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## Illinois Wesleyan Biologists Return From Successful Antarctica Research Voyage

January 20, 2005

BLOOMINGTON, Ill. — Illinois Wesleyan biologists Elizabeth (Susie) Balser and Will Jaeckle had plenty of unforgettable experiences during their four-week voyage to Antarctica during November and December.

• [Read the summary journal entry](#)

• [Go to the Antarctica Research site](#)

But one of the more memorable moments came when the voyage ended, and they prepared to fly back to Illinois from Chile.

“The process of explaining to airport agents, in two languages, that the animals we were bringing back with us do not like X-rays was most interesting,” said Jaeckle.

Somehow, they not only made it through airport security but all the way back to Illinois Wesleyan's Center for Natural Science where the specimens, alive and well, now reside in a laboratory refrigerator.

“We brought enough material back to the laboratory for several years' worth of work,” said Jaeckle, who expects that Illinois Wesleyan biology students will participate in some of those investigations. “We had not necessarily expected to travel from South America to Bloomington and keep these animals cold and alive without irradiating them along the way.”

Balser and Jaeckle were members of a research team that included scientists from Auburn University and Woods Hole Oceanographic Institute who traveled aboard the R/V Laurence Gould from Punta Arenas, Chile, to Palmer Station, Antarctica, and back. The voyage was sponsored by the National Science Foundation.

The Illinois Wesleyan scientists participated in a project headed by Kenneth M. Halanych of Auburn University and Rudolf S. Scheltema of the Woods Hole Oceanographic Institution to collect and examine the larvae of invertebrates both in the water and on the sea floor in order to explore how larval forms might disperse between South America and Antarctica and to determine if there is unrecognized genetic variation in marine Antarctic species.

“We collected a lot of animals, and the question is 'Who are they?’” said Jaeckle. “There are two ways to assess that. One is through morphology - what is their outward appearance? The other is through genetic testing.”

Jaeckle and Balser spent eight hours each day working on the NSF-sponsored project and then another eight hours on their own individual research projects. Balser conducts comparative examinations of the structure and development of sea stars and other echinoderms as well as other invertebrate animals related to vertebrates (fish, reptiles, mammals). Jaeckle's research

focuses on aspects of the life history, development, and ecology of invertebrate animals, with particular emphasis on the free-living larval stages.

According to Jaeckle, one of the keys to their projects' success was the ability to employ "drift tows" during part of the collection process. Rather than deploying the plankton nets while the ship is underway, collecting samples while the ship is drifting results in less damage to the animals.

"We've been doing drift tows for a long time," Jaeckle said. "Although we sacrifice abundance, what we gain in quality of material allows us to perform experiments and have some confidence about what the results actually mean."

Jaeckle said that while he is unable to quantify those results yet, he is confident that he and Balser returned with some previously unidentified species. In particular, Balser collected and observed several types of tiny animals called pterobranch with which she has not worked in the past.

"I've never before seen such abundance or such large specimens of these pterobranchs as I saw from our trawls on this trip. Very little is known about these creatures, in part, because they are rare in more accessible ocean waters," said Balser. Another unusual find were large, shell-less, "winged" snails.

"Determining just what we have will be based on describing the development and morphology of the animals and on genetic testing," Balser said. "But we certainly returned with animals I'd never seen before."

The voyage enjoyed generally good weather and smooth sailing, noted Jaeckle for whom this was the second trip to Palmer Station.

"There is no way to explain how remarkable the environment is," Jaeckle said. "The photographs are very, very nice, but they pale in comparison with primal reality. It's just breathtaking."

A special Web site created to document the journey, which included daily reports and photographs from onboard the ship, drew more than 4,500 visits. That site remains available at <http://www.iwu.edu/iwunews/Antarctica>.