

EDGEWISE

Atkinson's main area of research interest is storms—how they move, how they grow and the effects they have on people and the environment. Most of his work takes place in Arctic regions.

There are currently 11 PhD and master's students involved in Atkinson's research. Some accompany him on his trips. Others head off on their own to remote communities to conduct field work that involves extensive engagement with local residents. Others do computer modelling work on waves or storms back in his UVic lab.

Since Russia is a major Arctic player, much of the research in Atkinson's area of study has been produced in Russian. But little has been translated due to the technical nature of the papers. To gain access to this rich source of material, Atkinson studied Russian at Carleton University as a graduate student. It helped him read material that contributed to his PhD in physical geography focusing on high Arctic climatology.

The cost of travel to the Arctic is prohibitive. Atkinson relies heavily on funding from several sources to support his work: the Marine Environmental Observation Prediction and Response Network (MEOPAR) provides the bulk of the support, while ArcticNet and Transport Canada provide travel and student funding.

Meet David Atkinson at <http://bit.ly/uvic-atkinson>

WEATHER

WATCHERS

Who knows more about northern weather than the people most affected by it?

by **Patty Pitts**

For most of us, a change in the weather is just an inconvenience—the need to pack an umbrella or throw on a raincoat. But for those in the North, a change in the weather can mean life or death. Arctic storms can pummel ships, trap hunters out on the land and destroy shoreline infrastructure that connects isolated communities with the outside world.

UVic geographer David Atkinson wants to help northern residents—in Canada and Alaska—prepare for the impact of Arctic storms and mitigate their effects. His research on Arctic coastal storm surges and analysis of the weather and oceanographic data involving them is unconventional because it relies on the residents themselves to establish the research priorities.

“Usually researchers come in with an agenda,” says Atkinson. “Our work is guided and refined by the comments and observations of the residents in the area under study. We acknowledge the efforts and expertise of people who understand and monitor the environment in a way that we can't. Essentially, they tell us what to analyze.”

In the far North, the wave action caused by storms can wreak havoc on airports and on the piers vital to annual supply barges. The impact is further complicated by the frequent presence of sea ice and frozen shorelines. Ice that is frozen to the shore protects it from waves like a sea wall, but large ice floes can be driven ashore like battering rams.

Out on the ocean, acquiring a better understanding of how weather drives wave action can assist shipping companies to protect their crews, their cargo and the passages the vessels sail through.

In Canada, the federal government's coastal Arctic weather stations are able to monitor only a few weather parameters at their airport locations, and forecasters use the information to produce national weather analysis charts.

While these charts are useful, Atkinson and other researchers know they don't reveal the entire story of how the complex weather systems of the North play out at the local level. That requires the expertise of the people on the ground.

“The Meteorological Service of Canada (MSC) has a huge area to cover and many

forecast products to prepare. Our efforts can help them with their work,” says Atkinson. Along with fellow field researchers, he gathers information from RCMP constables posted in remote hamlets, the Indigenous residents who live throughout the area and northern industrial operators.

That's why he's headed north again this spring—to Tuktoyaktuk, Sachs Harbour and Ulukhaktok in the Northwest Territories—to interview residents about weather impacts and determine who could come south to learn how to work with MSC weather analyses themselves. Atkinson hopes to launch this project in 2017 pending funding to cover the costs of transportation and training

“The local people can tell MSC about weather conditions that are present prior to or at the time of a certain weather event and the agency can work that into its forecasts,” says Atkinson. “The first question I always ask of anyone involved in my research is ‘How does the weather affect what you're trying to do?’

“I look for the link between weather events and people and then provide solutions that help them conduct their way of life.”

Atkinson. PHOTO BY UVIC PHOTO SERVICES