



Statement on Education and Workforce Development

Geosciences help protect our entire planet and all who dwell on it.

The geoscience field is key to maintaining our nation's economic prosperity, safety, security and longtime standing as a global leader in scientific innovation. Our world's future depends on geoscientists and a robust workforce of seismologists, geologists, geophysicists and earthquake engineers to protect Americans and the places they live and work.

As we look ahead to the next 10 years, it is estimated that nearly half of the existing scientific workforce will retire while the demand for this expertise will rise, creating a need for 130,000 new full-time geoscience workforce participants by 2029 across all of the geosciences, including Earth, atmospheric, hydrologic and oceanographic sciences. This need will impact the private, federal and academic sectors.

It does not have to be this way.

SSA urges U.S. policymakers to take the steps that will help grow and diversify our nation's critically important pipeline of geoscience focused talent. Federal investment in science starts with education, from K-12, through post-secondary (including community colleges) and advanced degrees. To achieve the needed robust candidate supply, we need to:

- Focus on curriculum development at the K-12 level to increase student involvement and sustain interest in all sciences, including Earth science
- Enhance curriculum in Earth sciences, specifically at the 9-12 grade level to increase exposure to geoscience courses and pre-college skill sets
- Ensure rigorous math, science, information technology, and data and computational sciences in K-12 education to improve technical skills of students, which are vital for many career prospects, including the geosciences
- Provide enhanced training to K-12 educators to implement robust geoscience curriculum
- Address resource and achievement gaps in Earth science education—for example, the lack of advanced science classes in high school, particularly at minority-serving schools, limits the exposure to science, resulting in lower scores on college readiness tests, and the inability to gain admission into college/university science programs
- Address the curriculum and learning pathways at community college, Historically Black Colleges and Universities and other Minority Serving Institutions to expose students to geoscience careers and align coursework and learning experiences with the demands of further education and careers in geoscience fields

- Increase international participation, especially at the university and research level, while advancing the participation of U.S. students studying and conducting U.S. and globally relevant research abroad.

Solving complex problems requires diverse perspectives, backgrounds and experiences. Diversity among geoscientists is important not only to sustain a workforce that is open to alternative scientific perspectives, but also to facilitate communication with individual citizens who learn from geoscientists about environmental impacts and access to natural resources, respond to advice in preparing for natural disasters and participate in urban and land-use planning. To increase diversity in the geosciences, the SSA recommends that U.S. policy makers:

- Support marginalized and under-represented groups, including minorities and women, by expanding the Department of Education's Minority Science and Engineering Improvement Program (MSEIP) to specifically include Earth/Geosciences
- Increase support for international scientists attending U.S. universities and those employed within the U.S.
- Support programs to improve diversity in K-12 school leadership through principal preparation and mentoring programs that aid advancement of BIPOC educators,
- Support programs that enhance diversity at all levels.

The field of geosciences guides efforts to prepare for, reduce damage from, and rebuild after disasters caused by natural phenomena, as well as inform national security strategy. Geosciences are essential to the production and management of energy and other subsurface resources and contribute to economic development and growth, mitigation of changes to the climate and the environment and inform land-use management decisions and public safety. It is imperative that the U.S. cultivates and encourages the reliable pipeline of geoscientists to address current and future needs of the nation. The Seismological Society of America strongly recommends that Congress support, grow and diversify our nation's critically important pipeline of geoscience-focused talent.

Approved by the SSA Board of Directors, August 2021