

**Responses to reviewer #3**  
**Guyot et al. under review at HESS**

<https://doi.org/10.5194/hess-2019-277>, 2019

We would like to thank the three reviewers for their very constructive comments on our manuscript. We received genuine insights, which have significantly contributed to increasing the manuscript quality and potential impact.

In order to improve the clarity in our responses we have numbered the reviewers' comments for reviewer #2 and #3 (Reviewer #1's comments are already numbered): for example, the comment 1 from reviewer 2 is listed as R1C2 and will refer to these comments as such in the following.

We have addressed all comments in point-by-point responses.

**REVIEWER #3**

The paper presents a comprehensive analysis of drop size distribution (DSD) measurements using 2 pairs of laser-based disdrometer instruments from two manufacturers (OTT and Thies Clima) installed on the same observational site. The measurements took place in Melbourne, Australia, between 2014 and 2017. Raw and the processed disdrometer data were analysed with the objective to evaluate their differences, provide a quantitative description of the DSD for the region and the local climate, as well as develop relationships for horizontal reflectivity – rainfall rate (Zh-R) and attenuation – rainfall rate ( $\gamma$ -R) of the microwave radiation. The paper is well written and organized, it meets the objectives with well-developed discussion. It concludes with directions for future investigations and provides the research community with an open access to the raw DSD dataset. The manuscript could be accepted after the technical corrections.

We would like to thank the reviewer for her/his time and insightful comments that will help improve the manuscript. The referencing has been done without Endnote or BibTeX, which explains the numerous mismatches. Lesson learnt!

Comments:

R3C1: Line 87: the reference Thurai et al. (2017) is missing in the reference list.

Response: Reference added as:

Thurai, M., K.V. Mishra, V.N. Bringi, and W.F. Krajewski: [Initial Results of a New Composite-Weighted Algorithm for Dual-Polarized X-Band Rainfall Estimation](https://doi.org/10.1175/JHM-D-16-0196.1). *Journal of Hydrometeorology*, **18**, 1081–1100, <https://doi.org/10.1175/JHM-D-16-0196.1>, 2017.

R3C2: Line 95: incorrect reference according to the reference list – de Moraes Frasson et al., 2011.

Response: Thanks, now corrected.

R3C3: Line 105: first two references are missing in the reference list.

Response: First reference is added and second reference is deleted as it is a conference paper (first reference is enough).

R3C4: Line 140 and Figure 1: not clear whether the disdrometers are placed 1.5 or 2 m above ground.

Response: Disdrometers were installed at 1.5 m above ground level. This has been corrected in the Figure caption.

R3C5: Line 169 (and elsewhere): Appendix 1 is in conflict with the title on page 27 – Appendix A.

Response: Appendix 1 in the text has been changed to “Appendix A”.

R3C6: Line 201: the reference Atlas et al. (1973) is missing in the reference list.

Response: Reference has been added to the reference list.

R3C7: Line 219: the reference Testud et al. (2001) is missing in the reference list.

Response: Reference has been added to the reference list.

R3C8: Line 237: the reference Ulbrich (1983) is missing in the reference list.

Response: Reference has been added to the reference list.

R3C9: Line 294: the reference Chen et al. (2015) does not have an exact match in the reference list (2016).

Response: This has been corrected.

R3C10: Line 339: mistype – Thies PLM.

Response: This has been corrected.

R3C11: Lines 428, 431 and 440: the references Uijlenhoet et al. (2003a, 2003b and 2003) are not well defined according to the reference list.

Response: This has been fixed.

R3C12: Line 437: the reference Joss et al. (1973) is missing in the reference list.

Response: Joss and Waldvogel has been added to the reference list:

Joss, J. and A. Waldvogel: Raindrop Size Distribution and Sampling Size Errors. *J. Atmos. Sci.*, **26**, 566–569, [https://doi.org/10.1175/1520-0469\(1969\)026<0566:RSDASS>2.0.CO;2](https://doi.org/10.1175/1520-0469(1969)026<0566:RSDASS>2.0.CO;2), 1969.

And changed in the text to Joss and Waldvogel (1969).

R3C13: Line 461: incorrect description of the blue curves ( $D_m < 0.6$  mm).

Response: The Figure caption has been corrected accordingly.

R3C14: Line 478: the reference Fernandez-Raga et al. (2011) is missing in the reference list.

Response: This reference is now removed as it was a discussion paper in AMT but was rejected, so it is unsuitable for citation.

R3C15: Line 508: the used acronym MPS has not been previously described.

Response: This is now described in the introduction (Page 3 line 90):

“Thurai et al. (2017) presented data from a Meteorological Particle Spectrometer (MPS) (Baumgardner et al., 2002), arguing its higher sensitivity and better accuracy for diameters below 1.1 mm as compared to the 2DVD, while the 2DVD was proven to be accurate above 0.7 mm.”

R3C16: Line 514: the reference Raupach et al. (2018) does not have an exact match in the reference list (2019).

Response: Reference has been changed to Raupach et al. (2019) in the text.

R3C17: Lines 516 and 517: the reference Uijlenhoet et al. (2003ab) should be corrected, Jaffrain and Berne (2011 and 2012) do not have a perfect match in the reference list.

Response: This has been corrected.

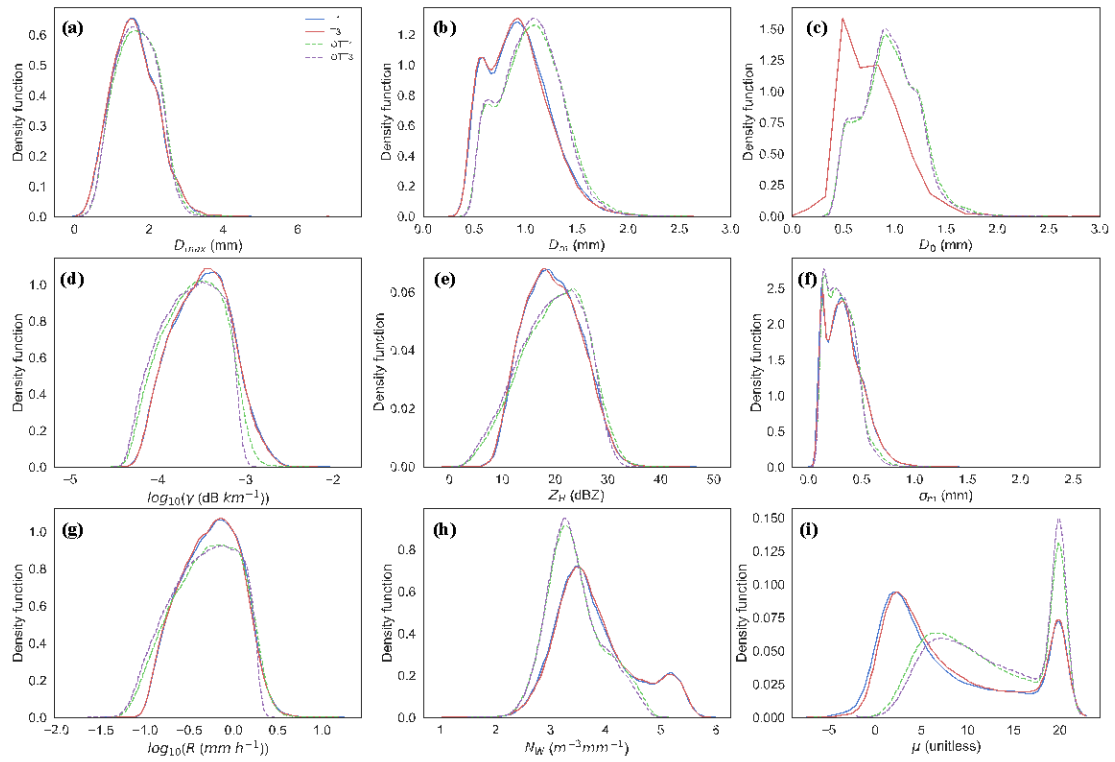
R3C18: Line 524: the reference Bringi et al. (2003) is missing in the reference list.

Response: Reference has been added to the reference list.

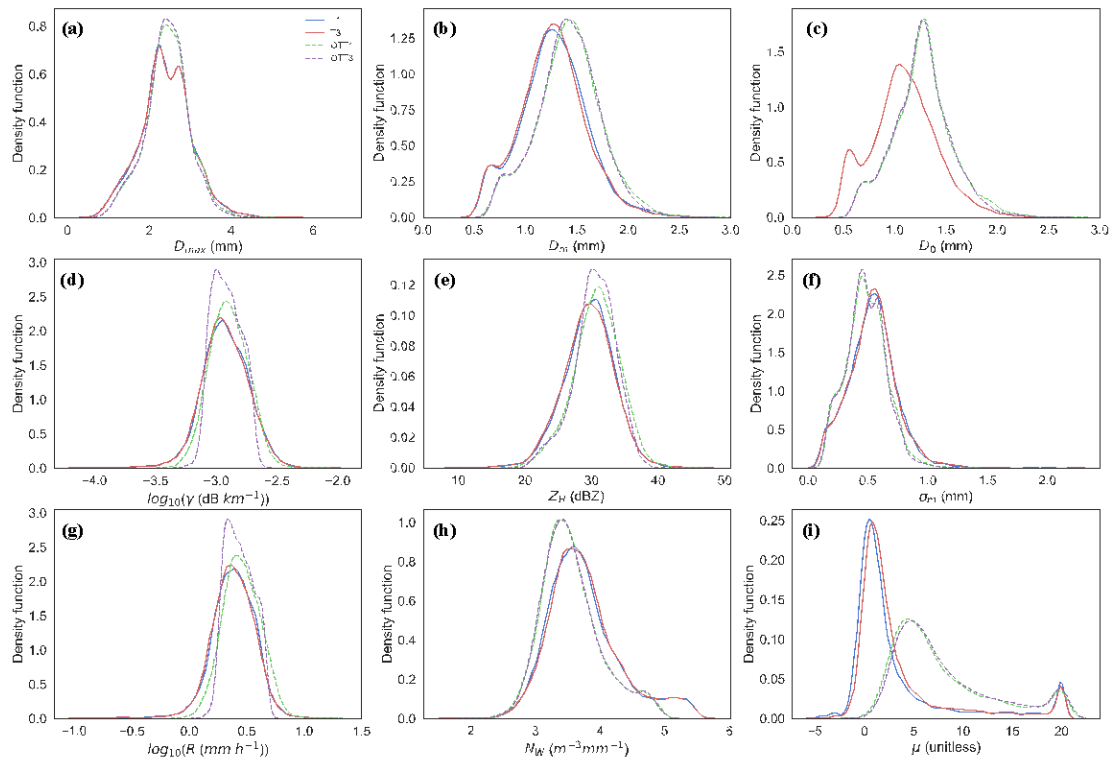
R3C19: Line 594 – References: the references in the following lines have not been used in the paper: 628, 662, 666, 693, 702, 729 781 and 785.

Response: All of these references have been deleted except Verdon-Kidd and Kiem (2009), which has been kept and referenced in the text of the manuscript.

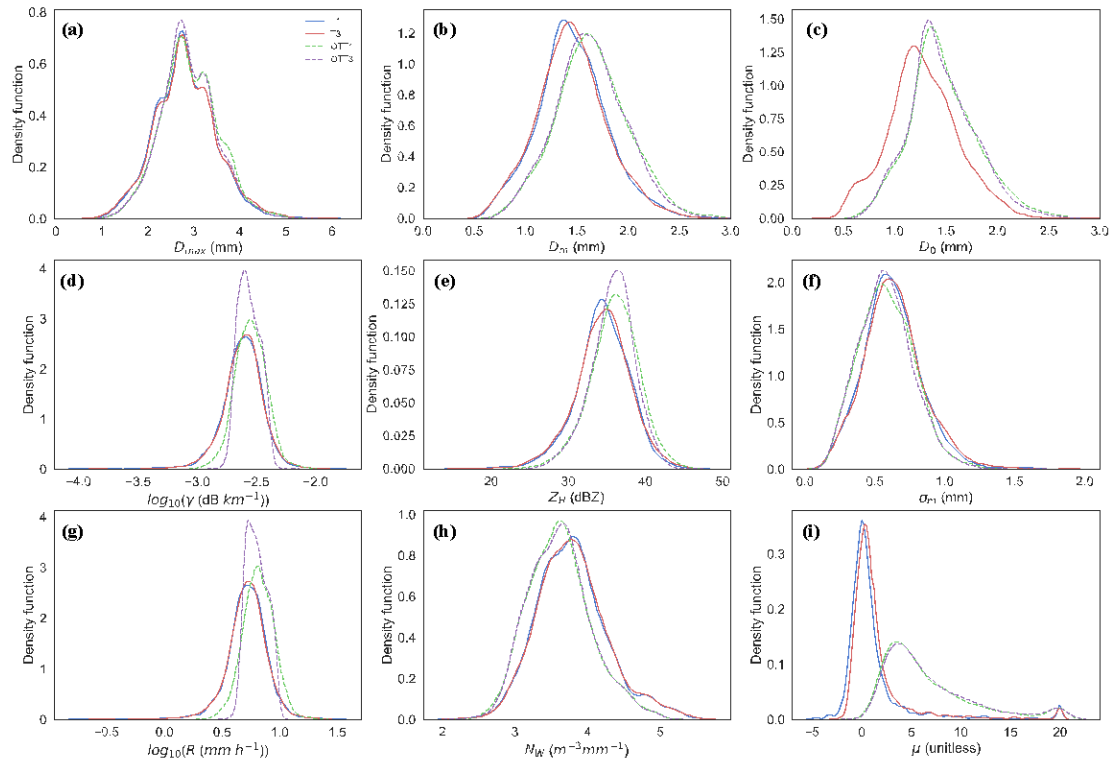
New appendix Figures as per below:



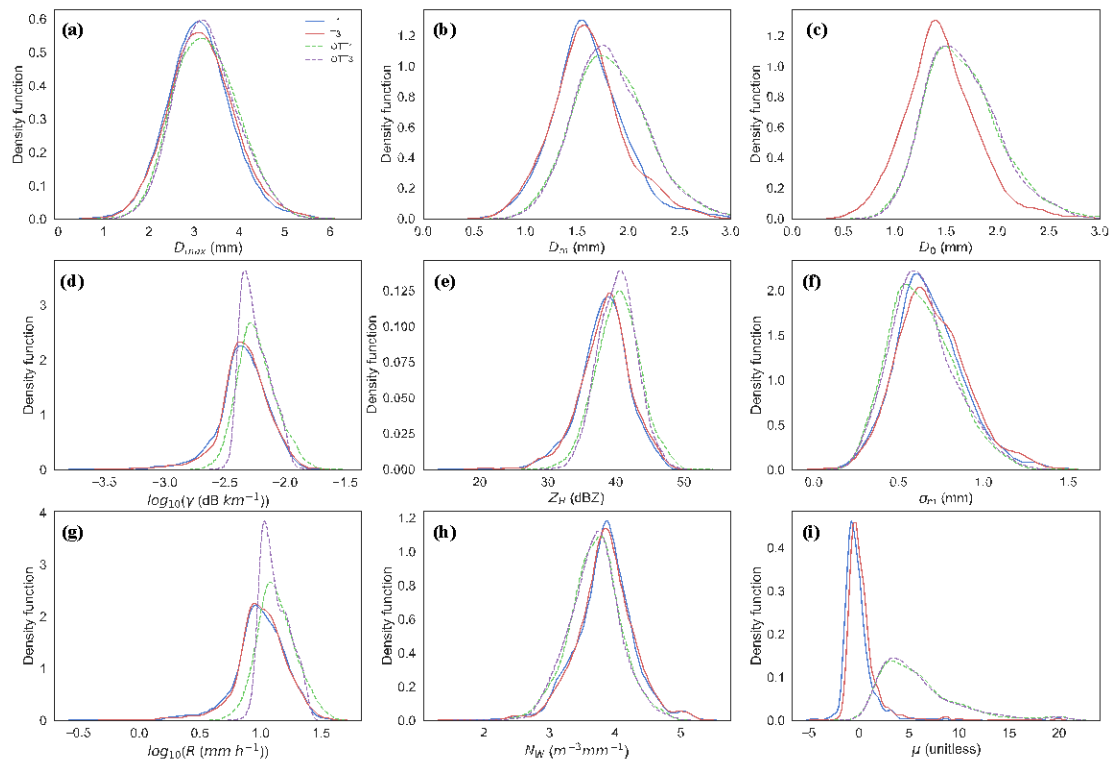
Revised Figure A1 above



Revised Figure A2 above



Revised Figure A3 above



Revised Figure A4 above