



Scaling Snow Accumulation Patterns about Big Mountain Sagebrush

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Snowpacks in high-altitude plateaus are subject to dramatic changes in depth at various scales. The shallow depth of snow cover enhances the effects of albedo-induced melt. Over a winter the snowpack can completely disappear and re-accumulate several times. Wind contributes greatly to the variability of snowcover in this environment where the terrain is relatively flat and vegetative cover is small. The variability of the ground cover density and profile height provided by shrubs creates numerous, random depressions and isolated voids that can capture blowing snow. Dramatic snow drifts can appear behind larger shrubs due to high wind velocities. Snow depth and density data were collected at and near the NASA Cold Land Processes (CLPX) Michigan River Intensive Study Area, located 8 km to the southwest of Walden, Colorado. Data were collected at the following three different scale: five depth measurements at a 100 m resolution for the CLPX project, depth measurements at approximately a 1 m resolution along 100 m transects, and at a 10 cm across several 2 by 2 m plots. The area is dominated by big mountain sagebrush (*Artemisia tridentata*). Measurements were also taken of the vegetation characteristics.

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