

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

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I apologise for this late review and have not looked at the discussion to date. I am not familiar with the Tertiary palynology of Thailand although I have an interest in the general history of the vegetation as a basis for better understanding Quaternary environments of the region and present day distribution patterns.

It is pleasing to see some overview of records from the Neogene of a region that has revealed very few pollen sequences, and to have them analysed from both biological and climate perspectives. Although it is suggested that the study is high resolution, nothing could be further from the truth with only 25 samples from 4 sequences covering a 20 million year period. I feel that this traditional very coarse resolution approach is very different to that which has characterised the journal and, together with a lack of

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modelling, makes me wonder whether these are grounds for excluding the paper from this issue. On the other hand, it represents one of the activities of Dominique Jolly and, therefore, on balance should be accommodated in this special issue, if technically and intellectually acceptable.

The initial concerns on reading the paper are problems with the English language and botanical nomenclature. With the latter there appears to be little understanding about when to use italics with plant names (should only be with genus and species names) and when names should be capitalised, while the list of plants in table 2 contains a number of spelling mistakes. It has been possible to correct these and other problems in the manuscript up to the discussion (see attached annotated pdf copy) but from this point, major revision is required. The following aspects are identified. 1. The authors give up too quickly on an explanation for the strong temperate signal in the Oligocene assemblage. Although this is only one sample, it is considered to be an important feature. Is it likely to be representative and is it firmly dated? If so, perhaps there needs to be discussion on when tropical vegetation expanded within this region (what does Morley 2000 have to say) - how might it relate to monsoon development and are there any regional and global climate models that might provide explanations? 2. There needs to be a more integrated discussion of relative representation of aquatic, dry land plants and ferns. The initial section on ferns spores does not cover all hydrological evidence and is confused by subsequent discussion. It should also be clearly acknowledged that Poaceae probably largely derives from regional vegetation and Cyperaceae from local. 3. The meaning of variability. It is difficult to automatically consider monsoon activity as a major cause of variability when depositional sites are so varied and, at this scale, orbital changes become important. What really is the signal for monsoon operation and do Asian and African monsoons have different histories or can they be considered together as a global monsoon? 4. Are there modern or recent pollen samples from different communities that may help interpretation. I think that identified taxa here would be more profitable than allocating taxa to vegetation types from the list of recorded taxa as there is so much uncertainty with what is tropical as opposed to temperate (more

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realistically mesotherm as opposed to microtherm).

I hope that such issues can be dealt with in what may amount to a major revision and that assistance can be sought to ensure language comprehension and accuracy.

Please also note the Supplement to this comment.

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