

## A Geologist's Role in Congress



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On 25 Sept. 2018 I started my year-long GSA-USGS Congressional Science Fellowship in the office of Senator Tom Udall (D-NM), working on both the energy and environment portfolio and the wildlife, natural resources, and public lands portfolio teams. Thus far, the best compliment I've received from a congressional staffer was not for me, but rather for our geoscience community at large. I was told that "geologists make

for some of the best congressional fellows." I was immediately flattered after being told that geoscientists were great to work with on Capitol Hill. Then, on reflection, it became obvious why members of our community would be sought after and so valued by congressional personnel and committee offices.

Geology is inherently interdisciplinary. Earth and its processes are dynamic, requiring a command of the core, basic sciences to understand all of Earth's interacting physical, chemical, and biological aspects. This leads geologists to generally be comfortable with tackling a variety of issues outside our expertise. Our geology undergraduate degrees required introduction to physics, chemistry, calculus, and sometimes biology and statistics. Although our undergraduate schedules were overloaded with labs and our backpacks weighed down with oversized textbooks, I appreciated the opportunity to broaden my overall knowledge of the sciences.

To answer our research questions, we collaborate heavily with geologists specializing in different fields from our own and with scientists across disciplines, ranging from computer scientists to material scientists to engineers. Often, our research and collaborations involve travel to attend conferences, use labs, or collect samples. Through these travels, we experience new cultures and interact with a diversity of individuals. I've often found that geologists are genuinely interested in getting to know others and spending time together—GSA's Annual Meeting feels more like a reunion of friends instead of a society conference. Our ability to communicate, engage, and navigate within our community and among foreign colleagues, rural communities, private landowners, government agencies, etc., in our travels are highly transferable skills. A day in Congress might have you meeting with the Frankfurt Zoological Society to discuss preservation needs in the Serengeti National Park, sitting down with World Wildlife Federation representatives who flew in from Brazil to raise concerns regarding the violation of indigenous people's rights in the Amazon, or inviting academic forest ecologists to brief Hill staff on the increasing intensity and frequency of wildfires occurring in western states. Our willingness to travel makes us in tune with how interconnected Earth is, and our effective communication skills have prepared us to hold crucial, needed conversations.

Geologists care deeply for our planet's well-being, and our research on Earth's past, present, and future states reflects this. Thus, I believe geologists are more willing than scientists in other

fields to work on tangentially related earth-science policy issues. During the time that I've been on Hill, I've been involved in conversations related to water security (e.g., Colorado River Drought Contingency Plan Authorization Act of 2019), wildlife and public land conservation (e.g., America's Public Land Act of 2019), climate change (e.g., Green New Deal Resolution), data availability (e.g., Geospatial Data Act of 2017), etc., and none of these topics were part of my dissertation. I have also reviewed legislation for increased investment in clean and renewable energies to mitigate climate change and analyzed policy for hard rock mining reform to preserve our nation's cherished public lands.

Particularly unique to our field is our ability to grasp the concept of deep time and geologic rates. Thinking of cyclical processes that occur on decadal timescales to those that occur on hundreds of million-year timescales comes second nature to geologists, whereas the average person likely thinks of time on the scale of years to months to the number of hours left in the work day. Once at a GSA Annual Meeting I overheard someone refer to the Cenozoic as "recent," remarking that it was "too young of a time interval" to be of interest to them. The Cenozoic spans the past 65 million years of Earth's history!

Our broad and long-term perspective of earth processes has value in policy making. When considering new methane venting and flaring regulations, geologists can reflect on the rates of global warming associated with the hypothesized dissociation of oceanic methane clathrate and its oceanographic consequences in the early Eocene. When confronting PFAS water contamination issues, geologists can examine the rates and directions of groundwater flow to anticipate impacted communities and mitigate timely clean-up efforts. When anticipating the next "big one," geologists can advocate for improved transportation and building infrastructure. My favorite story from a congressional natural-hazard briefing was about the 2002 M7.9 earthquake on the Alaska Denali fault—"the biggest natural hazard that no one heard about." The reason this large earthquake did not make the news was that geologists projected fault movement up to 20 feet, and when engineers built the Trans-Alaska Oil Pipeline they mounted it on steel beams that allowed it to freely slide where it crossed the fault. Thus, when the rupture crossed the pipeline, there was no structural damage or oil spill associated with the earthquake. Thus, geologists have the foresight to include this type of research in the drafting of energy and infrastructure legislation. Thus, our knowledge of deep time and geologic rates is essential for understanding what is and, perhaps more relevant to today, is not normal in Earth's history.

Our investigations use a variety of data sources and analytical approaches. We ask our colleagues both thoughtful and demanding questions. We readily critique data and statistics and understand the verbal, written, and visual information presented to us. (Trust me, people will try to gloss over or omit key data when speaking with policy makers!) Geologists know how to make persuasive arguments—we spend a good chunk of our office time writing competitive grant applications and letters to editors

in hopes of getting funded or published. Along those lines, we can also handle rejection, thereby writing more persuasive arguments next time around. These are skills that geologists, and more broadly scientists, learned early on in their careers that come in handy daily in Congress.

Although some, including members of our field, might think that our expertise does not directly relate to legislative policy, the skills and perspectives geologists possess bring great value to the Hill. We are a community of smart, adventurous, hard-working people. Our insight and expertise is sought after and appreciated by policy makers. If someone on the Hill reaches out with an earth-science-related policy question, you and your earth-science peers are more capable and prepared to provide the answer than you might expect.

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# 36th International Geological Congress (IGC) Mentoring and Travel Grant Program

Delhi, India | 2–8 March 2020

GSA is accepting applications for its mentoring and travel-grant program to the 36th International Geological Congress (IGC) in Delhi, India. Students and early career professionals (those within seven years of receiving their Ph.D.) are welcome to apply.

To be eligible, the applicant must be a resident or citizen of the United States and be enrolled in, or employed at, a U.S. institution. Each award is anticipated to be a maximum of US\$3,500.

Complete applications will consist of

- An online application form;
- A cover letter addressing your reasons for attending the meeting;
- A prioritized budget of expenses;
- A copy of your submitted abstract; and
- One letter of recommendation.

Applications must be received electronically no later than 3 Sept. 2019 at [www.geosociety.org/GSA/Education\\_Careers/Field\\_Experiences/GSA/fieldexp/home.aspx](http://www.geosociety.org/GSA/Education_Careers/Field_Experiences/GSA/fieldexp/home.aspx).

This program is organized in collaboration with the GSA Foundation, the U.S. National Committee for Geological Sciences (of the National Academy of Sciences), and the American Geosciences Institute.

Questions? Contact Jennifer Nocerino, [jnocerino@geosociety.org](mailto:jnocerino@geosociety.org), +1-303-357-1036.