

Interactive comment on “Analysis of lightning outliers in the EUCLID network” by Dieter R. Poelman et al.

K. Naccarato (Referee)

kleber.naccarato@inpe.br

Received and published: 6 July 2017

It is an interesting analysis of lightning solutions provided by the EUCLID network that sometimes do not accurately match the precipitation patterns given by weather radar images. The manuscript is well written, figures are clear and well explained and discussions are comprehensible. Anyway, I have some comments on 3 specific points:

- 1) In line 84, I really do not understand the sentence: “Note that the latter values are impacted by the strict location quality criteria and correct required stroke classification, i.e. CG versus CG, used in the analysis, as well as temporary sensor outages during the measurements campaign”. Please clarify.
- 2) From line 193 to 213, the authors discuss the results of Figure 5 which mainly

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shows the seasonal variation of the percentage of outliers. According to the data, clearly during the winter time there is an increase in the number of outliers due to mainly 2 factors: (1) sensor upgrades that provides only TOA solutions during the calibration period; (2) low reflectivity of the precipitating systems due to their smaller size and depth. However, the discussion is confused and I cannot clear understand the apparently 2 opposite effects and whether they are important or not: (1) the higher percentage of outliers during winter and (2) the higher absolute number of outliers during summer. I suggest this discussion to be rewritten to improve clarity.

3) From Figures 7, 8 and 9, I ask to the authors: all those outliers cannot be considered simply IC discharges (misclassified or not) by the network? Note that they mostly present the typical behavior of IC flashes:(1) low peak current values (because they are in majority weaker than the CGs); (2) usually are detected with larger SMA because are detected by less sensors and has long horizontal extensions inside the clouds leading to major errors in their location, i.e., projection over ground; and (3) present (in a such way) "random" polarity since the ICs can move upward and downward inside the clouds (mostly upward we know!). I'd like to hear more from the authors about this point based on the presented results.

Interactive comment on *Atmos. Meas. Tech. Discuss.*, doi:10.5194/amt-2017-150, 2017.

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