Reviewer 1: Anonymous

General comments:

This is an excellent paper that addresses the relatively under-studied eolian history of the Red Sea. The subject is of interest to the readership of the paper and will probably draw attention and referenced by future works in the region. It focuses on the central part of the Red Sea around the Tokar Gap. An interesting region that experiences large climatic variations also through winter-summer conditions, and on a larger scale of glacial-interglacial conditions it had shown large variation in the regional climatic conditions. Dust proxies usually present a messy record as there are several sources – specifically in a site that accumulated both eolian and fluvial sediments. Yet, the proxies examined here were discussed appropriately, showing an overall agreement and the text clearly demonstrates this matter. Some differences may arise regarding the interpretation, and I added the fundamental issues below, however, the paper should be published addressing few minor revisions.

[Response] Thank you for this very positive assessment of our study and for your suggestions of how to improve the manuscript.

Specific comments:

The authors argue that a fluvial origin of palygorskite is unlikely, however, there seem to be a correlation between rising proportions of it and EM3, and the occurrences of S events. EM3 is considered a fluvial source and has robustly been shown to be correct in previous works in the Red Sea, even by one of the authors. How then, does this alleged discrepancy settle?

[Response] We regard a fluvial origin of palygorskite as unlikely, because no potential source rocks are known in the catchment areas of the small wadis entering the central Red Sea (lines 319–321) from the Arabian and African margins. The rising concentrations of palygorskite during times of enhanced loadings of the fluvial grain size end member EM3 are explained by a dilution effect (lines 408–409). During the humid phases (sapropel events) the main source for clay minerals, the Eastern Saharan Province, was much less active and, thus, the smectite concentrations in KL11 decreased by ca. 20%. Because the concentrations of all clay minerals add up to 100%, the concentrations of illite, chlorite and palygorskite rise as the smectite concentration drops. We have clarified this in the revised version of the manuscript.

Values of 87Sr/86Sr that are higher than 0.707 accompanied with εNd values lower than -2 are not likely to reflect products of basalt weathering. Perhaps there is another source rock in the area that can provide these values? Could it be related to the palygorskite from the previous comment?

[Response] Agreed, those are not values reflecting purely basaltic input. What we are trying to say is that the composition of KL11 sediments points to supply from a source where there is a strong imprint of basaltic weathering input. Our data correspond well to the composition of active dust sources in the Eastern Sahara (Fig. 6) where there is a strong imprint of sediments transported down the Blue Nile from the Ethiopian Highlands. We have edited the text to improve our clarity of meaning.

Technical comments:

Line 178: According to Fig. 3 the smectite minima at MIS5 occurred at 118-119ka and not at 125ka as stated.

[Response] The broad Eemian smectite minimum at ca. 129–118 ka is interrupted by a short and small secondary maximum, just in the centre of AHP5 (discussed in lines 423–433). We have changed the number 125 to 128/120 in the revised manuscript.

Lines 396-398: The argument, to my understating, is that the alluvial fans channels and wadis stopped providing dust due to their increased hydrological activity, whereas the alluvial plains continued to do so. Thus, the process is wetting rather than desiccation, I advise to use this terminology as the revers is harder to grasp and not chronologically accurate.

[Response] We followed your advice and have changed the sentence to: "The peaks in these records correlating to AHP3 and AHP7 occur some 2 kyr earlier than the corresponding smectite minima (Fig. 7f, g) presumably signalling wetting of the alluvial plains after their associated fans, channels and wadis."