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RECOMMENDATION

Questioning isotopic data from the end-Cretaceous

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Based on reviews by:
Thomas Cullen and one anonymous reviewer

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A recommendation of

During MAD, Voeten DFAE, and Ahlberg PE (2024). Calibrations without raw data - a response to "Seasonal calibration of the end-cretaceous Chicxulub impact event". *OSF Preprints* fu7rp, ver. 5, peer-reviewed by PCI Paleo. DOI: 10.31219/osf.io/fu7rp

Being able to follow the evidence and verify results is critical if we are to be confident in the findings of a scientific study. Here, During et al. (2024) comment on DePalma et al. (2021) and provide a detailed critique of the figures and methods presented that caused them to question the veracity of the isotopic data used to support a spring-time Chicxulub impact at the end-Cretaceous. Given DePalma et al. (2021) did not include a supplemental file containing the original isotopic data, the suspicions rose to accusations of data fabrication (Price, 2022). Subsequent investigations led by DePalma's current academic institution, The University of Manchester, concluded that the study contained instances of poor research practice that constitute research misconduct, but did not find evidence of fabrication (Price, 2023). Importantly, the overall conclusions of DePalma et al. (2021) are not questioned and both the DePalma et al. (2021) study and a study by During et al. (2022) found that the end-Cretaceous impact occurred in spring.

During et al. (2024) also propose some best practices for reporting isotopic data that can help future authors make sure the evidence underlying their conclusions are well documented. Some of these suggestions are commonly reflected in the methods sections of papers working with similar data, but they are not universally required of authors to report. Authors, research mentors, reviewers, and editors, may find this a useful set of guidelines that will help instill confidence in the science that is published.

References

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Appendix

Reviews by Thomas Cullen and one anonymous reviewer, DOI: 10.24072/pci.paleo.100221.