

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.

T. Giesecke (Referee)

Thomas.Giesecke@biologie.uni-goettingen.de

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Flantua et al. present the results of an immense literature review including 1245 publications from Latin America and the construction and checking of 233 age models for north-west South America. This is a very useful undertaking and the plaeoecological community concerned with Latin America needs to be grateful for this effort. However, to fully appreciate the work and make use of it, the authors need to make the results of their work available with this publication even if it is only as an online supplementary, while the data release though the Neotoma database should follow as indicated in the

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text. The availability of the data would also benefit the review process. Flantua et al. adopt the age uncertainty reporting from the EPD (which needs to be cited as Giesecke et al. 2014) but focus in the text only on the classification system based on the density of dates in time. Giesecke et al. 2014 stress that this classification has to be used in conjunction with the propagation of age uncertainty from the dates through the age model. The intention of this system was also to provide information for individual samples in a database rather than for full records, as dating control often varies through the record. Flantua et al. discuss sources of age information including seismic activities that were not discussed by Giesecke et al. 2014, however, I missed a discussion on the uncertainties of these types of age information. Particularly in the case of biostratigraphic dates, the situation in South America is certainly more complex than in Europe. However, the information that samples date to the Lateglacial versus the Holocene is still important information that could be used in Bayesian methods without causing circularities. I am also curious how bottom ages were derived and why you think that 50 years is an adequate age uncertainty for all core tops while we used uncertainties of up to 250 years in Europe. I find the discussion of uncertainties of age estimates important including the shape of particular probability distributions, as Bayesian methods can use them in a statistical way. The title, abstract and introduction should reflect the two different results presented, namely a database containing all dating information for all Latin America and new age models for north-west South America. I also do not understand the reason for focussing on the different time periods in this manuscript. I gather that this manuscript is part of a special issue and can imagine that another paper refers to these periods. Otherwise, I cannot see the value of singling out particular periods in the presented manuscript and would consider removing it. The text is in some sections unnecessary long as it includes anecdotal accounts on particularities of different sites that could be reduced or omitted altogether. Also some in-between explanations are not always needed and make the text unnecessarily long e.g. the explanation of conventional radiocarbon dates P. 1229, L. 10ff. The title is unfortunate as it suggests the assessment of the quality of work of other palaeoecologist who's data

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are used. Also in the text the authors should consider that the purpose of the individual contributions that were reviewed was not to contribute to large scale analysis but to address a local problem.

Specific comments

P. 1220, L. 4: This is a strong statement and maybe not what you mean to express. The LAPD is not a heterogeneous database (see also P. 1221, L. 10) as it contains only pollen data. The age control between sites is heterogenic, hampering detailed comparisons and meta-analysis.

P. 1221, L. 24 and throughout: You probably mean Giesecke et al. 2014 rather than 2012.

P. 1222, L. 20: Our intention was to describe the age uncertainty for individual samples rather than sites. In that system the classification needs to be combined with the uncertainty from the age model.

P. 1225, L. 9-10: Confusing statement please consider revising.

P. 1225, L. 21: What do you mean by 1 SD in brackets after 50 year uncertainty?

P. 1228, L. 14: The explanation of the abbreviation kyr BB in between MIS 5 and MIS 3 is confusing.

P. 1228, L. 14ff: I would assume that few records fall into this time period. Why was there no focus on a period in the Holocene, e.g. the moisture increase during the late Holocene? See also general comment on time periods.

P. 1229, L. 26: New sentence starts with citation in brackets.

P. 1235, L. 19: It should be made clear that this is what was submitted by the authors or reported in publications. The heading is not reflecting the content of this section.

P. 1237, L. 4-5: The star assignment is fairly simple and I suppose M. Blaauw could

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either fix the R-code to make it more robust or the classes could be assigned manually.

P. 1237, L. 23: May this be due to the fact that the top is a date for a large number of sites?

P. 1240, L. 20ff: In discussion on why people are not using Bayesian methods I miss the motivation of why the presented study did not use these tools.

P.1242, L. 15-16: The stars are only a classification of the temporal density of radiocarbon dates and need to be considered in conjunction with the age uncertainties provided by the age depth model.

P. 1242, L. 25: I appreciate your frustration with the reporting of age determinations, but would disagree in two points: 1) the original research question leading to a site based investigation may NOT require detailed chronological information. 2) Ideally the information should be submitted by the authors to database and may not need to be presented in full in the publication.

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