



**US Army Corps  
of Engineers®**

Engineer Research and  
Development Center

## Snow Interest Group

---

### Description

The Snow Interest Group (<http://snow.usace.army.mil>) is a group of professionals from ERDC's Cold Regions Research and Engineering Laboratory (CRREL) and Topographic Engineering Center (TEC) and from the National Oceanic and Atmospheric Administration's (NOAA) Operational Hydrologic Remote Sensing Center in Minnesota, bound together by a common sense of purpose: to provide one-stop solutions for its customers' snow science and engineering problems. The Snow Interest Group pursues a common set of solutions, maintains a common store of knowledge, and relies on combined expertise to collaboratively solve snow problems presented to it. The Snow Interest Group comprises nearly 50 members whose expertise includes hydrology; geophysics; chemistry; biology; acoustics; physics; geology; glaciology; atmospheric sciences; and mechanical, geological, civil, and electrical engineering. The group has been developing a strategic plan to ensure that its collective snow research capabilities are being fully applied to solve problems for the Corps of Engineers, the Army, and the Nation.



*Snowdrift over a road in North Dakota.*

### Capabilities

The skills and knowledge within the ERDC Snow Interest Group and problems that members have successfully treated include the following:

Acoustic propagation over snow	Hydrologic modeling
Avalanches	Laboratory analyses of snow
Blowing and drifting snow	Oxygen isotopes in snow
Chemistry of snow	Radiation (solar and terrestrial)
Climate change	Remote sensing
Climate modeling	Snow characterization
Clouds	Snow hydrology
Distributed snow modeling	Snow loads on structures
Electromagnetic propagation	Snow permeability
Fluid flow in snow	Surface-air transfer
Forest/snow interaction	Surface energy budget
Heat transfer in snow	Vehicle mobility on snow

## Supporting Technology

The group possesses state-of-the-art hard and soft tools that it can rapidly bring to bear on snow problems. The hard tools include facilities and equipment that range from cold-rooms and laboratory equipment to an instrumented vehicle and a wide variety of field instruments. The soft tools are computer programs for the following:

Advection and diffusion in snow	Forest thermal signatures
AVHRR snow mapping	GIS manipulations
Blowing snow	Global climate modeling
Bulk surface flux estimates	Hydrological modeling
3-D cloud scenes	Manipulating RadarSat data
Detailed 1-D snow modeling	Mesoscale modeling
Discrete element snow modeling	Radiative background modeling
Distributed snow modeling	Snow sliding on roofs
Forest albedos	Vehicle performance on snow

## Benefits

The Snow Interest Group works to ensure that a spirit of cooperation and collegiality exists across the ERDC laboratories in the research area of snow. The collaborative synergy of the Snow Interest Group benefits both its members and customers through the sharing of information and the collective expertise that can be applied to solving problems.

## ERDC POCs

Dr. Matthew Sturm  
907-353-5183  
E-mail: [Matthew.Sturm@erdc.usace.army.mil](mailto:Matthew.Sturm@erdc.usace.army.mil)

Janet P. Hardy  
603-646-4306  
E-mail: [Janet.P.Hardy@erdc.usace.army.mil](mailto:Janet.P.Hardy@erdc.usace.army.mil)