

## **Should We Care About Frost? The Relevance of Sublimation onto the Snow-pack**

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**Abstract.** Across the mountain west, snow is the dominant storage of water. Sublimation of snow from the surface or from snow intercepted by trees can be a relevant loss of stored water and this loss of water is a concern to water resources managers. Estimating the related sensible and latent heat fluxes usually requires expensive field sensors, such as three-dimensional sonic anemometers. However, during the night and early morning, winds are often low and little turbulence is present; it is possible that fluxes only occur from/to the surface and the air immediately about it. As such, the fluxes may not be sampled by the lowest sensor that is usually 1.5 m above the surface. To evaluate the relevance of the downward latent heat fluxes, we measured the daily occurrence and quantity of sublimation onto the surface during the winter of 2016. We correlated the occurrence and rate of downward sublimation to 10-minute temperature and vapour pressure deficit data collected nearby. Photographs were also taken to qualify the degree of downward sublimation or frost.