*Supplement of*

# Insights from hailstorm track analysis in European climate change simulations

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**Table S1.** Hailstorm track statistics. First two columns list the number of storms with lifetimes greater than 1 h tracked in current (left) and future (right) simulations for the different subdomains (see Fig. S2), followed by the number of splits and mergers (all seasons). The composite columns list the number of storms that are included in the JJA composites (Fig. 5,S5).

| | storms | | splits | | mergers | | composite | |
|---|---|---|---|---|---|---|---|---|
| AL | 2035 | 1770 | 263 | 287 | 41 | 50 | 389 | 402 |
| BA | 208 | 293 | 6 | 22 | 1 | 0 | 218 | 258 |
| BI | 30 | 45 | 2 | 5 | 0 | 1 | 37 | 40 |
| CE | 925 | 915 | 137 | 171 | 27 | 32 | 561 | 575 |
| EE | 4806 | 5056 | 583 | 868 | 115 | 167 | 1092 | 1085 |
| FR | 177 | 198 | 26 | 24 | 7 | 0 | 264 | 180 |
| IP | 1102 | 780 | 56 | 57 | 6 | 8 | 306 | 163 |
| MD | 11728 | 10865 | 1042 | 1346 | 130 | 153 | 442 | 343 |
| NA | 1930 | 1554 | 116 | 145 | 17 | 15 | 76 | 35 |
| NAL | 544 | 425 | 87 | 94 | 11 | 11 | 112 | 134 |
| SAL | 1491 | 1345 | 176 | 193 | 30 | 39 | 278 | 267 |
| ALL | 39594 | 37746 | 3713 | 4829 | 563 | 736 | 3641 | 3284 |

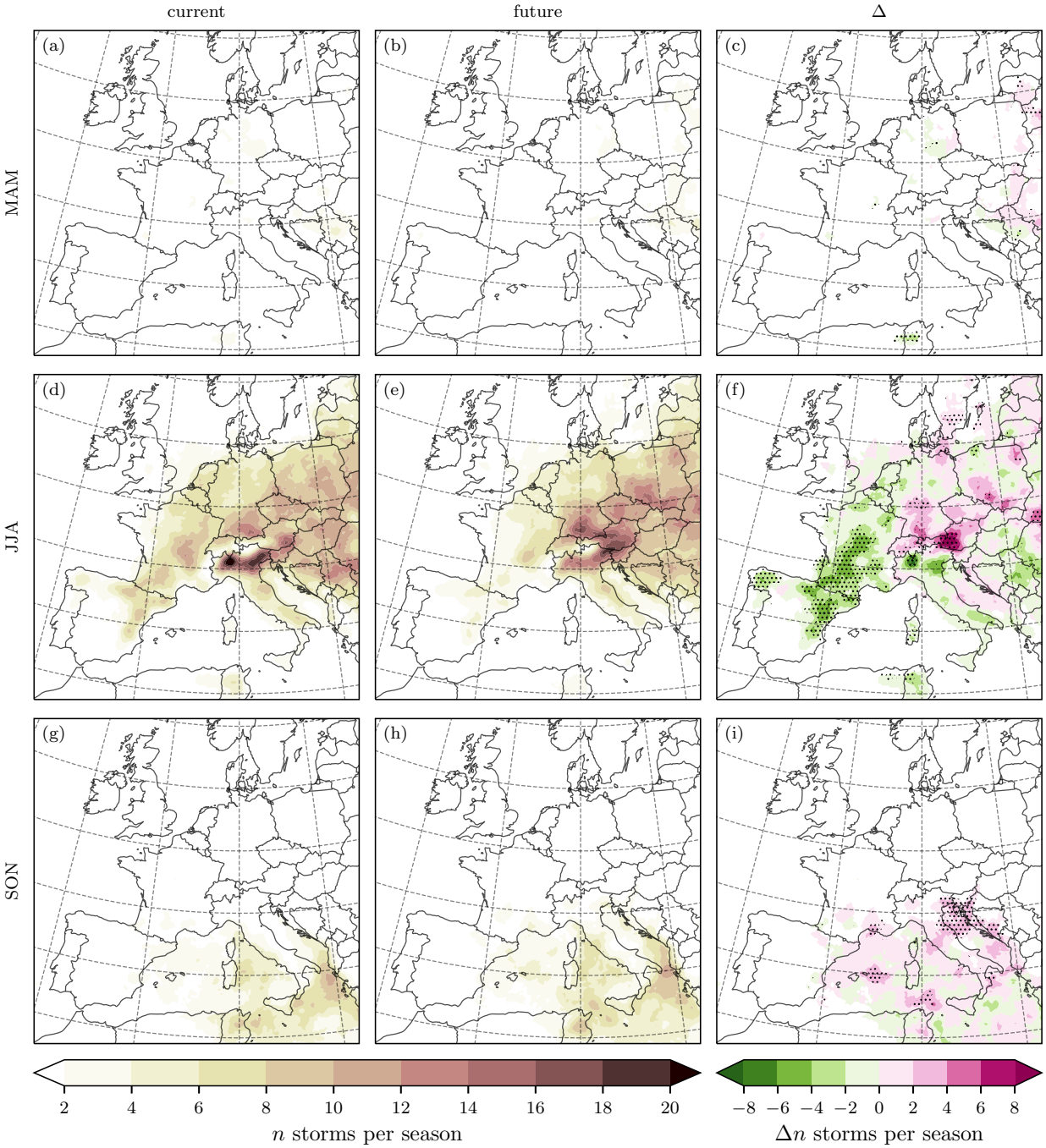


**Figure S1.** Identical to Fig. 2a–c, f but with added MAM (**a–c**) & SON (**g–i**) seasons.

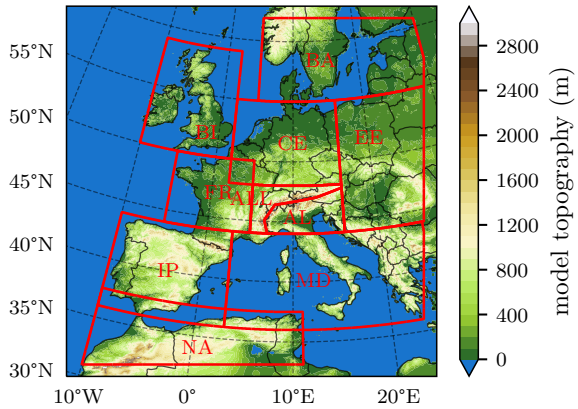


**Figure S2.** COSMO climate simulations domain, with the model topography as color shading. The subdomains are depicted by red boxes with letter codes: AL – Alps, BA – Baltic. BI – British Isles, CE – Central Europe, EE – Eastern Europe, FR – France, IP – Iberian Peninsula, MD – Mediterranean, NA – North Africa, The Alps subdomain is further split into the northern and southern Alpine subdomains (NAL & SAL) along the main Alpine crest. Similarly, the Mediterranean subdomain is separated by the land-sea mask into the subdomains MDL & MDS (not shown). ALL refers to the statistics for the entire domain. The subdomains are based on the PRUDENCE subdomains (Christensen and Christensen, 2007) and were adapted to our limited domain where applicable.

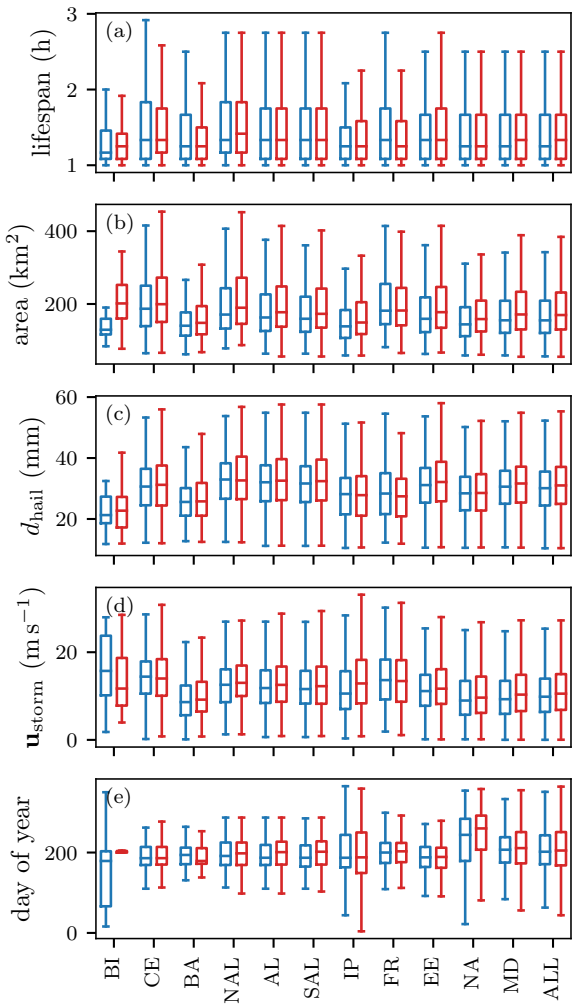


**Figure S3.** Current (blue) and future (red) climate hail track parameters split up per subdomain. (**a**) storm lifespan, (**b**) storm area, (**c**) storm maximum hail diameter, (**d**) mean storm propagation velocity, and (**e**) day of the year. The boxplot elements are equivalent to Fig. 10.

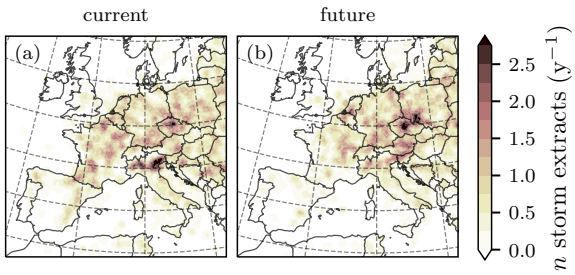


**Figure S4.** Spatial distribution (number per year in JJA season) of cell-centered footprints (within a 50 km radius of a given point) used to construct current (**a**) and future (**b**) composites (Sect. 4).

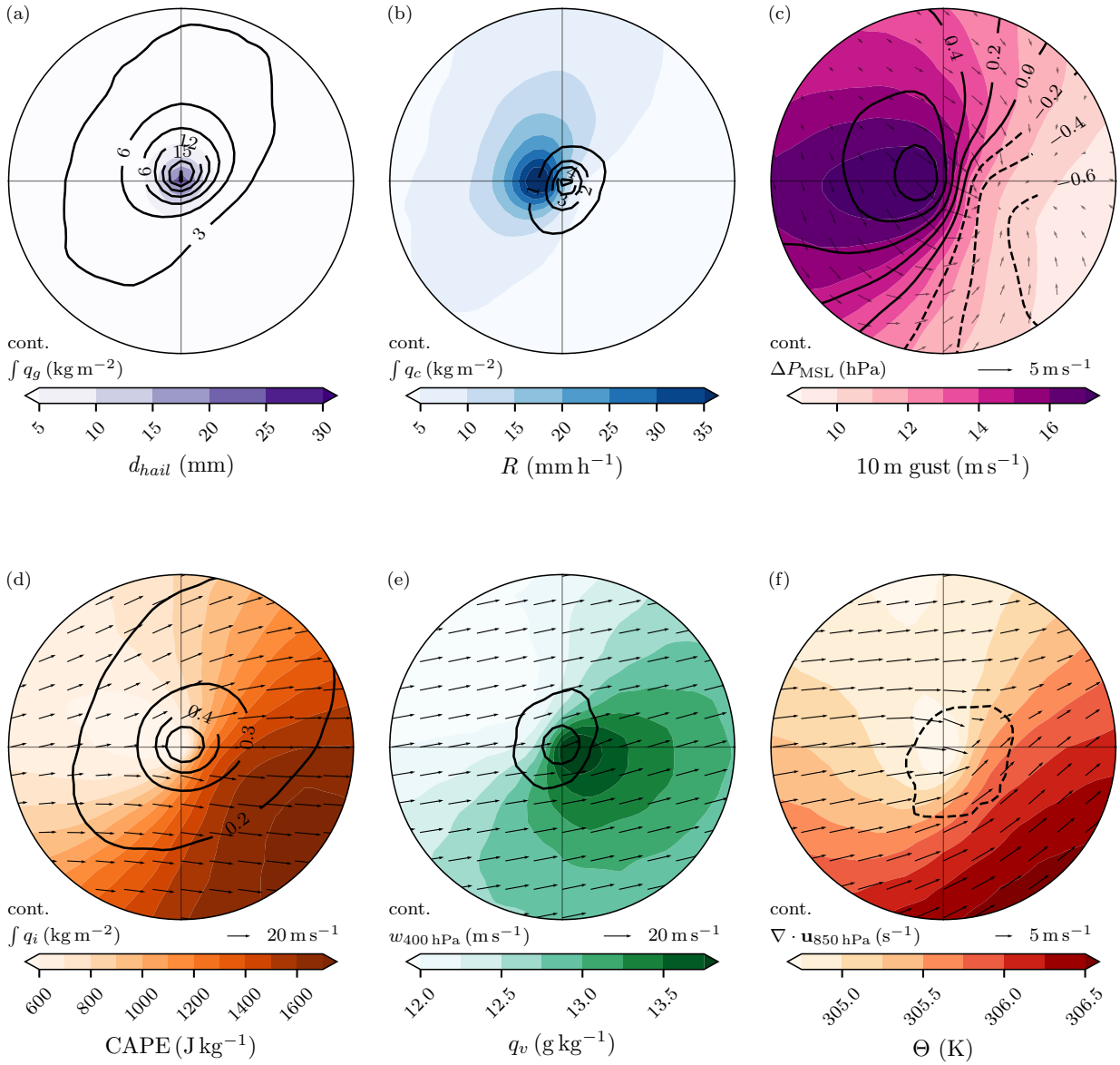


**Figure S5.** Analogous to Fig. 5 but for the future climate.

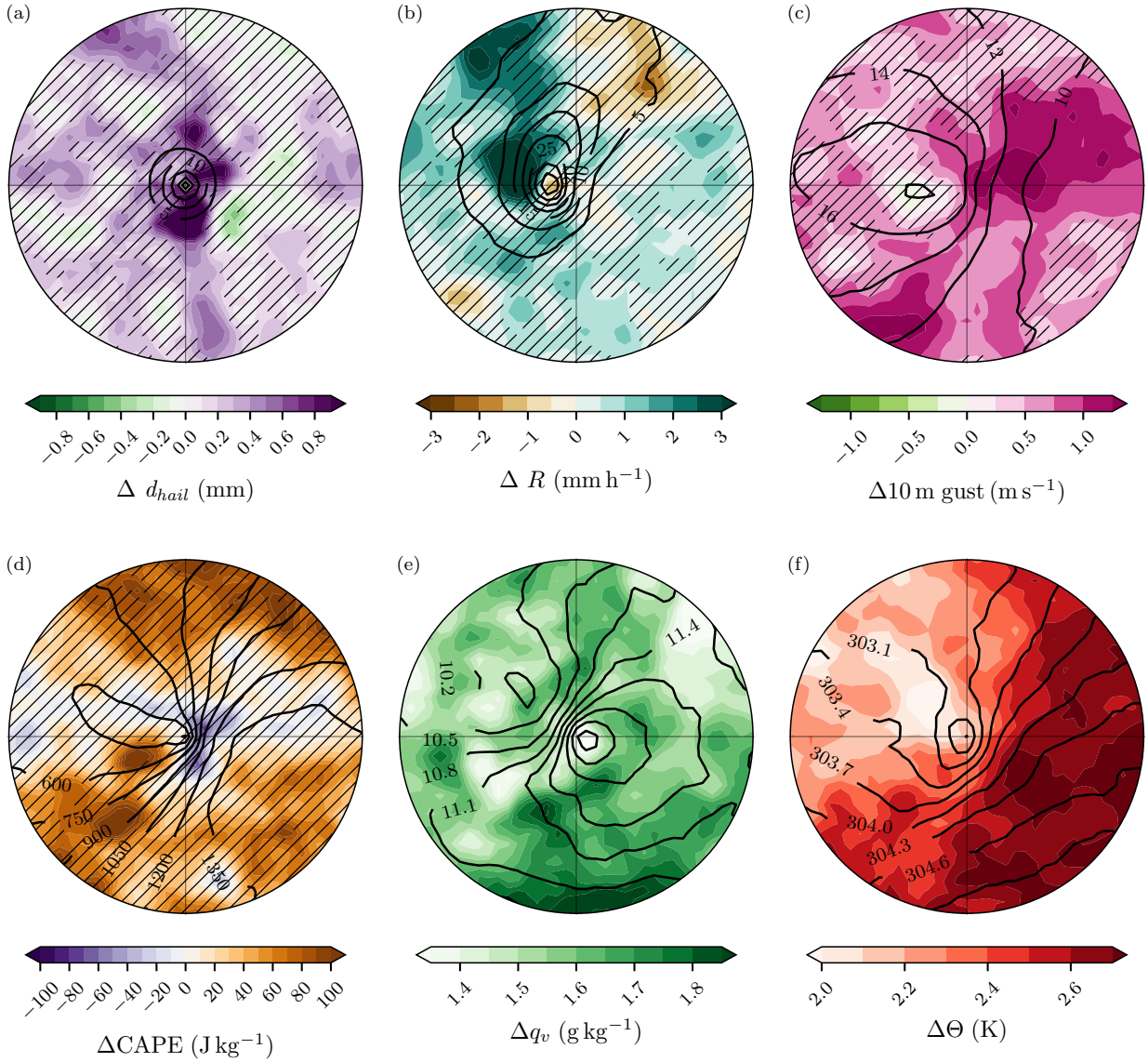


**Figure S6.** Analogous to Fig. 6 in the main text but for the Alpine (AL) domain.

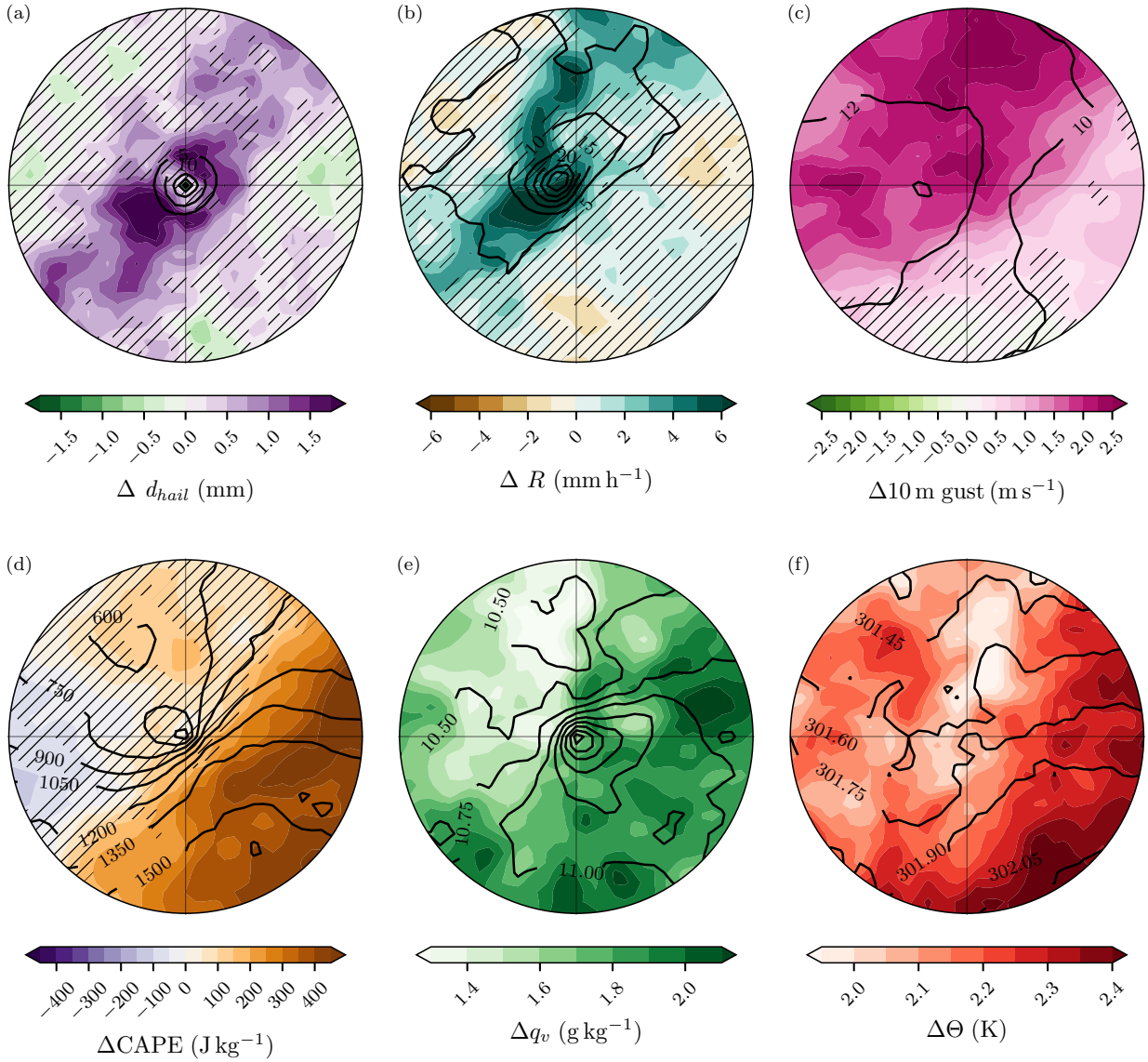


**Figure S7.** Analogous to Fig. 6 in the main text but for the Baltic (BA) domain.

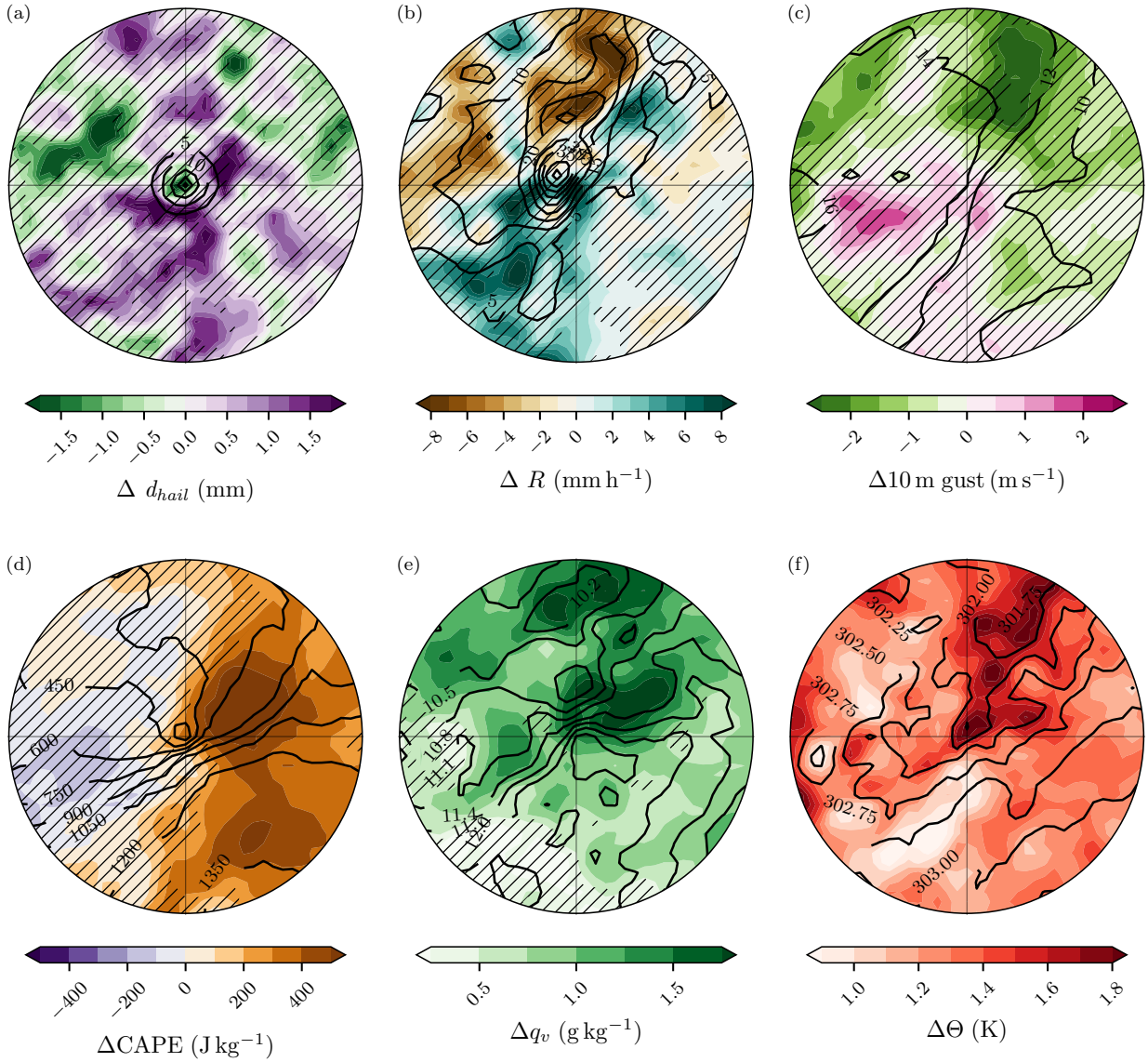


**Figure S8.** Analogous to Fig. 6 in the main text but for the British Iles (BI) domain.

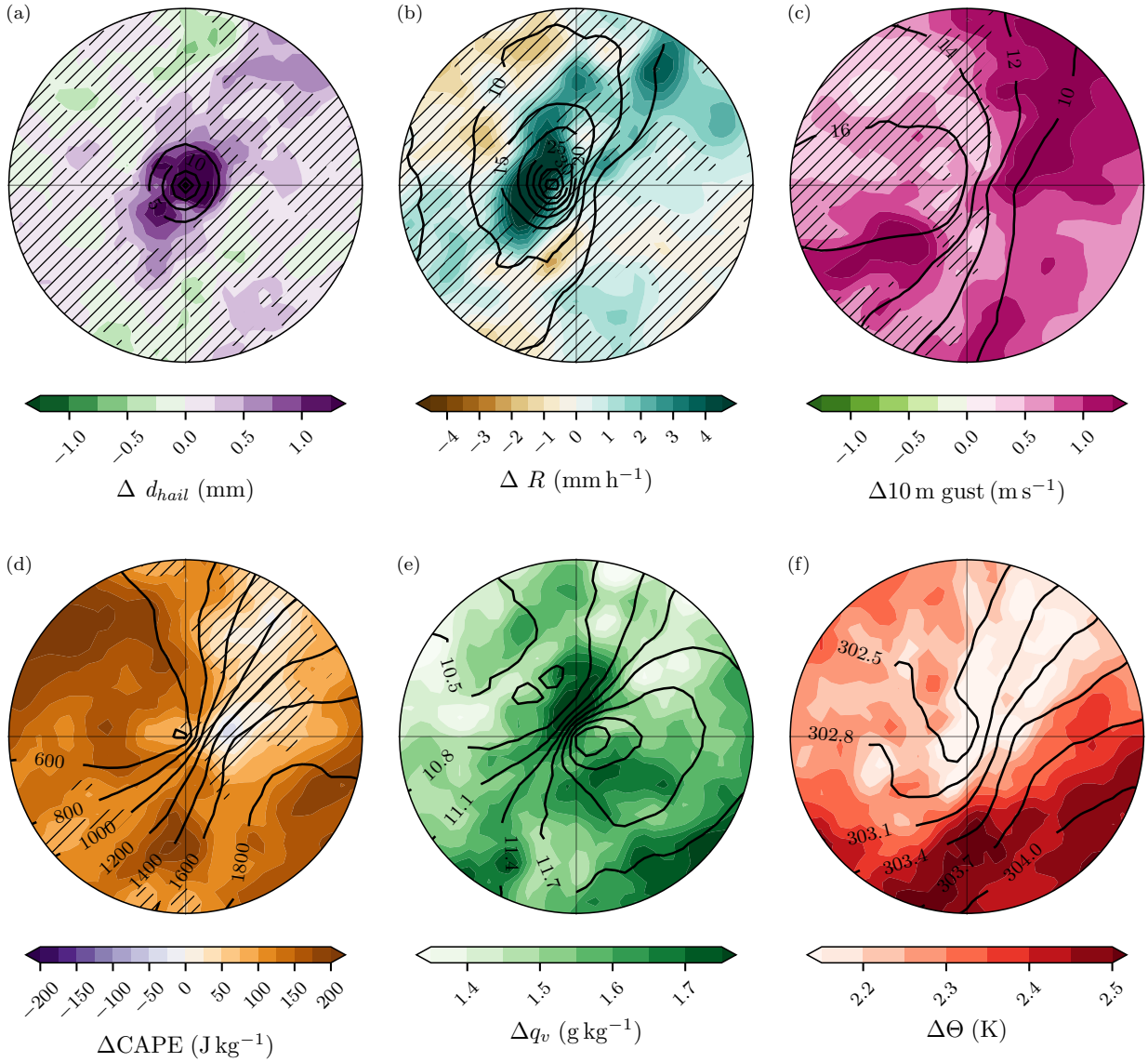


**Figure S9.** Analogous to Fig. 6 in the main text but for the Central Europe (CE) domain.

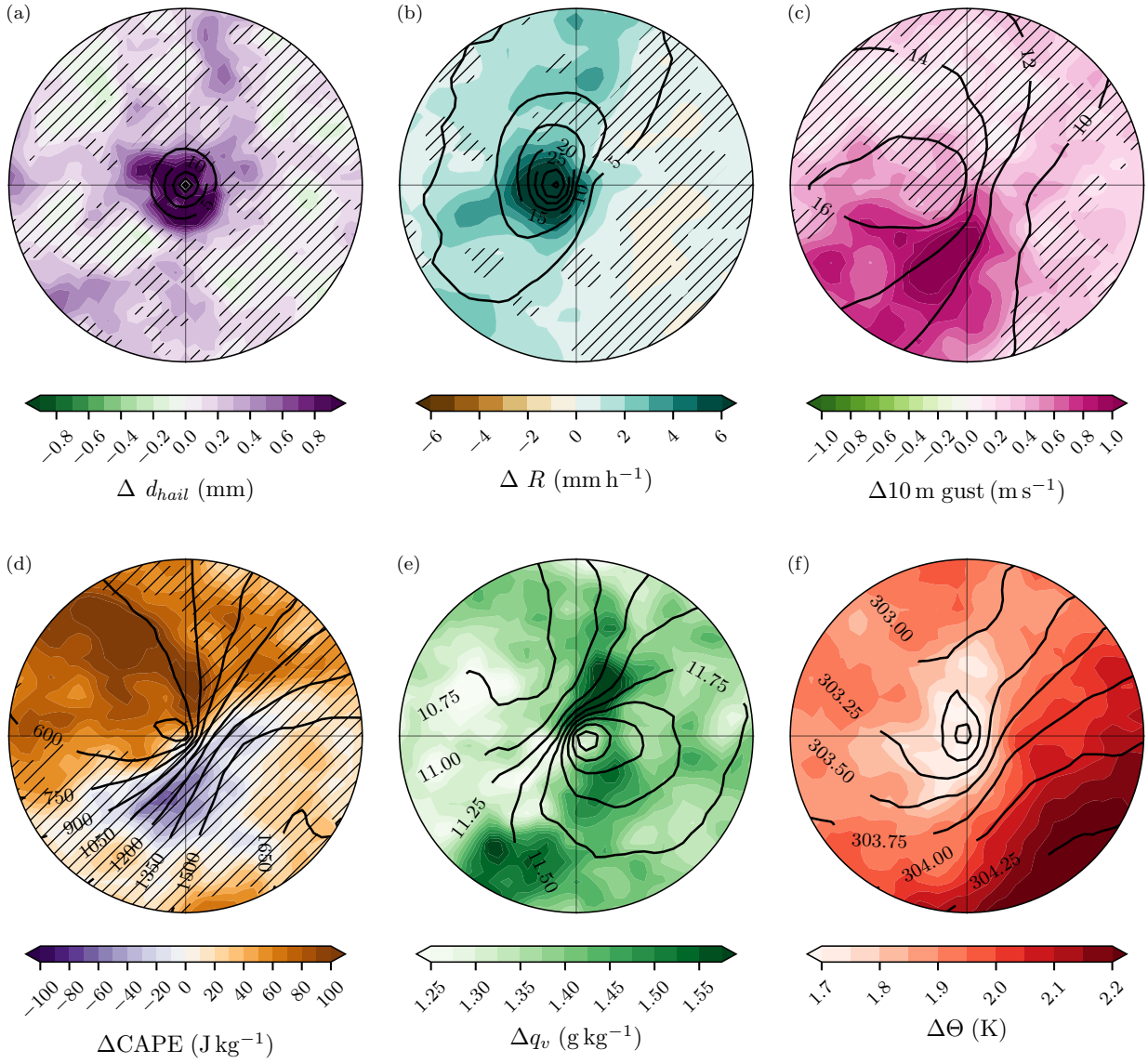


**Figure S10.** Analogous to Fig. 6 in the main text but for the Eastern Europe (EE) domain.

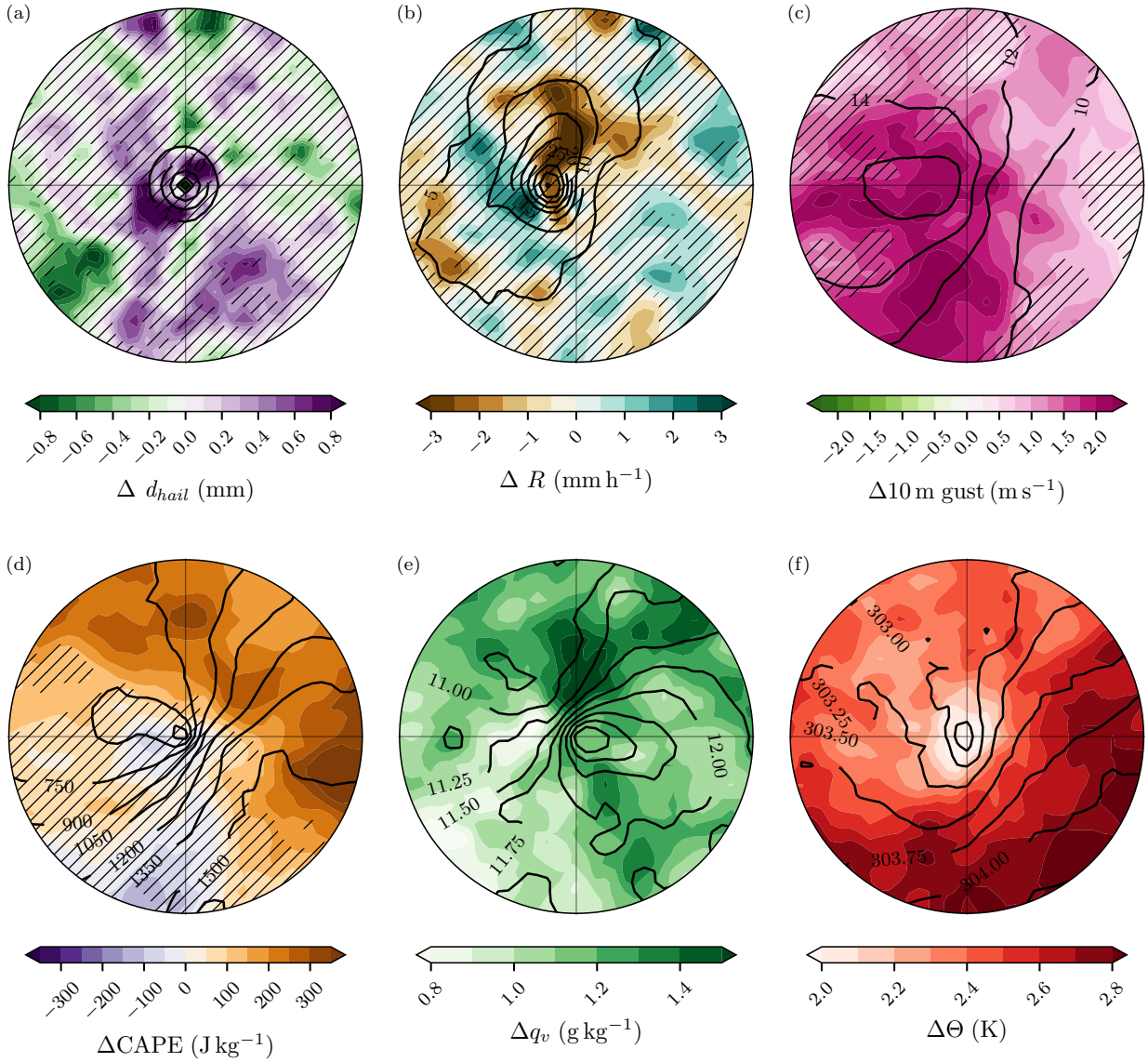


**Figure S11.** Analogous to Fig. 6 in the main text but for the France (FR) domain.

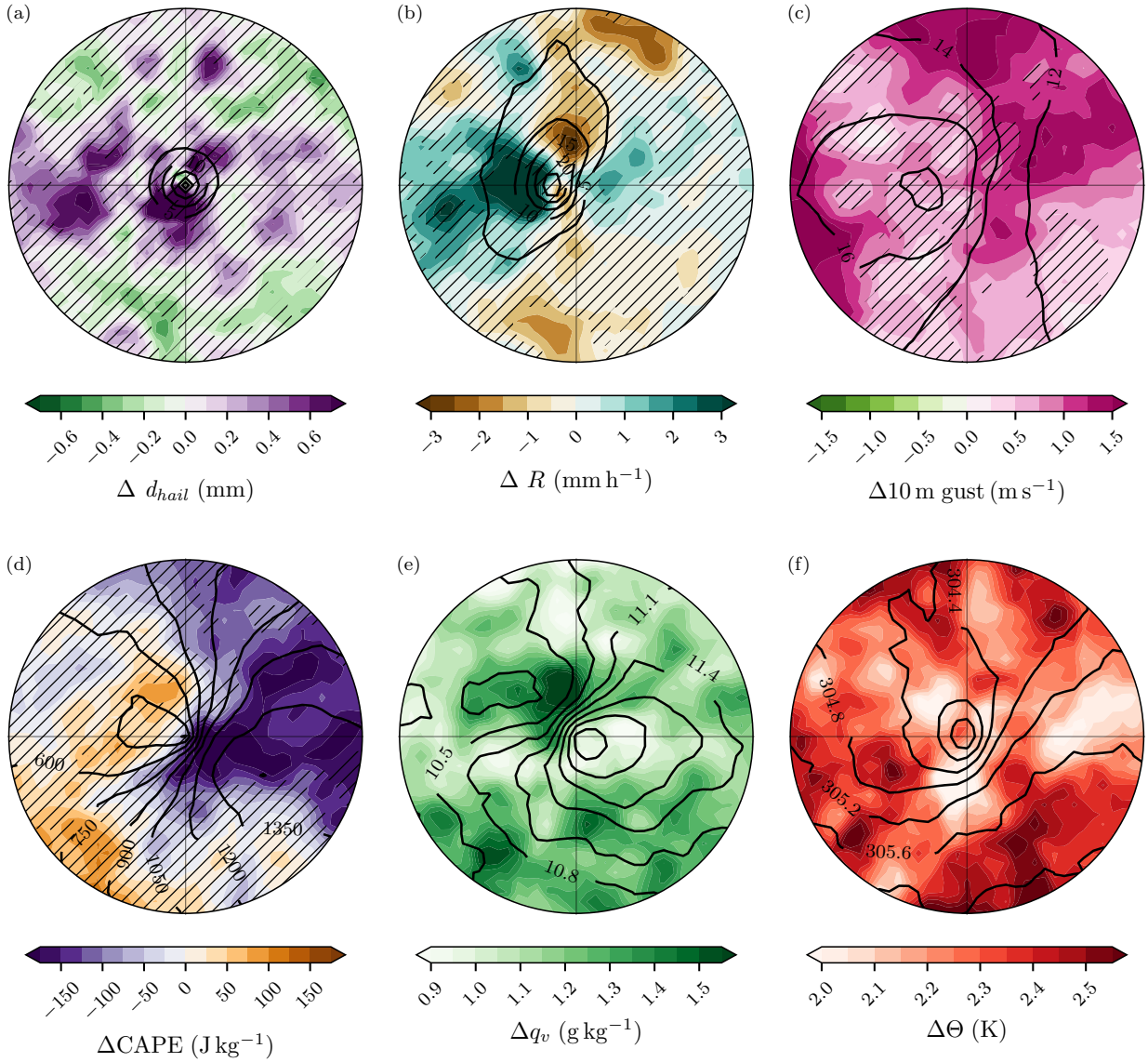


**Figure S12.** Analogous to Fig. 6 in the main text but for the Iberian Peninsula (IP) domain.

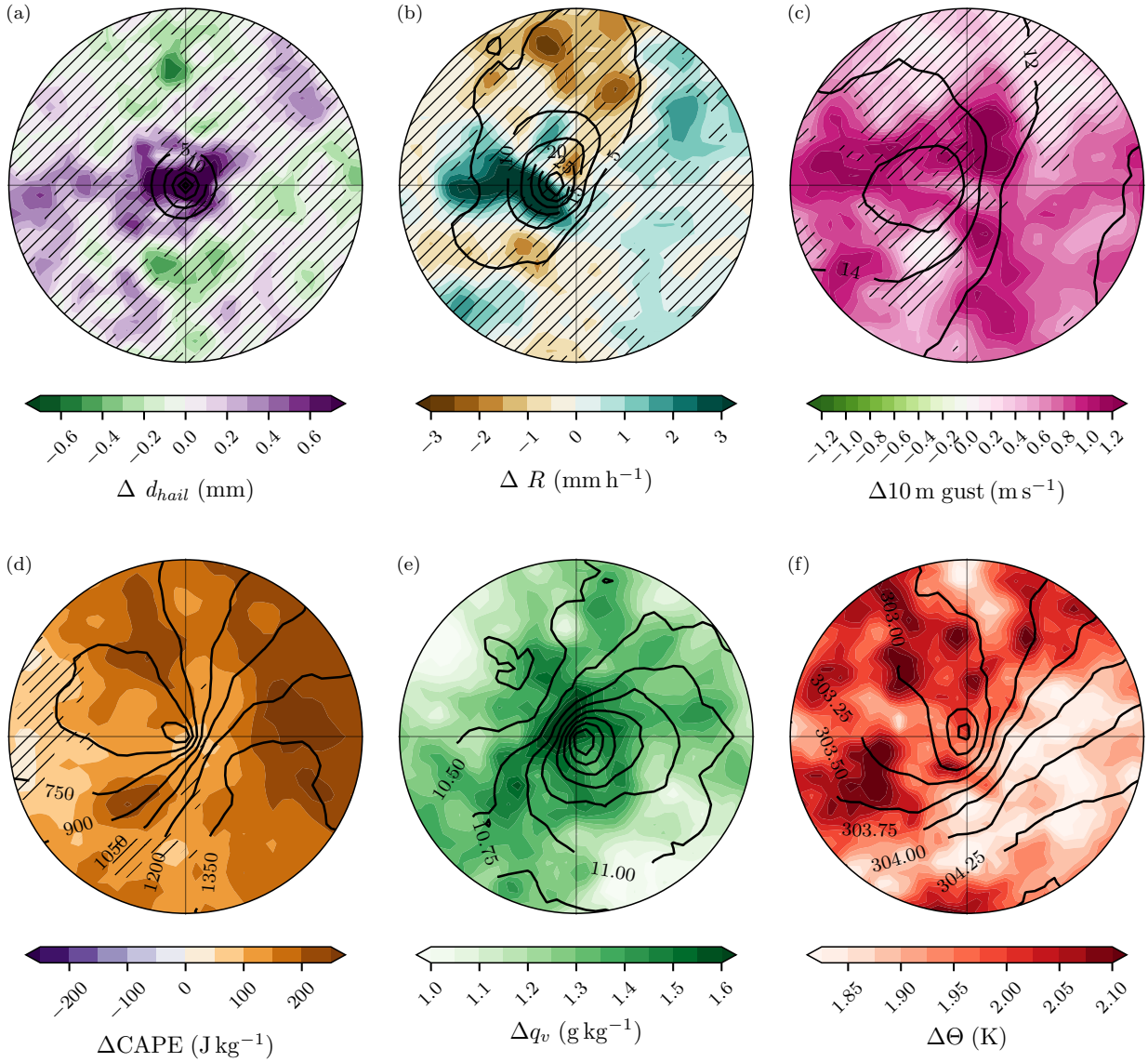


**Figure S13.** Analogous to Fig. 6 in the main text but for the Mediterranean (MD) domain.

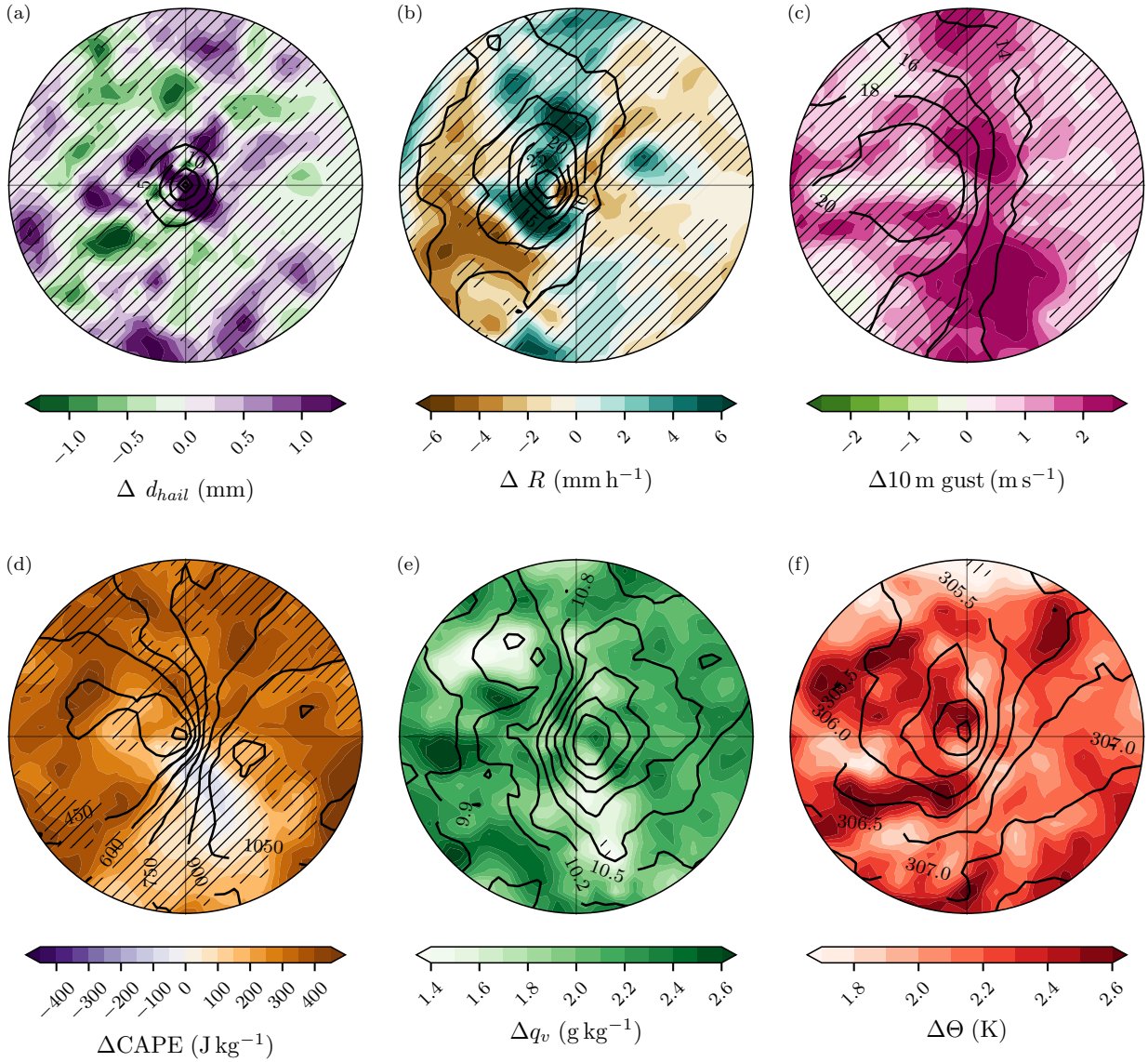


**Figure S14.** Analogous to Fig. 6 in the main text but for the North Africa (NA) domain.

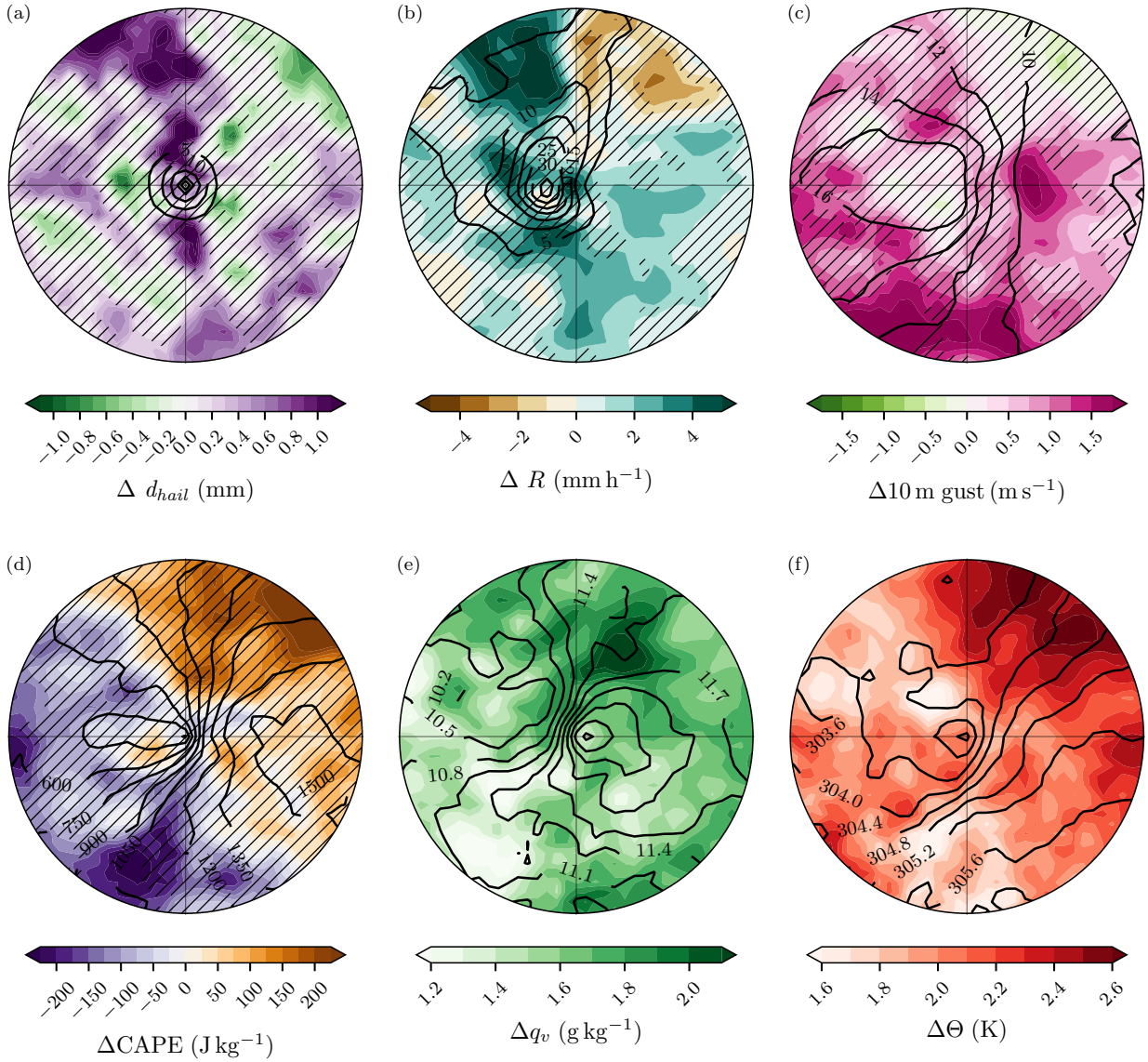


**Figure S15.** Analogous to Fig. 6 in the main text but for the North Alpine (NAL) domain.

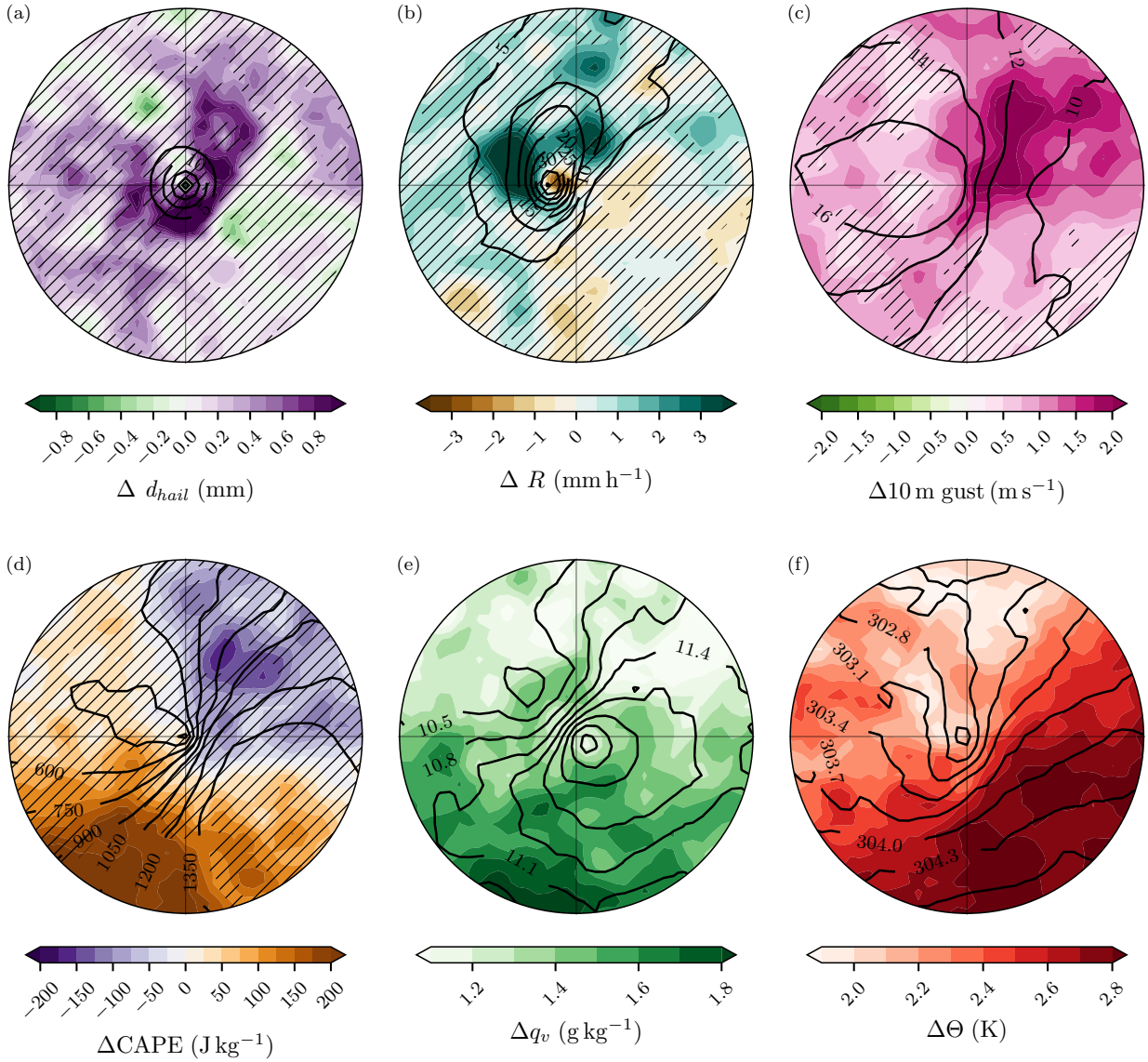


**Figure S16.** Analogous to Fig. 6 in the main text but for the South Alpine (SAL) domain.

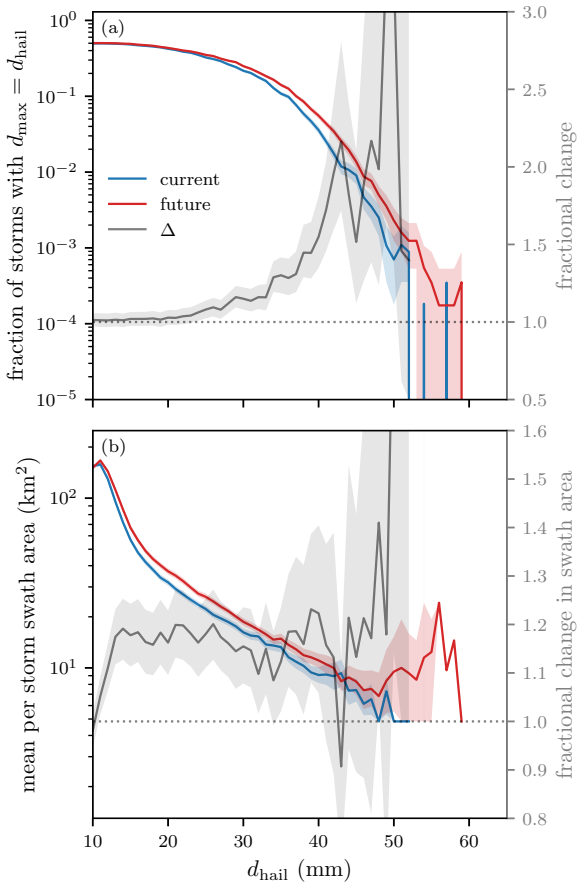


**Figure S17.** Analogous to Fig. 4 in the main text but for the Alpine (AL) domain.

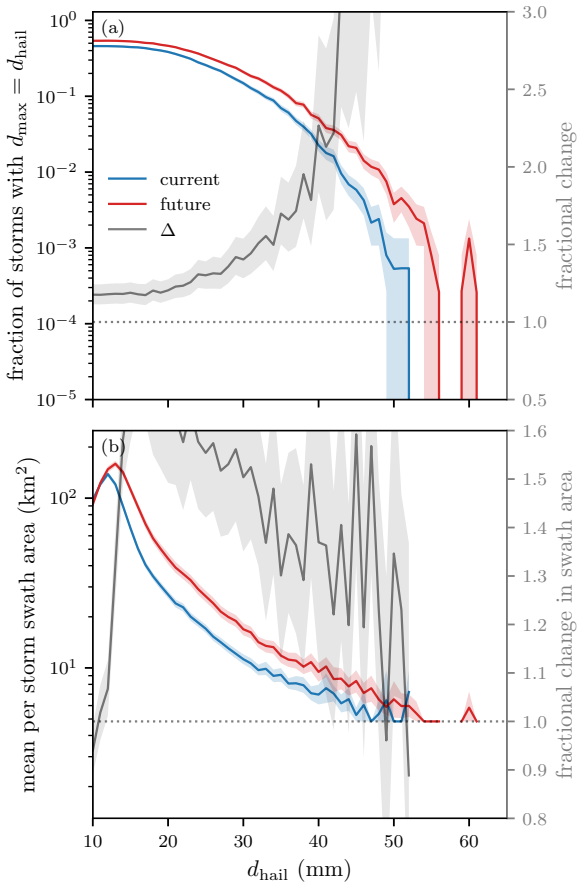


**Figure S18.** Analogous to Fig. 4 in the main text but for the Baltic (BA) domain.

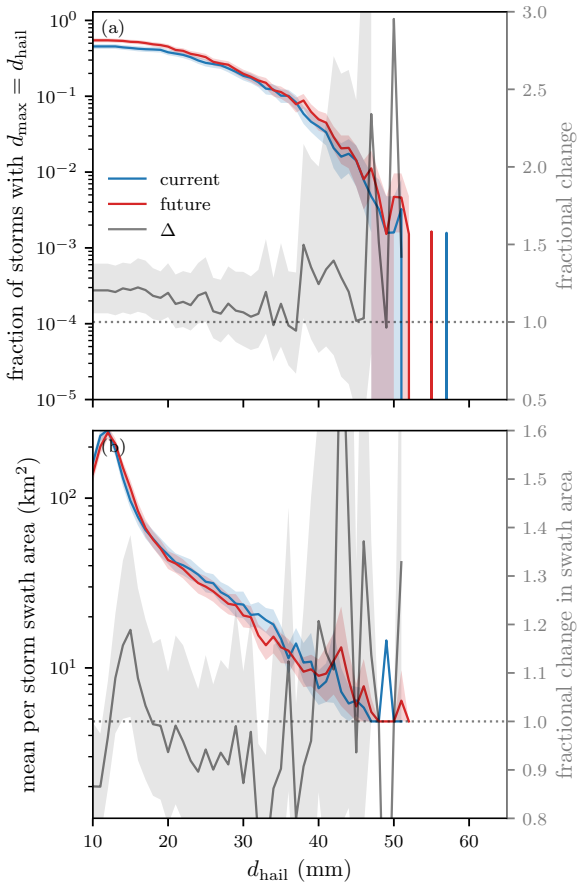


**Figure S19.** Analogous to Fig. 4 in the main text but for the British Iles (BI) domain.

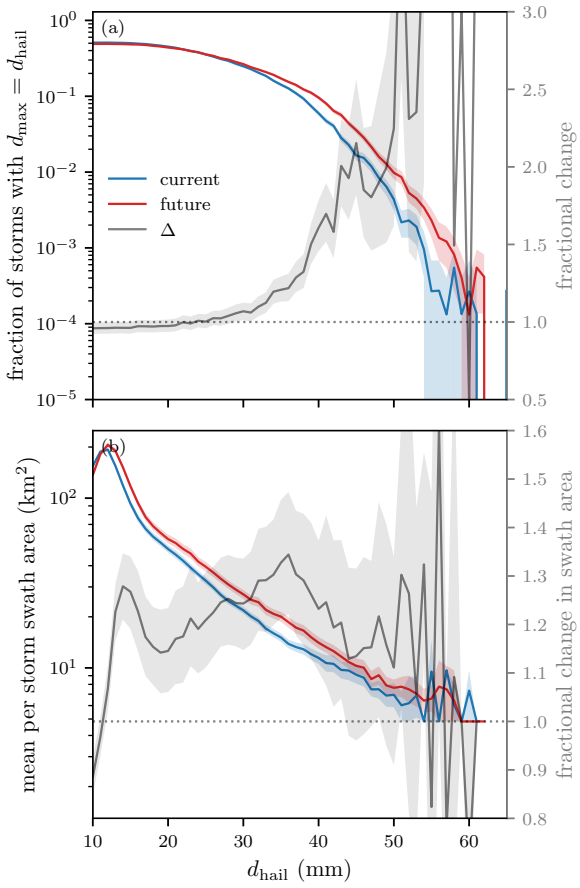


**Figure S20.** Analogous to Fig. 4 in the main text but for the Central Europe (CE) domain.

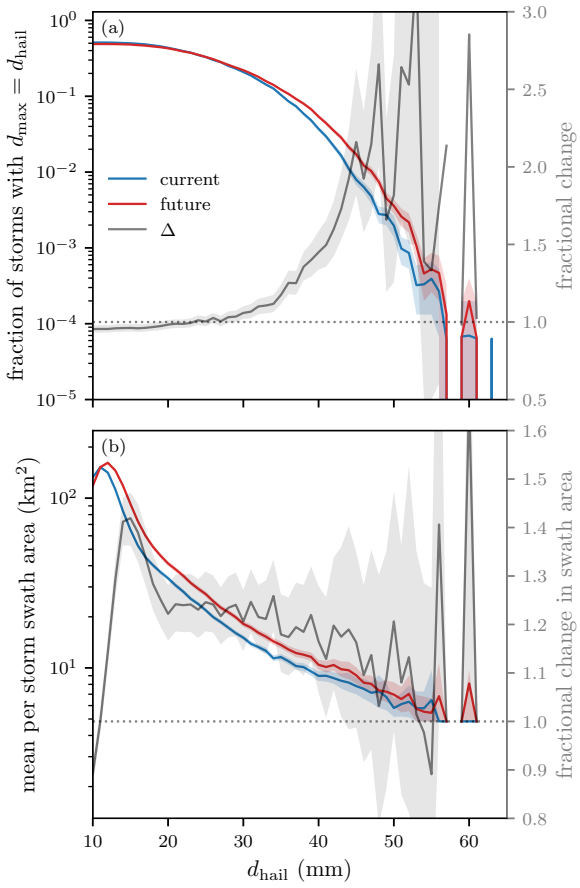


**Figure S21.** Analogous to Fig. 4 in the main text but for the Eastern Europe (EE) domain.

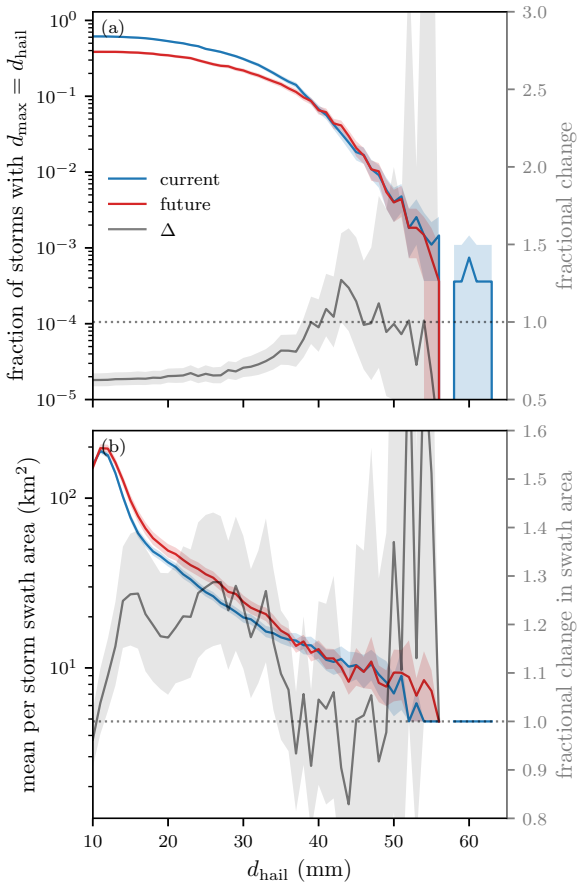


**Figure S22.** Analogous to Fig. 4 in the main text but for the France (FR) domain.

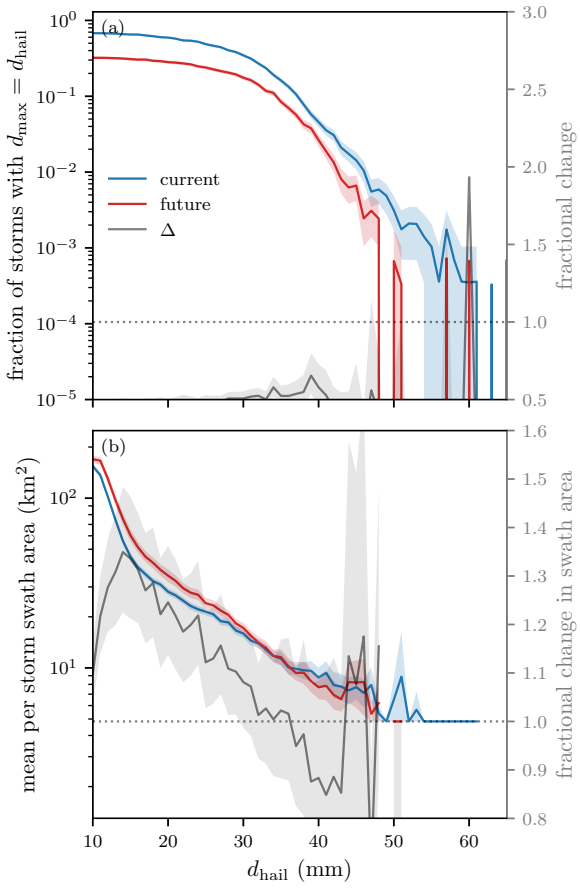


**Figure S23.** Analogous to Fig. 4 in the main text but for the Iberian Peninsula (IP) domain.

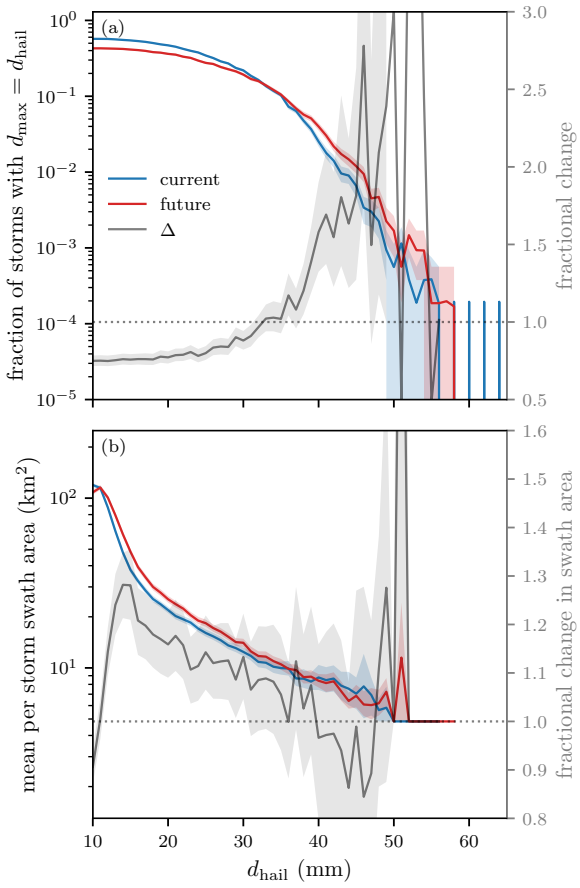


**Figure S24.** Analogous to Fig. 4 in the main text but for the Mediterranean Land (MDL) domain.

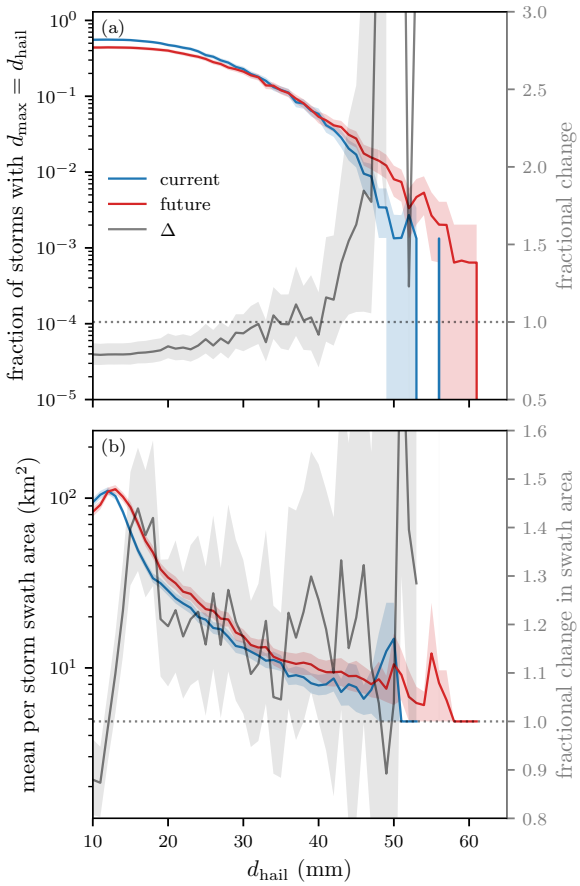


**Figure S25.** Analogous to Fig. 4 in the main text but for the Mediterranean Sea (MDS) domain.

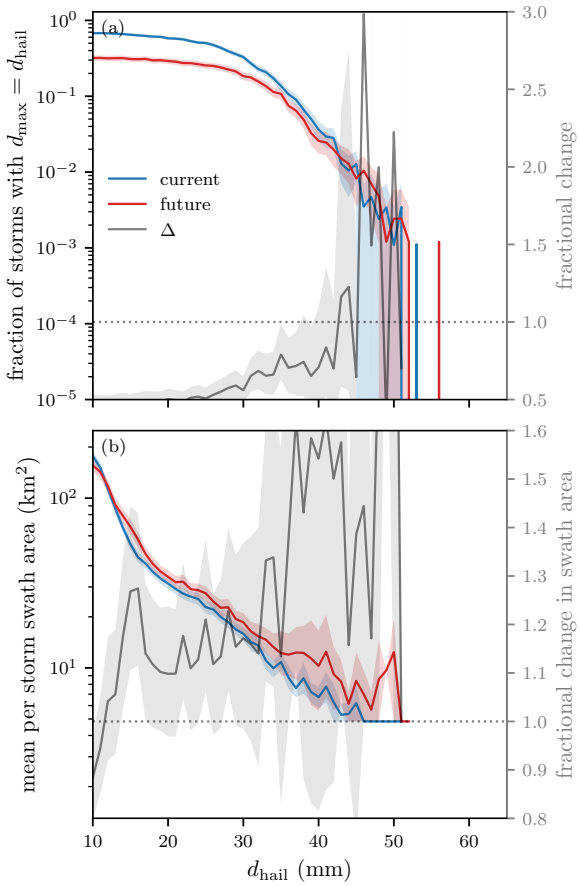


**Figure S26.** Analogous to Fig. 4 in the main text but for the North Africa (NA) domain.

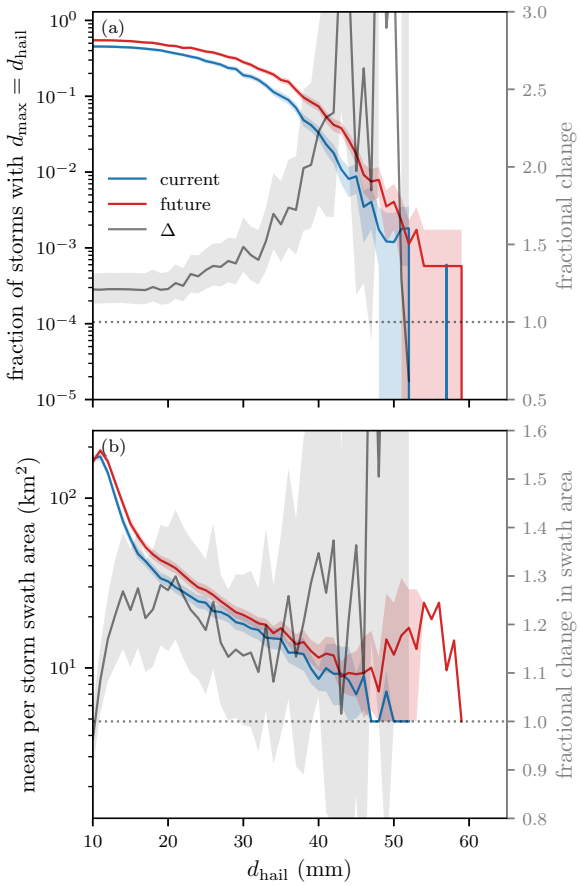


**Figure S27.** Analogous to Fig. 4 in the main text but for the North Alpine (NAL) domain.

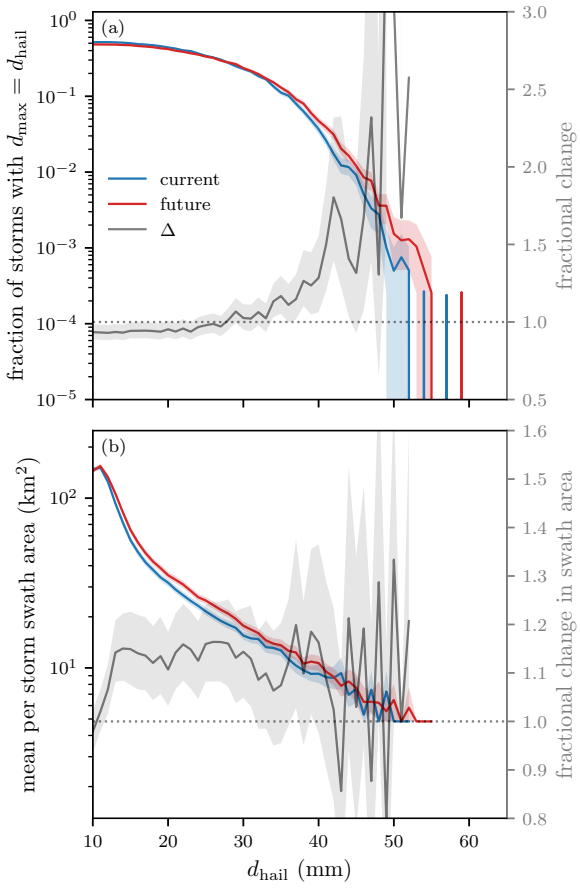


**Figure S28.** Analogous to Fig. 4 in the main text but for the South Alpine (SAL) domain.