Enduring harsh conditions unique to Antarctica, PAE personnel live and work “on the ice,” supporting three U.S. Antarctic Program stations, two ships and dozens of field camps … all in the name of science.

Life on Ice

Fueling Research in Antarctica

PAE and its joint venture partner PAE New Zealand have served as subcontractors to Lockheed Martin on the National Science Foundation (NSF) United States Antarctic Program (USAP) since 2012. Through the USAP base operations and support contract, PAE provides the resources required by the U.S. scientific bases.

“We run the power plant, the water treatment plant, the fire department, the transportation hubs … If it helps run the stations, we are the ones behind it,” said PAE Program Manager Lee Anne Hess. “We provide trades personnel like mechanics, equipment operators, firefighters, plumbers and so on to keep the stations up and running. This in turn supports the scientists and their research projects.”

PAE supports all three year-round, NSF-managed U.S. scientific stations in Antarctica, as well as two research vessels and dozens of seasonal field camps. “Each station is very different in terms of location, research conducted and the level of support we offer,” said Lee Anne. PAE’s support personnel population fluctuates depending on the time of year. Because scientists conduct most of their research during the Southern hemisphere (austral) summer, which runs from October through February, more PAE support personnel are needed during those months. During the austral winter (March to September), the bases operate with fewer people who “winter over” during the coldest, darkest months of the year.

McMurdo Station - Located on Ross Island in the southwestern corner of the Ross Sea, McMurdo Station is Antarctica’s largest station. It serves as a gateway for U.S. scientific field teams and as a logistics hub for most U.S. scientific support activity. “McMurdo is a cross between a college campus and a small town back in the United States,” said Lee Anne. “Everyone plays a role in supporting the common goal of U.S. scientific research.” Population peaks at 1,000 (including 460 PAE personnel) in the austral summer. The station is accessible by air taxi and can be reached in less than an hour from the South Pole. Research at McMurdo is focused on marine biology, glaciology, biology and geology.

Amundsen-Scott South Pole Station - Located 841 miles inland from McMurdo, this station is at the geographic South Pole—one of only two places on Earth where the sun is continuously above the horizon for six months. (The only other place on earth is the geographic North Pole, which is in the middle of the Arctic Ocean.) Population in the austral summer reaches 150 (60 PAE personnel) and drops to approximately 45 (25 to 30 PAE personnel) in the austral winter. During the six months of darkness, research at the South Pole focuses on astrophysics and climatology.

Palmer Station - Located north of the Antarctic Circle on Anvers Island, Palmer Station is only accessible by research vessel. The population can reach 45 (20 PAE personnel) in the austral summer. Population drops to 20 (10 PAE personnel) in the austral winter. “A lot of folks wear multiple hats at Palmer because of the small number of support staff,” said Lee Anne. Due to its proximity to the Southern Ocean, research at Palmer focuses on marine biology and oceanography and is the site of one of NSF’s two Antarctic long-term ecological research project sites.

Unique Personalities Required

“Many people groan about having to change a tire on the side of the road. Think about doing it in the middle of Antarctica!”

“Life on Ice”

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“Unique Personalities Required”
low as -58 degrees Fahrenheit, while the average at South Pole is -76 degrees Fahrenheit. (The coldest temperature on record at South Pole is -117 degrees Fahrenheit.) Personnel spend a lot of time indoors six months out of the year. "It takes an intrepid person to work here," Lee Ann said, "especially if that person is going to winter over at the South Pole."

An 841-Mile, Month-Long Traverse

Some of the most adventurous PAE personnel working in Antarctica are members of the Traverse Team. Two small crews drive seven miles per hour across harsh terrain for 10 to 12 hours each day for an entire month. The team completes this trek approximately three times a year to deliver a year’s worth of fuel to the South Pole. "These men and women are among the heroes of the USAP,” said Antarctic Support Contract Communications Specialist Elaine Hood. "I have flown to the South Pole, but these people drive it. They drive across the ice shelf, up a glacier and onto the polar plateau. They know Antarctica. They have a personal knowledge of the continent unlike anyone else.”

"I make the crew watch a minimum of two seasons of MacGyver before they set out on their journey to the South Pole,” jokes Traverse Operations Manager Kory Hotte. “All kidding aside, it takes a special mindset and talent to do this type of work, and these people really are amazing. Many people groan about having to change a tire on the side of the road. Think about doing it in the middle of Antarctica!”

The two crews (made up of a supervisor, equipment operators and mechanics) completed three traverses this past austral summer, delivering a total of 342,750 gallons of fuel. The first traverse trip of each season also includes a mountaineer to assist with navigating and establishing a path for the following traverse trips. “The terrain changes with each season, so it is important to take time during our first trip to identify a safe path,” said Kory. "We use deep penetrating radar to discover and fill crevasses that might not have been there the year before.”

In addition to navigating uncharted territory, the team has to be prepared to fix anything that breaks along the way. "These folks can make just about any repair in the middle of the harshest continent on Earth,” said Lee Anne.

These traverse trips have changed the way we do business,” said Elaine. “We used to have to fly all of the fuel via an LC-130 airplane to the South Pole, which wasn’t cost-efficient and took many missions. Now with our Traverse Team, we can deliver fuel more cheaply. Equally important, using the Traverse Team means that we can now divert those airplanes to other parts of the continent to support scientific research.”

“This is a significant improvement for our customer since it saves them time and money,” said Kory. “We want to continue making improvements and are looking at other ways to maximize use of the Traverse Team.” Currently, the team returns empty after delivering fuel, so they are devising ways to transport garbage and recyclables from the South Pole to McMurdo, from where it is returned to the U.S. for processing.

This is an awful place.”

It takes an intrepid person to work here.

The 2015-2016 traverse team pictured from right to left: Jared Fortner, Doug Fortner, Pete Wilson, David Coltrain, Ray Tangen, Steve Clemons and George Matthews (on the ground).

Historical Timeline

1821 – American sealer John Davis arguably becomes the first person to land on the Antarctica continent.

1956 – The U.S. officially opens its first station at McMurdo. At the same time, the U.S. government builds the original Amundsen-Scott Station.

1961 – The Antarctic Treaty is formally ratified and in force.

1968 – Initial construction of Palmer Station is completed.

2012 – PAE wins a role on the USAP contract supporting Lockheed Martin.