

**Review: “Merging with crowdsourced rain gauge data improves pan-European radar precipitation estimates”,**

**by Aart Overeem et al.**

My overall evaluation of the article presented to me for review is high. The few comments I have written below are rather secondary and are more questions to the Authors, who may not necessarily agree with them.

The main strength of the paper in my opinion is that it addresses the latest developments in QPE and QC of rainfall data on European ground.

**Most important doubts (questions):**

- Why were only OPERA and Netatmo data used, without rain gauges of even a few NMHSs? More rain gauges = their QC is more effective.
- Does the scheme shown include the use of some form of quality index (QI) or quality flag? E.g. in the case of 'flex filtering', when there are less than 5 other rain gauges in a neighbourhood, then one could keep the value in a given rain gauge but lower its QI. If we included the QI in these algorithms, then that rainfall height would enter into spatial interpolation and/or merging, but with lower weight.
- P. 9, l. 178-180: What about the reverse case, where the radar does not see the weak precipitation found by the rain gauge(s), which happens at greater distances from the radar site as a result of a radar beam overshooting the precipitation? This happens when the rainfall is from low clouds, especially in colder periods.
- P. 9-10, Sect. 3: How about providing the full formulas for the statistical metrics used? This always makes analysis easier.
- Table 1: Are these numbers in the top row of the table for 'no threshold'? It might be worth writing this in the relevant lines of the table.
- Table 1 and p. 11, 222-223: How to interpret this table? Do the small differences between the PWS data without and with QC mean that the PWS data are good on their own, or rather that

QC is too ineffective (or too moderate)? The former possibility might be suggested by the large improvement in the "OPERA + Netatmo No QC" data relative to "OPERA".

- P. 15, l. 249-265: For me, these are very valuable insights!
- Fig. 8: What are the benefits of using the PWS data in this figure? The spatial distribution of the precipitation field is very similar in the three maps shown, so is the scaling the main benefit? This is what the commentary in l. 275-289 suggests as well, so why not also present such statistics to show this impact on the distribution? E.g., the correlation coefficient...
- Fig. 9 is also very extremely interesting!

Good luck!