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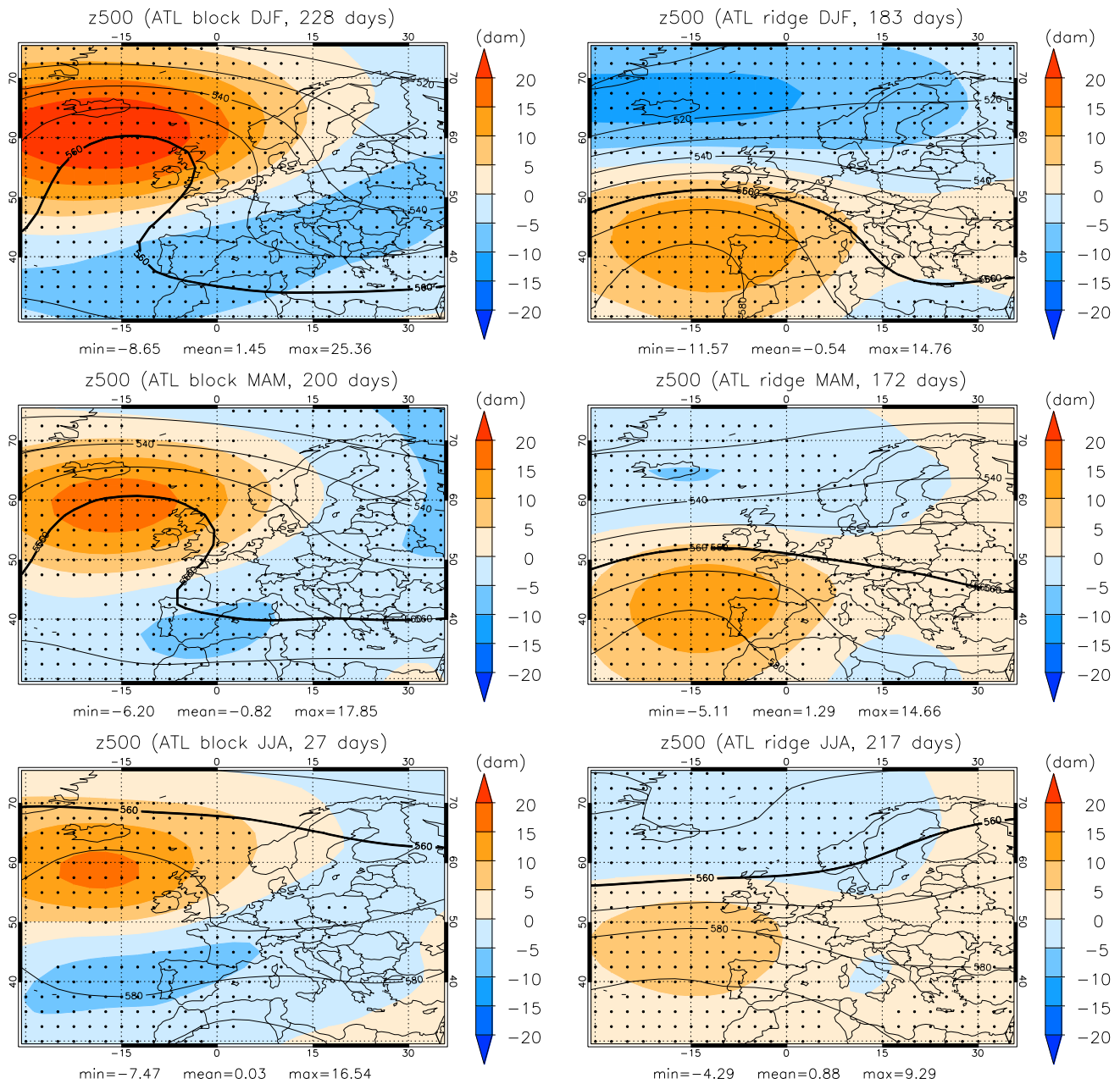
Supplementary Material

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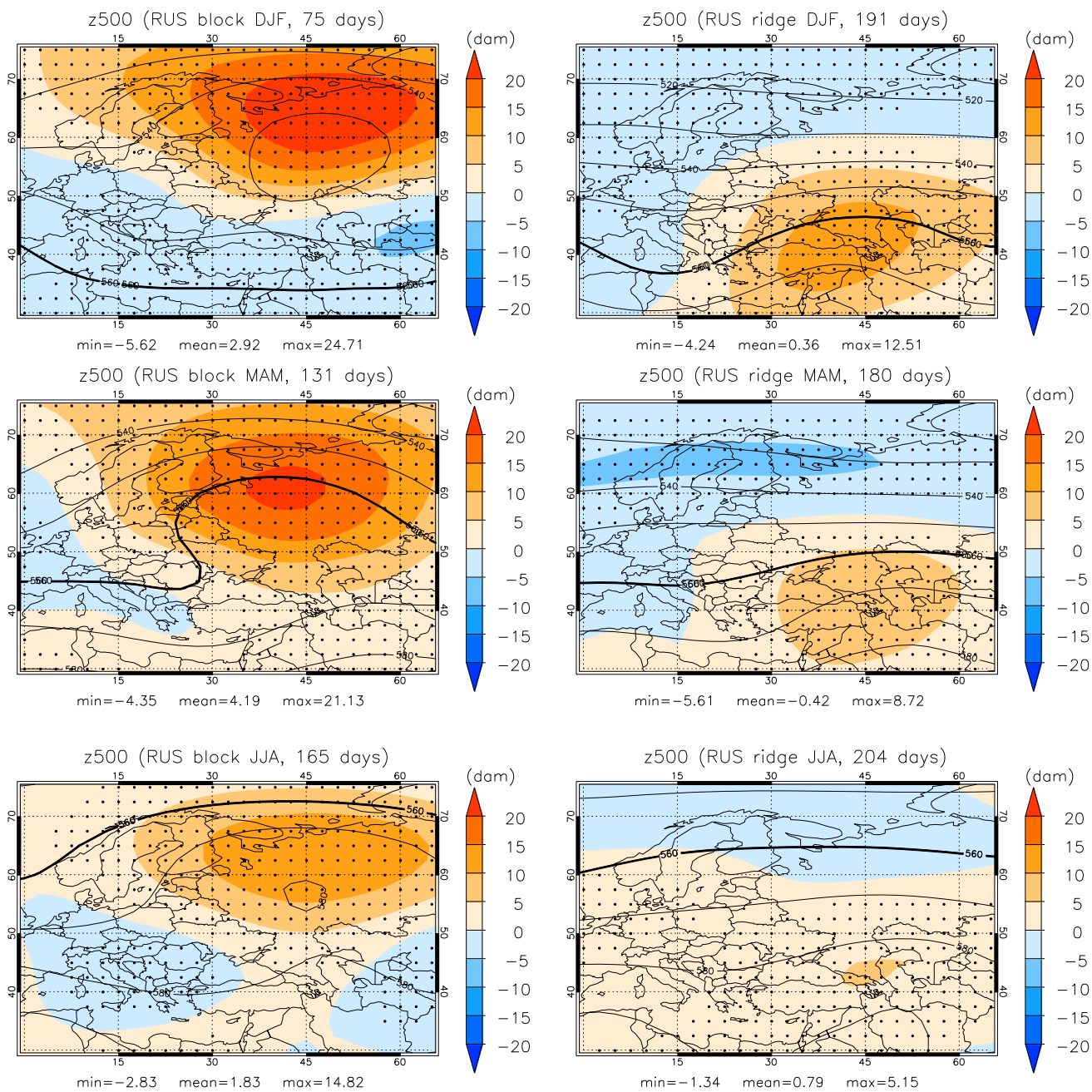
Regional responses of surface ozone in Europe to the location of high-latitude blocks and subtropical ridges

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5 Figure S1. Composites of the daily anomalies with respect to the 1998–2012 climatology (shaded areas) as well as absolute values (black contour lines) of 500 hPa geopotential height (Z500) for blocking (left) and ridge (right) centres within the Atlantic sector in winter (top), spring (middle) and summer (bottom). Stippling indicates statistically significant anomalies at the 5 % level (two-sided t-test). All values are in decametres (dam) and the thick line represents the 560 dam isohypse. The total number of days considered is indicated on the top of each panel.



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Figure S2. As Figure S1 but for blocks and ridges over the Russian sector.

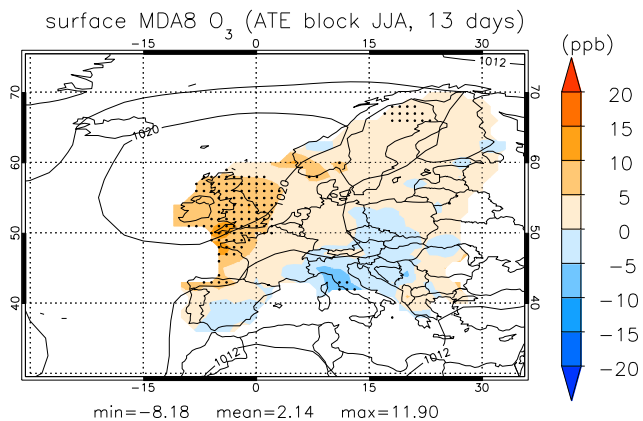
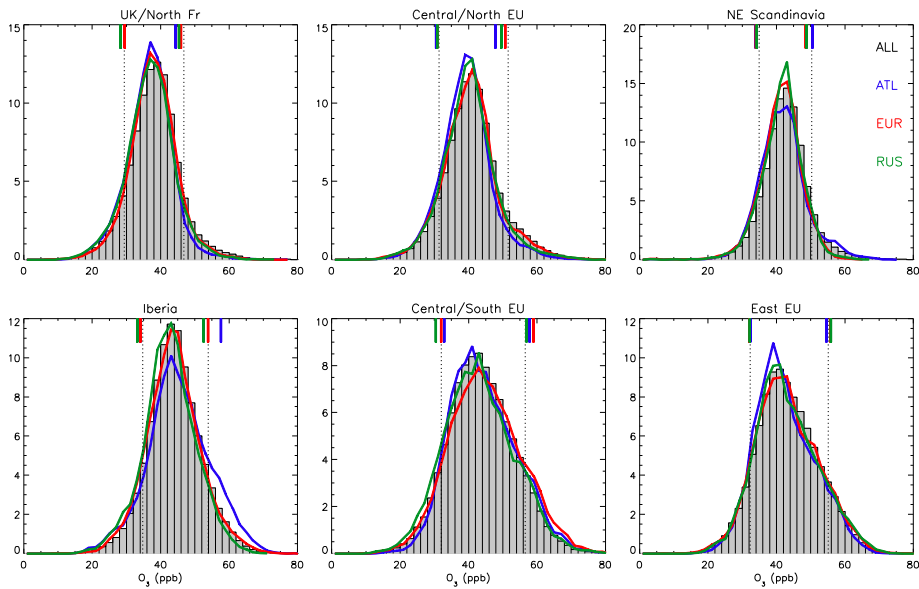


Figure S3. Composites of the seasonal anomalies of surface MDA8 O₃ (ppb) for days with blocking centres over the east flank of the Atlantic sector (15°–0° W) in summer. Anomalies have been calculated with respect to the MDA8 O₃ mixing ratios on days without blocking in that sector and season during the 1998–2012 period. Stippling indicates statistically significant anomalies at the 5 % level (two-sided t-test). The black contour lines depict the composites of MSLP (hPa) for those days. The total number of days considered is indicated on the top.

Subtropical ridges (spring)



Subtropical ridges (summer)

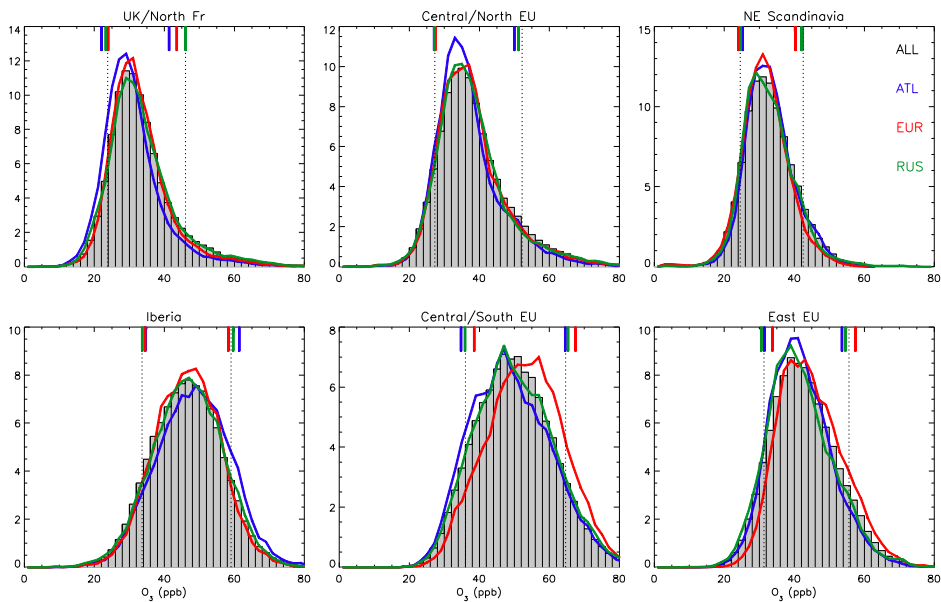
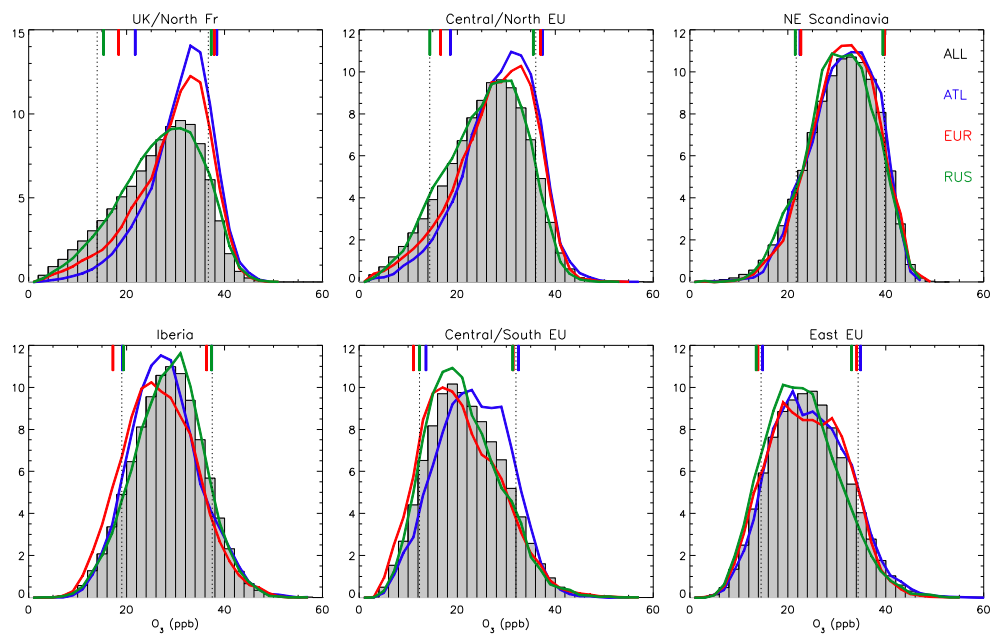


Figure S4. Spring (upper panels) and summer (lower panels) frequency distributions (%) of MDA8 O₃ for the six regional boxes presented in Figure 2 of the main text under different synoptic situations. Grey bars denote the seasonal climatology and solid lines correspond to days with subtropical ridges over the Atlantic (blue), European (red) and Russian (green) sectors.

Subtropical ridges (winter)



5 Figure S5. As Figure S4 but for winter.