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Corrigendum to "Combined linear-regression and Monte Carlo approach to modeling exposure age depth profiles" published in Geochronology, 4, 533–549, 2022

Yiran Wang[1,2] **and Michael E. Oskin**[1]

[1]Department of Earth and Planetary Sciences, UC Davis, Davis, 95616, USA
[2]Earth Observatory of Singapore, Nanyang Technological University, 639798, Singapore

Correspondence: Yiran Wang (yrwwang@ucdavis.edu)

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During the initial manuscript submission process, an important step was mistakenly excluded from Eq. (11) by the authors. In addition, a mistake was also present in the presentation of Eq. (12). Please see the corrected versions of these equations below. Note that these errors do not affect other parts of the original text and have no bearing on the MATLAB code as published online (https://github.com/YiranWangYR/10BeLeastSquares, last access: 15 August 2022; https://doi.org/10.5281/zenodo.6992982, Wang, 2022).

1. The complete description for Eq. (11) should be as follows.

   [...]

   To estimate the exposure age, we need to find the solution for

$$\left(\frac{1-e^{-\left(\frac{\rho D}{t\Lambda_n}+\lambda\right)t}}{\frac{\rho D}{t\Lambda_n}+\lambda}\right)-T_{en}=0. \tag{11a}$$

   While the complicated form of Eq. (11a) prohibits a direct solution, t may be found iteratively by applying Newton's method to a rearranged form of Eq. (11a):

$$f(t)=T_{en}\left(\frac{\rho D}{t\Lambda_n}+\lambda\right)-\left(1-e^{-\left(\frac{\rho D}{t\Lambda_n}+\lambda\right)t}\right)=0 \tag{11b}$$

   Using the derivative of Eq. (11b), [...]

2. In the published version of the paper, the first term of Eq. (12) has an extra D outside of the parentheses. The correct form should be

$$f'(t)=-\lambda e^{-\left(\frac{\rho D}{\Lambda_n}\right)-\lambda t}-\frac{\rho D T_{en}}{\Lambda_n t^2} \tag{12}$$

References

Wang, Y.: YiranWangYR/10BeLeastSquares: Combined Linear-Regression and Monte Carlo Approach to Modeling Exposure Age Depth Profiles-Matlab Code (v2.1), Zenodo [code], https://doi.org/10.5281/zenodo.6992982, 2022.