THE GEOLOGICAL SOCIETY OF AMERICA®

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Re: Request for Information on the American Research Environment

The Geological Society of America (GSA) appreciates the opportunity to respond to these important questions. Founded in 1888, GSA is a scientific society with more than 20,000 members from academia, government, and industry in more than 100 countries. Through its meetings, publications, and programs, GSA enhances the professional growth of its members and promotes the geosciences in the service of humankind and stewardship of the Earth. GSA encourages cooperative research among earth, life, planetary, and social scientists, fosters public dialogue on geoscience issues, and supports all levels of earth-science education.

Research Rigor and Integrity
2. How can Federal agencies best work with the academic community, professional societies, and the private sector to enhance research quality, reproducibility, and replicability? What are current impediments and how can institutions, other stakeholders, and Federal agencies collaboratively address them?
3. How do we ensure that researchers, including students, are aware of the ethical principles of integrity that are fundamental to research?

It is vital that Federal scientists are a part of the larger scientific community, both in their discipline and in general. Collaboration is key and should be free of impediments or restrictions. Federal scientists should be considered leaders in their research area and in their scientific community, including leadership in professional societies. This ensures continuity, the ability to coordinate with one's professional colleagues and peers which, in turn, improves scientific research and integrity.

Scientific societies can work in partnership with the federal government to communicate and embody ethical principles of integrity that are fundamental to research. Scientific societies also have sway on the culture of the academic community as many academicians and university leaders are society members and leaders. Messages and expectations of professional ethics including scientific research and publications from the societies can be carried forth to the academic and private sector as a guiding light for rigor and ethics.

GSA's Code of Ethics and Professional Conduct sets both aspirational and mandatory standards for its members and is committed to "promoting a culture of scientific and research integrity across the geosciences." Aspirational Standards in GSA's Code of Ethics and Professional Conduct include:

- We will maintain the highest standards of intellectual and personal honesty. We will avoid bias in reporting the products of our work;
- We will take responsibility for our actions and contributions in all phases of our research. We will follow accepted practices and, to the extent possible, we will conduct research that is replicable and reproducible; produce research records that are clear, transparent, and verifiable; distinguish observations from interpretations; and report uncertainties in research results in the context of complex natural systems. We will responsibly conduct sampling activities in our research to preserve Earth's geoheritage for future generations;
- We will give full and proper credit to the creativity, ideas, contributions, and work performed by colleagues, subordinates, and students. We will cooperate with other researchers whenever possible to ensure rapid interchange and dissemination of knowledge in the geosciences;
- We will protect confidential and proprietary data entrusted to us in our professional capacity.

Mandatory Standards are:

- We do not engage in research misconduct, including fabrication, falsification, or plagiarism; and
- We will take all reasonable steps necessary to ensure safety in the laboratory, field, and other professional settings. We will notify the appropriate authorities of any violations or incidents that appear to create a threat to public health and safety.

In addition to the Code, GSA has a long-standing Ethical Guidelines for Publication, which states "it is important for the Society to maintain a high level of quality and integrity in its publications, which is a responsibility that rests with all those involved in the publication process—authors, reviewers, editors, GSA officials, and GSA staff."

Scientific societies play a vital role in disseminating scientific findings, critical to the process of determining reproducibility. The current 12-month embargo period on publications provides science and engineering society publishers such as GSA the financial stability that enables us to support peer review that ensures the quality and integrity of the research enterprise and we recommend that it is maintained. Further, this model enables us to drive advancement in the geosciences through our meetings, programs and outreach, including a focus on broadening participation.

Safe and Inclusive Research Environments

1. What policies and practices are most beneficial in fostering a culture of safe and inclusive research environments? Where applicable, please provide information on:

a. Organizational leadership actions that create a culture of inclusivity;

e. Whether your organization has a common code of ethics applicable to researchers, and whether that code is highlighted and actively promoted in training, research practice, etc.

Policies that clearly articulate the importance of diverse thought and research that comes from fostering a diverse, inclusive workforce are key. This also includes setting a direction of review and reflection on the hiring practices to include diversity and support of STEM education at all levels. As to practices, professional societies, industry and government scientific workforces should embody a culture of leading by example.

Professional societies play an important role in changing the culture in science and active engagement of federal scientists can strengthen these ties by amplifying the collective efforts. Opportunities exist for federal scientists to participate in scientific society programs that shape the changing culture and mentor the next generation of scientists.

GSA is at the forefront of leading changes in the culture that are needed to make the geosciences more inclusive, joining collective efforts among federal agencies, Congress, universities, and industry. One avenue is through strong statements on the values held by the society, which GSA articulates through position statements, whose review process allows for input from all members.

The *Diversity in the Geoscience Community* position statement notes, "Diverse perspectives are important and necessary for responsible, effective, decision-making and leadership. … GSA must vigorously and proactively reject prejudice and stereotyping wherever it is encountered in our profession, while actively promoting a diverse workforce, now and in the future." In *Removing Barriers to Career Progression for Women in the Geosciences* (2018), GSA "affirms the pressing need for a change in professional culture so that all people are welcomed, supported, and thrive in the geoscience profession." The statement provides recommendations relevant to the federal government, including:

• "Educating the geoscience workforce on the presence, nature, and impact of implicit biases. This includes promoting fair assessments by using blind evaluations where practical and having people on every evaluative committee with training on the impact of implicit bias on evaluations.

• Establishing zero tolerance for sexual violence, gender-based harassment, harassment, bullying, and recrimination.

• Establishing family-friendly policies that will enable full participation of women in the geosciences regardless of their personal or professional situation.

• Addressing the disproportionate burdens and ethics of workforce precarity and contingent work on women in the geosciences.

• Promoting flexible career paths that accept and value alternate pathways to and within the geoscience profession."

Policies and procedures are a critical component of leadership as well. After hiring an Ethics and Compliance officer, GSA's Council approved a new Code of Ethics and Professional Conduct in September 2019, the first enforceable code of conduct for the society. In addition to the scientific integrity provisions described above, the statement contains mandatory and aspirational standards necessary to "Promoting a Culture of Respect, Fairness, and Inclusivity." Mandatory standards are:

- We use legitimate, unbiased criteria when making decisions and taking actions that affect the work, educational, and/or professional opportunities of students, colleagues, and other professional contacts;

- We do not discriminate against, harass, sexually harass, bully, or engage in retaliation against others in our professional activities.

GSA's new decadal-scale strategic plan highlights the importance of nurturing a diverse geoscience community and linking geoscience to society. Over the next decade, GSA will use this plan, and its revised professional ethics policies, to build upon its activities to foster a diverse geoscience community, support the next generation of geoscientists, and actively connect and encourage the link between geoscience to society. GSA looks forward to working with the federal government on these goals. We stand ready to actively participate with you to continue the excellence of US Federal science and scientists.

Respectfully submitted,

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GSA Executive Director