

Dear Editor,

Everything crossed out in the copy of your notes appended to this note has been addressed. As for the other stuff:

It is important to at least mention Lu-Hf, as that was an important driver for the study and a justification for why we were allowed to do this project. As that portion of the project ended up being fairly uninteresting, we have reduced the content, but we feel it is important to let the community we checked this- these days most zircons dated by SIMS end up going for Lu-Hf eventually, and whether or not CA disturbs in-situ Lu-Hf analysis is important to know for people deciding whether or not to CA their samples.

The lines relating to upgrades to the SHRIMP (245-248) are useful in case other labs try to reproduce these results. We find that the new stage gives much lower variation in QT1Y steering- e.g. more consistent ion trajectories from the sample surface to the mass spectrometer. We don't know if this is necessary for achieving highly accurate and precise SIMS U-Pb results (e.g. better than 0.5%), but we feel it is worth mentioning so that other labs who try to reproduce these results know exactly what setup we are using.

Crossout below has been addressed:

~~Title, abstract and throughout: The data you present are relevant to all SIMS, not just SHRIMP. Please replace this term (SIMS for SHRIMP) in the title, abstract and main text and indicate the instrument used in the introduction or methods section. For the same reason, do not state the type of LA-ICPMS used in the title or abstract. Spell out the abbreviations of other methods or instruments the first time you use them; I know they are well known, but geochronology aims to reach a wider audience.~~

~~Title: correct the inconsistent use of capital letters (trace elements, not Trace), and I would remove Lu-Hf as this is really a minor aspect.~~

~~Abstract: Please start with a sentence explaining the scope of the study, then report data and results.~~

~~Throughout: I recommend using U-Pb (the convention is radioactive radiogenic element) and not U/Pb, as for Lu-Hf or Rb-Sr, where Pb/U is the ratio measured.~~

~~Throughout: try to use "zircon" as a single mineral and zircon grains or crystals or samples as plurals.~~

~~Line 56-57, report here the age of the original studies versus the SIMS age so that it can be compared to 3440 and 3465 Ma you mention.~~

~~Line 65 correct to "trace elements".~~

~~Line 74: reference is missing the year.~~

~~Line 83, correct to "show that".~~

~~Line 990, can you quantify what you mean for "decent" counting statistic?~~

~~Line 104, here you can define what SHRIMP stands for.~~

~~Line 211, laser spots were filled with what?~~

~~245-248, this upgrade to the SHRIMP is not really relevant for this study.~~

~~Line 271, unclear sentence: 204 counts were always within uncertainty of zero and a common Pb correction based on 204Pb was applied? No detectable 204Pb would rather be a reason not to apply a correction.~~

~~Throughout: review the term "reference material versus standard" and the term "uncertainty versus error" based on the IAG recommendation <https://www.geoanalyst.org/standard-reference-material/>~~

~~Line 382: The start of the section sounds strange, were you expecting incidents? I would remove.~~

~~Line 408, add Cameca before 1280.~~

~~Line 440-448, merge paragraphs.~~
~~Line 468, 487, Table should be capital, check throughout.~~
~~Line 473, "All results are $\mu\text{g/g}$ " this information should be in the Table notes, not in the main text.~~
~~Section 3.7.1: describe results in the present form.~~
~~Line 491, do not introduce the BLD abbreviation as it is not further used in the text.~~
~~Line 494-95: this belongs to Methods.~~
~~Line 506: correct to "reason we think"~~
~~Line 508: change to "consideration of"~~
~~Line 509: specify the method used in Magee et al. 2023.~~
~~Line 550-553, please explain better what you mean here: how do you know the exact age of the pluton if zircon is dated at 3440 Ma?.~~
~~Line 553-554, join paragraphs.~~
~~Line 573, rephrase "the common Pb composition is close to that predicted by the model (ADD REFERENCE)". Also consistently use Pb instead of lead.~~
~~Line 584-615: merge paragraphs where meaningful, a number of them seems isolate thoughts.~~
~~Line 625: change to "Fig. 1".~~
~~Line 647: give uncertainty of the Ti in zircon T estimate (at least a 2 SD, or a fully propagated uncertainty).~~
~~Line 686: "only the initial Hf composition of the 91U was not within uncertainty of the reference values" this may deserve a comment, is 91500 not a reliable Hf isotope standard?~~
~~703: what do you mean "when the SHRIMP is running well"? Would data be published of bad runs? And what is the definition of "well"? You may want to rephrase this to "SHRIMP..... can achieved accuracy and precisions of..." and for which type of data?~~

~~Thank you for redrawing some of the figures. They are all of high quality, just avoid yellow lettering on a white background, Fig. 13.~~
~~Please combine Figs 9 and 10 into a single figure.~~
~~Figure 11 could be better paginated: 4 graphs of the same size, properly aligned and possibly without outer margins. Horizontal axis lines could be lighter or dotted so as not to crowd the plots.~~
~~Tables 6, 7 and 8 should be moved to the supplement.~~

I look forward to seeing the revised version of the MS.

Kind regards
Daniela Rubatto
Associate Editor