



# Commercial Remote Sensing Overview

Sharon Flowers

Deputy Director, Commercial Imagery Data  
and Programs Office

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Sharon.K.Flowers@nga.mil

703-755-5820



- **CRS Today**
  - **Data Licensing & Copyright**
    - **Exploitation Examples**
      - **Commercial Airborne Imagery**
        - **? 'S**

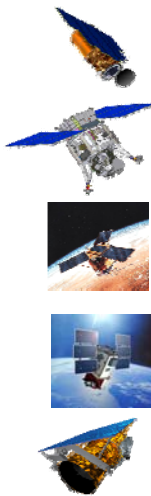


# CRS Today



# CRS Today

## High Resolution CRS



OrbView-3 (archive only) (GeoEye)

IKONOS (GeoEye)

Quickbird (DigitalGlobe)

WorldView-1 (DigitalGlobe)

GeoEye-1 (GeoEye)

**NGA has contracts to buy imagery  
from each of these platforms**



# CRS Today



## OrbView-3 (GeoEye)

Washington Monument

Panchromatic

Launch Date	June 26, 2003	
Band	Spectral Range (μm)	Ground Resolution (m)
Pan	.45 to .90	1
Image size	8 x 8 km	
Satellite Offline: As of March 2007		
Archived data available		





# NextView Generation Satellites



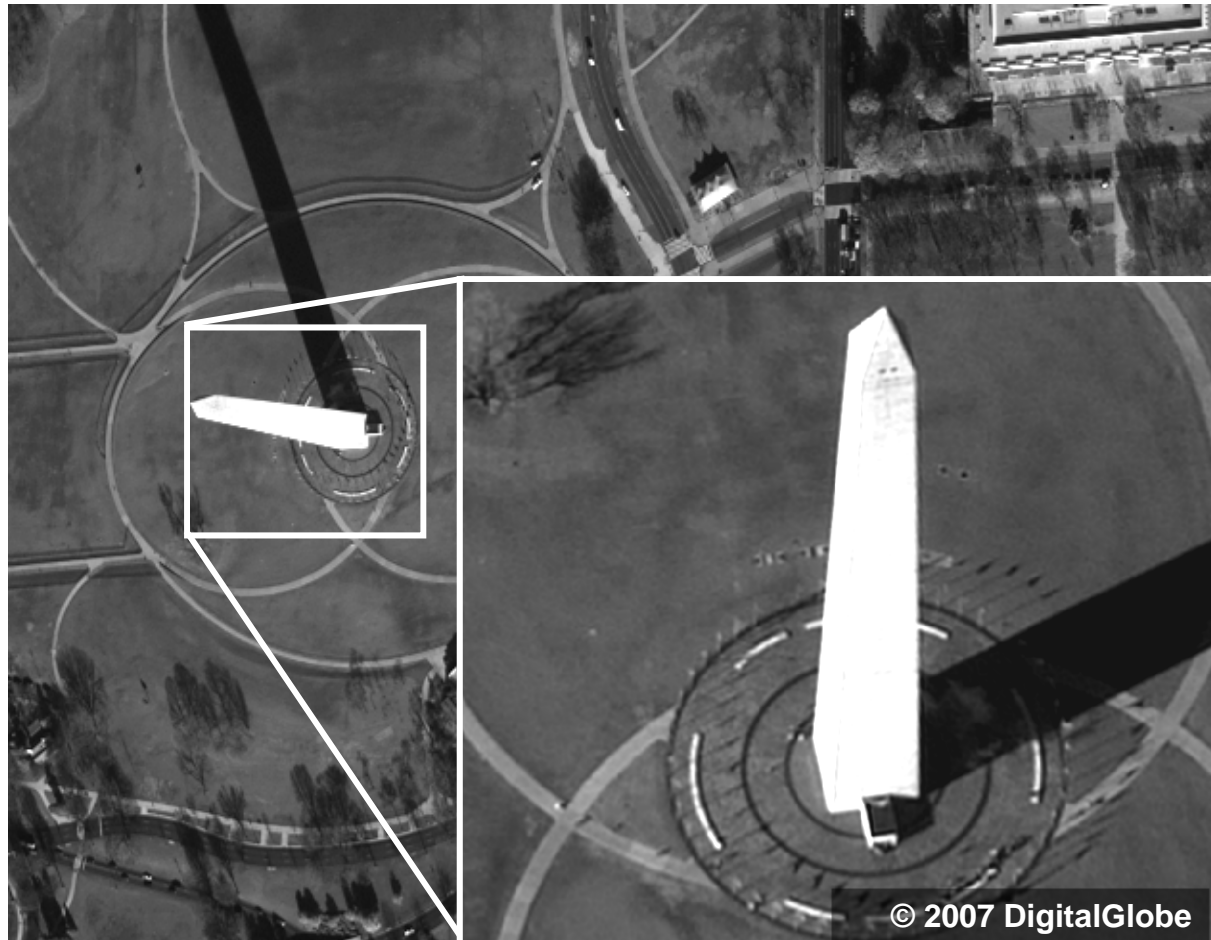
# CRS Today

## WorldView-1 (DigitalGlobe)

Washington Monument

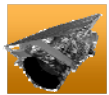
Panchromatic ONLY

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	
<a href="http://www.digitalglobe.com">www.digitalglobe.com</a>		





# CRS Today



## GeoEye-1 (GeoEye)

### Panchromatic



© 2009, GeoEye

Launch Date	September 6, 2008	
<b>.41m</b>	Spectral Range (µm)	Ground Resolution (m)
Pan	.45 to .90	.41m
MSI		1.64 m
Image Size	15.2 x 15.2km	
Repeat Coverage	8 days Off nadir repeat 2 to 3 days	
Up to 700,000 sq km/day of pan (about the size of Texas) Geolocation accuracy <3m Resampled to .5m for all non-USG customers		





# Licensing and Copyright

**Copyright** - who owns the data

**License** - who is authorized to use and what can be done with the data (licensee & temporarily licensed users)

*Think of commercial imagery the same way you view software you purchase for your home computer.*



# Licensing and Copyright

## NextView License

U.S. Government including, all branches, departments, agencies, and offices

Temporary Licensed Users :

State Governments

Local Governments

Foreign Governments and inter-governmental organizations

NGO's and other non-profit organizations

**All high-resolution commercial satellite imagery purchased by NGA is NextView Licensed.**

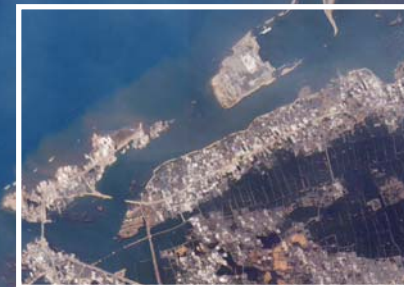
USG may **provide the imagery** to the above organizations when collaborating on an **official purpose**



# Exploitation Examples

## Disaster Response – Banda Aceh, Tsunami, 2004

Banda Aceh, Sumatra



26 December 2004, a tsunami struck following an earthquake off the coast. 130,000 people were killed.



# Exploitation Examples

Disaster Response – Myanmar, Cyclone Nargis, 2008





# Exploitation Examples

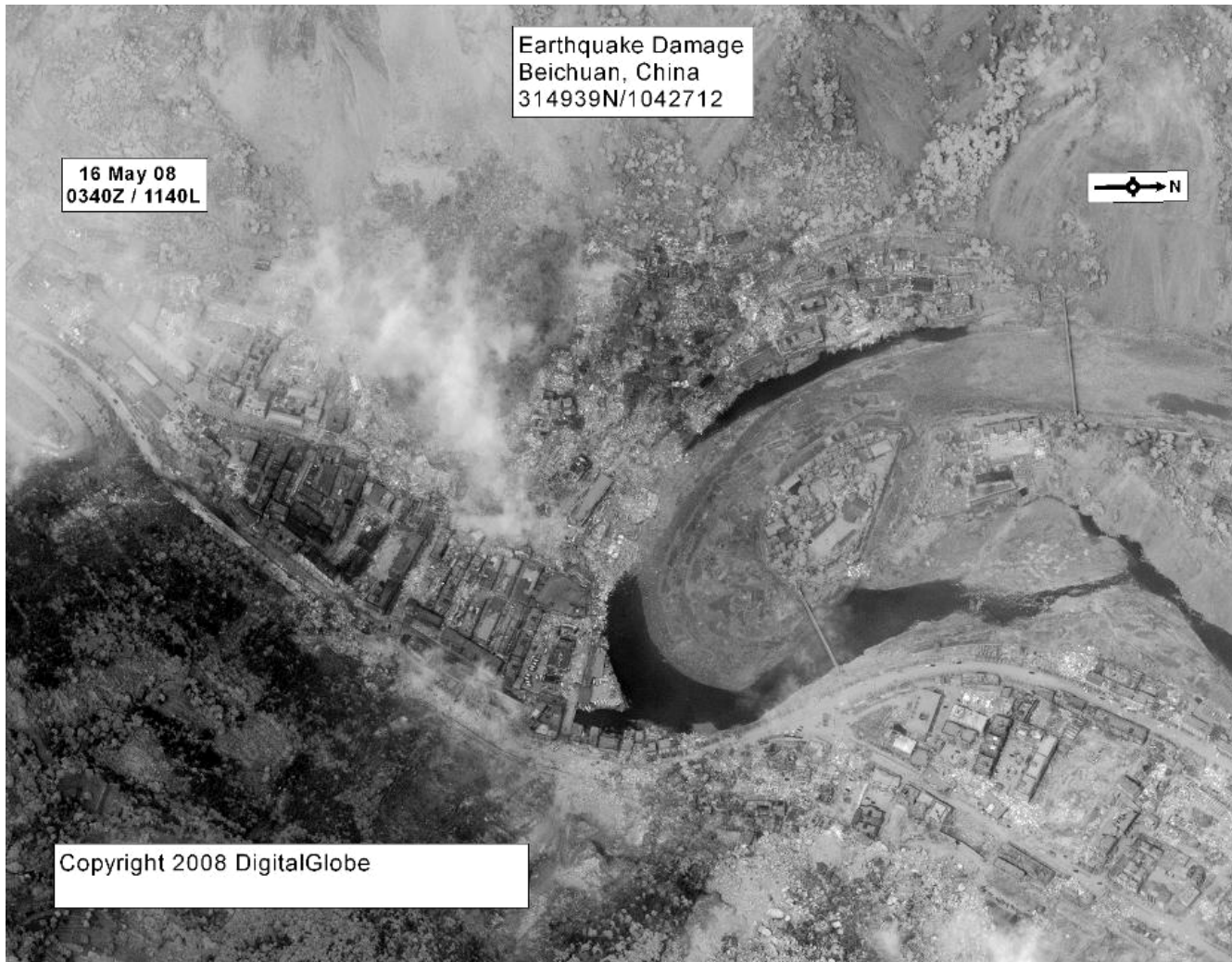
## Disaster Response – Myanmar, Cyclone Nargis, 2008





# Exploitation Examples

Disaster Response – China, 7.9 (RS) Earthquake, 2008





# Exploitation Examples

WorldView-1 Stereoscopic Imagery

Baghdad International Airport



© 2008 DigitalGlobe





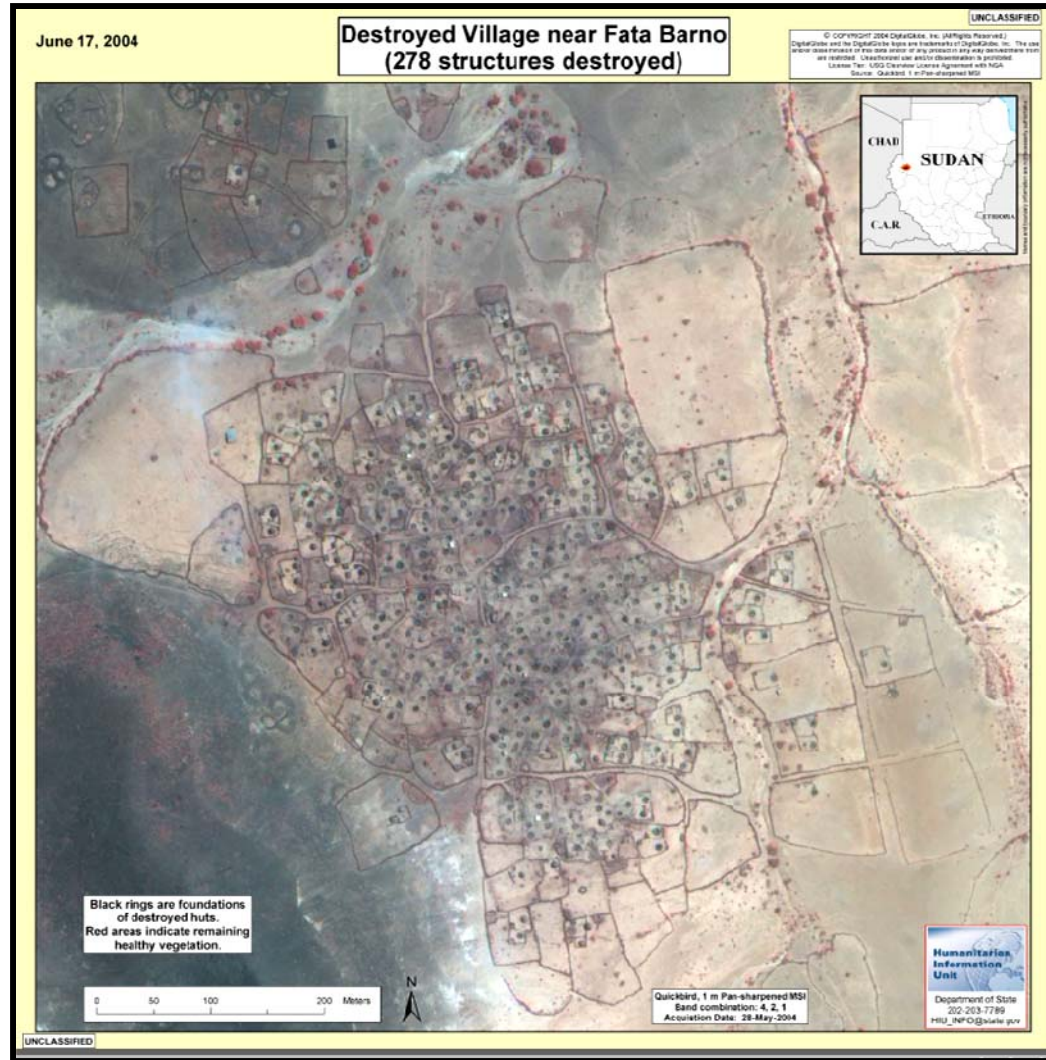


# Exploitation Examples

## Humanitarian Relief

Black rings are destroyed huts.

Red areas indicate healthy vegetation.





# Exploitation and Integration

## Friendly Debriefing





# Commercial Airborne Imagery Capabilities



# Commercial Airborne Imagery

## Sensors and Vendors

The various sensors offered from many vendors make Commercial Airborne Imagery (CAI) a versatile option for commercial imaging needs.

### Sensors

EO

MSI

HSI

Lidar

IfSAR

Thermal

### Vendors

**3001, Inc.—**

Lidar, EO, MSI, HSI

**Fugro EarthData—**

Lidar, IfSAR, EO,  
MSI, Thermal

**Intermap—**

IfSAR



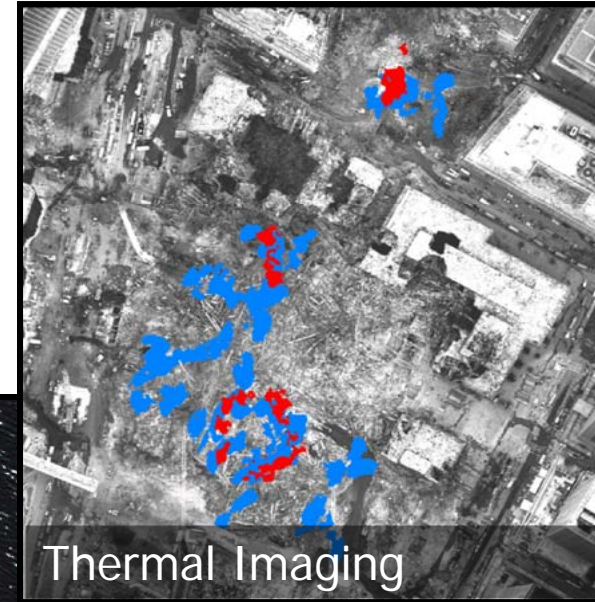
# Commercial Airborne Imagery

## Capabilities



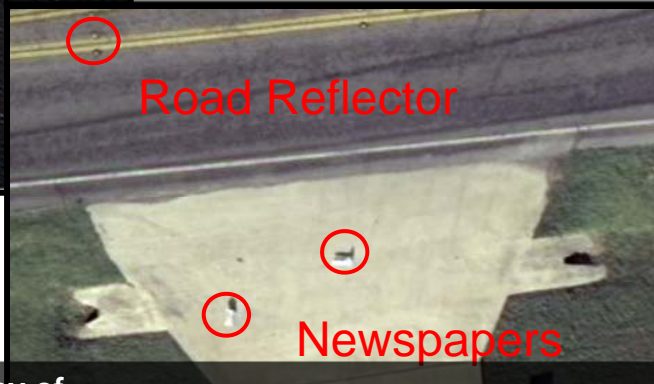
Hi-Res Pan-Sharpning

3" Resolution Natural Color



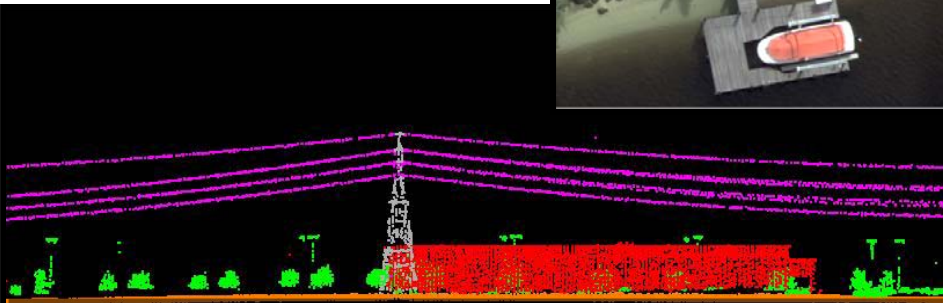
Thermal Imaging

1.5" Resolution (below)



Road Reflector

Newspapers



LiDAR profile of Utility Mapping Project

Imagery courtesy of 3001, Inc., Fugro EarthData, & Sanborn



[www.nga.mil](http://www.nga.mil)