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Interactive comment on "Mid-Late Holocene event registered in organo-siliciclastic-sediments of Lagoa Salgada carbonate system, Southeast Brazil" *by* Anna Paula Soares Cruz et al.

Anonymous Referee #2

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I have now finished the review of the manuscript "Mid-Late Holocene event registered in organo-siliciclastic-sediments of Lagoa Salgada carbonate system, Southeast Brazil by Soares Cruz et al., The topic of the manuscript fits well with the aims of the journal and I do think it deserves publication on Climate of the Past. The text is generally easy to read even if some improvement in the quality of the figures is required.

However, revisions are required before publication. In particular, more methodological details are required. In my opinion grain size analysis and geochemistry need to be supported by bio-stratigraphic analysis in order to reconstruct the paleao-environments in a transitional area. The transition from marine to brackish faunal assemblages were

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extensively used for these kinds of analysis. The authors should better explain why they did not use these proxies. Furthermore, there is an extensive discussion on the vegetation dynamics but no clear investigations on past vegetation changes is reported in the manuscript. This makes the discussion not always well supported by the data. Finally, the references are not always up to date, with some relevant recent papers focused on the 4.2 ka event missing from the introduction/discussion.

So, I suggest moderate revisions before the publication of this paper on Climate of the past.

I detailed below the points that should be improved before the publication.

Introduction

The introduction needs some work. This is now not well focused. It is unclear for the reader why the Lagoa Salgada is important for this kind of investigation. You deeply described the global importance of the 4.2 ka event but it is presently unclear why your case study is important to investigate this. Furthermore, the cited references on the 4.2 events are not always up to date. So an effort in the improvement of this section is strongly required.

Methods Methodology is generally wll described but some additional data are required. Can you please provide more details about the coring operation? Did you use a vibra-core or a hand corer? What is the elevation of the top of the core with respect to the current msl? Furthermore, how did you reconstruct the depositional environment? It seems that you did not use meio or macrofaunal assemblages to define the palaeo-environments. This is a bit surprising because these proxies are widely used to this purpose. Grain sizes usually should be corroborated by these data. So, you should at least explain why you did not perform this kind of analysis (maybe lack of faunal assemblages??).

Discussions I generally agree with the discussions but I don't think they are always

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based on the results. As I said before, I think the palaeo-environmental reconstructions are a bit weak because only based on grain size and geo-chemical analysis. Furthermore, there is a large discussion focused on the vegetation but no pollen (or similar) analysis are reported. However, my major concern is related to the use of Martin & Suguio, 1992 RSL reconstruction provided in figure 5. This sequence of high and low sea-level stands needs to be better explained. From an isostatic point of view this is quite complex to justify. Do you think there are other factors controlling the sea-level evolution in this area? This is a major part of your discussion and it is now not fully explained in the manuscript. I do understand the RSL highstand reported by Castro et al., 2014 at about 5000 BP. On the contrary, the yo-yo shape of the RSL curve reported by Martin & Suguio, 1992 needs clarification.

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