



Scaling method for applying RCM to climate change impact study on a rainfall-runoff model

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Climate change may have significant influence on hydrology and its correspondent management such as large-area flooding, reservoir regulation et cetera. Therefore, it is quite an important issue to introduce climate change signals into regional and local hydrological studies. In the recent years, Regional Climate Models (RCMs) have developed rapidly to improve its representation of local weather situations. However, their systematic biases often constraint their direct use in impact studies. A method of scaling the RCM output has been developed in order to provide a realistic representation of meteorological variables for hydrological modelling purposes. Until now the method has been developed to adjust the identified biases in daily precipitation and temperature. Statistical properties of daily precipitation and temperature, such as mean and standard deviation, are much improved by scaling compared to RCM output. Fore example, the proper distribution of daily precipitation and temperature can now be generated. The scaled precipitation and temperature have been used as inputs to the HBV rainfall-runoff model for a number of catchments in Sweden. The resultant averaged runoff is proved to be in good consistence with historical records, and the method can be applied for climate change impact studies.