PalmBeachPost.com

PRINTTHIS

Click to Print

Professor heads to tundra to uncover clues about climate

By KIMBERLY MILLER

Palm Beach Post Staff Writer

Saturday, May 24, 2008

Florida International University Professor Steven Oberbauer wants to read our future in the melting ice of the Alaskan tundra.

The Southern California native and Miami resident has been asking for a clue to what global warming holds for the world from the crystal land above the Arctic Circle for nearly three decades.

About Barrow

It is the northernmost city in North America.

- The U.S. Census estimate for its 2006 population was 4,009.
- 57 percent of the people are Inupiat Eskimo. About 22 percent are white.
- The Inupiat still get much of their food from hunting bowhead whales, seals, walrus and caribou.
- There are no traditional roads into the city. The only access is by plane or a barge that travels there once a year with nonperishable supplies.

  It lies on permafrost, or frozen soil, that can be as deep as 1,300 feet.
- Temperatures are freezing or below freezing an average of 324 days a year.
- The sun sets on the city each year in November and is not seen again until January. Conversely, 24-hour-a-day sunshine begins in May and lasts through late July.

  It is the economic center of the North Slope Borough, which employs about 45 percent of the city's residents. Other people work in businesses that provide support services to the oil industry.

Post your comments on this story below

More local news

Latest breaking news, photos and all of today's *Post* stories.

Share This Story

Today he'll make the 4,200-mile journey from his tropical life near South Florida's Everglades and cypress swamps to continue his query in Barrow, Alaska - the northernmost community in North America.

"I'd like to know what's going to happen," said Oberbauer, who teaches biology at FIU and will measure greenhouse gas emissions from thawing Barrow soil. "With this climate change happening, we have got to figure it out."

Barrow, 330 miles north of the Arctic Circle and perched on the edge of the Chukchi Sea, may seem a strange place for a professor from one of the southernmost cities in the U.S. to ply his trade.

With just 4,000 residents, Barrow remains so remote that a gallon of milk costs upward of $9 and the only way in by car during winter is when oil companies pour water over the treeless terrain to form a crude ice road.

There are two months of near-complete darkness in December and January, and three months of nonstop sunshine in summer, yet high temperatures in July average just 45 degrees.

But the extreme environment in Barrow, and more than 100 years of climate research there, make it one of the better places in the world to study global warming.

"Small temperature changes have huge effects here," said Glen Sheehan, executive director of the Barrow Arctic Science Consortium and 12-year Barrow resident. "Global warming is more emphatic here."

About 625 scientists worked with the consortium last year.

Sheehan said more researchers than tourists typically visit Barrow, which, besides barracks-style dorms for scientists, has just three hotels.

For Oberbauer, this summer is the final year in a four-year, $2 million experiment measuring the amount of greenhouse gases - carbon dioxide and methane - released from soil covered by different depths of water.

An enormous amount of organic matter is held in the tundra's frozen ground, called permafrost. As long as it remains frozen, the organic matter doesn't decompose. But with rising temperatures, the permafrost is melting.

The drier the soil, the more carbon dioxide is released from the decomposing organic matter. The wetter the soil, the more methane is released from microbes eating the organic matter.

Measuring the release of the gases from soil in different depths of water will give scientists an idea on a large scale how much carbon dioxide and methane are being released on areas of the tundra covered with water and those that are drier.

The release of the greenhouse gases contributes to global warming, which then could warm soil to an even deeper level and release more gases. It's a cycle of warming that feeds on itself and can't be stopped by humans' vowing to drive less or use solar energy more.

"They are already seeing some ponds in the area shrink," Oberbauer said. "The native people really aren't responsible for this, but it's happening to them."

Next month, Elizabeth Eubanks, who teaches middle-school science at St. Mark Catholic School in Boynton Beach, will join Oberbauer to work on the project.

Eubanks, a recent winner of a Dwyer Award recognizing her as one of Palm Beach County's top five teachers, was chosen to participate in the experiment by a National Science Foundation group called Polar Trec.

"I keep thinking there is a good chance that the poles won't even be there at some point if things keep getting warmer," Eubanks said.

When Oberbauer first visited Barrow in 1977 as a recent graduate of the University of California at San Diego, global warming was of little concern in the then-2,300-person village.

Five years earlier, *Time* magazine described Barrow as a frigid Wild West town where boredom-driven alcoholism was rampant and drunks were arrested to save them from freezing on the tundra. There was no high school or sanitation system. About 90 percent of the population were Inupiat Eskimos, who subsisted largely on hunting bowhead whales in boats made of sealskin.

Today, hunting is still a main source of food in Barrow, and sealskins can still be seen drying outside homes. But with increased arctic research and oil production in nearby villages, Barrow's population is now 22 percent white and 57 percent Inupiat. Alcohol sales are banned.

And there are concerns about rising temperatures.

According to the Arctic Climate Impact Assessment released in 2004 by a national group of scientists, Alaska, western Canada and eastern Russia have had average temperature increases of 4 to 7 degrees during a span of 50 years.

Sheehan, executive director of the Barrow consortium, said he sees the evidence in his wife's garden.

With warmer weather comes a longer growing season, which is already enhanced by the 24 hours of sunshine, and taller plants.

Homes once were built on 8-foot pilings to keep them from shifting when the ground above the permafrost melts each summer, but are now built on 12-foot pilings.

Thinner ice hurts hunters, who use it as a base when pursuing whales and seals.

Whole villages, such as Newtok southwest of Barrow, are forced to move as rising waters and now-melting permafrost swamp their homes.

"The Arctic Ocean is the least known in the world, but it is critical to warming and the amount of the sun's energy that we absorb or don't," Sheehan said. "Models of changing temperatures assume what is happening in the Arctic because they don't actually have knowledge of it."

Florida International's Oberbauer knows he's not some kind of global warming palm reader.

"What the future of the Arctic is, is uncertain," he said.

But maybe one day, this summer possibly, a clearer prediction will emerge.

Vote for this story!

Find this article at:
http://www.palmbeachpost.com/search/content/south/epaper/2008/05/24/m1a_fla_alaska_0525.html?cxntlid=inform_artr