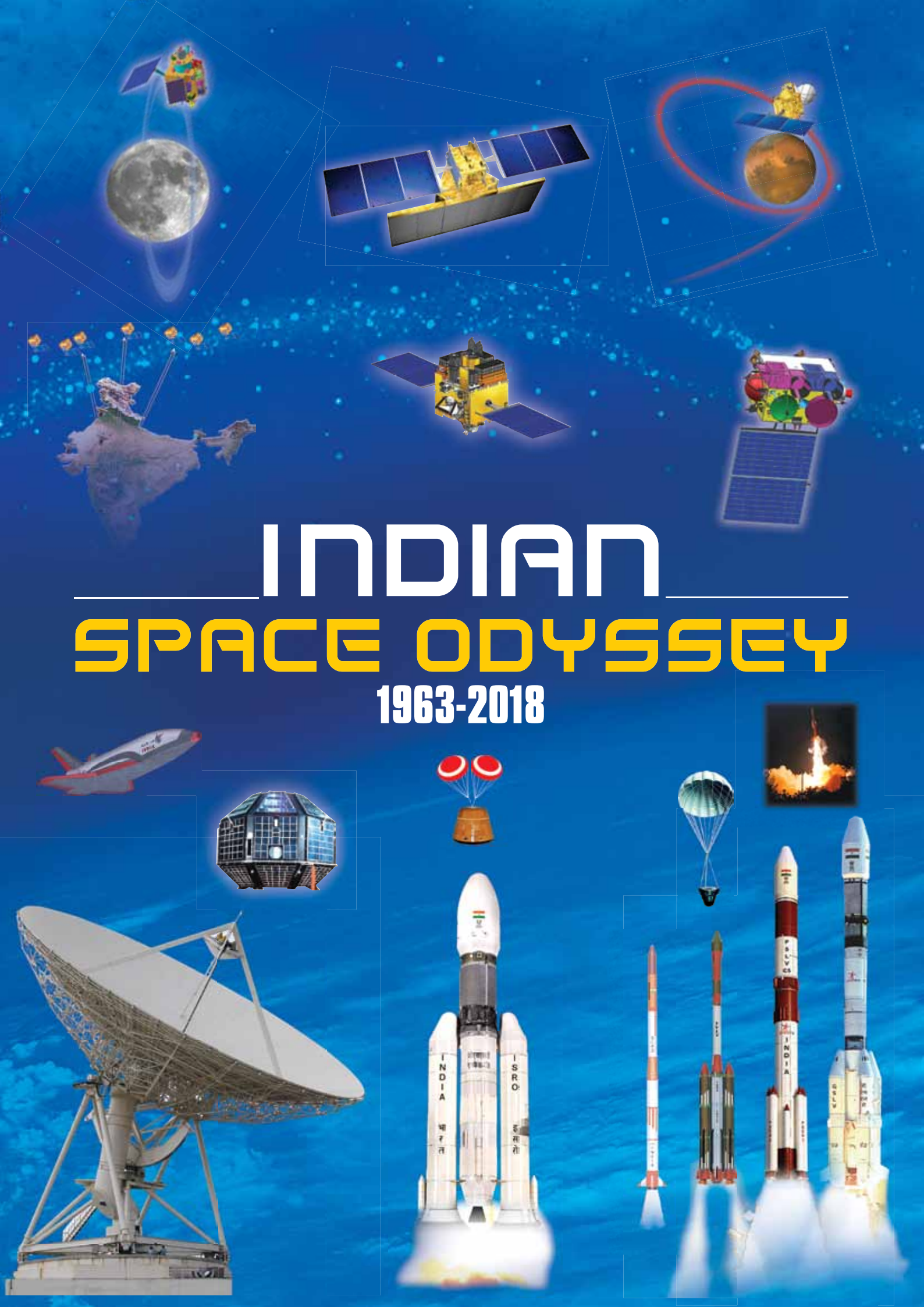


INDIAN SPACE ODYSSEY

1963-2018

1962

Vikram Sarabhai,
the visionary behind the
Indian Space Programme

1963

First sounding rocket launched
from TERLS November 21, 1963

Prime Minister Jawaharlal Nehru visiting
Physical Research Laboratory, Ahmedabad

Indian National Committee for Space Research
(INCOSPAR) formed by the Department
of Atomic Energy and work on establishing
Thumba Equatorial Rocket Launching Station
(TERLS) started

1965

Space Science & Technology Centre
(SSTC) established in Thumba

1967

Experimental Satellite Communication
Earth Station set up at Ahmedabad

1968

Prime Minister Indira Gandhi, dedicating
TERLS to U.N. February 2, 1968

1969

Formation of Indian Space Research
Organisation (ISRO) August 15, 1969

New SSTC campus at Veli, Thiruvananthapuram

1971

SHAR Centre, Sriharikota operationalised
October 1971, renamed as
Satish Dhawan Space Centre in October 2003

1972

Department of Space (DOS) established,
ISRO brought under DOS June 1, 1972

Prof. Satish Dhawan takes over as Secretary,
DOS & Chairman, ISRO October 1972

Space Applications Centre (SAC)
established at Ahmedabad

1972

ISRO Satellite Centre (ISAC)
established at Bangalore

1975

ISRO becomes Government Organisation
(April 1, 1975)

Satellite Instructional Television Experiment (SITE)
(1975-1976) using ATS-6 Satellite of USA

First Indian Satellite,
ARYABHATA,
launched on April 19, 1975

1977

Satellite Telecommunication
Experiments Project (STEP)
(1977-1979) carried out using
Franco-German Symphonie
Satellite

1979

Launch of BHASKARA-I,
an experimental satellite
for earth observations
(June 7, 1979)

First experimental launch of SLV-3 (August 10,1979)
The satellite did not reach orbit

1980

Liquid Propulsion Systems Centre (LPSC) started in Bangalore

Second experimental launch of SLV-3, Rohini RS-1 satellite placed in orbit (July 18,1980)

1981

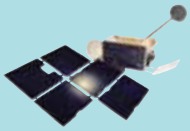
First developmental launch of SLV-3, RS-D1 placed in orbit (May 31,1981)

Launch of APPLE, an experimental geo-stationary communication satellite (June 19, 1981)

Launch of BHASKARA-II (November 20, 1981)

1982

Master Control Facility (MCF) established at Hassan

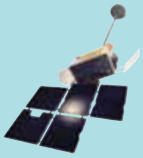


Launch of INSAT-1A (April 10, 1982)

1983

Second developmental launch of SLV-3, RS-D2 placed in orbit (April 17, 1983)

Imagery from RS-D2

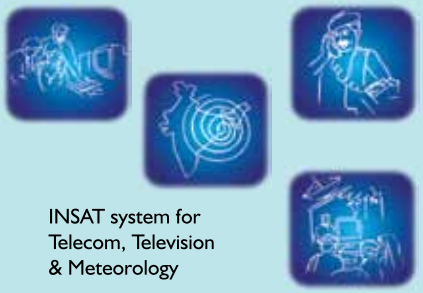


INSAT system commissioned with the launch of INSAT-1B (August 30, 1983)

1984

Prof. U.R. Rao takes over as Secretary, DOS & Chairman, ISRO (September 30, 1984)

Indo-Soviet joint manned spaceflight



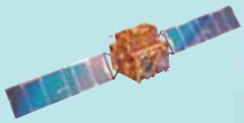
INSAT system for Telecom, Television & Meteorology

1987

Stretched Rohini Satellite Series-1 (SROSS-1) Satellite

First developmental launch of ASLV with SROSS-1 satellite on board (March 24, 1987)
The satellite did not reach orbit

1988



Imagery from IRS-1A

Establishment of IRS system with the launch of Indian Remote Sensing Satellite, IRS-1A (March 17, 1988)

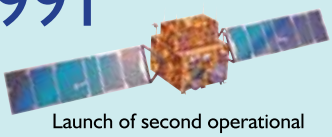
Second developmental launch of ASLV with SROSS-2 on board (July 13, 1988)
The satellite did not reach orbit

Launch of INSAT-1C (July 22, 1988)

1990

Launch of INSAT-1D (June 12, 1990)

1991

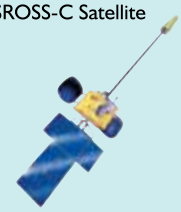


Launch of second operational Remote Sensing Satellite, IRS-1B (August 29, 1991)

1992

SROSS-C Satellite

First successful launch of ASLV, SROSS-C placed in orbit (May 20, 1992)



Launch of INSAT-2A, the first satellite of the indigenously built second generation INSAT series (July 10,1992)

1993

Launch of INSAT-2B (July 23, 1993)

First developmental launch of PSLV with IRS-1E on board (September 20, 1993).
The satellite did not reach orbit

1994

Dr. K. Kasturirangan takes over as Secretary, DOS & Chairman, ISRO (March 31, 1994)

Successful launch of PSLV, IRS-P2 placed in orbit (October 15, 1994)

Fourth developmental launch of ASLV, SROSS-C2 placed in orbit (May 4, 1994)

Indian Space Research Organisation

1995

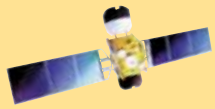
Launch of INSAT-2C, the third satellite in INSAT-2 series (December 7, 1995)

Launch of Indian Remote Sensing Satellite, IRS-1C (December 28, 1995)

1996

Third developmental launch of PSLV, IRS-P3 placed in orbit (March 21, 1996)

1997



Launch of INSAT-2D, the fourth satellite in INSAT-2 series (June 4, 1997)

First operational launch of PSLV, IRS-1D placed in orbit (September 29,1997)

1999

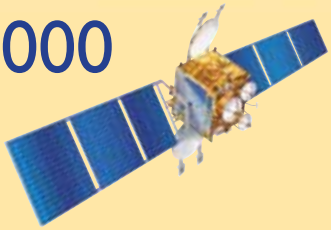
Launch of INSAT-2E (April 3, 1999)

KITSAT-3 - Korean

DLR-TUBSAT - Germany

Launch of IRS-P4 (OCEANSAT) along with Two Satellites from abroad by PSLV-C2 (May 26, 1999)

2000



Launch of INSAT-3B, the first satellite in the third generation INSAT-3 series (March 22, 2000)

2001

Successful flight test of Geo-synchronous Satellite Launch Vehicle (GSLV), Experimental satellite GSAT-1 placed in orbit (April 18, 2001)

2001

Launch of PSLV-C3, India's TES along with Belgian PROBA and German BIRD, placed in orbit (October 22, 2001)

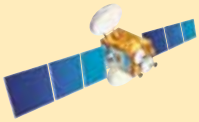
2002

Launch of INSAT-3C (January 24, 2002)

Launch of KALPANA-1 on board PSLV-C4 (September 12, 2002)

2003

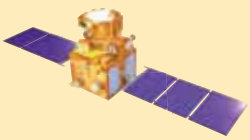
Launch of INSAT-3A (April 10, 2003)



Launch of GSAT-2 by GSLV-D2 (May 8, 2003)

Mr G Madhavan Nair takes over as Secretary, DOS and Chairman, ISRO (September 1, 2003)

Launch of INSAT-3E (September 28, 2003)



Launch of RESOURCESAT-1 by PSLV-C5 (October 17, 2003)

Space technology, in the last four decades, has firmly established its capability for socio-economic development in the country. With its unique capability to provide a synoptic view of the earth, it has unleashed a vast potential for applications in

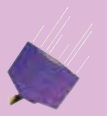
...searching the realm of space

2004

Launch of EDUSAT by GSLV-F01
(September 20, 2004)

2005

CARTOSAT-1



HAMSAT

Commissioning of Second Launch Pad
and launch of CARTOSAT-1 & HAMSAT
by PSLV-C6 (May 5, 2005)

Launch of INSAT-4A by Ariane 5
(Dec 22, 2005)

2006

INSAT-4C

Second operational flight of GSLV with the
INSAT-4C on board (July 10, 2006).
The satellite did not reach orbit.

2007

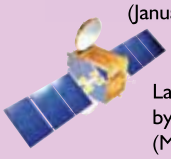
Launch of CARTOSAT-2 along with
SRE-1 and two Satellites from abroad
by PSLV-C7 (January 10, 2007)

LAPAN-TUBSAT
INDONESIA

PEHUENSAT-1
ARGENTINA

2007

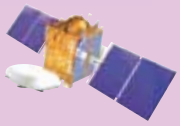
Successful recovery of SRE-1
(January 22, 2007)



Launch of INSAT-4B
by Ariane-5
(March 12, 2007)

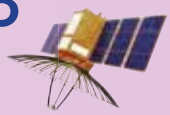
Launch of AGILE,
Italian astronomical
satellite by PSLV-C8
(April 23, 2007)

Indigenous Cryogenic
Stage tested successfully
(August 4, 2007)



Launch of INSAT-4CR
by GSLV-F04
(September 2, 2007)

2008



Launch of TECSAR
by PSLV-C10 (January 21, 2008)

IMS-1

CAN-X2
Canada

CUTE-1.7
Japan

CARTOSAT-2A

DELFI-C3
The Netherlands

AAUSAT-II
Denmark

COMPASS-1
Germany

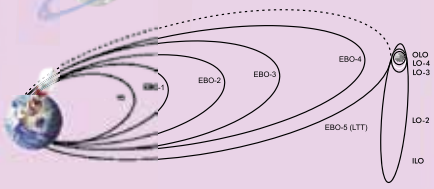
SEEDS
Japan

RUBIN-8
Germany

NLS-5
Canada

Launch of Cartosat-2A and IMS-1 along
with eight Nano Satellites from abroad by
PSLV-C9 (April 28, 2008)

2008

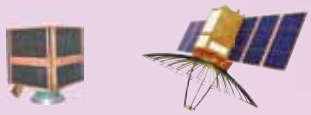


IO: Initial (Earth) Orbit : 255 km x 22,860 km
EBO: Earth Bound Orbit
EBO-1 : apogee at 37,900 km
EBO-2 : apogee at 74,715 km
EBO-3 : apogee at 164,600 km
EBO-4 : apogee at 267,000 km
EBO-5 (LTT-Lunar Transfer Trajectory): apogee at 380,000 km

ILO (Initial Lunar Orbit) : 504 km x 7502 km
LO : Lunar Orbit
LO-2 : 200 km x 7502 km
LO-3 : 182 km x 255 km
LO-4 : 182 km x 100 km
OLO (Operational Lunar Orbit) : 100 km x 100 km

Launch of CHANDRAYAAN-1 by PSLV-C11
(October 22, 2008)

2009



Launch of RISAT-2 and ANUSAT by
PSLV-C12
(April 20, 2009)

OCEANSAT-2

CUBESAT-2

CUBESAT-3

CUBESAT-1

RUBIN 9.1

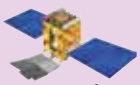
RUBIN 9.2

CUBESAT-4

Launch of Oceansat-2 along with
Six Nano Satellites from abroad
by PSLV-C14 (September 23, 2009)

Dr K Radhakrishnan
takes over as Secretary,
DOS and Chairman, ISRO
(October 31, 2009)

2010



Successful static testing of
GSLV Mk III Launch Vehicle's
S200 Solid Propellant Booster
Rocket Stage (January 24, 2010)

Successful Static Testing of
GSLV Mk III Launch Vehicle's
L110 Liquid Core Stage
(September 8, 2010)

Launch of GSAT-4 by GSLV-D3
(April 15, 2010)
The satellite did not reach orbit

telecommunications, television broadcasting including education, meteorology, natural resources monitoring & management and Navigation. India was among the first few countries to realise the potential of space technology for national development.

2010

CARTOSAT-2B

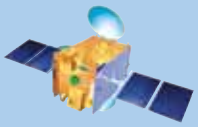
ALSAT-2A

STUDSAT

NLS-6.1 AISSAT-1

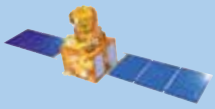
NLS-6.2 TISAT-1

Launch of CARTOSAT-2B and STUDSAT along with three satellites from abroad by PSLV-C15 (July 12, 2010)

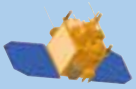


Launch of GSAT-5P by GSLV-F06 (December 25, 2010)
The satellite did not reach orbit

2011



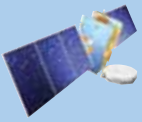
RESOURCESAT-2



YOUTHSAT

X-SAT

Launch of RESOURCESAT-2, YOUTHSAT and X-SAT by PSLV-C16 (April 20, 2011)



Launch of GSAT-8 by Ariane 5 VA-202 (May 21, 2011)

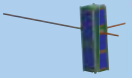
GSAT-12

Launch of GSAT-12 by PSLV-C17 (July 15, 2011)

MEGHA-TROPIQUES

VESSELSAT-1

SRMSat



JUGNU

Launch of MEGHA-TROPIQUES, SRMSat, JUGNU and VESSELSAT-1 by PSLV-C18 (October 12, 2011)

2012

RISAT-1

Launch of RISAT-1 by PSLV-C19 (April 26, 2012)

PROITERES

SPOT-6

Launch of SPOT 6 and PROITERES by PSLV-C21 (September 09, 2012)

Launch of GSAT-10 by Ariane 5 VA-209 (September 29, 2012)

2013

SARAL

SAPPHIRE

NEOSSAT

NLS 8.1

NLS 8.2

NLS 8.3

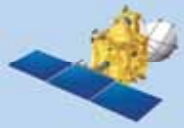
STRaND-1

Launch of SARAL, SAPPHIRE, NEOSSAT, NLS 8.1, NLS 8.2, NLS 8.3 and STRaND-1 by PSLV-C20 (February 25, 2013)

Launch of IRNSS-1A by PSLV-C22 (July 1, 2013)

Launch of INSAT-3D by Ariane 5 VA-214 (July 26, 2013)

Launch of GSAT-7 by Ariane 5 VA-215 (August 30, 2013)



Launch of MARS ORBITER MISSION by PSLV-C25 (November 5, 2013)

2014

GSAT-14

Launch of GSAT-14 by GSLV-D5 (January 05, 2014)

IRNSS-1B

Launch of IRNSS-1B by PSLV-C24 (APRIL 04, 2014)

SPOT-7

AISAT

NLS 7.1

NLS 7.2

VELOX-1

Launch of SPOT-7, AISAT, NLS 7.1, NLS 7.2 and VELOX-1 by PSLV-C23 (June 30, 2014)

Mars Orbiter Spacecraft successfully enters into an orbit around planet Mars (September 24, 2014)

IRNSS-1C

Launch of IRNSS-1C by PSLV-C26 (November 10, 2014)

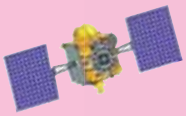
Launch of GSAT-16 by Ariane 5 VA-221 (December 7, 2014)

CARE

The first experimental flight of LVM3, the LVM3-X/CARE mission lifted off from Sriharikota on December 18, 2014 and successfully tested the atmospheric phase of flight. Crew module Atmospheric Reentry Experiment was also carried out in this flight. The module reentered, deployed its parachutes as planned and splashed down in the Bay of Bengal.

2015

A S Kiran Kumar takes over as Secretary, Department of Space, Chairman, Space Commission and Chairman, ISRO (January 14, 2015)



IRNSS-1D

Launch of IRNSS-1D by PSLV-C27 (March 28, 2015)

DMC3-1 DMC3-2 DMC3-3

CBNT-1 De-orbitSail

Launch of DMC3-1, DMC3-2, DMC3-3, CBNT-1 and De-orbitSail by PSLV-C28 (July 10, 2015)

GSAT-6

Launch of GSAT-6 by GSLV-D6 with indigenous cryogenic upper stage (August 27, 2015)

ASTROSAT

LAPAN-A2

NLS-14

spire

LEMUR

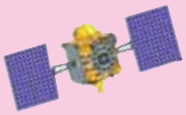
Launch of ASTROSAT, LAPAN-A2, NLS-14 and 4 LEMUR Satellites by PSLV-C30 (September 28, 2015)

2015

Launch of GSAT-15 by Ariane-5 VA-227 (November 11, 2015)

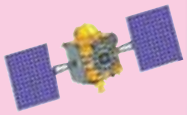
Launch of TeLEOS-1, VELOX-CI, VELOX-II, ATHENOXAT-1, KENT RIDGE-1, GALASSIA by PSLV-C29 (Dec 16, 2015)

2016



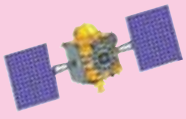
IRNSS-1E

Launch of IRNSS-1E by PSLV-C31 (Jan 20, 2016)



IRNSS-1F

Launch of IRNSS-1F by PSLV-C32 (March 10, 2016)



IRNSS-1G

Launch of IRNSS-1G by PSLV-C33 (April 28, 2016)

RLV-TD

Successful flight test of Reusable Launch Vehicle-Technology Demonstrator (RLV-TD) by HS9 Solid Rocket Booster (May 23, 2016)

2016

CARTOSAT-2 Series Satellite

SATHYABAMASAT

SWAYAM

LAPAN-A3

BIROS

M3MSat

SKYSat GEN2-1

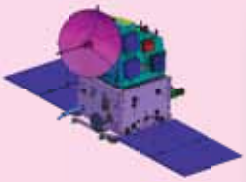
GHGSat-D

DOVE Satellites (Twelve)

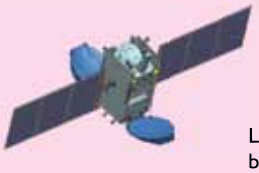
Launch of Cartosat-2 Series Satellite, Sathyabamasat, Swayam, Lapan-A3, Biros, M3MSat, SkySat Gen2-1, GHGSat-D and Dove Satellites (Twelve) by PSLV-C34 (June 22, 2016)

Successful flight test of ISRO's SCRAMJET Engine Technology Demonstrator (August 28, 2016)

Launch of INSAT-3DR by GSLV-F05 (September 08, 2016)



Launch of SCATSAT-1 and seven co-passenger satellites (PRATHAM and PISAT from India and five from abroad) by PSLV-C35 (September 26, 2016)



Launch of GSAT-18 by Ariane 5 VA-231 (October 06, 2016)

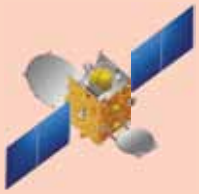
2016

Launch of
RESOURCESAT-2A
by PSLV-C36
(December 07, 2016)

2017

CARTOSAT-2
Series Satellite

Launch of a total of 104 satellites including India's Cartosat-2 Series Satellite as well as ISRO Nanosatellite-1 and 2 along with 101 satellites from abroad by PSLV-C37 (February 15, 2017)



Launch of South Asia Satellite
(GSAT-9) by GSLV-F09
(May 05, 2017)

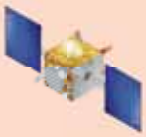
Launch of 3136 kg GSAT-19 by GSLV MkIII-D1, the first developmental (Orbital) flight GSLV MkIII equipped with C25 Cryogenic Upper Stage
(June 05, 2017)

CARTOSAT-2
Series Satellite

Launch of Cartosat-2 Series Satellite along with
30 co-passenger
satellites by PSLV-C38
(June 23, 2017)

2017

Launch of GSAT-17
by Ariane 5
(June 29, 2017)

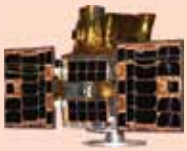


Launch of IRNSS-1H
by PSLV-C39
(August 31, 2017)
Mission was unsuccessful

2018

CARTOSAT-2
Series Satellite

Microsat Satellite



INS-1C

Launch of Cartosat-2 Series Satellite along with
30 co-passenger satellites including India's INS-IC and Mircosat by PSLV-C40 (January 12, 2018)

International co-passenger Satellites

Fox-1D
(USA)

Flock-3P' (Four)
(USA)

LEMUR (Four)
(USA)

Micromas-2
(USA)

POC-1
(Finland)

PICSAT
(France)

SpaceBEE (Four)
(USA)

Corvus Bc3
(USA)

Tyvak-61C
(USA)

2018

CICERO-7
(USA)

Arkyd-6
(USA)

DemoSat-2
(USA)

Telesat Phase-1 LEO
(Canada)

CBNT-2
(UK)

CANYVAL-X
(Republic of Korea)

CNUSAIL-1
(Republic of Korea)

KAUSAT-5
(Republic of Korea)

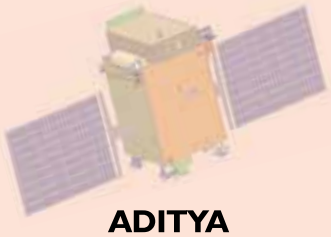
SIGMA
(Republic of Korea)

STEP CUBE LAB
(Republic of Korea)

FUTURE...

GSAT-11

CHANDRAYAAN-2



ADITYA

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