Dear Dr. Keller,

We again thank the reviewers for their time and careful consideration of this contribution. We also thank you for the comments in your decision letter. Included below is a list of revisions that were made to incorporate the comments.

Regards,
Trystan M. Herriott and co-authors
5 August 2025

Brenhin Keller

-General comments

-Deleted "n = 1" from the title.

-Analytical dispersion is indeed important, and we further emphasize this in the revised text.

Blair Schoene

-General comments

-Further context for the data-release report (Herriott et al., 2024) is provided in Section 1, Section 2.2, and the Data Availability statement. See also AC1.

-The manuscript is notably shorter.

-Line-by-line:

27: Established a point 1) and a point 2) so a reader can readily track these key statements.

34: Stratal age is synonymous with depositional age; this equivalence is now noted.

54: Sentence moved to first paragraph of Section 1.

176: Clarified how context was provided by LePain et al. (2022).

199: Deleted "propagated in quadrature"; relevant references are cited immediately below.

212: MSWD is reported in the text and tables and figures for weighted mean results.

229–232. We agree that "validity" is useful here.

240: 18TMH112A z2 was lost before being loaded into the TIMS, and 18DL002-0.8D z2 was too weak to run.

260: In double checking this, it does not look like calculated (auto) kernel bandwidths are reported as outputs in IsoplotR, although we do state/clarify what IsoplotR options were selected in running the KDEs, so the plots can be replicated.

Fig 4: Added dates for zircon analyses; depositional age noted for the tephra sample.

Fig 5 and associated: Revisions further emphasize uncertainty and overlap relations at ± 2σ (Y). Also, as described in AC1, we aim to balance highlighting overlap at uncertainty *and* percent offset to avoid masking geochronologically notable and chronostratigraphically impactful bias that may be within—but on average plotting near the –2σ edge of—uncertainty envelopes; the revised Fig. 10, for example, clearly portrays these important relations.

Fig 6: Indeed, these are key exposures of this stratigraphy in northern Alaska.

Fig 7b: KDEs are replaced with PDPs.

337: "suggest and" replaced with "and are"

374: "very good" deleted

514–529: Clarified Copeland's (2020) position on single grain MDAs.

593–595: Agreed that this is important.

670: A brief note on the MLA algorithm is provided.

720: Fig 9: nth youngest phrases clarified in Figs. 9 and 11 captions
724: Typo corrected

Michael Eddy

-General comments

-Section 3.1.1: This section is shorter.
-Figure 9: Uncertainty context is included.
-Figure 10: Uncertainty context is provided and readability/scale improved; uncertainty context is also included in Fig. 11.
-Section 3.2: This section is shorter.
-Section 4: This section is shorter.

Anonymous Referee

-General comments:

-The manuscript is shorter, and the revisions further integrate (and highlight the significance of) the low-n youthful population sampling case study from northern Alaska with the higher-n youthful population sampling studies of Herriott et al. (2019a) and Rasmussen et al. (2021).
-Stratal age as being synonymous with depositional age is noted.
-The limitations of the correlation between Ninuluk Bluff and Slope Mountain are listed in the first paragraph of Section 2.4.3. And the stratigraphic accumulation rates are reported as minimums, which addresses not only the MDA challenge but also the stratigraphic uncertainty in the correlation. Clarification that both sites record topset sedimentation is added to avoid potential confusion that the correlation might be along a deep-water slope, which is not the case.
-The intent of Section 3.2 is clarified.
-Significance relative to Howard et al. (2025): see AC3. We can write a bit more about this in the manuscript, but references to Howard et al. (2025) are carefully placed to highlight that important study, and our analysis/synthesis, including the revisions, should stand on its own as being a valuable and novel contribution to the ever-growing DZ MDA literature.
-Figure 10: The readability/scale is improved (and uncertainty context provided).

-Line-by-line:

-Line 565: “the” added
-Line 571: “chronstratigraphic records” revision adopted
-Line 814: Typo corrected
-Line 853: Clarification regarding thermal annealing of reference and sample zircon is added.