AGU SCIENCE POLICY CONFERENCE
Washington, DC, USA | 24-26 June 2013

Preparing For Our Future: 2013 AGU Science Policy Conference

Conference Brings Together Scientists, Policy Makers, and Stakeholders

Incorporating Earth and space science research into policy is integral to supporting any nation's public safety, security, and economy. To help bridge the science and policy fields, AGU convened its second annual Science Policy Conference as a means to engage stakeholders. The meeting, held 24–26 June in Washington, D. C., featured experts from government, industry, academia, media, and nonprofits.

The goal of the conference was to provide a forum for diverse discussions and viewpoints on the challenges and opportunities of science policy, with a focus on Earth and space science applications that serve local, national, and international communities.

This year's conference brought together more than 300 scientists, policy makers, industry professionals, members of the press, students, and other stakeholders to discuss issues pertaining to the six conference topics: energy, hazards, climate change, oceans, technology and infrastructure, and the Arctic. Session titles such as "The Water-Energy Nexus," "Potential for Megadisasters," "Sea Level Rise: Science Needed for Local Decisions," and "The Future of Science in Space" are representative of the complex science policy issues addressed.

In addition to the topical sessions, two plenary sessions addressed the theme of the conference, Preparing for Our Future, featuring Cora Marrett, acting director of the National Science Foundation; Bart Gordon, a former congressman and current partner at K&L Gates; Richard Harris, science correspondent with National Public Radio; and James Balog, founder/director of Extreme Ice Survey.

Several events accompanied this year's conference. A communications workshop for conference attendees was held on 24 June. In addition, AGU held a reception on Capitol Hill to present the AGU Presidential Citation for Science and Society awards and to provide conference attendees with an opportunity to connect with congressional staff.

The AGU Science Policy Conference will be held again next year in Washington, D. C. We hope you can join us in 2014.

—ERIK HANKIN, Public Affairs Coordinator, AGU; E-mail: ehankin@agu.org

Eddie Arrossi

Left to right: U.S. Rep. Rush Holt (D-N.J.), James Balog (Extreme Ice Survey), AGU president Carol Finn, Richard Harris (National Public Radio), and AGU executive director/CEO Chris McEntee. Holt, Balog, and Harris hold plaques made of petrified wood, which were presented to them as winners of the 2013 AGU Presidential Citation for Science and Society awards.

Speakers Discuss Science Policy Challenges in the Water-Energy Nexus

Water and energy are linked in the ever-increasing demand for these resources in the United States. Most energy production requires an abundant, reliable, and predictable source of water, a resource that is, unfortunately, already in short supply throughout large portions of the United States. In addition, developing water supplies can require large amounts of energy for their extraction, transportation, treatment, and distribution. As such, the water-energy nexus presents a significant challenge for America's water resource and energy developers and distributers as well as for policy makers.

Several experts discussed this topic during the AGU Science Policy Conference panel "The Water-Energy Nexus." Moderated by Kristen Averyt, of Western Water Assessment, a university-based research program, the panel featured the following speakers: Robin Newmark, of the Department of Energy's National Renewable Energy Laboratory; Robert Jackson, of the Nicholas School for the Environment, Duke University; Thomas Iseman, of the U.S. Department of the Interior; and Richard White, of the California Public Utilities Commission.

Newmark began the session by providing a high-level overview of water-energy linkages and their challenges at the U.S. national level. Despite recent instances of energy developments that create potential risks for the water supply, the overall outlook was not entirely negative. Newmark provided a handful of examples of recent "water-smart" energy initiatives in the United States, including large-scale wind energy production in Texas and Iowa and a dry-cooling solar power plant in southeastern California.

Jackson and Iseman followed with regional water-energy nexus presentations covering the American East and West, respectively. Jackson noted the growing role of natural gas development in the eastern United States and its effects on water usage. While hydraulic fracturing presents its own water challenges, natural gas as a whole is a much more water-efficient energy source than coal or nuclear power, said Jackson. Iseman used his experience with the Western Governors' Association to discuss water and energy concerns in that region. He said that the western states have a broad understanding of their energy choices and that their leaders believe it is critical to examine the impacts of future energy generation on their already limited water resources.

White concluded the session by providing the state perspective in discussing water-energy nexus challenges in California. White was primarily concerned with what decision makers in the state need to know to manage water and energy together. Essentially, the best management of the nexus depends on the objectives, such as reducing greenhouse gas emissions versus mitigating water scarcity risk, he said.

All four speakers noted the various ways climate change will affect the nexus at different geographical scales. These points were especially relevant because President Barack Obama presented his new climate change plan in Washington, D. C., that same day, 25 June. Water and energy affect nearly every aspect of American livelihood, from transportation to food supply to industry. As such, identifying possible solutions to this challenging issue is essential.

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Peter Weiss

(Left) Cora Marrett, acting director of the National Science Foundation (NSF), explains the vital role of the federal government for science in the United States during the plenary session "Preparing for Our Future: The Value of Science." (right) Eos *senior writer Randy Showstack conducts a mock interview with conference participant Lora Fleming as part of the Science and Policy Communications Workshop.*

For information and updates about the 2014 Science Policy Conference, visit http://spc.agu.org/2013/mailing-list/ and join the conference mailing list.

Session on Severe Weather Highlights Collaboration Between Research and Policy

Wildfires, floods, and winds that can blow down houses are very different types of severe weather hazards. However, one solution will reduce our risk for all of them—better communication and collaboration between scientists and policy makers. Experts on the subject spoke during the AGU Science Policy Conference panel "The Science of Recent Severe Weather Events," and each reiterated that science and policy communities need to work together on long-term hazard and climate issues at local, national, and international scales to reduce risk of life and property loss.

Speakers presented a few examples of regions that have learned the hard way how important this collaboration can be. Sue Minter, deputy secretary of the Vermont Agency of Transportation, discussed how Hurricane Irene damaged 3500 homes in her state and led local policy makers to realize that Vermont needs to ensure that its drainage systems have enough capacity in future storms. This decision was partly based on science, which helped inform state planners that since 1958 there has been a 67% increase in heavy precipitation from severe storms in the northeastern United States, and on the fact that their old drainage systems could not accommodate current severe storm flows.

In another example, Radley Horton, of Columbia University's Center for Climate Systems Research, noted that Superstorm Sandy's devastating effect on New York City was a tipping point that caused local policy makers to see the need to more aggressively prepare for regional climate change impacts.

In fact, due to scientific research and collaboration with local city managers, the impacts that a storm of Sandy's magnitude would have were already understood well in advance of Sandy's formation, and local policy makers used that science to help the city be more prepared than some surrounding areas when the storm hit. Nonetheless, water levels during Sandy were the highest in the city harbor since New York City was incorporated about 300 years ago—reaching approximately 5 feet over many of the area's seawalls. This illustrates that more work can be done to couple scientific worst-case scenarios with infrastructural needs should those scenarios come to pass, Horton said.

The message of collaboration was echoed by Andrew Castaldi, senior vice president in charge of risk assessment in the Americas for the reinsurance company Swiss Re, who said that businesses and communities need scientific information to make informed decisions about risk.

Janice Coen, a project scientist from the National Center for Atmospheric Research, stated that in her research on wildfires, she sees a specific need for researchers who study large-scale processes and those who study local processes to communicate more. While fire risk is increasing overall worldwide, there is so much local variation that the two groups need to work together to understand changes in local risk.

Panelist agree that collaboration is needed at all levels is a key step toward mitigating extreme weather. However, on a practical level, what needs to be done? Several speakers provided some answers. Horton suggested that scientists work with local planners to help protect communities and that this help should not overlook how multiple hazards reinforce each other to cascade risk.

Minter noted that government practitioners need scientists to provide updates on changing local conditions during severe weather events and that establishing yourself as such a liaison is a proactive way to begin sharing your expertise. She also suggested that through such collaborations, scientists and local policy makers can look for opportunities to work together to change federal policies and programs, from the basic protection of federal funding for stream gauges to shifting the approach of the Federal Emergency Management Agency's hazard mitigation program into one that addresses climate change adaptation. Such work would lay a firm foundation for a comprehensive national policy on climate change adaptation, she said.

Panel moderator Kelly Klima, a research scientist at Carnegie Mellon University, summed up the panel's sentiment by saying, "Through open communication and collaboration, scientists and policy makers can work together to strengthen our society's resilience, saving both money and lives."

—ELIZABETH LANDAU, Public Affairs Manager, AGU; E-mail: elandau@agu.org

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Watch Video and More Online!

View the two 2013 AGU Science Policy Conference plenary sessions on video-on-demand; review ePosters presented at the conference; read the conference blog, The Bridge: Connecting Science and Policy; see news articles about the conference; and more.

http://spc.agu.org

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The Science and Communication Needed to Help Communities Plan for Sea Level Rise

From the shores of Bangladesh to the bayous of Louisiana, sea level rise will affect communities across the globe and will likely be exacerbated by other threats such as severe weather. Local and national decision makers face a myriad of challenges as they prepare for or adapt to changing coastal conditions while trying to manage increasing population and development along the coasts. In the United States alone, approximately 39% of the population lives in a coastal county.

During the 2013 AGU Science Policy Conference, an expert panel discussed how sea level rise will affect public safety, national security, and other concerns in the United States. During the session "Sea Level Rise: Science Needed for Local Decisions," Rear Admiral Jonathan White, oceanographer and navigator of the U.S. Navy, informed the audience that planning needs to happen at all levels, "from the White House to the state house to the boathouse."

"Sea level rise is like politics—it's all local," said Ken Miller, professor at Rutgers University. This statement accurately captures the complexities of sea level rise: Although there is a global rise in sea level, when looking at it on smaller scales the amounts of land submerged are very different and a multitude of factors need to be taken into account, such as sinking land, coastal topography and habitat, human use and infrastructure, tidal range, and sediment transport.

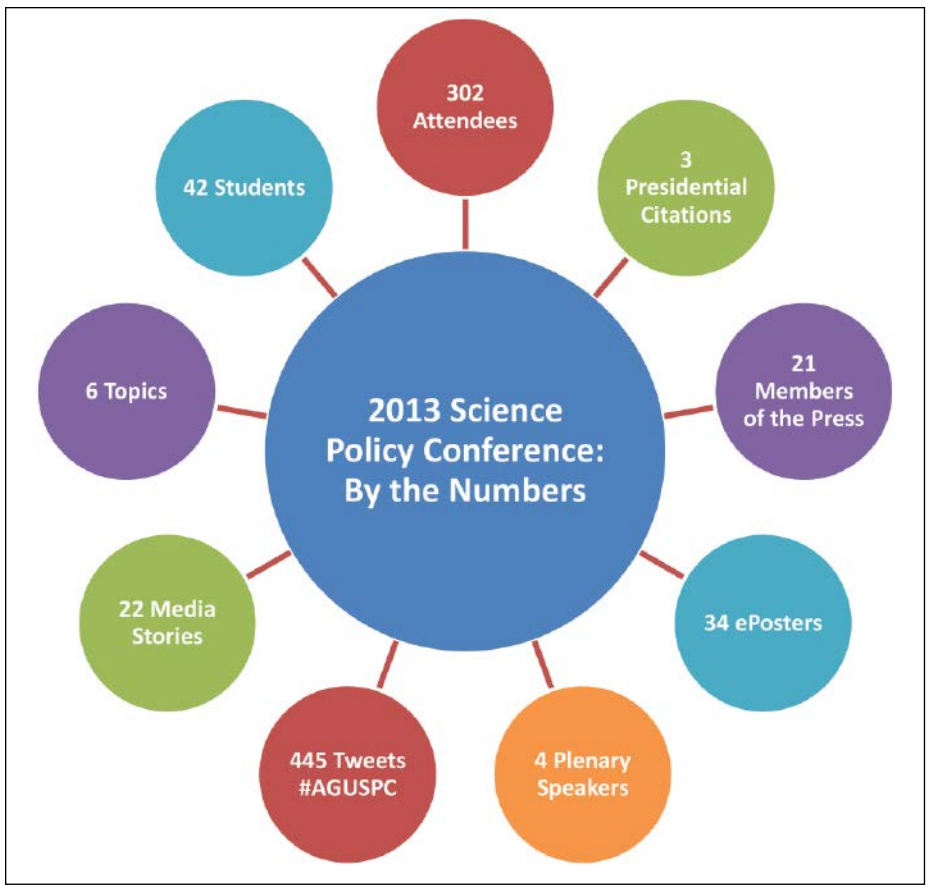
Detrimental effects of sea level rise can include coastal flooding, groundwater contamination and saltwater intrusion, and soil changes due to increased salt content—all of which can extend inland for many miles. For example, in Broward County, Florida, seawater is already flooding homes and streets and affecting the drinking water of local residents; more than $12 billion in infrastructure is at risk from a projected 3-foot sea level rise predicted to occur between 2075 and 2150. Jennifer Jurado, director of Broward County's Natural Resources and Management Division, explained how southeast Florida is working to adapt to these challenges it already faces.

One important message that resonated throughout the panel was not only that scientists and decision makers need to communicate the risks, future scenarios, and uncertainties of sea level rise but also that attention should be focused on the needs of local communities. Lynne Carter, program manager of the Southern Climate Impacts Planning Program at Louisiana State University, recently conducted a survey that indicated that the planning horizon for most Gulf Coast communities extends only 1–5 years. For successful mitigation of the effects of sea level rise, communities must start looking farther into the future, Carter stressed.

When communities do not look at the long term, people and property are at risk, speakers agreed. Incorporating science into planning and decision making is essential and requires that the scientific community make a concerted effort to communicate their research.

How best to do this? Panel member Margaret Davidson, acting director of the National Ocean Service Office of Coastal Resource Management at the National Oceanic and Atmospheric Administration, provided an answer: "Communicating climate change is like golf," she said. "You have to play it where it lies." She suggested that if the language of science isn't working, scientists need to use familiar phrases and ideas to speak to decision makers.

—KRISTAN UHLENBROCK, Public Affairs Coordinator, AGU; E-mail: kuhlenbrock@agu.org



Eddie Arrossi

Shawn Domagal-Goldman, of NASA Goddard Space Flight Center, who participated in the panel "The Future of Science in Space," discusses the AGU Thriving Earth Exchange with AGU science coordinator Julia Galkiewicz. The Thriving Earth Exchange is a platform for communities and organizations to seek out scientific expertise on challenging issues using the combined talents of thousands of participating scientists.

News From the Conference

Eos published two articles containing news from the 2013 Science Policy Conference: "Science Policy Conference Speakers Examine Megadisasters and Call for Risk Reduction Efforts" (*Eos, 94*(28), 247, doi:10.1002/2013EO280003) and "The Future of Space Exploration Discussed at Science Policy Conference" (*Eos, 94*(28), 248, doi:10.1002/2013EO280004).

Science Policy and Education Events at 2013 Fall Meeting

Programming for the 2013 Fall Meeting is under way, and the schedule promises to be even more exciting than last year. Science policy–related events planned for the 2013 Fall Meeting include the following:

Communicating With Congress Workshop
Includes an overview of how the legislative branch of the U.S. government operates and methods to be an effective communicator.

Heads and Chairs Workshop
Provides an opportunity for heads and chairs of Earth and space science departments to share ideas and tips on how to build strong departments.

Geophysical Information for Teachers (GIFT) Workshop
Includes presentations by leading research scientists coupled with take-it-to-the-classroom activities. This 2-day workshop, held in partnership with the National Earth Science Teachers Association (NESTA), is for current and preservice middle and secondary school teachers.

Congressional Science and Mass Media Fellow Luncheons
One luncheon provides attendees with information on AGU's Congressional Science Fellowship program, which places accomplished scientists, engineers, and other professionals in the office of a member of Congress or on a congressional committee for 1 year. The other luncheon gives an overview of the Mass Media Fellowship program, which places a university student at a newspaper, magazine, broadcast or cable news department, or nvews Web site for a 10-week summer internship.

Exploration Station
A family event designed to showcase AGU science and allow children and the public to interact directly with scientists and education specialists. Exploration Station includes educational exhibits and hands-on activities. This event, open to the general public (of all ages), includes a featured speech given by an AGU scientist. This year's speaker is Lucile Jones, of the U.S. Geological Survey. Her talk will focus on natural hazards in urban centers.

Town Hall Meetings
Provide opportunities for government agencies, academic programs, special projects, and other focused interest groups to gather input from the broader AGU community. They are open to all meeting participants.

Honors Tribute
Acknowledges the achievements of AGU medalists, awardees, the prize recipient, and Fellows.

To learn more about these events, visit the AGU Fall Meeting Web site: http://fallmeeting.agu.org/2013/. To learn more about science policy–related sessions at the 2013 Fall Meeting, search for the "Public Affairs" topics in the drop-down menu of the Session Search Web page: http://fallmeeting.agu.org/2013/scientific-program/session-search/.