

Revision notes for referee #2 comment from 25 Mar 2022 on "Estimating dry biomass and plant nitrogen concentration in pre-Alpine grasslands with low-cost UAS-borne multispectral data – a comparison of sensors, algorithms, and predictor sets" by Anne Schucknecht et al.,

Dear reviewer #2,

Thank you for your comments regarding the reflectance differences between REM and SEQ.

You will find our revised manuscript (with track changes) uploaded on the manuscript handling system and below our response to your comment. The original comment from reviewer #2 is in *italic and black* and the response is in [blue](#). The lines mentioned in the revision note refer to the revised version of our manuscript.

[Response to reviewer #2](#)

"The authors have thoroughly revised the manuscript and the quality has been significantly improved. However, I am still confused about the significant differences in NIR reflectance between REM and SEQ in Fig. 4. The authors also provided one additional Fig.1 in the response letter. It strikes me that Fig. 1 with all NIR reflectance measurements shows significantly large differences between these two sensors. The NIR reflectance from SEQ can even reach 0.85, which is almost twice of NIR reflectance from REM. The NIR reflectance reaching 0.85 is almost for very dense vegetation conditions not like the case here for grassland. For me, NIR reflectance from REM is much more reasonable. The authors explain that such difference is possibly due to sensor radiometric properties, radiometric calibrations, and changes in acquisition conditions. However, if there are significant uncertainties and errors in these radiometric calibration and data acquisitions, how can we guarantee the quality of reflectance data and their downstream analysis? I suggest to double check your reflectance data. Overall, I suggest a minor revision before accepting this manuscript for publication."

We agree with the referee that the difference in NIR reflectance between the two sensors is striking and that such high NIR reflectances for the SEQ are indeed not plausible for (grassland) vegetation. We checked the reflectance data, which are ok from the processing site. Furthermore, we adapted Fig. 5 of the manuscript so that it now indicates the plots of the points.

We assume that these high NIR reflectance values are due to a calibration issue of the SEQ sensor. As shown in Figure 1 below (added to the Supplement as Fig. SF1), the SEQ sensor generally shows higher reflectance values than the REM sensor. However, if no transfer learning is involved - hence if we develop and apply models only and solely using this very same sensor - the calibration matters not so much. Though, this would change if we would try to develop models that are to be applied on data acquired by a different sensor. This is not the case for the current study, but would need to be considered in potential future applications. We added these information in the discussion about this issue (line 655ff., line 668ff., line 785ff.).

Furthermore, we did some small language changes in the whole manuscript to correct errors and sometimes readability.

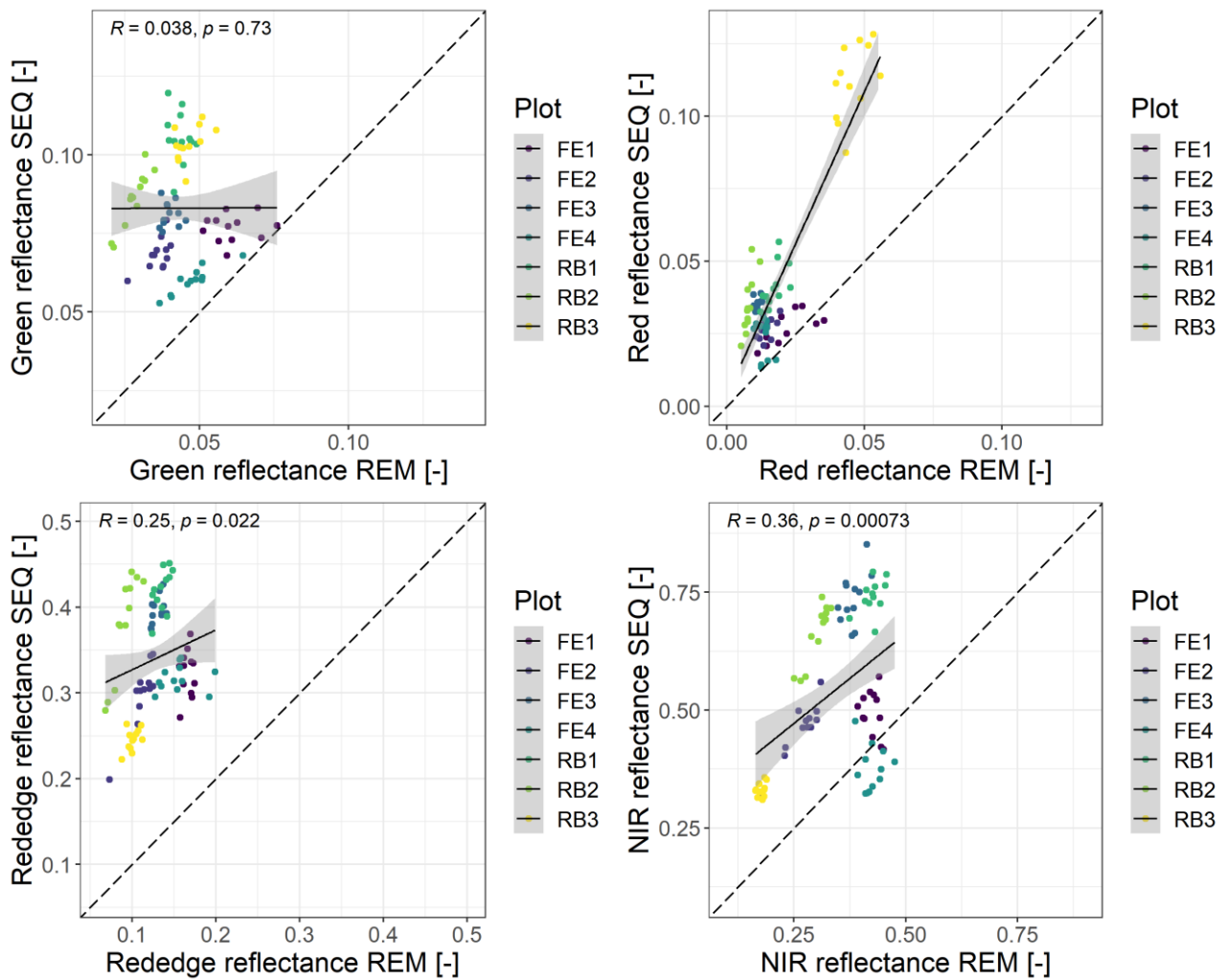


Figure 1. Reflectance values of REM vs SEQ sensor for different bands.

Yours sincerely,

Anne Schucknecht, on behalf of all co-authors