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EPA Regional Science Council Seminar
Environmental Applications of Remote Sensing Technologies
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EPA Region 6, Dallas, Texas

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Topics to Cover

- Background
- Roles and Responsibilities
- Environmental Technology Council (ETC) and the RSWG
- RS Challenges
- RS Activities

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Geospatial Information Officer

- 3 in Federal Government
  - DHS, USGS, EPA
- Reports to the CIO/Assistant Administrator for Office of Environmental Information (OEI)

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Roles & Responsibilities

- **Provide senior leadership and visibility into the importance of location**
- **Provide direction and guidance on emerging geospatial technologies**
- **Work to enhance capabilities enabling all EPA offices to quickly generate, share, and access necessary geospatial data**
  - **Enterprise Architecture**
  - **Geospatial Blueprint**
  - **Policy**

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Goals

- **Enhance EPA's ability to make decisions using geospatial data**
  - **Remote Sensing technologies**
    - **Improve our ability to recognize when it can help**
    - **More effective deployment/employment**
- **Maximize return on investment in technology**
  - **Enterprise Solutions to Common processes**
    - **Coordinated Data Purchases**
    - **Enterprise Licensing Agreements**
    - **Data Management Solutions**

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GIO Priorities

- **Data**
- **Access and Availability**
- **Foster Communication and Partnerships**

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Environmental Technology Council

In 2003, Congress mandated that EPA "develop a 'one-stop-shop' office to coordinate similar programs which foster private and public sector development of new, cost-effective environmental technologies".

In response to this requirement, EPA in a Report to Congress committed to establish a *'one- stop-shop' web site* linking the Agency's technology programs and to establish an *environmental technology council.*

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Environmental Technology Council

- http://www.epa.gov/etop/etc/

- Enhance communication and coordination of all EPA technology activities

  ✓ Identify environmental problems where technology is a critical factor in providing cost-effective solutions.

  ✓ Stakeholders prioritize for council

  ✓ Temporary Action Teams

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Environmental Technology Council Problem Statements

- **Remote Sensing of Pollutants**
- Recovering the Value of Waste for Environmental and Energy Sustainability
- CAFOs Pollution Prevention
- MCL Compliance for Small Drinking Water Systems
- Technologies Promoting the Sustainable Use of Contaminated Sediments and the Beneficial Reuse of Waste-Related
- Materials Lead Paint Remediation in Dwellings
- Continuous Fine Particulate
- Monitoring Gasification
- Improved Pesticide Application Equipment to Reduce Spray Drift
- Application of microarray technology to source- and finished-water monitoring for microbial contaminants
- Urban Runoff

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Remote Sensing of Pollutants

- **Created a Remote Sensing Work Group (RSWG)**

- **Action Plan**

  - **Input to EPA policy**
  - **Demo use of RS through projects**
  - **Identification of needs/reqts**
  - **Conferences**
  - **Forum website**

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Remote Sensing Challenges

"Pockets" of use vice Corporate approach

- **EPA Remote Sensing policy**
- **Environmental Area vice "project"**
- **Identification of needs/reqts**

- **Opportunities – Build the capacity**

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Remote Sensing Challenges

- **RS pervasive applicability, relatively few can apply it**
- **Cooperation/Collaboration for adequate funding**
- **Encourage the growth of RS technologies**
  - **Resources ($ and skill)**
  - **Tools and Data**
  - **IT Architectural impact**

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Some Current Activities Internal to EPA

- **OCFO generating language to help fill Data Gaps**
- **Geospatial Framework Workshop White Papers – RS**
- **ORD RS Data Management Efforts**
  - **Remote Sensing Gateway**
  - **Landscape Characterization Data Holdings**
- **Virtual Remote Sensing Information Center**
- **Geospatial Metadata Work Group**
- **Geospatial Data on the National Environmental Information Exchange Network (NEIEN)**
- **Pilot Area to compare RS vs existing methods**

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Some Current Activities External to EPA

- **Commercial Remote Sensing Space Policy (CRSSP)**
  - **Agency Requirements**
- **Federal Enterprise Architecture – Geospatial Profile**
- **Geospatial One Stop (www.geodata.gov)**
- **Global Earth Observation System of Systems (GEOSS)**

GEOSPATIAL ANALYTICAL PRODUCTION PROCESS

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Most see only these 2 columns

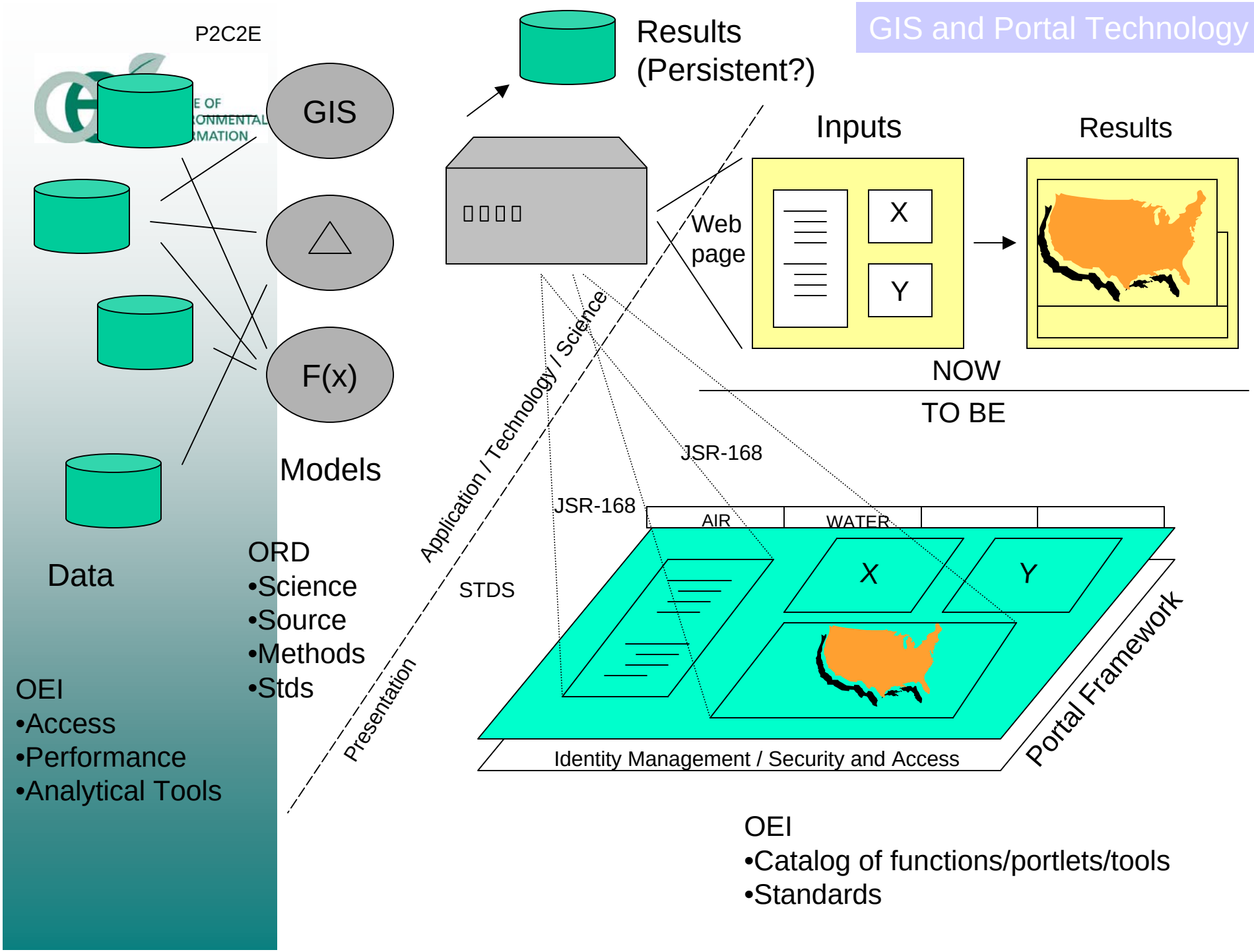
REQUIREMENTS DEFINITION	DATA ACQUISITION	DATA PREPARATION	ANALYSIS	PRODUCTION/ DISSEMINATION
	Web Services/Traditional – Web Services/Traditional – Web Services/Traditional			
ENVIRONMENTAL REQUIREMENTS DATA REQUIREMENTS SPATIAL EXTENT TEMPORAL EXTENT ACCURACY RESOLUTION ATTRIBUTION FEATURES FORMAT	SOURCES: USG EPA USGS NASA NOAA DOA etc. COMMERCIAL DOMESTIC FOREIGN EPA DIGITIZED	PROJECT SMOOTH REATTRIBUTE RESAMPLE INTERPOLATE TILE CLIPPING GEO/ORTHORECTIFY RASTER/VECTOR CONVERSIONS DERIVATION DATA DICTIONARIES	DISPERSION VIEW SHED SITE SELECTION AREA LIMITATION SLOPE ASPECT SENSOR MODELS RADAR PROP ACOUSTIC HYDROLOGICAL ANALYSIS MOVEMENT/TIME ANALYSIS TRANS ANALYSIS	HARDCOPY DISTRIBUTION DIGITAL/SCANNED (JPG) DIGITAL/INTERACTIVE WEB SITE (WME)

Data Management Plan

75-80% of the work

OPERERATIONAL DATA
FACILITY DATA
PERMITTING DATA
TECHNICAL DATA
MONITORING DATA
ENFORCEMENT DATA
INFRASTRUCTURE DATA
QUALITY DATA
POPULATION DATA …

GIS and Portal Technology



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Questions?

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