

Sexual Harassment in the Sciences: A Call to Geoscience Faculty and Researchers to Respond

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As geoscience educators we focus on teaching students about a wide range of geoscience topics and helping them develop scientific skills. However, we also (deliberately or through unconscious behavior) teach professionalism to our students. Professionalism is rooted in ethics and tailored to our disciplinary activities. How we behave to each other in the classroom, field, and lab, and at scientific meetings says a lot about who we are and what we value as individuals and as a community of practice. As educators and mentors, how we behave and what behavior we tolerate by others sets a tone and becomes a behavioral model for the undergraduate and graduate students with whom we interact. We raise these rather weighty and philosophical points to frame a discussion on a difficult topic: sexual harassment in the sciences. The urgency of addressing this issue follows several recent high-visibility incidents of sexual harassment/assault reported across the STEM disciplines (e.g., Witze, 2015; Balter, 2016; Feltman, 2016; Harmon, 2016; Williams and Massinger, 2016). More troubling, a recent survey of academic fieldwork experiences from the life, physical, and social sciences disciplines (Clancy et al., 2014) reveals that 64% of respondents ($n = 666$, 78% women) report personally experiencing sexual harassment (i.e., inappropriate or sexual remarks, comments about physical beauty, cognitive sex differences, or other such jokes) and 22% of the respondents reported being the victim of sexual assault (i.e., physical sexual harassment, unwanted sexual contact, or sexual contact in which they could not or did not give consent, or felt it would be unsafe to fight back or not give consent). This behavior is illegal. It is unacceptable. And this must stop.

Community in Action

In September 2016 the American Association for Advancement of Science (AAAS), the American Geophysical Union (AGU), the American Geosciences Institute (AGI), the Association of Women Geoscientists (AWG), the Earth Science Women's Network (ESWN), and the American Chemical Society (ACS) convened a 1-day workshop on *Sexual Harassment in the Sciences - A Call to Respond*. The goal of this National Science Foundation (NSF)-funded workshop was to generate common principles and identify resources, and best practices to address the challenges of sexual and gender-based harassment on campus, in the field, and at scientific meetings. The workshop was powerful and informative. It brought together 60 scientists (many were geoscientists) from academia, government, and profes-

sional societies. Perspectives from victims of sexual harassment, legal professionals, and social science researchers set the stage for discussions on the challenges of, and potential countermeasures to, sexual harassment and assault in academia. We encourage you to read the press releases of the workshop outcomes (<https://news.agu.org/press-release/scientific-societies-speak-out-against-sexual-harassment/>, and Wendel, 2016), as well a resource page on sexual harassment (<http://harassment.agu.org/>) developed by AGU.

Ultimately the workshop's impact will be measured by community-wide recognition of the scope of the problem and the development and adherence to a code of behavior that puts respect, responsibility, equality, and professionalism at its core. As participants in the workshop and active members of NAGT we feel compelled to extend the conversation that was started at the workshop to include members of NAGT, geoscience educators, and geoscience education researchers. Our goal is to provide starting points for conversations that we hope readers will initiate with their colleagues and students on the scope, challenges, and countermeasures to sexual harassment in the sciences. To that end, we share our reflections on points from the workshop and results from recent studies that particularly resonated with us and that we think have implications for geoscience education and geoscience education researchers.

Sexual Harassment Impacts Science Career Paths and Diversity Initiatives

Harassment in all forms creates a toxic work and learning environment that is stressful, unethical, and counterproductive to initiatives for increasing diversity among science faculty and students. It has been shown that some of the barriers to women's selection of, and success in, science careers can be partially attributed to gender bias and hostile climates in science classrooms and academic workplaces (Settles et al., 2006; Hazari et al., 2013; Grunspan et al., 2016). However, little research has focused on sexism encountered in the geosciences specifically, or in related disciplines that share teaching and learning environments, such as fieldwork. The Clancy et al. (2014) study is a very important step in understanding the widespread nature of severe sexist experiences (i.e., violence and overt harassment), but data on all of the active forms of sexism in the geosciences is more limited.

Sexual assault and overt harassment are at the extreme end of a spectrum of sexist offenses and experiences that unfortunately still permeate the culture and climate of many workplaces in the geosciences. Perhaps less visible, but nonetheless very impactful, hostile sexist experiences can include implicit bias, microaggressions, and a range of other unprofessional behaviors and attitudes. We have a better understanding of the impact and mitigation strategies for

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implicit bias in geoscience hiring decisions, tenure and promotion, and in judgement of performance (Holmes, *et al.*, 2015). Additionally, Dutt *et al.* (2016) have reported on differences in recommendation letters for postdoctoral fellowships in geoscience, documenting significant differences in letter length and tone of letters submitted by recommenders and “suggest that women are significantly less likely to receive excellent recommendation letters than their male counterparts at a critical juncture in their career.” Further documentation of the extent and impact of microaggressions, negative gendered experience, bullying, and subtle sexual harassment is needed.

Female Geoscience Students Experience Sexism During Fieldwork

A current project examining field choice and persistence of women in geology across six major research universities has found strong evidence of the effect sexist experiences encountered by students in classroom and field settings in geology (Sexton *et al.*, 2016). They collected data from students and faculty in six geology departments. Undergraduate students in all six departments encountered sexism during fieldwork. A higher number of sexist experiences per person were reported in departments with a lower percentage of female students (*i.e.*, departments that were less successful at recruiting and retaining female students). Some students left geology completely while others changed subdisciplines after experiencing sexism during fieldwork. Findings from the Clancy *et al.* (2014) and Sexton *et al.* (2016) studies highlight the prevalence of sexism encountered by scientists who are early in their careers (particularly students) and of the negative impact these experiences have on academic and career paths.

More Research Is Needed to Better Understand the Scope of the Problem in the Geosciences

The clear implications for the geoscience education community are that sexism and sexual harassment in all its forms may be more prevalent than we perhaps assumed, based on the Clancy *et al.*'s (2014) study and Sexton *et al.*'s (2016) preliminary results. The early studies in the geosciences need to be expanded to better capture the scope of the problem and understand the effects on students and faculty, and the impacts of mitigation strategies. More research needs to be done in the geosciences to understand the extent of sexist behavior and practice on academic campuses, in the field, in the lab, and in the workplace. Professional societies (*e.g.*, NAGT, GSA, AGU) and geoscience education researchers should take leadership roles in collecting and analyzing such data.

Addressing Unprofessional Behavior Is Everyone's Responsibility

More generally, as members of the broader geoscience community, we need to recognize unprofessional behavior (*e.g.*, sexual harassment, bullying, incidents of microaggressions, and implicit bias) as it occurs, and to be prepared to take definitive actions to address these instances. Senior

scientists, in particular, need to model the highest standards of professional behavior, and to act to protect potentially vulnerable members (*e.g.*, graduate students, pretenure faculty) of their program from any unprofessional behavior by colleagues and collaborators (Diniaga *et al.*, 2016). In addition, departments and professional geoscience societies have important roles to play in setting behavior expectations. This may be articulated as a code of ethics/code of behavior for programs, which is especially important to establish for field-based research (Clancy *et al.*, 2014) and field camp programs (*e.g.*, 2016–17 Keck Geology Consortium Project Faculty Handbook, p. 16–18, and Participant Handbook, p. 7–10; Robinson, 2016), where the remoteness and intensity of the work may increase the potential for harassment.

There Must Be Consequences and Mitigating Actions

The initial indicators of the breadth and scope of sexual harassment in academia, and particularly in the STEM disciplines, is alarming and appalling. Fortunately institutions, professional societies, and individuals have a wide range of tools to improve the situation in the geosciences. At the federal level, the National Science Foundation makes it clear they will not tolerate harassment at grantee institutions (NSF Press Statement 16-002), and has established a policy “for any NSF-funded entity that fails to adhere to Title IX, NSF will work with the Departments of Justice and Education to ensure compliance with nondiscrimination laws. NSF may terminate funding to any institution found to be in noncompliance with Title IX regulations and that does not voluntarily come into compliance.” NASA and NOAA have similar policies and enforcement mechanisms.

Sexual harassment is illegal in the workplace, and violations of Title VII (civil rights) and IX (gender equality) are cause for termination of employment. Institutions of higher education are increasingly being held accountable for crafting and enforcing policies to protect the privacy and security of victims, and to adjudicate sexual harassment cases in a timely manner. The workshop discussions emphasized that the academic environment is full of inherent power imbalances and situations ripe for abuse. With this power comes the responsibility for increased vigilance. In an editorial in *Science*, Wood (2015, 487) writes: “it is unconscionable for someone to use academic power to be a sexual predator...” Furthermore, perpetrators of sexual harassment must not be allowed to simply move on to one new institution after another with a clean slate. It is not fair to pass an “in-house problem” on to the next institution (“pass the harasser”; see Flaherty, 2016), and as a community we must work to develop a careful and effective balance between workplace confidentiality and collective security.

Professional societies also need to confront the issue of sexual harassment directly, and establish policies regarding rights, responsibilities, and possible sanctions of members who are found to be in violation. Scientific societies are expected to be the voice of our discipline and to set professional standards, and therefore establishing professional codes of conduct that address sexual harassment is a starting point. Ensuring that members acknowledge and affirm their commitment to these codes of conduct at the time of conference registration (as AGU does now) and/or

membership renewal is the next step. Sanctions for violations could include exclusion from attending meetings, workshops, and other forums sponsored by the societies, and denied access to publication in societies' journals (all of which would provide formidable barriers to avenues of professional development for perpetrators). In addition, because professional societies play a major role in defining the culture and climate of our discipline, we encourage conversations among society leadership and members regarding the role that professional societies may play in helping the students understand the scope of what professional behavior means.

Finally, there are personal actions we can all take directly in our own workplaces to improve this situation. Everyone has the right to a safe, secure, and productive work and learning environment, free from all manner of interpersonal threats. This requires peer intervention over apathy. Silence and neutrality in the face of unprofessional behavior is not an option. Everyone has a responsibility to engage the highest standards of professionalism in all interactions with colleagues and students. These behaviors have to be modeled in our daily lives, and like all skills they can be trained, practiced and improved. Strategies exist for intervening to stop sexual harassment and violence, and we know how to take positive steps to improve workplace climate and equity. We all have an obligation to act affirmatively when unprofessional behaviors arise - for the good of the scientists with whom we work, for the good of the students for whom we are role models, and for the good of our scientific profession.

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