

Review of the paper

“Dendrochronological dating of Roman time”

by P. Ossowski Larson and L. Larsson

The paper contains a potentially very valuable message and warning that some supra long oak chronologies in Europe might be offset in time by approximately 218 year. The discovery of such a potential error in the European oak chronologies can significantly affect dating of, in particular, Rome time.

Since this is a highly sensitive topic, I would support an open discussion about the problems authors discovered in oak chronologies, but I don't think TRR is the right place for that, especially since two authors of oak chronologies are dead, and the other are just doing the best they can. The potential main contribution of the paper (and a huge revolution in dendrochronology) would be (providing they are right and all others are wrong) a complete shift of dendro dates and ¹⁴C calibration based upon this chronology by approximately 218 years. 

Manuscript – presented manuscript is, if true, a serious criticism of the existing supra long oak chronologies in Europe, claiming that all dating should be shifted for about 218 year. Authors came to this conclusion by analysing oak chronologies available on-line or by personal exchange. 

They analysed four supra long oak chronologies:

- German oak chronologies
- Irish oak chronologies
- English oak chronologies
- French oak chronologies

And concentrate mostly on weaknesses of this four groups of chronologies, in particular periods of low replication. Finally they compared oak chronologies with long Scandinavian pine chronologies.

There are two things that really raise my concerns and are reasons why I'm suggestion the REJECTION of this manuscript:

- in Tables 1-3 authors use low correlation value, low t-value and short overlap as a proof that original authors of the chronologies did something wrong – correlation values are in the range 0.10-0.20 and authors claim this is as a “very low correlation” (which is true), but on the other side they claim in line 266 that correlation of 0.16 is well discriminated and significant towards Finland pine. This is simply not correct and authors use double standards – if one have a long enough chronology than even with a very low correlation, one can produce a significant result (to get a high t value – lines 231-233) – I don't think so. Significance of the correlation coefficient strongly depends on number of observations, with n=1470 years, every correlation coefficient is significant except zero – so table 5 is more or less misleading. Table 6 contains “as dated+218” and correlation values are very low (too low to be trusted), but t values are higher, 

- however it is a clear correlation between t-value and overlap – the higher it is the higher t-value, despite the “very low correlations” – hard to believe this comparison.
- Instead of showing us horizontal bar graphs with a weak overlap it would be much more effective and transparent to show us true curves with overlap. Without seeing chronologies I don't believe that newly compiled and shifted chronologies are more correctly positioned in time than the old ones.



Structure of the paper – the paper is not really structured according to rules of the journal – it actually fakes scientific form required by the journal. It starts with the Abstract, fails to provide keywords; continues with some kind of Introduction and then they jump directly to the Discussion. The section containing Results is completely missing. Conclusions and References follow the Discussion. The goal of the study is somehow very personal, and it also predicts the end result – “to reject or confirm the existence of invented years in the Christian era” – I don't think this is very scientific approach, better goal would “to reject or confirm the existence of the potentially missing data, or something similar”, such a neutral approach would be more appropriate.



Tables are more or less screen captures with some cryptic column names – no explanation provided (eg. what is SortKey?). Only tables 4,5,6 and 7 are in the proper format. Figures are also screen shots, they are not of publication quality (not even close) and due to a long time scale, one can't see much on the graphics (although they make sense when you carefully look at them - with magnifying glass); since the authors wrote CDendro, they could maybe also code a proper EPS export of the on-screen graphics (just an idea). The paper is formatted in A4 landscape, which maybe good for reading, but not good for further processing. All this points of concern need to be corrected before any further steps are taken.

