



Heavy precipitation events over the Euro-Mediterranean region in a warmer climate: results from CMIP5 models

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In this work the authors investigate possible changes in the intensity of heavy precipitation events under a warmer climate, using the results of a set of 20 climate models taking part to the Coupled Model Intercomparison Project phase 5 effort (CMIP5). Future changes are evaluated as the epoch difference between the last four decades of the 21st and the 20th Century assuming the Representative Concentration Pathway RCP8.5 scenario. As a measure of the intensity associated with heavy precipitation events, we use the difference between the 99th and the 90th percentiles. Despite a slight tendency to underestimate the observed heavy precipitation intensity, the considered CMIP5 models well represent the observed patterns during both summer and winter seasons for the 1997-2005 period. Future changes in average precipitation are consistent with previous findings based on CMIP3 models. In addition, CMIP5 models show a projected increase of the width of the right tail of the distribution in a warmer climate, even over regions where nearly the entire precipitation distribution becomes dryer. This is the case of the Euro-Mediterranean domain.