The Antarctic Sun

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January 11, 2004

Photo by Kris Kuenning / The Antarctic Sun

Penguin researchers David Ainley and Louise Blight walk through the Adelie rookery at Cape Royds in November.

Difficult commute disrupts penguins' domestic duties

By Brien Barnett
Sun staff

Fewer Adelie penguins have been returning to their southern Ross Sea colonies to mate this season than last year, perhaps because the commute from wintering areas has been longer and more difficult than expected.

At Cape Royds, only about 1,500 breeding pairs were counted, according to penguin researcher David Ainley of H.T. Harvey & Associates. He said that means only about a third of the expected number of pairs returned this season.

At Cape Crozier, the largest of the Ross Island colonies, more than 70 percent of the penguins have mated, but only about three-quarters of the birds expected to show up actually did so.

"These colonies have been growing over the past few decades so our expectation would be they would be equal to what they were last year, particularly because conditions in the vicinity of the colonies are easier this year compared to last year," Ainley said.

Over the past few years, Royds was hard to reach because it was dozens of miles from open water, where the penguins gather food. Meantime, giant icebergs were hammering Crozier and creating massive ice rubble, forcing the birds to follow a different and difficult

See Adelies on page 12

Taylor glacier has a tale to tell

By Kris Kuenning
Sun staff

Locked in the world's glaciers, along with 75 percent of all fresh water, are the answers to many questions about Earth's climate.

Glaciers mark change by their movement, leaving in their path valuable records of past climate variation. Understanding their behavior now can help predict what might happen in the future, said Kurt Cuffey, a glaciologist from the University of California, Berkeley.

Antarctic glacial studies provide clues to the local ecosystem, but when the models are applied to the larger world, researchers can put together a picture of how temperature changes could re-draw the Earth's coastlines.

"If the glaciers melted, sea level would rise 200 feet (60 meters) and every coastal city in the world would be drowned," said Cuffey, who is studying the Taylor Glacier in the Dry Valleys with Dave Morse from the University of Texas.

The Dry Valleys provide a unique setting for studying Antarctic glaciers, Cuffey said. While much of Antarctica's glacial ice is chipped into the sea as icebergs, which float away without a trace, the empty valleys have been carved with a living record of the glacier's history.

Only 2 percent of Antarctica is not ice covered. Most of the exposed land is on the Antarctic Peninsula or juts from the ice in steep, bare mountains. The Dry Valleys are rare, low-lying areas, where a simple, delicate ecosystem is fed by glacial melt.

This ecosystem has been studied through National Science Foundation funded research for 10 years as part of the McMurdo Dry Valleys Long Term Ecological Research

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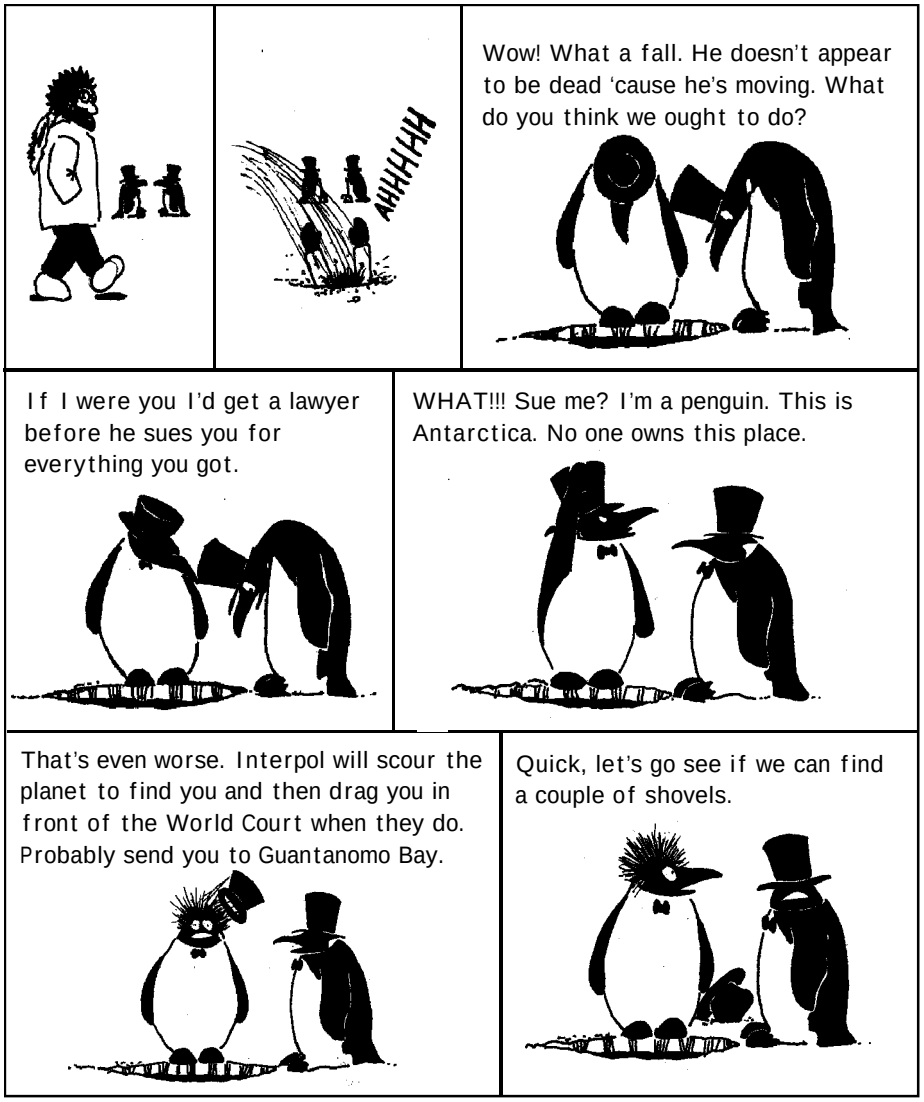
INSIDE

Quote of the Week

"It's like putting a bicycle on a six lane highway. It didn't do much."

- IT manager on increasing McMurdo bandwidth last week by about 150 kb

Ross Island Chronicles By Chico



Cold, hard facts

Roving Mars & Antarctica

Spirit: **Now exploring surface of Mars.**
Nomad: **Explored the remote Antarctic region of Elephant Moraine in January 2000 in search of meteorite samples**

Size:
Spirit/Nomad: **Both are about the size of a lawn tractor**

Weight:
Spirit: **180 kg**
Nomad: **725 kg**

Speed:
Spirit: **5 cm/second**
Nomad: **50 cm/second**

Power:
Spirit: **Batteries and solar panels**
Nomad: **Gasoline generator**

Some of the gear onboard:
Spirit: **Cameras, analysis tools, communications gear and antennas**
Nomad: **Cameras, spectrometer, GPS**

Source: Field Robotics Center, NASA

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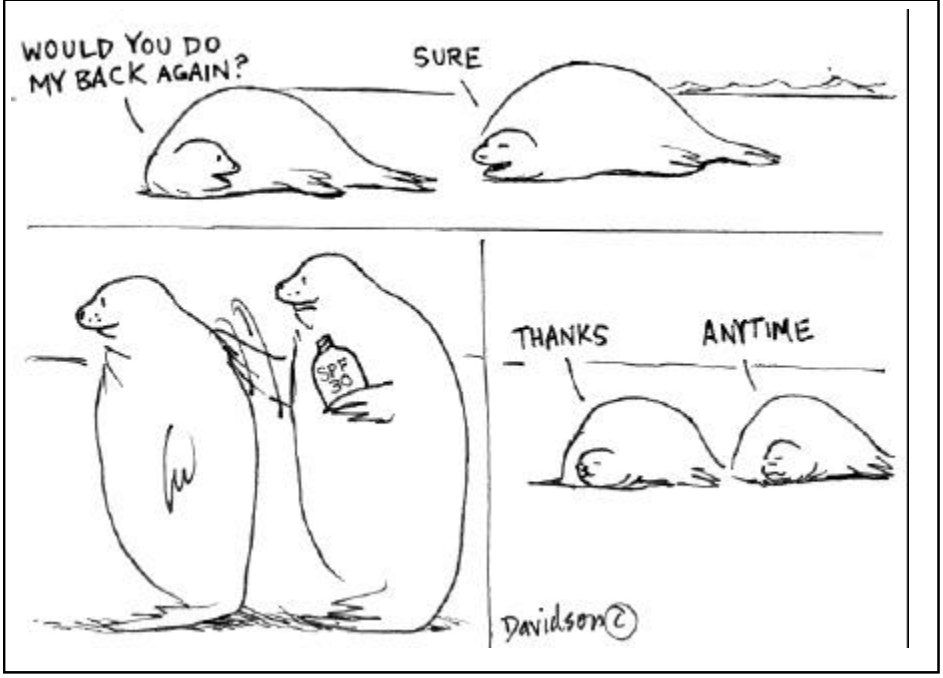

Ice pier serves as bridge to supplies

By Kris Kuenning
Sun staff

The U.S. Coast Guard icebreaker *Polar Star* slid and cracked its way through the ice this week, to tether its lines to a six-meter thick chunk of ice that has served as a floating pier at McMurdo since 1999.

As it edged close, the *Star* lunged onto the pier and took a 2-meter chunk from the side.

"It's probably just cosmetic," said McMurdo foreman Scott "Snackbar" Konu, who oversees the annual summer maintenance of the ice pier.

"This is the only place in the world where we moor up without tug assistance," said Coast Guard liaison April Brown. "We always give them something to do in winter when we hit the pier."

Ships, storms and sunny days all take a toll on the pier, which is why it is rebuilt every few years.

Floating ice piers have been used in Winter Quarters Bay since 1973. Prior to 1964, cargo was unloaded from the sea ice edge and transported to McMurdo by sled.

Starting in 1964, icebreakers were able to open a channel to Winter Quarters Bay, where ships moored directly to a vertical face of land-anchored ice. After several years, the land-fast ice eroded and so in 1972, a metal and steel protective dock was constructed. Most of the structure was destroyed almost immediately by a storm.

That same winter a block of ice was constructed, covered with straw and matting, and used as a fender for the tanker that arrived in autumn 1973.

The experimental ice fender showed that an ice pier was feasible and the first one was constructed the following winter.

"As far as I know, it is the only floating ice pier in the world," said fleet operations supervisor Gerald Crist.

Pier construction begins when the winter sea ice reaches a thickness of one meter, usually in April. Then, a 30 cm wall of ice and snow is built around the pier. Three pumps are drilled into the ice and the surface is flooded with seawater. Ten centimeters at a time, the pier grows to 3.5 meters and then almost 2,000 meters of steel cable is laid over the ice for support. Another layer of cable is added after another 1.5 meters of ice.

It takes around 150 million liters of sea water to make the pier.

To maintain the thickness of the pier, it is stripped of its insulating layer of rock each autumn and the snow is plowed off for winter. The water is a constant –1.8 C, but the air in winter is much colder than that. Keeping the ice exposed allows it to cool over the winter and minimize loss, Crist said.

Last winter, for the first time, fresh water was hauled from McMurdo's fire hydrants to flood the surface. Freshwater, with a higher freezing point, sets harder. The freshwater flood evened the surface of the pier and healed any minor cracks.

Kris Kuenning / The Antarctic Sun

U.S. Coast Guard icebreaker Polar Star *lies tied to the ice pier, which is covered by dirt.*

In spring, work began to ready the pier for the ships' arrival in January. The insulating gravel layer was spread back over the pier. The gravel also provides a good surface for loading vehicles.

Cables strap the pier to the land and mooring blocks are set into the structure.

After an early December storm, almost 30 cm of snow was removed from the pier, but melt puddles have now formed from the snow that settled into the gravel. A rock drill will be used to cut 10 cm drainage holes through the ice where the water accumulates.

In early November, the edge of the pier was stripped bare of snow. Natural melt and run-off was channeled into this "moat" to gather heat. This set the edge up for a clean break between the sea ice and face of the pier by the icebreaker.

A steel bridge spans the moat between the shore and the floating pier.

This year, divers measured the pier to be 6 meters deep. They also discovered that the back corner of the pier had grounded on the seafloor. The pressure of the grounding has created a visible ridge on the surface, which Konu said could be a point of weakness for the pier.

The next job will be to grade the surface of the pier smooth for the heavy traffic it will see when the re-supply vessel is unloaded and re-loaded in February.

When its lifetime is up, a permit from the Antarctic Conservation Act allows the pier to be released and towed away by the icebreaker. The pier's journey is tracked with a beacon and targets are mounted on the top to alert any passing ships. The last ice pier broke apart and was released in 1999.

Waves and large swells caused cracks which were reinforced each winter until finally, in the summer of 1999, the disintegration was beyond repair. One piece broke off and sunk. Another rolled like an iceberg.

Konu was working on the pier that day. "We were down there working and then we went to dinner. When we got back one piece had rolled over. It was quite a sight to see," he said.

The crew rushed to remove equipment and pull the connecting bridge to shore.

This ice pier was built in the winter of 1999. In the last few years, a giant iceberg perched north of Ross Island has prevented the ocean current from flushing broken sea ice out of the icebreaker channel. If the icebreaker can't tow the pier away at the end of the season, we're stuck with it, said Crist.

The icebreaker run-in doesn't seem to have done any major damage to this pier. Crist said small fracture cracks were probably a result of normal settling after the surrounding sea ice was released.

Crist said the stability of the ice pier is continually assessed, but they hope to use the same pier again next year.

"We don't know the health of the pier until vessel season is finished, but I'd like to keep it," he said. "The winter crew of 1999 constructed an excellent pier and it has been one of the best. We have grown rather fond of it."

Perspectives

Unseen life is abundant in the Dry Valleys

By Yvonne Baskin
Special to the sun

Standing in the Taylor Valley, it's easy to understand why Robert Scott proclaimed this visually lifeless land "the valley of the dead." Scott was wrong, of course, but he was hardly the first to overlook life right under his feet. Life not only persists in the mud, dirt, and meltwater of this ice-free bit of Antarctica but also fingerprints the landscape in ways too subtle for our unaided senses to detect.

Keeping tabs on the unseen world here requires work that's tedious, often exhausting, and – to an outsider — even a bit weird. I came to the Ice to see how it's done, and more important, to learn why as part of a book I'm writing on life in the Earth's soils and sediments.

Photo provided by Yvonne Baskin / Special to the Antarctic Sun

Yvonne Baskin stands at an overlook in the Taylor Valley.

At the south end of Lake Hoare, a meltwater offspring of the Canada Glacier, I watch as three people scurry about with gallon jugs. They shower sugar-water on the gravelly soil inside what appear to be translucent lampshades held down with stakes and bungees. Up the rocky slope, two other members of the team unbolt Bundt cake pans full of marbles from atop foot-high posts. Stacked to one side are daypacks jammed with plastic bags and little brown bottles of soil.

These researchers are known on the Ice as the wormherders because the chief beneficiaries of all their fuss are microscopic roundworms known as nematodes, microbe-munching critters that top the food chain of the McMurdo Dry Valleys. For more than a decade the wormherders, shepherded by Diana Wall of Colorado State University and Ross Virginia of Dartmouth College, have been probing, pampering and challenging the valley's three worm species – along with a smattering of fellow invertebrates known as rotifers and tardigrades (water bears) – to see what makes the food web tick, what life here is capable of, and how sensitive it will be to human-driven changes in the climate and environment. Their work is part of the Long Term Ecological Research project that targets the soils, streams, lakes, and glaciers of the Dry Valleys.

The annual dose of sugarwater the wormherders provide can spur growth of a microbial feast for some lucky worms; others get only an extra dose of water. The lampshade-style chambers protect some from chilling winds and the Bundt pans are designed to catch worms blowing around the valley. Back in the Crary lab, the team flushes worms from soil samples, then finally comes face to face with them under a compound microscope.

To soil ecologists, it's no surprise that nematodes are the most abundant animals in the Dry Valleys. Four of every five animals on Earth are nematodes. Pioneering researcher Nathan Cobb explained in 1914: "If all the matter in the universe except nematodes were swept away, our world would still be recognizable, …its mountains, hills, vales, rivers, lakes, and oceans represented by a film of nematodes."

The entire food web in the Dry Valleys is composed of what E. O. Wilson calls "the small things that run the world." Two-thirds of the Earth's biological diversity lives in its mud and dirt, providing the foundation for the Earth's food webs, decaying and recycling vital nutrients, renewing soil fertility, filtering and purifying water, and helping determine the fate of carbon and greenhouse gases.

This sheer abundance and complexity of unseen life, however, creates a nightmare for ecologists trying to determine the work and "worth" of individual species. Abundance is what Wall and her colleagues escape in Antarctica, along with the confounding presence of green plants that dominate most soils with their forest of roots.

"This is the only place where we can see the effect of a change or disturbance on an individual species," Wall says.

Life filters nitrogen and phosphorous from glacial meltwater, altering the chemistry of water at every step as it puddles in cryconite holes, pours into streams, and runs across the soil into the lakes.

"Everywhere you look out here, there is biology," says Jeb Barrett of Dartmouth.

Yet it's biology so simplified that he can separate out how much the breathing of nematodes contributes to the exhalation of CO^2 from the valley soil.

Soils worldwide face accelerating degradation thanks to human activities. Information about the importance of individual soil organisms is as urgently needed as details about the life of rainforests and coral reefs – perhaps more so, for healthy soil is fundamental to everything from water quality to sustainable agriculture, forestry, and fisheries.

We are unlikely to need the services of the Taylor Valley nematodes and microbes to nurture our green world, but what we learn from them may help us appreciate and care for soil communities vital to our survival.

Yvonne Baskin, a freelance science writer from Bozeman, Mont., came to McMurdo as part of the NSF Antarctic Artists & Writers program.

around the continent

Photo provided by Palmer Station staff / Special to The Antarctic Sun

The luxury cruise ship The World Discoverer *holds position just outside Palmer Station next to the U.S. Antarctic Program research vessel, the* Laurence M. Gould *this past week. The cruise ship tours the globe. See update below for more news from Palmer Station.*

SOUTH POLE

New pole marker

By Tracy Sheeley
South Pole correspondent

South Pole is returning to a work routine after the holiday season – and a busy one at that. January brings with it a high population, with visitors and workers coming in for the final push of the summer season.

Photo by Charles Kaminski / Special to The Antarctic Sun

On the first day of the year, the new marker was placed at the geographic South Pole. The ice sheet moves roughly 10 meters each year, and the marker is updated accordingly. Each winter crew has the honor of designing the pole marker for the following year. It is unmasked in a special ceremony on New Year's Day.

Work continues to make the new station grow and shine. The inspection for final occupancy of the new dining hall and berthing areas is scheduled for late January. Our goal is to receive conditional occupancy of areas under construction. Interior work will continue on those areas throughout the winter. The steel has been erected for the B1 pod, and panels will go up beginning this week. Footers are being placed for A4.

The January flight schedule is starting off on a great note, with up to 7 LC-130 flights a day from McMurdo. We receive science and construction cargo, as well as our fuel resupply to last us through the eight-month winter with no flights. Anticipating winter also means it is time for rest and relaxation in McMurdo for the winter crew – a week to explore Mactown and breathe in warmer air at sea level before settling into the Pole winter routine.

The South Pole Remote Earth Seismic Observatory (SPRESO) is again host to the Ice Core Drilling Service. Five drillers are putting in a third hole to be used by the U.S. Geologic Service to gather their seismological data.

MCMURDO

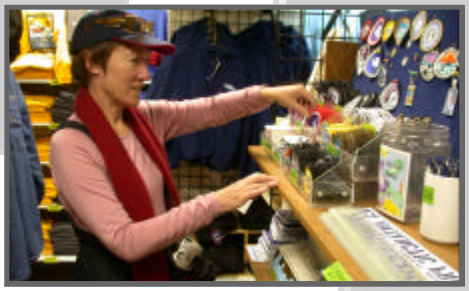

Photo by Brien Barnett / The Antarctic Sun

Beverley Underwood, a tourist from Wellington, New Zealand, traveling aboard the cruise ship Khlebnikov, *shops for souvenirs at the McMurdo Station store. She said she was "following her dream" by traveling to Antarctica. The visitors were flown in by helicopter and toured the station, including Hut Point and Observation Hill.*

PALMER

Ships, scientists arrive

By Kerry Kells
Palmer Station correspondent

The holidays at Palmer are winding down as we prepare for a busy January.

The Palmer community celebrated the New Year with a prom-themed party complete with falling balloons, streamers, snacks and prom backgrounds for photos.

The *Gould* brought several more scientists to station, as well as National Geographic reporter Fen Montaigne and NSF Representative Dave Bresnahan.

This past week, 120 passengers from the luxury cruise ship the *The World* visited the station and the U.S. Antarctic research vessel the *Laurence M. Gould* stopped in.

We also celebrate the recognition of our own Cara Sucher for her first place wildlife, second-place scenic and second-place people photos in *The Antarctic Sun*'s Photo and Writing Contest (see previous issue online).

Throughout the holidays, our group of seabird researchers continued to count and track nests every day. New chicks are hatching within the brown skua and giant petrel populations. Bill Fraser, the principal investigator of this research, arrives to join his group. Some of the

See Continent on page 6

the week in weather

McMurdo Station
High: 41 F / 5 C Low: 21 F / -6 C
Wind: 24 mph / 39 kph
Windchill: -9 F / -23 C

Palmer Station
High: 46 F / 8 C Low: 32 F / 0 C
Wind: 44 mph / 71 kph
Windchill: 21 F / -6 C

South Pole Station
High:-10 F / -23 C Low:-20 F / -30 C
Wind: 24 mph / 39 kph
Maximum physio-altitude: 3228 m

Continent From page 5

researchers will leave on the *Gould*.

Maria Vernet and Ray Smith's group, the phytoplankton and bio-optics component of the Long Term Ecological study, continues to sample the water columns at two spots, joined by the bacterioplankton ecology group. Hugh Ducklow, the principal investigator for this research, also arrived on the *Gould*.

Members of both teams will leave station on the *Gould* for the Long Term Ecological Research cruise while their colleagues continue research based at Palmer Station.

Robin Ross-Quetin, who is a partner in the long-term research of Antarctic krill, will join Langdon Quetin, co-principal investigator. Ross began her research in Antarctica the summer of 1981-82. In this past week they have continued their acoustic searches and collections of krill.

In another realm of science, Tad Day's group has collected 180 cores (plant and soil samples with Antarctic hair grass and Antarctic pearlwort) from Biscoe Island. More samples need to be collected before their experiments can begin.

When the *Gould* leaves Palmer Station to begin the LTER cruise, the ship will follow a grid pattern south. It will travel south of the Antarctic Circle and stop at Avian Island where seabird researchers will camp for four days. And even farther south, the *Gould* will stop at the British Station, Rothera, on Adelaide Island. During this cruise, each group will collect samples for all the components of LTER.

The cruise ship *Vavilov* is scheduled to arrive with several Cornell University alumni passengers. Early February will see the return of the *Gould* for a quick stop at station before it returns to Punta Arenas, Chile.

SHIPS

Polar Star, Polar Sea

By LCDR April Brown
Mac Ship Ops/Coast Guard Liaison

Polar Star took on about 2.3 million liters of JP-5 fuel, and is now heavy and ready to wreak havoc on the ice. *Polar Sea* is pulling in to take on about 1.5 million liters of JP-5. In gallons, that's a cool million from the town's fuel stores.

The *Sea* also conducted a covert op, sneaking into the turning basin, and then out, widening the old ship track by 2-3 ship widths (cutter has a 26-meter beam). Go *Sea*!

Anticipate *Sea* getting underway Sunday morning to continue work with the *Star*. The tour ship *Khlebnikov* was about 12 km out from Hut Point, flying passengers in for tours, on Jan. 8.

The tanker ship *Gianella* is scheduled to arrive at the ice edge about Jan. 14 to act as a floating gas station for the two big red gas hogs. She will heave to at the edge and park it there until after the cargo vessel gets in and out of McMurdo.

She also will be fueling the *Nathaniel B. Palmer* upon its return to the ice edge on Jan 15. The *NBP* is scheduled to be at the ice pier Jan 15-19, but if she can't get to the pier like last year because of the ice, we are developing a contingency plan to offload and onload cargo and people. Plus, she will take fuel from the tanker at the ice edge.

The cargo vessel *American Tern* is scheduled to arrive at the ice edge on Feb 1, and then be escorted in by icebreakers, to the pier.

Laurence M. Gould

Compiled from ship reports
by Andrew Nunn

The *Laurence M. Gould* left Punta Arenas Jan. 1 after a busy port call. The decks were piled high with cargo.

"Today was our reward with sunshine and calm seas, and warm enough to play cards on deck," Nunn wrote.

The night turned foggy and the weather worsened as they started taking water data.

The *Gould* arrived at Palmer Jan. 5 and left again two days later on the annual Long Term Ecological Research cruise.

Nathaniel B. Palmer

Compiled from ship reports
by Ashley Lowe

The *Nathaniel B. Palmer* left the ice edge offshore of McMurdo Station on Jan. 4, two days ahead of schedule thanks to a tremendous effort by all involved.

The ship headed south to the Ross Ice Shelf after a 16-hour transit around iceberg B-15.

The magnetometer was deployed once the ship passed through the pack ice in McMurdo Sound.

Jan. 6 was an extremely busy day, highlighted by an uncharacteristically trouble-free deployment of the multichannel seismic system. With seismic data rolling in, the *Palmer* headed to the primary study area — the location where iceberg B-15 broke off the Ross Ice Shelf.

During that survey, some minor equipment problems and tangled lines required bringing all the equipment onboard. The chief scientists decided to move on to a second study area. However, about 21 hours of seismic data were collected during the first survey.

The second survey, this time of the entire length of the Ross Ice Shelf, was proceeding.

RUGBY AT SCOTT BASE

Photos by Renee Magyar/ Special to The Antarctic Sun

The Mount Terror and Scott Base rugby football clubs unite for a photo Jan. 4, after their match on a pitch made of packed snow. The Kiwis defeated McMurdo 27-0 on five tries and one converted kick. The annual for-fun meeting included fans, cheerleaders and a post-match barbecue dinner at Scott Base.

Photos by Marianne Okal / Special to The Antarctic Sun

Left: Glaciologist Jeff Kavanaugh uses a snowmobile to collect surface ice samples from the Taylor Glacier. Right: One of the team's three field camps was on a small lake near the edge of the glacier.

Taylor From page 1

(LTER) program.

Zoom out on the McMurdo Dry Valleys LTER project and the white bulk of the Taylor Glacier will be one of the next things to come into focus.

The arching stream of ice flows around the Cavendish rocks in a "U" shape, narrowing to a serrated tongue above Lake Bonnie.

The Taylor Glacier is a vital link between two intensively studied Antarctic environments. It drains from Taylor Dome, where a 130,000-year ice-core climate record has recently been extracted, and feeds into the Dry Valleys, a long-term ecological research site.

Understanding how the Taylor Glacier flows and responds to changes in climate will help researchers better understand both the Taylor Valley ecosystem and the ancient climate record from the Taylor Dome.

"The Taylor Glacier flows into the Dry Valleys like an elephant coming into the room: big and immovable," Cuffey said. "The Taylor Glacier provides melt to keep the lakes there."

The glacier also affects the weather in the Taylor Valley.

Work being done by Cuffey and his team combines field research and numerical modeling to put together this piece of the east Antarctic puzzle.

In their second field season, the team is measuring the thickness of the glacier, looking at what lies below it and tracking its changes, including flow and evaporation rates.

The four researchers are camping around the Taylor Glacier for eight weeks to collect ice samples, record data and carry out tests.

To estimate the age of the ice, Cuffey and his team are collecting 2,000 ice samples, taken 20 meters apart.

Riding snowmobiles across the pocked surface of the glacier, they are finding stakes drilled into the ice last year. Global Positioning Satellite (GPS) technology will help them measure how much the glacier has moved in the last 12 months.

The flow of the glacier is determined, in part, by the characteristics of the earth below. The researchers use radar to draw a picture of the land underneath the ice and measure its thickness.

Last year's field season revealed the ice on the Taylor Glacier was 20 percent thicker than previously estimated .

"That means the way the glacier flows is more of a viscous creep than we previously thought," Cuffey said.

Glaciers flow in several different ways. Earlier studies made researchers think the Taylor Glacier moved by sliding over the rocky bed. When radar measurements showed thicker ice on the glacier, this told Cuffey that the thick glacier slowly spreads under its own weight like a mound of molasses.

Tracking the evaporation rates is less technical. Poles have been drilled into the ice and as the surface evaporates, more of the pole is exposed.

On the Taylor Glacier, Cuffey said, "Mass is lost almost exclusively by evaporation. There is a little bit of melt and that's what keeps the lakes full."

To understand the environmental factors that affect the glacier, the group has also installed five weather stations.

Through these measurements, Cuffey is putting together a snapshot of the current state of the glacier.

The aim is to collect enough information about the glacier to develop a numerical model that researchers can use to pose "what if" questions.

What if the temperature rose 10 degrees? How much more of the glacier would melt and how would that impact the surrounding area?

"Say you had a bell. If you don't know what it is, you might do things like whack it with a hammer to see what it would do," Cuffey said. "The Taylor Glacier is the bell. The hammer is the climate and the ringing is the geography."

As a major force in the Dry Valley's ecosystem, the future of the Taylor Glacier is of interest to all the area's researchers.

"A glacier can change its position a lot over time," Cuffey said. "Ecologists would like to know more about how that might happen and what it might do in the future."

NSF funded research in this story: Kurt Cuffey. University of California, Berkeley.

From the parks to the Pole

Adventurous workers split their year between two kinds of wilderness

By Peter Rejcek
South Pole correspondent

Chasing grizzlies, rebuilding cabins, pointing out wolves, bear, moose and caribou to tourists … all typical off-Ice tasks for people who split their year between work in Antarctica and the National Parks.

"It's a life of seasonality," said Jeremiah Smith, a South Pole carpenter who spends the rest of his year as a member of the Interagency Grizzly Bear Study Team at Yellowstone Park.

At South Pole, the contingent of people from the park in the northwest corner of Wyoming seems to be the largest, but many other parks are also represented. There are at least a half-dozen Parkies-turned-Polies, not counting everyone who has had even a small connection with the national parks back home. Any one parks person here can name a handful of others who have been at Pole.

Dave Tashner worked on a turn-of-the-century cabin in Colorado's Rocky Mountain National Park. Mike Boyce gives tours in Alaska's Denali National Park. Pole carpenter Kenny Gough worked three summers overseeing repairs and construction at Canyon Lodge in Yellowstone Park.

"I'm not much of a city person, I guess," Gough said. "I like living close to nature."

Like many of the other park personnel who become Polies, Gough learned about the opportunity to head south through a friend who worked at Pole.

"What he told me fascinated me, really excited me … so I went for it," Gough said.

In fact, at Yellowstone they hold parties where everyone is required to bring someone who had been to or was going to the Ice — Antarctica parties, according to Emma Fuller, who works in materials at Pole. She's been a Spanish translator at Grand Teton National Park and did odd jobs at Yellowstone when she was younger. This is her second season at Pole.

"You start to talk to people and it becomes a small community," she said. "When I was trying to find out about Antarctica … I knew nothing about it. So I started talking to people at the park, and they knew people who knew people who had been."

What is the common draw between a wilderness filled with colorful plants and majestic animals and a continent that's mostly barren, extremely cold and nearly bereft of life?

"I think it's the sense of adventure," said Ken Keenan, a South Pole utility technician who works maintenance at Yellowstone. "The people who come here have the same sense of adventure as the people who go to Yellowstone. And everyone's sense of adventure has a different level. Some people are mountain climbers, some people just like hiking out on a trail and some people's idea of adventure is running away from home. And the national parks are an easy place to run to."

By Peter Rejcek / Special to The Antarctic Sun

Carpenter Kenny Gough prepares to cut a piece of concrete board during construction at the new South Pole Station. During the other part of the year he works at Yellowstone National Park, one of many Polies with a parks background.

Also, in both Antarctica and the parks, transportation, lodging and food are provided, Keenan pointed out.

Many Polies agree that the parks attract a certain type of person — adventurers, risk-takers, explorers.

These are people who "love what they do, they love the isolation," said Smith, looking every bit the adventurer himself, with his long, straw-colored hair and matching beard.

They are drawn, as Gough was, by the inaccessibility.

"It's the most remote, complete wilderness you'll ever be in. And that's what attracted me," Gough said.

Boyce fell in love with Denali National Park while traveling and working in Alaska during a summer break from his job in Philadelphia, Penn.

"I had incredible experiences at the park. I was really blown away by the place," said the 39-year-old carpenter. "I met some really great people. So I kept going back … in a few years I started considering it home."

A self-proclaimed city boy, Boyce tutored himself in the park's history and ecology, and today serves as a tour guide at Denali.

"There are a lot of Denali people who come down here. It's a word-of-mouth thing," said Boyce, his face bronzed from working outdoors six days a week.

The connection between Pole and parks is also one of timing. At many parks business is slow in the winter. The Antarctic summer starts just as summer ends at Yellowstone, where the season runs from May to October, Gough said.

"It's perfect for coming down here," he said.

The need for money is another factor. Park wages are, on average, not very high, Tashner noted. And those who work at the parks and at Pole, he said, often possess a variety of skills and talents — a necessity given the small workforce.

The trappings of a material lifestyle — house, property, cars — are often not present, said Fuller.

"You have nothing to tie you down," said the 31-year-old avid traveler.

But perhaps the biggest factor that brings together such disparate worlds is the people themselves.

"The communities are pretty similar," Boyce said. "You run into the same like-minded people down here. The reason I eventually called Denali home was the community there. The reason I come back here is the community."

David Schutt, an electrician apprentice from Denver, watches for the next bowling ball while Scott Karaus, who works for Aviation Technical Services and is from Nebraska, resets pins behind the scenes at the two-lane McMurdo Station bowling alley. Pin-setting is a paid position for those looking to pick up some extra beer money or travel cash.

Photo by Brien Barnett / The Antarctic Sun

When residents give five, stations come alive

Literally hundreds of people overall at United States Antarctic Program stations volunteer their time and talents to add to the culture of life in Antarctica. These are a few of their stories.

By Brien Barnett and Kris Kuenning
Sun staff

David Pacheco made a promise to his wife who was back home for Thanksgiving. He would volunteer to work in the McMurdo dining hall if she helped out at a soup kitchen there. It would be their way to be together and give back.

Come Thanksgiving night, there was Pacheco, a plumber by day, dressed in his issued waterproof apron, rubber gloves and white hat, cheering on the staff.

"I did it to honor my mother and my wife, and to give back," Pacheco said. "The people here work so hard. They excel."

The Alburquerque, N.M., resident was one of several volunteers that day, and one of many throughout the season who pitched in to make the day a little easier on the kitchen and dining hall staff.

The spirit of volunteerism is essential to the well-being of the community, said McMurdo Recreation Coordinator Bill Meyer. Meyer and other managers rely on volunteers, paid and unpaid, to support the quality of life at the station. There's almost no way to measure the total impact since people help out all the time and no one keeps track of it all.

"There are only four of us here in the office, and 1,000 people on station," Meyer noted. "There's no way we could do this by ourselves. It takes the entire community sharing their interests and abilities to make this thing work."

Jim Scott, Raytheon's area director for McMurdo Station, said volunteers fill the gaps and provide a benefit to the town and to the management.

"They pick up the areas where other folks back in the states take for granted," Scott said.

With only two janitors, minimal kitchen staff and more than 200 people to feed and clean up after, the South Pole depends heavily on volunteer labor.

Some of it is built into station life. Cleaning duties are rotated through different workstations. Janitor Susan Weber said the shared duties promote more responsible living for everyone.

"It was one of the reasons I felt comfortable accepting the job here. I knew I couldn't keep up with 200-plus (people) unless they all helped," Weber said.

When freshies or other supplies need to be moved, an "all-call" on the P.A. system brings a chain of hands from all over station. The Saturday after Thanksgiving is "manager cook day" when the station's leaders give the galley staff a day off as thanks for a job well done.

The South Pole greenhouse, which provides the station's only fresh food over winter, is staffed completely by volunteers.

Without a designated recreation department, the South Pole also depends on volunteers during workers' time off.

Tae Kwon Do, yoga, and Spanish lessons are available because people donate their spare time to teach them.

The first South Pole short film festival is scheduled for later this month. Headed by Brian Land, an Antarctic filmmaker and carpenter, and helped by filmmakers Tom Piwowarski and Dave Carlson are giving filming and editing workshops to the station's budding filmmakers. The results will be viewed and judged at the festival.

Palmer Station depends on volunteers for all levels of community events from safety and rescue to tourism to recreational activities.

Like South Pole station, Palmer does-

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Volunteers

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n't have full-time professional firefighters. The stations rely on volunteers from the community to fight fires, teach rescue techniques and work on the search and rescue teams.

Tourism demands some time from the station's volunteer tour guides. Volunteers set up the displays for the tourists, work at the station store and talk with the tourists after the tour. In one day, 120 tourists can be led through a station that averages fewer than 40 residents at a time.

For the past three seasons, Palmer staff member Barb Watson has either led or participated in many craft workshops including sessions on candlemaking, soapmaking, tie-dying, printmaking, batik, and even Palmer's unique "fish printing," which uses the disposed carcasses of fish specimens from the science lab to create art.

Other efforts include the Sunday dinner, dance lessons and exercise classes. The dinners are an important part of life at station and electrician Dan Weisblatt helps coordinate the weekly get together. Andres Martinez, a transplant from the South Pole, teaches Salsa Dance on Monday nights. Baker Wendy Beeler and Kerry Kells, the station's administrative assistant, co-lead an exercise class to keep people limber and to, in Beeler's words, "take away my guilt for everyone at Palmer Station gaining weight" from her baked cookies.

Back in McMurdo, there's no shortage of a need for volunteers. An annual Women's Soiree is an event entirely produced by volunteers.

Shortly after the main group of people began arriving, Recreation's Meyer recruited night workers to offer traditional entertainment for the shift's relaxation time, which is when everyone else is at work and unavailable. A small part of the station services budget is reserved for volunteers who get minimum wage for the few hours a week they work, plus tips, to run "day bar" at Southern Exposure, "day burger bar" once a week at Gallagher's pub, reset the pins and ball at the two-lane bowling alley, teach yoga and other courses and keep the java hot and movies showing at the Coffee House.

"Out of the 500 people I talk to at the job fair, I may only hire one," Meyer said. "But the other 499 could easily be hired by other departments and when those people show up on the Ice, I'm gonna remember them as the people who were professional DJ's, or owned yoga studios, or used to teach dance classes and I'm going to tap them for their knowledge in these areas."

Photo by Brien Barnett / The Antarctic Sun

Chuck Kimball does gash duty at Palmer Station, in which people take turns cleaning the kitchen after meals.

McKenzie Winters is the station's librarian during the season. She hopes to continue to study library sciences back home, so it was a natural fit to do it here.

A paid volunteer herself, Winters manages 19 other volunteers plus general assistants who organize books and keep the library open at odd hours. Winters said she's had it easy this year.

"I've had more people sign up than I can take," she said. "And the people I have signed up are always there."

The spirit of helping is strong , so much so that sometimes people who are actually working get confused for volunteers.

"Some people think we're volunteers. It's called a G.A.," said Zondra Skertich, whose job description as general assistant means she could be anywhere doing anything.

When she's not working, Skertich plays her stand-up electric bass with others. Bands and performances for station residents are common at all the bases.

Donnie Hughston lends his talents as a guitarist for jazz and rock shows and the Christmas party, but may also be known for his swift service at burger bar, where he gets tips.

"I get to kinda put a name to everyone's face that I see all the time and put up a travel fund," Hughston said.

Mike Achermann of Motley, Minn., is in his first season in Antarctica. He works nights for fleet operations. He signed up to bartend for day bar and learned from a friend here.

"It sure isn't for the money," he said and chuckled.

Marianne Okal, who claims Chicago as her hometown, said it's the social aspect of the Coffee House that prompted her to sign up. She said her favorite drink to make is the cappuccino, which she first learned to make in France during her ski bum years.

"I like making coffee drinks and maybe I can bring a new coffee culture to McMurdo," Okal said. "I would do it even if I wasn't paid."

Alejandro Nieto is a firefighter from Colorado by way of Spain. He counts among his volunteer activities, divetending, staffing the hyperbaric chamber, helping scientists fish for specimens as well as bartending several nights a week at Gallagher's.

"You don't expect anything, but sometimes you get some benefits. (A trip to Cape) Evans, little stuff like that," Nieto said.

He signed up for a trip to iceberg C16 north of Ross Island where he helped scientists put in a research station.

"It was a nice gift but I was working," he said.

See Volunteers on page 11

Photo by Brien Barnett / The Antarctic Sun

Photo by Kris Kuenning / The Antarctic Sun

Above: David Pacheco, left, and Father Tony Harrison play a song in the Chapel of the Snows before evening Mass. Pacheco volunteers his time to play music during services and helps out in the dining hall as a pot scrubber. Right: Every Sunday, Gack Giacalone and other volunteers prepare the week's bagels for the South Pole.

Volunteers

From page 10

Residents can't play or party without the right stuff and that means someone has to be at Gear Issue. One volunteer, Amie Dziowgo from Lincoln, Neb., volunteers four of her lunch hours to loan out skis, party clothes, musical instruments and other gear.

"It's a great way to meet people and it's a great atmosphere and relaxed," she said.

One of the oddest jobs around town is helping reset the bowling pins and return the balls to players at the bowling alley. Brian Kliesen has been jumping off the platform into the well to grab the heavy pins and work the machine for the past three seasons.

"It's fun, mainly, and a good workout, jumping up and down," he said. " It's a good way to meet people."

Ash Hoffman, from Alaska, drives Deltas for sightseeing trips to Cape Evans. Hoffman worked in the dining hall during his first season last year and like most who work there had a yearning to get outside. Near the end of last season he signed up for shuttle driver training and it turned into a job this year.

"It's nice to have the opportunity to help other people who want to experience something new," he said. "It's nice when at the end they're all smiles and happy and they've had a good trip."

George Nuckols gives up a few hours a week to certify people to use the climbing wall and sees his role pretty plainly.

"It's pretty much the way things work here," he said. "Nothing's gonna happen unless you do it."

Sometimes volunteers need help. Damian Henning and Jen Petrik jumped in to teach dance lessons to about 30 people at Gallagher's bar after the original instructor was called away to the South Pole.

"It's better to have subs than no tango at all," Henning joked.

Each season, the station recruits volunteers for its mass casualty team and drill, which simulates an accident requiring significant station resources.

Nearly 70 people signed up to help carry victims on stretchers, log injuries, donate bood and more. The volunteers will be called out if there's an actual emergency.

Back in the kitchen, Kitty Cupp, a janitor, helps in the pots and pans room.

"I love it when people help me out," she explained.

Frank Rinaldo, a janitor and former Air Force base barber, and Maria Finley, the station's hairstylist, switch roles once a week. Maria grabs the mop and bucket and Frank the shears.

"It's a break from the routine," Rinaldo said.

For Halloween and other big events around town, firefighters team up to help decorate, tear down and clean up. It's an important if unseen job, Meyer said, because without it, there wouldn't be those kinds of large events, at least not as often.

Vincent Scott works at the South Pole. There he and a friend offer Shakespeare readings and screenings of Academy Award winning movies. He also learned to lead the Catholic "Liturgy of the Word Without Holy Communion Service" from Father John Harrison, who was at McMurdo earlier this season.

"We're far away from home so offering opportunities like this may help people spend their free time in productive and interesting or fun ways," Scott said.

McMurdo firefighter Peter Frost had an interesting take on volunteering.

"I help out, but I mostly give back when I see a need. I might see someone needing help holding a door or with bag drag," Frost said, referring to the ordeal of carrying one's bags up to the cargo station before a flight. "We can all give at least five minutes of our time to help out."

The Antarctic Sun's *Palmer correspondent Kerry Kells contributed to this report.*

Photo by Kris Kuenning / The Antarctic Sun

Adelie penguins nest at Cape Royds, with Mt. Erebus in the background.

Adelie From page 1

path to their nests each time they returned from a foraging trip. These conditions persisted for the past three seasons and have resulted in fewer chicks born than in the years before.

Fewer chicks likely will cause the Adelie population to dip over the next five years in the Ross Island area. However, the population of colonies elsewhere in Antarctica continues to grow, and the species is not threatened. Ainley also expects most of the birds missing this year to return to Royds or Crozier, though they will be too late to mate.

Adelie penguins, once they have nested at a given colony, will nest at the same place year after year. Cape Royds is the world's southernmost colony of Adelie penguins and Cape Crozier is in a precarious spot, tucked at the eastern edge of the island next to the Ross Ice Shelf.

This year, though, the icebergs are breaking up and the sea ice edge has retreated past Royds, creating a nearly ideal spot for the birds to nest and feed.

The scenario, as Ainley sees it, is that wind has returned to the area after two calm years. During winter and spring, cold temperatures and wind promote sea ice. The ice grows outward and away from the continent. Continual ice formation and its subsequent flow south to north created a sort of moving walkway. It's good for migrating north at the end of the season in February, but difficult for returning south to nest in September and October.

The birds were at their wintering area at the northern edge of the large-scale ice pack when it came time to return south.

"They were just much farther from the colony when the sun rose, then they found all this ice which slowed them down," Ainley said,

The birds adapt quickly, Ainley said, because they rely on an instinct that gets them stocked for the long trip and the need to return to their nests each year. But that doesn't mean it's easy to get back, especially considering the great distances researchers now know the birds have to travel.

Last year, researchers placed small tags on a number of the birds to track their location in relation to the sun. So far, they have recovered 17, of which 10 recorded data. The data from one tag has been analyzed, if only to see if the tag was working well, Ainley said. That tag showed the bird traveled a loop of more than 6,500 km from Crozier at about 77 degrees south latitude to the sea ice edge and north as winter progressed — all the way to about 55 degrees south latitude. A plot of the bird's track showed it meandered quite a bit until spring when it made a beeline back to Cape Crozier to find its mate.

"We were pretty convinced that they needed to go as far north as they could to find daylight and where there are ample spaces between ice floes, but that's a pretty incredible distance," Ainley said.

The compact, lightweight $150 tags store three years of data and are attached to the legs where they are less likely to affect the birds when swimming. They gather data by recording date, time of day and light level. That information is translated into time of local noon and daylength, which in turn can locate the bird on a map. Since the tags had to be small, they presented a challenge to the researchers who had to find them underneath a fresh layer of feathers. When, initially, they couldn't find the tagged birds, the researchers thought maybe the tags had killed or injured them.

"We were initially concerned it would be a big block of ice," Ainley said. "We breathed a sigh of relief when we started

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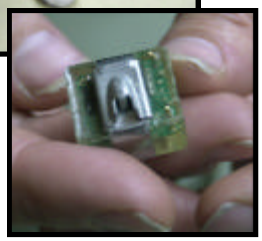
Photos by Brien Barnett / The Antarctic Sun



Adelie penguin researcher David Ainley holds a geo-location system tag inside his hut at Cape Royds. The tag is used to track a penguin's movements throughout the year.

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finding them.

The research team hopes again this season to tag 15 birds at each colony with the sun detectors and install another set of satellite monitors and normal leg bands to track their progress.

NSF funded research in this story: David Ainley, H.T. Harvey & Associates, www.penguinscience.com

Following the birds

By Brien Barnett
Sun staff

Adelie penguin expert David Ainley's assistant this season is Canadian wildlife biologist Louise Blight. Her work in Antarctica is an extension of previous studies of northern hemisphere seabirds in British Columbia. She's based at Cape Royds with Ainley and helps count and study the birds.

"It's such a rich environment and it's a great time to be here in summer, when there's such a huge burst of life in such a short period of time," Blight said. "For a biologist, it's a great place to be."

Ainley and Blight spend the season camped in a rocky alcove near the cape, far enough away to not disturb the colony, but close enough to walk to it. Wind at the cape this year has been strong, but Blight's little mountaineering tent and the main Jamesway-style mess tent where Ainley sleeps have endured it well.

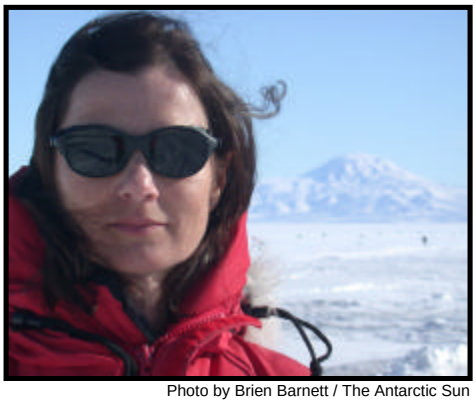


Photo by Brien Barnett / The Antarctic Sun

Canadian researcher Louise Blight is at Cape Royds to study the Adelie penguins.

The extremes of the continent are not new to Blight. She spent six seasons working on tourist cruise ships in the Peninsula area, giving lectures about wildlife and operating Zodiac boats as well as putting in time inventorying birds and other seabirds.

"I've been a birdwatcher since I was a kid," Blight said, recalling when she used to keep a journal detailing when swallows returned to their nests near her home.

Back at Cape Royds, Blight spends time at all hours among the Adelies, noting their interesting behaviors.

"Walking through the colony it's interesting to see the birds' different reactions," Blight said. "Some ignore you and others charge right up to your boots … being territorial."

After this season, Blight said she plans to apply to doctoral programs and will draw on her time spent on the Ice.

"It's a great opportunity for any biologist to come and work down here," she said.

Continental Drift

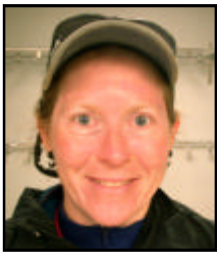
What's the best item you've ever found in skua?

"Two years ago at McMurdo I found these handknit multicolor booties. I actually used them as a Halloween costume."

Steve Barten,
Palmer Station logistics from New Prague, Minnesota, second season

"Pickle in a pouch. It was a little sticky on the outside, but the pickle inside was still intact."

Amanda Betz,
South Pole cargo from Cheyenne, Wyoming, second season



"Silk Japanese bathrobe, down North Face jacket and Julbo sunglasses."

Lisa "Skua Queen" Keller,
McMurdo fuel operator from Buffalo, N.Y., sixth season

Profile Our man in Santiago

By Kristan Hutchison
Sun staff

Photo by Kristan Hutchison / The Antarctic Sun

Jimmy Austin Videla greets Antarctic workers at the Santiago Airport to guide them through immigrations and customs to their next gate.

The Santiago airport is Jimmy Agustin Videla's turf. For 23 years Videla has worked at the Chilean airport, making sure people and cargo for the Antarctic program move smoothly through the foreign port. He greets the women with kisses, the men with a firm handshake and knows everybody's name.

"We call him the mayor of the airport because he knows everybody," said marine projects coordinator Alice Doyle.

When a flight arrives with Antarctic participants, he's there to meet it and hustle the people past immigration and customs with a wave of the passports.

"From my long time working at the airport we have access inside immigration. This is very important," Videla said, stirring five packets of sugar into his coffee at an airport bar. "In my case, it's not corruption, it's for friend of the program, Antarctic … All the bosses to customs understand my job."

Videla also understands his job and practically lives it.

"He's in that airport all day long," said marine projects coordinator Skip Owen. "He's always got a cell phone in his ear."

When Videla isn't at the airport, he sometimes brings work to his home, 45 minutes away. His wife, Rommy, helps him out and handles the e-mail. They have two sons, Agustin and Thomas, and are expecting a third child in March.

Until 1992 there was only one flight a day from Santiago to Punta Arenas, so people heading to the Antarctic had to spend the night in Santiago. Videla would drive them to the city, playing tour guide and directing people to stores and restaurants.

"I remember three to four people staying in my home when there is no hotel," Videla said, the patterns of his native Spanish carrying over into his accented English.

Many of the participants from that time became his friends and still send letters.

"Jimmy's been around forever," Owen said. "He was working before I started. He was sort of an airport runner at the time."

Back then fewer people were flying to Chile for the Antarctic program anyway. Until 1992 the program ship was the *Polar Duke*, which carried 45 people, including crew. The *Nathaniel B. Palmer* replaced the Duke in 1992, with space for 65 passengers and crew. Then the *Laurence M. Gould* was added in 1997 with room for 52.

Helping people through the airport is only half of Videla's job. He also keeps track of 150 to 200 pieces of Antarctic program cargo a month, mostly supplies going south and samples going north. Some of the items are delicate instruments or samples requiring special handling.

"They take the penguin, they take the water, they take rock, put in glass in the box and send back," Videla said.

Cargo coming south used to be a particular problem because there was only one cargo flight a day and it went through Miami, Videla said. Items for the Antarctic program were flying from LA to Miami and then being delayed, sometimes long enough to hold up the ship schedule or miss the boat completely. Videla lobbied the airline to change the flight patterns and finally they were able to add on a direct cargo flight from LA to Santiago.

The U.S. Antarctic Program also has an exemption allowing it to take 200 kilos of dry ice on a flight. Videla checks all the samples in Santiago and repackages them if necessary. Several times Doyle's called on Videla to get time-sensitive cargo through customs on a holiday.

"He's been really good about pushing cargo through for us," Doyle said. "He's always able to smooth things out and he never seems to burn bridges."

Once a scientist was sending back a number of Antarctic sea creatures preserved in jars. They looked like the creature from "Alien" and the customs official was afraid the glass would break in transit, releasing the "Antarctic aliens."

Videla put the jars inside plastic cases with absorbent packing material and convinced the customs official they could ship safely that way.

"Every time when I have problem there is immediately a solution," said Videla.

Often the solution involves a favor from a friend, which is why Videla fosters so many friendships.

"It's part of my job to invite all the time, for breakfast, lunch or a little boat my company has in Valparaiso," Videla said.

It's really no different than how other organizations work, networking and developing friendly relations that promote the business, Owen said.

"There's a joke and assumption that he does it by greasing people's palms, but that's not really true," Owen said. "Giving respect gets respect and I think that's what Jimmy does."

Videla called in several favors when Doyle lost her passport just before her flight back to the U.S. It was late on a Friday afternoon, so the U.S. Embassy in Santiago was closed. Doyle assumed she'd be stuck in Santiago for several days while her passport was being replaced, but within four hours Videla spoke to a friend in immigration and got the chief of police to write a letter. Doyle recalls Videla walking her to the ticket counter.

"He looks at me and says 'Alice, let me do the talking'," she said.

Videla convinced the airline to let Doyle board and she made it home without problems or delays.

"It was totally Jimmy's connections that enabled him to do that," Doyle said. "That's how it works down there. He treats them well and they treat him well."