



Contribution of land-atmosphere coupling to temperature and precipitation extremes of the European summer climate in the 20th century

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Several recent studies have suggested that land-atmosphere coupling is a central mechanism for European summer climate extremes, such as heatwaves and heavy convection. In this study we use the CLM Regional Climate Model to perform a set of simulations with and without land-atmosphere coupling for the last 50 years. The coupled simulation uses a fully coupled land-surface model, while in the uncoupled simulations soil moisture is prescribed such that the contribution of interannual, intraseasonal and seasonal cycle variability of soil moisture on temperature and precipitation extremes can be assessed. To investigate the impact of soil moisture on climate extremes in this set of simulations, we use ECA&D extreme indices and extreme value analysis.