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*Supplement of*

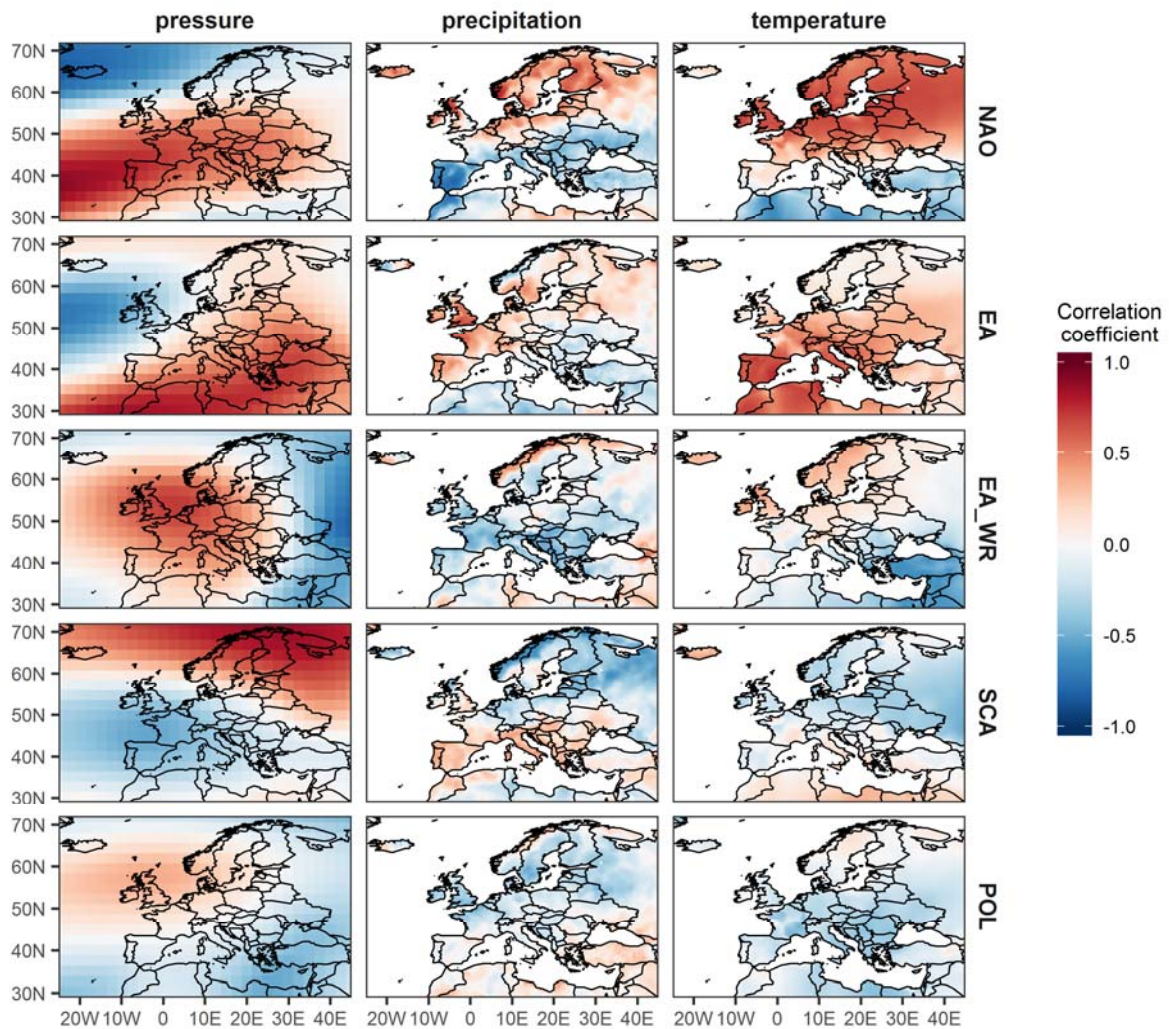
## **Climate influences on flood probabilities across Europe**

**Eva Steirou et al.**

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## Supplementary Material



**Figure S1:** Linear correlations between the five circulation indices examined and mean seasonal gridded pressure (left), precipitation (middle) and temperature (right). All variables are averaged over the winter season for the period 1952-2015 (year attributed to respective January). Gridded pressure data were retrieved from the NCEP/NCAR Reanalysis dataset (Kalnay et al., 1996) and provided by the NOAA/OAR/ESRL PSD, Boulder, Colorado, USA, from their Web site at <http://www.esrl.noaa.gov/psd/>. Temperature and precipitation data were extracted from the gridded data set CRU TS3.24 from the climatic research unit (CRU, <https://crudata.uea.ac.uk/cru/data/hrg/>) of the University of East Anglia (Harris et al., 2014). Details about the circulation indices are given in chapter 2.1. The figure was modified after Steirou et al. (2017).

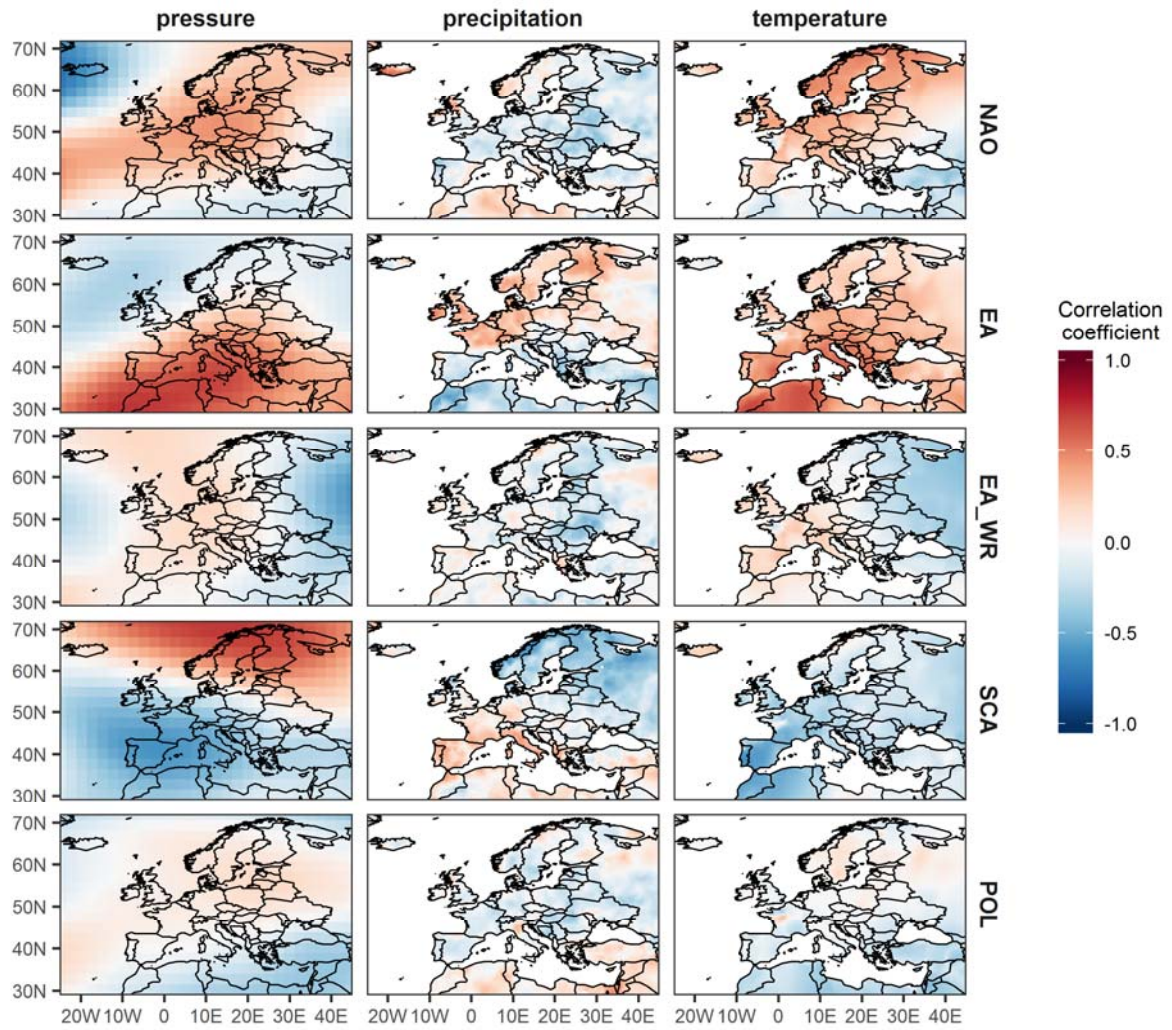


Figure S2: Same as Fig. 1 but for the spring season and the period 1951-2015.

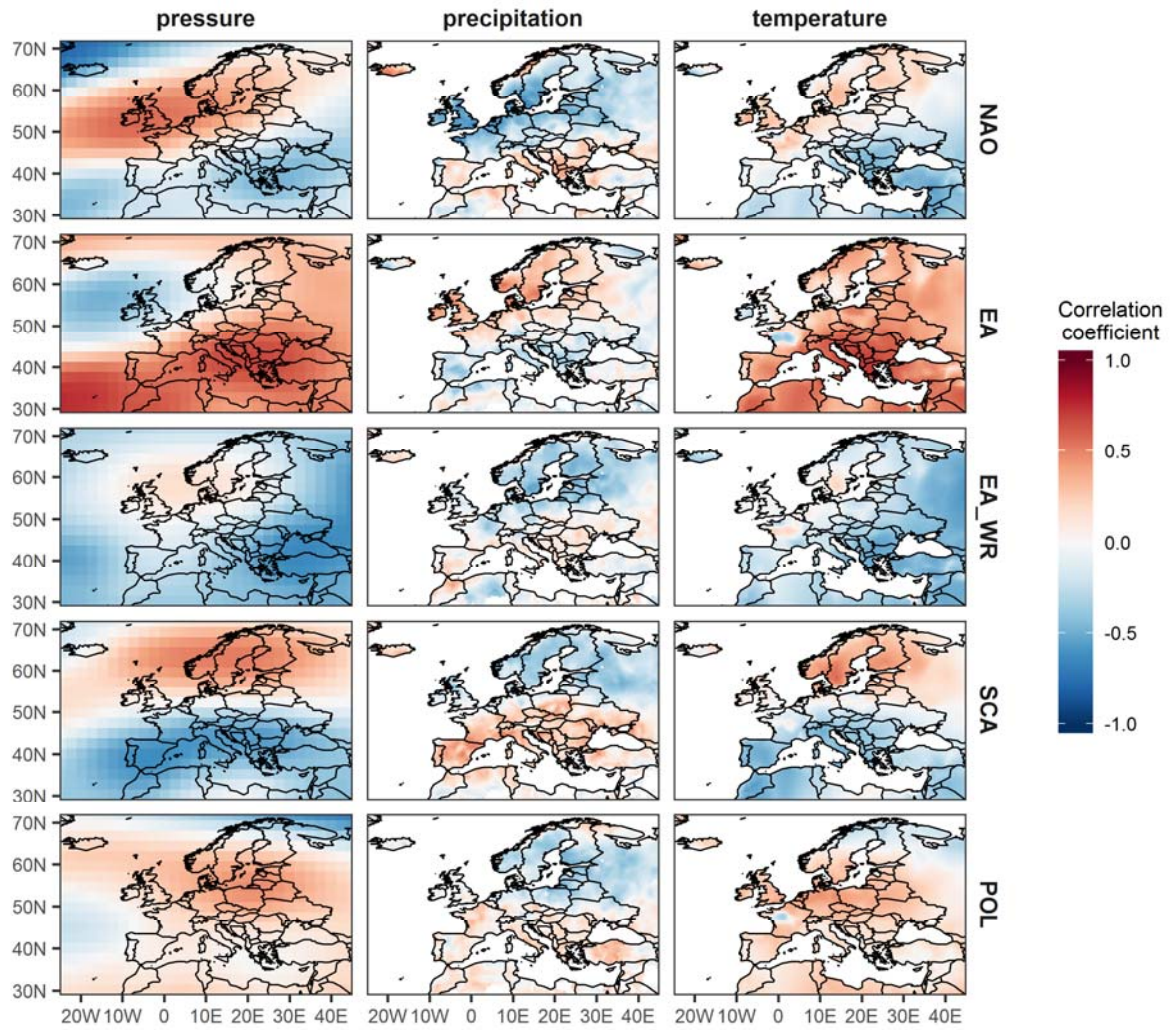


Figure S3: Same as Fig. 1 but for the summer season and the period 1951-2015.

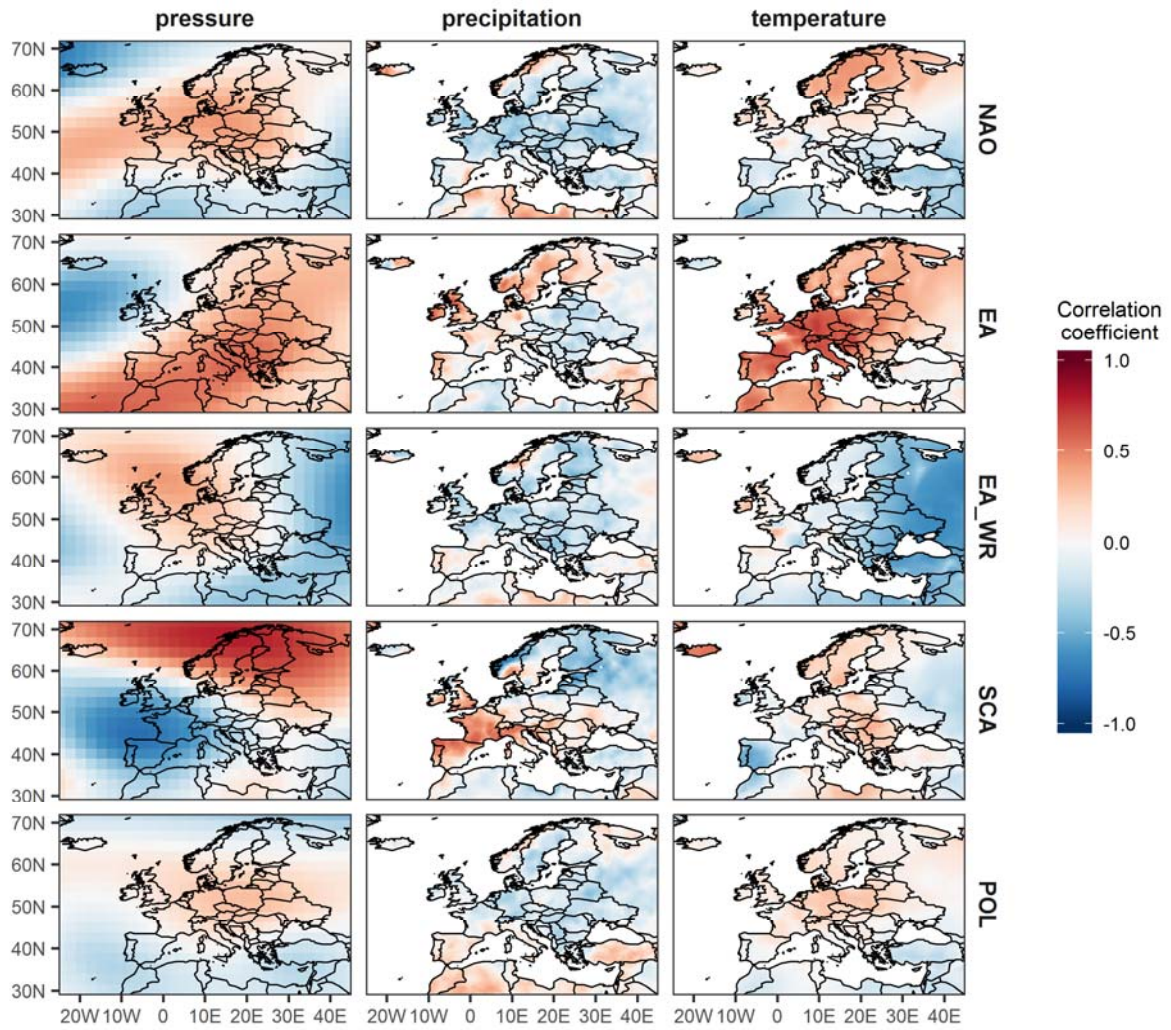
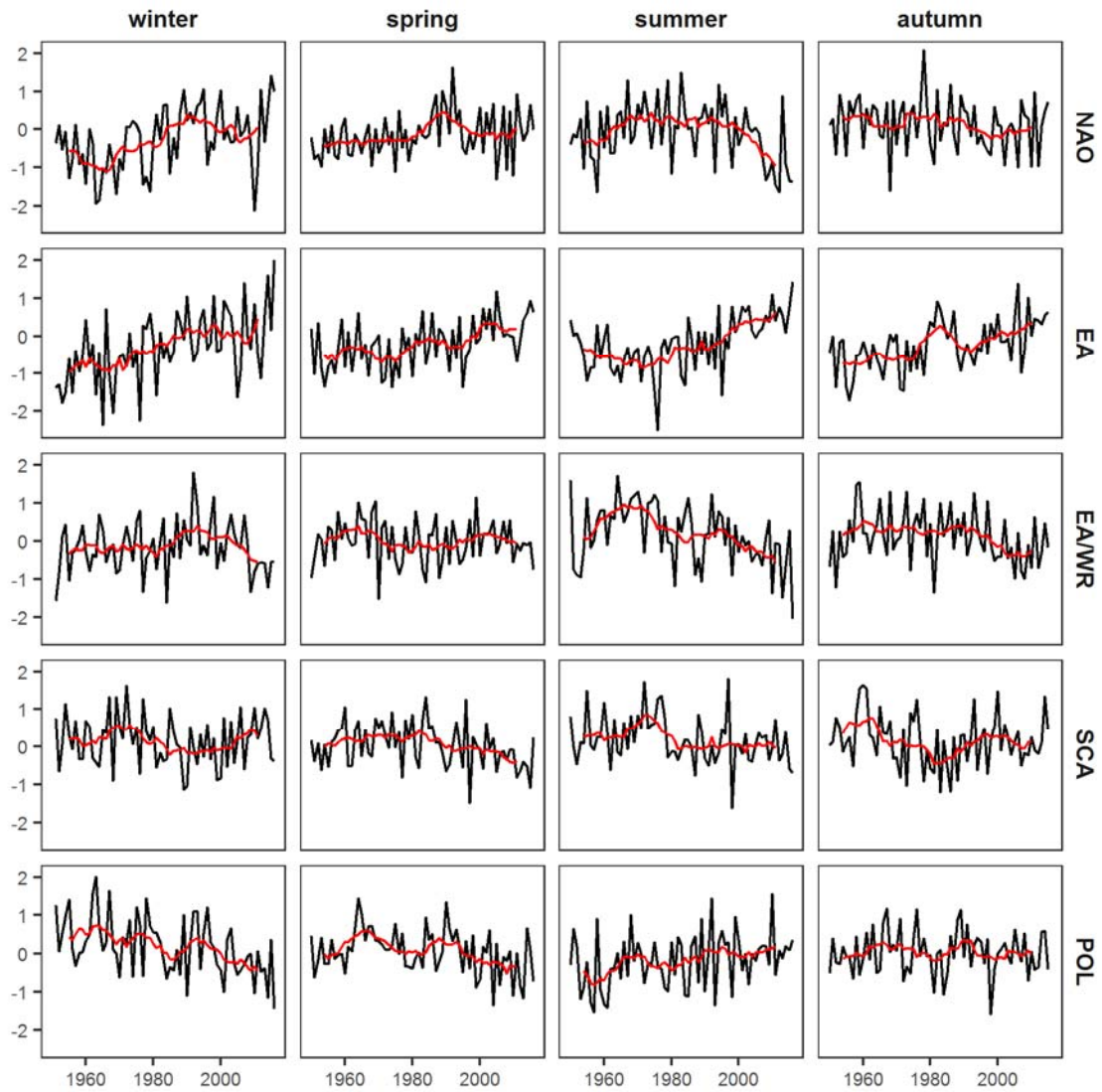
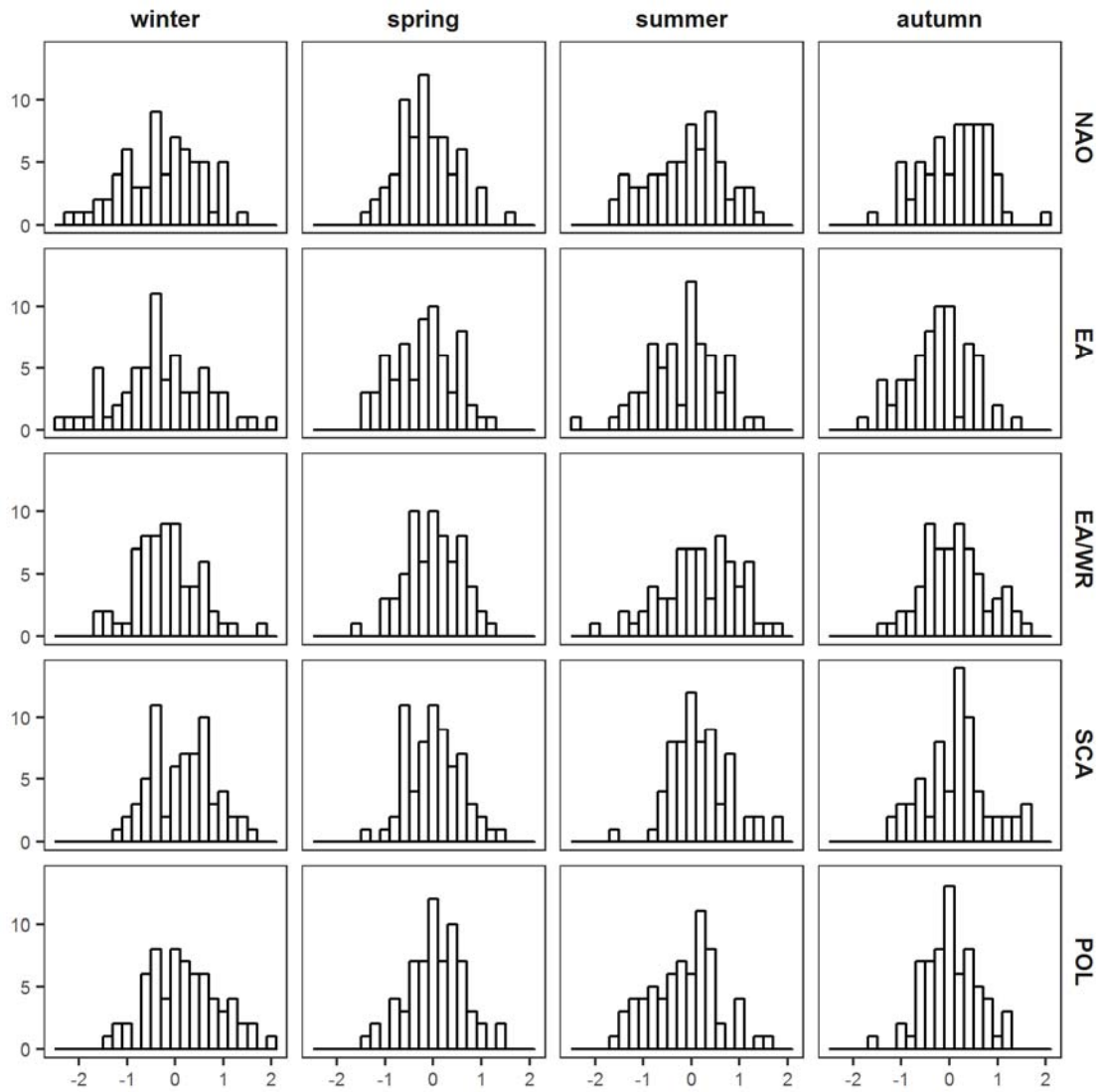


Figure S4: Same as Fig. 1 but for the autumn season and the period 1951-2015.



**Figure S5: Mean seasonal indices examined (black curves). The red lines indicate a moving average with a window of 10 years.**



**Figure S6: Histograms of mean seasonal indices examined.**

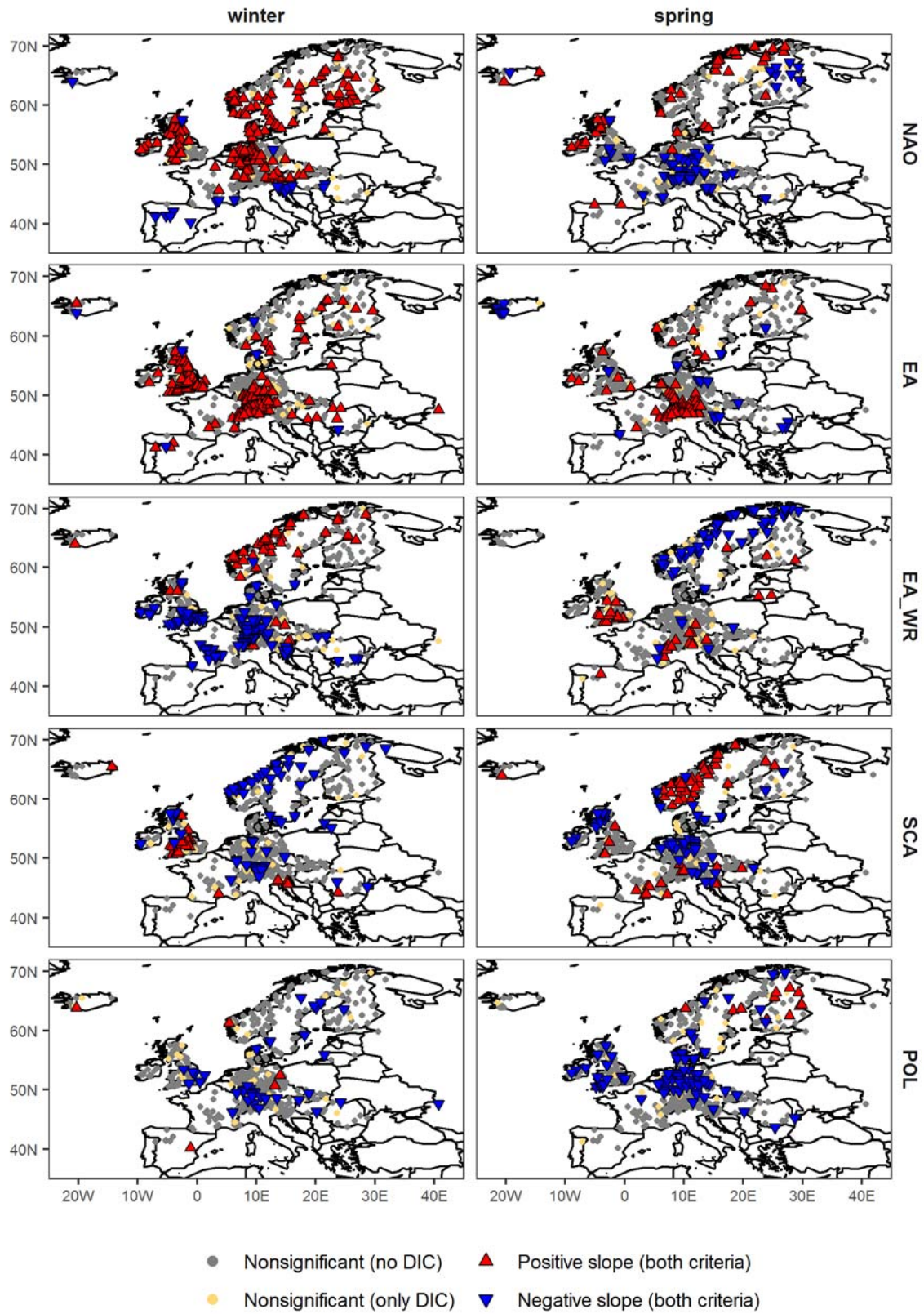


Figure S7: Same as Fig. 1 but for the monthly indices at the month of the season maximum streamflow.



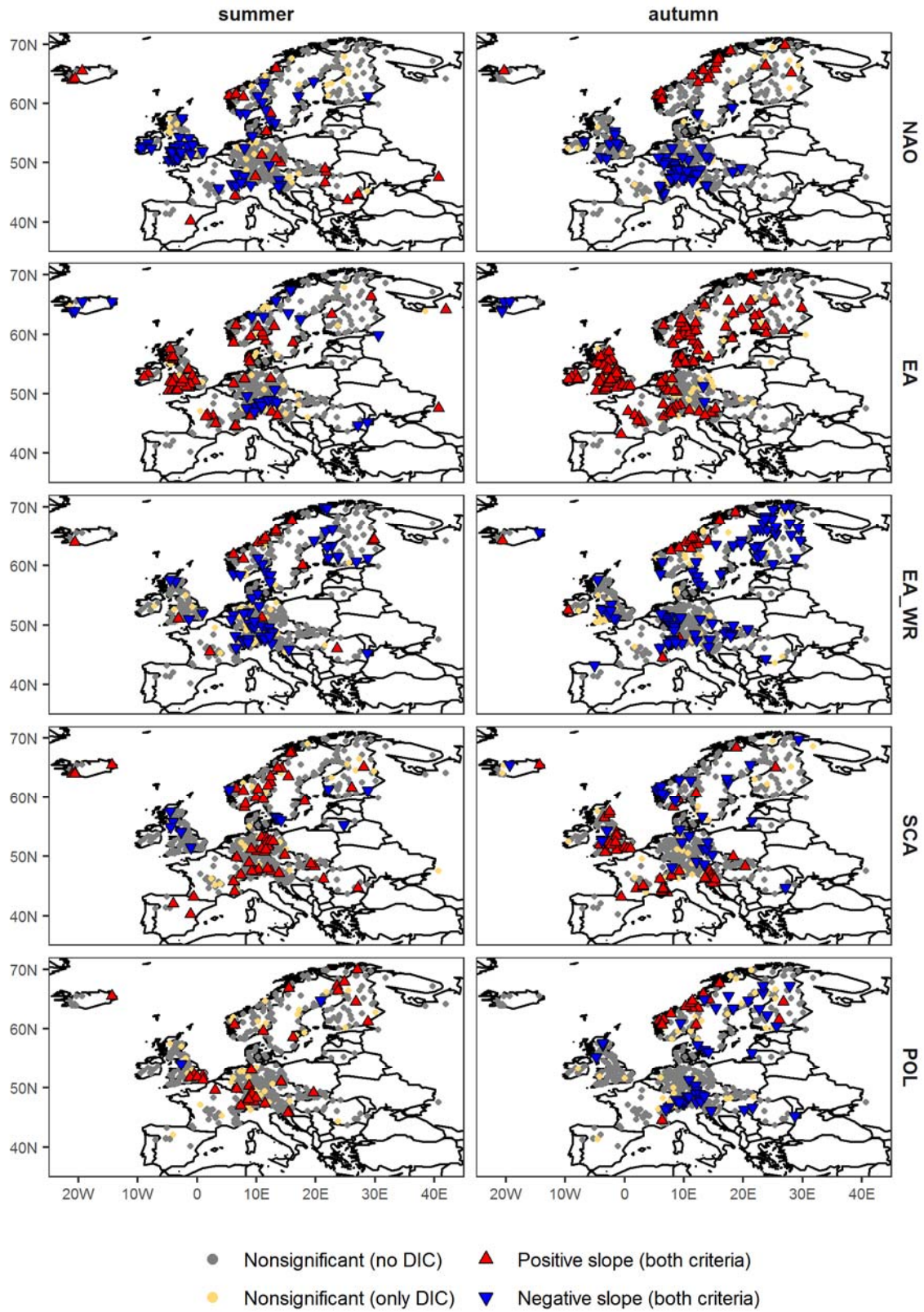


Figure S8: Same as Fig. S7 but for the summer and autumn season.

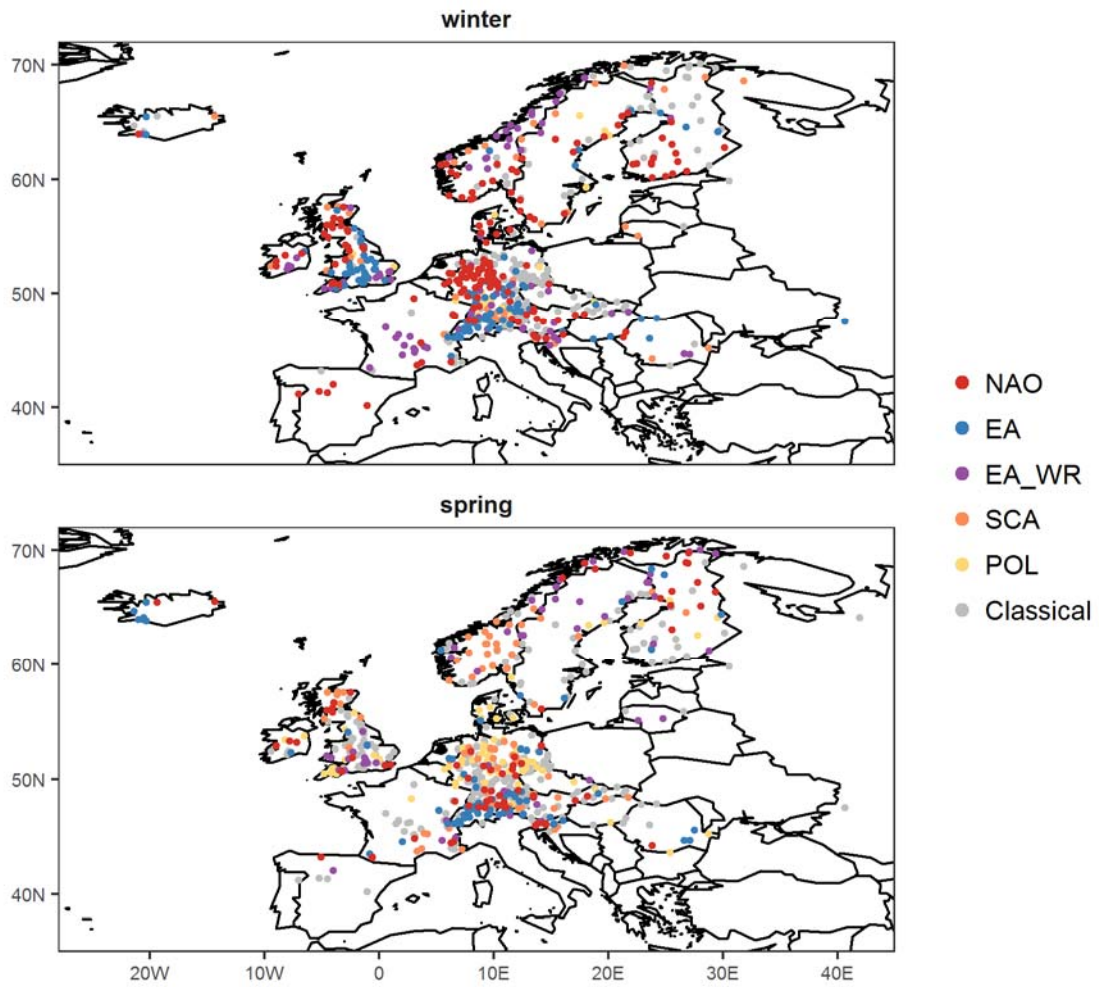


Figure S9: Same as Fig. 3 but for the monthly indices at the month of the season maximum streamflow.

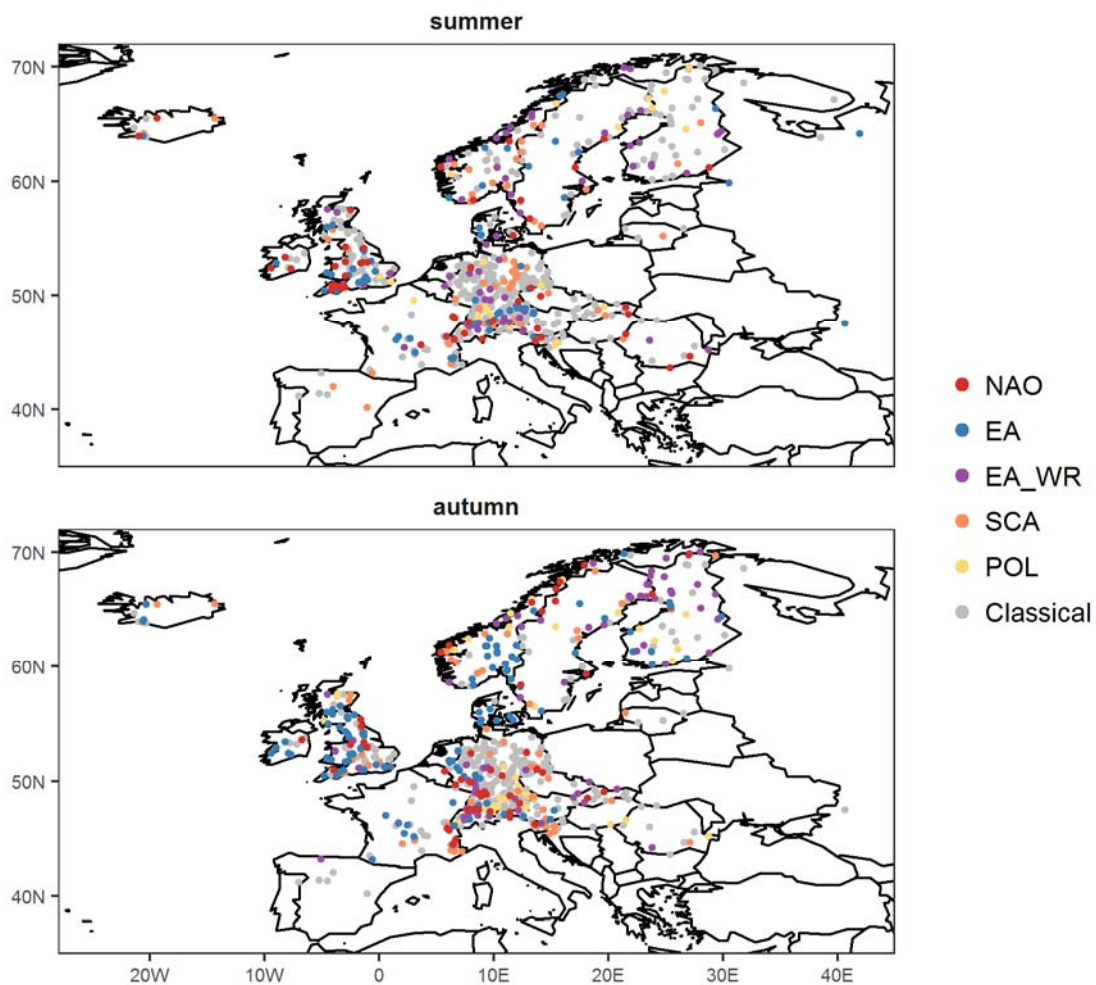


Figure S10: Same as Fig. 4 but for the monthly indices at the month of the season maximum streamflow.

Table S1: Pearson correlation coefficient between the indices examined. Statistically significant results at the 5% level are highlighted.

Indices	Winter	Spring	Summer	Autumn
NAO - EA	0.126	0.026	-0.336*	-0.207
NAO - EA/WR	0.085	0.176	0.252*	0.155
NAO - SCA	-0.314*	0.065	0.253*	0.022
NAO - POL	-0.235	-0.029	-0.069	0.144
EA - EA/WR	-0.028	-0.003	-0.446*	-0.095
EA - SCA	0.023	-0.166	-0.343*	-0.040

## References for Supplementary Material

Harris, I., Jones, P. D., Osborn, T. J. and Lister, D. H.: Updated high-resolution grids of monthly climatic observations - the CRU TS3.10 Dataset, *Int. J. Climatol.*, 34(3), 623–642, doi:10.1002/joc.3711, 2014.

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