

NAGT-GER Division Annual Report

Report to the NAGT Executive Committee
Geoscience Education Research Division
September 19, 2022

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1. Leadership

1.1. Current Division Officers

Past President: Emily Ward
President: Leilani Arthurs
Vice President: Emily Scribner
Treasurer: Cory Forbes
Secretary: Peggy McNeal
Media Director: Larry Collins
Graduate Student Liaison: Kristen Foley

2. Division Officer terms beginning at GSA in October 2022

Past President: Leilani Arthurs (1-year term)
President: Emily Scribner (1-year term)
Vice President: Chris Mead (1-year term)
Treasurer: Samuel Nyarko (3-year term)
Secretary: Peggy McNeal (3rd year of 3-year term)
Graduate Student Liaison: Kristen Foley (2nd year of 2-year term)
Media Director: Larry Collins (2nd year of 2-year term)

2. Membership

As of September 8, 2022, the Division has 352 members. Our current membership demographics are summarized below.

Gender: 30% men, 53% women, <1% non-binary, and 16% undisclosed.

Race: 5% Asian, 3% Black or African American, 70% White, >1% Alaskan Native or American Indian, and 21% undisclosed.

Disability: <1% learning disability, 1% hearing, 2% mobility, 2% other disability or impairment, 70% no disability or impairment, and 25% undisclosed.

Degree: 1% Bachelor of Arts, 4% Bachelor of Science, 20% Masters, 48% PhD, and 26% undisclosed. Under the category of employment, 12% indicated they are graduate students.

3. Division Priorities for 2021-22 & Progress

Having held its first meeting in July 2014, the Division is now into its eighth year, continuing to carry out the original charge to meet members' needs for competence, community, and agency that support career success (Bruce Herbert, 2014).

To those ends, the Division's priorities for 2021-2022 included responding to members' stated needs and desires at the NAGT-GER Business Meeting in October 2021. Based on community input, the leadership prioritized the following activities:

1. List education conferences on the NAGT-GER website
2. Offer GER-focused workshops
3. Organize graduate student GER mentoring and networking
4. Host discussion on promotion and tenure process for GER faculty

3.1. Education conferences

Thanks to the efforts of Emily Ward and Cory Forbes, the Division now hosts a website that lists education conferences that may be of interest to our members. The aim of the website is to facilitate communication about conferences hosted by other DBER and education research communities and, thereby, support individuals' efforts to collaborate with others beyond our more immediate GER community. The website's URL is https://nagt.org/nagt/divisions/geoed/conferences_interest.html

3.2. GER-focused workshops

The Division supported two GER-focused workshops this year. One was a Writing Retreat and the other was a session on Instrument Validity and Reliability. Both took place at the Earth Educators' Rendezvous in July 2022 in Twin Cities, MN.

Peggy McNeal led a 3-day Writing Retreat for the fourth consecutive year. This year, 12 people participated and worked on a variety of tasks, from manuscript revisions to proposals to dissertation chapters to conference abstracts. Upon completion of the retreat this year, one participant said, *"I feel so relieved, and overwhelmed, but in a positive way. I am overwhelmed with how beneficial this was for me, and I need to continue this practice with NAGT. I enjoyed my time and am very sad that it is already over! I was stuck for so long, and am now confident in my ability to move forward vs the anxiety and dread I was feeling."* The ongoing popularity of this Writing Retreat led EER organizers to hold a permanent spot for the Writing Retreat at future EER meetings.

Leilani Arthurs worked with Ellen Iverson to develop a workshop on Instrument Validity and Reliability. Ellen Iverson and Kerry Vachta, both from Carleton College, led the workshop at the EER. One of the participants shared, *"I thought it was a refreshing review of things I had learned years ago but are so deeply needed in research today."* One member of the EER Planning Committee noted that *"this was a complex topic that was made easier to understand by the facilitator."* The same EER Planning Committee member suggested that, in the future, the GER-focused workshops at EER should offer a pre-EER webinar that serves as a remote Part I to the workshop and then an in-person Part II at the EER because this would help people learn the basics of a GER topic and build upon their pre-existing knowledge while at the EER.

3.3. Organize graduate student GER mentoring and networking

Kristen Foley hosted a recurring writing event for graduate students during summer 2022. The event was an informal weekly meeting on Fridays to write together. Unfortunately, no one participated in the weekly writing meetings.

3.4. Host discussion on promotion and tenure process for GER faculty

Leilani Arthurs with input from the leadership team is in the process of planning two interactive *Zoom* panel-based events for Division members to learn more about promotion and the tenure (P&T) process for GER faculty at different institutions. One will be in early November 2022, and the other will be in early December. At these events, panelists will share their experiences with P&T processes; attendees will have the opportunity to ask questions they have of the panelists; and there will be small group networking opportunities in *Zoom* breakout rooms. Two events are being planned to increase opportunities for interested Division members to participate. Each event will about different panelists from different institutions.

4. Other Division Activities

4.1. Networking Event

In addition to contributing to two GER-focused workshops at the Earth Educators' Rendezvous in July 2022, the Division also hosted a networking event at Dual Citizen Brewing Company in the evening of July 13, following the last day of the 3-day Writing Retreat. This casual event was organized by Kristen Foley and Emily Scribner, and it was hosted by Kristen Foley. Attendees sat outside under a tent with picnic tables and enjoyed catching up with old and new friends. Kristen estimates about 50 people attended the event throughout the evening. Some came for a short while, and others stayed after she left for the night. She received feedback from several attendees about "how nice it was to have a small gathering for our community" and there being interest for the event to happen again in the future.

4.2. Professional Meetings

The Division continues to lead, sponsor, and plan GER-focused conference sessions. These sessions mainly take place at regional and national conferences. The conferences are primarily hosted by the Geological Society of America (GSA) and the American Geophysical Union (AGU).

The Division has hosted a GER-focused topical session at GSA's annual conference since 2015. This GSA topical session is titled "Making Sense of Methodologies and Theoretical Frameworks in Geoscience Education Research," and it has become a reliable venue for GER scholars to discuss their research, network, and identify potential collaborators at the annual GSA meeting. Since our last division report, the GER Division officers chaired a GER session at the 2021 Annual Fall Meetings of GSA and proposed another GER session that was accepted for the 2022 meeting.

The GSA 2021 fall meeting was held in Portland, OR, with some options for remote participation. Only one of the NAGT-GER officers, Peggy McNeal, was able to attend GSA 2021 and chair the GER-focused topical session in person due to the ongoing COVID-19 pandemic. Our topical session was live streamed, and attendees could join remotely or in person.

At GSA 2021, our session comprised 15 oral presentations (two were withdrawn) and eight poster presentations. Seven of the oral presenters delivered their talks in person, and six of them delivered recorded talks and attended virtually. Although we planned to have two invited speakers, Anita Marshall (Lecturer, University of Florida) ended up being the sole invited speaker for the session. Peggy estimates that there were about 15 attendees in the physical conference room at any one time and estimates a total of 30-40 people attended the session (in-person and remote attendees combined).

The upcoming GSA 2022 fall meeting will be held in Denver, CO, with some options for remote participation. The Division's technical session comprises 14 oral presentations and 0 poster presentations. The two invited speakers for the session include Ian Castro (Graduate Student, University of Cincinnati) and Kelly Lazar (Assistant Professor, Clemson University). Again, this year, only one of the NAGT-GER officers, Leilani Arthurs, will be able to attend GSA 2022 and chair the GER-focused topical session in person. At the time of this report's preparation, it is not yet known how many presenters will deliver in-person or remote talks.

For GSA 2022, GSA's Education Division initiated a new topical session on GER that is titled, "Iris Moreno Totten Research in Geoscience Education Session." Early career and student presenters in this session will be considered for the Geoscience Education Division's Totten Award. When we learned of the new GER session, we reached out to the GSA Education Division's Doug Czajka to determine whether presenters in the NAGT-GER Division's topical session could also be considered for the award. He said that this year it would not be possible, but that perhaps it would be in the future. This is a matter that the NAGT-GER leadership team should pursue, to help ensure that GER scholars who present in the NAGT-GER's topical session are also considered for GSA's GER-related award.

To support the communication and dissemination of information about GER methods and theoretical frameworks widely, we continue to share the schedule for the NAGT-GER Division's GSA topical sessions and archive presenter's public contact information and slides (when permission is granted) on our website at: <https://nagt.org/nagt/divisions/geoed/methods>.

The Division also sponsored four additional topical sessions at GSA 2021, is sponsoring five additional topical sessions at GSA 2022, and is sponsoring two sessions at AGU 2022. The sessions address, for example: 2YC and 4YC student research in geoscience, improving student learning outcomes in geoscience education, leveraging virtual spaces for geoscience education, mining AGI data to understand the geoscience education landscape, Earth and space science education research, and characterizing science identity in K-college students.

As in past meetings at GSA, the three divisions (GER, TED, and Geo2YC) coordinated our schedules for 2021 and 2022 so that our meeting times did not overlap and people belonging to multiple communities could attend multiple business meetings.

4.3. Mentoring Directory for GER Community

In the spirit of creating new pathways to support the GER community, Leilani Arthurs and Peggy McNeal are working to identify mentoring-related needs and gauge community interest in a possible mentoring directory. The mentoring directory would allow members of our community at different stages in their education and careers to receive mentoring from members of our community, serve as a mentor to colleagues in the community, or be both a mentor and a mentee. To facilitate the development of the mentoring directory as well as mentoring-focused events, we

developed a survey to gauge the GER community's interests in receiving mentorship and being a mentor. All members of the Division have access to the survey via a link included in the September 2022 newsletter and a personal email message sent by Leilani.

4.4. External Communications

We continue to send out our Newsletter (the GER Exchange) to members on a monthly basis from September to December and February to April. Each newsletter includes job and funding opportunities, highlights a research article, promotes relevant webinars or other professional development opportunities, and advertises sponsored sessions or events. We also continue our "Spotlight" feature to highlight the type of work done by various researchers in the community, including recent profiles of Zo Kreager, Susan Meabh Kelly, Peggy Mansfield McNeal, and Nicole LaDue. To view past newsletters, visit the archive at <https://nagt.org/nagt/divisions/geoed/archive>. A full list of "Spotlights" can be found at <https://nagt.org/nagt/divisions/geoed/spotlight>.

This year, the Media Director position also took on the responsibility of being the primary moderator for the listserv. The primary purpose of this moderated listserv is to facilitate the sharing of GER-related opportunities (job announcements, workshops, etc.). Listserv communications will be posted as they are reviewed or will be aggregated and sent on a weekly basis if the communications traffic increases.

In collaboration with NAGT, we continue to use a more formalized events and sessions sponsorship request policy and process for events and sessions, outlined at https://nagt.org/nagt/about/ger_sponsorship_policy.html. This has been streamlined so that NAGT members use the same form to request sponsorship from both NAGT and GER.

4.5. Internal Communications

The Division continues to use and update two internal tools we established in 2018, an archive and an annual calendar for the leadership team. We created these tools to prevent the loss of institutional memory as individuals complete their terms and new members fill those positions. The archive includes annual and financial reports, annual business meeting agendas, e-mail templates, logos, session proposals, flyers and surveys. The annual calendar is organized by officer and category. These categories include meetings and sponsorship timeframes, newsletters, elections and NAGT, awards, and finances. The calendar reflects official obligations represented in the by-laws, as well as more pragmatic deadlines that facilitate those obligations. The calendar has been so useful that we were asked to share it with other NAGT Divisions last year so they could develop similar calendars for their officers and activities.

4.6. URGE

Emily Ward spearheaded efforts to implement policies and procedures aligned with the Division's involvement with the NSF-funded Unlearning Racism in the GEosciences (URGE) project. Implementation of any Division-level policies and procedures was hindered by not knowing whether the Division could make changes without consultation of the national NAGT office. In May 2022, Emily was invited to a DEI meeting with NAGT and other NAGT section representatives to talk about what NAGT focused on over the past year and to ask the question about autonomy in developing and revising policies for the Division. Up until that time, NAGT

focused on developing an URGE website for education but had not tackled policies. The national office seemed open to continuing to meet with Division and Section representatives to work collaboratively on shaping policy and procedures. The Division will implement evaluation rubrics for a newly revised awards portfolio to make the review process more equitable (see Section 4.7 of this report for additional details).

Anne Egger (NAGT's Executive Director) asked Emily Ward to be one of NAGT's representatives at Geosciences ASCEND RCN (Geosciences Associated Societies Committed to Embracing and Normalizing Diversity Research Coordination Network) meetings. Geosciences ASCEND RCN is an NSF-funded project run through GSA that engages representatives from different professional societies in conversations about how to intentionally broaden participation, acceptance, and inclusion of diverse populations. Emily will report take-away points from these conversations, to help inform the GER Division's efforts to develop and revise policies and procedures to be more equitable and inclusive.

4.7. Awards

Of the four different awards currently offered by the Division, three different awards were awarded to a total of five individuals this year. There was one nomination for the Collaboration Award; however, no award was made. There was one nomination for the Transformation Award, and it was awarded to Karen McNeal of Auburn University. There were four nominations for the Early Career Award and two awards were made, one to Katherine Ryker at the University of South Carolina and the other to Alison Jolley at the University of Waikato. Lastly, there were two applications for the Emerging GER Scholars Award and two awards were made, one to Annie Klyce at the University of South Carolina and one to Collette Wilfong at the University of Colorado at Boulder.

The Division is currently updating its awards portfolio to (1) focus on recognizing mainly active members of the NAGT-GER community at different stages in their career trajectory for their contributions to GER and the GER community; (2) develop standard operating procedures that streamline and support the equitable and timely review of nominations/applications; and (3) more fully engage members of the community in the review process.

4.8. Finances

As established in 2018, the GER division account is nested under the NAGT main account. The treasurer submits expenses to the NAGT executive office for payment. For the year ending 2022, NAGT GER received \$2579.37 in member dues and \$60 in additional revenue. GER awarded 2 Emerging Scholars Awards, each at \$500 (\$1000 total expense). GER's beginning account balance was \$8,569.83 and ending account balance stands at \$10,209.20.

5. Goals for Future Work

See next page.

5. Goals for Future Work

5.1. Goals for future work in the Division

Goals for future work in the Division attend to its internal operations for the sustainability of Division activities. These goals include the following.

- 5.1.1. Preserve the institutional memory of the Division and aid with onboarding individuals into new leadership positions by updating the calendar and archiving procedural information.
- 5.1.2. Refine leadership positions' roles and responsibilities as the Division's work expands.
- 5.1.3. Provide mutual support and internal peer mentoring among all members of the leadership team, whether returning or new to the team.
- 5.1.4. Cultivate new leadership through outreach activities (e.g., inviting them to serve on Division committees, be guest speakers at the Division's GSA technical session, etc.).

5.2. Goals for future work by the Division

Goals for future work by the Division address work currently in progress as well as new undertakings for the upcoming year. These goals include the following.

- 5.2.1. Build mentoring capacity for career growth among Division members, while advancing teaching and research in geoscience education. This includes but is not limited to developing a mentoring network and hosting mentoring activities (which may take place over *Zoom* and/or at AGU, EER, GSA, etc.).
- 5.2.2. Develop a coherent awards portfolio that emphasizes the developmental growth of Division members along their career trajectory by restructuring existing awards to recognize outstanding GER scholars at different career stages. This involves revising the award descriptions, developing rubrics for the equitable review of award applications or nominations, and ensuring alignment between award descriptions and review rubrics.
- 5.2.3. Showcase and publish theoretical/methodological frameworks in GER that might be new or innovative to a broader audience. This involves publishing a GSA Special Paper on GER based on presentations delivered at the Division's GSA technical session over the past few years on Making Sense of Methodologies and Theoretical Frameworks in Geoscience Education Research.
- 5.2.4. Facilitate interinstitutional conversations on GER. This includes but is not limited to hosting a monthly GER journal club.
- 5.2.5. Cultivate cross-DBER pollination of ideas. This includes but is not limited to participating in UNL's X-DBER conference if UNL hosts one again.

6. Concluding Thoughts and a Welcome

Serving the Division over the past several years, first as Secretary then Vice President and President, has been a source of joy in my career. I am grateful for the trust that the GER community placed in me and proud of what we have been able to accomplish together. When I joined the Division's leadership team in 2017, it was only three years old, and the next few years saw the Division flourish with leaders excited to forge a new community around GER. In 2020, the COVID-19 pandemic and reinvigorated awareness about social justice issues challenged the Division's leadership to think in new and creative ways about how to support, engage, and

communicate with its members. Through it all, each year, the leadership team with new and returning members, was an important part of my extended family.

The support we extended to each other helped us to be a stronger team, one better positioned to support the Division and GER community. I am thankful for the leadership team members with whom I had the opportunity to serve. When I reflect on the past several years of my work within the GER community, our interactions are among those that I think about most fondly. I extend special thanks and farewell to Emily Ward and Cory Forbes who are rotating off the team this October. Emily served as the Division's first Media Director for a year before moving into the presidential line. Cory served as Treasurer for three years. I am thankful for their camaraderie and steadfast leadership.

To my colleagues who will remain on the leadership team – Emily Scribner, Larry Collins, and Kristen Foley – thank you for your ongoing commitment and dedication to fulfilling the Division's charge. I also extend a warm welcome to Chris Mead (incoming Vice President) and Samuel Nyarko (incoming Treasurer) who will join the team this October.

As I enter the role of Past President this October, I look forward to continuing to support our Division's leaders and the ongoing growth of our GER community!

Leilani Arthurs, on behalf of the 2021-2022 NAGT-GER Division Executive Board:

President Leilani Arthurs, University of Colorado at Boulder
Past President Emily Ward, University of Colorado at Boulder
Vice President Emily Scribner, Clemson University
Treasurer Cory Forbes, University of Texas at Arlington
Secretary Peggy McNeal, Townson University
Media Director Larry Collins, Delta State University
Graduate Student Representative Kristen Foley, Western Michigan University