

RCP4.5 and RCP8.5 runoff regime changes in a regional-scale glacierized catchment in the Austrian Alps

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We apply the hydroclimatological model AMUNDSEN in a highly glacierized headwater catchment in the Ötztal Alps (Austria, 558 km², 24 % ice covered) and simulate future runoff regimes under changing climatic conditions (RCP4.5 and RCP8.5, [2006 - 2100](#)). AMUNDSEN is a physically based, distributed model for the simulation of the energy and mass balances of snow and ice surfaces and specifically designed for simulations in complex topography. The model comprises an empirical glacier evolution model (Δh -approach) and is extensively validated in space and time with a newly developed concept, the validogram. Meteorological forcing is provided by downscaled EURO-CORDEX data for three different realisations (moderate, wet, warm). Results are evaluated with respect to change in glacier area and volume, and change of the individual runoff components (snowmelt, ice melt and rain) in the subcatchments.