Diversity in Geoscience Degrees and Academic Careers, U.S.A. 2004
Summarized by T. Jordan, Earth & Atmospheric Sciences

Racial/ethnic data summarized by Ramon Czujko, Director of American Institute of Physics's Statistical Research Center, on December 16, 2004, reveal the following.

Each year about 4000 students in the US earn undergraduate degrees in geosciences (inclusive of earth, atmospheric, and ocean sciences). In 2001, the % of BS/BA degrees among 3968 total graduates included:

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<tbody>
<tr>
<td>African American</td>
<td>1.4</td>
<td>0.6</td>
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<tr>
<td>Hispanic</td>
<td>4.0</td>
<td>1.4%</td>
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<td>Women (all races)</td>
<td>36.0</td>
<td>(see details below)</td>
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The rate for African American's was dead last among all disciplinary groups, science and non-science inclusive. The rate for Hispanics is about like that of Physics (tied for last).

Each year, over 100,000 African Americans in the US earn bachelors degrees in something, but only about 60 individuals earn a degree in geosciences. Each year, about 75,000 Hispanics earn bachelors degrees in something, but only about 150 are in geosciences.

For both African Americans and Hispanics, 46% of those who graduate with geoscience bachelors degrees are women.

Of those earning a PhD between 1973 and 2002, the geoscience total was 21,028. Of these, 117 were African American and 294 Hispanic persons.

From a different database, the American Geological Institute reports that, each year 1980-2000, 4 to 17 Native American’s graduated annually from geologically-oriented undergraduate degree programs. The national sum of Native Americans who completed geologically-oriented PhDs between 1980-2000 was 15 individuals.

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1 Czujko, R., 2004, Painting by the Numbers: The Representation of Minorities in the Geosciences: Eos, American Geophysical Union
PhD data from the National Science Foundation and bachelor's data from the National Center for Education Statistics show the number of minorities earning degrees in the geosciences.
The percentage of women earning geoscience PhDs has increased steadily for the last 25 years, and now stands near 35% (Fig. 1). But as of 2002, women constituted only 10% of the geoscience faculty at PhD-granting universities and colleges in the U.S.

At two transitions, women proportionately leave the discipline at a higher rate than men: in entering PhD programs, and prior to or at promotion to tenure (Fig. 2) (de Wet et al., 2002). According to an analysis by de Wet et al. (2002)², women geoscience faculty are in fact granted tenure at nearly the same rate as men, and thus the loss of assistant professors prior to promotion must be due to their individual choices to leave professorial careers. De Wet et al. (2002) illustrate that a major reason that women might choose to drop out of the career path is the unique burden of childbearing. As shown on Figure 3, the health risks of delaying childbearing compete against the time tables of doctoral programs and tenure preparations.

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² de Wet, Carol B., Ashley, Gail M., and Kegel, Daniel P., 2002, Biological clocks and tenure timetables; restructuring the academic timeline: GSA Today, v. 12, no. 11, p. 24
A statement of the overall state of enrollments in geosciences can be abstracted from a paper presented in December 2004 by A.A. Velasco of University of Texas El Paso at the AGU conference, titled "Recruiting the Future Workforce in the Geosciences and the Role of the Society for the Advancement of Chicanos and Native Americans in Science (SACNAS)" "The declining interest in the physical sciences among U.S. students has been recognized as a vital issue for the continued health of science. In particular, the declining number of geoscience students, especially US citizens, threatens the country's future preparedness in natural hazards mitigation, resource development, national security, and education. Furthermore, the geosciences suffer from poor representation among underrepresented groups, even by comparison to other sciences and engineering. Thus, exciting young scientists from all backgrounds into the geosciences must remain a high priority for all geoscientists, educational institutes, national laboratories, and industry.... I propose that the workforce and diversity issues are intertwined and both must be addressed for the survival of geoscience. ...”

Source: American Geological Institute
http://www.earthscienceworld.org/careers/stats/bsdeg.html