

Vegetative Analysis

Successfully launched on October 8, 2009, WorldView-2 is the first high resolution satellite to provide half-meter panchromatic resolution and two meter multispectral resolution across 8 spectral bands. With unprecedented agility and a collection capacity of 975,000 km² per day, WorldView-2 doubles the Alliance's collection capacity and provides worldwide intra-day revisit capabilities.



WorldView-2 is the first high-resolution multispectral satellite to provide a Red-Edge detector (705-745nm), for conducting vegetative analyses that can reveal plant type, age, health and diversity in unprecedented detail. WorldView-2's expected unsurpassed accuracy, agility and collection capacity will enable the most sensitive and wide-scale remote sensing applications.

Remote sensing solutions that include the Red-Edge band are sensitive enough to discriminate young vs. mature plants, conifers vs. broad leafed plants and even detect subtle changes in plant health, before they are visible. Analysts will rely on the sensitivity of WorldView-2's Red-Edge band to deliver more granular field classifications, and even provide early-warning capabilities to industries that interact with, and depend on, the environment.

APPLICATIONS

Precision agriculture

Field crops, orchards and tree plantations are complex systems that require continuous monitoring, which is typically costly and highly subjective. The increased sensitivity of Red-Edge based analyses improves the efficiency of large scale monitoring, dramatically reducing cost and effort.

Environmental mapping

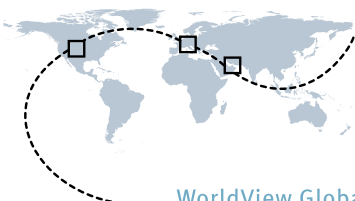
Governmental agencies monitor natural resources to ensure regulatory compliance and manage risks from natural disasters. The ability to map and classify large areas with great detail will enable more efficient responses and a better understanding of potential risks.

Pipeline monitoring

Oil and gas utilities need to monitor large stretches of pipelines across remote and inhospitable regions. Red-Edge based analysis can provide early identification of potential leaks based on their impact to the adjacent plant material.

BENEFITS

- Discriminate between weeds vs. field crops or identify impacts of disease
- Monitor effects of irrigation and fertilizer on crop health and growth rates
- Calculate yield by mapping crop health and maturity to market price
- Identify regions of plant stress that can indicate contamination or pollution
- Develop accurate forest fire models using detailed classifications of plant material
- Monitor large invasive species eradication projects with greater precision
- Deploy field crews directly to potential problem areas, saving time and money
- Minimize environmental impact by quickly responding to leaks
- Detect smaller leaks earlier, reducing the loss of valuable resources



As a result of WorldView-2, we expect to see Red-Edge based assessments incorporated into an increasing number of projects, creating a new standard for vegetative analysis.

WorldView Global Alliance™ delivers geospatial content the way you want it, when you want it.

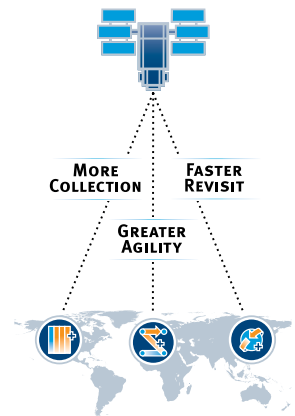
We provide clearer, more accurate visual perspectives for spatial applications and decisions.



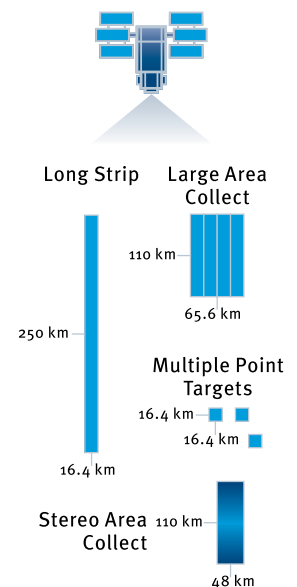


DESIGN AND SPECIFICATIONS

Launch Information	Date: October 8, 2009 Launch Vehicle: Delta 7920 (9 strap-ons) Launch Site: Vandenberg Air Force Base
Orbit	Altitude: 770 kilometers Type: Sun synchronous, 10:30 am descending node Period: 100 minutes
Mission Life	7.25 years, including all consumables and degradables (e.g. propellant)
Spacecraft Size, Mass and Power	4.3 meters (14 feet) tall x 2.5 meters (8 feet) across 7.1 meters (23 feet) across the deployed solar arrays 2800 kilograms (6200 pounds) 3.2 kW solar array, 100 Ahr battery
Sensor Bands	Panchromatic + 8 Multispectral: 4 standard colors: red, blue, green, near-IR 4 new colors: red edge, coastal, yellow and near-IR2
Sensor Resolution	Panchromatic: 0.46 meters GSD at nadir, 0.52 meters GSD at 20° off-nadir Multispectral: 1.84 meters GSD at nadir, 2.08 meters GSD at 20° off-nadir
Dynamic Range	11-bits per pixel
Swath Width	16.4 kilometers at nadir
Attitude Determination and Control	3-axis Stabilized Actuators: Control Moment Gyros (CMGs) Sensors: Star trackers, solid state IRU, GPS
Pointing Accuracy and Knowledge	Accuracy: <500 meters at image start and stop Knowledge: Supports geolocation accuracy below
Retargeting Agility	Acceleration: 1.5 deg/s/s Rate: 3.5 deg/s Time to Slew 300 kilometers: 9 seconds
Onboard Storage	2199 gigabits solid state with EDAC
Communications	Image and Ancillary Data: 800 Mbps X-band Housekeeping: 4, 16 or 32 kbps real-time, 524 kbps stored, X-band Command: 2 or 64 kbps S-band
Max Viewing Angle / Accessible Ground Swath	Nominally +/-45° off-nadir = 1355 km wide swath Higher angles selectively available
Per Orbit Collection	524 gigabits
Max Contiguous Area Collected in a Single Pass	96 x 110 km mono 48 x 110 km stereo
Revisit Frequency	1.1 days at 1 meter GSD or less 3.7 days at 20° off-nadir or less (0.52 meter GSD)
Geolocation Accuracy (CE90%)	Specification of 6.5m CE90, with predicted performance in the range of 4.6 to 10.7 meters (15 to 35 feet) CE90, excluding terrain and off-nadir effects With registration to GCPs in image: 2.0 meters (6.6 feet)



COLLECTION SCENARIOS



SENSOR BANDS

-  Panchromatic
-  Multispectral
-  4 Additional Bands

To learn more about the Alliance and its members, or to contact us, visit: www.worldviewglobalalliance.com

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