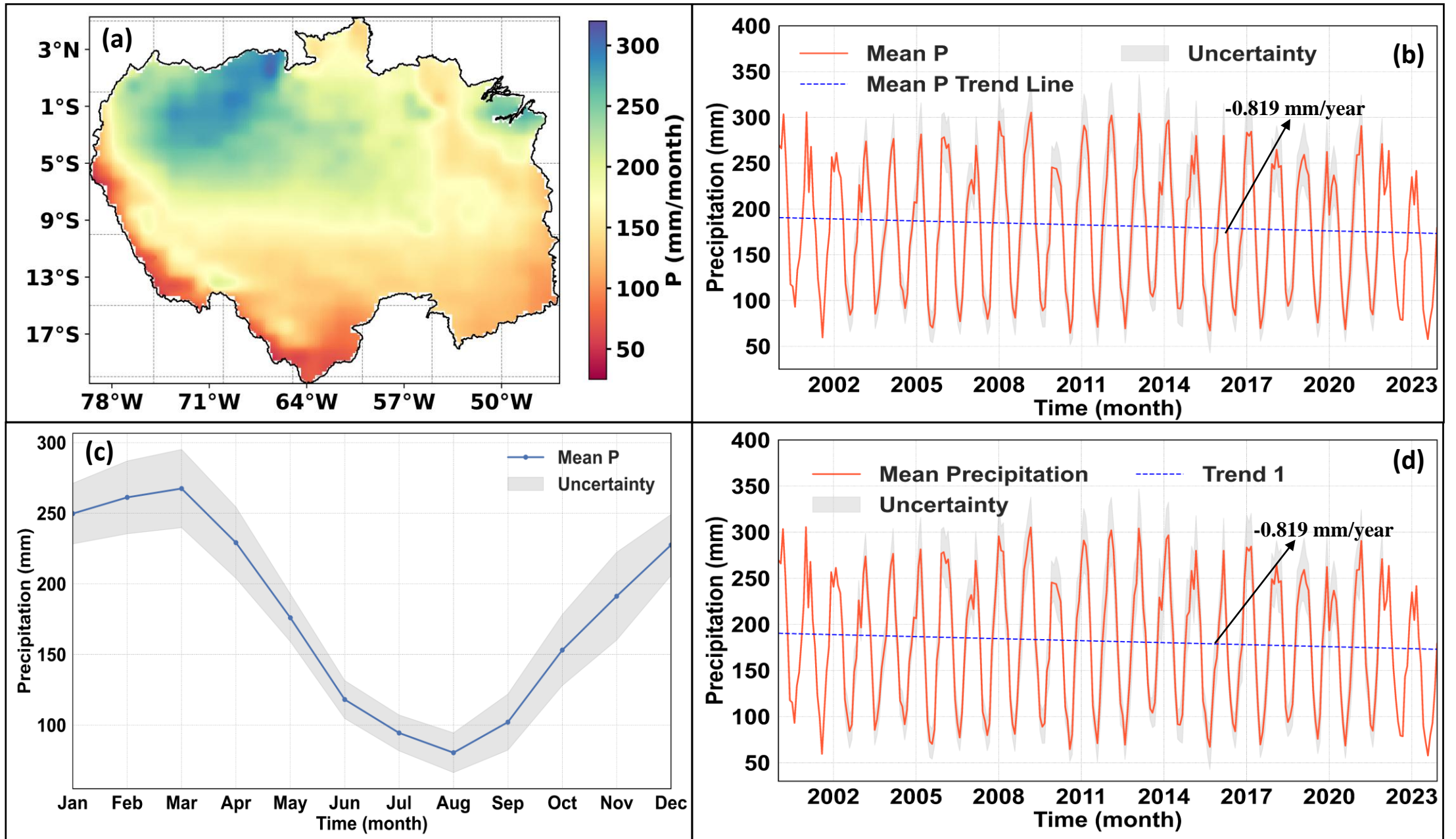
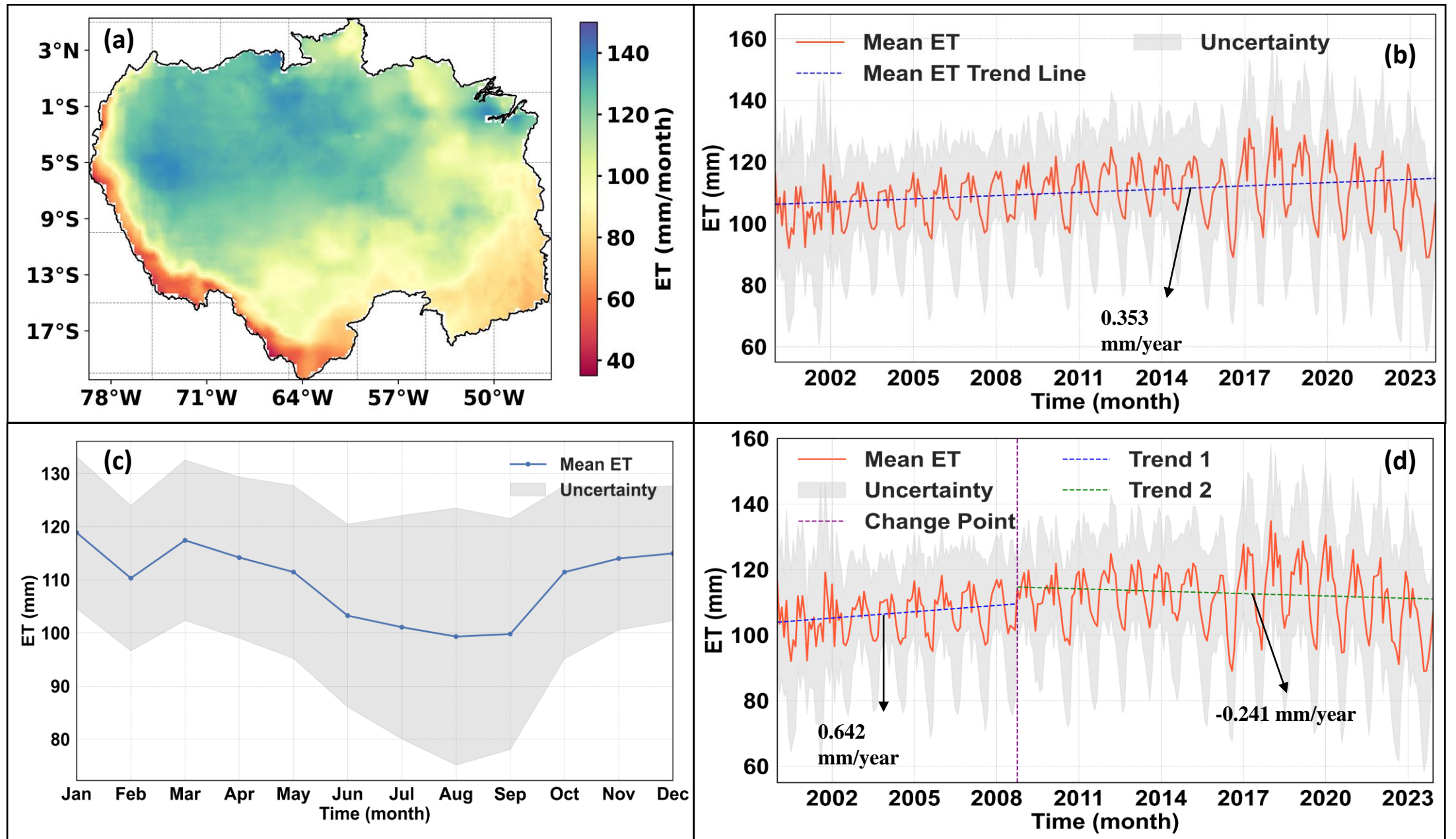


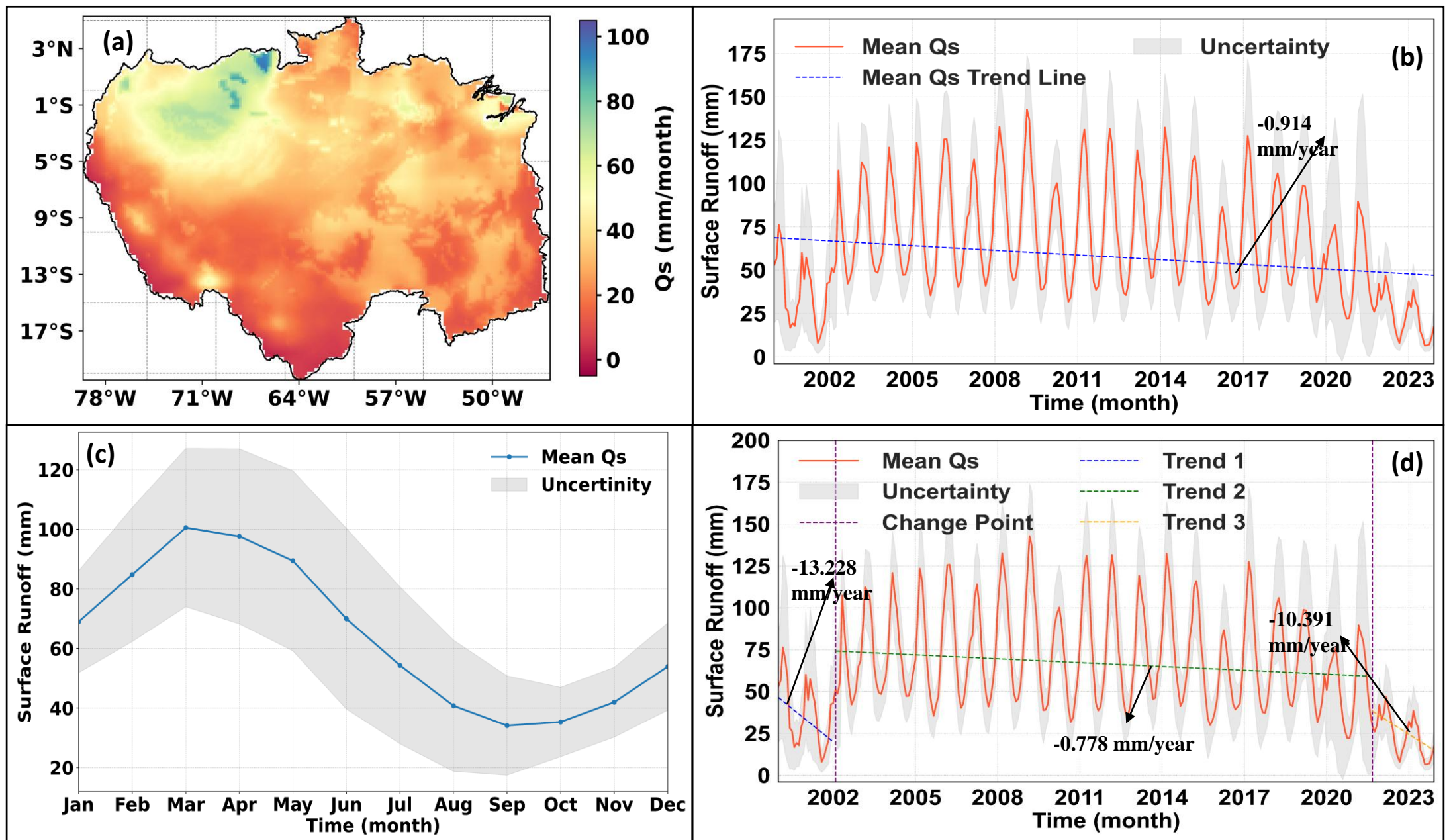
**Fig. S1.** Terrestrial Water Storage Anomaly analysis over the Amazon Basin using GLDAS (2000–2023) and ESSD (2002–2021) datasets: (a) spatial variability, (b) trend, (c) seasonal variation, and (d) change-point detection.



**Fig. S2.** Precipitation analysis over the Amazon Basin using GLDAS (2000–2023) and ESSD (2002–2021) datasets: (a) spatial variability, (b) trend, (c) seasonal variation, and (d) change-point detection.



**Fig. S3.** Evapotranspiration analysis over the Amazon Basin using GLDAS (2000–2023) and ESSD (2002–2021) datasets: (a) spatial variability, (b) trend, (c) seasonal variation, and (d) change-point detection.



**Fig. S3.** Surface runoff analysis over the Amazon Basin using GLDAS (2000–2023) and ESSD (2002–2021) datasets: (a) spatial variability, (b) trend, (c) seasonal variation, and (d) change-point detection.