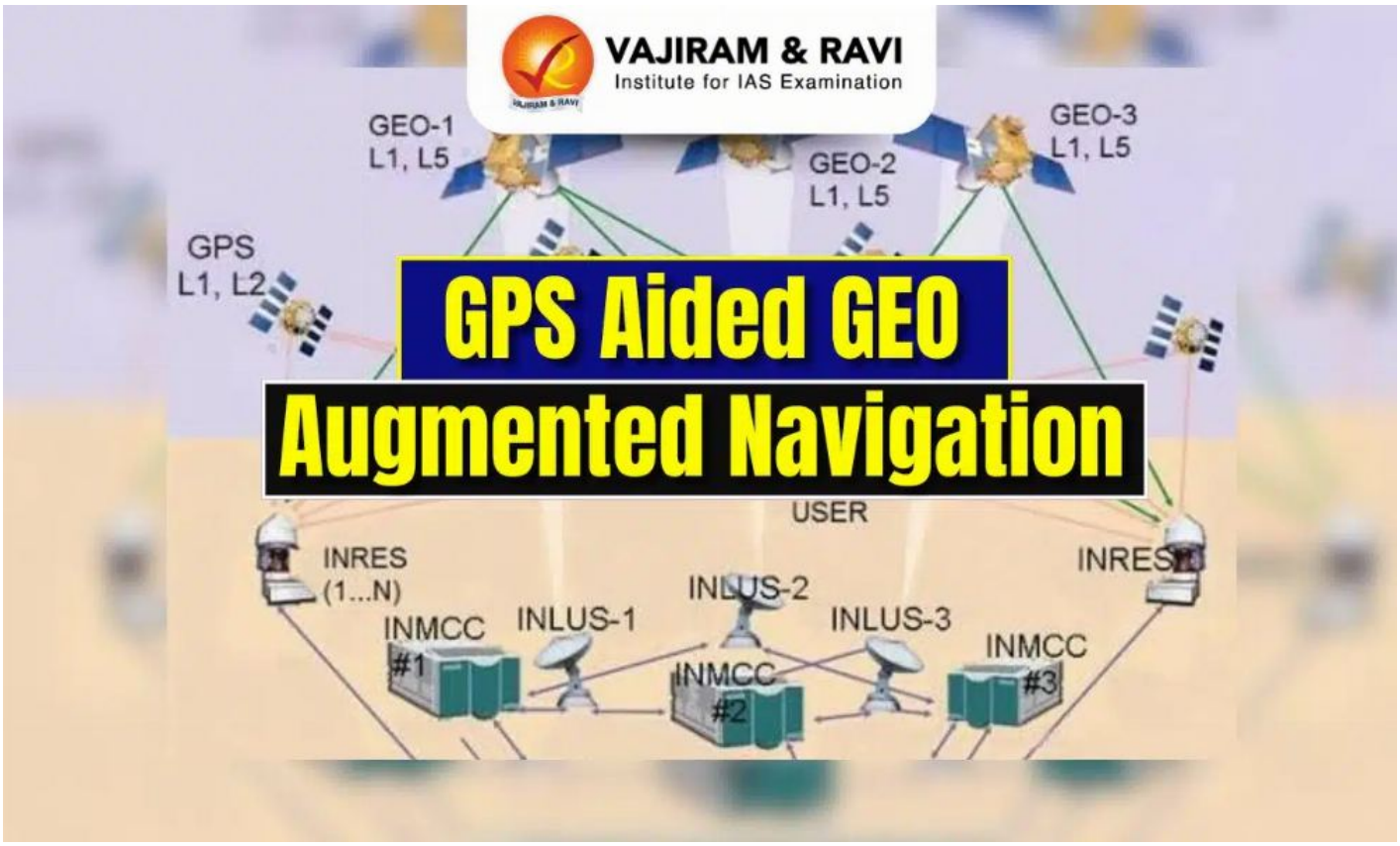
GPS Aided GEO Augmented Navigation

June 29, 2026 • vajiramandravi.com



GPS Aided GEO Augmented Navigation Latest News

Recently, under the watch of the Directorate General of Civil Aviation (DGCA) for the first time a private jet was landed by using GPS Aided GEO Augmented Navigation (GAGAN).

About GPS Aided GEO Augmented Navigation

- It is a **Satellite Based Augmentation System** (SBAS) implemented jointly with **Airport Authority of India (AAI) and ISRO.**
- The main objectives of GAGAN are
    - To provide **Satellite-based Navigation services** with accuracy and integrity required for civil aviation applications.
    - To provide better **Air Traffic Management** over Indian Airspace.
- It is **interoperable with other international SBAS systems** and provides seamless navigation across regional boundaries.

- GAGAN operates through a combination of **ground-based and space-based segments** to enhance the accuracy and reliability of the GPS signals.

Functioning of GAGAN

- **Ground/Control Segment**
  - **Reference Stations (INRES):** A network of **15 precisely surveyed ground reference stations** (INdian Reference Stations) is strategically placed across India. These stations collect GPS satellite data.
  - Through this, errors caused by **ionospheric disturbances, satellite orbit errors** and inaccurate clocks are corrected.
  - **Master Control Centre (INMCC):** The collected data is sent to the Indian Master Control Centre, where correction messages are generated to rectify any signal errors.
  - **Land Uplink Station (INLUS):** The correction messages are then uplinked through the Indian Land Uplink Station.
  - Through this, the corrected messages are sent to the geostationary satellites which then broadcast them to the aircraft.
- **Space Segment**
  - This segment includes the communication satellites which were flown as **GSAT-8 in 2011, GSAT-10 in 2012 and GSAT-15** in 2015.
  - These geostationary communication satellites carry the GAGAN payloads.
  - The correction messages are broadcast through these satellites to GPS receivers on aircraft.

Source: IT
