

JALBTCX Topo/Bathy Data

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Bathymetry Technical Center of Expertise

January 13, 2011



®

US Army Corps of Engineers
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Joint Airborne Lidar Bathymetry
Technical Center of eXpertise

Joint Airborne Lidar Bathymetry Technical Center of Expertise

JALBTCX

Operations

Technology Evolution

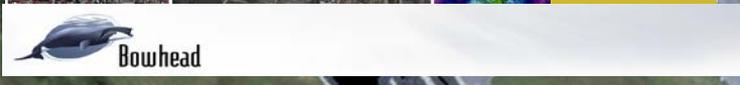
USACE

Navy

Coastal Measurements & Data Usage

Sensors & Systems

NOAA

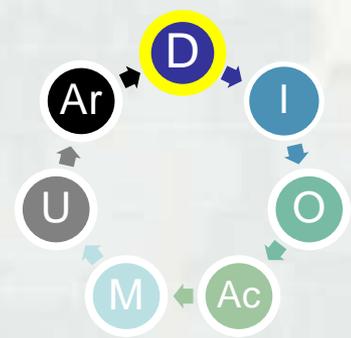
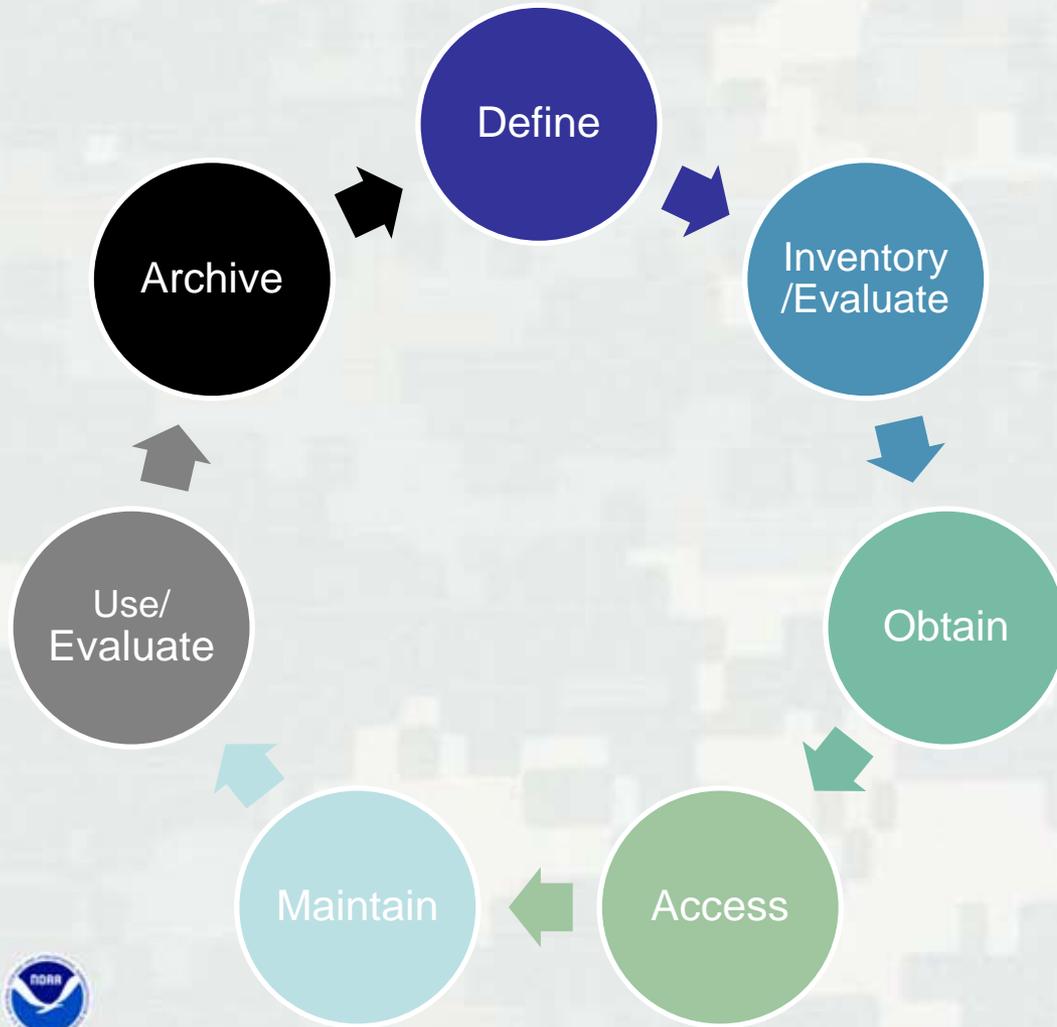


Director: Jennifer Wozencraft



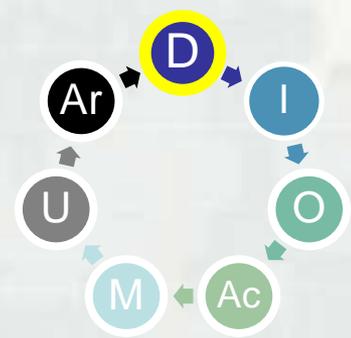
JALBTCX, Stennis International Airport, Kiln, MS

FGDC Lifecycle

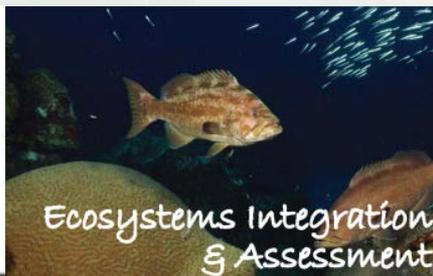


Data Types

Layers of Interest



- *Administrative and Political*
- *Agriculture and Farming*
- *Atmosphere and Climate*
- *Biology and Ecology*
- *Business and Economic*
- *Cadastral*
- *Cultural, Society and Demographic*
- **Elevation and Derived Products**
- **Environment and Conservation**
- **Geological and Geophysical**
- *Human Health and Disease*
- **Imagery and Basemaps**
- *Inland Water Resources*
- *Locations and Geodetic Networks*
- **Oceans and Coasts**
- **Transportation Networks**
- **Utilities and Communication**
- **Climate Change**
- **Oil Spill**



GOMA GMMMP Layers



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GOVERNORS' ACTION PLAN II

For Healthy and
Resilient Coasts

2009 - 2014

Gulf of Mexico Master Mapping Plan

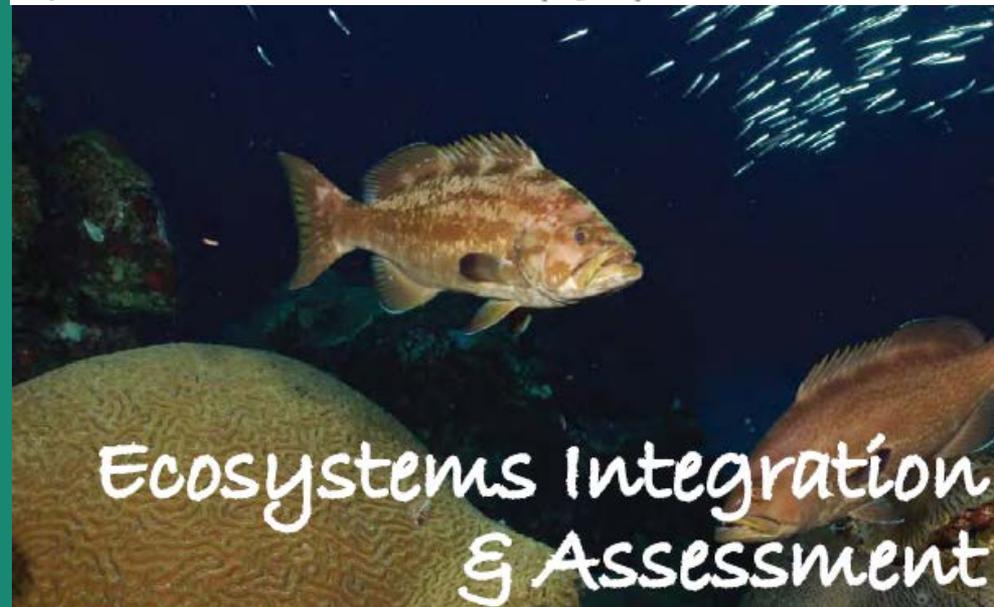
► **Alliance Action:** Produce the Gulf of Mexico Master Mapping Plan (GMMMP), a comprehensive plan to collaboratively acquire data on the physical characteristics of the Gulf region, particularly elevation, shoreline, and surface data.

Action Steps:

1. Identify mapping needs and requirements to allow for informed coastal management decisions and data gap analysis.
2. Conduct an inventory of the capabilities and data assets of existing mapping programs and leverage ongoing efforts by the Interagency Working Group on Ocean and Coastal Mapping.
3. Develop a collaborative strategy to acquire the necessary region-wide physical characteristic data.

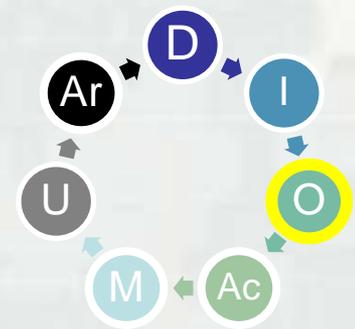
Why?

The Gulf is too large for any one agency to map, thus a collaborative approach is required; one that identifies and fulfills all mapping requirements with ongoing mapping programs. Therefore, by aligning data collection methods and sharing resources, critical mapping information can be collected at a lower cost to the program partners.

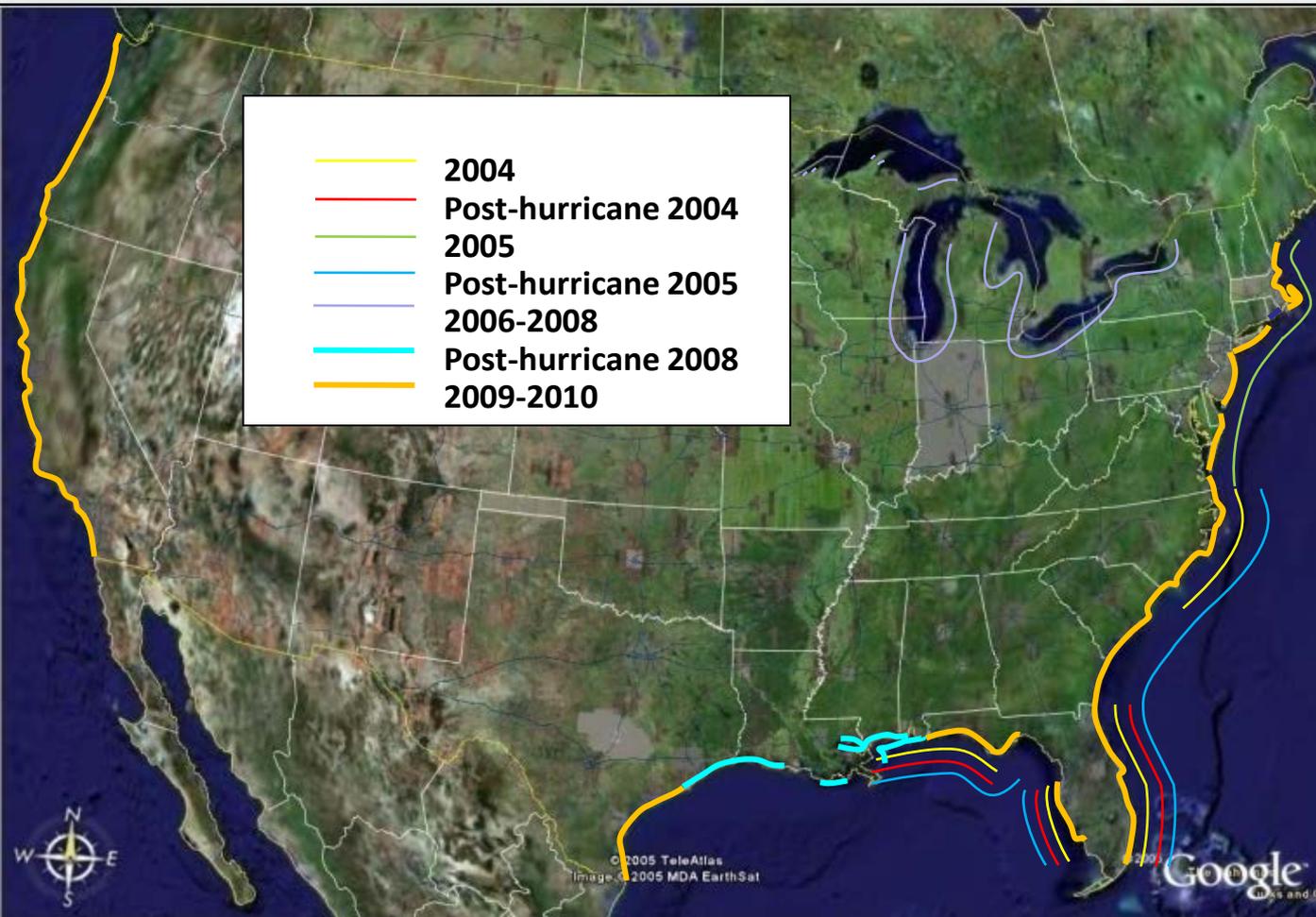


Ecosystems Integration
& Assessment

USACE National Coastal Mapping Program

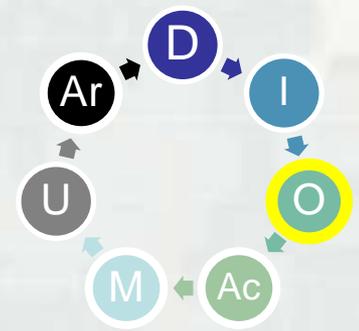


- Funded by USACE Headquarters
- Initiated in FY2004
- Collect lidar elevation and imagery data in support of engineering and research
- Focus on sandy shorelines
- In-house and contract survey capability



Data Types

Elevation



Bathymetric Lidar

- 1000 m offshore (laser extinction)
- 5 m postings
- 100% coverage (200% fed projects)

Topographic Lidar

- 500 m onshore
- 1 m postings
- 200% coverage

Lake Worth Inlet, FL, 2007 topo/bathy

Data Types

Orthoimagery

RGB Imagery

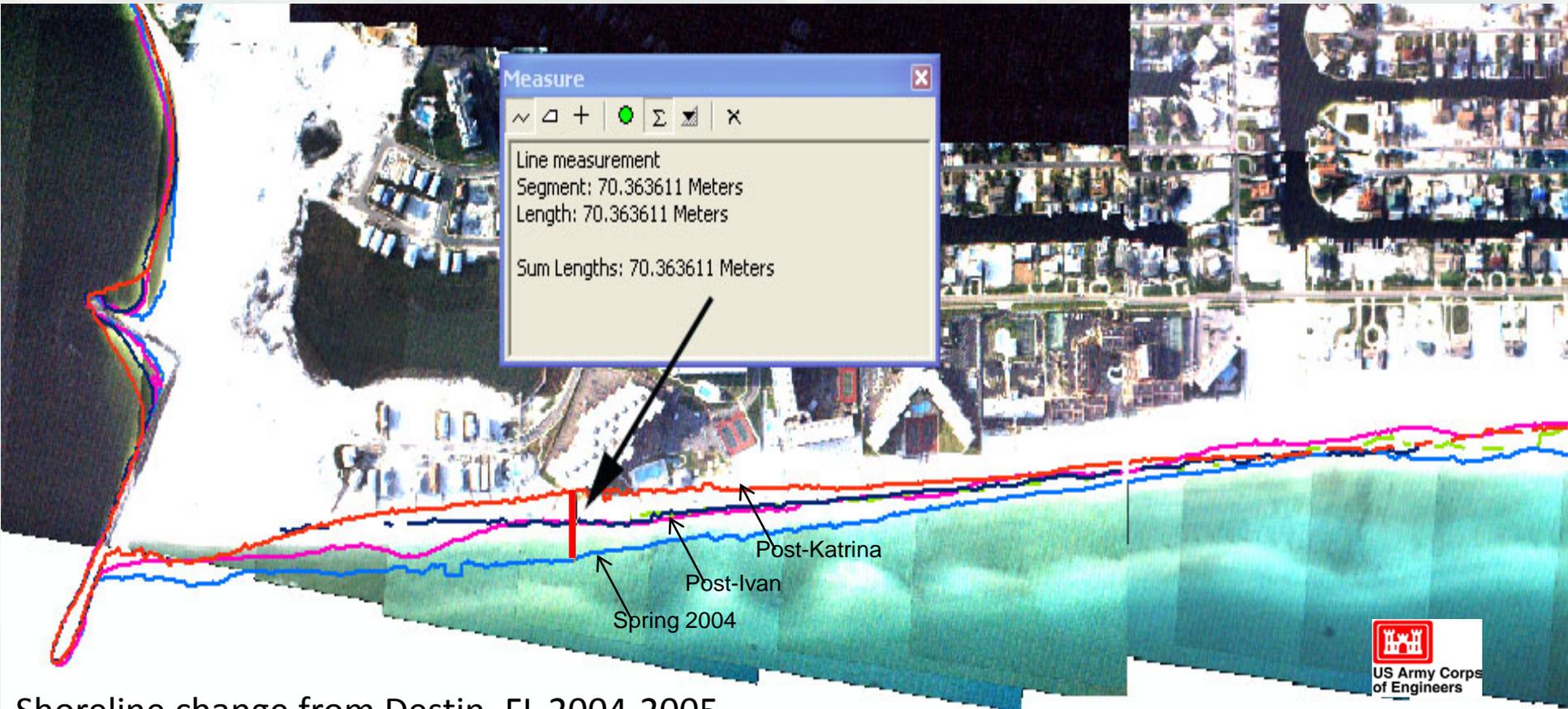
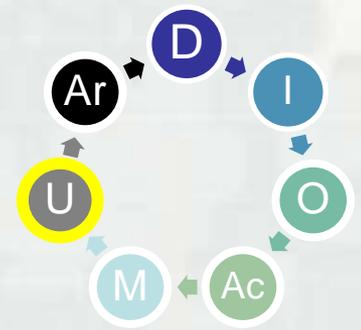
- 20-cm on-ground resolution

Hyperspectral Imagery

- 1-m on-ground resolution
- 36 20-nm bands, 380-1050 nm

Data Types

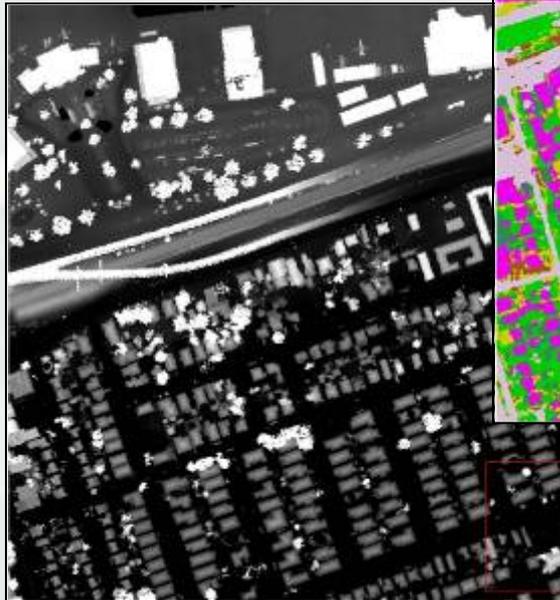
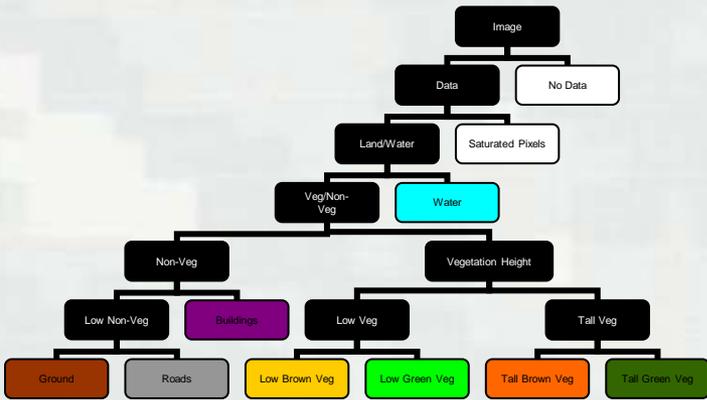
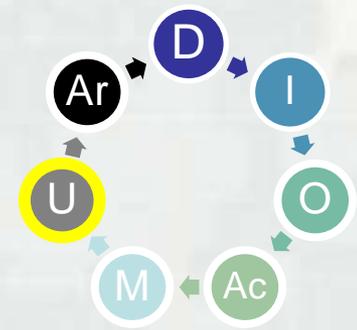
Shoreline



Shoreline change from Destin, FL 2004-2005

Data Types

Land Cover



Land Cover Classification Image

RGB from hyperspectral imagery

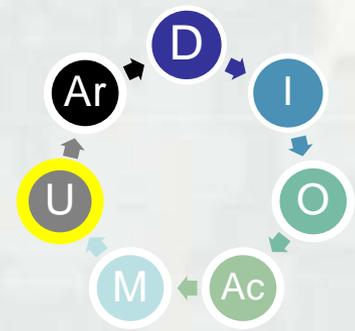
Grayscale topographic lidar first returns



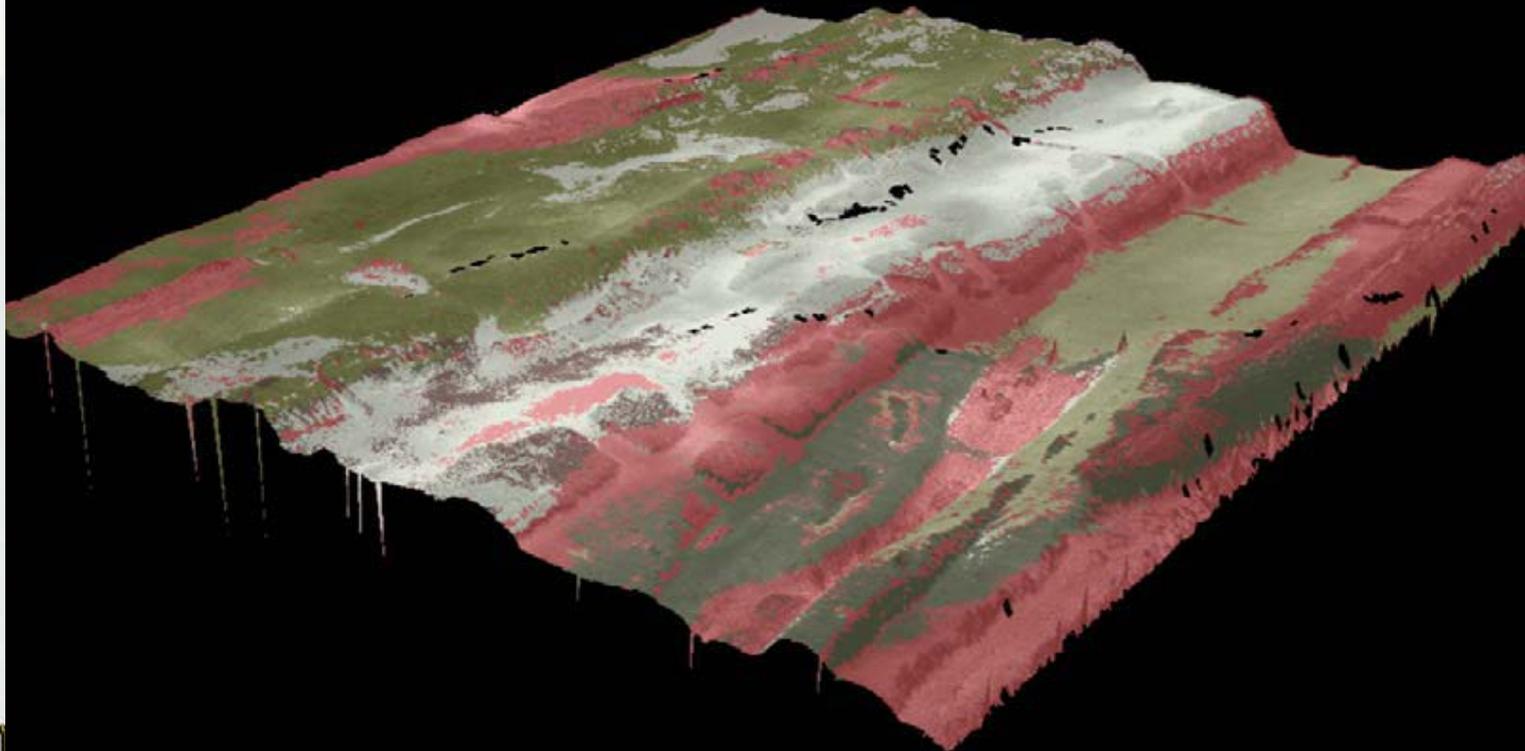
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Data Types

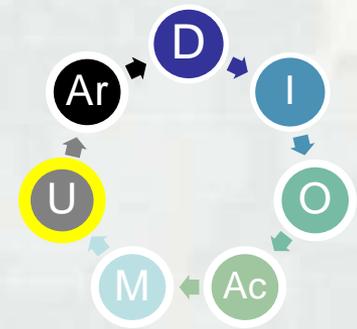
Benthic Habitat



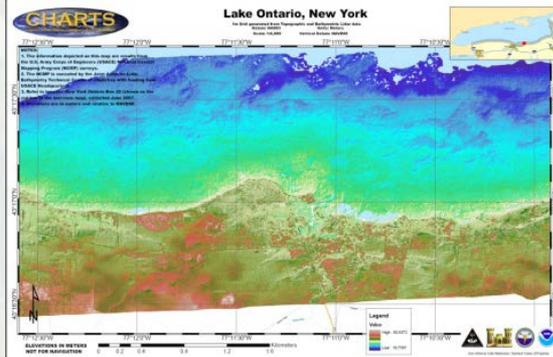
3D Classification Image of Seafloor Near Fort Lauderdale, Florida [sand (white), inner reef (olive), outer reef (coral), hard bottom (brown)].



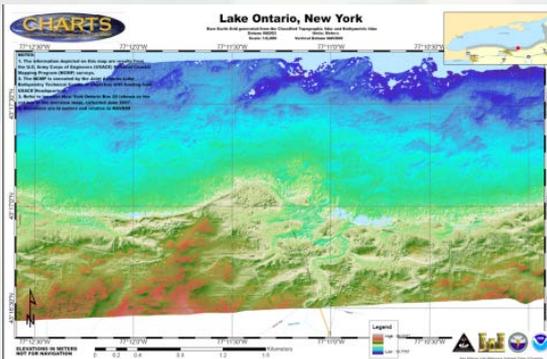
National Coastal Mapping Program Data Products



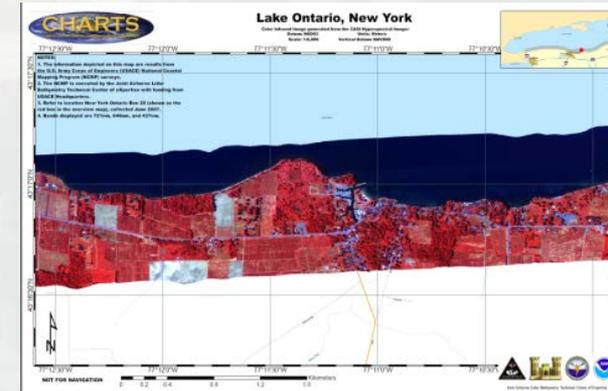
1-m Bathy/Topo DEM



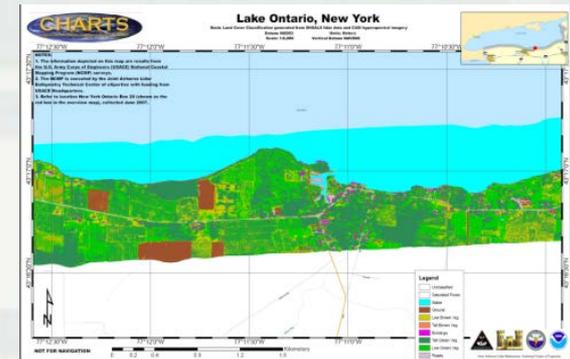
1-m Bare Earth DEM



Hyperspectral Mosaic

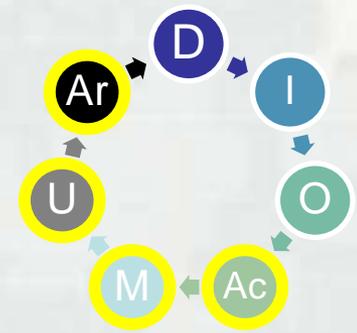


Land Cover Classification Image



- ASCII xyz point clouds
- ASPRS LAS 1.1 point clouds
- 1-m bathy/topo DEMs
- 5-m bathy/topo DEMs
- GoogleEarth bathy/topo coverage
- NAVD88 "0" Contour
- Classified ASPRS LAS 1.1 point clouds
- 1-m bare earth DEMs
- RGB mosaics
- Hyperspectral mosaics
- Bottom reflectance images
- Basic land cover classification images

Primary Customers



Automatic Delivery of Data Products

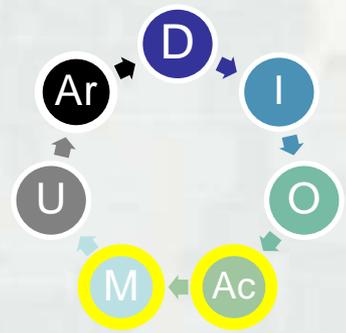
- ✓ USACE Districts
- ✓ USGS St. Petersburg
- ✓ USGS EROS Data Center
- ✓ NOAA NGDC
- ✓ NOAA CSC

http://shoals.sam.usace.army.mil/



Interagency Support

Data discovery and access



***Distributed authoritative source**

NOAA Coastal Services Center

DIGITAL COAST

Home Data Tools Training In Action

Data

NOAA CSC Coastal Lidar

Provided by multiple groups and distributed by the NOAA Coastal Services Center

Overview Details In Action Support Get It Now

Coastal Services Center Data Access Viewer

Download Data

- Data can be selected by a user-defined area of interest
- Data are available in multiple projections and datums, and the following output formats:
 - ASCII X, Y, Z Pts.
 - Floating Pt. Grid
 - 8-bit Tiff
 - 32-bit Float Tiff
 - Shapfile Contour
 - DXF Contour
 - LAS 1.1
 - ASCII Grid

United States Department of Commerce
National Oceanic and Atmospheric Administration
National Ocean Service

Contact Us Privacy Policy Link Disclaimer USA.gov

Public: > 350 Billion points

Hazards Data Distribution System (HDDS) - Windows Internet Explorer

http://hdds.usgs.gov/hdds2/

USGS Home Contact USGS Search USGS

Hazards Data Distribution System (HDDS)

Home Item Basket (empty) Login RSS Feedback Help

Enter Search Criteria

Event: 201004 Oilspill GulfOfMexico

Selected Events: None selected

Include baseline data? Include ad-hoc data?

State: Any state

County: Entire state

Selected State/Countries: None selected

From: To: Date Range

Geographic Boundary Show on map

Map Satellite Hybrid Terrain

USA.gov

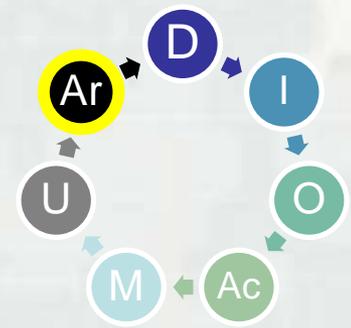
Take PRIDE in AMERICA

Emergency Responders



Interagency Support

Data archival



NOAA Digital Coast Project
LIDAR Data Archive

[Metadata](#)

NOAA is the long-term archive for LIDAR data from the Digital Coast Project at NOAA's Coastal Services Center (CSC). The Digital Coast Project replaces the CSC Topographic Change Mapping project, and follows in the footsteps of the Airborne LIDAR Assessment of Coastal Erosion (ALACE) project.

The ALACE project was a partnership between the NOAA Coastal Services Center, the NASA Observational Sciences Branch, and the U.S. Geological Survey (USGS) Center for Coastal Geology.

The partnership collected LIDAR data along the sandy beaches of the U.S. from September 1996 to October 2000 using the NASA Airborne Topographic Mapper (ATM) sensor. USGS and NASA continue to collect LIDAR data with the ATM for research purposes.

Beginning in 2001, the CSC has been contracting with the private sector for high-resolution topographic data to meet coastal management needs. Most of this data can be freely downloaded from the Digital Coast web site at CSC.

[Retrieve LIDAR data from the NOAA Coastal Services Center](#)

Related Data at NGDC:
[Coastal Relief](#)
[DEM Discovery Portal](#)
[Tsunami Inundation Gridding](#)
[Tsunamis & Tides](#)

NOAA CSC Digital Coast

For complete information, and access to LIDAR data, use the link above to open a new window/go to NOAA's Coastal Services Center (CSC) Digital Coast website.

For more information on the archive of these data, please contact the NGDC LIDAR data manager:
pamela.grothe@noaa.gov

NCMP data products



NOAA > NESDIS > NGDC > MGGD > Marine Geology & Geophysics > Bathymetry & Relief

Questions: dem.info@noaa.gov

Internet

100%

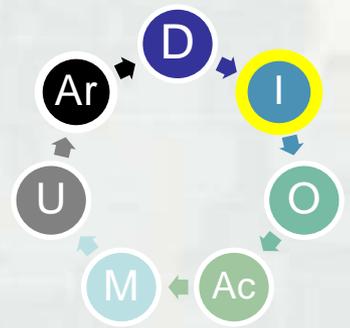


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*JALBTCX archives raw data and imagery and all data products

Gaps in Data Holdings

Spatial

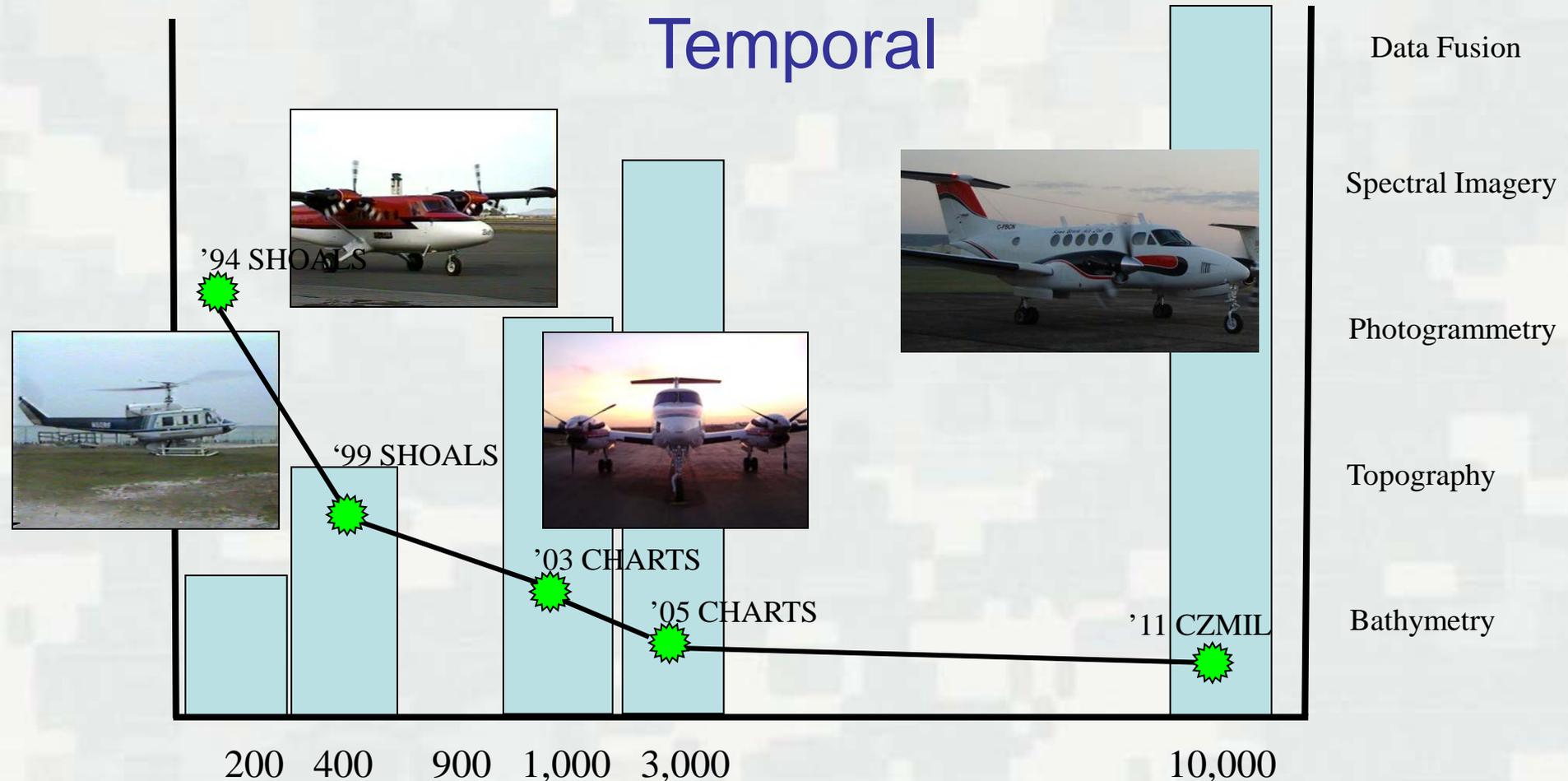


- NCMP data only along sandy, wave-impacted coasts.
 - Inland bays/estuaries, Northern Maine, Florida Big Bend
- Poor water clarity
 - Runoff, dirty harbors
- Sensor capabilities
 - Challenges in the 0-2m depth range



Gaps in Data Holdings

Temporal

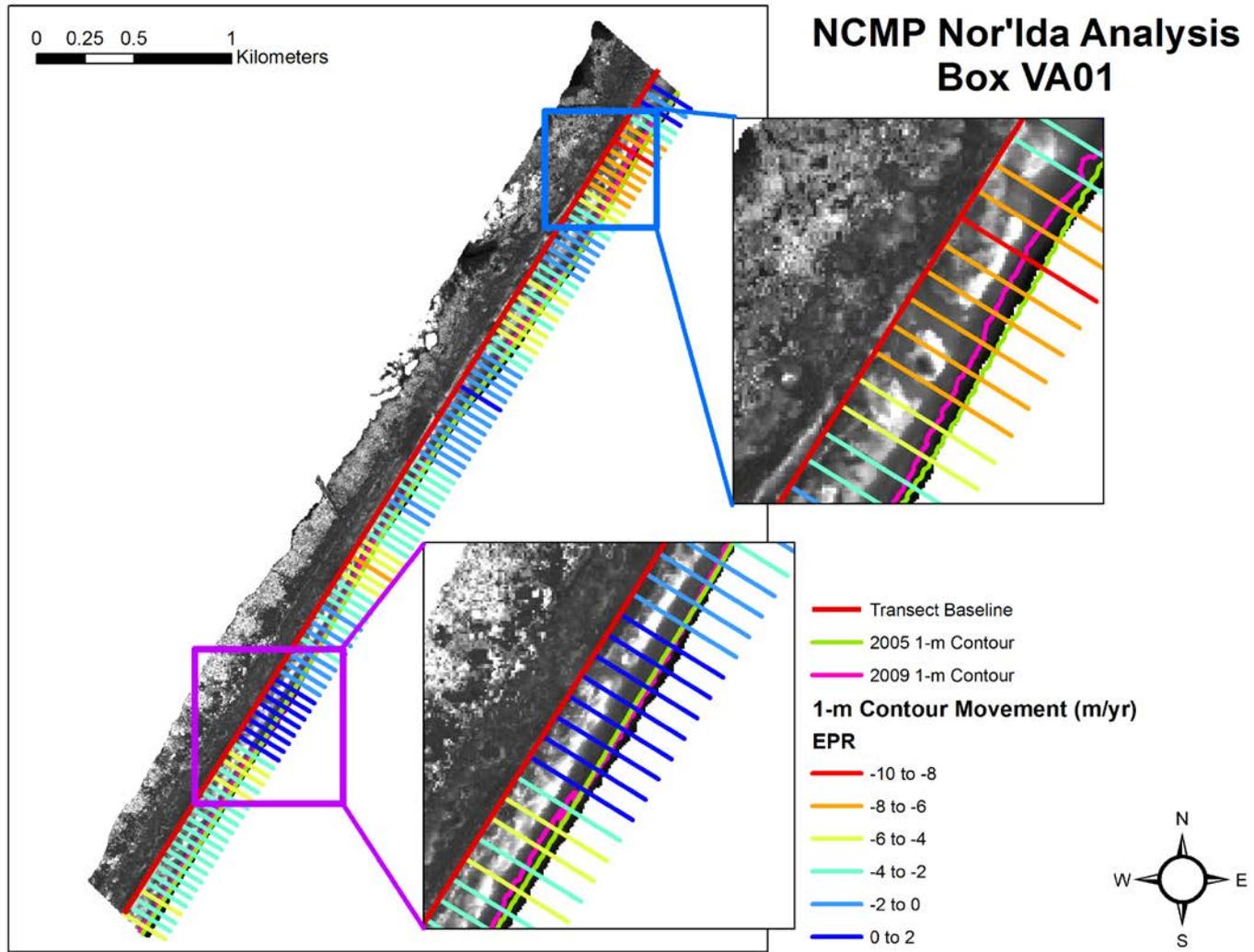
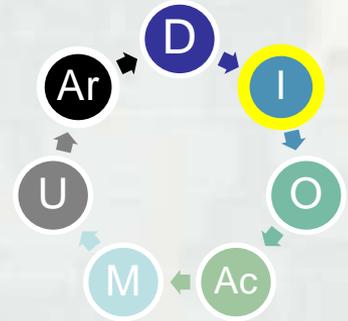


Measurements/Sec



Gaps in Data Holdings

Temporal



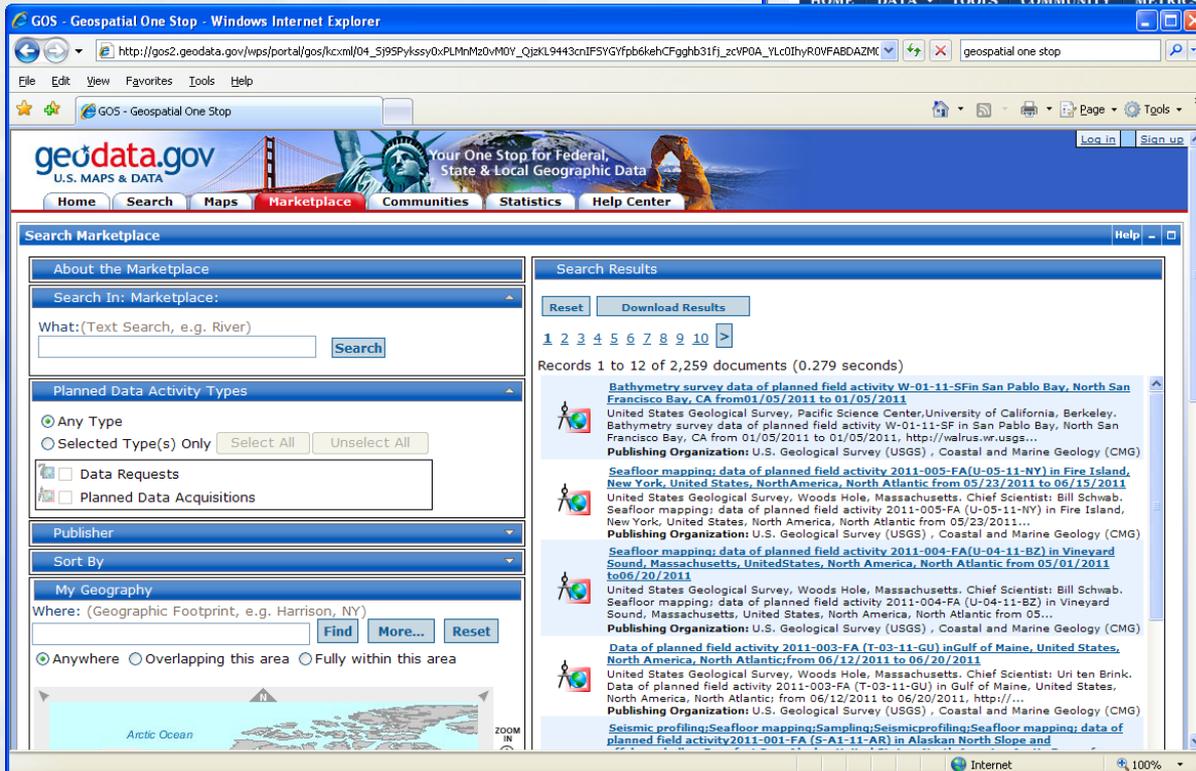
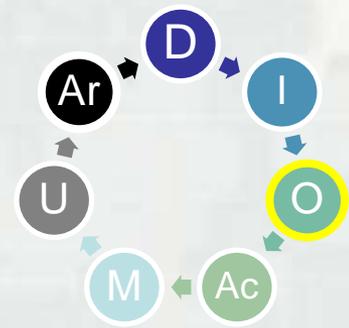
5-year NCMP acquisition cycle does not capture annual and event driven change



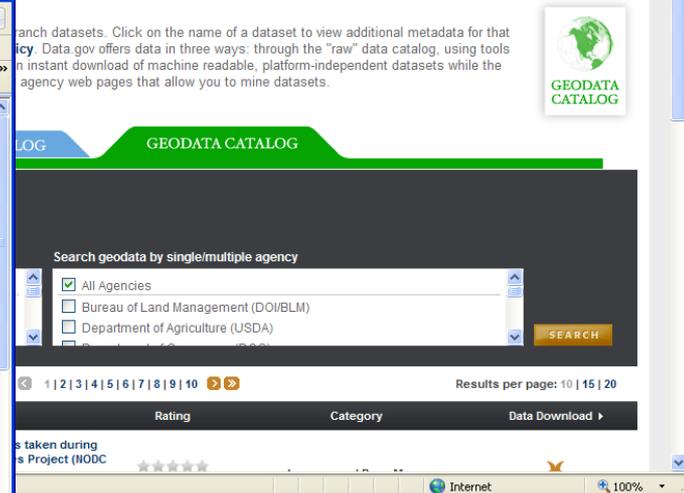
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Interagency Collaboration

Data acquisition



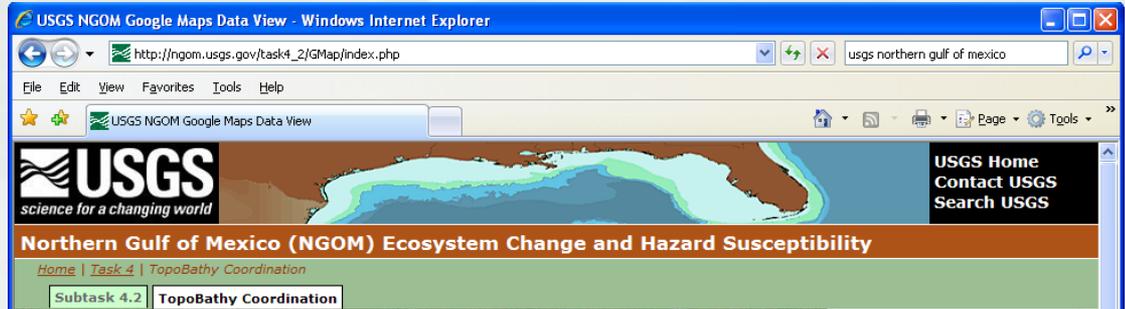
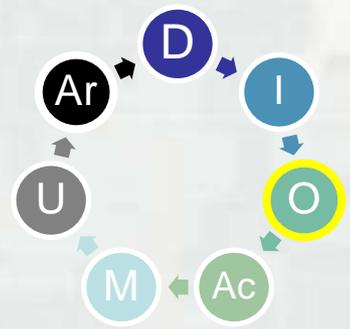
Search datasets. Click on the name of a dataset to view additional metadata for that dataset. Data.gov offers data in three ways: through the "raw" data catalog, using tools for instant download of machine readable, platform-independent datasets while the agency web pages that allow you to mine datasets.



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Interagency Collaboration

Data acquisition



Search

Edit

Tools About

GDACT - Gulf of Mexico Data Coordination Tool

ObjectID: 2

Contact Org: Harte Research Institute for Gulf of Mexico Studies

Title: 2010 Aerial Oblique Imagery Texas Upper Coast

Acquisition Status: In Planning

Planned Start Date: 10/01/2010

Planned End Date: 10/30/2010

Purpose: Collect Aerial Oblique Imagery for use in classifying shoreline types for ES1 mapping

Abstract: This project will provide up-to-date shoreline type classifications in the Environmental

Contact Name: James Gibaut

Contact Email: jgibaut@dummye mail.com

Contact Phone: 555-555-1212

Contact Org URL: http://harterresearchinstu te.org

GOS DocID:

Map Satellite Terrain

Contact

Show labels

NGOM Lidar Surveys

- Planned Surveys (by Agency)**
- All Overlays
- [USGS Atchafalaya](#)
- [NOAA Mobile Bay](#)
- [USACE Mobile Coast](#)
 - Overlay
- [USGS/USACE Acoustic](#)
- [USGS Mobile Bay](#)
- [Tuck Mapping Mobile](#)
- [NGOM Survey 2010](#)
- Planning for NGOM ARRA-funded**

ns Division (OP-J), Mobile District is scientists, GIS and remote sensing ADD technicians that provide a capability for spatial data collection, development.

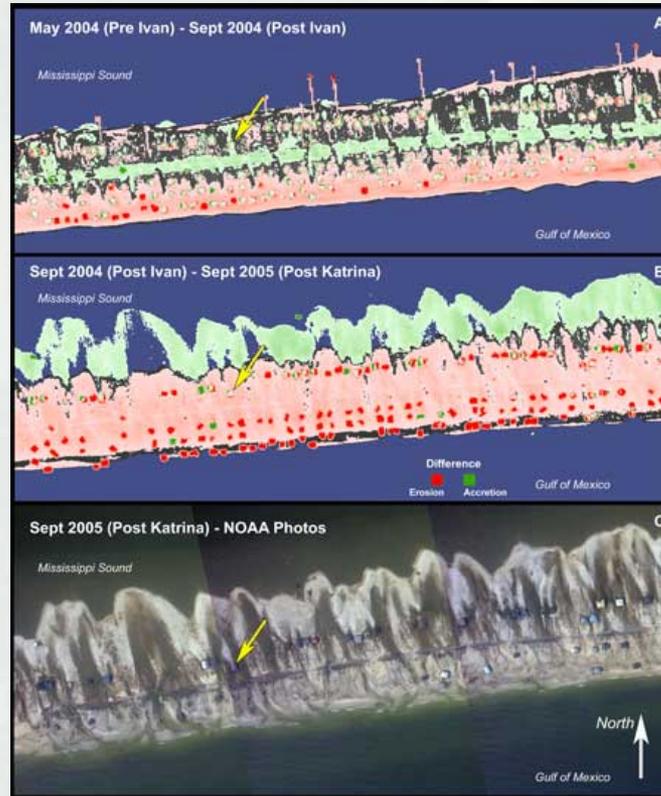
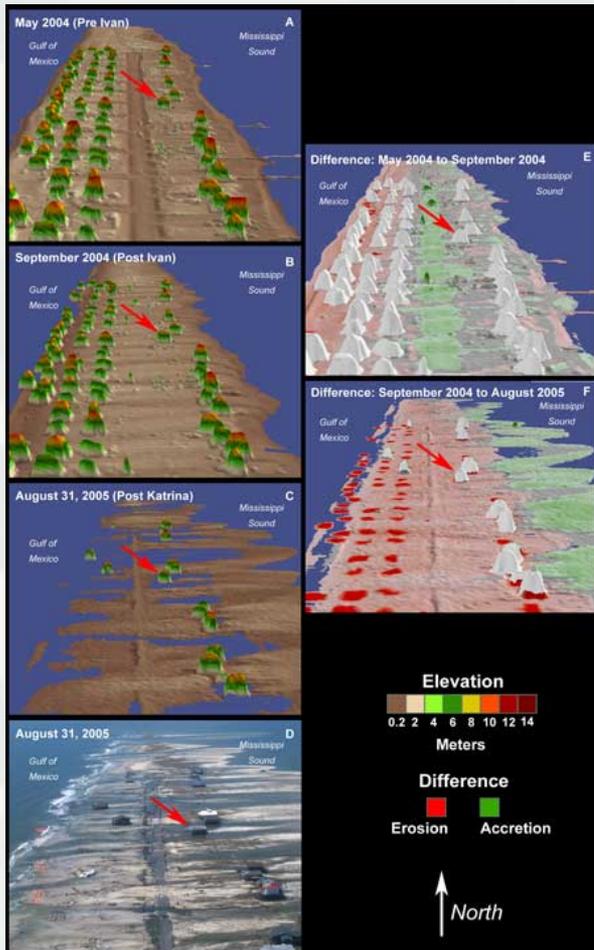
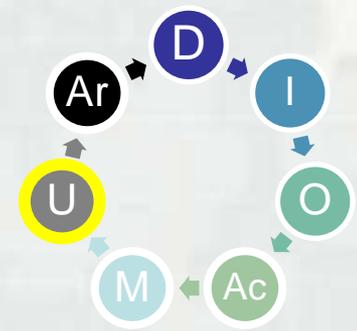
ember 2009

USA.gov

Internet 100%

Interagency Collaboration

Data use and evaluation



Post-Hurricane
Ivan (2004) and
Katrina (2005)
Coastal Change



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Success Stories

- Programmatic, ARRA and other agency funding leveraged to acquire elevation and imagery for continental US coast within one year
- 2nd cycle of regional coastal mapping initiated this past summer under the USACE NCMP
- \$200 M coastal project reconstruction following 2004 hurricane season utilizing multi-agency data resources
- To date, >350 billion data points downloaded via digital coast





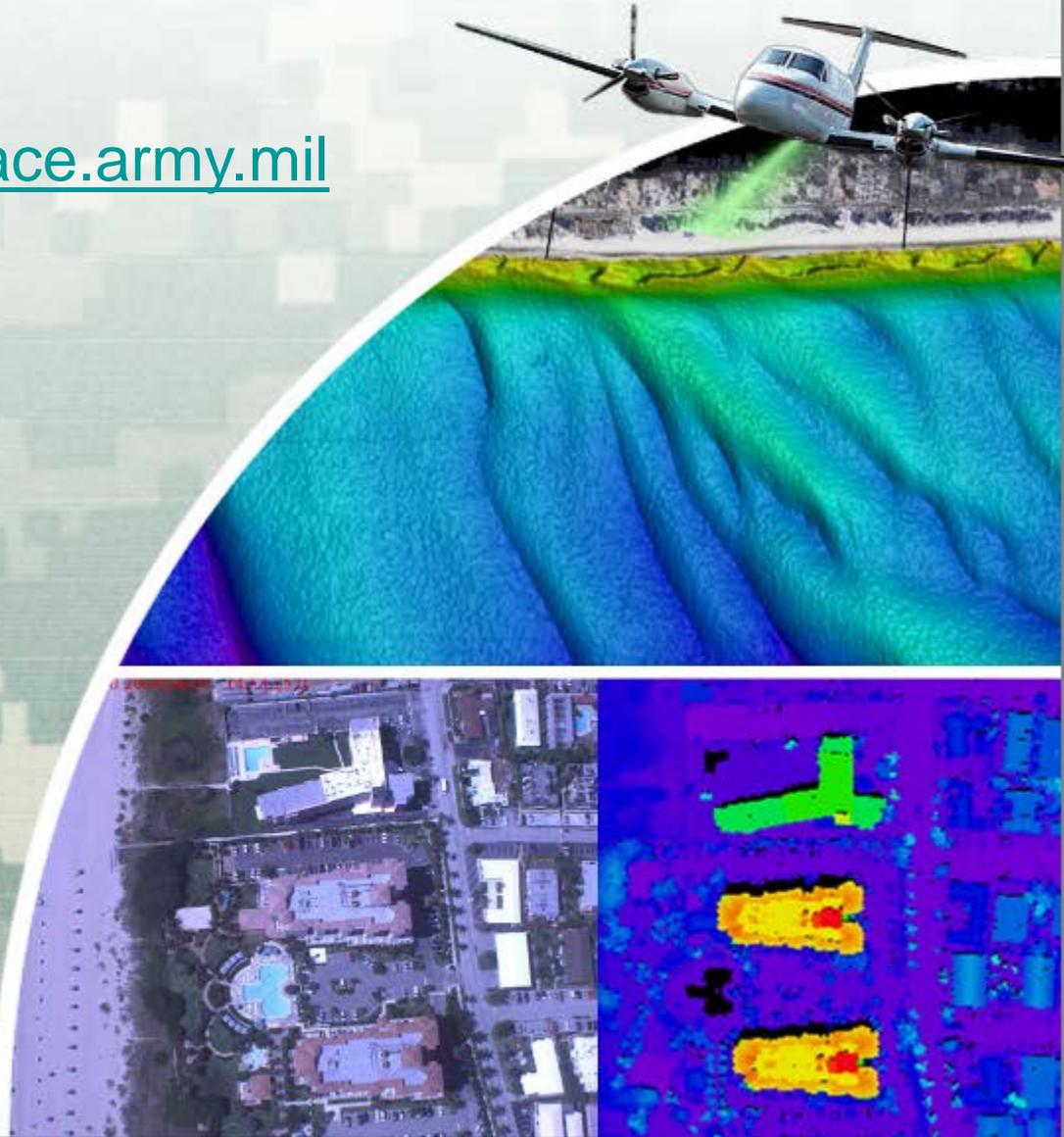
Joint Airborne Lidar Bathymetry
Technical Center of Expertise

Follow-on Q&A

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228.265.0156 (cell)



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