

Interactive comment on “COCAP: A carbon dioxide analyser for small unmanned aircraft systems” by Martin Kunz et al.

Anonymous Referee #2

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General Comments:

An interesting paper that nicely describes a creative way for the use of low cost measurements with a satisfying number of technical details. After addressing the comments below the manuscript will be suitable for publication.

Specific Comments:

It would be interesting to see in the conclusion more future directions that focus on different scientific questions that could be answered with this measurement method. Based on the paper the main purpose of this measurement method is "close gaps in the observation of the carbon cycle", however maybe try expanding this statement. You refer to this in the introduction and conclusion but maybe highlight more what is and

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isn't possible to do with this measurement method. Explain more which gaps you are trying to close and why.

Similarly in the conclusion line 25 you state 'Other potential uses include measuring the emission strength of point sources and investigation of emissions in urban areas', yes this is possible with your measurement method but it is also possible with numerous other instruments. It does not emphasise a unique benefit of this instrument. Also you wouldn't actually measure the emission strength directly, but make measurements that can be used to investigate the strength of point sources.

It would be good to add a table with the approximate height, area, time that can be covered when they use the UAS (with details about the specific setup and when they take into account everything e.g. battery life etc) relative to other platforms described in the paper.

Technical corrections:

Change the x and y labels on the plots - Time in h change to Time (h) or better to Time / h

Section 2.1.5 is there a reference for all the 5 statements of how temperature affects CO₂ measurements?

Pg 9 line 15 an overview the platforms -> an overview about the platforms

Pg 13 line 3 variations of some parameters of a model while others are fixed - isn't this called cross-sensitivity?

Pg 14 line 10 and 12 In a first step -> As a first step

Pg 17 line 11 by COCAP is affected -> by COCAP can be affected

Pg 24 line 15 the wind low -> with low wind speed

Pg 25 Figure 16 : data are the same as in 15 -> data are same as in Figure 15

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Relatively low number of references.

Interactive comment on Atmos. Meas. Tech. Discuss., doi:10.5194/amt-2017-207, 2017.