

***Interactive comment on* “Technical Note: Estimation of global loss of freshwater based on sea level changes over geological time” by Gaspar Banfalvi**

Trevor McDougall (Editor)

trevor.mcdougall@unsw.edu.au

Received and published: 2 October 2020

Editor’s Comment on the Technical Note: Estimation of global loss of freshwater based on sea level changes over geological time, by Gaspar Banfalvi

On the basis of the two reviews of this manuscript, and your reply to referee #2, I do not recommend that you prepare a re-submission, since the manuscript, if it were to be publishable in Ocean Science, would be sufficiently different to the present manuscript as to warrant it being considered as a different manuscript.

To the comments of reviewers #1 and #2, I add the following comments.

Printer-friendly version

Discussion paper



(1) The discussion of sea level rises of 15-25 m by 2030, 86 m by 2060, 79-155 m and possibly 206 m in the longer term (lines 217-219) are simply not credible. These estimates of sea level rise are orders of magnitude larger than the generally accepted range, as distilled by the IPCC. It is not credible for these numbers to be mentioned without at the same time saying why you think that all the other scientists around the world have got their predictions so wrong for so long.

(2) Mention is made of the changing salinity of the oceans with time, but no mention is made of the usual reason for this, namely that the salt comes from the small concentration of dissolved material arriving in the ocean from rivers.

(3) Much of the reason for the manuscript appears to be the observation that sea level may have been 500 m or 750 m higher in the past, but there appears to be no discussion of the uplift of land masses due to plate tectonics over these millions of years, such uplift may affect to proxy data that is used to infer this rise. There is a huge amount of literature on this subject of continental vertical movement which has not been cited, and an author comes to mind in this regard; K. Lambeck.

(4) For time scales of 100 million years in the past, there are now reconstructions of the shapes of continents and ocean depths. Surely the changing volume of the ocean, as given by spatially integrating the depth of the sea floor, is the first thing to consider, along with any continental uplift. The reconstruction to which I refer has been done in the lab of D. Muller, and is known as the Virtual Earth Laboratory. Why was the changing depth of the sea floor, over 100 million years or so, not mentioned? Rather, table 1 and much of the text discusses aspects of the geometry of the present ocean.

Any one of the above four points would be sufficient reason for rejection from being published in Ocean Science. As editor, I can also say that none of the reviewers that were suggested on submission to OSD agreed to review this OSD preprint. This led to a longer delay than usual, as this editor needed to find other reviewers.