

The State Committee for Research honors Alaska's

Northern Innovators



Matthew Sturm

Northern Innovators Hall of Fame Member

Dr. Matthew Sturm tackles life as an adventure as he pursues scientific answers to real world questions. He has traveled the arctic researching snow and in the process conjured up some true Alaskan ingenuity in order to perform top quality scientific investigations. Dr. Sturm is one of the world's snow experts, having driven thousands of miles on a snowmachine for winter research missions that last for months. Sturm shared, "I first came to Alaska in 1972, aboard a U.S. Coast Guard Icebreaker and returned as lead quartermaster (navigation) aboard the USCGC Ironwood in 1974. It was home ported in Adak, AK. We managed all the buoys in western Alaska."

Dr. Sturm's scientific career spans 38 years and a wide range of geophysics. The central theme has been snow and its impact: the physical processes that govern its behavior, how it is distributed in various landscapes, and its impact on climate, ecosystems, and humans. He also has a strong emphasis on outreach because he thinks snow is "cool" and wants others to see that as well. Early in his career he did a significant amount of glacier research in both Alaska and Antarctica. Recently, he has been expanding his research into permafrost and the social-financial implications of snow and ice.

As an innovator, Dr. Sturm draws from his deep understanding of Alaska snow and

arctic travel to find new and better ways to measure it. As a researcher, Dr. Sturm has uncovered causes of avalanches, discovered new forms of snow crystals, and published well over 100 journal articles, many with widespread impact. Dr. Sturm's lifetime achievements goes beyond the academic realm. He authored the book, *Finding the Arctic*, to communicate snow science to the general public. The book, published by University of Alaska Press, is a travelogue of his 2,500-mile snowmachine journey from Fairbanks to Hudson Bay in 2007 with five companions – Jon Holmgren, Dan Solie, Henry Huntington and Glen Liston. While he conducted some scientific research on the trip, he also weaves in thoughts and questions about the people before him who explored Alaska's frontier. Another book, *Apun – The Arctic Snow*, is a children's book about snow that teachers are able to use in their classrooms.

Dr. Sturm is the co-founder of the company Snow-Hydro LLC along with Jon Holmgren. Snow-Hydro was formed



after they had been asked by colleagues to provide snow temperature probes and automatic tools for measuring snow depth. He holds two patents with Holmgren – the self-recording snow depth probe and the snow temperature and depth probe. These devices are sold commercially through Snow-Hydro all over the world.

Dr. Sturm joined the University of Alaska Fairbanks Geophysical Institute as a research professor in 2012. Prior to that he spent 26 years as a scientist with the U.S. Army Cold Regions Research & Engineering Laboratory in Alaska.

Dr. Sturm's extraordinary efforts have contributed to the worlds' understanding of the arctic. His well-rounded approaches to life and work – scientific, practical, mechanical, business, social, and adventure – represent Alaska's past and sets a benchmark for future Alaskans. "I came back to the University of Alaska Fairbanks in 1981 to study under one of the wonderful scientists there, Dr. Carl Benson. It would be hard to imagine a better mentor, and through him learned not only my science, but also the importance of mentoring. I believe that through my mentoring of real fine graduate students (Ken Tape, Max Konig, Simon Filhol, Margaret Rudolph, Charlie Parr) I am continuing this tradition of ensuring the next generation goes farther than my generation."