Comment on bg-2022-187
Anonymous Referee #1

Referee comment on "Technical Note: No impact of alkenone extraction on foraminiferal stable isotope, trace element and boron isotope geochemistry" by Jessica Georgina Magdalen Crumpton-Banks et al., Biogeosciences Discuss., https://doi.org/10.5194/bg-2022-187-RC1, 2022

General comments:

In this study, Jessica Crumpton-Banks presents a long overdue test of the effect of alkenone extraction on foraminifera boron isotopes and trace element/Ca ratios. In good news for the field, they show no effect, meaning these sediment archives that have already been extracted in the past can be plumbed as a resource for palaeoceanography, and future samples can be used more efficiently.

I have very little to add to this compact, straightforward paper- it is well written, clearly presented, and does exactly what it says on the tin. The data quality is very high, as evident by the exceptional reproducibility of external standards. A very easy review! I have only some very minor comments below.

The only thing I might flag is whether this paper fits the remit of the journal- it would very easily fit in JAAS or Rapid Communications in Mass Spectrometry for instance. But it is the editor’s call, not mine, to decide if this squeezes into the broad remit of "research articles, short communications, and review papers on all aspects of the interactions between the biological, chemical, and physical processes in terrestrial or extraterrestrial life with the geosphere, hydrosphere, and atmosphere."

Specific comments:
Page 1, lines 24-26: the logic of the grouping of proxies between clauses a) and c) seems a bit unclear. Also what about micropalaeontological/assemblage work, like transfer functions etc.?

Section 2- the first sentence of this detailing where all the samples were taken is far too long and unwieldy, with too many clauses and brackets. Suggest breaking up for the benefit of the reader.

Page 3, Line 71: Can the authors please clarify if these growths were seen only in the ASE-treated samples, or in both the ASE and non-ASE samples?

Page 5, Line 109-110: the authors mention here the Al/Ca measurement results, and then mention it again later on Page 6, Lines 130-131. Could the authors perhaps avoid repetition by saying ‘despite the shorter ultrasonication time in some samples’ at the end of the Page 6 line 130-131 instead?

Page 6, Line 128: Please give the absolute values of these measured El/Ca ratios as well as the % variability between measurements.

Table 2: Why should d18O and d13C be reported 1sigma, and boron 2? I have never understood why O/C isotopes should be held to a lower standard.

Table 12, Line 260: give reference for this statement – e.g. https://www.nature.com/articles/ncomms15441?

Technical corrections:

Page 1, Line 45: foraminiferal geochemistry.