

Interactive comment on “Clues for a standardised thermal-optical protocol for the assessment of organic and elemental carbon within ambient air particulate matter” by L. Chiappini et al.

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We thank Referee #2 very much for the detailed review and for the suggested corrections. Each of the different comments is answered below and will be taken into account in the revised manuscript accordingly.

Abstract, line 19: “rural and urban results” does not exist, should be rephrased. Same expressions appear at page 10245 at lines 4/5. A: will be changed into “results obtained for rural and urban samples”.

Page 10235, 1st line: Typo, should be Huntzicker et al. 1982. A: will be corrected.

C4824

Page 10238, lines 20-22: This sentence reads ambiguous: The repeatability for TC of 1% achieved by two laboratories is considered as satisfactory, the repeatability of the other labs is 5-7% and denoted as very satisfactory. Please clarify this. A: will be changed into: “For sample N1, laboratories 1 and 5 obtained a very satisfactory repeatability of about 1 % for TC, whereas for other laboratories the repeatability of the TC measurement was between 5 and 7 %, which remains satisfactory (...)”.

Page 10240, lines 9/10: it says here “.. the intralaboratory repeatability % (corresponding to the mean of each laboratory repeatability),” The relative intralaboratory repeatability (in %) is here not appropriately defined, the explanation given in parenthesis does not give a percentage. Please correct this. A: sorry for the confusion. This will be changed into: “ (...) the intralaboratory repeatability % (corresponding to the arithmetic mean of ratio between the standard deviation obtained for each laboratories and the arithmetic mean obtained for each laboratories),”.

Page 10240, lines 25/26: Should better note something like “as a deviation of the front oven temperature from the set temperature may lead to a shift of EC/TC.” A: will be changed as suggested.

Page 10241, line 1: Use “provide” instead of “propose”. A: will be changed as suggested.

Page 10241, line 1: What does lack of fit mean here? I guess this is not the correct expression here, please correct. A: will be changed into “drift”.

Page 10242, lines 2/3: Where do the numbers for the uncertainties come from? This information should be provided. Table 4: How is “overall uncertainty” defined, how has it been determined? This information should be provided, e.g. in the legend. A: As stated within sections 2.1.3 and 2.2.3, the overall uncertainty is considered here to be equivalent to the reproducibility multiplied by a factor of 2.

Page 10242, line 20: Should be “at” instead of “in”. A: will be changed as suggested.

C4825

Page 10243, line 1: Should be “at an urban: : :”. A: will be changed as suggested.

Page 10243, line 6: “at 1 m63 hōÄÄÄ1”? A: will be changed into “(…) running at 1 m3 h-1 flow rate (…).”.

Page 10244, line 10: “did not seem to have much difference between”, please correct this phrase. A: will be changed into “(…) only slight differences were observed (…).”.

Page 10245, line 10: “at the Sunset laser wavelength (660 nm),”, should be something like “at the wavelength of the Sunset Labs. Instrument (660nm)”. A: will be changed as suggested.

Page 10246, lines 11/12: The authors refer to the supplementary material for information about samples collected at various sites in France. However, the supplementary material does not contain this information. Needs to be changed. Page 10247, lines 14/15: Again, no such information in the supporting material. A: Yes indeed, sorry. The reference to supporting material will be deleted.

Page 10247, lines 7-10: I don't understand this argument. What is the relation between soiling of the oven and front oven temperature? How can differences of a factor 4 be explained? This should be discussed in more detail. A: will be explained in the revised manuscript as follows: “(…) the oven soiling induces an additional light scattering and a decrease of the laser baseline, which could generate a bias in the split point determination leading to an under-estimation of the EC content”.

Page 10248, line 8: Delete “extensively” here. A: will be deleted.

Page 10248, lines 10/11: What does “lower quality” mean, uncertainty, bias, ...? Be more precise here. A: as also recommended by referee #3, the first part of this sentence will be deleted.

Legend Table 2: The meaning of the three columns needs to be given, I assume it is OC, EC and TC - correct? A: Yes indeed. Will be inserted.

C4826

Figure 1: It is difficult to read this plot and also the legend does not help much. What is shown here? Is the line where blue and white in the boxes meet indicating the mean value and the width of the boxes indicating the standard deviation? What is the meaning of the thin black line. In addition, green/red/yellow indicating the temperature protocol can hardly be identified. This figure should be improved. A: Yes indeed, the width of each box is indicating the standard deviation, while the separation between blue and white bars in the boxes represents the general mean obtained by each laboratory for the different filters. The straight black line is meaningless and is only drawn to facilitate the reading. This will be stated in the legend. Finally, colors are actually useless since the protocol used by each laboratory is already detailed within Table 1.

Supporting material : 1. “Arithmetic mean for a laboratory ji at a level i:”, should be changed to “Arithmetic mean for a laboratory j at a level i:” A: will be corrected.

Supporting material : 2. “Repeatability standard deviation for a laboratory i”, should be changed to “Repeatability standard deviation for a laboratory j”. A: will be corrected.

Interactive comment on Atmos. Meas. Tech. Discuss., 6, 10231, 2013.

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