

Indian Space Program: Achievements

May 2014- December 2020

Indian Space Research Organisation (ISRO) has completed 69 missions (31 Launch vehicle missions, 31 satellite missions & 7 technology demonstration missions) has been accomplished during the period.



Launch Vehicles



Polar Satellite Launch Vehicle (PSLV): PSLV upper stage (PS4) restart capability has been demonstrated which enables PSLV to inject multiple satellites in different orbits in same mission thereby making PSLV more versatile launcher.

PSLV also created history by deploying 104 satellite in a single launch.

Geosynchronous Satellite Launch Vehicle (GSLV Mk-II): ISRO has demonstrated the reliability of indigenous cryogenic technology with the four consecutive successful flights of Geosynchronous Satellite Launch Vehicle (GSLV).

GSLV-Mark III: The first experimental flight of GSLV MkIII (LVM3-X) was successfully launched in 2014. The first developmental flight was successfully launched, in which a 3136 kg communication satellite (GSAT- 19) was injected into the GTO in 2017. GSAT-19 is the heaviest satellite launched with Indian launch vehicle.

Technology demonstration: The Crew module Atmospheric Re-entry Experiment (CARE) was carried out in the experimental mission of GSLV MkIII in 2014.

The first experimental mission of ISRO's Scramjet engine towards the realization of an Air Breathing Propulsion System which uses hydrogen as fuel and oxygen from the atmospheric air as oxidizer, was successfully conducted in 2016 with a hypersonic flight at Mach 6.

Towards developing essential technologies for a fully reusable launch vehicle to enable low cost access to space, ISRO successfully flight tested India's first winged body Reusable Launch Vehicle - Technology Demonstrator (RLV-TD) in 2016.

The successful launch of GSLV-MK III M1, India's most powerful launch vehicle, was accomplished in 2019. This launch vehicle is capable of launching 04 ton of satellites into GTO. The mission carried Chandrayaan-2 Orbiterspacecraft.

Space Science Missions

ASTROSAT: India's first multi wavelength observatory capable of simultaneously viewing the Universe in the visible, Ultra-Violet and X-ray regions of the electromagnetic spectrum, with its 5 payloads, was successfully launched into its planned orbit.

Mars Orbiter Mission (MOM): India's first inter-planetary mission MOM, far outliving its originally planned life, was launched in 2014.

Chandrayaan 2: Launched in 2019. Chandrayaan-2 is the second lunar exploration mission developed after Chandrayaan-1. It consists of a lunar orbiter, and also included the Vikram lander, and the Pragyan lunar rover (lost), all of which were developed in India.

Satellites- Communication, Navigation and Earth Observation



Communication Satellites: Eight communication satellites were successfully launched during 2014-18 period. Four satellites namely, South Asia Satellite (GSAT-9), GSAT-6, GSAT- 19 & GSAT-6A,

were launched using ISRO's launch vehicle and balance four satellites (GSAT-15, GSAT-16, GSAT-17 and GSAT-18) were launched using Procured Launches.

South Asia Satellite was realized with the objective of providing communication services over South Asian countries.

Satellite Navigation Constellation: 8 more satellites of the Indian Regional Navigation Satellite System (IRNSS) constellation were successfully launched during the period.

Earth Observation Satellites: The 2014-18 period witnessed the launch of seven Earth Observation satellites, viz., 4 high resolution imaging satellites (Cartosat-2 Series), advanced weather monitoring satellite (INSAT-3DR), satellite for cyclone tracking, climate and environmental studies (SCATSAT-1) with Ku-band Scatterometer, and a remote sensing satellite for natural resources management (Resourcesat-2A).

In 2018, GSAT-11 India's heaviest communication satellite launched successfully from French Guiana.

HySIS (Hyper Spectral Imaging Spectrometer) a small Indian earth observation satellite to study the earth's surface in visible, near infrared and shortwave infrared regions of the electromagnetic spectrum was launched in 2018.

50 foreign satellites from 07 countries were launched on commercial basis during 2019.

PSLV-C44 successfully launched Microsat-R and Kalamsat-V2 in 2019.

In 2019, GSAT 31 communication satellite was successfully launched onboard Arianespace rocket.

In 2019, EMISAT was successfully launched onboard PSLV-C45 and RISAT-2B radar imaging earth observation satellite was successfully launched onboard PSLV-C46.

India's Polar Satellite Launch Vehicle, in its fifty first flight (PSLV-C49), successfully launched EOS-01 along with nine international customer satellites in 2020. PSLV-C49 is the 2nd flight of PSLV in 'DL' configuration (with 2 solid strap-on motors).

India's communication satellite CMS-01 was successfully launched by PSLV-C50 and India's telecommunication satellite GSAT-30 was successfully launched by Ariane-5 VA-251 in 2020.