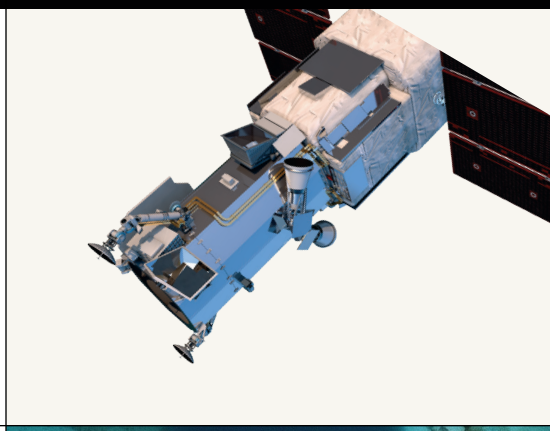
Vantor

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

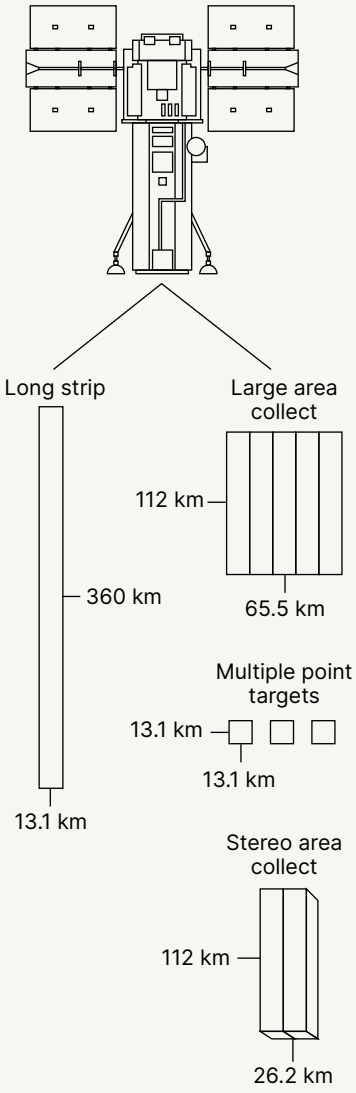
+ Daily revisits
+ Simultaneous, high-resolution
+ Super-spectral imagery
+ Large area mono and stereoscopic collection eliminates temporal variations
+ Precision geolocation possible without ground control points
+ Global capacity of 680,000 sq km per day
+ New and enhanced applications including:
  - 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