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# The Antarctic Sun

Published during the austral summer at McMurdo Station, Antarctica, for the United States Antarctic Program

## Leaving the Pole

Photo by Mark Buckley/Special to The Antarctic Sun

*An LC-130 military airplane departs the Amundsen-Scott South Pole Station on Monday with about 35 employees who spent the austral winter at the station. It was the first main transport flight north this season.*

# Another season of science

### *Seal cameras, historic huts, penguin mating among 2001-02 projects*

By Mark Sabbatini
*Sun staff*

Some are seeking the answers to the universe. Others will settle for finding out if female penguins respond to mediocre mates by choosing to have daughters instead of sons.

A diverse collection of long-term and new studies make up the more than 125 science projects scheduled during the U.S. Antarctic Program's 2001-2002 research season. Scientists and other researchers will go to sea to study a potential new species of whale, to various parts of the continent to examine deterioration of historic huts and to labs in three countries to examine 400,000-year-old ice from Lake Vostok.

**See Projects on page 6**

# *Research stations still under construction*

By Kristan Hutchison
*Sun staff*

Construction workers labored all winter, in temperatures that shatter hammer heads and stall heavy machinery, to put up and improve structures at the three US Antarctic research stations.

Though the weather's better for building in the summer, the stations are too crowded and busy with science during the research season to concentrate on carpentry, said Mark Neeley, head of Facilities, Engineering, Maintenance and Construction. When the scientists and support staff thin out for the winter, the stations become more like construction camps.

Construction work in Antarctica started to increase in 1999 and has been increasing every year since, Neeley said. The most ambitious project is a new main building at the South Pole to replace the old silver dome, but significant construction and remodeling continues at Palmer and McMurdo stations as well.

Working under spotlights, construction workers erected two new buildings at McMurdo this winter. Darkness and cold added an extra challenge to building. At times it was so cold the welders had to pre-heat their welding rods to get a good bead, said construction coordinator Ken Robinson.

"It's very difficult building down here. I came in at Winfly and there was about eight inches of snow inside the building," Robinson said. "You're constantly battling the elements."

Despite the difficulties, the buildings continue to grow. Within McMurdo the first phase of the new Science Support Center is half up. On calm days the crane

**See Build on page 8**

## INSIDE

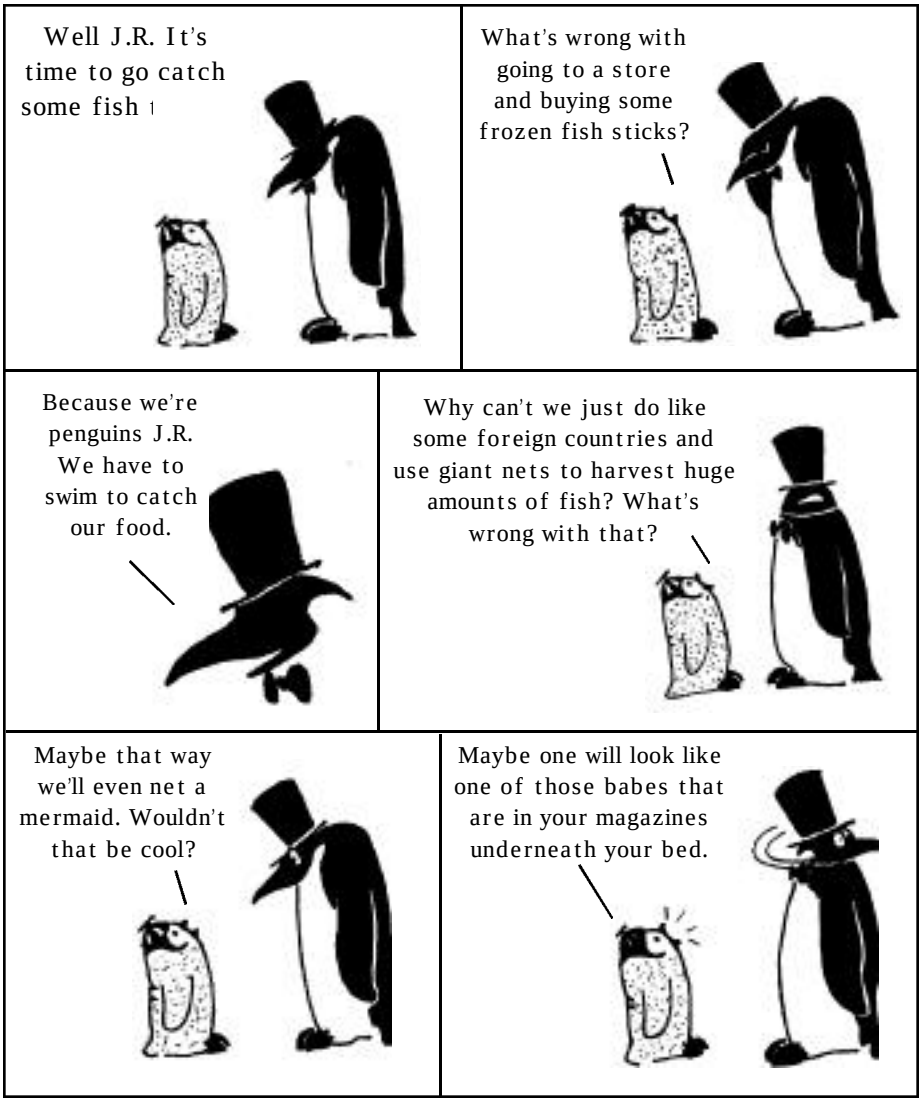


## Quote of the Week

"Kiss the ice. Land like a butterfly on hot pavement."

***- Pilot landing an LC-130 on the McMurdo sea ice runway***

Ross Island Chronicles By Chico




# Cold, hard facts

## Research vessels

**Number of cruises planned for the 2001-2002 season by the R/V *Laurence M. Gould* and R/V *Nathaniel B. Palmer*:** 10 and 7 (subject to change as various requirements evolve)

**Years of service by the *Gould* and *Palmer*:** 11, 5

**Cruising range of each ship:** 12,000 miles

**Endurance rating for each:** 75 days

**Lengths of the *Gould* and *Palmer*, in feet:** 230, 308.5

**Ice-breaking capacity of the *Gould*:** One foot of first-year, snow-free ice

**Ice-breaking capacity of the *Palmer*:** Three feet of level ice

Source for facts: National Science Foundation and Dawn Scarboro, RPSC

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## Twenty words for ice

**Across**

1. Carry it and feel it get lighter as you hike
2. Despite its name, it doesn't move
6. Feeling pretty perky on this open water?
7. If you feel small here, you need a drink
9. What Shackleton's group camped on
11. Tasty wafers, minus a middle "l"
12. Slick like ice, but better for the wheels
15. The path one may show through the floe
16. It's really just a great big ice cube at sea
17. Its base is on soil, so staying put is no toil

**Down**

1. This circular ice isn't a very filling breakfast
3. An edge on shore; at home a place to store
4. Formation and decay affected by land
5. When ice sticks out to lick the sea
7. New ice on the underside of floes
8. Like the old South Pole station
9. Sounds like a person on a rough day
10. Don't weep at these open water cracks
13. Found on beds, Antarctica and Greenland
14. Live in Dixie? This sweetens your coffee

***Answers on page 7***

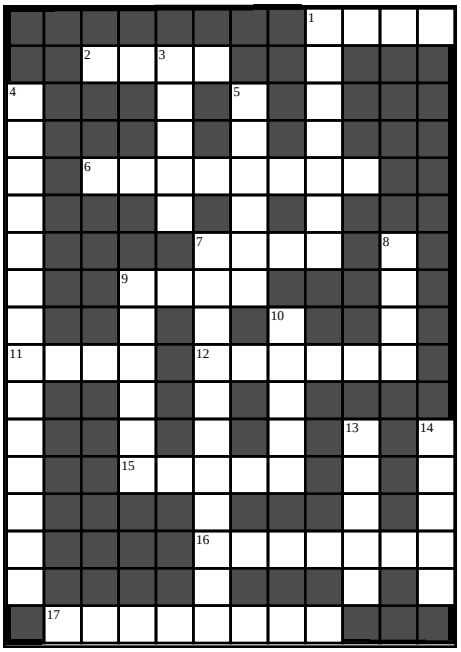


Photo by Mark Sabbatini/The Antarctic Sun

> **"You can get a worker here from Arizona who has never worked in snow and he is slipping and sliding. So you try to get him ready for the job. You can't take it for granted that somebody is ready to work here."**
>
> - Richard Perales, FEMC Safety Coordinator

*Field Instructor Thai Verzone, left, explains the use of a portable cookstove during a recent snow safety class at an instructors hut off the coast of McMurdo Station. The stoves are included as part of an emergency gear bag sent with those going into the field in Antarctica.*

# Training on ice

By Melanie Conner
*Sun staff*

Anyone who comes to Antarctica to work, from scientist to carpenter, must first put his or her survival skills to the test.

Most on-the-job training programs in the U.S. focus on the skills required for a particular job. However, construction zones, science labs and runways in the U.S. are not normally located at a barometric-pressure altitude of 12,000 feet (3,658 meters) with wind chills that often reach minus 100 degrees Fahrenheit (-73 celsius). Nor are they located near deep crevasses on a frozen sea with temperatures hovering around zero Fahrenheit. In Antarctica, such conditions are the daily routine; thus specific training is required to travel to and from work areas safely.

"Each person coming to the Ice will receive 20 to 40 hours of safety training, depending on the job," said Hope Stout, assistant area manager at McMurdo Station. Training programs vary from outdoor safety to proper lifting techniques, depending on the job.

Scientists and support staff going to remote work camps learn how to drive a snowmobile and the Spryte, a heavy three-speed, track-wheeled snow vehicle made for navigating over ice and snow.

According to Stacey Rolland, who teaches the Spryte driver training, many trainees have never driven track-wheeled vehicles. The students learn to turn the rig using two brake bars instead of a steering wheel, a tricky process for first-timers. To turn, trainees pull back on one of the bars, which applies pressure to that brake. The moving track then turns and rotates around the idle track.

Before students climb inside the vehicle, they learn how to check the oil and coolant levels, identify glycol or transmission fluid leaks and visually examine the tracks for thread separations. Then they learn about the dash panels and controls inside the vehicle and finally the students drive the vehicle with Rolland in the passenger's side.

The Field and Safety Training Program (FSTP) offers courses in Global Positioning Systems (GPS), high altitude training, helicopter safety, and environmental instructions for the Dry Valleys and refresher courses. However, one of the better-known courses is the seaice safety class, where students study ice crack formations and drill a hole in the ice to test for depth, stability and safety. In an overnight snow safety course, students learn and test techniques for staying warm while sleeping in a snow cave. This class is called Snow Craft One, but known to locals as Happy Camper School or Snow School.

In both classes students learn how to identify, treat and prevent hypothermia and other cold-weather injuries. In addition, they learn how to use the lightweight stove and other tools found in their survival bags that are required to accompany all vehicles and aircrafts leaving the station. The classes help prepare people for emergency survival situations on the ice, and remind them of the harsh, cold and unforgiving conditions of the continent,

"Welcome to Antarctica," said Ted Dettmar, lead instructor for FSTP. "We are so comfortable down here, and don't know how the weather can hit you. Complacency is easy to come by."

While it is rare that the training is applied to a survival situation, the courses at FSTP are designed to simulate and prepare a person for such an incident.

"We also have courses similar to Snow School that are tailored to specific groups," said Dettmar. "This gives them a chance to use their equipment, test their own gear and discuss issues that they will have to deal with in their camp."

However, some situations on the Ice are difficult to prepare for, because a simulation either isn't practical or available. It is impossible to totally prepare and train scientists and laborers for working and moving around on the remote continent.

"Altitude training is different on the Ice than in the U.S.

**See Training on page 9**

Perspectives

# The Dirt on McMurdo

By Ben Murray

It is a bit of an odd thing to get to know a place by cleaning it, and an even stranger experience to get to know people by what they leave behind. As a janitor in McMurdo Station, I've come to know many of you by hair length, hygiene preferences (or total exclusion thereof) and tendency to leave galley dishes in the hall. I know you by the size of your footprints in my mopping, and I take note of those that don't wash their hands post-flush (the no-flush, no-wash people are watched very carefully).

Paradoxically, packed as tight as it is, McMurdo provides a unique place for us janitors to gain an intimate knowledge of how often you shower or brush your teeth, but never your names or whatever reason under the sun you might have had for throwing that wad of tissue where you did.

Consider, for example, the awkward love-hate relationship I had with a man who, for nearly a week, blatantly ignored my little yellow "Restroom Closed" sign and bullied his way into a stall while I was scrubbing sinks or spraying deodorizer. We'd see each other down Highway 1 and stare at each other like it was high noon. Eventually one of us would flinch and he'd bolt for the bathroom door while I furiously tried to erect a barricade with my mop bucket and some toilet paper rolls, but he always won. Over the course of a week we built a totally absurd relationship out of this behavior, based on a very personal set of events I might add, and yet I only ever knew him as "The Guy Who Ignores My Sign."

Similarly, and take no offense at this people of McMurdo, but to the janitors here you are often an anonymous mob known only for your habits, with names like The Lady Who Forgets Her Flip-Flops, He Who Sheds The Long Hair and The Dude I Walked In On. I have a particular fondness for How Could She Miss From There?

As if this sort of relationship wasn't strange enough with individuals, as janitors we are always in constant competition with the general populace of McMurdo. We run around like little germicidal warriors, wielding brooms and laying out

Photo by Melanie Conner/The Antarctic Sun

**...to the janitors here you are often an anonymous mob known only for your habits...**

minefields of clean carpet. I often ponder on how to counterattack your sneakier moves, thinking things like, "How in the name of Pete could he possibly get a footprint up there…" And still, no matter what McMurdo, I have to hand it to you that you are constantly finding new and creative ways to blow your noses, and our efforts are foiled. To the people who've figured out how to get spots all the way to the top of the mirror, I salute you.

Yet even as our unwitting adversaries of a sort, you also provide us with entertainment as our unwitting subjects in sociological research. I am currently testing what it is about the little yellow "Restroom Closed" sign that makes it such a powerful laxative. I have also recently concluded that, based on an experiment measuring the rate at which condoms disappear from the men's room compared to the women's room on Highway 1, the men of McMurdo Station are the idealists and the women the realists.

Still, even though we use you for experimentation, we are also part of you once the whistle blows. In the real world Olena Boyko, who cleans building 209, is a pharmacist who speaks several Slavic tongues. Jim Julian has a Masters in painting from the San Francisco Art Institute and Joan, one of the night-shift janitors, is a former judge.

Not one of us works in a similar occupation back in the world. But when we are here, we're working hard at what we do. We will sacrifice umpteen gallons of bleach on your tiles this season, and once the snow melts we'll be sweeping up about 40 pounds of rocks each week off of Highway 1. It would appall you to know how much toilet paper you go through here in a day, but I think you'll be happy to know we plan on continuing to provide that service. For this effort, most of the janitors will tell you the most rewarding part of their job is the thanks they receive.

"Everyone seems truly appreciative of what we do, you never feel like a lowly janitor. Sometimes you're even showered with gifts for a job well done," said Mckenzie Winters, a first-year McMurdan.

I tend to feel a little guilty judging many of you by your penchant for putting underwear in the Skua bins. I'd like to invite you to think of the janitors at exactly the moments you might deem most inappropriate, for it is in such a place that we most definitely thought of you. Our business is your comfort, but your business is, quite frankly, something we only approach with rubber gloves and powerful chemicals.

I'd like to leave you with a plea from the janitors of McMurdo, who, when asked what they would say to the general public given the opportunity, replied overwhelmingly with a single request, consisting of just four simple words: "Please remember to flush." Sound advice from a people who know.

•••••

*Ben Murray left a job as a writer for Monster.com to be a janitor at McMurdo Station, Antarctica.*

# around the continent

## PALMER

### Piles of snow and ice

By Tom Cohenour
*Palmer correspondent*

Persistent ice pack has kept a second ship in recent weeks from reaching Palmer Station. The *Laurence M. Gould* could be seen about five miles from the station making slow progress. The decision was made to delay further attempts to reach Palmer Station in favor of continuing to the Copacabana field camp on King George Island for a scheduled stop.

Photo by Tom Cohenour for The Antarctic Sun

*Brittney Baldwin measures the height of a snow pile at Palmer.*

The vessel is carrying a number of researchers, including Chris Denker and Heidi Geisz with the seabird component of the Long Term Ecological Research (BP-013-P), and Karie Sines with the phytoplankton ecology component (BP-016-P). They have now crossed the Drake Passage twice in a week on their way to Palmer to start their summer season. They recently completed work on the Long Term Ecological Research Ice Cruise on board the *Nathaniel B. Palmer* and were scheduled to come directly to Palmer Station. The ice pack and other factors prevented the vessel from calling at the station. They returned to Punta Arenas and boarded the *Gould* bound to come south again. After calling at Copacabana, the vessel will return to the Palmer Station area to assess the ice conditions again.

The ice has also had an effect on the arrival of Adélie penguins on Torgersen Island, one half mile from Palmer.

"Normally at this time we see around 4,000 Adélies on Torgersen," said researcher, Brett Pickering with the seabird research (BP-013-P). "Right now there are only about 1,500."

Torgersen remains locked in ice and columns of Adélies can occasionally be seen gliding across the snow like little black torpedoes on their way to snowy nesting grounds on the island.

Snowfall has been higher than usual at Palmer Station this season. Snow piles keep growing and growing. The daily activity of snow removal has become more difficult because the piles are getting so tall.

"We're running out of places to put it," exclaimed one shoveler as she tossed yet another scoop of the white stuff. High winds have created 12 foot (3.6 meter) drifts (see photo) and the loader has pushed up snow piles wherever there's room.

## SOUTH POLE

### Cold start to summer

By Judy Spanberger
*South Pole correspondent*

The South Pole summer season started with the first flight landing at 11:30 a.m. on Oct. 24. The temperature was minus 62F (-52C) and the wind chill was minus 123F (-83C), and yet there were about 25 of the winter-over staff waiting at the runway to meet the plane.

Photo by Mark Buckley for The Antarctic Sun

*Inside the South Pole station dome.*

Greetings were brief due to the cold and within minutes we were all in the galley (yes, there were lots of great homemade cookies!). The winter-over awards ceremony was held at 12:30 p.m.. Presenting the awards were South Pole Area Station Manager Katy Jensen, National Science Foundation Representative Dwight Fisher and Senior Raytheon Representative Lori Baruch.

The winter-overs received patches, t-shirts, a winter-over medallion, a certificate, and a lot of applause. Appreciation for the winter-overs was also shown by the AMANDA project scientists who presented the crew with hats and the ARO project scientists who gave out small vials of the "cleanest air on earth" with special edition winter-over 2001 labels.

Most of the winter-overs seem to have survived the winter in good form and have been welcoming to those of us who've invaded their home. Here's a toast to them and a wish for safe travels to home, or to a nice warm sunny beach.

This week marked the official beginning of summer at the Amundsen-Scott South Pole Station. The population is now up to 189 and will top off at a full capacity of 220. Many of the beds are located in what's known as "Summer Camp." Summer Camp is a collection of Jamesways that share a central bathroom (yes, we have to go outside to get there), a couple of lounges and a small exercise room. Under the Dome the galley can comfortably seat 70 people at a time, so to accommodate everyone we eat in shifts. It sounds regimented, but it works out quite nicely. The kitchen staff has been doing an excellent job feeding all of us in a kitchen designed to cook for about 50.

Some science news for you: The SPARCLE project has wrapped up their year and will be heading home. This project looked at thermal infrared ("longwave") radiation to study important components of the Earth's solar radiation budget. AMANDA (the Antarctic Muon and Neutrino Detector Array) will continue to observe neutrino activity. CARA will continue to look for answers to questions about the formation of the universe. And the scientists out at ARO (the Atmospheric Research Observatory) will continue to study changes in the global climate.

Not much else to report, especially with two days of windy weather and no flights. Turnover of the station from the winter-overs to the summer staff is going smoothly. We're looking forward to a busy season, so stay tuned.

## the week in weather

**McMurdo Station**
High: 17F/-8C Low:-8F/-23C
Wind: N/A
Windchill: -47F/-44C

**Palmer Station**
High: 34F/2C Low:5F/-15C
Wind: 75 mph/120kph
Snow: 10in/24cm

**South Pole Station**
High: -23F/-31C Low:-60F/-51C
Wind: N/A
Windchill: N/A

*Ben Hunt, right, and Steve Zellerhoff clear one of the fishing holes off the shore of McMurdo Station on Wednesday. Fish are being caught at the holes as part of a pro - ject by Arthur DeVries to examine how frigid water passes through their gills without freezing the animals. Hunt works for DeVries, while Zellerhoff works for Raytheon Polar Services Company.*

**Photo by Mark Sabbatini/The Antarctic Sun.**

# Projects

From page 1

Getting the 3,000 researchers and support personnel, plus supplies, to McMurdo Station and beyond requires careful choreography, according to officials with the National Science Foundation, which oversees the program. Among the factors planners are keeping an eye on this year are unusually thick sea ice in McMurdo Sound and heavy demand for air transportation in some areas.

"What you see when you're on the Ice are the results of months and months of planning," said Brian Stone, research support manager for NSF's Office of Polar Programs.

For many first-time grantees, just being among the few to make it to the bottom of the world is reason to start their work exhilarated.

"I like to travel and what a place to travel to," said Paul Nolan, a doctorate student at Auburn University who is conducting a study about penguin breeding habits. "The thing that has attracted me to biology in general is the ability to go places and spend time finding out what makes things tick and what makes them unique."

"I hate to sound like a tourist and I don't want to sound like I made up this project to get there, because it's not true," he noted. "In fact I went to some lengths to say why this won't work on other species."

For those with years of experience, often the reward is watching knowledge about Antarctica evolve. NSF Science Representative Bernhard Lettau said every project is noteworthy for some reason and many make long-term contributions beyond their original scope. That makes him reluctant to pick out "favorite" projects from those on this year's list.

"In the big mosaic of science, it's a bunch of pixels," he said. "Looking at this collection you don't know what the picture is. You have to step back and let things happen."

Only about one-third of projects proposed to NSF are approved for funding, Lettau said.

"The thing that we're looking for is an imaginative way of looking at the problem," he said.

An example, Lettau said, is a study where special video and data recorders are being attached to Weddell seals in McMurdo Sound to examine foraging behaviors. The project, led by Dr. Randall Davis of Texas A&M University, follows up on similar research of seals in a limited-movement situation by now observing them in an unrestrained environment.

"I really like this idea of placing a low-light camera on the seals and actually getting on tape what they're eating and how they capture their prey," Lettau said. "That's imaginative."

Weddell seals are also the focus of a study led by John Lisle of NASA, who is working with fellow researchers Diane Edwards and Jim Smith to determine if human sewage released into the seawater at McMurdo Station has a detrimental effect on the animals.

Lisle said preliminary data shows 30 to 40 percent of the 80 seals examined so far this year tested positive for Clostridium perfringens, a bacterium frequently associated with human feces. But, like many other projects, lab work done when he returns from the field will be crucial to developing more definitive data. Lisle stated his most pressing research effort this season is obtaining a set of seal fecal samples from a colony that has not been in contact with human sewage, as at least one animal from each colony tested has been found positive for Clostridium perfringens.

Nolan's debut project is working with French researchers on Possession Island to try to determine if female king penguins choose the sex of their offspring in response to the quality of their mate. He said the study is based on research he and others have done showing certain animals apparently exert such control in response to factors such as population imbalance.

"A female might look at a male and say 'You're the highest quality thing I've seen out of all the males I've seen. I'm going to have a male (offspring),'" he said. "Or she could look at a mate and say 'I'll look at you and say I'll mate with you because you're

**See Projects on page 7**

*John Lisle, right, and Diane Edwards prepare to pump sewage water they have treated at McMurdo Station through a filter. They are collecting bacteria for testing as part of a study on Weddell seals and whether they are being contaminated by sewage released into the water.*

Photo by Mark Sabbatini/The Antarctic Sun

# Projects

From page 6

the only thing available to me, so I'm going to have a daughter so they can at least have some offspring.'"

Also making his first trip to the Ice is Dr. Robert Smalley, a University of Memphis professor who is one of the principal investigators on a seven-person team planning to install a Global Positioning System (GPS) network on the West Antarctic Ice Sheet. The network, designed to measure movement in the bedrock surrounding and underlying the ice sheet, will be used to study past and future dynamics of the ice sheet and its potential role in global change scenarios.

Smalley said the idea for the project originated one night in a hotel room nearly four years ago when he and other investigators were doing a study of tectonic evolution between South America and the Antarctic Peninsula. Their current study will be based at Amundsen-Scott South Pole Station starting in early January, with team members planning to fly to at least 15 sites to install campaign GPS systems, roving receivers that will be monitored during the next several years.

The ice sheet will also be the focus for the U.S. component of the International Transantarctic Scientific Expedition (U.S. ITASE), whose researchers are preparing for the third in a series of four traverses in West Antarctica. The tractor-pulled collection of research sledges will collect ice samples, meteorological readings, radar profiles and other data designed to provide more information on the current and recent state of the ice sheet.

Stone said NSF is supplying a second Challenger 55 Caterpillar tractor for the ITASE convoy this year after the breakdown of a Tucker sno-cat caused some difficulties last year. He said the extra Challenger, which is capable of hauling the train of sledges, provides "excellent backup."

"Basically the ITASE folks are driving from Byrd Surface Camp out to the old Siple Station (and back), which is pretty far," he said. "Over the summer we were concerned about the difficulty of the traverse."

Arranging suitable transportation is also a concern for a number of other projects, since construction of the new South Pole station is placing a heavy demand on LC-130 cargo planes and there is a large demand for Twin Otter aircraft at remote sites, Stone said. He said it appears demand will be met by encouraging the use of alternate aircraft such as helicopters when possible and bringing in a third Twin Otter for three weeks starting in mid-November.

Careful scheduling is also crucial, Stone said. He noted one group will use a Twin Otter on a number of flights to test a new radar system designed to provide better data about thick and warm ice. Another group immediately afterward will install topography equipment designed to provide very high-resolution elevation data in the McMurdo Dry Valleys.

"From that they'll be able to generate a very accurate digital elevation model for the valleys," he said. "That will be particularly useful to the folks who do research out there because it will give them a very accurate three-dimensional map of the Dry Valleys."

Thick sea ice is also something officials are keeping an eye on, since it could affect vessels trying to get into McMurdo Sound. It is a concern, but at this point it's premature to determine if there will be impacts, said NSF Science Representative Dwight Fisher.

## Research on the Ice

Among the other projects scheduled for the 2001-02 season:

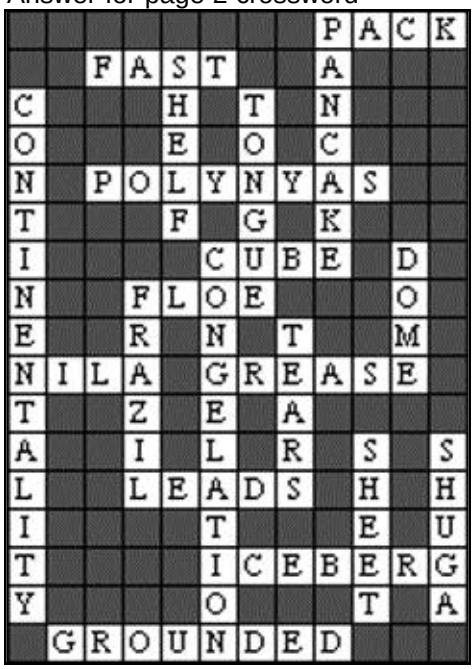
• Ice extracted from the sheet above subglacial Lake Vostok in an earlier joint Russian, French and U.S. project will be analyzed in laboratories in all three countries. Scientists will study ancient microorganisms trapped in the ice and try to determine if they differ from contemporary organisms. The analyses also are expected to provide information about the water in the long-buried lake. Also, more ice previously collected from the lake will be transported off the continent for observation.

• The deterioration of huts used by early explorers 90 years ago will be examined by a three-member team scheduled to visit Cape Evans, Cape Royds and other sites in January. They will study biological and non-biological causes of the deterioration and test methods to prevent further degradation.

• Collecting and testing of killer whale tissue samples between Christchurch, New Zealand, and McMurdo Sound is planned by a California researcher aboard the U.S. Coast Guard Polar Star icebreaker between December and January. The intent of the study is to determine whether a group of whales, discovered 20 years ago in the vicinity of McMurdo Station, constitute a new species.

• Longtime Antarctic researcher Arthur DeVries of the University of Illinois Urbana will study how fish use antifreeze proteins to pass frigid waters through their gills without freezing.

Answer for page 2 crossword



# Building

From page 1

lifts insulated wall and roof panels one at a time so workers can screw them to the frame. But many days it's too windy to maneuver the 35-foot (115-meter) panels, which has put the project behind schedule, Neeley said. Any wind over 17 mph (28 kph) blows the panels around. Over the winter there was a 42-day stretch in which the construction crew was only able to move panels nine days.

"The simple issue is that panels and the wind aren't a good mix," Neeley said. "If you want to fly a 35-foot kite, then you can sling panels."

The 22,590-square-foot (2,099-square-meters) Science Support Center will replace three older buildings in McMurdo, the Berg Field Center, Mechanical Equipment Center and Field Safety Training Program. The first phase should be finished this winter and the second phase will be complete in the winter of 2002. A new Joint Space Craft Operations Center was also put up over the winter between buildings 155 and 165. Currently, carpenters are finishing the interior and by mid-summer the information technology department and NASA should be able to move in. Besides being more comfortable to work in and more attractive, the new buildings should have lower heating and maintenance costs, Neeley said. Both buildings are connected to the waste heat recovery system said Frank Brier, facilities engineer projects manager for the National Science Foundation.

The construction crews had some difficulty with building pieces that didn't match up as they were supposed to and had to be reworked in the field, Neeley said. Being completely isolated over the winter, there was no way to send the pieces back or order new parts.

That shouldn't happen on the next big winter project, Neeley said. The wastewater treatment plant planned for construction this coming winter was test-built in Spokane, Wash., three years ago, "to make sure it's compatible and all the pieces match up," he said.

Fire safety issues drove some of construction, particularly renovation in the dorms. Sprinkler systems were installed in Dorms 203A and B and the living quarters in Building 155. Along the way, new carpets, paint and other improvements were made.

Next winter Dorm 203C is scheduled for similar treatment, Neeley said.

A much smaller building was installed at the transmitter site on the hill between McMurdo and Scott Base, replacing the three-bedroom house where technicians used to monitor the transmitters. The transmitters can now be run remotely.

Several ongoing projects are also being continued. Secondary containment structures are being built around several more fuel tanks this year, Neeley said. The FEMC will also finish replacing the line that carries fuel from the tanker to the storage tanks with a larger 8-inch (20 cm.) line this year. The larger pipe will save a little over a day in offload time, saving money, Neeley said.

Photo by Kristan Hutchison/The Antarctic Sun

*Carpenter John Ackley stamps a roof panel into place on the new Science Support Building at McMurdo Station, Antarctica, on Oct. 30.*

## Palmer

Half of Palmer Station has been renovated during the past two years and more is planned. The small station has few buildings, so it doesn't take much to make a big difference. Renovations to the Garage, Warehouse and Recreation building are almost finished, Neeley said. As part of that project, the sleeping quarters were remodeled to be two to a room and the bar was moved away from the bedrooms.

"Now parties with blaring rock and roll won't disturb those who choose to snooze," wrote Palmer construction manager Tom Cohenour in an e-mail.

The restrooms were also enlarged to provide more privacy, and the lounge area was improved.

"The TV room, which gets lots of use, is immensely more comfortable than the old one," Cohenour wrote. "Plush chairs and couches, large screen TV, carpeting, and a great sound system make it exceptionally comfy."

The biology laboratory is scheduled for renovations starting in April and the pier is also being redesigned. The boathouse and dive locker will also be remodeled, Cohenour wrote.

Because Palmer has a wetter climate than McMurdo or the Pole, the windows on some of the buildings had to be redesigned, Neeley said. The salty sea air also rusts metal beams and siding, something that isn't an issue at the other stations.

Cohenour found the biggest challenge is just getting materials, which must come across the Drake Passage by ship.

"We're subject to the ship schedule which may only be once a month," he wrote. "And during science cruises we have restricted space for construction cargo."

The small size of the crew at Palmer can also be limiting, Neeley said. During the summer Neeley has seven people working at Palmer and in the winter the crew increases to 17.

"You don't have the depth of personnel that you may have here," Neeley said. "You may have one or two in any tradecraft, so if you lose that person it's a bigger loss."

## South Pole

Of the 50 people at the South Pole this winter, 17 were working on the interior of the new elevated South Pole station building. Wings A1 and A2 of the planned eight-wing building were erected and enclosed last summer, so the winter-over crew could work inside. The wings include winter housing, food service and the electrical and mechanical equipment, said Jerry Marty, who oversees construction for the National Science Foundation.

More work had been planned, but weather delayed shipment of

**See Building on page 9**

## Building From page 8

needed building materials to the South Pole last summer, so some of the winter work had to wait.

"The winter-over crew had to be cut back somewhat because of the bad weather we had and lack of flights," said Doug Forsythe, one of the project construction coordinators.

This summer the 85 construction workers will try to catch up, as the New York Air National Guard aims to fly 348 missions to the South Pole, of which 151 are carrying construction materials for the new building, Marty said. The entire building should be finished in four years. It will house 110 people during the summer and 50 over the winter.

Photo courtesy of Jerry Marty /NSF

*The first section of the new elevated South Pole station building was built last summer and construction workers continued on the interior over the winter.*

Work is starting slowly on the next phase of the project, as they wait for the weather to warm up, Forsythe said. The cranes won't run until it is minus 50F (-46C) or above. The caterpillars and forklifts require temperatures above minus 60F (-51C).

Even after the machines stop working the people keep going. They continued laboring in 35 mph (56 kph) winds when the temperature was 65 below (-54C). Last summer construction halted for only one day when the visibility was so bad there was a chance of people getting lost between buildings.

"We've had hammers actually break in half - not the handle, the head," Forsythe said. "Chisels, if you hit on them too hard, they shatter."

While the weather warms and construction speeds up on the main building, a much smaller structure will be built about five miles (eight km.) away. The remote seismic facility, called the South Pole Remote Earth Science Observatory, will be a 20-by-20 foot (6-by-6 meter) building buried in the ice.

Though small in size, it's a complex project because of the sophistication of the instruments, Marty said. Holes will be bored into the ice to place the instruments, he said. The building also needs to be hooked into the electricity and computer network at the main station. The ceiling of the unmanned building will be flush with the ice surface. Over time the seismic building will sustain crushing forces from the ice around it, and slow depression into the ice, requiring annual maintenance.

The difficulties of building in the Antarctic keep it interesting, said Forsythe.

"It's basically the challenge of it, you come out of it with a good feeling," Forsythe said. "Most of us here have worked construction sites all over the U.S. and this is definitely unique."

## Training From page 8

because in the U.S. they are climbing mountains," said Dettmar, "If anyone experiences symptoms of altitude sickness, they can descend. Here, we are not climbing and you can't just descend. So we really try to concentrate on the prevention of altitude sickness."

For some, the training courses offer a chance to learn skills that they might not learn in the U.S. This is the case with South Pole winter crews. Each crew member attends a fire fighting course and a ropes course, intended to build trust and communication skills within the group.

"The Pole demands extremely high level skills that are not demanded in every day life," Jennifer Bird said of the required training, after spending a winter at the Pole. "Because of our unique conditions, highly refined people skills and conflict resolution are needed."

"It really did help. People did have a baseline respect for each other," Bird said.

Construction crews can often take three times as long to complete a task in cold and windy conditions. It could even take longer for a person who is not conditioned to working in harsh climates.

"You can get a worker here from Arizona who has never worked in snow and he is slipping and sliding. So you try to get him ready for the job," said Richard Perales, Safety Coordinator for Facilities, Engineering, Maintenance and Construction (FEMC), "You can't take it for granted that somebody is ready to work here."

Other adjustments must be made for one to transfer his or her skills to the Ice. For example, plumbers in Antarctica learn to work with an adhesive bonding process to link water and sewage pipes in cold temperatures. The workers learn to cut, clean, heat and cure the fiber-wound pipes, a skill that they wouldn't learn in the U.S.

"The market does not have materials to deal with that kind of cold. You go into unknown area when you get to a minus 35F degrees (-37C)," said Mark Neeley, FEMC manager. Neeley said it is difficult to train his workers for Antarctica. Many workers go through technical training programs in the U.S. and all attend seaice and Snow School when they arrive, to help prepare them for working and living on the Ice.

## Continental Drift

**Question of the week?**

***What was the hardest thing to leave behind?***

**"Cable TV. Just sports and things that we'll miss down there and the commercials on the Super Bowl."**
Floyd Washington
*South Pole maintenance coordinator*
*From Denver, Colorado*

**"Right now I don't feel like there's anything I miss. Nothing. But when I came I was really longing forsome hot weather."**
Meghan Seifert
*McMurdo fuelie*
*From Girdwood, Alaska*

**"My apartment. Well, actually all 10 of my apartments. It was hard for me to leave someone else in charge of them."**
Jeff Gustafson
*Palmer carpenter*

Profile

# Shear Enterprise

## *"Old is when your regrets outnumber your dreams"*

By Melanie Conner
*Sun staff*

One year ago, Anita Menezes had no idea that her hair-cutting skills would take her over the equator and across the International Dateline to a hair salon in Antarctica.

Thirty-five years after her first child was born, Menezes began a new life where she is free of parenting, housecleaning, bill paying, and maintaining her business and philanthropic social obligations.

Early this year, Anita was selling her house, business, car and belongings in preparation to leave her home in Paradise, Calif., to an unknown destination. She planned to leave Paradise after her youngest son's high school graduation in June, an event that marked the end of child-rearing and the beginning of her solo adventures.

On Oct. 3, Menezes, 53, made good of her goal when she left behind her pug, cat and boyfriend of five years, and arrived at McMurdo Station to follow her dreams.

"I thought that when I started traveling, it would be in the U.S. But this is where I started," said Menezes.

Photo by Melanie Conner/The Antarctic Sun

*Anita Menezes snips LeAnn Fauber's hair at the McMurdo Station shop. Menezes said that she brought plenty of personal beauty supplies to last her a year on the Ice.*

Menezes first envisioned her Antarctic journey last December when she visited her sister and nephew. Her nephew was preparing for an upcoming winter-stay at McMurdo. She remembers browsing through his United States Antarctic Program Participant Guide and thinking about her own uncertain future ahead.

"I thought, 'This was fantastic. What an opportunity.' So I called the toll-free number on the back to get more information," said Menezes. "I had to write my first resume of my life."

Menezes had never written a resume because she either owned a beauty salon or operated a daycare from her home for nearly 35 years. After graduating high school in 1965, Menezes enrolled in beauty college, married and had her first child at 17. Menezes' father, a truck driver, took the family on many weekend trips when she was younger. She said these trips contributed to her curiosity of the "unknown around the next corner." However, Anita also said society's cultural barriers toward women during her generation were influential in her life choices.

"These days, we encourage our daughters to do things that we should be doing. We were taught to graduate high school and find a husband," she said. "I have heard many many women over the years say they've always wanted to do this or that. That is not what I want to do."

But Menezes rejected the traditional female roles of the '50s, and raised her daughter as well as her three sons to travel and have adventurous spirits. Now the tables have turned and Menezes takes her own advice as she ventures into the world.

"I thought I'd do everything I encourage my kids to do. Life is not a dress rehearsal," said Menezes.

According to Menezes, her children have been supportive of her desires to see the world. Her son, living in Ogden, Utah, even bought a house with an extra bedroom for his mother so she would have a place to go in between travels. Others have agreed to keep her cat and some of her personal belongings.

Menezes describes herself as a very social creature who has the best job on the Ice. She enjoys meeting people and hearing their stories as she snips away at their hair in her McMurdo shop.

However, Menezes' Antarctic adventures are just beginning. In November, Menezes will take her scissors even further south to the Pole itself. Her trip is planned for three to four days, long enough to cut the hair of some 200 South Pole summer participants. This will be their only opportunity to receive professional haircuts until she returns in January.

Without a sink, she will be working on limited time and resources while at the Pole. Therefore she is encouraging haircut recipients to use one of their two allowed showers a week before she works on their hair.

"They say I'll be really tired, because of the elevation," said Menezes, who can give 40 haircuts a day in 15-minute increments. "But I am not worried."

Menezes, whose goal during her Pole excursion is to be the only licensed cosmotologist on the Antarctic continent, recently extended her stay at McMurdo to include the isolated austral winter from March to September. Menezes said she is looking forward to completing her Antarctic experience over the winter with the onset of the stars, the moon and the night sky. In the meantime, she will take the opportunity to grow her hair long and plan her next adventure.

After all, Menezes said, "Old is when your regrets outnumber your dreams."