

## ***Interactive comment on “Moving beyond the age-depth model paradigm in deep sea palaeoclimate archives: dual radiocarbon and stable isotope analysis on single foraminifera” by Bryan C. Lougheed et al.***

### **Anonymous Referee #2**

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The authors present an interesting approach to generating age-models that may be especially beneficial in areas of low sediment accumulation rates. They used paired C14 and stable isotope measurements on benthic foraminifera and perform a variety of sensitivity tests. I found the paper well written and have a few minor suggestions.

I think one obvious limitation is that this approach only works for samples that can be C14 dated. This should be stated.

I have no suggestions as to how to deal with the edge effect. However, omitting ~20%

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of the data to pass a K-S test for a p value  $<0.05$  is a bit of a statistical manipulation. The CDF is a reasonable fit in Fig 3B. I'm not sure what is gained by eliminating part of the dataset to pass a statistical test with an arbitrary p-value of 0.05.

For Figure 4, it's not really clear to me how a sediment accumulation rate was calculated for LR04. LR04 is a stack of benthic foraminifera records from a variety of depositional environments. It's also an interpolated stack so the sampling resolution is variable.

Line 56 = change utilise to use

Line 71 = Please explain how the planktic record showed significant PDSM. It didn't have an acceptable stable-isotope stratigraphy?

Line 122 = “Age uncertainties concealed by the current state-of-the-art” is an odd phrasing. I would use Age uncertainties obscured by conventional geochronological techniques or something like that. I would say the method described in the paper is more “state-of-the-art” than the normal techniques.

Line 125 = Following along the lines as the comment above, “we show that such significant PDSM can be concealed by the current geochronological techniques.” State-of-the-art implies slightly something different that you're more or less advocating with your own technique.

Line 160 = “edge effect”

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