The Antarctic Sun
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Dragging a specially designed sled filled with 260 pounds of food and fuel weight, IceTrek member Eric Philips made a test run across sea ice outside Scott Base on Sunday. "It feels great, better than I had hoped," Philips said of his sled. When the team departed for the South Pole on Wednesday, Philips' sled weighed more than 400 pounds.

IceTrek:

Retracing Scott's Historical Steps

Story and photo by Alexander Colhoun

Suited up like stock car drivers, their pumpkin-colored Gortex suits plastered in sponorship logos, Peter Hillary and his companions, Eric Philips and Jon Muir departed New Zealand's Scott Base Wednesday for an unsupported, 2,960 kilometer round-trip journey to the South Pole.

If successful, the team will be the first to complete this tragically historic route, last attempted by Robert Falcon Scott in 1911. Scott and his companions froze to death en route home, just 11 miles from their last supply cache.

The 100-day plan calls for the IceTrek expedition to harness powerful Katabatic winds that originate over the South Pole, employing a quiver of Quadrifoil kites to pull them over the snows. Food consumption has been scientifically mapped down to the last kilojoule. Each expeditioner will gorge on the caloric equivalent of 700 milliliters of olive oil per day.

"We had to come to terms with the fact we are living in the 1990's," said Hillary, son of Sir Edmund Hillary of Everest fame. "We have all this equipment, yes, but we carry our own sleds and we have to be out there on our own. We're just three people, out there in the middle of Antarctica. It's a lonesome feeling."

Fellow expeditioner Jon Muir agreed. "We're going to march essentially 10 hours a day with four short breaks," said Muir. "That's a lot of time alone with yourself."

...story continued on page 6

INSIDE

A Season of Science

NSF Looks Forward and Back

by Simon Stephenson
National Science Foundation representative

Dwight Fisher, last year's National Science Foundation representative, called the 1997/98 field season "a season of change." This year, those changes continue.

This is the first season that the U.S. Air Force is NSF's primary Department of Defense partner in supporting the U.S. Antarctic Program. A new organization, Detachment 13, based in Christchurch, New Zealand, and led by Col. Rich Saburro, has been formed to manage the overall support from the Department of Defense. The detachment replaces the U.S. Navy organization, NSFA, but Det. 13 will have a narrower focus on supporting the Defense Department airlift and sealift.

The main organizations under Detachment 13 are the Air National Guard 109th Air Wing, based out of Schenectady, New York; the Navy's VXE-6; and Aviation Technical Services. This is VXE-6's last year in the program, and we hope that it will be one of their best -- in performance, as well as providing great memories for the departing Navy aviators.

The combined airlift of ANG and VXE-6 will be nine aircraft working between McMurdo and Christchurch -- the biggest deployment ever of LC-130s for the Antarctic program. It is needed. This year we plan approximately 320 missions to the South Pole to support basic station operation, science projects and station modernization.

The construction will upgrade the South Pole station for the year-round staff and provide the basic infrastructure for science in the next century. The project began in earnest last year and is expected to be completed in 2005. This year's focus will be the replacement of fuel systems to prepare for new generators in the years to come.

Science looks back in time

This is another important season for science. Of the 131 projects in USAP, I will highlightthree -- Cape Roberts, Siple Dome and Long Duration Ballooning -- all of which look back in time.

The multinational project at Cape Roberts will attempt to retrieve cores of sea sediments that will reveal the history of the region 20 to 60 million years before the present.

Drilling at Siple Dome will attempt to provide a history of the West Antarctic Ice sheet back beyond 60 thousand years, some of it with one-year resolution.

The Long Duration Balloon payload this year is the "BOOMERanG" experiment. It will float above the Antarctic continent mapping slight differences in microwave radiation that is a remnant of the Big Bang. As its name suggests, we hope the balloon will float back to us.

Another event will occur that some may find a little unsettling. In mid-November, NSF will conduct a job walk as part of its re-competition for the USAP support contract. Antarctic Support Associates won the contract in 1989, and took over in April 1990. The company has performed well throughout and has improved their performance each year. The federal government believes, however, that by regularly competing contracts, such as the USAP support contract, we ensure that contractors will remain innovative and careful of costs.

A dozen companies will be represented on the job walk, and we wish to show the participants every aspect of the work, so many of you will interact with the job-walkers. The teams will spend about one week with us in McMurdo, South Pole and the field camps. Proposals are due in the early (American) spring. If you are an ASA employee, you should ask your supervisor about the "rules of engagement" with the job-walkers.

Antarctic program moves forward

To be honest, I think this will be a hard season. In most of the recent years, NSF has planned to operate all facilities near capacity. And this year is no different. We are facing an ambitious season, and it has started slowly. We will continue to push hard. And, as in the past, I expect that many of you will out-perform our expectations. I know that all of us who represent NSF consider it a privilege to lead such a hard-working, enthusiastic community. But as we work hard to meet our goals, we must remember our environment and err on the side of being safe. The program has a strong safety record and this is largely accomplished by participants looking after themselves, and each other. Those with more experience must look after those with less.

So with that, I wish you all a safe and productive season. ✹

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Science Projects Abound on the Ice

Compiled by Beth Gaston
National Science Foundation

This year, approximately 700 investigators and technicians will deploy to Antarctica to conduct research in the earth sciences, glaciology, biology, medicine, oceanography, meteorology and astrophysics. Highlights of the current season include:

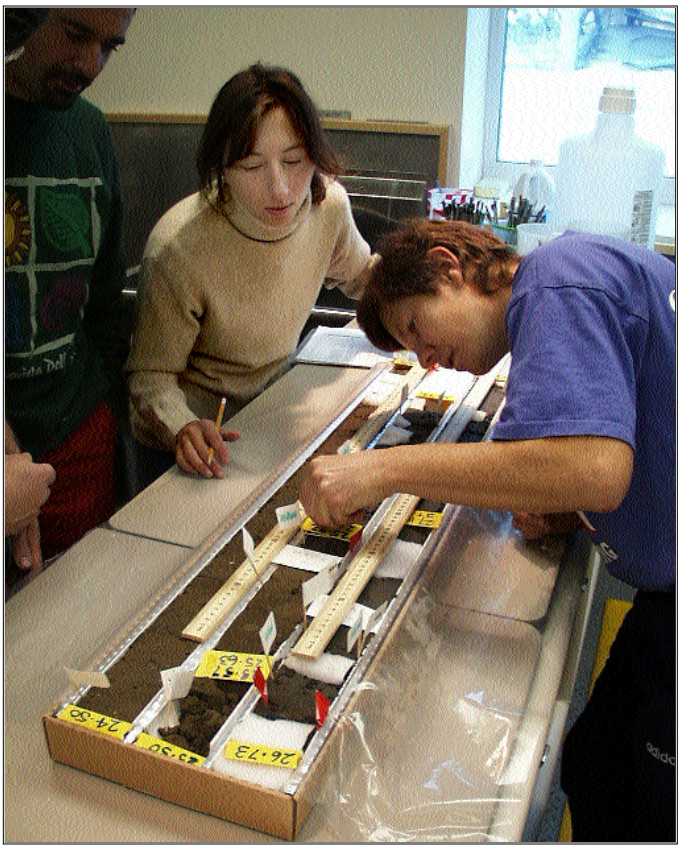
SULFUR AT THE SOUTH POLE: Microscopic sulfur particles in the atmosphere are some of the major components in climate change scenarios. Both naturally produced and man-made sulfur compounds reflect solar radiation, produce atmospheric haze and acid rain, and affect ozone depletion. Researchers will seek to improve understanding of the atmospheric chemistry of sulfur compounds (some of which are produced by oceanic phytoplankton) and the climatic interpretation of sulfur-based signals in Antarctic ice core records.

BALLOONING OVER ANTARCTICA: Amajor long-duration balloon flight will circle the continent, gathering data at an altitude of approximately 120,000 feet for about two weeks before being parachuted to the ice for recovery. The balloon, supplied and launched by NASA, has a volume of about 30 million cubic feet and can lift payloads heavier than a ton. The project will measure, with unprecedented sensitivity, the temperature variations across the sky of the cosmic microwave background radiation -- relic photons left over from the beginnings of the universe.

FOSSIL FINDS: In conjunction with the Argentine Antarctic Institute, researchers will be excavating Mosasaur and Plesiosaur fossils and searching for Hadrosaur fossils on Vega Island near the Antarctic peninsula. Last year, this team discovered the only Hadrosaur fossils outside the Americas, demonstrating a significant land bridge between the Americas and Antarctica. They are also evidence of a complex and extensive plant ecosystem on land in the region which was then at a high southern latitude, not unlike its current position.

WEST ANTARCTIC ICE SHEET: The West Antarctic Ice Sheet, which rests on thin continental crust, may be an important contributor to a future global warming-induced sea level rise. At Siple Dome, an enormous semi-circular ridge of ice between two quickly flowing glaciers or "ice streams," a 1,000-meter ice core will be drilled and the layers of snow, somewhat like rings in a tree, will be examined for information about past climate conditions. Also at Siple Dome, researchers will try to determine the dynamics of ice flow -- a topic critical to understanding the stability of the ice sheet -- and the past ice sheet elevation, by dating imbedded volcanic rocks.

A SEAL'S-EYE VIEW: Seals forage for food underwater in an unforgiving environment covered in ice. Researchers will attach a small video system and a data logger to Weddell seals' backs and measure oxygen consumption during dives to determine how seals hunt for food and how efficient they are at doing so.



With grave respect, Fulvia Aghib, left, an Italian, and Chris Fielding, an Australian, study core samples recently retrieved from under the Ross Sea at Cape Roberts. Photo by Alexander Colhoun.

CAPE ROBERTS PROJECT: The Cape Roberts project, an international effort involving scientists from the United States, New Zealand, Italy, the United Kingdom, Australia and Germany, will collect cores from the Ross Sea floor. Sediments and fossils in the drill core should help provide information about conditions 25-70 million years ago, and fill in gaps missing from knowledge of the Earth's climate.

ULTRAVIOLET CRUISE: In this multi-disciplinary cruise, researchers will study the effects of solar ultraviolet radiation on bacterioplankton, phytoplankton, zooplankton as well the photochemistry of bacterial growth processes in the ocean. They will examine how biological responses to ultraviolet radiation are affected by ozone, explore interactions with marine viruses and study the interplay within the food web.

INTERACTIONS BETWEEN THE ATMOSPHERE AND THE OCEAN: This season will be the final field season for ROAVERRS (Research on Ocean-Atmosphere Variability and Ecosystem Response in the Ross Sea), a multidisciplinary study of the atmospheric and oceanic interaction conducted on board the Nathaniel B. Palmer. The research will lead to a better understanding of the polar marine ecosystem in response to climate variables.

Freshies Thrive at McMurdo Greenhouse

The gifts of gardening. Loren Luyendyke holds out some of a day's harvest from the McMurdo greenhouse. Radishes, tomatoes, Hungarian peppers and basil are just a few of the crops growing on station. Photo by Ginny Figlar.

by Brian Connell

Children hate them. Adults have come to accept them as a source for healthy living. And residents of McMurdo Station view them as the Holy Grail of items difficult to come by in Antarctica.

They are vegetables. And thanks to the station's greenhouse and the efforts of a few green thumbs, these organic treasures have become a bit more attainable.

The McMurdo Greenhouse regularly supplies vegetables to winter residents and employees hope to supply an abundance of "freshies" for year-round consumption. But that will mean more plants and more space to grow them.

"The greenhouse is just too small," said Loren Luyendyke, an ASA employee hired to work part-time with the project. "There is not enough room in the present facility to provide enough produce for the 1,100 plus people at McMurdo. We need to expand."

Greenhouse employees will be asking for additional funding this season from the National Science Foundation to help with an expansion, with the ultimate goal of having three greenhouses to supply the need of "freshies" for summer workers.

Not only would there be an abundance of vegetables, but Luyendyke said there would also be less food waste.

"Food waste is a big problem at McMurdo," said Luyendyke, who knows firsthand from his work as a dining assistant in the galley. "It takes a considerable amount of time for the fresh produce, like lettuce, to arrive in town. It sits in storage losing valuable nutrients and beginning to perish. By the time it does get here, we have to throw a large portion of it away due to spoilage."

Unfortunately, the greenhouse is not immune to to waste itself. Recently employees were forced to throw away nearly 50 tomato plants and 20 cucumber plants due to the unexpected intrusion of peat moss -- a plant banned on the continent by the Antarctic Treaty.

Growing vegetables on the most remote continent on Earth can be tricky business, but the greenhouse is successful by using a combination of hydroponics and a continuous flow of water. In hydroponics, soil is replaced with a liquid nutrient solution. Daily measurements are taken to test the pH and temperature of the water, which averages 15 to 20 C.

The warmth and humidity of the greenhouse produces a good growing environment as well as a comforting reprieve from McMurdo's snow and ice. Luyendyke said he often finds people improving their mental wellness by using the greenhouse and its solarium as a means of meditation and tranquility.

For some "green therapy" or to volunteer, visit the greenhouse, building 147, across from the carpentry shop, building 191.

DidYouKnow...

by Brenda Joyce

Russia's Mirny Observatory on the West Antarctic Ice Shelf is provided with 1 ton of clear fresh water per day. Three tubular electroheaters are inserted into a hole in the ice and water accumulates in the hole. The ice melts and does not freeze up again, even though the outdoor temperature often reaches minus 30 C.

800 gallons of rum and 45 sheep were packed on the "Discovery" in 1902. They were part of the provisions for 48 men for three years, which included 42,000 pounds of flour, 10,000 pounds of sugar, 3,000 pounds of roast beef and 23 sledge dogs (not part of the menu).

Palmer Station was built on the foundations of a British station built in the 1940's. England built a string of outposts in Antarctica to monitor possible enemy ships or submarines. Many sites were maintained into the 1950's and Port Lockroy, upon which the station was built, was the last to be abandoned in 1962.

Light was provided at Scott's hut at Cape Evans in winter's long night. About 7 kilograms of carbide kept 12 lights going throughout the season.

McMurdo Calendar

Nov. 8
Art Show in the library, 4-6 p.m.

Nov. 11
Bingo in Gallaghers

Nov. 14
DJ dance party at Gallaghers

Nov. 20
David Z in the Coffee House

Nov. 21
Beach Party

Giant Berg Breaks Free, Sends Station Afloat

by Alexander Colhoun

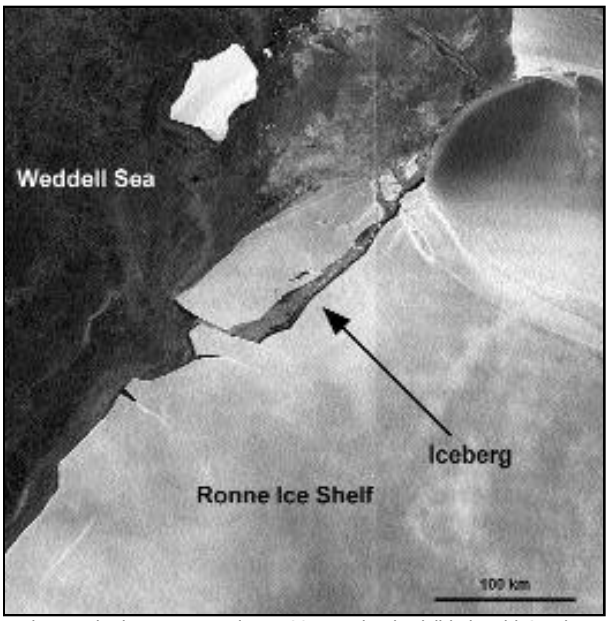
An iceberg larger than the state of Delaware peeled off from the Ronne Ice Shelf near Berkner Island in west Antarctica last month, sending a German research facility adrift into the Weddell Sea.

Spanning a distance of 2,245 square miles, the berg, obliquely named A-38, is also home to Germany's Filchner Station, which operates during the Austral summer. A-38 is now making its way out to sea, breaking into smaller pieces as it travels. To date three major bergs, the smallest of which would easily cover Manhattan Island, have disintegrated off the main iceberg.

For now Filchner Station remains intact and accessible due to its location at the center of one of the main icebergs, and German researchers are hopeful they will be able to recover useable parts of the station this summer before it is lost entirely.

When German researchers do arrive at Filchner it may be hard to believe they are adrift. To drive across the main iceberg in a sports car, traveling at highway speed, would take about an hour. And no one knows how deep the berg may stretch.

Typically an iceberg of this size will drift and become grounded before finally breaking apart at sea. "Given its size, I wouldn't expect it to move very far," said Glenn Grant, a science technician at Palmer Station who spotted the iceberg in mid-October.



Using synthetic aperture radar, A-38 was clearly visible in mid-October when it broke off Antarctica's Ronne Ice Shelf. SAR imagery combines excellent resolution with the ability to sense the Earth's surface in darkness or through clouds, making it exceptionally useful for monitoring ice in polar regions. Courtesy of the Canadian Space Agency and the NOAANational Environmental Satellite, Data and Information Service.

The iceberg was once part of the Ronne Ice Shelf, one of the spacious, floating sheets of snow and frozen water that encircle the Antarctic mainland and the second largest ice shelf on the continent. Researchers believe that calving of icebergs is an important mechanism in the breakup of ice shelves and a possible indication of global warming. Scientists in Antarctica, and as far away as Maryland, are keeping a watchful eye out for these climate change indicators.

Credit for the discovery of A-38 has been ascribed to Mary Keller at the National Ice Center in Suitland, Md. However, on Oct. 13, Grant and colleague Jeff Otten may have been the first to spot the iceberg using satellite imagery.

"When we first spotted the berg, we enhanced the image a bit and zoomed in on it. Our response was, 'wow, that's cool,'" Grant wrote in a dispatch from Palmer Station. A day later, on Oct. 14, the NIC first published its find.

The NIC, in cooperation with the U.S. Navy, Coast Guard and National Oceanic and Atmospheric Administration, is tasked with the seemingly obscure mission of tracking icebergs across the globe.

It is also responsible for naming them. The "A" sector runs from 0 to 90 degrees west longitude including the Weddell and Bellinghausen seas, and this iceberg was the 38th recognizedwithin it -- hence A-38.
Bragging rights aside, Grant was nonplused by the discovery. "Now if they named bergs after people, like they do comets, then it would be a different story," wrote Grant. "I'm thinking of changing my name to A-38." ✹

Views from Antarctica's main street

Q: How do you cope with living in a six-person dorm room?

Glenn Gordon, Copier Specialist

"I guess you just have to have a good sense of humor. All you can really do is look at the situation and laugh about it."

Angela Dawson, Cargo Handler

"Stay out as much as I can. I'm kind of coming to grips with it, but I hate to have to tip-toe around. It doesn't feel like home."

Shannon Wilson, Painter Helper

"Denial."

Karla College, Central Supply Materials Person

"I like it because I grew up with a big family. I like having a lot of people around."

"For speed and efficiency of travel, give me Amundsen; for scientific discovery give me Scott; but when all hope is lost get down on your knees and pray for Shackleton."

Sir Raymond E. Priestley, geologist with the British Antarctic Expedition, 1910

As temperatures dropped and winds kicked up to over 20 mph, Ronald Hannah, a veteran of three seasons in Antarctica, took time to walk out over the frozen Ross Sea. Photo by Alexander Colhoun.

IceTrek

....continued from page 1

It is a qualified loneliness. The expedition is nothing short of a world communications center on ice. The team will engage what their Web site describes as "a constellation of 66 low-orbit satellites" to track and keep in contact with the team.

When Robert Falcon Scott left Cape Evans bound for the South Pole his sledges carried not a single piece of communications equipment. Laden instead with bulky supplies, the wooden sleds were pulled by a team of ponies which were systematically shot as they became incapacitated in the snow.

Scott's gear was made of wool, leather, fur and cotton. They shared a canvas tent and wrote their diaries with graphite and paper. The expedition had no name and no chance of rescue from danger.

Suiting up Wednesday morning, the IceTrek team chose from a combination of pile, fleece, dacron, Gore-Tex, open-cell polyurethane, polypropelene and Cordura to cover them from head to toe. Three specially designed polyethylene sleds carried their gear.

Technological differences aside, the physical, mental and interpersonal challenges posed by the trek remain the same as they did in 1911 - the journey is unforgiving as the desolate landscape.

In addition to these traditional challenges, the expedition has obligations with the outside world. IceTrek will be closely followed by school children and the media, leaving the team with yet another task: educating the public.

"Antarctica is a special, magical place," said Hillary. "This expedition is in the mold of explorers of old. If we can just get a little bit of information out there about the good work being done here it will be a great benefit. If the general public gives it a priority, then the politicans will listen. We have a great and unique opportunity here."

The Paint Shop's Top 10 FNG Mistakes

10. Thinking orange bags are a great fashion accessory
9. Can't wait for FNG appreciation day
8. Waiting to see first polar bear
7. Working overtime for extra pay
6. Missing out on swimming with Antarctic cod in the aquarium
5. Can't seem to fully inflate bunny boots with little valve
4. Hiking up Observation Hill to see first sun set
3. Taking two-minute showers
2. Fail driver's test

And the NUMBER ONE FNG mistake is...

Offering to drive Ivan the Terra Bus to Monster Truck Rally on SUNDAY! SUNDAY! SUNDAY!

Ozone Research Takes Off

Balloon-borne measurements offer detailed look at stratospheric hole

Story and photo by Ginny Figlar

Liz Sinclair and Donal Lukens, lab technicians on a University of Wyoming research team, launch one of their last balloon-borne experiments of the season from the VXE-6 platform. The balloon and accompanying ozone sonde were sent up to 32 kilometers to study levels of ozone in the stratosphere.

The white, wispy balloon resembled the graceful movement of a swan as it headed for the upper edge of the atmosphere, but it was the scientific instrumentation in the balloon's clutch that had all eyes glued to the majestic ascent.

Late last month, lab technicians Donal Lukens and Liz Sinclair released a small, styrofoam-lined package into the sky like a message in a bottle, with hopes for a particular message in return -- answers about the Antarctic ozone hole.

The launch is one of 26 balloon-borne experiments performed at McMurdo Station since August by a University of Wyoming team that includes associate professor Terry Deshler and research scientist Bruno Nardi. By dissecting layers of ozone and looking at such clues as the number of volcanic particles and the size of polar stratospheric clouds – or PSCs – these scientists are able to get a more detailed look at the Antarctic ozone hole than is visible by satellites and widely used Dobson spectrometers.

"Balloon-borne measurements are the best way to measure detailed altitude structure of ozone and PSCs from the ground up to the lower stratosphere, where the bulk of ozone exists and where PSCs form," Nardi said from his Wyoming office.

Spectrometers and satellites measure total ozone from afar, offering global coverage and trends but little or no information about the layers of ozone. With the added benefit of relatively low cost, balloon-borne instruments go up into the heart of the hole, giving scientists a bird's-eye view as it rises 32 kilometers into the stratosphere. Using a teflon pump, delicate wiring and battery power, the instrument draws ozone into the box and transmits measurements telemetrically to a computer in Crary Lab.

Nardi said data from this year's balloon launches reveal a significant increase in ozone destruction in the altitude region between 14 and 21 kilometers -- the "largest-ever altitude region of nearly complete ozone destruction." This large ozone void was also more persistent over McMurdo than previously seen, he added, indicating that the hole is also larger in area, as satellite measurements have shown.

According to a study released by NASA and the National Oceanic and Atmospheric Administration on Oct. 6, this year's ozone hole was the largest ever, with ozone depletion spanning 10.5 million square miles. The goal of Nardi's research, and the work of any ozone scientist, is to discover why that is happening. This season's balloon-borne measurements have provided Nardi with some clues.

"This is the most persistently cold stratosphere we've measured since the discovery of the ozone hole in 1985," Nardi said.

When the stratosphere is colder, he explained, the polar vortex -- a massive cell of air the size of Antarctica that rotates around the pole during winter and early spring -- is larger and more stable. This heightened vortex leads to an increased number of PSCs and, ultimately, to more ozone destruction.

The convergence of PSCs and inert chlorine compounds in the vortex are the main factors that lead to the annual hole over Antarctica. PSCs, ice clouds formed in the frigid temperatures of the stratosphere, contribute to ozone depletion by helping to convert the inert forms of chlorine into an ozone-destroying form.

Simply put by Lukens, "If there weren't PSCs, there wouldn't be ozone depletion."

There's no doubt about the role PSCs and a cold stratosphere play in the destruction of ozone. But, why this year's polar stratosphere is cooler than previous years is still a big question, Nardi said.

One possible cause of the cold stratosphere could be the greenhouse effect, he said. As carbon dioxide and other greenhouse gases lock radiation in the lower atmosphere, the stratosphere above cools. This has been observed over the North Pole.

But to what extent greenhouse gases are causing this season's very cool South polar stratosphere, Nardi said, "It's too early to say."

The last balloon-borne experiment for the year occurred Oct. 31, and Nardi will spend the next several months analyzing the data collected for more answers. Members of the Wyoming team will also be back in McMurdo in February to prepare balloon-borne experiments for launching in June, the Austral winter, when PSCs begin to form. ✹

UPDATES

Antarctic Stations and Ships

McMurdo Station

by Stan Wisneski

After some significant delays in arrival for personnel, McMurdo is caught up. Everyone is here that is supposed to be here thanks to the diligence of the U.S. Air Force 141 aircrews.

Now that folks are here, projects are starting to crank up. The erection of two 2 million gallon fuel tanks is progressing on schedule, and the tanks should be completed prior to Christmas. South Pole, Siple Dome and Downstream Bravo all opened on or close to schedule. Preparations for the yearly Mass Casualty drill, scheduled for Nov. 14, are underway.

Last week the Halloween Party was a smashing success! Winners this year were:

- Best Overall: Fred Parson/Jude Winters - Dragon monster and his keeper from Scott Base
- Outrageous: Sean Anderson- Marionette
- Group-Cindy Carney (Princess Leah) ASA & Grant Shadbolt (Darth Vadar) Scott Base
- Ice-related: Elizabeth Muck - dressed as the South Pole
- Scariest: Kurt Speers - Bloodface guy.

Palmer Station

by Ron Nugent

Palmer's summer season began slowly due to poor weather and ice conditions. The station turnover cruise by the R/V Lawrence M. Gould took nine days as opposed to the normal four days. This was the Gould's first voyage in heavy ice, and the ship and crew performed excellently.

Because the ship was delayed during the turnover cruise, the next few port calls had to be rushed in order to maintain the schedule. In between port calls the winter and summer crews competed turnovers and most of the winter staff departed on the second cruise. The out going crew completed some major construction projects this winter, the most visible of which was the addition of new science offices in the Bio-Lab building.

Boating operations have been limited so far this season due to brash ice and poor weather. The current station population is 31, nine science and 22 support persons. The next port call by the Gould will be on Nov. 12.

South Pole

by David Fischer

South Pole station made its winfly opening on Oct. 28, two days behind schedule, but recovered to complete its Mainbody opening on schedule, on Nov. 2. Winter-overs had prepared the station well for opening, and already South Pole is ahead of schedule on some projects -- a great relief after last season's 12-day opening delay.

An aggressive science schedule and significant work on the station modernization will mean another busy year at South Pole. Population here will reach its maximum of 200 within a week and remain there until late in the season. This year, ASAwill completely replace the fuel storage facility, increasing fuel capacity to 450,000 gallons (from 250,000 currently), and adding modern safety features, such as spill containment tanks. Over the summer, ASAwill begin the construction of the new garage and shops facility, and will complete that work over the winter with an additional 15-person winter construction contingent.

R/V Nathaniel B. Palmer

by Tom Bjokne

Following a sweltering Seattle-Honolulu-Samoa-New Zealand transit and geophysical cruise, the R/V Nathaniel B. Palmer departed Nov. 1 from Lyttelton, New Zealand, on its way to more familiar and considerably cooler Antarctic waters. Familiar waters also describe the current science project, as this year marks the third and final leg of the ROAVERRS Project. ROAVERRS, which stands for Research on Ocean-Atmosphere Variability and Ecosystem Response in the Ross Sea, is a three-year project focused on studying links between atmospheric, oceanic and biological systems of the southwestern Ross Sea. This year's activities will include a recovery of five multiple-sensor moorings deployed during last year's cruise. Benthic photography, sediment and ice coring, CTD profiling and shipboard incubations are also planned.

The cruise ends Dec. 20 in Port Lyttelton, which is the last New Zealand port call for the NBP until late next year. The next port call will be in McMurdo on Feb. 12, followed by several Punta Arenas, Chile, stopovers.

R/V Laurence M. Gould

by Tom Bjokne

Following the addition of an Ice Knife/Sonar Transducer Pod to the Gould in July 1998, the vessel has returned to peninsula-side oceanographic research and Palmer Station science support. The Gould departed Punta Arenas, Chile, on Oct. 13 and is now "over-the-hump" of LMG 98-9, which is the first full-blown science cruise of the Austral 1998 summer. Cruise grantees are studying the effects of ultraviolet radiation on phytoplankton, zooplankton and bacterioplankton.

Operations will soon move to the vicinity of Palmer Station prior to passenger pickup from the station and the return crossing of the Drake Passage. The ship arrives in Punta Arenas, Chile, on Nov. 20 to prepare for the Island Hoppers cruise.

ASA, Denver

by Ron Koger

Mike Papula has been appointed as Project Manager for South Pole SE/SM projects. Pat Haggerty, the previous project manager, has accepted an assignment with the parent company, Holmes and Narver. Matt Oberlies, new to ASA, has been appointed Assistant Project Manger for the South Pole Projects.

ASAis on schedule with the USAPY2K compliance plan and is beginning to fix some of the areas we discovered during the assessment phase. Beth Bradley is the Project Manager.

ASAis collecting data to support quantitative performance measures by which the performance of ASAcan be evaluated. These measures were recently approved by NSF. Other USAPpartners are also participating. Dr. April and Dr. Kottmeier are coordinating for ASA.

Recent new taskings from NSF include conducting a study and identifying options for secondary treatment of wastewater discharge at McMurdo and Palmer stations. The Engineering Division will conduct the study.

National Science Foundation

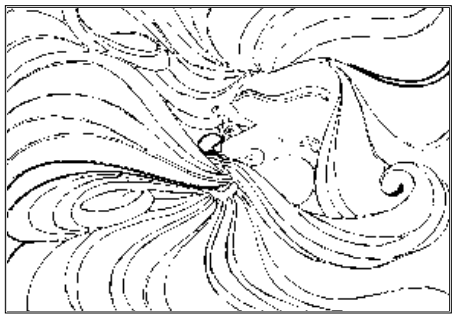
by Guy Guthridge

Physicist Karl A. Erb was named by NSF to head its Office of Polar Programs starting Nov. 2. The office administers the U.S. Antarctic Program and an Arctic Research Program.

The foundation's senior science advisor since 1993, Erb represented NSF in a National Science and Technology Council review that resulted in White House reaffirmation of the importance of the U.S. Antarctic Program. He coordinated preparation for the subsequent U.S. Antarctic Program External Panel headed by Norman Augustine, then chairman and

...updates continued on page 9

Weather Central



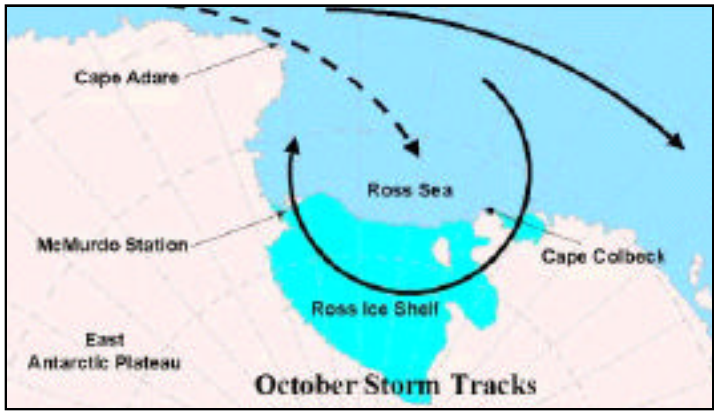
by George Howard

It seems no matter where you live, the weather never approaches what weather folks tell us is "normal." And McMurdo's no exception.

Average high and low temperatures for October are typically minus 16 and 23 C (4 and minus 9 F). But October 1998 was markedly warmer with average high and low temperatures of minus 12 and minus 20 C (+10 and minus 5 F).

These warmer temperatures were caused by two predominant storm tracks during the month that departed significantly from what we'd normally expect. Usually, we see storms originating in the southern Indian Ocean sweep past Cape Adare, heading for Cape Colbeck and the eastern Ross Ice Shelf (see dashed arrow). These would usually pull surges of frigid air off the East Antarctic Plateau and over Ross Island. This October, however, we saw storms travel in two dramatically different directions.

During the first half of the month, a succession of small storms circulated clockwise past Cape Colbeck, across the Ross Ice Shelf, and past McMurdo Station (see solid arrow at center). This pumped relatively warm, moist air from the Ross Sea into our area. This not only elevated our temperatures, it also generated low clouds that hampered flight operations.



The predominant storm track changed for the better during the last half of October. Storms passing Cape Adare just continued on their way eastward (see solid arrow at top right) keeping most clouds, precipitation, and moisture well to our north. This storm track allowed cold, dry air from off the East Antarctic Plateau to simply drain rather than race down the glaciers of the Transantarctic Mountains, and provided us the sunny skies we enjoyed so much. ✹

Updates

....continued from page 8

CEO of Lockheed Martin. Erb also assisted in developing an NSF-wide approach to supporting research in the Arctic.

Erb joined NSF in 1986 as a physics program manager after 16 years in research and education at Yale University, Oak Ridge National Laboratory, and the University of Pittsburgh. From 1989 to 1993, he oversaw the area of basic research in science and engineering at the White House Office of Science and Technology Policy.

He is recognized for his research in experimental nuclear physics, particularly heavy-ion science and nuclear molecular phenomena. He received his master's and doctoral degrees from the University of Michigan and a bachelor's from New York University. He recently was recognized for his work in the public sector with the Presidential Meritorious Rank award.

John B. Hunt, acting head of the polar office since August 1997, now gives all his time to being deputy assistant director for integrative activities in NSF's Education and Human Resources directorate.

Christchurch, New Zealand

by Brian Stone

Despite the delays experienced during the first few weeks of the season, the situation in Christchurch is improving with the completion of more flights to McMurdo Station. The passenger backlog has been cleared, and every effort is being made to get the cargo movement back on track as soon as possible. The U.S. Air Force Special Assignment Airlift Missions are scheduled to conclude on Nov. 8 and will begin again in late-January to assist with redeployment. The 40th Squadron of the Royal New Zealand Air Force will be deploying to Christchurch to begin C-130 "Ice Cube" missions to Antarctica.

Mike Tayloe explores the depths of an ice cave on Cape Evans. "It was surreal," Tayloe said of the blue-tinted ice cave. "It was magical. Like stepping into another underground, secretive, gnome-like world." Photo by Ginny Figlar.

Dear Aunt Arctica,

It's my first year on the ice, and I'm very excited about my new surroundings. I'm a little worried, however, because they keep talking about the weight gain that is so pervasive in Antarctic inhabitants. I really don't want to come home this spring looking like the Pillsbury doughgirl. Can you help me out here?

New and Still Nubile

Dear NASN,

Isn't it peculiar how "they" discourage us so from thinking for ourselves? As if you didn't already have the answer to your problem already lodged in your sweet little head like a piece of yesterday's pot roast. Just to remind you, though, my dearest NASN, it's a very simple equation of calories in versus calories out. If you have a desk job then you burn less calories than one of those poor, long-suffering GAs, which means you need less food. There are some little tricks to staying slender, too. Getting outside as much as possible helps keep you from getting depressed, which helps keep you active. Also, avoid drinking too much beer (the real culprit of the freshman 15); dessert only comes once a day, and, above all: drink lots of water!

Dear Aunt Arctica,

I've been married less than a year, and it's my first time away from my wife. Some of the guys were joking around the other day, saying stuff like "when you go to McMurdo you don't lose your wife, you just lose your turn". I love my wife and would hate for my job down here to wreck out marriage. If she got lonely, though, and cheated on me, it would definitely be over. Do you think it's possible this could happen?

Not a Doorknob

Dear NAD,

Do I think it's possible? Heck yes, boy, there are foosball tables in Antarctica. . .anything's possible. You sound like a very attentive husband, though, which makes it seem less likely that the little missus will stray during the five months you're away. To insure that she's thinking of you at all times, however, here are a few pointers: Call her. Often. Call just to tell her you love her. Chicks love that stuff, trust me. Also, avoid explicit descriptions of your drinking exploits with your buddies during these phone conversations with her. Your living out the male-bonding fantasy of a lifetime is the last thing she wants to hear about when you're away and she's home with a winter head cold, or the in-laws, or her new boyfriend (just joking, NAD). Humor aside, you should stop listening to the Neanderthals you keep company with and listen to your instincts. You married the woman for a reason, and as you have already stated, that reason is not because you're a doorknob.

You can send your questions for the preceptress of Antarctic advice to sun_news@asa.org.

Around MacTown

Recreation

• McMurdo feels an Eastern influence: **Tai Chi** is offered on Mondays and Thursdays at 6:10 a.m. and 6:10 p.m. in the Chapel. **Karate** is taught in the gym Tuesdays from 6:45 to 8 p.m.

• Get off your kiester for the **Thanksgiving 5K Turkey Trot** at 2 p.m., Sunday, Nov. 29. It's a great opportunity to rid yourself of the post Thanksgiving bloat.

• **League play** is underway. The first week of league volleyball, bowling and soccer concluded this week. If you are not on a team and still want to play, stop by the Recreation Office.

• Interested in big air? The **climbing wall** is open around the clock, but you must be certified by an instructor prior to participation. Climbing certification takes place Wednesday evenings at 7. Sign up in the Recreation Office.

• **New hours** for open participation in **basketball**, **floor hockey**, **volleyball** and **soccer** are posted outside the Recreation Office.

Firehouse

In an overall safety awareness push by the McMurdo Firehouse, residents are encouraged to take one or more of the following classes. Contact the firehouse training officer, Dave Moschner, at ext. 2555, for more information

• **CPR certification:** One class every week. Times and date may change as to allow for different work schedules.

• **First Aid classes**: Two classes offered each month.

• **Specialty classes**: Throughout the summer, the firehouse will be training daily and may be able to accomodate others. Included will be an EMT refresher course (ECUs will be granted), fire-extinguishing methods specific for Antarctica's environment, hazardous awareness and operational level classes.

• Displays, demonstrations and Red Dog's Famous Chili are all part of the **Fire House Expo**, 2 p.m. Sunday, Nov. 15

BEAKER NEWS • BEAKER VIEWS

The Voice of Antarctic Researchers

Michael Cameron snaps an identification tag on a young Weddell seal pup. The blood covered snow is a natural result of the seal's birthing process. Photo by Alexander Colhoun.

Journal Entry – Oct. 31, 1998
by Michael Cameron

Today was another long one for B-009. Tom was the first one up. Shortly after that the rest of the crew stumbled into fish hut #5 at Big Razorback Island and shaded their eyes from the sun reflecting off Mount Erebus. Thankfully, we had good weather for the day's work. After breakfast and a few camp chores we warmed up our snowmobiles and headed out to Hutton Cliffs.

Thirty years ago, Hutton Cliffs was the site of the first population research to be conducted on Weddell seals in McMurdo Sound. Don Siniff and other researchers from the University of Minnesota began marking these seals with unique identification tags. By 1971, every pup born in the study area, between Scott Base and Cape Evans, was given a tag for individual identification, and population estimates were calculated from periodic censuses. By updating annually, we have a database containing 30 years of sighting records covering the life span of the Weddell seal (for some individuals up to 27 years). This will allow me to determine how fluctuations in the population are tied to differences among age classes. With over 13,000 animals tagged and over 128,000 sightings records, I count myself as one of the lucky people who have had a chance to explore these data for their own research questions.

We had not been to any of the colonies south of the Erebus glacier tongue in three days and in our absence there had been an explosion in the population. Over 100 new pups had been born; all of which would receive bright yellow tags. We got down to business and finished the tagging in seven hours. We still had more work to do so we headed back to camp and geared up for a few more hours.

We know very little about Weddell seal reproductive behavior because mating occurs under the ice. Tom is getting at this age-old question with brand-new techniques. He is using DNA fingerprinting to determine each pup's father and underwater depth transmitters attached to adult males to measure territoriality.

We used five-minute epoxy to glue sonic depth transmitters to adult males - the first one being a battle scared, 800-pounder. Not an easy thing; but covering their eyes with a bag calms them down without the use of tranquilizers. After "bagging" four males we headed back for a late dinner around 11 p.m., but the activity never seemed to stop. Dan cooked dinner while Kyler checked the calibration on the diving instruments. I entered the tagging data from this afternoon, and Tom

...story continued on page 12

Futuristic 'Antarctica' in a World of its Own

Compiled by Ginny Figlar

Looking down on Antarctica from a plane high above, the pristine, icy continent resembles the landscape of the moon or some distant planet.

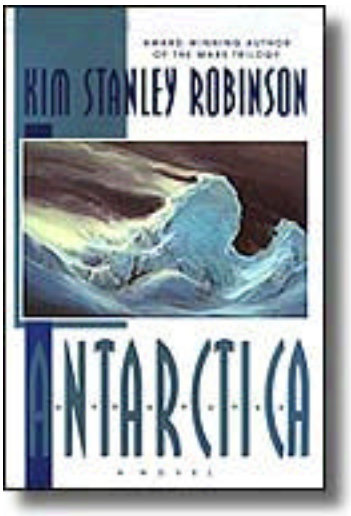
Maybe that's why the leap of science fiction writer Kim Stanley Robinson from his Mars trilogy series to his new book, "Antarctica," is not such a giant one.

Robinson visited Antarctica during the 1995/96 season on a grant from the National Science Foundation's Artists and Writers program, and his book is the latest novel spawned from the annually sponsored program. Rich in detail from his experience on the ice, "Antarctica" is a sci-fi thriller set several decades in the future.

"An award-winning science fiction writer, Robinson's vision of McMurdo, South Pole and the rest of the continent is creative and intriguing -- but not at all far-fetched. Tourism (including NSF-sponsored trekking and stores and restaurants in McMurdo), oil drilling, eco-sabotage and global warming (the Ross Ice Shelf is no more) are what the future holds in store for Robinson's 'Antarctica.' The plausible sci-fi bits include robotic supply trains to the Pole, stealth blimps and solar-powered self-heating clothing. All of this serves as a background to an action-adventure story...Though 'Antarctica' may be 150 pages longer than it needed to be, the payoff is worth it. It is a very clever and entertaining story, rich with history as well as futuristic vision. It is recommended reading for (veteran Antarctic personnel) and (newcomers) alike."

– Jon Carter, ASA

"Forbidding yet fascinating, like the continent it describes, 'Antarctica' is a compelling achievement. Robinson, a science-fiction writer best known for his acclaimed Mars trilogy, has done his homework.



Antarctica, A Novel
by Kim Stanley Robinson

Published by Bantam
511 pages, Hardcover

$24.95

ISBN 0-553-10063-7

Available at Amazon.com
at http://www.amazon.com

Unleashing a blizzard of information about our planet's last great wilderness, he blurs the line between fact and fiction, but no matter, since the subject itself is so absorbing."

– Mark Donovan, *People Magazine*

"'Antarctica' is best in its scenes of dramatic interaction, such as a tour group suffering injuries and getting lost in a rising storm, or a drilling crew trying to reach another installation after its outpost has been blown up. The lectures and commentary, although well-written, are merely informative. It is when he shows us people laboring within (and often against) their environment that 'Antarctica' comes to life."

– Gregory Feeley, *The Philadelphia Inquirer*

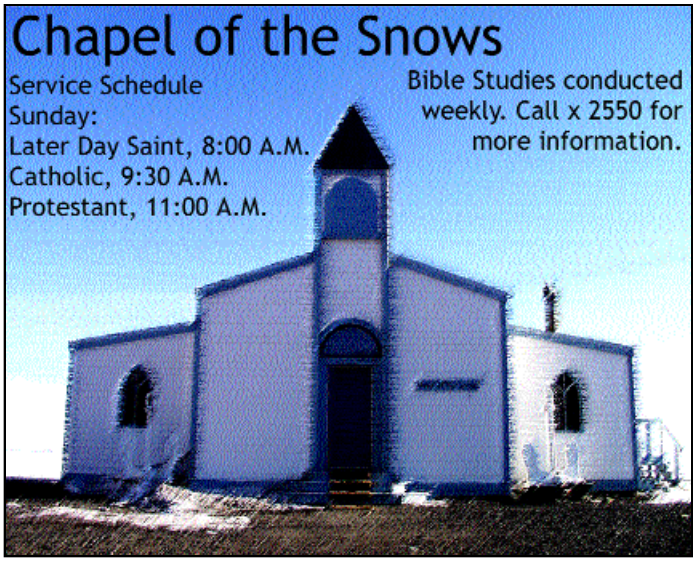
Beaker News

....continued from page 11

prepared the tissue samples for later DNA analysis.

Earlier at Turtle Rock we had seen two pups both suckling from the same mother. Wondering if they might be twins, we collected tissue samples. Genetic work conducted last year has indicated that two pups nursing the same female are not necessarily siblings. In addition, the database revealed that another Turtle Rock female tagged as a pup by Don Siniff in 1973 was seen in 18 of the last 25 seasons and had given birth to at least 11 pups. It is this ability to track the life histories of not just one individual but of a whole population that makes the tagging database so important, and permits us to ask and answer questions that were not even thought of 30 years ago.

We ate dinner and then finished entering the data and the general camp chores around 2:30 a.m. We went to bed tired but satisfied with the amount of work we were able to get done. Tomorrow we would head for the seal colonies north of the glacier tongue. ✹



Perspectives

the state of survival at Sea

by Valerie Carroll
Publisher, *The Antarctic Sun*

I've heard people say that when the sea gets rough enough, the constant pounding of the waves drives them to such a mental state that they actually entertain the thought of jumping into the sea.

Now I can relate to that bizarre statement.

The R/V Laurence M. Gould, a brand new 230-foot ice-strengthened research vessel, embarked with 40 passengers on Sept. 11 to turn over staff and deliver cargo to Antarctica's Palmer Station. I was on board to collect video of the new ship.

The R/V Laurence M. Gould, dedicated into service for the U.S. Antarctic Program in September, makes its way through waters off the coast of South America in a recent trip. Photo courtesy of Dawn Scarboro.

Only about 13 percent of U.S. Antarctic Program participants travel to this small station, which sits on a spit of land south of the Falkland Islands. The site consists of three main buildings and typically houses only about 33 program participants. Transport of cargo and personnel is accomplished by ship from Punta Arenas, Chile, and crossing the Drake Passage, some of the roughest water in the world. The crossing usually takes four days.

Just after we set sail, the crew held a safety meeting where we learned about alarms, how to don our "gumby" survival suits and access the enclosed lifeboats. We also learned that we may be in for a little weather. I was actually glad to hear this. A once-in-a-lifetime experience like this might as well include a bit of adventure!

The next few days were a long blur. Just as we made our way into the Drake Passage the weather kicked in. We experienced unrelenting seas slamming onto port holes and the bridge, 35-foot waves and 40 degree rolls. If freestyle shipping were a sport, we scored a perfect 10.

The galley was trashed. Normally secure condiments and food tossed across the room, leaving marks on the walls. Chairs toppled. Books and videos flew off their secured racks and slid across the room, into hallways and out from under furniture — just like waves on and off a beach.

Something happens when your body is exposed to that kind of movement for prolonged periods of time. You enter some sort of dazed zombie state of survival. You can't hold still long enough to get any real sleep. All of your energy is spent maintaining your balance and monitoring your level of nauseousness. Walking is a project. You either can't lift your legs off the floor or you can't keep them down. Doors are either too heavy to open or they are slamming shut.

Yet, in this survival state, no one was very excitable. A few didn't leave their beds. Most of us spent a lot of time in the lounge, which was one of the more stable places, trying to watch movies and doze off. Conversation required too much effort. I'll never forget looking around the room and seeing all of our bodies surge deep into the sofa cushions and then rise up again, almost floating.

Day after day and no relief. Our four-day itinerary was forgotten. A well-seasoned member of the ship's crew admitted that this was the worst crossing he'd been through.

We lost 30 hours simply trying to run away from the storm until, finally, the weather began to clear. We slowly emerged from our zombie state and began to enjoy life again. We showered, put away debris, appreciated how our dinner plates and utensils didn't slide and chatted about our adventure. All was well.

And then we hit ice.

Now a slow form of torture. The crew searched for paths of ice that we could conquer using the "backing and ramming" technique. This is a very loud process, and it has no rhythm that you can learn to ignore. Just imagine the constant sound of a car crash — screeching tires and bending metal — day after day after day. At one point, I calculated that in 72 hours we'd only traveled 21 miles. I concluded that being stranded in New Zealand or McMurdo Station, or boomeranging on a LC-130 Hercules was preferable to being confined to a ship in bad weather. Our four-day trip to Palmer Station took 10 days.

I've been to the Ice many times, but each journey seems to reaffirm the same lessons. Once again I was amazed by the heroism of early Antarctic explorers, thankful for the skills and experience of the captains and pilots, filled with respect for Mother Nature, and mostly humbled by the pristine beauty of wild Antarctic and, now, its surrounding ocean. ✹

POLYESTER On Ice

Profile

Story and photo by Alexander Colhoun

As she packed her bags for Antarctica this season, Kelly Nevins' extra socks lost out to more pressing necessities: three colored wigs, a drawer full of polyester disco dressses and no less than eight pairs of sunglasses.

"Lately I've had a facination for dressing up in costumes," Nevins said of her 70s regalia. "I really have fun with it."

Fun is the name of Nevins' game and little transpires around her that isn't deeply soaked in laughter and a sense of adventure.

Standing in the stiff Antarctic breeze with little but a pair of oversized bunny boots, and a safety harness between her and the endless, snow-covered landscape of Antarctica, Nevins soaked in the raw power of the landscape. It wasn't the first time she had taken the polar plunge, nor would it be her last.

With a scream of laughter she plunges into the sub-zero water -- water so cold only the salt keeps it from freezing -- and moments later scrambles up the make-shift ladder.

"It's a rush to jump into that freezing water," said Nevins. "It gets the adrenaline flowing and the heart rate up. You get out and feel rejuvenated."

The roots of her uncompromising nature trace back to the Benjamin School in Florida, where she attended high school. "That's where I realized when I'm told not to do something, I am compelled to do it."

Her last polar plunge is a case in point. "There was a diver under the ice and he took a photo," Nevins said. "I had to stay still under there for a few seconds which no one had been able to do thus far. Someone had told me that I wouldn't be able to do it. Big mistake." The diver got his photo.

A self-described "good girl" growing up, it wasn't until she was 15 that Nevins aquired her Ulysses-like spirit. "I went to New Zealand as an exchange student with an Outward Bound program and it changed my life," said Nevins. "I realized there was a lot more to do than staying home in Florida."

What began as a semester away from home transformed itself into a new lifestyle, and the following year she moved to Sweden as an American Field Service exchange student, traveling to the Soviet Union on two separate occasions while there. The travel bug was sown.

Returning from Sweden to the University of Florida, it wasn't long before Nevins ventured forth again, spending two semesters of her college years abroad in Europe. "I kept on meeting these people who had done amazing things," said Nevins, "And I thought to myself, 'Darn. I can do that, too!'"

Each summer, between her semesters in Florida and abroad, Nevins found employment in the American outback, Alaska. "I loved Alaska for it's untouched beauty and wild untamed wilderness, and for the adventurous people."

Among her swagman friends in Alaska, Nevins met more than one Antarctic worker, and it was only a matter of time before her dream to work on the southernmost continent became a reality.

Six years later, Nevins is one of a small handful of 30-year-olds who can claim more than 28 months on ice -- more than two years of her life. "I knew in my first week down here I'd be back," said Nevins, who started off as a dining room assistant. "Where else in the world can you find free food and lodging, no crime, a walk to work, no rush hour traffic, penguins and whales around the corner, free rides on an ice breaking ship, free airfare to New Zealand and the most extremely interesting group of people in the world?"

Nowhere, claims Nevins, whose next stop is the South Pole where she will spend the upcoming Austral winter. "Once you get started in this lifestyle it's hard to quit," said Nevins. "Once you realize what's out there, you just keep going." ✹