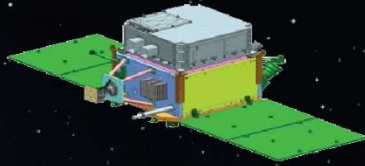




PSLV-C43 / HysIS

PRESS KIT



HysIS

**30 Co-passenger
satellites from
8 Countries**

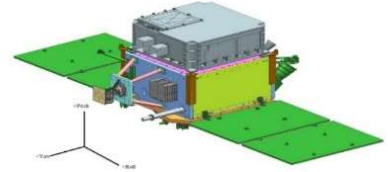


Indian Space Research Organisation

PSLV-C43 / HysIS Mission



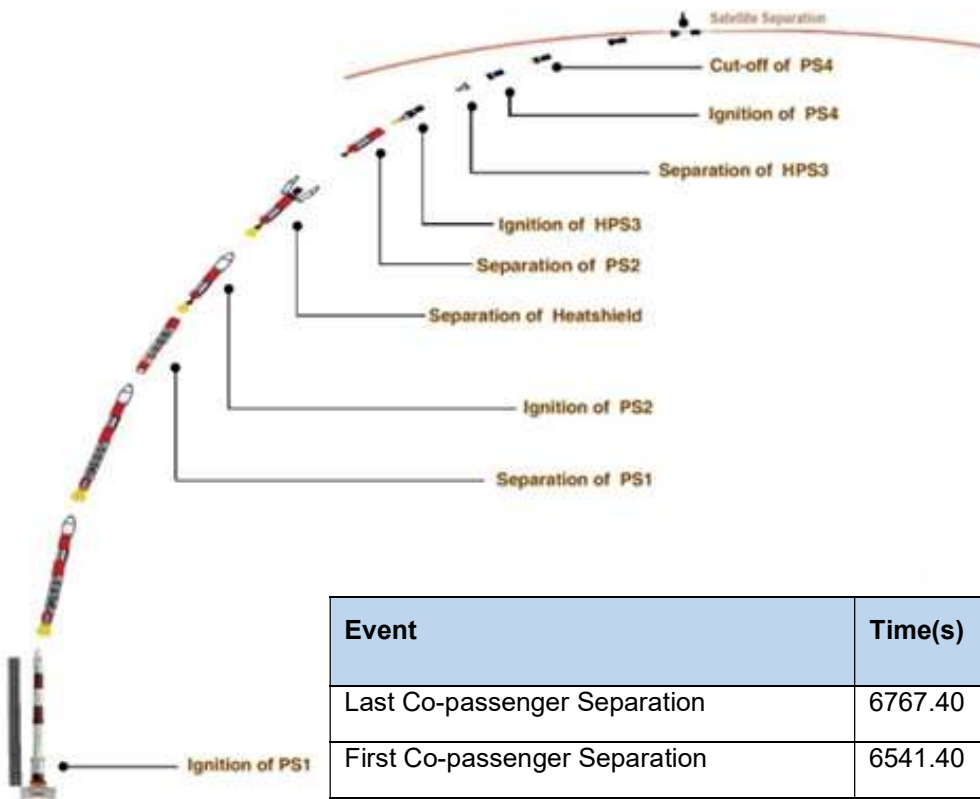
The Polar Satellite Launch Vehicle (PSLV), in its 45th flight PSLV-C43, will launch HysIS and 30 co-passenger satellites from the First Launch Pad (FLP) of Satish Dhawan Space Centre (SDSC) SHAR, Sriharikota.



This is the 13th mission using PSLV-Core Alone variant. The satellites carried onboard will be injected into two different orbits. The primary satellite HysIS will be placed in 636 km polar Sun Synchronous Orbit (SSO) and the co-passenger satellites will be placed in 504 km polar SSO after restarting the fourth stage of PSLV (PS4) engines twice.

PSLV-C43 Mission Specifications		
Parameter	HysIS	Co-Passenger satellites
Altitude	636 km	504 km
Inclination	97.957 deg	97.468 deg
Launch Pad	First Launch Pad (FLP)	
Launch Azimuth	140 deg	

PSLV-C43 Flight Profile



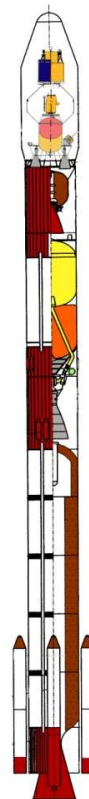
Event	Time(s)	Local Altitude(km)	Inertial Velocity(m/s)
Last Co-passenger Separation	6767.40	506.554	7609.81
First Co-passenger Separation	6541.40	504.196	7610.79
Stage 4 (PS4) Engine Cut-off Restart-2	6467.40	503.839	7618.07
Stage 4 (PS4) Engine Restart-2	6463.02	503.832	7648.07
Stage 4 (PS4) Engine Cut-off Restart-1	3583.04	642.096	7507.17
Stage 4 (PS4) Engine Restart-1	3579.02	642.091	7531.99
HysIS Separation	1041.22	641.457	7537.59
Stage 4 (PS4) Engine Cut-off	994.22	640.613	7531.36
Stage 4 (PS4) Ignition	499.54	485.477	5420.86
Stage 3 (HPS3) Separation	489.14	475.808	5435.96
Stage 3 (HPS3) Ignition	263.40	206.226	3642.39
Stage 2 (PS2) Separation	262.20	204.734	3646.17
Payload fairing Separation	180.66	115.613	2228.81
Stage 2 (PS2) Ignition	110.06	49.787	1599.03
Stage 1 (PS1) Separation	109.86	49.599	1600.00
Stage 1 (PS1) Ignition	0	0.026	451.89

PSLV-C43

PSLV is the third generation launch vehicle of India. The vehicle is designed to place remote sensing satellites in polar SSO. It can carry upto 1,750 kg of payload into polar SSO of 600 km altitude. Additionally, PSLV has been used to launch planetary missions and also satellites into Geosynchronous Transfer Orbit.

PSLV is a four stage launch vehicle with alternating solid and liquid stages. PSLV-C43 is the Core Alone version of PSLV which is the lightest version of PSLV. Another operational version of PSLV is the PSLV-XL variant, with six 'XL' strap-ons.

PSLV-C43 Stages at a Glance				
	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	1.34
Propellant	Solid (HTPB based)	Liquid (UH25 + N ₂ O ₄)	Solid (HTPB based)	Liquid (MMH+ MON3)
Propellant Mass (t)	138.2	42	7.65	2.5



Hyper-Spectral Imaging Satellite (HysIS)

HysIS is an earth observation satellite developed by ISRO. It is the primary satellite of the PSLV-C43 mission. The satellite is built around ISRO's Mini Satellite-2 (IMS-2) bus and the mass of the spacecraft is about 380 kg.

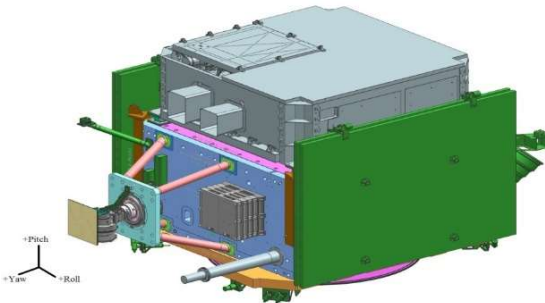
The satellite will be placed in 636 km polar sun synchronous orbit with an inclination of 97.957 deg. The mission life of the satellite is 5 years.

The primary goal of HysIS is to study the earth's surface in visible, near infrared and shortwave infrared regions of the electromagnetic spectrum.



Major specifications:

Mass	~380 kg
Overall Size	2.158 m x 1.386 m x 1.121 m – in Stowed Configuration
Payload	Hyperspectral Imager in VNIR and SWIR bands
Power	730 W, 64 Ah Li-Ion battery

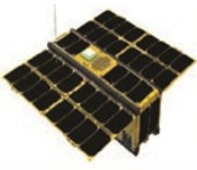
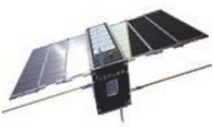





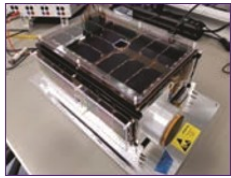
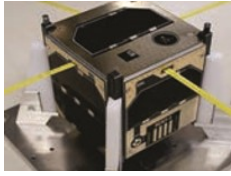

International Co-passenger Satellites

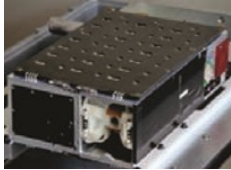



The co-passengers of HysIS include 1 Micro and 29 Nano satellites from 8 different countries. The total weight of 30 co-passenger satellites is 261.5 kg. All these satellites will be placed in a 504 km orbit by PSLV-C43. These satellites have been commercially contracted for launch through Antrix Corporation Limited, the commercial arm of ISRO.

SI No.	Country	No. of Satellites
1.	Australia	1
2.	Canada	1
3.	Columbia	1
4.	Finland	1
5.	Malaysia	1
6.	Netherlands	1
7.	Spain	1
8.	United States of America (USA)	23

The details of the co-passenger satellites are given below:

Satellite	Country	Mission Objective
Centauri (1 No.) 	Australia	Remote Internet of Things Communication services
Kepler (CASE) (1 No.) 	Canada	Internet of Things (IoT)

Satellite	Country	Mission Objective
<p>FACSAT (1 No.)</p> 	<p>Colombia</p>	<p>Earth Observation</p>
<p>Reaktor Hello World (1 No.)</p> 	<p>Finland</p>	<p>Earth Observation</p>
<p>InnoSAT-2 (1 No.)</p> 	<p>Malaysia</p>	<p>Earth Observation</p>
<p>HIBER-1 (1 No.)</p> 	<p>Netherlands</p>	<p>Internet of Things</p>
<p>3Cat-1 (1 No.)</p> 	<p>Spain</p>	<p>Scientific / Experimental</p>
<p>Flock 3R (16 Nos.)</p> 	<p>USA</p>	<p>Earth Observation</p>

Satellite	Country	Mission Objective
<p>HSAT-1 (1 No.)</p> 	<p>USA</p>	<p>Remote Internet of Things Communication services</p>
<p>Global-1 (1 No.)</p> 	<p>USA</p>	<p>Earth Observation</p>
<p>LEMURs (4 Nos.)</p> 	<p>USA</p>	<p>Vessel Automatic Identification System (AIS)</p>
<p>CICERO-8 (1 No.)</p> 	<p>USA</p>	<p>Earth Observation</p>