



Stochastic downscaling of precipitation

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The spatial and temporal variability of precipitation has a major influence on runoff production and timing. Precipitation is usually measured as a time integral (usually daily sum) at point locations. Regional or global meteorological models provide information on large spatial units in relatively fine temporal resolution. In this contribution the possibility to link these spatial scales and to provide hydrological model input at the required scales via stochastic modeling is discussed. Multivariate rainfall distributions conditioned both on large and small scales are discussed. As a first step methods for removing possible biases are discussed. Variability is treated both through spatial covariances as through subscale distributions. Examples of meteorological model results obtained using raanalysis data and corresponding point observations in the Neckar catchment illustrate the methodology.