

INSAT satellites series

January 7, 2021

INSAT

- **The Indian National Satellite System or INSAT**, is a series of **multipurpose geostationary satellites launched by ISRO** to satisfy the telecommunications, broadcasting, meteorology, and search and rescue operations.
- **Commissioned in 1983**, INSAT is the largest domestic communication system in the Indo-Pacific Region.
- It is a **joint venture** of the Department of Space, Department of Telecommunications, India Meteorological Department, All India Radio and Doordarshan.
- The **overall coordination and management** of the INSAT system rests with the **Secretary-level INSAT Coordination Committee**.

Important features INSAT

- The INSAT system serves many important sectors of the Indian economy.
- INSAT is providing Mobile satellite services besides providing VSAT service.
- TV broadcasting and redistribution have also been benefited by INSAT.
- Telemedicine network in taking medical services to the remote and rural population.
- The launch of EDUSAT, India's first thematic satellite dedicated exclusively for educational services.
- INSAT system is also providing meteorological services through Very High Resolution Radiometer and ECD cameras on some of its aircraft.
- This system uniquely provides a geo stationary platform for simultaneous domestic communications and Earth observation functions.
- Overall coordination and management rests with the

Inter-ministerial INSAT Coordination Committee (ICC). The satellites are handled from the INSAT Master Control Facility (MCF) at Hassan in Karnataka.

Satellites of the INSAT system in service today :

- **INSAT-2K**– Last of the 5 satellites in INSAT-2 series.
- **INSAT-3** series
 - **INSAT-3A**– Launched by Ariane in April, 2003.
 - **INSAT-3B**– Launched in March, 2000.
 - **INSAT-3C**– Launched in January, 2002.
 - **INSAT-3E**– Launched in September, 2003.
 - **KALPANA-I**– It is an exclusive meteorological satellite launched by PSLV in September 2002.
 - **GSAT-2**– Launched by the second flight of GSLV in May, 2003.
 - **EDUSAT**– Launched by GSLV in September, 2004.
- **INSAT-4 series:**
 - **INSAT-4A**– Launched in December, 2005 by Ariane.
 - **INSAT-4B**– Launched in March, 2007 by Ariane.
 - **INSAT-4C**– It was the second satellite in the INSAT 4 series. India's most advanced communication satellite.
 - **INSAT-4CR**– It was launched in September, 2007 by GSLV-F04. It is a replacement satellite of INSAT-4C which was lost when GSLV-F02 failed and had to be destroyed on its course.
- **GSAT Series:** The GSAT satellites are **India's indigenously developed communications satellites**, used for digital audio, data and video broadcasting for both military and civilian users.
 - **GSAT-2**- Launched by the second flight of GSLV in May 2003.
 - **GSAT-3**– Configured for audio-visual medium employing digital interactive classroom lessons

and multimedia content, GSAT-3 (EDUSAT) was launched by a [GSLV](#) in September 2004

- **GSAT-6-** (also called INSAT-4E) is a multimedia communication satellite
- **GSAT-7-** (or INSAT-4F) is a multi-band military communications satellite developed by ISRO. The Indian Navy is the user of the multi-band communication spacecraft, which has been operational since September 2013.
- **GSAT-8-** (INSAT-4G), is a high power communication satellite in the INSAT system.
- **GSAT 9-** (also known as the “South Asia Satellite”)is a geostationary communications satellite and meteorology satellite operated by the ISRO for the South Asian Association for Regional Cooperation (SAARC) region.The satellite was launched on the 5th May, 2017.
- **GSAT-10**– Was launched by Ariane-5ECA carrier rocket in 2012. It serves with C and Ku band transponders, and includes a navigation payload to augment GAGAN capacity.
- **GSAT-12**– Configured to carry 12 Extended C-band transponders to meet the country’s growing demand for transponders in a short turn-around-time.
- **GSAT-15-** Is similar to GSAT-10 and is used to augment the capacity of transponders to provide more bandwidth for Direct-to-Home television and VSAT services.
- **GSAT-16**– Is the 11th Indian communication satellite meant to increase the number of transponders that in turn enhance the satellite based telecommunication, television, VSAT services in India.
- **GSAT-17**– It carries 24 C-band, 2 lower C-band, 12 upper C-band, 2 CxS (C-band up/S-band down), and 1 SxC (S-band up/C-band down) transponders.
- **GSAT-18**– Carries 24 C-band, 12 extended C-band,

and 12 Ku-band transponders. It was launched on 5 October 2016 aboard an Ariane 5 ECA rocket from the Guiana Space Centre in Kourou, French Guiana.

- **GSAT-19**– Launched on 5 June 2017, GSAT-19 is a communication satellite testbed for the modular I-6K satellite bus.
- **GSAT-29** – Is a large high-throughput communication satellite that was launched on 14 November 2018 through the second developmental flight of GSLV Mark III.
- **GSAT-30**- Is the 41st communication satellite launched by ISRO to replace INSAT-4A. It provides advanced telecommunication services to the entire Indian subcontinent.