

## Reply to Referee #1 comments

### General comments

The improvements suggested were made and detailed here after in our replies to the specific comments. Note that, since a new figure (Fig. 2a&2b) replaces now the former Table 1, figures and tables numeration is now different in this revised manuscript.

### Specific comments

P17227L14: We agree with this comment, and changed, here and further in the whole manuscript, with 'driver'.

P17227L16: We agree and have changed the 'circadian' with 'diurnal'.

P17229L6: Additional detailed information on the biomass (mean diameter, stage of canopy closure and dry leaf production) is now given in section 2.1

P17230L23: Leaves were mature and 3 month old as now mentioned in section 2.3 of the revised manuscript.

P17230L24: The exact name of PTFE was added, and 'Teflon' was replaced by 'PTFE' all over the manuscript.

P17232L7: Indeed, we assessed by ourselves *in situ* the *Q. Pubescens* LMA values on the O3HP site. It is now explicitly stated in the manuscript (section 2.3), together with the dry mass and area magnitude of the leaves enclosed.

P17232L15: The sampling tube was ¼" diameter and was not heated, as it is now specified in our revised manuscript (section 2.3).

P17240L17: We have now developed (see end of section 3.3.2) the reasons of the differences of  $P_n$  observed among the different branches.

P17241L19: We agree with these remarks and, as suggested, the statements/conclusions on this point (which is now in the new section 3.4.1) have been changed in the revised manuscript.

P17242L10: As the referee suggested we have added the Guenther et al. (1995) reference which point out a factor of three of uncertainty due to upscaling exercise. The potential reasons for such discrepancy are given in details in the Kalogridis et al. (2014) paper. However a short comment was added.

P17243L1: As also suggested by Referee #2, the use of what we called the 'relative contribution of  $C_L$  and  $C_T$ ' is no longer made in the new manuscript. Instead,  $C_L$ ,  $C_T$  and T curves are now presented in former Fig. 4 as suggested, and a new interpretation of former Fig. 4 is made in the (new) section 3.4.2.

P17243L20: As suggested by the referee, we changed to 'reverse sigmoid'.

P17244L20: As suggested we have also tested the algorithms with our own  $I_s$  values. New comments are now made in the (new) section 3.4.3 and corresponding updating was made on Figure 6. Figure 7 was removed since very few information was given; instead a new table (Table 3) summarises all comparisons made using both algorithms, using different values and for both  $Qp4$  and  $Qp1$  trees. New comments were made in the 'Abstract' and the 'Conclusions' sections as well.

P17245L9: As explained on the previous comment (P17244L20), the effect of  $I_s$  value on isoprene emission assessment is now considered and discussed in the revised manuscript; former Figure 6 was updated accordingly and a new Table 3 is now presented.

P17246L16: As suggested by the Referee #2 as well, we are now using 'half' instead of 'twice smaller'.

P17247 L10: As mentioned earlier concerning referee comment P17243L1, we are no more using our so called 'relative  $C_L$  and  $C_T$ ' contribution. The correlation between  $Pn$  and ERiso for the different branches (former Fig. 2) is now better described in section 3.3.2 as required in referee comment P17240L17.

(former) Table 1: As suggested the data presented in the former Table 1 are now plotted in Figure 2a and 2b.

(former) Table 3: Ambient temperatures were given, for comparison, in the original manuscript, in the former Table 1 (which is now Figure 2a). A comment is now made in the former Table 3 (now Table 2) in order to give the reader an estimate of how different enclosure and ambient temperatures are.

(former) Figure 4: As mentioned earlier for referee comment P17243L1,  $C_L$ ,  $C_T$  and T curves were added in the former Fig. 4 (now Fig. 5) and the 'relative contribution' of  $C_L$  and  $C_T$  are no more considered.

P17229L15: This change was made as suggested.

P17232L4: This change was made as suggested and as mentioned earlier concerning referee comment P17230L24.