Shortwave-infrared imagery

In addition to offering the highest resolution satellite imagery available today, WorldView-3 is the first commercial satellite to have eight high-resolution bands that capture information in the shortwave infrared (SWIR) regions of the electromagnetic spectrum. WorldView-3 expands deeper into the infrared spectrum than any other commercial imaging satellite, and provides rich data for precisely identifying and characterizing man-made and natural material, penetrating smoke, and mapping minerals. The eight SWIR bands capture unique information for agriculture, forestry, mining/geology, and other applications.

### Features

» High resolution  
  - 7.5 m  
  - 3.7 m (USG only)

» Spectral diversity  
  - 8 Bands of SWIR information  
  - 1195–2365 nm

» High radiometric response  
  - 14-bit digitization (up to 16,384 levels of gray scale)  
  - Discrete non-overlapping bands

» Open systems  
  - Imaging geometry supplied  
  - Compatible with leading commercial software providers  
  - Popular image file formats

» Imaging geometry, geometric calibration, radiometric calibration, and other metadata supplied with satellite imagery

### Benefits

» Identify features and perform analyses that are not possible with visible and near-infrared alone

» Bands optimized for the detection of features of greatest interest

» Ideal for penetrating smoke, mapping minerals, and identifying man-made features
Specifications

Product options

<table>
<thead>
<tr>
<th>Pixel Resolution</th>
<th>Image Bands</th>
</tr>
</thead>
<tbody>
<tr>
<td>SWIR 7.5 m / 3.7 m (USG only)</td>
<td>SWIR 1, SWIR 2, SWIR 3, SWIR 4, SWIR 5, SWIR 6 SWIR 7, SWIR 8</td>
</tr>
</tbody>
</table>

Spectral characteristics

<table>
<thead>
<tr>
<th>SWIR</th>
<th>Band Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1195–1225 nm</td>
</tr>
<tr>
<td>2</td>
<td>1550–1590 nm</td>
</tr>
<tr>
<td>3</td>
<td>1640–1680 nm</td>
</tr>
<tr>
<td>4</td>
<td>1710–1750 nm</td>
</tr>
<tr>
<td>5</td>
<td>2145–2185 nm</td>
</tr>
<tr>
<td>6</td>
<td>2185–2225 nm</td>
</tr>
<tr>
<td>7</td>
<td>2235–2285 nm</td>
</tr>
<tr>
<td>8</td>
<td>2295–2365 nm</td>
</tr>
</tbody>
</table>

Scene size

At nadir

10.6 km cross-track

Image accuracy specifications

WorldView-3 SWIR

7.5 m CE90

Order parameters

Product level

1B (USG only), 2A, OR2A, L3

Image bits/pixel

8 or 16 bits (16-bit data is strongly recommended)

File format

GeoTIFF, NITF (USG only)

Processing

Radiometric corrections

- Relative radiometric response between detectors
- Non-response detector fill
- Conversion to absolute radiometry

Sensor Corrections

- Internal detector geometry
- Optical distortion
- Scan distortion
- Any line-rate variations

Resampling Options

- 2x2 bilinear
- Nearest neighbor (recommended)
- Cubic convolution

Deliverables

Acquire SWIR imagery directly from the DigitalGlobe archive or through a new collection request. SWIR imagery is ordered by the scene, with a minimum purchase of a single scene up to a maximum of 10,000 sq km per order. Products are delivered on a choice of standard digital media with all the Image Support Data files needed for processing, including imaging geometry, geometric calibration, radiometric calibration, and other metadata.