

Interactive comment on “Key Landscapes for Conservation Land Cover and Change Monitoring Thematic and Validation Datasets for Sub-Saharan Africa” by Zoltan Szantoi et al.

Zoltan Szantoi et al.

zoltszan@gmail.com

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Dear Reviewer#3

We appreciate your comments and recommendations. Please see below our response to each of your comments and questions.

“Perhaps the authors could recommend / give thought to alternatives for easing data accessibility.”

We received a similar comment from Reviewer #2 as well - please see our response there too. Based on both notes, we (1) generated smaller

C1

data packages (i.e. each KLC can be downloaded individually) from <https://doi.pangaea.de/10.1594/PANGAEA.914261>, where the full data package can also be downloaded. As of now, the individual data packages range from as little as 1.4MB (Mbam-Djerem, CAF16) to 133MB (Takamanda, CAF01), based on their mapping details and areas and (2) we also published all land cover and land cover change data, as well as the validation datasets at the Copernicus Hot-Spot website (<https://land.copernicus.eu/global/hsm>) for quick visualization with option to download the individual KLCs.

“The authors should also comment on how countries with limited expertise can improve their automated outputs considering that classification errors and false alarms are inevitable.”

Through this work we provide very high quality products which can be used directly as base maps (e.g. Yangambi KLC) and for policy decisions (e.g. all KLCs in the Democratic Republic in the Congo - by the European External Action Service). However, if a local agency or government has a map producing processing chain, they can use the presented land cover maps to compare and/or evaluate their outputs for change detection or use the validation datasets for training purposes. In this way, given the high accuracy of our products, classification errors (omission and commission of various classes) and false alarms (land cover change) can be filtered and corrected on the locally produced map product or based on the detected errors, their classification processing chains can be updated.

Moreover, if an even more detailed land cover/use product is needed, our products can be used as an existing base to narrow down where certain land cover/use might be present. For example, in the case of non-industrial cocoa plantations detection, our legend does not have such detail. However, our product allows users to narrow down to A.) Cultivated and Managed Terrestrial Area (A11), and from there to B.) Continuous Small Sized Field of Shrub Crop (Mapcode 56). Within these areas, users can employ very high resolution imagery to discriminate the above mentioned cocoa plantations.

C2

We added a specific sentence to our Conclusions and Outlook section in the main text: "Here, we provide very high-quality products, which can be used directly as base maps and for policy decisions, as well as for comparison and/or evaluation of other land cover products or the implementation of validation datasets for training/validation purposes."

Specific comments

"The manuscript is well written, coherent, and readily understandable, albeit several grammar and typographical transgressions." Thank you - we double checked the entire manuscript for grammar and typographical transgressions.

"Consider including a diagram illustrating the overall workflow." We added it as a new figure (Figure 2), titled "Overall production workflow".

"Include relevant details regarding the change analysis. This is significant in the context of the high classification results achieved." We added a new section - 3.1.4 Land cover change detection

Land cover change was interpreted as a categorical change in which a particular land cover was replaced by another land cover. As an example of conversion, the change of Cultivated and Managed Terrestrial Areas (A11) into a Natural and Semi-Natural Terrestrial Vegetation (A12) or a Cultivated and Managed Terrestrial Areas (A11) into Artificial Surfaces and Associated Areas (B15) can be mentioned. The basic condition for LC changes identification was the detection of changes in spectral reflectance within specific image bands of the employed satellite imagery, but such changes were further evidenced by other interpretation parameters such as shape and texture patterns. In regards to our methodology, images acquired in two or more different timeframes were used in the identification process. Furthermore, land cover changes were characterised by those changes that have longer than yearly and/or seasonal periodicity (dry/wet season). Urban sprawl, tree plantations (large or small) to replace herbaceous crops (large or small), tree covers (closed or open) or the creation of a new water reservoir undergo long-term changes that classify as actual LCCs. In our workflow, the

C3

LCC process followed the same image pre-processing steps as the LC method, and an independent classification (similarly to the LC procedure) of the past date was performed. Finally, the LC and the LCC products were compared and change polygons were extracted. As with the LC product, the visual refinement was an important step to produce accurate LCC polygons.

Technical corrections

"Title: check grammar; perhaps a colon should be placed after "Monitoring"?" Done. We checked the entire manuscript for grammar.

"Formatting of values and units in the Abstract." Done. Changed to full numbers (e.g. 345670km² instead of 345,670km²) throughout the manuscript.

"Text, formatting (e.g. references), and typographical errors in the Introduction." Done. We double checked the entire manuscript for errors.

"Inconsistency in formatting of values, e.g. L60." Done. Changed to full numbers (e.g. 345670km² instead of 345,670km²) throughout the manuscript.

"Figure 1; indicate country names for easy reference." Done. We updated Figure 1 accordingly.

"Confusion regarding "200X", "201X", "plaus200X", and "plaus201X". Brief explain / clarify." Done. We added a short explanation to Table 4 - "[200X] and [201X] refer to the year the map represent; the exact year is in the "Reference date" columns" and to the Data Availability section - "The plaus201X and plaus200X refer to the year the validation sets represent, as these can be different among KLCs; the exact year is always noted in the columns' names (e.g. plaus2000, plaus2016)."

"Define all acronyms the first time used, e.g. MMU, C-HSM." Done. We corrected and updated the acronyms.

"Section 5.3: "i.e." should rather be "e.g."?" Done. We changed "i.e." to "e.g."

C4

C5

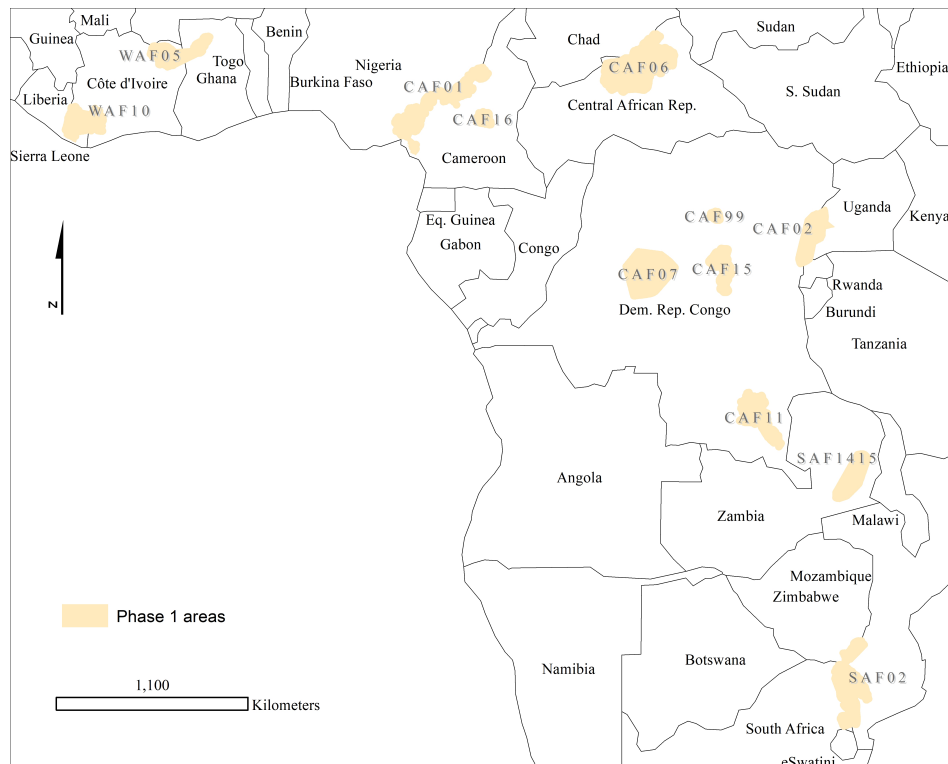


Fig. 1.

C6

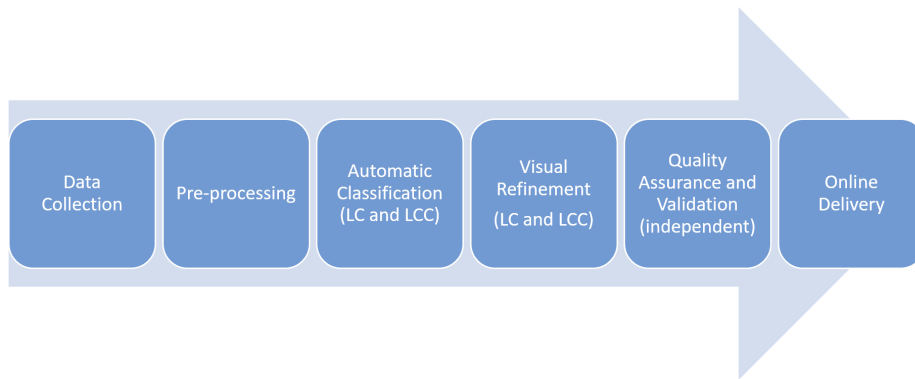


Fig. 2.