US Army Corps of Engineers’
National Coastal Mapping Program

Joint Airborne Lidar Bathymetry
Technical Center of Expertise

Jennifer Wozencraft
Agenda

1. Program & Organization
3. Data & Products
4. Summary
Corps of Engineer’s National Coastal Mapping Program

- Provide REGIONAL coastal mapping products on a recurring schedule
- Include both Physical & Environmental measurements
- Partner with others (Fed, State, Academia, Industry, IOOS)
# PROGRAM MANAGEMENT PLAN

for the

US ARMY CORPS OF ENGINEERS
REGIONAL COASTAL MAPPING PROGRAM

Joint Airborne Lidar Bathymetry Technical Center of Expertise

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Coastal Mapping
PDT

JALBTCX PDT Aug 2004 version 2.doc
Board of Directors

Greg Baer - SAD
Charley Chesnutt - IWR
Larry Cocchieri - NAD
George Domurat - SPD
Patti Etzel – NWD
Wynne Fuller - SAM
Barry Holliday - HQUSACE
John Kangas - LRD
MK Miles - HQUSACE
Tom Richardson - ERDC
Joint Airborne Lidar Bathymetry Technical Center of Expertise

Leveraging Federal, State, Academia, and Industry
JALBTCX Accomplishments

Sensor Capabilities
- Spectral Imagery
- Photogrammetry
- Topography
- Bathymetry

Measurements/Sec

$\$/km²

- '96 SHOALS
  - $600
- '99 SHOALS
  - $250
- '03 CHARTS
  - $1,000
- '05 CHARTS
  - $3,000
Agenda

1. Program & Organization
3. Data & Products
4. Summary
2004 Statistics
~ 85 days
~ 1,800 km of shoreline
~ 2,200 km²
~ 1,000,000,000 data points
~ 238,000 topo images
~ 1.1 Terabytes!!
Post-Hurricanes

Post-storms only
- ~ 35 days (including down days)
- ~ 680 miles of shoreline
- ~ 1,300 km²
- ~ 15 Federal Shore Protection Projects
- Data for FSPs delivered prior to leaving field!!
- 680 Gigabytes!!

- Total FY2004 USACE 1.7 Terabytes
Post-Hurricane Reconstruction

16 federal projects
$200,000,000 reconstruction
FY 2005 Surveys

~1,300 miles
FY 2006 & 2007
Washington, Oregon, too in 07
1. Program & Organization
3. Data & Products
4. Summary
USACE Regional Coastal Mapping

Hydro – waterline to 1,000 m @ 4 m spacing
Topo – waterline to 500 m @ 1 m spacing
Imagery @ 20 cm resolution
Hyperspectral - TBD
Data Processing & Products

Raw Data

- LIDAR and Image Data
- GPS Data
  - GPS Data
  - GPS Data
- Backup

Products

- Meta-Data
- ESRI shp 1m Grid Surface
- XYZ Data
- Mosaic Images

Data Processing:
- Data Download
- Post-Process KGPS
- Extract Images
- Register Images
- Lidar Auto-process
- Spatial Editing
- Create DEM
- Ortho-rectify

Surface Products:
- ESRI shp
- 1m Grid Surface
- XYZ Data
- Mosaic Images
Elevation Data Characteristics

- Point data X,Y,Z ascii files
- Land @ 1m x 1m
- Hydro @ 4m x 4m
- ~250 Meg / mile
Image Characteristics

- 1 frame / sec
- 20 cm pixel resolution
- ~ 750 frames / mile
- ~ 750 Meg / mile
- ~ 100 Meg / mile Mr. Sid
- Orthorectify images w/ topo lidar
Image Characteristics

- 1 frame / sec
- 20 cm pixel resolution
- ~ 750 frames / mile
- ~ 750 Meg / mile
- ~ 100 Meg / mile Mr. Sid
- Orthorectify images w/ topo lidar
- +/- 5m
Added Hyperspectral Imager for Environmental Characterization

Hyperspectral image, true color

Water and Wetland Image Map

Classification Key
- Water
- Dense Floating Vascular
- Dense SAV, Emergent
- Apparent Bottom
- Dense SAV
- Emergent Grass (Wild Rice, etc.)
- Forest
- Grasses
- Undetermined Floating Grasses

Hyperspectral Imager
Topo / Hydro Lidar
RGB Camera
Advanced Products & Information

Hyperspectral & Lidar
  SAV
  Wetlands
  Land use
  Bottom type
  Bottom reflectance

Lidar & Imagery
  Economic inputs
  Forestry management
  Shoreline position
  Condition Index Reports

Others in development...
Hill Shade + Buildings

North Carolina

VLS Lidar Analyst® Produced Images

In the image, there is a map of an area with various geographical features. The map is labeled with North Carolina and includes VLS Lidar Analyst® Produced Images. The table below the map contains data and parameters, suggesting it is part of a scientific or survey report. The data seems to include measurements or calculations related to the area, possibly for environmental or geographic analysis.
Condition Index Information
JALBTCX R&D Initiatives

Visiting Professor & Post Doc

NOPP Project & NOS Project

National Coastal & Ocean Mapping Strategy

1 MS & 2 PhD Students

Automated Feature Extraction

Annual Technical Workshop
eCoastal GIS

Data Management

Dredging Management

Environmental Impact Evaluation

Sediment Budget Analysis

eCoastal Tools (Arc 9.x)
1. Program & Organization
3. Data & Products
4. Summary
For more information, please contact:

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