

Interactive comment on “A low-cost PM_{2.5} monitor for wildland fire smoke” by Scott Kelleher et al.

Anonymous Referee #1

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In general, the paper present new findings on use of lower cost technologies deployed during a fire event. The authors need to better present the results of the OAS sampler and expand on the discussion of the failed Sharp sensor as described in detailed comments below. Further, the authors need to expand on the characteristics known to impact sensor performance (e.g. type of wood burned, humidity, inversion vs. non inversion days, temperature, and wind direction) in the discussion and results section.

Specifically, the discussion on OAS results over 200 is confusing. Where were these located, how many out of the 61 sensors were affected by this issue, and further describe what you mean by extrapolating over 24-hours? Figure 8 clearly shows an outlier near 1000 (which needs discussion) and other values above 200. Also spend some time discussing the September 17th results (was this the only day of the inversion)? Figure 8 shows the reference value reading near the high point of ~500 on the 17th. Can you create a similar figure that identifies each monitor? Was the highest recorded

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value during the inversion the monitor closest to the reference? Besides collocation of OAS monitors at sites 1 & 9, describe the evaluation of precision & accuracy amongst the sensors before, during, and after the study.

Starting at line 279 - there is only brief discussion on temperature and drift, describe other met conditions affecting the Sharp sensor.

Future work could involve mobile monitoring with reference instruments to collocate sensors in the highest concentration environments. Also discuss whether a different low cost, real-time sensor with greater concentration ranges or known size ranges should be used.

[Interactive comment on Atmos. Meas. Tech. Discuss., doi:10.5194/amt-2017-358, 2017.](#)

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