ANTARCTICA REFLECTIONS (1986 – 1994)

by

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ANTARCTICA! One instantly thinks of cold, penguins, icebergs, and vast area of snow and ice. At least I did. Up until 1985 the idea that I might even go there seemed as remote as the continent itself. Now I am looking forward to a seventh trip to the South Pole. This article combines my impressions from each of the six journeys to Antarctica in the November – December time frames of 1986, 1988, and 1989; and in January – February of 1991, 1992, and 1994.

In December, 1984, a group of NASA and Bendix Company personnel installed the South Pole Satellite Data Link (SPSDL) to provide a faster, more reliable method of data transfer between the South Pole and McMurdo, Antarctica, utilizing the Nimbus-7 and Landsats 4 and 5 satellites. Using mostly surplus equipment, the entire link was designed, built, tested, and transported to Antarctica within a three month time period. The project was conceived by Pat Smith, currently director of Polar Communications for the National Science Foundation, and two brothers, "NASA Mike" and Tony Comberiate, both of whom work as engineers at the Goddard Spaceflight Center in Greenbelt, Maryland. Other team members that year were Joel Gallun, Arlie Long, Mike Lewis, Dwight Viney, Dave Provost, and Wally Downs.

In October, 1985, Mike Lewis came to where I work, the Electronic Systems Test Laboratory (ESTL) at the Johnson Space Center in Houston. He was fired up about returning to "the Ice" the following month, and his enthusiasm sparked my interest. Initially, my objective was to install a satellite TV system there, since I have a side company, Geosync Satellite TV. Mike Lewis gave me Mike Comberiate's phone number. Comberiate squelched the idea of installing satellite TV in Antarctica (although by now, somebody else won a contract to do the exact same thing), but asked me if I could locate an S-Band Traveling Wave Tube Amplifier. We had one in the ESTL; one hour later I called him back and told him I had checked it out and found it to be operational, and if he went through NASA channels, we could loan it to him for a year. We shipped it out to Goddard, and the men going to the Ice that year then hand-carried it to the Ice.

A year later, on October 4, 1986, the 29th anniversary of the launch of Sputnik 1, NASA Mike called me and asked if I would volunteer my time in exchange for travel expenses to repair the SPSDL. One man had backed out, and the project needed someone familiar with satellite communications to work on the system. That was exactly what I wanted to hear! My employer, Lockheed, allowed me to use my vacation time to take advantage of this "Once-in-a-lifetime" opportunity. Even though I work for Lockheed, I was more of a representative of NASA. However, I liked to say that I was a Lockheed engineer flying on a Lockheed-built aircraft (the C-130).

Civilians fly commercial airlines to Christchurch, New Zealand. There, the Antarctica clothing is issued and stuffed in two orange canvas bags. One bag contains the Emergency Cold Weather (ECW) gear, which is considered hand-carry, and the other bag is loaded onto the pallets. Prior to leaving Christchurch, all personnel and bags are lined up and intimidated by drug searching dogs. We then board either a LC-130 aircraft (the "L" indicates that the C-130's are ski-equipped) flown by the US Navy, or a standard C-130 flown by the New Zealand Air Force. Sometimes people fly down to the Ice on C-141's or C-5's (also built by Lockheed), and have only a five-hour flight, but all my flights have been on the C-130's, which typically take eight hours from Christchurch to McMurdo, Antarctica. My fastest time took only six-and-a-half hours, flown by a woman Navy pilot. In this story, the terms LC-130 and C-130 may be used interchangeably.

Once airborne, people take photographs, sleep or read. On my first trip, the loadmaster read The Bible. While the C-130 droning engines are much nosier than a commercial jet, in some ways it is more comfortable (if you leave the red web fold-down seats) because there is more room to move around, and one can usually find a spot on one of the pallets to stretch out. The flight crews usually allow the passengers to go into the cockpit. Rubber chicken on the

airlines can't compare with the excellent box lunches provided by the US Navy.

Box lunch on C-130. in red coats,
(L-R) Steve Hanson, Arlie Long, Dave Honea

NAVY LC-130, X-Ray Delta 04

About halfway into the flight is a GO – NO GO point, at which time the pilot makes a decision whether to keep flying towards McMurdo, or boomerang - turn around and go back, if the weather conditions are too bad in McMurdo. Fortunately, all my flights went straight to McMurdo, but I have heard many stories of people having to turn around, only to try it the next day. Sometimes, they are within a half hour of landing and are forced to return due to sudden whiteout conditions. Also, as I recall, the sea ice is visible near the halfway point. Closer to McMurdo, while flying at an altitude of 30,000 feet or so, one can see spectacular view of breaking sea ice patterns, deep-blue water, rugged snow-covered mountains, and ancient glaciers flowing between the ranges.

During this time of the year, the temperatures in New Zealand are generally about 75^{o} F. Landing in McMurdo, the –10^{o} F. temperature rather abruptly attracts one's attention, especially when the flight crew opens the tail ramp door while we are still taxiing. After landing on the sea ice near Ross Island (where the US Station McMurdo actually is located), the view of Mt. Erebus with white smoke drifting out of its top is utterly breathtaking. The clear air makes the 13,000-foot volcano seem much closer than 25 miles. More sobering is the knowledge that this is the same mountain an Air New Zealand DC-10 aircraft crashed into in 1979.

Mt. Erebus

A Delta – (The Prison Wagon)

After all the hand-carry bags are gathered, we are then loaded into the backend of a Delta, a "prison wagon" with large tires, and transported to the town of McMurdo. Civilians are taken to "the Chalet", which is the headquarters of the National Science Foundation (NSF) in Antarctica. It doesn't matter how many trips one has traveled to the Ice – you always receive a safety lecture, followed by berthing assignments. My favorite place to stay is the Hotel California, two buildings away from the Chalet. Other dorms in McMurdo offer better accommodations, but the hotel is my McMurdo home. It sits next to the VXE-6 helicopter pad, and sometimes I've been lucky enough to have a room on that side. This year my room faced the lava road, but what can one expect on the economy rate? The hotel is for short-term transients; the reason I would rather

be there than in a dorm is because the day room is where the visiting scientists relax. As far as I'm concerned, that day room is the Classroom of the Antarctic. Scientists of many disciplines representing industry and several universities can be found wandering about; most discuss their projects with great enthusiasm.

The US Navy contracts to the NSF to fly the six LC-130 planes and the five helicopters of Squadron VXE-6. The 109th New York Air National Guard also augments VXE-6. It is always a pleasure to fly with either one of these great squadrons. Also, Naval Support Force, Antarctica (NSFA) provides communications, cooking, medical facilities, etc. to the NSF. Antarctic Support Associates (ASA), headquartered in Denver, now is the prime contractor to the NSF for construction, base facilities, electricians, plumbers, carpenters, etc. When I first started going to the Ice in 1986, ITT Antarctic Services had the contract.

VXE-6 Helo

Helo Pad

McMurdo itself is a like a mining town, with buildings all scattered about and in such a random order it makes one think that the planners drank too much one night, stole a bulldozer, and did some leveling on the exact spot, with no regard how these building would stand with respect to the other ones. During the Austral Summer (October – February), about 1200 people live at McMurdo. The land at McMurdo is lava from the days when Mt. Erebus spit fire. Temperatures in the summer are warm enough to melt the snow and make lava mud. When I was there in 1989, the actual temperature in McMurdo was 37° F., and back in Houston on the same day it was 7° F.

After my third trip to the Ice, I was asked by Dennis Tupick, a communications supervisor for ASA, to submit a bid to upgrade the SPSDL system. Mitch Smithson, one of my Lockheed co-workers, and I wrote a proposal over a weekend. Mitch was going to handle the software, and I was going to handle the RF equipment. We competed against Ball Aerospace out of Boulder, Colorado, and ST Research, located in Washington, D. C. A year later, ST Research ended up with a piece of the action, but a contract was never officially given. Dennis told me that the proposal Mitch and I presented was well thought out and well written, but he felt that we had bid too low, and would probably suffer a financial disaster as a result. I have to respect Dennis for that.

My last trip to the Ice occurred in January, 1994. The previous December, another man had been scheduled to travel to Antarctica, but was prevented by medical reasons. NASA Mike urgently needed somebody with RF (radio frequency) and satellite tracking experience to work on the Total Ozone Mapping Spectrometer (TOMS) Project, which would utilize the old SPSDL equipment. As the name implies, the TOMS Project is designed to map the ozone depletion hole around the South Pole. NASA Mike told me that the Christmas card I had sent him prompted him to call me.

NASA Mike, Dave Newson, Thom Stone, and I all shared the same room. Cindy Collins roomed next door. A few hours after my arrival, the five of us met and drank coffee at the old Navy officer's club, which had been converted into a coffee shop. I don't know why it was called

the old officer's club, because during my previous trips almost all the officers I saw were younger than me. The building that used to be packed and smoky on Saturday nights was now quiet and almost empty. Dave and Thom were working on connecting an Internet satellite link through the Immarsat, and Cindy was assigned as the programmer for the TOMS Project. NASA Mike coordinated and worried about both projects.

NASA Mike and I closed the O-club down, and then we took a walk to the Chalet. McMurdo is quiet at 2 AM on a Sunday Morning, but since this is the time of year when there are twenty-four hours of daylight, one doesn't have to worry about the Boogie Man jumping out of bushes. Of course, there aren't any bushes, either! The sun glistened off the ice in McMurdo Sound; the glaciers on the far side of the Sound, fifty miles away, gradually sloped to the sea. Off in the distance, where the U.S. Coast Guard cutter Polar Sea had opened a river in the ice, the breath of whales broke the clear surface. Even though it was late, and we were both tired, we continued our walk to Hut Point, searching for penguins. Although none were seen, we didn't care, since the beauty of the place was nothing short of fantastic.

During the next several days the work demanded our team's best talents for repair, programming, satellite tracking, and logistics. We worked long hours. Often tempers flared, but we all left the Ice as friends. NASA Mike and I took a few walks to Hut Point, usually with the midnight sun in our eyes, constantly on the lookout for whales and penguins. We talked about how important our wives and children are to us, our Faith in God, and about how lucky we were to be in Antarctica. During my three weeks on the Ice, there were times that I wanted to push NASA Mike into a garbage disposal, but despite that, I have a bond of friendship with him that will survive the differences of our approaches to performing difficult tasks. Without his energy and vision, I would not have seen Antarctica six times. Thanks, NASA Mike!

During these Summer months, the sun doesn't' set, but it just rotates counter-clockwise at an angle of about 23^{c} above the horizon. Many times I would wander through McMurdo at midnight (New Zealand time) taking photographs with the same brightness of the sun as at noon. Mt. Discovery and the Royal Society Mountains with its stunning glaciers are visible from McMurdo, but hills generally block Mt. Erebus. However, by walking towards the New Zealand-owned Scott Base, about two miles away from McMurdo, very beautiful views of Mt. Erebus may be seen, as well as Castle Rock, a popular place for outings.

Royal Society Mountains

Ob Hill, 1986. L-R: Joel Gallun, Steve Hanson, Arlie Long, Monroe Hyatt, Matt Nelson

Another place to see Mt. Erebus is at the top of Observation Hill (Ob Hill), 750 feet above McMurdo. At the peak there is a cross made of Australian jarrah wood, that was erected in 1913, as a memorial to Captain Robert Falcon Scott, Dr. Edward A. Wilson, Lt. Henry Bowers, Lawrence Oates, and Petty Officer Edgar Evans. These British Antarctic / South Pole explores died in 1912 on their return trip from the South Pole. They arrived at the Pole on January 17, 1912, a month after the Norwegian team, led by Polar explorer Roald Amundsen, became the first people to arrive at the South Pole on December 14, 1911. Carved into the cross are words

from Tennyson's Ulysses, "To strive, to seek, to find, and not to yield".

During my first trip, all five members of my group climbed Observation Hill, but I was soon left gasping, trying to catch up with the others. As I struggled, the words of the Hymn, "The Old Rugged Cross" kept running through my head: "On a Hill far away, stood an old Cross, the emblem of suffering and shame…" I was wondering how I was going to reach the summit, when my friend Steve Hanson stopped and waited for me. He told me to take it easy, then hiked along with me until we reached the peak.

On every trip to the Ice, I have looked at the Cross on Observation Hill as a source of strength. I was disappointed not to see it in 1994. This year, the Cross wasn't there. It had blown down during a storm in 1993. Ob Hill seemed bare without it. Eighty-one years and a day after the Cross was first raised, people from Scott Base and McMurdo participated in carrying the same Cross back up Ob Hill. Relay teams spontaneously grew to carry It. The event started at 2 PM on a Sunday afternoon, and I was late arriving, so I had to run to catch It. I couldn't help thinking that the message of the Cross goes on, with or without me. Finally I caught up with It, and managed to squeeze in with the team carrying It, so I could touch It. And to help carry It. But I was out of breath, and the surge of energy of the people carrying It made it seem more like the Cross was carrying me. As I let go and the team moved ahead, I thought, "How typical of my life, that I let go of the Cross". But I struggled to keep climbing the rocky hill, and finally, I made it to the top, just prior to the planting of the Cross into a pre-formed hole.

NASA Mike (left) helping to raise the Cross

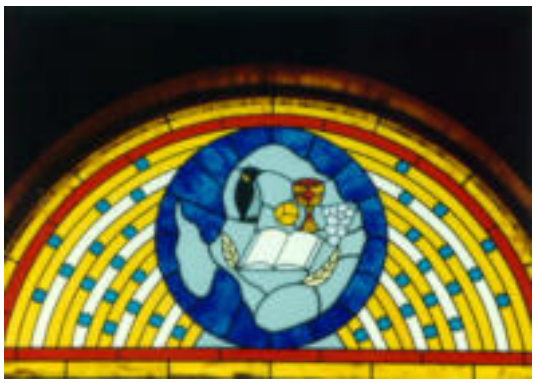
A group of about twenty people raised the Cross. I snapped a photograph of NASA Mike helping. Once the Cross was secure, an old Catholic Priest visiting from Ireland read the Easter message from the Bible. Then the New Zealand Scott Base manager read the original words of dedication that had been said at the time the Cross was first raised in 1913. Three days later I saw the bright stars of the Southern Cross as I flew home across the Pacific Ocean. God's Presence is visible even in the Milky Way. As I sat in church on Easter Sunday this year, back home in Texas, I was thinking of the meaning of the Cross, and what it meant. As if the man sitting behind me could read my thoughts, I heard him say, "Celebration of Life".

One can find peace and quiet in McMurdo by walking to Hut Point at midnight to look for whales and penguins, or just going into the Chapel of the Snows. When I first went to the Ice in

1986, the Chapel was located in a Quonset hut. Around 1987 or 1988, the Winter-over crew built a brand new chapel using surplus materials and volunteer labor. This is a beautiful building. It has a window that overlooks the Royal Society Mountains. Above the window is a large stained-glass window with a penguin sitting next to a Bible that diffuses the light so that one feels His Holiness immediately upon entering. In 1989, this chapel was filled to capacity on Christmas Eve and Christmas Morning with women wearing blue jeans or dresses, sitting next to bearded construction workers, scientists, and sailors. Lisa Trembly, one of the VXE-6 navigators, poignantly told the story of the shopkeeper who fed the hungry while he waited for the Lord to appear. Now, I wonder if I'm passing by the Lord when I pass a hitchhiker without stopping. My trips to Antarctica would not be complete if I did not attend at least one service in the Chapel of the Snows. Many of McMurdo's residents participate in the services. One man sang a song he had written about sailing through life while keeping the boat on an even keel.

Spending Christmas on the Ice that year was not in my plans, but I had come down with an ear infection in New Zealand just prior to my scheduled flight to the ice, and I had to wait for ten days before my ears cleared enough for me to fly. Thus, my schedule slipped. While Christmas on the Ice was unplanned, and I felt lonely for Karoline, and my daughters Cheri and Michelle, I must admit that people on the Ice went all out to make sure the Christmas Spirit and meaning of the season touched the Antarcticans. Christmas carolers wandered in and out of the dining hall, wearing red parkas, jeans and woolen work shirts, or the green military fatigues. I brought home two Christmas cards made by schoolchildren, one of which said that he or she was Praying for us. Reflecting in the faces of at least 200 people was the true meaning of Christmas during the candlelight service on Christmas Eve. It was very emotional.

Chapel of the Snows, with Royal Society Mountains in the background



Stained-glass penguin and Bible inside the chapel

While a White Christmas in the Antarctic wasn't unexpected, the beauty of Christmas Morning did surprise me. Glaciers sprinkled with diamond dust sparkled and miraged with melting sea ice in harmonious balance with simple, but eloquent, deep blue of the sky. Peace on Earth could almost be felt just by looking at the brilliantly white snow of Mt. Erebus. Clearly visible was the Cross on Ob Hill.

It was in the Chapel years ago that I first had the urge to stand up and tell people not to take God's Name in vain. But until January 10, 1994, I never had the courage to act upon my convictions. On this day, I listened to Chaplain Mak tell people to stand up for they believe. During the entire sermon, I wrestled with my courage. I told God, "Well, maybe it is time for paybacks". When Chaplain Mak finished talking, I found myself standing up at the back of the Chapel. I nervously introduced myself and stammered out words to this effect: "My name is Matthew Nelson. I have been coming to Antarctica for several years. For a long time, I have wanted to say this, but never had the courage. When you leave here, you will go back to your work place and be among people who take God's Name in vain. Perhaps you will do it yourself. I know there have been times in the past when I've been guilty. In the Lord's Prayer, we say,

'Hallowed be Thy Name'. In the Ten Commandments, we are told not to take God's Name in vain. God's last Name is not Damn! To me, when somebody says, 'Jesus H. Christ', the 'H' means Holy." After the service, two or three people came up to me and shook my hand. And said, "Thank you for saying what I feel". Later that day, when I was in the "McMurdo Mall" (very small store), a guy came up to me and said that he really appreciated what I said.

Upper Left: Scott's Discovery Hut, with Ob Hill in background. Upper Right: Hut Point.
Bottom four photos: Old artifacts inside the hut, including the "Old Antarctic Explorer", Matt Nelson.

In 1902, Robert Scott built his pre-fab Discovery Hut at Hut Point, a peninsula near McMurdo. Scott and his men didn't live at this hut, but used it as a food storage facility. From what I understand, the men lived on the Discovery ship, which was moored at Hut Point. There is another hut at Cape Evans, eighteen miles to the North, that Scott lived in 1908 and 1911, and from which he staged his final two assaults on the Pole. Ernest Shackleton, another famous Antarctic early explorer, built a similar hut at Cape Royds, further North on Ross Island. Mt. Erebus and nearby icebergs are visible at Cape Evans. For one hour a week the Discovery Hut is

open as a museum. Inside, one smells the aroma of a smoked seal from a carcass that is about eighty years old. It is not offensive, but smells like freshly smoked fish. There are unopened tin cans of Huntley-Palmer Biscuits, Fry's Cocoa, and corned mutton. Some crates have labels saying, "Special Dog Biscuits USE ON THE VOYAGE", or "CAPT SCOTT'S ANTARCTIC EXPEDITION 1910 HOMELIGHT LAMP OIL".

Seals, penguins, and whales have all been photographed by me at either Hut Point, or at Cape Evans. One the first trip, I observed a Waddell seal pup the day after its birth, with its protective mother nearby warning people to stay their distance. Penguins are curious, and seem to have an attitude that says, "Let's go look at the funny people in their red coats!" I have only seen eight Adelie penguins up close, but that was as much of a thrill as if I had seen eight thousand. Once, at a distance, I saw twenty penguins playing "Follow-the-leader". The lead penguin would waddle to a point on the ice, lay on his stomach, toboggan slide for about ten feet, then stand up and start walking again. The rest of them would do exactly the same thing at the same spot. Observing penguins, seals, and whales in their natural environment, and visiting inside of Scott's huts are among my favorite memories of Antarctica.

Upper: Nimke Whale, photo by Dave Provost
Right: Three Adelie penguins and Mt. Erebus

Weddell seal and new calf

Adelie penguins

Swimming in the frigid Antarctic Ocean doesn't seem to bother the seals, penguins, and the whales. However, it didn't take me long to figure out that they have more insulation than I do. In 1991, I decided I wanted to join the Scott Base Polar Plungers Swim Club bad enough to swim naked with the outside temperature 14^{o} F., all for a stupid patch that most people will probably never have. Tom Field, my co-worker, went in right after I did. OK, so we're a little crazy! But not quite as crazy as the three Norwegians who gave a lecture in the Scott Base pub that same evening, having just skied across the Antarctic Continent. They demonstrated their techniques by attaching a harness to themselves and skiing behind a para-sail. My admiration goes out to them. Somehow, I didn't feel so tough.

Wow! That water was cold when I swam naked so I could join the Scott Base Polar Plungers Swim Club!

Biologists studying penguins comprise a small percentage of the science performed near McMurdo. Other biologists research the antifreeze properties of fish, and dive in the cold waters the Ross Sea wearing dry suits. Antarctica's affect on the world's weather lures many people, as well as the fairly recent discovery of the Ozone depletion at the South Pole.

Some of the world's best meteorologists have traveled to the Ice for several years. These people have my utmost respect, because they leave the warmth of McMurdo and spend weeks camping in the ice fields and searching for meteorites. Some of the team members whom I feel fortunate to have met are Dr. William Cassidy, John Annexstad, John Schott, and Robbie Score. Dr. Cassidy is from the University of Pittsburgh. John Annexstad worked for NASA for 22 years and was on the board that advises the NSF. He first started going to Antarctica in 1957, on assignment to the International Geophysical Year (IGY) Project. John Schott is from Washington State, and spends summers teaching mountaineering. Unfortunately, during my first time on the ice, he was the person who helped recover the bodies of two men who fell through a crevasse when they walked off an unmarked trail while taking a short cut from Castle Rock to Scott Base.

One of the things that surprised me was the number of women working in Antarctica. Besides traditional office jobs, women can be found operating construction equipment, or working as scientists from the universities. They work as lab technicians, cargo handlers, or may be in the Navy, serving as pilots, navigators, loadmasters, and aircraft mechanics. At the Pole, it is not uncommon to see ladies driving D-9 cats, launching weather balloons, or representing NOAA as a commissioned officer. One year one of the cooks there was a grandmother 64 years old. I have seen two different women doctors Wintering-over at the Pole. On the Ice, men and women work well together on all types of jobs.

Jeff Hurley and Matt Nelson with Wyoming Flag, 1988

In 1988, one of the Navy communications officers was a lady by the name of Linda Clark, from Laramie, Wyoming. That same year, or the year before, I met Jeff Hurley, a Navy enlisted

man with the rating of Radioman 3rd Class. He had lived for three years in Japan studying the Marshall Arts, and has a musical background. I asked him where he was from and he said, “Casper, Wyoming.” I told him, “You’re not going to believe this, but Casper is my home town.” His Principal from Kelly Walsh High School, Mr. Myers, was my Vice-Principal at Natrona County High School when I graduated in 1964. Jeff tuned satellite receivers strictly by listening to the tone; when he heard A-Flat, he knew that he had locked onto the satellite. His method is the most accurate I have ever seen! He and I flew the Wyoming Flag at McMurdo in 1988. My friends, Nora and Dana Van Burgh, both of Casper, donated the flag.

People are always looking for something fun to do. During the 1994 trip, I happened to time it right to see the annual Scott Hut to Scott Fun Run. This is a three-kilometer run/walk which most of the residents of McMurdo and Scott Base participate, even if only to cheer the others. Some of the more serious runners completed the run in about 10 –15 minutes, but I didn’t try to break any speed records. The path of the race was to Hut Point, back to McMurdo, on to the halfway point to Scott Base, back to the Hut, and finishing up in McMurdo. Four younger people foot-pedaled a Flintstones Mobile, while laughing all the way.

Flintstones Mobile

After the fun run, we had to go to work. The satellite receiving equipment needed attention, and naturally, no one had anticipated Murphy stowing away on an Antarctica-bound LC-130. That guy is everywhere! NASA Mike had brought a telemetry receiver from Goddard Spaceflight center, but had no schematics. It didn’t work! The windmill blades may have been made of ice, but Sir Matthew couldn’t let a broken receiver stop an Ozone hole detection mission. Murphy had to be driven out (unfortunately, he caught another plane to the South Pole a few days later). Since I owned the exact same receiver model and it was doing nothing but taking up space in my garage, I volunteered to have my wife ship the receiver and some other equipment to me. Overnight express on DHL to Christchurch only cost $504 (to my dismay after I arrived home) and DHL lost part of the shipment. I later received shipping reimbursement but it took DHL several months to settle the claim. In the meantime, I repaired the original receiver furnished by NASA Mike.

One of the research vessels, the Nathaniel B. Palmer, affectionately known as the “Nattie B”, was in port at McMurdo the day I arrived. Mike and I walked down to it and were invited on board by the crew. This ship is only two years old. One of my hopes in life is to work on it as an electronics technician for a four-month cruise. The Nattie B. is based out of Chile, and only sails the coastal waters of Antarctica. We had dinner on board, which tasted much better than the food served in the McMurdo galley. From the 50-foot wide bridge, we could see a small colony of penguins diving into the water near Hut Point.

Nathaniel B. Palmer research ship in McMurdo

Captain Lawson Brigham, the Commanding Officer of the US Coast Guard Cutter Polar Sea (WAGB-11), invited the NASA team for lunch one day. The food and service were both excellent. He gave each of us souvenirs from the ship, to include an ink-drawing of the ship, which I framed. Captain Brigham and I had out photograph taken with both of us holding The Explorer's Club flag, since we are both members. (Note: Captain Brigham took the Polar Sea to the North Pole later this same year.)

Captain Lawson Brigham, the Commanding Officer of the US Coast Guard Cutter Polar Sea (WAGB-11), and Matt Nelson holding The Explorer's Club flag

Every time that I've traveled to Antarctica, I had heard about the satellite ground terminal on Black Island. To go to the island, one must travel either in a helicopter or by a land transverse that can last twenty hours in a smelly diesel-fueled Sprite. For the first time in six trips, I had an opportunity to fly Black Island. During the twenty minute helicopter ride, we flew over the Pegasus Site, where a Super-Constellation C-121 aircraft had crashed years earlier. One can never forget that despite all of its beauty, Antarctica can still be inhospitable. It's a harsh continent. Once we arrived, we were given a tour of the place, then we ate a very good lunch. However, I had been awake about twenty-six hours. I started dozing while the other people watched the Dallas-49'ers playoff game on a live satellite TV link. To quote a friend, "Football is a disease I never caught", so I didn't have any trouble when the guys there woke me and told me to grab an empty bunk in the bunkhouse. (Probably because I may have been snoring, as I have been known to do!)

Many of the people who go to McMurdo never leave the immediate vicinity. However, being a team member working on the South Pole Satellite Data Link provides me the best excuse

for hopping aboard another C-130 and heading for the "Top of the World" (it all depends upon one's view!). The flight normally takes three hours. In 1986 we were halfway to the Pole when the nose ski came down during flight and could not be retracted, so we turned around, went back to McMurdo, waited a few more hours, and then departed once again, finally arriving at the Pole at 4 AM local time. Flying over the Beardmore Glacier and the Trans-Antarctic Mountains is absolutely spectacular! There is an excitement just knowing that you are actually flying to the South Pole. Upon arrival, I told myself that I, Matt Nelson, was really here. Every day of every trip to the Pole I would go outside and spend some time just thinking how fortunate I was to be there.

Beardmore Glacier in the Trans-Antarctic Mountains, enroute to the South Pole

Two signs along the 14,000-foot ice runway welcome the planes with a touch of humor. The first says, "JP-4, Food, Lodging, Next Exit"; the second is more to the point: "Planes with Mail (an arrow points to the right), without (an arrow points straight ahead)". In other words, if you don't have mail, you might as well head back for home.

After spending a few days in McMurdo, the temperatures ranging from – 20 ^{o} to + 20^{o} F. become tolerable, even pleasant. This doesn't prepare you for the next plunge to 40 below. Definitely, this is not New Zealand!

109th NYANG LC-130 and Ceremonial Pole and circle of flags at the South Pole

NAVY LC-130 and South Pole Dome

Contrasting against the white snow, the colorful, fluttering flags of Argentina, Australia, Belgium, Chile, The French Republic, Japan, New Zealand, Norway, The Union of South Africa, the USSR (now Russia, with its new flag of white, blue, and red, as opposed to the yellow hammer and sickle over the red background), Great Britain, and the United States are the first sights seen upon leaving the plane. These flags represent the twelve nations that originally signed the Antarctic Treaty, which says the Continent would be used for scientific and peaceful

purposes, are arranged in a semi-circle around a red-and-white barber pole with a chrome dome, which signifies the ceremonial South Pole.

Someone is always there to help us old guys off the plane, which is a good thing, because the extreme cold and the altitude of 9,300 feet have a tendency to take one's breath away. Actually, the density altitude is closer to 12,000 feet, so a person coming from sea level huffs and puffs.

Looking completely out of place, the most prominent feature at the Pole is a dome, which is 165-feet wide at the base and 50-feet high. To the left of the dome is an orange building called Skyway that has some of the scientific labs and an observation room; behind Skyway one can see an orange radome that houses the SPSDL antenna. A sloping ramp of snow leads to the entrance of the big dome, and a sign above the entrance proclaims, " United States Welcomes You To the Amundsen-Scott South Pole Station". The entrance is actually an arched tunnel covered with frost. My first thought was that this looked like the Winter house in the movie, "Dr. Zhivago".

Upper Left: South Pole Dome Entrance. The Skyway Observation Building is on left. This photo was taken in 1986. The antenna and radome was moved behind Skyway in 1987.

Upper Right: Welcoming Sign at Dome's entrance

Left: South Pole Satellite Data Link's (SPSDL) antenna radome

Out near the flags are several signs pointing towards people's hometowns. Two plastic pink flamingoes and one plastic penguin remain silent in their nests among the signs. In 1988, a sign that says, "Casper, Wyo. & Bacliff, Texas" was nailed to a wooden post. My friend Dan Frank endured temperatures of –65 ^{o} F. to take photographs. A native of Minnesota, Dan is as enthusiastic about working on satellite tracking equipment as he is taking photographs.

The dome is made of triangular pieces of aluminum, about 3 feet on each side. Inside are three orange two-story buildings, each about the size of a house trailer. Hot chocolate is waiting inside the nearest one, the galley. Above the galley there is a photo lab and a recreation lounge. The second building has the communications center on the bottom, and the library, pool table, TV room (tapes only), and the South Pole Post Office / gift shop on the top floor. Science labs and some living quarters make up the third building.

In 1986, on Thanksgiving Day, after eating a fantastic meal in the small galley, Steve

Hanson, Dave Honea, Monroe Hyatt, and I flew the Texas Sesquincentennial flag (150 years) at the actual South Pole sign, which is located approximately one hundred feet away from the flags and signposts. Then, in 1988, I flew that Wyoming State flag there. In 1991, four people from Wyoming flew the same flag, along with the Wyoming Centennial Flag, which was donated by the Wyoming Centennial Commission. I can also say that I skied around the world and through all time zones at that sign. The sign reads:

"GEOGRAPHIC SOUTH POLE 9,301' ELEVATION
AVE. TEMP –56 DEGREES F.
ICE THICKNESS IN EXCESS OF 9000 FT."

Kit Hughes launching weather balloon at the South Pole

Steve Hanson inside South Pole Dome Photo courtesy of Steve

1986: Texas Sesquincentennial flag

1991: Wyoming State and Centennial flags

1991: Matt Nelson with Wyoming Flag

1988: The BAMBOOZLER, selling "Dripless Ice Cream Cones

One December, 1988 morning at 2 AM, The BAMBOOZLER greeted the incoming C-130 with thirty Navy personnel aboard on a fuel turn-around flight – "Tourists!" Standing at the barber pole with the chrome dome, in –30° F. weather, and wearing a Santa hat, a Hawaiian shirt, Bermuda shorts, and thongs, and selling "Dripless Ice Cream Cones" was the one and only Dave "Biggs" Bieganski! He Wintered-over at the Pole during the 1988-1989 season. His Christmas cards that year showed him with his Santa hat blowing in the wind, standing shirtless and wearing Hawaiian Leis and a grass skirt like a Maori Warrior, selling more of the drip-less ice cream cones at the Geographic South Pole sign. He did cheat and wear his bunny boots, though. Dave's business card lists his title as "The Bamboozler", and then says, "Seismology, Satellite Communications, Computerized Mapping, Survivalist, Celibacy Expert, Frozen Food Connoisseur, Igloo Contractor". He entertains people by chugging a beer while standing on his head. But, just as he plays hard, he works hard. He has had more hours in outdoor survival then most people have had camping. After the Armenia earthquake struck in December, 1988, Biggs showed me the seismic recording of that event.

Another one of my good friends is Murray Wilson, a Corporal in the New Zealand Air Force. He looks fit enough to walk into a bar, crack some jokes about the local patrons and their heritage, and then walk away with everyone else on the floor groaning in pain. We met on the plane to the Pole in 1988. While I ventured outside for a few minutes each day, he would come in a meal time, grinning ear-to-ear, and then go back outside to finish working 8 hours in –30° F. temperatures loading empty Helium bottles onto pallets for air shipment back to McMurdo.

South Pole Comm Room, L-R: Joel Gallun, Dan Frank, Murray Wilson, and Brent Jones

Dr. Charles Swithinbank, in 1988

One of the oldest pioneers is Dr. Charles Swithinbank, a most humble man. I met him at the South Pole in 1988. He was with a group of Canadians who were flying a Twin Otter looking for places on the Continent that heavy aircraft could land with wheels instead of skis. Retired from the British Antarctic Survey, he first set foot on the Ice in 1949, at the age of 23, nine years before the International Geophysical Year. At that time, there were only 28 people on the entire Continent; his tour of duty was for two years. He told me that he was on his current expedition because, "I know a wee bit about glaciers". His personal satisfaction resulted from being the first person in the world to set foot on each of the six glaciers named after himself!

Scientific research at the Pole includes the infamous Ozone Hole, weather observation, and cosmic ray detection to support the Big Bang Theory. Of course, many other scientists visit there for one reason or another. Infrared astronomy occurs during the Summer; those who Winter-over can observe the Aurora Australis.

In the early Seventies, a C-130 crashed during take-off at the end of the ice runway due to an electrical failure. It was damaged beyond repair, and left for the drifting snow to cover up all but eight feet of the vertical stabilizer. Now it is a landmark for the incoming planes. This plane is a favorite tourist attraction at the Pole. Leading down to the cockpit escape hatch is a vertical shaft through a five-foot thickness of snow. We crawled down inside it, and I sat where the

pilot would have sat had a seat still been in place. Being a ghost pilot was kind of spooky!

On the opposite end of the runway are two triangle-shaped radar corner-reflectors. They were installed several years ago to provide radar targets to the Space Shuttle in case the Pole was selected as an emergency landing site for launches out of Vandenberg AFB in California. Since the Challenger accident in 1986, shuttle launches only occur from Kennedy Space Center, Florida, eliminating the need for the reflectors, since these missions do not fly over the Poles.

Left: Tail of crashed C-130 at the South Pole
Upper: Space Shuttle radar corner-reflector

To experience Antarctica, Greg's job of snow relocation (with a shovel) meant more to him than working in drug stores as a registered pharmacist. A native of New Hampshire, many of his friends had been students of Christa McAuliffe. His eyes nearly filled with tears when I took off my space shuttle Challenger Mission hatpin and gave it to him. This was in 1988. At the time that I was at the Pole that year, the space shuttle STS-27 mission was flying, so I placed one of their mission decals on the Season's Greetings From the South Pole sign and another one in the South Pole Communications room.

In 1968, when I was in the Army, I was attached to Navy Squadron VQ-1, flying in the back of an EA-3B jet. As a direct result of flying to Antarctica on C-130's, I decided I would like to be back on flight status, so in 1989, I joined the Naval Reserves, to fly on the P-3 aircraft in Squadron VP-94, out of New Orleans. In 1991, I transferred to the Naval Space Command, Det 0166, commanded by astronaut CDR Steve Oswald, and later commanded by CDR Bill Readdy. Both CDR Oswald and CDR Readdy flew on STS-42 while I was on the Ice in January, 1992. It is because of my association with NASA and my involvement with the Naval Space Command and knowing some of the astronauts, that I have included the photo on the bottom right.

Matt Nelson skiing around the world

Matt Nelson with Space Command and STS-42 patches and magazine cover of a painting by Apollo 12 Astronaut Alan Bean

At the South Pole, one wouldn't expect to find anything related to the Space Shuttle.

However, mounted on the wall inside the communications room is a photo that I took down there (wish I could say I actually was the photographer) from the STS-51I mission showing the shuttle's Ku-Band Radar and Communications antenna, which I work on in Houston. There are also some various shuttle mission decals along a wooden beam that says, "South Pole Communications". Upstairs, in the game room/library, and representing current and future space exploration, the mission patch and an American flag flown on the STS-9 mission are framed and mounted. STS-9 crewmember Owen Garriot donated these last two items. Another little tidbit: I know that Mr. Garriot is a ham radio operator. While I don't know if he ever was CQ'ed by anyone from the South Pole, had he done so, he would have received a QSL card bearing the call letters of the South Pole Ham Station, KC4AAA, possibly operated by my friend Brent Jones.

The new South Pole Sign replaced the old one when the Geographical Pole marker was moved in 1992. It reads:

GEOGRAPHIC

SOUTH	**POLE**
ROALD AMUNDSEN	**ROBERT F. SCOTT**
DECEMBER 14, 1911	**JANUARY 17, 1912**
"So we arrived and were able to plant our flag at the geographical South Pole."	**"The Pole. Yes, but under very different circumstances from those expected."**

ELEVATION* 9,301 *FT.

Two walls of the game room are covered with photographs and letters of-and-from Roald Amundsen, Robert Scott, and Admiral Richard Byrd. An original photograph of Amundsen's team at the South Pole was donated by one of the five members of his team. The sweater worn by Admiral Byrd on his flight over the Pole on November 29, 1929 hangs next to a plaque listing the names of both Amundsen's and Scott's teams.

On December 14, 1988, the 77th anniversary of the discovery of the South Pole by Roald Amundsen, I walked to the sign located at the Geographic South Pole, ate some snow, and filled up several 35mm film canisters with snow, to bring home as gifts. This same year, the Amundsen-Scott South Pole Station welcomed the visiting team of the New York Air National Guard to play in the first annual Ice (Cream?) Bowl. In the States, the football games are often played in domes. Since the South Pole dome isn't large enough to play indoor football, the entire community endured the cold to watch the NYANG lose (so they thought). Flags of twelve nations served as the goal line. With the engines of their two C-130's going round-and-round, the NYANG pilots had the best view watching their team absolutely cream the South Pole "Beakers". Like most visiting teams, they soon flew away. Their victory "Top Gun" formation flyover created a nice air show with those ugly old Hercs.

Football at the South Pole, the Beakers against the New York Air National Guard

Formation of two LC-130's flying away from the South Pole

As mentioned previously, the remnants of the crashed C-130 remain at the Pole. It has been reported in tabloids that aliens hide out and live in a wrecked airplane at the South Pole. I didn't seen any the day that I was there, but perhaps it is because they saw me first. They require glycol for their life support systems, and there is an abundance of it at the Pole. Other people managed to video tape some of these aliens caught in the act of stealing glycol, and made them movie stars in the feature, "They Came For The Glycol". This was a videotape totally produced by the personnel living at the Pole, during the 1988-89 season. It seems that all the world's glycol was observed to be draining from the South Pole (perhaps through the Ozone Hole). After a call from the President for help, super hero Steve Foster made his appearance. Wearing blue tights and a yellow cape, he jumped from the top of the snow bank at the entrance of the big dome, landed wrong, and painfully broke his heel. He was home before the movie release, but the movie was dedicated to him in the credits.

Once the aliens were pacified and given their own supply of glycol, it was party time. Each week one of the working groups sponsor a "Saturday-Night Live" party. On the day of Steve's accident, it was held in the garage for a Debutante Ball, to name the new D-8 cat Trixie. A full-size cardboard cutout of Albert Einstein stood next to Trixie. Steve had all the women waiting in line to sign his cast.

Superhero Steve Foster saving the South Pole from aliens that came for the glycol!

Uncle Al Einstein standing next to Trixie at the Debutante Ball

One time it had been purposely rumored that a Russian had escaped from Vostok Station, and hid out at the Pole. That same year, during the Thanksgiving Meal, while some visiting dignitaries were eating their meal, Peter, one of the "Polies", dressed up as if he was a Russian, walked into the dining area, grabbed a turkey leg, growled, and walked out, much to the astonishment of the visitors. Of course, all the people working at the Pole were splitting a gut.

Other fun activities at the Pole include a "Race Around the World" on Christmas Eve, and resurveying the actual Geographical Pole. Although the ice is almost two miles thick, it drifts about 10 meters each year, so during the first week of January, the Pole is resurveyed. Around 1990, the sign at the Pole marker was changed to its current version. I have to have my photo taken at the sign each trip. There is something magical about being at the South Pole. If for no other reason, you can tell your Mom, "Yes, the world does revolve around me".

On January 13th 1994, my wife Karoline's birthday, Cindy, Mike, and I flew to the South Pole on a New York Air National Guard LC-130. Traveling with us were Elinor Constable, an Assistant to the Secretary of State, and Mr. Mike McAulty, a Congressman from New York. At the Pole I took photographs of both of them and later sent them copies. Elinor Constable sent me a nice letter, but the Congressman never responded. Oh, well!

As desolate as the South Pole is, there is something about it that compels me back. The first journey to the Pole in 1986 definitely was an adventure. Now the mystic has lessened, but not the yearning to return. I don't have a good answer when asked what makes me go back. The

Wyoming Teton Mountains are much more spectacular in the Winter than the landscape of the South Pole. As I write this paragraph, in August, 1994 (it often takes me several months to hammer out a story), I am quite aware that people are making plans for their science and construction projects for the 1994 - 1995 season, and it sort of galls me that this year doesn't look promising for me to buy more South Pole tee-shirts and ball caps in the closet-sized store that double for the post office. Nor will I have my photo taken at the South Pole sign, holding some flag or some other trinket.

During January, 1994, the population at the Pole bounced around 125 people. I would guess that 75% of these people had been there before. Missing this past season from the Communications Room was Eric Siefka. He is Mr. South Pole Communications, and probably has more time at the Pole than any person alive. His very capable replacement, Brent Jones, has shown ingenuity at working on satellite tracking antennas at –100^{o} F. during the 1994 Winter-over season. Both of these men have my utmost respect.

NASA Mike worked continuously without sleep for four days. There was no way that I could keep up with him, so I would grab sleep when necessary in the Jamesways, the canvas-covered Quonset huts located about 1000 feet from the main dome. Matthew A. Nelson, the Great Antarctic Explorer, learned from previous excursions to the South Pole that one could sleep much warmer by using an electric blanket while staying in a Jamesway.

No trip to the Pole can be complete without taking photographs at the circle of flags and the Pole sign. I don't drink alcohol very often, but occasionally will have a beer. Several of us walked out to the South Pole sign one evening and proceeded to drink a six-pack of New Zealand beer that somehow had managed to find its way to the Pole. I made a cardboard sign saying, "COLD BEER". We poured the beer into some mugs brought from the Coachman Inn in Christchurch, N.Z. Instantly, the foam froze in the –25^{o} F. temperature. Those of us who participated had our photographs taken at the South Pole sign drinking "COLD BEER", laughing and freezing as we did so. Then the ritual had to be repeated at the Ceremonial Pole, the barber-striped pole with the chrome dome that sits among the circle of flags.

COLD BEER!

Another special photograph taken is one of me holding a small Navajo Indian crafted rug with the name HUBBELL on it, along with three decals from STS-61, the space shuttle mission utilized to repair the Hubble Space Telescope. Edwin P. Hubble, the astronomer whom the telescope is named after, and I share the same grandfather, twelve or thirteen generations back. Later, I had an opportunity to present an enlarged copy of this photo to Dr. Jeff Hoffman, one of

the STS-61 astronauts, when I attended an Explorer's Club dinner where he showed film footage of the mission highlights. I didn't realize until I saw the enlargement that the three decals were upside down! What do you expect from the bottom of the world?

Matt Nelson holding HUBBELL rug and decals from the STS-61 Hubble Space Telescope repair mission

One of the pilots on the United Airlines flight from Los Angeles to Auckland, N. Z. had given NASA Mike a bottle of Champaign to take to the South Pole. Mike placed it on top of the actual Pole marker, and he, Cindy, and I had our photograph taken. Mike and I shook hands; Cindy gave him a hug, and thanked him for bringing her to Antarctica. The two of them had been upset with each other for a few days, but with that hug, on the world's coldest continent, their anger cooled and their friendship warmed again as they forgave each other. This act of forgiveness reminded me of a Communion Service at the Pole in January, 1991.

L-R: Matt Nelson, Cindy Collins, "NASA Mike" Comberiate at the South Pole

Participating in a Communion Service on a Tuesday at 5 PM would normally be out of place for me. Communion is typically served near the alter of the church, on the first Sunday of

the month. In the Seabrook (Texas) Methodist Church, the minister always wears a suit, not military fatigues, and several people are served at a time, as opposed to only five people. The outside temperature is not –50^{o} F. As one may guess, this was not an ordinary Communion Service.

Not too far from the large dome that is the predominant feature at the Pole, there are two orange structures. One of these structures is the radome that protects the SPSDL antenna, the other is a four-story building called Skyway. On the third floor there is a room, which has observation windows, a bar, and a pool table. Here in this unusual setting, Navy Chaplain Brad Yorton led us in the Sacrament of Holy Communion. He opened a portable Communion kit, complete with a Cross, and placed these items on a coffee table.

Outside, the wind blew, and the roaring engines of an LC-130 aircraft preparing for take off drowned the familiar words of, “This is My Body, broken for you. Take, eat, in remembrance of Me”. I don’t remember anything of the other people except for one woman, somewhat on the wild side. She reminded me of the story of Mary Magdalene, asking for forgiveness. Often, she led people in Bible study.

The Communion Service was brief and ended in time for dinner. Just before Christ out Lord ascended into Heaven, He instructed His Disciples to spread the Word of God’s love and forgiveness, “…even to the ends of the Earth”. In a room that overlooks the snow and ice plateau at the bottom of the Earth, on a cold January day, I can testify God’s presence was never more strongly felt.

Mike and Cindy departed to Pole a couple of days before I did. I had an additional delay, because the plane I was initially scheduled to leave on had hazardous material on board – I was bumped because of two snow mobiles! This particular LC-130 actually had crashed a few years before at some other location in Antarctica. The National Science Foundation calculated it would be cheaper to repair this plane than buy a new one. New engines were installed at the crash site, and the plane was brought back to an operational status. About a week before I arrived on the Ice, at a remote field site, another plane had a propeller shear off and tear a hole in the fuselage during taking off. Within two or three weeks, highly skilled Navy personnel repaired it under very cold and adverse conditions. While I was at the Pole, this plane was flown back to McMurdo.

Sooner or later, there comes a time when the plane with your name on the manifest lands to take you back to McMurdo. For me, all flights between the South Pole and McMurdo are adventures. On the first trip, the friction between the skis of the LC-130 and the ice prevented the plane from going airborne, so all the passengers were instructed to go to the back of the plane in order to change the center of gravity. We stood on the cargo ramp without wearing any safety belts. After taxiing for several thousand feet, the plane finally broke the friction bonds and we were airborne. Once is enough for that kind of experience!

Can you imagine the aircrew of any U. S. airlines inviting you to ride inside the cockpit while flying over the Rocky Mountains? On three occasions, the pilots allowed me to be inside the cockpit for most of the flight. Flying over the Trans-Antarctic Mountains, we could see the ruggedness of the peaks and the rivers of glaciers. The glaciers look menacing with their multitude of crevasses, and their rugged beauty never ceases to amaze me. Because the air is so clear, the peaks of the mountains seem much to close for comfort, but the altimeter tells me we are 10,000 feet above them. Because of the variations of the magnetic compass, Inertial Guidance is used. (GPS is being phased in.) Instead of flying a North heading on the compass, a course setting of 167^{o} is followed. It seems strange to be heading North with those numbers, but the lady navigators know exactly what they are doing. I remember that on one of the flights we flew at 31,000 feet with a true airspeed of 275 knots. Once I was permitted to remain in the cockpit during landing, sitting on the jumpseat with a majestic view of Mt. Erebus.

Even when the Pole is running over capacity, such as up to 125 people, life there is still not near as hectic as life in McMurdo. Upon landing and driving back from Willie Field (the permanent ice runway), one encounters culture shock among 1200 people and the stark reality

that the pristine ice at the Pole is drastically different from McMudHole. The peace and quite at the Pole doesn't prepare you for dodging bulldozers. It would not have taken much urging to go back to the Pole.

Killer whales, seals, and penguins swimming near the icebergs are the symbols of Antarctica. Within the past few years, an oil spill threatened to be an unnatural enemy of this exotic wildlife. Beyond the coastal freezing waters, Earth's history hidden in the ice for millions of years is gradually being discovered by this century's scientists who give up their warm labs searching for answers. Construction workers, Navy personnel, scientists, reporters, etc. are today's pioneers in Antarctica and are all responsible for preserving this beautiful Continent. Antarctica affects the world as much as the people of the world affect the future of Antarctica.

Antarctica is remote, cold, and unforgiving of human error. People who go there have the same spirit as those who will settle space. Conditions may be rough, but those hardships are worth enduring for the chance to travel to places most people will never have the opportunity to go and see. While I have future goals to travel back to Antarctica, if I never return, my life has been enriched by that enchanting Continent and the modern day explorers who give an insight to what the early pioneers were like. Certainly, the experiences I have been given will remain with me for life. The vastness of the ice and snow, the crystal-clear blue skies, the glaciers, penguins and whales and seals, and the stark beauty of the Continent have extracted the magnetism from the South Magnetic Pole to keep drawing me back there as if I were an iron particle. As much as I desire to travel to other places in the world, Antarctica and I have a bond with each other that I can't nor want to release.