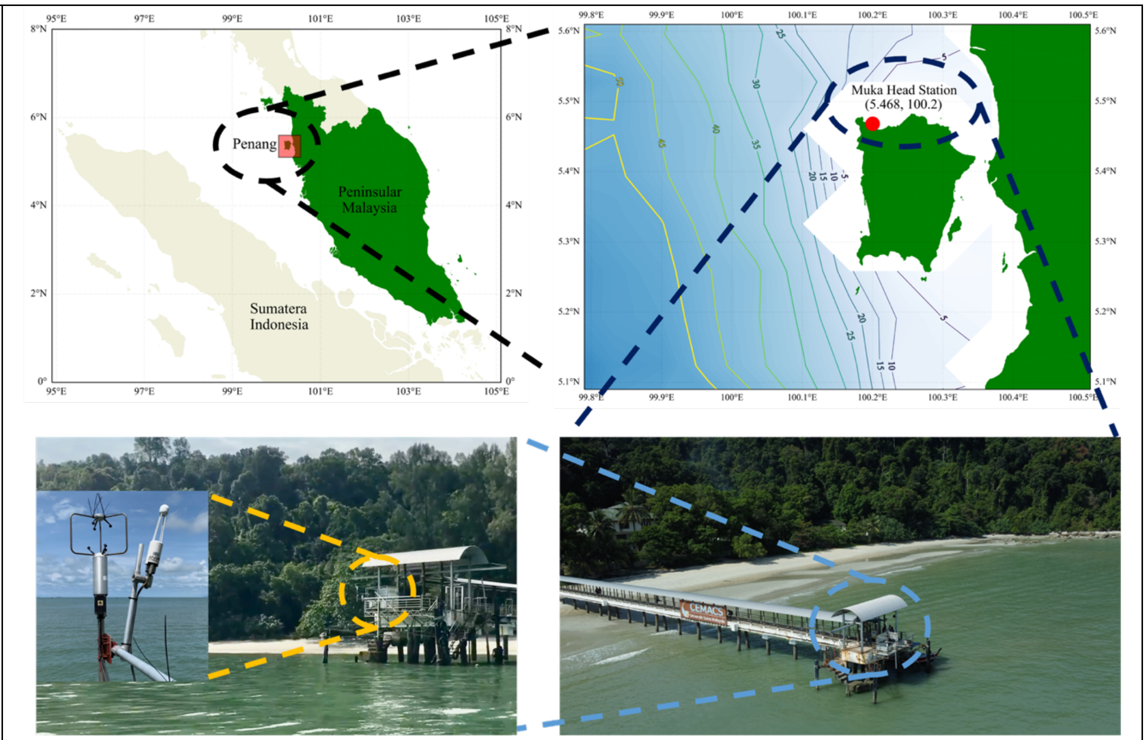
Reviewer #1	
1	**General Comments**: *This paper evaluates the Webb-Pearman-Leuning (WPL) correction for eddy covariance (EC) measurements of CO_2 fluxes. The WPL correction is an important technique and crucial for the accuracy of flux measurements. The manuscript is in general well organized and presented. My biggest concern of this study, however, is that the results of WPL correction (Figs. 3-7), albeit rather detailed, is solely the difference between fluxes "with" and "without" the WPL correction, which lacks the "ground truth" to be compared with. In other words, even the authors have detailed knowledge of the sign changes, and the dominant terms in WPL correction, there is no way to assess if the WPL correction actually improves the accuracy of CO_2 measurements or makes it worse. To justify the fundamental significance and scientific merit of this study, it needs a reliable third-party in-situ or remotely sensed CO_2 flux dataset, independent of the EC tower used in this study, to properly "assess" the accuracy and reliability of the WPL corrections. Otherwise, the current study is a sheer sensitivity analysis of the WPL and its dependence on climatological conditions, which can be performed without actual CO_2 flux measurements.*
	Thank you for the constructive comments and feedback. Considering the unavailability of an alternative CO_2 flux dataset for comparison due to the underreported nature of the site, we have adjusted our research objective for accuracy, as stated in the seventh paragraph of the Introduction (lines 84 - 86): "The objective of this research is to investigate the sensitivity of the WPL correction method in estimating CO_2 fluxes within a tropical coastal environment, particularly focusing on its response to varying climatological conditions." While we could not utilize another dataset for comparison, our revised objective aims to comprehensively examine the WPL correction method's sensitivity in our specific environmental context. We have thoroughly refined the manuscript to emphasize this adjusted focus.
2	**Comment 1.1**: *Figure 1: it will be good to have photo(s) of the actual EC tower and/or map of topography at the measurement site.*
	Response 1.1: Thank you for your suggestion. We have updated Figure 1 with photos of the station, instruments, and a bathymetry map around the site.

	 **Figure 1: The location of the Muka Head Station in Penang, Peninsular Malaysia, with an inset displaying the bathymetric map. The station is labeled with a red circle and box, within which the automated weather station is equipped with eddy covariance and Biomet systems.**
3	**Comment 1.2**: *Equation 1: the correction of (kinematic) sensible heat flux term, should it be potential temperature instead of temperature anomaly, though the difference is small at the sea level?*
	Response 1.2: Thank you for your comment. Upon the re-evaluating of Equation 1 and referencing Webb et al.'s 1980 paper (https://doi.org/10.1002/qj.49710644707), the correction of the sensible heat flux term use absolute temperature and not potential or anomaly temperature.
4	**Comment 1.3**: *Section 3.1, the 1st paragraph, how is $F_{c,0}$ computed? Is that the "raw" CO_2 flux? It needs to be clearly defined. Also, is it "diel" or "diurnal" cycle?*
	Response 1.3: Thank you for your feedback. $F_{c,0}$ represents the raw CO_2 flux. We have revised the first paragraph of Section 3.1 (lines 157-159) to explicitly define $F_{c,0}$ as "raw CO_2 flux" and F_c as "WPL-corrected CO_2 flux." "Throughout the sampling time domain, CO_2 flux at the study location acted as CO_2 uptake, with the average values of the raw CO_2 flux (derived from the first term in Eq. (1) as $F_{c,0}$) and the WPL-corrected CO_2 flux (F_c) are –0.14 and –0.0061 µmol m^{-2} s^{-1}, respectively." Regarding the "diel" and "diurnal" terminologies, we have amended the second sentence of the first paragraph in Section 3.1 (line 159) for improved clarity by removing the use of those terms:

<table>
<tr><td></td><td>“In Fig. 2, the lowest CO_2 flux occurred during the daytime, with the flux closing to equilibrium.”</td></tr>
<tr><td>5</td><td>Comment 1.4: Figure 2: plots (a) and (b), the region circumscribed by the dashed lines, representing standard errors (standard deviations?), can be shaded for better clarity. Also the measurement uncertainty for the sensible heat flux (Fig. 2c) should also be shown. In addition, as the vapor flux (latent heat) is also included in the WPL correction, it is also recommended to be shown in this figure.</td></tr>
<tr><td></td><td>Response 1.4: Thank you for your suggestions. We have made the necessary modifications to Figure 2 (see below). We have also shaded the regions representing standard errors in the figure. Additionally, the uncertainty for sensible and latent heat fluxes has been included, and the graph for latent heat flux has been incorporated into Figure 2.

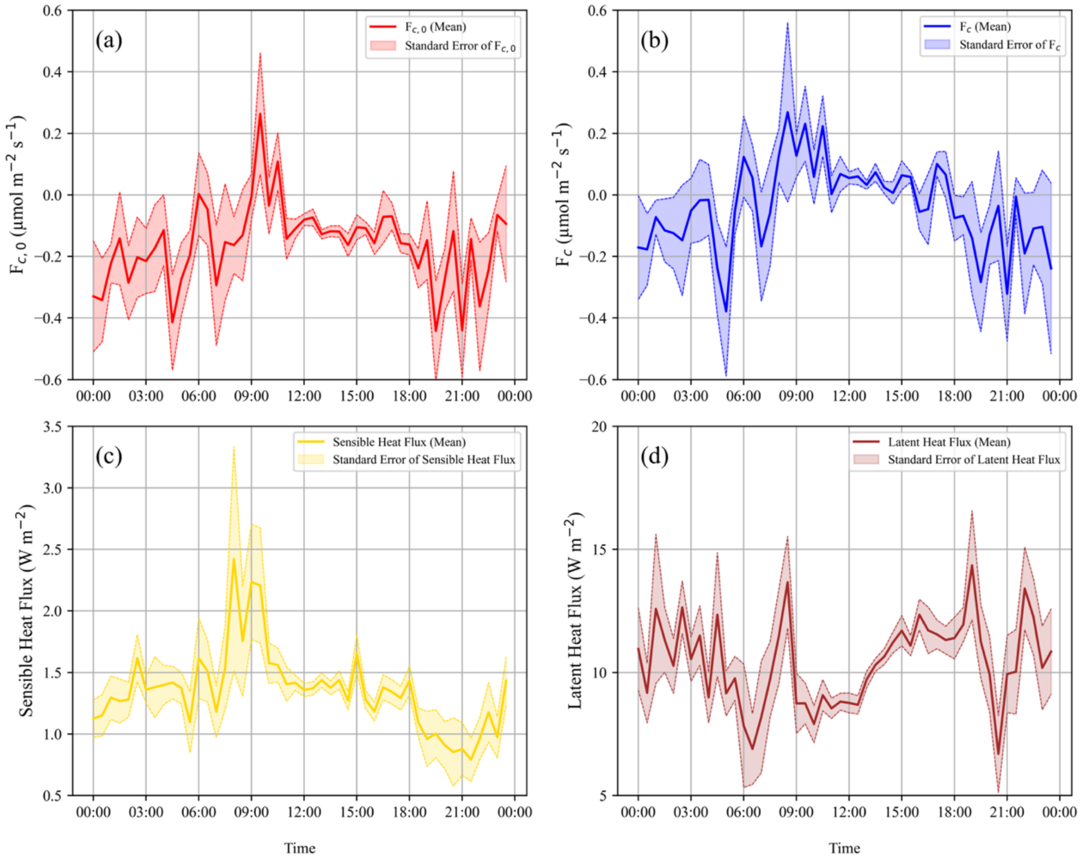


Figure 2: The climatological variation of diel (a) $F_{c,0}$, (b) F_c, (c) sensible heat flux, and (d) latent heat flux in 2016. The diel cycle values were averaged over the entire year from January to December 2016.

Furthermore, we have added paragraphs discussing the added latent heat flux and the uncertainties for sensible and latent heat fluxes in Section 3.1 (lines 196 - 213), as quoted below:</td></tr>
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	"The average uncertainty for sensible heat flux is 0.048 W m^{-2}. Between 11:30 LT and 17:30 LT, the uncertainty remained below 0.1 W m^{-2}. Subsequently, during the evening and morning hours, the uncertainty fluctuated within the range of 0.1 to 0.3 W m^{-2}. Evidently, the uncertainty of sensible heat flux was more substantial between 07:30 LT and 09:30 LT (exceeding 0.3 W m^{-2}), especially the uncertainty spike of 0.911 W m^{-2} at 08:00 LT, which coincided with higher uncertainty levels of CO_2 flux in the morning. In Fig. 2d, the latent heat flux ranges from 6.5 to 14.5 W m^{-2}, with an average of 10.42 W m^{-2}. Peaks in latent heat flux occurred at 08:30 LT (13.66 W m^{-2}) and 19:00 LT (14.35 W m^{-2}), while lows were observed around 06:30 LT (6.89 W m^{-2}) and 20:30 LT (6.69 W m^{-2}). During the morning hours (between 05:30 LT and 09:00 LT), there was a noticeable decrease in latent heat flux until 06:30 LT, followed by an increase until 08:30 LT, and then a subsequent decrease. Likewise, a discernible decline in latent heat flux between 19:30 LT and 20:30 LT was followed by an increase until 22:30 LT, indicating markedly greater fluctuations during these periods. Noticeably, higher latent heat flux around 08:30 LT coincided with the peak of sensible heat flux. The average uncertainty of latent heat flux is 0.25 W m^{-2}. Throughout daytime hours (from 09:30 LT to 18:30 LT), the uncertainty remained below 1 W m^{-2}. However, during the evening until early morning hours, it exceeded 1 W m^{-2}. Similar to the uncertainty of sensible heat flux, the uncertainty of latent heat flux can escalate in the morning, reaching beyond 2 W m^{-2} and even peaking at 3 W m^{-2} around 01:00 LT."
	Comment 1.5: *Figure 2: the caption states that all plots are "climatological" variation, so it is understood that the diurnal cycle is averaged over the entire year (January to December 2016). This should be clarified and explicitly stated.*
	Response 1.5: Thank you for your feedback. Based on your suggestion, we have revised the caption of Figure 2 in Section 3.1 (lines 191-192) to explicitly clarify that the climatological variation is the diel cycle values averaged over the entire year from January to December 2016: "Figure 2: The climatological variation of diel (a) $F_{c,0}$, (b) F_c, (c) sensible heat flux, and (d) latent heat flux in 2016. The diel cycle values were averaged over the entire year from January to December 2016."
	Comment 1.6: *Figure 2d can be grouped with Fig. 3 to show the results and analysis of the discrepancy.*
	Response 1.6: Thank you for the suggestion. We have grouped Figure 2d with Figure 3 to present the results and analysis of the discrepancy, aiming for a more coherent representation. See below for the new figure.

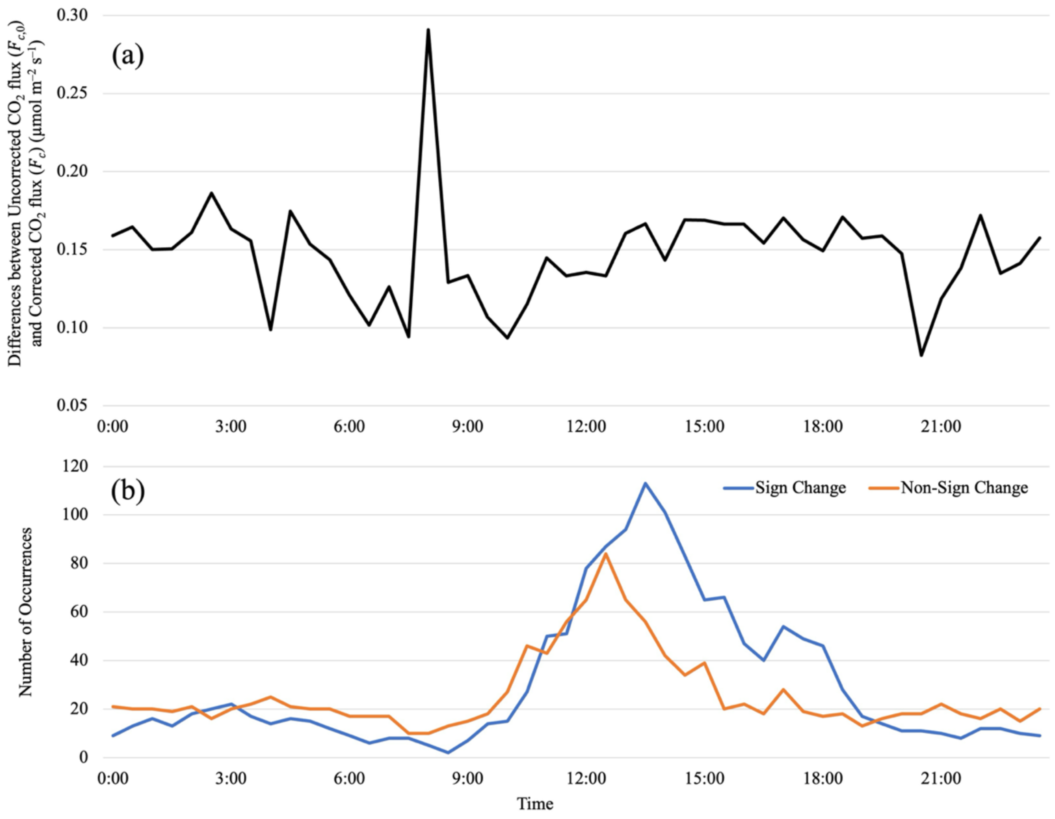

Figure 3: (a) The difference value between $F_{c,0}$ and F_c, and (b) the quantification of sign change and non-sign change occurrences in a diel cycle.