Hurricane Response Web Portal

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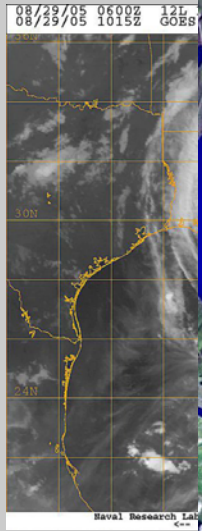
13 January 2006

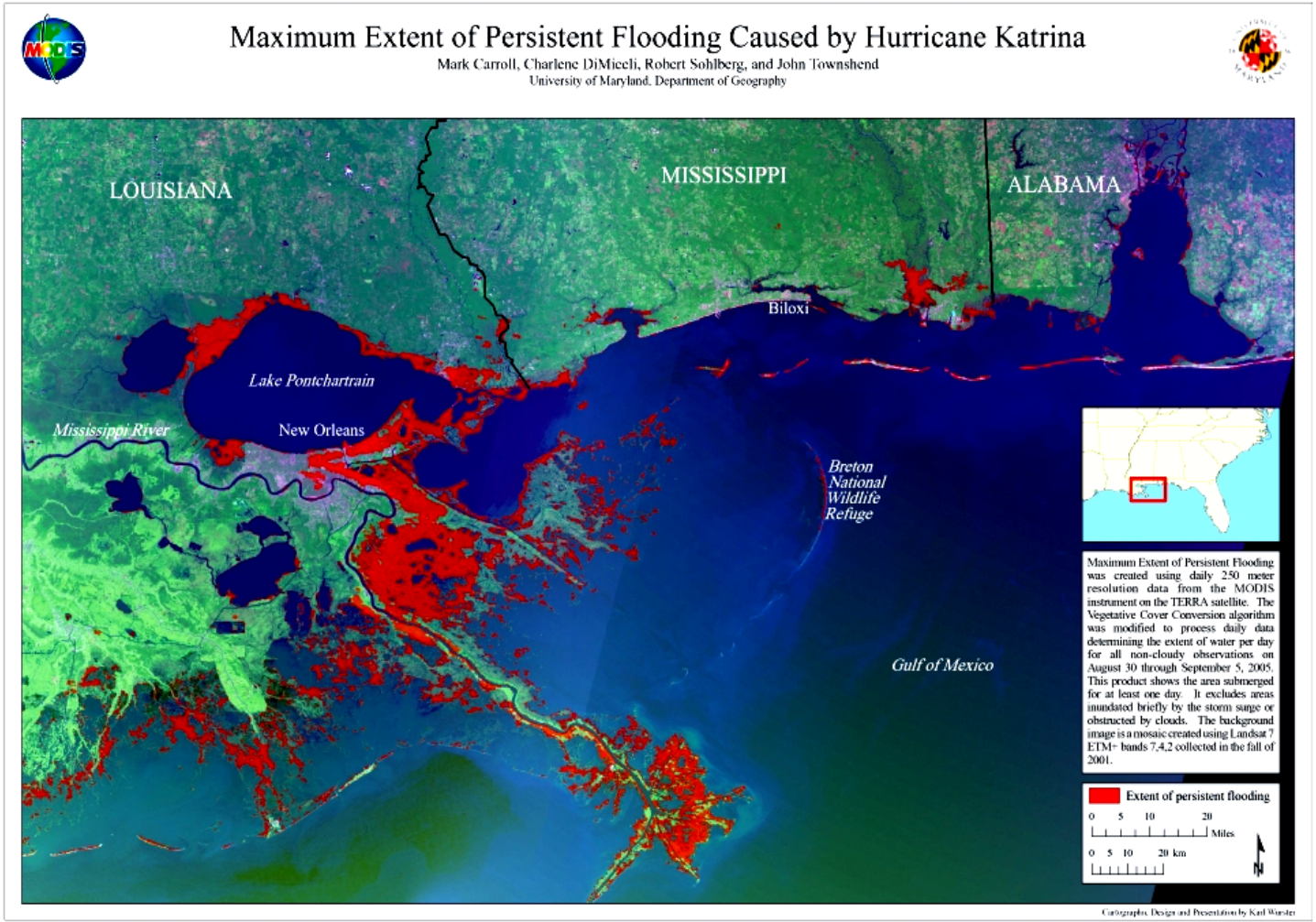
New Orleans: Before and After Hurricane Katrina

Before

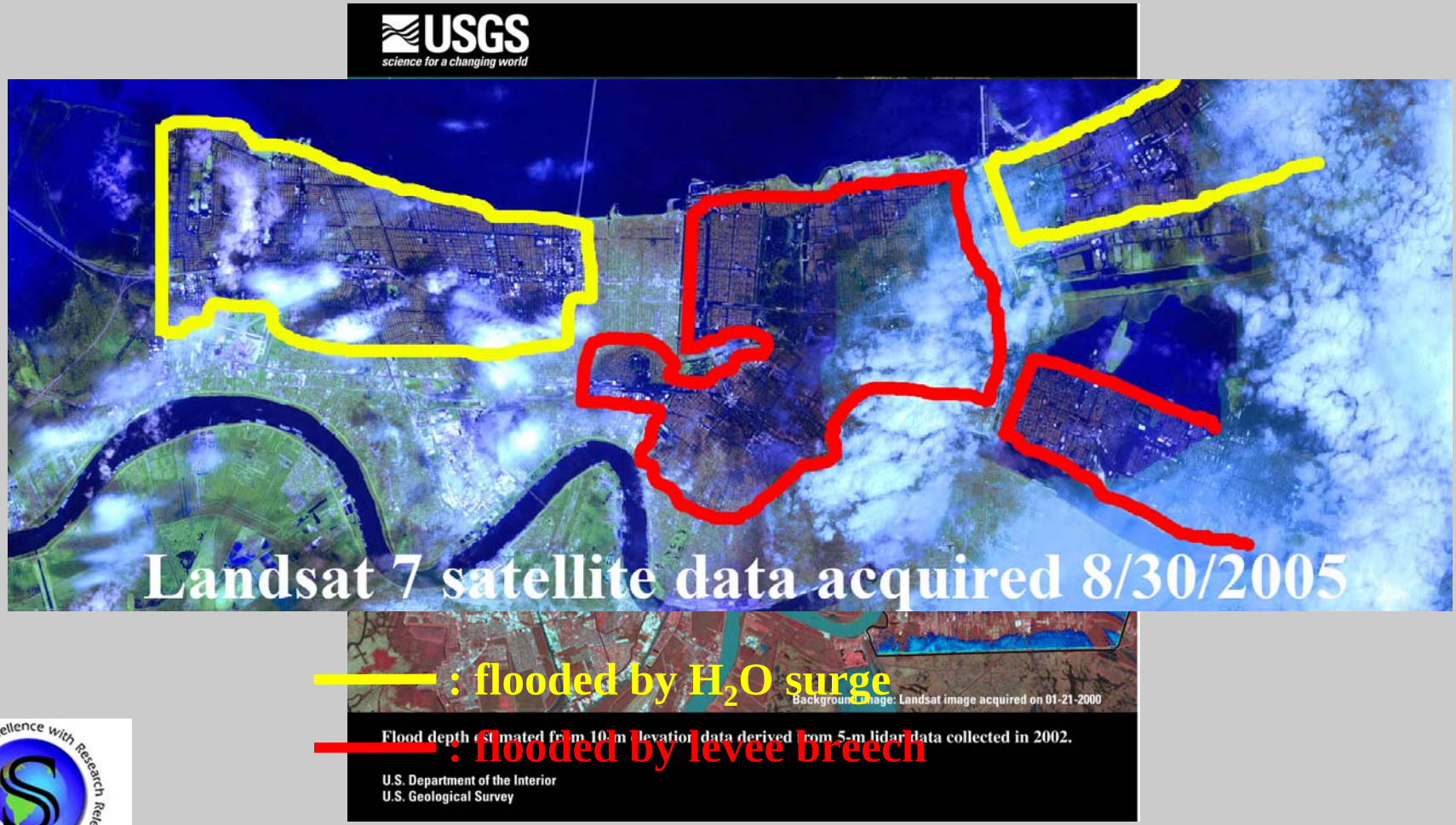


After

Regional Overview



Extent of Flooding



Industrial Canal Levee Breach

Lower 9th Ward Pre Katrina

Lower 9th Ward September 1st, 2005

Lower 9th Ward December 14th, 2005

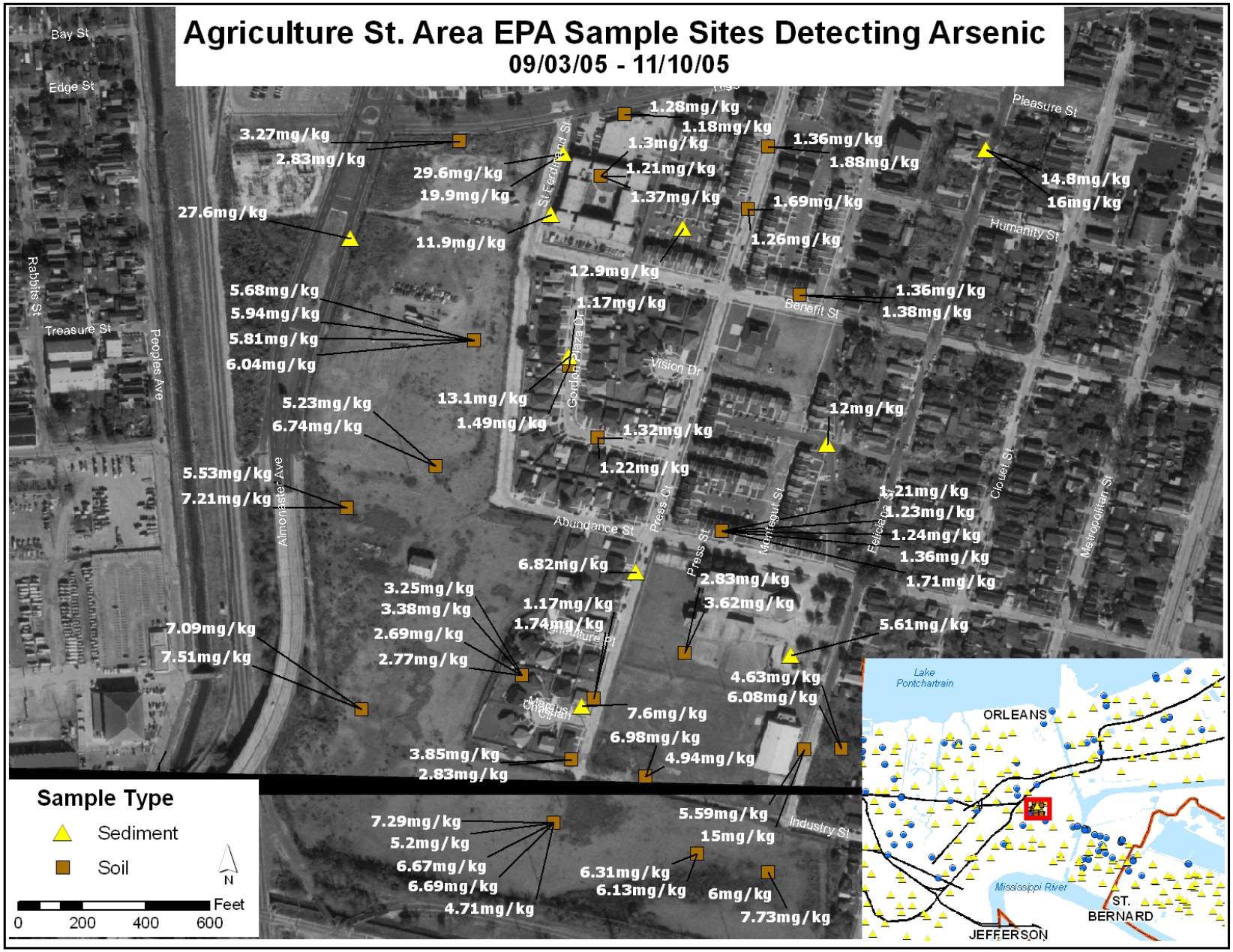
Example Research Questions

- Mold and respiratory health
- Contaminant transport
- Solid waste management
- Mental health

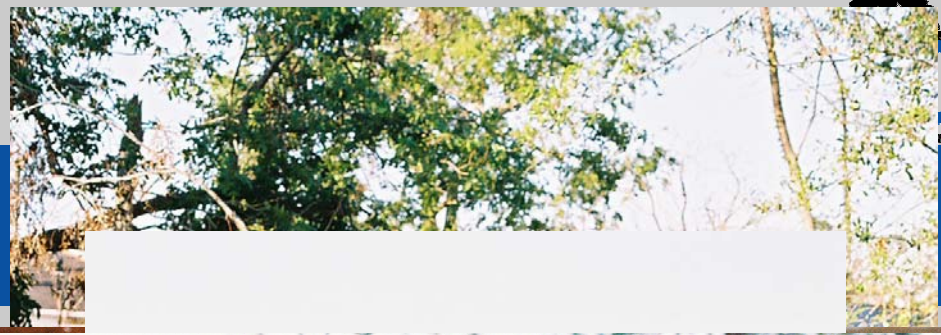
Mold and Respiratory Health

Mold Types Found in New Orleans Sample Sites, December, 2005

Acremonium
Aspergillus
Aspergillus niger
Chaetomium
Cladosporium
Curvularia
Gliocladium
Graphium
Mycelia sterilia
Penicillium
Scopulariopsis
Stachybotrys
Trichoderma
Yeasts


Agriculture St. Area EPA Sample Sites Detecting Arsenic
09/03/05 - 11/10/05
Bay St
Edge St
Pleasure St
Humanity St
Benefit St
Vision Dr
Abundance St
Press St
Press Ct
Industry St
Rabbits St
Treasure St
Peoples Ave
Almonaster Ave
Gordon Plaza Dr
St Ferdinand St
Montegut St
Clouet St
Metropolitan St
1.28mg/kg
1.18mg/kg
1.3mg/kg
1.36mg/kg
1.88mg/kg
1.21mg/kg
1.37mg/kg
1.69mg/kg
1.26mg/kg
3.27mg/kg
2.83mg/kg
29.6mg/kg
19.9mg/kg
27.6mg/kg
11.9mg/kg
14.8mg/kg
16mg/kg
12.9mg/kg
1.17mg/kg
1.36mg/kg
1.38mg/kg
5.68mg/kg
5.94mg/kg
5.81mg/kg
6.04mg/kg
13.1mg/kg
1.49mg/kg
5.23mg/kg
6.74mg/kg
1.32mg/kg
1.22mg/kg
12mg/kg
5.53mg/kg
7.21mg/kg
1.21mg/kg
1.23mg/kg
1.24mg/kg
1.36mg/kg
1.71mg/kg
6.82mg/kg
2.83mg/kg
3.62mg/kg
3.25mg/kg
3.38mg/kg
2.69mg/kg
2.77mg/kg
1.17mg/kg
1.74mg/kg
7.09mg/kg
7.51mg/kg
5.61mg/kg
4.63mg/kg
6.08mg/kg
7.6mg/kg
6.98mg/kg
4.94mg/kg
3.85mg/kg
2.83mg/kg
7.29mg/kg
5.2mg/kg
6.67mg/kg
6.69mg/kg
4.71mg/kg
5.59mg/kg
15mg/kg
6.31mg/kg
6.13mg/kg
6mg/kg
7.73mg/kg
Sample Type
Sediment
Soil
N
Feet
0
200
400
600
Lake Pontchartrain
ORLEANS
Mississippi River
ST. BERNARD
JEFFERSON

Solid an nagement



NIEHS Response: Collaborative Team

- NIEHS
- Columbia University (CIESIN)
- University of Kentucky
- Research Triangle Institute
- San Diego State University
- University of California, San Diego
- Duke University

Purpose of the Portal

- Build and maintain extensive data archive designed to investigate environmental health consequences of the hurricanes
- Provide a collaborative workspace for analysis of georeferenced data
- Provide a Gulf Coast resource to support environmental health research more broadly

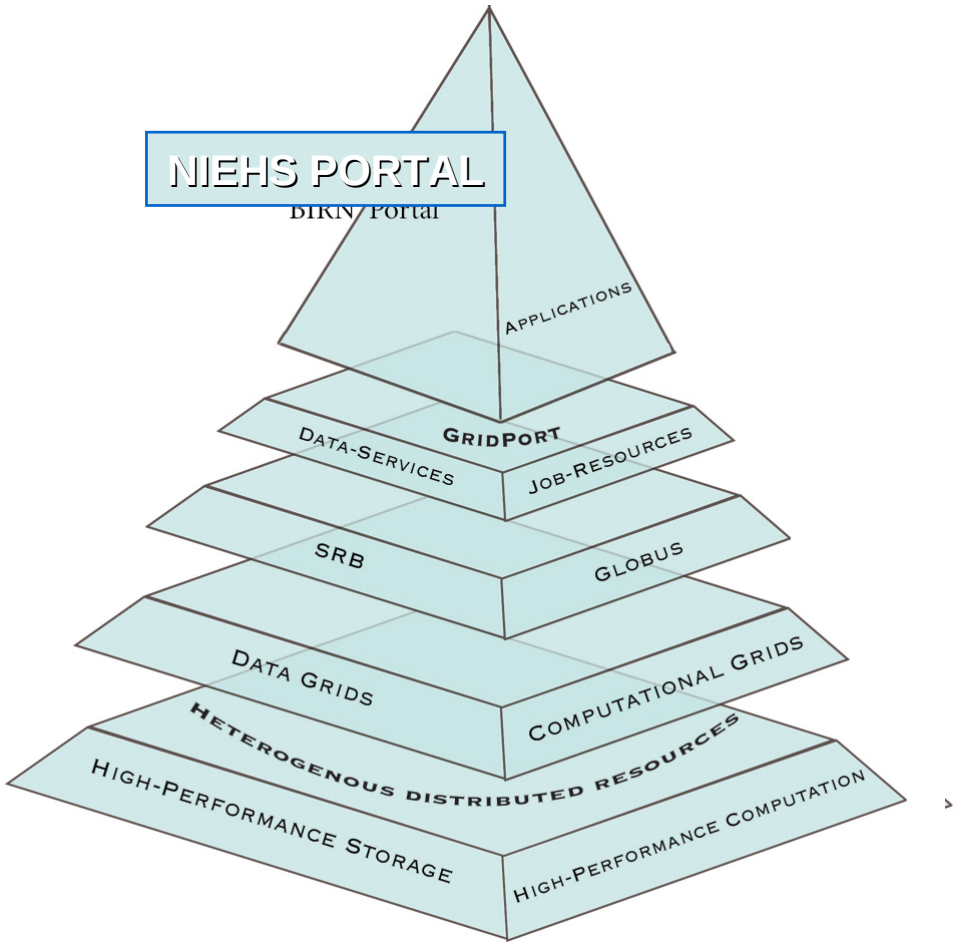
Data Categories

- Physiographic
- Political
- Demographic
- Potential contaminant sources
- Infrastructure
- Damage
- Satellite and aerial imagery
- Sampling data

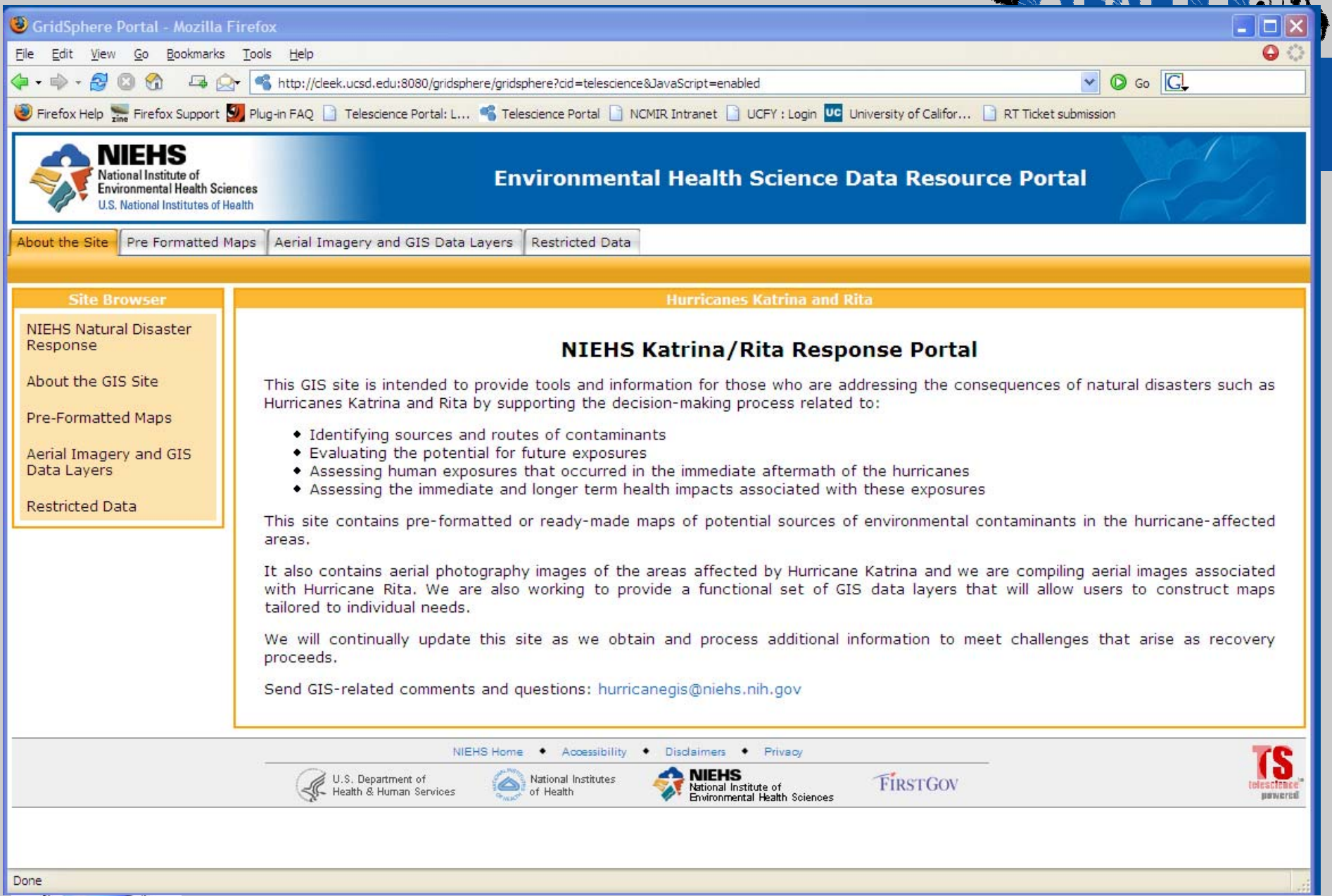
Distinguishing Portals from Websites/Desktop Applications

- Websites generally provide static information (and sometimes access to a service or transaction).
- Research Portals are gateways to customized and dynamic services and are architected to evolve and accommodate the requirements of scientific communities (e.g. NIEHS Researchers).
- The NIEHS Site has been developed using a Portal system originally developed for other NIH Projects (and for Earth Scientists and Physicists).
- This system facilitates multisite collaboration, data sharing and shared use of computing resources.

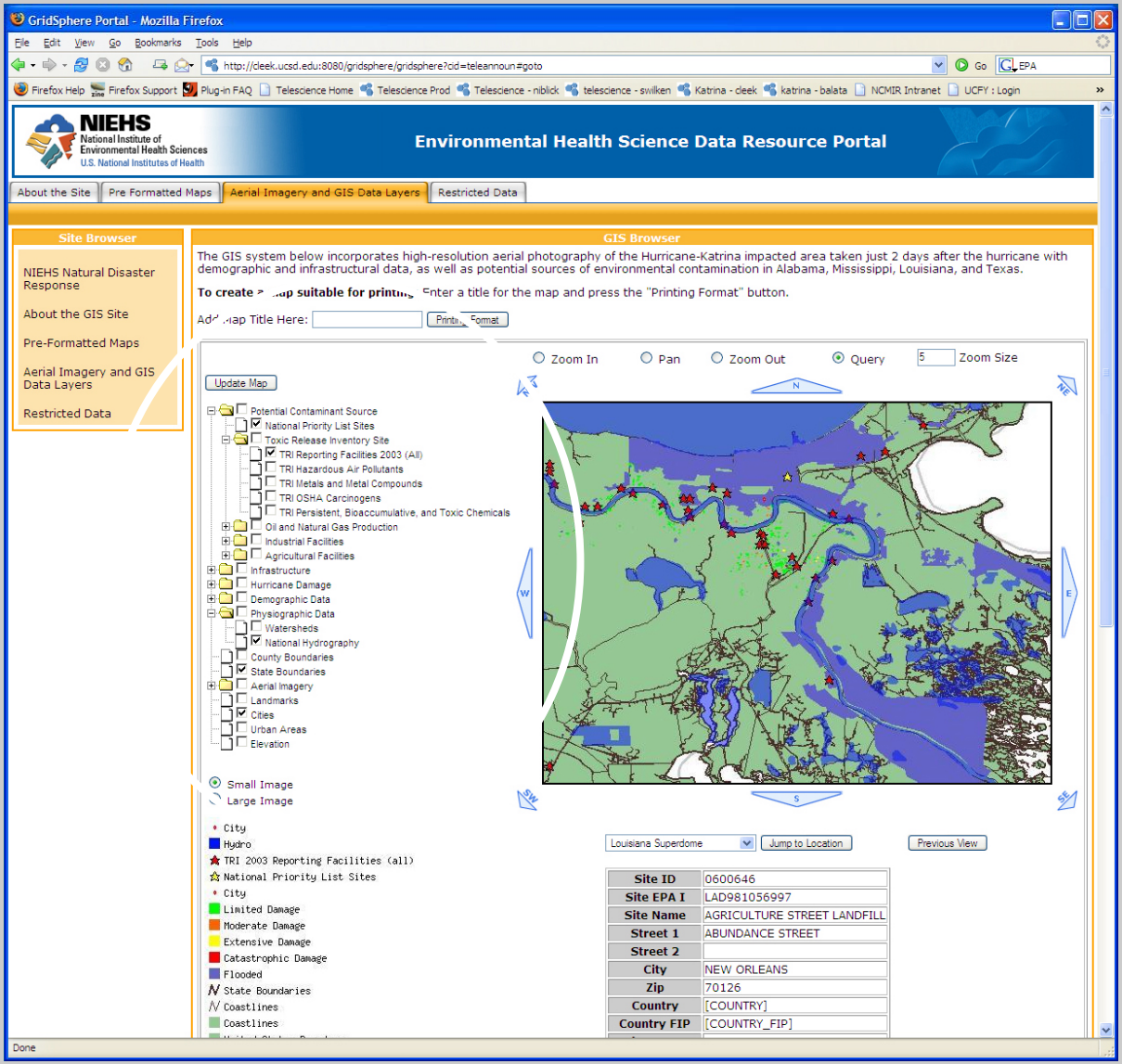
Layered Architecture - Top Level Changes
The Core is Shared with other projects



- The NIEHS Portal is composed of many “layers”
- Layers are modular, allowing for extension of any layer without great disruption to the entire system
- Every Layer has its own complexity and administration that was previously passed on to the end-user
- Portal centralizes all administrative details of each layer into a single username and pass phrase


GridSphere Portal - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
http://cleek.ucsd.edu:8080/gridsphere/gridsphere?cid=telescience&JavaScript=enabled
Go
Firefox Help Firefox Support Plug-in FAQ Telescience Portal: L... Telescience Portal NCMIR Intranet UCFY : Login University of Califor... RT Ticket submission
NIEHS
National Institute of Environmental Health Sciences
U.S. National Institutes of Health
Environmental Health Science Data Resource Portal
About the Site
Pre Formatted Maps
Aerial Imagery and GIS Data Layers
Restricted Data
Site Browser
NIEHS Natural Disaster Response
About the GIS Site
Pre-Formatted Maps
Aerial Imagery and GIS Data Layers
Restricted Data
Hurricanes Katrina and Rita
NIEHS Katrina/Rita Response Portal
This GIS site is intended to provide tools and information for those who are addressing the consequences of natural disasters such as Hurricanes Katrina and Rita by supporting the decision-making process related to:
Identifying sources and routes of contaminants
Evaluating the potential for future exposures
Assessing human exposures that occurred in the immediate aftermath of the hurricanes
Assessing the immediate and longer term health impacts associated with these exposures
This site contains pre-formatted or ready-made maps of potential sources of environmental contaminants in the hurricane-affected areas.
It also contains aerial photography images of the areas affected by Hurricane Katrina and we are compiling aerial images associated with Hurricane Rita. We are also working to provide a functional set of GIS data layers that will allow users to construct maps tailored to individual needs.
We will continually update this site as we obtain and process additional information to meet challenges that arise as recovery proceeds.
Send GIS-related comments and questions: hurricanegis@niehs.nih.gov
NIEHS Home • Accessibility • Disclaimers • Privacy
U.S. Department of Health & Human Services
National Institutes of Health
NIEHS National Institute of Environmental Health Sciences
FIRSTGOV
Done

NIEHS Environmental Health Science Data Resource Portal Includes Tools for Authentication, Authorization and Auditing



For example, not all users may have access to the same data layers

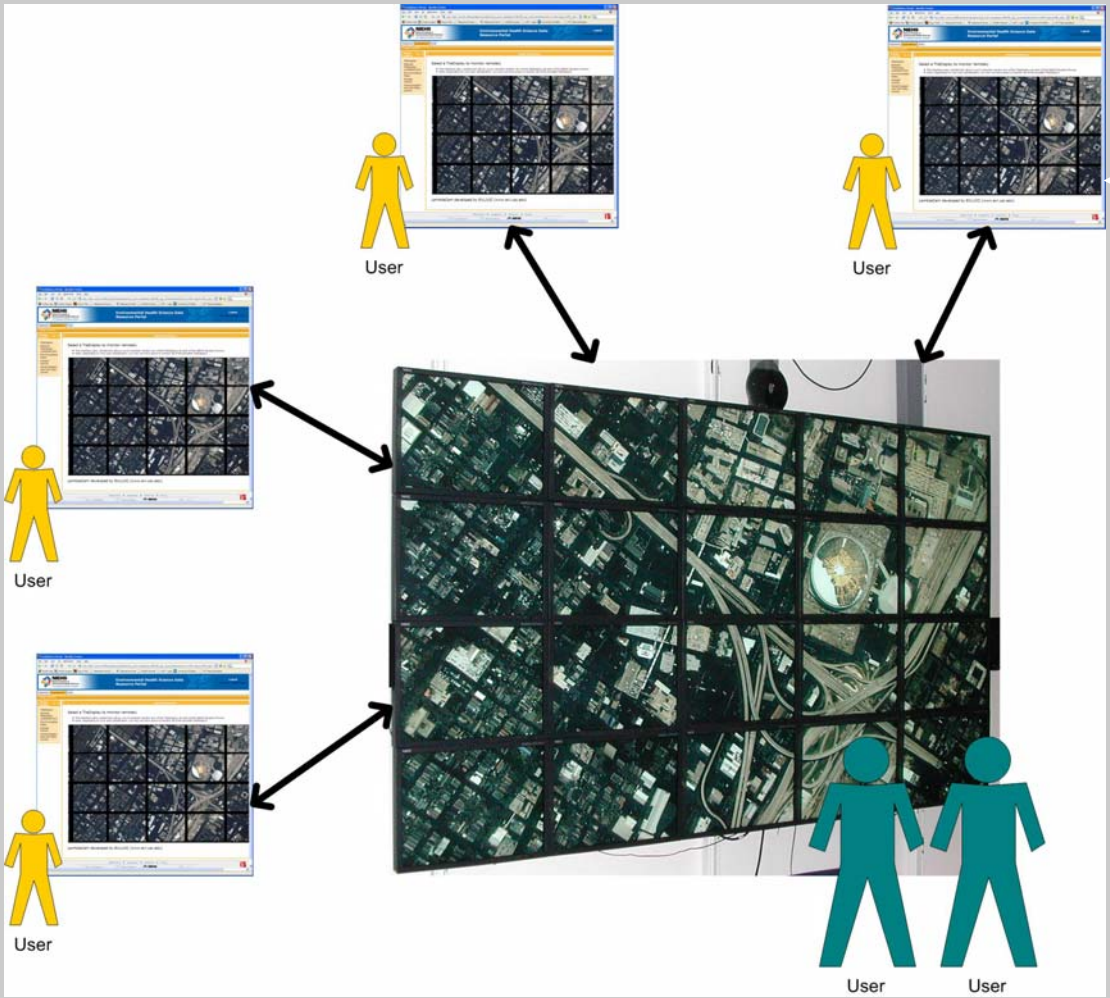
Authorization groups are defined by site administrator. This can be further refined by the end user.

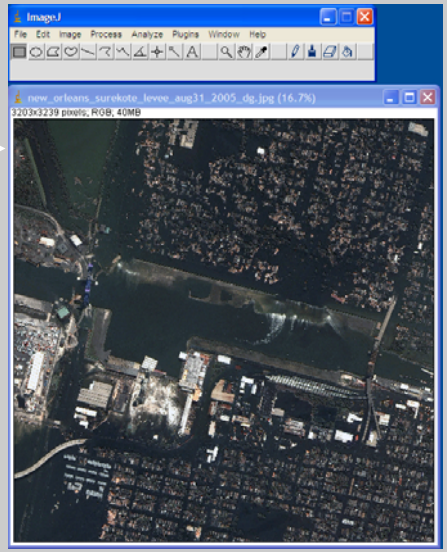
Additional Features of the NIEHS Portal

- Built in collaborative tools (multi level - binary to large group to public)
- Full authentication, authorization and auditing (secure data sharing)
- Access to advanced computation and visualization end-points
  (eg., grid computing - NSF Teragrid)
- Integration of domain specific applications (eg., analysis and visualization)
- Data “integration” technologies (complex queries to deep data)

THE NIEHS Portal is suitable for use as a high tech gateway to emerging collaborative research environments

These next generation capabilities are built on advanced information technologies (eg., multiple gigabit networks, cluster computing, tiled wall display systems)





Shared Visualization
(and soon annotation)

What next?

- Automated account creation and management
- Access to computation and visualization end-points
- Address lookup
- Save user-requested customized views
- Data repository
- Simple and Spatial Queries
- Lots of Aerial and Satellite Imagery
  - NOAA
  - NASA (Blue Marble, Global Mosaic, Reflectance)
  - USGS (DOQ, DRG, Urban Areas)
  - Intergraph (Globe, Lakes)

We must understand needs of projects to implement those most appropriate

Defining the Geographic Scope

- Louisiana
- Mississippi
- Alabama
- Texas
- Florida
- United States

Acknowledgements

- National Institute of Environmental Health Sciences
- USGS, EPA, NOAA
- Gulf Coast agencies

The Web Portal