



ISRO's 100th launch lifts NavIC satellite into orbit

SCIENCE AND TECHNOLOGY

The Indian Space Research Organisation (ISRO) on Wednesday morning launched its historic 100th mission — GSLV-F15 lifting off with a navigation satellite from the Satish Dhawan Space Centre in Sriharikota. The launch vehicle with an indigenous cryogenic stage lifted off from the spaceport's second launch pad at 6.23 a.m. The rocket successfully placed the NVS-02 satellite in the intended orbit.

The NVS-02 is the second satellite in the NVS series and part of India's Navigation with Indian Constellation (NavIC). The ISRO said NavIC is India's independent regional navigation satellite system designed to provide accurate Position, Velocity, and Timing (PVT) service to users in India and the region extending about 1,500 kilometres beyond the Indian land-mass, which is its primary service area.



IRNSS – NavIC

IRNSS is an independent regional navigation satellite system being developed in India by the Indian Space Research Organisation (ISRO). IRNSS envisages the establishment of a regional navigational satellite system using a combination of geosynchronous orbit (GEO) and geostationary orbit (GSO) spacecraft and state-of-the-art ground systems.

Area covered: IRNSS-NavIC is designed to provide accurate position information service to users in India and the region extending up to 1500 km from its boundary, which is its primary service area.

An extended service area lies between the primary service area and the area enclosed by the rectangle from latitude 30° South to 50° North and longitude 30° East to 130° East.

IRNSS-NavIC network: NavIC is designed with a constellation of seven satellites and a network of ground stations operating around the clock.

Three satellites are placed in GSO.

Four satellites are placed in inclined GEO.

The ground network comprises a control centre, accurate timing facility, range and integrity monitoring stations, two-way ranging stations, etc.

IRNSS services: IRNSS will provide two types of services, namely:

- Standard Positioning Service (SPS) - that is provided to all users.
- Restricted Service (RS) - an encrypted service provided only to authorised users.

The signals of the other global navigation satellite systems (GNSS), including GPS, GLONASS, Galileo, and BeiDou provide interoperability with those of the NavIC SPS signals.

Frequency band: The seven satellites in the NavIC constellation so far use two frequencies for providing positioning data the L5 and S bands.

Accuracy: The IRNSS System is expected to provide a position accuracy of better than 20 m in the primary service area.

M23 rebels seize most of Goma in mineral rich eastern Congo as Rwanda leader calls for truce

INTERNATIONAL RELATIONS

Rwanda-backed rebels captured large parts of Goma, the biggest city in eastern part of the Democratic Republic of Congo, including its airport, the United Nations said, as Rwanda's President on Wednesday joined calls for a ceasefire in the decades-long conflict amid mounting international pressure. Much of Goma was calm after a day during which thousands of fleeing people hunkered down by roadsides as missiles flew overhead, and injured people streamed to overwhelmed hospitals.

The East African Community, whose members include both Rwanda and Congo, are scheduled to discuss the conflict at a meeting on Wednesday. Congolese President Félix Tshisekedi won't be able to participate in the virtual summit, a spokesperson said, without providing further details. Pope Francis called for the cessation of hostilities and the protection of civilians.



About M23 Armed Group:

- **Full Form:** March 23 Movement (M23).
- **Location:** Operates in the eastern Democratic Republic of Congo, mainly in North Kivu province.
- **Origin:** Emerged in 2012 from a faction of the Congolese army, citing grievances over a 2009 peace agreement.
- **Nature:** Armed rebel group involved in territorial seizures, fueled by local ethnic tensions and international involvement.
- **Support:** UN reports suggest substantial backing from Rwanda, with claims of direct military involvement.

About the Democratic Republic of Congo

- **Capital:** Kinshasa.
- **Neighbouring Countries:** Angola, Zambia, Tanzania, Burundi, Rwanda, Uganda, South Sudan, Central African Republic, and Republic of Congo.
- **Rivers:** The Congo River, Africa's second-longest river, traverses the country, providing vital transport and hydroelectric resources.
- **Mountains:** Includes the Rwenzori Mountains and the Virunga Mountain range, home to active volcanoes like Mount Nyiragongo.
- **Resources:** The DRC is rich in minerals, including cobalt, gold, and coltan, critical for global tech industries.

SC orders complete stop to practice of manual scavenging in six metros

POLITY

The Supreme Court on Wednesday ordered a complete stop to the practice of manual scavenging and hazardous manual cleaning of sewers and septic tanks in top metros across the country. "We hereby order manual sewer cleaning and manual scavenging shall be stopped in all top metropolitan cities of Delhi, Mumbai, Chennai, Kolkata, Bengaluru, and Hyderabad," a Special Bench of Justices Sudhanshu Dhulia and Aravind Kumar directed in a petition filed by Dr. Balram Singh.

Manual Scavenging in India:

- As per International Labor Organisation (ILO), manual scavenging includes mainly the disposal of human excreta from dry latrines, public streets and the maintenance and sweeping of septic tanks, sewers and gutters.

- Though found in other regions of the world, the practice is most popular in India, where people from lower castes (over 90% are SC) are typically involved in carrying out manual scavenging, which is considered the worst remaining evidence of being an untouchable.
- In India, ~58,098 people worked as manual scavengers as of 2018 and 941 people have died (since 1993) due to accidents while undertaking hazardous cleaning of sewer and septic tanks.

Attempts to Abolish Manual Scavenging in India:

- **The Employment of Manual Scavengers and Construction of Dry Latrines (Prohibition) Act, 1993.**
 - It covered only dry latrines and the definition of manual scavenging was restricted to a person employed for manually carrying human excreta.
 - Also, there was no stress laid upon the rehabilitation of these workers and the lenient penal punishment could not create deterrence in society.
- **The Prohibition of Employment as Manual Scavengers and their Rehabilitation (PEMSR) Act 2013** replaced the Act of 1993.
 - Unlike the previous act, which was drafted with cleanliness in mind, the current legislation emphasises the human dignity, rights and rehabilitation of manual scavengers.
- **Safai Karamchari Andolan v. Union of India (2014):** The SC highlighted the importance of rehabilitation, to prevent present as well as future generations from working as a manual scavenger.

Salient Features of the PEMSAR Act 2013:

- **It bans manual scavenging and widened the definition of manual scavengers** - to include all forms of manual removal of human excreta like an open drain, pit latrine, septic tanks, manholes and removal of excreta on the railway tracks.
- **It calls for a survey of manual scavenging** in urban and rural areas and the conversion of insanitary latrines into sanitary latrines.
- It makes it obligatory for employers to provide protective tools to the workers.
- **It lays key focus on rehabilitating the manual scavengers** by providing them with ready-built houses, financial assistance and loans for taking up alternate occupation on a sustainable basis.
- The offence of manual scavenging has been made **cognizable and non-bailable**.

Cabinet okays ₹16,300 crore mission to secure critical minerals

ECONOMY

India has approved a ₹16,300 crore (\$1.88 billion) plan to develop its critical minerals sector, the Information Minister said on Wednesday, as the world's fastest-growing major economy aspires to secure raw materials such as lithium. The government also said it expects additional investment of ₹18,000 crore from the public sector in critical minerals. "The mission will intensify the exploration of critical minerals within the country and in its offshore areas... Additionally, the mission will offer financial incentives for critical mineral exploration," the government said in a statement on Wednesday.

Key Facts about Critical Minerals:

- It is a metallic or non-metallic element that has two characteristics.
 - o It is essential for the functioning of our modern technologies, economies or national security and
 - o There is a risk that its supply chains could be disrupted.
- The 'criticality' of minerals changes with time as supply and society's needs shift.

Applications:

- o They are used to manufacture advanced technologies, including mobile phones, computers, fibre-optic cables, semiconductors, banknotes, and defence, aerospace and medical applications.
- o Many are used in low-emission technologies, such as electric vehicles, wind turbines, solar panels, and rechargeable batteries.
- o Some are also crucial for common products, such as stainless steel and electronics.

- **Examples: antimony, beryllium, bismuth, cobalt, copper, gallium, germanium,** lithium, vanadium, etc.
- Top Producers: Chile, Indonesia, Congo, China, Australia, and South Africa.
- Critical Minerals in India:
 - o Government has released a list of 30 critical minerals for India.
 - o These minerals are Antimony, Beryllium, Bismuth, Cobalt, Copper, Gallium, Germanium, Graphite, Hafnium, Indium, Lithium, Molybdenum, Niobium, Nickel, PGE, Phosphorous, Potash, REE, Rhenium, Silicon, Strontium, Tantalum, Tellurium, Tin, Titanium, Tungsten, Vanadium, Zirconium, Selenium, and Cadmium.

High-level meet discusses Labour Code rules, issues of gig workers

ECONOMY

Setting the stage for the possible implementation of the four Labour Codes from April 1, a meeting of officials and Ministers of the Union and State Labour Ministries reviewed the progress in drafting of rules under the codes by the States. The meeting noted that over 18 States and Union Territories have implemented a majority of the reforms and more than 32 of them have pre-published the draft rules. The remaining have made satisfactory progress and all 36 are expected to complete pre-publication of harmonised draft rules in line with the Labour Codes by March 31.

Who are Gig Workers?

- The new Labour Codes of 2019 defines a gig worker as “A person who performs work or participates in a work arrangement and earns from such activities outside of traditional employer-employee relationship”.
 - o It includes freelancers, workers who are employed on a contractual and project-based basis and short-term work.
- Most commonly, platform-based work where workers earn money by providing specific services, including food delivery services like Zomato, Swiggy or e-commerce platforms such as Amazon, Flipkart, use gig workers.
- It is estimated that 77 lakh workers were engaged in the gig economy in 2020-21 constituting 2.6% of the non-agricultural workforce or 1.5% of the total workforce in India.
 - o The gig workforce is expected to expand to 2.35 crore workers by 2029-30.

Importance of Gig Workers and Issues Faced by Them

- The role of gig workers has been gaining importance as they infuse flexibility and talent availability in the job market.
- The future workforce will indeed be a blended model -
 - o Wherein the gig economy is expected to play an important role not only as a talent management strategy,
 - o But also accelerate job creation and boost the country's economic growth.
- However, Niti Aayog's report 'India's Booming Gig and Platform Economy', recognises lack of job security, wage irregularity and uncertain employment status for workers, as top challenges in the sector.
 - o It recommends extending social security provisions such as sick leave, insurance and pension to gig workers and their families.
- The new Rajasthan Platform-Based Gig Workers (Registration and Welfare) Act 2023 is the first-of-its-kind ground-breaking piece of legislation.
 - o It aims to establish a welfare board and a dedicated social security fund for platform-based gig workers in the state.

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Burkina Faso, Mali and Niger officially leave West Africa bloc

INTERNATIONAL RELATIONS

Junta-led countries Mali, Niger and Burkina Faso officially left West Africa's main political and trade group ECOWAS on Wednesday after more than a year of diplomatic tensions. The rupture was sparked by the July 2023 coup in Niger, after military leaders in Burkina and Mali had also seized power since 2020.



About Economic Community of West African States:

- It is also known as CEDEAO in French.
- It is the regional group which was established in 1975 through the Lagos Treaty.
- Mandate: Promoting economic integration among its members.
- The vision of ECOWAS is the creation of a “borderless region” that is well-integrated and governed in accordance with the principles of democracy, rule of law and good governance.
- Members: Benin, Cape Verde, Cote d’Ivoire, The Gambia, Ghana, Guinea, Guinea Bissau, Liberia, Nigeria, Sierra Leone, Senegal and Togo.
- ECOWAS’ larger aims are to have a single common currency and create a single, large trading bloc in areas of industry,

transport, telecommunications, energy, financial issues, and social and cultural matters.

- Along with the goals of economic cooperation, it has attempted to quell military conflicts in the region.
- It also operated a regional peacekeeping operation known as ECOMOG, led by Nigeria in the 1990s and early 2000s.
- Headquarter: Abuja, Nigeria.

GBS feared in connection with 3 deaths in Bengal

SCIENCE AND TECHNOLOGY

Three persons in West Bengal have died after reportedly exhibiting symptoms of the Guillain-Barré Syndrome (GBS), potentially marking the States’ first few casualties from the disease that has affected around 110 people in Maharashtra so far. According to Health Department sources, 17 persons in West Bengal were currently receiving treatment for the disease. According to public health experts, GBS is an autoimmune neurological disorder in which one’s own immune system attacks the peripheral nervous system. Weakness in the muscles and paralysis of the limbs are symptoms typically associated with this disorder.

About Guillain-Barre Syndrome

- It’s a neurological disorder in which the body's immune system attacks the peripheral nervous system.
 - o This is the part of the nervous system outside the brain and spinal cord.
 - o It controls muscle movement, pain signals, and temperature and touch sensations.
- GBS is also called acute inflammatory demyelinating polyradiculoneuropathy (AIDP).
- It can occur at any age, but it most commonly affects people between 30 and 50.

Guillain-Barre Syndrome Causes

- The exact cause of the disease remains unclear, but it is often observed following a viral or bacterial infection, vaccination, or major surgery.
- At such times, the immune system becomes hyperactive, leading to this rare condition.

Guillain-Barre Syndrome Symptoms

Patients often begin with an unknown fever, followed by weakness and other nervous system-related symptoms.

- It can increase in intensity over a period of hours, days, or weeks until certain muscles cannot be used at all.
- Some cases of GBS are very mild and only marked by brief weakness. Others cause nearly devastating paralysis, leaving the person unable to breathe on their own.



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