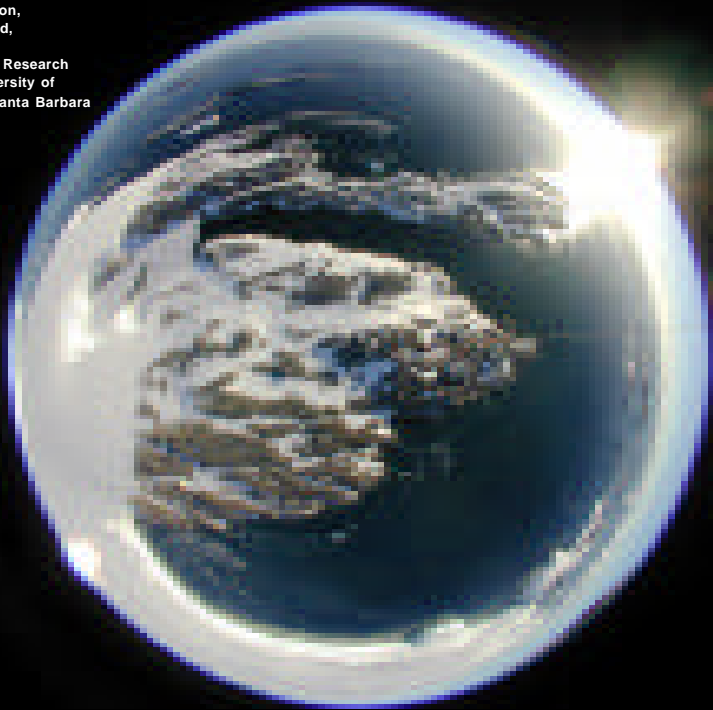


Balloon  
image by  
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# PALMER



Long Term  
Ecological  
Research

## Palmer LTER: Long Term Ecological Research *Focusing on the Antarctic Marine Ecosystem*

The National Science Foundation, in 1990, designated Palmer as a polar biome LTER site in the Southern Hemisphere. Palmer studies are funded by the Office of Polar Programs with logistics support by Raytheon Polar Services.



A. Winter

B. Summer

Studies utilize the facilities at Palmer Station as well as aboard research vessels (above, right: A. winter; B. summer) and small boats (zodiac, left).

**Research focuses** on the Antarctic coastal and open-ocean marine ecosystem, terrestrial sea-bird nesting sites and regional oceanography along the Western Antarctic Peninsula. A primary research objective is to understand this marine ecosystem's natural variability in order to discover and define long- and short-period natural cycles as well as the changes brought about by human activities.

**Participating scientists** conduct field studies at Palmer Station from research vessels, zodiacs, laboratories and remote-sensing platforms such as satellites, weather stations and moorings. Further analysis and experiments are based at their home institutions which include the University of California, Santa Barbara; University of California, San Diego; University of Hawaii; Montana State University and Lamont-Doherty Earth Observatory.

**The research site** centers on a 180,000 sq km region surrounding Palmer Station. Elevation ranges from 10 m on land to 2000 m below sea surface. An oceanic sampling grid, which is 200 km on/offshore, stretches 900 km along shore roughly parallel to the Peninsula.

Characteristics of the landscape-seascape of seawater, ice, snow and rock vary with altering temperatures as the 24-hour darkness in June changes to 24-hour daylight in December.

Factors strongly influencing the flora and fauna of this site include: low temperatures; a short growing season; high winds affecting the depth of the ocean's mixed layer; input of micronutrients from nearby land; and varying snow and sea-ice coverage.

This so-called high-nutrient, low-biomass marine environment, sustains a few hundred grams C/m<sup>2</sup>/yr of primary production. Ecosystem populations include various microbes, phytoplankton, krill and apex consumers such as penguins and seals.

