

Earth Syst. Sci. Data Discuss., referee comment RC2
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Comment on **essd-2021-222**

Yifang Shi (Referee)

Referee comment on "EcoDes-DK15: high-resolution ecological descriptors of vegetation and terrain derived from Denmark's national airborne laser scanning data set" by Jakob J. Assmann et al., Earth Syst. Sci. Data Discuss.,
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The authors demonstrated a great work of generating country-wide ALS-derived products for ecological applications in Denmark. It is a huge effort to handle a huge ALS dataset and develop the workflow. With the availability of country-wide ALS datasets, this type of work will be of great interest to researchers and policymakers all over the world.

My questions and comments are as follows,

- Regarding the input data, the authors mentioned they used ALS point cloud and DTM at 0.4m resolution. Are these two datasets required? What if the resolution of DTM is coarser (e.g. 1m or 5m) or there is no DTM product available? How can the user adjust the workflow?
- How did you choose the derived variables? A more detailed/precise description of derived variables and their ecological meaning will be useful in Table 2.
- How accurate is the pre-classification of the raw ALS point cloud? For example, do the vegetation points contain any powerlines, buildings, etc? How did you remove those noises?
- Did you also include the buildings in point cloud processing in section 3.5 (lines 318-319)?
- Can you specify the limitations of the EcoDes-DK15 dataset you mentioned in Figure 3 line 332?
- Can the employed workflow generate new user-defined variables?
- In the point cloud processing, did you only use the XYZ coordinates information from the ALS point cloud? Have you considered the usage of intensity value since it can be very relevant for vegetation morphological and biochemical properties?
- Have you evaluated the accuracy of the generated products? Giving an overview of the final products would be very useful. For example, where the error usually occurs? Are there still noises that remain? Which variables can be directly used and which ones need further processing for a better interpretation.
- A discussion about the influence of data acquisition season (spring-summer) and the

point density (4-5 points/m²) on the final products will be useful for other country's ALS data processing.