

THE KECK GEOLOGY CONSORTIUM: HISTORY AND PROGRAM 2004

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INTRODUCTION

The 12 member institutions of the Keck Geology Consortium are proud to provide this volume presenting the results of its 18th year of undergraduate research projects. Since its beginning in 1987, the Consortium has sponsored 107 research projects and provided opportunities for more than 933 students from 88 schools. More than 115 project faculty-representing governmental agencies, colleges and universities, and business and industry-have worked with students during the course of summer research. The results of these student projects are presented in oral and poster format at the annual research symposia. This year, 24 students and 10 faculty participated in 4 research projects. The project goals and results are presented as an online publication for the first time this year, replacing the print volume of earlier symposia.

HISTORY

Each of the previous 17 volumes of the Annual Undergraduate Research Symposium presents the details of student/faculty research projects and the history of the Consortium is recorded in those pages. With initial stimulus from Sandra Glass at the W. M. Keck Foundation, Reinhard (Bud) Wobus at Williams College and others from the founding institutions developed a program with the initial goal of stimulating faculty research and cross-collaboration among 10 small liberal arts colleges (Amherst College, Beloit College, Carleton College, Colorado College, Franklin and Marshall College, Pomona College, Smith College, Whitman College, Williams College and The College of

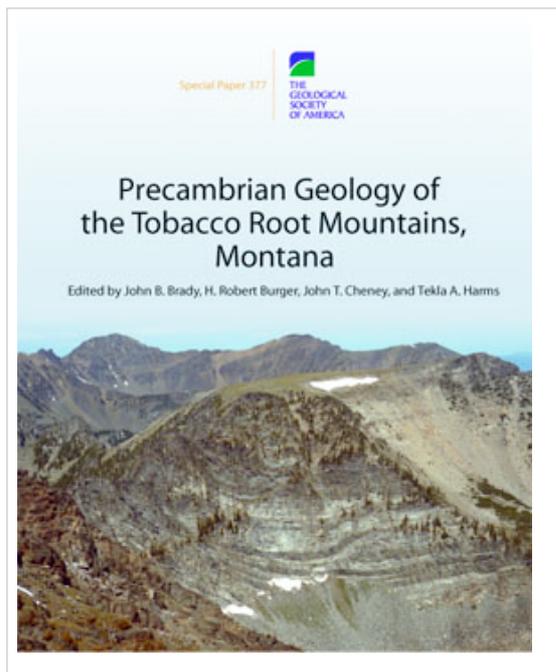
Wooster). Two additional schools joined the Consortium in 1989 -- Trinity University and Washington and Lee University.

In its eighteen years, the Consortium's administration has been hosted by four member colleges to date, and coordinated by five different administrators. Williams College was the initial home from 1987-1990 and William T. Fox served as Coordinator in these initial years. Beloit College became the Consortium's administrative home in 1991 with Dr. Henry (aka Hank) Woodard as the Coordinator from 1991 to 1995. From 1995 through November 2004, Carleton College hosted the Consortium, with Dr. Cathryn Manduca as Coordinator (1995 through the Spring of 2000) followed by Dr. Beth A. Palmer (Summer 2000-2004). In November 2004, the Consortium moved to The College of Wooster with Dr. Lori Bettison-Varga as Director.

The founders recognized that learning through research was a powerful means to help students put into practice what they are learning in the classroom. Perhaps even more importantly, the Consortium schools recognized that original scientific research in the geosciences could be conducted by students and faculty at predominantly undergraduate institutions.

The dual purposes of enhancing geoscience education while contributing to geoscience knowledge have resulted in faculty and student conference presentations and publications to a variety of journals, as well as a GSA special publication. GSA Special Paper 377, *Precambrian Geology of the Tobacco*

Root Mountains, Montana, grew out of three Consortium-sponsored summer research



projects and features work by project faculty and the contributions of 32 undergraduate theses.

This year, the Consortium was represented by articles featuring research in Iceland during a 2003 Keck project directed by Brennan Jordan (The College of Wooster), and *Terroir* research of Larry Meinert (Smith College). An article appearing in *Geotimes* (September 2004) showcases undergraduate research, and the cover photograph of that issue, taken by Brennan Jordan (p. 62), shows students from Iceland 2003. Larry Mienert (p. 34) is featured in an August 2004 *Geotimes* article – *Understanding the Mysteries of the Grape* – part of an issue featuring studies on the role of geology in viticulture and beer-making.

The Keck Geology Consortium continues to provide an array of innovative and significant research opportunities for undergraduates and faculty, serving as a model for science education programming. (Browse our website, keck.wooster.edu, for links to these stories and other participant highlights.)

Student-Faculty Research Projects and Annual Research Symposium

The Keck Consortium program is based on a year-long research experience, engaging students in identification of scientific problems, strategies for addressing those problems, gathering and interpreting data, and making conclusions about their original research question. As with all scientific work, students learn that communication of results is fundamental to the recognition of the research. Sharing their work with Consortium colleagues (Symposium) and the broader geoscience community (publications, presentations at national meetings) adds to the conversation about these scientific investigations and represents the final component of the research experience.



Research projects are proposed to the group of faculty serving as representatives of the 12 member institutions and are selected based on their scientific merit as well as the logistical information provided. Once projects are selected, they are advertised to the geoscience community and student applicants prioritize their project interests. While engaged in the summer research experience, students often work with faculty from multiple institutions, and return to their home college or university

with data and/or samples collected, maps that have been drawn, observations recorded, and experiences to share with other students. During the academic year, the students work with an advisor at the home institution on independent research and produce an extended abstract for the symposium volume.

The Symposium provides the venue for intellectual engagement between faculty and students from the various summer projects, home institution sponsors, and other faculty from the member institutions during oral and poster presentations. The Symposium also provides one of two opportunities for Consortium faculty to gather together to provide direction for future collaborations, to develop new proposal ideas, and to think creatively about ways to enhance geoscience education through research.

From 1991 through 2003, students could participate in one of two types of research experiences: 1) introductory projects, for rising juniors, without the expectation of academic year research and 2) advanced projects, for rising seniors, requiring independent study or theses credit at the home institution. Funding provided by the National Science Foundation has supported both of these project models, with the recent grant to the Consortium focusing on advanced projects for the 2004-2007 program cycle.

ACKNOWLEDGMENTS

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At Wooster, the transition was made possible by President R. Stanton Hales, and facilitated by the efforts of Robert Walton, Tim Tegtmeier, Sue Bennett, Todd Burson, and Anne Gates, all of whom contributed time and advice during the establishment of our office. Special thanks to Robin A. Welty for her work

on publication and design, Peter James for help with establishing our website and electronic application procedures, and Joyce Heitger in office services. In addition, the careful council and experience of Patrice Reeder has been fundamental to our success at Wooster. The Consortium Executive Committee, in particular Dr. John Brady, provided a sounding board for new ideas and helped make the transition to Wooster smooth. Finally, Dr. Marlene Eberhart's attention to detail, miraculous facility with all things computer-related, as well as her calm and thoughtful approach to problem-solving has made the initial work with the Consortium at Wooster a pleasure.