

GREENLAND EXPEDITION

Exploring the Greenland Ice Sheet

In May 2007, as part of a small, international scientific team studying the Greenland ice sheet, Natalie Kehrwald, Ellen Mosely-Thompson, and Lijia Wei carried Wings WorldQuest Flag #8 to Jakobshavn Glacier. This is Greenland's fastest flowing outlet glacier, draining roughly 30% of the ice sheet. Their camp was only accessible by ski plane.



The Twin Otter ski plane "waves" goodbye to the team on Jakobshavn Glacier.

STUDYING ICE LOSS IN THE ARCTIC

Studying the mass balance of the Greenland ice sheet is important because it is melting more than it is accumulating new snow and ice. Evaporation and run-off could make sea levels rise, disturb ecosystems, and cause economic harm. Natalie's team knew that in the last decade, large meltwater lakes began to appear on the ice sheet's surface, discharging

NATALIE'S EXPEDITION DIARY

Second night in my ultra-warm sleeping bag and the wind-buffed Arctic Oven. The door is beginning to drift over and is now a snow pit that I have to crawl up and out of in the morning. . . . So far, it has not hit me just how far away from anything else we really are. Our flight in was flawless and we landed only a few feet away from our piles of core boxes, diesel, and bamboo poles. The moment the plane left us, with the pilot waving the wings, we were on a white

disc within a hemisphere of sky. The only thing visible is an automatic weather station a kilometer away. Blowing snow makes the horizon seem like smog, and the constant motion of the surface snow gives the impression that we are walking on (liquid) water. We sleep on an 8,000-foot-thick mattress of snow.

—May 12, 2007

Ellen Mosley-Thompson, Natalie Kehrwald, and Lijia Wei with WWQ Flag No. 8 at their Crawford Point camp.





Ellen and Natalie examine an ice core. Photo: Lijia Wei

more ice into the ocean. To understand how the Greenland ice sheet had responded to past climate changes, the team removed one 150-meter and four 25-meter ice-core samples.

Natalie's colleagues from Ohio State University and the Russian Academy of Sciences in Moscow worked the drills while Natalie prepared ice cores for shipment. The endless daylight of the Arctic summer allowed the team to work ten-hour days.

EXPEDITION RESULTS

The cores will be studied at the Byrd Polar Research Center of Ohio State University to gain data on past warming and cooling trends in the Arctic.

The cores will be analyzed for temperature trends, atmospheric chemistry, and dust concentrations – work that can take over a year to complete. The results will help scientists around the world to enhance their climate-prediction models and data sets.

ABOUT NATALIE KEHRWALD

A graduate in Earth System Science, Natalie has conducted extensive fieldwork in Geosciences and global climate change. After serving as a Peace Corps environmental engineer in South America, she became interested in community development and conducted fieldwork and research in Bhutan, Tibet, and Greenland. She now works at the Byrd Polar Research Center in Columbus, Ohio, where ice cores are collected from every part of the globe.



Natalie and Lijia smile while glaciologists Vladimir Mikhaleenko and Victor Zagorodnov continue pulling ice cores. Photo: Ellen Mosley-Thompson

WHO

Natalie Kehrwald, Ellen Mosley-Thompson, and Lijia Wei

WHAT

Study the Greenland ice sheet and take ice-core samples

WHERE

Crawford Point, Jakobshavn Glacier, SW Greenland

WHY

To understand how shrinking of the ice sheet might affect global sea levels