Earth Syst. Sci. Data Discuss., referee comment RC1
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Comment on essd-2021-3

Anonymous Referee #1

Referee comment on "A year of attenuation data from a commercial dual-polarized duplex microwave link with concurrent disdrometer, rain gauge, and weather observations" by Anna Špačková et al., Earth Syst. Sci. Data Discuss., https://doi.org/10.5194/essd-2021-3-RC1, 2021

Interactive comment

on "One year of attenuation data from a commercial dual-polarized duplex microwave link with concurrent disdrometer, rain gauge and weather observations" by ŠpaÄ□ková et al.

The authors present attenuation data from a commercial microwave link (CML) experiment together with multiple observations of disdrometers, rain gauges and weather observations. This data set is unique as there are just a few CML data sets available publicly from which none is supplemented by the presented amount of rainfall and meteorological data. The data is available via zenodo and the internal structure of the data is easy to understand. The manuscript accompanying the data is well written and logically structured. In some points the manuscript and ease of usability of the data could be improved, which are listed in the general comments. Together with some further minor updates of the manuscript I recommend the manuscript for publication in ESSD.

General comments

- Chapter four is not consistent in its content: While 4.1 does only give a summary of past activities on dry/wet classification with the presented data, 4.2 and 4.3 also include open issues with regard to wet antenna attenuation and DSD estimation. In 4.4 the issues from the preceding sub-sections are (partly) repeated with less structure and additional issues are presented. The whole section 4 should be improved by re-structuring its content - for example in sub-sections covering the already conducted applications of the data set and the unsolved issues which could be tackled in the future - in a consistently manner.
- For quick exploration and convenience of the data user a global overview of the data

availability and data issues (flags) describe in section 2.5 should be added both to the manuscript and the event calendar view in the html viewer. This would be most important for the CML data and could be done e.g. with an additional figure in the manuscript showing time vs data availability/flags and likewise or with and an additional calendar view in the html viewer. The daily data availability charts are fine, but it takes rather long time to select e.g. the "best" summer month for a certain application. (see Fig. 2 in van Leth et al., 2018)

- An additional kml file of the observation locations in the data publication would add further convenience for the user of the data.

Detailed comments:

p.1 l.2f.: Here you show CML use cases which are not further described in the text. I suggest to either give a short overview of the retrieval of such variables and the potential of the presented data set or to concentrate on rainfall as target variable as you did consistently in the manuscript

p1. l.15: delete "also"

p2. l.20: Use CML attenuation rather than microwave attenuation to be more consistent (e.g. with p.2 l.25).

p.2 l.25ff.: Refer to the availability of open source packages which for CML processing accompanied by small test data sets

(e.g. https://github.com/overeem11/RAINLINK and https://github.com/pycomlink/pycomlink).

p.3 l.57f.: Add citation stating that parameter b is close to 1 for a certain frequency range (e.g from ITU).

p.4 Figure 1: Use different colors for the zooming window and the CML. You also could plot the CML in the un-zoomed map without the disdrometers etc. for a better overview.

p.4 Caption Figure 1: The Figure caption states "the direction of the link" please change to "the path of the CML" and "are less than 6 to 10 km" to "are within 6 to 10 km".

p.4 l.90: Be more precise about the quantization of the received signal

p.5 l.95: Make clear that even with a shield wet antenna attenuation can potentially be a problem due to dew

p.5 l.108ff: Use plural or singular for rain gauge(s) consistently.

p.6 l.117: Rephrase to "CML attenuation data is available for the period between …".

p.7 l.119: State again that the reading is instantaneous.

p.9 Figure 5: You could identify the individual rain gauges and disdrometers with small labels. For the caption you could move the data availability etc. to the running text.

p.10 l. 164f: Here as well as in the html viewer it is unclear from which observation the daily cumulative rainfall depth is used. Please provide this information in the manuscript as well as in the html viewer.

p 14. l.213: Delete "last, but not least".

References

van Leth, T. C., Overeem, A., Leijnse, H., & Uijlenhoet, R. (2018). A measurement campaign to assess sources of error in microwave link rainfall estimation. *Atmospheric Measurement Techniques*, *11*(8), 4645–4669. https://doi.org/10.5194/amt-11-4645-2018