

AGI 2026 Leadership Forum

Advancing Professionalization Across the Geoscience Enterprise

Key Takeaways and Discussion Summary

Leadership Forum – Day 1 Report

Framing and Landscape

Date: March 23, 2026

Convened by: Claudia Mora, Chris Keane, and Jonathan Arthur, American Geosciences Institute (AGI)

Participants: Senior leadership from AGI Member Societies, international organizations, employers, and academic leaders (see attached attendee list)

Purpose and Context

Day 1 of the Leadership Forum was designed to establish a shared understanding of the current state of professionalization in the geosciences, including credentialing, certification, licensure, ethics, and continuing education. The objective was not to prescribe solutions, but to surface patterns, tensions, and opportunities across the enterprise that would inform solution-oriented work on Day 2.

Throughout the day, speakers consistently returned to a central framing question: How well do existing professional structures align with the workforce geoscientists are actually entering—and how might societies better support those pathways without fragmenting the discipline?

1. Welcome and Opening Context

Claudia Mora (AGI) welcomed participants and outlined the purpose of the convening: to create a neutral, strategic space for societies to compare approaches to professionalization without attempting to standardize or regulate one another. AGI's role was emphasized as convener and facilitator, not a coordinating authority.

Chris Keane (AGI) provided the opening framing on why credentialing matters now, emphasizing:

- The applied nature of modern geoscience employment, with professional services and consulting now the dominant sectors for new graduates.
- Increasing individual accountability, risk exposure, and ethical responsibility, as employers prioritize safety culture, legal compliance, and ethical conduct above technical skills.

- The accelerating influence of AI, globalization, and professional services models, which require geoscientists to demonstrate critical thinking, adaptability, and the ability to communicate findings to non-specialists.
- Credentialing and certification are becoming essential for geoscientists to maintain self-regulation and professional autonomy, especially as external regulation and scrutiny increase.

Professionalization was presented as a practical response to changes in how the workforce operates, rather than an effort by institutions to impose additional control. Employers are planning more cautiously than they used to and are relying more on outside expertise to manage uncertainty. As a result, there is a growing emphasis on working with credentialed professionals who can clearly demonstrate their skills, judgment, and commitment to ethical practice.

Aaron Johnson (AIPG) provided the historical and international perspective on credentialing by tracing the development of certification and reporting standards in geoscience, highlighting:

- Credentialing as an outgrowth of fraud prevention, investor protection, and public trust, with historical examples underscoring the profession's responsibility to protect public health, safety, and financial welfare.
- The central role of the competent/qualified person model tied to enforceable ethics, now embedded in international standards (e.g., CRIRSCO, JORC).
- Increasing international and financial reliance on credentialed geoscientists, as credentialing systems proliferate across countries and organizations.
- The need for clear communication and standardized definitions to mitigate confusion caused by differences in terminology and requirements.

He emphasized that certification functions as self-regulation preserving professional autonomy in the face of external scrutiny.

2. Invited Plenary Speaker: Lessons from Engineering

Julé Rizzardo, P.E., P.H. (AIH / California DWR)

Rizzardo examined engineering licensure as a mature professional system, noting:

- A standardized progression from education to licensure, including accredited degree programs, supervised experience, rigorous examinations, and requirements for ongoing professional development.

- Strong reciprocity and mobility between states, enabled by model law frameworks and consistent standards.
- Clear public interest justification: engineering licensure is rooted in protecting public health, safety, and welfare, which is widely understood by both practitioners and the public.
- Early and explicit signaling to students about licensure expectations, with many engineering programs introducing the concept of licensure from the first year and integrating it into the curriculum and advising.
- A robust culture of professional identity, where licensure is seen as a career enabler and a mark of trust, rather than a bureaucratic hurdle.
- The presence of well-established ethics codes and enforcement mechanisms that reinforce the profession's credibility and self-regulation.

She contrasted this with geoscience's uneven licensure awareness, noting that many geoscience students and faculty are unaware of licensure requirements until late in their academic journey, if at all. Rizzardo emphasized that for geoscience, building a similar culture of early awareness, clear pathways, and public trust would help position licensure as a career-enabling scaffold rather than a barrier.

3. Reflections: A Geoscience Lens

Sharon Mosher (University of Texas at Austin)

Mosher linked professional models to the [Vision & Change](#) framework, underscoring:

- Employer emphasis on problem solving, communication, ethical judgment, and adaptability.
- Rising expectations for quantitative data, and business fluency.
- Experiential learning as a core mechanism for developing professional competence.
- The importance of curricular reform driven by collaboration between academics and employers, including the definition of core competencies and integration of technical and professional skills.
- Effective educational practices such as research projects, fieldwork, co-curricular activities, and interdisciplinary teamwork, which help undergraduates and graduates align their skills with career goals.
- The growing need for geoscience programs to incorporate business, finance, and entrepreneurship training as private equity and industry investment become more prominent in the field.

- Recommendations for professional societies to provide career resources, mentoring and modular training, and to help design certification and accreditation programs, supporting students' transition into the workforce.

Vision & Change was positioned as a shared competency foundation onto which credentialing and continuing education could be mapped.

4. Landscape Scan: Current State of Professionalization

Moderated by Jonathan Arthur (AGI)

State Licensure – Jason Patton (ASBOG)

Patton emphasized:

- Licensure coverage across most U.S. jurisdictions, with 31 states and Puerto Rico requiring licensure for geoscientists engaged in public practice.
- The increasing relevance of licensure as more geoscientists move into consulting, environmental services, and other applied sectors where public safety and legal accountability are paramount.
- Pressure from curriculum divergence, degree compression, and inconsistent academic preparation, which can leave graduates unqualified for licensure even as workforce demand grows.
- Political vulnerability of licensing boards in some states, with recent legislative efforts to eliminate or weaken boards, sometimes as part of broader deregulation initiatives.
- The need for greater alignment between academic curricula and licensure requirements, as well as earlier and clearer communication to students about the importance and process of licensure. Licensure was described as necessary for public protection and professional credibility but increasingly disconnected from academic preparation without better alignment and advocacy.

Ethics, Self-Regulation, and Enforcement – Dawn Garcia and Shanna Schmitt (AIPG)

Garcia and Schmitt highlighted:

- Ethics as foundational to professional legitimacy, with codes of conduct and ethical standards serving as the backbone of public trust in the profession.
- Enforcement challenges for societies that lack investigative infrastructure or legal authority, making it difficult to address ethical violations consistently or transparently.

- The need for shared ethics training, standardized process models, and cross-society collaboration to ensure that ethical standards are upheld and disciplinary actions are meaningful and portable.
- Emerging issues related to AI use, data transparency, authorship, and professional conduct, which require ongoing attention and adaptation of ethical frameworks.
- The importance of making disciplinary actions public and ensuring that professionals cannot evade sanctions by moving between organizations. Ethics was framed as a collective responsibility requiring real investment, robust processes, and a willingness to address new challenges—not symbolic codes alone.

Society-Led Certifications and Continuing Education

AIPG – Aaron Johnson

Johnson described AIPG's peer-reviewed certification model, emphasizing:

- Credentialing grounded in education, experience, and enforceable ethics, with a rigorous application and peer review process.
- Rapid growth in certification demand, particularly in response to the critical minerals sector, increased international consulting, and the need for recognized qualifications in global markets.
- Strong links between certification and international reporting requirements, such as those under the Committee for Mineral Reserves International Reporting Standards (CRIRSCO) and Australasian Joint Ore Reserves Committee (JORC), which require credentialed professionals for resource and reserve reporting.
- The role of continuing education in maintaining professional standing, with requirements for ongoing professional development and adherence to a code of ethics.
- AIPG's active engagement in reciprocity agreements with international organizations (e.g., **European Federation of Geologists, Geological Society of London**), supporting member mobility and recognition across borders.
- The importance of publicizing disciplinary actions and upholding ethical standards to maintain the integrity and credibility of the profession.

AIPG is a long-standing example of self-regulation functioning across national boundaries, adapting to new workforce demands and ethical challenges.

GSA – Bridgette Moore and Lesley Petrie

Moore and Petrie outlined GSA's evolving professional pathway strategy:

- Focus on CEUs, micro-credentials, and stackable learning rather than duplicative licensure, aiming to provide flexible, modular options for professional development.

- Development of structured learning continuums linked to professional competencies, supporting members at all career stages and aligning with employer needs.
- Emphasis on interoperability with existing certifications and licensure systems, ensuring that GSA's offerings complement, rather than compete with, other credentials.
- Recognition of early career demand for portable signals of applied expertise, with pilots and phased rollouts to test new models and gather feedback.
- GSA's commitment to reducing fragmentation in skill recognition by mapping learning and credentials to workforce competencies and supporting continuing education portability and reciprocity.
- Collaboration with other societies and stakeholders to pilot new approaches, share resources, and address gaps in professional development and credentialing.

GSA emphasized balance between rigor and accessibility, and an intentionally phased rollout to ensure quality and relevance.

AIH – Salam Murtada

Murtada described AIH's hydrology-specific certification framework:

- Outlined a stepwise pathway from Hydrologist-in-Training (HIT) to Professional Hydrologist (PH), with clear benchmarks for education, experience, and examination at each stage.
- Explained that discipline-specific exams are designed to reflect the unique technical and ethical demands of hydrology, distinguishing it from broader engineering or geology credentials.
- Noted that AIH certification is increasingly recognized by employers, especially in water management, environmental regulation, and consulting, where specialized hydrologic expertise is required for risk-bearing roles.
- Highlighted AIH's ongoing efforts to advocate for the value of hydrology certification, including outreach to students, early-career professionals, and employers, and the development of mentorship and educational programs.
- Emphasized the importance of continuing education and adherence to a code of ethics for maintaining certification, ensuring that certified hydrologists remain current and accountable in a rapidly evolving field.

AIH highlighted certification as essential for specialized, risk-bearing roles not fully captured by engineering or geology licenses, and as a means of upholding professional standards and public trust in hydrologic practice.

GSL – Jenny Boland

Boland presented the Geological Society of London's chartership model:

- Described GSL's extensive university accreditation program, which anchors early professional pathways by ensuring that academic programs align with industry and professional standards.
- Detailed the Chartered Geologist (CGeol) designation, which requires candidates to demonstrate competence, experience, and ethical conduct, and mandates ongoing continuing professional development (CPD) to retain chartered status.
- Reported very high retention among chartered members, attributing this to the value placed on professional recognition, career advancement, and the support provided by GSL's professional community.
- Highlighted GSL's active career pipeline initiatives, including the ["This Is Geoscience"](#) workforce campaign, which promotes geoscience careers, provides resources for students and early-career professionals, and addresses workforce diversity and inclusion.
- Noted GSL's adaptation to changing workforce needs through flexible CPD offerings, modular training, and targeted career campaigns, ensuring that members can maintain and demonstrate relevant skills throughout their careers.

GSL illustrated how early accreditation plus lifelong CPD reinforces professional identity, supports career progression, and sustains high standards across the geoscience profession.

Society of Economic Geologists (SEcG) – Jennifer Craig

Craig described SEcG's focus on applied training without formal certification:

- SEcG relies heavily on short courses, field programs, and certificates of completion to provide practical, hands-on training for students and professionals.
- There is rising demand for training in digital tools, artificial intelligence, environmental, social, and governance (ESG) topics, and field competencies, reflecting the evolving needs of the global minerals industry.
- SEcG is in the early stages of developing the Discovery Skills initiative, which aims to deliver scalable, modular learning opportunities—such as online modules and field-based skills training—to reach a broader, global audience.
- The organization has an explicit interest in collaboration with other societies and stakeholders, preferring to partner and share resources rather than build standalone credentialing systems.

SEcG highlighted scalability and global equity as key constraints, noting the challenge of delivering high-quality training to a diverse, international membership with varying access to resources and opportunities.

National Association of Environmental Professionals (NAEP) – Dennis Peters

Peters explained NAEP's interdisciplinary role:

- NAEP does not offer its own independent certification, but strongly encourages members to pursue appropriate licensure and certification pathways relevant to their technical specialties.
- The association has a historical connection to the Certified Environmental Professional (CEP) credential, which is now managed by the Academy of Board Certified Environmental Professionals (ABCEP).
- NAEP places a strong emphasis on ethics, NEPA-related training, and providing professional development hours (PDH)-eligible education to support members' ongoing learning and credential maintenance.
- As a "big tent" organization, NAEP helps members navigate a fragmented credential landscape by aggregating guidance, ethics resources, and training opportunities across disciplines.

NAEP framed its contribution as guidance, ethics, and training aggregation rather than credential ownership, aiming to support the professional growth and ethical standards of environmental practitioners.

Soil Science Society of America (SSSA) – Aaron DeGioia and Luther Smith

DeGioia and Smith described SSSA's certification landscape:

- SSSA offers pathways for Certified Professional Soil Scientist (CPSS) and Certified Professional Agronomist (CPAG), which require a combination of education, experience, and examination.
- Workforce demand for certified soil scientists is increasing, driven by needs in soil health, infrastructure development, environmental regulation, and land management.
- The society faces a growing challenge in aligning certification requirements with shifting academic curricula, as many universities consolidate or relabel soil science courses, making it harder for students to meet certification prerequisites.
- SSSA is engaged in ongoing strategic reassessment of credential criteria in light of degree compression, course relabeling, and evolving workforce needs, to ensure that certification remains relevant and accessible.

The society underscored tensions between workforce demand and educational supply, emphasizing the need for continued dialogue with academic institutions and employers to maintain a robust pipeline of qualified soil scientists.

Society for Mining, Metallurgy & Exploration (SME) - Abani Samal

This information was provided post-meeting: SME supports professional development through multiple certification and training opportunities, including the Certified Mine Safety Professional (CMSP) Program. It also provides preparation resources for engineers pursuing Professional Engineer (PE) licensure, such as review courses and technical materials, although the PE credential

itself is granted through state licensing boards. In addition, SME offers a range of in-person and online training programs, including short courses and webinars, designed for mining industry professionals.

6. Workforce Roundtable: Where Are Graduates Going?

Moderated by Claudia Mora. Federation voices: Shannon George Lukens, Virginia Department of Environmental Quality; Simon Jowitt (AASG); Vitor Correia (INTRAW); Kelly Hereid, Liberty Mutual; Scott Marshall, Appalachian State

Lukens (Virginia DEQ)

- Provided a detailed overview of geoscience career opportunities in state and federal regulatory agencies, using Virginia DEQ as an example (800+ employees, multiple programs including clean water, solid waste, groundwater monitoring).
- Emphasized that many geoscience jobs do not use “geologist” in the title; advised job seekers to use varied keywords (e.g., “environmental,” “groundwater”) and to read job descriptions carefully for required qualifications.
- Highlighted the growing importance of coding skills (R, ArcGIS) for data analysis and visualization, alongside traditional geology knowledge, critical thinking, technical writing, and science communication.
- Noted that AI adoption is limited in regulatory agencies due to policy restrictions, with Microsoft Copilot allowed but tools like ChatGPT restricted at this time; job duties remain stable and AI-driven job losses are not an immediate concern.

Marshall (Appalachian State University)

- Explained the merger of geology and environmental science programs at Appalachian State, resulting in six geology tracks and three environmental science degrees for ~300 students.
- All sophomores are required to take a career preparation course and field methods courses tailored to their major, with traditional field camps offered in Italy and the western US, plus other field-based courses.
- Discussed the challenges associated student and faculty participation in field camps due to financial barriers, time commitments, and changing motivations; the department is adapting by splitting field camp requirements into multiple courses (some during the regular semester and some in summer) and seeking ways to make field experiences more accessible to both students and faculty.
- Addressed the importance of aligning environmental science tracks with licensure requirements, ensuring students have necessary coursework (e.g., mineralogy, petrology) to

qualify for professional geologist exams, and providing guidance and information sessions to help students navigate licensure pathways.

Herron (Liberty Mutual)

- Described baseline technical skills expected for geoscientists in insurance: coding (R or Python), working with large datasets, and basic geospatial skills.
- Stressed that the ability to communicate complex science to non-scientific audiences and translate domain expertise into business contexts is what distinguishes successful candidates.
- Emphasized critical thinking, especially the ability to question data sources, understand model limitations, and integrate new research into practical applications; geoscientists add value by contextualizing data and models rather than competing directly with data scientists.
- Reflected on her own educational experiences, noting that field work fosters critical thinking by challenging students to apply knowledge in real-world settings, and advocated for embedding critical thinking skill development throughout geoscience training.

Jowitt (AASG)

- Highlighted the shortage of university programs offering economic geology, which is creating a skills gap for the mining industry.
- Emphasized the importance of field experience and modeling skills—including mathematics and coding—for employability in mining and resource sectors.
- Supported the view that credentialing and professional registration are increasingly important for career advancement and responsibility in the mining sector.

Correia (INTRAW, European Federation of Geologists)

- Compared European and US approaches to field work, credentialing, and workforce preparation, noting that insurance costs are a significant barrier to field work in the US but not in Europe.
- Observed that concerns about field safety are less common among European students, and that field work remains a core part of geoscience education in Europe.
- Reported a renewed demand for geologists in mining due to the critical minerals agenda but noted a shortage of university programs offering economic geology.

- Explained that professional registration is increasingly required for senior roles in Europe, with credentialed professionals often earning higher salaries and bearing greater responsibility.
- Referenced the United Nations Framework classification and its influence on competency profiles for strategic projects and discussed the trend toward specialization and team-based work in mining, where the lead qualified professional assumes responsibility for the team's output.

Collective remarks from Abani Samal and Dale Elifrits (SME)

- Mining remains a major and durable employer—particularly with rising demand for critical minerals—and is supported by a limited but growing number of accredited mining engineering programs in the U.S., including new capacity expected to significantly increase student enrollment.
- Mining engineering programs integrate substantial geology coursework (e.g., mineralogy, petrology, structural geology), reflecting the complementary roles of geologists in defining mineral resources and engineers in mine development and operations.
- Participants emphasized that academic preparation alone does not ensure employability; practical field experience and the ability to clearly present and communicate results are critical differentiators in hiring and early career success.
- Field camp experience and presentation skills were consistently identified as more important than technical or numerical proficiency alone in many applied and exploration roles.
- These workforce preparation challenges were framed as systemic, with international examples cited where coordinated faculty support for field experiences produces graduates who are more job-ready and attractive to employers.
- Overall, emphasis was placed on developing both field and communication skills as essential to producing geoscientists who are technically competent, marketable, and prepared for industry demands.

Additional depth emerging from discussions:

- Over 90% of BS graduates now enter applied roles, with significant growth in consulting, engineering, insurance, government, and environmental services.
- Many applied roles do not advertise explicitly as “geoscience” positions, complicating student visibility into career pathways.
- Employers increasingly expect on-the-job professional judgment early in careers, accelerating the need for post-degree credentialing and continuing education support rather than reliance on academic signaling alone.

- There is a growing emphasis on non-technical skills such as communication, ethics, adaptability, risk literacy, business acumen, and critical thinking, alongside technical expertise and data fluency.
- A recurring theme was the limited financial and business preparation of geoscience graduates. Geoscientists increasingly operate in contexts shaped by private investment, regulatory finance, and risk-based decision-making—even in government and non-profit roles. Interdisciplinary programs (e.g., raw-materials MBAs, energy-finance master's programs, dual-degree and certificate models) are emerging, but consistent pathways remain uneven and largely ad hoc.
- Several participants cautioned that ongoing curriculum compression, course relabeling, and program consolidation—while often necessary at the institutional level—risk unintentionally limiting graduates' eligibility for licensure and certification, unless licensure expectations are made more transparent to students and faculty earlier in academic pathways.
- The group discussed the importance of making field work and experiential learning accessible to all students, recognizing that financial barriers, personal responsibilities, disabilities, and safety concerns can limit participation in traditional field camps.
- The challenge of sustaining volunteer engagement in professional societies was noted, especially as efforts scale up to meet broader community needs and as societies rely heavily on member volunteers for credentialing, training, and advocacy initiatives.
- The importance of cross-society collaboration and strategic planning was emphasized to address workforce challenges, credentialing, and advocacy for the geoscience profession at both national and international levels.
- Participants suggested that the geoscience community should hold broader discussions—such as town halls or panels at conferences—to address workforce inclusion, share strategies for adapting to evolving student needs, and foster a more coordinated approach to professionalization.

7. Synthesis and Preview of Day 2

Chris Keane (AGI)

Keane synthesized key themes:

- Professionalization is already underway but uneven and fragmented.
- Societies remain trusted professional validators.
- Alignment—not uniformity—is the central challenge.

Additional points:

- The greatest risk identified was not lack of activity, but lack of coherence and signaling clarity for early career professionals and employers.
- Keane emphasized the importance of practical, scalable solutions that build on existing society strengths and activities, rather than attempting to impose top-down standards.
- The forum's collaborative approach is intended to foster a culture of shared responsibility and innovation, encouraging societies to experiment with new models and partnerships.
- He highlighted the need for ongoing communication and feedback between societies, employers, and academic programs to ensure that credentialing and professional development remain relevant and responsive to workforce needs.
- The preview for Day 2 included a call for breakout groups to identify actionable next steps, pilot projects, and areas where AGI can serve as a neutral convener to support coordination and resource sharing.
- Day 2 would prioritize identifying low risk, high leverage pilots—shared competencies, continuing education reciprocity, or coordination mechanisms—rather than comprehensive restructuring.

Looking Ahead

Day 1 established a shared factual and strategic baseline. Participants entered Day 2 with:

- A clearer picture of workforce realities
- Better visibility into existing credentialing and continuing education systems
- Explicit recognition that collaboration can reduce fragmentation without compromising independence

Leadership Forum – Day 2 Report: Building Toward Solutions

Date: March 24, 2026

Convened by: Claudia Mora, Chris Keane, and Jonathan Arthur, American Geosciences Institute (AGI)

Participants: Senior leadership from AGI Member Societies, international partners, employers, and academic leaders

1. Recap of Day 1 and Framing for Day 2

Claudia Mora (AGI)

The opening session re-anchored participants in the core observations from Day 1 and set expectations for solution-oriented discussion on Day 2.

- Day 1 confirmed that professionalization is already occurring, but unevenly, with significant fragmentation across societies, credentials, and signals to students and employers.
- Workforce realities—especially the dominance of applied geoscience roles and professional services—were reiterated as the driving context for Day 2’s focus on pathways, competencies, and continuing education.
- Participants were reminded that the forum was not intended to set licensing requirements, fees, or standards, but to explore where voluntary coordination could add value.
- The goal for Day 2 was framed explicitly as identifying “where do we go from here?”—with emphasis on pilots, shared visibility, and practical next steps rather than comprehensive reform.
- AGI’s role was reinforced as a neutral convener able to support experimentation, information sharing, and federation-level visibility where helpful.

2. Breakout Working Groups

Moderated by Jonathan Arthur, Facilitated by: AGI staff

Format: Four parallel groups; notes compiled into a shared working document

The breakout sessions were designed to allow focused discussion on specific components of professionalization, while maintaining a shared conceptual frame.

Group 1: Core Competency Framework

- Participants emphasized that “competency” must extend beyond discipline-specific knowledge to include applied judgment, ethics, communication, data fluency, and teamwork.
- Strong alignment was noted with the [Vision & Change](#) framework, particularly around problem-solving and adaptability rather than exhaustive content coverage.

- Faculty preparation emerged as a constraint, with recognition that educators themselves may need support to embed applied competencies pedagogically.
- Societies were seen as well positioned to supply co-curricular resources that complement, rather than compete with, academic curricula.
- The group cautioned against over-precision; a shared directional framework was viewed as more realistic than a prescriptive checklist.

Group 2: CEU and Continuing Education Models

- Discussion centered on the difficulty professionals face finding relevant continuing education and PDH opportunities across societies, even when high-quality offerings exist.
- Reciprocity and portability were framed as discoverability and signaling problems, not necessarily accreditation problems.
- Participants expressed interest in micro-credentials and digital badges but stressed the importance of credibility and employer recognition.
- A recurring theme was that societies tend to advertise offerings only to their own members, limiting cross-community impact.
- Participants favored practical, low-cost ways to coordinate—such as using shared calendars or common metadata standards—rather than creating new credentialing systems.

Group 3: Licensing and Credential Nexus

- Participants explored overlaps and tensions between geoscience licensure, engineering licensure, and society-based credentials.
- In applied settings, especially consulting and infrastructure work, employers increasingly expect licensed or credentialed professionals to assume responsibility early.
- Misalignment between academic preparation and licensure eligibility was identified as a growing risk.
- Awareness—among both students and faculty—was viewed as a bigger challenge than opposition to licensure itself.
- Societies were seen as potential translators and navigators, helping members understand when licensure matters and how credentials interact.

Group 4: Workforce Pathways for BS Geology and Non-Traditional Entrants

- Participants emphasized that many applied careers no longer advertise as “geoscience” jobs, complicating student awareness of pathways.

- Field experience remains critical but increasingly constrained by cost, time, safety, and insurance.
- Co-curricular training and post-degree credentials were seen as essential scaffolding, especially as undergraduate programs compress.
- Non-traditional entry routes (environmental science, engineering, data-oriented pathways) were discussed as permanent features, not exceptions.
- Mapping pathways—not mandating them—was identified as a practical role for AGI and societies jointly.

3.1 Report-Out and Plenary Discussion

Moderated by: Jonathan Arthur (AGI)

Following the breakout sessions, group facilitators reported key themes to the full group, leading into a comparative discussion.

- Across all groups, the dominant message was that the problem is not lack of activity, but lack of visibility, coherence, and clear signaling of value to employers and stakeholders.
- Participants consistently rejected a one-size-fits-all model, favoring modular, adaptable solutions aligned with diverse contexts.
- Strong support emerged for pilots that demonstrate value quickly, rather than comprehensive restructuring.
- The idea of AGI as a clearinghouse or hub—rather than owner—received broad affirmation.
- Several speakers emphasized that progress depended as much on culture and trust among societies as on technical solutions.

3.2 Charting Future Pathways in Geoscience Professionalization

Moderated by: Jonathan Arthur (AGI)

Arthur opened the session by synthesizing insights from the breakout groups into a set of cross-cutting themes that framed the enterprise-level discussion. These themes provided a shared lens for examining where collective action could add the most value.

- **Visibility & Navigation:** Participants agreed that professional pathways, credentials, and career options are difficult for students, early-career professionals, and even employers to find and interpret. Fragmentation across societies, credentials, and terminology obscures otherwise robust existing resources, creating confusion rather than choice.

- **Access & Equity:** Financial, geographic, and logistical barriers limit participation in key formative experiences such as field camps, internships, conferences, and continuing education. The group emphasized that traditional professional pathways increasingly advantage those with institutional, financial, or geographic privilege unless alternative access points are intentionally designed.
- **Mentorship & Experiential Learning:** Human connections—mentors, supervisors, and peer networks—together with applied, real-world experiences were consistently identified as the strongest drivers of student retention, career pivots, and professional confidence. These experiences were framed as central to workforce readiness, not supplemental enrichment.
- **Faculty & Education Alignment:** A recurring challenge was the need to “educate the educators.” Many faculty members lack visibility into licensure requirements, applied competencies, and evolving workforce expectations, making it difficult to intentionally embed professional preparation—licensing awareness, applied skills, ethics, and data fluency—into curricula.
- **Evolving Skillset:** Employers and society leaders underscored the necessity of continuously updating skill expectations, including AI literacy, data science, quantitative reasoning, communication, teamwork, business awareness, and geoethics. These skills were described as dynamic and requiring regular reassessment rather than static curricular inclusion.
- **Coordination & Reciprocity:** Participants emphasized that societies do not need full standardization to add value but must collaborate selectively to improve recognition, signaling, and marketing of continuing education and credentials. Poor alignment currently places the burden of interpretation on individuals rather than institutions.
- **Centralized Support / Hubs:** Strong interest emerged in the concept of an AGI-supported hub to curate pathways, credentials, continuing education opportunities, and policy or licensure information. Such a hub would not replace society programs but improve discoverability, navigation, and cross-society coherence.
- **Pilot & Iteration:** There was broad agreement that progress should occur through time-bound pilots—such as pathway mapping, shared continuing education visibility tools, or limited reciprocity experiments—designed to test scalability before broader adoption.

Building from this framing, the discussion broadened beyond individual breakout findings to enterprise-wide implications:

- Participants reiterated the disconnect between employer needs and academic preparation, particularly in hands-on, operational, and judgment-based skills, even where theoretical preparation is strong.
- Co-curricular learning—field experiences, short courses, certificates, mentoring, and employer engagement—was described as unavoidable rather than optional, given constraints on credit hours, degree compression, and faculty capacity.
- Several effective bridging models were highlighted, including society-led short courses, employer-informed curricula, and co-developed resources that complement academic programs without duplicating them.
- The group converged on the idea that lowering barriers does not require building entirely new systems, but rather better curation, coordination, signaling, and navigation of existing high-quality efforts across the federation.

3.3 Path Forward: Roles, Pilots, and Sequencing

Moderated by: Jonathan Arthur (AGI)

This concluding discussion shifted explicitly from identifying needs to clarifying roles, early actions, and feasible sequencing, using Arthur’s synthesis slides to frame what different actors in the geoscience enterprise could realistically take on next.

- Participants organized the discussion around three complementary roles: what professional societies can do individually or collaboratively; what AGI can enable at the federation level; and what must evolve at the discipline-wide cultural level to support professionalization.
- There was broad agreement that professional societies remain the primary owners of credentials, continuing education, discipline-specific competencies, and member engagement, and that progress depends on selective collaboration rather than wholesale standardization.
- AGI was consistently described as best positioned to serve as a neutral convener and enabling hub—supporting shared visibility, coordination, legislative awareness, and cross-society signaling—without supplanting society authority or program ownership.
- The group emphasized starting with concrete, bounded pilots rather than aspirational frameworks, including integration points with existing society efforts; limited CEU reciprocity experiments; and early drafts of shared competency or pathway maps that could be tested and refined.

- Establishing working groups or time-bound task forces under the AGI umbrella was discussed as a practical mechanism to advance pilots, maintain momentum, and assess progress ahead of a future follow-up convening.

AGI agreed to explore:

- **An AGI-supported hub or portal function.** As framed in Arthur's slides, AGI committed to exploring the value and feasibility of an AGI hub to curate and direct users to existing society resources on licensing, credentials, continuing education, and career pathways—explicitly not to replace or rebrand society programs.
- **Support improved visibility and coordination of continuing education opportunities.** AGI agreed to explore ways to improve discoverability of society-provided continuing education/PDH offerings, including the concept of a federation-wide, narrowly scoped calendar, potentially supported by AI-enabled tagging and updating to minimize staff burden.
- **Facilitate cross-society communication and marketing coordination.** AGI committed to initiating staff-level coordination (e.g., communications and social media leads) across societies to improve cross-promotion of shared assets and reduce duplicated outreach, beginning at a grassroots, low-overhead level.
- **Provide legislative and licensure awareness support.** AGI committed to supporting legislative tracking and information sharing related to licensure and regulatory boards, helping societies and members stay informed about developments that affect professional practice.

Across these discussions, participants stressed that success depends as much on trust, shared ownership, and sustained relationships as on technical solutions. The path forward was framed not as a single initiative, but as a portfolio of achievable next steps, sequenced to demonstrate value, build confidence, and enable iteration over time.

4. Closing Reflections

Delivered by: Claudia Mora (AGI)

- Day 2 confirmed that professionalization is a community challenge, not one any single society can solve alone.
- Participants demonstrated a strong willingness to experiment collaboratively, provided scope and expectations are clear.
- The importance of choosing one or two achievable pilots—rather than many aspirational goals—was emphasized.

- The upcoming **AGI Member Society Council** meeting on May 5, 2026 was identified as an opportunity to revisit progress, particularly around the continuing education calendar concept.
- The forum closed with appreciation for the openness of discussion and a clear signal that momentum now depends on follow-through.

Compiled by Jonathan Arthur in collaboration with Microsoft Copilot and ChatGPT. The content reflects a synthesis of meeting transcripts, participant discussions, slides, and agenda materials, and was reviewed for clarity and fidelity to the original session. Contributing speakers were invited to review and provide comments on the synopsis of their presentations.

Attendees

Name	Affiliation
Jonathan Arthur	American Geosciences Institute (AGI)
Chris Keane	American Geosciences Institute (AGI)
Claudia Mora	American Geosciences Institute (AGI)
Dawn Garcia	American Geosciences Institute (AGI)
Doug Bartlett	American Geosciences Institute (AGI)
Ed Robeck	American Geosciences Institute (AGI)
Jill Miller	American Geosciences Institute (AGI)
Kathryn Stevens	American Geosciences Institute (AGI)
Leila Gonzales	American Geosciences Institute (AGI)
Lindsay Mossa	American Geosciences Institute (AGI)
Maria Angela Capello	American Geosciences Institute (AGI)
Matthew Rhoades	American Geosciences Institute (AGI)
Shirley Jackson	American Geosciences Institute (AGI)
Tia Colvin	American Geosciences Institute (AGI)
Anna Shaughnessy	American Geosciences Institute (AGI)
Susan Nash	American Association of Petroleum Geologists (AAPG)
Tom Wilker	American Association of Petroleum Geologists (AAPG)
Bill Keach	Association of American State Geologists (AASG)
Matt Morgan	Association of American State Geologists (AASG)
Molly Yunker	Association of American State Geologists (AASG)
Randy Locke	Association of American State Geologists (AASG)
Shane Csiki	Association of American State Geologists (AASG)
Simon Jowitt	Association of American State Geologists (AASG)
Francisco Gomez	Association of Environmental & Engineering Geologists (AEG)
Chuck Salmons	American Council of Engineering Companies – Environmental & Science (AESE)
Marg Rutka	American Council of Engineering Companies – Environmental & Science (AESE)
Ashanti Edwards	American Geophysical Union (AGU)
Brandon Jones	American Geophysical Union (AGU)
Julé Rizzardo	American Institute of Hydrology (AIH)

Name	Affiliation
Luciana Kindl Da Cunha	American Institute of Hydrology (AIH)
Salam Murtada	American Institute of Hydrology (AIH)
Aaron Johnson	American Institute of Professional Geologists (AIPG)
Chuck Drake	American Institute of Professional Geologists (AIPG)
Sara Pearson	American Institute of Professional Geologists (AIPG)
Shanna Schmitt	American Institute of Professional Geologists (AIPG)
Deana Sneyd	Assoc. of State Boards of Geology (ASBOG)
Doug Rambo	Assoc. of State Boards of Geology (ASBOG)
Jason Patton	Assoc. of State Boards of Geology (ASBOG)
Susan Burns	American Society of Civil Engineers (ASCE), Geo-Institute
Deborah Glickson	Board on Earth Sciences and Resources (BESR), NAS
Nancy Stamm	Consortium of State National Associations (CSNA)
Bridgette Moore	Geological Society of America (GSA)
Emily Orzechowski	Geological Society of America (GSA)
Lesley Petrie	Geological Society of America (GSA)
Nathan Niemi	Geological Society of America (GSA)
Randy Kath	Geological Society of America (GSA)
Jenny Boland	Geological Society of London (GSL)
Angie Anderson	Geoscience World (GSW)
Phoebe McMellon	Geoscience World (GSW)
John Diemer	History of Earth Sciences Society (HESS)
Vince Cronin	International Association for Promoting Geoethics (IAPG)
Vitor Correia	International Network for Training in Raw Materials (INTRAW)
David Mogk	International Union of Geological Sciences (IUGS)
Kelly Hereid	Liberty Mutual
Kevin Murphy	Mineralogical Society of Great Britain & Ireland (MinSoc GBI)
Court Ogilvie	Mineralogical Society of America (MSA)
Dennis Peters	National Association of Environmental Professionals (NAEP)
Anne Egger	National Association of Geoscience Teachers (NAGT)
Katherine Ryker	National Association of Geoscience Teachers (NAGT)
Missy Holzer	NESTA
Duncan Proctor	Society of Economic Geologists (SEcG)

Name	Affiliation
Jennifer Craig	Society of Economic Geologists (SEcG)
Howard Harper	Society for Sedimentary Geology (SEPM)
Jim White	Society of Exploration Geophysicists (SExpG)
Abani Samal	Society for Mining, Metallurgy & Exploration (SME)
Dale Elifrits	Society for Mining, Metallurgy & Exploration (SME)
John Spring	Society for Mining, Metallurgy & Exploration (SME)
Aaron DeJoia	Soil Science Society of America (SSSA)
Dawn Gibas	Soil Science Society of America (SSSA)
Luther Smith	Soil Science Society of America (SSSA)
Christina DeVera	U.S. Geological Survey (USGS)
Sarah Hayes	U.S. Geological Survey (USGS)
Michael Lilly	United States Permafrost Association (USPA)
Sharon Mosher	University of Texas at Austin
Shannon Lukens	Virginia Department of Environmental Quality
Scott Marshall	Appalachian State University

Usage Note

Attendance reflects participation across some or all portions of Day 1 of the forum. Inclusion in this list does not imply endorsement of specific viewpoints expressed during the meeting.