

## **Right or wrong? Different perceptions of future scenario simulations of forest growth and climate change effects on the water balance components in an Alpine catchment**

Ulrich Strasser (1), Markus Schermer (2), Kristian Förster (3), Gertraud Meissl (1), Thomas Marke (1), and Herbert Formayer (4)

(1) University of Innsbruck, Department of Geography, Innsbruck, Austria (ulrich.strasser@uibk.ac.at), (2) University of Innsbruck, Department of Sociology, Innsbruck, Austria, (3) Leibniz Universität Hannover, Institute of Hydrology and Water Resources Management, Hannover, Germany, (4) BOKU University of Natural Resources and Life Sciences, Vienna, Austria

In a typical future scenario simulation of climate change effects on the water balance in an Alpine catchment we have used the physically-based, distributed water balance model WaSiM and a climate evolution according to the RCP 8.5 emission path until 2100. The test site for the simulations is the catchment of the Brixentaler Ache in Austria ( $47.5^{\circ}\text{N}$ , 322 km $^2$ ). The climate projection was combined with future land use development for forest management, developed in an inter- and transdisciplinary approach together with local actors using plausible and consistent projections for forest management in connection to political, social and economic development. The hydrological model included a new module for snow-canopy interaction simulation, providing explicit rates of intercepted and sublimated snow from the trees, stems and needles or leaves of the different forest stands. The original goal of the simulations was to quantify the effect of changing forest management and climate on the winter water balance. However and surprisingly, scientific attention concentrated on summer water fluxes in the canopies: evaporation water fluxes are differently interpreted by scientists from the hydrological and the ecological research communities, leading to conflicting misunderstandings in the interpretation of the results achieved in the modelling. The case was sparked by a press release on the results, which was followed by discussions leading to disclosure of the different perceptions of the terms used. Who is right or wrong? Both, depending on perspective!