



Supplement of

How intense daily precipitation depends on temperature and the occurrence of specific weather systems – an investigation with ERA5 reanalyses in the extratropical Northern Hemisphere

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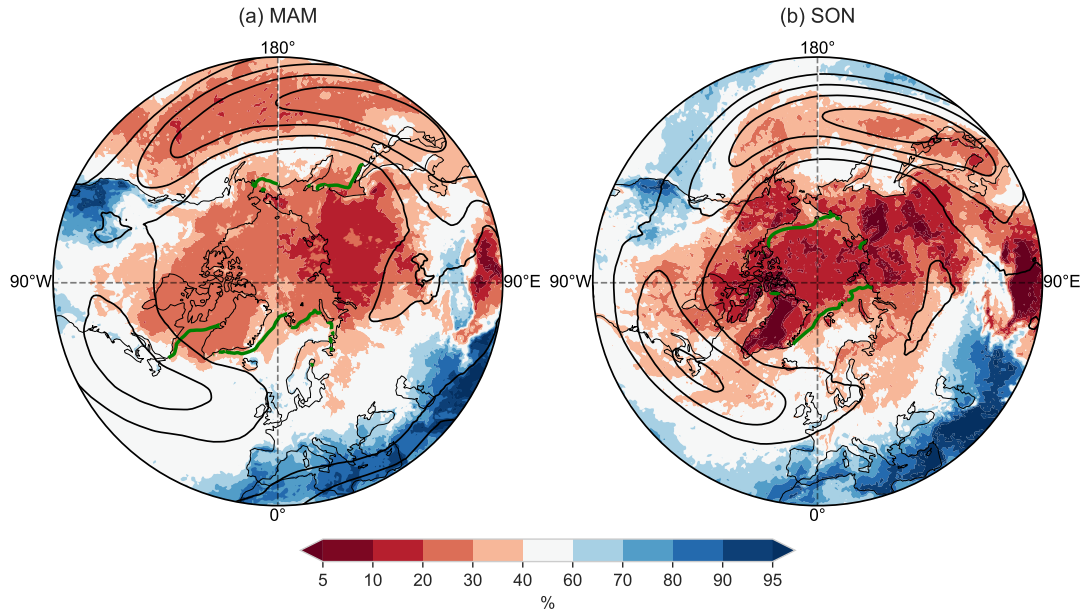
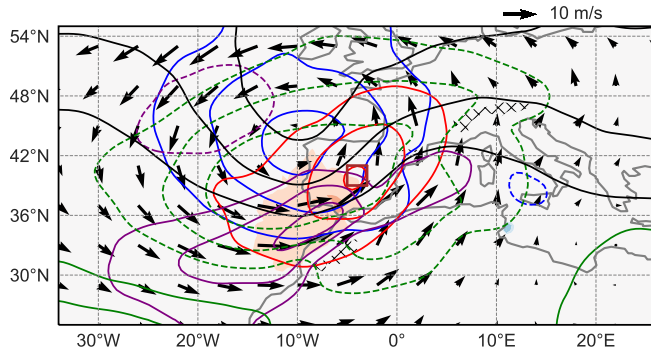


Figure S1. Fraction of wet days below the median of the local 2-m temperature distribution (WBM measure, see Section 2.1) in (a) spring (MAM) and (b) autumn (SON). Black contours depict windspeed at 300 hPa starting from 25 m s^{-1} in 5 m s^{-1} increments, and the green contour illustrates the climatological sea ice concentration of 50%.

(a) IBP



(b) W-US

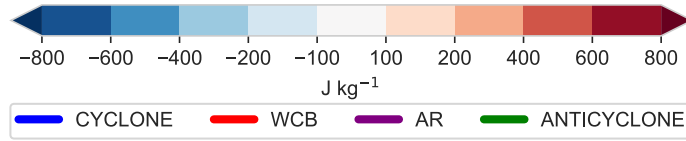
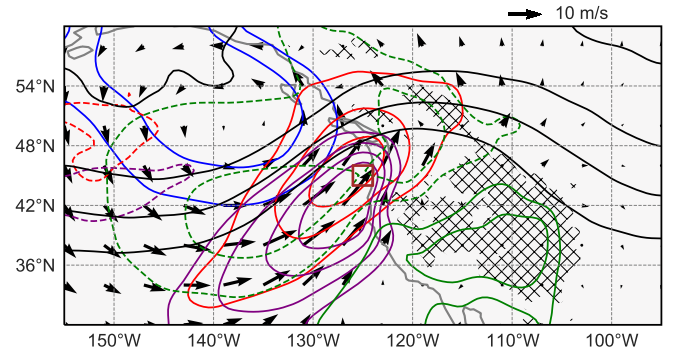
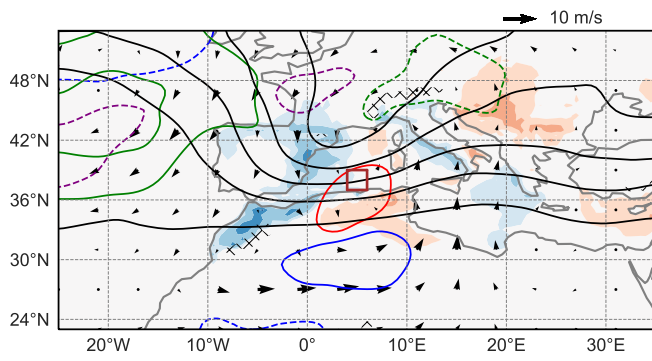


Figure S2. Composites for wet days in winter in the regions (a) IBP and (b) W-US. Coloured contours show frequency anomalies of cyclones (blue), warm conveyor belts (red), atmospheric rivers (purple) and anticyclones (green) for values of -40, -30, -20, -10, 10, 20, 30 and 40 %. The arrows mark the anomalous wind at 850 hPa. The black line illustrates upper-level PV at 320 K, starting from 2 pvu in 1 pvu increments. Colour shading denotes anomalies of daily maximum CAPE. All anomalies are calculated with respect to the seasonal mean climatology and the hatching marks altitudes of 1500 m. The contours of the weather features have been smoothed with a Gaussian filter.

(a) MED



(b) W-US

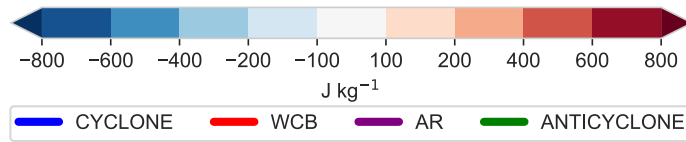
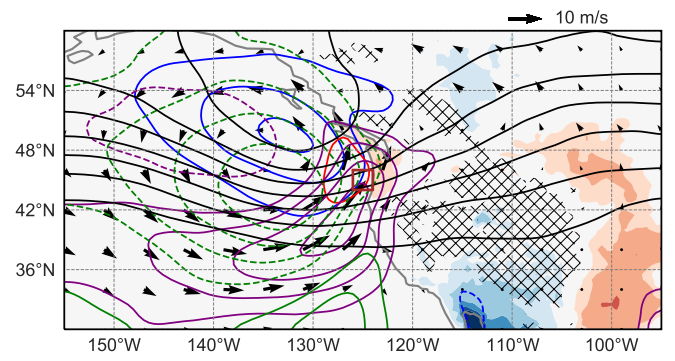


Figure S3. Same as Fig. S2, but for summer in (a) MED and (b) W-US. The black contours denote PV at 340 K.

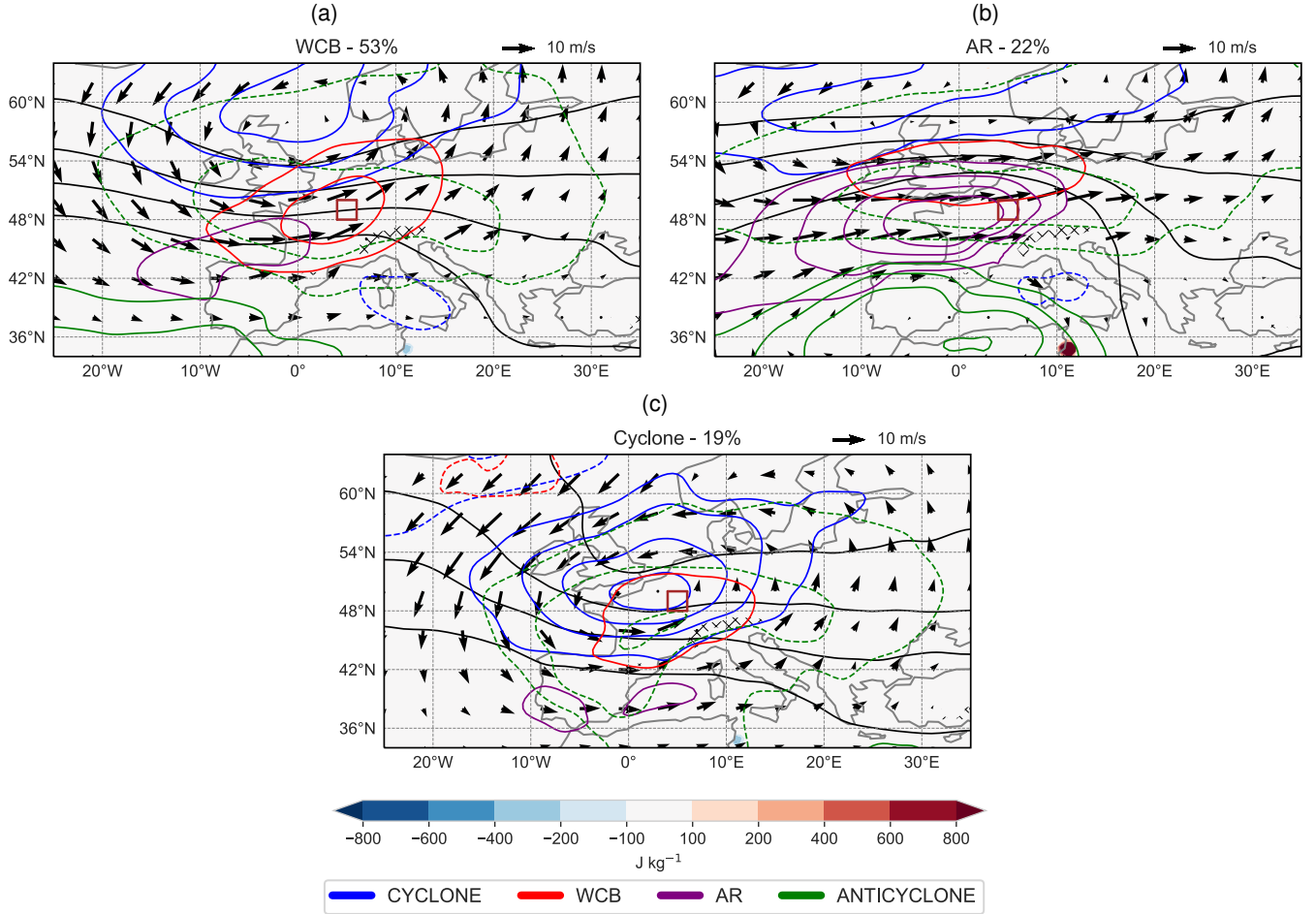


Figure S4. Composites similar to Fig. S2, but for wet days in C-EU in winter that are dominated by a specific weather system (indicated at the top of the respective figures). The percentage shows how many wet days are dominated by the respective weather system. Wet days dominated by (a) warm conveyor belts, (b) atmospheric rivers, and (c) cyclones. The arrows and contours are the same as in Fig. S2.

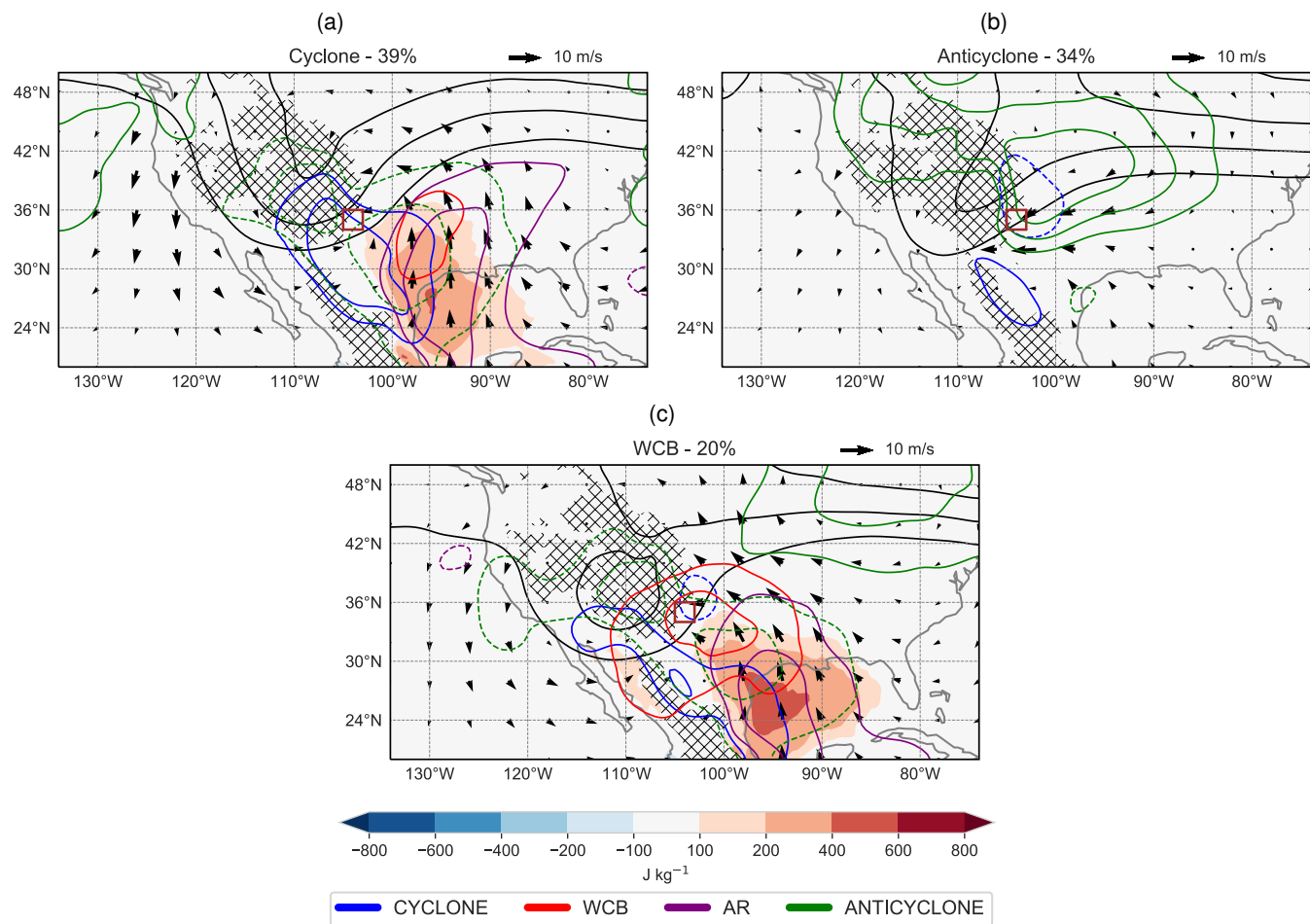


Figure S5. Same as Fig. S4, but for winter in C-US. Wet days dominated by (a) cyclones, (b) anticyclones, and (c) warm conveyor belts.

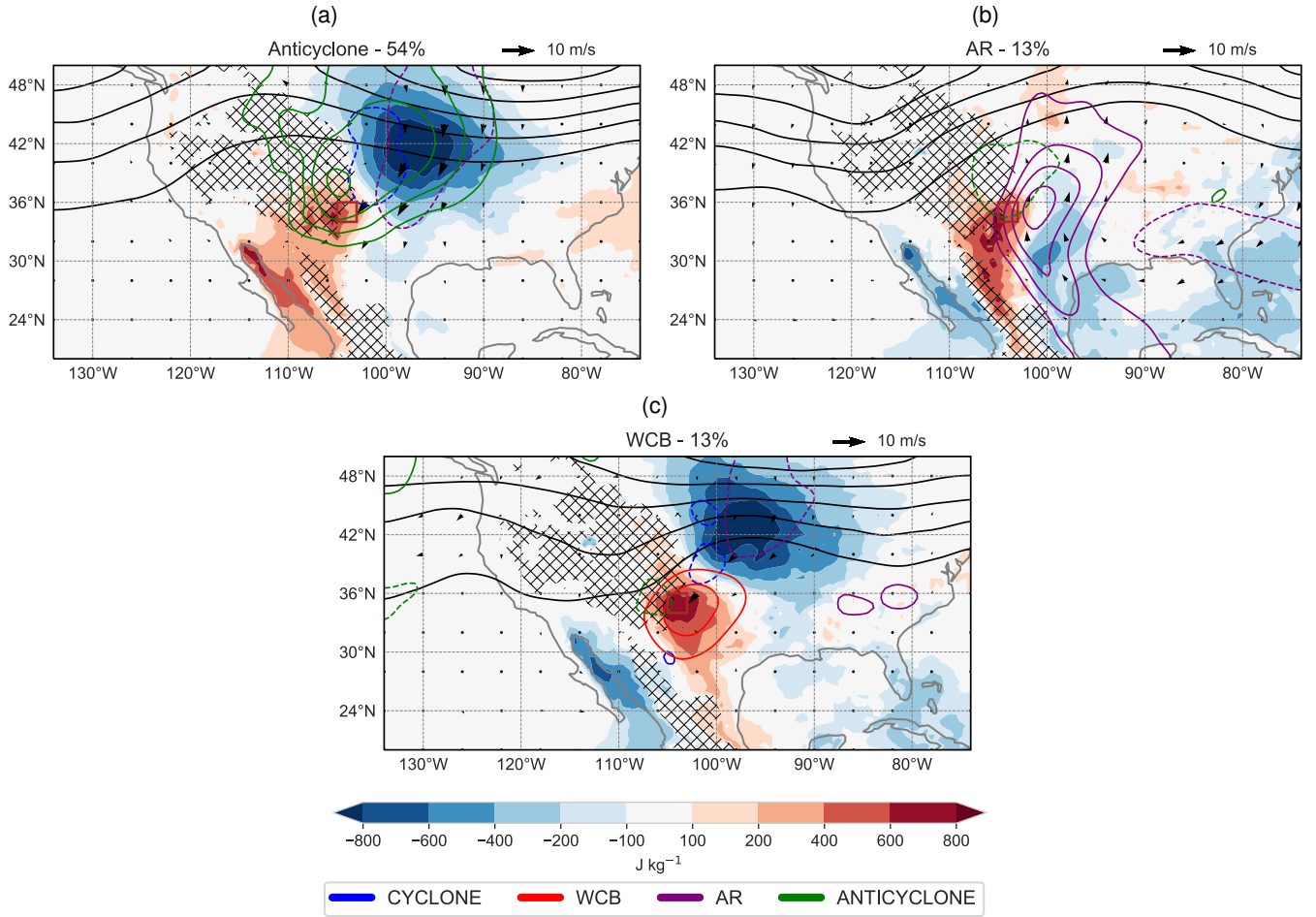


Figure S6. Same as Fig. S4, but for summer in C-US. Wet days dominated by (a) anticyclones, (b) atmospheric rivers, and (c) warm conveyor belts. The black contours denote PV at 340 K.