

**Abstract: Observations of Physical Properties  
and Microwave Emission of Snow at  
CREST station in Caribou, ME**

Peter Romanov<sup>1,2</sup>, Tarendra Lakhankar<sup>1</sup>,  
Carlos Perez Diaz<sup>1</sup>, Reza Khanbilvardi<sup>1</sup>

<sup>1</sup>NOAA-CREST, City University of New York, New York, NY, USA

<sup>2</sup>Center for Satellite Applications and Research, NESDIS/ NOAA, College Park, MD, USA

Since 2011 routine observations of snow physical properties and microwave emission have been conducted at the NOAA-CREST snow research station (CREST-SAFE) in Caribou, ME. The primary objective of observations is to assess seasonal changes of snow pack properties through the winter season, to support studies of physical and radiative transfer processes in the snow pack and to provide validation and calibration of snow retrievals from satellite microwave sensors. The set of instruments installed at the station provides measurements of the snow pack emission at 10, 19, 37 and 89 GHz at both polarizations, snow depth, snow water equivalent, snow pack skin temperature, snow pack temperature profile as well as measurements of major meteorological and actinometric parameters. All observations are performed continuously throughout the winter season at 1-5 min time interval. Automated observations are complemented by snow pit measurements conducted 2-3 times a week. More information on the experiment is available at the project web site at <http://crest.cuny.cuny.edu/snow/>.

In the presentation we will give a detailed description of the experiment and available data sets. Effects of changing snow cover properties on the snow pack microwave emission will be demonstrated and analyzed. The results of comparison of *in situ* measurements of microwave emission with matched satellite observations in the microwave over the study area will be presented and discussed.