



Author Correction: Widespread shift from ecosystem energy to water limitation with climate change

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In the initially published version of this article, the calculation of the ecosystem limitation index (ELI; see “Methods”) had a programming error: the surface net radiation R_n , which should have been computed as the difference between incoming and outgoing shortwave and longwave radiation ($SW_{in} - SW_{out} + LW_{in} - LW_{out}$), was actually calculated as $SW_{in} + SW_{out}$. Despite the calculated variable not having any direct physical meaning, it has a spatiotemporal signature similar to that of the shortwave incoming radiation SW_{in} alone, as SW_{in} in vegetated areas is typically much larger than SW_{out} . Further, shortwave incoming radiation is a widely used energy proxy¹ and in light use efficiency models for gross primary productivity, as it is directly used by vegetation for photosynthesis and can therefore be closely associated with transpiration².

Hence, we introduce SW_{in} as a new energy proxy in our analysis in order to correct for the described programming error. Given that the previous wrongly calculated energy proxy was similar to SW_{in} , new results of our study are very similar to the published version. This led to changes in the text where instances of “(surface) net radiation” were replaced by “incoming shortwave radiation,” and some minor changes were made to Figures 1–4 and Supplementary Figures 1–20. For comparison, the original, uncorrected article is linked to this notice as Supplementary Information, and revised scripts and figures and data are available in refs. 3,4.

Using SW_{in} allows the calculation of ELI independent of temperature, which is used as a predictor in the attribution analysis. While net radiation relies on outgoing longwave radiation and therefore incorporates a temperature signal, SW_{in} does not. The implementation of SW_{in} as an energy proxy variable was also suggested under review.

Supplementary information is available in the online version of this notice.

References

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Additional information

Supplementary information The online version contains supplementary material available at <https://doi.org/10.1038/s41558-023-01729-x>.

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