



Service in Antarctica might just

Operation Deep



**Lt. Col. Edward
"Hertz" Vaughan,
USAF,** serves with
the 13th Air Force-led
Joint Task Force-
Support Forces Ant-
arctica at McMurdo
Station in Antarctica.

be the world's coolest military assignment.

Freeze

By **Christina Wood**

OPERATION DEEP FREEZE PITS THE U.S. MILITARY AGAINST A FORMIDABLE ADVERSARY:

Antarctica, where winds in a hurry to escape from one of the most hostile environments on earth race across a landmass larger than the U.S. and Mexico combined at speeds that often reach 80 mph.



It takes an LC-130 five days just to get there from the crew's base in New York. On landing, they will find a welcome mat of cutting frost and snow. An active volcano juts through an ancient and unrelenting ice sheet that is more than 14,000 feet thick in places.

Snow, fog, and clouds obscure the horizon. A pilot could be soaring 10 feet above the ground or a thousand. "There's nothing on the ground to give you a sense of scope or scale," says Col. Timothy LaBarge, commander, 109th Airlift Wing, New York Air National Guard. "There are no trees or houses. It's very difficult to ascertain things like height and depth perception and roll control."

"It really is otherworldly here," Lt. Col. Edward "Hertz" Vaughan, ANG, commander, 13th Expeditionary Support Squadron, Joint Task Force-

Support Forces Antarctica, said during his most recent season on the ice. "I don't think people get tired of it or get used to it. Every day I get up, and I am just thrilled to be here. It's like no other place on Earth."

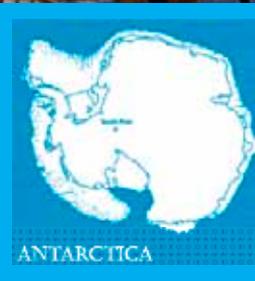
Since 1955, personnel from the Air Force, Navy, Army, and Coast Guard have supported the U.S. Antarctic Program and the NSF's research. Each September, as summer in the Southern Hemisphere draws near, they'll go back for a new season of what some have called the military's most difficult peacetime mission.

Uniquely compelling

U.S. scientific interest in Antarctica can be traced to the Palmer-Pendleton Expedition in 1830, when Nathaniel B. Palmer and Benjamin Pendleton explored the area with

Dr. James Eights, a U.S. scientist. Later, Roald Amundsen, Richard E. Byrd, James Clark Ross, Robert Falcon Scott, and Ernest Shackleton led the way. Today, Operation Deep Freeze is a joint-service, interagency operation, with strategic inter-theater airlift, tactical deep-field support, aeromedical evacuation support, search-and-rescue response, sealift, seaport access, bulk fuel supply, port cargo handling, and transportation requirements.

"[Military participation] gives us tremendous logistics capability to be able to support a very wide range of activities," says Brian Stone, director, Antarctic Infrastructure and Logistics Division at the NSF. "We can fly anywhere on the continent. We can take world-class researchers out of institutions in the U.S. and



(clockwise from above left) Flags of the 12 original signatory nations of the Antarctic Treaty fly at McMurdo Station, Antarctica. A heater hose keeps this C-17 Globemaster III from freezing in Antarctica's extreme temperatures. NSF researchers deplane at McMurdo Station. This photo from the 1990s shows what McMurdo Station looked like from the air on a clear day. On the Pegasus White Ice Runway, an aircraft maintenance officer watches as personnel and supplies arrive. (facing page) NSF and U.S. military personnel relax enroute to McMurdo Station.

put them out into the field for 90 or 100 days and get them back in time to be teaching the next semester — and that's not something that a lot of other programs can do."

Joint Task Force Support Forces Antarctica, led by the 13th Air Force, steps up with the leadership and logistical support that make a dazzling array of scientific breakthroughs possible. The commander of U.S. Transportation Command coordinates aircraft and ships. Galaxy aircraft from the 105th Airlift Wing, Stewart

Air National Guard Base, N.Y., are used to get everyone and everything moved as far as Christchurch, New Zealand, the staging point for deployment to McMurdo Station. Christchurch also is one of three permanent U.S. research stations in Antarctica and the key operations facility for U.S. efforts "on the ice." Tanker ships from the Navy's Military Sealift Command deliver tons of cargo and fuel to McMurdo each season. C-17s from the 62nd and 446th airlift wings, Joint-Base Lewis-McChord, Wash., do their

share of heavy lifting between New Zealand and Antarctica as well.

"The program itself is sort of this interesting hybrid of high-end science and hard-core logistics, yet it all comes together and works amazingly well," says. From research on ocean currents and ecosystems to the glacial history of Mars, "the military is a tremendous part of what allows us to run the Antarctic program."

"No matter what kind of amazing breakthrough they make on the science front, [CONTINUES ON PAGE XX]

PHOTOS: CLOCKWISE FROM ABOVE LEFT, ROB JONES/NSF/GETTY IMAGES; TECH. SGT. SHANE A. CUOMO, USAF; COURTESY USAF; ANN HAWTHORNE/CORBIS; STAFF SGT. BENN BARR, USMC

all around it, framing that scientific discovery, is the art and poetry of the place,” Vaughan says. “When you’re standing out there and you’ve got weather coming in — strong winds, snow kicked up, and ice crystals in your eyes — it can look pretty bleak.” But, he adds, “The beauty and majesty of Antarctica is always there.”

The Antarctic Treaty intends to keep it that way. Since 1959, the treaty has put a priority on peace, promoting international cooperation, environmental stewardship, and scientific research. Under the treaty system, waste-management provisions, a ban on mining, and environmental regulations all have taken root in the harsh climate. “There are no weapons,” Vaughan says, referring to another prohibition spelled out in the treaty.

“All the trash and waste here has to go,” he says. “It gets packaged up and goes out on the ships.” All of it. Every drop.

The region’s pristine allure is, in part, a product of its inaccessibility — McMurdo is a lonely five-hour flight from Christchurch. For many who serve in Operation Deep Freeze, the need to pile on layer upon layer of cold-weather gear and pick up every speck of trash is a small price to pay for the chance to venture so far from the beaten path. Vaughan understands the appeal, but he is as aware of the hazards as he is of the romance.

“Living and working here on a daily basis is inherently more risky than some other places,” Vaughan says. “Just standing outside too long without the right protective equipment can lead to frostbite, to hypothermia.” Dehydration is a constant threat on the world’s driest continent. Then there are the public health concerns. Vaughan admits an outbreak of illness weighs heavily on his mind — especially an outbreak of the dreaded McMurdo

Crud, a super cold that can knock the toughest sergeant out for a week.

On the ice

In 1946, the U.S. Navy dispatched 13 ships and 4,700 personnel to the icy continent to establish a research base; Operation Highjump remains the largest single Antarctic expedition in history. For more than 40 years, the U.S. Navy remained in the forefront of Antarctic discovery, taking the lead on Operation Deep Freeze in the 1950s, with Antarctic Development Squadron Six (VX-6, later VXE-6) piloting the LC-130s that are the program’s workhorses. The “Hercules,” as the LC-130s are known, transport scientists, support personnel, and materials to Amundsen-Scott South Pole Station and other remote research sites from McMurdo Station.

In 1988, the 109th Airlift Wing of the New York Air National Guard began augmenting the Navy fliers in Antarctica. No strangers to ice, the 109th had been flying C-130Ds, the precursor of today’s LC-130, since 1975 when they were resupplying a string of Distant Early Warning (DEW) radar sites along the northern Arctic tier. In 1999, when VXE-6 was decommissioned, the responsibility for the scientific support mission in Antarctica passed to the U.S. Air Force and the 109th Airlift Wing became the only unit in the U.S. military to fly the ski-equipped LC-130s.

Advances in technology did away with the need for the DEW line, but the 109th continues to operate the specially equipped Hercules in the Arctic regions and in Antarctica, playing a critical role in the ongoing success of Operation Deep Freeze. During the 2010-11 research season, the 109th flew 406 missions, ferrying more than 11.3 million pounds of cargo and 2,700 passengers to Antarctica. The wing’s citizen-airmen prepare for their demanding mission at “Cool School” [CONTINUES ON PAGE XX]

in Greenland, where training involves spending two frigid nights in a trench cut in the ice and fighting tailwinds on take off and landing in wet snow.

“The Guard has a tremendous amount of continuity,” Stone says.

“We’ve got guys that have been flying on the ice for 15 [years to] 20 years now.” In the kind of place where problems quickly can become a matter of life and death, that kind of experience is priceless. Despite the hazardous conditions, the 109th has maintained an impressive safety record. Since it first began providing airlift support for the NSF’s Antarctic research in 1988, it has never lost an aircraft.

“It’s a record that we’re very, very proud of and also one you get a little nervous talking about,” says LaBarge. Landing a plane on solid ice in near-whiteout conditions is one thing; routine maintenance in temperatures that dip to minus-40 degrees Fahrenheit is something else. “Those maintenance guys are profound professionals,” LaBarge says. “They’re doing everything from refueling the airplane to a prop change to structural work, right on the ice, with no hangars, no facilities, out in the open snow. It’s rather remarkable.”

With only five seasons on the ice, LaBarge considers himself a newcomer to Operation Deep Freeze. “It’s a bit strange when you first show up at the South Pole,” he says. “When you’re flying in on a clear day, you can spot the South Pole Station from 40 or 50 miles out. It’s a tiny, tiny little spot in this incredible expanse of white nothingness, and you realize how far out there, how remote the South Pole Station is, and how tenuous that lifeline is that we create. It gives you a sense of the importance of your mission.” **MO**

— **Christina Wood** is a freelance writer based in Florida. Her last feature article for *Military Officer* was “In the Wake of the Storm,” May 2010.