# DATA SHEET GEOEYE-1

# **GEOEYE-1**

The GeoEye-1 satellite is equipped with some of the most advanced technology ever used in a commercial remote sensing system. The satellite collects images at .46-meter panchromatic (black-and-white) and 1.84-meter multispectral resolution. The satellite can collect up to 500,000 square kilometers of pansharpened multispectral imagery per day. This capability is ideal for large-scale mapping projects. GeoEye-1 can revisit any point on Earth once every three days or sooner.

## Features

- Very high resolution
- Industry-leading geolocation accuracy
- High capacity over a broad range of collection types
- Direct downlink to customer sites available
- Frequent visits at high resolution

### **Benefits**

- Provides highly detailed imagery for precise map creation, change detection, and in-depth image analysis (Note: imagery must be re-sampled to 50 cm for non-US government customers)
- Geolocate features to less than 5 m to create maps in remote areas, maximizing the utility of available resources
- Collects Collects, stores, and downlinks a greater supply of frequently updated global imagery products than competitive systems
- Stereoscopic collection on a single pass ensure image continuity and consistency of quality



GeoEye-1 artist rendering



Bora Bora

# **Design and specifications**

Launch Information	Date: September 6, 2008 Launch vehicle: Delta II Launch site: Vandenberg Air Force Base, California
Mission Life	Expected >10 years
Spacecraft Size	4186 lbs, 4.34 m in length

	Altitude 681 km	Altitude 770 km	
Orbit	Type: Sun-synchronous, 10:30 am descending node Period: 98 min	Type: Sun-synchronous, 10:30 am descending node Period: 100 min	
Sensor Resolution and Spectral Bandwidth	Panchromatic: 41 cm GSD at nadir Black & White: 450 - 800 nm	Panchromatic 46 cm GSD at nadir	
	Multispectral: 1.65 m GSD at nadir Blue: 450 - 510 nm Green: 510 - 580 nm Red: 655 - 690 nm Near-IR: 780 - 920 nm	Multispectral 1.84 m GSD at nadir	
Dynamic Range	11-bits per pixel		
Swath Width	Nominal Swath Width: 15.3 km at nadir	Nominal Swath Width: 17.3 km at nadir	
Attitude Determination and Control	Type: 3-axis Stabilized Star tracker/IRU/reaction wheels, GPS		
Retargeting Agility	Time to slew 200 km: 20 sec	19 sec	
Onboard Storage	1 Tbit capacity		
Communications	Payload Data: X-band 740/150 Mbps AES/DES encryption Housekeeping: X-band 64 kbps AES encryption		
Revisit Frequency (at 40°N Latitude)	2.6 days at 30° off-nadir	2.3 days at 30° off-nadir or less	
Metric Accuracy	5 m CE90, 3 m CE90 (measured)		
Capacity	350,000 sq km/day Multi-spectral	500,000 sq km/day Multi-spectral	



#### Altitude and slew time



#### **Collection scenarios**



#### Sensor bands

- Panchromatic
- Multispectral

MXR-DS-GeoEye-1 08/19