Theme 1: Current State of the Art – Data Collection, Storage & Use

Private-Sector Perspective on Electronic Data Collection for Oil Spill Response

Environmental Response Data Collection Standard Workshop

Coastal Response Research Center

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Background

- Privately-held environmental consulting firm
- Scientific & technical support to RPs (oil & gas, marine insurers)
- Environmental response to oil spills
  - ✓ ICS Environmental Unit
  - ✓ Natural Resource Damage Assessment
- Work closely & cooperatively with FOSCs (USCG/USEPA), NOAA, SOSCs & other trustee agencies & stakeholders

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Primary Usage - SCAT

- Objective of SCAT:
  - ✓ Obtain, digest & present field data on oil location, extent, severity, condition, etc. to support operational decision-making
- Current methods
- Limitations imposed
  - ✓ Incomplete, incorrect, illegible, inconsistent field forms
  - ✓ Delay in getting SCAT data back to Command Post for processing
  - ✓ Little opportunity to QA forms or debrief field teams
  - ✓ Must transcribe forms into electronic database
- Often requires “night shift”

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Core System Functional Requirements

- System of hardware, software & procedures to:
  - ✓ Enable digital input of SCAT data in the field (electronic forms)
  - ✓ Force correct, complete, consistent data entry where standardization is appropriate
  - ✓ Automate integration of spatial data (onboard or linked GPS)
  - ✓ Append field data from multiple units into single database

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Supplemental Functionality

- Helpful, but not essential:
  - ✓ Wireless data transmission back to Command Post
  - ✓ Moving map display
  - ✓ Access to "job aides" (e.g., % cover chart, abbreviations)
  - ✓ Integrated photo geo-referencing
  - ✓ Field customizable – generate new forms/databases *ad hoc* in command post environment

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Key Ingredients for Success

- To be useful (and be used), system needs to be:
  - ✓ Simple to use for non-gadgeteers
  - ✓ Familiar, intuitive input format (menu driven)
  - ✓ Easy to install & configure
  - ✓ Well-documented
  - ✓ Rugged components; rechargeable or user-swappable batteries
  - ✓ Able to generate output that looks “familiar” (e.g., SCAT forms)
  - ✓ Dedicated command post support staff to download/manage data, maintain equipment, etc.
  - ✓ Field users must be adequately trained

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Geo-Referenced Photo Documentation

- GPS-Photo Link software
- Allows user to:
  - ✓ Imprint (“watermark”) coordinates on photo
  - ✓ Plot photo location onto base maps
  - ✓ Import photos into GIS or Google Earth
- Works with digital cameras with time stamp & GPS units with downloadable track log
- No wires connecting camera & GPS in the field

GeoSpatial EXPERTS

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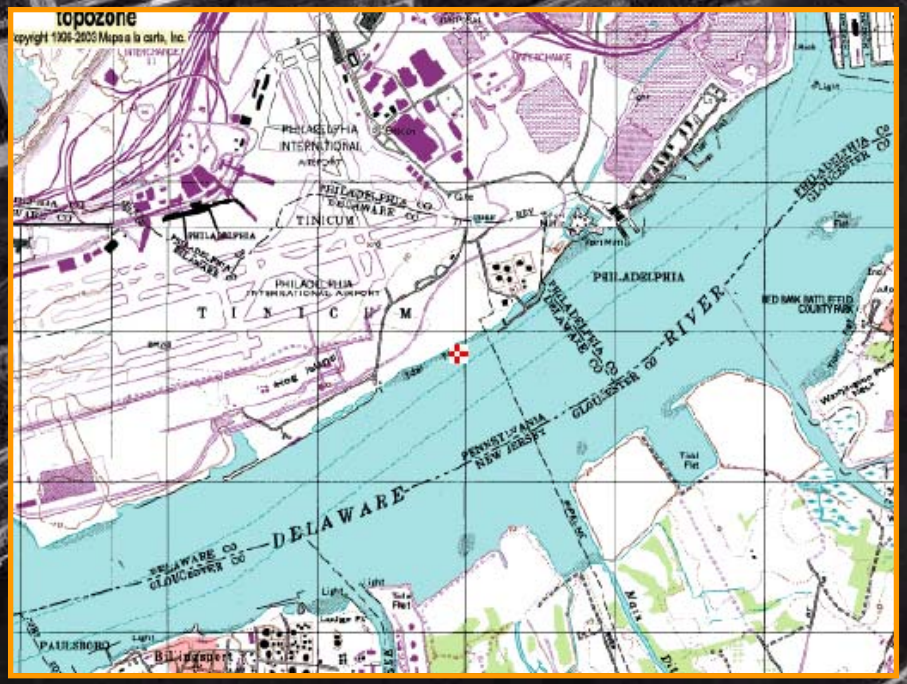
PA-4G Heavily Oiled Riprap
T/V Athos I Oil Spill
USGS
N 39° 52.072' W 075° 13.362' -4 ft NAD 83
01/03/2005 1:49:52 PM

PA-4G Heavily Oiled Riprap

T/V Athos I Oil Spill



N 39° 52.072' W 075° 13.362' -4 ft NAD 83

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ENTRIX Prototype PDA for SCAT

- HP iPAQ Pocket PC
- Ruggedized, all-weather waterproof case
- Bluetooth wireless or cradle GPS & datalogger
- Cellular modem email and WAN connectivity

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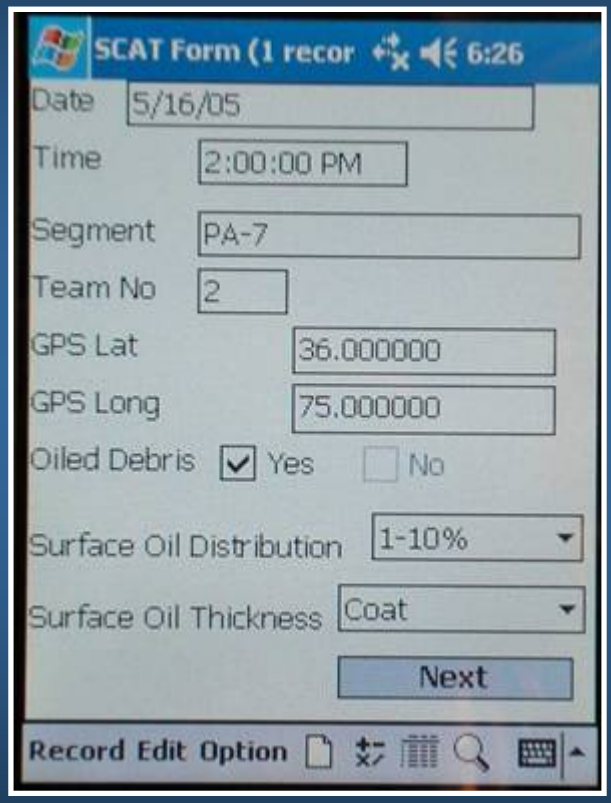
GPS Connectivity

Customizable Electronic Forms

- Windows operating system
  - ✓ Customizable MS Access compatible database
  - ✓ Drop down text boxes
  - ✓ Integrated navigation link
    - GPS position fixing & moving map



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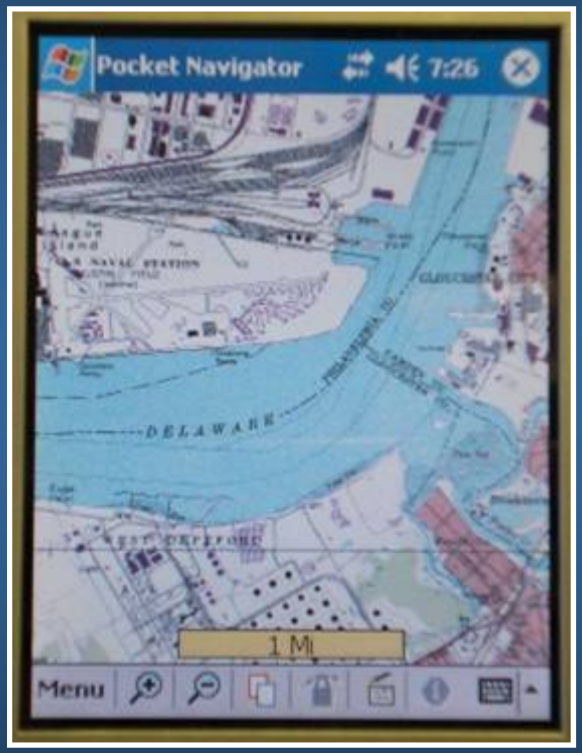
Moving Map Functionality

Aerial Photo

NOAA Chart



USGS Topo

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