December 10, 2006

The Antarctic Sun

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

Rob Jones / Special to *The Antarctic Sun*

USAP draws on worldwide talent

Story and photos
by Steve Martaindale
Sun staff

Maybe all roads lead to Rome, but quite a few of them pass through Antarctica.

Stefan Pashov's road started in Bulgaria. In 1985, before the collapse of the Soviet Union, he withstood a year-long interrogation before earning a vacation visa. On "vacation" in Paris, he sought political asylum in the United States, won it and earned U.S. citizenship in 1987.

Rachel Murray started in Australia, but it was in Vietnam that she met an Antarctic veteran whom she later married and eventually followed to the Ice.

Wayne Lindebaum spent his first 35 years living in Africa. Economic and political instability compelled him to seek a new home in New Zealand, where he earned citizenship in 2000. He landed employment at McMurdo Station as a mechanic because he was able to do a job that had not been filled by a U.S. citizen or permanent resident.

Wayne Lindebaum

George Aukon lived in Latvia and made his first trip to the United States shortly before the Iron Curtain was torn down. He and his family moved to America after the fall of communism "just for a couple of years." They all became U.S. citizens in 2005, just before Aukon made his first trip to Antarctica.

Helen Thompson is a native of New Zealand and her road to the Ice was more opportunistic. She was ready for a change and found that, like Lindebaum, she could fill a need at the U.S. station as a production cook. Now she is getting "an American experience" along with an Antarctic experience.

Cori Manka was only 5 years old when her family relocated from Canada to Pennsylvania. She moved to Colorado after college to work with her father and eventually got a full-time job in human resources with Raytheon Polar Services Co. (RPSC) near Denver. After two years, she decided a trip to the Ice would be fun. She's now on her second deployment and is planning to stay through the winter.

Diversity in action

The U.S. Antarctic Program seems to be all about bringing a diverse mixture of talent to the Ice. Recently, it was

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Project fills in history's gaps

By Peter Rejcek
Sun staff

A breakthrough drilling technique has allowed scientists to get stratigraphic records from the continental shelf around the Antarctic Peninsula that will fill important gaps in the continent's climatic history.

Scientists involved in a program to capture shallow cores from a ship-based drilling platform, dubbed SHALDRIL, made two trips on the *R/V Nathaniel B. Palmer* to the Weddell Sea in 2005 and 2006 to test a new concept in Antarctic drilling.

Previously, scientists have been frustrated in their attempts to extract sediments from the shallow shelves close to the continent using conventional piston and gravity cores. That's because those techniques cannot adequately penetrate the over-compacted, approximately 10-meter-thick glaciated layer on the continental shelves and upper slopes just below the seafloor surface.

Leasing a diamond coring drill rig system through a grant from the National

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Quote of the Week

"*This* is why I clean toilets!"

– Janitor during an excursion on the Ross Ice Shelf

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Enjoying the Outdoors

Steven Profaizer / *The Antarctic Sun*

Brian Birkenstein talks with tour leader Peggy Malloy on a walk through the pressure ridges near New Zealand's Scott Base. Pressure ridges are formed when the sea ice buckles under stress, sending sections of ice jutting out above the surface.

Cold, hard facts

Random Antarctica

Number of Web hits when you Google "Antarctica": **41.9 million**

First hit: **CIA World Fact Book**

The length of time it takes for the north and south magnetic poles to trade places: **200,000 years**

Area of Antarctica in square kilometers: **14 million**

Most fearsome name on Ross Island: **Mount Erebus, the son of Chaos in the Greek pantheon of gods**

Yeah, but what about Mount Terror: **Ross Island's other volcano was also named after one of the ships under the command of James Ross. The HMS *Terror* was used by the British in the War of 1812 and was also involved in the attack on Fort McHenry, which inspired Francis Scott Key to write what became our national anthem.**

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Correction: *The Nov. 19 edition of* The Antarctic Sun *ran an article called, "Organisms abound below the sea ice." The article included a headline, "Long term study of sound not likely to happen" on page 10. The* Sun *wants to emphasize that the NSF does not endorse this opinion nor does it reflect any NSF proposal or policy decisions. The headline has been removed from the online version of the paper.*

The Antarctic Sun is funded by the National Science Foundation as part of the United States Antarctic Program (OPP-000373). Its primary audience is U.S. Antarctic Program participants, their families, and their friends. NSF reviews and approves material before publication, but opinions and conclusions expressed in *The Sun* are not necessarily those of the Foundation.
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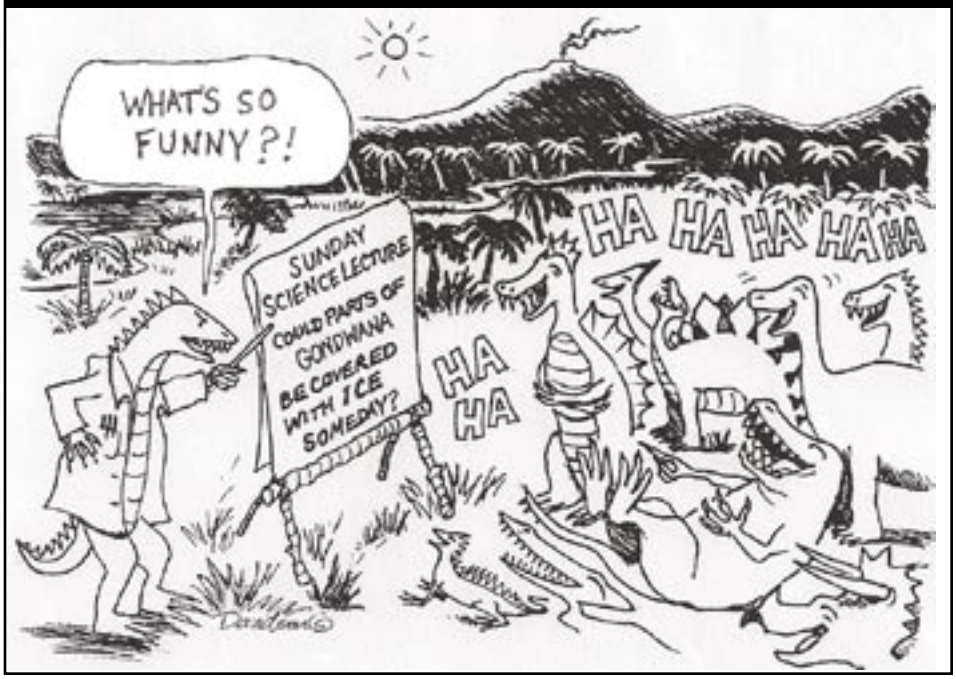
Level 1 Comix **Matt Davidson**



Keeping the crud at arm's length

By Steve Martaindale
Sun staff

Early one recent morning, before patients began to arrive, Dr. Harry Owens, physician at McMurdo Station, talked about the causes, symptoms and treatments for noroviruses, influenza Type A and the common cold virus that is typically referred to as the crud.

He also talked about prevention, much of which was summed up with his statement, "Wash your hands, wash your hands, wash your hands."

McMurdo has gone on the offensive in an attempt to stave off widespread illnesses, especially in light of problems in Christchurch, New Zealand, last month. Some hospital wards were closed to visitors because of noroviruses, according to hospital Web sites.

All the pleadings about washing hands may be paying off.

"We have had a few cases of the upper respiratory flu, influenza Type A," Owens said. "We've had one case of norovirus. ... We've had some folks with some of the symptoms, but we haven't been able to prove that it was a norovirus."

As for the crud, he said he has seen a "fair amount" of that, three to five cases a day.

Reports from the smaller U.S. stations on the continent are even better. Dr. Bruce Staeheli said he has seen three cases of gastroenteritis that arrived on a recent flight to South Pole Station. There have also been two secondary cases.

At Palmer Station, Dr. Malcolm Arnold said that he has treated one person in three months with transient diarrhea.

Norovirus

Noroviruses are a group of viruses that cause the "stomach flu," or gastroenteritis, in people. The term norovirus was recently approved as the official name for this group of viruses. Several other names that have been used include Norwalk-like viruses, caliciviruses and small round structured viruses.

What makes noroviruses so formidable is their highly contagious nature. Staeheli added that "the attack rate of this virus can be 50 percent and that's why we absolutely have to keep it contained."

Owens explained that the disease passes principally through surface contamination.

"It's fecal-mouth," he said, "and if folks aren't washing their hands good and they touch a countertop and somebody comes along and touches the same countertop and licks their fingers ..."

That's where it comes back to staying vigilant about washing one's hands, particularly after using the toilet and also before entering the dining hall.

Owens said that hand sanitizers, like the foaming agents dispensed at various spots around the station, also work very well. He said only one push on the dispenser is required and that it should be rubbed until it has all evaporated.

Confirming norovirus involves sending a stool sample to Christchurch for a special viral study.

As for treatment, he said physicians give medicines to treat the symptoms, which include aches, pains, stomach cramps and diarrhea. The Centers for Disease Control and Prevention say there is no antiviral medication that works against norovirus and there is no vaccine to prevent infection. Though it makes its victims feel rather miserable, symptoms usually pass in 24 to 72 hours.

Influenza Type A

The only flu virus seen here this season, Type A, was included in the vaccines given in the Northern Hemisphere and those given on station, Owens said. The Medical Center can test for the flu itself and have a result in 15 minutes.

Peter Rejcek / *The Antarctic Sun*

Doctors stress handwashing as a key component to keeping small communities like Antarctic stations healthy. Despite best efforts, several cases of the crud are reported nearly every day.

He said the flu will normally cause a cough, sore throat, headache, runny nose, a general ache, shaking chills and a fever. However, the cases he's seen this season have exhibited minor symptoms. Coughing and sneezing can spread influenza through microscopic droplets. Then, there's the hand thing again.

"If you don't wash your hands, you're picking up the salad tongs, the buffet line serving spoons, that kind of thing, so that's why we keep pleading to everybody, 'Wash your hands, wash your hands, wash your hands.'"

The crud

"Any time somebody new arrives in town with a new virus," Owens said, "it's going to bounce around and that's airborne. You can't really isolate against it; it's floating through the air. There again, you minimize it by hand-washing."

He explained that they can treat the symptoms but that they do not administer antibiotics.

"Normally, if we give antibiotics to somebody who has a viral illness, we can quite often make it worse," he said. "Not only doesn't it work against a virus, but it kills off what might be normal bacteria, then the virus has no competitor and it wins the football game."

He said they have been asking folks proven to have influenza or diarrhea to stay in their rooms and use whatever toilet facilities are available to them, washing their hands regularly. After the symptoms let up, usually in two to four days, they will be able to return to work.

Preventative measures

Owens said that it seems people are doing a reasonably good job of keeping their hands clean, but he's pressing the message further. He also said he wants to encourage people to report their symptoms, especially "the intestinal stuff because then we would like to say, 'Stay in your room and we'll have food brought to you until you're symptomatically better and then you're less of a risk. And keep washing your hands and take it easy.'"

There are other efforts under way to keep the diseases at bay, he said.

"I think we've been super vigilant," Owens said, "and I know that, in terms of the dining room, those folks have just doubled their efforts at cleaning all the tables, cleaning every doorknob, all that stuff. They're doing that frequently during the day, not just once. The janitorial folks are doing a super job at doing the door knobs multiple times a day. It's, you know, where are folks going to touch the most?"

Perspectives

White Christmas to wipe away holiday blues

By Steve Martaindale
Sun staff

A handful of people met last Sunday to hold the first practice for McMurdo Station's Christmas choir, a group that will sing at different events later this month.

We were singing "White Christmas" and I made the mistake of listening to the words, "I'm dreaming of a white Christmas, just like the ones I used to know." It is true that I can get sentimental rather easily, but even I was surprised to be affected by this song.

My choking up a little bit had nothing to do with snow. I'm far more likely to have a white Christmas here than back home in Texas. Nor does it have anything to do with sleigh bells or the writing of Christmas cards.

No, the Christmases I'll be dreaming of during my first season in Antarctica will be the ones I've always known: Helping the kids leave food for Santa's reindeer. Getting up early to turn on the tree lights and yell "Merry Christmas" when the young ones enter the room. Opening gifts and trading thanks with relatives. Cuddling with my wife on the sofa and contentedly watching everyone enjoy Christmas.

Missing out on the family Christmas does not come as a surprise, of course. It was discussed several times as my wife and I carefully walked through the many changes necessary for me to take a journalist job at the world's southernmost newspaper.

My wife would have to assume responsibility for things I had been doing at home. I would miss out on some of our grandson's early development. My daughter and I could no longer exchange text messages about ball games. I wouldn't be able to run up and help my father if he needed me. My wife, my daughter and I would all have birthdays while I'm on the Ice. And ... and we would be separated for Thanksgiving, Christmas and New Year's.

Yes, we talked about all those things. Anyone who makes the decision to go to Antarctica for a few months surely must go through an extensive self-examination exercise. And cross-examination. At least the first time. I certainly did.

Eventually, my whole family played a role in the decision. My wife pretty much said I would be crazy to not take advantage of such a great opportunity. My daughter pointed out that I would still be there for the baby's first couple of months and would then return in time for most of the interesting stuff. My father said I was crazy and expressed his hope that I would not pass the physical.

So, my first Christmas away from my family ... ever ... will be spent with several hundred strangers.

So, my first Christmas away from my family ... ever ... will be spent with several hundred strangers. No, that's not true. While there is only person whom I have known for more than a couple months, I cannot call them strangers.

You get to know people rather rapidly in Antarctica. It starts with orientation and accelerates once you're on the Ice. "My name is Steve. What's yours? Where are you from? What do you do? How long have you been coming down? What have you done previously?" And then there are all the diversions into family, other jobs, travels, hobbies, etc. Sure, that can happen stateside, too, but you just don't see it occur as often or as thoroughly.

Peter Rejcek / *The Antarctic Sun*

To help him find the Christmas spirit, the Sun*'s Steve Martaindale has joined the McMurdo choir and even saved a little fake Christmas tree from the rubbish to use for the holidays.*

There are non-family links to Christmases past, too. Take the folks singing in the choir. I did not know most of them prior to Sunday and may still be weak on their names, but we've already forged a bit of a bond. We enjoy singing Christmas songs and we're willing to stand up alongside others to do just that. By the time we finish our performances, at the rate relationships develop here, we could know each other rather well.

Of course, there is also the chapel. Christmas, for all its wonderful effects on familial relations and department store sales, is also a religious holiday. As such, those of us spending the season here can probably find links between church observances back home and the chapel services here.

You see, even a shy new guy can't feel all that alone during his first Christmas more than 11,000 miles from Santa's workshop. It's like all of these new friends are family, right?

Right?

Well, no, not for me, though I've heard some Antarctic veterans say that. All these new friends will not replace my family. That's not the point. However, I think one would be hard-pressed to find a better place to have to be alone with scads of new friends at Christmas.

Steve Martaindale is a journalist with The Antarctic Sun*. This is his first season in Antarctica.*

around the continent

PALMER

TerraLab packed with science

By Kerry Kells
Palmer correspondent

Brilliant weather greeted Palmer Station early this past week with sunshine and low winds. The Ocean Search and Rescue team trained in the Zodiacs on Tuesday afternoon and the Glacier Search and Rescue team also trained last Friday. The cruise ship originally scheduled for Wednesday was canceled this week, but we were visited by a cruise ship on Monday called the *Sarpik Ittuk*, new to Palmer Station. This is a 73-meter vessel built in Denmark and designed to navigate in heavily ice-choked waters, particularly Western Greenland. The 68 passengers on board were mostly from Europe with Italy being well represented.

Our weekly science lecture was an introduction to the science at the TerraLab building, the newest building on station and the home of Palmer's geophysical science. Christina Hammock, the Palmer research associate, presented the "Choose Your Own Adventure"-style lecture, where the Palmer audience selected the lecture topics from a list of the research conducted at the TerraLab.

The TerraLab is part of several global networks, including the International Monitoring Station network (which is one of the main reasons TerraLab was built; IMS tests for radioactive particles in the atmosphere), the U.S. Geological Survey's global positioning system and a seismographic network.

The adventure science lecture also addressed the very low frequency studies, which look at the upper atmosphere through worldwide lightning detection. The VLF monitors thunderstorm activity, space weather and radio communications. Palmer also has a seismic vault and is part of a global seismic network. The three seismometers even recorded the magnitude of the December 2004 earthquake that spawned the tsunami that devastated Indonesia and other nearby countries.

Kerry Kells / Special to *The Antarctic Sun*

Cathy Borowsky, left, directs a Zodiac with Steve Barten, Palmer Station boating coordinator, looking on, during a training exercise for the Palmer Station Ocean Search and Rescue team last week.

The winds increased later in the week and have been hindering science sampling on the water and at the local islands.

Next week, we will make preparations for the *R/V Laurence M. Gould,* which will make a scheduled port call at the station.

SOUTH POLE

Getting away from it all at Pole

By Charles Redell
South Pole correspondent

The South Pole crew may have been hoping for a standard week of operations after the run up to Thanksgiving, but it was not to be. From snow stakes runs with the meteorological department, to a visit by the station's design team and a raucous night of bingo, things at the world's southernmost outpost continued to roll in high gear.

The annual snow stakes runs were high on the list of everyone's things to try to take part in, as they are every year, according to John Gallagher, senior meteorologist. The meteorology (met) team makes six trips every December to measure the accumulation of snow on six lines of 40 poles radiating from the geographic South Pole.

The study – formally known as The Ohio State University South Pole Accumulation Network – is in its 14th year. Although an ongoing study, its principal investigator, Ellen Mosley-Thompson, published a paper in 1999 called "Late 20th Century Increase in South Pole Snow Accumulation." In it, she reported that the rate of snow accumulation has increased by 30 percent since the 1960s at Pole and said this may be further evidence of global warming.

The 40-kilometer round trips to measure a year's snow accumulation takes anywhere from four to six hours in a PistenBully, a tracked vehicle that is not the most elegant or comfortable of rides. But the bouncing and motion sickness don't dissuade many, since Polies have so few chances to get off station. Losing sight of the station is a main attraction of the trip, giving one a true grasp on the intense isolation we live in at the bottom of the planet.

The relatively few spots available this year (only five people besides the met team member can go on each trip) were offered first to the dining hall staff since they get to go outside so rarely and had just produced an amazing array of food for the Thanksgiving holiday.

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the week in weather

McMurdo Station
High: 43 F / 6 C
Low: 13 F / -10 C
Max. sustained wind: 22 mph / 35 kph
Min. wind chill: -6 F / -21 C

Palmer Station
High temperature: 40 F / 5 C
Low temperature: 30 F / -1 C
Max. sustained wind: 42 mph / 68 kph
Melted precipitation: 10 mm

South Pole Station
High: -15 F / -26 C
Low: -30 F / -35 C
Peak wind: 22 mph / 35 kph
Max. physio-altitude: 3,227 m

Continent

From page 5

Elsewhere on station, Polies are working hard to complete the last details on the construction of the IceCube Laboratory, where data for the neutrino observatory buried in the ice is collected. Currently, the station is playing host to a five-member design team, which is inspecting work on the lab and will hopefully grant Conditional Occupancy (CO) for the building. This will allow plans to drill the next 14 holes for the detector array this summer to go forward.

According to BK Grant, South Pole area director, things are going well with the lab construction, though a few areas need to be addressed before CO can be given. Grant said she is confident the fixes can be made in time for an end-of-the-week final inspection with CO being granted on Dec. 9.

With all that is going on, Polies needed to let some steam off at the end of last week. Just in time to fill the bill was the year's first installment of James Brown Full Contact Bingo hosted by none other than the station's executive chef, James Brown. The galley was filled with Polies using everything from candy bits to cereal to mark their cards. All hoped to win one of four gift certificates to Christchurch, New Zealand, restaurants or to cash in on the night's big jackpot of $213, the largest ever in South Pole history, according to Brown. The games ended with Amanda Hunter and John O'Connor splitting the jackpot and were followed by an evening of dancing in the galley.

SHIPS

NBP

Compiled from reports by "Skip" Owen
Marine Projects coordinator

The crew of the *Nathaniel B. Palmer* kept its eyes on the weather this week as it made its way to the rendezvous point where the crew was to meet a helicopter coming from McMurdo with one passenger and cargo.

The *NBP* moved westward along the Ross Ice Shelf conducting a battery of science tests and collecting samples along the way. The weather was clear through most of the day on Nov. 29, but incoming clouds created concerns about the upcoming helicopter operation.

Dec. 1, the day of the rendezvous, arrived, and the *NBP* spent the day waiting for the weather to allow the exchange to take place. But it never did.

The crew made the most of the time, though, and obtained a number of ice cores during the wait. After dinner, people were allowed to walk on the fast ice around the ship.

The next day, the weather finally provided a window for the meeting to take place, and the helicopter made it to the *NBP* around 11 a.m.

The *NBP* departed immediately after the operation was complete and headed for Lyttelton, New Zealand, conducting more science research along the way.

LMG

Compiled from reports by Herb Baker
Marine Projects coordinator

The *Laurence M. Gould* continued its northbound transit of the Drake Passage this week through choppy seas. Poor weather slowed its progress, but the *LMG* arrived at Punta Arenas, Chile, late on Nov. 30.

Cancer claims long-time Antarctic researcher

John Wrenn

Noted researcher John Wrenn died on Nov. 28, 2006, after a lengthy battle with lung cancer.

John was a notable researcher in palynology, the study of organic-walled microfossils. John received degrees from Northern Illinois University and Louisiana State University following service in the U.S. Marine Corps. He earned numerous accolades and contributed tireless service to the scientific community. John had a long and productive career in both academic and industrial research, as both professor and in petroleum exploration. He retired earlier this year from Louisiana State University, where he served as professor and director of the Center for Excellence in Palynology.

His contributions to Antarctic research and field work include the Dry Valley Drilling Project (1973-1974) and the Cape Roberts Project (1997-1999). John also published work from the Ross Ice Shelf Project (1977-1979) and conducted research elsewhere around the world.

He was an unusually humble, kind and thoughtful man, and deeply liked and respected by all who knew him. He is survived by his wife Allison, daughters Lora Lee and Margaret, granddaughters Mallory and Alexandra, as well as his mother and other family members.

Continental Drift

If you weren't here, what would you be doing?

Ruth Hampton
McMurdo Station
barber
Chattanooga, Tenn.
second season

"I would be studying massage on Maui, while hopefully living in a yurt that is as energy efficient as possible. However, I currently am very satisfied with life here at McMurdo."

Phil Spindler
Palmer Station
assistant lab supervisor
Duluth, Minn.
third season

"Brewing, skiing and curling."

Will Watkins
South Pole Station
sous chef
Denver, Colo.
first season

"I would be helping to open a Mexican restaurant in Perth, Australia."

Getting older or getting better?

Scientists studying Weddell seals for effects of aging

By Steven Profaizer
Sun staff

Getting old is difficult on everyone – seals included.

A science group is currently studying Weddell seals in McMurdo Sound to discover exactly what toll time takes on the animals and to understand how they cope with getting older.

"We have a crazy notion that diving animals may be particularly suited animals for the study of aging," said Markus Horning, who is principal investigator (PI) of the project together with co-PI Jo-Ann Mellish.

That logic comes from the metabolic processes that occur when mammals are deprived of oxygen.

"Weddell seals are one of the more extreme examples," he said. "They often use their muscles for swimming while holding their breath for 30 minutes and sometimes an hour or more in extreme cases."

This behavior leads to a condition called hypoxia, or low oxygen, in certain tissues.

If a mammal's system is then suddenly re-oxygenated, such as when a seal returns to the surface for air, it typically creates high levels of reactive oxygen species, which are highly reactive molecules that can cause major damage to cells. This effect has been observed in high-altitude athletes, like mountain climbers, through the field of sports medicine.

The science group speculates that seals are producing these damaging molecules at a rate reflective of the hypoxic state they enter during their regular dives and may therefore exhibit more rapid aging than terrestrial mammals, Horning said.

But from what is known about the seals' life cycle, there is very little evidence of aging at the rate they would expect, he said. Even the oldest Weddell seals in the McMurdo Sound population, about 30 years old, breed and remain active members of their community.

"So that suggests that the animals may be able to compensate for the tissue-level damage we are speculating may exist, either by adjusting their [behavior] or through special protective mechanisms such as high levels of antioxidant enzymes," Horning said.

To solve the equation of this biological balancing act, the group is trying to identify what specific effect aging has on the seals and determine what, if any, countermeasures are in place that decrease or eliminate those negative effects.

Steve Martaindale / *The Antarctic Sun*

Felicia, a 10-year-old Weddell seal, shows off the various devices that had been recording her activities. She was soon back in the water with the equipment removed.

The group is in its first of two field seasons. This summer it is using two study groups of adult seals to start gathering the data it needs.

The first group is a biochemical sampling group. The team interacts with these seals just long enough to gather blood and muscle samples once during the season.

The second test group is the telemetry group. In addition to taking the biochemical samples from them, the team outfits these seals with devices that record feeding behavior and measure vital signs and flipper strokes.

The seals wear the equipment for five to six days, and the team then recaptures them to add another device intended to increase the drag on the seals while they're swimming. This means the seals have to work a little harder to swim at the same speeds. The scientists then wait three to four days before removing all the devices, so that they can observe how the seals deal with the increased workload.

Horning compared the "drag block" to a scaled down version of an electrocardiogram treadmill test that U.S. Antarctic Program participants over the age of 50 go through as part of the program's physical qualification process.

With all of the data combined, Horning said the team will be able to look at the complete physiological spectrum of aging effects and any possible ways the seals and their behavior might be compensating.

Of particular interest to the team is the dive response – changes to blood flow and heart rate during diving. They also watch the aerobic dive limit, which is the amount of time an animal can stay submerged without its organs running out of oxygen.

Weddell seals are not the only animals suited for such measurements, but this population of seals has a lot of things going for it.

The first is that the McMurdo Sound Weddell seals have been studied and documented thoroughly by previous science groups, Horning said. This gives the scientists the ability to study seals of very specific ages, as almost every seal born into the population over the last 30 years has been tagged and recorded. (See the Nov. 20, 2005, issue of *The Antarctic Sun*.) There has also been a lot of research performed on the seals' population ecology and diving physiology, which allows scientists to look for deviations from the norm due to aging.

The second reason this population of Weddell seals was chosen is that the seals are forced to live within one breath's distance of the nearby cracks in the sea ice, as other openings are out of reach. This creates a glassless aquarium where the seals are contained but remain in the wild.

"That scenario creates accessibility to a diving animal to an unprecedented degree because you have access to it in its natural environment where it decides what to do on a dive-by-dive basis," Horning said. "Everywhere else, we can do some of the things we can do here – attach dive recorders and monitor them – but the chance of recovering the equipment is reduced and the opportunity to observe them after each dive is essentially nonexistent."

This project is an exploratory study and the group is not sure what the implications of its findings may be, but Horning said he is hopeful that the results may have meaning for a wide range of animals.

"Initially, what we need to find is what kind of adaptations are there. … If we find that, you could argue that similar mechanisms could be in effect for other animals," he said. "The results might ultimately be of interest to humans and to the understanding of our own aging process."

NSF-funded science in this story: Markus Horning, Oregon State University; and Jo-Ann Mellish, University of Alaska Fairbanks.

Foreign-born program participants bring varied backgrounds to the Ice

Continued from page 1

determined that 48 of the 50 states are represented among the 863 RPSC contract workers then on the continent. Those people also represent all flavors of American culture and backgrounds. Workers who started their lives in another country add yet another spice to the melting pot.

Common themes do emerge, however, such as the respect held for co-workers and the land.

Murray said she resisted joining her husband, James VanMatre, in Antarctica. She said she came from "a really hot place in Australia" in central Queensland and did not like the cold. However, after moving to Colorado, she decided to give it a go. She's now in her fifth season, this year as the Berg Field Center supervisor.

"I do enjoy it," she said, adding that the people are great and the mere potential for seeing exotic wildlife is exciting. During her second season, the channel opened up and "there were penguins all around there."

"It was like, every day I would wake up and go see the penguins," Murray said. "That is something that is so great."

Pashov said the people on the Ice have affected him.

"I'm in the incredible company of people who range from accomplished artists to accomplished writers and poets and musicians," he said. "This place works as a natural selection. It brings the best and the brightest, the most courageous and the most interesting people. I think I could learn from every one of those people."

Manka said she has seen an adjustment in her priorities.

"I think that I am less materialistic than I used to be," she said. "When I was at home, all that I could think about was, 'Oh, I wish I had a nicer car,' or, 'I wish I had nicer clothes.' You're kind of trying to keep up with the Joneses, but when you're here, it's more about the places you've been, the people you've met, instead of the things you have."

Lindebaum said he relishes the idea of playing a role in the scientific research taking place in Antarctica.

"It is interesting and, indirectly, you are actually helping in some way," he said. "The whole idea of the program down here is to try to improve the world for the generations to come. So, I can actually say I've been part of it."

While they sounded like a chorus singing a refrain praising the land and people of Antarctica, albeit with various accents, their individual stanzas were markedly different.

Born to run

There were positive and negative things about growing up in Sofia, Bulgaria, said Stefan Pashov, who was born in the Soviet-controlled country in 1958.

On the positive side was a good education, an offering of which he took full advantage. However, even that and the guaranteed medical coverage were not enough to make up for his lack of choice. He said he was required to pay for his education by accepting whatever job was assigned him, which was teaching children in fifth to eighth grades in a nearby village. It wasn't a bad job, but it was not his choice.

Rachel Murray / Special to *The Antarctic Sun*

Rachel Murray

"I would have chosen some other career," Pashov said, "perhaps a university teacher, but you have to fulfill your obligations. Otherwise, there are other sets of ramifications that are much more unpleasant, like you have to pay money back or it may reflect on your family. They may lose their benefits, they may lose their pension."

After fulfilling his requirements, he taught linguistics and literature to freshmen at university.

"I did that for a couple of years, and then I decided that the world is much bigger than what I found myself in," he said. "I started looking for options to leave Bulgaria."

He said that he had many failed attempts, the first having come when he was only 16. He stole a water bicycle with the intention of crossing the Black Sea to Turkey.

"That's probably well over 500 miles or something," he said. "Of course, the patrol caught me, and I ended up in jail. It was probably safer that way than being lost at sea."

As a side note, he and a friend wrote a song about it while in college. When he returned to Bulgaria after it was again an independent nation, he learned that the friend became a successful musician and had quite a hit with the song.

Another aborted attempt was remarkable in the quietness of its failure. He said he attempted once to falsify a train ticket out of the country. The soldier who caught him took him to a bar, bought him a drink

George Aukon

See GETTING on page 9

Define happiness ... or what makes you happy?

"I'm happiest when outdoors, when I'm close to nature."
– Helen Thompson

"What makes me the most happy is traveling. For me, that's the most fulfilling, the most complete form of life."
– Stefan Pashov

"I love surfing. I could do it every day. Well, three times a day."
– Rachel Murray

"If my daughter will come here ... it will be a very happy moment in my life."
– George Aukon

"Happiness is a state of mind. It's the opposite of depression. So, if you're not depressed, you're happy."
– Wayne Lindebaum

"I think it's the balance of all the different parts of your life, when everything's aligned."
– Cori Manka

Getting to USAP not always easy

Continued from page 8

and said, "Good luck next time."

Pashov's success finally came through a method that was more conventional, though perhaps far more taxing.

He filed for a regular one-week vacation visa. The process included undergoing interrogations with the secret police two to three times a week for three to four hours each session. He said it went on for a year before he was granted the visa, which he used to travel to Paris, where he filed for political asylum in both France and the United States. He said the interrogations were difficult, trying to not appear uncooperative while not tipping your hand concerning your true intentions or exposing friends to danger.

"It was a really hard balancing act," he said. "I couldn't just tell them to bug off, you know, because that means that I'm not going to leave for the rest of my life. ... You had to play both sides without compromising your integrity with your friends and with your moral consciousness."

After waiting for a year in Paris, he received offers of asylum from both France and the United States on the same day, Sept. 12.

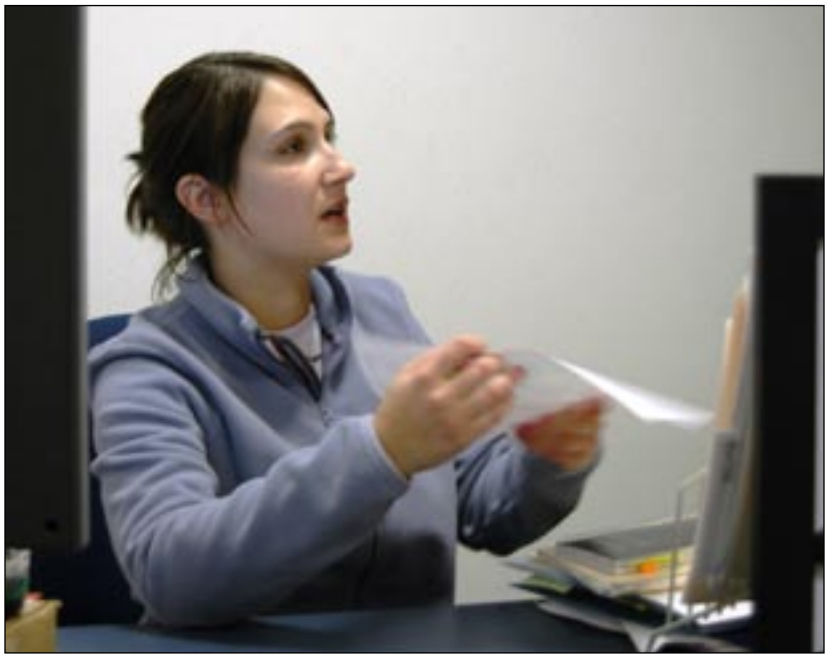
"So, I had to make a choice," he said, "and at that time I didn't think very long, and I opted for the American papers."

Helen Thompson

In New York he found construction work and a year later he was in Seattle, where he took a job fishing in the Bering Sea for a couple of months in the winter. He saved his money and started traveling.

"That's been always my goal, to travel. So, finally I was doing what I was planning and dreaming and intending to do. It took me a while. It was kind of a convoluted way of getting there."

He is in his sixth season on the Ice, working as a materialsperson. His American wife, Amy, also works here.



Cori Manka

Gentler trip

George Aukon also was born behind the Iron Curtain in Riga, Latvia, but the Soviet Union was deep into Mikhail Gorbachev's 1980s perestroika before Aukon made a trip to the United States.

He had been actively involved in whitewater rafting for several years when RAFT – Russians and Americans For Teamwork – held an international competition in Siberia in 1989. He was not able to attend but resolved to make the next event in the

See TEMPORARY on page 11

New drilling technique reveals ancient secrets

Continued from Page 1

Science Foundation (NSF), SHALDRIL recovered a number of shallow cores, most less than 50 meters long, during its two field seasons despite severe sea ice cover. Its success now opens up areas of the continent heretofore thought terra incognita to science.

And just as important, the investigations helped shed light into the Miocene and Oligocene time periods, between 5 and 35 million years ago when the continent stopped fluctuating between warm and cold periods and entered into its current deep freeze. The Antarctic Peninsula was the last part of the continent to undergo glaciation when most of the flora and fauna began to disappear.

"It's a key time and one poorly represented in the stratigraphic record," said John Anderson, principal investigator for SHALDRIL, during a phone interview from his office at Rice University in Houston. "In that regard, we managed to fill some gaps and collect core in the time intervals we [wanted] to sample."

Anderson said SHALDRIL scientists could now say with certainty that the final glaciation on the peninsula occurred in the late Miocene, as late as 3 million years ago when the ice sheet advanced far out onto the continental shelf.

"The most exciting thing to come out of SHALDRIL is yet to come," he said, as the researchers begin to publish their data. For example, the cores can help scientists piece together what was happening with the flora on the peninsula by examining fossil pollen and spores when the last glaciation took place. In a broader context, their research will complement other data records – such as that being unearthed by ANDRILL on the Ross Ice Shelf this season – to understand how the ice sheets will react to global warming based on ancient behavior during similarly warm periods.

That information is important to understand what could happen to global sea levels with a significant loss of ice mass in the Antarctic.

Keep her steady

The concept of a mobile drilling platform is not new to the Antarctic, but previous attempts were located far from the continent. The problem was not only the thick, hard, glaciated layer that protected the ancient sediment below the seafloor. Operating close to the continent involves working in a rough environment that requires drilling through sea ice while avoiding icebergs and other dangerous ice floes.

In addition, the vessel must be able to remain immobile, what's called maintaining station, during the drilling operation, even in high winds.

"Icebreakers by their nature are not drilling platforms," Anderson explained. "We were very pleasantly surprised to learn that the *Palmer* and her mates did a marvelous job of maintaining station in winds of 30 to 40 knots."

The Palmer is equipped with dynamic positioning (DP), a system to automatically maintain a ship's position and heading by using her own propellers and thrusters. This allows operations at sea where mooring or anchoring is not feasible due to deep water. But DP doesn't mean the ship's crew can simply relax.

"In the ice, we can't simply rely on DP alone to keep the ship on station; we have to manually evade ice floes as well," wrote Jesse Doren, the marine projects coordinator on the *Palmer*, in a log dated March 7, 2006, during the science cruise.

In the same log, Doren noted that the ship must stay on location within 10 percent of water depth. During a training exercise, the weather offered plenty of variables as the crew practiced drilling operations.

"As soon as everyone was comfortable starting the hole, wind increased, fog and rain moved in and the ice started blowing down on us (including a very sizeable iceberg)," he wrote. "We spent several more hours evaluating ice conditions and practicing evading floes while maintaining station within the limits … [required] for safe drilling."

Anderson said weather and ice conditions during the second field season presented the worst-case scenario for operations. The problem was not only sea ice, he said, but multi-year ice with thick and hazardous pressure ridges.

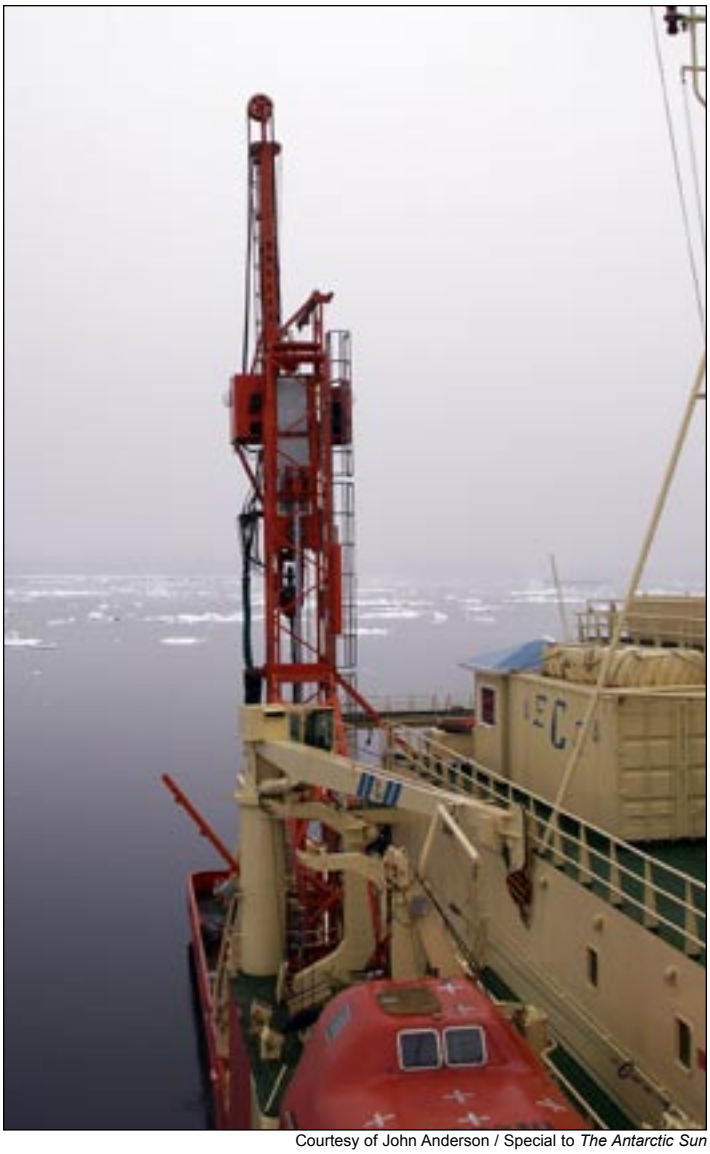
"That ice had to be treated essentially like icebergs because of its nature," he said.

Despite the difficulties, the *Palmer* was able to maintain station at many of the sites previously selected based on geophysical surveys that indicated condensed sections with rich fossil records.

"Every one of our sites targeted these condensed sections and every one of these sites yielded good microfossils and age control," Anderson said. "Sampling datable material has been one of the biggest challenges in drilling the Antarctic continental shelf."

The scientists were also able to sample areas at Maxwell Bay and the Firth of Tay for longer sections with much younger records, between only 12,000

See SHALDRIL'S on page 11



Courtesy of John Anderson / Special to *The Antarctic Sun*

Ages past are opening their secrets to scientists as a result of shallow cores obtained through a breakthrough drilling technique. The SHALDRIL platform is pictured here aboard the research vessel Nathaniel B. Palmer.

SHALDRIL's mobility is its greatest asset

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and 15,000 years ago.

"It's a very expanded section but it gives us … a higher resolution record of that time," Anderson said. Dating for these younger sediments relies on radiocarbon techniques rather than fossil records.

"We're very optimistic that we're going to get a very interesting climate record from that core," Anderson said.

What's the difference?

In the big picture, SHALDRIL and ANDRILL share some of the same goals, particularly in trying to reconstruct the past behavior of ice sheets during warm periods to predict future changes in the ice cap, especially in West Antarctica. But the two programs go about their work in completely different ways.

ANDRILL squats over one spot over the course of a season and draws out a core hundreds of meters deep. Next year, it will move to a different location, this time on the McMurdo Sound sea ice. But SHALDRIL is constantly on the move, able to sample several sites during one field season. Where ANDRILL has two months to work, SHALDRIL is lucky to get two days in the same location.

"We're trying to fill holes rather than get long stratigraphic records," Anderson said of SHALDRIL.

Both types of programs are attractive to the scientific community, according to Tom Wagner, the program manager for the Antarctic Geology and Geophysics department at the NSF's Office of Polar Programs. Both, he added, are two different tools to be used depending on the situation.

"You can think of it as a Swiss Army knife of drilling," he said.

SHALDRIL's mobility is certainly its greatest strength, according to Anderson. For example, ANDRILL will be able to determine when the ice sheets waxed and waned but not necessarily the extent or magnitude of glaciation, he said. On the other hand, SHALDRIL could potentially follow the grounding of the ice to its farthest extent on the shelf. It can drill down to 1,000 meters through ice, water and sediment.

"SHALDRIL was devised to provide us a means of getting drill core in areas where more conventional drill ships are unable to operate – and there are a lot of those areas," Anderson noted.

Ideally, he added, the two geologic coring programs would operate in concert in the future. SHALDRIL would work the reconnaissance angle, sampling promising sites found through geophysical surveys. Then ANDRILL could come in and take long cores from areas deemed desirable.

"We could merge these two programs to get stratigraphic records that we otherwise don't have," Anderson said. "SHALDRIL provides a little more flexibility that we would not have with just ANDRILL."

NSF-funded research in this story: John Anderson, Rice University, www.shaldril.rice.edu.

'Temporary' move led to Ice

Continued from Page 9

United States. Obtaining an American visa was as simple as a phone call, he said, but he had to wade through the process with Soviet officials.

"When [the trip] came, in April 1990, I realized that I liked this country a lot," Aukon said. "The United States amazed me in many ways. So I came back and my wife said, 'Now, it's my turn.'"

She crossed the Atlantic the next year as a counselor with a student exchange program. They decided to move to America for a couple of years to allow their two daughters to learn English. The Soviet bloc officially dissolved Jan. 1, 1992. They moved to the United States that August.

A friend in his new hometown of Flagstaff, Ariz., told Aukon about Antarctica and his own trip down in 1967, but both of them assumed citizenship was required for participation.

"When I became a citizen, which was [in April 2005], I just applied for the job [in communications]," he said, adding that he was surprised when he got an interview and an eventual job offer.

"I like the job and I like the people. Most important, I like the people. Particularly in my department are very, very nice people."

Different routes south

Manka and Murray are both permanent residents of the United States. Manka has lived there since childhood but still has deep patriotic roots in Canada that were instilled and nurtured by her parents. They celebrated Canadian Thanksgiving before she left Colorado in early October.

Murray first traveled to the United States to work at a summer camp teaching swimming for five months. She has now lived there for 11 years.

Thompson, now a sous chef, and Lindebaum are New Zealand citizens and residents. The USAP allows RPSC to hire New Zealanders if it is unable to fill positions with U.S. citizens or permanent residents. Both said they also considered working at nearby Scott Base, their country's station, but the McMurdo positions worked for them instead.

Stefan Pashov

Like most people working in Antarctica, these six said the experience is making quite an impression on them.

"I will never look at grass, trees, flowers, any of that, ever the same again," Murray said. "I cannot take it for granted. ... When the plane door opens [upon returning to Christchurch] and you smell the flowers and humidity in the air, it's just like a whole different world, and you can't help but smile."

Profile

Drawing a laugh

Davidson cartoons find humor in Antarctic life

By Peter Rejcek
Sun staff

Matt Davidson sees a certain affinity between his own life and the single-panel cartoons that have come to define his style as a humorist and satirist.

It somewhat reflects, he said, the nature of seasonal work that has kept him bouncing back and forth between the United States and Antarctica for nearly 20 years.

"You do something for a certain amount of time and then you're done, then you can move on to something else," Davidson said. "Single-panel cartooning is like that. You draw this cartoon, it's this one segment, and then you can turn that in and work on something else.

"Whereas a syndicated cartoon [series] is like life – it just keeps plodding on and you're never done."

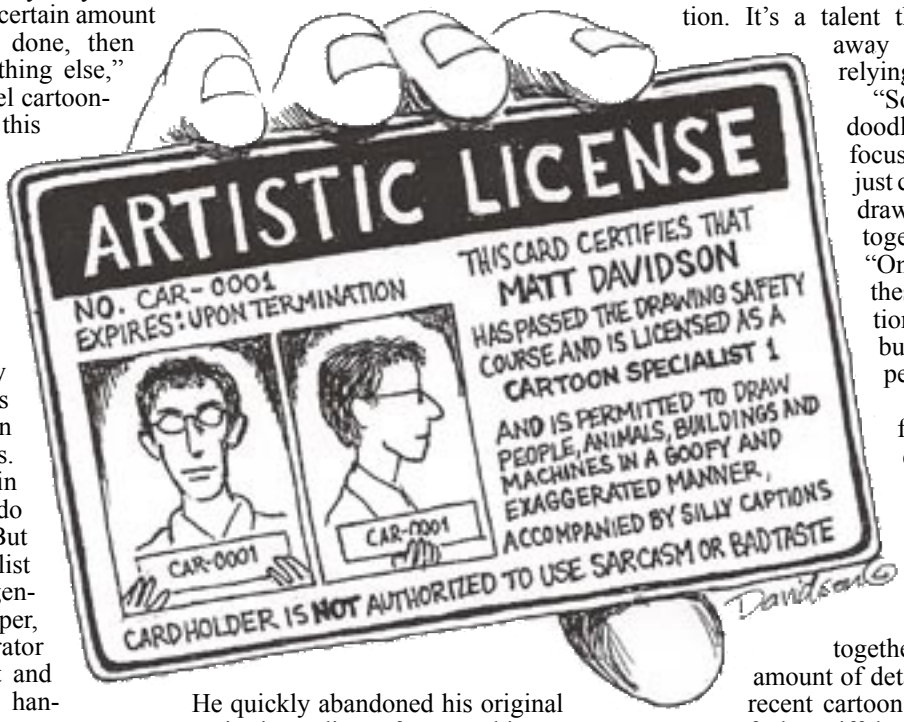
That philosophy may also explain Davidson's varied work experience in Antarctica over 13 seasons. He first came to the Ice in 1987 to work at McMurdo Station as a shuttle driver. But he's been drawn to a long list of jobs since then – senior general assistant, carpenter helper, carpenter, equipment operator in both waste management and fleet operations, and cargo handler.

After a five-year hiatus, he returned to the continent in 2003 as a South Pole cargo handler. These days, Davidson is back at McMurdo as a flight line mechanic in the aircraft ground equipment (AGE) department, a position he has held since the second half of last season. A yearlong stint at Palmer Station from 1989-1990 gives him the U.S. Antarctic Program (USAP) equivalent of a hat trick for time at all three stations.

One of the rationales for returning to the program and leaving his home in northern Idaho for part of the year was to focus on a career as a cartoonist during the off-season months. Davidson certainly gets plenty of practice on the Ice as the *Sun*'s resident humorist. His weekly cartoon, Level 1 Comix (formerly, It's a Harsh Cartoon), has anchored page 2 since he got back to Antarctica. It also appeared during *The Antarctic Sun's* inaugural 1997-98 season.

"Matt's illustrations prove that he is very tuned-in to the program," said Val Carroll, Raytheon Polar Services Co. communications manager and publisher of the *Sun* since its transition from the U.S. Navy days in the late 1990s. "I'm always laughing out loud when I see his drafts. I'll continue to beg him to assemble a book of his Antarctic comics – I'm sure it'd be a big hit with our Ice family."

Davidson grew up in California's San Fernando Valley and attended the University of California-Santa Barbara.



He quickly abandoned his original major in studio art for something more practical, business economics, when he recognized his ambivalence toward painting and his peers.

"I didn't feel really passionate about art and I couldn't relate to a lot of the people I met," he explained, "They were a little too artsy … and I was a little too square, so I felt out of place."

Ironically, Davidson's first job out of school was as a graphic artist. That lasted about 1½ years before he decided to hit the road as a self-described vagabond in South America for about nine months. He eventually returned north to his old employer but itched for the outdoors, falling back on a skill he learned after his college days – whitewater rafting.

For the next several years, Davidson yo-yoed between guiding clients on California's torrent rivers and being a ski bum in Tahoe, occasionally teaching cross-country skiing. The next part of the story is familiar to many who work in the USAP: On the river, he met someone returning home from Antarctica. Hungry for a change of pace, Davidson applied for a job on the Ice the following season.

"It was just an exotic place to go," he recalled of his decision to migrate south. "I just wanted to travel – and I really needed the money at the time."

Antarctica also afforded him a place to put his wit on display. For the 51-year-old cartoonist, humor is a slightly skewed reflection of reality, like a fun house mirror that throws one feature way out of proportion. It's a talent that requires grinding away at ideas rather than relying on easy epiphanies.

"Sometimes I'll just start doodling, just trying not to focus on it too much but just clear my mind and start drawing and it will come together," he explained. "Once in a while, I'll get these flashes of inspiration. … It's pretty rare, but I love it when it happens."

Each cartoon is different and so is the effort that goes into creating it. Some may take only a half-hour to complete, from concept to sketch to final inking. Others can take hours to pull together, depending on the amount of detail. For instance, for a recent cartoon that included images of the Eiffel Tower and Big Ben, Davidson surfed the Internet to ensure he accurately represented both iconic images.

"It's like what you have to do as a journalist: you have to do research and get background material," he said.

While his themes run to everything Antarctic during his time on the Ice, Davidson gets to stir the political pot a bit more back home, where he contributes cartoons to an alternative weekly newspaper, the *River Journal*. A couple of pieces have appeared in Reader's Digest and several of his illustrations enliven the latest edition of the USAP Participant's Guide.

He's still on the fence about whether to commit to his art full time. But, if he does, one can rest assured Davidson will not be painting still lifes.

"I like the humor direction more … I like making fun of something," he said. "It's just a lot more fun for me."