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A complementary approach to estimate future runoff changes in Austria

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Analyses of climate impacts on water resources on regional or national scales, which are needed to give guidelines to future water resources management, are often based on single methods such as trend analyses or scenario approaches. Each single method may not cover the subtleties of processes causing future changes in runoff behaviour on a regional scale. We propose to use a range of complementary methods differing in data and assumptions. In the Austrian case study we apply four different methods: trend analyses, scenario analyses, the elasticity method, which is based on an analysis of the temporal variability of observed data and the "trading space for time" method, which analyses the spatial variability of runoff data. Overall, the four methods give consistent estimates of future runoff changes, but local differences exist. These differences can be explained by the variety of assumption and data the four methods are based on. Consequences for future climate impact analyses are discussed.