

## WorldView-3

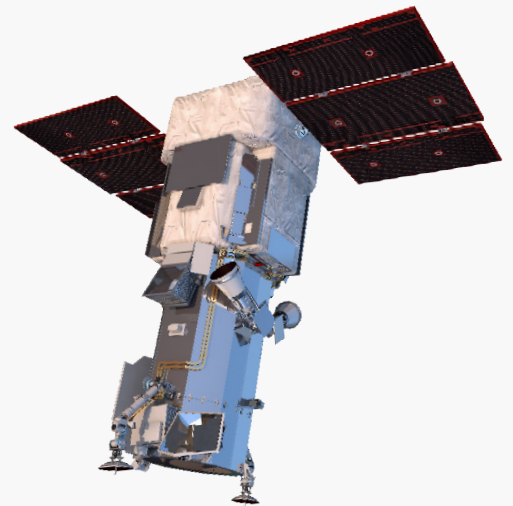
WorldView-3 is the industry's first multi-payload, super-spectral, high-resolution commercial satellite. Operating at an expected altitude of 617 km, WorldView-3 provides 31 cm panchromatic resolution, 1.24 m multispectral resolution, 3.7 m short-wave infrared resolution, and 30 m CAVIS resolution. WorldView-3 has an average revisit time of <1 day and is capable of collecting up to 680,000 km<sup>2</sup> per day, further enhancing the DigitalGlobe collection capacity for more rapid and reliable collection.

### 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 km<sup>2</sup> 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

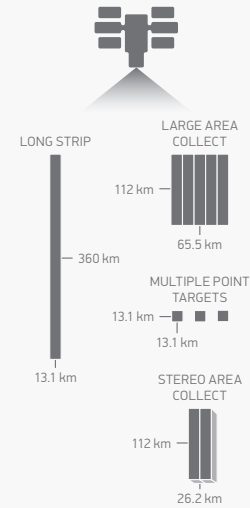


WorldView-3 artist rendering






## Design and specifications

<b>Orbit</b>	Altitude: 617 km Type: SunSync, 10:30 am descending Node Period: 97 min.																												
<b>Life</b>	Spec Mission Life: 7.25 years Estimated Service Life: 10 to 12 years																												
<b>Spacecraft Size, Mass and Power</b>	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																												
<b>Sensor Bands</b>	<p>Panchromatic: 450 - 800 nm</p> <p>8 Multispectral:</p> <table border="0"> <tr> <td>Coastal: 400 - 450 nm</td> <td>Red: 630 - 690 nm</td> </tr> <tr> <td>Blue: 450 - 510 nm</td> <td>Red Edge: 705 - 745 nm</td> </tr> <tr> <td>Green: 510 - 580 nm</td> <td>Near-IR1: 770 - 895 nm</td> </tr> <tr> <td>Yellow: 585 - 625 nm</td> <td>Near-IR2: 860 - 1040 nm</td> </tr> </table> <p>8 SWIR Bands:</p> <table border="0"> <tr> <td>SWIR-1: 1195 - 1225 nm</td> <td>SWIR-5: 2145 - 2185 nm</td> </tr> <tr> <td>SWIR-2: 1550 - 1590 nm</td> <td>SWIR-6: 2185 - 2225 nm</td> </tr> <tr> <td>SWIR-3: 1640 - 1680 nm</td> <td>SWIR-7: 2235 - 2285 nm</td> </tr> <tr> <td>SWIR-4: 1710 - 1750 nm</td> <td>SWIR-8: 2295 - 2365 nm</td> </tr> </table> <p>12 CAVIS Bands:</p> <table border="0"> <tr> <td>Desert Clouds: 405 - 420 nm</td> <td>Water-3: 930 - 965 nm</td> </tr> <tr> <td>Aerosol-1: 459 - 509 nm</td> <td>NDVI-SWIR: 1220 - 1252 nm</td> </tr> <tr> <td>Green: 525 - 585 nm</td> <td>Cirrus: 1365 - 1405 nm</td> </tr> <tr> <td>Aerosol-2: 635 - 685 nm</td> <td>Snow: 1620 - 1680 nm</td> </tr> <tr> <td>Water-1: 845 - 885 nm</td> <td>Aerosol-3: 2105 - 2245 nm</td> </tr> <tr> <td>Water-2: 897 - 927 nm</td> <td>Aerosol-3: 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-3: 2105 - 2245 nm	Water-2: 897 - 927 nm	Aerosol-3: 2105 - 2245 nm
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<b>Sensor Resolution (or GSD, Ground Sample Distance; off-nadir is geometric mean)</b>	Panchromatic Nadir: 0.31 m 20° Off-Nadir: 0.34 m Multispectral Nadir: 1.24 m 20° Off-Nadir: 1.38 m SWIR Nadir: 3.70 m 20° Off-Nadir: 4.10 m CAVIS Nadir: 30.00 m																												
<b>Dynamic Range</b>	11-bits per pixel Pan and MS; 14-bits per pixel SWIR																												
<b>Swath Width</b>	At nadir: 13.1 km																												
<b>Attitude Determination and Control</b>	Type: 3-axis Stabilized Actuators: Control Moment Gyros (CMGs) Sensors: Star trackers, precision IRU, GPS																												
<b>Pointing Accuracy and Knowledge</b>	Accuracy: <500 m at image start/stop Knowledge: Supports geolocation accuracy below																												
<b>Retargeting Agility</b>	Time to Slew 200 km: 12 sec																												
<b>Onboard Storage</b>	2199 Gb solid state with EDAC																												
<b>Communications</b>	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																												
<b>Max Contiguous Area Collected in a Single Pass (30° off-nadir angle)</b>	Mono: 66.5 km x 112 km (5 strips) Stereo: 26.6 km x 112 km (2 pairs)																												
<b>Revisit Frequency (at 40°N Latitude)</b>	1 m GSD: <1.0 day 4.5 days at 20° off-nadir or less																												
<b>Geolocation Accuracy (CE90)</b>	Predicted <3.5 m CE90 without ground control																												
<b>Capacity</b>	680,000 km <sup>2</sup> per day																												

## Collection scenarios



## Sensor bands

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