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UNH Student from Concord Going on Expedition to the Highest Point in Greenland

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July 10, 2002

DURHAM, N.H. -- Choosing to spend part of your summer break camping in zero degree temperatures in the snow at 13,000 feet might be an unusual choice, but Catherine Denoncourt, a senior at the University of New Hampshire from Concord has an opportunity to pursue some serious science.

Denoncourt will participate in an expedition to Greenland July 15 to Aug. 3 to study how records of air pollutants get trapped in snow and ice. Her involvement is made possible by a Research & Discover internship sponsored by NASA and UNH's Institute for the Study of Earth, Oceans, and Space.

This trip will officially end a two-year experiment, as well as test a new device to be used in future experiments on what Denoncourt's faculty advisor Jack Dibb, UNH research professor, calls a "wonderfully complex problem."

Atmospheric scientists are stumped as to why more nitric acid -- the chemical that combines with sulfuric acid to cause acid rain -- is found in snow than in the surrounding atmosphere. Another puzzling phenomenon is that the air within and just above the snow found in isolated areas of the world like Summit, Greenland, is showing a chemical composition that would only be expected in highly polluted urban areas.

On this particular expedition, the researchers are looking at the chemical processes that occur when the ultraviolet light in sunlight reacts with the nitric acid in the snow creating pollutants.

Dibb, the project's principal investigator, explains that one implication of this "wacky photochemistry" is that records of greenhouse gases found in ice cores could be misleading, since the snow may not be accurately recording what gases are present in the atmosphere. Denoncourt will participate firsthand in this leading-edge science from what will seem like the top of the world.

"I had never in my lifetime expected to go to Greenland," Denoncourt says. "It is exciting to go somewhere where hardly anybody else has been. I find it fascinating that snow can record what is in the atmosphere. I'm learning a lot; I'm a geology major, but this research involves a lot of chemistry."

Dibb says, "It is a lot of fun for me to take new people to Summit. I've been there so many times that I easily forget the excitement of being in this extremely beautiful place."

Dibb and Denoncourt are the only researchers going on this expedition from UNH. They will be joined in Greenland by a crew from the U.S. Army Corps of Engineers Cold Regions Research and Engineering Lab (CRREL) and a scientist from the University of California-Irvine.

See <http://www.eos.sr.unh.edu/ResearchAndDiscover> for more information on the Research and Discover internship program.

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