



19 February 2024

National & International News

Anti-satellite weapons

Context:

Russia is developing a new anti-satellite weapon, which the US finds concerning.

About:

- Anti-satellite (ASAT) weapons are **designed to disable or destroy satellites already in orbit.**
- This goes **against the Outer Space Treaty**, which prohibits damaging other parties' satellites and the harmful contamination of space.
- Most ASAT weapons are **kinetic, meaning they destroy satellites by colliding with them or detonating explosives** nearby, creating debris that can remain in orbit for a long time.

Effects:

- The principal threats from a space-based nuclear weapon are **EMP(Electromagnetic pulse)** and the release of charged particles, which can affect satellites around the point of detonation, including **those of strategic allies and countries not involved in a conflict.**
- This can lead to the destruction of satellites and the creation of debris, potentially causing a **"collisional cascade"** that increases the amount of debris in orbit.

Anti-Satellite Weapons
THREATENING THE SUSTAINABILITY OF SPACE ACTIVITIES

ANTI-SATELLITE (ASAT) WEAPONS are weapons that are designed to deceive, disrupt, deny, degrade, or destroy space systems.

Some ASAT weapons are designed to destroy satellites by hitting them with a high-speed missile, which can produce a massive amount of debris.

The destruction of a single 10-ton satellite can generate:

- 8-14 million objects from 1cm in size
- 250-750,000 objects 1-10cm in size
- 5-15,000 objects >10cm in size

Source: Union of Concerned Scientists

All the Space Debris in Earth's Orbit
130 million
36,500 objects >10cm
1 million from 10cm

The use of destructive ASAT weapons adds to the increasing amount of space debris in Earth's orbit.

Space debris can travel at up to 29,000km/h, posing an active threat to other objects in orbit.
Source: ESA

The Impact of Destructive ASAT Weapons

There are two types of destructive ASAT tests:

- Co-orbital**: Weapons that are placed into orbit and maneuver close to a target and attack it by various means, including direct collision, fragmentation, or using robotic arms.
- Direct-ascent (DA)**: Missiles that are launched from the Earth's surface or from the air to destroy a satellite target.

Types of Direct-ascent ASAT Weapons

- Russia: Nuclear PL-19
- U.S.: SM-3
- China: SC-19
- India: PDV MK-II

Since 1959, there have been 80 ASAT tests carried out by four countries.

Year	U.S.	Russia/USRSR	China	India
1959	1	0	0	0
1960s	22	0	0	0
1970s	12	0	0	0
1980s	8	0	0	0
1990s	2	0	0	0
2000s	0	0	2	0
2005	0	0	0	1
2007	0	0	0	1
2010	0	0	0	1
2011	0	0	0	1
2013	0	0	0	1
2014	0	0	0	1
2015	0	0	0	1
2016	0	0	0	1
2017	0	0	0	1
2018	0	0	0	1
2019	0	0	0	1
2020	0	0	0	1
2021	0	0	0	1
2022	0	0	0	1
2023	0	0	0	1

Source: Secure World Foundation

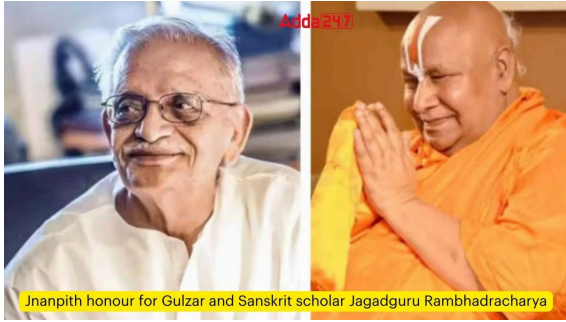


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Daily Current Affairs Encyclopedia

Jnanpith Awards



Jnanpith honour for Gulzar and Sanskrit scholar Jagadguru Rambhadracharya

Context:

- The Jnanpith Awards, considered India's highest literary honor, were recently conferred upon **Gulzar and Sanskrit scholar Jagadguru Rambhadracharya**.
- The Jnanpith Award is presented annually since **1965** by **Bharatiya Jnanpith, established in 1944**, to recognize outstanding contributions to Indian literature.

Gulzar

- Gulzar, also known as **Sampoorn Singh Kalra**, is a **renowned Urdu poet**, Bollywood director, and writer, recognized for his contributions to Urdu literature and Hindi cinema.
- He has received numerous awards, including the **Sahitya Akademi Award, Dadasaheb Phalke Award, Padma Bhushan, and National Film Awards**.
- He won an **Oscar and Grammy for the song "Jai Ho"** from Slumdog Millionaire and has introduced a new genre in poetry called '**Triveni**'.

Jagadguru Rambhadracharya

- He is a Sanskrit scholar, Hindu spiritual leader, educator, and writer, known for founding and leading **Tulsi Peeth in Madhya Pradesh**.
- He has written over 240 books, including four epics, and is a polyglot speaking 22 languages.
- He received the **Padma Vibhushan in 2015**.
- **He was born in 1950 in Jaunpur, Uttar Pradesh**.

Award Details:

- The award carries a cash prize of ₹11 lakh, a statue of Vagdevi, and a citation.
- This is the second time it has been awarded for Sanskrit and the fifth time for Urdu.

GSLV-F14/INSAT-3DS

Context:

- The Ministry of Earth Sciences (MoES) fully funded the **satellite INSAT-3DS**, which was successfully launched by the **Indian Space Research Organisation (ISRO)** from the **Satish Dhawan Space Centre in Sriharikota, Andhra Pradesh**, using the GSLV-F14 launch vehicle.

Aim and objectives:

- INSAT-3DS aims to enhance **India's meteorological services**, complementing the existing **INSAT-3D and INSAT-3DR satellites**.



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- It will improve **monitoring of the Earth's surface, atmosphere, oceans, and environment**, enhancing data collection, dissemination, and satellite-aided search and rescue services.
- This initiative will **advance weather, climate, and ocean-related observations** and services in India, contributing to disaster mitigation and preparedness.

Specification:

- Based on ISRO's I-2k bus platform, **INSAT-3DS has a lift-off mass of 2,275 kilograms**.
- It is equipped with state-of-the-art payloads, including an imager payload with a **six-channel optical radiometer for Earth imaging**, a 19-channel sounder payload for atmospheric information, and communication payloads such as a data relay transponder and a **satellite-aided search and rescue transponder**.
- Indian industries have played a significant role in the development of INSAT-3DS.

YUVIKA



- The Indian Space Research Organisation (ISRO) has initiated a special program named the **"Young Scientist Programme"** or **"YUva Vigyani Karyakram"** (YUVIKA) tailored for school children.
- The primary aim of this endeavor is to **provide fundamental knowledge in Space Science, Technology, and Applications** to young learners, exposing them to the latest advancements in these fields.
- ISRO has designed this program with the motto of **"Catch them young,"** acknowledging that the youth are pivotal for the future of space exploration and technology in our nation.
- YUVIKA also endeavors to inspire more students to pursue careers in **Science, Technology, Engineering, and Mathematics (STEM)**.
- **Since its inception in 2019, YUVIKA has been successfully conducted in 2019, 2022, and 2023, attracting increasing participation each year.**

Chhatrapati Shivaji Maharaj

Context:

- Prime Minister Narendra Modi paid his tributes to Chhatrapati Shivaji Maharaj on his **394th birth anniversary who was born on 19th Feb in 1630.**



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About:

- Shivaji Bhonsale I, also known as Chhatrapati Shivaji, was an Indian ruler and a member of the **Bhonsle Maratha clan**.
- He established the Maratha Empire by carving out a region from the declining **Adilshahi sultanate of Bijapur**.
- In 1674, he was formally crowned as the Chhatrapati of his realm at **Raigad Fort**.
- He established the **Council of Eight Ministers, or Ashta Pradhan Mandal**, which included positions like the Peshwa (Prime Minister) for general administration, the Amatya for finance, and the Sumant or Dabir for foreign affairs.

Recent contributions by Gol:

- The Prime Minister, Shri Narendra Modi unveiled the statue of Chhatrapati Shivaji Maharaj at Rajkot Fort, Sindhudurg, Maharashtra.
- The Maharashtra government has designated February 19 as a holiday to commemorate Chhatrapati Shivaji Maharaj's birth, known as **Shivaji Jayanti**.

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