

Disaggregation the Daily Rainfall Dataset into Sub-Daily Resolution in the Temperate Oceanic Climate Region

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Abstract : High resolution rain data are very important to fulfill the input of hydrological models. Among models of high-resolution rainfall data generation, the temporal disaggregation was chosen for this study. The paper attempts to generate three different rainfall resolutions (4-hourly, hourly and 10-minutes) from daily for around 20-year record period. The process was done by DiMoN tool which is based on random cascade model and method of fragment. Differences between observed and simulated rain dataset are evaluated with variety of statistical and empirical methods: Kolmogorov-Smirnov test (K-S), usual statistics, and Exceedance probability. The tool worked well at preserving the daily rainfall values in wet days, however, the generated data are cumulated in a shorter time period and made stronger storms. It is demonstrated that the difference between generated and observed cumulative distribution function curve of 4-hourly datasets is passed the K-S test criteria while in hourly and 10-minutes datasets the P-value should be employed to prove that their differences were reasonable. The results are encouraging considering the overestimation of generated high-resolution rainfall data.

Keywords : DiMoN Tool, disaggregation, exceedance probability, Kolmogorov-Smirnov test, rainfall

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