

Supplement of

Droughts in western Central Europe and associated atmospheric circulation patterns since 1844

Emile Neimry et al.

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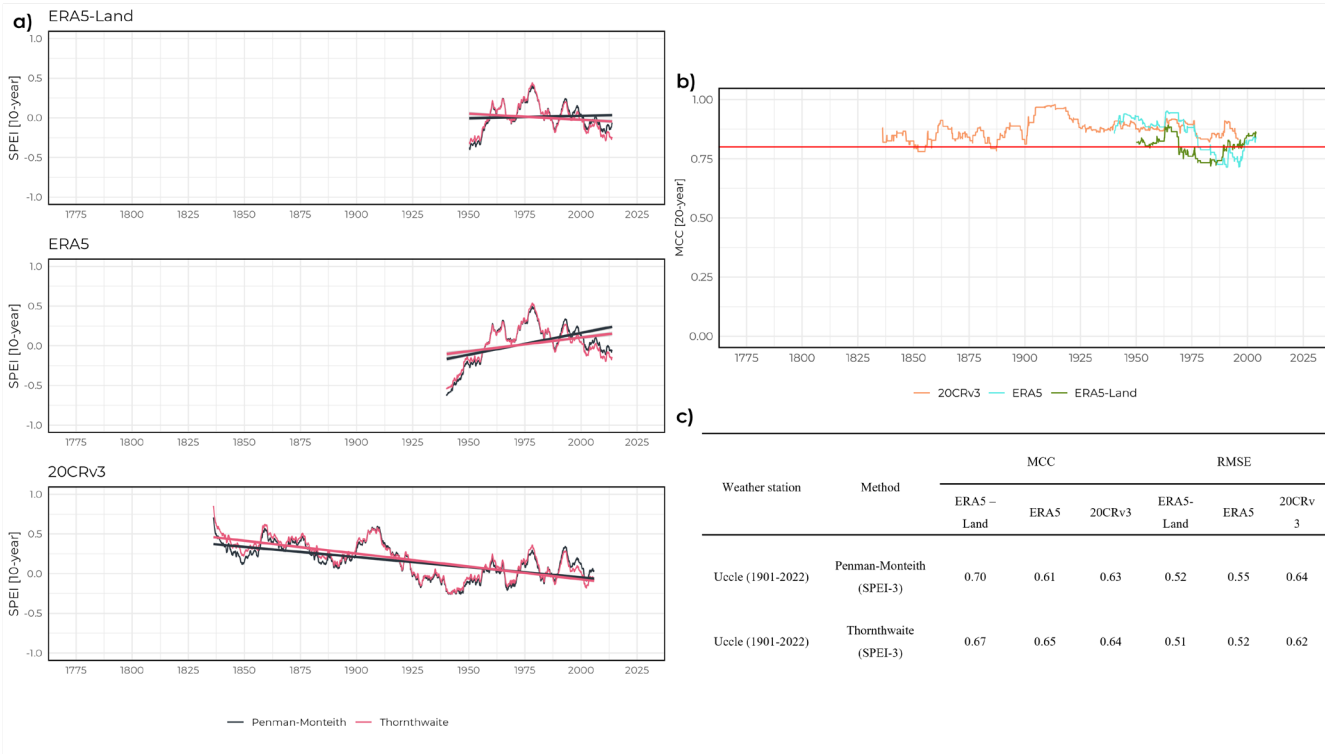


Figure S1: (a) Data evaluation indexes comparing SPEI-3-Penman-Monteith and SPEI-3-Thornthwaite, based on the Uccle weather station and reanalyses at the Uccle location. (b) 20-years left moving Matthew's Correlation Coefficient (MCC) of the classification of droughts between SPEI-3-Thornthwaite and SPEI-3-Penman-Monteith for each reanalysis. The red line represents the threshold (0.8), above which excellent agreement is achieved. (c) MCC and Root Mean Square Error (RMSE) of the reanalyses at the Uccle weather station for SPEI-3-Thornthwaite and SPEI-3-Penman-Monteith methods.

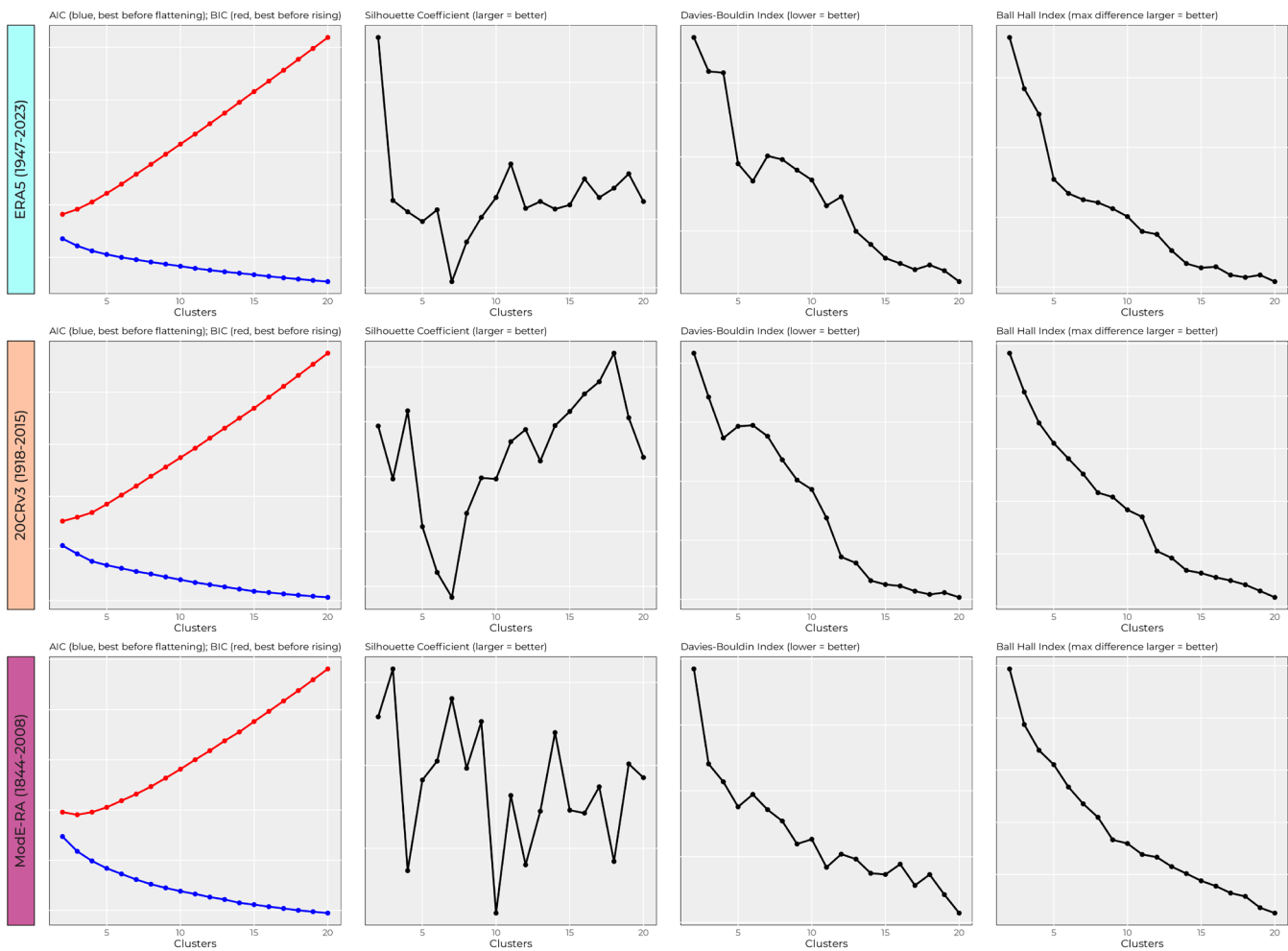


Figure S2: Clustering indexes from two to twenty k clusters, for each period-reanalysis (i.e. each row). The optimum criteria for each index is written in brackets.

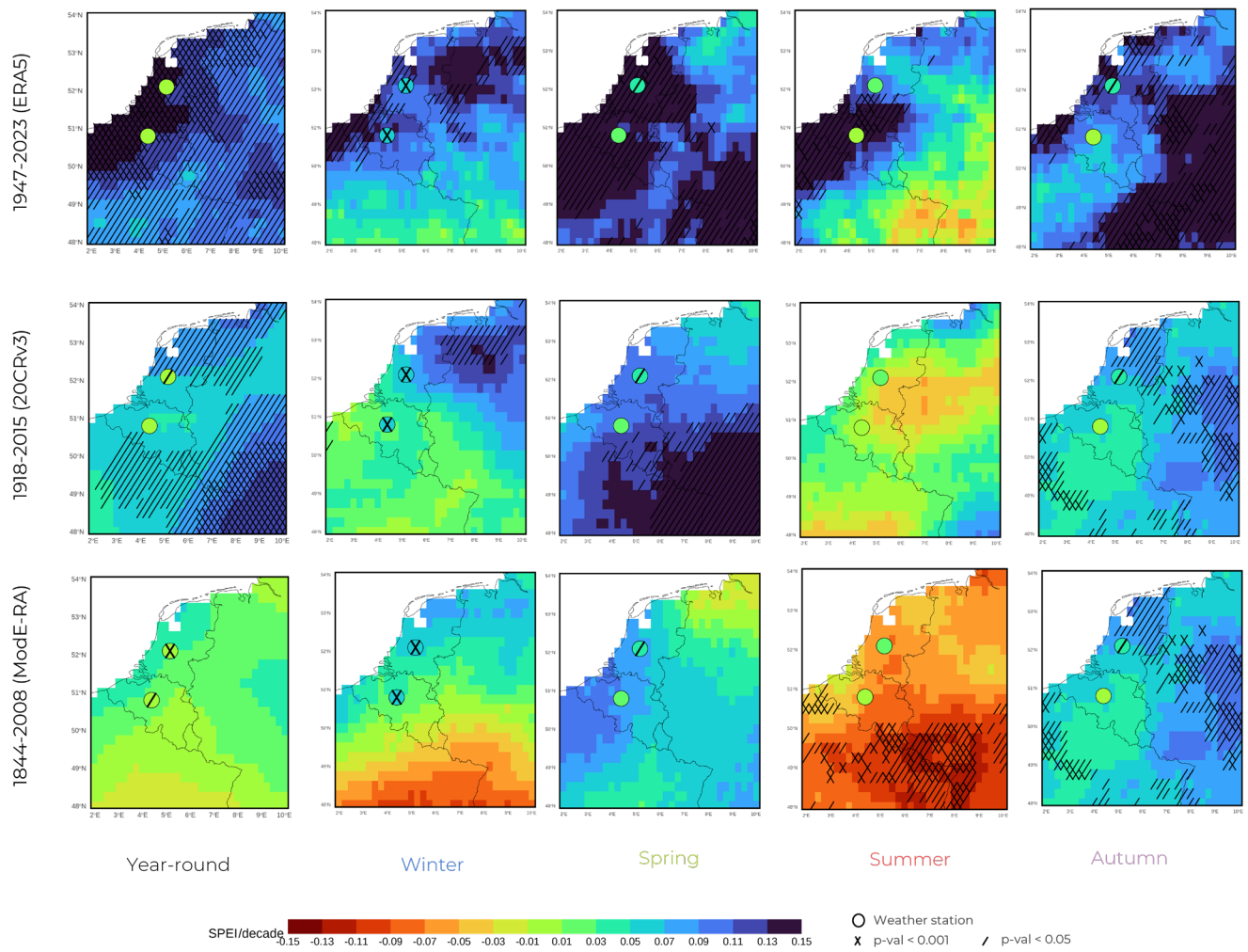
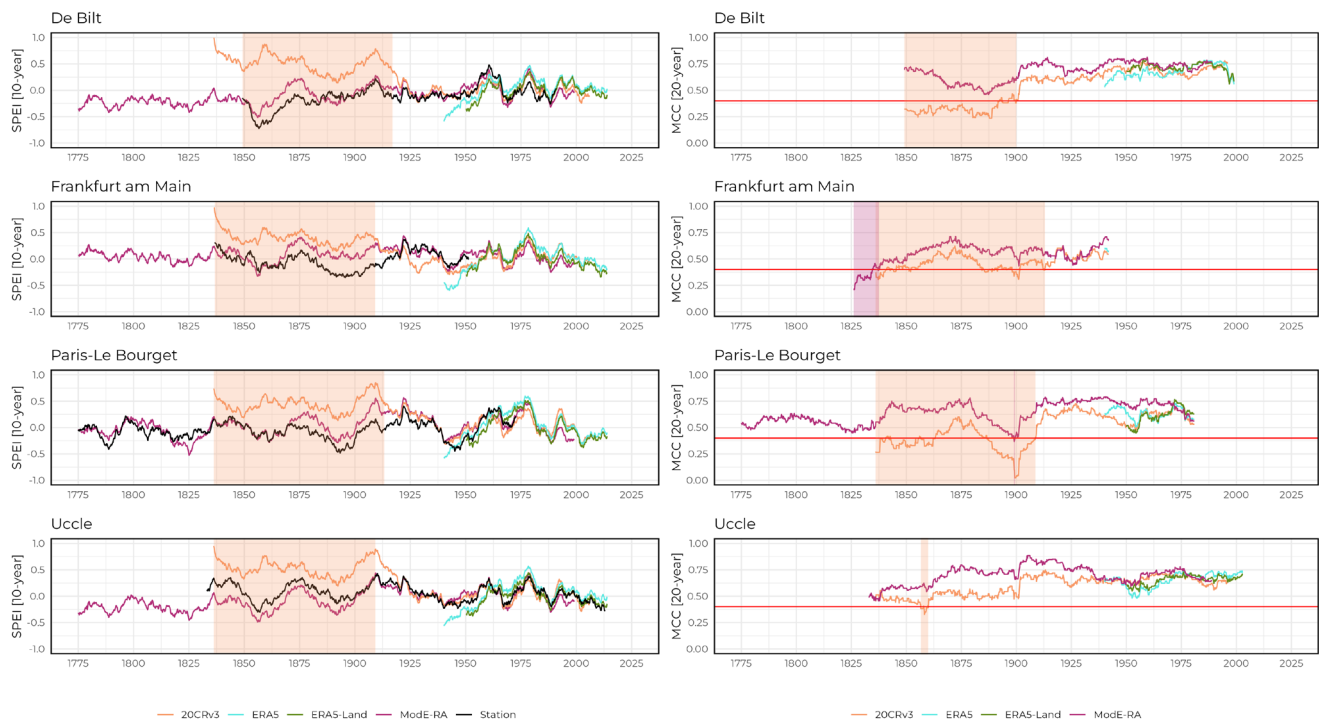


Figure S3: Year-round dryness trends (first column) and seasonal dryness trends (winter, spring, summer and autumn) (second to fifth column) during the reference period (1947-2008) for each period-reanalysis (i.e. each row) for SPEI-3. Circles represent the values of weather station data values.



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Figure S4: Same as Fig. 3, but for SPEI-3.

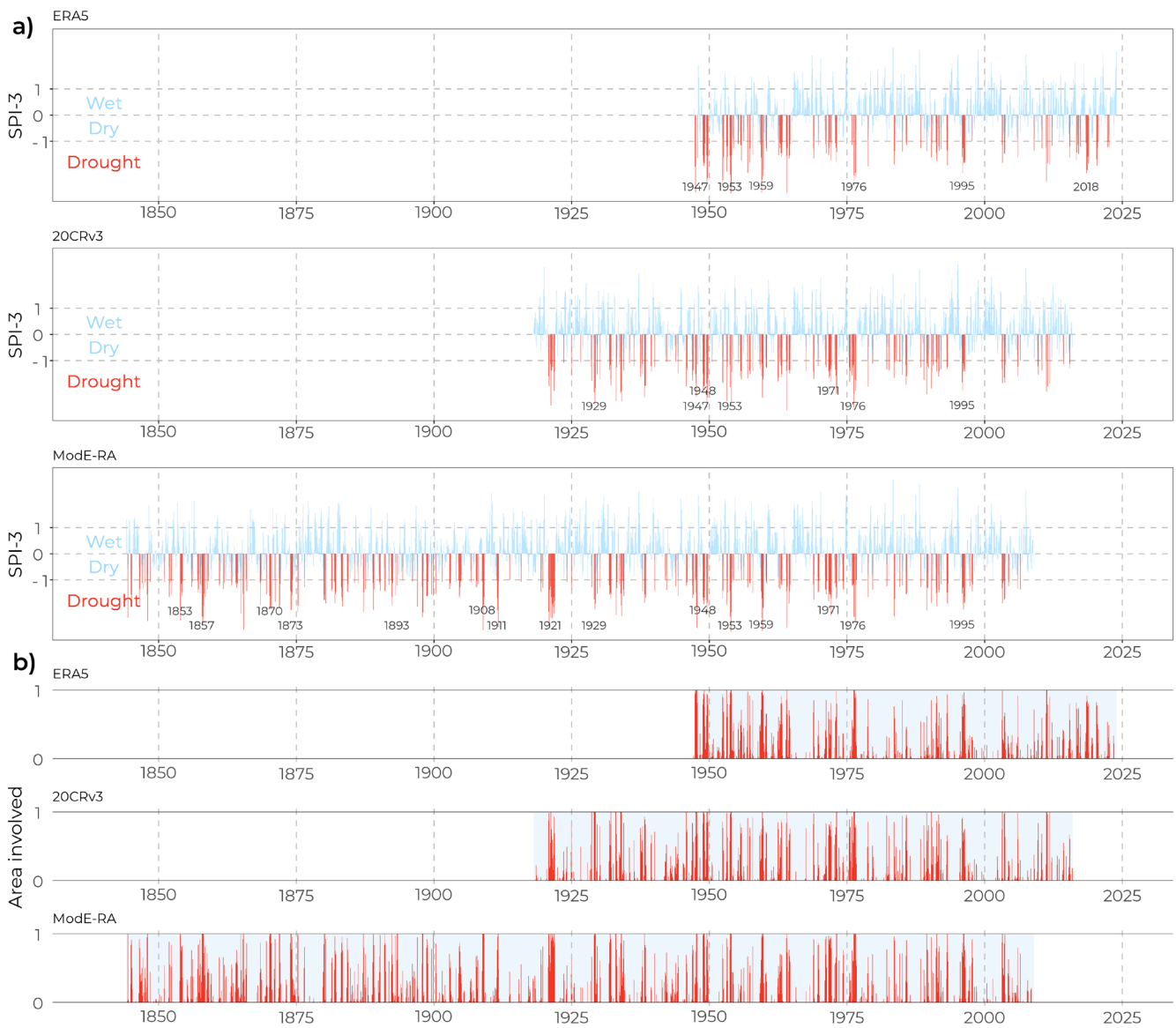
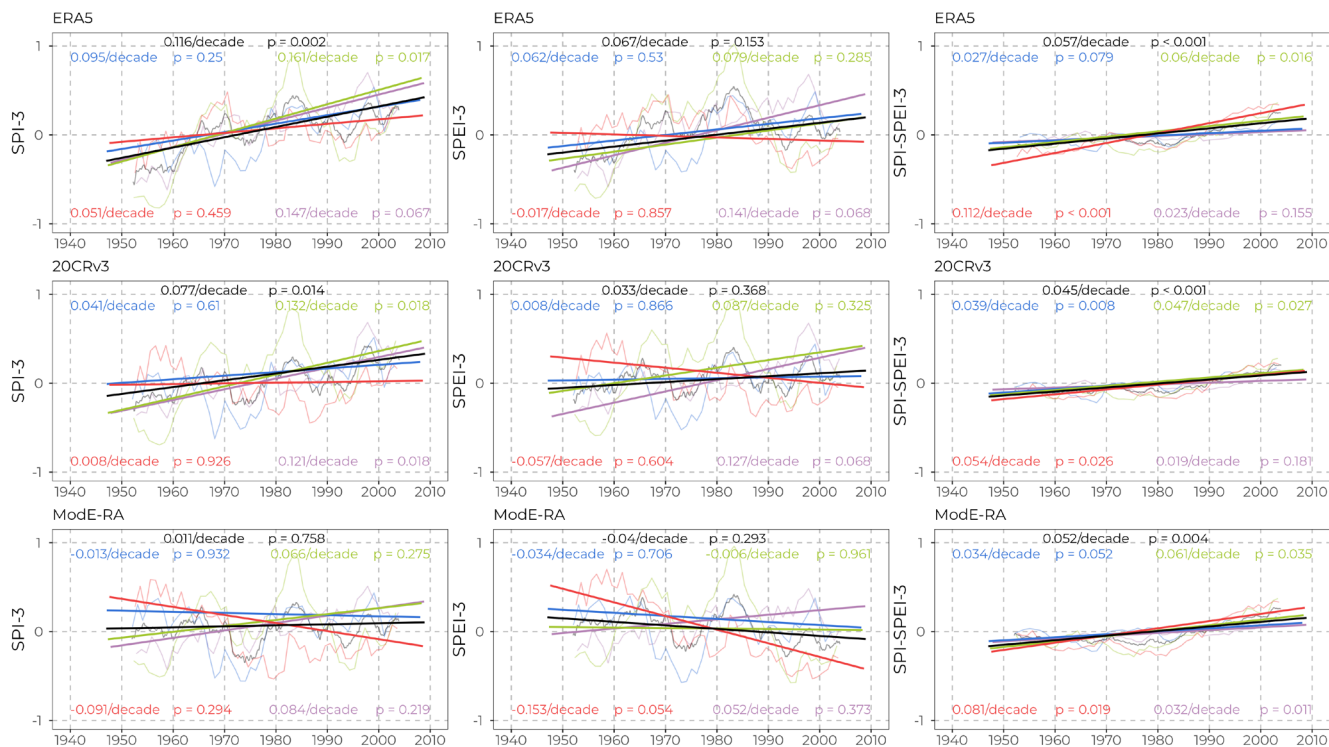


Figure S5: Same as Fig. 4, but for SPI-3.



25 Figure S6: Same as Fig. 6b, but over the common period (1947-2008).

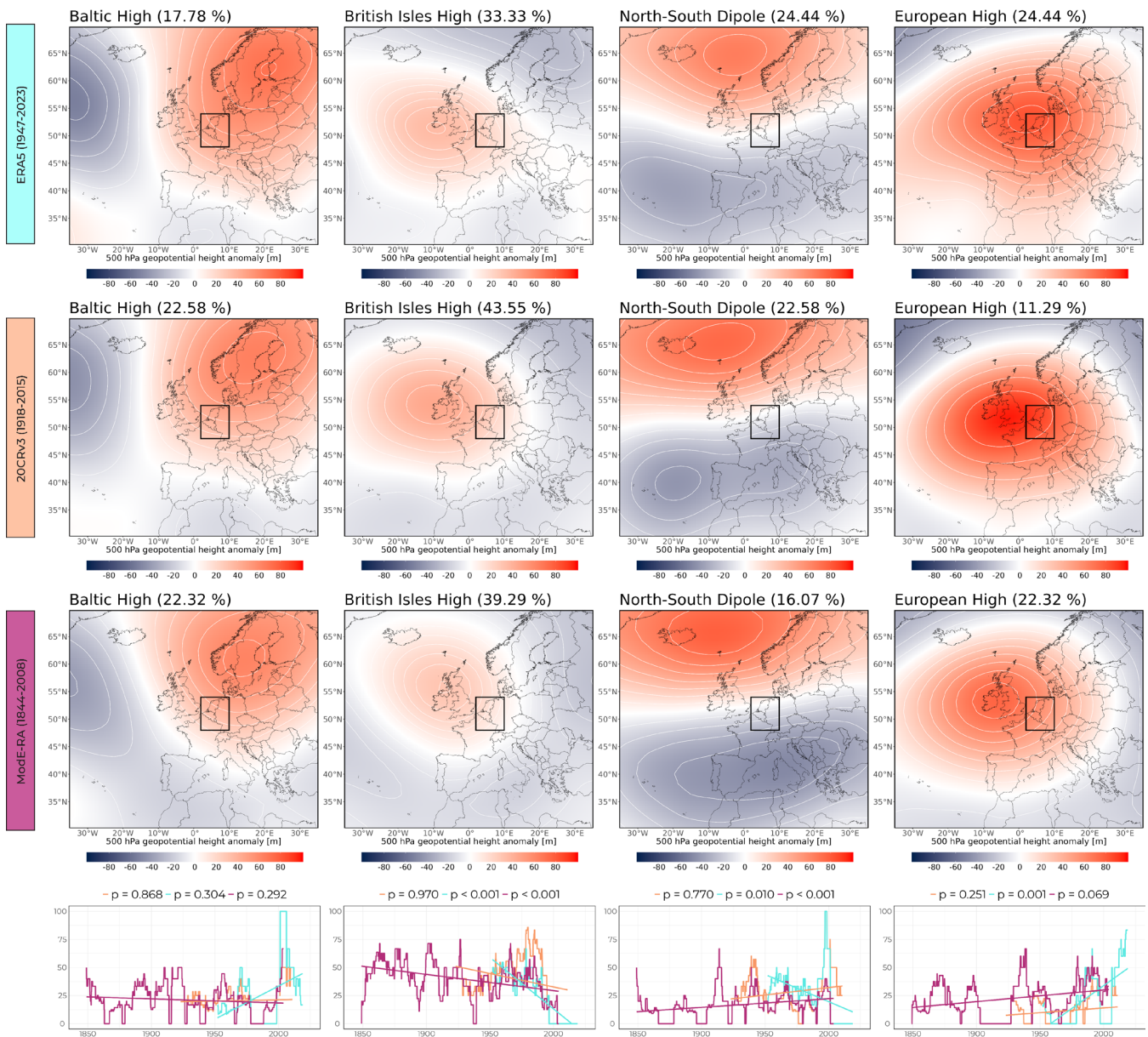


Figure S7: Same as Fig. 7, but related to SPI-3 clustering.

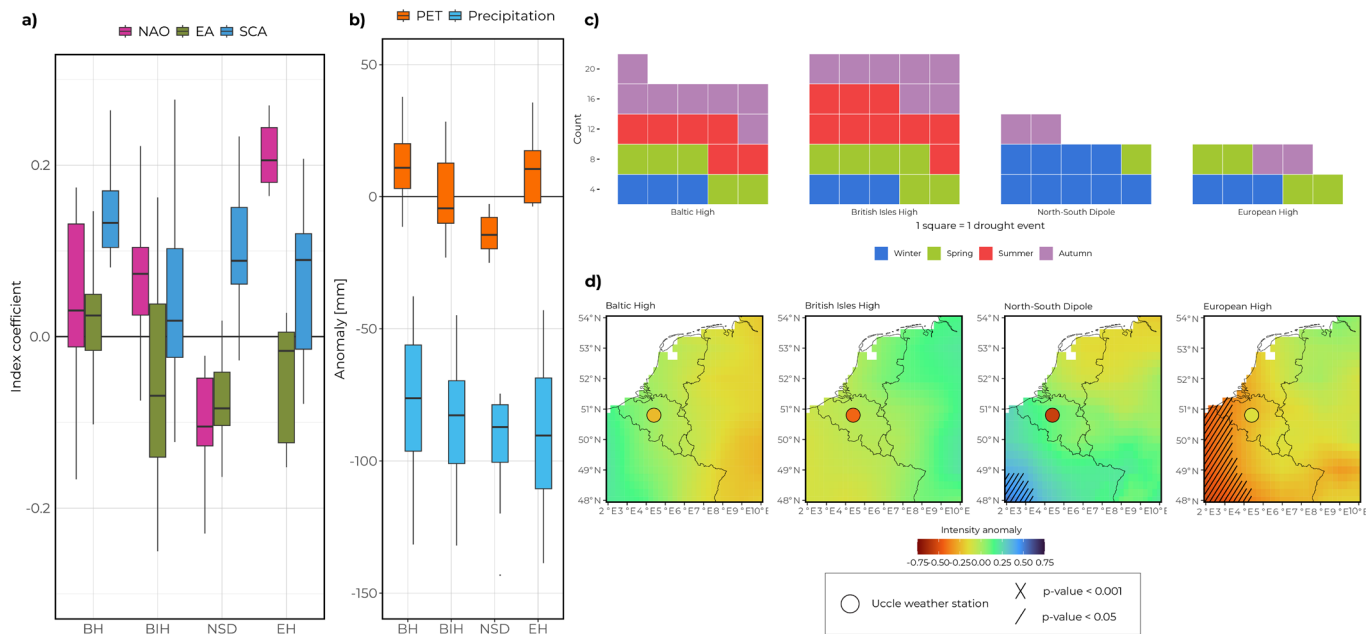


Figure S8: Same as Fig. 8, but over 1918-2015 (20CRv3). Note that the scale of the intensity anomaly is different to that in Fig. 8.

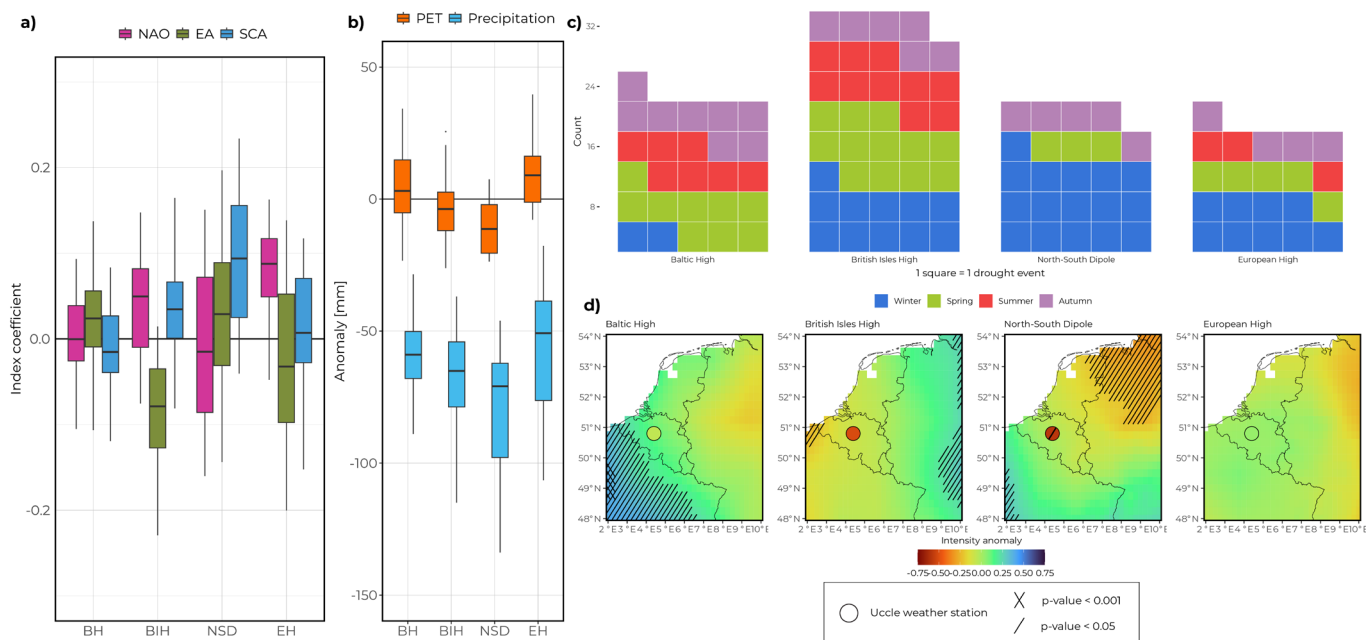


Figure S9: Same as Fig. 8, but over 1844-2008 (ModE-RA). Note that the scale of the intensity anomaly is different to that in Fig. 8.

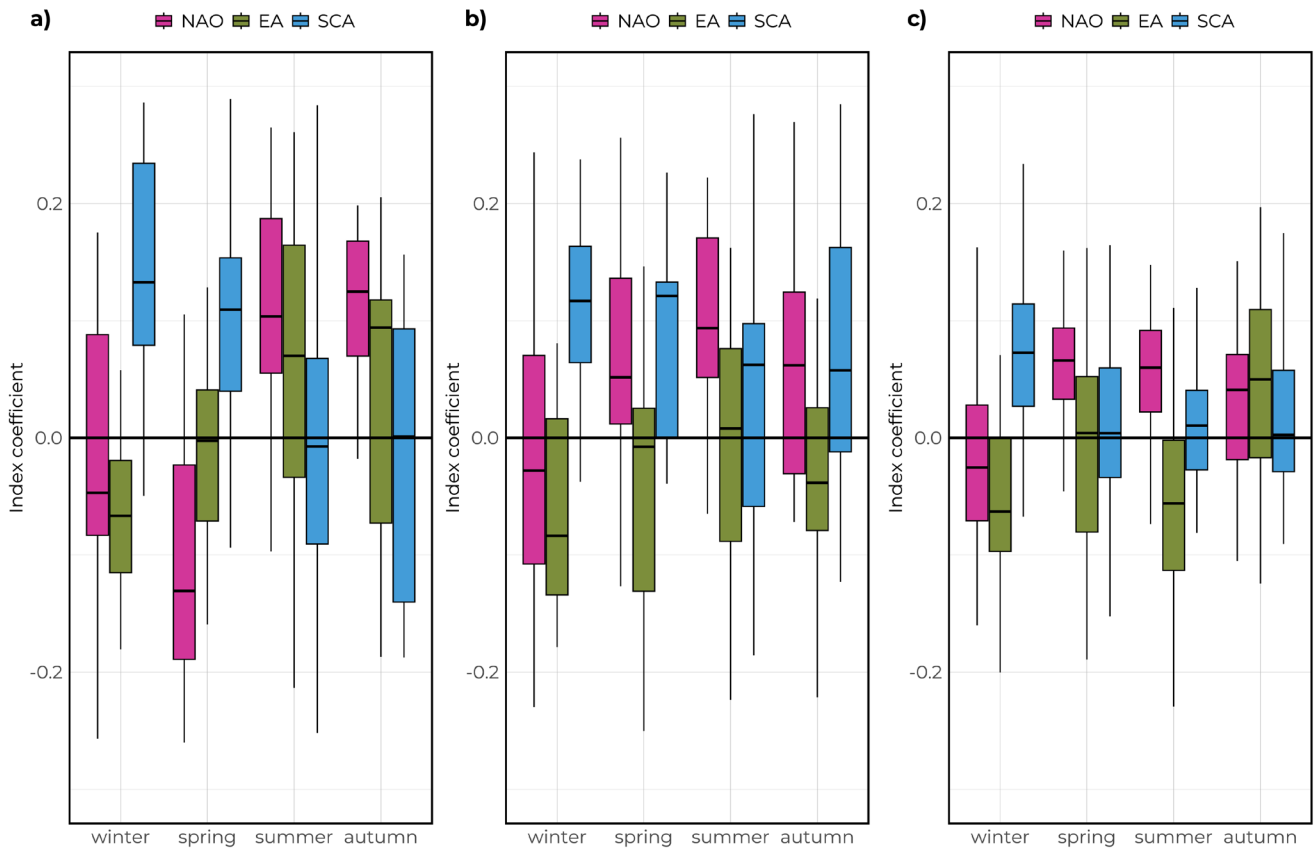


Figure S10: Index coefficients of the EOFs of the seasonal droughts, over 1947-2023 for ERA5 (a), over 1918-2015 for 20CRv3 (b), and over 1844-2008 for Mode-RA (c).

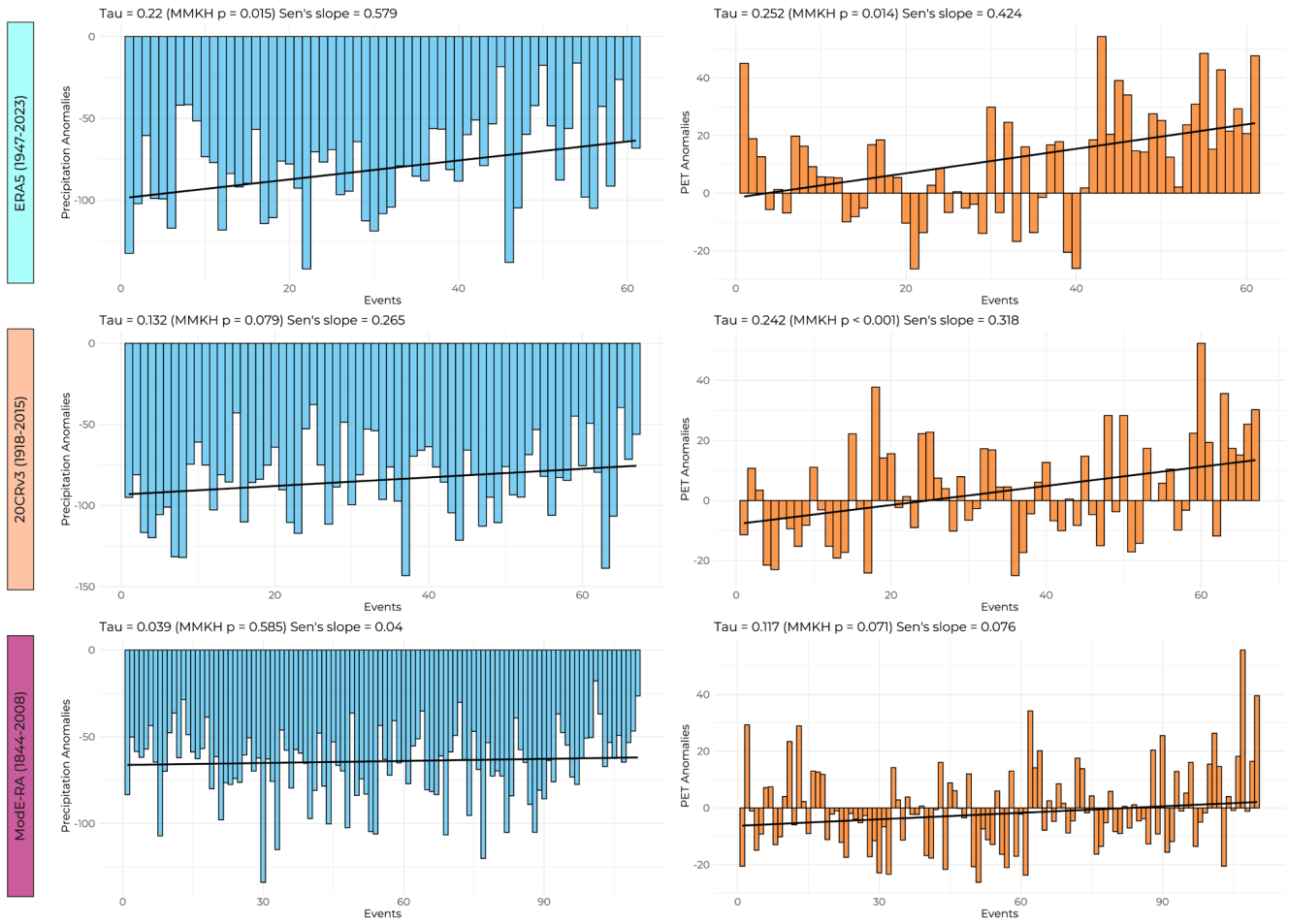


Figure S11: Drought precipitation (left) and potential evapotranspiration (right) anomaly evolution for each period-reanalysis (i.e. each row).

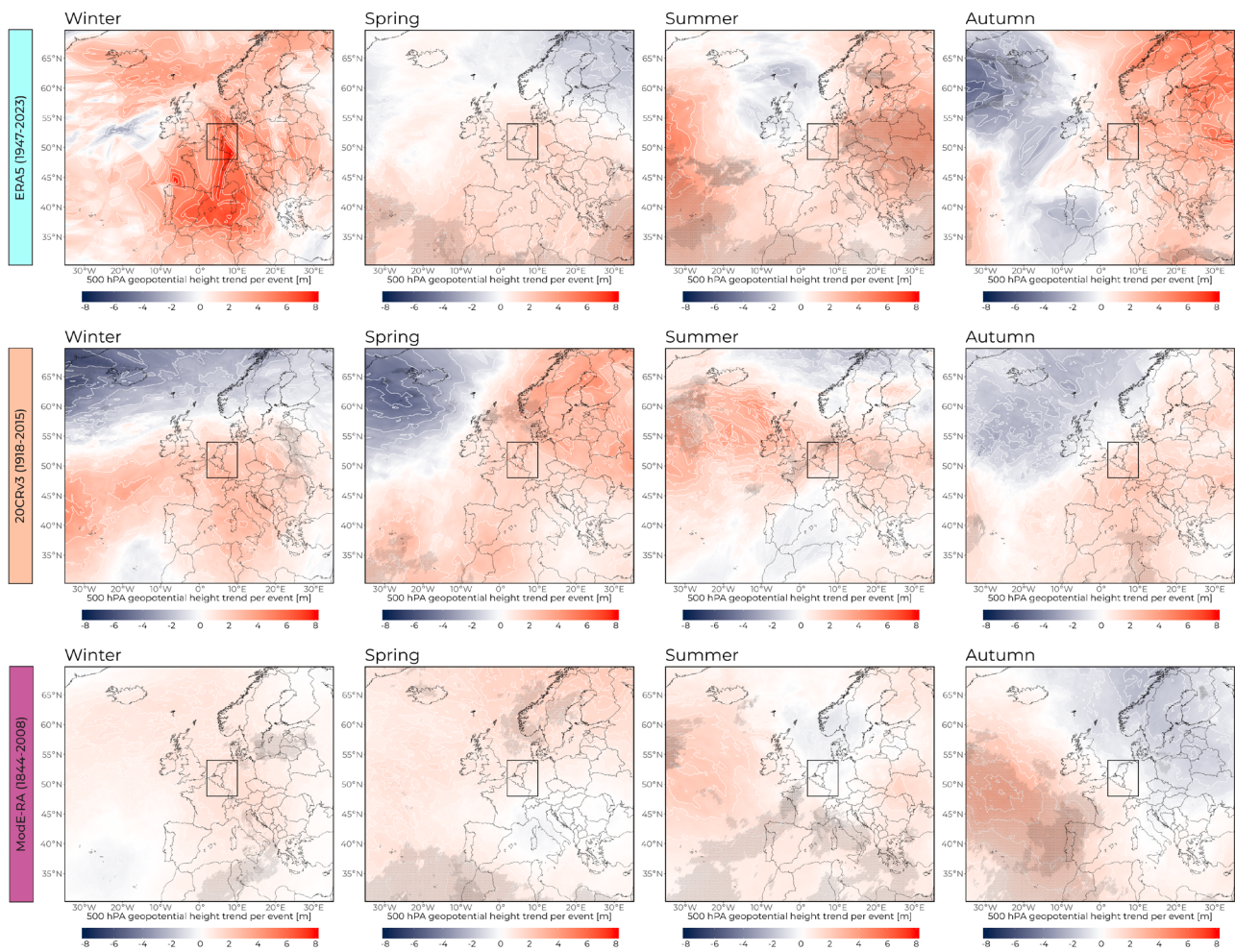


Figure S12: Changes in the mean geopotential height anomalies of seasonal droughts across seasons (i.e. each column), for each period-reanalysis (i.e. each row).