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Comment on essd-2021-56

Anonymous Referee #1

Referee comment on "A distributed time-lapse camera network to track vegetation phenology with high temporal detail and at varying scales" by Frans-Jan W. Parmentier et al., Earth Syst. Sci. Data Discuss., https://doi.org/10.5194/essd-2021-56-RC1, 2021

This manuscript presents a RGB photo dataset collected from a group of near surface Phenocam installed over high Arctic valley. The dataset contains three-years time series of photos with 4-6 hours temporal resolution, and is used as proxy of NDVI indice to monitor vegetation canopies. It concluded that ordinary RGB cameras are a promising tool to identify temporal and spatial patterns in vegetation productivity and composition at a landscape scale, and that GCC compares well to NDVI at the plot level and shows a similar temporal pattern. The dataset is well described , and the methods for data collection and processing are clearly presented. However, some issues need to be handled before the manuscript can be accepted for publication. Details:

1) The case study area, a valley of Adventdalen on the Svalbard archipelagois relatively small and may not well represent large areas in the Arctic. Suggest to add some discussions on how this case study can be somehow scaled up to larger areas or applied in similar landscapes.

2) GCC is an index composed of RGB bands of digital photo, while NDVI is calculated with near-infrared and red bands. They may have a high correlation in some cases, but we have to make sure such correlation is consistent across space and time. Please add paragraphs to discuss the issue.

3) Page 3, line 80-81: Please explain why the dataset ends in 2018, any plan to ccontinue and update?

4) RGB photos were captured with several different models of digital camera, from GardenWatchCam, WingScapes TimeLapseCam, to Breinosa. Suggest to discuss how these cameras are cross-calibrated and how the photos are normalized to ensure consistency.

5) Page 5, line 145-146: I don't quite understand the sentence "... the blue channel had been replaced with a sensor sensitive to the near infrared, ...". Is it a near-infrared band or just somehow sensitive to near-infrared? Please clarify.

6) Page 5, line 155-156: I would suggest that we keep the photos that contains snow on nthe ground, as snow is such an important feature in the Arctic and such photos may be useful for research.

7) Page 9, line 263-264: The major difference between NDVI and GCC is contributed by the contrast between near infrared and blue bands. Here you need little in-depth discussion on how they differ and therefore influence the correlation between NDVI and GCC in general.

8) Page 10, line 311-313: With a data format of JPEG images, I wonder how spatial coordinates are provided in the datasets, in metadata? Please clarify.