RC1: 'Comment on amt-2021-324', Anonymous Referee #1, 01 Nov 2021

> Thank you to the Reviewer for valuable comments! We tried to include all of them in the revised version of our article. Detailed answers to the comments are given below.

The manuscript "Improvement in algorithms for quality control of weather radar data (RADVOL-QC system)" written by K. Ośródka and J. Szturc describes new version of a quality control algorithm designed for radar data of the Polish weather radar network POLRAD. The manuscript in details describes improvements of the current version of RADVOL-QC system in comparison with previous version published in 2014.

The manuscript describes in more detail new algorithms that focus on solving problems mainly due to the influence of wind turbines and RLAN signals, which increasingly negatively affect radar data. In addition to the description of individual algorithms, the manuscript also verifies the efficiency of the described algorithms. This verification is primarily visual. The article would benefit if the verification were performed in some "objective" way, but I am aware that it is not easy and I do not insist on this verification.

> There is a problem with numerical verification because we have no reference, so some indirect methods have to be used. In the previous article from 2014, we introduced two coefficients: "symmetry" and "smoothness", for which sums of precipitation must be determined separately for each radar, long enough to be independent of the influence of local convective precipitation, at least monthly. We then argue that the more homogeneous the precipitation field, the better the radar data is corrected. However, it should be remembered that the impact of few types of disturbances can be diagnosed in this way - only those associated with a permanent location of obstacles (groundclutter, wind farms, etc.) excluding disturbances distributed randomly. So we decided not to present this kind of verification. In our opinion, more is the assessment of the effectiveness of correction algorithms on instantaneous measurements, but due to the aforementioned lack of reference (benchmark), we do not see the possibility of a really objective verification.

The algorithms are described but their parameter values are shown only in one case. It would be nice for readers and potential users of described algorithms to know specific values of thresholds used by the authors.

> We added all values of parameters.

The article is well structured and is written clearly. It is obvious and well known that the authors have been interested in the given topic for a long time and they are experts in this field. I appreciate that the article is based on and solves real operational problems associated with the preparation of radar data. The topic is suitable for the selected journal and will be interesting for people using meteorological radars as they propose new tested algorithms.

I recommend improving the language of the text.

> We tried to improve the text linguistically.

I recommend accepting the manuscript after miner revision.

Specific comments:

Line 71 – Please, reformulate "is assigned a single measurement".

> Corrected to: "where a single measurement is performed".

Line 74 – "," should be after RADVOL QC.

Corrected.

Line 78 – I recommend explaining why data should be extrapolated to the Earth.

We have removed the three sentences because they are related to quantitative precipitation estimation which is not discussed in the paper.

Line 117-118 – Could you describe in more detail "this in fact …algorithm".

We agree that the sentence is not clear. We decided to move it to Section dedicated to our corrections of RLAN echoes and to extend it.

Line 141 – I do not consider "event" as an appropriate word in this context. Convective weather?

Corrected.

Line 204 – "significantly" is not suitable word in this context.

Corrected.

Line 232 – Could you clarify your statement about the threshold value?

The sentence is modified.

Line 299-301 – Do you say that after this sentence the modified algorithms are described? It is not obvious to me.

The sentence is modified.

Line 334 – When you speak about echo here and also in other parts of the text do you mean non zero reflectivity or reflectivity exceeding some threshold?

We have added this explanation to the paper on line 246 of the original text.

Line 399 – Please reformulate the sentence "If a …".

The sentence is reformulated.

Line 410-412 – I am not sure that I understand the meaning of the sentence. What is the first condition and when is the procedure stopped?

The sentence is reformulated.

Line 420 – interpolated instead of interpolates.

Corrected.