

PSLV-C43 / HysIS

CO-PASSENGER SATELLITES

- Centauri - 1
Australia
- Kepler (CASE)
Canada
- FACSAT
Colombia
- Reaktor Hello World
Finland
- InnoSAT-2
Malaysia
- HIBER-1
Netherlands
- 3Cat-1
Spain
- CICERO-8
USA
- Flock 3R
USA
- Global-1
USA
- HSAT-1
USA
- LEMURS
USA



HysIS

Indian Space Research Organisation



THE MISSION

- India's Polar Satellite Launch Vehicle (PSLV-C43) will launch Hyper Spectral Imaging Satellite (HysIS) along with thirty co-passenger satellites from eight countries.

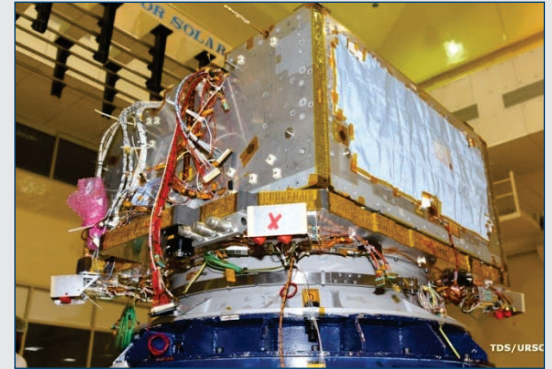
PSLV-C43



- PSLV-C43 is core-alone variant of PSLV
- PSLV-C43 will be launched from First Launch Pad (FLP) of Satish Dhawan Space Centre (SDSC) SHAR, Sriharikota.

HysIS

- Employs Hyper Spectral Imager to take image in Visible and Near Infrared (VNIR) & Short Wave Infrared (SWIR) bands.



Targeted Polar Sun Synchronous Orbit of HysIS:

Height: 636.6 km | Inclination: 97.957 deg

Targeted Polar Sun Synchronous Orbit of Co-Passenger satellites:

Height: 504.5 km | Inclination: 97.468 deg

68th

Launch Vehicle Mission from SDSC SHAR

45th

Flight of Polar Satellite Launch Vehicle

34th

Launch from First Launch Pad

13th

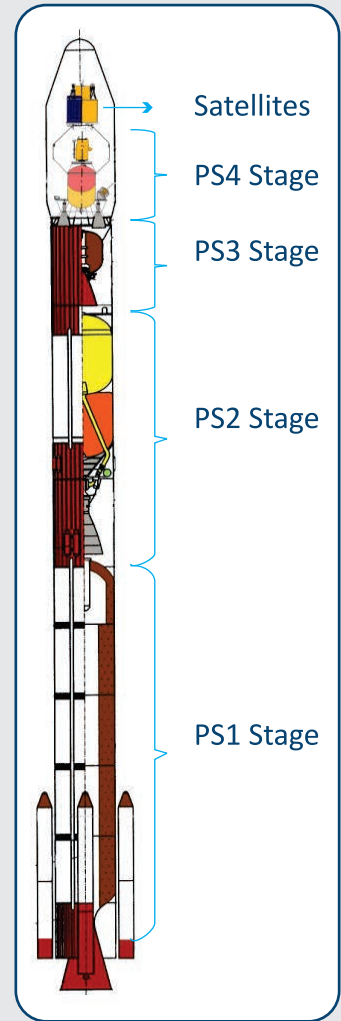
Flight of PSLV – Core Alone Variant

6th

Launch of

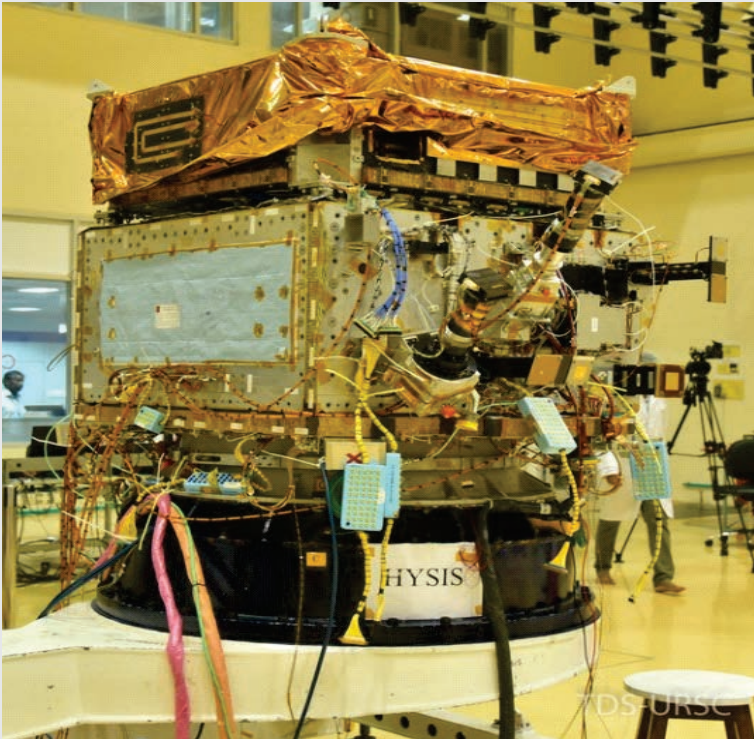
PSLV-C43 Stages at a Glance

| Parameters | Stages | | | |
|---------------------|-----------------------|-------------------------|-----------------------|------------------------|
| | Stage 1 (PS1) | Stage 2 (PS2) | Stage 3 (HPS3) | Stage 4 (PS4) |
| Length (m) | 20 | 12.8 | 3.6 | 3.0 |
| Diameter (m) | 2.8 | 2.8 | 2.0 | 1.34 |
| Propellant | Solid (HTPB based) | Liquid (UH25 + N2O4) | Solid (HTPB based) | Liquid (MMH + MON3) |
| Propellant Mass (t) | 138.2 | 42 | 7.65 | 2.5 |



HysIS

HysIS is a Hyper Spectral Imaging Satellite for providing global coverage on repetitive basis to users and supplementing the data from the existing multi spectral sensors. A wide range of applications in agriculture, forestry, geological environments, coastal zones and inland waters, etc., are derived from the satellite.



Salient Features of HysIS

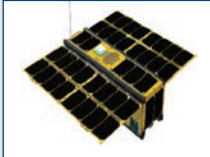
- Satellite Mass : ~380 kg
- Orbit : Polar Sun Synchronous
- Altitude : 636 km
- Inclination : 97.957 deg
- Power : 730 W
- Payload : Two spectrometers in VNIR & SWIR bands
- Mission life : 5 years

CO-PASSENGER SATELLITES

Total number of co-passenger satellites is 30

| Country | Satellites |
|-------------|------------|
| Australia | 1 |
| Canada | 1 |
| Colombia | 1 |
| Finland | 1 |
| Malaysia | 1 |
| Netherlands | 1 |
| Spain | 1 |
| USA | 23 |

Centauri – 1 (1 No)



Remote Internet of Things communication services (Australia)

Kepler (CASE) (1 No)



Internet of Things (Canada)

FACSAT (1 No)



Earth Observation (Colombia)

Reaktor Hello World (1 No)



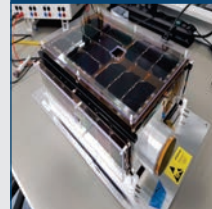
Earth Observation (Finland)

InnoSAT-2 (1 No)



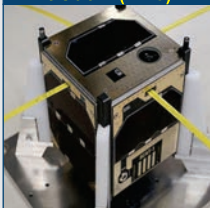
Earth Observation (Malaysia)

HIBER-1 (1 No)



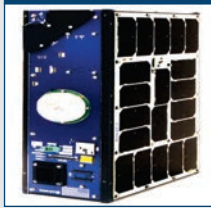
Internet of Things (Netherlands)

3Cat-1 (1 No)



Scientific / Experimental (Spain)

CICERO-8 (1 No)



Earth Observation (USA)

Flock 3R (16 Nos)



Earth Observation (USA)

Global-1 (1 No)



Earth Observation (USA)

HSAT-1 (1 No)



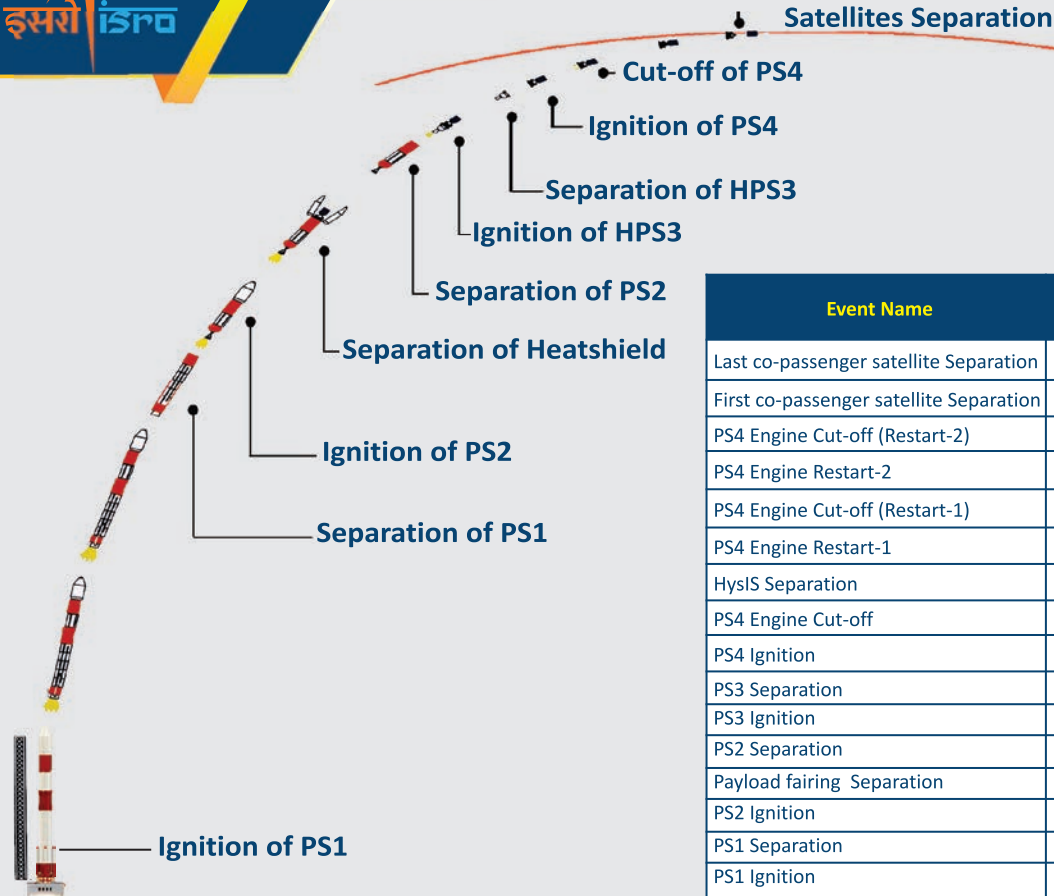
Remote Internet of Things communication services (USA)

LEMURs (4 Nos)



Vessel Automatic Identification System (AIS) (USA)

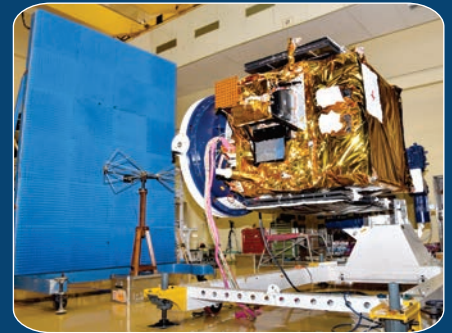
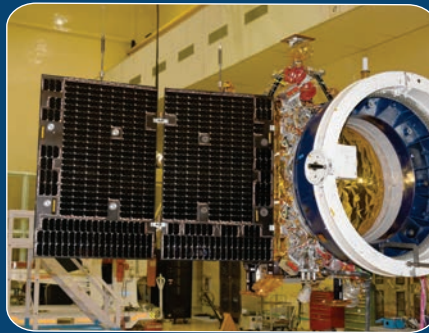
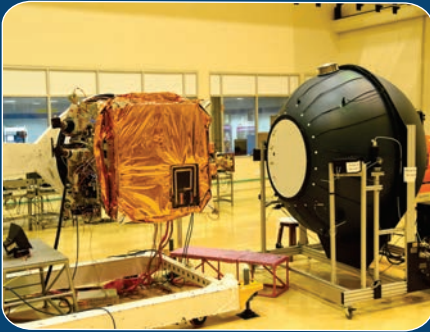
FLIGHT PROFILE



| Event Name | Time after lift-off | Altitude (km) | Inertial Velocity (m/s) |
|---|---------------------|---------------|-------------------------|
| Last co-passenger satellite Separation | 6767.40 | 506.554 | 7609.81 |
| First co-passenger satellite Separation | 6541.40 | 504.196 | 7610.79 |
| PS4 Engine Cut-off (Restart-2) | 6467.40 | 503.839 | 7618.07 |
| PS4 Engine Restart-2 | 6463.02 | 503.832 | 7648.07 |
| PS4 Engine Cut-off (Restart-1) | 3583.04 | 642.096 | 7507.17 |
| PS4 Engine Restart-1 | 3579.02 | 642.091 | 7531.99 |
| HysIS Separation | 1041.22 | 641.457 | 7537.59 |
| PS4 Engine Cut-off | 994.22 | 640.613 | 7531.36 |
| PS4 Ignition | 499.54 | 485.477 | 5420.86 |
| PS3 Separation | 489.14 | 475.808 | 5435.96 |
| PS3 Ignition | 263.40 | 206.226 | 3642.39 |
| PS2 Separation | 262.20 | 204.734 | 3646.17 |
| Payload fairing Separation | 180.66 | 115.613 | 2228.81 |
| PS2 Ignition | 110.06 | 49.787 | 1599.03 |
| PS1 Separation | 109.86 | 49.599 | 1600 |
| PS1 Ignition | 0 | 0.026 | 451.89 |

Glimpses of Satellite Preparation

HysIS



Glimpses of Launch Vehicle Preparation

PSLV-C43



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