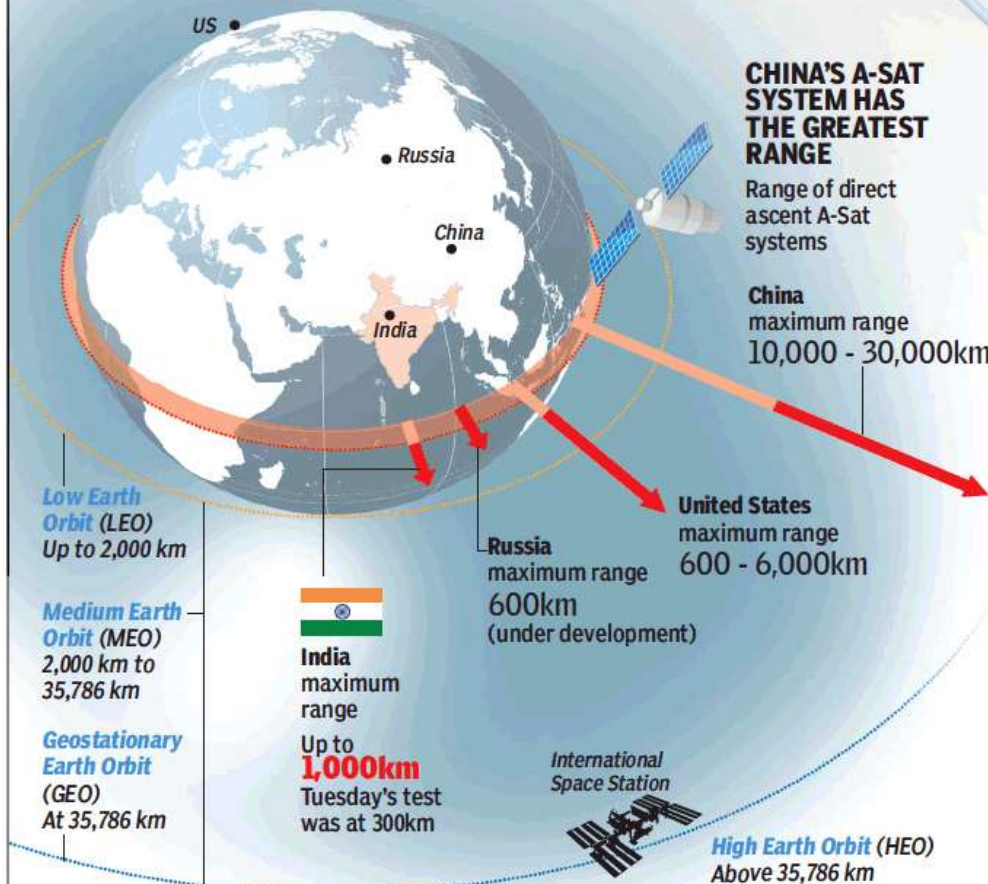
India has made history with its anti-satellite missile test, entering an exclusive club of nations with weapons capable of destroying satellites. But the US and Russia are long-standing players in the field and China has made leaps in recent year. A look at the anti-satellite arms race



WHAT'S AN ANTI-SATELLITE WEAPON?

Anti-satellite (A-Sat) weapons that attempt to directly strike or detonate near a satellite or other targets are called kinetic physical weapons. **There are two types of kinetic weapons**

- 1 Direct ascent A-Sat (DAASAT) weapon** | Strikes a satellite using a trajectory that intersects the target without requiring an interceptor system already in orbit. It's the type of missile tested by India on Tuesday
- 2 Co-orbital A-Sat weapon** Requires first to be placed into orbit and then, when commanded to do so, it moves to reach within striking distance of its target



CHINA

Budget for space programmes

 \$11 billion

China tested its first DAASAT systems in 2005 and 2006

- In a 2007 test, China destroyed an aging weather satellite at an altitude of about 875km, sending ripples through US defense circles. The test created more than a thousand pieces of space debris, the most ever in a single event, drawing international condemnation
- China has since conducted several non-debris producing tests with missiles capable of reaching MEO and GEO
- In 2013, China fired a missile into GEO at an altitude of around 30,000km, putting the United States on alert
- China said to be working on at least three DAASAT systems and co-orbital A-Sat weapons

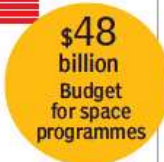
RUSSIA

Budget for space programmes  \$4 billion

- Before it fell, the Soviet Union built a strong foundation of anti-satellite systems under the Istrebitel Sputnikov (Russian for 'satellite destroyer') programme. Russia's current systems are all rooted in Soviet-era technology
- First A-Sat weapon became operational in 1973
- In 1980s, Soviet Union began work on the most powerful A-Sat yet, the Naryad, which is currently operational. It's a co-orbital A-Sat that can reach as high as 40,000 km and launch attacks from there

UNITED STATES

- US developed most of its A-Sat tech during the Cold War to counter the Soviet Union's space capabilities
- After Soviet Union's fall, counterspace projects took a backseat amid counterterrorism, counterinsurgency efforts
- But China and Russia's growing A-Sat projects have brought US back to the field and it currently has several ground-, air- and sea-based missile systems that can be used as A-Sat weapons

 \$48 billion Budget for space programmes

Source: Center for Strategic and International Studies, The Wilson Quarterly, Safe World Foundation, media reports; Graphic: Sunil Singh