Validation of two Multi-Site Daily Precipitation Generators

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Two stochastic weather generators are used to generate daily precipitation occurrence simultaneously in several locations. The first one is based on a two-state hybrid-order Markov chain model. Collection of individual (single-site) models is driven by serially independent but spatially correlated stream of random numbers. The correlations are derived from the observational data. The second generator is based on a resampling procedure, in which the precipitation occurrences are sampled from the learning sample simultaneously for all stations. The contribution will include: (1) methodology involved in the two generators, (2) validation of the generators in terms of the frequencies of occurrence of dry and wet periods in individual stations as well as in the whole region represented by the given group of stations. For this purpose, 40-year daily precipitation data from 4 Czech regions (with 9 to 13 stations in each region), will be used.