



Reviewer C:

Review of Petra Ossowski Larsson, Lars-Åke Larsson, ' How continuous is the European Oak Chronology?


The authors present an independent attempt to build the Irish oak chronology, originally constructed in the Belfast tree-ring laboratory. They arrive at three partial, not cross-dating chronologies. From this finding they conclude that the European (sic) oak dendrochronology may be in doubt, and they raise doubt about the validity of IntCal09.


These conclusions are severely flawed. The authors can present this picture only by ignoring ***any*** work and publication done after 1986, i.e. over the past 25 years. In detail:

1. The major part of IntCal09 is based on German oak. Contrary to the initial statement of the authors, this chronology is fully independent of Irish oak (Friedrich et al., Radiocarbon 46,3,2004, p. 1113, bottom line). The German oak chronology has been cross-checked dendrochronologically against the independently built Göttingen oak chronology (Spurk et al, Radiocarbon 40,3,1998, 1-11). Putative weak intervals of the Irish oak chronology do not have any significance for the German oak chronology. 

2. In Intcal09, 14C dates on Irish oak as published by G. Pearson account for 406 of 2744 analyses within the age range of the Irish oak chronology. 85% of the data have been obtained on US west coast trees (back to 139 BC) and on German oak (over the full range); hence three independent tree-ring chronologies are the basis of IntCal09. There is no indication of an 14C offset between the respective data sets of more than two decades, imposing strong limits on putative dendro errors. 

3. Recently a Southern hemisphere 14C data set has been published based on New Zealand Kauri chronology (Hogg et al. Radiocarbon 53,3,2011,529) which parallels (because of the interhemispheric 14C offset) closely IntCal09. Again any major offset larger than a few decades would have become apparent immediately.

The authors state that 'the correctness of the calibration curve and the number of years between AD 1 and present time, have been questioned and heavily debated'. This debate does not exist in the scientific literature (and the authors do not give references). It is precisely the work of the past 25 years that resulted in a robust, unquestioned and independently verified 14C calibration data set. 

The authors may see reason to discuss their chronology building of Irish oak with the scientists in the Belfast laboratory, or to submit a scholarly manuscript (not a narrative) to a suitable dendro-oriented journal, e.g. Dendrochronologia. Their assessment of the role of tree-ring chronologies in 14C calibration literally does not consider any contribution younger than 

1986, and their insinuations about the validity of IntCal09 are simply wrong.

I strongly recommend rejection of this manuscript.