



Comparative hydrology to elucidate the role of snow on the long-term water balance of catchments.

Wouter Berghuijs and Ross Woods

Department of Civil Engineering, University of Bristol, Bristol, United Kingdom

In a warming climate, precipitation is less likely to occur as snowfall. This precipitation shift from snow towards rain affects the within year-distribution of streamflow. Additionally, it is recently shown that such a shift can also reduce the mean streamflow significantly. In this study we use more than a thousand catchments located across the United States and Europe to test this recent observation and to elucidate the role of snow on the long-term water balance. We do this by a systematic comparison of the water balance regimes, snow conditions and landscape characteristics. The aim of the study is twofold: (a) to test the role of snow for the long-term water balance across a much wider range of catchments than previously has been done, and (b) to assess what parts of the streamflow regime are affected by the snow-rain partitioning.