Presentation to
62nd Session of COPUOS
Vienna, Austria

Mr. R Umamaheswaran
Scientific Secretary
Indian Space Research Organization
Government of India

ISRO – Achievements
(from June 2018 to June 2019)
Accomplishments in Space: 182 missions

72 LV MISSIONS

- SLV
- ASLV
- PSLV
- GSLV

46 successful flights

5 successive successful flights with Indigenous Cryo Stage

105 Satellites

- Remote Sensing
- Communication
- Navigation
- Space Science

5 Experimental missions

- Space Capsule Recovery Experiment
- Crew Module Atmospheric Re-entry Experiment
- Reusable Launch Vehicle Technology Demonstrator
- Scramjet Engine Technology Demonstrator
- Crew Escape System at Launchpad

297 Satellites of 33 countries

Space Technology Applications
PSLV-C42/NovaSAR & S1-4 MISSION

**NovaSAR**
- S-band Synthetic Aperture Radar (SAR) & Automatic Identification Receiver payloads
- Applications include forestry mapping, land use and ice cover monitoring, flood and disaster monitoring and maritime missions.

**S1-4**
- A high resolution earth observation satellite.
- Surveying resources, environment monitoring, urban management and disaster monitoring.

16th Sept 2018
22.08hrs IST
PSLV-C43/HySIS MISSION

PSLV-C43

HySIS

Hyperspectral Remote Sensing Mission

29th Nov 2018
09:57:30 (IST)
PSLV-C44/MICROSAT-R Mission

PSLV-DL (A new variant of PSLV)

PSLV-C44

24th Jan 2019
23:37 (IST)

Microsat R

Kalamsat-V2

24th Jan 2019
23:37 (IST)
PSLV-C45/EMISAT MISSION

PSLV-C45

EMISAT

28 international customer satellites

April 01, 2019
09:27 hrs. (IST)
PSLV-C46/RISAT-2B MISSION

**PSLV-C46**

**RISAT-2B**

**RISAT-2B**

RISAT-2B is a radar imaging earth observation satellite developed by ISRO.

**SALIENT FEATURES OF RISAT-2B**

<table>
<thead>
<tr>
<th>Feature</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lift-off weight</td>
<td>615 kg</td>
</tr>
<tr>
<td>Altitude</td>
<td>557 km</td>
</tr>
<tr>
<td>Payload</td>
<td>X-Band Radar</td>
</tr>
<tr>
<td>Inclination</td>
<td>37 deg</td>
</tr>
<tr>
<td>Mission Life</td>
<td>5 years</td>
</tr>
</tbody>
</table>

**Applications**

- Agriculture
- Forestry
- Disaster Management Support

May 22, 2019
05:30 hrs. (IST)
Communication satellite
- To provide communication capability to the users
- Ku-band over the Indian region.
Communication satellite

- Ku-band and Ka-band payloads
- To cater to the communication requirements of users including those from remote areas especially from Jammu & Kashmir and North-Eastern regions of India.
- Q/V-Band communication payload onboard to demonstrate the future high throughput satellite system technologies.
- Optical Communication Payload - to demonstrate data transmission at a very high rate through optical communication link.
Launched in Ariane 5 VA-246

December 05, 2018

Communication satellite

- Advanced communication satellite with a Gregorian Antenna and many other new technologies.
- Weighing about 5854 kg, GSAT-11 is the heaviest satellite built by India.
- Boost broadband connectivity to rural and inaccessible Gram Panchayats in the country coming under Digital India Programme.
GSAT 31 Mission

Launched in Ariane 5 VA-247

Communication satellite
- Ku-band transponder
- To provide continuity to operational services on some of the in-orbit satellites.
- Derives its heritage from ISRO’s earlier INSAT/GSAT satellite series.
- The satellite provides Indian mainland and island coverage.
- The designed in-orbit operational life is about 15 years.

February 06, 2019
Pad Abort Test Flight of Crew Escape System

Successfully conducted on
05th July, 2018 // 07:00 Hrs. IST

To prove the concept of Crew Escape System, by flight testing of the integrated CES, in a simulated pad abort scenario

OBJECTIVE

Ignition of Motors
Grid-Fin Deployment
Ignition
Parachute deployment
Crew Module Impact
CM Re-orientation
CES-CM separation
CJM Ignition
Burn out

Altitude: 3 km
Range: 2.9 km
When India celebrates 75th year of Independence in 2022, an Indian Son or daughter will undertake a manned space mission onboard ‘Gaganyaan’ carrying the national flag.....

Gaganyaan Programme
Human Space Flight Centre
Lunar Landing Mission - Chandrayaan 2

Lunar Orbiter
Lander - VIKRAM
Rover - PRAGYAN

Capable of soft landing on a specified lunar site and deploy a Rover to perform mobility and science experiments.
Landing for the first time near the south pole.
Prime Minister of India urged Department of Space to pro-actively engage with all stakeholders to maximize the use of space science in governance and development.

National Meet deliberated on joint action plans on promoting space technology applications

22 Thematic Expert Groups formed for One-to-One Interactions with Ministries

- Joint Action Plan
- Proof of concepts
- Development of tools
- Capacity building
- Transfer of technology
- Space technology cells

160 Space Applications across 58 Ministries / Departments

Pre-National Meet

- 160 Proposals
- Web & Mobile Apps: 200+
- MoUs: 130+
- Capacity Building: 11,000+
- New Space Cells: 10

20 Ministries

Post - National Meet

58 Ministries

Agriculture, Water Resource, Forest, Environment, Urban & Rural Development, Rail & Road, Weather, Health, Education, Disaster management …….
Outreach activities

- **UNNATI**: 29 officials from 17 countries were trained on Nanosatellite building

- **CSSTEAP & IIRS**: 2800 officials from 109 countries benefitted on space technology applications

- 225 agreements with **53 countries** and 5 multilateral bodies

- **YUVIKA**: creating awareness on space technology among middle school students

- **NAVIC**: Messaging and alert system for fishermen community; Power Grid Synchronization; Fleet & Logistics Management; Geo-fencing; Search & Rescue
Thank you