UPSC Daily Current Affairs | Prelim Bits 08-03-2021

GISAT-1

- Indian Space Research Organisation (ISRO) plans to launch GISAT-1 into space using GSLV-F10 rocket.
- Geo Imaging Satellite-1 or GISAT-1 is India's first earth observation satellite in a geostationary orbit.
- The rocket will place GISAT-1 in geosynchronous orbit, and subsequently in geostationary orbit, using its onboard propulsion system.
- GISAT-1 will facilitate near real-time observation of the Indian sub-continent, under cloud-free condition, at frequent intervals.
- With onboard high resolution cameras, the satellite will allow India to monitor the Indian land mass and the oceans, particularly its borders.
- It would help in quick monitoring of natural disasters, episodic and any short-term events.
- It will obtain spectral signatures of agriculture, forestry, mineralogy, disaster warning, cloud properties, snow and glacier and oceanography.

Earth Observation Satellites

- It is a remote sensing satellite designed for Earth observation (EO) from orbit, including spy satellites and those used for non-military uses.
- Starting with IRS-1A (1988), ISRO has launched many operational remote sensing satellites.
- 13 satellites in Sun-synchronous orbit - Resourcesat-1, 2, 2A; Cartosat-1, 2, 2A, 2B; RISAT-1,2; Oceansat-2; Megha-Tropiques; SARAL; SCATSAT-1.
- 4 satellites in Geostationary orbit – Kalpana; INSAT 3A, 3D, 3DR.
- These satellites provide data in diversified spatial, spectral and temporal resolutions to cater to different user requirements - agriculture, water resources, urban planning, mineral prospecting, environment, etc.

Small Satellite Launch Vehicle

- The maiden flight of Small Satellite Launch Vehicle (SSLV) - ISRO's compact launcher - will be made soon.

- SSLV will meet the “launch on demand” requirements in a cost-effective manner for small satellites in a dedicated and ride-share mode.
- It is a three-stage all solid vehicle that can launch up to 500 kg satellite into 500 km Low Earth Orbit and 300 kg into Sun Synchronous Orbit.
- With lower per kg launch cost, the mini launcher will have multiple satellite mounting options for nano, micro and small satellites.
- SSLV can be assembled in 3 days (PSLV needs 60 days).

Exotic Earthworm

- An exotic and highly invasive earthworm Amynthas alexandri has been collected and reported for the first time from Karnataka.
- They are medium-to-large-sized, fast-moving worm, which has practically inhabited all the districts of Kerala.
- Earlier, it was recorded in 15 States/Union Territories in India - Himachal Pradesh, Andaman and Nicobar Islands, Assam, Haryana, Kerala, Madhya Pradesh, Maharashtra, etc.
- Their original home is Southeast Asia. Earlier, their distribution was in China, Myanmar, Pakistan, Thailand, Europe and England.

Cicadas

- Cicadas are insects, which are physically distinguished by their stout bodies, broad heads, clear-membraned wings, and large compound eyes.
- They are famous for their penchant for disappearing entirely for many years, only to reappear in force at a regular interval.
- The species of cicadas fall into roughly two categories:
    1. Annual cicadas (Spotted every year, but lives for 2 to 5 years)
    2. Periodical cicadas (Spend most of their lives underground and only emerge once in a decade or two.)
- While annual cicadas can be found throughout the world, periodical cicadas are unique to North America.
- The cicada life cycle has three stages - Eggs, nymphs and adults.
- Cicada nymphs spend their developmental period in underground to suck the liquids of plant roots before molting their shells and surfacing as adults to lay eggs.
- Unlike locusts, cicadas don’t eat vegetation but rather drink the sap from tree roots, twigs, and branches.
- They are known for their buzzing and clicking noises.

India Science Research Fellowship

- The India Science Research Fellowship (ISRF) is given for Afghanistan,

Bangladesh, Bhutan, Maldives, Myanmar, Nepal, Sri Lanka, Thailand researchers to work in Indian Universities and Research Institutions.

- It was launched by the Department of Science and Technology (DST), and it is implemented since 2015.
- ISRF programme acts as a platform to establish research cooperation with neighbouring countries of India.
- The scholars have been selected based on research proposal, experience, academic merit and publication record.

Government Security

- Government Security (G-Sec) yields could soften temporarily as the Indian government's fiscal deficit may undershoot FY2021 Revised Estimate (RE) by Rs.50,000 crore to Rs.90,000 crore.
- G-secs are tradable government debt issuances issued by the Central Government or the State Governments.
- They guarantee the full repayment of invested principal at the maturity of the security and often pay periodic coupon or interest payments.
- **Types** - Such securities are short term or long term. They are,
    a. Short term securities are called treasury bills with original maturities of less than 1 year. Now, they are issued in 3 tenors (91 day, 182 day and 364 day)
    b. Long term securities are usually called Government bonds or dated securities with original maturity of 1 year or more.

Bond Type	Yield
3-year Gsec	4.85%
5-year Gsec	5.6%
10-year GSec	6%

- They are a distinct asset class, and also **risk-free** gilt-edged instruments as they have government backing.
- But they tend to pay a lower rate of interest than corporate bonds.
- They are used to fund daily operations, and special infrastructure and military projects.

Source: PIB, The Hindu, Down To Earth, Business Line

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