

NovaSAR-S Synthetic Aperture Radar







NovaSAR - setting a new benchmark in affordability and performance for space-borne Synthetic Aperture Radar (SAR) systems.

NovaSAR combines our heritage SSTL-300 series avionics suite with a customised structure and an innovative payload, developed in collaboration with EADS Astrium, that can be adapted to different frequency bands.

NovaSAR-S delivers all weather medium resolution Earth observation data night and day, at a price similar to traditional optical missions, and significantly lower than any other SAR platform currently on the market. By leveraging highly efficient S-band solid state technology, the platform is sized for a range of low-cost launch options.

Applications

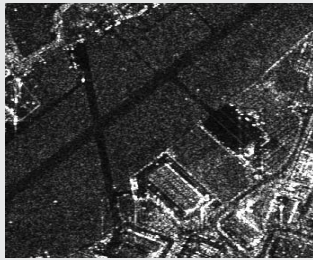
NovaSAR-S provides medium resolution (6-30m) imagery ideal for applications including:

-  flood monitoring
-  agricultural crop assessment
-  forest monitoring (temperate and rain forest)
-  land use mapping
-  disaster management
-  maritime applications (e.g. ship detection and oil spill monitoring)



NovaSAR-S Performance

NovaSAR-S Specification	
Imaging frequency band	S-band (3.1-3.3GHz)
Lifetime	7 years
Mass	<400kg
Lead time (KO to FRR)	24 months
Antenna	Microstrip patch phased array (3m x 1m)
Imaging polarisations	Single, dual or tri-polar (HH, HV, VH, VV)
Optimum orbit	580 km (SSO or low inclination Equatorial orbit)
Payload duty cycle	At least 2 minutes per orbit (single image >800km long)
Typical area coverage	> 1 million km ² per day (mode dependent)

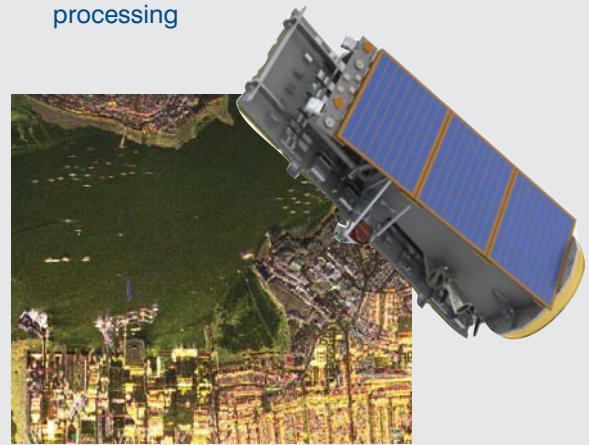


Flexible solutions

The NovaSAR-S platform can be supplied as a spacecraft or as part of a complete mission solution, and can be delivered in orbit from 2013.

SSTL can provide flexible solutions according to customer needs including:

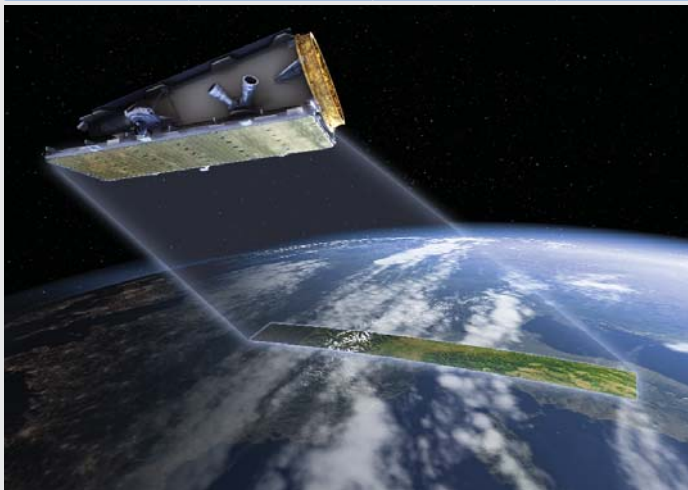
- ▀ **The NovaSAR-S Synthetic Aperture Radar satellite**
- ▀ **Data processing and cataloguing**
- ▀ **Ground segment based on heritage systems for spacecraft housekeeping**
- ▀ **Training in systems engineering, satellite operations and image processing**



Baseline Imaging Modes

The NovaSAR-S payload supports flexible imaging modes for a wide range of applications.

Modes	Typical Swath width	Spatial resolution	Incidence angle	Number of looks	Ambiguity ratio	Sensitivity
1 ScanSAR	100 km	20 m	16-30 degs	4	<-16dB	<-18dB
2 Maritime Surveillance	750 km	30 m	48-73 degs	n/a	<-18dB (Range)	<-12dB
3 Stripmap	15-20 km	6 m	16-34 degs	3.7	<-16dB	<-17.5dB
4 ScanSAR (wide)	150 km	30 m	15-31 degs	4	<-16dB	<-19dB



Surrey Satellite Technology Limited

SSTL has launched 36 satellites, accumulating 200 years in-orbit experience. SSTL draws on its world-class expertise in both small satellite platform technology and high and medium resolution imagers. SSTL provides complete turnkey system solutions: spacecraft, ground station, launch, operation and image data processing.

SSTL is unique in the space industry, able to design, manufacture and integrate multiple satellites in-house.

Changing the economics of space