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Discussions

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Interactive comment on "Low Level Cloud and Dynamical Features within the Southern West African Monsoon" *by* Cheikh Dione et al.

Anonymous Referee #2

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Review of the study "Low level cloud and dynamical features within the Southern West African Monsoon" by Dione et al.

General comment: This study aims at analyzing the dynamic and the variability of the nocturnal low level jet, the maritime inflow and their connections to the low level clouds thanks to high resolution wind profiler, observations and cloud monitoring. This study is correctly written and the results are clear and well presented. The only main comment is on the main objectives and the contribution of this study with respect to the DACCIWA project and the others studies/papers that should be better highlighted. I recommend minor revisions with the list of detailed comments below.

Abstract: I recommend to the authors to improve the abstract by removing some descriptions and better identifying and emphasing the main objectives and results of this

specific study. The main contributions of this study to the DACCIWA project should be clearly mentioned. This is also true for the introduction.

P2 l33, P3 l23, P3 l31 . . . Nested brackets.

Fig 1: Please clarify that the colors show the mean dew point temperature for all the period or only during the DACCIWA campaign. Also why the ITD is only displayed for June (P3l3).

P5 l19 I am not used to using terms like "Ten Hz . . .", does it mean a high frequency measurement?

P6 l2: The justification of the increase of the cloud base definition is not clear. The reason mentioned is to also detect shallow convection during the morning. But this is not indicated in the objective of the study. Please clarify.

P7 l3 and Figure 2: this sentence is not clear. To avoid confusion, I recommend to change the color when the data are missing.

P7 l27 and Fig. 3: Because there is a strong seasonal cycle during this period (according to Fig 2, it seems there is a thickening of the monsoon layer from the beginning of July, around the 10th), what is the results of a composite study when splitting before and after the 10th of July?

Figure 4: Please clarify what the vertical lines represent.

P11 l2: How do the authors explain the delay in between the FLF derived from the wind and the temperature?

Figure 6a: It is difficult to distinguish the black and brown bars, please change the colors.

P11 l9: Why not using the new ERA5 reanalysis with hourly resolution to detect and analyze briefly the large scale detection of the MI and to better understand these difficulties at local scale?

P11 l13 and Fig. 7: Could you add and discuss the impact of the dates by adding colors for each dot? The monsoon strength and the MI arrival time should be related to the seasonal cycle. Isn't it?

P11 l21 and Fig. 8: same comment as previously. Is there any difference between June and end of July?

P11 l21: The authors do not discuss the intensity of the wind that is maximum at 2.00 am. I expected later as shown by Ruchith and Raj (2015). Ruchith, R. D., & Raj, P. E. (2015). Features of nocturnal low level jet (NLLJ) observed over a tropical Indian station using high resolution Doppler wind lidar. Journal of Atmospheric and Solar-Terrestrial Physics, 123, 113-123..

P13 paragraph starting l27: The authors suggest the impacts of the difference phases of the monsoon. Why this is not taken into account this when calculating the composite studies?

P14 l29: The authors mention other sites in introduction but it seems they are not used in that study. So it is not necessary to mention them and to put them on the map Fig. 1.

Interactive comment on Atmos. Chem. Phys. Discuss., https://doi.org/10.5194/acp-2018-1149, 2018.