Dear Reviewer #2 Thank you for your careful review of our manuscript. Your comments are greatly appreciated and we think this new version of the manuscript responds to your concerns and provides an interesting contribution to the study of November 2023 extreme rainfall. The pdf file containing the response is attached.

Anonymous Referee #2

The authors investigate atmospheric and ocean drivers of the Novermber 2023 extreme high rainfall month in equatorial Africa. They study a number of drivers previously studied in the literature in relation to the season, and place the 2023 event in the context of the climatology. The authors highlight in their introduction a number of direct and dramatic impacts arising from the extreme weather, and therefore justify the focus on this particular period.

The paper is well-written and provides a useful description of factors influencing an important extreme month of weather. The most persistent issue I had with this paper is the poor description of figure annotations. That is easily sorted, but I place the comment under "major" so the issue is clear. There are a few minor comments I have that either require small corrections or re-consideration by the authors. Once these are addressed, I can see the paper being publishable.

Major comments

Figs1, 3, 5,68, 9, 10 and 12 – all include boxes or lines annotating the figure, but which are not mentioned in the caption. Please explain what they are in the captions.

Response: Thanks to the reviewer for this comment. These comments are taken into account. Please see the caption of Figs 1, 3, 5,6, 8, 9, 10 and 12 in the revised manuscript.

Minor comments

Sec2.1 - says you use ERA5 SST and ERSST for sea surface temperatures. Be clear throughout which you are using. I suggest you add to the caption of every relevant figure, unless there is a simple blanket statement you can make in the methods.

Response: This comment is taken into account. Please see the revised manuscript in Figures 3 and 4 captions.

L189 – what is "CB cell"? It is not defined anywhere. Given it's referred to a number of times, it might be worth annotating on an early plot.

Response: This comment is taken into account. Please see the revised manuscript and the text adjusted. Lines 192-205

L195 – Can you explicitly state if this is mean to be a scalar (as it is in the equation you present)? Often I would think V might be vector of u and v winds, with Q also being a vector with u and v components (or even z component too). Are you using "wind speed" magnitude for V? I.e. you are losing the direction information?

Response: This comment is taken into account. Please see the revised manuscript. Lines 211-212

L201 – add the term "climatology" or similar to be clear about this. Also in the caption

Response: This comment is taken into account. Please see the revised manuscript. Line 217

L203 - "long-term mean (LTM) NOVEMBER rainfall" - "novermber" is needed.

Response: This comment is taken into account. Please see the revised manuscript. Line 219

L280-282 – You highlight the contradiction in the DMI term between the 2019 and 2023 response. However, I can't see that you explain why they are different. If you cannot explain it, can you be explicit at this point in the text and say so. If you do explain it, can you give a brief mention to what the discerning factor was at this point in the text.

Response: In this sentence, we want to show that, although the DMI in 2019 was slightly stronger than in 2023, precipitation was more heavy in 2023 than in 2019. This explains the occurrence of additional factors, such as the Niño-3.4, which was present in 2023 but absent in 2019. This comment is taken into account and the text adjusted. Please see the revised manuscript. Lines 284-285

"**Notably, the DMI magnitude in 2023 was smaller than in both November 1997 and 2019, when conditions in EA were considerably drier than in 2023, suggesting that additional factors may have contributed, such as the Niño-3.4, which was absent in 2019 but present in 2023.**"

L334-334 - "These LLWs…" sentence. I'm not sure this sentence is entirely precise or correct. I'm not sure what you're saying is cooling (subsiding air warms as it follows the dry adiabat). Is this just about land ocean temperature contrasts, and consequent changes in circulation. It sounds like your suggesting the circulation is causing the colder temperature over the ocean. Can you reconsider this sentence, and ensure your confident in it? Ideally, provide a reference which justifies the statement.

Response: This comment is taken into account and the text has been rewritten. Please see the revised manuscript in lines 353-354.

"These LLWs are controlled by the heating contrast between land and ocean (Pokam et al. 2014)."

L375 - "…upper troposphere…" - Your plot only goes to 400hPa. I'd say 400hPa is borderline upper troposphere so I'm not sure it's a fairly persuasive statement. I think you'd either need to show the anomalies make it to 300-200hPa, or just say they do stretch deep into the troposphere up to 400hPa.

Response: This comment is taken into account. The figure has been redone and the text adjusted. Please see the revised manuscript, Figure 5 and line 394.

Fig 8 caption – "Omega" has units hPa s-1. Vertical velocity, w, has units m s-1. Please be clear about which is being plotted here.

Response: This comment is taken into account. The vertical velocity unit is Pa s^{-1}. The text has been adjusted. Please see the revised manuscript in the lines 152-153 and Figure 8 caption.

Fig8 cpation – what does the 10E-3 ms-1 refer to? Is it the value of the arrow on the figure panels? If so it must be the units of the horizontal winds too, not just vertical velocity? This needs clarity

Response: This comment is taken into account. 10^{-3} Pa s^{-1} unit refers only to the vertical velocity (shade in Fig. 8). Please see the revised manuscript in the Figure 8 caption.

L477 - "no vectors have entered…" - I'm not sure what you mean here. Whether arrows actually cross the box edges is an arbitrary choice of plotting position for the arrows. There clear are some meridional components to the winds along those 2 boundaries. I suggest you need to be precise about what you mean and quantify it. Do you mean no net meridional component along the boundary relative to the size of the net zonal component at the east and west boundaries?

Response: This comment is taken into account and the text has been adjusted. As for the western and eastern borders of the EA, we note a weakness of the meridional component along the northern and southern borders compared to the size of the zonal component. Please see the revised manuscript in lines 498-500.

"As for the western and eastern borders of the EA, we note a weakness of the meridional component along the northern and southern borders compared to the size of the zonal component."

L517 – I'm not sure the red contours would be called "southwest". They look like "central" or "west central" to me, since the very southwest (10-20E, 6-10S) is white contours.

Response: This comment is taken into account and the text has been adjusted. Please see the revised manuscript in line 541.

“except in south-western CB and northern Angola (10°-20° E, 6°-10° S)”

Technical comments

L149 – kgkg-1 should have small letter “k”

Response: This comment is taken into account and the text has been adjusted. Please see the revised manuscript in line 152.

L345 - “JAS, The” needs to be a lower-case “t”

Response: This comment is taken into account and the text has been adjusted. Please see the revised manuscript in line 364.

L462 – “tropospheric” to “troposphere”?

Response: This comment is taken into account and the text has been adjusted. Please see the revised manuscript in line 483.

L506 - “confirmes” typo

Response: This comment is taken into account and the text has been adjusted. Please see the revised manuscript in line 529.

L557 - “favorasing” typo

Response: This comment is taken into account and the text has been adjusted. Please see the revised manuscript in line 581.