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Interactive comment on “The influence of temperature calibration on the OC-EC results from a dual optics thermal carbon analyzer” by J. Pavlovic et al.

Anonymous Referee #1

Received and published: 17 April 2014

The paper addresses the temperature calibration issue for thermal-optical carbon analyzers and provides a first insight on the application of a temperature calibration device and its effects. Even though the experimental work is limited to one instrument and one type of aerosol it indicates the potential benefits of the implementation of temperature calibration in Quality Assurance and Quality Control procedures. Further, it provides the base for further research and discussion that can lead to improvements in instrument and consequently study comparability. Finally, the paper introduces the temperature calibration procedure in an informative way, which is useful to other users willing to apply the method. Therefore I suggest the publication of the current work with

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minor revisions:

Page 3329, 2.4 Sample analysis: There were only TOT results considered for NIOSH5040 while TOR results were available. Could you explain why TOR results were excluded from the statistical analysis?

Page 3331, lines 9 and 10: For clarification, ≤ 450 oC should be modified to ≤ 475 oC and ≤ 890 oC should be modified to $550 \leq T \leq 890$ oC.

Page 3331, line 29: Temperatures indicated should be adjusted similarly to page 3331, lines 9 and 10.

Page 3332, line 30: Temperatures indicated should be adjusted similarly to page 3331, lines 9 and 10.

Page 3332, 3.2.1: The statistics show that EC and TC did not produce a statistical significant difference while OC showed a significant reduction of 12%. Nevertheless, this does not seem logical from a mass balance perspective. Maybe it could be further discussed? Is it explained by the fact that in principle the samples analyzed contained more EC than OC?

Page 3335, line 1: A range of percentage is given, 10-12%, while this is not the case in the rest of the text. Could you specify the separate values for TOT and TOR respectively?

Page 3336, line 12 and 18: It is not mentioned if the 16% increase of PyC is significant or not (probably not). While in page 3335 the respective percentage (10 to 12%) is mentioned to be significant.

Figure 3: It would come handy if the sub-fraction periods could be illustrated. Maybe on the time axis?

Figure 3 (B): The transmittance signal seems to be higher after the TCAL at the end of the run. Could that indicate that the filter after analysis prior to TCAL could have some

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remaining EC? This may explain the 2% difference in TC before and after the TCAL (even though non-significant). It does not become clear in the graph, but the same may apply for the IMPROVE protocol.

Interactive comment on *Atmos. Meas. Tech. Discuss.*, 7, 3321, 2014.

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7, C583–C585, 2014

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