

## ***Interactive comment on “Mid-Tertiary palaeoenvironments in Thailand: pollen evidences” by P. Sepulchre et al.***

**P. Sepulchre et al.**

pierre.sepulchre@lsce.ipsl.fr

Received and published: 12 May 2009

Here is a reply to reviewer's comments on our contribution to Climate of the Past. Noting the potential lack of clarity in some parts of the paper, we also discuss the points on which we disagree with the reviewer : Originality of the study, “state of the art”, and palynological interpretation.

Authors : We thank the reviewer for comments that will help clarifying the text and improving the manuscript. We might have not stressed enough how our study bring new data concerning paleoenvironmental evolution of Southeast Asia during the Cenozoic. However, we also consider that some of the reviewers' critical issues are not relevant. Here we give detailed responses to these points.

C198

First, we have cited samples from Mae Moh and Chiang Muan sites that have been published by Songtham et al. (2003, 2004). However, these studies did not provide any dating based on magnetostratigraphy, and there is too few information in these publications to know whether the sites and the sequences can be considered as identical. Also, although comparing Songtham et al.'s work and ours is not our main focus, some differences are clear:

- We provide paleoenvironmental fluctuations with a clear timescale, showing millional to sub-millional scale environmental variations. An effort has been done to make the chronology of Mae Moh (magnetostratigraphy) and Chiang Muan (biostratigraphy) robust. To our knowledge, such a description of paleoenvironmental changes for the Miocene of Southeast Asia had never been done before.
- We quantify every taxonomic occurrence in our pollen spectra, whereas there is no quantification in Songtham et al. works (only presence/absence indications).
- Consequently, we do not agree with reviewer's statement that pollen spectra and findings are “nearly identical” in both studies. Moreover, Songtham et al. 2003 reported 20 sporomorphs, Songtham et al. 2004 reported 16 sporomorphs, whereas our study is based on 96 sporomorphs, which provides a more detailed signal of vegetation changes in the Miocene SE Asia.

We agree with reviewer's point that we could have had cited more studies on East Asia paleoenvironments and make our discussion more relevant. This point will be assessed in the next manuscript. However, systematically extrapolating our pollen records to a regional signal would be a kind of “over-interpretation”, as it appears that the local signal is really strong. Concerning the comparison with African floras, this particular point is discussed in details within the manuscript (pages 720-721). We have highlighted the debate on *Syzygium* origin and only provided more information, therefore we do not understand why such comparison is “irritating”. Concerning the use of modern taxa names for Tertiary palynoflora, it is worth reminding that a lot of

C199

serious studies about Cenozoic Asian paleoenvironments have used modern names before. See for example, Sun et al. 2008; Wang et al., 1999; Liu & Leopold, 1994.

#### References

Liu, G. and E. Leopold (1994). "Climatic comparison of Miocene pollen floras from northern east-China and south-central Alaska, USA." *Palaeogeography, palaeoclimatology, palaeoecology* 108(3-4): 217-228.

Wang, J., Y. Wang, et al. (1999). "Cenozoic environmental evolution of the Qaidam Basin and its implications for the uplift of the Tibetan Plateau and the drying of central Asia." *Palaeogeography, palaeoclimatology, palaeoecology* 152(1): 37-47.

Sun, J. and Z. Zhang (2008). "Palynological evidence for the Mid-Miocene Climatic Optimum recorded in Cenozoic sediments of the Tian Shan Range, northwestern China." *Global and Planetary Change*.

---

Interactive comment on *Clim. Past Discuss.*, 5, 709, 2009.