Interactive comment on "Using GNSS-based vegetation optical depth, tree sway motion, and eddy-covariance to examine evaporation of canopy-intercepted rainfall in a subalpine forest" *by* S. P. Burns et al.

List of Revisions to egusphere-2025-1755

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Listed below is a summary of the major planned and/or completed revisions to manuscript egusphere-2025-1755 submitted for publication in the EGU journal *Biogeosciences*. These revisions are primarily based on comments made by four Referees. Here, we summarize the significant/major revisions; additional manuscript changes are described in our point-by-point responses to the reviewer comments available on the manuscript discussion webpage. If the editor agrees with our proposed revisions, then we will submit our revised manuscript.

1. Both Referees #1 and #2 commented on the lack of a clear diel cycle in VOD during dry conditions. As part of our replies to these comments, we realized that VOD at the US-NR1 site (during dry days) is on the order of 0.35–0.4 which is much lower than VOD in other studies which are on the order of 0.6–1.1 (e.g., Holtzman et al., 2021; Humphrey and Frankenberg, 2023; Yao et al., 2024). In order to properly compare the VOD between these sites, the forest characteristics are needed. While we most likely won't be able to fully determine the cause of the low US-NR1 VOD, we will add additional discussion about this in the revised manuscript, and, at the very least, point out that the US-NR1 VOD in dry conditions is lower than VOD in the other studies (see our replies to Referees #1 and #2 for additional details).

2. Based on suggestions from Referees #1 and #2, we moved some information from the Introduction into the "Materials and Methods" section, and re-wrote the part of the Introduction where the comparison with CLM4.5 is described.

3. Based on comments from Referees #2 and #3, we have included information about the sampling frequency of each variable in Table 1 and fixed the time period that VOD was measured.

4. Based on comments from Referees #2 and #3, we have expanded our description of the data processing steps for both VOD (Sect. 2.2.1) and tree sway frequency (Sect. 2.2.2).

5. Based on comments from Referees #3 and #4, we have examined the effect of precipitation amount and wind speed on the tree sway frequency (similar to Fig. 10 in the discussion manuscript). We intend to add a figure similar to Fig. 10, but using tree sway frequency as the dependent variable. See Fig. R1 in our reply to Referee #4 for details.

6. Based on comments from Referee #4, we have clarified the meaning of the smaller VOD footprint shown in Fig. 1 and added a side-view schematic of the VOD footprint (see Fig. R2 in our reply to Referee #4). In our revised manuscript, we will: (1) improve our discussion of the VOD footprint (and add Fig. R2 to the supplemental material), (2) expand/improve the text in Appendix B to include a discussion about the eddy-covariance ET flux footprint, (3) contrast the ET and VOD footprints, and (4) add the ET flux footprint figures (shown as Figs. R4 and R5 in our reply to Referee #4) to the supplemental material.

7. Based on comments from Referee #4, we will re-calculate VOD using an elevation angle of 30 degrees and check that it does not significantly modify the US-NR1 VOD values.

8. We will create an ESS-DIVE archive to share the raw GNSS data used in our study, as well as other data. We were planning to do this; it was also suggested by Referee #3 (item 10).

9. In the Conclusions section of the revised manuscript, we will improve the text readability.

References

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