If Dr. Frederika Harmsen has her way, by the time you read this Profile she will be on an Antarctic research expedition, climbing to nearly 13,000 feet in the Darwin Mountains, enduring temperatures as potentially severe as minus 70, Celsius.

The Darwins comprise a portion of the one percent of the Antarctic not covered by ice. Located in the western Antarctic, the land surrounding these mountains is covered by ice, in some places four miles thick. As a result, only the tips of the peaks rise above the ice.

"All of our work there would be done in the Southern Hemisphere summer, when the weather is a lot more stable," Dr. Harmsen explains. "But the warmest temperature one can expect is about minus three, Celsius. Antarctic scientists have been known to sunbathe in such a 'heat wave.' "

After an intensive survival course in the Southern Alps of New Zealand, the joint United States and New Zealand expedition will fly to the Antarctic in November, working out of military bases there. Transportation to field camps will be by helicopter. In the case of adverse weather, helicopters will not be able to pick them up. Tents will be their only shelter. "If the weather gets bad, you just have to stay put," Dr. Harmsen notes.

Fraka, as she prefers to be called, is motivated by her interests, which include more than a passing fancy with applying for the NASA astronaut program. "There are risks involved. It's a challenge, one that would allow me to meet my ultimate research goals," she says of the NASA challenge.

A college graduate at the age of 19, Dr. Harmsen advises her students to pursue their interests just as vigorously, keeping their minds open to new perspectives.

"I tell students that it is important to be what you want to be. To me, enjoying what you do is more important than earning a lot of money. The whole purpose of 'general education' is to broaden the students' educational experience. Students comment, 'This course will have no bearing on my life,' but just to have some general knowledge will be beneficial.

"The university is not a fast track to some job. It is meant to be a learning experience in many different subject areas. That is why I urge students to maintain a positive attitude, even in classes they would not schedule were they not required to do so."

A sedimentologist, Dr. Harmsen studies the history of Earth by investigating geologic formations and their composition. Her research has taken her to many parts of the globe, including a study of coral reef deposits found 18,000 feet above sea level in the Peruvian Andes.

"At a very early age, I became interested in geology. I certainly get excited about geology. I try to convey that enthusiasm to students. There are so many fascinating lessons to be learned in studying the history of the Earth."

Frederika Harmsen
Geology

School of
Natural Sciences

From its opportune location in the San Joaquin Valley, Dr. Harmsen sees CSUF as an excellent base for geology students and faculty researchers.

"I tell students there are a lot of opportunities here. In terms of geology, CSUF is ideally situated. There are many exposures, because of our central location.

"We run a lot of field trips into the Sierra Nevada and eastern California, to Mexico to study volcanic rocks, and to the Moss Landing Marine Laboratories near Monterey to learn about coastal and offshore marine geology. Geology requires a lot of field opportunities. It's perfect here."

And the temperature stays well above minus 70, Celsius.