Position Statement

Geoscience Data Preservation

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POSITION:

The Geological Society of America supports the preservation of geoscience samples and data sets for the public good and urges public and private sector organizations and individuals to routinely catalog and preserve their collections and make them more widely accessible.

BACKGROUND AND FURTHER EXPLANATION

The work of earth scientists is dependent on the availability of representative samples and measurements collected above, at, and beneath the Earth's surface. Such collections may include geologic samples from surface exposures, drill cuttings and cores, as well as photographs, maps, and other assorted field and laboratory observations, analyses, and measurements in both analog and digital form. These samples and data sets are fundamental reference collections that support basic and applied research and education, the preparation of journal articles, geologic maps and reports, natural resource assessments, environmental protection plans, the delineation of natural hazards, and development of a broad understanding of Earth processes and history. Equally important, these collections are regularly revisited as new societal issues, environmental concerns, scientific interpretations, and analytical techniques require re-examination and reappraisal of original samples and data sets. Old samples routinely produce new knowledge.

A recent National Academies Report — Geoscience Data and Collections: National Resources in Peril (2002) — characterizes these samples and data collections as a library of geologic reference materials. The analogy is especially apt because it emphasizes the future value of information contained in but not yet fully extracted from the collections. Like many library collections, some individual specimens are rare or even unique. A number of samples are irreplaceable, for example where ore deposits are mined or glaciers melt or where urban development, environmental restrictions, and other limits on land access restrict or prohibit the collecting of new specimens. Even when re-sampling is possible, replacement costs are discouragingly high. Original samples are often the only samples.

Many of these collections, including those housed by federal and state agencies, universities, museums, private companies, and individuals are at risk because of severely limited space and funding for proper curation. Physical samples are inadequately housed in garages, basements, old warehouses, semi-trailers, or shipping containers. Analog data, including maps, photographs, and field notes, often suffer a similar fate. Digital information may reside on punch cards, magnetic tapes, and variously sized plastic discs that may be in unfamiliar or obsolete formats. All too commonly these collections and data sets are also incompletely inventoried and inadequately documented. There are no efficient ways to identify, search for, and retrieve items of interest. In fact, potential collection users may not even be able to discover that a relevant collection exists. Inaccessible, irretrievable collections are unusable and have little value.

IMPLEMENTATION

Government, educational, and private sector organizations, individually as well as collectively, are encouraged to aggressively address the following geoscience data-preservation challenges:

- identifying, organizing, documenting, and cataloging existing data collections, preferably in a digital format;
- constructing logical linkages and search engines that facilitate access to organizations and their geoscience sample and data collections;
- dedicating adequate space — physical and digital — for storing and efficient accessing of existing and future samples and data sets;

- adding suitably documented new material to the collections responsibly and selectively;
- reminding individual geoscientists to share their data and samples during their professional careers and to make suitable arrangements for the preservation of these materials upon their retirement; and
- committing continuing financial and personnel resources to do all of the above.

We also urge the broader earth-science community to give appropriate professional recognition and data citation to those organizations and individuals who serve as geoscience “libraries and librarians.”

The Geological Society of America supports federal, state, and private sector funding for all of these essential geoscience data preservation activities, and is especially encouraged by Congress’ recent authorization of $30 million annually for a National Geological and Geophysical Data Preservation Program as part of the Energy Policy Act of 2005. GSA encourages all appropriate state and federal agencies and universities to develop and implement similar programs.

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