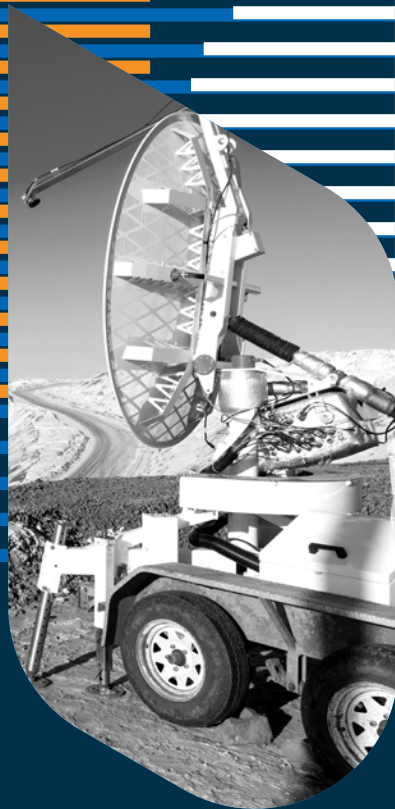


2023 ANNUAL REPORT



SOCIETY OF EXPLORATION
— GEOPHYSICISTS —

Toward 100 years of geophysical community

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2023 SEG EVENT NUMBERS

AT A GLANCE**WORKSHOPS AND MEETINGS**

Date	Event	Location	Registrations
1–3 Feb	NAPE	Houston, Texas	8000+
15–16 Feb	SEG/SPE Workshop: Fracture Characterization for Reservoir Management	Riyadh, Saudi Arabia	67
19–21 Feb	14 th Middle East Oil, Gas, and Geosciences Show (GEO)	Sanabis, Bahrain	10,000+
1–3 Mar	International Petroleum Technology Conference (IPTC)	Bangkok, Thailand	4263
21 Mar	7 th SEG Virtual Student Conference	Virtual	123
12–14 Apr	Seismic Reflection Centennial: Mapping the Earth Beneath our Feet	Oklahoma City, Oklahoma	51
14–16 Apr	Integration of Geophysics, Geology, and Engineering Workshop	Chengdu, China	120
25–27 Apr	Carbon Capture, Utilization, and Storage (CCUS)	Houston, Texas	1353
1–4 May	Offshore Technology Conference (OTC)	Houston, Texas	31,000+
9–11 May	Mediterranean Gas Exploration Symposium	Al Alamein, Egypt	130
15–17 May	Advances in Quantitative Interpretation	Muscat, Oman	124
13–15 Jun	Unconventional Resources Technology Conference (URTeC)	Denver, Colorado	2865
21–22 Jun	SEG/SPE Workshop: Integrated Reservoir Characterization, Surveillance, and Management: Advances and Challenges	Kuala Lumpur, Malaysia	91
11–12 Jul	Geophysical Applications for Exploration and Development in Shallow Water and Transition Zones	Kuala Lumpur, Malaysia	103
28 Aug–1 Sep	International Meeting for Applied Geoscience and Energy (IMAGE)	Houston, Texas	7329
9 Oct	Seminar: A Decade of Advancement in FWI	Abu Dhabi, UAE	19
10–12 Oct	Full-Waveform Inversion: Land and Shallow Water Challenges	Abu Dhabi, UAE	96
16–19 Oct	7 th International Conference on Engineering Geophysics	Al Ain, UAE	388
23–26 Oct	Summit on Drone Geophysics	Virtual	154
24–26 Oct	Offshore Technology Conference Brasil	Rio de Janeiro, Brazil	21,000
30 Oct–2 Nov	International Geomechanics Symposium	Al Khobar, Saudi Arabia	328
1–2 Nov	2 nd SEG Geophysics in Geothermal Workshop	Jakarta, Indonesia	47
6–8 Nov	AAPG International Conference and Exhibition (ICE)	Madrid, Spain	521
6–8 Nov	High-Performance Computing for Exploration, Reservoir Development, and Energy Transition	Al Khobar, Saudi Arabia	74
27 Nov	Seminar: A Guided Tour of Seismic Processing of Multiples: Drivers, Technologies, and Applications	Kuwait City, Kuwait	35
5–7 Dec	SEG/KOC Workshop: Advances in Land and Shallow Marine Multiple Attenuation and Imaging	Kuwait City, Kuwait	70
4–6 Dec	Latin America Unconventional Resources Technology Conference (URTeC)	Buenos Aires, Argentina	634

EDUCATION EVENTS

Continuing Education				
Date	Category	Company	Instructor	Course
22–26 Jan	Private course	Saudi Aramco	Biondo Biondi	Advanced seismic imaging
5–9 Mar	Private course	Saudi Aramco	Ian Jones	An introduction to migration and velocity model building
15–16 May	Private course	SEG field camps	Kevin Bohacs	Introduction to field camp leadership
8–12 Oct	Private course	Saudi Aramco	Leon Thomsen	Seismic anisotropy: Basic theory and applications in exploration and reservoir characterization
6–10 Nov	Private course	Tarim Oilfields	Scott MacKay and Malcom Lansley	Deep oil and gas exploration
12–16 Nov	Private course	Saudi Aramco	Jim Gaiser	Application and interpretation of converted waves
4–7 Dec	Private course	BGP	Shuki Ronen and Sam Gray	High resolution and broadband acquisition

Distinguished and Honorary Lectures					
Date	Category	Lecturer	Topic	Registrations	Viewers
7 Feb	HL Europe	Leo Eisner	Mapping pore pressure with beach balls	149	52
21 Mar	Baker Hughes Sustainability	Paul Bauman	Responding to the global water crisis: A strategy for improving water supply	489	128
	Baker Hughes Sustainability	Paul Bauman	Responding to the global water crisis: A strategy for improving water supply	318	124
28 Mar	HL South and East Asia	Roman Pevzner	Surface and borehole seismic monitoring of CO ₂ geologic storage	346	137
11 Apr	HL Pacific South	Maxim Lebedev	Digital rock under stress	190	76
19 Apr	HL Europe	Leo Eisner	Mapping pore pressure with beach balls	59	50
11 May	HL South and East Asia	Roman Pevzner	Surface and borehole seismic monitoring of CO ₂ geologic storage	406	156
16 May	DL	Partha Routh	Full wavefield inversion: Journey toward practical applications	272	115
15 Jun	DL	Partha Routh	Full wavefield inversion: Journey toward practical applications	443	221
21 Jun	Near Surface	Anja Klotzsche	Unlocking the potential of GPR for subsurface characterization by using FWI	222	88
27 Jun	HL Pacific South	Maxim Lebedev	Digital rock under stress	230	75
12 Sep	Near Surface	Anja Klotzsche	Unlocking the potential of GPR for subsurface characterization by using FWI	79	120
4 Oct	HL North America	Agatha Onwajae	The role of geohazards assessment in the postpandemic energy mix	192	53
2 Nov	HL North America	Agatha Onwajae	The role of geohazards assessment in the postpandemic energy mix	194	53
4 Dec	HL Middle East and Africa	Umair bin Waheed	Physics-informed neural networks for seismic modeling and inversion	430	177

EDUCATION EVENTS (Continued)

Distinguished Instructor Short Course (DISC)				
Date	Instructor	Course	Location	Attendance
23 May	Mark Willis	Distributed acoustic sensing for seismic measurements — What geophysicists and engineers need to know	Houston, Texas	43
2 Jun	Mark Willis	Distributed acoustic sensing for seismic measurements — What geophysicists and engineers need to know	Tokyo, Japan	45
7 Jun	Mark Willis	Distributed acoustic sensing for seismic measurements — What geophysicists and engineers need to know	Kuala Lumpur, Malaysia	50
12 Jun	Mark Willis	Distributed acoustic sensing for seismic measurements — What geophysicists and engineers need to know	Singapore	17
28 Aug	Philip Ringrose	Storage of carbon dioxide in saline aquifers	Houston, Texas	31
12–13 Sep	Mark Willis	Distributed acoustic sensing for seismic measurements — What geophysicists and engineers need to know	Virtual	25
27–28 Sep	Philip Ringrose	Storage of carbon dioxide in saline aquifers	Virtual	93
28 Sep	Mark Willis	Distributed acoustic sensing for seismic measurements — What geophysicists and engineers need to know	Dhahran, Saudi Arabia	50
5–6 Oct	Mark Willis	Distributed acoustic sensing for seismic measurements — What geophysicists and engineers need to know	Copenhagen, Denmark	21
10–11 Oct	Mark Willis	Distributed acoustic sensing for seismic measurements — What geophysicists and engineers need to know	London, UK	25
30 Nov	Mark Willis	Distributed acoustic sensing for seismic measurements — What geophysicists and engineers need to know	Calgary, Canada	11
30 Nov	Philip Ringrose	Storage of carbon dioxide in saline aquifers	Mallorca, Spain	22
7 Dec	Philip Ringrose	Storage of carbon dioxide in saline aquifers	Trondheim, Norway	8



SECTION ONE:

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KENNETH M. TUBMAN
PRESIDENT



A consultant collaborating with us on our transformation effort made a comment about being amazed at the energy, commitment, and time that our volunteers and staff give to SEG. I was quite proud to hear that, and they are spot on. I certainly witnessed it throughout my term and years of connection with SEG. We are part of a fabulous community. I hope that during my term as president, the community got a little bit stronger. If so, it was through the efforts of our terrific staff and outstanding volunteers, and the passion and dedication they bring to SEG. It was truly an honor to be selected as president, and I am appreciative of all the support, assistance, advice, and efforts.

It has been a pleasure working closely with the SEG Board of Directors, especially Anna Shaughnessy, Arthur Cheng, and John Eastwood, while establishing a consistent approach. We all recognized that lack of continuity has been a significant challenge for SEG, as it would be for any organization. Long-term challenges require continuity and consistency of efforts. The presidents working together with the Board are moving in that direction. Executive Director Jim White and staff are also a major part of that continuity. Presidents come and go quickly, but staff are around for the long term.

As usual, this year had some routine activities. There was a change in investment advisors and a refresh of the investment policy statement. SEG is in a good financial position in terms of assets, and the Board acted to ensure that those assets are being managed appropriately. There were also some changes to our Policies and Procedures (e.g., a Leadership Code of Conduct was implemented, and we changed how we review and approve meetings).

While not necessarily glamorous, the day-to-day operations have also made big strides forward. An example is how our finance department has changed, upgraded our processes, and created a more efficient approach. We have gone from running months behind in our understanding of our finances to now routinely getting results in a couple of weeks. It may seem basic, but refining the mundane tasks is a foundational capability.

Larger efforts centered on implementation of the recommendations of the Transformation Task Force. For SEG to continue to thrive well into the future, our current SEG business model needed tweaking. A major part of that concept is that SEG needs to function as one overall entity. All parts of SEG need to focus on SEG's overall success, rather than the individual components.

One of the strongest messages from the Transformation Task Force was about building and strengthening the SEG Community. Community is what binds us. Yes, we have the best publications and terrific meetings, but long-term members really prize the relationships we build and maintain with our peers. For us to stay up to date and attract new generations of geophysicists, we created the SEG Community on Slack. Now thriving, with more than 2000 members, we have already seen benefits such as job placements, mentoring, and connections. Some student chapters have been extremely active on the portal and are establishing themselves as leaders in SEG. Congratulations to Azerbaijan State Oil and Industry University for winning the Best Student Chapter Award. Part of their recognition was gained through activity in the Community. If you have not already joined, I encourage you to sign up today.

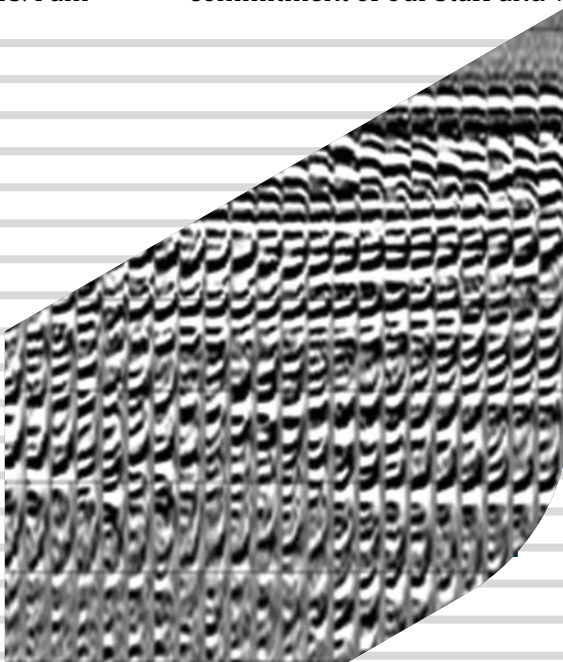
The Transformation Task Force identified the opportunity for greater alignment between the SEG Foundation and the Society. The Foundation provides critical resources for SEG programs, and its success is essential. We moved to improve both the alignment with the Society and the day-to-day operations. These changes were difficult but very necessary. Change is always hard, and people and organizations change at different paces. I made the decision to implement all recommendations immediately. I knew that would upset some, but we needed to get moving. My compliments to David Bartel for working with the changes and helping us get on the new path as he finishes his time on the Foundation Board of Directors. I am

confident that our new staff and direction for the Foundation will result in greater success and ability to deliver value to the members we need to attract. I am extremely excited to work with our new Foundation staff and help them as they improve and simplify our Foundation's operations.

SEAM is an area that has been functioning very well. The group has generated significant value for the participants of our various projects. Even when things are going well, it is possible to look for improvements and innovative ideas. In this case, the new ideas were around the business model, not just new technical projects. Again, change is hard, and people deal with change differently and at different tempos. In this case, I again chose to act quickly rather than delay and risk putting off the benefits. I am anxious to see how our new SEAM staff takes us to a new level, bringing technical and project-management skills that are deeply needed.

SEG has done remarkable things for an exceptionally long time. That shows in the many long-term members with whom we share a bond. We need to find ways to allow the next generations of geophysicists to build connections in their own ways, appropriate for today's world. SEG has a bright future when those new geophysicists step up to lead and implement the programs they desire to see.

Thank you for allowing me to contribute to SEG. I am anxious to see what new successes come from the tremendous passion and commitment of our staff and volunteers.



ARTHUR C. H. CHENG

PRESIDENT-ELECT



I am honored to be elected to this position. I have been a member of SEG since 1974, and it has been a long and fruitful relationship. I have served SEG in many different roles, and to be able to reach this ultimate step is very fulfilling to me.

This year, we focused on implementing some of the recommendations from the Transformation Task Force. One of the main items is to get the SEG subsidiaries and the Society aligned in our purpose and moving in the same direction. This includes the SEG Foundation, SEAM, and SEG Global. We are working with SEG Executive Director Jim White to start the process. We recognize that SEG transformation is a multiyear effort. The past president, president, and president-elect need to work together as a team to maintain continuity and ensure that efforts started will be carried on to their completion. To this end, Past President Anna Shaughnessy, President Ken Tubman, and I have been meeting weekly to ensure that we are all on the same page. This effort continues with Shaughnessy moving on and John Eastwood replacing me as president-elect at the conclusion of IMAGE '23.

Our first focus area is in publications. We have started to investigate ways to make publications more sustainable and adapt to the rapidly changing world of academic publications. A second focus area is empowering the Research Committee to help shape and coordinate the professional activities that SEG offers in terms of workshops, focused sessions at IMAGE, SEAM, continuing education, etc. to tie closely with the current demand of our members. These include topics in carbon sequestration, machine learning, distributed acoustic sensing, geothermal, and minerals. This will also be a multiyear effort. A third focus area is to expand our global offerings so that more members can directly participate in and benefit from our activities. Currently, too many of our activities are in North America.

As I transition to be president this coming year, I look forward to continuing to work on these issues. I am sure other issues will come up, but we have a great team to address them.

ANNA SHAUGHNESSY

PAST PRESIDENT



The last three years as president-elect, president, and past president have taken me on a truly rewarding, fascinating, and fulfilling journey of learning, while giving back to the Society that has been with me throughout my career.

As a volunteer on the Board of Directors, I learned more about areas of geophysics that I had not been exposed to previously. I gained a clear understanding in how SEG functions and how we need to evolve in order to stay relevant to our global membership. I have also had ample opportunities to use and improve skills in teamwork and negotiations, and I have taken on leadership roles not afforded to me in my professional career.

These years of volunteering gave me the opportunity to work with brilliant individuals from all around the globe who generously shared their wisdom and offered guidance. At times, it could be a humbling experience to realize how little I really knew and how much more I had to learn. On the other hand, it was an incredible feeling to have such a powerful network of wise individuals to consult with.

I would be remiss if I did not mention how my volunteering allowed me to meet and work with the SEG staff. SEG has a tremendous and dedicated group of volunteers, yet they would not be able to do much without the hardworking and talented staff.

Participating at the leadership level of SEG, you automatically become a role model for young geoscientists. It is deeply satisfying to work with students and young professionals, to answer questions, and to provide guidance. I truly enjoy hearing what excites the younger generations and what they aspire to. I find that they never just want a job — they want to make a difference in the world.

I encourage all SEG members to get involved and volunteer. Join a committee, submit a paper to one of our journals, or share your knowledge at a workshop or conference. If you are a student, consider joining or starting a student chapter, join the SEG Community, or just sign up for some webinars that sound interesting to you. The time and energy you invest will be repaid in a multitude of ways.

JOSEPH M. REILLY


FIRST VICE PRESIDENT



It has been an honor and privilege to serve as first vice president on the SEG Board of Directors. This report marks the end of my term on the Board. However, I will continue to provide support to SEG as a Foundation Trustee Associate and member of the Council and IMAGE '24 Steering Committee.

Fundamental to any organization is the ability to manage business in a way that safeguards the future. I worked closely with President Ken Tubman, Treasurer Mike Mellen, Chief Financial and Administrative Officer Carlos de la Garza, staff, and the Board. I shared my thoughts regarding necessary improvements to our processes. I was very proud to participate in the effort to come closer to a balanced budget while delivering on our programs. I was also part of the team that examined the structure of the SEG Foundation, particularly the relationship with the Board. This resulted in changes that hopefully will not only bring the two organizations into better alignment but also stimulate our fundraising efforts. In addition, we examined several areas of our Policies and Procedures and implemented a series of updates to the Code of Conduct, investment strategy, Delegation of Authority, and matters related to IMAGE. In partnership with the Council, we also passed amendments to allow discounts for corporate groups and new members, thereby providing additional tools for increasing our membership base. This is neither glamorous nor scientifically exciting work, but it is necessary for the smooth operations of the Society. It is also an enabler for transformation objectives.

My Board liaison assignments in 2023 included the Bylaws Committee, Mining and Mineral Exploration Committee, Offshore Technology Conference (OTC) Board, and International Petroleum Technology Conference (IPTC) Board. It is apparent that we need to continue to strengthen our membership base in near surface, mining and minerals, and CCUS, as these are major global growth areas with a strong reliance on geophysical technology. I was once again encouraged by the enthusiasm and participation at IMAGE '23 in the technical sessions and exhibition-floor activities related to these disciplines. We continue to benefit from strong leadership of the Board representatives for both IPTC and OTC. Alex Martinez, SEG Board representative, is currently serving as the overall OTC Board chair. Sandeep Chandola and Mohammed Badri are continuing the legacy of active SEG involvement on the IPTC Board. These major multisociety events increase our global exposure to corporate and governmental leaders and are significant contributors to the overall financial health of SEG. It is extremely important that we continue to promote the events and encourage SEG membership participation.



I am an advocate for enabling big ideas, wherever they come from. Member surveys have been consistent in wanting more value from their association with SEG. It is the Board's obligation to meet this challenge for current members, prospective new members, and the general public.

I worked closely with Council Chair and Board Member Allen Bertagne in empowering the Council to serve in its capacity as senior advisors to the SEG Board. Hopefully this will continue with the Council being the source of brain power for new ideas, future task forces, and other advisory initiatives.

As a champion in providing more value to our global members, I was privileged to visit Malaysia and Thailand on behalf of Tubman and meet with many of our members and corporate sponsors in the region. This included participation in a Regional Advisory Board meeting and the Presidents Panel at IPTC. Similarly, my long history with the operations of IPTC allowed me to represent Executive Director Jim White in the November 2023 IPTC strategy session and Board meeting. My personal goal is for SEG members to truly recognize IPTC as their Mid and Far East international meeting. Furthermore, in my forward role on the IMAGE '24 Steering Committee, I intend to advocate for providing more meeting content to members who are unable to attend IMAGE.

I would like to conclude by emphasizing that being effective as a Board requires a team effort. A real strength of this year's Board has been the diversity of thought, combined with the ability to respect each other and come to consensus in order to make meaningful decisions. Once again, thank you SEG members for allowing me to serve.

MAURICIO SACCHI

SECOND VICE PRESIDENT



I was a member of the SEG Board of Directors from 2016 to 2017 as editor-in-chief of GEOPHYSICS. Now, I am on the Board again as the second vice president. I reflect on our discussions in Tulsa back in 2016 and 2017, and it seems to me that many topics have become perennial, signaling core focuses including

- Ensuring financial stability
- Enhancing member services
- Engaging new members
- Ensuring that young geophysicists remain with us following graduation, which is crucial for our Society’s survival

This year has seen many changes. We welcomed SEG professionals to advance the SEG Foundation, strengthening our capacity to support existing programs and initiate new ones. As our community becomes increasingly global, it is critical to integrate and leverage the expertise of geophysicists worldwide and the enormous capacity for fundraising outside North America. As the geographical distribution of professionals becomes more global, our individual and corporate membership should be better reflected by the current distribution of professionals worldwide. The latter should be at the top on the list of goals for our Board in the upcoming years. I am glad our executive director and his team have been finding ways for companies to pay quickly in a one-stop fashion for their employee dues. Contact Jim White if you want to know more about this initiative.

My Board liaison assignments include the Meetings Review and Planning Committee (chaired by Alex Martinez), Distinguished Instructor Short Course Subcommittee of Continuing Education (chaired by Adriana Ramirez), and the Gravity and Magnetism Committee (chaired by Marianne Rauch). I want to thank the chairs of these committees and the members for their excellent work.

MIKE MELLEN

TREASURER



This report is also contributed to by Pete Cramer, chair of the Finance Committee.

SEG's long-term financial situation is sound, while short-term finances are improving. This was my first full year as treasurer. I had some big shoes to fill while succeeding Pete Cramer and am thankful for his continuing contributions as chair of the Finance Committee. I am grateful for all of the hard work and advice from our outstanding Finance Committee members. I would also like to commend the great work by the SEG finance staff: Carlos de la Garza, Katie Petrowski, and Scott Toma. The staff have done an excellent job in making our finance and accounting processes more efficient and timely.

It has been an eventful and exciting year with many activities:

- Transformation Task Force recommendations continued to be implemented.
- The SEG/SEG Foundation Alignment Task Force identified ways to better align the Foundation and Society.
- There was active coordination between the SEG, SEG Foundation, and SEAM finance committees.
- We engaged with a new investment advisor about our long-term investment portfolio.
- A review and revamp of our Investment Policy Statement (IPS) and decision-making processes were completed.
- We established a line of credit (liquidity access line) to moderate our seasonal cash-flow issues.
- A monthly financial dashboard was implemented to provide the SEG Board of Directors and management with up-to-date financial information.
- We rebuilt the SEG finance team with excellent staff additions.
- We implemented a new member management system and SEG website.

Last year, the Board approved a 2023 operating budget that was anticipated to show an overall loss of about US\$273,000. This included the completion of a new member management system, website redesign, Transformation Task Force activities, and ongoing operations. While the final results for the year are not yet in at the time of this writing, we are forecasting marginally

better-than-expected results, with an overall forecasted loss of about \$214,000. Table 1 summarizes the 2023 budget and our currently forecasted variances. Events revenue is forecasted to be above budget, with preliminary IMAGE '23 results better than expected. Foundation support revenue is below budget, primarily due to the timing of Geoscientists without Borders® (GWB) grants. It will catch up as the GWB projects progress. Full financial details are available in the Financial Reports section of this Annual Report.

While an operating loss is not ideal, I would like to point to Figure 1, which shows SEG's revenue, expenses, and operating net from 2019 onward. The trends show a substantial decrease in SEG revenue at the time of the pandemic. In-person events including IMAGE are a major source of SEG's revenue. Event revenue is improving but the new normal appears to be at a significantly lower level than in the past. In response, SEG management has significantly reduced expenses, including a substantial reduction in support staff (approximately two-thirds reduction since 2019). The operating losses are decreasing, and the proposed budget for 2024 (not yet approved by the Board) is based on a breakeven-or-better strategy. Going forward, the Board is working on initiatives to continue to improve financial performance in key areas (e.g., publications, which provide key member benefits, continue to operate at a loss). I am optimistic that we can continue to improve our annual operating situation. I will also point out that we have a substantial long-term investment portfolio that could be drawn upon if needed. Of course, we would prefer to use these long-term resources for strategic investments in our future, but having this portfolio as a backstop allows us to thoughtfully focus on how we can increase our revenue and continue to reduce expenses over time.

Regarding the long-term investment portfolio, in 2023, with the assistance of the Finance Committee, we performed a thorough review and update of our IPS, which governs our investment strategies and procedures. We also reviewed the performance of

Table 1. The 2023 budget and preliminary results.

2023 Budget Overview			
	Revenue	Expense	Net
2023 Approved Budget	\$ 9,737,140	\$ 10,009,933	\$ (272,793)
Adjustments			
Membership	\$ (70,000)		
Events Revenue	\$ 348,608		
Foundation Program Support	\$ (96,600)		
Other	\$ (18,500)		
Personnel		\$ (135,688)	
Event Expenses		\$ 109,091	
Travel Expense		\$ 68,216	
Consulting		\$ 64,300	
Other		\$ (904)	
Total adjustments	\$ 163,508	\$ 105,015	\$ (58,493)
2023 Forecast	\$ 9,900,648	\$ 10,114,948	\$ (214,300)

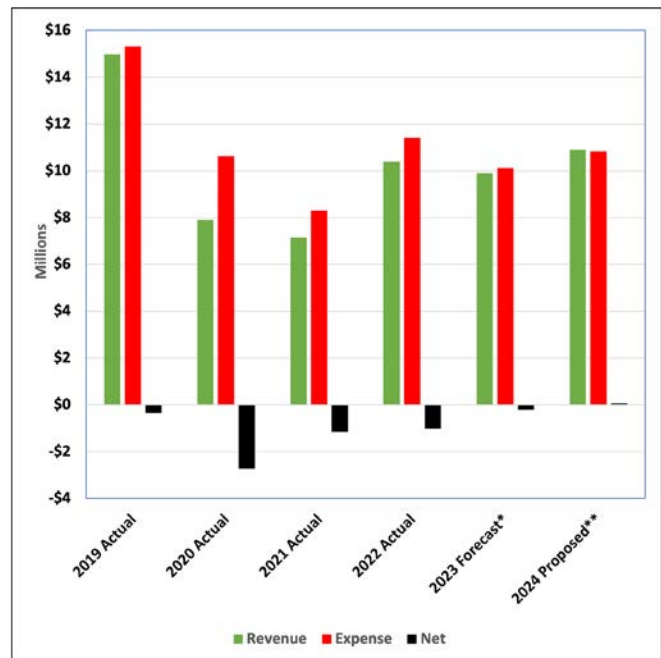


Figure 1. SEG annual profit and loss trends.

our previous investment advisor and compared them to several other options including large and small firms. The result was recommendation and approval by the Board to move our portfolio to Commerce Trust Corporation (CTC). SEG has worked with Commerce Bank for many years. Their advisory arm, CTC, offered substantially

COMMERCE EXPECTED RETURN AND RISK OF LONG-TERM PORTFOLIO

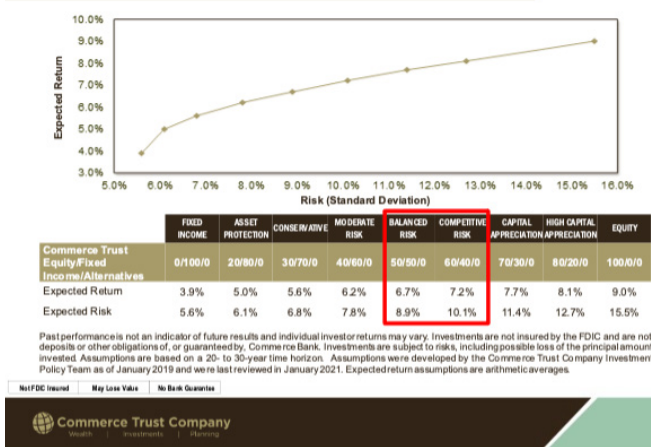


Figure 2. Expected return versus risk.

lower investment fees, more tailored advice for a nonprofit entity, and a significant discount on interest rates for our liquidity access line of credit.

With our previous advisor, we had significant investment gains in 2020 and 2021. However, this was followed by even more substantial losses in 2022, effectively wiping out our previous gains. During our IPS review and in consultation with CTC, we realized that our investment philosophy was driven to seek high returns with less-than-adequate accounting for risk. Our revised IPS has a more modest targeted return and an increased focus on reducing volatility. Figure 2 (provided by CTC) shows historical market returns for various portfolio mixes versus risk, as measured by standard deviation (volatility). We have selected a target return of 6.5% to 7%, with a standard deviation of less than 10%. This is a reasonable return but substantially lower volatility than we have recently seen in our portfolio. These are our targets that drive investment selection, but of course, there are no guarantees of actual results. We believe these changes will serve SEG better in the long run. The complete IPS is available within the SEG Policies and Procedures Manual, Section V.2.I, as posted on the SEG website.

Figure 3 shows changes to the value of the long-term investment portfolio in 2022 and 2023. While market conditions have changed, we are already seeing improvements in the portfolio performance with reduced volatility. We anticipate withdrawals from the portfolio to be significantly reduced going

*Please see the addendum to this report on the next page.

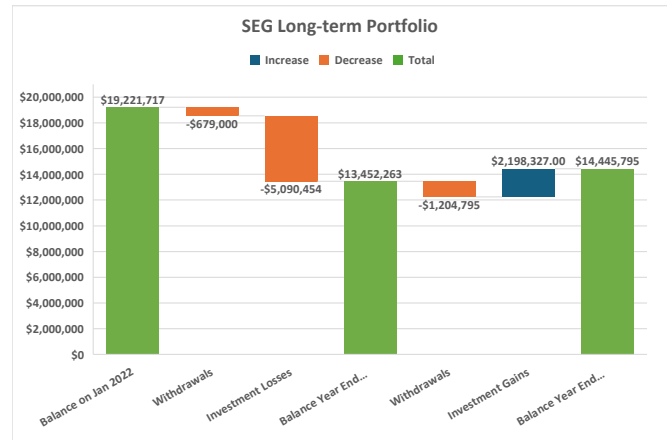


Figure 3. SEG long-term investment portfolio.

forward with the implementation of our liquidity access line of credit. This allows SEG to borrow on a short-term basis without making withdrawals from the portfolio. SEG’s revenues are heavily weighted toward the end of the year, while our expenses extend throughout the year. In the past, cash would be withdrawn from the investment portfolio to make up for cash-flow shortfalls. These funds tend to not be paid back quickly, resulting in a reduction in portfolio value over time. With the credit line, we withdraw and pay back over the course of the year, accepting an interest rate that is about 1.2% above our money-market interest rate. The result is a much more stable cash flow without drawing from our long-term investments.

In closing, I would like to point out that while SEG is a not-for-profit technical professional organization, we do need to make a profit to support more philanthropic areas such as GWB, scholarships, and other programs. We certainly welcome any new revenue-generating ideas. We do not receive financial support from any government or agency, and all SEG programs are paid for through membership, events, publications, and donations to the SEG Foundation. I ask that you please consider donating to the SEG Foundation Annual Fund. Even small donations (\$10 to \$100) add up and make a difference.

As a recipient of an SEG scholarship in 1979 (oh my!), I am honored to have been given the opportunity to give back to SEG as treasurer in 2023.

Addendum to the treasurer's report

1. Referencing the Statement of Activities and Functional Expenses within the Independent Auditor's Report: included in the 2022 to 2023 Meetings variance is a change in operational practices. Prior to 2023, SEG and AAPG each accounted for a portion of IMAGE including recording revenues and expenses. Beginning in 2023, SEG is paid a single revenue share payment for its portion of the profits from AAPG. SEG also receives a cost reimbursement for its contribution to the Joint Events Team (JET) which in 2023 was \$789k. This reduces SEG revenues while limiting our expenses to "SEG only". While it appears as a significant drop in Meetings revenue, the reality is that we are now recording only profits and being reimbursed for our JET staff contribution. If the 2022 meeting was handled in the same way, we would have reported a profit of \$460k compared to a profit of \$849k in 2023.
2. Below is a chart summarizing cash withdrawals of \$1,610k from SEG's Long Term Portfolio (LTP) for Board approved expenses. These include covering previous operating losses (OPEX) as well as strategic infrastructure investments (CAPEX) for the long-term benefit of the SEG. Beginning in 2023, the Board of Directors approved the use of a Liquidity Access Line of credit (LAL) for short-term borrowing to cover cash flow needs. (Note, the Board approved the 2024 Q4 \$88k withdrawal in December 2021, but it has not yet been withdrawn, and there are no plans to use the LAL for this expense.) SEG's expenses are traditionally spread throughout the year while most revenues are received in the later parts of the year. Since initiating the LAL, no further withdrawals from the LTP have been approved by the Board.

	2022			2023				2024			
	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Operating Expenses for SEG (OPEX)				\$500K							
AMS Cobalt and Website upgrade (CAPEX)	\$722K										
Transformation Task Force (OPEX)	\$300K										
Analysis of Accounting System (OPEX)											\$88K

JEFFREY SHRAGGE

VICE PRESIDENT, PUBLICATIONS



My two-year term as vice president, publications concluded in August 2023. It has been a significant honor to have served the SEG membership in this role. The SEG Bylaws charge this position with overseeing SEG publication and technical dissemination activities; ensuring that all such activities are aligned with SEG's mission, goals, and policies; and ensuring that the publications achieve the highest standards for technical and scientific integrity. Our volunteer editors, reviewers, and authors continue to strongly support our mission of sharing high-quality applied-geophysics research and technological advances with our membership and beyond. The SEG publications staff play a very strong role in the efficient management of all publications matters.

In this position, I served as Board liaison for all of the SEG publications boards and committees. This includes GEOPHYSICS, *Interpretation*, and *The Leading Edge (TLE)* editorial boards; Books Editorial Board; and Translations, Reviews, and Community Content (sunset August 2023) committees. The leadership of these boards and committees, along with the Technical Program Committee, is represented on the Publications Committee. Within this Annual Report, these boards and committees describe in detail how each advanced SEG publications in 2023.

Over the past year, one of our main focus areas was an examination of the societal contributions and financial health of the SEG publications portfolio. Overall, publications contribute significantly to the Society in terms of member benefits. However, this comes at a financial cost. Additional effort is required to ensure that the cost of these benefits is fully recognized and appropriately apportioned within SEG. Working in close collaboration with the SEG publications staff, several new opportunities were identified that, when successfully implemented, should lead to additional revenue streams for the SEG publications enterprise. This approach is consistent with recognition that SEG needs to maintain and ideally continue the upward trajectory of our journals, while looking to diversify sources of publications revenue, as well as the products offered to the SEG community and the broader public alike.

A second area of focus has been collaborating with SEG and American Association of Petroleum Geologists stakeholders to refine the role of short and expanded abstracts at IMAGE. Building on feedback from IMAGE '23, effort has been spent to engage with stakeholders and listen to community feedback about the abstract submission and evaluation processes. The overwhelmingly constructive feedback, representing a wide variety of membership opinions, has been invaluable in making recommendations to the Oversight Committee for the operation of IMAGE '24.

HIGHLIGHTS FROM 2023 ACTIVITIES

Editorial leadership changes. On 1 August 2023, the next round of senior-editor designates were appointed. Alison Malcolm is editor, Antoine Guitton is senior assistant editor, and Arthur Cheng is past editor. The number of assistant editors currently stands at eight with the appointment of Kris Innanen. The number of associate editors is fairly steady at 79.

The *Interpretation* Editorial Board continues to be run by Editor-in-Chief Vsevelod (Seva) Egorov and Deputy Editor Brad Wallet, both of whom were appointed to these three-year roles in August 2021. The publication's activities are currently supported by 17 associate editors and 16 deputy associate editors.

The *TLE* Editorial Board is currently chaired by Chester Weiss, who was appointed in 2020. He is serving a second consecutive term as chair. Three members, Chengbo Li, Arpita Bathija, and Madhumita Sengupta, completed their four-year terms in August 2023. With the addition of four new members in 2023, the *TLE* Editorial Board for the first time reached its nine-member capacity, as provided for in a 2019 update to its Policies and Procedures. A list of the 2023 members can be found in the SEG Yearbook, located at the end of this Annual Report.

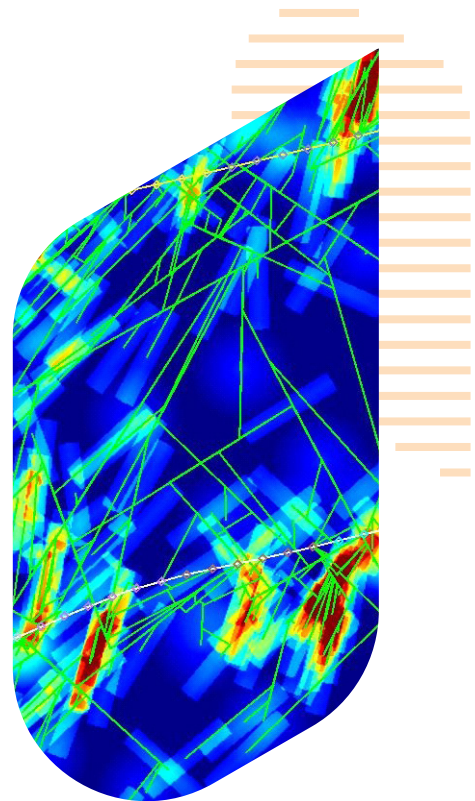
SEG appointed Yi Shen to serve as a section editor for *Lithosphere*, the open-access community journal published by GeoScienceWorld in alliance with SEG and six other prestigious societies. The gold open-access journal provides an avenue for authors whose funders require publication in a journal that is fully compliant with all existing funder open-access requirements (including Plan S/cOAlition S, all U.S. federal funding agencies, European Commission/European Research Council, and U.K. Research and Innovation).

Publications achievements. The performance of SEG journals in 2023 remained strong. Among the many notable metrics, *GEOPHYSICS* received another record impact factor of 3.3, along with its highest CiteScore to date of 7.5. *Interpretation* maintained a respectable impact factor of 1.2, while its CiteScore reached a record 3.3. Both journals achieved their highest ever immediacy indices (*GEOPHYSICS* at 0.7 and *Interpretation* at 0.5), reflecting an improved mean time to online publication. *TLE*'s h5-index of 30 and h5-median of 49 represent slight decreases, but still maintain the journal's solid standing, as

evidenced by a CiteScore of 3.3. The growth of these metrics indicates the strong reputation of SEG journals in disseminating high-quality technical and research materials to the broader community.

To date, the Books Editorial Board has published two new titles in 2023. This includes *Machine Learning for Science and Engineering Volume I — Fundamentals* by Herman Jaramillo and Andreas Rüger and *Storage of Carbon Dioxide in Saline Aquifers: Building Confidence by Forecasting and Monitoring* by Philip Ringrose. Completion of *Practical Machine Learning Methods in Geosciences* by Jerry Schuster is expected before the close of 2023.

Publications policy updates. The SEG Board of Directors approved one exhibit in June 2023 that focuses on an amendment to Ethical Guidelines for SEG Publications. This policy update aimed to provide authors, reviewers, and editors with guidance on the ethical use of artificial intelligence tools such as ChatGPT within SEG publications activities. These standards are now incorporated into the policies found online within the SEG Library. In addition, the SEG Board of Directors approved 2024 institutional-subscription pricing in July 2023.



SERGIO CHÁVEZ-PÉREZ

DIRECTOR AT LARGE



We all explore to find our personal and business passions. I was 20 years old when I joined SEG in 1981 during my undergraduate years in Mexico City. I pride myself for having witnessed, for 42 years, the evolution of *GEOPHYSICS*, *The Leading Edge*, and *Interpretation* as the main communication tools for SEG members worldwide.

I have done everything I can to be of some professional help to SEG since 2003. Since then, I have been part of the editorial team for *GEOPHYSICS*, and currently I am one of the assistant editors. I was Honorary Lecturer for Latin America in 2015. Since 2022, I have served as one of the directors at large on the SEG Board of Directors.

When I was nominated to serve as director at large, I offered to focus on the following:

- Support the transformation of SEG to become indispensable to more individuals and organizations in applied-geophysical research, teaching, and practice all over the world
- Further promote interaction with global undergraduate and graduate students, practitioners, researchers, and academics during our lectures, meetings, workshops, and courses
- Further promote participation of students and emerging professionals during the challenges of ongoing energy and urban transitions, as well as data and workflow transformations
- Further promote and enhance communication, education, research, and outreach, despite language and cultural barriers

These four activities, plus the extra duties I have been assigned, have been my main tasks during my first year on the Board. I think it is very important for me to share my thoughts and experiences as someone who attended graduate school in the United States but has always worked abroad in Mexico.

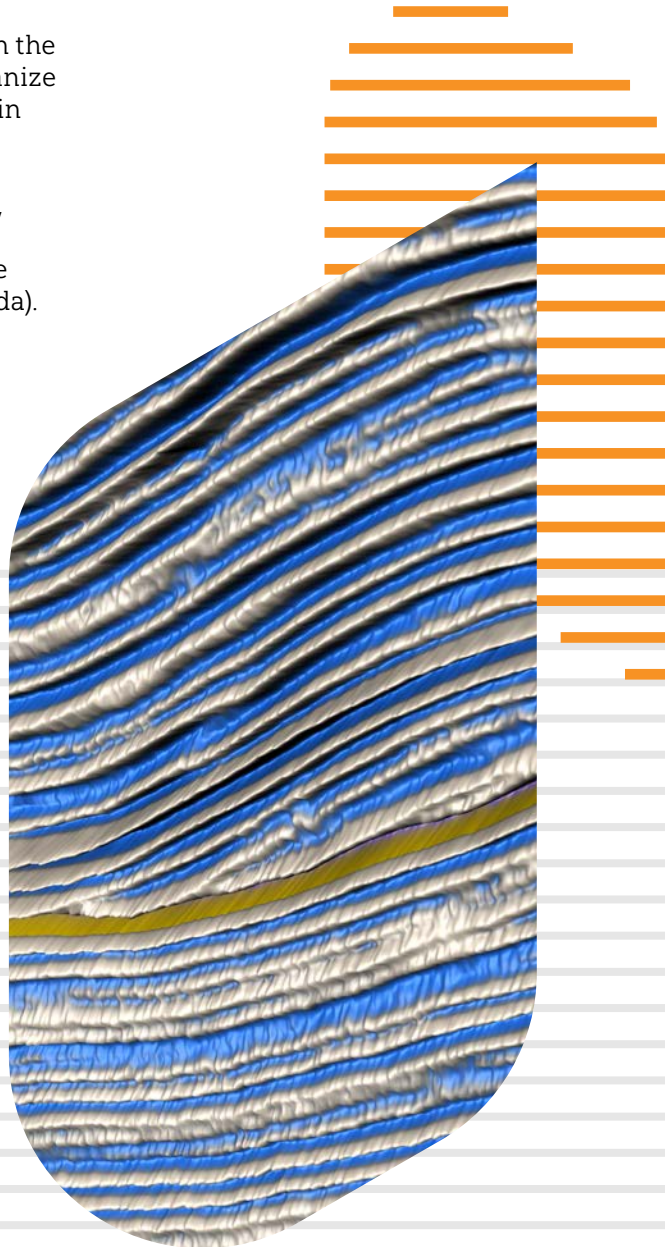
I served as Board liaison for four different committees including the Committee for Passive Seismic, Development and Production Committee, Research Committee, and Distinguished Lecture Committee. In addition, I was a member of the IMAGE '22 Technical Program Committee, member of the Latin America Regional Advisory Committee, and interim chair for the Distinguished Instructor Short Course Subcommittee.

I am convinced at this stage of my life that everything is education and communication. Thus, we all value better communication within SEG and between societies, and we

all want to strengthen connections and inspire members to further engage with SEG.

IMAGE is a massive event that has its own unique value, but a lot of us think some of the nuances and smaller professional and personal exchanges are lost. The same is true for the geography. Some of the best technical exchanges some of us have had, including networking, have been away from Houston, and even better, in another country. This allows more diverse involvement and interaction, whether from senior or junior professionals, as well as, very importantly, students.

Finally, one of my main goals during my term on the Board will be to foster and help our Society organize and carry out more technical meetings abroad (in particular, to expand its business and technical footprint in Latin America). Of course, I would love to see IMAGE being held, one of these days, for instance, in Mexico City (where the 1973 SEG Annual Meeting took place; the only time to date that it has not been in the United States or Canada).



ANA CURCIO

DIRECTOR AT LARGE



It has been an honor to serve a second year as director at large. I had the opportunity to actively participate in important and enriching discussions about the current energy transition, members in transition, and also digital transition and how they relate to the future of SEG members and the future of SEG.

The committees for which I serve as Board liaison in higher or lesser degrees are a part of these discussions. They include the Membership Committee, Women's Network Committee (WNC), and SEAM Board of Directors. I also served as chair of the Committee on Nominations, chair of the Audit Committee, and Board liaison of the Latin America Regional Advisory Committee. I served on the Sustainability Committee, SEAM CO₂ Advisory Group, and Medical Applications Task Force. Finally, I contributed to the Challenge Bowl and Latin America Unconventional Resources Technology Conference (URTeC).

Membership Committee. The objective of the Membership Committee is to retain and grow an actively engaged membership with requisite knowledge, skills, and values. This is accomplished by providing an environment that brings people together working as one to help accomplish the Society's common goals to promote the science of applied geophysics and the education of geophysicists worldwide. Given the SEG numbers and statistics related to membership demographics, gender, age, etc., the committee interprets and detects the current status of the Society and promotes actions that influence the future directions of SEG.

During this period, the committee discussed and explored innovative approaches to attract new members, with a particular focus on engaging younger demographics. In February 2023, the 2022 versus 2023 number of paid members was 6314 versus 8221. Whereas, in June 2023, the 2022 versus 2023 number of paid members was 9918 versus 8961. The committee affirms that the membership count exceeded 11,000, reflecting a growth of more than 10% compared to the previous period. By actively pursuing new members, the central aim of the next period is to strengthen the communication strategies and engage and welcome a dynamic and inclusive community, with particular focus on younger members.

Women's Network Committee. WNC was created in 2011 to promote gender parity, celebrate women achievements, raise awareness, and find solutions for challenges that women encounter in applied geophysics and related fields.

During this period, with outstanding registration (approximately 600) and attendance (approximately 200), WNC organized six webinars with a focus on sustainability; justice, equity, diversity,

and inclusion; soft skills; career development; and more. WNC activities are quarterly published in a newsletter, providing information on upcoming events, conferences, updates, and relevant information for subscribing SEG members.

WNC successfully continued with its resume-review service, which includes analysis and feedback to the applicants, Ask-Me-Anything sessions led by students, and the quarterly newsletter. WNC also had increased visibility through LinkedIn (an increase of 40% of followers in the last year) and YouTube. In addition, WNC promoted the Mentoring365 platform on SEG's Seismic Soundoff podcast.

Special focus should be on student communities continuing the Ask-Me-Anything sessions. The sessions allow leaders in industry and academia to provide transparent insight and mentorship to students in the community. The sessions were attended by more than 150 students around the world. In addition, the Women's Network Student Community organized a GeoSummit during the fourth quarter of 2023. It included a comprehensive lecture series that dove into the hottest topics in geosciences, delivered by experts at the forefront of the field. Several WNC representatives were invited to give talks.

During IMAGE '23, WNC aligned with the IMAGE organizers; American Association of Petroleum Geologists (AAPG) Women's Network; SEG Justice, Equity, Diversity, and Inclusion Committee; AAPG Young Professionals; and Association for Women Geoscientists to organize a strategic panel session titled "Powering the energy landscape of tomorrow: Successful geoscience collaboration with diverse teams." The efforts also contributed to early-career speed mentoring, a Women's Network luncheon and breakfast, and activities held at a combined women's networking booth within the IMAGE Gathering Place. Finally, in addition to the activities described, in the next period, WNC is planning to start a book club.

SEAM. With the aim of finding opportunities for broader technical projects and providing opportunities for greater participation, SEAM is in a current business model evaluation. This led to a Bylaws revision and changes in the SEAM Board of Directors. The current objective is to focus on

providing direct contributions to science, engaging more companies in SEAM, broadening the technical scope, and providing additional revenue for SEG.

During this period, the Artificial Intelligence Benchmark Task Force was formed; a proposal to add a license term limit and provisions for different scenarios for the licensing were discussed; and the CO₂ pilot, in collaboration with companies, completed the reservoir geomechanical simulations for two scenarios (CO₂ contained and CO₂ leaking). Discussions on details of the geophysical simulations are ongoing.

Current discussions about library, SEAM product use, and publications may strengthen the SEAM brand. In the future, SEAM is interested in geophysical projects focused on groundwater, mining, civil engineering, geothermal, fracking, and/or marine vibrators.

Latin America. Although Latin America is of strong interest to SEG, we struggle to engage members in the region. Despite that, the Latin America Regional Advisory Committee (LARAC) introduced a virtual mentorship to the region that was very well received, and very successful, with participation from 20 mentors and 40 mentees. The Virtual Student Conference celebrated its fourth occurrence and produced some excellent presentations. In addition, LARAC hosted two webinars in collaboration with the Sustainability Committee — one on the humanitarian application of geophysics and one on energy transition topics.

There is a realization among the committee members that activity in Latin America will be limited until permanent SEG representation can be established in the region. Latin America is often compared to the Middle East when weighing potential for SEG activities and revenue potential. Latin America, however, is subject to cultural idiosyncrasies and economic factors that do not exist in the Middle East. Despite that, I was honored to represent SEG in Latin America URTEC, which was very successful.

In consequence, I would like to suggest that SEG entities and staff continue to provide guidance and tools to the Latin America Regional Advisory Committee, which could improve and increase the visibility of SEG in Latin America.

SHERIF M. HANAFY

DIRECTOR AT LARGE



It has been an honor to serve as a director at large on the SEG Board of Directors. This was my third and last year in the term, which started at the 2020 Annual Meeting. As usual, there was a lot of discussion and decisions made during the Board meetings to improve SEG and make it better for our members. I am pleased to be a part of this Society and did my best as a director at large to enhance SEG.

Throughout the year, one of my key objectives was to revitalize and strengthen SEG student chapters in the Middle East, some of which have not been active since the pandemic. Recognizing the importance of fostering the next generation of geophysicists, I worked closely with regional universities to encourage establishing and reactivating student chapters. One of these is the SEG King Fahd University of Petroleum and Minerals student chapter, which resumed its activity in 2022 after three years of no activity. They are planning to team up with another student chapter based in Azerbaijan to arrange a summer camp in Saudi Arabia in 2023.

To enhance the visibility and engagement of SEG in the Middle East, I actively participated and represented SEG in regional conferences and workshops. These events provided valuable opportunities to connect with industry professionals, researchers, and students, fostering meaningful discussions, knowledge exchange, and collaboration. By representing SEG and showcasing its initiatives, publications, and resources, I aimed to promote the Society's mission and create awareness about the benefits of membership and involvement.

During the reporting period, I fostered collaborations and partnerships with universities, research institutions, and industry stakeholders. By establishing strong relationships with academic and industry leaders, I aimed to create synergies and leverage resources for the mutual benefit of SEG and its partners.

I would like to express my sincere gratitude to SEG for providing me with the opportunity to serve as a director at large. The support, guidance, and resources extended by the SEG leaders, Board of Directors, and staff have been instrumental in enabling me to carry out my responsibilities effectively. I am grateful for the trust and confidence placed in me by the members, whose enthusiasm and dedication continue to inspire me.

BRANDY HAWKINS

DIRECTOR AT LARGE



Support and alignment of SEG's path forward has been my focus during my final year on the SEG Board of Directors. This was an exciting time to be involved as challenges developed into actions. Key areas were identified for improvement, and this resulted in the commission of the SEG/SEG Foundation Alignment Task Force. Participation in this task force was one of the highlights of my year. The identification and recommendation of a series of best practices to improve the alignment and value delivery of both SEG and the SEG Foundation led to exciting changes. Among the recommendations is that emphasis of seamless cooperation between the boards will support future goals, leading to a brighter future for our Society.

It was also an exciting year to be chair of the Committee on Nominations. The election process typically includes a biography and position statement, with some restrictions regarding the SEG Campaign Policy. The committee sought to improve voter participation by increasing candidate visibility by modernizing the campaign process while adhering to the general foundation of the Campaign Policy. This was the first year that candidates were given the opportunity to create a video of their biography and position statement that could be shared with our members. Overall, this was a success.

This year, I was also liaison for several committees including the Emerging Professionals International Committee, Committee on University and Student Programs, Field Camps Committee, Travel Grants Committee, and Scholarships Committee.

It has been an honor to support and serve this Society. Working on the Board, I developed a much deeper understanding and respect for the functioning of SEG and the SEG Foundation. I have had the privilege to observe the excellence of so many people who devote their time to the prosperity and future of SEG. I have also observed the talent and excitement of young scientists with sparkling eyes as they engage with seasoned members of the Society. I have gained value, experience, and friendship. I am encouraged that the future of SEG is a good one, and I encourage all of you to be a part of it.

OLGA I. NEDORUB

DIRECTOR AT LARGE



It was an honor to continue my role as director at large for a second term in 2023, alongside the outstanding Board of Directors, staff, and global colleagues. This year, we focused on business: reimagining the future of the Society and building a strong financial acumen.

The word “exploration” in our Society’s name continues to represent its most broad definition of “the action of traveling through an unfamiliar area for the purpose of discovery of information or resources.” To this end, there have been many efforts to brainstorm various ideas that can be implemented to solve challenges that are not unique to SEG. A few examples of ongoing challenges include supporting students and early-career professionals, maintaining a long-term membership base, supporting members in transition, providing learning opportunities, achieving financial growth, diversifying the technological focus, addressing global challenges, and fostering adaptability.

I am eager to be a part of the solution and observe various initiatives that are creative, innovative, fact based, prudent, visionary, and capable in understanding what the future holds. However, how to get there remains a challenge. SEG truly appreciates all volunteers who donate their time by serving on committees and various other initiatives throughout the year.

My three overarching beliefs continue to be

- Geophysicists with steady employment form a strong membership base
- Geophysicists with an interest and purpose engage and give back
- Geophysicists around the world who belong and feel supported form our robust Society

During my second term, I focused on the following activities:

- Served on the Board of Directors
- Served as a member of the Finance Committee
- Served as Board liaison for two committees and one task force
- Assisted with the Coin and Currency Exhibit at IMAGE '23
- Organized a postconvention workshop for IMAGE '23 on a new topic to expand applications of geophysical technology

- Provided member support (e.g., provided recommendation letters and communicated with members on LinkedIn)

The Board. As a director at large, I had the primary responsibility of participating in monthly Board meetings, contributing to discussions and decision making, voting on various issues at hand, and observing the dynamics occurring inside the Society, as well as globally. It is very encouraging to see the diversity of thought on the Board, where ideas and actions are challenged to ensure that processes remain diligent and serve the good of a global organization. I would like to extend a special thank you to Mandi Duckworth for keeping procedural guidelines and records of Board meetings.

As the second major responsibility of director at large, I served as Board liaison for the Health, Safety, Security, and Environment (HSSE) Committee; Oil and Gas Reserves Committee (OGRC); and Medical Applications Task Force.

HSSE. The HSSE Committee, led by Sharon Teebenny, did an outstanding job of reviewing and revamping all existing HSSE content and designing and creating a toolkit of HSSE resources applicable to all SEG-related activities. Please see details in this Annual Report and refer to its page on the [SEG Wiki](#).

OGRC. Dan Maguire, chair of the OGRC, was instrumental in discussions about two major documents: Petroleum Resources Management System (PRMS) and Water Resources Management System (WRMS). Maguire states, “The OGRC continues to work on ways to educate the SEG membership on how and why they should become educated in how they can influence the quantification of oil-and-gas reserves and resources in their organizations. The 2022 Petroleum Resources Management System Application Guidelines (PRMS-AG) chapter on seismic applications was written by members of the OGRC. We need to work to share these tools and techniques within the SEG Community.”

Please utilize the following links to access [Petroleum Reserves and Resources Definitions](#) (free) and [Guidelines for Application of the Petroleum Resources Management System](#) (fee applies).

In 2024, I plan to work with the committee to revisit WRMS because the water issue is becoming

crucial for all aspects of society, oil-and-gas operators, renewable energy sector, farming, and more. It is important that geophysicists offer our knowledge and expertise in quantifying and managing water resources for the benefits of sustainable development and inalienable rights.

IMAGE '23. I would like to express my deepest gratitude to the IMAGE organizers and staff for ensuring a very successful event, one of the best in recent years. I would like to extend special appreciation to Jenny Cole for her diligent work and problem-solving skills as they apply to the technical program (the core of the event).

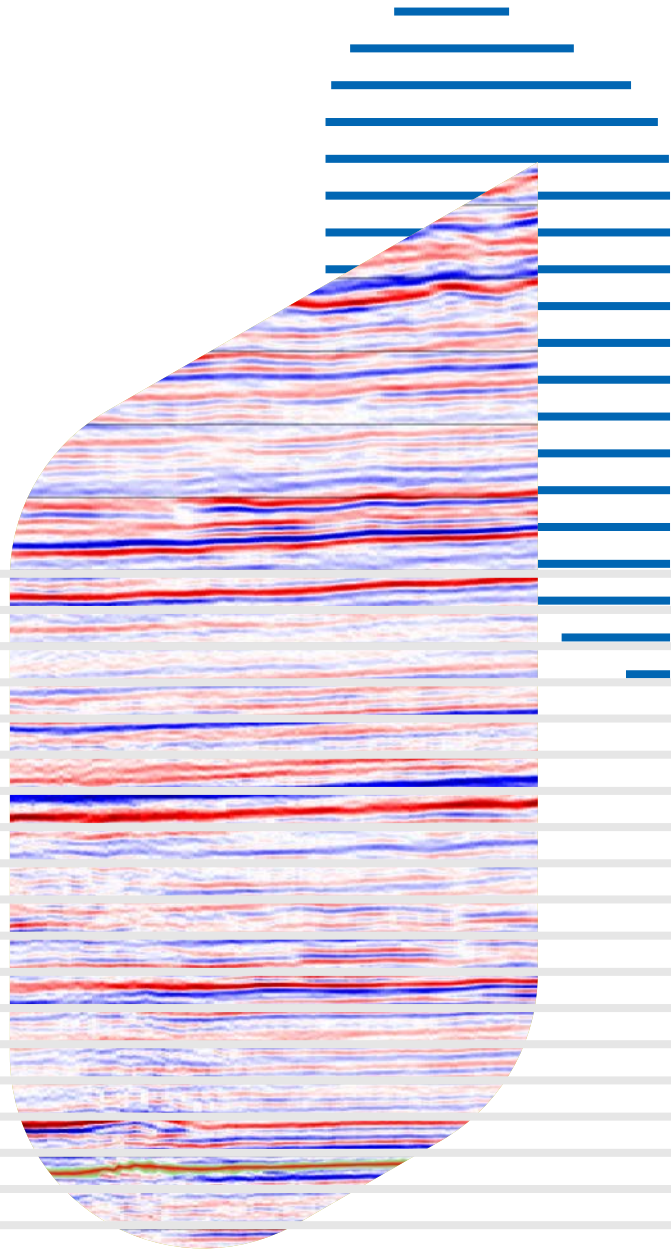
Many attendees were truly impressed this year, not only with the technical content and vibrant exhibition floor, but also with various social perks the event provided. I believe that offering something new to IMAGE attendees each year is the secret sauce to the event’s success. I would like to especially mention two of my favorite perks: the Art Show and the Coin and Currency Exhibit. Thank you to Lisa Helper and Alan Morgan, respectively, for organizing those exhibits.

Finance Committee. I had the privilege of attending regular Finance Committee meetings, where I collaborated with committee members to review financial reports; approve budgets; ask questions; and discuss investments, challenges, and successes. These meetings provided me with a comprehensive understanding of the financial drivers behind SEG’s operations. I observed an improvement in SEG financial health. I believe that SEG is on track to remain a thriving society that can support existing programs, offer new benefits, and have a stable and sustainable future. I would like to express my heartfelt gratitude to Carlos de la Garza, Katie Petrowski, and all of the members of the Finance Committee for their expertise and diligent work.

Postconvention workshop. Lastly, I would like to thank Laurie Whitesell and my co-organizers Yunyue Elita Li, Ibrahim Adewuyi Oyediran, and Casmir Akaolisa for their support in successfully planning and holding the postconvention workshop titled “Role of geoscience in sustainable land development.” This is the first IMAGE postconvention workshop on the topic. It brought awareness to the applications of geoscience technology to sustainable construction in sensitive coastal, tropical, or established regions that are susceptible to various natural processes such

as subsidence, karst, and erosion. I would also like to thank our speakers Sandy Nettles, Charlie Waltman, Judy Schulenberg, Sarah Newbery, Sarah Stanley, and Ann Chen, as well as the attendees.

As a final remark, I would like to encourage geophysicists around the world to break the shell of competitiveness and think about ways to solve industry problems collaboratively. Please consider engaging to the fullest extent with SEG to take advantage of the network. Each of us provides great value in the form of ideas and services to the Society and receives immense benefits in return.



CATHERINE TRUFFERT

DIRECTOR AT LARGE



These 12 months have been very inspiring as a director at large of SEG. I discovered many people dedicated to the organization and its fundamental missions. Surrounded by a highly diverse population of scientists and entrepreneurs, I am delighted to continue my mandate for the next two years.

My dedication originates from the belief that addressing the significant challenges posed by the energy and digital transitions and global changes that have surfaced in recent decades requires diverse approaches and talents in the geosciences. I actively work toward fostering connections between academia and industry, as well as among students, young professionals, and seasoned experts.

For my first year as director at large, I was Board liaison for the Near-Surface Geophysics Technical Section, Geoscientists *without* Borders® (GWB) Committee, AGU-SEG Collaboration Committee, and Europe Regional Advisory Committee.

In these committees, I discovered volunteer scientists who devote their time and expertise to shared objectives. By opening up their network to students and up-and-coming scientific experts, they become the artisans and architects of the collective. Nothing would be possible without them as members, chairs, and SEG staff.

Our primary goal is to attract new talent to SEG and share expertise within private industries, service providers, manufacturers, research laboratories, schools, etc. Faced with the monumental challenges posed by the energy and digital transitions and global changes including climate, the future of humanity depends largely on advances in the geosciences. However, the academic geosciences sector worldwide is suffering from a shortage of new recruits. For complex and poorly understood reasons, the emerging generations show little interest in the geosciences professions, which considerably impoverishes the sector.

Attracting new talent requires the emergence of new vocations on a global scale. SEG has promising tools at its disposal, such as the student chapters and GWB, which must be cultivated with perseverance. As Board liaison for the GWB Committee, I am proud to witness the exceptional dynamism of the members who invest a great deal of energy in collecting, evaluating, and supporting remarkable projects that are diverse in both subject and geography, despite a limited budget.

Being based in Europe allows me to bring a different perspective that I hope will be useful to SEG. Serving as the Board liaison for the Europe Regional Advisory Committee allows me to stay

focused on the evolution of subjects through workshops and webinars that hold special significance for Europeans, including the net-zero-emissions goal. My contribution has been modest, focusing on networking between European and North American scientists. Over the past year, the committee has experienced a revitalization, with valuable input from new and engaged members who inject fresh energy into the team.

Initially engaged in the near-surface community due to my scientific expertise and understanding of this business sector, my focus these following months has predominantly been on the initiatives and future directions of the Near-Surface Geophysics Technical Section. The section provides a space for scientific collaboration, crossfertilization, and debate of ideas and knowledge in areas outside the oil-and-gas business sector. By joining forces within the committee, the boundaries of individual knowledge are transcended to create a fertile landscape for targeted research, outreach, and economic developments. The subcommittees offer tailor-made webinars for students, the majority of whom did not have the opportunity to attend conferences in person, particularly during this period of turmoil caused by the pandemic. The scientific issues, geophysical methods, and short- and medium-term prospects raised by the section are conducive to economic growth and increased knowledge. These include, but are not limited to: groundwater management, environmental surveillance and monitoring, impact of human activities, energy-transition responses, adaptation to climate change, challenges of urban growth, archaeological knowledge and protection, and links between geophysics and geotechnics for the maintenance or development of infrastructure.

Under the inclusive and charismatic leadership of Chair Lee Slater, the section has benefited considerably from the arrival of new recruits, mainly from academia. These young talents have taken charge of crucial initiatives, including the scientific organization of the iconic IMAGE '23 exhibition. The many interactions between engineers and researchers from different backgrounds, united by a common vision, attest to the vitality of the team. The sessions and panel discussions, thanks to the creation of the Near-Surface Pavilion, all contributed to the success of this event. Acting as a catalyst among exhibitors sharing common sectors of activity, the Near-Surface Pavilion

hosted brief debates on emerging topics, bringing together a wide range of stakeholders, including key institutional and industrial players. This modern arena experience, praised by exhibitors who felt part of the scientific and technical discussions, was made possible by the unwavering commitment of our staff liaison, Laurie Whitesell, and support of the sponsor, Teledyne Marine.

My role on the AGU-SEG Collaboration Committee is based on an obvious fact: the need to collaborate with organizations other than our own. My contribution has been humble, as this committee has been operating effectively since 2010, constantly seeking to go further together. In these times of dwindling numbers of young recruits, collaboration between institutions on common issues is our only salvation. Shared workshops have attracted participants from each organization, fostering greater mutual understanding and underlining the importance of evolving technological maturity in the sciences. Closer to the economic market, SEG draws inspiration from the American Geophysical Union's (AGU) emerging research, while AGU is rooted in concrete applications thanks to SEG. This is not a linear vision, but rather a virtuous circle scheme. The interactions are not limited to one direction at all levels, but this sketch allows us to visualize a complementarity, far from a compartmentalized and dogmatic vision. Collaboration with other organizations, in particular with AGU, represents a wealth that contributes to the ecosystem as a whole. Without collaboration, future years will witness a long but inevitable decline in the number of SEG members.

Over and above the responsibilities I was given, I had the opportunity to interact with various sectors within SEG. In this context, I have briefly highlighted the positive impacts of the student chapters. I would like to take this opportunity to express my gratitude to all the dedicated contributors to this initiative, which is of crucial importance in the short, medium, and long term. Today's students are destined to become tomorrow's talented experts. I was also able to gain an in-depth understanding of SEG's governance, staff, and local offices, particularly in the Middle East and China.

I would like to express my deep gratitude to the volunteers and professionals of SEG, whose hard work and team spirit continue to underpin the sustainability of this century-old organization.

ALLEN J. BERTAGNE

CHAIR OF THE COUNCIL



The Council is one of SEG’s two governing bodies, the other being the Board of Directors. The Council’s activities are driven by the roles and responsibilities defined in our Bylaws. These include

- Approving the Annual Report and dues increases
- Providing advice to the Board of Directors
- Promoting cooperation between SEG and Associated Societies around the world
- Providing a forum within which the members from all parts of the world can express their views, raise questions, and propose topics of discussion

In 2023, the Council was active on all of these fronts.

At the beginning of the year, the Council approved a modification in dues structure, allowing a discount for Corporate members who purchase bulk memberships for their employees. A one-time discount was also approved to encourage nonmembers active in the newly established SEG Community to join the Society. Each of these initiatives is intended, and expected, to increase the membership of the Society.

The 2022 Annual Report was approved. It features a new, more user-friendly format and contains the essential information of the Society. This includes summary reports of the individual SEG committees, boards, task forces, officers, representatives, and subsidiaries, as well as the Society’s audited financial results. The Annual Report is the go-to place to learn about which entities are doing what, as well as the place to review the progress of the Society.

In 2022, the Council recommended to the Board that it develop a statement of the fiduciary obligations of SEG leadership, beyond those of the regular membership. An additional recommendation was that new enforcement procedures be written into the Policies and Procedures. The considerable work of modifying Policies and Procedures related to enforcement was undertaken by a Council Task Force under the excellent leadership of Ray Earley. The task



Figure 4. Members of the SEG Council.

force worked diligently for several months. Once the task force finalizes the proposed text documenting the enforcement procedures, it will be discussed in the Council and then proceed to a formal vote, expected in early 2024.

Thanks in large part to modern communications technology, the Council is more active than it has ever been. I introduced regular Council Work Sessions in late 2021. These informal sessions have continued since then. This has resulted in increased dialog and understanding between the Council, staff, Board, and invited visitors to the Council. One of the highlights of the year was a visit from the president of a student chapter who impressed us with the activities they have undertaken related to attracting the next generation to their university. The chapter’s activities were supported by a minor financial contribution from SEG, which clearly resulted in an excellent return.

At the Council meeting at IMAGE '23, a discussion and vote were held on priorities for the coming year. Enthusiastic presentations were made on key topics as follows:

- Attraction of the next generation of geophysicists: Kim Frankcombe (District 12 special advisor)
- Strategies for growing near-surface geophysics within SEG (Geoff Pettifer, NSTS representative)
- Expanding the hands-on training of the next generation (Ibrahim Attia, District 10 special advisor)
- Advancing and improving IMAGE (Katie Baker, Geophysical Society of Houston [GSH] representative to the Council)
- SEG financials (Katie Baker, GSH)

Based on these priorities, the Next Generation Task Force was established, led by Kim Frankcombe, with a focus on how we can attract new entry-level members to SEG. This task force will continue its activities into early 2024.

In 2023, we facilitated a more direct communication channel between Council district representatives and members in those districts via direct e-mails to the membership. Two such e-mails were sent in 2023. In one, the representatives introduced themselves. The other sought feedback from the members related to IMAGE. If you would like

to learn more about the Council, I encourage you to download the Council poster.

The Council chair attends and votes in all Board meetings, allowing them to participate in decisions being made at that level and ensuring that the member’s voices, as expressed through the Council representatives, are heard in that setting. Board meetings typically begin with a Justice, Equity, Diversity, and Inclusion (JEDI) Moment. In October, I was pleased to be invited to share thoughts based on my experience as technical coordinator of the EVOLVE program (2017–2021) and Council chair (2021–2024). The talk, “Toward holistic JEDI,” showed case histories of successful diversity and inclusivity while working toward a common goal. The talk was well received by the Board and was followed by an invitation to present to SEG’s JEDI Committee.

Over the last year, the world has gone through some turbulent times. While it could be easy to get distracted by nongeophysical topics, I am pleased to report that the Council never lost sight of its focus on what truly unites the global and diverse membership of SEG — a passion for, and interest in, promoting the science and profession of geophysics.

In closing, I express sincere thanks to Vice Chair John Duhault, Parliamentarian Mandi Duckworth, and the more than 80 Council members who made 2023 a successful year.



Figure 5.

SECTION TWO:

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ADVISORY

COMMITTEE CHAIR: MAURICE NESSIM

BOARD LIAISON: KEN TUBMAN

STAFF LIAISON: JIM WHITE

COMMITTEE MISSION

The Advisory Committee serves as a resource to the SEG Board of Directors and the SEG executive director and provides opinions and recommendations in response to requests for assistance. It may initiate reports and/or recommendations to the Board on any matter deemed appropriate and provide a similar response to matters submitted to it by the Board. The committee may annually review the progress of the immediately retiring Board and make recommendations to the incoming Board. It may also act as an ombudsman for a member who is unsatisfied with the actions or decisions of the Board.

EXECUTIVE SUMMARY

The Advisory Committee had no activity during this term.

AGU-SEG COLLABORATION

COMMITTEE CHAIRS: JOSH SELLARS AND KISA MWAKANYA

BOARD LIAISON: CATHY TRUFFERT

STAFF LIAISON: LAURIE WHITESELL

COMMITTEE MISSION

In recognition of the mutual interests among American Geophysical Union (AGU) and SEG members, and as a means of furthering the common goals and objectives of each organization, the AGU-SEG Collaboration Committee was formed in 2010. The committee is comprised of an approximately equal number of members from both organizations who have broad interests. The committee's mission is to facilitate collaboration and encourage dissemination of scientific information via joint activities such as workshops, publications, etc.

EXECUTIVE SUMMARY

Joint workshops have been a successful collaboration of the committee. We continue to explore other opportunities to provide a broad experience for our members.

HIGHLIGHTS FROM THE PAST YEAR

The committee conducted a joint workshop on the geophysics of convergent margins. Cochairs of the workshop were Heather Bedle (University of Oklahoma) and Anne Becel (Columbia University). The event was a success and extended the science and application of geophysical imaging of convergent margins.

GOALS FOR THE COMING YEAR

Planning is well under way for joint workshops for next year and beyond. The 2024 workshop titled, "Advancing sciences in monitoring the ambient earth vibrations: Unraveling earth's secrets through ambient seismic wavefield exploration frontiers in monitoring" is chaired by Marine Denolle (University of Washington), Aaron Girard (Colorado School of Mines), and Nori Nakata (Massachusetts Institute of Technology).

A 2025 workshop titled, "Hydrologic geoscience for sustainable and equitable community development" is chaired by Kisa Mwakanyamale (University of Illinois) and Jeffrey Shragge (Colorado School of Mines).

The 2026 workshop titled, "Geothermal exploration and production" is chaired by Josh Sellars (Seequent) and Lianjie Huang (Los Alamos National Laboratory). Rescheduling of the 2026 workshop to 2025 is required due to a large geothermal conference that will take place in Calgary in 2026.

The committee will continue to explore collaborative opportunities that will benefit all members of both societies. We will continue joint publication options and consider special sections.

CHALLENGES

There are challenges in planning our workshops a couple of years in advance. We build these challenges into our system flexibility and resiliency to be able to switch events or the timing of our events if conflicting topics with new larger events happens. This happens rarely, but when it does, we need to be able to move quickly. This takes forward thinking and planning.

BOOKS EDITORIAL BOARD

COMMITTEE CHAIR: LIANJIE HUANG
BOARD LIAISON: JEFFREY SHRAGGE
STAFF LIAISON: SUSAN STAMM

COMMITTEE MISSION

The Books Editorial Board solicits and considers applied-geophysics proposals and manuscripts from authors and editors, weighing both technical merits and marketability when judging whether to encourage their development into SEG books and other special publications.

EXECUTIVE SUMMARY

The SEG Books program is a crucial part of the Society's goal of being the go-to source for state-of-the-art science and technology information on applied geophysics. SEG publications are an essential resource for students, researchers, and practitioners working in applied geophysics. We thank the nine editorial board members for their volunteer efforts and SEG Books Program Manager Susan Stamm for her outstanding work.

HIGHLIGHTS FROM THE PAST YEAR

SEG's newest publications include *Machine Learning for Science and Engineering Volume I — Fundamentals* by Herman Jaramillo and Andreas Rüger and *Storage of Carbon Dioxide in Saline Aquifers: Building Confidence by Forecasting and Monitoring* by Philip Ringrose.

GOALS FOR THE COMING YEAR

Practical Machine Learning Methods in Geosciences by Jerry Schuster, with labs by seven of his colleagues, is scheduled to be published in the fourth quarter of 2023. Two additional titles have expected publication dates later in 2023, and three are on track for 2024.

CHALLENGES

The Books Editorial Board is always seeking new book proposals so SEG can continue to add high-quality peer-reviewed titles to its catalog.

BYLAWS

COMMITTEE CHAIR: EDITH MILLER
BOARD LIAISON: JOSEPH M. REILLY
STAFF LIAISON: MANDI DUCKWORTH

COMMITTEE MISSION

The mission of the Bylaws Committee is to ensure that SEG Bylaws clearly state the established rules of the Society and that the Bylaws of Sections and Associated Societies and student chapters conform to these rules.

EXECUTIVE SUMMARY

This year, the Bylaws Committee reviewed nine sets of student chapter Bylaws. The committee did not receive any requests to consult on proposals from the membership or Board requiring amendments to the Bylaws.

HIGHLIGHTS FROM THE PAST YEAR

The Bylaws Committee is tasked with reviewing all proposals from the membership and Board that require amendments to the Bylaws. In addition, the committee reviews all new or amended Bylaws of sections and student chapters.

This year, the committee reviewed nine sets of student-chapter Bylaws:

- Geoscience and Environmental Science Society at Hope College
- University of Barishal Geophysical Society
- University of Hyderabad Student Chapter
- Abubakar Tafawa Balewa University Society of Exploration Geophysicists
- University of Mines and Technology Student Chapter
- Society of Geophysical Explorationists (University of Benin Student Chapter)
- SINERGIA Uniandes Student Chapter
- Khalifa University of Science and Technology Student Chapter
- Geology and Mining Explorationists (University of Benin Student Chapter)

GOALS FOR THE COMING YEAR

Next year, the Bylaws Committee expects potential Bylaws activity following current discussions in the SEG Council and Board of Directors. In addition, the committee expects to review the new or amended Bylaws of several student chapters.

CONTINUING EDUCATION

COMMITTEE CHAIR: JOHN FERNANDO
 BOARD LIAISON: SHERIF HANAFY
 STAFF LIAISON: JOHN MEADE

COMMITTEE MISSION

The mission of the Continuing Education Committee is to provide educational resources to our global membership and others interested in geophysics through 68 courses taught by recognized oil and gas industry experts. We stimulate professional interest in theoretical and applied geophysics, direct career development, and expand technical horizons by

- Providing training in basic, intermediate, and advanced skills
- Providing advanced curriculum topics in geophysical techniques
- Offering new and innovative technology courses to diversify and augment the field of geophysics
- Increasing networking opportunities and interaction between participants and experts
- Presenting soft-skills courses such as “Effective scientific writing”
- Supporting accepted practices

EXECUTIVE SUMMARY

After 2022, revenue derived from both public and private courses was not sufficient to sustain the program. Consequently, in 2023, a decision was made to fully focus on private courses while curtailing public courses. The one exception was the course titled “Introduction to field camp leadership,” which was held virtually for SEG field camp participants. With the renewed focus on securing private courses, revenue significantly increased from preceding years. Improved revenue was supported by a long overdue course pricing adjustment that helped underwrite the program

while still maintaining great value to customers.

HIGHLIGHTS FROM THE PAST YEAR

- Increased 2023 in-house revenue by 261% from the previous year — the strongest showing in more than five years
- Collaborated with SEG staff to develop a fair and competitive rate increase for public and private courses
- Sponsored a second Field Safety Leadership course taught by Kevin Bohacs in support of SEG field camp participants
- Increased SEG On Demand course recording sales to 39, a more than 30% increase from 2022
- Launched a continuing-education scholarship fund to help eight individuals attend continuing-education courses, through the generosity of an instructor donor

Dates	Duration	Course	Customer	Instructor(s)
22–26 January	Five days	Advanced seismic imaging	Aramco	Biondo Biondi
5–9 March	Five days	An introduction to migration and velocity model building	Aramco	Ian Jones
23–24 May	One day, virtual	Introduction to field safety leadership	Public course	Kevin Bohacs
8–12 October	Five days	Seismic anisotropy: Basic theory and applications in exploration and reservoir characterization	Aramco	Leon Thomsen
6–10 November	Five days	Deep oil and gas exploration	PetroChina Tarim Oilfields Company	Malcolm Lansley and Scott MacKay
12–16 November	Five days	Application and interpretation of converted waves	Aramco	Jim Gaiser
4–7 December	Four days	High resolution, broadband acquisition	BGP	Shuki Ronen and Sam Gray

Table 2. Public and private courses completed in 2023.

GOALS FOR THE COMING YEAR

A goal for 2024 is to reintroduce public courses with an emphasis on virtual courses and select face-to-face opportunities. We aim to continue to expand the private course customer base, developing long-term training relationships with new and existing customers. We will maintain an evergreen course catalog, adding new courses to the portfolio. We will also expand the SEG On Demand menu of course recordings. Finally, we will work to strengthen bonds between committee members and instructors.

CHALLENGES

Challenges going forward include (1) maintaining an effective mix of private and public course offerings to engage the evolving demands of SEG members and corporate customers, (2) continuing to upgrade the curriculum by introducing new content and qualified instructors, and (3) marketing the capabilities of SEG's Continuing Education program.

DEVELOPMENT AND PRODUCTION

COMMITTEE CHAIR: MARIANA GHERASIM

BOARD LIAISON: SERGIO CHÁVEZ-PÉREZ

STAFF LIAISON: STEVE BROWN

COMMITTEE MISSION

The mission of the Development and Production Committee is to establish a forum for the advancement of technologies that ensure the reliability of subsurface assessment and the robustness of field development. Successful adoption of geophysical technologies requires a strong link with geology and petroleum engineering to attain more-accurate forecasting and reserve booking. The committee's mission will be achieved through joint workshops, journal special sections, and forums that focus on various topics such as reservoir surveillance (e.g., 4D, distributed acoustic sensing, and microseismic), quantitative interpretation, and other integrated workflows.

EXECUTIVE SUMMARY

The Development and Production Committee had another active year. Members continue to be involved in SEG education and professional-development efforts, collaboration with other professional societies, and organization of conference sessions and workshops.

HIGHLIGHTS FROM THE PAST YEAR

Committee members Andrew Royle, David Johnston, and Eric von Lunen were involved in updating the Guidelines for Application of the Petroleum Resources Management System — a collaborative effort of the Society of Petroleum Engineers, Society of Petroleum Evaluation Engineers, American Association of Petroleum Geologists, World Petroleum Council, and SEG. They contributed specifically to Chapter 3, "Seismic applications."

Committee members were also involved in organizing and chairing sessions for the Carbon Capture, Utilization, and Storage Conference (CCUS) and IMAGE '23. Jean-Paul van Gestel contributed to CCUS. For IMAGE '23, two postconvention workshops were organized titled "What is the future of seismic imaging" and "Insights and questions related to CCUS and reservoir characterization utility in terms of static earth model description based on geophysical methods." The committee also hosted a technical luncheon. The invited speaker, Ali Tura, presented "A step change in obtaining reservoir properties from seismic data." Approximately 80 individuals attended the luncheon.

An important milestone this year was obtaining SEG approval to organize a 4D forum in 2024. The forum will focus on monitoring and optimizing reservoir production for resource management.

During the committee's third-quarter meeting, immediately after IMAGE '23, membership guidelines were discussed, and a few new members were accepted. Some of the new members have contributed to past committee activities.

GOALS FOR THE COMING YEAR

In 2024, the committee will focus on finalizing the technical program for the 4D Forum, which is planned for 4–6 November in Galveston, Texas. Committee members will continue to be involved in contributing to CCUS and IMAGE and engaging with other professional societies.

CHALLENGES

A challenge for the committee continues to be a lack of funding for speaker gifts. While economic limitations are understood, an allocation of a small amount of funds for gifts for invited speakers seems reasonable and appropriate. The committee is grateful to Steve Brown (staff liaison) for producing a certificate of appreciation in a leatherette jacket for the IMAGE '23 luncheon speaker.

So far, the committee has not encountered challenges with the 4D Forum. Members of the committee would like to acknowledge Debbie Mitchell (SEG meeting planner) for her contribution that helped in creating a very smooth process.

DISTINGUISHED INSTRUCTOR SHORT COURSE

COMMITTEE CHAIR: SERGIO CHÁVEZ-PÉREZ

BOARD LIAISON: MAURICIO SACCHI

STAFF LIAISON: MELISSA PRESSON

COMMITTEE MISSION

The primary mission of the Distinguished Instructor Short Course (DISC) Subcommittee is to provide an annual short course on a popular topic for the SEG membership. This course is available to selected SEG Sections and Associated Societies, student chapters, and more worldwide. It is a celebration of excellence in geophysics and education. The position of instructor is viewed as an honor and recognition of excellence by the Society. The individual is recognized as the Society’s distinguished instructor at IMAGE following the tour. The course itself is viewed as a valuable service to the membership and beyond. The magnitude of this undertaking requires the cooperation of a variety of committees, and the DISC Subcommittee serves as the facilitator and coordinator for this effort.

EXECUTIVE SUMMARY

This was an exceptional year, with more than 500 learners and more than US\$148,000 in revenue. The year featured a return to both virtual and in-person events, with Mark Willis and Phillip Ringrose attracting an average of 31 attendees per event. At mid-year, questions about the program’s financial sustainability led to a decision to increase rates. This was a move that did not impact attendance but significantly improved the program’s financial position.

HIGHLIGHTS FROM THE PAST YEAR

Willis presented, “Distributed acoustic sensing for seismic measurements — What geophysicists and engineers need to know.” Willis completed 11 events, ending a three-stop Far East tour with 112 attendees.

Ringrose presented, “Carbon capture, usage, and storage.” He successfully kicked off the tour at IMAGE, with 31 attendees. He followed up with a virtual

presentation that was designed for SEG EVOLVE students and mentors, with a total of 92 participants.

GOALS FOR THE COMING YEAR

- Restore the subcommittee composition by focusing on committee member involvement and membership
- Seek Board endorsements for future DISC instructors and topics

Dates	Location	Venue	Instructor	Attendees
3 March	Colorado	Colorado School of Mines	Willis	21
19 April	Virtual		Dellinger	24
4 May	Brazil	Halliburton/SBGF	Willis	22
23 May	Houston, Texas	Chevron/GSH	Willis	43
2 June	Tokyo, Japan	JSEG	Willis	45
7 June	Kuala Lumpur, Malaysia	PETRONAS	Willis	50
12 June	Singapore	National University of Singapore/Halliburton	Willis	17
28 August	Houston, Texas	IMAGE	Ringrose	31
12–13 September	Perth, Australia	Australian Society of Exploration Geophysicists, Virtual	Willis	25
27–28 September	Virtual	SEG EVOLVE	Ringrose	92
28 September	Dhahran, Saudi Arabia	DGS	Willis	50
5–6 October	Copenhagen, Denmark	TOTAL	Willis	21
10–11 October	London, UK	PESGB, Virtual	Willis	25
30 November	Calgary, Canada	CSEG, Virtual	Willis	16
30 November	Majorca, Spain	SMILE, MSCA-DN	Ringrose	22
7 December	Trondheim, Norway	NTNU	Ringrose	19

Table 3. Courses taught in 2023.

CHALLENGES

- We will follow up on the 2023 success and maintain momentum.
- We will continue to select instructors who bring relevant cutting-edge content to the SEG membership.
- Finally, we will continue to market DISC events to the right audiences.

DISTINGUISHED LECTURE

COMMITTEE CHAIR: BORIS GUREVICH
 BOARD LIAISON: SERGIO CHÁVEZ-PÉREZ
 STAFF LIAISONS: MELISSA PRESSON, JOHN MEADE, AND ANNABELLA BETANCOURT

COMMITTEE MISSION

The Distinguished Lecture Committee is responsible for the Society’s lecture programs including the Distinguished Lecture, Honorary Lecture, Virtual Near-Surface Global Lecture, and Baker Hughes Global Sustainability Lecture.

The Distinguished Lecture program honors outstanding individuals noted for high quality in their contributions to geophysics on a global level and who are outstanding communicators of ideas and concepts.

The Honorary Lecture program focuses on transferring knowledge within a region and/or topic, recognizing prominent geophysicists, and strengthening the services that SEG provides to an expanding global membership. The Virtual Near-Surface Global Lecture program focuses on the transfer of knowledge on a topic in near-surface geophysics and recognizes leaders on a global level who are working in this area.

The common goals of these programs are to

- Recognize individuals’ contributions to advancing the science and the technology of geophysics.
- Disseminate knowledge via speaking tours of SEG Sections, Associated Societies, student chapters, and other venues as appropriate.
- Foster a sense of community among

geophysicists by providing opportunities for local meetings and the exchange of ideas.

- Encourage students by providing the opportunity to discuss scientific and career issues with leading experts.

EXECUTIVE SUMMARY

The SEG Lecture program (including Distinguished Lecture, Honorary Lecture, Virtual Near-Surface Global Lecture, and Baker Hughes Global Sustainability Lecture) continues to be one of the most effective outreach programs of SEG. As a result of procedures developed during the pandemic and ongoing financial challenges this year, all lectures were delivered twice virtually. At the time of this writing, the virtual lectures have reached 3564 total registrants with 1500 unique views. Because each lecture targets a specific range of time zones, our regionally based lecturers now reach a much more global audience, as evidenced by the large number of participating countries (92). An office hour immediately following the lectures is now offered regularly, allowing lecturers to interact informally with participants.

HIGHLIGHTS FROM THE PAST YEAR

In 2023, the committee engaged the American Geophysical Union in the possibility of a joint lecture series. Discussions are ongoing. We also structured and executed nominations and voting for the first Baker Hughes Global Sustainability Lecturer. We developed standardized guidelines and procedures for the office-hour option held immediately after virtual lectures. Finally, we discussed committee demographics and updated committee membership to better reflect the Society’s gender balance.

DISTINGUISHED LECTURE REGISTRATIONS

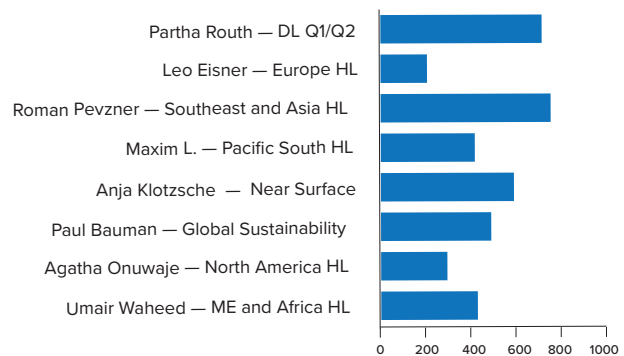


Figure 6. Registration information for the 2023 lectures.

2022 DISTINGUISHED LECTURERS

Q1/Q2 DISTINGUISHED LECTURER

Partha Routh

Title: "New frontiers in full wave-field inversion: Journey toward elastic FWI and direct use of raw seismic data"

Attendance: 715 registrations, 336 unique registrations

Q3/Q4 DISTINGUISHED LECTURER

Jonathan Ajo-Franklin

Title: "Advances in distributed acoustic sensing (DAS)"

Postponed: Due to injury, this lecture will now be held in 2024.

2023 HONORARY LECTURERS

EUROPE HONORARY LECTURER

Leo Eisner

Title: "Mapping pore pressure with beach balls"

Attendance: 208 registrations, 99 unique registrations

SOUTH AND EAST ASIA HONORARY LECTURER

Roman Pevzner

Title: "Surface and borehole seismic monitoring of CO₂ geological storage"

Attendance: 752 registrations, 295 unique registrations

PACIFIC SOUTH HONORARY LECTURER

Maxim Lebedev

Title: "Digital rock under stress"

Attendance: 420 registrations, 151 unique registrations

LATIN AMERICA HONORARY LECTURER

Eduardo Corti

Title: "New well seismic techniques"

Postponed: This lecture has been moved to 2024.

MIDDLE EAST AND AFRICA HONORARY LECTURER

Umair Waheed

Title: "Scientific machine learning in geophysical exploration and monitoring"

Attendance: 430 registrations, 177 unique registrations
The second lecture will be held in 2024.

NORTH AMERICA HONORARY LECTURER

Agatha Onuwaje

Title: "The role of geohazards assessment in the evolving energy mix"

Attendance: 291 registrations, 191 unique registrations

VIRTUAL NEAR-SURFACE GLOBAL LECTURER

Anja Klotzsche

Title: "Unlocking the potential of GPR for subsurface characterization by using full-waveform inversion"

Attendance: 594 registrations, 208 unique registrations

BAKER HUGHES GLOBAL SUSTAINABILITY LECTURER

Paul Bauman

Title: "A strategy for improving rural water supply development in Sub-Saharan Africa"

Attendance: 489 registrations, 128 unique registrations (second lecture)

The first lecture was held in 2022.

GOALS FOR THE COMING YEAR

Among new initiatives, the committee proposed a special session at IMAGE '24 to highlight the best of the Distinguished and Honorary lectures from the third and fourth quarters of 2023 and the first and second quarters of 2024. Discussions with the IMAGE technical program chairs are ongoing. We are also requesting space in *The Leading Edge (TLE)* for a series of regular features that would summarize Distinguished and Honorary lectures in a format suitable for *TLE* and its audience. We have received support from the *TLE* Editorial Board to move forward with this initiative.

The approved list of 2024 lecturers is summarized here. The committee's recommendation is to offer lecturers the opportunity to deliver in-person lectures in their local areas, in addition to their two virtual lectures. Although the virtual lectures have a broader reach, in-person lectures would facilitate the additional in-depth discussions and personal interactions that are often considered beneficial by both lecturers and attendees, especially students.

2024 DISTINGUISHED AND HONORARY LECTURERS

- Q1/Q2 Distinguished Lecturer: Gerald Mavko
- Honorary Lecturer Europe: Anne-Kari Furre
- Honorary Lecturer Pacific South: Tim Dean
- Honorary Lecturer South and East Asia: Shalivahan Srivastava

The Virtual Near-Surface Global, Middle East and Africa, Q3/Q4 Distinguished, North America Honorary, and Baker Hughes Global Sustainability lecturers will be chosen in late 2023 to early 2024.

CHALLENGES

The committee requests that SEG boards, committees, and membership become more active in nominating future lecturers. The committee also recommends that members take the opportunity to view the lectures [online](#).

EMERGING PROFESSIONALS INTERNATIONAL

COMMITTEE CHAIR: VINESH PETHANRAJ K.

BOARD LIAISON: BRANDY HAWKINS

STAFF LIAISON: JESSICA DOSTAL

COMMITTEE MISSION

The mission of the Emerging Professionals International Committee (EPIC) is to encourage volunteer engagement and create a sense of belonging for early-career geoscientists. It also serves as a catalyst for the transition from Associate to Active membership, as well as to the assumption of leadership roles in SEG. The committee focuses on global services for all members who are in their first eight years of employment after graduation.

EXECUTIVE SUMMARY

This year, we created networking opportunities with other early-career groups. EPIC recognizes the significant digital transformation within the geosciences (both in academia and industry). We worked to design possible educational opportunities for the committee. In addition, we identified possible new offerings to support the development of early-career professionals.

HIGHLIGHTS FROM THE PAST YEAR

In 2023, EPIC planned technical events that focused on computer languages and machine learning.

In addition, we strived to become more established within the early-career geoscience community. One way of doing this was by building engagement with our Instagram page. We also established a LinkedIn group.

As a part of IMAGE '23, we collaborated with American Association of Petroleum Geologists Young Professionals; SEG Women's Network Committee; SEG Justice, Equity, Diversity, and Inclusion Committee; and Association for Women Geoscientists Lone Star to organize a panel titled, "Powering

the energy landscape of tomorrow: Successful geoscience collaboration with diverse teams."

GOALS FOR THE COMING YEAR

We have four main goals for the coming year. The first is to hold a global networking event that will connect early-career geoscience professionals.

The second goal is to curate educational offerings on new digital tools. This will better prepare early-career professionals for the digital transformation.

Our third goal is to create content (mainly on social media) that will establish more interest in geophysics. We hope to reach those who had no prior interest in geophysics.

The final goal is to expand our existing committee membership to ensure that a global representation is reached.

These goals will allow us to achieve our ambition of becoming a better-recognized committee within SEG and beyond.

CHALLENGES

The greatest challenge has been the reduced activity of committee members in our bimonthly engagements and other virtual correspondence. This is a trend among other committees as well. In addition, the committee had several volunteers move to other opportunities within and outside of SEG.

Finally, SEG events are geographically challenging for the committee to represent effectively. For example, at IMAGE '23, EPIC lacked representative from North America.

EUROPE REGIONAL ADVISORY

COMMITTEE CHAIR: EMIN SADIKHOV

BOARD LIAISON: CATHY TRUFFERT

STAFF LIAISON: LAURIE WHITESSELL

COMMITTEE MISSION

The mission of the Europe Regional Advisory Committee is to advise on, promote, and facilitate the global nature of SEG on a regional basis.

EXECUTIVE SUMMARY

The committee has been instrumental in developing

better connections between geophysicists across the globe and in encouraging students to participate and take leadership roles within the committee.

HIGHLIGHTS FROM THE PAST YEAR

The outgoing chair, Aurelian Roeser, helped lead the committee and helped with the transition to the current chair, Emin Sadikhov. Antony Price was added as vice chair and will become the chair once the current term has ended.

In addition, the committee conducted the 3rd Net-Zero Emissions Workshop, and the Student Subcommittee conducted the 7th Virtual Student Conference. The committee also developed seven technical webinars and one C-suite-level-perspective webinar. The committee also submitted nominations for consideration as part of the SEG Honors and Awards and SEG Board of Directors' candidate nominations. These activities will continue as the committee considers further initiatives to help raise awareness of and participation within SEG across Europe.

GOALS FOR THE COMING YEAR

In 2024, our goals are to continue with successful programs and to develop new initiatives based on current state of the art in geophysics as they pertain to needs in the region.

CHALLENGES

There are no challenges.

FIELD CAMPS

COMMITTEE CHAIR: FRANCESCA FAZZARI

BOARD LIAISON: BRANDY HAWKINS

STAFF LIAISON: VANESSA MEDINA

COMMITTEE MISSION

The Field Camps Committee reviews, rates, and ranks all qualified field camp applications. It selects field camp award recipients based on rankings and available funds, as well as donor restrictions. The committee documents the selection process. In addition, it recommends changes to the Policies and Procedures as necessary.

EXECUTIVE SUMMARY

Field camp funding remains very limited, and individual awards continue to be small. SEG-funded field camps have global impact, with seven out of the 10 awarded camps in 2023 taking

place outside of the United States. This year's field camp grant student organizers were trained in health, safety, security, and environment (HSSE) processes in a virtual SEG Field Safety Course.

HIGHLIGHTS FROM THE PAST YEAR

In 2023, SEG received 21 applications for funding. This is a decrease from the 28 applications that were received in 2022. The total funding requested was US\$149,585. From the submitted applications, the committee selected 10 awardees totaling \$51,206. Individual award values in 2023 ranged from \$2000 to \$10,445. This year, awards were provided to field camps in Azerbaijan, Egypt, Ghana, Indonesia, Italy, Mexico, Nepal, Romania, and the United States.

The committee continues to partner with the HSSE Committee, chaired by Sharon Teebenny, to assess applicants' HSSE plans. Support from the HSSE Committee has continued to elevate the work of the Field Camps Committee. Feedback from the HSSE Committee is used to strengthen the HSSE plans of field camp grant recipients. In addition, the Field Camps Committee continues to send two student organizers from each funded field camp to the virtual SEG Field Safety Course.

At the SEG EVOLVE session during IMAGE '23, student leaders from Eötvös Loránd University in Hungary and the University of Naples Federico II in Italy presented reviews of their 2022 field camps.

The committee's 2023 application revisions focused on streamlining the application process and encouraging applicants to pursue supplementary support from their local geophysical community for their field camps.

GOALS FOR THE COMING YEAR

The Field Camps Committee will complete the annual application revision and web page update. The committee will survey past field camp participants, with a focus on connecting practicing geophysical alumni to student chapters submitting field camp grant applications.

CHALLENGES

The key challenge for the committee remains securing funding for the program.

GEOPHYSICS

COMMITTEE CHAIR: ARTHUR CHENG
 BOARD LIAISON: JEFFREY SHRAGGE
 STAFF LIAISON: ELIZABETH WARREN

COMMITTEE MISSION

The mission of the GEOPHYSICS Editorial Board is to evaluate submissions and prepare them for publication in SEG’s flagship scientific journal, GEOPHYSICS.

EXECUTIVE SUMMARY

GEOPHYSICS continues to be one of the premier journals in applied earth sciences, and submissions continue to arrive at an active pace. The overall quality of submissions is consistent with the quality we have been receiving the last few years, resulting in editorial performance statistics and publication and citation statistics that are similar to those of previous years.

There are a few significant issues facing the journal. First, we sometimes struggle to secure high-quality reviews of submissions in a timely fashion. It is challenging to uphold the journal’s standards for significance and originality of submitted work in a world where there is huge pressure on academic authors (who constitute most of our authors) to generate large numbers of peer-reviewed publications and citations. In addition, we face severe competition from other journals in terms of page charges and open-access fees. The changing requirements from government agencies regarding open access for sponsored publications is yet another challenge.

HIGHLIGHTS FROM THE PAST YEAR

The number of submissions to the journal has appeared to plateau in the range of 800 per year. The current staffing of the editorial board (assistant and associate editors) is appropriate, although thoroughly utilized, for a submission rate of this magnitude. Changes in the 2021 journal year (when the full-role facets previously handled by the editor-in-chief were divided among a senior assistant editor, editor-in-chief, and past editor) have made the tasks of running the submission-evaluation process more sustainable for the individuals who execute these roles. In addition, shortening the terms of these roles to one year each has provided more mobility for current and aspiring assistant editors.

For the 2023 year to date (1 January to 1 December), the journal received 685 submissions (Figure 7),

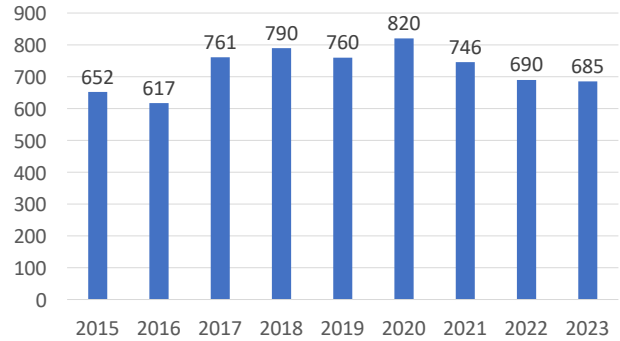


Figure 7. GEOPHYSICS submissions by year as of 1 December.

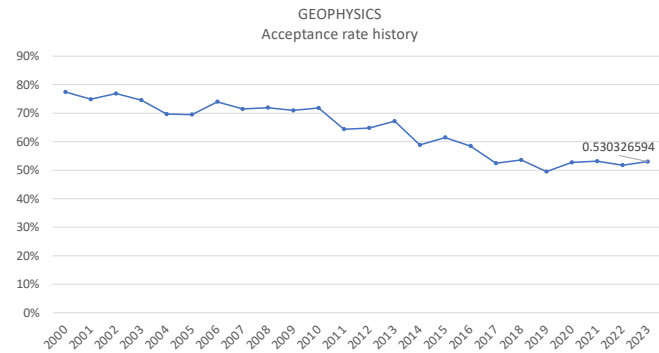


Figure 8. GEOPHYSICS acceptance rate history, as of 1 December 2023.

down slightly from the same period in 2022 (690) and somewhat down from the record set in that calendar period in 2020 (820). None of this is cause for concern, as we continue to receive enough high-quality submissions. We are publishing approximately 80 technical papers per issue and can exercise “quality through choice” in selecting the best work to appear in the journal. The 2023 year to date (as of 1 December) has the overall acceptance rate of 53%, consistent with the rate for the last several years and does not constitute a cause for concern (Figure 8). However, this requires appropriate care and communication with many potential authors whose submissions receive negative initial decisions.

Continuing the trends of the last five years, the country of origin of most submissions to the journal continues to be China by a large and increasing margin (Table 4). Anecdotally, this appears to be due to the rising quality and interest in advanced applied geophysics in that country. The United States is the origin of the second-most submissions but trails China in raw numbers by more than a factor of three. Brazil, Canada, and Europe are the next most significant originating locations for our submissions.

By and large, the citation and impact statistics for GEOPHYSICS have remained stable, with some indicators showing a slight decrease and others showing slight to significant increases in stature. Notably, the overall impact factor of the journal rose to 3.3 for the 2022 year (Table 5), a high watermark and a continuation of a rising trend.

GEOPHYSICS hosted three special sections in 2023, up one from the year before. "Advances in mathematical geophysics" was published in the January-February 2023 issue with 28 papers. "Geophysical applications to geothermal energy" was published in the September-October 2023 issue with 12 papers. "Distributed acoustic sensing in geophysics" was published in the November-December 2023 issue with 17 papers.

At IMAGE '23, Lu Yunhe of Jilin University, China, was recognized as GEOPHYSICS Reviewer of the Year for outstanding contributions to the review process measured by the quantity, timeliness, and quality of his evaluations of GEOPHYSICS manuscripts.

Country/region	Number of manuscripts	Percent of manuscripts
China	424	61.9%
United States	83	12.1%
Rest of World	39	5.7%
Brazil	23	3.4%
Canada	21	3.1%
Norway	13	1.9%
Saudi Arabia	13	1.9%
United Kingdom	9	1.3%
Germany	8	1.2%
Italy	8	1.2%
Netherlands	8	1.2%
Iran	7	1.0%
Australia	6	0.9%
France	6	0.9%
Egypt	5	0.7%
Iran	5	0.7%
Denmark	4	0.6%
India	4	0.6%
South Korea	4	0.6%
Total	685	

Table 4. Original submissions by country of submitting author in 2023.

At the 1 August 2023 handover of editorial roles, Alison Malcolm began a term as editor-in-chief for the 2024 journal year. The staff and editorial board were pleased to welcome Antoine Guitton to the role of senior assistant editor. Therefore, Guitton will assume the editor-in-chief role for the 2025 journal year. Also, for the 2024 journal year, we reverted to a more level-loaded rate of appointing one new assistant editor per annual cycle. Kris Innanen was invited to be promoted from associate editor to assistant editor for case histories (Guitton's previous role), and he accepted that role.

Unfortunately, one disciplinary investigation, brought up in 2022, into a potential misrepresentation of authorship of a paper published in the 2021 journal year has not been fully resolved between the individuals and the home institution yet.

GOALS FOR THE COMING YEAR

We have been doing well in terms of transitioning from one editor-in-chief to another, and the new system put in place two years ago with the past editor, editor, and senior assistant editor has worked well. Associate editors know that there is a path for "promotion," and by having the editor serve a one-year term, we increased the potential number of individuals to be in that position.

We had three special sections in the 2023 journal year. We have heard from authors and readers that they like the special sections. However, getting proposals and special editors for those sections is not always easy. We are always looking for proposals for special sections from our authors. Currently, we have only two special sections scheduled for publication in 2024.

CHALLENGES

The most significant challenge facing GEOPHYSICS is resourcing the peer-review process with willing

Indicator (source)	2022 score
h5-index (Google Scholar)	58
h5-median (Google Scholar)	74
CiteScore (Scopus)	7.5
SciMago Journal Rank (Scopus)	1.638
Journal Citation Indicator (Web of Science)	0.87
Journal Impact Factor (Web of Science)	3.3

Table 5. Journal metrics (also available at <https://library.seg.org/GEO-metrics>).

and qualified individuals who have appropriate subject-matter expertise in all the topics that the journal publishes. Anecdotally, some associate editors are reporting the need to invite very large numbers of potential reviewers to receive an appropriate number of quality reviews for the manuscripts in their remit. The ScholarOne Manuscripts system, as well as other resources and peer networks, are helping address that challenge. However, in some cases, papers are significantly delayed in progressing to first decision because of the difficulty in finding willing and qualified reviewers. These cases cause irritation and concern for authors, leading to increased communication workloads for journal staff and editors.

We have embraced diversity, equity, and inclusion principles in appointing associate editors, especially with regards to recruiting younger professionals who are at the peak of their research years, and with attention to gender and geographic location. Given the number of submissions from China, we have recruited a larger number of associate editors from China. On the more challenging side, several new associate editors found that the workload is a bit too much for their work-life balance, and we do have a few turnovers.

The second significant challenge faced by the journal is the need to support and educate authors about maintaining the highest standards of originality of their submissions. We continue to see submissions, detected either by Crossref's Similarity Check powered by iThenticate or by the peer-review process, that are not sufficiently distinct from existing publications. The fact that many authors are also prolific abstract authors/presenters at SEG meetings complicates the adjudication of submissions to GEOPHYSICS. As a professional society, we traditionally encourage authors/presenters of technical-program papers to expand their work and submit journal articles. We see many submissions that are only trivial expansions of already published technical abstracts. We return these to the authors with guidance that, given the existence of the already published technical abstract, they need to expand their work to merit a published GEOPHYSICS manuscript. Sometimes that is a difficult message to convey.

GEOSCIENTISTS WITHOUT BORDERS®

COMMITTEE CHAIR: CENGIZ ESMERSOY

BOARD LIAISON: CATHERINE TRUFFERT

STAFF LIAISON: PALLAVI BHARADWAJ

COMMITTEE MISSION

The Geoscientists *without* Borders® (GWB) Committee is a professional network of volunteers who are responsible for the growth and success of the GWB program. Its primary mission is to support humanitarian applications of geosciences around the world.

EXECUTIVE SUMMARY

- In 2023, three projects were funded for a total of US\$150,000. Two or three others are being selected for an additional \$100,000.
- The Technical Review Subcommittee (TRSC) was established and completed its first review.
- The GWB Committee is transforming toward steering and strategic tasks and needs new members.
- Pandemic-related project delays continued, but we expect that projects will be completed successfully.
- Baker Hughes and the American Association of Petroleum Geologists (AAPG) Foundation renewed their support of the program in 2024.

HIGHLIGHTS FROM THE PAST YEAR

In the first half of the year, 27 proposals were reviewed and two projects were funded for a total of \$100,000. The first project was "Groundwater resource mapping and monitoring in crystalline basements in East Senegal." It is led by Axel Laurel Tcheheumeni Djanni of Cheikh Anta Diop University. The second project was "Groundwater recharge and sustainable extraction through resilient forest communities in India." It is led by Alexis Shakas of ETH Zurich.

In the second half of the year, 37 proposals were received. At the time of this report, review was still ongoing. A total of \$100,000 is available for projects for the second half of 2023.

In addition, we received special funding for a project that will be a part of an IMAGE '24 field trip. From seven initial projects, three in the Houston area were considered and one was funded for

\$50,000. The project titled “Dignity in depth: Using geophysics to locate unmarked burials in historic African-American cemeteries” will be led by Robert Stewart of the University of Houston.

There are 14 ongoing projects. This is a historically high number, and it is primarily due to continuing pandemic-related and other delays. Four projects were completed this year, two final reports are in review, and others are near completion. Two examples follow.

“Managing water quality in coastal Benin, Africa, using open-source, low-cost geophysical hardware” was led by Jeffrey Shragge of Colorado School of Mines in collaboration with the Université d’Abomey-Calavi in Benin. The goals of this project were to (1) develop low-cost, open-source geophysical instruments (Figure 1), (2) distribute knowledge and instrumentation across a regional hydrogeophysicist network, and (3) obtain critical hydrogeophysical data for improving understanding of the local aquifer system (Figure 2).

“Toward improved earthquake hazard assessment in Myanmar: Tools, knowledge and infrastructure” was led by Patricia Persaud of Louisiana State University in collaboration with the University of Yangon in Myanmar. Yangon, Myanmar’s largest city, is in an earthquake-prone area near

a subduction system. The objective was to train those who are a part of the University of Yangon in instrumentation, fieldwork, and data analysis for an improved assessment of the ground motions that may occur during a large earthquake.

We established the TRSC to help evaluate project applications and review progress reports. This will give the Steering Committee more time for strategic tasks. The TRSC currently has 12 members, and they completed their first review of the 2023 third- and fourth-quarter Phase I applications.

Among other committee activities, we organized a special session at IMAGE ’23 titled “Geoscientists *without Borders*® (GWB): Applied geoscience for humanitarian need.” Six presentations from Benin, Egypt, Ghana, Guatemala, Myanmar, and Nepal were made. Two from Nigeria could not travel due to visa issues. A GWB Reception was also held at IMAGE ’23 and was well attended.

Phase I and II applications and final report forms were updated to improve and streamline the review process. New forms were used in 2023 proposals, follow-ups, and final reports.

GOALS FOR THE COMING YEAR

The committee’s main goals for the coming year are to recruit new members, update reporting

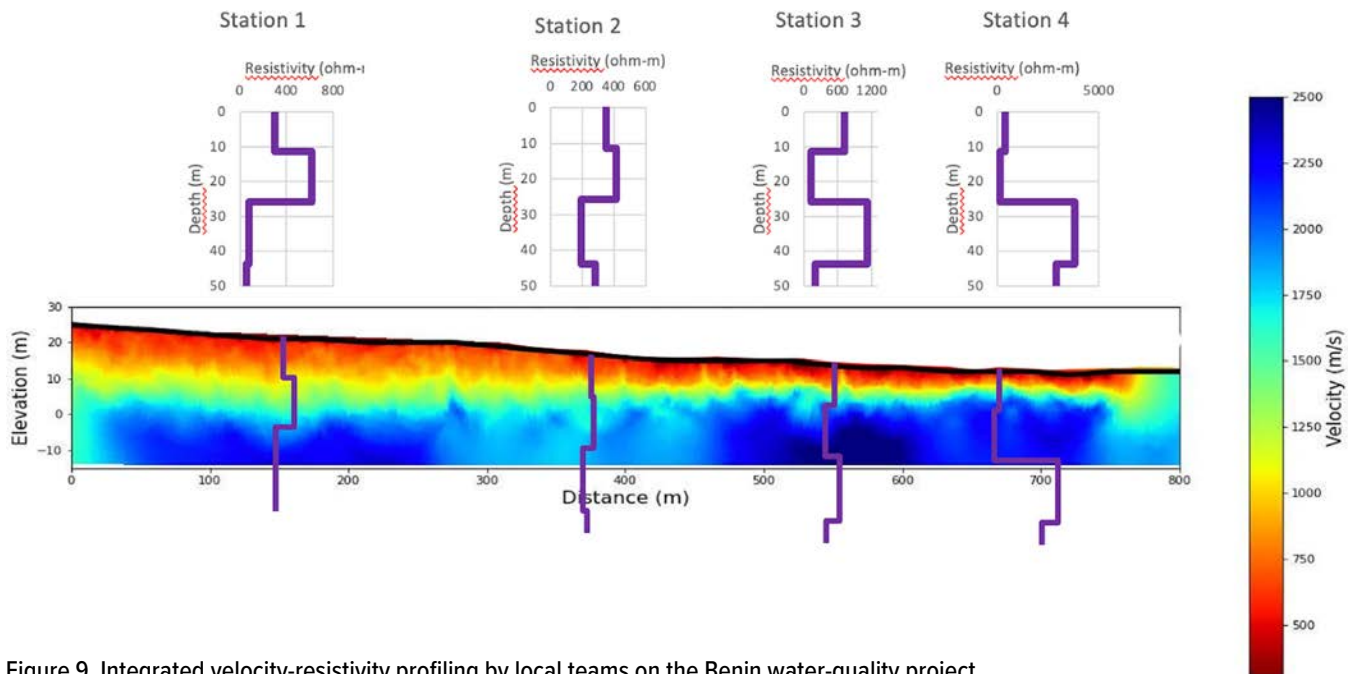


Figure 9. Integrated velocity-resistivity profiling by local teams on the Benin water-quality project.

forms (due every six months) for more effective project reviews, and explore new fundraising and program-awareness methods.

CHALLENGES

Our funding level this year increased from \$123,800 to \$250,000. This is a welcome development; however, future funding levels remain uncertain. Additionally, we sometimes receive a large number of proposals (e.g., 86 in 2021 and 88 in 2023). This indicates that our outreach has been successful, and it reflects the need for this program. However, the large number of proposals made it challenging to accurately review these proposals on time, select the top ones, and review the second submissions again for a final selection. We are addressing this by streamlining the proposal forms and expanding our reviewer team with the TRSC.

GRAVITY AND MAGNETICS

COMMITTEE CHAIR: MARIANNE RAUCH

BOARD LIAISON: MAURICIO SACCHI

STAFF LIAISON: STEVE BROWN

COMMITTEE MISSION

The mission of the Gravity and Magnetism Committee is to promote the use of gravity and magnetic methods in applied geophysics.

EXECUTIVE SUMMARY

This year, the committee held several events including technical sessions, a workshop, and a luncheon at IMAGE '23.

HIGHLIGHTS FROM THE PAST YEAR

The committee organized a variety of events for IMAGE '23 including two technical sessions. One of the sessions focused on theory, and the other was on applications. Both events were well attended.

The committee hosted an IMAGE '23 postconvention workshop titled, "Creating value: Assessing uncertainty and resolving seismic ambiguity." The workshop presentations discussed the usefulness and application of uncertainty calculations using a variety of input data that were not restricted to seismic but included a larger number of potential-fields examples. The presented material was from operators, academia, and service companies.

The committee also organized a luncheon for

IMAGE '23. It featured a presentation titled "The DART Mission: Humanity's first planetary defense test mission to deflect an asteroid" by Paul Abell. Abell is the chief scientist for small body exploration in the Astromaterials Research and Exploration Science Division at NASA's Johnson Space Center. His presentation was very interesting and fresh off the press. There were approximately 80 attendees present for the luncheon.

After completing her two-year term, Marianne Rauch turned over duties as chair of the committee to Alan Morgan.

GOALS FOR THE COMING YEAR

Next year, we will continue to organize events for IMAGE. They will include the following:

- One special session
- One postconvention workshop
- At least two technical sessions
- One technical luncheon

CHALLENGES

Keeping and obtaining committee members is paramount. Young to mid-career professionals especially need to be recruited, not only from oil and gas, but also from mining and environmental areas. Another challenge is maintaining the high technical quality and diversity of the IMAGE events.

HEALTH, SAFETY, SECURITY, AND ENVIRONMENT

COMMITTEE CHAIR: SHARON TEEBENNY

BOARD LIAISON: OLGA NEDORUB

STAFF LIAISON: JOHN MEADE

COMMITTEE MISSION

The Health, Safety, Security, and Environment (HSSE) Committee helps ensure that HSSE is taken into consideration for any activities that SEG manages or sponsors. The committee will not duplicate the work that the EnerGeo Alliance and International Association of Oil and Gas Producers do with HSSE for geophysical operations, but rather complement and utilize wherever possible already developed industry guidance.

EXECUTIVE SUMMARY

Our first focus in 2023 was to review and revamp all existing SEG HSSE content. Our second focus was to create a toolkit of HSSE resources that is applicable to all SEG-related activities.

HIGHLIGHTS FROM THE PAST YEAR

This year, we reviewed all HSSE content on the [SEG Wiki](#). We brainstormed new ways to support the HSSE mandate and enhanced and updated the current content. We also defined new categories

of content that need to be included on the wiki.

Documents for the wiki were created that describe best HSSE practices for all SEG activities, while taking into consideration a global perspective (e.g., references to existing regulations, standards, customs, culture, legislature barriers, communication challenges, etc.). We also incorporated the human system into the health portion of the policies (e.g., ergonomics, mental health, organizational psychology, productivity, etc.).



Training course information | Training dates for 2023 | Field camp toolkit | Guidelines for Field Camp application | Field camp safety | Field expeditions fire fuel safety | HSSE Plan template | HSSE Risk Matrix template

Environmental impact and sustainability



Current SEG initiatives driven by other committees | The role of Geoscience in the energy transition | Practical sustainability tips | Energy transition 101

Data and Intellectual Property (IP) protection



Overview of IP | SEG Publications Data Policy | Protecting your IP | SEG IP guidelines | SEG permissions | Copyright

Ethics



Ethical guidelines for SEG publications | Respect and professionalism | Cultural awareness | Human trafficking awareness

Industry Guidelines



Land safety guidelines | Marine safety guidelines | Field safety guidelines

Figure 10. HSSE toolkit. Readers can find this at <https://wiki.seg.org/wiki/HSSE>.

The revamped HSSE toolkit located on the wiki includes the following overarching categories:

- Health and wellness
- Safety and security
- Field camps
- Environmental impact and sustainability
- Data and intellectual property protection
- Ethics
- Industry guidelines

Finally, for the wiki, we reviewed existing documents on geophysical data including best practices for data shoots, social impact, land disturbance, etc.

In 2023, collaboration with the Field Camps Committee continued. The Field Camp Leadership Course also continued. This included 21 participants from nine countries (12 students and nine professionals).

In addition, we reviewed and supplied feedback on the HSSE plans of 21 field-camp applications. Of the 10 applications selected for funding, the committee worked with seven applicants to further develop their safety plans. One application in particular was diverted from executing during monsoon season. The committee members' input was crucial to prevent unnecessary incidents. No major incidents occurred this year.

To conclude our efforts for the year, we worked with John Meade to ensure that we have visibility on the new SEG website.

GOALS FOR THE COMING YEAR

- The committee will continue to facilitate dialogue with the student congress and Field Camps Committee on managing student health and safety.
- We will aim to create a course to help field-camp participants understand the key aspects of hazards and safety.
- We plan to add additional committee members to help drive the next generation of energy for the sustainability of our activities.

- The committee will explore the creation of an app to record and analyze incidents. Phase one will focus on recording field-camp incidents. Phase 2 will evolve for use in all SEG events and activities.
- We will determine the possibility of having an in-person course with geophysical equipment a couple of times a year in collaboration with the University of Houston.
- Finally, we will focus on strengthening the security and environmental arm of the HSSE mandate.

CHALLENGES

Challenges include recruiting new members and gaining traction in the environmental arm of the committee.

HONORS AND AWARDS

COMMITTEE CHAIR: NANCY HOUSE

BOARD LIAISON: ANNA SHAUGHNESSY

STAFF LIAISON: MANDI DUCKWORTH

COMMITTEE MISSION

The Honors and Awards Committee recommends candidates to the SEG Board of Directors for the honors and awards of the Society. The committee also recommends individuals who should be considered for Honorary Membership.

EXECUTIVE SUMMARY

Nominations were solicited from the membership at large following IMAGE '22. Selections for Best Paper were provided by the editor of GEOPHYSICS, the editorial board of *Interpretation*, and the editorial board of *The Leading Edge*.

HIGHLIGHTS FROM THE PAST YEAR

After extensive research, the following awards were recommended by the committee and approved by the Board of Directors. The awards were conferred at IMAGE '23. Full citations for these awards were published in *The Leading Edge*.

MAURICE EWING MEDAL

Kurt J. Marfurt

HONORARY MEMBERSHIP

James E. Gaiser

VIRGIL KAUFFMAN GOLD MEDAL

Tariq Alkhalifah

REGINALD FESSENDEN AWARD

Lasse Amundsen, Andrey Bakulin, Luc T. Ikelle, Subhashis Mallick, and Yanghua Wang

J. CLARENCE KARCHER AWARD

Vladimir Kazei and Tao Zhao

LIFE MEMBERSHIP

Rocco Detomo Jr. and Donald A. Herron

SPECIAL COMMENDATION

Mahmoud Elabd Hedefa

OUTSTANDING EDUCATOR

Ionelia Panea and Sumit Verma

CRAIG J. BEASLEY AWARD FOR SOCIAL CONTRIBUTION

Michael C. Forrest

BEST PAPER IN GEOPHYSICS IN 2022

"Development and validation of a low-cost direct current resistivity meter for humanitarian geophysics applications" by Dana Sirota, Jeffrey Shragge, Richard Krahenbuhl, Andrei Swidinsky, Nicaise Yalo, and John Bradford

HONORABLE MENTION (GEOPHYSICS)

"Early arrival waveform inversion using data uncertainties and matching filters with application to near-surface seismic refraction data" by Ao Cai and Colin A. Zelt

"Multiplicative random seismic noise caused by small-scale near-surface scattering and its transformation during stacking" by Andrey Bakulin, Dmitry Neklyudov, and Ilya Silvestrov

"3D ground-penetrating radar attribute classification: A case study from a paleokarst breccia pipe in the Billefjorden area on Spitsbergen, Svalbard" by Niklas Allroggen, Björn H. Heincke, Philipp Koyan, Walter Wheeler, and Jan S. Rønning

"Overburden-borne internal demultiple formula" by Marcin Dukalski and Koos de Vos

BEST PAPER IN THE LEADING EDGE IN 2022

"A reality check on full-wave inversion applied to land seismic data for near-surface modeling" by Öz Yilmaz, Kai Gao, Milos Delic, Jianghai Xia,

Lianjie Huang, Hossein Jodeiri, and Andre Pugin

HONORABLE MENTION (THE LEADING EDGE)

"Distributed fiber-optic sensing transforms an abandoned well into a permanent geophysical monitoring array: A case study from Australian South West" by Evgenii Sidenko, Konstantin Tertyshnikov, Boris Gurevich, Roman Isaenkov, Ludovic P. Ricard, Sandeep Sharma, Dominique Van Gent, and Roman Pevzner

BEST PAPER IN INTERPRETATION IN 2022

"Origin of shallow gas in the Dutch North Sea — Seismic versus geochemical evidence" by Geert de Bruin, Johan ten Veen, Martin Wilpshaar, Noortje Versteijlen, Kees Geel, Hanneke Verweij, and Stefan Carpentier

HONORABLE MENTION (INTERPRETATION)

"Quantifying the sensitivity of seismic facies classification to seismic attribute selection: An explainable machine-learning study" by David Lubo-Robles, Deepak Devegowda, Vikram Jayaram, Heather Bedle, Kurt J. Marfurt, and Matthew J. Pranter

"Exploring factors affecting the performance of deep learning in seismic fault attribute computation" by Bo Zhang, Yitao Pu, Zhaohui Xu, Naihao Liu, Shizhen Li, and Fangyu Li

"Generating a labeled data set to train machine learning algorithms for lithologic classification of drill cuttings" by Daniela Becerra, Rafael Pires de Lima, Henry Galvis-Portilla, and Christopher R. Clarkson

"Vertical migration in theory and in practice" by Gary K. Rice

GOALS FOR THE COMING YEAR

Recognizing the achievements of peers is a key aspect of professional society membership. Evaluating nominations is challenging as well as rewarding in a complex profession such as ours. The committee aims to increase member engagement in the nominations process as it works to finalize the list of recipients for 2024 awards.

CHALLENGES

There continues to be a decline in the number of nominations for some award categories, resulting in some awards not being bestowed annually.

IMAGE OVERSIGHT

COMMITTEE CHAIR: GRETCHEN GILLIS

BOARD LIAISON: JIM WHITE

STAFF LIAISONS: TOM AGNEW AND ALAN WEGENER

AAPG MEMBERS: ANNE DRAUCKER, RICK FRITZ, AND DAVID CURTISS

SEG MEMBERS: WAFIK BEYDOUN AND BAISHALI ROY

COMMITTEE MISSION

The mission of the IMAGE Oversight Committee is to inspire the world's geoscientists and technology innovators to come together and share the knowledge, resources, and experiences necessary to responsibly discover, develop, and deliver energy resources to meet society's needs.

EXECUTIVE SUMMARY

This year, the International Meeting for Applied Geoscience and Energy (IMAGE) was again successfully held. Plans are already under way for next year's event.

HIGHLIGHTS FROM THE PAST YEAR

SEG, the American Association of Petroleum Geologists (AAPG), and the Society for Sedimentary Geology (SEPM) held IMAGE '23 from 28 August to 1 September at the George R. Brown Convention Center in Houston, Texas. The event had record attendance of more than 7300, which was a 23.3% increase from 2022. Attendees represented 99 countries with the top five being the United States, China, United Kingdom, Canada, and Saudi Arabia. Postconvention polls indicated that 90% of attendees rated the overall event good to excellent, and 92% would recommend IMAGE to their industry peers.

Among attendees, representation by area of geoscience as a profession included 37% geophysics, 29% geology, 10% engineering, 14% other, and 8% academia. Representation by years of experience was biased toward 16-plus years (63%), and the remaining was spread between 0 and 15 years, with 11% being 0 and 5 years. This represents a gap and therefore an opportunity to evaluate how to increase early-career professional participation. Representation by the industry sector is still dominated by the oil and gas sector (42%). However, the energy transition has definitely moved the needle in terms of attendees identifying themselves as non-oil and gas (58%).

The committee endorsed several changes for IMAGE '23. The event kicked off on Monday evening, and a majority of attendees liked this shift. This will continue for IMAGE '24. Another change was the addition of The Gathering Place, where attendees met

to discuss and network in a relaxed environment. Society Park was a big hit, as many attendees took a ride on a Tyrannosaurus rex. We also changed registration fees in response to increased costs.

The abstract submission process for IMAGE '23 was changed to a two-step process. In the first step, authors were to submit short abstracts up to 700 words in length and including, optionally, up to two figures. All short abstracts were reviewed and scored based on four criteria:

- Objective/scope
- Methods/procedures/processes
- Results/observations/conclusions
- Significance/novelty

All short abstracts selected for presentation were made available as submitted before the meeting.

In the second step, all selected speakers/authors were invited to submit expanded abstracts (up to 2000 words and six figures). Submission of expanded abstracts was optional. Expanded abstracts, not yet peer reviewed and accepted, were made available to attendees before the meeting. Expanded abstracts, that were peer reviewed and accepted were published in the SEG Library, AAPG Datapages, OnePetro, and more.

The IMAGE '23 opening session titled, "Sustainability and our enterprise — Accepting the grand challenge," was a two-part session with a keynote speech from Jonathan Arthur, executive director of the American Geosciences Institute, followed by a panel discussion including SEG President Ken Tubman and AAPG President Claudia Hackbarth.

Highlights from IMAGE '23 include the following:

- There was a 69% increase in the number of abstracts submitted (2176), leading to an approximately 50% acceptance rate with 123 oral sessions and 70 poster sessions.
- A total of 14 postconvention workshops had approximately 740 attendees. Limiting workshops to one day is generally working, although it may limit some user experience due to the competing and parallel workshop topics of interest.
- There were eight short courses, six luncheons, 24

special sessions, a field trip, and one breakfast.

- Eight strategic panels had approximately 400 attendees. A balance between strategic panels, technical sessions, and panels in the exhibit hall is a continuous optimization challenge and something for the next Oversight Committee to evaluate.
- Exhibit hall pavilions continued to draw a significant crowd, particularly the Digitalization and Carbon Management Pavilion, followed by the Near-Surface Pavilion and the Global Energy Opportunities Pavilion.

GOALS FOR THE COMING YEAR

SEG and AAPG are continuously looking to make the event more successful every year. The committee held a postconvention discussion in August 2023, with 14 committee participants and five staff representatives, to discuss what went well and what improvements can be made in 2024. Minutes were made available to the new committee members. The goal for the new year is to continue improving the value to our membership, delegates, and most importantly the geoscience community of the future.

CHALLENGES

Challenges faced by the committee included significant unfavorable reactions from SEG membership and the Council. These were centered on the change in abstract format and its impact on the legal implications of Bylaws changes, technical quality assessment by the reviewers, and loss of a publication platform that has been historically seen as a value from the conference. Such a response was mostly limited to a small section of SEG membership strongly opposed to a change.

For member-driven society meetings such as IMAGE, proper and timely communication of significant structural changes by SEG leadership is critical and should be given high priority. As a result, the committee should make decisions in a manner that provides ample time and opportunity to evaluate pros and cons and raise member awareness.

Reactions to IMAGE '23 compelled SEG leadership and the committee to engage a task force to evaluate the mission of IMAGE, learn how we can build a meeting that addresses the needs of both SEG and AAPG, and recommend a strategy for the Technical Program Committee, which drives a significant amount of the content of IMAGE.

INTERPRETATION EDITORIAL BOARD

COMMITTEE CHAIR: VSEVOLOD EGOROV

BOARD LIAISON: JEFFREY SHRAGGE

STAFF LIAISON: ELIZABETH WARREN

COMMITTEE MISSION

Interpretation, published quarterly in print and online, aims to accelerate innovation in interpretation for resource exploration, exploitation, and environmental stewardship. *Interpretation* is jointly published by the American Association of Petroleum Geologists and SEG.

EXECUTIVE SUMMARY

Overall, in 2023, the journal maintained its ranking and a healthy level of submissions (a slight increase in submissions compared with 2022). The geographic diversity of the authors and papers has improved. Two editorial board meetings were held, reviewing the state of affairs and future pathways of the journal.

Three special sections were published in 2023. Seven are scheduled for 2024 and two for 2025. *Interpretation's* information on the SEG Wiki has been updated. The information was also prepared as a flyer and distributed at IMAGE '23. In addition to the award for Best Paper, an Honorable Mention category was introduced and awarded to the authors. Finally, special-section kickoff meetings for organizers and staff were introduced.

HIGHLIGHTS FROM THE PAST YEAR

The volume of the journal submissions has increased compared with 2022, averaging 10–12 papers per month and totaling 113 submissions from January to November 2023.

Author-origin geography diversification is one of the journal's targets. This year, the journal was on track. Although authorship remains dominated by authors from China (49%) and the United States (27%), 24% of this year's submissions originated from other countries including Brazil, Canada, Colombia, Egypt, India, Indonesia, Iraq, Italy, Kazakhstan, Nigeria, Norway, Qatar, Saudi Arabia, Turkey, and the United Kingdom. As expected, academia remains a major contributor to the journal, contributing 60% of submissions, and 40% of submissions comes from industry. This is a very healthy mix.

Three special sections have been published:

- Role of geochemical workflows in understanding resource plays (volume 11, issue 4)

- Distributed fiber optic sensing (volume 11, issue 2)
- Conventional and unconventional hydrocarbon reservoirs (volume 11, issue 1)

The SEG Wiki [webpage](#) about the journal has been updated.

In addition, three editorials were published to address the journal and geoscience in general:

- Organizing a special section (volume 11, issue 1)
- Beware the geophysics of Wonderland! (volume 11, issue 2)
- Tools, techniques, and tutorials (volume 11, issue 3)

The Honorable Mention category for Best Paper Award was suggested in 2022 and implemented in 2023. Since 2023, the February issue of the journal contains an acknowledgment of editors and reviewers contributing to the journal during the past year.

The promotional flyers advertising the journal, which included calls for special-section papers and listed the 2022 Best Paper and Honorable Mention awardees, were prepared and distributed at IMAGE '23 and other geoscience events.

Special-section kickoff meetings were introduced to get the editors and staff acquainted and to familiarize organizers with procedures and their duties.

GOALS FOR THE COMING YEAR

Special sections are usually organized by experts in particular areas of geoscience and tend to attract high-quality papers from a diverse group of authors. They also have a great impact on building the journal's reputation and popularization. We expected to have fewer special sections in 2023, but 2024 looks much better with seven sections scheduled. We also have two special sections already scheduled for 2025. However, the editorial board should step up the efforts in organizing these sections. One suggestion is to build a database of potential editors and authors for suggested topics. This can help get the idea of a section to its actual realization.

A new standing section tentatively titled "From outcrop to subsurface" has been proposed. The efforts are under way to develop it, along with a rejuvenation of the dormant "Perspectives" section.

There was a 2022 editorial board proposal to introduce a certificate of appreciation for the editors and authors, which so far has not been implemented by the Society. This proposal remains open.

The editorial board has agreed to propose an appreciation system for authors, editors, and reviewers. Ideas for this system may include discounts or value points toward membership, events, subscriptions, and/or books. This remains to be finalized as a proposal to the Society.

CHALLENGES

An always-present challenge is competition with other geoscience journals. There are many of them out there, and some were established decades ago, building up their reputation and ranking over that time.

All editors and reviewers volunteer their time and expertise to the journal, but with other life duties, the review process often gets delayed. Finding qualified and committed reviewers is another challenge, as people are busy and there are many journals trying to get their assistance.

Country/region of submitting author	Number of manuscripts
China	55
United States	30
Brazil	4
India	3
Indonesia	3
Kazakhstan	3
Colombia	2
Italy	2
Nigeria	2
Saudi Arabia	2
Canada	1
Egypt	1
Iraq	1
Norway	1
Qatar	1
Turkey	1
United Kingdom	1
Total	113

Table 6. Original submissions by country from 1 January 2023 to 30 November 2023.

2023	n	%
Consultant	5	4%
Government	5	4%
Instrument company	1	1%
Oil company	30	27%
Research institute	13	12%
Retired	1	1%
Service/manufacturer	2	2%
University	54	48%
Unspecified	2	2%
	113	100%

Table 7. Origin of papers submitted for publication in *Interpretation* by employer type from 1 January 2023 to 30 November 2023.

Planned special sections	Published special sections	Special-section papers	General technical section papers	Total papers published	
2020					
February	4	1	7	16	25
May	4	4	17	18	36
August	2	2	26	15	41
November	7	7	54	32	86
2021					
February	1	1	2	19	23
May	6	4	19	23	45
August	1	1	2	27	32
November	2	3	19	12	34
2022					
February	2	2	15	15	32
May	4	1	4	13	18
August	6	5	29	16	49
November	4	0	0	22	26
2023					
February	1	1	14	14	29
May	2	1	3	17	21
August	0	0	0	12	12
November	1	1	6	14	20

Table 8. Special section and paper count.

Indicator (source)	2022 score
h5-index (Google Scholar)	25
h5-median (Google Scholar)	43
CiteScore (Scopus)	3.3
SciMago Journal Rank (Scopus)	0.662
Journal Citation Indicator (Web of Science)	0.38
Journal Impact Factor (Web of Science)	1.2
https://library.seg.org/INT-metrics	

Table 9. *Interpretation* metrics.

Year submitted	Average number of days required for first review
1 January–31 December*	
2020	65
2021	65
2022	67
2023*	62
*As of 30 November 2023. First reviews have not been returned for all papers.	

Table 10. Manuscript-handling statistics: time to first decision.

Year published	Average days between acceptance and initial online publication	Average days between acceptance and final online publication
1 January–31 December		
2020	21	74
2021	11	83
2022	11	72
2023	9	87

Table 11. Manuscript-handling statistics of production turnaround time by volume year.

JUSTICE, EQUITY, DIVERSITY, AND INCLUSION

COMMITTEE CHAIR: LILLIAN FLAKES

BOARD LIAISON: ANNA SHAUGHNESSY

STAFF LIAISON: JENNIFER COBB

COMMITTEE MISSION

The Justice, Equity, Diversity, and Inclusion (JEDI) Committee advises the SEG Board of Directors in setting and maintaining JEDI goals, strategies, and implementation activities for the Society, its components, its members, and elsewhere within its reach in the world of applied geophysics. The committee advances adopted goals, strategies, and implementation activities by providing guidance to other SEG entities and members. It also encourages an environment that establishes a culture of justice, equity, diversity, and inclusion within the Society and among its stakeholders.

EXECUTIVE SUMMARY

Much of this year's focus was to develop the JEDI Ambassador program. Training material was tailored to SEG and delivered to committee members to gain feedback for future ambassador sessions. Committee members selected other SEG committees to take part in the program. One major accomplishment was the launch of the committee's "Geoscientists Around the Globe" quarterly department that is published in *The Leading Edge*.

HIGHLIGHTS FROM THE PAST YEAR

This year was filled with activity for the JEDI Committee. The following took place:

- The committee participated in the Diversity, Equity, and Inclusion Panel at IMAGE '22. Lillian Flakes, the committee chair, represented SEG.
- Committee members began writing articles for a new department in *The Leading Edge* called "Geoscientists Around the Globe."
- We established social media for the committee to engage members.
- Members met chairs from other SEG committees to encourage them to increase the diversity of their committees and to collect data on the diversity of their membership.
- The committee provided feedback to the Meetings Review and Planning Committee on ways to improve their meeting request

form so diversity and inclusion will be encouraged, and language will be inclusive.

- We delivered training sessions to committee members to obtain feedback in preparation for the JEDI Ambassador program training sessions.
- Finally, we identified committees to participate in the JEDI Ambassador program.

GOALS FOR THE COMING YEAR

The committee will focus on launching the JEDI Ambassador program, continuing the publication of "Geoscientists Around the Globe," and expanding JEDI social-media presence.

CHALLENGES

The committee is challenged by the lack of expanded participation outside the committee members themselves.

MACHINE LEARNING

COMMITTEE CHAIR: MAURICIO ARAYA

BOARD LIAISON: ALLEN BERTAGNE

STAFF LIAISON: ANNABELLA BETANCOURT

COMMITTEE MISSION

The mission of the Machine Learning Committee is to promote the science of exploration geophysics and related fields, foster the common scientific interests of geophysicists, and maintain a high professional standing among members.

EXECUTIVE SUMMARY

This year, the committee held a successful postconvention workshop at IMAGE '23.

HIGHLIGHTS FROM THE PAST YEAR

The committee hosted an IMAGE '23 postconvention workshop titled, "Distributed fiber-optic sensing: Advances in applications and ML-based techniques." The workshop presentations discussed the usefulness and applications of machine learning techniques in extracting maximum value for distributed acoustic sensing data. The presented material was from operators, academia, and service companies.

GOALS FOR THE COMING YEAR

The goals for 2024 will be set by the new committee members.

CHALLENGES

People are busy, particularly in the highly hyped areas of artificial intelligence and machine learning. Our recommendation is to expand the committee so the load can be distributed.

MEETINGS REVIEW AND PLANNING

COMMITTEE CHAIR: ALEX MARTINEZ

BOARD LIAISON: MAURICIO SACCHI

STAFF LIAISON: DEBBIE MITCHELL

COMMITTEE MISSION

The primary mission of the Meetings Review and Planning Committee is to provide SEG staff with member-driven advice for all proposed meetings that request in-kind or financial support.

EXECUTIVE SUMMARY

- This year, 41 event proposals were reviewed from January through November 2023. This is in line with historical annual review numbers.
- A change was made to reduce ambiguity in committee responsibility and streamline the endorsement process.
- Overall, committee membership was stable, and members were actively engaged.
- The committee is making a change in 2024 to increase its ability to provide strategic guidance to SEG staff while developing event proposals.

HIGHLIGHTS FROM THE PAST YEAR

Committee members reviewed 41 event proposals from January through November 2023. This number is generally consistent with prior years. Most of the proposals were clearly aligned with SEG community needs, and only a few required clarifications for final committee endorsement.

The proposals were for events in the following regions: Asia-Pacific (13), Europe (three), Middle East (three), North America (10), South America (one), and virtual (11). The event classifications were conference (seven), meeting (one), summit (two), symposium (five) and workshop (26). Of these, 21 were operated, five were partnered and 16 were promoted.

A change was made by the SEG Board of Directors so the committee is no longer responsible for

reviewing event budgets. The committee remains responsible for reviewing and endorsing the events from a technical merit basis.

Committee membership remained relatively stable in 2023, and the members were actively engaged.

GOALS FOR THE COMING YEAR

In 2024, committee members will continue to review incoming event proposals to ensure that their objectives are aligned with SEG membership needs. The committee will become more strategic by providing guidance to SEG staff in technical areas that should be topics of proposed events. Additionally, the committee will continue to seek more members.

CHALLENGES

The committee has been mostly reactive by reviewing each proposal individually as they are submitted. The proposed process change to have two discussions a year with key SEG staff should strengthen the planning component of the committee's mission.

MEMBERSHIP

COMMITTEE CHAIR: LAURA BORNATICI

BOARD LIAISON: ANA CURCIO

STAFF LIAISON: TANIA STEPHENS

COMMITTEE MISSION

The mission of the Membership Committee is to retain and grow an actively engaged membership with requisite knowledge, skills, and values by providing an environment that brings people together to help accomplish the Society's goals of promoting the science of applied geophysics and the education of geophysicists worldwide.

EXECUTIVE SUMMARY

This year, the committee discussed and explored innovative approaches to attract new members, with a particular focus on engaging younger demographics. At the middle point of the year, the membership count exceeded 11,000. This reflects a growth of more than 10% in the number of paid memberships compared to the corresponding period in the previous year. Looking ahead to 2024, the committee remains steadfast in its commitment to further augmenting the membership base.

HIGHLIGHTS FROM THE PAST YEAR

The committee met on three occasions between January and November 2023 to deliberate on a range of topics. Early in the year, the focus was on amendments to the SEG Bylaws. Particular attention was given to the proposition of eliminating the age requirement (65 years) while retaining the 30-year membership prerequisite for Emeritus status. Following extensive deliberations, most of the committee expressed agreement in favor of implementing this change.

Throughout the year, the committee remained dedicated to the task of attracting new members. Various options were considered, including the possibility of delivering presentations at universities and enhancing the Society's presence on social media. Members proactively took individual initiatives to promote events and activities, with the aim of drawing in new members.

GOALS FOR THE COMING YEAR

In 2024, the central aim is to bolster the Society's membership base by actively pursuing new members. Emphasis will be on involving and attracting younger generations. This strategic focus recognizes the importance of engaging and welcoming individuals from diverse age groups, fostering a dynamic and inclusive community within the organization. The efforts to attract younger members may involve tailoring events, communication strategies, and activities to resonate with the interests and preferences of this demographic, ensuring a vibrant and sustainable future for the organization.

CHALLENGES

Challenges persist due to ongoing uncertainty within the industry. However, the committee remains steadfast in its commitment to support and promote the passion of geophysics through engagement with existing members and proactive outreach efforts aimed at attracting new members.

MINING AND MINERAL EXPLORATION

COMMITTEE CHAIR: SARAH DEVRIESE

BOARD LIAISON: JOSEPH REILLY

STAFF LIAISON: LAURIE WHITESELL

COMMITTEE MISSION

The Mining and Mineral Exploration Committee advises the SEG Board of Directors on all matters involving mineral exploration and mine-site environmental and engineering geophysics. The committee also organizes events that advance the application of geophysics in mining and mineral exploration.

EXECUTIVE SUMMARY

This year, the committee prioritized collaboration and the development of technical content for IMAGE '23. The committee also strived to better connect with students and emerging professionals.

HIGHLIGHTS FROM THE PAST YEAR

The committee held a variety of meetings throughout the year. Meetings occurred in January at Roundup, a large national mining conference in Vancouver, British Columbia. In March, a meeting was held in association with Prospectors and Developers Association of Canada. In August, we met during IMAGE '23. Committee leadership also met throughout the year to discuss ideas for collaboration and strategic planning.

At IMAGE '23, the committee collaborated with the American Association of Petroleum Geologists' Energy Minerals Division to present six technical sessions, one special session, and a postconvention workshop. Plans are under way for technical and social content for IMAGE '24. We expect to have even more presentations and are excited to see what 2024 brings for IMAGE.

In September, the committee partnered with the Canadian Exploration Geophysical Society to produce a virtual student symposium. The symposium had an industry and student panel, as well as several breakout rooms. There was a distinct focus for each breakout room that ranged from field geophysical acquisition, to processing and interpretation, to computational geophysics. There were more than 350 individuals registered for the event. A survey is still out at the time of this writing.

GOALS FOR THE COMING YEAR

The committee will continue to focus on collaboration, connection with students and

emerging professionals, and development of robust technical content for IMAGE '24.

CHALLENGES

There were no challenges for the committee.

NOMINATIONS

COMMITTEE CHAIR: BRANDY HAWKINS

BOARD LIAISON: BRANDY HAWKINS

STAFF LIAISON: MANDI DUCKWORTH

COMMITTEE MISSION

The Committee on Nominations is charged with assembling a list of candidates for the SEG Board of Directors and district representatives, as well as overseeing all membership votes.

EXECUTIVE SUMMARY

Official ballots were sent 10 May 2023 to 7593 Voting members who were eligible to vote in this year's election. The annual election had a participation rate of 20.53%. The election results include the following.

President-elect: John Eastwood

Second vice president: Marianne Rauch

Vice president, publications: Kyle Spikes

Directors at large: Lillian Flakes and Constantine Tsingas

District 1: Bryce Swinford

District 2: Neil Judge

District 3: Ge Jin

District 4: Shannon Jeffries

District 5: Craig Funk

District 6: Walter Gualberto González Eslava

District 7: Laura Bornatici

District 8: Barbara Ciurlo

District 9: Ifeanyichukwu Obi

District 10: Hakim Saibi

District 11: Xinming Wu

District 12: Chisato Konishi

HIGHLIGHTS FROM THE PAST YEAR

The committee formally submitted its slate of candidates to SEG President Ken Tubman in February 2022. The timeline of the election was adjusted per allowance by Bylaws to accommodate an August annual meeting. In addition to selecting qualified candidates for the 2023 election, the committee updated its Policies and Procedures and implemented new processes, such as candidate videos, to increase visibility of the candidates and voter turnout. The 2023 slate of candidates is listed below.

President-elect: Gustavo Carstens and John Eastwood

Second vice president: Xianhuai Zhu and Marianne Rauch

Vice president, publications: Klaus Holliger and Kyle Spikes

Director at large: Sandeep Kumar Chandola and Constantine Tsingas

Director at large: Aria Abubakar, Lillian Flakes, and Antony Price

District 1: Bryce Swinford and Sharon Teebenny

District 2: Mark Bronston

District 3: Ge Jin and Christopher Ross

District 4: Shannon Jeffries

District 5: Craig Funk and Richard Gray

District 6: Walter Gonzalez

District 7: Laura Bornatici

District 8: Barbara Ciurlo and Panos Doulgeris

District 9: Ifeanyichukwu Samuel Obi and Charles O. Ofoegbu

District 10: Ibrahim Attia and Hakim Saibi

District 11: Danping Cao and Xinming Wu

District 12: Chisato Konishi

Survey & Ballot Systems Inc. (SBS) was contracted to conduct the election for the SEG Board of Directors. SBS designed and distributed an electronic ballot or a paper ballot to each Voting member. SBS received, tabulated, and verified the votes and submitted the results to the SEG business office. The Committee on Nominations chair verified the count provided by SBS.

GOALS FOR THE COMING YEAR

In addition to selecting qualified candidates for the 2024 election, the committee continues to focus on member engagement with the nominations and voting process. Best practices for candidate videos will be given to new candidates following the review of the 2023 election process and member feedback. The committee will also review marketing of the candidate videos to develop and maintain increased visibility of candidates while ensuring that the SEG Campaign Policy is observed.

CHALLENGES

Finding candidates can be a challenge because requirements and expectations for each Board position are unique. For example, all president-elect candidates are required to have prior Board service, with a record of affecting change for the betterment of the Society and our profession. For the other executive positions, previous experience on the Board or working directly with the Board and a recognized history of active and meaningful engagement with SEG are key requirements. For vice president, publications, high-level editorial experience with SEG is a requirement. For the director-at-large positions, an established history of SEG committee work and Society involvement are the two primary considerations. No previous direct engagement with the Board is required for the director-at-large positions. This allows us to identify candidates from a much larger pool of members. District candidates must have a primary address in the district they represent.

The committee strives to maintain good diversity on the Board by nominating candidates from different regions, experience levels, geophysical backgrounds, work experience, etc. The focus and discussion on diversity has expanded, especially since the inception of the Justice, Equity, Diversity, and Inclusion Committee, which adds emphasis largely on race, gender, and age. This continues to be a considerable challenge every year for the committee, despite substantial and conscionable effort. This is mainly due to a few identified constraints. First, there

are varied ideas of addressing diversity such as types of diversity and priority of that type. Second, there are typically two to three positions open for election each year, which reduces the chances to be more inclusive. Third, the committee is tasked to address diversity while also addressing other constraints such as candidate availability and quantity of qualified candidates. Other challenges include the following.

- There is a lack of new nominations and voter participation.
- The committee works to maintain restrictions on campaigning while implementing new processes to increase visibility of candidates.

OIL AND GAS RESERVES

COMMITTEE CHAIR: DAN MAGUIRE

BOARD LIAISON: OLGA NEDORUB

STAFF LIAISON: ANNABELLA BETANCOURT

COMMITTEE MISSION

The mission of the Oil and Gas Reserves Committee is to represent SEG as a society as well as its member companies and member individuals. The committee promotes and assures that geophysical technologies and techniques are utilized effectively and reliably in the process of oil-and-gas reserves/resources assessment for entities at all levels.

EXECUTIVE SUMMARY

The Oil and Gas Reserves Committee continues to educate SEG members on how they can influence the quantification of oil and gas reserves and resources in their organizations. The Petroleum Resources Management System Application Guidelines (PRMS-AG) chapter on seismic applications was written by members of the committee. We need to share these tools and techniques within the SEG community. This has been impeded by pricing and utilization controls imposed by the Society of Petroleum Engineers (SPE), as well as by a lack of support from the IMAGE Technical Program Committee.

HIGHLIGHTS FROM THE PAST YEAR

The committee continued to learn how to best leverage PRMS and PRMS-AG to educate SEG members about the role of geophysicists in the reserves and resource process. The committee is making progress in raising awareness within the SPE Oil and Gas Reserves Committee on how SPE's cost

wall around the PRMS-AG is damaging our ability to use the content to educate our SEG members, as well the members of other cosponsor societies.

During IMAGE '23, members of the committee successfully organized and cochaired a postconvention workshop on reserves and resources. Our request to hold a special session on the role of geoscientists in oil and gas reserves was rejected by the IMAGE Technical Program Committee.

The committee presented a request that was made by the American Association of Petroleum Geologists (AAPG) and SPE for SEG to become a cosponsoring organization of the proposed Water Resources Management System (WRMS). It is not clear what SEG's position is on this. It was recommended to respond by sharing that while we believe SEG and its members have enormous technical skills and technology to bring to assisting in worldwide water-resource quantification and management, we feel that the approach outlined in WRMS is not the best way forward.

In addition, Enzo Aconcha and Nancy House were nominated to the Joint Committee on Reserves Evaluator Training.

GOALS FOR THE COMING YEAR

In the coming year, we plan to

- Hold a reserves and resources session at IMAGE '24
- Close out the WRMS issue
- Have SEG issue a formal response to SPE and AAPG
- Develop outreach for SEG membership on PRMS awareness and applications
- Gain access to better case studies on the role of seismic in oil and gas reserves usage in public companies that can be shared with our membership

CHALLENGES

We currently have three main challenges. The first is getting the oil and gas reserves special session accepted by the IMAGE '24 Technical Program Committee. It would be good to have a champion in SEG to help support our request for a special session. The second challenge is getting SPE to drastically reduce or remove the cost to SEG

members to download, use, and share information in the PRMS-AG. Our final challenge is finding new members for our committee who are willing to be engaged and active in supporting our mission.

PASSIVE SEISMIC

COMMITTEE CHAIR: DAVE DILLER

BOARD LIAISON: SERGIO CHÁVEZ-PÉREZ

STAFF LIAISON: ANNABELLA BETANCOURT

COMMITTEE MISSION

The mission of the Committee for Passive Seismic is summarized as follows:

- Broaden the term “passive seismic” to include passive monitoring of seismic waves at any scale and for any use, including traditional applications such as earthquake seismology and microseismic monitoring, and also including applications such as security, industrial, and infrastructure monitoring
- Advise the SEG Board of Directors on all matters involving passive seismic and promote understanding and advancement of the associated science
- Organize events that advance the applications of this technology
- Encourage scientific collaboration and technical advances based on good science and open debate
- Facilitate the communication of peer-reviewed technical information on passive seismic to members, scientists, industry, the public, and any others who may benefit
- Coordinate with the Technical Program Committee concerning technical sessions on passive seismic

EXECUTIVE SUMMARY

Members of the committee worked throughout the year to plan Part 2 of the Geophysical Research for Gigatonnes CO₂ Storage Workshop.

HIGHLIGHTS FROM THE PAST YEAR

In 2023, we focused on planning Part 2 of the Geophysical Research for Gigatonnes CO₂ Storage Workshop. Part 2 is titled, “Geophysical recommendations for regulators and operators.”

It will be held in Golden, Colorado, 14–19 July 2024. The focus will be on providing concrete recommendations and insights for both regulatory bodies and geologic carbon storage (GCS) operators including the following.

- Regulatory framework: There will be a discussion of the role of regulators in ensuring the safety and effectiveness of geophysical monitoring in GCS projects, with an emphasis on aligning with international regulatory guidelines.
- Operator perspectives: Insights will be shared on the practical considerations and experiences of carbon capture and storage operators when implementing geophysical site characterization and monitoring solutions.
- Best practices: Presentations will be given on best practices and case studies, showcasing successful geophysical approaches in GCS.
- Adaptive methods: The adaptive nature of geophysical methods and their ability to evolve to meet changing GCS requirements and standards will be highlighted.

GOALS FOR THE COMING YEAR

Our main goal for 2024 is to successfully hold Part 2 of the Geophysical Research for Gigatonnes CO₂ Storage Workshop.

CHALLENGES

The committee meetings have been poorly attended, and it seems that some members should step down.

PUBLICATIONS

COMMITTEE CHAIR: BAISHALI ROY

BOARD LIAISON: JEFFREY SHRAGGE

STAFF LIAISON: JENNIFER COBB

COMMITTEE MISSION

The Publications Committee addresses a range of policy issues that fall outside the sole focus of any other SEG publications-related board or committee or involve more than one such committee. It focuses on strategic and marketplace issues such as publications access, member benefits, pricing, ethics, peer review, author requirements, infrastructure, best practices, portfolio finances, portfolio changes (e.g., new journals), intellectual property rights, intrasociety and intersociety publishing initiatives, and questions of commercialism and conflicts of interest in publications. The committee establishes policy, takes action on matters delegated to it and other publications matters that do not require SEG Board of Directors approval, and recommends policy and action to the SEG Board as necessary.

EXECUTIVE SUMMARY

Following the widespread adoption of ChatGPT and other generative artificial intelligence (AI) tools, the Publications Committee addressed the use of these tools and put forth an exhibit to include guidelines for appropriate use. Care was taken to be less prescriptive so that the policy may better apply to forthcoming tools as well as those already available.

HIGHLIGHTS FROM THE PAST YEAR

The committee put forth an exhibit to add guidelines to the *Ethical Guidelines for SEG Publications* to address the appropriate use of AI tools in SEG publications. It also recommended increases to institutional-subscription pricing.

GOALS FOR THE COMING YEAR

Committee goals for the coming year include continuing to address ethical issues, proposing a cost-recovery model for services provided to other SEG portfolios, and restructuring the committee to better address strategic opportunities.

CHALLENGES

The committee is proposing to address one of its challenges by restructuring its membership and length of terms.

RESEARCH

COMMITTEE CHAIR: ARIA ABUBAKAR

BOARD LIAISON: SERGIO CHÁVEZ-PÉREZ

STAFF LIAISON: ANNABELLA BETANCOURT

COMMITTEE MISSION

The mission of the Research Committee is to improve communication among earth scientists who are interested in applied research, promote the advancement of science and technology in the applied-geoscience community, and disseminate information on advances in exploration and exploitation geophysics.

EXECUTIVE SUMMARY

- Organized four special sessions and organized and sponsored 11 postconvention workshops at IMAGE '23
- Published an article on hot topics in geophysics in *The Leading Edge*
- Established a membership renewal procedure and completed the first process in October 2023

HIGHLIGHTS FROM THE PAST YEAR

This year, the committee organized two IMAGE '23 special sessions titled "Recent advances in CCS monitoring: Technology and case study" and "Recent advances and the road ahead: Hot topics in geoscience." They were very well attended. In addition, the committee sponsored and organized 11 postconvention workshops discussing the latest in CO₂, energy transition, machine learning,

seismic imaging, full-waveform inversion, and rock physics. Some of these workshops were co-organized with the SEG Oil and Gas Reserves Committee and Joint Committee on Reserves Evaluator Training, as well as with the American Association of Petroleum Geologists. Aria Abubakar kindly served as the IMAGE '23 postconvention workshop coordinator. At IMAGE '23, the committee held an in-person meeting and dinner.

Before December, the committee had a meeting to finalize special sessions and postconvention workshop proposals for IMAGE '24. Three special sessions and 26 postconvention workshops were proposed to the IMAGE '24 organizing committees.

During the year, the committee also started preparation for the symposium titled "Role of geoscience in carbon storage." The symposium will be held 19–21 March 2024 in Mumbai, India. It will have a comprehensive technical program including keynotes and panel sessions, as well as a field trip.

In the last quarter of 2023, we created the Membership Subcommittee and established a membership renewal procedure. The subcommittee consists of past chairs of the Research Committee. The renewal process was completed in November 2023, and we now have 85 members. This process was put in place so we can have more active members, as well as a diverse and inclusive environment.

GOALS FOR THE COMING YEAR

One of our priorities is to organize special sessions and postconvention workshops for IMAGE '24. Another important focus is to grow our committee to be the go-to for key topics such as artificial intelligence, machine learning, CO₂, geothermal, wind farms, etc.

CHALLENGES

Currently, the committee has 85 members. In the past, less than 50% of the members were active in our various activities. We need to significantly improve this. Another challenge will be to help SEG make geoscience attractive again for the next generation of scientists and engineers.



Figure 11. Attendees enjoy a dinner for the Research Committee during IMAGE '23.

REVIEWS

COMMITTEE CHAIR: JULIE AITKEN
BOARD LIAISON: JEFFREY SHRAGGE
STAFF LIAISON: KELSY TAYLOR

COMMITTEE MISSION

The mission of the Reviews Committee is to provide book reviews for publication in *The Leading Edge (TLE)*. The book reviews are helpful for readers of the journal as well as for the authors whose books are reviewed.

EXECUTIVE SUMMARY

The Reviews Committee had a good year of revitalization. It is hoped that this renewed enthusiasm will lead to an increase in the number of book reviews published in each issue of *TLE*.

HIGHLIGHTS FROM THE PAST YEAR

It has been a year of revitalization for the Reviews Committee. We spent time analyzing the participation of committee members, along with their interest and availability in reviewing books. A number of our members volunteered to step down in order to open space for new members. We then searched for new members for the committee and had an overwhelmingly positive response. After careful consideration, we chose ten new members to join us. The hope is that our revitalization efforts have created renewed enthusiasm and greater participation within the committee. We are grateful for our longstanding members, those who spent time with us, and those who recently joined us.

This year, we published one book review in each issue of *TLE*, with the exception of the month of February, in which we were able to include two reviews. Last year, our challenge was losing the ability to mail books directly from SEG to reviewers. We turned this into a positive by welcoming the ability to work with publishers to mail books directly from their sites. This led to a vast and varied list of books that we can offer our committee members. While print books are still offered for review by select publishers, e-books have been chosen more often by our members as of late. This is a good sign for our committee, as publishers are slowly phasing print book options from their review offerings.

GOALS FOR THE COMING YEAR

Four new members will be added next year to fill our available spots within the committee. With our revitalization, we hope to increase our number of book reviews so

two may be included in each issue of *TLE*.

CHALLENGES

Challenges for next year include sustaining members' enthusiasm and participation levels within the committee.

SCHOLARSHIPS

COMMITTEE CHAIR: LORALEE DICKSON
BOARD LIAISON: BRANDY HAWKINS
STAFF LIAISONS: VANESSA MEDINA AND ANNABELLA BETANCOURT

COMMITTEE MISSION

The Scholarships Committee reviews, rates, and ranks all qualified scholarship applications based on available funds and donor restrictions. It selects the scholarship recipients and documents the process and selection as support to the payments. The committee also recommends changes to the Policies and Procedures as necessary.

EXECUTIVE SUMMARY

The Scholarships Committee provides a vital link between the practicing geophysicists of today and geophysicists of tomorrow by awarding funds for bachelor, master, and PhD education and providing mentorship to the scholarship recipients. In 2023, the committee awarded scholarships totaling US\$334,860 to 104 students from around the world. Committee members serve as mentors to the scholarship winners, connecting them to technical resources and providing advice on their future careers.

HIGHLIGHTS FROM THE PAST YEAR

Since its inception in 1956, the SEG Scholarships program has helped advance the field of applied geophysics by encouraging students who excel in geoscience. Gifts from SEG members, their employers, corporate sponsors, SEG Sections and Associated Societies, and memorial funds given in honor of colleagues, friends, and family members provide substantial merit-based financial awards for deserving students. More than \$12 million in scholarship money has been awarded to date to the top geoscience students in the world.

In 2023, the committee granted scholarships to 104 students in 19 countries, totaling \$334,860. The evaluation process involved each committee member ranking the 423 individual applicants based on multiple criteria such as future goals,

school performance, publication history, and community involvement. These individual rankings were compiled, and a forced composite ranking was created to determine the best-qualified candidates in each of six categories (freshman, undergraduate, and graduate, each divided into North American and non-North American).

Once the ranking was complete, the committee carefully matched students with specific scholarships. In some cases, committee members worked with the assistance of advisory boards that provided feedback and recommendations on applicants. In all cases, the awards were merit based, ensuring that the top geoscience students were honored.

GOALS FOR THE COMING YEAR

As in previous years, the committee members look forward to providing mentorship to scholarship winners. Each awardee is assigned a committee liaison who is there to answer questions about research directions, career opportunities, and ways to prepare for their future.

The committee will also review and evaluate all procedures related to the application and ranking process, including the option to reinstate the in-person consensus meeting. As always, the goal is to ensure that the best geoscience students are selected to receive the scholarships.

CHALLENGES

Because scholarship applications are due before many students have received university acceptance letters, students use tentative information about the school they will attend in the fall and their major of study. Occasionally, this information changes by the time the students receive notice of their scholarship award 4–5 months later. If the student received a scholarship with specific restrictions on attended university and/or major of study and is no longer eligible for the award they received, the committee chair and staff liaison work together to find alternative funds for the student and to reassign the restricted scholarship.

In 2023, the committee chair and liaison were notified of eligibility-impacting changes from four students. We were able to find alternative funds for three out of the four students.

Another challenge the committee faces is keeping a consistent level of engagement

during the two-day virtual consensus meeting. Prior to 2020, the consensus meeting was held in person, which naturally facilitated better dialog and ensured committee members were fully present for the entire meeting.

SEG EVOLVE

COMMITTEE CHAIR: LARRY FRANCEWARE

BOARD LIAISON: ARTHUR CHENG

STAFF LIAISONS: ANNABELLA BETANCOURT AND JESSICA DOSTAL

COMMITTEE MISSION

The mission of the SEG EVOLVE Technical Committee is to foster multidisciplinary teamwork between geoscientists and engineers in order to develop world-class professionals through student experiential learning with universities around the world. Through advanced software, training, and mentorship, students learn the technical and professional workflows and skill sets required to compete in the global energy marketplace for investment opportunities. EVOLVE stands for E&P Value Creation Using Online Collaboration and Leading Edge Technologies for Virtual Internships with Extensive Mentoring.

EXECUTIVE SUMMARY

In 2023, SEG EVOLVE reached more than 100 students from 15 universities in 25 countries, guided by more than 40 mentors/subject-matter experts.

Growth and sustainability describe the SEG EVOLVE program's progress this year. Two application themes were covered in separate offerings.

- Subsurface Characterization (now called "Energy Exploration") was offered January–June 2023. "Carbon Solutions" was offered August 2023–March 2024.
- In Energy Exploration, 11 teams from 13 universities concluded with presentations at IMAGE '23.
- In Carbon Solutions, the successful four-team 2022 pilot, including eight universities, set a foundation for the 2023 offering, with eight teams participating from two U.S. and nine global universities.
- The mentor pool grew with active industry and

subject-matter expertise, providing three to four mentors per team. New mentors effectively worked side by side with experienced ones.

- Student participants developed essential leadership and communication skills. Approximately 60 students were sent to CCUS 2023 or IMAGE '23 by the SEG EVOLVE program.

The SEG EVOLVE offering in 2023 was made possible by mentors, SEG staff, corporate sponsors, and donors.

HIGHLIGHTS FROM THE PAST YEAR

The SEG EVOLVE Technical Committee reviewed applications based on foundational skills, a multidisciplinary background, and dedication. To meet these requirements and include the most university participation, teams were merged: Algeria with Egypt and Poland with Portugal. Each team had at least six student members (including a geophysicist, geologist, petrophysicist, and reservoir engineer) and a faculty advisor. The committee also matched an appropriate team-lead mentor and two associate mentors with each team.

The SEG EVOLVE Subsurface Characterization's offering culminated in August at IMAGE '23, with 11 multidisciplinary teams from 14 global universities, totaling approximately 70 participants (Figure 12). Coordinator, Jenny Thompson, led the direction, guidance, and workflow for weekly all-team meetings, as well as the mid-project and final-project presentations. The teams assessed geodata sets from Australia's Cooper Basin, New Zealand's North Taranaki Basin, and the Gulf of Mexico, including proprietary 3D supplied by Fairfield Geotechnologies. They used these data sets to recommend a "best investment opportunity," while also considering carbon mitigation.

The selected 2023 universities with their associated country include

- Algeria: University of M'hamed Bougara
- Egypt: Alexandria University
- Argentina: Universidad Nacional de San Juan
- India: Academy of Scientific and Innovative Research
- Italy: University of Perugia

- Nigeria: Pan African University Life and Earth Sciences Institute
- Poland: AGH UST University of Science and Technology, Cracow
- Portugal: Instituto Superior Técnico
- Saudi Arabia: King Abdullah University of Science and Technology
- United Arab Emirates: King Abdullah University of Science and Technology
- United States: Texas A&M University, Kingsville
- Venezuela: Universidad Simón Bolívar
- France: IFP School Georesources and Energy Center

Teams successfully delivered timely work plans, results, and economic impacts of risked investment opportunities at mid-project presentations (March) and final project presentations (May–June). Teamwork was showcased, with all team members communicating their work and recommending their investment opportunities. Teams also reviewed their projects' carbon mitigation plan, with several teams identifying potential CO₂ storage opportunities. All teams developed essential skills, learned to work as professionals, and delivered extensive and notable work effort, while learning to overcome unique challenges of competing commitments.

IMAGE participation included each team making oral and poster presentations. As an essential benefit for the teams, two to three students per university attended IMAGE, sponsored by SEG EVOLVE and its donors. These team members had opportunities to network and present their work amid many investors and a technically diverse audience of peers/professionals.

Recognition of each team member consisted of an SEG EVOLVE 2023 Subsurface Characterization Certificate of Completion. In addition, the committee awarded each team with a recognition award, acknowledging a unique trait they demonstrated in their project efforts. Sergio Fabian Barros (Universidad Nacional de San Juan in Argentina) was awarded the Most Engaged Faculty Advisor. Program alumni who have returned as mentors, Andika Perbawa and Basem Chikiban, were

recognized with a special Graduate to Mentor award.

The teams and their awards include the following:

- India Team: Excellence in Magnitude, Effort, and Delivery Put into the Project
- Poland/Portugal Team: Successful Project Management Delivering Results with Business Impacts
- IFP Team (France): Creativity in the Delivery of Technical Work Results
- Italy Team: Strong Business Focus, Project Integration, and Excellence in Carbon Mitigation Scenario
- Venezuela Team: Demonstrating Exceptional Qualities: Sharing, Energy, Enthusiasm, and Inclusion
- Argentina Team: Demonstrating Teamwork in the Delivery of Quality in Project Results
- Egypt/Algeria Team: Demonstrating Effective Creative and Multidiscipline Technical Integration
- Nigeria Team: Successfully Working to Apply Broad Technical Solutions in the Project
- UAE Team: Excellence in Critical Thinking in the Assessing of Geoscience Data
- Saudi Arabia, King Abdulla University: Achievements in the Project in the Face of Challenges
- U.S. Team, Texas A&M Kingsville: Successfully Endeavoring to Overcome and Deliver the Final Project

This year, both Energy Exploration and Carbon Solutions offerings benefited from incorporating a proprietary 3D seismic survey licensed to SEG EVOLVE by Fairfield Geotechnologies in the Vermilion protraction area of the Gulf of Mexico. These high signal-to-noise seismic 3D data sets also provided students with partial-angle stack data for quantitative interpretation. In addition, quality well-log data were added by GeoTomo. Software training was provided on Petrel by SLB's Sandra Labrum and S&P Global Kingdom Suites by GeoStarters' Jeremy Greene and Jim Hewlett.

SEG EVOLVE Carbon Solutions 2022-2023 piloted four teams successfully through their project presentations at CCUS 2023 (Figure 13) and IMAGE '23, and learnings from that were incorporated in the 2023-2024 program. This multidisciplinary work culminated in a recommendation and plans for the commercial and value impact of CO₂ storage.

SEG EVOLVE Carbon Solutions 2023-2024, the first global offering, started August 2023, with the selection of eight teams, consisting of five to eight multidisciplinary members (geoscience and engineering) per team, totaling 54 students, 10 countries, and 13 universities. The teams included the following:

- Argentina: Universidad Nacional de La Plata (Illinois Basin Decatur Project)
- Brazil: Universidade Federal Fluminense (Ship Shoal, offshore Gulf of Mexico, USA)
- Colombia: Universidad Industrial de Santander (Illinois Basin Decatur Project)
- Egypt: Helwan University, University of Kansas, and Texas A&M University (Sleipner, Norway)
- Indonesia: Universitas Padjadjaran (Sleipner, offshore Norway)
- Merged Team: University of New Mexico, Pennsylvania State University, Ohio State University, University of Texas Permian Basin, University of Ibadan (Ship Shoal)
- United Arab Emirates: Khalifa University (Vermilion, offshore Gulf of Mexico, USA)
- United States: Virginia Tech (Vermilion, offshore Gulf of Mexico, USA)

Adding Gulf of Mexico data sets followed investigations by U.S. Bureau of Ocean Energy Management (BOEM) and Department of Energy (DOE) into offshore storage opportunities. Project work built on SEG EVOLVE Energy Exploration experience in the Vermilion area (using Fairfield Geotechnologies' 3D seismic data and GeoTomo's digitized well logs). In addition, a Ship Shoal protraction area, targeted for CO₂ storage potential, was organized by Jim Hewlett. This public 3D seismic volume has GeoTomo digitized well logs plus BOEM support data. Both allow teams to consider CO₂ storage in depleted reservoirs or saline aquifers.

Mentor pool growth, especially in engineering, helped support the doubling of the teams, project diversity, and to build a foundation for sustaining future offerings. New mentors with CCS experience joined from Battelle, Chevron, Ecopetrol, GaffneyCline, NGRI-India, and Repsol. Incorporation of SPE connections were provided by George Koperna of ADV, who also joined as a mentor. In addition, subsurface and SEG EVOLVE experience was provided by mentors with legacy from ARCO, Chevron, EOG, Shell, and SLB. This effort included the expansion of subject-matter expert (SME) knowledge sharing this season led by additions from BP, ExxonMobil, Shell, and EERC at the University of North Dakota. Knowledge sharing also came from software suppliers and sponsors including CMG, GaffneyCline, and Rose & Associates. All of the participants attended the SEG Distinguished Instructor Short Course titled “CO₂ storage in saline aquifers” by Philip Ringrose, which was a timely and outstanding collaboration between SEG programs.

The program was successful in developing geoenvironmental skills, building upon the subsurface work to fast-track storage reservoir/seal model building, showcasing the importance of cross-discipline collaboration to provide comprehensive CO₂ geologic storage analysis and results.

GOALS FOR THE COMING YEAR

Improvement continues, especially in the areas of program expansion, modernization, and student training. A geothermal pilot will be considered. Building on a 2023 mentor “end-of-program feedback” session, improvement areas will be addressed in 2024. Growing and sustaining the mentor pool is also a goal. The program benefited this

year from growing the support available from SEG SME mentors in petrophysics, S&P Global Kingdom suites, SLB Petrel applications, geoscience integration, exploration risking methodology, prospect economics, geopressure, and seismic/well ties.

Procuring industry sponsors to support the execution of both programs, as well as supporting a minimum of two student participants per team to attend and present at IMAGE and CCUS, remains a primary goal.

CHALLENGES

- The major challenge of the SEG EVOLVE program is access to funding for sustainability. This is championed throughout the year by reaching out to sponsors and donors.
- Diversifying the volunteer mentors to provide better support in engineering is a challenge that we continue to address by engaging in collaboration with SPE.
- University/student participation, particularly from U.S. universities continues to be a challenge. SEG mentors, donors, and staff continue to pursue opportunities to engage students in the program, as well as to get universities to provide credit support for participating in SEG EVOLVE.
- Bridging the gaps in student background knowledge of the petroleum system and exploration process is a key challenge and is being addressed by introducing geoconcepts early in the program. Meanwhile, a technical subcommittee will look into a comprehensive solution.



Figure 12. Energy Exploration participants gather at IMAGE '23.



Figure 13. Participants in Carbon Solutions pause for a photo at CCUS 2023.



Figure 14. Mentor acknowledgment for SEG EVOLVE 2023.

- Securing proprietary geostudies, research results, drilling results, and/or data room examples from major oil and gas companies and vendors would be of value to the SEG EVOLVE Energy Exploration program.
- Access to project data by program mentors and staff is a recurring challenge to be addressed in 2024.
- In addition, reservoir modeling and CO₂ storage simulation are a critical deliverable. These critical skills need effective development by incorporating more geoen지니어ing students, mentors, and SMEs. We need to grow our network with geoen지니어ing university programs and collaborate with SPE as a resource.

and operational plans of the Society. This assists in the Board’s oversight role with respect to the establishment, guidance, and stewardship of the Society’s performance, activities, statements, events, publications, programs, talent development, and awareness campaigns related to sustainability matters. In this context, sustainability refers to matters pertaining to the advancement of economic and social prosperity in full respect and protection of the environment, as framed by the 17 UN Sustainable Development Goals and following the mapping done in the *Geophysical Sustainability Atlas*.

EXECUTIVE SUMMARY

The goal for this year was to reinvigorate the committee. While this is an ongoing effort, the committee facilitated several impactful activities during the last 12 months. Although the events were not as frequent as originally planned, it is hoped that activity will increase in the coming year.

HIGHLIGHTS FROM THE PAST YEAR

This year, the first in a series of planned roundtable discussions was held titled, “Sustainability and geophysics — What is the roadmap?” The webinar explored prominent sustainability from across the globe and offered a truly global perspective on where we are currently and where we need to get to in order to meet sustainability goals.

SUSTAINABILITY

COMMITTEE CHAIR: MARIA ANGELA CAPELLO
 BOARD LIAISON: ANA CURCIO
 STAFF LIAISON: SCOTT SUTHERLAND

COMMITTEE MISSION

The committee advises and makes recommendations to the SEG Board of Directors to ingrain the concept and framework of sustainability into the strategic

A special webinar was organized to commemorate Earth Day. An intimate panel of experts was led in discussion by Committee Chair Maria Angela Capello. The topic of discussion was climate and environmental literacy.

The committee collaborated with the Latin America Regional Advisory Committee (LARAC) in discussing humanitarian applications of geophysics. A webinar in Spanish was organized that promoted the use of machine learning to predict landslides and focused on a case study in Popayán, Colombia.

The committee again collaborated with LARAC to host another Spanish-language webinar that discussed airborne geophysical methods being used in mineral exploration to fuel the energy transition.

Additionally, the first in a series of podcast episodes took place. The founder of GEOfood discussed the sustainable development of local communities and the UN Sustainable Development Goals. The next episode featured members of Ipieca. It examined how Ipieca partners with companies and organizations to support a sustainable future through emissions reduction, nature conservation, and stakeholder engagement.

GOALS FOR THE COMING YEAR

Roundtable discussions will continue throughout the coming year to promote sustainability concepts within SEG and beyond. Plans are being discussed to produce regular sustainability articles in *The Leading Edge*. The committee continues to investigate hosting live sessions on platforms such as LinkedIn.

CHALLENGES

Committee member engagement remains an issue, and it has limited the committee activity in the past year.

TECHNICAL STANDARDS

COMMITTEE CHAIR: SHAWN NEW
BOARD LIAISON: JEFFREY SHRAGGE
STAFF LIAISON: JENO MAVZER

COMMITTEE MISSION

The Technical Standards Committee serves as a forum for discussion of geophysical developments for which standards need to be defined. When a standardization challenge

is identified that warrants action by SEG, an appropriate subcommittee is appointed to develop standards and make a recommendation to the SEG Board of Directors concerning its adoption.

EXECUTIVE SUMMARY

This year marked significant progress in the development of SEG-Y revision 2.1 (SEG-Y_r2.1). Focus was on reviewing, compiling, and incorporating key amendments. The culmination of these efforts was the submission of the final version to the SEG Board of Directors. The Board unanimously endorsed its ratification and subsequent publication. Following approval, SEG-Y_r2.1 was promptly made available online and actively promoted across various social-media platforms. Additionally, the Board decided to extend the tenure of the current chair for another year, ensuring stability of leadership as we move forward with initiatives to broaden the adoption of the updated standard.

HIGHLIGHTS FROM THE PAST YEAR

SEG-D updates. Several requests had been received to add seismic field recorder manufacturer codes to Appendix A of SEG-D_r3.1. This standard, originally released in October 2015, published with 59 codes assigned to different manufacturers. In August 2023, Appendix A was separated from the main document, enabling an updated version featuring 64 manufacturer codes. The standalone version of the appendix is now available as a PDF. This change facilitates future updates to the SEG-D standard, as modifications can be efficiently applied directly to the separate component.

IMAGE '23. During IMAGE '23, the primary team responsible for the SEG-Y_r2.1 update convened to finalize their plans for the revision. They reached a consensus on the final changes needed before submitting it for committee evaluation. The team also endorsed the idea of applying the Creative Commons Attribution 4.0 International (CC BY) license to the revision. This decision permits users to freely copy, distribute, and adapt the standard, while still preserving the copyright held by SEG.

SEG-Y_r2.1 ratification and reception. After multiple internal rounds of finalizing edits, SEG-Y_r2.1 was completed in October 2023. This was timed to coincide with its submission for review at the November 2023 SEG Board of Directors meeting. The Board, after thorough discussion, unanimously agreed to publish the revised standard.

Upon approval, the revised standard and a public announcement released online via the SEG Library. A condensed version of the announcement was also shared on social media, receiving widespread positive feedback. A notable comment on LinkedIn praised the revision for addressing long-standing issues while preserving vital information, noting that it will likely soon be mandated by national data repositories in major oil-producing countries. Plans are in place to further promote the standard, beginning with an announcement in the January 2024 issue of *The Leading Edge*.

SEG Wiki updates. The release of SEG-Y_r2.1 marked the first significant contribution from the committee in more than six years, highlighting the need for updated communication strategies regarding SEG standards. The SEG Wiki, a key resource containing various pages on

standards, is one such communication conduit that had not seen updates since its creation.

To modernize this resource, links to standards throughout the SEG Wiki were refreshed mid year. Following Board approval of SEG-Y_r2.1 in November 2023, its dedicated page on the SEG Wiki also received revisions. These updates included a new graphic that effectively illustrates the distinctions between different versions of SEG-Y (Figure 15).

GOALS FOR THE COMING YEAR

Our first goal is to enhance the visibility of SEG-Y_r2.1:

- Develop and implement a comprehensive marketing strategy aimed at showcasing the value and benefits of SEG-Y_r2.1

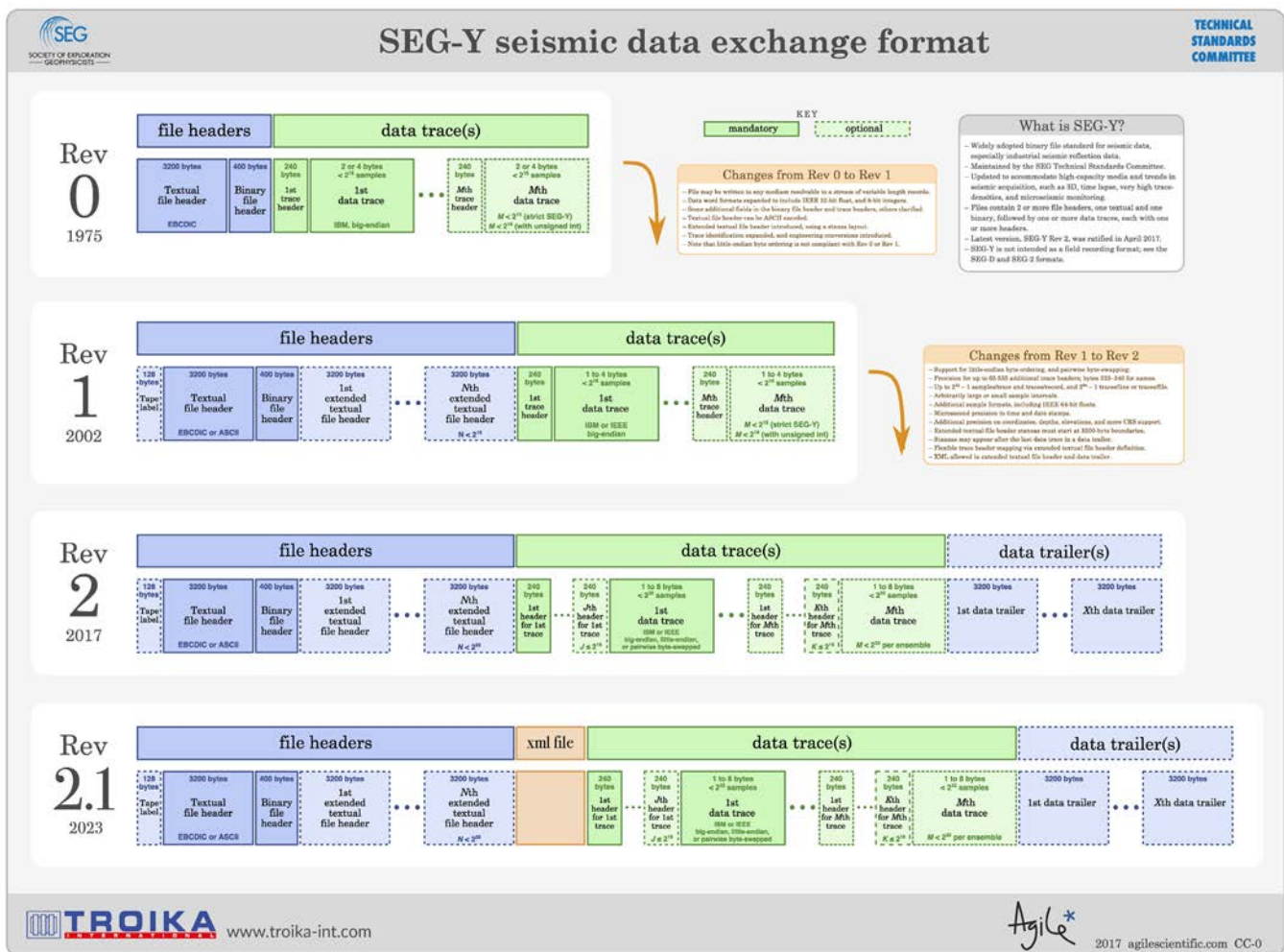


Figure 15. SEG-Y seismic data exchange format (all revisions). Courtesy of Jill Lewis.

- Utilize various communication channels (including digital media, industry publications, and relevant events) to promote awareness and understanding of SEG-Y_r2.1
- Collaborate with industry influencers and thought leaders to amplify our message and reach a wider audience and encourage adoption

Our second goal is to boost adoption of SEG-Y_r2.1 across the industry:

- Actively advise and support those who may organize to demonstrate the practical applications and advantages of SEG-Y_r2.1
- Partner with industry organizations to integrate SEG-Y_r2.1 into relevant programs and positioning standards
- Track success stories to illustrate the effective implementation and impact of SEG-Y_r2.1 in various industry scenarios

As our third goal, we will increase committee engagement and participation:

- Reinstate the opportunity for committee members to convene at IMAGE '24, fostering a platform for networking, collaborating, and sharing
- Assess the level of interest and engagement among existing committee members
- Launch a targeted campaign to recruit new members, emphasizing the opportunity to contribute to industry advancements and professional growth

The fourth goal is to expand committee membership and diversity:

- Actively seek volunteers from diverse backgrounds and areas of expertise to join the committee, thereby enriching the breadth of perspectives and ideas
- Provide resources for new members to seamlessly integrate and contribute effectively to the committee's objectives
- Organize regular virtual meetups and discussion forums for committee members, aimed at encouraging continuous interaction

and idea exchange throughout the year

CHALLENGES

One challenge for the committee is developing a succession plan. The focus of the committee on the release of SEG-Y_r2.1 has posed challenges in dedicating time and resources for succession planning. In response, the committee chair is actively developing approaches to locate and select a successor who is both capable and willing to take on the role. This process includes a thorough evaluation of current committee members, identifying those who exhibit leadership qualities and a comprehensive grasp of the committee's objectives.

Our second challenge is enhancing collaboration with the Open Subsurface Data Universe (OSDU) consortium. The committee previously sought advice on how to effectively communicate and promote SEG's liaison agreement with the OSDU consortium, under administration of The Open Group. However, there was a delay in receiving legal guidance from The Open Group regarding the promotion of this agreement. It is imperative to expedite this process to ensure that collaboration with OSDU is maximized and effectively communicated to relevant stakeholders.

THE LEADING EDGE EDITORIAL BOARD

COMMITTEE CHAIR: CHESTER WEISS

BOARD LIAISON: JEFFREY SHRAGGE

STAFF LIAISON: STEVE BROWN

COMMITTEE MISSION

The mission of *The Leading Edge*, universally known as *TLE*, is to provide timely dissemination of information likely to interest the SEG membership. *TLE* serves as an important vehicle for the exchange of technical information and Society news.

EXECUTIVE SUMMARY

TLE continues to be SEG's principal fast turnaround publication for Society news and broad-interest peer-reviewed technical content. It is organized around monthly special sections that balance emergent trends with advances in traditional themes of exploration geoscience.

TLE Editorial Board membership reflects diversity across industry, academia, and U.S. National

Laboratories. However, it is currently discordant with gender and geographic demographics of the Society, possibly limiting *TLE*'s potential as a leading global publication for the geosciences.

TLE remains impactful to SEG's research community, with notably strong citation counts from the collected bibliographies of IMAGE '23. Declining submission numbers and reviewer fatigue across the SEG publications portfolio are also seen for *TLE*. However, several Society outreach strategies have been identified for 2024 to reverse this trend.

HIGHLIGHTS FROM THE PAST YEAR

Arpita Pal Bathija, Chengbo Li, and Madhumita Sengupta completed their terms of service at the conclusion of IMAGE '23. New members, Vladimir Kazei, Laurent Louis, Ramesh (Neelsh) Neelamani, and Michael Wilt, were selected to fill the vacated positions. Our editorial board members span a broad range of applied-geophysics perspectives and expertise through industry, academia, and U.S. National Laboratories. Chester Weiss (2021 Near-Surface Geophysics Technical Section Harold Mooney Award recipient) was re-elected to serve a second term as chair. Weiss remains active in SEG's Near-Surface Geophysics Technical Section (past chair, 2019) and the Research Committee, where he effectively liaises interests and issues across the broader SEG leadership community.

TLE received 103 submissions in 2023. Across its 12 issues in 2023, *TLE* published 55 special-section articles and 15 standalone technical articles (Table 12). In addition to this peer-reviewed content, *TLE* continued publication of long-standing departments such as President's Page, Bright Spots, Seismic Soundoff, Workshop Review, Reviews, and more. Special-section editors also actively coordinated with the SEG podcast team to highlight authors or invited experts relevant to the special section.

Honors and recognition for *TLE* contributors, past and present, remain strong. The 2022 *TLE* Best Paper Award was presented to Yilmaz et al. for their paper, "A reality check on full-wave inversion applied to land seismic data for near-surface monitoring." *TLE* continues to lead the SEG publications portfolio in recorded online views. At the time of this writing, in 2023, there were seven months when *TLE* content was the most viewed. Four of the those months are attributable to *TLE*'s peer-reviewed technical content. *TLE* content was also among the top-five most-accessed list 33 times

in 2023. In addition, *TLE* continues to see impact in the IMAGE technical program, with 152 citations appearing in the 2023 collected bibliography.

GOALS FOR THE COMING YEAR

Our first goal is to increase visibility of peer-reviewed content. The introduction to special sections is now placed outside of the *TLE* paywall as a teaser for the peer-reviewed content within. This action resulted in *TLE* again leading the monthly online access count for the SEG publications portfolio.

The second goal is to initiate a marketing campaign to boost *TLE* submissions. In the campaign, we intend to communicate *TLE*'s value proposition to authors, such as its offering of expert peer review, its rapid turnaround, and its broad readership as a publication available to all SEG members. For example, we will point out that *TLE* is the fastest in SEG's portfolio across all review/publication milestones (time from submission to first decision, submission to acceptance, and submission to publication).

Our third goal for 2024 will be to actively engage the readership. We will reinstitute the practice of publishing an annual vision statement, to be written by the chair of the editorial board. This will stimulate thought and submissions on forward-looking topics of Societal interest.

CHALLENGES

One of our challenges is declining submissions and reviewer fatigue. This is systemic across SEG publications.

Another challenge is the need for guidance on editorial freedom and Society ethics. The broad Societal reach of *TLE* places us in a unique position among SEG publications of potentially communicating an "endorsement" of invited authors who have demonstrated leadership in the geosciences through strong technical or programmatic impacts. Instances where an author is the subject of a potential breach of Society ethics guidelines presents *TLE* with a dilemma in the message it sends. Action is sought from the SEG Board of Directors to clarify Societal obligations, editorial freedom, and best practices for handling these rare instances, where issues of due diligence, indemnity, legal exposure, and anonymity are inextricably intertwined.

For example, this may take the form of a position statement drafted by the editorial board or

an endorsement of one generated within the Publications Committee. Regardless of the document's origin within SEG, *TLE* leadership (Weiss) sees this as an issue greater than *TLE* itself and is eager to work with the Board of Directors, Publications Committee, and relevant stakeholders toward formulation of an actionable set of guidelines that embodies SEG values.

Another challenge is in ensuring diversity on the editorial board. Although there is representation from university, academia, and U.S. National Laboratories, the overall board is discordant with the geographic and gender diversity of the Society. Board members typically nominate candidates for their replacement at the end of their service period, and there is an additional open call for board members. However, this process is clearly not reaching the full extent of the SEG membership and may impact *TLE*'s ultimate impact as a leading global publication.

Month	Special section	Special-section papers	Standalone papers
January	Seismic resolution	8	0
February	Drone geophysics	4	1
March	Full-waveform inversion	7	1
April	Critical minerals exploration	4	2
May	Advancements in sensor technology	3	2
June	Regional focus: Gulf of Mexico	4	1
July	Digitization in energy	3	2
August	Visualization in geophysics	2	2
September	Coastal geophysics	5	1
October	Deep exploration	6	1
November	Carbon management	4	1
December	Orphaned and abandoned wells	5	1

Table 12. *TLE* special sections in 2023.

TRANSLATIONS

COMMITTEE CHAIR: LUCIA TORRADO

BOARD LIAISON: JEFFREY SHRAGGE

STAFF LIAISON: SUSAN STAMM

COMMITTEE MISSION

The Translations Committee reviews applied-geophysics books and articles published globally and recommends to the vice president, publications, and/or chair of the Books Editorial Board published materials deemed to be of sufficient interest to the general membership to warrant translation and publication either in SEG journals or as an SEG special publication. The committee has focused historically on translations into English but has expanded its role to consider translations of works into other languages as well.

EXECUTIVE SUMMARY

The Translations Committee has continued steadily with activities related to the creation of a printed Spanish version of Robert Sheriff's *Encyclopedic Dictionary of Applied Geophysics* (*Diccionario Enciclopedico de Geofisica Aplicada*). There have also been significant advances in translating Sheriff's Dictionary into Arabic on the SEG Wiki. A proposal was received through the Latin America Regional Advisory Committee to translate a 2021 article from *The Leading Edge* titled, "The Geophysical Sustainability Atlas: Mapping geophysics to the UN Sustainable Development Goals," into Spanish. This proposal remains on hold, most likely until work on Sheriff's *Dictionary* is complete.

HIGHLIGHTS FROM THE PAST YEAR

Among the activities related to producing a printed version of Robert Sheriff's *Encyclopedic Dictionary of Applied Geophysics* in Spanish, approximately five volunteers are working on editable files of the 26 letters in the Wiki in order to send them to the composition company for printing and publication. To achieve this, six folders were created in a shared drive. Each folder represents a single review stage. From the steps presented in the 2021–2022 Annual Reports, these are the steps that have seen the most effort:

- Completed preparation of text files for all letters (A to Z) to be sent to the composition vendor
- Completed translation and generation of new figures for all letters between A and T
- Continued preparation of figures

for remaining letters.

- Sent 11 letters (A to K) to composition vendor for final composition with text and figures
- Received 11 letters (A to K) from vendor
- Completed final QC of letters A to C received from vendor
- Continued with QC of remaining letters received from vendor
- Finalized the introduction to the translation by Sven Treitel and team leaders

Treitel wrote the introduction to the Spanish version of the *Dictionary* with input from all of the active volunteers (team leaders) of the project. Sergio Chávez-Pérez translated it to English.

GOALS FOR THE COMING YEAR

Our main goal remains to publish the Spanish translation of the *Dictionary*. For this, we still must finalize all letters (text and figures) and send them to the composition vendor. We must also translate other sections of the *Dictionary*, such as the appendix, instructions, etc. Additionally, there is still significant work to be done in translating the *Dictionary* into languages other than Spanish on the SEG Wiki.

Publishing the Spanish translation of the *Dictionary* would be a great accomplishment for the committee and the volunteers who have contributed to the project. It would also allow the committee to concentrate on efforts to translate the *Dictionary* into other languages on the SEG Wiki and free up resources to consider other translation proposals.

CHALLENGES

In the second half of the year, the activities of the project were impacted by

a staff transition due to health reasons.

Just like last year, the most difficult aspect for the committee has been bringing in new volunteers and keeping current volunteers engaged. At this stage of the project, new volunteers would need to familiarize themselves with the procedures that we have established over the past five years. Getting new volunteers up to date with the project can be a difficult task, so for practical purposes, we have relied on previous volunteers who have been with the project the longest.

Letra A

(AVO gradient/intercept displays) Representaciones del gradiente/intercepto del AVO: Las líneas rectas mejor ajustadas a las gráficas de amplitud versus $\sin^2\theta$ o \sin^2x , donde θ es el ángulo de incidencia y x es la distancia, son determinadas por la colección de trazas, y los interceptos a la distancia cero (A) y las pendientes (gradientes, B) se despliegan (usualmente codificados por color) en secciones o tajadas horizontales. Ver *variación de la amplitud con el ángulo/distancia*.

(Aircraft signature) Huella de aeronave: El efecto de una aeronave en las medidas de un magnetómetro. Ver *prueba de compensación*.

(A) A: 1. *Amperio* (ver), la unidad SI de corriente eléctrica. 2. Ver *sección tipo A*. 3. La amplitud a incidencia normal en los estudios AVO, donde la amplitud a menudo se aproxima mediante la ecuación $A + B\sin^2\theta$, donde θ es el ángulo de incidencia.

(A(annum)) A(annum): A(annum).

(A+B, A*B) A+B, A*B: Denota las formas (suma, producto) en las cuales el intercepto y la pendiente de AVO son combinadas para formar un único índice, donde la amplitud está expresada como $A + B\sin^2\theta$, siendo θ el ángulo de incidencia.

(A-type collision) Colisión tipo A: Colisión *Alpina* (ver).

(A-type section) Sección tipo A: Modelo de tres capas en el cual la resistividad se incrementa con la profundidad. Ver *Figura T-7*.

(A.U.) U.A.: Unidad Astronómica, la distancia entre la tierra y el sol, 1.496×10^8 km.

(A/D) A/D: *Analógico a digital* (ver).

(AAPG-A) AAPG-A: Formato de intercambio para transferir información geológica o petrolera. Ver *Shaw y Waller (1989)*.

(AB electrodes) Electrodo AB: Electrodo de corriente usados en la adquisición de registros de pozo y de medidas de resistividad. Una corriente es transmitida entre los electrodos A y B y el voltaje es medido entre los electrodos M y N. Ver *Figuras A-18, A-19, y E-10*. Generalmente, al menos uno de los electrodos se encuentra en la superficie.

(Ab plane) Plano ab: Ver *superficie axial*.

(AB rectangular array) Arreglo rectangular AB: Arreglo de gradiente. Ver *arreglo (eléctrico)*.

(Abandon) Abandono: Cesar la producción de aceite o gas en un pozo cuando este se convierte en no económico. Usualmente, antes de que el pozo se abandone, parte del revestimiento se remueve y se colocan tapones de cemento para prevenir la migración de fluidos entre formaciones.

(ABC method) Método ABC: Método para calcular la profundidad del refractor con base en los arribos refractados desde fuentes cercanas a la superficie. Se usa especialmente para determinar el espesor de la capa meteorizada con fuentes arriba de la base de esta capa.

Ver *Figura A-1*. El tiempo de meteorización t_w , algunas veces se multiplica por el factor “k-” para dar el tiempo de meteorización vertical:

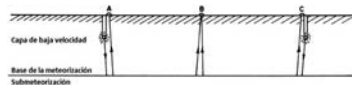
$$t_v = kt_w = \frac{(t_w V_1)}{(\sqrt{V_1^2 - V_2^2})}$$


FIGURA A-1. Método ABC de meteorización. El tiempo de meteorización t_w por debajo de B es $t_w = (t_{AB} + t_{BC} - t_{AC})/2$ donde t_{AB} = tiempo de superficie-a-superficie de A a B (obtenido al sumar el tiempo sobre el pozo al tiempo de primer quiebre), etc.

(Abelian) Abeliano: *Conmutativa* (ver). Nombrado en honor al matemático noruego Niel Henrik Abel (1802–1829).

(Abnormal end) Finalización anormal: Terminación prematura de un programa de computador causada por un error de hardware o de software. Verbo: **abortar**.

(Abnormal pressure) Presión anormal: La diferencia entre presión de fluidos de poros y la *presión normal* (ver). La presión normal es la presión producida por una columna de agua de formación que se extiende hasta la superficie (presión hidrostática). La presión de fluidos que es menor a la normal es llamada **bajo presión** o **subpresión** y si es mayor a la normal se llama **sobrepresión** (ver). Los efectos sísmicos de una presión anormal se discuten en *Sheriff y Geldart (1995, 126–128)*.

(Abort) Abortar: Terminar o detener la ejecución de un programa o simulación antes de su término, en cuanto a “abortar una simulación computacional”.

(Absolute gravity) Gravedad absoluta: La aceleración absoluta del campo gravitatorio de la Tierra a diferencia de la gravedad relativa tal como es medida por gravímetros convencionales. La gravedad absoluta puede ser calculada utilizando un reflector de esquina en caída libre dentro de una pequeña cámara de vacío, cuya posición es medida con un interferómetro láser. Los gravímetros absolutos portátiles para exploración se encuentran actualmente en uso experimental. Estos pueden ser operados en conjuntos acoplados por fibra óptica para medir directamente los gradientes de gravedad absoluta. Ver *Niebauer et al. (1995) y Brown et al. (2000)*.

(Absorbing boundary) Límite absorbente: Un límite que no refleja energía.

(Absorbance) Absorción: Habilidad de una sustancia de absorber energía incidente.

1

Figure 16. Screenshot of the composed letter A from the Dictionary done by the composition vendor. This file is currently under review.

As it has been for the past two years, the review process for printing and publication of the *Dictionary* translation is still quite challenging and time consuming. This final QC stage before sharing files with the printer has been the slowest stage of the project so far.

With that being said, as the committee chair, I would like to praise the hard work and perseverance of the volunteers who are making this project a reality. Particularly, I would like to highlight the tenacity and consistency of the team leaders who have been around the projects for several years. Without them, we would not be at the stage we are: one last step closer to publishing the Spanish version of Sheriff's *Encyclopedic Dictionary of Applied Geophysics*.

TRAVEL GRANTS

COMMITTEE CHAIR: CHANDRA PRAKASH DUBEY
BOARD LIAISON: BRANDY HAWKINS
STAFF LIAISON: JESSICA DOSTAL

COMMITTEE MISSION

The mission of the Travel Grants Committee is to review, rate, and rank all travel grant applications based on the passions and qualifications of applicants. The committee selects travel grant recipients and documents the process. We also recommend changes to the Policies and Procedures as necessary.

EXECUTIVE SUMMARY

In the aftermath of the pandemic and amid the continuing Russia-Ukraine conflict, a discernible decline in the number of applications for travel grants has been observed. Despite these challenging circumstances, it is noteworthy that a total of 60 applications were submitted. From this pool, 50 exceptional individuals were selected to receive travel grants, giving awardees the opportunity to attend IMAGE '23.

HIGHLIGHTS FROM THE PAST YEAR

The committee actively convened through virtual meetings on a regular basis to address the concerning trend of declining application numbers. Delving into the root causes and intricacies of this decline, the committee thoroughly examined the challenges posed by the postpandemic era and the ongoing Russia-Ukraine conflict. Additionally, efforts

were made to identify potential barriers and concerns that may have deterred prospective applicants.

During these virtual meetings, the committee collaboratively explored strategies to mitigate the impact of external factors on application rates. Emphasis was placed on developing innovative approaches to encourage participation, considering the unique challenges posed by the current global circumstances.

To enhance transparency and engagement, the committee also communicated with the SEG community, seeking feedback and insight from various stakeholders. These interactions aimed to foster a deeper understanding of the evolving landscape and to ensure that the Travel Grants program remains adaptive and responsive to the changing needs of its applicants.

As a result of these collective efforts, the committee successfully navigated the complexities of the situation. The acknowledgment of 60 applications globally reflects a testament to the resilience and adaptability of the SEG community. The selection and awarding of 50 travel grants for IMAGE '23 signifies a commitment to recognizing excellence and supporting the continued advancement of geoscience professionals, even in challenging times.

GOALS FOR THE COMING YEAR

Based on the challenges and observations mentioned, some potential goals for the upcoming year include the following:

- Increase application engagement: We hope to develop targeted outreach strategies to encourage a higher number of applications. This includes implementing awareness campaigns to highlight the value and benefits of travel grants.
- Adaptability and resilience: The committee will establish contingency plans to address unforeseen global events that may impact application numbers. This will enhance program flexibility to accommodate changes in the professional landscape.
- Technology integration: We will further leverage virtual platforms and technology for committee meetings and program-related activities. Within this, we will explore innovative digital solutions to streamline the application process and enhance the user experience.

- Global collaboration: The committee will strengthen collaboration with global partners and organizations to promote the program on a global scale. This may include opportunities for joint initiatives that align with the goals of the program.
- Community engagement: We will foster a sense of community and belonging within the SEG network through regular communication and feedback. We will encourage mentorship and peer support to enhance the overall experience for applicants.

CHALLENGES

The challenges the committee faced were having enough people to review and evaluate the applications and having them done in a timely fashion. In late 2023, the committee reached out to the SEG Women's Network and a few other groups to make a request for more members for this committee.

UNIVERSITY AND STUDENT PROGRAMS

COMMITTEE CHAIR: KURANG MEHTA

BOARD LIAISON: BRANDY HAWKINS

STAFF LIAISONS: JESSICA DOSTAL AND ANNABELLA BETANCOURT

COMMITTEE MISSION

The mission of the Committee on University and Student Programs is to support students, universities, and industry in order to develop a strong global pool of graduating students and emerging professionals who have the technical and professional skill sets that are required to meet the applied-geophysics needs of our society.

EXECUTIVE SUMMARY

This was a year of rebuild for the committee. We retained existing members and filled vacant positions with young and energetic professionals in various districts. We also held a number of events and initiated interuniversity alliances.

HIGHLIGHTS FROM THE PAST YEAR

In 2023, we reformed the Challenge Bowl Subcommittee (with help from Peter Duncan), Javid Aliyev, the lead of the subcommittee, and several subcommittee members will be working together. Apart from that, we created and filled two new positions including the social media chair (Sakshi Dahiya) and graphics designer (Milana Shahbazova). In the District Points of Contacts,

there were a few new recruits including Ivonne Montiel (Districts 1 and 2), Carlos Convers (District 4), and Princewill Okechukwu (District 9).

A concerted effort was put behind strengthening the Outreach Subcommittee, led by Diane Doser. Subcommittee members located across various continents help Doser with outreach efforts. Several presentations were given to the Oklahoma State University Student Chapter, along with K-12 teachers in the El Paso region. The team is working with student representatives to develop and record presentations to share with other chapters.

In September, we successfully organized the Virtual Meetup, involving presidents from 13 SEG student chapters across Sub-Saharan Africa. The primary objective of this event was to familiarize chapter leaders with SEG outreach programs and provide guidance on enhancing their proposals to meet SEG specifications. This event also aimed to strengthen collaboration between student chapters in the district. These chapters are actively utilizing the materials to build, develop, and strengthen their outreach programs.

We have also initiated interuniversity alliances. Notably, a recent alliance has been established between the University of Calabar and Nnamdi Azikiwe University chapters. This effort aims to pool resources and expertise to enhance the effectiveness of outreach programs in the institutions.

For the Azerbaijan State Oil and Industry University (ASOIU) Student Chapter, less-active chapters were contacted, and a virtual meeting was held for them on 14 September. At the meeting, we gave detailed information about outreach and answered questions. At the same time, we provided information about the rules for writing a proposal for an outreach grant. We also presented a grant to the ASOIU Student Chapter.

Committee members are looking for ways to collaborate with other SEG groups, such as the Field Camps Committee, Research Committee, and SEG EVOLVE.

The 2023 Best Student Chapter Award went to Azerbaijan State Oil and Industry University. The 2023 Most Improved Student Chapter Award was given to the National Geophysical Research Institute of India.

GOALS FOR THE COMING YEAR

- In the past couple of years, we have had noticeable

growth in our student chapters across Africa, Asia, and Australia. For 2024 and beyond, it would be great to focus on similar energy for districts in Europe and the Americas.

- We hope to host more events through collaboration with other SEG groups.
- Students indicated an interest in developing presentations on professional preparation, how to conduct successful local outreach activities, how to write successful proposals for support from SEG, and how to write successful applications for SEG scholarships.
- We hope to share technical sessions focused on various cutting-edge geophysical technologies that students and early-career professionals can access for free.
- Finally, we would like to capitalize on the newly formed Challenge Bowl, Outreach, and Social Media subcommittees.

CHALLENGES

It has been a challenge to recruit and retain volunteers so the committee can focus and work efficiently. We need better communication and collaboration across various SEG groups.

WOMEN'S NETWORK

COMMITTEE CHAIR: CARA HUNTER

BOARD LIAISON: ANA CURCIO

STAFF LIAISON: PAOLA VERA

COMMITTEE MISSION

The Women's Network Committee (WNC) was created in 2011 to promote gender parity, celebrate women's achievements, and raise awareness about and find solutions for the challenges women encounter in applied geophysics and related fields.

EXECUTIVE SUMMARY

This year, the committee organized a variety of webinars, continued to offer a resume review service, published a quarterly newsletter, organized content and activities for IMAGE, and more.

HIGHLIGHTS FROM THE PAST YEAR

The committee organized six webinars on topics including sustainability; diversity, equity, and inclusion; soft skills; career development; and more. Altogether, they attracted more than 600 registrants and 200 attendees. All recordings are available on our LinkedIn page and YouTube channel.

The committee offered a resume review service for students and early-career professionals in the fourth quarter of 2023. Five volunteers reviewed 28 resumes and provided feedback to the recipients.

Student Communities continued holding their "Ask me anything" sessions. The sessions allow leaders in industry and academia to provide transparent insight and mentorship to students. The sessions were attended by more than 150 students around the world. In addition, the Student Communities organized a Geo Summit in the fourth quarter that included a comprehensive lecture series on the hottest topics in geosciences, delivered by experts at the forefront of the field. Several committee representatives were invited to give talks.

The committee published quarterly newsletters that provided information on upcoming events, conferences, news, and more for subscribing SEG members.

The committee presence increased greatly on LinkedIn. Activities and webinars that were presented by the committee were highlighted, as well as other SEG committees and student groups. Our followers have increased by 40% this year to more than 1500.

In addition, WNC collaborated with members of the IMAGE Diversity and Inclusion Committee; American Association of Petroleum Geologists (AAPG) Women's Network; SEG Justice, Equity, Diversity, and Inclusion Committee; AAPG Young Professionals; and Association for Women Geoscientists to put together a series of events for IMAGE '23. The main focus was on facilitating a strategic panel session titled "Powering the energy landscape of tomorrow: Successful geoscience collaboration with diverse teams," contributing to early-career speed mentoring, hosting a luncheon and breakfast, and organizing activities that were held at a combined women's networking booth in the IMAGE Gathering Place.

GOALS FOR THE COMING YEAR

- The committee will continue the webinar series and resume review service.
- WNC will support IMAGE '24 in collaboration with other committees.
- A book club series will begin in January 2024. The main goal will be to share thoughts and ideas from a selected inspiring book and take away action points and learnings for business and personal development.
- Other initiatives include hosting soft skills development virtual events and making short videos to be shared on social media.

CHALLENGES

Current challenges are related to the limited availability of volunteers to lead initiatives. For that reason, new members were invited to join.

SECTION THREE:

Reports from Task Forces

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SEG/SEG FOUNDATION ALIGNMENT

CHAIR: PETE CRAMER

BOARD LIAISON: KEN TUBMAN

STAFF LIAISON: JIM WHITE

TASK FORCE MISSION

The SEG/SEG Foundation Alignment Task Force was established at the direction of SEG President Ken Tubman in January 2023. The task force was led by Pete Cramer. Liaisons included Tubman, David Bartel (SEG Foundation board chair), and Jim White (SEG executive director).

The task force was asked to identify and recommend a series of best practices to improve the alignment and value delivery of SEG and the SEG Foundation. The scope also included recommendations about organizational models, staffing, board makeup, and expectations.

In a letter written by Tubman in January 2023, he shared, "Another key aspect is seamless cooperation with the SEG Foundation and other related entities. We aim for the boundaries between different parts of our efforts to be limited to paper only, not visible. We will be effectively one organization working seamlessly for the same goals. This task force is another transformation effort to better align SEG and the SEG Foundation, advancing the sustainable delivery of value to a broader more engaged group of stakeholders."

He continued in another letter, "The task force should review how other societies and organizations collaborate between their operational organizations and their foundations to look for and possibly adopt best practices. Broad engagement of other organizations is also expected."

EXECUTIVE SUMMARY

The task force gathered a series of best practices that focus on improving alignment between SEG and the SEG Foundation. The recommendations were presented in meetings and workshops, concluding the mission of the task force.

HIGHLIGHTS FROM THE PAST YEAR

The task force met regularly beginning in February 2023, culminating in its April presentations to the SEG and SEG Foundation boards. During this time, the task force met with and interviewed five experts in foundation management and fundraising. The information learned during these interviews formed the basis of the task force's recommendations to the boards.

The experts interviewed included Suzy Smith from Boys & Girls Clubs of Greater Houston, Doug Mayo from Colorado School of Mines, Mark Dini from Southern Methodist University, Harry Armen from American Society of Mechanical Engineers, and Kathy Cullen from various higher-education foundations. These experts were nearly unanimous in their views on best practices. Among these were

- Alignment of vision and strategy between the parent organization and the Foundation is essential
- Board member roles and responsibilities must be clearly articulated and include an expectation to participate in fundraising activities
- Full-time experienced management is critical to successful fundraising

These and other best practices shared with the task force became the basis of recommendations to both boards and were presented in April over the course of several meetings and workshops. The task force was then concluded.

TRANSFORMATION

TASK FORCE CHAIR: KEN TUBMAN

BOARD LIAISON: KEN TUBMAN

STAFF LIAISON: JIM WHITE

TASK FORCE MISSION

When the Strategic Options Task Force (SOTF) completed its initiative, SEG quickly followed up by creating the Transformation Task Force. This task force was charged with turning the recommendations from SOTF into action. The transformation initiative will be a multiyear effort, and continuity will be critical. Hence, Arthur Cheng's involvement and leadership will be paramount to its overall success.

EXECUTIVE SUMMARY

This year, a series of focus groups were held. Results from discussions during the focus groups were carefully evaluated. In addition, in late January, Ken Tubman produced a video that will continue messaging around the task-force initiative. This provides a catalyst to connect with our members, specifically new and young members.

HIGHLIGHTS FROM THE PAST YEAR

This year, one of our major efforts was ensuring continuity of what we expect to be a long-term effort. This is important when leadership changes yearly. To address this, we placed extra emphasis on continuity and alignment. In addition, we added candidates for president-elect and treasurer from

this year's election. We amassed a large group of determined leaders to sustain the effort. They include Pete Cramer, Cheng, Gustavo Carstens, Alison Small, Glenn Wilson, Allen Bertagne, Maria Angela Capello, Jeffrey Shragge, Ellie Ardakani, Martin Stupel, Ge Jin, and Mike Mellen.

SEG Executive Director Jim White has been a key contributor and major influence in our ability to sustain the effort. In addition to contributing directly to the task force, White's vision and leadership of SEG staff will be critical for the implementation of SEG's future.

With the produced video, we now have a repeatable platform for continuing the messaging around our initiative. The SEG marketing team will be utilizing all social-media platforms in getting the message out.

GOALS FOR THE COMING YEAR

The task force concluded in early 2023. However, the responsibility to channel the efforts into the day-to-day business of SEG will be the responsibility of all associated with the Society.

CHALLENGES

There are no real challenges faced. However, communication of our efforts has been and will continue to be very critical to our success. This will ensure the value-creation need to measure the success of the initiative.

SECTION FOUR:

Reports from Representatives

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AMERICAN GEOSCIENCES INSTITUTE

SEG REPRESENTATIVE: JIM WHITE
BOARD LIAISON: MAURICIO SACCHI
STAFF LIAISON: JIM WHITE

MISSION

The SEG representative to the American Geosciences Institute (AGI) Geoscience Policy Program Committee and AGI Member Society Council attends all meetings (virtual and in person) to ensure proper insight, inject content, and monitor progress regarding key initiatives. This position was formed to address the actions in the Framework for Addressing Racial and Ethnic Equity in Geosciences Professional Societies.

EXECUTIVE SUMMARY

- Two working committees were formed that focus on diversity, equity, and inclusion (DEI).
- AGI created and is leading a task force focused on collaboration among geoscience societies.

- AGI created the Geosciences for Sustainability Initiative.

ACTIVITY REPORT

In 2023, the AGI Intersociety Committee on DEI and the Standing AGI Internal Committee on DEI were formed. The AGI Intersociety Committee on DEI was created to enact the Framework for Addressing Racial and Ethnic Equity in Geosciences Professional Societies and to provide a space for societies to collaborate and discuss shared concerns. The Standing AGI Internal Committee on DEI focuses on AGI systems and processes, including how AGI interacts specifically with the Federated societies.

In May 2023, AGI formed a task force and sent a questionnaire to AGI member societies and other geoscience societies. The task force reviewed the responses and highlighted several areas of current and potential collaboration. The questionnaire was distributed to the following societies.

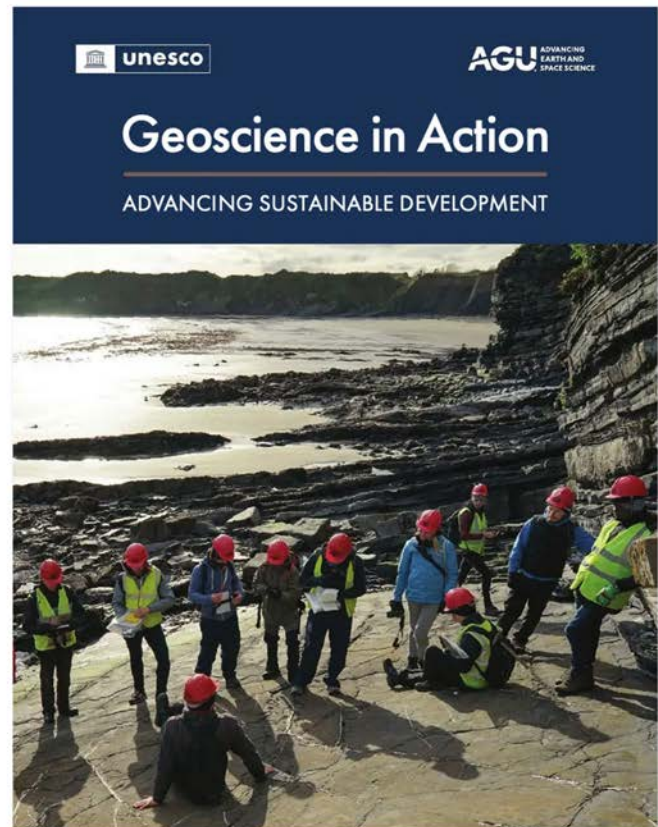


Figure 17. The *Geophysical Sustainability Atlas* was recently published in SEG and was a foundational piece of *Geoscience in Action*.

- American Association of Petroleum Geologists
- Association of American State Geologists
- American Geophysical Union
- American Association of Geographers
- American Indian Science and Engineering Society
- American Institute of Professional Geologists
- American Rock Mechanics Association
- American Water Resources Association
- Asia Oceania Geosciences Society
- Arctic Research Consortium of the United States
- National Association of State Boards of Geology
- Imaging and Geospatial Information Society
- Association for Women Geoscientists
- Association of Applied Geochemists
- Association of Earth Science Editors
- Association of Environmental and Engineering Geologists
- Canadian Federation of Earth Sciences
- Cartography and Geographic Information Society
- European Geosciences Union
- European Federation of Geologists
- Geochemical Society
- Geological Society of America
- Mineralogical Society of America
- National Association of Geoscience Teachers
- National Earth Science Teachers Association
- Seismological Society of America
- Society for Sedimentary Geology
- Society for Geology Applied to Mineral Deposits
- Society for Mining, Metallurgy and Exploration
- Society of Economic Geologists
- Society of Exploration Geophysicists
- Society of Vertebrate Paleontology
- Soil Science Society of America
- The Meteoritical Society
- The Micropalaeontological Society
- The Palaeontological Association

There will be follow-up meetings to discuss various paths forward for this task force and initiative.

AGI recognizes the societal importance of the United Nations Sustainable Development Goals and views the geoscience nexus with these goals as a means to strengthen the pillars of our enterprise: organizations and societies, K-12 education, higher education, workforce, workplace, data and knowledge, research, public understanding, policy/government affairs, and DEI.

SEG recently committed resources to help support and sponsor the publication of the *Geophysical Sustainability Atlas* (Figure 17).

GEOSCIENCEWORLD ADVISORY COUNCIL

SEG REPRESENTATIVE: JENNIFER COBB

BOARD LIAISON: JEFFREY SHRAGGE

STAFF LIAISON: JENNIFER COBB

MISSION

GeoScienceWorld (GSW) is a nonprofit collaborative and comprehensive online resource for research and communications in the earth sciences that is built on a core database of peer-reviewed journals and integrated with the GeoRef index. SEG is one of GSW's seven founding organizations, along with the American Association of Petroleum Geologists (AAPG), the Geological Society of America (GSA), the Geological Society of London (GSL), the American Geosciences Institute, the Mineralogical Society of America (MSA), and the Society for Sedimentary Geology (SEPM).

The journals aggregation launched in February 2005 and today includes 56 journals from 35 publishers. SEG has three journals available through GSW: *GEOPHYSICS*, *The Leading Edge (TLE)*, and *Interpretation* (copublished with AAPG). SEG also is one of 14 publishers participating in GSW eBooks, which launched in 2014 and includes more than 2350 titles, including more than 132 from SEG.

GSW is supported by institutional journal and book subscriptions and perpetual-access sales of books to institutions. Institutions subscribing to the journals are required to purchase access to the entire journals aggregation. Compensation to participating publishers is based on a combination of the amount of content the publisher contributes and how much it is used.

By participating in GSW, SEG extends the usage of its publications beyond the SEG Library while also earning royalties. GSW also serves as a collective, giving strength to SEG and other independent geoscience publishers in an increasingly challenging scholarly publishing economic climate.

Approximately 20% of usage of *GEOPHYSICS*, *TLE*, and *Interpretation* occurs through GSW, with nearly all of the rest enabled by the SEG Library. Royalties SEG earns from its participation in the GSW journals program remain a significant portion of SEG's total subscription revenue.

SEG also participates in GSW's open-access journal *Lithosphere*, along with AAPG, GSA, GSL, MSA, SEPM, and the Society of Economic Geologists. The journal is compliant with research-funder mandates that are requiring authors to publish in fully open-access journals. SEG's journals are hybrid open-access journals, meaning that authors can pay a fee to make their articles free under an open license.

By participating in *Lithosphere*, which GSW acquired from GSA and launched as its own journal in January 2020, SEG gives authors who must or want to publish in a fully open-access journal the option of gaining one round of peer review through *GEOPHYSICS* or *Interpretation* prior to manuscript transfer. Also, with author approval, SEG editors can transfer manuscripts that they decline to accept for their own journals yet deem sound scientifically despite perhaps being lean on novelty or out of the SEG journal's scope.

EXECUTIVE SUMMARY

By participating in GeoScienceWorld, SEG extends the usage of its publications beyond the SEG Library while also earning royalties.

ACTIVITY REPORT

SEG staff continued to ask authors about transfer interest to *Lithosphere* at time of submission to SEG journals and also promoted *Lithosphere* special sections in Society newsletters and social-media outlets. *Lithosphere* halted submissions for some time during the year to change submission and production vendors, and SEG authors did not request to transfer any submissions for *Lithosphere* consideration during the year.

INTERNATIONAL PETROLEUM TECHNOLOGY CONFERENCE

SEG REPRESENTATIVES: MOHAMMED BADRI AND SANDEEP CHANDOLA

BOARD LIAISON: JOSEPH REILLY

STAFF LIAISON: YOGAANI BHATIA

MISSION

The mission of the International Petroleum Technology Conference (IPTC) is to provide and share knowledge through collaboration with the Society of Petroleum Engineers (SPE), American Association of Petroleum Geologists (AAPG), European Association of Geoscientists and Engineers (EAGE), and SEG.

EXECUTIVE SUMMARY

IPTC 2023 was held in person at the Bangkok Convention Center at Central World in Bangkok, Thailand. It attracted 4263 attendees from 56 countries, representing major oil-and-gas operators, service providers, technology companies, and academia. It was a highly diverse and well-attended event in terms of participation and content. Based on the number of attendees, exhibitors, content, and financial returns, IPTC 2023 was a great success.

ACTIVITY REPORT

IPTC is a globally recognized event that brings knowledge, technologies, best practices, and experiences to members of AAPG, EAGE, SPE, and SEG. IPTC rotates between the Middle East and Asia Pacific regions. It is organized to advance technology related to exploration, drilling, and production, as well as transportation and processing, covering upstream and midstream technologies. SPE operates IPTC on behalf of the partnership.

Key factors responsible for IPTC's success are the host national oil company (NOC), international oil company (IOC) cohost, and service-sector support. Structurally, IPTC is incorporated with the four societies as owners (20% interest to SEG). The Board of Directors consists of eight members, two appointed from each society, Mohammed Badri (executive vice president of technology and marketing for Woodlands Energy Services Company) and Sandeep Kumar Chandola (general manager and head of geophysics solutions for PETRONAS) are representatives on the IPTC Board of Directors.

IPTC 2023. The 15th edition of IPTC was held in person. The theme of the conference was "Balancing the energy landscape through innovation and sustainability." The conference was attended by 4263 energy professionals, representing six

continents and including 227 C-suite executives and government officials and more than 400 thought leaders. The exhibition was well attended, with 68 exhibitors displaying state-of-the-art technology. The winner of the 14th IPTC Excellence in Project Integration Award was announced at the conference.

Founded in 2005, IPTC has established itself as the flagship multidisciplinary oil-and-gas technical event in the eastern hemisphere. IPTC is focused on the dissemination of new and current technology, best practices, and multidisciplinary activities that are designed to emphasize the importance of the value chain and maximizing asset value. Attended by industry leaders and sponsored by four premier oil-and-gas organizations and societies, IPTC 2023 brought together global experts to share their knowledge, innovation, and latest technologies.

IPTC 2023 was hosted by PTT Exploration and Production Public Company Ltd. (PTTEP). The



Figure 18. From left are Joe Reilly (vice president, SEG), Sandeep Chandola (IPTC board member), Yogaani Bhatia (SEG managing director global strategy and international operations), Subashini Jaganathan (SEG event manager, Asia Pacific), and Jim White (SEG executive director) at IPTC 2023.

opening ceremony featured an address by Khun Pisut Painmanakul (secretary to the minister of energy, Thailand) Welcoming remarks were by Datuk Adif Zulkifli (IPTC Board chairman) and Khun Montri Rawanchaikul (IPTC 2023 Executive Committee chairman and CEO of PTTEP). The opening ceremony featured global thought leaders, CEOs, and executives from leading NOCs, IOCs, technology companies, and academic and research institutions. It also featured government officials and global leaders from the energy industry from several countries around the world.

Executive plenary session 1 titled “Balancing the energy landscape through innovation and sustainability” addressed how new technologies, enhanced business strategies, and improved partnership models are being utilized to navigate the energy transition. The panelists were luminaries and global leaders from the energy sector including the CEOs and board directors of PTTEP, PETRONAS, Pertamina, Energy Development Oman, TotalEnergies, and Halliburton. Executive plenary session 2 titled “A new energy future” included top leaders from PTTEP, ExxonMobil, Technip, SLB, and Rystad Energy. Both sessions attracted active participation and engaging discussions around key topics including the energy trilemma, sustainability, technology, and innovation.

Seven panel sessions featured a diverse range of themes including carbon capture, utilization, and

storage (CCUS); energy transition; completions; collaborative artificial intelligence; late-life assets; and more. These sessions deliberated on various issues including the petroleum industry being viewed as a risk to future life due to global warming caused by carbon emissions. The critical role played by technology in sustaining the core exploration-and-production business and in CCUS and lowering the carbon emissions was also discussed in depth.

The IPTC society presidents panel session featured representatives of IPTC’s four sponsoring societies: Joseph Reilly (vice president of SEG), Steven Goolsby (president of AAPG), Medhat Kamal (president of SPE), and Jean-Marc Rodriguez (president of EAGE). The panel was moderated by Mike Gunningham (IPTC Board member) and provided valuable insights into the theme of the conference from the lens of the constituent professional societies.

A total of 1818 abstracts were submitted and reviewed, out of which 399 were accepted. There were 45 technical sessions, with 291 oral and e-poster technical presentations taking place over three days. They covered a range of disciplines including geoscience, reservoir engineering, drilling and completions, production engineering, sustainability, unconventional, gas, and improved and enhanced recovery.

The conference boasted several development activities including the Emerging Leaders



Figure 19. SEG representatives enjoy a lunch with Datuk Adif Zulkifli (IPTC board chair and executive vice president upstream, PETRONAS) and Redhani Rahman (vice president of exploration, PETRONAS).



Figure 20. SEG IPTC board representatives tour the exhibition.

Workshop for more than 120 young professionals, Energy Education University Student program for 46 students, and Energy Education Workshop for 35 local teachers.

The IPTC Education Week program aims to give students from around the world clear insight into the industry they are about to join and provide them with the opportunity to interact with potential employers from major organizations who are looking to recruit the best talent. A total of 76 young professionals attended the training sessions.

Four ask-the-expert sessions were held that addressed important topics such as “Energy and environment,” “Accelerating CCUS through data and machine learning,” “CO₂ Storage Resources Management System,” and “Role of geoscience in the energy transition.” These sessions featured leading domain experts, industry professionals, and consultants and provided ample opportunities to interact through moderated discussions and question-and-answer time.

The IPTC 2023 Integrated Project Award went to the Egina Project by TotalEnergies. The project is the largest floating production storage and offloading (FPSO) ship to date in the TotalEnergies SE fleet of FPSOs and the first deepwater project in Nigeria after the 2010 Nigerian Oil and Gas Industry Content Development Act. The project provided connections between different companies,

more than 48 million person-hours worked in Nigeria, fabrication of more than 60,000 tons of equipment in Nigeria, and the advancement of drilling technologies that led to greater oil production in ultradeep waters of 1400 to 1700 m.

A major highlight of IPTC 2023 was its classification as a carbon-neutral event (i.e., an event that has no net release of greenhouse gases into the atmosphere). In collaboration with PTTEP, Thailand Convention and Exhibition Bureau, and Thailand Greenhouse Gas Management Organisation, IPTC 2023 was certified as carbon neutral by the Thailand Greenhouse Gas Management Organization. Some of the key sustainability efforts that were behind this achievement included no printed programs, use of a mobile app for all collaterals, electric-vehicle transportation to the welcome dinner, reduction of single-use plastics, temperature-controlled rooms, and education of sponsors and exhibitors on sustainability.

Financials. The audited financial results reported a strong surplus of US\$1,016,550 from IPTC 2023, of which SEG’s 20% share will be \$203,310. This result is attributed to in-person registrations, a large number of exhibitors, and generous sponsorship.

IPTC 2024. IPTC 2024 will be held at the Dahrn Expo in the Kingdom of Saudi Arabia from 12–14 February 2024, under the patronage of His Royal Highness Prince Saud bin Nayef bin Abdulaziz Al-Saud (governor of the Eastern Province). The event, to be hosted by Saudi Aramco, is expected to be attended by more than 20,000 participants from more than 75 countries. The theme of the conference is “Inventing solutions > leading the transition.”

The event has received 5242 abstracts, representing 403 organizations and 62 countries. This exceeds IPTC 2022 numbers by 20%. Of these, 1505 abstracts have been accepted for presentation over 148 oral and e-poster technical sessions. Saudi Aramco accounts for 42% of the submitted abstracts. There will be multiple high-powered executive panel sessions and dialog featuring some of the top global leaders from the industry. The conference will showcase a massive exhibition, with a total space of 9429 m² and 186 exhibitors. It will provide excellent training opportunities and career counseling for early-career professionals and students. The IPTC Excellence in Project Integration Award Committee has received several applications, and the selection process is ongoing. The finalists will be announced at the conference.

INTERNATIONAL ASSOCIATION OF OIL AND GAS PRODUCERS

COMMITTEE CHAIR: SHAWN NEW

BOARD LIAISON: JEFFREY SHRAGGE

STAFF LIAISON: JENO MAVZER

COMMITTEE MISSION

Approximately a decade ago, SEG transferred management of its positioning standards to the International Association of Oil and Gas Producers (IOGP). The SEG Technical Standards Committee (TSC) continues to support IOGP in this endeavor and, when warranted, aligns related activities. SEG procedures covering public notification, review, and approval of SEG standards apply to positioning standards delegated to IOGP.

EXECUTIVE SUMMARY

There was no formal engagement with the IOGP Geomatics Committee (previously the Surveying and Positioning Committee) in 2023. However, while releasing updates to SEG's Technical Standards web page, minor revisions were also made to direct users to the IOGP Publications Library, where geophysical position data exchange formats (P1, P2, and P6) can be found.

HIGHLIGHTS FROM THE PAST YEAR

As was the case in prior years, the TSC evaluation of P1/P11 as a replacement for the Shell Processing Support (SPS) format was put on hold to focus on other activities — most notably, the finalization and release of SEG-Y revision 2.1 (SEG-Y_r2.1).

Late in 2023, the IOGP copyright office asked for permission to use an adapted figure from an SEG expanded abstract in the next iteration of "IOGP report 483-1: OGP P1/P11 geophysical position data exchange format." Note that this type of reuse is permitted by SEG publication's permissions policy. Details were not shared regarding the expected publication date of the in-press report, but we anticipate referencing the revised version of P1/P11 in future evaluations.

GOALS FOR THE COMING YEAR

In 2024, members of TSC intend to work with publications, leverage committee member networks, and potentially call for volunteers to confirm that P1/P11 can replace SPS as written or provide IOGP with additional format requirements before SPS is retired.

CHALLENGES

As noted, engagement with IOGP regarding

P1/P11 evaluation is currently secondary to the promotion of SEG-Y_r2.1.

NORTH AMERICAN PROSPECT EXPO ADVISORY

SEG REPRESENTATIVE: PATRICK RUTTY

BOARD LIAISON: ALLEN J. BERTAGNE

STAFF LIAISON: SCOTT SUTHERLAND

MISSION

The North American Prospect Expo (NAPE) is an environment designed for prospect developers to interact with potential buyers. This environment naturally draws engineers, geoscientists, landmen, and capital providers and other financial participants. Because there is the expectation of making deals, many attendees are decision makers.

Partners in NAPE are the American Association of Petroleum Landmen (AAPL), Independent Petroleum Association of America (IPAA), American Association of Petroleum Geologists (AAPG), and SEG. NAPE was founded by AAPL in 1993, with IPAA joining as a partner in 1995. In 2004, AAPG and SEG came aboard, each taking a 10% interest, leaving IPAA with 29% and AAPL with a majority-ownership 50.5% position. NAPE Management LLC retains 0.5% and serves as NAPE's general partner. Partners participate through the NAPE Advisory Board, on which SEG has one representative.

EXECUTIVE SUMMARY

Although NAPE Showcase celebrated its 30th anniversary in 2023 and was held amid relatively strong oil prices, income from all sources (attendees, exhibitors, and sponsorships) was down. Thus, SEG's 10% of the gross NAPE partner distribution this year amounted to US\$167,293 compared to last year's \$208,689. Inclement weather during the event may have been responsible for some of this decrease.

Changes to the partner operating agreement that had been afoot for some time were formally proposed and passed this year. Chief among the amendments was a shift to annual budget and accounting cycles, rather than each event requiring its own planning and reporting. This allows NAPE to be run more like an ongoing business and, as one may imagine, will reduce overhead.

Regarding capital reserves and taking a lesson

from 2020, partners agreed that fiscal-year NAPE budgets, beginning with 2023–2024, will stipulate that the lesser of 10% or \$250,000 be withheld from the net partner distribution until the operating reserves are boosted to a total of \$2 million (which already includes the \$1 million withheld in 2020 as a reaction to the pandemic). In November, a 2023–2024 operating budget of approximately \$2.9 million was approved.

ACTIVITY REPORT

NAPE Showcase activities for the year include the following:

- We implemented a dual-track Energy Business Conference (EBC) with technical and business offerings. These included a governors panel, which was structured similar to a fireside chat. It was open to all NAPE attendees. New NAPE Hall of Fame awards were presented at the EBC luncheon.
- An expanded icebreaker with traditional networking time was held, followed by entertainment as part of the NAPE 30th anniversary celebration.
- The Renewable Energy Pavilion returned, with the addition of a private breakfast. A walking tour of the expo show floor was hosted by key renewables clients in an effort to explore and expand the pavilion's segment.
- We increased a cryptocurrency-mining focus with the Bitcoin Mining Pavilion. The pavilion included speaker sessions, prospect previews by oil-and-gas operators open to crypto mining, and show guide identification of prospects that support crypto mining.
- The Alex Epstein Expo Lunch featured a keynote presentation.
- A NAPE Charities Luncheon with a keynote by Mark Esper presented grant awards to three veterans' charities: Rebuilding America's Warriors, PenFed Foundation, and Train A Dog Save A Warrior. In addition, an inaugural NAPE American Hero Award was given to Anthony J. DeToto.
- Following analysis of attendance, a NAPE Young Professionals group has been started to target and cultivate the younger demographic.

A survey question in the NAPE Summit registration

aimed to elicit more tournament sponsorship. This, along with feedback collected at last year's event, generated a significant lead list and solidified another sold-out tournament this year. Education and networking components helped attendees justify their participation beyond playing golf.

Finally, NAPE Magazine continues to be a very good marketing tool, playing a significant role in getting several new and existing companies engaged or re-engaged in NAPE. We are always on the lookout for new and exciting content for the magazine.

OFFSHORE TECHNOLOGY CONFERENCE

SEG REPRESENTATIVE: ALEX MARTINEZ

BOARD LIAISON: JOSEPH REILLY

STAFF LIAISON: TOM AGNEW

MISSION

The Offshore Technology Conference (OTC) is organized by 13 sponsoring academic, scientific, and professional organizations that are dedicated to the advancement and diffusion of scientific and technological knowledge of offshore resources and related environmental matters. Income from the events is provided to the sponsoring organizations.

EXECUTIVE SUMMARY

- The 2023 distribution to SEG from OTC Houston was approximately US\$736,000, with a small remainder yet to be distributed at the time of this writing. The 2024 distribution will include revenue from OTC Houston, OTC Asia, and OTC Brasil.
- OTC Houston and OTC Brasil were held this year. OTC Houston and OTC Asia will be held in 2024.
- SEG had good representation in the 2023 OTC Houston and OTC Brasil technical programs. SEG is on track to deliver the same for the 2024 OTC Houston and OTC Asia.
- SEG also had good representation in the Distinguished Achievement and Emerging Leader awards nominations.

ACTIVITY REPORT

OTC is a nonprofit collaboration between 13 professional societies, including SEG, that has been running for more than 50 years. It currently

organizes three conferences: OTC Houston (annual), OTC Asia (biennial), and OTC Brasil (biennial).

At the time of this writing, the 2023 OTC distribution to SEG was \$736,321.25. This was from OTC Houston. The remaining 5% of the 2023 distribution will be provided in December 2023. The 2024 OTC distribution is anticipated to increase due to continued growth in conference attendance and exhibition space sales in Houston, along with contributions from OTC Brasil and OTC Asia.

Alex Martinez is the SEG representative on the OTC Board. He became the Board chair in May 2023 and will serve a two-year term. Marty Terrell is rolling off as the OTC SEG Technical Program Committee chair, and Elive Menyoli is taking his place. Over the last couple of years, they have actively and successfully worked to refresh the committee membership.

OTC Houston was held in May 2023 at NRG Park as a fully in-person event. Overall attendance increased from 2022 OTC Houston but was still below prepandemic numbers. The SEG Technical Program Committee organized several SEG-led technical sessions and a panel discussion. The committee also collaborated with other societies on additional technical and panel sessions. The year saw continued cross-society collaboration in technical program development, as well as active committee engagement in abstract reviews and Spotlight on New Technology Award evaluations.

OTC Brasil was held in October 2023 in Rio de Janeiro as a fully in-person event. It had very strong attendance, almost reaching the conference center's maximum capacity. SEG was well represented in the excellent technical program.

Looking ahead, 2024 OTC Houston plans are rapidly firming up. Similar to last year, the number of technical program abstracts submitted was back up to prepandemic levels, giving the Technical Program Committee a robust set of abstracts from which to select. SEG was active this year in identifying and submitting nominees for the 2024 OTC Distinguished Achievement and Emerging Leader awards, and providing speaker suggestions for the OTC Executive Dialog series. As of December 2023, OTC Asia is still in the initial planning stages, and early indications are looking promising.

UNCONVENTIONAL RESOURCES TECHNOLOGY CONFERENCE MANAGEMENT

SEG REPRESENTATIVES: FRANK BROWN AND JIM WHITE
BOARD LIAISON: ALLEN BERTAGNE
STAFF LIAISON: SCOTT SUTHERLAND

MISSION

The Unconventional Resources Technology Conference (URTeC) is a science-based annual conference developed as a collaboration of the American Association of Petroleum Geologists, Society of Petroleum Engineers, and SEG. URTeC focuses on unconventional reservoir development, with a specific emphasis on integrated workflows. It operates through the Management Committee, outlined in a Sponsoring Organizations Agreement. Leadership of the committee rotates among the societies. The Technical Program Committee operates with cochairs from the three societies.

EXECUTIVE SUMMARY

URTeC 2023 was held 13–15 June in Denver, Colorado. As was the case with last year's event, it was held earlier than past URTeC conferences to avoid conflict with IMAGE '23. We experienced good participation on all fronts including attendees, technical presentations, exhibitors, and technical sessions. URTeC 2024 will be held at the George R. Brown Convention Center from 17–19 June in Houston, Texas.

ACTIVITY REPORT

Some highlights from URTeC 2023 include the following:

- The opening plenary session was titled "Unconventional resources and technology in a low carbon energy world."
- Conference registration was 3092. SEG represented about 10% of the total.
- There were 171 exhibitors at the event.
- A total of 216 technical presentations were given.
- There were 73 technical sessions.
- The audit is under way, and a surplus is anticipated.

In 2023, we will conduct a multiday workshop in Buenos Aires, Argentina, that is associated with URTeC Latin America 2023, which will be held 4–6 December 2023.

SECTION FIVE:

Foundation Report

FOUNDATION BOARD OF DIRECTORS

CHAIR: DAVID C. BARTEL

Through the collective collaboration of SEG and the SEG Foundation, we have created a new initiative called NextGEO to raise funds for the SEG programs that the Foundation supports. NextGEO will serve as the SEG Foundation's hub for donations to help fund these SEG programs. It will help prepare the next generation of geophysicists to meet the challenges of this new era. Essentially, it is the passing of the torch from one generation of geophysicists to the next. NextGEO kicked off at the SEG Foundation Donor Luncheon at IMAGE '23. Many of the programs that SEG members enjoy (such as the Honorary and Distinguished Lecture series, scholarships, SEG EVOLVE, field camps, travel grants, and Geoscientists *without Borders*® [GWB]) are funded by donations from SEG members and corporations. These programs provide our members with the opportunity to learn and advance the science of geophysics, interact with other members, and demonstrate the utility of geophysics to society at large.

The SEG Foundation is the fundraising arm of SEG. The Foundation is a U.S. Internal Revenue Service 501(c)(3) charitable organization, which means donations to the Foundation are tax deductible in the United States. The Foundation financially supported 17 programs that benefited thousands of SEG members in 2023 by contributing more than US\$1.25 million to SEG from the combination of endowment spending and numerous pass-through donations from corporations and individuals. At the end the third quarter of 2023, the Foundation's net assets were \$21 million, including an endowment of approximately \$16.8 million. The annual spending rate for endowed programs was 4%.

17 Funded Programs

US\$1.25 million
contributed to SEG

Thank you to the hundreds of individuals who contribute their time, talent, and treasure to the SEG Foundation each year. You enable the education and continued development of thousands of members globally, as well as the application of geophysics in the service of humanity. A special thanks to our Trustee Associates (TAs) and Sustaining Trustee Associates who have committed their resources to supporting the operations of the SEG Foundation. An additional thank you to Jeff Springmeyer, Hank Hamilton, Tom Smith, Arthur Cheng, John Havens, Robert Hobbs, Mike Forrest, Larry Galloway, and Mark Leonard who have been providing matching funds to enhance the contribution of the new TAs who joined the SEG Foundation in 2023.

2023 FUNDRAISING RESULTS

- \$607,672 (unaudited numbers)

CORPORATE GIVING: \$455,000

- Baker Hughes Foundation — GWB and the Global Sustainability Lecture: \$100,000
- BGP — Mandarin translation of SEG On Demand: \$50,000
- Chevron — Student Leadership Symposium and scholarships: \$200,000
- Shell — Honorary Lecture Series: \$100,000
- ConocoPhillips — Scholarships: \$5000

SCHOLARSHIPS: \$334,860

- U.S. based — \$244,933
- International — \$89,926

SOCIETY/SECTION GIVING: \$64,000

- AAPG Foundation — GWB: \$60,000
- AIPG — GWB: \$4000

INDIVIDUAL GIVING: \$428,000

- 11 Major Gift Donors — Cumulative total: \$153,450 (More than \$10,000 is considered a major donation)
- 12 New Trustee Associates
- 27 Sustaining Trustee Associates (more than \$2000/year)
- Donations with SEG membership dues: \$5559
- Employer matching gifts: \$26,147

2023 FOUNDATION BOARD OF DIRECTORS

At the end of 2023, the Foundation Board of Directors included David C. Bartel (chair), Maria Angela Capello (vice chair), Tony P. Lupo (treasurer), Allyson Anderson Book, Alex Biholar, John H. Bradford, Rocco Detomo Jr., Raymond C. Farrell, Xiaojun Huang, Andrea Lovatini, Tana Pool, and Susan J. Webb. Mid-term resignations in 2023 were accepted for Michael G. Loudin and Samir Abdelmoaty.

FUNDRAISING IN 2023 AND BEYOND

The SEG Foundation is focused on the future of applied geophysics. With the launch of the NextGEO campaign, the Foundation aims to assist SEG in raising the funds necessary to promote the science, support our members, grow our humanitarian impact, and ensure that the next generation of geophysicists have the right opportunities to begin their careers so they will, in turn, pass the torch to the next generation.

SECTION SIX:

Technical Section

NEAR-SURFACE GEOPHYSICS TECHNICAL SECTION 94



NEAR-SURFACE GEOPHYSICS TECHNICAL SECTION

COMMITTEE CHAIR: LEE SLATER
BOARD LIAISON: CATHY TRUFFERT
STAFF LIAISON: LAURIE WHITESELL

COMMITTEE MISSION

The Near-Surface Geophysics Technical Section (NSTS) is dedicated to advancing applied geophysics in the near surface to benefit society and the environment; to fostering interaction and collaboration among professionals and academics worldwide; and to maintaining the highest degree of integrity, professionalism, and competence among its members.

EXECUTIVE SUMMARY

In 2023, the NSTS continued to create opportunities for participation with other organizations. We also continued to develop robust technical content for IMAGE. The subcommittees provided valuable content in the form of webinars, invited presentations, and more. The Summit on Drone Geophysics has been a success since inception, including this year.

HIGHLIGHTS FROM THE PAST YEAR

We would like to start by thanking the leadership whose terms ended at IMAGE '23. They provided considerable time, effort, and guidance during their terms. NSTS leadership terms begin and end at IMAGE. New additions to our leadership include Mine Dugan (vice chair), Kennedy Doro (chair-elect), and Sophie Hautot (vice chair of the Global Subcommittee). Anja Klotzsche moved up to serve as chair of the Global Subcommittee.

The NSTS has begun strategic planning exercises, evaluation of existing leadership roles and responsibilities, and focus area determination. We are also striving to collaborate with other SEG committees and external organizations.

The NSTS Student Subcommittee developed two webinar series on the topics of open-source software and critical skills. The students organized nine webinars this year and helped geophysicists better understand Python and other open-source software. Critical skills included how to give a technical presentation, how to develop an exceptional technical presentation, how to negotiate, and how to network at an in-person conference. All webinar recordings are available on the SEG YouTube channel, where

they receive a good number of views. The group also developed a panel discussion at IMAGE '23, where they were able to share more about how experts from several geophysics focus areas got to be where they are since their student days.

The new Hydrogeophysics Subcommittee was developed this year to support the hydrogeophysics community. They held their inaugural meeting in May. The subcommittee invites speakers on a variety of hydrogeologic topics. To date, the committee has had presenters ranging from PhD students to homeowner association members who are dealing with groundwater issues. Presentations included the following:

- “Investing the impact of partial flooding on coastal time-lapse electrical resistivity surveys” by Chris Terra
- “Using InSAR for groundwater science and management in California’s San Joaquin Valley” by Matthew Lees
- “Solute transport in the agricultural system” by Joshua Thompson
- “Characterizing Central Valley aquifer systems using airborne electromagnetic method” by Seogi Kang
- “A pitch for basic research on the structure of intermontane alluvial aquifers” by Mark Winter

At the time of writing, we have two more meetings this year. Presentations will be jointly hosted with the Europe Regional Advisory Committee. The first presentation, given by Paul McLachlan, will be on the groundwater/surface-water interface. Denys Grombacher will present on roaming and stationary methods.

The Global Subcommittee met monthly this year. Their meetings feature invited speakers, including the committee members, who discuss their research and industry focus. Currently, strategic development is under way to better connect this subcommittee with other SEG committees. We also hope to develop collaborative opportunities. In this regard, a subcommittee member survey has been deployed, and data are being analyzed. Members of the subcommittee are near-surface geophysicists from all continents, except Australia and Antarctica.

Perhaps, one day, we will have a member from both.

IMAGE '23 was a success. The NSTS IMAGE Subcommittee, led by Lindsey Heagy, developed seven special sessions and ten oral and poster sessions. The NSTS also conducted eight panel sessions in the Near-Surface Geophysics Pavilion that were sponsored by Teledyne Marine. A group of exhibitors chose to have their booths located in the pavilion.

We would like to thank the following companies for choosing to be part of IMAGE and our pavilion: Applied Acoustics; dGB Earth Sciences; DMT GmbH & Co. KG; Geochemical Insight; GeoEdges Inc.; Geometrics; Geonics Ltd.; Getech; IRIS Instruments; LIM Technology; Marine Magnetics Inc.; Mount Sopris Instruments Inc.; RT Clark Companies Inc.; Sandia National Laboratories; Sisprobe; Scintrex Ltd.; Teledyne Marine, Texas; and Zonge International.

At IMAGE '23, the NSTS held its annual reception, where Arthur Cheng presented near-surface geophysics awards. This year, the NSTS bestowed the Harold Mooney Award to Fred Day-Lewis and Kristina Keating; Frank Frischknecht Award to Evert Slob; and Honorary Life Membership Award to John Bradford. All were well-deserving recipients. We would like to thank Cheng for attending the reception to present these prestigious awards.

At IMAGE '23, the NSTS also sponsored two postconvention workshops: "The role of geosciences in sustainable land development" and "Drone geophysics applied to legacy oil and gas wells and pipelines." Thank you to the organizers, Olga Nedorub and Ron Bell.

The NSTS sponsored the 2023 Summit on Drone Geophysics that took place 23–26 October. The event was conducted virtually, which is our attendees' preferred delivery of the content. There were eight keynote speakers, 22 presenters, and four sponsor presentations that were delivered over four half days. Keynotes included the following:

- Mike Wilson presented "Magnetometers on drones for UXOs."
- Farzaneh Farahani presented "UAV geophysics workflow for your magnetometer data."
- Dennis Woods presented "Electromagnetic geophysics using drones."
- Bob Selfridge presented "Innovative applications of drone geophysics to the UXO industry."
- Ryan North presented "Charting the course of drone geophysics: Current realities and future horizons: Navigating potential landmines."
- Tim Archer presented "Drone geophysics: Developing guidelines for international best practice."

This year's event had four platinum and seven gold sponsors. Some of our sponsors have supported the Summit since inception. Thanks to all of our sponsors. We look forward to another successful Summit in 2024.

GOALS FOR THE COMING YEAR

The NSTS will continue strategic planning. We are currently developing two different workshops and collaborating with other organizations.

CHALLENGES

There are no challenges.

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SEAM BOARD OF DIRECTORS

CHAIR: ARIA ABUBAKAR
 BOARD LIAISON: ANA CURCIO

SEAM was created by SEG to serve as its research arm in 2004 and was incorporated as an independent nonprofit corporation in 2007. Our mission statement asserts: "SEG Advanced Modeling Corporation (SEAM) is a not-for-profit research entity that hosts collaborative projects between sponsoring stakeholders to further geophysical research by industry and academia."

In the last 19 years, SEAM has organized collaborations between industry, government, and academia. Many of SEAM's projects have focused on building realistic subsurface models and simulating corresponding numerical benchmark data sets for long-term utilization. In so doing, SEAM stimulates research and development, helps democratize data, and provides a basis for industry leaders to discuss and learn about specific geophysical problems of common interest. In addition, motivated by the digital transformation, SEAM initiated new projects that focus on industry challenges (technology generation), further democratization of data and industry benchmarks, digital twins, and industry standards.

In 2023, the Executive Committee convened every two weeks to address current issues and concerns. In October 2023, the SEG Board of Directors approved an exhibit, enabling the new 2024 SEAM Board of Directors (Figure 21) to assume their roles effective October 2023. The new SEAM Board now convenes monthly, enhancing communication among directors and the SEG Board.

The election process for the new Executive Committee has been completed, and appointments for the chair, vice chair, and treasurer were made in December 2023. The SEAM Board remains committed to ensuring that SEAM operations are conducted in a fiscally and legally responsible manner.

CO₂ Sequestration Project. The CO₂ Sequestration Project launched 1 September 2022 and currently has eight companies that have signed the contract agreement with SEAM. These include Aramco, Chevron, ConocoPhillips, Oxy, SLB, Shell, Total Energies, and Woodside Energy. Seven of eight payments for year one of the project were collected in 2023. Invoicing for year two is in progress. SEG is currently working toward adding new participants to the program as the project enters the simulation phase to ensure more funds for this and future SEAM programs.

2024 SEAM Organization



Figure 21. The current SEAM Board of Directors including the term for which they will serve.

Management committees meet on an as-needed basis. Technical weekly meetings take place, and several committees have been established. Internal meetings between the director of technology, technical project manager, and business development manager are held regularly. Active committees include the Management, Reservoir/Geomechanics Simulation, Geophysical Simulation, and Interpretation committees.

During the last quarter of 2023, Advanced Geophysical Technology (AGT) was awarded the geophysical simulations bid. AGT has actively participated in joint committee meetings to ensure adequate quality control of ongoing results and optimal understanding of all requirements of the CO₂ project. The Deliverable and Data Distribution Committee, as well as the Public Interest Committee, will resume discussions in December 2023 while awaiting the next simulation results.

The CO₂ project continues to progress successfully into the production phase. Figure 22 illustrates a generic timeline of the main phases, encompassing all initial efforts prior to the kickoff in 2022. AGT has completed the small-scale simulations, and the final acquisition programs are being finalized to commence production-scale simulation work. The magnetotelluric and

controlled-source electromagnetic work will be awarded in January 2024, with completion expected in the first quarter of 2024.

SEAM data management. SEAM and the SEAM Board are currently partnering with AGT to host, market, and distribute SEAM products. This agreement provides an option for long-term storage of SEAM data on a system that is network accessible and owned by SEAM. Physical storage continues to be managed by AGT under contract to SEAM. AGT hosts and maintains the hardware storage system, including overseeing its security and connection to the Internet. In addition, AGT in collaboration with SEAM will market, sell, and distribute SEAM data in return for a share of sales revenue. Stage one involved acquisition and installation of hardware. This was completed in September 2023 and included external disk drives housed in compact enclosures that are network accessible.

As part of the second stage of this agreement, marketing efforts included promoting SEAM products at major geophysical conferences. This phase of the project, focused on marketing and sales of SEAM data presented last year, was designed to minimize yearly maintenance costs for SEAM while enhancing sales of its products. AGT continues to archive and actively participate

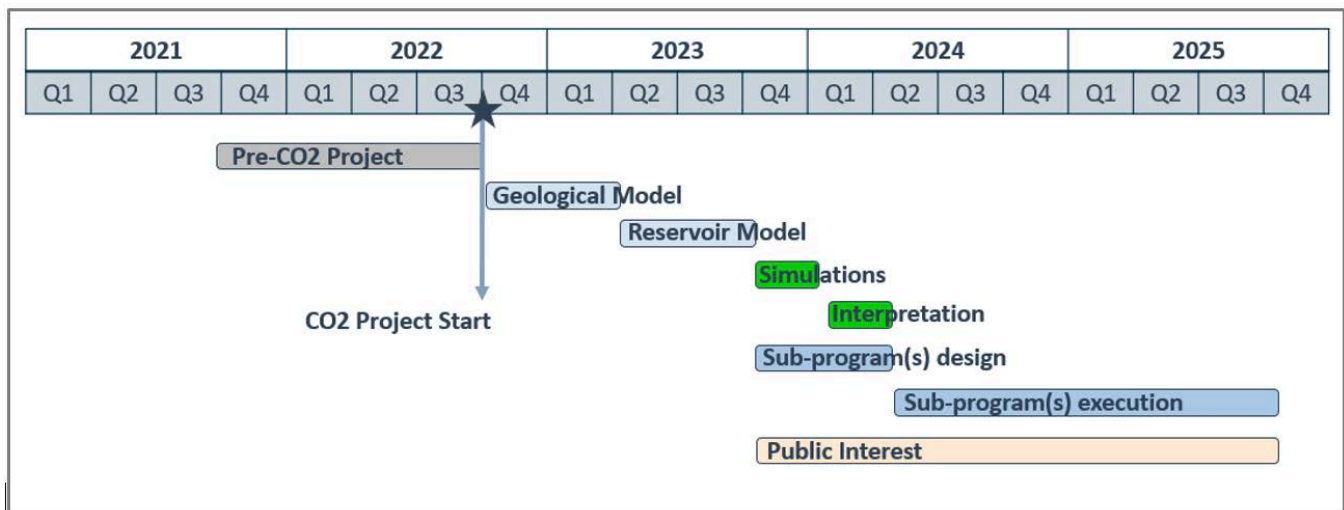


Figure 22. SEAM CO₂ project timeline.

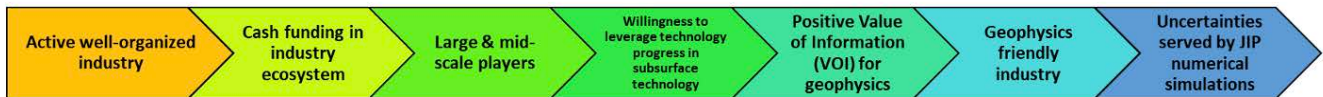


Figure 23. SEAM's seven factors of success.

in the marketing and sales of SEAM data. The SEG business and technology directors are further expanding on this business strategy and have identified the following goals for the campaign:

- Upgrade the SEG website with more detail on SEAM data sets, encompassing all products and subproducts developed by SEAM. A strategic data sales plan will be prepared in collaboration with AGT to promote SEAM products within shared networks.
- Present to research institutions and governmental offices that have not previously participated in SEAM and establish new alliances with these institutions.
- Collaborate with the SEAM Board to develop additional business models aimed at enhancing the organization's current revenue stream. Some examples may include offering subsets of data products to small-cap organizations, using subset data for demo licenses, and exploring other potential avenues.

Future initiatives. Regarding the Life of Field Public Interest Initiative, an Artificial Intelligence Benchmark Task Force was established during the third quarter of 2023. The SEAM Board and SEG staff are exploring options for utilizing components of The Life of Field products completed in December 2020 to organize workshops and hackathons. The goals are to promote: (1) the benchmark value of SEAM products, (2) generate additional SEG revenue from shelf data, and (3) serve as a technology-sharing platform within the geoscience community.

Future SEAM programs. The current SEAM program has entered its second year, and the technical committees, along with the SEAM Board and SEG technology and business development managers, will soon launch a campaign to assess the value of various geophysical trends and determine the theme for the next SEAM program. Information about the upcoming program will be made available to all potential participants from industry, academia, and governmental organizations starting in the first quarter of 2025. The process for identifying the next SEAM program will adhere to SEAM's seven success factors, as shown in Figure 23.

SEG GLOBAL INC.

CHAIR: HUASHENG ZHENG

BOARD LIAISON: ARTHUR CHENG

STAFF LIAISON: YOGAANI BHATIA

In 2023, with slow recovery from the impact of the pandemic, our industry, profession, and Society walked through challenges in a global and local economic downturn. The SEG Global Inc. Board of Directors conducted reviews and provided timely guidance on sustainable operations of the SEG China office. Based on the five-year strategies for the SEG China office, all efforts within four major directions have been strengthened. This helped build the brand and expand the influence of SEG in the China market, while ensuring a sustainable and healthy operation. We continued working on the following strategies:

- Designed customized programs, attracted more professionals, and helped enhance the impact and leadership of geoscientists in China
- Expanded the impact of the SEG brand, encouraged an increase in the number of abstract submissions, supported improvement in the quality of abstracts from China, and attracted students and professionals to voluntarily contribute to the SEG community
- Strengthened connections encouraged active engagement with industry, academia, organizations, and individuals
- Inspired innovation, explored potential opportunities, and continued to expand and connect broader fields beyond oil and gas

In 2023, we continued to collaborate with local key stakeholders and societies to host innovative in-person and virtual events, with subjects related to current challenges in the geosciences. The SEG China office continued to strengthen a connection with different companies and universities in order to work together to create more activities. This included connecting Chinese professionals with Asia Pacific, Middle East, and other regional geoscientists.

Nine events were held to foster in-depth connectivity, expand influence, cultivate young professionals, and build relationships with key customers. The events attracted more than 10,000 attendees. They include the following:

- The 1st SEG China Women Geoscientists Leadership Forum had a focus on “Her power in geoscience.” It was held 13 January 2023. Nine Chinese women geoscientists were invited to deliver virtual keynote speeches, attracting more than 3500 attendees.
- An Aramco Beijing Research Center in-house training course was held in Beijing 16 February 2023.
- The Integration of Geophysics, Geology, and Engineering Workshop was held 26–28 June 2023 in Chengdu. More than 150 individuals attended the in-person event.
- The 10th Oriental Cup National Exploration Geophysics Competition for College Students was hosted at the China University of Petroleum in mid-2023.
- The 2nd BGP Cup Exploration Geophysical Software Development Competition for National College Students was held from June to October in Zhuozhou and Qingdao.
- The 3rd SEG Student Workshop was held 28 October in Chengdu. It was initiated by the Southwest Petroleum University Student Chapter in collaboration with student chapters from the Chengdu University of Technology and Central South University. The event received more than 70 abstracts and was organized by students.
- In late 2023, the SEG China office held four in-house training courses at Tarim oil field in Korla. The courses supported young professionals from different technical fields.
- A BGP in-house training course is scheduled for December. It is a hybrid course format, with one instructor teaching in person and the other teaching virtually.

- Finally, the website for the SEG China office now allows Chinese professionals to pay in RMB and to register for Asia Pacific and Middle East events. This improved registration efficiency for Chinese geophysicists and expanded SEG impact.

Initiatives to increase membership and outreach. The SEG China office is building a friendly and connected environment for SEG members in China. The goal of this is to inspire students and professionals to create more programs to benefit themselves and the Society. With the website in local-language promotion and an increase in student events, new member applications increased in 2023. In addition, there was a rapid increase in subscribers to our social-media page on WeChat. As of November, there are 8382 active subscribers on the platform.

According to SEG statistics, as of November 2023, there were 1103 SEG members registered from China. This is an increase of 20.54% over 2022. The numbers include 278 Student members (an increase of 39%), 198 Associate members (an increase of 72.17%), and 625 Active members (an increase of 5.04%). Based on the success in developing memberships, the SEG China office will continue to follow the five-year strategies to strengthen all of the traditional and innovative programs designed in China. In 2023, the China office maintained close sensitivity with the market, explored opportunities for in-depth multidimensional cooperation, and continued sustainable development.

By carrying out the five-year strategies in China since 2021, the SEG China office has experienced a business transformation. In 2023, besides hosting important workshops, the SEG China office continued to collaborate with key companies to develop more in-house training courses and activities. In terms of finance, the office performed better than 2021 and 2022 for normal operation. Though, the office still faces many challenges in the postpandemic era.

SECTION EIGHT:
Yearbook



2023

YEARBOOK



SOCIETY OF EXPLORATION
— G E O P H Y S I C I S T S —

2023

YEARBOOK

CONTENTS

Governance

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Interpretation Editorial Board
Books Editorial Board

SEG Foundation

SEG Foundation Board of Directors

SEG Subsidiaries

SEAM Corporation Board of Directors
SEG Global, Inc. Board of Directors

2023 Calendar

2022–2023 Board of Directors



PRESIDENT
Kenneth M. Tubman



PRESIDENT-ELECT
Arthur C. H. Cheng



FIRST VICE PRESIDENT
Joe Reilly



SECOND VICE PRESIDENT
Mauricio Sacchi



VICE PRESIDENT, PUBLICATIONS
Jeffrey Shragge



TREASURER
Mike Mellen



PAST PRESIDENT
Anna Shaughnessy



SECRETARY
James C. White



DIRECTOR AT LARGE
Sherif M. Hanafy



DIRECTOR AT LARGE
Brandy Hawkins



DIRECTOR AT LARGE
Olga I. Nedorub



DIRECTOR AT LARGE
Ana Curcio



DIRECTOR AT LARGE
Sergio Chávez-Pérez



DIRECTOR AT LARGE
Catherine Truffert



CHAIR OF THE COUNCIL
Allen J. Bertagne

2022–2023 Council Members

Chair of the Council

Allen J. Bertagne

Vice Chair

John L. J. Duhault

SEG Section Representatives

Asociación Argentina de Geólogos y Geofísicos Petroleros

(AAGGP) [1]

Luis Vernengo

Asociación Colombiana de Geólogos y Geofísicos del Petróleo

(ACGGP) [1]

Flover Rodríguez

Asociación Mexicana de Geofísicos de Exploración (AMGE) [1]

Mark Morford

Australian Society of Exploration Geophysicists (ASEG) [1]

Eric Battig

Australian Society of Exploration Geophysicists (ASEG) [1]

Emma Brand

Bay Area Geophysical Society (BAGS) [1]

Michael Wilt

Billings Geophysical Society (BGS) [1]

Eric Johnson

Canadian Exploration Geophysical Society (KEGS) [1]

Micki Allen

Canadian Society of Exploration Geophysicists (CSEG) [1]

John Duhault

Canadian Society of Exploration Geophysicists (CSEG) [1]

Dennis Ellison

Coastal Bend Geophysical Society (CBGS) [1]

Subbarao Yeliseti

Dallas Geophysical Society (DGS) [1]

Trevor Richards

Denver Geophysical Society (DGS) [1]

Joel Scott

Denver Geophysical Society (DGS) [1]

Morgan Brown

Deutsche Geophysikalische Gesellschaft (DGG) [1]

Serge Shapiro

Dhahran Geoscience Society (DGS) [1]

Nasher AlBinHassan

Emirates Society of GeoScience (ESG) [1]

Guillaume Cambois

Geophysical Society of Alaska [1]

Loren Zeigler

Geophysical Society of Houston [6]

Klaas Koster

Peter Eick

Katie Baker

Patrick Corwin

Peter Lanzarone

Jason Kegel

Geophysical Society of Pittsburgh [1]

Joel Starr

Geophysical Society of Tulsa [1]

Jamie Rich

Geoscience Energy Society of Great Britain (GESGB) [2]

Alan Foun

Ed Collins

Jackson Geophysical Society (JGS)

Karl Kaufmann

Korean Society of Earth and Exploration Geophysicists (KSEG) [1]

Sukjoon Pyun

National Committee of Geophysicists of Azerbaijan [1]

Said Sadykhov

Near Surface Technical Section [3]

Geoff Pettifer

Lee Slater

Erika Gasperikova

Oslo Society of Exploration Geophysicists (OSEG) [1]

Volodya Hlebnikov

Pacific Coast Section of SEG (PCS) [1]

Gary Myers

Permian Basin Geophysical Society (PBGS) [1]

Sumit Verma

Potomac Geophysical Society (PGS) [1]

Cathy Enomoto

Romanian Society of Geophysics [1]

Victor Mocanu

San Antonio Geophysical Society [1]

Bob Critchlow

Scandinavian Visualization Society [1]

Francisco Porturas

Sezione Italiana EAGE-SEG (IESS) [1]

Andrea Tognarelli

Sociedad Venezolana de Ingenieros Geofísicos (SOVG) [1]

Miguel Bosch

Sociedade Brasileira de Geofísica (SBGf) [2]

Diego Garcia

Elaine Loureiro

The number of Section representatives for each Section is listed in brackets. Section and Associated Society representatives listed above were representatives during the 1 August 2022 to 31 July 2023 Council year.

Section Representatives (continued)

Society of Exploration Geophysicists of Japan [2]

Koji Kashihara
Keiichi Suzuki

Society of Exploration Geophysicists, Algeria [1]

Mohammed Farfour

Society of Exploration Geophysicists, Beijing (SEG Beijing) [1]

Shi Jicheng

Society of Exploration Geophysicists, South China [1]

Shouli Qu

Society of Petroleum Geophysicists, India (SPG) [1]

Vishal Shastri

Thailand Society of Exploration Geophysicists (TSEG) [1]

Phathompat Boonyasaknanon

Unión Geofísica Mexicana, A.C. (UGM) [1]

Jonas De Basabe

Vietnam Association of Geophysicists (VAG) [1]

Bui Cong Que

The number of Section representatives for each Section is listed in brackets. Section and Associated Society representatives listed above were representatives during the 1 August 2022 to 31 July 2023 Council year.

District Representatives

DISTRICT 1

Shawn New	2024
Neda Bundalo	2023

DISTRICT 2

Tracy Stark	2024
Kathy Hardy	2023

DISTRICT 3

Sarah Gach	2024
Christopher Ross	2023

DISTRICT 4

Scott Gorham	2024
Ray Earley	2023

DISTRICT 5

Oliver Kuhn	2024
Craig Funk	2023

DISTRICT 6

Luis Donoso	2024
Marco Ceia	2023

DISTRICT 7

Helene Hafslund	2024
Laura Bornatici	2023

DISTRICT 8

Florian Bleibinhaus	2024
Barbara Ciurlo	2023

DISTRICT 9

Joseph Ebeniro	2024
Obi Ifeanyichukwu	2023

DISTRICT 10

Abdullatif Al-Shuhail	2024
Abdulmohsen Alali	2023

DISTRICT 11

Xuri Huang	2024
Ruijia Wang	2023

DISTRICT 12

James Shadlow	2024
Joseph Ma	2023

Terms of District Representatives end on 31 July of the year indicated. Each District is allotted two representatives.

2022–2023 Committee Rosters

Advisory Committee

Maurice M. Nessim	Chair
Nancy House	Member
Richard Miller	Member
Anna C. Shaughnessy	Member
Robert Stewart	Member
Kenneth M. Tubman	Board Liaison
James White	Staff Liaison
Mandi Duckworth	Alternate Staff Liaison

AGU-SEG Collaboration Committee

Kisa Mwakanyamale	Co-Chair AGU
Josh Sellars	Co-Chair SEG
Jonathan Ajo-Frnaklin	Member
Esben Auken	Member
Hearthher Bedle	Member
Dale Bird	Member
Xavier Comas	Member
Kennedy Doro	Member
Victoria Forlini	Member
Felix Herrmann	Member
Lianjie Huang	Member
Kristina Keating	Member
Anja Klotzsche	Member
John Lane, Jr.	Member
Joël Le Calvez	Member
Yongyi Li	Member
Yunyue (Elita) Li	Member
John Louie	Member
David Lumley	Member
Alex Martinez	Member
Dylan Mikesell	Member
Dimitrios Ntarlagiannis	Member
Martha Savage	Member
Christopher Sherman	Member
Georgios Tsouflias	Member
Suzan van der Lee	Member
Huang Xingguo	Member
Chi Zhang	Member
Rui Zhang	Member
Sanzong Zhang	Member
Tieyuan Zhu	Member
Cathy Truffert	Board Liaison
Laurie Whitesell	Staff Liaison

Audit Committee

Ana Curcio	Chair
Brandy Hawkins	Member
Michael Mellen	Board Liaison
Carlos de la Garza	Staff Liaison

Bylaws Committee

Edith Miller	Chair
Wenjie Dong	Member
R. Kim Guyer	Member
Zhishuai Zhang	Member
Joseph M. Reilly	Board Liaison
Mandi Duckworth	Staff Liaison

Committee For Passive Seismic

David Diller	Chair
Piero Basini	Vice Chair
David Eaton	Member
Werner Heigl	Member
Daniel Hollis	Member
James Rutledge	Member
Ulrich Zimmer	Member
Sergio Chávez-Pérez	Board Liaison
Annabella Betancourt	Staff Liaison

Committee on Nominations

Brandy Hawkins	Chair/Board Liaison
Ana Curcio	Vice Chair
Allen J. Bertagne	Member
Phathompat Boonyasaknanon	Member
Neda Bundalo	Member
Richard Miller	Member
Maurice M. Nessim	Member
Rachel Newrick	Member
Horst Rueter	Member
Anna C. Shaughnessy	Member
Mandi Duckworth	Staff Liaison

Committee on University and Student Programs

Kurang Mehta	Chair
Yesim Cubuk-Sabuncu	Vice Chair
Prillia Adriani	Member
Uzonna Anyiam	Member
Annisa Badri	Member
ANMOL Bansal	Member
Elly Bogi	Member
David Cova	Member
Roddys Gil	Member
Aaron Girard	Member
Saurabh Mittal	Member
Roman Petrokushyn	Member
Abhinav Sharma	Member
Hemanti Sharma	Member
Leonardus Tjahjadi	Member
Payson Todd	Member
Eugene Trantham	Member
Marko Vanic	Member
Liu Yang	Member
Brandy Hawkins	Board Liaison
Jessica Dostal	Staff Liaison

2022–2023 Committee Rosters (continued)

Compensation Committee

Arthur C. H. Cheng	Chair
Kenneth M. Tubman	Member
Michael Mellen	Member
Anna C. Shaughnessy	Member
Maria Angela Capello	Foundation Liaison
John Eastwood	Board Liaison
Carlos de la Garza	Staff Liaison

Continuing Education Committee

K. John Fernando	Chair
Andrea Damasceno	Member
Mike Graul	Member
Osman Hassan	Member
Mahmoud Hedefa	Member
Dhananjay Kumar	Member
Shuki Ronen	Member
Michal Ruder	Member
Umair Bin Waheed	Member
William Harbert	Past Chair
Malcolm Lansley	Past Chair
Sherif M. Hanafy	Board Liaison
John Meade	Staff Liaison

Development and Production Committee

Mariana Gherasim	Chair
Lukumon Adeoti	Member
Abdulfattah Al-Dajani	Member
Kaushik Bandyopadhyay	Member
William Barkhouse	Member
Ellen Xu Ellen Xu	Member
Faqi Liu Faqi Liu	Member
Ronny Hofmann	Member
Martin Landro	Member
Shawn Maxwell	Member
Michael Mueller	Member
Jeffrey Roth	Member
Manik Talwani	Member
Martin Terrell	Member
Pierre Thore	Member
Jean-Paul Van Gestel	Member
Li Yong	Member
Jianhua Yue	Member
Jeremy Zimmerman	Member
Sergio Chávez-Pérez	Board Liaison
Steve Brown	Staff Liaison

Distinguished Instructor Short Course [DISC]

Adriana Ramirez	Chair
Maria Angela Capello	Member
William Harbert	Member
Ronny Hofmann	Member
Long Jin	Member
Dhananjay Kumar	Member
Shuki Ronen	Member
Sergio Chávez-Pérez	Member
Dileep Tiwary	Member

Simon Voisey	Member
Mauricio Sacchi	Board Liaison
Melissa Presson	Staff Liaison

Distinguished Lecture Committee

Boris Gurevich	Chair
Aria Abubakar	Lecturer
John Etgen	Lecturer
Sergey Fomel	Lecturer
Saleh Al-Dossary	Member
David Alumbaugh	Member
Dimitri Bevc	Member
Miguel Bosch	Member
Guillaume Cambois	Member
John Ceron	Member
Adriana Citlali Ramirez	Member
Patricia De Lugao	Member
Luke Decker	Member
Adel Emam	Member
Maitri Erwin	Member
Lisa Gavin	Member
Chaitanya Kumar Mehta	Member
Alison Malcolm	Member
Olga I. Nedorub	Member
Vishal Pandey	Member
Alexander Popovici	Member
Matthijs Van Der Molen	Member
Nimisha Vedanti	Member
Xinming Wu	Member
Arthur C. H. Cheng	Foundation Liaison
Sergio Chávez-Pérez	Board Liaison
John Meade	Staff Liaison
Annabella Betancourt	Alternate Staff Liaison

Emerging Professionals International Committee (EPIC)

Ellen Bonshor-Mayes	Chair
Cyril Boateng	Member
Ely Bogi	Member
Luke Decker	Member
Vinesh K	Member
Shelly Mardhia	Member
Nicholas McDaniel	Member
Zhiguo Wang	Member
Brandy Hawkins	Board Liaison
Jessica Dostal	Staff Liaison

EVOLVE Technical Committee

Lorenzo Franceware	Chair
James DiSiena	Vice Chair
Rocco Detomo	Member
Michael Forrest	Member
Jeremy Greene	Member
James Hewlett	Member
Gordon Holmes	Member
George Laguros	Member
Kurang Mehta	Member
Jennifer Thompson	Member

2022–2023 Committee Rosters (continued)

Krzysztof Wojcik Member
Yingcai Zheng Member
Arthur C. H. Cheng Board Liaison
Jessica Dostal Staff Liaison
Annabella Betancourt Alternate Staff Liaison

Field Camps Committee

Francesca Fazzari Chair
Emma Butler Vice Chair
Jose Arce Member
Alex Fick Member
Jim Hollis Member
Geoffrey Pang Member
Roman Petrokushyn Member
Payson Todd Member
Rui Zhang Member
Brandy Hawkins Board Liaison
Vanessa Medina Staff Liaison

Finance Committee

Peter W. Cramer Chair
Daniel Ebrom Member
Olga I. Nedorub Member
Erin Rueber Member
Ted Stieglitz Member
Martin Stupel Member
Tim Watson Member
Michael Mellen Board Liaison
Carlos de la Garza Staff Liaison

Geoscientists *without* Borders (GWB) Committee

Cengiz Esmersoy Chair
Adil Mukhitov Member
Ken Witherly Member
Catherine Truffert Board Liaison
Pallavi Bharadwaj Staff Liaison

Gravity and Magnetism Committee

Marianne Rauch Chair
Tim Archer Member
Andrea Balza Member
Martin Bates Member
Edward Biegert Member
Dale Bird Member
Neda Bundalo Member
Charles Campbell Member
Nicholas Direen Member
Vsevolod Egorov Member
Sergio Espinosa-Corriols Member
Irina Filina Member
Simon Gozzard Member
Jennifer Hare Member
Earl Hensel Member
Alan Herring Member
Mohammed Kidwai Member
Yaoguo Li Member
Xiong Li Member

Alan Morgan Member
Dhananjay Ravat Member
Michal Ruder Member
Luise Sander Member
Cara Schiek-Stewart Member
Jiajia Sun Member
Victoria Tschirhart Member
Subba Rao Yalamanchili Member
Mauricio Sacchi Board Liaison
Steve Brown Staff Liaison

Health, Safety, Security, and Environment (HSSE) Committee

Sharon Teebenny Chair
Kevin Bohacs Member
Tiffany Carey Member
Gustavo Carstens Member
Luke Decker Member
Francesca Fazzari Member
Huw James Member
Aileen Loftin Member
Christy Nandlal Member
Aniruddha Neogi Member
Mary Oladiran Member
Ahmed Rushdy Member
Olga I. Nedorub Board Liaison
John Meade Staff Liaison

Honors and Awards Committee

Nancy House Chair
Richard Miller Member
Maurice M. Nessim Member
Robert Stewart Member
Anna C. Shaughnessy Member/Board Liaison
Mandi Duckworth Staff Liaison

IMAGE Oversight Committee

Gretchen M. Gillis Chair
Wafik Beydoun SEG Co-Chair
Baishali Roy SEG Co-Chair
Anne C. Draucker AAPG Co-Chair
Richard D. Fritz AAPG Co-Chair
James C. White SEG Executive Director
David Curtiss AAPG Executive Director
Tom Agnew SEG Staff Liaison
Alan Wegener AAPG Staff Liaison

IMAGE Steering Committee

Lisa Helper SEG General Co-Chair
Daniel Sutton AAPG General Co-Chair
Aria Abubakar SEG Technical Program Co-Chair
Aiman M. Bakhorji AAPG Technical Program Co-Chair
Wenyi Hu SEG Technical Program Co-Vice Chair
Mukarram Ahmed AAPG Technical Program Co-Vice Chair
Howard Harper SEPM Coordinator
Camelia Knapp Carbon Management Pavilion Co-Chair
Paula de Oliveira Pavilion Co-Chair & Special Programs Chair

2022–2023 Committee Rosters (continued)

Jessica Parker.....	Industry Engagement Co-Chair	Lindsey Heagy	Member
Huyen Bui.....	Industry Engagement Co-Chair	Ronny Hofmann.....	Member
Laura Pommer.....	Strategic Panels Co-Chair	Dan Hollis.....	Member
Meredith Faber.....	Strategic Panels Co-Chair	Lily Horne.....	Member
Alexandros Savvaids.....	Digitalization Pavilion Chair	Javed Ismail.....	Member
Rebecca Caldwell.....	Diversity, Equity, and Inclusion Co-Chair	Junru Jiao.....	Member
Cara Hunter.....	Diversity, Equity, and Inclusion Co-Chair	Ge Jin.....	Member
Tim Prather.....	Commercial Skills & Education Chair	Alicia Kahn.....	Member
Nicole Gonzalez.....	Student & Young Professionals Co-Chair	Seogi Kang.....	Member
Russell Miller.....	Student & Young Professionals Co-Chair	Vladimir Kazei.....	Member
Gina Godfrey.....	Global Opportunities Pavilion Chair	Charlie Kerans.....	Member
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Vietnam Association of Geophysicists (VAG)	Bui Cong Que

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Country	Student Chapter	Faculty Advisor
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ALGERIA	University of Houari Boumediene Geophysical Society	Soraya Makhoulouf
ARGENTINA	Universidad de Buenos Aires SEG Student Chapter	Luis Stinco
ARGENTINA	Universidad Nacional de Cordoba Geophysical Society	Viviana Aguirre
ARGENTINA	Universidad Nacional de La Plata Geophysical Society	Daniilo Velis
ARGENTINA	Universidad Nacional de San Juan Geophysical Society	Sergio Barros
ARGENTINA	Universidad Nacional de Tucuman SEG Student Chapter	Jorge Marcelo Durand
ARGENTINA	Universidad Nacional del Sur SEG Student Chapter	Marcos Emanuel Bahía
AUSTRALIA	Curtin University Geophysical Society	Boris Gurevich
AUSTRALIA	University of Queensland Geophysical Society	Lutz Gross
AZERBAIJAN	Azerbaijan State Oil and Industrial University SEG Student Chapter	Ofeliya Ibrahimli
AZERBAIJAN	Baku Higher Oil School SEG Student Chapter	Farida Ismayilova
BANGLADESH	University of Barishal Geophysical Society	Abdullah Salman
BANGLADESH	University of Dhaka Geophysical Society	Anwar Hossain Bhuiyan
BENIN	University of Abomey-Calavi Geophysical Society	Yalo Nicaise
BRAZIL	Federal University of Ouro Preto SEG Student Chapter	Maria Sílvia Carvalho Barbosa
BRAZIL	Federal University of Para Geophysical Society	Saulo Siqueira Martins
BRAZIL	Federal University of Parana Geophysical Society	Alessandra de Barros e Silva Bongioiolo
BRAZIL	State University of Rio de Janeiro Geophysical Society	André Luis Reis
BRAZIL	The National Observatory Greenstone Belt	Sergio Luiz Fontes
BRAZIL	Universidade Catolica de Santos Geophysical Society	Oleg Bokhonok
BRAZIL	Universidade Federal da Bahia Geophysical Society	Hedison Kiuity Sato
BRAZIL	Universidade Federal de Santa Catarina Geophysical Society	Antonio Henrique da Fontoura Klein
BRAZIL	Universidade Federal do Oeste do Pará Geophysical Society	Cíntia Rocha da Trindade
BRAZIL	Universidade Federal do Rio de Janeiro Geophysical Society	Webe João Mansur
BRAZIL	Universidade Federal do Rio Grande do Norte Geophysical Society	Renato Dantas
BRAZIL	Universidade Federal Fluminense Geophysical Society	Marco Antônio Cetale Santos
BRAZIL	Universidade Federal Rural do Rio de Janeiro SEG Student Chapter	Saulo Siqueira Martins
BRAZIL	University of Brasilia SEG Student Chapter	Welitom Rodrigues Borges
BRAZIL	University of Campinas Geophysical Society	Jörg Dietrich Wilhelm Schleicher
BULGARIA	Sofia University of Mining & Geology St. Ivan Rilski Geophysical Society	Christian Tzankov
CAMEROON	Gulf Field University Geophysical Society	Itoe Augustine Itoe
CAMEROON	University of Buea Geophysical Society	Christopher Agyingi
CAMEROON	University of Yaounde I Geophysical Society	Yene Atangana Joseph Quentin
CANADA	Laurentian University Geophysical Society	Richard Smith
CANADA	Memorial University of Newfoundland SEG Student Chapter	Colin Farquharson

Student Chapters (continued)

Country	Student Chapter	Faculty Advisor
CANADA	University of Alberta Geophysical Society	Martyn Jonathan Unsworth
CANADA	University of Calgary Geophysical Society	Daniel Trad
CANADA	University of Manitoba Geophysical Society	Ian J Ferguson
CANADA	University of Quebec INRS Geophysical Society	Erwan Gloaguen
CANADA	University of Toronto Geophysical Society	Bernd Milkereit
CANADA	University of Western Ontario Geophysical Society	Sheri Molnar
CHINA	CUMT SEG Student Chapter	Yong Hu
CHINA	Chang'an University SEG Student Chapter	Qianzong Bao
CHINA	Chengdu University of Technology Geophysical Society	Chen XueHua
CHINA	China University of Geosciences Geophysical Society (Beijing)	Xiangchun Wang
CHINA	China University of Petroleum (Beijing) Geophysical Society	Jitao Ma
CHINA	China University of Petroleum-East China Geophysical Society	Xiaoming Tang
CHINA	Chinese Academy of Sciences Geophysical Society	Yike Liu
CHINA	Chongqing University of Science & Technology SEG Student Chapter	HeJiacheng
CHINA	East China University of Technology Geophysical Society	Juzhi Deng
CHINA	Hohai University SEG Student Chapter	Wei Qian
CHINA	Jilin University Geophysical Society	Liguo Han
CHINA	Northeast Petroleum University SEG Student Chapter	Li Xueying
CHINA	Northwest University Geophysical Society	Jinfeng Ma
CHINA	Ocean University of China SEG Student Chapter	Lei Xing
CHINA	Peking University Geophysical Society	Tianyue Hu
CHINA	Shandong University Geophysical Society	Sun Huaifeng
CHINA	Southern University of Science and Technology Geophysical Society	Dikun Yang
CHINA	Southwest Petroleum Institute Geophysical Society	Cheng Yin
CHINA	Tongji University Geophysical Society	Benfeng Wang
CHINA	Tsinghua University Geophysical Society	Wenkai Lu
CHINA	University of Central South Geophysical Society	Zhengyong Ren
CHINA	University of Science and Technology China Geophysical Society	Jie Zhang
CHINA	Xi'an Shiyou University SEG Student Chapter	Yang Feilong
CHINA	Yangtze University SEG Student Chapter	Xingong Tang
CHINA	Zhejiang University Geophysical Society	Haoran Ren
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COLOMBIA	Universidad de Caldas SEG Student Chapter	Juan Pablo Marin Arias
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COLOMBIA	Universidad Nacional de Colombia Geophysical Society	Luis Alfredo Montes Vides
COLOMBIA	Universidad Pedagógica y Tecnológica de Colombia Geophysical Society	Maria Del Carmen Fuentes Fuentes

Student Chapters (continued)

Country	Student Chapter	Faculty Advisor
COLOMBIA	University of Los Andes, SINERGIA Uniandes Student Chapter	Andres Ignacio Rodriguez Vargas
COLOMBIA	University of Pamplona Geophysical Society	Jairo Alberto Torres
CROATIA	University of Zagreb SEG Student Chapter	Ivica Pavičić
CZECH REPUBLIC	Charles University in Prague Geophysical Society	Tomáš Fischer
EGYPT	Ain Shams University Geophysical Society	Ali Mahdy
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EGYPT	Al-Azhar University, Assiut SEG Student Chapter	Ahmed Abdel Fattah Redwan
EGYPT	Alexandria University Geophysical Society	Fathy Hassan Mohamed
EGYPT	Benha University Geophysical Society	Wafaa El-Shahat Afify
EGYPT	CESS Student Chapter of Assiut University	Mahmoud Mohamed Senosy
EGYPT	Sohag University Geophysical Society	Abdelbasset Mohamed AboDief
EGYPT	Suez Canal University SEG Student Chapter	Mona Fouad Mohamed Kaiser
EGYPT	Suez University SEG Student Chapter	Ihab Ibrahim
EGYPT	Tanta University SEG Student Chapter	Abdelaziz Abdeldayem
EGYPT	University of Mansoura Geophysical Society	Lamees mohamed
EL SALVADOR	University of El Salvador Geophysical Society	Luis Castillo
FRANCE	French Institute of Petroleum SEG Student Chapter	
FRANCE	Institut de Physique du Globe de Paris Geophysical Society	Satish Chandra Singh
FRANCE	Université Grenoble Alpes Student Association of Geophysics	Romain Brossier
GERMANY	RWTH Aachen SEG Student Chapter	Jan van der Kruk
GERMANY	Student Geoscientific Society Berlin & Potsdam	Serge A. Shapiro
GHANA	KNUST SEG Student Chapter	Van-Dyke. S. Asare
GHANA	UMaT SEG Student Chapter	Anthony Ewusi
HUNGARY	Eotvos Lorand University SEG Student Chapter	Márk Szijártó PhD
INDIA	Andhra University Geophysical Society	Shaik Kareemunnisa Begum
INDIA	Banaras Hindu University Geophysical Society	Manoj Kumar Srivastava
INDIA	Cochin University SEG Student Chapter	Ajayakumar P
INDIA	Dibrugarh University SEG Student Chapter	Geetartha Dutta
INDIA	Indian Institute of Science Education and Research Geophysical Society	Rahul Dehia
INDIA	Indian Institute of Technology, Bombay SEG Student Chapter	Bharath Shekar
INDIA	Indian Institute of Technology, Kanpur SEG Student Chapter	Animesh Mandal
INDIA	Indian Institute of Technology, Kharagpur	Arun Singh
INDIA	Indian Institute of Technology, Roorkee SEG Student Chapter	Vipul Silwal
INDIA	Indian School of Mines Geophysical Society	Mohit Agrawal
INDIA	Jadavpur University Kolkata SEG Student Chapter	Anupam Ghosh
INDIA	Kurukshetra University Geophysical Society	Manisha Sandhu

Student Chapters (continued)

Country	Student Chapter	Faculty Advisor
INDIA	National Geophysical Research Institute Geophysical Society	Prasanta Kumar Patro
INDIA	Pandit Deendayal Petroleum University SEG Student Chapter	N. Madhavan
INDIA	Pondicherry University Geophysical Society	S. Lasitha
INDIA	Rajiv Gandhi Institute of Petroleum Technology Geophysical Society	Satish Kumar Sinha
INDIA	SEG Student Chapter Osmania University	G. Udaya Laxmi
INDIA	University of Delhi SEG Student Chapter	Saquib Abdullah
INDIA	University of Hyderabad	Devleena Mani Tiwari
INDIA	University of Petroleum and Energy Studies Geophysical Society	Saurabh Mittal
INDONESIA	Diponegoro University Geophysical Society	Hernowo Danusaputro
INDONESIA	Gajah Mada University Geophysical Society	Ade Anggraini
INDONESIA	Hasanuddin University Geophysical Society	Sabrianto Aswad
INDONESIA	Institut Teknologi Sepuluh Nopember Geophysical Society	Widya Utama
INDONESIA	Institute Technology of Bandung Geophysical Society	Darharta Dahrin
INDONESIA	Jambi University Geophysical Society	Sarwo Sucitra Amin
INDONESIA	Pembangunan Nasional University SEG Student Chapter	H. Suharsono
INDONESIA	Sumatera Institute of Technology SEG Student Chapter	Cahli Suhendi
INDONESIA	Syiah Kuala University SEG Student Chapter	Nazli Ismail
INDONESIA	Universitas Halu Oleo SEG Student Chapter	Jamhir Safani
INDONESIA	University of Brawijaya Geophysical Society	Sukir Maryanto
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INDONESIA	University of Lampung Geophysical Society	Muhammad Sarkowi
INDONESIA	University of Padjadjaran Geophysical Society	Daharta Dahrin
INDONESIA	University of Pertamina SEG Student Chapter	Agus Abdullah
ITALY	University of Insubria SEG Student Chapter	Franz Livio
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ITALY	University of Perugia Geophysical Society	Maurizio Ercoli
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JAPAN	Kyoto University Geophysical Society	Hitoshi Mikada
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Student Chapters (continued)

Country	Student Chapter	Faculty Advisor
MEXICO	Benemerita Universidad Autonoma de Puebla Geophysical Society	José Serrano Ortiz
MEXICO	Ensenada Center for Scientific Research and Higher Education	Jonás D. De Basabe Delgado
MEXICO	Instituto Politecnico Nacional Geophysical Society	Roberto Loo Guzman
MEXICO	Instituto Tecnológico Superior De Poza Rica SEG Student Chapter	Samantha Alejandra Manzo Bautista
MEXICO	Universidad Autónoma de Nuevo León SEG Student Chapter	Oscar Mario Romero de la Cruz
MEXICO	Universidad Autonoma del Carmen SEG Student Chapter	Eduardo Salguero Hernández
MEXICO	Universidad Juarez Autonoma de Tabasco SEG Student Chapter	Carmen Maricela Gómez Arredondo
MEXICO	Universidad Nacional Autonoma de Mexico Geophysical Society	Martin Cardenas
MEXICO	Universidad Olmeca Geophysical Society	Cecilia Elizabeth Olivares Braus
NEPAL	Tribhuvan University SEG Student Chapter	Deepak Chamlagain
NETHERLANDS	Delft University of Technology Geophysical Society	Evert Slob
NEW ZEALAND	University of Auckland Geophysical Society	Ludmila Adam
NEW ZEALAND	University of Otago Geophysical Society	Andrew Gorman
NIGERIA	Geology & Mining Explorationists (UNIBEN-SLT Student Chapter)	Peter Bassey
NIGERIA	Abia State University Geophysical Society	Anthony Azunna Onwuegbuche
NIGERIA	Abubakar Tafawa Balewa University SEG Student Chapter	Othniel K. Likkason
NIGERIA	Adekunle Ajasin University SEG Student Chapter	Muslim Babatunde Aminu
NIGERIA	Ekiti State University Geophysical Society	Felix Olufemi Ojo
NIGERIA	Federal University Kebbi Geophysical Society	Joseph Aisabokhae
NIGERIA	Federal University Ndufu Alike Ikwo Geophysical Society	Amobi C. Ekwe
NIGERIA	Federal University of Petroleum Resources SEG Student Chapter	Ofuya Williams
NIGERIA	Federal University of Technology Owerri Geophysical Society	Casmir Chukwuemeka Zanders Akaolisa
NIGERIA	Federal University of Technology, Akure Geophysical Society	John Olurotimi Amigun
NIGERIA	Federal University of Technology, Minna SEG Student Chapter	Adewuyi Abdulwaheed Rafiu
NIGERIA	Mountain Top University Geosciences Student Society	Elijah A. Ayolabi
NIGERIA	Nnamdi Azikiwe University Geophysical Society	Izuchukwu Ignatius Obiadi
NIGERIA	Obafemi Awolow University of Ile-Ife Geophysical Society	A. Adepelumi
NIGERIA	Petroleum Training Institute Geophysical Society	Orji Omafume
NIGERIA	University of Calabar Geophysical Society	Anthony John Ilozobhie
NIGERIA	University of Ibadan Geophysical Society	Micheal A. Oladunjoye
NIGERIA	University of Lagos Geophysical Society	Ayolabi Elijah. A.
NIGERIA	University of Nigeria-Nsukka Geophysical Society	Ugbor, Charles Chibueze
NIGERIA	University of Port Harcourt Geophysical Society	Tamunonengiyeofori Dagogo
NORWAY	Norwegian University of Science & Technology Geophysical Society	Alexey Stovas
NORWAY	University of Oslo Geophysical Society	Nazmul Haque Mondol
OMAN	Sultan Qaboos University Geophysical Society	Mohammed Farfour

Student Chapters (continued)

Country	Student Chapter	Faculty Advisor
PAKISTAN	Bahria University Karachi Geophysical Society	Shaista Iftikhar
PAKISTAN	COMSATS University Islamabad SEG Student Chapter	Syed Tallataf Hussain Shah
PAKISTAN	Nusrat Jahan College - Abdus Salam SEG Student Chapter	Mirza Naseer Ahmad
PAKISTAN	University of Engineering and Technology, Lahore SEG Student Chapter	Muhammad Zubair Abubakar
PERU	National University of St. Agustin De Arequipa SEG Student Chapter	Armando Adolfo Minaya Lizárraga
POLAND	AGH University of Science and Technology Geophysical Society	Anna Kwietniak
POLAND	Institute of Geophysics Polish Academy of Sciences SEG Chapter	Michal Malinowski
PORTUGAL	Instituto Superior Tecnico Geophysical Society	Leonardo Azevedo
ROMANIA	University of Bucharest SEG Student Section	Victor Mocanu
RUSSIA	Gubkin University SEG Student Chapter	Alexandre Belousov
RUSSIA	Industrial University of Tyumen SEG Student Chapter	Vladislav Kuznetsov
RUSSIA	Kazan Federal University Geophysical Society	Terekhin Andrey Anatolevich
RUSSIA	Moscow State University Geophysical Society	Tokarev Mikhail Yuryevich
RUSSIA	National Research Tomsk Polytechnic University Geophysical Society	Alexei Lukin
RUSSIA	Novosibirsk State Technical University SEG Student	Duchkov Anton
RUSSIA	Novosibirsk State University Geophysical Society	Anton A. Duchkov
RUSSIA	Perm State National Research University Geophysical Society	Vladimir Kostitsyn
RUSSIA	Sergo Ordzhonikidze Russian State University SEG Student Chapter	Ksenia Sherbakova
RUSSIA	Tomsk State University Scientific Student Society	Platon Tishin
SAUDI ARABIA	KAUST Geophysical Society	Matteo Ravasi
SAUDI ARABIA	King Fahd University of Petroleum and Minerals SEG Student Chapter	Sherif M. Hanafy
SENEGAL	Cheikh Anta Diop University of Dakar SEG Student Chapter	Matar Ndiaye
SERBIA	AGES -Technical Faculty "Mihajlo Pupin" Zrenjanin Student Section	Snezana Komatina
SINGAPORE	National University of Singapore Geophysical Society	Yunyue Li
SOUTH AFRICA	University of Witwatersrand Geophysical Society	Susan Webb
SOUTH KOREA	Hanyang University Geophysical Society	Joongmoo Byun
SWEDEN	Uppsala University Geophysical Society	Alireza Malehmir
SWITZERLAND	ETH Zurich Geophysical Society	Hansruedi Maurer
TAIWAN	National Central University Geophysical Society	How-Wei Chen
THAILAND	Kasetsart University SEG Student Chapter	Prof. Passakorn Pananont
THAILAND	Prince of Songkla University Geophysical Society	Helmut Josef Duerrast
TRINIDAD & TOBAGO	University of the West Indies SEG Student Chapter	Varendra Avinash Rambaran
TURKEY	Istanbul Technical University Geophysical Society	Doga Dusunur Dogan
TURKEY	Sakarya University Geophysical Society	Levent Gülen
TURKEY	University of Dokuz Eylul Geophysical Society	Emre Timur
UAE	Khalifa University of Science and Technology Student Chapter	Mohammad Alsuwaidi

Student Chapters (continued)

Country	Student Chapter	Faculty Advisor
UGANDA	Makerere University Society of Exploration Geophysicists	John Mary Kiberu
UK	Heriot Watt University Student Chapter	Colin MacBeth
UK	Imperial College London Geophysical Society	Rebecca Bell
UK	University of Edinburgh Geophysical Society	Wyn Williams
UK	University of Leeds Geophysical Society	Roger Clark
UKRAINE	Taras Shevchenko National University of Kyiv Geophysical Society	Oleksandr Shabatura
URUGUAY	Universidad de la República SEG Student Chapter	Julián Andrés Ramos
USA	MI Geoscience and Environmental Science (GES) Society at Hope College	Uzonna Anyiam
USA	CA California State Polytechnic University Pomona SEG Student Chapter	Jascha Polet
USA	CA Stanford University Geophysical Society	Biondo Leonardo Biondi
USA	CO Colorado School of Mines Student Society of Geophysicists	Jeffrey Shragge
USA	CO Colorado State University Geophysical Society	Dennis Harry
USA	CO University of Colorado-Boulder Geophysical Society	Paul Weimer
USA	FL University of Florida Geophysical Society	Raymond Russo
USA	GA Georgia Institute of Technology Geophysical Society	Felix J. Herrmann
USA	HI University of Hawaii Geophysical Society	Niels Grobde
USA	ID Boise State University SEG Student Chapter	Qifei Niu
USA	IN Purdue University Geological Society	Douglas Schmitt
USA	KS Kansas State University Geophysical Society	Abdelmoneam Raef
USA	KS University of Kansas Geophysical Society	George Tsoflias
USA	LA Louisiana State University SEG Student Chapter	Juan Lorenzo
USA	LA University of Louisiana at Lafayette Geophysical Society	Gary Lynn Kinsland
USA	MA Geophysical Society Massachusetts Institute of Technology	Michael Fehler
USA	MO Missouri University of Science and Technology SEG Student Chapter	Kelly Liu
USA	MT Montana Tech of the University of Montana Geophysical Society	Marvin Speece
USA	ND University of North Dakota SEG Student Chapter	Josh Crowell
USA	NE University of Nebraska-Lincoln SEG Student Chapter	Irina Filina
USA	NJ Rutgers Newark Geophysical Society	Lee Slater
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USA	OH Wright State University Geophysical Society	Doyle Watts
USA	OK Oklahoma State University Geophysical Society	Priyank Jaiswal
USA	OK University of Oklahoma Geophysical Society	Heather Bedle
USA	OK University of Tulsa Geophysical Society	Jingyi Chen
USA	OR Oregon State University Geophysical Society	Anne Trehu
USA	PA Pennsylvania State University Geophysical Society	Tieyuan Zhu

Student Chapters (continued)

Country	Student Chapter	Faculty Advisor
USA	SC University of South Carolina Geophysical Society	Scott White
USA	TN University of Memphis Geophysical Society	Eunseo Choi
USA	TX Southern Methodist University SEG Student Chapter	Maria Beatrice Magnani
USA	TX Texas A&M University Geophysical Society	Mark Everett
USA	TX Texas A&M University-Corpus Christi SEG Student Chapter	Mohamed Ahmed
USA	TX Texas A&M University-Kingsville Geophysical Society	Subbarao Yelisetti
USA	TX Texas Tech University Geophysical Society	Harold Gurrola
USA	TX University of Houston Geophysical Society-SEG Wavelets	Jiajia Sun
USA	TX University of Texas at Austin Geophysical Society	Kyle Spikes
USA	TX University of Texas at Dallas Geophysical Society	Hejun Zhu
USA	TX University of Texas at El Paso Geophysical Society	Diane Doser
USA	TX University of Texas of the Permian Basin Student Chapter	Miles Henderson
USA	VA Virginia Tech Geophysical Society	John Hole
USA	WY University of Wyoming Geophysical Society	Brian E. Toelle
VENEZUELA	Universidad Central de Venezuela Geophysical Society	Antonio Ughi
VENEZUELA	Universidad Simon Bolivar Geophysical Society	Milagrosa Aldana

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Diamond Certificates were presented to 14 members in recognition of 60 years of continuous membership completed 31 December 2023.

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2023 Calendar (event schedule is subject to change)

Date	Month	Event Name	Location
13	January	Sustainability Roundtable 2 — Sustainability and Geophysics Future	Virtual
1–3	February	NAPE Summit Week	Houston, TX
15–16	February	SEG/SPE Workshop: Fracture Characterization for Reservoir Management	Riyadh, Saudi Arabia
19–21	February	14th Middle East Oil, Gas and Geosciences Show GEO	Bahrain
1–3	March	International Petroleum Technology Conference (IPTC)	Bangkok, Thailand
2	March	Denver Geophysical Society's Annual 3D Seismic Symposium	Denver, CO
13–18	March	Australasian Exploration Geoscience Conference (AEGC)	Brisbane, Australia
14–15	March	Geoscience and Engineering Solutions in Contaminated Fields (GESF)	Kuala Lumpur, Malaysia
21	March	7th SEG Virtual Student Conference Europe and Eurasia	Virtual
12–14	April	Seismic Reflection Centennial: Mapping the Earth Beneath Our Feet (was 100 Years of Reflection Seismology)	Oklahoma City, OK
14–16	April	Integration of Geophysics, Geology and Engineering Workshop	Chengdu, China
21	April	SEG Earth Day 2023	Virtual
25–27	April	Carbon Capture, Utilization, and Storage (CCUS)	Houston, TX
26–28	April	Geophysical studies applied for recovery of hydrocarbon resources in the Caspian and similar geological regions	Baku, Azerbaijan
1–4	May	Offshore Technology Conference (OTC)	Houston, TX
4	May	Sustainability Campfire Talk 2 – Policy and Sustainability	Virtual
9–11	May	Mediterranean Gas Exploration Symposium	Al Alamein, Egypt
15–17	May	Advances in Quantitative Interpretation	Muscat, Oman
15–19	May	Life of Mine — Maintaining Sustainability Through Geoscience Symposium	Virtual
8	June	Sustainability Campfire Talk 3 – Sustainability and Geophysics — Using Machine Learning to Predict Landslides in Columbia	Virtual
12–13	June	3rd Net-Zero Emissions Workshop	Virtual
13–15	June	Unconventional Resources Technology Conference (URTeC)	Denver, CO
20–21	June	SEG/SPE Worksop: Integrated Reservoir Characterization, Surveillance, and Management: Advances and Challenges	Kuala Lumpur, Malaysia
6	July	Sustainability Campfire Talk 4 – Roadmap for Sustainability	Virtual
11–12	July	Geophysical Applications for Exploration and Development in Shallow Water and Transition Zones	Kuala Lumpur, Malaysia
3	August	Sustainability Campfire Talk 5 – Infrastructure, GeoHazards, and Landslides: The Role of Near Surface Geophysics Sustainability SDG9	Virtual
28–1	Aug–Sept	International Meeting for Applied Geoscience & Energy (IMAGE)	Houston, TX
7–8	September	British Geophysical Association Postgraduate Research in Progress Meeting (BGA PGRiP) 2023	Edinburgh, Scotland, UK

2023 Calendar (continued) (event schedule is subject to change)

Date	Month	Event Name	Location
16–19	September	AIPG 60th Anniversary Conference	Covington, KY
27–29	September	21st International Petroleum and Natural Gas Congress and Exhibition (IPETGAS)	Ankara, Türkiye
5	October	Sustainability Campfire Talk 6 – Geoethics and Sustainability	Virtual
10–12	October	Full Waveform Inversion: Land & Shallow Water Challenges	Abu Dhabi, UAE
11–12	October	4th SEG Latin America Virtual Student Conference	Virtual
16–19	October	Seventh International Conference on Engineering Geophysics	Al Ain, UAE
16–19	October	18th International Congress of the Brazilian Geophysical Society & Expogef	Rio de Janeiro, Brazil
23–26	October	2023 Summit on Drone Geophysics	Virtual
24–26	October	Offshore Technology Conference Brasil 2023	Rio de Janeiro, Brazil
30–2	Oct–Nov	International Geomechanics Symposium	Al Khobar, Saudi Arabia
1–2	November	2nd SEG Geophysics in Geothermal Workshop	Jakarta, Indonesia
3–5	November	14th Biennial International Conference & Exposition (SPG India)	Kochi, Kerala, India
6–8	November	AAPG International Conference & Exhibition (ICE)	Madrid, Spain
6–8	November	High Performance Computing for Exploration, Reservoir Development and Energy Transition	Al Khobar, Saudi Arabia
13–15	November	3DEM-7 — 7th International Symposium on Three-Dimensional Electromagnetics	Vancouver, British Columbia, Canada
28–30	November	SEG/KOC Workshop: Advances in Land & Shallow Marine Multiple Attenuation and Imaging	Kuwait
4–6	December	Latin America Unconventional Resources Technology Conference (URTeC)	Buenos Aires, Argentina

SECTION NINE:
Financials





**SOCIETY OF EXPLORATION
— G E O P H Y S I C I S T S —**

CONSOLIDATED FINANCIAL STATEMENTS

DECEMBER 31, 2023 and 2022

WITH

INDEPENDENT AUDITOR'S REPORT



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INDEPENDENT AUDITOR'S REPORT

To the Board of Directors
Society of Exploration Geophysicists

Qualified Opinion

We have audited the consolidated financial statements of Society of Exploration Geophysicists and its affiliates (the Society), which comprise the consolidated statements of financial position as of December 31, 2023 and 2022, the related consolidated statements of activities, functional expenses and cash flows for the years then ended, and the related notes to the consolidated financial statements (collectively, the financial statements).

In our opinion, except for the omission of the information described in the Basis for Qualified Opinion section of our report, the accompanying financial statements present fairly, in all material respects, the financial position of the Society as of December 31, 2023 and 2022, and the changes in their net assets and their cash flows for the years then ended in accordance with accounting principles generally accepted in the United States of America.

Basis for Qualified Opinion

The Society is the sole corporate member of SEG Foundation (the Foundation) and as a result has a controlling financial interest in the Foundation. The Society does not include the accounts of the Foundation in these financial statements. Accounting principles generally accepted in the United States of America requires consolidation of an entity when the reporting entity has a controlling financial interest in that entity. If SEG Foundation were consolidated in these financial statements and intercompany accounts and transactions had been eliminated, assets, liabilities and net assets would increase by \$20,774,908, \$3,002, and \$20,771,906, respectively, as of December 31, 2023, and \$19,203,186, \$20,953, and \$19,182,233, respectively, as of December 31, 2022. Also, revenue, expenses and change in net assets would increase by \$1,769,084, \$179,411, and \$1,589,673, respectively, for the year ended December 31, 2023. Revenue and change in net assets would decrease by \$7,314,107 and \$7,571,612, respectively, and expenses would increase by \$257,505 for the year ended December 31, 2022.

We conducted our audits in accordance with auditing standards generally accepted in the United States of America (GAAS). Our responsibilities under those standards are further described in the Auditor's Responsibilities for the Audit of the Financial Statements section of our report. We are required to be independent of the Society and to meet our other ethical responsibilities, in accordance with the relevant ethical requirements relating to our audits. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our qualified audit opinion.

Responsibilities of Management for the Financial Statements

Management is responsible for the preparation and fair presentation of the financial statements in accordance with accounting principles generally accepted in the United States of America, and for the design, implementation, and maintenance of internal control relevant to the preparation and fair presentation of financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the financial statements, management is required to evaluate whether there are conditions or events, considered in the aggregate, that raise substantial doubt about the Society's ability to continue as a going concern within one year after the date that the financial statements are issued or available to be issued.

Auditor's Responsibilities for the Audit of the Financial Statements

Our objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinion. Reasonable assurance is a high level of assurance but is not absolute assurance and therefore is not a guarantee that an audit conducted in accordance with GAAS will always detect a material misstatement when it exists. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control. Misstatements are considered material if there is a substantial likelihood that, individually or in the aggregate, they would influence the judgment made by a reasonable user based on the financial statements.

In performing an audit in accordance with GAAS, we:

- Exercise professional judgment and maintain professional skepticism throughout the audit.
- Identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error, and design and perform audit procedures responsive to those risks. Such procedures include examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements.
- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Society's internal control. Accordingly, no such opinion is expressed.
- Evaluate the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluate the overall presentation of the financial statements.
- Conclude whether, in our judgment, there are conditions or events, considered in the aggregate, that raise substantial doubt about the Society's ability to continue as a going concern for a reasonable period of time.

We are required to communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit, significant audit findings, and certain internal control-related matters that we identified during the audit.



Tulsa, Oklahoma
July 2, 2024

SOCIETY OF EXPLORATION GEOPHYSICISTS
CONSOLIDATED STATEMENTS OF FINANCIAL POSITION

December 31, 2023 and 2022

	2023	2022
Assets		
Current assets:		
Cash and cash equivalents	\$ 2,616,258	\$ 2,233,443
Accounts receivable, net	2,371,865	1,056,957
Accounts receivable, SEG Foundation	238,168	473,790
Inventories	93,185	90,736
Prepaid expenses	281,950	394,311
	5,601,426	4,249,237
Total current assets		
Investments	13,067,737	12,260,419
Property and equipment, net	676,517	368,383
Operating lease right-of-use asset, net	42,862	115,998
Right-of-use assets - finance lease, net	68,673	145,619
Other long-term assets	250,000	250,000
	\$ 19,707,215	\$ 17,389,656
Total assets		
Liabilities and Net Assets		
Current liabilities:		
Accounts payable and accrued liabilities	\$ 1,091,993	\$ 1,942,006
Current portion of deferred revenue	997,242	889,811
Current portion of operating lease obligations	42,862	73,136
Current portion of capital and financing lease obligations	38,822	68,981
Liquidity access line	1,200,000	-
	3,370,919	2,973,934
Total current liabilities		
Deferred revenue, less current portion	789,810	785,982
Operating lease obligations, less current portion	-	42,862
Capital and financing lease obligations, less current portion	49,638	86,460
	4,210,367	3,889,238
Total liabilities		
Net assets without donor restrictions	15,496,848	13,500,418
	\$ 19,707,215	\$ 17,389,656
Total liabilities and net assets		

SOCIETY OF EXPLORATION GEOPHYSICISTS
CONSOLIDATED STATEMENTS OF ACTIVITIES

Years ended December 31, 2023 and 2022

	2023	2022
Revenues:		
Membership dues	\$ 754,800	\$ 769,296
Conferences and meetings	4,627,411	5,008,156
Publication sales and advertising	2,469,165	2,467,047
Professional development	305,071	154,430
Research and data	467,210	720,648
Foundation support for programs	1,246,665	1,488,724
Investment income (loss)	2,270,400	(5,591,002)
	12,140,722	5,017,299
Total revenues		
Expenses:		
Program expenses:		
Community engagement	278,301	234,693
Meetings	19,609	1,739,874
Publications	2,231,698	2,307,204
Professional development	1,074,098	1,052,337
Students	740,638	889,080
Regional offices	1,185,613	1,007,196
Business development	1,308,293	870,688
Research and data	460,851	854,633
	7,299,101	8,955,705
Total program expenses		
Supporting services	2,845,191	3,126,782
	10,144,292	12,082,487
Total expenses		
Change in net assets	1,996,430	(7,065,188)
Net assets, beginning of year	13,500,418	20,565,606
	\$ 15,496,848	\$ 13,500,418
Net assets, end of year		

SOCIETY OF EXPLORATION GEOPHYSICISTS

CONSOLIDATED STATEMENT OF FUNCTIONAL EXPENSES

Year ended December 31, 2023

	Program Expenses								Total	
	Community Engagement	Meetings	Publications	Professional Development	Students	Regional Offices	Business Development	Research and Data		Supporting Services
Staffing	\$ 184,137	\$ (167,061)	\$ 1,166,406	\$ 442,800	\$ 121,244	\$ 489,448	\$ 942,508	\$ 167,116	\$ 1,437,119	\$ 4,783,717
Travel	10,604	17,357	11,935	96,443	2,788	143,190	32,543	1,297	90,946	407,103
Office	22,729	86,638	255,372	80,293	33,256	128,351	84,151	97	373,122	1,064,009
Program awards	-	-	-	252,931	522,345	-	20,628	-	-	795,904
Production	-	786	482,887	544	-	141	-	-	-	484,358
Postage	5,355	1,613	90,840	-	-	511	270	-	1,278	99,867
Commissions, honorariums and royalties	-	-	40,499	106,252	-	6,284	-	-	-	153,035
Cost of sales	-	-	8,789	459	-	-	-	-	-	9,248
Events	-	23,239	16,828	9,165	46,871	344,988	71,685	49,916	83,826	646,518
Promotion costs and other	-	-	-	-	-	-	-	-	-	-
committee expenses	7,495	12,125	2,382	3,150	792	27,637	618	224	42,298	96,721
Outside services	41,048	15,566	102,227	63,859	4,615	40,161	118,882	244,400	670,174	1,300,932
Other	-	-	-	-	-	4,902	6,693	(2,199)	64,142	73,538
Taxes	-	-	-	42	-	-	8,017	-	24,521	32,580
Depreciation and amortization	6,933	29,346	53,533	18,160	8,727	-	22,298	-	57,765	196,762
Total	\$ 278,301	\$ 19,609	\$ 2,231,698	\$ 1,074,098	\$ 740,638	\$ 1,185,613	\$ 1,308,293	\$ 460,851	\$ 2,845,191	\$ 10,144,292

See notes to consolidated financial statements.

SOCIETY OF EXPLORATION GEOPHYSICISTS
CONSOLIDATED STATEMENT OF FUNCTIONAL EXPENSES

Year ended December 31, 2022

	Program Expenses								Total	
	Community Engagement	Meetings	Publications	Professional Development	Students	Regional Offices	Business Development	Research and Data		Supporting Services
Staffing	\$ 158,568	\$ 326,491	\$ 1,178,367	\$ 349,201	\$ 159,327	\$ 485,234	\$ 701,454	\$ 62,274	\$ 1,582,856	\$ 5,003,772
Travel	4,236	27,790	3,089	36,517	3,864	102,124	21,691	1,149	66,941	267,401
Office	14,003	152,054	196,252	64,730	19,659	108,459	44,731	7,129	467,738	1,074,755
Program awards	-	17,555	-	386,586	665,877	-	27,481	-	10,000	1,107,499
Production	-	693	486,615	134	-	200	172	-	-	487,814
Postage	4,340	2,950	109,683	1,901	544	493	1,710	803	5,916	128,340
Commissions, honorariums and royalties	-	-	34,257	64,465	-	5,760	8,000	-	-	112,482
Cost of sales	-	-	160,654	1,187	-	-	-	-	-	161,841
Events	-	1,041,630	441	3,343	3,762	242,238	16,902	37,500	15,336	1,361,152
Promotion costs and other										
committee expenses	2,620	73,587	8,696	4,255	-	17,850	384	-	52,855	160,247
Outside services	45,644	55,593	71,154	124,162	28,621	37,684	24,532	742,015	877,321	2,006,726
Other	-	13,398	14,033	(1,492)	-	7,148	3,470	-	(7,097)	29,460
Taxes	-	-	-	134	-	-	9,604	-	10,076	19,814
Depreciation and amortization	5,282	28,133	43,963	17,214	7,426	6	10,557	3,763	44,840	161,184
Total	\$ 234,693	\$ 1,739,874	\$ 2,307,204	\$ 1,052,337	\$ 889,080	\$ 1,007,196	\$ 870,688	\$ 854,633	\$ 3,126,782	\$ 12,082,487

See notes to consolidated financial statements.

SOCIETY OF EXPLORATION GEOPHYSICISTS
CONSOLIDATED STATEMENTS OF CASH FLOWS

Years ended December 31, 2023 and 2022

	2023	2022
Cash Flows from Operating Activities		
Change in net assets	\$ 1,996,430	\$ (7,065,188)
Adjustments to reconcile change in net assets to net cash used in operating activities:		
Depreciation and amortization	196,762	161,184
Net realized/unrealized (gain) loss on investments	(2,020,944)	5,806,633
Change in operating assets and liabilities:		
Accounts receivable, net	(1,314,908)	786,921
Accounts receivable, SEG Foundation	235,622	(5,209)
Inventories	(2,449)	145,725
Prepaid expenses	112,361	232,256
Accounts payable and accrued liabilities	(787,163)	916,320
Deferred revenue	111,259	(1,795,949)
Net cash used in operating activities	(1,473,030)	(817,307)
Cash Flows from Investing Activities		
Purchases of property and equipment	(478,512)	(259,472)
Purchases of investments	(1,866,833)	(5,622,092)
Proceeds from sale of investments	3,080,459	7,833,194
Net cash provided by investing activities	735,114	1,951,630
Cash Flow from Financing Activities		
Payments on capital and finance lease obligations	(79,269)	(184,507)
Net proceeds on liquidity access line	1,200,000	-
Net cash provided (used in) by financing activities	1,120,731	(184,507)
Net change in cash	382,815	949,816
Cash and cash equivalents, beginning of year	2,233,443	1,283,627
Cash and cash equivalents, end of year	\$ 2,616,258	\$ 2,233,443
Supplemental Cash Flow Disclosures		
Interest paid	\$ 2,489	\$ 7,479
Noncash Investing and Financing Activities		
Increase in property and equipment by increase in accounts payable	\$ -	\$ 62,850

SOCIETY OF EXPLORATION GEOPHYSICISTS
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

December 31, 2023 and 2022

Note 1 – Summary of Significant Accounting Policies

Nature of organization

The Society of Exploration Geophysicists (the Society or SEG), was organized in 1930 as a not-for-profit organization. The objectives of the Society are to promote the science and common scientific interests of geophysicists, and to maintain a high professional standing among its members. The Society accomplishes these objectives by publishing scientific literature, conducting professional development and student programs, hosting technical meetings and conferences, and providing other informational services.

The Society maintains offices in the United States, United Arab Emirates, Kuala Lumpur and China. The corporate headquarters are in Houston, Texas.

Basis of presentation

The consolidated financial statements include the accounts of the Society and its subsidiaries, SEG Advanced Modeling Corporation (SEAM) and SEG Global, Inc (China). All material intercompany balances and transactions have been eliminated in consolidation.

These consolidated financial statements do not include the SEG Foundation (the Foundation), an affiliated not-for-profit organization governed by a separate board of directors. The Foundation receives contributions to support scientific, educational, and charitable activities to benefit geophysicists and their professional community. The Society is the sole corporate member of the Foundation.

Cash and cash equivalents

Cash and cash equivalents include cash in banks and all highly liquid investments with an original maturity of three months or less. Accounts at each institution are insured by the Federal Deposit Insurance Corporation up to \$250,000. Typically, cash exceeds federally insured limits, but management believes any possible risk of loss is minimal.

Accounts receivable

Accounts receivable largely consists of uncollateralized billings for exhibit space, research completed and in progress, the Society's share of revenues related to collaborative conferences, advertising and page charges. Accounts receivable are stated at the amount billed, less an allowance for expected credit losses.

The allowance for expected credit losses is based on management's estimate of the amount of receivables that will not be collected. Collectibility is assessed by reviewing contract assets and accounts receivable on a collective basis where similar characteristics exist and on an individual basis when specific customers are identified with known issues or collectibility issues. In determining the amount of the allowance for credit losses, the Society considers historical collectibility based on past due status, customer-specific information, market conditions, and reasonable and supportable forecasts of future economic conditions to inform adjustments to historical loss data. While management believes the Society's processes effectively

identify the amount of possible credit losses in the Society's existing accounts and contracts receivable, changes in circumstances may result in a requirement for additional provisions in the future. Unpaid amounts that remain after management has pursued reasonable collection efforts are written off through a charge to the allowance for expected credit losses and a credit to accounts receivable. Interest is not charged on outstanding balances. At December 31, 2023 and 2022, management estimates that the allowance for credit losses of \$49,791 and \$22,747, respectively, is adequate to absorb losses arising from nonpayment.

Inventories

Inventories of publications for resale are valued at the lower of cost, determined by the average method, or net realizable value.

Investments

Investments in marketable securities are carried at estimated fair value as reported by the asset custodians. See Note 3 for description of the fair value inputs and methodologies utilized. Unrealized gains and losses are included in the statement of activities.

Property and equipment

The Society capitalizes all expenditures for property and equipment in excess of \$1,000. Property and equipment are carried at cost. Depreciation is computed using the straight-line method based on the estimated useful lives of the assets. When assets are retired or otherwise disposed of, the cost and related accumulated depreciation are removed from the accounts, and any resulting gain or loss is included in the statement of activities. Expenditure for maintenance and repairs are charged to expense as incurred. Major improvements are capitalized. The lives used in computing depreciation for software, tenant improvements, furniture and equipment range from three to five years.

The Society reviews the carrying value of property and equipment for impairment whenever events and circumstances indicate that the carrying values of long-lived assets may not be recoverable from the future cash flows expected to result from their use and ultimate disposition. In cases where the undiscounted expected future cash flows are less than the carrying values, an impairment loss is recognized equal to the amount by which the carrying value exceeds the fair value of each asset. The factors considered by the Society in performing an impairment assessment include current operating results, trends and prospects, and the effects of obsolescence, demand, competition, and other economic factors. Based on these criteria, there was no impairment for the years ended December 31, 2023 and 2022.

Liquidity access line

The Society utilizes a liquidity access line for operating expenses.

Net assets

Net assets are classified based on the existence or absence of donor-imposed restrictions. Accordingly, the Society's net assets and changes therein are classified and reported as follows:

Without donor restrictions – Net assets without donor restrictions represent those resources that are not restricted by donors.

With donor restrictions – Net assets with donor restrictions reflect donor-imposed restrictions that require the Society to utilize or expend the related assets as specified. The Society does not have any net assets with donor restrictions at December 31, 2023 or 2022.

Leases

Leases are capitalized on the Society's statement of financial position through recognition of a liability for the discounted present value of future fixed lease payments and a corresponding right-of-use (ROU) asset. The ROU asset recorded at commencement of the lease represents the right to use the underlying asset over the lease term in exchange for the lease payments. When readily determinable, the Society uses the interest rate implicit in a lease to determine the present value of future lease payments. For leases where the implicit rate is not readily determinable, the risk-free treasury rate is utilized. The Society's lease agreements do not contain any residual value guarantees or restrictive covenants. The Society combines lease and nonlease components to determine lease payments for all leases.

Short-term leases which have an initial term of 12 months or less and do not have an option to purchase the underlying asset that is deemed reasonably certain to be exercised are not recorded on the statement of financial position. Rent expense for these short-term leases is recognized on a straight-line basis over the lease term, or when incurred if a month-to-month lease.

For finance leases, lease expenses are the sum of interest on the lease obligations and amortization of the ROU assets. Finance lease ROU assets are amortized based on the lesser of the lease term and the useful life of the leased asset according to the capital asset accounting policy. If ownership of the ROU assets transfers to the Society at the end of the lease term or if the Society is reasonably certain to exercise a purchase option, amortization is calculated using the estimated useful life of the leased asset.

For operating leases, the expenses are generally recognized on a straight-line basis over the lease term. The Society recognizes variable lease payments as expenses when incurred.

Contracts with customers

The Society follows Accounting Standards Codification (ASC), *Revenue from Contracts with Customers* (ASC 606) for all revenue forms other than contributions or investment income. In determining the appropriate amount of revenue to recognize, the Society applies the following five-step model: (1) identify contracts with customers, (2) identify the performance obligations in the contract, (3) determine the transaction price, (4) allocate the transaction price to the performance obligations, and (5) recognize revenue as each performance obligation is completed. The Society accounts for a contract with a customer when it has approval, the contract is committed, the rights of the parties, including payment terms, are identified, the contract has commercial substance and consideration is probable of collection.

Contracts with customers – A contract exists when services to be performed and products ordered are specified in a submitted and accepted membership application, written contract, purchase order or similar instrument.

Performance obligations – The Society's contracts may have a single or multiple performance obligation(s). For contracts with multiple performance obligations, the Society allocates the contract transaction price to each performance obligation using the estimated standalone selling price of each distinct good or service in the contract, generally equal to the prices specified in the contract. Membership terms include many benefits and discounts available to the member. The Society treats these as a single performance obligation, the availability of the benefits, resources and discounts, as the customer may not utilize all benefits and value is created to the member for the integration of these benefits. There is not a contribution component of the membership dues.

For membership dues and online publications, revenue is recognized ratably over the membership or subscription term as the customer receives and consumes the benefits. Revenue from each print publication is recognized in the month they are mailed to subscribers. Revenue from conferences, meetings and other events is recognized when the event is held, and services are rendered. Generally,

advertising revenue is recognized when the advertisement is delivered, either in publication or its display at an event. Research and data revenue is recognized upon completion of the project and the beginning of the customer's exclusivity period.

Payment terms for memberships and subscriptions are due when the contract is initiated. Payment terms for conferences, meetings and other events vary based on stated contract terms, but typically require an upfront deposit upon registration for the event and the remainder due shortly before the event occurs.

Payment terms for research and data projects require payments according to contract milestones. These payment terms do not approximate timing of revenue recognition. Contracts typically do not contain variable consideration, any consideration payable to the customer or any significant financing components.

Contract modifications – The Society considers contract modifications to exist when the modifications either create new or changes the existing enforceable rights and obligations. Most contract modifications are for goods or services that are not distinct from the existing performance obligation(s). The effect of a contract modification on the transaction price is recognized as an adjustment to revenue on a cumulative catch-up basis.

The Society has adopted the following practical expedients and accounting policy elections:

Incremental costs of obtaining a contract – These costs are included in supporting services expense as incurred when the amortization period is generally one year or less.

Shipping activities – The Society has elected to treat shipping and fulfillment activities as fulfillment costs rather than a separate performance obligation. As a result, any consideration received related to these activities will be included as a component of the overall transaction consideration and allocated to the performance obligations of the contract.

Sales tax and other related taxes – Sales and other tax amounts collected from customers for remittance to governmental authorities are excluded from revenue.

Foundation support for programs

The Society recognizes foundation support revenue from the Foundation as it incurs expenses that the Foundation has agreed to reimburse.

Functional expenses

The costs of providing various programs and supporting activities have been summarized on a functional basis in the consolidated statements of activities. The consolidated statements of functional expenses present expenses by function and natural classification. Expenses directly attributable to a specific functional area of the Society are reported as expenses of those functional areas while indirect costs, include salaries and benefits, that benefit multiple functional areas have been allocated among the various functions based on estimated cost attributable to each function.

Income taxes

The Society is exempt from federal income taxes under Section 501(c)(6) of the Internal Revenue Code. Income from its consolidated for-profit subsidiary is subject to income tax. Advertising income not directly related to the Society's tax-exempt purpose is subject to taxation as unrelated business income. The Society did not incur any tax expenses associated with unrelated business income for the years ended December 31, 2023 or 2022.

Use of estimates

The preparation of financial statements in conformity with accounting principles generally accepted in the United States of America requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities, disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenue and expenses during the reporting period. Actual results could differ from those estimates.

Reclassifications

Certain amounts in the 2022 financial statements have been reclassified to conform with the current year presentation. The changes had no impact on previously presented net assets or change in net assets.

Recently adopted accounting standard

Effective January 1, 2023, the Society adopted Accounting Standards Update (ASU) 2016-13, *Financial Instruments – Credit Losses (Topic 326): Measurement of Credit Losses on Financial Instruments*, issued by the Financial Accounting Standards Board. This ASU creates a new credit impairment standard for financial assets measured at amortized cost and available-for-sale debt securities, replacing the current incurred loss methodology. The ASU requires financial assets measured at amortized cost (including loans, trade receivables, contract assets, and held-to-maturity debt securities) to be presented at the net amount expected to be collected, through an allowance for credit losses. That allowance for credit loss represents losses that are expected to occur over the remaining life of the asset. The measurement of credit losses for newly recognized financial assets (other than certain purchased assets) and subsequent changes in the allowance for credit losses are recorded in the statement of activities as the expected amounts to be collected change. The Society adopted the standard using a modified retrospective approach as of the effective date. The adoption of the standard did not have a material impact on the financial statements and did not result in a cumulative effect adjustment to net assets.

Note 2 – Financial Assets and Liquidity Resources

The Society's financial assets available for general expenditures within one year of the December 31, statements of financial position are as follows:

	2023	2022
Assets:		
Cash and cash equivalents	\$ 2,616,258	\$ 2,233,443
Accounts receivable, net	2,371,865	1,056,957
Accounts receivable, SEG Foundation	238,168	473,790
Investments	13,067,737	12,260,419
	<hr/>	<hr/>
Total financial assets available to management for general expenditures within one year	\$ 18,294,028	\$ 16,024,609
	<hr/>	<hr/>

The Society maintains a policy of structuring its financial assets to be available as its general expenditures, liabilities and other obligations come due. The intent is for investments to not fall below 50% of budgeted operating expenses in any year. Additionally, the Society has a liquidity access line available, as discussed in Note 6.

Note 3 – Investments

Fair value measurements

Fair value is defined as the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. Accounting standards provide a consistent framework for measuring fair value and a fair value hierarchy that prioritizes the inputs to valuation techniques used to measure fair value. The hierarchy gives the highest priority to unadjusted quoted prices in active markets for identical assets or liabilities (Level 1 measurements) and the lowest priority to measurements involving significant unobservable inputs (Level 3 measurements). The three levels of the fair value hierarchy are as follows:

- Level 1 – Quoted prices in active markets for identical securities
- Level 2 – Other significant observable inputs (including quoted prices for similar securities)
- Level 3 – Significant unobservable inputs

The level in the fair value hierarchy within which a fair measurement in its entirety is based on the lowest level input that is significant to the fair value measurement in its entirety. There were no investment transfers due to changes in the observability of significant inputs between Level 1, Level 2 and Level 3 assets during the years ended December 31, 2023 or 2022.

Investments measured at fair value on a recurring basis consisted of the following:

	Fair Value of Measurements as of December 31, 2023			
	Level 1	Level 2	Level 3	Total
Mutual funds	\$ 2,518,719	\$ -	\$ -	\$ 2,518,719
Equity securities	7,133,245	-	-	7,133,245
Fixed income	-	1,487,746	-	1,487,746
Government and agency securities	862,850	1,065,177	-	1,928,027
Total investments at fair value	\$ 10,514,814	\$ 2,552,923	\$ -	\$ 13,067,737
	Fair Value of Measurements as of December 31, 2022			
	Level 1	Level 2	Level 3	Total
Mutual funds	\$ 2,997,780	\$ -	\$ -	\$ 2,997,780
Equity securities	7,732,927	-	-	7,732,927
Fixed income	-	747,737	-	747,737
Government and agency securities	197,204	584,771	-	781,975
Total investments at fair value	\$ 10,927,911	\$ 1,332,508	\$ -	\$ 12,260,419

Investment income (loss) consists of the following for the years ended December 31:

	2023	2022
Interest and dividend income	\$ 378,104	\$ 333,289
Realized/unrealized gain (loss) on investments	2,020,944	(5,806,633)
Investment fees	(128,648)	(117,658)
	<u>\$ 2,270,400</u>	<u>\$ (5,591,002)</u>

Note 4 – Property and Equipment

Property and equipment consist of the following at December 31:

	2023	2022
Building and leasehold improvements	\$ 21,772	\$ 21,772
Application development	1,328,179	916,684
Furniture, fixtures and equipment	375,517	371,350
	<u>1,725,468</u>	<u>1,309,806</u>
Less accumulated depreciation and amortization	(1,048,951)	(941,423)
Property and equipment, net	<u>\$ 676,517</u>	<u>\$ 368,383</u>

Note 5 – Deferred Revenue

Deferred revenue consists of the following at December 31:

	2023	2022
Dues	\$ 355,881	\$ 431,059
Subscriptions	407,662	393,838
Meetings	234,376	96,804
Research and data projects	789,133	754,092
	<u>\$ 1,787,052</u>	<u>\$ 1,675,793</u>

Note 6 – Liquidity Access Line

The Society has a revolving liquidity access line with a bank dated January 31, 2023. The line has a variable interest rate of .850 percentage points over the SOFR Average Index (6.18% at December 31, 2023) and is secured by securities and cash held by the bank. The line establishes borrowings up to \$5,000,000, and \$1,200,000 was borrowed as of December 31, 2023. No amounts were borrowed as of December 31, 2022. The line matured January 31, 2024, and was renewed until July 2024.

Note 7 – Related Party Transactions

The Foundation supports the Society with contributions, and the Society provides services to the Foundation, some of which are reimbursed by the Foundation. Those transactions for the years ended December 31, are as follows:

	2023	2022
Foundation support for the program activities	\$ 1,246,665	\$ 1,488,724
Reimbursement from the Foundation for direct fundraising and administrative services	329,094	178,629
Reimbursement from the Foundation for indirect administrative services	150,954	108,234
	<u>\$ 1,726,713</u>	<u>\$ 1,775,587</u>

Note 8 – Retirement Plan

The Society sponsors a defined contribution plan. The plan is nondiscriminatory and covers all SEG employees who are foreign nationals or legal residents of the United States and have attained the age of 21. The Society's contributions to this plan are computed based on a safe-harbor nonelective 3% of salaries and a one-for-one safe-harbor matching contribution of employees' contributions, up to a maximum of 3% of salaries. In addition, a discretionary profit-sharing contribution can be made after reaching the end of the plan year. The discretionary contribution, if any, will be determined from year to year.

For the years ended December 31, 2023 and 2022, the Society's expense for the safe-harbor match and safe-harbor nonelective contributions was \$217,295 and \$205,456, respectively. The Society did not make discretionary contributions to the plan in 2023 or 2022.

Note 9 – Leases

Operating leases

The Society leases office facilities under a short-term, noncancelable operating lease agreement. The terms for this lease include a renewal option that the Society is not reasonably certain to exercise and excluded from the remaining lease term of 8 months. The Society has variable lease payments for common area maintenance costs and property taxes on operating leases.

Finance leases

The Society leases office facilities, company laptops and a copier for various terms under long-term, noncancelable finance lease agreements. The terms for certain of these leases include renewal options that the Society is not reasonably certain to exercise and excluded from the lease terms ranging from one to four years.

Short-term leases

Short-term leases consist of office equipment and office space that are for terms of 12 months or less. Short-term lease costs for the year ended December 31, 2023, do not reflect the lessee's short-term lease commitments for the ensuing year. The Society's short-term lease commitments for 2023 are \$67,377.

The following tables summarize lease costs and other information for the years ended December 31:

	<u>2023</u>	<u>2022</u>
Lease cost:		
Finance lease cost:		
Amortization of right-of-use assets	\$ 66,749	\$ 98,514
Interest on lease liabilities	2,231	6,360
Operating lease cost	<u>79,758</u>	<u>73,623</u>
 Total lease cost	 <u>\$ 148,738</u>	 <u>\$ 178,497</u>
 Other information:		
Cash paid for amounts included in the measurement of lease liabilities:		
Operating cash outflows from operating leases	\$ 79,758	
Financing cash outflows from finance leases	26,939	
Right-of-use assets obtained in exchange for new finance lease liabilities	157,568	
Adoption of ASC 842 - Operating leases	194,743	
 Weighted-average remaining lease term - finance leases	2.6 years	
Weighted-average remaining lease term - operating leases	0.83 years	
Weighted-average discount rate - finance leases	1.57%	
Weighted-average discount rate - operating leases	0.59%	

Minimum future lease commitments under noncancelable leases in effect at December 31, 2023, including those with related parties, were as follows:

	<u>Operating</u>	<u>Finance</u>
2024	\$ 42,946	\$ 38,822
2025	-	24,903
2026	-	20,263
2027	-	6,755
	<u>42,946</u>	<u>90,743</u>
Total minimum lease payment	42,946	90,743
Less imputed interest	<u>(84)</u>	<u>(2,283)</u>
 Total lease liabilities	 <u>\$ 42,862</u>	 <u>\$ 88,460</u>

Rental expense incurred under the leases for the years ended December 31, 2023 and 2022, was approximately \$296,000 and \$256,000, respectively.

Note 10 – Concentrations

A significant portion of the Society's customers are companies and professionals in the oil and gas industry both within the United States and internationally.

The Society has significant investments in equity and debt securities and is therefore subject to concentrations of credit risk. Investment advisors who are supervised by the Finance Committee manage investments. Market value of investments is subject to fluctuations on a year-to-year basis; however, the Finance Committee believes the investment policy is prudent for the long-term welfare of the Society.

Note 11 – Subsequent Events

Management has evaluated subsequent events through July 2, 2024, the date the financial statements were available to be issued.