Answers to Reviewers comments: Knippertz et al., A meteorological and chemical overview of the DACCIWA field campaign in West Africa in June–July 2016, ACP, doi.org/10.5194/acp-2017-345

Please find our response in blue and the proposed changes in the manuscript in red.

RC2 (Thierry Lefort)

General comments

This article describes both the large scale and subseasonal variability context, and the synoptic events that took place over a certain domain of west Africa. It is of very high relevance for future research papers. Moreover, the approach of confronting different time scales (subseasonal versus synoptic) follows the seamless prediction advocated by WMO. Thus, it is also very useful for practicioners. Concerning the synoptic scale, the paper shows that the conceptual models of "Guinean systems" are maybe still to be investigated.

Thank you very much for the time and effort spent on the review and your positive evaluation.

The following sentence will be added to the Acknowledgments: "The authors would like to thank Serge Janicot and Thierry Lefort for their effort to carefully review this paper and for their constructive criticism."

Specific comments

Between Sections 3 Large-scale settings, and Section 4 Detailed synoptic analysis, there is place for a section describing the intraseasonal variability. See Janicot et al, 2009, Large-scale overview of the summer monsoon over west Africa during the AMMA filed experiement in 2006; Section 3.4 Indeed, the different phases might have a direct link to the modes of variabilities.

Janicot et al. (2008, not 2009) discuss the MJO, Kelvin waves and filtered OLR in the 10–25 days and 25–90 day windows. Kelvin waves, we do show and discuss already in connection with Fig. 10. According to our assessment, the MJO was not active during our period of interest and this is now mentioned in the text (see next answer). For other standard indices we checked the MISVA page (misva.sedoo.fr) and found some moderate activity in the SHL, Sahelian and QBZD indices. We now mention this in the text.

References to Janicot et al. (2011) and Roehrig et al. (2011) will be added.

In the Introduction we will add: "Other types of intraseasonal variability include the Sahelian and quasi-biweekly zonal dipole (QBZD) modes on timescales of 10–25 days (Janicot et al., 2011; Mounier et al., 2008; Roehrig et al., 2011)."

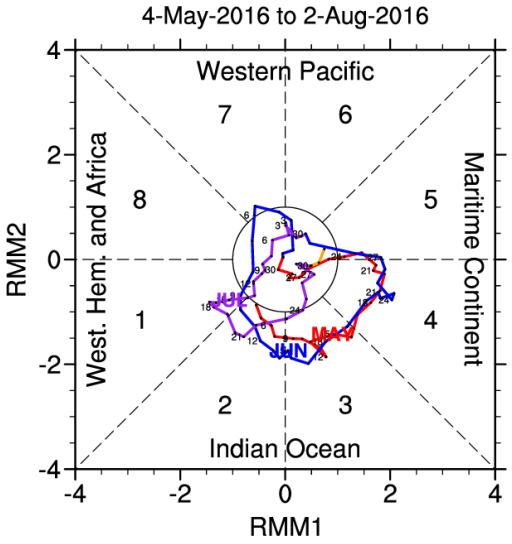
At the end of section 3, we will add: "This shows some resemblance with the SHL variations described by Chauvin et al. (2010) but on rather short timescales."

In section 4.1 we will add: "This modulation is consistent with the QBZD index showing a significant minimum around 14 June 2016 (see http://misva.sedoo.fr)." and then a little later in the same section "The moderate changes from drier to wetter and back to drier conditions in the Sahel during Phase 1 are reflected in weak but hardly significant undulations of the intraseaonal Sahelian index reaching a minimum on 12 June 2016 (see http://misva.sedoo.fr)."

In section 4.3 we will add: “According to http://misva.sedoo.fr, the intraseasonal SHL index reached a distinct maximum on 17 and 18 June 2016.”

Indeed, the MJO seems to play a role through propagative, favorable velocity potentiel at 200hPa for the phase 3. Since there are enough lines and colors on your figure 10, I suggest to add a Hovmöller diagram for MJO, Kelvin and ER only.

We checked the classical RMM diagram (see figure below).



Based on this a widely used definition of MJO events is given here: http://www.cpc.ncep.noaa.gov/products/precip/CWlink/MJO/Composites/Precipitation/readme.shtml

According to this, no proper MJO event occurred during the period of interest. The signal in Phases 1 and 2 during July is too short-lived. We are going to mention this explicitly in the text and decided not to create an additional plot.

We will add a sentence to the end of the first paragraph of Section 3 saying: “Standard indices indicate that the MJO was not active over West Africa in June-July 2016 (not shown).”

Technical corrections:

In Section 2.1 Data, you could maybe precise if the daily accumulation is from 00 to 00UTC or 06 to 06UTC, since comparing data from different sources might lead to discrepancies (synops and ARC2 generally show 06-06UTC).

This uses TRMM times 00 UTC to 21 UTC every day, which corresponds to 2230–2230UTC. As we do not directly compare to other data sources, the exact timing is not crucial here, but we have added this information to the text anyway.

The respective part of Section 2.1 will read: “The temporal resolution of this product is 3 hourly, but here daily accumulations (2230–2230 UTC) are used for most investigations.”