

WorldView-3

Introducing WorldView-3, the first multi-payload, super-spectral, high-resolution commercial satellite. Operating at an expected 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 <1 day and is capable of collecting up to 680,000 km² per day, further enhancing the DigitalGlobe collection capacity for more rapid and reliable collection. Launching in 2014, the WorldView-3 system will allow DigitalGlobe to further expand its imagery product offerings.

Features

- » Very high-resolution*
 - Panchromatic 31 cm
 - Visible & near-infrared 1.24 m
 - Short-wave infrared 3.7 m
 - CAVIS 30 m*Will be resampled for commercial distribution
- » The most spectral diversity commercially available
 - Panchromatic band
 - 4 standard VNIR colors: blue, green, red, 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 retargeting using Control Moment Gyros (>2x faster than any competitor)
- » Direct Access tasking from and image transmission to customer sites
- » Daily revisits

Benefits

- » Simultaneous, high resolution, super-spectral imagery
- » Large area mono and stereoscopic collection eliminates temporal variations
- » Precision geo-location possible without ground control points
- » Global capacity of 680,000 km² per day
- » New and enhanced applications, including:
 - Mapping
 - Land Classifications
 - Disaster Preparedness/Response
 - Feature Extraction/Change Detection
 - Soil/Vegetative Analysis
 - Geology: Oil & Gas, Mining
 - Environmental Monitoring
 - Bathymetry/Coastal Applications
 - Identification of Man-made Materials
- » Superior Haze Penetration

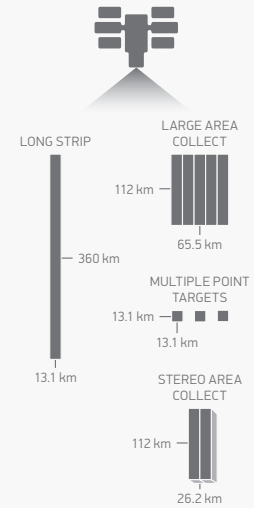


WorldView-3 artist rendering






Design and specifications

Orbit	Altitude: 617 km Type: SunSync, 10:30 am descending Node Period: 97 min.																																																								
Life	Spec Mission Life: 7.25 years Estimated Service Life: 10 to 12 years																																																								
Spacecraft Size, Mass and Power	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	<p>Panchromatic: 450 - 800 nm</p> <p>8 Multispectral:</p> <table border="0"> <tr> <td>Coastal:</td> <td>400 - 450 nm</td> <td>Red:</td> <td>630 - 690 nm</td> </tr> <tr> <td>Blue:</td> <td>450 - 510 nm</td> <td>Red Edge:</td> <td>705 - 745 nm</td> </tr> <tr> <td>Green:</td> <td>510 - 580 nm</td> <td>Near-IR1:</td> <td>770 - 895 nm</td> </tr> <tr> <td>Yellow:</td> <td>585 - 625 nm</td> <td>Near-IR2:</td> <td>860 - 1040 nm</td> </tr> </table> <p>8 SWIR Bands:</p> <table border="0"> <tr> <td>SWIR-1:</td> <td>1195 - 1225 nm</td> <td>SWIR-5:</td> <td>2145 - 2185 nm</td> </tr> <tr> <td>SWIR-2:</td> <td>1550 - 1590 nm</td> <td>SWIR-6:</td> <td>2185 - 2225 nm</td> </tr> <tr> <td>SWIR-3:</td> <td>1640 - 1680 nm</td> <td>SWIR-7:</td> <td>2235 - 2285 nm</td> </tr> <tr> <td>SWIR-4:</td> <td>1710 - 1750 nm</td> <td>SWIR-8:</td> <td>2295 - 2365 nm</td> </tr> </table> <p>12 CAVIS Bands:</p> <table border="0"> <tr> <td>Desert Clouds:</td> <td>405 - 420 nm</td> <td>Water-3:</td> <td>930 - 965 nm</td> </tr> <tr> <td>Aerosol-1:</td> <td>459 - 509 nm</td> <td>NDVI-SWIR:</td> <td>1220 - 1252 nm</td> </tr> <tr> <td>Green:</td> <td>525 - 585 nm</td> <td>Cirrus:</td> <td>1365 - 1405 nm</td> </tr> <tr> <td>Aerosol-2:</td> <td>635 - 685 nm</td> <td>Snow:</td> <td>1620 - 1680 nm</td> </tr> <tr> <td>Water-1:</td> <td>845 - 885 nm</td> <td>Aerosol-1:</td> <td>2105 - 2245 nm</td> </tr> <tr> <td>Water-2:</td> <td>897 - 927 nm</td> <td>Aerosol-2:</td> <td>2105 - 2245 nm</td> </tr> </table>	Coastal:	400 - 450 nm	Red:	630 - 690 nm	Blue:	450 - 510 nm	Red Edge:	705 - 745 nm	Green:	510 - 580 nm	Near-IR1:	770 - 895 nm	Yellow:	585 - 625 nm	Near-IR2:	860 - 1040 nm	SWIR-1:	1195 - 1225 nm	SWIR-5:	2145 - 2185 nm	SWIR-2:	1550 - 1590 nm	SWIR-6:	2185 - 2225 nm	SWIR-3:	1640 - 1680 nm	SWIR-7:	2235 - 2285 nm	SWIR-4:	1710 - 1750 nm	SWIR-8:	2295 - 2365 nm	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-1:	2105 - 2245 nm	Water-2:	897 - 927 nm	Aerosol-2:	2105 - 2245 nm
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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 & 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° off-nadir angle)	Mono: 66.5 km x 112 km (5 strips) Stereo: 26.6 km x 112 km (2 pairs)																																																								
Revisit Frequency (at 40°N Latitude)	1 m GSD: <1.0 day 4.5 days at 20° off-nadir or less																																																								
Geolocation Accuracy (CE90)	Predicted <3.5 m CE90 without ground control																																																								
Capacity	680,000 km ² per day																																																								

Collection scenarios



Sensor bands

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