Vantor

PACGEO

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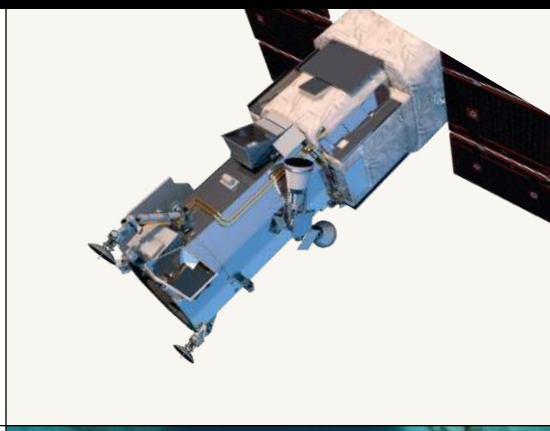
WorldView-3



WorldView-3 is the industry's first multi-payload, super-spectral, high-resolution commercial satellite. Operating at an altitude of 617 km, WorldView-3 provides 31 cm panchromatic resolution, 1.24 m multispectral resolution, 3.7 m short-wave infrared resolution, and 30 m CAVIS resolution. WorldView-3 has an average revisit time of less than one day and is capable of collecting up to 680,000 sq km per day, further enhancing the Vantor™ collection capacity for more rapid and reliable collection.

Features

+ Highest-resolution imagery
+ Panchromatic 31 cm
+ Visible and near-infrared 1.24 m
+ Short-wave infrared 3.7 m
+ CAVIS 30 m
+ The most spectral diversity commercially available
  - Panchromatic band
  - 4 standard VNIR colors: blue, green, red, and near-IR1
  - 4 added VNIR colors: coastal, yellow, red edge, and near-IR2
  - 8 SWIR bands: penetrates haze, fog, smog, dust, and smoke
  - 12 CAVIS bands: maps clouds, ice and snow, corrects for aerosol and water vapor
+ Industry-leading geolocation accuracy
+ High capacity in various collection modes
+ Bi-directional scanning
+ Rapid targeting using Control Moment Gyros (2x faster than any competitor)
+ Direct access tasking from and image transmission to customer sites

Benefits

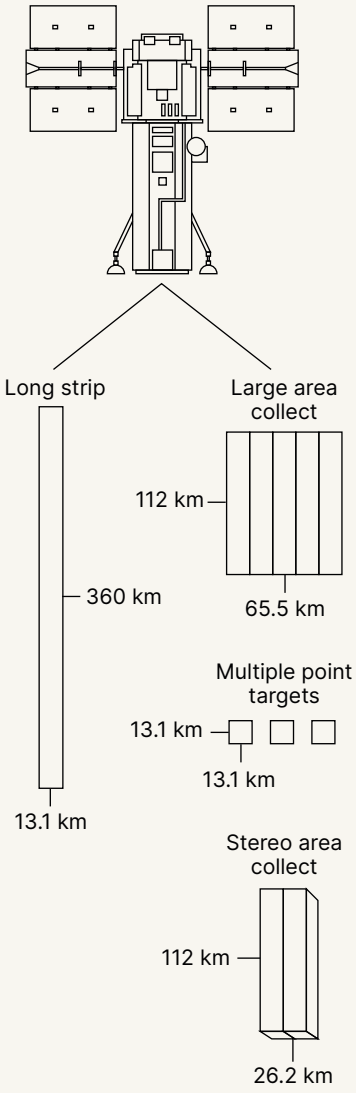
+ Daily revisits
+ Simultaneous, high-resolution
+ Super-spectral imagery
+ Large area mono and stereoscopic collection eliminates temporal variations
+ Precision geolocation possible without ground control points
+ Global capacity of 680,000 sq km per day
+ New and enhanced applications including:
  - Mapping
  - Land classifications
  - Disaster preparedness / response
  - Feature extraction / change detection
  - Soil/vegetative analysis
  - Geology: oil and gas, mining
  - Environmental monitoring
  - Bathymetry / coastal applications
+ Superior haze penetration

Fort Jefferson, Garden Key, Florida

Specifications

Orbit	Altitude: 617 km Type: Sun-synchronous, 10:30 a.m. descending node Period: 97 min			
Spacecraft and mass	Size: 5.7 m (18.7 ft.) tall x 2.5 m (8 ft.) across 7.1 m (23 ft.) across deployed solar arrays Mass: 2800 kg (6200 lbs.) Power: 3.1 kW solar array, 100 Ahr battery			
Sensor bands	Panchromatic: 450 – 800 nm			
	8 Multispectral:			
	Coastal:	397-454 nm	Red:	626-696 nm
	Blue:	445-517 nm	Red Edge:	698-749 nm
	Green:	507-586 nm	Near-1R1:	765-899 nm
	Yellow:	580-629 nm	Near-1R2:	857-1039 nm
	8 SWIR Bands:			
	SWIR-1:	1184-1235 nm	SWIR-5:	2137-2191 nm
	SWIR-2:	1546-1598 nm	SWIR-6:	2174-2232 nm
	SWIR-3:	1636-1686 nm	SWIR-7:	2228-2292 nm
	SWIR-4:	1702-1759 nm	SWIR-8:	2285-2373 nm
	12 CAVIS Bands:			
	Desert Clouds:	405-420 nm	Water-3:	930-965 nm
	Aerosol-1:	459-509 nm	NDVI-SWIR:	1220-1252 nm
	Green:	525-585 nm	Cirrus:	1365-1405 nm
	Aerosol-2:	635-685 nm	Snow:	1620-1680 nm
	Water-1:	845-885 nm	Aerosol-3:	2105-2245 nm
	Water-2:	897-927 nm	Aerosol-3 P:	2105-2245 nm
Sensor resolution (or GSD, Ground Sample Distance; off-nadir is geometric mean)	Panchromatic nadir: 0.31 m 20 degrees off-nadir: 0.34 m Multispectral nadir: 1.24 m 20 degrees off-nadir: 1.38 m SWIR nadir: 3.70 m 20 degrees off-nadir: 4.10 m CAVIS nadir: 30.00 m			
Dynamic range	11-bits per pixel pan and MS; 14-bits per pixel SWIR			
Swath width	At nadir: 13.1 km			
Attitude determination and control	Type: 3-axis Stabilized Actuators: Control Moment Gyros (CMGs) Sensors: Star trackers, precision IRU, GPS			
Pointing accuracy and knowledge	Accuracy: <500 m at image start/stop Knowledge: Supports geolocation accuracy below			
Retargeting agility	Time to slew 200 km: 12 sec			
Onboard storage	2199 GB solid state with EDAC			
Communications	Image and ancillary data: 800 and 1200 mbps X-band Housekeeping: 4, 16, 32, or 64 kbps real time, 524 kbps stored, X-band Command: 2 or 64 kbps S-band			
Max Contiguous Area Collected in a Single Pass (30 degrees off-nadir angle)	Mono: 66.5 kmx112 km (5 strips) Stereo: 26.6 kmx112 km (2 pairs)			
Revisit frequency (at 40 degrees North latitude)	1 m GSD: <1.0 day 4.5 days at 20 degrees off-nadir or less			
Geolocation accuracy (CE90)	Predicted <3.5 m CE90 without ground control			
Capacity	680,000 sq km per day			

Collection Scenarios



Sensor bands

- Panchromatic
- Multispectral
- 4 additional multispectral bands
- 8 SWIR bands
- 12 CAVIS bands