The authors have addressed most of my previous concerns, and I appreciate their efforts. However, there are two parts that are still missing in the draft:
- I do not think the authors have addressed my comments regarding the energy balance closure problem, at least they can check the relative humidity dependent water flux underestimates (i.e. plot LE/(Rn-G-H) as a function of relative humidity). If the problem is there, I think the authors need to do a related correction (the eddy pro can not solve this problem). Such a problem has been reported for most of sites in the eddy-tower network.

We appreciate your review and constructive feedback. In response to your concern about the energy balance closure problem, we want to emphasize that we carefully considered the issue and applied corrections to address potential underestimates in latent heat flux.

Specifically, we implemented the High Relative Humidity Correction (HRHC) described in Zhang et al. (2023) method to account for humidity-dependent flux underestimations. Prior to the application of any correction, a substantial ~30% energy deficit was observed in the forest site, highlighting a significant gap in the energy balance ratio (EBR). Although the HRHC method slightly improved the closure by increasing latent heat flux by 6.1% in SDP and 2.5% in SDF, the overall deficit persisted. Moreover, the resulting ET in the peatland was higher compared to the forest, which we think does not make biological sense. Considering this, we opted for keeping the Bowen Ratio Correction (BRC; Mauder et al., 2013) as a more robust correction approach, acknowledging the potential risk of overestimating evapotranspiration using the latter method.

Increase Ratio	RH = 40%	RH = 50%	RH = 60%	RH = 70%	RH = 80%	RH = 90%
LEcorr / LE in Forest	2.5 %	2.6 %	3.0 %	4.1 %	7.2 %	21.5 %
LEcorr / LE in Peatland	6.2 %	6.5 %	7.8 %	11.4 %	18.2 %	36.4 %

To clarify this, we added the following text to the Methods section (lines 140-158):

"Additionally, high relative humidity can produce an underestimation of LE, especially with closed-path systems, as the cut-off frequency of the closed-path system for water vapor concentration measurements decreases exponentially with increasing relative humidity (Zhang et al., 2023a).

Based on these assumptions, we implemented two corrections separately:

1) the Mauder et al. (2013) correction, hereafter the Bowen Ratio Correction (BRC), which uses the energy balance residual, evaluated on a daily basis, to partition the residual between H and LE in a way that preserves the Bowen ratio.
2) the Zhang et al. (2023a) correction, hereafter the High Relative Humidity Correction (HRHC), which rectifies LE considering the impact of high relative humidity.

Prior to the application of HRHC and BRC, a substantial 30% energy deficit was observed in the forest site. After the application of the HRHC, LE increased by only 6.1% in the

peatland and 2.5% in the forest, while the calculated ET using HRHC was smaller in the forest than in the peatland, contrary to expectations based on their canopy leaf areas. Due to the observed limitations in the ability of HRHC to accurately capture LE variations in cases of poor EBR, we opted for the BRC over the HRHC.

Despite the acknowledged risk of potentially overestimating evapotranspiration using EBR, it provided a more robust correction approach compared to HRHC when comparing ET in both ecosystems. Furthermore, the decision to exclusively apply the Bowen Ratio Correction (BRC) was influenced by the challenge of simultaneously using both corrections, as they operate on different principles and may introduce complexities in interpreting the corrected results. Nonetheless, we report the estimation of ET using both corrections (Supplementary material, Tables S2) and their partitioning values (Supplementary material, Tables S3 and S4)."

Table S2. Evapotranspiration in the forest (SDF) and peatland (SDP) using the High Relative Humidity Correction (HRHC) and the Bowen ratio correction (BRC).

Evapotranspiration $[mm\ year^{-1}]$	**SDF using HRHC**	**SDF using BRC**	**SDP using HRHC**	**SDP using BRC**
2015	**498**	**745**	**619**	**584**
2016	**587**	**820**	**615**	**598**
2017	**736**	**1122**	**697**	**738**
2018	**703**	**1089**	**794**	**763**
2019	**690**	**1071**	**701**	**651**
2020	**594**	**936**	**689**	**770**
2021	**492**	**721**	**629**	**670**
2022	**508**	**772**	**640**	**681**
Mean ± SE	**601 ± 35**	**910 ± 59**	**673 ± 21**	**682 ± 25**

- Secondly, I have an additional suggestion that the authors can double-think to provide to better support the conclusions drawn from Figures 6, 7 and 8 (This is an diagnostic test in this part but I highly suggest to do so). The use of a single ET partitioning method is not robust enough to draw these conclusions in such a knowledge-limited region, one might partition ET using a machine-learning-based method (e.g., the partitioning method proposed by Nelson et al., 2018), where you can analyse the importance of the variables at the mean time, This would give the
reader more confidence in the ET partitioning and related arguments.

Thank you for your suggestion and support. We calculated the partitioning of ET using the methodologies proposed by Zhou et al. (2016) and Nelson et al. (2018), using data from two different corrections: the Bowen ratio correction (BRC) and the High Relative

Humidity Correction (HRHC) methods. Based on the results, we found that the partitioning proposed by Nelson yields an even lower contribution of T to ET compared to the Zhou partitioning method. We think this supports the results of the ET partitioning and related arguments.

To clarify this point, we added text in the Discussion section (line 390-395):

"We evaluated the partitioning method proposed by Nelson et al. (2018) to compare it with the method used in our work (Zhou et al., 2016) and found that the former method yielded an even higher contribution of evaporation to ET. The results are shown in the Supplementary material, Tables S3 and S4. Furthermore, we found that the relationships between biometeorological variables and evaporation and transpiration fluxes were consistent between both methods (data not shown). While acknowledging the potential for variations and complexities when applying different partitioning methods in natural ecosystems, we think this supports our results."

Table S3. Contribution of transpiration (T) to evapotranspiration (ET) in the forest site (SDF) using the High Relative Humidity Correction (HRHC) and the Bowen ratio correction (BRC), associated with the partitioning methods proposed by Zhou et al. (2016) and Nelson et al. (2018).

T/ET [%]	**Zhou (2016) using HRHC**	**Zhou (2016) using BRC**	**Nelson (2018) using HRHC**	**Nelson (2018) using BRC**
2015	60.6	55.8	41.5	37.5
2016	52.1	49.0	44.3	38.5
2017	47.0	40.1	39.9	35.6
2018	49.3	42.6	40.3	36.6
2019	46.3	39.7	41.8	34.5
2020	51.6	45.2	40.5	34.3
2021	57.0	51.3	40.4	38.4
2022	49.7	44.3	37.3	36.2
Mean ± SE	51.7 ± 1.7	46 ± 2	40.8 ± 0.7	36.5 ± 0.6

Table S4. Contribution of transpiration (T) to evapotranspiration (ET) in the peatland site (SDP) using the High Relative Humidity Correction (HRHC) and the Bowen ratio correction (BRC), associated with the partitioning methods proposed by Zhou et al. (2016) and Nelson et al. (2018).

T/ET [%]	**Zhou et al 2016 using HRHC**	**Zhou et al 2016 using BRC**	**Nelson 2018 using HRHC**	**Nelson 2018 using BRC**
2015	51.6	48.2	43.5	37.5
2016	56.1	52.8	49.0	42.7
2017	54.1	47.5	48.1	37.8
2018	46.9	46.7	44.9	34.3
2019	51.5	51.2	47.3	35.7
2020	40.8	37.3	37.0	29.1
2021	57.1	52.6	52.4	41.2
2022	57.0	52.5	55.3	39.1
Mean ± SE	51.9 ± 2.0	48.6 ± 1.8	47.2 ± 2.0	37.2 ± 1.5