

Monthly Review: December 2011

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 Government Affairs Advisory Committee, and other interested geoscientists as part of a continuing effort to improve communications between GAP and the geoscience community. The current monthly review and archived monthly reviews are all available online. Subscribe to receive the Government Affairs Monthly Review by email.

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1. Apply for AGI's 2012-2013 William Fisher Congressional Geoscience Fellowship

The American Geosciences Institute is accepting applications for the 2012-2013 William L. Fisher Congressional Geoscience Fellowship. Congressional fellows spend one year in Washington, DC working as a staff member in the office of a member of Congress or in a congressional committee. The fellowship represents a unique opportunity to gain first-hand experience with the federal legislative process and make practical contributions to the effective and timely use of geoscientific knowledge on issues relating to the environment, resources, natural hazards, and federal science policy. The application deadline is February 1, 2012.

Several of AGI's Member Societies also sponsor Congressional Science Fellowships. For further information, contact the American Geophysical Union, the Geological Society of America, or the Soil Science Society of America. AAAS, AIP, ASCE, AMS and other related societies offer similar fellowships for Congress and AAAS offers fellowships for the executive branch. It is acceptable to apply to more than one society in a given year. Stipends, application procedures, eligibility, timetables, and deadlines vary.

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2. Congressional Visits Day in April - Join Us in DC

Geoscientists are invited to join organized groups of scientists and engineers for the upcoming Science-Engineering-Technology Congressional Visits Day (SET-CVD) on April 24-25, 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. SET-CVD involves a multi-sector and multi-disciplinary coalition of companies, professional societies and educational institutions. Lots of geoscientists come through AGI and other geosciences societies. See summaries of past SETCVDs at AGI's [events page](#).

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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3. OSTP Releases Federal STEM Education Portfolio

When the America COMPETES Reauthorization Act (P.L. 111-358) was signed into law in early 2011, the Office of Science and Technology Policy (OSTP) was called upon to compile a detailed catalogue of all federal science, technology, engineering, and mathematics (STEM) education programs. OSTP has released "The Federal Science, Technology, Engineering, and Mathematics Portfolio," which provides a list of all STEM education investments undertaken by federal agencies. The list was compiled by the Committee on STEM Education (CoSTEM) of the National Science and Technology Council, and is the most detailed inventory of federal STEM education to date.

The portfolio, within which CoSTEM developed a precise definition of STEM education and a comprehensive survey instrument to collect data about programs, says the federal government draws upon a wide range of unique assets to support STEM education. According to the portfolio, federal investment in STEM education for fiscal year 2010 was \$3.4 billion, accounting for only 0.3 percent of total investment in education (\$1.1 trillion). Because two thirds of the \$3.4 billion was spent on broad STEM education investments, the America COMPETES Act requested CoSTEM to develop a five-year, cross-agency STEM education strategic plan to target a more specific portfolio of STEM education investments. Through this strategic plan, OSTP hopes to consolidate programs, create joint solicitations across agencies, and develop procedures for sharing program data and performance evaluations.

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4. White House Extends Opportunity to Comment on Open Access Policy

The America COMPETES Reauthorization Act of 2010 (P.L. 111-358) directs the Office of Science and Technology Policy (OSTP) Director to establish a working group within the National Science and Technology Council "to coordinate Federal science agency research and policies related to the dissemination and long-term stewardship of the results of unclassified research, including digital data and peer-reviewed scholarly publications, supported wholly, or in part, by funding from the Federal science agencies." The Interagency Working Group on Digital Data has extended the deadline for its Request for Information (RFI) that seeks individuals or organizations to provide recommendations and options for implementing the digital data policy and standards requirements of the reauthorization. Ultimately, OSTP will implement a clearinghouse with information on the contents of, and access to, federal scientific collections. Public comments are due on or before January 12, 2012.

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5. Congress Finishes Appropriations for Fiscal Year 2012

Congress passed the Consolidated Appropriations Act of 2012 (H.R. 2055) on December 17 and President Obama signed the

measure into law (Public Law 112-74) on December 23, long after the start of fiscal year (FY) 2012 on October 1, 2011. The omnibus measure provides appropriations for the Department of the Interior, the Environmental Protection Agency, the Department of Energy (DOE) and the Department of Education. Other science agencies were funded in an earlier measure. Summaries of the FY2012 budgets of geosciences-related agencies are available from the American Geosciences Institute Overview of Appropriations.

The United States Geological Survey (USGS) will receive \$1,069.7 million for fiscal year (FY) 2012 (about \$14 million less than FY2011 enacted and about \$48 million less than the President's request). The largest cuts compared to FY2011 would be for funding for facilities and administration. Congress did not agree with the creation of a Land Imaging program and did not agree to transfer budgetary authority for Landsat 9 and 10 from the National Aeronautics and Space Administration (NASA) to the USGS. Only \$2 million of the \$48 million requested for Landsat 9 and 10 will be provided by Congress to study future options for the satellite program. New satellites are needed to ensure data continuity, but the high costs cannot be absorbed by the USGS without significant budget increases in the future. NASA has the appropriate expertise to build and launch the satellites but needs to include these costs in future budget planning.

DOE will receive about \$25.748 billion for FY 2012 (about \$1.26 billion less than FY2011 enacted and about \$3.8 billion below the President's request). The Office of Science and The Office of Energy Efficiency and Renewable Energy will see modest increases while the Office of Fossil Energy and most nuclear waste management programs will see modest decreases. Congress agreed with the Obama Administration to terminate funding for the Yucca Mountain nuclear waste geologic repository and requests DOE to fund research on nuclear waste storage, transport and other potential geologic repositories.

The Department of Education will receive about \$25 million less in FY2012 than enacted in FY2011 for the Math and Science Partnership (MSP) program. The FY2012 appropriation of \$150 million provides support for implementing math and science education programs in grades K through 12. It remains the only program dedicated to science education as other presidential proposals received no appropriations from Congress.

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6. National Flood Insurance Program Receives Another Short Term Extension

The National Flood Insurance Program (NFIP) received another short-term extension in the December 23 omnibus, or the Consolidated Appropriations Act (H.R. 2055), which authorized the bankrupt program to keep running until May 31, 2012. NFIP has been relying on short-term extensions for the past few years though attempts to pass a long-term authorization have been introduced. As the deadline for passing an extension came closer to the program's expiration at midnight of December 23, 2011, members of Congress began introducing bills to extend the program. Senators David Vitter (R-LA) and Mary Landrieu (D-LA) introduced a bill (S. 1958) to extend NFIP to May 31, 2012 which passed the Senate quickly by voice vote. Senator Vitter had attempted to pass a bill (S. 1864) extending the NFIP to September 30, 2012 but did not gather any cosponsors. Representative Steve Scalise (R-LA) introduced the House version (H.R. 3628) of the Senate bill on December 8 but the House took no action. Ultimately, Vitter's language to extend NFIP until May 31, 2012 was included in H.R. 2055 and passed on December 23.

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7. Bill to Increase Transparency of Federal Grants Passes Committee

The Grant Reform and New Transparency (GRANT) Act of 2011 (H.R. 3433) was introduced by Representative James Lankford (R-OK) on November 16 and passed by the House Committee on Oversight and Government Reform the next day. The bill would require the White House Office of Management and Budget (OMB) to upgrade existing public web sites for finding, reviewing, and applying for federal grant opportunities so that they would provide full access to detailed information about the individual grants. It would require the disclosure of the name, title, and employer of all individuals who serve as reviewers. During the mark up, Ranking Member Elijah Cummings (D-MD) offered an amendment to strike language requiring the "name, title, and employer" of individuals who serve as reviewers. Cummings' amendment passed by voice vote but was later overturned by Lankford who succeeded in retaining the language though he added "or unique identifier" after "name." The proposed web site would provide a copy of the final grant agreement, a copy of all proposals, applications, or plans submitted for the grant, the numerical ranking of the grant by reviewers, and a justification from the reviewers if the award of the grant does not coincide with the numerical rankings. Chairman Darrell Issa (R-CA), an original cosponsor of the bill, said the GRANT Act "lifts a veil of secrecy" surrounding federal grants.

The American Association of Universities (AAU), the Association of Public and Land-grant Universities (APLU), and the Council

on Governmental Relations (COGR) wrote a joint letter on November 28 to Chairman Issa and Lankford questioning the need for the GRANT Act. The letter states “Under current laws and regulations governing federal grants, research universities and their faculty already provide to the federal government comprehensive financial and compliance information, which is publicly available.” The organizations strongly disagree with the language requiring the disclosure of peer reviewers’ names and employers. “Anonymity in the process permits greater candor in the evaluation of grant applications and thereby, contributes to a higher quality of review than would otherwise occur if the names of peer reviewers related to a specific application were known,” the organizations argue.

Cummings and Representative Gerry Connolly (D-VA), Ranking Member of the Subcommittee on Technology, Information Policy, Intergovernmental Relations, and Procurement Reform of the Oversight and Government Reform Committee, wrote a letter to Lankford and Issa urging changes in the GRANT Act before it is brought to the full House for a vote. The two congressmen argue the nation cannot afford “to impose new, expensive requirements on cash-strapped universities and federal agencies” or “to risk that foreign adversaries could access America’s vital intellectual property by simply copying it off federal websites directly from grant applications.”

Copies of organizations’ letter and congressmen’s letter can be found on the AAU What’s New web site.

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8. Senate ENR Committee Moves Four Energy Bills and a Nomination

The Senate Energy and Natural Resources Committee passed four energy bills and approved a nomination in December. Arun Majumdar, current director of the Advanced Research Projects Agency for Energy (ARPA-E), was nominated by President Obama to fill the vacant position of Undersecretary of Energy at the Department of Energy (DOE) and approved by the committee on December 15. Majumdar’s nomination must now be approved by the full Senate.

After Majumdar’s nomination, the committee voted on and passed the 10 Million Solar Roofs Act of 2011 (S. 1108), the Geothermal Exploration and Technology Act of 2011 (S. 1142), the Geothermal Production Expansion Act of 2011 (S. 1149), and the Department of Energy Administrative Improvement Act of 2011 (S. 1160). Senator Bernie Sanders’s (I-VT) bill, S. 1108, would establish a program in DOE to provide competitive grants to local governments that have adopted best practices for solar permitting and sets a goal to install solar energy systems on at least 10 million U.S. properties by 2021. The Geothermal Exploration and Technology Act, sponsored by Senator Jon Tester (D-MT), would direct the DOE to create a direct loan program for geothermal wells in high risk or unexplored areas through the establishment of a Geothermal Investment Fund. The legislation further promotes the development of geothermal energy by directing DOE to conduct research and development (R&D) on geothermal heat pumps and to provide loans to install geothermal heat pumps designed to service large populations. Senator Ron Wyden’s (D-OR) bill, S. 1149, would increase the availability of federal geothermal resources by amending the Geothermal Steam Act of 1970 (30 U.S.C. 23) to allow adjacent lands of a previously granted lease to be made available for a noncompetitive lease at fair market value. Chairman Jeff Bingaman (D-NM) and Ranking Member Lisa Murkowski (R-AK) co-sponsored S. 1160 to require the Secretary of Energy to submit an annual report to Congress detailing DOE’s five fiscal year report of the department’s anticipated expenditures and proposed appropriations. The measure eases DOE’s ability to appoint “highly qualified scientists, engineers, or critical technical personnel...in the event of a severe shortage of candidates or a critical hiring need for particular positions.”

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9. Retirements Mean New Faces for 113th Congress

The number of Senate Democrats retiring continues to rise with the December 27 announcement that Senator Ben Nelson (D-NE) will not seek reelection in 2012. There are 33 elections that will take place in November 2012 for the Senate. Nine of these races will fill an open seat created by retirements. Six of the nine retirements will be Democrats including Senator Jeff Bingaman (D-NM), chairman of the Committee on Energy and Natural Resources, and Senator Kent Conrad (D-ND), chairman of the Budget Committee. Senators Kay Bailey Hutchison (R-TX), ranking member of the Committee on Commerce, Science, and Transportation, and Jon Kyl (R-AZ), Senate Minority Whip, are the two Republicans not seeking reelection. Senator Joe Lieberman (I-CT) will not seek reelection either.

In the House of Representatives, notable retirements include Representatives Lynn Woolsey (D-CA) and Jerry Costello (D-IL) of the Committee on Science, Space and Technology; Dale Kildee (D-MI) and Dan Boren (D-OK) of the Committee on Natural Resources; Mike Ross (R-AR) and Charlie Gonzalez (D-TX) of the Committee on Energy and Commerce; Steve Austria (R-OH)

of the Committee on Appropriations; and Congressman Barney Frank (D-MA). Many other House members are running for other political offices, so the House will change even more in 2013.

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10. United States and Canada Complete Joint Seafloor Survey in Arctic

After spending nearly six weeks in August and September in the Arctic, the U.S. Coast Guard icebreaker *Healy* and the Canadian Coast Guard icebreaker *Louis S. St-Laurent* have returned to port marking the completion of a five-year joint effort between the United States and Canada to collect scientific data to delineate the extended continental shelf (ECS). This joint effort was undertaken to leverage the costs required to collect the data needed to delineate the boundary between Canada and the U.S. and to determine the extent of the continental shelf in relation to the Law of the Sea Treaty.

The United Nations Convention on the Law of the Sea (UNCLOS) was adopted by the international community in 1994 as a comprehensive set of rules governing the oceans and seafloor. The treaty establishes “exclusive economic zones” in which a coastal nation has sole exploitation rights over all natural resources within 200 nautical miles of a defined baseline. The natural resources extend from fishing and wave energy in the ocean column to oil, natural gas, gas hydrates, and mineral resources below the seafloor. The United States Extended Continental Shelf Task Force, led by the Department of State, is responsible for delineating the U.S. ECS. Geoscientists will be analyzing the data to develop accurate estimates of the extent of the U.S. ECS. Canada and the U.S. have ongoing disputes about national boundaries beyond their coastlines in the Arctic Ocean.

Healy collected bathymetric data through the use of a multibeam echo sounder while scientists aboard the *Louis S. St-Laurent* collected seismic data to determine the thickness of sediments under the seafloor and to better characterize the geology of the Arctic Ocean seafloor. Other scientific missions took place during the six week cruise including the collection of baseline data on ocean acidification by scientists from the U.S. Geological Survey (USGS).

More U.S. missions led by the National Oceanic and Atmospheric Administration and USGS have taken place and are planned to further delineate the U.S. ECS in the Atlantic, the Pacific, the Gulf of Alaska, the Gulf of Mexico, and the Bering Sea.

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11. NSF Awards Antarctic Contract to Lockheed Martin

The National Science Foundation (NSF) announced on December 28 that it had awarded a multi-year \$2 billion contract to Lockheed Martin for logistical support for the U.S. Antarctic Program (USAP). Lockheed Martin’s Information Systems & Global Solutions Division will be responsible for designing and implementing a cost-effective infrastructure for managing USAP’s three year-round research stations, two research vessels, medical facilities, construction projects, and remote sites in and around Antarctica. The contract begins April 1, 2012 and will last 4.5 years but may be extended for as long as 8.5 more years.

The USAP has maintained a U.S. presence in Antarctica since 1956 and NSF is America’s lead agency for the Antarctic Treaty signed by the United States and 12 other original countries in 1959. The treaty sets Antarctica aside as a scientific research preserve, bans military activity, and establishes freedom of scientific investigation.

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12. State Department Announces Law of the Sea Web Site

In a push to increase their communication efforts in support of the United Nations Convention on the Law of the Sea (UNCLOS), the State Department has launched a web site with information on the treaty and a list of supporters. The site is headlined with quotations by former Secretary of State Condoleezza Rice and Secretary of State Hillary Clinton in support of the treaty. The site provides links to factsheets and to the government’s Extended Continental Shelf (ECS) Project.

The ECS Project will establish the full extent of the continental shelf of the United States. The project is co-chaired by the State Department, the National Oceanic and Atmospheric Administration (NOAA) and the Department of the Interior. The U.S. Geological Survey (USGS) and other geoscientific expertise will be engaged to map the ECS. Under the Law of the Sea Treaty, a nation can secure its sovereign rights over natural resources within a 200- nautical mile exclusive economic zone from its coastal baseline and up to 350 nautical miles from the baseline or 100 nautical miles from a 2500 meter depth in cases where the continental shelf extends further than 200 nautical miles.

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13. NOAA Releases Scientific Integrity Policy

The National Oceanic and Atmospheric Administration (NOAA) becomes the latest of federal agencies to release its scientific integrity policy after a White House memorandum from March 2009 directed all agencies to write a policy “to ensure the integrity of the scientific process.” NOAA announced on December 7 that it has completed and made publicly available Administrative Order 202-735D on scientific integrity. The order states that “Transparency, traceability, and integrity are...core values of

[NOAA] and the reason for issuing this Order.” According to the order, NOAA scientists are permitted to “speak freely to the media and public about scientific and technical matters based on their work” and are encouraged to present their work at scientific meetings, serve on editorial boards, publish their work, and actively participate in scientific societies. Furthermore, NOAA scientists will be provided regular integrity and ethics training. As research scientists, NOAA employees are expected to be “honest in all aspects of scientific effort; accountable in the conduct of research and interpretation of research results; professional, courteous, and fair in working with others...; and good stewards of research on behalf of others.” The NOAA Research Council will be responsible for the oversight and communication of the policy.

The White House Office of Science and Technology Policy has received and made publicly available final or draft policies from the Department of the Interior, the Environmental Protection Agency, the Department of Agriculture, the National Science Foundation, the National Oceanic and Atmospheric Administration, and the National Institute of Standards and Technology.

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14. Department of Energy Updates Critical Materials Strategy

On December 22, the Department of Energy (DOE) released its 2011 Critical Materials Strategy to update the 2010 report and present new criticality assessments, market and technology analyses, and review DOE activities in 2011 with regards to critical materials. DOE found that several clean energy technologies risk facing a materials supply disruption in the short term. The risks generally decline in the medium to long term time range. Supply challenges for dysprosium, terbium, europium, neodymium, and yttrium, all rare earth elements, are expected to affect clean energy deployment “in the years ahead,” according to DOE’s findings.

The Consolidated Appropriations Act, 2012 (H.R. 2055) provided \$20 million for the Energy Innovation Hub for Critical Materials. The three aspects of DOE’s critical materials policy remain: 1. Diversify supply, 2. Develop substitutes, and 3. Improve recycling and efficient use.

China maintains that it will keep export quotas of rare earths in 2012 equal to those in 2011. Beijing set an export quota of 30,184 tons in 2011 after a slightly higher quota in 2010 of 30,258 tons. The Chinese government is growing more concerned about environmental degradation related to rare earth element extraction and processing and has not yet approved production levels for China’s largest producers because of environmental assessments. The environmental hurdles mean that quotas remain uncertain regardless of government statements and industries throughout the world that need rare earths remain uneasy about Chinese supplies.

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15. Record Number of Disasters in 2011

The National Climatic Data Center has counted at least a dozen weather and climate disasters that exceeded \$1 billion in damages per event in the United States in 2011. The dozen include the Groundhog Day blizzard through the central and eastern U.S., six severe weather/tornado outbreaks, two major floods on the Missouri and Mississippi Rivers, Hurricane Irene on the East Coast, wildfires in the Southwest and an ongoing drought in the South. The 12 events caused 646 fatalities and about \$52 billion in estimated damages. Other disasters, such as Tropical Storm Lee and the Halloween snowstorm on the East Coast may also exceed \$1 billion in total damages once all of the claims are completed leading to more than a dozen greater than \$1 billion disasters in 2011. The previous record was eight high cost disasters in 2008 and 2011 is likely to be the third costliest weather damage year on record behind 2005, which was dominated by Hurricane Katrina, and 1988, which was dominated by extreme drought and a heat wave.

One positive note to these record-breaking disasters was a more organized and responsive Federal Emergency Management Agency (FEMA) to handle the preparation and recovery. In a Washington Post year-end blog about “Some Things the Government Got Right”, the blogger notes that FEMA was swift and responsible in dealing with multiple disasters throughout the year and the National Weather Service (NWS) did a good job of forecasting weather threats to help people prepare.

Disastrous weather and climate events around the world set records for fatalities and costs with the ongoing drought in Africa, floods in Australia and extreme weather events in Asia causing the most damage. Such ominous records are attributed to weather extremes and unwise development in high risk areas.

The magnitude 9.0 Tohoku earthquake and tsunami in Japan was the most devastating event of 2011 (more than 15,000 fatalities

and an estimated \$235 billion in losses) and reminded the world that not all disasters are related to weather. The intensity of the earthquake and tsunami confirmed that developed countries are not immune to considerable losses. Indeed developed countries face higher economic losses and more complex system failures that can have a greater global impact. The failures at the Daiichi Nuclear Power Plant are a compelling example of a complex system failure and the need for planning and mitigation of extreme events affecting complex systems.

The Mineral, Virginia magnitude 5.8 earthquake in August became the first earthquake to cause an automatic shutdown of a nuclear power plant in the world. The North Anna Nuclear power plant near Mineral exceeded the shaking intensity it had been designed for and automatically shut down when the 5.8 shaker rolled through. There was significant damage to buildings in Mineral and nearby areas but no fatalities. The earthquake was widely felt throughout the East Coast and into the Midwest. Many people reacted incorrectly by running outside or putting themselves needlessly in harm's way, indicating that earthquake preparedness and response should be improved throughout the U.S.

The damaging earthquakes in Christchurch, New Zealand were forgotten as the Tohoku earthquake's impacts grew, however, the multiple events starting in 2010 and continuing in 2011 have devastated the city and the country. The magnitude 6.3 earthquake in February caused 181 fatalities and about \$30 billion in damage, making it the second deadliest and costliest disaster in New Zealand. The New Zealand Earthquake Commission requires homeowners to have earthquake insurance and residents contribute \$NZ 50 per year toward an earthquake fund (about \$NZ 5 billion before the earthquakes). About 4,500 claims have been filed for the \$NZ 100,000 for property and \$NZ 20,000 for contents that the fund provides. It is unclear whether the earthquake fund will have enough to cover insured damages, especially as more earthquakes rocked the city after February of 2011 causing more damage.

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16. Climate Change Conference Plans Binding Emissions Reductions

The United Nations Climate Change Conference in Durban, South Africa ended on Sunday, December 11, two days later than planned, as delegates spent the weekend trying to reach an agreement on legally binding emissions reductions. The European Union, which ratified the Kyoto Protocol and has reduced emissions below 1990 levels, offered a new proposal to require all countries to reduce emissions. After intense negotiations, the delegates agreed to create a new climate deal that will have legal force by 2015 and to require developed and developing countries to reduce emissions.

The United States, which did not ratify the Kyoto Protocol, has exceeded its 1990 emissions levels in every year since 1990. The United States is the second largest emitter in the world and will have trouble meeting any targets. During the conference the U.S. was accused of delaying any agreements, but in the end it did agree to the new "legal force" terms. Besides the large emissions, the United States is concerned about including China in any reductions agreement.

China is the largest emitter of greenhouse gases in the world, having overtaken the U.S. in 2010. China and other large developing nations, such as India, will be part of the agreement on legally binding emissions reductions. The agreement has not set any emissions targets so more significant negotiations are still to come before 2015 when the agreement is set to begin.

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17. UNESCO Hosts Open Access Forum

The United Nations Educational, Scientific and Cultural Organization's Global Open Access Portal (GOAP) held a forum in late November to bring together experts on open access to advise UNESCO on ways to promote and develop a platform for global open access around the world. Participants of the 2011 Open Access Forum discussed ways to promote open access to scientific information, data repositories, and academic journals, ways to implement successful open access policies around the world, and strategies to improve collaboration and access to scientific information among less developed countries. Many of the experts' presentations are available on the forum web site.

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18. NGA Releases STEM Report and Teacher Compensation Recommendations

The National Governors Association (NGA) released a report, entitled *Building a Science, Technology, Engineering, and Math Education Agenda*, to provide guidance for states to strengthen their science, technology, engineering, and mathematics (STEM) education programs. Through the NGA Center for Best Practices, participating states can share best practices, strategies, and lessons learned. In addition to reiterating the goals of the NGA STEM Agenda - increasing the number of students and professionals in STEM and increasing STEM proficiency among all students, the report documents weak links in the education system and provides steps for a state to implement a robust STEM agenda. In 2007, NGA produced a similar document titled *Building a Science, Technology, Engineering and Math Agenda*. This 2011 report updates the recommendations of the 2007 report

in light of recent state progress to improve education standards and other efforts to advance STEM education.

NGA hosted a policy academy from 2009 to 2010 to provide six states a venue to discuss new models for teacher compensation. The policy academy provided teams from Florida, Indiana, Kansas, Louisiana, Rhode Island, and Tennessee with assistance and advice from NGA Center for Best Practices staff and with other experts. During the academy, state leadership teams found some common challenges, shared best practices, and committed to some common principles. The results of the academy are captured in a new brief from NGA titled *New Models of Teacher Compensation: Lessons Learned from Six States*. As states look to restructure teacher compensation systems, governors and state policymakers should strengthen student assessment systems, develop tools to measure teacher effectiveness beyond test scores, and engage key stakeholders to help develop new compensation frameworks.

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19. Three Reports on Virginia Uranium Deposit; Public Remains Divided

The environmental and economic impacts of producing the 119 million pound uranium deposit in Pittsylvania County, Virginia are the focus of three reports released in December, 2011. The National Academy of Sciences (NAS) reports in *Uranium Mining in Virginia: Scientific, Technical, Environmental, Human Health and Safety, and Regulatory Aspects of Uranium Mining and Processing in Virginia* that if the state were to lift the moratorium, it faces “steep hurdles” before mining and processing could be done appropriately enough to protect workers, the public, and the environment mostly because the state has no experience regulating the mining and processing of any radioactive element. The Fairfax County Water Authority’s board of directors released their own study on the potential impact of uranium mining and milling on watersheds. Their report, written by Tetra Tech, Inc. and Hazen and Sawyer P.C., concluded that “uranium mining and milling represent unique risks that require additional process controls to prevent impacts from toxic and radioactive byproducts” and called for a “conservative and precautionous approach.” The Danville Regional Foundation of Danville, Virginia released an additional study conducted by RTI International which estimated the potential economic impacts to account for the immediate creation of “559 to 1,008 jobs” for construction and capital equipment purchase and for the long-term creation of “385 to 889 jobs.” RTI International detailed the potential environmental risks and recommended “appropriate investments should be made in design, pollution control technologies, and regulatory development and implementation.”

A poll conducted by Quinnipiac University from December 13-19 among 1,135 registered voters found that 43 percent said mining should be allowed because of the economic benefits, while 41 percent oppose it based on environmental concerns.

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20. Apply for IIASA's Young Scientists Summer Program

The International Institute for Applied Systems Analysis (IIASA) is accepting applications for its Young Scientists Summer Program (YSSP). The three month research opportunity would take place between June and August of 2012 and applicants would work within one of IIASA’s research programs which include the Energy Program, the Ecosystems Service and Management Program, and the Mitigation of Air Pollution and Greenhouses Gas Program. Information on how to apply and on the individual research opportunities within each program can be found on the YSSP web site. Applications are due January 16, 2012.

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21. Key Reports and Publications

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

Neutron Detectors: Alternatives to Using Helium-3

Neutron detectors are used in a broad range of application including national security and science to detect nuclear radiation. Helium-3 gas, a byproduct of the radioactive decay of tritium, is used in neutron detection technologies, cryogenics, medicine, science, and perhaps in future fusion reactors. The U.S. has not produced tritium from dismantled nuclear weapons since 1988 thus reducing the U.S. stockpile. After the terrorist attack on September 11, 2001, the U.S. started deploying far more neutron detectors to guard against smuggled nuclear and radiological materials and by 2008, a shortage of helium-3 arose. The Department of Defense, the Department of Homeland Security, and international collaborators have worked to develop alternative large-scale neutron detectors that do not use helium-3. So far, researchers have identified three promising possibilities: boron-10 lined proportional detectors, boron trifluoride proportional detectors, and lithium-6 scintillators. The Government Accountability Office (GAO) was asked to assess the readiness of the three potential detectors for large-scale deployment. According to the report, boron-10 lined proportional detectors are sufficiently mature enough to be used for national security purposes within the next two years though all three were ranked along a range of 5-7 on the technology readiness level scale of 1-9.

BLM Needs to Revise its Systems for Assessing the Adequacy of its Financial Assurances

For this report, the Government Accountability Office (GAO) reviewed the Bureau of Land Management's (BLM) Bond Review Report which found that mine operators had provided financial assurances of \$1.5 billion to cover reclamation costs to 1,365 hardrock operations on federal lands managed by BLM. GAO concluded that 57 sites had inadequate financial assurances totaling about \$124 million less than needed to fully cover estimated reclamation costs. GAO has previously recommended steps to strengthen and improve BLM's management of hardrock financial assurances but those recommendations have not been addressed. GAO suggests in this report that the Secretary of the Interior should direct the BLM to revise its Bond Review Report process to calculate and report the value of inadequate hardrock financial assurances on an operation-by-operation basis to more accurately report the adequacy of BLM's hardrock financial assurances.

International Climate Change Assessments: Federal Agencies Should Improve Reporting and Oversight of U.S. Funding

From fiscal year (FY) 2001 to FY2010, the United States provided \$31.1 million through the State Department and the U.S. Global Change Research Program (USGCRP) to support the efforts of the Intergovernmental Panel on Climate Change (IPCC). USGCRP agencies provide support by funding a National Science Foundation (NSF) technical support unit that helps develop the IPCC reports. The Government Accountability Office (GAO) found that information on these funds provided to the IPCC is not available in agency budget documents nor are agencies required to report this information to Congress. The U.S. placed a condition on the funds NSF provides to the technical support unit on behalf of USGCRP agencies which requires NSF to conduct a review of the administration of those funds to help inform the budget for the next fiscal year. However, NSF did not complete its project review in time to inform the budget process for FY2011. GAO recommends in this report that the State Department and NSF coordinate and inform Congress annually with accurate information on U.S. funding for the IPCC and that NSF conduct and complete timely project reviews.

International Space Station: Approaches for Ensuring Utilization Through 2020 Are Reasonable but Should Be Reviewed as NASA Gains More Knowledge of On-Orbit Performance

The Government Accountability Office (GAO) reviewed the National Aeronautics and Space Administration's risk assessments and methodologies used to ensure the International Space Station's (ISS) utilization through 2020 and found them to be reasonable. GAO recommended that NASA revisit their approach in 2015 as many of NASA's cost estimates for replacement units are conservatively high and a reassessment could lower the costs needed to maintain the use of ISS.

National Aeronautics and Space Administration: Acquisition Approach for Commercial Crew Transport Includes Good Practices, But Faces Significant Challenges

The National Aeronautics and Space Administration's (NASA) planned approach for acquiring domestic commercial crew transport (CCT) faces significant challenges according to the Government Accountability Office (GAO), though it includes good acquisition practices. GAO cited NASA's low current funding level as an issue in that NASA cannot award many contracts. Awarding many contracts to multiple companies is key for maintaining cost control by sustaining competition through all phases of NASA's CCT program. The critical need to have CCT capabilities in place by 2016 requires an aggressive program schedule that will be difficult to reach. GAO recommends that NASA direct its CCT program to reassess its approach before its procurement process for the Integrated Design Contract and subsequent programs. The CCT program should also establish criteria for assessing the progress of its commercial providers to determine whether purchasing additional seats on Russian Soyuz rockets is required beyond 2016 and when the decision to do so must be made.

Mississippi River: Actions are Needed to Help Resolve Environmental and Flooding Concerns About the Use of River Training Structures

The Mississippi River is "trained" by the U.S. Army Corps of Engineers (USACE) with dikes, or training structures, to maintain adequate depth for navigation. In between the confluence of the Missouri River and the Ohio River, in what is referred to as the Middle Mississippi, the USACE relies heavily on training structures. The Government Accountability Office (GAO) was asked to examine the environmental concerns of the use of training structures on the health of the river. GAO recommended to USACE that they prepare an environmental assessment to determine whether there are new circumstances relevant to the Middle Mississippi River navigation project's environmental concerns that have emerged since USACE's 1976 environmental impact statement. USACE should also develop an approach to ensure site-specific impacts are addressed for new training structures in the Middle Mississippi. Finally, GAO recommended USACE to conduct numerical modeling to provide insight into the relative magnitude of the training structures' effects on flood conditions in the Middle Mississippi.

Observations on Arctic Requirements, Icebreakers, and Coordination with Stakeholders

The Government Accountability Office was asked to testify at a House Committee on Transportation hearing on Coast Guard operation in the Arctic and prepared this report as a written testimony. A High Latitude Study, delivered to Congress in July 2011 and dated 2010 on the cover, recommended the United States acquire 4 heavy-duty icebreakers and 6 medium-duty icebreakers to maintain a presence in the Arctic and the Antarctic and fulfill the Coast Guard's statutory missions. The report found that not only would it be a "significant challenge" for the Coast Guard "to acquire the assets that the High Latitude Study recommends," but that "it is unlikely that the Coast Guard will be able to fund the acquisition of new icebreakers through its own budget, or through alternative financing options." A funding approach similar to how *Healy* was funded - by the Department of Defense (DOD) in 1990 appropriations - is deemed "unlikely" by the report because the Coast Guard's needs to acquire icebreakers are much more immediate than the DOD's. In regards to leasing, the report states, "the lack of existing domestic commercial vessels capable of meeting the Coast Guard's mission requirements reduces the availability of leasing options for the Coast Guard." Furthermore, cost-benefit analyses have suggested that leasing may "ultimately be more costly to the Coast Guard" over the lifespan of the icebreaker. The report notes that the Department of Homeland Security, which the Coast Guard is part of, and the DOD have formed a Capabilities Assessment Working Group to identify shared Arctic capability gaps and opportunities and approaches to remedy them.

National Academy of Sciences (NAS)

A View of Global Science and Technology: Letter Report

The Board on Global Science and Technology (BGST) met five times between 2009 and 2011 to identify national security implications of the globalization of science and technology, to build a baseline understanding of current indicators for the U.S. posture with regard to the evolving global science and technology landscape, and to develop a board engagement strategy. This letter report describes the activities of the BGST and provides an initial view of the global science and technology landscape.

Macondo Well-Deepwater Horizon Blowout: Lessons for Offshore Drilling Safety

This report examines the causes of the Macondo Well-Deepwater Horizon blowout and provides recommendations for industry and government regulators to reduce the chances of any future losses of well control during offshore drilling. The report recommends drilling companies take a "system safety" approach to anticipating and managing possible dangers at every level of operation in order to prevent future blowouts and spills. For regulators, the report recommends combining strong industry safety goals with mandatory oversight at critical points during drilling.

New Research Opportunities in Earth Sciences

Expanding on the 2001 National Research Council report, Basic Research Opportunities in Earth Sciences, this report identifies new and emerging research opportunities in the Earth sciences over the next decade. Opportunities for new instrumentation and facilities are discussed as are opportunities for increased collaboration between the National Science Foundation and other government agency programs, industry, and international programs. The report finishes with recommendations on how to train the next generation of Earth scientists, ways to support young investigators, and methods to increase the participation of underrepresented groups in the field.

Scientific Ocean Drilling: Accomplishments and Challenges

U.S.-supported scientific ocean drilling programs have significantly contributed to broad scientific accomplishments in the Earth sciences and have enabled many new research opportunities. This report details the accomplishments of U.S.-supported scientific ocean drilling programs including the Deep Sea Drilling Project (1968-1983), the Ocean Drilling Program (1984-2003), and the Integrated Ocean Drilling Program (2003-2013). The report concludes with a look to the future of scientific ocean drilling and a discussion of the challenges ahead.

Uranium Mining in Virginia: Scientific, Technical, Environmental, Human Health and Safety, and Regulatory Aspects of Uranium Mining and Processing in Virginia

The Commonwealth of Virginia has maintained a moratorium on uranium mining in the state since 1982 though the state has approved restricted exploration activities around the Coles Hill deposit in southern Virginia. This report examines the scientific, technical, environmental, human health and safety, and regulatory aspects of uranium mining, milling, and processing as they relate to Virginia. The report claims that if the state were to lift the moratorium, it faces "steep hurdles" before mining and

processing could be done appropriately enough to protect workers, the public, and the environment mostly because the state has no experience regulating the mining and processing of any radioactive element.

Twenty-First Century Ecosystems: Managing the Living World Two Centuries After Darwin

In honor of Charles Darwin's 200th birthday in 2009, the National Research Council planned a Twenty-First Century Ecosystems Symposium to capture the recent progress in the scientific understanding of ecosystems. Specific focus was placed on how improved understanding of ecosystems can be applied to important policy decisions that can have broad impact on biodiversity. This report summarizes the views of the participants.

Review of the St. Johns River Water Supply Impact Study: Final Report

The St. Johns River Water Management District manages water resources on the St. Johns River Basin. It services one quarter of Florida's population and is considering supplementing its historical supply of groundwater with water from the St. Johns and Ocklawaha Rivers. Beginning in 2008, the District has been conducting a Water Supply Impact Study (WSIS) meant to study and better understand the potential ecological impacts of such withdrawals. This report is the fourth and final report by the National Academies assessing the progress of the WSIS and recommending best practices to ensure good scientific results.

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22. Key Federal Register Notices

PCAST– The President's Council of Advisors on Science and Technology (PCAST) announces a partially open meeting on January 6, 2012 in Washington, DC. During the open meeting, PCAST is tentatively scheduled to hear from speakers who will provide an overview of a Secretary of Energy Advisory Board report on shale gas production, and an overview of the activities of the Science and Technology Adviser to the Secretary of State. [Monday, December 5, 2011 (Volume 76, Number 233)]

NWTRB – The Nuclear Waste Technical Review Board (NWTRB) will meet on January 9, 2012 in Arlington, VA to discuss integration efforts undertaken by Department of Energy Offices of Nuclear Energy and Environmental Management. [Monday, December 12, 2011 (Volume 76, Number 238)]

DOI – The Federal and State natural resource trustee agencies have prepared a Draft Early Restoration Plan and Environmental Assessment (DERP/EA) describing and proposing a suite of early restoration projects intended to commence the process of restoring natural resources and services injured or lost as a result of the Deepwater Horizon oil spill. Public comments on the DERP/EA will be collected through February 14, 2012. [Thursday, December 15, 2011 (Volume 76, Number 241)]

DOE – The Department of Energy (DOE) has announced that the Nuclear Energy Advisory Committee will be renewed for a two-year period. The Committee will provide advice to the Department of Energy on complex science and technical issues that arise in the planning, managing, and implementation of DOE's nuclear energy program. [Friday, December 16, 2011 (Volume 76, Number 242)]

DOI – The Department of the Interior's (DOI) Bureau of Indian Affairs' Energy and Mineral Development Program is seeking Indian Tribes to apply for funding to assess, promote, and evaluate energy and mineral resources on Indian trust lands. Grant proposals are due on March 16, 2012. [Monday, December 19, 2011 (Volume 76, Number 243)]

EPA – The Environmental Protection Agency (EPA) has made available its responses to state and tribal designation recommendations to the 2008 Ozone National Ambient Air Quality Standards. The EPA requests public comment on its responses by January 19, 2012. [Tuesday, December 20, 2011 (Volume 76, Number 244)]

USGS – The United States Geological Survey (USGS) announces a meeting of its National Geospatial Advisory Committee on January 12, 2012 via web and teleconference. The meeting is open to the public and registration closes on January 6, 2012. [Tuesday, December 20, 2011 (Volume 76, Number 244)]

EPA – The Environmental Protection Agency (EPA) is requesting scientific views on its Draft Recreational Water Quality Criteria. Comments are due by February 21, 2012. [Wednesday, December 21, 2011 (Volume 76, Number 245)]

DOE – The Department of Energy's (DOE) Energy Efficiency and Renewable Energy Advisory Committee will hold an open teleconference on January 12, 2012. Information on how to participate can be found in the notice. [Friday, December 23, 2011 (Volume 76, Number 247)]

EPA – The Environmental Protection Agency (EPA) is considering a limited amount of amendments and revisions to its final rule on national emissions standards for hazardous air pollutants for area sources. Comments must be received by February 21, 2012. [Friday, December 23, 2011 (Volume 76, Number 247)]

EPA – The Environmental Protection Agency (EPA) is considering a limited amount of amendments and revisions to its final rule on national emissions standards for hazardous air pollutants for major sources – new and existing industrial, commercial, and institutional boilers and process heaters at major sources of hazardous air pollutants. Comments must be received by February 21,

2012. [Friday, December 23, 2011 (Volume 76, Number 247)]

NRC – The Nuclear Regulatory Commission’s (NRC) Advisory Committee on Reactor Safeguards Subcommittee on Radiation Protection and Nuclear Materials will hold an open meeting on January 18, 2012 in Rockville, Maryland. [Friday, December 23, 2011 (Volume 76, Number 247)]

OSTP – The Office of Science and Technology Policy (OSTP) is issuing a Request for Information (RFI) for interested individuals and organizations to provide recommendations on approaches for ensuring and encouraging broad public access to unclassified digital data and peer-reviewed publications that result from federally funded scientific research. Comments are due January 12, 2012. [Friday, December 23, 2011 (Volume 76, Number 247)]

EPA – The Environmental Protection Agency (EPA) is requesting comments on its proposed amendments to the national emissions standards for hazardous air pollutants for the paper and pulp industry. Comments are due on or before February 27, 2012. [Tuesday, December 27, 2011 (Volume 76, Number 248)]

EPA –The Environmental Protection Agency (EPA) is reopening its comment period for its final 2010 Effluent Guidelines Program Plan for sixty days. Comments are due on or before February 27, 2012. [Tuesday, December 27, 2011 (Volume 76, Number 248)]

EPA – The Environmental Protection Agency’s (EPA) Environmental Laboratory Advisory Board has announced the dates and times for its open teleconferences and meetings in 2012. [Tuesday, December 27, 2011 (Volume 76, Number 248)]

USACE – The Army Corps of Engineers (USACE) announces an open meeting of the Chief of Engineers Environmental Advisory Board on January 19, 2012 in Washington, DC. Information on how to register and the meeting’s agenda can be found in the notice. [Wednesday, December 28, 2011 (Volume 76, Number 249)]

DOE – The Department of Energy (DOE)’s Federal Energy Regulatory Commission (FERC) will hold a webinar on small/low-impact hydropower on January 25, 2012. Registration is required. [Thursday, December 29, 2011 (Volume 76, Number 250)]

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23. Key AGI Government Affairs Updates

- Hearing on the Leadership of NRC (12/14/11)
- Hearing on Reauthorization of NEHRP (12/13/11)
- Hearing on Water Supply Issues (12/8/11)
- Hearing on Energy Critical Elements (12/7/11)
- Hearing on Coast Guard Operations in the Arctic (12/1/11)

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Monthly Review prepared by Wilson Bonner and Linda Rowan, Staff of Government Affairs Program; Erin Camp AAPG/AGI Fall 2011 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, United Nations Educational, Scientific and Cultural Organization (UNESCO), Council on Governmental Relations, Association of Public and Land-grant Universities, American Association of Universities, Lockheed Martin Corporation, National Governors Association, International Institute for Applied Systems Analysis, Fairfax County Water Authority, Tetra Tech, Hazen and Sawyer, Danville Regional Foundation, RTI International

This monthly review goes out to members of the AGI Government Affairs Program (GAP) Advisory Committee, the leadership of AGI’s member societies, and other interested geoscientists as part of a continuing effort to improve communications between GAP and the geosciences community that it serves. For additional information on specific policy issues, please visit the web site or contact us at govt@agiweb.org.

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