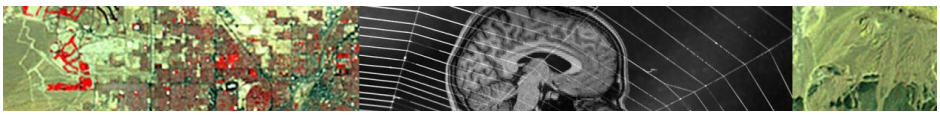
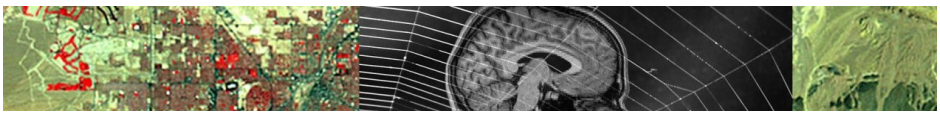
spatial@ucsb
perspectives for teaching and research



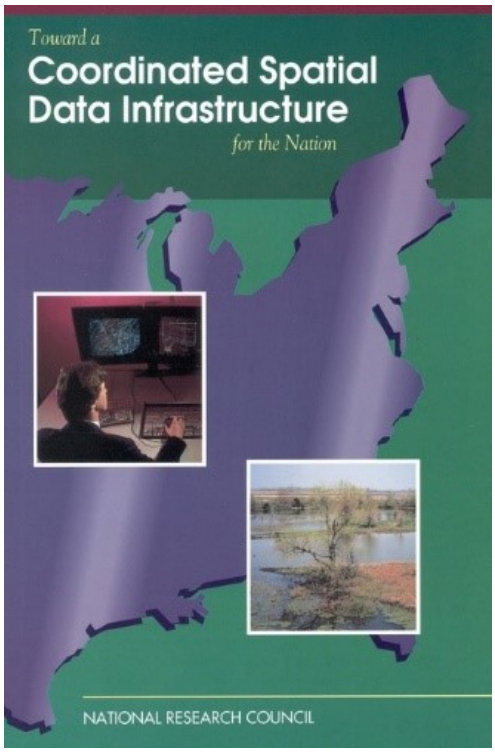
GSI Governance

Michael F. Goodchild
University of California
Santa Barbara



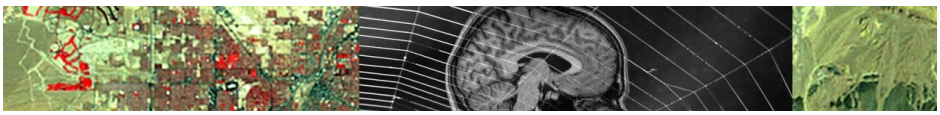
The National Spatial Data Infrastructure

- Established in the early 1990s
- Analogous in some respects to GSI



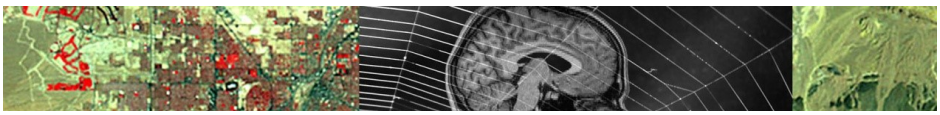
- The costs of geospatial data production were declining rapidly
- The federal government no longer had a monopoly on geospatial data production
- Its future role would be more as a coordinator, developer of standards

http://www.nap.edu/catalog.php?record_id=2105



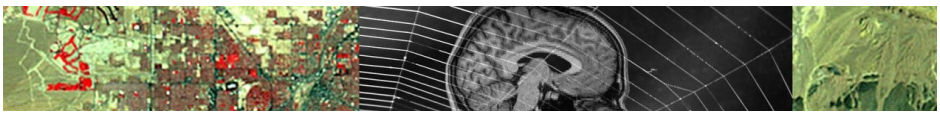
1994 authorization

- April 11, Executive Order 12906
  - "The National Performance Review has recommended that the executive branch develop, in cooperation with State, local, and tribal governments, and the private sector, a coordinated National Spatial Data Infrastructure to support public and private sector applications of geospatial data in such areas as transportation, community development, agriculture, emergency response, environmental management, and information technology."
  - "Now, Therefore, by the authority vested in me as President…" (Bill Clinton)
- Entrusted to Federal Geographic Data Committee
- Can we rewrite this for GSI?



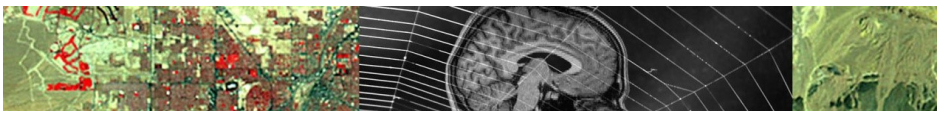
Framework data sets

- Data sets to which other information could be attached
  - geodetic control
  - hydrography
  - administrative boundaries
  - transportation
  - topography
  - the cadaster
  - orthoimagery
- “Data you can trust”



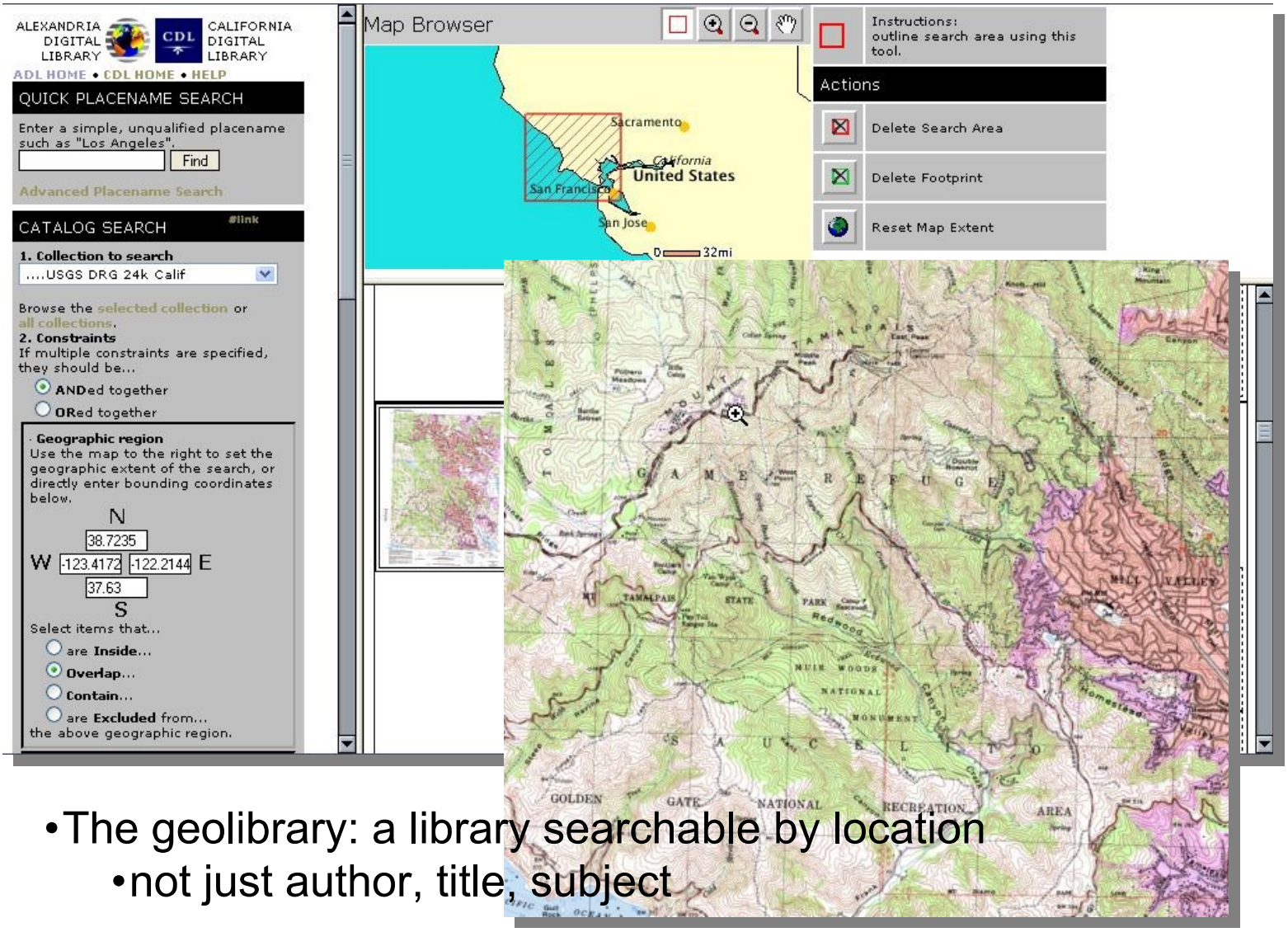
Early activities

- Metadata
  - descriptions of data sets
  - useful for spatial search, deciding fitness for use
- “What’s in it for me?”
  - grants to provide metadata
    - “Don’t duck metadata” campaign
- Metadata standards
  - Content Standard for Digital Geospatial Metadata
  - ISO 19115 etc.

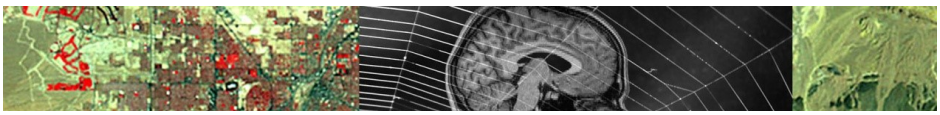


Early activities

- Data sharing
- The data warehouse
  - the “One-Stop Shop” for geospatial data
  - how to choose between warehouses?
    - collection-level metadata
- The geoportal
  - harvesting metadata records from many warehouses
  - allowing users to search through a single library and gain remote access to a source



- The geolibrary: a library searchable by location
  - not just author, title, subject



Early activities

- Interoperability
  - can I work with two datasets of the same area?
  - what if there is more than one version of the same framework layer?
- The Open GIS Consortium
  - later The Open Geospatial Consortium
  - focused on enabling interoperability

National Map Viewer - Mozilla Firefox

File Edit View History Bookmarks Yahoo! Tools Help

http://nmviewogc.cr.usgs.gov/viewer.htm

Google NGS Online Review S... ISI Web of Knowledg... Login NPR : National Public ... CNN.com - Breaking ... COX.net for Santa Ba... Home - MSC_GRS Joh...

USGS The National Map

The National Map Viewer

Map Information | Help

Overview
Zoom In
Zoom Out
Zoom Back
Find Place
Full Extent
Re-center
Identify
Elevation
Measure
Clear
Bookmark
Print
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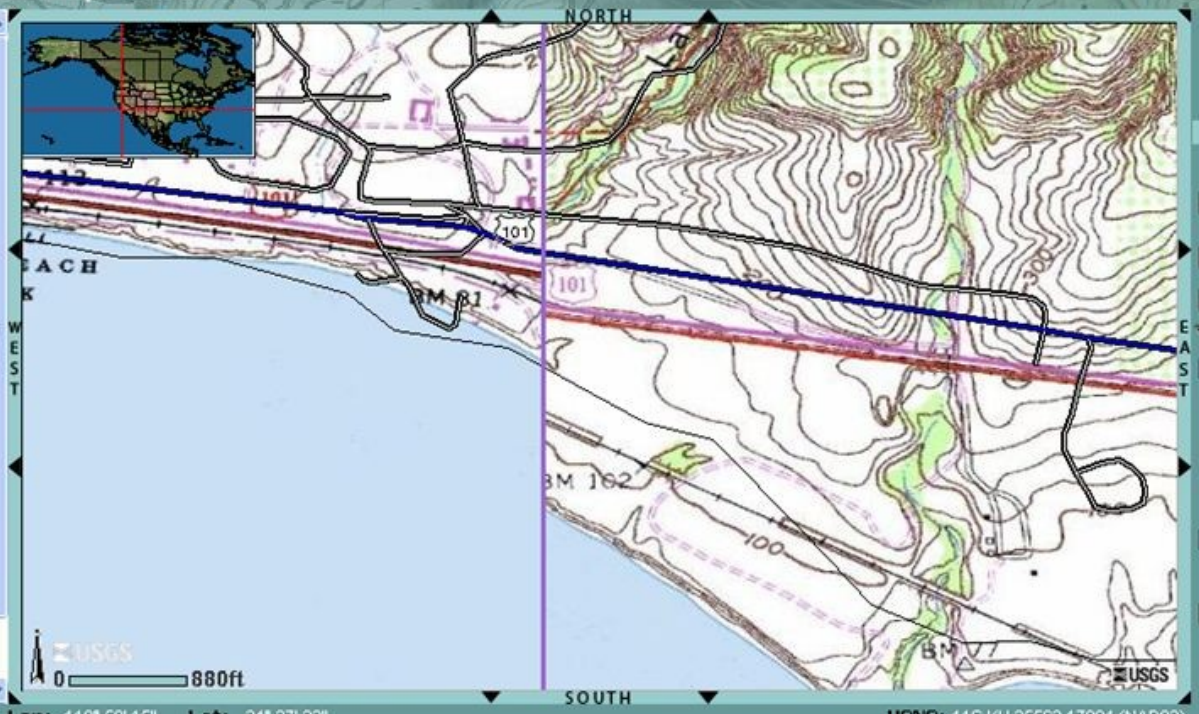


Scale

Layers Legend

(NGA)
Natural Hazards/Weather
Public Land Records
Structures
Topographic Maps
INDEX/STATUS (TOPOGRAPHIC MAPS)
1:100,000 Index
1:250,000 Index
7.5 Minute Index
USGS Katrina Topo Maps
USGS QUADRANGLES
USGS Raster Graphics (Topo Maps)
Transportation

Refresh Map

Lon: -119° 59' 15" Lat: 34° 27' 32" USNG: 11S KU 25562 17084 (NAD83)

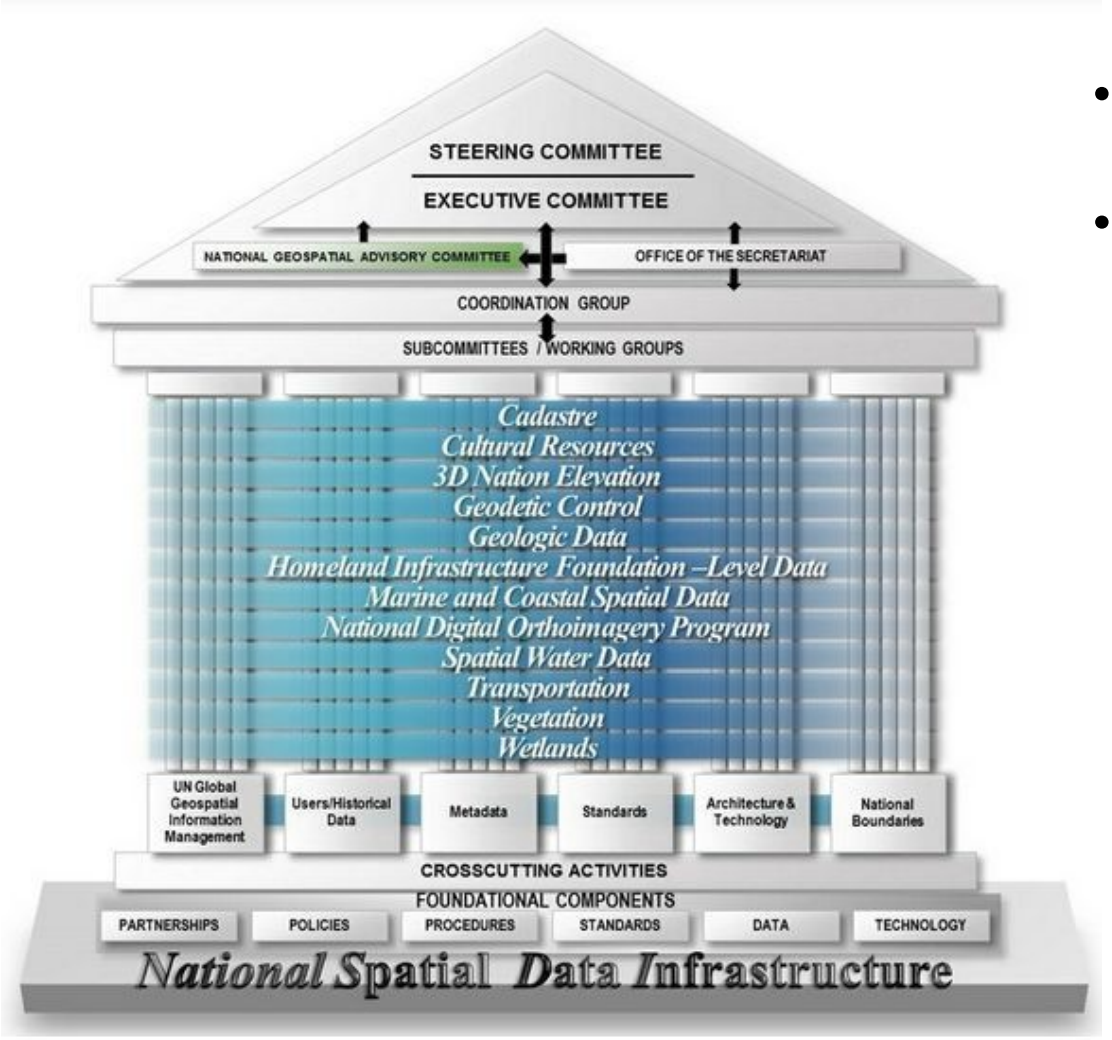
Partners: USGS | NOAA | NOAA Coastal Services Center (CSC) | U.S. Forest Service | U.S. Fish & Wildlife Service | National Coastal Data Development Center (NCDDC) | National Snow and Ice Data Center (NSIDC) | National Environmental Satellite, Data, and Information Service (NESDIS) | National Climatic Data Center

U.S. Department of the Interior, U.S. Geological Survey | Contact: National Map Team
URL: http://nmviewogc.cr.usgs.gov/ (R91) | Last modification: 09/14/2005
Privacy Statement | Disclaimer | FOIA | Accessibility

FIRSTGOV

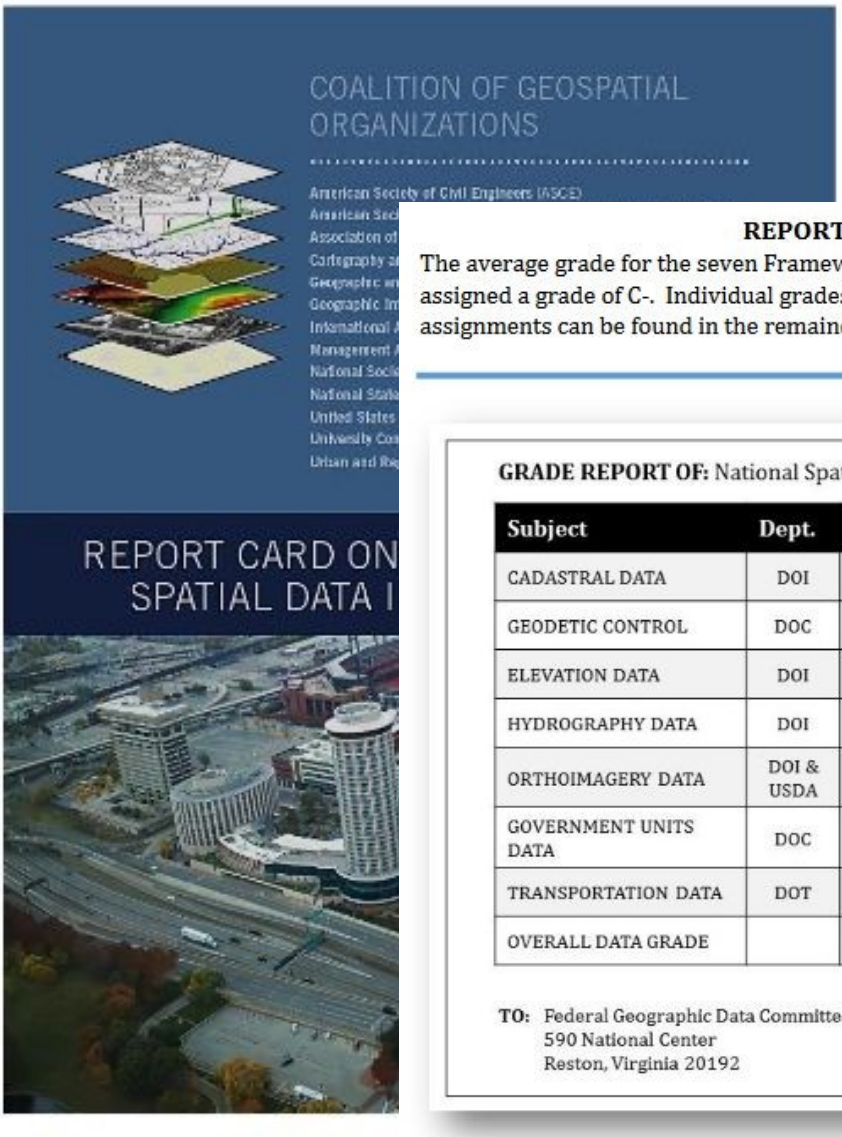
Transferring data from ms1.er.usgs.gov...

start National Map Viewer -... 12:06 PM



- 12 thematic areas
- National Geospatial Advisory Committee

https://www.fgdc.gov/organization



2015 Report Card at http://www.cogo.pro/uploads/COGO-Report_Card_on_NSDI.pdf

REPORT CARD GRADES (Figure 1)

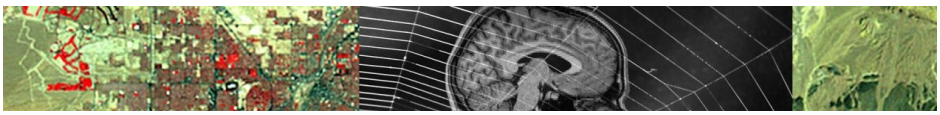
The average grade for the seven Framework data themes is C. The NSDI as a comprehensive entity is assigned a grade of C-. Individual grades are identified below. The rationale for these grade assignments can be found in the remainder of this report.

GRADE REPORT OF: National Spatial Data Infrastructure (NSDI) **SEMESTER:** Fall 2014

Subject	Dept.	Grade	Subject	Dept.	Grade
CADASTRAL DATA	DOI	D+	CAPACITY	FGDC	C
GEODETIC CONTROL	DOC	B+	CONDITION	FGDC	D
ELEVATION DATA	DOI	C+	FUNDING	Various	D
HYDROGRAPHY DATA	DOI	C	FUTURE NEED	FGDC	D
ORTHOIMAGERY DATA	DOI & USDA	C+	OPERATION & MAINTENANCE	FGDC	C
GOVERNMENT UNITS DATA	DOC	C	PUBLIC USE	FGDC	C
TRANSPORTATION DATA	DOT	D	RESILIENCE	FGDC	C
OVERALL DATA GRADE		C	COMPREHENSIVE GRADE		C-

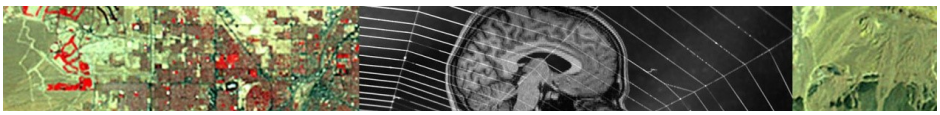
TO: Federal Geographic Data Committee
590 National Center
Reston, Virginia 20192

FROM: Coalition of Geospatial Organizations (COGO)
http://www.cogo.pro
See the full report for an explanation of each grade.



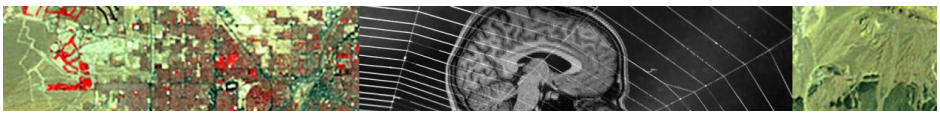
Updating the SDI vision

- Geospatial infrastructure
  - data
  - software
  - organizations
  - people
- Accessibility
- Engagement
- GSI as an element of an updated vision of geospatial infrastructure



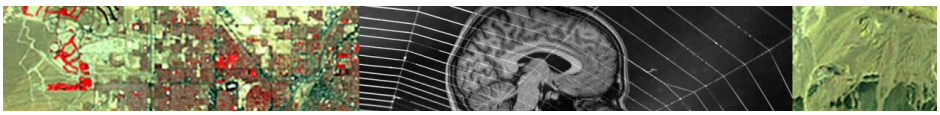
National Center for Geographic Information and Analysis

- 1988 funding by NSF
- Three sites
  - UC Santa Barbara (lead; environmental geography)
  - SUNY Buffalo (social geography)
  - University of Maine (surveying engineering)
- Advisory Board
  - semiannual meetings



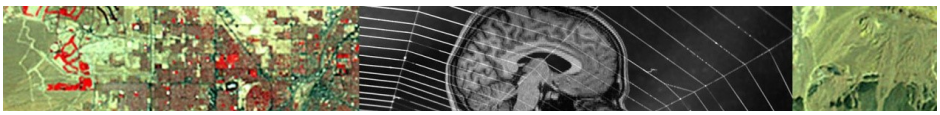
Audiences

- Geospatial research community
  - geography, computer science, cognitive science, spatial statistics, image processing, …
- GIS industry
- Users
  - researchers
  - government agencies
- Geography as a discipline
  - NCGIA new funding to Geography and Regional Science program at NSF



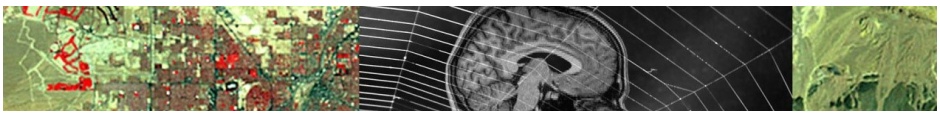
National Center for Ecological Analysis and Synthesis

- 1994 NSF and State of California funding
- Science agenda established by a Science Advisory Board
  - US academics
  - research groups drawn internationally
- Located off the UCSB campus
- Research conducted by working groups
  - one to two years
  - face-to-face and remote



Sustainability

- NSDI at 25
  - federal agency
- NCGIA at 30
  - 8+3 years NSF
  - NCRST, CSISS, …
  - UCGIS
- NCEAS at 25
  - NSF, State of California, foundations



Summary Points

1. There are many useful models of governance for GSI
2. Governance must address the various audiences
   - and ensure each of them a voice
3. Regular meetings with advisors ensures well documented progress
4. Good internal organization can produce creative tension
5. No existing institution should be perceived as owning GSI