

The **DATABASE\_environment.txt** dataset contains key environmental variables that influence tree growth and isotopic composition. It includes the following columns: (1) **Year** - the calendar year, (2) **T\_yr** - mean annual air temperature (°C), and (3) **T\_apr\_aug** - mean air temperature from April to August (°C). Additionally, it features (4) **SPI\_jja** - the standardized precipitation index (SPI) from June to August, (5) **d18Oprec** - a predicted time series of precipitation isotopes ( $\delta^{18}\text{O}$ ) spanning from 1950 to 2020, (6) **Nr\_prec** - nitrogen deposition in kilograms of nitrogen per hectare per year, and (7) **pH\_prec** - the pH level of precipitation.

The **DATABASE\_raw\_isotope.txt** dataset provides isotopic measurements related to individual trees and their growth metrics. It includes the following columns: (1) **Site** - a unique site code, (2) **Tree\_ID** - specific tree identification codes, and (3) **Tree\_species** - the species of the tree. Additional columns include (4) **Year** - calendar year of collected tree ring, (5) **Year\_re** - average calendar year of tree-ring segments, (6) **From** - the starting year of the 5-year segment for analysis, (7) **To** - the ending year of the segment, (8) **TRW** - tree ring width (0.01 mm), (9) **d13C\_raw** - the raw isotopic ratio of carbon-13 (‰), (10) **d15N\_raw** - the raw isotopic ratio of nitrogen-15 (‰), (11) **d18O\_raw** - the raw isotopic ratio of oxygen-18 (‰), (12) **Info** - sample type (bulk wood/cellulose), (13) **Camb\_age** - cambial age in years, (14) **Diameter** - tree diameter (mm), (15) **Area** - basal area (mm<sup>2</sup>), (16) **BAI** - basal area increment (mm<sup>2</sup>), (17) **Release** - strength of tree release, and (18) **Age** - total age of the tree in years.

Climatic data refers to:

Brázdil, R., Dobrovolný, P., Mikšovský, J., Pišoft, P., Trnka, M., Možný, M., Bialek, J. (2022): Documentary-based climate reconstructions in the Czech Lands 1501–2020 CE and their European context. *Climate of the Past*, 18, 935–959, <https://doi.org/10.5194/cp-18-935-2022>

Dobrovolný, P., Moberg, A., Brázdil, R., Pfister, C., Glaser, R., Wilson, R., van Engelen, A., Limanówka, D., Kiss, A., Halíčková, M., Macková, J., Riemann, D., Luterbacher, J., Böhm, R. (2010): Monthly and seasonal temperature reconstructions for Central Europe derived from documentary evidence and instrumental records since AD 1500. *Climatic Change*, 101, 1–2, 69–107. DOI:10.1007/s10584-009-9724-x

Dobrovolný, P., Brázdil, R., Trnka, M., Kotyza, O., Valášek, H. (2015): Precipitation reconstruction for the Czech Lands, AD 1501–2010. *International Journal of Climatology*, 35, 1, 1–14, DOI: 10.1002/joc.3957

Brázdil, R., Dobrovolný, P., Trnka, M., Büntgen, U., Řezníčková, L., Kotyza, O., Valášek, H., Štěpánek, P. (2016): Documentary and instrumental-based drought indices for the Czech Lands back to AD 1501. *Climate Research*, 70, 2–3, 103–117, doi: 10.3354/cr01380

Air chemistry data refers to:

Kopáček J, Posch M (2011) Anthropogenic nitrogen emissions during the Holocene and their possible effects on remote ecosystems. *Global Biogeochemical Cycles*, 25, GB2017.

Kopáček J, Hejzlar J, Krám P, Oulehle F, Posch M (2016) Effect of industrial dust on precipitation chemistry in the Czech Republic (Central Europe) from 1850 to 2013. *Water Research*, 103, 30–37.

Oulehle F, Kopáček J, Chuman T et al. (2016) Predicting sulphur and nitrogen deposition using a simple statistical method. *Atmospheric Environment*, 140, 456–468.

Belmecheri S, Lavergne A (2020) Compiled records of atmospheric CO<sub>2</sub> concentrations and stable carbon isotopes to reconstruct climate and derive plant ecophysiological indices from tree rings. *Dendrochronologia*, 63, 125748