The National Geological and Geophysical Data Preservation Program:

Its Origin, Status, and Future

John C. Steinmetz and Frances Pierce

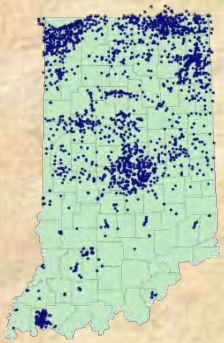
Geoscience Data Preservation Techniques Workshop

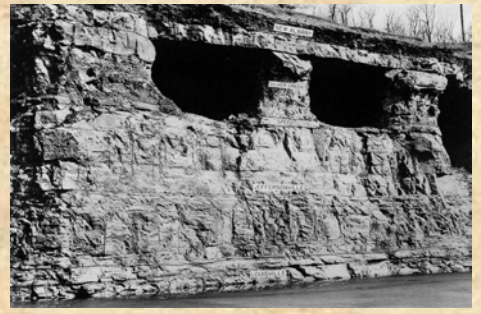
July 14, 2009

Data generation

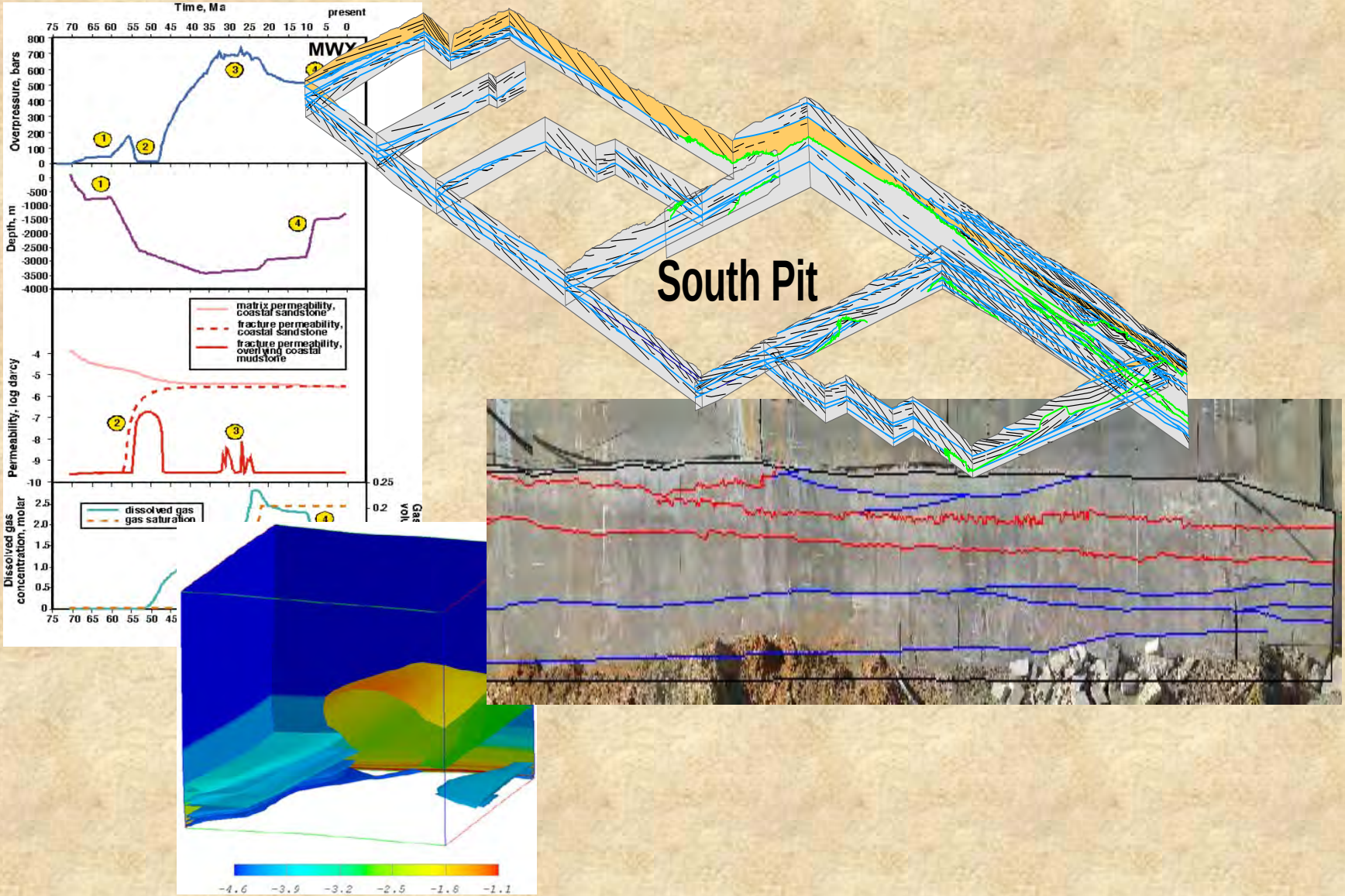
Types of data at State Geological Surveys

- Cores
- Core descriptions & photographs
- Outcrop descriptions and photographs
- Rock & mineral specimens
- Fossil specimens & paleontologic data
- Thin sections & rock analyses
- Maps

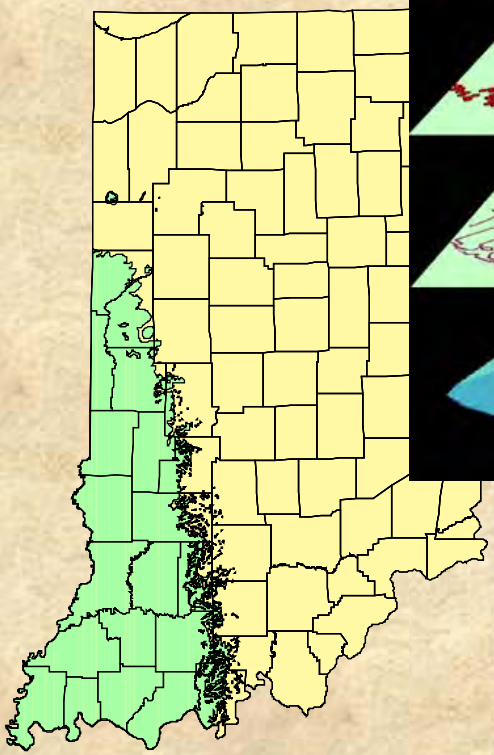


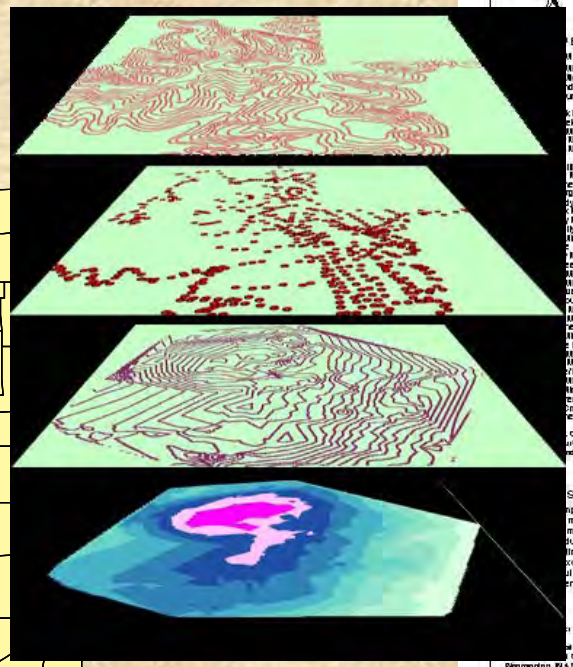


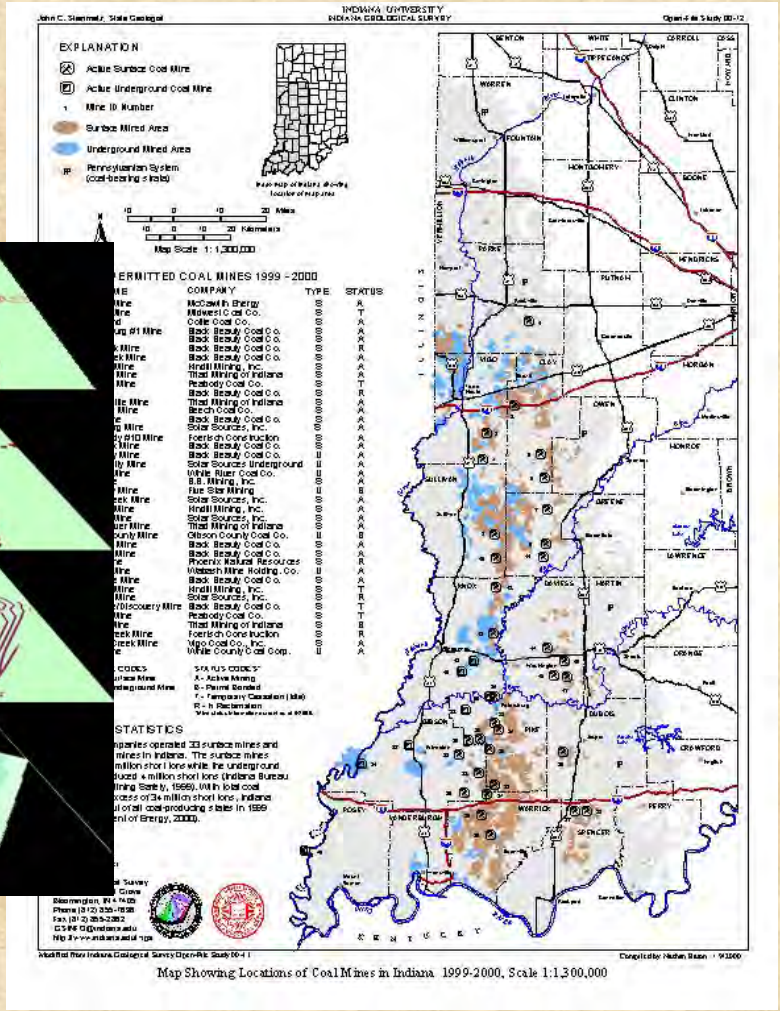
Digital information of an increasing variety



Increasingly more things GIS







Catalogs, directories, and databases

- Core samples and well samples
- Coal analyses
- Coal stratigraphy
- Coal mines and producers
- Petroleum Exploration, Development, and Production
- Industrial mineral producers
- Abandoned industrial minerals quarries
- Physical testing data for limestone and building stones
- Gamma-ray logs
- Numerous GIS databases
- Publications catalog

Clients

Mineral industry

Teachers

Citizens

Consultants

Libraries

Government agencies

Builders

Legislators

Engineers

Academicians

Hobbyists

Activists

Scientists

Planners

School children

Farmers

Developers

Regulators

Neighboring states

Office of Fossil Energy, Department of Energy-sponsored study
by the American Geological Institute

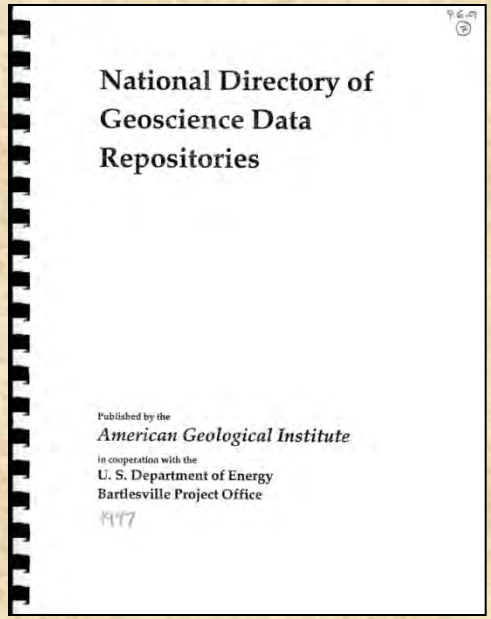
National Geoscience Data Repository System

- 1993-1997 – Phase I
  - Feasibility study to establish an NGDRS
    - 1,100 questionnaires, 53 site visits
    - Documented types and quantity of data
    - Documented data needs and priorities of potential users of the system.
  - Proposed establishment of an NGDRS
    - Nationally integrated system of data centers
    - Develop national standards for storing, processing, distributing data
    - Develop plan for long-term funding
    - Act quickly to rescue data at risk

National Geoscience Data Repository System

- 1995-1997: Phase II
  - Developed standards for indexing and cataloging data
  - Designed a national clearinghouse: Concept of GeoTrek *Metadata Supercatalog*

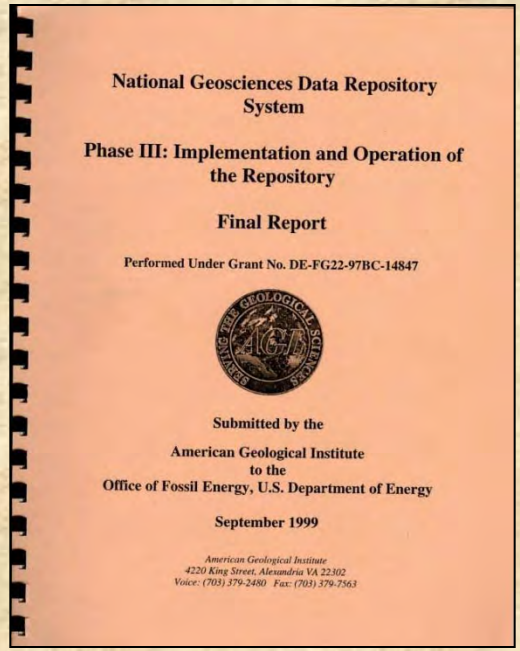
- 1997: *AGI National Directory of Geoscience Data Repositories*


National Directory of
Geoscience Data
Repositories

Published by the
American Geological Institute
in cooperation with the
U. S. Department of Energy
Bartlesville Project Office
1997

National Geoscience Data Repository System

- 1998-2001: Phase III
  - Implementation and Operation
  - To be self-sustaining after one year
  - Private corporate and government support
  - Data transfer, indexing, and cataloguing
  - 1998: Attempt to acquire Continental Hanger and offices at old Stapleton Airport in Denver
  - Geotrek online catalogue



National Geosciences Data Repository System

Phase III: Implementation and Operation of the Repository

Final Report

Performed Under Grant No. DE-FG22-97BC-14847

Submitted by the

American Geological Institute
to the
Office of Fossil Energy, U.S. Department of Energy

September 1999

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NGDRS

&

Geotrek

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NGDRS Overview

Technical Facts

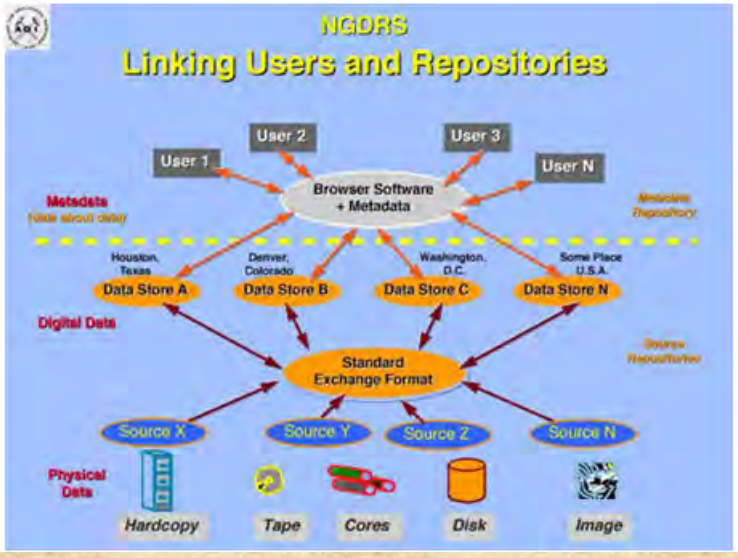
Access the NGDRS

AGI Home

NGDRS Tutorial #1

Understanding the Metadata Catalog Architecture

NGDRS is a system of regional data repositories, developed in conjunction with existing state agencies and private organizations. Each repository contains unique geosciences related information, primarily - but not exclusively - related to its locale. The data is in a variety of forms, ranging from digital well logs and seismic reflection data at some centers to paper and film records or rock core and cuttings samples at other repositories.



Directory of Repositories

Tutorial

FAQ

NGDRS Home

2001

Examine the prospect of a New Data Preservation System for the Nation

National Research Council Study Committee

NRC Committee Sponsorship

- American Association of Petroleum Geologists
- AAPG Foundation
- American Geological Institute
- Department of Energy–Fossil Energy
- Department of Energy–Yucca Mountain
- Geological Society of America
- National Science Foundation (EAR)
- Paleontological Society
- Petrotechnical Open Software Corporation
- Schlumberger, Ltd.
- Smithsonian Institution
- U.S. Geological Survey

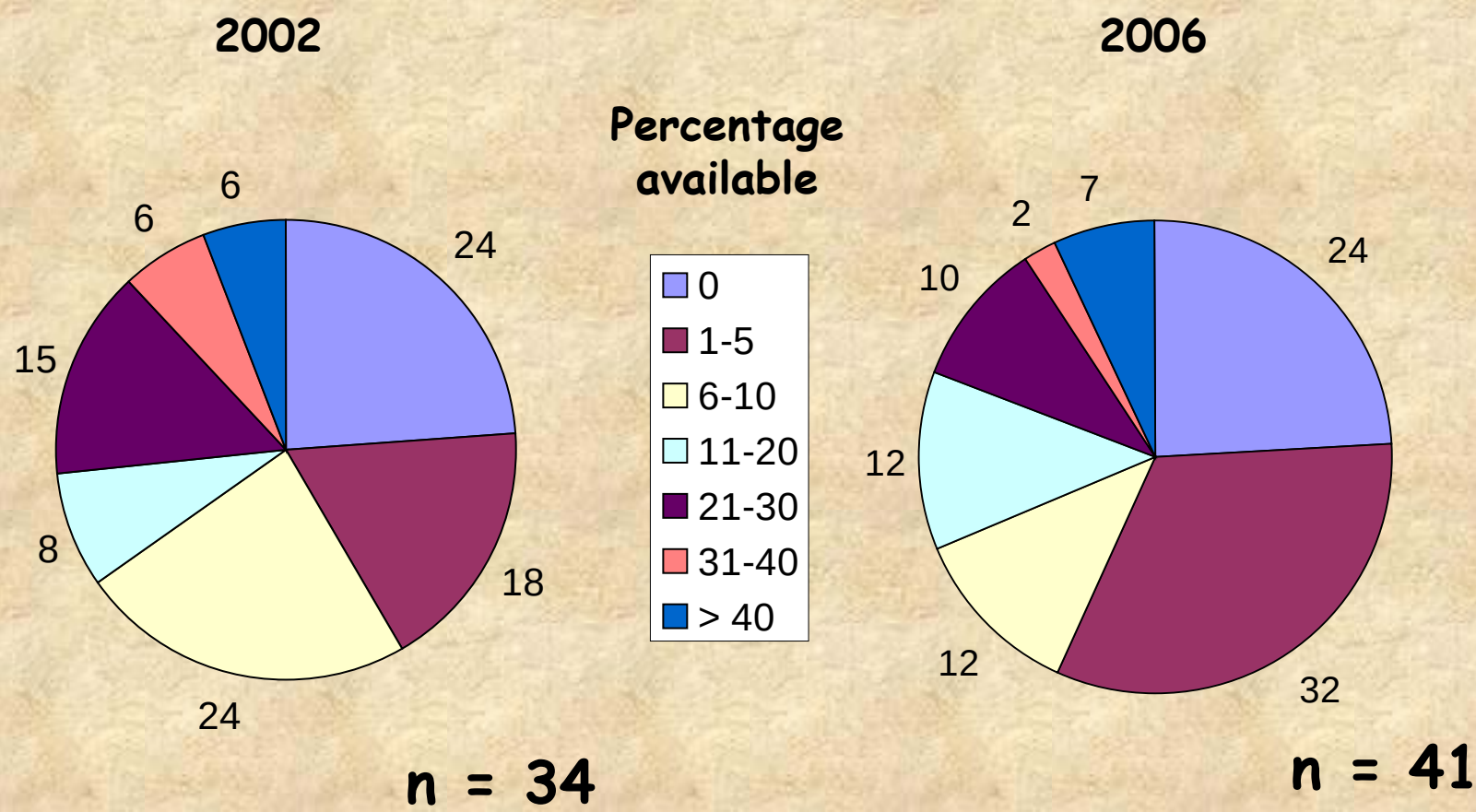
Minimum Estimate of the Volume of Geoscience Data & Collections in the U.S.

	UNITS	*TOTAL #*
Core (ice)	tubes	14,500
Core (rock/sediment)	boxes	8,015,715
Cuttings	boxes	10,402,000
Fossils	specimens	122,935,000
Geochemical analyses	paper	1,750,000
Minerals/Rocks	specimens	828,000
Other well records	variety	2,045,000
Scout tickets	variety	21,960,350
Seismic (2- & 3-D)	miles & miles^2	357,270,149
Thin sections	slides	647,000
Velocity surveys	paper & digital	87,500
Washed residues	bags	180,000
Well logs	variety	6,021,700

NRC, 2002

The Nature of the Challenge

Core space available in State Geological Surveys



Exposure to the elements

Over-crowded facilities

Indiana Geological Survey

Little or no curation

Indiana Geological Survey

The Nature of the Challenge

"Temporary" storage

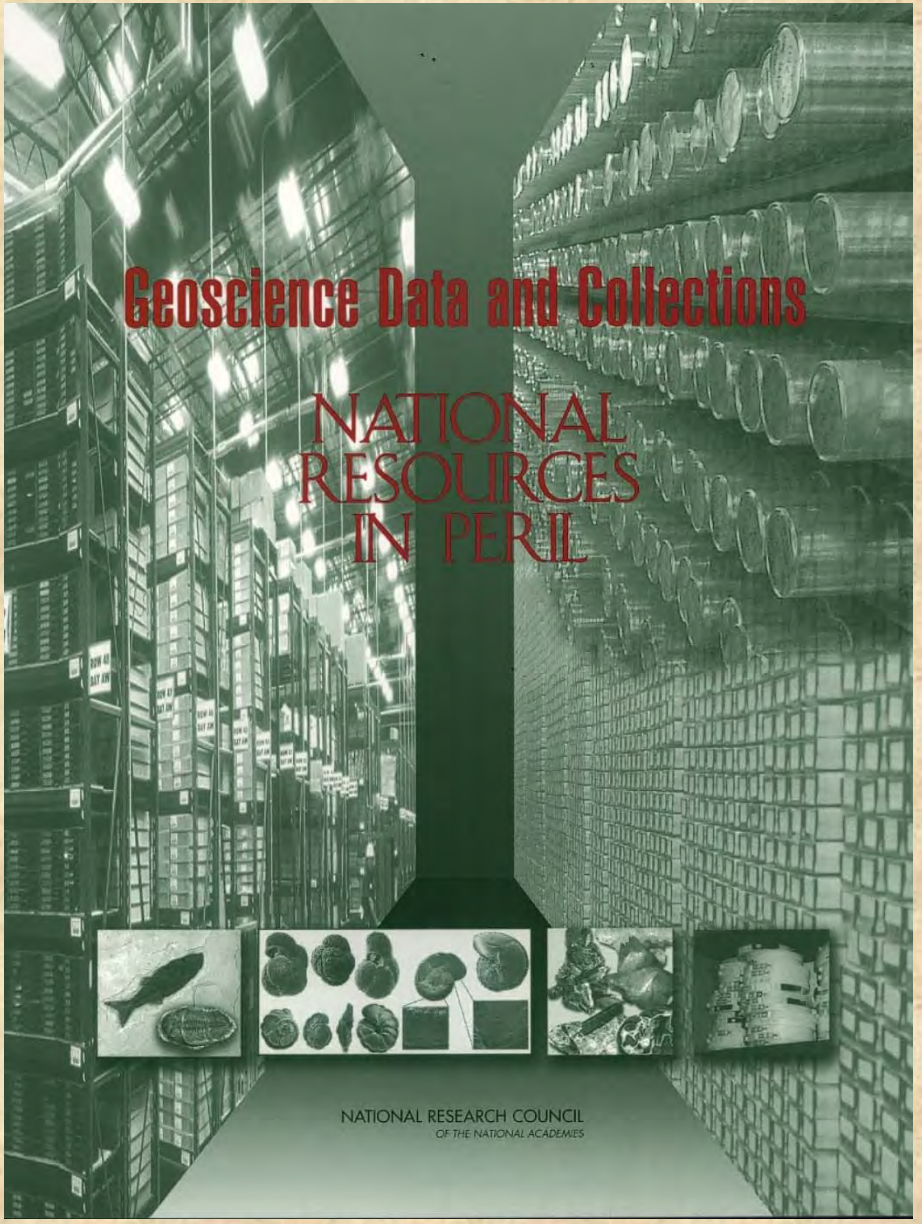
Geologic Materials Center,
Eagle River, Alaska

National Research Council

Geoscience Data and Collections: National Resources in Peril

2002

www.nap.edu



The National Geological and Geophysical Data Preservation Act of 2005

USGS
science for a changing world

Implementation Plan for the National Geological and Geophysical Data Preservation Program

by the Data Preservation Working Group of the National Cooperative Geologic Mapping Program Federal Advisory Committee

October 10, 2006

Implementation Plan delivered to Congress October 10, 2006

National Digital Catalog

- Distributed and redundant
- "broker" of standards, not a "driver"
- Minimal metadata
- Interoperable
- Search & retrieve

Physical Infrastructure Awards

- Construction of physical facilities
- Equipment to prepare, store, retrieve, and examine collections and data
- Operations
- One-time, non-recurring
- Need to demonstrate maintenance will continue

NGGDPP

Digital Infrastructure Awards

- Conversion of paper records to digital formats
- Updating of digital materials and formats
- Staffing for computer programming and database construction

Outreach and Applications Awards

- Raise public awareness, interpretation, application, and use

Outreach and Applications Awards

- Raise public awareness, interpretation, application, and use
- **Training sessions and workshops**

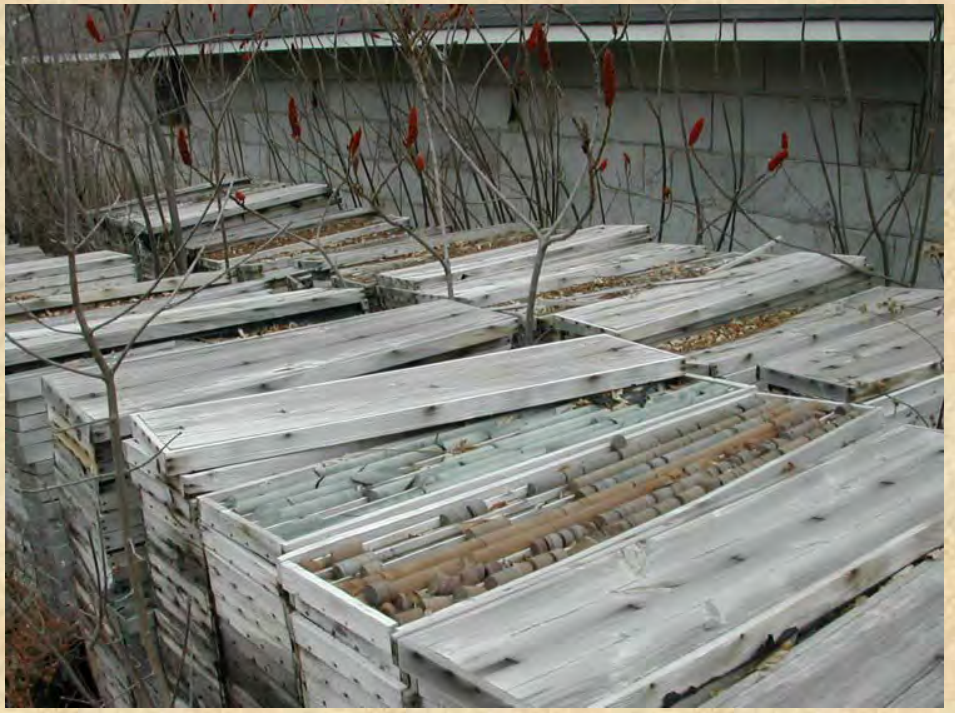
Geoscience Data Preservation Techniques Workshop

July 14 & 15, 2009 • Bloomington, Indiana

Presented by: AASG Association of American State Geologists USGS science for a changing world

Special Needs Awards

- "Data rescues," i.e., imminent danger of loss by deteriorating surroundings or discard



NGGDPP

Terms:

- 5 years (2005-2010)
- Authorization: $30M for each of 5 years
- USGS appropriation: ~ $1M per year
- Competitive grants program
  - 1:1 federal:state match

AASG Strategy

Spring and fall Federal Liaison meetings

- Awareness: Federal Agencies, Capitol Hill
- Advocates: NGOs (AGI, IPPA, AAPG, NMA)
- Sponsors: "Appropriations Champions"

Congressional appropriations: A Sisyphean task

~~Senator Craig, Idaho~~

~~Senator Domenici, New Mexico~~

~~Senator Stevens, Alaska~~

~~Rep. Jindal, Louisiana~~

Senator Murkowski, Alaska

Senator Bingaman, New Mexico

Update on Reauthorization

- **Single sentence in the 2009 Energy Bill, ACELA, the American Clean Energy Leadership Act**

13 **SEC. 336. PRESERVATION OF GEOLOGICAL AND GEO-**
14 **PHYSICAL DATA.**
15 Section 351(k) of the Energy Policy Act of 2005 (42
16 U.S.C. 15908(k)) is amended by striking "2010" and in-
17 serting "2020".

- **Passed out of the Senate Energy & Natural Resources Committee**

AASG
Association of American State Geologists

Another Front: Complementary to the NGGDPP

- Introduced by Senator Murkowski (AK-R)
- Amendment in ACELA

AMENDMENT NO._____ Calendar No._____

Purpose: To provide for a geologic materials archiving grant program.

IN THE SENATE OF THE UNITED STATES—111th Cong., 1st Sess.

(no.) _____

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Association of American State Geologists

Murkowski Amendment

- Department of Interior administration
- Grants to SGSs or regional consortia
- "Build, maintain, and operate centers to store geologic samples"
- Required "state agrees to maintain any center…for a least 20 years"
- Authorization: $100 M, any state $15 M maximum

+-+-+-+-+-+

- No Senate # yet
- Nothing yet on House side

AASG
Association of American State Geologists

Congressional appropriations:

Liaison meetings: Continuing to raise awareness

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