

THE FUTURE OF
PROFESSIONAL
GEOSCIENCE:
PERSPECTIVES
FROM
STUDENTS,
GITS AND
EARLY CAREER
PROFESSIONALS



The future of any profession relies on newer up-and-coming members to eventually carry on the important work of those leaving the field to retire. The practice of geoscience is no different as it relies upon students embarking on their studies to become geoscientists-in-training (GITs) and eventually full practising Professional Geoscientists (P.Geo.s), thus continuing important geoscience work as more experienced members leave the profession. At the present time there are approximately 440 student members, and 650 GITs registered with Professional Geoscientists Ontario (PGO). Perspectives from 15 of these were provided for this article. We are pleased to give the voices of the future of our profession a forum to contribute. Future professionals are key to the continued growth and development of geoscience as a profession in Ontario and around the world. We asked our contributors to talk about the future, professionalism, choosing/changing career paths and the relevance of geoscience to society. Many of the contributors noted the fundamental nature of geoscience to all aspects of societies around the world. Not much of what we use has not come from the Earth. A common statement was the reminder that “If it wasn’t grown, it was mined”.



PGO and Registration

Perspectives from our contributors tell us that PGO as an organization has helped them get ahead starting right with engagement as students at various universities across the province. PGO's outreach to students early in their academic career helps to direct them toward eventual registration as a GIT and then P.Ge. Several interesting comments were provided:

“...After consulting with the PGO (Professional Geoscientists Ontario) and Trent University's Program Coordinator, I decided to come back to school. It was the best decision—I'm now on the path to fulfilling my goals and pursuing a second major in Environmental Geoscience.”

“...I learned about PGO, and consulting / re-habilitation work. When I knew that there were stable and in-demand careers that came from pursuing this path my decision to switch programs was solidified. I knew I would enjoy learning and have opportunities to make a difference with the environment and our society through the work I would do... “

“... there are events and seminars that the regulatory bodies (such as PGO) organize, that are good to leverage for networking and expanding perspectives on industry and professional practice.”

“PGO created the opportunity to take a new path in my career; it opened doors to grow professionally in the consulting industry and allowed me to pursue new roles in my current company.”

PGO is a self-regulatory body in Ontario that maintains the registry of GITs and P.Geos. It also engages with those heading toward professional registration (i.e., students and recent graduates) but not yet members. PGO helps to protect the public by ensuring that skilled professionals are registered. One of our contributors points out that “Registration with PGO is important to hold all working geoscientists to ethical standards which protects communities and geoscientists alike.”

Career Paths and the Journey to Geoscience

Several of our contributors changed their majors to geoscience to advance their careers and take a path to professionalism. This is especially noticeable with students who found out that their initial majors would not allow them to become regulated professionals (P.Ge.) upon graduation. Others simply found that their passion for the Earth and the outdoors led them to a change.



Photo Credit: Joanna West, P.Ge

“... I initially pursued a double major in Environmental Science and Psychology but eventually decided to specialize fully in Geoscience. Growing up as an African child, there were familial expectations to pursue a health-related field, such as medicine or surgery. However, as I progressed through my Environmental Science program and participated in my first research project, I discovered my true passion for understanding Earth's minerals and materials. I wanted to explore how their extraction and use affect us both positively and negatively. Psychology, while fascinating, simply didn't capture my academic interest as Geoscience did.”

“Switching paths wasn't easy, but it was absolutely worth it. Each step of my journey, whether in environmental studies or geology, has taught me valuable lessons and helped me grow. If you're contemplating a change in your academic course or career path, know that it's okay to pivot. Your interests and goals can evolve, and that's a natural part of figuring out who you are and what you want to do. Trust yourself and the process—it's all part of finding your unique direction.”

Being able to become a GIT upon graduation is important for one's career in the geosciences.

Two recent GITs shared: “Being a registered GIT has helped me progress in my early career, as many job openings require it...” and “Being a GIT has helped me tremendously by allowing me to grow from being in the field, taking samples, to authoring high level reports on remediation. It has allowed the client to trust my work and know that I have the skills necessary to prepare their deliverables.”

Contributors we engaged began their academic careers in everything from biology to mechanical engineering before switching to geoscience. While the motivations were different, all became passionate about a career in the geosciences, whether related to mineral exploration or subsurface remediation or other subdisciplines.

Words of Wisdom

Several of our contributors shared their experiences with their journey of learning and progressing toward eventual registration. Not all paths are straight and those taking a winding road to P.Geo. were extremely varied. One of the co-authors, Meghan Coyle, has first-hand experience that shows the importance of selecting courses at university to ensure academic requirements for registration are met before graduation:



“I was a junior environmental scientist with about 3 years’ experience when the opportunity to pursue my P.Geo. was presented to me. I had completed my undergrad in environmental science but was missing several courses (including core Earth science courses) required in order to become a P.Geo. I took a total of 15 additional courses. I went back to school part time while continuing to work for ~7 years to complete the required courses to obtain my licence.” Now a registered P.Geo., Meghan feels the extra effort was worthwhile but advises others to carefully consider their path while still in school and reach out for mentorship from industry.

Other practical advice from our contributors included:

“Get involved early with as many field trips, seminars and clubs as you can. Getting as much experience as you can before entering the workforce will only benefit you. Moreover, consider getting to know your professors and seeking out whether they need research assistants for a project – this kind of experience can help you to learn about what aspects of geology you might enjoy the most!”

These comments suggest students have a limited understanding of geoscience prior to attending university. Many of our contributors began in programs that would not lead them to professional registration, so a switch was made after a year or two at university.

Relevance of Geoscience to the New Generation(s) of Society

Many of our contributors noted their desire to pursue geoscience stemmed from a love of the outdoors to a desire to travel. Most were passionate about learning more about the Earth and responsible use of resources.

“I believe geoscience will be critical to new generations as understanding Earth processes is crucial for locating resources such as critical minerals and water in the subsurface and for studying climate change. As the demand for critical minerals rises with increasing population and demand for technology, so will the need for geoscience.”

“For example, without mined fertilizer, we can’t produce enough food to feed everyone; without mined aggregate, we can’t build or maintain roads for transportation; and without mined copper, we can’t produce electronics that so many different businesses and people rely on.”

Careers in geoscience can be directed toward sustainability, pollution prevention, green energy, even medicine and agriculture as the Earth’s resources can be used to enhance our lifestyles. One contributor noted that “From methods to improve our way of life to driving fast EV’s, geoscience will be incredibly relevant to the new generations of society.” Indeed, we have always relied on minerals, but their use in society is becoming more complex and relevant to the younger members of society.

The field of geoscience is incredibly broad and according to a student contributor, “...is extremely relevant in many aspects to the new generation of society... Geoscience can be applied to learn and understand past processes, understand the present geology and processes on Earth, and can be used to understand the future. Geoscience is relevant for mineral exploration for many sectors in society (i.e. technology, the clean fuel industry); it can be applied through structural geology for urban planning/infrastructure or understanding past tectonic events. Sedimentology can be applied as a proxy of climate change within lakes, which is an example of an interdisciplinary connection. Geoscience also plays a critical role in natural hazard mitigation and climate change.”

A common theme of our contributors was the role of professional geoscientists in developing resources toward sustainable technologies while protecting the environment at the same time. For example, mining rare Earth elements is a key to green energy, but the environment must be protected at the same time. Mineral exploration and environmental geoscientists work together to solve these problems.

Environmental geoscientists are trained to address many contamination challenges from contaminated sites to non-emitting sources of energy. Groundwater is a resource in accordance with the United Nations and there is an impending critical shortage of hydrogeologists. Obtaining safe drinking water from the subsurface has, and always will be, relevant to society and much of this work is undertaken by hydrogeologists.

Artificial intelligence is being employed by this new generation of geoscientists as a tool to help take on these challenges. An article on developments in AI was recently authored by a PGO Past-President and published by the APGO Education Foundation: [Geoscience Meets AI: Imagining Tomorrow's Possibilities - GeoscienceINFO](#).

The Importance of Professional Registration

Our contributors are keenly aware of the importance of professional registration for geoscientists in protecting human health and the environment. To become registered and continue practising, P.Geo.s must adhere to a Code of Ethics. Adherence to this Code is a fundamental duty of a professional registrant and key to public protection.

Registration helps protect the public by ensuring companies and individuals who are practising geoscience have the appropriate experience (both in education and professional experience) to offer competent geoscience services to the public. PGO also helps introduce registrants to other professionals in their field and requires continuing professional development. This promotes ongoing learning, working together with other professionals, and growing professionally through mentoring. Many contributors cited the importance of continuing professional development to society and registrants themselves.

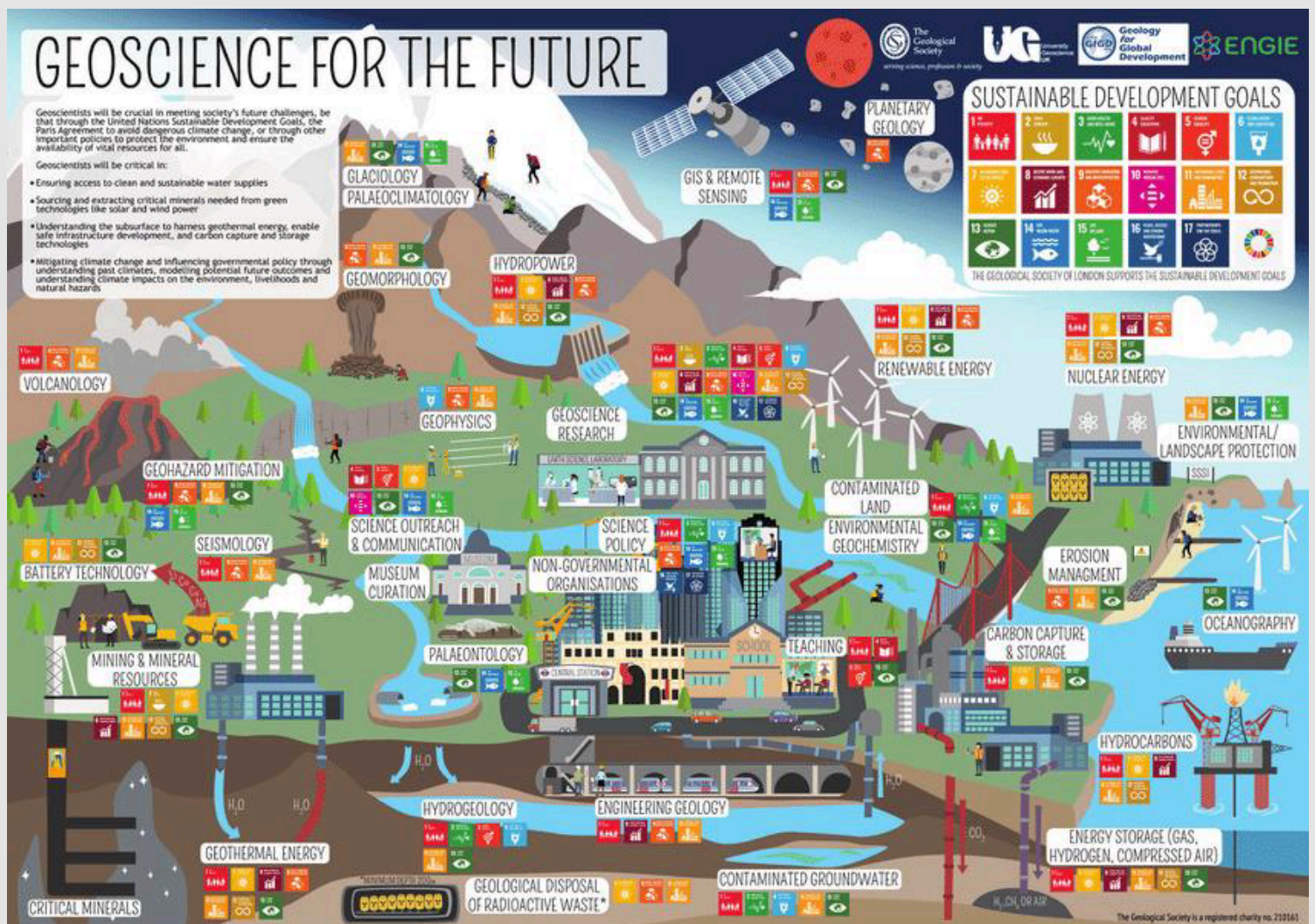


Registration provides more accountability, ensuring less experienced geoscientists are trained properly and working under the supervision of P.Geo.s, which enhances the quality of work. In addition, one is not eligible to oversee work and sign important certifications (i.e. Phase One and Two ESAs and Records of Site Condition, as per O.Reg.153/04, and NI 43-101 reports) without professional registration as a P.Geo. (or P.Eng.). Being a P.Geo. (or P.Eng.) is a requirement to be a Qualified Person (QP) to conduct these activities. To grow in the mineral exploration and environmental consulting industry for example, being a P.Geo. opens many more doors as it allows one to be involved in all aspects of projects (Project Management, Senior Review, etc.).

Young geoscience professionals are one of the keys to a sustainable future for all of society as one of our contributors summed up the general feeling about the importance of professional registration as follows:

“I see myself continuing to work in the mining industry and obtaining full P.Geo., potentially even this year. I would like to keep working on exciting mineral exploration projects, helping to make new economic discoveries, ultimately contributing to the world’s known metal reserves and helping society continue to progress towards a sustainable future.” Qualified professionals are indeed required to develop the world’s resources, protect our environment and lead us into a sustainable future.

Our contributors have highlighted the importance of geoscience and professionalism to society, especially in our growing and complex world. The following illustrates the diversity of geoscience jobs, and the wide variety of opportunities for geoscientists in relation to the United Nation's Sustainable Development Goals. Geoscience is one of the most needed professions for the future – a future filled with rapidly increasing advances in technology. Geoscience is key to much of that technology, not just in mining critical minerals to power our society, but in understanding technology and using it to further explore and understand our world.



Geoscience P.Geo. jobs and relationship to UN Sustainable Development Goals. Poster created by The Geological Society of London. © The Geological Society, 2021. This work is licensed under [CC BY-NC-ND 4.0](https://creativecommons.org/licenses/by-nc-nd/4.0/).

Concluding Remarks

We are all ambassadors of the profession, and we need to recruit new colleagues if we are to meet the growing demands of an ever-changing world. Please talk to young people about a career in geoscience. Young people interested in the sciences should be encouraged to consider geoscience as a profession. If you know a student possibly interested in professional geoscience, get them to check the PGO link for students: [For Students](#).

About

This article was prepared by a committee of volunteers from PGO working to plan a celebration of the 25th anniversary of the Professional Geoscientists Act on June 6, 2025, in Toronto. The thoughts and opinions expressed are those of the dedicated PGO volunteers and authors who gave their time and professional input to this endeavor, not of the PGO. The committee would like to extend thanks to the following authors.

Lead Authors

Mark Priddle, P.Geo., FGC Mark is a Professional Geoscientist (P.Geo.) and is a Past President of PGO, and Geoscientists Canada. He has practiced environmental geoscience, primarily in Ontario, over the past 40 years. He is presently a Senior Environmental Geoscientist with a consulting firm in Ottawa and a part-time farmer and full-time grandpa.

Meghan Coyle, P.Geo. Meghan is a Professional Geoscientist (P.Geo.), who has been in the environmental consulting industry since 2007; she obtained her P.Geo. in 2017 after returning to university part time over several years to complete additional required courses to meet the knowledge requirement to obtain her license. Meghan is currently a Practice Area Lead of a contaminated sites team in Ottawa.

Contributing Authors

Contributing Authors were recruited from the ranks of PGO's GITs, recent APGO Education Foundation scholarship recipients, and student members. Contributing authors were provided with survey questions. We have taken excerpts from their responses to create this article. We thank them for their participation, and hope you find them as impressive as we do.

Contributor	University	Short Bio
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Abigail Harrichand	U of Toronto	Abigail is a GIT and Environmental Scientist at WSP Canada. She has both a H.B.Sc. and a M.Sc. in Environmental Science from the University of Toronto
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