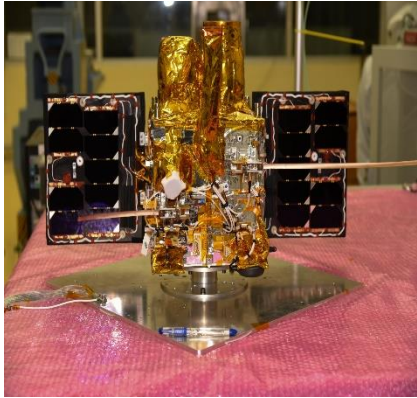


ISRO Missions in 2018



PSLV-C40/Cartosat-2 Series
Jan 12, 2018



GSLV-F08/GSAT-6A
March 29, 2018



PSLV-C41/ IRNSS-11
April 12, 2018



CES Technology
Demonstrator July 05, 2018



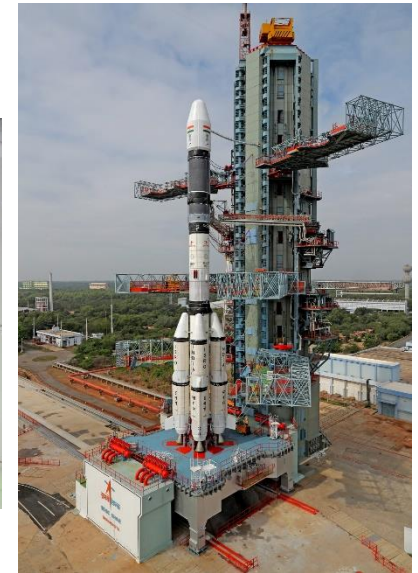
PSLV-C42 Mission
September 16, 2018



PSLV-C43 / HysIS Mission
November 29, 2018



GSAT-11 Mission
December 05, 2018



GSLV-F11 /GSAT-7A
December 19, 2018

72nd Independence Day

Prime Minister announced GAGANYAAN



“.....हमारे देश ने संकल्प किया है कि 2022, जब आजादी के 75 साल होंगे तब या हो सके तो उससे पहले, आजादी के 75 साल मनाएंगे तब, मां भारत की कोई संतान चाहे बेटा हो या बेटी, कोई भी हो सकता है। वे अंतरिक्ष में जाएंगे। हाथ में तिरंगा झंडा लेकर के जाएंगे। आजादी के 75 साल के पहले इस सपने को पूरा करना है.....”

With human space flight, India to push frontiers

ISRO setting up launch pad for Gaganyaan mission

Roadmap to put Indian crew in space

HNABAR PERI

The Indian Space Research Organisation (ISRO) is setting up a third launch pad at Sriharikota to undertake the Gaganyaan manned space programme, an ISRO light said on Friday. In addition, ISRO is scouting for a launch pad near Coimbatore to set up another launch pad for Small Satellite Launch Vehicles (SSLV).

Moonstruck

A look at the ISRO moon mission that will send a three-person crew to space for a period of 5-7 days

The spacecraft will be placed in a low earth orbit of 300-400km

Two unmanned missions will be undertaken prior to sending humans. The first manned flight will be sent in 30 months and a manned mission in 40 months

Budget: Around ₹10,000 crore

The crew module will splash in the Arabian sea



A fair photo of the GSLV, the launch vehicle for the moon mission.

- The crew module along with the service module, base module, weighing seven tonnes will be launched along the GSLV launch vehicle

- The crew will reach low earth orbit in 10 minutes once launched and stay in the orbit for 5-7 days

- During the orbit, astronauts will carry out micro-gravity experiments

- In the return phase, at 120km above earth, the crew module will separate from the service module and head towards the earth in a



BT PANORAMA BusinessToday.in

GAGANYAAN India's first manned space flight



Gaganyaan - A National Endeavour

Technology and
Capability
Demonstrator

Employment (>13k)
skill generation

Micro gravity
experiments

Inspire and
motivate youth

Transforming
India

Vibrant citizen
participation

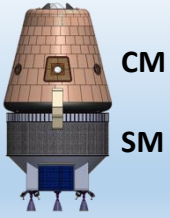
Boost innovation
and creativity

Spin-offs to
Society

Galvanize High tech
aerospace industry

India

GAGANYAAN Mission



CM

SM

Solar array deployment

Reorientation

De-boost

CM-SM Separation

Orbital module

3-7 days in orbit

CM re-entry

SM re-entry

Aero braking

Parachute deployment

Splash down

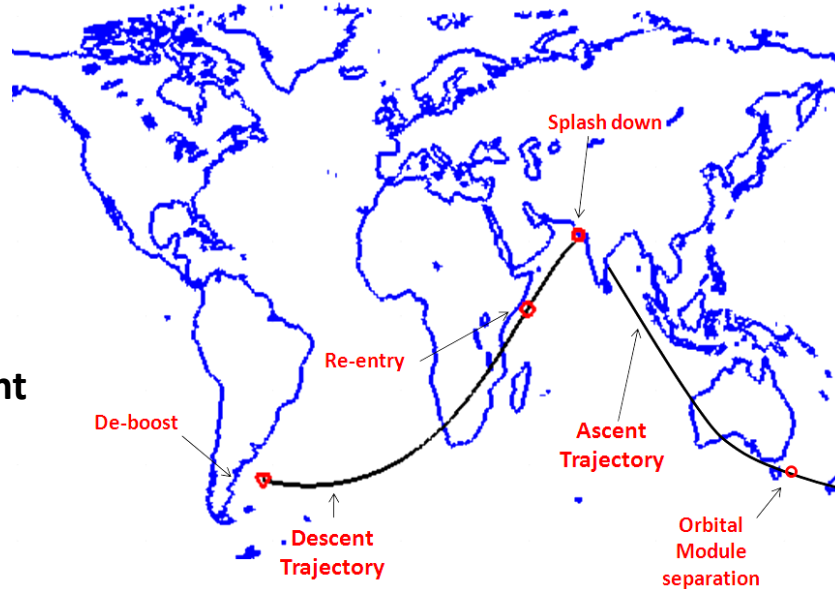
400 km LEO Orbit

120 km Orbit

~16 mins to reach orbit

~36 mins from de-boost to splash down

Ascent & Descent phases - 100% visibility



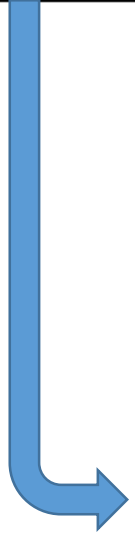
Launch vehicle Lift-off



CITIZEN OUTREACH PROGRAMME



Motivate



Media platforms



Social media



Training



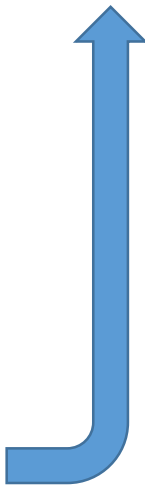
Workshops



Exhibitions



Technology Spinoffs



Spur Research & Development



Seminars

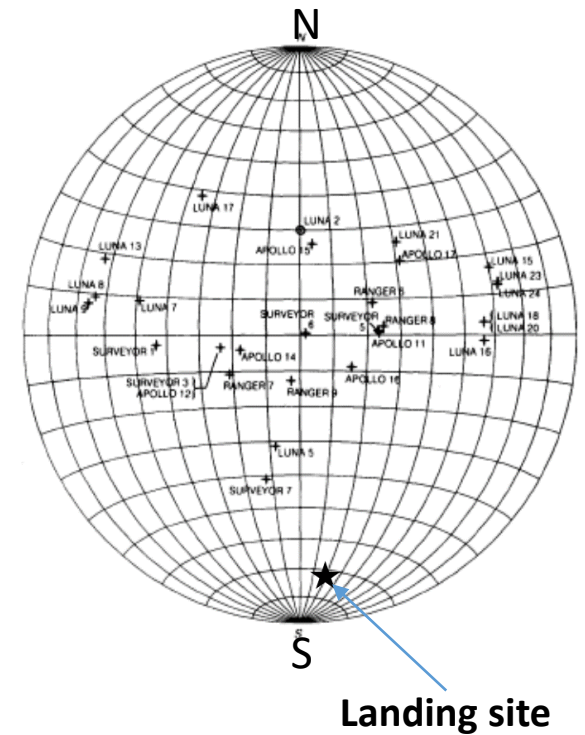
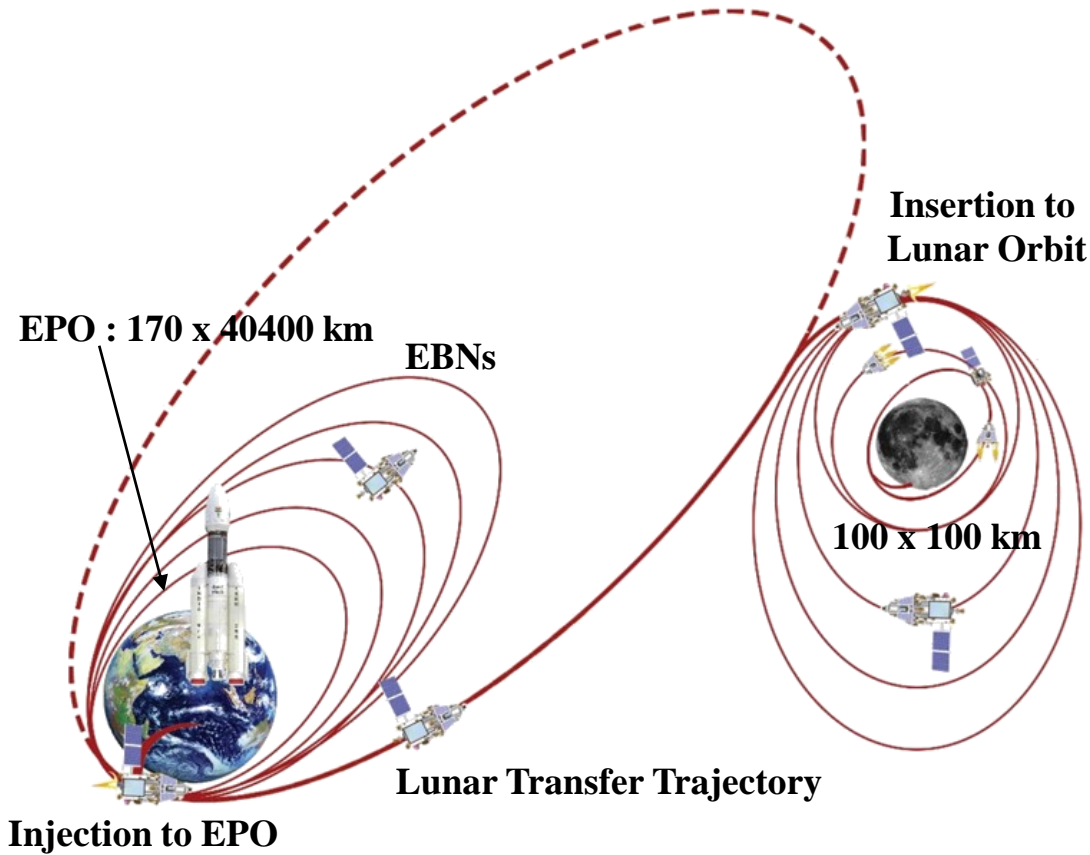


Student interactions



Improve Industrial Capability

Chandrayaan-2 Mission



Opportunity to name the landing site, which will be of historical significance

- To land near South Pole
- Scientifically Important

Dr. Vikram Sarabhai Centenary Programme



- 6 ISRO knowledge centers
- Space Technology Incubation centers
- VIKRAM name for Moon-lander for Chandrayan-2
- Exhibitions/ Lectures
- Space Clubs at Schools
- Competitions at School/College level
- Events / Pavilions at National Museums
- Awards / Scholarships / Fellowships
- Vikram Sarabhai Space Innovative Award
- ISRO TV

- **Dedicated Sessions / Memorial Lectures** at International Science conferences like **IAF**
- **Dr. Sarabhai Centenary International Award** for best achievement in Space Science & Technology
- Establishment of **Department Chairs / Fellowships at universities**, which were connected with Dr. Sarabhai during his education.

SSLV | Small Satellite Launch Vehicle

... on demand access to Space



Features

- Launch Vehicle catering to Mini, Micro or Nano satellites
- Low cost Launch Vehicle encompassing heritage systems and less complex / modular sub-systems
- On demand launch capability : Stages prepared as modular units, demand to launch within 2 weeks
- Active load relief enabling any time launch requirements
- Minimum launch-pad occupancy: Integration & Launch within 24 hours



VEHICLE CONFIGURATION

- ▶ 2m diameter x 34m long
- ▶ Lift off mass : ~120T
- ▶ Three Solid propulsion stages
- ▶ Liquid propulsion module as terminal stage for precise payload injection



Payload Capability (Typical - from SDSC/SHAR)

- ▶ Orbit : 500 km LEO
- ▶ Inclination : 45°
- ▶ Payload : 500 kg

RLV Landing Experiment

Mission Objectives:

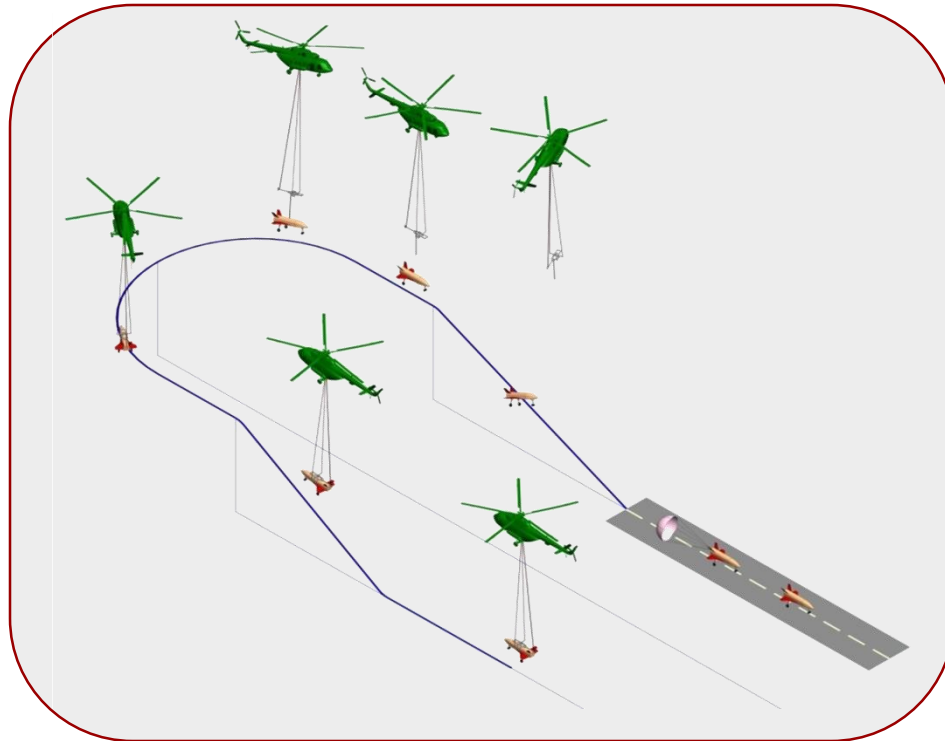
- Demonstration of Approach and Landing maneuvers of a typical Orbital mission
- Autonomous runway landing of RLV



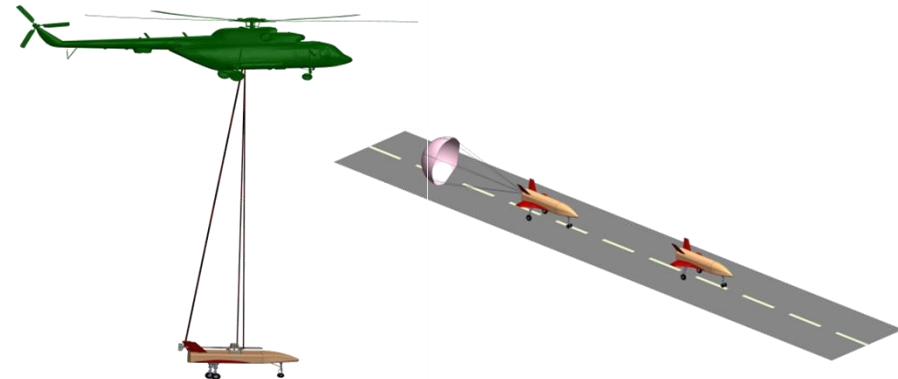
Reusable Launch Vehicle (RLV)

Execution:

- Landing Experiment will be demonstrated by ISRO with the support of IAF and DRDO
- RLV is lifted by helicopter and released to land on the runway autonomously
- Mission planned in middle of this year



Mission Profile of Landing Experiment



RLV with Helicopter

RLV landing on Runway