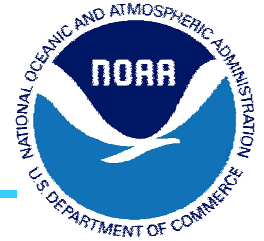




**NOAA Satellite and Information Services**



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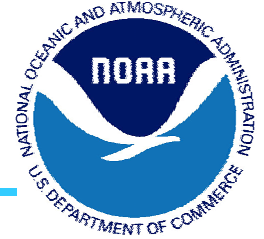
# **Satellite Imagery Use For Natural Disasters**

**September 2008**

**Alan Robinson  
CRSL Program Coordinator**



## NOAA Satellite and Information Services

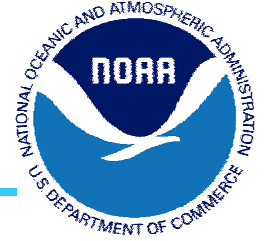


# NOAA Commercial Remote Sensing Licensing (CRSL) Program

- Regulatory responsibility to license CRS satellite industry
- Licenses instruct companies to hold high resolution data for 24 hours before distribution to non-U.S. Government approved entities
- Provision intended to address **national security concerns**
- **In 2004**, high resolution data hold limits for electro-optical (EO) satellites were: **0.82m Panchromatic (PAN) and 3.2m Multispectral (MS)**
  - Best available: DigitalGlobe's QuickBird: 0.615m PAN and 2.46m MS



# NOAA Satellite and Information Services

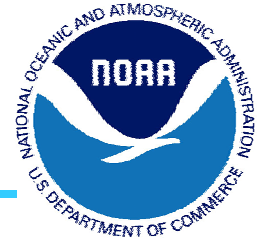


## Need Drives Change

- Indian Ocean Tsunami and U.S. severe hurricane season (Katrina)
- CRS industry and first responders asked NOAA to seek a waiver from 24-hour data hold for disasters
- NOAA requested **SDR provide guidance**
  - For **national security concerns**...needed requirement-based parameters to develop conditions for waiver
- **SDR provided key support information**



## NOAA Satellite and Information Services



# Waiver Completed In March 2006

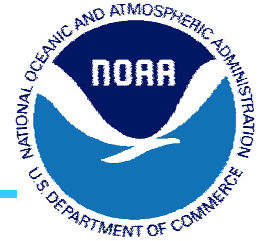
" NOAA's commercial remote sensing licensees are authorized to distribute imagery collected at better than **0.82m Panchromatic (PAN)** and **3.28m Multispectral (MS)** data Ground Sample Distance (GSD) for use immediately before, during or after a disaster event occurring in the United States or in other countries, with the exception of Israel."

"This action does not affect the license condition that imagery better than **0.5m PAN and 2.0m MS** GSD shall be reserved for the exclusive use of the U.S. Government (USG) and any foreign government that the USG may designate."

- But no capability for better than **0.5m PAN and 2.0m MS** existed



# NOAA Satellite and Information Services

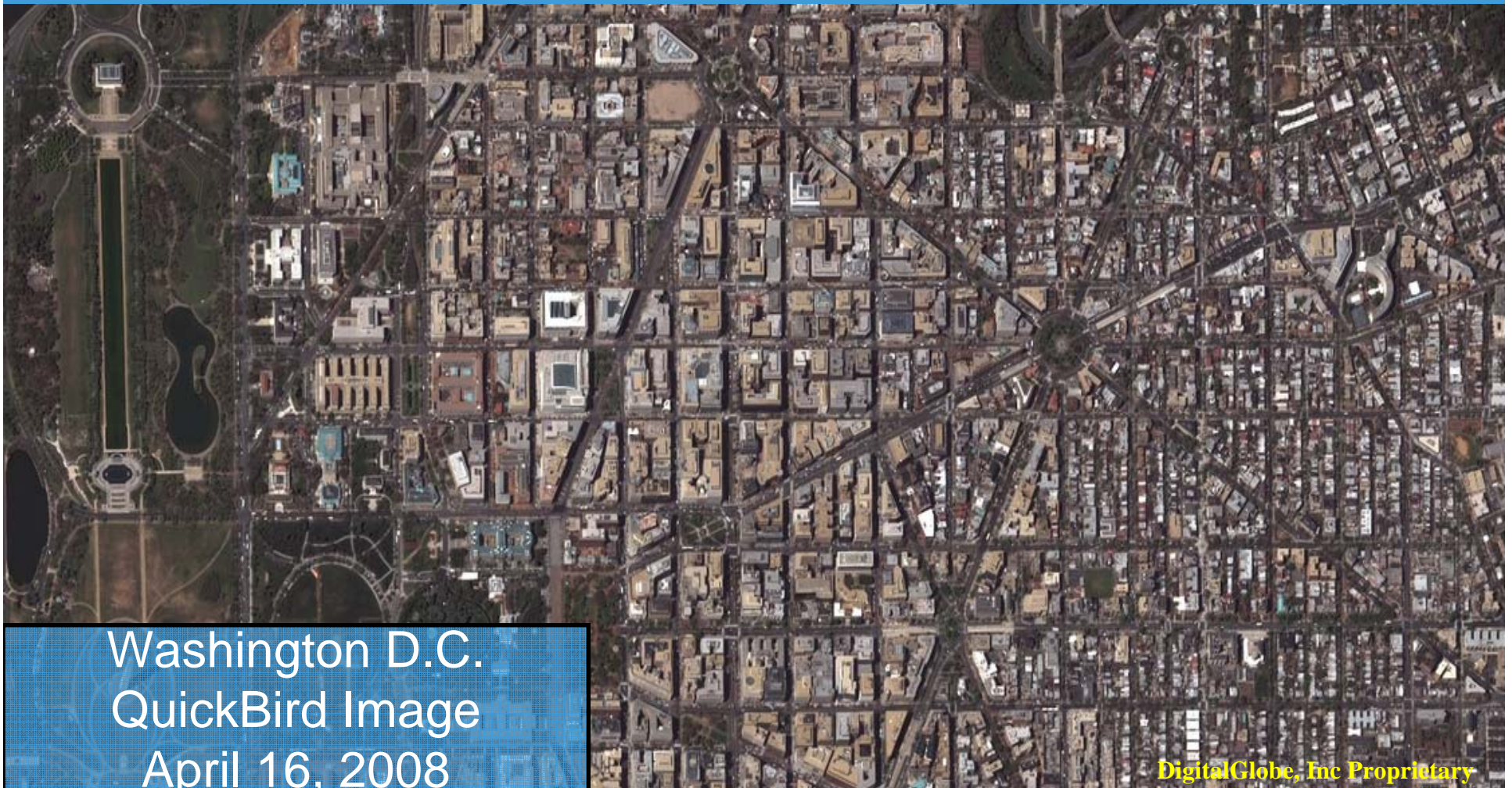


## Current Situation

- EO high resolution data hold limits changed from 0.82m PAN and 3.2m MS to 0.5m PAN and 2.0m MS...reserved for USG and any foreign government that the USG may designate."
  - Waiver OBE
- DigitalGlobe launched WorldView 1 (WV-1) in Sep 2007
  - 0.5m PAN...available to all



# DigitalGlobe's Constellation Coverage Of Washington D.C. April 16-17, 2008



Washington D.C.  
QuickBird Image  
April 16, 2008

DigitalGlobe, Inc Proprietary



## PAN And MS Imagery

QuickBird Collection



WorldView-1 Collection



DigitalGlobe's QuickBird and WorldView-1 satellites collected these two cloud-free images, 26 seconds apart, of Washington D.C. on April 16, 2008.

The imagery clearly shows the "Popemobile" and the motorcade traveling through Washington after leaving the White House welcoming ceremony on April 16<sup>th</sup>. An additional WorldView-1 collection on April 17<sup>th</sup> shows the Papal Mass underway at Nationals Park.

### DigitalGlobe Catalog IDs:

April 16, 2008

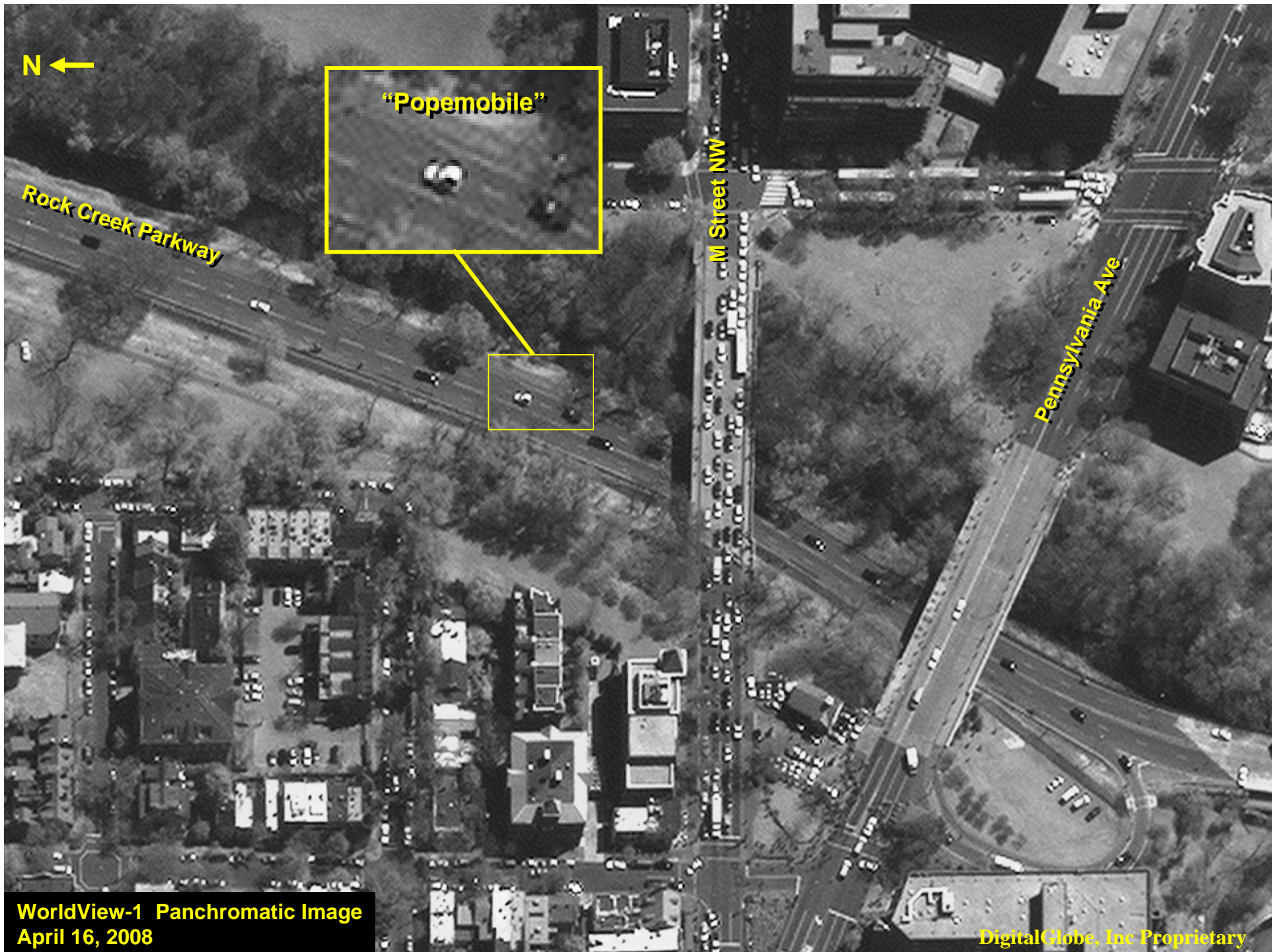
1020010002C4A200 (WV-1)

1010010007ECDC00 (QuickBird)

April 17, 2008

10200100020F1400 (WV-1)





**WorldView-1 Panchromatic Image**  
**April 16, 2008**

DigitalGlobe, Inc Proprietary

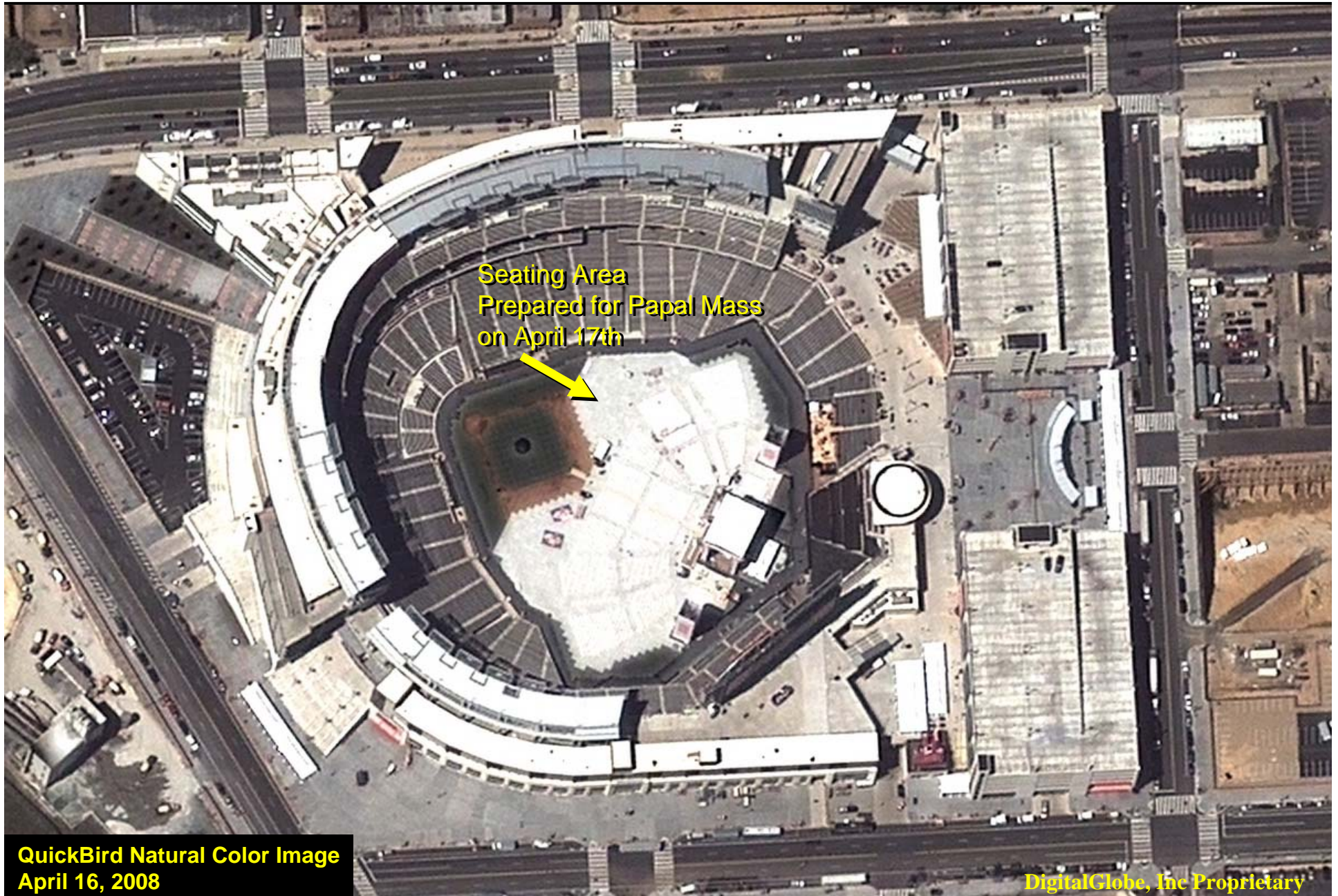




QuickBird Natural Color Image  
April 16, 2008



# Nationals Park: April 16, 2008



QuickBird Natural Color Image  
April 16, 2008

DigitalGlobe, Inc Proprietary



# Papal Mass In Progress: April 17, 2008

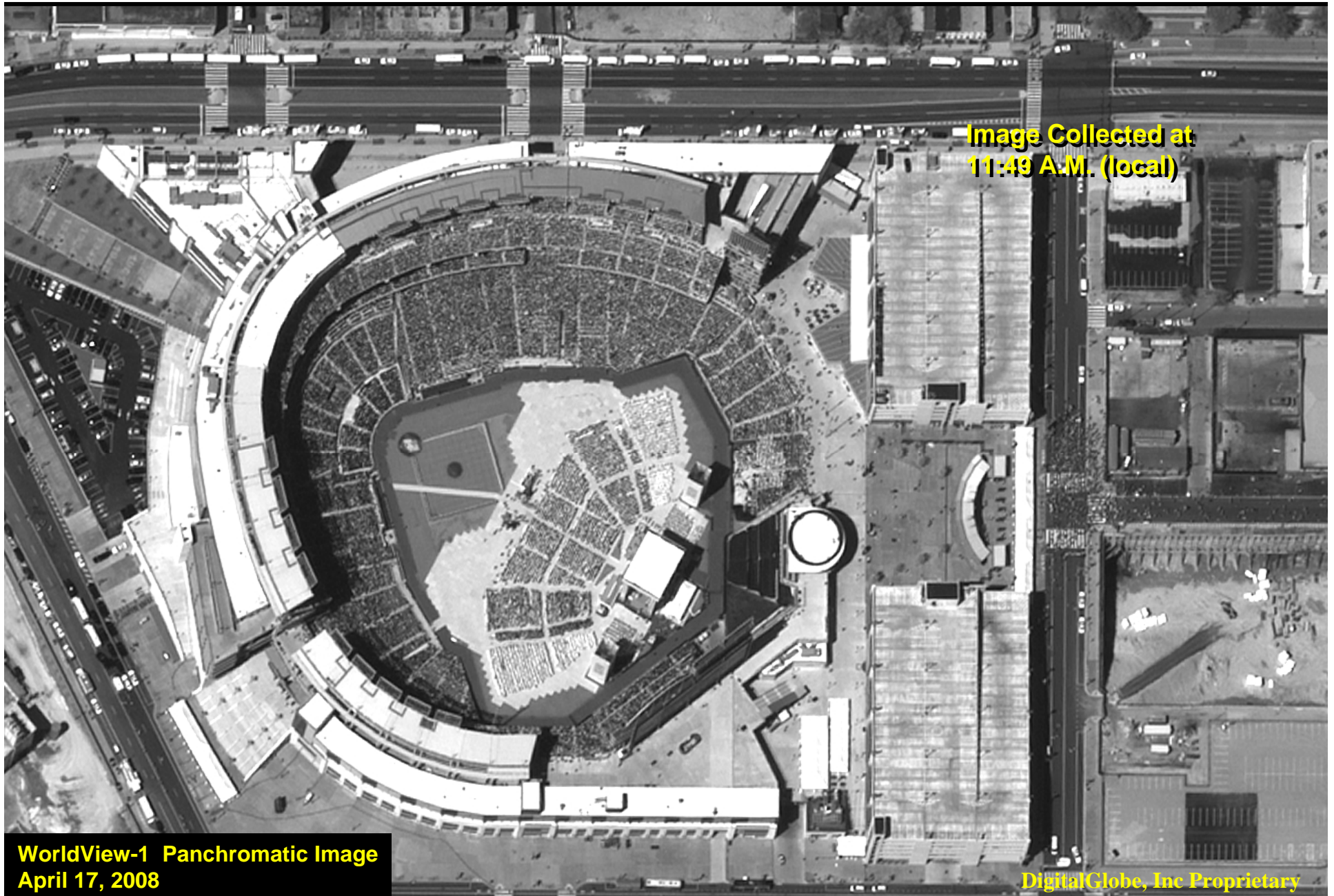


Image Collected at  
11:49 A.M. (local)

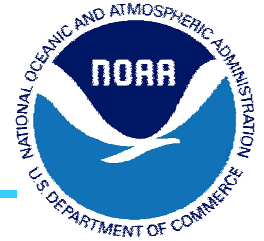
WorldView-1 Panchromatic Image  
April 17, 2008

DigitalGlobe, Inc Proprietary





# NOAA Satellite and Information Services

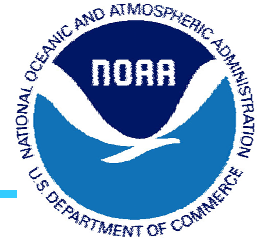


## Future Capability

- GeoEye to launch GeoEye 1 on Sep 7 or 8?...soon
  - 0.41m PAN vs 0.5m from WV-1 = 3.54" resolution increase
  - 1.65m MS vs 2.46m from QuickBird = 31.9" resolution increase
- DigitalGlobe to launch WorldView 2 in mid 2009
  - 0.46m PAN vs 0.5m from WV-1 = 1.57" resolution increase
  - 1.84m MS vs 2.46m from QuickBird = 24.4" resolution increase
- Systems convert data to **0.5m PAN and 2.0m MS** "instantaneously"
- New products **may** result...MS sensors examining different parts of EO spectrum
  - Contact companies with specific requirements



# NOAA Satellite and Information Services

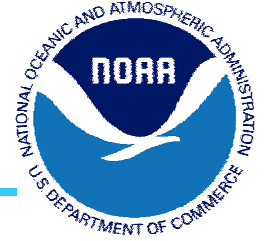


## New Waiver Needed?

- NOAA examining waiver for **0.5m PAN and 2.0m MS** data hold limits
  - For **national security concerns**...need requirements
- Seeks SDR input again...need answer to following:
  1. For a disaster recovery situation, what is the value of satellite data with a resolution better than 0.5m PAN and 2.0m MS GSD vice 0.5m PAN and 2.0m MS GSD or worse? Specifically, **what advantages to disaster relief and recovery operations will satellite data with a resolution better than 0.5m PAN and 2.0m MS GSD provide vice using 0.5m PAN and 2.0m MS GSD or worse?**
  2. **What are the negative impacts if data better than 0.5m PAN and 2.0m MS GSD is not provided?**



# NOAA Satellite and Information Services



**For additional information contact the CRSL Program staff:**

NOAA Licensing Web Site: [www.licensing.noaa.gov](http://www.licensing.noaa.gov)

NOAA licensing email: [NOAA.CRSL@noaa.gov](mailto:NOAA.CRSL@noaa.gov)

- Kay Weston, CRSL Program Manager
  - [Kay.Weston@noaa.gov](mailto:Kay.Weston@noaa.gov), 301-713-2024 Ext 205
  
- Alan Robinson, License Officer
  - [Alan.Robinson@noaa.gov](mailto:Alan.Robinson@noaa.gov), 301-713-2024 Ext 213
  
- Dave Hasenauer, License Officer
  - [Dave.Hasenauer@noaa.gov](mailto:Dave.Hasenauer@noaa.gov), 301-713-2024 Ext 207