

Poster.6: . **The Climate Response of Heavy Precipitation Events over the Alps and in the Mediterranean**

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**Abstract**

In the Alps and Mediterranean region convective storms are influenced by both, the presence of a large area of sea water and complex orography, and can cause hazardous flash floods. We here study heavy precipitation events (HPEs) by using the CORDEX-FPSCONV convection permitting regional climate model ensemble and a tracking algorithm.

We investigate the climate change response of characteristic HPE properties describing their propagation, scale, intensity and severity: by year 2100 HPEs travel by >10% farther, they last longer by >5%, their area increases by >15% and their rainfall volume by >35%. Their maximum precipitation rate by about 13% and an estimate of severity is found increased by >20%.

Eventually we resolve the response for specific storm categories, geographical regions and seasons: changes are greatest for landfalling HPEs, and for those affected by orography. North of the alps, a region not renowned for severe weather, the occurrence frequency of HPEs is found to double in wintertime, accompanied by a strong increase in their rainfall volume of >50%. Changes in rainfall volume, intensity and severity are greater in fall and winter than in summer.

For the whole domain changes of characteristic HPE properties scale with surface warming at rates smaller than suggested by the Clausius-Clapeyron feedback, likely due to limited moisture supply in dry summers. However, we also show that changes in such a complex domain show strong local and seasonal variability.