

Clim. Past Discuss., referee comment RC1
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Comment on cp-2021-168

Heinz Wanner (Referee)

Referee comment on "Documentary-based climate reconstructions in the Czech Lands 1501–2020□CE and their European context" by Rudolf Brázdil et al., Clim. Past Discuss., <https://doi.org/10.5194/cp-2021-168-RC1>, 2021

General comments

Based on documentary-based sources, annual and seasonal temperature, precipitation and drought indices were reconstructed in the Czech lands from 1501 to 2020 AD. The study was supplemented by wavelet analyses and an attribution analysis. The temperature series exhibits a statistically significant increasing trend, rising from about 1890 and particularly from the 1970s. In particular, it could be shown that temperature drops in summer are influenced by volcanic events, and that the fingerprint of the North Atlantic Oscillation becomes visible in the other seasons. Certain drought indices show an astonishing decrease over the last decades.

The resulting data set is extremely rich and extensive. The number and scope of the statistical analyses are, in my view very large (e.g. the high number of wavelets), and dynamic analyses are rather sparse. The text is very dense and precisely written, but it is a little short in view of the large number of figures. However, I would rather reduce the number of figures than vote for a text expansion.

I propose to accept the paper after a number of specific revisions.

Specific comments

-Page 3, line 19-24: Is it really necessary to calculate four drought indices? What is the

increase in knowledge if the SPEI and the Z-index are added to the SPI and PDSI?

-Page 4, line 19-21: Why did you not use the most complete and modern volcanic data, e.g. by Toohey and Sigl, 2017?

-Page 4, line 28: You suggest to include PDO, combined with AMO. Are you convinced PDO (combined with an AMO Index) can significantly affect the climate of the Czech Lands? AMO correlates with the NAO and is – in a new paper - additionally questioned as an explaining mode by Mike Mann.

-Page 5, line 39, Fig. 2 a: Can you explain the changing correlations around 1900?

-Page 6, line 13 and 14: Can you explain the dryness between 1991 and 2020? The positive temperature trend should nevertheless lead to an increase in humidity and precipitation.

-Page 6 + 7, Figs. 7 and 8: I think the inclusion of phenological data is really excellent!

-Page 7, Figure 9: For me this Figure looks a little like an "overkill". What is the dynamic interpretation behind the very dense Figures?

-Figure 10, attribution analysis: The information on this Figure is extremely dense and not easily readable. Would it not make sense to simplify the Figure and to sort out the really significant correlations, which can point to significant dynamic processes?

-Figures 12 and 13: Same comment as for Fig. 9. Do the numerous figures allow plausible dynamic statements?

-The question of the spatiotemporal representativeness of the Czech data is extremely important. I only wonder whether 5 Figures are needed for this (Fig. 14 - 18). Figure 15 in particular is highly interesting and should be interpreted further.

Formal aspect

Reconsider the order of quotations with the same name: Oldest or youngest quotation first?