

Interactive comment on “Assessment of the total precipitable water from a sun-photometer, microwave radiometer and radiosondes at a continental site in southeastern Europe” by Konstantinos Fragkos et al.

Anonymous Referee #1

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This work is a comprehensive comparison of different measurements (Cimel sun-photometer versions 2 and 3, microwave radiometer and radiosondes) of TPW for a single station close to Budapest. It is generally well written, however I strongly recommend the help of a native speaker to improve the language.

The article has improved from initial submission, but still I would like to point out some issues that should be address.

1. First of all, the methodology section is still missing, although the authors claimed
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that they were including it. Maybe there was some problem with the manuscript resubmission. This methodology section should say how are the statistics computed, as well as the matching criteria.

2. Section 2: More information on how the IWV is retrieved from the instrument measurements would be desirable.
3. Page 2, L.26: Actually, as far as I know, sun-photometers only need that the solar disc is free from clouds, but the rest of the sky can be covered by clouds. So the phrase is not really correct.
4. Page 3, L. 6: Since the models of the radiometer and the sun-photometer is mentioned, the radiosondes model should also appear in this line.
5. Page 4, L. 17-18: authors should explain this "visually inspection". Was it looking at the time-series plot? By comparison with the other instruments?
6. Page 6, L. 23: could the authors provide a reference to the dry bias effect?
7. Page 6, L. 30-31. Why is the dependence almost negligible? Could the authors explain this fact?
8. Page 7, L. 2: could the authors specify the number of data?
9. Page 7, L. 30-31: could the authors provide some reference to this issue?
10. Page 8, L. 28: I do not agree with this sentence, since the Version 3 is supposed to be better quality than Version 2, so the phrase does not make much sense.
11. Scatterplot figures (Fig 5a, 10, 12, etc.): authors could provide the confidence interval for the coefficients of regression. Also, p-values cannot be exactly equal to 0, please use the scientific notation to indicate the order of magnitude. Also, indicate if "corr" refers to R or R^2 .

12. Histogram of relative differences figures (Fig 10b, 10d, etc): Please, use a statistical test to check if the distribution really follow a normal distribution.
13. Table 2: indicate that these are daily means in the table caption

Technical corrections:

1. Page 1, L.17: "IPCC (2013)" should be "(IPCC, 2013)"
2. Page 2, L. 5: Citation is incorrect.
3. Page 2, L.19: TWP instead of TPW.
4. Page 2, L.22: it should be AErosol RObotic NETwork (AERONET).
5. Page 5, L.13: I understand PC means Personal Computer, but as an acronym it should be indicated.
6. Page 8, L. 13: maybe the authors mean "do not allow".

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