Accession and Sharing of Geographic Information

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Center for Spatially Integrated Social Science
Spatial Resources for the Social Sciences

The CSISS mission recognizes the growing significance of space, spatiality, location, and place in social science research. It seeks to develop unrestricted access to tools and perspectives that will advance the spatial analytic capabilities of researchers throughout the social sciences. CSISS is funded by the National Science Foundation under its program of support for infrastructure in the social and behavioral sciences.

CSISS News

Specialist Meeting on Location-Based Services.

Learning Resources

These introductory materials include **CSISS Classics** and the 1998-2000 edition of the NCGIA Core Curriculum.

Spatial Tools

Here's where you'll find information about software for the exploration and analysis of spatial data.

About CSISS

CSISS people, programs and the original NSF proposal are described here.

Spatial Resources
- Spatial Resources
- Introductory Page
- Literature Search
- ESRI Bibliography
- E-Journals
- Links to Other Sites

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Search Engines

Try CSISS's custom search engine to find spatial analysis resources on the Internet.

Core Programs

CSISS Events

Community Center

Outline

- Geographic information
  - geographically referenced information
- The geolibrary
  - the Alexandria Digital Library
- Issues
  - accession policies

Geographic information

- **Information about the specific characteristics of places on or near the Earth's surface**
  - $<x,z>$ where x is a location in space-time and z is some set of general properties
- **Maps and images in digital form**
  - georeferenced transactions
  - locations of credit card users, cellphone users
- **Voluminous**
  - 5×10^{14} elements at 1 sq m

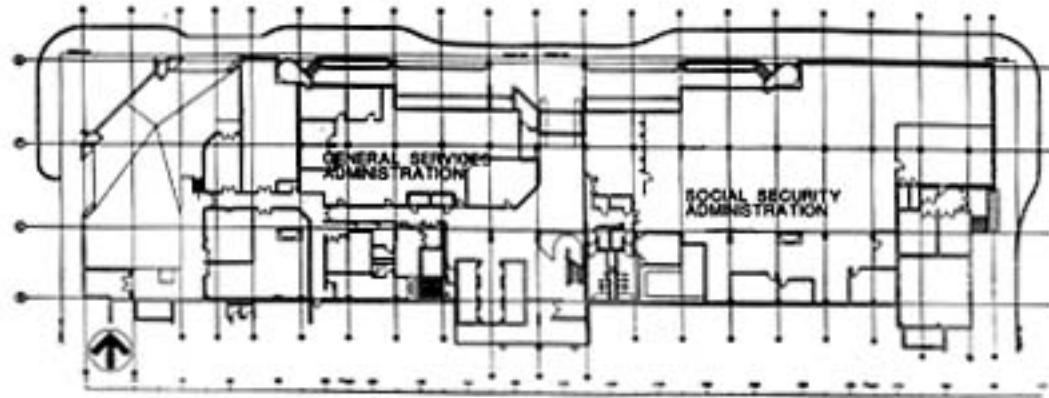| Environmental	Map Layer	Format	Attribute Tables
Geology		Polygon	3-5
Hazard Areas		Polygon	6-10
Existing Land Use		Polygon	2-4
Noise Contours		Polygon	2-4
Floodplain		Polygon	3-5
Soils		Polygon	3-5
Vegetation		Polygon	1-3
Surficial Hydrology		Line/Polygon	12-15
EIR Study Areas		Point/Polygon	1-3
Planning Study Index Reference		Point	1-3

Sharing geographic information

- Produced by national governments as a public service
  - to meet generic needs
  - national mapping programs
- Produced by state, local governments, individuals, corporations, NGOs
  - new technologies, e.g. GPS
  - WWW publishing
  - a vast amount of GI available for sharing
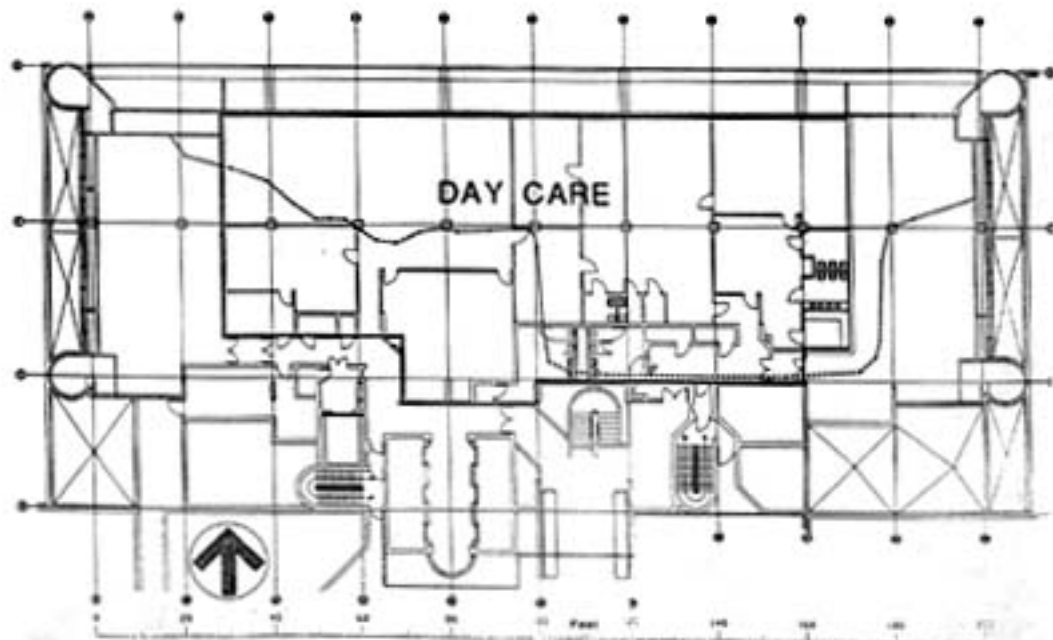
Geographically referenced information

- Information with a geographic footprint
  - findable by geographic location
- The geolibrary
  - a library whose primary search key is geographic location
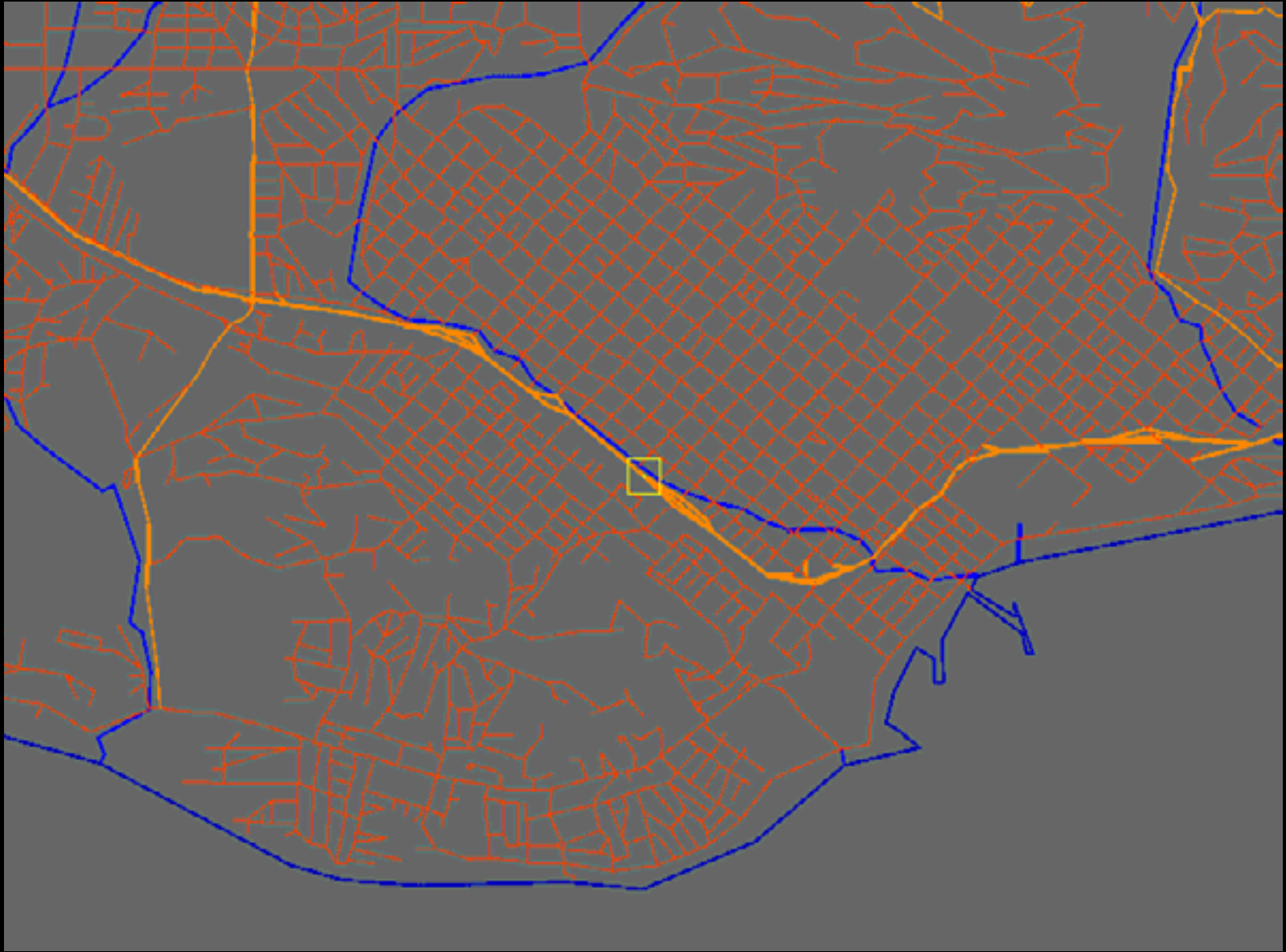
ALFRED P. MURRAH BUILDING FLOOR PLAN

FIRST FLOOR

GENERAL SERVICES
ADMINISTRATION

SOCIAL SECURITY
ADMINISTRATION

SECOND FLOOR

DAY CARE

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GlobeXplorer

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Contact Us

ZOOM +   ZOOM -   ◄ PAN ►   WORLD

Click or drag in the main map to zoom IN.

Your US Address
Address: 1000 University Ave.
City: Palo Alto
State: CA   Go!
Zip Code: Clear
Famous Places
Select a category   Select a location
World Cities ▼   Select a city ▼

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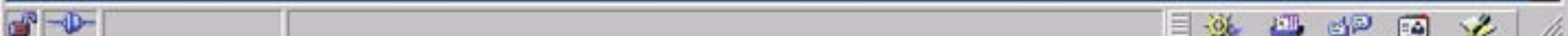
QUICK PLACENAME SEARCH

Search the entire world for...

[   ] Find

Enter "Rome" if you want Rome, Italy.
More information

GENERAL SEARCH

Select collection to search

[CDL Catalog ▼]

Browse collections

Set geographic region

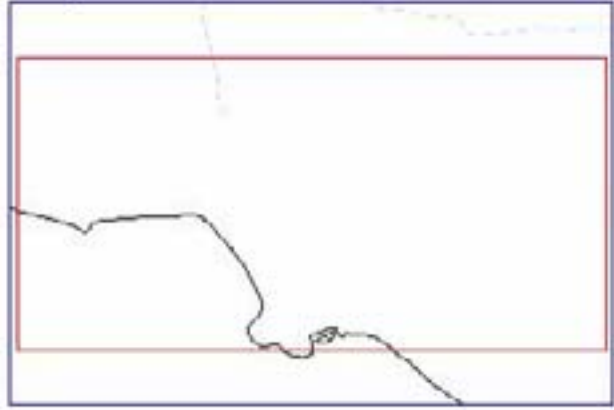Use the map to the right to set the geographic extent of the search, or directly enter bounding coordinates below.

N
[34.43]

W [-118.97] [-117.57] E

[33.73]
S

Words to search for

[   ]

- Any of the above words
- All of the above words
- Exact phrase

Map Browser

Click map to:
[Recenter & Zoom in ▼]

Change location to:
[-- ▼]

Zoom Out

Shape

Reset

In

ADL Search Results

The query that produced these results can be found at the bottom of this page.

1. **DRG o33117g6, Digital Raster Graphic of BLACK STAR CANYON, CA.**
   Type: maps. **Format:** TIFF. **Date:** 1988. **ADL identifier:** adl_catalog:800279.
   HIGHLIGHT IN MAP · COMPLETE DESCRIPTION · BROWSE GRAPHIC · ACCESS/DOWNLOAD

2. **DRG o33117g7, Digital Raster Graphic of ORANGE, CA.**
   Type: maps. **Format:** TIFF. **Date:** 1981. **ADL identifier:** adl_catalog:800280.
   HIGHLIGHT IN MAP · COMPLETE DESCRIPTION · BROWSE GRAPHIC · ACCESS/DOWNLOAD

3. **DRG o33117g8, Digital Raster Graphic of ANAHEIM, CA.**
   Type: maps. **Format:** TIFF. **Date:** 1981. **ADL identifier:** adl_catalog:800281.
   HIGHLIGHT IN MAP · COMPLETE DESCRIPTION · BROWSE GRAPHIC · ACCESS/DOWNLOAD

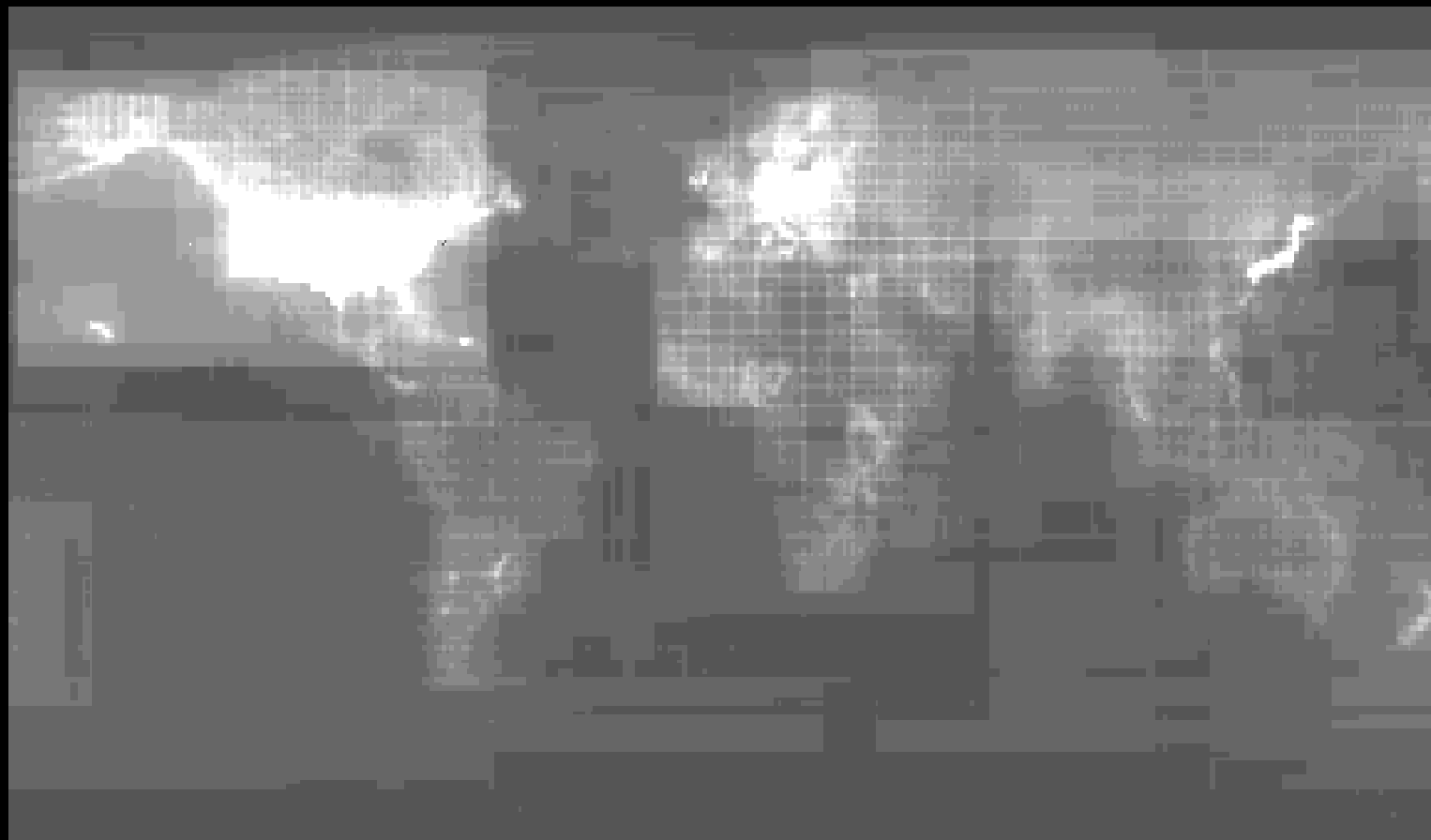# A 5-stage model

1. Specify

2. Search

3. Assess

4. Retrieve

5. Open

Research challenges

- Metadata
  - the FGDC standard
- Defining footprints
  - fuzzy, vernacular
- Mapping between georeferencing methods
  - the gazetteer
- Search over a distributed archive
  - search engines
  - object-level metadata (OLM)
  - collection-level metadata (CLM)

CLM of the Alexandria Digital Library

Knowing where to look

- Approaches to CLM
  - by data type
    - ortho.mit.edu
  - by area of the globe
    - Arctic Data Directory
  - the one stop shop
    - www.fgdc.gov
  - a new generation of search engines
    - identifying footprints

MapFusion (tm) Workstation - By Global Geomatics

File   Edit   Tools   ?

Personal Library | Map | Query/Legend |

Share Folder

📁 e: []

📂 E:\
📁 176b_labs
📁 Acrobat3
📁 Acrobat4
📁 adl
📁 ADOBEAPP
📁 ArcFM Water

Choose the directory where your data files are located

Search Complete!

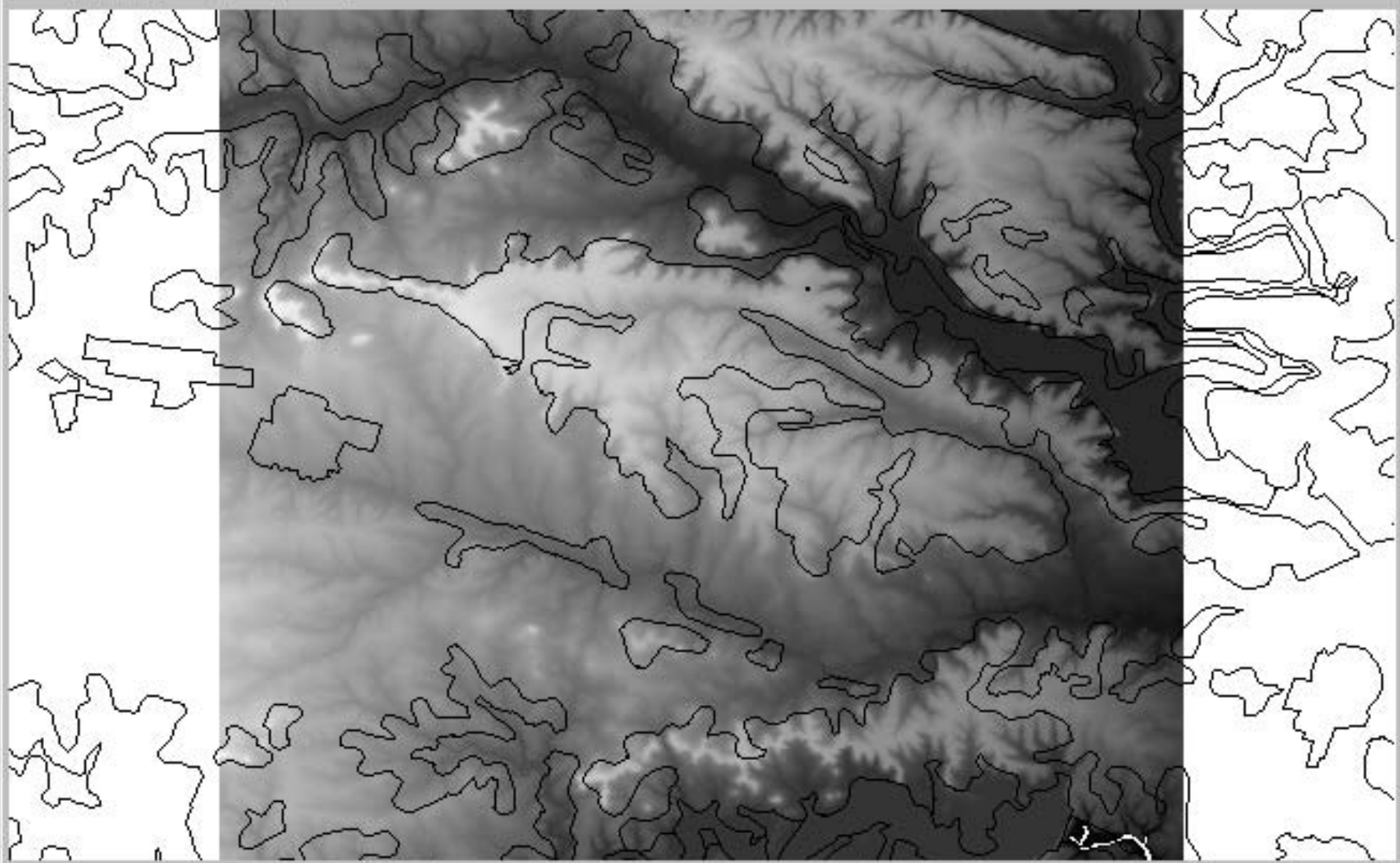161 Files in your library!

Find

Theme	Type	Adapter	Path Name	File Name
DTED/Level 0/33d00 N/98d00 W	Image	dted	e:/GlobalGeo/Common/Geodata/demo/dted0/dt...	DTED(DISK
DTED/Level 1/32d00 N/98d00 W	Image	dted	e:/GlobalGeo/Common/Geodata/demo/dted1/dt...	DTED(DISK
DTED/Level 2/31d15 N/97d45 W	Image	dted	e:/GlobalGeo/Common/Geodata/demo/dted2/dt...	DTED(DISK
225886	Matrix	geotiff	e:/176b_labs/225886.tif	225886
225886	Image	geotiff	e:/176b_labs/225886.tif	225886
CADRG/1:50K/zone1/32d00 N/98d...	Image	rpf	e:/GlobalGeo/Common/Geodata/demo/cadrg/rpf	1:50K@1@
CADRG/1:50K/zone2/32d00 N/98d...	Image	rpf	e:/GlobalGeo/Common/Geodata/demo/cadrg/rpf	1:50K@2@
CADRG/1:1M/zone1/33d06 N/99d1...	Image	rpf	e:/GlobalGeo/Common/Geodata/demo/cadrg/rpf	1:1M@1@(
CADRG/1:1M/zone2/33d06 N/100d...	Image	rpf	e:/GlobalGeo/Common/Geodata/demo/cadrg/rpf	1:1M@2@(
CADRG/1:250K/zone1/32d05 N/98...	Image	rpf	e:/GlobalGeo/Common/Geodata/demo/cadrg/rpf	1:250K@1(
CADRG/1:250K/zone2/32d05 N/98...	Image	rpf	e:/GlobalGeo/Common/Geodata/demo/cadrg/rpf	1:250K@2(
uscnty	Area	shp	e:/176b_labs	uscnty

Map Selected Coverage(s)

Share Data

Objectives of interoperability

- Using technology to overcome differences
  - rather than imposing uniformity
  - enabling rather than intrusive
  - specifications not standards
- Bridging information communities
- Speeding and easing access to data

Major forces in spatial data interoperability

- National Spatial Data Infrastructure
  - Federal Geographic Data Committee
- Open GIS Consortium
  - industry, government, academic
- National, regional, and international standards organizations

Accession policies

- **Emphasis on the static and generic**
  - inherited from earlier technologies
  - framework versus thematic data
- **Distributed archives**
  - specialization
  - CLM problem
- **Satellite remote sensing**
  - single or parallel dissemination
- **ADL and the library model**
  - gatekeeper
  - forensic imagery

Accession policies (2)

- **Security and 9/11**
  - hiding
  - corrupting
- **Sampling the data stream**
  - in space and time
- **Processing at source**
  - detecting change
- **Integrating through time**
  - NHGIS

Conclusion

- A well-defined information type
- New possibilities resulting from new technologies
- Very rapid increase in demand and applications
  - in science and in society
- Massive data volumes
  - impossible to archive it all
- Much success in data sharing
  - a testbed for issues and technologies