

Interactive comment on “Effect of disdrometer type on rain drop size distribution characterisation: a new dataset for Southeastern Australia” by Adrien Guyot et al.

Anonymous Referee #2

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Guyot et al. describes a new 3 year dataset for southeastern Australia collected from two different manufacturers of optical disdrometers. The authors have prepared a careful analysis of the differences for instruments from the same manufacturer and instruments from different manufacturers. Significant differences were documented due to the sampling sensitivity at different droplet sizes and velocities that results in changes to the derived DSD. The paper’s treatment of the scientific objectives is robust and no significant issues could be found. Recommend accepted with technical corrections.

Technical corrections: Page 4 Line 18: Reference needed for Darwin observations

Page 5 Lines 10-13 contains too many ideas - needs to be broken up into two sen-

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tences Line 12: Understanding the synoptic rainfall regimes is important for such a study. Has any previous work been done that you can reference? Figure 1(b): Melbourne map is difficult to read - can you increase the contrast and maybe add a border? Figure 1 caption: Are the stands at 2m or 1.5m (as stated in the previous caption)

Page 10 Equation(2): Units of Zmom should be Z instead of dBZ?

Page 11 Line 6: Do you mean specific attenuation? This needs to be clarified.

Page 7 General comment: It sounds like the optical disdrometers are using a laser beam sheet with negligible depth to sample the DSD? Maybe worth stating this explicitly for readers.

Page 9 Line 5: Drizzle/Rain repeated in brackets

Page 11 Line 3: How dependent is the T-Matrix calculations on the temperature? It seems a 20C temperature might bias towards warmer rainfall events? Line 23: Two rain gauges are referred two, but only one is introduced.

Page 12 Line 11: the sentence starting with 'The recorded...' needs more context. maybe say 'This erroneous data...' Table 2: What does 'high quality refer to? Figure 2 (b)(c) caption: Are the duration/intensity analysis derived from rain gauges or disdrometers? Figure 3: Why are there no OTT stats for the 6-7mm class? Figure 4: subplot labels are missing and description of lines in the density distribution plots

Page 18 Line 17: It's not clear to me where T3 exhibits significantly more size/velocity samples outside the outliers in figure 6. It looks like T1 has more outliers, and the OTT's even more so.

Page 20 Line 14: What does the author mean by 'first order moments'?

data availability section Page 28: the url should not include the 'www' subdomain, just <http://doi.org/10.5281/zenodo.3234218> given this paper promotes the underlying data as 'open source' or 'open access', it would be ideal to include some description of

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exactly what data has been hosted on zenodo (which I can't check because it's under embargo). e.g., what instruments are provided and what the file format it.

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., <https://doi.org/10.5194/hess-2019-277>, 2019.

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