

Legislative Hearing
H.R. 5066 to Reauthorize the
National Geological and Geophysical Data Preservation Program Act
of 2005 through 2019
September 17, 2014, Washington, D.C.,
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What is geoscience data?

It is the extensive collection of data obtained during research and exploration. It includes fossils, geochemistry data, models, geologic reports, field samples, well cuttings, cores, mineral collections, hydrocarbon samples, tar sands, coals, thin sections, engineering reports, maps and geologic cross sections.

How are geoscience materials used and by whom?

Although many tools are available for exploration, the examination of geoscience data available at state and federal repositories are used by scientists from the U.S. government, geological surveys, educators from academia, exploration, development and industry geologists, consultants, operators, students and the general public. The data preserved at these facilities are the best source of materials for research, training, and education and provides solutions to scientific, economic, and environmental issues.

Are important geoscience data being discarded and destroyed?

Yes. Each year, millions of feet of cores and well cuttings along with the water data, geologic records, maps, seismic data, and mineral and fossil collections, are discarded and destroyed all over the United States. The loss of this resource, which costs millions of dollars to obtain, is a tragedy for our nation.

Why are Geoscience data important?

Detailed examination of geoscience data is important in research, development, discoveries, exploration of new hydrocarbon reservoirs and mineral deposits critical to U.S. energy security and independence. Examination of these data provides opportunities leading to new discoveries in energy, environmental issues, and a better understanding of the earth's history and development. An established record results in greater scientific success and predictability. It reduces development and exploration time, and contributes to lower exploration costs, increased efficiency and greater safety. Some data are irreplaceable and would be cost prohibitive to reacquire in the future.

What are the advantages of a repository?

Repositories preserve geoscience data, make the data accessible, and promote the utilization of their collections in education, scientific research, exploration, and development of resources both on and beneath the earth's surface.

Historical data, literature, previously analyzed sample data, geophysical logs, core data, geochemical analysis and samples are generally available at repositories for examination. Many records have been scanned and are accessible in digital format on repositories' websites. Utilization of data becomes more efficient when geoscience data pertaining to that state is preserved at a repository located in that state.

How are repositories important for research and development?

Geoscience data are of great value in Industry, research, education and training. Cores and well samples are the most important source of information for hydrocarbon and mineral exploration and for stratigraphic and structural investigations. Cores and well samples also are the best source of detailed geologic information about the

nature, occurrence, and extent of rocks in the subsurface. Geologists engaged in the exploration for and development of mineral resources must have detailed knowledge about the strata in which the deposits occur, as well as information about associated deposits. Cores and well samples also provide essential information for a better understanding of our groundwater resources and related environmental problems. Knowledge about the rock beneath the earth's surface can only be gained through detailed examination of well cuttings and cores.

How are geoscience data used in education?

Geoscience data provides opportunities for research, exploration, development and scientific reports. Graduate and undergraduate students from universities throughout the country use the materials available at the repositories to generate theses, dissertations, class projects, term papers, lab exercises, reports, research papers, publications and professional presentations. Examination of cores and well samples allows students to expand their knowledge of rocks and geologic processes while conducting research on a wide range of geologic material, thereby providing a greater understanding of the subsurface and the evolution of the earth.

In what disciplines are the data used?

Geoscience data are used for a wide range of interests including; exploration for hydrocarbons, and coal, and in environmental, engineering, mining, construction, and land-use studies. In addition, they are used in stratigraphy, sedimentology, paleontology, geochemistry, structure, earthquake investigations, subsurface mapping, seismic studies, and geologic reconstruction.

How are geoscience data acquired?

Geoscience data are generally donated to federal and state geological surveys by coal, oil and gas, mining, highway construction, and environmental investigations; construction projects; quarry operators; university research; and federal and state projects.

What can examination of geoscience data reveal?

A detailed and accurate understanding of the rock beneath the earth's surface can only be gained through exploratory drilling and examination of geoscience data generated during exploration. Detailed examination of well samples and cores is important in understanding petroleum reservoirs, and mineral deposits which lead to more discoveries of hydrocarbons and minerals critical to the nation's energy security and independence.

Conclusions reached using geoscience data provide information to government and industry that allows intelligent planning decisions concerning assessment and management of valuable natural and strategic resources. Without these data, more time and effort will be consumed in duplicated exploration and development and there would be a greater chance of failure because of increased cost overruns and decreased production. Intelligent planning decisions are made based on reliable data.

How does geoscience preservation affect the economy?

Geoscience preservation leads to new discoveries, redevelopment of mature oil and gas fields and mineral deposits, and infrastructure, resulting in sustained economic growth and more investment in the community and increased tax revenues. It also lowers exploration costs, and increases efficiency and safety. Availability of geoscience data allows more detailed preparation and development, better management of natural resources, and provides solutions to scientific, economic, and environmental problems and potential natural disasters.

Without good and efficient management of our current and future resources and firm knowledge of where future supplies of these resources can be found, economic development cannot be sustained. This fact also begs the question: If our supply of strategic minerals

from foreign sources was interrupted for any reason, where would we find a local source of that mineral? Geoscience data and the professional papers generated from research using the subsurface data would be a good place to begin the search.

How much does it cost to initially acquire geoscience data?

The process of field work, data acquisition and research, time consuming and dangerous to attain. It costs millions of dollars to acquire.

How would preservation of geoscience data affect future generations?

Preserving geoscience data would provide readily available data to future generations, giving them opportunities for investigation, development and evaluation which in turn could lead to new innovations and discoveries. Using these preserved data may result in greater success and predictability. Some data are irreplaceable and lack of availability of the necessary tools, equipment and labor to reacquire geoscience data may be cost prohibitive in the future. Preservation of geoscience data will facilitate the training and education of the next generation of geoscientists, and help with appraising water resources, dealing with conservation, and mitigating hazards such as earthquakes and landslides.

What are the advantages of maintaining a database and inventory of geoscience data?

Samples and cores are of great value to industry and research. There is a constant need to re-examine geoscience data available at both federal and state repositories. These data are an invaluable resource as new geologic and engineering concepts evolve, as new analytical instruments and techniques are developed, as new methods of examination and interpretation emerge, and as advances are made in technology and computer modeling. Our greatest gift is preserving our data and passing our knowledge to the next generations.

How is having geoscience data readily available important to geoscientist?

Readily available geoscience data will lower the costs and increases the efficiency of reworking old reservoirs, reevaluating environmental concerns and predicting natural hazards and using new technology and new extraction enhancement techniques. In addition, they can be used in the quest for a pristine and greener environment, by facilitating clean and efficient energy. It is imperative that the next generation be trained and educated, because knowledge is the key to success. Using this wealth of data can contribute to continued economic prosperity and energy independence, resulting in greater national security.

Should the National Geological and Geophysical Data Preservation Program Act of 2005 be extended to 2014?

For the most part, both federal and state repositories are filled to capacity, and have inadequate working space. In addition, many repositories are overwhelmed by the extent of available collections. Most repositories that have received funding from the National Geological and Geophysical Data Preservation Program Act of 2005 are making tremendous progress rescuing collections, and preserving, identifying, inventorying, scanning and photographing their collections while making the data available for inspection at the repository or on their websites, and for this to continue, reauthorization of this Act is justified and necessary.