



# USDA Remote Sensing

## Disaster

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# Four types of Federal Disaster Designations

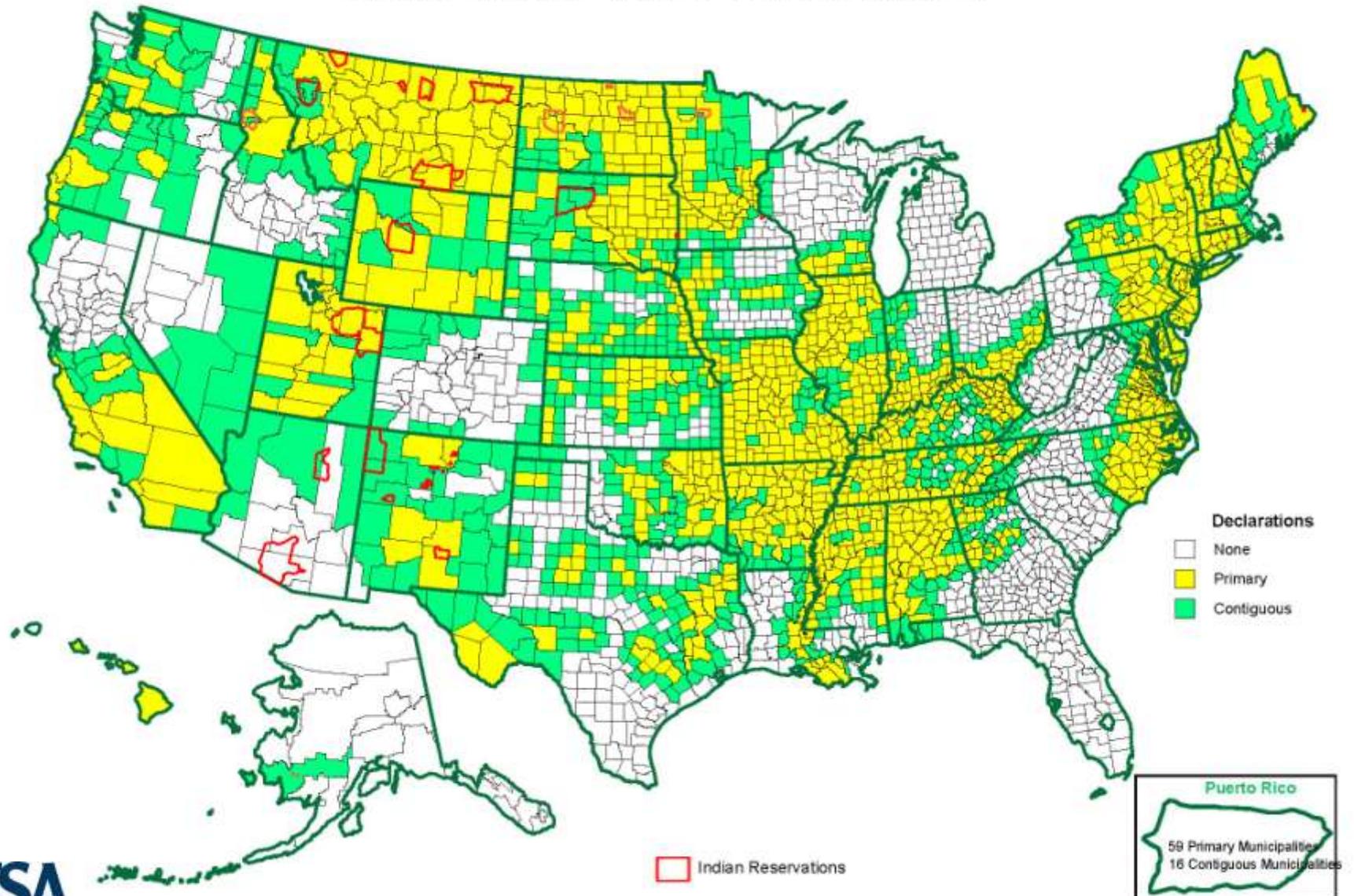
- 1) Presidential major disaster declaration
- 2) USDA Secretarial disaster designation
- 3) Farm Service Agency (FSA) Administrator's Physical Loss Notification
- 4) Quarantine designation.



## PRESIDENTIAL DISASTER DECLARATIONS - CY2011

### MAJOR DISASTERS and PRESIDENTIAL EMERGENCIES

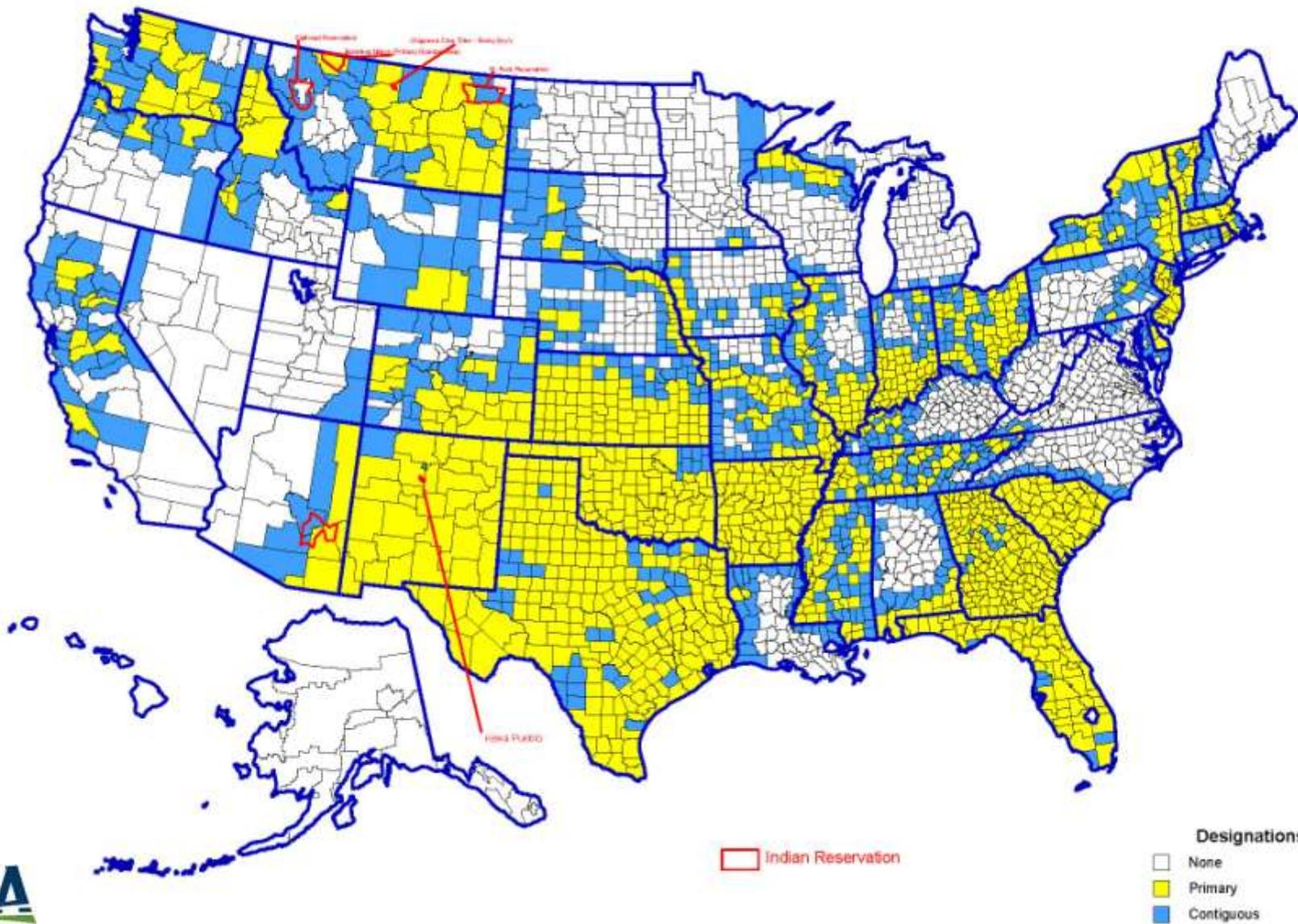
Unduplicated Primary & Contiguous Counties: As of 10/12/2011



## SECRETARIAL DISASTER DESIGNATIONS - CY2011

PRIMARY & CONTIGUOUS COUNTIES DESIGNATED BY THE SECRETARY - USDA:

As of 10/12/2011 - through Designation No. S3177 (Approved 10/05/2011)



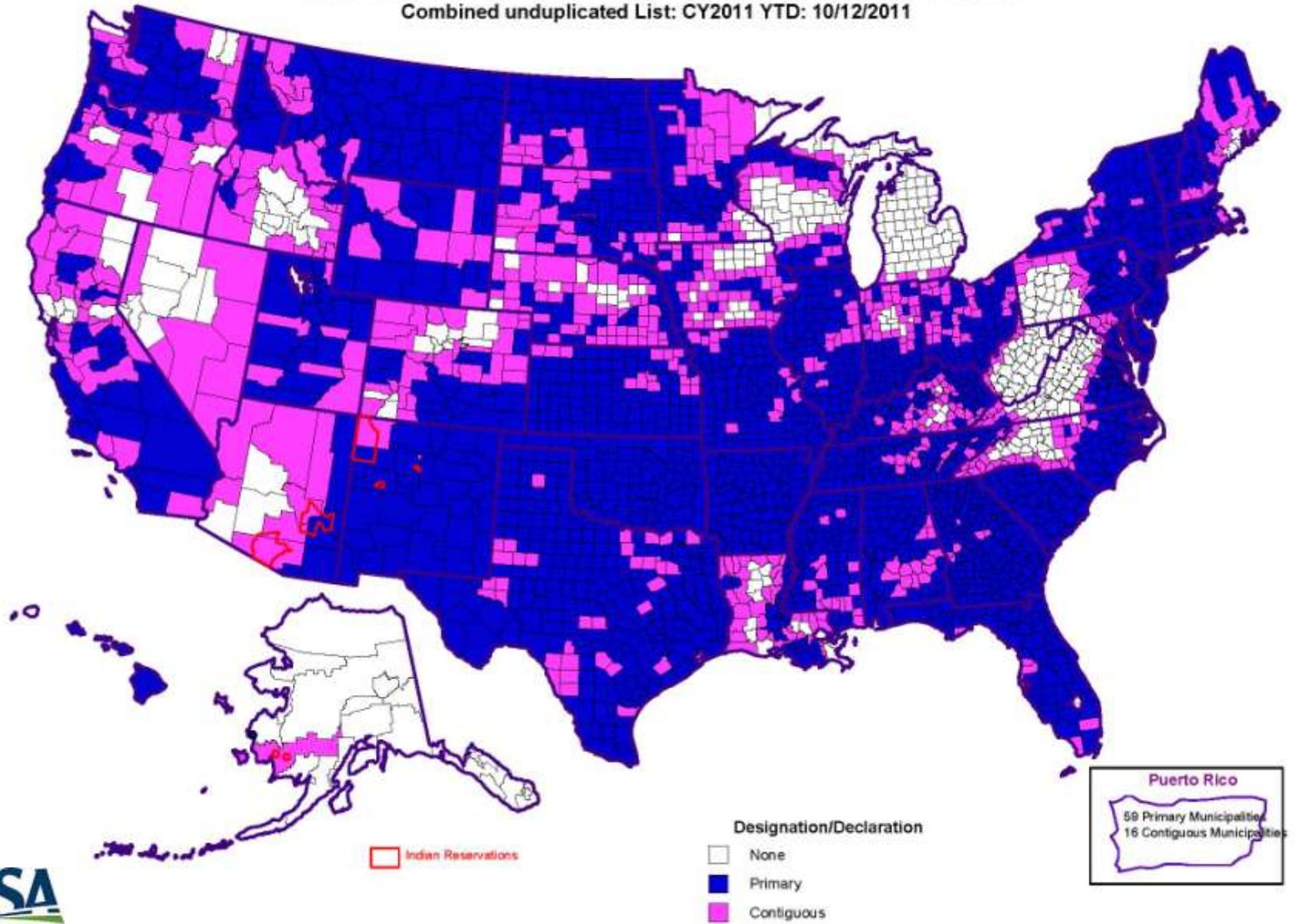
# Presidential major disaster declaration

- 2011 Federal Disaster Declarations
  - [Major Disaster Declarations](#) 87
  - [Emergency Declarations](#) 25
  - [Fire Management Assistance Declarations](#) 112
- 2011 set a record for the number of Major Disaster Declarations.

Year	Disaster Declarations
<a href="#">2011</a>	87
<a href="#">2010</a>	81
<a href="#">2009</a>	59
<a href="#">2008</a>	75
<a href="#">2007</a>	63
<a href="#">2006</a>	52
<a href="#">2005</a>	48
<a href="#">2004</a>	69
<a href="#">2003</a>	56
<a href="#">2002</a>	49

### DISASTER DESIGNATIONS - CY2011

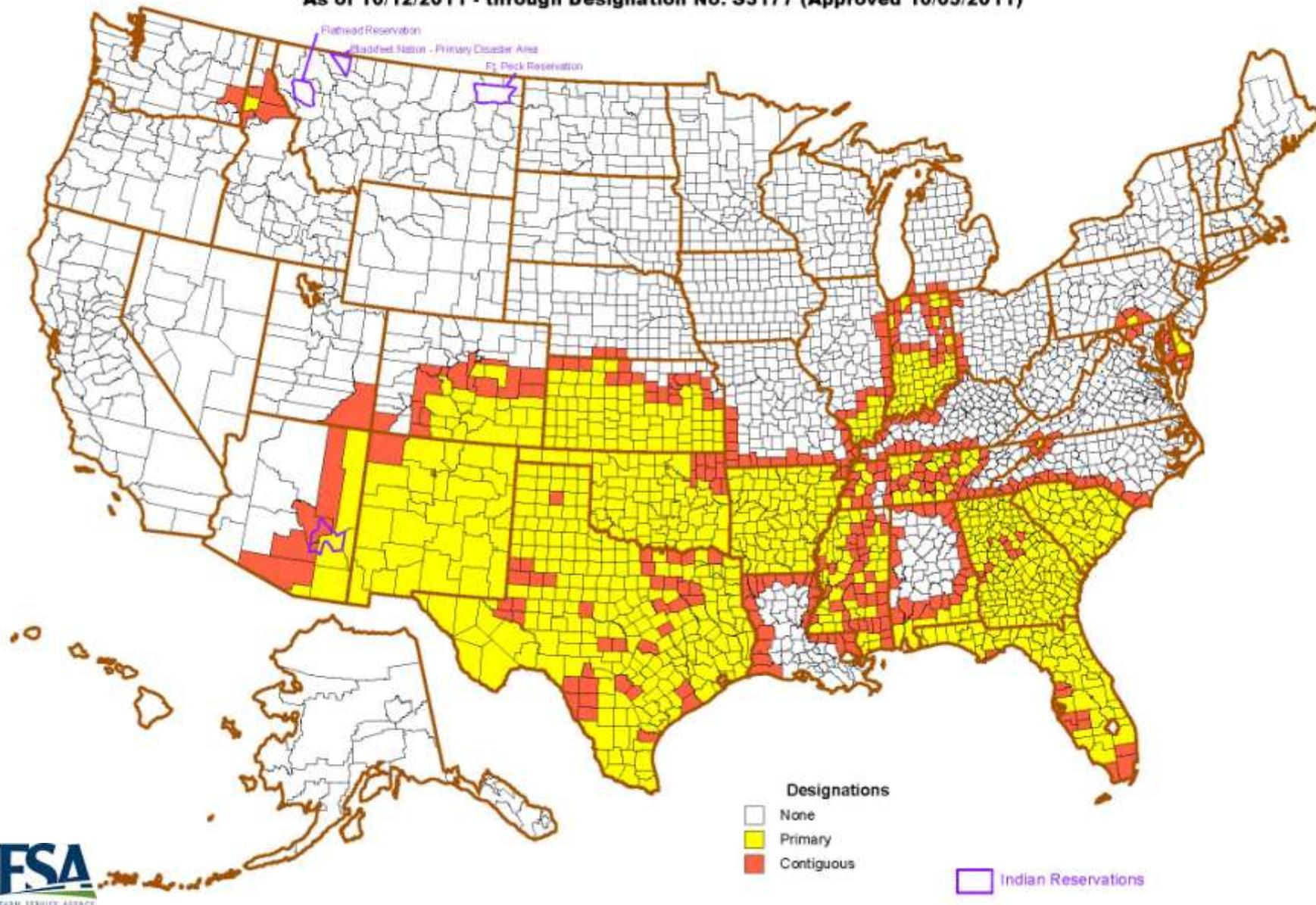
Secretarial & Presidential Disasters PRIMARY & CONTIGUOUS COUNTIES:  
Combined unduplicated List: CY2011 YTD: 10/12/2011



## SECRETARIAL DROUGHT DESIGNATIONS - CY2011

PRIMARY & CONTIGUOUS COUNTIES DESIGNATED BY THE SECRETARY - USDA:

As of 10/12/2011 - through Designation No. S3177 (Approved 10/05/2011)







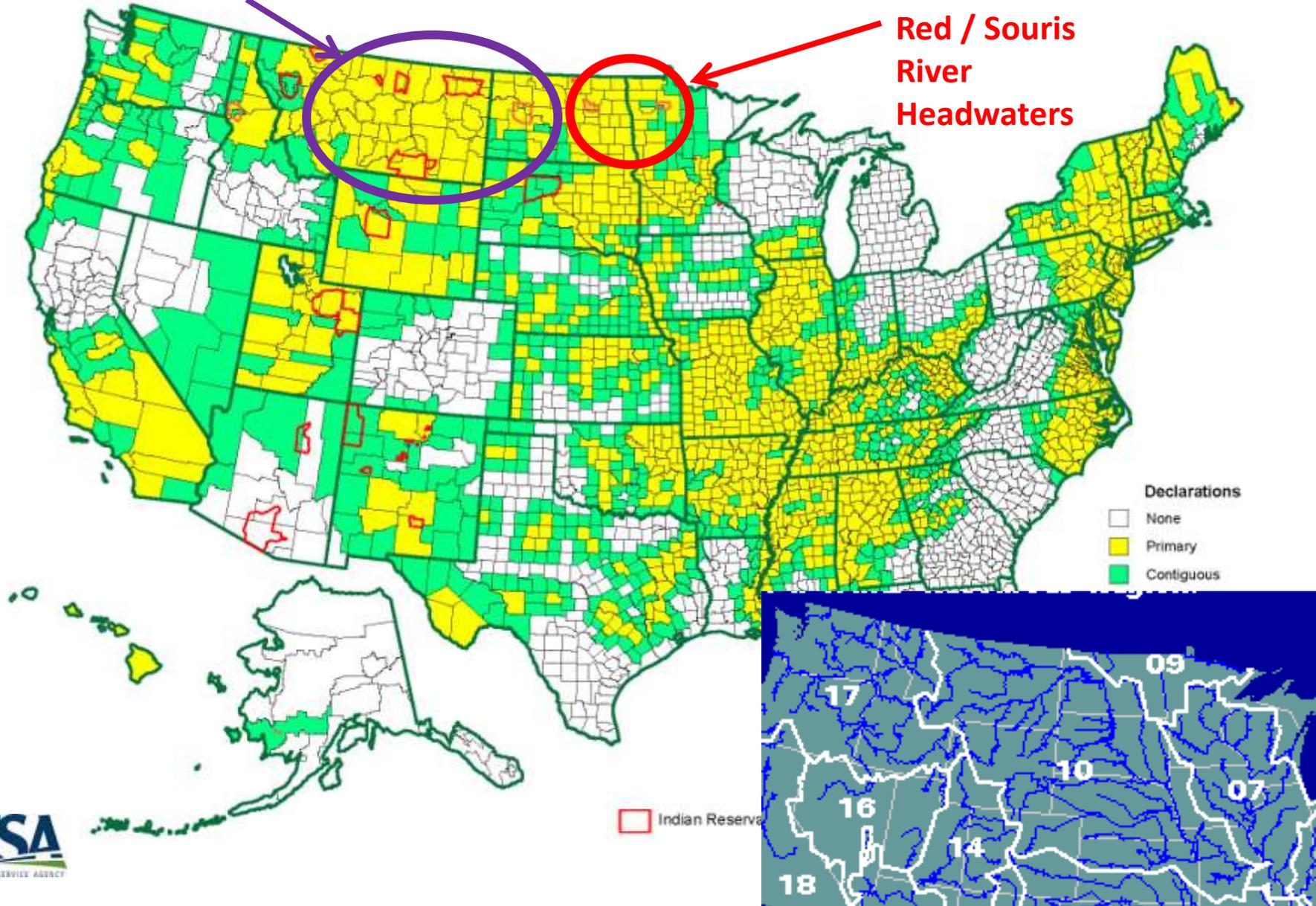
# Missouri River River Headwaters

## PRESIDENTIAL DISASTER DECLARATIONS - CY2011

### MAJOR DISASTERS and PRESIDENTIAL EMERGENCIES

Unduplicated Primary & Contiguous Counties: As of 10/12/2011

Red / Souris  
River  
Headwaters



# USDA Disaster Assistance Programs

- Emergency Conservation Program
- Emergency Watershed Protection Program
- Emergency Forest Restoration Program
- Noninsured Crop Disaster Assistance Program
- Tree Assistance Program
- Supplemental Revenue Assistance Payments Program
- Emergency Assistance for Livestock, Honeybees, and Farm Raised Fish
- Livestock Forage Disaster Program
- Livestock Indemnity Program
- Emergency Loan Program



# 2011 Disasters with Significant Remote Sensing Resources

- Tornadoes In Missouri (January)
  - Earthquake and Tsunami in Japan (March)
  - Tsunami West Coast US (March)
  - Flood Mid West US (April)
  - Flood Central US (April)
  - Tornadoes South East US (April)
  - Tornado Joplin (May)
  - Floods NE US (June)
  - Flood Missouri River (June)
  - Fires AZ, NM, and CO (June)
  - Floods ND (June)
  - Hurricane Irene (August)
  - Fire TX (September)
  - Floods Thailand (November) no list
  - Fires Reno (November) no list
- **Total of 13 US Disasters, 2 International Disasters**

# Collect, Organize and Consolidate Disaster Data Sources

- Imagery
  - Civil Satellites
  - Commercial Satellites
  - Foreign Satellites
  - Aerial
- Location for Imagery
  - HDDS
  - Earth Explorer
  - WARP
  - SIA
- Funding Sources for New Collections
  - NGA
  - FEMA
  - International Charter
  - DoD
  - NOAA
  - Civil Air Patrol
  - DHS - UAVs

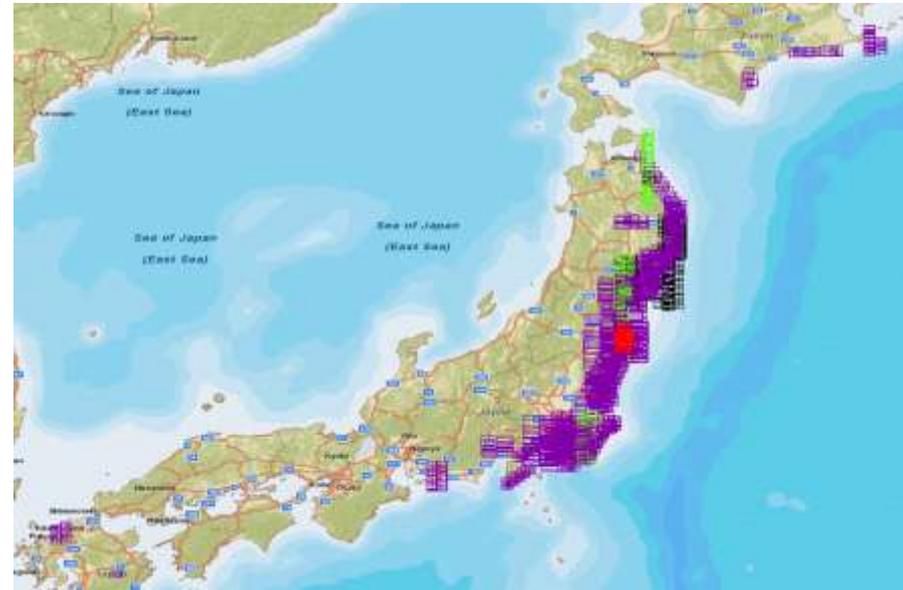
# GIS data

- NOAA: Multiple Sources, No consolidation
- NASA:
- USGS: Multiple Sources
- ESRI: Consolidates Federal Sites
- State GIS Sites
- University GIS Sites
- HSIN: Official FEMA products, Briefings
- Intelink-U: NGA Products

# Event Specific Data Sources

## Geospatial Information and Remotely Sensed Imagery Products

- List Updated daily at first.
- Updated as needed
- Data Mining
  - Emails (included on most FEMA interactions)
  - Web
- Creation of status maps.
- Sources since 2005



# Three Flavors of Hazards Data Distribution System (HDDS)

HDDS Open

HDDS  
Restricted

HDDS  
International  
Charter

<http://hdds.usgs.gov/hdds/>

# HDSD Open

- Imagery, data and Information that does not have distribution restrictions.
- Expect to find:
  - Landsat
  - Aster
  - Aerial
  - Lidar / DEMs
  - GIS Data

# HDDS Restricted

- Imagery, Data and Information that does **has** distribution restrictions.
- Expect to find:
  - Licensed Imagery from
    - GeoEye
      - GeoEye-1
      - Ikonos
    - Digital Globe
      - WorldView-1 and 2
      - QuickBird
    - SPOT
    - RapidEye
  - Aerial Imagery that is may have license or handling restrictions
  - GIS products for Government use only.

You may find:

- Cartosat
- RapidEye
- Envisat MERIS
- CAP ARCHER
- EPA ASPECT
- AVIRIS (NASA JPL)
- Radarsat-1/2
- TerraSAR-X
- Envisat ASAR
- COSMO SkyMed
- UAV SAR

# HDDS



USGS Home  
Contact USGS  
Search USGS

## Hazards Data Distribution System (HDDS)

Home Item Basket (1 item)

Login RSS Feedback Help

### Enter Search Criteria

Event: 201004\_Oilspill\_GulfOfMexico + *Events*

Selected Events:  
201101\_NRDA ✖

Include baseline data?  Include ad-hoc data?

State: Any state + *Region*

County: Entire state +

Selected State/Countries:  
None selected

From: To: *Date Range*

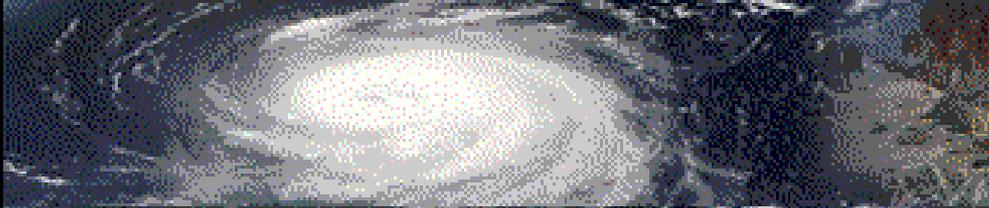
Geographic Boundary  
-90.2773 29.3290 -90.1565 29.2524 Show on map

Results per page 50

Clear Form Search



Map data ©2011 Google, INEGI Imagery ©2011 TerraMetrics - Terms of Use



## Hazards Data Distribution System (HDDS)

[Home](#)

[Login](#)

[Register](#)



[Feedback](#) [Help](#)

**This directory is restricted. To access it, you must [login](#). After logging in, you will be returned to the directory view.**

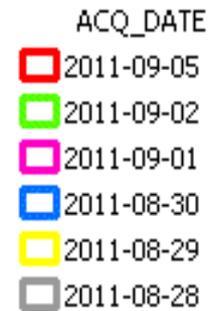
You must request access for each event that you want to download restricted / licensed data/imagery

Log into your EarthExplorer Account before you request access.

# Self Register for HDDS Restricted <http://hdds.usgs.gov/hdds2> Allows downloading of Licensed Imagery



201108\_Hurricane\_Irene\_SPOT\_DOD\_NAD83

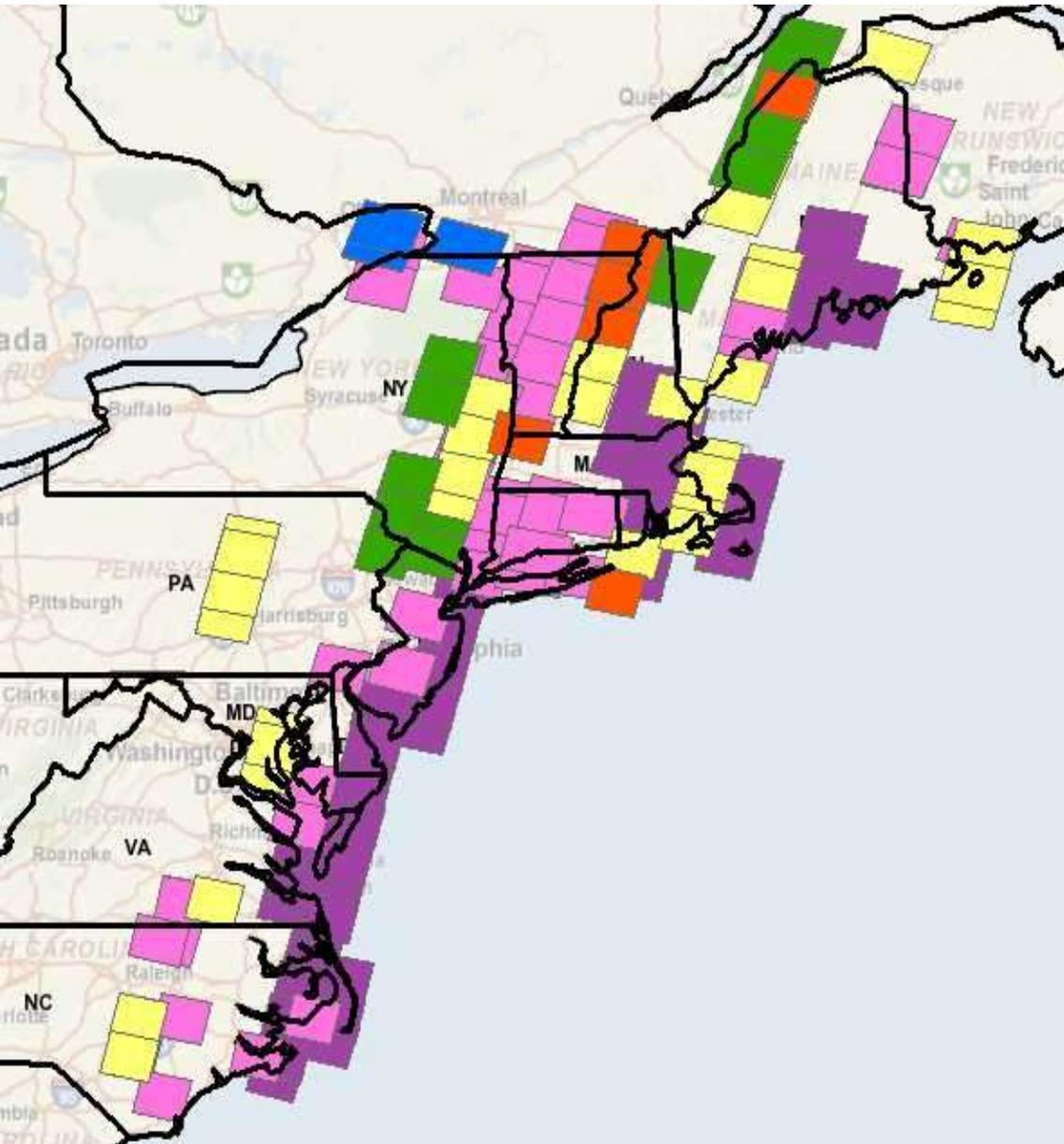


FS requirement

Copy and paste URL to access imagery in directories or download using interface. <http://hdds.usgs.gov/hdds2/>

[http://hdds.usgs.gov/hdds2/disaster\\_restricted/201108\\_Hurricane\\_Irene/data/GEOEYE\\_NGA](http://hdds.usgs.gov/hdds2/disaster_restricted/201108_Hurricane_Irene/data/GEOEYE_NGA)

# Spot 5 Imagery on EarthExplorer

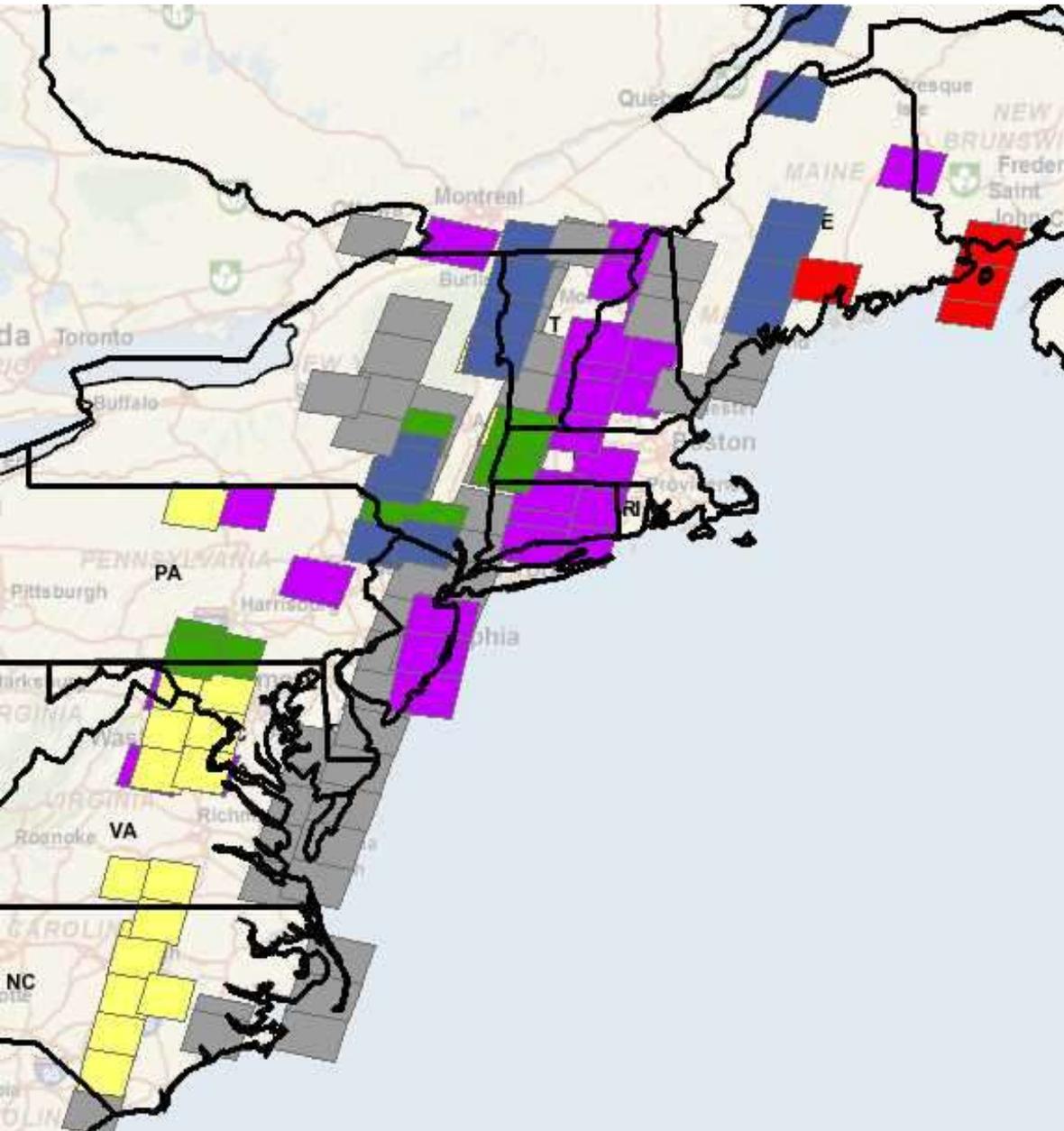


DATABUY\_SPOT5\_ORD

ACQ\_DATE

- 19-SEP-11
- 18-SEP-11
- 17-SEP-11
- 14-SEP-11; 13-SEP-11; 12-SEP-11; 10-SEP-11
- 09-SEP-11; 08-SEP-11; 04-SEP-11; 03-SEP-11; 02-SEP-11
- 30-AUG-11; 29-AUG-11; 28-AUG-11

# SPOT4 Coverage EarthExplorer



DATABUY\_SPOT4\_ORD

ACQ\_DATE

18-SEP-11

17-SEP-11

16-SEP-11

11-SEP-11

10-SEP-11; 06-SEP-11; 05-SEP-11; 02-SEP-11

26-SEP-11; 27-SEP-11; 31-AUG-11

# Two Flavors of SPOT

- The Spot imagery download from EagleVision has a different license than what was download by USGS EROS.
- Spot Imagery downloaded by EROS is **not** posted to HDDS.
- For Hurricane Irene:
  - SPOT available from EROS > SPOT imagery on HDDS
  - EagleVision downloaded imagery between August 28 and September 5
  - No end date for SPOT downloaded over areas impacted (included in SPOT data buy)

# 201108 Hurricane Irene Data Sources

Geospatial Information and Remotely Sensed Imagery Products

September 12, 2011

- Irene data sources: 24 pages.
- Inputs:
  - Federal (Civil, DoD, and Intelligence Community\_
  - State and local governments
  - Private Sector
  - Universities
  - Crowd Sourcing

Email [glenn.bethel@usda.gov](mailto:glenn.bethel@usda.gov) to get on mailing list

# NGA RDOG



DASHBOARD



## IMAGE DOWNLOADS

	Subject	Date	Status	Action
	Clip_of_Norfolk_-_Hampton_Roads	2011-09-14 16:57:45Z	Available for 4 days 1 hour	Download
	Clip_of_US_East_Coast	2011-09-14 16:57:39Z	Available for 4 days 1 hour	Download
	Clip_of_Norfolk_-_Hampton_Roads	2011-09-14 16:17:38Z	Available for 4 days 0 hours	Download

Show All Image Downloads

## PROJECTS & SITES

Hurricane Support - 10 sites / Modified: 2011-09-01 16:19:16Z

CREATE NEW SITE

US East Coast

Pennsylvania Flooding

NC Outer Banks

Paterson NJ

NH VT

Bahamas

New York City

DHS Support - 14 sites / Modified: 2011-08-23 18:29:14Z

CREATE NEW SITE

Pennsylvania Flooding

Joplin MO

Upper Midwest Flooding

USACE MO River

Minot, ND

Mississippi River Floods 2011

Hamburg

## NOTIFICATIONS

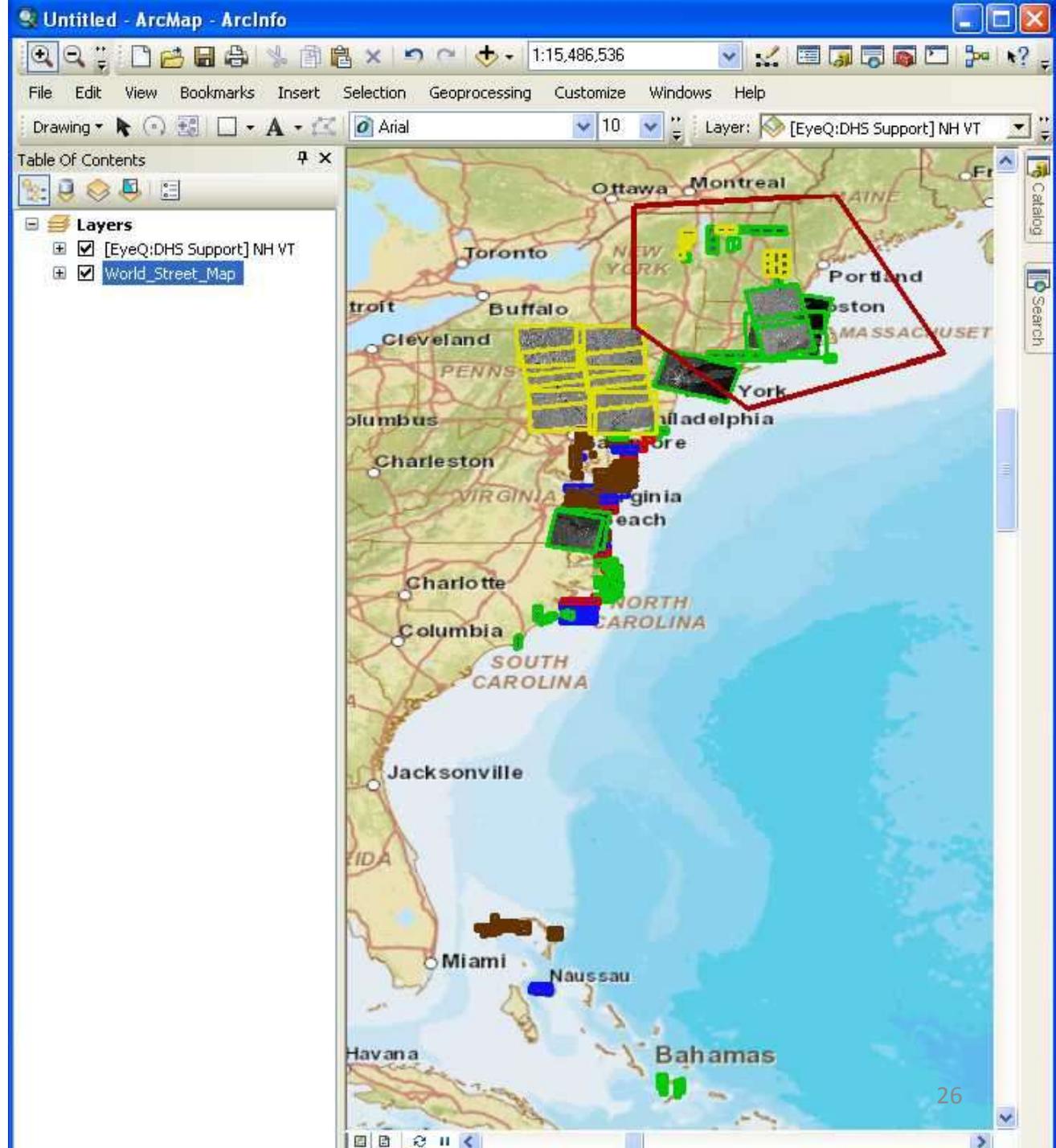
	Subject	Date	
	NH VT	2011-09-15	
	NH VT	2011-09-15	
	NH VT	2011-09-15	
	NH VT	2011-09-14	
	NH VT	2011-09-14	

Show All Notifications

## SUBSCRIPTIONS

- eGeos Cosmo SkyMed**  
Last Updated: 9/13/2011 7:29:55 PM
- EO Data**  
Last Updated: 9/2/2011 4:32:34 PM
- GFI Radar Data**  
Last Updated: 7/21/2011 12:47:50 AM
- Irene Terra SAR**  
Last Updated: 8/26/2011 9:20:45 PM
- MDA RADAR-SAT-2**  
Last Updated: 8/30/2011 1:28:59 PM
- MJ Harden Data**  
Last Updated: 5/26/2011 7:36:29 PM
- Post-Irene**  
Last Updated: 9/15/2011 12:07:13 PM
- Pre-Hurricane**  
Last Updated: 9/7/2011 2:50:50 PM
- SPOT EO Data**  
Last Updated: 7/21/2011 12:48:08 AM

# Mashup in ArcMap





# US RDOG (non-disaster)

CONUS

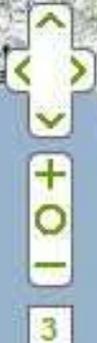
SEARCH ▶

ORGANIZE ▶

SHARE ▶

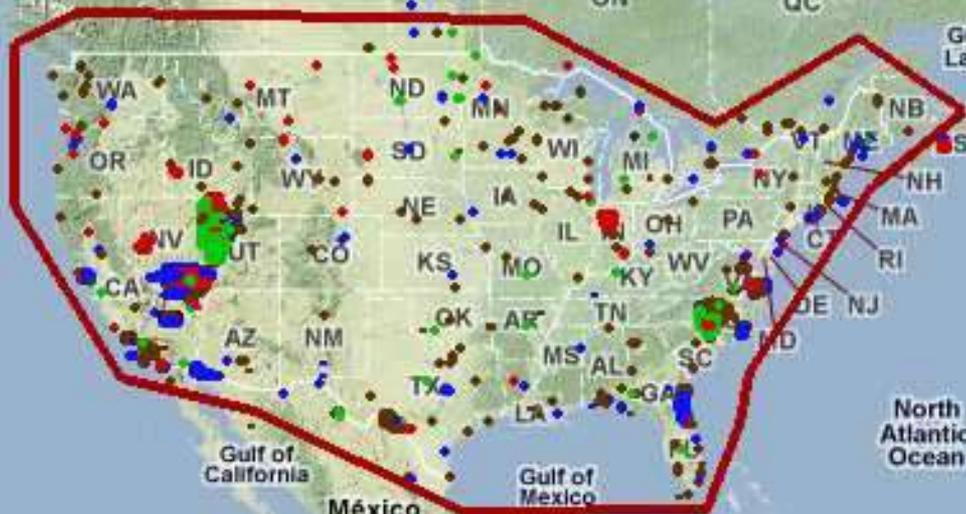


— Bookmarks... ▼



**Image Acquisition Date**

- < 7 days
- < 90 days
- < 6 months
- < 1 year
- > 1 year

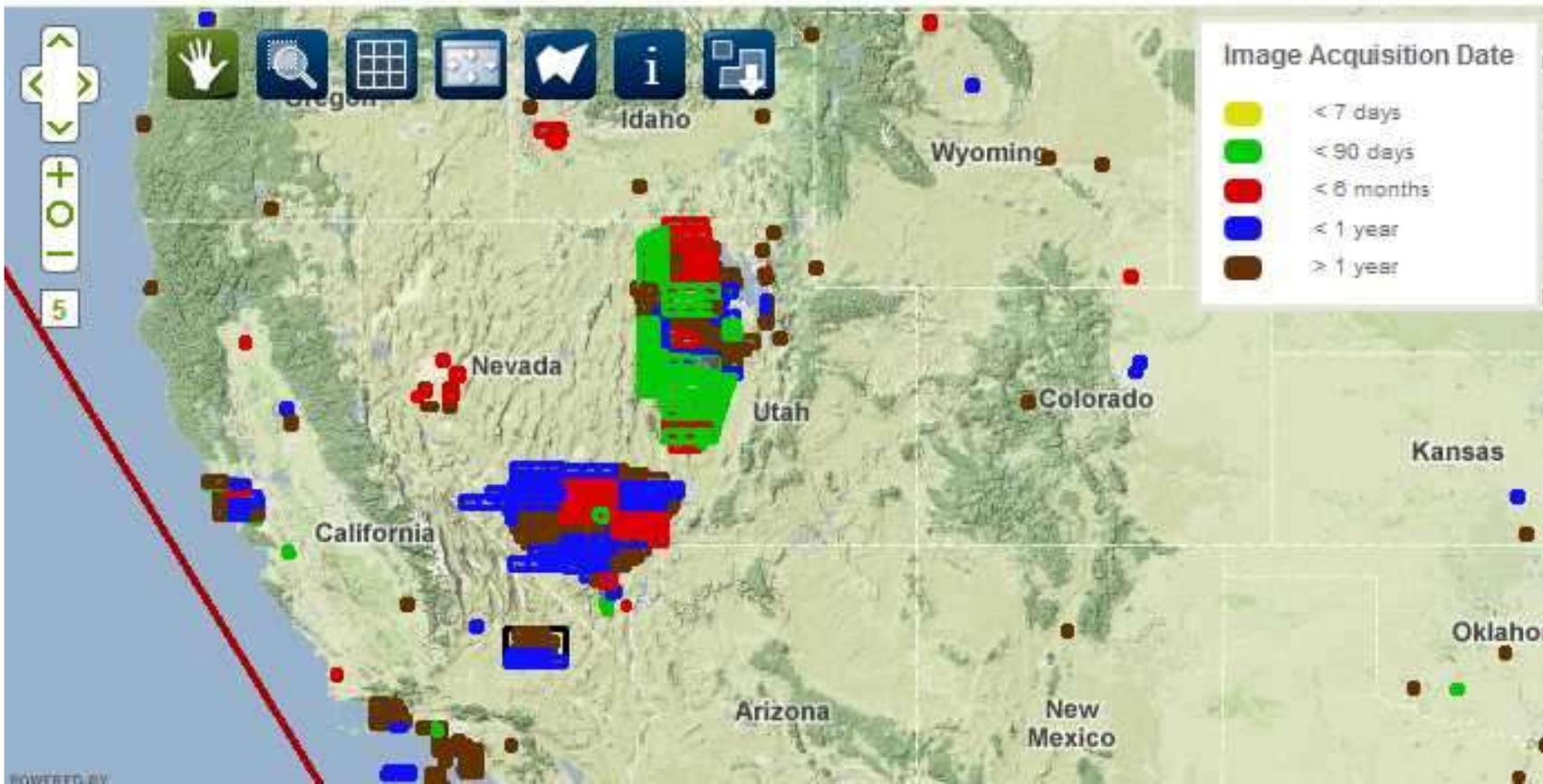


34°15'33.11"N / 54°11'04.45"W

Go to a place

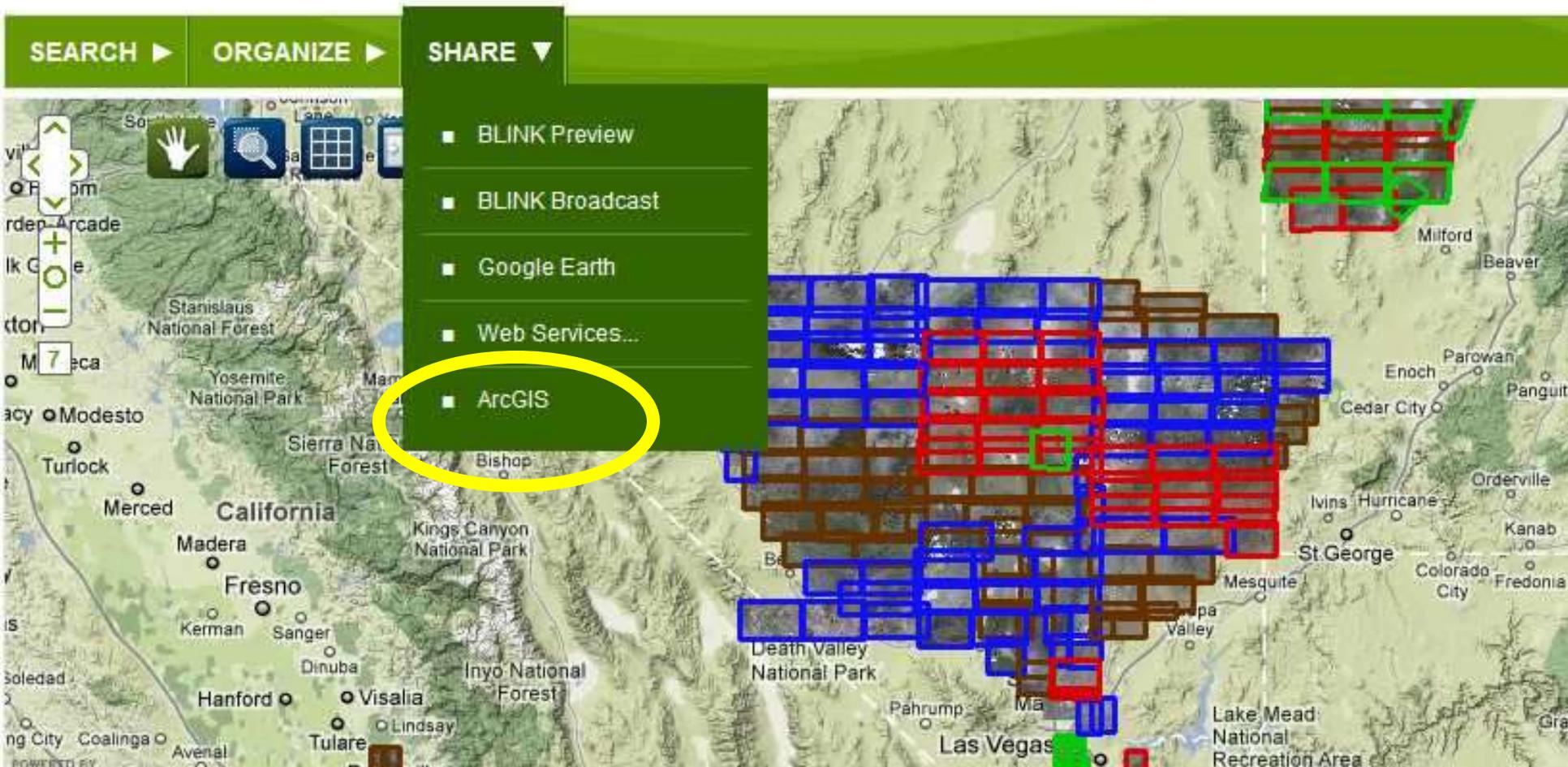
# CONUS

SEARCH ► ORGANIZE ► SHARE ► ★ -- Bookmarks... ▼



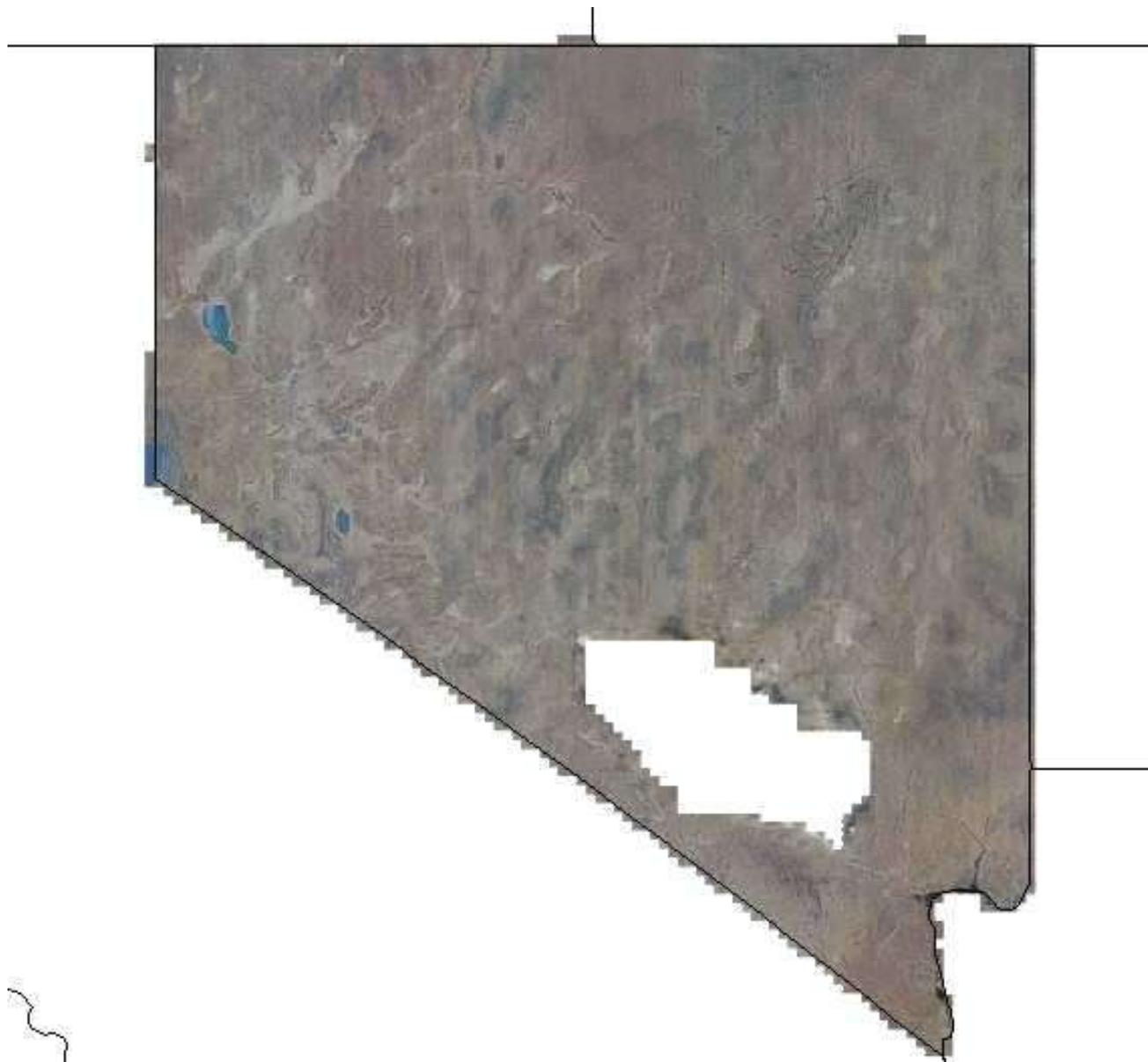
# Export to password protected layer file.

CONUS

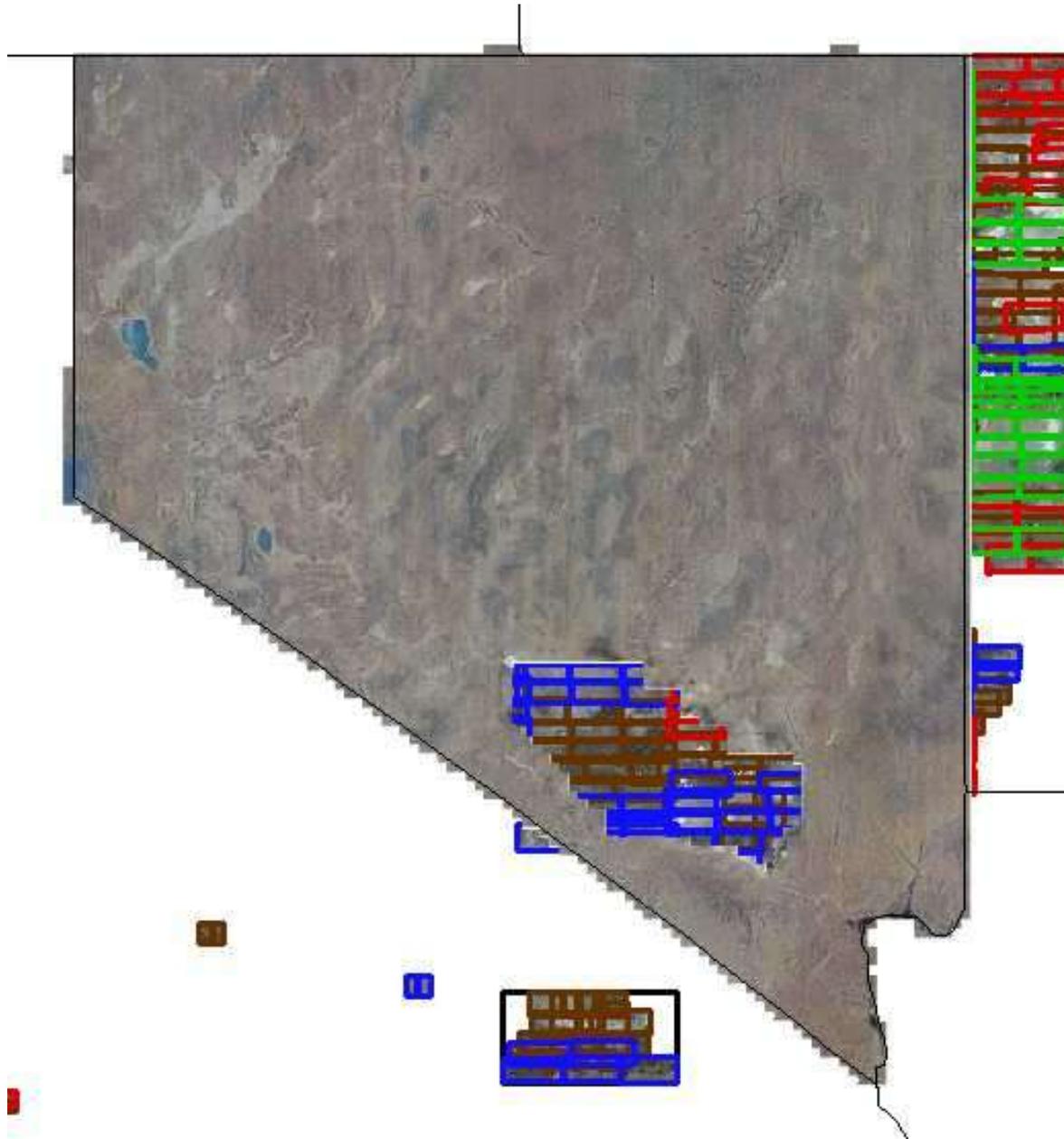




# Nevada NAIP



# NAIP over RDOG



# Complete Coverage of Base



# Working With FEMA

- FEMA posts products to the Homeland Security Information Network (HSIN)
- Starting Dec 8, 2011, FEMA will use the Geospatial Platform ([www.geoplatform.gov](http://www.geoplatform.gov)) share data.
  - Go to:
  - <https://geo.data.gov/geoportal/catalog/main/home.page>
  - At the top, click register-
  - Once registered, send Clive Reece ([creece@esri.com](mailto:creece@esri.com)) your user name and desire to be added to the Emergency Management group.

# New Imagery Requests

- To: FEMA Remote Sensing Coordinator
- To: Local FEMA Representative at EOC
- To: Interagency Remote Sensing Coordination Cell (USDA Reps: Glenn Bethel and Everett Hinkley)
- To Brenda Jones / USGS
  - Eagle Vision
  - International Charter for Disasters



# USDA Agricultural Monitoring Satellites

← Relative Ground Swath →

**NPP** 

spatial resolution: 375m, 750m



3000 km swath

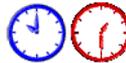


**AVHRR** 

spatial resolution: 1100m



2700 km swath



**MODIS** 

spatial resolution: 250m, 500m, 1000m

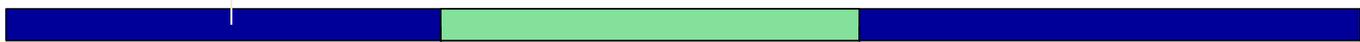


2300 km swath



**SPOT VEGETATION** 

spatial resolution: 1100m

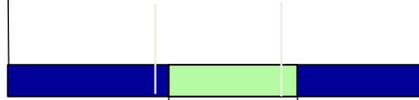


2200 km swath



**DMC-2, Deimos-1** 

spatial resolution: 22 m

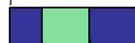


600 km swath



**Landsat** 

spatial resolution: 15m, 30m



183 km swath



**Spot 4 and 5** 

spatial resolution: 5m, 20m



60 km swath



**Commercial Systems** 

spatial resolution: ~ 1m



10 – 15 km swath



Morning Orbit



Afternoon Orbit

# Most Disasters not have Federal Remote Sensing Support



Hail Impacted Soybeans: Case County, ND  
August 10, 2007



# Joplin, MO





Questions?

2005.09.20 12:37