high schools. Our project also involves the incorporation of the new California Science Standards, as well as NASA's Strategic Enterprises: the Earth Science Enterprise (ESE) and the Space Science Enterprise (SSE). We will also present various aspects of our experiences in online instruction.

ED21A MC: Hall D Tuesday 0830h

Women in the Geosciences: Developments, Current Status, and Outstanding Challenges *(joint with PA)*

Presiding: **M K McNutt,** Monterey Bay Aquarium Research Institute**; J Giesler,** AGU

ED21A-0188 0830h POSTER

An Analysis of Gender Differences in Recent Earth and Space Science PhD Graduates

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The American Geophysical Union (AGU) and the American Geological Institute (AGI) have been collecting data on recent PhDs in the geosciences for 5 years (1996-2000). The 1999-2000 PhD classes were combined for an increased sample size and analyzed for gender differences. Other than salary, place of employment, and job search methodology no differences were found. Females had salaries that were slightly lower than those of their male counterparts. This might be due to the fact that there are a greater number of female postdoctoral candidates 47% compared to males 40%. Place of employment tended to be similar with fewer women in industry and a higher number of recent female PhD graduates in the academic sector. Interestingly, men and women differed in the ways in which they found their first job. A higher percent of men reported they felt their advisor was helpful in their job search (52% for men and 50% for women). Women used electronic resources at a higher rate (17.3%) than men (12.1%) and 33.6% of the women felt their scientific society was helpful in their job search, compared to only 24.1% of the men.

ED21A-0189 0830h POSTER

Retention of Women in Geoscience Undergraduate and Graduate Education at Caltech

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Institutional barriers encountered by women in undergraduate and graduate schools may take many forms, but can also be as simple as a lack of community support. In the 1990s the California Institute of Technology (Caltech) made a commitment to the retention of women in their graduate and undergraduate schools. Their program included mentoring, focussed tutoring, self-esteem support groups, and other retention efforts. Under this program, the attrition rate of women has dramatically slowed. In this paper, we will discuss recent data from the American Geological Institude chronicling the enrollment and successes of women in the geosciences, the program instituted by Caltech, possible causes of attrition among women in the geosciences, as well as potential programs to address these problems. We will also present, from the nationwide study, data on geoscience departments which have been relatively successful at retaining and graduating women in Earth and Space Sciences.

ED21A-0190 0830h POSTER

Mixing a Career in the Geosciences with Real Family Life: One Woman's Perspective

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A career in the geosciences can offer many exciting opportunities for discovery, challenges, and rewards. The question is, can a successful career in our field be mixed with a full family life including spouse, children, and other family responsibilities? As a mother of three young children, married to a geoscientist, I have worked for over a decade to find a balance between a full time job and family responsibilities. This presentation will highlight some of the career management techniques that can be used to attempt to balance these competing priorities for dual career couples. Additionally, structural barriers that hamper opportunities for female geoscientists to progress will be discussed. Finally, the positive effects of the development of family friendly policies within professional societies and at places of employment will be highlighted.

ED21A-0191 0830h POSTER

Numbers of women faculty in the geosciences increasing, but slowly

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Why are there so few women faculty in the geosciences, while there are large numbers of women undergraduate and graduate students? According to National Science Foundation (NSF) estimates for 1995 in the Earth, atmospheric, and oceanic sciences, women made up 34% of the bachelor's degrees awarded, 35% of the graduate students enrolled, and 22% of the doctorates granted. Yet progress has been slower in achieving adequate representation of women geoscientists in academia, where women represent only 12% of the overall faculty. This talk will present the results of a survey I conducted on the status of women faculty at the 20 top-ranked geology programs, which was originally published as a feature article in Eos [Wolfe, 1999]. Data from the 1997 AGI Directory of Geoscience Departments were used to compare the numbers of women faculty at different departments, as well as to consider the distribution of men and women faculty by year of Ph.D. Strong inequities were found to exist between the individual departments. The percentages of women in the departments ranged from 0of the departments had either one woman faculty member or none. Histograms of the faculty sorted by year of Ph.D. showed that clear generational differences existed between the sets of men and women faculty. Thirty-nine percent of the men obtained their Ph.D. prior to 1970, whereas only 3% of the women obtained their Ph.D. before this date. The majority of women faculty members (64%) received their Ph.D. after 1980, but a minority of men (31%) received their degrees after 1980. In the 1960s and 1970s, the geosciences expanded and departments employed a high percentage of recent Ph.D.s, but hiring of young faculty decreased in the 1980s and 1990s. In contrast, the numbers of women graduate students only began to rise after 1970, and thus the quantity of women Ph.D.s increased as the number of young hires decreased. Two problems appeared evident from this study using 1997 data. Women faculty were unevenly distributed among top-ranked departments, and the limited employment situation was another factor impeding the advancement of women in academia.

ED21B MC: Hall D Tuesday 0830h

Diversity and Geoscience Societies: Sharing Our Mutual Interests *(joint with PA)*

Presiding: **R Johnson,** UCAR/NCAR**; F Hall,** University of New Orleans

ED21B-0192 0830h INVITED POSTER

DIVERSITY IN THE GEOSCIENCES: ISSUES, INFORMATION, AND THE ROLE OF THE AMERICAN GEOPHYSICAL UNION

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As a field of study, the geosciences have lagged behind other fields of science and engineering in terms of improving diversity. The proportions of women and racial and ethnic minorities entering the field is also significantly lower than their proportions in the general population. For women, this is particularly true at the Masters and Doctoral levels whereas racial and ethnic minorities are disproportionately low from the entry or Bachelors degree level. In this presentation, we discuss the more than 25 years of data on diversity within geoscience and compare it with other sciences. In addition, we will look at how these data compare with present and projected population trends in the United States. We will examine factors that may be responsible for the disproportionally low representation of women and minorities in the geosciences, and also discuss how these trends can affect geoscience industries and academic geoscience departments. Finally, we will examine the efforts of the American Geophysical Union to improve diversity in the geosciences, including the recent establishment of its first Subcommittee on Diversity of the Committee on Education and Human Resources.

ED21B-0193 0830h INVITED POSTER

The American Geological Institute Minority Participation Program

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Since 1971, the American Geological Institute (AGI) Minority Participation Program (MPP) has supported scholarships for underrepresented minorities in the geosciences at the undergraduate and graduate levels. Some of our MPP scholars have gone on to hugely successful careers in the geosciences. MPP scholars include corporate leaders, university professors, a NASA scientist-astronaut and a National Science Foundation (NSF) CAREER awardee. Yet as ethnic minorities continue to be underrepresented in the geosciences, AGI plans to expand its efforts beyond its traditional undergraduate and graduate scholarships to include diversity programs for secondary school geoscience teacher internships, undergraduate research travel support, and doctoral research fellowships. Funding for the MPP has come from multiple sources, including industry, scientific societies, individuals, and during the last 10 years, the NSF. College-level students apply for the MPP awards or award renewals, and the MPP Advisory Committee selects scholarship recipients based upon student academic performance, financial need, and potential for success as a geoscience professional. Mentoring is a long-standing hallmark of the AGI MPP. Every AGI MPP scholar is assigned a professional geoscientist as a mentor. The mentor is responsible for regular personal contacts with MPP scholars. The MPP Advisory Committee aims to match the profession of the mentor with the scholar's academic interest. Throughout the year, mentors and scholars communicate about possible opportunities in the geosciences such as internships, participation in symposia, professional society meetings, and job openings. Mentors have also been active in helping younger students cope with the major changes involved in relocating to a new region of the country or a new college culture. We believe that AGI is well-positioned to advance diversity in the geosciences through its unique standing as the major professional organization in the geosciences. AGI maintains strong links to its 37 professional Member Societies, state and federal agencies, and funding programs, many with distinctive programs in the geoscience education. AGI Corporate Associates have consistently pledged to support diversity issues in geoscience education. Current plans include seeking funding for 48 undergraduate awards at $2500 each and $24,000 to support undergraduate travel to professional meetings. We also expect to increase the size of our graduate scholarship program to 30 students and raise an additional $30,000 to support graduate travel to professional meetings.

URL: http://www.agiweb.org/education/mpp.html

ED21B-0194 0830h INVITED POSTER

The ASLO Minorities Program: A Model for Scientific Societies Working to Increase Their Ethnic Diversity.

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Shifting demographics of the population of the Unites States is resulting in an increasing proportion of ethnic minorities. Yet the representation of minority groups in the geosciences remains very low. The American Society of Limnology and Oceanography (ASLO) developed a successful program to address this issue. This NSF funded effort has run since 1990. Minority undergraduate and graduate students attend the annual ASLO meetings and a special pre-conference workshop. The highly structured program has many facets. These include field trips, keynote presentations from distinguished scientists, interactions with mentors and role-models, symposia for presentation of student research, workbooks to aid in navigating the meetings,