

Interactive comment on “The C₃₂ alkane-1,15-diol as a proxy of late Quaternary riverine input in coastal margins” by Julie Lattaud et al.

Anonymous Referee #2

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Using well-studied cores and surface sediments retrieved from the Mozambique Channel and the eastern Mediterranean, the authors tested the abundance of C₃₂ alkane-1,15,-diol as a proxy of riverine organic matter by comparing with relatively established proxies indicative of terrestrial contribution. The authors assume that the fractional abundance of C₃₂ alkane-1,15,-diol in total C₂₈, C₃₀, and C₃₂ diols represents the contribution of the organic matter produced in river and lake freshwater, in contrast to other terrestrial proxies based on land plant organic matter and soils. This is a quite unique proxy and must be tested in the application to paleoenvironmental studies.

This study benefits from previous studies conducted by the authors' and other groups. The results of the previous studies are not described well in this paper, probably to avoid duplications. I, however, think that the following information is helpful for readers to understand this paper. 1) Brief history of C₂₈, C₃₀, and C₃₂ diols and their

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potential source. Expand the paragraph 64-77. 2) Age controls in both Mozambique and Mediterranean cores. Indicate the control points in Figs 2 and 4 and the short description of age-depth model in supplement.

I have the following comments: 1) The results of F_{1,15}-C₃₂ in two different cores are discussed independently, but more synthetic discussion is necessary on its advantages and disadvantages, the reason of the discrepancy between F_{1,15}-C₃₂ and BIT, the reason why the discrepancy in an eastern Mediterranean core was larger than that in a Mozambique Channel core, why F_{1,15}-C₃₂ works better than BIT (is crenarchaeol production more affected by sea-level controlled marine production? etc). 2) Clearer discussion is necessary on the source of C₃₂ alkane-1,15,-diol as a proxy of riverine organic matter. What does synchronous or asynchronous variation of F_{1,15}-C₃₂ (freshwater OM) and BIT (soil OM) means in more general sense? 3) Lines 366-371. This part is much more speculative than other parts. If this is true, low brGDGT concentration is somehow reflected in brGDGT concentration in surface sediments at the offshore of northern rivers. 4) If possible, I want to see more general discussion on the paleoclimate (precipitation in eastern Africa and ITCZ migration, etc) during H1 and YD periods.

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