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Queens Researchers To Fight Global Warming

by Jillian Abbott , Chronicle Reporter



Queens College Assistant Professor Steven Pekar and his student, Andrea Balbas, will spend two months in unheated tents in Antarctica with 15 other scientists and students this fall.

By immersing himself in 40-million-year-old geography, a Queens College assistant professor of geology has found himself at the center of today's most burning environmental issue — global warming.

This fall, Steven Pekar will participate in his third trip to Antarctica, an expedition he is leading with three students from Queens College, a teacher from Harlem's Promise Academy and 12 others. "We often say we are looking back to see our future," he said.

His expedition, the Offshore New Harbor Project, will study sediment deposited in Antarctica during the period known as the Cretaceous Greenhouse World.

Air bubbles in the ice go back 800,000 years, but outside of the past century, carbon dioxide levels never reached higher than 300 parts per million. According to Pekar, they are already at 380 ppm and rising rapidly.

Pekar's Antarctic adventures began in 2005 when he realized that he was studying this phenomena from records, but wanted to go to the source. "The biggest determining factor in sea levels is the existence, or not, of ice sheets. Pekar studies the period when there were either no ice sheets, or the ice sheets were ephemeral.

For him the greenhouse effect is not a theory, it's a fact. "I can remember the days of defrosting the freezer. You'd turn the fridge off, but nothing would happen. You'd put pots of boiling, steaming water into the fridge but still nothing would happen. Then hours later all the ice will break-up and melt rapidly. That is what's happening with the ice sheets."

What is different now is that when the sea level rose in the past, the animals could go inland. "We can't move our cities inland," he said.

Andrea Balbas, Pekar's student, will spend two months in an unheated tent on eight-foot-thick sea ice during what is Antarctica's late spring.

Temperatures may be as low as minus 20 degrees Fahrenheit when the expedition arrives, but are expected to soar into the teens and 20s toward the end of their time there.

"In Antarctica, I'll be doing the grunt work," said Balbas. She was chosen for the Antarctic trip because she was the top student in Pekar's class, is known to be fairly tough, and for taking care of other people. "I'm a team player, not an, 'every woman for herself,' sort."

Balbas, 35, isn't a typical college student. She was not able to go to college as a young woman. It was not until years later, "when I'd accumulated enough credit cards," that she was able to pursue her education. "My family thinks I'm crazy," she added.

Balbas is very excited about the expedition, and is particularly looking forward to participating in the collecting of geophysical data with special instrumentation. She grew up on the San Andreas Fault in California, and has always understood that the earth is powerful.

Pekar has learned that in the natural world, it's not just the earth that is powerful. He claims that the wind is the single most important aspect of living and working in Antarctica. When there's no wind, everyone is happy and full of energy. When it's windy, people's mood turns dark and everything is miserable. Researchers fall into bed exhausted and are straight asleep.

The team will assemble in Christchurch, New Zealand, where they'll be issued specially designed clothes by the U.S. Antarctic Program. The climate in Antarctica is extreme and clothes must be able to provide protection. According to Pekar, if they were to wear regular clothes, they would perish quickly.

From Christchurch, they will head to McMurdo Station, the largest research base in Antarctica, which is run by the United States. The other Queens College students on the trip include Howard Koss, a graduate geology student, and Mohammed Salahuddin, a media student, who will take the lead with the camera, keep the Web site updated and assist with teleconferencing.

While on the ice, approximately 70 kilometers from McMurdo, the team will have Internet and telephone access. This will allow for teleconferencing with schools from around the country as well as sending out blogs, video and audio clips that will be posted on their Web site.

After the expedition, which is sponsored by the National Science Foundation, the seismic and gravity data will be processed, and interrupted to reconstruct the geometry of the Cretaceous Greenhouse World sediments. This will provide clues about the geological and climate history of the area.

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