



Response of extreme flood characteristics based on future climate change scenarios at Yermasoyia watershed, Cyprus

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The aim of this study which was performed within working group 4 in the FloodFreq COST Action is to assess and quantify changes in daily streamflow and subsequent flood response modelling due to potential climate change in Yermasoyia watershed, Cyprus. Eight statistical downscaling methods are used to estimate historical and future daily precipitation and temperature timeseries. Four methods are based on change factors and four are bias correction methods and these methods are used to downscale precipitation and temperature output from fifteen RCMs from the ENSEMBLES project. Several well-known lumped hydrological model structures (such as the GR4J, the IHACRES models, and the AWBM) are applied to estimate the daily streamflows. Performance of the models is evaluated with the use of fit statistics or metrics for calibration and validation periods using the split sample test. A set of flood indices are derived from the daily simulated streamflows and their changes have been evaluated by comparing the periods 1960-1990 and 2070-2100. The results show that both the magnitude and the volume of annual peakflows is decreasing for all examined scenarios, downscaling methods and employed hydrological models.