Photo by James Balog

Martin Sharp:
2014 Royal Society of Canada Fellow

By Sandy Robertson on January 15, 2015

In recognition of his lifetime achievements in research and for guiding public understanding of our changing climate.

Martin Sharp, professor in the Department of Earth and Atmospheric Sciences, has been named a Fellow of the Royal Society of Canada for his international leadership in documenting and providing a voice for the scientific evidence that describes the environmental changes emerging in our changing world.

Sharp's benchmark contributions have shaped our understanding of high-latitude ice masses including quantifying their meltwater contribution to global sea level rise—an issue with enormous societal implications as more than 600 million people live within 10m elevation of current sea level, and 270 million people and $13 trillion US of assets are directly exposed to the 1-in-100 year extreme sea level (the sea level that has a 1% chance of being exceeded every year).

"Changes in Canada's Arctic glaciers over the past decade have made a major contribution to the current rate of global sea level rise, and we have been able to document and explain this," says Sharp. "The intensity of summer melting on these glaciers in the 2000s has been the highest in the past 2000 to 4200 years, and close to that experienced during the Holocene Temperature Maximum over 9000 years ago.

The signal of radiative forcing arising from human activities has been clear in the mass balance history of glaciers in Arctic Canada since the mid-1980s."

Sharp's insightful and highly connected research focuses on the links between glaciers, the atmosphere and oceans, how water under glaciers affects their flow, how atmospherically deposited pollutants are transferred from glaciers to downstream aquatic ecosystems, and how carbon is cycled in glacial environments.

In addressing a global issue that spares no one, he has conducted his research on glaciers in Iceland, Alaska, Norway, and the European Alps. These days, he carries out fieldwork in the Canadian high Arctic and Antarctica.

He says his work in Arctic Canada would not have been possible without the support of the University of Alberta, while also crediting the contributions of his U of A graduate students and post-doctoral fellows who have dedicated themselves to the research.