Reviewer 1:

You have errors with references that you need to fix.

All reference errors have been corrected.

Are you clearly showing how you assessed linear relationships? For instance, when you claim that there is a linear positive relationship between temp and bioaerosol concentration (row 355)? How did you assess this relationship? Is it significant

The text in this section has been amended to reflect that the linearity of the relationship between temp and bioaerosols was not assessed.

What supports that your measurements are dominated by bioaerosols? You claim that what the sensors are predominantly measuring is bioaerosols, but what is the rest? I'm not sure you are clearly discussing this. Are you clearly presenting what other types of particles that the sensors are measuring?

We believe we have discussed this in detail in several sections in the paper. For example at line 161 we discuss how our methodology selects for predominantly bioaerosols: *"The sensors do not explicitly discriminate between particle types, so in order to discriminate between fungi and other smaller particles (bacteria and anthropogenic aerosols), we excluded data from particles smaller than 1 μm in diameter, measuring from 1 μm up to the maximum 10 μm measuring capacity of the OPCs. This size discrimination, in conjunction with the experimental location and seasonal timing of the experiment make it highly likely the majority of bioaerosols being captured are predominantly of fungal origin."*

Additionally, in the discussion (line 441), we discuss the relationship observed between particle swelling and relative humidity, and how the threshold for swelling demonstrates we are most likely measuring a biological source: *"We found that the RH % threshold for significant particle swelling was 90–95%, which is a much higher RH value than would be expected for anthropogenic aerosols, which typically contain more hygroscopic components including salts, and therefore provides evidence that the measured PM_{10}–PM_1 fraction represents a predominantly biological source. In their study investigating effects of RH on fungal spore swelling, Reponen et al. (1996) demonstrated a similar effect whereby a significant swelling of fungal spores was seen, but only at very high humidities (greater than 90%). We believe this threshold for particle swelling further demonstrates that we are recording a biological source. This hygroscopic evidence is in addition to the ecological and phenological evidence for spores being the dominant source within the PM_{10}-PM_1 size fraction during the measurement period."*

In the caption of Figure 2 you say that Kappa (with symbol) is changed, but the text in the titles this variable is indicated with the letter K. You should be consistent here: is it kappa or the letter k?

We have checked the text to ensure that kappa is represented using the "κ" symbol. The kappa symbols in Figure 2 have also been replaced to match those in the text.

Can you check that the caption of figure 4 is correctly written?

We have amended the caption of figure 4 to improve clarity.

I think figure 5 is still taking up too much space. Can you merge the figures in there? Consider re-sizing the figures.

The spacing on the figure has been improved to decrease the vertical size of the figure.

You say you used Kruskal-Wallis tests. I'm assuming this is because your data are not normally distributed, but you are not showing this (or stating why you use Kruskal-Wallis). Why?

We have added additional explanation at line 283 explicitly state that the data was non-normal.

A period is missing between "self-consistent" and "It" at row 157.

This has been corrected.

Reviewer 2:

The authors examined bioaerosol using a low-cost sensor in a FACE experiment filed. The OPC-measured particles were assumed as bioaerosols and the relations with eCO2 experiment and meteorological parameters were investigated. They concluded that there is no effect of eCO2 on bioaerosol concentrations. The writing is generally well structured and necessary figures provided. The authors well revised the manuscript taking the comments from the previous round of review. I suggest a minor revision, while the following points need to be further clarified.

Major point:

The OPC-measured particles could reflect dust from the soil near the OPC location as well. As there are no correlations of PM10-PM1 concentration with CAMS AOD, the observed value could represent a very small niche, e.g., centimeter to meter levels, in the forest. Consider the observation height of 1.5m in the site, suspension of soil dust could be a large source of the OPC-measured particles, especially under the wind speed of 2.59 m/s below canopy (L331-332). In such case, instead of eCO2, the degree of land cover near the sensors and the corresponding wind resistance could be more relevant. A separation, justification, or declaration of the caveat regarding the possible mis-catching of dust should be provided.

Minor points:

1. L266-270, the information of the grid resolution of CAMS is necessary.

We have added the grid reference on line 269. "The spatial resolution of the reanalysis data is 80 km"

2. The OPC measurement height was 1.5m at L206-207, but 2m in Fig4 caption. Which one is correct?

For the side-by-side intercomparison period detailed in line 206, the OPCs were installed at 1.5m height, however for the main experiment they were installed at 2m in order to best match the below-canopy wind speed and direction sensors (also installed at 2m height). We have added an extra clarification of the OPC height for the main experiment on line 186.

3. L421-423, what do -3 and 3 stand for? Pearson correlation coefficient should be less than 1. Same for L427-428.

Good spot! The openair package multiplies the Pearson coefficient by 100 to make the correlation plot easier to read. Hence –3 and 3 equal –0.03 and 0.03, respectively. We have updated the numbers in the text and put a note on the correlation plot in the supplementary material.

4. Figure legends are needed in Fig 6b and Fig 8.

We have added the appropriate figure legends for Figure 6b and Figure 8.

5. What type of regressions are used, and the lines represent in Figs. 2A-C, 3B-C, 7C, 7D, 7F, and Fig. S2-S11? What do the shades nearby each of the fitted lines mean?

We have included details of the regressions used in section 2.6 on Line 278: "Relationships between PM_{10}-PM_1 concentrations and RH, temperature, and wind speed (**Error! Reference source not found.**, **Error! Reference source not found.**, and **Error! Reference source not found.**) were visualised used scatter plots and smoothed loess curves, generated in ggplot. Box plots with mean PM_{10}-PM_1 (and interquartile ranges) were generated to visualise differences in bioaerosol concentrations between eCO_2 and ambient arrays. Scatter plots with regression lines were generated for Figure 7 and for the supplementary figures."