

## ***Interactive comment on “Environmental changes, climate and anthropogenic impact in southern-eastern Tunisia during the last 8 kyr” by Sahbi Jaouadi et al.***

**Anonymous Referee #2**

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### **General comments**

I read with great pleasure this contribution. It is of high scientific value, and exemplifies the need for more studies of marginal, semi-desertic to desertic environments, to complement our regional knowledge of palaeoclimatic changes. Such settings, often neglected, possess a wealth of paleoenvironmental information awaiting researchers. The manuscript is clear, well-constructed and well-written. Particularly appreciable is the fact that the authors clearly explain both their scientific approach and how they treated the data, and take great care to separate results and interpretations; which are carefully formulated. The use of both pollen- and clay minerals-based ratio indicators for the identification of wetter/drier periods is an interesting approach, and may help

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other researchers dealing with similar environments.

### **Specific comments**

Radiocarbon dating: The authors state that the organic matter they dated is “of mixed origin, composed of marine planktonic/algae material and continental woody material” (p.5, l.3-4). In this case, one may wonder if correction for marine reservoir effect is appropriate – it may lead to an overcorrection of the dates? It would have been better, of course, to be able to date terrestrial macrofossils instead of bulk organic matter – but these are notoriously missing in such environments. However, for further studies, the authors may consider the possibility of picking small particles of charcoal (200-500  $\mu\text{m}$ ), which may be present in the sediment and may provide more reliable ages. This, and the general aspect of the age-depth model (Fig. 2) indicate that indeed time constrain may not be that reliable below ca. 4000 BP, and this renders it difficult to compare short-term events with other records. Although the authors take great care to emphasize this in the discussion, it may be better to acknowledge this issue by introducing more caution (e.g., by the use of *ca.*) when summarising the results (e.g. in the abstract).

Comparison to other records: Roman period: there are actually some indications that the climate may have been colder during the Roman period in the Middle East, so the term “Roman Warm Period” may not be appropriate for the whole region... (e.g. Issar 2003 - Climate Changes during the Holocene and their Impact on Hydrological Systems, INTERNATIONAL HYDROLOGY SERIES, Cambridge university press).

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