

UC SANTA BARBARA

THE *Current*

May 10, 2002

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UCSB GEOLOGIST RECEIVES NATIONAL AWARD

Tanya Atwater, a professor of geological sciences at the University of California, Santa Barbara, is one of six faculty members nationwide to receive one of this year's National Science Foundation (NSF) Director's Awards for Distinguished Teaching Scholars. It is the highest honor bestowed by the National Science Foundation for excellence in both teaching and research.

In recognition of their outstanding contributions to research and for using their knowledge to contribute to the enhanced education of undergraduates, the scholars will receive their awards at a ceremony on June 19 at the National Academy of Science in Washington, D.C. Each will receive \$300,000 over four years to continue and expand their work beyond their institutions. Atwater, a specialist in plate tectonics, received the award in part for her creation of computer animated plate tectonic histories which are widely used by teachers.

Atwater received her B.A. in Geophysics from the University of California at Berkeley in 1965 and holds a Ph.D. (1972) in Marine Geophysics from Scripps Institution of Oceanography.

Research and Recognition: Atwater's research in the field of geophysics and marine geology covers two areas: 1) marine geophysical exploration of spreading systems and 2) plate tectonic synthesis. Her work in marine geophysics led to the discovery that sea floor spreading centers are extremely narrow. Her pioneering work in plate

tectonics involved an analysis of how sea floor patterns can be used to circumscribe many aspects of the land geology of North America, in particular the evolution of the San Andreas fault plate boundary. Considered a major contribution to the field, this work moved the field of plate tectonics from the oceanic realm into the domain of land, enabling predictions of land geological evolution.

She is a member of the National Academy of Sciences (1997), a Fellow of the American Geophysical Union and the Geological Society of America, and was co-winner of the Newcomb Cleveland Prize of the American Association for the Advancement of Science.

Educational Contributions and Recognition: Her educational work has focused on the creation of computer-animated multimedia products and presentations depicting plate tectonic histories, which have been widely used by undergraduates and pre-college teachers. Her animated teaching film, "Continental Drift and Plate Tectonics," received the highest recommendation from the Journal of Geological Education and has been used in classrooms from fifth grade through upper-level university classes.

She has developed techniques for creating visualization packages that facilitate the understanding of complex 3-dimensional geology. She created a science-teaching track within the geosciences major to facilitate the credentialing of geoscience majors as teachers and has organized teacher-student partnerships for sixth grade teachers and undergraduate geoscience majors.

Leadership and Mentoring Activities: Atwater serves as faculty advisor for half of the majors in geosciences and has involved students in designing lab and field experiences for the undergraduate oceanography course. As one of the few women in geophysics in the 1960's, she has a particular interest in mentoring women.

Project Description: In response to the widespread use of her animations and inquiries from colleagues interested in creating geological animations for their own regions, Atwater is establishing an Educational Multimedia Visualization Center where faculty can bring their ideas and receive the technical expertise needed to produce high quality computer animations for teaching.

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About UC Santa Barbara

The University of California, Santa Barbara is a leading research institution that also provides a comprehensive liberal arts learning experience. Our academic community of faculty, students, and staff is characterized by a culture of interdisciplinary collaboration that is responsive to the needs of our multicultural and global society. All of this takes place within a living and learning environment like no other, as we draw inspiration from the beauty and resources of our extraordinary location at the edge of the Pacific Ocean.