

**Summary of Working Group Discussions for
AGI GeoConnection Roundtable Webinar on 18 April 2011**

Working Group 1

Moderator:

Maureen Moses

Program Assistant, American Meteorological Society

Question 1. How do we successfully retain geoscience students in U.S. university programs?

Both field experience and undergraduate research experiences were suggested as successful ways to retain students in geoscience programs. One participant noted that students who get experience in fieldwork, either through a comprehensive program or short bursts of field mapping, tend to stay in the geosciences. The fact that geoscience occupations allow individuals to work in the field in all parts of the world is often noted as another major attraction to the major.

Students in the group noted that it is not so much the allure of being in the field, but rather the style of teaching that takes place in the field. Good instruction is important. Additionally, the students noted that undergraduate research experiences with either faculty or with graduate students were a factor in retention because the undergraduate students get to apply their skills and get a view of the “human” side of scientific research.

Students also noted several barriers to entry into the major and retention in the major, including:

1. Many students have no prior exposure to geology before they enter college.
2. The geoscience department on campus may be overlooked. In one instance, the tour guides at one student’s university were not well informed about the Geology department and referred to it as the Geography department.
3. Introductory geoscience courses that count as general education credits can be some of the hardest courses on campus.
4. Students may not be able to easily explain to peers and parents what career options they have with a geoscience degree.

It was also noted that at some universities, retention is not a large issue. One student commented that retention was not a problem at his/her program, but that the program was small and had a good retention rate.

Question 2. How do we successfully transition geoscience graduates into geoscience occupations?

Students noted that they don’t have a strong understanding of the skills that employers want to see in geoscience graduates, and that they (students) don’t feel prepared for technical / industry jobs. Students did note that they did feel prepared for academic track jobs or non-traditional geoscience careers. In order to gain experience, some students noted that they take courses in different departments to gain different skills that may be useful in a future career. In some cases students who pursued geoscience jobs/experiences that were non-academic track had no guidance from faculty on their search or pursuit. Additionally, the majority of the students had very little interaction with local industry.

It was noted that industry runs at a much faster pace than academia, and that faculty members are generally not in touch with what companies need. One discussion group member noted that companies want well-rounded students and would train students into the company’s “science model”.

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Faculty members noted the importance departmental leaders understanding how to use their alumni networks to gain better insights on preparing students for different employment sectors. Faculty also pointed out that this takes close connections with recruiters and alumni, meaning being on advisory boards, and having regular contact and visits to industry workplaces.

A suggestion was raised that if faculty were more involved in company experiences, they would gain a better network of contacts and a better appreciation of what geoscientists working in industry do. Also noted was the local variance in the availability of recruiters and faculty with connections and perspective. Also noted was the need to recognize the diversity of career and academic needs/aspirations of geoscience students and for faculty to help connect students with mentors.

Working Group 2

Moderator:

Leila M. Gonzales, Ph.D.

Workforce Analyst, American Geological Institute

Question 1. How do we successfully retain geoscience students in U.S. university programs?

Participants noted that stressing the outdoor component typical to many geoscience positions is a good way to show students that geoscience jobs are different from standard office jobs. Additionally giving students opportunities to get experience in the field through internships and getting them involved in research makes them more invested in and connected to the discipline.

Students in the group mentioned that they feel they are not learning enough material that may be directly appropriate in a geoscience job after graduating. One student noted that student exchange /work abroad programs are a way to get industry experience. Also noted was the need for a greater emphasis in undergraduate programs on the development of a marketable and technical skill set – whether it is GIS, modeling, or experimental design. Additionally, problem-solving was noted as something that needs to be more an emphasis in the curriculum.

One participant raised the question of whether students realize the degree level they must achieve before entering into a geoscience career. In the US and UK, a Master's degree is required for entry into a geoscience career. In Canada, the petroleum industry hires almost exclusively undergraduates.

Another participant noted that many undergraduates come into the geoscience major needing a lot of help in math and chemistry and that this may hurt retention.

Participants noted that making links between industry and university departments would help provide those resources for students and help to give them an idea of what types of careers they can pursue, and what is expected of graduates by different industry sectors. Making that link with alumni was suggested as a first step in building these networks and linkages. One participant noted that they have their alumni visit the department on a yearly basis. Also noted was that the strength and breadth of academic-industry linkages varies by department.

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Another suggestion was connecting students with mentors. One participant noted that a lot of attention has been given to mentoring over the past few years, but that it is difficult to get students and new graduates to join professional societies where the mentoring system (both formal and informal) is already in place.

When asked about how departments pass on career information to their students, participants noted that this information is disseminated through seminars (either a departmental speakers series, part of regular weekly colloquium, or as invited speaker in a class), through interactions with alumni, information posted around the department, and in some cases through faculty advising or in anecdotal stories shared by professors.

Canada has several different models for helping geoscience students gain job/industry experience. Both the petroleum and mining industries have programs that take a small group of students each year for a short period of time (~ 2 weeks) and give them an intensive tour of the industry. These programs are the SIFT program (petroleum industry) and the S-IMEW program (mining industry). Canadian universities also have a co-op program whereby students work every other semester for a relevant employer or organization after they have completed their second year. This gives them a great way to explore different work environments.

Question 2. How do we successfully transition geoscience graduates into geoscience occupations?

Participants noted that the ideas suggested for Question 1 applied to this question as well, namely, having students get industry exposure and experience so that they have an idea of what a geoscience career would entail. The following factors were also noted as important factors:

- Mentoring of students by undergraduate advisors
- Involvement in professional societies
- Internships

Also mentioned was the idea that it would be good if faculty were better at networking and knowing where the jobs are so they could help provide the link to those jobs for graduates.