

Monthly Review: November 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. AGI Details Impacts of Fiscal Cliff on Geosciences R&D

The American Geosciences Institute's (AGI) Geoscience Policy program has launched a new webpage detailing the estimated impacts of the impending sequestration on federal geoscience funding. The sequestration, set to take effect on January 2, 2013 unless Congress agrees on a path to avoid it, could severely impact geoscience research and development (R&D) across the board. The new Geoscience Policy page outlines data acquired from the American Association for the Advancement of Science (AAAS) R&D Budget and Policy Program brief, "Federal R&D and Sequestration in the First Five Years." These data, based on the White House Office of Management and Budget analysis released in September, show the estimated reductions in geoscience R&D budget authority over the next five years under a balanced sequestration spread equally over defense and non-defense discretionary spending.

The webpage also provides templates for geoscientists who wish to write letters to their representatives and local newspapers detailing the impacts of sequestration on geoscience R&D. AGI encourages our member societies and all geoscientists to contact their representatives and submit letters to the editors of their community newspapers to raise awareness of the devastating impacts sequestration would have on their scientific research and development if implemented.

There is widespread bipartisan agreement that the sequestration will be devastating for the economy, national security, and federally supported scientific research if enacted. For more information on the federal sequestration and potential implications please contact Wilson Bonner (bonner at agiweb.org).

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2. President Obama on Outlook for Climate Change Action

In his first press conference since his re-election, President Obama responded to a question about the outlook on climate change action in his second term in light of Superstorm Sandy. President Obama reiterated his commitment to addressing climate change while admitting “we haven’t done as much as we need to,” and “some tough political choices” are necessary to “take on climate change in a serious way.”

Obama said that that while “we can’t attribute any particular weather event to climate change,” global temperature is “increasing faster than was predicted,” in addition “the Arctic ice cap is melting faster than was predicted,” and “there have been an extraordinarily large number of severe weather events here in North America” as well as “around the globe.” In his first term, Obama said he doubled fuel efficiency standards for cars and trucks, doubled clean energy production and invested in “in potential breakthrough technologies that could further remove carbon from our atmosphere.”

“But, we haven’t done as much as we need to,” Obama acknowledged. Obama said early in his second term he would converse “with scientists, engineers, and elected officials” on what more can be done to combat climate change on the short-term. Then, he will begin “a discussion...across the country about what realistically can we do long-term to make sure that this is not something we’re passing on to future generations that’s going to be very expensive and very painful to deal with.”

More from President Obama’s press conference can be found [here](#).

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3. Sequestration Update for November 2012

In November 2012, House Republicans and the Obama Administration exchanged their opening proposals for a deal to avert the “fiscal cliff,” a combination of tax increases and mandated budget cuts set to occur on January 2, 2013.

President Obama’s proposal, delivered on November 14, included \$1.6 trillion in new tax revenue and \$400 billion in cuts from health-care spending over ten years. It would contain \$50 billion in new stimulus spending and would increase the debt ceiling. The majority of the new tax revenues would come from the expiration of the Bush-era tax cuts for individuals making more than \$250,000 per year, something the Republicans adamantly oppose. House Speaker John Boehner (R-OH) called the president’s offer “a non-serious proposal.”

The House Republicans offered a counter-proposal on December 3 that includes \$800 billion in new revenue over ten years generated by overhauling the tax code. It would cut \$600 billion from health-care programs over ten years largely by increasing the Medicare eligibility age from 65 to 67 and cut discretionary spending by \$300 billion. The Republicans said their plan is based off a framework written in 2011 by former president Bill Clinton’s Chief of Staff Erskine Bowles, though Bowles dismissed the comparison. Democrats rejected the offer citing the proposed cuts to social safety-net programs and arguing that Republicans have not explained how they can generate tax revenue without harming the middle class.

As the deadline for a deal rapidly approaches, many expect Congress to handle the issue in a two-step framework. First, Democrats and Republicans would agree legislation averting tax hikes for the middle class and containing a package of entitlement spending cuts. The second step would be an agreement containing more specific tax and entitlement reform appearing sometime in 2013.

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4. Outlook for Science Legislation in the 113th Congress

The 113th Congress will be tasked with the reauthorization of the America COMPETES Act (P.L. 111-358), reauthorization of the National Aeronautics and Space Administration (NASA), the closing of the Federal Helium Reserve, regulations related to unconventional oil and gas development and climate change. Notable leadership updates include the appointment of Representative Lamar Smith (R-TX) to replace Ralph Hall (R-TX) as chair of the House Science, Space, and Technology Committee.

The America COMPETES Act is set to expire in the fall of 2013. The act was first passed in 2007 (P.L. 110-69), and then reauthorized in 2010 (P.L. 111-358). The act promotes science education through governing and supporting science and education programs through the National Science Foundation (NSF), National Institute of Standards and Technology (NIST) and the

Department of Energy (DOE). Among the provisions in the 2010 reauthorization is a 10-year doubling of these three key federal agencies budgets, which has yet to be realized.

The current NASA authorization passed in 2010 (P.L. 111-267) expires in 2013 and Chairman Smith will lead the effort in the House to set the policy and authorization levels for NASA.

The Federal Helium Reserve is currently on track to close in 2013, which would devastate the helium market. Senator Jeff Bingaman (D-NM) introduced the Helium Stewardship Act of 2012 (S. 2374) which would continue to fund the Federal Helium Reserve as the helium market transitions to relying on helium from private industry. If Congress does not pass S. 2374 this December, look for similar legislation to be introduced early next year.

The next Congress will shape the role of unconventional oil and gas production in decreasing dependence on imported energy. The U.S. has the largest shale energy resources of any country. Because of recent technological advances in hydraulic fracturing and horizontal drilling, the U.S. poised to overtake Saudi Arabia as the world's top producer of oil by 2020. However unconventional energy production remains controversial due to uncertain environmental impacts, especially regarding water use.

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5. Bill Introduced to Fund DOE Oil Shale Energy R&D Program

The House Science, Space and Technology Committee Chairman Ralph Hall (R-TX) introduced a bill, the Tapping America's Energy Potential through Research and Development Act of 2012 (H.R. 6603), to authorize \$111 million to the Department of Energy to research and develop oil shale energy extraction. The bill focuses on funding research and development (R&D) for extracting methods and reducing environmental impacts.

The bill authorizes support for R&D in oil and shale resource characterizations, modeling and simulation of oil shale exploration and production technologies, minimization and re-use of water, efficient use of energy in exploration and production activities, and methods which reduce potential environmental impacts. If the bill is not passed in the lame duck session, it must be reintroduced in the 113th Congress.

The Science Committee held a hearing on this bill on November 30. A summary of the hearing can be found on AGI's energy policy hearing web site.

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6. Bill Passes Congress to Block E.U. Emission Trading Regulations

On November 27, the President signed European Union Emissions Trading Scheme Prohibition Act of 2011 (P.L. 112-200) law, preventing the European Union (E.U.) from requiring U.S. airlines participate in trading carbon emissions emitted from flights to and from European countries.

The E.U Emission Trading System (ETS) is a cap and trade system and is expected to cost an additional \$3 per passenger per flight. While the ETS was scheduled to include flights to and from Europe on January 1, 2013, the European Commission may postpone implementation until after the International Civil Aviation Organization (ICAO) meets in September 2013 to buy more time to negotiate a global deal.

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7. Japan Gives NOAA \$5 Million for Tsunami Marine Debris Research

On November 30, the Government of Japan announced a \$5 million gift to the U.S. National Oceanic and Atmospheric Administration (NOAA) to support response efforts for the marine debris created by the March 2011 tsunami in Japan, which has crossed the Pacific Ocean and is now washing ashore in the U.S.

The fund will go to NOAA's Marine Debris Program and will be used to support response efforts such as removal of debris, disposal fees, cleanup supplies, detection and monitoring.

Since the tsunami, NOAA has been leading a response effort with the federal, state and local partners to organize for data collection, debris assessment, and reducing environmental impacts of the marine debris.

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8. U.S. and Mexico Sign Colorado River Agreement

On November 19, officials from the U.S. and Mexico signed an updated agreement on managing Colorado River water resources. The U.S. and Mexico have agreed to plan for future drought by allowing Mexico to store water in Lake Mead during times of water surplus in return for tapping less water from the River during dry periods. Under the five-year agreement, Mexico will receive \$21 million for repairs to irrigation canals and other infrastructure damaged by an earthquake in 2010. Such repairs will allow agricultural production to resume on thousands of acres of farmland which has dried up.

Arizona, California and Nevada, the three lower basin states, will purchase about 100,000 acre-feet of water from Mexico, which would provide water for 200,000 homes for a year. The U.S. pledged to buy additional water to support restoration of the Colorado

River Delta. Over the decades, areas of the delta have dried up due to diversions down stream causing agricultural lands to become unfertile as well.

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9. Web Site Explains Basics of Climate Modeling

The National Academy of Sciences (NAS) has launched “Climate Modeling 101,” a web page primer on how climate models work. The site is based on information from expert reports from the National Research Council’s Board on Atmospheric Sciences and Climate and features animations, videos and illustrations.

The site focuses on six themes, understanding climate, understanding computer models, constructing a climate model, validating climate models, users of climate modeling and developers of climate models.

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10. U.S. Envoy Attends U.N. Climate Change Conference in Doha, Qatar

Department of State envoy Todd Stern traveled to Doha, Qatar for the United Nations (U.N.) Climate Conference to work on the foundations for an international climate change treaty to be signed by 2015. The treaty would require fossil fuel emission cuts from both the U.S. and China.

Envoys from over 190 nations have gathered for the two-week conference, which began the last week of November. The goal of the conference is to achieve agreement on a treaty to be signed by 2015, which would be implemented in 2020. The treaty would surpass the Kyoto Protocol limits on emissions for industrial nations, an international agreement the U.S. never ratified.

Historically, the U.S. has been the world’s largest emitter of greenhouse gases.

A long-standing issue is how countries of different levels of development and wealth can all contribute to a global reduction of carbon, known as the concept of equity. At Doha, Stern said the U.S. wants to talk about ways to ensure equity though in 2011 the United States argued against including equity from any agreement.

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11. World Bank Releases Report on Climate Change and Poverty

The World Bank has released a report, “Turn Down the Heat,” which presents the latest scientific knowledge on climate change and warns we are on a path to a 4 degrees Celsius (7.2 Fahrenheit) warmer world by the end of the century—a world in which some nations may be unable to deal with or recover from disasters.

While policy makers have set a goal of curbing warming to 2 degrees Celsius, the report warns that without “serious policy changes” the world will warm 4 degrees Celsius compared to pre-industrial levels. While “no nation will be immune to the impacts of climate change,” the report says, “The distribution of impacts is likely to be inherently unequal and tilted against many of the world’s poorest regions, which have the least economic, institutional, scientific, and technical capacity to cope and adapt.” Impacts of a 4 degree Celsius warmer world include “the inundation of coastal cities,” threats to food production, “many dry regions becoming dryer” and “wet regions wetter,” “unprecedented heat waves,” intensified water scarcity, “increased frequency of high-intensity tropical cyclones” and “irreversible loss of biodiversity, including coral reef systems.” These climate impacts will arrive in conjunction with and exacerbate the effects of “increasing stresses and demands on a planetary ecosystem already approaching critical limits and boundaries.” The impacts of a 4 degrees Celsius warmer world have the potential to be overwhelming “to a point where adaptation is no longer possible, and dislocation is forced” for some nations.

“The lack of action on climate change not only risks putting prosperity out of reach of millions of people in the developing world, it threatens to roll back decades of sustainable development,” the report warns.

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12. BP Expected to Pay Record Criminal Penalty for 2010 Oil Spill

Under an agreement reached with Justice Department, BPD PLC will pay a record \$4 billion in criminal claims relating for their role in the 2010 Deepwater Horizon oil spill disaster. BP will plead guilty to 14 criminal charges including 11 felony counts of manslaughter in addition to one count of misdemeanor under Clean Water Act (33 U.S.C. 1251) and another count of misdemeanor under the Migratory Bird Treaty Act (16 U.S.C. 703-712).

This agreement focuses exclusively on federal government criminal charges and Securities and Exchange Commission (SEC) claims associated with the events of April 20, 2010. The events of April 20 led to an explosion on board the Deepwater Horizon rig, killing 11 workers and causing the unrivaled oil spill disaster in the Gulf of Mexico. 4.9 million barrels of oil was spilled over 87 days.

13 of the 14 criminal charges are based on the “negligent misinterpretation” of a “negative pressure test conducted on board the Deepwater Horizon.” The remaining charge is for obstruction of Congress based on the low estimate BP reported to Congress for the amount of oil leaking into the Gulf at the time of the spill. Of the \$4 billion, the National Fish and Wildlife Foundation will receive \$2.394 billion, the National Academy of Sciences (NAS) \$350 million, and SEC \$535 million. Both NAS and SEC will

receive their payments over five years.

BP will improve safety for drilling operations in the Gulf of Mexico. This includes third-party auditing and collaborating with regulators for developing new technologies for safety as well as the appointment of two monitors to evaluate BP's safety and Code of Conduct. BP could owe billions more in civil claims, and reached a provisional \$7.8 billion settlement with private plaintiffs in March. The federal government has a major civil action pending against BP and Partners Transocean Ltd. and Anadarko Petroleum Corp. for violations of the Clean Water Act and the Oil Pollution Act (P.L.101-380). BP could owe \$4,300 per barrel spilled under the Clean Water Act if they are found to have been negligent and at the least \$1,000 per barrel spilled.

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13. First Arctic Crossing Attempt by LNG Tanker

The *Ob River*, a liquid natural gas (LNG) tanker set sail from Norway in November and arrived in Japan in early December after crossing the Arctic. This is the first ship of its kind to attempt the crossing, which has been made possible by melting in the Arctic region and spurred on by the U.S. shale gas revolution and increase in demand from Asia.

Ob River, chartered by Russian energy company, Gazprom from Dynagas Ltd, can carry 5.3 million cubic feet of gas and has a 40-person crew. For much of the journey *Ob River* was accompanied by a Russian nuclear-powered icebreaker. Crossing the Arctic shortens the voyage from Norway to Japan by about three weeks compared to travelling through the Mediterranean Sea and Suez Canal before proceeding around Asia.

A major driver of utilizing the Arctic for such a crossing is the potential to access and export the wealth of energy resources available in the Arctic. Another major driver is the boom in shale gas production in the U.S., which has decreased LNG imports to the U.S., making the trek a more profitable venture. Finally, concerns over nuclear power in Japan after the March 2011 tsunami has increased the demand for natural gas.

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14. Key Reports and Publications

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

Climate and Social Stress: Implications for Security Analysis

In this report, the National Research Council (NRC) discusses the connection between climate change and U.S. national security and identifies ways for the intelligence community to increase their ability to account for and assess political and social stresses that arise from climate change that have national security implications for the U.S.

Climate change is expected to "increase the frequency and intensity of a variety of potentially disruptive environmental events" at an increasing rate. The consequences of some events will "exceed the capacity of affected societies or global systems to manage" which may have "global security implications."

The report recommends a "whole-of-government approach" to increasing understanding of the connections between climate and security and informing choices regarding adaptation and reducing vulnerability to climate change impacts.

Climate Change: Evidence, Impacts, and Choices

The National Academies has released a booklet, which reviews the evidence for human-caused climate change, explains some of the impacts, and examines how science can inform decision-making. The booklet is based on National Research Council reports. First, the booklet summarizes the current state of knowledge about climate change, and addresses common questions about the science of climate change. The evidence indicates that human activities are responsible for most of the changes in climate observed around the globe, the booklet says.

Second, climate change projections for this century and beyond are covered. This includes how temperature, precipitation, sea ice, snow, coastlines, ecosystems and food production will be impacted. Finally, the booklet examines how science can inform decisions about reducing and managing the consequences of climate change.

Alternatives for Managing the Nation's Complex Contaminated Groundwater Sites

The National Research Council has released a report, which makes recommendations for hazardous waste sites considered complex, meaning restoration is unlikely in the next 50 to 100 years owing to technological limitations.

Despite 40 years of effort, thousands of hazardous waste sites across the U.S. are contaminated with chemicals causing the underlying groundwater to have contaminant levels above drinking water standards. This includes Superfund sites as well as other sites where hazardous waste is exposed including numerous military facilities, and active and inactive dry cleaners. While many sites have been closed, remaining sites are often more difficult to address because the contamination and subsurface conditions complicate remediation.

The report concludes that at least 126,000 sites across the U.S. have contaminated groundwater and will cost a minimum of \$110 billion to \$127 billion to close. About 10 percent of these sites are complex. For sites where contaminant concentrations have leveled-off at levels surpassing cleanup goals, the report recommends evaluating whether the site should transition to being

managed over the long-term.

Preparing for the Third Decade (Cycle 3) of the National Water-Quality Assessment (NAWQA) Program (2012)

The National Academies have released a report, which reflects on the first two decades of the U.S. Geological Survey's (USGS) National Water Quality Assessment (NAWQA) Program and discusses the next decade of NAWQA.

The report concludes that NAWQA has been successful in assessing U.S. water-quality conditions, how they have changed over time, and how natural features and human activities have affected water-quality.

In the third cycle of NAWQA, challenges include maintaining NAWQA as a national program in the current economy, sustaining new activities in addition to long-term studies, preserving focus in the face of multiple competing stakeholder demands. The report emphasizes the need for collaboration with other USGS, sector as well as other external programs, and with other federal agencies, state and local governments, the private sector as well as other external programs.

Science for Environmental Protection: The Road Ahead

In this report, the National Research Council assessed the Environmental Protection Agency's (EPA) capabilities to develop, obtain and utilize the best available science, technology and tools to address the persistent, emerging and future operations and opportunities.

The report found that tensions inherent to the structure of how the EPA handles their work contributes to the ongoing challenges faced by the agency. Meeting those challenges will require a more deliberate, interdisciplinary, "systems thinking" approach in developing cutting-edge scientific methods, tools and technologies, the report says.

Outlined in the report is a framework for providing environmental protection through the next 10 years. The report calls for enhanced leadership capacity to strengthen the EPA's ability to address current and future environmental challenges in addition to utilize new tools and technologies to address them.

The report concludes that the EPA science foundation is strong but the agency address these challenges to maintain science leadership and meet future obligations.

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15. Key Federal Register Notices

NASA – The National Aeronautics and Space Administration has announced a meeting of the Science Committee of the NASA Advisory Council (NAC) on November 14 and 15. The meeting will be open to the public. Further details can be found in the notice. [Thursday, November 15, 2012 (Article 77, Number 221)]

EO – The Executive Office (EO) of the President proclaimed the week of November 9 "American Education Week." [Tuesday, November 20, 2012 (Article 77, Number 224)]

EO – The Executive Office (EO) of the President proclaimed November 15 "America Recycles Day." [Tuesday, November 20, 2012 (Article 77, Number 224)]

FERC – The Federal Energy Regulatory Commission (FERC) is seeking comments on what changes, if any, should be made to its regulations under the natural gas market transparency provisions of section 23 of the Natural Gas Act (NGA), as adopted in the Energy Policy Act of 2005 (EP Act 2005). Comments are due January 22. Further details can be found in the notice. [Wednesday, November 21, 2012 (Article 77, Number 225)]

EPA – The Environmental Protection Agency (EPA) has announced a meeting of the National Environmental Education Advisory Council on December 13 and 14. The meeting is open to the public. Further details can be found in the notice. [Friday, November 23, 2012 (Article 77, Number 226)]

USGS – The U.S. Department of the Interior is establishing the Advisory Committee on Climate Change and Natural Resource Science. Nominations are due December 24. Further details can be found in the notice. [Friday, November 23, 2012 (Article 77, Number 226)]

DOE – The Department of Energy (DOE) has announced a State Energy Advisory Board (STEAB) teleconference on December 20. The meeting is open to the public. Further details can be found in the notice. [Monday, November 26, 2012 (Article 7, Number 227)]

NASA – The National Aeronautics and Space Administration (NASA) has established the Applied Sciences Advisory Committee. [Monday, November 26, 2012 (Article 77, Number 227)]

EPA – The Environmental Protection Agency (EPA) is announcing a reconsideration of certain new source standards for Mercury and Air Toxics Standards (MATS). [Friday, November 30, 2012 (Article 77, Number 231)]

NASA – The National Aeronautics and Space Administration has announced a meeting of the Planetary Protection Subcommittee of the NASA Advisory Council (NAC) on December 19 and 20. This meeting will be open to the public. Further details can be found in the notice. [Monday, December 3, 2012 (Article 77, Number 232)]

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16. Key AGI Geoscience Policy Updates

- [Hearing on Unconventional Oil and Gas R&D \(12/4/12\)](#)
- [Hearing on U.S. Antarctic Program \(11/16/12\)](#)

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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 Treasury, U.S. Geological Survey, World Bank

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.

Compiled December 5, 2012.
