Geophysical Research Abstracts, Vol. 7, 05318, 2005
SRef-ID: 1607-7962/gra/EGU05-A-05318

Application of Nearest-Neighbour Resampling to the Meuse Basin

R. Leander (1), T.A. Buishand (1), M.J.M de Wit (2) and P. Aalders (3)

(1) Royal Netherlands Meteorological Institute, De Bilt, The Netherlands, (2) Institute for Inland Water Management and Waste Water Treatment , Arnhem, The Netherlands, (3) Wageningen University & Research Centre, Wageningen, The Netherlands

A multi-site stochastic weather generator has been developed to simulate long-duration sequences of daily rainfall and temperature for the Meuse basin. The weather generator is based on the technique of nonparametric nearest-neighbour resampling. In this technique data are sampled simultaneously from multiple historic records such that the temporal correlation is preserved. This is achieved by conditioning the simulation of the values for the day of interest on the weather characteristics of the preceding days. Due to an additional step in the resampling algorithm, the records driving the selection procedure and those providing the simulated data can have different lengths. The method has proved to reproduce the distributions of the multi-day seasonal maxima of area-average rainfall satisfactorily. The generated sequences served as input for a distributed HBV model of the French and Belgian part of the Meuse basin. The simulated winter maxima of the 10-day average discharge were considered. Their distribution proved to be in good agreement with that of the observed discharges.