Poster

**Altitude-dependencies and driving processes of daily streamflow trends in the central Norwegian mountains**

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**Abstract**

Mountainous regions are experiencing more rapid temperature changes than lower altitudes, which impacts the hydrology of these regions particularly through cryosphere and seasonal snowpack changes. This may lead to modifications in the most important driving processes for runoff generation. Here, we analyze daily-resolved hydrological trends for 112 pristine or near-natural catchments in the central Norwegian mountains to highlight the impact of changes in snowmelt and rainfall on streamflow. Two particular aspects have been focused: (1) the altitude dependencies of these trends and (2) to what extent trends in streamflow can be explained by rainfall and snowmelt trends. The catchments are divided into two runoff regions, located east and west of the central Norwegian mountain summits. These regions are influenced by different prevailing hydroclimates, but cover similar altitude ranges (0-2000 m.a.s.l.). The high-resolution trend analysis allows for in-depth seasonal-specific insights into the hydrological response of catchments with different hydrological regimes to rising temperatures and changes in rainfall over the last four decades. Initial results are consistent with existing literature showing a significant seasonal warming coinciding with an earlier onset of the spring freshet in streamflow, which corresponds with snowmelt trends. The timing of this signal is clearly altitude dependent, while trend magnitudes do not display any consistent correlation with altitude.

**Keywords:** streamflow trend, climate change, altitude dependence, driving processes