

## ***Interactive comment on “Thirty thousand years of vegetation development and climate change in Angola (Ocean Drilling Program Site 1078)” by L. M. Dupont et al.***

### **Anonymous Referee #3**

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Thirty thousand years of vegetation development and climate change in Angola (Ocean Drilling Program Site 1078) By Dupont, L. M., Behling, H., and Kim, J.-H.

I find this paper to be very well written, and it makes excellent reading. The authors have made a good contribution to our understanding of the climate and vegetation conditions in southern Africa during the full glacial, deglacial, and interglacial periods. The paper addresses relevant scientific questions using palynological tools which are well regarded. I find this contribution to be of the quality worthy of publication, albeit with some additions, clarifications, and tying of some loose ends that I point below for discussion:

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1. The authors base their discussion of the paleovegetation and climate of Angola over the past 30 thousand years on pollen processed from marine sediments deposited on the ocean floor. The authors should provide a brief summary of the mechanisms involved in deposition and archival of pollen (rain) in the ocean. Despite the fact that the drill site is close to Angola the mechanisms of pollen dispersal, transportation, and the eventual deposition on the ocean floor is more complex and involves the broader western, central and southern African region. The argument presented in the paper regarding the core site being outside the upwelling range and the influence of open ocean (page 117, line 23) or the site being close to the mouth of the Balombo River (page 121, line 4) and hence the prominence of fluvial transport, is not convincing enough because the site is not immune from other forms of ocean circulation, including surface currents. What compels the authors to narrow their interpretation to vegetation and climate of Angola and not the broader western, central and southern African region?

2. Page 116, line 25, some samples turned out to be too poor; to reach the goal of 300 pollen grains. How many such samples were identified? Was there any consistency in the number of cases with poor pollen counts? Given that your analysis on centennial to decadal resolution (page 112, line 4), did you note (read) any climate signal in the horizons with poor pollen counts?

3. Page 122, line 29, The gradual increase in pollen concentration; This statement evolves from figure 5 which only provides percentages for select pollen taxa. I believe your discussion would be stronger if you provide a column for pollen concentration. I suggest that a column for pollen concentration be provided in figure 5.

4. The last argument on page 28, beginning line 24 appears to be inconclusive. If the frontal systems were in place during the Holocene and that the aridification of the past 4 to 2 ka cannot be explained by a southward shift in position of CAB and ITCZ, what then is behind the phenomena?

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5. Figure 7 on page 147 is not self explanatory. The authors should specify the different land covers represented in the figure if they feel that is necessary or use a simple outline map of Africa. Better still, they could provide the likely delimitation of the different land covers at ca. 22-19 ka and 15-10 ka. Otherwise, in its current form the colors can only be a confusion.

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Interactive comment on Clim. Past Discuss., 4, 111, 2008.

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