The SWEVIS R Package for Forecasting and Visualization of Snow Water Equivalent Data

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Water resources in the Intermountain West rely heavily on snow water storage. To improve seasonal forecasts of snowpack, new techniques need to be considered to allow water resources to be more effectively managed throughout the entire water-year. As part of these efforts, we introduced a new data-based Bayesian statistical model for forecasting snow water equivalent (SWE) measurements [2].

In this presentation, we will introduce our new R package, SWEVIS. Its main purpose is to visualize and explore spatial and spatio-temporal SWE data. SWEVIS includes our recently developed Bayesian statistical model to forecast SWE. It also implements multivariate exploratory data analysis (EDA) and exploratory spatial data analysis (ESDA) techniques, with a focus on SWE data. Three main features are provided for SWE data: (i) data manipulation methods, (ii) forecasting, and (iii) linkage between map views and interactive statistical graphics.

As case studies, we demonstrate SWEVIS with SWE data from Utah SNOTEL sites and the Upper Sheep Creek site in Idaho. SWEVIS is based on work presented in Odei [1] and Odei et al. [2] and it will be publicly released to CRAN in the near future.

References
