



Commercial Remote Sensing

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Division (ASX)

31 March 2009

JACIE: Civil Commercial Imagery Evaluation Workshop

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Agenda

- Missions Supported
- Commercial Data Provider (CDP) Update
- Integration Activities
- What Lies Ahead



Missions Supported

- Natural Disasters/Humanitarian Assistance
 - Cyclones in Burma and Bangladesh
 - Earthquake in China
 - Volcanic Eruption in Congo
- Crisis Support
 - Georgia-Russia Conflict
 - Unrest in Kenya and Chad
- Support to Military Operations
 - Sharing with Coalition Partners and Locals
- Security Events
 - Presidential Inauguration
 - Sporting Events (Olympics, Superbowl, etc.)



Humanitarian Assistance



© GeoEye 2008

Volcano in Congo



**CYCLONE NARGIS DAMAGE
SEIKGYI, BURMA
GEO: 164312N 0961346E**

© 2008, DigitalGlobe

Cyclone in Burma



Earthquake Damage
Beichuan, China
314939N/1042712

16 May 08
0340Z / 1140L

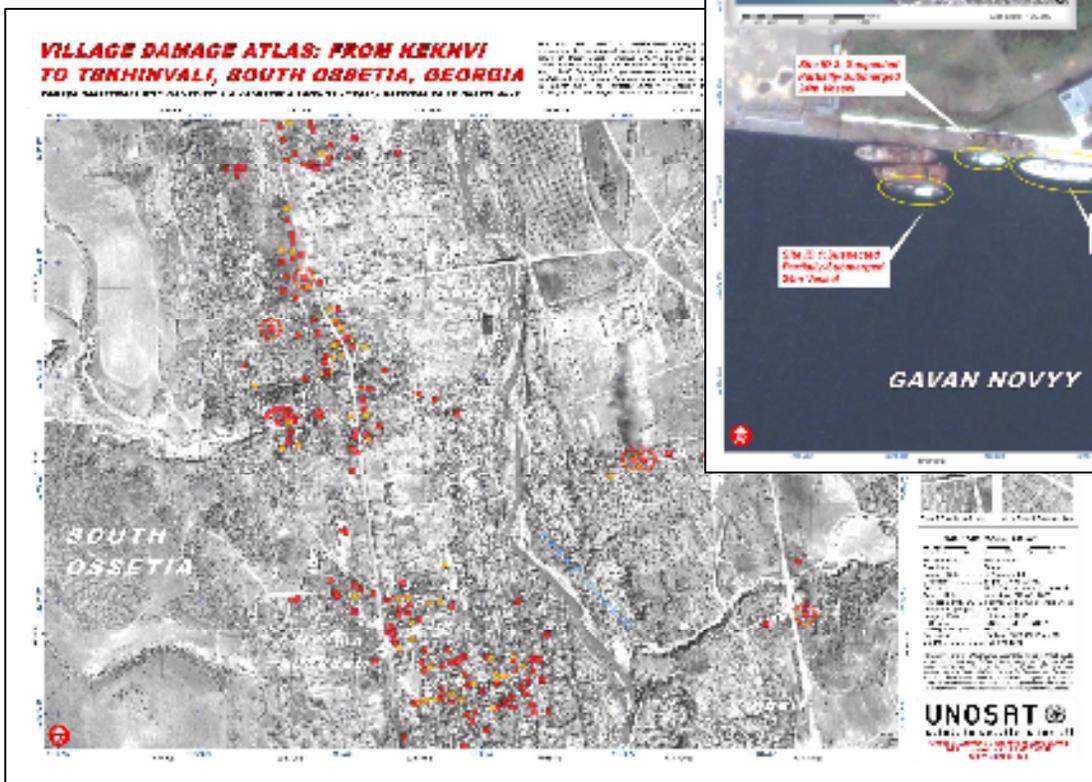
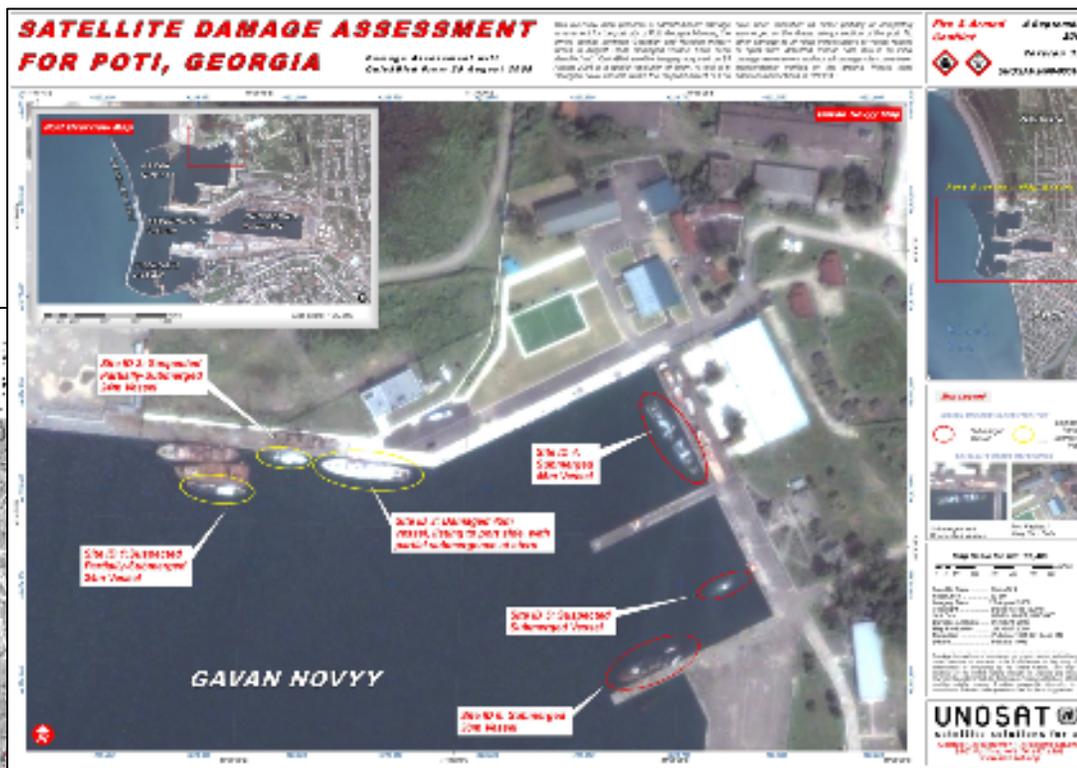
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Earthquake
in China



Crisis Support

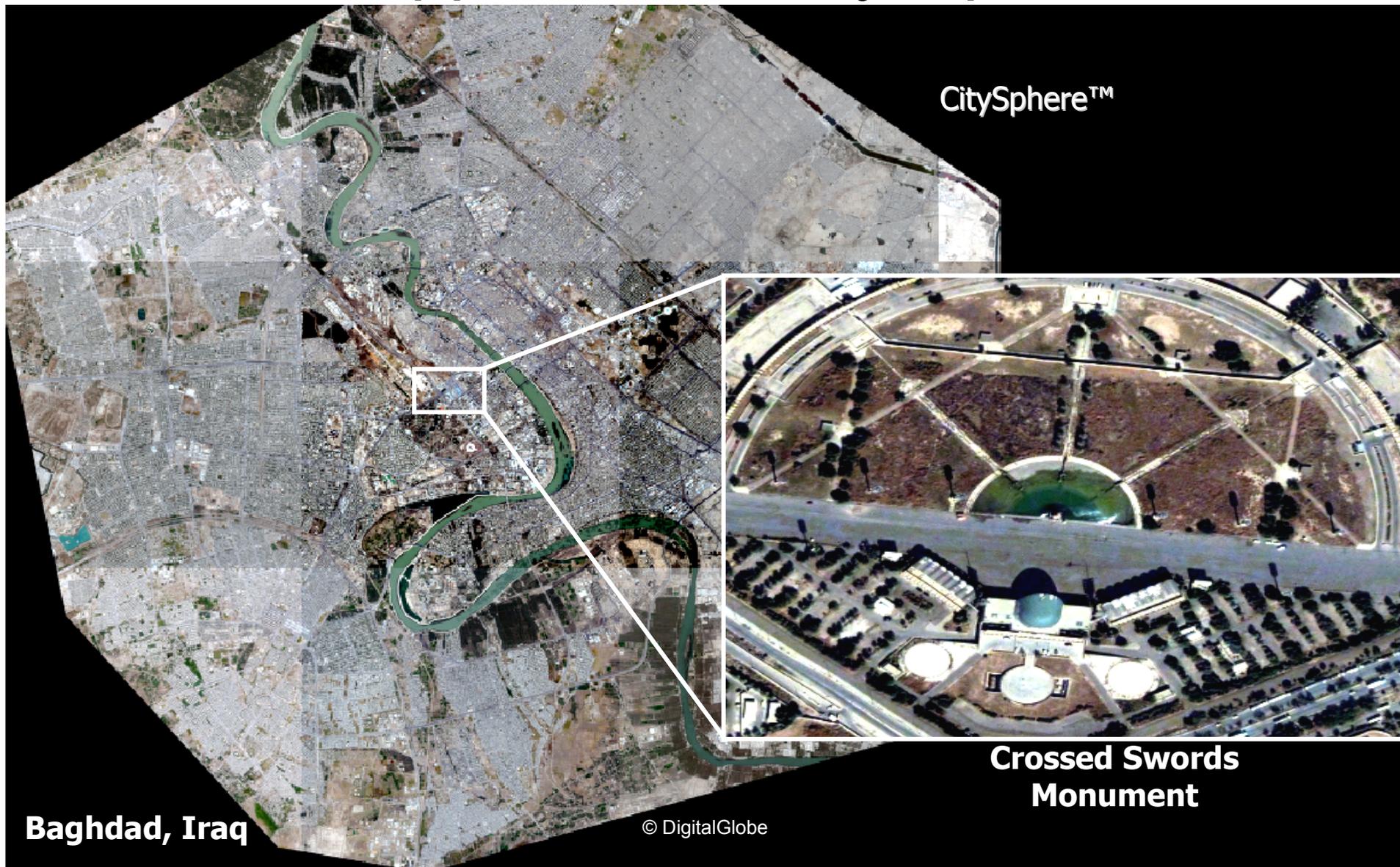
Georgia-Russia Conflict





➤ NATIONAL GEOSPATIAL-INTELLIGENCE AGENCY

Support to Military Operations



CitySphere™

Baghdad, Iraq

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Crossed Swords
Monument

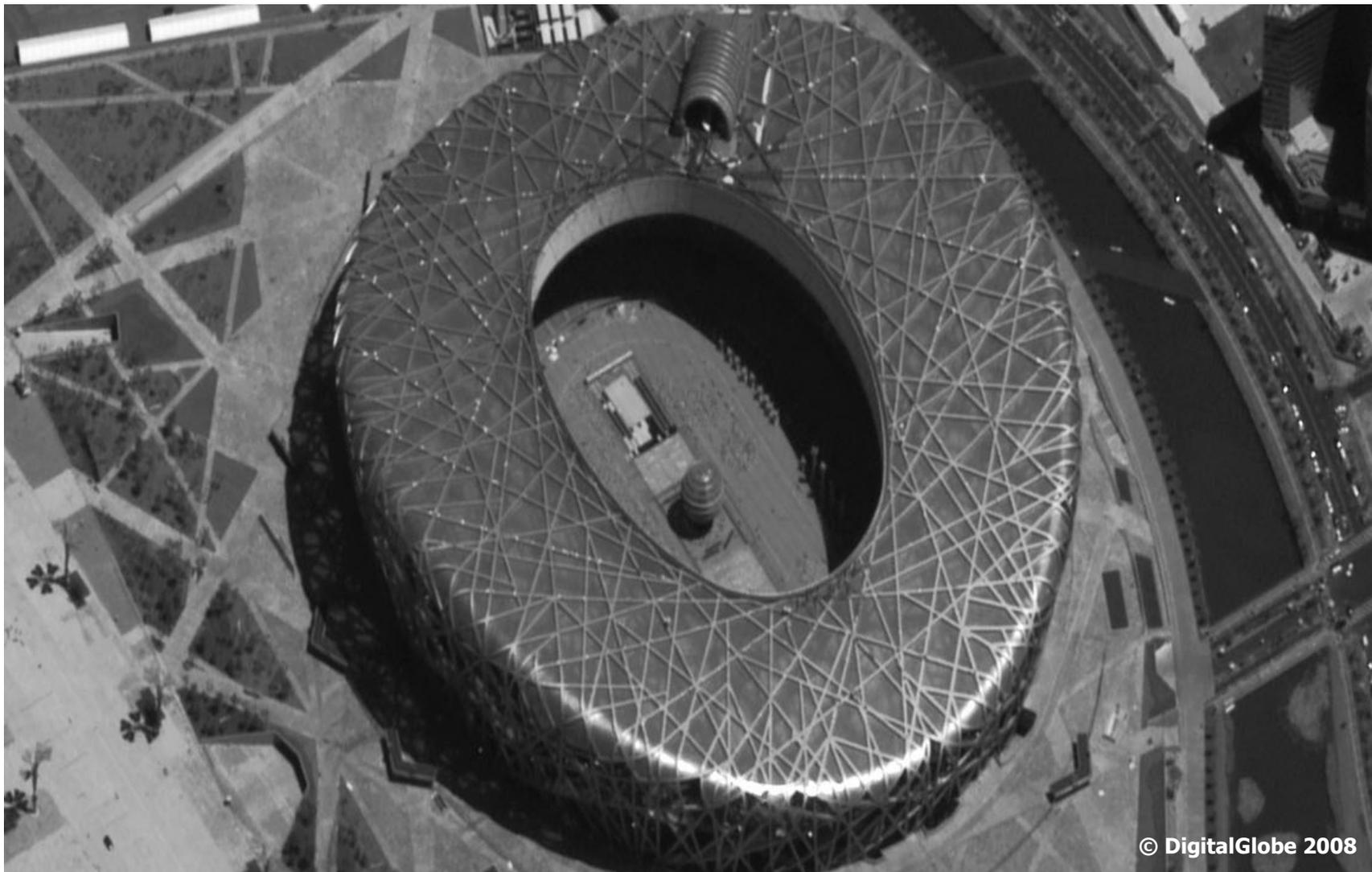
Approved for Public Release 09-232

➤➤ THE UNITED STATES OF AMERICA



➤ NATIONAL GEOSPATIAL-INTELLIGENCE AGENCY

Security Events (2008 Olympics)



© DigitalGlobe 2008

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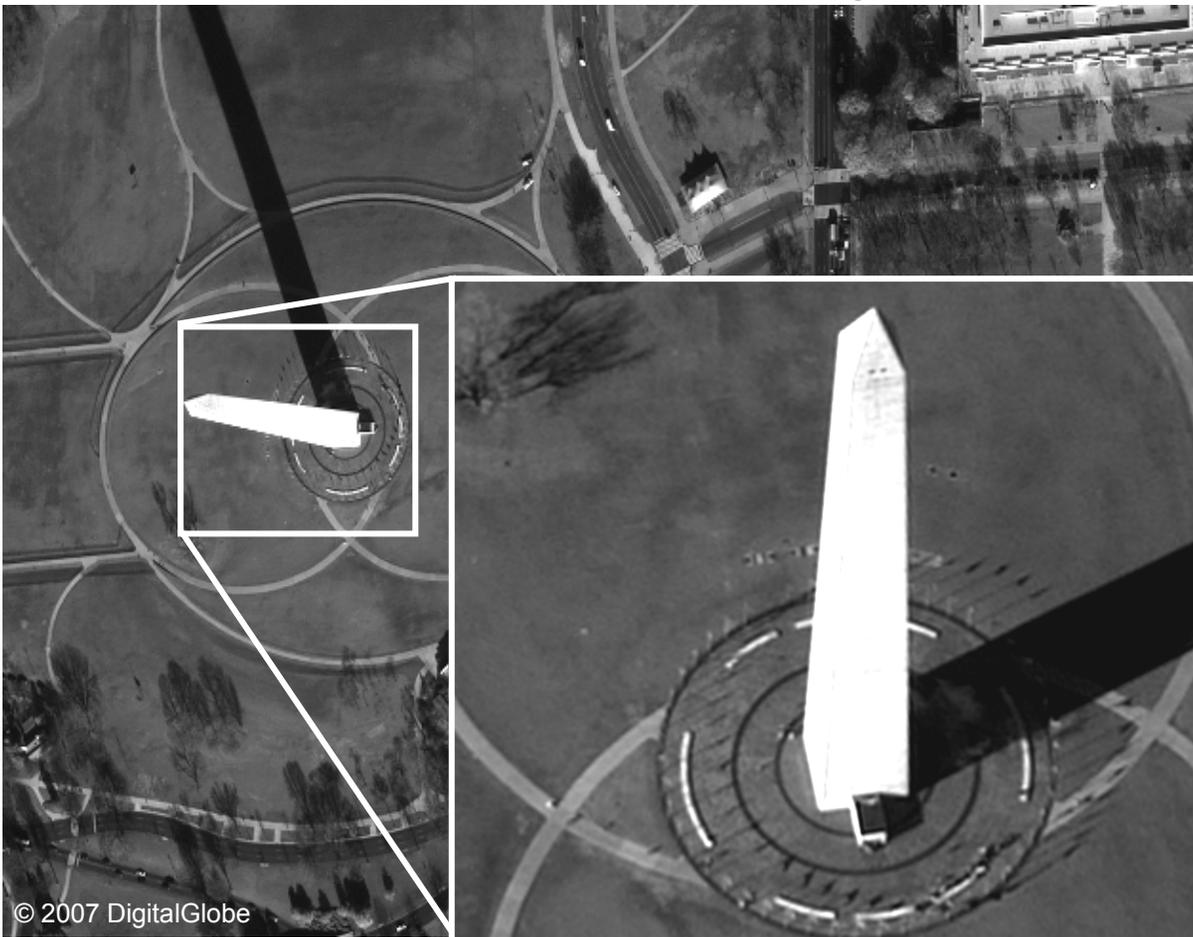


WorldView-1 (DigitalGlobe)

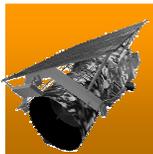
Panchromatic ONLY

Washington Monument

Launch Date	September 18, 2007	
Band	Spectral Range (µm)	Ground Resolution (m)
Pan	.45 to .90	.50
Image Size	17.6km x 17.6km	
Repeat Coverage	Off nadir repeat 1.7 days	
www.digitalglobe.com		



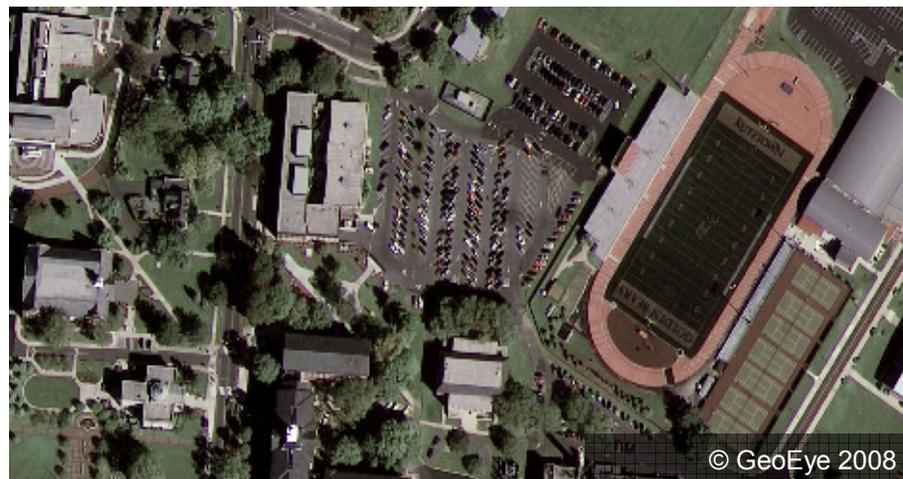
© 2007 DigitalGlobe



GeoEye-1 (GeoEye)

Panchromatic and Multispectral
Declared FOC on 20 February 2009

Band	Spectral Range (µm)	Ground Resolution (m)
Pan	.45 to .90	.41
Image width	15.2 km	
Repeat Coverage	PROJECTED < 3 days	
Launch date	September 6, 2008	
Imagery must be re-sampled to .5 m for non-US Government customers		
MSI	Varies by band	1.64
Imagery must be re-sampled to 2m for non-US Government customers		
www.geoeye.com		



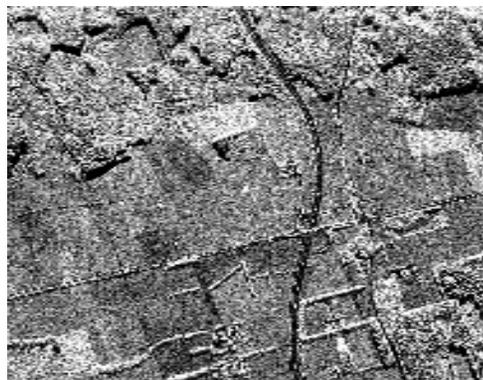


Commercial Airborne

Multispectral



3001



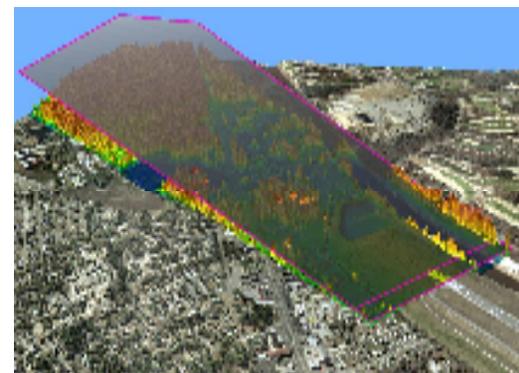
Radar

Intermap

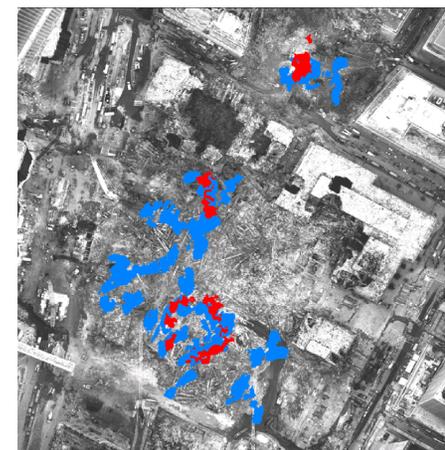


Platforms

Lidar



Fugro EarthData



Thermal

Fugro EarthData 11



Foreign SAR Utility Assessment Status

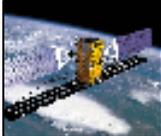
- NGA Final Report completed – 24 November '08
 - Evaluated TerraSAR-X, Cosmo-Skymed, and RadarSAT-2
- Report is Unclassified//FOUO/PROPIN
 - Non-proprietary version being considered (TBD)



TerraSAR-X

Spotlight	1 m, 10 km x 10 km
StripMap	3 m, 30 km x 3000 km
ScanSAR	16 m, 100 km x 3000 km
Repeat Coverage	11 day orbit repeat
Altitude	514 km
Frequency	X Band (9.65 GHz)
Polarization (varies by mode)	Single (HH, VV) Dual(HH+VV, HH+HV,VV+VH)
Orbit	97.44°
Equator Crossing	Descending, 0600 Ascending, 1800
Launch Date	June 15, 2007
www.terrasar.de	





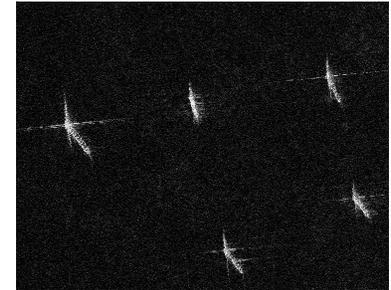
RADARSAT-2

3 to 100 m resolution (1 m spotlight w/ restricted distribution)	
12 imaging modes	
Repeat Coverage	24 day orbit repeat
Altitude	798 km
Frequency	C Band (5.405 GHz)
Polarization (varies by mode)	Single and Single Cross (HH, HV, VH, VV) Dual(HH+HV ,VV+VH) Quad(HH+VV+HV+VH)
Orbit	98.6°
Equator Crossing	Descending, 0600 Ascending, 1800
Launch date	December 14, 2007
www.radarsat2.info	



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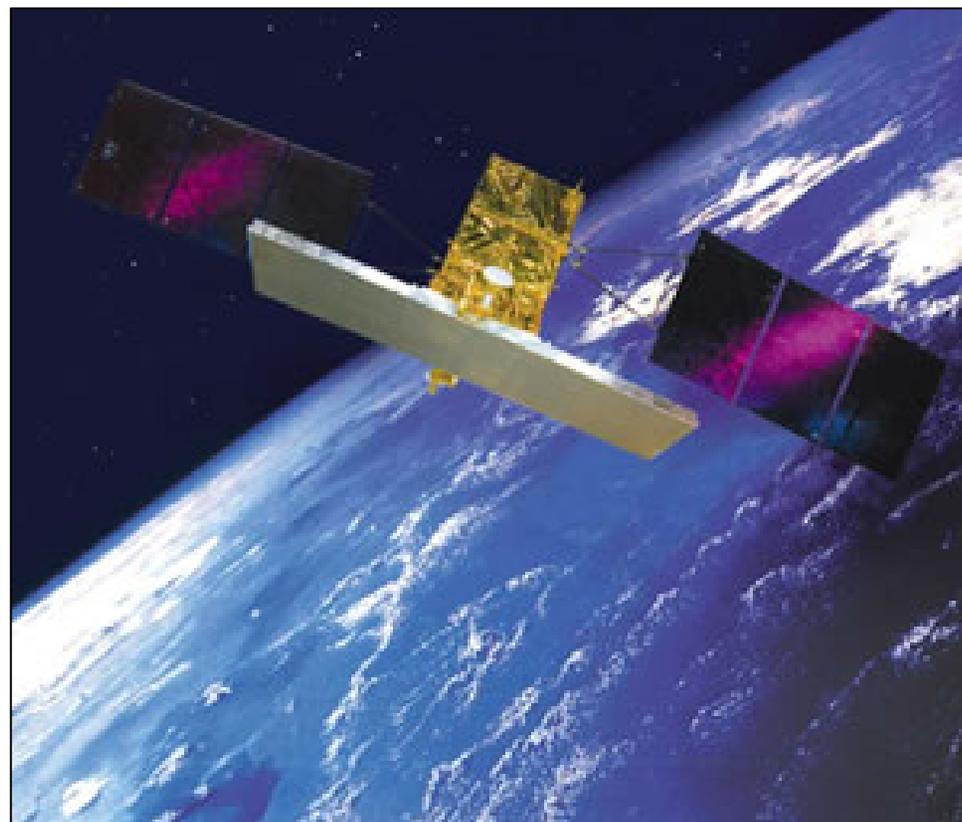
Vancouver, Canada





Cosmo Sky-Med

Spotlight	<1 m, 10 km x 10 km
StripMap	3 to 15 m, 40 km width
ScanSAR	30 to 100 m, 100 to 200 km
Repeat Coverage	16 day orbit repeat
Altitude	619 km
Frequency	X Band (9.65 GHz)
Polarization	HH, HV, VH, VV
Orbit	97.86°
Equator Crossing	Descending, 0600 Ascending, 1800
Launch date	June 7, 2007; December 9, 2007
Agenzia Spaziale Italiana www.asi.it/CosmoSkymed/Cosmo-Skymed.htm	
Civilian, Military, and Commercial use	





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Integration Activities

- Participation in Interagency Working Groups
 - Shared Execution Team (SET)
 - Inter Agency Digital Imaging Working Group (IADIWG)
 - Geospatial Working Group (GWG)
- Outreach Program – Support to DoD Commands & Services/NATO/Civil Agencies
- NGA College’s “Introduction to Commercial Remotely Sensed Imagery” course a success
- Architecture
 - Great progress in furthering the integration of commercial imagery into the National System for Geospatial-Intelligence (NSG)
 - Providing customers easier and more timely access



Interagency Working Groups

- Shared Execution Team (SET)
 - NGA lead
 - Communication and coordination
- Inter Agency Digital Imaging Working Group (IADIWG)
 - USGS lead
 - Draft charter complete
- Geospatial Working Group (GWG)
 - NGA lead
 - GeoTIFF implementation profile approved
 - Working in situ sensor calibration (USGS lead)



Outreach Program

- Travel to customer site (local, national, and international) to provide analyst support in the form of:
 - *The CRS Overview*: Program overview, Policy, Licensing, Current Capabilities, Current Architecture, Discovery, Dissemination, and more as needed
 - *Achieving Geospatial Accuracy*: Technical brief focusing on “Tricks of the Trade” for achieving geospatial accuracy
 - *Technical Exchange*: Hands-on training, for which the trainers can provide a scenario as well as data for training
- In FY '08, the Outreach Team visited 75 sites providing training to >1,500



NGA College: Introduction to Commercial Remotely Sensed Imagery

SET 105 Overview

Primer level focused on Commercial Remote Sensing (CRS) capabilities, data, and uses

Course Rating

Consistently receives ratings above the average for all NGA College courses offered

Courses Taught

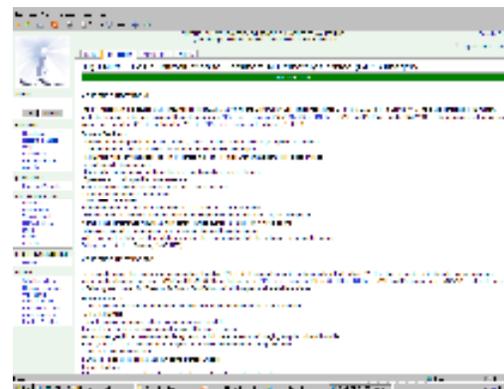
More than **370** students: 2008 – Feb 2009

NGA Courses

- NGA College – Ft Belvoir, BTH, Reston, STL, WNY
- Community Geospatial Intelligence Analysis (CGAC)
- Joint Special Operations Command (JSOC)

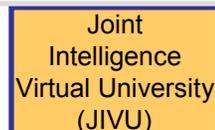
Mobile Training Courses

- Ft Bragg - North Carolina
- Ft Lewis – Washington
- McDill AFB - Florida
- Peterson AFB – Colorado
- Space and Missile Defense Command - Colorado
- 65th Engineering Battalion - Hawaii
- JAC Molesworth/RAF – United Kingdom
- 60th Engineering Battalion – Germany
- ...more



SET 105 Website

Intellipedia > search for SET-105



CRS Web-based Training

NGC's first online course, SET105 – Intro to CRS
JWICS - Spring 2009



CRS Video

NGA Tube > Search for
Commercial Remote Sensing

Capt Kerry Ditchey (USAF)
Enablers Branch Deputy Director - 703-805-2309
Jason Curtis Instructor (C) - 703-805-1197 (O)
Sharon O'Rourke Instructor (C) - 703-805-2784 (O)



Agenda

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What Lies Ahead

- Support Activities
 - Continued commitment to interagency partnerships
 - CRS Guide Version 3 printing this summer
 - Expansion and strengthening of CRS training
- Standards/Interoperability
 - Continue to work through the GWG
- New Sensors
 - Continue to assess the applicability of new/emerging sensors to NGA's mission
 - Integrate them into the NSG as appropriate



Questions?

www.nga.mil