

Geology just got cooler for Cedarburg residents

John Isbell and Nichole Knepprath travel to Antarctica for a scientific adventure



By Don Blum
News Graphic
Correspondent

Geographically, there's a world of difference between Cedarburg, and the Beardmore Glacier.

But there is also a close connection, because two Cedarburg residents recently spent about two months in proximity to Beardmore, one of the world's larger moving lumps of ice and rock.

John Isbell, professor of Geology at UW-Milwaukee, and Nichole Knepprath, a graduate student at Vanderbilt University, were part of a geology team from both universities

that spent several weeks crawling over a section of the Antarctic that once was part of a huge, ancient landmass called Gondwanaland.

They not only crawled, they flew in a Twin Otter bush plane, hovered in helicopters, rode on snowmobiles and hiked over terrain estimated to be about 350 million years old. What were they doing? Well, according to the Web site describing their scientific adventure they were investigating "paleoenvironmental conditions during the late Paleozoic and Mesozoic (eras) in central interior Antarctica." No, really. What were they doing?

"We are studying the Earth and what happened to it between 300 million years and 200 million years ago," said Isbell, who, with a Vanderbilt geology professor, Molly Miller, and five students, spent last November and December about 350 miles from the South Pole. Isbell said the project already had produced information that will change scientific thinking about the actual location and size of the polar glaciers.

Knepprath, who is finishing her master's degree work in geology and geophysics, was quite enthusiastic about her participation in the project.

"The first step on to the (Antarctic) Continent was sort of mystic," said Knepprath, a 1997 graduate of Cedarburg High School. "A storm was coming in with all that snow and ice. And just when you thought you had experienced the worst of it, it got worse. The wind was frightful at times. And here you're trying to take field notes and you can't feel your feet and you're wearing big, clumsy gloves and the wind is blowing the field book pages."

Her area of interest includes the study of fossil forests, that is, tree stumps that have turned to stone. She said it was very exciting for her to have discovered an entire ancient forest in the course of her six weeks on the ice cap.

She also said she was extremely pleased by the confidence that Isbell had demonstrated in her. From Isbell's perspective the trip was an extreme success. Of the student-scientists, he said: "They did much better than I had expected, and I had expected them to do very well."

It was Isbell's 13th visit to Antarctica. He and Miller had originally put together the proposal for the project and submitted it to the National Science Foundation in June, 2001.

The Isbell/Miller proposal was approved and the funding, \$168,000, was granted in February 2002. While the research that results from the trip will take many years to organize, there have been some immediate, though preliminary, conclusions.

"The (polar) glaciers originally were thought to be huge (sections of ice) and centered over Antarctica," said Isbell. "(But) we find no evidence of the area being at the center of the ice cap." He added that some of the glacial deposits that the team examined were marine in nature, indicating that they were not land based, another widely held theory.

But it is the logistics, rather than the science, of such a trip that are impressive to the layperson. To physically get to the starting point, and remember this was after 2-1/2-years of planning and paperwork, Isbell, for example, flew from Milwaukee to Christchurch, New Zealand, the jumping-off port for all U.S. Arctic science and exploration. Then he and the team took two days to adjust to jet lag.

In the meanwhile, a NSF cargo ship had delivered food and equipment to a McMurdo Station warehouse the year before Isbell, and several other university science teams, arrived. Isbell's team had already scanned a food list of available provisions and once on the ground at McMurdo, organized their menu. McMurdo is about 700 miles south of Christchurch and was reached by Isbell's team in C-130 cargo planes flown, in this case, by crews from the New York National Guard.

Once at McMurdo the team spent two weeks being orientated in survival methods, snowmobile repair and operation, and scientific meetings, among other preparatory activities. The team also was responsible for organizing its provisions and gear. Then it was back on to cargo planes for a 700-mile flight father south to the Beardmore base camp. From there, helicopters transported the team and its gear to several different locations for several different time periods on the ice cap, up to 120 miles away.

The first week, Isbell said, was probably the most challenging from a weather point — wind chills down to 80 degrees below zero, which is the reason that Raytheon has an Arctic clothing warehouse in Christchurch for the various teams, temporary use. But since November-December also is the Arctic summer and the daylight lasts 24 hours, there were times when the wind died, that the temperatures reached into the 40s and 50s inside the tents.

Overheating, believe it or not, also was a concern, according to Isbell and Knepprath, especially in the hiking mode if too much exertion produced perspiration that could have an extremely dangerous chilling effect on the body.

The team collected about 800 pounds of rocks, Isbell said, during its six weeks on the ice, all of which were boxed in plywood and held in what amounted to quarantine after being airlifted from the base camp to McMurdo and then Christchurch, where it was released to Isbell for shipment back to the United States.

"Wow" comes to mind when you look at this expedition from a distance, and double-wow would seem to be a suitable expression from the participants, point of view. And if you not a geologist, you might very well ask John Isbell where he's going to put 800 pounds of Antarctic glacial rock.

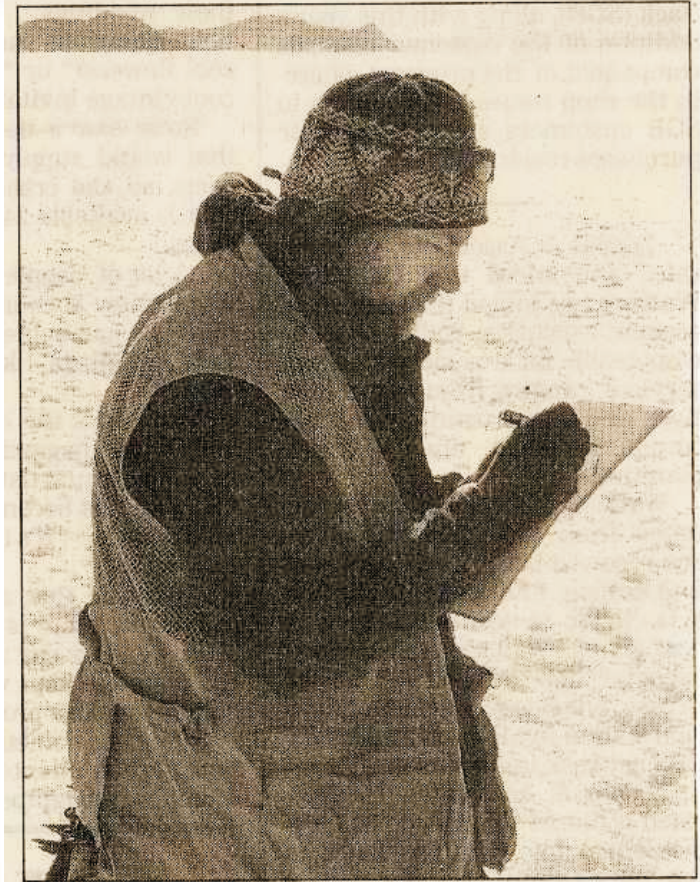


Photo by Pete Flaig
John Isbell takes notes while on the Nimrod Glacier.