

Interactive comment on “Quality assessment of chronologies in Latin American pollen records: a contribution to centennial to millennial scale studies of environmental change” by S. G. A. Flantua et al.

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Received and published: 28 May 2015

General comments

This paper presents a review of the different methods - or points to the absence of methods - currently used to build a chronological frame in pollen records, a review of the chronology of the last termination, and a review of quality assessments of chronologies for North-West South America (NW-SA). All these reviews are based on the recent update of the Latin American pollen database (LAPD) by S. Flantua, a huge piece of

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work that will certainly enhance research studies on vegetation reconstruction in South America.

I understand that this paper is part of a special issue on the last termination. However I can see it is actually (at least) two different papers in one: i) a quality assessment of the chronology of the pollen database for NW-SA, and ii) the use of the database to characterize the last termination. The second part could come as a regional application of the quality assessment of the data. In this case, it needs to be better separated from the first part. In addition, the whole section 3 is dedicated to presenting the LAPD-ChronDB, which is off topic, as it is neither the NW-SA nor the last termination.

This is an excellent paper which certainly deserves publication in *Climate of the Past*. However the main thread of the paper is not clear and the paper thus requires major reorganization before being published.

Specific comments

The title is not representative of the content of the paper, although this is perhaps because I am confused about the main subject of the paper.

The authors mention they have been re-calibrating all the data, but it is not clear why. We would need an example of the possible benefits of re-calibration. How are the authors going to use their re-calibrated data? What do they intend to suggest to those who want to download the metadata from Neotoma and use a proper age model? Could they use the new one, if it is accessible?

Other methods (including probability density function) have been tested to avoid discussing the quality of an age model when one wants to use pollen counts that do not support a good chronological control (see for instance Hély et al. 2014). These methods should be added to the discussion. Hély, C., A.M. Lézine, and APD contributors. 2014. Holocene changes in African vegetation: tradeoff between climate and water availability. *Climate of the Past* 10: 681-686.

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- 1) Seismic activities page 1233, line 33-39 The gaps in the records from the Choco are probably due to seismic activity but never show synchronicity (see also Lim et al. 2014).
- 2) The discussion about the use of the NH or of the SH correction in the section "Calibration curves and software" is interesting. Why don't you give an example of a calculation using the two corrections and show the time difference?
- 3) Concerning the description of sedimentation conditions (p. 1241 line 8-9), this is an important piece of information and should be discussed earlier as, apart from BACON software, age models rarely take this point into consideration.
- 4) The Bayesian approach (section 4.2) should appear in the age model, in the methods section 2.3.
- 5) Figure 3: Would MIS 3 stand as an example of the use of re-calibration? Does figure 3 show the results of NW-SA or LAPD? Why only MIS 3? Why not all the data for NW-SA?
- 6) The following references should be added: Blaauw and Christen, 2011; Maezumi et al., 2015

Interactive comment on Clim. Past Discuss., 11, 1219, 2015.