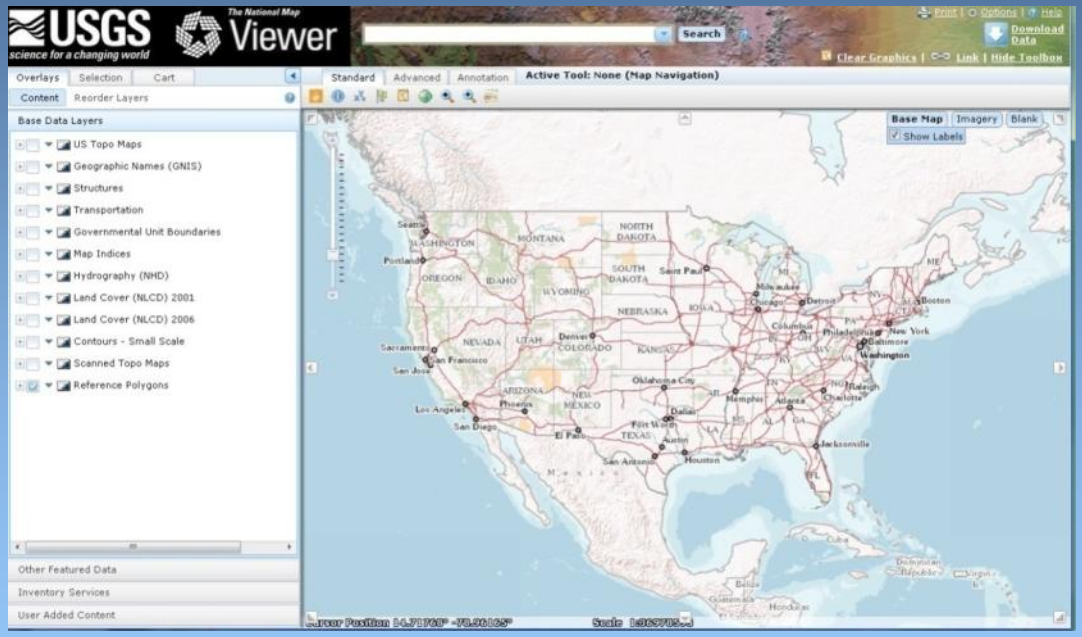
USGS
science for a changing world

National Geospatial Program Office

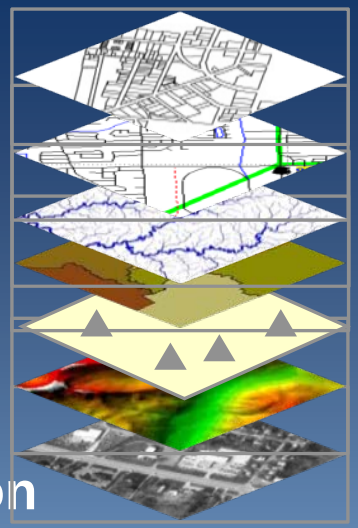
The National Map Delivery Services



U.S. Department of the Interior
U.S. Geological Survey

Rob Dollison
USGS NGP Delivery Services Lead

The National Map Includes



- Data
  - Elevation – National Elevation Database
  - Hydrography – National Hydrography Dataset
  - Orthoimagery – National Orthoimagery Database
  - Geographic Names – Geographic Names Information System (GNIS)
  - Land Cover – National Land Cover Datasets
  - Boundaries (Governmental Units) National Boundaries Database
  - Structures – National Structures Database
  - Transportation – National Transportation Database
- Products and Services
  - Data for download
  - Current “US Topo” maps and scanned historic topo maps and
  - Web map services

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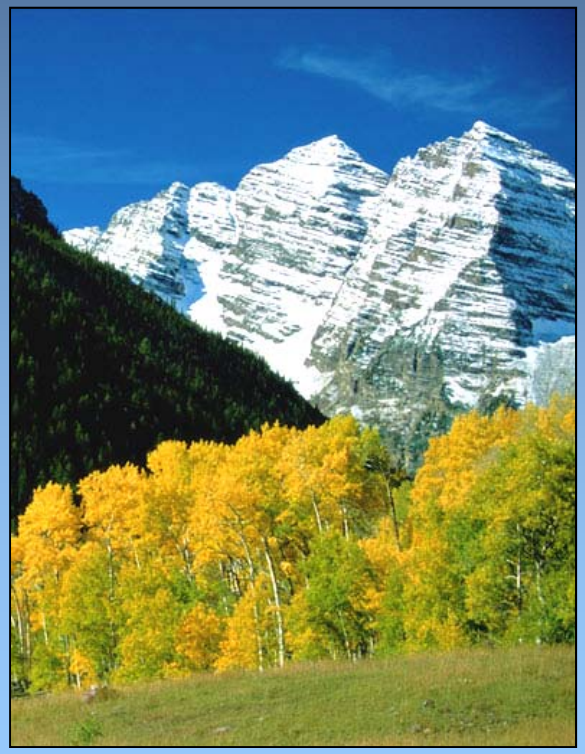
Data Services

- **USGS is the lead or co-lead Federal agency for geospatial data for:**
  - **Elevation**
  - **Geographic Names**
  - **Hydrography**
  - **Orthoimagery**
  - **Land Cover**



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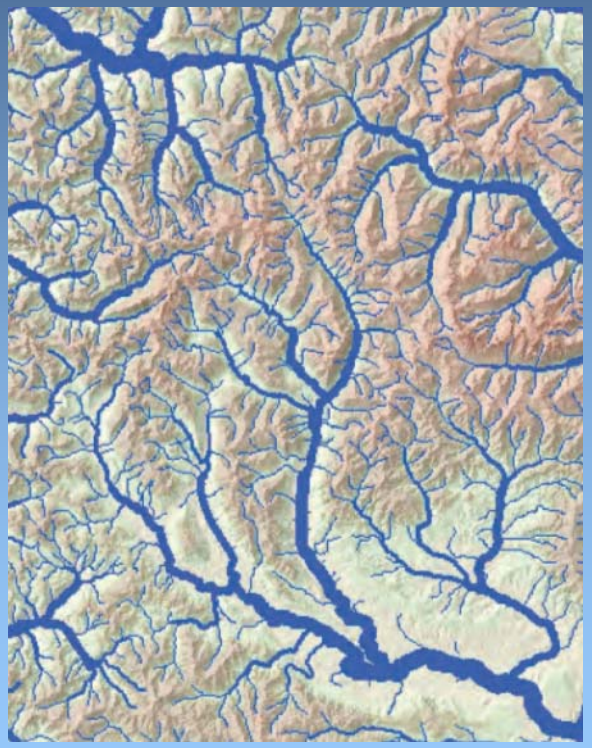
Data Access

- **Web viewing and download services**
  - *The National Map* Viewer
    - www.nationalmap.gov
  - Seamless Server
    - http://seamless.usgs.gov
  - Hydrography Portal
    - http:nhd.usgs.gov/
  - Geographic Names Info. System
    - http://geonames.usgs.gov



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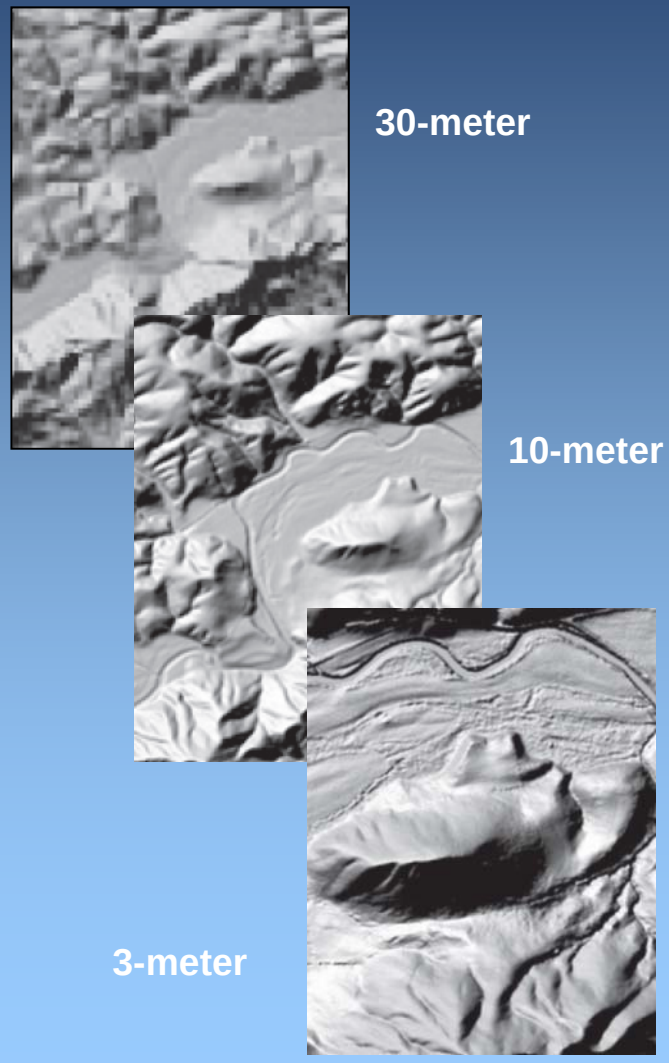
National Elevation Dataset

- Seamless raster data
- Multiple resolutions
  - 30m, 10m, 3m (60m – AK)
- Horizontal – NAD 83
- Vertical – NAVD 88
- Units – meters
- Partnerships in place for higher resolution data, primarily from LIDAR



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National Hydrography Dataset

- Multi-resolution
- Surface water
  - Supports mapping and water systems analysis
- Feature-based
- Topological structure enables upstream and downstream analysis
- Companion Watershed Boundary Dataset
  - Nested drainage basins

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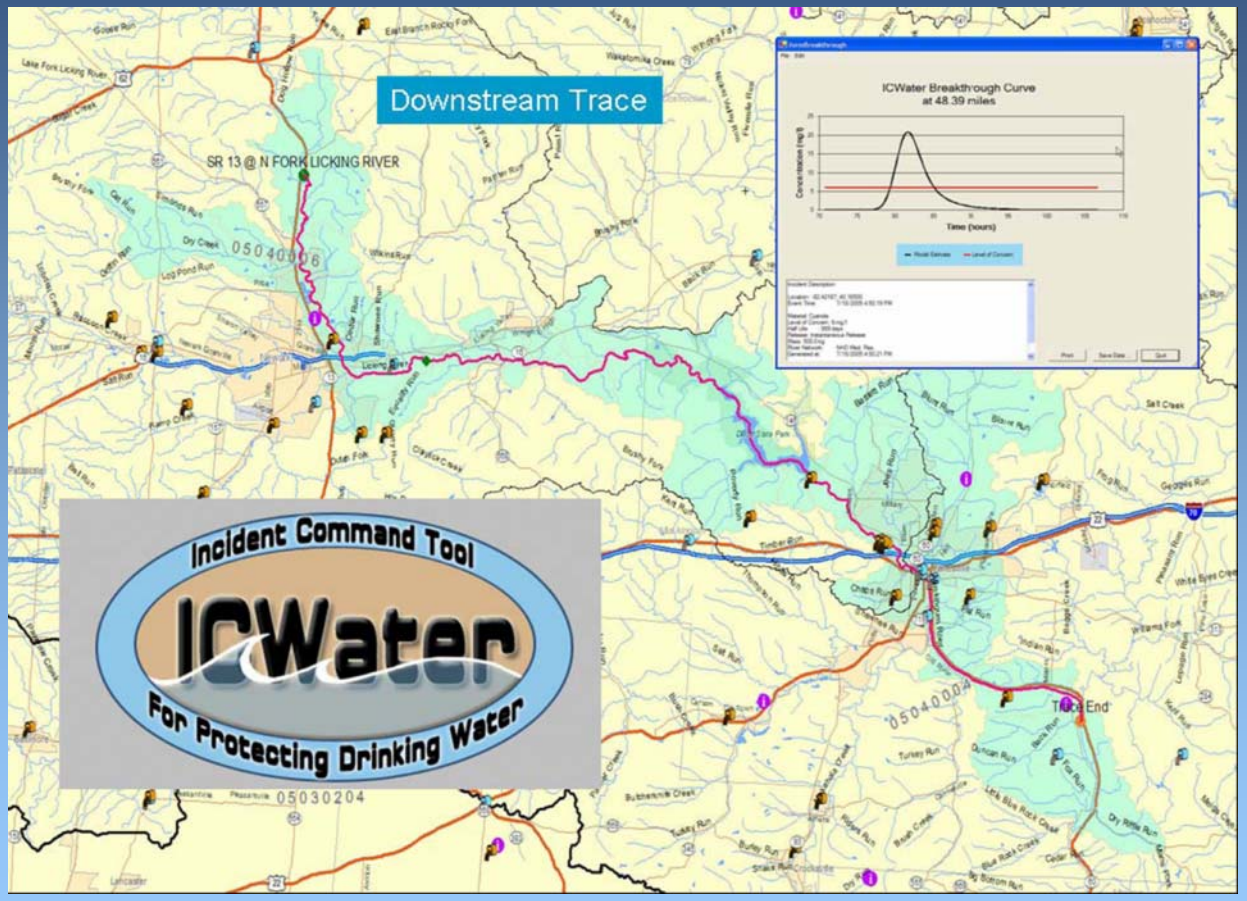
Why the NHD Matters



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Geographic Names

- **Geographic Names Information System (GNIS) is the official Federal database of standardized names**

Feature Detail Report for: Victor

ID:	792701
Name:	Victor
Class:	Populated Place (Definitions)
Citation:	U.S. Geological Survey. Geographic Names Phase I data compilation (1976-1981). 31-Dec-1981. Primarily from U.S. Geological Survey 1:24,000-scale topographic maps (or 1:25K, Puerto Rico 1:20K) and from U.S. Board on Geographic Names files. In some instances, from 1:62,500 scale or 1:250,000 scale maps.
Entry Date:	04-Apr-1980
*Elevation:	3415/1041

*Elevations in feet/meters from the National Elevation Dataset

Result of searching GNIS for "Victor, MT"

- **Includes cultural and physical feature names (not roads/streets)**
- **More than 2 million records**

Link from GNIS to *The National Map* Viewer

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Orthoimagery Dataset

- **Primary source**
  - **USDA National Agriculture Imagery Program**
    - ✓ **1-meter resolution, leaf-on imagery**
    - ✓ **3-year cycle**
- **Higher resolution data**
  - **Sources include NGA, State and local governments and tribal partners**

NAIP Orthoimage – Eureka, CA

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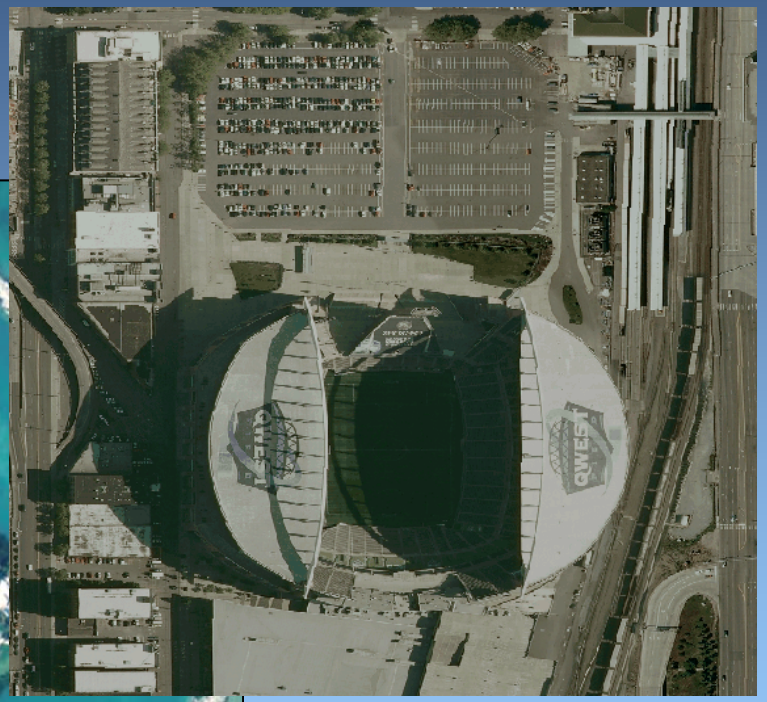
Multiple Resolutions and Sources

Hoover Dam, NV-AZ
NAIP

Duck Key, FL
Monroe County



Qwest Stadium
Seattle, WA
NGA

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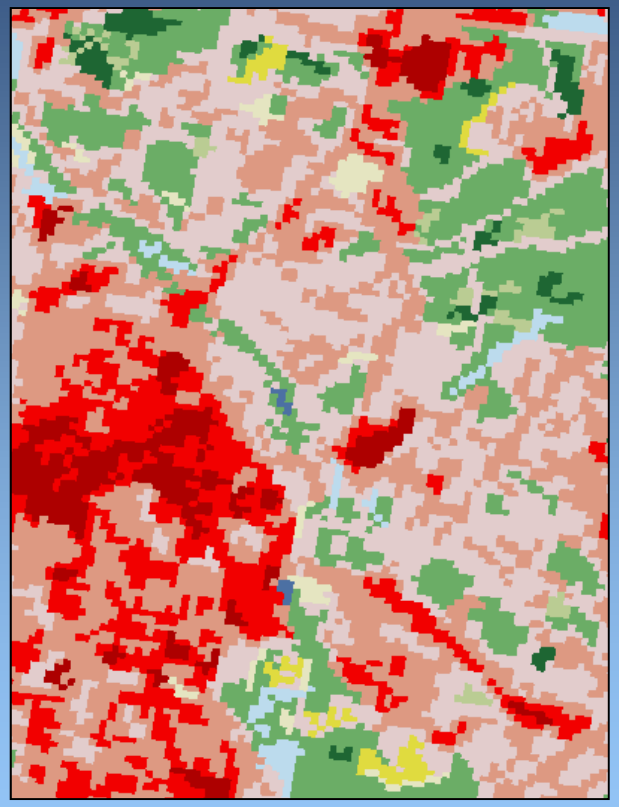
National Land Cover Database



Athens, GA

- Consistent land cover for all 50 States
- Normalized Landsat imagery for 3 time periods
- 16 classes of land cover data
- Ancillary data include 30-meter elevation, surface imperviousness, and tree canopy

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Interactive Mapping

- **US Topo is the new generation of USGS topographic maps**
  - Built from core data layers of *The National Map*
  - Digital - GeoPDF format
  - Available free on the Web
  - Accessible from *The National Map* viewer and the USGS Store
  - Includes an image base
  - Selectable feature layers
  - Maintained by frequent update

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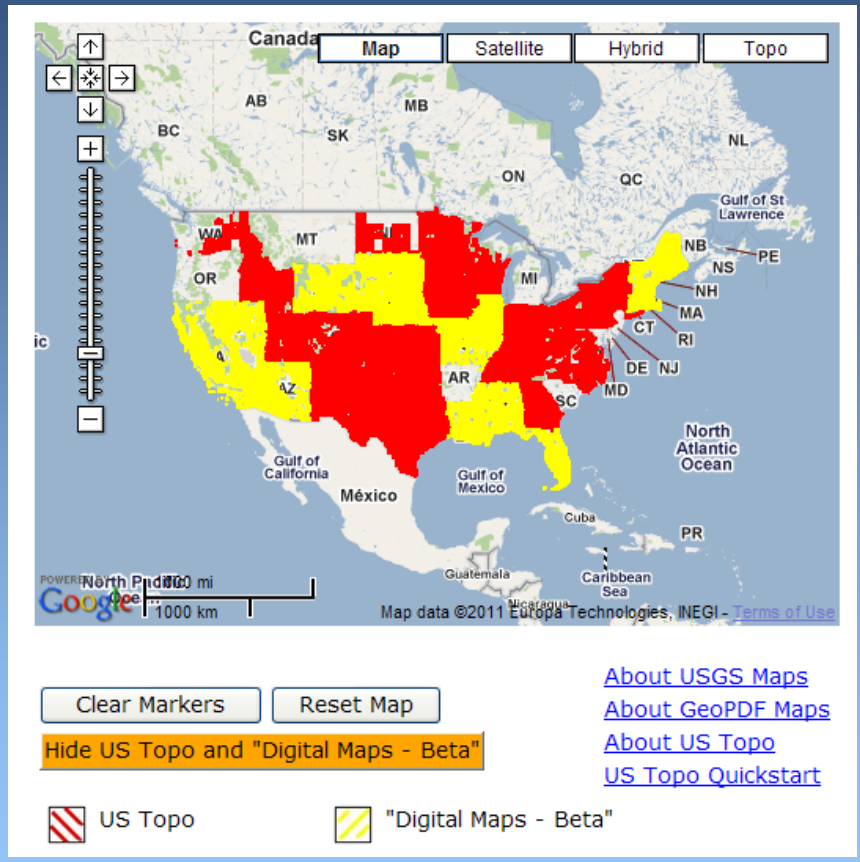
www.nationalmap.gov

US Topo Access

- USGS Store
  - Yellow: available “Digital Maps – Beta” (US Topo predecessor)
  - Red: available US Topos
- Status shown as of April 11, 2011



http://store.usgs.gov

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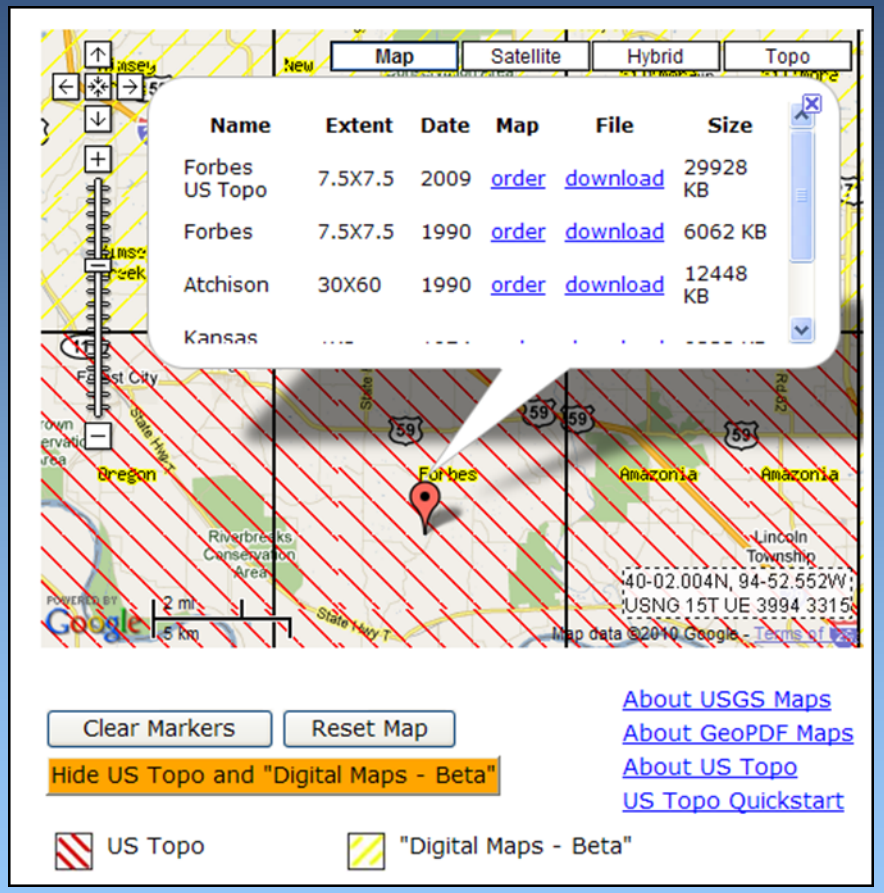
Download

- Select a quadrangle for list of available maps
- Choose “download” or “order”
  - GeoPDF files – free
  - Hard copy - $15.00



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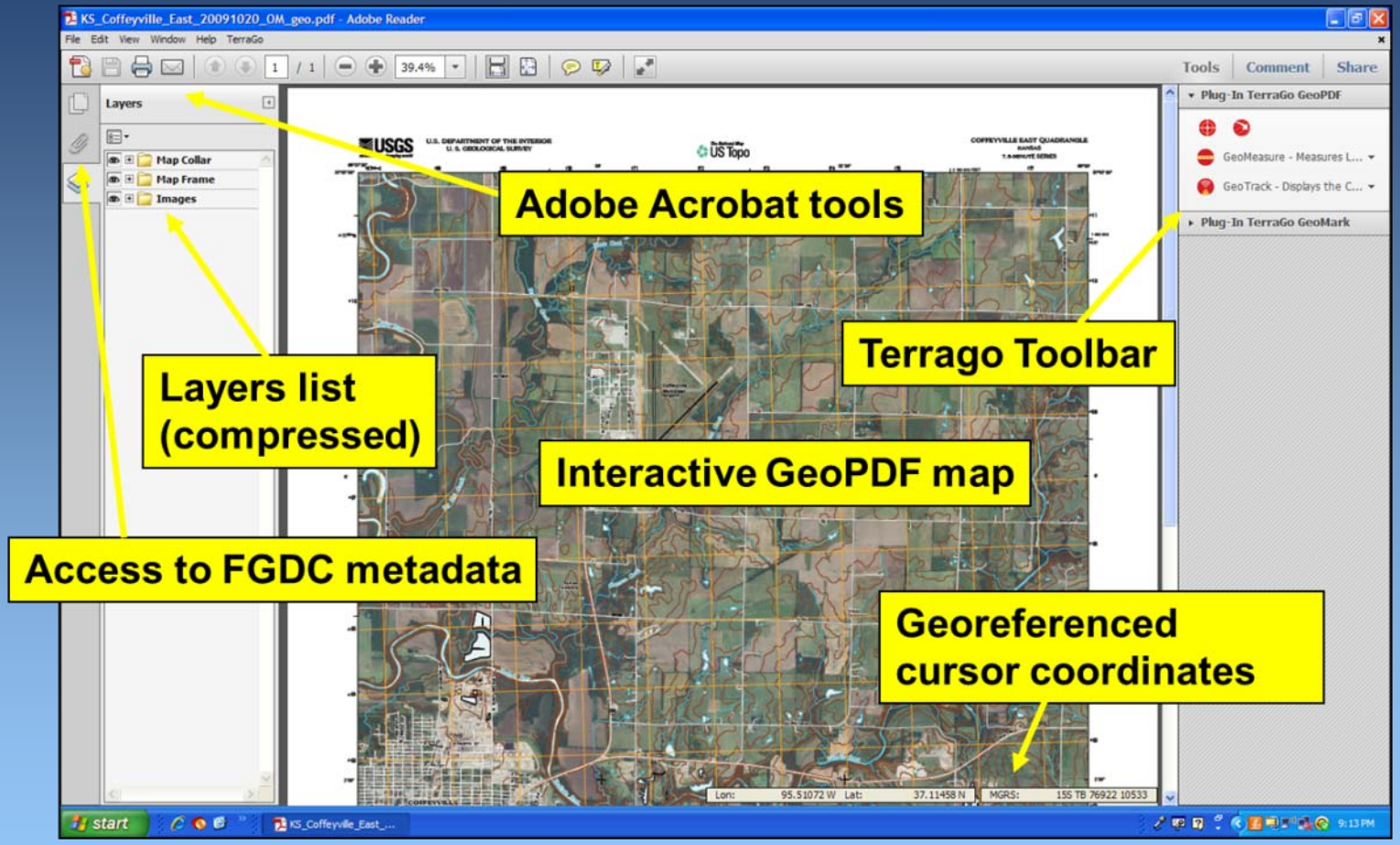
Downloaded US Topo



Adobe Reader X with TerraGo Technologies Toolbar

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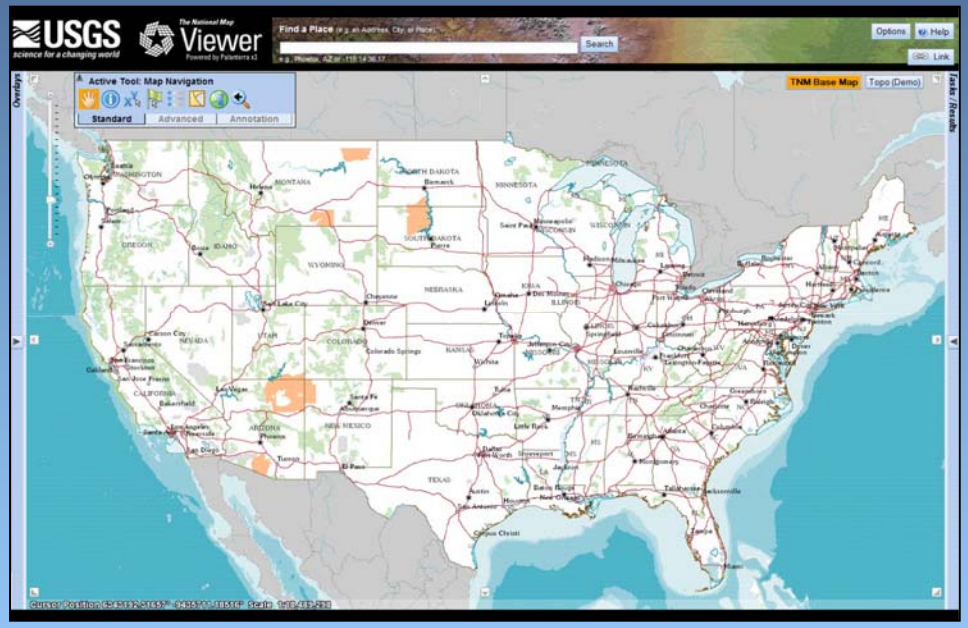
Data Visualization

- ***The National Map* Viewer**
  - Fast base map
  - 100% *The National Map* content
  - One-stop to download *The National Map* data and view services
  - Direct access to topographic maps



http://nationalmap.gov/viewers.html

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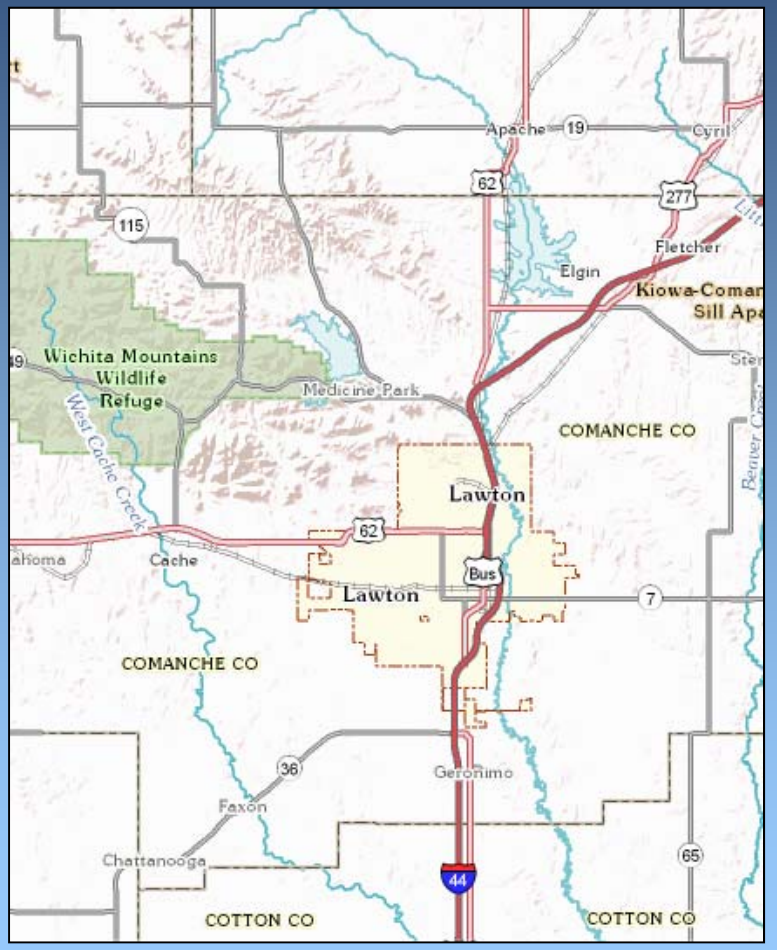
Download Capabilities

- "What you see is what you get"
- One place to download all base vector, raster, and graphic data products
- Selectable area of interest, multiple themes, and data formats for download
- Next: more data (land cover, historical topographic maps), more formats (KML, MXD, etc.) for interoperability



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National Map Stats at a Glance

- Over 100 Million Features and 200K Files
- Over 18,000 US Topos produced /Yr
- ~ 1.4 million data downloads /Yr
- ~ 400 Terabytes of data delivered /Yr
- ~ 22 million visitors /Yr

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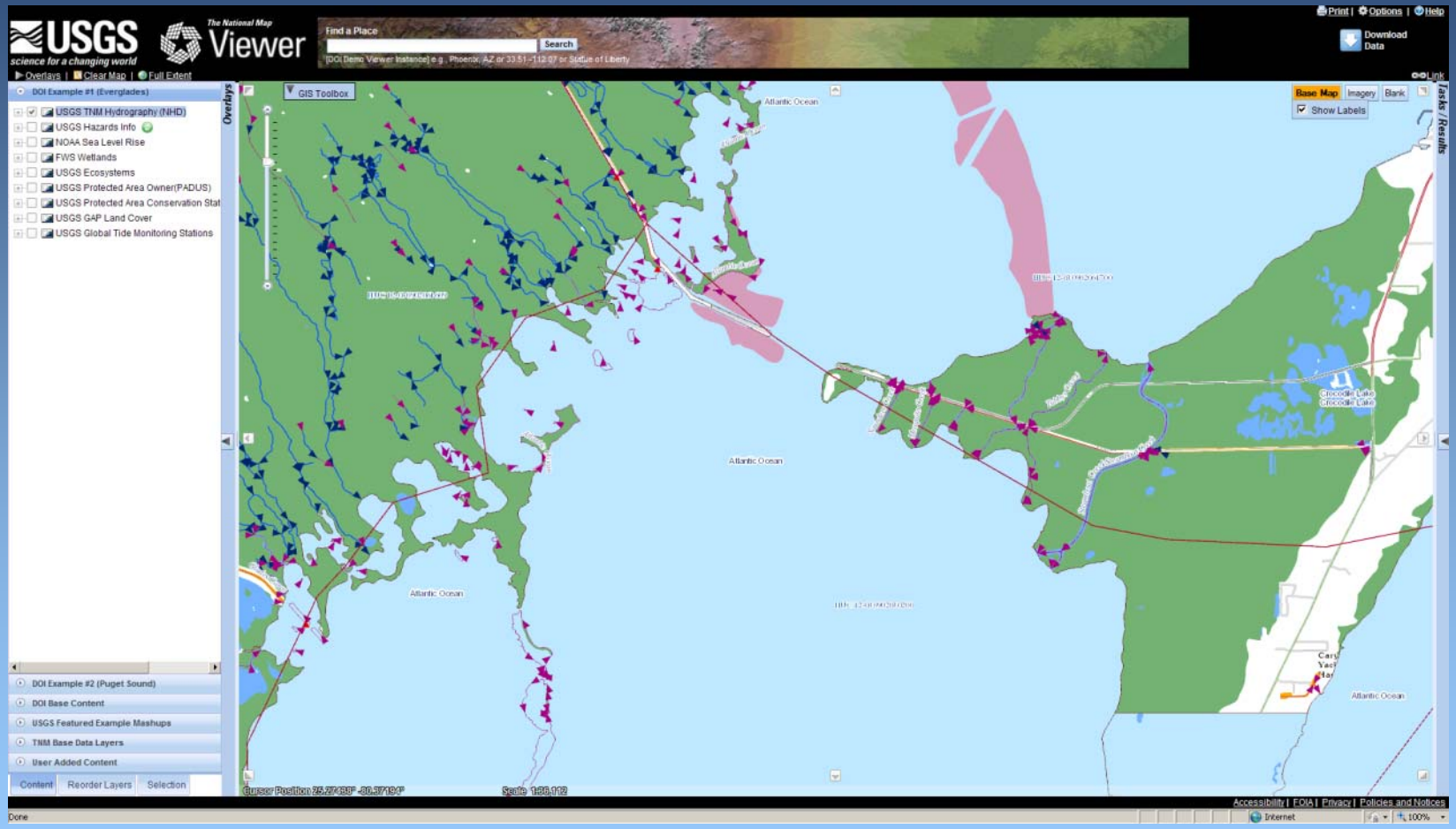
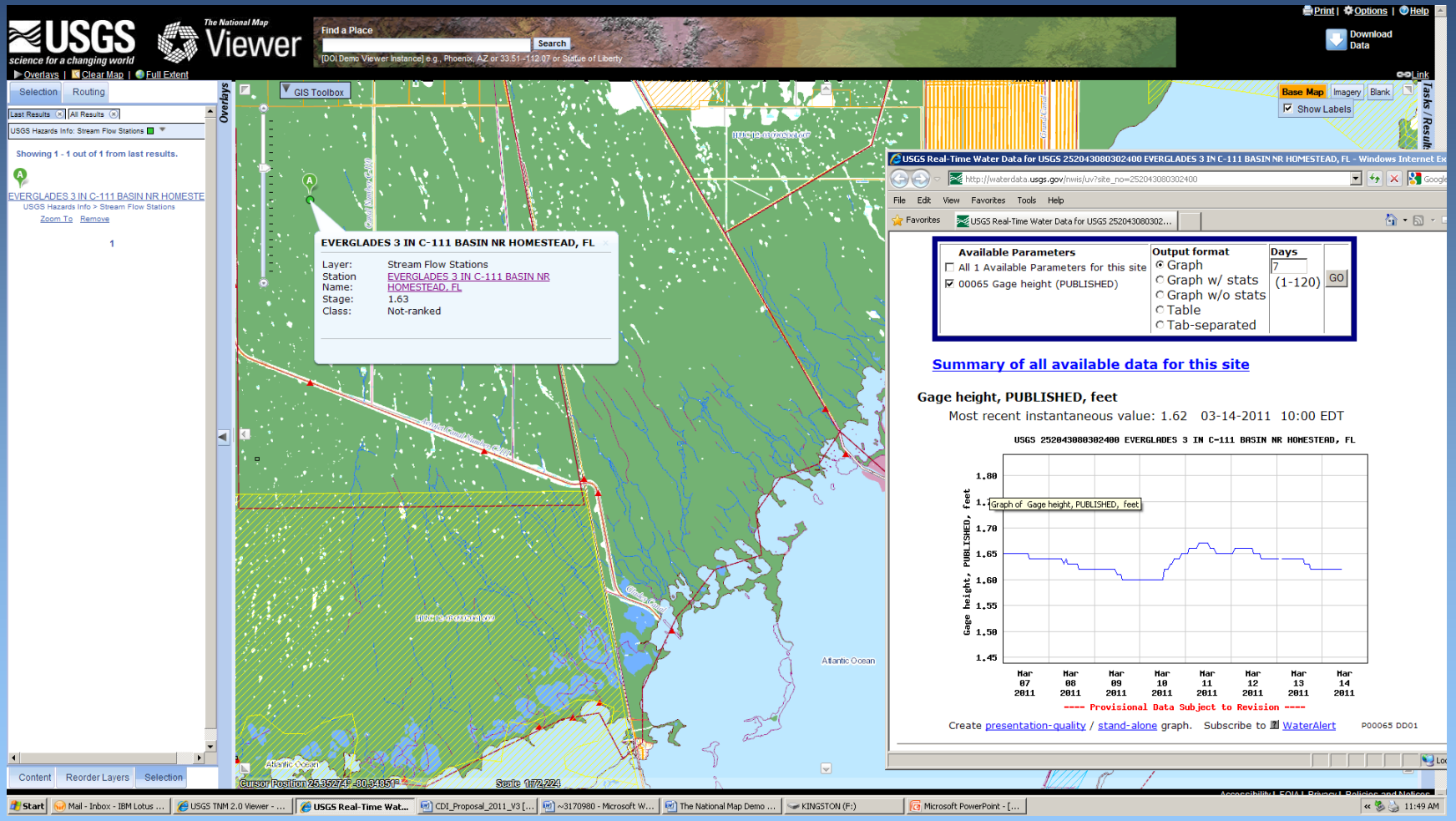
Investigate The *National Map detail*

Example: National Hydrography Dataset



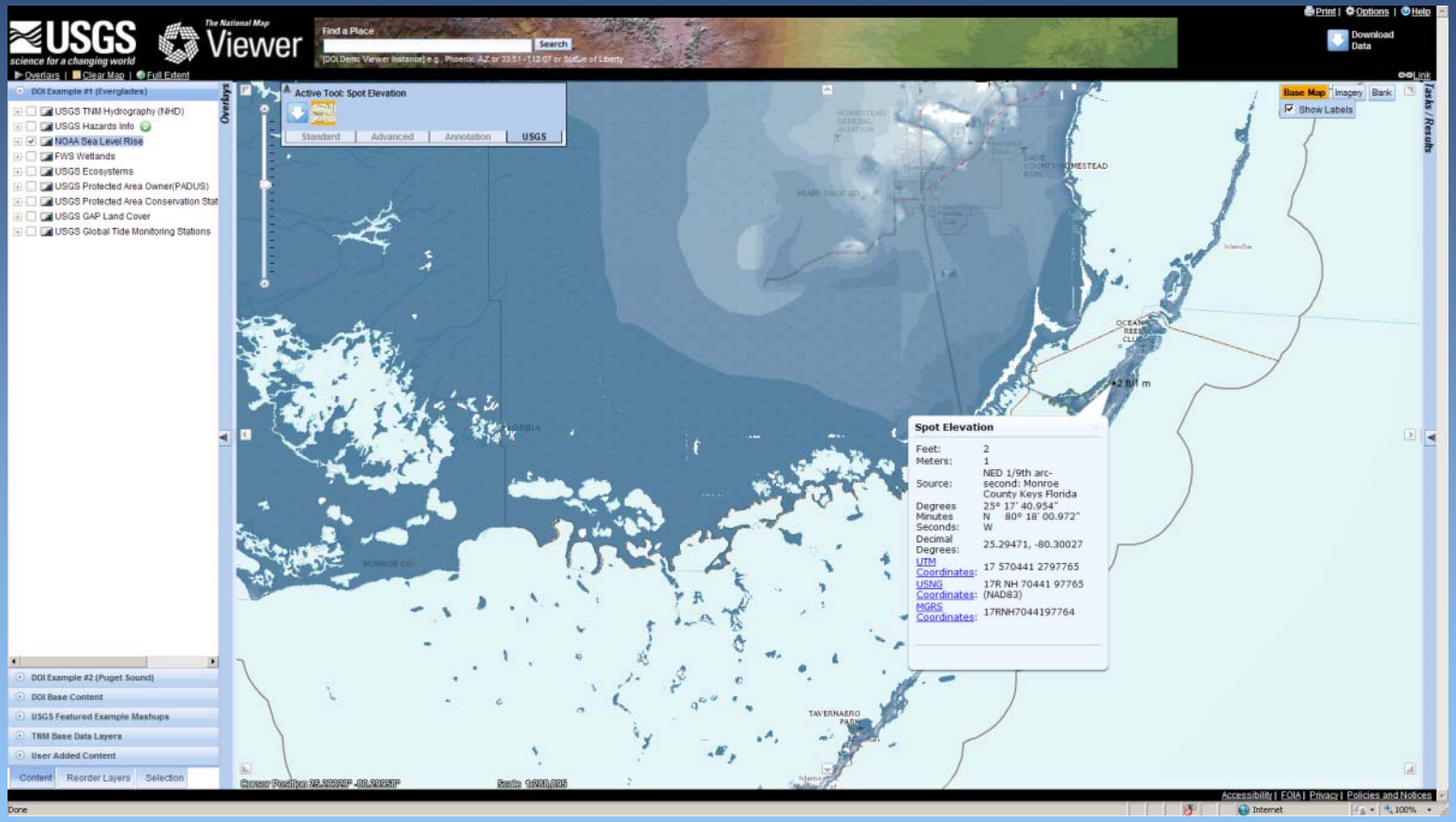
Link to additional feature detail

Example: Stream Flow Station Info.



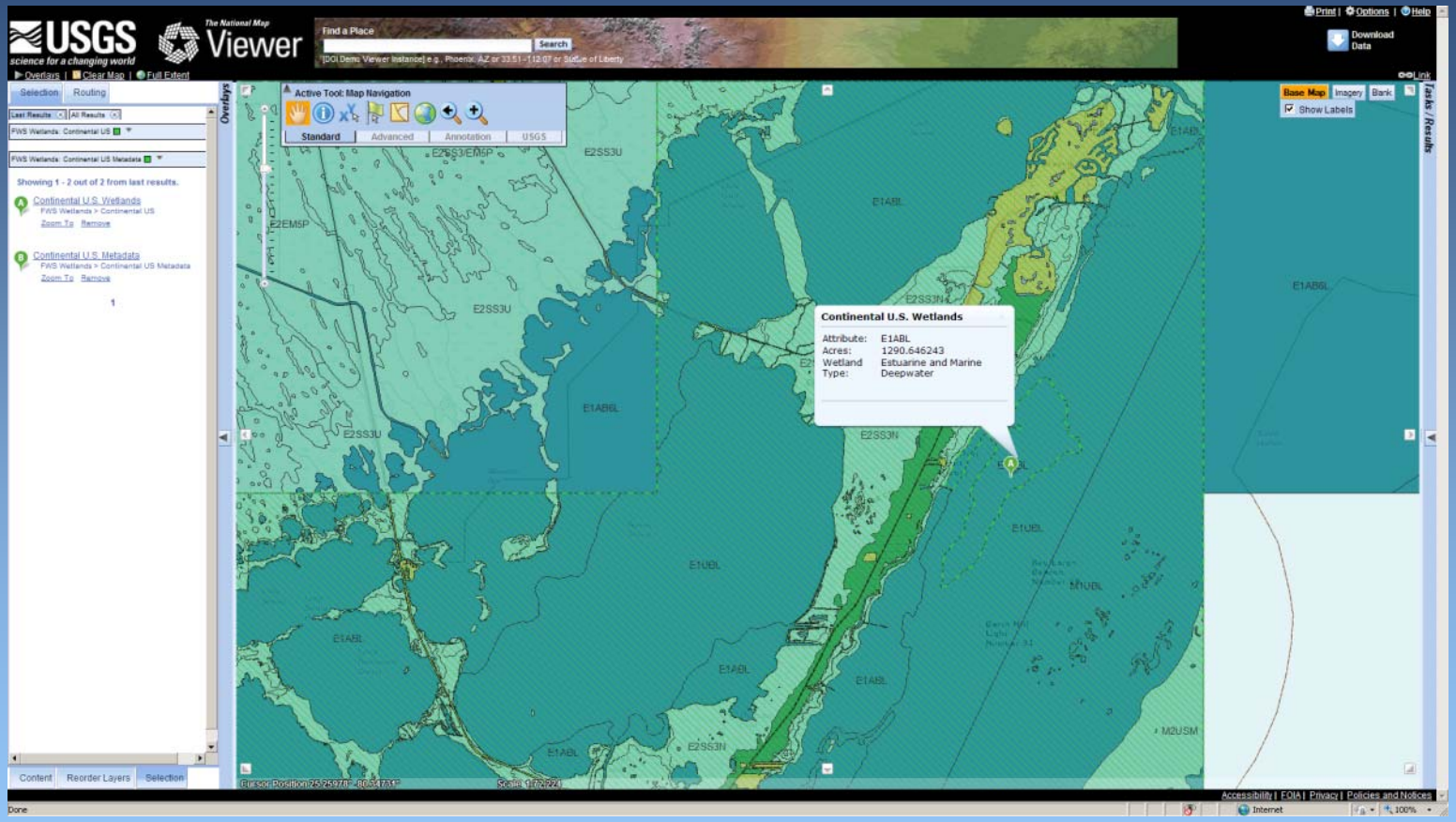
Add other Federal Services

Example: NOAA Sea Level Rise and USGS Spot Elevation Check



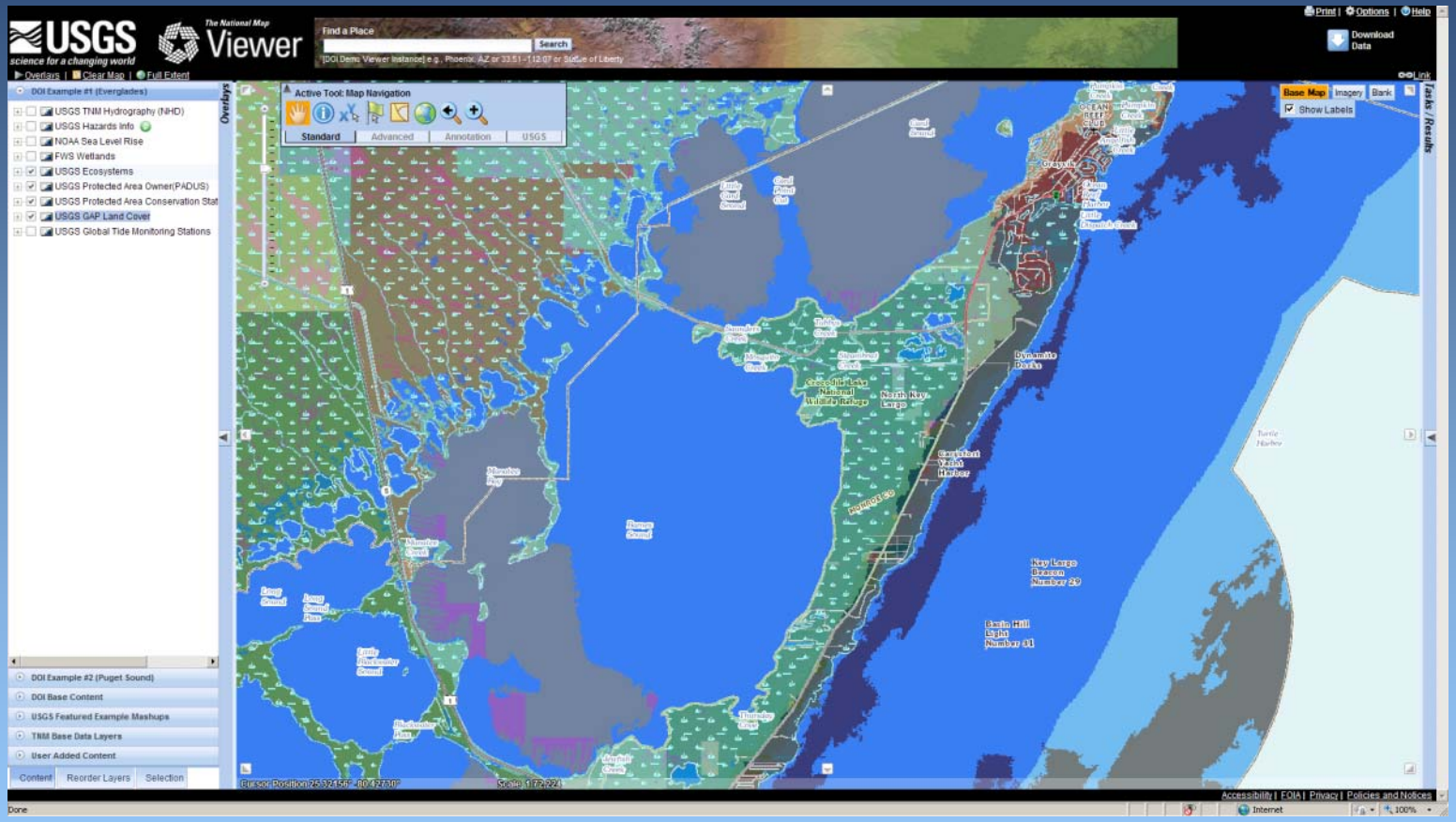
Examine DOI Datasets

Example: FWS Wetland Refuges



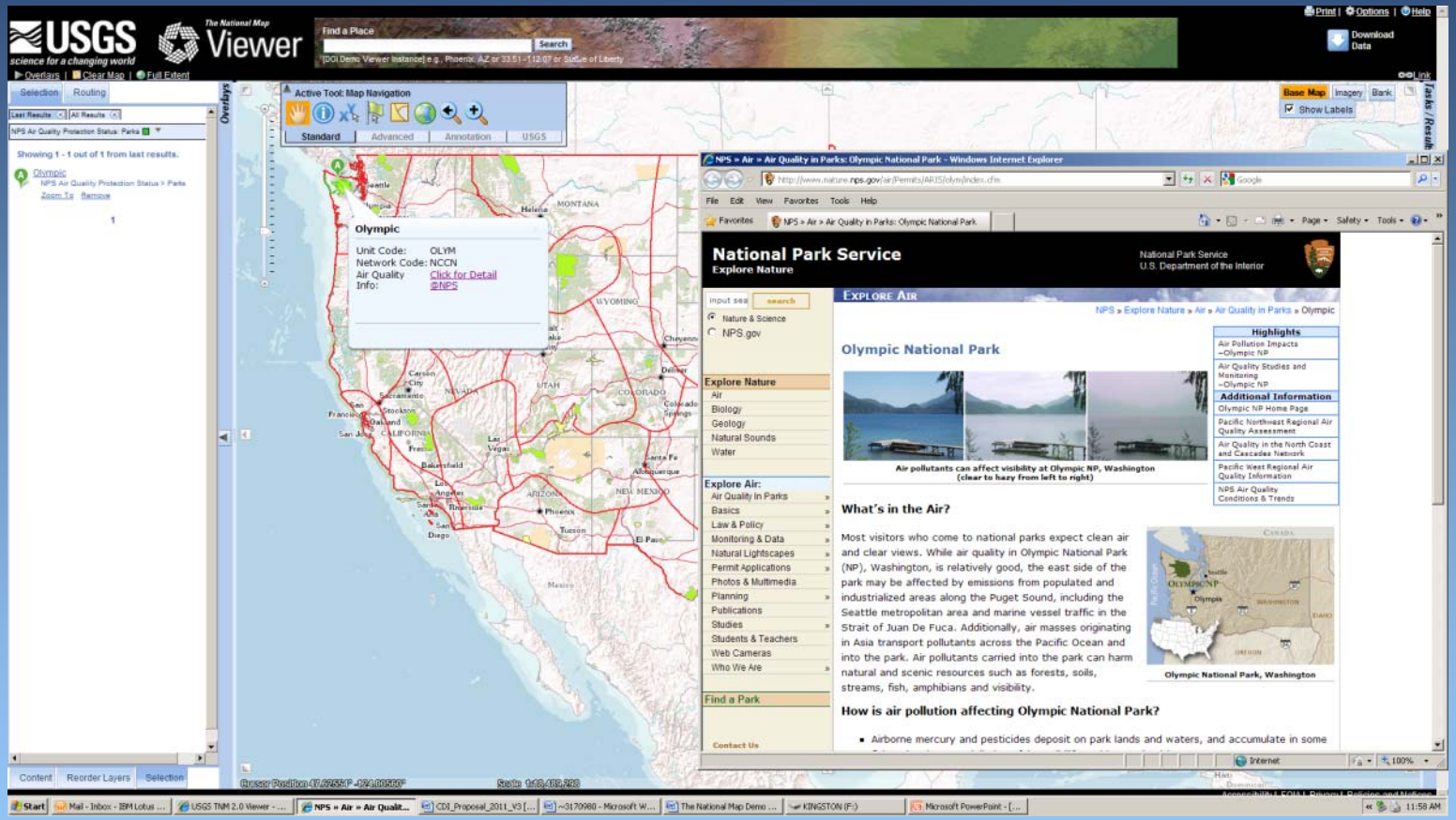
Examine USGS Science

Example: USGS Ecosystems, Protected Dataset (PADUS), GAP Land Cover

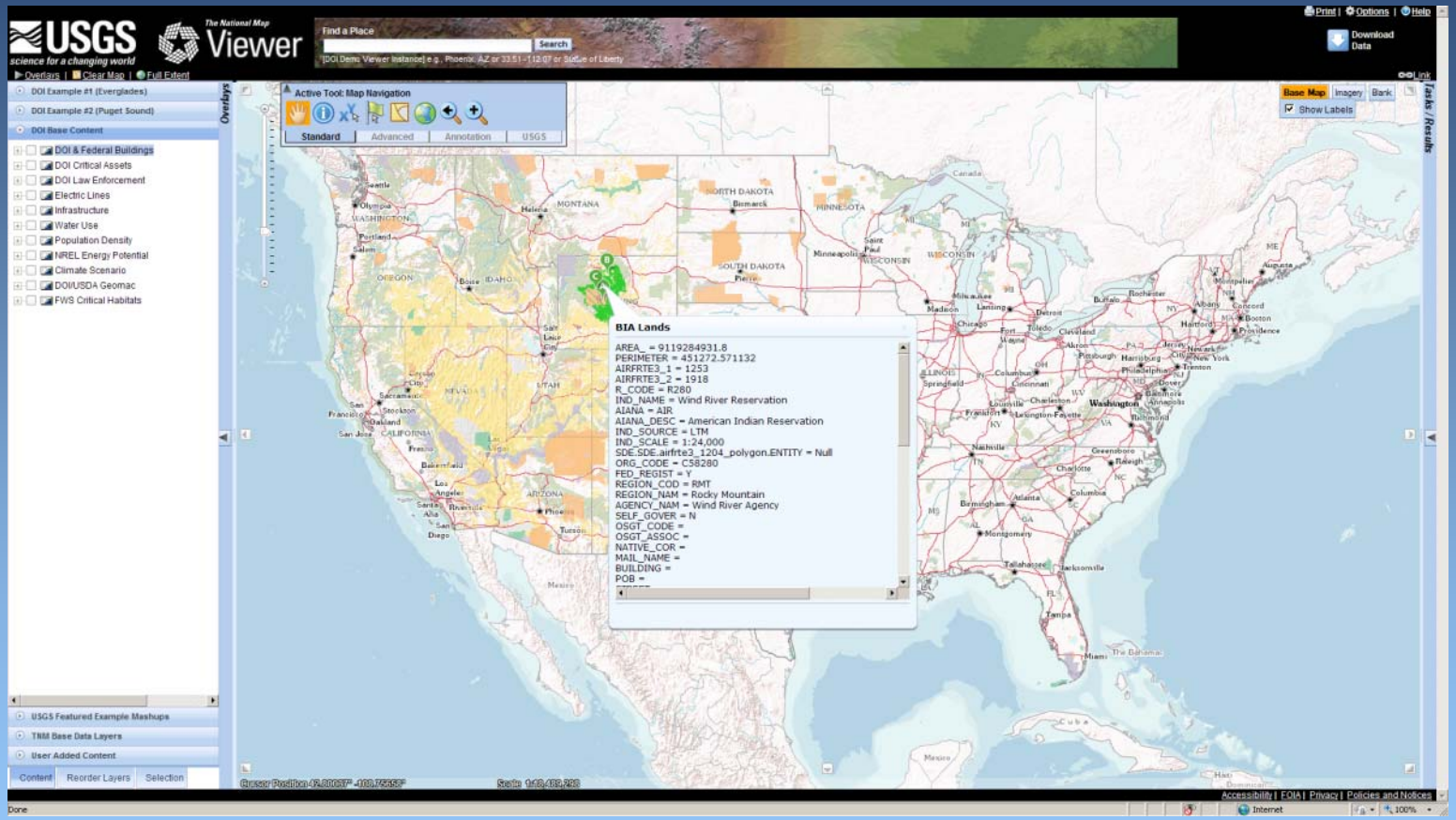


Many National Datasets

Example: NPS Air Quality Information

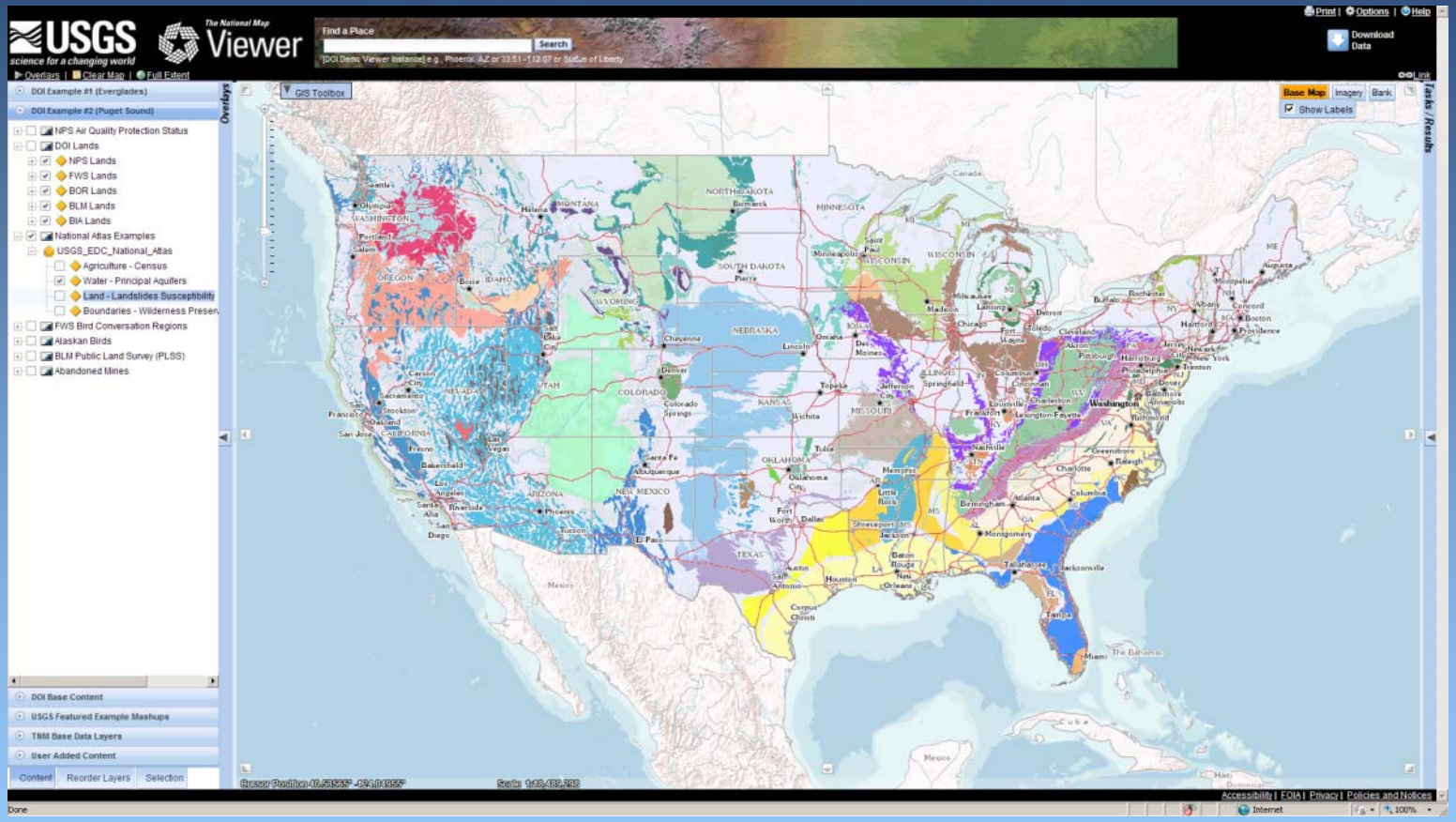


Integrate Interior OpsCenter Services (IOC) Example: DOI Lands Small-Scale Snapshot



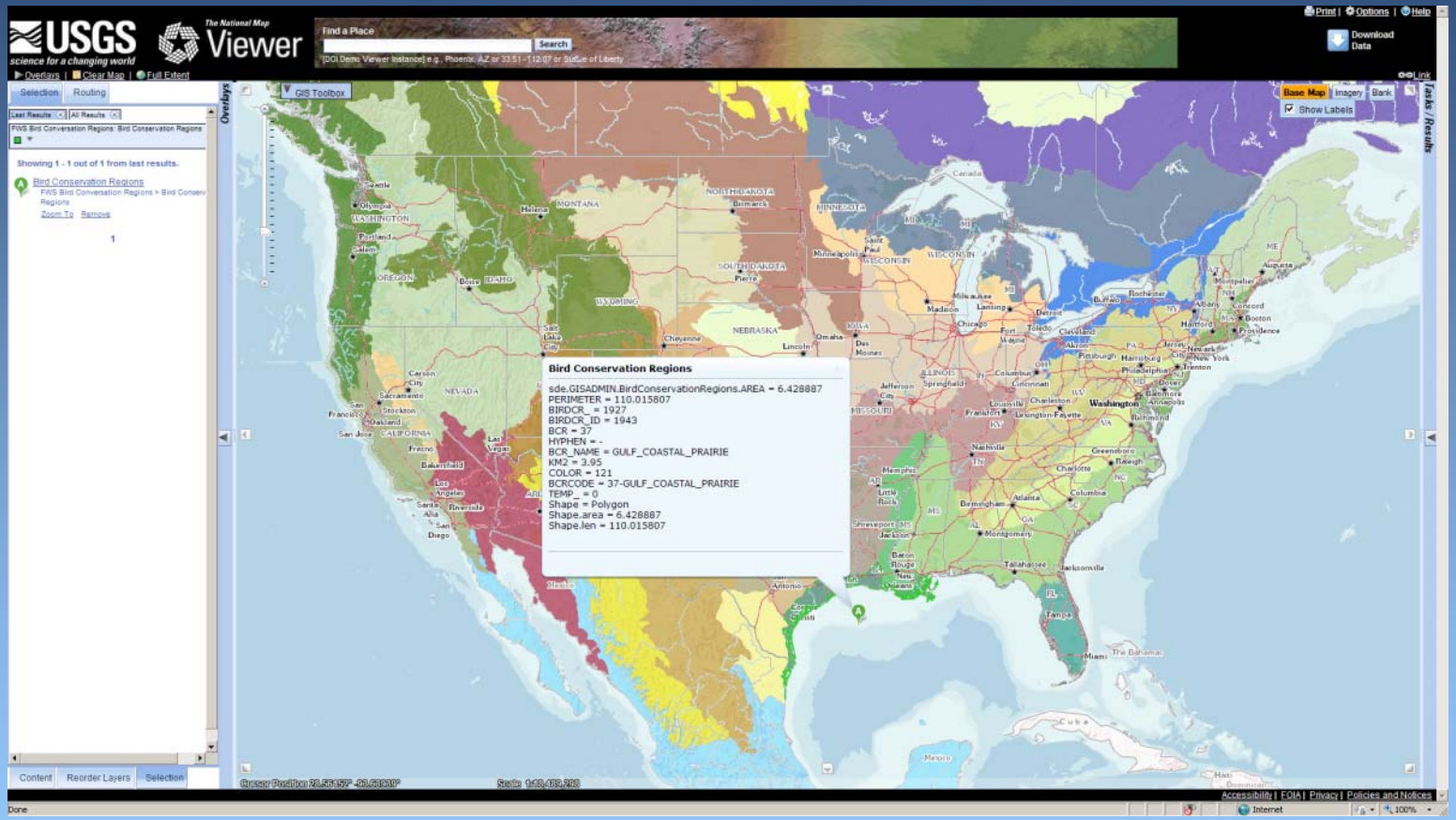
Integrate National Atlas Services

Example: Water – Principal Aquifers



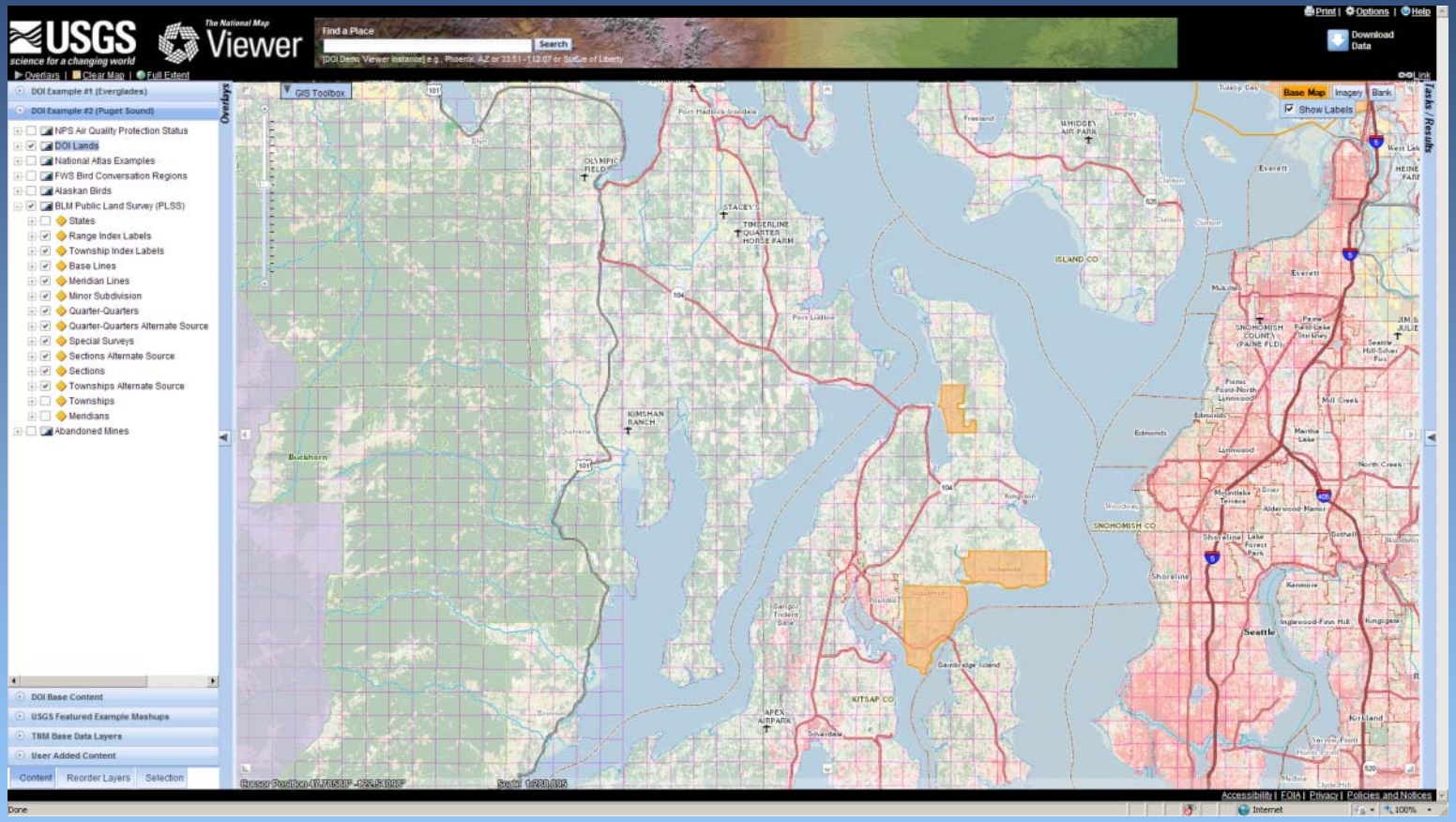
Examine DOI Datasets

Example: FWS Bird Conservation Regions



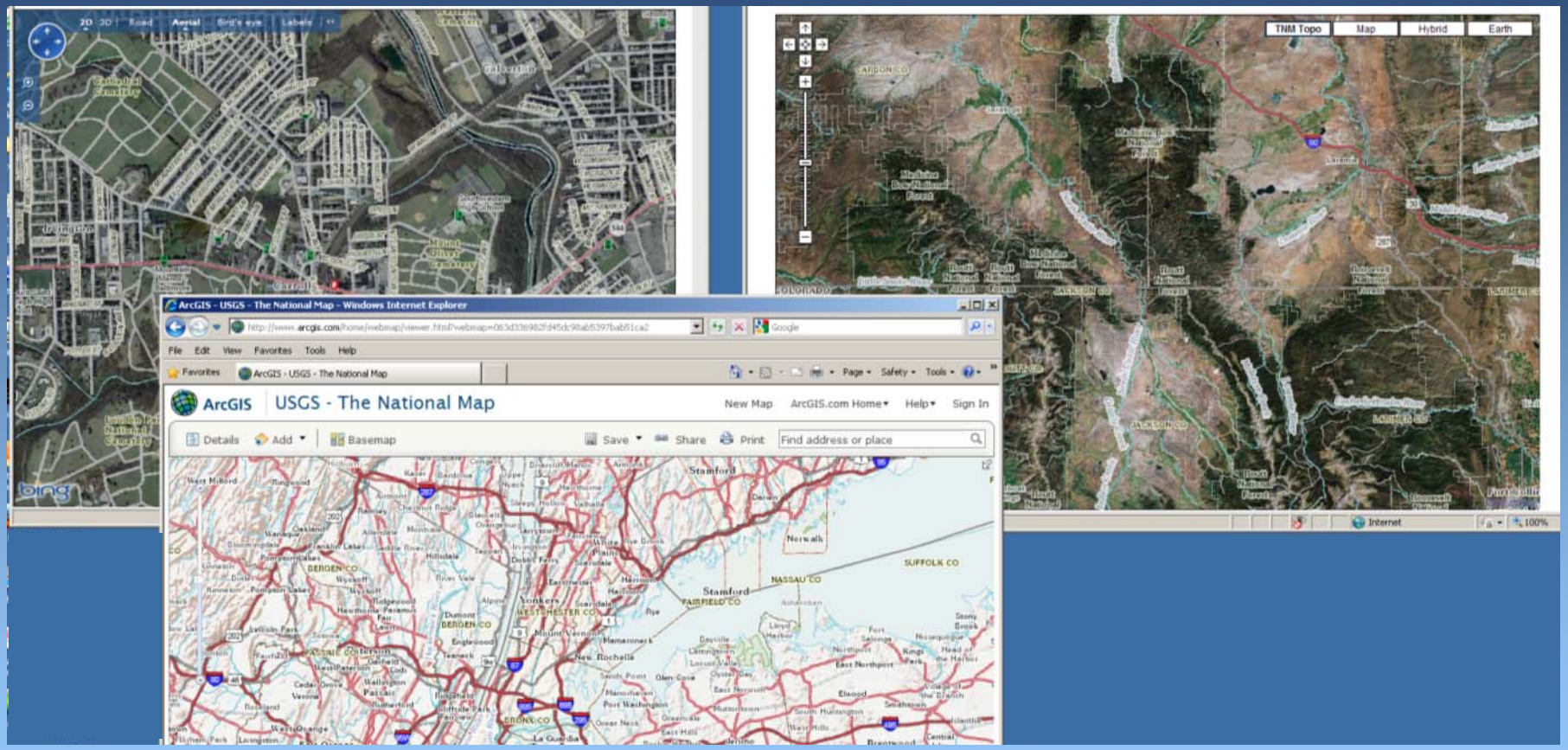
Examine DOI Datasets

Example: BLM Public Land Survey (PLSS)

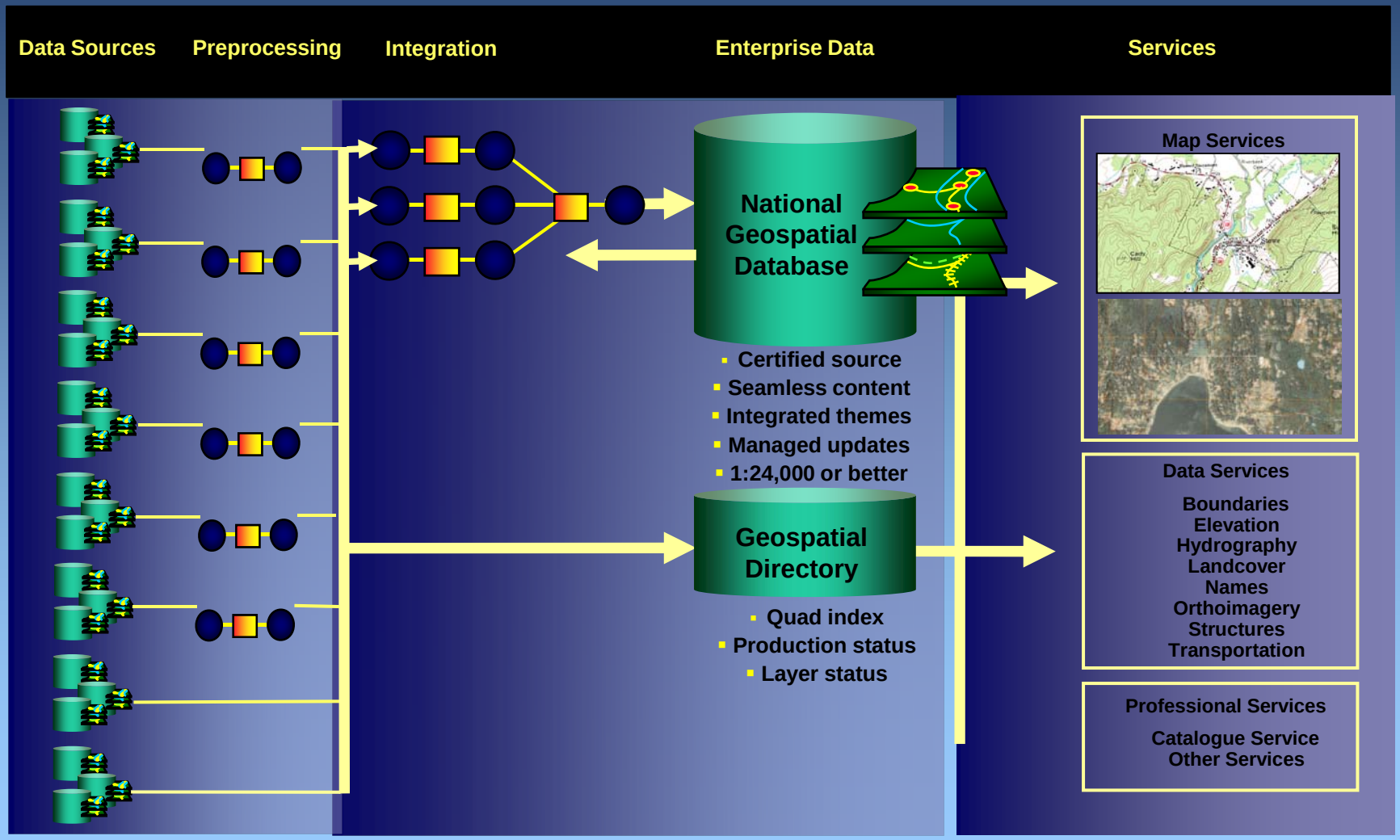


Show Services in any Popular Viewer

Example: Bing Maps, Google Maps, ArcGIS.com



The National Map Information Flow



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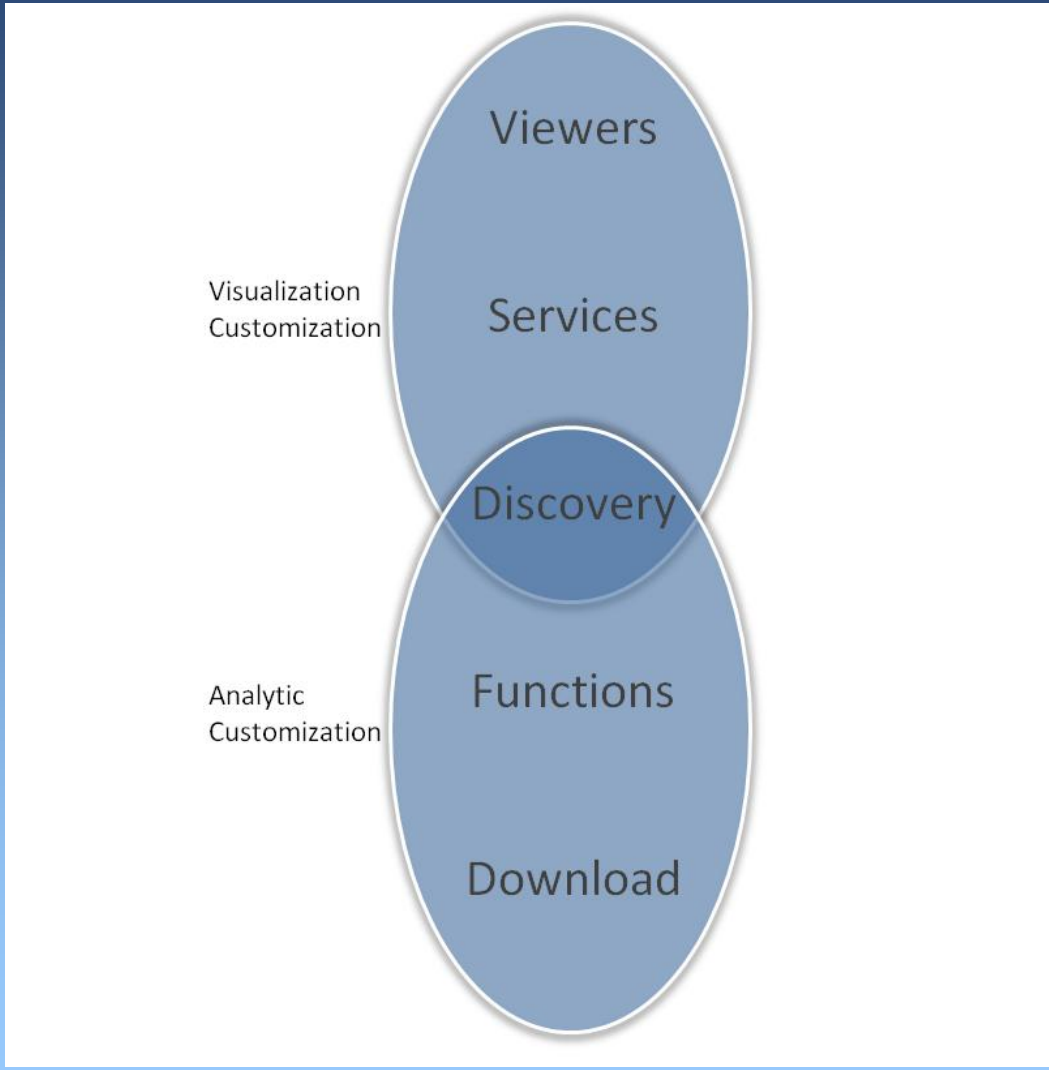
The National Map Delivery Services

- ***The National Map* Delivery is more than a viewer – it has 5 tracks supporting visualization and analysis capabilities**



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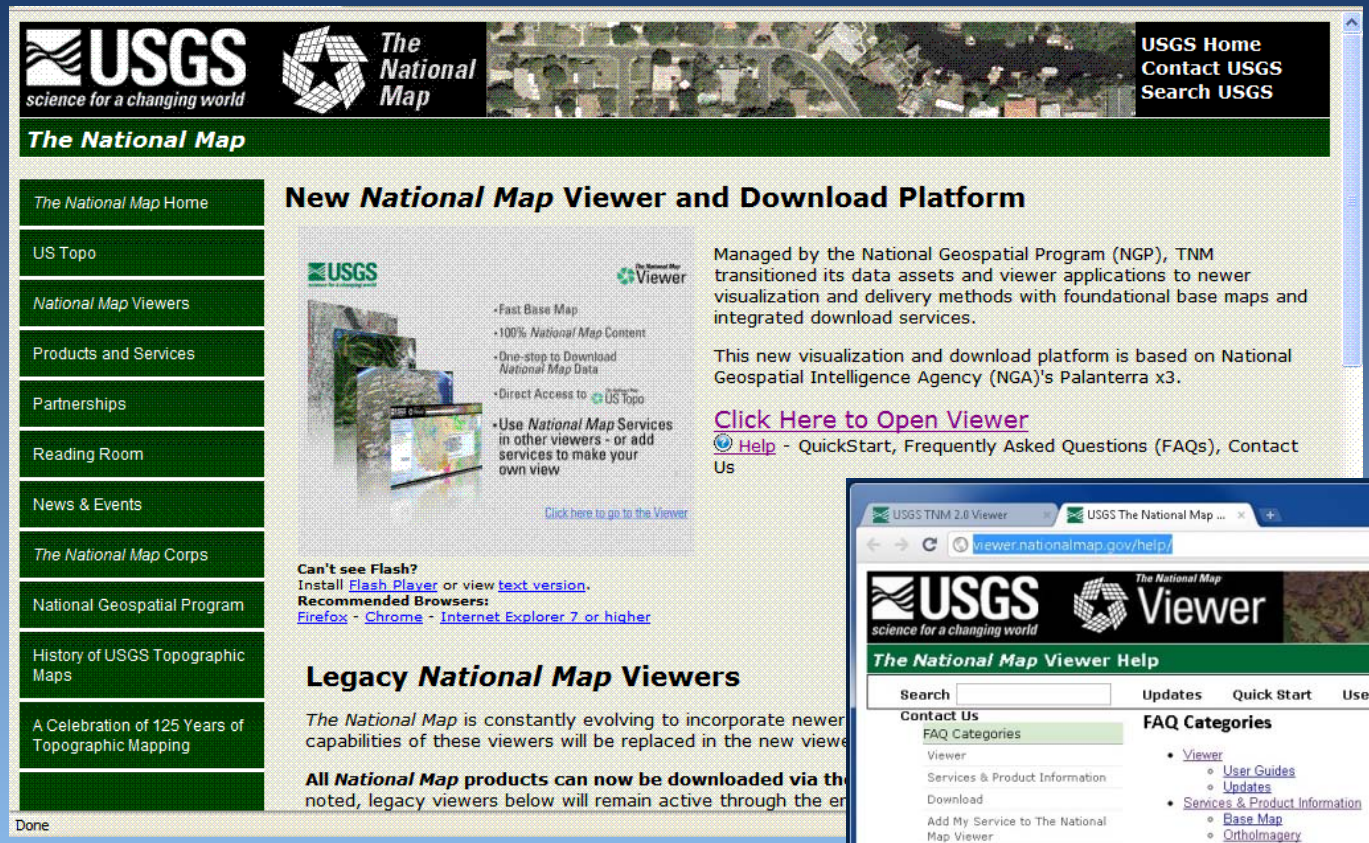
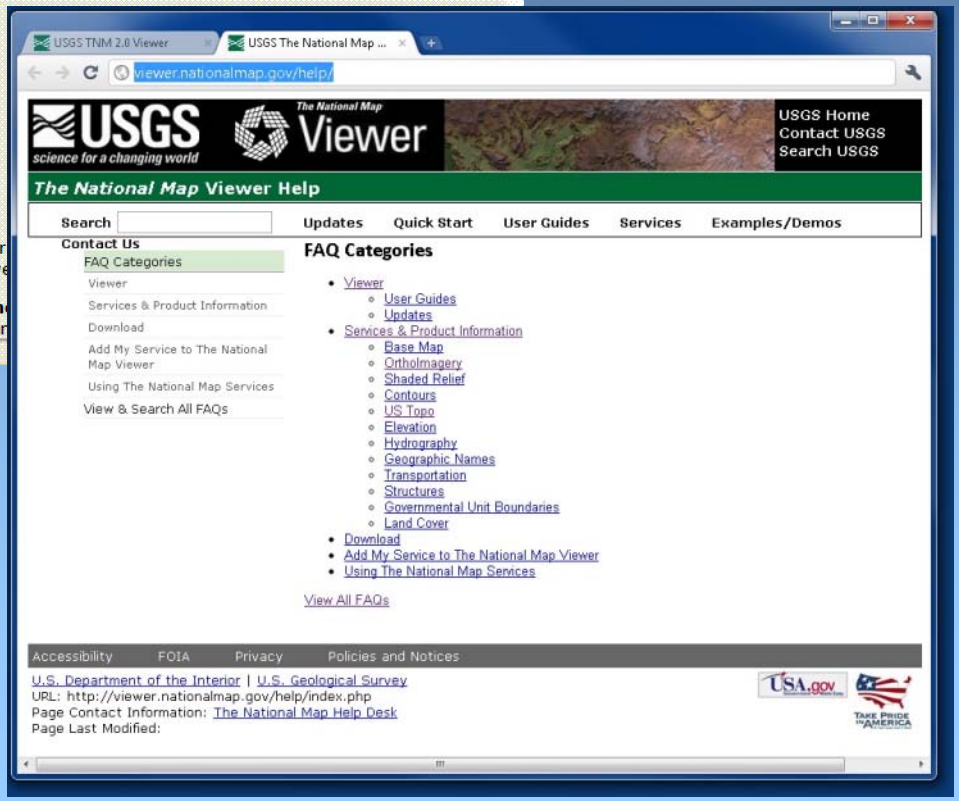
Demo

http://viewer.nationalmap.gov





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Demo Training Time

Using

The National Map Services, Viewer Demo, Download, and CDI Examples

Getting Started

- **Today:**
  - **Review QuickStart Guide**
  - **Review Download Guide**
- **Using Firefox, Chrome, or IE - Open**
  - **Help Page - http://viewer.nationalmap.gov/help**
  - **Viewer - http://viewer.nationalmap.gov/**

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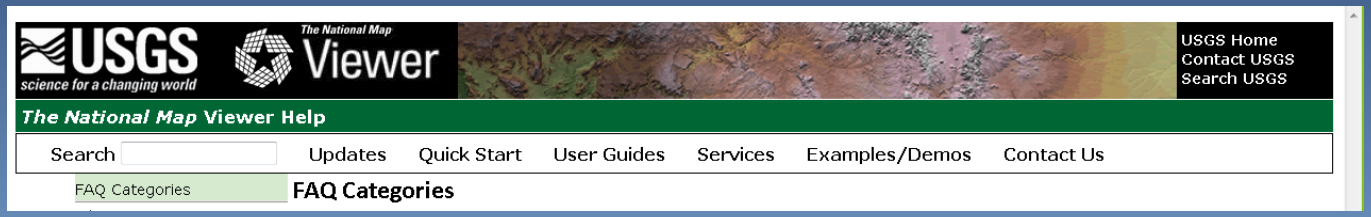
First Off, the help age

- Linked at top of help page



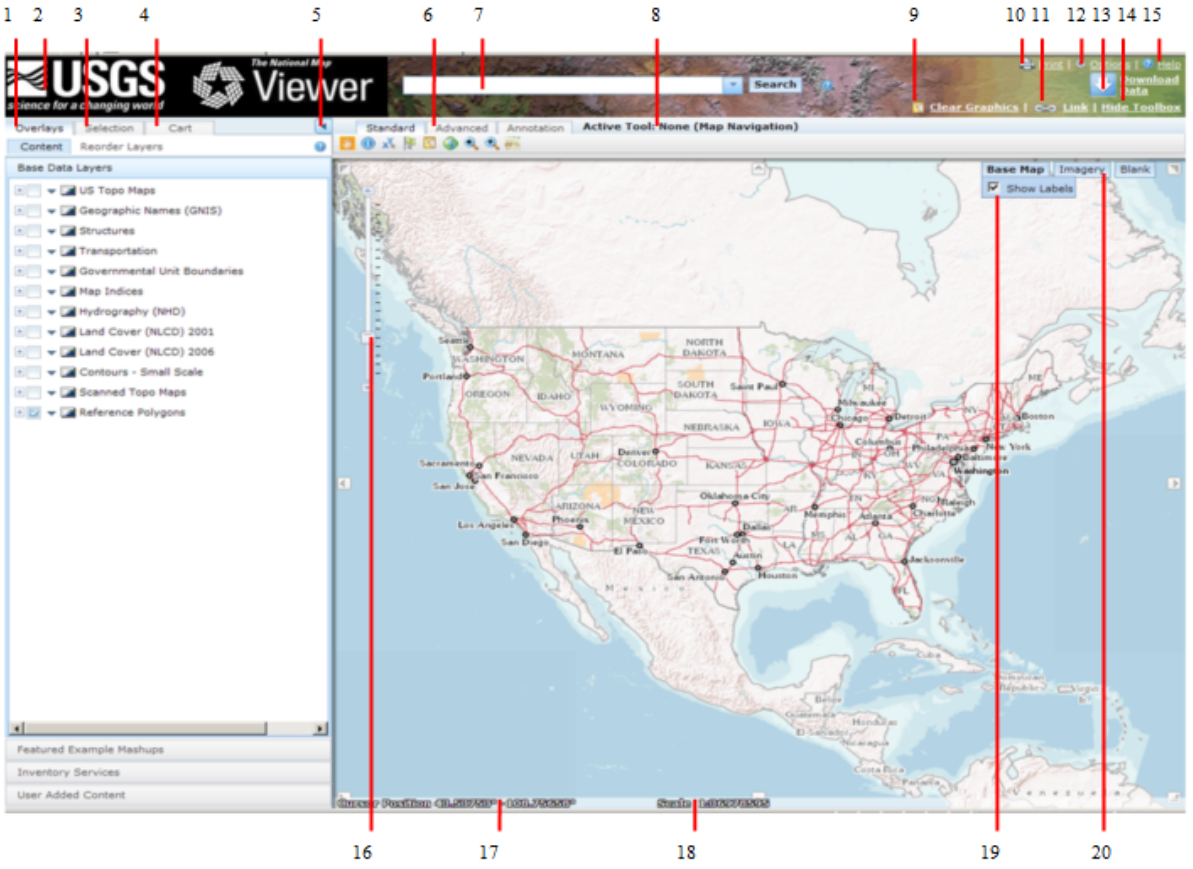
- Searchable FAQs
  - Titles (or the questions) are what is searched on currently

Open the QuickStart Guide

The National Map Viewer Quick-Start Guide

This document provides an overview of the interface and a quick description of some of the tools included in the National Map

User Interface



Roadmap

- Remainder of 2011
  - Initiate creation new composite maps
  - Begin releasing High Quality Scans of Historical Maps
  - Download Enhancements
    - Names
    - Map Indices
    - Contours

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Roadmap

Next Year FY12

- Hosting staged products on public cloud
- Web Feature Services (WFS)
- Web Coverage Services (WCS) (ArcGIS 10.1)
- Building 4 composite basemaps.
- Make easy to use our services in, and switch over to, any viewer
- Make finding TNM product anywhere easier (in search engines, other viewers, etc.).
- Beyond – Blueprinting to NGP Strategy

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