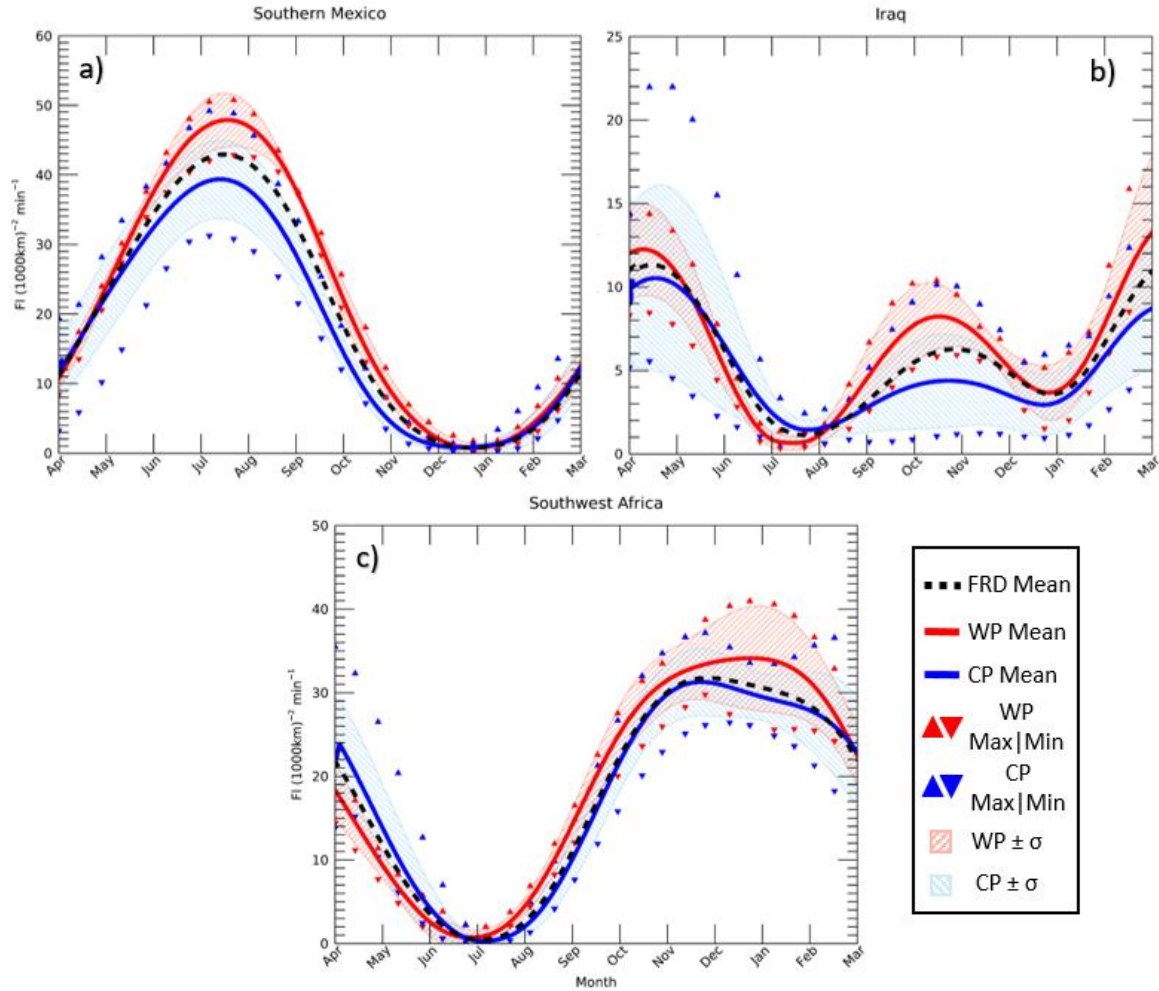
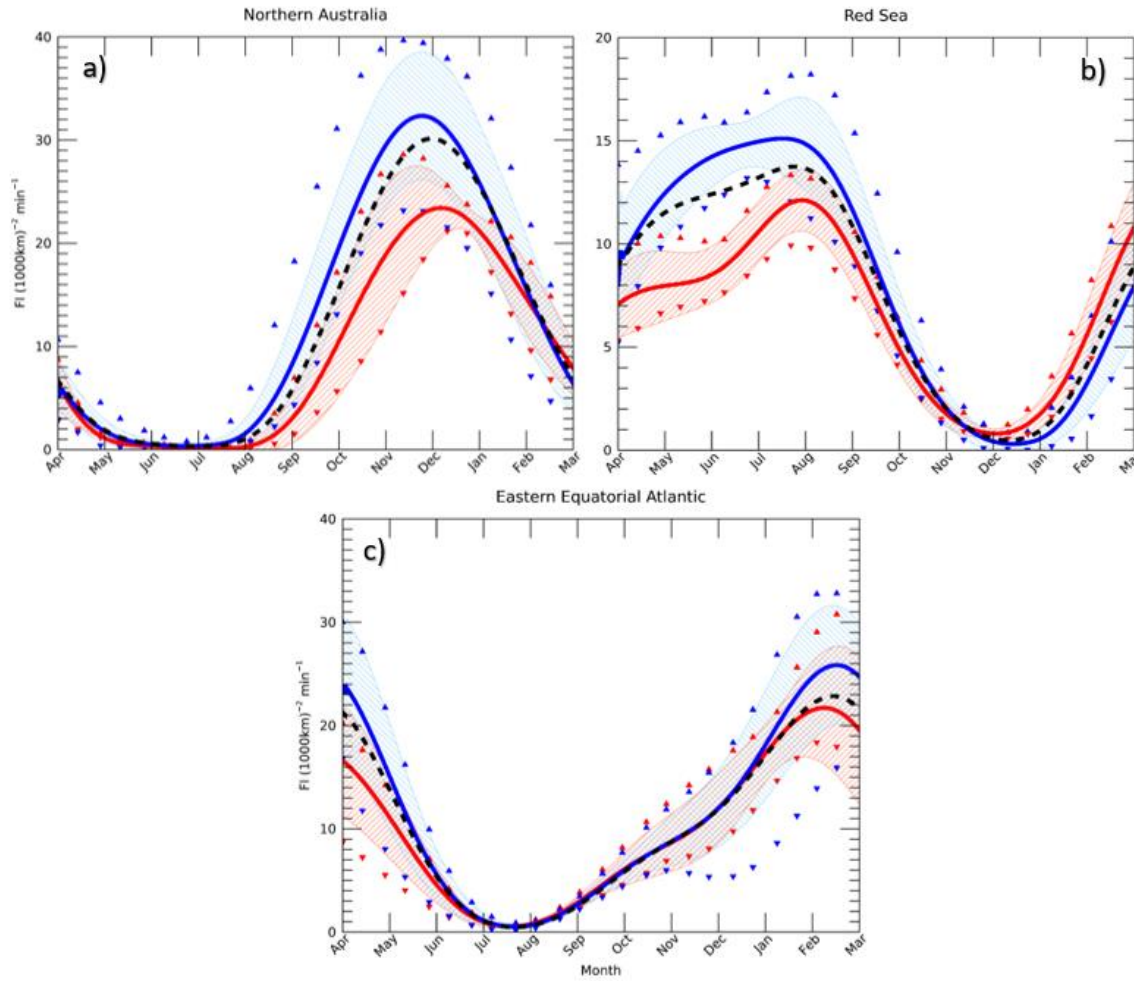


- 1 Inter-Annual Lightning Variability within the TRMM LIS Dataset Using an ENSO Perspective
- 2 Austin G. Clark and Daniel J. Cecil
- 3 MWR-D-23-0115 Supplemental Material
- 4



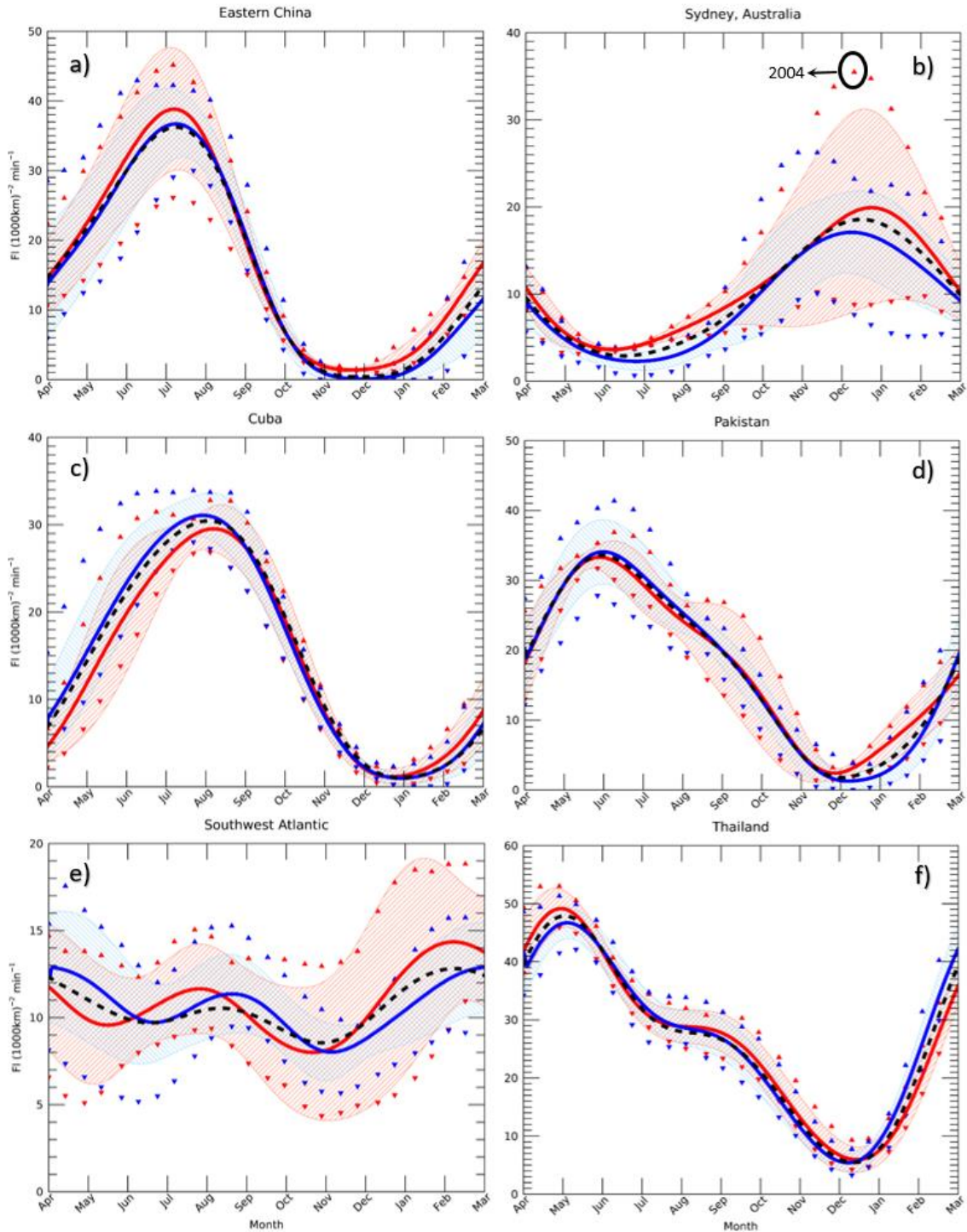
5

6 S1- Lightning flash rate density time series over an ENSO year (EYR) for regions enhanced during
7 the warm phase of ENSO; (a) Southern Mexico, (b) Iraq, and (c) Southwest Africa. The red line
8 is the mean of the 4 warm-phase EYRs; the blue line is the mean of the 8 cold-phase years. The
9 black dashed line is the mean of all 16 years in the study. Shading represents $\pm$ one standard
10 deviation (σ) for the warm [red] or cold [blue] phase years at that point in the EYR. Up (down)
11 arrows indicate the maximum (minimum) flash rate density of any warm [red] or cold [blue] phase
12 year.



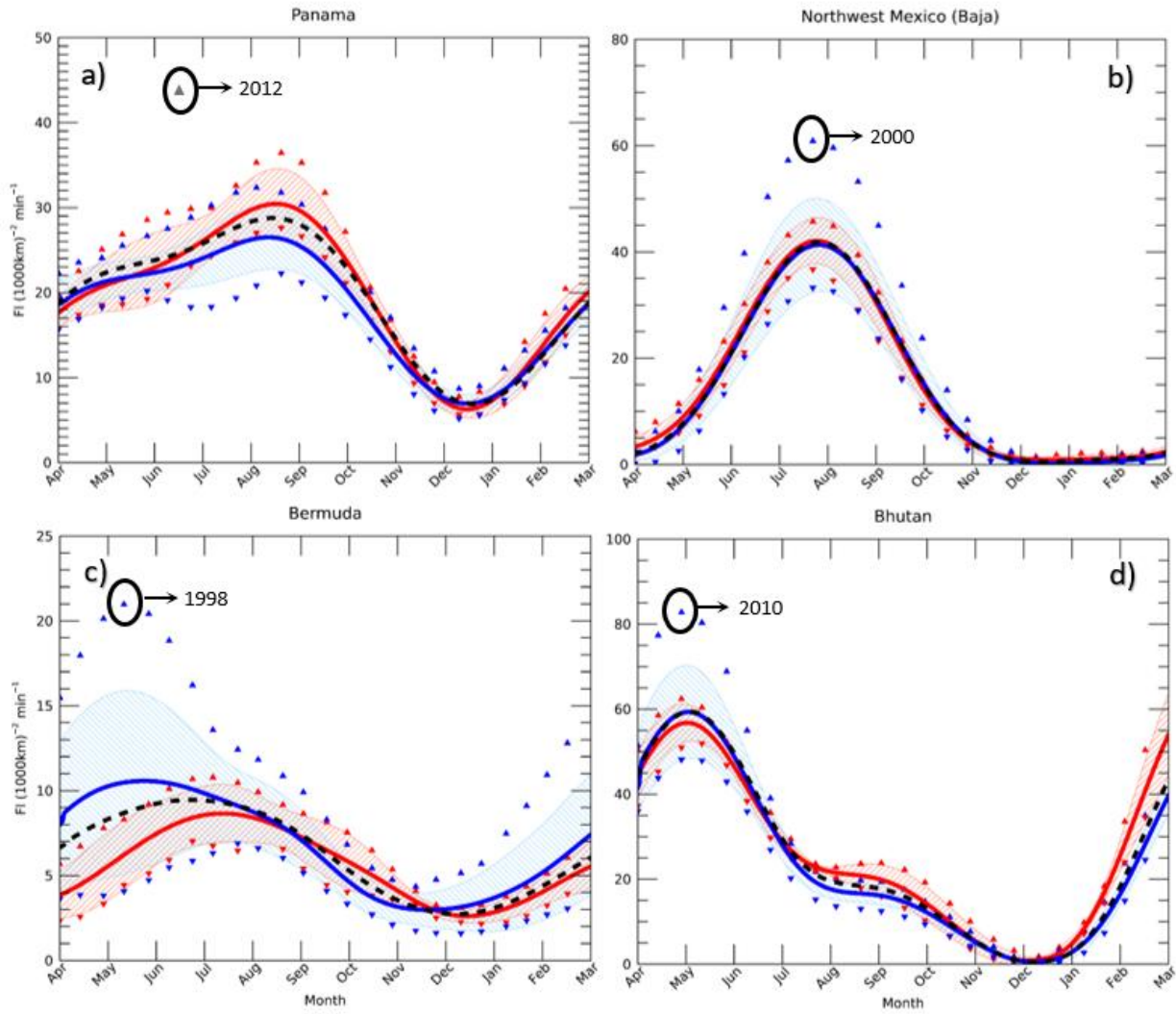
13

14 S2- As in S1 for three additional cold-phase enhanced regions; a) Northern Australia, b) the Red
15 Sea and Horn of Africa, and c) the Eastern Equatorial Atlantic.



16

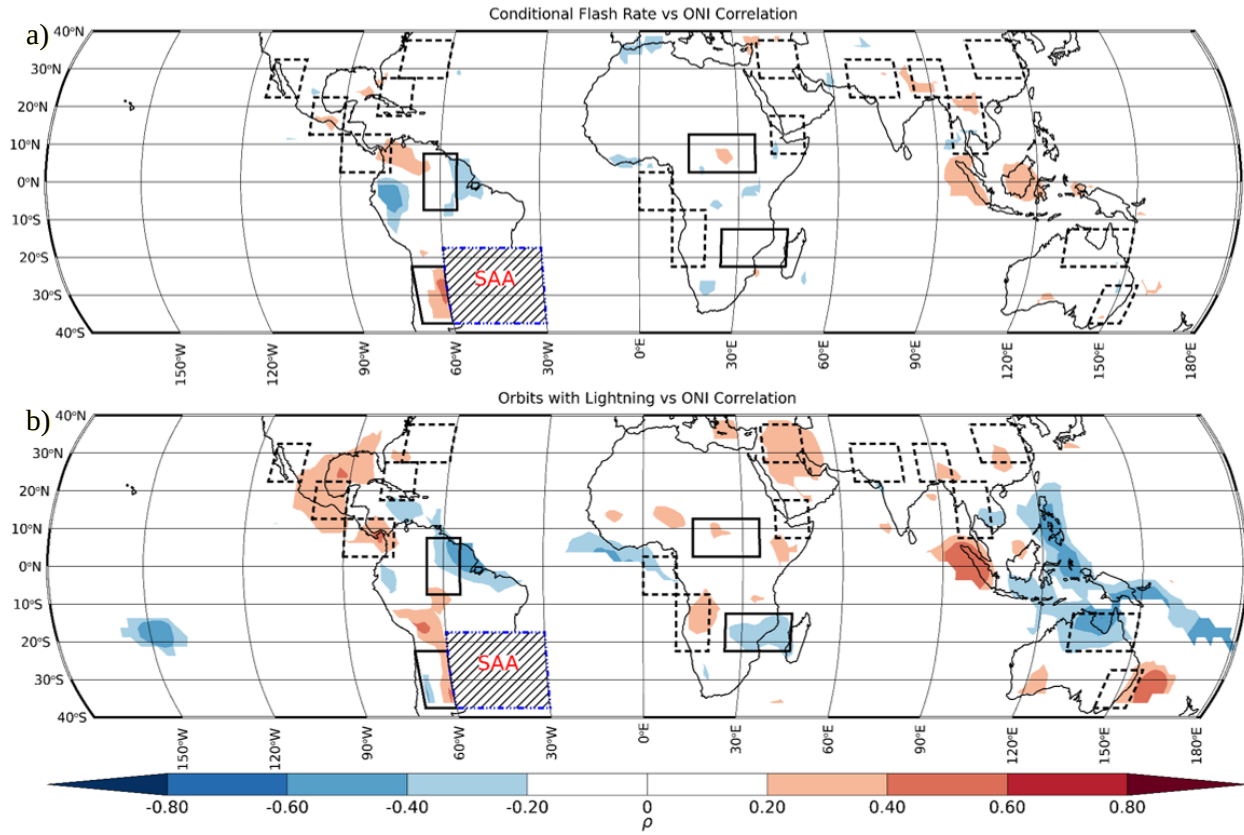
17 S3- As in S1 for regions with minimal discernable or consistent ENSO pattern visible; a) Eastern
18 China, b) Sydney, Australia, c) Cuba, d) Pakistan, e) the Southwestern Atlantic, and f) Thailand.



19

20 S4- As in S1 for regions with highly anomalous lightning production in single years; a) Panama,

21 b) Northwestern Mexico (Baja California), c) Bermuda, and d) Bhutan.



22

23 S5- Zero-lag Pearson (linear) correlation maps between the ONI and (a) monthly conditional flash rate
 24 anomaly and (b) the monthly percentage of observations with lightning anomaly for the study period; $p \leq$
 25 0.01 (shaded). These maps are masked by the mean annual flash rate less than 0.1 Fl (250 km)⁻² min⁻¹.