High Resolution Shallow Snowpack Snow Depth Variability from Unmanned Aerial Systems (UAS) Mounted LiDAR Observations

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ABSTRACT

In order to downscale coarse global satellite observations of snow depth and snow water equivalent, a deeper understanding of how physical drivers influence snow spatial variability is needed. UAS platforms offer the potential to make high spatiotemporal resolution snow depth observations at small watershed scales with a high degree of accuracy at spatial scales unattainable with satellite observations. During the winter 2018-2019, UAS LiDAR and RGB imagery observations were made in Durham, NH over approximately 35 acres including large open and forested areas. *In situ* measurements were collected to assess the accuracy of the UAS derived snow depth maps. Here we provide preliminary results about snow depth variability from multiple shallow (~ 10 cm) snowpacks.

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