

Interactive comment on “Multi-decadal climate variability in southern Iberia during the mid- to late-Holocene” by Julien Schirrmacher et al.

Anonymous Referee #2

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The overall quality of the paper is good; the paper addresses relevant scientific questions of the journal and presents new data. The text is mostly well written but lacks an into detail comparison to other records of the region as well as a detailed description of and introduction to the ocean currents around the Strait of Gibraltar and their evolution, which might be of great value related to the topic of the study. The section 4.2 sets it more or less in a regional context by the aid of regional to global phenomena, but is a bit exaggerated. E.g. I am not sure about the connection of Bond Events to the data of the study and about the substantial conclusions. The applied methods are clear, allow reproduction by fellow scientists and the authors give proper credit to related work and original data; assumptions are mostly valid as I see a difficulty in interpreting seasonal variability from the data, as to my opinion the sedimentation rate is too high as well

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as the interval of sampling too big to write such a detailed interpretation). I am not convinced of the title, not about the “multi-decadal”, nor about “southern Iberia”. SST, maybe as well as Alboran sea and Gulf of Cadiz or oceanic variability should somehow be included in the title. The abstract is a bit excessive in its scientific statement, the overall presentation of the study is well structured and quite clear, however e.g. the beginning of the discussion is rather a results paragraph. Language is fluent and precise. Some figures should be clarified, references are ok in quantity and quality; naming of references within the text need to be checked for order. Section 1.1, line 5: mentioning of that figure is wrong, a precipitation curve would show the precipitation during winter e.g. Line 6: would be nice to see the Atlantic regime within the figure. Btw, you use ml in the text and mm as unit for precipitation in the figure, can you adjust that? Line 14: you mention again figure one, to my opinion in the wrong sentence. Concerning figure 1: (a) the figure shows too much of the Iberian Peninsula, you can easily reduce the area you show and exclude the Ejulve cave. A north arrow or coordinates are missing as well as a scale. The river beds could be shown more clearly. And I would not call the red shaded area the Alboran sea catchment, as a catchment should be related to the input area rather than the endmember of the area affected by the rivers (e.g. you call the other catchment Guadalquivir catchment, not Gulf of Cadiz catchment). I would also not use alphabetic letters for the discussed references, as it is difficult to read and find them within the caption, if you use a, b, c already for the subdivision of figure 1. January should not be written with capital letter in the caption. (b) and (c) could also be completed by coordinates or a north arrow and a scale. What are the white spots within (b) and (c)? Section 2, line 25: resampled on 0,5 cm is not wright, as you mention every second centimetre in line one of page 4. Section 2.2, Age model: line 19, 20: can you interpret the sedimentation rates by the use of other studies? Line 15: what is the reason for that massive shift? Can you explain that? Line 16, 17: the exclusions of the ages that you have is not really explained and the reason of lowest analytical error is not enough. Can you explain the “errors” in greater detail, where they might come from etc? Figure 2: why the abrupt steps of the sedimentation rate of ODP and smooth

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increases and decreases of GEOB? Figure caption is very long, could you include the naming of the record within the figure next to the line? Section 3, results: you do not include cal after the naming of an age, this is not consistent with the legends of the axes of the figures. Section 2.3: why abbreviation of methanol MeOH? Looks like a molecular formula, which would be CH₄O. Page 7, Line 2: mentioning of figure 1 is not necessary. Page 8: line 7 and 8 is too my opinion exaggerated. Page 8, section 4, line 21+22: references are missing and included with more detailed information in line 1,2 and 3 on page 9, which could be included in page 8, line 21. Line 7 on page 8, rephrase "moreover, a forest..." as it is unclear. Line 15, drought episodes parallel to Norm 33... I don't think so! Line 23, where can I see that in figure 3? Page 11, line 15, why is there no explanation why bond 2 is not visible? Figure 6: not really discussed within the text. Section 5: the conclusion should be rephrased and maybe restructured too, some bullet points of your study, what is the most important interpretation etc.

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