



Hanging out on the ice



Photo by Kristan Hutchison / The Antarctic Sun

Undergraduate researcher Erin Whorton at left and Field Safety Training Program mountaineer Susan Detweiler use a hand tool to drill holes in the side of the Taylor Glacier for instruments to study the glacier's dynamics. (See more photos and story on page 7.)

Taking a crack at ice

Researcher studies sea ice breakup

By Emily Stone

Sun staff

Most people walking across ice hope it doesn't break. John Dempsey came to Antarctica to force ice to crack, and then study how it happened.

He's researching the speed and direction of ice cracks, and how cracking is affected by changes in temperature, salinity, and the microstructure of the ice. He is focussed on how warmer ice breaks.

Dempsey, a professor of civil and environmental engineering at Clarkson University in Potsdam, New York, left McMurdo Saturday after seven weeks here. His field work was done at the group's sea ice camp, dubbed Stonehenge because of the large, rectangular slabs of ice the researchers stood on end after cutting the slabs to prepare for the experiment. Curious Adelle penguins stopped by every now and then to check out what the group was up to and seals occasionally used holes the group cut to come up for a breath.

See Sea ice on page 10

Creative minds, busy hands

Off-hours filled with arts and crafts

By Kristan Hutchison

Sun staff

People working in Antarctica tend to be crafty, turning idle hours into productive time. After work, many people keep their hands busy knitting, carving, or otherwise creating.

"We're the kind of folk who can take baling wire and duct tape and turn it into something pretty impressive," said Barb Watson, instrument technician at Palmer Station, where arts and crafts are perhaps the most popular.

Without a recreation department, people at Palmer must entertain themselves, and they often turn to crafts. Watson estimates that half the station's population create something artistic as a hobby. This year, watercolor and other fine arts are common, but people also are using pinhole cameras, doing silkscreen, making UV prints, carving wooden puzzles and cre-

See Crafts on page 8

INSIDE

Melting spurs
runway switch

Page 3

Pole electrician is
wired to wander

Page 12

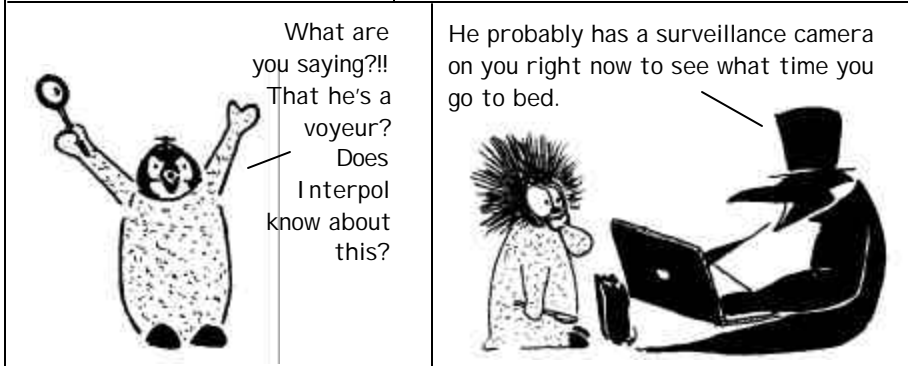
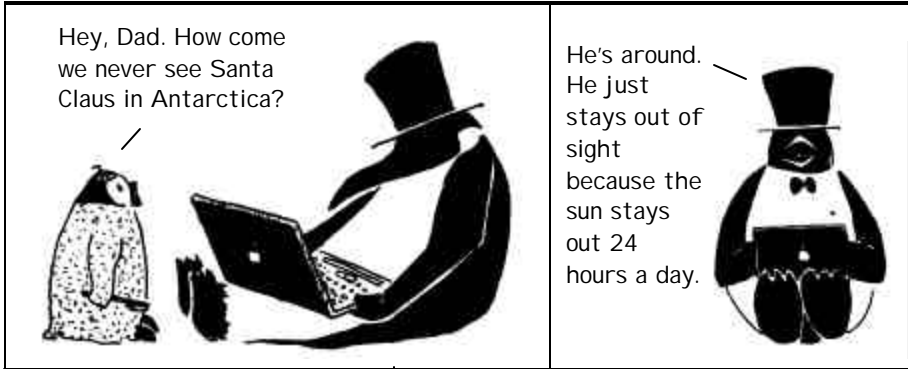
Quote of the Week

"Being a DA is like being a mom
to a thousand children."

- Dining attendant at dishwasher

Ross Island Chronicles

By Chico



Cold, hard facts

A little housekeeping

McMurdo
 Janitors: **22**
 Total years of higher education: **128**
 Lightbulbs used in just dorm 208 since August: **260**
 TP rolls used in a week: **1,100**
 ... Cray Lab men's room: **78**
 Kg/day of dirt swept from main building: **2**
 ... hours to sweep dirt daily: **6**
 Paper towels used in a week: **104,750**
 Rooms prepared this season: **1,469**
 Kg/week of hair cut at salon: **5**

Pole:
 Janitors: **2**
 House mousers (residents on rotating cleaning duty): **200**
 Shower minutes per week: **4**
 Indoor bathrooms: **14**; Outhouses: **5**

Palmer:
 Janitorial duty: **House mouse**, sorted by a drawing for assigned duties
 Fastest kitchen cleanup: **25 minutes**

Sources: station services personnel

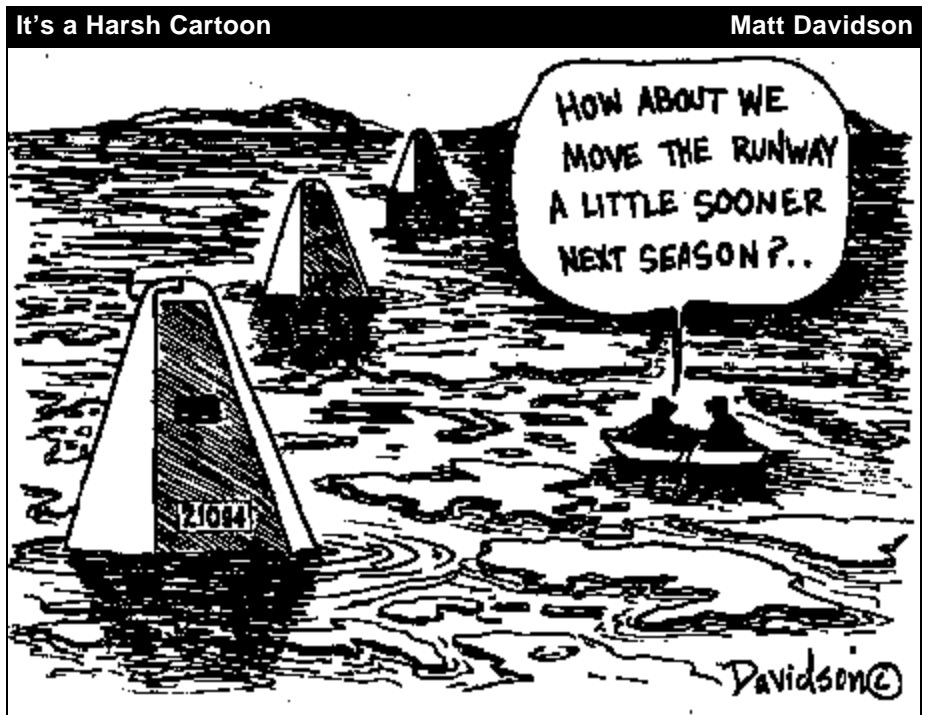
The Antarctic Sun is funded by the National Science Foundation as part of the United States Antarctic Program (OPP-000373). Its primary audience is U.S. Antarctic Program participants, their families, and their friends. NSF reviews and approves material before publication, but opinions and conclusions expressed in *The Sun* are not necessarily those of the Foundation.

Use: Reproduction and distribution are encouraged with acknowledgment of source and author.

Senior Editor: Kristan Hutchison
Editors: Brien Barnett, Emily Stone
Copy Editors: Hunter Slaton, Karl Horeis, Amanda Barnett
Publisher: Valerie Carroll, Communications manager, RPSC

Contributions are welcome. Contact *The Sun* at antsun@usap.gov. In McMurdo, visit our office in Building 155 or dial 2407.

Web address: www.polar.org/antsun



Annual trek from sea ice to Williams Field made early

By Emily Stone

Sun staff

The warm weather and sunshine that have made McMurdo Station such a pleasant place recently have wreaked havoc on the sea ice runway, which is now closed for the season.

The runway is switched about this time every year from the sea ice to the Williams Field Skiway on the ice shelf. Williams Field, which is used by ski-equipped aircraft like LC-130s and Twin Otters, is the station's runway for ski-equipped planes from December to February. It also operates as the station's only usable runway during the interim each year between the closure of the sea ice runway and the opening of the Pegasus White Ice Runway.

This year Pegasus is scheduled to open around Jan. 3, said Gary Cardullo, the U.S. Antarctic Program's airfield manager. In the meantime, there will be less cargo coming into McMurdo because no wheeled planes will be able to land for a few weeks. There will still be regular flights by LC-130s, which have both wheels and skis.

The date of the move to Williams Field was set for Dec. 18 this year at the annual U.S. Antarctic Program conference. The move is always planned for a weekend so there's the least impact on flight schedules. Because the ice deteriorated so quickly this season, the move was made immediately on Wednesday and Thursday, Cardullo said.

"The sun just came out and cooked it," he said of the sea ice.

Changing runways means far more than simply redirecting planes. More than 30 buildings along with navigation systems, cargo facilities and other equipment to support aircraft operations are moved as part of the detailed relocation plan.

All the buildings at the runway sit on skis, and are towed from the sea ice to Williams Field by tractors. Once they are set in place in neat rows, electrical lines are attached to the tops of each building and plumbing is connected below to the buildings that need it.

The moves to Williams Field and then to Pegasus are necessary because wheeled aircraft can't land at Williams Field.

Williams Field, a snow-based runway on the Ross Ice Shelf, can support ski-equipped planes but not wheeled planes for the same reason that when you're in the woods on a winter day, you can often ski across snow that you would sink into if you stepped on it. Earlier in the season, Williams Field is used as a backup runway for ski-equipped aircraft. So it was ready to accept aircraft on short notice when the



Photos by Emily Stone / *The Antarctic Sun*

Top, the sea ice runway on Dec. 6, its last full day in operation. All the buildings and equipment were moved to the Williams Field Skiway later in the week. Above left, the skier maintenance tower, used to coordinate aircraft maintenance and ramp activities on the airfields, is towed from the sea ice runway to Williams Field. Above right, plumbers, from left, Roger Edeker, Lucky Stamp, Walt MacLaughlin and John Clampet attach an insulated pipe to the dining hall at Williams Field.

move was completed earlier than expected. It will continue to be used by ski-equipped planes through February.

The sea ice runway and Pegasus can both take wheeled planes, but neither runway stays open all year. By mid-summer the surface of the sea ice forms melt pools, making it dangerous to operate planes. Pegasus has a more consistent surface, but it is nearly 30km away.

Pegasus is also a labor-intensive site to maintain. It takes about 10 weeks to prepare the runway, because snow needs to be compacted over glacial ice — hence the term white ice — in order to support the wheeled planes. This annual requirement

to cover the glacial ice with snow to protect it from melt pools is another reason why Pegasus is not used all season.

Historically, this is about the right time of year to move the runway. The sea ice runway lasted longer into the summer the past two years and didn't have to be moved until after Christmas. It's not clear why this year was different. Factors could include less snow cover or more sunny days this year. Regardless of the cause, it was clear that the runway needed to be switched. Cardullo said that puddles as deep as half a meter were forming quickly on the ice. These pools can be treacherous for aircraft.



Perspectives Perspectives

Pain and suppering

By Delma L. Irvin

The first time I ever thought about working in Antarctica was about four years ago. A headhunter contacted me. It sounded like a weird job, but as a joke, I replied. All I had left for printer paper was peach-colored heavyweight sheets because my kids and wife had used up the white paper for school projects. Why not, I said, let's give it a whirl. So off goes my credentials and application. I wasn't really too concerned.

A year later the phone rings. I answered and the voice on the other end says "Yes, good morning, may I please speak with Delma?"

"This is him," I replied in my baritone man's voice.

There was a long, dramatic pause on his end. Eventually the conversation continued, and led to three phone interviews, a free weekend in Denver, and ultimately a job. I left my beautiful wife Carol, my daughter Sam, my son Rain, dogs, home (two blocks from the beach), friends, sunshine, and everything else I hold dear back in Florida. What was I thinking?

It didn't start out so well. My third day on station, I was walking home wearing my slippery bunny boots. I went down hard. Completely horizontal, arm fully extended. I broke my wrist. But those who know me know I have to take it the extra mile. I

rolled to and fro like a seal having a seizure trying to get enough momentum to get on my belly, because I was wearing not just some of my ECW gear. No, Delma was wearing all of it. Finally I got back to my feet only to go down hard again. But I wasn't "falling" for that one again. I folded my arm, landed on my elbow and fractured it. Whoops.

Three years later, I have a job like no other with challenges and puzzles that have to have pieces fabricated to solve. There are 58 employees in the McMurdo

galley, and they all work very, very hard every day. It is not like we are getting a write-up in Zaggats, or Michelin is beating the door down to get a Mother's Day reservation.

Keep in mind that the dining hall is the only work center that gets inspected by every person on station, four times a day. We don't go to the carp shop and say, "Who built that fish hut? Ray Charles?" Nor do we pretend to know how to bend a wrench at the heavy shop. I can tell you, my friends, it is not the money or the prestige of wallowing in 1,200 pounds of raw chicken breast the community goes through in a week. Nor is it going home and crawling into bed after a shower, still smelling like seafood, or onions, or both.

We do this to serve you — our friends, co-workers and the folks we don't know. We do this because we love people, food, and the experience of dining.

I learn something new each year. I understand how what I do affects other departments. If you ever get the chance to go to a field camp, you will understand the importance of a cookie or a salad or putting fresh milk in your coffee.

It is the community that makes this place so special. It's great when someone remembers my wife's name, or knows that my dog got hit by a truck last Saturday. Character goes

a long way, and that's what I look for in my team. If you are a hard worker who is loyal, professional and has the desire to adapt to change at a very rapid pace, sign yourself up.

Thank you to all the people who help us when we are "down." We are a proud bunch who does not like to ask for hand-outs. My hat is off to you. And to everyone out there who puts in an honest day's work, thank you also.

This place I never intended to come to has had a profound effect on my life. In



Photo by Emily Stone / The Antarctic Sun
Delma Irvin is the head chef at McMurdo Station.

the beginning, all I wanted was to build my resume. When I eventually leave, I will appreciate all things in my life a little bit more. I know firsthand what it feels like to be cold, tired and hungry.

Even though someone thought that I was a middle-aged black woman because I sent my resume on peach paper and did not answer the equal opportunity questions or circle a title on the application, they went out on a limb. They hired an abrasive young white man. I, in turn, will go out on a limb for them by making positive changes to what I think is a great program. Even though my intentions are not what I initially intended, I look forward to many more successful seasons on the ice.

So the next time you say "Aw shucks, there's no garden salad?" when you've already had one three times this week, or when you blow up at the new dining attendant who drains the Frosty Boy machine during lunch, take a deep breath and realize that we work for you. Within reason we will get you what you need when you need it. We are all in this together.

So if you are bummed because we no longer have birthday cakes, or your knickers are in a twist because there's no lox in sight, my heart goes out to you. But this is a remote work site and ... it's a harsh continent.

around the continent

SOUTH POLE

Chilean traverse arrives

By Brenda Everitt
Pole correspondent

A Chilean scientific and support expedition arrived overland from Patriot Hills last week. It's mission was to study climate and environmental change during the past 200 years by means of firm cores and snow accumulation radar. The expedition is making a scientific contribution to ITASE, the International Trans-Antarctic Scientific Expedition. The team also is measuring ice depth and subglacial structure, taking GPS and gravity measurements, and studying ice dynamics by means of ice velocity measurements along the route.

The team's convoy consisted of a Swedish-made tractor pulling three trailers. The team met with South Pole Station and science leaders after arriving. They also worked with several groups at the station. The team leaders gave a well attended talk in the dining hall on Dec. 3. Lorenzo Urrutia, the expedition support leader, and Gino Casassa, the scientific leader, as well as several team members thanked station management and discussed the traverse from Patriot Hills to South Pole.

The Chilean team overcame several obstacles to reach the Pole. The convoy encountered deep snow that slowed navigation. In some areas, the team was forced to detach the three trailers and pull them one at a time through rough patches. They also encountered a meter-wide crevasse. The team will plan to return along the same route to Patriot Hills, with the addition of a side trip to the Thiel Mountains to set up a GPS site in one of the nunataks. The team plans to leave their convoy vehicles at Patriot Hills for potential future missions.

In recreation, James Brown hosted "Full Frontal Bingo — Part 2, A night of Dementia and Debauchery" in the new dining facility Dec. 4. Brown "took it up a notch" from last month's "Bingo — Part 1." Polies are eagerly anticipating next month's "Bingo — Part 3" to see if there will be a repeat performance of the gingerbread house destruction that occurred last year.



Members of the Chilean traverse project signal success at reaching South Pole Station after a long journey from Patriot Hills. The team received some support at the station, including maintenance space at the American station.

Photo by
Scot Jackson /
Special to
The Antarctic Sun

The band "Fingie Lickin Good" performed afterwards in the Summer Camp Lounge to rave reviews.

Residents went outside to participate in the first of three South Pole Snow School "Happy Camper" safety training sessions. The class is significantly shorter than the McMurdo version. The South Pole version features a two-hour orientation Friday night followed by a camp-out Saturday night and return to the station before brunch Sunday morning. The leader and a dozen class participants were dropped off several miles from station on Dec. 4, which happened to be a day with a record-setting peak winds of 45kph.

Campers built snow walls and set up several types of tents, including a classic Antarctic-style Scott tent. Two snow walls were built from snow blocks that were literally sawed from firm snow underfoot. Many of the class participants also dug various styles of snow trenches and tried sleeping in them. Instructor Mike Roberts noted that the South Pole class seemed exceptionally energetic.

"I was amazed at the enthusiasm of the class, and the fact that, after a full week of hard work, folks not only enjoyed pitching tents and building snow walls, but then embarked on snow trench projects as well," Roberts said.

This week also marks the first week no new suspected cases of the Influenza A virus were seen in South Pole Medical, after affecting many people at the station earlier this season.

PALMER

'Time, place, imagination'

By Kerry Kells
Palmer correspondent

The past week at Palmer we were surrounded by heavy sea ice and calm, snow-filled weather. Our last science lecture was by David Bryant with Tad Day's project from Arizona State University Tempe. The lecture was based on his dissertation and titled "Forest Nutrient Cycling and Ecosystem Development on Landslide Deposits of the White Mountain National Forest," research that he shares with several colleagues.

Currently on station is our visiting artist and writer, Jude Nutter, who is both a poet and a visual artist. At the Wednesday night lecture two weeks ago she asked the group to write a poem looking at a subject from thirteen different viewpoints. The results will be read this Wednesday night. Nutter comes to Palmer Station for five weeks on an NSF program for artists and writers.

Originally from north Yorkshire, England, Nutter has been intrigued with Antarctica for many years. From a history of travel and life in extreme places — she has traveled in Iceland and northern Scandinavia and homesteaded in Alaska — Antarctica was a natural destination. She chose Palmer Station for the small size and

See Continent on page 6

the week in weather

<p>McMurdo Station High: 43F / 6C Low: 23F / -5C Max. sustained wind: 38mph / 61kph Windchill: -5F / -20C</p>	<p>Palmer Station High: 44F / 7C Low: 29F / -1C Max sustained wind: 32mph / 51kph Melted Precipitation: 12mm</p>	<p>South Pole Station High: -14F / -25C Low: -19F / -28C Peak wind: 30mph / 48kph Max physio-altitude: 3156m</p>
--------------------------------------------------------------------------------------------------------------------------------------	-----------------------------------------------------------------------------------------------------------------------------------------	-----------------------------------------------------------------------------------------------------------------------------------------

Continent From page 5

intimacy of community and the chance to get to know one place in depth. While she has an extensive list of awards and nominations, numerous publications and credits, two published works of poetry and two books forthcoming, she spoke more in depth about what she hopes to make of her experience at Palmer Station. She came here with no expectations yet knew that Palmer Station and Antarctica would be full of strange paradoxes and dichotomies. Some were suspected and others continue to emerge.

The Science Planning Summary describes Nutter's project as one that concentrates on "Time, Place and Imagination." Nutter "anticipates producing a series of poems written in response to the Antarctic landscape as well as to the history of Antarctica and the internal landscapes of those who are drawn to such an environment." She mentions that the experience of landscape is not just the experience of physical location but that we "filter landscapes according to our own sensibilities, expectations, history and moods." The sense of history in Antarctica has less to do with human history, she says, as it lacks an indigenous culture, and more to do with geological history, and Nutter is interested in exploring how our perceptions of and metaphors for Antarctica have changed with 24-hour on-line and telephone accessibility to the outside world. How, she asks, has this "accessibility changed the literal and figurative landscape that we perceive?" The extreme landscapes of such places teach us humility, she says. When we are in this environment, "we can forget our own grandiosity and our own grand plans." Even if we try to manipulate the landscape, the natural world always wins, proven in the history of the explorers and hinted at by iceberg B-15. Yet how will these continued changes — including the

South Pole traverse project — alter the experience of the Antarctic landscape?

While going out boating with the Birders, Nutter mentions that in leaving station and looking back from the water, the glacier and mountains in the distance give a new perspective to the station. For her, the Birders themselves have come to embody the "internal landscapes" of the people drawn to live and work in Antarctica. And yet there is irony in coming to Palmer Station. Even here at a continent so isolated and vast, at the top of the glacier are visible search and rescue gear and snowmobiles, signs that humans are near and present.

With her poetry assignment, Nutter applies a tool of teaching she uses in the school system. Because we live in the world of the "10-second sound bite," the use of writing on one subject from thirteen different perspectives forces us to focus. The subject can be an emotion, color, object or person that is then explored in a variety of ways: through observations, statements and images (simile and metaphor). This poetry assignment idea stems from the poem by Wallace Stevens "Thirteen Ways of Looking at a Blackbird." The final poems will be read at the Wednesday-night science lecture. Maybe one or two of these poems will be submitted for *The Sun's* photo and writing contest.

SHIPS

Nathaniel B. Palmer

Compiled from reports by Karl Newyear

The *Nathaniel B. Palmer* crossed back into eastern longitudes and exited the pack ice Dec. 1, although the crew still was seeing isolated bands of brash and occasional icebergs. The weather was beautiful and the seas were calm, allowing the ship to make good time on the journey north, collecting samples along the way. Those on board

were busy working on their end-of-cruise reports, polishing up data, and packing up gear. They saw few whales, though a sperm whale song was recorded. The ship arrived in Lyttleton, New Zealand, Dec. 8, ending the cruise. It will have a brief port call there while the next set of scientists arrive and the ship is prepared for another 38 days of research at sea.

Laurence M. Gould

Compiled from reports by Skip Owen

The *Laurence M. Gould* arrived in the vicinity of Elephant Island Dec. 1 and was able to collect samples of the marine life with tows, trawls and grabs, as well as surveying the bottom with a remote operating vehicle. But increasing winds delayed plans to send six divers to collect salps, a gelatinous marine animal being studied by biological oceanographers Pat Kremer and Larry Madin. The *Gould* continued overnight to a sampling site near North Foreland on King George Island and by mid-morning the winds had abated enough to allow for a productive dive. The diving efforts, often at night, continued to bring in "plenty of salps to keep all happy," wrote marine projects coordinator Skip Owen as the *Gould* continued across the Antarctic Sound and then through Bransfield Strait. During the day, the crews collected more marine samples and bottom surveys.

Polar Star

Compiled by reports from Amy Shields

The U.S. Coast Guard icebreaker *Polar Star* arrived into port at Hobart, Tasmania Dec. 7. The crew and scientists are settling in, preparing the ship and getting everything ready for the voyage south. The *Star* was scheduled to leave Dec. 11 for the Ross Sea and begin its duty conducting research and breaking ice into McMurdo

Continental Drift

What's your ideal care package?



"I don't get care packages. No one cares."

Brett Pickering,
Palmer Station
field biologist,
LaJunta, Colo.,
eight seasons



"A pound of good coffee and a press."

Katie Togneri,
McMurdo
telecom tech,
Oakland, Calif.,
first season



"Haagen-Dazs Coffee Ice Cream and pony rides around the pole."

Holly Carlsen,
South Pole
materials,
Salt Lake City, Utah,
six seasons



Undergraduate Erin Whorton and mountaineer Susan Detweiler approach the top of the Taylor Glacier. They drilled holes along the way in which to place instruments to study why the glacier ends in a vertical face. At top, the climbers are dwarfed on the wall-like edge of the Taylor Glacier as it extends down the valley to Lake Bonney.

Ice cliffs a mystery

The white wall of the Taylor Glacier cracked and rumbled in the afternoon sun.

Slabs of ice crumbled off, but the wall remained a solid vertical face, 30m high and stretching up the valley.

Wearing helmets and harnesses, a researcher and a mountaineer dangled half-way up the wall, placing stakes to help them understand why the Taylor Glacier ends in an ice cliff.

“We’re hoping to learn the balance between the outward movement of ice in the cliff, melting back of the cliff face and calving of ice blocks,” said Erin Pettit, the lead field researcher for the glaciology project from the University of Washington. “It always ends up balancing.”

Ice cliffs are unique to glaciers ending on dry land in polar regions. Glaciers in more temperate areas, often called warm glaciers because they hover near freezing, usually slope down at the end.

“When we first got to the Dry Valleys one of the striking things is that all the glaciers have these really spectacular terminal cliffs,” said glaciologist Bernard Hallet, who stayed at the University of Washington while Pettit leads the Antarctic field team this season.

See Ice cliffs on page 8

Ice cliffs From page 7

"I'd never seen anything like that," Hallet said. "Most glaciers you can just walk up on the end, so they have a very gentle terminus. So why is it so different there?"

The only glacial ice cliffs in low latitudes are rare exceptions on high mountains, including Mt. Kilimanjaro, Hallet said. Even in Alaska, around Mount Denali, the glaciers slope down rather than creating vertical cliffs. In Alaska, only glaciers ending in the water create similar sheer cliffs.

"I think temperature plays a big role, both the temperature of the ice and the thermal influence just in this area," Pettit said. "The cliffs are the boundary formed by the contrast between the steady temperature of ice within the glacier and the daily and seasonal fluctuations in air temperature."

The Antarctic glaciers are much colder than temperate glaciers — so cold that glaciologists have been surprised that the ice still slides over the ground below. Taylor Glacier is about -17°C , Pettit said.

Better understanding the movement and processes of the Dry Valley glaciers will help glaciologists determine how the glaciers may have interacted with the landscape and what that means about the historic climate. The Dry Valley glaciers also may help glaciologists understand the more complex processes creating ice cliffs in marine glaciers.

Last month the nine members of the field team planted two rows of 2.5m stakes up the glacier's side. Each stake has a thermometer in the end and a pitch sensor to indicate the movement or tilt of the ice. The stakes were also marked to measure the amount of meltback that occurs in a season.

In addition to the cliff instruments, the field team has installed a number of surface stakes to measure glacier motion and seismometers to record glacier fracturing, crevassing and calving. They are also drilling for ice samples and taking a series of photos documenting the evolution of the ice cliffs.

The research team will return at the end of next summer to collect the data and remove the stakes. Ultimately, the data will be used to create a computer model of ice cliff evolution.

NSF-funded research in this story: Bernard Hallet, University of Washington.



Researcher Erin Pettit preps a power drill before sending it up on a rope to members of her team suspended on the glacier face above.

Crafts From page 1

ating handmade knives from scraps of wood and metal. The boating coordinator, Toby Koffman, is making a didgeridoo.

On Sundays some of the weekend artists bring their work to the lounge that doubles as a bar to socialize while they create. Often people are inspired by each other, and if one person has a skill they teach others, Watson said. She also organizes craft events using materials found in the station recreation supply, such as tie dye, batik and soapmaking.

"Everybody's got this exploratory spirit," Watson said. "You think 'oh, I've never done this before, but it would be really fun for me to try.'"

Two other Palmer hobbyists, maintenance tech Zee Evans and painter apprentice Kelsi Griswold, organized an art show in the bar Dec. 10 for people to show their work. Holly Carlson organized a similar event this weekend at the South Pole.

"There's a lot of creative people here," said Carlson, who works for the material

"It keeps my hands busy and away from comfort eating."

supply department at South Pole.

McMurdo Station's arts and crafts show is Dec. 19. So far about 20 people have signed up to show their work.

Knitting is popular at all three stations. "It's really portable, which is really nice for traveling," said Nancy Farrell, who learned to knit in McMurdo four years ago.

In McMurdo, crafters gather on Tuesdays nights and Sunday afternoons in a dorm lounge for company while their hands are busy. An average of about 10 people attend, most often to knit, but sometimes to crochet, quilt, spin wool or

bead jewelry.

"It keeps my hands busy and away from comfort eating," said Diane Scott, nimbly looping yarn with a crochet needle as she worked on her third afghan of the season. Her answer drew understanding chuckles from the other women in the room.

"It's also a good comradery to just join in with other women," Scott said, "and you're not talking about work."

The comradery and crafts aren't limited to women. Many men take up knitting in Antarctica. Trace Wright first picked up a pair of needles at the South Pole, learning from Lisa Atkins. Most Sundays he sits by a window in the Pole dining hall, trying to perfect his signature "tooks," or hats.

"I just anchor myself right here and hope quality conversation comes along," Wright said. "It's just a ploy to suck people in."

Often people decide to learn to knit

See Crafts on page 9

Crafts From page 8

when they see what others are making. Julie Raine learned last year in McMurdo and now is teaching her friend Sally Applebaum.

"I liked the hats that Julie made," said Applebaum, a researcher.

Since new knitters can't just go to the store to buy needles, the McMurdo carpenters made a few pairs of extra-large ones out of scrap dowels on their own time. The large size helps new knitters finish their first scarf project quickly, and get hooked on the satisfaction of creating something. Experienced knitters sometimes bring extra supplies to share and The Knitted Peace in Colorado and Knitworld in Christchurch also donated some supplies. Knitters and crocheters often buy their supplies of yarn in New Zealand on their way to the Ice, since it's a country well known for its wool.

"They're a good source," Scott said.

Almost covered in colorful patchwork, Jessica Walker patiently pulled the needle in and out of the queen-size quilt she's been stitching for three winters. When she packed for Antarctica, she entrusted it to the mail.

"I figured there'd be some down time," Walker said. "There's actually less than I thought."

In the winter at McMurdo, a group of Antarctic quilters has been hand-stitching a quilt each year since 2001. The quilt they create is raffled to raise money for charity and in the past four years they've raised \$6,000, said Cheri King, a member of the quilting group and finance representative at McMurdo Station. Some of the money is set aside to buy the fabric and supplies for the next winter's quilt project. This year the Viking Sewing Machine company in Ohio donated a machine for the quilters to use for the initial piecework. Then the quilting is done by hand at old-fashioned quilting bees.

"It's so fun, it's addictive," King said. "It's a good place to learn and there's a lot of expertise down here."

Not all the crafts are warm and fuzzy. Carpenter's helper Sara Haynes builds furniture in the South Pole carpenter shop after work. She brought several books on furniture design.

The beadwork Cheri Dailey does fits in her small room in a Jamesway at the South Pole, but she still has to overcome the cold that creeps over her feet as she strings beads. Water bottles



Photo by Kristan Hutchison / The Antarctic Sun

Julie Raine shows Sally Applebaum how to knit a hat. Behind them, Diane Scott crochets an afghan. The crafters meet Tuesdays at 7 p.m. in the second floor lounge of dorm 208 to keep each other company while they stitch and share tips.

have been known to freeze if left on the floor. Still, she finds working with multi-colored beads a satisfying counterpoint to the white landscape outside.

"I'm inspired down here, ironically, because of the lack of color," she said.

Sometimes Antarctica inspires people to find creative outlets they wouldn't have thought of elsewhere. Production cook Tina White picked up a pool cue ball at McMurdo two years ago and found a new career as a scrimshaw artist.

Since then she's carved about 120 cue balls, as well as pendants and small desk ornaments. During her months off the Ice she turned the hobby into a business, doing work mostly on commission. Each ball takes from seven to 14 hours, depending on the intricacy of the design. Often the carvings are personalized, such as one she carved for fish researcher Art DeVries that includes many of the species he studies.

"I can totally lose myself for hours," said White, who carves in her dorm room after work and on her day off. "My days off go so fast, even though I've



Photo by Kristan Hutchison / The Antarctic Sun

Tina White etches a pendant with the image of Shackleton's ship, The Endurance. White does her scrimshaw most afternoons after work. Right, the quilt sewn by hand last winter by a group at McMurdo Station features common Antarctic images, including flags marking routes, the chapel and a penguin.



Photo courtesy of Cheri King / Special to The Antarctic Sun



Photos by Emily Stone / The Antarctic Sun



Above, Geoffrey Morley, left, and Matt Irinaga prepare the sea ice for an experiment at the field camp on McMurdo Sound, nicknamed Stonehenge because of the large ice blocks that the group stood on end. The science project is looking at the speed and direction of sea ice fractures. At right, Matt Irinaga cuts away the edge of a 5m by 5m block of ice that will be used in an experiment to see how sea ice cracks.

Sea ice From page 1

Dempsey's conclusions could have several uses. Understanding the fracture mechanics of ice will help scientists study the effect of climate change on the break-up of sea ice. Little is known about how sea ice cracks, despite the fact that an awful lot of ice is floating around the cold parts of the world. Dempsey said it's necessary to understand how sea ice fractures in order to understand if it is fracturing differently as global temperatures warm.

On a more practical level, the research could give McMurdo Station's logistics planners a better understanding of how the ice will crack when the icebreaker makes its annual trip through McMurdo Sound. The research also could help people understand how and when ice will crack if heavy equipment is put on it. For example, if a plane has to make an emergency landing on thin ice, how long can it stay there, and what part of the ice is most likely to crack under the plane's weight?

"It's a rare opportunity to study very warm ice," Dempsey said.

The large icebergs that are preventing McMurdo Sound's sea ice from fully breaking up are doing Dempsey a favor. They're creating a stable work surface for him. Usually, he said, everyone would worry that a storm would come in while they're working and they'd float away on broken ice. The icebergs are ensuring that won't happen this year.

On a windy day a couple of weeks ago, Dempsey and his two logistics specialists, Geoffrey Morley and Matt Irinaga, prepared the ice for an experiment.

"There's a natural enjoyment in just breaking things."

— *John Dempsey,*
ice researcher

Morley and Irinaga cut three 5m by 5m squares in the ice using a chain saw and a large hand saw. The squares were cut away on all sides so they floated freely next to each other and bobbed slightly as the men walked across them. Then Morley used a larger chainsaw mounted on a cart to cut a thin slice into the square that ran 2.5m from the middle of one edge to the center of the square.

Dempsey worked inside a nearby Scott tent, surrounded by computers and cables hanging from the tent wall, and set up the group's electronics. Outside, Morley and Irinaga placed a series of gauges on either side of the thin slice to measure how it cracked during the experiment. The gauges were connected via cable to Dempsey's computers. A metal bladder was slipped into the thin crack. Then Dempsey told the computer to start filling the bladder with nitrogen gas to make it expand.

"It's starting now," Dempsey said via radio to Morley who was standing outside.

"All the best, mate. All the best," Morley replied.

A few seconds later, the thin slice opened and continued through the rest of the block in an angled crack. Ice, like wood, has a grain to it. A crack will move along the easiest route in a piece of ice, but will change direction when it crosses to a new piece of ice, which has its own grain. That's why long cracks tend to zigzag as they spread over large sections of the ice.

Dempsey came outside the tent to inspect the crack.

"There's a natural enjoyment in just breaking things," he said, happy with how the experiment had come off after so many hours of hard labor to prepare for it.

Dempsey will analyze his data more closely back in the States, and hopes to have a preliminary sense of his results by January. But, he's already concluded that the ice this year is extremely durable.

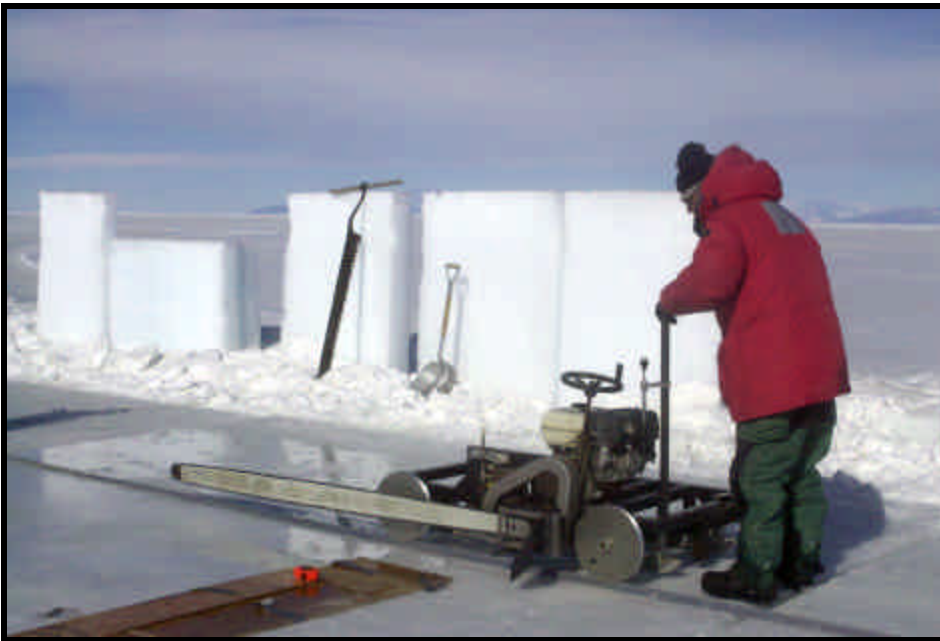
"This ice is like plastic," he said.

Warm ice has lots of briny liquid floating around inside it, causing what Dempsey calls "sloshy inertia." This keeps it from cracking quickly.

Dempsey had hoped to do 10 controlled cracks in the field during his time at McMurdo Station. He was able to do four, which was still a success, he said. Part of the problem was that at 1.65m, the ice was thicker than he expected and it took longer to cut away each block for the experiment.

"I shipped an ice saw and blade that I hoped I would never have to use," he said, but the team quickly began using the longest blade.

See Sea ice on page 11



Photos by Emily Stone / The Antarctic Sun

Geoffrey Morley uses a chainsaw mounted on a cart, which runs along a track, to cut a thin slice into a square of sea ice on McMurdo Sound. Later, a steel bladder will be placed in the slice and expanded, to learn more about how sea ice cracks under pressure. The hand tools used by John Dempsey's group stand in the snow near the experiment. Below, principal investigator John Dempsey and Matt Irinaga look at the crack that occurred in the sea ice after the men staged an experiment to measure the speed and direction of an ice fracture. The instruments on either side of the crack are gauges that were hooked up by cable to computers to monitor the cracking.

Sea ice From page 10

He also was slowed when his lab testing machine proved too large to get through the door of his freezer at the Crary lab. Workers took apart the front wall of the freezer to get the machine in. It will stay there until next year when Dempsey returns to do more tests.

Dempsey said he believes he's the only person doing this type of research in the field as opposed to in a lab. This is an important distinction, he said, because it's impossible to keep ice exactly the same when you move it to a lab. The warm, watery ice he's studying now is particularly problematic.

"If you took a piece of this ice, it would run all over you," he said. "It would drain all out and then you're studying something else."

Dempsey is doing just that as part of his research. This year he took small beams of ice from the same area where he did his outdoor tests and brought them to an indoor lab. He'll crack that ice the same way he cracked the outdoor ice and will compare the results. This will tell him what adjustments need to be made for a lab test.

Dempsey wants to develop a model to translate lab results into results that would apply in the field so that more people can study ice fracturing without the expense of going into the field. It's the same idea that engineers use when they test the durability of a small piece of concrete and then adjust their results in order to calculate the durability of an enormous building.

Dempsey is also collecting horizontal ice cores to send to the U.S. Army's Cold Regions Research and Engineering Laboratory in New Hampshire. The project's co-principal investigator, David Cole, will conduct his own series of tests there, looking at the ice's microstructure, as well as stress and strain characteristics.

NSF-funded research in this story: John Dempsey, Clarkson University, http://www.clarkson.edu/~john/JPD_Docs/Award_Number_0338226.htm



Profile Seeking a challenge at Pole

By Emily Stone

Sun staff

Cassandra Banks likes to say that she got her job at the South Pole by the skin of her teeth. Literally.

She applied for an electrician's job working on the new station at the Pole at the same time that she applied to work in Kuwait, Afghanistan or Iraq. She got her braces off just in time to pass the dental exam to be approved for the Antarctic job.

"Things hinged on my teeth," she said.

So Banks, 48, ended up at the South Pole. And she's happy to be there. She's in the middle of her summer season, and is an alternate to stay for the winter. When she's done, she plans to apply for the Middle East position again. She's interested in the culture and history of the area, and has been learning Arabic with the help of a textbook in her off hours.

Banks has worked as an electrician for 24 years and said she hopes to retire in a few more. Before that, though, she wants to work in some unusual, and difficult, places.

"I'm in the sunset of my career," she said. "I just wanted to present myself with a few challenges."

Travel is nothing new for Banks. She grew up mostly in Augusta, Ga., but has worked all across the U.S. She spent four years in New York City working on the World Financial Center. She then moved to the Southern California city of Riverside, where she still lives. But she continued to travel around the country for work. On longer jobs, she'd set up a home for herself. On shorter jobs, she'd sometimes pitch a tent.

Banks credits her son with giving her a reason to learn a trade. She's a single mother, and when her son was three, she decided to stop working the odd jobs she'd done until then so she could provide a better lifestyle for him.

"When he came along, he gave me the momentum to be better," she said.

Banks passed on her love of travel to her son, Brennan, who is now 27. He was 13 when they were living in New York and Banks decided the schools weren't teaching enough geography. So she and Brennan began a tradition of picking a spot in the world to go to every year. Their destinations included Russia, Uzbekistan, Scandinavia, London, Paris, Mexico and Australia.

"That's where I got my bug from," said Brennan Banks, who's



Photo by Emily Stone / The Antarctic Sun

Cassandra Banks sits in the reading room at the new South Pole station before beginning her night shift as an electrician there. Banks, an avid traveler, hopes to go to the Middle East next.

currently living at his mom's house in Riverside after spending three years working in Africa. "She's got me beat now. She's down in Antarctica."

Brennan said he and his mother are extremely close even though they spend so much time apart.

"We always remain in contact, no matter what continent she's on or I'm on," he said.

He thinks it's great that his mother is in Antarctica. He has some reservations about her wish to go to the Middle East, but said he'll support her in whatever she does.

"She's a very strong, independent person," he said. "I know she'd be able to take care of herself. But I'm glad she went to the Pole."

Cassandra Banks' interest in Antarctica started when she saw a CNN story on the new South Pole station. She was intrigued by the remoteness and the challenge of working here. She started researching jobs online and found the electrician's position.

Her interest in all things electrical started when she was a kid.

"My mother would let me tackle things before she'd call the workman," Banks said.

Greg Weber, Banks' coworker on the night shift, said she is a focused worker who asks for help when she needs it and is happy to assist others. She's known for wearing a brightly colored Rastafarian hat to work every day.

While Banks is generally quiet at work, Weber said her love of reading and travel makes her a great conversationalist. She can talk easily about religion, politics and history.

"Luckily, Raytheon latched onto her before she went to the Middle East," Weber wrote from the Pole.

Banks said she particularly likes the solitude of the South Pole, which is a considerable contrast to life in Southern California. Despite all her travels and her eagerness to find adventure, Banks is drawn to quiet places.

Her favorite place in the world is a little town in Germany called Fritzlar, she said. It's a 1,275-year-old, walled-in town. Banks has friends there and they always have a busy agenda for her visits. She tells them she'd rather slow down.

"Let's just go in the backyard and look at the sky."



Photo by Emily Stone / The Antarctic Sun

Electrician Cassandra Banks laughs with her friend Kurt Montas, the human resources and finance coordinator at the South Pole.