Thank you for sharing the proofs of our article. Unfortunately, after checking the data processing involved in the production of this manuscript, an error was found in the production of the data used for Figures 12 and 13 (with knock-on effects for Figure 2). These have been corrected in the attached, with the changes made listed in detail below. The corrections have not resulted in any change to the high level conclusions of the paper.

The error in data processing was the absence of a masking step for comparison of the model rainfall data to the observed rainfall data (necessary due to CHIRPS being a land-only observational dataset) in the analysis of the zonal mean precipitation fields. This error only applies to the zonal mean rainfall analysis and discussion, as the mask was applied correctly for the other precipitation analysis. This error is most influential for the west Africa analysis, as much of the bounding box used is over ocean. For east Africa, the changes are reduced, as there is very little ocean in the bounding box used for east Africa.

Below is a table showing the location of changes, the original text, the updated text (with modifications in *italics*) along with the reason for the changes made.

Page and line number	**Original text**	**New text**	**Reason for changing**
Page 8, line number: 88	… dust AOD when compared to the performance of other models. These results are …	… dust AOD when compared to the performance of other models. *In addition, MIROC6 most accurately replicates the latitudinal progression of the monsoon over both east and west Africa, though also has difficulty replicating the climatology of AOD over both regions.* These results are …	After correction of the data analysis, MIROC6 was found to be the strongest performer in replicating the progression of the monsoon for both east and west Africa. We decided this was notable enough to include in the 'Summary of results' section.
Figure 2	-	-	Updated with correct information for the 'Monsoon Progression' rows. No change to the caption.

Page 15, line number: 40	… behind that of CAMS – similar to the zonal mean precipitation cycle (Sect. 3.4.1) of the model – and has a lower peak magnitude.	… behind that of CAMS – *opposite to the zonal mean precipitation cycle (Sect. 3.4.1) of the model, which leads the annual cycle of CHIRPS rainfall by a month* – and has a lower peak magnitude.	Updated to reflect the climatology found with the corrected analysis.
Page 15, line number: 48	In addition, the zonal mean precipitation lags behind the observations by a month for this model, which may explain negative biases after the long rainy season.	[removed]	Updated to reflect the climatology found with the corrected analysis.
Page 15, line number: 61	… biases in the zonal mean precipitation cycle and may also relate …	… biases in the zonal mean precipitation cycle in some models, and may also relate …	Updated to reflect altered discussion.
Figure 12	-	Caption: Replace ‘INM-CM4-8’ with ‘MIROC6’ and ‘UKESM1-0-LL’ with ‘NorCPM1’	Updated with the corrected data. The multimodel mean, and best and worst performing models have changed.
Page 17, line numbers: 8-11	The WAM is well captured, with a pattern correlation of 0.94 for the MMM and with individual models having pattern correlations in the range of 0.74–0.95.	The WAM is well captured, with a pattern correlation of *0.96* for the MMM and with individual models having pattern correlations in the range of *0.82*–0.95.	Updated to reflect the changes to the figure and pattern correlation values found with the corrected analysis.
Page 17, line numbers: 12-15	… overall dry bias, as well a ~ 4° southward bias in the peak rainfall (found through the difference in the latitudes of highest rainfall). The overall dry bias coincides …	… overall dry bias. *There is a southward bias in the southern extent of rainfall during DJF, though this is outside the main WAM region and timing.* The overall dry bias coincides …	Updated discussion to reflect the climatology found with the corrected analysis.
Page 17, line numbers: 19-28	highest pattern correlation, INM-CM4-8, underestimates the overall magnitude of	highest pattern correlation, *MIROC6*, *overestimates* the overall magnitude of rainfall,	Updated to describe the best performing model found with the

	rainfall, with a higher RMSE than the MMM, but captures the overall progression well, despite the southward bias in peak rainfall. The progression of intensity of the rainband for INM-CM4-8 lags behind that of CHIRPS, showing the strongest precipitation in October–November. No obvious relationships are found between the zonal mean precipitation shown here and AOD climatology, as the INM-CM4-8 AOD over west Africa is found to show a negative bias in AOD throughout the year.	with a higher RMSE than the MMM, but captures the overall progression well*. The rainband matches the northward extent of the rainband during JAS, though the southward extent during DJF is overestimated. The wet biases in precipitation shown here may relate to the negative biases in AOD found throughout the year over west Africa.*	corrected analysis.
Page 17, line numbers: 29-42	… strongest deviations from observations, UKESM1-0-LL, struggles to replicate the monsoon pattern over west Africa. This model shows the strongest rainfall for the region during MAM, much earlier than the peak in CHIRPS in August, which coincides with a negative bias in AOD over west Africa during MAM – potentially due to increased rates of wet deposition. In addition, the rainband becomes extremely weak in DJF compared to CHIRPS. This may contribute to the positive biases in AOD in UKESM1-0-LL over west Africa in DJF. The southward bias in the latitudinal location of peak rainfall is similar to that of the MMM. These biases may indicate difficulties with UKESM1-0-LL capturing the mechanisms governing the local monsoon evolution.	… strongest deviations from observations, *NorCPM1*, struggles to replicate the monsoon pattern over west Africa. *In NorCPM1, the strongest rainfall for the region is during MAM and OND, out of phase with the peak rainfall period in CHIRPS. In addition, the maximum latitude of the rainband (calculated as the maximum latitude of maximum precipitation) has a ~5° southward bias. Though the generally northward progression of the rainband is captured, the increase in intensity of rainfall during the monsoon season is not captured well at all. These biases may indicate difficulties with NorCPM1 capturing the mechanisms governing the local monsoon evolution. The impact of these biases in rainfall on AOD in NorCPM1 is unknown, as NorCPM1 does not provide AOD output.*	Updated to describe the worst performing model found with the corrected analysis.

Page 17, line number: 44	… especially in the MMM, despite a consistent southward bias, and overall …	… especially in the MMM, *despite southward biases in the southward extent of the rainband during DJF,* and overall …	Updated discussion to reflect the climatology found with the corrected analysis.
Figure 13	-	-	No change to the caption as best and worst performing models unchanged. The corrected data analysis resulted in changes to the multimodel mean, and best and worst performing models panels.
Page 19, line numbers: 1-4	… CMIP6 MMM having a pattern correlation of 0.88 (compared to 0.94 for the WAM), while individual models have pattern correlations with CHIRPS ranging from 0.91 to as low as 0.36 …	… CMIP6 MMM having a pattern correlation of *0.89* (compared to *0.96* for the WAM), while individual models have pattern correlations with CHIRPS ranging from *0.93 to 0.61* …	Updated discussion to reflect the climatology found with the corrected analysis.
Page 19, line numbers: 4-10	The EAM MMM, unlike that of the WAM, shows no strong bias in overall precipitation magnitude and captures the northward extent of the rainband well. The evolution of rainfall is correct, though MAM (the long rainy season) is too dry compared to observations and October, November, and December (OND) (the short rainy season) has a wet bias…	The EAM MMM, unlike that of the WAM, shows *very little* bias in overall precipitation magnitude. *The rainfall in the MMM is found to have a consistent ~2° northward bias in the latitude of maximum precipitation.* The evolution of rainfall is correct, though MAM (the long rainy season) *slightly drier than* observations and October, November, and December (OND) (the short rainy season) has a *small* wet bias…	Updated discussion to reflect the climatology found with the corrected analysis.
Page 19, line numbers: 18-20	…higher than that of the MMM (1.34 mm d−1 for MIROC6, 0.98 mm d−1	…higher than that of the MMM (*1.30* mm d−1 for MIROC6, *0.90* mm d−1	Updated to describe the best performing model found with the

	for MMM). Overall…	for MMM). *The southward extent of the rainband during JFM is not captured, with a northward bias in its position.* Overall…	corrected analysis.
Page 19, line numbers: 28-38	The model with the most deviation from CHIRPS, ECEarth3, has very little resemblance to observations, with a pattern correlation of 0.36. The rainband, which in CHIRPS has a maximum intensity in MAM and OND, can be seen to have a maximum only during OND, with no other season of strong rainfall. In addition, the spatial extent (5° S– ~10° N) is too large. The rainfall during this period is too strong, shown by an RMSE of 3.3 mm/day, to which the missing MAM wet season also contributes. The expected northward shift of the rainband in MAM is not present, and neither is the southward movement in SON.	The model with the most deviation from CHIRPS, ECEarth3, *struggles to capture correct periods for maximum rainfall, and has* a pattern correlation of *0.61*. The rainband, which in CHIRPS has a maximum intensity in MAM and OND, can be seen to have a maximum only during OND, with *little rainfall during MAM.* The rainfall during *OND* is too strong, shown by an RMSE of *2.80 mm d−1*, to which the missing MAM wet season also contributes. *Despite problems with the magnitude of rainfall, the progression of the rainband follows the expected northward movement in MAM, and* southward movement in SON.	Updated to describe the worst performing model found with the corrected analysis.