

# A long-term drought reconstruction based on oxygen isotope tree ring data

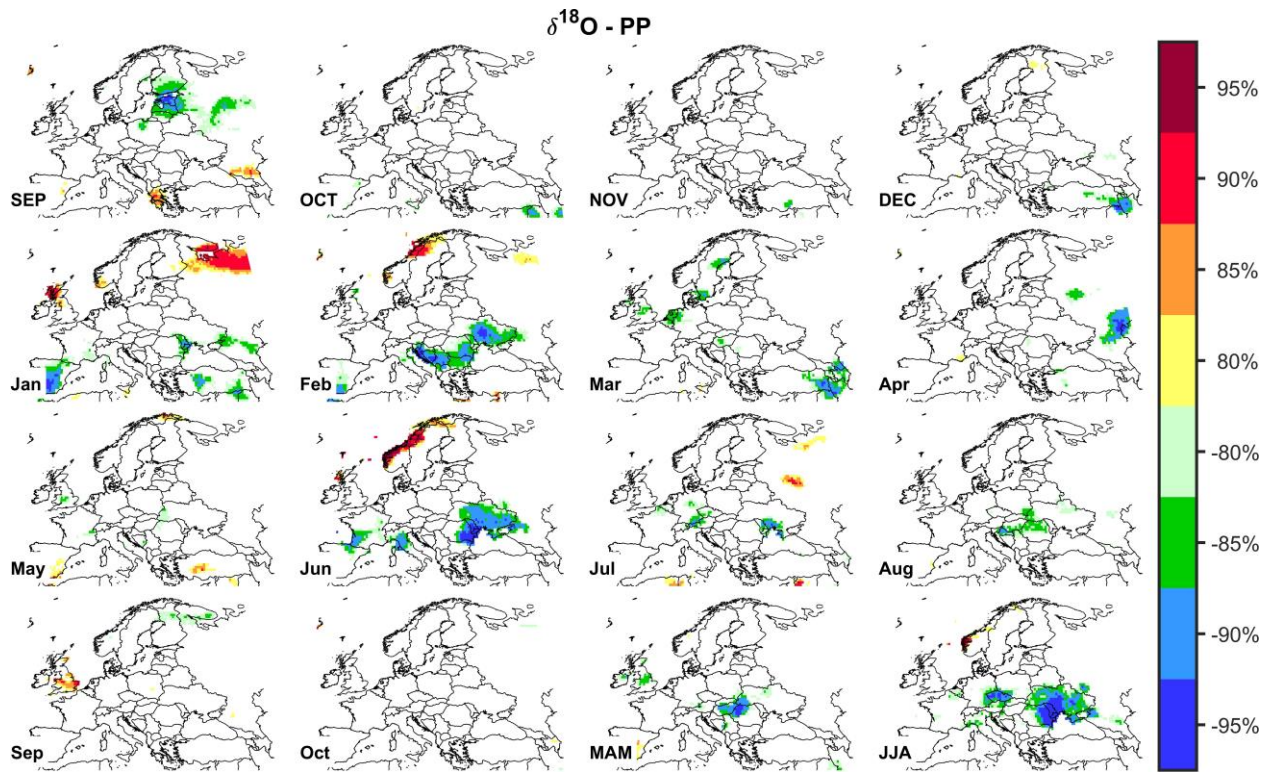
Viorica Nagavciuc<sup>1,2\*</sup>, Gerhard Helle<sup>3</sup>, Maria Rădoane<sup>2</sup>, Cătălin-Constantin Roibu<sup>2</sup>, Mihai-Gabriel Cotos<sup>2</sup> and Monica Ionita<sup>1,2\*</sup>

<sup>1</sup> Alfred Wegener Institute for Polar and Marine Research, Bremerhaven 27570, Germany

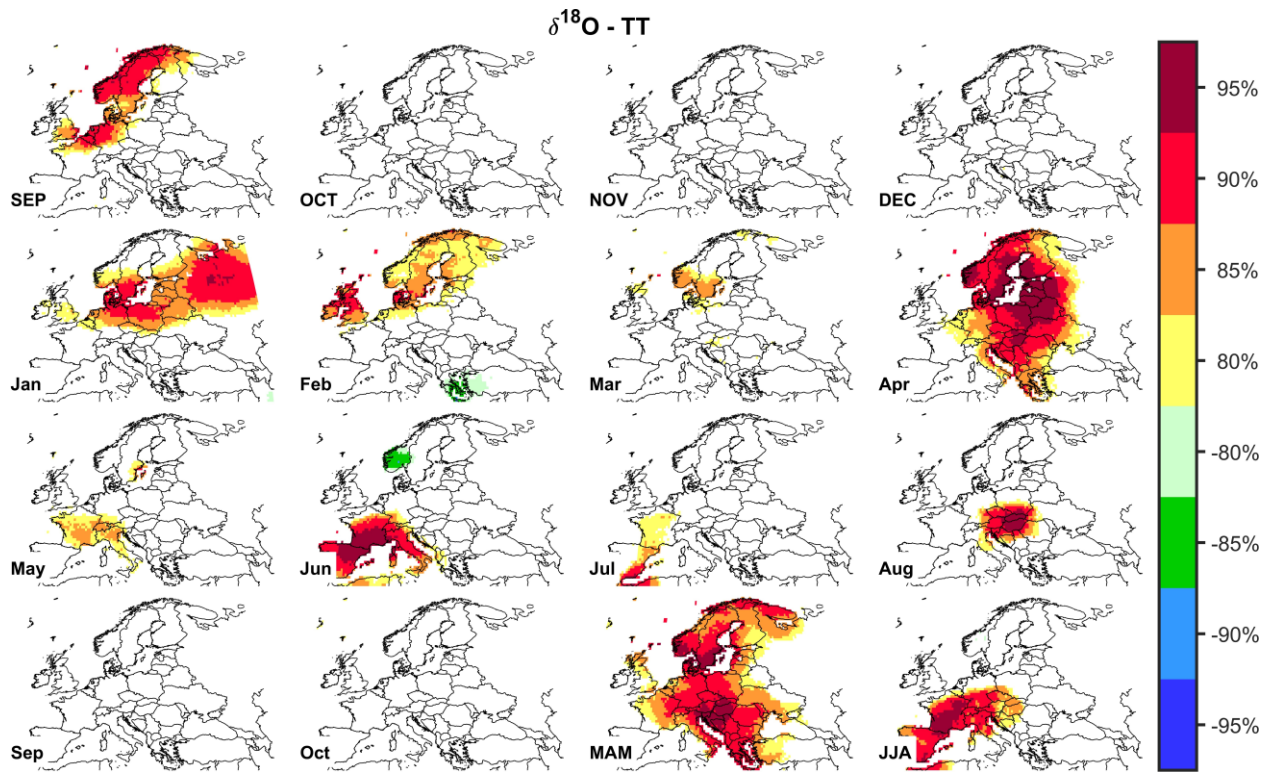
<sup>2</sup> Forest Biometrics Laboratory – Faculty of Forestry, “Stefan cel Mare” University of Suceava, Universităţii Street No. 13, Suceava 720229, Romania

<sup>3</sup> German Research Centre for Geosciences GFZ, 4.3 Climate Dynamics and Landscape Evolution, Telegrafenberg, 14473 Potsdam, Germany

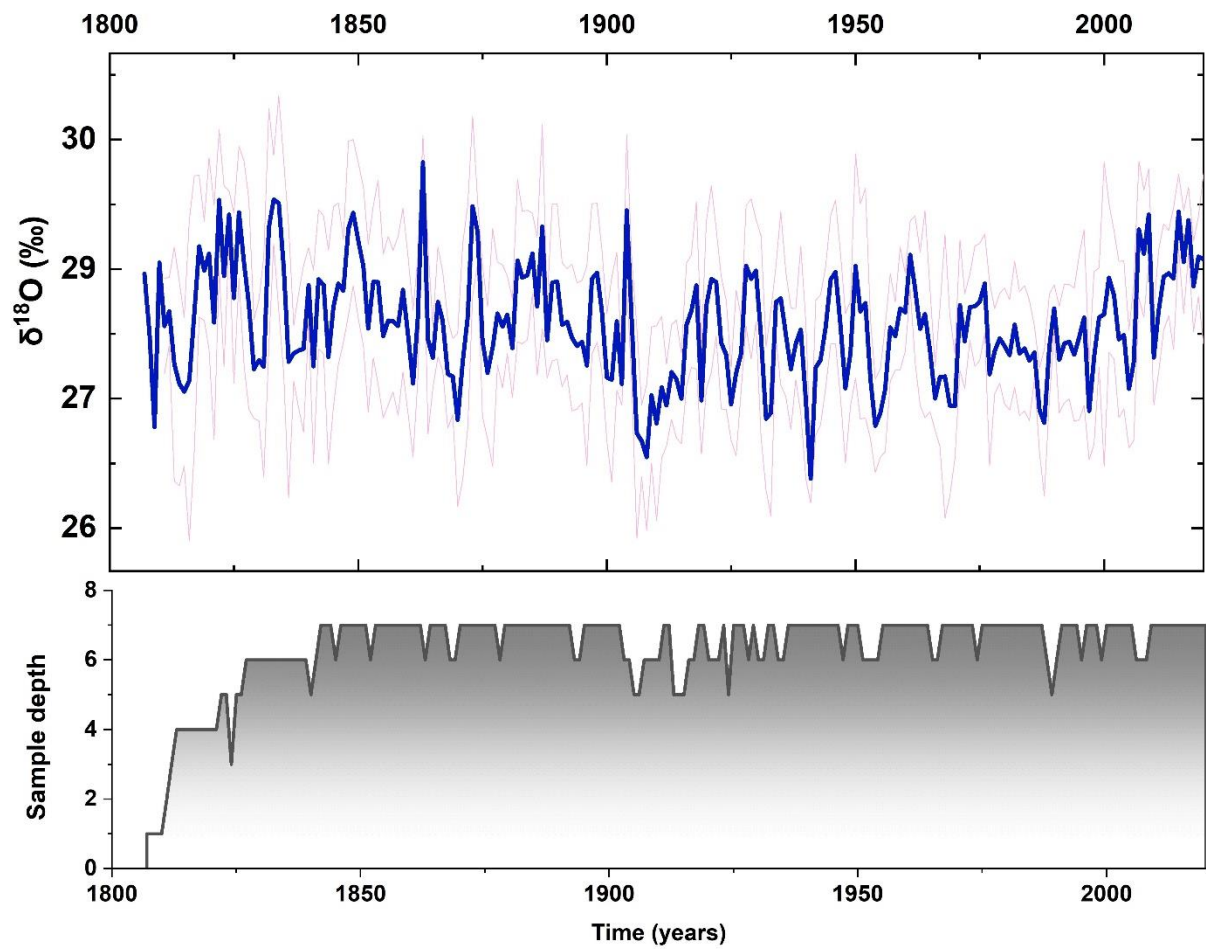
*\*Correspondence to:* Monica Ionita ([Monica.Ionita@awi.de](mailto:Monica.Ionita@awi.de)); Viorica Nagavciuc ([nagavciuc.viorica@gmail.com](mailto:nagavciuc.viorica@gmail.com));



**Figure S1.** Stability map of the correlation between the  $\delta^{18}\text{O}$  chorology 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 S2.** 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.



**Figure S3.** The master chronology of the  $\delta^{18}\text{O}$  from the Letea Forest, Romania and the sample depth