

Site News

Antarctic researchers mull climate change at CSU meeting

A day after the LTER All Scientists Meeting in Estes Park, CO, 25 Antarctic marine and terrestrial ecosystem scientists met at the Natural Resource Ecology Laboratory at Colorado State University (Fort Collins) to share site overviews and discuss issues of mutual interest. The two participating LTER sites, McMurdo Dry Valleys (MCM) and Palmer Station (PAL), are supported by the NSF Office of Polar Programs in coordination with the Division of Environmental Biology and funding for the workshop was provided by NSF-OPP (ANT-0535545). The meeting was organized by lead investigators Berry Lyons and Hugh Ducklow, coordinated by new MCM Principal Investigator (PI) Andrew Fountain and hosted by Sanjay Advani of CSU and Diana Wall, an MCM PI.

The McMurdo Dry Valleys comprise a terrestrial site on the Antarctic Continent, while Palmer Station is a marine site located off the Western Antarctic Peninsula. Located nearly 2,500 miles apart on opposite sides of Antarctica, they present a unique opportunity for comparative Antarctic studies. The Antarctic sites share the challenges and opportunities of conducting field programs in a remote and harsh high-latitude arena. They also represent extremes in the spectrum of environments studied by the LTER network and are crucial in understanding regions where life exists at environmental extremes. Research conducted at both sites has demonstrated the sensitivity of polar region ecosystems to climate change.

According to Diana, this first meeting was important because it will stimulate future collaborations between researchers from the two LTER sites on how climate changes influence Antarctic marine and land ecosystems.

The meeting's focus was how Antarctic ocean and terrestrial ecosystems are responding to global changes. Discussions about ecosystem processes and the distribution of soil, fauna and flora included summaries about effects of marine inputs on soil communities in the Dry Valleys and the extent of sea ice on penguin populations.

At this first meeting, researchers compared research agendas for their field seasons, reviewed recent discussions with the French

'Zone-Atelier' project, and previewed the upcoming International Polar Year, which begins in 2007. Shared themes of interest include abrupt ecosystem transformations in a changing polar climate, state changes in a polar environment, ecological impacts of changing ice conditions in polar environments, and detection of polar amplification in ecosystem structure and function. Although access is difficult, both remote sites recognize tourism as an important outreach mechanism.

Both sites have logistics supported by NSF-OPP and Raytheon Polar Services, but because of the distance between the two sites and differences in logistics in deploying from New Zealand and Chile, interactions between the researchers have been limited during field seasons that run from November to March. The meeting provided a venue for the sites to explore how to exchange personnel and initiate comparative field studies as well as cross-site synthesis of existing results.

The scientists interest in cross-site synthesis was piqued by the discovery of certain periods of climate change, such as 1990-2000, when PAL was becoming warmer and MCM was becoming colder, while in the period after 2000, abrupt weather anomalies saw PAL experience unusual southerly winds, heavy snows, and extensive sea ice while MCM experienced floods.

Furthermore, MCM and PAL work in what some have called our first international park: Antarctica, a continent without a government, is recognized as an important scientific laboratory. The continent is subject to an international treaty that has been the focus of study by political scientist Tom Cioppa (MCM and Brookdale Community College). Tom's work is seen as another element of cross-site interest as political ramifications and human ramifications on high-latitude environments are considered across the Antarctic continent.

The meeting served not only to initiate both scientific discussions between the sites, but also to further planning in terms of network events. The next LTER science council meeting, which is scheduled for 17-19 May 2007 in Portland, Oregon, will be hosted jointly by MCM and PAL, and will provide further opportunity to highlight Antarctic science within the context of the LTER.



Photo: Karen Baker

Antarctic investigators associated with MCM and PAL LTER meeting at CSU.

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