

Review

EVALUATION OF THE IRISH OAK CHRONOLOGY AND ITS LINKAGE

By Larson and Larson

General Comments

The authors detail a potentially important disparity in their independent dating of the “mostly” Irish Oak tree-ring record around 950BC. The implication from the last paragraph is that this could bias the dating of the German Oak chronology, and although not mentioned in the paper, presumably, if correct, would have implications for the calibration of the 14C curve as the early part of the Oak TR chronology may be incorrectly dated. Is that right? If not, this should be clarified.



This issue appears to be hugely important, BUT, the paper in its current form is simply not detailed enough for an outsider to really understand all the nuances of the issue. The authors make reference to a more detailed description at the Cybis website. This is admiral, especially as all the data is made available, but it is certainly beyond the scope of this reviewer to go through all the data to make my own informed judgement.

This issue needs to be published, but after **major revision** to add in more detail which is currently available at the Cybis website (including more figures – preferably time-series plots and not just bar graphs). At the same time, this paper should not and cannot be published without a complimentary response from the Belfast laboratory. This unfortunately puts quite an onus on the Belfast lab, but both groups need to clearly present their results (with accompanied data) in a clear way for an objective observer to judge the situation. I would also recommend that at least one of the other UK dendro-labs, experienced with dating Oak RW series, should also be part of the review process.

In fact, the only way for this issue to be truly resolved is if the Larsons and QUB dendrochronologists write a single paper together. Maybe this is asking too much, but I don't believe that the authors have any particular axe to grind and only want to ensure that the crossdating of the Oak sequences are as robust as possible. If this approach was taken, it would be a real coup for collaborative and objective science.

Detailed Comments

Line 12: “Western Europe” or should this be worded specifically for Ireland (with some data from Northern England).

Line 16: Consider rewording, “The availability of these data allowed us to independently check...”

Line 22: Consider changing “normalization” to “detrending”

Line 22-23: It does not matter what this group “usually look at” – re-word to say what exactly was done.

Line 24: In a similar way – re-word. Crossdating “can be” done??? State HOW it was done.

Line 26: Change “advices” to “advice”. Also, state what this “advice” was.

Line 29: The use of the word “generally” implies that these criteria were not always followed. Is that correct?

Line 31: Please clarify what is meant by “without any pre-dating”. Presumably, the authors mean the data were not dated when they were obtained. Please re-word.

Line 36: The three chronologies do not crossdate with themselves. Please clarify whether it was expected that they should or not. i.e. It could be more diplomatically worded (if this is correct), “As shown by Baillie et al, these three chronologies do not crossdate.....”.

Line 41: This is an example where the paper fails to provide enough information. I have no idea what Teeshan is. Some context and meta data is needed. Presumably this is a dated site/building chronology. I think it would be very informative if a map was shown for the UK detailing where all the site/regional chronologies come from. The authors (and Belfast) must realise that only a very small number of people probably have any reasonable knowledge of this issue and where the data have come from.

Line 49: Ditto – where is Croston moss.

Line 52: How was Thorne Moors originally dated – i.e. against which chronology – English or Irish? Is there danger of circulatory here w.r.t. the dating of all of these records? I guess that is one of the main points of the paper??

Line 55: The current paper is too short and some of the information from the cybis website needs to be brought into this paper.

Line 62: Personally, I am not a user of T-values. I am not sure if I like them. You can have a low inter-series correlation (i.e. weak crossdate) with a large overlap which would give a reasonable T-value, but a highly correlated shorter overlap with a lower T-value. Also – calculating a correlation value over one single period does not test the temporal strength of the crossdate, which could be very strong for one period, but weak and non-existent for another. In this case, 5.1 seems not too bad to me. How do the chronologies compare when plotted (and running block window correlations calculated – which can be done in CDendro). This would be an obvious comparison to show. I would also advise not detrending with such a flexible filter as done by Baillie et al, but allow some retention of decadal variability. This might help ascertain if this crossdate is robust or not.

Line 63: Insert “by” before 316 years.

Line 66-67: Replace “lifting off this collection....” with “Removing these data....”

Line 72: Delete “meeting”.

Line 78: Insert “the” before “youngest”.

Line 80: From the discussion, it is not clear which group (Larsons vs. QUB) is correct here. Please clarify.

Line 82: How do the authors know that Q10705 was measured several times. The same radius or multiple radii??? Please clarify.

Line 92: Replace “shallow” with “low”

Line 93-94: Please re-word to say that "...it was described as tentative (presumably due to a low T-value – state what it was) and that no alternative temporal dating was possible." - Or something along those lines.

Line 95-102: Much more is needed with this dating discrepancy between the two groups. Why would Baillie and Brown get such high T-values when an independent group could not replicate this. These two groups really need to work together to identify why they get such different results.

Lines 104-110: The paper weirdly dies and jumps to the German record. The implications here is that the German record may have dating issues prior to the 950BC as it was originally dated against the Irish data. Surely, this would be easy to check. Even if there was some distrust and the German group are not willing to allow access to their data, I am sure there are other European labs (Belgium, Netherlands etc) who could step into the fray and very quickly address this issue.