

See you next summer!

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February 6, 2000

# The Antarctic Sun



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

## New future for an old base

### Vostok takes international stage

By Josh Landis  
The Antarctic Sun

The flight to Vostok is like any other journey over the polar plateau. An endless sea of white extends in all directions, broken only by the tips and ripples of hardened sastrugi.

But after three hours of nothingness, the Russian research station quickly reveals itself on the spotless plain. A cluster of buildings surrounds a large, sooty smudge. Old vehicles, smaller structures and other equipment dot the station, each locked in its own mortal battle with drifting snow at the coldest place on Earth.

Vostok is an Antarctic outpost if ever there was one. Established in the late 1950s, it has survived decades of brutal weather, crippling cutbacks in funding and, at times, complete neglect.

But today it is a year-round research facility at the epicenter of the biggest Antarctic project in recent years: the exploration of Lake Vostok.

Sealed two miles beneath the polar ice cap, scientists believe the lake may contain organisms that have evolved independently for millions of years. Roughly the size of Lake Ontario, Lake Vostok is thought to be liquid as a

See "Vostok"—Page 7



Russian researchers at Vostok relax in their lounge before boarding a U.S. plane bound for McMurdo. The U.S. sends several support flights to the remote station each year. Photo by Josh Landis.



### Carrying on

Jesse Alcorta arrives at the post office minutes ahead of the deadline for mailing boxes to the States. As of 4 p.m. yesterday, only mail weighing a pound or less will make it off the continent before next summer. Photo by Josh Landis.

## SOARing to new depths

By Jeff Inglis  
The Antarctic Sun

A small team of researchers is painting the white-on-white landscape of Antarctica in bright colors. The Support Office for Aero-geophysical Research, headed by Don Blankenship of the University of Texas at Austin, is looking at the continent in ways many scientists have only imagined.

SOAR is a consortium of researchers looking at how ice and rock interact in Antarctica. Their maps are in full color, showing different types of rocks and land formations, often over a mile under the ice sheet.

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*“SOAR”—from Page 1*

The researchers fly in a Twin Otter airplane over swaths of area larger than the state of Maine, to look at the ice-flow systems in key regions of the continent.

“We’re trying to figure out how geology influenced the formation of the ice sheets,” Blankenship said.

The airplane is crammed with electronics, so many that it takes two to three weeks to configure properly. That’s after the plane’s structure was so radically modified that it required its own certification from Canada’s Ministry of Transport before Kenn Borek Air was allowed to fly it.

“The airplane was put together to do both geology and glaciology projects at once,” Blankenship said. In addition to the internal instrumentation, it has antennas hanging off the wings.

The electronics are all sophisticated sensors, measuring the plane’s height above the ice, using ice-penetrating radar to look at the rock beneath the ice, and also measuring the strength of the gravity and magnetic pull of the rocks.

The gravity of the rocks, when separated from the influence of the Earth’s pull, shows how dense the rock is, giving clues to its composition. When that is combined with information about the rock’s magnetic properties, the type of rock can be identified quite accurately.

Putting all this information together into a meaningful picture, Blankenship said, requires an additional layer of sophisticated equipment and calculation. The airplane has several GPS units onboard, which measure the position of the plane to within four inches.

With that data, and the results from the instruments, Blankenship and his team create incredibly accurate maps of the ice and the surface beneath the ice

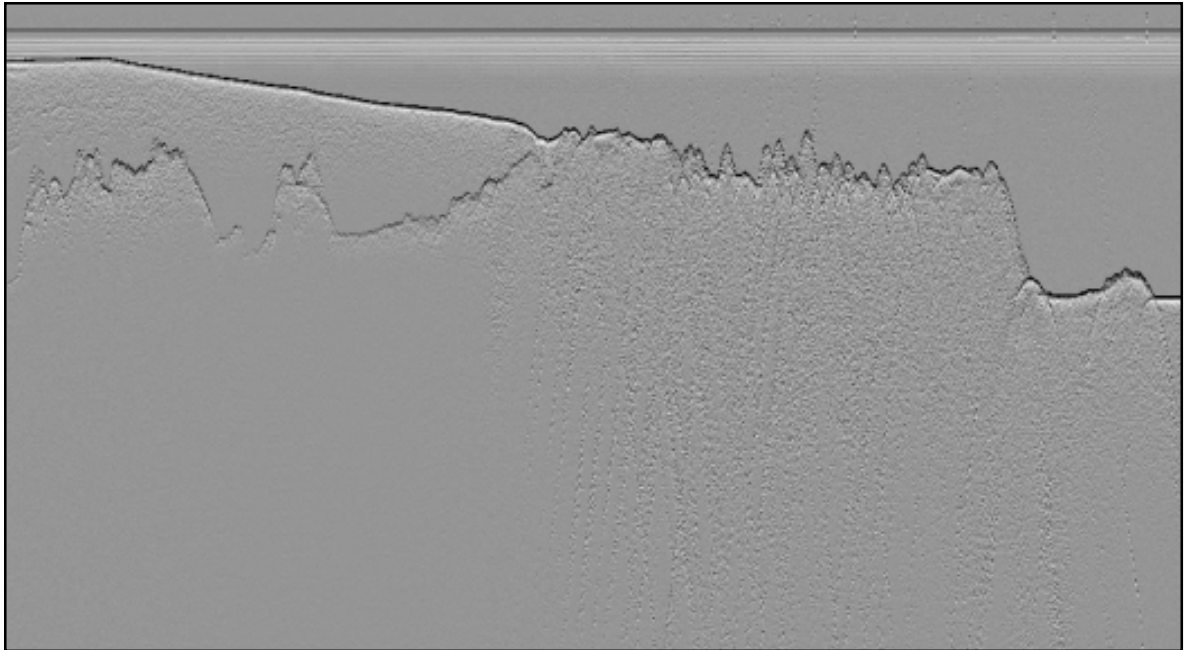
sheets covering Antarctica.

“We’re good to within 10 centimeters,” Blankenship said.

They can find sediments, holes, changes in ice-sheet layering, and other phenomena. The SOAR team helps teams like ITASE choose routes for traverses,

the evolution of the whole area,” Blankenship said.

The planning and organization resulted in use of several locations for this research and other work this season: McMurdo, Dome C, Mid C, Byrd and Siple Dome camps were all bases for



*This radar image is from a route flown across the Transantarctic Mountains between Midpoint-C and the Dry Valleys (on the right). The ice plateau is seen terminating against the mountain peaks, and buried mountains can be seen below the ice. The maximum ice depth in the image is about 2 miles. Some internal layers within the ice are visible, indicating volcanic eruptions or changing environmental conditions. Image courtesy Jack Holt.*

sites for ice-coring, and helps predict how what they find relates to other locations around the continent.

Their radar also lets them see significant layers in the ice sheet.

“It’s essentially virtual ice coring,” Blankenship said. The next actual deep-core site in West Antarctica will be chosen by the SOAR team, in collaboration with the ITASE researchers.

This season they made several excursions, one completing work they have been preparing for since 1992.

The plane and equipment flew routes over the transition from the Ross Sea to the Transantarctic Mountains, across the mountains to the Wilkes Basin and all the way to Aurora Highlands.

This cross-section of an area of the continent about which little is known geophysically was very important.

“We can get a really good handle on

SOAR flights.

For eight years the project has been underway to help explain why the Transantarctic Mountains are where they are. But once it’s all set, things move quickly.

“It took, what, 15 days to do,” Blankenship said. Good flying weather and few equipment difficulties were part of the success, as was increased computing power.

After a four-hour flight, the plane and equipment need about 90 minutes to refuel and recalibrate instruments. During that time, the researchers can take a provisional look at their data and get a sense of how reliable it is. Even just a few years ago, researchers needed more than five hours to do the same task.

“The quality of the data we get is really outstanding for the remoteness of the environment,” Blankenship said. ●

# Letters to the editors

## Robot thanks to humans

A few days ago Nomad completed its search for meteorites at Elephant Moraine. Nomad examined more than 100 indigenous rocks, studied about 50 in detail and classified seven specimens as meteorites.

John Schutt, who collected the specimens after Nomad identified them in the field, has concluded that five of the seven are meteorites.

The expedition was a great success, not only because it produced the first finds of extraterrestrial material by a robot, but also because it was a collaborative effort between a robotics program and the Antarctic Search for Meteorites.

We gathered a great deal of data that will help us augment the capabilities of autonomous science robots and, hopefully, someday see the fulfillment of our work in robotic exploration of the Moon or Mars.

On behalf of the Nomad team I would like to express my gratitude for all you have done for us in the last eight months! Your support at all levels was magnificent. Thank you!

—Dimi Apostolopoulos, Systems Scientist  
Carnegie Mellon University, Robotics Institute

## Housing hats off

To Building 208 residents: Thank you for making your building an enjoyable place to work this season! Special thanks to the night workers who regularly made the trash bags piled at the front door disappear; to all the others who picked up a bag on their way out; to those wonderful people who cleaned up the dorm after the New Year's party; to the angels who took piles of dishes back to the galley; and to the Hammerheads who are always smiling when so many others look like they're ready to kill to end the season!

—Natalie Sudman, your neighborhood janitor

*Thomas Cwiklinski prepares to throw a frisbee to Meliza Wetzler while the two were on break from the Galley. "We've been out here every day of the summer," Cwiklinski said. Photo by Jeff Inglis.*

## The week in weather

### Palmer

H/ 47 F

L/ 33 F

● Min Wind Chill: 3 F

Max Wind: 59 mph

### South Pole

H/ -26 F

L/ -42 F

Min Wind Chill: -85 F

● Max Wind: 21 mph

### McMurdo

H/ 39 F ●

L/ 10 F

Min Wind Chill: -20 F

Max Wind: 20 mph



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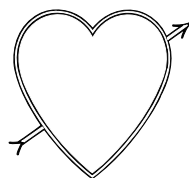
**Editors:** Jeff Inglis

Josh Landis

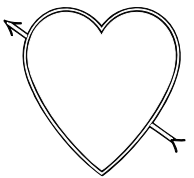
Aaron Spitzer

**Contributions are welcome.** Contact the Sun at [sun\\_news@mcmurdo.gov](mailto:sun_news@mcmurdo.gov). In McMurdo, visit our office in Building 155 or dial 2407.

**Web address:** <http://www.asa.org>



**Valentine's Day cards and candies now available!**



### Store Hours during Ship Offload

Sunday, February 6: 11 a.m.-5 p.m.

Monday, February 7: closed

Tuesday-Thursday, February 8-10: 6:30-8 p.m.

Friday, February 11: closed

Saturday and Sunday, February 12 and 13: 6:30-8 p.m.

Monday, February 14: closed

There will be **NO LIQUOR SALES** during vessel offload. Schedule subject to change. Watch for notices!

# A frozen melting pot:

Compiled by Jeff Inglis

Antarctica is the second-smallest continent, home to over 100 research stations run by 29 countries. Here is a brief look at the activities of the other nations conducting research in Antarctica.

**Argentina** is operating 12 stations, six year-round, and six summer-only. Its program began in 1904, when a remote weather station was installed on Laurie Island in the South Orkneys.

Argentina participates in a number of cooperative efforts with Antarctic Treaty members and consultative parties, including U.S. institutions.

Website: <http://www.dna.gov.ar/>

**Australia** has four major bases in Antarctica. The Australian program started in 1947, with the first Australian National Antarctic Research Expedition.

The program involves about 400 people each year, including 250 researchers. Wintering teams number 15 to 20 per station.

Annual budget: \$46 million

Website: <http://www.antdiv.gov.au/>

**Belgium** is not currently operating any permanent stations or bases. The country is a founding member of the Antarctic Treaty. Its scientific research program began in 1985, and has consisted of a series of three-year studies by university-based scientists.

Website: <http://www.belspo.be/antar>

**Brazil** operates one research station, Ferraz, on King George Island.

Website: <http://www.mar.br/~secirm/proantar.htm>

**Bulgaria** operates one research station, St. Kliment Ochridski, on Livingston Island.

The first Bulgarian to visit the Antarctic went with the 13th Soviet Antarctic Expedition in 1967-1969. Since then, several scientists have traveled to Antarctica with the British, Soviet and Spanish programs.

An ice-core drilling project is in development, as are improvements to the base infrastructure.

**Canada** is not operating any bases. In 1993 the Canadian Antarctic Research Program began to expand Canadian polar studies to the southern hemisphere. Canada publishes a newsletter on Antarctic research and maintains a database of individuals and organizations interested in Canadian Antarctic work.

One goal of the Canadian program is to exchange foreign access to Canadian research sites in the Arctic for Canadian access to other countries' sites in Antarctica.

Website: <http://www.polarcom.gc.ca/>

**Chile** has 10 stations in Antarctica, four permanent and six summer-only. Chile participated in the International Geophysical Year (1957-1958), but sent its first expedition to the Antarctic in 1916.

Website: <http://www.inach.cl/>

**China** runs two stations in the Antarctic. In January 1980 the first Chinese scientists traveled to Antarctica to visit Australia's Casey Station. In February 1985 the first Chinese station, Great Wall Station, was established on King George Island in the South Shetlands.

In winter, the two Chinese stations house 35 to 45 people combined, and up to 100 during the summer.

**Ecuador**, though a member of COMNAP, is not currently operating any permanent stations or bases.

**Finland** runs one summer-only station, Aboa in Queen Maud Land. At the site is a year-round automated weather station.

Finland's first large expedition was in 1989, involving scientists at Aboa and on the Aranda. Finland often cooperates with Norway and Sweden, as well as conducting long-term ozone research with Argentina.

Website: <http://www.fimr.fi/>

**France** has four stations, including its shared station with Italy at Dome C. Researchers winter at two of the stations, Dumont d'Urville and Charcot in Adelie Land. Dumont d'Urville's population varies from about 26 in the winter to 80 in the summer.

Annual budget: \$9 million, plus \$15

million for administration.

Website: <http://www.ifremer.fr/ifrtp/>

**Germany** operates two stations. Neumayer Station has a winter population of 9 or 10, and a summer contingent of about 60.

A cleanup of former East German Antarctic research stations is underway as part of the program's environmental monitoring effort.

Website: <http://www.awi-bremerhaven.de/>

**India** has one Antarctic research station, Maitri, in Queen Maud Land. In 1981 the first Indian Antarctic Expedition began the program. It joined the Antarctic Treaty consultative nations in September 1983, just after the first Indians wintered on the Prince Astrid Ice Shelf.

**Italy** operates two stations, including its joint station with France, Concordia, at Dome C. It signed the Antarctic Treaty in 1981, and began Antarctic research in 1985.

The main station at present, Terra Nova Bay station, can hold 70 people.

Cooperation in logistics and science between Italy, the U.S., and New Zealand has increased significantly.

Annual budget: \$35 million

Website: <http://www.pnra.it/>

**Japan** operates four stations in Antarctica. Its first expedition was on board the Soya in 1956. Research programs have been done every year since then.

Annual budget: \$35 million

Website: <http://www.nipr.ac.jp/>

**Korea** has one station, King Sejong, operating year-round on King George Island. Korea has been conducting Antarctic research since 1987.

King Sejong's population numbers about 15 in the winter and up to 60 in the summer.

Website: <http://www.kordi.re.kr>

**The Netherlands** is not currently operating any stations or bases. One of the major research policies is not constructing new research facilities, but instead using the infrastructure of other

# The world comes together in Antarctica

nations in collaborative efforts.

Sailors from the Dutch East India Company sighted several sub-Antarctic islands in the 16th century. The Netherlands has been engaged in scientific researching since the mid-1960s, when three expeditions were developed in collaboration with Belgium.

In 1990-1991, the Netherlands rented half of the Polish Arctowski Station, rather than build their own facilities.

Projects involve collaboration with German, U.K., Australian, and New Zealand researchers, among other nations.

Annual budget: \$1.8 million

Website: <http://www.nwo.nl/english/alw/programmes/antarctica>

**New Zealand** runs one base, Scott Base, on Ross Island, which has been occupied since the International Geophysical Year.

Scott Base has a peak summer population of 86, which drops to 10 in the winter. The program uses Arrival Heights for some research, as well as maintaining eight research and emergency shelters in the Ross Sea and the Dry Valleys.

Christchurch, New Zealand, is a major gateway to the Antarctic, where the U.S., New Zealand, and Italian research programs have offices.

The New Zealand program also supports the Antarctic Heritage Trust, which protects and maintains the historic huts and sites of the Ross Sea area.

New Zealand is heavily involved in collaborations, partnering in the six-nation Cape Roberts Project, as well as other projects with the United States, Italy, France, Chile, Sweden, Switzerland, South Africa, China and Australia.

Annual budget: \$8 million

Website: <http://www.antarcticanz.govt.nz/>

**Norway** runs two stations, both in Queen Maud Land. Norway participates with Sweden and Finland in shared responsibility for Antarctic expeditions.

1996 annual budget: \$6 million

Website: <http://www.npolar.no/>

**Peru** operates one station, Macchu Picchu, in the region of the Antarctic Peninsula.

**Poland** has one station, Arctowski, on King George Island. In 1976 Poland began research in the Antarctic with five marine expeditions to the South Shetlands.

The Arctowski station opened in 1977 and has operated continuously since then. The base houses 70 people in summer and 20 in winter.

Collaborative projects join twelve Polish institutes and universities, as well as institutions in Belgium, Brazil, Germany, and the Netherlands.

**Russia** runs eight stations, three summer-only and five year-round, including Vostok, on the polar plateau. In 1956 the Soviet Union began research in Antarctica. The research was run primarily in institutes based in what became the Russian Republic. Russia succeeded the U.S.S.R. in the Antarctic Treaty system.

The year-round stations together house 144 year-round personnel, while the summer season sees an increase of 162 people.

The country has economic difficulties which has made Antarctic research difficult to maintain. International collaboration has been part of the process by which Russia has maintained a high level of research while cutting costs significantly.

1995 annual budget: \$10.5 million

**South Africa** operates two stations, the larger of which is SANAE IV in Queen Maud Land. There is also a year-round weather station on Gough Island. South African Antarctic research began in the International Geophysical Year. South Africa was an original signatory of the Antarctic Treaty.

Annual budget: \$500,000

Website: <http://home.intekom.com/sanae/>

**Spain** has two stations, both in the South Shetland Islands. It also has an ice-strengthened vessel, the Hesperides. All three operate only in the summer; the stations can house 12 people each, while the ship can host 30 scientists, plus the crew.

Annual budget: \$6 million

**Sweden** has two stations, both in Queen Maud Land. Sweden has long been involved in Arctic research. In the 1980s it extended its research to the Antarctic.

Sweden, Finland and Norway have an agreement to share expedition costs and research benefits. Collaborative efforts are also under way with the British, the U.S., and other European Antarctic research organizations.

Website: <http://www.polar.kva.se/>

**Ukraine** operates one research station, Vernadsky, on the Antarctic Peninsula.

The **United Kingdom** has four stations in Antarctica. U.K. scientists have been active in Antarctic research for over 75 years. The British Antarctic Survey has been the primary Antarctic planning and coordination organization for the past 56 years.

About 40 staff spend the winter at the four stations combined. In the summer, field parties deploy primarily from Rothera, the largest base, which can house 120.

The program has 180 scientists among its 420-person staff.

Recently research collaboration has increased, especially with Germany.

Annual budget: \$42 million

Website: <http://www.antarctica.ac.uk/>

The **United States** operates three year-round stations, a number of smaller field camps on a summer-only basis, and unattended year-round observatories.

1995 annual budget: \$197 million

Website: <http://www.nsf.gov/od/opp/arctic/iarpc/start.htm>

**Uruguay** has one station on the continent, Artigas, on King George Island. In 1776 the country first issued licenses for fishing in the southern seas. The first Antarctic research began in 1975, with the first expedition to the continent in 1984.

*This information is condensed from material located at [www.comnap.aq](http://www.comnap.aq), the website of the Council of Managers of National Antarctic Programs.*

# Crevasse rescue on ice shelf

By Jeff Inglis  
The Antarctic Sun

Thursday night a New Zealander and three Americans had a brush with death. While walking between the road to Williams Field and the road to Silver City, on the Ross Ice Shelf near Scott Base, the group went off a flagged route, unknowingly entering a crevasse field.

The New Zealand woman fell through a slot, ending up 20 feet below the surface in a fairly narrow crevasse, said Ted Dettmar, of the search and rescue team, who was one of the first rescuers on the scene.

She was not complaining of any specific injuries, Dettmar said, so he and other members of the SAR team set up a rope to pull her up. Units responding were one of the fire department's ambulances, both SAR team Haggglunds tracked vehicles, and two New Zealanders in their tracked truck.

"We had everything we needed for a full-on crevasse rescue," Dettmar said.

But because the crevasse was not very wide or deep, four rescuers were able to get a rope around the woman and pull her to the surface without much trouble.

"She was shaken, a little sore, and upset," Dettmar said. Aside from being cold, she was uninjured.

The team escorted her to the ambulance, which took the patient and another member of her party back to McMurdo. The other two returned to town with the SAR team.

The following day, a team went out to examine the area, Dettmar said. They found a large crevasse field very close to existing flagged routes, including one slot several feet on from where the fall occurred, which was much wider and deeper.

The inspection also revealed foot tracks which did not belong to the group who suffered the accident, or to their rescuers. One set of tracks went over a crevasse over two feet wide, Dettmar said.

Dettmar stressed that the flagged routes are the only safe paths for foot or vehicle traffic on the ice shelf.

"You get off the flags and you're on your own," he said, noting that there are crevasses on the flagged routes, too, but they are monitored and either filled or bridged to make safe crossings.

To perform the rescue Thursday night, Dettmar said, several people and vehicles had to drive into a very dangerous area. After the rescue, the team marked their paths with crossed black flags to indicate that they are not safe to travel on.

"Just because there are other footprints or vehicle tracks, off the flagged route, doesn't mean it's safe," he said. ■

## Our Antarctic Week

### Monday

The w"Rec"k Room: radio show with prizes and giveaways, 1:30-3:30 p.m., Ice 104.5 FM  
Slide show by Marc O'Shea: Ruta Maya, Mexico and Guatemala, 8:30 p.m., Galley

### Tuesday

Lucy Bledsoe: Antarctic short story reading, 8 p.m., Coffee House

No other events this week, due to ship offload.

If you have an item for the weekly calendar, e-mail us at [sun\\_news@mcmurdo.gov](mailto:sun_news@mcmurdo.gov), call 2407, or drop by our office in Building 155.

*The Sensuous Penguin*  
By Karen Joyce



**Faces**  
on 

*What's your favorite memory from this season?*



"The look on Kirsten Wade's face when I mooned her wearing my kilt."

**Brian Kliesen**  
helo ops



"Skiing on the Ross Ice Shelf at midnight, 2000."

**John Parish**  
Crary Lab stock room



"My first day here, with the light and the experience of just being here."

**Alicia Moore**  
galley



"Playing rock-and-roll New Year's Eve and New Year's Day at Scott Base and Icestock."

**Bill Meyer**  
recreation

*"Vostok" — from Page 1*

result of geothermal energy emanating from the bedrock. Examining the creatures that live in the deep, black coldness of the water could yield clues to the process of evolution, and even to life on other planets.

Drilling to date has reached a depth of two and a quarter miles. It's been halted a mere 300 feet from the surface of the lake, however, until the technology can be developed to enter the liquid without contaminating it.

That's where the international effort comes in. A collection of 70 researchers from 14 countries gathered late last year at Cambridge, England, to discuss possible approaches to the Lake Vostok project. They agreed that it should be a top priority in Antarctic science.

The question now is how to proceed.

"There is an emerging consensus that the science is worthwhile, and several countries—Russia, France and the United States—have funded geophysical research and analysis of the ice from the bottom of the Vostok core," said Erick Chiang, Office of Polar Programs section head.

A study performed on that ice core caused a stir when it found microscopic life that appeared to have existed deep beneath the surface, not far from the lake. Subsequent analyses, however, brought into question whether the organisms were actually in the ice, or whether the samples had been inadvertently contaminated.

"The findings are very questionable," said Jean Robert Petit, Vostok International Project coordinator.

Regardless, there is little debate over whether the project will proceed. It will take the collective knowledge and experience of other nations' Antarctic programs to devise a way to reach the lake cleanly.

It will also cost more than any one country—most of all Russia—would be willing to pay. The latest estimates place the cost at \$20 million or more. It's the kind of money Vostok hasn't seen the likes of.

NASA has a strong interest in the project because it would provide valuable lessons on how to probe the subsurface lakes of Jupiter's moon, Europa, among other places.

But the head of the Russian Antarctic Expedition, Valery Lukin, stresses that any plan to drill into the lake must be scientifically-based, and not merely a platform for NASA or any other organization to test its technology.

The National Science Foundation's Office of Polar Programs says any approach it supports to the Lake Vostok project must adhere to the principles of all NSF Antarctic research.

"NSF, as the USAP lead agency, will be intimately involved in our nation's planning, and any NSF-supported activity will have to meet the hurdles of our scientific peer-review process," said Dr. Karl Erb, director of the Office of Polar Programs.

Entering Vostok's buildings is an otherworldly experience. Pushing through a set of heavy wooden doors, the heavy, humid air is in sharp contrast to the minus 40 F atmosphere outside. Leaving the blinding, crunchy snow behind, a din of Russian greetings completes the sense that this is more than another research station: It is another culture.


The most striking sensation is smell. The rooms are saturated with the odor of cigarette smoke and months of constant human habitation. Like the facilities at the South Pole, there is little water available

for washing.

The decrepit appearance, however, gives way to a warmth and enthusiasm on the part of the Russian inhabitants.

"It feels like coming home," a meteorologist named Vladimir said through an interpreter. He has spent three winters at Vostok, and plans to return.

Another Russian worker put it in more dramatic terms, although it wasn't clear whether his attitude was celebration or resignation.

"Antarctica isn't just a job," he said, "it's a disease." 



*Russian driller Valery Shoshkin stands at the top of the two-and-a-quarter-mile deep hole over Lake Vostok. The bottom of the hole is about 300 feet from the lake's surface. Photo by Josh Landis.*

# In Brief

## Greenwave limps along

The Greenwave will be late this year, due to engine trouble on its route from Lyttelton, according to Cmdr. Steve Wheeler, of the U.S. Coast Guard.

The vessel has passed its point of safe return, and is proceeding to McMurdo regardless of further developments.

The Coast Guard icebreaker Polar Star is heading out to meet it in case it needs a tow or other assistance.

The Greenwave's engines are is operating on seven of eight cylinders, and making 12 knots (just over 12 miles per hour). It is expected to arrive late Tuesday afternoon.

## Shuttle Ops shuttles 25K

Scott Johnson of Shuttle Ops drove this season's 25,000th passenger from Derelict Junction to Williams Field Monday. Biffton Parks, a member of the Idaho Air National Guard at Gowen Field in Boise, was heading to work when he discovered his celebrity status.

A pneudraulic mechanic, Parks wore his homemade crown all the way out to the airfield, and again on the way back home at the end of his shift.



Biffton Parks is crowned Shuttle Ops' 25,000th passenger by Chris Levesque. Photo by Liz Sutter.

## McMurdo Marathon results:

### 26.2 mile run

2:50:00 Shane Potaka  
3:00:00 Hiram Henry  
3:01:00 Joe Hurley  
3:31:21 Kevin Condron  
3:40:05 Lisa Berry  
3:58:52 Steve Hopkins  
4:17:50 Everett Hubbard  
4:23:14 Karen Joyce  
4:35:18 Claire Carpenter

### 26.2 mile ski

2:27:21 Tim Thomas  
8:20:00 Ross Hickey (with sled)

### 16 mile run

2:12:30 Scott Iremonger  
2:28:45 Monte Ramirez  
2:41:15 Forrest McCarthy

### 13.1 mile run

1:51:45 Mike Sullivan  
1:51:45 Chas Day  
1:55:00 Dianne Feltham

### 13.1 mile ski


3:11:00 Kelly Nevins  
4:01:30 Peggy Malloy  
4:01:30 Lucy Bledsoe

## On the front line and behind the scenes

Early last week, the U.S. ambassador to New Zealand and Samoa, Carol Moseley Braun, and U.S. Air Force Secretary, F. Whitten Peters visited Antarctica to get a view of the operations they support from afar.

The U.S. Embassy in Wellington handles negotiations between the governments of the U.S. and New Zealand which relate to the U.S. Antarctic Program, including issues such as movement of cargo and people.

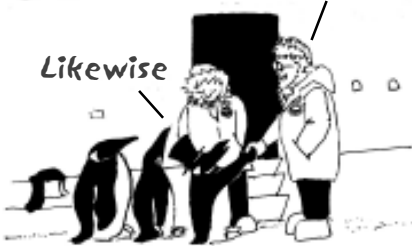
The U.S. Air Force supplies logistical support to the program, through the New York Air National Guard, the staff of Operation Deep Freeze, and the Air Force C-141s used early and late in the summer season.

Both Moseley Braun and Peters said they saw a need for continued effort and research in Antarctica, and indicated their willingness to work in support of the program. 

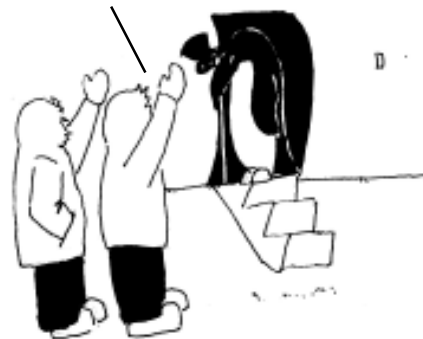
## Ross Island Chronicles

by Richard Perales

06 Well, it was another successful season. We hope to see you again next year!



Good luck and safe travels!



Please tell me that wasn't the last plane.





# WHITE CONTINENT, DARK SECRETS

By Rep. T. Lloyd  
Special to the Sun

Of all the research that takes place on this great continent, there is a suspicious lack of attention paid to certain theories that, while extraordinary, deserve closer examination. We are living on the edge of a largely unexplored land, and it's time we looked at more than just rocks, glaciers and penguins.

I am talking about evidence that has come up repeatedly, indicating that we are not the first beings to inhabit this place, nor is science the only activity here. When are we going to acknowledge that there may be more going on than meets the eye?

As everyone knows, the continent is almost completely covered by ice. What lies under that ice, miles deep in many places, is still unknown. The truth is coming out, however, as a few brave souls seek the answers to some troubling questions.

In his book, *Fingerprints of the Gods*, Graham Hancock presents strong evidence that Antarctica was charted long ago by unknown people, when temperatures were much warmer.

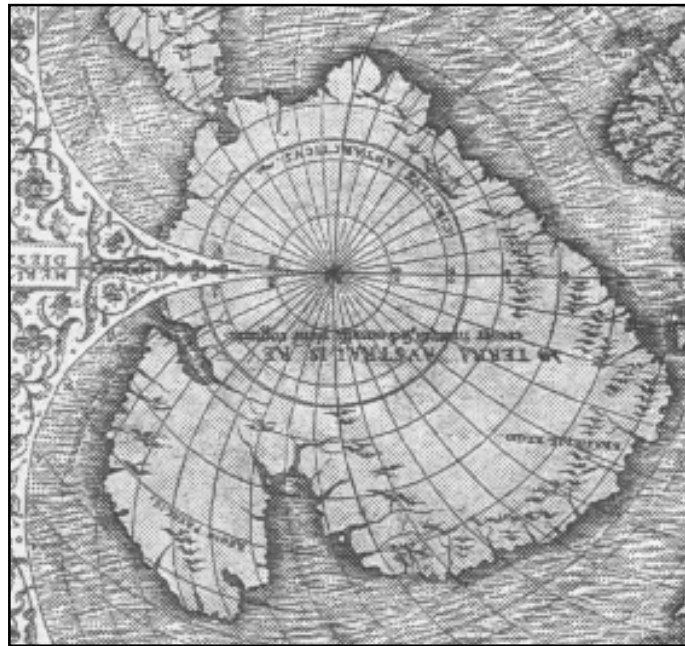
He cites a number of old maps, such as the one drawn by Oronteus Finaeus in 1531, reproduced here. Experts examined the original and its age was verified. It was made in the 1500s—three centuries before Antarctica was allegedly even sighted, much less documented. The map is startlingly accurate, depicting ice-free mountain ranges, a South Pole that's just about dead on and the Ross Sea as it would look without the ice shelf.

You can even see Ross Island.

How could someone draw such a map more than 200 years before Capt. James Cook even sailed south of the Antarctic Circle?

Hancock's answer is that it was actually mapped long ago, perhaps thousands of years earlier, and Finaeus merely copied those ancient sources.

Is it possible that a race of people or other life forms were present in Antarctica before it was



*The Oronteus Finaeus map, more than 300 years old, depicts Antarctica with ice-free areas. Map courtesy Fingerprints of the Gods, by Graham Hancock, Three Rivers Press, New York, 1995.*

covered by ice? It's a fact that long ago the continent was warm enough to support plants and animals, including a reptile called *Lystrosaurus*. Paleontologists say it roamed Antarctica 200 million years ago.

That may not have been the end of it.

In the under-reported world of alien sightings and abductions there is a link between Antarctica and reptile-like creatures. According to the Omega Files, compiled by "Branton," "Some 'contactees' such as Maurice Doreal claim that the reptiloids [human-like reptile creatures] in prehistoric times lived in the Antarctic region, when it was a subtropical zone, and that they were subsequently driven underground and off the planet by a race of pre-Nordic humans whose lost and long-forgotten

civilization now lies buried deep beneath the sands of the Gobi Desert."

Is it possible those reptiloids evolved from the earlier *Lystrosaurus*—or that both creatures were some form of alien life?

And what about the presence of Hitler's forces here at the end of World War II? Is there yet another connection?

According to Branton, an abductee named Alex Christopher says he saw reptiloids and Nazis working together aboard antigravity craft or within underground bases. At least one of those bases is reported to have existed in Antarctica.

Again, the facts support the claims: In 1938 the Nazis sailed south and sent numerous exploratory missions to the Queen

Maud region. They filmed and mapped about 250,000 square miles of territory from the air, and pilots dropped giant darts to lay claim to what Germany called "Neu-Schwabenland."

There were reports of ice-free areas, underground caves heated by geothermal activity, and even pools of warm water. According to the Omega Files, the Nazis established a secret Antarctic base known simply as 211. With supplies shipped through white-supremacist



*The Lystrosaurus, a land lizard that lived in Antarctica 200 million years ago. Could it be related to the reported reptiloid creatures of today? Image from Antarctica, Reader's Digest, Pleasantville, New York, 1985.*

See "Conspiracy"—  
Page 10

# Art and the beauty of science

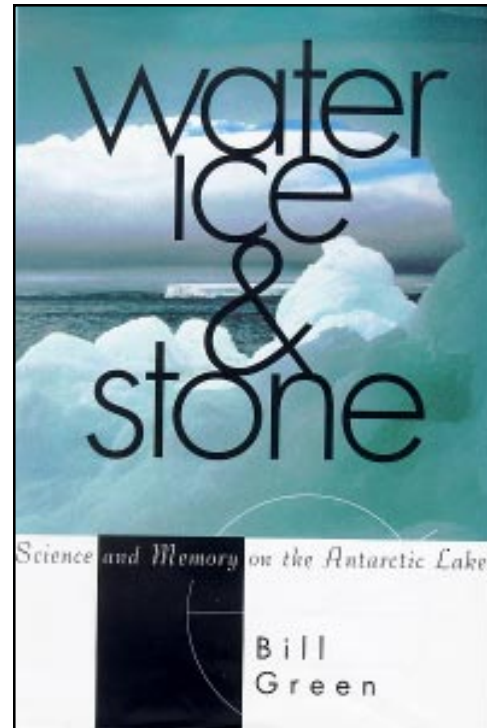
By Sue Allspaw  
Special to the Sun

Science and art: so different sometimes they can be sitting next to each other and not realize how similar they can be. This is what Bill Green has discovered and written about in *Water Ice & Stone: Science and Memory on the Antarctic Lakes* (1995: Harmony Books, a division of Crown Publishers, New York). He absorbs his readers like the water he talks about absorbs particles, with the magic of his memory and the poetic language of chemistry and limnology.

Green, a geochemist from Ohio, spent over seven seasons studying the lakes of the Dry Valleys, looking for answers about the ice, the water, and the minerals that keep the lakes moving in never-ending cycles. He tells the story of his discoveries, mixing scientific terminology with memories of his brother, mother and daughters. He has us standing on the banks of the Akron Lake in Ohio one minute, and digging for shells by the Onyx River the next. He shares personal defeat and triumph stories about his colleagues with a compassion and closeness that is unexpected from a scientific text.

Green teaches limnology for poets: Even the least scientifically minded reader can fall in love with the discoveries of Bohr, Mendeleev and Rutherford. The expectation and suspense of Green and Varner as their flume is inserted into a stream near Lake Hoare to measure flow is recounted with Green's excitement coming through all of his chemical and physical explanations. The most scientific reader will feel the magic of language when Green begins his explanation of water: "We seem to know each other, this sea and I.... It cannot distinguish where I begin and it leaves off. It senses me only as one of its own."

This book proves what Green poses as hypothesis: that art and science aren't always easily distinguishable from one another, that in many ways, it took being stuck in a whiteout in the Dry Valleys for him to see the art in the stratified layers of lakes, to see the science in the winds and sand swirls. Any visitor to Antarctica will enjoy this adventure below the ice and into a man and his life's work, his life's memory. ●



## "Conspiracy"—from Page 9

South Africa, Hitler had a foothold in this new land, possibly working in concert with the reptiloids.

Next, consider the massive push by the U.S. government to explore "uncharted" areas of Antarctica following World War II with Operation Highjump, the largest Antarctic expedition ever. The naval mission set sail in 1946 with 13 ships (including an aircraft carrier), 23 aircraft, over 4,700 men and enough supplies for six months. Why such a large force?

According to Branton, Adm. Richard Byrd had been instructed to destroy 211 with this Antarctic invasion. They circled the continent, making periodic flights inland. One of their destinations was Queen Maud Land.

Operation Highjump was declared a success at testing equipment in cold conditions, but no mention was made of the military battle some say ensued. Why did the 6 to 8 month mission end after just two months?

And now, in 2000, is it just a coincidence that the new government contractor in Antarctica is a multi-billion dollar defense giant? Are we in the latest phase of a battle with Nazi-alien forces?

As you can see, there are many unanswered questions surrounding this great continent. Many of them are scientific; some of them are not. We owe it to ourselves, our country and our planet to keep our eyes open. You never know what the next discovery may be. ●



An artist's rendering of a reptiloid, which are often said to be wearing hoods. Image from [www.think-aboutit.com](http://www.think-aboutit.com).

# Looking for lessons at Vida

By Cassandra Graber  
Special to the Sun

"Leave only footprints" may be the motto for minimum environmental impact, but in a place as pristine as Antarctica's Dry Valleys even footprints can do irreversible harm.

So why would a team of environmentally conscious drillers and researchers decide to pour diesel fuel down a bore hole in Victoria Valley?

The answer to that question is not as easy as it may seem. To understand the process that led to their decision you have to look back almost 20 years.

The Dry Valley Drilling Project (DVDP) took place between 1972 and 1974. It left a legacy of literature, geological expertise, and also set a precedent for international cooperation.

The DVDP was, in effect, the Cape Roberts drilling project of the 1970s. It sought to answer questions prompted by the discovery of petrified wood in the Dry Valleys. Researchers thought that key information about the past was locked beneath the visible surface in the strata beneath the Dry Valley floors.

In all, fourteen holes were drilled. Three of them were test holes, bored here at McMurdo near what used to be Thiel Earth Sciences Laboratory (the present location of F-Stop).

Drilling through rock requires lubrication, and in a place as cold as Antarctica, the fluid must have a freezing point below the ambient temperature.

In the Arctic, a salt water solution is commonly used. When that was tried here, however, the salt water dissolved the permafrost and collapsed the hole.

The decision to use diesel fuel was made because it did not collapse the permafrost and drillers thought it would not spread beyond the hole.

The drillers found that the valley floor held mostly permafrost, which reminded them of cement when they had to drill through it. Beneath that was bedrock. Little information was gained about past life and associated climate in either of these layers.

The DVDP was the largest scientific effort in the Dry Valleys since the International Geophysical Year and was backed by international cooperation and millions of dollars of funding.

Perhaps most importantly, geological information was still being obtained, including the presence of unusual temperature gradients below some of the Dry Valley lakes. Leaving the diesel fuel in the bore hole would allow scientists to take temperature measurements at different levels.

Despite some of the setbacks and the lack of climate information contained in the core, the project continued through to completion.

Ironically, geological information was not the only information gained of value. The DVDP scientists and drillers worked under an assumption that's been proven today: The McMurdo Dry Valleys have evolved over millions of years, literally untouched except for the raw forces of sun, wind, and snow. There is no other place like this in the world.

The efforts made to protect the environment before and during drilling were impressive. The field drilling team, even when pared down for drilling in especially sensitive areas, included at least one environmental scientist.

All fuel and fuel-contaminated materials were contained and all human waste was collected and removed. Every type of foreign substance release imaginable was considered and tracked, including monitoring the air for hydrocarbons and bacteria.

Concerns ranged from trampling the ground to contaminating the ecosystem with germs. At one point the DVDP team even considered disinfecting the entire drilling rig between sites, so as not to expose bacteria to the separate ecosystems within the valleys. This feat would be possible, but too impractical for carrying out, and besides, people can't be disinfected!

After the drilling was finished, the funding was over and the project was done. In an effort to maximize the project's scientific value, most holes were filled with diesel fuel. In addition to temperature monitoring, it was assumed that sealing the tops of the bore holes would contain the fuel, and that there would be no impact to the environment.

The Dry Valleys are ancient, but not necessarily stable. Near Lake Vida, in the Victoria Valley, diesel fuel has been released, most likely as a result of fluctuations in the lake level. With support from the National Science Foundation, work has been in progress for at least three years to assess and clean up this site.

There are options for cleaning up some of the bore holes that are currently releasing or at the highest risk of release to the environment, but it will be not be easy.

All of this discussion begs the question, how could we have avoided this in the first place? Questions are so much easier to come up with than answers. ☀



Lake Vida, in Victoria Valley. Photo by Cassandra Graber.



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# Perspectives

## Where Antarcticans go when they leave the Ice

By Kristin Larson  
Special to the Sun

I've never been much of a joiner. Clubs and societies, at least those possessing any degree of self-importance, just don't appeal to my social instincts. I prefer, at most, the company of a few like-minded friends. I suspect this is true for most Antarcticans; a group of rugged individualists if ever there was one.

Ironically, these same isolation-seekers willingly check their independence at Christchurch each year as a condition of their trip south. An ephemeral community composed of loners. Oddly oxymoronic isn't it? Or not.

After dozens of ice months and a few winters, I have not only joined a club as an active member, but also serve as an editor of its newsletter. It is a club for loners: The Antarctic Society.

The Antarctic Society has colorful, if not bawdy, roots as an "old boys" drinking club. Carl Eklund, freshly home from a year as leader at Wilkes Station (formerly a U.S. station, now the Australian Casey Station), was known to enjoy the company of his fellow International Geophysical Year cronies. As the story goes, Dr. Eklund frequently entertained this august group in his D.C. basement, which was outfitted with a wet bar and elephant's foot kitty jar.

These communal and legendary events occurred throughout the late 1950s and into the 1960s. By 1970 the club was welcoming both genders and had taken the bold step of adopting a charter and bylaws. In parallel with the opening of the Antarctic continent, the Society has become increasingly organized, accessible, and of interest to a growing cross-section of people.

Initially, the Antarctic Society was composed of beltway types: researchers, government officials and even some diplomats. These were the pioneers of the continent and framers of the treaty that now governs it. At one time more than half of

the members had geographic places in Antarctica named for them, and better than 65 percent were D.C. based. That percentage



is now less than a third of the 500 members who around the globe. Happily, many of the earliest members are still active and influential in the Society.

Imagine being in a room with Galileo, Napoleon, Plato, Jefferson, Lincoln and Cady Stanton. Imagine being given unlimited opportunity to ask questions about what it was like shaping the contours of the social order we have inherited from their hands. That's what it's like going to an Antarctic Society meeting! Because the entire history of human endeavor in Antarctica reaches back only a few hundred years, and because most substantial advances have occurred in the past 60 years or so, it is still possible to hang out with the founding fathers—and mothers.


Firsthand accounts of early traverses, mapping expeditions and a host of other "firsts" are standard fare at Society meetings, as is the tradition of sponsoring an Antarctic-oriented speaker.

So what's the point of this article? In part, I wanted to bring the existence of this

society to your attention, the latter-day ice people. Who knows? You may want to join. More importantly, maybe you should join. After all, in another fifty years it will be you and me spinning our yarns about our rugged icebound days, reminiscing about the South Pole before the ice sheets melted.

Joining is easy and cheap. For ten dollars a year, the newsletter is delivered directly to your mailbox (yes, we do it the old-fashioned way) approximately 5 times a year. In this newsletter you will learn about the goings—on of all things Antarctic, ranging from the political and environmental to current research breakthroughs and even plain old scuttlebutt about your pals and fellow ice-mates from around the world.

Lest you get me wrong, I did not contribute this write-up as a bald-faced plea for new members. The truth is we have more than ample membership. Rather, this write-up is a call to those of a more recent vintage to consider becoming at least loosely associated with the Society as a means of staying updated on events, contributing news, gossip artwork, and even finely crafted literature. We are, after all, alumni of a pretty special place, a common ground for stories and shared interests. The Society's goal is to nurture this network. Drop a line: [k\\_larson@earthlink.net](mailto:k_larson@earthlink.net) for more information.

Lastly, I would like to extend an invitation to those of you who are wintering-over to e-mail news of the icebound. We would love to run a winter-weirdness column! 

*Kristin Larson is a former supervisor of the Eklund Biological Center and Cray Lab and was the assistant for environmental compliance in the Office of Polar Programs.*



# PROFILE

## A passion for the past:

### One man's quest to show and tell history

By Aaron Spitzer  
The Antarctic Sun

Ed Anderson claims he hasn't yet earned the title "Old Antarctic Explorer." But while he may not have the most Ice time in the U.S. Antarctic Program, few have embraced this cold continent so warmly.

For eight seasons, including one polar winter, the tall and towheaded Coloradan has worked out of McMurdo Station's carpentry shop, first as a materials person and then as an equipment operator.

Off the Ice, he's flown helicopters, scaled peaks in Alaska, Canada and Nepal, and worked avalanche control as a backcountry ski-patroller in the Rockies.

But around MacTown, Anderson is perhaps best known for his tireless efforts to document the Antarctic through photographs and historical preservation.

"I want to capture one percent—even 1/18th of one percent—of the beauty we have down here," Anderson said.

And he wants to capture the intensity, too. Life on the Ice, he said, "Is like dog years—you live seven for every one. It's like compacted years."

A photographer since high school, Anderson has seen his images of the Ice published professionally everywhere from Aviation Week Magazine to a Microsoft webpage, as well as in numerous books and calendars.

Profiting from his pictures isn't the point. To Anderson, it's about sharing what he's seen. "I believe in photography as a really important tool to express what we do with our lives," he said. "My goal is to document things in an artistic way."

It's that same philosophy that makes Anderson a driving force behind the McMurdo Historical Society, an organization dedicated to chronicling Antarctica's present and recent past.

In a place with barely a century of human history, Anderson maintains that modern-day Antarcitians are pioneers, whose doings deserve to be remembered by future generations.

To that end, he has helped the group in its campaign to establish a sort of McMurdo museum—a place to keep artifacts of modern life on the Ice. He also spearheaded the organization's creation of a millennium time capsule, and has gathered scores of images and documents to be digitally preserved on the Historical Society's newly established website.

Much of Anderson's love of Antarctica is fueled by the caliber of the people who come here, and by the camaraderie that develops between them.

"Big egos don't really do it for me," he said. "People who know how to work in teams can really make it or break it. This place draws those sorts of people. It's an amazing crossroads. It's an epicenter."

That same sense of teamwork drives many of Anderson's adventures off the Ice.

"That's what I like about climbing," he said, of his many expeditions on famous mountains like Everest, Rainier and Foraker. "I don't do things for the danger. I don't need a building named after me. You win the game when you come home and hug your family."

Anderson's present dream is to create a position within the U.S. Antarctic Program for an official photographer and documentarian—and it's a job that he himself would like to fill.

In the Heroic Age, he points out, "Every expedition that came down here had an official photographer."

Even the U.S. Navy used military cameramen to chronicle events on the Ice, doing everything from documenting accidents to tracking how the layout of the town changed from year to year.

"Photography and history just go hand in hand," Anderson said.

Whether or not the photography job comes through, Anderson said he'll definitely be back to the Ice. He still has places to go and things to see. Asked to list locations he'd like to go next, Anderson pauses to think.

"There are places that are special because not many folks get to see them," he said. "Cape Crozier's got to be pretty high up there, and Vostok. I've never seen a picture published from Cape Crozier—not ever." ●

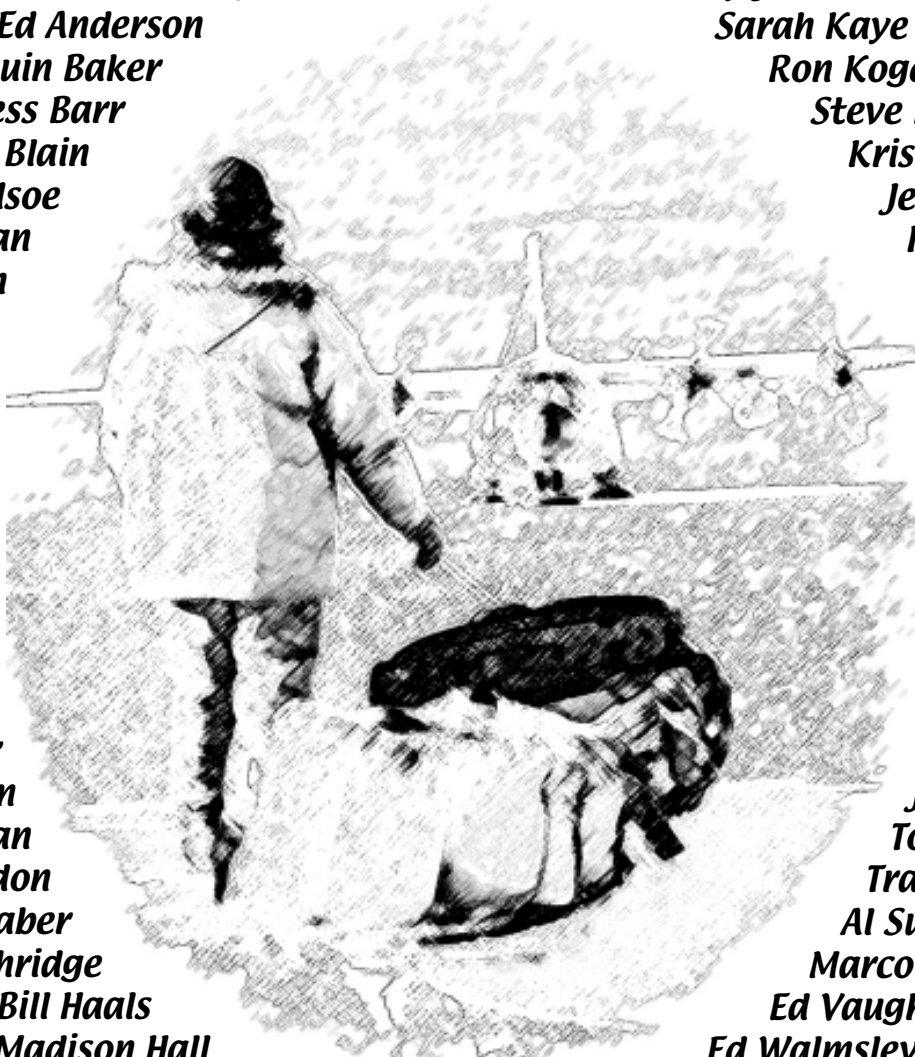


Ed Anderson (foreground) and Tom Staudt give a tour of Scott's Discovery Hut. Photo by Josh Landis.



The Antarctic Sun would like to thank the following people for helping make this season so successful:

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