MDA Geospatial Services

DigitalGlobe Response to Earthquake Disaster in Haiti

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Agenda

• MDA GSI Systems Wide Contract Review
• DigitalGlobe Response to UN Charter Call for Haiti Earthquake, January 2010
• WorldView-2 Satellite Overview
System Wide Contract Information

- Supply of data to UNDPKO and 50+ UN Entities
- Contract in place since October 2008, renewed to October 2011
- UN Cartographic Section at UN HQ main POC for UNDPKO
  - data shipped via UN HQ to Missions
- All other Entities contact MDA GSI directly for ordering and shipping
MDA Geospatial Services
UN System Wide Contract: PD/CO083/08

Supply of Satellite Imagery

Digital Globe: GeoEye: MDA: RapidEye:
- QuickBird - Ikonos - RADARSAT-1 - RapidEye
- WorldView-1 - GeoEye-1 - RADARSAT-2
- WorldView-2
DigitalGlobe Response to UN Charter Call for Haiti Earthquake, January 2010
UN Charter Call for Haiti Disaster Relief

• January 12, 2010 DigitalGlobe began tasking the Port au Prince area with their three satellite constellation

• January 13, 2010 UNCS contacted MDA GSI to request that DigitalGlobe collect and provide imagery to the UN for disaster relief, CHARTER call 287-290

• DigitalGlobe immediately made available all imagery from satellite constellation to the UN and Relief Agencies without compensation

• DigitalGlobe provided 6.7 Tb of data to the UN and Relief Agencies
DigitalGlobe Coverage - Jan 14th

- **WorldView-2**
- **WorldView-1**
- **QuickBird**
Jan. 14th 2010 Worldview I Collect
Haiti 1 Degree Cell = 7 Strips
**DigitalGlobe access over Haiti - January 2010**

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**16 out of 18 days covered**

**9 out of 18 days multiple access**
Port-au-Prince Cathedral (prior to earthquake)
Port-au-Prince, Haiti
Port-au-Prince Cathedral (post-earthquake)
Port-au-Prince, Haiti
WorldView-1

Destroyed Cathedral
Port-au-Prince Cathedral (post-earthquake)
WorldView-2
People Gathering (post-earthquake)
WorldView-2
Presidential Palace (post-earthquake)
WorldView-2
WorldView-2 Satellite Overview
WorldView-2 Satellite

- 110cm Aperture Telescope
- <0.5m Nadir GSD at 770 km
- Pan & 8 MS, Bi-Directional Scan
- 2 Terabit Recorder
- 800 Mpbs Downlink

- Control Moment Gyros
- Large Propulsion Systems
- 2 Single Axis Solar Array Wings
- Star Tracker, SIRU, GPS
Fast Synoptic Collects

- WorldView-2 has the fastest for synoptic collects of targets and large areas while providing 8 spectral bands
- 23 images acquired over Beijing by WV-1 in July 2008
  - WorldView-2 has the identical collection capacity (next slide)

Note: Information based on WV-1 collects and all collections < 45 degrees off-nadir
WorldView-2 In Comparison

NIR, MIR, SWIR, Thermal

Multi-Spectral
(< 10 Bands)

Super-Spectral
(10-20 Bands)

Hyper-Spectral
(>20 Bands)

40-100 nm bands

20-50 nm bands

5-10 nm bands
WorldView-2 Spectral Bands

New MS Bands

![Spectral Bands Diagram]
Image Component Spectral Signatures and WorldView-2 Bands

Coastal Blue Green Yellow Red Red Edge NIR1 NIR2
## WorldView-2 Spectral Characteristics

<table>
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<tr>
<th>Band Name</th>
<th>Center Wavelength</th>
<th>Minimum Lower Band Edge (nm)</th>
<th>Maximum Upper Band Edge (nm)</th>
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WorldView-2 Acquisition Capability
Single Pass Collection
WorldView-1 looks back to rapidly image two areas side by side.

Here, WorldView-1 takes three looks at this one area, swinging forward, back, then forward again.

WorldView-1 rapidly swings west to get the first target, west and back to image the second target, then east again to get the third target.

WorldView-1 shows off its agility when tracking east then west to pick up these two targets.

The last collect in this pass is another example of a double collect, looking forward and back within the track.
WorldView-2 Resolution and Accuracy

- WorldView-2 has 50cm resolution and comparable accuracy standards as WorldView-1
  - WorldView-1 stand-alone accuracy certified at 4.1 m CE90% or better without ground control at NADIR*

WorldView-2 CE90%
Radius = 6.5 m
Certified at 4.1 m CE90%

QuickBird CE90%
Radius = 23 m

* Excludes terrain displacement and viewing angle distortion
Thank you
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