

Ogmios

NEWSLETTER OF THE CENTER FOR SCIENCE AND TECHNOLOGY POLICY RESEARCH

CENTER & FOR
SCIENCE & TECHNOLOGY
POLICY RESEARCH

NO. 47
SUMMER 2017

ONLINE ISSN 1936-9921
PRINT ISSN 1936-9913

This issue of Ogmios features an article by Elizabeth Koebele, a former CSTPR graduate student who recently received her Ph.D. in Environmental Studies and will begin a new position as Assistant Professor in the Department of Political Science at the University of Nevada Reno. Her article addresses collaborative governance on the Colorado River. Feedback welcome! info@sciencepolicy.colorado.edu



Lake Mead's "bathtub ring" demonstrates the effects of long-term drought and increased demand on the Colorado River. Photo: U.S. Bureau of Reclamation.

Why Can't We All Just Get Along? Collaborative Governance on the Colorado River by Elizabeth Koebele

The CSTPR blog, *Prometheus* (<http://ciresblogs.colorado.edu/prometheus>), was revived in 2016 to regularly feature content from CSTPR core faculty, research associates, postdocs, visitors, students and affiliates to serve as a resource for science and technology decision makers. This new dynamism reflects the new energies and pursuits taking place in and around CSTPR. Below we feature one of the recent *Prometheus* blog posts.

The Colorado River weaves through the southwestern U.S. and northern Mexico, providing water for over 40 million people, 5.5 million acres of irrigated farmland, and countless environmental and recreational assets along the way (United States Bureau of Reclamation 2012). Images of the mighty Colorado rushing through steep desert canyons and filling massive storage reservoirs can make the river's flow seem limitless.

In reality, however, the Colorado River is largely over-allocated, meaning that more water has been promised to users than typically flows down the river each year (Kenney 2009). Now, climate change and a rapidly growing human population are exacerbating water shortages in the region, making the development of effective strategies to manage the Colorado River one of today's most pressing challenges.

Conversations about water management in the American west tend to start from the same premise: here, "whiskey is for drinking, and water is for fighting" (United States Bureau of Reclamation 2017). As there's less of the Colorado River to go around for the diverse users

THIS ISSUE

Ogmios Exchange 1
Why Can't We All Just Get Along?
Collaborative Governance on
the Colorado River

Alumni Highlight 3
Navigating With Intention:
CSTPR Alumna Bets McNie Talks
About Her Career and Future

Visitor Forum 4
A Fork in the Road: Jack Stilgoe
Considers the Future with Self-
Driving Cars

New Data For Old Problems

Center Highlight 6
AAAS "CASE" Workshop
Reflections

Center News 8

Center Talks & Events 10

MeCCO Summaries 11

Center Publications 13

Multimedia Highlight 13

Job Opportunities 14

Subscribers to Ogmios will be notified by email when a new edition is available, and may access it either in pdf or html format. The newsletter is also available online at:

[http://sciencepolicy.
colorado.edu/ogmios](http://sciencepolicy.colorado.edu/ogmios)

Support the Center!

To support our work with
your donation go to:

[http://sciencepolicy.colorado.
edu/about_us/donate.html](http://sciencepolicy.colorado.edu/about_us/donate.html)

Be Boulder.
University of Colorado Boulder

OGMIUS EXCHANGE

that depend on it, greater conflict seems imminent. Threats of impending “water wars” over the Colorado have become so forged into the region’s collective mindset that they’ve started to show up as plotlines for popular dystopian fiction novels, like Paolo Bacigalupi’s *The Water Knife*.

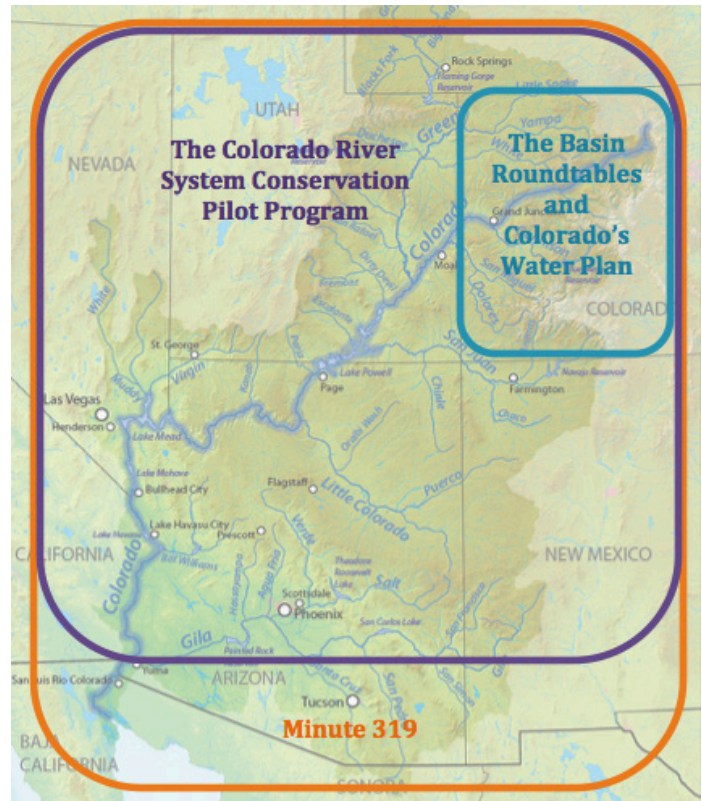
Fortunately, a core group of public and private water professionals, academics, journalists, and river enthusiasts have started to push back against these narratives of insurmountable conflict. In an attempt to find a more sustainable answer to the region’s water woes, these folks are promoting management approaches that help stakeholders find common ground and incorporate the flexibility necessary to cope with greater water supply variability. Although their specifics vary, these approaches hold a core tenet in common: any good solution must incentivize people to share, collaborate, and negotiate creatively rather than divisively (Fleck 2016; Limerick 2016).

Called *collaborative governance processes* by academics, such approaches typically convene diverse stakeholders to build trust, share knowledge, and develop consensus-oriented management actions (Ansell and Gash 2008; Emerson et al. 2012; Gerlak et al. 2013). While these approaches may require more time and financial resources than traditional, top-down policymaking processes, scholars and practitioners alike claim that they can generate more legitimate management strategies that result in greater resource sustainability with widespread benefits.

Collaborative governance experiments have begun to crop up across the Colorado River Basin. For instance, the state of Colorado recently led a 10-year “basin roundtable” process in which diverse stakeholders collaboratively assessed their water needs and potential solutions, leading to the production of Colorado’s first statewide water plan. Across the basin, four water providers and the U.S. Bureau of Reclamation collaboratively developed and funded the Colorado River System Conservation Pilot Program, which financially incentivizes voluntary water conservation actions to raise water levels in the region’s major reservoirs. Collaboration has even caught-on internationally: in 2012, the U.S. and Mexico signed a landmark agreement that outlined pilot collaborative actions for better managing the transboundary river while also reviving the desiccated Colorado River Delta.

Determining the effects of these programs and policies will ultimately require a test of time. For now, however, they suggest that collaboration is a promising—and necessary—alternative to the “water is for fighting” mindset that has dominated Colorado River management for so long.

This post is based on research conducted by Dr. Elizabeth Koebele (elizabeth.koebele@colorado.edu) for her dissertation project “Collaborative Water Governance in the Colorado River Basin: Understanding Coalition Dynamics and Processes of Policy Change.”



Approximate areas of the collaborative processes in the Colorado River Basin (background map of “Colorado River”: <https://commons.wikimedia.org/wiki/File:Coloradorivermapnew1.jpg>).

References

- United States Bureau of Reclamation, 2012. “Colorado River Basin Water Supply and Demand Study: Executive Summary.”
- Kenney, D., 2009. “The Colorado River: What prospect for “a river no more?”” In *River Basin Trajectories: Societies, Environments, and Development*, ed. F. Molle and P. Wester. Wallingford, U.K.: Cab International. 123-46.
- United States Bureau of Reclamation, 2017. “Whiskey is For Drinking, Water is for Fighting!”, (January 23, 2017).
- Fleck, J., 2016. *Water is for fighting over: and other myths about water in the west*. Washington, D.C.: Island Press.
- Limerick, P. N., 2016. *Ditch in time: the city, the west and water*. Golden, Co: Fulcrum Publishing.
- Ansell, C. and A. Gash, 2008. “Collaborative governance in theory and practice.” *Journal of Public Administration Research and Theory* 18 (4):543-71.
- Emerson, K., T. Nabatchi, and S. Balogh, 2012. “An integrative framework for collaborative governance.” *Journal of Public Administration Research and Theory* 22 (1):1-29.
- Gerlak, A., T. Heikkila, and M. Lubell, 2013. “The promise and performance of collaborative governance.” In *Oxford Handbook of U.S. Environmental Policy*, ed. S. Kamieniecki and M. E. Kraft. New York, NY: Oxford University Press. 413-34.

ALUMNI HIGHLIGHT

Navigating With Intention: CSTPR Alumna Bets McNie Talks About Her Career and Future by Alison Gilchrist, CSTPR Writing Intern



Elizabeth “Bets” McNie was part of the first ever graduate student cohort at the Center for Science and Technology Policy Research (CSTPR). She knows that CSTPR is a special place.

“Being part of the community here was the best part,” says McNie. “I’m still really good friends with a lot of the students who were in my cohort. There’s a sense that the people here ‘get’ the importance of the science-policy nexus, and that’s one of the things that really appeals to me.”

McNie has studied the connections between science and policy ever since. During her PhD, McNie studied how a program called The Regional Integrated Sciences and Assessment (RISA) produces usable data for decision makers. These studies showed her how difficult it can be to cross the stormy waters between scientists and policy-makers, but how important it is to cross those waters.

“CSTPR made me appreciate how complex the landscape is between science and policy, and how it needs to be navigated with intention,” said McNie. “It’s not simply about producing the information and plopping it on someone’s desk in a glossy brochure. It’s really about working intentionally with the intended users of the information to try and produce information that they can use and will use.”

She says that “navigating with intention” requires that those two groups of people, the scientists and the users of the science, interact frequently and work to understand each other’s capabilities and limitations.

McNie had navigating experience before joining her PhD cohort at CSTPR—but in a very different context. After graduating from the California State University Maritime Academy, she worked as a U.S. Merchant Marine Officer on

containerships, oil tankers, and offshore oil-drilling rigs. She also worked as a training officer and lecturer at her alma mater.

“Teaching has been my passion,” McNie says about her career so far, and it shows. Her explanation of how to navigate with sextants makes even a landlubber like me feel more confident about stepping onto a ship.

McNie left CSTPR with her PhD and worked at Purdue University before returning to Boulder to join Western Water Assessment, where she works currently. Western Water tries to produce usable climate information for users in the Rocky Mountain West. They aim to connect scientists to decision makers so that users of the data that the scientists produce can specify what kind of data is most helpful. There are times when the scientist can’t produce the information that the decision makers want, so the scientists will propose what they can do instead.

“It’s an iterative, back-and-forth dialogue between researchers and decision makers,” says McNie. “I love the colleagues I get to work with at Western Water. They’re passionate about creating climate information that people can work with.”

Ever navigating with intention, however, McNie will be taking a tenure-track job at the California State University Maritime Academy. She’ll be teaching in the department of Marine Transportation and will continue to do research on usable science, but in the maritime industry. Although this is a job she was elated to take, she’s sad to leave CSTPR behind.

“This is a special place. I have a lot of fond memories here, and I’ve had the opportunity to work with really great people here.”

She hopes to continue collaborating with people from CSTPR, and she will continue to spread the word that CSTPR is a community of like-minded people who really understand the science-policy nexus.

VISITOR FORUM

A Fork in the Road: Jack Stilgoe Considers the Future with Self-Driving Cars by Alison Gilchrist, CSTPR Writing Intern



Joshua Brown was killed when his Tesla Model S crashed while in self-driving mode on May 7, 2016. Photo: Associated Press.

When you imagine a future with self-driving cars, what do you picture? Are you sliding into your own Tesla Model S, or are you calling up Driverless Cars Company X for a ride? Do the cars circle campuses and downtown streets until summoned? Or do they quietly return to driveways and parking lots, ready to be woken up when needed? For all of Elon Musk's confidence, it is still unclear how self-driving cars will fit into or reshape our society.

Jack Stilgoe, visiting professor from the University College of London, became increasingly interested in self-driving cars after a crash in 2016 resulted in the driver's death and reawakened some doubts about the technology.

"It's a bit of a morbid interest," laughed Stilgoe, "But people like me are extremely interested in accidents because they show the reality of technology, not just the shiny public image."

Stilgoe is visiting the CIRES Center for Science and Technology Policy Research (CSTPR) for a year to research how driverless cars are being developed, how they are being governed and how they are being perceived by the public.

"I'm interested in the novel aspects of the science of self-driving cars, and how they relate to machine learning and artificial intelligence," said Stilgoe. "This is the particular thing that has enabled self-driving cars to suddenly go from seeming completely impossible, about 10 years ago, to now seeming sort of inevitable."

But, Stilgoe said, as with all emerging exciting technologies, there are questions we should all be asking about how self-driving cars are emerging and whose interests they serve. For example, what is not being talked about? And who should we, the public, trust to tell us the truth?

Stilgoe pointed to some past examples of exciting technological advancements we can draw lessons from. The emergence of cars—normal, driver-required cars—is a good analogy to the impacts that self-driving cars might have.

"When cars emerged at the start of the twentieth century, they radically reshaped social norms and the structure and fabric of our cities, in ways that people didn't anticipate at the time," said Stilgoe. "I think we need to do better at anticipating the impact of self-driving cars, because the promises are just as big as they were for regular cars back in the 1900s."

Stilgoe also referred to agriculture biotechnology, which many expected would revolutionize the food system. In various ways it did, but not all of the claimed benefits came to fruition, and many people were skeptical of the benefits that were touted by agriculture companies. Stilgoe makes the point that not all of the claims of people and companies touting self-driving cars should be taken at face value.

In his March 22 CSTPR noontime seminar (https://cirescolorado.adobeconnect.com/_a1166535166/p64waakuqpa), Stilgoe discussed some of the different directions that widespread adoption of driverless cars could take in the future. He believes that the philosophy and design of machine learning algorithms will shape the future one way or another.

"Self-driving cars are seen by some engineers as just like a game of chess, with a machine learning to do it as well as or even better than humans," explained Stilgoe. "That leads you to a hubristic model, where you say that anything that the world can throw at me, I can navigate as a self-driving car."

He juxtaposes this with a model that assumes the self-driving cars are not good at reacting to unexpected events, leading to a future that has separate routes for self-driving cars, or a future that requires "smart roads".

VISITOR FORUM

New Data For Old Problems

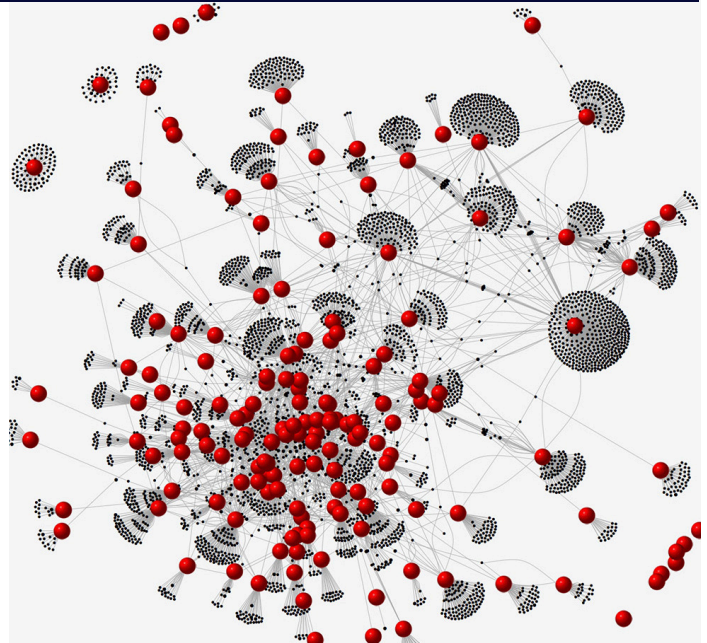
by Justin Farrell, Yale University and CIRES Sabbatical Fellow (2016-2017)

What should social scientific research look like in this so-called age of “big” data, where everything is connected, and seemingly everything is digitized? Here I want to briefly reflect on some of the promises of new data and research methods, and consider the ways that we might integrate these computational approaches with traditional qualitative fieldwork. My main claim is that while the Internet has certainly transformed the world, our methods for understanding and explaining social life have not kept pace.

We live our life in a huge connected network. We check emails, make cell phone calls, text our friends, swipe our credit cards, communicate on social media, post videos, send money, or purchase our goods. Almost every transaction is recorded digitally, as doctors create digital records of our health, stores log our buying patterns, and so on, and so forth. Until recently, these behaviors—such as a simple phone call or simple store purchase—were not easily traceable. These digital “breadcrumbs” were not gathered. There were no digital timestamps or digital text duplicates of a handwritten note, or a cash exchange. Of course, this raises ethical concerns about privacy, of which certainly need to be front and center as scholars working outside of the private sector figure out how to incorporate this data into research for the public good.

In addition to the things we use every day, such as cell phones, tablets, and computers, there is also a burgeoning “Internet of Things” that provides opportunities for data collection to inform social scientific study. Examples might include environmental monitoring commonly used in other fields, such as sensors for water quality, atmospheric and soil conditions, movements of wildlife, earthquake and tsunami sensors, gas and wind turbine sensors measuring efficiency and cleanliness of energy. All of these (can and should) be of use for social research. Or consider human health, such as heart monitors or movement monitors, all of which provide real-time streams of data and can be monitored and collected remotely. All of these types of data are much more accurate than conducting a survey to ask for self-reports.

On top of all of this new data that is created and recorded every day is the digitization of old information, such as books, newspapers, photographs, speeches, television programs, websites, and any other written or spoken word. For example, Google is currently archiving all books ever written. They write, “Our ultimate goal is to work with publishers and libraries to create a comprehensive, searchable, virtual card catalog of all books in all languages that helps users discover new books and publishers discover new readers.” Google has



now scanned more than 25 million books, available to read, search, and analyze.

Or consider the Internet Archive, where you can search this history of more than 286 billion historical web pages (!!!), 3.3 million movies, or 200 terabytes of government material. Still more, consider the HathiTrust, a large-scale collaboration between dozens of universities and libraries, who has archived tens of millions of books and articles that are all *full-text searchable*.

This flood of new data is exciting, and must be taken advantage of by folks in academia. Our methods training must adapt—especially to include text analysis and network analysis—not because of an obsession with the shiny new objects, or because it is trendy, but because it is our responsibility as researchers to use the best data available in service of our research questions, theories, and applied solutions.

To conclude, I want to provide a few concrete examples. The first is a study I conducted to map out in great detail, and at full-scale, the climate change counter-movement. Drawing on some of the sources described above, I collected every text ever written from every climate contrarian organization (more than 39 million words), as well as mapping out the entire social network of organization and individuals with ties to the movement. You can find links to the papers here: <http://ciresblogs.colorado.edu/prometheus/2017/05/18/new-data-for-old-problems>.

In the end, we must use all the tools at our disposal in order to continue to move forward to creatively address the problems at the intersection of society, politics, and environmental science.

AAAS HIGHLIGHT

AAAS “CASE” Workshop Reflections

Each year CSTPR hosts a competition to send two CU Boulder students to Washington, D.C. to attend the AAAS “Catalyzing Advocacy in Science and Engineering” workshop. During the workshop portion, the winners learned about the structure and organization of Congress, the federal budget and appropriations processes, and tools for effective science communication and civic engagement. In addition, the winners participated in interactive seminars about policy-making and communication.

Below are comments by Caroline Havrilla about this year’s workshop.

Participating in the 2017 AAAS Catalyzing Advocacy in Science and Engineering (CASE) Workshop in Washington, D.C. was a truly transformative experience for me as a scientist. The three-day workshop was a thought-provoking crash course in science policy, in the company of a diverse cohort of scientists from around the country, and exposed me to the complex world of policymaking. Each day of the workshop was jam-packed with a cohesive line-up of sessions with talks from speakers who shared with us their expertise on a wide range of topics in science policy. We learned about policymaking, the federal budget process, and importantly, how scientists can advocate for science and contribute to decision making within the science policy realm.

One consistent message throughout the workshop was the important distinction between “policy for science” and “science for policy.” Policy for science mostly refers to the federal budget process and the allocation of federal funds to scientific research and development. Science for policy, on the

other hand, is the process whereby scientists communicate science to policymakers to inform policy-making. During the CASE workshop, my cohort first learned about policy for science, mainly focusing on the many challenges of the federal budget process, and how these challenges impact science. One particularly striking issue we were exposed to concerned the balance, or perhaps more fittingly, the imbalance, between mandatory and discretionary spending in the US federal budget. Mandatory spending, comprised of entitlement programs like Medicare, Medicaid, and Social Security, makes up about two thirds of the circa \$4.1 trillion US federal budget. Discretionary spending on the other hand, makes up only a third of the federal budget. Because there is bipartisan opposition to cutting entitlement programs, when the budget needs to be trimmed, cuts are made to the non-defense discretionary budget, which is already a fairly small slice of the budgetary pie. Unfortunately, this is the category which funding for scientific organizations like NSF, NASA, and the EPA fall, making those programs vulnerable to budget cuts when their activities are not deemed “necessary” spending. For me, learning about this aspect of the federal budget process brought into perspective the overarching challenges of continued federal science funding, and made it clear that effective advocacy for science is critical.

After learning about the intricacies of policy for science, we turned our focus science for policy, and how to become more effective science communicators. According to many of the science policy officials we met with in Washington, scientists often miss out on valuable opportunities to effectively communicate their science for policy because their



2017 AAAS “CASE” Workshop Competition winners Caroline Havrilla and Adalyn Fyhrie meet with U.S. Congressman Jack Bergman (from Michigan). Photo: Heather Bené.

AAAS HIGHLIGHT

messages often misalign with the needs of policymakers. This misalignment often results from fundamental differences in what information science and policy spheres incorporate into their decision making processes. Policymakers often make decisions based on big-picture, culturally-based value systems, while, in contrast, scientists typically make decisions based on highly specific, data-based evidence. Scientists can more effectively communicate with policymakers by 1) recognizing this communication barrier exists, and 2) incorporating storytelling and discussions of the applications and benefits of their research to addressing broader societal issues. Science is only one small piece of the decision making process, but by aligning research to economic, environmental, and societal outcomes, we can better advocate for incorporation of science into policymaking. On Hill Visit Day, the last day of the CASE workshop, my cohort members and I had the incredible opportunity to visit the Hill and advocate for scientific research with Congressional members and their staffers. With the help of the AAAS staff and our Hill guide, Heather Bené (staff member at CU's Office of Government Relations), we had the opportunity to practice communicating our science and advocating for the incorporation of basic and applied scientific research into policymaking.

I am tremendously thankful to the University of Colorado Center for Science and Technology Policy Research (CSTPR), the Center for STEM Learning, and Graduate School for sponsoring my participation in the CASE workshop and look forward to incorporating science policy in my future career.

The following are comments by Adalyn Fyhrie about this year's workshop.

I reached the end of two and a half days invigorated, inspired, and exhausted. I left with more questions than I had arrived with, which I took as a sign of the intensity and breadth of knowledge that I had been exposed to. The CASE workshop provided discussions with an impressive lineup of experts in the field of science policy, from members of Congress to employees of national science agencies. Each moment and every speaker was an opportunity to crack the world of science policy open and I was not about to let that chance go to waste.

I was impressed to learn about the breadth of science policy that is present in our nation's capitol. For starters, "science policy" has different definitions — there is science for policy (using science to make policy decisions that are backed by scientific facts) and policy for science (making policy that provides scientific funding and support for research and development). The CASE workshop focused on policy for science, how it is made, and how to advocate for it.

The workshop also exposed me to the wide variety of people who contribute to policy for science. Going in, I knew that members of Congress were important to science policy (they are the ones making the policies, after all), but the CASE workshop demonstrated that they are just the tip of



Competition winners Caroline Havrilla and Adalyn Fyhrie meet with U.S. Congressman John Garamendi (from California).

the iceberg. Among many other contributors, there are also scientists who are employed to provide reports and briefings on science-related matters for members of government, employees of national science agencies, and scientists who come for a single day to advocate for science funding. During the CASE workshop I fit into the final category (scientist/advocate), but I had a lot of learning to do before I felt ready to meet with our members of Congress and their staff on the final day of the workshop.

In order to effectively advocate for policy for science, we had to first understand how policy is made and the essence of the mechanics of government. The two biggest takeaways for me were: first, that government doesn't work the way it appears to in the news or during election time (it is, in general, much less partisan). Second, that governance is much more emotional than logical (stories can be more effective than facts). Honestly, these were counterintuitive to me, especially the importance of stories instead of facts in getting policy to pass. Many scientists (and I am no exception) want to solve problems with logic and facts, but this is not the most effective way to advocate for science and science funding to Congress. People respond to stories, and that is what we had to deliver.

I started the workshop with a tenuous idea of what science policy was and how one could get involved with it as a career. By the last day, I was meeting with members of Congress and their staff and requesting continued funding of the sciences in the upcoming budget. The CASE workshop gave me confidence in my abilities as a science advocate and insight into the myriad of career options in science policy.

CENTER NEWS

Lauren Gifford Receives First Radford Byerly, Jr. Award in Science and Technology Policy

Rad Byerly, Jr., passed away last year after an impressive career that included more than twenty years as staff on and ultimately Director of the Science Committee of the U.S. House of Representatives. He also was Director of the Center for Space and Geosciences Policy at CU Boulder. Rad spent the last years of his career with the Center for Science and Technology Policy Research (CSTPR) at CU Boulder, where he was known as a mentor, adviser and friend with a wicked sense of humor.

CSTPR launched the Radford Byerly, Jr. Award in Science and Technology Policy in recognition of Rad's contributions to and impact on the CSTPR community. Thanks to several generous donations, CSTPR was able to offer a \$1500 award to a graduate student this year. We are soliciting donations for future awards here: <https://giving.cu.edu/fund/radford-byerly-jr-award-science-and-technology-policy>.

Following a selection process, Lauren Gifford was chosen to receive the first Byerly award. Lauren is a PhD candidate in Geography at CU Boulder. Her research explores the intersection of global climate change policy, conservation, markets and justice. Her dissertation asks how, and by whom, climate and conservation policies are enacted— with a focus on forest carbon offset development in Maine and Peru. She is an appointed member of the City of Boulder's Human Relations Commission, is a long-time environmental justice advocate, and has been an active participant in the United Nations climate change negotiation process. She holds an MA in Environmental Studies from Dartmouth College and a BA in Communications from American University.



ITG 2017 Comedy & Climate Change Video Winners Announced

Inside the Greenhouse held a competition to harness the powers of climate comedy through compelling, resonant and meaningful videos. The winners are:

First Place



'The Summit' (Australia)
by Giovanni Fusetti and Tejopala Rawls

Runner Up



'Alternate Science (Vol. 1)' (USA)
by Monty Hempel

Third Place Runner Up



'Dear Donald Trump' (Austria)
by Philip Moran and Elias James Manning-Moran

Honorable Mention



'Climate Change Communicators Infomercial!' (USA)
by Travis Axe, Elise Evans, Elizabeth Lev, Chris Reeve, and Jeremy Wainscott

All contest entries can be viewed here: <http://www.insidethegreenhouse.org/news/winners-announced>.

CENTER NEWS

CSTPR Students, Researchers and Alumni Moving on to New Positions

Several CSTPR graduate students who recently received their degrees, as well as two of our research scientists and one alumna, will be moving on to new faculty or research positions. We are glad that their time at CSTPR helped prepare them for the next stage of their careers and wish them the best!



Meaghan Daly (Ph.D. CU ENVS 2016) is now a Research Fellow with the ESRC (Economic and Social Research Council) Centre for Climate Change Economics and Policy at the Sustainability Research Institute at the School of Earth and Environment, University of Leeds, UK.



Katie Dickinson (Ph.D. Duke University 2008, current CSTPR Research Scientist) accepted a tenure-track faculty position in the Colorado School of Public Health's Environmental and Occupational Health department.



Elizabeth Koebele (Ph.D. CU ENVS 2017) will begin a new tenure-track faculty position on July 1 as Assistant Professor in the Department of Political Science at the University of Nevada Reno.



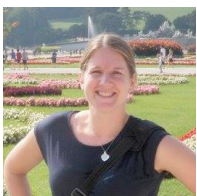
Lydia A. Lawhon (Ph.D. CU ENVS 2016) is an Instructor in the Masters of Environment Program at the University of Colorado Boulder.



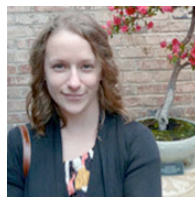
Lucy McAllister (Ph.D. CU ENVS 2017) recently accepted a position starting August 1 as a Core Visiting Assistant Professor/Core Renewal Fellow in Environmental Studies at Boston College.



Elizabeth "Bets" McNie (Ph.D. CU ENVS 2008, most recently Western Water Assessment Evaluation Coordinator) has taken a tenure-track position at the California State University Maritime Academy in Vallejo, CA (her alma mater).



Amy Quandt (Ph.D. CU ENVS 2017, 2013 Red Cross intern) accepted the position of Global Coordinator with the LandPKS (Land Potential Knowledge System) project, a collaboration between the University of Colorado and New Mexico State University.



Jessica Rich (Ph.D. University of North Carolina 2016, current CSTPR Research Scientist) has accepted a tenure-track position starting September 1 as an Assistant Professor in the Communications and Environmental Studies departments at Merrimack College (Massachusetts).

CSTPR Welcomes Professor Bienvenido León, FIRST Scholar

Professor Bienvenido León joins CSTPR for this summer. He is visiting through the Faculty in Residence Summer Teaching program (FIRST) in the Office of Continuing Education at CU Boulder. This is a collaboration with ENVS and Inside the Greenhouse.



Bienvenido is associate professor of science journalism and television production at the University of Navarra (Spain). He has also worked as a documentary film director, scriptwriter and producer for over 30 years. He teaches regularly in other universities of Spain and other countries, and has been a visiting scholar at the University of North Carolina and the University of Otago. His research has mainly focused on audio-visual science and environment communication. He is the founding director of the Research Group on Science Communication at this university, and currently the director of the international research project "Online video as a tool for communicating science". He has published 21 books as author or editor and over 60 peer-reviewed papers or book chapters. Before joining the academic field, he worked as a TV journalist for a decade. He has founded and directed two environmental film festivals: Telenatura (2001-2013) and Urban TV (2002-2014).

As part of his visit, Bienvenido will be giving a talk on August 3 in CSTPR on 'How have nature and environmental documentaries changed since the internet arrived?' at 3pm. More information is available here: <http://cires.colorado.edu/events/cstpr-seminar-new-coordinates-environmental-documentary-bienvenido-le%C3%B3n>.

CENTER TALKS & EVENTS

The fall 2017 noontime seminar series is currently underway. All talks take place on Wednesdays at noon in the CSTPR conference room (unless otherwise noted), are free and open to the public, and most will also be webcast. Directions: http://sciencepolicy.colorado.edu/about_us/find_us.html. The schedule is as follows:

August 3, 2017 at *3:00 PM

New Coordinates for Environmental Documentary

Bienvenido León, School of Communication, University of Navarra (Spain), FIRST Scholar, CU Boulder

September 13, 2017 at 12:00 PM

Forests, Finance and Conservation: A Turn in US Climate Policy

Lauren Gifford, Geography, University of Colorado Boulder
Winner of the 2017 Radford Byerly Award

October 25, 2017 at 12:00 PM

Energy and Climate, The Making of a Citizen

Grant Couch, Citizen's Climate Lobby

November 1, 2017 at 12:00 PM

The Socio-Spatial Dimensions of Disaster Risk in Mobile Home Parks: Learning from the 2013 Colorado Floods

Andrew Rumbach, Urban and Regional Planning, CU Denver

November 8, 2017 at 12:00 PM

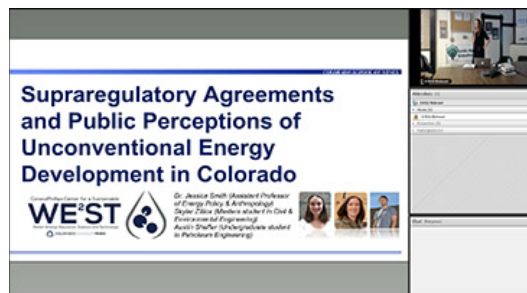
in the CIRES Auditorium

Title TBA

Susan Avery, President Emeritus, Woods Hole Oceanographic Institution

The spring 2017 noontime seminars are also available for viewing at: <http://sciencepolicy.colorado.edu/news/webinars>. Below is a list of talks from the spring.

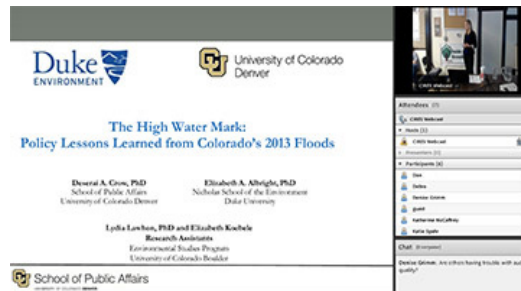
Supreregulatory Agreements and Public Perceptions of Unconventional Energy Development in Colorado
by Jessica Smith



Transitioning Research to Operations in an Applied Science Program
by Elizabeth McNie



The High Water Mark: Policy Lessons Learned from Colorado's 2013 Floods
by Desera Crow



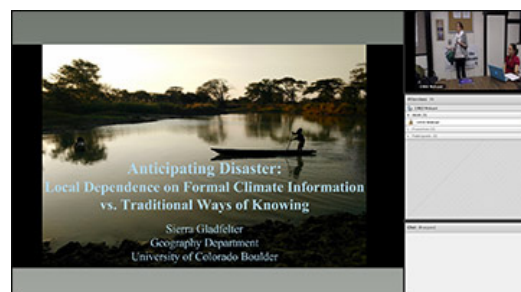
Climate Change Politics and Machine Learning
by Justin Farrell



Machine Learning, Social Learning and Self-Driving Cars
by Jack Stilgoe



Anticipating Disaster: Local Dependence on Formal Climate Information vs. Traditional Ways of Knowing
by Sierra Gladfelter



MEDIA AND CLIMATE CHANGE OBSERVATORY MONTHLY SUMMARIES

The Media and Climate Change Observatory (MeCCO) (http://sciencepolicy.colorado.edu/media_coverage) analyzes traditional/legacy media representations of climate change. MeCCO team endeavors to comprehensively aggregate, monitor, appraise and critically examine media coverage that influence the spectrum of possibility for effective responses to ongoing climate challenges. The MeCCO team monitors coverage monthly in fifty selected sources globally, and eight country profiles (Australia, Canada, India, Japan, New Zealand, Spain, UK, US).

Issue 6, June 2017 Summary

June 2017 coverage of climate change and global warming went up nearly 46% compared to May. This was attributed largely to the news surrounding United States President Donald Trump's withdrawal from the 2015 United Nations Paris Climate Agreement, with media coverage on emergent US isolation following through the Group of Seven (G7) summit a few weeks later. These June 2017 numbers were also a 24% increase from the amount of June 2016 climate change coverage around the world. This was predictably most pronounced at the epicenter of the (in) action, where coverage in June in North America doubled from the previous month's counts (see Figure 2 for US coverage).

Article 28 of the Paris Agreement states that a party to the agreement may withdraw at the earliest after three years from when the agreement entered into force. Since the Paris Agreement entered into force on November 4, 2016, this

process can be completed at the earliest on November 4, 2020 (the day after the next scheduled US Presidential election).

While coverage around the world has ebbed and flowed in 2017 (see Figure 1), generally coverage in the first six months of 2017 is still 19% down from the first six months of 2016. While ongoing media treatments from the December 2015 UN Paris Agreement fueled early 2016 attention, time will tell how this June 2017 coverage of the US Trump Administration withdrawal will fuel ongoing media representations through the July G20 summit in Hamburg and beyond.

So, the most prominent political theme in June 2017 proved to be largely focused on the Trump Administration and the Paris Climate Agreement withdrawal. Moreover, this theme contributed to the uptick in coverage around the world. Examples included reactions from Ireland (in *The Irish Times*: <https://www.irishtimes.com/news/environment/trump-s-climate-move-was-inevitable-but-not-necessarily-fatal-1.3104818>) to Zimbabwe (in *The Herald*: <http://www.herald.co.zw/bemoaning-americas-big-environmental-betrayal/>). However, political coverage was not limited just to this beginning-of-June development. In other news, G7 leaders - from Italy, Japan, Canada, United Kingdom, United States, Germany and France - met in Bologna, Italy and issued a communique with a strong statement on climate change policy engagement, covered by *The Washington Post* (<https://www.washingtonpost.com/news/energy-environment/>

2004–2017 World Newspaper Coverage of Climate Change or Global Warming

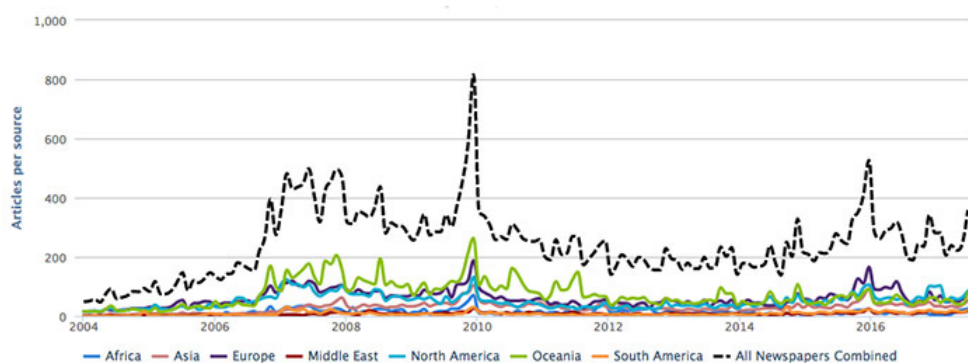


Figure 1. Media coverage of climate change or global warming in fifty-two sources across twenty-eight countries in seven different regions around the world from January 2004 through June 2017.

2000–2017 United States Newspaper Coverage of Climate Change or Global Warming

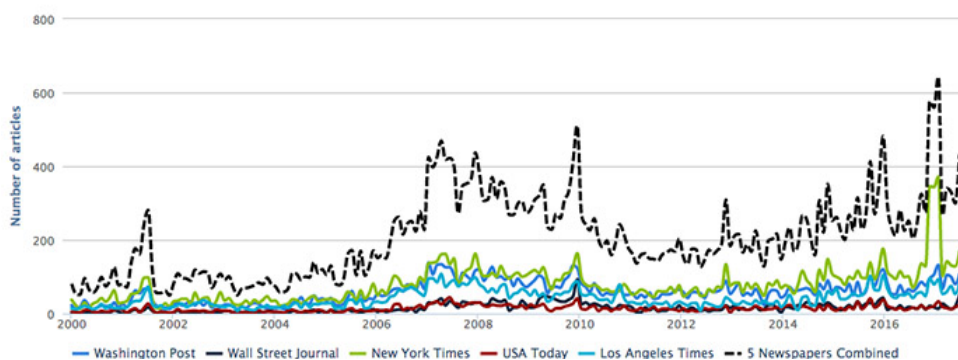


Figure 2. Media coverage of climate change or global warming in five United States sources (*The Washington Post*, *The Wall Street Journal*, *The New York Times*, *USA Today*, and the *Los Angeles Times*).

MEDIA AND CLIMATE CHANGE OBSERVATORY MONTHLY SUMMARIES

wp/2017/06/12/this-is-what-the-u-s-s-new-global-isolation-on-climate-change-looks-like/?utm_term=.68d7c1ee8595) among a number of outlets. In addition, in mid-June, many media sources, including *The Wall Street Journal* (<https://www.wsj.com/articles/big-oil-steps-up-support-for-carbon-tax-1497931202>), covered the story that a number of prominent oil companies - including Exxon Mobil, Total, Royal Dutch Shell, British Petroleum and General Motors - voiced support for a neoliberal US carbon taxation scheme developed by the 'Climate Leadership Council'.

Coverage of scientific dimensions of climate change in June 2017 included new studies of scientific and economic dimensions of climate change challenges. As examples, sources like *The Independent* (UK) (<http://www.independent.co.uk/environment/world-climate-change-save-humanity-experts-global-warming-rising-sea-levels-food-a7813251.html>) covered an instantly influential opinion piece in the journal *Nature* that argued that the global community has three years to take ambitious action in order to bend the greenhouse gas emissions curve steeply enough to meet the Paris Agreement temperature goals. Earlier in the month, media attention was paid to a study published in the journal *Geophysical Research Letters* which found that wildfires on the Great Plains have increased by over 350 percent over the past thirty years (see: https://www.washingtonpost.com/news/energy-environment/wp/2017/06/16/scientists-find-a-400-percent-increase-in-wildfire-destruction-in-the-great-plains/?utm_term=.5f0adaade83a). *The Guardian* (<https://www.theguardian.com/environment/2017/jun/29/climate-change-income-inequality-environment>) and other outlets also covered a study in the journal *Science* that examined economic impacts in exacerbation of inequality from the effects of climate change.

Coverage of *ecological* and *meteorological* dimensions of climate change in June 2017 centered primarily on heatwaves in the Northern Hemisphere. As examples, June 2017 heatwaves in Southern and Western India were also linked in the *Hindustan Times* (<http://www.hindustantimes.com/mumbai-news/global-warming-effect-more-heat-wave-deaths-as-temperatures-rise-across-india/story-vVoEayG625Ech4WzLOkKiM.html>) to a study that found a 25% increase in heat wave days and duration from 1960 to 2009. And a southwestern United States heatwave around the summer solstice garnered media attention in the *Los Angeles Times* (<http://www.latimes.com/local/lanow/la-me-ln-california-heat-wave-20170620-story.html>) and in other sources. Cultural dimensions of climate change in June 2017 included many stories of stated commitments from government (such as cities around the world) and non-nation state actors (such as NGOs and industry) to continue to carry out the commitments made in the Paris Agreement despite the US Federal government withdrawal (see: <https://www.nytimes.com/2017/06/01/>

[climate/american-cities-climate-standards.html?ref=energy-environment& r=0](https://www.epa.gov/climate/american-cities-climate-standards.html?ref=energy-environment& r=0)).

Figure 3 shows frequency of words in articles across Australia, India, the US and Canada in June 2017. In the United States, 'Trump' was invoked 7176 times through the 432 stories this month. Comparing this with other prominent personalities, (former US President) 'Obama' was mentioned 803 times, (US Environmental Protection Agency Administrator) 'Pruitt' was discussed 493 times and (White House spokesman) 'Spicer' was mentioned 296 times while (German Chancellor) 'Merkel' was discussed 249 times and (French President) 'Macron' was mentioned 230 times. In fact, 'Trump' was discussed more than twice as much as 'Paris' (referring to the 2015 United Nations Climate Agreement) (2387 times), 'science' (566 times) and 'health' (513 times) combined. Comparatively, in Australia, Prime Minister Malcolm Turnbull was mentioned 796 times to 773 mentions of Trump in 497 articles from *The Sydney Morning Herald*, *The Courier Mail* & *The Sunday Mail*, *The Australian*, *The Daily Telegraph* & *The Sunday Telegraph*, and *The Age* in June. In India, Prime Minister Narendra Modi was invoked 289 times to 296 mentions of Trump in 438 articles from *The Indian Express*, *The Hindu*, the *Hindustan Times*, and *The Times of India* in June. In Canada, Prime Minister Justin Trudeau was mentioned 258 times to 717 mentions of Trump in 248 articles from *The Globe & Mail*, *The Toronto Star*, and the *National Post* in June.

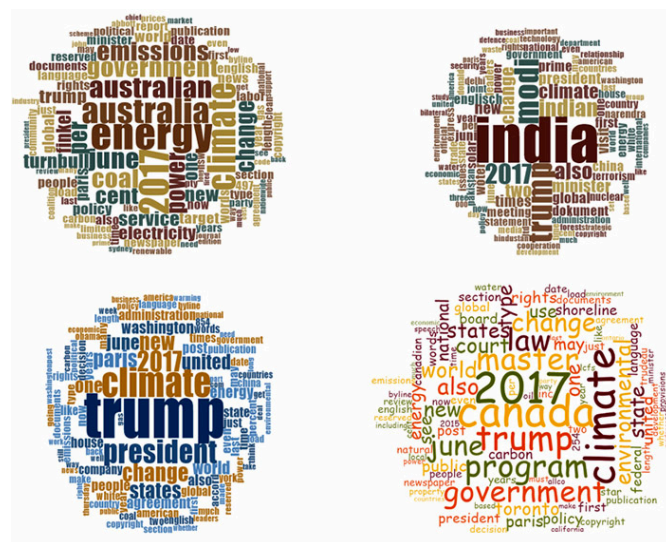


Figure 3. Word clouds showing frequency of words invoked in media coverage of climate change or global warming in Australia (on top left), India (on top right), the United States (on bottom left) and in Canada (on bottom right) in June 2017. Data are from five Australian sources, four Indian sources, and five US sources.

As June 2017 coverage gives way to intersecting climate science, culture and politics in July, it is worth continuing to pay attention to these ongoing themes and trends.

- report prepared by Max Boykoff, Kevin Andrews, Gesa Luedecke, Meaghan Daly and Ami Nacu-Schmidt

CENTER PUBLICATIONS

Below is a sample of recent publications by CSTPR faculty (Center personnel highlighted):

Wiedinmyer, C., **K. Dickinson**, R. Piedrahita, E. Kanyomse, E. Coffey, M. Hannigan, R. Alirigia, and A. Oduro (2017). Rural–Urban Differences in Cooking Practices and Exposures in Northern Ghana. *Environ. Res. Lett.* 12 (6), doi: 10.1088/1748-9326/aa7036.

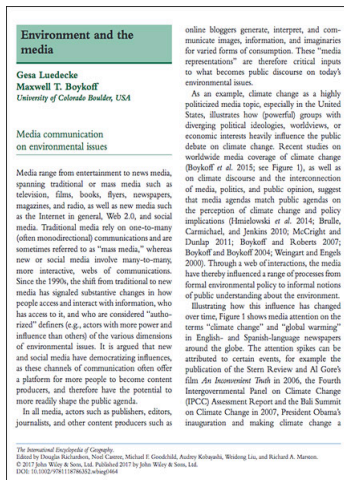
Abstract: Key differences between urban and rural populations can influence the adoption and impacts of new cooking technologies and fuels. We examine these differences among urban and rural households that are part of the REACCTING study in Northern Ghana. While urban and rural populations in the study area all use multiple stoves, the types of stoves and fuels differ, with urban participants more likely to use charcoal and LPG while rural households rely primarily on wood. Further, rural and urban households tend to use different stoves/fuels to cook the same dishes—for example, the staple porridge (Tuo Zaafi) is primarily cooked over wood fires in rural areas and charcoal stoves in urban settings. This suggests that fuel availability and ability to purchase fuel may be a stronger predictor of fuel choice than cultural preferences alone. Ambient concentrations of air pollutants also differ in these two types of areas, with urban areas having pollutant hot spots to which residents can be exposed and rural areas having more homogeneous and lower pollutant concentrations. Further, exposures to carbon monoxide and particulate matter differ in magnitude and in timing between urban and rural study participants, suggesting different behaviors and sources of exposures. The results from this analysis highlight important



disparities between urban and rural populations of a single region and imply that such a characterization is needed to successfully implement and assess the impacts of household energy interventions. Read more: http://sciencepolicy.colorado.edu/admin/publication_files/2017.05.pdf.

Luedecke, G. and **M. T. Boykoff** (2017). Environment and the Media. *The International Encyclopedia of Geography*, Ed. D. Richardson, N. Castree, M. F. Goodchild, A. Kobayashi, W. Liu, and R. A. Marston, John Wiley & Sons, Ltd.

Excerpt: Media range from entertainment to news media, spanning traditional or mass media such as television, films, books, flyers, newspapers, magazines, and radio, as well as new media such as the Internet in general, Web 2.0, and social media. Traditional media rely on one-to-many (often monodirectional) communications and are sometimes referred to as “mass media,” whereas new or social media involve many-to-many, more interactive, webs of communications. Since the 1990s, the shift from traditional to new media has signaled substantive changes in how people access and interact with information, who has access to it, and who are considered “authorized” definers (e.g., actors with more power and influence than others) of the various dimensions of environmental issues. It is argued that new and social media have democratizing influences, as these channels of communication often offer a platform for more people to become content producers, and therefore have the potential to more readily shape the public agenda. In all media, actors such as publishers, editors, journalists, and other content producers such as



MULTIMEDIA HIGHLIGHT

Navigating Climate Change - A Communication...

Colorado Renewable Energy Society

Navigating Climate Change

Communication & Cultural Politics in the 21st Century

Maxwell Boykoff, PhD

Associate Professor in Environmental Studies at CU Boulder
Director, Center for Science & Technology Policy Research
Fellow, Cooperative Institute for Research in Environmental Sciences
Deputy Editor, *Climatic Change*

Recorded May 25, 2017 at JUC in Golden, Colorado
Produced by Martin Voelker, Colorado Renewable Energy Society: cres-energy.org

Colorado Renewable Energy Society

Navigating Climate Change: Communication and Politics by Maxwell Boykoff

Video [40:14]: <https://youtu.be/CJFLaxrwywA>

The realization that climate change is bound to deeply disrupt our future hasn't set in yet in the US, in large part due to a longstanding propaganda campaign by the fossil fuel lobby to sow doubt. Max Boykoff reports on creative ways of communicating climate science and policy. Organized by the Jefferson County chapter of the Colorado Renewable Energy Society.

To view more CSTPR videos see:
<http://sciencepolicy.colorado.edu/news/multimedia>.



For a list of S&T policy-related job openings please visit our jobs page at <http://sciencepolicy.colorado.edu/students/jobs.html>.

Recent listings include:

- Boise State University, Assistant Professor - Human-Environment Systems
- George Mason University, Climate Change Communication Research
- Michigan Technological University, Assistant Professor - Environmental Policy
- University of California Davis, Governance Network Analysis and Climate Adaptation
- Washington University, Assistant Professor - Surface Hydrology

ABOUT US

Ogmios is the newsletter of the Center for Science and Technology Policy Research. The Center is within the Cooperative Institute for Research in Environmental Sciences (CIRES) at the University of Colorado Boulder. The mission of CIRES, which was established in 1967, is to act as a national resource for multidisciplinary research and education in the environmental sciences. CIRES is jointly sponsored by the University of Colorado-Boulder and the National Oceanic and Atmospheric Administration.

Online Version:

<http://sciencepolicy.colorado.edu/ogmios>

Online Version: ISSN 1936 - 9921

Print Version: ISSN 1936 - 9913

Center for Science and Technology Policy Research

University of Colorado/CIRES

1333 Grandview Avenue, Campus Box 488

Boulder, CO 80309-0488

Ph: 303-735-0451

<http://sciencepolicy.colorado.edu>



Co-Editors:

Max Boykoff (boykoff@colorado.edu)

Ami Nacu-Schmidt (ami.nacu-schmidt@colorado.edu)

Jennifer Katzung (jennifer.katzung@colorado.edu)

Support the Center!



***Your gift can help CSTPR clarify science and technology issues for policy makers at the local and national levels ...**

To support our work with your donation go to:

http://sciencepolicy.colorado.edu/about_us/donate.html

*** All donations (which are made through the CU Foundation) are tax-deductible to the fullest extent of the law.**