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CHARACTERIZATION OF SNOW, FIRN AND ICE

Wednesday 10 January 2018 10:00 (45 minutes)

In this presentation we give an overview of techniques used to characterize the microstructures of snow, firn (multi-year snow) and ice found in both cold regions and in polar ice sheets. These techniques include: transmission electron microscopy, synchrotron-based X-ray topography, cold-stage scanning electron microscopy coupled with energy dispersive X-ray spectroscopy, electron channeling patterns, and electron backscatter patterns; cold stage confocal scanning optical microscopy coupled with Raman spectroscopy; and micro X-ray computed tomography. The capabilities and information obtainable along with the limitations and challenges of each technique will be discussed. Examples of each technique will be presented and future prospects discussed.

Significance statement

Understanding the microstructure of snow, firn and ice and how they evolve is key to understanding both their mechanical properties and physical properties.

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