

Pole

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In addition, progress on the Italian Concordia Station was discussed, along with the potential for the first winter inhabitants there in 2004.

The drillers for Ice Core Drilling Service finished up their second hole to a depth of 980 feet (300 m), allowing the U.S. Geological Service technicians to begin installation of the borehole seismometers. Drilling began on the third and final hole this week. This hole will be used as a spare in the event of a collapse of other vertical blockage in the first two populated shafts. The first phase involves four-inch coring, followed by two stages of reaming for a final core diameter of 12 inches. The cores will be catalogued and packed up for analysis by the ITASE group.

From the South Pole, warm wishes this holiday season.

PALMER

Studying the sea

By Tom Cohenour

Palmer correspondent

The ocean does not give up its secrets easily.

An understanding of the ocean has been gained over generations, through perseverance, stamina and devotion. Some enjoy the time spent at sea and others endure the hardships of field work in exchange for the knowledge gained.

To expand the scope of existing long-term physical oceanographic observations near Palmer, an autonomous profiling vehicle was recently deployed off of Bonaparte Point. The instrument gathers data about water temperature, salinity, fluorescence and available light in a vertical



Photo by Graham Tilbury/Special to The Antarctic Sun

Kim McCoy deploys an autonomous sensor in Hero Inlet.

column of water.

These measurements expose the movement and mixing of water masses, explained oceanographer Kim McCoy and Field Support Engineer Graham Tilbury. Both men deployed the instrument as part of the Long Term Ecological Research project.

The water profile reveals the different layers of water. At the bottom is heavier water, usually cold and salty. Above, in the higher layers, the land provides some nutrients, the atmosphere provides some oxygen and the stage of life is set for reproduction.

The water profile measurements support long-term physical and biologically important observations related to coastal and near-shore dynamics. Radio transmitters on the instruments make it easier to establish the location and retrieve the data.

The sea and land are at battle in the coastal zone. It is an ideal location to observe the ocean's internal waves dissipate energy within shoaling waters. Antarctic researchers are attempting to collect a year's worth of vertical profile data. After the first few phases of the moon, the ocean's complex structure will become evident. This will produce a long-term data record from

an under-sampled environment.

The autonomous instrument transports sensors vertically through the water column, usually starting within a meter from the bottom and continuing to the surface. Typical profiles are separated by one-hour intervals during which the instrument remained near the bottom. The sample rates are at one sample per second (1 Hz) during profile segments and one minute during the bottom intervals.

Implementing an instrument mooring that could survive brash ice and small bergs was a challenge. They first had to identify locations where there are few large icebergs likely to knock it out.

By all accounts the profiling was a success. The autonomous profiling vehicle completed more than 700 profiles traveling from the ocean surface to depths of 180 ft. (55 m) between one and three times per hour.

Initial data indicate a tidally forced thermal signature in the bottom boundary layer. During periods of strong stratification, internal wave propagation may be inferred in some of the data sets. These are the first significant efforts to correlate physical data of this type from the Palmer area. Historically, Palmer data sets have been biased toward the collection of biological information.

It is a long-term goal of the LTER is to expand the amount of biologically significant physical oceanographic data. Several candidate sites are being identified where long-term autonomous profiling vehicles and acoustic doppler current profilers could be deployed. Deployment in water deeper than 330 ft (100 m) is desirable. Surveys of the ocean depths of outlying areas have been undertaken and need to be expanded.

Continental Drift

What would be the most useless gift you could receive in Antarctica?



“Probably quinine pills or antivenom — anything else here would either get used or reincarnated.”

Emily Lindsey
Palmer volunteer with
LTER from Portland,
Ore.



“A renewal to the National Association of Nude Recreation.”

Dennis Calhoun
South Pole heavy
mechanic from Rapid
City, Mich.



“Maybe a recipe book for fresh vegetables or hedgetrimmers or cat food.”

Rhoda Bonneau
McMurdo fuels
coordinator from
Sheridan, Wyo.