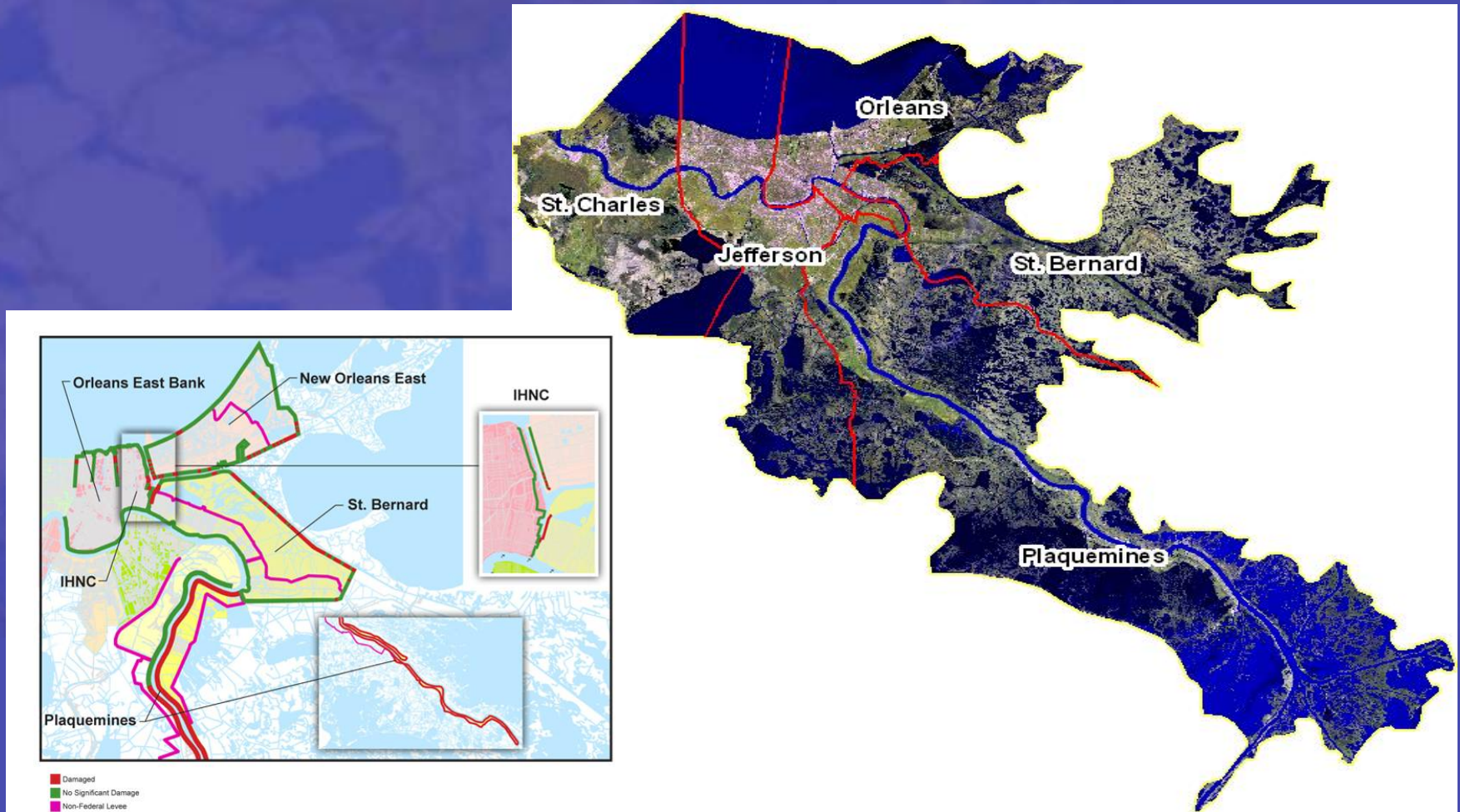


Use of GIS in the Interagency Performance Evaluation



15 May 2006

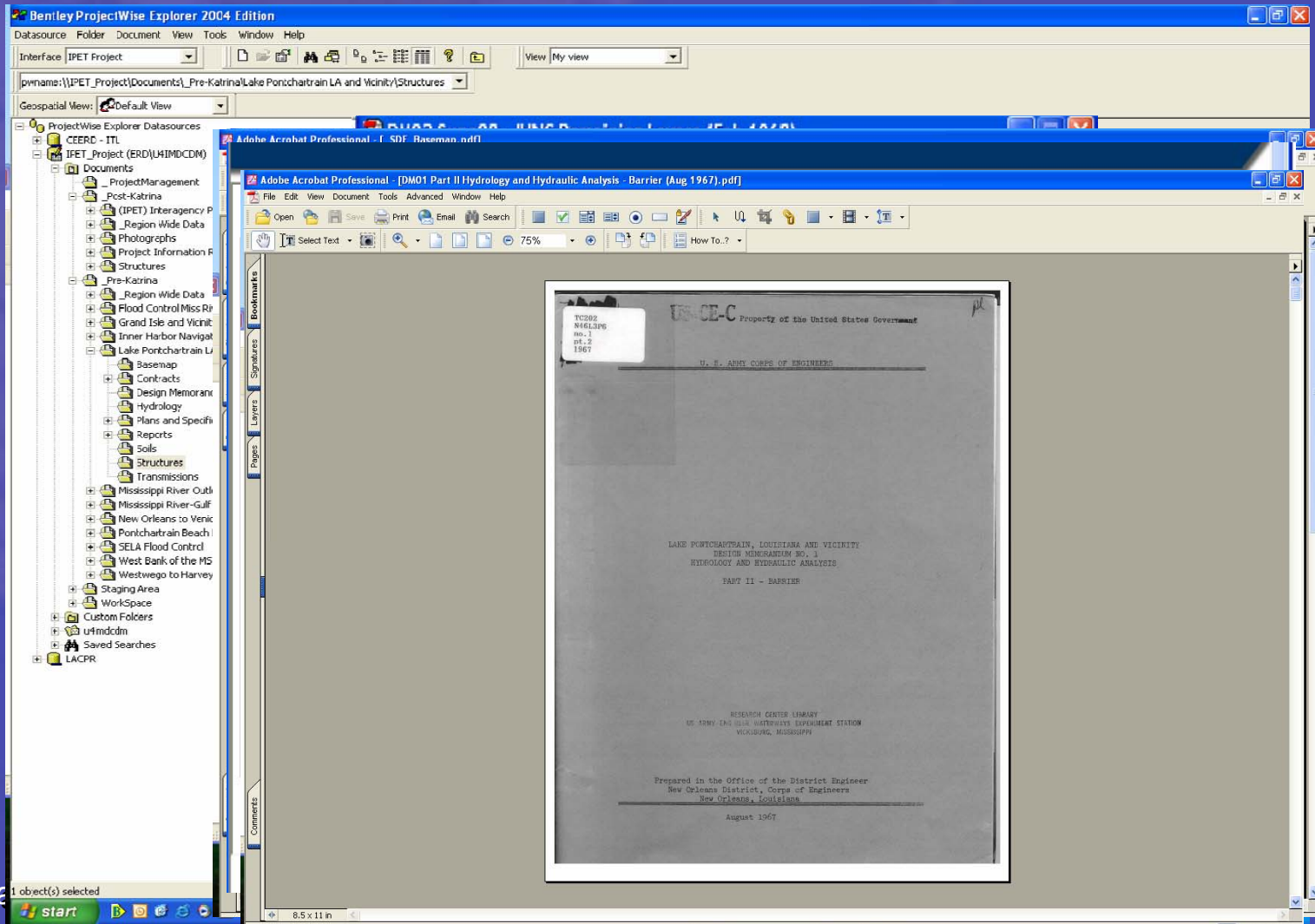
Denise Martin

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IPET Data Repository

- <https://erdcpw.erdcpw.usace.army.mil>
 - 3 primary components:
 - GIS data – leverages the CorpsMap corporate database at USACE CPC
 - Unstructured data – Microsoft SQL Server database managed by Bentley ProjectWise
 - Large data sets – terabyte server connected to Oracle SDO database
 - Bentley ProjectWise – provides the overall metadata management for all 3 data components

IPET Data Repository



IPET Public Website

<https://ipet.wes.army.mil>


New Orleans Hurricane Protection Projects Data - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Refresh Home Search Favorites Windows Windows Marketplace Windows Media

Links AOL for Broadband Customize Links Free Hotmail Windows Windows Marketplace Windows Media

Address <https://ipet.wes.army.mil/> Go

 **New Orleans Hurricane Protection Projects Data**

Home

- DM05 Charlotte Area Plan Detail Design Pavon Pl...
- DM06 Vol 1 Riprolets Control Structure and Closure I...
- DM06 Vol 2 Riprolets Control Structure and Closure I...
- DM07 Detail Chef-Monteur Pass Cont Struc and Clos...
- DM08 Vol 1 Detailed Riprolets Lock (Sept 1973) r.p...
- DM10 Corrosion Protection (Mar 1969) r.pdf
- DM12 Revised Seabrook Lock Sources of Constructi...
- DM12 Sources of Construction Materials (Jun 1966)
- DM13 Vol I GDM Orleans Parish Lakefront Levee Y...
- DM14 Citrus Lakefront Levee (July 1984) pdf
- DM15 GD New Orleans East Lakefront Levee - Pari...
- DM16 Gen Design New Orleans East Levee South Po...
- DM17 Vol 1 General Design Jefferson Parish Lakefr...
- DM17A Gen Design Jefferson Par St. Charles Par Re...
- DM18 Vol I Gen Design St. Charles Par N of Airline I...
- DM18 Vol II Gen Design St. Charles Par N of Airline I...
- DM19 Vol 1 GD Orleans Ave Outfall Canal (Aug 195...
- DM19 Vol 2 GD Orleans Ave Outfall Canal (Aug 195...
- DM19A Supp1 GD London Ave Outfall Canal Fronti...
- DM19A Supp2 GD London Ave Outfall Canal Fronti...
- DM19A Supp2 GD London Ave Outfall Canal Fronti...
- DM19A Vol 1 GD London Ave Outfall Canal (Jan 15...
- DM19A Vol 2 GD London Ave Outfall Canal (Jan 15...
- DM20 Supp1 - GD 17th St Outfall Canal (Metairie R...
- DM20 Supp1 GD 17th St Outfall Canal (Metairie R...
- DM20 Vol 1 - GD 17th St Outfall Canal (Metairie R...

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LAKE PONTCHARTRAIN, LA. AND VICINITY LAKE PONTCHARTRAIN HIGH LEVEL PLAN

DESIGN MEMORANDUM NO. 19 GENERAL DESIGN

ORLEANS AVENUE OUTFALL CANAL

IN THREE VOLUMES VOLUME I

8.47 x 10.96 in 1 of 443

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USACE Home Div Dist Ctr Lab FOA You Are Here Research & Development

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15 May 2006

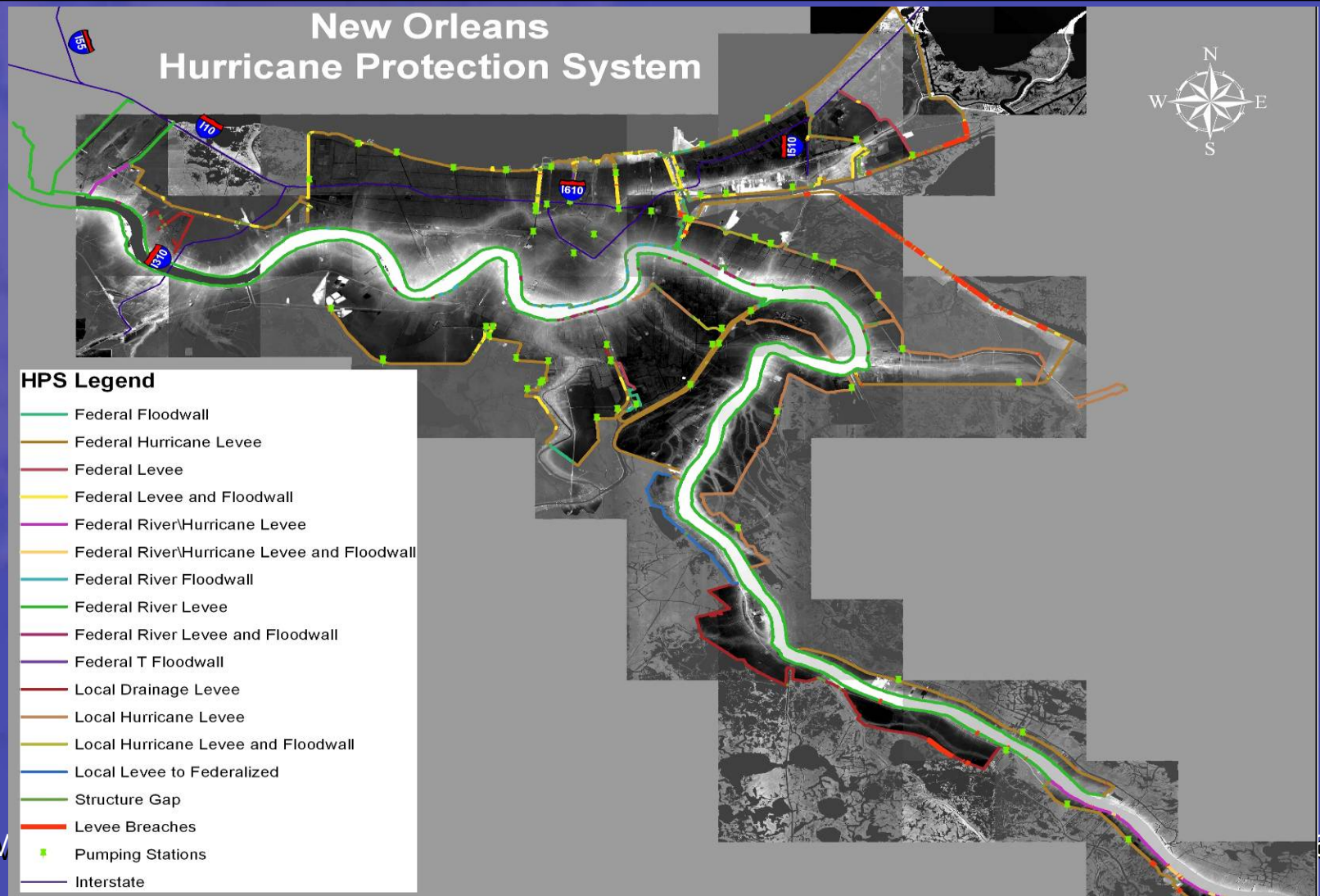
Denise Martin

4

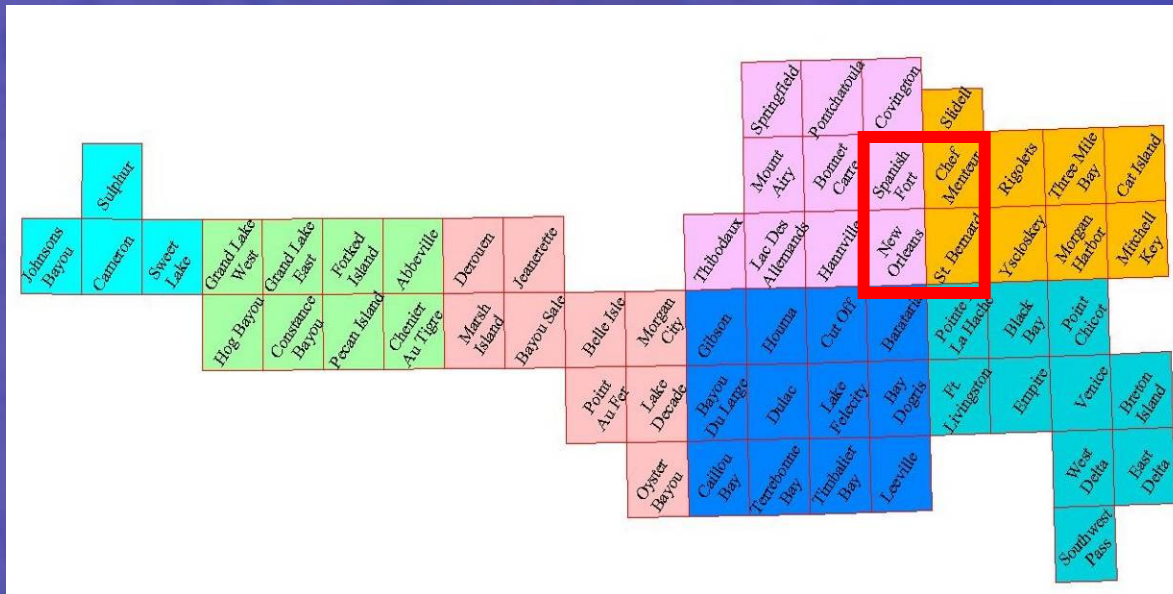
Examples of GIS use

- Overall Hurricane Protection System
- Risk and Reliability
- Storm and Surge Modeling
- Interior drainage/flooding
- Levee Erosion
- Consequences – economic losses, environmental
- Portal for Viewing/Downloading datasets

Hurricane Protection System



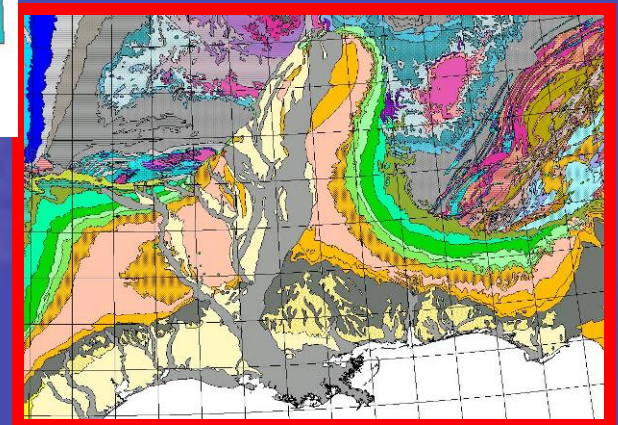
Geologic Mapping



- 35-yr mapping program
- Based on drainage basin
- Over 300 15-min maps

Mississippi River Deltaic Plain

Miss R. Delta Plain East
Miss R. Delta Plain West



- ERDC-GSL Engineering Geology Branch

15 May 2006

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US Army Corps of Engineers

ERDC

Lower and Middle Mississippi Valley Engineering Geology Mapping Program

Engineering Geology & Geophysics Branch

Welcome



Quads by river basin

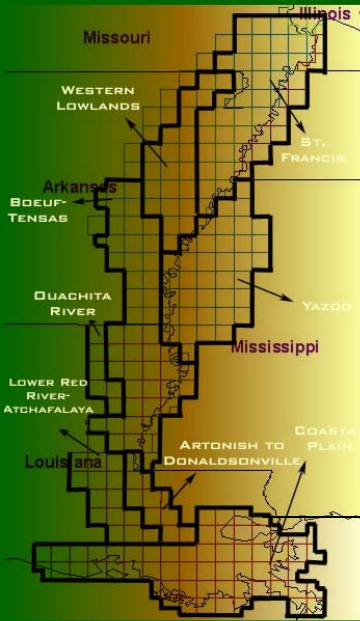
Select a River Basin

Documents

- Fisk 44 Report
- Fisk 44 Oversized Plates
- Fisk 44 Oversized Plates Rectified
- Saucier 94 Report
- Saucier Oversized Plates
- Mississippi River Early Stream Channels

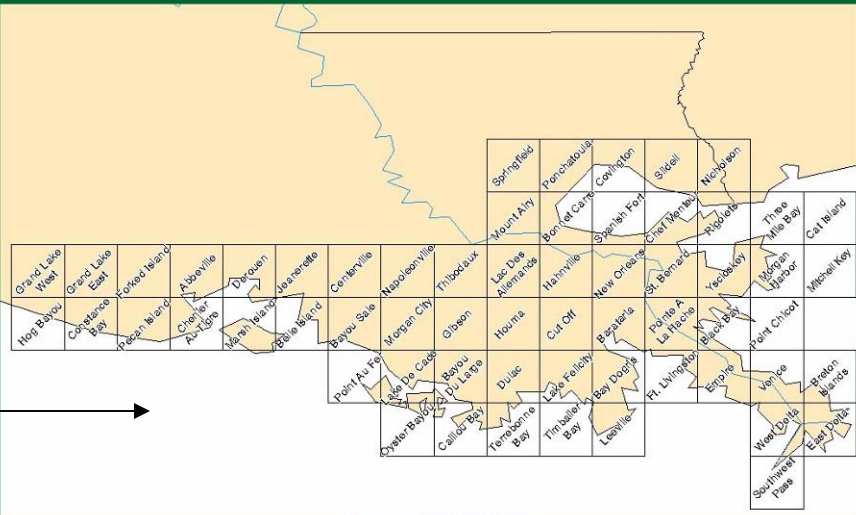
LINKS

- Lower Mississippi Valley Field Trip Guides
- Lower Mississippi Valley Bibliography



Navigation

- Geology Mapping
- Land Loss Mapping



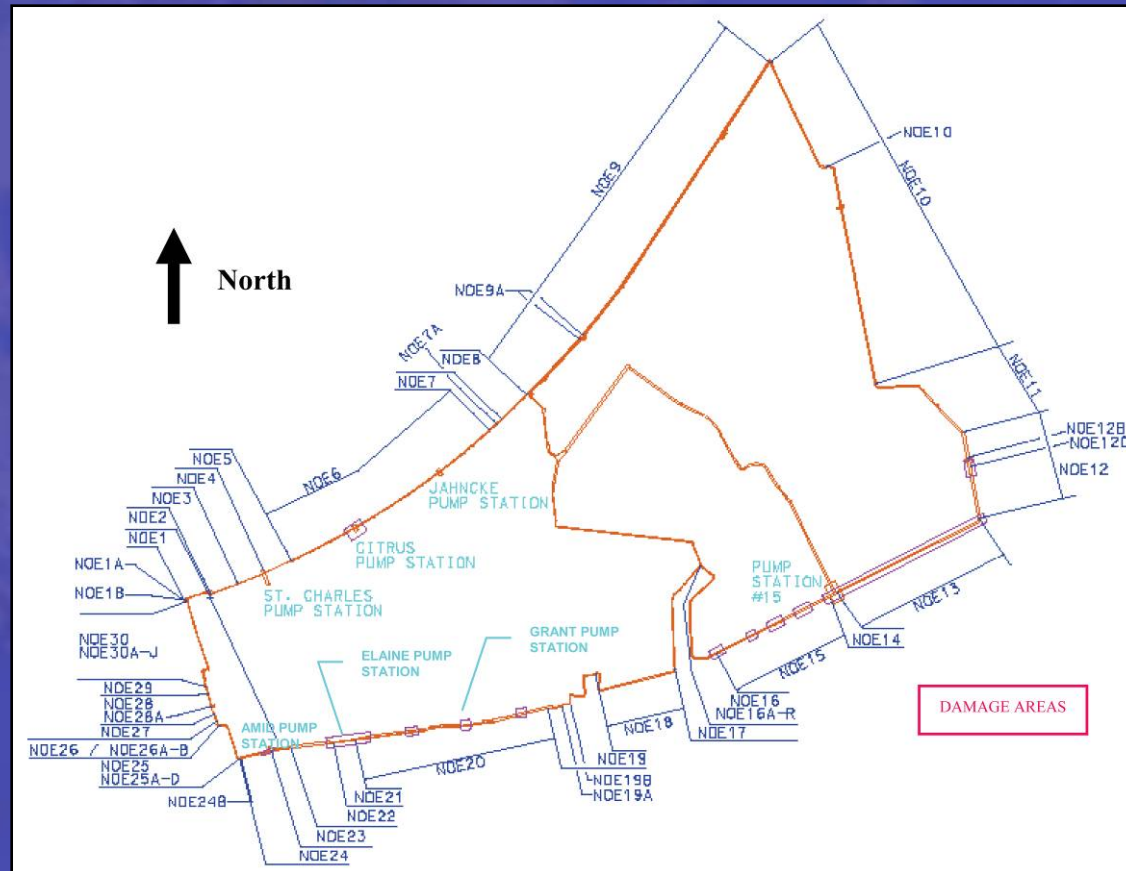
Quads by river basin

Select a River Basin

lmvmapping.erd.c.usace.army.mil

ise Martin

New Orleans East Basin – Reaches defined for Risk Assessment



St. Bernard Basin layout of reaches for Risk Model by Physical Feature

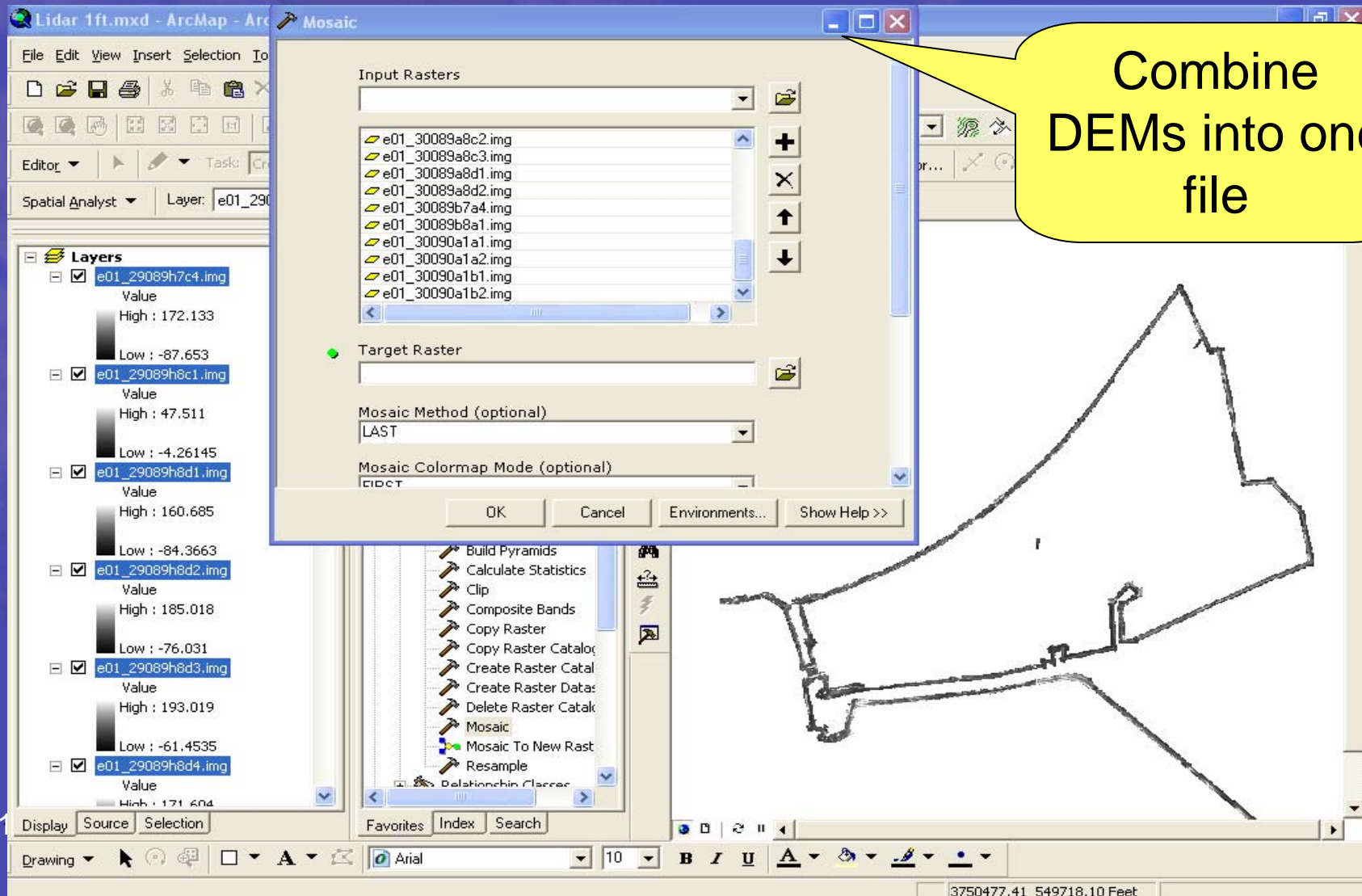


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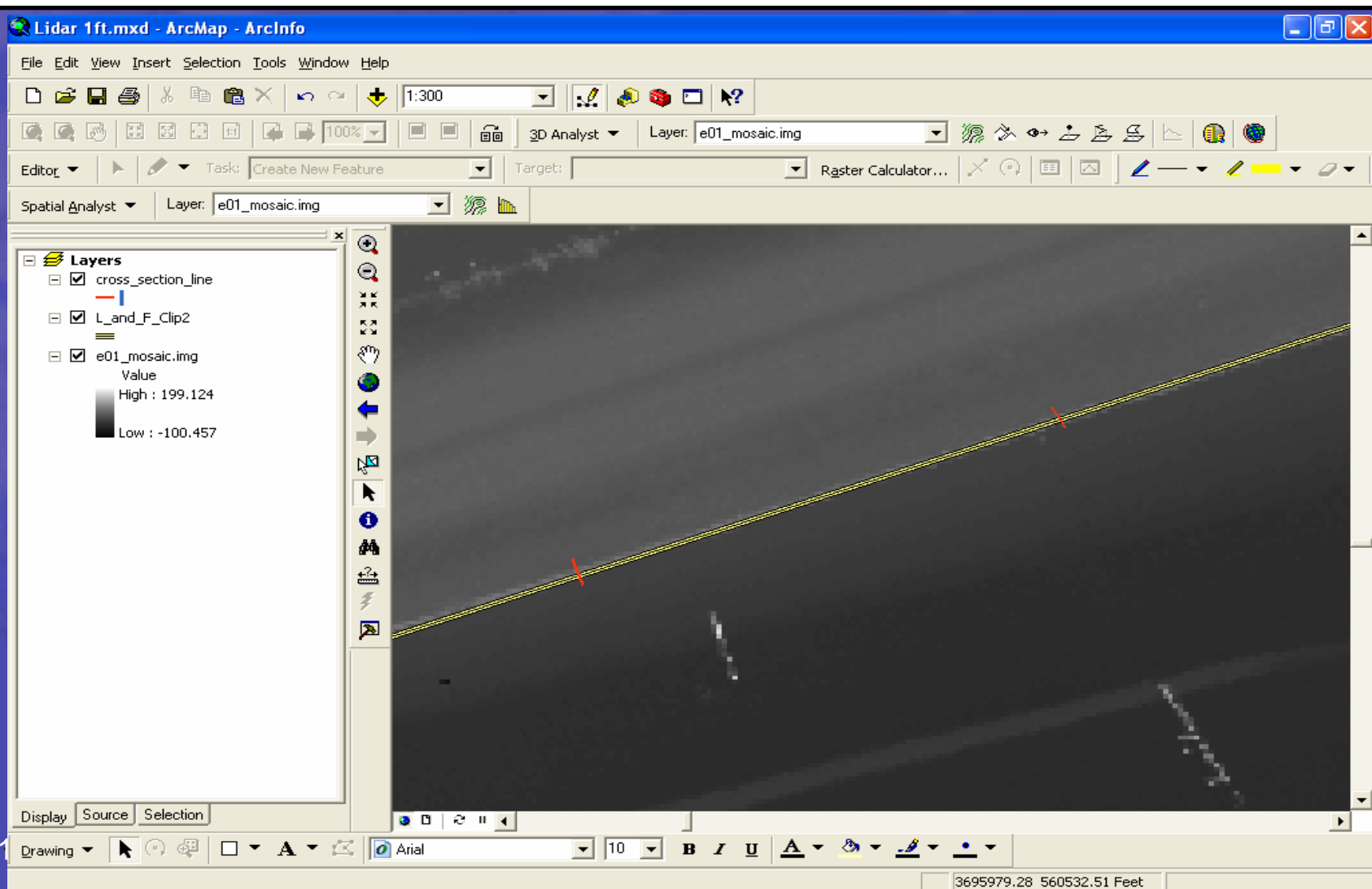
Denise Martin

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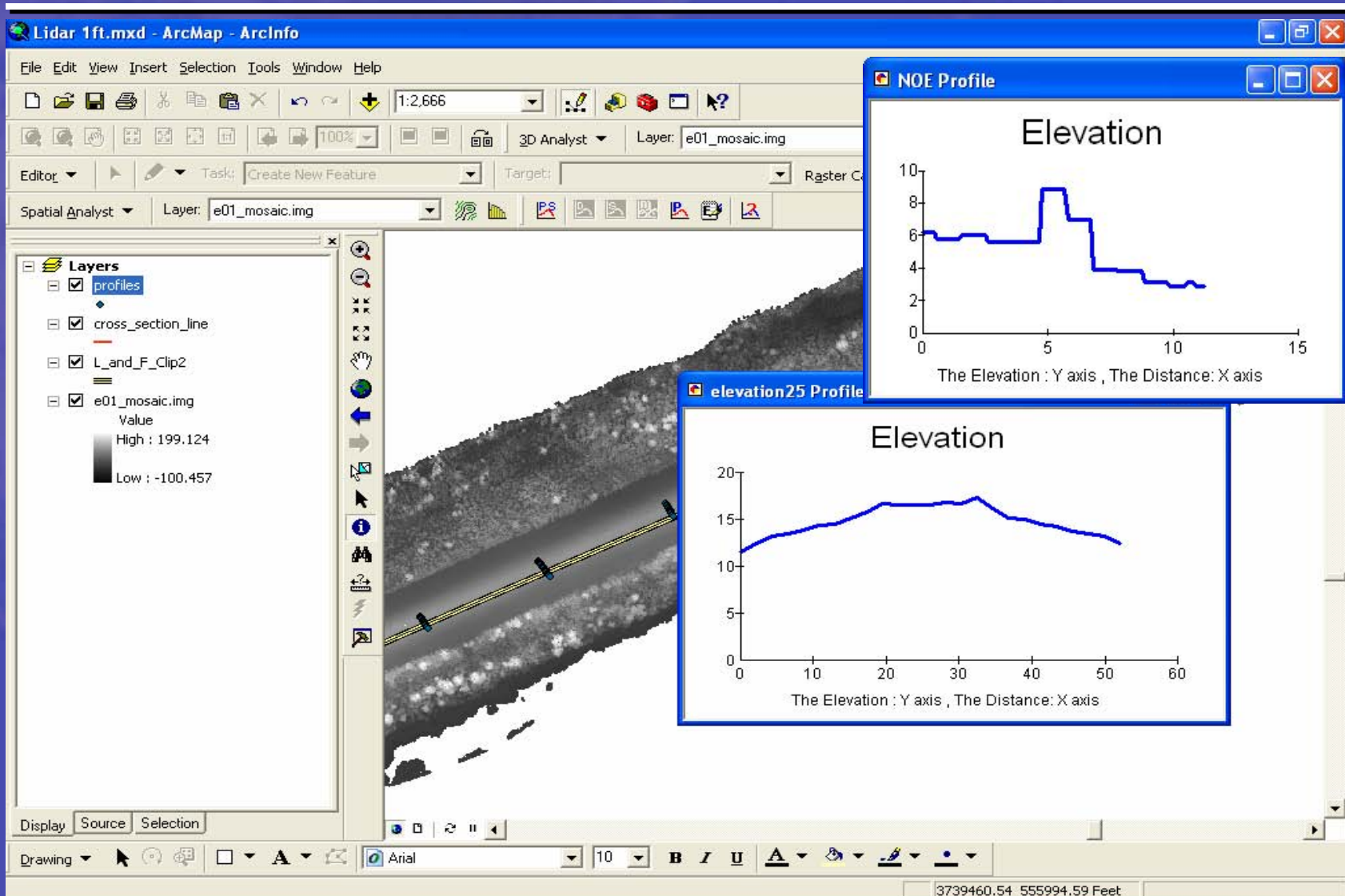
Used ArcGIS to extract top of levee/floodwall elevations for the entire New Orleans area levee system from pre-Katrina DEMs for use in surge modeling and risk assessment



Digitized cross sections every 200 – 250 feet



Extracted elevation values from cross sections using Easy Profiler ArcGIS extension. Plotted graph of the levee profile.



Used ArcGIS statistics function to determine the maximum elevation for each cross section (profile)

The image shows the ArcGIS Summary Statistics dialog box with the following settings:

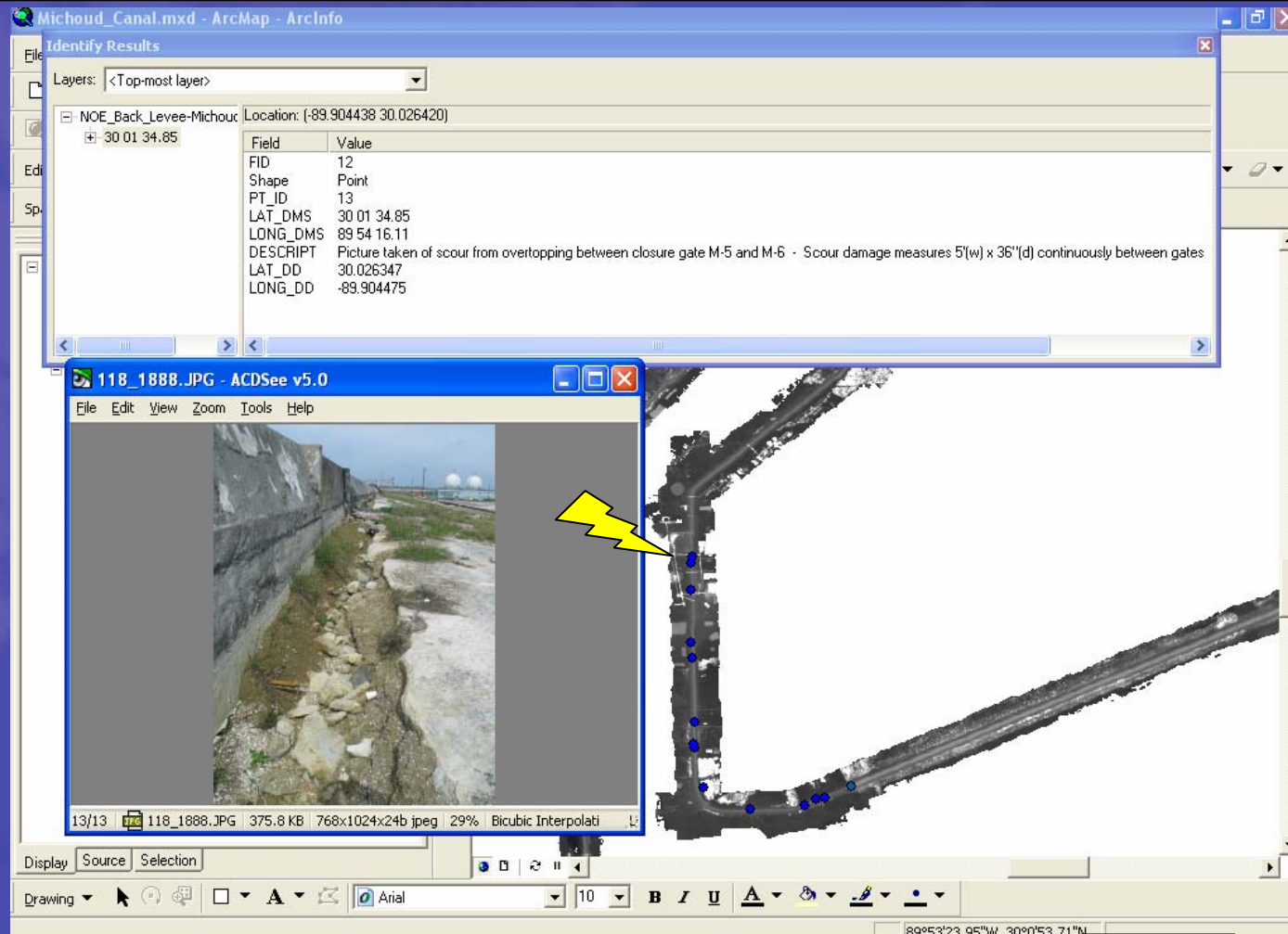
- Input Table: profiles
- Output Table: M:\NOGISGeodatabase\NOE east cross_sections\e01profiles_!
- Statistics Field(s): Zcoor
- Statistic Type: MAX
- Case field (optional): Name

The output table, titled "Attributes of e01profiles_Statistics", displays the maximum elevation for each profile:

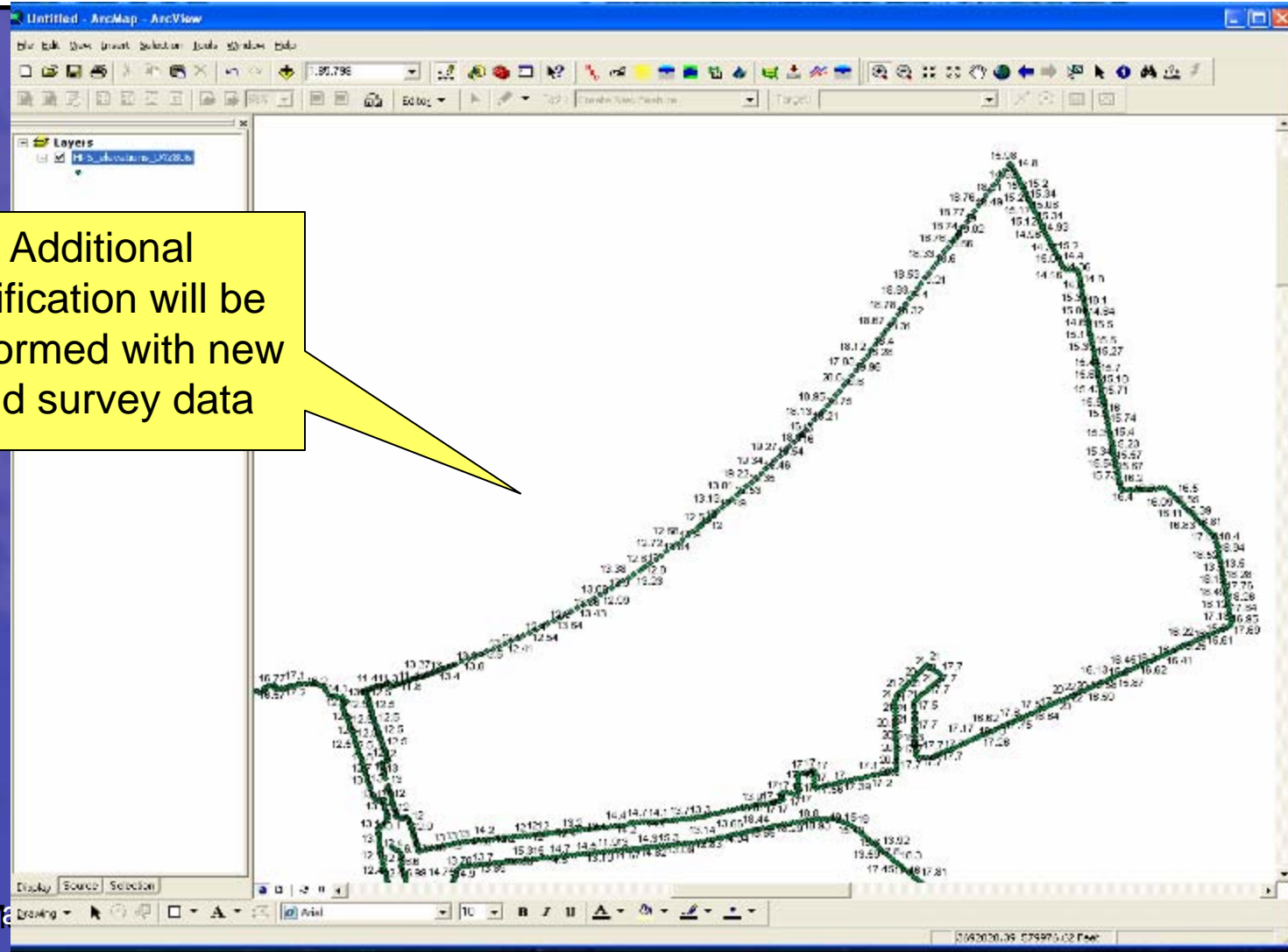
Name	MAX_Zcoor
0	18.26552
1	18.21729
10	18.4877
100	11.76892
101	12.79852
102	12.10626
103	12.70168
104	9.558301
105	12.03939
106	12.03533
107	8.167598
108	11.76514
109	12.10202
11	18.68379
110	11.5827
111	11.03585
112	10.73241
113	11.44371
114	6.14838
115	12.78014

A callout bubble points to the output table with the text: "Compared maximum elevations with known elevations from field survey data and TFG information".

Verification was performed using pictures and notes from site visits, specifically for transition areas, drainage structures, gate closures, pump stations, and wall sections.



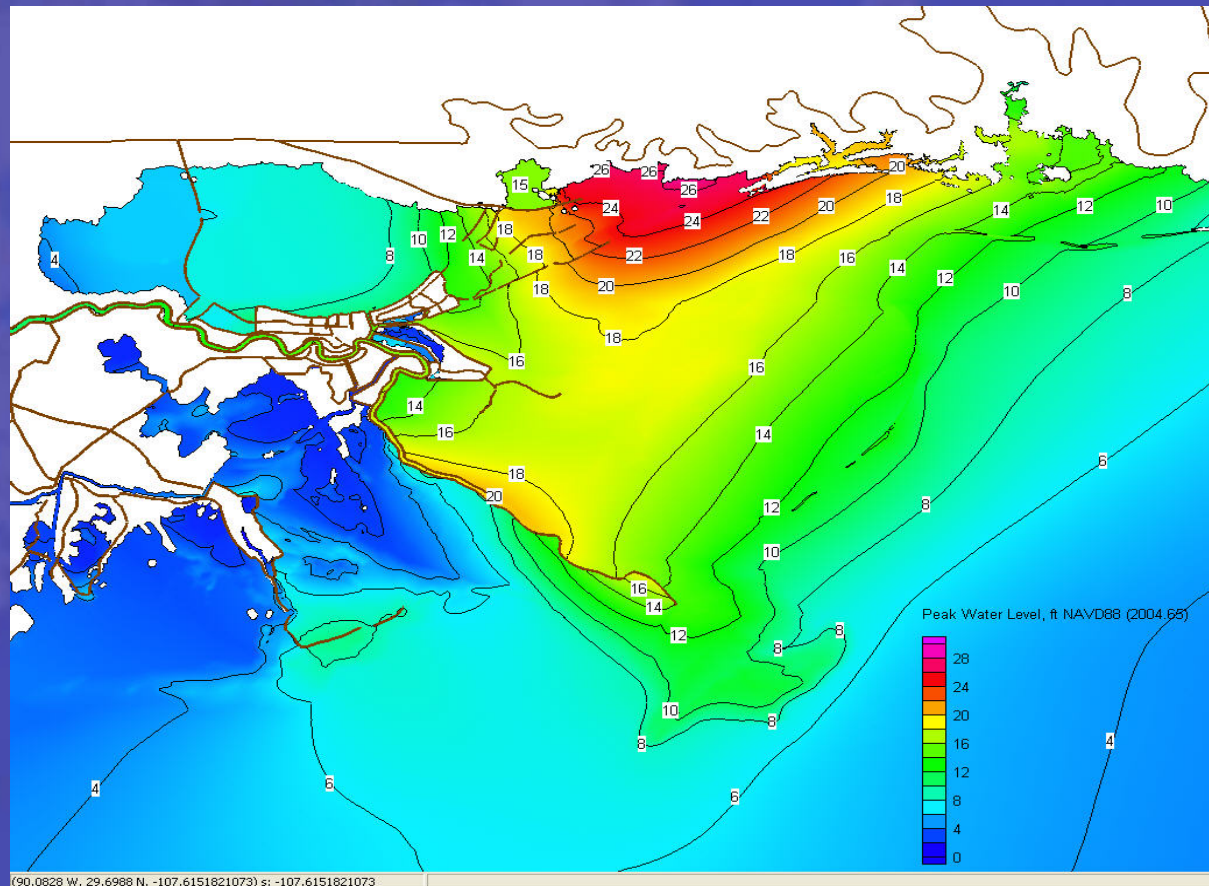
Resulting Top of Levee/Floodwall Elevation layer (preliminary)



Additional verification will be performed with new field survey data

Storm and Surge Modeling

Results of ADCIRC runs are imported to GIS to create contours of peak water levels



15 May 2006

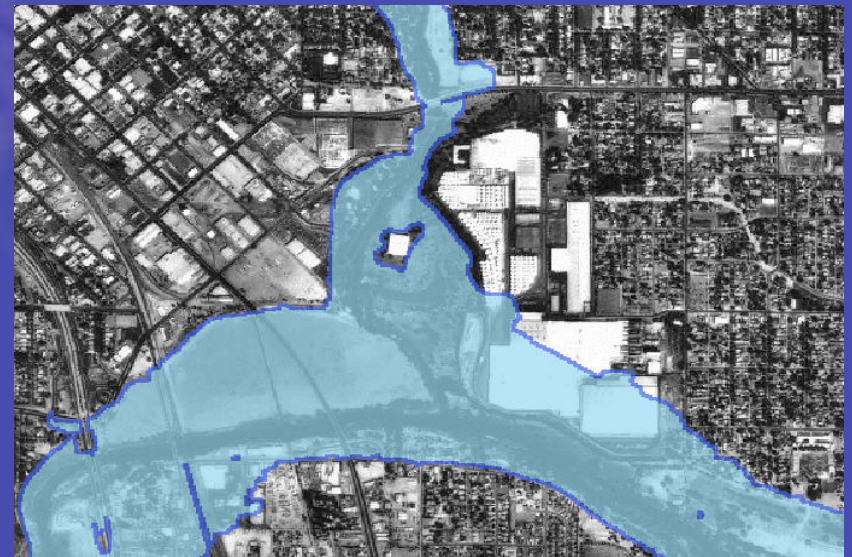
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Interior Drainage

HEC-GeoRAS ArcGIS Extension

- Pre-processor for generating geometric data for import into HEC-RAS
- Post-processor for mapping and displaying results from HEC-RAS simulations



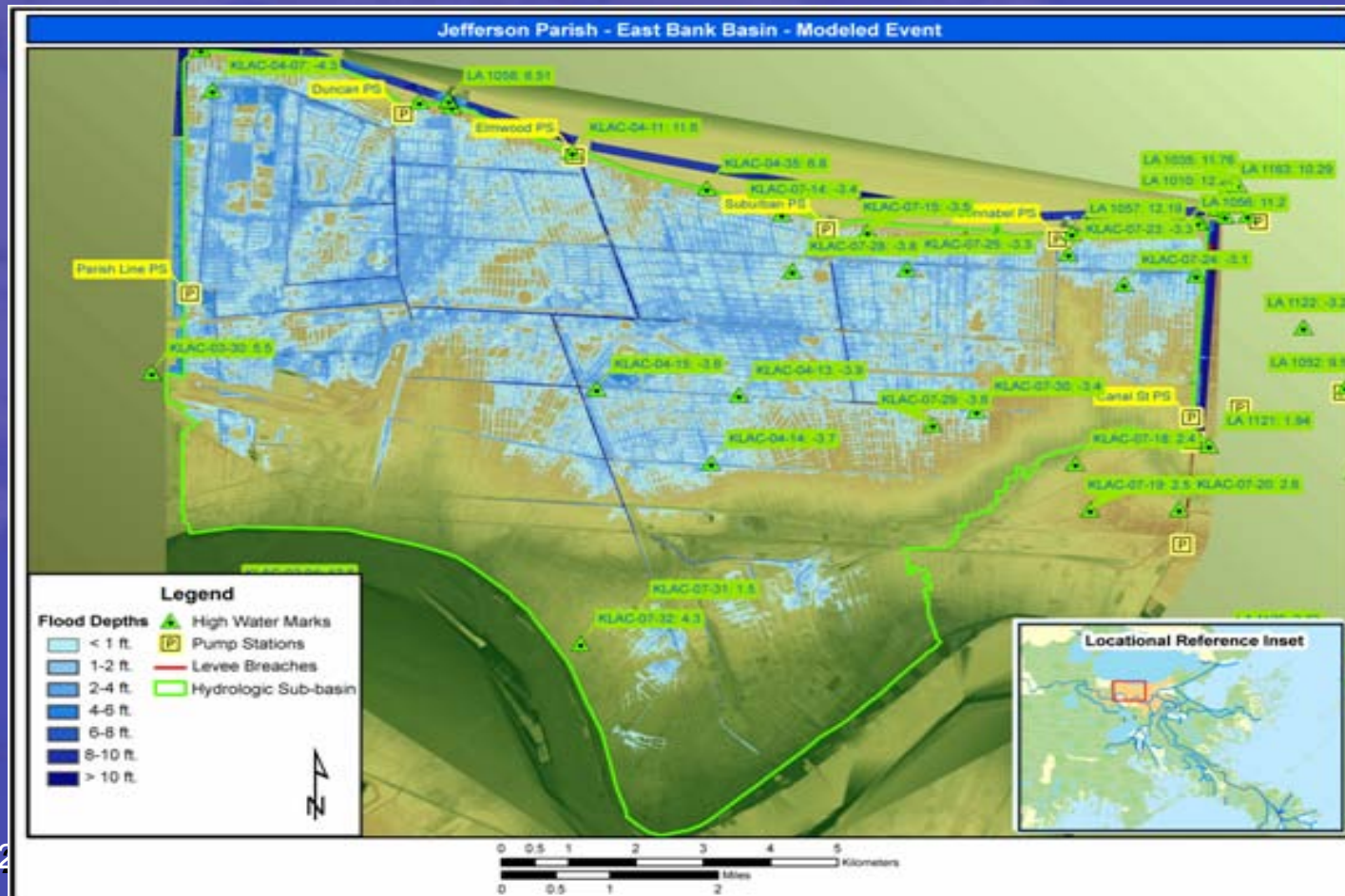
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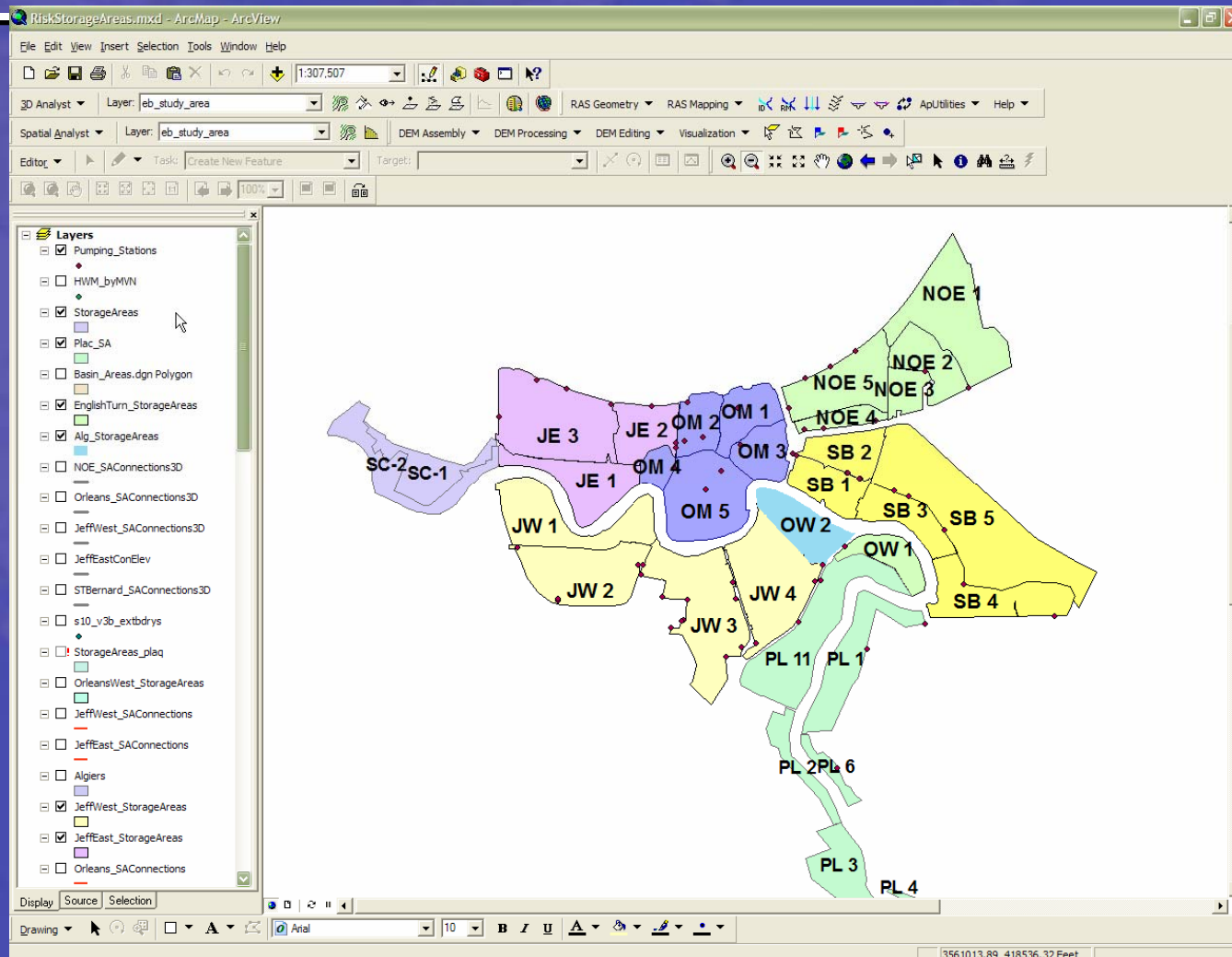
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Floodplain Mapping

- Depths and Floodplain Boundary



ArcGIS Developed Risk Subbasins



15 May 2006

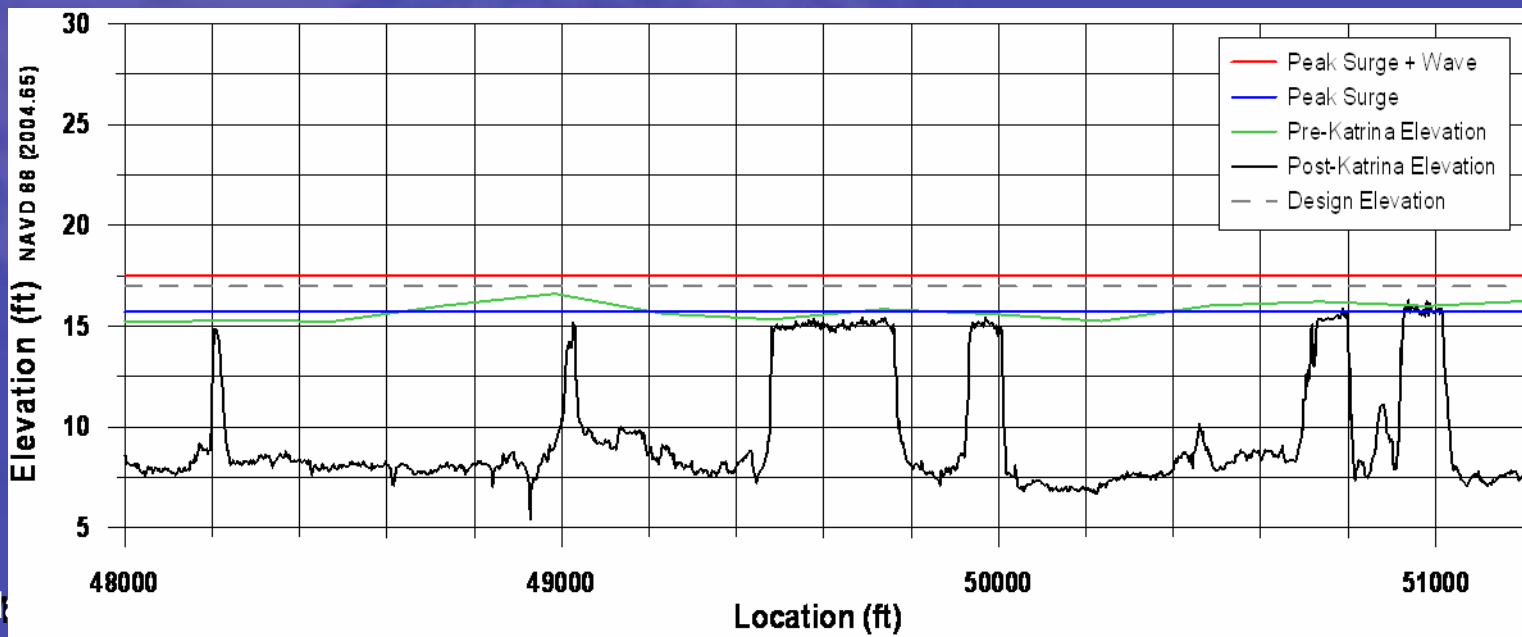
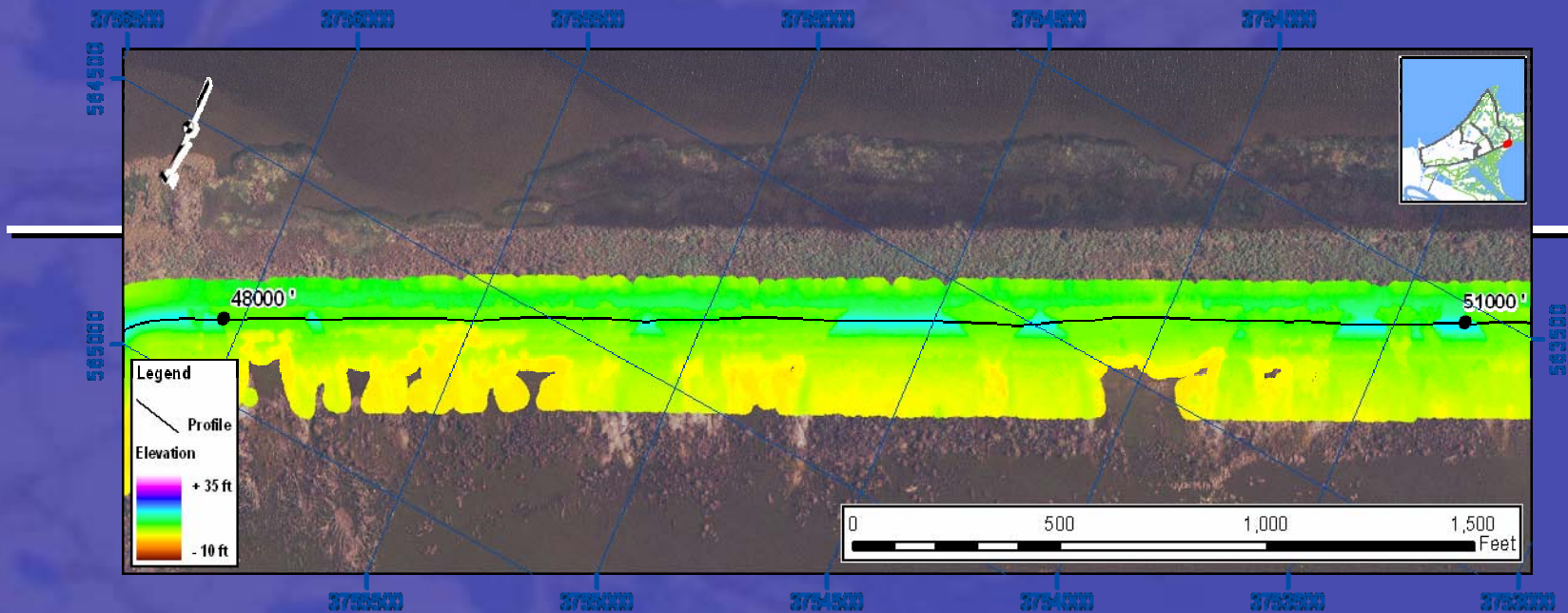
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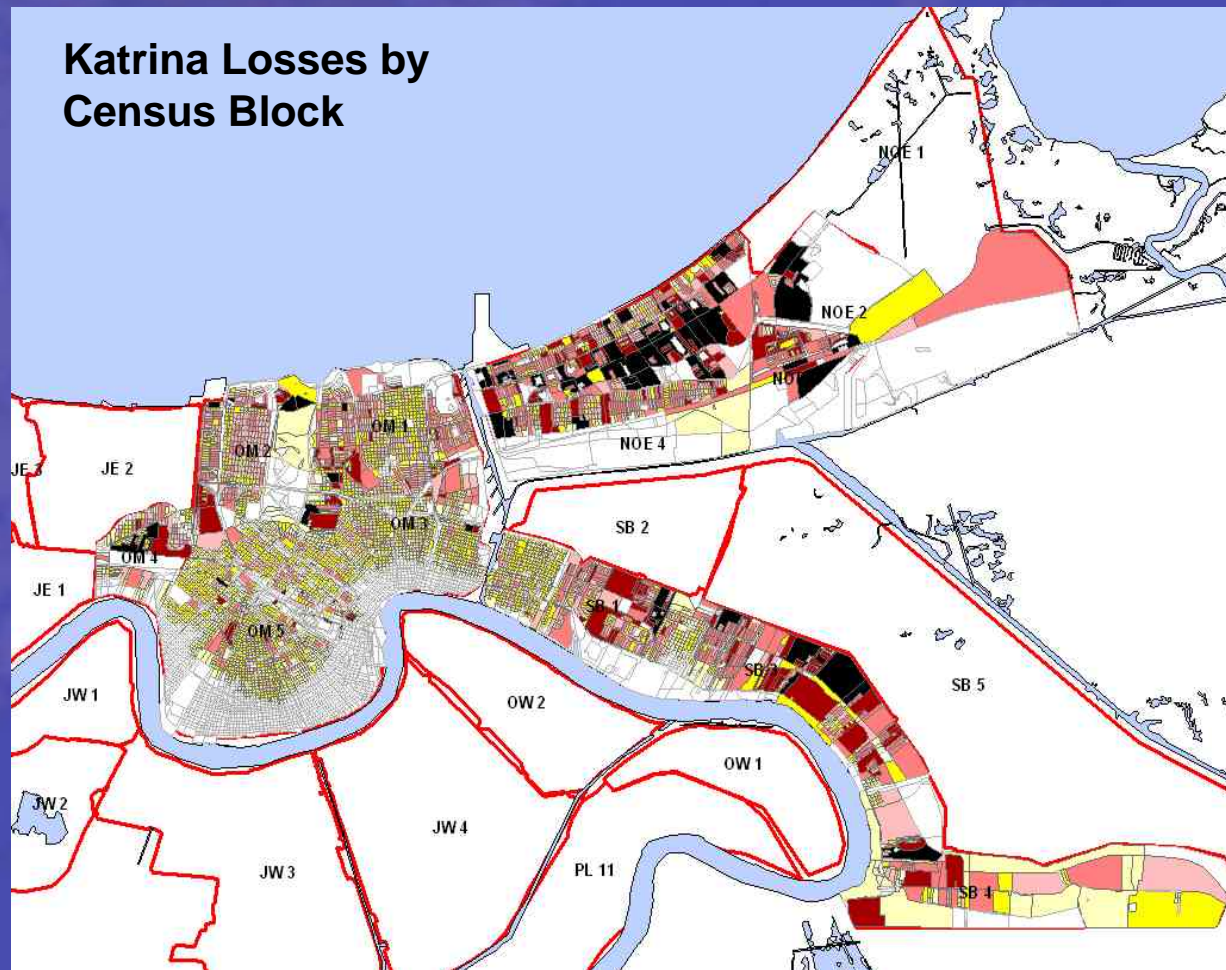
Levee Erosion

GIS was used to evaluate areas of levee erosion.

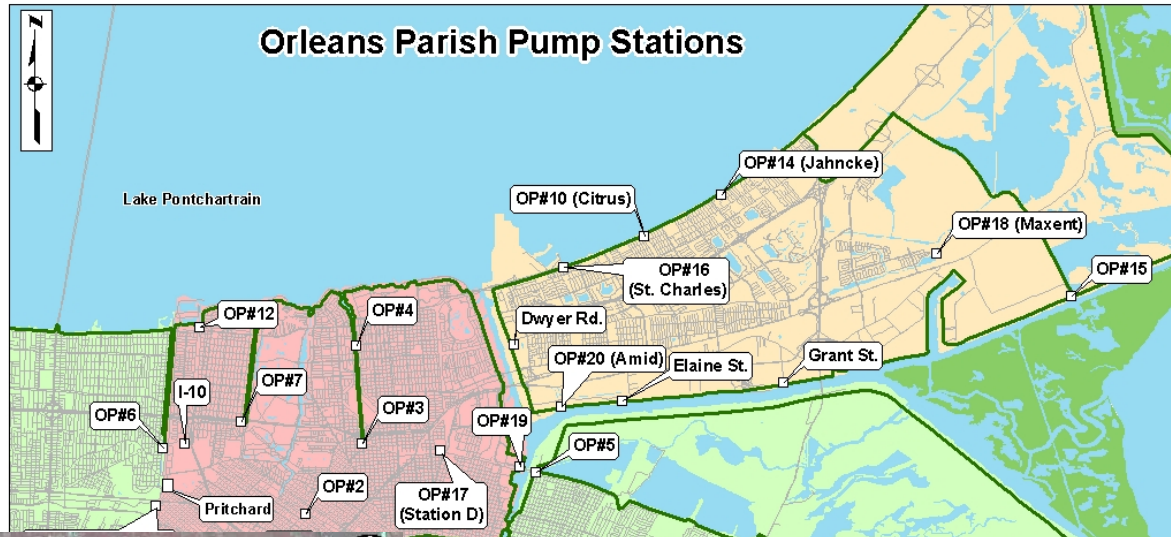




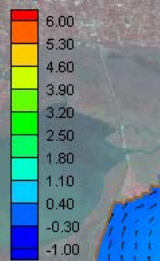
Assessment of losses resulting from hurricane Katrina and estimates of direct economic losses and potential fatalities for risk assessment



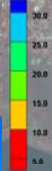
Contaminant concentrations added to sediment by water pumps



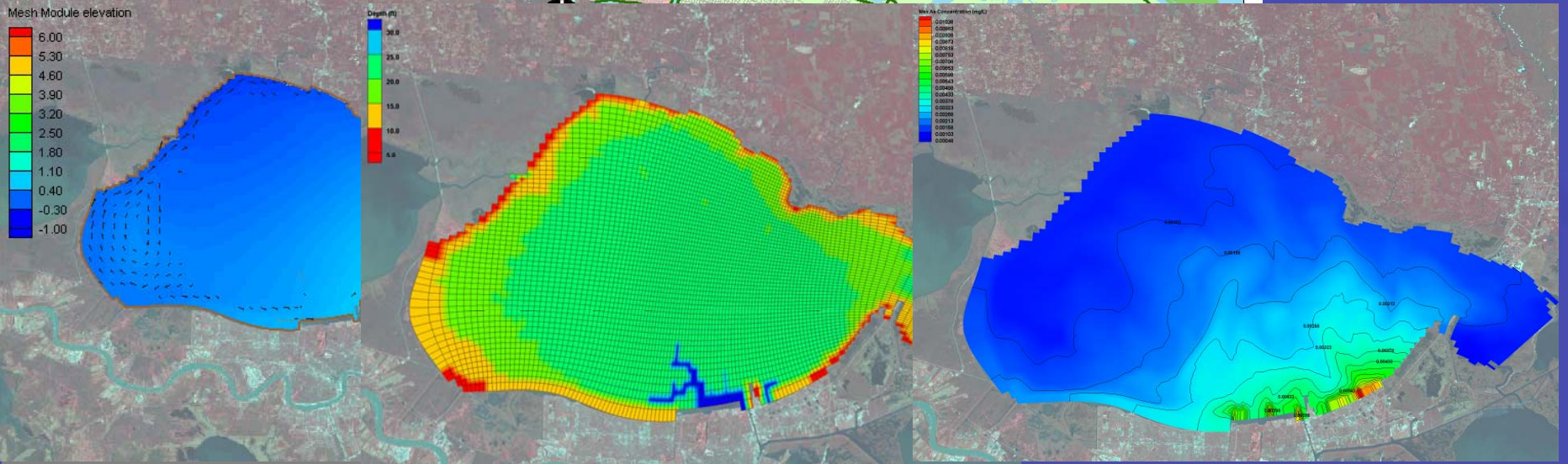
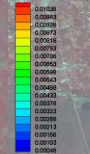
Mesh Module elevation



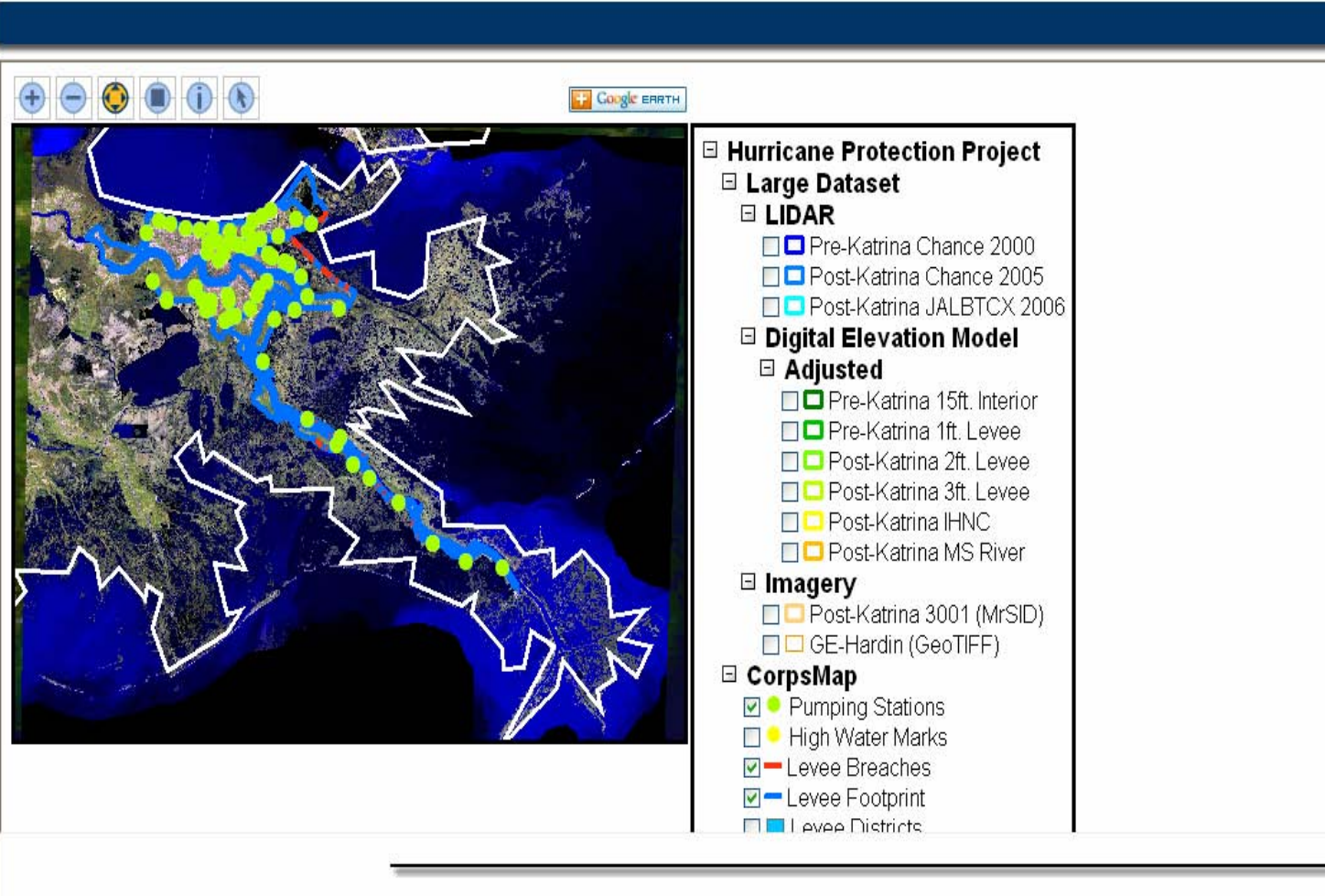
Depth (ft)



Mesh As Concentration (mg/L)



Portal for Viewing/Downloading Datasets



Google EARTH

- Hurricane Protection Project
 - Large Dataset
 - LIDAR
 - Pre-Katrina Chance 2000
 - Post-Katrina Chance 2005
 - Post-Katrina JALBTCX 2006
 - Digital Elevation Model
 - Adjusted
 - Pre-Katrina 15ft. Interior
 - Pre-Katrina 1ft. Levee
 - Post-Katrina 2ft. Levee
 - Post-Katrina 3ft. Levee
 - Post-Katrina IHNC
 - Post-Katrina MS River
 - Imagery
 - Post-Katrina 3001 (MrSID)
 - GE-Hardin (GeoTIFF)
 - CorpsMap
 - Pumping Stations
 - High Water Marks
 - Levee Breaches
 - Levee Footprint
 - Levee Districts

Portal for Viewing/Downloading Datasets

The screenshot shows a web-based GIS application. The main map area displays a satellite view of a coastal region with a river and several yellow circular markers. A legend on the right lists various datasets including Hurricane, Large Data, LIDAR, Digital, Adjusted, Imager, and CorpsMap. An 'Identify Results' window is open, displaying a table of feature data for 'High Water Marks'.

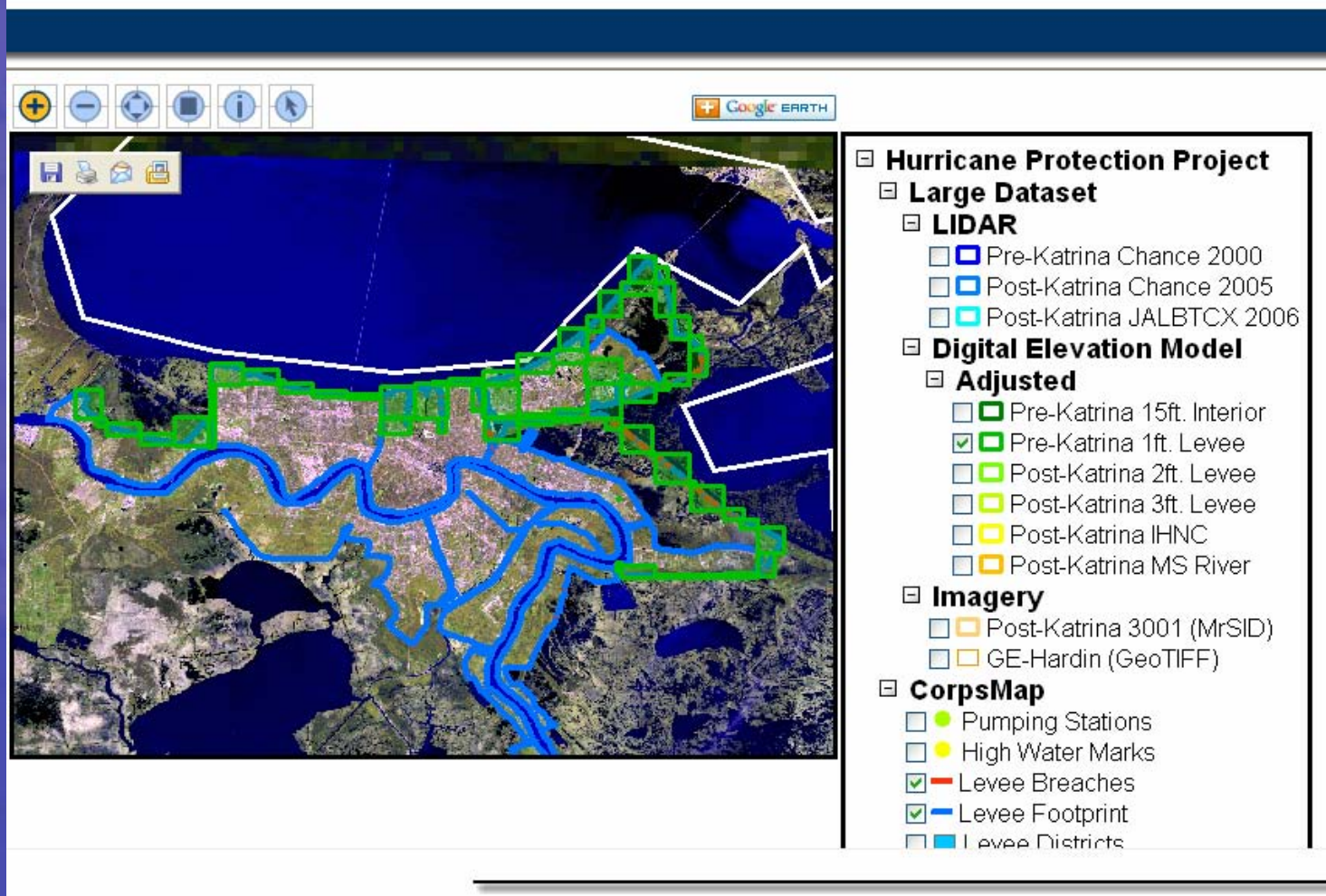
Features	Field	Value
High Water Marks	FID	160
LA 1162	HWM_ID	LA 1162
	RELIABILIT	poor
	ELEV_NAVD8	14.13
	ELEV_NAVD9	14.13
	SURVEY_LAT	30.0332
	SURVEY_LON	-90.0521
	REMARKS	
	DESCRIPTIO	Lakefront levee debris; between UNO and Naval Reserve. 1.9 ft below top of levee.
	SIDE_OF_LE	Unprotected
	AGENCY	ERDC
	LOCATION	
	COLLECTORS	Maynard; Garcia
	COLLECTOR	

15 May 2006

Denise Martin

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Portal for Viewing/Downloading Datasets



The screenshot displays a web-based GIS interface. At the top, there are navigation icons (home, back, forward, search, etc.) and a "Google EARTH" logo. The main map area shows a satellite view of a coastal region with several overlays: a blue outline representing the levee footprint, green outlines representing levees, and orange outlines representing the Mississippi River. A legend on the right side of the map provides a detailed list of datasets and their corresponding colors and symbols.

- Hurricane Protection Project**
 - Large Dataset**
 - LIDAR**
 - Pre-Katrina Chance 2000
 - Post-Katrina Chance 2005
 - Post-Katrina JALBTCX 2006
 - Digital Elevation Model**
 - Adjusted**
 - Pre-Katrina 15ft. Interior
 - Pre-Katrina 1ft. Levee
 - Post-Katrina 2ft. Levee
 - Post-Katrina 3ft. Levee
 - Post-Katrina IHNC
 - Post-Katrina MS River
 - Imagery**
 - Post-Katrina 3001 (MrSID)
 - GE-Hardin (GeoTIFF)
 - CorpsMap**
 - Pumping Stations
 - High Water Marks
 - Levee Breaches
 - Levee Footprint
 - Levee Districts

Portal for Viewing/Downloading Datasets

Google EARTH

Select a Layer
Pre-Katrina 1ft. Levee

Download 12 Pre-Katrina 1ft. Levee (Adjusted) files selected

- ☐ Hurricane Protection Project
 - ☐ Large Dataset
 - ☐ LIDAR
 - ☐ Pre-Katrina Chance 2000
 - ☐ Post-Katrina Chance 2005
 - ☐ Post-Katrina JALBTCX 2006
 - ☐ Digital Elevation Model
 - ☐ Adjusted
 - ☐ Pre-Katrina 15ft. Interior
 - ☑ Pre-Katrina 1ft. Levee
 - ☐ Post-Katrina 2ft. Levee
 - ☐ Post-Katrina 3ft. Levee
 - ☐ Post-Katrina IHNC
 - ☐ Post-Katrina MS River
 - ☐ Imagery
 - ☐ Post-Katrina 3001 (MrSID)
 - ☐ GE-Hardin (GeoTIFF)
 - ☐ CorpsMap
 - ☐ Pumping Stations
 - ☐ High Water Marks
 - ☑ Levee Breaches
 - ☑ Levee Footprint
 - ☐ Levee Districts

Portal for Viewing/Downloading Datasets

← Back

Pre-Katrina 1ft. Levee (Adjusted)

Publisher:
USACE ERDC ITL
2/21/2006 12:00:00 AM

Data Type:
Digital Elevation Model

Upload Date:
2/21/2006 5:46:40 PM

Source:
John E. Chance LiDAR survey - 2000

Processing Information:
Original data was obtained and adjusted to older (2000) published NAVD88 vertical elevation datum values. The elevations in this dataset were adjusted to the NAVD88 (2004.65) vertical datum in Feb-2006. Control points were selected for those National Geodetic Survey (NGS) control locations where 2004.65 elevations were known. The "new" values and the "old" values were used to create a deviation surface for the entire spatial extents of the data using an IDW interpolation scheme. Elevations were then adjusted to the 2004.65 vertical datum using a simple

Selected Files

- e01_29090h2d1
- e01_29090h1d4
- e01_30090a1b3
- e01_30090a2a1
- e01_30090a1a3
- e01_30090a1a4
- s01_29090h2d1_hillshaded
- s01_29090h1d4_hillshaded
- s01_30090a1a3_hillshaded
- s01_30090a1b3_hillshaded
- s01_30090a1a4_hillshaded
- s01_30090a2a1_hillshaded

Select a Format

ERDAS IMAGINE

Selection Summary

12 files selected
Download size as selected: 216.23 MB

Questions

