

US Geological Survey: Coastal Storm Activities and Geospatial Information Coordination

2010 Governor's
Hurricane Conference

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USGS Mission

- USGS serves the nation by providing reliable scientific information to:
 - Describe and understand the earth
 - Manage water, biological, energy, and mineral resources
 - Enhance and protect our quality of life
 - Minimize loss of life and property from natural disasters



Topics Covered in the Briefing

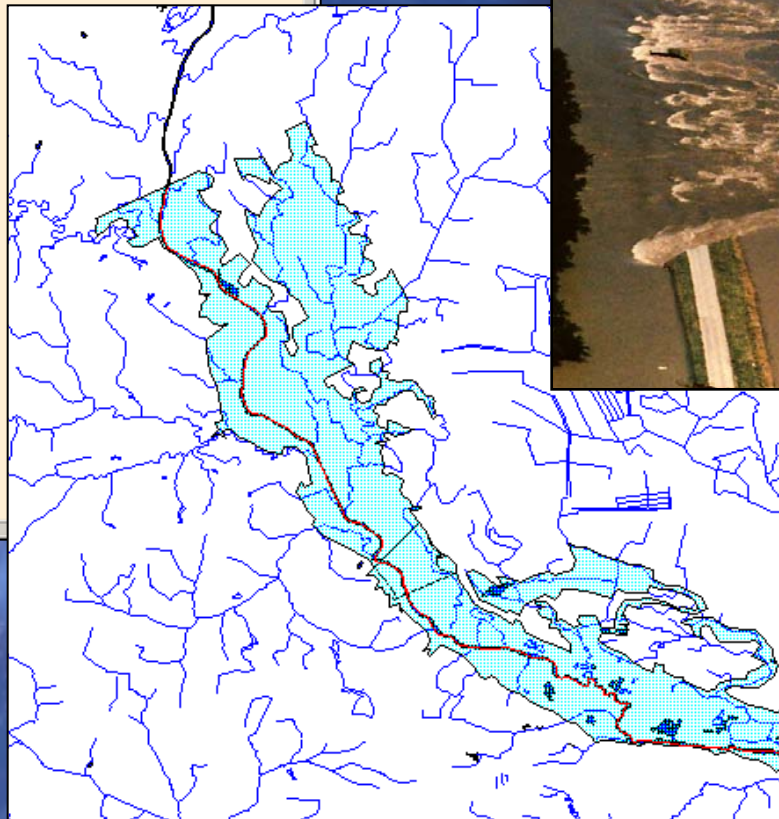
- Tactical & Operational Response Activities
- Facilitation Through Tactical Teams
- USGS Geospatial Liaison
- Data, Products and Resource Sharing

Tactical & Operational Response Activities

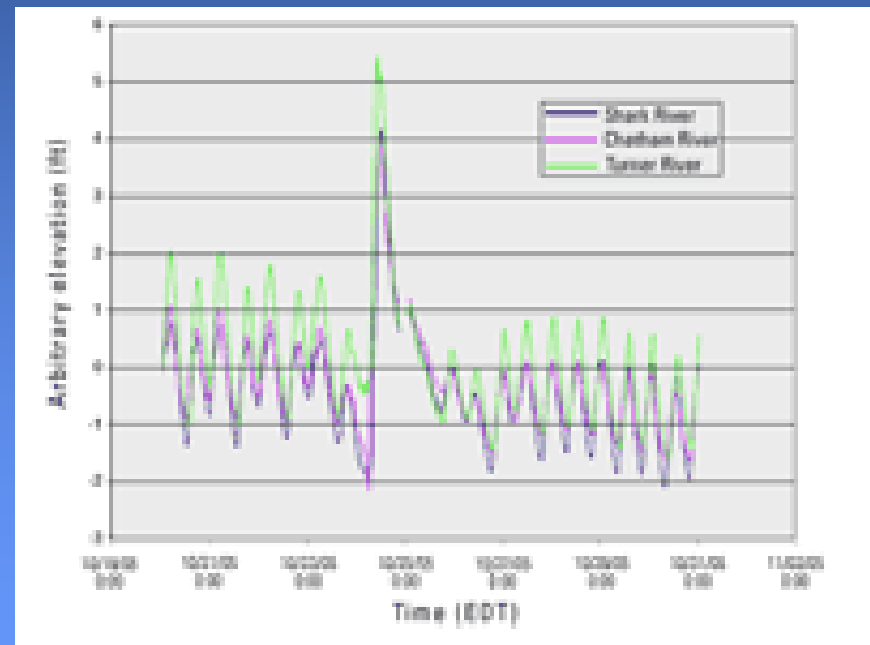
- **Science Monitoring and Research**
 - Tidal, storm surge, peak flow measurements, streamflow and water-quality monitoring
 - Barrier island and coastal erosion assessments
 - Ecosystem and wetland monitoring
 - Information delivery
 - Science needed to understand coastal landscapes and processes, their interrelationship with cyclonic storms



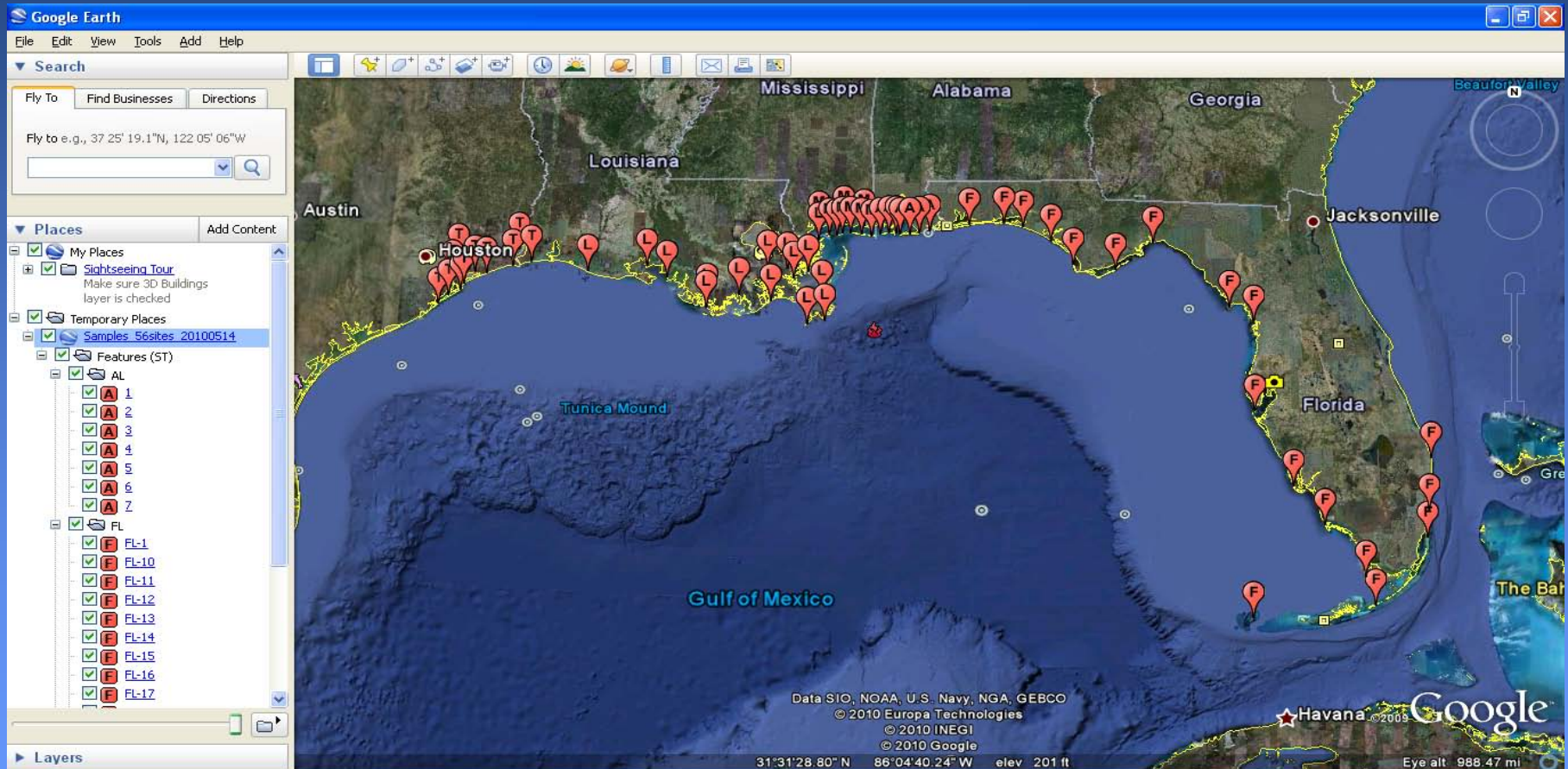
<http://waterdata.usgs.gov/nwis>



Tidal & Storm Surge Measurements



Water-Quality Sampling



Coastal and Marine Geology Program

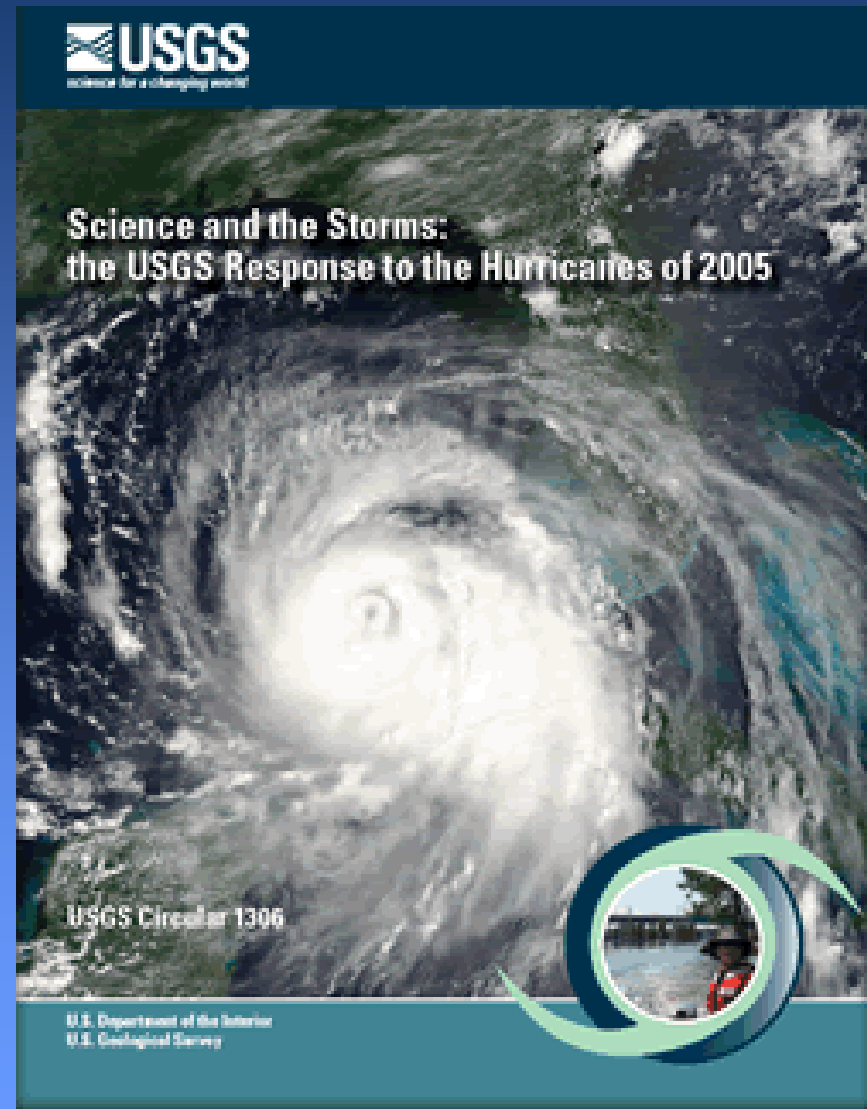
<http://coastal.er.usgs.gov/hurricanes/>

- National assessment of coastal change hazards.
- Focuses on understanding the magnitude and variability of the impacts of hurricanes and extreme storms on the sandy beaches of the United States.
- Improve the capability to predict coastal change that results from severe storms to support management of coastal infrastructure, resources, and safety.



Biomonitoring and Research

- Provides the scientific understanding and technologies needed to support the sound management and conservation of our Nation's biological resources
- Vegetation and soils studies
- Analyses of linkages between mangrove forests and shrimp pond water quality
- Evaluation of shrimp viral diseases
- Analyses of forest wind-throw patterns via aerial video.




Science Response Vehicle

<http://www.nwrc.usgs.gov/hurricane/hurricane.htm>




- Scientific monitoring and assessments of biological, geological, hydrological, and geographical resources
- Equipped with computers, software, and plotters to provide spatial analyses during and after natural disasters





science for a changing world

NWRC Science Response Vehicle



Science Response Vehicle

NWRC maintains a Science Response Vehicle (SRV) capable of rapid deployment in response to natural disasters throughout the United States. It is equipped with computers, software, and plotters to provide spatial analyses during and after natural disasters. USGS personnel are available for deployment to meet the needs of the Nation in response to natural disasters. The SRV was used during the aftermath of Hurricanes Katrina and Rita.

SRV Features include:

Spatial analysis technologies to:

- Evaluate land use, recovery, and restoration
- Develop maps and imagery of critical infrastructure for first-responder assessments
- Model biological impacts of natural hazards (hurricanes, earthquakes, and wildfires)
- Help in emergency response and humanitarian search and rescue operations (mapping 911 calls)
- Provide rapid scientific monitoring and assessments of biological, geological, hydrological, and geographical resources
- Transfer of critical monitoring data.

Response capabilities to:

- Provide a scientific base of operations for sample collection and field processing
- Provide critical communications via the Internet through an onboard satellite dish
- Provide potential capability for serving as a GPS-base station
- Provide satellite voice and data communications
- Receive TV signals through the satellite dish for weather and emergency information
- Provide living quarters for scientific and response personnel

U.S. Department of the Interior
U.S. Geological Survey

Handout
January 2007

Facilitation Through Tactical Teams

- Storm Tactical Response Team
- Geospatial Information Response Team
- Remote Sensing Working Group
- Interagency Remote Sensing Coordination Cell
- HIFLD
- Geospatial State Liaisons

USGS Geospatial Liaisons

- Established for each State to engage and support State, local, Tribal, regional, Federal and other partners in improving timeliness, quality and accessibility of geospatial data for the community, *The National Map* and the National Spatial Data Infrastructure (NSDI).
- Assist agencies during disasters or emergencies that affect their jurisdiction
- Southeast and Gulf Coast Representatives

USGS Geospatial Liaisons on the Coast

- TX (Austin) - Claire DeVaughan,
512-927-3583, cdevaugh@usgs.gov
- LA (Lafayette) - Christopher Cretini
337-266-8621, cretinic@usgs.gov
- MS/AL (Jackson) - George F Heleine
601-933-2950, gheleine@usgs.gov
- FL (Tallahassee) - Louis J Driber
850-553-3645, ldriber@usgs.gov
- SC (Columbia) - Gary L Merrill
803-750-6124, glmerrill@usgs.gov
- NC (Raleigh) - Steven G Strader
919-571-4092, sstrader@usgs.gov

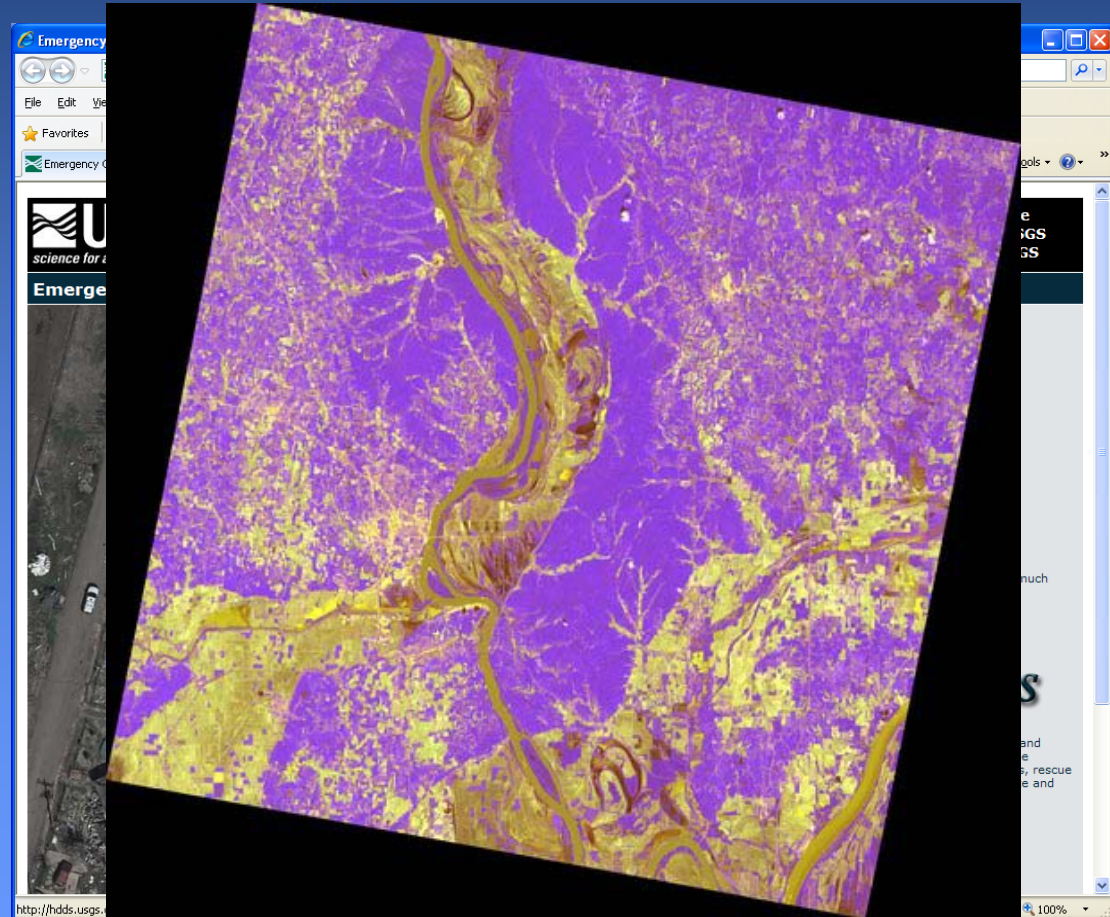
Data, Products and Resource Sharing

- HDDS
- International Charter
- *The National Map*

Hazard Data Distribution System (HDDS)

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

- HDDS provides data search and download capabilities. The site is hosted by the USGS Earth Resources Observation and Science (EROS) Center.



International Charter

- Purpose: of the “International Charter - Space and Major Disasters”, is to promote cooperation among space agencies in the use of satellite data to manage crises during and after disasters.
- When tropical storms, floods, oil spills, earthquakes, landslides, volcanoes or fires endanger human life, the Charter member agencies provide valuable information about these events’ extent and impact.

Charter Activation Cases

		2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	Sub-totals		Total
Solid Earth	Earthquake	1	3	1	3	5	3	2	5	4	3	29	55	236
	Landslide		1	2	2		1		4	11				
	Volcano		1	1	2	2	1	1	2	3	2	15		
Weather / Atmospheric	Storm/hurricane**			1	2	3	6	1	8	8	6	35	168	
	Ice/snow hazard							1		1				
	Flood/ocean wave*		3	8	4	9	13	16	22	23	16	114		
	Fire			5	1	2		4	2	4	18			
Technological	Oil spill		3	2		1		4	3			12	13	
	Others											1		
	Total / year	1	11	15	18	21	25	25	45	40	35			

*includes solid earth related phenomenon of a tsanami

**includes all wind type storms (hurricane, cyclone, typhoon and tornado)

The National Map

<http://nationalmap.gov>

Key TNM Data Layers

- Orthoimagery
- Elevation
- Names
- Hydrography
- Boundaries
- Structures
- Transportation
- Land Cover

USGS science for a changing world

The National Map US Topo

USGS Home Contact USGS Search USGS

A New Generation of Maps

US Topo is the next generation of digital topographic maps from the [U.S. Geological Survey](#). Arranged in the [traditional 7.5-minute quadrangle](#) format, digital US Topo maps are designed to look and feel like the traditional paper topographic maps for which the USGS is so well known. At the same time, US Topo maps provide modern technical advantages that support wider and faster public distribution and enable basic, on-screen geographic analysis for all users.

US Topo maps are available free on the Web. Each map quadrangle is constructed in GeoPDF® format from key layers of geographic data – [orthoimagery](#), [roads](#), [geographic names](#), [contours](#) and [hydrographic](#) features – found in [The National Map](#), which is a nationwide collection of integrated data from local, State, Federal, and other sources.

US Topo [users](#) can turn geographic data layers on and off as needed; zoom in and out to highlight specific features or see a broader context; and print the maps, in their entirety or in customized sections, on a wide variety of printing devices. Additional analytical tools are available free for [download](#). File size for each digital 7.5-minute quadrangle is about 15-20 megabytes.

The prototype of US Topo, "Digital Map-Beta," has been available since June 2009 and currently covers 17 states. US Topo maps include all of the content of the earlier "Digital Map-Beta," plus integrated [contours](#) and [hydrographic](#) features.

As the US Topo product evolves, the USGS will provide digital versions of earlier edition topographic quadrangle maps and will incorporate additional geographic data layers from [The National Map](#).

The USGS values your [comments and suggestions](#) about the new US Topo.

Coverage

[See current US Topo map coverage.](#)

As of October 2009, the USGS began to load US Topo maps to the [USGS Store](#) distribution point where the maps will be available for free download. Existing "Digital Map-Beta," will continue to be available for free download. As available, they will be eventually replaced by revised and enhanced US Topos produced by the USGS [National Geospatial Technical Operations Center](#).

What Makes the USGS US Topo Different from Other Electronic Maps?

Coffeyville East Kansas
[Coffeyville Quad with image turned off](#)
[Download the full Coffeyville East Kansas Geo PDF \(16 MB\)](#)

enlarge

Start US Topo - IBM Lotus Notes Craun_12_3_09 Craun_10_29_09 US Topo - Windows In... Internet 100% 7:03 AM

Thank You!

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