Comment on essd-2021-14
Anonymous Referee #2

Referee comment on "A Global Database of Marine Isotope Stage 5a and 5c Marine Terraces and Paleoshoreline Indicators" by Schmitty B. Thompson and Jessica R. Creveling, Earth Syst. Sci. Data Discuss., https://doi.org/10.5194/essd-2021-14-RC2, 2021

General comments:

In this review Thompson and Creveling compiled the marine terraces and paleoshoreline sea-level indicators that formed during the interstadials MIS 5a and 5c. The authors divide the geographical distribution of the indicators in 3 main regions: Pacific coast of North America, the Atlantic coast of North America and the Caribbean, and the remaining globe. This global compilation includes the elevation, indicative meaning, and chronology of the indicators. Due to its global context, this component of the WALIS database will prove to be very useful by facilitating global sea level reconstructions and contributing to refining the corrections needed for glacial isostatic adjustments and regional tectonic deformation.

I think the manuscript is overall well written and concise. The majority of the manuscript deals with reporting the measured elevations and chronologies of the MIS 5 and 5c indicators, however, in my opinion, this work would benefit from a discussion before Future research directions on the GIA effects and tectonic deformation. I suggest the authors to address how these indicators are useful to facilitate the future investigations of GIA models, particularly given the good coverage in the near field of the North American Ice Sheets, as well as their usefulness for better constraints of the Quaternary tectonic deformation.

Although there is a brief summary section at the end of each of the 3 different regions, it seems that a section of more general conclusions of this compilation in the end of the manuscript is missing.

Specific comments:

I suggest using “substages” in the title and throughout the text.

Please check the references throughout the manuscript and consistently use “et al” with non-italic, as per journal guidelines.

The authors use “uranium-thorium”, “uranium-series”, “uranium series” dating - Please choose one of these and use it consistently throughout the text.
I suggest including a brief discussion about the age quality and indicator quality presented in Tables 1 and 2 and refer the reader to the evaluation guide by which indicators are rated on a 0 (rejected) to 5 (excellent) scale.

**Details:**

Line 7: I suggest delete "and detail".

Line 17: Earth’s

Line 39: delete “with MIS 5a and 5c paleo-sea level indicators” - it’s already mentioned at the beginning of the sentence

Line 39: “includes sites”. Isn’t 39 the number of total sites, instead of 36?

Line 42: uncertainty - do authors refer to Elevation measurements’ uncertainty here? Not clear.

Line 51: reflects

Line 52: introduce here the acronym GIA

Line 60: delete GIA

Line 61: delete GMSL - has already been mentioned in line 53


Line 73: eolianites

Line 89: introduce the acronym AAR

Line 96: radiocarbon dating

Line 105: “present review”?

Line 135: delete “amino acid racemization” and keep only AAR

Line 150: see "above" not below

Line 155: this is the same sentence as in lines 146-147

Line 157: mention the age?

Line 177: add “respectively”

Line 178: I suggest rephrasing this sentence: “Merritts and Bull (1989) assigned the 10 m apsl and 23 m apsl terraces to MIS 5a and 5c” has been mentioned already 2 lines above

Line 221: bones?

Line 222: “.” missing after (figure 4). “Corals” instead of “coral”.

Line 225: I suggest avoiding to use the word “terrace” so many times (i.e., 3 times in one sentence).
Line 214: delete “.” after fossiliferous

Line 245: I suggest using “open-system behavior”

Line 251: delete comma

Line 252: delete first comma

Line 259: delete comma

Line 287: delete apsl

Line 309: America

Line 312: the cited reference is missing the year

Line 315: delete the second “overall”

Line 321: “.” missing at the end of the sentence

Line 323: corals

Line 325: is it age assignment of MIS 5a instead of MIS 5 here?

Line 348: I suggest deleting “aged”

Line 351: “represents”. I am not clear what the authors mean by “ specific Fig. 5”?

Line 364: “radiocarbon ages and uranium-series dates” - to avoid confusion, I recommend to clarify the difference between “a date” and “an age” and use it correspondingly throughout the manuscript.

Line 368: eolianites

Line 377: fits

Line 390: corals

Line 391: use comma before “respectively”

Line 410: delete “terrace” before lowest. “is mapped”

Line 419: delete “OSL”

Line 428-429: use italic for coral species

Line 439: corals

Figure 1: I would suggest a clear separation between panel (a-c) from (d-f) (i.e., move (d-f) more to the right, otherwise I find reading the figure a bit confusing).

Figure 1, 2, 3, 4, and 5 captions: use RSL and delete “relative sea level”

Figure 4 and 5: I recommend placing the legend in a better position so that it doesn’t overlap with the data (one suggestion would be to have dates and substage assignment on two different columns).