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Highlights

Highlights of GAO-07-1172, a report to congressional requesters

CLIMATE CHANGE RESEARCH

Agencies Have Data-Sharing Policies but Could Do More to Enhance the Availability of Data from Federally Funded Research

Why GAO Did This Study

Much of the nearly $2 billion annual climate change research budget supports grants from the Department of Energy (DOE), National Aeronautics and Space Administration (NASA), National Oceanic and Atmospheric Administration (NOAA), and National Science Foundation (NSF). Some of the data generated by this research are stored in online archives, but much remains in a less accessible format with individual researchers. As a result, some researchers are concerned about the availability of data.

GAO analyzed (1) the key issues that data-sharing policies should address; (2) the data-sharing requirements, policies, and practices for external climate change researchers funded by DOE, NASA, NOAA, and NSF; and (3) the extent to which these agencies foster data sharing. GAO examined requirements, policies, and practices and surveyed the 64 officials managing climate change grants at these agencies.

What GAO Recommends

GAO recommends the agencies explore opportunities in the grants process to better ensure the availability of data to other researchers and determine if additional archiving strategies are warranted. In commenting on a draft of this report, the four agencies generally agreed with our findings and recommendations. We incorporated technical clarifications as appropriate.

To view the full product, including the scope and methodology, click on GAO-07-1172. For more information, contact John B. Stephenson at (202) 512-3841 or stephensonj@gao.gov.

What GAO Found

According to the scientific community—as represented by the National Academies and professional scientific associations—four key issues that data-sharing policies should address include what, how, and when data are to be shared, as well as the cost of making data available to other researchers. First, the information necessary to support major published results should be made available to other researchers. However, there are statutory limits on data sharing—such as intellectual property protections—as well as practical limits such as the lack of appropriate archives. Second, when the appropriate infrastructure exists, data should be made accessible through unrestricted archives. Third, data should generally be made available immediately or after a limited proprietary period to allow for analysis and publication of results. Fourth, data should be made available at no more than the marginal cost of reproduction and distribution. Finally, the extent to which specific policies address these key data-sharing issues may vary, depending on the type of research.

Although some program managers at all four agencies have included data-sharing requirements in grant awards, these agencies rely primarily on policies and practices to encourage researchers to make climate change data available. An interagency policy, as well as numerous agency, program, and project-specific data-sharing policies, encourages researchers to make climate change data available. The policies range from broad statements calling for open and timely access to data to more detailed policies that define the mechanisms and timelines for making the data accessible. Further, these policies often vary according to the needs of specific research programs or projects. Beyond their written requirements and policies, all of the agencies also rely on unwritten practices to facilitate data sharing. For example, two program managers withhold grant payments if data have not been made available for use by other researchers.

While the four agencies have taken steps to foster data sharing, they neither routinely monitor whether researchers make data available nor have fully overcome key obstacles and disincentives to data sharing. Because agencies do not monitor data sharing, they lack evidence on the extent to which researchers are making data available to others. Key obstacles and disincentives could also limit the availability of data. For example, one obstacle is the lack of archives for storing certain kinds of climate change data, such as some ecological data, which places a greater burden on the individual researcher to preserve it. Preparing data for future use is also a laborious and time-consuming task that can serve as a disincentive to data sharing. In addition, data preparation does not further a research career as does publishing results in journals. The scientific community generally rewards researchers who publish in journals, but preparation of data for others' use is not an important part of this reward structure. Consequently, researchers are less likely to focus on preserving data for future use, thereby putting the data at risk of being unavailable to other researchers.