2022 may be the year remembered as SEG’s “transformative year.” The initiatives that are driving our transformation are highlighted in this document, but perhaps the most obvious one is the creation of the SEG Slack Community. With a vision of bringing the geoscience community together, this online gathering place is quickly becoming a spot for members to engage in dialogue, stretch their thinking, and exchange information.

Some of the design elements in this year’s Annual Report are intended to reflect the mindset of that community — that all of the unique voices are welcome.
These are exciting times for SEG and for our aligned organizations. The transformation is happening, and I don’t just invite you, but encourage you, to get involved.”

ANNA SHAUGHNESSY
2022 SEG PRESIDENT

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FINANCIAL REPORTS
Founded in 1930, SEG provides information, tools, and vital resources to:

- Advance the science of exploration geophysics
- Foster common scientific interests
- Support humanitarian efforts
- Accelerate geophysical innovation
- Inspire the geophysicists of today and tomorrow
- Cultivate a community of thought leadership
### 2022 SEG Event Numbers

#### AT A GLANCE

**Workshops and Meetings**

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
<th>Location/Type</th>
<th>Registrations</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-3 Feb</td>
<td>NAPE</td>
<td>Houston, TX</td>
<td>~8000</td>
</tr>
<tr>
<td>9 Feb</td>
<td>Pore Pressure Prediction in Carbonate Reservoirs</td>
<td>Virtual</td>
<td>52</td>
</tr>
<tr>
<td>20-23 Feb</td>
<td>Energy in Data Workshop</td>
<td>Austin, TX</td>
<td>202</td>
</tr>
<tr>
<td>21-23 Feb</td>
<td>IPTC</td>
<td>Riyadh, Saudi Arabia</td>
<td>13231</td>
</tr>
<tr>
<td>2-4 Mar</td>
<td>2nd EAGE/SEG Workshop on Geophysical Aspects of Smart Cities</td>
<td>Hong Kong</td>
<td>48</td>
</tr>
<tr>
<td>20-23 Mar</td>
<td>ASCE Geo-Congress</td>
<td>Charlotte, NC</td>
<td>~1400</td>
</tr>
<tr>
<td>22-25 Mar</td>
<td>OTC Asia</td>
<td>Kuala Lumpur, Malaysia</td>
<td>8821</td>
</tr>
<tr>
<td>29-31 Mar</td>
<td>Carbon Capture, Utilization, and Storage Conference (CCUS)</td>
<td>Houston, TX/Virtual</td>
<td>680</td>
</tr>
<tr>
<td>19-22 Apr</td>
<td>AAPG International Conference &amp; Exhibition (ICE)</td>
<td>Cartagena, Colombia</td>
<td>1079</td>
</tr>
<tr>
<td>2-5 May</td>
<td>Offshore Technology Conference (OTC)</td>
<td>Houston, TX</td>
<td>~24000</td>
</tr>
<tr>
<td>10-13 May</td>
<td>Applications of Machine Learning and Artificial Intelligence in Geophysics</td>
<td>Virtual</td>
<td>117</td>
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<tr>
<td>11 May</td>
<td>6th Europe and Eurasia SEG Virtual Student Conference</td>
<td>Virtual</td>
<td>80</td>
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<tr>
<td>16-19 May</td>
<td>Research Workshop: Data Analytics &amp; Machine Learning for Exploration &amp; Production</td>
<td>Houston, TX</td>
<td>71</td>
</tr>
<tr>
<td>24-26 May</td>
<td>Multiple Approaches to Time-Lapse Monitoring for Carbonate Reservoirs</td>
<td>Abu Dhabi, UAE</td>
<td>82</td>
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<tr>
<td>7-9 Jun</td>
<td>SEG/SPE Injection Induced Seismicity</td>
<td>Austin, TX</td>
<td>90</td>
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<tr>
<td>20-22 Jun</td>
<td>Unconventional Resources Technology Conference (URTeC)</td>
<td>Houston, TX</td>
<td>3445</td>
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<tr>
<td>20-22 Jun</td>
<td>Land and Shallow Water Acquisition</td>
<td>Kuwait City, Kuwait</td>
<td>77</td>
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<tr>
<td>26-30 Jun</td>
<td>Toward Gigatonnes CO₂ Storage — Grand Geophysical Challenge</td>
<td>Stanford, CA/Virtual</td>
<td>101 (54/47)</td>
</tr>
<tr>
<td>28-30 Jun</td>
<td>Advances in Land Data Processing Workshop</td>
<td>Dhahran, Saudi Arabia</td>
<td>64</td>
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<tr>
<td>29 Jun</td>
<td>Shallow Geophysics, Prospecting, and Geohazards Site Characterization and Monitoring Workshop</td>
<td>Virtual</td>
<td>40</td>
</tr>
<tr>
<td>12-14 Jul</td>
<td>SEG/AGU Geophysics of Convergent Margins</td>
<td>Seattle, Washington</td>
<td>62</td>
</tr>
<tr>
<td>28 Aug-1 Sep</td>
<td>International Meeting for Applied Geoscience &amp; Energy (IMAGE)</td>
<td>Houston, TX</td>
<td>5944</td>
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<tr>
<td>20-21 Sep</td>
<td>Artificial Intelligence for Subsurface Characterization: Advances, Pitfalls, and Limitations</td>
<td>Kuala Lumpur, Malaysia/ Hybrid</td>
<td>48</td>
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<tr>
<td>27-29 Sep</td>
<td>Near-Surface Modeling and Imaging Workshop</td>
<td>Muscat, Oman</td>
<td>73</td>
</tr>
<tr>
<td>18-20 Oct</td>
<td>SEG/AAPG Workshop: Impact of Technological Advancements on Seismic Sequence Stratigraphy</td>
<td>Al Khobar, Saudi Arabia</td>
<td>50</td>
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<tr>
<td>25-28 Oct</td>
<td>Summit on Drone Geophysics</td>
<td>Virtual</td>
<td>171</td>
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<tr>
<td>1-3 Nov</td>
<td>Seabed Seismic, Hybrid Surveys and their Opportunities and Challenges</td>
<td>Kuala Lumpur, Malaysia</td>
<td>67</td>
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<tr>
<td>7-10 Nov</td>
<td>International Geomechanics Symposium</td>
<td>Abu Dhabi, UAE</td>
<td>150</td>
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<tr>
<td>8-9 Nov</td>
<td>3rd Joint SBGF-SEG Workshop on Machine Learning</td>
<td>Rio de Janeiro, Brazil</td>
<td>41</td>
</tr>
<tr>
<td>15-16 Nov</td>
<td>Energy in Data: How to Solve Data Challenges Without Breaking Your Systems or Your Budget</td>
<td>Austin, TX</td>
<td>119</td>
</tr>
<tr>
<td>5-7 Dec</td>
<td>Role of Geophysics in Carbon Capture and Sequestration</td>
<td>Al Khobar, Saudi Arabia</td>
<td>65</td>
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## Distinguished and Honorary Lectures

<table>
<thead>
<tr>
<th>Date</th>
<th>Category</th>
<th>Topic</th>
<th>Registrations</th>
<th>Viewers</th>
</tr>
</thead>
<tbody>
<tr>
<td>22 Feb</td>
<td>Klaus Holliger, HL Europe</td>
<td>Using Near-Surface Geophysics to Estimate Soil and Rock Physical Properties</td>
<td>472</td>
<td>270</td>
</tr>
<tr>
<td>7 Apr</td>
<td>Klaus Holliger, HL Europe</td>
<td></td>
<td>490</td>
<td>206</td>
</tr>
<tr>
<td>10 Mar</td>
<td>Elita Li, HL South and East Asia</td>
<td>Listening to Singapore: Harvesting Urban Noise for Space, Water, and Hazard Mitigation</td>
<td>159</td>
<td>79</td>
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<tr>
<td>20 Apr</td>
<td>Elita Li, HL South and East Asia</td>
<td></td>
<td>210</td>
<td>88</td>
</tr>
<tr>
<td>8 Mar</td>
<td>Laura Bandura, DL</td>
<td>Quantifying the Business Impact of Seismic Technology to Deepwater Exploration</td>
<td>325</td>
<td>168</td>
</tr>
<tr>
<td>19 May</td>
<td>Laura Bandura, DL</td>
<td></td>
<td>230</td>
<td>67</td>
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<tr>
<td>26 Apr</td>
<td>Mojtaba Rajabi, HL Pacific South</td>
<td>Present-day Crustal Stress Across Spatial Scales</td>
<td>154</td>
<td>49</td>
</tr>
<tr>
<td>9 Jun</td>
<td>Mojtaba Rajabi, HL Pacific South</td>
<td></td>
<td>188</td>
<td>56</td>
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<tr>
<td>31 May</td>
<td>Susan Hubbard, Near Surface</td>
<td>A Watershed Moment for Critical Zone Geophysics</td>
<td>257</td>
<td>107</td>
</tr>
<tr>
<td>16 Aug</td>
<td>Carlos Calderón-Macías, HL L. America</td>
<td>Near-surface Scattering in Seismic Data</td>
<td>299</td>
<td>160</td>
</tr>
<tr>
<td>6 Oct</td>
<td>Carlos Calderón-Macías, HL L. America</td>
<td></td>
<td>237</td>
<td>78</td>
</tr>
<tr>
<td>27 Oct</td>
<td>Partha Routh, HL N. America</td>
<td>Full-wave Inversion: Journey Towards Practical Applications</td>
<td>404</td>
<td>197</td>
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<tr>
<td>13 Dec</td>
<td>Partha Routh, HL N. America</td>
<td></td>
<td>431</td>
<td>182</td>
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<tr>
<td>15 Sep</td>
<td>Ariel Leilouch HL ME &amp; Africa</td>
<td>Applications of Fiber-optic Sensing to Borehole Seismology</td>
<td>210</td>
<td>96</td>
</tr>
<tr>
<td>16 Nov</td>
<td>Ariel Leilouch HL ME &amp; Africa</td>
<td></td>
<td>294</td>
<td>107</td>
</tr>
<tr>
<td>13 Sep</td>
<td>Roel Snieder, DL</td>
<td>Measuring Variations in the Seismic Velocity as a Diagnostic of Rock Damage and Healing</td>
<td>333</td>
<td>196</td>
</tr>
<tr>
<td>8 Nov</td>
<td>Roel Snieder, DL</td>
<td></td>
<td>249</td>
<td>79</td>
</tr>
<tr>
<td>7 Sep</td>
<td>Susan Hubbard, Near Surface</td>
<td>A Watershed Moment for Critical Zone Geophysics</td>
<td>296</td>
<td>75</td>
</tr>
<tr>
<td>6 Dec</td>
<td>Paul Bauman, Baker Hughes Global Sustainability</td>
<td>Responding to the Global Water Crisis: A Strategy for Improving Water Supply</td>
<td>318</td>
<td>124</td>
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<tr>
<td><strong>TOTALS</strong></td>
<td></td>
<td></td>
<td><strong>5556</strong></td>
<td><strong>2384</strong></td>
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Section One:

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DIRECTOR AT LARGE
Laying the groundwork for SEG’s path forward has been the main focus during my year as president. We critically reviewed who we were and who we needed to become in order to continue to provide a relevant, inviting, and inclusive home for our members in all areas of applied geophysics around the world. We also focused on the need to attract and retain new student members and early-career professionals by identifying which tools, products, and programs were valuable to them and how they could be better delivered.

This intense introspection came about for several reasons. SEG was experiencing a decline in membership for multiple years, as well as a decrease in revenue that accelerated over the last few years, partly due to the pandemic. While we could blame the pandemic for some of our challenges, we realized that our current business model needed to be revamped in order for SEG not just to survive but to thrive. The final trigger came as our sister societies, the Society of Petroleum Engineers (SPE) and American Association of Petroleum Geologists (AAPG), announced their intent to merge. SEG was invited to join in the discussions, but the Board
of Directors saw the importance of exploring all possible options for the future of the Society, rather than focusing only on a merger.

The Board readily acknowledged that there would be benefits from a merger with SPE and AAPG. Most of our members work in oil and gas and work together as geologists, engineers, and geophysicists on multidisciplinary teams. However, in considering a broader range of options, we asked ourselves some high-level questions:

- What problems are we truly trying to solve?
- Would SEG be able to expand its influence in applied geophysics, especially in areas not related to oil and gas?
- Would SEG be better positioned to attract and retain a broader, more diverse population of student and early-career members?
- How would SEG's business model benefit from any option considered?

In order to resolve these questions, we established the Strategic Options Task Force, charged with examining the best option for SEG to move forward. It was led by then President-Elect Ken Tubman and a small diverse team that was able to tap into its vast network and gather input from a large cross section of members. Listening turned out to be key. The task force gave regular updates to the Board, and I communicated key progress through my “Letters from the President” that were distributed to all members.

In December, the Strategic Options Task Force presented the Board with three high-level options for SEG: (1) stay as we are, (2) merge with SPE/AAPG, or (3) reinvent SEG. Option 1, stay as we are, was dismissed immediately, as it did not provide affirmative answers to any of the questions posed. The task force continued to work on the two other options, comparing risks and challenges versus benefits and opportunities for each.

In March, as SPE and AAPG announced that their merger would not take place, the task force had already determined that the best option for SEG would be to remain an independent association and reinvent itself to become a more relevant and inviting home for all applied geophysicists. They further concluded that SEG needed to continue to embrace new collaboration opportunities with organizations such as AAPG, SPE, American Geophysical Union, and European Association of Geoscientists and Engineers, and that it was vital that we continue to build on and increase the number of existing multiorganization conferences such as the Offshore Technology Conference, Unconventional Resources Technology Conference, International Petroleum Technology Conference, North American Prospect Expo, and CCUS. These recommendations were officially approved at the next SEG Board meeting.

From listening to input from members, stakeholders, and others, the task force identified one key theme and four areas needing improvements including:

- Maintaining our global reputation as the premier applied-geophysics association
- Broadening opportunities for communities, connections, and networking
- Improving communications
- Meeting the needs of members at all career stages
- Modernizing SEG governance and processes
Having completed its work, the Strategic Options Task Force was disbanded, and the Transformation Task Force was established to develop a vision, guidelines, and processes to move SEG forward. To provide continuity and a quick start, the Transformation Task Force included both Ken Tubman (leader) and Arthur Cheng (president-elect), among others. As this report is written, the Transformation Task Force already has initiated activities in communications, communities, and governance and is working with the Board, SEG management, other organizations, and consultants to accelerate the transformation. Stay tuned.

While much attention was focused on the Strategic Options and Transformation task forces, the performance of our existing programs that support our mission of advancing applied geophysics remained strong during my term. In spite of experiencing slowdowns in some of our programs due to the pandemic, I am proud to share the following:

- Workshops, forums, and other educational events (live and virtual) continued with support from staff in the United States, as well as Beijing, Dubai, and Kuala Lumpur.

- Student programs, including student-chapter activities, field camps, scholarships, and SEG EVOLVE, continued to engage and support rising geophysicists. In fact, a new SEG EVOLVE program on carbon solutions was developed and launched in the third quarter of 2022.

- Our publications continued to achieve record-high ratings. In particular, our journal Geophysics continued to be among the leading applied-geophysics journals.

- Our recently approved Justice, Equity, Diversity, and Inclusion Committee was formed and started to work on how we can better serve all of our members.

- IMAGE ’22 exceeded expectations in regard to attendance and revenue, and early bookings for IMAGE ’23 are very strong.

- The Ukrainian Support Task Force was established, which resulted in specific actions to help our impacted Ukrainian members and students.

- Our efforts to communicate how geophysics advances sustainable development is accelerating through the Sustainability Committee.

- While most of our employees now work remotely, our Houston headquarters and Tulsa office allow for in-person meetings for staff and visitors.

I would like to thank all of you who have supported me during this year. I was naïve to think that my year as president-elect had me well prepared for the challenges that arose during my term. I was fortunate to have a terrific staff, Board, and network of advisors who assisted me as difficult situations arose.

These are exciting times for SEG and for our aligned organizations. The transformation is happening, and I don’t just invite you, but encourage you, to get involved.
I started this year as president-elect. I was fortunate to work closely with President Anna Shaughnessy and to be appointed to lead the Strategic Options Task Force. Members of the task force reached alignment quickly and realized that they would recommend the option for SEG to remain an independent entity but position the Society for a more successful future. This recommendation was presented to the Board of Directors early in the year. Recall that the key challenges SEG faces are declining membership, declining activity of volunteers, and declining revenue. We need to attract the next generation of geophysicists by creating a society that brings value.

The Strategic Options Task Force was quickly followed by the Transformation Task Force, charged with turning the recommendation to transform SEG into action. This was excellent timing because President-Elect Arthur Cheng was coming on board. This transformation is a multiyear effort, so Cheng’s involvement and leadership are critical to success. SEG faces challenges in addressing long-term efforts when leadership changes yearly. We have placed extra emphasis on continuity and alignment to help address that challenge. Shaughnessy, Cheng, and I meet regularly to help assure continuity. We now have a strong executive director and staff who also are critical to continuity. These are the reasons I can confidently answer the question, “Why will this time be different?”

The first step for the team was to listen. A series of focus groups was held, facilitated by an excellent outside unbiased expert. The focus groups included students, committee members, researchers, SEG leaders, service companies, nonmembers, and near-surface professionals. We also had one-on-one dialogue with a range of SEG stakeholders. A few of the key messages we received were

- Value is seen in community and connections
- Career development is valued by all stakeholders
- Diversity in demographics and geography needs to improve

Our community concept revolves around building a sense of belonging for our members.
Our approaches are outdated and need to go digital and modernize.

The Transformation Task Force broke into subteams that covered a wide range of topics including collaboration, new sources of revenue, stakeholder interactions, and others. The team quickly chose to focus on three areas: community, career development, and governance. The remaining areas, while just as important, would take a longer time to review and propose new approaches (e.g., technical consistency), or SEG staff are already working on implementation (e.g., new sources of revenue).

Our community concept revolves around building a sense of belonging for our members. This is why our active long-term constituents remain members. A digital approach to this allows for a natural mode of communication for younger members and members around the world. Thanks to tremendous efforts by Ellie Ardakani, our new SEG Community was launched on 1 December 2022. It quickly gathered hundreds of members, and questions started flowing. It opens communication in a way that is more natural for current members around the world and for potential new members who we need to attract. I encourage you to join in! There is a button on the SEG website that takes you to sign up.

Career-development efforts are taking new approaches from the traditional training classes. We received strong feedback from students that real value in the training comes from interactions, not just from technical material. An aspect of these efforts that I particularly like are how they bring in collaboration with other societies. We decided to not join a specific merger, but we definitely want to work closely with other societies. Alison Small, Ge Jin, and Maria Angela Capello are working on some exciting efforts, along with other organizations. We are testing a new Federated Learning effort, new mentoring approaches, and a joint search engine with the Society of Petroleum Engineers. We also are planning for an SEG volunteer achievement tracker. You'll hear more about these in the near future.
Pete Cramer has made terrific contributions in the governance area. The efforts have focused on behaviors, inertia, and habits. It’s not about rules, it’s about what we do within those rules. There are many things we do simply because we have always done them that way. One of my favorite quotes is by Samuel Johnson, “The chains of habit are too weak to be felt until they are too strong to be broken.” These are indeed the most challenging changes to make. We have to ask questions that challenge our habits. Our membership process is complex and stratified. Does it need to be? We have programs that have been around for a long time. Should they change? We rely on the same sources of funding. Can we find something new that will bring in revenue? Will we give all of our awards to people who have spent decades “proving themselves” or will we be open to rewarding newer contributors and approaches? Experienced industry representatives have dominated our direction and ideas. How can we be more open to the ideas of the next generations of geophysicists in arenas in addition to oil and gas? How can we ensure voices from around the globe have equal strength? Are we really willing to listen?

This is the nature of the transformation that SEG needs to make. It is more about behavior than any specific program. Our programs need to deliver real value to the right stakeholders. We need to listen to those stakeholders and invite them into the process to create value. That value has to show up in our resources so we can fund programs.

We frequently look for rationalizations of why we can wait rather than look for reasons to act. Can we leap forward with an entrepreneurial spirit rather than crawl along at the speed of a stagnant large society? Why will this time be different? Because you are demanding change and willing to volunteer to turn those ideas into reality.
I have been happy and honored to serve in a number of leadership roles for SEG in 2022. I have summarized my contributions and future plans below.

**Past president role.** As the immediate past president of SEG, my role during 2022 was to support President Anna Shaughnessy’s efforts to implement SEG’s Strategic Pillars and objectives to make the desired impact on the organization. It was, on many fronts, a challenging year.

However, under the leadership of Shaughnessy, there was significant progress and forward movement, and now SEG is stronger and healthier.

I was also pleased to provide support and direction to Jim White, SEG executive director, as requested. Though relatively new in his role, White has demonstrated strong leadership and dedication to the SEG geophysicists, Board of Directors, Foundation, staff, and all other stakeholders.

**Chairman of the Oversight Committee.** After two years of the annual meeting being held virtually and then in hybrid format (by virtue of pandemic restrictions), it was great to meet in person in 2022. IMAGE ‘22 marked the second successful joint annual meeting with the American Association of Petroleum Geologists.

I was honored to be the chair of the Oversight Committee. I want to applaud the outstanding work of members of the committee and the dedicated SEG staff who were instrumental in delivering a technical and financial success.

**Member of the Board of Directors.** I have now completed my sixth and final year as a member of the SEG Board of Directors, and it has been one of the most rewarding and enjoyable professional experiences of my career. Having the opportunity to be part of leading this dynamic and respected organization has exceeded my expectations. While no longer a member of the
Board, I remain committed to providing any help to President Ken Tubman as he tackles some of the biggest decisions and challenges SEG will face as a Society.

SEG is changing and will continue to change as we adapt to our members’ new interests and needs. Our world, industry, businesses, and professions are in transition. Oil-and-gas exploration and applied geophysics has long been a primary focus of our Society. The energy transition is here, and our focus must broaden. Foresight, adaptability, courage, and inclusion are essential as we move rapidly to serve a different and diverse community.

My SEG contribution in 2023. As we begin this new year, I am honored to continue serving as chair of the Medical Applications Task Force and as a member of Advisory Committee, Committee on Nominations, and Honors and Awards Committee.

A final word. As my last year on the Board, I am grateful for this opportunity to express my appreciation to the Board of Directors, Foundation, professional staff, and all of the members who were so engaged and supportive.
My term as first vice president started in October 2021 and ended at IMAGE ’22. This year, SEG faced challenges related to the pandemic, energy transition, and our internal transformation. It also was fraught with geopolitical involvement that led to diverging member opinions and exhausted Board members. Thank you to Anna Shaughnessy (president), Maurice Nessim (past president), and Ken Tubman (president-elect) for guiding the Board and SEG through the complicated, challenging, and sensitive issues, and striking on the path of potential transformation. This year, I continued to serve as Board liaison for SEG Global Inc. (SGI), the China Advisory Committee, Development and Production Committee, and SEG OTC Asia Program Committee.

A lot of discussions and proposals occurred regarding the SEG transformation, which is an ongoing process. In my view, one of the lessons learned in 2022 is for SEG to avoid any digression into politics and to sharply focus on our purpose and objectives as defined in the Bylaws: “The objectives of this Society shall be to promote the science of exploration geophysics and related fields, including applications and research, to foster the common scientific interests of geophysicists, and to maintain a high professional standing among its members.” SEG is a strong global scientific and technical society, with members in most countries of the world. For every political and/or geopolitical issue, there are at least two opposite sides of views. SEG members are bonded by the “common scientific interests of geophysicists,” not by the diverse

“...our Society will be able to transform challenges into opportunities...
political views of its members. It is not only outside of SEG’s expertise to make judgments and statements on complicated, ever-changing, delicate, and tricky political and geopolitical issues, but it is divisive and harmful to the unified focus on our purpose and objectives. It is true that every member is entitled to their political opinions, but SEG is not the platform for it by definition. Many other appropriate platforms are available for individual members to express their political opinions outside of SEG. However, there needs to be some requirements and restrictions on Board members and officers to avoid the potential misrepresentation of our Society in public. I am confident in the transformation process and look forward to SEG’s bright and focused future.

SGI is the SEG subsidiary established to promote and expand the global impact of applied geophysics around the world. The scope of SGI’s business interest has been concentrated in China, with oversight of the China office. This year, SGI started new initiatives and continued several initiatives from last year to enhance SEG’s impact in China. Great progress has been made in expanding event topics into energy transition and urban development, establishing a dedicated one-to-one marketing relationship with major oil fields and institutions that help funding and membership growth, enhancing student programs and participation, fostering SEG China special publications, etc. The SEG China website is becoming a more popular resource for local members. I salute the good work done by the SEG China office, headquarters staff, SGI board, SEG China Advisory Committee, and all of the volunteers and stakeholders.

The Development and Production Committee is re-energized with more members, advisors, and volunteers after some ebb years due to the industry cycle and pandemic. The committee continued to promote the latest technologies to improve reservoir characterization through workshops and a luncheon during IMAGE ’22. The committee created a list of initiatives and programs such as recommendations for SEG courses and lectures, special articles for *The Leading Edge*, a development and production forum, etc. Thanks to the committee chair, advisors, and all committee members for volunteering their time and effort. I believe the committee will play an increasingly important role as our industry is becoming relatively more focused on development and production.

It has been an enriching experience for me to serve on the Board for the last two years. Many thanks to all of the Board members, SEG staff, and SEG members for support. I am confident that our Society will be able to transform challenges into opportunities, grow stronger, and go beyond just energy to contribute greatly to the general human benefit through our expertise in geosciences and related technologies.
It has been an honor and privilege to serve as your second vice president on the SEG Board of Directors. As a first-time Board member, one of my primary obligations was to listen and learn. Although I had interacted with the SEG Board and staff on numerous occasions in my former roles of Bylaws Committee chair, Offshore Technology Conference (OTC) Board chair, and International Petroleum Technology Conference (IPTC) Board member, I am now more appreciative of the full complexity and range of activities of the Society.

It has been another year of the Board members being presented with major challenges that were not in our individual areas of expertise or related to the core mission of SEG. In situations like this, it is rare to make perfect decisions that satisfy all who are affected. However, I can assure the membership that no one Board member dominated the process and that we reached out extensively to our most senior and respected SEG leaders and solicited external counsel where appropriate. In the end, we made decisions as a Board, and we all carry the weight and responsibility for those decisions. It is my hope that in 2023 the Board can fully dedicate their time to supporting the efficient operation and transformation of SEG.

With my professional background in research and development and technical management, coupled with more than a decade on the Bylaws Committee, it was only natural that I had a strong interest in strengthening our overall line of sight and business processes, including finances, Bylaws, and Policies and Procedures. This includes having a program budget that is sustainable in the long term. This is neither glamorous nor scientifically exciting work, but it is necessary for the smooth operations of the Society, and it lays the groundwork for our transformation objectives. As a result, I have worked closely with Treasurers Pete Cramer and Mike Mellen, Chief Financial and Administrative Officer Carlos de la Garza, staff, and the Board while sharing my thoughts regarding necessary improvements to our processes. I hope many of these improvements will be completed by early 2023. Regarding overall governance, it is important to emphasize that behavioral aspects often play a critical role. This was expressed in the President’s Page
by Pete Cramer in the November 2022 issue of The Leading Edge. Individually and collectively, we can always do better.

My Board liaison assignments for 2021–2022 included the Near-Surface Geophysics Technical Section, Bylaws Committee, OTC Board, IPTC Board, and SEG–National Groundwater Association Collaboration Committee. It is clear that we need to continue to strengthen our membership base in near surface; mining and minerals (one of my 2022–2023 assignments); and carbon capture, utilization, and storage. These are major global growth areas with a strong reliance on geophysical technology. I was particularly encouraged by the enthusiasm and participation at IMAGE ’22 in the exhibition-floor events related to these technologies. They are areas in which SEG needs to invest time and effort to grow.

I am proud of the strong leadership that replaced me as SEG representative in both IPTC and OTC. Alex Martinez, SEG 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. Having invested over a decade in each of these organizations, I have a personal interest in supporting them as an SEG Board member. These major multisociety events increase our global exposure to corporate and governmental leaders and have become significant contributors to the overall financial health of SEG. It is extremely important that we continue to promote these events and encourage SEG membership participation.

I have also worked closely with Council Chair and Board Member Allen Bertagne in an effort to enhance the dialogue between the Council and Board members, particularly when difficult decisions are being made by the Board. Personally, I would like to see the Council continue to grow as an “idea-generation factory” that materially contributes to the transformation of SEG.

I continue to be highly supportive of improving diversity on the SEG Board and of some of the ideas being proposed to increase the exposure of our talented international members. I am hopeful that recent changes introduced by the Committee on Nominations, led by Brandy Hawkins, to our election processes will facilitate this goal. I want to emphasize that it is equally important that the Board has the vision, experience base, leadership abilities, and willingness to participate and take prudent risks to help drive transformational ideas into operational reality.

Finally, I am fully supportive of our transformation activities, and I am a strong advocate for enabling big ideas, wherever they come from. Member survey results 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 fully support the comments by Ken Tubman in the President’s Page in the October 2022 issue of The Leading Edge and look forward to participating in that process during 2023 in the role of first vice president.

"In the end, we made decisions as a Board, and we all carry the weight..."
The year 2022 marks my last as treasurer. Mike Mellen assumed the role at the end of IMAGE ’22, and I transitioned to chair the Finance Committee. Where do I start? As tumultuous as 2021 was, this year continued to deliver surprises and shocks. As I write this in December, oil prices have gone on a round trip from about US$70/bbl, to nearly $120/bbl, and back again. A war was started that caused untold suffering and many disruptions. Inflation jumped from about 2% to more than 8%, and even higher in some parts of the world. Stock and bond markets had their worst year in decades. Many financial experts are calling for a global recession in 2023.

As you may recall, a year ago, the SEG Board of Directors approved an operating budget that was expected to lose about $323,000 during the year. The Board also approved up to $810,000 for long-term investments in our office infrastructure, including a complete redesign of the website and upgrading/replacing several key pieces of software used for accounting, human resources, and enterprise management. When the Transformation Task Force was stood up, the Board also approved additional funding for the task force. In addition, we had some unforeseen expenditures related to personnel changes, the Tulsa office move, and a variety of other smaller items.

“...this year continued to deliver surprises and shocks.”
Fortunately, revenues exceeded our initial forecasts because attendance and support for partner meetings and workshops was strong. Although all of the numbers are not yet final, IMAGE ’22 appears to have also delivered results in line with or better than our expectations. Putting all of this together, we are forecasting our full-year operating result on a cash basis to be a loss of about $380,000. While this is higher than the original budget, we were able to accomplish a number of additional activities, and most importantly, support the Transformation Task Force.

Table 1 presents a summary of the year from a budget perspective. One point to note is the inventory write off of $130,000 at the bottom of the table. This is a noncash charge to our balance sheet as a result of changes made in how we will fulfill book and publication orders going forward.

Last year, I wrote about our stellar long-term portfolio gains from the start of 2020 through the end of 2021. Quoting my own report “We [have had] strong investment returns for the past several years, but as we all know, stock markets do not go straight up forever.” Never truer words were written. As I’m sure everyone knows, 2022 has been a dreadful year for investors with almost no place to hide from the carnage. Figure 2 shows that the damage for us has essentially wiped out the prior two years of gains, leaving us more or less where we were before the pandemic. While our financial position is still quite strong, it has been a good reminder that we have to be ready to endure down years in the markets while keeping SEG financially sound. The Finance Committee is in the process of reviewing our asset allocations, investment strategies, and fiduciary in order to capture any learnings, and as needed, make
2022 Budget Overview

Table 1. A summary of 2022 from a budget perspective.

<table>
<thead>
<tr>
<th></th>
<th>Revenue</th>
<th>Expense</th>
<th>Net</th>
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</thead>
<tbody>
<tr>
<td>2022 Approved budget</td>
<td>$ 9,116,000</td>
<td>$ 9,439,000</td>
<td>$ (323,000)</td>
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<tr>
<td>Adjustments</td>
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<tr>
<td>Partnered events</td>
<td>$ 758,000</td>
<td></td>
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<tr>
<td>Publications</td>
<td>$ (242,000)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Membership</td>
<td>$ (99,000)</td>
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<tr>
<td>Other</td>
<td>$ 51,000</td>
<td>$ 27,000</td>
<td></td>
</tr>
<tr>
<td>Board/leadership driven</td>
<td></td>
<td>$ 202,000</td>
<td></td>
</tr>
<tr>
<td>Personnel</td>
<td>$ 142,000</td>
<td></td>
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<tr>
<td>Tulsa office move</td>
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<tr>
<td>Other</td>
<td>$ 85,000</td>
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<tr>
<td>Total cash adjustments</td>
<td>$ 468,000</td>
<td>$ 530,000</td>
<td>$ (385,000)</td>
</tr>
<tr>
<td>Inventory write off</td>
<td></td>
<td>$ 130,000</td>
<td></td>
</tr>
<tr>
<td>2022 Forecast</td>
<td>$ 9,584,000</td>
<td>$ 10,099,000</td>
<td>$ (515,000)</td>
</tr>
</tbody>
</table>

changes in the hope that we can better weather the next bear market.

Finally, I have been privileged to serve and work with some amazing people, and I would be remiss not to recognize a few of them. On the SEG staff, they include Carlos de la Garza and his team Scott Toma and Katie Petrowski. On the Finance Committee, they include Dan Ebrom (past chair), Lee Bell, Guillaume Cambois, Sofia Campbell, Nancy House, Olga Nedorub, Alison Small, Ted Stieglitz, and new members Erin Reuber, Tim Watson, and Martin Stupel who are replacing Bell, Cambois, Campbell, House, and Small. Thanks to each of you for your service and guidance.
My first year as vice president, publications commenced in September 2021. It is a significant honor to be elected by the SEG membership to serve 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 disseminating high-quality applied-geophysics research and technological advances for our membership and beyond. The SEG publications staff continue to play a very strong role in the efficient management of all publications matters.

In this position, I serve as Board liaison for all of SEG’s publications boards and committees. This includes the *GEOPHYSICS*, *Interpretation*, and *The Leading Edge (TLE)* editorial boards; the Books Editorial Board; and the Translations and Reviews committees. The leadership of these boards and committees plus the Technical Program Committee is represented on the Publications Committee. The reports from all of these boards and committees describe in detail how each advanced SEG publications during the last year.

“...SEG needs to maintain ...the upward trajectory of our journals, while looking to diversify...”
In 2022, the two main focus areas to which I contributed were represented by the Strategic Options and Transformation task forces. The Strategic Options Task Force was charged with examining the various strategic options available to SEG as our Society considers options for future directions to evolve. The key outcome of these discussions was a recommendation to remain as an independent organization but to recognize the need to reform key aspects of the Society to improve engagement with our membership and better position SEG going forward.

The Transformation Task Force was charged with exploring the fundamental value SEG can and should provide. Work is still ongoing in the areas of community connections and networking, research and technical content, career development, governance, stakeholders, new revenue sources, and communications. Based on these discussions, it is recognized that SEG needs to maintain and ideally continue the upward trajectory of our journals, while looking to diversify our sources of publications revenue and the products offered to the SEG community and broader public. Discussions are actively ongoing with key stakeholders to draft strategic recommendations in this respect.

**HIGHLIGHTS FROM 2022 ACTIVITIES**

*Editorial leadership changes.* In 2020, the SEG Board approved a change to the GEOPHYSICS editorial leadership structure so individuals serve one year in each position of the progression from senior assistant editor, to editor-in-chief, to past editor. A key driver behind this change was to enable faster promotion through the senior editorial positions in GEOPHYSICS, while ensuring that sufficient memory and support were retained in the system. On 1 August 2022, the next round of senior-editor designates began their roles, with Arthur Cheng as editor, Alison Malcolm as senior assistant editor, and John Etgen as past editor. The number of assistant editors currently stands at eight with the appointment of Erik Saenger moving to this position, while the number of associate editors is at a fairly steady 79.

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Figure 3. New books in 2022 include the *Gravity and Magnetic Encyclopedic Dictionary* and *Distributed Acoustic Sensing for Seismic Measurements*; and *Attenuation and Dispersion of Elastic Waves in Porous Rocks*. 
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 15 associate editors and 16 deputy associate editors, including Antony Price who joined in June 2022 as an associate editor.

The TLE Editorial Board is currently chaired by Chester Weiss, who has been a member of the board since 2020 and who was appointed as chair in 2022. The TLE Editorial Board is currently supported by seven members, including the additions of Joël Le Calvez and Madhav Vyas who fill the recently completed roles of Yongyi Li and Margarita Corzo.

Publications achievements. The performance of SEG journals in 2022 remained strong. Among the many notable metrics, Geophysics and Interpretation respectively received their highest ever impact factors of 3.264 and 1.473, which represented increases of 11% and 23% over the 2021 values. TLE’s h-index of 34 and h5-index of 51 represented 6% and 15% gains over 2021, respectively. The growth of these metrics indicates the strong reputation of SEG journals in disseminating high-quality technical and research materials to the broader community.


Fundamentals by Herman Jaramillo Villegas and Andreas Rüger is expected in the first quarter of 2023.

The Seismic Soundoff podcast celebrated five years of episodes in late 2021 and continues to provide in-depth conversations with geoscientists as a free resource to listeners. Highlights of the past year include episodes about machine learning; distributed acoustic sensing; staying safe during earthquakes; sustainably developing on reclaimed lands; SEG’s transformation; near-surface geophysics in urban settings; building a volcano early-warning system; carbon capture, utilization, and storage; and breaking down the life cycle of a well.

Publications policy updates. The SEG Board of Directors’ approval of two exhibits in June 2022 led to the following two policy changes. First, SEG’s open-access policy was updated to accommodate requirements from UK Research and Innovation. Authors may now post final accepted versions of funded work published by SEG in any institutional or subject repository with an open license. Second, SEG publications will provide institutions in lower income countries with online access to academic and professional peer-reviewed content, inspired by the Research4Life initiative.
The Council is one of the two primary governing bodies of SEG; the other is the Board of Directors. By its very nature of being made up of approximately 90 representatives spanning the entire globe, the Council is the most diverse and inclusive part of SEG's governance structure.

While Board members are elected by the entire membership, Council representatives are elected or appointed by local subsets of the membership. Council representatives often are well connected and usually are attuned to what is most important to SEG members in their regions.

For those unfamiliar with the Bylaws that form the basis of SEG’s governance, they can be summarized as follows to show the key role of the Council:

“The eligible Voting Membership elect a Board of Directors (Article IV) whose role is to promote the science of exploration geophysics (Article II), and manage the overall strategic direction and operations of the Society while receiving advice from, and in certain circumstances, consent of the Council (Article VII), with any decision made being subject to review and change by the Membership (Article XV).”

“...the Council is the most diverse and inclusive part of SEG’s governance structure.”
The Council’s transformation that began under the last chair, Gustavo Carstens, accelerated in October 2020 when regular Council work sessions were introduced. The sessions enabled more timely review of topics of importance to the Society and the early development of motions. In 2022, a Council logo was developed and an educational poster to explain the Council’s role and “put faces to the names” was prepared. For a copy of the poster, to see the representatives, and to better understand the important role that the Council plays in the Society, please visit this page of our website, or see Figure 4.

In 2022, in response to suggestions from members, the Council recommended to the SEG Board that it develop a code of behavior for Board members along with a social-media policy. The Board accepted the recommendations, and new guidelines are now in effect.

A key element of the Council is to ensure that members’ voices are heard and to act as a direct channel to the SEG Board of Directors. If there are topics of importance to you and other geophysicists in your region, please contact your Council representative(s) and let your thoughts be known and discussed by a broader part of the Society. Find out how to contact your representative(s) on this page of our website.

You are represented by at least two district representatives, and perhaps by a representative from your local section or associated society.

The Council looks forward to another positive year in 2023. If you are interested in being a part of this governing body and collaborating with people from around the world, please send me an e-mail.
It has been my honor to serve as director at large during 2021–2022. I actively participated in important and enriching discussions about the necessities of SEG members and future members in energy-transition, postpandemic, and digital-transition contexts. Also during this year, discussions about the role, ethics, and conduct of leaders of a global and diverse society and the understanding of how complex it is to discriminate between cultural differences and behavior issues, drove SEG to create a code of conduct and policies for SEG leaders.

This year, I served as Board liaison for the Mining and Mineral Exploration Committee, Membership Committee, Women’s Network Committee, Geothermal Task Force, SEG Advanced Modeling Corporation (SEAM) Board of Directors, and Latin America Regional Advisory Committee. I was also a part of the Sustainability Committee, SEAM–CO₂ Advisory Group, Medical Applications Task Force, and Audit Committee.

“The energy transition is driving the energy sector to renewable energy and electrification, which, in consequence, increases the world’s mineral consumption.”
**Geothermal Task Force.** With the mission of evaluating if SEG can incorporate geothermal energy research and development into its many activities and services for members, the Geothermal Task Force is important in the transformation process of SEG. For this purpose, the task force promoted three activities. First, task-force members coordinated a special section in *Geophysics* titled “Geophysical applications to geothermal energy.” In the special section, 55% of the papers were from Asia, 25% were from Europe, and 20% were from the United States. Second, members of the task force discussed the organization of a workshop to be held in late 2023. Third, the U.S. Department of Energy issued a call for proposals titled, “Geothermal energy from oil and gas demonstrated engineering (GEODE).” The task force supported the Society of Petroleum Engineers in its submission of a proposal about the uses of petroleum industry technology in geothermal energy development.

**Membership Committee.** The objective 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 work as one to help accomplish the Society’s goals and to promote the science of applied geophysics and education of geophysicists worldwide. Given the SEG numbers and statistics related to membership demographics, gender, age, etc., the committee interprets and detects the current necessities of the Society, promoting actions that influence the future directions of SEG.

During this period, the committee worked with the SEG Council on expanding the Dues Waiver program that exists for members who are in transition. Committee members investigated methods to bring more geophysicists into the Society. They addressed how corporate-sponsored membership options can be better utilized. The committee aims to expand the Corporate Membership program and is working to bring as many active geoscientists as possible into the Society.

Recalling the letter that was distributed in 2022 titled “Code of Ethics violation outcome,” it is important to highlight that the Membership Committee was active in addressing the topic of the Code of Conduct for members in elected positions. Committee members were in touch with the Board and Council and promoted changes/additions in the Bylaws and Policies and Procedures Manual for leadership roles.

**Women’s Network Committee.** The Women’s Network Committee was created in 2011 to promote gender parity, celebrate women’s achievements, raise awareness, and find solutions for challenges that women encounter in applied geophysics and related fields. During this period, the committee organized webinars, joined forces with the Geoscientists without Borders® and Sustainability committees, offered a resume-review service, published quarterly newsletters, and reached 1100 followers on LinkedIn. The Student Communities continued holding “Ask me anything” sessions. In addition, the chair and cochair discussed the Mentoring365 platform in an episode of Seismic Soundoff.

Several activities were held at IMAGE ’22. They included STEM video interviews, a networking breakfast, and a panel session on the “Diversity, equity, and inclusion (DEI) in the geoscience workforce of tomorrow.” The committee collaborated with the IMAGE Diversity and Inclusion Committee, Association for Women Geoscientists (AWG), and American Association of Petroleum Geologists’ Women’s Network to collect the video interviews. In the 13 interviews, participants shared diverse perspectives on their experiences working in STEM and the value they get from attending IMAGE.
SEAM. The Artificial Intelligence project was extended at no cost to participants until the end of the year. A proposal was approved to partner with Advanced Geophysical Technology (AGT) to host, market, and distribute the SEAM product. SEAM data management and carbon capture, utilization, and storage are ongoing projects. In the future, SEAM is interested in geophysical projects focused on groundwater or civil engineering.

Mining and Mineral Exploration Committee. The energy transition is driving the energy sector to renewable energy and electrification, which, in consequence, increases the world's mineral consumption. Critical minerals are mineral sources that are essential to the world's economy and whose supply can be disruptive, are open to new business, developments, and educational opportunities.

The Mining and Mineral Exploration Committee advises the SEG Board of Directors on all matters involving mining exploration. The committee organizes events that advance the application of geophysics to mining. In 2022, the committee elected new executives and focused on two topics. The first was committee meetings during IMAGE '22, the Association for Mineral Exploration Roundup Conference, and the Prospectors and Developers Association of Canada International Convention. The second focus was a mining technical program that was prepared for IMAGE '22. The committee reported an excellent turnout from the mining community and good engagement at the sessions and events. However, there was a decrease in abstract submissions for IMAGE '22.

I have a few final comments to share. Even though SEG has been putting efforts in Latin America, since November 2021, there is a lack of visibility of the region. This is evident by a decrease in activities there. I was honored when President Anna Shaughnessy invited me to author a President's Page in an issue of The Leading Edge titled, "Resources and geophysical opportunities in South America." In the article, I discussed the geophysical opportunities in different industries (geothermal, water, hydrogen, mining, critical minerals, and hydrocarbon) and the role of SEG in South America. I would like to suggest to the standing committees to provide guidance and tools to the Regional Advisory Committees that could improve and increase the visibility of SEG in Latin America.
SHERIF HANAFY
DIRECTOR AT LARGE

My second year as a director at large started in September 2021. In my second year, I served as chair of the Committee on Nominations. When the committee started its activity, we had biweekly meetings. Then, we changed to weekly meetings to complete our tasks on time. In this cycle, we were tasked to nominate candidates for five positions on the SEG Board of Directors (president-elect, second vice president, treasurer, and two directors at large), as well as candidates for the 12 districts (one position per district). We received many nominations and also approached several regional SEG sections for nominations. After discussing the nominations, we prepared a list of candidates for the 2022 election. The last meeting of the committee was on 7 March 2022.

I also served as Board liaison for four different committees including the Committee on Nominations, Research Committee, Middle East Advisory Committee, and Asia Pacific Advisory Committee.

I consider myself to be a representative of SEG members from the Middle East and North Africa. SEG is a global organization and has members from all over the world. Hence, it is crucial to have representatives from different geographic regions on the Board. I am honored to be one of those representatives and to transfer the voices of the members from the Middle East and North Africa to the Board.

I started a number of activities in 2022. Unfortunately, they did not go as smoothly as I expected. However, I am still working on them and hope that I will receive positive feedback before

“SEG is a global organization... it is crucial to have representatives from different geographic regions on the Board."
the end of my term. I am working as a faculty member at a university in Saudi Arabia, and I am the coordinator of the accreditation committee at that university. Part of my duties is to seek accreditation of the university’s geophysics and geology programs in international accreditation associations such as ABET. However, I found that the geophysics program does not meet the criteria of ABET, while the geology program does. Consequences for not meeting program criteria include: (1) universities seeking accreditation need to go through extra steps for acceptance of evaluation before starting the actual process, and (2) the absence of program criteria decreases the quality of the program in some universities. I contacted ABET in December 2021 to discuss how SEG can help set up geophysical program criteria. This will save time for universities around the world seeking ABET accreditation and also will standardize the geophysical program among different universities. I got some feedback from ABET. However, things are going slowly so far. I would like to continue following up with them in 2023.

I am looking forward to my third year on the Board, serving SEG members and providing as much help as I can to navigate SEG to safety in these challenging times.
BRANDY HAWKINS
DIRECTOR AT LARGE

Every year serving SEG is honorable and rewarding for those who commit their time to this incredible organization. This has been a tremendous second year for me on the SEG Board of Directors as a director at large. Every year presents new ideas and challenges that are unique from the previous year. It has been my pleasure to collaborate with talented and passionate people who contribute their time to the mission and vision of SEG. I am thankful for the staff who keep this organization running.

During 2022, I was liaison for several committees including the Justice, Equity, Diversity, and Inclusion (JEDI) Committee; Field Camps Committee; Emerging Professionals International Committee (EPIC); Travel Grants Committee; Scholarships Committee; and Committee on University and Student Programs (CUSP). Thank you to the committee members and chairs for the time that you commit to these programs. Your service to SEG is valuable. Below are some of the year’s highlights.

The JEDI Committee’s inaugural year included outreach to SEG committee chairs to gather demographic data and to encourage diversity within committee rosters. The committee participated in a diversity, equity, and inclusion panel at IMAGE ’22, along with SEG’s and the American Association of Petroleum Geologists’ (AAPG) Women’s Network committees and Young Professionals. The committee plans on more collaboration with groups who have common goals.

Field-camp funding continues to decline, while the number of applications remains high. The Field Camps Committee responded by removing the now-irrelevant funding cap, adjusting the

"SEG-funded field camps have international impact."
application to encourage partnerships with the geophysical community, and bringing two of the 2021 Field Camp Grant recipients to present at IMAGE ’22 in an effort to increase visibility. The SEG-funded field camps have international impact. Eight out of the 10 awarded camps took place outside of the United States. The 2022 Field Camp Grant recipients were trained in health, safety, security, and environment at the inaugural SEG Field Safety Course, which was taught virtually. The SEG Field Camps program is valuable for the impact made per dollar. This prompted Francesca Fazzari (chair of the committee) and I to put together some highlights of field camps. Some of the recent successful field camps were presented to the Board. This material was provided to the SEG Foundation to emphasize the impact of the program to existing and future donors.

Due to the ongoing pandemic and other current events, there was a decline in the total number of applications for SEG Travel Grants, as compared to previous years. It was interesting to see that the total number of applicants was 61 from all over the globe, and 48 were awarded the grant to attend IMAGE ’22 as an SEG Student Leadership Symposium (SLS) awardee. Four awardees each were selected from India, Indonesia, and Nigeria. A total of 12 SLS awardees were selected from the United States.

The Scholarships Committee provides a vital link between the practicing geophysicists of today and the geophysicists of tomorrow by awarding funds and providing mentorship. The committee awarded scholarships totaling US$538,666 to 127 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.

During 2022, CUSP recruited numerous new district points of contact and continued to build connections with less-active student chapters through the district points of contact. Committee members also are looking for ways to collaborate with other committees, such as the Field Camps, SEG EVOLVE, and Research committees.

Earlier in the year, I chaired the SEG Ukrainian Support Task Force that was charged with reviewing and recommending constructive actions to support Ukrainian SEG members and students impacted in this difficult time. The task force included Sven Treitel, Michael Burianyk, Arthur Cheng, and Gustavo Carstens. I am proud of the members of the task force who imbued objectivity and compassion to recommend actions to support our impacted members in this situation, along with future protocols. The Board unanimously accepted the recommendations. The following actions have been implemented so far:

- Dues waivers have been sent to our Ukrainian members.
- SEG made a generous humanitarian donation to Doctors Without Borders, which is working to provide medical aid to Ukraine.
- A Professional Development Benefit Plan was made available to Ukrainian members.

New opportunities and adventures are on the horizon for SEG in 2023. I am excited about the SEG Community that is currently being developed. Please join Slack to interact with your SEG Community. Thank you to all who support this great organization. I’m looking forward to interacting with and meeting many of you in 2023!
In 2022, I served as Board liaison for six committees. The SEG Europe Regional Advisory Committee is the most active of the committees that I monitor, meeting monthly with a well-organized agenda. Part of their energy is due to having a more diverse demographic, with a high number of early-career, mid-career, and student participants. Meetings are characterized by open discussion and idea sharing from all parties. I attribute much of this success to the coaching of Laurie Whitesell (SEG staff representative), the openness of Aurelian Roeser and Emin Sadikov (outgoing and incoming chairs), as well as to the members themselves. They seem to enjoy getting together. The committee sponsors regular webinars and an annual student conference. They work very well using the online video-meeting format but also look forward to in-person meetings. They have initiated a Social Meeting Subcommittee to further promote SEG and its activities in Europe.

**SEG EVOLVE.** The 2022 SEG EVOLVE Technical Committee was chaired by Jenny Thompson and cochaired by Alex Biholar, with strong SEG staff support from Annabella Betancourt. SEG EVOLVE 2022 had 20 applicant teams, of which ten were selected. Among the criteria used in the selection process were student mix (undergraduate and graduate students, with no more than one PhD candidate per team), student membership in SEG, faculty mentor support/engagement, global diversity, and gender diversity within teams. The ten teams represented universities in eight countries.

It should not be surprising that within any given team, the student makeup was even more diverse, with U.S.-based universities having 50% of students from Latin America, West Africa, and the Middle East. However, I was surprised by the makeup of other schools as well, with Perugia’s five students from five countries, and two of the seven China University of Petroleum students from Venezuela. In short, SEG EVOLVE reached far more than the eight countries where the universities are located.

The teams were assigned their tasks in January and had their first dry-run presentations to the committee in May. In theory, they would make a 30-minute presentation, followed by 40 minutes of
feedback by the mentors. In practice, the amount of mentoring far exceeded 40 minutes and went on for two hours in the four sessions I attended.

For the teams that included undergraduates, there was a transition during the middle of the year, as the undergraduates went on to work or to graduate school somewhere else. Many of the graduate students also had internships, creating a work/SEG EVOLVE tension within the teams (managing such conflicting roles is part of what life as a geophysicist requires).

The contribution of the mentors is phenomenal, and I emphasized to the students how fortunate they were to have access to professionals who saw the big picture — the integration of technology with geology and business. This is something that they might not get from the normal professor who, in only rare instances, understands the risk analysis and business components of the exploration and production process.

The mentorship started with presentations by six subject-matter experts. Then, throughout the program, there were no less than 14 mentors in addition to Mike Forrest who took the lead with the Western Hemisphere teams and Arthur Cheng who took the lead with the Eastern Hemisphere teams. This mentorship went well beyond technology and included significant guidance on how to make a clear presentation and how to communicate to nonexpert business decision makers.

The presentations delivered on 30 August were of high technical quality and very well choreographed with each of the exploration-and-production steps, from prospect identification, to risk analysis, to CO₂ mitigation. Most impressive to me, the teams seemed to like their fellow team members (hard to do when you work long hours continually criticizing each other) and felt a strong kinship to the mentors. I only wish that I had such an opportunity when I was a student. Details on the student teams, faculty advisors, mentors, subject-matter experts, nine company sponsors, and two individual sponsors can be found on the SEG EVOLVE website. Teams for 2023 will be chosen in 2023.

**MEETINGS REVIEW AND PLANNING.** The Meetings Review and Planning Committee is operating smoothly after clarification that they do not need to worry about the financial and technical oversight of meetings and workshops that have already been cleared by SEG offices in the Middle East and Southeast Asia. All meetings and workshop proposals approved by the committee need to undergo final approval by the SEG Board of Directors and will be posted in those minutes.

**DISTINGUISHED LECTURE.** The Distinguished Lecture Committee met regularly throughout 2022, proposing, discussing, and evaluating lecture candidates, with an eye toward technical and geographic diversity to serve our broad membership. Because the proposed candidates and lectures need to undergo final approval by the SEG Board of Directors, those names and topics will be posted in the Board of Directors’ minutes.

**CONTINUING EDUCATION.** The Continuing Education Committee, chaired by John Fernando, may be our largest committee, with as many as 30–40 participants at monthly meetings. There were three courses completed by the middle of the year, including “Introduction to field safety leadership,” “Modern seismic reservoir characterization,” and “Lithium exploration and development.” A majority (55%) of the 98 attendees were from outside the United States (16 countries).

Seven of the eight new courses met their minimum participant criteria to go forward. Virtual courses have proven to be a successful
platform that are available to a global audience, less costly, and more profitable to run. Information drawn from a 2022 continuing-education survey provided support for course sessions of two to four hours. For the second half of the year, an additional five virtual courses were scheduled.

In contrast, the Unconventional Resources Technology Conference continuing-education course enrollment has been disappointing. Although the registration process was cumbersome, the committee felt that the simpler explanation is that conference attendance is dominated by engineers who are simply not interested in geophysical courses. More work needs to be done in this area to show them how our techniques matter.

GRAVITY AND MAGNETICS. Finally, I was the Board liaison for the Gravity and Magnetics Committee, cochaired by Marianne Rauch and Alan Morgan, with Steve Brown serving as the SEG staff liaison. The IMAGE ’22 luncheon, special speaker, and sessions were a great success. However, there were some choreography issues, with a luncheon squeezed between the technical mining and gravity/magnetic sessions on the same day to accommodate participants who only wished to register for one day. There was also unhappiness with the ability to accept only eight of the 12 papers that passed the review criteria. These problems will be addressed as we work out the joint SEG/American Association of Petroleum Geologists scheduling process. The postconvention workshop on gravity, magnetics, electrical, and electromagnetic methods for environmental applications was a success. Several workshop presentations highlighted the use of drones for different infrastructure and environmental applications, where the committee is monitoring the definitions of safety standards.

In conclusion, I feel honored to have been able to serve my professional society for the past three years. I have gained a much deeper understanding and admiration of the workings of both the Society and the SEG Foundation. It was a privilege to work closely with the SEG staff and my fellow Board members. The financial components of running SEG makes a technical person’s head spin. However, through the tutelage of my fellow committee members and external auditors, I can assure the reader that SEG is ending 2022 in good financial shape.
I take the word “exploration” in the Society of Exploration Geophysicists in its broadest definition as “the action of traveling through an unfamiliar area for the purpose of discovery of information or resources,” according to the Oxford English Dictionary. My mission is to serve the “discovery” role of SEG and to volunteer as a director at large alongside my colleagues to uphold the mission of SEG by focusing on increasing the demand for geophysics globally, providing value to members and the public, and supporting SEG activities and growth resources.

My three overarching beliefs are:

- 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 term, I focused on the following activities:

- Served on the SEG Board of Directors
- Served as Board liaison for six committees
- Served as a member of the Alignment and Strategic Options task forces
- Served as a member of SEG/American Association of Petroleum Geologists (AAPG) Organizing Committee and SEG/AAPG Oversight Committee for IMAGE ’22
- Served as a member of the Finance Committee
- Provided member support

As a primary responsibility as director at large, I participated in regular meetings, contributed to discussions and decision making, voted on various issues at hand, communicated with colleagues, participated in designing the future of SEG through service on the Strategic Options Task Force, and addressed topics related to the SEG Mission and Code of Ethics.

As the second major responsibility as director at large, I served as Board liaison for six committees. I attended selected
meetings, aided in communication and cross reference of activities, provided updates, connected people where needed, and facilitated reporting.

Through service as a liaison, I learned about various SEG activities, met knowledgeable members of SEG who are passionate about their work, and discovered where opportunities for improvement and collaboration may be found (Table 2). I am grateful for these appointments and look forward to contributing more next year.

My next responsibility in 2022 was serving on the Alignment Task Force. The task force was formed by Maurice Nessim to discuss the potential of entering into a more formal arrangement with AAPG and the Society of Petroleum Engineers (SPE) in their intended merger talks. I was asked to join a diverse group that developed a motion for SEG to “participate in merger negotiations with SPE and AAPG to examine whether potential unification of the three organizations would (1) be in the best interests of the SEG membership and (2) will support the strategic vision and missions of the Society. In parallel, SEG commits to exploring all possible options for the future of the Society shaped by the voices of its members.”

The motion was approved, and the Strategic Options Task Force was called to evaluate and provide various options for SEG moving forward. The evolution was triggered not only by the option to join the SPE-AAPG merger, but also by the recent financial challenges faced by SEG due to the pandemic and by the overall membership challenges that are typical to all scientific societies.

My main contribution was researching SEG demographics including overall geophysical profession data such as the status of the geoscience workforce (e.g., age, gender, relevancy, science degrees, future opportunities, global metrics, and other types of helpful statistics). It was an honor to be a part of the discussions, studies, evaluations, and decision-making process. The Board concluded that SEG would stay as an independent society. Membership, purpose, focus areas, revenue, and engagement were evaluated by the task force, with a great new idea of communities coming to surface and implemented in December 2022.

Table 2. Board liaison assignments.

<table>
<thead>
<tr>
<th>SEG ENTITY</th>
<th>LEADERSHIP</th>
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<tr>
<td>Unconventional Resources Technology Conference</td>
<td>Frank Brown and Jim White</td>
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<tr>
<td>Management Committee</td>
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<tr>
<td>Health, Safety, Security, and Environment Committee</td>
<td>Sharon Teebenny</td>
</tr>
<tr>
<td>Oil and Gas Reserves Committee</td>
<td>Richard Xu</td>
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<tr>
<td>Digital Transformation Task Force</td>
<td>Bill Abriel</td>
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<tr>
<td>Eurasia Regional Advisory Committee</td>
<td>Aleksandra Khramtseva</td>
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<tr>
<td>North America Regional Advisory Committee</td>
<td>John Eastwood</td>
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<tr>
<td>URTeC Management Committee</td>
<td>Frank Brown and Jim White</td>
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<tr>
<td>Health Safety, Security, and Environment</td>
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<tr>
<td>Eurasia Regional Advisory Committee</td>
<td>Aleksandra Khramtseva</td>
</tr>
<tr>
<td>North America Regional Advisory Committee</td>
<td>John Eastwood and Mayra Gonzalez</td>
</tr>
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</table>
This was an exceptional year for the International Meeting for Applied Geoscience and Energy. IMAGE ’22 was held in person and hosted 5944 attendees from 82 countries. This is a significant improvement over previous years that were challenged by travel and in-person gathering restrictions. New technologies, new discoveries, new ideas, and new events brought scientists together to help shape the future, grow scientifically, succeed professionally, influence the way we communicate, and advance science in an inclusive and unbiased way.

I consider my service as a member of the SEG/AAPG Organizing and SEG/AAPG Oversight committees for IMAGE ’22 to be my main and most impactful contribution this year. The committees were tasked with designing and implementing a new and successful model for future IMAGE events. This year, the focus of the technical program was on strengthening the sense of community by completely blending geology and geophysics into one integrated multidisciplinary program. This was done with connected components such as strong technical sessions, exciting panel discussions on emerging topics, insightful strategic panels with successful business professionals, social events, student and early-career events, U-Pitch, Discovery Thinking Forum, educational opportunities, and more.

My main contribution to IMAGE ’22 was helping with the panels. There were two types of panels: strategic and technical. Seven strategic panels focused on strategic vision and business connections. They were organized by Wafik Beydoun. I organized 16 technical panels that covered emerging focus topics. My role was to propose topics and invite knowledgeable individuals to put together and moderate a vibrant and diverse panel discussion. I evaluated panel proposals and assisted in implementing them. Collaboration with the Near-Surface Geophysics Technical Section was excellent. All panels were a big success. They generated a lot of discussion and were well received by attendees. One notable downside was overall low attendance due to a large number of parallel events, sessions, exhibition floor activities, and both types of panels. This will be taken into consideration for IMAGE ’23.

I am very proud to be a part of IMAGE. I am honored to have been appointed to this role and work...
alongside hundreds of individuals that ensured its success. For full details of the event, please see the IMAGE Oversight and Organizing report.

In addition to the already noted responsibilities, I had an advisory role for the SEG website update, participated in monthly and bimonthly meetings and discussions on the progress of IMAGE ’22, had online communications with groups and individual stakeholders, and communicated with staff. Staff were invaluable in the process and deserve special mentioning. I sincerely thank Mallory Trumbore and Jenny Cole for their work. All SEG staff members who were involved in event planning did an excellent job. At the end of the event, I provided my comments for the things that went well and things that can be improved.

Further, my time was dedicated to regular Finance Committee meetings. Committee members reviewed financial reports; created budgets; and discussed investments, challenges, and wins. I was able to understand the financial drivers behind SEG’s operations. I saw how decision making and strategies must consider the financial health of the organization and consider financial stability to be the essential component of the thriving society that is able to support existing programs, offer new benefits, and have a stable and sustainable future. I thank Carlos de la Garza and all of the members of the Finance Committee for their guidance and knowledge.

Lastly, I completed various member-support tasks such as sending formal invitations to IMAGE ’22 for visa purposes, writing recommendation letters, communicating with members, and replying to student requests for volunteering. I also participated in a Seismic Soundoff episode titled “The value and business case for energy efficiency” with Diana Sineva. It was hosted by Andrew Geary.

I thank all SEG members for the opportunity to serve the Society. I look forward to 2023, which is under the capable and innovative leadership of President Ken Tubman, and to the years to come.

My goals for 2023 are:

- Continue service as director at large for the second year of my three-year term
- Serve as Board liaison for the Oil and Gas Reserves Committee; Medical Applications Task Force; and Health, Safety, Security, and Environment Committee
- Continue serving on the Finance Committee
- Assist with any new task forces that are formed or join and support an existing effort
- Continue to provide member support and spearhead and/or participate in other activities that align with my personal mission stated earlier in this report

As far as challenges, I have contributed to a detailed list of challenges and improvements for IMAGE that are available in the postconvention discussion meeting minutes from 26 September 2022. Additional challenges include various growing pains of SEG while it goes through a much-needed transformation. These challenges, however, are an important part of the growth of the Society and my personal growth as a professional along with it.
With the conclusion of IMAGE '22, my term on the SEG Board of Directors came to a close. I thought the annual meeting was a huge success, and I was excited to see so many old friends and colleagues. IMAGE '22 was also a reminder that SEG has a very important role to play in helping our industry provide energy security throughout the world.

This was another challenging year for the Board, as we had to grapple with some important and challenging issues. However, because SEG has well-defined policies and procedures in place, we were able to navigate some rather turbulent waters and address the challenges. These issues were a reminder of the importance of having, and abiding by, well-defined Bylaws and Policies and Procedures. Few things are more important to the successful governance of an organization the size of SEG than adherence to a set of governance standards. I encourage all SEG members to take the time to read the Bylaws and Policies and Procedures. Kudos are especially due to Past President Anna Shaughnessy for her calm and steady leadership during a difficult year. I know that the new Board under the leadership of Ken Tubman, as well as future Boards, will continue to evaluate the Bylaws and Policies and Procedures and update them so they reflect the modern world in which we live and are fair to all SEG stakeholders.

My term on the Board of Directors is now concluded, and I am more optimistic than ever that SEG will continue to lead the way in applied geophysics for many years and decades to come. As a concluding thought, I would like you all to know how deeply honored I was to have had the opportunity to serve on the Board for three years. I have no plans to disappear, and I look forward to continued engagement in other capacities as a member of SEG.

“...SEG will continue to lead the way in applied geophysics...”
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**ADVISORY**

Committee chair: Rick Miller  
Board liaison: Anna Shaughnessy  
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 the 2021–2022 term.

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**AGU-SEG COLLABORATION**

Committee chair: Dale Bird  
Board liaison: Ken Tubman  
Staff liaison: Laurie Whitesell

**COMMITTEE MISSION**  
In recognition of 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 (ASCC) was formed in 2010. The committee is comprised of an approximately equal number of members from both organizations who have a broad range of 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**
- A successful joint workshop on the geophysics of convergent margins was held 12–14 July at the University of Washington.
- Joint workshops for 2023 and 2024 are being planned.
- The committee is working to establish an AGU/SEG lecturer.
- Additional AGU and SEG collaborations are being investigated such as publications, annual meeting special sessions, and student/early-career outreach.
- The Policies and Procedures were finalized.

**HIGHLIGHTS FROM THE PAST YEAR**  
The committee conducted a joint workshop on the geophysics of convergent margins. It was cochaired by Anne Becel (Lamont-Doherty Earth Observatory, Columbia University) and Heather Bedle (University of Oklahoma).
The 2023 joint workshop on geoscience for sustainable and equitable community development will be cochaired by Elita Li and Biondo Bioni. A tentative 2024 joint workshop addressing ambient seismic noise is in early planning stages. The committee developed Policy and Procedures, including succession plans for cochairs, that were approved by the SEG Board of Directors.

GOALS FOR THE COMING YEAR
The committee will continue to explore more and varied ways to collaborate such as joint publications, sessions, and lectures. Specific goals will include the following.

- Determine joint event topics for 2024 and 2025.
- Finalize plans and the organization of a joint lecturer.
- Establish a schedule for joint special sections in the societies’ journals.
- Continue to conduct joint technical sessions at the annual meetings of each society.

CHALLENGES
Since the beginning of the committee, near-surface and potential-fields committees/sections have been most active. Our challenge is to expand areas of mutual interest between the organizations by encouraging members from other AGU and SEG committees/sections to be more active. Examples of AGU areas could be mineral and rock physics, seismology, tectonophysics, volcanology, geochemistry, and petrology. Examples of SEG areas could be advanced modeling, mining, passive seismology, emerging professionals, and technical standards.

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 the technical merits and marketability when judging whether to encourage their development into SEG books and other special publications.

EXECUTIVE SUMMARY
The Books Editorial Board strives to make SEG the go-to source for high-quality information about applied geophysics. In 2022, three books have been published, two have progressed to near completion, one is undergoing revision, and several additional books are in process.

HIGHLIGHTS FROM THE PAST YEAR
Books published in calendar year 2022 include Distributed Acoustic Sensing for Seismic Measurements: What Geophysicists and Engineers Need to Know by Mark Willis, Gravity and Magnetic Encyclopedic Dictionary by Serguei Goussev, and Attenuation and Dispersion of Elastic Waves in Porous Rocks: Mechanisms and Models by Boris Gurevich and José M. Carcione.

SEG books were represented in the combined American Association of Petroleum Geologists/SEG bookstore during IMAGE ’22. With the increased number of in-person attendees, on-site sales were better than last year. Marketing continues year-round for all of SEG’s books.
With an eye to increased diversity and inclusion, the recruitment of new members to join our Board concluded with invitations to Chen Gu and Yongyi Li. Both accepted.

GOALS FOR THE COMING YEAR
Titles to be published in 2023 include Machine Learning for Science and Engineering: Volume I — Fundamentals by Herman Jaramillo and Andreas Rüger; Practical Machine Learning Methods in Geosciences by Gerard T. Schuster with labs by Yuqing Chen, Shi Yongxiang, Shihang Feng, Zhaolun Liu, Zongcai Feng, Yunsong Huang, and Tushar Gauta; and Storage of Carbon Dioxide in Saline Aquifers by Philip Ringrose. Several additional titles are in process.

CHALLENGES
The Books Editorial Board continues to encourage all members of SEG to support SEG publications. We ask that our fellow SEG members promote the benefits of our books publishing program with their professional colleagues so that an ever-expanding audience will consider coming to SEG when they are interested in publishing their work.

BYLAWS
Committee chair: Edith Miller
Board liaison: Joseph M. Reilly
Staff liaisons: Ted Bakamjian and Mandi Duckworth

COMMITTEE MISSION
The mission of the Bylaws Committee is to ensure that the Society’s Bylaws clearly state the established rules of the Society and that the Bylaws of Sections and Associated Societies and student chapters conform to the rules.

EXECUTIVE SUMMARY
It was a quiet year for the Bylaws Committee, with no requests for review.

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 Bylaws Committee received no requests from the Board for review.

In December 2021 and January 2022, the membership voted on the proposed Bylaws amendment regarding indemnification, simplifying the language of Article XIV. The newly proposed and more simply worded language provides indemnification to the extent allowable under Oklahoma law and removes obscurity that had resulted in an earlier rejection of changes by the Council. The amendment passed and became effective immediately.

GOALS FOR THE COMING YEAR
In 2023, the Bylaws Committee expects potential Bylaws activity following current discussions of the SEG Council and SEG Board. In addition, the committee expects to review the Bylaws of several new 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 to others interested in geophysics through 68 courses taught by recognized oil-and-gas 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
- Offering advanced curriculum topics in geophysical techniques
- Organizing 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 on topics such as effective scientific writing
- Supporting accepted practices

EXECUTIVE SUMMARY

Beginning in 2020 and with the onset of the pandemic, the committee experienced a dramatic transformation from in-person meetings to virtual platforms. Registrations have steadily increased, and lessons continue to be learned as markets shift from on-site opportunities to global audiences. The portability and global appeal of virtual courses will continue to attract SEG members and nonmembers looking for cutting-edge instruction.

HIGHLIGHTS FROM THE PAST YEAR

In 2022, we increased virtual course registrations by 20%, with 54% of learners from locations outside the United States. We developed a “Field-safety leadership” course taught by Kevin Bohacs.

COMMITTEE DEMOGRAPHICS

Figure 7. Continuing Education Committee demographics.
in support of SEG field-camp participants. We also expanded new topics to include courses on lithium exploration, CO₂ enhanced recovery, hydrogen storage, and near-surface geohazards.

Ten new courses were introduced in 2022:

- “Python programming for subsurface data analysis” by Sid Misra
- “Petrophysics and geophysics relevant to CO₂ enhanced oil recovery” by Bill Harbert
- “Seismic uncertainty evaluation” by Manish Agrawal
- “Modern seismic reservoir characterization” by Leon Thomsen

Table 3. In-house courses held in 2022.

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<tr>
<th>Dates</th>
<th>Company</th>
<th>Course</th>
<th>Instructor(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>February, five days, virtual</td>
<td>Acteon, TerraSond</td>
<td>2DHR operations, planning, acquisition, processing/2DHR operations interpretation and geohazards</td>
<td>Fernando</td>
</tr>
<tr>
<td>March, five days, virtual</td>
<td>Saudi Aramco</td>
<td>An introduction to migration and velocity model building</td>
<td>Jones</td>
</tr>
<tr>
<td>August, four half days, virtual</td>
<td>BGP</td>
<td>Seismic attributes as the framework for data integration throughout the oilfield life cycle (2018 Distinguished Instructor Short Course)</td>
<td>Marfurt</td>
</tr>
<tr>
<td>August, four half days, virtual</td>
<td>BGP</td>
<td>The interpreter’s guide to depth imaging</td>
<td>MacKay</td>
</tr>
<tr>
<td>October, five days, virtual</td>
<td>YPF S.A. Argentina</td>
<td>AVO seismic lithology</td>
<td>Graul and Hilterman</td>
</tr>
<tr>
<td>October/November, five days, in person</td>
<td>Saudi Aramco</td>
<td>Fractures detection</td>
<td>Davis</td>
</tr>
</tbody>
</table>

Table 4. Courses completed in 2022.

<table>
<thead>
<tr>
<th>Dates</th>
<th>Course</th>
<th>Instructor(s)</th>
<th>Registrations</th>
</tr>
</thead>
<tbody>
<tr>
<td>24–28 January</td>
<td>Explorational rock physics and seismic reservoir prediction</td>
<td>Avseth and Johansen</td>
<td>24</td>
</tr>
<tr>
<td>15–26 February</td>
<td>Python programming for subsurface data</td>
<td>Misra</td>
<td>15</td>
</tr>
<tr>
<td>12–16 March</td>
<td>Petrophysics and geophysics relevant to CO₂ enhanced oil recovery</td>
<td>Harbert</td>
<td>14</td>
</tr>
<tr>
<td>22 and 24 March</td>
<td>Seismic uncertainty evaluation</td>
<td>Agarwal</td>
<td>8</td>
</tr>
<tr>
<td>19–20 April</td>
<td>Modern seismic reservoir characterization</td>
<td>Thomsen</td>
<td>6</td>
</tr>
<tr>
<td>26–29 April</td>
<td>Field safety leadership</td>
<td>Bohacs</td>
<td>18</td>
</tr>
<tr>
<td>17–18 May</td>
<td>Lithium exploration and development</td>
<td>Dorey and Hayes</td>
<td>15</td>
</tr>
<tr>
<td>27–28 July</td>
<td>Near-surface interferometry</td>
<td>Hanafy</td>
<td>15</td>
</tr>
<tr>
<td>13 and 15 September</td>
<td>Effective scientific writing</td>
<td>Waheed</td>
<td>10</td>
</tr>
<tr>
<td>27 and 29 September</td>
<td>Petrophysics and geophysics relevant to hydrogen (H₂) storage</td>
<td>Harbert</td>
<td>10</td>
</tr>
<tr>
<td>25–26 October</td>
<td>Practical machine learning methods in the geosciences</td>
<td>Schuster</td>
<td>10</td>
</tr>
<tr>
<td>3–4 November</td>
<td>Introduction to geohazards assessment</td>
<td>Onuwaje</td>
<td>6</td>
</tr>
<tr>
<td>15–16 November</td>
<td>Magnetotellurics for natural resources</td>
<td>Christopherson</td>
<td>26</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td><strong>177</strong></td>
</tr>
</tbody>
</table>
Throughout the year, we captured nine course recordings, for a total of 27 high-quality on-demand videos. From this video portfolio, 25 course recordings were purchased by individuals who were otherwise unable to attend live events. In addition, through the generosity of an instructor donor, we launched a scholarship fund that will support eight individuals in attending continuing-education courses.

GOALS FOR THE COMING YEAR
In 2023, we would like to have all of our curriculum products in user-preferred packages. We will target corporate customers and provide real-time high-quality customized training. Within this, we will provide opportunities for smaller companies.

We will continue to add new courses, particularly courses that support the energy transition. We plan to expand SEG’s on-demand menu of course recordings. In addition, we will strengthen the bonds between committee members and instructors.

CHALLENGES
One of our current challenges is in marketing. With former in-person deliveries, customers traveled to a sponsored event. In a global market, the challenge is to connect with potential customers through appropriate Internet-based mediums. In this arena, social media plays an increasingly large and significant role.

Another challenge is to package training in smaller segments and in recognition of user-preferred approaches. Finally, it is challenging to attract new corporate customers and provide customized training to meet emerging needs.

DEVELOPMENT AND PRODUCTION
Committee chair: Mariana Gherasim
Board liaison: Bruce Shang
Staff liaison: Steve Brown

COMMITTEE MISSION
The mission of the Development and Production (D&P) Committee is to promote the transfer of applied technology involved in producing or developing oil and gas reservoirs to geoscientists and engineers.

EXECUTIVE SUMMARY
In 2022, the committee took part in organizing the Carbon Capture, Utilization, and Storage Conference at the University of Houston, hosted a well-attended luncheon during IMAGE ’22, sponsored a postconvention workshop at IMAGE ’22, and contributed to IMAGE ’22 postconvention workshops sponsored by other SEG committees.

HIGHLIGHTS FROM THE PAST YEAR
In 2022, committee members were involved in various activities related to international conferences. David H. Johnston and Jean Paul Van-Gestel were part of the organizing committee for the Carbon Capture, Utilization and Storage Conference that took place at the
University of Houston 29–31 March 2022. The event was well attended and is scheduled to continue in 2023 at the University of Houston.

During IMAGE '22, the committee sponsored a luncheon titled “Node-worthy contributions to shorten cycle time and unlock additional barrels.” The invited speaker, Gilles Hennenfent, reviewed advances in seismic acquisition and processing that provide step changes in seismic image quality and their impact on the future of deepwater hydrocarbon exploration and production.

The committee also sponsored a postconvention workshop titled “Subsurface characterization: How can monitoring impact energy transition?” It was well received and generated interesting discussion. The committee also contributed to postconvention workshops on seismic imaging and gravity methods that were sponsored by other SEG committees.

Committee members continue to be involved in SEG education and professional-development efforts. Leo Eisner will be the Honorary Lecturer for the first and second quarter of 2023, teaching “Mapping pore pressure with beach balls.”

The committee had its third-quarter 2022 meeting immediately after IMAGE ’22. The meeting focused on sharing feedback about IMAGE and reviewing committee activities and membership. The fourth-quarter committee meeting was aimed at welcoming three new members and planning next year’s activities.

GOALS FOR THE COMING YEAR
Goals for the committee in 2023 include the following:

- Propose a postconvention workshop titled “What is the value proposition of quantitative 4D analysis?” and cosponsor a postconvention workshop titled “What is the future of seismic imaging?” at IMAGE ’23
- Continue involvement in SEG education and professional-development efforts
- Continue efforts in attracting new applications for committee membership, with a focus on early-career members
- Continue engagement with other professional societies
- Communicate the mission of the committee via articles published in The Leading Edge or other avenues
- Start planning a D&P forum that will be held in April 2024, with Galveston/Houston as the preferred location due to travel limitations

CHALLENGES
There are currently no pending challenges for the committee.
DISTINGUISHED LECTURE
Committee chair: Rocco Detomo Jr.
Board liaison: Kurt Marfurt
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, and Virtual Near-Surface Global 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 discipline and technical leaders on a global level who are working in this area.

The common goals of these programs are to:
- Recognize an individual’s contributions to advancing the science and 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 exchange of ideas
- Encourage students by providing the opportunity to discuss scientific and career issues with leading experts

Figure 9. Committee demographics.
EXECUTIVE SUMMARY
The SEG Lecture program, including Distinguished Lecture, Honorary Lecture, Virtual Near-Surface Global Lecture, and the new Global Sustainability Lecture, continues to be one of the most effective outreach programs of SEG. As a result of the procedures developed during the pandemic and ongoing financial challenges this year, all lectures were delivered twice virtually. To date, they reached 5850 registrants with 1876 unique views. Because each lecture is targeted to a specific range of time zones, our regional-based lecturers are now reaching a more global audience, as evidenced by the large number of 92 countries participating in our lectures. An office-hour option immediately following the lectures is now regularly offered to each lecturer to allow them to interact in a more informal way.

HIGHLIGHTS FROM THE PAST YEAR
In 2022, the committee accomplished the following:

- Engaged with the American Geophysical Union on the possibility of a joint lecture series. Discussions are ongoing.
- Structured and executed nominations and voting for the first Global Sustainability Lecturer.
- Standardized the office-hours option for lecturers with guidelines and procedures.
- Discussed committee demographics and updated committee membership to better reflect the Society’s gender balance. The committee membership was updated during the summer and is currently about 31% female, with every region represented. However, better committee representation from non-North American members is still needed.
- Moved to better represent future new energies and non-oil-and-gas geophysics lecturers by continuing to request additional lecturer nominations in these areas. This is in line with SEG’s Strategic Pillars.

2022 DISTINGUISHED LECTURERS
Q1/Q2 DISTINGUISHED LECTURER
Laura Bandura
Title: “Quantifying the business impact of seismic technology to deepwater exploration”
Attendance: 555 registrations with 235 unique views

Q3/Q4 DISTINGUISHED LECTURER
Roel Snieder
Title: “Measuring variations in the seismic velocity as a diagnostic of rock damage and healing”
Attendance: 1137 registrations with 510 unique views

Figure 10. Lecture registrations in 2022.
2022 HONORARY LECTURERS

EUROPE HONORARY LECTURER
Klaus Holliger
Title: “Using near-surface geophysics to estimate soil and rock physical properties”
Attendance: 962 registrations with 476 unique views

SOUTH AND EAST ASIA HONORARY LECTURER
Elita Li
Title: “Listening to Singapore: Harvesting urban noise for space, water, and hazard mitigation”
Attendance: 369 registrations with 167 unique views

PACIFIC SOUTH HONORARY LECTURER
Mojtaba Rajabi
Title: “Present-day crustal stress across spatial scales”
Attendance: 342 registrations with 105 unique views

LATIN AMERICA HONORARY LECTURER
Carlos Calderón-Macías
Title: “Near-surface scattering in seismic data: From signal to noise and noise to signal”
Attendance: 536 registrations with 238 unique views

MIDDLE EAST AND AFRICA HONORARY LECTURER
Ariel Lellouch
Title: “Applications of fiber-optic sensing to borehole seismology”
Attendance: 504 registrations with 204 unique views

NORTH AMERICA HONORARY LECTURER
Partha Routh
Title: “Full wavefield inversion: Journey toward practical applications”
Attendance: 435 registrations with 374 unique views

VIRTUAL NEAR-SURFACE GLOBAL LECTURER
Susan Hubbard
Title: “A watershed moment for critical zone geophysics”
Attendance: 553 registrations with 182 unique views

BAKER HUGHES GLOBAL SUSTAINABILITY LECTURER
Paul Bauman
Title: “A strategy for improving rural water supply development in Sub-Saharan Africa”
Attendance: 318 registrations with 124 unique views
GOALS FOR THE COMING YEAR
The approved list of 2023 lecturers is summarized here. The committee’s recommendation is to give these lecturers the opportunity to deliver an in-person lecture in their local area, in addition to two virtual lectures. Although the virtual lectures have a broader reach, the in-person lectures allow for in-depth discussions and personal interactions that are often considered beneficial by both lecturers and attendees, especially students.

2023 DISTINGUISHED, NEAR-SURFACE, AND HONORARY LECTURERS
- Q1/Q2 Distinguished Lecturer: Partha Routh
- Honorary Lecturer Europe: Leo Eisner
- Honorary Lecturer Pacific South: Maxim Lebedev
- Honorary Lecturer South and East Asia: Roman Pevzner
- Q3/Q4 Distinguished Lecturer: Jonathan Ajo-Franklin
- Honorary Lecturer North America: Agatha Onuwaje
- Honorary Lecturer Latin America: Milagrosa Aldana
- Honorary Lecturer Middle East and Africa: Umair bin Waheed
- Virtual Near-Surface Global Lecturer: Anja Klotzsche
- Global Sustainability Lecturer: Paul Bauman

CHALLENGES
The committee requests that SEG boards, other committees, and membership become more active in nominating future lecturers. The committee recommends that members take the opportunity to view SEG lectures online by visiting https://seg.org/education/SEG-on-demand.

Please encourage your friends, colleagues, and students to explore this valuable resource.
DISTINGUISHED INSTRUCTOR SHORT COURSE
Committee chair: Adriana Citlali Ramirez
Board liaison: Kurt Marfurt
Staff liaison: Melissa Presson

COMMITTEE MISSION
The mission of the Continuing Education program is to provide educational resources to our global membership and others interested in geophysics through courses and lectures taught by recognized experts. The program stimulates professional interest in theoretical and applied geophysics, directs career development, and expands technical horizons.

EXECUTIVE SUMMARY
The Distinguished Instructor Short Course (DISC) Committee had a busy year and is in the process of planning for 2023. Mark Willis, the 2022 DISC instructor, kicked off his tour at IMAGE ’22 with “Distributed acoustic sensing for seismic measurements — What geophysicists and engineers need to know.” The course was well received and demanded across the globe. He presented the course in person in Houston, Texas; Oklahoma City, Oklahoma; Stanford, California; and Massy, France to more than 100 participants. In 2023, Willis will present in Asia, Australia, Europe, Latin America, and the United States. The presentation will continue to be in person and can also be held in virtual and hybrid formats.

GOALS FOR THE COMING YEAR
In 2023, we will work toward returning to in-person events (in addition to hybrid offerings) to maximize global attendance and accommodate requests for the course. We will also add more members and increase involvement within the committee.

CHALLENGES
Travel costs will continue to be a challenge as we accommodate requests for in-person events.

HIGHLIGHTS FROM THE PAST YEAR
We were excited about returning to in-person events in 2022. We will continue to offer in-person events as well as virtual and hybrid events to best service our constituents.
EMERGING PROFESSIONALS INTERNATIONAL
Committee chair: Ellen Bonshor-Mayes
Board liaison: Brandy Hawkins
Staff liaison: Joan Marie Blanco

COMMITTEE MISSION
The mission of the Emerging Professionals International Committee (EPIC) is to promote volunteer engagement and 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 from a university.

EXECUTIVE SUMMARY
For eight years, EPIC has focused on the growth of early-career geoscientists, both professionally and socially. EPIC recognizes the increasing prominence of computer languages and machine learning in the industry. This recognition led to our main goal for 2022 of gaining experience in designing and hosting technical workshops. We strive to promote EPIC’s mission, become a better recognized committee, and attract a more global Board of Representatives that defines all 12 respected SEG districts.

HIGHLIGHTS FROM THE PAST YEAR
In 2022, EPIC matured as a committee and will endeavor to continue this trend into the future. This process began while planning technical events that focus on computer languages and machine learning.

To further facilitate our popularity among those in the early stages of their careers, we worked to build our social-media presence, particularly on Instagram (@seg_epic). More focus on social media will be emphasized in 2023.

The coalition of SEG and the American Association of Petroleum Geologists (AAPG) at IMAGE ’22 brought with it the collaboration of EPIC and AAPG’s counterpart called Young Professionals. We worked together in structuring an early-career networking reception. Due to the involvement of both parties, a greater audience was attracted. This helped to further spread EPIC’s agenda and improved our experience in strategizing in-person events.

GOALS FOR THE COMING YEAR
Leading on from our 2022 highlights, our key goal for the coming year is to have the “Bring a Skill, Get a Skill” event come to fruition. Regional SEG committees have hosted comparable events, so inspiration will be drawn from existing feedback to finalize drafted plans.

Another prominent action of business is to expand our existing volunteer base to ensure true global representation. We aim to achieve this through social media by growing our Instagram page and creating EPIC-hosted events. Several other graduate/early-career-focused events may include the following:

- Career networking event
- Industry-focused mentorship events for emerging professionals
- Collaborative events with relevant SEG committees

All of the events will allow us to achieve our ambition of becoming a better recognized committee within SEG and beyond.
CHALLENGES
EPIC’s greatest challenge throughout 2022 was the reduced activity of current members in our bimonthly engagements and other virtual correspondence. In conversation with other committees, it has been recognized that this is a continual trend, and it is not just EPIC that is experiencing this. It has been recognized that the pandemic played a role in this downturn, with a juxtaposition to online-focused events.

As a global committee, EPIC has a dependency on virtual platforms and events. This can, at times, be to our own detriment as we struggle to represent ourselves effectively at large gatherings such as IMAGE. These styles of events are critical within SEG, and going forward, it is important that EPIC increases its involvement in them.
SEG EVOLVE
Committee chair: Alex Biholar
Board liaison: Kurt Marfurt
Staff liaisons: Joan Marie Blanco and Annabella Betancourt

COMMITTEE MISSION
The mission of SEG EVOLVE 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.

EXECUTIVE SUMMARY
The SEG EVOLVE program is a proven methodology to engage with students that delivers a new and different learning experience, trains the replacement generation with practices and approaches followed by the workforce, bridges academic learning and industry practices, and influences and generates a great impact in the projection of students’ careers.

Starting in March 2021, SEG prepared to transition the ongoing SEG EVOLVE program from the management provided by Allen Bertagne to SEG. With the support and guidance of Mike Forrest, Rocky Detomo, and Jim DiSiena, along with the technical coordination of Jenny Thompson, SEG staff worked to execute the 2022 Subsurface Characterization program. In the program, 11 teams delivered their best investment opportunity presentations and posters at IMAGE ’22.

The SEG EVOLVE program is branching out by addressing CO₂ environmental challenges with support from an ExxonMobil monetary donation and advisors. Volunteers from ExxonMobil, Denbury, BP, University of Houston, and Rice University worked jointly with SEG staff, Nancy House (technical coordinator), and Jim DiSiena (technical advisor) to gather different industry practices and needed knowledge nuggets to build the content, schedule, pool of mentors, and delivery style for a pilot program.

HIGHLIGHTS FROM THE PAST YEAR
After transitioning the program from BRT Consulting, this is the first year that SEG EVOLVE has been fully managed by SEG. This provided the opportunity to introduce changes based on lessons
learned. It also allowed for growth in new technical areas.

**EVOLVE Subsurface Characterization.** The SEG EVOLVE Subsurface Characterization program was restructured to align with the January–June university semester. This made the program more focused and structured to provide support to students and accomplish goals in a reduced amount of time.

With the support of mentor volunteers, guidance from Forrest, and leadership from the newly appointed Thompson, SEG assigned primary and secondary mentors to each team. The mentors provided appropriate support to program participants and ensured that they had a proper pace to finish the program.

An application period to participate in the 2022 program was open from October to November 2021. A total of 20 applications were reviewed, and 10 teams were selected to participate. The program hosted 11 universities from eight different countries, 10 multicultural teams, and 60 students.

The selected universities included the China University of Petroleum (China); Helwan University (Egypt); Bandung Institute of Technology (Indonesia); University of Perugia (Italy); Instituto Politécnico Nacional (Mexico); Instituto Superior Técnico (Portugal); University of Lisbon (Portugal); King Abdullah University of Science and Technology (Saudi Arabia); University of Houston (United States); University of Louisiana, Lafayette (United States); and University of Oklahoma (United States). Heather Bedle at the University of Oklahoma and John Castagna at the University of Houston offered an SEG EVOLVE course elective that granted university credits to participating students. Students in the course included an SEG EVOLVE team as well as additional students working on the data sets and providing information, interpretation, and support to the team.
Mid-project presentations were given in March 2022, and final project presentations were given in June 2022. Feedback was provided from volunteer mentors and invited technical experts to help the students refine their message to build a 20-minute business-focused presentation delivered at IMAGE ’22. Two to three representatives from each team (except for China due to pandemic restrictions) were selected to attend the conference and present the work they had done through oral and poster presentations.

**SEG EVOLVE Carbon Solutions.** Students participating in graduate programs at key universities in the United States were contacted by invitation to participate in the SEG EVOLVE Carbon Solutions program. In multidisciplinary teams, they used their current oil-and-gas transferable knowledge and skills to incorporate new approaches and technology for carbon capture and storage.

Four teams were organized, including 31 students representing several universities:

- Team Carbon X (Australia data set): University of Houston
- Team Viking Carbon Combat (Sleipner data set): University of Houston
- Team Perm Solv C (Decatur data set): University of Oklahoma, Penn State University, and University of Texas at Austin
- The Sequesters (Decatur data set): University of Wyoming, Ohio State University, Colorado School of Mines, Southern Methodist University, and University of Perugia

The program kicked off at IMAGE ’22. It promoted collaboration across universities while developing participants’ skills in fundamental geoscience; reservoir engineering; geochemical interactions; modeling, simulation, and monitoring; risk assessment; facilities; CO₂ supply chain; well permitting; design and construction; and environmental, governance, and social compliance.

**GOALS FOR THE COMING YEAR**
SEG EVOLVE is constantly engaging with the industry in search of funding. Another goal is to obtain support to make SEG EVOLVE a recruiting avenue for the industry, bringing opportunities to graduating students while supporting the dynamics of the industry.

Program leadership would like to attract additional knowledgeable volunteers. Advisors in other disciplines such as engineering, economics, and communications are important to support the multidisciplinary aspect of the program.

A final goal is to stabilize industry support by looking at two to three partners who can join ExxonMobil as sponsors of the Carbon Solutions program to move from pilot phase to a permanent offering from SEG.

**CHALLENGES**
SEG EVOLVE is run by volunteer mentors. Growing the pool of mentors and diversifying the representation has been a continuous challenge. The majority of available mentors are retirees. It is a desire to have active professionals contributing to the program.

A second challenge is the sustainability of the program from a financial standpoint. It is desirable to have financial industry support. This could serve as a recruiting tool to provide opportunities to students who have participated in SEG EVOLVE. They have gained experience and developed skill sets that are currently needed in the industry.
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
Funding for field camps continued to decline in 2022. The committee responded to this challenge by making a variety of adjustments. This year, eight out of the 10 awarded field camps took place outside of the United States. Participants were trained in a virtual Health, Safety, Security, and Environment (HSSE) course.

HIGHLIGHTS FROM THE PAST YEAR
In 2022, field camp funding continued to decline, while the number of applications remained high. The committee responded by removing the now-irrelevant funding cap, adjusting the application to encourage partnerships with the geophysical community, and inviting two 2021 Field Camp Grant recipients to present at IMAGE '22.

In 2022, SEG received 28 applications for funding (32 applications were received in 2021). The total funding requested was US$316,821,821. From the submitted applications, the committee selected 10 awardees totaling US$56,958,83. Individual award values in 2022 ranged from $1000 to $11,043. For reference, in 2021, 16 awardees were selected, and available resources were 71% more than the 2022 funds. This year, awards were provided to field camps in Benin, Egypt, Ghana, Hungary, Indonesia, Italy, Mexico, Nigeria, and the United States.

The Field Camps Committee continues to partner with the HSSE Committee to assess applicant HSSE plans. Feedback from the HSSE Committee is used to strengthen HSSE plans of Field Camp Grant recipients. In 2022, the grant recipients were trained in HSSE during the inaugural SEG Field Safety Course. Plan are to include some the 2022 field camp participants in the HSSE Committee to share their experiences and provide input for collaboration.

GOALS FOR THE COMING YEAR
The committee will complete the annual application revision, develop an SEG survey for past field camp participants, and hold a workshop in conjunction with the Committee on University and Student Programs. The Field Camps Committee is reviewing the final reports for selecting the best field camps to participate in future IMAGE events, marketing campaigns, donor outreach, podcasts, etc.

CHALLENGES
The key challenge for the committee is securing funding for the program.

Figure 13. Field work at SEG Egypt Field Camp.
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 previous years.

At the 2021–2022 chair handover from Jeffrey Shragge to John Etgen, we invited 12 new associate editors (10 accepted). We also slightly adjusted the technical categories of the journal to reflect the changing makeup of the technical submissions we were seeing. The 2022 journal year was the first full cycle of the new structure of the GEOPHYSICS senior editorial board with past editor, editor-in-chief, and senior assistant editor roles working together. As of 1 August 2022, Arthur Cheng assumed the role of editor-in-chief, and Alison Malcolm became senior assistant editor.

There are two significant issues facing the journal. First, we sometimes struggle to secure high-quality reviews of submissions in a timely fashion. Additionally, 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 the majority of our authors) to generate large numbers of peer-reviewed publications and citations.

HIGHLIGHTS FROM THE PAST YEAR
After a period of rapid growth in submissions over the preceding decade, the number of submissions to the journal has appeared to plateau in the range of 800 to 900 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. The changes made in the 2021 journal year, where the full-role facets previously handled by the editor-in-chief are 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 that 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.

At the start of the 2022 journal year, the senior editorial board felt it beneficial to temporarily increase the number of assistant editors to allow the appropriate length of tenure for assistant editors so they can gain sufficient experience to rise from assistant editor to senior roles. So, for this cycle (the 2022 journal year), we appointed three new assistant editors. They are performing well.

For the 2022 journal year to date (1 January to 1 August), the journal received 531 submissions, slightly down from the same period in 2021 (544) and somewhat down from the record set in that calendar period in 2018 (616). None of this is cause for concern, as we continue to receive a sufficient number of high-quality submissions. We are producing approximately 80 technical papers per issue and can exercise "quality through choice" in selecting the best work to appear in the journal. The 2022 journal year was the second year that the overall acceptance-to-submission ratio dropped below 50%, although the trend toward that metric has been visible for the last several years and does not constitute a cause for concern. 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 the majority of submissions to the journal continues to be China by a large and increasing margin. 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. Canada, India, 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 above 3.2 for the 2021 journal year, a high-water mark.

GEOPHYSICS hosted two special sections in the 2022 journal year, slightly fewer than in the past few years. “Applications of humanitarian geoscience” published in the January-February 2022 issue with eight papers, and “GPR data imaging and interpretation” published in the July-August 2022 issue with eight papers.

At IMAGE ’22, we broke slightly with tradition and GEOPHYSICS recognized two reviewers as Reviewer of the Year. The two individuals, Edward Krebes from the University of Calgary and Zhendong Zhang from King Abdullah University of Science and Technology, were recognized for their outstanding contributions to the review process measured by the quantity, timeliness, and quality of their evaluations of GEOPHYSICS manuscripts.

At the 1 August 2022 handover, Cheng began a term as editor-in-chief for the 2023 journal year. The staff and editorial board were pleased to welcome Malcolm to the role of senior assistant editor. Therefore, Malcolm will assume the editor-in-chief role for the 2024 journal year. Also, for the 2023 journal year, we reverted to a more level-loaded rate of appointing one new assistant editor per annual cycle. Erik Saenger was invited to be promoted from associate editor to assistant editor for case histories (Malcolm’s previous role), and he accepted that role.

Unfortunately, the need arose for two significant disciplinary investigations in the 2022 journal year. One was related to unethical conduct on the part of a reviewer. The other was an investigation into a potential misrepresentation of authorship of a paper published in the 2021 journal year. The first matter was settled via an apology and probationary term of two years. The second matter is still pending investigation at the home institution of the individuals involved.

GOALS FOR THE COMING YEAR
The first goal for the 2023 journal year was to ensure an orderly transition from Etgen to Cheng and Malcolm, and that has indeed gone well. In his role as past editor, Etgen is available to help new (and experienced) associate editors with issues related to challenges in the peer-review process.

The 2022 journal year was slightly down in the number of special sections published, so we believe it will be appropriate to utilize somewhat
greater emphasis and resources to keep that aspect of the journal’s mission healthy. Indeed, the number of special sections currently recruiting and accepting papers is five and covers a diverse, timely, and attractive range of topics. At this time, we anticipate that the 2023 journal year will publish four special sections.

**CHALLENGES**
The most significant challenge facing *GEOPHYSICS* is resourcing the peer-review process with willing and qualified individuals who have appropriate subject-matter expertise in all of 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.

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 just trivial expansions of already published technical abstracts. We return these to the authors with guidance that they need to expand their work to merit a published *GEOPHYSICS* manuscript, given the already published technical abstract. Sometimes that is a difficult message to convey.
COMMITTEE MISSION
The Geoscientists without Borders® (GWB) Committee is a professional network of volunteers 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 2022, two projects were funded for a total of US$123,800.
- We are transforming the committee by adding a Review Subcommittee.
- Some projects were delayed (without additional cost) due to the pandemic.
- Our current biggest need is funding.

HIGHLIGHTS FROM THE PAST YEAR
Progress was made on a variety of projects in 2022. Twenty-seven applications were reviewed and two were funded in the first half of the year, for a total of $123,800. The first funded project was “Groundwater exploration and capacity building in the northern Western Desert of Egypt.” The second was “Determination of underground water potential and water supply in some rural villages in Nigeria.” The call for projects for the second half of the year was canceled due to a lack of funding.

There are 18 ongoing projects, and some are nearing completion. This is a historically high number that was caused by pandemic-related delays. Also due to delays, no project was completed this year.

Figure 14. The VS30 map of Lombok Island. The hot colors are high-risk areas.
An example of one of the projects close to completion is “Training in multichannel analysis of surface waves (MASW) and implementing seismic disaster mitigation strategies.” The project is led by Ron Harris at Brigham Young University. Located in Indonesia, the goals of the project are to (1) determine who is most at risk, (2) conduct field training in MASW at the highest-risk sites, and (3) communicate risk levels.

Another example of a project that is nearing completion is the “Low-cost geophysical instrumentation for groundwater investigation in Benin.” It is led by Jeffrey Shragge at the Colorado School of Mines (CSM) in partnership with hydrogeophysics faculty at the Université d’Abomey-Calavi in Cotonou, Benin. Over the past four years, CSM graduate and undergraduate students have led the development and testing of low-cost DC resistivity, EM induction, and seismic nodal systems. These instruments are designed to be straightforward to build and use in hydrogeophysical projects in Benin and throughout West Africa.

In 2022, the committee began to be transformed by the decision to create the Review Subcommittee. The subcommittee will evaluate applications and review progress reports. This will provide the committee with more time for strategic tasks. The SEG Board of Directors approved the subcommittee during a 6 October meeting.

There were a number of other committee activities in 2022.

- Members of the committee have been simplifying and streamlining forms. New phase 1 and 2 applications have been completed. We are currently working on the reporting forms.

- A special session was held at IMAGE ’22 titled “Geoscientists without Borders® (GWB) — Applied geoscience for humanitarian need.” The GWB reception was also held.

- GWB was represented in two presentations at the SEG Women’s Network International Women’s Day Webinar on 8 March. This aided in our efforts to increase the visibility of GWB.

- In cooperation with the SEG Foundation, we submitted grant applications to King Hassan II Great World Water Prize and to the Coca-Cola Foundation. Results are currently pending.

- A one-day Schlumberger event was organized with their
internal Humanitarian Geoscience Special Interest Group. The objective was to raise awareness and plant seeds for fundraising.

GOALS FOR THE COMING YEAR
Our first goal for 2023 is to explore new ways to raise funds. Ken Witherly, from the SEG Foundation Board of Directors, is joining the committee as SEG Foundation liaison to approach the mining industry. Our second goal is to build the Review Subcommittee, recruit new members to the main committee, and approve a vice chair. Our third goal is to update the reporting forms.

CHALLENGES
Our biggest challenge is declining fund levels. The continued inability to fund projects due to a lack of money will have a negative impact on the program’s credibility and on the morale and dedication of those involved. The central issue seems to be that we no longer have major corporate donors such as Schlumberger and PGS. Despite good efforts, we have not been able attract new ones. We are working with the SEG Foundation and the SEG Foundation Board to find solutions.

GRAVITY AND MAGNETICS
Committee chair: Marianne Rauch
Board liaison: Kurt Marfurt
Staff liaison: Steve Brown

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

EXECUTIVE SUMMARY
- A special session on “Electromagnetic and gravity methods in carbon capture and storage monitoring” was held at IMAGE '22.
- The committee organized a post-convention workshop titled "GEM methods (gravity, magnetic, electrical, and electromagnetic) for environmental applications."
- A committee-hosted luncheon featured a presentation on the James Webb Space Telescope.

HIGHLIGHTS FROM THE PAST YEAR
The Gravity and Magnetics Committee hosted a number of events during IMAGE '22 including a special session on “Electromagnetic and gravity methods in carbon capture and storage monitoring.” The session focused on instrumentation, field data, acquisition, and integrated interpretation approaches using gravity and electromagnetic methods for long-term carbon capture, utilization, and storage monitoring and real-time decision making.
The Gravity and Magnetics Luncheon featured a presentation by Stefani Miliam (NASA). She presented the latest information on the James Webb Space Telescope. Webb will be the primary observatory of the next decade, serving thousands of astronomers and planetary scientists worldwide. The luncheon was sold out and a big success.

The committee also organized a successful postconvention workshop titled “GEM methods (gravity, magnetic, electrical and electromagnetic) for environmental applications.” The workshop featured presentations on a broad spectrum of topics including drone magnetics, microgravity, electromagnetics, remote sensing, and chemical sensors applied toward infrastructure characterization and monitoring, unexploded ordnance surveying, groundwater, and site surveying. Presentations were from various sectors including oil and gas, service companies, environmental firms, and academia.

GOALS FOR THE COMING YEAR
The committee's first goal for 2023 is to host successful events at IMAGE '23 including a special session on seismic and GEM data, a postconvention workshop with the same topic, and another space-related luncheon. The second goal is to start planning activities for IMAGE '24. The third goal is to plan an online career fair.

CHALLENGES
It is becoming progressively more challenging to involve members in the planning and execution of our activities. These issues are being addressed at a local level by organizing social events where members can mingle and where we can show the benefits of this committee and the Society in general.

HEALTH, SAFETY, SECURITY, AND ENVIRONMENT

Committee chair: Sharon Teebenney
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 (formerly International Association of Geophysical Contractors, IAGC) and International Association of Oil and Gas Producers do with HSSE for geophysical operations, but rather complement it and utilize wherever possible already developed industry guidance.

Executive Summary
Our 2022 goals focused on collaboration with the Field Camps Committee to strengthen safety during field camps. This was aimed at enhancing the quality of the field camp applications. The committee also focused on launching a LinkedIn campaign to drive visibility of the committee and encourage knowledge sharing and emphasis on the environmental arm of the committee's mandate.
HIGHLIGHTS FROM THE PAST YEAR
- Collaboration with the Field Camps Committee continued. The first Field Camps Leadership Course launched in April 2022. There were 18 participants from 10 countries (11 were students, and seven were SEG members).
- The Field Camps Leadership Course was made into a digital format.
- Phase 1 of the creation of a toolkit to support field camps was completed. Phase 2 will continue in 2023 and will be integrated into the course.
- A LinkedIn campaign was launched.
- The committee completed documents on international travel guidelines for SEG members and staff.
- Members worked with the staff liaison to ensure that the committee has visibility on the newly revamped SEG website.

GOALS FOR THE COMING YEAR
- The next Field Camps Leadership Course will be held 9–10 May 2023.
- The committee will continue to facilitate dialogue with the Student Congress and Field Camps Committee on managing student health and safety.
- Additional committee members will be recruited to drive the next generation of new energy and sustainability of our activities.
- Knowledge sharing about the energy transition will occur including topics such as wind farm; solar; geothermal; renewables; and carbon capture, utilization, and storage.
- Committee members will continue to drive the strategy for global external visibility. Webinars will be planned on topics related to HSSE and the committee.
- The committee will continue to update HSSE information on the SEG website. This will include a major refresh and the placement of guidance documents where they are easy to find. We will aim to have priority messaging on the SEG website to define visibility and progress of the documents that we produce.
- Phase 2 of the HSSE toolkit to support field camps will continue.
- An app will be created to record and analyze field-camp incidents.
- The possibility of having an in-person course with geophysical equipment in hand a couple of times a year will be explored. It would be in collaboration with the University of Houston. The proposed plan of execution is the second quarter of 2023.

CHALLENGES
Current challenges include recruiting new members and gaining traction in the environmental arm of the committee.
HONORS AND AWARDS

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 ’21. Nominations for Best Paper and Best Presentation awards were provided by the IMAGE Technical Program Committee, the editor of Geophysics, the Editorial Board of Interpretation, and the Editorial Board of The Leading Edge.

HIGHLIGHTS FROM THE PAST YEAR
The Honors and Awards Committee — following extensive research by each of the committee members — makes and documents recommendations, which must receive approval from the SEG Board of Directors. In some cases, the recommendations must be unanimously approved by both the committee and the Board.

The following awards were conferred at IMAGE ’22 in Houston. Full citations for these awards were published in The Leading Edge.

MAURICE EWING MEDAL
Öz Yilmaz

HONORARY MEMBERSHIP
Aria Abubakar and Sergey Fomel

VIRGIL KAUFFMAN GOLD MEDAL
Xianhuai Zhu

REGINALD FESSENDEN AWARD
Yike Liu and Kamini Singha

J. CLARENCE KACHER AWARD
Shuvajit Bhattacharya, Mehdi Aharchaou, and Leonardo Azevedo

DISTINGUISHED ACHIEVEMENT
Zonge International

LIFE MEMBERSHIP
Gustavo Carstens

SPECIAL COMMENDATION
GeoFORCE Texas, Samir Abdelmoaty, and Ed K. Biegert

OUTSTANDING EDUCATOR
Dario Grana

CRAIG J. BEASLEY AWARD FOR SOCIAL CONTRIBUTION
University of Bucharest

Figure 16. SEG President Anna Shaughnessy presents Öz Yilmaz with the Maurice Ewing Medal.
**BEST PAPER IN GEOPHYSICS**

**IN 2021**

“Reflection angle/azimuth-dependent least-squares reverse time migration” by Eric Duveneck, Michael Kiehn, Anu Chandran, and Thomas Kühnel

**HONORABLE MENTIONS (GEOPHYSICS)**

“Mechanical properties of grain contacts in unconsolidated sands” by Colin M. Sayers

“Scattering-based focusing for imaging in highly complex media from band-limited, multicomponent data” by David Vargas, Ivan Vasconcelos, Yanadet Sripanich, and Matteo Ravasi

“Near-field strain in distributed acoustic sensing-based microseismic observation” by Bin Luo, Ge Jin, and Frantisek Stanek

“Near-surface full-waveform inversion in a transmission surface-consistent scheme” by Daniele Colombo, Ernesto Sandoval-Curiel, Diego Rovetta, and Apostolos Kontakis

**BEST PAPER IN THE LEADING EDGE**

“Characterization of a carbonate geothermal reservoir using rock-physics-guided deep neural networks” by Fabien Allo, Jean-Philippe Coulon, Jean-Luc Formento, Romain Reboul, Laure Capar, Mathieu Darnet, Benoit Issautier, Stephane Marc, and Alexandre Stopin

**HONORABLE MENTIONS (THE LEADING EDGE)**

“Mineral prospectivity mapping using a VNet convolutional neural network” by Michael McMillan, Eldad Haber, Bas Peters, and Jennifer Fohring

“CO₂ messes with rock physics” by Manika Prasad, Stanislav Glubokovskikh, Thomas Daley, Similoluwa Oduwole, and William Harbert

“Computing elastic properties of organic-rich source rocks using digital images” by Mita Sengupta and Shannon L. Eichmann

“Python Earth Engine API as a new open-source ecosphere for characterizing offshore hydrocarbon seeps and spills” by Whitney Trainor-Guitton, Leo Turon, and Dominique Dubucq

**BEST PAPER IN INTERPRETATION**

“Timing of hydrocarbon entrapment in the eastern foothills of the Eastern Cordillera of Colombia” by Nelson Sánchez, Jael Pacheco, Mario Alberto Guzman-Vega, Andrés Mora, and Brian Horton

**SEG BEST PAPER PRESENTED AT IMAGE ’21**

“Impact of joint PP/PS inversion on shear-impedance estimation for exploration and production” by Ali Tura, James Simmons, Matthew Copley, Sima Daneshvar, Andrea Damasceno, and Joseph Stitt
HONORABLE MENTION (BEST PAPER)
“Identifying salt flanks using low-frequency ambient OBN surface-wave seismology” by Aaron J. Girard, Jeffrey Shragge, and Bjorn Olofsson

SEG BEST POSTER PAPER PRESENTED AT IMAGE ’21
“A 108 km² compressive sensing processing trial” by Dustin Blymyer, Klaas Koster, and Graeme Warren

HONORABLE MENTION (BEST POSTER PAPER)
“Towards practical Bayesian inversion of geobodies using geologic priors” by Ashutosh Tewari, Brent Wheelock, Antonio Paiva, Arash Fathi, and Myun-Seok Cheon

SEG BEST PAPER PRESENTED BY A STUDENT AT IMAGE ’21
“Machine learning inversion of geophysical data by a conditional variational autoencoder” by W. Anderson McAliley

AWARD OF MERIT (BEST STUDENT POSTER PAPER)
“Using converted waves to image the lithosphere and asthenosphere beneath Alaska” by Isabella Gama

GOALS FOR THE COMING YEAR
The committee aims to increase member engagement in the nominations process as it works to finalize the list of recipients for 2023 awards.

CHALLENGES
There has been a decline in nominations for the Cecil Green Enterprise Award and the Craig J. Beasley Award for Social Contribution, resulting in these awards not being bestowed annually.
**IMAGE OVERSIGHT/IMAGE ORGANIZING**

Committee chairs: Maurice Nessim, Olga Nedorub, Wafik Beydoun, Anne Draucker, Rick Fritz, Gretchen Gillis, Aria Abubakar, and Ahmed Hakami

Staff liaisons: Tom Agnew and Jenny Cole

**EXECUTIVE SUMMARY**

IMAGE ’22 was held in person from 28 August to 1 September at the George R. Brown Convention Center in Houston, Texas. There were a total of 5944 attendees from 82 countries. The technical program consisted of 772 abstracts accepted (out of 1286 total abstracts submitted) that were presented in 193 program sessions (123 oral and 70 poster). Of those, 11 were special sessions.

Highlights:

- 17 postconvention workshops
- 18 technical panels and eight strategic panels
- Six luncheons, one breakfast, five short courses, and one field trip
- Yoga and an art show
- 212 exhibitors
- Four pavilions (Digitalization, Carbon Management, Global Energy Opportunities [GEO], and Near-Surface)

Three exhibit-hall pavilions were introduced this year to focus on the latest technology and innovations, in addition to a previously successful Global Energy Opportunities Pavilion. They included the Digitalization Pavilion, Near-Surface Pavilion, and Carbon Management Pavilion.

Table 5. A total of 17 postconvention workshops were held at IMAGE ’22.

<table>
<thead>
<tr>
<th>W-1</th>
<th>Technologies for improving seismic acquisition: Efficiency, effectiveness, resolution, innovations</th>
</tr>
</thead>
<tbody>
<tr>
<td>W-2</td>
<td>Distributed fiber-optic sensing in applied geophysics</td>
</tr>
<tr>
<td>W-3</td>
<td>Full-wavefield migration or FWI imaging: Exploring new concepts of seismic imaging</td>
</tr>
<tr>
<td>W-4</td>
<td>High-performance computing — What does the future look like?</td>
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<tr>
<td>W-5</td>
<td>How to address value of information of geophysical data in the language of the reserves/resources evaluation and management for petroleum and CCS</td>
</tr>
<tr>
<td>W-6</td>
<td>Infrastructure geophysics</td>
</tr>
<tr>
<td>W-7</td>
<td>Machine learning applications for FWI and seismic imaging</td>
</tr>
<tr>
<td>W-8</td>
<td>Machine learning in accelerating energy transition and enabling low-carbon economy</td>
</tr>
<tr>
<td>W-9</td>
<td>Measure, monitor, validate (MMV) in the geophysical realm of new energy</td>
</tr>
<tr>
<td>W-10</td>
<td>GEM methods (gravity, magnetic, electrical, and electromagnetic) for environmental applications</td>
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<tr>
<td>W-11</td>
<td>Rock-physics challenges for carbon sequestration and geothermal imaging</td>
</tr>
<tr>
<td>W-12</td>
<td>Geophysical aspects of smart cities</td>
</tr>
<tr>
<td>W-13</td>
<td>Subsurface characterization: How can monitoring impact energy transition?</td>
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<tr>
<td>W-14</td>
<td>Subsurface uncertainty description and estimation — Moving away from single prediction with distributed learning</td>
</tr>
<tr>
<td>W-15</td>
<td>The role of geophysics in sustainable energy and carbon neutrality — Geothermal, wind, hydrogen, and CCUS</td>
</tr>
<tr>
<td>W-16</td>
<td>Value of shear waves from the overburden to the reservoir</td>
</tr>
<tr>
<td>W-17</td>
<td>What’s next for FWI and its derived products?</td>
</tr>
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</table>
**HIGHLIGHTS FROM THE PAST YEAR**

**Introduction.** SEG, the American Association of Petroleum Geologists (AAPG), and the Society of Sedimentary Geology (SEPM) held the International Meeting for Applied Geoscience and Energy (IMAGE '22) in Houston, Texas, from 28 August to 1 September at the George R. Brown Convention Center. The week of extraordinary geoscience and discovery, hosted from the evolving and growing energy capital, enjoyed a total of 5944 attendees from 82 countries. The preceding event (IMAGE '21) was a hybrid meeting. IMAGE '22 was the first fully in-person event since 2019. Lessons learned in previous years were implemented in 2022, resulting in a well-attended and profitable event. Even though there is still room for improvement and for growth in attendance, the number of professionals making their way to Houston was very encouraging, as well as their postconvention ratings and remarks.

The mix of professionals between geoscience subdisciplines was the following: 37% geophysicists, 26% geologists, 8% engineers, 7% academics, 3% service-company personnel, 2% petrophysics, and 17% other. By society, the mix is the following: 2005 attendees from SEG, 1457 attendees from AAPG, 134 attendees from SEPM, and 2059 attendees who were not current members. Of these, 2022 were paid members, 686 were nonmembers, 247 were student members, 45 were student nonmembers, and 1582 were guests. A total of 82% of attendees were from the United States, and 18% were from outside of the United States.

An audience survey showed that 90% of attendees rated the event good to excellent, 87% rated the mix of technical content good to excellent, 89% thought networking opportunities met or exceeded expectations and met the exhibitors they needed to see and conduct business with. A total of 90% would recommend IMAGE to their industry peers.

Notably, exhibition floor attendance was exceptional this year, thanks to the hard work of organizers, volunteers, and staff who ensured that needs of IMAGE vendors were met by attracting traffic to the floor by means of innovative concepts. These included pavilions and their locations, floor presentations, guest passes, and dynamic attractions such as beverage stations, a book store, photo station, art exhibit, and more. IMAGE '22 seemingly saw a “slow down” in technical session and panel attendance,

<table>
<thead>
<tr>
<th>Type</th>
<th>Panel focus</th>
<th>Panel title</th>
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<tbody>
<tr>
<td>Strategic</td>
<td>Low-carbon solutions</td>
<td>Low-carbon solutions</td>
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<tr>
<td>Strategic</td>
<td>Digital</td>
<td>How to win in the digital future</td>
</tr>
<tr>
<td>Strategic</td>
<td>Energy transition</td>
<td>Geoscience solutions for the energy transition: Part 1: Strategic perspectives on the energy transition Part 2: Executives leveraging geoscience for the energy transition</td>
</tr>
<tr>
<td>Strategic</td>
<td>Deepwater exploration and production</td>
<td>The business of deepwater: Past, present, and future</td>
</tr>
<tr>
<td>Strategic</td>
<td>Near surface</td>
<td>Near surface: Part 1: Industry of mining Part 2: Susceptibility of natural resources</td>
</tr>
<tr>
<td>Strategic</td>
<td>Sustainability</td>
<td>Geoscientists in net-zero paths: What, when, and how?</td>
</tr>
<tr>
<td>Strategic</td>
<td>Guyana Suriname</td>
<td>Guyana Suriname Basin: Challenges and opportunities</td>
</tr>
<tr>
<td>Strategic</td>
<td>Emerging technologies</td>
<td>Emerging technologies</td>
</tr>
</tbody>
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partly due to a large variety of excellent parallel topics that divided attention of the attendees. Another reason may be that more than 60% of attendees reported 16-plus years of experience in the industry. We observed lively networking on the floor by seasoned experts who, after years of limited in-person communication, jumped at the opportunity to catch up with colleagues. One of the lessons from IMAGE ’22 is related to reducing the amount of parallel sessions to promote higher attendance for individual events. It is, however, a complex issue and a hard balance to achieve due to the pull of opposite forces. There is a desire to have high attendance numbers and higher acceptance rates versus variability and diversity of topics, new materials and events, and high-quality

Table 7. Technical panels at IMAGE ’22 were presented throughout the event.

<table>
<thead>
<tr>
<th>Type</th>
<th>Panel focus</th>
<th>Panel title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student</td>
<td>Near surface</td>
<td>Ask the experts</td>
</tr>
<tr>
<td>Invited technical/panel</td>
<td>Near surface</td>
<td>Critical mineral supply chain sustainability programs</td>
</tr>
<tr>
<td>Invited technical/panel</td>
<td>Near surface</td>
<td>Near-surface geophysics academics</td>
</tr>
<tr>
<td>Invited technical/panel</td>
<td>Near surface</td>
<td>Federal and state infrastructure programs through the bi-partisan infrastructure legislation</td>
</tr>
<tr>
<td>Invited technical/panel</td>
<td>Near surface</td>
<td>Orphaned and abandoned well identification and characterization through the bi-partisan infrastructure legislation</td>
</tr>
<tr>
<td>Invited technical/panel</td>
<td>Energy transition and sustainability</td>
<td>Shaping the future today: How young professionals are advancing sustainability</td>
</tr>
<tr>
<td>Invited technical/panel</td>
<td>Energy transition and sustainability</td>
<td>The Geosciences Sustainability Atlas: Opportunities and roadmap</td>
</tr>
<tr>
<td>Invited technical/panel</td>
<td>Energy transition and sustainability</td>
<td>Changing the dynamics of energy use</td>
</tr>
<tr>
<td>Invited technical/panel</td>
<td>CCS</td>
<td>Innovative global technologies applied to CCS: Current and future</td>
</tr>
<tr>
<td>Invited technical/panel</td>
<td>CCS</td>
<td>Building a successful CCS team and project</td>
</tr>
<tr>
<td>Invited technical/panel</td>
<td>Deepwater exploration and production</td>
<td>157 years of deepwater</td>
</tr>
<tr>
<td>Invited technical/panel</td>
<td>Diversity and inclusion</td>
<td>Diversity, equity, and inclusion in the geoscience workforce of tomorrow</td>
</tr>
<tr>
<td>Invited technical/panel</td>
<td>Technology and innovation</td>
<td>Synergies with O&amp;G: Bitcoin mining and how to monetize stranded or wasted energy assets</td>
</tr>
<tr>
<td>Invited technical/panel</td>
<td>Technology and innovation</td>
<td>Biological-based carbon capture and storage: What role does geoscience and other scientific data play?</td>
</tr>
<tr>
<td>Invited technical/panel</td>
<td>Technology and innovation</td>
<td>Developing innovative technologies for commercialization</td>
</tr>
<tr>
<td>Invited technical/panel</td>
<td>Technology and innovation</td>
<td>Innovation: The role it played and its potential impact on the industry</td>
</tr>
<tr>
<td>Invited technical/panel</td>
<td>Subsurface and earth imaging</td>
<td>Imaging acquisition and interpretive technologies: Surface and subsurface</td>
</tr>
<tr>
<td>Invited technical/panel</td>
<td>Space exploration</td>
<td>Applied geophysics in space exploration</td>
</tr>
</tbody>
</table>
content. We believe that IMAGE ’23 will come closer to the optimal balance of these variables.

New technologies, new discoveries, new ideas, and new world events are bringing scientists together to shape the future, help one another grow scientifically, succeed professionally, and influence the way we communicate and advance. Strong foundation and freedom to evolve are crucial factors of a strong scientific community. IMAGE ’22 embraced both in-depth scientific methods and creative new applications. This year, the focus of the technical program was on strengthening the sense of community by completely blending geology and geophysics into one integrated multidisciplinary program with connected components such as strong technical sessions, exciting panel discussions on emerging topics, insightful strategic panels with successful business professionals, social events, student and young professional events, the edge-of-your-seat U-Pitch event and Discovery Thinking Forum, education opportunities, and more. The limelight this year was on near-surface engineering and environmental sciences, digitalization, carbon management, and global opportunities.

Program. Jumping into the program, the opening session was held on Sunday and was a big success, with presidents of AAPG and SEG giving welcoming addresses, societies honoring their top awardees, and the audience witnessing a much-needed lively debate on energy. The Icebreaker Reception, Student Leadership Symposium (SLS), and Early-Career Networking event were also held on Sunday. Monday–Wednesday was predominantly dedicated to the technical sessions and technical and strategic panel discussions. Postconvention workshops were held on Thursday, after the exhibition floor wrapped up, and required an additional paid pass. The postconvention workshops were well attended.

IMAGE ’22 focused on building a new facet of the conference — strategic vision and business connections. Eight strategic panels discussed various advancements and challenges of geoscience applications and industry. They included “Low-carbon solutions;” “How to win in the digital future;” “Geoscience solutions for the energy transition” (two parts); “The business of deepwater: Past, present, and future;” “Near surface” (two parts); “Geoscientists in net-zero paths: What, when, and how;” Emerging technologies;” and “Challenges and opportunities of the Guyana-Suriname Basin.”

A total of 18 technical panels covered emerging focus topics with a variety of the most talked about, debated, researched, and funded topics of the year. Energy transition and sustainability talks dove into energy efficiency, young professionals’ roles in advancing sustainability, and progress of the Geosciences Sustainability Atlas. Carbon capture and storage (CCS) panels invited top professionals to address innovative technologies applicable to CCS currently and in the future and laid out the plan for building a successful CCS team. Near-surface panels discussed the future of academia related to geophysics and introduced two bipartisan infrastructure-funded Department of Energy (DOE) programs: roads and bridges, and abandoned well methane emission mitigation. The new DOE’s Division of Mineral Sustainability was introduced. Deepwater exploration and production celebrated 157 years of excellence. The technology and innovation topic was developed by five panels on technology commercialization, the role of innovation and impact on the industry, coupled subsurface-surface applications for farming and imaging and interpretive technologies, and the new and growing relationship between oil and gas and the bitcoin mining business. An exciting development in space exploration was revealed.
Cumulative attendance across all panels was more than 1300 individuals, with strategic panels drawing almost 2.5 times as many attendees (on average) as the technical panels. Average attendance for strategic panels was approximately 74 attendees, while average attendance for technical panels was approximately 30 attendees.

Diversity, equity, and inclusion in the geoscience workforce of tomorrow was an important topic of the conference. Special thanks to the Diversity and Inclusion (D&I) team who introduced behavior guidelines for the first time this year.

The technical program received more than 1200 abstract submissions that covered 43 overarching foundational and developing geophysics and geology themes. Seven of those were fully integrated geology and geophysics subjects such as borehole geophysics and geomechanics, low-carbon solutions, geologic and geophysical interpretation, deep integration of data and disciplines, machine learning and data analytics (MLDA), new energy frontiers, sustainable energy development, and environmental geoscience. Machine learning and advanced data analytics, full-waveform inversion, and interpretation were again the top three hottest topics of the year. Although there are growing numbers of presentations discussing energy transition challenges and solutions, most talks are still focused on oil-and-gas applications. The Middle East was the global special session topic of 2022. Eight other special sessions included traditional Recent Advances and the Road Ahead, Geoscientists without Borders®, SEG/AGU Hydrogeophysics, as well as other timely topics on electromagnetics, gravity, reserves, instrumentation, and more. It is also worth pointing out that an effort has been made to synergize the strategic panels, technical panels, technical program, and postconvention workshops. For some topics such as low-carbon solutions, we started with a strategic panel discussing the business aspects, then a technical panel presenting solutions, and finally a postconvention workshop, where we discussed future challenges and opportunities.

SEPM hosted a field trip, “Texas coastal processes — Brazos River Delta to Galveston Island,” that focused on modern sedimentology processes.

IMAGE ’22 also offered a variety of social events, luncheons, receptions, and guest activities such as trips to the Johnson Space Center, Bayou Bend, Museum of Fine Arts, and POST Houston; a Cistern history tour; sunrise yoga; and an art show.

A detailed list of all activities, sessions, panels, luncheons, trips, tours, networking events, alumni meetings, award ceremonies, and other special features can be found in the IMAGE ’22 Program.
Concluding remarks. Members of the Oversight Committee and Organizing Committee would like to extend our deepest gratitude to all attendees, authors, vendors, exhibitors, volunteers, sponsors, and staff. We thank the organizers of various events, activities, and panels. Thank you to the reviewers and key contacts for technical topics; event center staff; hotels staff; SEG, AAPG, and SEPM leadership; and all who made IMAGE ’22 a success.

GOALS FOR THE COMING YEAR
We are looking forward to an even more successful 2023. The committee held a postconvention discussion meeting in September 2022 with 14 committee participants and five staff representatives to discuss what went well and what improvements can be made in 2023. Minutes were made available to the new committee members. The goal for the new year is to continue improving the value to delegates to once again receive comments such as “best convention yet.”

CHALLENGES
A detailed list of challenges and improvement are available in the postconvention discussion meeting minutes held in September 2022.
**Interpretation Editorial Board**

Committee chair: Vsevolod Egorov  
Board liaison: Jeffrey Shragge  
Staff liaison: Elizabeth Warren

**Committee Mission**

The mission of the *Interpretation* Editorial Board is to evaluate submissions and prepare them for publication in the SEG/American Association of Petroleum Geologists journal *Interpretation*.

**Executive Summary**

Following in the footsteps of the previous leadership of *Interpretation* (Balazs Nemeth as editor-in-chief and Kurt Marfurt as deputy editor-in-chief), Vsevolod Egorov as editor-in-chief and Bradley Wallet as deputy editor-in-chief along with the journal's editors and staff continue coordination, development, and popularization of the journal. Eight special sections were published in 2022, and six special sections are expected in 2023.

**Highlights from the Past Year**

The journal published an editorial introducing the *Interpretation* editorial board in the February 2022 issue. Since then, Antony Price joined the editorial board as an associate editor.

There was a noticeable drop in submissions in 2022, mainly due to a smaller number of special sections suggested and organized for 2022–2023. We are making a strong effort to improve the number of special sections for the 2024 publication year. Publishing special sections is the best way to generate both volume and quality of submissions.

Although there are expected ups and downs in the journal's ranking history, overall metrics show a continuous positive trend. The journal's impact factor has increased 22.6% since 2020 and has almost tripled since 2015. Many papers accessed in 2022 had more than 1000 views, with some having more than 1500 views, which clearly demonstrates readers’ interest.

The editorial board submitted a proposal to introduce an Honorable Mention category for Best Paper Award runners-up to recognize top papers published in *Interpretation* and contributions made by their authors. We also proposed recognition of the editors of the special sections and reviewers via certificates of appreciation and publishing their names in the journal's first issue of the following year.

The editorial board is constantly looking to increase *Interpretation*’s visibility, popularity, and diversity; attract new authors, editors, and reviewers; and continue to provide a solid applied-science contribution to the geoscience community. This year, journal submissions came from the United States, China, Canada, Iran, Egypt, Argentina, Colombia, Denmark, France, Germany, Iraq, Norway, Poland, and Tunisia.

**Goals for the Coming Year**

The publications’ geography remains dominated by authors from the United States and China. These countries are two of the leaders in conducted research and work in our field. However, the journal’s leadership objective is to increase geographic representation of published papers. One way to do this is by organizing special sections focused on geology in different parts of the world with the help of editors located in those areas.

**Challenges**

Along with expanding the geography of *Interpretation*’s published papers, finding and retaining individuals to execute the peer-review process is a constant challenge.
JUSTICE, EQUITY, DIVERSITY, AND INCLUSION
Committee chair: José Arce
Board liaison: Brandy Hawkins
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, in addition to encouraging an environment that establishes a culture of justice, equity, diversity, and inclusion within the Society and among its stakeholders.

EXECUTIVE SUMMARY
The committee’s inaugural year included outreach to SEG committee chairs to gather demographic data and to encourage diversity within committee rosters. At IMAGE ’22, the committee participated in an equity, diversity, and inclusion panel with the SEG and American Association of Petroleum Geologists (AAPG) Women’s Network committees and AAPG Young Professionals. The committee plans for more collaboration with groups that have common goals.

HIGHLIGHTS FROM THE PAST YEAR
One of the committee’s first objectives after being established in 2021 was to seek demographic information from SEG committee chairs in order to establish a benchmark for committee-roster diversity. The committee held two meetings with SEG committee chairs to encourage diversity in committees throughout SEG and to encourage the chairs to provide data for benchmarking.

The JEDI Committee established a web presence within the SEG corporate site. It plans to expand resources offered there after the new SEG site is launched in 2023.

Committee Chair José Arce and Vice Chair Lillian Flakes helped organize an IMAGE ’22 panel discussion titled “Diversity, equity, and inclusion (DEI) in the geoscience workforce of tomorrow.” Flakes also represented SEG as a panelist. The panel was facilitated by the SEG Women’s Network, AAPG’s Women’s Network, AAPG Young Professionals, and SEG JEDI Committee.

Arce completed a year leading the committee at IMAGE ‘22, and Flakes began a term as chair. Eileen Martin is serving as vice chair.

GOALS FOR THE COMING YEAR
Committee members are writing articles for a new feature titled “Geoscientists around the globe.” A Slack channel will be added in order to collect resources for other committees to use as JEDI teaching moments. Members will identify resources to add to the committee’s web presence. Finally, the JEDI Committee will share booth space with the SEG and AAPG Women’s Network committees to have a presence on the IMAGE ’23 exhibit floor.

CHALLENGES
Lack of funding to begin training initiatives delays the impact that the committee could otherwise make.
MACHINE LEARNING
Committee chair: Robert Clapp
Board liaison: Allen Bertagne
Staff liaison: Annabella Betancourt

COMMITTEE MISSION
The Machine Learning (ML) Committee advises the SEG Board of Directors on matters involving machine learning applied to geoscience problems and organizes events that advance the application of machine learning to geophysics.

EXECUTIVE SUMMARY
The ML Committee has a lot of plans but not enough action.

HIGHLIGHTS FROM THE PAST YEAR
In 2022, the committee organized a session at a Rice machine learning workshop. Committee members discussed creating a YouTube channel that would focus on ML papers. Several committee members made videos summarizing papers on the topic of ML for distributed acoustic sensing (DAS). It has been a challenge to get a quorum in order to finish the work.

GOALS FOR THE COMING YEAR
The committee hopes to host an SEG workshop on the topics of ML and DAS. Committee members plan to generate YouTube videos discussing relevant ML topics. Lastly, the committee plans to expand its membership.

CHALLENGES
The committee is quite busy, and participation has been a challenge.
MEETINGS REVIEW AND PLANNING

Committee chair: Alex Martinez
Board liaison: Kurt Marfurt
Staff liaison: Debbie Mitchell

COMMITTEE MISSION
The mission of the Meetings Review and Planning Committee is to analyze and approve SEG’s involvement in meetings and activities apart from IMAGE and to ensure that the needs of the global geophysics community are met in a financially responsible manner by SEG.

EXECUTIVE SUMMARY
- The total number of events proposed to the committee in 2022 was down from previous years, but regional diversity increased significantly.
- There was a reduction in the percentage of virtual events proposed.
- Process improvements were made to reduce decision-making cycle time and improve decision quality.

HIGHLIGHTS FROM THE PAST YEAR
Committee members were active in 2022. Membership remained relatively stable, with only minor changes. Alex Martinez was the committee chair for the year and will remain the chair in 2023. A new chair will be selected for 2024.

A total of 22 events were proposed in 2022. This number is down from previous years. All proposed events were approved. Of the events, 11 were operated, one was partnered, and 10 were promoted. About half of the events were from the Middle East, and the total proposed events from the Middle East remained approximately flat when compared to 2021.

Regional diversity increased compared to previous years. All regions were represented in 2022 compared to previous years in which Africa and South America were often not represented. There was a significant reduction in event proposals in 2022 from the Asia Pacific region. Virtual format events also decreased in 2022 when compared to 2021 (about 20% versus 40%).

SEG staff worked to reduce the approval process cycle time and now take the committee recommendations to the Board of Directors for final approval on a monthly basis.

Based on feedback from the committee earlier in the year, SEG staff are now gathering and compiling postmeeting metrics (e.g., number of attendees and final financials). This enables committee members to be calibrated on what is and what is not likely to be a successful meeting. In the meantime, the committee has remained vigilant while evaluating proposals and requesting additional information when needed to make recommendations.

Event proposal forms are in the process of being updated based on feedback from the Justice, Equity, Diversity, and Inclusion Committee. This will ensure that the proposed events align with SEG inclusion and diversity goals. These updates will take effect in 2023.

GOALS FOR THE COMING YEAR
Looking ahead to 2023, the committee will use postmeeting information to improve decision making and enable more strategic-level recommendations. It will also continue to work toward improving committee membership diversity.

CHALLENGES
There are currently no pending challenges for the committee.
MEMBERSHIP
Committee chair: Aaron Girard
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 and as one to help accomplish the Society’s goals to promote the science of applied geophysics and the education of geophysicists worldwide.

EXECUTIVE SUMMARY
The Membership Committee completed a number of important tasks in 2022 including increasing the value of membership, expanding the Dues Waiver program, and investigating ways to bring more members to the Society.

HIGHLIGHTS FROM THE PAST YEAR
In 2022, the committee worked to increase the value of membership for members, with the aim of retaining active geoscientists as members. The discussions led to projects with the aim of increasing communication and networking possibilities for members, lengthening the time members are eligible for the Dues Waiver program, and expanding the Corporate Sponsorship program for members’ dues. These have all been challenges for the Society, particularly during the pandemic when in-person meetings were difficult or impossible.

The committee worked with the SEG Council on the concept of expanding the Dues Waiver program, which exists for members who are in transition. The main reason for this discussion was the obvious challenges posed by the pandemic. It also allowed a conversation to begin on what SEG membership gives to those who are not already active in the Society and the field of geophysics. The committee discussed several ideas of how to make sure members get the most value from their membership dues. Ideas included building networks and expanding communication options between members for work, research, and other collaborations. The annual meeting has historically been the place for much of this, but with remote-meeting options, the mode of communication has changed.

While the discussion regarding building membership value was happening, the committee also investigated methods to bring more geophysicists into the Society as members. One of the best ways to do this is to go to the source. The committee addressed how corporate-sponsored membership options can be better utilized, particularly in regions where dues payment methods are more challenging for individual members. By bringing more active geophysicists into the Society through the corporate bulk membership route, SEG will benefit from having more members to network with as well as more resources.

GOALS FOR THE COMING YEAR
In 2023, the committee aims to work toward expanding the Corporate Sponsorship program and bring as many active geoscientists as possible into the Society. It is the goal of the committee to bring as many geoscientists together as possible to promote the growth and changes that are happening in the industry and world. The committee aims to support the Transformation Task Force, as well as all new and current members.

CHALLENGES
One major point of discussion in 2022 has been addressing the Code of Conduct for members in elected positions. The committee was in direct communication with the Board and Council throughout the year to help define what should
be encapsulated in the Bylaws and Policies and Procedures manual for these roles, particularly because members in these roles represent all members of the Society. Though a challenging task, it is important to make sure these documents, roles, and definitions remain up to date for the changing world, which is also an ongoing goal of the Society as a whole.

MINING AND MINERAL EXPLORATION

Committee chair: Glenn Chubak
Board liaison: Ana Curcio
Staff liaison: Laurie Whitesell

COMMITTEE MISSION
The Mining and Mineral Exploration Committee advises the SEG Board of Directors on all matters involving mining exploration and organizes events that advance the application of geophysics to mining.

EXECUTIVE SUMMARY
- A new executive was elected, with Sarah Devriese as chair.
- Three committee meetings were held including one at IMAGE '22.
- A mining technical program was prepared for IMAGE '22.

HIGHLIGHTS FROM THE PAST YEAR
This year, the committee organized mining-related technical content for IMAGE '22. There was an excellent turnout from the mining community and good engagement at the sessions and events. At a committee meeting during the event, Daniel Hollis was elected as the new key contact, Jiajia Sun moved into the vice-chair position, and Sarah Devriese moved into the chair position. Glenn Chubak completed his six-year term as executive on the committee.

Committee meetings were held virtually this year, with one on 9 February to correspond with the Association for Mineral Exploration Roundup Conference in Vancouver and one on 14 June following the Prospectors and Developers Association of Canada International Convention in Toronto. The meetings were well attended, and the discussion was lively. There is continued concern from the community about the loss of university programs in the earth sciences in general and geophysics in particular.

GOALS FOR THE COMING YEAR
In 2023, the committee will consider rebranding to better reflect the committee’s goals. The committee also will improve communications through the use of social media.

CHALLENGES
With the mining industry in a period of high activity, there has been a decrease in abstract submissions for IMAGE.
NEAR-SURFACE GEOPHYSICS TECHNICAL SECTION
Section chair: Erika Gasperikova
Section liaison: Joseph M. Reilly
Staff liaison: Laurie Whitesell

SECTION MISSION
The Near-Surface Geophysics Technical Section (NSTS) is dedicated to advancing applied geophysics in the near surface that benefits 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
This year, NSTS worked to develop global representation and collaboration with several societies to aid in global needs and interests. NSTS developed content that supports the interests of our student members and their success and education development.

HIGHLIGHTS FROM THE PAST YEAR
Every year, NSTS members recognize geophysics professionals for their achievements and significant contributions to near-surface geophysics and nominate them for the Harold Mooney Award. They also are nominated for the joint Environmental and Engineering Geophysical Society (EEGS)/SEG NSTS Frank Frischknecht Award every 18 months. This year, the Harold Mooney Award was given to Chester Weiss (Sandia National Laboratory), and Tim Johnson (Pacific Northwest National Laboratory) received the Frank Frischknecht Award.

The Student Subcommittee established a Pub Club. The club offers the opportunity to discuss foundational articles related to near-surface geophysics that are identified and read in advance. In January, the subcommittee conducted their third virtual event titled, “Ask the Expert.” The event was a success, with 167 registered attendees from Africa, Asia, Europe, the Middle East, North America, and South America. Invited experts were Martin Bates (Sander Geophysics Ltd.), Nicole Pendrigh (Collier Consulting Inc.), Miriam Moller Johnston (U.S. Bureau of Reclamation), John Goff (University of Texas at Austin), and John Lane (U.S. Geological Survey). Students had the opportunity to ask questions, learn from experts, and participate in a group discussion.

NSTS conducted the third Summit on Drone Geophysics in October 2022. The summit was truly a global event, with presenters and attendees taking part regardless of time zones. There were 161 attendees from 30 different countries. All presenters gave their presentations live. Cochairs for the event were Laura Quigley and Callum Walter. Members of the Technical Committee were Elizabeth Baranyi, Ron Bell, Daniel Bochicchio, Nathan Campbell, Cian B. Dawson, Jan Francke, Kanita Khaled, Juan Ortega, and Johannes Stoll. We had two platinum sponsors, Mobile Geophysical Technologies and Seequent; one gold sponsor, Geometrics; and five silver sponsors, Collier Geophysics, EDCON-PRJ, Geonics Ltd., Medusa Radiometrics, and Southern Geoscience Consultants.

NSTS had a strong presence at IMAGE ’22. Oral sessions covered imaging and inversion, advanced processing and machine learning, and urban and environmental topics. Special sessions included “Career-advancing near-surface geophysics: From rock core to watershed scale: Recognizing the achievements of Rosemary Knight,” “New instrumentation,” and “SEG-AGU hydrogeophysics.” Poster sessions were on advanced processing and machine learning, water and environmental issues, imaging, and data processing and imaging. NSTS also organized two strategic panels on the industry
of mining and the susceptibility of natural resources. Postconvention workshops sponsored by NSTS included “GEM methods (gravity, magnetics, electrical, and electromagnetic) for environmental applications,” “Geophysical aspects of smart cities,” and “Infrastructure geophysics.”

A new aspect of the NSTS IMAGE ’22 program was the exciting near-surface geophysics pavilion and theater located in the exhibition hall. The theater hosted five panels of experts on diverse topics such as critical minerals, orphaned and abandoned wells, infrastructure, and academics. Exhibiting near-surface geophysics companies had the opportunity to make a presentation about their products and capabilities. Several additional presentations covered the Summer of Applied Geophysics Experience and the 2022 Summit on Drone Geophysics. The theater and pavilion were sponsored by Teledyne Marine, which also sponsored the near-surface geophysics reception.

GOALS FOR THE COMING YEAR

- Expand IMAGE offerings of interest to a diverse membership
- Improve participation of the community in the NSTS awards process
- Grow collaborations and educational offerings
- Develop a new strategic plan

CHALLENGES

Challenges potentially include governance and financial reporting.

NOMINATIONS

Committee chair: Sherif Hanafy
Board liaison: Sherif Hanafy
Staff liaison: Mandi Duckworth

COMMITTEE MISSION

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

EXECUTIVE SUMMARY

Official ballots were sent 14 June 2022 to 7817 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: Arthur C. H. Cheng
Second vice president: Mauricio D. Sacchi
Treasurer: Mike Mellen
Directors at large: Sergio Chávez-Pérez and Catherine Truffert
District 1: Shawn New
District 2: Tracy Stark
District 3: Sarah Gach
District 4: Scott Gorham
District 5: Oliver Kuhn
District 6: Luis Donoso
District 7: Helene Hafslund Veire
District 8: Florian Bleibinhaus
District 9: Joseph Ebeniro
District 10: Abdullatif A. Al-Shuhail
District 11: Xuri Huang
District 12: James Shadlow

HIGHLIGHTS FROM THE PAST YEAR
The committee formally submitted its slate of candidates to SEG President Anna Shaughnessy in March 2022. The candidates are listed here.

President-elect: Gustavo Carstens, Arthur C. H. Cheng, and Alison Weir Small
Second vice president: Xianhuai Zhu, Mauricio Sacchi, and Marianne Rauch
Treasurer: Mike Mellen and Martin Stupel
Director at large: José R. Arce, Sergio Chávez-Pérez, and Sandeep Kumar Chandola
Director at large: Catherine Truffert, Leo Eisner, and Antony Price

District 1: Shawn New and Taylor Galloway
District 2: Hector San Martin and Tracy Stark
District 3: Richard Gibson and Sarah Gach
District 4: Scott Gorham and Olusoga Martins Akintunde
District 5: Carmen Dumitrescu and Oliver Kuhn
District 6: Alexis Arias and Luis Donoso
District 7: Alan Foum and Helene Hafslund Veire
District 8: Horst Rüter and Florian Bleibinhaus
District 9: Joseph Ebeniro and Cyril Boateng
District 10: Abdullatif A. Al-Shuhail and Sankhadip Bhattacharya
District 11: Xuri Huang and Huasheng Zheng
District 12: Joseph Ho Yin Ma and James Shadlow

Survey & Ballot Systems Inc. (SBS) was contracted to conduct the SEG election for the 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 2023 election, the committee will focus on updating its Policies and Procedures and look for ways to increase member engagement with the nominations process. The committee will also implement new processes to increase visibility of the candidates and voter turnout.

In addition, the committee will contact SEG regional offices, other SEG committees, student chapters, and local organizations to ask for
nominations from around the globe.

**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 treasurer, strong financial knowledge 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.

Other challenges include the following.

- There is a lack of new nominations and voter participation.
- The committee strives to maintain good diversity on the Board by nominating candidates from different regions, experience levels, geophysical backgrounds, work backgrounds, etc.
- The committee also works to maintain the no-campaign policy while implementing new processes to increase visibility of candidates.

**OIL AND GAS RESERVES**
**Committee chair:** Richard Xu  
**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**
In 2022, the committee continued its efforts in working in all of the reserves/resources-related topics and activities representing SEG to promote applied geophysics and the Society. With a new version of the Petroleum Resources Management System Application Guidelines (PRMS-AG) released by the Society of Petroleum Engineers (SPE) and a special session and postconvention workshop on reserves/resources at IMAGE ’22, we raised awareness of geophysics in reserves and increased the exposure and influence of the committee. We maintained good communication with SPE, American Association of Petroleum Geologists (AAPG), European Association of Geoscientists and Engineers (EAGE), and others.

**HIGHLIGHTS FROM THE PAST YEAR**
A new version of PRMS-AG was released by SPE in October 2022. We followed SPE’s timeline and finished the document.

The committee initiated, organized, and successfully carried out a special session and postconvention workshop at IMAGE ’22. The special session was on reserves/resources evaluation and management. The postconvention workshop focused on the value of information of geophysical data in the language of PRMS.
Two papers were submitted by committee members to IMAGE '22, and both were accepted. They explored the role of geophysicists and the value and use of geophysical methods in the management of reserves/resources.

This year, we doubled the size of the committee from five to 10 members. This helped increase the diversity of the committee.

We maintained close communication with the SPE Oil and Gas Reserves Committee (SPE-OGRC) by attending their regular committee meetings. We were involved in discussions about a resource management system for other resources; environmental, social, and governance; and reserves/resources. Our committee is trying to be complementary to the standards SPE has set to estimate reserves and ensure geophysical information is included in the calculations. This has required a lot of communication, interaction, and explanation of geophysics to engineers.

The committee participated in water resources management system discussions that were initiated by AAPG. We also resumed communication with the Joint Committee on Reserves Evaluator Training (JCORET).

**GOALS FOR THE COMING YEAR**

We have a variety of goals planned for 2023. The first is to focus our efforts on awareness training in reserves/resources within the SEG community. The second is to prepare, organize, and chair a special session and/or postconvention workshop on reserves at IMAGE '23. The third goal is to improve acceptance and involvement of geophysics for reserves/resources in petroleum, carbon storage, sustainability, and energy-transition efforts by peer societies. Our final goal is to nominate a committee vice chair, SPE OGRC representative, and two new SEG representatives for JCORET.

**CHALLENGES**

There are a number of challenges for the committee. We need better coordination with SEG’s other committees and task forces on common topics related to reserves/resources. Examples include CO₂ sequestration and storage, geothermal, and continuing education.

Through the building of training and collaboration with SPE and JCORET, the committee has encountered problems related to content, forms, and copyrights for PRMS and PRMS-AG, in particular with the inclusion of the geophysical chapter.

We hope to further build the network of expert geophysicists and practitioners within SEG in reserves/resources. We also hope to collect effective examples of geophysical applications on shale reserves assessment.

A final challenge is how to effectively extend and emphasize geophysics in reserves/resources to resources and management systems other than petroleum (e.g., geothermal, lithium, helium, hydrogen, etc.).
PASSIVE SEISMIC
Committee chair: Dave Diller
Board liaison: Kurt Marfurt
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 implementation of this technology for any application

- Encourage scientific collaboration and technical advances based on good science and open debate

- Facilitate communication of peer-reviewed technical information on passive seismic to members, scientists, industry, the public, and any others who might benefit

- Coordinate with the Technical Program Committee concerning technical sessions on passive seismic

EXECUTIVE SUMMARY
In 2022, most of the committee activities revolved around planning a workshop related to smart cities or urban geophysics. It was decided that the best course of action would be to hold a workshop in North America that is a continuation of two workshops that have already occurred in Asia titled “Geophysical aspects of smart cities.”

HIGHLIGHTS FROM THE PAST YEAR
The committee created a webinar series dedicated to education of the community about implementations of distributed acoustic sensing (DAS) technology.

The following webinars were delivered throughout the year:

- “Plain trains, and automobiles: Applying geophysics to the monitoring of transport networks using DAS” by Kit Chambers

- “Distributed acoustic sensing applications in engineering and geoscience” by Andres Chavarria

- “Geophysics role of nontechnical issues integral to full-scale CCUS deployment” by Steve Carpenter

- “Recorded microseismic events and rock deformation in a laboratory” by Ian Main

- “Understanding fracture re-dilation and its impact on hydraulic fracture growth at HFTS2” by Jackson Haffener

- “On the strain coupling between wellbore and an optical fiber optic cable used for crosswell strain and microseismic monitoring” by Michel LeBlanc

GOALS FOR THE COMING YEAR
Our goal in 2023 is to successfully organize a workshop on smart cities or urban geophysics.

CHALLENGES
We are struggling to find sufficient interest in a smart cities workshop within SEG, presumably because SEG has traditionally been focused on the oil-and-gas industry. We are seeking to cooperate with other organizations, such as the American Geophysical Union.
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 Board as necessary.

EXECUTIVE SUMMARY
The committee considered several proposals brought forth by staff during the year. It also began to focus on changes within the Publications Portfolio that could help the products and services achieve sustainability and contribute more to the overall SEG budget, while keeping in mind the Society mission to promote the science of geophysics and the education of applied geophysicists.

HIGHLIGHTS FROM THE PAST YEAR
The Publications Committee considered and recommended three proposals to the SEG Board of Directors in 2022. All three were approved by the Board. In the first, SEG’s open-access policy was updated to accommodate requirements from UK Research and Innovation. Authors may now post final accepted versions of funded work published by SEG in any institutional or subject repository with an open license.

In the second proposal, participation in Research4Life was approved, allowing institutions from low- and middle-income countries access to peer-reviewed content. Staff later confirmed that applications from hybrid subscription journals are no longer accepted for inclusion in the Research4Life database, meaning that SEG’s platform team instead implemented proxy access for institutions in the Research4Life Group A/B countries.

In the third proposal, the Board approved a policy to withdraw or retract journal papers whose authors failed to respond during production or after online publication.

After the Publications Committee meeting in May 2022, a small follow-up call was held in June to further discuss SEG publications. Focus was on digital transformations already achieved and possible directions forward.

In July, committee leadership received a request to consider launching a new journal dedicated to the application of digital methods in surface/near-surface geophysics. To this initial query, staff provided guidelines on formally submitting a full proposal for full committee discussion.

GOALS FOR THE COMING YEAR
The Publications Committee will continue discussions about how SEG’s publications can contribute to the transformation of the Society.

CHALLENGES
Challenges include continuing to provide member benefits while achieving sustainability within the Publications portfolio of products and services.
RESEARCH
Committee chair: Aria Abubakar
Board liaison: Sherif Hanafy
Staff liaison: Annabella Betancourt

COMMITTEE MISSION
The purpose of the Research Committee is to improve communication among earth scientists 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 two research workshops on machine learning and CO₂ applications
- Organized and sponsored two special sessions and 14 postconvention workshops at IMAGE '22
- Completed documents on hot topics in geophysics and CO₂ applications

HIGHLIGHTS FROM THE PAST YEAR
Stephan Gelinsky was elected as vice chair of the Research Committee. He will succeed Aria Abubakar in September 2023. Erkan Ay took over from Michel Verliac, the CO₂ Subcommittee chair.

In 2022, the committee organized two research workshops on two timely topics. The first research workshop, “Data analytics and machine learning for exploration and production” was held 16–19 May at Saudi Aramco’s Motiva Center in Houston, Texas. The four-day workshop consisted of one panel discussion and 10 sessions with 43 presentations from academia and industry. The workshop was attended by 80 people and sponsored by Saudi Aramco and SLB. As a follow-up, a special session on the latest advancements in machine learning for geoscience was held at IMAGE ’22, and a special section in GEOPHYSICS is planned to be published in 2023.

The second research workshop, “Toward gigatonnes CO₂ storage — Grand geophysical challenge” was held 26–30 June at Stanford University in Stanford, California. The hybrid annual report 2022
workshop had 54 in-person attendees and 47 virtual attendees. During the workshop, a field trip to the Lawrence Livermore National Laboratory took place. The workshop was sponsored by Paulsson Inc., TotalEnergies, CVX, SensorEra, Nanometrics, Shell, and SLB. As a main outcome of the workshop, hot topics relevant to carbon capture and storage research and development were discussed and identified. The Early-Career Subcommittee completed a document on hot topics in geophysics.

During IMAGE ’22, the Research Committee organized two special sessions titled “Latest advancement in ML for geosciences” and “Recent advances and the road ahead: Hot topics in space, infrastructure, and geophysics.” In addition, the committee sponsored and organized 14 half-day workshops discussing the latest in CO₂, energy transition, machine learning, seismic imaging, full-waveform inversion, and rock physics. Abubakar kindly served as the IMAGE ’22 postconvention workshop coordinator. At the conference, the committee held an in-person meeting and dinner. It was very well attended.

Before Thanksgiving, the committee had a meeting to finalize special sessions and postconvention workshop proposals for IMAGE ’23. Two special sessions and 15 postconvention workshops were proposed to the IMAGE ’23 organizing committees.

GOALS FOR THE COMING YEAR
One of our priorities in 2023 is to organize special sessions and postconvention workshops for IMAGE ’23. Another important focus is to grow our committee member numbers and to be the go-to for key topics such as artificial intelligence, machine learning, CO₂, geothermal, wind farms, etc. There is an ongoing discussion to have special interest groups within the committee for these topics.

CHALLENGES
Currently, the committee has more than 100 members. However, less than 50% of the members are active in our various activities. This will need to be improved.
COMMITTEE MISSION
The mission of the Reviews Committee is to write reviews of current geoscience literature for publication in *The Leading Edge* (*TLE*).

EXECUTIVE SUMMARY
In 2022, the core function of the committee continued at a high level, with 24 insightful reviews appearing in *TLE*. Unfortunately, the number of submitted reviews remains low, so there is a risk of running short of material early in 2023. In the usual two-year cycle, Julie Aitken assumed the chair position in September.

HIGHLIGHTS FROM THE PAST YEAR
The year opened with a challenge. The office move in Tulsa meant that we were no longer able to receive books from publishers and mail them to reviewers. After consultation with committee members and contact with key publishers, we established a new procedure for hard-copy books. Most publishers are willing to send them directly to the reviewers. However, it seems clear that we will need to rely more on e-books in the future, and at some point, this may be the only option offered by publishers.

GOALS FOR THE COMING YEAR
Our goals for 2023 include (1) increasing the number of members of the committee to the maximum of 35 and (2) reducing the backlog of books currently out for review with committee members.

CHALLENGES
The low number of reviews submitted for publication means that it may not be possible to continue publishing two reviews per month in *TLE*. It is a continuing struggle to find ways to encourage current members to increase their participation rate. We hope that adding new members to the committee will increase the number of books reviewed.

COMMENTS
The efforts of the committee members are greatly appreciated. I am always intrigued to see the different approaches to writing reviews. I am very grateful to Julie Aitken for agreeing to take on the role of chair. Once again, the ongoing success of the group is largely due to Kelsy Taylor, who, in addition to her usual sterling efforts in editing, logistics, and information flows, did a great job in steering the recent procedural changes.
SCHOLARSHIPS
Committee chair: Lorie Bear
Board liaison: Brandy Hawkins
Staff liaison: Mallory Trumbore

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 2022, the committee awarded scholarships totaling US$538,666 to 127 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 $11 million in scholarship money has been awarded to date to the top geoscience students in the world.

In 2022, the committee granted scholarships to 127 students in 20 countries, totaling $538,666.

The evaluation process involved each committee member ranking the 416 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. As always, the goal is to ensure that the best geoscience students are selected to receive the scholarships.

CHALLENGES
There are currently no pending challenges for the committee.
SEG-NGWA COLLABORATION
Committee chair: Robert W. Jacob
Board liaison: Joseph M. Reilly
Staff liaison: Laurie Whitesell

COMMITTEE MISSION
The SEG-NGWA Collaboration Committee is not a standing committee, so its objectives are the same as the Society. We specifically encourage and provide an effective means of communication to allow interaction between hydrogeologists (National Groundwater Association) and geophysicists (SEG).

EXECUTIVE SUMMARY
Over the past year and half, the committee has become mainly a communication conduit between NGWA and SEG activities via cochairs.

HIGHLIGHTS FROM THE PAST YEAR
In 2022, we were able to promote a webinar on national groundwater. The committee members received a discount to attend.

GOALS FOR THE COMING YEAR
Goals for 2023 include determining the appropriate and best way for hydrogeology and hydrogeophysics to be promoted within SEG. We hope to potentially find ways for some NGWA content to be shared with SEG members so our membership can learn about water resource management.

CHALLENGES
SEG is seeking alternative collaboration avenues with NGWA rather than through the committee.

SUSTAINABILITY
Committee chair: Maria Angela Capello
Board liaison: Ana Curcio
Staff liaison: Scott Sutherland

COMMITTEE MISSION
The Sustainability Committee advises and makes recommendations to the SEG Board of Directors to assist in its oversight role in 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. This it to ingrain the concept and framework of sustainability in the strategic and operational plans of the Society. Sustainability is understood as matters pertaining to the advancement of economic and social prosperity in full respect and protection of the environment, as framed by the 17 United Nations Sustainable Development Goals, and following the mapping done in the Geophysical Sustainability Atlas.

EXECUTIVE SUMMARY
Efforts are under way to reinvigorate the committee and ramp up activities for 2023 and 2024.

HIGHLIGHTS FROM THE PAST YEAR
Many meetings were held in the latter half of the year to devise plans for 2023 and 2024. Expect articles in The Leading Edge, podcast episodes, and a series of sustainability-themed roundtables. The first roundtable took place on 16 December and was titled “Sustainability and geophysics — What is the roadmap?” The round table was well attended by a diverse group, and the discussions were very compelling.

GOALS FOR THE COMING YEAR
Roundtable discussions will continue throughout the coming year to promote sustainability concepts within SEG and beyond. Plans are under
way to produce regular sustainability articles in *The Leading Edge*. The committee also is investigating the potential to host live sessions on platforms such as LinkedIn. Topics are anticipated to include geophysics and legislation, and climate justice. In addition to print materials and live events, the committee hopes to record several podcast episodes via Seismic Soundoff in the coming year.

**CHALLENGES**
Committee member commitments limit time for committee activity.

**TECHNICAL STANDARDS**
*Committee chair: Shawn New*
*Board liaison: Jeffrey Shragge*
*Staff liaison: Jeno Mavzer*

**COMMITTEE MISSION**
The Technical Standards Committee (TSC) 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**
The past year has been dominated by review, collation, and final incorporation of major changes proposed to SEG-Y. After ratification, the resulting document will be known as SEG-Y_rev2.1. The committee intends to submit a draft for Board approval in 2023.

**HIGHLIGHTS FROM THE PAST YEAR**
The SEG-Y_rev2.1 draft underwent multiple edits and adjustments, with a final version circulated for internal review at the end of 2022. Major changes will preserve legacy version SEG-Y textual, binary, and trace-header definitions to enable easier conversion of data. The committee plans to publish this version under an open license (CC BY).

Early in 2022, TSC was approached by a near-surface working group interested in establishing guidelines or a formal standard for drone-based geophysics. In July, the TSC chair met with members of the near-surface community who had drafted initial guidelines for drone geophysics and were interested in feedback. Recommendations on general format and process were communicated. In October, the TSC chair reviewed two versions of drone guidelines (Rev0 and a draft of Rev1) and provided feedback. If requested, the chair is open to reviewing a final Rev1 version as well.

Several requests have been received to add seismic field recorder manufacturer codes to Appendix A of SEG-D_rev3.1. This standard was published in October 2015 with an initial assignment of 59 manufacturer codes. To date, another five codes have been added, and one is in progress.

**GOALS FOR THE COMING YEAR**
TSC intends to complete internal review of the final SEG-Y_rev2.1 document before submitting it for SEG Board ratification. In addition to routine communication of SEG-Y_rev2.1 (i.e., via an announcement and press release), committee members are developing a nontechnical article on the history of SEG Standards for *The Leading Edge*.

**CHALLENGES**
In late April, the TSC chair requested guidance in speaking to online outlets about the SEG Open Group liaison agreement governing its collaboration with the Open Subsurface Data Universe (OSDU) consortium. The Open Group was queried and advised that their legal team will
need to provide guidance regarding promotion of the agreement. This is still forthcoming.

This query separately raised the need for a fully executed copy of the MOU between SEG and The Open Group. For reference, SEG signed the agreement in August 2021, and the OSDU forum elected Yoryenys Del Moro as liaison in September 2021. The Open Group’s legal department committed to providing a final MOU document, but this is still in process.

THE LEADING EDGE EDITORIAL BOARD

Committee chair: Yongyi Li
Board liaison: Jeffrey Shragge
Staff liaison: Steve Brown

COMMITTEE MISSION
The Leading Edge, universally known as TLE, serves as an important vehicle for the exchange of technical information and society news of SEG. It provides timely dissemination of information likely to interest the SEG membership and geophysical communities.

EXECUTIVE SUMMARY
TLE has continuously ranked high among geophysical journals and received a CiteScore of 4.1, with a 115% increase in the past five years. TLE plays a role in supporting SEG to fulfill its mission and is a vital publication in exploration geophysics and applied geophysics. In 2022, TLE published 12 special sections and many standalone articles on geophysical methods and new technologies. As a milestone in the 40-year history of TLE, the first special section on planetary geophysics was published.

Special-section topics covered in 2022 were

- January: seismic acquisition
- February: life of the well
- March: unconventionals
- April: North Sea
- May: engineering geophysics
- June: physics-driven machine learning
- July: potential fields
- August: hydrogeophysics

In 2022, the TLE Editorial Board expanded its editorial coverage while maintaining its focus on traditional areas of applied geophysics. TLE has continuously ranked high among geophysical journals and received a CiteScore of 4.1 this year (Table 8), which is about a 10% increase from the previous year and 150% increase since 2015 (Table 9). The high CiteScore indicates a continuous increase of TLE’s popularity in the geophysical community.

TLE continued its history of publishing studies on leading-edge technologies in 2022. It published 12 special sections and many standalone articles on seismic methods, nonseismic methods, regional focus, near-surface geophysics, engineering geophysics, hydrogeophysics, well geophysics, machine learning, and digital transformation.

As a milestone, in the 40-year history of TLE, the first special section on planetary geophysics was published.

In 2022, Yongyi Li and Margarita Corzo completed their terms of service at the conclusion of IMAGE ’22. Joël Le Calvez from Schlumberger and Madhav Vyas from BP were selected to fill the vacated positions. Chester Weiss was elected to serve as the chair.
September: digital transformation

October: planetary geophysics

November: geohazards

December: seismic reservoir modeling

Table 11 summarizes the origin of papers from 26 countries for 2022. The main countries of origin were the United States, Great Britain, Canada, India, Australia, and Egypt, followed by China, France, Indonesia, Japan, and Norway. The contributors were mainly from universities, followed by service companies and manufacturers, oil companies, consultants, and research institutes (Table 10).
The 2022 TLE Best Paper Award was presented to Fabien Allo, Jean-Philippe Coulon, Jean-Luc Formento, Romain Reboul, Laure Capar, Mathieu Darnet, Benoit Issautier, Stephane Marc, and Alexandre Stopin for their paper “Characterization of a carbonate geothermal reservoir using rock-physics-guided deep neural networks.” There were four Honorable Mentions. They were awarded to Michael McMillan, Eldad Haber, Bas Peters, and Jennifer Fohring for their paper “Mineral prospectivity mapping using a VNET convolutional neural network;” Mita Sengupta and Shannon Eichmann for their paper “Computing elastic properties of organic-rich source rocks using digital images;” Whitney Trainor-Guitton, Leo Turon, and Dominique Dubucq for their paper “Python Earth Engine API as a new open-source ecosystem for characterizing offshore hydrocarbon seeps and spills;” and Manika Prasad, Stanislav Glubokovskikh, Thomas Daley, Similoluwa Oduwole, and William Harbert for their paper “CO₂ messes with rock physics.”

GOALS FOR THE COMING YEAR
The goals of the TLE Editorial Board in 2023 are to continue supporting SEG in fulfilling its mission and covering the best practices and innovative technologies in exploration and applied geophysics. Special-section topics will include seismic resolution, drone geophysics, full-waveform inversion, critical minerals exploration, advancements in sensor technology, Gulf of Mexico, digitalization in energy, visualization in geophysics, coastal geophysics, deep exploration, carbon management, and orphaned and abandoned wells.

CHALLENGES
There are currently no pending challenges for the TLE Editorial Board.

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. Historically, the committee focused 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 steadily continued with activities related to the creation of a printed Spanish edition of Robert Sheriff’s Encyclopedic Dictionary of Applied Geophysics (Diccionario Enciclopedico de Geofisica Aplicada). Additionally, there have been significant advances in the Arabic translation of terms from the Dictionary in the SEG Wiki, particularly for letters A through D.

HIGHLIGHTS FROM THE PAST YEAR
We have made significant progress in the creation of a printed Spanish edition of Sheriff’s Dictionary. We contacted our most productive volunteers from previous years and invited them to rejoin the project. As a result, the volunteers have sped up our progress and have been instrumental in the final stages of reviewing the letters and figures so they can be sent to the composition vendor.

Currently, volunteers are reviewing quality and consistency of the Microsoft Word files of the 26 letters downloaded from the SEG Wiki. Six folders on a shared Google Drive were created;
each folder represents a single review stage. Our review process and progress are summarized below.

1. **E**xport a Word document from the SEG Wiki that corresponds to each letter of the *Dictionary*. This step was completed by Raul Cova and required special coding that he created for this purpose.

2. **G**enerate a master file outlining the requirements for further editing of the exported Word documents by volunteers. This has been completed.

3. **C**lean up the exported Word documents by removing content that is irrelevant for a printed edition (e.g., links and HTML formatting). This has been completed.

4. **C**reate a spreadsheet with the English term and its Spanish translation for all 6750 terms. This spreadsheet will be used as the basis for cross-referencing and indexing in the printed Spanish edition. This has been completed.

5. **P**erform first-pass editing for grammar, format, cross references, and consistency. This has been completed.

6. **T**ranslate the 306 figures and tables included in the *Dictionary*. Approximately 17% of the total number of figures (approximately 83 figures) are being redrawn in Adobe Illustrator due to poor quality of the original image. This is ongoing. To date, we have completed 60% of the figures that need to be redrawn.

7. **F**inalize each Word document so it can be sent to the composition vendor. This is ongoing. To date, we have completed 19 of the 26 letters.

8. **D**eliver the final Word document and its associated finalized figures to the composition vendor. This is ongoing. To date, we have completed letters A and B.

9. **R**eview the composed pages. This is ongoing.

10. Write/translate other sections of the *Dictionary* (e.g., appendices, etc.). Sven Treitel has agreed to write an introduction. This step has not yet been completed.

A proposal was received through the Latin America Regional Advisory Committee to translate the *Geophysical Sustainability Atlas* into Spanish. This proposal is on hold for now.

**GOALS FOR THE COMING YEAR**

Our primary goal for 2023 is to publish the translated Spanish dictionary. Publishing the dictionary will be a great accomplishment for the committee and all of the volunteers who have contributed to the project. Completion of the Spanish edition will allow the committee to concentrate on and assist with additional translation efforts of the dictionary. Completion of the project will also allow us time to seek other content for translation.
**CHALLENGES**

The most difficult aspect for the committee has been recruiting new volunteers. Although we contacted previous volunteers who were productive and familiar with the Spanish Dictionary project, enlisting new volunteers and keeping their interest in the project has been a challenge.

Additionally, the review process for the Dictionary has been particularly challenging because it is very time consuming, requires a high level of attention, and is not a linear process. Instead of multiple chapters, a dictionary contains hundreds of individual terms. Thus, the quality-check stage has taken almost as long as the initial translation of all of the terms.

However, we have acquired a great deal of experience since 2016 when we first started adding Spanish translations of the Dictionary terms into the SEG Wiki. We hope that our experience and all of the steps we have taken are useful for the upcoming chair, committee members, and volunteers who would like to keep working on the translation of the Dictionary into other languages.
TRAVEL GRANTS
Committee chair: Chandra Prakash Dubey
Board liaison: Brandy Hawkins
Staff liaisons: Joan Marie Blanco and Annabella Betancourt

COMMITTEE MISSION
The Travel Grants Committee reviews, rates, and ranks all qualified travel grant applications based on available funds and donor restrictions. The committee selects travel grant recipients and documents the process and selection as support to the payment of awards. The committee also recommends changes to the Policies and Procedures as necessary.

EXECUTIVE SUMMARY
Due to the ongoing pandemic and Russia-Ukraine war, there was a decline in applications for SEG travel grants. However, it was encouraging that 61 applications were received from around the world. A total of 48 travel grants were given so awardees could attend IMAGE ’22. The maximum of four awardees were selected from India, Indonesia, and Nigeria. There were 12 Student Leadership Symposium (SLS) awardees from the United States, apart from the remaining SLS awardees from different countries.

HIGHLIGHTS FROM THE PAST YEAR
Two new members, Laxmi Pandey and John Ramon Onayemi, joined the committee in 2022. Two active members of the committee, Emma Butler and Joan Marie Blanco, resigned to join other SEG committees.

GOALS FOR THE COMING YEAR
In 2023, the committee will establish standards of excellence and promote young geoscience leaders. The committee also will develop a professional network for travel grant awardees.

CHALLENGES
The main challenge of the committee is to retain committee members. Improvements are also needed for the evaluation process.

UNIVERSITY AND STUDENT PROGRAMS
Committee chair: Kurang Mehta
Board liaison: Brandy Hawkins
Staff liaisons: Annabella Betancourt and Jessica Dostal

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

EXECUTIVE SUMMARY
In 2022, committee members participated in the evaluation of the 2022 Best Student Chapter Award. An effort in defining the characteristics of a successful student application began. The committee continued to build connections with less-active student chapters. In addition, new district points of contact were recruited, and others shifted in their roles.

HIGHLIGHTS FROM THE PAST YEAR
This has been a special year. After restructuring our organization chart and filling up vacancies, CUSP is ready to be more active and collaborative. Joan Marie Blanco did an excellent job as the committee chair. In February 2022, Kurang Mehta transitioned into the role.

The committee participated in the evaluation of the 2022 Best Student Chapter. Approximately 60 student chapters submitted applications for the award. Evaluators selected the Nnamdi Azikiwe...
University Geophysical Society for the Best Student Chapter Award. The Ensenada Center for Scientific Research and Higher Education was selected for the Most Improved Student Chapter Award.

A focused effort in defining the characteristics of a successful student application kicked off this year. There is the potential for future collaboration in this effort with the Field Camps Committee.

The committee recruited new district points of contact including Roddys Gil (District 6), Anmol Bansal (District 10), and David Cova (District 11). We lost Deborah Wehner (District 7) and Vinicius Riguet (Challenge Bowl). Uzonna Anyiam moved from China to Oklahoma and is now representing District 3 instead of District 11.

During 2022, the committee continued to build connections with the following less-active student chapters.

- Southern University of Science and Technology Geophysical Society (China)
- University of Mansoura Geophysical Society (Egypt)
- Kwame Nkrumah University of Science and Technology SEG Student Chapter (Ghana)
- University of Delhi SEG Student Chapter (India)
- Universitas Halu Oleo SEG Student Chapter (Indonesia)
- Universidad Autonoma del Carmen SEG Student Chapter (Mexico)
- Federal University of Petroleum Resources SEG Student Chapter (Nigeria)
- Mountain Top University Geosciences Student Society (Nigeria)
- Petroleum Training Institute Geophysical Society (Nigeria)
- University of Nigeria Nsukka Geophysical Society (Nigeria)
- University of Dokuz Eylul Geophysical Society (Turkey)
- Makerere University Society of Exploration Geophysicists (Uganda)
- University of Wyoming Geophysical Society (United States)

While we gained connections with the noted student chapters, we unfortunately lost a few. We plan to reactivate them through various initiatives in 2023 and beyond.

Committee members have been looking for ways to collaborate with other SEG committees and groups. An initial connection has been made with the Transformation Task Force.

**GOALS FOR THE COMING YEAR**

We have a number of goals planned for 2023. The first goal is to have clear and more frequent communication both globally and regionally. For example, a plan is in place to organize regional committee meetings. The second goal is to have at least one workshop in 2023 through collaborative efforts with other committees and groups. The third goal is to hold more technical seminars that will focus on technical and behavioral learnings for students. The fourth goal builds on this by planning a pilot project for the Outreach program. This is an effort that was initiated in collaboration with the University of Oklahoma to share behavioral learnings in a professional environment for those in early, mid, and late stages of their careers.
CHALLENGES
A challenge of the committee is helping with the transformation of inactive student chapters so they actively participate in SEG. Another challenge is recruiting and retaining members for the committee.

WOMEN’S NETWORK
Committee chair: Elaine Mattos
Board liaison: Ana Curcio
Staff liaison: Shelly Jo Oakley

COMMITTEE MISSION
The SEG 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 that women encounter in applied geophysics and related fields.

EXECUTIVE SUMMARY
A variety of events were organized in 2022 that focused on promoting diversity, equity, and inclusion, as well as attracting and retaining women in geoscience. A quarterly newsletter continued to be published throughout the year. In addition, the WNC chair and cochair participated in a discussion about the Mentoring365 platform on SEG’s Seismic Soundoff podcast.

HIGHLIGHTS FROM THE PAST YEAR
This year, WNC partnered with other SEG committees and sister professional societies to organize events that are relevant to students and professional women in geoscience. The focus was on promoting diversity, equity, and inclusion, as well as attracting and retaining women in geoscience.

For the first time, WNC joined forces with two other SEG committees to organize events in celebration of International Women’s Day in March. Both events were well attended and included participants from around the world.

The first event, held 8 March, was a webinar titled “Gender equality today for a sustainable tomorrow.” It was hosted by WNC and the Geoscientists without Borders® Committee. Katrin Sieron and Patricia Persaud presented about their respective humanitarian projects in Mexico and Myanmar.

The second event, held on 9 March, was a panel discussion titled “Advancing sustainability with a local, regional and global impact.” It was hosted by WNC and the Sustainability Committee. Panelists included Nikki Martin, Johana Dunlop, and Ulrike Schopp. Moderators were Maria Angela Capello and Elaine Mattos.
WNC organized nine webinars throughout the year. Topics included sustainability; diversity, equity, and inclusion; soft skills; career development; and more. Altogether, they attracted more than 1200 registrants and 300 attendees.

WNC offered a Resume Review service for students and early-career professionals in the fourth quarter of 2022. Six volunteers reviewed 39 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.

WNC continued to publish quarterly newsletters. The newsletters provide details about upcoming events, updates, and relevant information for subscribing SEG members.

The committee continued to post to social media. There were 250 new followers on LinkedIn, totaling more than 1100 followers worldwide.

The WNC chair and cochair participated in a discussion about the Mentoring365 platform on SEG’s Seismic Soundoff podcast.

At IMAGE ’22, several events were held in conjunction with the American Association of Petroleum Geologists’ Women’s Network Committee. The main events were a panel session, video interviews, and a networking breakfast.

The panel session was titled, “Diversity, equity, and inclusion (DEI) in the geoscience workforce of tomorrow.” Panelists included Lillian Flakes, Jonathan Allen, Courtney Anzalone Steichen, Leah Turner, Richard Ball, and Kimberly Wilson.

WNC coordinated with the IMAGE Diversity and Inclusion Committee, Association for Women Geoscientists (AWG), and the AAPG Women’s Network to collect 13 video interviews. Additional support was provided by SEG’s Stephanie Moore and IMAGE Videographer Timm Dower. Participants in the videos shared their diverse experiences working in STEM and the value they get from attending IMAGE. The videos can be used going forward for SEG marketing efforts, as well as other Women’s Network initiatives and social-media campaigns.

**GOALS FOR THE COMING YEAR**

- Increase membership in the committee and our social-media platforms
- Continue the webinar series and Resume Review service
- Partner with the Justice, Equity, Diversity, and Inclusion Committee on diversity and inclusion initiatives, as well as analyze SEG demographics and how to improve them
- Support the IMAGE ’23 conference

**CHALLENGES**

Current challenges concern the bandwidth of team members. Some key contributing team members are stepping down from their roles due to personal or professional requirements and we are seeking new team members to help take on their roles going forward.
Section Three:

Reports from Task Forces

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DIGITAL TRANSFORMATION

Task force chair: William L. Abriel
Board liaison: Olga Nedorub
Staff liaison: Steve Tomlinson

TASK FORCE MISSION
The Digital Transformation Task Force was established in 2021 with two purposes. The first was to investigate software options that could transform SEG's historical business model into digital space. The second was to scope new business opportunities in digital space that SEG is not currently pursuing.

EXECUTIVE SUMMARY
The Digital Transformation Task Force concluded its work in July 2022. It attempted to find available software solutions to directly transform SEG's historical business into a revenue-positive digital experience. No such single platform exists at present. The task force found that if SEG expands its business model in digital space, it will require a digital business model that focuses on customer demand in multiple markets and the use of several digital delivery platforms. The task force recognized that there are excellent opportunities for an SEG digital business that extends globally in traditional and underdeveloped markets and that an ongoing digital business design group can be a valuable asset to SEG's overall business future.

HIGHLIGHTS FROM THE PAST YEAR
Task force members included most of the SEG senior management team, along with individuals from oil-and-gas corporations. Task force members interviewed numerous software vendors, digital providers, and digital business consultants. In addition, the task force interfaced with the Society of Petroleum Engineers (SPE) and American Association of Petroleum Geologists (AAPG) digital teams who are undergoing a similar search for a viable digital business model and associated platforms.

The task force supported several initiatives aimed at proving and/or developing a more viable digital business for SEG. Using the principles of customer discovery, market definition, and community management, the task force made good progress:

- The task force worked with SPE and AAPG on a revenue-positive business model for the tri-society Energy in Data initiative. In an attempt to expand on an events-oriented business model, the plan for 2022–2023 is to produce webinars, an in-person incubator event, and follow-up global virtual workshops.

- Task force members scoped a digital commercial marketplace for operators and providers of seismic data processing.

- They also designed products for a global CO₂ geophysics community focused on the influence of the SEAM CO₂ technology development project.

As the task force concluded, it reported the following findings:

- There is currently no integrated software platform that can directly transform the historical SEG business to an equivalent online experience.

- Customer discovery is fundamental to digital business. SEG has not performed in this area.

- For a digital business opportunity, it can be argued that SEG provides products in five separate markets that each provide different value to the user community. Some of the markets are underdeveloped. The markets are: knowledge, commercial trade, community engagement, technology development, and public service.
There is currently no integrated software platform that expands the disparate digital market opportunities. Available platforms do not cover multiple markets and do not interface with institutional business management (association management software). This finding is consistent with similar findings of SPE, AAPG, and the Association for Computing Machines. Supporting a minimum of multiple platforms is the current best practice.

The business concept of managing online groups as a community is emerging. The communities would focus on common business interests and work a spectrum of the five SEG markets. Mining geophysics would be an example of a geophysical community.

GOALS FOR THE COMING YEAR
The task force has concluded.

CHALLENGES
There are no pending challenges.

GEOTHERMAL
Task force chair: Michael Fehler
Board liaison: Ana Curcio
Staff liaison: Scott Sutherland

TASK FORCE MISSION
The mission of the Geothermal Task Force is to study the many ways that SEG can incorporate geothermal-energy research and development into its activities and services. The task force aims to collaborate with sister societies to lead applied-geothermal efforts in the industry.

EXECUTIVE SUMMARY

- The task force initiated a special section of Geophysics devoted to geothermal energy.

- We engaged in discussion about a workshop on geothermal energy to be held in 2023.

- In addition, we supported the Society of Petroleum Engineers (SPE) in their submission of a proposal to the U.S. Department of Energy about uses of petroleum industry technology in geothermal energy development.
HIGHLIGHTS FROM THE PAST YEAR
A special section of GEOPHYSICS on geophysical applications to geothermal energy is under way. The initial deadline for submission was 1 August 2022. In response to requests from several authors, the deadline was extended to 1 October 2022, with a target publication date of July-August 2023. Erika Gasperikova is the lead special-section editor. Guest editors are Michael Fehler, Hiroshi Asanuma, Whitney Trainor-Guitton, Bülent Tezkan, and Ted Bertrand. A total of 24 papers were submitted. Four were rejected outright, and the rest are in the review process. The geographic distribution of papers received shows the broad global interest in geothermal energy (55% of the papers are from greater Asia, 25% are from Europe, and 20% are from the United States).

An SEG workshop on geothermal energy was held in Indonesia in October 2021. Due to the pandemic, the workshop was held virtually. We are currently engaged in discussions about a follow-up workshop to be held in late 2023. We have had discussions about dates and venues and formed an organizing committee. The discussions are ongoing. Major meetings that we need to work around are the World Geothermal Congress and the annual meeting of Geothermal Rising, both of which are scheduled to be held in October 2023. We are currently exploring holding our meeting in late October or November 2023.

The U.S. Department of Energy issued a call for proposals for its Geothermal Energy from Oil and Gas Demonstrated Engineering Initiative. There are several components in the call for proposals. The components where geophysics can play a role are “exploration for geothermal energy” and “monitoring of geothermal reservoirs during production.” While we did not see SEG taking a lead role in submitting a proposal, we communicated with SPE and provided them a letter of support/interest for a proposal submitted by them.

GOALS FOR THE COMING YEAR
Our goals for 2023 include seeing the special section of GEOPHYSICS through to publication and organizing a workshop about geothermal energy.

CHALLENGES
One issue that has confronted geophysicists who work in geothermal energy is that the annual meeting of Geothermal Rising often falls on the same dates as IMAGE. Fortunately, this is not the case in 2023.

Another issue is that there are several organizations involved in geothermal energy, all of which have meetings. There may be too many meetings for SEG to successfully convene meetings on geothermal energy on a regular basis. Geophysics is a relatively small discipline in the geothermal energy community, so organizations are not in the habit of looking at overlap in time with meetings attended by geophysicists.

MEDICAL APPLICATIONS TASK FORCE
Task force chair: Maurice Nessim
Board liaison: Maurice Nessim
Staff liaison: Shelly Jo Oakley

TASK FORCE MISSION
This task force was initiated and developed by SEG Past President Maurice Nessim. It directly supports two of the six pillars established during his presidency: “innovation” and “contribution.” Implementing strategy is important, as well as advancing geophysics in energy and beyond. There are opportunities for geophysicists to apply and share their knowledge in other industries and specifically to make contributions to public health. The role of the task force is to explore how we can practically implement these ideas to
use geophysics in areas such as sensors, high-performance computing, hardware, inversion, imaging, and joint inversion. Expertise will be needed in design, acquisition, processing, imaging, and interpretation.

EXECUTIVE SUMMARY
- The first main topic of collaboration is imaging.
- Promotion of collaboration was successfully implemented at IMAGE '22.
- Plans are under way for an increased focus on imaging at IMAGE '23.

HIGHLIGHTS FROM THE PAST YEAR
The task force met throughout the year and decided to focus on imaging as the first main topic of collaboration. Many different themes within imaging will be addressed including improving the resolution of medical images and investigating how medical images are processed (and if imaging could be improved by geophysical signal processing).

Attention will be on real-time aspects of imaging using real-time algorithms. Geophysicists’ expertise in integration could also be beneficial to the medical industry and provide a different perspective.

Promotion of this collaboration was implemented in IMAGE '22. Key stakeholders in the medical industry were identified and invited to a formal visit during the conference. A paper authored by Maurice Nessim and Chuck Peng was presented, and representatives from the medical industry were invited to attend the presentation. The mayor of Houston was invited to attend the conference.

GOALS FOR THE COMING YEAR
Plans for IMAGE '23 include the following. The promotional video for the conference will include a section on the medical industry. A pavilion focused on the medical industry is planned. The Texas Medical Center will be used as a resource for potential sponsors of the conference. Task-force activities at the conference will include a joint workshop, two short courses, and a panel discussion.

CHALLENGES
There are currently no pending challenges for the task force.
Section Four:

Reports of Representatives

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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. The committee was formed to address the actions in the Framework for Addressing Racial and Ethnic Equity in Geosciences Professional Societies.

EXECUTIVE SUMMARY
- AGI is working on a public diversity, equity, and inclusion (DEI) landing page to represent all AGI DEI work, including the work of this committee.

- Organizations use equity audits to assess their culture and ways of doing business, identify disparate outcomes, and respond. It is a cyclical process that guides continuous DEI improvement.

- The committee is working to define and review policy statements that our societies are publishing on social justice and human-rights topics.

ACTIVITY REPORT
We have started to address topics in leadership, demographic data, inclusive meetings, and organizational development. These are all big topics, and in order to make change, we need to get into the finer details.

Topics include assessing and improving culture for members, field ethics and the role of a professional society, and change management. Additional topics include lessons learned from equity audit/shared responses, decolonization of meeting sessions (chair preparation, speakers, panels, format, etc.), demographic data and other complexities within international societies, making the case for DEI for our leadership/membership, DEI in communications and products (universal design, truth in representation, and transparency), codes of conduct and risk mitigation, and awards issues (name of awards, nominations, and selection process and criteria).

Specifically, each organization was asked if their society has developed guidance on what topics will be covered. More importantly, are we, as a geoscience organization, overstepping our boundaries when we issue such policy statements on sensitive matters? In addition, a similar discussion came up about whether a society should post a statement on the Ukraine conflict.

In September, the societies each responded to a confidential survey to reassess the actions to advance DEI. The results were reviewed in November.

In October, we discussed how to support students. Pointedly, we discussed what we could do as organizations to better support under-represented geosciences students throughout the pandemic. And lastly, we also discussed reasons behind the decline of student involvement and defined ways societies can help retain and support students going forward.
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 is 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 53 journals from 34 publishers. SEG has three journals available through GSW: GEOPHYSICS, The Leading Edge (TLE), and Interpretation (copublished with AAPG). SEG also is one of 13 publishers participating in GSW eBooks, which launched in 2014 and includes more than 2290 titles, including more than 131 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
GSW paid participating publishers a Lithosphere royalty for the first time in 2021, partially based on the number of transfer articles submitted and published. SEG had one transferred article published and was compensated.
Jennifer Cobb served on the GSW Nominating Committee, along with Maggie Simmons of GSL and Kevin Murphy of the Mineralogical Society of Great Britain and Ireland, and approved two nominees, one a Researcher Board seat and the other a Small Society seat. Nathan Suurmeyer and Zhiming Yang, respectively, were subsequently approved by the GSW Advisory Council.

**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 engagement with the IOGP Geomatics Committee (previously the Surveying and Positioning Committee) in 2022.

**HIGHLIGHTS FROM THE PAST YEAR**

As was the case in the prior year, the TSC evaluation of P1/11 as a replacement for the Shell Processing Support (SPS) format was put on hold to focus on engagement with The Open Group’s Open Subsurface Data Universe on SEG-Y Revision 2.1 (SEG-Y_r2.1) updates and adoptions.

**GOALS FOR THE COMING YEAR**

In 2023, members of TSC intend to work with publications, leverage committee-member networks, and potentially call for volunteers to confirm that P1/11 can replace SPS as written or provide IOGP with additional format requirements before SPS is retired.

**CHALLENGES**

As noted, engagement with IOGP regarding P1/11 evaluation is currently secondary to dissemination of the SEG-Y_r2.1 update.

**IP TC MANAGEMENT**

SEG representatives: Mohammed Badri and Sandeep Chandola  
Board liaison: Joseph M. Reilly  
Staff liaison: Yogaani Bhatia

**MISSION**

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

**EXECUTIVE SUMMARY**

IPTC 2022 was successfully held in person in Riyadh, Saudi Arabia. It attracted participants from major operating oil-and-gas companies, service providers, and academia. There was a record number of attendees, exhibitors, and abstract submissions. Financially, it 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, SEG, and SPE. 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, international oil company 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, vice president of technology and strategic partnership for John Crane Company and Sandeep Kumar Chandola, head of geophysics solutions for PETRONAS, are SEG’s representatives on the IPTC Board of Directors.

**IPTC 2022.** The 14th edition of IPTC was held in person in Riyadh, Saudi Arabia, 21–23 January. The theme of the conference was “Fueling global recovery through sustainable energy.” The 14th IPTC Excellence in Project Integration Award recipient was also highlighted 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 2022 brought together global experts to share their knowledge, innovation, and latest technologies.

IPTC 2022 was held under the patronage of His Royal Highness Prince Mohammed bin Salman bin Abdulaziz Al-Saud (crown prince, deputy prime minister, and minister of defense of the Kingdom of Saudi Arabia). The conference was inaugurated by His Royal Highness Prince Abdulaziz bin Salman (minister of energy). Nasir Al-Naimi (senior vice president upstream of Saudi Aramco) served as the Executive Committee chairman. In attendance were Amin Nasser (president and CEO of Saudi Aramco), Tengku Muhammad Taufik (president and CEO of PETRONAS), Olivier Le Peuch (CEO of SLB), Vicki Hollub (president and CEO of Occidental Petroleum), and Scott Sheffield (CEO of Pioneer Natural Resources). The opening ceremony featured global thought leaders, CEOs, and executives from leading national oil companies and international oil companies; government officials; and heads and leaders of the energy industry from various countries around the world. It marked the beginning of one week that catered to the dynamic interests of global oil-and-gas professionals and sparked discussions about key solutions and technologies that will take the industry on a path of further development and innovation.

The CEO Plenary Session was titled “Leading the global recovery for a sustainable future.” It addressed global recovery after the pandemic, sustainability, and global warming as a result of methane and CO2 emissions. It also explored how the energy sector has to satisfy the growing demand for environmental protection and climate change, how it is being transformed, and the vision to prosperity. The session included a panel of global industry experts including the CEOs of Saudi Aramco, PETRONAS, SLB, Occidental Petroleum, and Pioneer Natural Resources.

Four panel sessions highlighted a wide range of noteworthy topics to help attendees deepen their knowledge and understanding of market dynamics, circular carbon economy, and digital transformation.

The Executive Special Session titled “Navigating through a dynamic market” included CEOs and leaders such as Nasir K. Al-Naimi, senior vice president upstream, Saudi Aramco; Lorenzo Simonelli, chairman and CEO, Baker Hughes; Adif Zulkifli, executive vice president and CEO
upstream, PETRONAS; Eric Duchesne, senior vice president technical lines, TotalEnergies; and Clay Neff, president, Chevron Middle East, Africa, South America Exploration and Production Company. The conference also featured several panels on the energy transition, circular carbon economy and policies, IR4.0 technology, and agility and resilience in the midst of change.

A total of 4233 abstracts were submitted and reviewed, and 832 abstracts were accepted. There were 309 technical sessions, with 321 technical presentations and 194 e-poster presentations. These took place over five days and covered a range of disciplines including geoscience, reservoir engineering, drilling and completions, production engineering, sustainability, unconventional, and improved and enhanced recovery.

The IPTC Society Presidents Panel Session featured the presidents of IPTC’s four sponsoring societies: SEG President Anna Shaughnessy, SPE President Kamel Ben-Naceur, AAPG President Gretchen Gillis, and EAGE President Dirk John Orlowsky. They shared their visions and how the latest technological advances are shaping the future of the industry. The panel was moderated by IPTC Board Member Mike Gunningham.

The conference included two geologic field trips titled the “Jurassic succession” and “Edge of the world and the great discovery.” The trips were well attended, carefully prepared, and professionally executed.

Two Ask-the-Expert Sessions were held that addressed two important topics. The first topic was “Enabling biodiversity to thrive through effective circular carbon economy.” The second topic was “Reskilling for the 2025 market.” They featured leading academics and industry professionals and were followed by interactive question-and-answer sessions. In addition, 511 e-poster sessions took place at IPTC, where authors presented their technical papers, and attendees had the opportunity for further knowledge sharing and networking.

An Emerging Leaders Forum carried the theme “Future leaders and future skills.” The High School Teachers Workshop was held over one day, with 60 teachers in attendance. The Diversity and Inclusion program was also included in the activities.

Project case study sessions. 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 a number of major industry employers who are looking to recruit the best talent from institutions around the world. Education Week was organized for up to 100 of the best third- and fourth-year undergraduate university students who major in science, geoscience, and engineering at international institutions. Selected students had their travel and accommodations funded by IPTC in order to attend this weeklong program held concurrently with IPTC.

The IPTC 2022 Integrated Project Award went to the Zohr discovery by Eni. The project was ranked among the most significant oil-and-gas projects in the world.

Finally, the exhibition featured an overwhelming number of 228 exhibitors. They exhibited their products and services, showcasing the latest solutions and technologies and enabling delegates and visitors to discuss potential partnerships and projects. The conference was attended by 13,231, with 5841 delegates.

IPTC 2023. The 15th edition of IPTC will be held in person in Bangkok, Thailand, 1–3 March. PTT Exploration and Production Public Company
(PTTEP) is the host organization of the event. The Executive Committee chair is Montri Rawanchaikul (CEO of PTTEP). The selected theme is “Balancing the energy landscape through innovation and sustainability.” By returning to an in-person format, IPTC is committed to providing the industry with a platform for continued multidisciplinary knowledge sharing and professional development and to hearing from thought leaders on the challenges facing our industry. In addition, an in-person event will provide opportunities for sponsoring and exhibiting companies to showcase solutions, network, and connect with long-standing and potential clients during this challenging time. The event has received 1818 abstracts, representing 248 organizations and 48 countries. These numbers exceed the target of 1500 abstracts (121% of the target). Sponsors and exhibitors will include PTTEP; PETRONAS; Saudi Aramco; Chevron; Japan Oil, Gas and Metals National Corporation; SLB; ChampionX; EEST Energy Services; Eiliis; Expro; Hunting Energy Services; Impact Fluid Solutions; PGS; Solvay Specialty Chemicals; Sonomatic; Thunder Cranes; and Welltec. The IPTC Excellence in Project Integration Award Committee has received several applications, and the selection process is under way. The finalists will be announced at the conference.

**FINANCIALS**

The audited financial results reported a strong positive outcome from IPTC 2022 of US$117,000, which is a 20% share of $585,000. This result is attributed to in-person registration, a large number of exhibitors, and generous sponsorships.

**NAPE ADVISORY**

SEG representative: Patrick Rutty  
Board liaison: Allen 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.

**EXECUTIVE SUMMARY**

Although not quite “business as usual,” NAPE regained its financial footing in 2022. Major effort was expended this year in redesigning the Global Business Conference that immediately precedes NAPE Summit. Several potential changes to the partner operating agreement have not materialized but are likely to be on the agenda in early 2023. Discussion of a new event later in the year is ongoing.

**ACTIVITY REPORT**

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.

February’s NAPE Summit was successful enough to warrant cash distributions to partners, while maintaining the US$1 million
cash reserve that was set aside in the early days of the pandemic. SEG received $208,689, and prospects are bright for similar or even better results from the 2023 event, which already has more than $1 million in exhibitor and sponsor sales.

Many thanks to Scott Sutherland for helping craft a compelling business and technical agenda for next year’s Global Business Conference, which has been renamed the Energy Business Conference.

Potential changes to the partner operating agreement include annual books (instead of event by event), clear working capital guidelines, improvements to Joint Operating Agreement, and better brand protection.

Monies from a successful October golf tournament will be rolled into the Profit and Loss for NAPE Summit 2023.

OFFSHORE TECHNOLOGY CONFERENCE
SEG representative: Alex Martinez
Board liaison: Joseph M. Reilly
Staff liaison: Scott Sutherland

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 this event is provided to the sponsoring organizations.

EXECUTIVE SUMMARY
- The 2022 distribution to SEG was approximately US$700,000 from OTC Houston and OTC Asia.
- SEG had good representation in the 2022 OTC Houston technical program and is on track to deliver the same in 2023.
- OTC Houston and OTC Brasil will be held in 2023.

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, last held in 2022), and OTC Brasil (biennial, to be held in 2023).
In 2022, the OTC distribution to SEG was $707,303.55. This was from a combination of $50,000 profit from OTC Asia and $680,000 profit from OTC Houston, minus a $20,000 debt from the canceled 2020 OTC Houston. This was the last remaining debt from the canceled conference. The 2023 OTC distribution will come from OTC Houston and OTC Brasil, both of which are anticipated to have increased attendance and profitability.

Alex Martinez is the SEG representative on the OTC Board. He was the Board vice chair in 2022 and will become the Board chair in May 2023. He will serve a two-year term in the role. Marty Terrell took on the role of the OTC SEG Technical Program Committee chair in May 2022, and Elive Menyoli became vice chair. Over the last couple of years, they have actively and successfully worked to refresh and increase the diversity of the committee.

OTC Houston was held 1–4 May 2022 at NRG Park as a fully in-person event. Overall attendance was significantly higher than the hybrid 2021 OTC Houston event but 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 evaluations for the Spotlight on New Technology Award.

OTC Asia was held 22–25 March 2022 in Kuala Lumpur in a hybrid in-person and online format. It had a good integrated technical program with a broad range of speakers.

Looking ahead, plans for 2023 OTC Houston are rapidly firming up. The number of technical program abstracts submitted was back up to prepandemic levels, providing a robust set of abstracts from which to select. SEG was active this year in identifying and submitting nominees for the 2023 OTC Distinguished Achievement and OTC Emerging Leader awards. SEG also provided speaker suggestions for the OTC Executive Dialog series. As of December 2022, OTC Brasil is in the initial planning stages, and early indications are looking promising.
UNCONVENTIONAL RESOURCES TECHNOLOGY CONFERENCE MANAGEMENT

SEG representative: Frank Brown
Board liaison: Olga Nedorub
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.

EXECUTIVE SUMMARY
URTeC 2022 was held in person in June. Registration and exhibitor numbers were strong. One-day workshops were postponed due to the pandemic. URTeC 2023 is scheduled for June, and Latin America URTeC 2023 is scheduled for December.

ACTIVITY REPORT
URTeC 2022 was held 20–22 June in Houston, Texas. This was earlier than in the past to avoid conflict with IMAGE ’22. For the first time since the pandemic began, the event was held in person. URTeC 2023 will be held 13–15 June in Denver, Colorado.

The return to an in-person meeting was welcome. Some highlights include the following:

- The opening plenary session was titled “Unconventionals — A bridge to the future.”
- Conference registration was 3479, and SEG represented about 10% of the total.
- There were 160 companies in the conference exhibition.
- The audit is under way, and a surplus is anticipated.

Unfortunately, one-day workshops scheduled for Midland, Texas; Denver, Colorado; and Oklahoma City, Oklahoma, were postponed due to the pandemic. We are hopeful of conducting these workshops in the future.

We will conduct Latin America URTeC 2023 in Buenos Aires 4–6 December.
Section Five:
FOUNDATION REPORT

FOUNDATION BOARD OF DIRECTORS
CHAIR: MICHAEL G. LOUDIN

While SEG organized efforts to transform and bring sustainability to the Society, the SEG Foundation concurrently spent much of 2022 engaging donors and inquiring about their thoughts on the future of applied geophysics. As a result, three main themes surfaced including advancing the science of applied geophysics, supporting our current and future geophysicists, and growing our humanitarian impact (focusing on Geoscientists without Borders® [GWB]). From the collective input and direction from key, engaged, and influential SEG members and volunteers, a fundraising framework was synthesized that could help reshape the future of SEG — a capital campaign called “NextGEO.”

The SEG Foundation is the fundraising arm of SEG. The Foundation is an IRS 501(c)(3) charitable organization, which means donations to the Foundation are tax deductible in the United States. The Foundation financially supported 15 programs that benefited thousands of SEG members in 2022 by contributing more than US$1.4 million to SEG from the combination of endowment spending and numerous pass-through donations from corporations and individuals. At the end of 2022, the Foundation’s net assets were $19.5 million, including an endowment of approximately $16.6 million. The annual spending rate for endowed programs was 5%.

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.

2022 FUNDRAISING RESULTS
• $575,000 (unaudited numbers)

CORPORATE GIVING: $76,000
• Baker Hughes Foundation — GWB and the Global Sustainability Lecture: $60,000

• SEG Summit on Drone Geophysics — Near Surface Geophysical Research Award: $16,000

Figure 22. Attendees gather for the SEG Foundation Donor Luncheon at IMAGE ’22.
SOCIETY/SECTION GIVING: $64,000
- AAPG Foundation — GWB: $60,000
- AIPG Foundation — GWB: $4000

INDIVIDUAL GIVING: $435,000
- 17 Major Gift Donors — Cumulative total: $256,000
- 5 New Trustee Associates
- 27 Sustaining Trustee Associates (more than $2000/year)
- Donations with SEG membership dues: $22,500
- Employer matching gifts: $12,850

2022 FOUNDATION BOARD OF DIRECTORS
At the end of 2022, the Foundation Board of Directors included Michael G. Loudin (chair), David C. Bartel (vice chair), Tony P. Lupo (treasurer), Allyson Anderson Book, Alex Biholar, John H. Bradford, Maria Angela Capello, Rocco Detomo Jr., Raymond C. Farrell, Xiaojun Huang, Andrea Lovatini, Tana Pool, and Susan J. Webb. Mid-term resignations in 2022 were accepted for Arthur Cheng (served as vice chair and elected as SEG president-elect) and Ken Witherly (wished to refocus efforts to the GWB Committee).

FUNDRAISING IN 2023 AND BEYOND
The SEG Foundation is focused on the future of applied geophysics. With the anticipated public launch of the NextGEO campaign in 2023, the Foundation aims to assist SEG in raising the funds necessary for a sustainable transformation. NextGEO efforts will be centered around the general ideas of applied technology and innovation (building partnerships for responsible sustainability), career development (making geophysicists future-ready), the next generation (fostering our future leaders), and humanitarian impact (sharing our positive social impact).

The Foundation aspires to help geophysicists adapt and respond to humanity’s increasingly diverse and urgent needs. Carefully stewarded and strategically applied by the Foundation, philanthropic investment will be vital to our profession’s dynamic future, yielding exceptional educational, scientific, economic, and humanitarian benefits in service to our world.

Figure 23. Mark Leonard, major gifts officer, speaks at SEG Foundation Donor Luncheon at IMAGE ’22.
Section Six:

SUBSIDIARIES REPORTS

SEAM BOARD OF DIRECTORS ................................................................. 126
SEG GLOBAL INC ................................................................. 128
SEAM BOARD OF DIRECTORS
Chair: Peter Haffinger
Board liaison: Ana Curcio
Director of operations: Shelly Oakley

SEAM was created by SEG as its research arm in 2004 and 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."

To this end, we organize collaborations between industry, government, and academia. The majority 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, we stimulate research and development, help democratize data, and provide a basis for industry leaders to discuss and learn about specific geophysical problems of common interest. In addition, motivated by the digital transformation, we initiated new projects that focus on industry challenges (technology generation), further democratization of data and industry benchmarks, digital twins, and industry standards.

The 2022 SEAM Board of Directors included Peter Haffinger (chair), Kris Innanen (vice chair), Nancy House (treasurer), Eric Verschuur, Aria Abubakar, Gary Murphy, Nick Moldoveanu, and Claire Birnie. Ana Curcio served as the SEG Board liaison, and Shelly Jo Oakley served as the director of operations. The Executive Committee, consisting of the officers of the Board, meets every two weeks to discuss current issues or concerns. Working committees are utilized on an as-needed basis. The Board continues to ensure that the operations of SEAM are conducted in a fiscally and legally responsible manner.

ARTIFICIAL INTELLIGENCE PROJECT
The Artificial Intelligence (AI) Management Committee voted to extend the project at no cost to participants until the end of the year. Work is progressing, and all deliverables are expected to be delivered by the first quarter of 2023. The AI Management Committee includes Adam Halpert (chair, Chevron), Konstantin Osypov (Aramco), Jicai Ding (China National Offshore Oil Corporation), Aria Abubakar (Schlumberger), Pandu Devarakota (Shell), Rami Nammour (Total), and Meng Xiangbin (Sinopec).

Vendors who were chosen from the request-for-bids process include the following.

The University of Texas at Austin will complete three tasks for field data. Task 1 will be to identify, package, and deliver six geophysical field data sets suitable for benchmarking AI/machine learning (ML) applications in the field of study (benchmark data sets). Task 2 will be to interpret and label benchmark data sets. Task 3 will be to perform quantitative inversion of benchmark data sets. The data sets include Poseidon 3D, Brecknock 3D, Viosca Knoll 3D, Romeny 3D, Z3 – Dutch North Sea 3D, and Decatur 3D.

Discover Geoscience, located in Australia, will complete two tasks for field data. Task 1 will be to identify, package, and deliver six geophysical field data sets suitable for benchmarking AI/ML applications in the field of study (benchmark data sets). Task 2 will be to interpret and label benchmark data sets. The data sets include Stybarrow, Enfield, Vincent, Gorgon, Pluto, and North Rankin (marine seismic data sets from the North West Shelf in Australia and four basins in the Westralian Superbasin). All data sets have extensive well data.

Advanced Geophysical Technology (AGT) will complete three tasks on SEAM synthetic data sets. Task 1 will be synthetic seismic modeling to...
separate near-surface and subsurface seismic responses using the earth models Arid and Foothills from Phase II. Task 2 will be event identification and traveltime picking for synthetic data by ray tracing. Task 3 will be preparation of SEAM data sets for noise and interpolation studies. The data sets will be identified by the project manager in conjunction with AGT.

**CO₂ SEQUESTRATION PROJECT**
The CO₂ Sequestration project launched 1 September 2022 and currently has nine companies that have submitted their letters of intent including Chevron, Shell, Schlumberger, ConocoPhillips, Aramco, Total, Oxy, Sinopec, and Woodside Energy. Membership contracts are in progress.

Weekly meetings are occurring, and several committees have been established and are meeting regularly. Committees include the AI Management Committee, Model Building Committee, Rock Physics Committee, Reservoir/Geomechanics Simulation Committee, Geophysical Simulation Committee, and Public Interest Committee.

**SEAM DATA MANAGEMENT**
The SEAM Board has approved a proposal to partner with AGT to host, market, and distribute SEAM products. The proposal provides an option for long-term storage of SEAM data in a system that is network accessible and owned by SEAM. Physical storage will be managed by AGT under contract to SEAM. AGT will host and maintain the hardware storage system, including overseeing its security and connection to the Internet. In addition, AGT in collaboration with SEAM and Mike Oristaglio (a longtime SEAM project manager) will market, sell, and distribute SEAM data in return for a share of sales revenue. Marketing will include booth promotions of SEAM products at major geophysical conferences, as well as visits and talks at universities.

The hardware basis for this arrangement is a new class of external disk drives housed in compact enclosures that are network accessible. Systems will be investigated to obtain the best mix of capacity, reliability, and price, as well as compatibility with storage systems currently used by AGT for its existing modeling and data-processing services.

The project will proceed in two stages. Stage I will be the purchase of hardware and installation, followed by migration of data. This stage is predicted to take six to eight months, depending on availability and shipping time for the hardware. Stage II of the project involves marketing and sales of SEAM data and is designed to minimize yearly maintenance costs to SEAM while enhancing sales of SEAM products. Under this arrangement, AGT will maintain the archive and actively participate in the marketing and sales of SEAM data. With the data network accessible, customers will be encouraged to download data directly from the archive to minimize media and shipping costs.

**SEAM FUTURE PROJECTS**
SEAM is scoping options for the next potential project. Numerous topics have been identified. The Life of Field project executed over the past few years and completed in December 2020 has advanced the art and science of coordinated numerical modeling for geology, engineering, geomechanics, and geophysics. The opportunity now exists to focus this capability on other geophysical applications in non-oil-and-gas industries. Business development for SEAM will proceed with two important processes. The first is defining the value proposition of cooperative numerical modeling in the identified communities. The second is the formation of workshops with potential participants to detail the deliverables of the project. Over the months to come, SEAM will be reaching out to industry and academia for advice on designing one or more projects to advance modeling in the identified areas.
In 2022, with the continuing negative effects of the pandemic, our industry, profession, and Society walked through challenges. The SEG Global Board conducted quarterly reviews and provided guidance on sustainable operations of the SEG China office. Based on the five-year development strategies for the SEG China office, all efforts within four major directions have been strengthened to build the brand and expand the influence of SEG in the China market. As part of the four areas, we did the following.

- 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 in China, and attracted students and professionals to voluntarily contribute to the SEG community
- Strengthened the close connections with industry, academia, organizations, and individuals and encouraged active engagement in activities
- Inspired SEG members to be innovative, explored potential opportunities, and continued to expand and connect wider fields beyond oil and gas such as geothermal; carbon capture, utilization, and storage; near surface; and more

**ORGANIZATION OF SEG EVENTS**

In 2022, traditional physical events were still difficult to hold in China due to the pandemic. The SEG China office continued to explore flexible event formats and develop innovative programs. Six events were designed and promoted that helped foster in-depth connectivity, expand influence, cultivate young professionals, and build relationships with key customers. The events attracted 8780 participants from 21 countries. They include the following:

- The 2nd SEG China-Southwest Petroleum University SEG Student Chapter Workshop was held 29 May in Chengdu, China. It was available in person and as a live stream.
- The 1st Oriental Cup Exploration Geophysical Software Development Competition for National College Students was held 7 June to 25 November in Zhuozhou and Qingdao, China. It was a hybrid event.
- A BGP In-house Training Course was held 19 August to 11 September in Zhuozhou, China. It was a hybrid event.
- The SEG Qingdao Workshop on Rock Physics: New Challenges and New Developments was held 26–27 November in Qingdao, China. It was a virtual event.
- The SEG Qingdao Workshop on Seismic Imaging Progress and the Way Ahead was held 3–4 December in Qingdao, China, as a virtual event.
- The Aramco BRC In-house Training Course took place in person in December in Beijing, China.
INITIATIVES TO INCREASE MEMBERSHIP AND OUTREACH

The SEG China office has been making efforts to build a friendly and connected environment for members in China. This is in order to inspire students and professionals to create more programs to benefit themselves and the Society. With the website in local-language promotion, new member applications have increased gradually in 2022.

According to SEG statistics, up until November 2022, there were 875 new SEG professional members in 2022, including 179 from China. This is a local increase of 34.16%. There were 651 new Student members, including 114 from China. This is an increase of 69.94%. A total of 980 members are registered in China, which is an increase of 42.6%.

Based on the success in developing memberships, the SEG China office will continue to conduct five-year strategies to strengthen all of the traditional and innovative programs designed in China. In 2002, the China office maintained close sensitivity with the market, explored opportunities for in-depth multidimensional cooperation, and continued sustainable development.
Section Six:

FINANCIAL REPORTS

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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, 2022 and 2021, 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, 2022 and 2021, 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 $19,203,186, $20,953, and $19,182,233, respectively, as of December 31, 2022, and $26,753,845, $0, and $26,753,845, respectively, as of December 31, 2021. Also, 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. Revenues, expenses and change in net assets would increase by $1,368,119, $306,629 and $1,061,490, respectively, for the year ended December 31, 2021.

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
June 30, 2023
SOCIETY OF EXPLORATION GEOPHYSICISTS

CONSOLIDATED STATEMENTS OF FINANCIAL POSITION

December 31, 2022 and 2021

<table>
<thead>
<tr>
<th></th>
<th>2022</th>
<th>2021</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Assets</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Current assets:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cash and cash equivalents</td>
<td>$2,233,443</td>
<td>$1,283,627</td>
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<tr>
<td>Accounts receivable, net</td>
<td>1,056,957</td>
<td>1,843,878</td>
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<td>Accounts receivable, SEG Foundation</td>
<td>473,790</td>
<td>468,581</td>
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<tr>
<td>Inventories</td>
<td>90,736</td>
<td>236,461</td>
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<td>Prepaid expenses</td>
<td>394,311</td>
<td>626,567</td>
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<td></td>
<td><strong>Total current assets</strong></td>
<td><strong>4,249,237</strong></td>
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<td>Investments</td>
<td>12,260,419</td>
<td>20,278,154</td>
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<tr>
<td>Property and equipment, net</td>
<td>368,383</td>
<td>243,239</td>
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<tr>
<td>Operating lease right-of-use asset, net</td>
<td>115,998</td>
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</tr>
<tr>
<td>Right-of-use assets - finance lease, net</td>
<td>145,619</td>
<td>-</td>
</tr>
<tr>
<td>Other long-term assets</td>
<td>250,000</td>
<td>250,000</td>
</tr>
<tr>
<td></td>
<td><strong>Total assets</strong></td>
<td><strong>$17,389,656</strong></td>
</tr>
<tr>
<td><strong>Liabilities and Net Assets</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Current liabilities:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accounts payable and accrued liabilities</td>
<td>$1,942,006</td>
<td>$1,010,779</td>
</tr>
<tr>
<td>Current portion of deferred revenue</td>
<td>889,811</td>
<td>2,264,919</td>
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<tr>
<td>Current portion of operating lease obligations</td>
<td>73,136</td>
<td>-</td>
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<tr>
<td>Current portion of capital and financing lease obligations</td>
<td>68,981</td>
<td>121,853</td>
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<tr>
<td></td>
<td><strong>Total current liabilities</strong></td>
<td><strong>2,973,934</strong></td>
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<tr>
<td>Deferred revenue, less current portion</td>
<td>785,982</td>
<td>1,206,823</td>
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<tr>
<td>Operating lease obligations, less current portion</td>
<td>42,862</td>
<td>-</td>
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<tr>
<td>Capital and financing lease obligations, less current portion</td>
<td>86,460</td>
<td>60,527</td>
</tr>
<tr>
<td></td>
<td><strong>Total liabilities</strong></td>
<td><strong>3,889,238</strong></td>
</tr>
<tr>
<td>Net assets without donor restrictions</td>
<td><strong>13,500,418</strong></td>
<td><strong>20,565,606</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Total liabilities and net assets</strong></td>
<td><strong>$17,389,656</strong></td>
</tr>
</tbody>
</table>

See notes to consolidated financial statements.
## Consolidated Statements of Activities

**Years ended December 31, 2022 and 2021**

<table>
<thead>
<tr>
<th></th>
<th>2022</th>
<th>2021</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Revenues:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Membership dues</td>
<td>$769,296</td>
<td>$812,662</td>
</tr>
<tr>
<td>Conferences and meetings</td>
<td>5,008,156</td>
<td>2,150,049</td>
</tr>
<tr>
<td>Publication sales and advertising</td>
<td>2,467,047</td>
<td>2,576,229</td>
</tr>
<tr>
<td>Professional development</td>
<td>154,430</td>
<td>130,679</td>
</tr>
<tr>
<td>Research and data</td>
<td>720,648</td>
<td>1,137,865</td>
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<tr>
<td>Foundation support for programs</td>
<td>1,488,724</td>
<td>1,200,235</td>
</tr>
<tr>
<td>PPP loan forgiveness</td>
<td></td>
<td>1,067,737</td>
</tr>
<tr>
<td>Investment income (loss)</td>
<td>(5,591,002)</td>
<td>1,573,963</td>
</tr>
<tr>
<td><strong>Total revenues</strong></td>
<td>5,017,299</td>
<td>10,649,419</td>
</tr>
<tr>
<td><strong>Expenses:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Program expenses:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Community engagement</td>
<td>234,693</td>
<td>259,812</td>
</tr>
<tr>
<td>Meetings</td>
<td>1,739,874</td>
<td>1,122,899</td>
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<tr>
<td>Publications</td>
<td>2,307,204</td>
<td>2,294,816</td>
</tr>
<tr>
<td>Professional development</td>
<td>1,052,337</td>
<td>1,017,785</td>
</tr>
<tr>
<td>Students</td>
<td>889,080</td>
<td>634,111</td>
</tr>
<tr>
<td>Regional offices</td>
<td>1,007,196</td>
<td>935,587</td>
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<tr>
<td>Business development</td>
<td>870,688</td>
<td>721,122</td>
</tr>
<tr>
<td>Research and data</td>
<td>854,633</td>
<td>832,436</td>
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<tr>
<td><strong>Total program expenses</strong></td>
<td>8,955,705</td>
<td>7,818,568</td>
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<tr>
<td>Supporting services</td>
<td>3,126,782</td>
<td>2,576,311</td>
</tr>
<tr>
<td><strong>Total expenses</strong></td>
<td>12,082,487</td>
<td>10,394,879</td>
</tr>
<tr>
<td><strong>Change in net assets</strong></td>
<td>(7,065,188)</td>
<td>254,540</td>
</tr>
<tr>
<td><strong>Net assets, beginning of year</strong></td>
<td>20,565,606</td>
<td>20,311,066</td>
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<tr>
<td><strong>Net assets, end of year</strong></td>
<td>$13,500,418</td>
<td>$20,565,606</td>
</tr>
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See notes to consolidated financial statements.
## SOCIETY OF EXPLORATION GEOPHYSICISTS
### CONSOLIDATED STATEMENT OF FUNCTIONAL EXPENSES
#### Year ended December 31, 2022

<table>
<thead>
<tr>
<th>Program Expenses</th>
<th>Community Engagement</th>
<th>Meetings</th>
<th>Publications</th>
<th>Professional Development</th>
<th>Students</th>
<th>Regional Offices</th>
<th>Business Development</th>
<th>Research and Data</th>
<th>Supporting Services</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Staffing</td>
<td>$ 158,568</td>
<td>$ 326,491</td>
<td>$ 1,178,367</td>
<td>$ 349,201</td>
<td>$ 159,327</td>
<td>$ 485,234</td>
<td>$ 701,454</td>
<td>$ 62,274</td>
<td>$ 1,582,856</td>
<td>$ 5,003,772</td>
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<tr>
<td>Travel</td>
<td>4,236</td>
<td>27,790</td>
<td>3,089</td>
<td>36,517</td>
<td>3,864</td>
<td>102,124</td>
<td>21,691</td>
<td>1,149</td>
<td>66,941</td>
<td>267,401</td>
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<tr>
<td>Office</td>
<td>14,003</td>
<td>152,054</td>
<td>196,252</td>
<td>64,730</td>
<td>19,659</td>
<td>108,459</td>
<td>44,731</td>
<td>7,129</td>
<td>467,738</td>
<td>1,074,755</td>
</tr>
<tr>
<td>Program awards</td>
<td>-</td>
<td>17,555</td>
<td>-</td>
<td>386,586</td>
<td>665,877</td>
<td>-</td>
<td>27,481</td>
<td>-</td>
<td>10,000</td>
<td>1,107,499</td>
</tr>
<tr>
<td>Production</td>
<td>-</td>
<td>693</td>
<td>486,615</td>
<td>134</td>
<td>200</td>
<td>172</td>
<td>-</td>
<td>-</td>
<td>487,814</td>
<td></td>
</tr>
<tr>
<td>Postage</td>
<td>4,340</td>
<td>2,950</td>
<td>109,683</td>
<td>1,901</td>
<td>544</td>
<td>493</td>
<td>1,710</td>
<td>803</td>
<td>5,916</td>
<td>128,340</td>
</tr>
<tr>
<td>Commissions, honorariums and royalties</td>
<td>-</td>
<td>-</td>
<td>34,257</td>
<td>64,465</td>
<td>-</td>
<td>5,760</td>
<td>8,000</td>
<td>-</td>
<td>-</td>
<td>112,482</td>
</tr>
<tr>
<td>Cost of sales</td>
<td>-</td>
<td>-</td>
<td>160,654</td>
<td>1,187</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>161,841</td>
</tr>
<tr>
<td>Events</td>
<td>-</td>
<td>1,041,630</td>
<td>441</td>
<td>3,343</td>
<td>3,762</td>
<td>242,238</td>
<td>16,902</td>
<td>37,500</td>
<td>15,336</td>
<td>1,361,152</td>
</tr>
<tr>
<td>Promotion costs and other committee expenses</td>
<td>2,620</td>
<td>75,587</td>
<td>8,696</td>
<td>4,255</td>
<td>-</td>
<td>17,850</td>
<td>384</td>
<td>-</td>
<td>52,855</td>
<td>160,247</td>
</tr>
<tr>
<td>Outside services</td>
<td>45,644</td>
<td>55,593</td>
<td>71,154</td>
<td>124,162</td>
<td>28,621</td>
<td>37,684</td>
<td>24,532</td>
<td>742,015</td>
<td>877,321</td>
<td>2,006,726</td>
</tr>
<tr>
<td>Other</td>
<td>-</td>
<td>15,398</td>
<td>14,033</td>
<td>(1,492)</td>
<td>-</td>
<td>7,148</td>
<td>3,470</td>
<td>-</td>
<td>(7,097)</td>
<td>29,460</td>
</tr>
<tr>
<td>Taxes</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>134</td>
<td>-</td>
<td>-</td>
<td>9,604</td>
<td>-</td>
<td>10,076</td>
<td>19,814</td>
</tr>
<tr>
<td>Depreciation and amortization</td>
<td>5,282</td>
<td>28,133</td>
<td>43,963</td>
<td>17,214</td>
<td>7,426</td>
<td>6</td>
<td>10,557</td>
<td>3,763</td>
<td>-</td>
<td>44,840</td>
</tr>
<tr>
<td>Total</td>
<td>$ 234,693</td>
<td>$ 1,739,874</td>
<td>$ 2,307,204</td>
<td>$ 1,052,337</td>
<td>$ 889,080</td>
<td>$ 1,007,196</td>
<td>$ 870,688</td>
<td>$ 854,633</td>
<td>$ 3,126,782</td>
<td>$ 12,082,487</td>
</tr>
</tbody>
</table>

See notes to consolidated financial statements.
### CONSOLIDATED STATEMENT OF FUNCTIONAL EXPENSES

Year ended December 31, 2021

<table>
<thead>
<tr>
<th>Program Expenses</th>
<th>Community Engagement</th>
<th>Meetings</th>
<th>Publications Development</th>
<th>Professional Development</th>
<th>Students</th>
<th>Regional Offices</th>
<th>Business Development</th>
<th>Research and Data</th>
<th>Supporting Services</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Staffing</strong></td>
<td>$168,971</td>
<td>$559,779</td>
<td>$1,200,930</td>
<td>$369,210</td>
<td>$158,310</td>
<td>$675,327</td>
<td>$642,270</td>
<td>-</td>
<td>$1,674,058</td>
<td>$5,448,855</td>
</tr>
<tr>
<td><strong>Travel</strong></td>
<td>2,278</td>
<td>10,879</td>
<td>3,406</td>
<td>-</td>
<td>2,410</td>
<td>12,747</td>
<td>1,985</td>
<td>-</td>
<td>59,780</td>
<td>93,485</td>
</tr>
<tr>
<td><strong>Office</strong></td>
<td>27,686</td>
<td>146,490</td>
<td>245,900</td>
<td>109,251</td>
<td>23,351</td>
<td>103,773</td>
<td>54,425</td>
<td>-</td>
<td>224,636</td>
<td>935,512</td>
</tr>
<tr>
<td><strong>Program awards</strong></td>
<td>-</td>
<td>-</td>
<td>322,795</td>
<td>438,595</td>
<td>-</td>
<td>1,977</td>
<td>-</td>
<td>-</td>
<td>10,000</td>
<td>773,367</td>
</tr>
<tr>
<td><strong>Production</strong></td>
<td>-</td>
<td>539,262</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>770</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>540,032</td>
</tr>
<tr>
<td><strong>Postage</strong></td>
<td>709</td>
<td>985</td>
<td>121,362</td>
<td>3,816</td>
<td>331</td>
<td>800</td>
<td>1,108</td>
<td>401</td>
<td>5,659</td>
<td>135,171</td>
</tr>
<tr>
<td><strong>Commissions, honorariums and royalties</strong></td>
<td>-</td>
<td>-</td>
<td>31,969</td>
<td>55,953</td>
<td>-</td>
<td>24,500</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>112,422</td>
</tr>
<tr>
<td><strong>Cost of sales</strong></td>
<td>-</td>
<td>37,011</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>37,011</td>
</tr>
<tr>
<td><strong>Events</strong></td>
<td>1,670</td>
<td>254,174</td>
<td>2,413</td>
<td>2,526</td>
<td>2,732</td>
<td>46,168</td>
<td>1,585</td>
<td>-</td>
<td>35,713</td>
<td>346,981</td>
</tr>
<tr>
<td><strong>Promotion costs and other</strong></td>
<td>3,766</td>
<td>36,961</td>
<td>6,506</td>
<td>1,845</td>
<td>120</td>
<td>6,278</td>
<td>-</td>
<td>-</td>
<td>116,582</td>
<td></td>
</tr>
<tr>
<td><strong>Outside services</strong></td>
<td>45,804</td>
<td>81,198</td>
<td>63,947</td>
<td>133,413</td>
<td>1,066</td>
<td>63,501</td>
<td>2,984</td>
<td>1,977</td>
<td>244,159</td>
<td>1,567,110</td>
</tr>
<tr>
<td><strong>Other</strong></td>
<td>-</td>
<td>3,578</td>
<td>(7,611)</td>
<td>(984)</td>
<td>-</td>
<td>(5,884)</td>
<td>-</td>
<td>-</td>
<td>78,628</td>
<td>68,724</td>
</tr>
<tr>
<td><strong>Taxes</strong></td>
<td>234</td>
<td>889</td>
<td>1,674</td>
<td>761</td>
<td>208</td>
<td>7,784</td>
<td>509</td>
<td>-</td>
<td>18,077</td>
<td>30,136</td>
</tr>
<tr>
<td><strong>Depreciation and amortization</strong></td>
<td>8,694</td>
<td>27,966</td>
<td>48,047</td>
<td>19,199</td>
<td>6,808</td>
<td>1,800</td>
<td>14,159</td>
<td>-</td>
<td>62,818</td>
<td>189,491</td>
</tr>
</tbody>
</table>

**Total** $259,812 $1,122,899 $2,294,816 $1,017,785 $634,111 $935,587 $721,122 $832,436 $2,576,311 $10,394,879

See notes to consolidated financial statements.
# CONSOLIDATED STATEMENTS OF CASH FLOWS

**Years ended December 31, 2022 and 2021**

## Cash Flows from Operating Activities

<table>
<thead>
<tr>
<th>Description</th>
<th>2022</th>
<th>2021</th>
</tr>
</thead>
<tbody>
<tr>
<td>Change in net assets</td>
<td>(7,065,188)</td>
<td>254,540</td>
</tr>
<tr>
<td>Adjustments to reconcile change in net assets to net cash used in operating activities:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Depreciation and amortization</td>
<td>161,184</td>
<td>189,491</td>
</tr>
<tr>
<td>Noncash operating lease expense</td>
<td>78,745</td>
<td>-</td>
</tr>
<tr>
<td>Net realized/unrealized (gain) loss on investments</td>
<td>5,806,633</td>
<td>(1,328,148)</td>
</tr>
<tr>
<td>Loss on disposition of property and equipment</td>
<td>-</td>
<td>47,345</td>
</tr>
<tr>
<td>Change in operating assets and liabilities:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accounts receivable, net</td>
<td>786,921</td>
<td>(1,038,596)</td>
</tr>
<tr>
<td>Accounts receivable, SEG Foundation</td>
<td>(5,209)</td>
<td>261,192</td>
</tr>
<tr>
<td>Inventories</td>
<td>145,725</td>
<td>23,864</td>
</tr>
<tr>
<td>Prepaid expenses</td>
<td>232,256</td>
<td>1,613,756</td>
</tr>
<tr>
<td>Accounts payable and accrued liabilities</td>
<td>916,320</td>
<td>58,657</td>
</tr>
<tr>
<td>Deferred revenue</td>
<td>(1,795,949)</td>
<td>(987,911)</td>
</tr>
<tr>
<td>Operating lease obligations</td>
<td>(78,745)</td>
<td>-</td>
</tr>
<tr>
<td>Net cash used in operating activities</td>
<td>(817,307)</td>
<td>(905,810)</td>
</tr>
</tbody>
</table>

## Cash Flows from Investing Activities

<table>
<thead>
<tr>
<th>Description</th>
<th>2022</th>
<th>2021</th>
</tr>
</thead>
<tbody>
<tr>
<td>Purchases of property and equipment</td>
<td>(259,472)</td>
<td>(3,778)</td>
</tr>
<tr>
<td>Purchases of investments</td>
<td>(5,622,092)</td>
<td>(9,885,308)</td>
</tr>
<tr>
<td>Proceeds from sale of investments</td>
<td>7,833,194</td>
<td>10,618,437</td>
</tr>
<tr>
<td>Net cash provided by investing activities</td>
<td>1,951,630</td>
<td>729,351</td>
</tr>
</tbody>
</table>

## Cash Flow from Financing Activities

<table>
<thead>
<tr>
<th>Description</th>
<th>2022</th>
<th>2021</th>
</tr>
</thead>
<tbody>
<tr>
<td>Payments on capital and finance lease obligations</td>
<td>(184,507)</td>
<td>(165,226)</td>
</tr>
<tr>
<td>Net change in cash</td>
<td>949,816</td>
<td>(341,685)</td>
</tr>
<tr>
<td>Cash and cash equivalents, beginning of year</td>
<td>1,283,627</td>
<td>1,625,312</td>
</tr>
<tr>
<td>Cash and cash equivalents, end of year</td>
<td>$ 2,233,443</td>
<td>$ 1,283,627</td>
</tr>
</tbody>
</table>

## Supplemental Cash Flow Disclosures

<table>
<thead>
<tr>
<th>Description</th>
<th>2022</th>
<th>2021</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interest paid</td>
<td>7,479</td>
<td>12,450</td>
</tr>
</tbody>
</table>

## Noncash Investing and Financing Activities

<table>
<thead>
<tr>
<th>Description</th>
<th>2022</th>
<th>2021</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increase in property and equipment by increase in accounts payable</td>
<td>62,850</td>
<td>-</td>
</tr>
</tbody>
</table>

See notes to consolidated financial statements.
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 meeting 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 uncollectible accounts.

The Society provides for losses on receivables using the allowance method. The allowance is based on experience, terms of agreements, and other circumstances affecting the ability of customers to meet their obligations. Outstanding balances are written off when management determines that the receivables will not be collected. The Society provides for probable uncollectible amounts through a provision to bad debts expense and a corresponding amount to the allowance based on management's assessment of the current status of individual accounts. Unpaid amounts that remain after management has pursued reasonable collection efforts are written off through a charge to the allowance for uncollectible accounts and a credit to accounts receivable. Interest is not charged on outstanding balances. At December 31, 2022 and 2021, management estimates that the allowance for uncollectible accounts of $22,747 and $72,352, 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, 2022 and 2021.

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, 2022 or 2021.

Leases – effective January 1, 2022

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 contact 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 obligations. 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, 2022 or 2021.

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 2021 financial statements have been reclassified to conform to the 2022 presentation. These reclassifications had no impact on the previously reported change in net assets.
Accounting pronouncements adopted

Effective January 1, 2022, the Society adopted the new lease accounting guidance in Accounting Standards Update No. 2016-02, *Leases (Topic 842)*, which is now included in Accounting Standards Codification (ASC) 842. ASC 842 supersedes the guidance in ASC 840, *Leases*, and generally requires companies to recognize operating and financing lease liabilities and corresponding right-of-use assets on the statement of financial position. The Society utilized the modified retrospective approach. There was no cumulative effect adjustment required to the opening balance of net assets as the Society utilized the package of practical expedients permitted under the transition guidance within the standard. The expedient package allowed the Society to not reassess whether existing contracts contained a lease, to not reassess the lease classification of existing leases, and to not consider the initial direct cost for existing leases. In addition to the package of practical expedients, we also utilized expedients and elections allowing for the exclusion of leases with terms of less than 12 months, use of the portfolio approach and the election to not separate nonlease components from lease components.

Adoption of this standard resulted in the recognition of operating lease ROU assets and corresponding operating lease liabilities of $194,743 on the statement of financial position. Additionally, the Society reclassified existing capital lease liabilities of $182,380 and capital lease assets of $182,563 as of January 1, 2022, to finance lease liabilities and finance right-of-use assets, respectively. Adoption of the standard did not have a material impact on our statements of activities or statements of cash flows.

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:

<table>
<thead>
<tr>
<th></th>
<th>2022</th>
<th>2021</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assets:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cash and cash equivalents</td>
<td>$2,233,443</td>
<td>$1,283,627</td>
</tr>
<tr>
<td>Accounts receivable, net</td>
<td>1,056,957</td>
<td>1,843,878</td>
</tr>
<tr>
<td>Accounts receivable, SEG Foundation</td>
<td>473,790</td>
<td>468,581</td>
</tr>
<tr>
<td>Investments</td>
<td>12,260,419</td>
<td>20,278,154</td>
</tr>
<tr>
<td>Total financial assets available to management for general expenditures within one year</td>
<td>$16,024,609</td>
<td>$23,874,240</td>
</tr>
</tbody>
</table>

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.

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, 2022 or 2021.

Investments measured at fair value on a recurring basis consisted of the following:

<table>
<thead>
<tr>
<th></th>
<th>Level 1</th>
<th>Level 2</th>
<th>Level 3</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mutual funds</td>
<td>$2,997,780</td>
<td>$ -</td>
<td>$ -</td>
<td>$2,997,780</td>
</tr>
<tr>
<td>Equity securities</td>
<td>7,732,927</td>
<td>$ -</td>
<td>$ -</td>
<td>7,732,927</td>
</tr>
<tr>
<td>Fixed income</td>
<td>$ -</td>
<td>747,737</td>
<td>$ -</td>
<td>747,737</td>
</tr>
<tr>
<td>Government and agency securities</td>
<td>197,204</td>
<td>584,771</td>
<td>$ -</td>
<td>781,975</td>
</tr>
<tr>
<td><strong>Total investments at fair value</strong></td>
<td><strong>$10,927,911</strong></td>
<td><strong>$1,332,508</strong></td>
<td><strong>$ -</strong></td>
<td><strong>$12,260,419</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Level 1</th>
<th>Level 2</th>
<th>Level 3</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mutual funds</td>
<td>$4,073,315</td>
<td>$ -</td>
<td>$ -</td>
<td>$4,073,315</td>
</tr>
<tr>
<td>Equity securities</td>
<td>14,214,398</td>
<td>$ -</td>
<td>$ -</td>
<td>14,214,398</td>
</tr>
<tr>
<td>Fixed income</td>
<td>$ -</td>
<td>607,157</td>
<td>$ -</td>
<td>607,157</td>
</tr>
<tr>
<td>Government and agency securities</td>
<td>1,126,247</td>
<td>257,037</td>
<td>$ -</td>
<td>1,383,284</td>
</tr>
<tr>
<td><strong>Total investments at fair value</strong></td>
<td><strong>$19,413,960</strong></td>
<td><strong>$864,194</strong></td>
<td><strong>$ -</strong></td>
<td><strong>$20,278,154</strong></td>
</tr>
</tbody>
</table>

Investment income (loss) consists of the following for the years ended December 31:

<table>
<thead>
<tr>
<th></th>
<th>2022</th>
<th>2021</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interest and dividend income</td>
<td>$333,289</td>
<td>$391,083</td>
</tr>
<tr>
<td>Realized/unrealized gain (loss) on investments</td>
<td>(5,806,633)</td>
<td>1,328,148</td>
</tr>
<tr>
<td>Investment fees</td>
<td>(117,658)</td>
<td>(145,268)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>$(5,591,002)</td>
<td>$1,573,963</td>
</tr>
</tbody>
</table>
Note 4 – Property and Equipment

Property and equipment consist of the following at December 31:

<table>
<thead>
<tr>
<th></th>
<th>2022</th>
<th>2021</th>
</tr>
</thead>
<tbody>
<tr>
<td>Building and leasehold improvements</td>
<td>$21,772</td>
<td>$21,772</td>
</tr>
<tr>
<td>Application development</td>
<td>916,684</td>
<td>594,362</td>
</tr>
<tr>
<td>Furniture, fixtures and equipment</td>
<td>371,350</td>
<td>1,051,386</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>1,309,806</td>
<td>1,667,520</td>
</tr>
<tr>
<td>Less accumulated depreciation and amortization</td>
<td>(941,423)</td>
<td>(1,424,281)</td>
</tr>
<tr>
<td>Property and equipment, net</td>
<td>$368,383</td>
<td>$243,239</td>
</tr>
</tbody>
</table>

Note 5 – 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:

<table>
<thead>
<tr>
<th></th>
<th>2022</th>
<th>2021</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foundation support for the program activities</td>
<td>$1,488,724</td>
<td>$1,200,235</td>
</tr>
<tr>
<td>Reimbursement from the Foundation for direct fundraising and administrative services</td>
<td>178,629</td>
<td>139,891</td>
</tr>
<tr>
<td>Reimbursement from the Foundation for indirect administrative services</td>
<td>108,234</td>
<td>106,185</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>$1,775,587</td>
<td>$1,446,311</td>
</tr>
</tbody>
</table>

Note 6 – 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, 2022 and 2021, the Society's expense for the safe-harbor match and safe-harbor nonelective contributions was $205,456 and $215,066, respectively. The Society did not make discretionary contributions to the plan in 2022 or 2021.
Note 7 – Deferred Revenue

Deferred revenue consists of the following at December 31:

<table>
<thead>
<tr>
<th></th>
<th>2022</th>
<th>2021</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dues</td>
<td>$431,059</td>
<td>$395,539</td>
</tr>
<tr>
<td>Subscriptions</td>
<td>393,838</td>
<td>407,564</td>
</tr>
<tr>
<td>Meetings</td>
<td>96,804</td>
<td>1,493,706</td>
</tr>
<tr>
<td>Research and data projects</td>
<td>754,092</td>
<td>1,174,933</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$1,675,793</strong></td>
<td><strong>$3,471,742</strong></td>
</tr>
</tbody>
</table>

Note 8 – Leases

Operating leases

The Society leases office facilities under a long-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 20 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 servers 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 1 to 5 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, 2022, do not reflect the lessee's short-term lease commitments for the ensuing year. The Society's short-term lease commitments for 2023 are $24,826.

The following tables summarize lease costs and other information for the years ended December 31:

<table>
<thead>
<tr>
<th></th>
<th>2022</th>
<th>2021</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lease cost:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Finance lease cost:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Amortization of right-of-use assets</td>
<td>$98,514</td>
<td>$170,009</td>
</tr>
<tr>
<td>Interest on lease liabilities</td>
<td>6,360</td>
<td>12,450</td>
</tr>
<tr>
<td>Operating lease cost</td>
<td>73,623</td>
<td>61,350</td>
</tr>
<tr>
<td><strong>Total lease cost</strong></td>
<td><strong>$178,497</strong></td>
<td><strong>$243,809</strong></td>
</tr>
</tbody>
</table>
Other information:
Cash paid for amounts included in the measurement of lease liabilities:
- Operating cash outflows from operating leases $73,623
- Financing cash outflows from finance leases 184,507
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 1.49 years
Weighted-average remaining lease term - operating leases 1.83 years
Weighted-average discount rate - finance leases 4.89%
Weighted-average discount rate - operating leases 0.59%

Minimum future lease commitments under noncancelable leases in effect at December 31, 2022, including those with related parties, were as follows:

<table>
<thead>
<tr>
<th></th>
<th>Operating</th>
<th>Finance</th>
</tr>
</thead>
<tbody>
<tr>
<td>2023</td>
<td>$73,623</td>
<td>$68,981</td>
</tr>
<tr>
<td>2024</td>
<td>42,946</td>
<td>38,822</td>
</tr>
<tr>
<td>2025</td>
<td>-</td>
<td>24,903</td>
</tr>
<tr>
<td>2026</td>
<td>-</td>
<td>20,263</td>
</tr>
<tr>
<td>2027</td>
<td>-</td>
<td>6,754</td>
</tr>
<tr>
<td>Thereafter</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Total minimum lease payment</td>
<td>116,569</td>
<td>159,723</td>
</tr>
</tbody>
</table>

Less imputed interest
- Operating: (571)
- Finance: (4,282)

Total lease liabilities $115,998 $155,441

Maturities of operating lease liabilities for the year ended December 31, 2021, under the previous guidance of ASC 840 were as follows:

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>2022</td>
<td>$269,260</td>
</tr>
<tr>
<td>2023</td>
<td>261,109</td>
</tr>
<tr>
<td>2024</td>
<td>239,685</td>
</tr>
<tr>
<td>2025</td>
<td>178,573</td>
</tr>
<tr>
<td>2026</td>
<td>48,702</td>
</tr>
<tr>
<td>Total</td>
<td>$997,329</td>
</tr>
</tbody>
</table>

Rental expense incurred under the leases for the year ended December 31, 2021, was approximately $335,000.

Note 9 – Concentrations
A significant portion of the Society's customers are companies and professionals in the oil and gas industry.
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 10 – Subsequent Events**

Management has evaluated subsequent events through June 30, 2023, the date the financial statements were available to be issued.

On January 31, 2023, the Society entered into a $5.0 million Liquidity Access Line to use for operating expenses.
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Sections and Associated Societies
Student Chapters

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Corporate Members
In Memoriam

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The Leading Edge Editorial Board
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

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Honors and Awards 2022

Understanding that one of the most important functions of a professional society is honoring those who have made significant contributions to the profession and to science, the Society of Exploration Geophysicists (SEG) is recognizing the recipients of its 2022 Honors and Awards during the 92nd Annual Meeting in Houston, Texas.

- Maurice Ewing Medal ......................................................... Öz Yilmaz
- Honorary Membership .................................................. Aria Abubakar
- Honorary Membership .................................................. Sergey Fomel
- Virgil Kauffman Gold Medal ........................................... Xianhuai Zhu
- Reginald Fessenden Award ............................................. Yike Liu
- Reginald Fessenden Award ............................................. Kamini Singha
- Craig J. Beasley Award for Social Contribution ................. University of Bucharest
- Distinguished Achievement Award ................................. Zonge International
- Special Commendation ................................................... Samir Abdelmoaty
- Special Commendation ................................................... Ed K. Biegert
- Special Commendation ................................................... GeoFORCE Texas
- Life Membership Award ................................................ Gustavo Carstens
- J. Clarence Karcher Award ............................................. Shuvajit Bhattacharya
- J. Clarence Karcher Award ............................................. Mehdi Aharchaou
- J. Clarence Karcher Award ............................................. Leonardo Azevedo
- Outstanding Educator Award ....................................... Dario Grana

Distinguished Awards 2022

- SEG Distinguished Instructor Short Course ...................... Joe Dellinger
- SEG Distinguished Lecturer ........................................... Laura Bandura
- SEG-AAPG Distinguished Lecturer ................................. Roel Snieder
- SEG Honorary Lecturer, Latin America ......................... Carlos Calderón-Macias
- SEG Honorary Lecturer, Europe .................................. Klaus Holliger
- SEG Honorary Lecturer, Middle East and Africa ............. Ariel Lellouch
- SEG Honorary Lecturer, North America ....................... Partha Routh
- SEG Honorary Lecturer, Pacific South ........................... Mojtaba Rajabi
- SEG Honorary Lecturer, South and East Asia ................. Elita Li
- SEG Virtual Near Surface Global Lecturer .................... Susan Hubbard

Achievement Awards 2021

SEG Top Oral Paper Presented at IMAGE 2021
“Impact of joint PP/PS inversion on shear-impedance estimation for exploration and production,” by Ali Tura, James Simmons, Matthew Copley, Sima Daneshvar, Andrea Damasceno, and Joseph Stitt

SEG Top Poster Paper Presented at IMAGE 2021
“A 108 km² compressive sensing processing trial,” by Dustin Blymyer, Klaas Koster, and Graeme Warren

SEG Top Student Oral Paper Presented at IMAGE 2021
“Machine learning inversion of geophysical data by a conditional variational autoencoder,” by W. Anderson McAliley, Colorado School of Mines

SEG Top Student Poster Paper Presented at IMAGE 2021
“Unsupervised boundary analysis of potential field data: A machine learning method,” by Carmine Cutaneo, University of Naples Federico II

Best Paper in Interpretation in 2021
“Timing of hydrocarbon entrapment in the eastern foothills of the Eastern Cordillera of Colombia,” by Nelson Sánchez, Jael Pacheco, Mario Alberto Guzman-Vega, Andrés Mora, and Brian Horton; Volume 9, Issue 1: January-February 2022

Best Paper in Geophysics in 2021
“Reflection angle/azimuth-dependent least-squares reverse time migration,” by Eric Duveneck, Michael Kiehn, Anu Chandran, and Thomas Kühnel; Volume 86, Issue 5, September-October 2021

Best Paper in The Leading Edge in 2021
“Characterization of a carbonate geothermal reservoir using rock-physics-guided deep neural networks,” by Fabien Allo, Jean-Philippe Coulon, Jean-Luc Formento, Romain Reboul, Laure Capar, Mathieu Darnet, Benoit Issautier, Stephane Marc, and Alexandre Stopin; October 2021
2021–2022 Board of Directors

PRESIDENT
Anna C. Shaughnessy

DIRECTOR AT LARGE
Ana Curcio

PRESIDENT-ELECT
Kenneth M. Tubman

DIRECTOR AT LARGE
Sherif M. Hanafy

FIRST VICE PRESIDENT
Bruce Shang

DIRECTOR AT LARGE
Brandy Hawkins

SECOND VICE PRESIDENT
Joseph M. Reilly

DIRECTOR AT LARGE
Kurt J. Marfurt

VICE PRESIDENT, PUBLICATIONS
Jeffrey Shragge

DIRECTOR AT LARGE
Olga I. Nedorub

TREASURER
Peter W. Cramer

DIRECTOR AT LARGE
Tad M. Smith

PAST PRESIDENT
Maurice M. Nessim

CHAIR OF THE COUNCIL
Allen J. Bertagne

SECRETARY
James C. White
### 2021–2022 SEG Council Members

**Chair of the Council**  
Allen J. Bertagne  

**Vice Chair**  
John L. J. Duhault

**Section Representatives**

<table>
<thead>
<tr>
<th>Association</th>
<th>Representative(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asociación Argentina de Geólogos y Geofísicos Petroleros</td>
<td>Luis Alberto Vernengo</td>
</tr>
<tr>
<td>(AAGGP)</td>
<td>Jose Curcio</td>
</tr>
<tr>
<td>Asociación Colombiana de Geólogos y Geofísicos del Petróleo</td>
<td>Flover Gregorio Rodríguez</td>
</tr>
<tr>
<td>(ACGGP)</td>
<td>Humberto Salazar</td>
</tr>
<tr>
<td>Association Mexicana de Geofísicos de Exploración</td>
<td>Sergio Chavez-Pérez</td>
</tr>
<tr>
<td>(AMGE)</td>
<td></td>
</tr>
<tr>
<td>Association of Hungarian Geophysicists (MGE)</td>
<td>Gábor Zelei</td>
</tr>
<tr>
<td>Australian Society of Exploration Geophysicists (ASEG)</td>
<td>Emma Brand</td>
</tr>
<tr>
<td>Bay Area Geophysical Society (BAGS)</td>
<td>Michael J. Wilt</td>
</tr>
<tr>
<td>Billings Geophysical Society (BGS)</td>
<td>Eric Henry Johnson</td>
</tr>
<tr>
<td>Canadian Exploration Geophysical Society (KEGS)</td>
<td>Micki Allen</td>
</tr>
<tr>
<td>Canadian Society of Exploration Geophysicists (CSEG)</td>
<td>Kathleen Dorey</td>
</tr>
<tr>
<td>(CSEG)</td>
<td>Nanna Eliuk</td>
</tr>
<tr>
<td>Chamber of Geophysical Engineers of Turkey (CGET)</td>
<td>Mehmet E. Candansayyar</td>
</tr>
<tr>
<td>Coastal Bend Geophysical Society (CBGS)</td>
<td>Subbarao Yelisetti</td>
</tr>
<tr>
<td>Dallas Geophysical Society (DGS)</td>
<td>Trevor L. Richards</td>
</tr>
<tr>
<td>Denver Geophysical Society (DGS)</td>
<td>Joel E. Scott II</td>
</tr>
<tr>
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<td>Morgan Parker Brown</td>
</tr>
<tr>
<td>Deutsche Geophysikalische Gesellschaft (DGG)</td>
<td>Serge Alexander Shapiro</td>
</tr>
<tr>
<td>Daharan Geoscience Society (DGS)</td>
<td>Abdulaziz Saad Almansour</td>
</tr>
<tr>
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<tr>
<td>Emirates Society of GeoScience (ESG)</td>
<td>Guillaume Cambois</td>
</tr>
<tr>
<td>(ESG)</td>
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<tr>
<td>Geophysical Society of Alaska (ASA)</td>
<td>Loren M. Zeigler</td>
</tr>
<tr>
<td>(ASA)</td>
<td></td>
</tr>
<tr>
<td>Geophysical Society of Houston (USA)</td>
<td>Peter Myles Duncan</td>
</tr>
<tr>
<td>(USA)</td>
<td>Klaas Koster</td>
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<tr>
<td>Geophysical Society of Kansas (UK)</td>
<td>Peter M. Eick</td>
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<tr>
<td>(UK)</td>
<td>Lillian Comegys</td>
</tr>
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<td>Geophysical Society of Kansas (UK)</td>
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<tr>
<td>Geophysical Society of Oklahoma City (US)</td>
<td>Alex Biholer</td>
</tr>
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<td>Geophysical Society of Pittsburgh (US)</td>
<td>Joel G. Starr</td>
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<tr>
<td>Geophysical Society of Tulsa (US)</td>
<td>Austin Bailey</td>
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<td>Jackson Geophysical Society (JGS)</td>
<td>Karl J. Kaufmann</td>
</tr>
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<tr>
<td>Korean Society of Earth and Exploration Geophysicists</td>
<td>Sukjoon Pyun</td>
</tr>
<tr>
<td>(KSEG)</td>
<td></td>
</tr>
<tr>
<td>National Committee of Geophysicists of Azerbaijan</td>
<td>Said Davud Sadykhov</td>
</tr>
<tr>
<td>(NCG)</td>
<td></td>
</tr>
<tr>
<td>Near Surface Technical Section (NSS)</td>
<td>Chester Joseph Weiss</td>
</tr>
<tr>
<td>(NSS)</td>
<td>Catherine Truffert</td>
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<tr>
<td>Oslo Society of Exploration Geophysicists (OSEG)</td>
<td>Erika Gasperikova</td>
</tr>
<tr>
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<tr>
<td>Petroleum Exploration Society of Great Britain (PESGB)</td>
<td>Alan Foum</td>
</tr>
<tr>
<td>(PESGB)</td>
<td>Ed Collins</td>
</tr>
<tr>
<td>Potomac Geophysical Society (PGS)</td>
<td>Catherine Blain Enomoto</td>
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<tr>
<td>Romanian Society of Geophysics (RSG)</td>
<td>Victor Mocanu</td>
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<tr>
<td>San Antonio Geophysical Society (SAG)</td>
<td>Robert L. Critchlow</td>
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<td>(SAG)</td>
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<tr>
<td>Scandinavian Visualization Society (SVA)</td>
<td>Francisco Porturas</td>
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<tr>
<td>(SVA)</td>
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<tr>
<td>Sezione Italiana EAGE-SEG (IES)</td>
<td>Andrea Tognarelli</td>
</tr>
<tr>
<td>(IES)</td>
<td></td>
</tr>
<tr>
<td>Sociedad Venezolana de Ingenieros Geofísicos (SOVG)</td>
<td>Miguel Eduardo Bosch</td>
</tr>
<tr>
<td>(SOVG)</td>
<td></td>
</tr>
<tr>
<td>Sociedade Brasileira de Geofísica (SBGF)</td>
<td>Diego Chagas Garcia</td>
</tr>
<tr>
<td>(SBGF)</td>
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</tr>
<tr>
<td>Society of Exploration Geophysicists of Japan</td>
<td>Koji Kashihara</td>
</tr>
<tr>
<td>(SEGG)</td>
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</tbody>
</table>

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 2021 to 31 July 2022 Council year.
**Section Representatives (continued)**

| Society of Exploration Geophysicists, Beijing (SEG Beijing) [1] | Jicheng Shi |
| Society of Exploration Geophysicists, South China [1] | Shouli Qu |
| Society of Exploration Geophysicists, Beijing (SEG Beijing) [1] | Jicheng Shi |
| Society of Exploration Geophysicists, South China [1] | Shouli Qu |

**District Representatives**

| DISTRICT 1 | Patrice Nsoga Mahob 2022 | Neda Bundalo 2023 |
| DISTRICT 2 | Tracy J. Stark 2022 | Kathryn Hardy 2023 |
| DISTRICT 3 | Sarah Elizabeth Shearer Gach 2022 | Christopher Philip Ross 2023 |
| DISTRICT 4 | Douglas R. Schmitt 2022 | Ray George Earley 2023 |
| DISTRICT 5 | Rachel Newrick 2022 | Craig Whitney Funk 2023 |
| DISTRICT 6 | Luis Donoso 2022 | Marco A. Rodrigues De Cea 2023 |
| DISTRICT 7 | Anton Bogrash 2022 | Laura Bornatici 2023 |
| DISTRICT 8 | Horst Rüter 2022 | Barbara Ciurlo 2023 |
| DISTRICT 9 | Uche Irene Aigbokhai 2022 | Ifeanyichukwu Samuel Obi 2023 |
| DISTRICT 10 | Sankhadip Bhattacharya 2022 | Abdulmohsen M. Alali 2023 |
| DISTRICT 11 | Yang Liu 2022 | Ruijia Wang 2023 |
| DISTRICT 12 | Ahmad Riza Ghazali 2022 | Lisa J. Gavin 2023 |

Terms of District Representatives end on 31 July of the year indicated in parentheses. Each District is allotted two representatives.
## 2021–2022 Committee Rosters

### Advisory Committee
- William L. Aberel
- Nancy Jo House
- Maurice M. Nessim
- Robert Stewart
- James C. White
- Mandi Duckworth
- Jonathan Blair Ajo-Franklin
- Xiaofang Zeng
- Kenneth M. Tubman
- Maurice M. Nessim
- Anna C. Shaughnessy
- Brandy Bridgett Hawkins
- Kurt J. Marfurt
- Ulrich Zimmer
- Kristina Keating
- Robert Stewart
- Mandi Duckworth

### AGU-SEG Collaboration Committee
- Dale Bird
- Kisa Mwayamala
- Jonathan Blair Ajo-Franklin
- Esben Auk
- Anne Becel
- Xavier Comas
- John Goff
- Lianjie Huang
- Kristina Keating
- Anja Klotzsche
- John W. Lane Jr.
- Yunyue Li
- John Louie
- David E. Lumley
- Alexander Martinez
- Thomas Dylan Mikesell
- Sarah Morton
- Dimitrios Ntarlagiannis
- Martha Savage
- Chris Sherman
- Georgios Padelis Tsoflias
- Xiangfang Zeng
- Rui Zhang
- Chi Zhang
- Tieyun Zhu
- Victoria Forlini
- Kenneth M. Tubman
- Laurie Whitesell

### Audit Committee
- Kurt J. Marfurt
- Ana Curcio
- Brandy Bridgett Hawkins
- Peter Cramer
- Carlos de la Garza

### Bylaws Committee
- Edith J. Miller
- Wenjie Dong
- R. Kim Guyer
- Laura C. Swafford
- Joseph Michael Reilly
- Mandi Duckworth
- Jennifer Cobb

### Committee For Passive Seismic
- David Evon Diller
- Piero Basini
- David Evon Eaton
- William Ellsworth
- Werner Heigl
- Dan Hollis
- Ulrich Zimmer
- Kurt J. Marfurt
- Annabella Betancourt

### Committee on Nominations
- Sherif M. Hanafy
- Brandy Bridgett Hawkins
- Allen J. Bertagne
- Anton Bogrash
- Neda Bundalo
- Yang Liu
- Richard D. Miller
- Maurice M. Nessim
- Rachel Newrick
- Robert Stewart
- Mandi Duckworth

### Committee on University and Student Programs
- Kurang Jvalant Mehta
- Priilia Adriani
- Uzonna Okenna Anyiam
- Alexandru Mihai Badescu
- Anna Mutia Badri
- Diane Doser
- Peter Myles Duncan
- Shelly Mardha Faizy
- Aaron Joseph Girard
- Yang Liu
- Saurabh Mittal
- Elly Mulimbamba
- Roman Petrokushyn
- Vinicius Vianna Riguete
- Abhinav Sharma
- Hema Sandeep Sharma
- Leonardus Suffendy Tjahjadi
- Charles Payson Todd
- Eugene Clark Trantham
- Marko Vanic
- Deborah Wehner
- Joan Marie Blanco
- Brandy Bridgett Hawkins
- Kathryn Elkins

### Compensation Committee
- Anna C. Shaughnessy
- Peter W. Cramer
- Maurice M. Nessim
- Arthur C. H. Cheng
- Kenneth M. Tubman
- Angela Paulsen
2021–2022 Committee Rosters (continued)

Continuing Education Committee
K. John Ronjen Fernando .....................................................Chair
John Campbell Bancroft ..................................................Member
Andrea Damasceno .........................................................Member
Mike Graul .................................................................Member
Osman Massoud Hassan .............................................Member
Mahmoud E. Hedefa .....................................................Member
Dhananjay Kumar ........................................................Member
Shuki Ronen ............................................................Member
Michal Ellen Ruder .......................................................Member
William Harbert ........................................................Past Chair
Malcolm Lansley ........................................................Past Chair
Sherif M. Hanafy ..........................................................Board Liaison
Cheryl Jackson ............................................................Staff Liaison
John Meade ...............................................................Staff Liaison

Development and Production Committee
Mariana Gherasim ..........................................................Chair
Othman Fadel Al-Moussa ................................................Member
Adam Kyle Buckl ........................................................Member
Reynaldo Cardona .........................................................Member
Mark Chapman ..........................................................Member
Alan Jordan Cohen .......................................................Member
Rocco Detomo Jr. ..........................................................Member
Alexander Droujinine ................................................Member
Ashley M. Francis ........................................................Member
Scott Aron Haberman ................................................Member
David H. Johnston ........................................................Member
Yongyi Li .................................................................Member
Enru Liu .................................................................Member
Daniel Ott ...............................................................Member
Amit Padhi ...............................................................Member
Wayne D. Pennington ..................................................Member
Marianne Rauch ..........................................................Member
Andrew John Royle ........................................................Member/Past Chair
Conor J. Ryan ..............................................................Member
Douglas R. Schmitt ........................................................Member
Zandong (Sam) Sun ........................................................Member
Naser Tamimi ..............................................................Member
Ali Tura .................................................................Member
Eric Von Lunen ..............................................................Member
Michael J. Wilt ..........................................................Member
Xue Yang ...............................................................Member
Bruce Zhucheng Shang ................................................Board Liaison
Steve Brown .............................................................Staff Liaison

Distinguished Lecture Committee
Rocco Detomo Jr. ..........................................................Chair
Boris Gurevich .................................................................Vice Chair
Raymond Lee Abma ...................................................Lecturer
Aria Abubakar ...............................................................Lecturer
John Theodore Etgen ................................................Lecturer
Sergey Fomel ...............................................................Lecturer
Felix Johan Herrmann ................................................Lecturer
Satish Chandra Singh ................................................Lecturer
William Woodbury Symes ........................................Lecturer
Saleh Ammar Al-Dossary ................................................Member
David Lee Alumbaugh ................................................Member
Dimitri Bevc .................................................................Member
Guillaume Cambois ...................................................Member
John F. Ceron ...............................................................Member
Sergio Chavez-Perez ..................................................Member
Shivaji N. Dasgupta ......................................................Member
Patricia Pastana De Lugao ...........................................Member
Luke Decker ...............................................................Member
Maitri Erwin ...............................................................Member
Lisa J. Gavin ...............................................................Member
Huijin Guan ...............................................................Member
Sherif M. Hanafy ........................................................Member
Ursula Iturrraran-Viveros ................................................Member
Christine E. Krohn ........................................................Member
Alison E. Malcolm ........................................................Member
Chaitanya Kumar Harilal Mehta ....................................Member
Olga I. Nedorub ..........................................................Member
Vishal Pandey ............................................................Member
Gregory Andrew Partyka ...............................................Member
Alexander Mihai Popovici .................................................Member
Matthijs Willem Van Der Molen ......................................Member
Xinning Wu ...............................................................Member
Arthur C. H. Cheng .........................................................Foundation Liaison
Kurt J. Marfurt ..............................................................Board Liaison
John Meade ...............................................................Staff Liaison
Mallory Trumbore ........................................................Staff Liaison
Melissa Presson ...............................................................Alternate Staff Liaison

Emerging Professionals International Committee (EPIC)
Ellen Bonshor-Mayes ........................................................Chair
Vinesh K .................................................................Vice Chair
Callistus Anaele ............................................................Member
Widia Anggraeni ..........................................................Member
Andrea Balza ...............................................................Member
Cyril Dziedzorm Boateng ................................................Member
Maria Castillo ...............................................................Member
Luke Decker ...............................................................Member
Ali Downard ...............................................................Member
Chandra Prakash Dubey ................................................Member
Claudia Johana Duenas ................................................Member
Elena Dutcher ...............................................................Member
Ahmed Khairy ..............................................................Member
Nicholas McDaniel ........................................................Member
Olga I. Nedorub ..........................................................Member
Samara Omar ...............................................................Member
Eron Raines ...............................................................Member
Juan Daniel Romero .....................................................Member
Victoria Tschirhart ........................................................Member
Emmanuel Ebuka Uzuegbu ...............................................Member
Zhiguo Wang ...............................................................Member
Michael Westgate ........................................................Member
Aurelian Roesser ...........................................................Past Chair
Brandy Bridgett Hawkins ................................................Board Liaison
Kathryn Elkins ..............................................................Staff Liaison
SEG EVOLVE Technical Committee
Alex Biholar .............................................. Chair
Allen J. Bertagne ................................... Member
Arthur C. H. Cheng ................................. Member
Rocco Detomo Jr. .................................... Member
Mike Forrest .......................................... Member
Migdalis Salazar .................................... Member
Jennifer J. Thompson ......................... Member
Chris Wojcik ......................................... Member
Kurt J. Marfurt ..................................... Board Liaison
Kathryn Elkins ...................................... Staff Liaison
Annabella Betancourt ....................... Alternate Staff Liaison

Field Camps Committee
Francesca Fazzari ........................................ Chair
Alex Fick ................................................... Vice Chair
Jose Ricardo Arce ................................. Member
Geoffrey V.K. Pang ............................... Member
Roman Petrokushyn .............................. Member
Charles Payson Todd .......................... Member
Rui Zhang ............................................... Member
Brandy Bridgett Hawkins .................. Board Liaison
Kathryn Elkins ...................................... Staff Liaison

Finance Committee
Daniel Andrew Ebrom .......................... Chair
M. Lee Bell ........................................... Member
Guillaume Cambois ............................. Member
Nancy Jo House ................................ Member
Olga I. Nedorub ................................... Member
Alison Weir Small ............................... Member
Theodore C. Stieglicht ....................... Member
Martin Stupell ...................................... Member
Peter W. Cramer ................................. Member/Board Liaison
Tony Philip Lupo ................................. Foundation Liaison
Carlos de La Garza ............................. Member

Geoscientists without Borders (GWB) Committee
Cengiz Esmersoy .................................. Chair
Bethany Burton .................................. Member
Paul S. Cunningham ......................... Member
Elaine Medeiros De Mattos ................. Member
Cezar Iacob ......................................... Member
Robert K. Merrill ................................ Member
Adil Mukhitov .................................. Member
Sissy Joy Theisen ............................... Foundation Liaison
Ken E. Witherly ................................. Foundation Liaison
Maurice M. Nessim ............................ Board Liaison
Pallavi Bharadwaj ............................. Staff Liaison

Gravity and Magnetics Committee
Marianne Rauch .................................. Chair
Sergio A. Espinoza-Corriols ................ Vice Chair
Tim Archer ......................................... Member
John Bain .......................................... Member
Andrea Balza .................................. Member
Martin Bates .................................. Member

Health, Safety, Security, and Environment (HSSE) Committee
Sharon Teebenny .................................. Chair
Jose Edgard Arce ................................. Member
Tiffany Carey .................................... Member
Gustavo Jose Carstens ....................... Member
Luke Decker .................................... Member
Francesca Fazzari .............................. Member
Huw Evan James ............................... Member
Michael Lis ...................................... Member
Robert K. Merrill ............................... Member
Dmitry Merzlikin ............................... Member
Christy Dymatee Nandial .................. Member
Mary Oladiran ................................ Member
Connor Smith .................................. Member
Ian M. Threadgold ............................. Member
Chester Joseph Weiss ......................... Member
Olga I. Nedorub ................................. Board Liaison
John Meade ..................................... Staff Liaison

Honors and Awards Committee
William L. Abriel .................................. Chair
Nancy Jo House ................................ Member
Richard D. Miller ............................... Member
Maurice M. Nessim ........................... Member/Board Liaison
Robert Stewart ................................ Member
Mandi Duckworth .............................. Staff Liaison

Edward Karl Biegert ................................ Member
Dale Bird ......................................... Member
Neda Bundalo .................................... Member
Charles L. Campbell Jr ...................... Member
Nicholas Direen ................................ Member
Benjamin J. Drenth ............................ Member
Vsevolod Egorov ............................... Member
Irina Filina ....................................... Member
Simon Gozzard ................................ Member
V.J.S. Grauch .................................... Member
Jennifer L. Hare ................................ Member
Earl Gerald Hensel ......................... Member
Alan T. Herring ................................ Member
Mohammed A. Kidwai ....................... Member
Xiong Li .......................................... Member
Yaoguo Li ......................................... Member
Alan Morgan .................................... Member
Dhananjay Ravat ................................ Member
Stephen William Reford ....................... Member
Alan Barry Reid ................................ Member
Michal Ellen Ruder ............................ Member
Luise D. Sander ................................ Member
Cara Schiek-Stewart ....................... Member
Jiajia Sun .......................................... Member
Manik Talwani .................................. Member
Victoria Tschirhart ......................... Member
Subba Rao V. Yalamanchili ............. Member
Kurt J. Marfurt ................................. Board Liaison
Steve Brown ................................... Staff Liaison

Chester Joseph Weiss .......................... Member
Yaoguo Li ......................................... Member
2021–2022 Committee Rosters (continued)

IMAGE Organizing Committee
Wafik Bulind Beydoun ................................................. Chair
Anne Draucker.......................................................... Chair
Richard Fritz ............................................................ Chair
Olga I. Nedorub .......................................................... Chair
Aria Abubakar ......................................................... Technical Program Co-Chair
Ahmed Hakami ......................................................... Technical Program Co-Chair
Gretchen M. Gillis ..................................................... AAPG President
Maurice M. Nessim ..................................................... Board Liaison
Tom Agnew ............................................................. Staff Liaison
Jenny Cole ............................................................... Staff Liaison
Theresa Curry .......................................................... Staff Liaison
Val Johnston-Jones ..................................................... Staff Liaison
Susan Nash ............................................................. Staff Liaison
Mallory Trumbore ...................................................... Staff Liaison
Alan Wegener ............................................................ Staff Liaison

IMAGE Oversight Committee
Maurice M. Nessim ..................................................... Chair
Wafik Bulind Beydoun ................................................ Co-Chair
Anne Draucker ........................................................ Co-Chair
Richard Fritz .......................................................... Co-Chair
Olga I. Nedorub ........................................................ Co-Chair
David Curtiss .......................................................... AAPG Executive Director
James C. White ....................................................... SEG Executive Director
Tom Agnew ............................................................. SEG Executive Director
Alan Wegener ............................................................ SEG Executive Director

IMAGE Technical Program Committee
Aria Abubakar ........................................................... Chair
Ahmed Hakami ........................................................ Chair
Tunbosun Afolayan ..................................................... Member
Rachel E. Aisner ........................................................ Member
Ahmed Asama Alfataierge ........................................... Member
Hamad Mohammed Alghenaim ..................................... Member
Tariq A. M. Alkhalfah .................................................. Member
Ibrahim Alkhbardawi .................................................. Member
Mohammed Alsaleh .................................................. Member
Bassam Alishammarı ................................................... Member
Eduardo Alvarez ........................................................ Member
Ellie P. Ardakani ........................................................ Member
Aiman Malik Bakhorji ................................................ Member
Anatoly Baumstein .................................................... Member
Justin Birdwell ........................................................ Member
Miguel Eduardo Bosch .............................................. Member
Gokay Bozkurt ........................................................ Member
Neda Bundalo .......................................................... Member
Charles L. Campbell Jr. .............................................. Member
Adam Cawood ........................................................ Member
Blair Chan ............................................................... Member
Juan Andres Chavarría ............................................... Member
Sergio Chavez-Perez ................................................ Member
Nizar Chemingui ....................................................... Member
Julian Bertrand Chenin ............................................... Member
William Demis ........................................................ Member
Haibin Di ............................................................... Member
Kennedy Okioghene Doro .......................................... Member
Ashley Douds .......................................................... Member
Christine Downs ....................................................... Member
Mohammed A. Duhalian ............................................ Member
David William Eaton ................................................ Member
Francis Elisabeth ..................................................... Member
Cengiz Esmer soy ..................................................... Member
Erika Gaspersikova ................................................... Member
Stephan Gelinsky ..................................................... Member
Rajesh Goteti .......................................................... Member
Autumn Haagisma .................................................... Member
Howard E. Harper Jr. ................................................ Member
Franek Hasiuk ........................................................ Member
Brooke Hills ........................................................... Member
Ronny Hofmann ...................................................... Member
Wenyi Hu ............................................................... Member
Sochi Iwuo ha .......................................................... Member
Ge Jin ................................................................. Member
David Lankford-Bravo .............................................. Member
Yaqinuo Li .............................................................. Member
Lin Liang ............................................................... Member
Daniel Lewis Maguire .............................................. Member
La Naette Marcha .................................................... Member
Kurang Jvalant Mehta ................................................ Member
Maria Mutti ............................................................ Member
Kenechukuwu Chukwunonso Nwakwesi ......................... Member
Aaron Regberg ....................................................... Member
Jonathan Rotzien .................................................... Member
Partha Sarathi Routh ................................................. Member
Allegra Hosford Scheirer ............................................. Member
Mrunal K. Sen ........................................................ Member
Madhumita Sengupta ............................................... Member
Andrew Clarence Silver ............................................. Member
Lee D. Slater .......................................................... Member
Ali Sloan ............................................................... Member
Christof Stork ........................................................ Member
Adamu Suleiman ..................................................... Member
Jiajia Sun ............................................................... Member
Metin Tavlan ........................................................ Member
Catherine Truffert .................................................... Member
Estibalitz Ukar ........................................................ Member
Michel Verlic ........................................................ Member
Kristoffer Walker ..................................................... Member
Bin Wang .............................................................. Member
Laurie Whitesell ..................................................... Member
Chuandong Xu ........................................................ Member
Bo Zhang ............................................................. Member
Tao Zhao .............................................................. Member
Xianhui Zhu .......................................................... Member
Sherif M. Hanafy .................................................... Board Liaison
Jenny Cole ............................................................. Staff Liaison

Justice, Equity, Diversity, and Inclusion Committee
Jose Ricardo Arce .................................................. Chair
Lillian Flakes ........................................................ Vice Chair
Ellie P. Ardakani ........................................................ Member
Estella A. Atekwana ................................................ Member
Alain De La Fuente ................................................... Member
2021–2022 Committee Rosters (continued)

Rocco Detomo Jr. .......................................................... Member
John Edward Eastwood ................................................ Member
Eileen Martin ................................................................. Member
Richard D. Miller .......................................................... Member
Sasa Mutliara ............................................................... Member
Ibrahim Atta Mohamed Nasr ......................................... Member
Ramesh Neelamani ........................................................ Member
Manika Prasad ............................................................... Member
Sean E. Walker ............................................................. Member
Chi Zhang ................................................................. Member
Alex Biholar .............................................................. Foundation Liaison
Brandy Bridgett Hawkins ............................................ Board Liaison
Jennifer Cobb .............................................................. Staff Liaison

Machine Learning Committee
Robert G. Clapp .......................................................... Chair
Mauricio Araya-Polo ...................................................... Vice Chair
William L. Abriel ......................................................... Member
Christopher Lee Liner ................................................ Member
Allen J. Bertagne ........................................................ Board Liaison
Annabella Betancourt ................................................ Staff Liaison

Meetings Review and Planning Committee
Alexander Martinez ....................................................... Chair
Mohammed Badri ........................................................ Member
Jesse Alexander Baker ................................................ Member
Paul S. Cunningham ....................................................... Member
Timothy James Dean ................................................ Member
Rocco Detomo Jr. .......................................................... Member
Terrell Dhanpaul .......................................................... Member
Carmen C. Dumitrescu ................................................. Member/Past Chair
Cengiz Esmersoy ........................................................ Member
Marianne Rauch ........................................................... Member
Feng Zhang ....................................................................... Member
Jose Edgard Arce ........................................................ Past Chair
Kurt J. Marfurt ............................................................... Board Liaison
Teresa Dallis ................................................................. Staff Liaison

Membership Committee
Aaron Joseph Girard ...................................................... Chair
Anita Thapalia ............................................................ Vice Chair
Ludmila Adam ............................................................ Member
Uzonna Okenna Anyiam ............................................... Member
Jing Ba ............................................................................ Member
Gustavo Jose Carstens ................................................ Member
Rocco Detomo Jr. .......................................................... Member
Joseph O. Ebeniro Sr. .................................................... Member
Leo Eisner ................................................................. Member
Pablo Ivanovych Gryshchuk ........................................... Member
Sindi Maduham Guma ................................................ Member
Donna M. Jurdy ............................................................ Member
Alfred Liang-Chi Liaw ..................................................... Member
Norimitsu Nakata .......................................................... Member
Pamela Royer Terekhova ............................................. Member
Teresa Santana ............................................................. Member
Alexey Stovas ............................................................. Member
Matthijs Willem Van Der Molen .................................... Member
Aldo L. Vesnaver .......................................................... Member
Zhiguo Wang ............................................................... Member
Zeyu Zhao ....................................................................... Member
Michel Verlial .............................................................. Past Chair
Ana Curcio ............................................................... Board Liaison
Tania Stephens ............................................................. Staff Liaison

Mining Committee
Glenn Chubak ............................................................. Chair
Sarah G. Devrieze ......................................................... Vice Chair
Jose Ricardo Arce ........................................................ Member
Tim Archer ................................................................. Member
Darren Burrows .......................................................... Member
Asbjorn Norlund Christensen ....................................... Member
Robert Arnold Eso ........................................................ Member
Leo Fox ............................................................................ Member
Kim Frankcombe ........................................................ Member
Robert D. Harris .......................................................... Member
Robert Bruce Hearst ..................................................... Member
D. Greg Hodges .......................................................... Member
Daniel Don Hollis ........................................................ Member
Brendan David Howe ................................................... Member
Joel Christopher Jansen ............................................... Member
Alan G. Jones ............................................................... Member
Peter L. Kowalczyk ....................................................... Member
Jean Marcel Legault ...................................................... Member
Tyler Mathieson .......................................................... Member
Jenna P. McKenzie ........................................................ Member
Iain McLeod .............................................................. Member
Chris Nind ................................................................. Member
Rolf Nils Pedersen ......................................................... Member
Alan Barry Reid ........................................................... Member
Ken A. Roberts ............................................................ Member
Guillermo Rodriguez ..................................................... Member
Jerry Roth ....................................................................... Member
Jonathan C. Rudd ........................................................ Member
Stephan D. Sander ........................................................ Member
Luise D. Sander ........................................................... Member
Richard Stuart Smith .................................................... Member
Ben K. Sternberg .......................................................... Member
Jiajia Sun ........................................................................ Member
Scott James Thomas ..................................................... Member
Victoria Tschirhart ........................................................ Member
Syd Visser ................................................................. Member
Sean E. Walker ............................................................. Member
Roman M. Wasylechko ................................................... Member
Ken E. Witherley .......................................................... Member
Dennis Victor Woods ..................................................... Member
Ana Curcio ............................................................... Board Liaison
Laurie Whitesell .......................................................... Staff Liaison

Publications Committee
Baishali Roy ................................................................. Chair
Aria Abubakar .............................................................. Member
Vsevolod Egorov .......................................................... Member
John Theodore Etgen .................................................... Member
William Robert Green .................................................. Member
2021–2022 Committee Rosters (continued)

Lianjie Huang ................................................. Member
Yongyi Li ....................................................... Member
Lucia Torrado .................................................. Member
Jeffrey Chiver Shragge .............................. Board Liaison
Jennifer Cobb .................................................. Staff Liaison
Jeno Mavzer .................................................. Alternate Staff Liaison

Research Committee
Aria Abubakar .................................................. Chair
Donald Lawton .................................................. Member
Joël H. Le Calvez ............................................... Member
Yunyue Elita Li .................................................. Member
Don White ........................................................ Member
Nazim R. Abdullahayev .................................. Member
Ray Abma ........................................................ Member
William L. Abriel ............................................ Member
Jonathan Ajo-Franklin .................................... Member
Erkan Ay .......................................................... Member
Dimitri Bevc .................................................... Member
Wafik Bulind Beydoun ..................................... Member
Ettore Biondi .................................................. Member
Biondo Leonardo Biondi ................................... Member
Miguel Bosch .................................................. Member
Sergio Chavez-Perez ....................................... Member
Xin Cheng ....................................................... Member
Arthur C. H. Cheng .......................................... Member
Ana Curcio ........................................................ Member
Andrew Curtis .................................................. Member
Tom Daly ......................................................... Member
Ben Dando ........................................................ Member
Haibin Dì .......................................................... Member
Wenjie Dong ................................................... Member
Nader C. Dutta .................................................. Member
David William Eaton ....................................... Member
Cengiz Esmersoy ............................................ Member
James E. Gaiser .............................................. Member
Erika Gasperikova .......................................... Member
Mariana Gherasim ........................................... Member
Richard Lloyd Gibson Jr .................................. Member
Aaron Joseph Girard ....................................... Member
Boris Gurevich ................................................ Member
William Harbert ............................................. Member
Brian Edward Hornby ..................................... Member
Wenyi Hu ........................................................ Member
Lianjie Huang .................................................. Member
Ge Jin ............................................................. Member
Shreya Kanakiya ............................................ Member
Camelia Knapp .............................................. Member
Christine E. Krohn .......................................... Member
Ariel Lelfouch ................................................ Member
Yongyi Li ........................................................ Member
Joseph Ma ........................................................ Member
Yong Ma ........................................................ Member
Eileen Martin ................................................... Member
Joseph Paffenholz .......................................... Member
Alexander Mihai Popovici ................................ Member
Adriana Citlali Ramirez ..................................... Member
Igor Rubio Cisneros ........................................ Member
Sarah Rupert .................................................. Member
Colin Sayers ................................................... Member
Madhumita Sengupta ..................................... Member
Xukai Shen .................................................... Member
Yi Shen Shen .................................................. Member
Juan Andres Soldo .......................................... Member
Rafael Souza ................................................... Member
Frantisek Stanek ............................................. Member
Tracy J. Stark .................................................... Member
Kurt-Martin Strack .......................................... Member
Jialia Sun ........................................................ Member
Aleksi Titov .................................................... Member
Ali Tura .......................................................... Member
Nimisha Vedanti .............................................. Member
Michel Verlai .................................................. Member
Sumit Verma ................................................... Member
Ping Wang ....................................................... Member
Arthur B. Weglein .......................................... Member
Zhouhong John Wei ....................................... Member
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Ge Zhan ........................................................ Member
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Xianhuaizi Zhu ............................................... Member
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Sankhadipt Bhattacharya ................................ Member
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John Brittan .................................................... Member
Stephen Brown .............................................. Member
Weiping Cao ................................................... Member
Moritz Matthias Fleidner ................................ Member
Niels Grobbe ................................................... Member
Seth Haines .................................................... Member
William Harbert ............................................. Member
Ian Gordon Jack ............................................. Member
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Woolf M. Moon .............................................. Member
William L. Rodi .............................................. Member
Andreas Rueger ............................................. Member
Rick Saltus ...................................................... Member
William Allan Sandham ................................ Member
Colin Michael Sayers ..................................... Member
Jack Lee Stalnaker .......................................... Member

SEG 2022 YEARBOOK
### 2021–2022 Committee Rosters (continued)

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<td>Lorie Kay Bear .............................. Chair</td>
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<td>Ahmed Ismail ................................. Member</td>
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<td>Yong Ma ........................................ Member</td>
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<td>Adam R. Mangel .............................. Member</td>
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<td>Kai Zhang ..................................... Member</td>
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<td>Mallory Trumbore ........................ Staff Liaison</td>
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<td>Annabella Betancourt ..................... Alternate Staff Liaison</td>
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Craig Walker ...............................................................Member
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Ying Shi .........................................................................Member
Xiaoming Tang .............................................................Member
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Jiao Xueling ..................................................................Member
Wei Zhang .......................................................................Member
Bangliu Zhao ................................................................Member
Huaheng Zheng ...........................................................Member
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Anatolii Chernov ...........................................................Member
Tetyana Fedchenko .......................................................Member
Ofa Ibrahimli ...............................................................Member
Farida Ismayilova ........................................................Member
Leyli Kalendarova ........................................................Member
Ivan Perepletkin ............................................................Member
Roman Petrokushyn .....................................................Member
Artem M. Sazykin ........................................................Member
Aleksei A. Shevchenko ....................................................Member
Shokhrulkh Shomurodov ................................................Member
Danila Nikolaevich Tverdokhlebov ................................Member
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Ana Duarte ....................................................................Member
Aziz Elibuyuk ................................................................Member
Yuriy Ivanov ................................................................Member
Rodney G. K. Johnston ..................................................Member
Catalin-Alexandru Maric ...............................................Member
Irina Marin ....................................................................Member
Mariana Martinho ........................................................Member
Andreea Maria Pavel .......................................................Member
Nini Tatiana Pertuz ........................................................Member
Katerina Polychronopoulou ...........................................Member
Antony David Price .......................................................Member
Emin Sadikov ................................................................Member
Christian Tzankov ........................................................Member
John Egbart Van Ijsseldijk ................................................Member
Gábor Zelei ....................................................................Member
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Paul S. Cunningham ......................................................Member
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Mario Rivera Florez ......................................................Member
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Paola Tarabini .............................................................Member
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Alessandro Traversa ......................................................Member
Sven Treitel ...................................................................Member
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Samir Abdelmoaty .......................................................... Member
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Nasher M. Al-Bin-Hassan ............................................... Member
Tariq A. M. Alkhalfah .................................................... Member
Hichem Bouhlel ............................................................ Member
Guillaume Cambois ...................................................... Member
Adel Hassan El-Emam .................................................... Member
Beth A. Rees ................................................................. Member
Abdulaziz M. Saad ........................................................... Member
Mingqiu Zhao ................................................................. Member
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Carbon Solutions Task Force
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Erkan Ay ................................................................. Co-Chair
Paul Fyfe Anderson ...................................................... Member
Gregor Tobias Baechle .................................................. Member
Shuvajit Bhattacharya ..................................................... Member
Biondo Leonardo Biondi .................................................. Member
Grant Bromhal ............................................................. Member
Will Burnett ................................................................. Member
Steve Carpenter ........................................................... Member
Ben Dando ................................................................. Member
Sallie E. Greenberg ........................................................ Member
Autumn Haagsma ........................................................ Member
Camelia C. Knapp ........................................................ Member
Donald Caleb Lawton .................................................... Member
Joel Herve Le Calvez ..................................................... Member
Sara Minisini ................................................................. Member
Simon Richard Michael O’Brien .................................... Member
Josef Paffenholz ............................................................. Member
Baishali Roy ................................................................. Member
Ali Tura ............................................................... Member
Jean-Paul Van Gestel ..................................................... Member
Michel Verliac .............................................................. Member
Sumit Verma ................................................................. Member
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Shelly Oakley ............................................................... Staff Liaison

Digital Transformation Task Force
William L. Abriel .......................................................... Chair
Annabella Betancourt ..................................................... Member
Jennifer Cobb .............................................................. Member
Shelly Jo Oakley ........................................................... Member
Stephanie Moore .......................................................... Member
Carlos de la Garza ........................................................ Member
Kenneth M. Tubman ..................................................... Member/Board Liaison
Scott Sutherland .......................................................... Member
Steve Tomlinson .......................................................... Staff Liaison

Geothermal Task Force
Arthur C. H. Cheng ....................................................... Co-Chair
Michael Fehler ............................................................ Co-Chair
Andrew J. Jupe ............................................................ Member
Erika Gasperikova ........................................................ Member
Hiroshi Asanuma ........................................................ Member
Patricia Pastana De Lugao .............................................. Member
Kukunda Ndyamuhaki .................................................... Member
Ana Curcio ................................................................. Board Liaison

Medical Applications Task Force
Maurice M. Nessim ....................................................... Chair
Ana Curcio ................................................................. Member
Bruce Zhucheng Shang ................................................ Member
David Edward Nichols ................................................ Member
Task Forces (continued)

Jeffrey Chilver Shragge ................................................................. Member
Kenneth M. Tubman ................................................................. Member
Lianjie Huang ................................................................. Member
Nicolae Moldoveanu ................................................................. Member
Brandy Bridgett Hawkins ................................................................. Member
Yingcai Zheng ................................................................. Member
Shelly Jo Oakley ................................................................. Staff Liaison

Planetary Exploration Task Force
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Matthew Adam Brzostowski ................................................................. Co-Chair
Andrew J. Feustel ................................................................. Member
Deborah Dominigue ................................................................. Member
Johan O. A. Robertson ................................................................. Member
Peter James ................................................................. Member
David W. Watts ................................................................. Member
Nicholas Schmerr ................................................................. Member
Pascal Lee ................................................................. Member

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Kenneth M. Tubman ................................................................. Chair
Arthur C. H. Cheng ................................................................. Member
Glenn A. Wilson ................................................................. Member
Jeffrey Chilver Shragge ................................................................. Member

Ukrainian Support Task Force
Brandy Bridgett Hawkins ................................................................. Chair
Sven Treitel ................................................................. Member
Michael Burianyk ................................................................. Member
Arthur C. H. Cheng ................................................................. Member
Gustavo Jose Carstens ................................................................. Member
Annabella Betancourt ................................................................. Staff Liaison

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<th>Staff Liaison</th>
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<td>AGI Geoscience Policy Program Advisory Committee ..........James C. White ........Joseph Reilly ........James C. White</td>
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<td>GeoScienceWorld Advisory Council Representative ..........Jennifer Cobb ........Jeffrey Chilver Shragge ........Jennifer Cobb</td>
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<td>International Association of Oil and Gas Producers Surveying and Positioning (S&amp;P) Committee ..........Shawn New ........Jeffrey Chilver Shragge ........Jeno Mavzer</td>
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<td>Offshore Technology Conference (OTC) Board of Directors Representative ..........Alex Martinez ........Joseph Reilly ........Tom Agnew</td>
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<td>OTC Asia Program Committee ................................Sanjeev Rajput ........Bruce Shang ........Yogaani Bhatia</td>
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<td>OTC Brasil Program Committee ................................................................. Annabella Betancourt</td>
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<td>URTeC Management Committee ................................Frank Brown ........Olga I. Nedorub ........Tom Agnew James C. White</td>
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Affiliated Societies and Related Organizations

American Association of Petroleum Geologists (AAPG)
American Geophysical Union (AGU)
American Geosciences Institute (AGI)
American Petroleum Institute (API)
Asia Oceania Geosciences Society
Association of Exploration Geophysicists, India
Chinese American Petroleum Association (CAPA)
Association for Women Geoscientists (AWG)
Eurasian Geophysical Society (EAGO)
European Association of Geoscientists and Engineers (EAGE)
Egyptian Geophysical Society (EGS)
Environmental and Engineering Geophysical Society (EEGS)

Geological Society of America (GSA)
Geological Society of Trinidad & Tobago
Indonesian Association of Geophysicists (HAGI)
International Association of Geophysical Contractors (IAGC)
Nigerian Association of Petroleum Explorationists
Society of Independent Professional Earth Scientists (SIPES)
Asociación de Geólogos y Geofísicos Españoles del Petróleo (AGGEP)
Society of Petroleum Engineers (SPE)
Society of Petroleum Geophysicists of Chinese Petroleum Society
Southeast Asia Petroleum Exploration Society (SEAPEX)
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Laurie Whitesell
Near Surface Program Manager

Flora Wu
General Manager, China
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<tr>
<th>Section/Society</th>
<th>President</th>
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<tr>
<td>Asociación Argentina de Geólogos y Geofísicos Petroleros (AAGGP)</td>
<td>Juan Pablo Lovecchio</td>
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<td>Asociación Colombiana de Geólogos y Geofísicos del Petróleo (ACG)</td>
<td>Enrique Velásquez</td>
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<td>Asociación Mexicana de Geofísicos de Exploración (AMGE)</td>
<td>Gerardo Clemente Martínez</td>
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<td>Association of Hungarian Geophysicists (MGE)</td>
<td>Gábor Zelei</td>
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<td>Australian Society of Exploration Geophysicists (ASEG)</td>
<td>Kate Robertson</td>
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<td>Billings Geophysical Society (BGS)</td>
<td>Tom Hewett</td>
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<td>Canadian Exploration Geophysical Society (KEGS)</td>
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<td>Canadian Society of Exploration Geophysicists (CSEG)</td>
<td>Geoff Fraser</td>
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<td>Chamber of Geophysical Engineers of Turkey (CGET)</td>
<td>Sevket Demirbas</td>
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<td>Coastal Bend Geophysical Society (CBGS)</td>
<td>Subbarao Yelisetti</td>
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<td>Joel Scott</td>
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<td>Deutsche Geophysikalische Gesellschaft (DGG)</td>
<td>Heidrun Kopp</td>
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<td>Emirates Society of Geoscience (ESG)</td>
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<td>Geophysical Society of Alaska (GSA)</td>
<td>Loren Zeigler</td>
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<td>Geophysical Society of Houston (GSH)</td>
<td>Peter Duncan</td>
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<td>Geophysical Society of OKC (GSOC)</td>
<td>Cecilia Ramirez</td>
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<td>Geophysical Society of Pittsburgh (GSP)</td>
<td>Joel Starr</td>
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<td>Geophysical Society of Tulsa (GST)</td>
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Nicolae Moldoveanu .......................................................... Director

Gary Murphy ................................................................. Director
Dirk Jacob Verschuur .......................................................... Director
James C. White ................................................................. Executive Director
Shelly Jo Oakley ............................................................... Director of Operations
Ana Curcio ................................................................. Board Liaison

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Robert Wyckoff ................................................................. Director

Changxi Joe Zhou ............................................................... Director
Bruce Shang ................................................................. Board Liaison
Xuri Huang ................................................................. SEG China Executive Director
Alfred Liaw ................................................................. SEG China Advisor
Tom Agnew ................................................................. Staff Liaison
Flora Wu ................................................................. Alternate Staff Liaison
### 2022 Calendar
(event schedule is subject to change)

<table>
<thead>
<tr>
<th>Date</th>
<th>Month</th>
<th>Event Name</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>9</td>
<td>February</td>
<td>Pore Pressure Prediction in Carbonate Reservoirs</td>
<td>Virtual/Middle East</td>
</tr>
<tr>
<td>1-3</td>
<td>February</td>
<td>NAPE</td>
<td>Houston, TX</td>
</tr>
<tr>
<td>20-23</td>
<td>February</td>
<td>Energy in Data Workshop 2022</td>
<td>Austin, TX</td>
</tr>
<tr>
<td>21-23</td>
<td>February</td>
<td>IPTC</td>
<td>Riyadh, Saudi Arabia</td>
</tr>
<tr>
<td>2-4</td>
<td>March</td>
<td>2nd EAGE/SEG Workshop on Geophysical Aspects of Smart Cities</td>
<td>Hong Kong</td>
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<tr>
<td>20-22</td>
<td>March</td>
<td>The Red Sea: Unlocking Future Hydrocarbon Potential</td>
<td>Hurghada, Egypt</td>
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<tr>
<td>20-23</td>
<td>March</td>
<td>ASCE Geo-Congress 2022</td>
<td>Charlotte, NC</td>
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<tr>
<td>22-25</td>
<td>March</td>
<td>OTC Asia 2022</td>
<td>Kuala Lumpur, Malaysia</td>
</tr>
<tr>
<td>29-31</td>
<td>March</td>
<td>Carbon Capture, Utilization, and Storage Conference (CCUS)</td>
<td>Houston, TX</td>
</tr>
<tr>
<td>15-17</td>
<td>April</td>
<td>Integration of Geophysics, Geology and Engineering Technology Workshop</td>
<td>Chendu, China</td>
</tr>
<tr>
<td>19-22</td>
<td>April</td>
<td>AAPG International Conference &amp; Exhibition (ICE)</td>
<td>Cartagena, Colombia</td>
</tr>
<tr>
<td>2-5</td>
<td>May</td>
<td>Offshore Technology Conference (OTC)</td>
<td>Houston, TX</td>
</tr>
<tr>
<td>10-13</td>
<td>May</td>
<td>Applications of Machine Learning and Artificial Intelligence in Geophysics</td>
<td>Virtual</td>
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<tr>
<td>11</td>
<td>May</td>
<td>6th Europe and Eurasia SEG Virtual Student Conference</td>
<td>Virtual</td>
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<tr>
<td>16-19</td>
<td>May</td>
<td>Research Workshop: Data Analytics &amp; Machine Learning for Exploration &amp; Production</td>
<td>Houston, TX</td>
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<tr>
<td>24-26</td>
<td>May</td>
<td>Multiple Approaches to Time-Lapse Monitoring for Carbonate Reservoirs</td>
<td>Abu Dhabi, UAE</td>
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<tr>
<td>12-17</td>
<td>June</td>
<td>19th International Conference on Ground Penetrating Radar</td>
<td>Golden, CO</td>
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<tr>
<td>7-9</td>
<td>June</td>
<td>SEG/SPE Injection Induced Seismicity</td>
<td>Austin, TX</td>
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<tr>
<td>20-22</td>
<td>June</td>
<td>Unconventional Resources Technology Conference (URTeC)</td>
<td>Houston, TX</td>
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<tr>
<td>20-22</td>
<td>June</td>
<td>Land and Shallow Water Acquisition</td>
<td>Kuwait City, Kuwait</td>
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<tr>
<td>26-30</td>
<td>June</td>
<td>Toward Gigatonnes CO2 Storage — Grand Geophysical Challenge</td>
<td>Stanford, CA and Hybrid</td>
</tr>
<tr>
<td>29-29</td>
<td>June</td>
<td>Shallow Geophysics, Prospecting, and Geohazards Site Characterization and Monitoring Workshop</td>
<td>Kuala Lumpur, Malaysia and Virtual</td>
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<tr>
<td>28-30</td>
<td>June</td>
<td>Advances in Land Data Processing Workshop</td>
<td>Dhahran, Saudi Arabia</td>
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<tr>
<td>11-13</td>
<td>July</td>
<td>7th Conference 2022 of the Geological Society of Trinidad and Tobago (GSTT)</td>
<td>Trinidad and Tobago and Virtual</td>
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<tr>
<td>12-14</td>
<td>July</td>
<td>SEG/AGU Convergent Margins Workshop</td>
<td>Seattle, Washington</td>
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<tr>
<td>28-1</td>
<td>August—September</td>
<td>International Meeting for Applied Geoscience &amp; Energy (IMAGE)</td>
<td>Houston, TX</td>
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<tr>
<td>21-30</td>
<td>September</td>
<td>SPWLA Borehole Acoustics: The Road Ahead</td>
<td>Houston, TX</td>
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<tr>
<td>20-22</td>
<td>September</td>
<td>Artificial Intelligence for Subsurface Characterization: Advances, Pitfalls, and Limitations</td>
<td>Kuala Lumpur, Malaysia</td>
</tr>
<tr>
<td>27-29</td>
<td>September</td>
<td>Near-surface Imaging Workshop</td>
<td>Muscat, Oman</td>
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</tbody>
</table>
## 2022 Calendar (continued) (event schedule is subject to change)

<table>
<thead>
<tr>
<th>Date</th>
<th>Month</th>
<th>Event Name</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>18-20</td>
<td>October</td>
<td>Integrated Approach to Seismic Sequence Stratigraphy</td>
<td>Dhahran, Saudi Arabia</td>
</tr>
<tr>
<td>25-28</td>
<td>October</td>
<td>Summit on Drone Geosciences</td>
<td>Virtual</td>
</tr>
<tr>
<td>8-9</td>
<td>November</td>
<td>3rd SBGf-SEG Machine Learning Workshop</td>
<td>Rio de Janeiro, Brazil</td>
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<tr>
<td>8-11</td>
<td>November</td>
<td>11th Hydrocarbon Exploration and Development Congress</td>
<td>Mendoza City, Argentina</td>
</tr>
<tr>
<td>28-1</td>
<td>November-December</td>
<td>South African Geophysical Association 17th Biennial Conference &amp; Exhibition (SAGA)</td>
<td>Sun City, South Africa</td>
</tr>
<tr>
<td>29-1</td>
<td>November-December</td>
<td>Geoscience and Engineering Solutions in Managing Contaminated Fields</td>
<td>Kuala Lumpur, Malaysia</td>
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<tr>
<td>6-8</td>
<td>December</td>
<td>Role of Geophysics in Carbon Sequestration workshop</td>
<td>Dhahran, Saudi Arabia</td>
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