

**NNA: NSFGE0-NERC: Collaborative Research:
The Integrated Characterization of Clouds, Energy, Atmospheric state, and
Precipitation at Summit, Aerosol-Cloud Experiment (ICECAPS-ACE) - Award #: 1801764**

Key Project Contact(s):

Von P. Walden, Washington State U., v.walden@wsu.edu, PI
Ralf Bennartz, U. Wisconsin-Madison, ralf.bennartz@vanderbilt.edu, PI
Matt Shupe, U. Colorado, matthew.shupe@noaa.gov, PI
Dave Turner, NOAA, dave.turner@noaa.gov, Research Scientist
Ryan Neely, U. Leeds, ryan.neely@ncas.ac.uk, UK NERC partner



Project Website URLs & Social Media Accounts:

<https://psl.noaa.gov/arctic/observatories/summit/browser/>
<https://psl.noaa.gov/arctic/observatories/summit/>
<http://icecaps.ssec.wisc.edu/>

Project Objectives:

This project is an international collaboration that between the original ICECAPS researchers through the U.S. National Science Foundation's Arctic Observing Network and a team of aerosol researchers through the U.K. Natural Environment Research Council. The ICECAPS project has continuously operated a suite of ground-based instruments at Summit Station, Greenland since 2010 for observing clouds, precipitation, and atmospheric structure. The project has significantly advanced understanding of cloud properties, radiation and surface energy, and precipitation processes over the Greenland Ice Sheet (GrIS), while also supporting process-based model evaluation, development of new measurement techniques, ground comparisons for multiple satellite measurements and aircraft missions, and operational radiosonde data for weather forecast models. The ICECAPS-ACE project is pursuing two new major goals between 2018 and 2021: 1) provide a better understanding of aerosol-cloud interactions over the GrIS and how they impact the surface energy budget, and 2) provide observations that can be used for numerical model assessment as part of the Year of Polar Prediction (YOPP).

As society begins to acknowledge the implications of climate change, it is necessary to understand how the physical climate system operates and evolves. Greenland is of critical importance to human society because it is currently a large contributor to sea-level rise, and the GrIS is melting at an accelerating rate. Providing a better understanding of the interactions between aerosols and clouds is of direct societal value because of their ultimate impact on the GrIS mass budget.

Keywords:

Greenland, Summit Station, clouds, aerosols, precipitation, surface energy budget, climate

Progress to Date/Future Plans:

Data archives:

<https://arcticdata.io/catalog> (Search on PIs names)
<https://psl.noaa.gov/arctic/observatories/summit/browser/>
<https://www.arm.gov/data> (Search on "Summit Station")

Publication list:

<http://icecaps.ssec.wisc.edu/pubs.html>