

The Antarctic Sun

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Sightseers of the south

By Aaron Spitzer
The Antarctic Sun

They came in red windbreakers, toting video cameras and binoculars. They scrambled to the summit of Observation Hill, ogled the artifacts in the Discovery Hut, toured Crary Lab and purchased souvenirs in the store.

They were the 109 tourists from the *Kapitan Khlebnikov* icebreaker, who helicoptered into McMurdo Station Thursday morning for a half-day tour of Antarctica's American metropolis. By that evening, they were back aboard the ship, heading north through the ice-choked channel.

The visitors, hailing from nations as far-flung as Sweden, Canada and Zimbabwe, are part of a booming trend in Antarctica. Tourism has skyrocketed on the Ice in recent years. According to National Science Foundation statistics, during the last decade the number of visitors to the seventh continent climbed from around 6,000 per season to more than 10,000. Industry experts expect that number to reach 14,000 by 2003.

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The Kapitan Khlebnikov wedges itself in the sea ice of McMurdo Sound as its onboard helicopters made flights to Taylor Valley. More than a hundred tourists from the ship visited MacTown last week. Photo by Josh Landis.



Towing the line

Volunteers dig in their heels as they haul one of the fuel tanker's mooring lines up onto the ice pier yesterday. The Richard G. Matthiesen sailed north shortly after. Photo by Josh Landis.

Rocking on the Dais

Geologists study messages left by magma

By Josh Landis
The Antarctic Sun

Clambering up the face of a prehistoric mountain, four geologists pick their way through massive, gnarled ventifacts. The wind-scoured rocks are as big as cars and eerily shaped like skulls, animals or whatever other likeness a mind can conjure out of the folds and curls.

But this team isn't out to spot nature's sculptures. These researchers have come to Antarctica to map an underground system of magmatic sills. The ancient, mushroom-shaped injections of molten rock shaped the Earth from pole to pole. The Dry Valleys display them better than any other place.

Millions of years ago, an upwelling of magma rose from inside the earth and began forcing itself between layers of rock, deep beneath the surface. After it cooled, erosion laid open the layers, creating what are today known as the Dry Valleys.

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**A different kind of
sealing / Page 5**

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Page 8**

**School of the snows
/ Page 10**

"Mush"—from Page 1

"Nowhere else in the world is the plumbing system exposed like this," said Bruce Marsh, professor at Johns Hopkins University and a principal investigator in his fifth season on the Ice. He and three of his graduate students are here for the season to learn more about how the magmatic layers developed. Magma is molten rock that gets injected beneath the Earth's surface. When it cools it becomes igneous, or plutonic, rock.

The researchers start by marking off the elevations they want to sample. Then, with small pick-axes, chisels and mini-sledge hammers they chip away at the mountain until they get a fresh piece of stone they can take back to the states and examine more closely. At the end of the season, they'll have more than 1,000 pounds to sort through.

"The reason we're so picky is we have to make sure the rocks are in place and didn't just tumble down," said graduate student Karina Zavala as she searched for just the right piece of the Dais, a mountain-like formation that sits in the middle of Wright Valley.

The Dais may be the stem of the system that created enormous, pancake-like levels below the surface 180 million years ago.

"We're in the furnace," Marsh said, referring to the Dais. His team is flying to various spots in the valleys to determine how far the sills spread.

In addition to where the liquid rock physically went, Marsh and his team are looking at how the layers cooled. Magma takes on different properties, depending on the speed with which it cools. Where it cools quickest, the crystals are small, and the rock's appearance is smooth, sometimes even glassy. Where magma cools slowly, the rock has larger crystals and a rough texture.

In the case of the system Marsh and his team are studying, the rock also contains other crystals it carried from deeper within the Earth. It's a unique amalgamation that geologists still don't fully understand.

"There are a whole lot of these huge crystals here," said Michael Zieg, a fourth-year Ph.D. candidate in his second season on the Ice. "Huge" in this regard means a millimeter or even less, which is proportionately large for the rocks they're sampling.



Karina Zavala hands a rock sample off to Michael Zieg on the Dais in Wright Valley. By analyzing more than 1,000 pounds of specimens, the group hopes to get a better picture of the geological forces that shaped the area. Photo by Josh Landis.

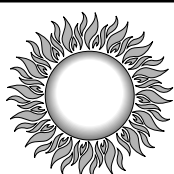
Those "foreign" bits of rock figure prominently in Marsh's studies, too. When mixed together millions of years ago, the magma and the pre-existing crystals formed what's called "mush."

Marsh describes it as kind of like a red-hot Slurpie. As the conglomeration cooled, gravity arranged the crystals in a precise and unique way. By deciphering these crystals, examining the composition of the surrounding rock and computing a plethora of other geological data, Marsh and his team will get a better understanding of how magmatic systems like this form.

That knowledge could have wider applications. There are major igneous intrusions similar to the one in the Dry Valleys visible from Scotland to Montana to South Africa. But scientists still don't know all the details of the physical and chemical processes that created them. Because countless other subterranean sills exist around the world, the discoveries in Antarctica could help geologists understand how other parts of the Earth formed.

"Igneous processes drive everything," said graduate student Riley Flanagan-Brown. "What we live on is here because of igneous processes."

"We're reading the rocks," summed up Marsh. "We're establishing once and for all the basic principles ... that can be applied to magmatic processes around the world." ●



This season's Antarctic Sun will set in two weeks!

But we're still looking for Perspectives, Letters to the editors and other contributions. So get your thoughts together and share your experiences.

E-mail us at sun_news@mcmurdo.gov, call 2407, or come by our office in Building 155.

In Brief

Cause of death determined

McMurdo Station radar technician John Biesiada died of a large blood clot in his lungs, according to a New Zealand Coroner's Office report released last week.

The report, issued January 15, stated that Biesiada was killed by a massive pulmonary embolism following severe clotting in the veins of his left leg, which he had broken several weeks earlier.

Biesiada, 43, a Canadian citizen and resident of St. Catharines, Ontario, was pronounced dead by McMurdo medical personnel in the early morning of January 8. He had been scheduled to be flown to Christchurch later that same day to receive further medical treatment for his leg.

The coroner conducted the autopsy January 11 in Christchurch, shortly after Biesiada's body was transported there from Antarctica.

Biesiada was a civilian employee of Aviation Technical Services, a contractor of Space and Naval Warfare Center, based in Charleston, S.C.

According to Dwight Fisher, McMurdo's NSF representative, Biesiada's family in Canada have been notified of the coroner's findings. They have also received Biesiada's personal effects from McMurdo, Fisher said.

Palmer Station update

By Bob Farrell

Palmer Station has started the new year with the beginning of the annual Long Term Environmental Research cruise. It's a busy time with the Laurence M. Gould research vessel at the pier and the science groups busily moving equipment onto the ship and getting things set up. It's a high-energy port call with a sometimes festive air, as old friends return to the station.

Several new arrivals joined our community, including National Science Foundation representative Polly Penhale, a teacher from Texas, a reporter/photographer team from U.S. News and World Report and a freelance photographer.

Members of TO-396 arrived as well, and they've installed some temporary infrasound monitoring equipment that is testing the feasibility of using Palmer Station as a monitoring site for the Comprehensive Test Ban Treaty, which prohibits the testing of nuclear weapons. The leader of this group is Antarctic veteran Charles "Buck" Wilson, who wintered at Little America back in 1958.

The summer season has reached its peak now, with lots of new wildlife in the area. The tour season has also come to Palmer, with visits from four vessels in the past two weeks.

The week in weather

Palmer

H/ 41 F

L/ 29 F

● Min Wind Chill: -2 F

Max Wind: 68 mph

South Pole

H/ -18 F

L/ -27 F

● Min Wind Chill: -69 F

Max Wind: 25 mph

McMurdo

H/ 36 F ●

L/ 12 F

Min Wind Chill: -2 F

Max Wind: 47 mph



Gary Tickner, a cargo handler at the South Pole, waits for an LC-130 ski-plane to stop before loading passengers' luggage on board. Photo by Jeff Inglis.

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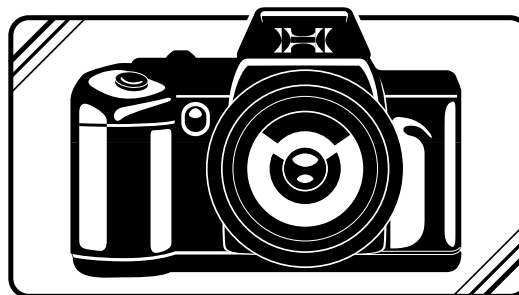
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Contributions are welcome. Contact the Sun at sun_news@mcmurdo.gov. In McMurdo, visit our office in Building 155 or dial 2407.

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How about
YOUR PHOTO
in next year's
calendar?

Stop by the Store for details, and give us **YOUR**
contact information.

It's a bird, it's a plane, it's a Hammerhead!

By Jeff Inglis
The Antarctic Sun

It was a windy day out over the sea ice. Coast Guard Lt. Tom McDevitt, the pilot, and flight mechanic Mark Henley were checking out sea ice conditions and "waving the flag" at the tourist ships in McMurdo Sound.

The pair made an efficient team. Henley's suggestions were quietly worded questions, like "How much fuel are you leaving for the return trip?"

McDevitt answered, "400 pounds," but later revised his plan, noting Henley's implicit suggestion that the wind would be against them on the trip home.

The men are part of a 14-person Coast Guard helicopter crew temporarily stationed in McMurdo. Normally based either in Mobile, Alabama, or on one of the Coast

Guard's icebreakers, the team is now flying their two aircraft from a pad near the Chalet.

The crew, who call themselves the "Hammerheads," but whose name is officially Aviation Detachment 146, started preparing for this trip in September. They did a lot of work on the helicopters, to be sure they'd be in top flying condition.

In October, the team flew to Seattle to meet up with the Polar Star for its cruise south. On the journey to Antarctica, they passed through areas of the Pacific Ocean that don't normally get visits from the Coast Guard.

The helicopters flew off the icebreaker at various times to inspect ships in U.S. territorial waters, or to identify vessels suspected of smuggling drugs or illegal immigrants. Those tasks are major parts of the Coast Guard's job, and even on a trip in international waters, information-gathering

helps U.S.-based crews enforce the law more effectively.

"We go to spots where most of our Coast Guard units don't get to go," said unit leader Lt. Cmdr. Rich Jackson.

As well, the ship and helicopters were always on call for rescue missions, had there been vessels in trouble nearby.

The trip to Antarctica and back takes six months. Jackson has planned for 300 hours of flying during that period, and expects to use it all. Some of it was spent on the way down, and some will be spent on the way back.

But most of the flying happens around Ross Island.

The helicopter crews are doing all kinds of work, from remote weather station maintenance to morale flights to the ice edge. Most of their work involves support of the Polar Star, doing reconnaissance of ice conditions before the ship begins breaking ice, or ferrying people and equipment between the ship and the land.

"It's probably the most demanding flying that we do in the Coast Guard," Jackson said. The weather conditions and logistics make it much more difficult than flying from a ground station in the States. Not only do the helicopters have to carry skis on many missions over ice, but the crews need extra survival gear. Fuel-use margins are also stricter here, where weather can ground flights for long periods.

The ship can help, by positioning itself at a midway point in a long route, so the helicopters have somewhere to land if the weather turns ugly.

But even landing on the icebreaker can be very difficult: The ship's hull is rounded for better icebreaking, but that means it rolls more in the waves than would a vessel with a sharper keel.

"We fly all over the world and sit there a while," said rescue swimmer Steve Lurati, who has a brand of laconic sarcasm similar to the crew members. In a way, he's right.

Jackson pointed out that Lt. Scott Craig, the engineering officer, much prefers scheduled maintenance to fixing broken equipment. So the mechanics work hard on regular preventive work and mostly avoid repairing parts on short notice.

Jackson also said this is the most motivated crew he's worked with on the Ice, which helps because, as with everything in Antarctica, nothing goes exactly as planned.

"It's never the same game twice," he said.

The crew will be in McMurdo until the icebreaker departs with the Greenwave for the return journey to the U.S. The helicopters will fly off the breaker in San Francisco in April, and head back to Alabama. 



Aircraft mechanic Rich Lazaro folds padding around the blades of one of the Coast Guard helicopters. The blades were removed for a routine maintenance check. Photo by Jeff Inglis.

A new generation of sealers

By Karl Newyear
Special to the Sun

After a long lay-up for maintenance in Chile and New Zealand, the Nathaniel B. Palmer departed from Lyttelton Harbor on the evening of December 20, 1999, to begin one of its most complex science cruises to date: the Antarctic Pack Ice Seals project, or APIS.

On board were 31 grantees comprising nine science groups, nine Antarctic Support Associates staff, four personnel from Petroleum Helicopters, Inc., and 21 ship's crew from Edison Chouest Offshore.



The Nathaniel B. Palmer makes it way through Antarctic waters as an Adelie penguin looks on and a Ross seal lounges on the ice.
Photo by Brent Stewart.

There are several new pieces of science equipment aboard, including a towed sonar to search for fish and krill and a TeraScan system to provide satellite images of the weather and sea ice. This cruise also marks the first use of helicopters aboard the NBP in its eight years of service to the USAP. We are using two Bell 206-III helicopters from PHI; this is the same company operating the helicopters at McMurdo Station, but we are using a different type of aircraft.

The overall goal of this multinational project is to estimate the abundance and distribution of all species of Antarctic seals, and the current cruise is the U.S. component. Other participating nations include Germany, Great Britain, South Africa, Norway and Australia. Each is using their own ships and station facilities, yielding a combined data-set covering nearly the entire Antarctic coast.

Ancillary investigations include veterinary exams of the seals (including drawing blood and tissue samples for health and genetic assessments), fishing trawls to examine seal prey, and physical oceanography and sea-ice studies to characterize the seals' environment and preferred locations. We also have a penguin specialist on board as well as a group of scuba divers to search the underside of the sea ice for krill and algae. The

helicopters fly in grid patterns up to 90 miles away from the ship to increase the area surveyed for seal population estimates.

Our general study area is the eastern Ross and western Amundsen seas, near known seal and penguin colonies at Cape Colbeck, Siniff Bay and the Bay of Whales. Our cruise track brought us south along the eastern edge of the Ross Sea polynya, then eastward skirting the coast and fast-ice as far as the Getz Ice Shelf. We then turned northward to make several passes through the remaining pack ice from the continental shelf all the way to its northern limits, at around 65-68 degrees south latitude.

Much like a meadow at the forest margin, we have seen the greatest numbers and diversity of animals near the ice edge. Crabeater seals and Adelie penguins are the most commonly sighted species, while leopard seals remain scarce. We occasionally see minke and orca whales, several types of petrels, and even a skua now and then, even though we are dozens of miles from shore.

We have had relatively good weather, and our five-day transit from New Zealand to the Ice was very smooth. Thus far, our peak winds have been in the range of 50 mph and the air temperature has remained near freezing, which is to be expected given the maritime climate at sea.

Our Christmas and New Year's celebrations were highlighted by small parties and traditional feasts prepared by our three cooks. However, we were unable to toast the dawn of Y2K with champagne because the NBP is a dry ship, like most other U.S.-flagged research vessels.

ASA provides science support on the NBP in several categories. Marine technicians handle the mechanical work, including deployment and recovery of fishing nets and other oceanographic equipment. Electronic technicians maintain all sensors on board including meteorological instruments, VHF radios, and other science equipment. Network administrators keep all our computer systems working, run e-mail transfers three times a day, and log all the data we collect so that the scientists will receive a data report at the end of the cruise.

One of our marine technicians also serves as an EMT, and another marine technician is acting as a marine science technician to take care of the lab and hazardous waste disposal. The marine project coordinator keeps things running smoothly by working with the captain and the chief scientist.

Everyone on board works a 12-hour shift seven days a week, and science activities take place 24 hours a day, so someone is always on watch. To accommodate such a schedule the galley serves five meals per day including one at midnight, and there is always a pile of cookies available.

The NBP is an icebreaking research vessel with the capability to make 3.5 miles per hour of continuous forward progress through three feet of ice. It is 308 feet long with a width of 60 feet and a draft (depth below the water line) of 23 feet. We can make approximately 8,000 gallons of fresh water a day directly from sea water, using two evaporators. The ship displaces about 6,500 tons and generates 13,000 horsepower, provided by Caterpillar engines and twin screws with a 13-foot propeller diameter. The ship runs on diesel fuel and burns 4,000 to 12,000 gallons per day, depending on ice conditions.

The current cruise will end at McMurdo Station on February 10. After a five-day port call the NBP will begin another science cruise in support of Stan Jacobs, ending March 31 in Punta Arenas, Chile, after a short stop at Palmer Station. ●

Our Antarctic Week

Today

Scott Hut Race, starts at noon, meet at the Chapel to sign up

The Real McMurdo, historical video presentation, 6 p.m., Chapel

Science lecture: William Readdy, Astronaut and administrator, NASA's Office of Space Flight, 8:30 p.m., Galley

Monday

Slide Show, Across Africa in a Garbage Truck, 8:30 p.m., Galley

Tuesday

Dart Tournament, Southern Exposure and Gallagher's, sign up on Recreation board

Wednesday

See Tuesday

Friday

Karaoke contest, 9 p.m., Gallagher's. Prizes for female, male, duet and group performances.
Grand prize \$125

Saturday

Kiwi cargo party, 7 p.m., Playhouse, food will be served
Waste party, 8 p.m., Waste barn, live music and wear a skua costume

Sunday

Marathon and ski from Pegasus, 10 a.m., meet at Derelict Junction. Space is limited so sign up early with Recreation

If you have an item for the weekly calendar, e-mail us at sun_news@mcmurdo.gov, call 2407, or drop by our office in Building 155.

Faces on

What question should the winter-over psychological exam ask?



"What did the radioactive robots that control your brain really tell you to do?"

Karen Joyce



"Do you have a drinking problem?"

Dennis Haunschild



"Is denial just a river in Egypt?"

Mike Bilos



Tread on me

A group of South Pole volunteers are run over by a Russian "snow bug." Its low-pressure tires allow the vehicle to move over snow without getting bogged down. Photo by Robert Thompson.

"Tourists"—from Page 1

"What a privilege it is to be here, even for the visitors," said one silver-haired woman as she prepared to board a helicopter following her tour of McMurdo.

That sentiment seemed to be shared by many of her awestruck shipmates, for whom MacTown was merely the southernmost stop in a 24-day voyage in the Ross Sea. Other sites on their itinerary included Macquarie Island, Terra Nova Bay, the Dry Valleys, and capes Royds and Evans.

According to Nadene Kennedy, NSF's polar coordination specialist, welcoming limited numbers of tourists to McMurdo benefits both the U.S. Antarctic Program and the visitors.

"We recognize the value of being able to show tourists a little about what we do on station," she said. "It also gives them a chance to interact with station personnel."

And indeed, numerous volunteers interacted extensively with the sight-seers—showing them around Mac Weather and the chapel, pointing out the peaks of the Transantarctics, providing tea and cookies in the Coffee House, even explaining the purpose of McMurdo's ubiquitous recycling bins.

"They certainly did a fantastic job," Kennedy said of the tour guides and other volunteers.

For the visitors, accessing the world's most exotic tourist destination comes at a hefty price. To partake in this voyage—billed as the "Footsteps of Scott and Shackleton" cruise—each traveler shelled out between \$12,000 and \$21,000, depending on the size of their cabin.

According to Donna Barfield of Quark Expeditions, which operates the *Kapitan Khlebnikov*, Antarctic tourists are wealthy, highly educated and adventurous.

"They're very well-traveled people," she said. "For many of them, it's their seventh continent." And for those cruising in the Ross Sea, she said, it's often their second trip to the Ice, after the

Antarctic Peninsula.

Indeed, cruises to the Ross Sea are still fairly rare. Nearly 90 percent of the tourist traffic in Antarctica occurs between South American and the peninsula, with only 7 percent in the Ross Sea. The remainder of visits take place in the waters off East Antarctica.

Though the industry got its start in the 1950s, Antarctic tourism boomed after 1991, when the dissolution of the Soviet Union made Russian icebreakers available to ferry tourists into the southern seas.

According to Barfield, unless more icebreakers become available, Ross Sea cruises won't get much more common. "I don't see it increasing that much, because of the difficulties of operating in the area," she said.

While almost all tourists arrive on the Ice by ship, an elite few—perhaps 150, according to industry estimates—fly to the continent, mostly with the British company Adventure Network International, which operates planes between South America and the Patriot Hills in Ellsworth Land.

Many other tourists see Antarctica from the air, as passengers aboard long-range jets. In 1977, Qantas and Air New Zealand began offering flights over East Antarctica and the Ross Sea from Australia and New Zealand. Though the 1979 crash of an Air New Zealand DC-10 into Mt. Erebus brought a 15-year halt to such overflights, Qantas reintroduced the service in 1994 and has offered it ever since.

McMurdo is slated to receive two more visits from tourist ships this year—one by the 500-plus passenger *Marco Polo*, around February 11, and one by the 48 passenger *Akademik Shokalskiy* on February 16.

The *Shokalskiy* had been scheduled to pay a visit to McMurdo on Friday, a day after the *Kapitan Khlebnikov*, but ice conditions in the channel prevented it from reaching the station.

Ross Island Chronicles

by Richard Perales

Hey look! The marine biologists are looking for penguins to help out with some diving studies.



Hey, could you tell us where the penguin studies are being held?



Go past the dead seal and make a left. You can't miss it.



I bet Arnold never had guns like these!





PROFILE

South Pole sisterhood

By Cheryl Hansen

Photos by Cheryl Hansen and Roger Gorman
Special to the Sun

As one of 43 women at Amundsen-Scott South Pole Station, I want to share with you the feminine side of life at the bottom of the world.

In 1935 Antarctica saw its first woman, Caroline Mikkelsen, set foot on the continent at Vestfold Hills. In 1969 the first women came to the Pole: Pam Young, Terry Tickhill, Lois Jones, Eileen McSaveney, Kay Lindsay and Jean Pearson.

You might say the women currently at Pole join a small sorority of South Pole sisters. Who knows, maybe we'll have a reunion of sorts someday.

Over the past two weeks I interviewed various Pole women to find out why they came here. These are some of their stories:

Kim Durovec, 30, is an ironworker in her first season at the South Pole. A hard worker, Kim dreamt about coming here for the past 10 years. Growing up with a carpenter dad, she learned that "she could handle anything...and then some." Her advice to other women is, "For those who have never been here, it takes a special person to come to the South Pole. You need to have a firm grasp on the work and go with the flow."



Kim Durovec

Jennifer Slakie, 24, is a general assistant in her first season at South Pole Station. Initially, Jennifer was intimidated by the requirements of her job. Getting up at 5:30 a.m. to shovel snow in minus 60 F weather for nine hours a day, took a major effort to keep up a positive attitude. "I expected it to be hard, so I had to push myself," she said. "I've gained self-confidence and I'm ready to learn new things every day as I help in different areas around station." Jennifer's advice to other women is, "Taking yourself out of your comfort zone can only help you grow stronger as a person."



Jennifer Slakie



Mary Lenox

Mary Lenox, 35, is a work-order scheduler with three seasons at the South Pole and three at Palmer Station. She came to Antarctica to get away from a career in real estate. She credits her sister, who encouraged her to be a risk-taker. Mary loves the natural beauty and the physical, personal and professional challenges she faces here. Her advice about living at the South Pole is, "Be a duck. Don't take anything personally. Just let it all roll off your back."

Margo Fernandez, 38, is a carpenter in her first season at the South Pole. Margo was a self-employed carpenter in upstate New York before coming to the Pole. She expected the dome to be heated prior to coming, but doesn't mind the cold now. She decided to come to "relive her second childhood." She said it is difficult at times "being the minority and keeping inspired at the tasks at hand." Challenging too, she said, is "peeing at night in the can and not on the floor."



Margo Fernandez

*Cherie Warren*

Cherie Warren, 27, is an electrician's helper with one season at the South Pole and one at McMurdo Station. She began her apprenticeship after encouragement from a former boss. Cherie also wanted a job where she could use her skills while traveling on someone else's payroll. Her advice to other women while working in the trades, "Be down to earth, hardworking, and forget your flirtatious behavior. Just do your job and you'll get along fine."

*Jennifer Fox*

Jennifer Fox, 30, is a computer network administrator with one season at Pole, two years at McMurdo Station and eight months on a research vessel. She saw the IMAX Antarctica film back home and now believes that being here has fulfilled a lifelong dream. Jennifer's mother encouraged her to have an adventuresome spirit, which is perhaps the reason why Jennifer is at Pole today.

*Anita Werner*

Anita Werner, 28, is a senior cargoperson with seven seasons at the South Pole and one full year at McMurdo Station. She came to Antarctica for the first time for the adventure and money. She still likes coming for the people, money and the job. Her greatest challenge is working at the Pole without her husband. "I miss my husband for emotional support," she said.


*Cheryl Hansen*

Traci Perdue, 31, is a construction scheduler and estimator with three seasons at the South Pole, two at McMurdo Station, and one at Palmer Station. Traci came to Antarctica because it "sounded terribly exciting. At the time I was working at a doctor's office and the thought of traveling and going somewhere different was so fascinating." She credits her mother for encouraging her throughout life by saying, "You can do anything you want to do."

Laura Wright, 38, is a materials person/loader operator in her first season at the South Pole. Laura had no expectations prior to coming south. "I don't think about being down here as a woman," she said. Laura is used to working where there are few women, back home in Alaska. She is a laborer for the Park Service, driving heavy equipment. Laura said, "I can do anything for three and a half months."

*Traci Perdue**Laura Wright*

Then there's me, **Cheryl Hansen**, 36, an administrative assistant in my first season at the South Pole. I always wanted to visit the Seven Wonders of the World, and, along the way, visit all seven continents. Now that I've been to Antarctica I have Australia yet to conquer. My husband, Roger, is also at the South Pole, and likes to tell others that he followed me here because it was all my idea.

Now you've met nine of my fellow South Pole sisters and myself. We try to get to know one another as time allows. There are times when we get dressed together before a dance party, chat while knitting, hang out in the TV lounge, or sit in the galley talking about work and life back home. Beyond all that, even at the South Pole, "We just wanna have fun." 

Perspectives

Cold classroom

By Erica B. Goldman
Special to the Sun

It's been two weeks since a new crop of 40 puffy red parkas first appeared in MacTown for the "2000 Adaptations in Antarctic Ecosystems" biology course. Since then, we've been spotted toting fishing poles and plankton nets, filling the lecture halls and labs of Cray, and stumbling around in bunny boots—while we scramble to learn and experience as much as possible in a month in Antarctica.

The biology course is designed to whet the appetites of young scientists for the pleasures and practical considerations of conducting research in Antarctica.

This is the fifth year it has been taught at McMurdo Station. Inaugurated in the 1994 summer season, the class is the brainchild of Donal Manahan, an invertebrate physiologist from the University of Southern California, whose commitment to training a new generation of Antarctic researchers has sustained the course since its inception.

Biology course participants come to Antarctica from all over the globe. We are an incredibly diverse group of graduate students, post-doctoral fellows and professors. This year, we hail from the U.S., UK, France, Spain, Canada, Germany, New Zealand and the Netherlands. The course is made up of 24 students, seven teaching assistants and eight faculty. The faculty are experts in a wide range of fields, unified by their common interest in adaptations in the Antarctic environment.

The course is organized to expose students broadly to the major concepts in Antarctic biology. We spend the first half of the class in three four-day rotations, in the themes of variable environments (especially the effects of ultraviolet light), cold temperature adaptation and microbial diversity. In each theme, we learn the dominant techniques used in each field, including radioisotopes to monitor DNA damage from exposure to ultraviolet light, molecular biology to distinguish between different species in a microbial community, and protein assays to inspect the effects of acute temperature shocks on an animal.

Of course, our scientific pursuits have given us plenty of



Carol Arnosti retrieves a marine invertebrate from an hole in the sea ice. Arnosti will examine the animal to determine how it has adapted to the cold environment. Photo by Jeff Inglis.

opportunities to get our hands and feet wet. This course is unique in providing us the opportunity to immediately test our hypotheses through a combination of field and laboratory measurements. In the field, we've collected plankton and water samples off the jetty, measured temperature and light profiles from the ice edge, and sampled ponds on Bratina Island for microbial life. Certainly helicopters, Skidoos and penguins enhance the Antarctic experience.

In the second half of the class, we will conduct independent investigations in an area of Antarctic biology that addresses the kinds of questions that interest us most. We are matched with a faculty member in one of the course themes and are then given the support and resources to follow our scientific noses wherever they might lead us.

I know that the behind-the-scenes organization and day-to-day instruction of the course has been a Herculean effort, but the course faculty and teaching assistants are making it look easy. Associate course director Adam Marsh is masterminding logistic considerations while still making significant scientific contributions

to the course content. Course instructors Gretchen Hofmann, Wade Jeffrey, Deneb Karentz, Ed DeLong, Craig Marshall, Rob Maxson and Linda Goff bring a level of dynamism to their lectures and enthusiasm for lab and field activities that is impossible not to catch.

So, what will I take away from this experience? Certainly everyone will return home from the Ice looking back at their time here from different vantage points. To me, there is no question that the course has fulfilled its immediate objective—to provide a true taste of doing science in Antarctica, from the range of scientific questions that are wide open for exploration to the practical concerns of conducting a successful scientific program. There is also no doubt that the course has fulfilled a second objective. As instructor Craig Marshall says, "It gets in your blood." Antarctica, that is. I am not yet sure what this means for the future, but I know that it has gotten into mine. ■