The manuscript has improved considerably. I have one detail that I find confusing still in the analysis. In your reply you didn't really answer to my question on it.
In your reply you write: "Indeed, EF was determined with the same dataset as used to modelled emissions. EF was the slope of the correlation between emission rates and Cl*Ct for L+T algorithm and the correlation between emission rate and Ct for T algorithm (line 172-176)".
If you determine the EF as the slope between the emissions and Cl*Ct or Ct, and then plot the data modelled with these EFs against the very same data the EFs were derived with, I would expect 1:1 line, unless non-linear data transformations have been done. If that is not the case I would doubt the fitting procedure.
*EF was determined as the slope of the correlation between ER (observed emissions) and algorithms values of Cl*Ct or CT for each tree, each compound, each season and each treatment. After this, we calculated the mean of EF for each condition (for example, formaldehyde in spring under natural drought) with n=5. It allowed us to introduce the inter-individual variability of BVOC emissions. The EF mean was used to calculate the modelled emissions as follows:*

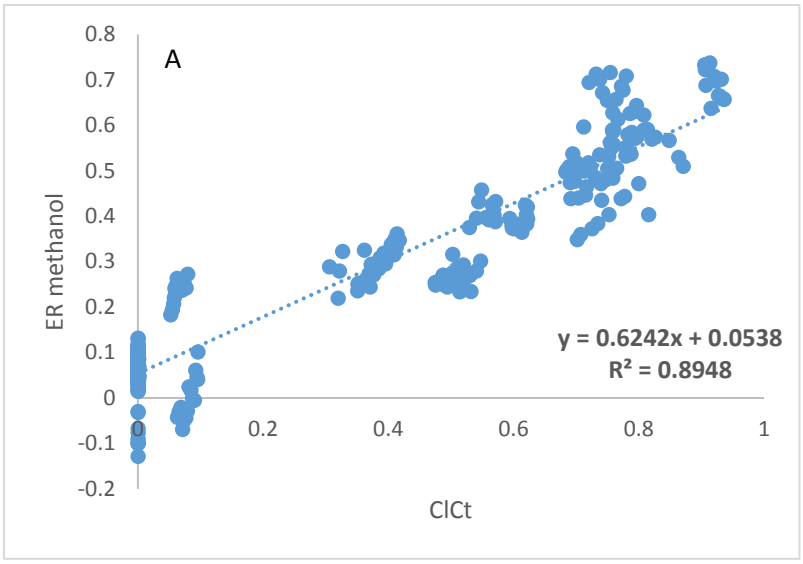
$$modelled\ emissions = EF * ClCt\ \textit{(for L+T algorithm)}$$

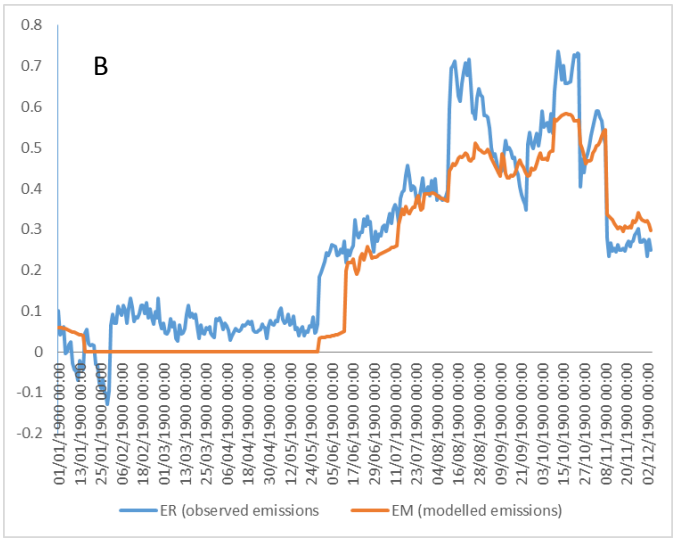
Or

$$modelled\ emission = EF * CT\ \textit{(for T algorithm)}$$

*We cannot have a 1:1 line nor a R^2 of 1 because when we determined the EF with the correlation between ER and Cl*Ct, R^2 obtained was not equal to 1 because light and temperature were not the only parameters influencing the BVOC emissions.*

And further: "An under (or –over) estimation between measured and calculated emission rates highlights the fact that the driving parameters considered in the algorithm (temperature, light, season, drought) did not allow to explain 100% of emissions. Thus, it seems that other factors which are not taken into account in our study influenced emissions".
This seems to be misinterpretation, as you have used the very same data to create the EFs that you use to evaluate them, and thus the EF implicitly is influenced by all parameters in seasonal timescale. To me it looks like there is something strange in the procedure of obtaining EFs, calculating the emission and then comparing them back to the original data.
If we look for example methanol emission in autumn in Figure 5, we see that the L+T algorithm constantly underestimates the emission. This is very strange if the EF used in the calculation is obtained from this same dataset. One would expect part of the data be above, part below the algorithm. Were the algorithms fitted to original data and not the averages shown here? Could the distribution of the data be very skewed to cause this? I would like to have a short explanation on how the systematic deviation of the modeled emission and measured one is possible in this case.
*For example, we performed the correlation between Cl*Ct and ER for methanol in summer for only one tree under natural drought. We obtained a slope equal to 0.6242 (graph A) which will be our EF value to calculate modelled emission of methanol in summer under natural drought. ER (experimental emissions rates) and EM (modelled emissions) are presented in graph B. We observe that there is underestimation of methanol emissions from algorithm L+T. Thus, even when modelled emissions are calculated without averaging, we obtained the same results because light and temperature cannot fully explain methanol emissions.*





Such an approach used for calculating of modelled emissions then, compared to observed emissions, has been used in many other publications. They determined EF with observed emissions (ER) and validated their EF with the same data set. To determine EF, there are two methods:

1- *Using EF as the slope of the correlation between ER and ClCt values (Tarvainen et al. 2005; Dindorf et al. 2006; Grabmer et al. 2006; Holzke et al. 2006; Harley et al. 2014).*

2- *Averaging all emissions rates occurring at standard conditions during the measurement (1000±200 µmol.m-2.s-1 and 30±2°C) (Fares et al. 2011).*

In our study, we tested both methods but we obtained a better fit between modelled emissions and experimental emissions with the method presented in the article (method 1), because a larger dataset is taken into account to determine the EF in this method.

Furthermore, you write: "In our study, temperature, light, season and the water stress were factors taken into account to modeled BVOCs emissions". Actually, if I understand correctly, only temperature and light are taken into account explicitly (in algorithm). Drought effect is only implicitly included in the seasonal variation of EF.

Indeed, in our study, only light and temperature are taken into account in the algorithms. Water

stress and seasonality are taken into account indirectly since we determine an EF for each compounds at each season and each treatment (natural and amplified drought).

Dindorf T., Kuhn U., Ganzeveld L., Schebeske G., Ciccioli P., Holzke C., Köble R., Seufert G. & Kesselmeier J. (2006). Significant light and temperature dependent monoterpene emissions from European beech (Fagus sylvatica L.) and their potential impact on the European volatile organic compound budget. Journal of Geophysical Research: Atmospheres, 111.

Fares S., Gentner D.R., Park J.-H., Ormeno E., Karlik J. & Goldstein A.H. (2011). Biogenic emissions from< i> Citrus</i> species in California. Atmospheric Environment, 45, 4557-4568.

Grabmer W., Kreuzwieser J., Wisthaler A., Cojocariu C., Graus M., Rennenberg H., Steigner D., Steinbrecher R. & Hansel A. (2006). VOC emissions from Norway spruce (Picea abies L.[Karst]) twigs in the field—results of a dynamic enclosure study. Atmospheric Environment, 40, 128-137.

Harley P., Eller A., Guenther A. & Monson R.K. (2014). Observations and models of emissions of volatile terpenoid compounds from needles of ponderosa pine trees growing in situ: control by light, temperature and stomatal conductance. Oecologia, 176, 35-55.

Holzke C., Hoffmann T., Jaeger L., Koppmann R. & Zimmer W. (2006). Diurnal and seasonal variation of monoterpene and sesquiterpene emissions from Scots pine (Pinus sylvestris L.). Atmospheric Environment, 40, 3174-3185.

Tarvainen V., Hakola H., HellÃŠn H., Hari P. & Kulmala M. (2005). Temperature and light dependence of the VOC emissions of Scots pine. Atmospheric Chemistry and Physics, 5, 989-998.