Response to reviewer 1

We thank the reviewer for her/his comments. Please find our response in blue. We ask the reviewer to refer to the response to review #2 for more details on our course of action.

1. More information about rain gauges in PWS needs to be presented. Why does it exist? How does it differ from professional rain gauges? Is it just the operation being personal? What are the ways in which these private PWS data are contributed? What are their motivations?

   This will be added to the revised manuscript

2. Line 51: The gauge-adjusted radar product from the Royal Netherlands Meteorological Institute (KNMI) is used as a reference data set. Please describe its performance indicators.

   More information will be added on the gauge-adjusted radar product and our reason for choosing this in our technical note.

3. Line 105: The aim of this paper is "a first demonstration of their applicability and performance". Would just four rainfall events be too little. Can the robustness of the assessment results be guaranteed? More rainfall events are expected.

   We agree with the reviewer's comment that there is insufficient evidence to fully compare the efficacy of the algorithms based on the few selected events. The manuscript will be rewritten with more focus on the demonstration of how to use the QC algorithms, rather than on their performance (which was our original intention). Please see our response to review #2 for additional information.

4. "These rainfall events were selected in such a way that the majority of the PWSs registered significant rainfall for a large duration of time.". Whether PWSs do not exhibit significant rainfall in many rainfall events, even if significant rainfall does exist.

   This is a valid point in evaluating the performance of PWS in general (QC method not withstanding). However, in order to highlight the relative QC performance, we have to choose events where the majority of the raw PWS data had measurements of significant rainfall amounts, in order to showcase differences after QC has been applied. There have been other studies focusing more on PWS performance in general, see for example de Vos et al. (2017), where rainfall measurements of three PWSs are compared for a longer period next to a high-end rain gauge.

   Reference paper: [1] de Vos, L., Leijnse, H., Overeem, A., and Uijlenhoet, R.: The potential of urban rainfall monitoring with crowdsourced automatic weather stations in Amsterdam, Hydrol. Earth Syst. Sci., 21, 765–777, https://doi.org/10.5194/hess-21-765-2017, 2017.

5. Figure 2: Both underestimated rainfall in the south-west of the region What is the reason? Is it because of the absence of stations here? It is helpful to have the stations labelled on the

map to help understanding. Also it is expected that rain maps that have not been revised are placed.

We appreciate the point raised and have investigated the location. The most likely reason for this is that the Amsterdam airport is located in this region and no PWSs are available. The station density will be discussed in the revised manuscript.

Minor comments:

We will account for the minor comments in the revised manuscript.

1. Line 9: Full name of the QC.
2. Line 47: "Figure 1" or "Fig. 1".
3. Figure 1: Please examine the chart carefully. Does the red rectangle in the small map in the upper left corner overlap with the red rectangle in the larger map? Also, the addition of longitude and latitude is helpful.
4. Line 67: "R software"?
5. Table 1: Text alignment in table.
6. eq. 3: 'x' and 'y' need to be specified.
7. Line 4: "May 2017 - May 2018", Line 47: "May 2016 and June 2018", whether or not it matches. Such a description is also misleading to the reader, as it seems to actually involve only four days