



Scenarios of daily extreme precipitation under climate change

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Daily extreme precipitation events under climate change conditions are the focus of research in our study. Such events can have considerable impacts on wealth and society by causing floodings or mudslides for example.

In our study we used daily records of precipitation at 50 stations over Austria covering the period 1963-2006. To calculate the adequate timeseries for the future considering IPCC's climate change scenarios A1B and B1, we applied the analog method. Daily fields of Sea Level Pressure from the NCAR/NCEP1 Reanalysis within the region of Europe (20W-35E/30S-65N), served as the prime predictor between local scale observations and climate simulations out of the MPI-ECHAM5 model. Several return values were determined by fitting a GEV distribution to the timeseries consisting of the three most extreme, declustered events per year.

The results reveal that future changes of 20y-return values are within +/-20% for most stations, whereby the signal of change is stronger for the first period (2007-2050) as compared to the later one (2051-2094). This is valid for both IPCC scenarios. We conclude, that even in the relatively small area of Austria both the sign and rate of change in future extreme precipitation, offers a clear diversity among climatological regions. This implies an important aspect for forthcoming studies.