

Poster.2: . **Changes in Mediterranean convective storms under climate change conditions**

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Abstract

The Mediterranean is a climate change hotspot due to its potential vulnerability to changes, but large uncertainties still exist in future projections of rainfall. It is thus urgent to better understand the sources of uncertainty and the mechanisms that may alter precipitation in the region. This is particularly true for extremes, since large parts of the region gather most of their total annual precipitation from a few intense events, for which trends have proven difficult to detect.

Here, we use a convection-permitting model (2-km) over the western Mediterranean to study possible changes in convective rainstorms. We completed two decade-long experiments: one for present climate (2011-2020) and another where end-of-the-century climate anomalies were added to present climate conditions (Pseudo Global Warming). This setup allows us to quantify the thermodynamic and large-scale dynamic climate change impacts on convective storms in the western Mediterranean.

Using a storm-tracking algorithm, we identify convective systems producing high rainfall rates and measure a range of characteristics. This provides a complete description of convective rainstorms and help us determine which features may be most affected by climate change. Our experiments suggest a future strengthening of short-lived extreme rainfall events. We link changes in convective storm features to heavy rainfall intensification with focus on late summer and early fall, when the most damaging episodes tend to occur.