

## ***Interactive comment on “A newly identified calculation discrepancy of the Sunset semi-continuous carbon analyzer” by G. Zheng et al.***

### **Anonymous Referee #2**

Received and published: 17 March 2014

The MS reports a newly identified artefact in data obtained with the Sunset Semi Continuous Carbon Analyzer. The problem is created by the instrument software which was originally meant to correct for drifts in instrument base line.

The MS is interesting and should be published, but there are a few points that need to be addressed.

Abstract: the abstract should contain all important points of the MS. In the current version, more specific information is needed. Line 8: please identify which protocol underestimates by how many %. Which protocol has the problem when analyzing

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sucrose solutions? Is there a discontinuity in the data obtained with single and multiple point correction when carbon loadings reach the critical threshold? This latter point should be discussed in detail also in the main part of the MS.

other points (in order of occurrence)

what would be the results for the EUSAAR II protocol?

p 379, line 8: not all Aerosol Mass Spectrometers can be used for EC determination

p 381 line 1: clarify "two back-to-back Quartz fiber filters"

p 381, line 14: give predetermined conversion factor for optical EC

section 2.2 temperature protocols: please specify exactly the temperature steps and hold times you used

p 382, line 16: what was the calibration procedure for earlier models than the 4 SCCA?

in general: give thresholds of C loadings for ambient samples (including seasonal variations)

discuss the effect of hold times - if hold times are adjusted for signals to reach the base line between temperature steps, the protocols are modified and can no longer be called by their standard names

general remark: there are a few problems with English grammar - please have someone check the MS for singular/plural and adverb/adjective usage.

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Interactive comment on Atmos. Meas. Tech. Discuss., 7, 377, 2014.

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