

## Position Statement



## Open Data Access

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### POSITION:

The Geological Society of America strongly supports open access to scientific data by all purveyors of such data to promote advancement in research, support education, and to improve the economic progress, health, and welfare of society.

### BACKGROUND AND FURTHER EXPLANATION

The scientific process runs on data; without data, science cannot progress, science education stymies, and science cannot provide the underpinnings for the economic progress, health, and welfare of society. Despite this underlying importance, scientific data are not always readily accessible. The dilemma is that scientific data, whether collected with public or private funds, are not always “open” (made available to the public), often for legitimate reasons. In some instances, data are classified for security reasons or because they have eminent economic value. Data are sometimes withheld to avoid revealing site-specific personal information. Data donated under proprietary arrangements with the private sector are often held confidential by government agencies or academic institutions. The majority of scientific data collected with public funds, however, is not constrained by these restrictions, and much generated by private funds could be encouraged to be made openly available.

Government agencies have often charged fees for access to data, generally to recover the costs of reproducing or printing the data but sometimes to recover partial costs of generating the data. Increasingly, with reduced costs of capture and storage of digital data, government agencies are able to provide data and information to the public essentially for free on the Web.

Many government agencies financially support the acquisition of scientific data by researchers in their own agencies, other government agencies, academia, and the private sector. The data often become available through publications in the scientific literature, but many of these are incomplete data sets, and often the raw and processed data and metadata are not readily accessible for further analysis.

Publications are a cornerstone of science and we must ensure that the open access to data does not jeopardize the viability of our science publishers. These publications are, have been, and will continue to be science’s library of knowledge; without these publications, the viability of science is compromised. Through the publication peer review process we maintain the quality of our science. The publishers of this peer reviewed literature include government agencies, for-profit publishers, and nonprofit scientific and professional organizations. The viability of many scientific and professional organizations is dependent on subscriptions to and sales of their peer-reviewed journals and other publications. The ability to copyright the synthesis and interpretation in these publications is critical to the survival of these organizations, but the data that underlies the synthesized information and interpretation should be openly accessible and uncopyrighted.

The Geological Society of America supports open access to the full spectra of scientific data, including derived products, to support critical research, education, and decision-making processes. Geoscience data, both physical and digital, are concerned with Earth’s atmosphere, hydrosphere, biosphere and solid Earth of both today and the past four billion years. They pertain to diverse, societally relevant topics, such as weather, climate and paleoclimate, water quality and availability, extinction and evolution, earthquakes and volcanoes, and Earth resources which have economic and strategic importance. These data are a prerequisite for conducting the next generation of Earth science research, and for providing the basis for the continued improvement of Earth science education as well as the general public. Open access to and synthesis of these data are important for building a broader public awareness of the importance of science to society, and for providing a factual basis to decision-makers involved in environmental, natural-resource, global-change, hazards, and other science-based issues.

Recognizing that acquiring, publishing, and archiving scientific data have real costs, we encourage public agencies to adopt policies making unclassified data open to the public. Whenever feasible, these data should be available digitally on the Web. We also encourage the private sector, when possible, to make scientific data available for free to educators and scientific researchers for use in research, public forums, including lectures and the peer-reviewed scientific literature. The publication of scientific results and interpretations remains the cornerstone of scientific research. Therefore, whereas we recognize the importance of maintaining the copyright status of the publications involving analysis and interpretation of data, we encourage the development of seamless links among peer-reviewed publications and public databases so the data are openly available to all researchers and the public.

Physical samples, such as fossils, minerals, and rocks collected from often inaccessible locations (deep drill holes, excavations, the seafloor, etc.), are considerably valuable components of geoscience data. We support efforts to save and archive physical samples in museums, universities, government agencies, and other repositories, and to make these samples and data readily available to the research community and the general public. We recognize that building and maintaining open access to science data are shared responsibilities among researchers, public and private institutions, and government agencies. Academic institutions need to fully recognize the individual scholarship and scientific merit as well as the economic and societal value inherent in the development and maintenance of geologic data sets and repositories.

In recent years several national and international organizations have made recommendations regarding access to scientific data. Among these are the National Research Council, American Geophysical Union, International Union of Geological Sciences, International Council for Science, U.S. Global Change Research Program, World Meteorological Organization, Intergovernmental Oceanographic Commission of UNESCO, World Climate Program, Committee on Earth Observations-Satellites, International Earth Observing System, and the Global Climate Observing System. The position of the Geological Society of America is consistent with the recommendations of these organizations. The Society supports the continued efforts by the National Science Foundation, the U.S. Geological Survey, the U.S. Department of Energy, the Association of American State Geologists, and other federal and state agencies to develop mechanisms to make data broadly available.

In summary, only through open access to data and derived products can we maximize our stewardship of Earth's resources and environment. Consequently, the Geological Society of America supports laws, regulations, funding, policies, and institutions that allow the preservation and enhancement of open access to the full suite of unclassified science data while preserving the economic viability of the entities that generate and publish data and the analyses and interpretations based on these data.

## **IMPLEMENTATION**

The Geological Society of America, with the assistance of its Geology and Public Policy Committee, will: (1) communicate this position to the heads of agencies that fund acquisition, storage, and dissemination of geoscience data in the United States of America, but also internationally, particularly Canada, and Mexico; (2) monitor the progress of such communication; (3) encourage all members of the Society to promote the open access to data in their respective countries; and (4) monitor pending legislation dealing with geoscience data and offer to provide testimony consistent with this position, as appropriate.

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