Postprocessing NWP model output for the needs of snow hydrological modelling

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Operational applications of snowmelt models in the past have often relied on conceptual modelling approaches such as the temperature index method. However, today an increasing number of flood events are associated with complex weather situations such as rain-on-snow events. These circumstances require more complex modelling approaches with increased meteorological forcing demands. In Switzerland, our operational snowmelt models are coupled to the numerical weather prediction system COSMO. However, using COSMO data as direct input entails snow model errors due to biases in the input data. This presentation will give an overview of the downscaling and debiasing schemes we employ to ensure the most accurate input to our snowmelt models. Schemes include terrain corrections, statistical debiasing, and fusion with re-analysis data.