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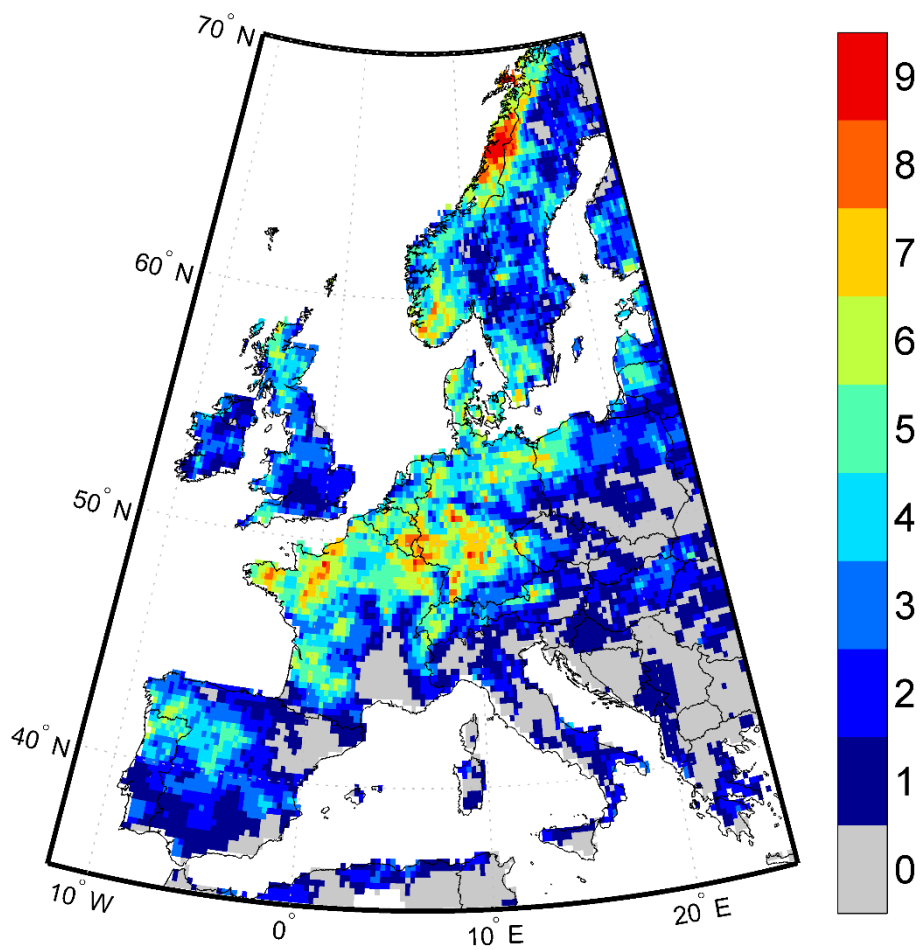
*Supplement of*

## **Atmospheric rivers moisture sources from a Lagrangian perspective**

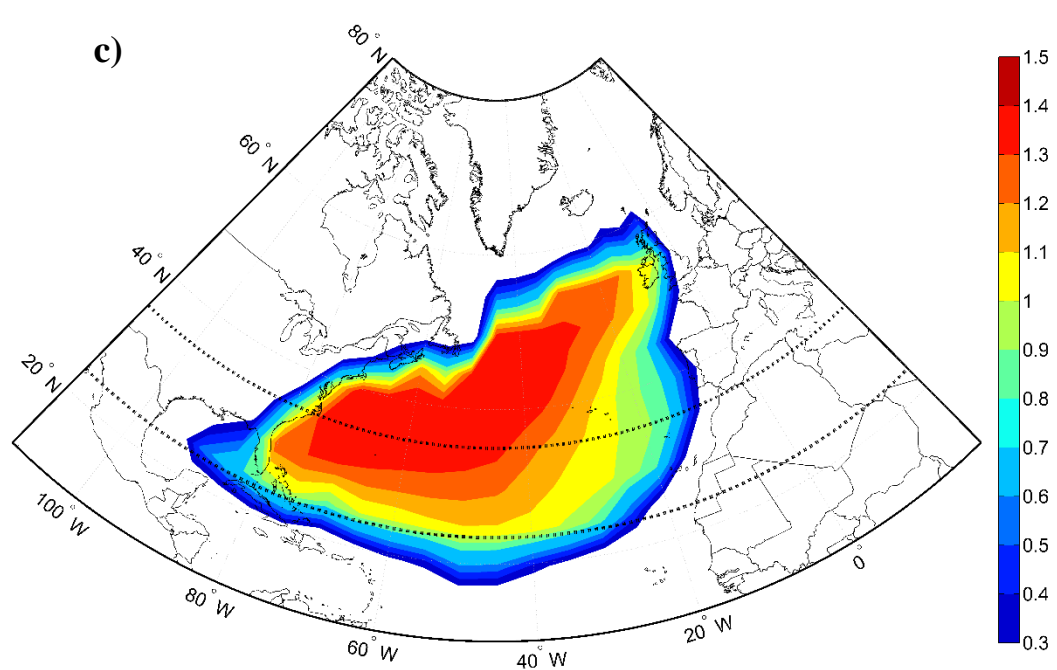
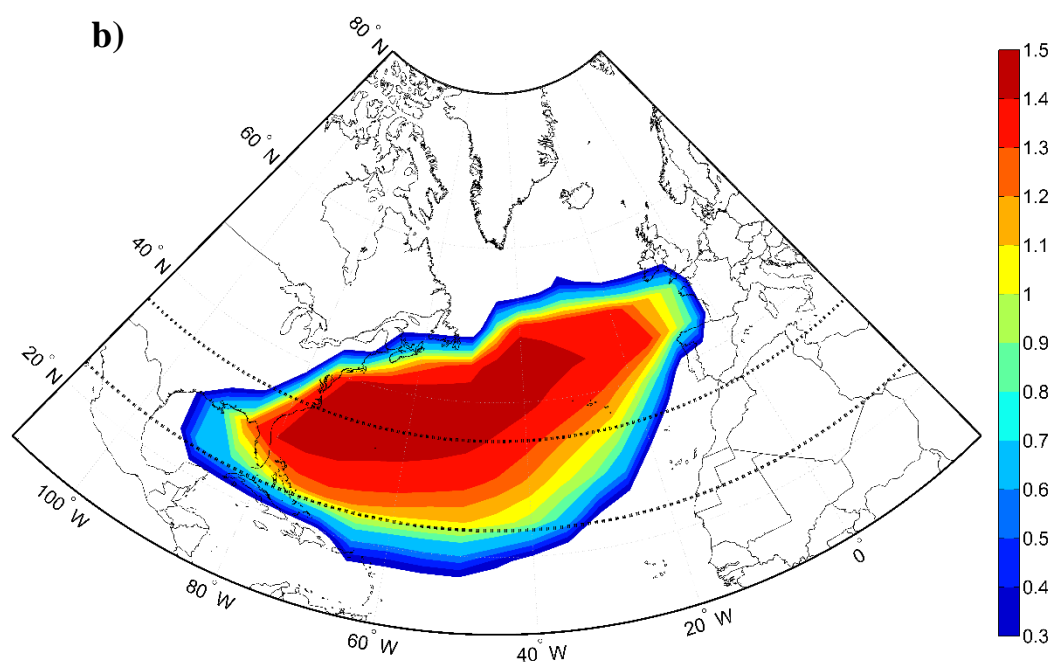
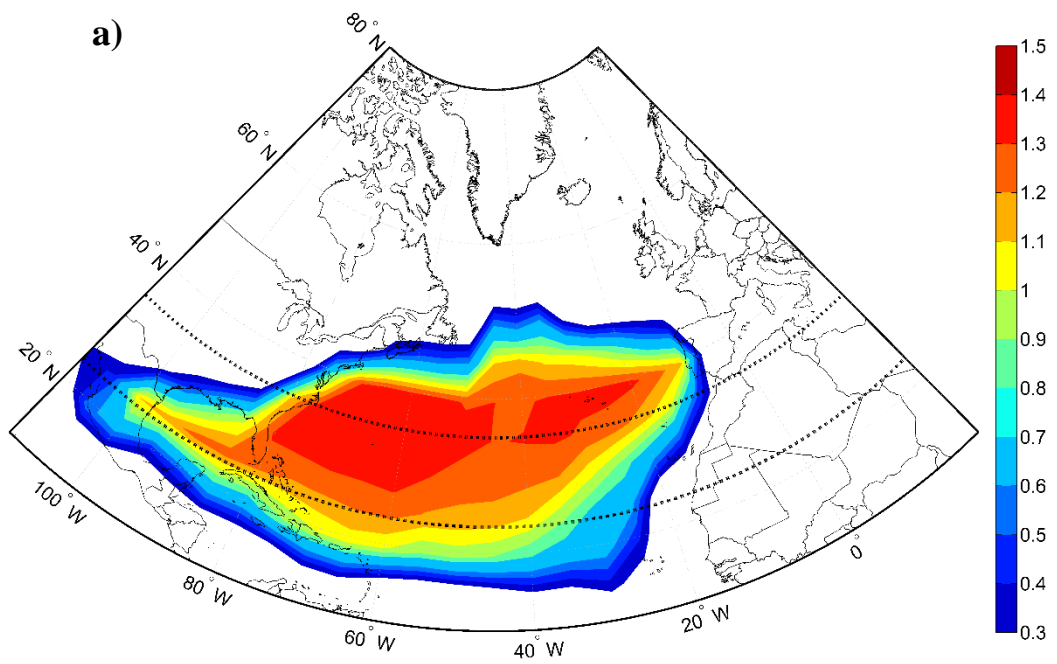
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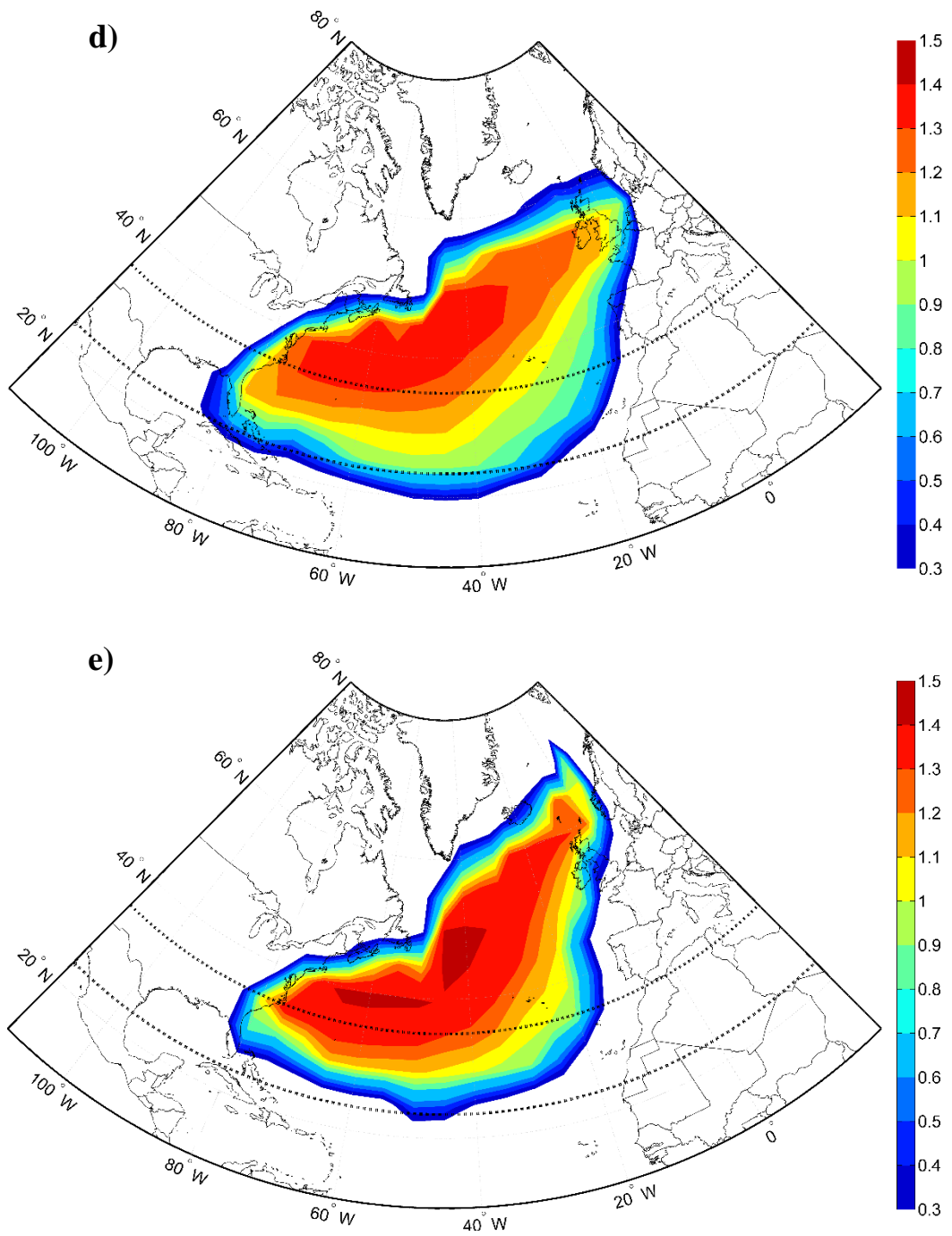
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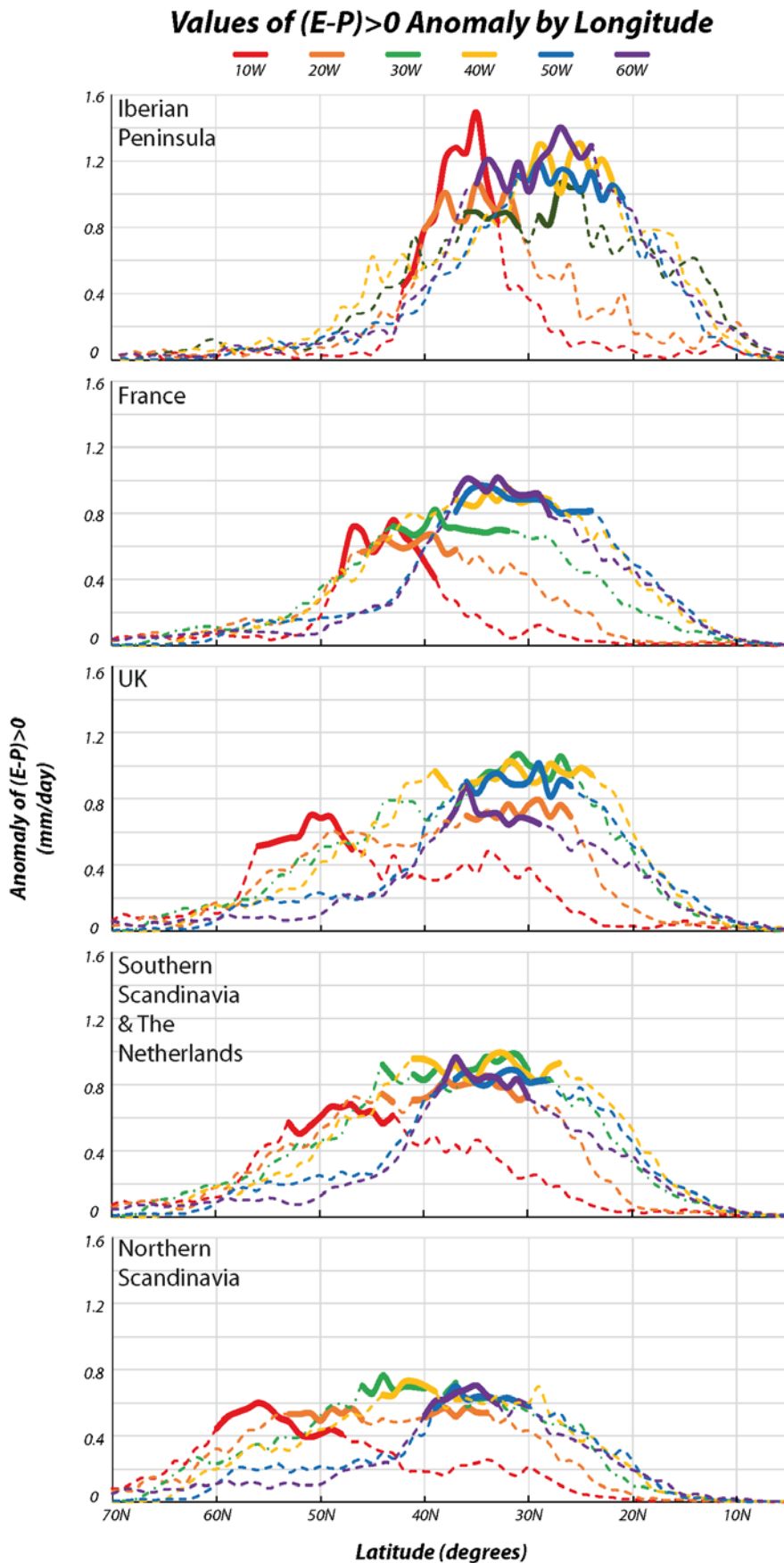


**Figure S1.** The number of Top 10 annual maxima precipitation events (for the extended winter months) related to Atmospheric Rivers.





**Figure S2.** Track density (%) of the air parcels used to compute the anomalous moisture uptake (at a 5° by 5° grid cell) for a) Iberian Peninsula, b) France, c) UK, d) South Scandinavia and the Netherlands, and e) North Scandinavia.



**Figure S3.** Longitudinal cross section of the anomaly values of  $(E-P) > 0$  field  $[(E-P)An]$  for each studied domain every 10 degrees:  $10^{\circ}W$  (red line),  $20^{\circ}W$  (orange),  $30^{\circ}W$  (green),  $40^{\circ}W$  (yellow),  $50^{\circ}W$  (blue), and  $60^{\circ}W$  (purple). The bold line shows those values over the 90th percentile of each series (values shown in Table 4). Units in mm/day.