WorldView-2 is the first high-resolution satellite to provide 8 narrowly focused spectral detectors ranging from blue to near infrared. The unparalleled spectral fidelity, combined with an expected unsurpassed accuracy, agility and collection capacity, will deliver detailed feature classification capabilities, beyond any other remote sensing satellite.

With the addition of 4 new spectral bands: Coastal Blue (400-450), Yellow (585-625), Red-Edge (705-745) and NearIR-2 (860-1040), WorldView-2 can deliver an increase in classification accuracy of 20-30% over analyses that employ the traditional four bands. The increased classification accuracy, coupled with 2m spatial resolution and wide scale synoptic coverage will enable the discrimination of vegetation by species, allow finer object oriented classification and provide measurable value in public and private sector applications.

**Applications**

**Species identification**

Wild plant populations are much more complex than organized farmlands, consisting of multiple species. Some are invasive pests, while others have potential value. With the increased spectral fidelity of WorldView-2, plant species can be differentiated from each other and accurately mapped.

**Feature extraction**

Object oriented methodologies are proving to be the most successful at differentiating between features with similar spectral properties, like asphalt roofing and asphalt roadways. With the highest spectral fidelity, plus the greatest spatial resolution, WorldView-2 is expected to deliver on the potential for automated feature extraction.

**Civil government**

Understanding land use is critical for managing city resources and collecting tax revenue. WorldView-2’s increased classification accuracy will provide direct impact into a city’s budget and expenses.

With the increased spectral fidelity and spatial resolution of WorldView-2 detailed and increasingly automated feature extraction will become a reality, enabling better, faster decision making.
**Design and Specifications**

**Launch Information**
- Date: Anticipated Sep/Oct 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)