

Earth Syst. Sci. Data Discuss., referee comment RC2  
<https://doi.org/10.5194/essd-2021-391-RC2>, 2022  
© Author(s) 2022. This work is distributed under  
the Creative Commons Attribution 4.0 License.

## Comment on **essd-2021-391**

Blake Dyer (Referee)

---

Referee comment on "Compilation of Last Interglacial (Marine Isotope Stage 5e) sea-level indicators in the Bahamas, Turks and Caicos, and the east coast of Florida, USA" by Andrea Dutton et al., Earth Syst. Sci. Data Discuss., <https://doi.org/10.5194/essd-2021-391-RC2>, 2022

---

This paper provides a complete and detailed compilation of MIS5e RSL data in The Bahamas, Turks and Caicos, and the east coast of Florida, USA. The authors have carefully organized decades of research with diverse sets of data and provided a valuable contribution for paleo-sea level workers. While this effort and contribution can stand as-is, I have a few minor comments or suggestions for the authors to consider if they provide a revision.

1. The discussion of the tidal datum in section 6 -- additional uncertainties comes perhaps too late for the reader that progresses through this manuscript from the start to finish. There are a few places within the island-specific sections (lines 225 and 348) where a tidal datum adjustment is mentioned. You could include a reference to section 6 at these lines, or lead section 3 with the discussion about the tidal datum. The paragraph on the tidal datum could also include the values used for the uncertainty in the tidal datum when an adjustment was made from reported elevations to MTL.

Line by line:

Line 168 -- I suspect by volume this unit may not be the most common 5e unit, although it is certainly the most easily distinguished due to the marine features.

Line 171 -- Suggest adding Chen et al. 1991 or Thompson et al. 2011 in the references about U-Series.

Line 191 -- if the 'with an age of 120.6 ± 0.5 ka' phrase is moved to the front of the sentence, the geochemical screening and the reference Chutcharavan and Dutton, 2021

are side-by-side -- which avoids confusing if a reader goes to Chutcharavan and Dutton, 2021 looking for the original geochronology.

Line 200 -- The tidal adjustment could be spelled out more explicitly.

Line 210 -- Boiling hole typo

Line 270 -- Include Thompson et al. 2011 citation

Line 293 -- Psuedodiploria typo

Section 3.7: New Providence Island -- The keystone vugs of Garrett and Gould (Fig. 11) do not seem to be included, and since some of those elevations are higher than the vugs included in the discussion here, justification for exclusion could be helpful for future readers.

Line 343 -- It is a little confusing to me to consider the erosional surface a terrestrial limiting data point. Erosion is common in underwater settings, and this feature is not described as an exposure surface anywhere in the text.

Line 500 -- Dyer et al. 2021 includes extensive discussion about GIA in this region and could be a helpful resource for readers.

Line 508 -- While I agree with the statement, I am unable to find where Mullins and Lynts 1977 suggests significant differences in subsidence rates across the platform during the past 125,000. The authors could include a more specific argument from Mullins and Lynts 1977, or perhaps include a reference to McNeill 2005 which determines rates of accumulation in various cores around the archipelago. That work shows purely aggradational settings (cores U1 and U3, San Salvador) have similar rates of accumulation over this time period (which in an aggradational setting is assumed to be long term subsidence). Notably, the age constraints on these cores have a fair bit of uncertainty, and there are no good equivalent 'pure aggradation' observations from the southern part of the archipelago, so variable rates around the archipelago are certainly possible.

- McNeill, Donald F. "Accumulation rates from well-dated late Neogene carbonate platforms and margins." *Sedimentary Geology* 175.1-4 (2005): 73-87.