MDA Geospatial Services

DigitalGlobe Response to Earthquake Disaster in Haiti

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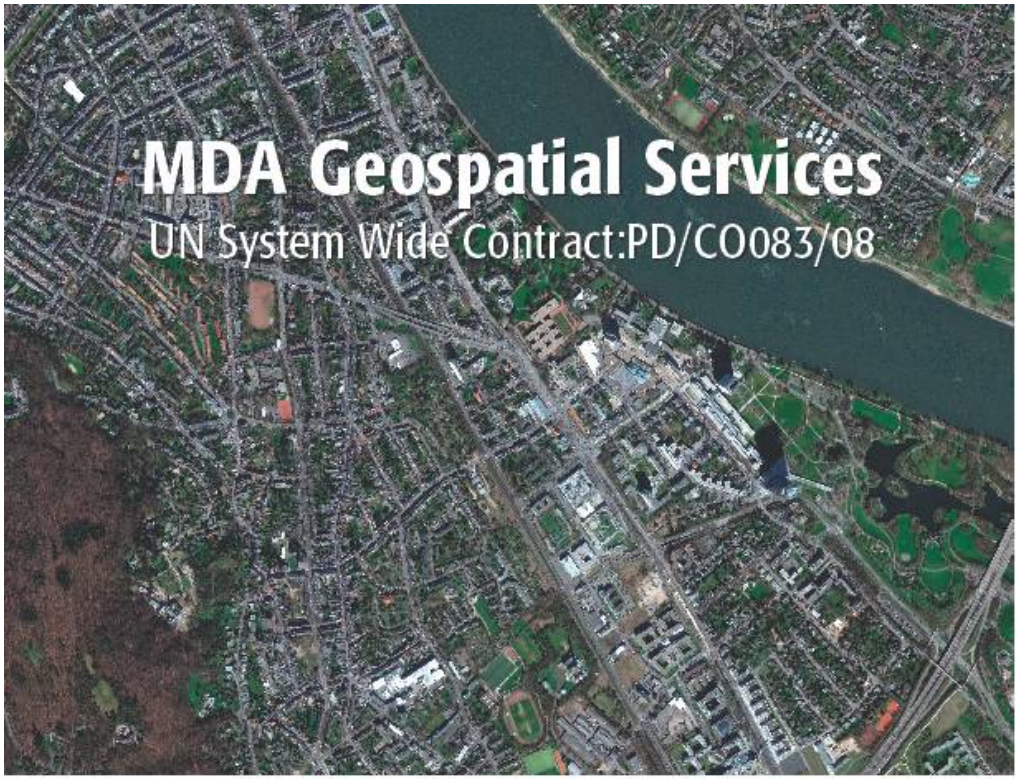
Agenda

- 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



Supply of Satellite Imagery

Digital Globe:	GeoEye:	MDA:	RapidEye:
• QuickBird	• Ikonos	• RADARSAT-1	• RapidEye
• WorldView-1	• GeoEye-1	• RADARSAT-2	
• WorldView-2			

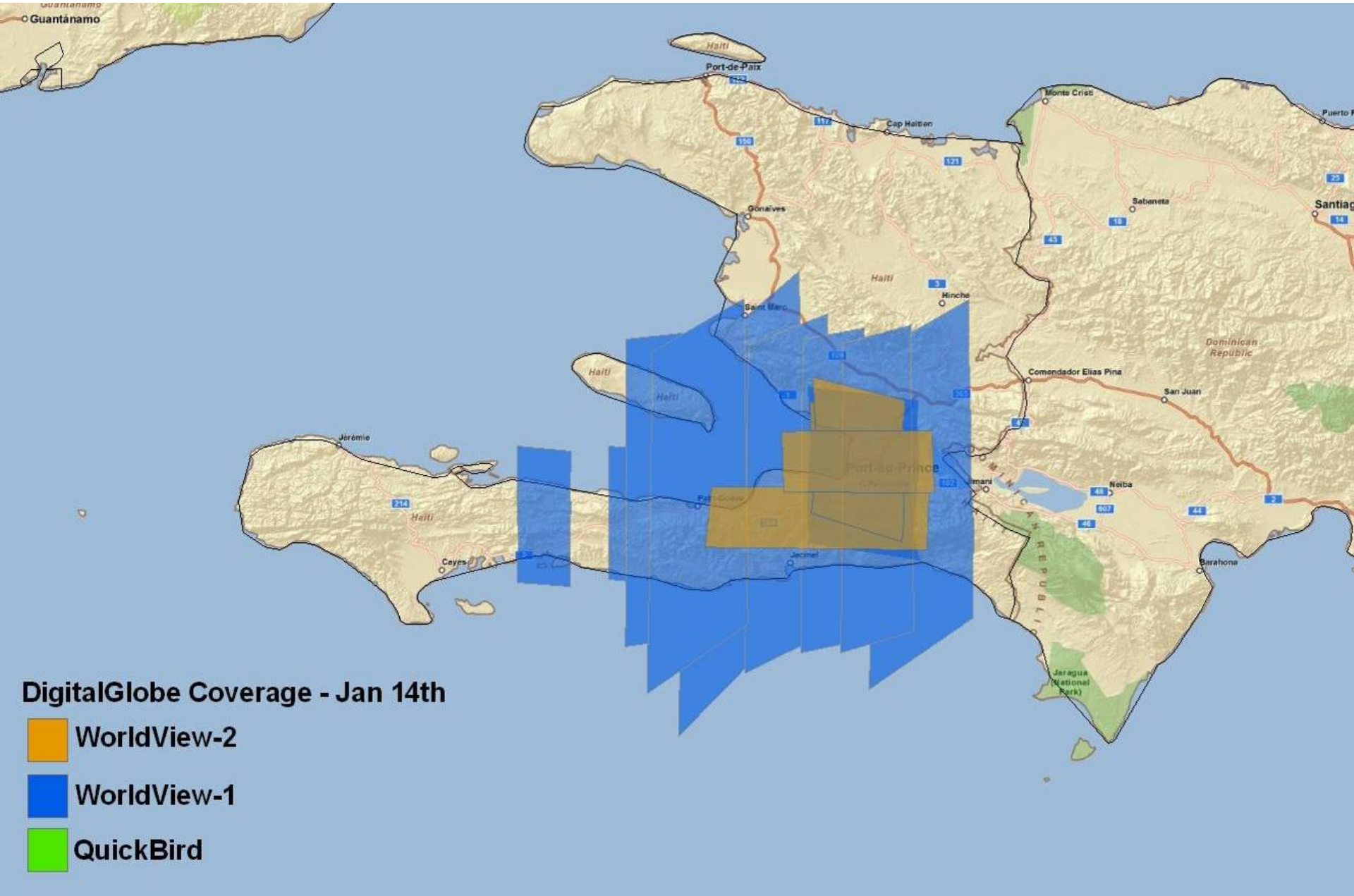
DigitalGlobe Response to UN Charter Call for Haiti Earthquake, January 2010

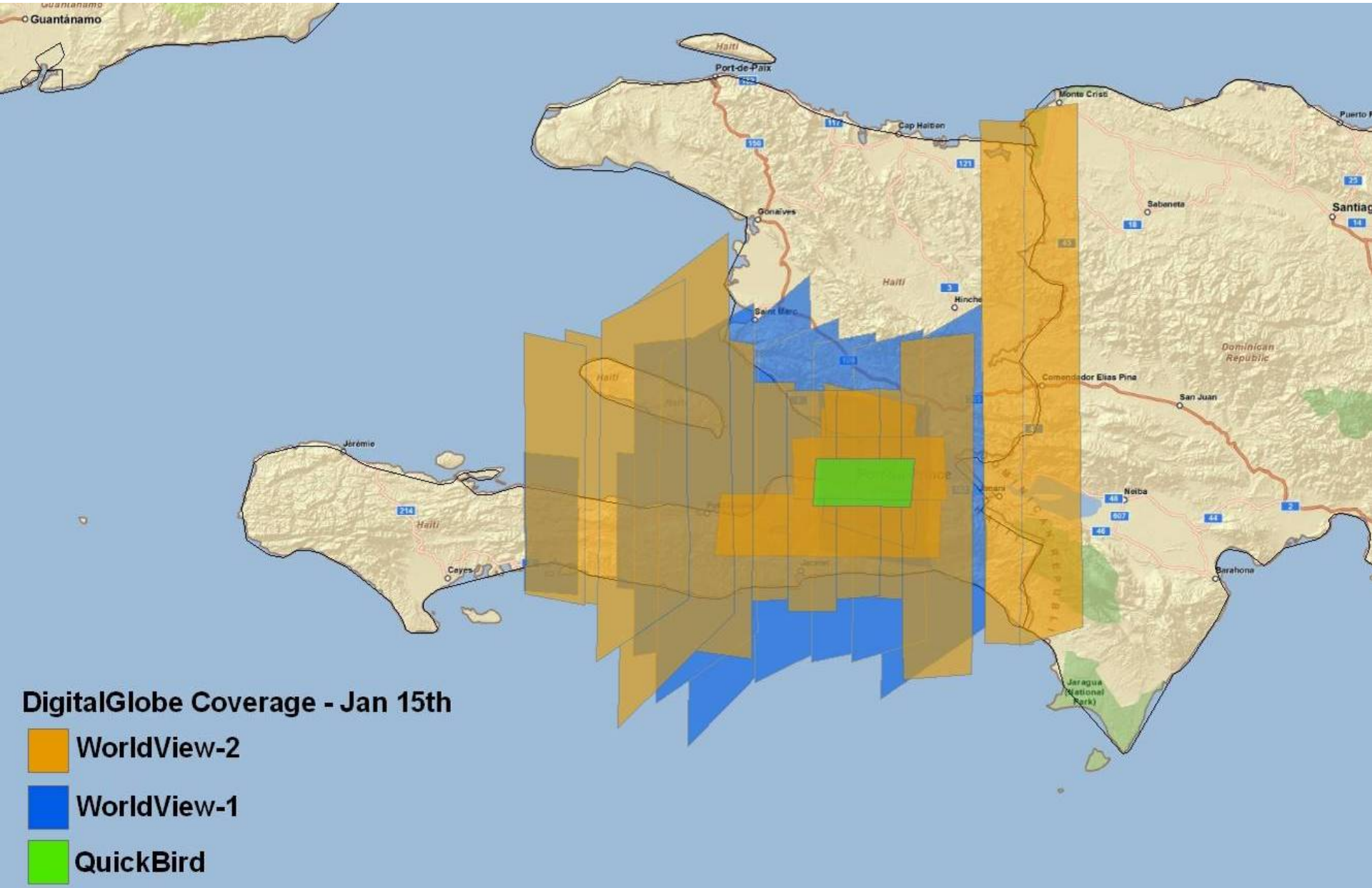
On January 12, 2010, a 7.0 magnitude earthquake struck the capital of Haiti, Port-au-Prince. On January 15 & 18, 2010, DigitalGlobe's QuickBird, WorldView-1 and WorldView-2 imaging satellites collected extensive imagery of Port-au-Prince and the surrounding area.

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


Guantánamo
Haiti
Port-de-Paix
Cap Haitien
Monte Cristi
Gonaïves
Sabaneta
Haiti
Hinche
Saint Marc
Dominican Republic
Comendador Elias Pina
San Juan
Haiti
Haiti
Jérémie
Port-au-Prince
Neiba
Haiti
Cayes
Jacmel
Barahona
DOMINICAN REPUBLIC
Jaragua (National Park)
DigitalGlobe Coverage - Jan 14th
WorldView-2
WorldView-1
QuickBird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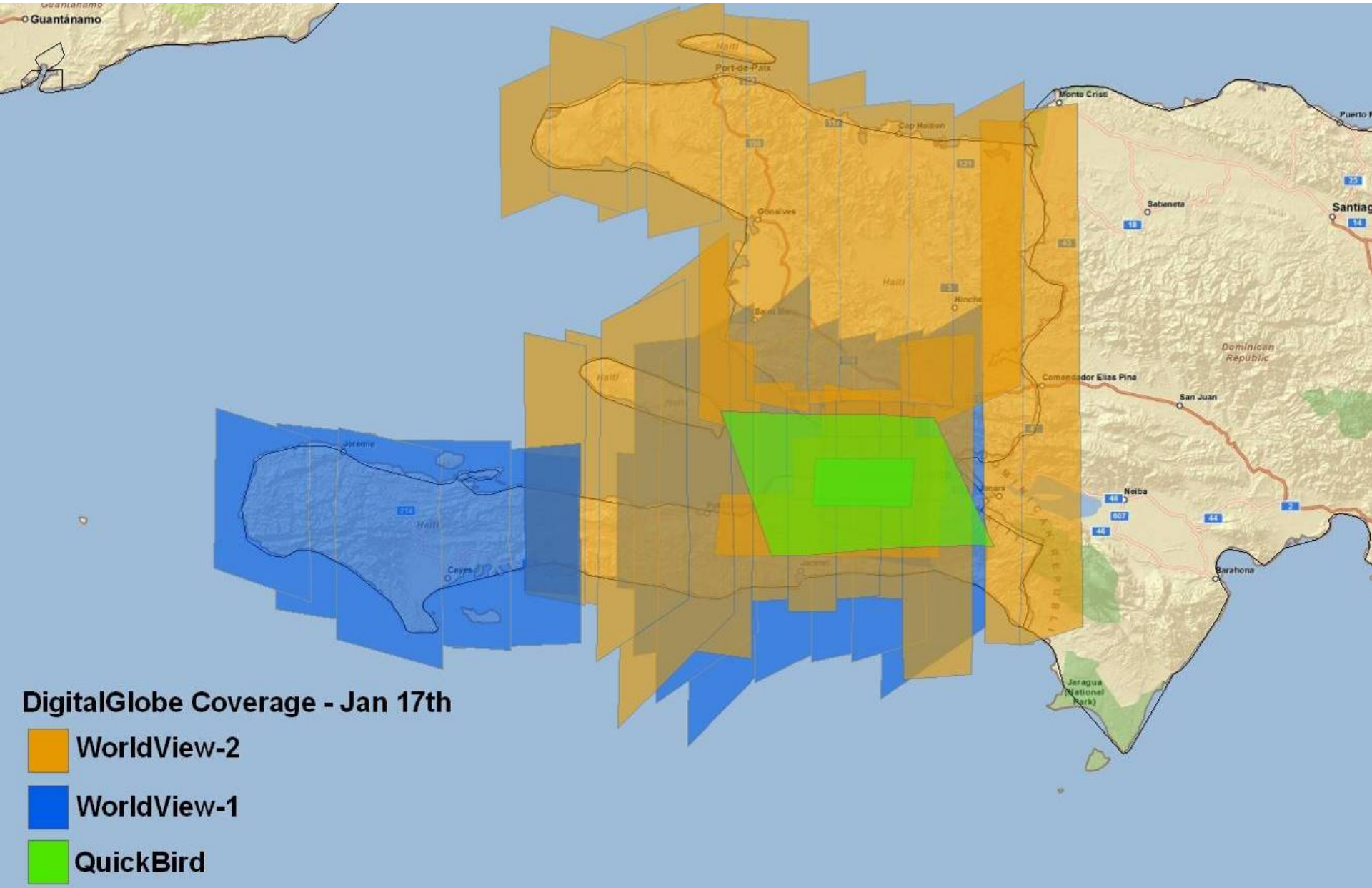
Jérémie
Haiti
Cayes
Neiba
Barahona
Jaragua (National Park)
DigitalGlobe Coverage - Jan 15th
WorldView-2
WorldView-1
QuickBird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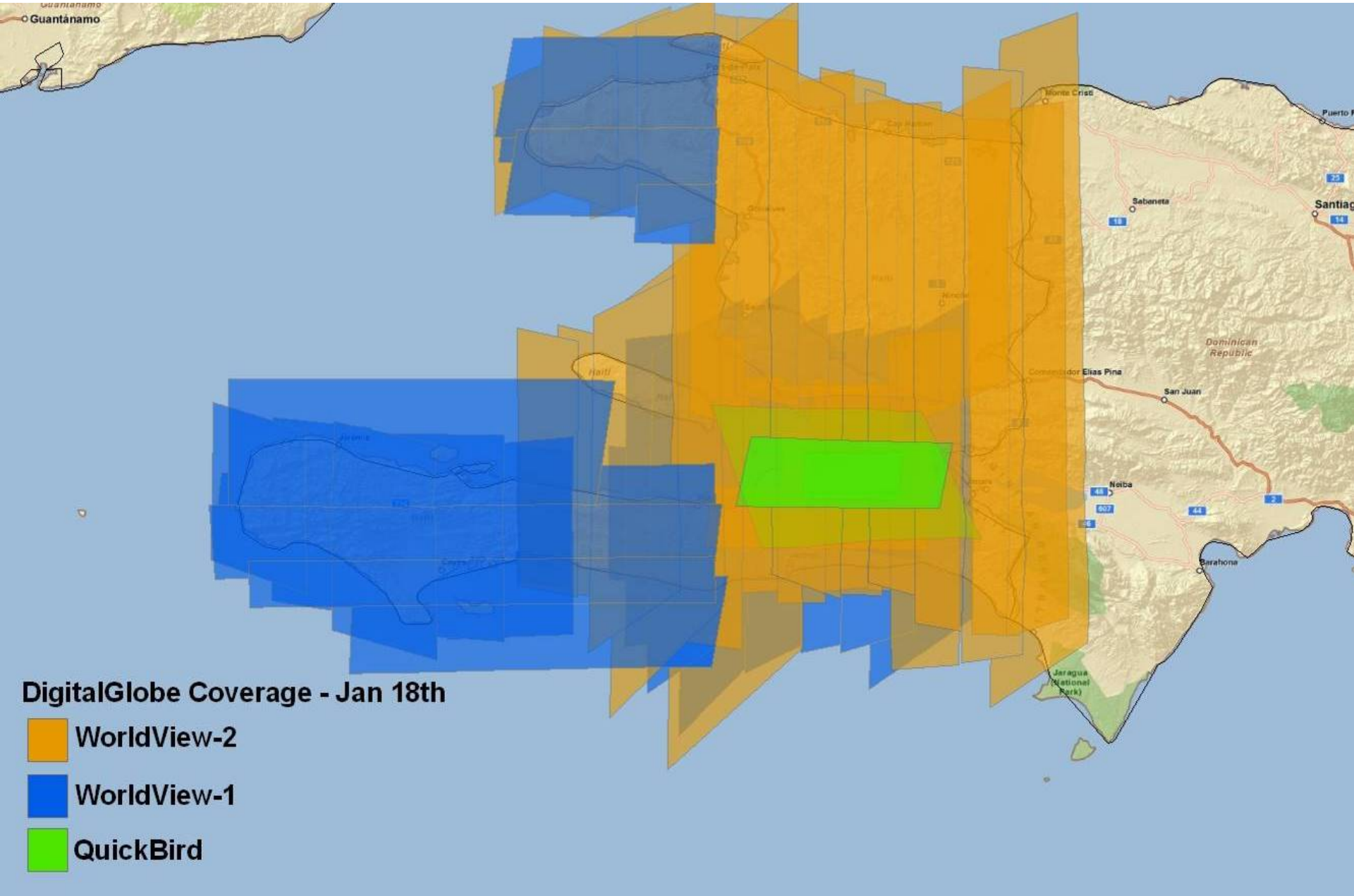
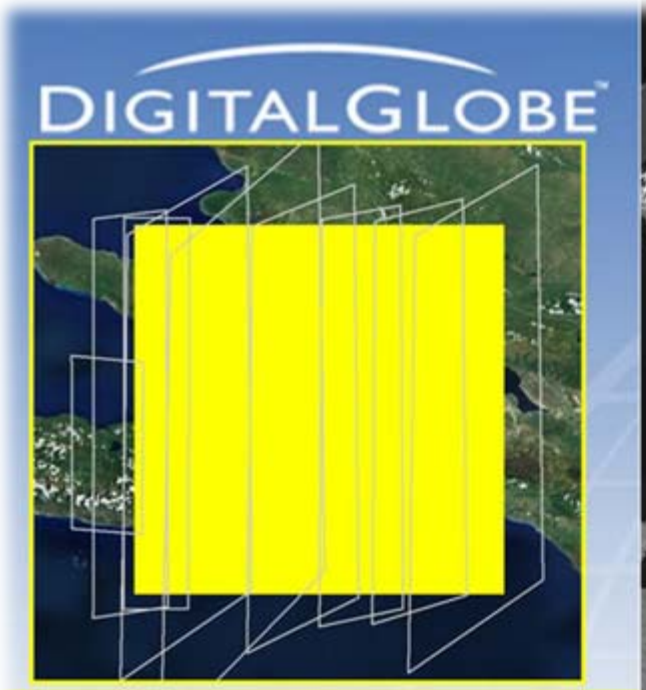
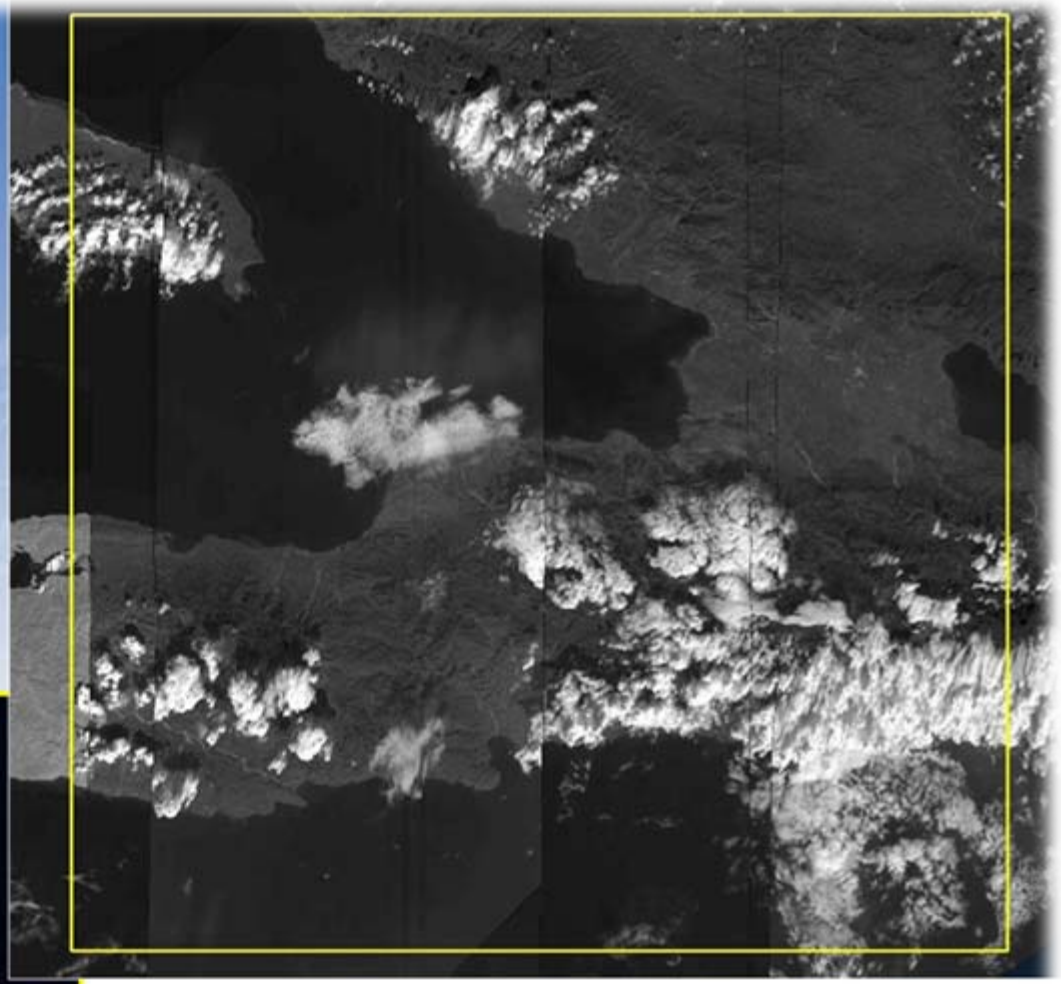
San Juan
Jeremie
Neiba
Barahona
Jaragua (National Park)
DigitalGlobe Coverage - Jan 17th
WorldView-2
WorldView-1
QuickBird


Guantánamo
Haiti
Dominican Republic
Sabaneta
Elias Pina
San Juan
Neiba
Barahona
Jaragua (National Park)
DigitalGlobe Coverage - Jan 18th
WorldView-2
WorldView-1
QuickBird



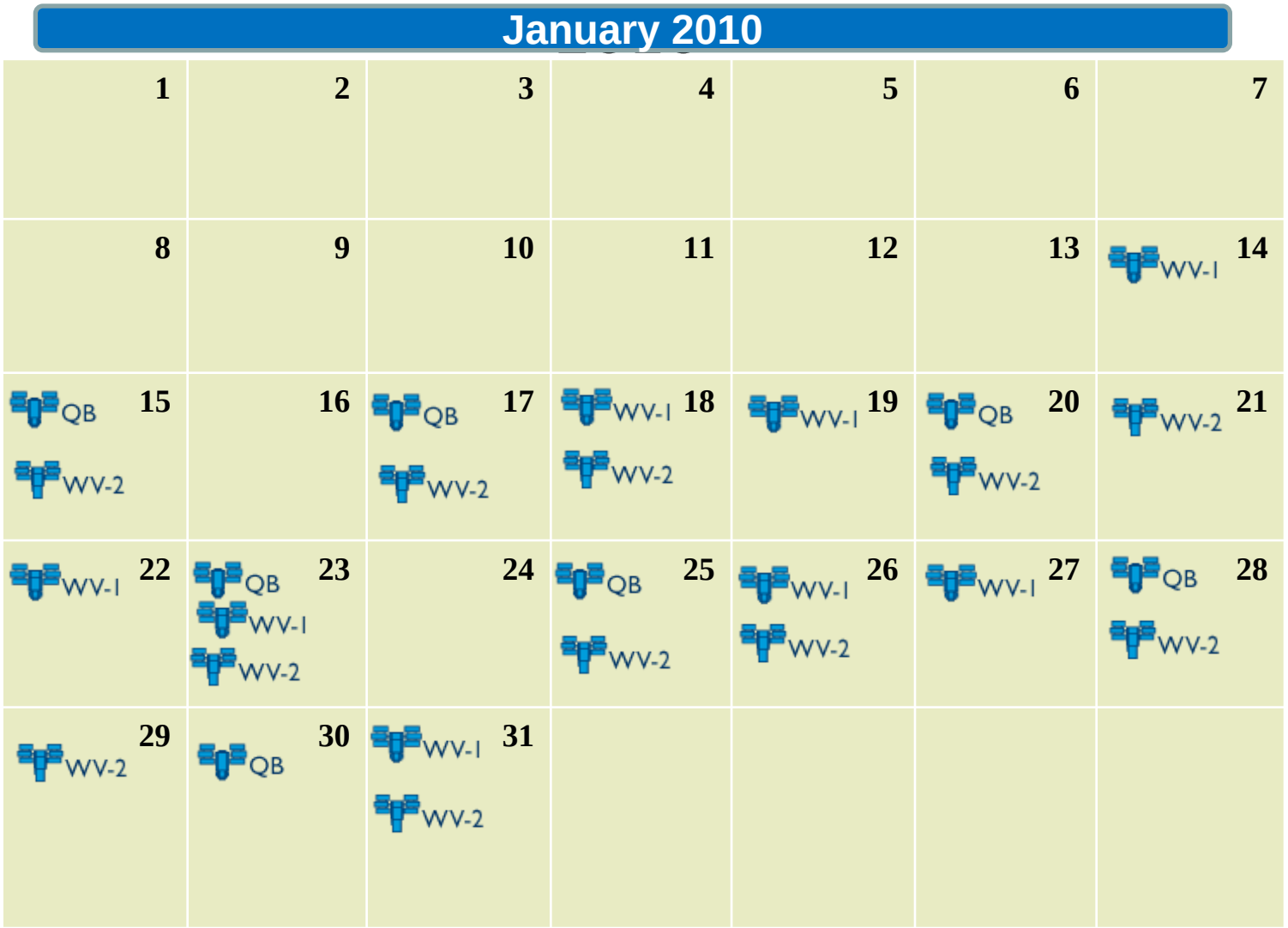


Jan. 14th 2010 Worldview I Collect
Haiti 1 Degree Cell = 7 Strips

DigitalGlobe access over Haiti- January

16 out of **18** days covered

9 out of **18** days multiple access



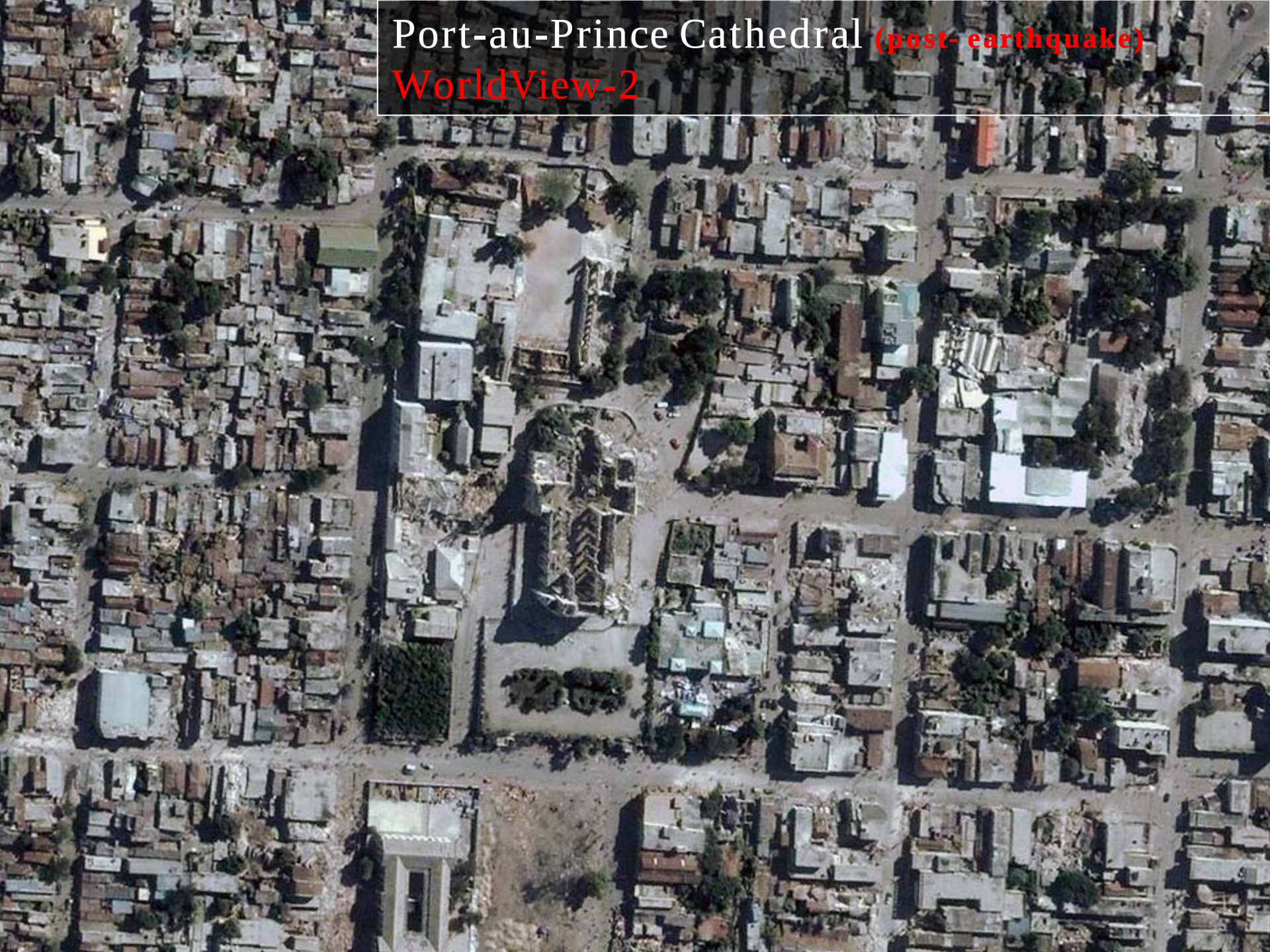
Port-au-Prince Cathedral (prior to earthquake)
Port-au-Prince, Haiti

DigitalGlobe WorldView-1
Coverage December 7, 2009

Port-au-Prince Cathedral (post- earthquake)
Port-au-Prince, Haiti
WorldView-1

Destroyed Cathedral

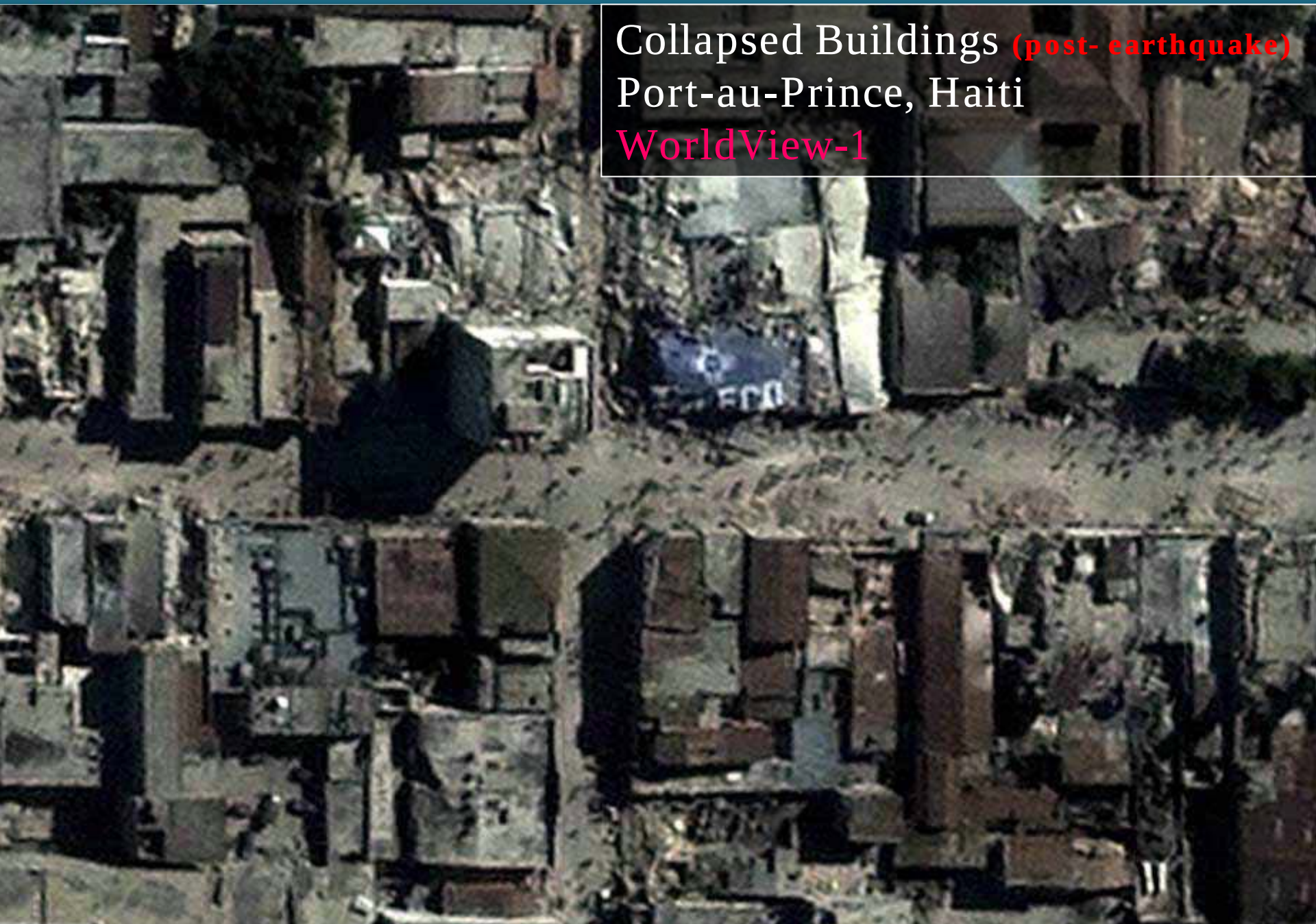
DigitalGlobe WorldView-1
Coverage January 13, 2010


Port-au-Prince Cathedral (post- earthquake)
WorldView-2


Sports Stadium (post- earthquake)
WorldView-2


People Gathering (post- earthquake)
WorldView-2

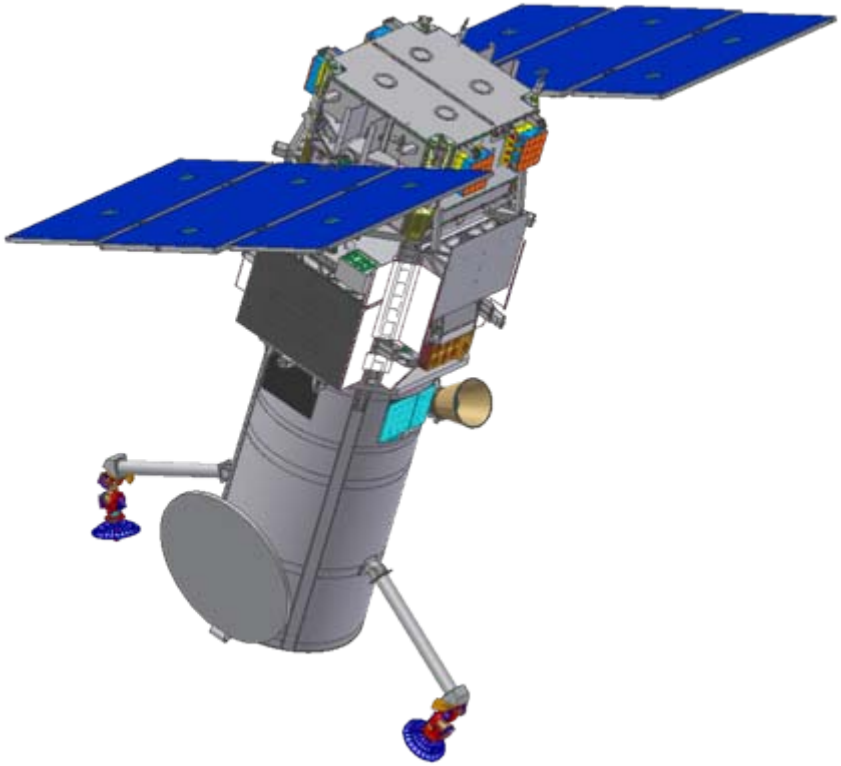

Presidential Palace (post- earthquake)
WorldView-2



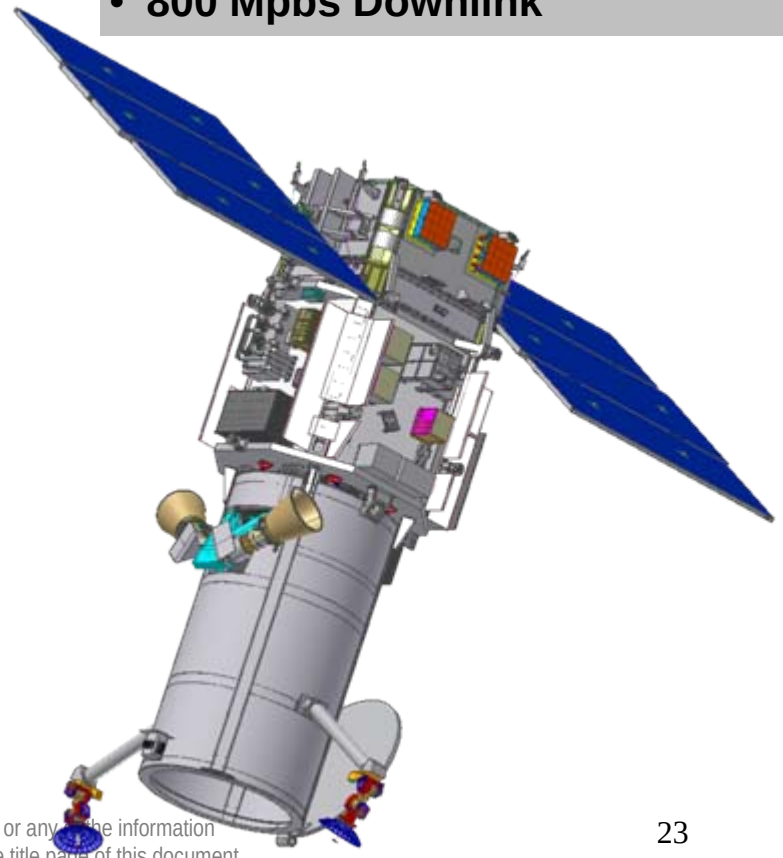
Collapsed Buildings (post- earthquake)
Port-au-Prince, Haiti
WorldView-1

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

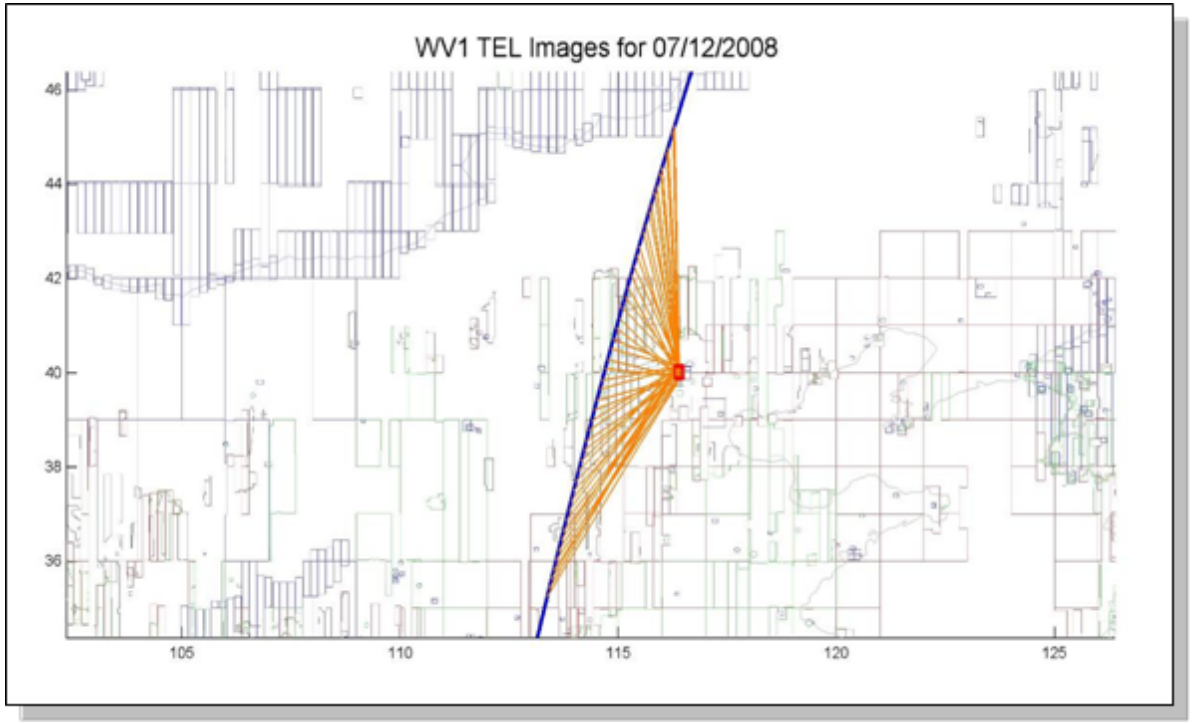


- Control Moment Gyros
- Large Propulsion Systems
- 2 Single Axis Solar Array Wings
- Star Tracker, SIRU, GPS

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

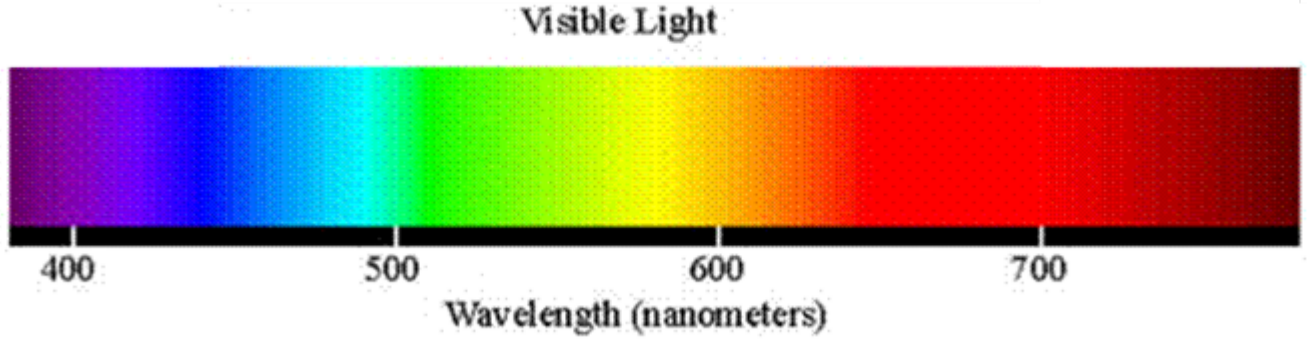
  - WorldView-2 has the identical collection capacity (next slide)



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

WorldView-2 In Comparison

NIR, MIR, SWIR, Thermal



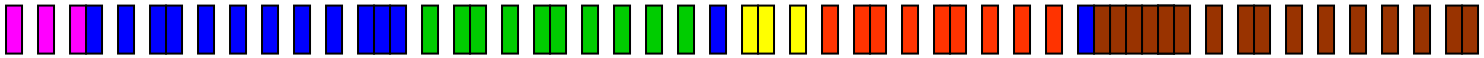
Multi-Spectral
(< 10 Bands)

40-100 nm bands

Super-Spectral
(10-20 Bands)

20-50 nm bands

Hyper-Spectral
(>20 Bands)



5-10 nm bands

WorldView-2 Spectral Bands

New MS Bands

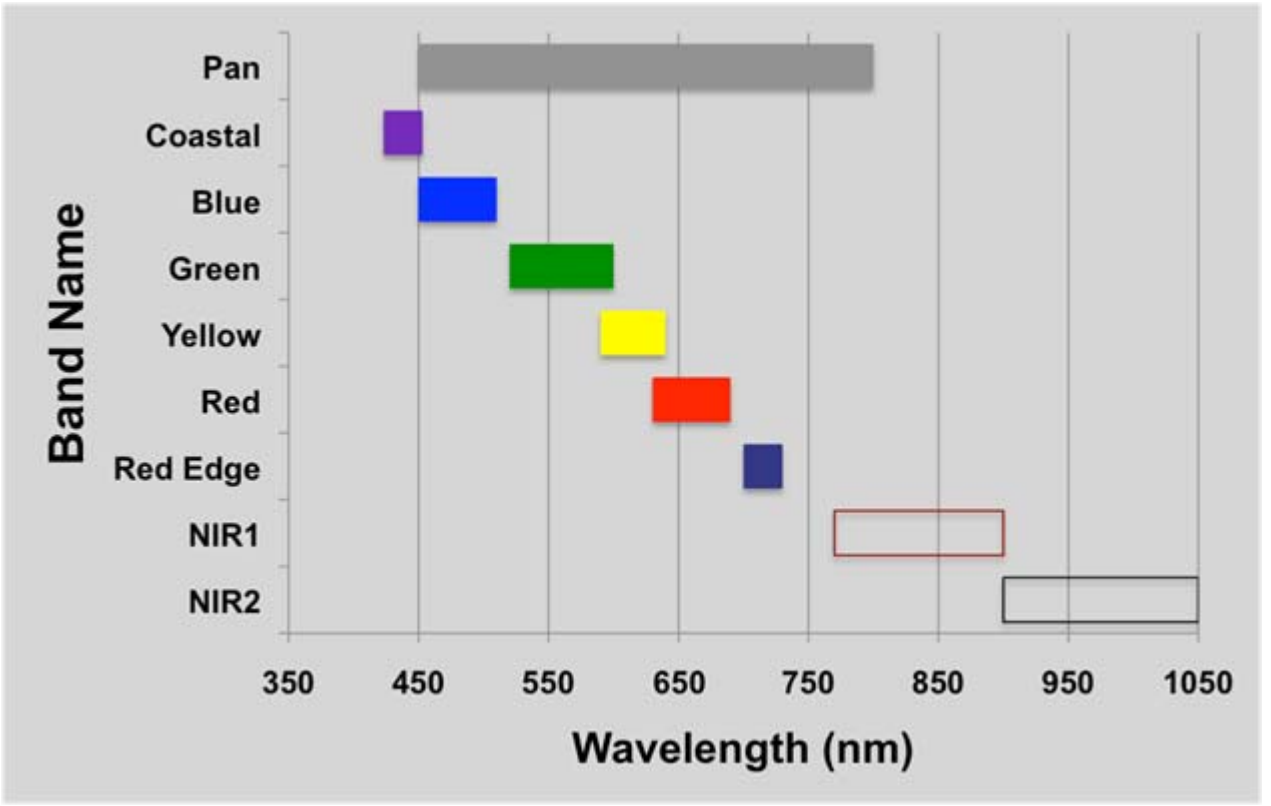
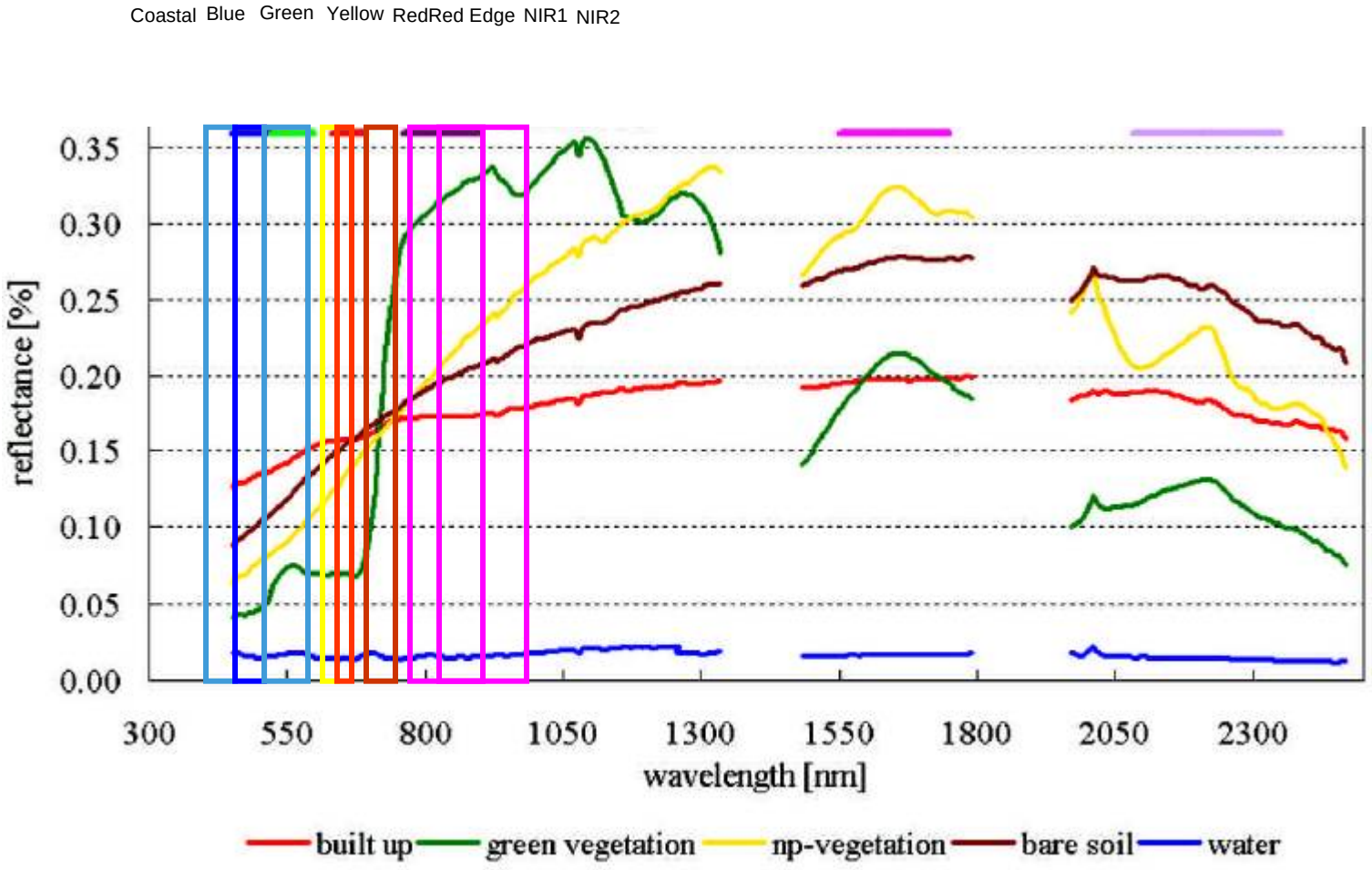


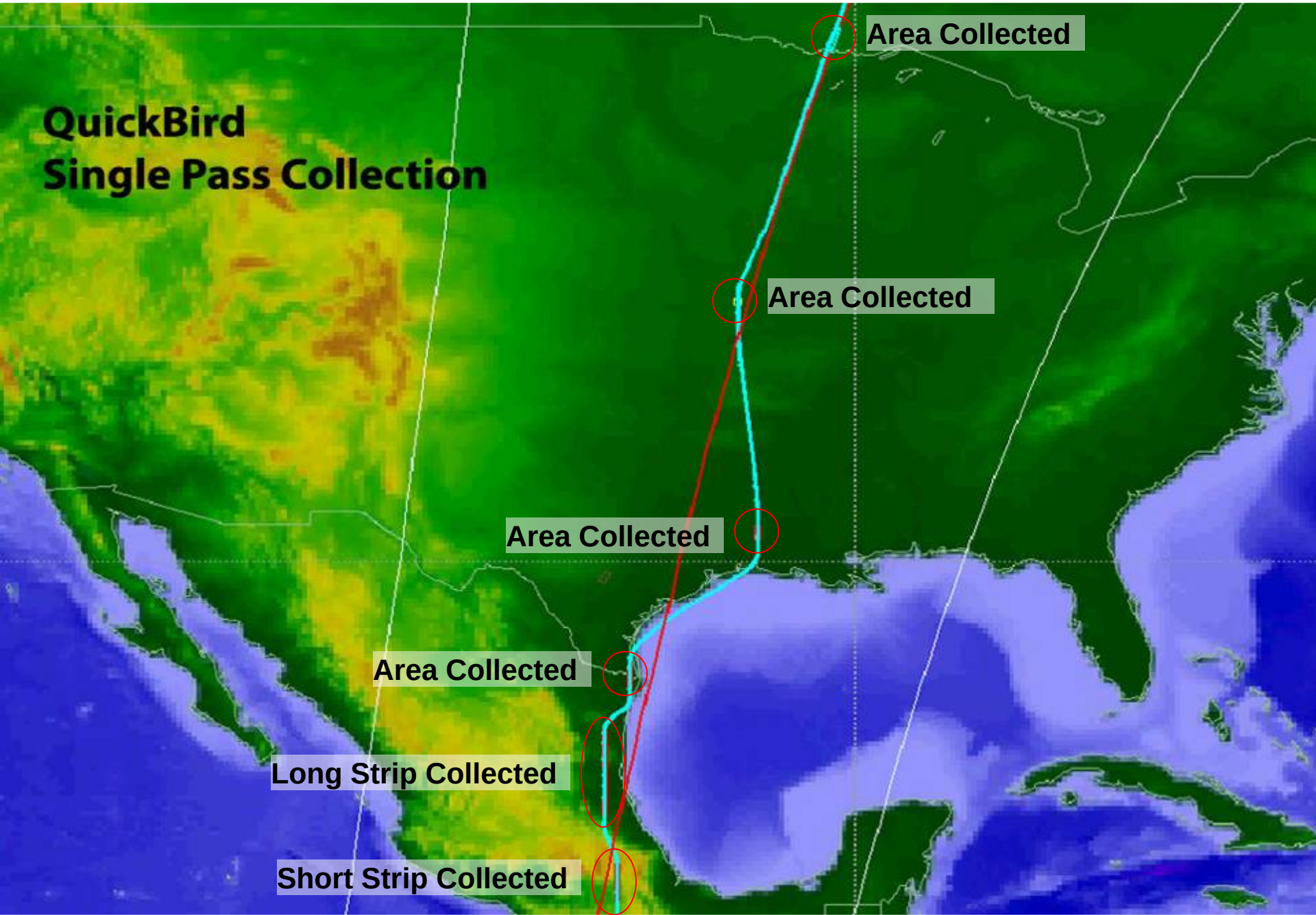
Image Component Spectral Signatures and WorldView-2 Bands

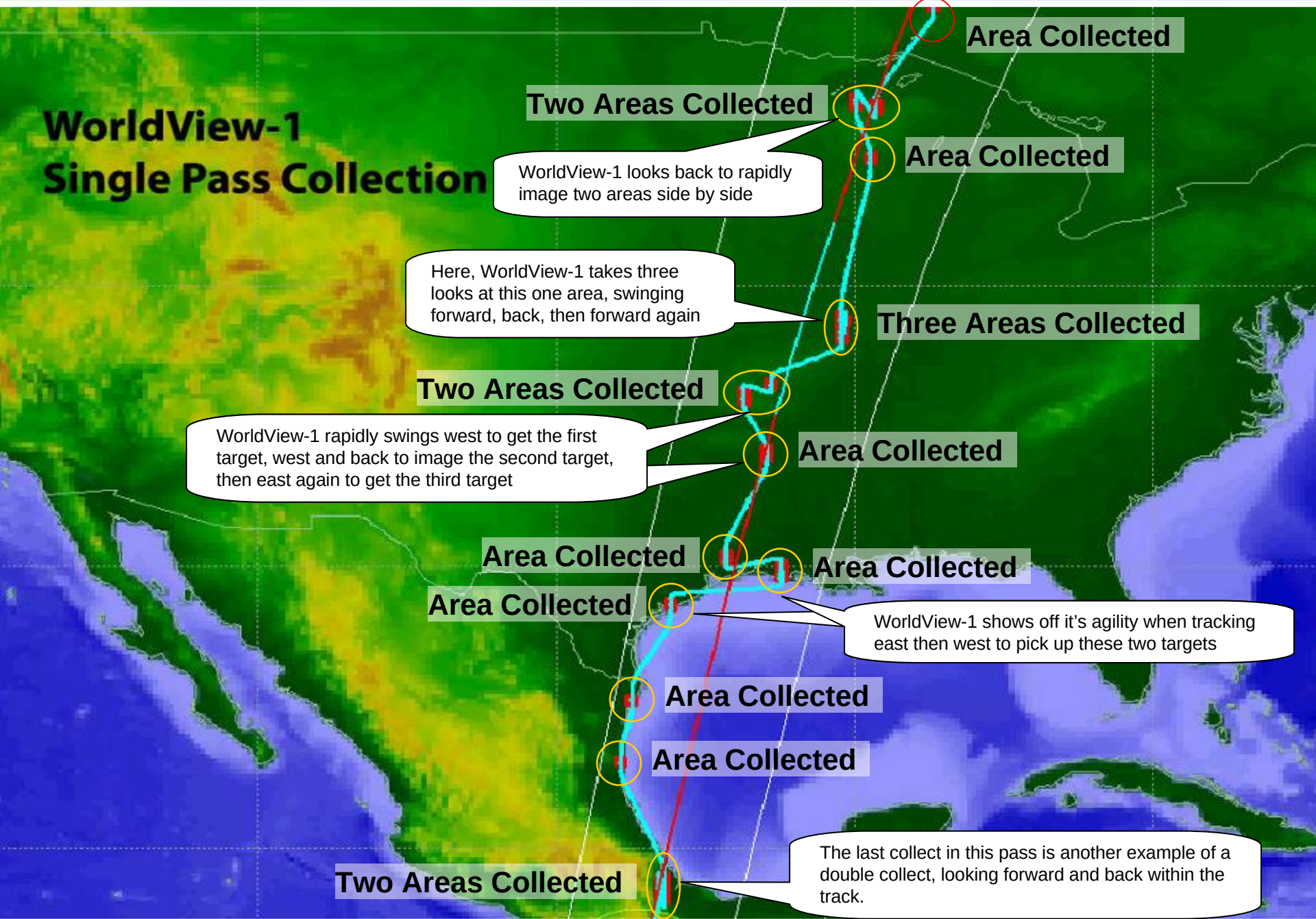


WorldView-2 Spectral Characteristics

Band Name	Center Wavelength	Minimum Lower Band Edge (nm)	Maximum Upper Band Edge (nm)
Panchromatic QB	675	450	900
Panchromatic WV-1	650	400	900
Panchromatic WV-2	625	450	800
Coastal	425	400	450
Blue	480	450	510
Green	545	510	580
Yellow	605	585	625
Red	660	630	690
Red Edge	725	705	745
NIR1	835	770	895
NIR2	950	860	1040

WorldView-2 Acquistion Capability
Single Pass Collection


QuickBird
Single Pass Collection
Area Collected
Area Collected
Area Collected
Area Collected
Long Strip Collected
Short Strip Collected


WorldView-1
Single Pass Collection
Area Collected
Two Areas Collected
Area Collected
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
Three Areas Collected
Two Areas Collected
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
Area Collected
Area Collected
Area Collected
Area Collected
WorldView-1 shows off it's agility when tracking east then west to pick up these two targets
Area Collected
Area Collected
Two Areas Collected
The last collect in this pass is another example of a double collect, looking forward and back within the track.

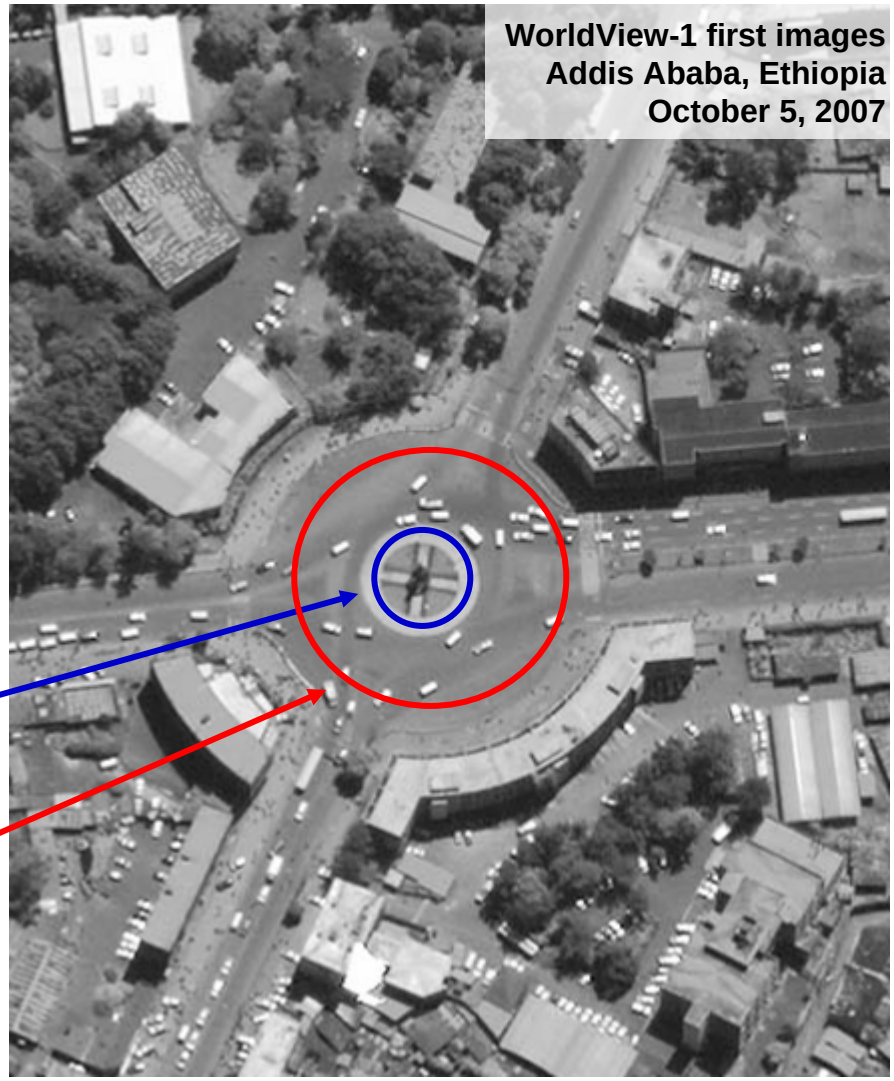
WorldView-2 Resolution and Accuracy

- WorldView-2 has 50cm resolution and comparable accuracy standards as WorldView-1
  - WorldView-1stand-alone accuracy certified at 4.1 m CE90% or better

    without ground control at NADIR*

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

QuickBird CE90%
Radius = 23 m



* Excludes terrain displacement and viewing angle distortion

Thank you

For more information, please contact:

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