

## ***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.***

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### GENERAL COMMENTS

The paper of Vincens et al. describes a very well executed pollen study of lake sediments from a region of Africa that is not particularly well studied. The amount of recognised taxa is impressive. The interpretation of the data is excellent. The topic certainly fits Climate of the Past and should be published if two points of comments have been remedied.

One criticism is mainly technical and concerns Table 1. The 2-sigma-error bounds given in Table 1 are not complete and therefore misleading. The range given for the

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calibration of the 535 BP radiocarbon age is 509-562 BP (probability of 70%) AND 594-635 BP (probability of still 30%!). This range must be given in the table. The second radiocarbon age of 1796 BP calibrates within 1688-1820 BP for 83% but 17% lies outside that range, that is, between 1622-1671 BP. The calibration ranges given for the other two radiocarbon dates cover more than 90% probability. Those ranges are also not complete, but the omission here is less problematic. The complete calibration ranges should also be drawn into Figure 2 (age-depth curve), even if they are small.

The other criticism concerns the failure of the authors to compare with a vegetation record from of Angola and that they only discuss the climatic development in northern Africa. This is of importance because the migration of the ITZC is not only related to the Northern but also to the Southern Hemisphere atmospheric circulation. In Angola, savannas were replaced by closed forest for the period between 7800 and 3700 cal. yr BP [Dupont 2008, Thirty thousands years of vegetation development and climate change in Angola (Ocean Drilling Program Site 1078) *Climate of the Past* 4: 107-124]. Together with the results of this paper one can conclude that there is a substantial forest expansion directed north AND south in the early Holocene. Also the re-expansion of the savanna occurred not only north of the equator but also south of it and almost at the same time. In Angola the expansion starts at 3700 cal. yr BP and becomes dominating after 2000 cal. yr BP (opt. cit.). The increase of savanna in both Angola and Cameroon suggests that the ITCZ not just shifted southwards during the Late Holocene, because that would have caused anti-phasing of the climate and vegetation development north and south of the equator. More likely, the amplitude of the yearly migration of the ITCZ got less, which would also very well explain the increased length of the dry season.

Suggestion: Put pollen zones M2 and M3 together and treat them as subzones. Effectively, these two zones are already discussed that way.

#### MINOR COMMENTS AND CORRECTIONS

page 2578 line 5: 'where there are no data available today' in stead of 'where any data

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are today available'

page 2578 line 7: 'retreat' instead of 'degradation'

page 2580 lines 12-13: 'Benin is available today (. . .) and no one was' instead of 'Benin is today available (. . .) and anyone was'

page 2581 line 9: insert 'north' after '100 km'

page 2581 line 23: It is not clear which parts of the core are laminated. Please rephrase.

page 2582 line 6: According to the formula in Figure 2, the depth-age model is obviously a 2-degree polynomial and NOT linear.

page 2583 lines 9 and 20: The use of the word 'modern' here is very confusing.

page 2585 line 6: 'receiving' instead of 'under'

page 2585 line 16: 'around' instead of 'on'

page 2586 line 3: 'that is' instead of 'so'

page 2586 line 8: 'persistence' instead of 'maintain'

page 2586 line 9: 'It can be excluded' instead of 'It is excluded'

page 2586 line 10: 'because' instead of 'according that'

page 2586 line 13-14: 'testifying local openings in the forest' instead of 'testifying of local openings of the previous forest'

page 2586 line 14: 'a fern' instead of 'fern'

page 2586 line 23: Put a full stop after 'today' and start a new sentence: 'The savanna also re-expands at the expense. . .'

page 2589 line 3: "in terms of' instead of 'in term of'

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page 2590 lines 24-28. These lines are very obscure. Please rephrase.

figure captions: Please explain what the dots mean in Figure 3.

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