

# ***Interactive comment on “Last Interglacial (*sensu lato*, ~130 to 75 ka) sea level history from cave deposits: a global standardized database” by Oana A. Dumitru et al.***

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General comments:

The dataset compiles chronologically constrained, paleo relative sea-level based on previously published proxy records from cave deposits. The dataset has been compiled using a standardized format as part of a wider project to collate worldwide paleo sea-level data. In this way, the data are presented in a format that is easily usable by researchers who are not necessarily experts in cave deposits. This unique dataset, focusing on cave deposits, is an important addition to the database of more commonly used sea-level proxies, such as corals. The data, extracted from the original publica-

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tions, appear to be inserted in a thorough and complete manner.

The manuscript accompanying the dataset is informative and well written. It states clearly how these deposits form and their significance to reconstructing paleo sea-level, with the use of simple diagrams, enabling researchers from other fields to understand the formation processes of these unique cave deposits. Moreover, it discusses the limitations of these deposits for assessing the paleo sea-level, both temporally and spatially, and outlines the uncertainties on these values with respect to the data in the dataset. The discussion presents the data in simple graphical forms and remarks on the significance of these data for paleo relative sea-level, glacial isostatic adjustment, and tectonic uplift. As would be expected from a manuscript accompanying a dataset, the authors have made no attempt to analyze the data in terms of paleoclimate/tectonics but have outlined some of the conclusions from the original publications and identified research directions to improve and expand the dataset.

Specific comments:

The POS are said to form in the brackish waters of the seawater–meteoric water mixing zone (line 61). In general, thermodynamic models of the mixing between seawater and calcite-saturated meteoric water produce aqueous solutions that are under-saturated with respect to calcite, and thus, promote calcite dissolution. The authors later note that the POS only form with the fluctuating water table, which is a key concept from a geochemical perspective and could be easily overlooked. I feel that this explanation of POS formation should be slightly expanded to overcome problems that may arise when a reader might expect calcite under-saturation in this zone, rather than the carbonate precipitation that is evident from the formation of these cave deposits.

Figure 1: This figure provides a good overview of the formation of POS and SVS deposits. However, I find that part b should have a better explanation to explain more clearly what the arrows are showing. In part c, the graph is very small and difficult to read in comparison with the other parts of the figure. Furthermore, it is a conceptual

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model but there are values on the y-axis; are these values referring to a specific case? Perhaps the x-axis also requires an arrow indicating “time”. As a suggestion, the size of the orange oval (POS deposit) could be increased over time through points T1–T3 to show that it is growing. The inset photo in part c should probably include a scale and location information. Part d requires a scale.

Technical comments:

Ln 13 and throughout: Please check consistency of text between “sea level” and “sea-level”.

Ln 32: Remove the word “former” as it is not needed because you have “paleo” in the sentence. Also, sea-level should perhaps be plural since the sentence ends with “them”.

Ln 36: Please add the word “period” after “the last interglacial”.

Ln 40: Consider adding “partial”, or similar, before the word “analog”, as it is not a strict analog due to a different orbital configuration.

Ln 49: Please add the word “level” after the word “sea”. Consider converting “still stand” to “stillstand” and, throughout the text, also consider the usage of “high stand or highstand”, and be consistent.

Ln 52: The letter “L” in the word “AnaLysis” should probably be capitalized following the SISAL acronym.

Ln 61: Consider changing “sea water” to “seawater” and check consistency throughout the manuscript.

Ln 119: Please add the word “period” after “the last interglacial”.

Ln 133: Perhaps quote “xls” as “Microsoft Excel .xls” (or indeed .xlsx), or similar.

Ln 135: Please change the word “which” to “that” (because “which” should almost

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always be preceded by a comma).

Table 1: This table is a bit difficult to follow since the locations/deposit types have been placed central to the row to which they refer. Please format in a different way.

Fig. 2 caption: Please change “modelled” to “modeled” as you are using American English.

Ln 207: Please remove the word “times”.

Ln 262: Please consider changing the word “high” to “large” [uncertainties].

Ln 265: It is unclear to what the word “respectively” is referring to.

Fig. 3 caption: Remove the full stop after the word “Figure”.

Ln 284: Please insert parentheses around the “e.g.,” clause. For example (e.g., your text here).

Ln 294: The dates quoted here require a citation in this sentence.

Ln 316: Please change the hyphen to an en-dash between “Atlantic” and “Caribbean”.

Ln 318: Please remove the space between “5” and “c”.

Ln 319: Perhaps it would be clearer to write “reaching above –11 m, but not as high as –4.9 m” as “between –11 m and –4.9 m”.

Fig. 4: Change Harmon citation date from 1878 to 1978!

Ln 347: The word “authors” should be authors’ (add apostrophe) because it is a possessive meaning being used.

Ln 348: Please remove the words “the former”.

Ln 363: Please use an en-dash between the “5c” and “a” (i.e., 5c–a).

Ln 385: Please change “refining” to “to refine”.

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Ln 401: It is unclear to which island you are referring (Mallorca or Sardinia).

Ln 402: Please remove spaces either side of the en-dash.

Ln 403: Please use an en-dash, rather than a hyphen, between the words “Pleistocene” and “Holocene”.

Ln 407: Please use an en-dash between the values 600 and 400 ka.

Ln 408: Please change hyphen for an en-dash and remove spaces before and after to become “MIS 11–MIS 5e”.

Ln 415: Please add the word “period” after “the last interglacial”.

Ln 424: Please consider removing the “etc.” and changing the sentence to a phrase, such as “. . . benefit research related to other disciplines, such as, water resources availability, sea-level rise, and saltwater intrusions.”

Ln 430: This line states “elevations much lower than present in caves”, I presume you are referring to present sea-level, please then add the word “sea-level” into this phrase.

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