

Monthly Review: May 2012

The American Geosciences Institute's monthly review of geosciences and policy goes out to the leadership of AGI's member societies, members of the AGI Geoscience Policy Committee, and others as part of a continuing effort to improve communications about the role of geoscience in policy. The current monthly review and archived monthly reviews are all available online. Subscribe to receive the Geopolicy Monthly Review by email.

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1. Congressional Visits Day in September – Join Us in DC

Geoscientists are invited to join other geoscientists from our member societies for workshops and visits with congressional members and committees in September 2012. Decision makers need to hear from geoscientists. Become a citizen geoscientist and join many of your colleagues for a workshop at AGU headquarters followed by a day conducting visits with members of Congress or congressional staff on Capitol Hill to speak on the importance of geoscience research, development, and education.

September 11-12, 2012

Geosciences Congressional Visits Day (GEO-CVD), an event specifically geared towards geoscientists.

Please contact Linda Rowan by replying to this email or send an email to govt@agiweb.org for more information or to sign-up.

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2. Office of Management and Budget Releases FY 2014 Budget Guidelines

On May 18, the Office of Management and Budget (OMB) released its budget guidelines for fiscal year (FY) 2014. To continue the budget reduction framework emplaced by the Budget Control Act of 2011 (BCA, P.L. 112-25), OMB is requesting federal agencies' budget submissions be five percent less than the net discretionary total provided to the agency in the FY 2013 budget. In addition to the reductions in the budget submissions, OMB is requesting explanations of each agency's general administrative plan, a description of each agency's most cost-effective initiative, a discussion of how savings will be utilized, and at least three suggestions which would improve long-term savings. The guidance advises agencies to cut information technology costs by 10 percent from the 2010-2012 average for the agency.

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3. OMB Orders Federal Agencies to Cut Travel Costs by 30 Percent

In a May 11 guidance, the Office of Management and Budget (OMB) announced that federal agencies must reduce their fiscal year (FY) 2013 levels of spending on travel expenses at least 30 percent less than in FY 2010.

The money saved as a result of the reductions will be directed toward investments that "improve the transparency of and accountability for federal spending," activities that provide tracking and reporting of federal spending, and internal audits and investigations to identify fraud and error. The guidance includes several new policies and practices for federal agencies planning and conducting conferences and encourages federal agencies to "aggressively" sell excess properties.

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4. CoSTEM Releases Report, Public Comments Due June 15

Public comments on "Design Principles for Federal STEM Education Investments" are due by June 15. The document describes a plan to implement a February 2012 report from the Federal Coordination in STEM Education Task Force and the National Science and Technology Council's (NSTC) Committee on STEM Education (CoSTEM) titled "Coordinating Federal Science, Technology, Engineering, and Mathematics (STEM) Education Investments: Progress Report." CoSTEM is required to complete a five year STEM education strategic plan as part of the America COMPETES Reauthorization Act of 2010 (P.L. 111-358).

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5. National Ocean Council Unveils Ocean Data Portal

The National Ocean Council released a prototype of the Ocean Data Portal in May 2012. The web site is part of the implementation of the National Ocean Policy. The site focuses on ocean, coastal, and Great Lakes planning efforts. It is described as being the "one-stop" source for all types of information pertaining to these areas. Data includes spatial and non-spatial from various Federal resources. The site contains data and maps from the nine U.S. regional planning areas in order to foster collaborative coastal and marine spatial planning. A forum has been set up on the site to gather input and suggestions from users.

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6. Update on Fiscal Year 2013 Appropriations for May 2012

The House and Senate Appropriations Committees completed work on their respective bills (H.R. 5855 and S.3216) for the Department of Homeland Security for fiscal year (FY) 2013 in May. Total spending for each bill is different by more than \$150 million, signifying the need for reconciliation on spending priorities at a later date.

The House would reduce total support for the Federal Emergency Management Agency (FEMA) to \$712 million for FY 2013 (-\$183 million compared to FY 2012) with \$92 million for Flood Hazard Mapping and Risk Analysis within the FEMA budget.

Within DHS, the House bill would provide \$8 million to the Coast Guard for a new polar icebreaker program and \$696 million for research and development related to homeland security. No funds would be provided to support the implementation of the National Ocean Policy.

The Senate bill would increase total support for FEMA to \$979 million, with \$97 million for Flood Hazard Mapping and Risk Analysis. Within DHS, the Senate bill would provide \$8 million to the Coast Guard for a new polar icebreaker program and \$693 million for research and development related to homeland security. No funds would be provided to support implementation of the National Ocean Policy.

The House and Senate Appropriations Committees have been completed work on 7 of 12 appropriation bills and the full House has approved of the Commerce/Justice/Science and Military/Veterans bills. The full House is expected to debate, amend and vote on the Energy and Water appropriations bill in early June with controversy likely regarding support for a Yucca Mountain geologic waste repository and policy riders related to the Clean Water Act.

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7. Short-Term Extension of the National Flood Insurance Program Approved

On May 17, the House voted to approve the Senate's proposal for a 60-day extension of the National Flood Insurance Program (NFIP). The program will be extended until July 31, 2012 as a result of the National Flood Insurance Program Extension Act (H.R. 5470) introduced by Representative Judy Biggert (R-IL). The version that passed the Senate included an amendment offered by Senator Tom Coburn (R-OK) to eliminate subsidized rates for vacation homes.

The contentious NFIP is currently more than \$17 billion in debt, which many claim is due to subsidized rates that allow development in flood-prone areas. If the extension had not passed, the program would have lapsed which could have led to real estate closing delays and disorder in the housing market, similar to what occurred in four previous lapses of NFIP in 2010. The House passed a reform package for the program (H.R.1309) in July 2011 and is now encouraging the Senate to follow through with a five-year reauthorization and reform bill (S.1940). Proponents of the reform package say a long-term extension and overhaul are necessary for the housing market to recover. Senate Majority Leader Harry Reid (D-NV) has agreed to bring S. 1940 to the floor in June.

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8. Chairman Kerry Holds Hearing on Law of the Sea Treaty; Plans Several More

The Senate Committee on Foreign Relations held a hearing on May 23 to discuss ratification of the United Nations Convention on the Law of the Sea. Secretary of State Hillary Clinton, Secretary of Defense Leon Panetta, and Chairman of the Joint Chiefs of Staff Martin Dempsey were present to testify in support of ratification of the treaty.

As part of his opening statement at the hearing, Chairman John Kerry (D-MA) pledged to hold several hearings on the treaty before the end of the 112th Congress but announced he does not intend to bring the treaty to a vote before the November elections. A summary of the hearing written by the American Geosciences Institute (AGI) can be found on AGI's web site.

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9. House Natural Resources Committee Marks Up Mineral and Energy Bills

On May 16, the House Committee on Natural Resources held a full committee mark up to vote on the Soda Ash Royalty Extension, Job Creation, and Export Enhancement Act of 2011 (H.R. 1192), the Native American Energy Act (H.R. 3973), the Planning for American Energy Act of 2012 (H.R. 4381), the Providing Leasing Certainty for American Energy Act of 2012 (H.R. 4382), the Streamlining Permitting of American Energy Act of 2012 (H.R. 4383), and the National Strategic and Critical Minerals Production Act of 2012 (H.R. 4402). All six bills were passed by the committee.

H.R. 1192 would extend the current reduced royalty rate of 2 percent for the development of soda ash through October, 2016. An amendment offered by Representative Paul Tonko (D-NY) to require the Secretary of the Interior to show that the reduced royalty rate will result in increased production of soda ash and increase employment was not agreed to.

H.R. 3973, offered by Representative Don Young (R-AK), contains many provisions meant to reduce federal regulations of energy production on Indian lands. It would amend the National Environmental Policy Act of 1969 (P.L. 91-190) to only allow the

affected Indian tribe to comment on the environmental impact statements of federal actions on Indian lands and would eliminate any fees for oil and gas inspection activities and leasing for non-producing acreage on Indian land. The bill would create five Indian Energy Development Offices within the Bureau of Indian Affairs to carry out Indian energy resource development programs. An amendment to exempt Indian lands from any hydraulic fracturing rules developed by the Department of the Interior (DOI) was agreed to.

H.R. 4381, introduced by Representative Scott Tipton (R-CO), would require DOI to complete a Strategic Federal Onshore Energy Production Strategy every four years for an “all of the above” energy production plan on lands held by the Bureau of Land Management (BLM) and the Forest Service. The bill was agreed to by a roll call vote.

Introduced by Representative Mike Coffman (R-CO), H.R. 4382 would require the Secretary of the Interior to offer as part of a lease sale “no less than 25 percent of the annual nominated acreage not previously made available for lease.” H.R. 4383, introduced by Representative Doug Lamborn (R-CO), would require DOI to permit or deny an application for drilling within 30 days of submission and would establish Federal Permit Streamlining Projects in every Bureau of Land Management (BLM) field office. Both bills were passed by the committee by a roll call vote.

H.R. 4402, introduced by Representative Mark Amodei (R-NV) would characterize all mines that “will provide strategic and critical minerals” to be considered an “infrastructure project” as defined by an Executive Order (EO) issued in March 2012. In the EO, all infrastructure projects deemed regionally and nationally significant will be reviewed by a Steering Committee of multiple federal agencies in an effort to reduce the amount of time it takes to make permitting decisions. The bill would designate the federal agency responsible for issuing a mineral exploration or mine permit as the lead agency and require that agency to coordinate and consult with other permitting agencies to minimize permitting delays. A failed amendment offered by Tonko would have redefined the bill’s definition of “strategic and critical minerals” from any mineral necessary for national defense, energy infrastructure, domestic manufacturing, and economic security to the lanthanides group, yttrium, scandium, and “any other mineral that is critical based on the impact of a potential supply restriction and the likelihood of a supply restriction.” The bill was passed by the committee on a roll call vote.

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10. Senators Introduce Immigration Reform Bills for STEM Students

Two bills have been introduced to the Senate to simplify the immigration process for international graduate students in the science, technology, education and math (STEM) fields. Currently, a student is put on a waiting list to obtain permanent residency after receiving an H-1B visa designating his unique qualifications by his employer. The Securing Talent America Requires for the 21st Century Act of 2012 (S. 3185) and the Sustaining our Most Advanced Researchers and Technology Jobs Act of 2012 (S.3192) have been referred to the Committee on the Judiciary.

The Securing Talent America Requires for the 21st Century Act of 2012 (S. 3185), referred to as the STAR Act is sponsored by Senator John Cornyn (R-TX) and allows international graduates from research institutions that receive at least \$5 million in federal funding to claim permanent residency. To avoid increasing the immigration ceiling, 55,000 residency spots that are distributed by a lottery system would be reserved for international graduates.

The Sustaining our Most Advanced Researchers and Technology Jobs Act of 2012 (S.3192), referred to as the SMART Jobs Act is a bipartisan bill sponsored by senators Chris Coons (D-DE) and Lamar Alexander (R-TN). This bill would create a new visa category for STEM students who have found a job in their field in the United States. Because it would be a new category it would likely increase the immigration ceiling.

The U.S. is a world leader in STEM higher education. These bills raise the importance of retaining the skills of international students who initially travel to the U.S. to take advantage of educational opportunities. Similar bills have not moved forward in the House of Representatives.

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11. Bills Introduced to Coordinate Research and Address Water-Energy Nexus

Ranking member of the House Committee on Science, Space, and Technology Eddie Bernice Johnson (D-TX) has introduced two bills to coordinate federal research efforts into water and the energy-water nexus. The Coordinating Water Research for a Clean Water Future Act of 2012 (H.R. 5826) and the Energy and Water Research Integration Act of 2012 (H.R. 5827) have been co-sponsored by Representatives Donna Edwards (D-MD), Daniel Lipinski (D-IL), Paul Tonko (D-NY), and Lynn Woolsey (D-CA). The Coordinating Water Research for a Clean Water Future Act of 2012 (H.R. 5826) would implement a National Water Research and Development Initiative at the Office of Science and Technology Policy to promote coordination among the more than 20

federal agencies that conduct water quality, quantity, and management research projects. The Energy and Water Research Integration Act of 2012 (H.R. 5827) would address the “energy-water nexus” defined as the use of water supplies for electrical energy generation. The bill would help guarantee efficient, reliable, and sustainable energy delivery, while decreasing freshwater use, improving water quality and increasing water efficiency. H.R.5827 encourages the Secretary of Energy to consider water intensity when conducting energy research.

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12. Clean Cookstoves Support Act of 2012 Introduced in Senate

Senator Susan Collins (R-ME), along with Senator Dick Durbin (D-IL), has introduced the Clean Cookstoves Act of 2012 (S.2515) to improve global health and reduce harmful emissions through promotion of clean cookstoves and fuels. The bill has been referred to the Committee on Foreign Relations.

S.2515 authorizes the United States to contribute \$105,000,000 to the Global Alliance for Clean Cookstoves for fiscal years (FY) 2013 through 2017. The contributions would be provided by the U.S. Agency for International Development (USAID), Department of Energy (DOE), National Institutes of Health (NIH), Centers for Disease Control and Prevention (CDC), and the Environmental Protection Agency (EPA).

The World Health Organization (WHO) estimates cookstove smoke to be one of the top five threats to public health in developing countries. The Global Alliance for Clean Cookstoves is a public-private, international collaboration created to address this public health issue. The United States serves as a founding partner to the Alliance.

S.2515 would contribute to the goals of the Alliance on several fronts. Appropriations would support research and development of cookstoves, encourage a commercial market for clean-burning stoves and fuels, promote international development, analyze social effects on women and children, and finance surveillance and assessment projects.

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13. Leadership Changes at Federal Agencies

Several lead administrators announced their departures in May of 2012 including Gregory Jaczko, chairman of the Nuclear Regulatory Commission (NRC), Arun Majumdar, director of the Advanced Research Projects Agency for Energy (ARPA-E) and Bob Abbey, director of the Bureau of Land Management (BLM).

Gregory Jaczko, the chairman of the NRC, has been the focus of criticism and controversy since his appointment. Some of the controversy stems from events beyond his control, such as the Fukushima-Daiichi nuclear power plant disaster after the magnitude 9.0 Tohoku earthquake in Japan. Even so he has drawn criticism for opposing Yucca Mountain as a nuclear waste repository, assuming emergency powers during the Fukushima disaster, and not always working well with the Commission or NRC staff. Soon after Jaczko announced that he would step down at the end of his term (July of 2013), President Obama nominated Allison Macfarlane to replace him. Macfarlane is a geologist and is currently an associate professor of environmental science and policy at George Mason University. She is an expert on the Yucca Mountain nuclear waste repository and served as the only geologist on the President’s Blue Ribbon Commission on America’s Nuclear Future. Opponents quickly criticized Macfarlane as biased against Yucca Mountain as a nuclear waste repository, but Senate confirmation may come quickly because Jaczko is controversial and Republican NRC Commissioner Kristine Svinicki, who has been renominated by Obama, could be confirmed at the same time. Svinicki has been criticized by some senators for being pro-industry and not concerned enough about nuclear safety. Relatively quick confirmation of the two women might be one way to dial down opposition to one or the other.

Arun Majumdar was the first director of the new ARPA-E. About \$522 million for 180 projects, covering alternative energy resources, energy storage, a smarter energy grid and other topics, has been distributed as of March, 2012. Eric Toone, ARPA-E’s deputy director of technology will replace Majumdar on June 9. David Sandalow, the assistant secretary for policy and international affairs, will take on Majumdar’s responsibilities as the Energy Department’s acting undersecretary.

Bob Abbey overhauled oil and gas leasing, expanded renewable energy development, and focused on conservation on public lands during his three year tenure as director of BLM. Since 2009, BLM has approved of 17 solar plants, eight geothermal plants, and five wind farms. Controversy and legal challenges continue regarding oil and gas lease reforms, new rules regarding hydraulic fracturing, and conservation initiatives, such as the wild lands policy to protect wilderness areas. He will retire at the end of May and will be replaced by BLM Deputy Director Mike Pool. Pool will serve as acting director until a new director is nominated by President Obama and confirmed by the Senate.

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14. Russian Shipping Company Ends Icebreaking Contract with NSF

Murmansk Shipping Company has informed the National Science Foundation (NSF) that the diesel-fueled icebreaker *Vladmir Ignatyuk* will not be available for refueling the McMurdo and South Pole stations in Antarctica for the winter of 2012-2013. NSF signed a one year contract with Murmansk in August 2011 with an option for use in additional years.

In a Dear Colleague letter distributed in May 2012, Scott Borg, Division Director of Antarctic Science at NSF's Office of Polar Programs (OPP), announced that a multi-year effort to reduce fuel consumption and increase energy efficiency was completed during the 2011-2012 winter season. This action will allow the United States Antarctic Program (USAP) to continue operations through February 2014 without a refuel.

The United States owns three icebreakers. The *Healy* is being used in the Arctic, the *Polar Sea* is being decommissioned, and the *Polar Star*, currently undergoing an extensive refit, will not be available until 2014.

The U.S. needs icebreakers in Antarctica and the Arctic, to accomplish research, exploration and strategic goals. The Arctic is opening up to more research, exploration, and navigation because of the changing ice sheet, the promise of Arctic resources and the opportunity for efficient ship passage. The U.S. maintains the largest research enterprise in Antarctica, but has no heavy duty icebreaker to support the people or infrastructure.

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15. Methane Hydrate Test in Alaska Successful

Field experiments conducted in Alaska have shown successful exchange of carbon dioxide for methane in methane hydrate deposits. Thus, methane for energy is gained while carbon dioxide is sequestered. Knowledge gained from the experiments and field tests is promising for future energy resource demands and carbon sequestration for climate change mitigation.

Methane hydrate resources are estimated to be around 21,000 trillion cubic feet in the Gulf of Mexico, with other resources on Alaska's North Slope. Laboratory experiments showed the potential to produce methane without free water formation or heat of reaction issues.

Senator Lisa Murkowski (R-AK) stated, "The success of this test is wonderful news for Alaska and America." Murkowski sponsored the Methane Hydrate Research and Development Reauthorization Act (S. 711) in 2005 and she recently proposed an additional \$5 million to fund methane hydrate research in the fiscal year 2013 budget through the Energy and Water appropriations bill. The project was carried out in cooperation with the Department of Energy's National Energy Technology Laboratory Methane Hydrates Research and Development Program, Japan Oil, Gas and Metals National Corporation (JOGMEC), and ConocoPhillips Company.

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16. EPA's Report on Dimock, Pennsylvania's Groundwater

The U.S. Environmental Protection Agency (EPA) released their final set of water well results from testing in Dimock, Pennsylvania. No wells contained any unsafe levels of chemicals from hydraulic fracturing, which residents implicated as ruining the quality of their water.

Testing of the area occurred over a period from January to March 2012. Out of the twelve water wells tested, one showed an elevated amount of methane, but not enough to result in action by the EPA. Results from 59 of the 61 wells in Dimock show elevated levels of arsenic, chromium and bacteria, among other contaminants, but none of the wells showed harmful levels of drilling chemicals. The EPA will retest four wells where contaminants were found by Cabot and state officials and not the EPA. Dimock residents were disappointed by the results. The town was made famous by the 2010 documentary "Gasland," which featured video of residents setting water from their faucets on fire. Residents believed hydraulic fracturing of the Marcellus Shale contaminated the groundwater.

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17. Forest Service Releases Climate Change Report for Land Managers

In April the Forest Service released "Climate Projections FAQ," a report to help land managers prepare appropriate forest management strategies under variable climatic conditions. The report provides guidance for the use of climate change impact analyses, encourages informed Forest Service policy changes, and creates a shared understanding within the Forest Service and other partner organizations of the strengths and limitations of climate projections.

Shifting patterns of heavier rainfall, more intense droughts, and increased vulnerability to pest attacks are transforming natural resource management decisions. Climate projections are now more extensively used by land managers to consider the direction and magnitude of potential changes and to prioritize locations for adaptation actions. The report answers questions such as "what are the advantages and disadvantages of downscaling general circulation model (GCM) projections?" and "what can I expect from

the next generation of climate modeling work?” to help facilitate management strategies and ensure the resilience of natural resource systems under a variety of future climate scenarios.

The objective of the Forest Service in releasing this report is to improve the efficiency and consistency of research investments while enhancing opportunities for long-term partnerships between land managers and research institutions, other agencies, or contractors. The report provides a systematic, agency-wide framework that can be used for accessing, applying, and managing downscaled climate projection data.

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18. RPSEA Awards \$56 Million for Ultra Deepwater Drilling Research

The Research Partnership to Secure Energy for America (RPSEA) announced 13 new research projects that could receive funding for deepwater drilling research after negotiations conclude. The projects will partner with the Department of Energy’s (DOE) National Energy Technology Laboratory and the Ultra-Deepwater and Unconventional Natural Gas and Other Petroleum Resources Research Program established by the Energy Policy Act of 2005 (P.L. 109-58). The research funding will total \$56 million, with \$35 million provided by the federal government and the remaining \$21 million provided by industry.

To maximize the efficiency of time and research technology, RPSEA is encouraging collaboration among America’s leading universities, research institutions, national laboratories, state associations, service and operating companies. Following the Deepwater Horizon Oil Spill in 2010, officials of the RPSEA shifted research priorities to include environmental and safety components. The project selections will address technological needs, enhance safety and reliability of hydrocarbon extraction in the Gulf of Mexico, increase efficiency, and reduce costs of domestic hydrocarbon resource production.

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19. DOE, Canada, and Mexico Announce North American Carbon Storage Atlas

On May 1, the North American Carbon Atlas Partnership (NACAP), a mapping initiative developed by the Department of Energy (DOE), Natural Resources Canada (NRCan), and the Mexican Ministry of Energy (SENER), released the North American Carbon Storage Atlas (NACSA). The goal of the initiative is to identify and share sites of carbon dioxide production and potential geological carbon storage.

The North American carbon storage potential estimated by NACSA is larger than previously estimated because of recent advances in mapping resolution and the inclusion of sites which could utilize enhanced oil recovery (EOR) technologies. EOR is a technique that can sequester carbon dioxide and increase the amount of oil extracted from a field.

The atlas, available as an interactive map, displays geological formations with a high carbon storage capacity as well as about 2,250 large sources of carbon dioxide in North America. The DOE has previously published a Carbon Sequestration Atlas for the U.S. and Canada, but this is the first attempt at quantifying carbon storage in North America.

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20. Global Standard on Peer Review Released

On May 14 and 15, representatives of major scientific funding organizations from 50 countries met at the National Science Foundation (NSF) in Arlington, Virginia to promote a move towards the globalization of scientific research. The meeting produced a set of internationally-recognized principles for peer review and created a body to oversee international cooperation in the sciences, called the Global Research Council.

The peer review process is essential to scientific research, and standardizing it is paramount to creating a global research community. The common principles are intended to strengthen research and development by ensuring American research will be reviewed with the same standards as for other countries and protect researchers who may be working with scientists whose home nations do not have the same peer review standards as the U.S.

The push for international cooperation in research was stressed by President Obama at a National Academy of Sciences meeting in 2009. In 2011, Subra Suresh, the director of NSF, wrote an editorial for *Science*, discussing the benefits and challenges of globalized research and NSF formed an International Steering Committee to gather input on a set of guiding principles for peer review from research organizations around the world. The input was organized and integrated into the set of principles which were discussed at the meeting at NSF.

Suresh, the president of the German Research Foundation (DFG) and Glaucias Oliva, president of the National Council for Scientific and Technological Development (CNPq) discussed the impact of the standardized guidelines after the meeting.

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21. First Commercial Space Vehicle Completes ISS Resupply Mission

On May 22, Space Exploration Technologies Corporation (SpaceX) launched a Falcon 9 rocket with the Dragon supply capsule into orbit from Space Launch Complex-40 at Cape Canaveral Air Force Station at 3:44 AM. The Dragon capsule orbited, docked and resupplied the International Space Station (ISS) and returned to Earth with ISS refuse on May 31.

As the Dragon capsule approached the station, astronauts conducted navigation and system checks, and evaluated the capability of ISS to communicate with the unmanned vessel. The tests ran smoothly and the capsule was captured by a robotic arm attached to the docking port of the Harmony module on May 25. The Dragon capsule, capable of carrying 7,300 pounds, transported about 1,200 pounds of food and supplies.

SpaceX is the first commercial company to successfully launch a resupply mission to the ISS. The National Aeronautics and Space Administration (NASA) Reauthorization Act (P.L. 111-267) would allow, if necessary, private space vehicles to acquire the task of transporting supplies and astronauts into low-Earth orbit. This would permit NASA to allocate its time and resources to other arenas of space exploration. It should be noted that NASA provided the bulk of the funding to build the rocket and capsule and NASA and the U.S. military are essential for launch and recovery capabilities.

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22. Japan Tsunami Debris Appears on U.S. Shores

Debris from the tsunami which struck Japan in March, 2011 after the magnitude 9.0 Tohoku earthquake has begun to wash up on West Coast beaches. The debris is considered the first wave of an estimated five tons of debris that was pulled out to sea by the tsunami. The Japanese government estimates 3.5 tons of the heavier debris like cars and pieces of smashed buildings have sunk to the ocean floor.

U.S. state and federal officials are concerned about the environmental damage that the more hazardous waste could cause.

Additionally, buoyant debris has been deemed a safety hazard for passing ships by the Coast Guard. The possibility of radioactive debris from the damaged Fukushima Dai-ichi reactor has raised health concerns. However, the debris that has been analyzed has shown no evidence of harmful levels of radioactivity.

The National Oceanic and Atmospheric Administration's (NOAA) Marine Debris Program (MDP) has been tracking the debris as it crosses the Pacific. The MDP maps, identifies, removes, and prevents marine debris to protect the U.S. marine environment and ensure navigation safety. Report debris sightings or request coastal monitoring guides at DisasterDebris@noaa.gov.

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23. New Report Finds Flood Risk for Midwest Has Doubled

The Rocky Mountain Climate Organization (RMCO) and the Natural Resources Defense Council (NRDC) released a report analyzing Midwestern precipitation records since the 1960s. The report, titled "Doubled Trouble: More Midwestern Extreme Storms," concludes that the recurrence interval and magnitude of precipitation events have significantly increased over the past century.

According to the study, there has been a 52 percent increase in the number of extreme storms per year between 2001 and 2010 compared to the 1961-1970 baseline period. The recurrence interval of extreme storms during the baseline period occurred on average once every 3.8 years, and now the average return period at a single location is 2.2 years.

Increases in precipitation in the future will have a significant impact on Midwestern communities. In 2008, Midwestern floods cost states about \$15.8 billion dollars from agricultural losses and housing damages. The RMCO suggests that Midwestern communities are eight to ten times more likely to experience flooding risk than the average Atlantic or Gulf coast community faces from hurricane damage.

The report recommends the Midwest increase its resiliency to extreme storms and floods by utilizing "green-infrastructure" techniques and enacting policies at the local, regional, and federal level that could reduce flood risk.

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24. Report Projects Large Increases in Deaths Due to Rising Temperatures

According to the recently released National Resource Defense Council (NRDC) report, "Killer Heat: Projected Death Toll from Rising Temperatures in America Due to Climate Change", predicted increases in summer temperatures could result in 33,000 additional U.S. deaths by 2050 and 150,000 deaths by the end of the century. Of the 40 most populated cities, the most affected are predicted to be Louisville, Kentucky with an estimated 19,000 heat-related fatalities by the end of the century, Detroit, Michigan with 17,900, and Cleveland, Ohio with 16,600.

The predicted temperature rise of 4°F -11°F over the course of the century will cause direct extreme weather impacts, as well as indirect health effects that could exacerbate life-threatening illnesses such as heat exhaustion, heat stroke, cardiovascular disease, and kidney disease. The report states that on average, excessive heat claims more lives each year than floods, lightning, tornadoes

and hurricanes combined. Young children, the elderly, those of low socioeconomic status, and cities not accustomed to extended heat waves, are the most vulnerable to heat-related mortality.

To prevent the rise in heat-related deaths, the NRDC report recommends establishing an integrated policy and economic system to curb carbon emissions. Other suggestions include local and regional efforts to prepare cities for heat increases, such as opening more air-conditioned shelters and creating heat hotlines for citizens.

To reduce the public health threats associated with climate change, the NRDC report supports the Environmental Protection Agency's (EPA) proposed carbon pollution standard for new power plants. The EPA standard will be open to public comment until June 25, 2012.

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25. World Wildlife Fund Releases Living Planet Report

World Wildlife Fund (WWF) released their Living Planet Report for 2012. The report is a science-based analysis of the impact of human activities on the planet. The report's key finding is that human activities require and demand more resources than the Earth can sustain.

Demand for natural resources has doubled since 1966 and the report says the equivalent of 1.5 planets is necessary for human activities and will increase to two planets by 2030. Biodiversity, key to ecosystem services, has decreased around the world by 30 percent over a time span of about 40 years.

The Living Planet Index shows a 61 percent decrease from 1970 to 2008 in the tropical living planet biodiversity and a 31 percent increase in temperate living planet biodiversity over the same period. The ecological footprint shows over-consumption and the largest portion of the footprint is the forest land needed for carbon sequestration. The footprint monitors demands on the biosphere by comparing renewable resources used to the area available to produce those resources and absorb carbon dioxide. Ten countries, including the U.S., use over 60 percent of the world's total biocapacity.

High-income countries showed an increase in ecological footprint of about seven percent while low-income countries decline by 60 percent. The report focused on three areas of concern. First, deforestation is the third largest source of carbon dioxide emissions. Second, infrastructures are reducing free-flowing water which poses a problem to aquatic ecosystems. Only a third of 177 rivers that are 1,000 kilometers in length are free flowing. Finally, rising greenhouse gas emissions and other pollution sources are threatening the health of the oceans.

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26. American Meteorological Society Releases Earth Observations Report

The American Meteorological Society (AMS) released their "Earth Observations, Science, and Services for the 21st Century" report. The report states Earth observations, science, and services (Earth OSS) "[constitute] a key element of the country's critical infrastructure." Earth OSS are critical for economic and national security.

The economic downturn and budget constraints are putting Earth OSS in danger. The report notes the lack of concern of losing Earth OSS capabilities from the public and policy makers. Earth OSS are important for agriculture, energy, transportation, water resource management, public health, and national security in the U.S. economy.

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27. Hydraulic Fracturing Banned in Vermont

Vermont became the first state to ban hydraulic fracturing on May 16 after Governor Peter Shumlin signed H. 464. Even though the effect of the bill is insignificant because Vermont lacks economic natural gas plays, Shumlin said he hopes other states will follow with similar legislation.

In June 2011, Maryland Governor Martin O'Malley called for a three-year halt on hydraulic fracturing until a comprehensive study of economic, environmental, and safety impacts is completed. The drilling practice has been banned in Bulgaria and France and was temporarily suspended in the United Kingdom as a result of possible induced seismicity.

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28. 2011 Science National Assessment of Educational Progress Released

Eighth-graders from across the nation improved on the 2011 National Assessment of Educational Progress (NAEP) science assessment test, improving from an average score of 150 in 2009 to 152 in 2011. According to The Nation's Report Card: Science 2011 report, 16 states showed higher scores out of the 47 that participated in 2009 and 2011 and no state scored lower in 2011 than in 2009.

Students scoring in basic and proficient levels saw higher percentages in 2011, while there was little change in the advanced level. White students scored higher on average than other racial/ethnic groups. Hispanic students had a five point gain; black students had a three point gain, while Asian/Pacific Islander and American Indian/Alaska Native students had little change from 2009 to 2011.

Male students scored five points higher on average than female students. Results from questions posed to students and teachers about science projects/activities and group projects are included in the report.

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29. Draft of Next Generation Science Standards Released

Twenty six states in collaboration with Achieve, the National Research Council (NRC), the National Science Teachers Association (NSTA), and the American Association for the Advancement of Science (AAAS), have developed a draft set of science education standards for K-12 students. Next Generation Science Standards (NGSS) will modernize the out of date science curricula and reinforce the United States' competitive edge in scientific learning.

The framework is divided into three dimensions including Practices, Crosscutting Concepts, and Disciplinary Core Ideas. The first dimension emphasizes scientific inquiry, the second educates students on the interdisciplinary nature of scientific concepts, and the third organizes science education into four domains (physical sciences, life sciences, earth and space sciences, and engineering/technology applications of science).

After the current public revision and feedback period, the NGSS will serve as a model for science education programs throughout the United States. If adopted by more states, the standards must be implemented in concordance with detailed guidance from teachers and more specific content for students as defined by the local school district.

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30. Judge Reworks "Fair-Use" Policy for Higher Education Course Materials

On May 11, 2012, Judge Orinda Evans provided additional guidance on the rules defining 'fair-use' of textbooks and e-reserves for teaching purposes at higher education institutions. The judge rejected 94 copyright claims made by three prominent publishing companies against Georgia State University librarians and professors. A decision was released outlining the fair-use doctrine and interpreting copyright laws of e-reserves.

The judge sided with Georgia State University on most claims stating that the publishing industry must offer materials that are "reasonably available, at a reasonable price" to have a viable claim against the institution. Lack of an accessible online licensing program for universities did not follow the 'reasonably available' prerequisite.

Judge Evans decided on 10 percent, or one chapter, of a book as the threshold for distribution to students under protection of fair-use doctrine. The ruling was an important stride for use of publications in academia as it establishes an inexpensive, legal way for professors to educate their students using electronic resources.

Publishers may develop licenses for partial use of books and other materials in the future, which may make it easier for publishers to collect fees for partial use, but harder for instructors to claim fair-use. Time will tell how the decision affects publishing and higher education instruction.

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31. AGI Welcomes AIPG/AGI Summer 2012 Interns

The American Geosciences Institute (AGI) welcomes Krista Rybacki, Beth Hoagland, and Stephen Ginley as our 2012 summer Geoscience Policy interns. The internship is funded in part by the American Institute of Professional Geologists (AIPG) Foundation and by AGI.

Krista Rybacki graduated from Missouri University of Science and Technology in Rolla with a Bachelor of Science degree in Geology and Geophysics with an emphasis in Geochemistry in May 2012. As part of her undergraduate studies, Krista participated in research studying the flood sediment deposits in the scour valley from the Taum Sauk Reservoir failure. She was active in the department and community as a member of C.L. Dake Geological Society/AAPG, Society of Exploration Geophysicists (SEG), Phi Kappa Phi Honor Society, and Sigma Gamma Epsilon Honor Society. In spring of 2012, Krista was inducted into Missouri S&T's Mines and Metallurgy Academy and graduated with highest honors. Her interests include climate studies, geochemistry research, and science education. This summer, Krista is looking forward to the opportunity to gain insight on the processes between the geosciences and public policy. She is originally from Nashville, IL.

Nell "Beth" Hoagland is a rising junior at Washington University in St. Louis where she is working on a Bachelor of Arts in Environmental Earth Sciences. Her research focuses on reconstructing the geochemical history of Mars through isotopic analyses of sulfate evaporites. Beth is passionate about community service and is involved in many service-oriented activities including preparation of meals for local homeless shelters, tutoring, and involvement in a community service honor society. During her time with AGI, Beth hopes to learn more about her geoscience interests, including hydrology and water equality, oceanography, and

alternative energies, from a policy perspective. She is originally from Louisville, KY.

Stephen Ginley is a rising senior at the University of Maryland, College Park studying geology. His main research interests are high temperature geochemistry and mineralogy and he will be conducting a thesis project on the origin of Albanian ophiolites with Dr. Richard Walker in the 2012-2013 academic year. He is a member of the Alpha Lambda Delta and Phi Eta Sigma Honors Societies and is the social chair of the Alpha Rho chapter of Alpha Chi Sigma, the professional chemistry fraternity. Last spring he worked to replenish bayou swamps in Louisiana with the National Relief Network and is eager to continue changing lives with geology this summer with AGI. He is originally from East Rockaway, NY.

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*****Government Accountability Office (GAO)*****

Air Emissions and Electricity Generation at U.S. Power Plants

The report provides information on electricity generation and emissions as well as the implementation of New Source Review (NSR). This focuses mainly on comparison of older fossil fuel units to new units. The report states that coal is the most used source supplying about 45 percent of electricity in 2010, followed by natural gas at 24 percent. The report provides further discussion and results.

Unconventional Oil and Gas Production: Opportunities and Challenges of Oil Shale Development

Unconventional oil and gas resources are expected to help the U.S. meet future energy needs. Oil shale has garnered attention in recent years. About 72 percent of oil shale is located in the Green River Formation, which is in the states of Colorado, Utah, and Wyoming. This report summarizes the opportunities and difficulties of oil shale development identified in the Government Accountability Office's (GAO) October 2010 report and provides the status of recommendations made by GAO to the Department of the Interior.

Federal Land Management: Availability and Potential Reliability of Selected Data Elements at Five Agencies

This report summarizes the Government Accountability Office's (GAO) findings from a report issued in April 2011. In this report, GAO analyzes how federal land and resource data is gathered, how they are stored, and their reliability. The data are gathered by the Bureau of Land Management, the Fish and Wildlife Service, the National Park Service, and the Forest Service, which manage about 95 percent of federal acres. Bureau of Reclamation manages about one percent. The data help manage lands under their respective jurisdictions.

Energy Conservation and Climate Change: Factors to Consider in the Design of the Nonbusiness Energy Property Credit

This report is a continuation of information previously given to Congress as a fulfillment to a congressional request which focused on examining factors relating to nonbusiness energy property credit. Nonbusiness energy property credit is one of many initiatives by the federal government that aims to address U.S. reliance on foreign energy and the impact of carbon dioxide emission on the climate.

Uranium Mining: Opportunities Exist to Improve Oversight of Financial Assurances

An increase in uranium prices have led to interest in uranium mining on federal land. In this report, the Government Accountability Office compares oversight of uranium exploration and extraction operations and provides the number and status of uranium operations on federal land. Also, the report details the coverage and amounts of financial assurances for reclamation. Finally, there is discussion on the amount and locations of abandoned uranium mines sites and their cleanup costs.

Nuclear Safety: DOE Needs to Determine the Costs and Benefits of its Safety Reform Effort

This report focuses on how the Department of Energy's (DOE) nuclear safety reform effort affected safety and analyzes the cost and benefits DOE seeks to achieve from the reform. The Government Accountability Office (GAO) report reviews and discusses the extent to which the safety reform applies to those concerns identified by GAO and others. Recommendations from GAO to DOE are also included in the report.

Nuclear Regulatory Commission: Natural Hazard Assessments Could Be More Risk-Informed

This report focuses on the analysis of probabilistic risk assessment (PRA) which has been supported by the Nuclear Regulatory Commission (NRC). The Government Accountability Office (GAO) discusses in this report the extent to which PRA is applied to hazards at U.S. reactors and also provides suggested changes from expert opinions to the NRC hazard assessing processes. GAO recommends that the NRC look at whether the operating reactors should be required to develop PRAs. NRC agreed and has planned to conduct studies in the context of ongoing initiatives.

*****National Academy of Sciences (NAS)*****

Earth Science and Applications from Space: A Midterm Assessment of NASA's Implementation of the Decadal Survey

In 2007, the National Research Council's decadal survey, Earth Science and Applications from Space: National Imperatives for the Next Decade and Beyond, called for a continued commitment to a program of Earth observations. NASA accepted the recommendations gathered and as a result, the science and application communities have progressed significantly over the past five years. However, increasing costs and launch failures could not be sustained by the budget. This report gives steps to better manage the current programs, as well as how to execute future programs.

Summary of the Workshop to Identify Gaps and Possible Directions for NASA's Micrometeoroid and Orbital Debris Program

This report is a summary of a two-day workshop, where various aspects of the National Aeronautics and Space Administration's (NASA) Micrometeoroid and Orbital Debris program were discussed by a wide-range of stakeholders. The report includes a discussion of NASA's efforts on orbital debris and micrometeoroids as well as opportunities for enhancing the program and maintenance practices.

NASA Space Technology Roadmaps and Priorities: Restoring NASA's Technological Edge and Paving the Way for a New Era in Space

The Office of the Chief Technologist at the National Aeronautics and Space Administration (NASA) has laid out plans in 14 draft technology roadmaps. The National Research Council (NRC) has considered the roadmaps and ranked the technical challenges and highest priorities in technology that NASA should focus on in the next five years. This report provides the NRC's recommendations on how the technology development program can be managed, even with low resources.

Community Colleges in the Evolving STEM Education Landscape: Summary of a Summit

This report released by the National Research Council (NRC) and the National Academy of Engineering (NAE) shows the importance of community colleges in developing a robust Science, Technology, Engineering, and Mathematics (STEM) workforce. The report looks at the relationships between community colleges and four-year universities on various aspects relating to STEM education.

Discipline-Based Education Research: Understanding and Improving Learning in Undergraduate Science and Engineering

This study, funded by National Science Foundation, focuses on the status, contributions, and future of discipline-based education research (DBER) in physics, biological sciences, geosciences, and chemistry. DBER describes discipline-specific difficulties that learners face and the resources that can help student comprehension. The report includes recommendations for improving DBER and guidance for future research.

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33. Key Federal Register Notices

NRC – The Nuclear Regulatory Commission (NRC) is revising its policy statement on Low-Level Radioactive Waste Volume Reduction. The revised statement recognizes the progress made in reducing waste volume since the policy was first published in 1981. [Tuesday, May 1, 2012 (Volume 77, Number 84)]

DOE – The Department of Energy's Nuclear Energy Advisory Committee will hold an open meeting on June 12, 2012 in Washington, DC. Details and an agenda can be found in the notice. [Thursday, May 3, 2012 (Volume 77, Number 86)]

EO – The President issued a proclamation of National Building Safety Month for the month of May. [Friday, May 4, 2012 (Volume 77, Number 87)]

NASA – The National Aeronautics and Space Administration (NASA) is announcing an open teleconference of the Earth Science Subcommittee of the NASA Advisory Committee on June 4 from 11:00 AM to 1:30 PM. Details and an agenda can be found in the notice. [Wednesday, May 9, 2012 (Volume 77, Number 90)]

DOE – The Department of Energy (DOE) is announcing an open meeting of the Biological and Environmental Research Advisory Committee in Gaithersburg, Maryland on June 6-7. Details can be found in the notice. [Monday, May 14, 2012 (Volume 77, Number 93)]

NRC – The Nuclear Regulatory Commission (NRC) is requesting public comments on its draft regulatory guide, "Special Nuclear Material Control and Accounting Systems for Nuclear Power Plants." Comments must be submitted by July 16. [Monday, May 14, 2012 (Volume 77, Number 93)]

DOE – The Department of Energy (DOE) announces a meeting of the National Coal Council on June 7 in Chicago, Illinois. The meeting will be open to the public. [Thursday, May 17, 2012 (Volume 77, Number 96)]

EPA – The Environmental Protection Agency (EPA) announces a rule establishing initial air quality designations for the United States for the 2008 primary and secondary national ambient air quality standards for ozone. The rule will go into effect on July 20, 2012. [Monday, May 21, 2012 (Volume 77, Number 98)]

NSF – The National Science Foundation (NSF) announces an open meeting of the Advisory Committee for International Science and Engineering on June 11 at NSF Headquarters in Arlington, Virginia. [Monday, May 21, 2012 (Volume 77, Number 98)]

EPA – The Environmental Protection Agency (EPA) is announcing an open meeting of the National Environmental Justice Advisory Council on July 24-25 in Crystal City, Virginia. Details of the meeting can be found in the notice. [Thursday, May 24, 2012 (Volume 77, Number 101)]

NSF – The National Science Foundation (NSF) is announcing an open virtual meeting of the Advisory Committee of Cyberinfrastructure on June 5. Details of the meeting can be found in the notice. [Thursday, May 24, 2012 (Volume 77, Number 101)]

NRC – The Nuclear Regulatory Commission's Advisory Committee on Reactor Safety Subcommittee on Fukushima will hold an open meeting on June 20 in Rockville, Maryland. Details of the meeting can be found in the notice. [Tuesday, May 29, 2012 (Volume 77, Number 103)]

NSF – The National Science Foundation is announcing an open meeting of the Committee on Equal Opportunities in Science and Engineering on June 19-20 at NSF Headquarters. Details of the meeting can be found in the notice. [Wednesday, May 30, 2012 (Volume 77, Number 104)]

EPA – The Environmental Protection Agency (EPA) is announcing that the charter for the Board of Scientific Counselors has been renewed for an additional two-year period. [Thursday, May 31, 2012 (Volume 77, Number 105)]

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34. Key AGI Geoscience Policy Updates

- [Hearing on the U.N. Convention on the Law of the Sea \(5/23/12\)](#)
- [Workshop on the Industrial Engineering Workforce \(5/21/12\)](#)
- [Forum on Next-Generation Blowout Preventers \(5/21/12\)](#)
- [Hearing on Government's Role in Energy Innovation \(5/22/12\)](#)
- [Hearing on Tsunami Generated Marine Debris \(5/17/12\)](#)
- [Hearing on Clean Energy Standard Act of 2012 \(5/17/12\)](#)

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Monthly Review prepared by Wilson Bonner and Linda Rowan, Staff of Geoscience Policy; Beth Hoagland AIPG/AGI Summer 2012 Intern, Krista Rybacki AIPG/AGI Summer 2012 Intern, and Stephen Ginley AIPG/AGI Summer 2012 Intern.

Sources: Associated Press, AAAS, Environment and Energy Daily, Greenwire, New York Times, Washington Post, National Academies Press, Government Accountability Office, Open CRS, Thomas, House of Representatives, U.S. Senate, the White House, Department of Energy, Department of the Interior, National Aeronautics and Space Administration, Environmental Protection Agency, National Science Foundation, National Oceanic and Atmospheric Administration, Nuclear Regulatory Commission, Department of Commerce, United Nations, Department of Education, Department of Defense, Department of State, Federal Emergency Management Agency, U.S. Forest Service, National Science Teachers Association, National Assessment of Educational Progress, Vermont Office of the Governor, National Energy Technology Laboratory, United States District Court for the Northern District of Georgia, World Wildlife Fund, Rocky Mountain Climate Organization, SpaceX, American Meteorological Society, National Resource Defense Council, Research Partnership to Secure Energy for America, Technology Centre Mongstad, National Ocean Council.

This monthly review goes out to members of the AGI Geoscience Policy Committee, the leadership of AGI's member societies, and others as part of a continuing effort to improve communications about the role of geoscience in policy. For additional information on specific policy issues, please visit the web site or contact us at govt@agiweb.org or (703) 379-2480.

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