

Response letter

Manuscript with Ref: essd-2023-217 entitled

“Mapping Rangeland Health Indicators in East Africa from 2000 to 2022”

We would like to thank the editor for the constructive and valuable comments. We took all the suggestions into account, which can be found in the track changes version of the revised manuscript. Below we provide detailed explanations of how we addressed each of the reviewers' comments.

L85: “Recent scientific advances create an opportunity to map rangelands health using satellite imagery to monitor changes rangeland health” – there's some repetition in this sentence, suggest revising.

Response: Thanks for the suggestion. The text now reads “Recent scientific advances create an opportunity to map rangeland health using satellite imagery to monitor changes at ecologically meaningful scales for landscape planning and management (Allred et al., 2022).”

L125-126: Typically Landsat is referred to as “medium resolution”, to distinguish from “high resolution” commercial imagery. “Very high resolution” is more applicable to UAV data.

Response: We agreed with this comment and updated the “HR” references to “Landsat-based” or “Landsat-resolution” depending on the context of the phrase in the manuscript. Accordingly, we changed “VHR” to “HR” throughout the document. We also found other inconsistencies such as the “HR” references in the accuracy estimation for fractional cover, which should have been VHR. They were kept to HR as this is the correct reference for the current version.

L151: include

Response: Corrected as suggested.

Fig 3 caption: Should this be “very high resolution” rather than high resolution?

Response: Following the changes made and reported in the previous response, we kept this caption.

L230: Utilized *the* Landsat dataset

Response: Corrected as suggested.

L238: it *is* available

Response: Corrected as suggested.

L238 and L243: Be consistent ... Landsat data is or Landsat data are... Since “data” is plural, I prefer “are”.

Response: Corrected as suggested.

L252: uses data *comprised*

Response: Corrected as suggested.

L259-266: This is a repetition of the previous paragraph. Revise.

Response: We disagree with this claim, as Landsat 5 and 7 are treated differently to match Landsat 8 data in the relatively new Collection 2. The only part that matches for both to make interoperability and harmonization easier is the use of the CFMask algorithm to generate the QA_PIXEL and QA_RADSAT bands. We kept this part for both descriptions to be consistent on how we presented the datasets and because we mentioned one of this bands later in the text, which is commonly used as a shortcut to mask for clouds.

L270: tile)*;* otherwise, data

Response: Corrected as suggested.

L328: The software package Nikon... (remove comma)

Response: Corrected as suggested.

L682: scheme used here has... (remove comma)

Response: Corrected as suggested.

The schematic workflow should be redesigned. The current figure is not aesthetically pleasing. Additionally, there are inconsistencies in the symbols used (some are large, while others are small, and they vary in shape even within the same category), and some of the categories are misleading. For instance, why are there separate categories labeled 'input data' and 'RS data'? Isn't 'RS data' a subset of input data? Please revise the chart to depict a more logical and comprehensible flow, such as processes arranged from left to right or top to bottom.

Response: We redesigned the workflow figure and tried our best to make it more readable and aesthetically pleasing. We removed some redundant nodes and used three frames to group the important parts of the workflow. We hope this version meets the expectations.