

## ***Interactive comment on “Technical Note: Open-paleo-data implementation pilot – The PAGES 2k special issue” by Darrell Kaufman and PAGES 2k special-issue editorial team***

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The commenter aptly summarizes the major topics that have been expressed in this interactive discussion, with deep insight from his experience as one of the leaders of the Neotoma Paleoeology Database. We are grateful for his big-picture and constructive comments, and we reiterate his conclusion: “our field is well positioned to create new . . . solutions to these new opportunities and challenges of open data sharing, and to be an example to other disciplines wrestling with similar challenges.”

(1) Ethical limits to open data: We agree that the paleoscience community needs to further develop policies and procedures for open data sharing. This includes data em-

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bargoes, especially as they relate to data that are archived at the time of capture, prior to publication, and including data in graduate theses. We agree that different standards apply to data that are published for the first time versus those that are rescued from previous publications but were never transferred to a repository, which includes the majority of data in paleosciences. For clarification, PAGES working groups are encouraged to restrict their synthesis products to only data that have already been published, thereby focusing on datasets with peer-reviewed interpretations and honoring the first-use rights of data generators.

(2) Practical limits to open data: We agree that there will always be limits to what can or should be made readily open. From our experience with this open data implementation pilot, deciding which data are necessary to be archived is not always obvious. Not all of the data presented in a manuscript are necessarily essential for reproducing the study results, and some might not be useful for future researchers. Requiring authors to archive data that have little bearing on the primary outcome of a study can be onerous and pointless. Instead, the utility of each dataset must be evaluated in context of the unique contribution of the particular study. There is an urgent need to develop channels for journals to connect directly to disciplinary specialists to guide and model best practices.

(3) High-value data: We agree that developing open data systems that not only preserve the data but also support knowledge generation is a major goal and challenge. Encoding peer-reviewed expert knowledge into an archived dataset is necessary to facilitate the intelligent reuse of the data, but is rarely practiced in paleosciences.

(4) Archiving data at the time of capture: We agree that archiving data as soon as they are generated is often the ideal approach and that support is needed to develop and sustain community data systems that enable this practice. We maintain, however, that publication is the final pragmatic point in a study to transfer the data to a repository. Publication is a critical, high-value stage for data stewardship for the five reasons that we explain in our reply to referee #2.

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