



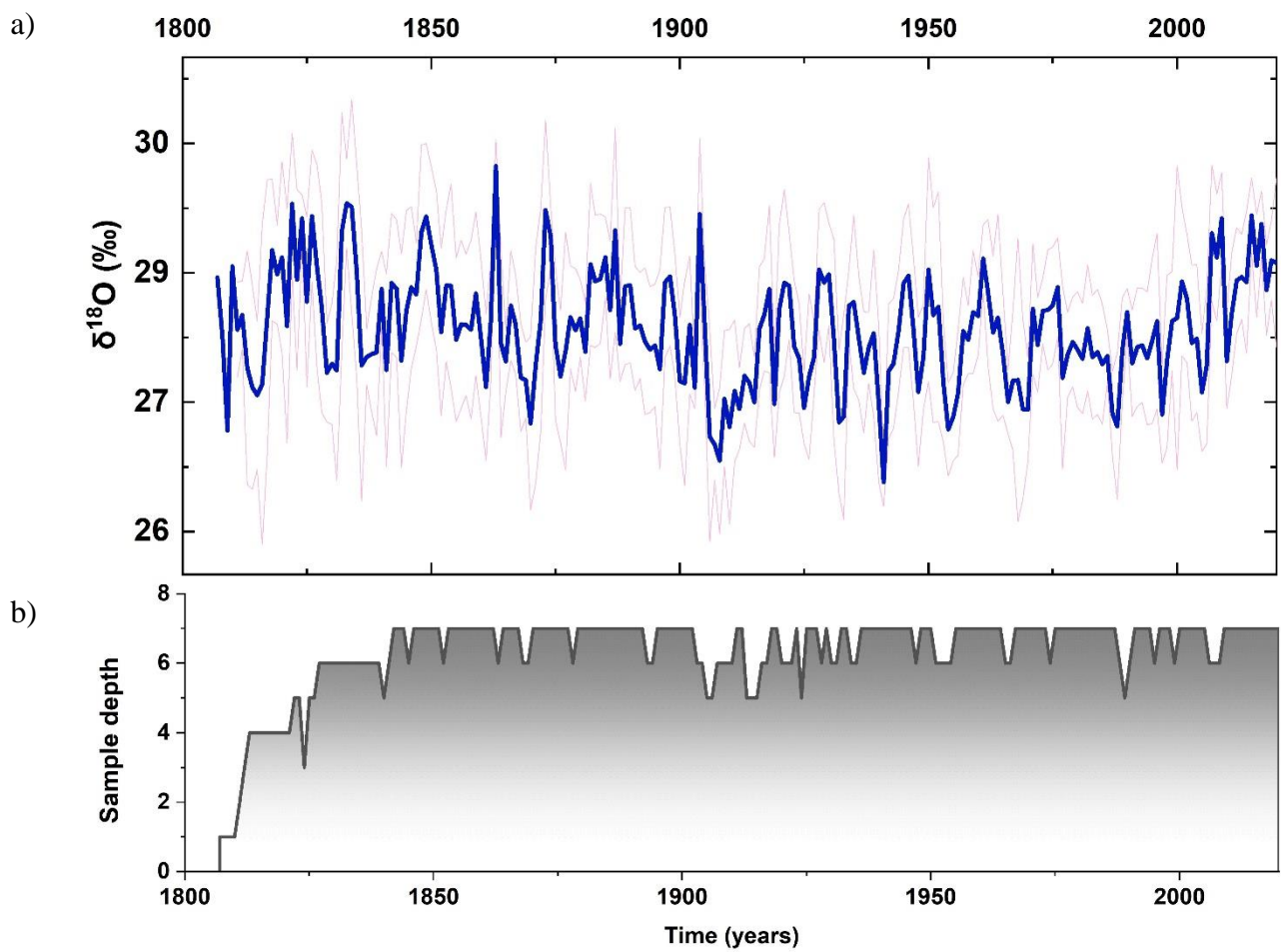
*Supplement of*

## **A long-term drought reconstruction based on oxygen isotope tree ring data for central and eastern parts of Europe (Romania)**

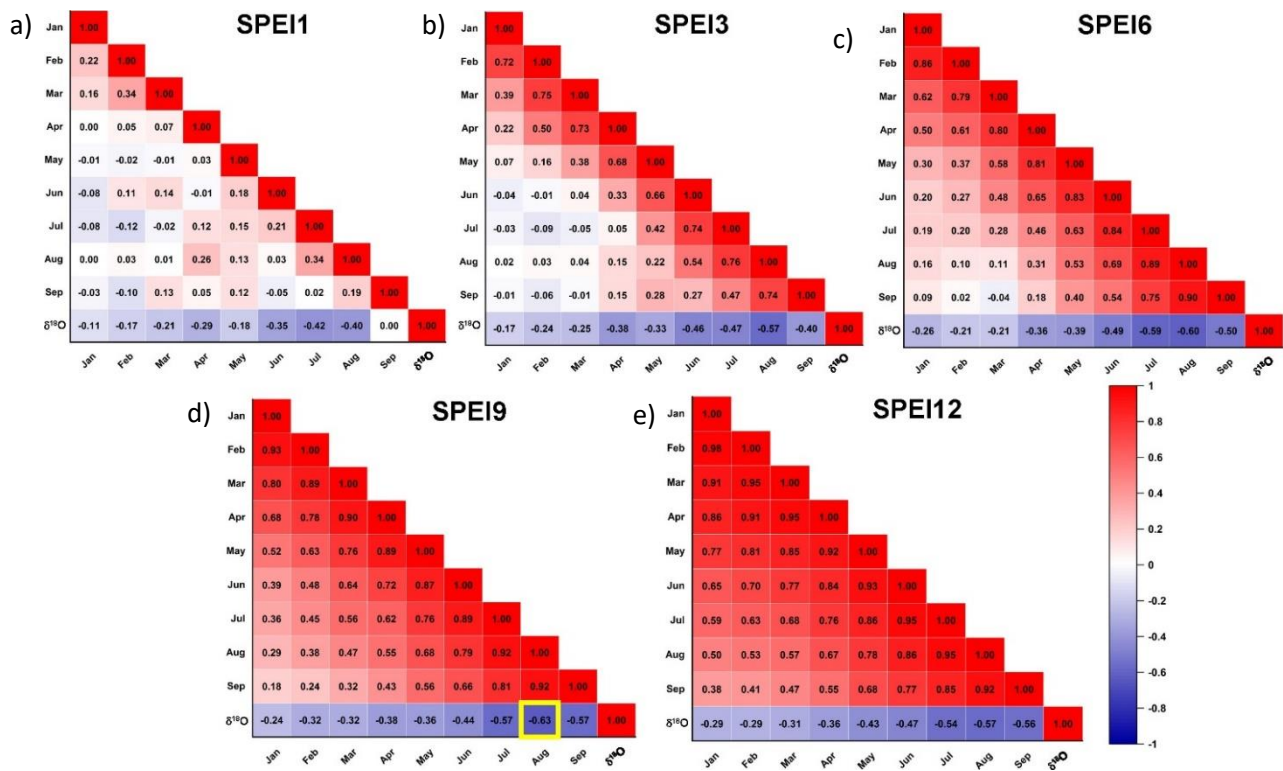
**Viorica Nagavciuc et al.**

*Correspondence to:* Viorica Nagavciuc ([nagavciuc.viorica@gmail.com](mailto:nagavciuc.viorica@gmail.com)) and Monica Ionita ([monica.ionita@awi.de](mailto:monica.ionita@awi.de))

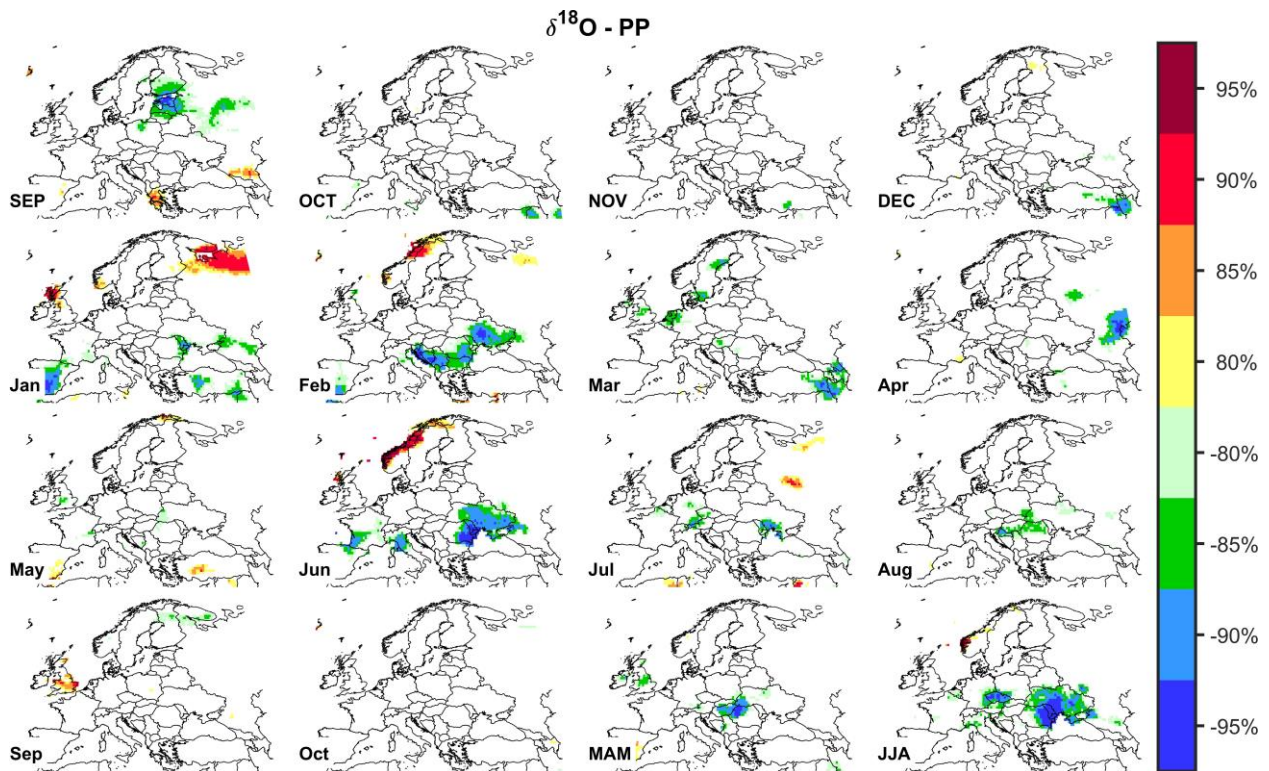
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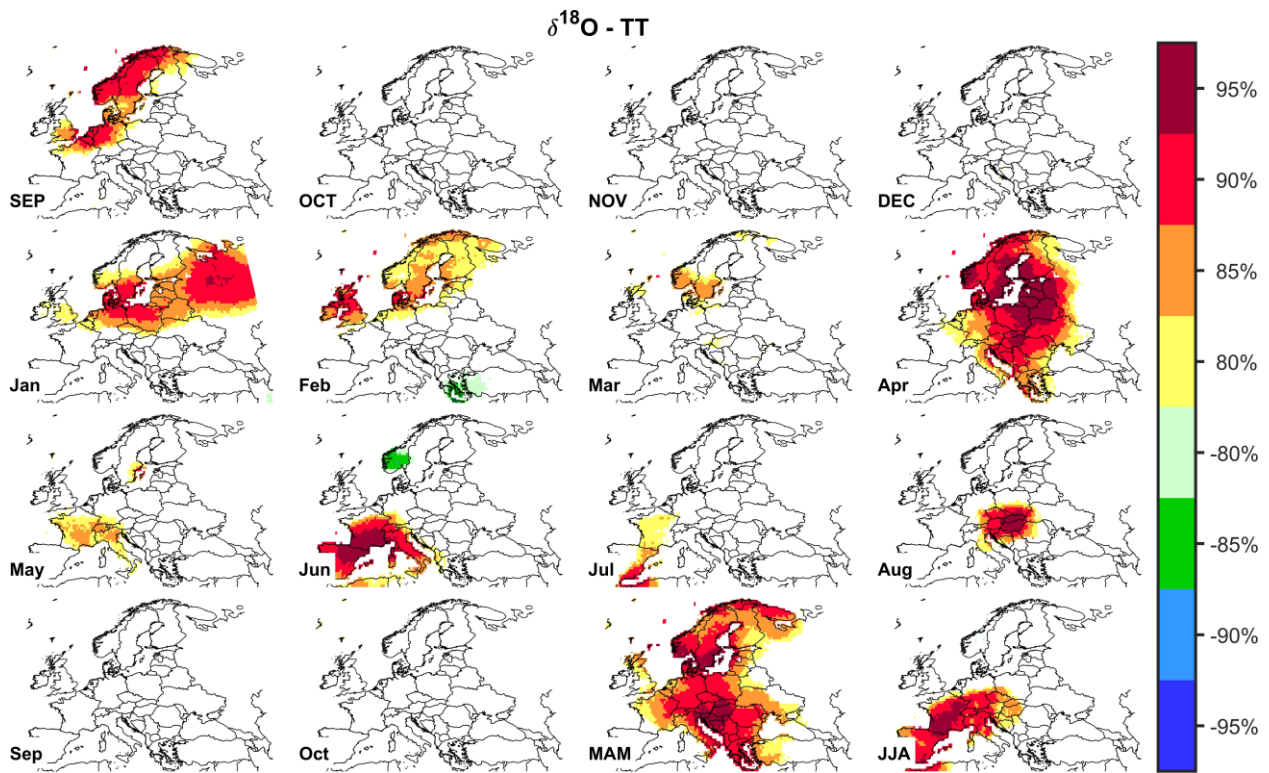
**Figure S1.** a) The master chronology of the  $\delta^{18}\text{O}$  from the Letea Forest (blue line) and standard deviation of the individual time series (pink lines), and b) the sample depth (grey line). Some of the cut tree rings were so narrow that there wasn't sufficient material for analyses.



**Figure S2.** Correlation analyses between  $\delta^{18}\text{O}$  values and SPEI drought index with different time windows a) SPEI1; b) SPEI3; c) SPEI6; d) SPEI9; e) SPEI12 from January to September (95 % significance level).



**Figure S3.** Stability map of the correlation between the  $\delta^{18}\text{O}$  chronology and different monthly combinations of precipitation from the previous year September until the current year October, but also for March, April, May (MAM), and June, July, August (JJA) periods. Regions where the correlation is stable, positive, and significant for at least 80% windows are shaded with dark red (95%), red (90%), orange (85%), and yellow (80%). The corresponding regions where the correlation is stable, but negative, are shaded with dark blue (95%), blue (90%), green (85%), and light green (80%). Analyzed period: 1902–2020. The significance level is computed based on a two-tailed t-test.



**Figure S4.** Stability map of the correlation between the  $\delta^{18}\text{O}$  chorology and different monthly combinations of mean temperature from the previous year September until the current year October, but also for March, April, May (MAM), and June, July, August (JJA) periods. Regions where the correlation is stable, positive, and significant for at least 80% windows are shaded with dark red (95%), red (90%), orange (85%), and yellow (80%). The corresponding regions where the correlation is stable, but negative, are shaded with dark blue (95%), blue (90%), green (85%), and light green (80%). Analyzed period: 1902–2020. The significance level is computed based on a two-tailed t-test.