Oil & Hazardous Substance Spill Mitigation & Response:
A Key Element of Environmental Planning

Southeastern European Defense Ministerial (SEDM)
Follow-up Environmental Conference
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Contingency Plan Considerations

- Safety of Life
- Sensitive Areas
- High-Risk Areas
- Economic Interests

Available Guidance

- International Guidelines
- Existing Response Organizations

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Elements of an Effective Oil Spill Prevention and Response Capability

US	IMO	Tiered Response
National Contingency Plan	OPRC International/Regional	Tier III
Regional	National	Tier II
Local Facility & Vessel	Vessel (SOPEP)	Tier I

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Basic Elements

- Legislation
- Responsibilities
- Priorities
- Organization
- Ownership

Legislation

- Designate Lead Authority
- Designate Responsibilities
- National
- Local

Responsibilities

- Responders
- Spillers
- Reporting
- Alerting
- Penalties
- Claims

Priorities

- Sensitive Regions
- Wildlife
- Socio-Economic
- Maps & Indicies
- Agreement Before an Event

Organization

- Resources
- Specialized Skills
- Communications
- Strategies
- Methods of Defense
- Public Information

Ownership

- Ownership at Appropriate Level
- Training
- Exercises
- Updates

U.S. Response Structure

- National Contingency Plan (NCP)
- Regional Contingency Plan (RCP)
- Local Contingency Plan
  - Facility Response Plan (FRP)
  - Vessel Response Plan (VRP)

National Contingency Plan (NCP)

- "Blueprint" for the Country
- Roles and Responsibilities
- National Policy Guidance
- Tier III Response

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Regional Contingency Plan (RCP)

- State Participation
- Defines Coastal Zone and Inland Zone
- Regional Policy Guidance
- Sensitive Areas within Region
- Strategies and Priorities
- Tier II Response

Local Response Plans
(Facility and Vessel)

- Identifies Risks
- Identifies Assets
- Describes Response Organization
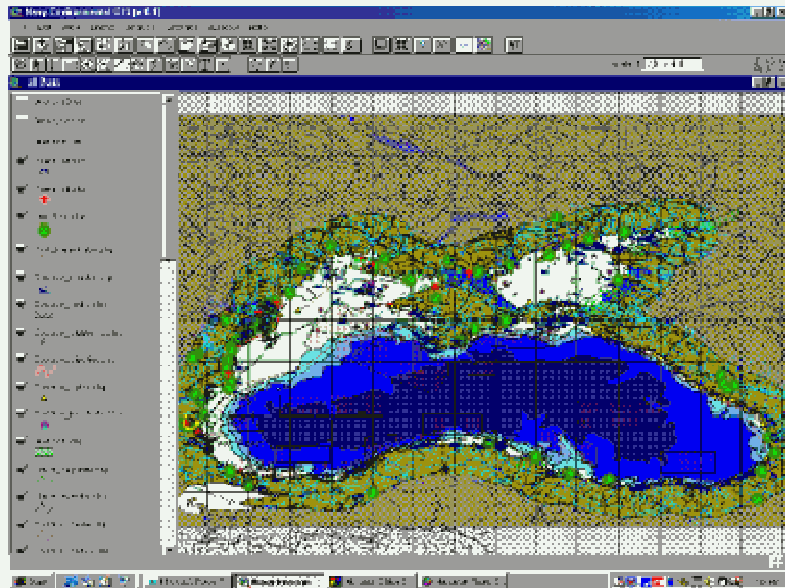- Guidance for Responders
- Tier I Response

What is GIS Technology

– Geographic Information System (GIS)

– What is GIS?
  • Computer tool for mapping events in spatial or temporal realm

– Benefits of GIS
  • Integrates different data types
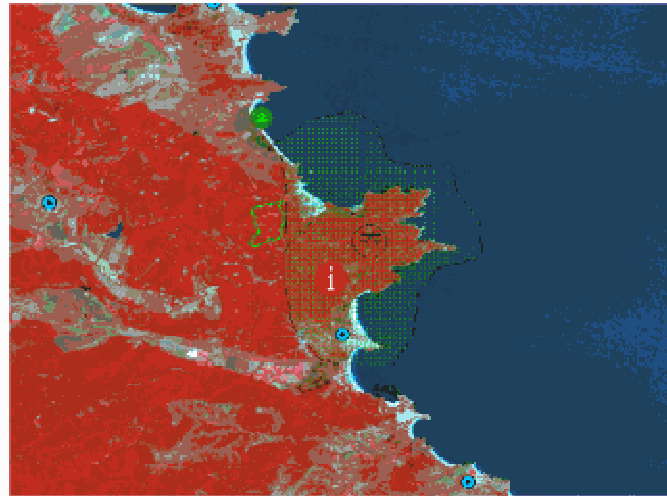 • Performs queries and analysis

Sample GIS Map of the Black Sea

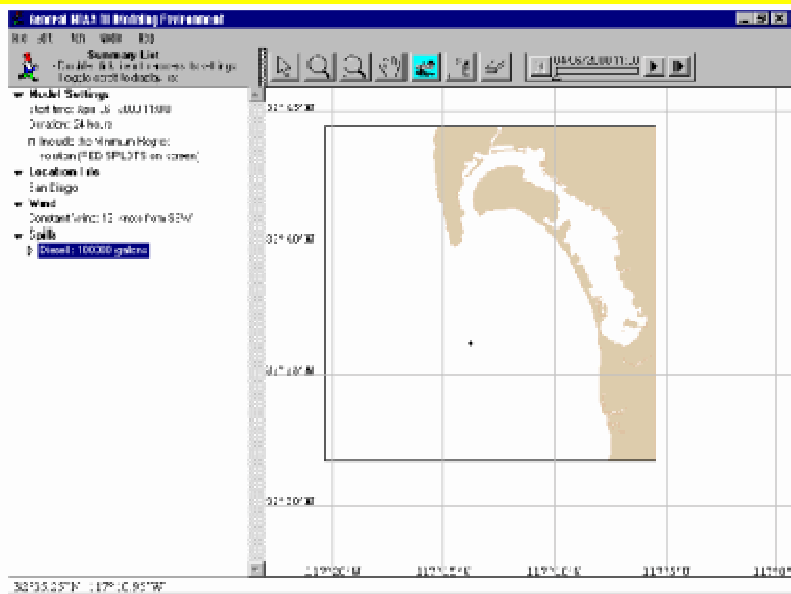April 2000   SEDM Follow-up Environmental Conference

Data Layers can be Combined with Satellite Photos
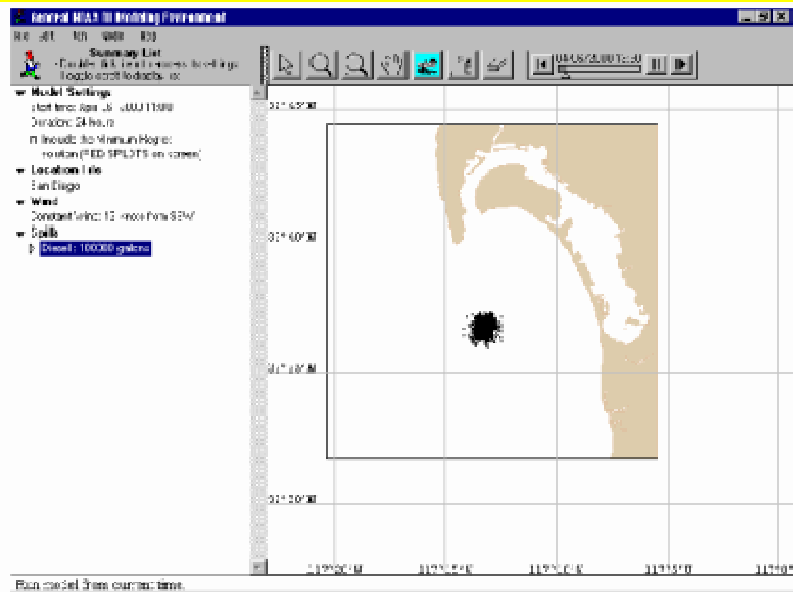

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Spill Model Predictions

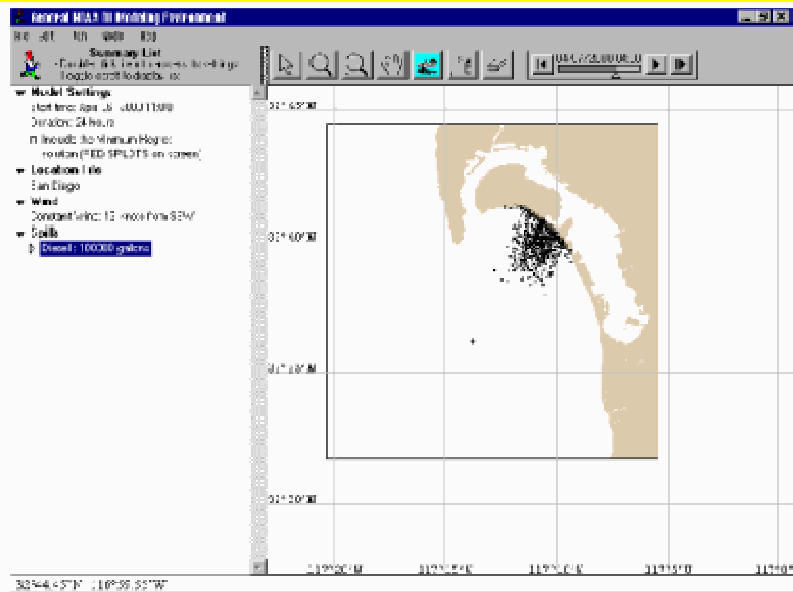April 2000   SEDM Follow-up Environmental Conference
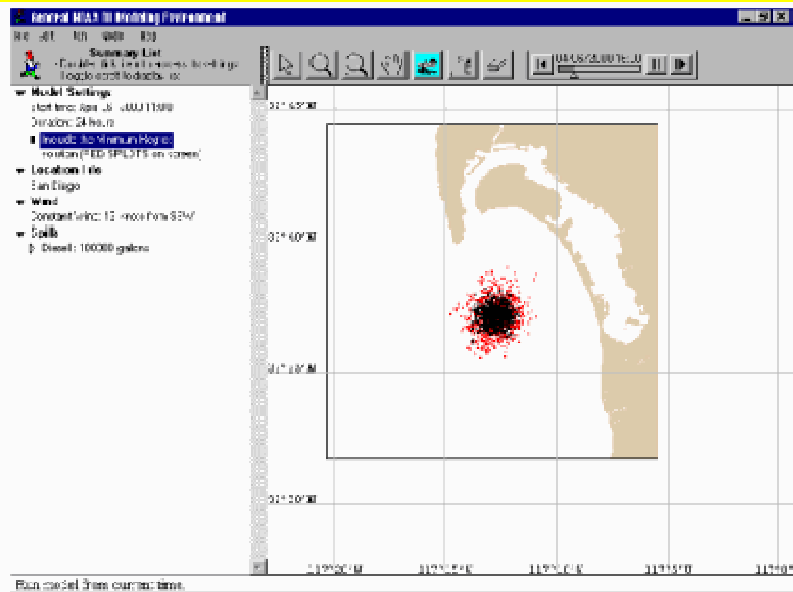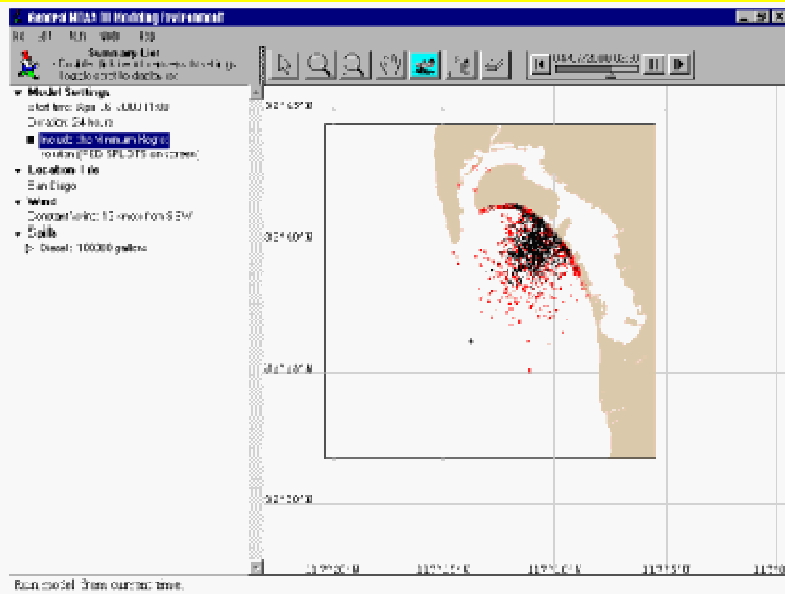
Spill Model Predictions, Continued

Spill Model Predictions, Continued

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Spill Model Predictions, Continued

Spill Model Predictions, Continued

Computer Aided Dispatch E-911
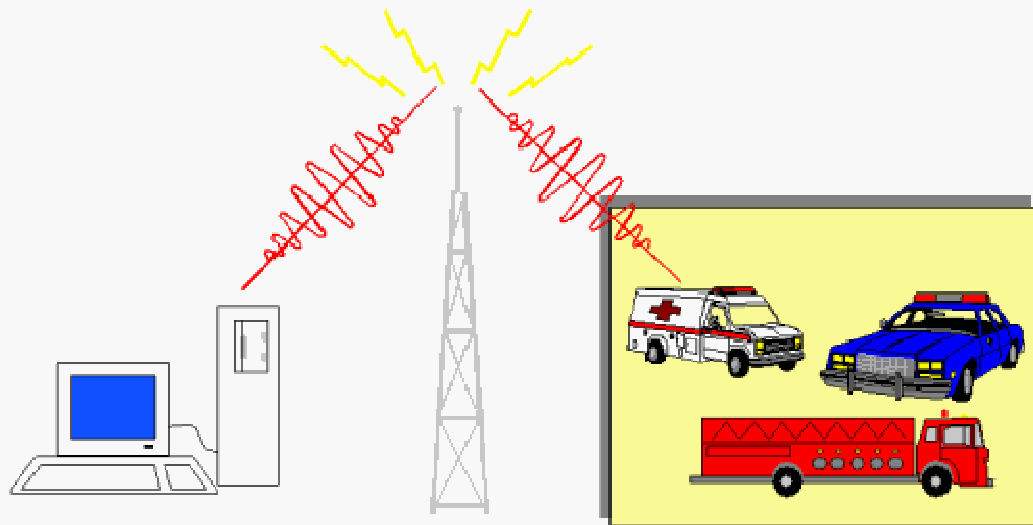
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Integrated Emergency Management

Dispatch Before CAD/E-911

- Paper-Based Dispatcher Processes
- Inaccurate, Outdated Paper Maps
- Time Consuming Reporting Processes
- Unobtainable data in Public Works; as well as State, Local and Federal Sources
- Inaccessible Data in Stovepipes Across the Base and Next Door
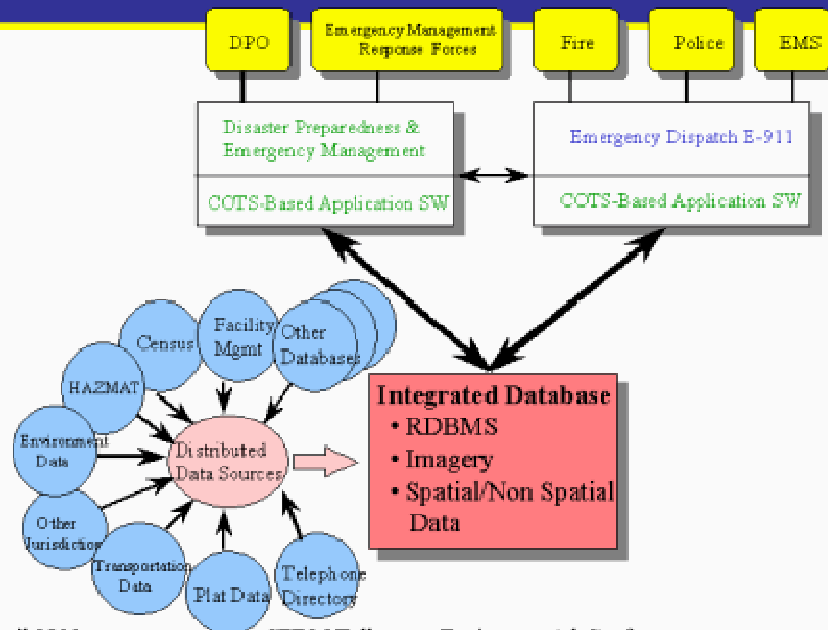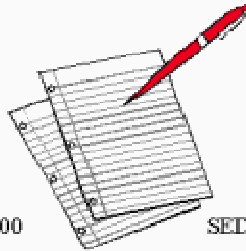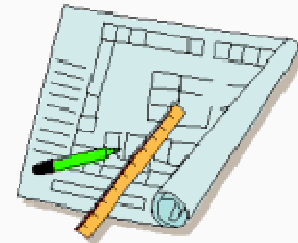
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Dispatch After CAD/E-911
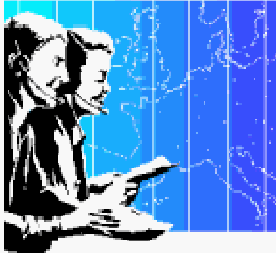
- Upgraded to Client/Server Technology with maximum use of COTS/GOTS
- Up-to-date GIS Interface
- Improved Response Time & Situational Awareness

- Rapid Access and Integration with Corporate & Local Data (Mutual Aid Support)
- Improved Records Management and Reporting
- Highly Reliable with Contingency Backup

Computer Aided Dispatch E-911

E-911 Call

Crash Net Weather Net

Alarms

Radio

Integrated Database
- Oracle RDBMS
- Imagery
- Spatial/Non-Spatial Data

Emergency Dispatch Center
Emergency Dispatch E-911

ArcView   *Network Analyst*

E-911 Backup
- CCC Van
- DPO Office

Fire

Police

EMS

- Collect Emergency Data/Caller ID
- Assess Situation
- Dispatch Fire/Police/EMS
- Provide Routing data
- DP/EM Handoff (CCC Van, HAZMAT, Spill Response)
- Situation Awareness Reporting
- Records Management (CCIN/ICN)

Reporting
- CO/XO
- CDO
- DPO
- Exec. Director
- Activity CO/CDO

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CAD/E-911 in Action

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Costs?

- Costs are not as high as they seem!
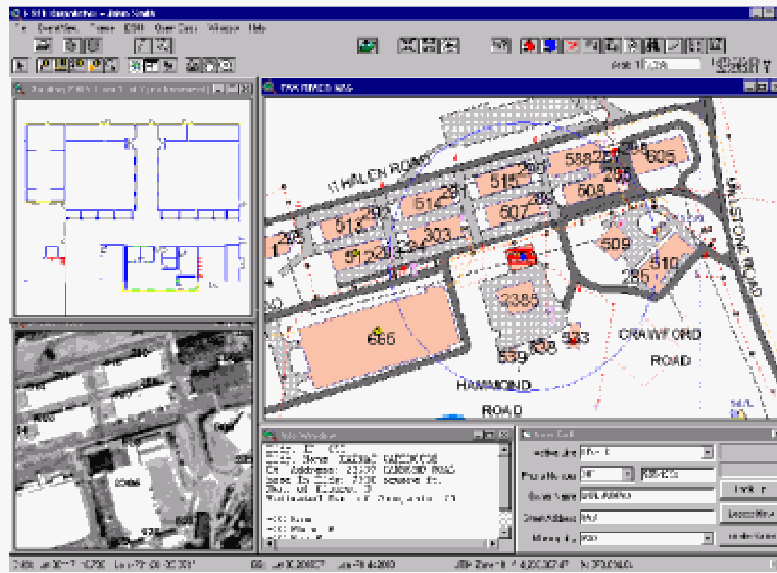 - Equipment is inexpensive
  - Software is available
- Data acquisition and management is the expensive part
  - Shared data is essential to keep costs down

Useful GIS/Oil Spill Response Web Sites

- NOAA Office of Response and Restoration
  http://response.restoration.noaa.gov/
  - Aids for Oil Spill Responders & Chemical Accident Responders
- U.S. National Imagery and Mapping Agency (NIMA)
  http://www.nima.mil/
  - Digital Nautical Charts, Geospatial & Imagery Information/Data, Geospatial & Imagery Standards Management Committees
- U.S. CADD/GIS Technology Center
  http://tsc.wes.army.mil/
  - Test Site with additional info at http://www.saffron-systems.com/newweb/
  - Clearinghouse for information exchange
- USGS Geospatial Data Clearinghouse National Mapping and Remotely Sensed Data
  http://mapping.usgs.gov/nsdi/

Useful GIS/Oil Spill Response Web Sites

- USGS Spatial Data Transfer Standard Web Site
  http://mcmcweb.er.usgs.gov/sdts
  - Standard to promote and facilitate the transfer of digital spatial data between dissimilar computer systems
- U.S. Federal Geospatial Data Clearinghouse
  http://fgdclearhs.er.usgs.gov/
  - collection of over 100 spatial data servers, that have digital geographic data
- European Environment Agency
  http://www.eea.eu.int/
- ESRI GIS/Mapping Software
  http://www.esri.com/
- GEOPLACE.COM
  http://www.geoplace.com/

Useful GIS/Oil Spill Response Web Sites

- Great GIS Netsites
  http://www.gisportal.com/
- SEAGIS (The North Sea Interreg IIc Programme)
  http://www.hordaland-f.kommune.no/seagis/
  - EC initiative which promotes transnational co-operation on spatial planning
- GIS Yellow Pages
  http://web.singnet.com.sg/~wisely/gislist.htm
- Center for International Earth Science Information Network(CIESIN)
  http://www.ciesin.org/
- US EPA Geospatial Data Clearinghouse
  http://www.epa.gov/nsdi/
- NASA's Earth Observing System
  http://eospso.gsfc.nasa.gov/

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Environmental Planning Process

Central Database

GIS Maps

Environmental Planners

Various Data Sources

Spill Response Tool/Model

Environmental Plan

Spill Mitigation Plan

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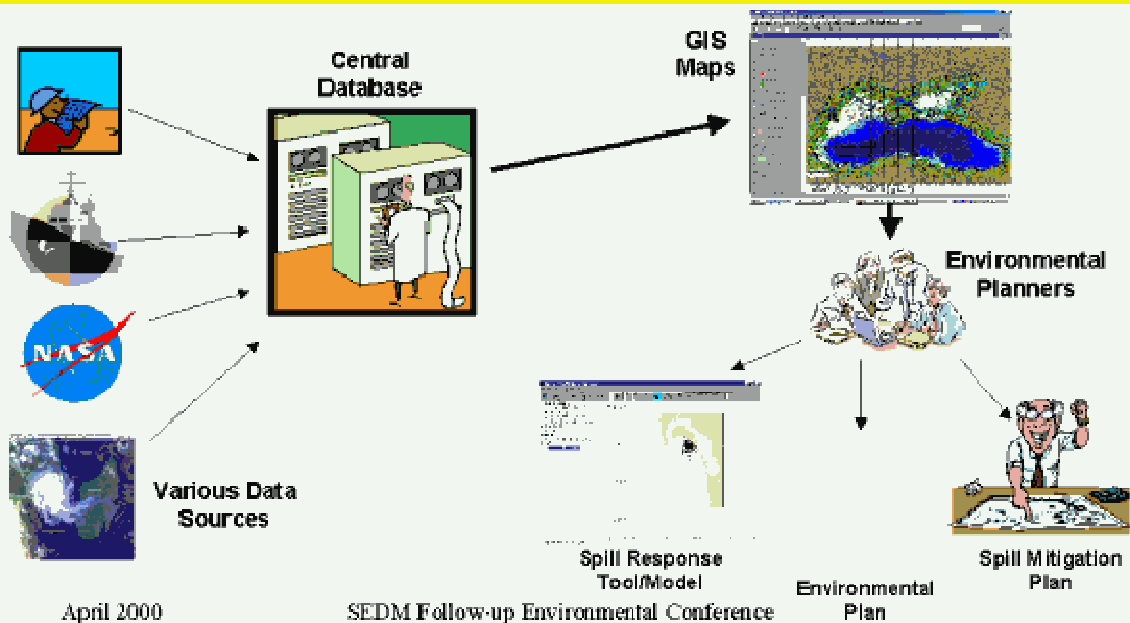
Summary

- OHS Spill Mitigation & Response Planning is maturing
    - All elements can be shared (especially contingency planning)
- GIS must be applied to manage large areas and large volumes of data.

Opportunities for Future Cooperation

- Share examples of successful applications such as PAX River
- Establish working groups to address standardization, interpretation and prioritization of data
- For multi-national exercises, develop a range of scenarios to test/demonstrate the interoperability and standardization required for effective environmental planning and OHS spill response.