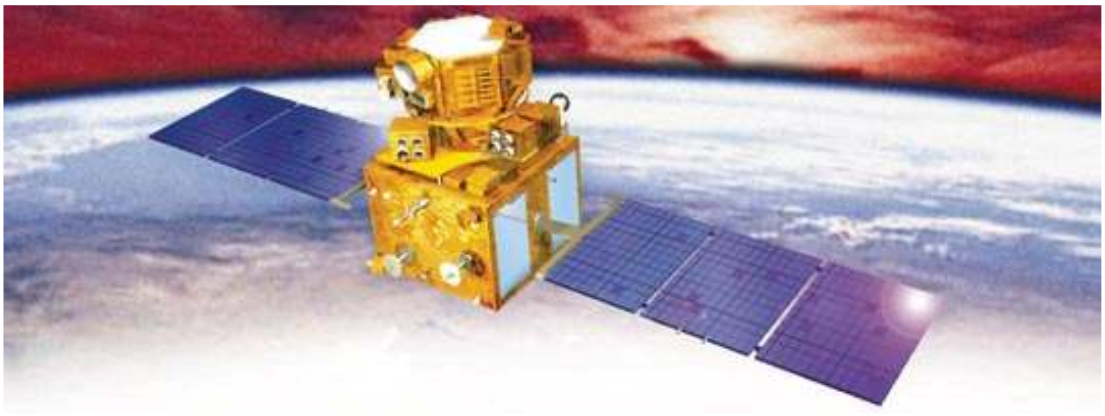
IRS-P6 (RESOURCESAT-1) Satellite



Summary

IRS-P6 (RESOURCESAT-1) is the most advanced remote sensing satellite built by ISRO. The tenth satellite of ISRO in IRS series, **IRS-P6** is intended to not only continue the remote sensing data services provided by **IRS-1C** and IRS-1D, both of which have far outlived their designed mission lives, but also vastly enhance the data quality. The 1360 kg IRS-P6 will be launched into an 817 km high polar Sun Synchronous Orbit by the eighth flight of India's Polar Satellite Launch Vehicle **(PSLV-C5)**.

IRS-P6 carries three cameras similar to those of **IRS-1C** and **IRS-1D** but with vastly improved spatial resolutions _ a high resolution Linear Imaging Self Scanner **(LISS-4)** operating in three spectral bands in the Visible and Near Infrared Region **(VNIR)** with 5.8 metre spatial resolution and steerable up to+_ 26 deg across track to obtain stereoscopic imagery and achieve five day revisit capability; a medium resolution **LISS-3** operating in three spectral bands in **VNIR** and one in Short Wave Infrared **(SWIR)** band with 23.5 metre spatial resolution; and an Advanced Wide Field Sensor **(AWiFS)** operating in three spectral bands in **VNIR** and one band in **SWIR** with 56 metre spatial resolution.

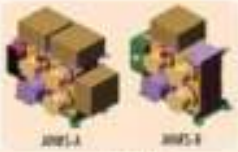
IRS-P6 also carries a Solid State Recorder with a capacity of 120 Giga Bits to store the images taken by its cameras which can be read out later to the ground stations.

EOTec Resourcesat-1 Features

Orbit :	Circular Polar Sun Synchronous
Orbit height :	821 km
Orbit inclination :	98.76°
Orbit period :	101.35 min
Number of Orbits per day :	14
Local Time of Equator crossing :	10.30 a.m.
Repetivity (LISS-3) :	24 days (341 orbits)
Revisit (AWiFS) :	5 days
Lift-off Mass :	1,360 kg
Attitude and Orbit Control :	3-axis body stabilized using Reaction Wheels, Magnetic Torquers and Hydrazine Thrusters
Power :	Solar Array generating 1250 W (at EOL), Two 24 Ah Ni-Cd batteries
Mission Life :	5-7 years
Launch Dates :	Resourcesat-1 launched on 10-17-03 Resourcesat-2 scheduled for Q3 2009

EOTec Resourcesat-1 Payload





PAYLOADS	LISS-4	LISS-3	AWiFS
Spatial Resolution (m)	5.8	23.5	56
Swath (km)	23.9 (MX mode) 70.3 (PAN mode)	141	740
Spectral Bands (micron)	0.52-0.59 0.62-0.68 0.77-0.86	0.52-0.59 0.62-0.68 0.77-0.86 1.55-1.70	0.52-0.59 0.62-0.68 0.77-0.86 1.55-1.70
Quantisation (bits)	7	7	10
Square Wave Response (at Nyquist)	>0.20	B2>0.40 B3>0.40 B4>0.35 B5>0.20	B2>0.40 B3>0.40 B4>0.35 B5>0.20
Power (W)	216	70	114
Weight (kg)	169.5	106.1	103.6
Data Rate (MBPS)	105	52.5	52.5

IRS – P6 Key facts:

IRS - P6					
Operating Time	May 2005 - still operating				
		LISS-IV		**LISS-III**	**AWiFS**
		Mono Mode	**MX Mode**		
Spatial Resolution	Band 2 (green) Band 3 (red) Band 4 (NIR) Band 5 (SWIR)	5.8 m	5.8 m 5.8 m 5.8 m	23.5 m 23.5 m 23.5 m 23.5 m	56 m ... 70 m 56 m ... 70 m 56 m ... 70 m 56 m ... 70 m
Swath-width	all Bands	70 km	23.9 km	140 km	740 km
Radiometric Resolution, Quantisation	all Bands	7 bit	7 bit	7 bit	10 bit
Spectral Coverage	Band 2 (green) Band 3 (red) Band 4 (NIR) Band 5 (SWIR)	620-680 nm	520-590 nm 620-680 nm 770-860 nm	520-590 nm 620-680 nm 770-860 nm 1550-1700 nm	520-590 nm 620-680 nm 770-860 nm 1550-1700 nm
Focal Length	Band 2 (green) Band 3 (red) Band 4 (NIR) Band 5 (SWIR)	982.40 mm	983.12 mm 982.40 mm 981.90 mm	347.520 mm 347.508 mm 347.495 mm 451.631 mm	139.530 mm 139.530 mm 139.530 mm 181.355 mm
CCD Arrays (number of arrays * no. of elements)	Band 2 (green) Band 3 (red) Band 4 (NIR) Band 5 (SWIR)	1 * 12000	1 * 12000 1 * 12000 1 * 12000	1 * 6000 1 * 6000 1 * 6000 1 * 6000	2 * 6000 2 * 6000 2 * 6000 2 * 6000
CCD Size	Band 2 (green) Band 3 (red) Band 4 (NIR) Band 5 (SWIR)	7 µm x 7 µm	7 µm x 7 µm 7 µm x 7 µm 7 µm x 7 µm	10 µm x 7 µm 10 µm x 7 µm 10 µm x 7 µm 13 µm x 13 µm	10 µm x 7 µm 10 µm x 7 µm 10 µm x 7 µm 13 µm x 13 µm
Integration Time	all Bands	0.8782745 ms	0.8782745 ms	3.3194962 ms	9.9584885 ms
Cross Track Field of View (FOV) for Single Pixel (radiant)	all Bands	0.0000071	0.0000071	0.0000288	0.0000717

Data Products

Resolution (m)	Colour	Sensor	Coverage (km x km)	Price (EUR)	Supported Processing Levels		
					System Corrected		Radiometrically Corrected
					North Oriented	Path Oriented	Path Oriented
5	natural + infrared	Merge [1)]	70 x 70	4500	+ [3)]	+ [3)]	+
	natural or infrared	Merge [2)]	70 x 70	4000	+ [3)]	+ [3)]	+
	black & white	LISS-IV Mono	70 x 70	2500	+ [3)]	+ [3)]	+
20	multisp. + synth. blue	LISS-III	140 x 140	2800	+ [3)]	+ [3)]	-
			70 x 70	1800	+ [3)]	+ [3)]	-
	multispectral	LISS-III	140 x 140	2700	+ [3)]	+ [3)]	+
			70 x 70	1700	+ [3)]	+ [3)]	-
60	multisp. + synth. blue	AWiFS	370 x 370	1700	+ [4)]	+ [4)]	-
	multispectral	AWiFS	370 x 370	1600	+ [4)]	+ [4)]	+

1) Includes natural colour and infrared Merge products, LISS-IV Mono and LISS-III data products

2) Includes natural colour or infrared Merge product, LISS-IV Mono and LISS-III data products

3) Includes Ortho Kit, including RPCs and GeoTIFFs, if chosen with UTM or TM projection on WGS 84 in Super Structure

4) Includes Ortho Kit, including RPCs and GeoTIFFs, if chosen with LCC projection on WGS 84 in Super Structure

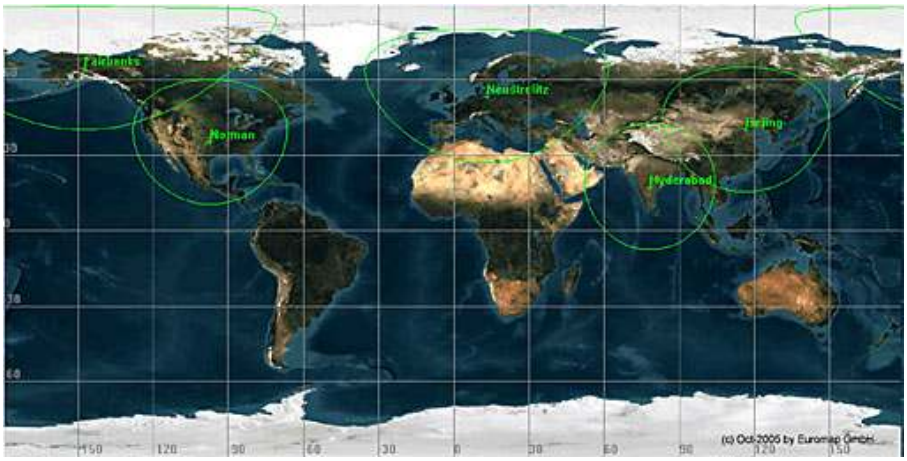
Service Options

Resolution (m)	Colour	Sensor	Coverage (km x km)	Price (EUR)		
				Express Service	FTP Supply	Ortho-Correction
5	natural + infrared	Merge	70 x 70	500	200	750 [1)]
	natural or infrared	Merge	70 x 70	500	200	750 [1)]
	black & white	LISS-IV Mono	70 x 70	300	200	750 [1)]
20	multisp. + synth. blue	LISS-III	140 x 140	300	200	750 [1)]
			70 x 70	300	110	500 [1)]
	multispectral	LISS-III	140 x 140	300	200	750 [1)]
			70 x 70	300	110	500 [1)]
60	multisp. + synth. blue	AWiFS	370 x 370	300	200	750 [2)]
	multispectral	AWiFS	370 x 370	300	200	750 [2)]

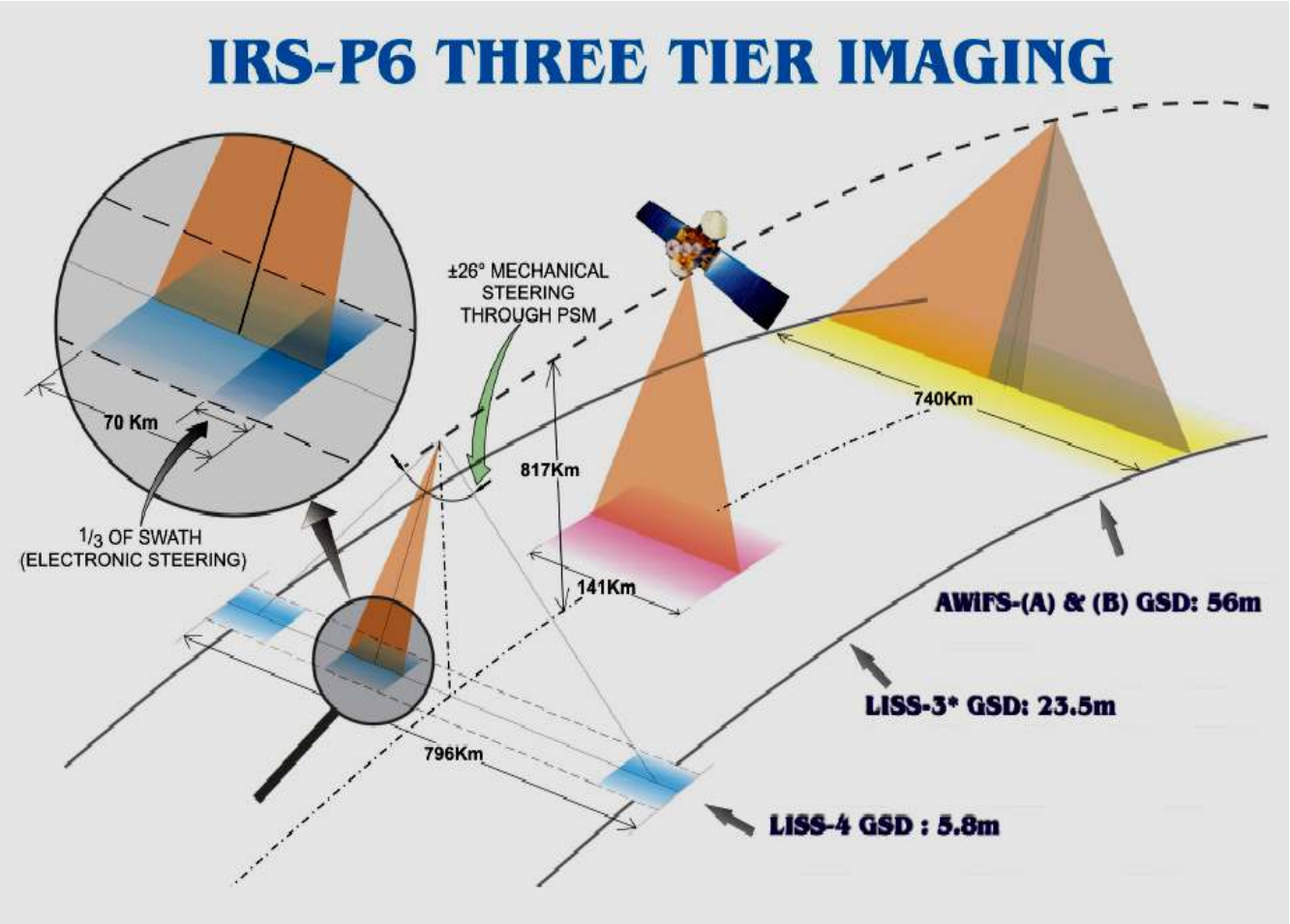
1) If unavailable, customer has to supply ground control information and DEM in suitable quality

2) Service based on in house available ground control information and DEM

Network of IRS-P6 ground stations:



Acquisition Modes



This IRS-P6 LISS-IV multispectral mode image shows the centre of Marseille, France, in natural colors; . Clearly visible are the railway station and the harbour. The image was acquired on 13-Nov-2004 in 5 m spatial resolution and a 7 bit radiometric resolution.

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The following image is a false color image of part of Dubai, UAE.