



## **Performance of interpolated weather generator in two regions: Nebraska vs. Czechia**

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Met&Roll is the parametric four-variate daily weather generator (with an optional extension allowing to generate additional variables), which is designed to produce synthetic weather series representing present and/or future climate conditions to be used as an input to various models (e.g. crop growth models, rainfall runoff models). Recently, interpolability of the Met&Roll weather generator in the territory of Czechia (area = 78864 km<sup>2</sup>) was investigated with the aim to find whether the generator may be used even at sites with no meteorological observations. The present experiment aims at (i) assessing transferrability of the previously developed methodology for a region with a different orography and climate (Nebraska; area = 200520 km<sup>2</sup>) and (ii) comparison of the obtained results with those for Czechia. The experiment is based on observed daily weather series from 125 stations in Czechia and 28 stations in Nebraska, which results in approximately 11x lower density of stations in the latter region; on the other hand, Nebraska's non negligible advantage in this interpolation exercise consists in its less complex orography. The performance of the interpolated generator is assessed using a cross validation method and in terms of (i) selected weather generator parameters (parameters of the distribution of individual weather variables and parameters of the time structure of the four variate weather time series), and (ii) extreme precipitation and temperature characteristics. The characteristics to be compared are derived from observed series, site calibrated weather generator and interpolated generator. To assess effect of the station density on a performance of

the interpolated generator, the interpolation for Czechia will be performed at two settings: (a) using all available stations, (b) using a 25 station subset.

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