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Atmospheric Measurement Techniques Discussions

Interactive comment on "On-flight intercomparison of three miniature aerosol absorption sensors using Unmanned Aerial Systems (UAS)" *by* Michael Pikridas et al.

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The authors would like to thank the reviewers for their constructive comments. Please find our responses below.

Point 1: This is a very interesting and important manuscript that describes an intercomparison of aerosol light absorption coefficient measurements taken with three miniature instruments for UAS deployment and two "reference" ground-based instruments. While I think that this manuscript describes very high quality and important work, the same cannot be said about the writing style, which could greatly benefit from extensive editing.

Following the advice of the reviewer, the manuscript has been re-edited and several typos were corrected. The structure of the manuscript has been altered as suggested with the "Instrumentation" section moved forward for clarity. Several sentences that were deemed confusing were omitted or changed, especially those speculating on the potential of UAS capabilities.

Point 2: Lines 85-87: "In fact, the reduced size, weight, and power needs of these systems, along with the reduced cost of the platforms and instrumentation, make them suitable for these operations with huge potentials currently poorly demonstrated." This statement would benefit from some references.

This sentence was confusing and has been removed. Additionally, the referenced literature related to UAS-based absorption has been expanded.

Point 3: Lines 87-94: Comments on "endurance and not risking the lives of crew" should be added.

This sentence has been removed from the revised manuscript.

Point 4: Lines 94-96: "They have also the potential (yet not demonstrated) of the ground-based monitoring networks capabilities in providing long-term atmospheric observations." This is unclear to me, please reword.

Once more, this sentence seems to have caused confusion and has been omitted.

Point 5: Lines 97-100: How was the "vertical distribution of aerosol absorption" performed???

This is now clarified in the revised manuscript. This sentence now reads "we focus on vertical distributions of aerosol absorption, measured with miniature absorption sensors onboard small and medium-size UAS during two intensive field campaigns at contrasting locations in the Eastern Mediterranean". This can be found in lines 112-116 of the revised manuscript.

Point 6: Lines 347 & 359: “Angstrom” or “angstrom”? How about “Ångström”?

This word has been replaced, as suggested by the reviewer, in the revised manuscript

Point 7: Line 515: “agreement” or should this read “correlation”?

In the first version of the manuscript, the term “agreement” was confusing and has been replaced by the term “correlation” throughout as suggested.

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