

Guide: DigitalGlobe Satellite Constellation

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PGC provides high-resolution imagery from DigitalGlobe. Here you will find information about the satellites' spatial and temporal resolution, spectral capabilities, and more!

About DigitalGlobe

DigitalGlobe, Inc. is a commercial satellite imagery company founded in 2001 and currently headquartered in Westminster, Colorado.

DigitalGlobe operates a constellation of five electro-optical earth imaging satellites.

First Launch

The company launched its first satellite on October 18, 2001. At the time, QuickBird-2 was capable of collecting the highest resolution imagery of any commercial satellite on the market.

DigitalGlobe quickly established customers in a diverse spectrum of industries including mapping, real estate, government military/intelligence, engineering, oil and gas, environmental services, and aviation applications.

In September of 2007, DigitalGlobe launched the WorldView-1 satellite, partially financed by the National Geospatial-Intelligence Agency and capable of collecting 0.5-meter resolution panchromatic imagery in monoscopic and stereoscopic modes. Originally designed for seven years of operation, WorldView-1 continues to collect imagery in a recently modified afternoon orbit.

In May of 2009, DigitalGlobe went public on the New York Stock Exchange with an initial public offering of approximately \$279 million dollars at \$19.00 per share, and currently trades under the ticker symbol "DGI."

Late 2009 also saw the launch of DigitalGlobe's third satellite, WorldView-2, adding 8-band multispectral imaging capabilities to the company's constellation.

Acquisition of GeoEye

DigitalGlobe acquired competing company GeoEye in 2013, which included GeoEye's imagery archive, ground station infrastructure, and existing satellite assets IKONOS, GeoEye-1, and the unlaunched GeoEye-2.

With the approaching completion of Worldview-3, DigitalGlobe made the decision to keep GeoEye-2 as a ground spare in storage to be launched when needed.

WorldView-3 was successfully launched from Vandenberg Air Force Base in August of 2014.

With both QuickBird and IKONOS decommissioned in 2015, the decision was made to remove GeoEye-2 (renamed to WorldView-4) from storage and launch the satellite on November 11, 2016.

For more information, visit [DigitalGlobe's website](#).

[Constellation Brochure](#)

WorldView-1

WorldView-1 was DigitalGlobe's second satellite, increasing capacity for the growing demand for commercial satellite imagery.

Launched in September 18, 2007, WorldView-1 has a single panchromatic band with a resolution of 0.5 m.

Satellite Specifications

Launched: 2007

Operational Altitude: 496 km

Spectral Characteristics: Panchromatic

Sensor Resolution: 50 cm GSD at nadir

Dynamic Range: 11-bits per pixel

Swath Width: 17.7 km at nadir

Capacity: 1.3 million km² per day

Stereo Collection: Yes

[Datasheet](#)

WorldView-2

DigitalGlobe's third satellite was launched on October 8, 2009.

WorldView-2 provides commercially available panchromatic imagery of .46 m resolution, and 8-band multispectral imagery with 1.84 m (6 ft 0 in) resolution.

Satellite Specifications

Launched: 2009

Operational Altitude: 770 km

Spectral Characteristics: Panchromatic + 8 Multispectral

Sensor Resolution: 46 cm GSD at nadir

Dynamic Range: 11-bits per pixel

Swath Width: 16.4 km at nadir

Capacity: 1.0 million km² per day

Stereo Collection: Yes

[Datasheet](#)

WorldView-3

Launched on August 13, 2014, WorldView-3 provides commercially available panchromatic imagery of 0.31 m (12 in) resolution, which was the highest resolution commercially available at the time.

In addition, eight-band multispectral imagery with 1.24 m (4 ft 1 in) resolution and shortwave infrared (SWIR) imagery at 3.7 m (12 ft 2 in) resolution are also available.

Satellite Specifications

Launched: 2014

Operational Altitude: 617 km

Spectral Characteristics: Panchromatic + 8 Multispectral + 8 SWIR + 12 CAVIS

Sensor Resolution: 31 cm GSD at nadir

Dynamic Range: 11-bits per pixel, 14-bits per pixel SWIR

Swath Width: 13.1 km at nadir

Capacity: 680,000 km² per day

Stereo Collection: Yes

[Datasheet](#)

WorldView-4

Launched on November 11, 2016, WorldView-4 is DigitalGlobe's newest high-resolution satellite.

Satellite Specifications

Launched: 2016

Operational Altitude: 617 km

Spectral Characteristics: Panchromatic + 4 Multispectral Bands

Sensor Resolution: Pan: 31 cm GSD at nadir; MS: 1.24 m at nadir

Dynamic Range: 11-bits per pixel

Swath Width: 13.2 km at nadir

Capacity: 680,000 km² per day

Stereo Collection: Yes

[Datasheet](#)

As of 2018, WorldView-4 is not available in the NGA NextView license

QuickBird

DigitalGlobe's first Earth observation satellite, QuickBird launched in October of 2011 and became the first satellite provide commercially-available sub-meter optical imagery.

QuickBird was retired in December 2014 after its mission was extended in 2011 by raising the orbital altitude from 450km to 482km.

Satellite Specifications

Launched: 2011

Operational Altitude: 400-450 km

Spectral Characteristics: Panchromatic + 4 Multispectral

Sensor Resolution: 55-61 cm GSD at nadir

Dynamic Range: 11-bits per pixel

Swath Width: 14.9-16.8 km at nadir

Capacity: 200,000 km² per day

Stereo Collection: Yes

[Datasheet](#)

IKONOS

A pioneer in earth-observation satellites, IKONOS was the first to collect publicly available high-resolution imagery at 1-(panchromatic) and 4-(multispectral) meter resolution.

Launched on September 24, 1999, the satellite performed for more than twice its life expectancy when it was retired in March 2015.

Satellite Specifications

Launched: 1999

Operational Altitude: 681 km

Spectral Characteristics: Panchromatic + 4 Multispectral

Sensor Resolution: 82 cm GSD at nadir

Dynamic Range: 11-bits per pixel

Swath Width: 11.3 km at nadir

Capacity: 240,000 km² per day

Stereo Collection: Yes

[Datasheet](#)

GeoEye-1

Originally owned and operated by GeoEye Inc., GeoEye-1 was launched on September 6, 2008.

GeoEye-1 offers four multispectral bands (red, green, blue and near-infrared) in addition to its panchromatic band, which has a maximum resolution of 41 cm.

Satellite Specifications

Launched: 2008

Operational Altitude: 681 km

Spectral Characteristics: Panchromatic + 4 Multispectral Bands

Sensor Resolution: Pan: 41 cm GSD at nadir; MS: 1.65 m GSD at nadir

Dynamic Range: 11-bits per pixel

Swath Width: 15.3 km at nadir

Capacity: 350,000 km² per day

Stereo Collection: Yes

[Datasheet](#)

Summary

In this Guide, we've covered:

- History of DigitalGlobe, Inc.
- Detailed specifications of DigitalGlobe sensors