



Contribution ID: 20

Type: Poster

The depth of UV light extinction (e-folding depths) at Summit, Greenland

Monday, 6 June 2011 12:05 (1h 10m)

The depth of illumination of UV light in snow is a critical measurement in the study of snow photochemistry. This depth defines the zone where chemical impurities in the snow can photolyze and release reactive trace gases into the atmosphere. Although numerous studies have measured the depth of UV illumination, the physical properties of snow that control snow optics and light extinction are not well understood. Snow specific surface area (SSA), the ratio of snow crystal surface area to mass, likely has strong control over snow optics and is a more accurate and sensitive way to characterize snow structure than traditional snow density and grain size measurements. The objective of this research is to measure the depth of UV illumination in snow simultaneously with measurements of snow SSA to determine the relationships between physical snow structure and snow optics that control light extinction. I am using new techniques including infrared photography and contact spectroscopy to measure snow SSA during May, 2011 field work at Summit, Greenland. I hypothesize that SSA will have strong optical controls on UV light in snow, and will be an important indicator of the potential depth of light extinction that will vary significantly with different snow conditions. Coupled with snow and air chemistry results from other workers, this research will lead towards a better understanding of the physical properties that control the photochemical zone in the uppermost snowpack.

Please list some keywords

e-folding depth, snow specific surface area, snow properties, Summit

Primary author: WRIGHT, Patrick (University of Houston)

Presenter: WRIGHT, Patrick (University of Houston)

Session Classification: Lunch and Poster