

From Delta change to Scaling and direct use of RCM output

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The Delta change method has been used and evaluated in climate change impact studies at the Swedish Meteorological and Hydrological Institute (SMHI) for the past several years. In this method the climate change signal regarding a selected time slice is transferred from the regional climate model (RCM) to corresponding control period observations. This method is insensitive to any shortcomings in the ability of the RCM to describe the current climate. However, it may suppress any relative changes in for example climatic extremes and length of dry or wet spells. In recent years the increased quality of the RCM output has encouraged the development of the Scaling approach. This method uses the results from the RCM in the actual hydrological simulation after initial scaling to observations for a control period. In this study one such scaling method is evaluated at the national scale in comparison with results from delta change simulations. The scaling method used here is fairly straightforward for temperature and potential evapotranspiration, but for precipitation the scaling is done in two steps that require more in depth analysis. The results are highly encouraging although some research still remains, perhaps especially in the scaling of precipitation.