

# The Peopling of South America is not a matter of one site - A reply to Surovell et al 2026.

## Supplementary information – Methods

Bueno, L., Moraes, C., Watling, J., Lourdeau, A., Shock, M. P., Gilson, S. P. N. R., & Terhaag Merencio, F. (2026). **The Peopling of South America is not a matter of one site - A reply to Surovell et al 2026 - SI Materials and Methods** [Data set]. Zenodo. <https://doi.org/10.5281/zenodo.20513567>

The dates selected for the preceding discussion adhere to standard hygiene protocol criteria, which require radiocarbon dates to be explicitly linked to archaeological material and to have minimal potential for error. For this reason, we classified the totality of published dates into 5 classes. Class 1 comprises the most reliable radiocarbon dates, directly associated with cultural activity and with minimal potential for error. In Class 1, the sample nature (short lived), the lab code, and the stratigraphic position are known, and the standard deviations are all equal to or less than 200 years for greater precision (44 dates out of 357). In Class 2, the charcoal of longer-lived and unidentified species are accepted (218 dates). In Class 3, the standard deviation is not limited (69 dates). In Class 4, the lab code is not required (1 date). In Class 5, the sample type is not required, and includes dates with unsure association, no correction by C13, and questioned by the original team (24 dates). Considering the objective of this reply is to demonstrate the existence of human activity before, during, and right after the time span for Clovis paradigm, classes 1, 2, 3, and 4 were considered, as the information available does not interfere with the calibration of the C14 dates and will allow the inclusion of thermoluminescence dates, which generally have large standard deviations. Large standard deviations are not problematic given the large chronological divisions considered. Samples identified as charcoal without specific species identification are also considered reliable, even with old wood risk, which could theoretically reach 1000 years in the region - this is acceptable considering the chronological scale of this study. The 26 dates of Class 5 have been rejected, as the nature of the sample and the absence of C13 correction can strongly interfere with the calibration of a date, their association with archaeological material is uncertain, the standard deviation is unknown, or they were obtained with undersized or mixed samples. **All dates were calibrated using OxCal 4.4, version 177, following the protocol defined by (Marsh et al., 2018) to identify the appropriate calibration curves: ShCal20 or Mixed (ShCal20-IntCal20).**

## References

- Marsh, E. J., Bruno, M. C., Fritz, S. C., Baker, P., Capriles, J. M., & Hastorf, C. A. (2018). IntCal, SHCal, or a Mixed Curve? Choosing a <sup>14</sup>C Calibration Curve for Archaeological and Paleoenvironmental Records from Tropical South America. *Radiocarbon*, 60(3), 925–940. <https://doi.org/10.1017/RDC.2018.16>