

Managing Forests To Delay Snowmelt Timing across the Pacific Northwest

<http://depts.washington.edu/mtnhydr/research/PNWsnowforest.shtml>

Recent research indicates that snowmelt timing can differ by up to a month depending on whether forests are present or absent. This difference, in turn, can affect spring and summer water availability, stream temperature, and forest health. University of Washington researchers (in collaboration with Seattle Public Utilities, Oregon State University, and University of Idaho, and funded by the Department of the Interior Northwest Climate Science Center) are beginning an investigation to understand the size (and direction) of this effect for the range of climate conditions, forest types, and management regimes across the PNW.



Snow disappears up to two weeks later in the open versus under the adjacent forest at this research site in WA.

The Effect of Forest on Snowmelt Timing

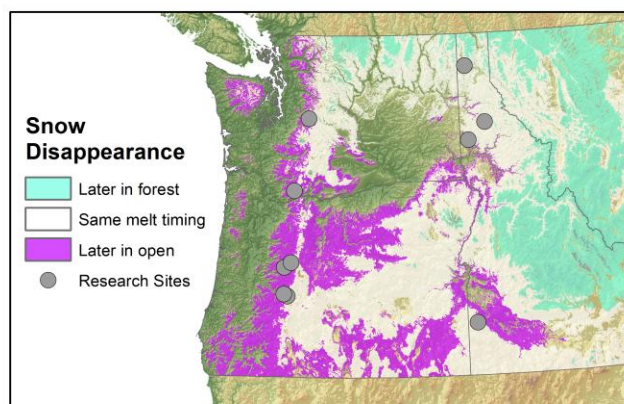
Trees intercept snow leading to less snow accumulation in forests. Once the snow is on the ground, trees also provide shading from the sun and the wind (reducing melt), but the trees are also warmer than the sky which can increase melt. The net effect of the forest on snowpack duration depends on the balance between these two factors, which varies with climate, topography, and forest density.

Can We Predict Snowpack Duration?

Average winter temperature is a key predictor of whether the presence of forest cover will accelerate or delay snow disappearance. However, local effects such as topographic position (e.g., north-facing slopes), weather patterns (e.g., high winds), and forest characteristics (e.g., canopy density) also matter. We are incorporating both climate and local-scale controls to build a model to quantify the effect of forest change on snowmelt timing now, and under different climate warming scenarios. The resulting maps and supporting data will be made publicly available to support forest management.

Contribute Geo-Tagged Photos

To improve this model we need spatially-distributed observations of where snow disappears later in the forest and where snow disappears later in the open. Field observations – in the form of geo-tagged photos of snow presence and absence – contributed by managers and citizens are essential for testing and refining the predictive model. By recruiting land managers, field crews, and hikers to observe snow presence and absence while in the mountains, we are developing an observational data set that spans the climatic, topographic, and forest diversity seen across the region. For information on how to contribute:



Preliminary predictions of where snow disappearance will occur at least one week later in the forest versus the open, and vice versa. Geo-tagged photos are needed to provide data in the vast area between research sites.

<http://depts.washington.edu/mtnhydr/research/citsci.shtml>