

## ***Interactive comment on “Vegetation response to the African Humid Period termination in central Cameroon (7 N) – new pollen insight from Lake Mbalang” by A. Vincens et al.***

### **Anonymous Referee #3**

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In summary, I recommend the paper require minor changes before it is suitable for publication. The quality of the data in the present form is good although this needs to be placed in the context of a more wholesome discussion. The insights gained by this study into using pollen to describe the character of a climate episodes in the Late Holocene have relevance not only to understanding vegetation dynamics in the immediate area, but also other regions of Africa, and indeed globally. Given the potential importance of the paper I have numerous reservations regarding the manuscript in the present form. Comment regarding the scientific/academic quality is given below. The paper represents an excellent body of information on pollen vegetation and ecology from West Africa. The quality of the work within the paper is excellent, both in terms of

the content and the presentation. However, a couple of central concepts in the paper need addressing – these are quiet fundamental.

Although the importance of the study area for Bantu agriculture is mentioned in the introduction there is an underlying thread that the data record a climatic shift There is no discussion on the potential of the pollen signal being a result of human impacts, an oversight given the strong climate-human interactions that are well documented from this period and location. There is mention of ‘Forest degradation’ in the conclusion but this is a misleading term and human –ecosystem interactions are not discussed.

The use of the palaeoenvironmental literature is quite a subjective and does little justice to the current reconstructions that show highly variable Holocene climate across tropical Africa. Indeed the suggestion that the African Humid Period is the ‘last major environmental transition’, which has widely impacted o ecosystems’, is clearly wrong. Similarly, how this change relates to mid Holocene transitions and that documented around 2200 is not discussed, indeed there is plenty of literature from West Africa on the importance of the 2200-year ‘event’ that is largely ignored. There is a concentration on regional data with some notable omissions; within a supra-regional context there is connections made to the Lake Masoko record – it would be interesting to see how the regional expression of this varies – and the potential to review the potential forcing mechanism missed. There is an interesting review carried out by Marchant and Hooghiemstra (Earth Science Reviews) on the character of the ‘4000 yr BP event’, and how this manifested across tropical African and Latin America, that suggests potential climate mechanisms – it would be interesting to see if this record supports or refutes suggestions in that paper.

The interpretation of the radiocarbon data is open to quite different interpretation than that presented within the manuscript. Although there is an excellent correlation coefficient for the dates this is produced by only 4 data points and hence open to interpretation. More importantly the major transitions that are the backbone of the paper are not dated directly – thus significantly weakening the interpretation. If possible I suggest

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additional dating are performed, if this is not possible then the interpretations should be written in a more cautious manner.

There are some ambiguous statements in the paper that needs specifying. For example Several 6 m-long cores were collected.

To summarise, notwithstanding the criticisms detailed above, I consider this an important and timely paper that is of international significance. I support ultimate publication of the paper in *Climates of the Past* and I feel this is indeed an important development to the understanding of forest dynamics in Western Equatorial Africa, and beyond.

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Interactive comment on *Clim. Past Discuss.*, 5, 2577, 2009.

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