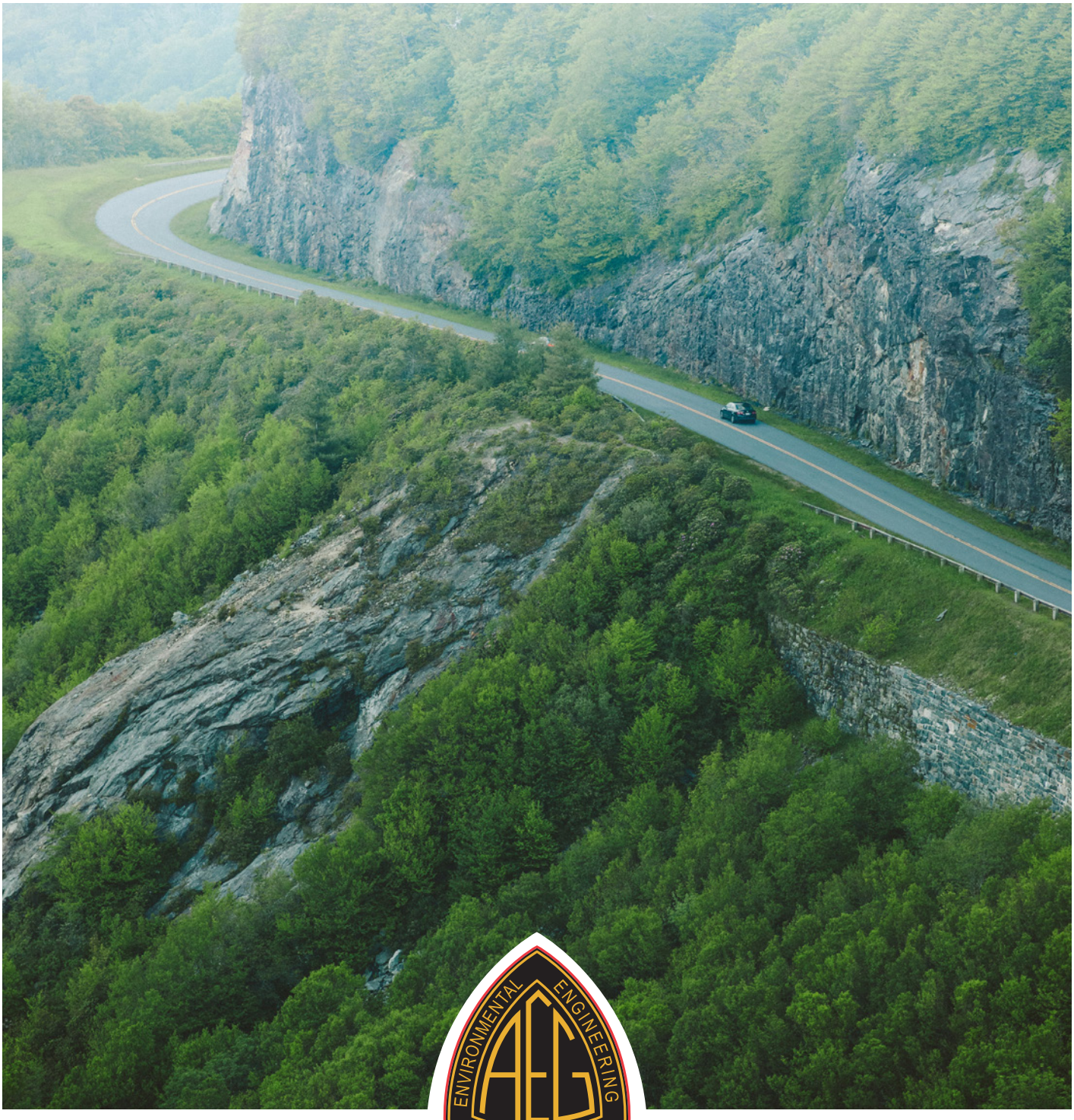
AEG NEWS

SPRING 2025

Association of Environmental & Engineering Geologists



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ON THE COVER
Winding road of the blue ridge parkway in the Appalachian mountains near Asheville, NC
Photo © Wes Hicks

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Andrea (Andie) Ptak, Production Editor and Designer, 2003–2023

Allie Boman, Production Editor

Whitney Larson, Graphic Designer

Greetings, AEG members! Welcome to the Spring issue of the venerable *AEG News* and its fresh new design. I am Allie Boman, this publication's production editor; my colleague Whitney Larson is its graphic designer. We serve together as members of Boman Communications (previously known as Boman Editing). It has been a sincere pleasure to work closely with Bill Roman, content editor, and Martha Whitney, acquisitions editor, to prepare each issue since the start of 2024.

I am a science writer and editor with a focus on public health and environmental science. Before establishing my comms business, I served as communications director for a nonprofit for 15 years. I live in the Chicago area with my husband, four kids (ages 8–15), and a sweet dog.

Whitney is a graphic designer with 20 years' experience serving research organizations, nonprofits, and businesses. She divides her time between Chicago and Vancouver, and enjoys outdoor adventures as well as the city life.

Our predecessor, Andie Ptak, had been production editor for *AEG News* for 20 years before she began battling cancer and needed to retire. Andie took the time to interview and select us as her replacements, and she showed us the ropes through several Zoom meetings. Very sadly, she passed away in July 2024—during a year of many significant losses for AEG.

Before she left, Andie charged me and Whitney with a special task. She felt it was time to refresh the newsletter's design, which she created about 15 years prior. It needed modern colors, fonts, and layouts, and importantly, it needed to be converted to industry-standard software. She advised us to present this project to the Board of Directors, which we did in September 2024. This issue, as far as it depends on us, is dedicated to Andie.

After board approval, the redesign project took several months, during which we continued to produce regular issues. We started with a discovery call with Bill and Martha, and with Past President Sarah Kalika and President Renee Wawczak, plus Evelyn Neale, AEG's association manager. We very much enjoyed getting to know each of them during this process.

All agreed that we wanted to uphold the dignity and professionalism of this respected publication while reflecting modern aesthetics and connecting with the next generation. Whitney produced multiple iterations of color schemes, fonts, and layouts, and invited the AEG team to give feedback and shape the end product.

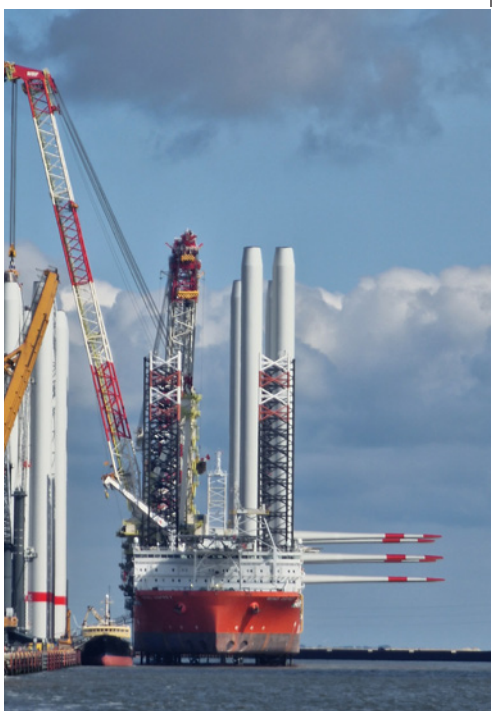
As you enjoy this issue—which features updates from several AEG chapters, committees, and technical working groups—please think of the faithful years of service given by so many who have made this organization, and *AEG News*, what it is today.

AEG News has a fresh new design! Enjoy easy-to-read layouts and lively colors. Built to connect, inform, and inspire AEG members.

Notes from the North Sea

In this issue: spring renewal, member stories, and geoscience pride **By Martha Whitney, AEG News Acquistions Editor**

[Right} Wind turbine transport
[Below] Salmon fishing on Kodiak Island



Greetings, the last time I wrote for this space was in November for the 2024 Winter edition. I wrote from a vessel carrying out geotechnical drilling to support foundation design for Norway's first offshore wind farm in the North Sea. The night shifts were long and dark, and everything seemed hard and heavy. Six months later, I find myself here again, still with 50 m of drill string in the seabed, still sampling. But the days (working day shift) are long, and while those chilly winds still blow, the sun is shining and the weather is (almost) sweet. Spring is upon us, and we are celebrating with a new look for *AEG News*. We dedicate this issue to Andrea Ptak with love.

This issue reflects immense enthusiasm and dedication for our profession, our science, and our lives. These are the qualities AEG members bring to the table and share with their communities and the greater public. This issue highlights our members' important work on many fronts. It is my hope that with this rollout, we inspire readers to become more involved in the association. Inside you will find updates from a broad spectrum of technical working groups, operational committees, and chapters. Now more than ever, we need to speak up and reach out, promoting geoscience as a public safety imperative (see Jenn Bauer's article on Helene landslides and Bill Roman's contributions to the legislative landscape section).

Member news is all about literature and travel! Lucky Loren Lasky visited John McPhee at his home in Princeton, NJ. I got the chance to catch up with Deb Green and discuss her novel *No More Empty Spaces*; Isaac Pope provides the who, why, and how of writing book reviews; and Luke Ducey provides some pro tips for the traveling geologist.

Reading the obituaries in this edition, I feel a sense of sadness for our losses, but also inspiration. An opera singer and Terzaghi Lecturer, a Sagamore of the Wabash and Rotarian, an antiwar activist and professor emeritus! These guys are forever legends, and their impacts wide reaching. My husband, Beau, was a Carver student, and over several summers of mapping Kodiak Island's glacial stratigraphy, Carver became something of a family member. I had the opportunity to spend time with Gary and Deborah at their home on Kodiak Island.

These close relationships are the foundation of our academic, professional, and sometimes, if we are lucky, personal lives. The AEG community is built on the same foundation. Together we work to fulfill our mission: contributing to members' professional success and the public welfare with leadership, advocacy, and applied research in environmental and engineering geology.

Thank you to all who contributed to this edition of *AEG News*. I hope readers find it informative, fun, and inspiring!

AEG News Springs Fresh Look

Introducing a brand new look for our newsletter—plus, join us this September in Chicago for symposia, field courses, and a river cruise **By Renee Wawczak, 2024–25 AEG President**

Spring is here, or beginning to emerge in most of the U.S. I hope that wherever you are, you've been able to get outside and enjoy some fresh air! Spring always feels like a time for new beginnings and updated appearances—which is why it's the perfect time to unveil the redesign of our very own *AEG News*! Our team from Boman Communications worked very hard to bring together the ideas and suggestions of our newsletter editors, communications committee, and ad hoc redesign committee to produce our fresh new look! We wanted to honor our past with a fresh look moving forward. I hope you enjoy the new look and feel of our publication as much as I do. Look for these elements in other forward-facing areas of AEG, as we work to integrate this look for a cohesive look and feel to our association as part of our ongoing strategic plan.

As I'm writing this article, I'm also mentally packing for my trip to Northern California in just a few short days to meet with chapters and universities in that part of the world. If you have room for me (in-person or virtually) in your meetings calendar, please reach out to me at president@aegweb.org and hopefully we can get something set up! I currently have in-person availability in July, August, and September. If you want a virtual visit, I am certain we can fit in something that will work for your meeting schedule.

Keep an eye out for announcements for our 2025 annual meeting being held in Chicago this year! Be sure to submit your abstract for virtual or in-person presentations ASAP. We have an excellent lineup of technical symposiums and field courses, and we have brought back a short course this year! The short course will be held on Friday morning, so it doesn't compete with our excellent field courses. And of course, make sure you sign up for our special event, an architectural cruise on the Chicago River. This is rated as one of the top things to do in Chicago, so don't miss it! (As a confession, even though I've lived in the Chicago area my entire life, I have never been on this tour, so I am very excited to finally check this one off my list.) Our Young at Heart event is open to all and will be held at the famous House of Blues, located just across the street from our beautiful meeting hotel. And consider making this an extended break and bring along a travel partner—we also brought back guest tours this year, and I think they'll really enjoy the options that AEG has put together! I hope to see you all there!

[Opposite Page] Renee enjoying a beautiful day in Grand Cayman

[Left] Hiking at Florissant Fossil Beds National Monument in Colorado

Professional Forums/ Symposia and Webinars

Upcoming events cover volcanic hazards and dam foundations **By Paul Weaver, AEG Vice President 2024–25**

Defense walls around Grindavík worked wonders and averted catastrophic damages. *Photo © Rafn Sigmarrson*

Professional forums/symposia and webinars are significant means of AEG outreach that enable us as an organization to provide technical advancement opportunities to the geoscience community along with providing professional development hours (PDHs) for professional licensure. They are also important supplements to the dues paid by members, our annual meeting, and sponsorships as sources of income to the organization.

Professional Forums/Symposia

Professional forums/symposia organized under the AEG name can range in scope from partial day specialty meetings to multiday events. Affiliation with the national-level AEG organization has many benefits including advertising, access to larger numbers of potential attendees, name recognition that comes from the positive reputation of AEG, and assistance and oversight to ensure a successful event.

The AEG 2025 Virtual Volcanic Hazards Symposium to be held this spring from April 28–30 and the AEG Risk Assessment for Dam and Levee Foundations Workshop to be held in Denver on November 4–5 of this year are two upcoming AEG forums/symposia. These are also great examples of the types of forums/symposia that can be done because one will be entirely virtual (online) while the other will be in-person.

In addition to providing important income to all of AEG, hosting these events can provide income to the hosting group (usually an AEG chapter, region, or technical working group). Should the event generate a monetary surplus, a significant portion of this surplus goes to the sponsoring group. In exchange for a portion of any surplus generated, AEG provides assistance during the planning process and during the event itself to make things easier for the hosting group. This assistance usually includes helping select and secure the venue (for in-person events), reviewing and signing contracts with the hotel and vendors, handling registration, marketing the meeting, and a myriad of other things that go into planning and hosting a forum/symposium.

If your group is interested in hosting a professional forum/symposium, please contact manager@aegweb.org or vp@aegweb.org.

Affiliation with AEG has many benefits including advertising, access to larger numbers of potential attendees, and the name recognition that comes from the positive reputation of AEG.

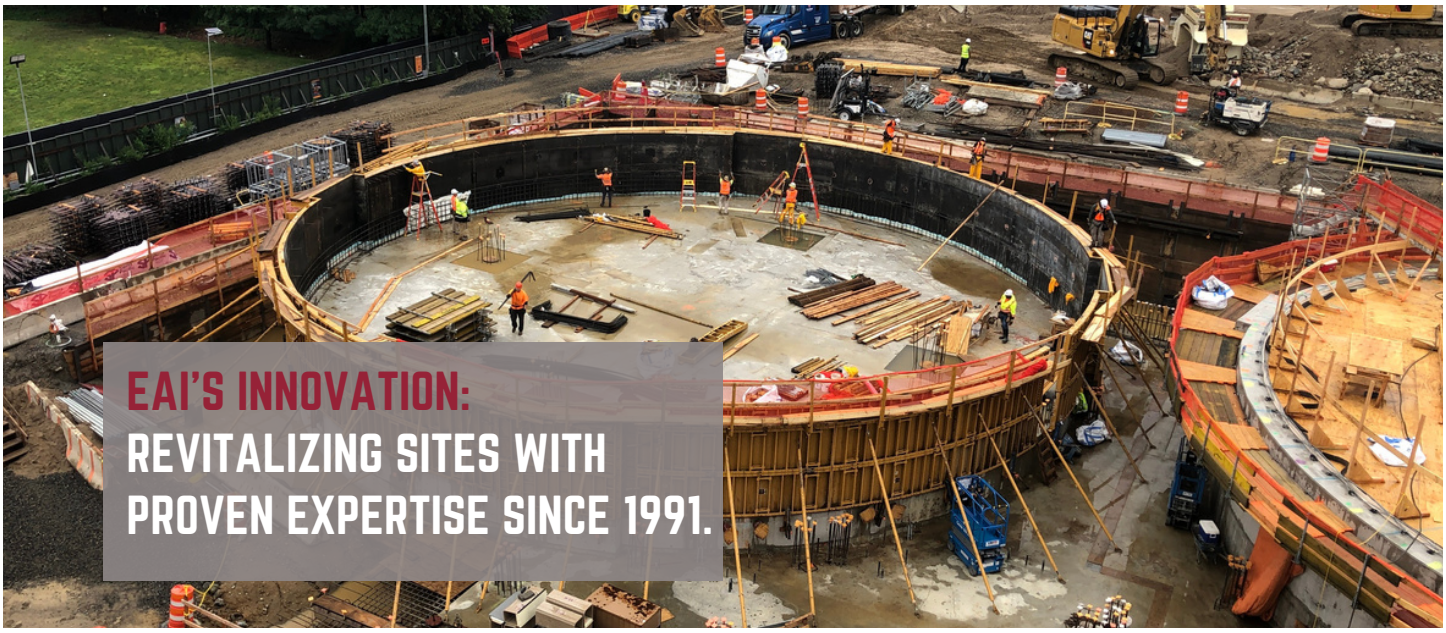
Webinars

AEG is always looking for webinars to host and post on the AEG website. Webinars can be about any subject that may be of interest to our membership or the geoscience community at large. They can feature one presenter or several presenters. The presenter(s) chooses a subject for the webinar in which they have expertise, puts together a slide presentation, then presents virtually. All webinars are recorded and posted to the AEG website to be viewed later. A typical webinar runs about an hour in length. They are free to AEG members and cost $20 for non-members. Upcoming webinars are advertised by AEG, and we welcome the presenter(s) to advertise as well.

Past AEG webinars have included subjects as varied as "BoreDM—How to Generate Building Information Modeling (BIM) and Model-Based Deliverables," "How Climate Change Impacts Infrastructure," "How to Prepare and Strategize for the ASBOG," and "Navigating Through School and Internship." AEG members may view past webinars by visiting the webinars webpage (https://www.aegweb.org/webinars), or by clicking the conferences and webinar tab on AEG's website.

If you would like to put on a webinar, please fill out the "Association Webinar—Speaker Information" form available at https://aeg.memberclicks.net/assets/Webinars/Request-Webinar-Form-Association.pdf. The form will ask you to choose a date and time, then provide information regarding the webinar subject and presenter(s). If you have any questions, please reach out to manager@aegweb.org.

In order to provide timely technical information and life skills to our membership—in addition to providing ample opportunities for members to earn PDHs—AEG leadership has set a goal of hosting one webinar each month. We are currently falling far short of this goal, so your assistance in sharing your expertise with other AEG members and non-members by putting on a webinar will go a long way in helping us achieve our webinars goal.



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AEG's TWGs Need Your Help

A prime opportunity for early career professionals and seasoned geologists alike **By Sarah Kalika, 2024–25 Past President**

Dams and Levees TWG will hold a workshop on November 4–6, 2025, in Golden, CO | *Photo © Brian Haux*

As your immediate past president, my job is not yet done! During the year following presidency, the past president is tasked with being a liaison to our technical working groups (TWGs). I attend calls with our active groups, reply to emails from members interested in connecting with a particular group, and assist with resources for those who want to build up an existing group or start a new one.

The primary goal of our TWGs is to facilitate knowledge among members interested in a topic. TWGs put together symposia at the annual meeting, publish blog posts, and provide speakers for webinars. Additionally, we support TWGs in planning virtual or in-person forums. We have several forums coming up and symposia planned for the annual meeting.

AEG's Geologic and Seismic Hazards TWG is planning the Volcanic Hazards Virtual Symposium, April 28–30, which will focus on research and advancements in identifying and evaluating potential volcanic hazards. All sessions will be recorded for registered participants to play back. For more info on the speaker lineup and how to register: https://www.aegvolcanicsymposium.org.

The Dams & Levees TWG is planning a Risk Assessment for Dam and Levee Foundations Workshop, November 4–6, in Golden, CO. This event will be in person and feature 3 days of amazing speakers and opportunities for collaborative learning, with a format designed to immerse you in the risk assessment process. Don't miss this outstanding opportunity to advance your skills! For information and how to register, visit https://www.aeg2025riskworkshop.org.

Our Environmental TWG is planning sessions and symposia for the annual meeting this year on topics including PFAS, site characterization, groundwater resources, and data management. If you have a presentation that you would like to submit, this TWG is welcoming abstracts through the annual meeting abstract submittal portal until May 1.

The Land Subsidence TWG is reaching out to experts for this year's Land Subsidence Symposium during the annual meeting in Chicago and is planning a full-day symposium featuring worldwide experts.

Our Landslides TWG is also planning several sessions and symposia at the annual meeting this year, and is starting to plan Landslides Super School, which is proposed to be held in conjunction with the 2026 annual meeting in Chattanooga. Stay tuned!

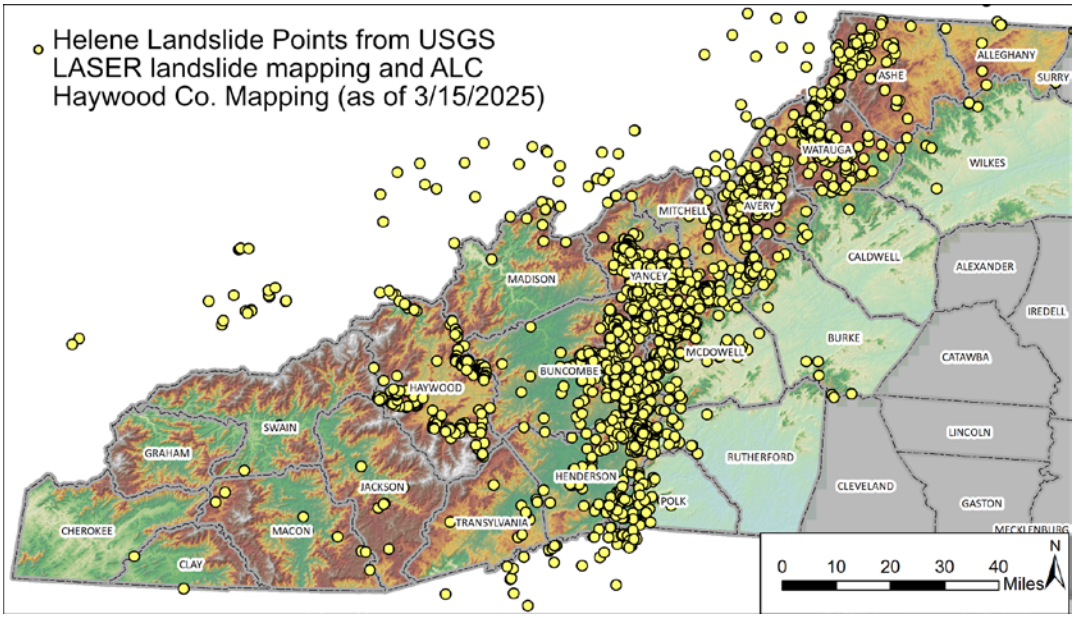
Most TWGs meet regularly and could use your help! For early career professionals, your involvement can provide insights into what geologists are doing across the country. For seasoned professionals, your expertise is extremely valuable.

We all know that our work is important, but what's more important is communicating this knowledge to students, early career and seasoned professionals, and the public. AEG's TWGs are a fantastic way to make your mark in our industry and give back to those who will follow. For more info, contact me at pp@aegweb.org!

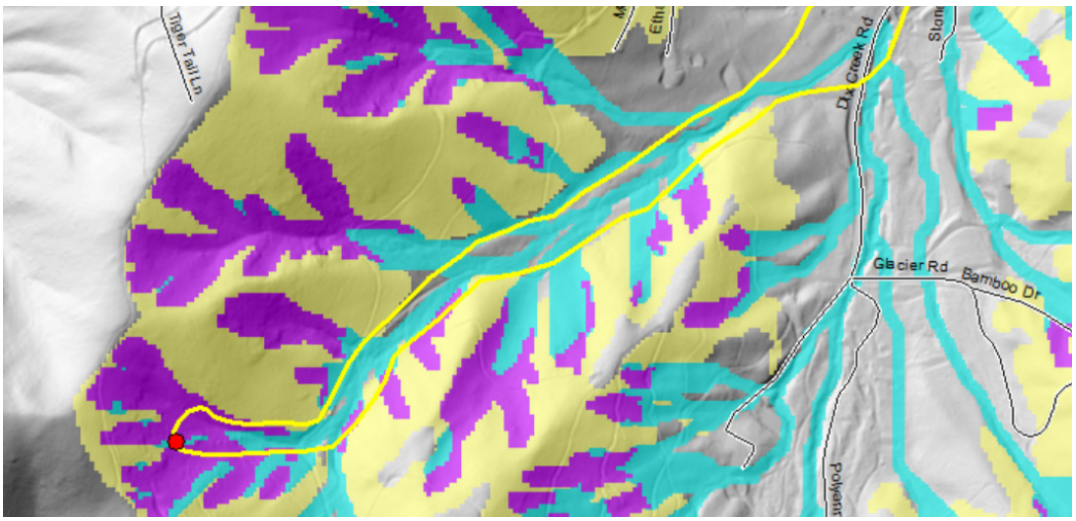
Hurricane Helene and Landslides in Western North Carolina

An AEG past president chronicles geological aftermath, landslide analysis, and the critical need for community awareness and preparedness

By Jennifer Bauer, PG, Principal Geologist and Co-owner, Appalachian Landslide Consultants, PLLC



Landslide geologists mapped over 2,000 landslides in Western North Carolina post-Helene



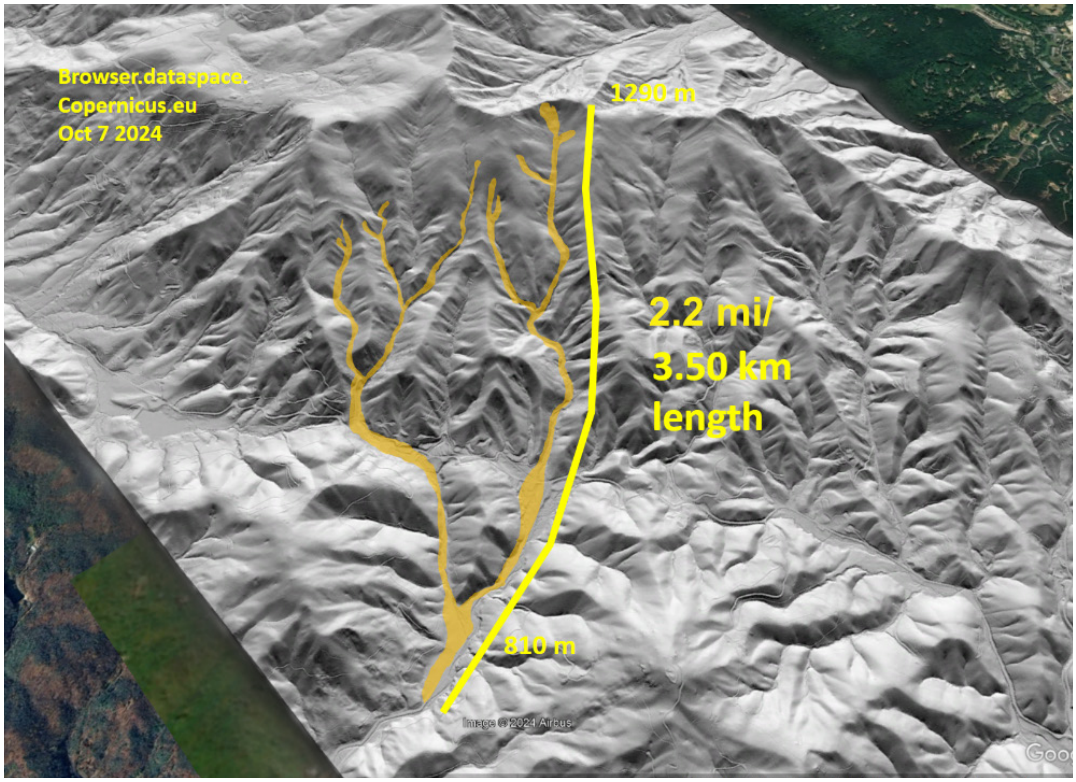
Dix Creek Haywood County debris flow on ALC landslide susceptibility model and 2017 lidar hillshade

Now, having lived through a natural disaster of record, I know that everyone like me has a disaster story. My Hurricane Helene story started days before the storm hit. My husband, Brian, and I both work as geologists and always pay attention when the National Weather Service issues warnings—we know those warnings may impact us both professionally and personally.

Five days before the storm, Brian suggested that I fill my car's gas tank. Three days later, early on Wednesday morning, I watched the rain streaking down my office window, then turned to the USGS flood predictions on my computer screen. When I saw that flood levels were predicted to be higher than the 1916 storm (at the time, the storm of record), I knew Helene was going to be bad. Based on those predictions, at my Rotary Club's meeting later that morning, I warned anyone in the Biltmore Village area adjacent to the Swannanoa River to be ready to evacuate. Early on Thursday, I made the decision to cancel my talk for the AEG Carolinas Chapter that evening, not wanting attendees to drive in the heavy rains already falling in advance of the hurricane's landfall. Friday morning, as Hurricane Helene was downgraded to Tropical Storm Helene, I watched as the trees behind my neighbors' houses swayed, then broke one by one, snapping like so many twigs. When the rain subsided and the winds began to die down, Brian and I and our neighbors gathered outside to talk about what we'd witnessed.

Little East Fork debris flow in Haywood County

The North Carolina Department of Transportation activated a team, of which Bauer's company was a member, to **quickly inventory failed slopes and impacted roadways in multiple counties.**



[Left] Debris flows traveled thousands of feet, and some traveled over 2 miles. Craigtown debris flows on oblique 2017 lidar hillshade basemap

[Right] ALC used satellite imagery to identify landslide locations. Craigtown debris flows on Sentinel Oct 12 2024 imagery

Being a landslide geologist, the site Brian and I had chosen to purchase in 2005 was well above the flood level and not in a landslide hazard area, and our home came through the storm unscathed. Many in western North Carolina (WNC) would not be so fortunate.

Only one house in our neighborhood sustained damage from falling trees. We lost power for only four days; some in the region were without power for more than a month. We never lost water, while some did not have water for six weeks. Though most communications were down, I walked down to the French Broad River and found one small spot with cell signal. It was enough to get a text out to let our families know we were safe. As I stood at that spot, on the very edge of the floodplain, which was completely inundated by 8 to 10 feet of water, I watched one of the riverside cabins detach from its foundation and float downstream. I stood there, transfixed, until it was caught by the trees several hundred feet away.

I knew the regional damage had to be disastrous, but with no means of finding out, I was unaware of the depth of suffering for three days. Along with our neighbors, Brian and I huddled around a hand-cranked radio to try to get local news and updates from government officials.

On the Tuesday after the storm, I was able to get online, and the emails and phone calls poured into our company, Appalachian Landslide Consultants, PLLC (ALC). It was time for this landslide geologist to get to work—some of the hardest and most emotionally taxing of my 20-plus-year career.

Post-Helene Landslide Work

The week after the storm, the USGS organized phone calls among state and other local interested parties to open lines of communication. They created the Hurricane Helene Landslide Observations Dashboard, an online landslide database that could be used for emergency response and recovery efforts (https://www.arcgis.com/apps/ashboards/01b4f51fc0b64002bf7722a9acfc181d). A team of landslide experts with remote sensing experience from around the region was assembled to begin mapping landslides off of post-hurricane satellite imagery and from media accounts. The database includes “flagged landslides” that indicate places where greater than two homes or other critical structures may have been impacted.

The North Carolina Department of Transportation (NCDOT) activated a team, of which ALC was a member, to quickly inventory failed slopes and impacted roadways in multiple counties of WNC. All of these data went into an ArcGIS online geodatabase. ALC was already under contract to evaluate rock and soil slopes for a Geotechnical Asset Management (GAM) project prior to the hurricane, and the team was quickly trained and ready. In just over a month, the NCDOT team collected site data and provided general mitigation recommendations for over 1,100 impacted slopes. These locations were included in the NCDOT GAM slope rating database, which can be used to prioritize slopes for mitigation.

In addition to the NCDOT work, the ALC team also responded to requests by Yancey County Emergency Management and over 100 private clients; and calls continue to come in. Through a grant from the USGS National Landslide Risk Reduction Grant Program to the North Carolina Geological Survey (NCGS), ALC has funding to conduct landslide mapping, planning, and coordination, along with education and outreach in Haywood County, North Carolina. In conjunction with that work, ALC has been responding to requests to visit Helene-triggered landslides from the NCGS and Haywood County officials.

Through our work with these projects, we have encountered some of the sweetest, most humble people in our community. We have heard the stories of people who rode out the landslides that hit their homes and survived. We have multiple examples of near-misses, where a debris dam or pile of boulders diverted the debris flow at the last minute from hitting a home dead-on. In some cases, people were not as fortunate. To date there have been 23 fatalities attributed to landslides in WNC. In some cases, the homes of these people were not impacted, but people had come out of their home, perhaps due to curiosity or to investigate the rumble they heard, only to be wiped off of their deck or their yard by a debris flow.

While the USGS landslide map viewer attributes just over 2,000 landslides—including more than 1,000 flagged landslides—to Helene across western North Carolina, northern South Carolina, eastern Tennessee, and southwest Virgina, there are likely thousands more. For every USGS point I have seen in the field, there are usually two or three others that were not included on that map. Personally, I've seen over 200 Helene-triggered landslides.

Many of the debris flows we have visited initiate within the ALC susceptibility model area called "Where Natural Debris Flows May Start." They often follow the pathway of the modeled area indicating where natural debris flows may travel. It saddens me to know that we had the models that showed the hazard zones but did not have the community awareness or means to communicate that people in these zones needed to evacuate. This is one of the biggest opportunities for improvement I see for my community.

We have seen a variety of landslide styles due to the heavy rains of Helene. Some areas of WNC received close to 30

French Broad River flooding and floating cabins in woods

More than 1,000 landslides were flagged as significant, indicating that more than two homes or other critical structures were likely impacted

inches of rain. A comprehensive database of all of the Helene landslides is still in the works. Based on the work of the ALC team, the dominant type of landslide is debris flows. Many of these have traveled thousands of feet, and some over 2 miles. Many coalesced with others in adjacent drainages in the same small watershed, creating debris flow pulses along the small creeks. In one case in the Craigtown community, the debris flow occurred in at least three pulses. Unfortunately, one of the first responders tried to get to a home after one of the debris flow pulses and was killed by the next pulse that came down. That community had 13 fatalities with 11 of those within one family. The power and extent of these debris flows is greater than any I have seen in my 20-plus-year career of landslide mapping. Some of them have crossed ridges rather than going around them. Others completely obliterated homes or crushed them against trees and other structures. I've seen boulders up to 10 feet in length, moved by these masses of mud and debris.

One unique landslide type we are seeing quite a bit is called a "blowout." These appear to be hydrologically controlled, as almost all of them have macropores indicating significant spring activity in the headscarps. They often have circular initiation zones with a bulge at the base as if material had been ejected out of the failure area. They often do not scour downslope of them but rather have significant evidence of surface overwash. In some cases, the surface overwash has combined with other springs in the drainage to develop into debris flows. In other cases, the surface overwash was powerful enough to push homes several hundred feet from their original locations. One of these features in Sugar Grove, NC, was captured in a video and posted on YouTube: https://www.youtube.com/watch?v=iR5KLdJyhjc.

Haywood County home destroyed by road embankment failure-debris flow in background

We have also seen evidence of debris and weathered rockslides that are translational in nature. Some of these are on constructed slopes, while others appear to be on pastureland.

An abundance of the landslides our team has evaluated have started on constructed slopes, many of which are made of loose fill or waste material piled on steep slopes. Oftentimes stormwater was not managed in these areas or ditches or culverts were blocked, diverting water over slopes that were not intended to carry it.

Looking Ahead

While the Helene landslides cast a dark shadow and contribute to the heaviness felt by my community that was also impacted by devastating flooding, I can still see signs of hope. Just after the storm, one of our clients sent us the email below, indicating that our work had helped her find a safe place for her family and steered her away from properties that could be impacted by flooding and landslides. Hearing from her and other clients we had helped prior to the storm, I know that we are doing good work, and that landslide science is helping protect people.

October 2, 2024
I'll make this short and sweet. I just wanted to say thank you to both of you for your expertise three years ago when I asked you to provide help as I was buying properties in the Blue Ridge.
Our house, and our family, were safe even though Burnsville had many catastrophic mudslides and floods. So many of the properties I had been wanting to purchase (that you steered me away from) had cataclysmic results, or are completely gone now. I cannot thank you enough—you truly saved us. Your work is important, and even if it's only accentuated in big events like these, the daily tasks you do have long-lasting impacts. —P.A.

In order for this science to help more people prior to the next landslide event, we must continue working to integrate the science into the public's and decision makers' awareness and communicate the hazards effectively. Right now, the USGS National Landslide Preparedness Act, that many AEG members worked very hard to support from its infancy after the devastating landslide in Oso, Washington, has not yet been reauthorized. This program provides, among many other things, grant funding for projects that will make a difference. It also establishes collaboration between governmental agencies and decision makers to promote landslide risk reduction. I encourage all to contact their senators and representatives in Congress and ask them to reauthorize the National Landslide Preparedness Act so that good work can continue to be done at the federal, state, local, and private levels.

John McPhee Receives 2024 Advocacy Award

Pulitzer Prize winner, at 93, charms with geological knowledge and personal notes

By Loren Lasky, New York–Philadelphia Chapter Chair

Loren Lasky presenting AEG's Advocacy Award to John McPhee.

Famed author John McPhee, beloved by geologists because he features them so prominently in many of his books, received AEG's 2024 Advocacy Award in a virtual ceremony during AEG's annual meeting in Philadelphia in September. I was the lucky local geologist who got to deliver the award to him in person.

He answered the door himself at his home in Princeton, New Jersey, and was witty and cogent, despite his advanced age (93) and poor eyesight. He cheerfully handwrote personal inscriptions to the AEG members who had successfully bid on an autographed copy of one of his books after first inquiring about the type of work each of them did.

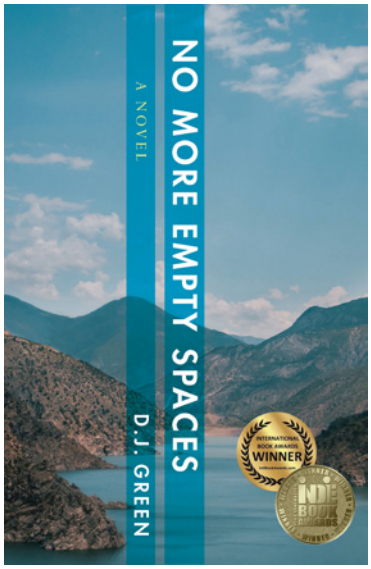
He was surprisingly up-to-date on current events in science, including the perils of artificial turf, having encountered it himself at the Princeton University lacrosse fields, and was interested to learn about lidar and its remarkable contributions to mapmaking and jungle exploration. Incredibly, he knew someone or something about every random topic that came up in conversation, and I left filled with his amazing stories.

Geologist fans of McPhee have likely read one or more of his geology-related books, which include *Basin and Range* (1981), *In Suspect Terrain* (1983), *Rising from the Plains* (1986), and *Assembling California* (1993). McPhee won the 1999 Pulitzer Prize for *Annals of the Former World* (1998), which consists of a compilation of these four previously published books plus a new book *Crossing the Craton*. Also of particular interest to applied geoscientists is McPhee's *The Control of Nature* (1989), which chronicles three examples of human efforts to defy nature on a massive scale—regulating the piracy of the Mississippi River by the Atchafalaya River in Louisiana, diverting lava flows from the Eldfell volcano to save a harbor in Iceland, and controlling debris flows from the San Gabriel Mountains in southern California.

Interview with Author D. J. Green

On becoming a geologist-novelist, telling the story of our lives' foundations

By Martha Whitney



Long-time AEG member, Deb Green, is a retired consulting geologist, and now, the author of the award-winning novel *No More Empty Spaces*. On Deb's website, www.geologistwriter.com, she says, "Geologists study the earth and the processes that shape it. Writers study the human heart and the processes that shape it…" and as the GeologistWriter, she strives to build a bridge between the two.

I had the opportunity to interview Deb last October—about her journey to writing this book and getting it published, and what the response to it has meant to her.

MW: *No More Empty Spaces* is described on your website as follows:

Set in the remote and rugged Anatolian Mountains of Turkey, a landscape rife with hazards, NO MORE EMPTY SPACES is part-geological tale, part-travelogue, part-adventure, and part-family saga—a gripping and heartrending debut about the forces we can control, and those we can't.

This is an excellent summation of the story and captures the emotional gravity that's woven throughout it. *No More Empty Spaces* has won some big awards including the Next Generation Indie Book Award and the International Book Award. Congratulations!

I was really happy to hear about these awards because I thought it was a great read. I've spent time in Turkey, so I could relate to a lot of the detail that you provided. And the story has so many layers—it's about family, friendships, and love. It's a story of expat life in the complex and beautiful country of Turkey. It's about the Turkish people and their culture. It's about love, addiction, and vulnerability. And, especially interesting for AEG members, it's a story about an inadequate site investigation that resulted in a very expensive mitigation strategy.

DG: It was really exciting to get those awards, you know, as validation from professionals in publishing, but it's even more validating when readers love it, so thank you for really "getting" what the book is all about.

MW: Where did you get the idea for the fictional Kayakale Dam as a backdrop for the story?

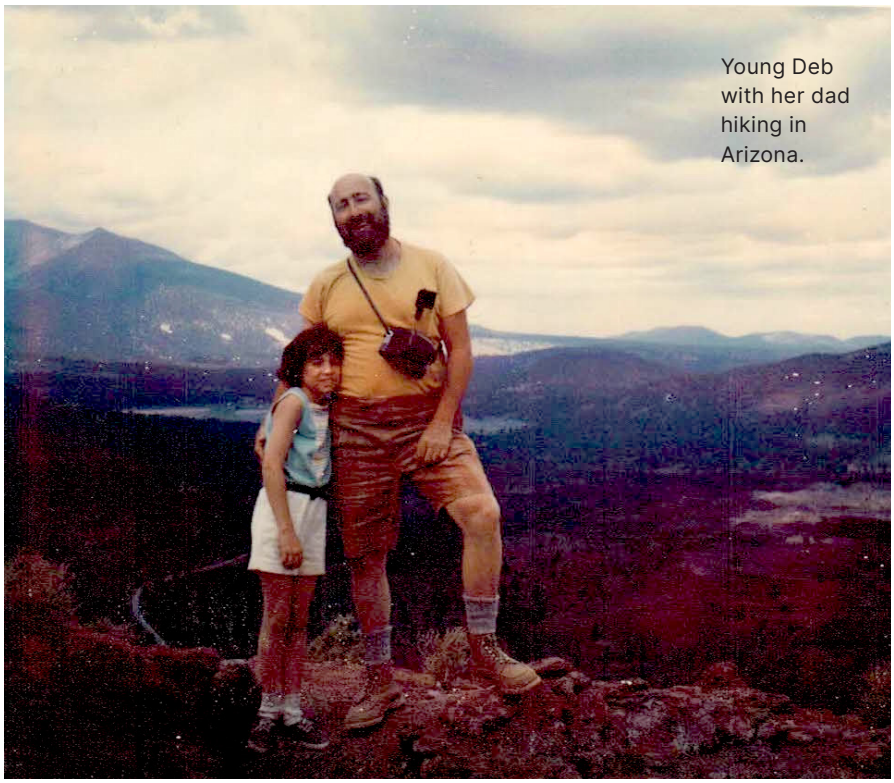
DG: The story is loosely based on a period in my late husband's, Norm Tilford's, life. Will Ross, the novel's protagonist, was inspired by Norm, and Kayakale Dam was inspired by a real dam that Norm worked on. There are several dams along the Euphrates River in Anatolia and some of them were built on problematic foundations, so the story was inspired by that. The reason I decided to make Kayakale Dam fictional was because the things that happened to the real

dam, while exciting to people like you and me, might not have been as engaging for nongeologist readers. But I assure you that the science in the book is plausible. After all, I aspire to be a writer who translates the wonder of geology, and the work of applied scientists, for people who don't necessarily understand the technicalities, and what good is that if the science isn't plausible? We're people who study the foundations that they live on—they walk upon these foundations every day; their houses are built on them; their critical facilities are constructed on them. My hope was to weave the science into a good story, so readers will learn more about the foundations they build their lives on *and* be engaged with the characters in *No More Empty Spaces*.

MW: That makes sense. I've not worked on dams, nor have I much experience with karst hazards, and I really appreciate the way you translated that complex setting and the myriad subterranean processes at work in a way that was easy and enjoyable to read.

I see that your dad was an Earth science teacher. Can you share a childhood experience that led you to choose your career as a geologist?

DG: We camped all summer in the national parks; growing up in those beautiful places was the greatest gift my parents gave me. When school was over, our family took off with our little tent trailer in tow. That was before you had to make reservations at national parks; we could meander around the country all summer without a set schedule.



Young Deb with her dad hiking in Arizona.

Here's a funny thing: we don't have typical pictures of the kids from those trips; we have "stand in front of that outcrop, for scale" pictures. Then my dad would ask my mom how tall my sister and I were, because if he didn't know that, the "scale" wouldn't be accurate.

So I grew up with my dad explaining the landscapes we traveled through. He instilled a love of science in general, and geology in particular, in me from the time I could toddle along a trail beside him, and that's why I took Geology 101 my first semester in college. I'll never forget Professor Sutton at the University of Rochester, because after that class, I *knew* I wanted to be a geologist. That was another gift I got as a young person.

So my dad was an Earth science teacher, and I'm a professional geologist, and one of my nieces has both bachelor's and master's degrees in geology (though she's chosen a different career path), and all three of us went to the same field camp, and there's something I just love about that—our little Green family geological dynasty, you know?

MW: That's really cool, and I can relate—my daughter studied geography and is a geographic information system (GIS) specialist. And my husband is a Quaternary guy and paleoseismologist. Speaking of that, I spent some time in Turkey with him and a team of Turkish geologists who were trenching for paleoseismic investigations, and during that time I observed the social and cultural norms and vibes. You really captured the essence of that in the book, it brought me back to those villages and the people I met. Did you spend a lot of time in Turkey, or did you go there specifically to do research for the book?

DG: Norm lived there for 3 years in the late '60s and early '70s. In 1997, we traveled there together. We both were giving papers at a conference in Istanbul and went over weeks before the conference, so we could wander. We sketched that trip onto this map. [Deb pans the video around her office and shows me a map on the wall.]

We traveled along the southwestern coast. Then we went to Ankara, where we got permission to visit the dam that Norm had worked on. We continued to the southeast, where it probably wouldn't be favorable for Americans to be traveling right now. We stood in the shadows of Mount Ararat, then turned northwest and followed the trace of the North Anatolian Fault westward across the country until we ended up back in Istanbul to give our talks.

After Norm died, and while I was drafting *No More Empty Spaces*, I took two other extended trips there. I'm going to digress a bit here, if you don't mind—I will always be a geologist, even if I'm not doing it for my living anymore, so it's a lens I see the world through. And ever since I started developing my craft as a writer, that's also a lens I view the world through. On the trips I took to Turkey while I was writing the book, I was very specifically looking at the landscape and interacting with the people in a way so that I could, later, get words onto the page to make it all come to life.

MW: You did that! And that makes me wonder about what kind of space and time your creative process requires?

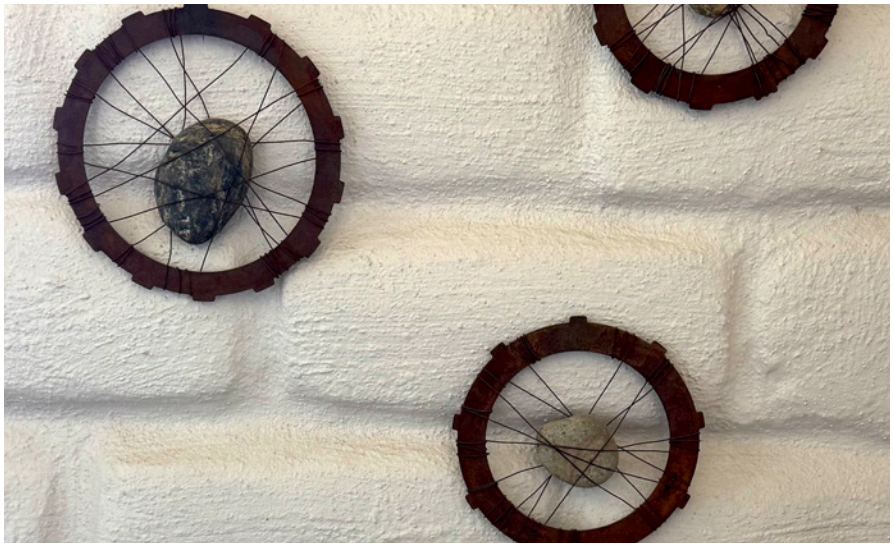
Treasured Memories—the map of Turkey with the trip Norm and Deb took in 1997 sketched on it.

DG: I have a lovely space in my house that I call my library, and it's where I do most of my writing. You can see that there are books surrounding me, for inspiration, in this space. And my sailboat, where I spend my summers, is also a good place to write.

With respect to time, I'm not one of those writers who writes from 6:00 to 9:00 in the morning every day, for example. My life isn't so structured, so my writing isn't so structured. I tend to have bursts of really productive times and then times when I'm not writing very much. What I like to think, what I try and tell myself so I don't panic about it, is that (to use a hydrogeological metaphor), the story is percolating in the subsurface, even when I'm not actively writing, so that when those productive times come, the stories will surface.

MW: So, in *No More Empty Spaces*, different chapters are written from different characters' perspectives: Will, Kevin, and Paula. How did you decide on those perspectives and why is it so important to the storytelling?

DG: It was a very conscious decision, and it was part of the evolution of writing the book. When I began, it was all in Will's point of view, but what I found was that it didn't feel like the "voice" was true to Will's voice, not consistently anyway. It didn't feel like I was really "hearing" him. I knew that if it didn't feel authentic to me as the writer, it certainly wouldn't feel authentic for readers. And since you've read the book, you might agree when I say that Will is not the most self-aware guy. As a writer, you have to reveal your characters, but how do you reveal a character who isn't very aware of himself if you're only speaking from his perspective? That's why I started writing in Kevin's and Paula's points of view—to reveal more about Will and some of his blind spots with respect to himself. But as I wrote into their voices, I fell in love with them and totally got into telling their stories along with Will's.



[TOP] Deb's library, where she reads, and writes. [BOTTOM] Art that inspires.

MW: It works well in terms of character development in a multilayered way. I did not realize it was happening when I was reading it, and then after I finished it, I realized what you'd done, and I was like WOW. It was an experience!

DG: Thank you! I think you just told me that I did my job as a writer.

MW: You did! In the book, and on your website. But I have a different question about your website. Can you tell us about the "O" in your GeologistWriter logo?

DG: It's part of a piece of art called *John Cage*. And the artist named it *John Cage* because of the empty spaces in the piece (the spaces inside the metal cogs and the space between the wires that hold the stones)—for context, John Cage was a musician and an artist, and one of the things he explored creatively was space. He explored the space between musical notes and white spaces in art. Turns out, I was attracted to this piece of art before I started work on *No More Empty Spaces,* but I think it's perfect that the book ended up with that title, and that this art is one of the symbols I hold onto as a creative writer.

MW: I love it… it reminds me of a sort of dream catcher. In that context, can we talk about the importance of pursuing dreams, whether it's related to our work or our personal lives?

DG: Wow, that's big. Maybe bigger than we can really cover in the time we have, but I'll try to give you my perspective. My late husband Norm never got to live his sailing dream. So when I was grieving for him, I also grieved that he didn't get to fulfill his dream. Ever since then—and that was 27 years ago—I'm very aware that no one gets time back, and if there's something that a person is driven to do, they should find a way to do it.

With respect to my own life, here's how that plays out—I'm a breast cancer survivor, and I take stock every time I go in for my annual mammogram. I ask myself if I could make peace with it, if the news isn't good. I ask myself if there's something I need to do that I haven't done. And one of the times I asked

Holly Moxley's painting, *Wingbeats*.

myself that, the answer was that I *could* make peace with it if I didn't have time to finish my book, but I didn't need to, I could finish the book instead. And I did!

I'm so grateful that I got to make that dream come true. I'm happy and proud when I look at my bookcase and see *my* novel, a book I worked on for more than a decade. It has a cover I love. It has a title I love. And it's a story that, from what people are telling me, from what you've told me today, touches people in different ways. That fulfills a dream for me.

MW: So, it is now Breast Cancer Awareness Month, [as we did this interview in October 2024]. You and I have both benefited from early detection of breast cancer. For me, it was my very first mammogram. I saw on your website that one of your posts is Body as Landscape/Body as Art, and I absolutely love the artwork of your colleague, Holly Moxley. Can you talk about that a bit?

DG: Holly and I have collaborated for years. I met her when I was developing my website, and she's the person who makes it beautiful. Holly is a fine artist as well as a graphic designer, and when she has time and it fits the web post, she'll paint the feature image for it. For instance, on the post titled Wingbeats, I had sent her the text, and we were talking about what feature photo might work. She thought a photo just wouldn't capture the essence of the piece, so she did this painting for it.

Holly and I are both breast cancer survivors, and like you, we benefited from early detection. Neither one of us have been very public about it up to now, but we both felt moved to be more public because early detection can make so much of a difference in outcomes. So we wrote about, and Holly painted about, what it meant for us.

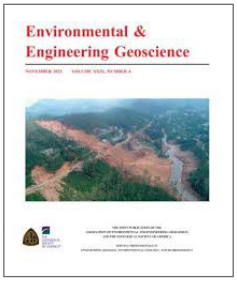
MW: I was really touched by Holly's artwork; it is absolutely stunning.

DG: I agree! You can see more of her work on her website (https://www.hollymoxley.com/). I love when we get to collaborate creatively.

MW: Speaking of collaboration, I've really enjoyed this conversation, Deb. I'm sure our fellow AEG members will enjoy this. And maybe they'll even be inspired to follow their dreams. Congratulations on publishing *No More Empty Spaces*, and can you tell me where our readers can buy it?

DG: Sure! They can buy *No More Empty Spaces* wherever they like to shop for books, but I encourage folks to go to their favorite local independent bookstore, or to shop online at bookshop.org, which supports independent bookstores across the U.S.

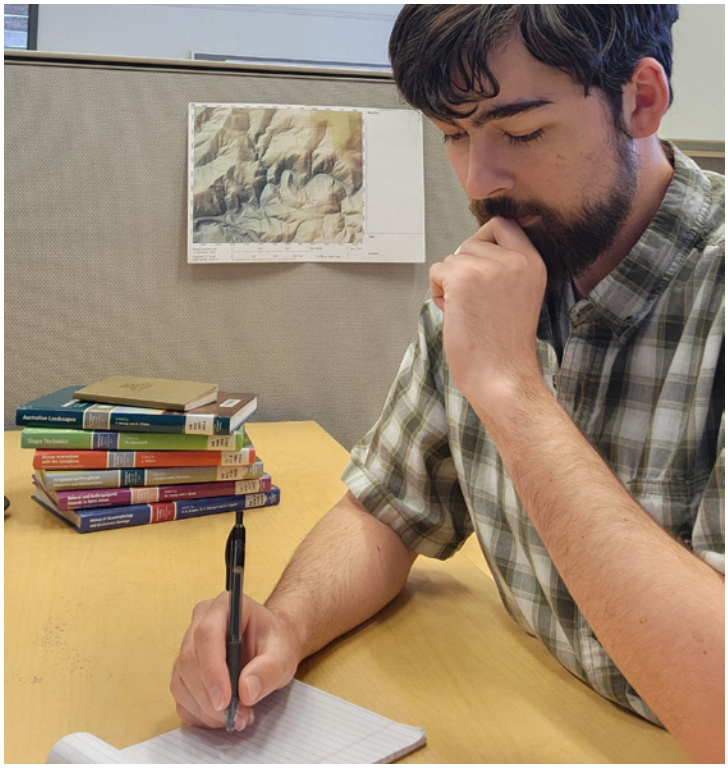
Thank you, Martha; it was great to talk with you today.



Writing A Book Review

New ways to engage the AEG community

By Isaac E. Pope, E&EG Book Review Editor



AEG's flagship journal, *Environmental and Engineering Geoscience (E&EG)*, is looking for book reviews, and you can be a part of it! Book reviews provide a unique outlet to engage with the AEG community, practice your writing, and share your insights on a topic of your own professional interest. Curious to learn more? Here is a rundown on the Who, Why, and How.

→ WHO:

Anyone from advanced undergraduates to fully fledged professionals are welcome to submit. Because book reviews are intended to facilitate community discussion on relevant literature, authors from many backgrounds can bring unique perspectives. For instance, students may want to investigate a book's themes as they relate to the latest fads in their academic environment, while seasoned professionals may compare it to years of practice to illustrate what works and what is still best left to the imagination. Book reviews also have one of the lowest barriers to entry for professional writing and consequently represent an ideal option for students or early career professionals looking to hone their writing skills.

→ WHY:

Book reviews offer a unique way to engage your community with relevant discussion. Their flexible style means that authors can take an approach varying from concise and technical to more storytelling. Because of this, authors can explore creative means to discuss relevant scientific topics in ways that typically do not fit in a journal. It also allows authors (particularly students or researchers in the beginning stages of a project) to begin articulating how themes in one book connect to other research that could help profoundly reframe a book's role in the conversation. On the other hand, if a book is lacking significantly, it is beneficial for the community to know what makes it lackluster while potentially even highlighting some cautionary tales for our own learning.

→ HOW:

Book reviews can be written on any relevant engineering and environmental geology book from the last five years. Reviews should aim to cover the main points of the book and the reviewer's appraisal of it within 1,000 words. Interested prospective book reviewers can email the editorial team to learn more.

The Life of a Traveling Geologist

Packing hacks and traveling tips: Lessons learned on 54 flights in 2024 **By Luke Ducey, Lead Geologist, WSP USA**

For many geologists and environmental scientists, work often involves projects close to home within driving distance or a short commute. However, due to the nature of our industry, we frequently travel across the U.S. and even internationally. Our work environments are ever-changing, whether local or out of state, and sometimes, when a project needs extra hands, we get the call to step up, just like a relief pitcher in baseball.

In 2024 alone, I logged 54 flights for both work and personal travel. A majority of the travel was due to a rotation schedule for a project totaling nearly 5 months of work within the Arctic Circle of Northern Alaska. I also wrapped up a project on the East Coast for a large tunnel project that required 9 weeks of travel in the last couple years, often flying out Sunday night and returning home Friday night. While it's always great to sleep in your own bed, do laundry, and catch up on household errands, back-to-back travel means you learn to pack efficiently, often leaving tools and gear at a project site to streamline the process.

Along the way, I've picked up a few packing and travel strategies that may be useful for others gearing up for a field project. The first priority is always personal protective equipment (PPE) and essential gear. Before heading out, it's important to check what PPE will be required on-site. Hard hats, steel-toe boots, and core field tools like a rock hammer, field notebook, and compass are must-haves. Most other items, such as safety vests, glasses, gloves, water bottles, buckets, pens, and small tools, can usually be picked up after arriving at your destination.

Packing smart is key to making travel easier. One of the best space-saving tricks is stuffing smaller clothing items, like socks and base layers, into your boots. Since most of us travel with a large suitcase and a backpack, I've found that zip-tying my hard hat to the outside of my backpack not only frees up space but also sparks interesting conversations in the airport, which is great for extroverts like me. A few smaller but useful items I always bring include a portable white noise machine, which helps drown out hotel noise; a durable coffee mug since hotel Styrofoam cups never hold up; a book for downtime; and hard copies of project details.

It's the little things: Zip tie a hard hat to the outside of a backpack. Stuff smaller clothing items, like socks and base layers, into your boots.

Another important part of travel is dressing for the weather. Before heading out, I always check the forecast to see if I'll need a rain jacket, long underwear, or coveralls. Being prepared for rain, snow, or high winds makes a huge difference in comfort and productivity. I also make sure to pack work pants, warm socks, and high-visibility shirts, always layering so that I can adjust as temperatures change throughout the day. At one point during the Alaska work, I had on 15 different items of clothing.

Flying frequently can be exhausting, but a little preparation makes it much smoother. Checking in online before your flight, planning ahead, and arriving early are small steps that help avoid unnecessary stress. I also recommend looking into TSA PreCheck, Global Entry, or a credit card with lounge access, like Amex or Chase, to make airport time more efficient and comfortable. On a recent trip, I managed to get from curbside drop-off to my gate in just 8 minutes thanks to TSA PreCheck and streamlined packing. Of course, it won't always be that quick, but having the right travel strategies in place makes a huge difference.

Attached are a few photos from one of my recent trips, showing how I pack my tools, PPE, and, of course, my trusty coffee mug. Whether you're just starting your career as a geologist or are a seasoned traveler, I hope these tips help make your field assignments smoother and more efficient. Safe travels, and see you in the field!

IN MEMORIAM

Richard E. Goodman 1935–2025

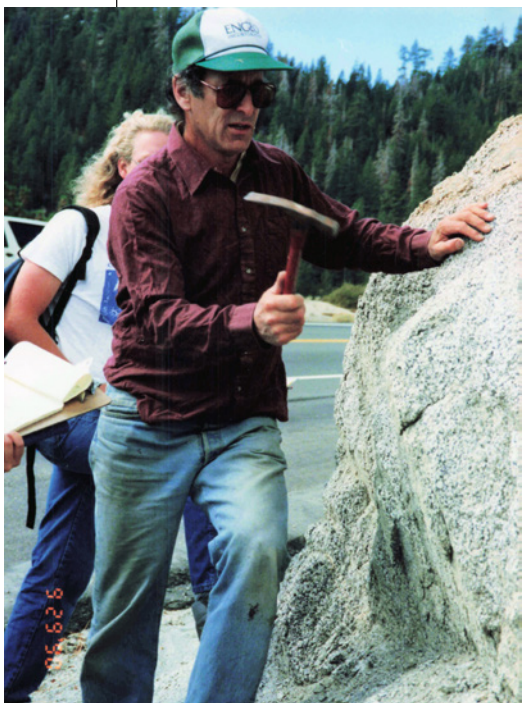
By Nicholas Sitar

Richard E. Goodman, a University of California, Berkeley faculty member from 1964 to 1994, passed away at the age of 89 in Anchorage, Alaska. He lived a vibrant and very active life, inspiring and mentoring a huge number of people from all over the world. Ironically, he didn't have a conventional education—his parents Pauline and Herbert Goodman figured out early on that he was a musical genius and sent him to Spielter's School at a young age, where he studied piano for most hours of the day. At the age of 15, he was awarded a Ford Foundation scholarship and got a full ride to the University of Wisconsin and thus never graduated high school. He went on to receive a BA in geology (1955) and an MS in civil engineering (1958) from Cornell University. He received his PhD in engineering science (geological engineering) from the University of California, Berkeley where he studied as a Ford Foundation Fellow from 1960 to 1963. He served on the faculty of the Department of Civil Engineering at UC Berkeley, rising from assistant professor and associate professor to distinguished professor of geological engineering. Since 1994, he held the position of emeritus professor of engineering.

Through his research and consulting, Professor Goodman made seminal contributions in the areas of engineering geology and rock mechanics. He developed an apparatus and method for in situ measurement of rock properties, also known as the "Goodman Jack." In his pioneering work in identification of failure modes and kinematics of jointed (blocky) rock masses, he developed the base friction apparatus and, later, working with Dr. Gen-Hua Shi, the block theory. He was passionate about teaching, and he mentored 39 PhD students, most of whom were welcomed as family during their doctoral studies and maintained enduring relationships for decades.

He was a prolific author with an impressive list of fundamental and advanced texts, including *Methods of Geological Engineering in Discontinuous Rocks* (1976); *Introduction to Rock Mechanics* (1980 and 1989); *Block Theory and its Application to Rock Engineering*, coauthored with Gen-Hua Shi (1984); and *Engineering Geology—Rock in Engineering Construction* (1993). He also authored the widely-acclaimed historical book *Karl Terzaghi—The Engineer as an Artist* (1999). In all, he has authored or co-authored more than 200 technical papers for journal and conference publications, and he was an internationally known consultant, having worked on numerous major rock engineering projects around the world.

Professor Goodman was an active member of AEG and was made an honorary member in 2016. He received numerous national and international awards, including a Guggenheim Fellowship. His awards include the E.B. Burwell Award from the Geological Society of America (1977); the Basic Research Award from the U.S. National Committee for Rock Mechanics (1984); and the H. Bolton Seed Medal from the American Society of Civil Engineers (ASCE). He was elected to the National



Family, friends, and colleagues remember him as “a force” and celebrate his eternal “boyish joy.”

Academy of Engineering (NAE) in 1991, and he was named the Rankine Lecturer by the British Geotechnical Society in 1995. The Norwegian Geotechnical Institute named him as their Terzaghi Fellow for 1995–1996. Among his other honors were the 2000 George F. Sowers Memorial Lecture at Georgia Tech, the 2000 Civil Engineering History and Heritage Award from ASCE, and the American Rock Mechanics Association 2005 Award for Outstanding Contributions to Rock Mechanics.

Professor Goodman’s exciting life included spending 6 months in 1957 in Baffin Island based out of Cape Dorsett, where he worked for Belcher conducting mineral prospecting. He camped amongst the polar bears in sub-zero temperatures, learned to communicate with the local Inuit people in their language, traveled around the area by dog sled, and survived many harrowing adventures. His many other adventures included consulting projects in every state of the union and throughout South America, Asia, South Africa, and Europe. He traveled to South America countless times for consulting projects.

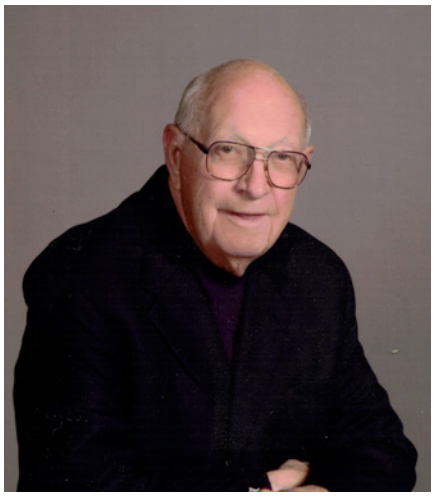
Richard Goodman was a true renaissance man as he was not only an expert in geological engineering and rock mechanics but also a passionate and brilliant musician. He traveled throughout the Bay Area to sing in opera productions, and in 1979 he founded the Berkeley Opera Company with the support of his cellist wife Lillian (Sue) and directed it for 13 years. He put on over 30 full stage productions. He performed over 70 major roles in operas for several companies, including roles such as Figaro, Leporello, Falstaff, and Rigoletto. In addition to his PhD student mentees, he had very close musical mentees and companions.

He was an ardent lover of nature and passionate defender of wildlife and natural resources. He also had an extremely quick wit and always had a pun ready for every conversation. He never concerned himself with what other people thought and was never afraid to stand up for what he believed. Family, friends, and colleagues remember him as “a force” and celebrate his eternal “boyish joy.”

Professor Goodman moved to Alaska along with his wife in 2022 to be near his family. He is survived by his beloved wife of over 67 years, Sue; his daughter, Lilly Goodman-Allwright; his sons-in-law, Michael Allwright and Eric Cohn; and four grandchildren. He was preceded in death by two daughters, Holly Cohn and Paula Goodman, and several beloved dogs. His enduring advice is (1) make and say beautiful things; (2) it never hurts to try or to ask; and (3) never eat the cake on the airplane.

IN MEMORIAM

Past President & Honorary Member Professor Terry R. West 1936–2025



By Richard Gray, Brian Greene, and Abdul Shakoor

The Association is deeply saddened to announce that Professor Terry Ronald West, PE, PG, passed away March 4, 2025, at the age of 88.

Dr. West graduated from Washington University in St. Louis, Missouri, receiving two undergraduate degrees and a master's degree. He received a second master's degree (MSCE) and his PhD (in 1966) from Purdue University in civil engineering and engineering geology. It should be noted that—remarkably, all of Dr. West's university education leading to five degrees was completed by the time he was 30 years old!

Dr. West was a full professor at Purdue University, a past president of AEG, and the recipient of many awards including honorary membership, AEG's highest honor. He mentored and served as the major professor to 88 graduate students during his 61 years of teaching at Purdue University's Department of Earth, Atmospheric, and Planetary Sciences, retiring at the age of 85. Terry leaves an extensive legacy in the many students that he inspired. Another of Dr. West's proudest moments was authoring the key textbook *Geology Applied to Engineering*. His book is used widely in university teaching. In addition, he authored or co-authored over 200 technical papers.

Terry cherished the sports he followed and was a multi-sport season ticket holder enjoying everything about his beloved Purdue Boilermakers. Dr. West was honored as a "Sagamore of the Wabash" by Governor Frank O'Bannon in recognition of his outstanding contributions to education at Purdue University and to the State of Indiana. Terry was a proud Rotarian who contributed to the Lafayette Club well into his eighties.

Dr. West was a long-standing member and tireless advocate for the Association of Environmental and Engineering Geologists. He served as president and was able to convince his wife of 67 years Shirley to travel with him to countless AEG annual meetings and field trips. Shirley is as well-known within our AEG membership family as Terry. Whenever the opportunity presented itself, Dr. West travelled all over the country to give technical presentations to AEG chapters, GSA meetings, and many other professional societies.

Dr. West was presented with an AEG Special Award from the then Northcentral Section for encouraging students to attend AEG meetings and was bestowed with the Distinguished Practice Award by the Indiana Board of Professional Geologists. He was also the recipient of AEG's Floyd T. Johnston Service Award, Claire P. Holdredge Award (for Geology Applied to Engineering), the Karl and Ruth Terzaghi Mentor Award, and honorary membership. Terry also received the Distinguished Practice Award from the Environmental & Engineering Geology Division of the Geological Society of America (GSA) and was elected a GSA Fellow. He received the Medallion Award of the Highway Geology Symposium (HGS) and was selected

as fellow of the Indiana Academy of Science.

In collaboration with his extremely close AEG colleague Richard Gray, the two established the West–Gray Scholarship that provides funding for students in the environmental and engineering geology fields in the eastern portion of the U.S. to further their studies. Both Terry and Dick Gray have sustained this important AEG Foundation Scholarship for many years, and numerous college and university students have benefitted from it.

A celebration of life for Terry will be held in May in Lafayette, Indiana. To pass on condolences and to learn more about the celebration of life, you may wish to contact Shirley West at shirleywest1@comcast.com.

Terry West will certainly be deeply missed by his family, his former students, those from many other professional societies, and those in our association that had the privilege to know him.

Gary afield on Sedanka Island in 2012 documenting a tsunami-deposited driftwood log within Alaska's Aleutian archipelago.

IN MEMORIAM

Gary Allen Carver 1942–2025

By Beau Whitney, Rich Kohler, and Bud Burke

Gary Carver passed away February 19, at the age of 82, on Kodiak Island, Alaska. Carver earned his bachelor's and master's degrees in geology from the University of Nevada, Reno (1967, 1969) before receiving his PhD in geology from the University of Washington in Seattle (1972). He served on the faculty of the Department of Geology at Humboldt State University (HSU; now California State Polytechnic University, Humboldt) from 1973 until he retired emeritus in 1998.

His career began working with the fault investigation team for the Trans-Alaskan Pipeline (TAPS) in the 1970s. Their seminal work on pipeline crossings of active faults helped to more firmly establish the value of a geologist's role in engineering projects globally and was part of the pioneering era in geohazard assessments. The significance of their work became much more widely known after the 2002 magnitude 7.9 Denali Fault earthquake. That rupture fell within their recommended fault-crossing design parameters, and no oil leaked from the pipeline.

When he arrived in Humboldt in 1973, the geology department was small and offered only a bachelor's program. Carver and his colleagues managed to grow the department and created a master's program in the early 1980s. His intellectual curiosity was infectious and inspired many young students to pursue career paths in geology. He was a major force, contributing to Humboldt's reputation as one of the best Quaternary and field-focused programs in the U.S. He mentored both bachelor's and master's students on a wide range of Quaternary topics during his time at HSU, many of whom he (and his family) welcomed as family. He was awarded Scholar of the Year from HSU in 1995.

Although his main subjects of interest were active fault studies and subduction zone earthquakes, he was truly a renaissance geologist and naturalist with broad expertise in the Quaternary, process geomorphology, and engineering geology. His second home was in the field. In the early '80s, with HSU geology enrollment high, for several summers he taught 6-week field camps, often two each year, to accommodate the high number of students.

He was a key player in discovering and unravelling the complex tectonic history of the southern Cascadia subduction zone in Humboldt County. His work, and that of his students, ranged from mapping and characterizing the faults within the on-land fold and thrust belt, to estimating the timing of earthquakes through marsh stratigraphic studies and Native American oral histories with his wife, Deborah. A key highlight of these studies was the estimation of the timing of the most recent subduction zone earthquake (~300 years ago) which, when combined with work by colleagues farther north along the Cascadia margin and Japanese tsunami researchers, led to the discovery that the entire length of the subduction zone ruptured with

a magnitude ~9 earthquake on January 26, 1700. His work also included documenting the crustal effects of the 1992 magnitude 7.2 Cape Mendocino earthquake. These studies were pivotal to Carver's contributions to one of the first textbooks on paleoseismology published in 1996, co-authoring the chapter on compressional tectonic environments.

Though he continued to mentor students, he retired from HSU in 1998 to move to Kodiak Island where he could spend his time studying earthquakes and catching salmon. The allure of field geology kept him coming back for more, and he maintained a robust consulting career, establishing Carver Geologic LLC. In these pursuits he mapped Quaternary geology and conducted paleoseismic investigations for the Alaska Department of Geological & Geophysical Surveys (DGGS) in the Alaska Range, participated in earthquake and tsunami recurrence studies with the U.S. Geological Survey in the Aleutian Islands, and led field investigations for numerous natural gas pipelines across Alaska, similar to the TAPS studies from early in his career.

He was politically active throughout his life. His expertise and love for nature fueled his activism, successfully leading multiple efforts to regulate or prohibit industry from polluting salmon streams on Kodiak Island. He was beaten by police and jailed for participating in Vietnam war protests that temporarily closed I-5 in Seattle; "one of my proudest moments," he would say, and habitually wore a red bandana around his neck to commemorate the occasion.

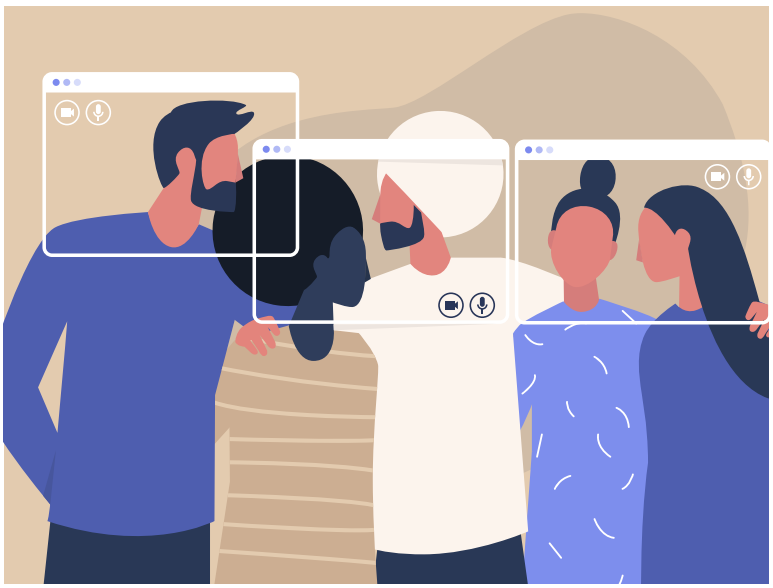
A renaissance geologist and naturalist, Gary's true home was in the field.

He met his future wife, Deborah, in 1977. Together, they have two daughters, Terra and Molly. They have one granddaughter, Juniper.

His impact in the engineering geology community was far-reaching and long-lived. His insatiable appetite for investigating geological curiosities fueled students and colleagues alike to "look closely" and relentlessly pursue elusive evidence. He helped to inspire a generation of geologists who have made an impact in our field all over the world.

Workforce Development Committee

Fostering connections, mentorships, and diversity in AEG **By Minda Moe and Matt Buche, Co-chairs**



Continuing the Work

At the behest of AEG leadership, the committee formerly referred to as the Diversity, Equity, and Inclusion Committee (DEIC) has assumed the name "Workforce Development Committee" (WDC) while the organization assesses how we can remain supportive to all of our membership while being cognizant of the current challenges in our industry.

The change in name does not reflect any change to the mission of the committee or AEG's commitment to growing participation in our science and industry. We remain committed to supporting AEG members of all life experiences in utilizing those experiences in their workplaces, and encouraging a more equitable profession for all future geoscientists.

2025 AEG Annual Meeting in Chicago

Are you interested in convening a symposium? Have you ever wanted to get involved, but you're not sure how to go about inviting speakers and scheduling everything that goes into developing a symposium for an annual meeting? We are looking for in-person assistance for the Diversity Symposium in Chicago. Please contact minda.moe@arcadis.com or matthew.buche@water.ca.gov for more details.

The WDC also plans to host the Diversity Luncheon again in Chicago. Remember to add it to your registration when planning for the annual meeting! Please consider sponsoring a student as well.

Mentoring Program

The WDC is in the process of starting a mentoring program, aimed at connecting AEG members of all experience/skill levels with each other to promote involvement in the geosciences and foster professional growth.

Our vision for the program is that mentors/protegees will meet for about an hour every month (most likely virtually, unless geography and chance align) to discuss working in the environmental/engineering geoscience industry and envision career pathways/goals. It's also intended to provide mentorship for people at various stages of their careers—the traditional pairings of student/professional or young professional/experienced professional are included, but the program can also benefit more experienced people who are looking to change direction or advance to the next stages of their careers.

Are you in the fields of geologic and seismic hazards, landslides, subsidence, or dams? We need more mentors for the 2025 cycle! Please contact minda.moe@arcadis.com or matthew.buche@water.ca.gov for more details.

If you're interested in joining the program as a protegee, please keep an eye out for the 2026 cycle.

Communications Committee

Overseeing publications, website, and media strategy

By William Godwin, Co-chair

The Communications Committee (CC) oversees AEG's publications and website and is responsible for maintaining their continuing quality and advancement. The CC advises the Board of Directors (BOD) on ways that publications and other media may be improved by initiating and responding to proposals for enhancing communications within AEG and with outside audiences. The sitting AEG vice president serves as the publication manager. Bill Godwin and Isaac Pope are co-chairs. Although we have more than 15 members on the Committee, those that regularly call in or provide input and support include Paul Weaver, Isaac Pope, Terry Cordero, Bill Roman, Bill Godwin, Trinda Bedrossian, Curt Schmidt, Eric Petersen, and Thomas Oommen, as well as representatives from Arden Solutions.

Our last Committee call was in February. We discussed the need to have a steady flow of content for webinars to support a frequency of once per month. The Environmental & Engineering Geoscience journal, jointly published by AEG and GSA's Engineering Geology Division just published a special publication on geohazards and geoengineering. The upcoming May issue will be a special issue, Salts and the Environment. There is also support for a future special issue on Abdul Shakoor, AEG member and long-time editor of the E&EG journal.

AEG News is undergoing a revamp to its style format and presentation. A summary of submission guidelines is being prepared by the committee with input from our publishing team at Boman Communications and our association management. The frequency of publishing will not change. The *Geology of the Cities of the World (COW)* series is working on several draft manuscripts. These include New York City, Boston, La Paz (Mexico), and Baltimore. These efforts are being led by *COW* editor Terry Cordero with support from AEG members Trinda Bedrossian, Bill Cole, Visty Dalal, and Reid Fisher. The latest Special Publication, No. 32, *Guidelines for Geologic Hazard Characterization of Transportation Corridors*, has been issued.

Items that the Committee (with the help of the Association and the Executive Council) are tackling include making digital versions of all Special Publications available to members on the website as PDF files; the need for clarity and consistency on submitted manuscripts for the *COW* series; the need for more consistency and options for webinars in addition to the licensure and technical workshops; maintaining high viewing on a variety of social media platforms; and continuing to receive *E&EG* articles that follow guidelines and are balanced between U.S. and foreign content and authorship.

Governance Committee

Reviewing and updating policies on dues, roles, and membership to support AEG's evolving structure

By Denise Garcia, Co-chair

The Governance Committee (GC) is co-chaired by AEG Board Members Francisco "Paco" Gomez (Region 7), Elson "Chip" Barnett (Region 3), and Denise Garcia (Region 5).

President Renee Wawczak, Vice President Paul Weaver, and the Association Manager Evelyn Neale also attend the calls. Our last meeting was February 2025.

The following changes, put forth by the GC, were approved at the 2024 Annual Meeting of the Board of Directors (BOD):

- Update of travel reimbursement policies, which had been in place for many years, for the Executive Council (EC), staff, committee chairs, and regional directors.
- Clarification in operating policies that, in the event of a financial loss for the annual meeting, AEG (not the hosting chapter) is responsible for absorbing the loss.
- Clarification of membership dues regarding the licensure fund and codifying membership dues for past presidents.

Since the BOD's meeting in September 2024, the GC has worked to address the following:

- Expanding membership of GC to allow non-board (or non-past-board) members (status—to be approved by BOD).
- Clarification of the roles and responsibilities of the early career ambassador in the operating policies (status—to be approved by BOD).
- Clarification of the operating policies on inactive chapters, particularly regarding notification to members being designated "inactive" by the EC (status—to be approved by BOD).
- Updating membership dues for first-time members joining after July 1—for those new members, membership rolls to the following year (status—to be approved by BOD).
- Changing the name for "Teacher" class of membership to "Educator." This will be discussed at the midyear BOD meeting, but it would require changes in both the operating policies and the bylaws (which require approval by membership).
- Student membership automatically extended until the indicated year of completion (implemented by AEG management).

Membership Committee (MemCom)

Driving AEG's growth by promoting membership, student outreach, and international collaboration

By Steven Tapanes, Co-chair

Steven Tapanes is a geologist at the New Jersey Department of Transportation, based in Ewing, New Jersey. He provides analysis of subsurface conditions and geological hazards to support safe highway design and construction.

In a recent update to MemCom's leadership, Rick Kolb decided to step down as co-chair for personal reasons. With the new vacancy, Dr. Visty Dalal recommended that MemCom member, Steven Tapanes, be nominated to fill the co-chair position. A vote was conducted to fill the position alongside Dr. Dalal. The vote concluded unanimously with Steven Tapanes being elected as co-chair. Although Steven Tapanes is a relatively new member of AEG, he has been actively assisting MemCom since joining. In his new role as co-chair, he aims to further support Dr. Dalal in efforts to enhance member acquisition and retention within AEG.

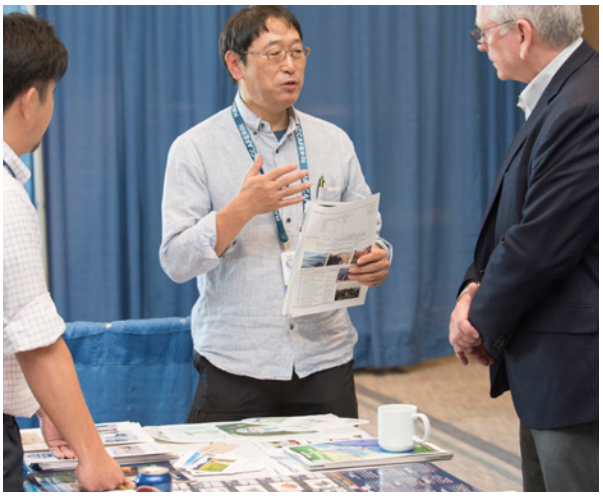
On another note, Rick Kolb has excelled in organizing Dr. Kemeny's participation in the Jahns Lecturer Series, ensuring his presentations at various academic institutions and AEG chapter meetings throughout the southeastern U.S., specifically Florida and the Carolinas. Dr. Kemeny is scheduled to begin his tour March 31st at Florida State University, then travel to several other universities within the state of Florida. Following his tour in Florida, he will be traveling to Raleigh, North Carolina, to present at the Carolinas Chapter meeting on April 10. In addition to Rick Kolb's efforts to have Dr. Kemeny present in the southeastern U.S., Dr. Dalal has been working with Dr. Kemeny to present one of his lectures at the DC-Maryland-Virginia) Chapter. Curt Schmidt and Steven Tapanes are coordinating to have Dr. Kemeny also present one of his lectures at the New York–Philadelphia Chapter.

In an effort to enhance MemCom's recruitment and retention, Dr. Dalal and Curt Schmidt have been working with Steven Tapanes's alma mater, Stockton University, to organize a technical lecture for their geology program. In addition to these technical presentations, MemCom would be highlighting the benefits of obtaining an AEG membership, encouraging students to join and potentially attend future AEG meetings.

Lastly, Dr. Dalal—along with Dams & Levees Technical Working Group (DLTWG) co-chairs, Cassie Wagner & Hawkins Gagnon—and members Bruce Hilton, Brian Greene, and Scott Burns, have put forward a proposal to International AEG (IAEG) to form the Dams & Levees Commission (DLC). The focus and goal of DLC is to foster technical and professional development and relationships between engineering geologists from different countries. The creation of DLC was initiated when engineering geologists from Japan attended the 2023 Portland and 2024 Philadelphia AEG annual meetings and presented talks on dams and levees in their country. The Japanese contingent invited AEG's DLTWG members to attend the annual meeting of the Japanese Society of Engineering Geologists (JSEG) in Sapporo, Japan, in October 2025. We hope that the creation of DLC at IAEG will provide opportunities for other countries to interact with AEG members in their mutual pursuit to educate and inform each other.

Meetings Advisory Committee

Supporting AEG's event planning, including symposia, workshops, and annual meetings **By Paul Weaver and Sarah Kalika, Co-chairs**



The Meetings Advisory Committee (MAC) is one of AEG's standing operational committees. It is responsible for actively assisting and supporting the individual annual meeting planning committees and the technical forums/symposia planning committees. They provide historical knowledge to ensure new meeting planners benefit from years of meeting planning experience and develop marketing materials to assist AEG members in justifying annual meeting or conference registration fees and expenses to their employers.

Currently, the MAC meets every other month and has around 17 members. The chairs of the annual meeting planning committees become members of the MAC in the years leading up to their meeting, with some moving off the committee after their annual meeting while others choose to remain on the committee. MAC membership is open to any AEG member who wishes to participate on the committee. There are several committee members who remain on to maintain historical committee/event knowledge and because they enjoy participating. Leadership roles are rotated at the discretion of the committee and co-chair obligations.

Participation in the MAC is great for developing event and general planning skills applicable for AEG, your local chapter, work, and life. It also provides the opportunity to participate in the selection process for potential future annual meeting locations and provide support for regional conferences and symposia.

AEG, through the MAC, currently has the annual meeting locations selected through 2027. The 2025 Annual Meeting will be held in Chicago; the 2026 meeting in Chattanooga; and the 2027 meeting in Sacramento. We are still evaluating several options for the 2028 and 2029 meetings.

In addition to the annual meetings, the MAC assists in the planning of professional forums/symposia put on by AEG. There are two planned for this year: the AEG 2025 Virtual Volcanic Hazards Symposium to be held this spring from April 28–30, and the AEG Risk Assessment for Dam and Levee Foundations Workshop to be held in Denver on November 4–5 of this year. Potential forums/symposia ideas for after 2025 include a sea level rise conference, a naturally occurring asbestos symposium, and a vapor intrusion symposium.

If you are interested in joining the AEG Meetings Advisory Committee and/or if you have an idea for a future professional symposium or a great location for a future annual meeting, please contact vp@aegweb.org with your suggestion.

Student & Young Professional Support Committee

Supporting students and early career geologists through events, networking, and professional development **By Rick Kolb and Francisco Saldana, Co-chairs**

The main objective of the Student & Young Professional Support Committee (SYPSC) is to determine how AEG can better serve and support student and early career members. We know that this cohort is the future of AEG (and the practice of geology), and one day many will probably serve on AEG's Executive Council and Board of Directors.

SYPSC meets on the second Tuesday of the month at 1:00–2:00 p.m. Eastern time on Zoom. Currently we have 17 committee members, with a blend of AEG veterans, teacher members, early career members, and student members that are dispersed from New York to Texas to California to Nigeria. Typically, about half of our members participate in our calls; our younger members are often in the field, and student members commonly have classes. AEG Vice President Paul Weaver and Strategic Initiative Coordinator Curt Schmidt also call in. Our newest member is Emma O'Hara, an engineering geologist in the San Francisco Bay Area and the vice chair of that chapter. She is also AEG's new early career advocate (ECA).

Activities our committee has undertaken include:

- Hold an ASBOG fundamentals of geology exam preparation webinar annually
- Hold a career panel annually
- Prepare student chapter newsletters, overseen by the ECA, which we try to send out in August, December, and April
- Review applications from student, early career, and teacher members and select winners of travel grants to the annual meetings
- Help Heather Clark in organizing the Young at Heart receptions and student/professional networking receptions at AEG's annual meetings
- Organize the mentor program at the annual meeting
- Recommended the resume-writing webinar AEG held last May
- Help university students establish student chapters of AEG

A recent focus of the committee has been to establish webinars and/or podcasts that are recorded and stored on the AEG website as a resource for members. Francisco recorded the latest career panel in December and is editing it in preparation of upload to the AEG website. Recently, Francisco recommended the committee start a monthly production of a podcast of 30 minutes to an hour, during which an AEG member discusses their career as a practicing geologist. We thought such presentations would be helpful to our younger members.

Our committee is always looking for new members that will bring new ideas on how SYPSC can serve our younger members. If you're interested, we suggest listening in to a call to see if you'd like to fully participate as a member. Details such as call-in information and past meeting notes are available from Rick and Francisco. Just ask.

Landslides Technical Working Group

Promoting landslide hazard research, education, mapping, and mitigation

By James Arthurs and Cole Rosenbaum, Co-chairs

Sliding into 2025: Landslides TWG Updates

The Landslides Technical Working Group (TWG) had a productive year in 2024 and early 2025, convening twice via video conference and once in person at the 2024 AEG Annual Meeting in Philadelphia, where James, co-chair since 2022, was joined by Cole as co-chair. Cole is a geological engineer specializing in landslides and geohazard asset management with BGC Engineering in Golden, Colorado. We extend our gratitude to April Fontaine for her contributions to the TWG since 2023!

At the 2024 AEG Annual Meeting, the TWG successfully hosted two technical sessions: one focused on landslides in the western U.S., and the other focused on landslides in the eastern U.S and landslide inventories and susceptibility mapping.

Looking ahead to 2025, we are excited to be planning events for the AEG Annual Meeting in Chicago. These will include two technical sessions targeting a focus on resiliency and extreme weather events, as well as a joint symposium with the Dams and Levees TWG. We welcome suggestions for keynote speakers—please reach out to James or Cole if you have recommendations, and please submit your abstracts to the landslides technical sessions!

Another initiative on the horizon is a Fundamentals of Landslides short course tentatively scheduled for the 2026 AEG Annual Meeting. This course will likely include virtual, in-person, and field components and will target geoprofessionals and students new to landslides or looking to sharpen their landslide skills. Stay tuned as the course takes shape!

In collaboration with the Canadian Geotechnical Society, we are also in the preliminary stages of organizing the 4th North American Symposium on Landslides (NASL), tentatively scheduled for 2027.

Additionally, TWG members are actively participating in the National Landslide Hazard Risk Reduction (NLHRR) working group, hosted monthly by USGS. These virtual meetings foster collaboration, share best practices, enhance communication, enable training opportunities, and inspire innovative initiatives relating to landslide hazards. For more information on the NLHRR, visit the USGS website.

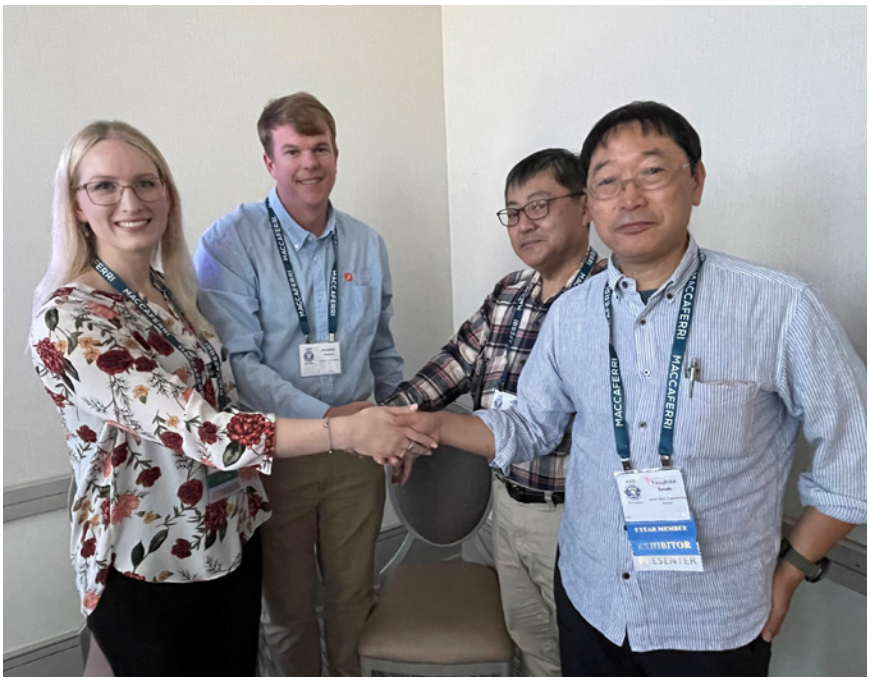
If you're interested in volunteering to assist with event planning or coordination for any of our upcoming initiatives, we encourage you to get involved! Whether it's supporting a technical session, helping to organize a symposium, or contributing fresh ideas, we'd love to have your input. Please email James or Cole to express your interest and learn more about how you can contribute.

If you have an interest in landslides and how we study, classify, rate, and mitigate them, please consider joining our working group. We are looking forward to bringing new professionals and new technologies into the field of landslide research and practice to serve the public and prevent loss of life and property.

Dams and Levees Technical Working Group

Advancing dam and levee safety through events, outreach, and international partnerships **By Hawkins Gagnon, Co-chair**

Dams and Levees TWG Co-chairs Cassandra Wagner and Hawkins Gagnon with co-chairs of the Japanese Society of Engineering Geologists.

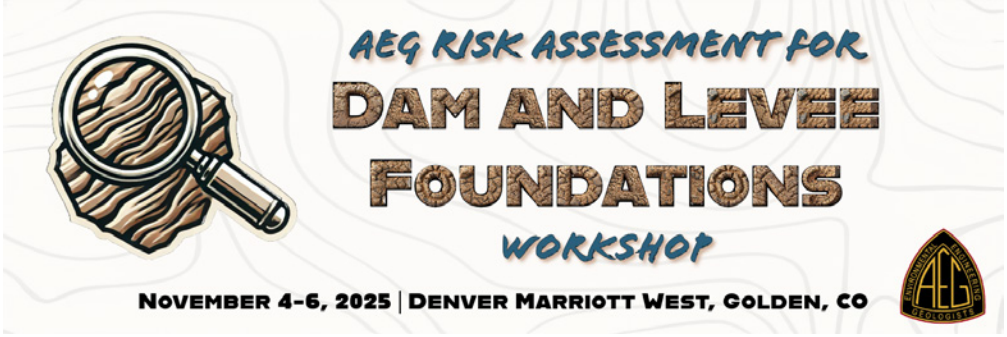


AEG's Dams and Levees TWG is very active with input from a wide range of practitioners. The TWG is co-chaired by Cassandra Wagner (USACE) and Hawkins Gagnon (Schnabel). The TWG meets quarterly, and 17 members attended our most recent meeting held December 12, 2024. Our next meeting is scheduled for 3:00 p.m. EDT on Wednesday, March 26, which is after the submission deadline for *AEG News*.

The TWG has several initiatives in various stages of planning and execution. For starters, we plan to be active at the 2025 AEG Annual Meeting in Chicago by having a full day of talks as well as a collaborative symposium with one or more additional TWGs.

With the leadership of Visty Dalal, Brian Greene, Bruce Hilton, and others, we have applied to start an International AEG (IAEG) Dams and Levees Commission. This move aligns with our budding initiative to collaborate internationally, which includes our ongoing partnership with the Japanese Society of Engineering Geologists (JSEG). The JSEG has graciously attended our annual meeting the last 2 years. JSEG has extended an invitation to all AEG members to join them this year at their annual meeting being held October 8–11 in Sapporo, Hokkaido. Members of our TWG are making plans to attend.

That's not all: we are excited to announce our upcoming Risk Assessment for Dam and Levee Foundations Workshop in Denver, Colorado, on November 4–6, 2025. This workshop will be a fantastic opportunity for anyone interested in dam and levee safety to learn the basics and to grow their professional networks.



https://www.aeg2025riskworkshop.org/

CALL FOR ABSTRACTS

The Association of Environmental and Engineering Geologists

will convene the fifth annual Symposium on Land Subsidence, Thursday, September 25th at the Annual Meeting of the Association in Chicago, Illinois
September 22–26, 2025

The AEG Land Subsidence Technical Working Group will convene AEG's seventh Symposium on Land Subsidence during AEG's 68th annual meeting. The symposium will begin with a summary of global land subsidence as reported in the online media during 2024–25. Abstracts are solicited *now* for symposium sessions addressing land subsidence due to collapse of underground voids (mines, karst, tunnels), fluid extraction (groundwater, hydrocarbons, brine, geothermal fluids), thawing permafrost, drainage of organic soils, hydrocompaction, natural compaction, tectonics, volcanics, and relaxation from uplift in areas formerly adjacent to continental ice sheets. Abstracts related to geophysical characterization of subsiding areas, and subsidence processes, monitoring, infrastructure damage, modeling, remediation, and regulation are encouraged, as well as presentations dealing with deltas and coastal plains experiencing the multiple effects of subsidence and sea level rise.

Abstracts of no more than 300 words and brief author bios are due May 1, 2025.

- Instructions for abstract format and submission are found here.
- Hotel registration is found here:
- Conference registration details will be available in March 2025 at: https://www.aegannualmeeting.org/
- AEG Subsidence Working Group, 530.756.4098, 530.220.5081(m), jimborchers@sbcglobal.net

Subsidence Technical Working Group

Advancing research and collaboration to better understand subsidence causes, impacts, and monitoring

By Jim Borchers, Co-chair

The AEG Land Subsidence Technical Working Group (TWG) will convene AEG's seventh (and fifth annual) Symposium on Land Subsidence during AEG's 68th Annual Meeting in Chicago, Illinois. The symposium will begin on Thursday, September 25, 2025, with a summary of global land subsidence as reported in the online media during 2024–25. Separate symposium sessions will address applications of interferometric synthetic aperture radar (InSAR) technology to land subsidence assessment in areas where subsidence exacerbates the effects of sea level rise and where subsidence results from groundwater and hydrocarbon extraction, postglacial rebound, and surface loading. Speakers will discuss land subsidence in volcanic terrane and in karst areas as well as subsidence associated with decomposition of peaty soils collapse of subsurface mine workings, thawing of permafrost, and tunneling. Presentations will cover subsidence monitoring and modeling at site and regional scales.

We encourage you to submit an abstract to present your work on subsidence and join us for the exciting conversations that ensue. We welcome new speakers and new members of AEG's Land Subsidence TWG. So, if you're interested in land subsidence, drop me a note at jimborchers@sbcglobal.net with your contact information, and we'll add you to the group.

Get Involved!

Put your expertise to work for the betterment of the profession, and make some great friends along the way.

"Volunteering is the ultimate exercise in democracy. You vote in elections once a year, but when you volunteer, you vote every day about the kind of community you want to live in." —author unknown

Reach out to one of the committees and TWGs featured here. If you don't know where to start, contact Sarah Kalika, pp@aegweb.org!

Ad Index

Earthquake Legislation Considered in Congress

A new Senate bill could strengthen earthquake resilience nationwide **By Bill Roman, *AEG News* Content Editor**

Figure 1. Bridge section carrying Highway 1 over Struve Slough near Watsonville, California, collapsed during the October 17, 1989, Loma Prieta earthquake. *Photo by J. C. Tinsley, USGS.*

The *Earthquake Hazards Reduction Program Reauthorization Act of 2025* (S.320) was introduced in the Senate on January 29, 2025, by Senator Alex Padilla (DCA) on behalf of himself and Senator Lisa Murkowski (RAK). The bill was referred to the Committee on Commerce, Science, and Transportation.

S.320 would amend the Earthquake Hazards Reduction Act of 1977 to make changes to the National Earthquake Hazards Reduction Program (NEHRP), an interagency program focused on reducing earthquake-related risks to life and property. The bill would reauthorize appropriations of $175.4 million annually for fiscal years 2024 through 2028 for the USGS ($100.9 million), FEMA ($10.59 million), the National Science Foundation (NSF) ($58 million), and the National Institute of Standards and Technology (NIST) ($5.9 million) to implement the program.

The bill would require the agencies to develop best practices to assist state, local, and tribal governments with creating inventories of critical, high-risk buildings and structures and with developing evacuation plans and expanding early warning systems. The agencies also would be required to report to Congress every 2 years about activities related to the program. The NEHRP reauthorization would also expand seismic events to include earthquake-caused tsunamis, provide more technical assistance to Tribal governments, and improve mitigation for earthquake-connected hazards.

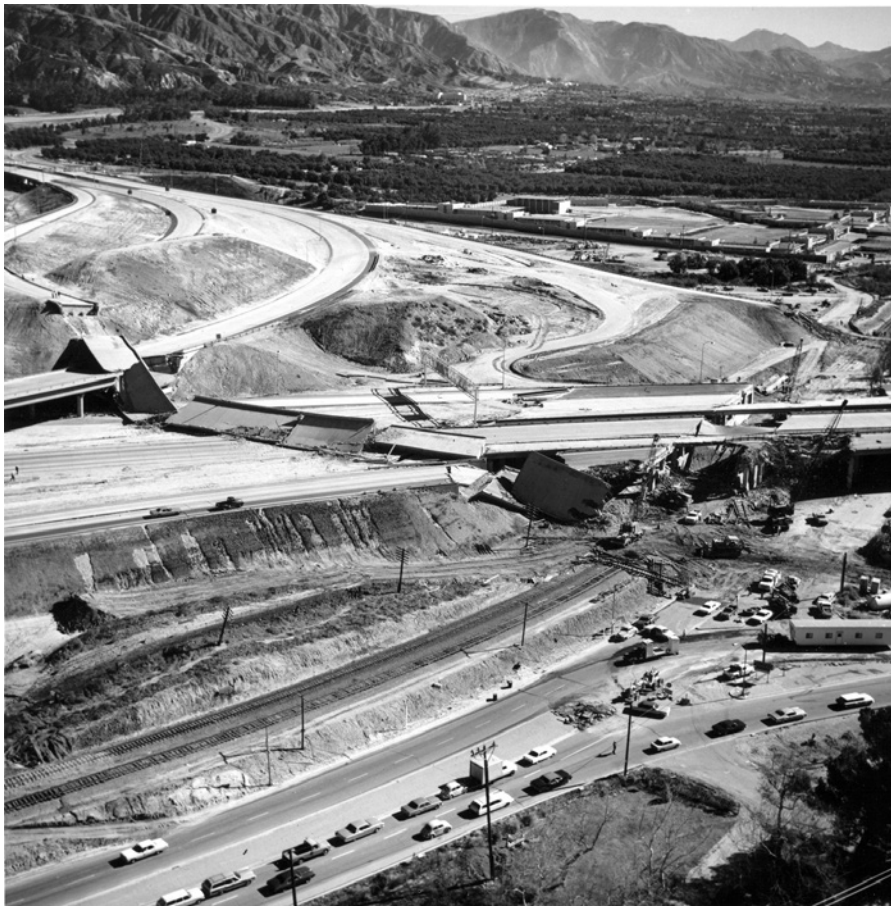


Figure 2. View east showing collapsed overpass at interchange of Highways 5 (Golden State Freeway) and 210 (Foothill Freeway) following the February 1971 San Fernando earthquake. The overpass was completed but not all segments were yet in service. Photo from USGS Denver Library Photographic Collection.

In 2024, the responsible agencies (USGS, FEMA, NSF, and NIST) allocated $164 million for the NEHRP from funds provided in the appropriation acts for that year. In a cost estimate dated September 23, 2024, based on historical spending patterns, the Congressional Budget Office (CBO) estimated that reauthorizing the NEHRP would cost $615 million over the 2025–29 period and $68 million after 2029.

During the 118th Congress (2023–24), a virtually identical bill—the *Earthquake Hazards Reduction Program Reauthorization Act of 2024* (S.3606)—was passed unanimously by the Senate on December 5, 2024; however, the House took no action on the Senate-passed bill during the lame duck session, so it died at the end of the 118th Congress.

S.3606 was introduced by Senator Padilla on behalf of himself and Senator Murkowski on January 17, 2024. The date marked the 30th anniversary of the devastating 1994 Northridge earthquake, which was the costliest earthquake disaster in U.S. history. Senators Ron Widen (DOR), Jeff Merkley (DOR), and Jon Tester (DMT) joined later as co-sponsors. S.3606 was endorsed by the American Society of Civil Engineers (ASCE), BuildStrong America (BSA), the Earthquake Engineering Research Institute

Figure 3. Support column failure and collapsed upper deck on the Cypress viaduct of Interstate 880 caused by the October 17, 1989, Loma Prieta earthquake. Photo by H. G. Wilshire, USGS.

(EERI), the International Code Council (ICC), the National Council of Structural Engineers Associations (NCSEA), the National Institute of Building Sciences (NIBS), the Seismological Society of America, and the Structural Engineers Association of California (SEAOC).

Two bills addressing earthquake hazards were introduced in the House during the 118th Congress, but neither one reached the House floor for a debate or vote. The *Breaking the Gridlock Act* (H.R.626) was introduced by its sponsor Representative Mark DeSaulnier (D-CA-10) on January 30, 2023. The bill addressed a wide variety of issues, ranging from reducing earthquake hazards to establishing a federal task force to support grandparents raising grandchildren, to underrepresented groups in cancer trials, and fighting Boko Haram in Nigeria.

With respect to earthquake hazards reduction, the bill would have reauthorized the NEHRP; reduced the frequency of reporting by the Interagency Coordinating Committee on Earthquake Hazards Reduction; modified the responsibilities of FEMA, USGS, and NSF; and directed the Government Accountability Office (GAO) to review federal earthquake hazard risk reduction efforts. The bill was referred to 20 House committees and seven subcommittees. On January 30, 2024, the Committee on Science, Space, and Technology Subcommittee on Research and Technology held a hearing on reauthorizing the NEHRP. Witnesses from the USGS, FEMA, NSF, and NIST testified on their agencies' responsibilities and activities regarding the NEHRP.

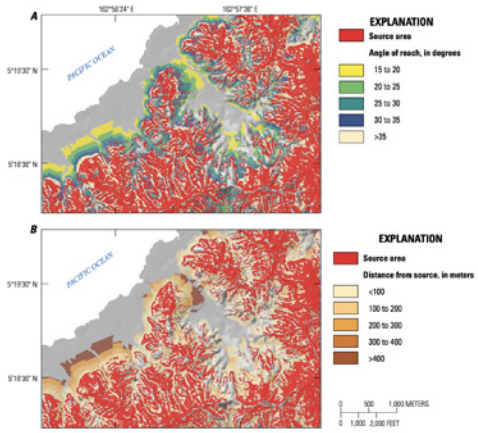
The *Earthquake Resilience Act* (H.R.9375) was introduced in the House by its sponsor Representative Kevin Mullin (D-CA-15) on August 16, 2024. The Congressman's district—situated along the west shore of San Francisco Bay—was affected by the 1989 Loma Prieta earthquake, which caused 63 deaths, 3,757 injuries, and billions of dollars in property damage.

H.R.9375 would have directed federal agencies to conduct America's first national risk assessment of earthquake resiliency to better understand how communities can prepare; required the NEHRP to support development of standards and guidelines for lifeline infrastructure so these critical systems can be quickly restored during an earthquake or other disasters; and directed the USGS to incorporate a technology (geodetic networks) in seismic monitoring that can improve prediction of aftershocks and large magnitude earthquakes.

The bill was referred to the House Committee on Science, Space, and Technology, the Committee on Natural Resources, and the House Committee on Transportation and Infrastructure and its Subcommittee on Economic Development, Public Buildings, and Emergency Management. H.R.9375 was endorsed by ASCE, BSA, NIBS, the National Society of Professional Engineers, and the Central U.S. Earthquake Consortium.

USGS Releases Landslide Modeling Software

Grfin Tools enables rapid assessments and allows speedy comparison of "what if" scenarios **By Bill Roman, *AEG News* Content Editor**



[Above] Maps showing landslide runout zones starting from extensive source areas in part of Kosrae, Federated States of Micronesia, computed using the Grfin Tools HL tool for angles of reach ≥15° (min_reach_angle set to "15").

In February 2025, the USGS publications website posted a report entitled *Grfin Tools—User Guide and Methods for Modeling Landslide Runout and Debris Flow Growth and Inundation* (https://www.usgs.gov/publications/grfin-tools-user-guide-and-methods-modeling-landslide-runout-and-debris-flow-growth). Authors of the report are Mark Reid and Dianne L. Brien, both with the USGS California Volcano Observatory, and Collin Cronkite-Ratcliff and Jonathan P. Perkins, both with the USGS Geology Minerals, Energy, and Geophysics Science Center. The report's abstract provides the following description of the new software:

*The software package, Grfin Tools, can estimate potential runout from landslides or inundation from geophysical mass flows such as debris flows, lahars from volcanoes, and rock avalanches within a digital elevation model (DEM). Grfin is an acronym of **gr**owth + **fl**ow + **in**undation. The tools within this package apply simple, well-tested, empirical models of runout that are computationally efficient and require minimal parameters. These tools can be used individually (for example, to estimate debris-flow inundation) or in combination to represent a more complete series of linked processes, from landslide source areas, to unchannelized transport, to channelized flows. Grfin Tools can rapidly assess potential runout and inundation over large areas and the results are readily visualized in a geographic information system.*

Tools for assessing areas affected by runout and flow inundation include a height-to-length (H/L) ratio, angle-of-reach approach for estimating open-slope, unchannelized landslide runout, and volume-area scaling relations for assessing flow inundation in channels. Potential landslide areas that constitute the sources of runout or inundation can be delineated with topographic features, such as slope and (or) curvature, derived by the software package, or by employing potential sources derived from other landslide susceptibility models. Grfin Tools also has the capability to assess inundation from flows that grow volumetrically downstream. This is a vital feature, as larger flows commonly result in longer runout and larger inundation. The software uses empirically derived growth factors applied over upslope contributing source areas or upstream channel lengths to integrate the effects of various growth processes, such as channel entrainment, streambank failures, adjacent landslides, and hillslope erosion. Inundation follows a drainage network defined with a separate tool that uses topographic curvature to identify channel initiation locations.

Reference: Reid, M.E., Brien, D.L., Cronkite-Ratcliff, C., and Perkins, J.P., 2025, Grfin Tools—User guide and methods for modeling landslide runout and debris-flow growth and inundation: U.S. Geological Survey Techniques and Methods, book 14, chap. A3, 105 p., https://doi.org/10.3133/tm14A3.

Update on Reauthorization of the National Landslide Preparedness Act

Washington representatives rally to support landslide preparedness

By Bill Roman, *AEG News* Content Editor

Figure 1. Oblique aerial photograph of the Oso, Washington, landslide, showing the entire extent of the landslide source area and path across the Steelhead Haven community along the North Fork Stillaguamish River and across Washington State Route 530. Photo by Mark Reid, Research Hydrologist, California Volcano Observatory.

On March 21, 2025, Representative Suzan K. DelBene (D-WA-1) introduced a bill, "To reauthorize the National Landslide Preparedness Act, and for other purposes" (H.R.2250). Seven members of Washington's House delegation joined her as co-sponsors, a reflection of Washington's status as home of not only one of the deadliest landslides—the March 22, 2014, Oso landslide (figure 1), which claimed the lives of 43 people, but also one of the largest subaerial landslides recorded in the U.S.—the North Fork Toutle River landslide, which had a volume of 2.8 km^3 and was triggered by the May 18, 1980, eruption of Mount St. Helens. The seven co-sponsors are Representatives Rick Larsen (D-WA-2), Marie Gluesenkamp Perez (D-WA-3), Dan Newhouse (R-WA-4), Emily Randall (D-WA-6), Kim Schrier (D-WA-8), Adam Smith (D-WA-9), and Marilyn Strickland (D-WA-10). H.R.2250 was referred to the Committee on Science, Space, and Technology (CSST) and the Committee on Natural Resources (CNR).

Although the text of the bill is unavailable at the time of writing, H.R.2250 may be similar to the ill-fated National Landslide Preparedness Act Reauthorization Act of 2024 (H.R.7003), which was introduced in the House on January 17, 2024, by Representative DelBene on behalf of herself, all nine other members of the Washington delegation, plus Representatives Suzanne Bonamici (D-OR-1) and Matt Cartwright (D-PA-8). The list of co-sponsors grew to include Representatives Mary Sattler Peltola (D-AK-At Large), Raúl M. Grijalva (D-AZ-7), Mark DeSaulnier (D-CA-10), Jay Obernolte (R-CA-23), Jason Crow (D-CO-6), Steve Cohen (D-TN-9), Derek Kilmer (D-WA-6), Parmila Jayapal (D-WA-7), Delegate Eleanor Holmes Norton (D-DC-At Large), and Resident Commissioner Jenniffer González Colón (R-PR-At Large).

H.R.7003 was intended to amend and reauthorize the National Landslide Preparedness Act (NLPA), which was passed by the 116th Congress in December 2020 and signed into law by President Joe Biden on January 5, 2021 (P.L.116-323). The NLPA directed the USGS to establish a National Landslide Hazards Reduction Program (NLHRP) to identify and understand landslide hazards and risks, reduce losses from landslides, protect communities at risk of landslide hazards, and help improve communication and emergency preparedness. The act directed the USGS to develop and publish a national strategy for landslide hazards, risk reduction, and response in the U.S. (including territories); develop and maintain a publicly accessible national landslide hazard and risk inventory database; expand the early warning system for debris flow; and establish emergency response procedures for the rapid deployment of federal scientists, equipment, and services to areas impacted by a significant landslide event.

The NLPA also directed the USGS to advance the identification, mapping, research, and monitoring of subsidence and groundwater resource accounting, particularly in areas affected by drought, and to establish the 3D Elevation Program (3DEP) and the 3D Elevation Federal Interagency Coordinating Committee. The NLPA authorized the USGS to make grants and enter into cooperative agreements to facilitate the improvement of nationwide coverage of 3D elevation data and to provide grants to research, map, assess, and collect data on landslide hazards. The bill also authorized the National Science Foundation (NSF) to provide grants to eligible entities for landslide research. H.R.7003 sought to reauthorize the appropriation of $37 million annually through 2029 for the NLHRP and to authorize appropriations of $40 million annually through 2029 for the 3DEP.

Washington has seen one of the deadliest landslides—the March 22, 2014, Oso landslide—but also one of the largest subaerial landslides recorded in the U.S.

Hearings on the bill were held by the CNR's Subcommittee on Energy and Mineral Resources on January 31, 2024. Dr. John Metesh, Montana State geologist and president of the American Association of State Geologists, testified in support of H.R.7003. In his testimony, Dr. Metesh stated that the NLHRP had already fostered partnerships between the USGS and state surveys in Arizona, California, Colorado, Kentucky, North Carolina, Oregon, and Washington, and that these partnerships are well on their way to developing strategy and risk preparedness for their respective states.

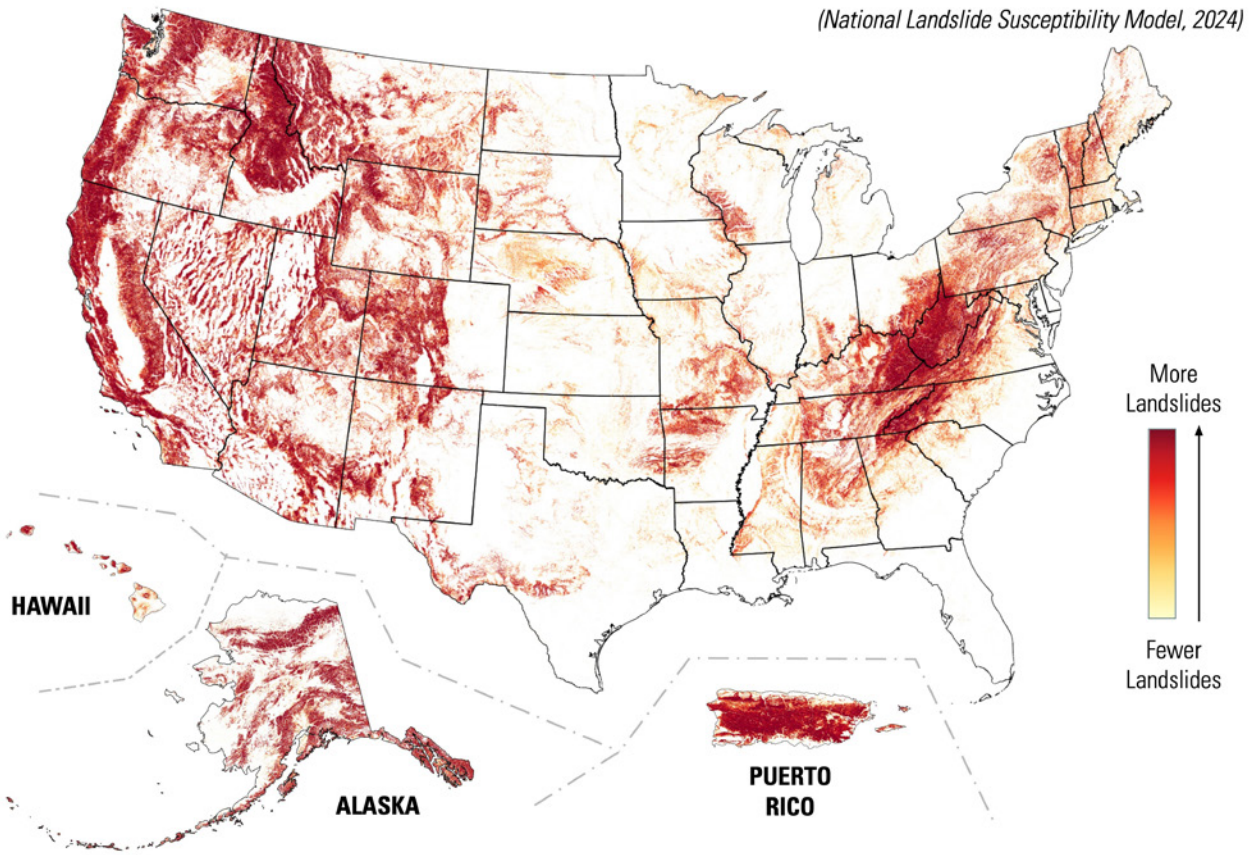


Figure 2. USGS map showing landslide susceptibility from yellow (low) to red (high), where the areas without shading represent negligible potential for landslides. Higher landslide susceptibility is evident across most mountainous terrain within the U.S., but considerable landslide potential is scattered throughout other areas of the country. The interactive U.S. Landslide Inventory and Susceptibility Map may be accessed at https://www.usgs.gov/tools/us-landslide-inventory-and-susceptibility-map.

Dr. Steve Feldus, U.S. Department of the Interior (DOI) principal deputy assistant secretary for land and minerals management, also testified in support of reauthorization of the NLPA. In his written statement, Dr. Feldus urged the subcommittee to consider amendments intended to improve the DOI's ability to implement the act's authority (https://www.usgs.gov/congressional/testimony-steve-feldgus-senior-science-advisor-principal-deputy-assistant-secretary). The amendments included clarifying that certain emergency-management and land-use decisions are appropriately made by state, Tribal, and local governments; technical corrections to reinforce the need to collect data to maintain quality and identify changes in the landscape that are essential criteria for landslide hazard research; and technical changes to better reflect the current state of the 3DEP's implementation and the ongoing need for data collection.

Following the bill's discharge from the subcommittee, the CNR considered and marked up the bill on April 16, 2024. By unanimous consent, CNR ordered the bill to be reported "in the nature of a substitute" (meaning that the full text of the bill was replaced by an amendment). Following reporting of the bill by the CNR and discharge of the bill by the CSST, on December 18, 2024, H.R.7003 was placed on the calendar for consideration by the House. The bill was not brought up for debate or a vote by the leadership of the House chamber, so it died at the end of the 118th Congress.

In 2024, the USGS and the National Oceanic and Atmospheric

USGS and NOAA allocated $14 million for the National Landslide Hazards Reduction Program in 2024

Administration (NOAA) allocated roughly $14 million for the NLHRP. In a cost estimate dated August 5, 2024, based on historical spending patterns for the NLHRP and the 3DEP, the Congressional Budget Office (CBO) estimated that implementing H.R.7003 would cost $321 million over the 2024–29 period and $59 million after 2029. CBO expected that about $5 million of those amounts would not be spent.

In the Senate chamber, the National Landslide Preparedness Act Reauthorization Act of 2024 (S.3788) was introduced by Senator Lisa Murkowski (R-AK) on behalf of herself and Senator Maria Cantwell (D-WA) on February 8, 2024. Senator Dan Sullivan (R-AK) joined as a co-sponsor of S.3788 on September 25, 2024. S.3788 was referred to the Committee on Commerce, Science, and Transportation (CCST). On August 1, 2024, Senator Cantwell reported the bill with an amendment in the nature of a substitute, and S.3788 was placed on the calendar for consideration by the Senate. The bill was not brought up for debate or a vote by the leadership of the Senate chamber, so it died at the end of the 118th Congress.

An October 24, 2024, report by the Congressional Research Service (CRS) identified several issues for Congress to consider in determining the federal role in landslide research, assessment, and response. The report indicated that actions required by the NLPA and completed by the USGS include the submission to Congress in January 2022 of a National Strategy to implement the NLHRP and the establishment of an Interagency Coordinating Committee on Landslide Hazards (ICCLH), which held its first meeting in February 2023.

In establishing the NLHRP, the NLPA also required an advisory committee and working groups, which had not been established as of the date of the report. Therefore, the report suggested Congress might explore the status of the advisory committee and working group and their impact on implementation of the NLHRP. Subsequent to the CRS report, the USGS established the Federal Advisory Committee on Landslides (ACL), which held its first virtual meeting on January 16, 2025. ACL had an in-person meeting scheduled for April 1–2, 2025. Also subsequent to the CRS report, the USGS established the National Landslide Hazard Risk Reduction Working Group, which held its first meeting on November 14, 2024. The working group typically holds virtual meetings on the second Thursday of each month. AEG members who are professionals working on topics related to landslide hazard risk reduction at the regional to local scales may find information about upcoming meetings at the working group's webpage (https://www.usgs.gov/programs/landslide-hazards/national-landslide-hazards-risk-reduction-working-group).

To carry out the NLHRP, the NLPA authorized $25 million annually for the USGS, $11 million for NSF, and $1 million for NOAA for financial years (FYs) 2021–24. However, no funds were appropriated for NSF and NOAA. Congressional appropriations for the USGS Landslide Hazards Program (LHP), which included some NLHRP activities beginning in FY2021, were $8 million in FY2020, $9 million in FY2021, $14.4 million in FY2022, $14.4 million in FY2023, and $14.0 million in FY2024. The CRS report suggested Congress may consider whether the amount and directed spending of annual appropriations were sufficient to implement the USGS-led activities of the NLHRP; whether to appropriate any funds to the other agencies that are part of the NLHRP; and whether to reauthorize additional appropriations for the NLHRP.

118th Congress Passes BEACH Act

Legislation for strengthening coastal conservation, updating CBRS maps, and controlling access to federal flood insurance

By Bill Roman, *AEG News* Content Editor

Figure 1. Aerial view of ocean breach at Chincoteague National Wildlife Refuge in Virginia following Hurricane Sandy. *Photo by USFWS.*

Figure 2. A breach in the coastline of Rodanthe, North Carolina, caused by Hurricane Irene in 2011. Photo by Karen Morgan, USGS.

The Bolstering Ecosystems Against Coastal Harm Act (H.R.5490), a.k.a., the "BEACH Act," was introduced in the House on September 14, 2023, by Rep. Jennifer A. Kiggans (R-VA-2). Rep. Lisa Blunt Rochester (D-DE-At Large) joined as a co-sponsor on May 31, 2024. The bill sought to authorize the U.S. Fish and Wildlife Service (USFWS) to administer the Coastal Barrier Resources System (CBRS); codify 184 updated and 11 new maps that define the boundaries of areas for incorporation into the CBRS; remove some private residential structures from the CBRS, allowing owners of those properties to purchase federal flood insurance under the National Flood Insurance Program; and impose intergovernmental and private-sector mandates by requiring owners or lessors to notify prospective buyers or lessees that a property is located within the CBRS.

USFWS administers the Coastal Barrier Resources Act (CBRA, P.L. 97348), which was passed by Congress and signed into law by President Ronald Reagan on October 18, 1982. CBRA encourages the conservation of storm-prone and dynamic coastal barriers by withdrawing the availability of federal funding and financial assistance within a designated set of units known as the CBRS. CBRA's objectives were to save lives, save taxpayer dollars, and conserve coastal barrier habitat by restricting new federal expenditures and financial assistance that might encourage development in these sensitive and dynamic areas. The CBRS includes 3.8 million acres along the Atlantic, Gulf of Mexico, Great Lakes, U.S. Virgin Islands, and Puerto Rico coasts.

H.R.5490 authorized the appropriation of $2 million annually through 2031 for USFWS to administer the CBRS program and to correct and update existing CBRS maps. Using information from USFWS and based on historical spending patterns for similar activities, in March 2024, the Congressional Budget Office (CBO) estimated that implementing H.R.5490 would cost $11 million over the 2024–29 period and $5 million after 2029, assuming appropriation of the authorized amounts.

H.R.5490 was referred to the House Committee on Natural Resources Subcommittee on Water, Wildlife, and Fisheries, which held hearings on September 28, 2023. Matthew J. Strickler, deputy assistant secretary for fish and wildlife and parks in the Department of Interior testified in support of H.R. 5490 with some recommended changes. Following 40 minutes of debate, the House passed the amended bill by a voice vote on September 24, 2024.

The Senate version of the BEACH Act (S.2958) was introduced by Senator Thomas R. Carper (D-DE) on September 27, 2023. By a voice vote on April 18, 2024, the Senate passed an amended version of S.2958 (with a short title of "Strengthening Coastal Communities Act of 2023"). By a voice vote on November 19, 2024, the Senate passed the House-version of the bill without amendment. President Joe Biden signed the bill, which became Public Law No. 118-117 on November 25, 2024.

Volcano Legislation Reintroduced in the 119th Congress

Bipartisan effort aims to renew critical volcano monitoring systems across the Pacific Ring of Fire

By Bill Roman, *AEG News* Content Editor

Mount Spurr as viewed from Kenai, Alaska, on March 23, 2025. A steam plume is visible rising from the fumaroles of the summit. *Photo courtesy of Linda Thiele Caswell.*

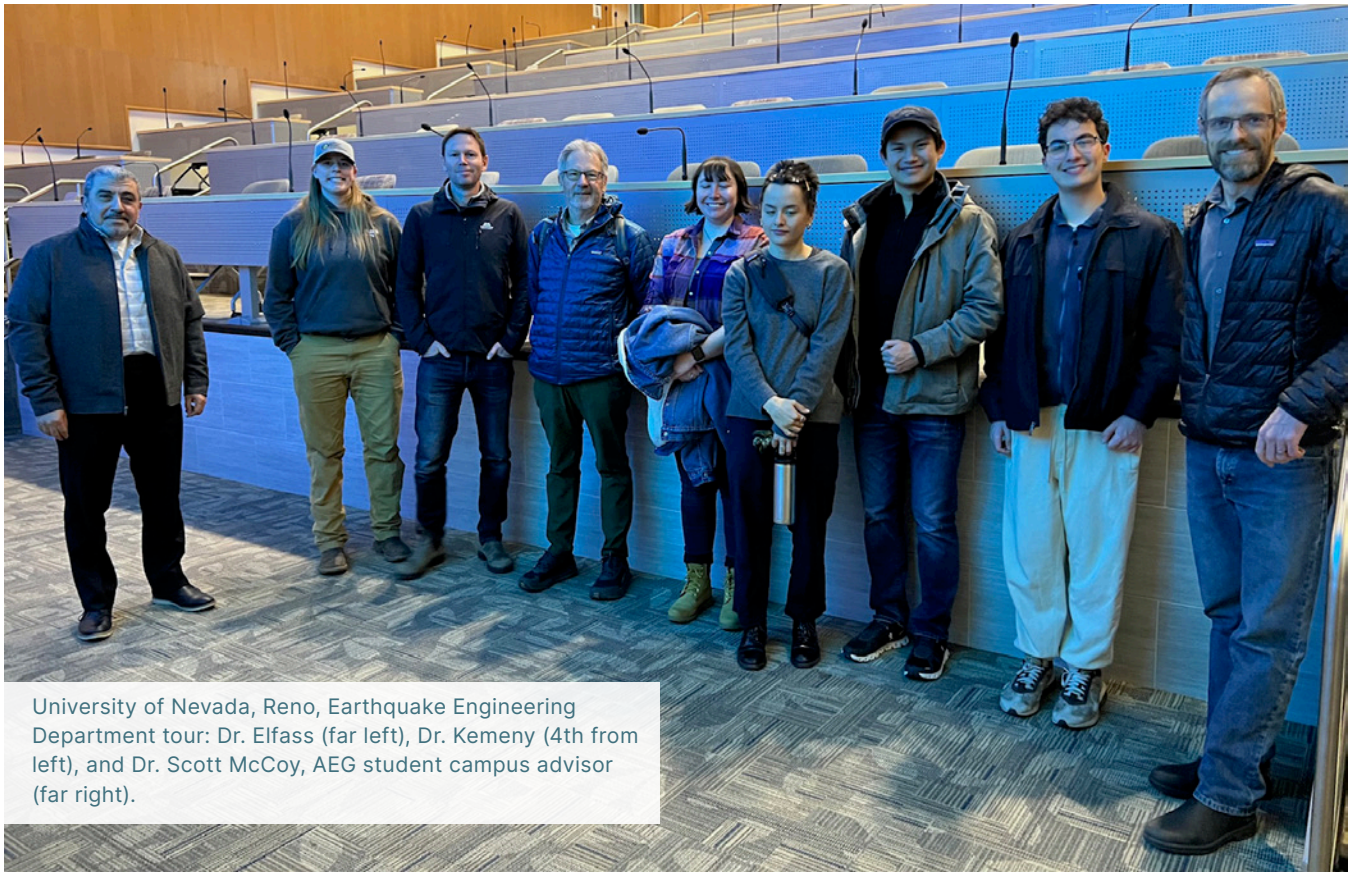
On March 13, 2025, Senator Lisa Markowski (R-AK) introduced "A bill to amend the John D. Dingell, Jr. Conservation, Management, and Recreation Act to reauthorize the National Volcano Early Warning and Monitoring System, and for other purposes" (S.1052). Joining her as co-sponsors are Senators Maria Cantwell (D-WA), Mazie K. Hirono (D-HI), and Senator Dan Sullivan (R-AK). The bill was referred to the Committee on Energy and Natural Resources.

Although the text of S.1052 is not available at time of writing, it may be similar to S.4974, which had an identical title and passed the Senate without amendment by unanimous consent on December 19, 2024. During the lame duck session, the House took no action on the bill, so it died when the 118th Congress ended on January 3, 2025.

Senator Markowski introduced S.4974 on August 1, 2024, on behalf of herself and Senators Cantwell and Hirono. Senator Sullivan joined as a co-sponsor on September 18, 2024. S.4974 sought to reauthorize the National Volcano Early Warning and Monitoring System, renew critical research and monitoring systems, upgrade existing networks, and provide for the installation of new detection technology. The reauthorization would have established a 24/7 national volcano watch office and data center to bolster our understanding of volcanic activity around the country and ensure better prediction and preparation to detect eruptions before they occur.

In a November 20, 2024, press release, Senator Murkowski stated, *"As we focus on the rising threats that Alaska faces from landslides and outburst flooding, we continue to face serious threats from volcanic unrest along the Aleutians and at sites such as Mount Spurr. For us volcanoes are no abstract threat, and the investments this bill will facilitate are needed to improve warning and response systems across Alaska and the greater Pacific Ring of Fire."*

Reauthorizing the National Volcano Early Warning and Monitoring System could improve volcano warning and response systems



University of Nevada, Reno, Earthquake Engineering Department tour: Dr. Elfass (far left), Dr. Kemeny (4th from left), and Dr. Scott McCoy, AEG student campus advisor (far right).

Great Basin Chapter

By Merrily Graham, Vice Chair

The Great Basin Chapter proudly displays its 2023 "AEG Rising Chapter Award" during every pre-meeting social as a reminder of the how far the chapter has come and what the future will bring. The Reno metro area is home to the chapter, but it also draws interest from surrounding areas, a testimony to the chapter's growing popularity. A regular following lends stability to the organization, while new arrivals are always made to feel welcome. The chapter is in a unique position to bring in local experts from industry, academic, and government sectors. Speakers and topics are selected prior to the start of the meeting season, which runs from October through March and culminates with the April Student Awards Night event. Then the focus turns to industry sponsors and other generous contributors who help support student attendance and participation. Everyone benefits from these aspiring professionals, and industry internships are available to those whose work merit consideration.

While northern Nevada has a wealth of outstanding speakers, the chapter enjoys the annual visit by the Jahns Distinguished Lecturer. Dr. John Kemeny had just completed a 2-day session for the Southern Nevada Chapter when he arrived in Reno this past February for another 2-day event, the second half on the University of Nevado, Reno campus, an event that was coordinated with the AEG Nevada Student Chapter. It has become a tradition to invite the Jahns Distinguished Lecturer to a tour conducted by Dr. Sherif Elfass, who oversees the engineering department's Earthquake Engineering Lab (shake tables) and the largest "biaxial laminar soil box" in the U.S. Following the lecture, Dr. Kemeny was invited to attend a tour given by Garrett Barmore, curator of the W. M. Keck Earth Science and Mineral Engineering Museum.

Greater Pittsburgh Chapter

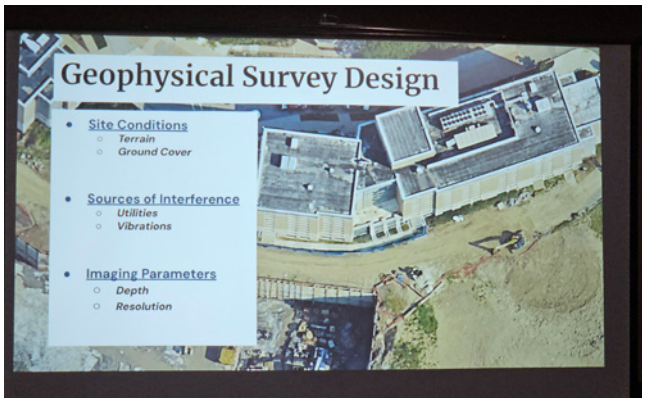
By Jim Hamel, Honorary Member and news wrangler

Meetings

On January 15, 2025, we had a joint meeting with the Pittsburgh Geological Society and the American Society of Civil Engineers (ASCE) Pittsburgh Section Geo-Institute. Nathaniel Hayes, PE, of The Gateway Engineers and Matt Toland, PG, of THG Geophysics, Ltd., presented "A Review of Geophysical and Physical Techniques for Abandoned Coal Mine Identification." They described an investigation of historic underground coal mining and subsequent development of surface facilities, including a stadium (later demolished) and dormitories, at the University of Pittsburgh. Eighty people attended (see photos).

Member News

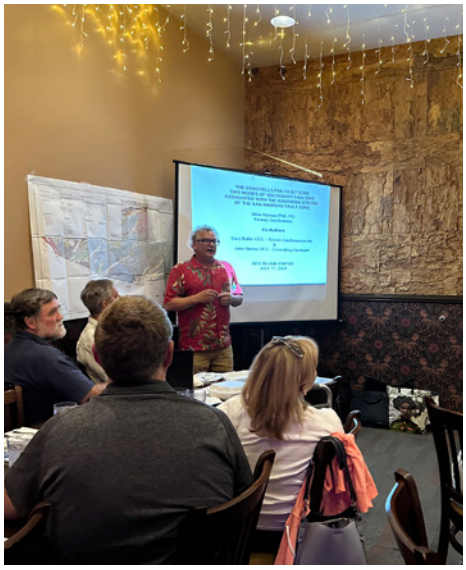
Dick Gray of Gannett Fleming TranSystems, AEG honorary member and past president, turned 90 on December 12, 2024. He celebrated his birthday on December 7 at a party organized by his daughter Wendy. More than a hundred friends, relatives, professional colleagues, and past and present co-workers attended to help Dick celebrate. Attendees included Pittsburgh Chapter members Abdul Shakoor, Jim Hamel, Brian Greene, Ryan Fandray, and Dave Knott. The event was truly a wonderful celebration for our friend and highly respected colleague!



[CLOCKWISE FROM TOP LEFT] Dick Gray at his 90th birthday party with past and present co-workers—December 7, 2024; Dick Gray at his 90th birthday party with multiple birthday cakes; Matt Toland describing geophysical investigation; Matt Toland's geophysical survey design.

Inland Empire Chapter

By Doug Johnston, Chapter Secretary



[Left] Dr. Miles Kenney presenting at July meeting [Right] April field trip to the Split Mountain Area

AEG's Southern California Inland Empire (IE) Chapter built good momentum during the first quarter of 2024 and continued that energy throughout the year.

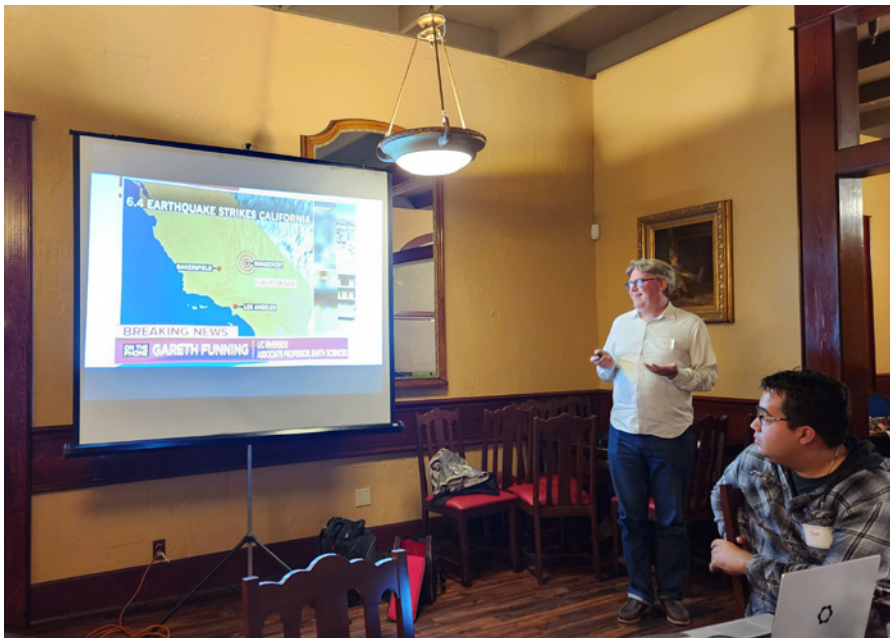
In April 2024, we pivoted from our monthly dinner meeting schedule to host a field trip. This field trip took us to the Split Mountain area of the Anaz-Borrego Desert State Park in eastern San Diego County and the field expedition was led by co-organizers Mark Spykerman of Earth Systems Southwest and Michael Cook of Kleinfelder. The field trip took us on a 6-hour journey back through time starting around 22 Ma during the time of deposition of the terrestrial Split Mountain Group alluvial fans, conglomerates, and debris flows, to about 2.3 Ma, where Palm Springs Group terrestrial sandstones, siltstones, and claystones are well exposed. In between these two points, we traveled through a thick section of Imperial Group marine sandstones, siltstones, claystones, evaporites, and coquina beds related to the ancestral Colorado River delta into the Gulf of California. We began at the mouth of Fish Creek Wash and traveled along the creek channel through Split Mountain Gorge and finished at Sandstone Canyon. Pleistocene age fan and terrace deposits also cap the Tertiary formations in some areas.

Our May 2024 dinner meeting event was held at the Cask 'n Cleaver restaurant in Rancho Cucamonga. We were honored to welcome Sally McGill, PhD, Professor of Geology at California State University, San Bernardino (CSUSB) to discuss several recent studies and findings related to the neotectonics of the Pacific-North American plate boundary in Southern California. Several new geologic slip rate studies by

Professor McGill and her students on the San Bernardino Mountains section of the San Andreas Fault have yielded latest Pleistocene slip rate estimates for the San Bernardino strand of the San Andreas fault of about 13 mm/yr± at Badger Canyon and 7–16 mm/yr at Plunge Creek. These results confirm that within the San Bernardino Mountains, the San Andreas Fault has a lower slip rate than it does at Cajon Pass or in the southern Indio Hills. A likely explanation for these changes in the San Andreas Fault slip rate along strike is that a portion of the slip on the San Andreas Fault at Cajon Creek is transferred southward onto the San Jacinto Fault and that a portion of the slip on the San Andreas Fault in the southern Indio Hills is transferred northward into the Eastern California Shear Zone.

In June, we returned to the Cask 'n Cleaver restaurant in Rancho Cucamonga, and on this occasion, we held a student's night presentation from local graduate students. We were very pleased to hear presentations from Gideon "Skye" El Hiri from CSUSB, Sevag Injean also with CSUSB, Chris Jones from University of California, Riverside, and lastly Terry Li from UCR. This was IE's first student night and judging by the success and popularity of this meeting, we will have more student meetings in the future.

Our July 2024 dinner meeting event was held at The Mexico Cafe restaurant on Pechanga Parkway in Temecula. We were honored to welcome Miles Kenney, PhD, PG of Kenney GeoScience from Del Mar



[TOP] Dr. Gareth Funning presenting at our October meeting [BOTTOM] Dr. Sally McGill discussing neotectonics of the Pacific-North American plate boundary at our May meeting

(San Diego region) to discuss his extensive studies and work along the Coachella Fan Fault Zone (CFFZ) between the Indio Hills and the Mecca Hills. Dr. Kenney took us on a whirlwind tour covering several thousands of acres of alluvial fans impacted by the southern segment of the San Andreas Fault Zone system. This highly interesting talk expanded on the difference between Mode 1 faulting (dip-slip faults with strikes generally parallel with topographic contours resulting from lateral spreading [lower elevations] and land sliding [upper elevations]), versus Mode 2 faulting (northwest trending strike-slip fault zones previously unrecognized in the region).

Our August dinner meeting was held at Johnny Carino's Italian

[LEFT TO RIGHT] June meeting was student night; November meeting featured the Jahns Distinguished Lecturer; Region 2 Director Darrin Hasham introduced John Diehl, the speaker at our August meeting.

restaurant in Eastvale. We were honored to welcome John Diehl, PE and president of GEOVision Geophysical Services, who presented on available geophysical techniques that all engineering geologists should be familiar with, including surface wave surveys for Vs30 site characterization, seismic refraction for rippability, seismic reflection for shallow fault mapping, and borehole techniques to measure shear wave velocity.

Following a break for AEG's annual meeting held in Philadelphia during September, we resumed our dinner meeting schedule in October, this time at The Old Spaghetti Factory restaurant in Riverside. We were honored to welcome Dr. Gareth Funning, professor from nearby UCR, who presented on the post-seismic deformation of the Searles Valley/Ridgecrest area in proximity to the southeasterly Sierra Nevada mountain range. Many of you will recall the July 4, 2019, 10:30 a.m. 6.4 Mw foreshock and the more surprising July 5, 8:30 p.m. 7.1 Mw main shock events just 5 short years ago. Dr. Funning and his various teams provided immediate response to the event sequence and continued monitoring ground instrumentation for another 3 years. The data were mostly acquired via GNSS and InSAR (geodetic data). Many fault lines displaying surface rupture were previously unmapped.

The Inland Empire Chapter's final event of 2024 was held in November as a joint meeting event with the San Diego Association of Geologists (SDAG) at the Fallbrook Gem & Mineral Society's facility in north county San Deigo. Our host was gracious enough to keep their museum exhibit open for us prior to the meeting. We were honored to welcome the 2023–24 Richard H. Jahns Distinguished Lecturer Cynthia Palomares, PG, PE. We were very fortunate to be able to hear Ms. Palomares present on the effects of global warming and climate change on infrastructure, including buildings, roads, and power plants. Ms. Palomares finished her AEG lectureship at AEG's annual meeting in September but was gracious enough to also present at the Inland Empire Chapter's November meeting, as well as to students at CSUSB earlier in the day.

One final note for our chapter during this past year was the very sad news regarding one of very own members, current chapter officer Michael Cook, PG, CEG. Mike passed unexpectedly on November 2. He was a graduate of California State University, Los Angeles and had worked as an engineering geologist for the past 42 years; the past 24 years he was at Kleinfelder's Riverside office. Mike was a founding member of this AEG chapter in 2005, a longtime contributor, a current officer, but most of all an incredible person and a great friend to us all. His presence and that ever-present smile and enthusiasm will be sincerely missed.

In 2025, the Inland Empire Chapter will have regular monthly meetings on the second Wednesday of the month for all months except September and December. The meetings will alternate between the northern and southern parts of our chapter due to our large geographic area. Our annual field trip is expected to occur in April, and we are also working with CalGeo to put together a 2025 California Building Code (CBC) virtual class to occur in the summer or fall. Darin Pendergraft and Cristal Patino are working together on social media for our chapter. Request to be added as a member on AEG-Inland Empire LinkedIn and follow AEG_inlandempire on Instagram. Lastly, Kerry Cato is working to launch a new Inland Empire Chapter website.

New York–Philadelphia Chapter

By Loren Lasky, Chair

A large crowd filled the room in November when the New York–Philadelphia (NYP) Chapter resumed meeting with a presentation on the difficulties of drilling through glauconite to develop offshore wind energy resources by Distinguished Professor Ken Miller of Rutgers University's Department of Earth and Planetary Science.

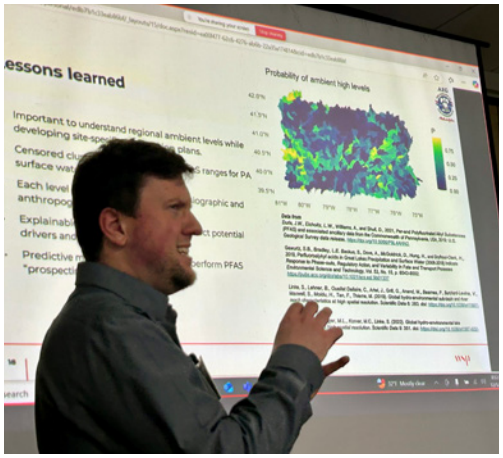
In December, Hydrogeologist Skyler Sorsby (WSP) demonstrated how statistics can predict elevated PFAS levels on a statewide watershed level. In December, we also passed the hard hat for our traditional collection for the AEG Foundation's West-Gray Scholarship for geology students east of the Mississippi River.

We started 2025 off right with an impressive presentation by longtime NYP member Mala Ciancia, principal engineering geologist and senior technical advisor for HNTB's tunnel practice. She discussed the siting of California Department of Transportation's (Caltrans's) last chance grade tunnel in coastal Northern California.

In February, Geochemist Dr. Fayad Lakhwala (Evonik) described how to sustainably remediate metals in groundwater in situ in areas also impacted by chlorinated volatile organic compounds (VOCs). Also in February, we welcomed new officers to the NYP Board: Tom Cumello moved from secretary up to vice chair, and Joelle Freeman joined the board as our new co-secretary.

In March, we represented AEG geologists as "the rock stars of science" among the hundreds of Licensed Site Remediation Professionals (LSRPs) at the LSRP Association's popular New Jersey Site Remediation Conference.

Future plans include scheduling a visit by Jahns Distinguished Lecturer, Dr. John Kemeny, a trip to the Trenton Thunder ballpark along with several other professional organizations, and our end of the season field trip.



[Above] NYP President Loren Lasky (middle) with NYP Vice Chair Tom Cumello (left) and Secretary Joelle Freeman (right).

[Left] Skyler Sorsby presented at NYP's December meeting.

[Right] Mala Ciancia presented at NYP's January meeting.

Oregon Convention Center in downtown Portland. Known as the "City of Roses," Portland has hosted four AEG annual meetings, the most recent being in 2023.

Photo © Stephen McDaniel

Oregon Chapter

By Nikos Tzetos, President

Hello from Portland, Oregon! As I'm writing, it is almost springtime, and here in Portland, it shows. Crocuses are blooming and birds are visiting the feeders less frequently.

It is hard to believe the 2024–25 lecture series is coming to an end in 3 months. The meetings of the Oregon Chapter throughout the season have been extremely well attended, both in person and virtually. It feels like we have the virtual meeting system ironed out.

Our March 11 meeting featured Tim Shevlin and his presentation, "Advances in Rockfall Protection: A New Design Tool for Attenuators." We are hosting our annual student night the week of April 14. It is our goal to attract geosciences students from the entire state; huge thanks are extended to our board members who are spearheading this effort. To close out our season, we will welcome AEG President Renee Wawczak on May 19.

Jahns Distinguished Lecturer Dr. John Kemeny visited us in February and presented "Everyday Geospatial: New Technologies Anyone Can Afford for 3D Field Scanning, Point Cloud Processing, Rock Mass Characterization, and Slope Stability"; it was an extremely engaging presentation.

I cannot say often and loudly enough how much I appreciate our dedicated officers and committee chairpersons for their hard work this year. Thank you to Ryan Cole, past chair; Nicholas Farny, chair-elect; Justin McCarley, treasurer; Cathleen McMahon, secretary; Nathan Villeneuve, program chair; Sarah Norton, newsletter editor; Darlene Verduzco, membership chair; Marge Belcastro, our liaison with Portland State University (PSU) and PSU Student Chapter president; and Sebastian Dirringer, legislature chair. We couldn't do it without you!

Puget Sound Chapter

By Tom Doe, Chair

[TOP] Jahns Distinguished Lecturer Dr. John Kemeny presenting on AI applications at our February meeting

[Below] Dr. Joe Wartman presented at our March meeting

The Puget Sound Chapter holds monthly meetings from October to May. All have been available in person and via Zoom.

The October meeting, with 25 attendees, featured Alec Melone and Bodie McCosby from Aspect (GeoSyntec), discussing an emergency bridge replacement related to coal mine subsidence. In November, 75 attendees joined a joint meeting with the American Society of Civil Engineers Geo-Institute; Chris Kemp of Shannon & Wilson evaluated the Sequim Fault at the Dungeness Off-Channel Reservoir site.

In December, Jim Miller from GeoEngineers (retired) showcased geology and scenery from Eastern Oregon, and Tom Doe (Golder/WSP, retired) discussed visits to the Malpasset (France) and Vajont (Italy) dam disaster sites; 27 attended. January's joint meeting in Tacoma with the Nisqually Chapter had 41 attendees, featuring Doug Boyer from the Federal Energy Regulatory Commission's Dam Safety Program speaking on the avoided potential disaster of the Oroville Dam spillway.

In February, Jahns Distinguished Lecturer John Kemeny presented on AI applications in engineering geology, with 27 attendees. Our March 20 meeting featured a presentation by University of Washington Professor Joe Wartman on his center for mobilizing resources to collect ephemeral data after natural disasters.

Upcoming events include online career night linking companies and students (April 8, tentative), student posters and presentations night (April 17), and a presentation by AEG President Renee Wawczak (May 15).

We have strong relationships with local universities and colleges, with student liaisons active in chapter leadership from Western Washington University (Megan Wilson and Jake Peckinpaugh), Central Washington University (Cassidy Harker), and the University of Washington (Brielle Herrin and Dahlia Gietka).

We've successfully reconstructed the chapter leadership after the COVID epidemic with active chapter officers Mary Alice Benson (HWA) and Alec Melone (Aspect/Geosyntec); we have an incoming slate of new and continuing officers including incoming chapter Chair Josh Greer (AES) succeeding Tom Doe as chair next year and Ava Kamm (University of Washington) joining as secretary. Special thanks to Stephanie Wanderer (Shannon and Wilson) and AEG Past President Mark Molinari for developing our programs, and to Zanna Doak Kelly for our communications. We've maintained our website and also kept up monthly chapter newsletters (thanks, Alec!).

St. Louis Chapter

By Luke Ducey, Chair

Dr. John Kemeny presenting on March 11, 2025, at the St. Louis Terracon office, spring sponsor of the chapter.

AEG members and chapter officers at the AEG/GI joint happy hour at the Frisco Barroom in January.

Fall/Winter Meetings Recap

At our September 26, 2024, meeting at the St. Louis UES office, Dr. Donna Caraway Willette from the Illinois State Geological Survey presented on "Storage and Recovery of Hydrogen in Non-Salt Bearing Strata for Flexible-Fuel Power Generation."

On October 8, 2024, we held "A Day in the Life of the New AEG Board," offering members insight into what everyone does at their companies, including their leadership roles and initiatives within AEG. The WSP USA office hosted the meeting.

On December 18, 2024, we welcomed Dr. Kisa Mwakanyamale-Gilkie and Dr. Jason Thomason on a virtual call that brought out a lot of new AEG members. They presented "Mapping the Mahomet Aquifer: Progress and Findings." The aquifer is a part of the buried Teays-Mahomet bedrock valley system.

On January 22, 2025, we hosted a joint happy hour with the Geo-Institute (GI), fostering networking and collaboration among professionals in our field. The event was attended by students, interns professors, geologist, environmental, and engineering staff.

On February 19, 2025, Dr. Doug Wiens, the Robert S. Brookings, professor of Earth, environmental, and planetary sciences at Washington University in St. Louis, presented "Investigating Antarctica's Response to Ice Mass Loss."

Most recently, on March 11, 2025, we hosted Dr. John Kemeny, emeritus professor in the department of mining and geological engineering at the University of Arizona and this year's Jahns Distinguished Lecturer. His talk, "Why is That Unstable-Looking Rock Slope Still Standing, and When Can We Expect It to Fail? An Introduction to Rock Fracturing, Time-Dependent Fracturing, and Rock Bridges." The presentation provided valuable insights into rock mechanics and slope stability.

Membership and Engagement

Our meetings have seen strong attendance, particularly from students at the University of Missouri (Mizzou), as well as participants from Missouri University of Science and Technology, Washington University, and St. Louis University. Additionally, we have welcomed new members and renewals, especially following the successful joint happy hour with the Geo-Institute.

Mentorship and Career Success

At the AEG Annual Meeting in Philadelphia, Luke Ducey and Mariam Sani were paired as mentor and mentee and have continued their mentorship since then. We are also proud to share that Mariam successfully defended and passed her thesis at Southern Illinois University Edwardsville, "Science-Interested Undergraduates' Perceptions of the Geosciences as a Career." Further demonstrating the impact of AEG networking, Mariam recently accepted a position as an Environmental Technician at Environmental Operations, Inc., a job opportunity she learned about through attending AEG meetings.

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