

## ***Interactive comment on* “Technical note: Common glitch affecting the EC/OC split point determination in the Sunset Thermal-Optical Analyzer and recommendations to reduce its occurrence” by Stéphanie Gagné et al.**

### **Anonymous Referee #1**

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**General comments** The paper describes a “glitch” that is sometimes observed in the laser signal for EC/OC analysis, conducts an extensive investigation of its occurrence and cause, and proposes a simple alteration to the normal operating parameters that reduces the observed numbers of glitches, together with other recommendations. This is a significant issue with a widely-used analysis method, and merits publication on those grounds alone.

**Specific comments** The metric (the “discontinuity indicator”) used to automatically detect the glitch in a large number of samples is somewhat subjective, but nevertheless

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fit-for-purpose in evaluating the extent of the issue in different circumstances.

From Table 1, the reduction in blower speed generally decreases the incidence of significant discontinuity ( $DI > 15$ ) by a factor of about 3. The Abstract should be more quantitative about the effectiveness of halving the blower speed and the need for other QA/QC measures.

On page 6 line 171 it is stated that the change in flow rate does not change the cooling rate. Some evidence needs to be given for this.

Section 3.4.2 illustrates the effect of filter movement on laser transmittance by rotating a filter by  $30^\circ$  from its normal position. This is unconvincing. The paper should estimate the angular movement that a filter held in place by the spoon could realistically experience, and interpret the experimental results in terms of the effect on the discontinuity indicator.

Section 3.5 discusses consequences on the EC/OC split. It would be very helpful to have some examples of the quantitative effect on the EC/OC (or EC/TC) ratio, rather than saying that this depends on various factors.

Figure 4 shows anomalous peaks in the bins just below 50. Is this because higher values are combined?

Technical corrections Page 2, line 32: comma needed after “filter” Line 45 “resp.” should be “respectively” Line 48 “and” should be “or” Page 3, line 76 “cm<sup>2</sup>” should be “cm<sup>2</sup>” Page 4, line 113 insert “in Figure 3” after “subplot” Page 5, line 136 “the same” should be “similar” Page 14 Figure 4 labels its x-axes as “jump indicator”. This should presumably be “discontinuity indicator” for consistency with the text.

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