

# **ASPRS**

## **Lessons Learned workshop**

### **Jan. 19, 2006**

Partnership: USGS/GIO/NSDI Partnership Office-Louisiana &  
USGS/National Wetlands Research Center  
University of Louisiana/Regional Application Center  
Lafayette, Louisiana  
Katrina/Rita/Wilma

# KATRINA

(Landfall August 29)

## Facility and Staff Status Of On Site-Imagery/Geospatial Data Handling and Processing:

- Katrina damage assessment of USGS/NWRC & GIO Staff families (NWRC & RAC) impacted directly by the storm.
- Assignment of local available Imagery/Geospatial data resources/skills.
- Assessment of available power for communications with federal, state, and local agencies.
- NWRC coordination at FEMA New Orleans field site for 1st Responders, Search/Rescue & damage assessment (Zepher Field) and FEMA JFO Baton Rouge for imagery coordination and handling.
- Coordinate with key USACOE/New Orleans District Office Staff (dislocated by Katrina to locate new office in Louisiana and also identify major post Katrina impact areas in southeast Louisiana (key contact for imagery over flight needs).

# Selecting and Locating Existing Pertinent Pre Katrina Imagery And Geospatial Data With USGS/NWRC, University of Louisiana/RAC And Louisiana National Guard for Louisiana:

- Mid Summer Pre Hurricane Preparedness Meeting/Stennis Space Center, Ms. (La./Miss.)
  - \*Survey and Discovery of key contacts, available and on-going imagery/geospatial data resources
  - \*Data set formats and area template requirements
  - \*Meeting coordinated by USGS/La. & Miss, Ala, & Fla. Liaisons and EDC/ERC
- 2004 NAPP CIR, 1 meter, 1:12,000, DOQQ's.
- 2002 New Orleans area B&W, 1 foot, 1:6,000, DOQQ's/building outlines and infrastructure.
- LIDAR Data-LSU/Atlas.
- DRG's
- 2003 Pictometry Color, 1.5' color, oblique aerial imagery (Orleans Parish).
- Search & Rescue coordinated with 911 Calls using available digital map data.
- Existing Land sat TM imagery (large area assessment and levee break/flooding monitoring)



# Pre & Post Katrina Geospatial/Imagery Coordination Activities:

- Participate and coordinate with USGS/EROS Data Center/Emergency Disaster Response (EDR) staff (Brenda Jones/Ron Risty).
- Participate and coordinate with EDC/EDR staff in identifying and locating available pre Katrina imagery/geospatial data sets.
- Participate and Coordinate with USGS/EROS Data Center organized EDR Conference Calls.
- Coordinate geospatial technical skills/resources assistance calls from Arkansas, Texas Task Force 1, NGTOC III, NGTOC II, RGIO & North Command
- Coordinate available (pre Katrina) private vendor (Pictometry-high resolution oblique imagery) imagery data set resources of Orleans Parish from USGS/Florida/Liaison (Julie Giller). This data set was utilized and processed by University of La. at Lafayette/RAC/La., National Guard at Camp Beauregard, La. for distribution to La. National Guard and other state National Guard Units in New Orleans. NWRC didn't utilize the Pictometry data due to unreliable data processing capabilities at the FEMA New Orleans Field Site at Zepher Field.
- Coordinate geospatial/imagery specialist Volunteers list for Louisiana. Acceptance of Volunteers in Louisiana for the first month of post Katrina was not recommended due to evacuees occupying all available lodging, minimal gasoline supplies and safety issues.
- Coordinate with University of Louisiana at Lafayette Regional Application Center (RAC) staff (Brent Yantis/Stewart Krielow) and Louisiana National Guard, Camp Beauregard (Mike Liotta). These two organizations collaborate with each other concerning geospatial and imagery activities for the state.
- Coordinate with USGS/National Wetlands Research Center (NWRC/G. Smith, J. Grau, J. Johnston, L. Handley, S. Hartley, W. Jones, S. Wilson, C. Cretini, J. Barras & M. Silva) and DHS/FEMA. The coordination with DHS/FEMA was greatly strengthen with NWRC providing geospatial/imagery personnel processing and handling functions at both the FEMA New Orleans field office (Zepher Field) and FEMA Baton Rouge JFO.

# Post Katrina Imagery Data Requirements, Distribution & Handling Activities:

- DHS/FEMA selects USACOE for post Katrina aerial imagery contractual acquisition and distribution.
- DHS/FEMA and USACOE identifies key contacts for distribution of the aerial imagery data.
- USGS/NWRC is selected as one of 8 direct recipients of the aerial imagery data.(Too many recipients)
- USACOE contracts 3001 for acquisition of digital camera (ADS 40)1 foot color georeferenced imagery for proposed over flight coverage of Post Katrina impacted area.
- USGS/NWRC provides low reconnaissance oblique color aerial imagery is used for preliminary Post Rita damage assessments.
- FEMA/USACOE imagery distributed to selected recipients on hard drives. EDC served as a back up for distribution of the imagery to other valid users for assessing post Katrina damage assessment.  
FTP download impractical for areas impacted directly by Katrina.
- USACOE requested any consideration for extension of proposed over flight coverage of Post Katrina impacted area on Emergency Disaster Response conference calls. Any proposed extensions to the initial Post Katrina impact over flight coverage area were to be submitted for endorsement through the USACOE/New Orleans District Office. A proposal was submitted and endorsed by USACOE/New Orleans District Office to FEMA/USACOE for extension of Post Katrina impact over flight coverage areas to the east of Plaquemine Parish. The proposed extension of the over flight coverage was not accepted.
- FEMA/USACOE 1 foot color georeferenced was delivered to USGS/NWRC in increments depending on the weather. Several areas had to be reflown due to clouds or imagery anomalies. Some concerns remained about imagery quality and dating of final Post Katrina coverage imagery data set.
- FEMA/USACOE Post Katrina imagery data was distributed by USGS/NWRC to key La. and Ms. federal, state local partners:
  - University of La./RAC-La. National Guard, LDEQ, LDNR, FEMA/JFO/Baton Rouge, USFWS, NPS, USACOE/New Orleans District Office, USDA/NRCS (La.), Miss. DMR, NASA-Stennis Space Center, Plaquemine Parish and others.
- FEMA/USACOE imagery received at NWRC prepared for general public distribution on [www.lacoast.gov](http://www.lacoast.gov) website. Imagery coverage displayed on website for viewing (jpg) and download (jpj).
- Statistics for Post Katrina/Rita jpj imagery on lacoast as follows:
  - October 2005- 1 GB/day downloaded (285 frames/day)
  - November 2005- 430 MB/day downloaded (122 frames/day)
  - December 2005- 200 MB/day downloaded (57 frames/day)
- University of Louisiana/RAC distributed Post Katrina Pictometry 1.5', oblique, color aerial imagery of Orleans Parish to Louisiana National Guard and USGS/NWRC.
- NWRC obtained other speculative 3.5" color aerial imagery of selected area in New Orleans.
- NOAA, ADS40, Color, 1 foot, non georeferenced imagery available for distribution approximately 7 days after Katrina impact coverage provided for New Orleans and selected Navigational and Coastal Shoreline areas.



# Rita

(Sept 24)

## Facility and Staff

### Status Of On Site-Imagery/Geospatial Data Handling and Processing:

- Rita damage assessment of USGS/NWRC & GIO Staff families (NWRC & RAC) impacted directly by storm
- Assignment of local available Imagery/Geospatial data resources/skills
- Assessment of available power for communications with federal, state, and local agencies
- NWRC coordination for FEMA 1st Responders, Search/Rescue & damage assessment at Abbeville, La. area and Cameron Parish (mobile trailer unit) field site for damage assessment and FEMA
- NWRC imagery coordination and handling for FEMA/JFO Baton Rouge.

# Selecting and Locating Existing

Pertinent Pre Rita Imagery And Geospatial Data With USGS/NWRC,  
University of Louisiana/RAC And Louisiana National Guard:

- Same Pre Katrina imagery/geospatial data sets identified and collected for Louisiana are used for Pre Rita coverage area.

# Pre & Post Rita Geospatial/Imagery Coordination Activities:

- Participate and coordinate with USGS/EROS Data Center/Emergency Disaster Response (EDR) staff (Brenda Jones/Ron Risty).
- Participate and coordinate with EDC staff in identifying and locating available Pre Rita imagery/geospatial data sets.
- Participate and Coordinate with USGS/EROS Data Center organized EDR Conference Calls.
- Coordinate geospatial technical skills/resources assistance calls from Arkansas, Texas Task Force 1, NGTOC III, NGTOC II, RGIO & North Command and 82nd Airborne Division.
- Coordinate with University of Louisiana/Regional Application Center (RAC) staff (Brent Yantis/Stewart Krielow) and Louisiana National Guard, Camp Beauregard (Mike Liotta).



## Post Rita Imagery Data Requirements, Distribution & Handling Activities:

- DHS/FEMA selects USACOE for post Rita aerial imagery contractual acquisition and distribution.
- DHS/FEMA and USACOE identify key contacts for distribution of the aerial imagery data.
- USGS/NWRC is not selected as FEMA/USACOE imagery data recipient in Louisiana. Initially, there are no designated FEMA/USACOE imagery data recipient in Louisiana. However, after a review of imagery data recipients the FEMA JFO Baton Rouge is selected as a primary imagery data recipient for Louisiana. However, EDC backs up USGS/NWRC with FEMA/USACOE Post Rita imagery data distributed on hard drives. FTP download impractical for areas impacted directly by Rita.
- USACOE contracts again 3001 for acquisition of digital camera (ADS 40) 1 foot color georeferenced imagery for proposed over flight coverage of Post Rita impacted area.
- USACOE requested any consideration for extension of proposed over flight coverage of Post Rita impacted area on Emergency Disaster Response conference calls. Any proposed extensions to the initial Post Rita impact over flight coverage area were to be submitted to USACOE and FEMA for approval.
- A proposed extension of the FEMA/USACOE over flight coverage west of Cameron Parish to St. Mary Parish was submitted for consideration.
- The submitted proposed extension of the FEMA/USACOE over flight coverage was not accepted.
- USGS/NWRC provides low reconnaissance oblique color aerial imagery which is used for preliminary Post Rita damage assessments.

# PRIMARY LESSONS LEARNED FOR IMAGERY/GEOSPATIAL DATA SUPPORT ACTIVITIES FOR KATRINA/RITA/(WILMA):

- Imagery data sets of primary use are high resolution color/cir aerial imagery.
- Land sat 5/7 type imagery have initial response value for estimating significant impacts on the coastal changes and flooding.
- 1st Responder and Search & Rescue imagery/geospatial support very critical after first hours of passage of storm. Only Pre Katrina and Rita imagery/geospatial data readily available. Hard to acquire new imagery right after Katrina/Rita event.
- Areas impacted directly by the hurricanes have electrical power outages resulting in poor computer operating and networking conditions. Best transport of large high resolution data sets to hurricane impacted area sites are by hard drives not ftp.
- Compressed data sets are preferred for 1st responder, search/rescue and damage assessments at hurricane impacted area sites.
- Basic meta-data information needed for imagery data sets.
- How are government agency imagery/geospatial resources (FEMA, NOAA, USACOE, USGS and etc.) best managed for post hurricane events?
- What are DHS/FEMA imagery data acquisition requirements and guidelines? Are there any basic quality control standards for acquiring imagery data?
- How are federal government agencies chosen to provide contract services for DHS/FEMA?
- EDC/EDR Phone conference calls and imagery/geospatial data support functions critical for pre and post hurricane event coordination.
- Each state has a different network of imagery/ geospatial partners and skills.
- Need a national funded program for federal acquisition and guidelines of imagery/ geospatial.
- Need to identify a local federal and state center in the state to support DHS/FEMA post hurricane imagery/geospatial data activities .
- Support USGS state Liason, NSDI partnership office supported by providing some personnel consisting of imagery/ geospatial processing and handling skills.

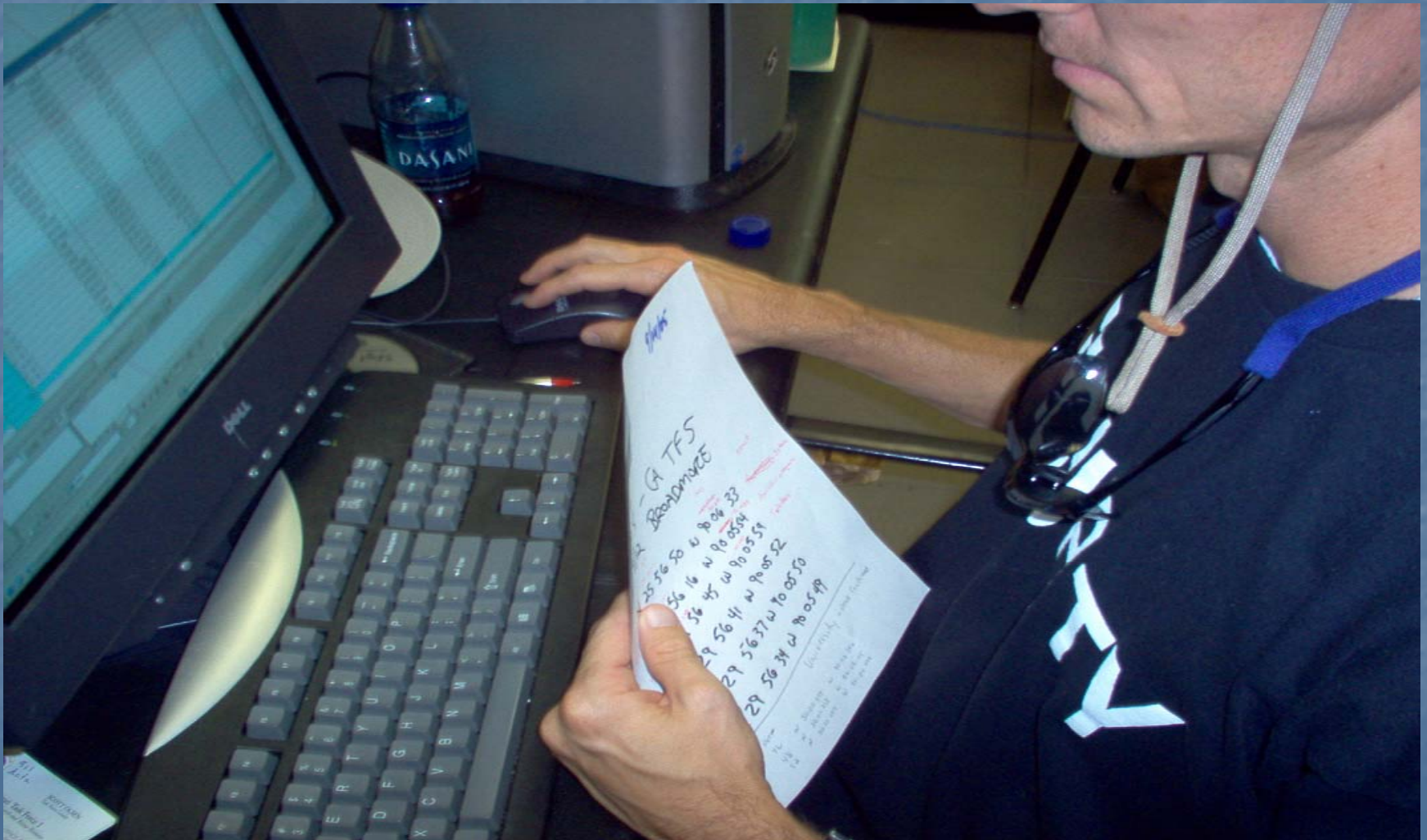


# Katrina

## USGS/NWRC located at FEMA New Orleans Field Site



Katrina  
USGS/NWRC staff posting coordinates of dead bodies report to the  
FEMA New Orleans Field site





Rita  
Cameron Parish  
House in Marsh





# Rita

## House Damage in Cameron, La.



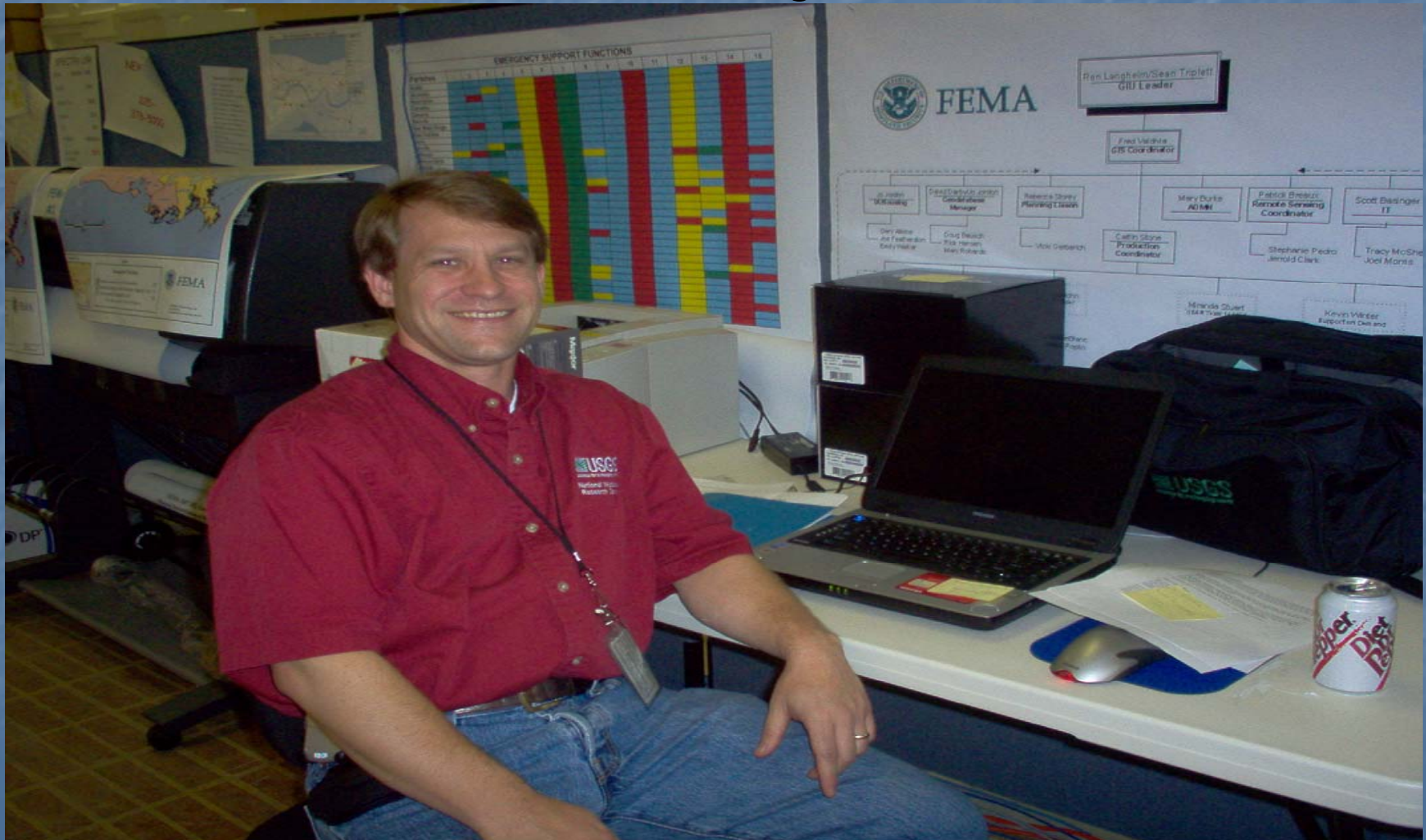


# Rita

## USGS/NWRC Mobile Trailer Unit at FEMA Cameron Field Site



# FEMA JFO Baton Rouge USGS/NWRC staff coordinate imagery processing and handling





# FEMA JFO Baton Rouge





# FEMA JFO Baton Rouge Geospatial/Imagery Activities





# FEMA JFO Baton Rouge Geospatial/Imagery Activities

