


Article

Uncertainties in the annual cycle of rainfall characteristics over West Africa in CMIP5 models: Supplementary materials

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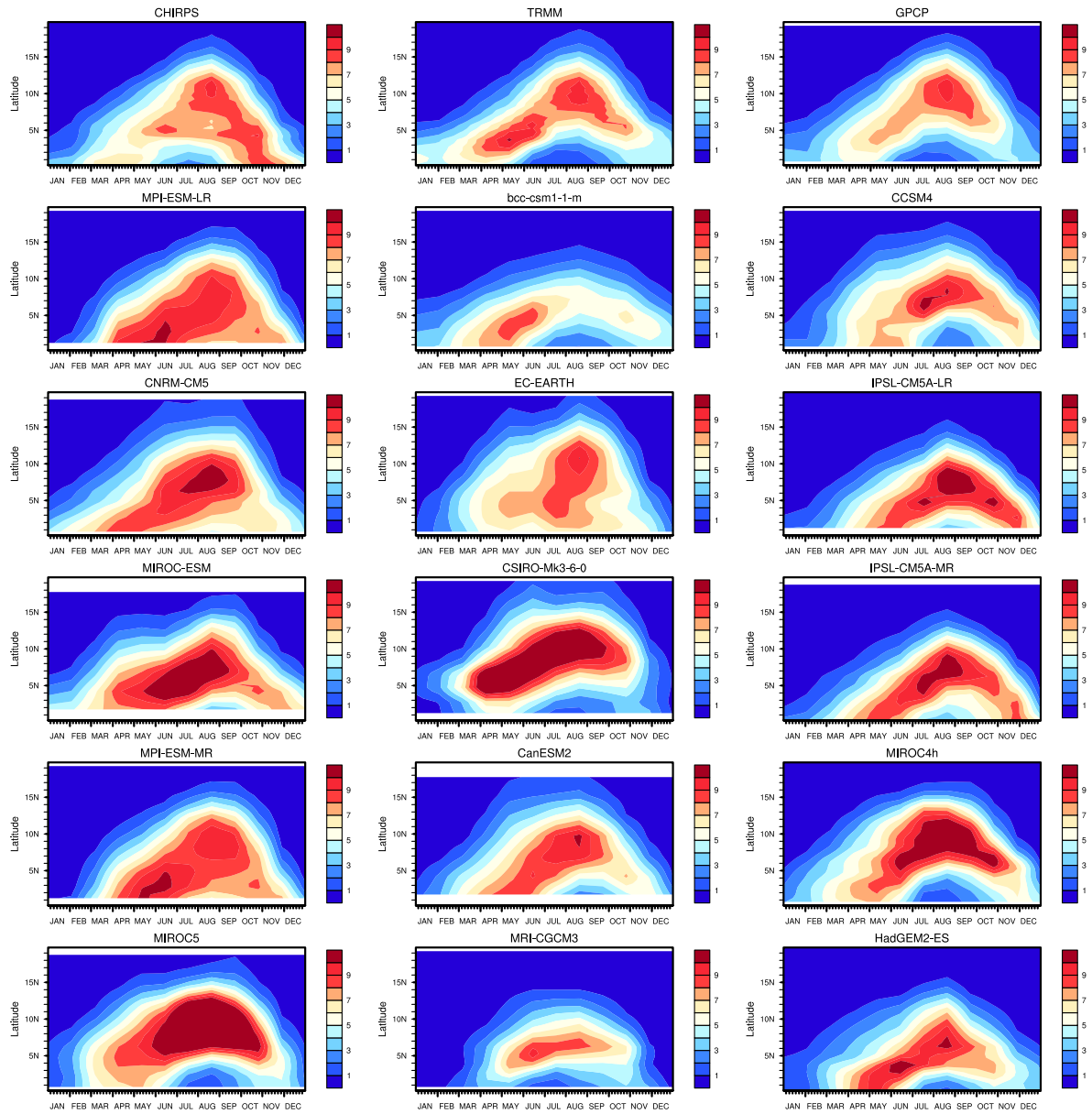


Figure S1. Hovmuller diagrams of monthly precipitation averaged over 20W-25E for CHIRPS , TRMM and GPCP (first line) and 15 CMIP5 models.

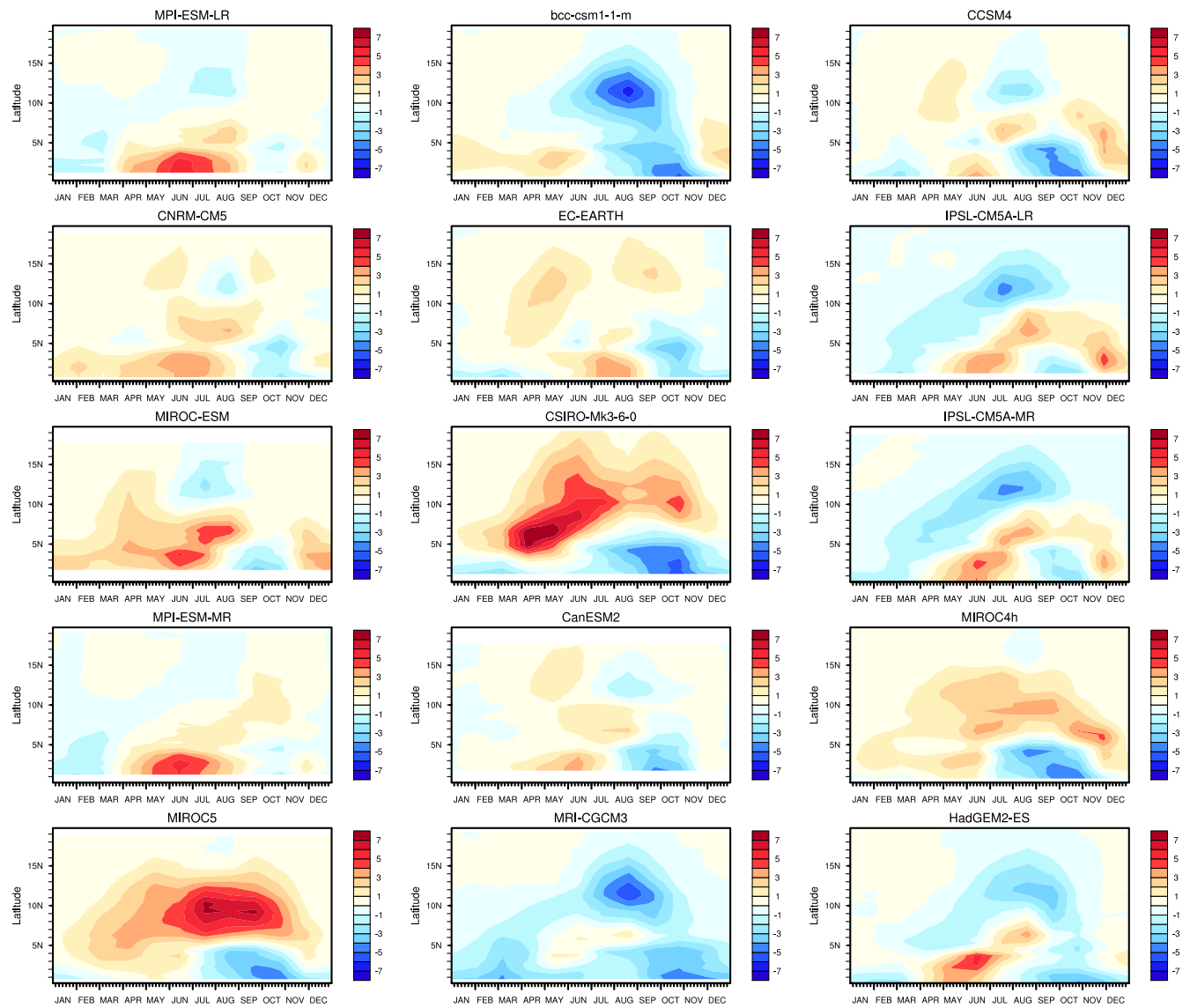


Figure S2. Same as Figure S1 except for difference between models and CHIRPS.

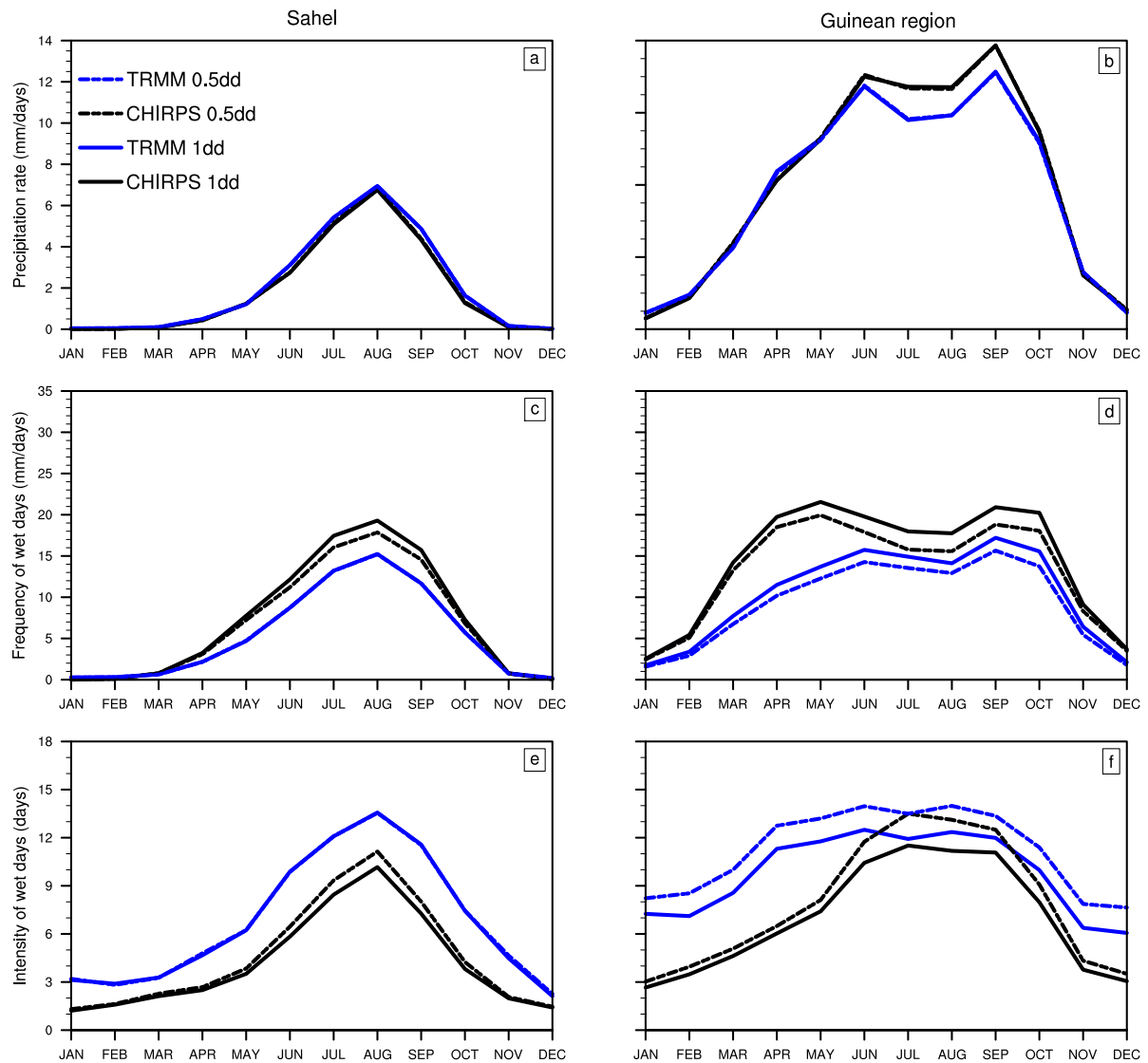


Figure S3. Annual cycle of rainfall (a,b), frequency (c,d) and intensity of wet days (e,f) over the Sahel (left) and Guinean region (right) for CHIRPS (black) and TRMM (blue). Dashed line for a $0.5^\circ \times 0.5^\circ$ and full line for a $1^\circ \times 1^\circ$ resolution.

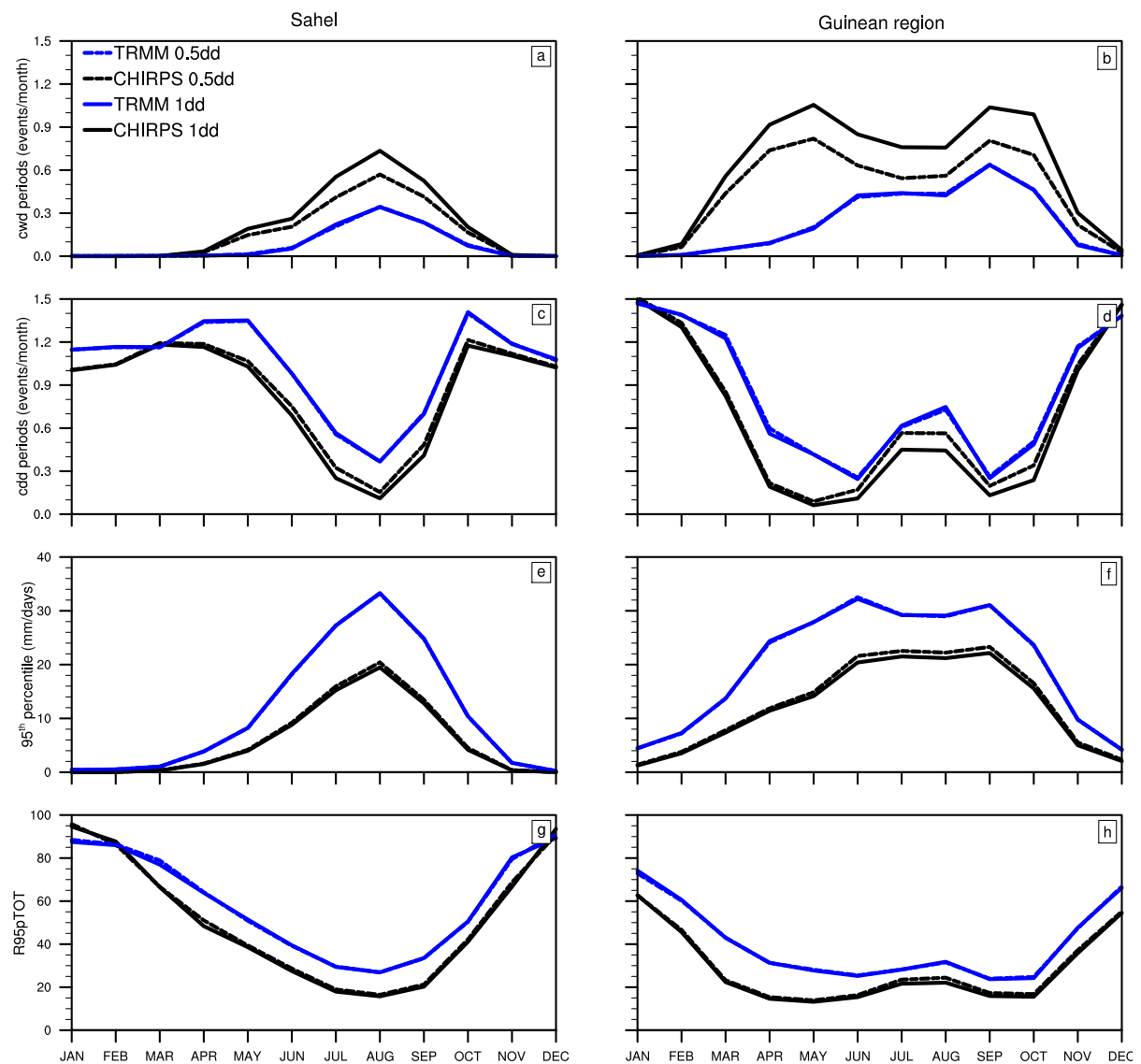


Figure S4. Annual cycle of wet spells (a,b), dry spells (c,d), 95th percentile (e,f) and the fraction of precipitation accounted for by the very wet days (g,h) over the Sahel (Left) and the Guinean region (right) for CHIRPS (black) and TRMM (blue). Dashed line for a 0.5°x0.5° and full line for a 1°x1° resolution.

Observations and CMIP5 models	Sahel						Guinean region					
	R _{FREQ}	R _{SDII}	R _{CDD}	R _{CWD}	R _{R95}	R _{R95PTOT}	R _{FREQ}	R _{SDII}	R _{CDD}	R _{CWD}	R _{R95}	R _{R95PTOT}
CHIRPS	0.97	0.99	-0.95	0.99	1.00	-0.85	0.88	0.96	-0.88	0.87	0.99	-0.83
GPCP	0.98	0.98	-0.94	0.98	1.00	-0.93	0.97	0.98	-0.95	0.96	0.99	-0.91
TRMM	0.99	0.97	-0.88	0.97	1.00	-0.91	0.98	0.95	-0.96	0.90	0.99	-0.94
bcc-csm1-1-m	1.00	0.87	-0.63	0.98	1.00	-0.94	0.91	0.98	-0.90	0.81	0.95	-0.49
CanESM2_GG	0.96	0.99	-0.86	0.90	1.00	0.28	0.91	0.99	-0.93	0.88	0.97	-0.71
CCSM4_GG	0.98	0.96	-0.84	0.98	1.00	-0.89	0.98	0.99	-0.97	0.93	1.00	-0.85
CNRM-CM5	0.98	0.99	-0.95	0.98	1.00	-0.80	0.92	0.99	-0.92	0.81	0.98	-0.60
CSIRO-Mk3-6-0	0.99	0.99	-0.96	0.99	0.99	-0.90	0.96	1.00	-0.97	0.91	0.99	-0.84
EC-EARTH	0.98	0.99	-0.90	0.98	1.00	-0.85	0.98	1.00	-0.97	0.92	1.00	-0.88
HadGEM2-ES	0.97	0.97	-0.94	0.96	1.00	-0.79	0.91	0.99	-0.90	0.82	1.00	-0.79
IPSL-CM5A-LR	0.97	0.98	-0.92	0.96	0.99	0.33	0.90	0.99	-0.91	0.73	0.99	-0.76
IPSL-CM5A-MR	0.98	0.32	-0.94	0.97	1.00	0.32	0.93	0.99	-0.93	0.77	0.98	-0.75
MIROC4h	0.97	0.99	-0.68	0.98	1.00	-0.84	0.99	0.97	-0.99	0.97	0.99	-0.92
MIROC5	0.92	1.00	-0.95	0.89	1.00	-0.76	0.89	0.99	-0.91	0.83	0.98	-0.75
MIROC-ESM	0.97	0.98	-0.39	0.93	0.99	-0.86	0.98	1.00	-0.94	0.94	0.99	-0.86
MPI-ESM-LR	0.99	0.97	-0.88	0.99	1.00	-0.86	0.97	0.99	-0.95	0.98	0.99	0.38
MPI-ESM-MR	0.98	0.96	-0.84	0.99	1.00	0.25	0.98	0.99	-0.96	0.99	0.99	-0.87
MRI-CGCM3	1.00	0.88	-0.20	0.99	1.00	-0.94	0.99	0.99	-0.96	0.99	1.00	-0.88

Table S1: Correlations between the annual cycle of mean precipitation and the frequency of daily precipitation events (R_{FREQ}), the mean intensity of daily precipitation events (R_{SDII}), the cumulative dry (R_{CDD}) and wet (R_{CWD}) days, the 95th percentile of daily precipitation events (R_{R95}) and the contribution of very wet days (above R95) to total precipitation (R_{R95PTOT}) for the Sahel (left) and Guinean region (right) in observations and models. For p-values higher than 0.01, the correlation is written in grey. All correlation higher than 0.95 are in bold.

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