

1 **Extreme precipitating events in satellite and rain-gauge products over the Sahel**

2 Sidiki Sanogo,^a Philippe Peyrillé,^a Romain Roehrig,^b Françoise Guichard,^a Ousmane Ouedraogo,^b

3 ^aCNRM, Université de Toulouse, Météo France, CNRS, Toulouse, France

4 ^bAgence Nationale de la Météorologie (ANAM), Ouagadougou, Burkina Faso

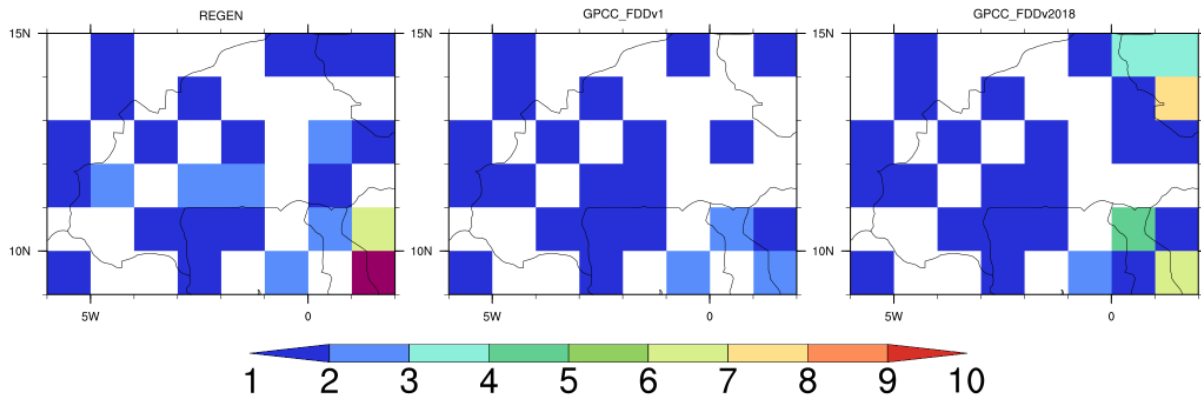
5 *Corresponding author:* Sidiki Sanogo, sidiki.sanogo@meteo.fr

6 **Supplemental material**

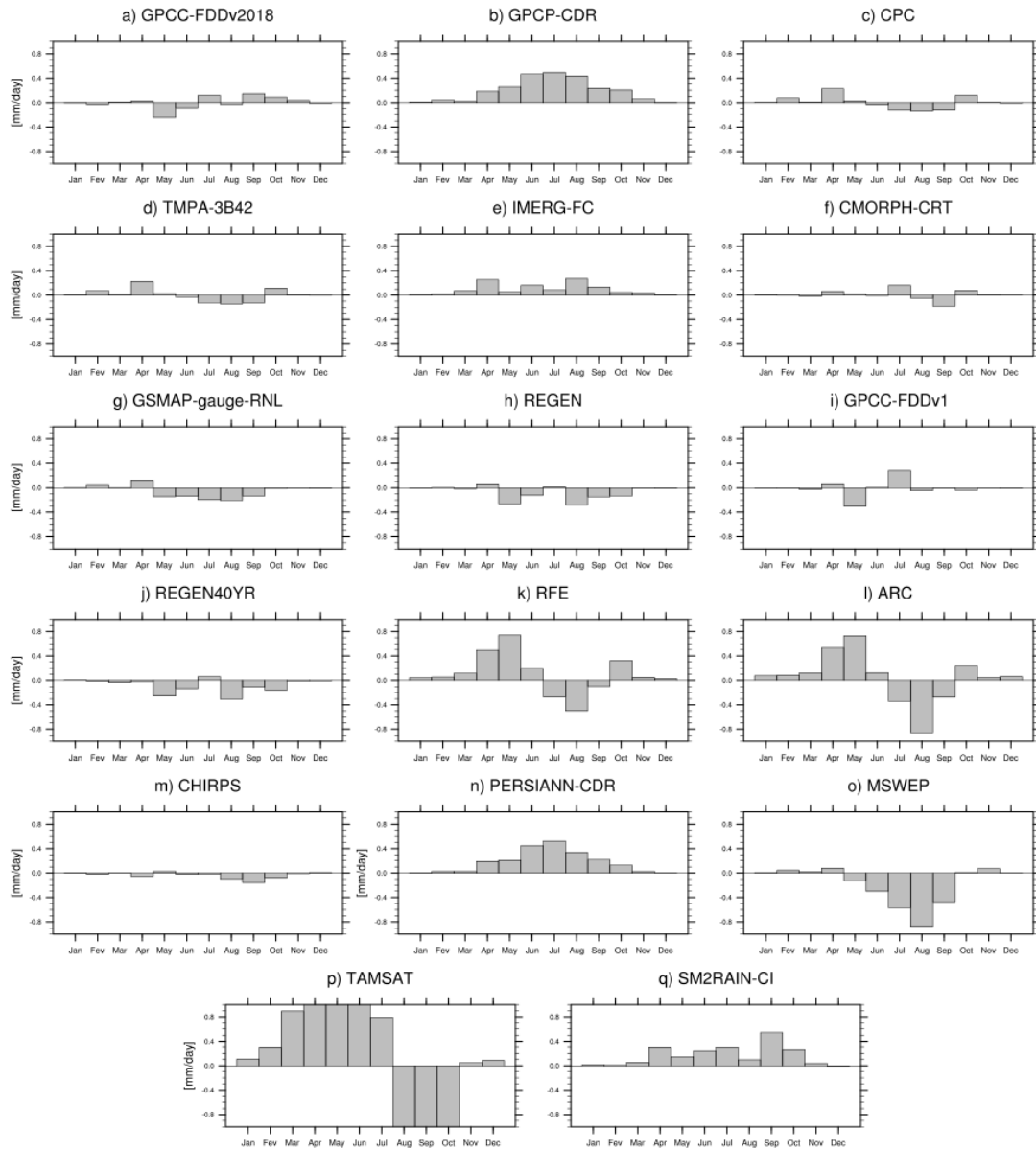
7

8 The present document provides several figures that complement the results presented
9 in the main manuscript. Namely, they emphasize:

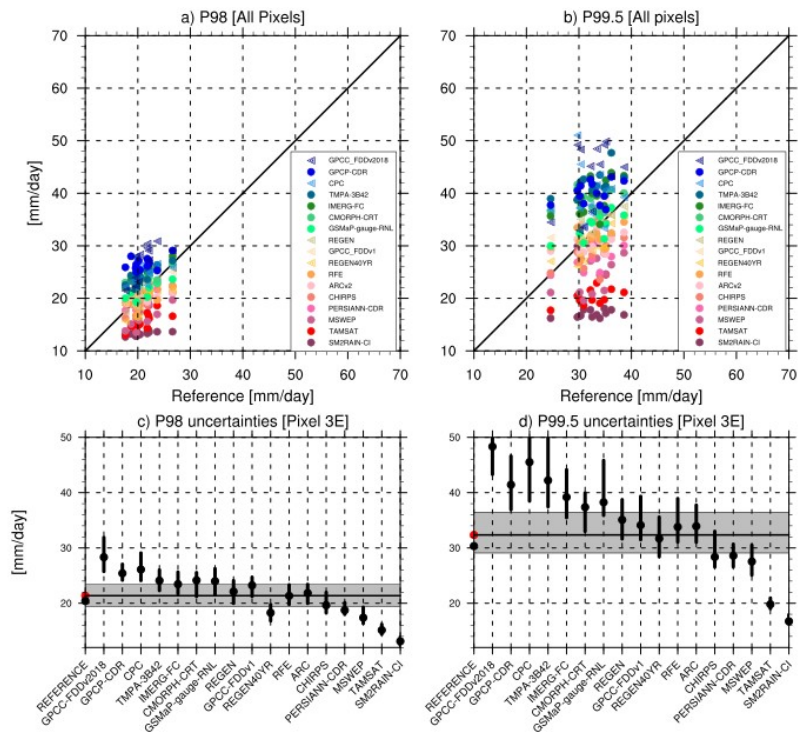
- 10 • The independence of our reference precipitation datasets to the rain-gauge network used
11 in the evaluated datasets (Fig. S1, to be compared with Fig. 1a).
- 12 • The annual cycle bias of total rainfall for each precipitation dataset (Fig. S2 – see section
13 4.b).
- 14 • The sensitivity of our results to the change of the chosen percentile used in the EPE
15 definition. Figures S3-S16 present results for the 98th all-day percentile and Figures S3-
16 S4, S10 and S17-S26 for the 99.5th all-day percentile.
- 17 • The sensitivity of our results to the use of a wet-day percentile approach: Figures S27-29.



18 **Figure S1:** Maximum daily number of stations per $1^\circ \times 1^\circ$ pixel used by REGEN, GPCC-
 19 FDDv2018 over the period 1995-2016 and by GPCC-FDDv1 over the period 1995-2013
 20 which are the common periods for the reference and these precipitations datasets.

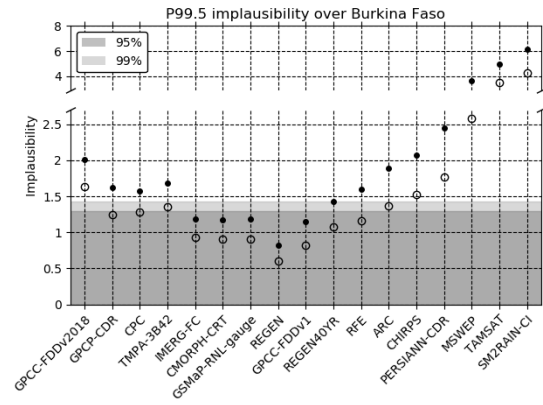
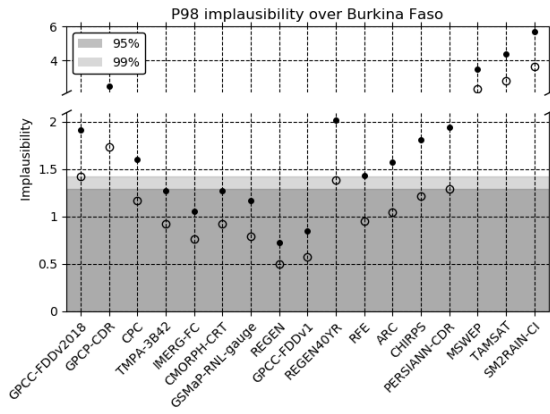


21 **Figure S2:** same as Figure 7 but for the annual cycle of monthly rain rate.

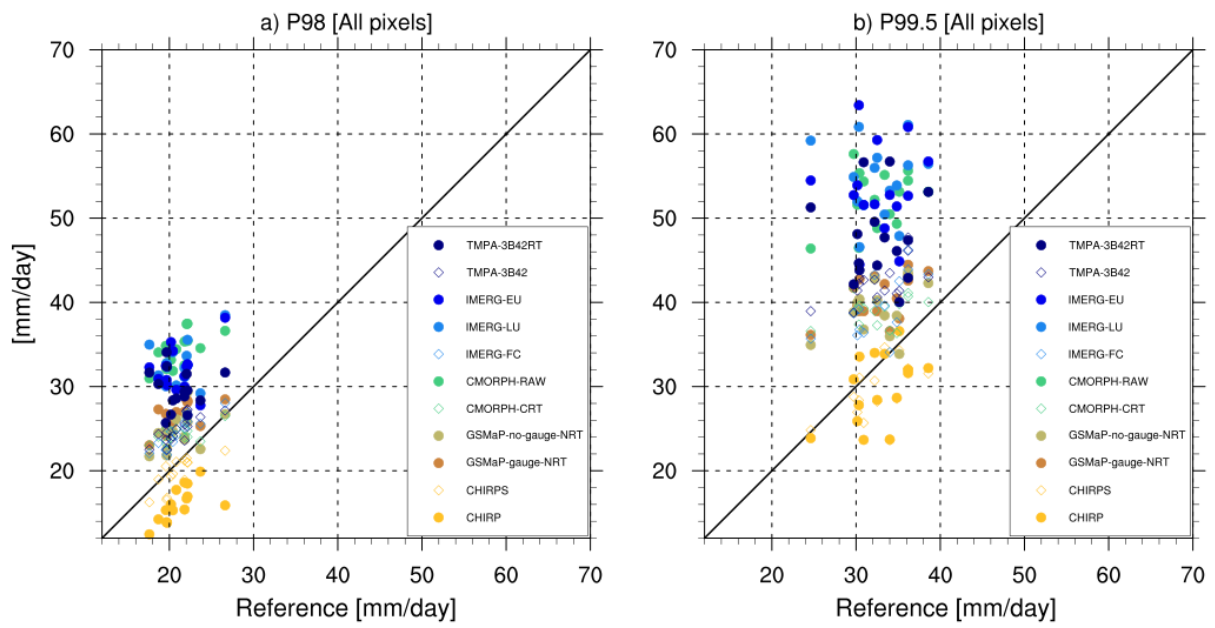


23

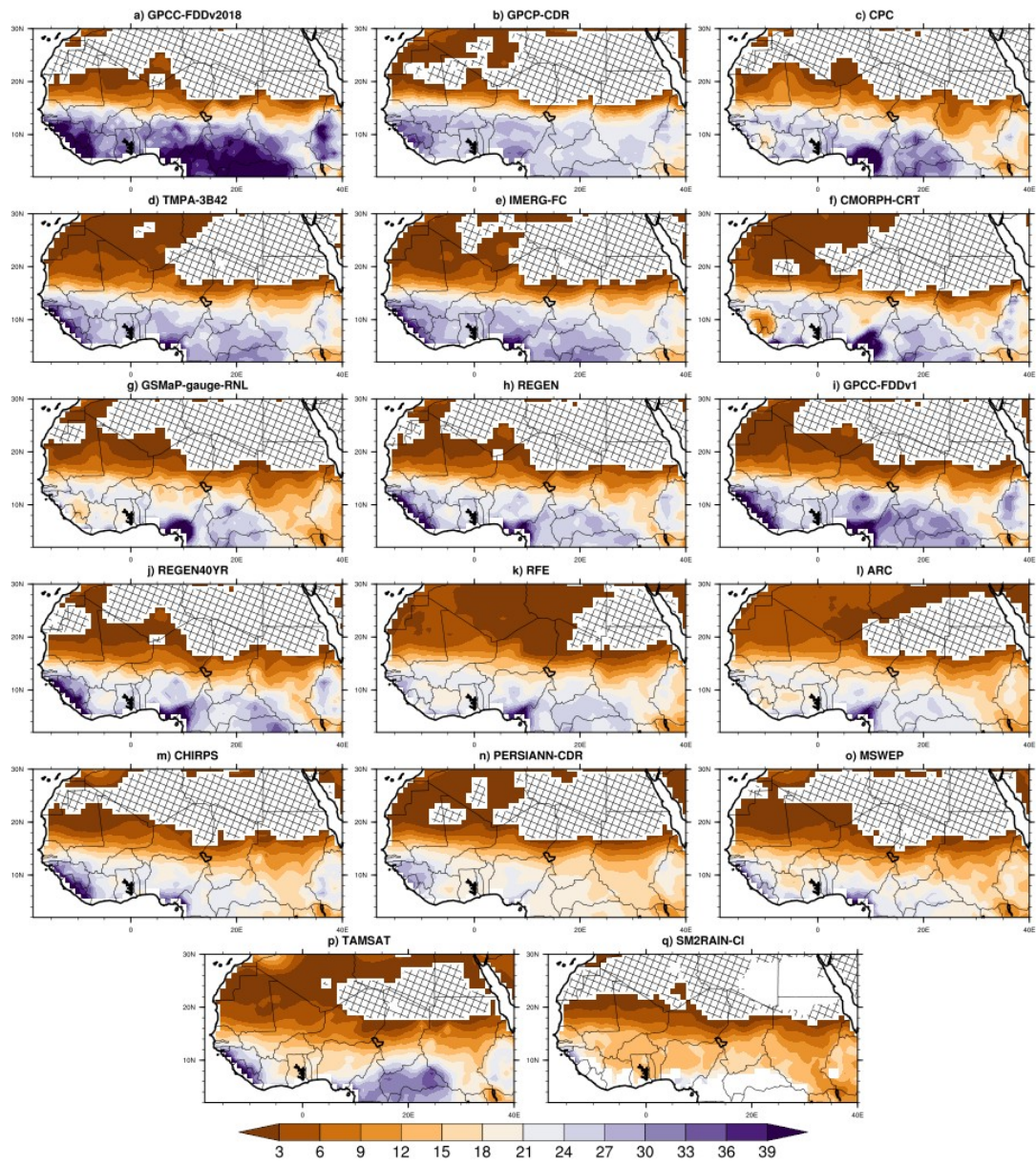
24 **Figure S3:** Same as Figures 2b and 2c but for the all-day 98th and 99.5th respectively.



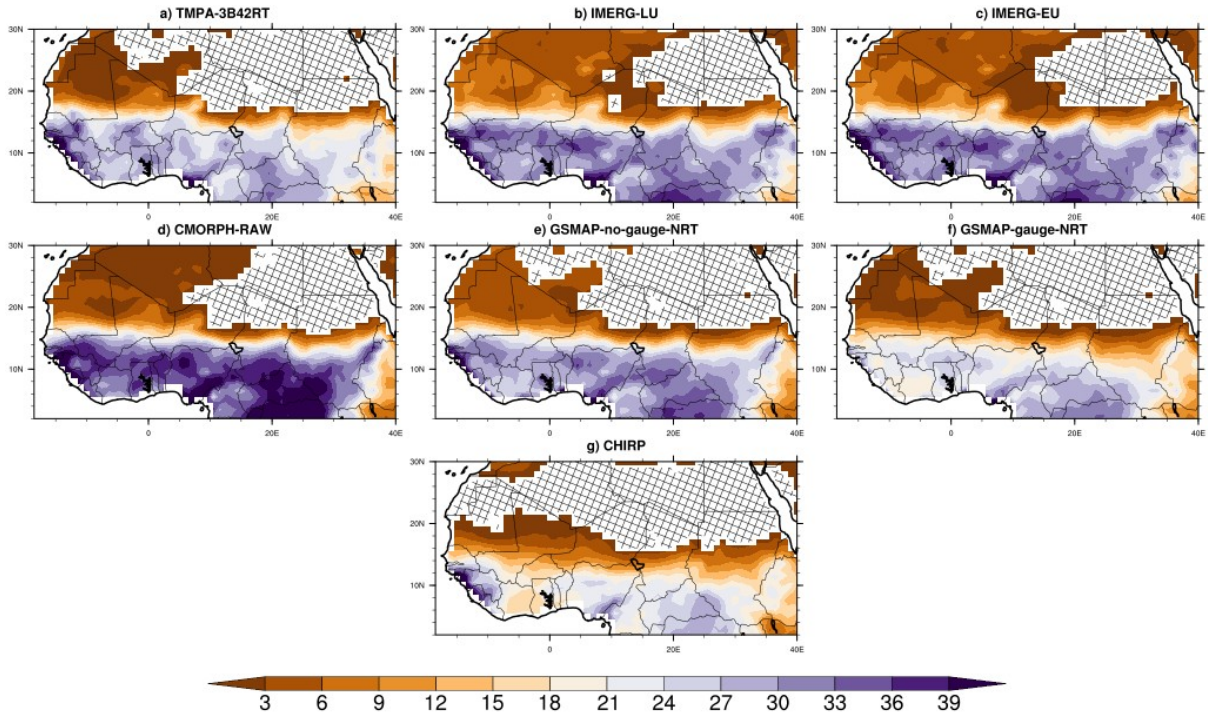
26 **Figure S4:** Same as Figure 2d but for the all-day 98th and 99.5th respectively.
 27



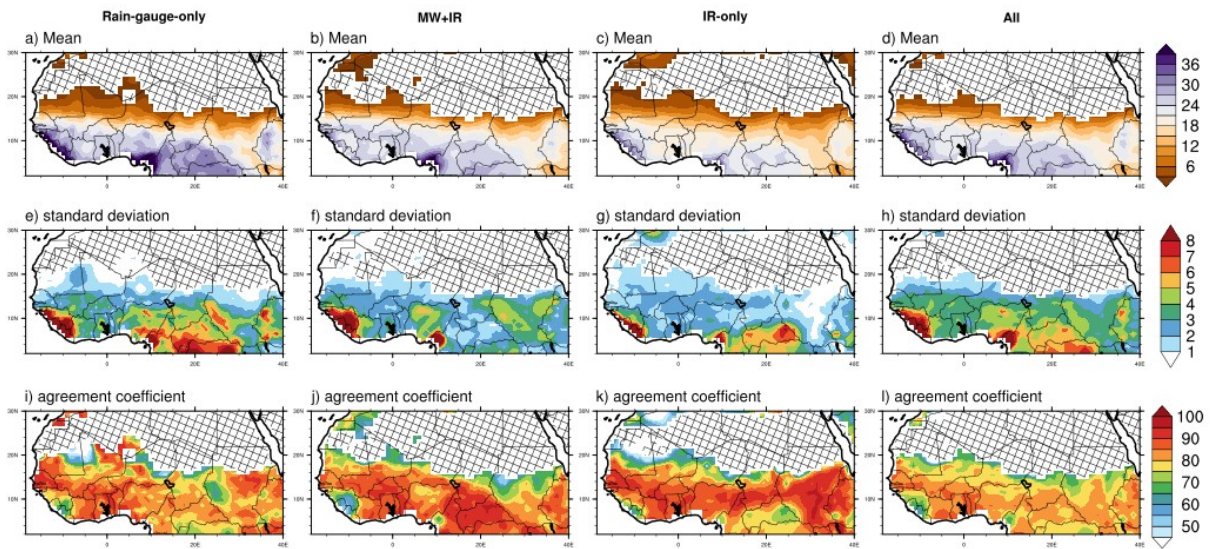
30 **Figure S5:** Same as Figures 16 but for the all-day 98th and 99.5th respectively.



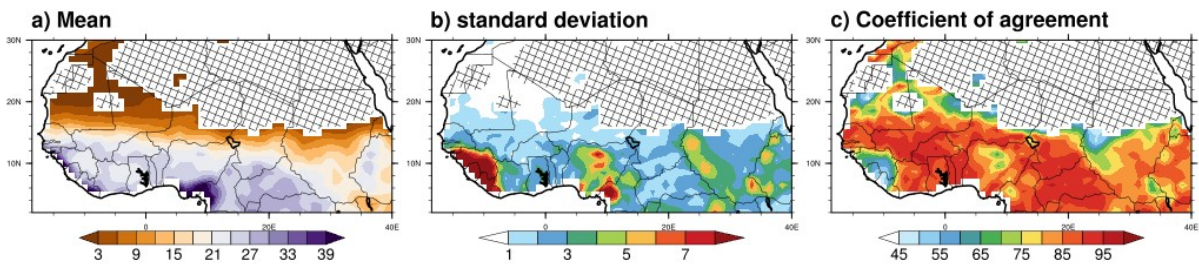
32 *Figure S6: Same as Figure 3 but for the all-day 98th percentile.*



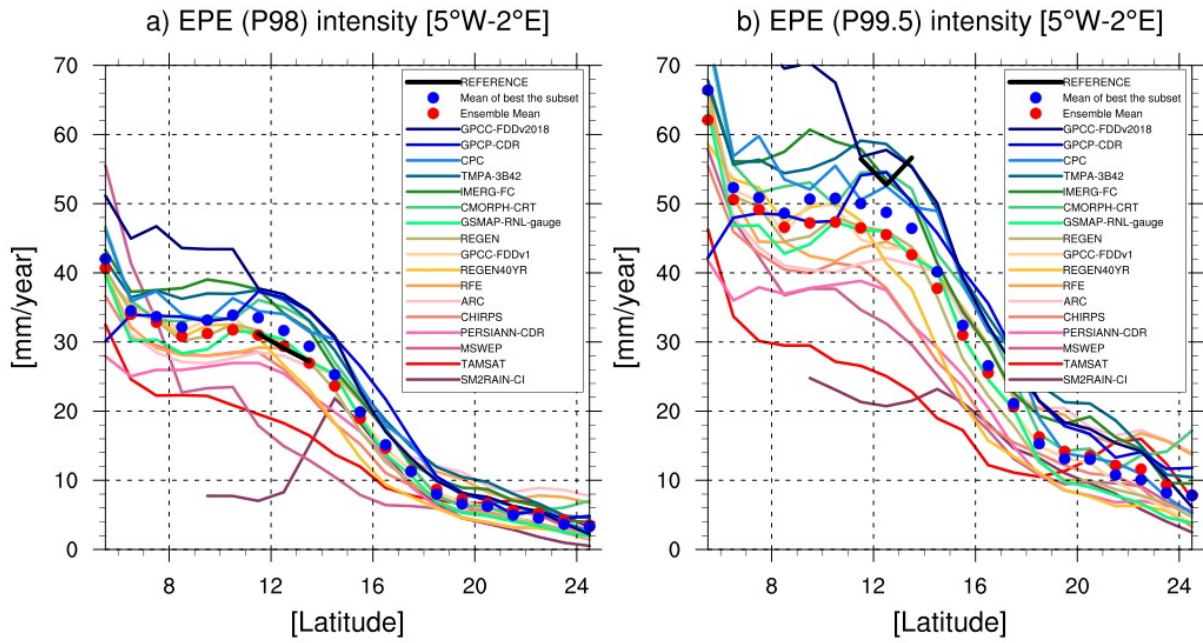
33 **Figure S7:** As Figure 17 but for the all-day 98th.



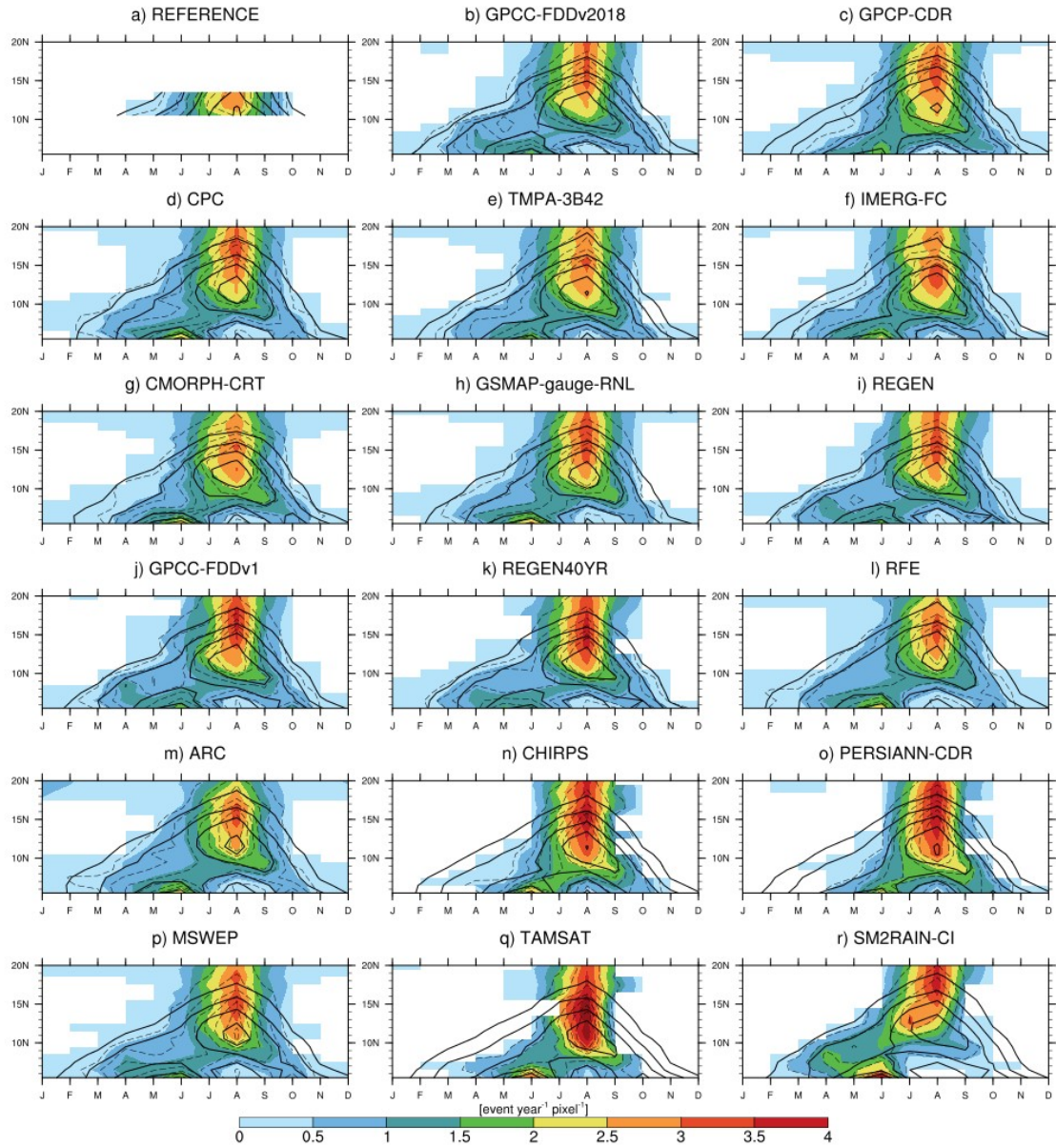
35 *Figure S8: Same as Figure 4 but for the all-day 98th percentile*
 36



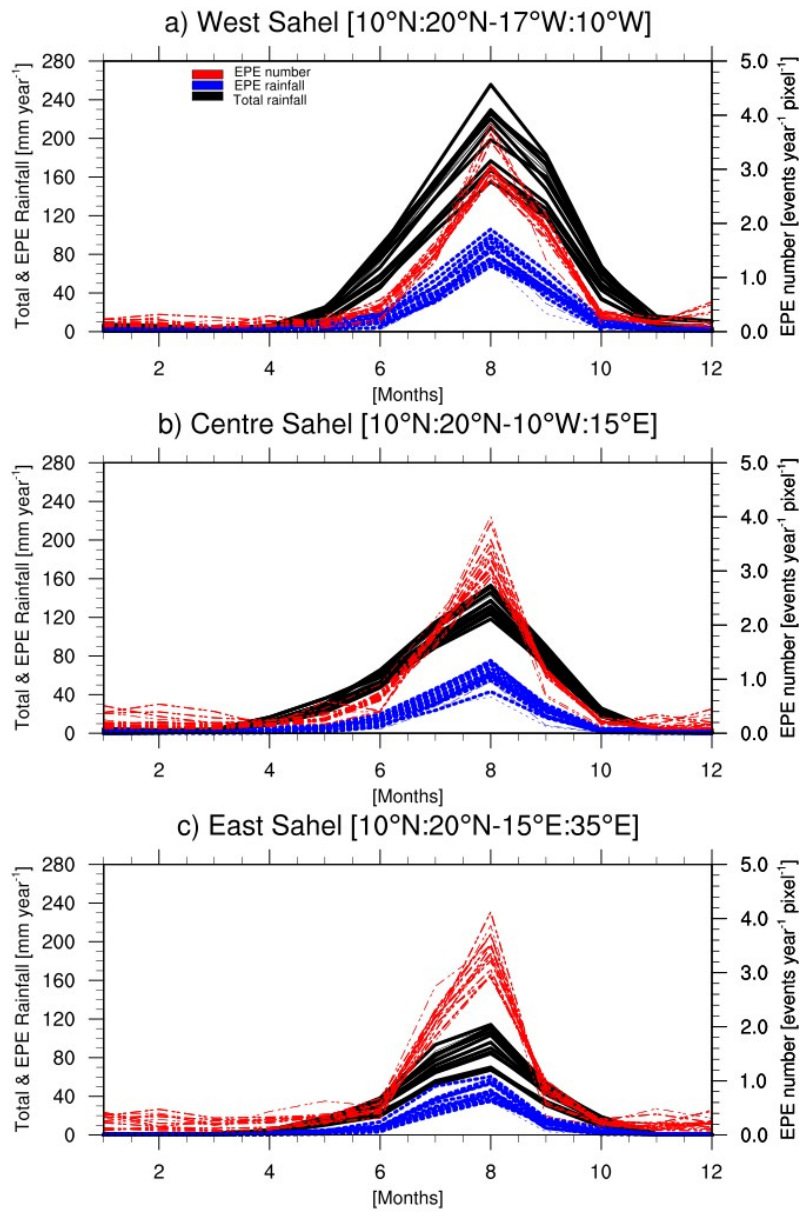
38
 39 *Figure S9: Same as Figure 5 but for the all-day 98th percentile.*



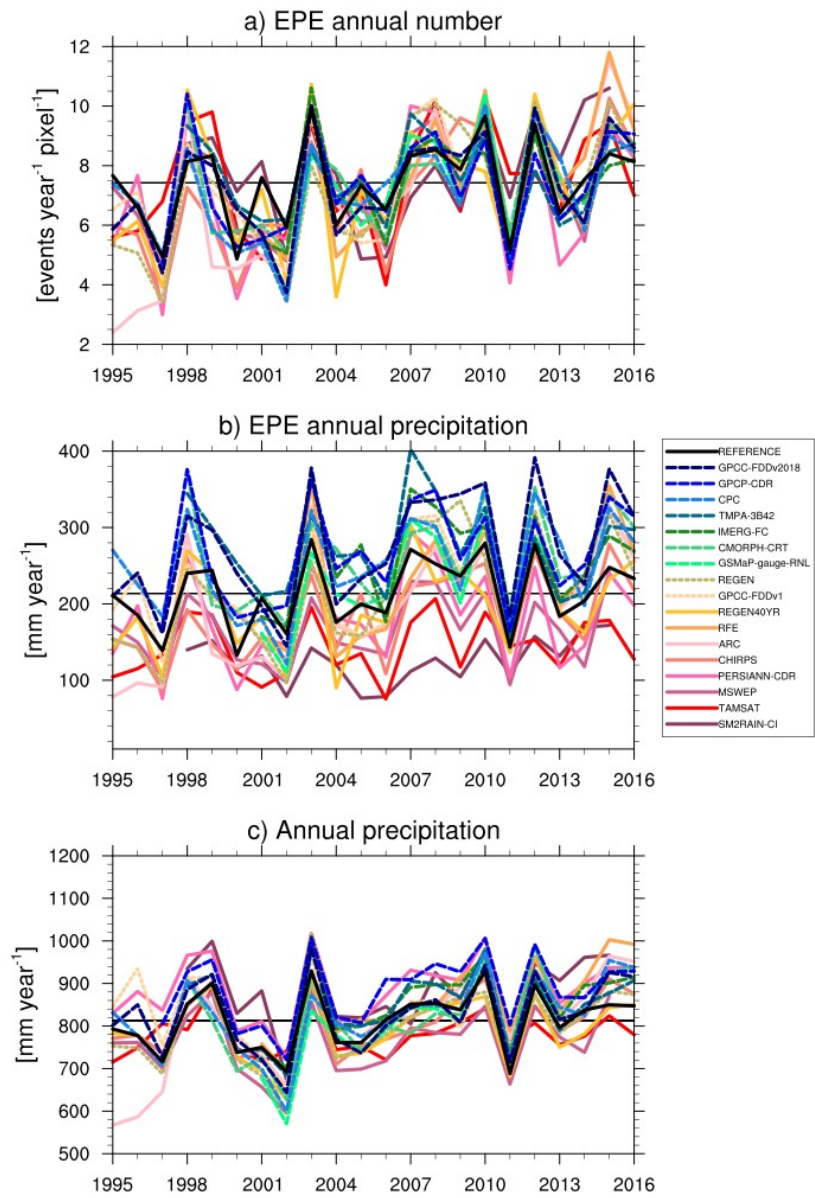
40 **Figure S10:** Same as Figure 6b but for the (a) all-day 98th and (b) 99.5th percentiles.



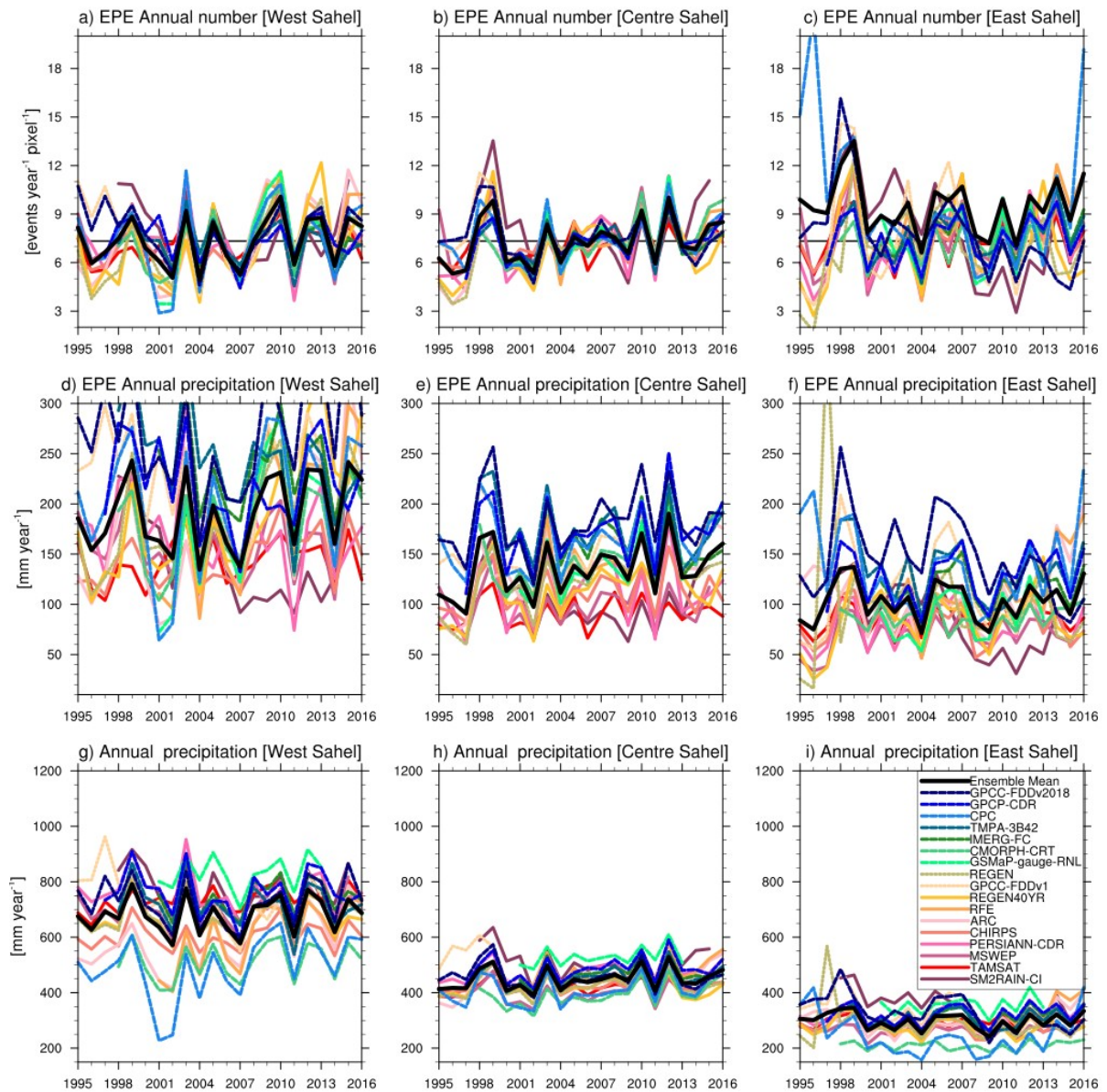
42 **Figure S11:** Same as Figure 8 but for EPEs defined with the all-day 98th percentile.



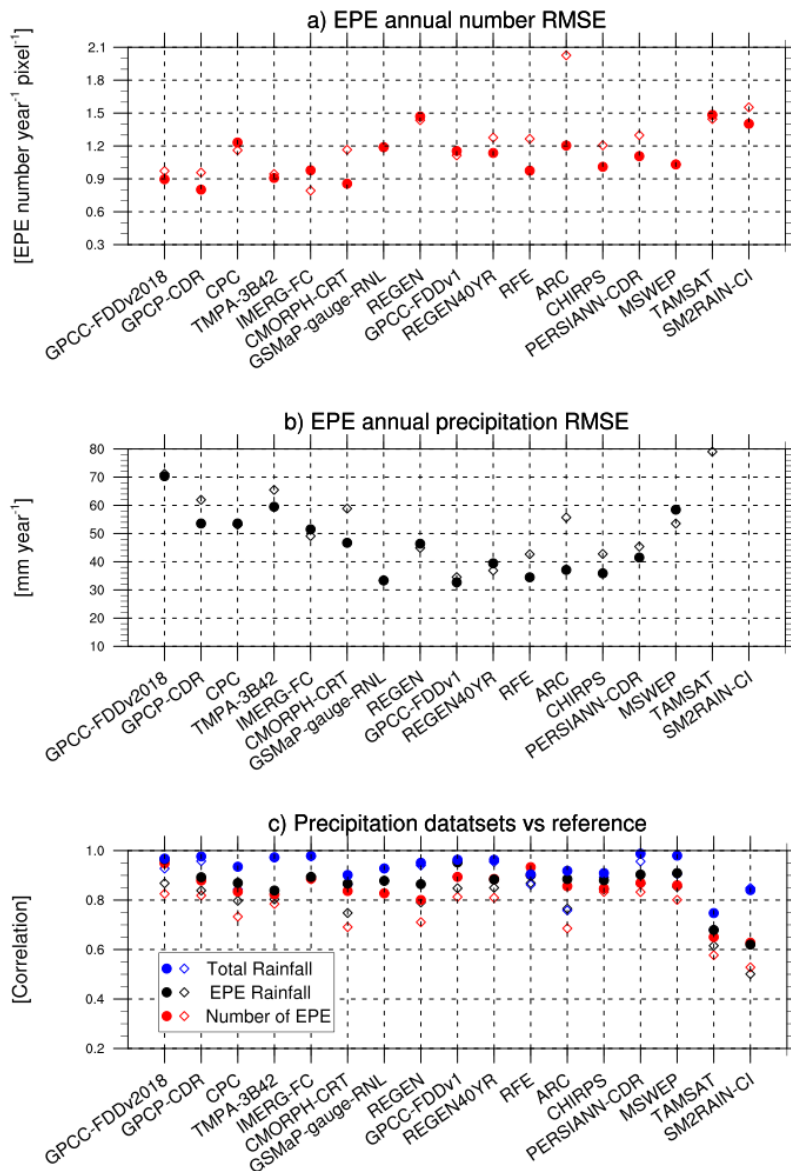
43 **Figure S12:** Same as Figure 9 but for EPEs defined with the all-day 98th percentile.



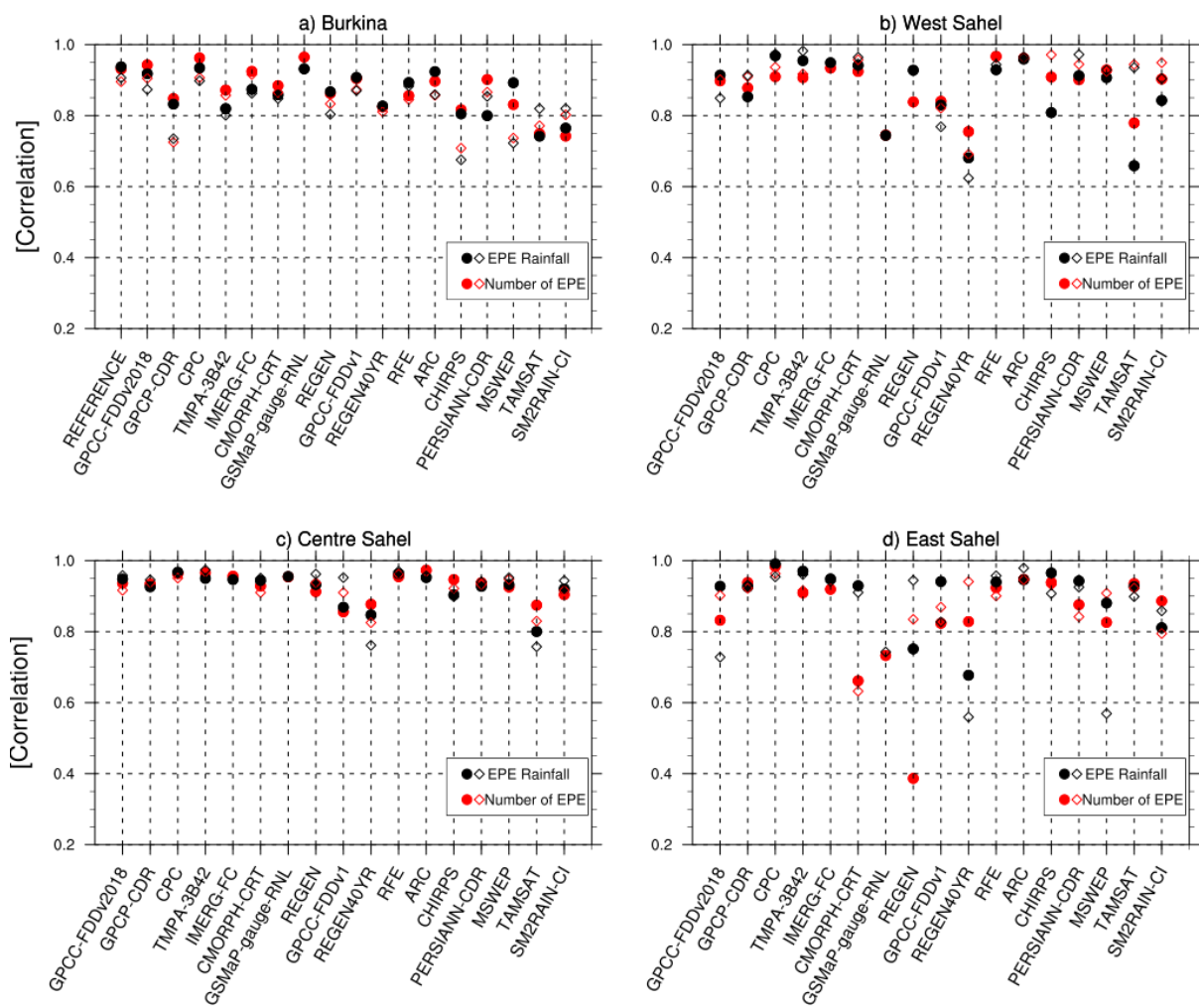
44 **Figure S13:** Same as Figure 10 but for EPEs defined with the all-day 98th percentile.



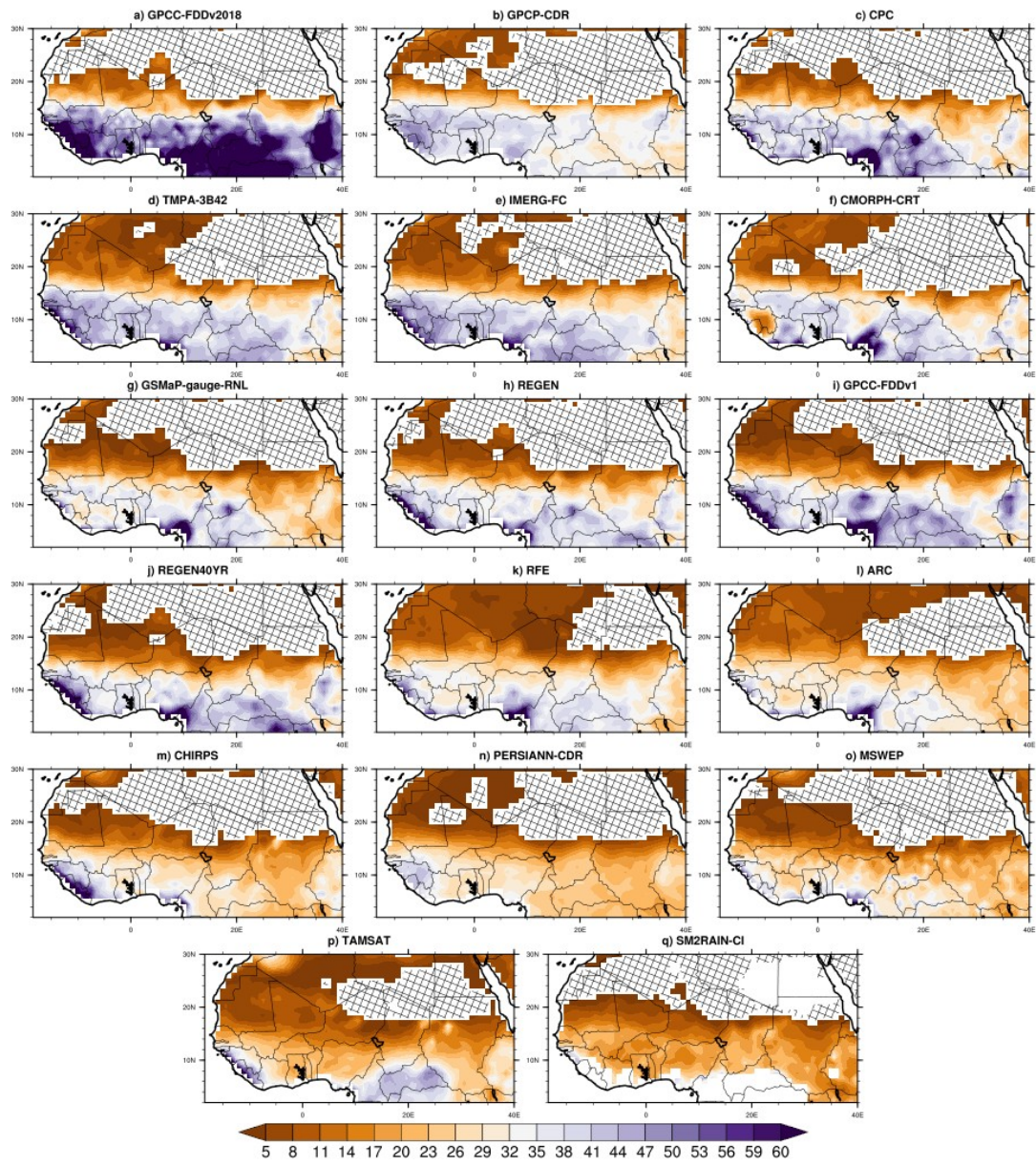
45 **Figure S14:** Same as Figure 11 but for EPEs defined with the all-day 98th percentile.



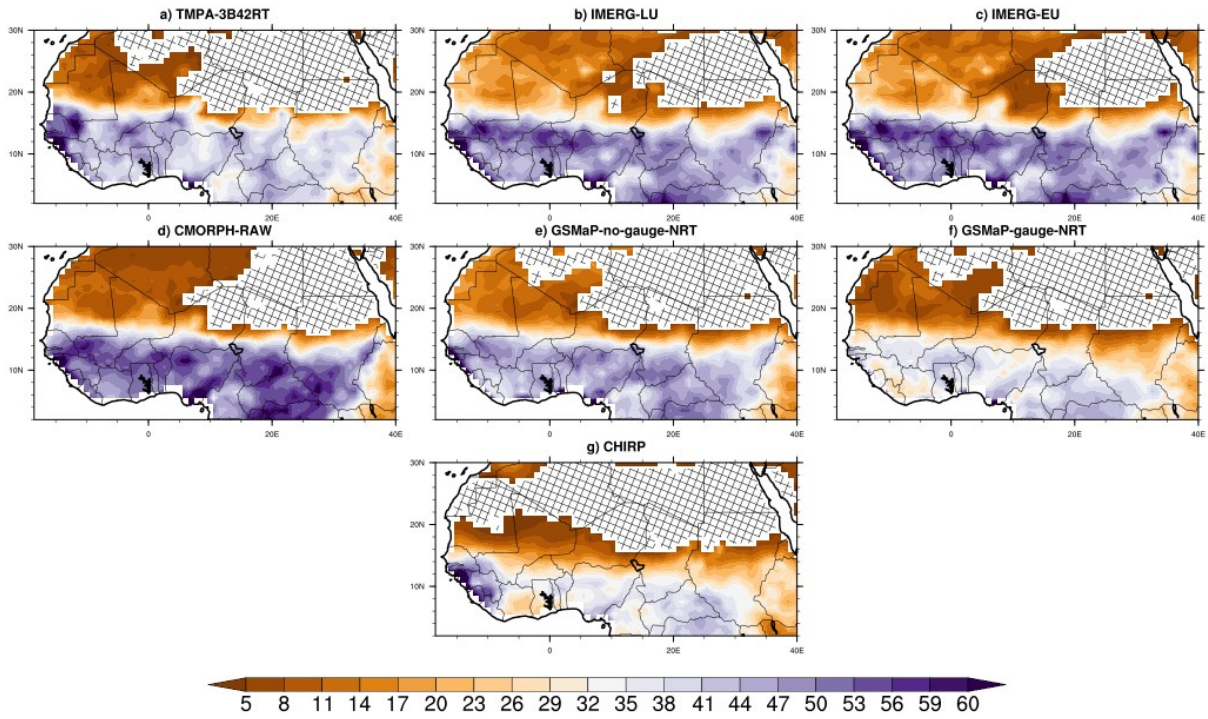
46 **Figure S15:** Same as figure 12 but for EPEs defined with the all-day 98th percentile.



47 **Figure S16:** As Figure 13 but for EPEs defined with the all-day 98th percentile.

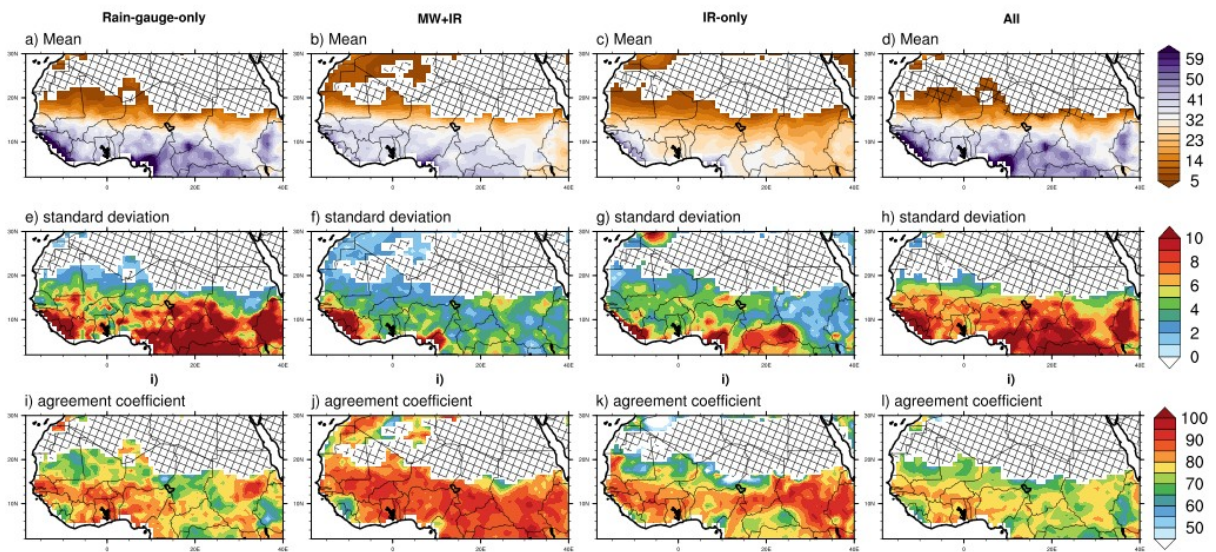


49 *Figure S17: Same as Figure 3 but for the all-day 99.5th percentile.*



51 **Figure S18:** As Figure 17 but for the all-day 99.5th.

52

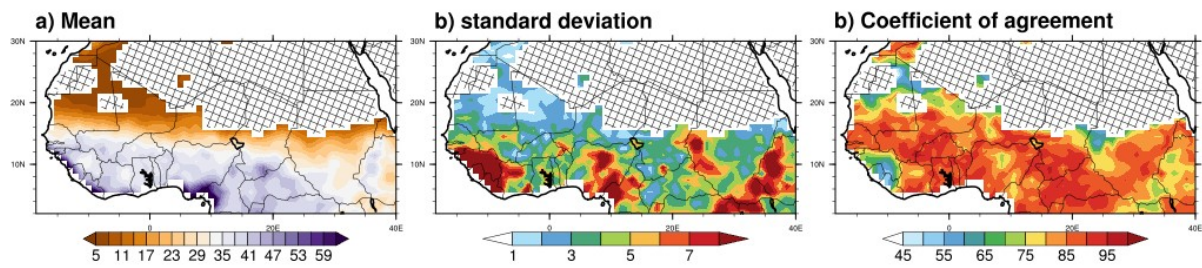


53 *Figure S19: Same as Figure 4 but for the 99.5th percentile.*

54

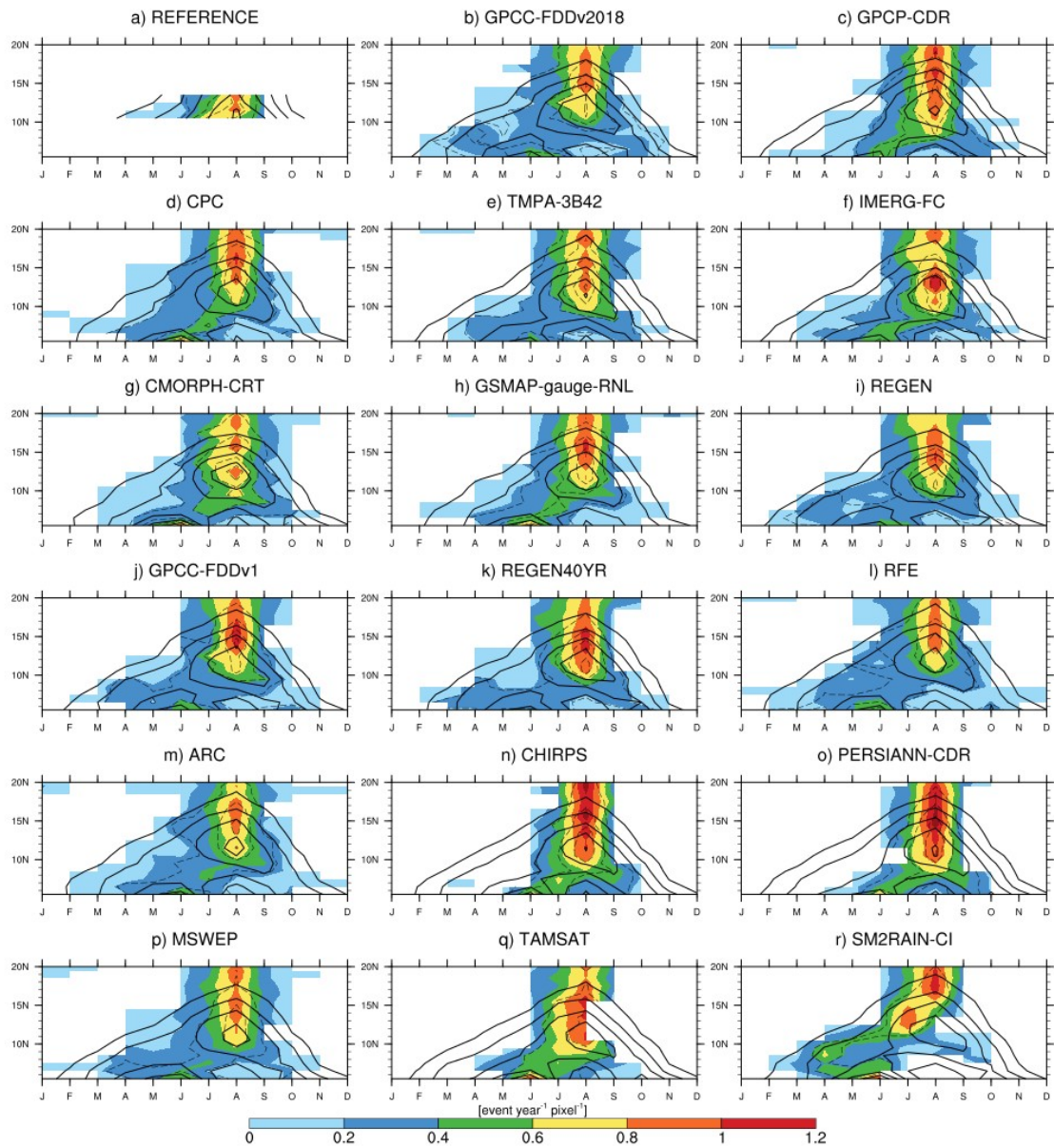
55

56

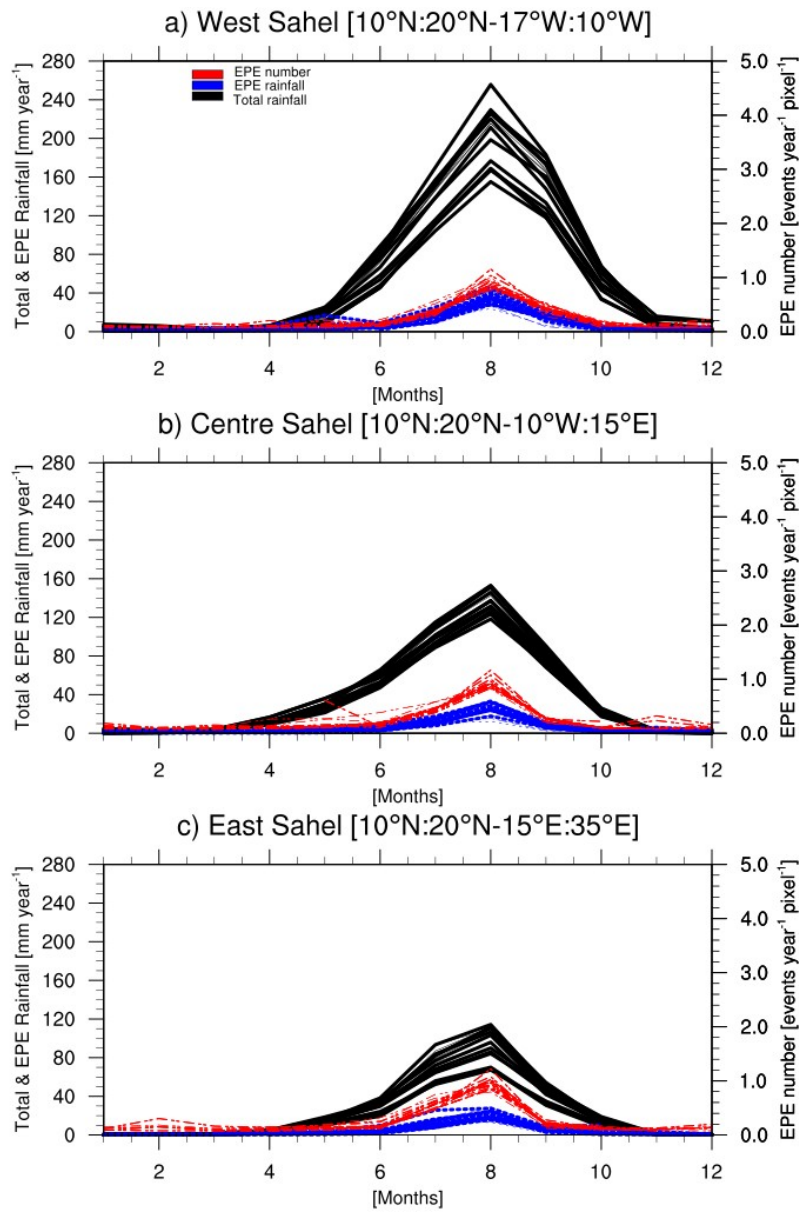


58

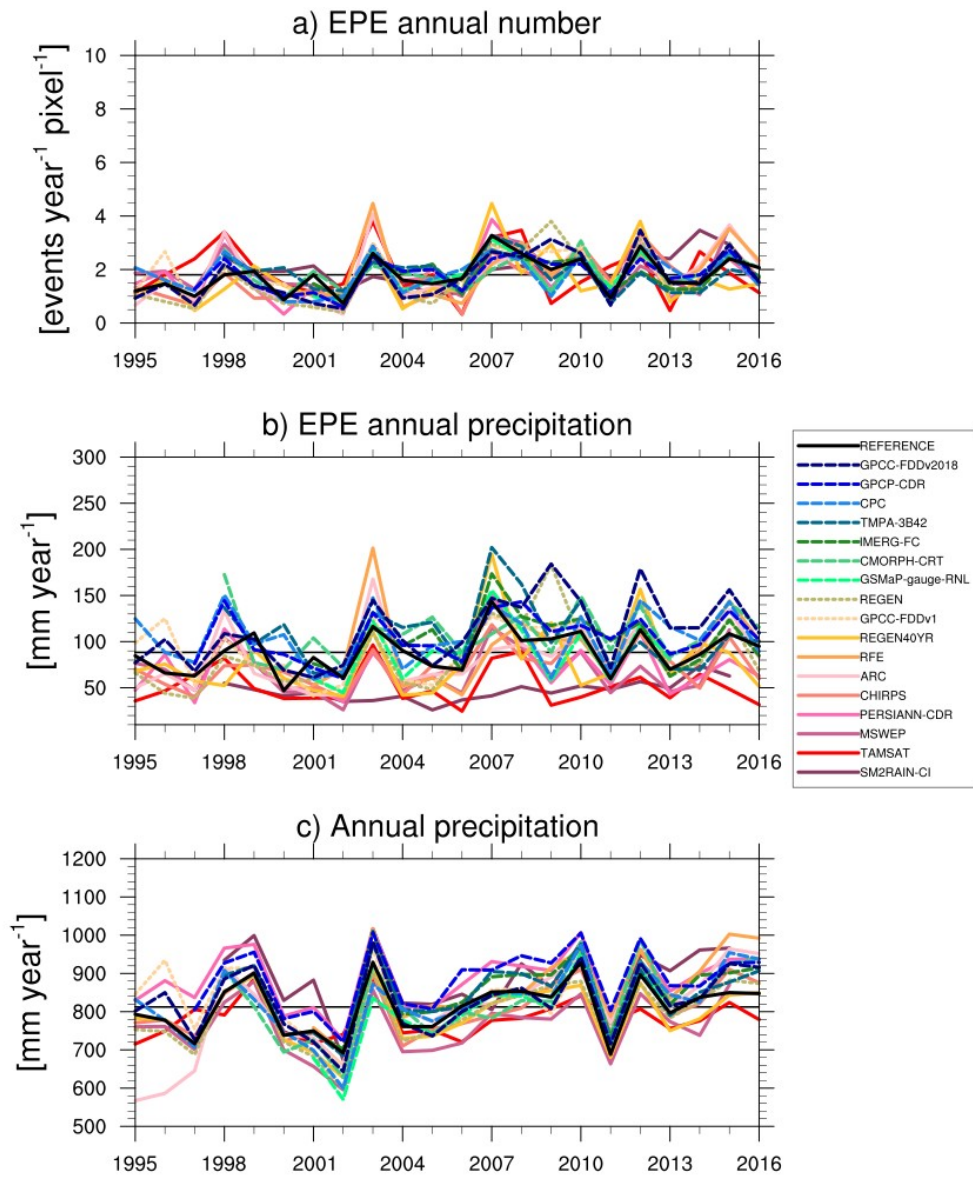
59 *Figure S20: Same as Figure 5 but for the 99.5th percentile.*



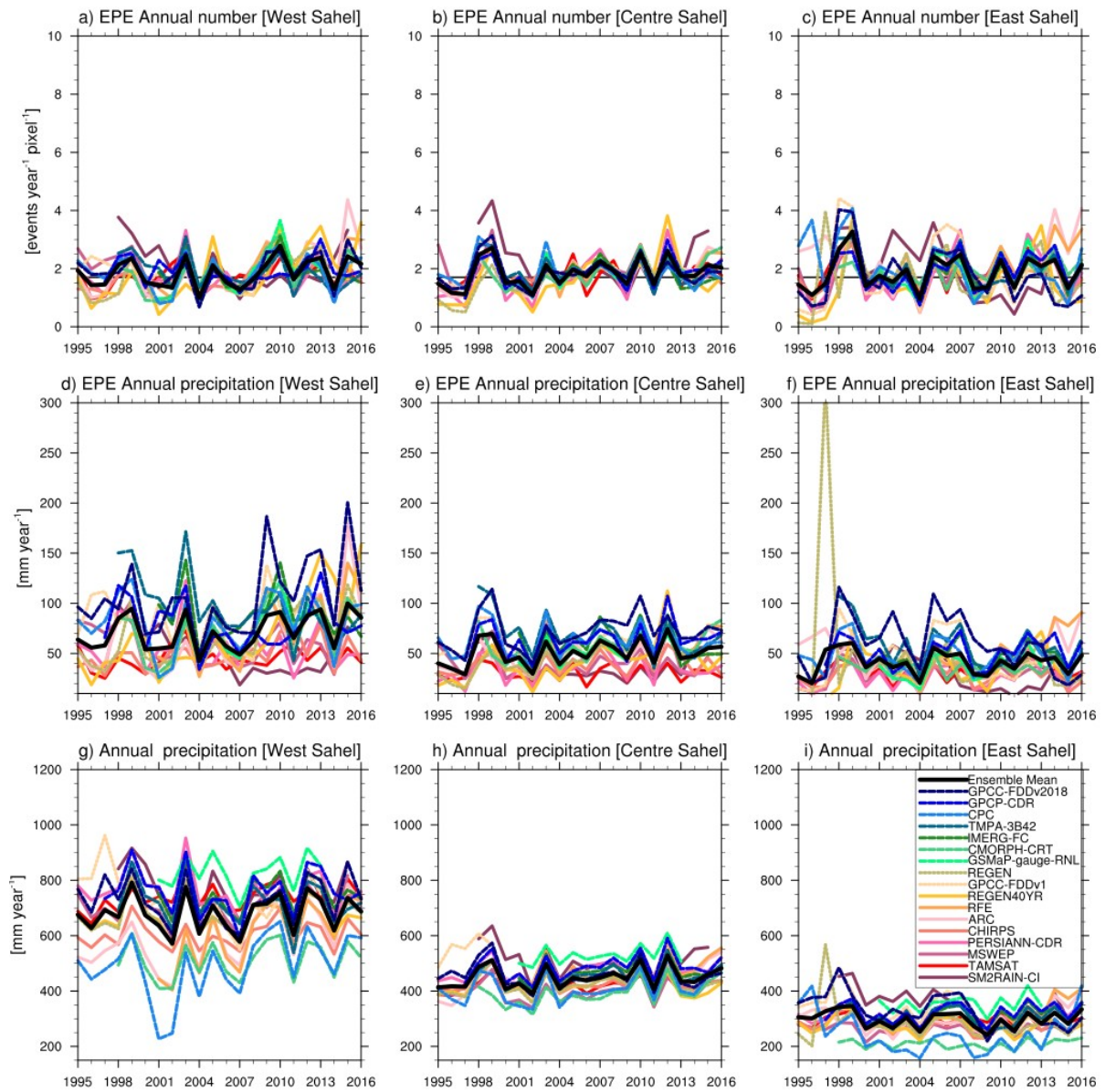
60 **Figure S21:** Same as Figure 8 but for EPEs defined with the all-day 99.5th percentile.



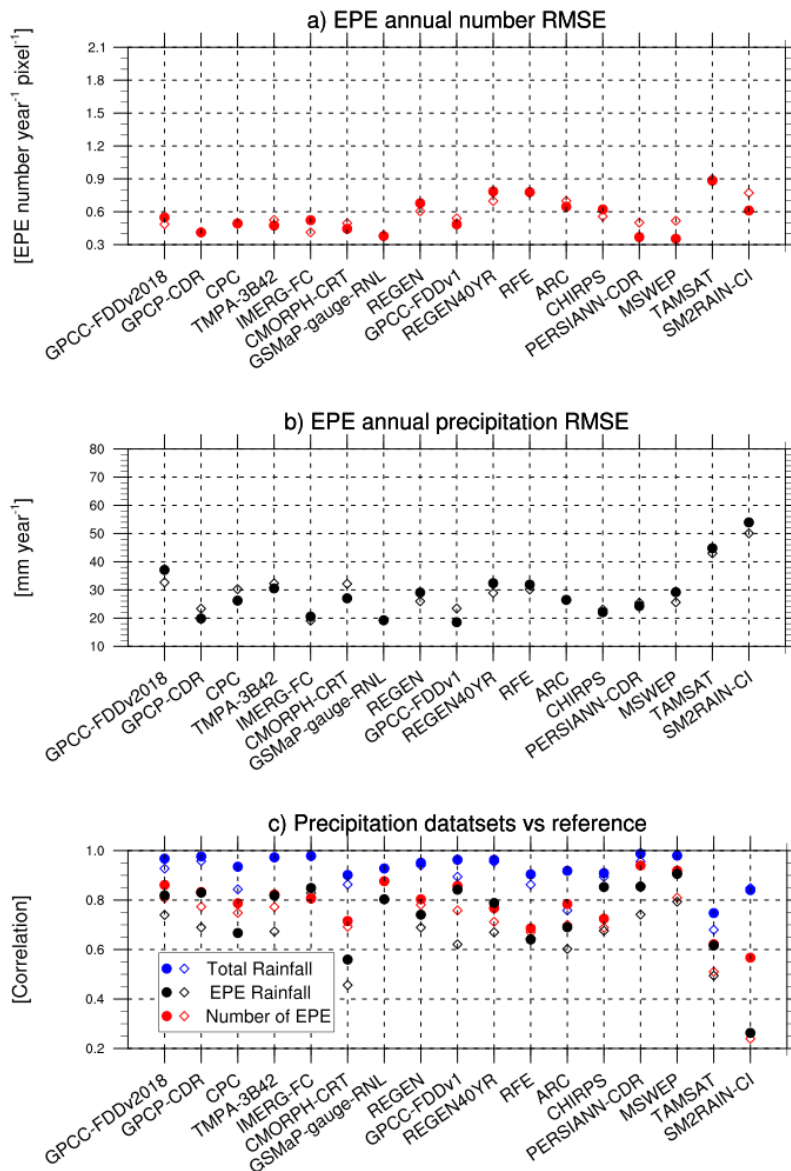
61 **Figure S22:** Same as Figure 9 but for EPEs defined with the all-day 99.5th percentile.



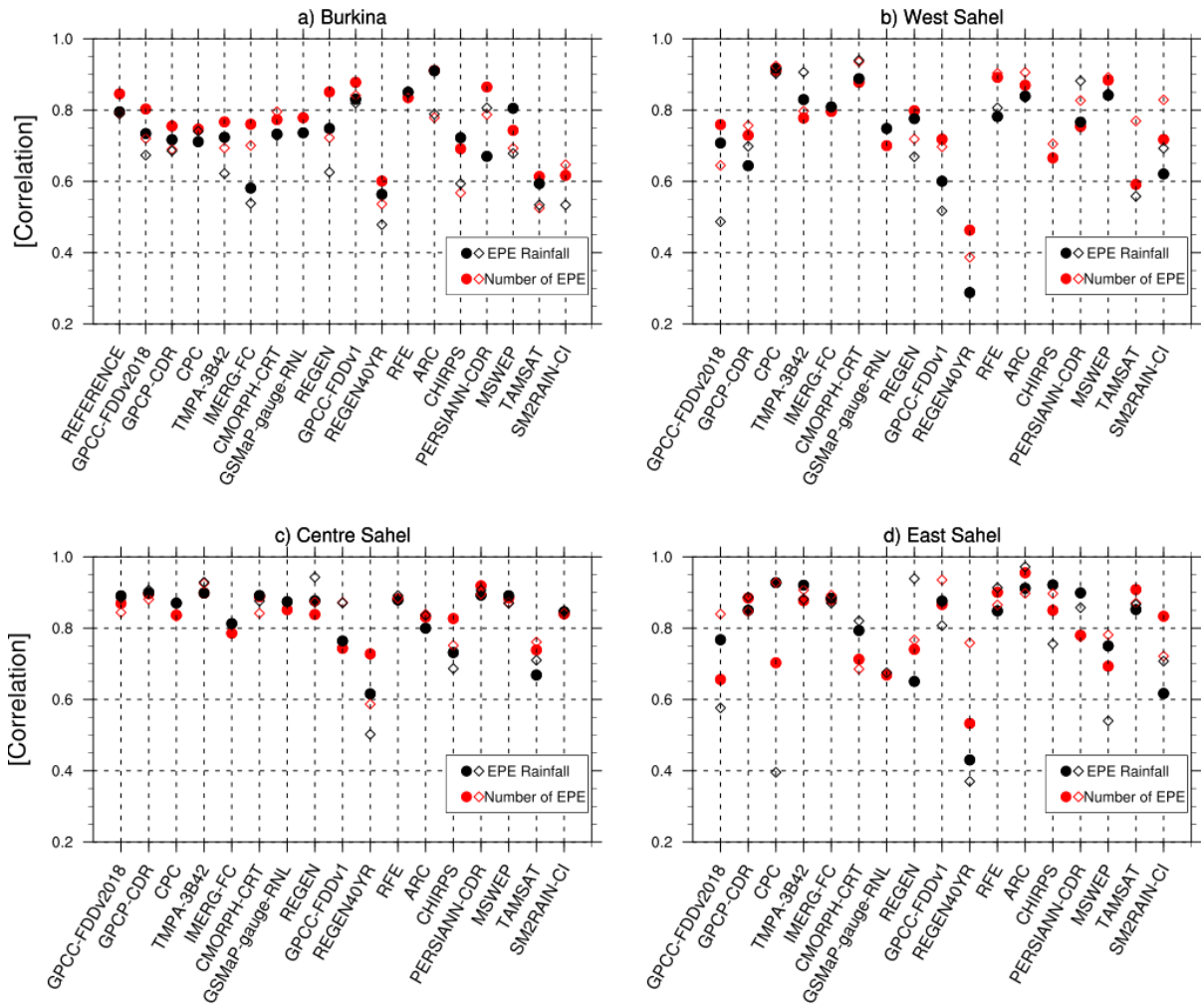
63 **Figure S23:** Same as Figure 10 but for EPEs defined with the all-day 99.5th percentile.



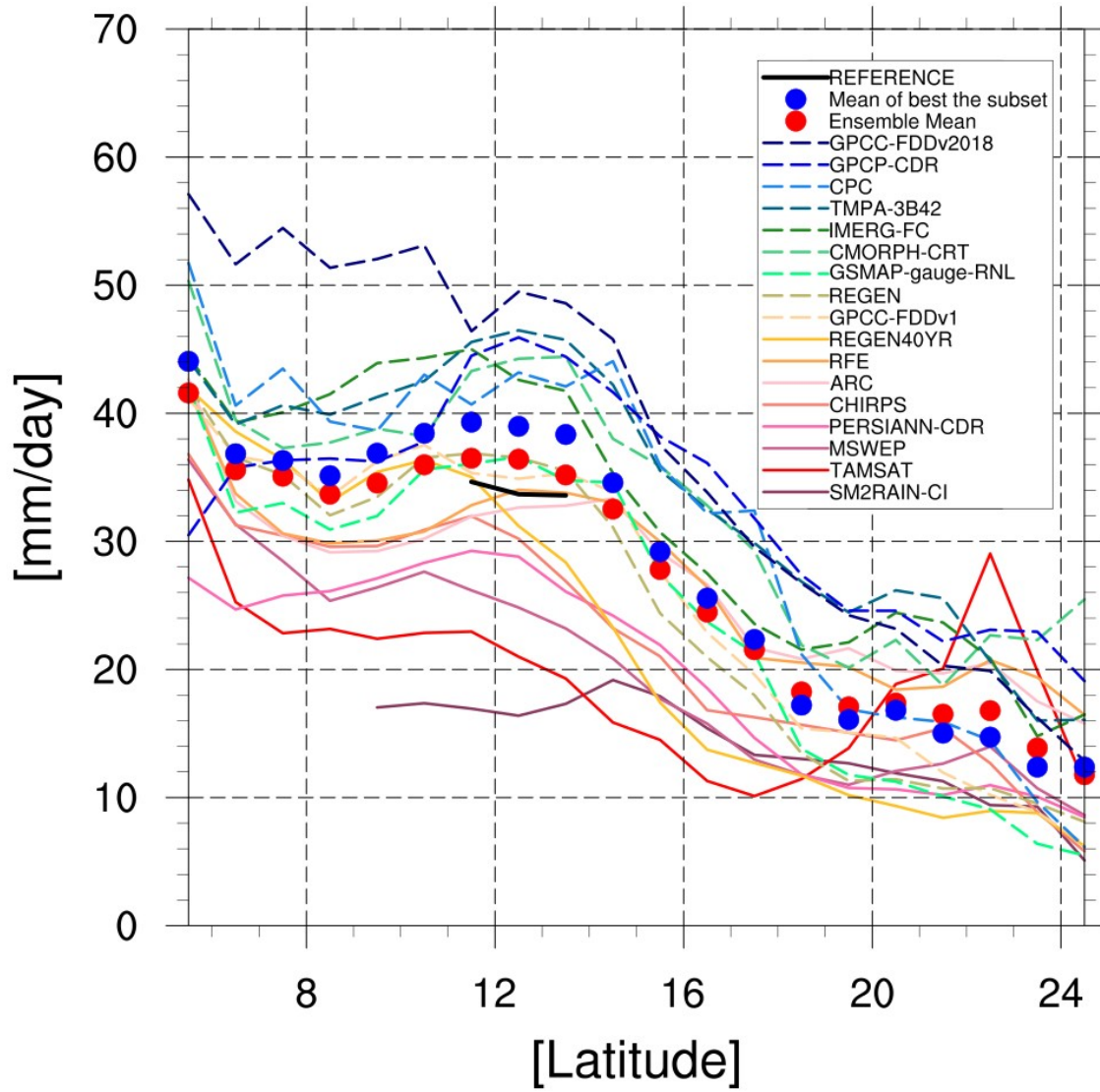
64 **Figure S24:** Same as Figure 11 but for EPEs defined with the all-day 99.5th percentile.



65 *Figure S25: Same as figure 12 but for EPEs defined with the all-day 99.5th percentile.*



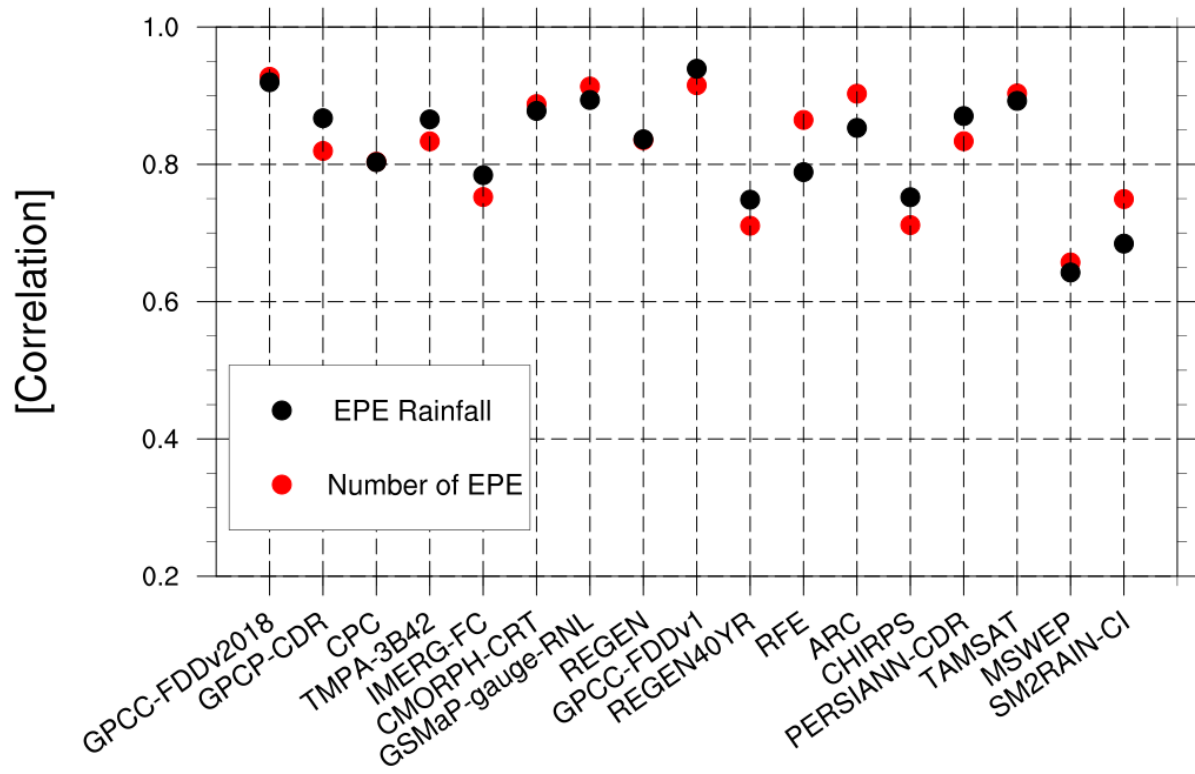
66 *Figure S26: As Figure 13 but for EPEs defined with the all-day 99.5th percentile.*



68 **Figure S27:** Same as Figure 6b but for the wet-day 96th.

69

70

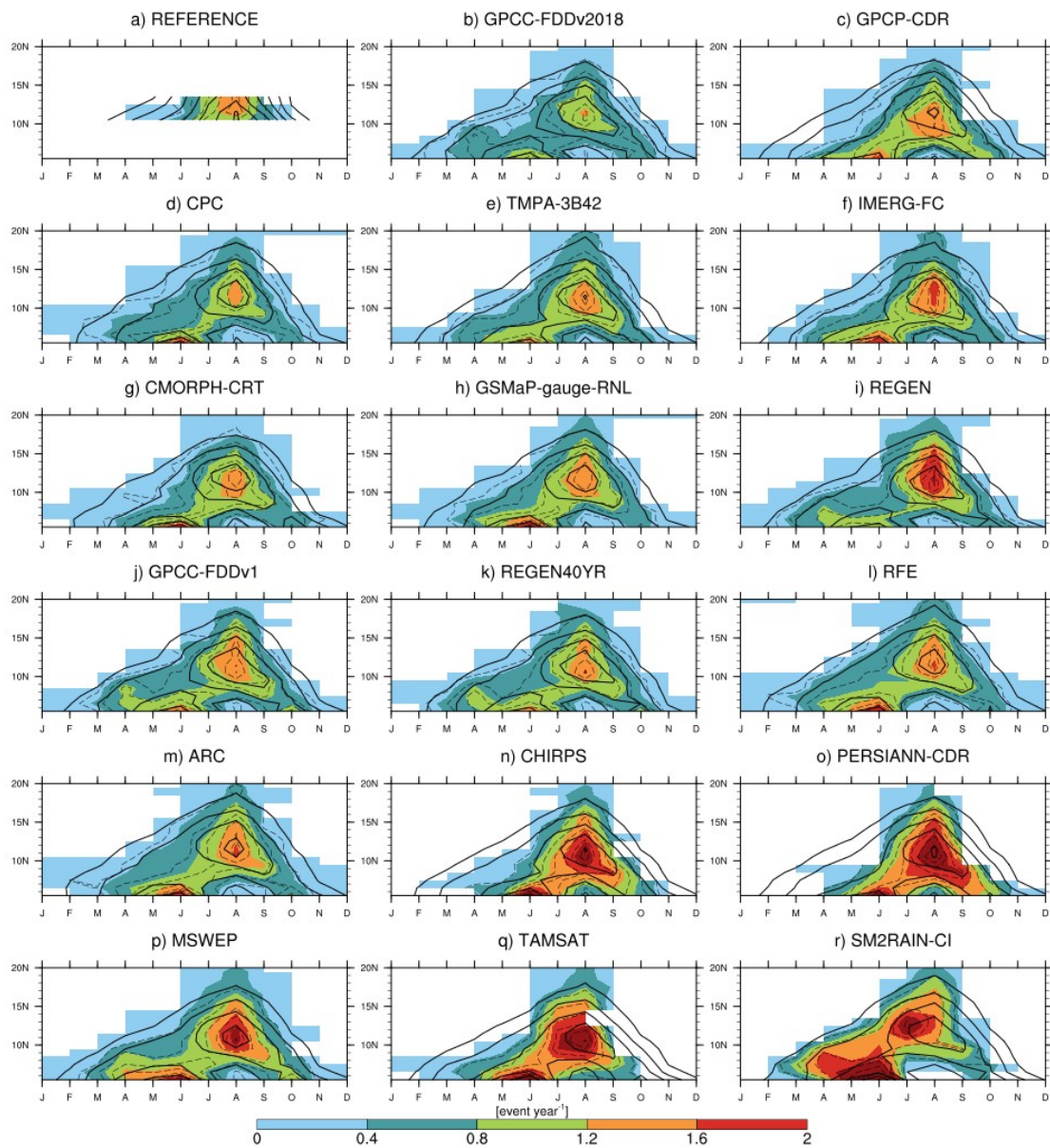


72 **Figure S28:** Same as Figure 12 but for the wet-day 96th.

73

74

75



77 **Figure S29:** Same as Figure 8 but for the wet-day 96th percentile.