



*Supplement of*

## **Assessing decadal- to centennial-scale nonstationary variability in meteorological drought trends**

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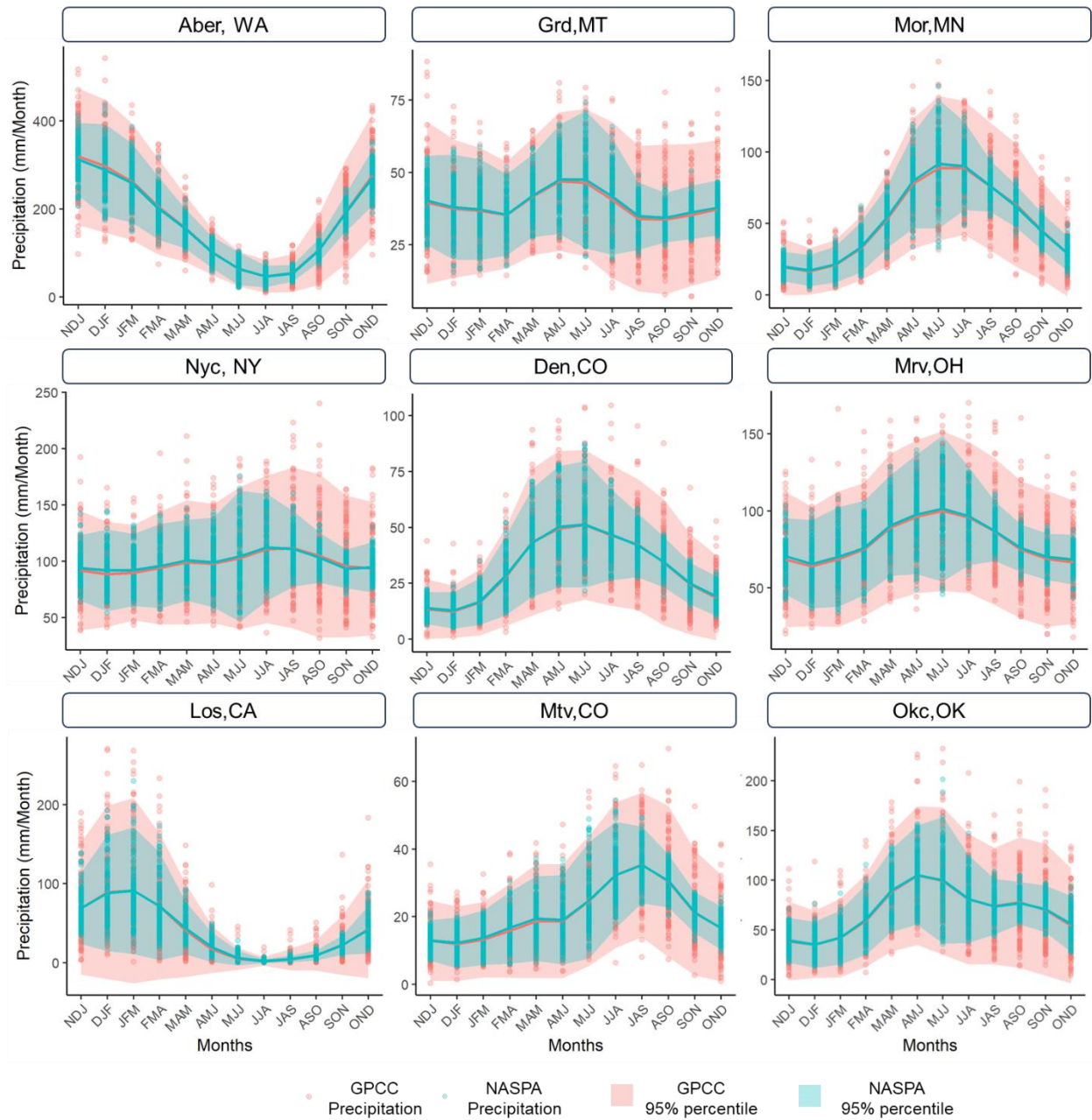


Figure S 1. Compare the distribution of precipitation in GPCC VS 10 nearest neighbors.

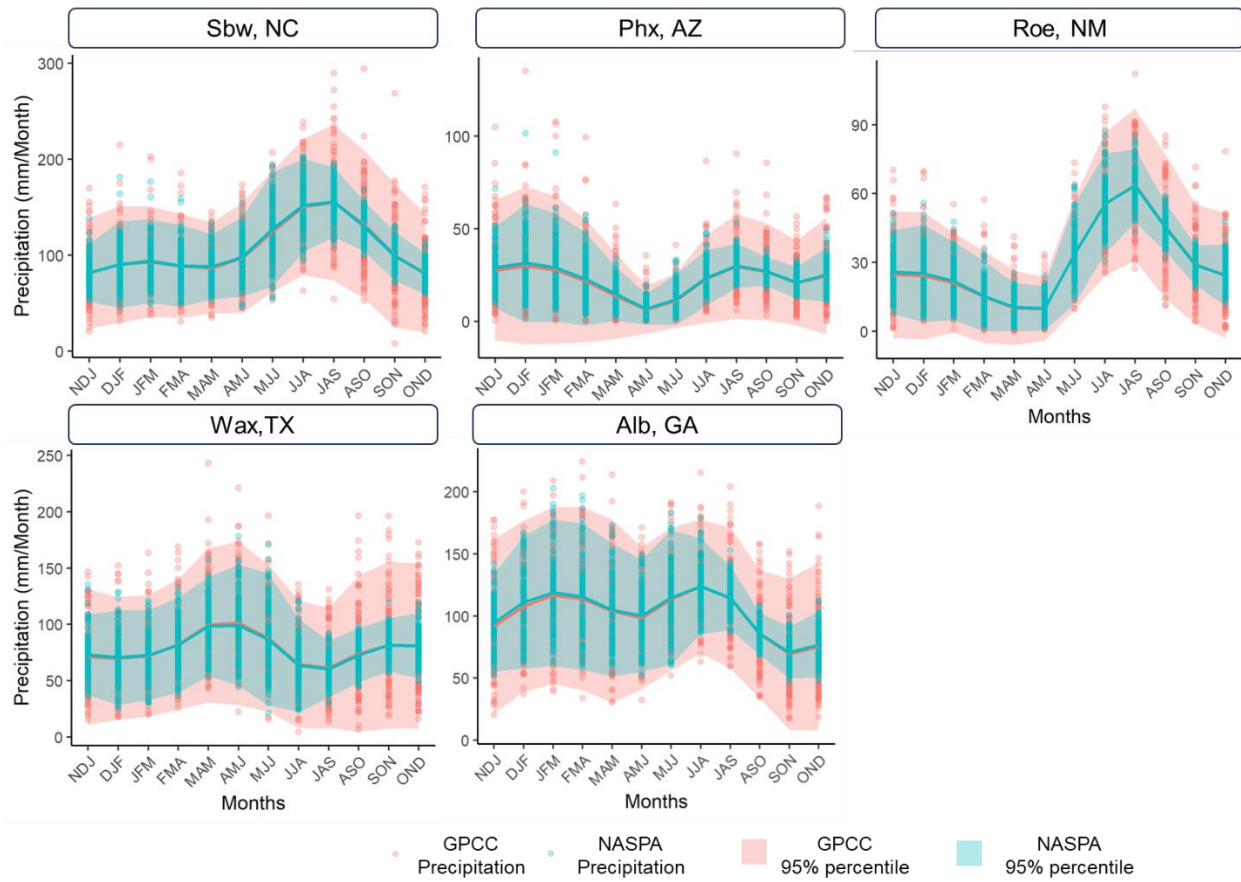


Figure S 1 (Continue). Compare the distribution of precipitation in GPCC VS 10 nearest neighbors.

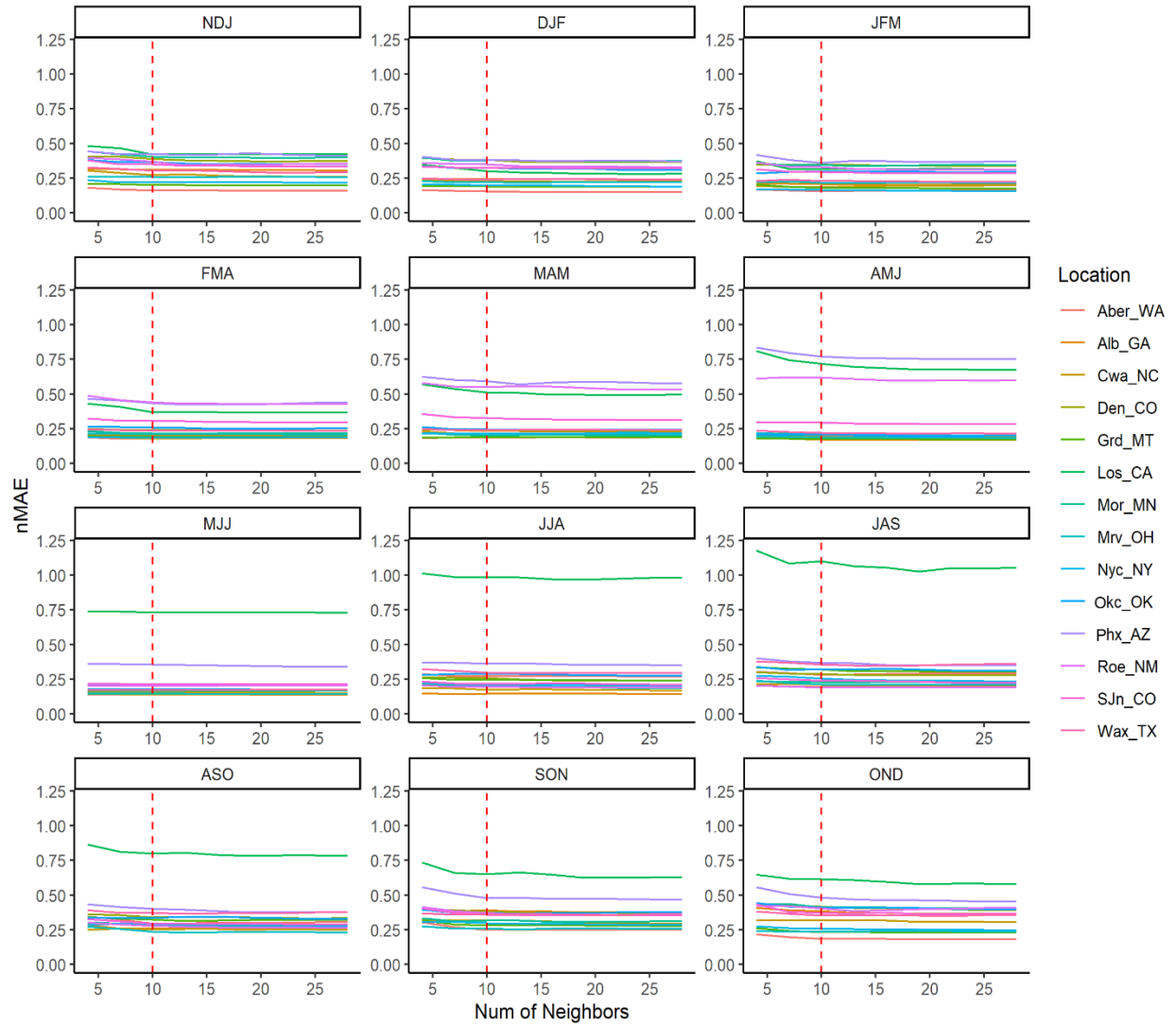


Figure S 2. nMAE (Normalized Mean Absolute Error) of dsNASPA compared to GPCP

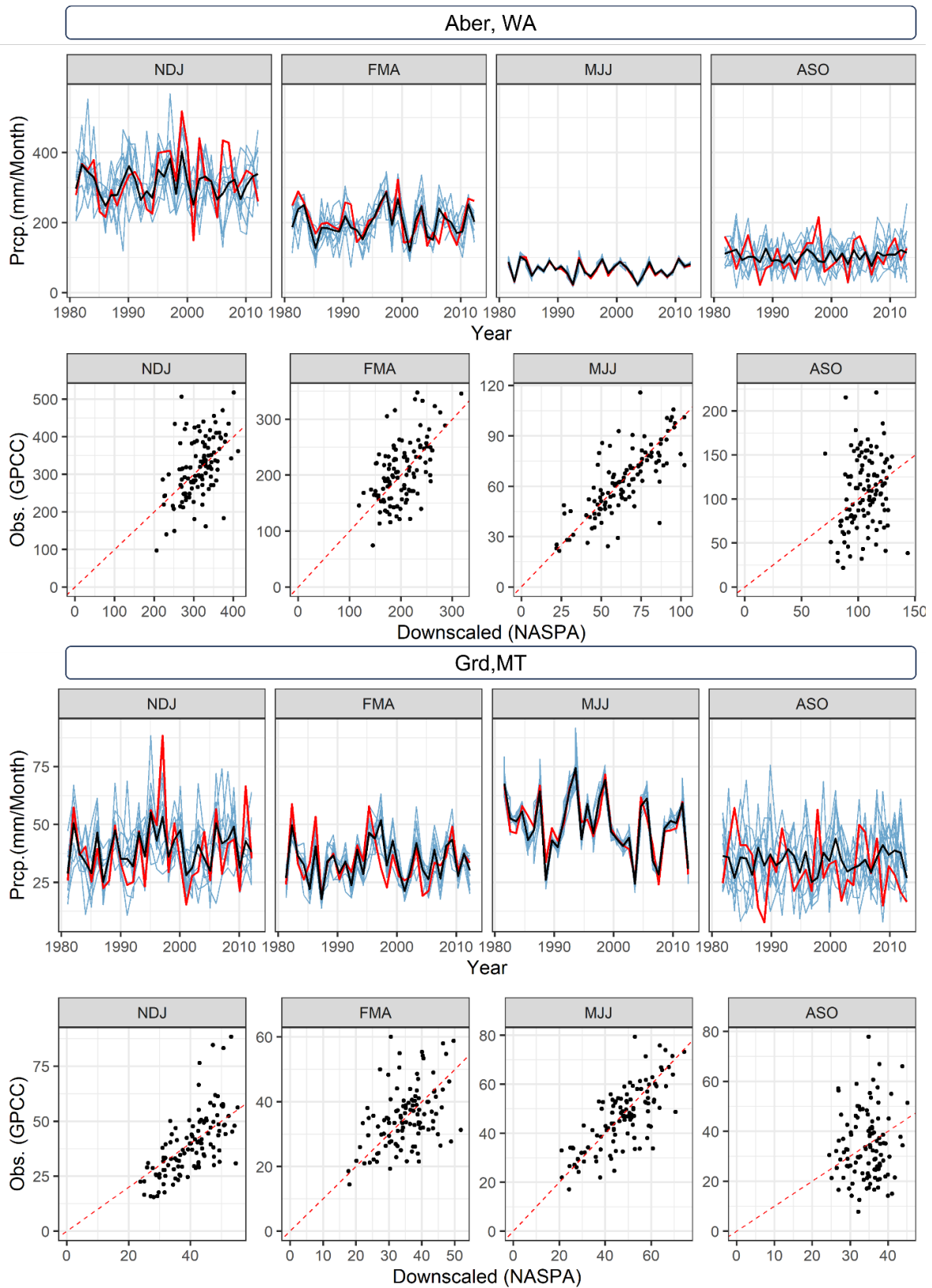


Figure S 3. (upper) Compare the precipitation time series of GPCC (red), downscaled NASPA (black) and its nearest neighbors(sky), (lower) GPCC VS downscaled NASA

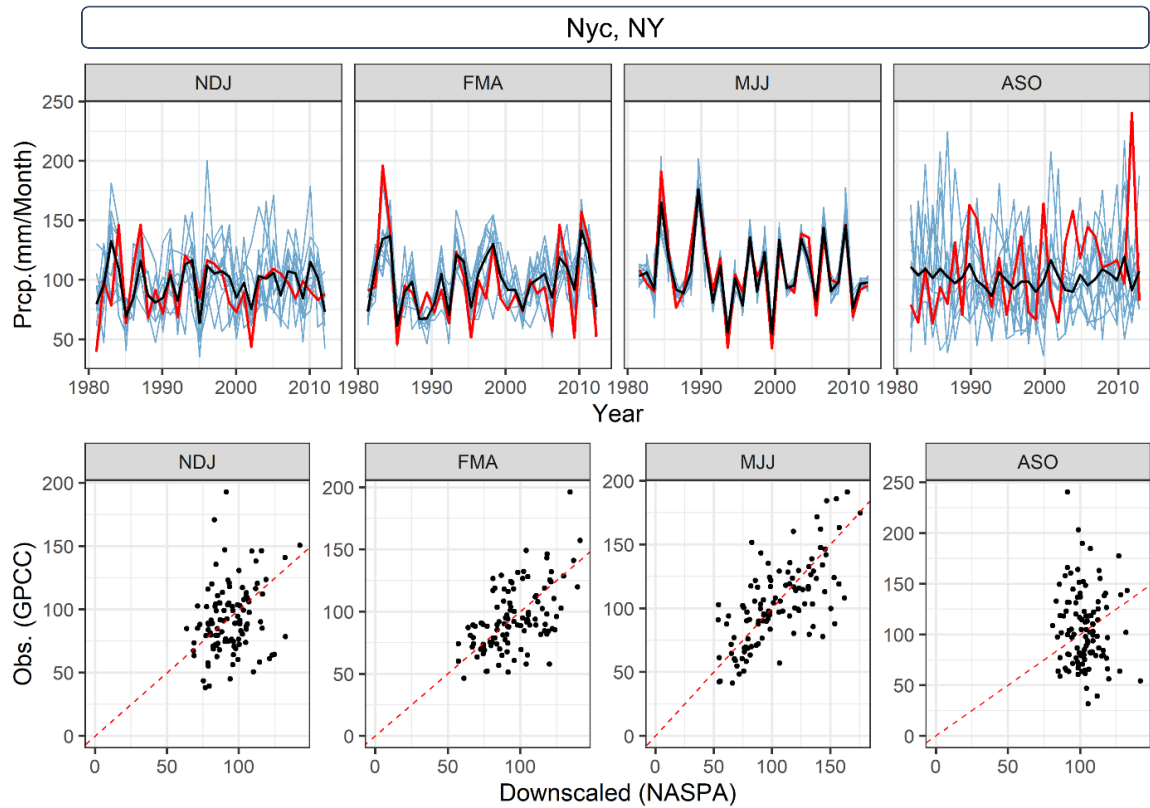
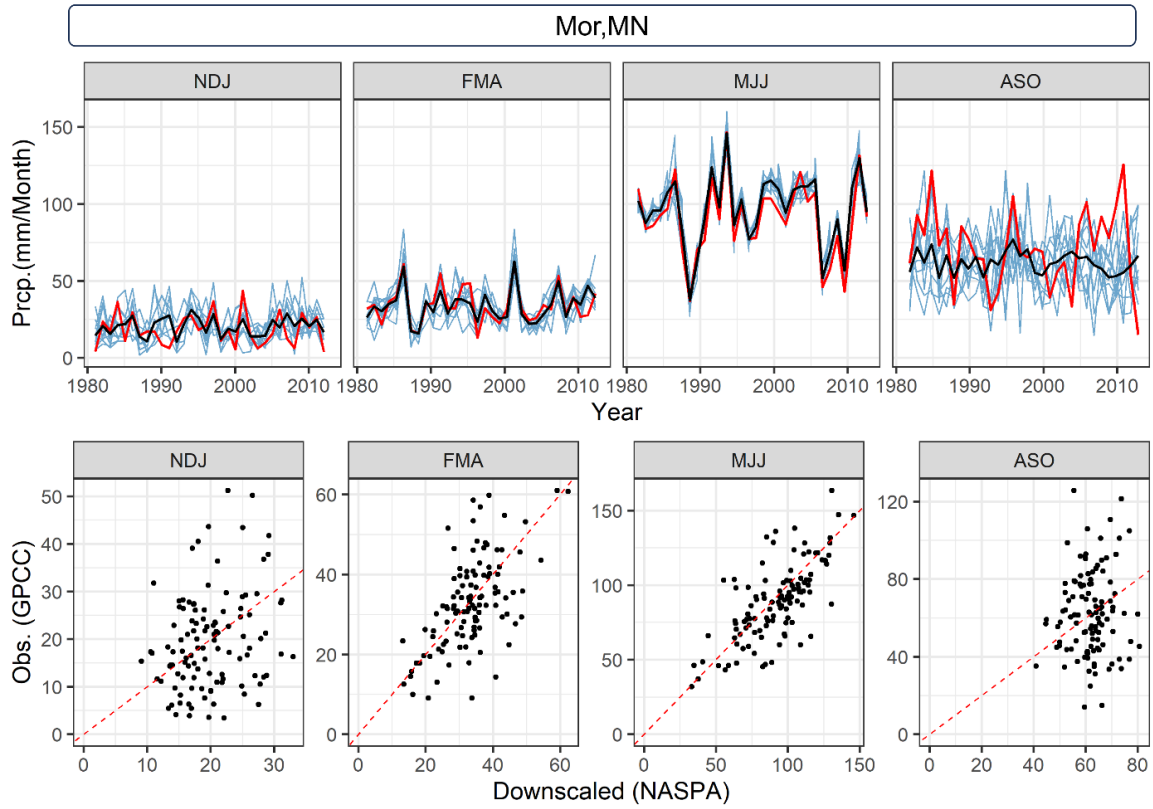


Figure S 3 (Continue). (upper) Compare the precipitation time series of GPCCC (red), downscaled NASPA (black) and its nearest neighbors(sky), (lower) GPCCC VS downscaled NASA

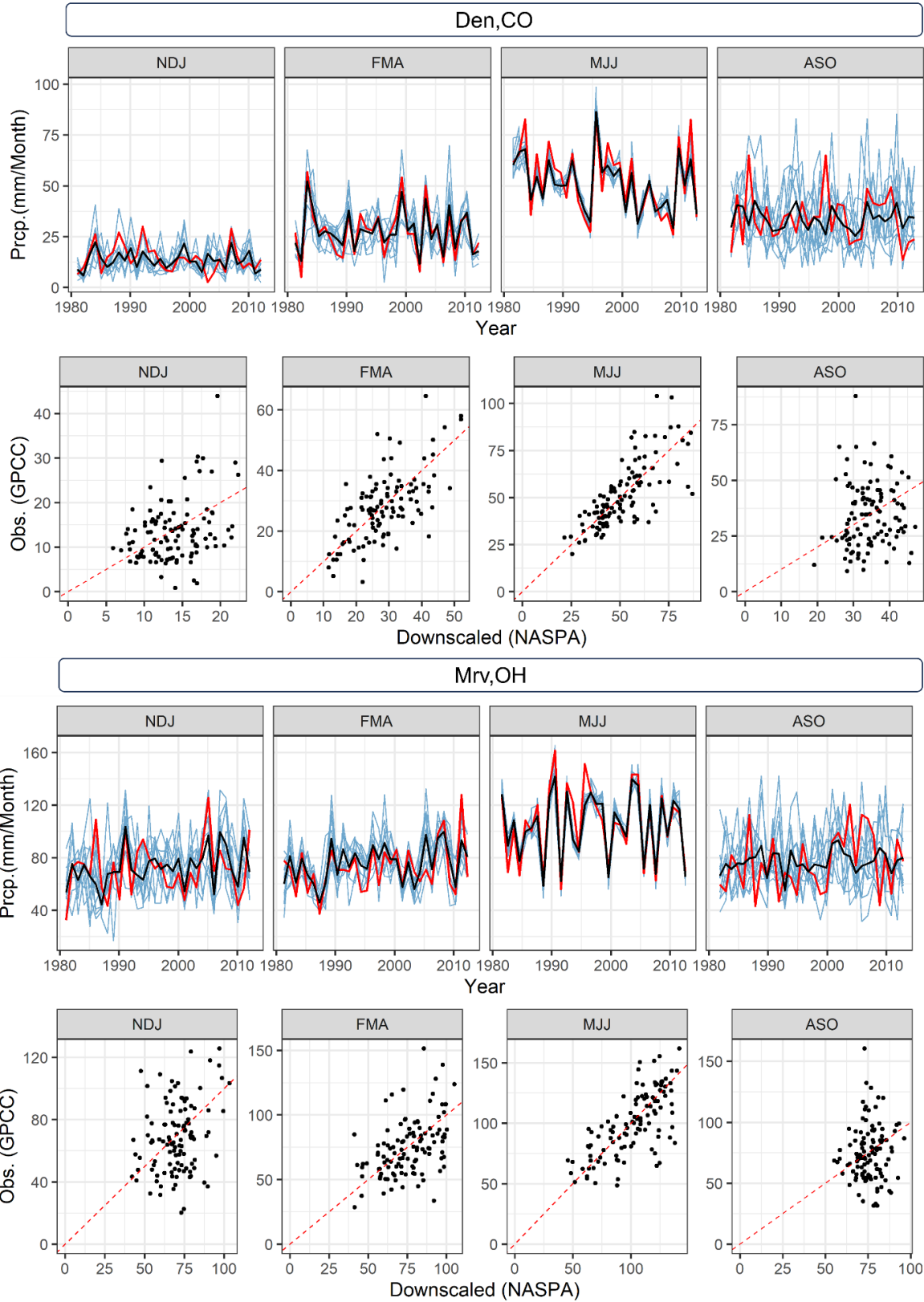


Figure S 3 (Continue). (upper) Compare the precipitation time series of GPCC (red), downscaled NASPA (black) and its nearest neighbors(sky), (lower) GPCC VS downscaled NASPA

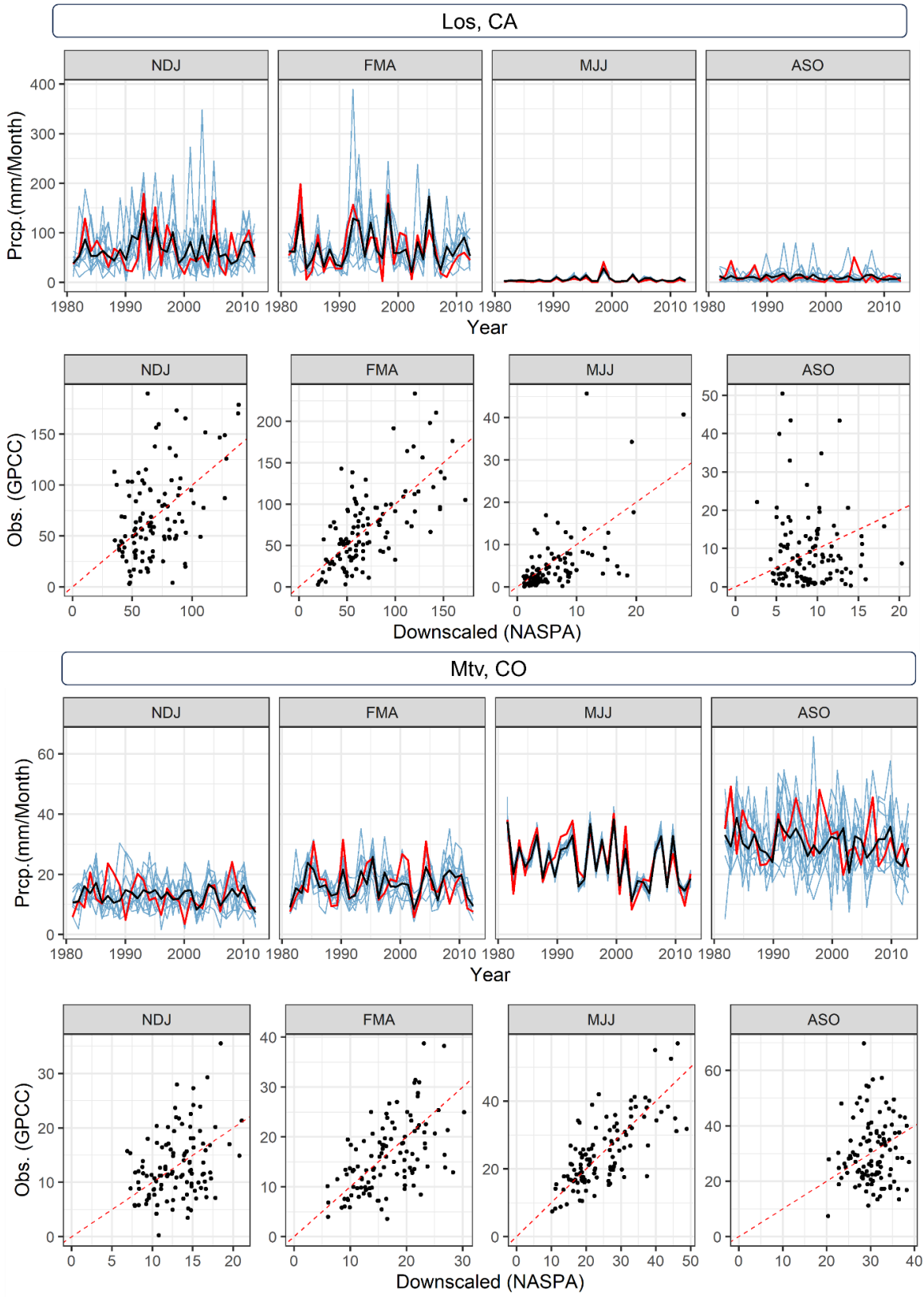


Figure S 3 (Continue). (upper) Compare the precipitation time series of GPCC (red), downscaled NASPA (black) and its nearest neighbors(sky), (lower) GPCC VS downscaled NASPA



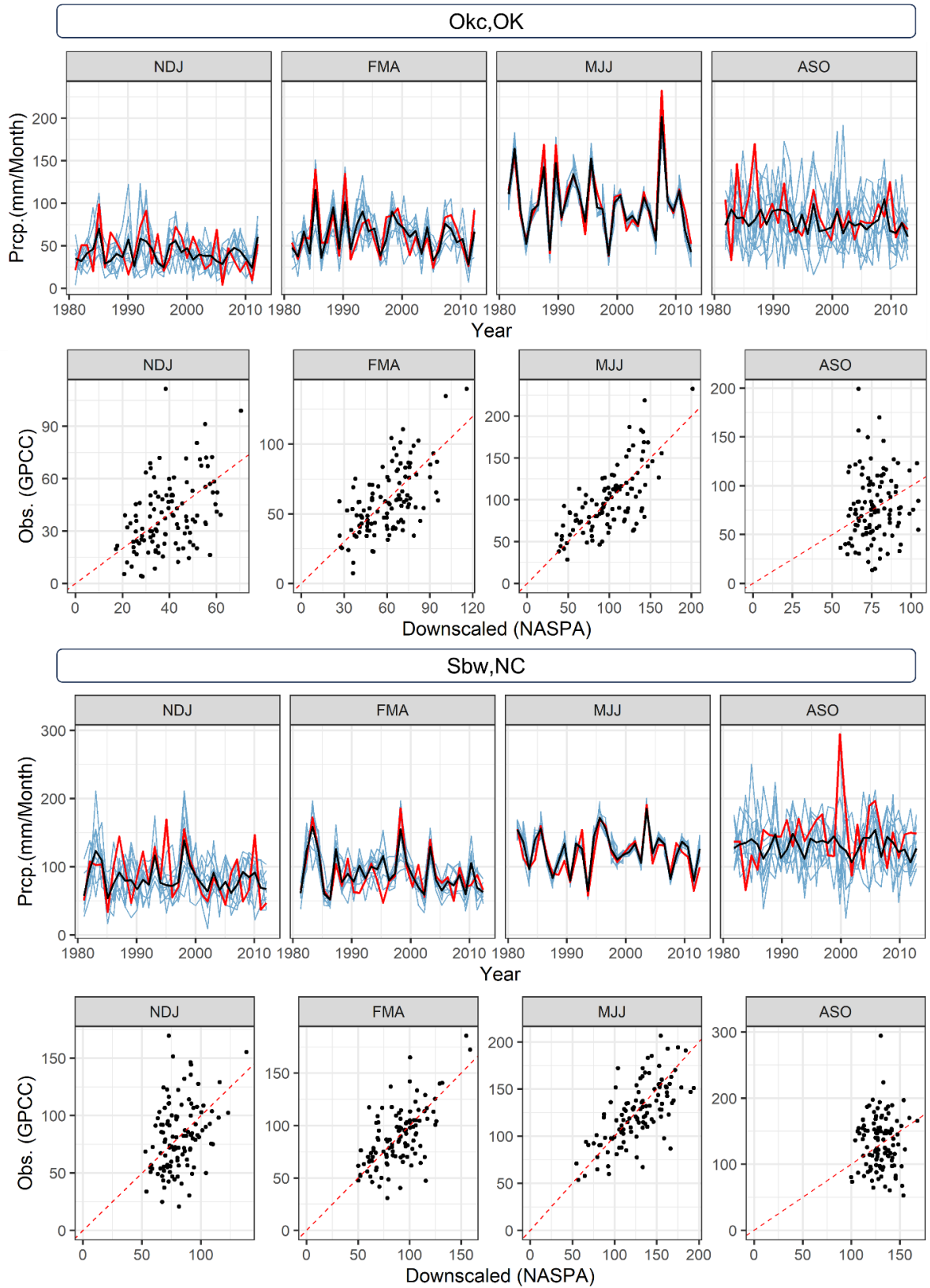


Figure S 3 (Continue). (upper) Compare the precipitation time series of GPCC (red), downscaled NASPA (black) and its nearest neighbors(sky), (lower) GPCC VS downscaled NASA

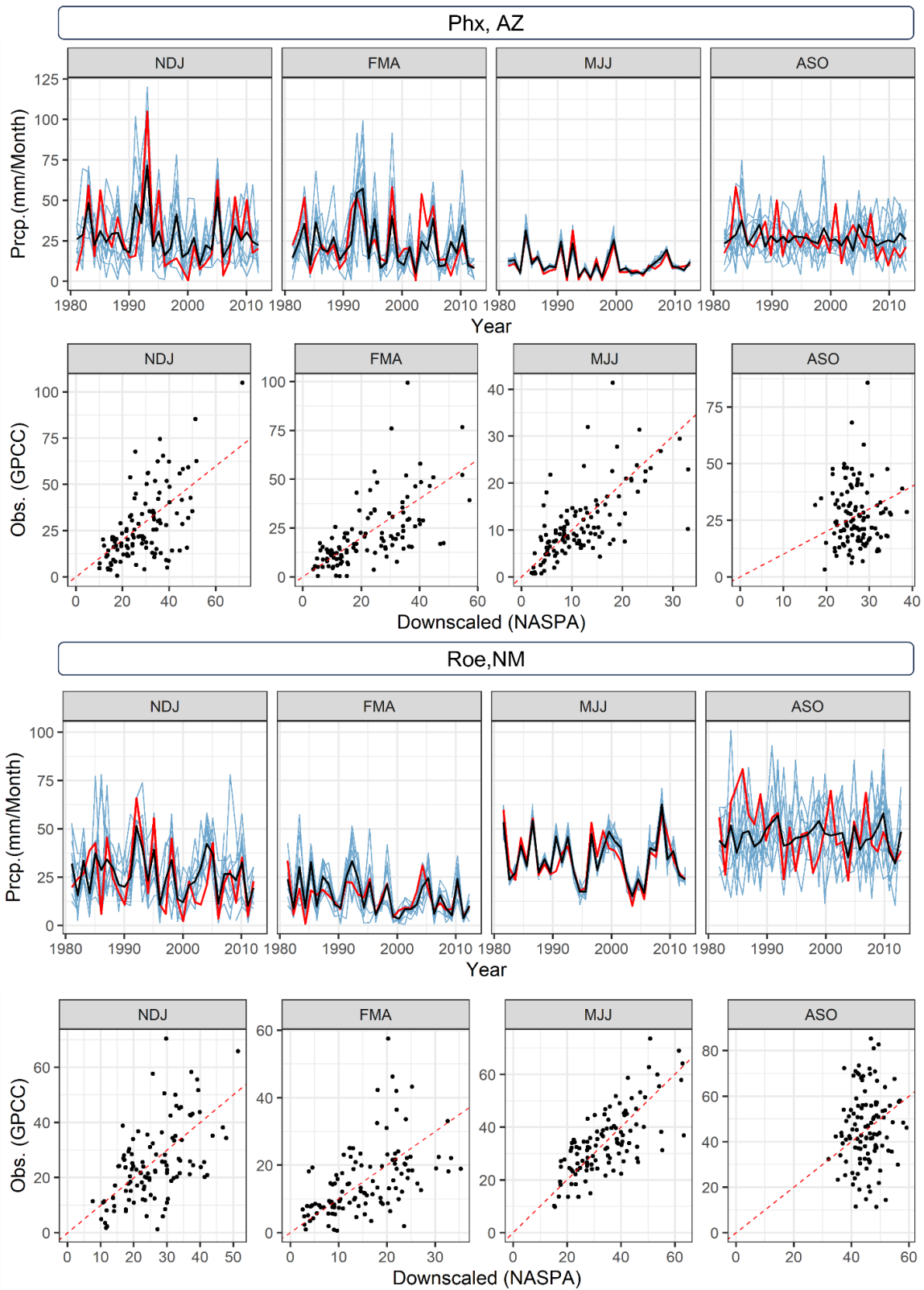


Figure S 3 (Continue). (upper) Compare the precipitation time series of GPCC (red), downscaled NASPA (black) and its nearest neighbors(sky), (lower) GPCC VS downscaled NASA

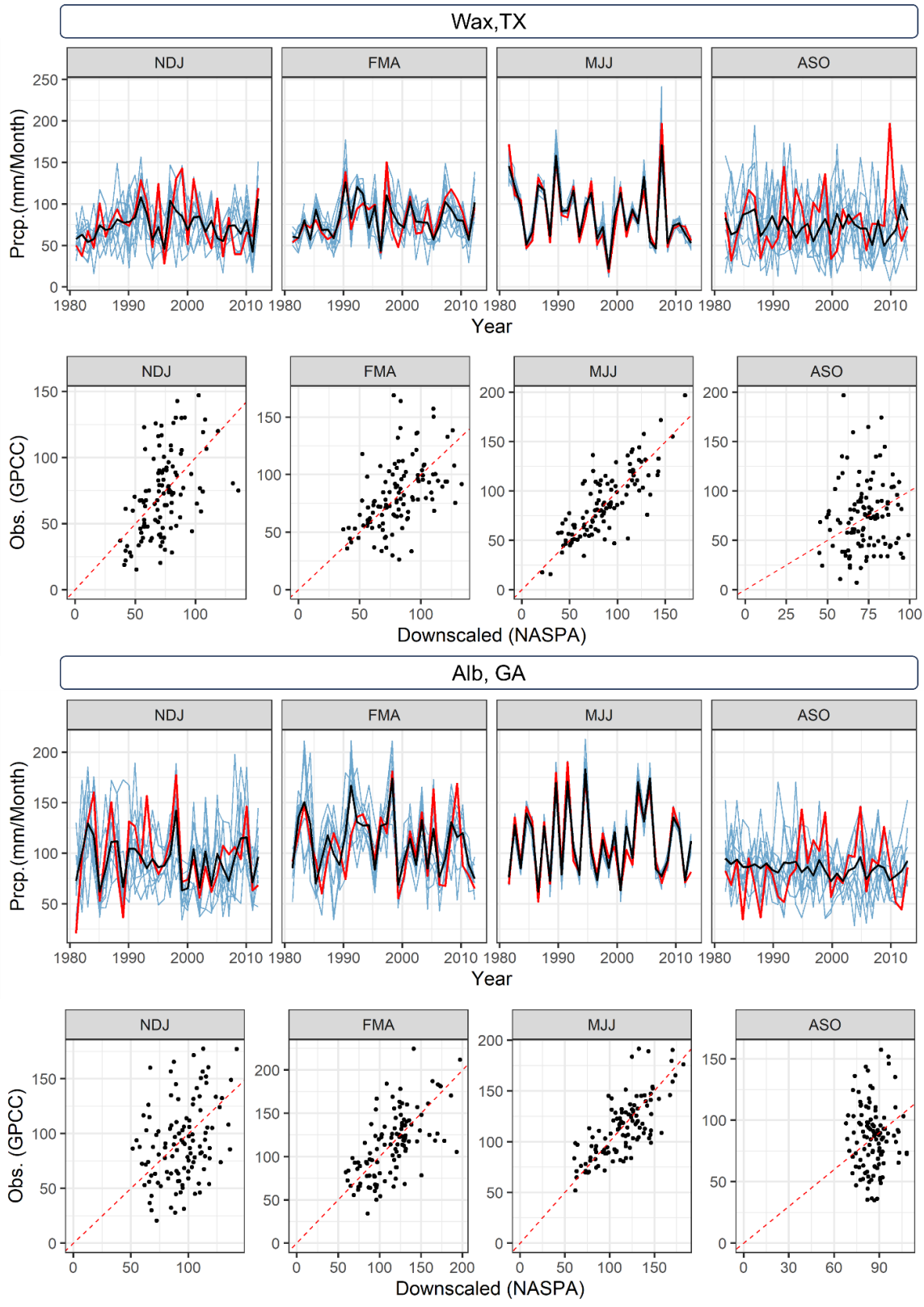


Figure S 3 (Continue). (upper) Compare the precipitation time series of GPCC (red), downsampled NASPA (black) and its nearest neighbors(sky), (lower) GPCC VS downsampled NASPA

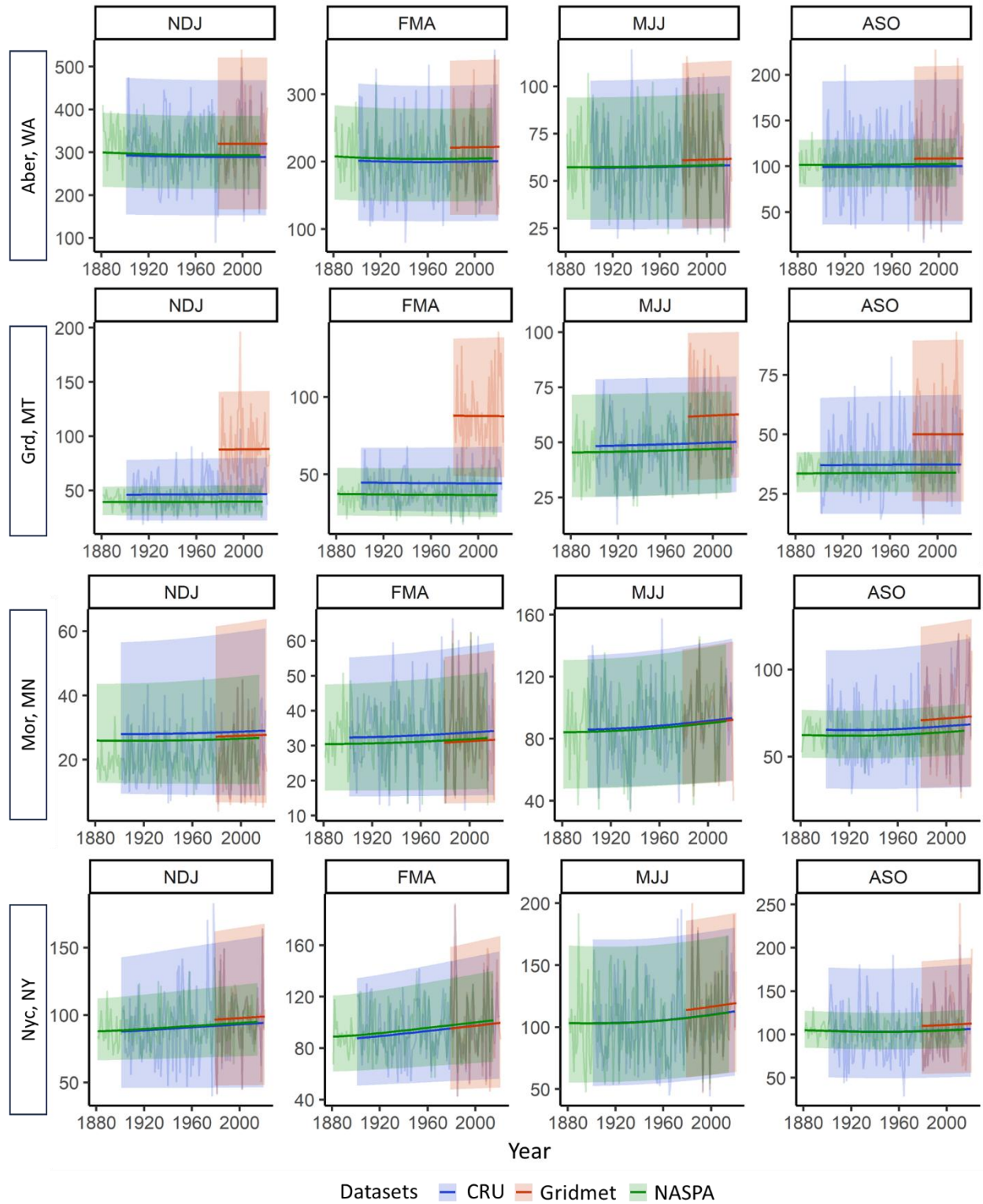


Figure S 4. Modeled mean, drought and pluvials anomaly (SPI = -1.5 and +1.5, marked shaded area)

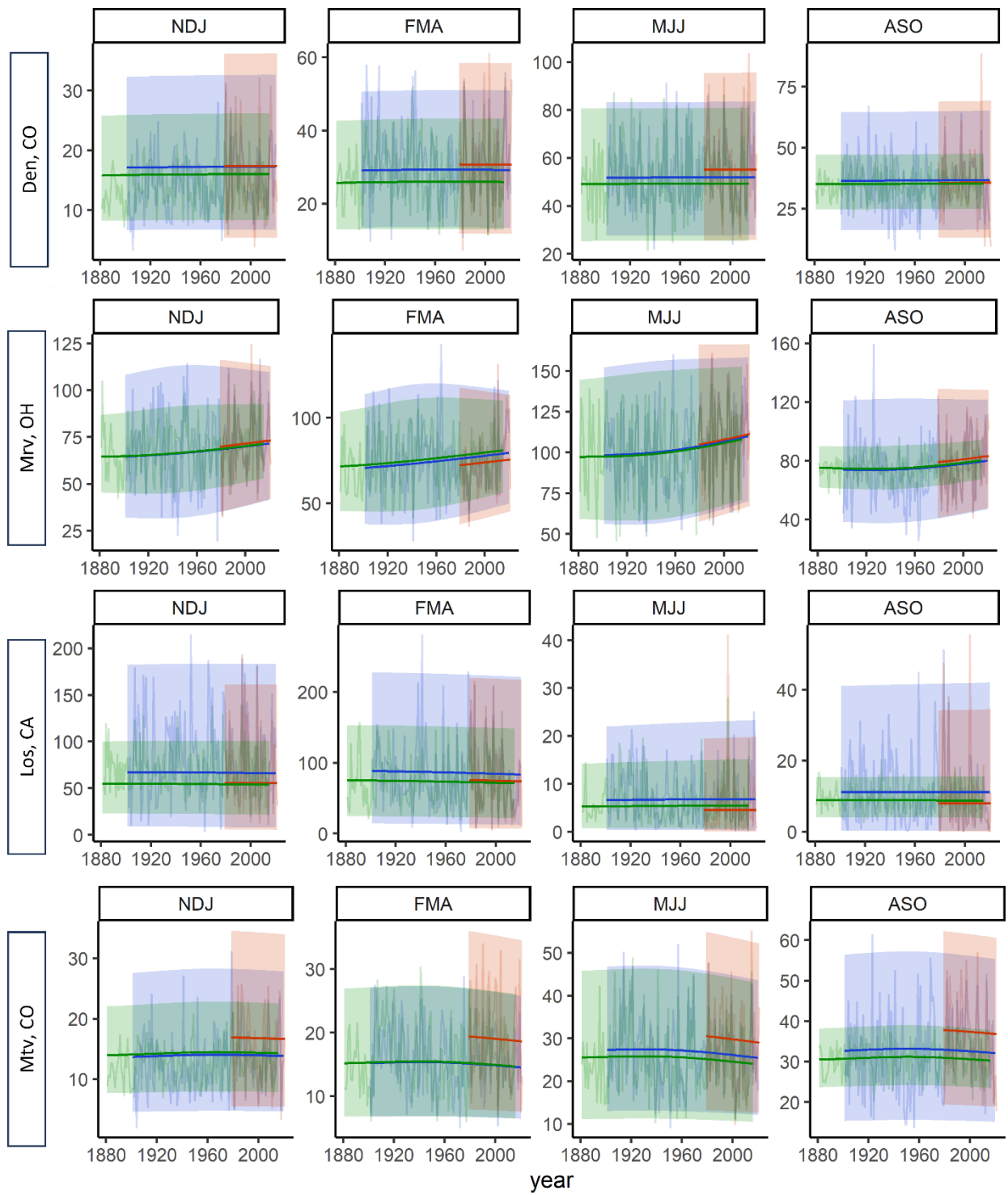


Figure S 4 (Continue). Modeled mean, drought and pluvials anomaly (SPI = -1.5 and +1.5, marked shaded area)

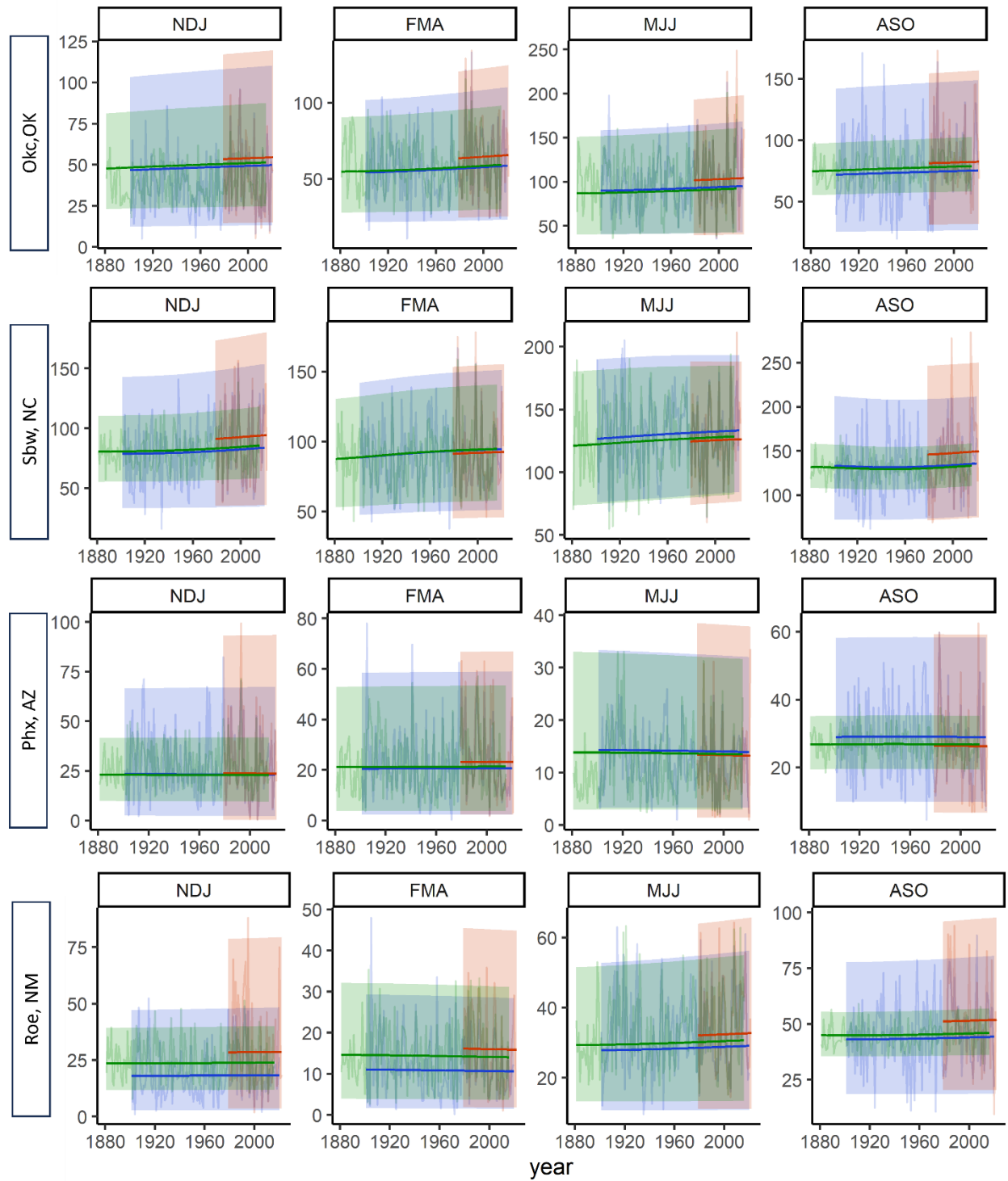


Figure S 4 (Continue). Modeled mean, drought and pluvials anomaly (SPI = -1.5 and +1.5, marked shaded area)

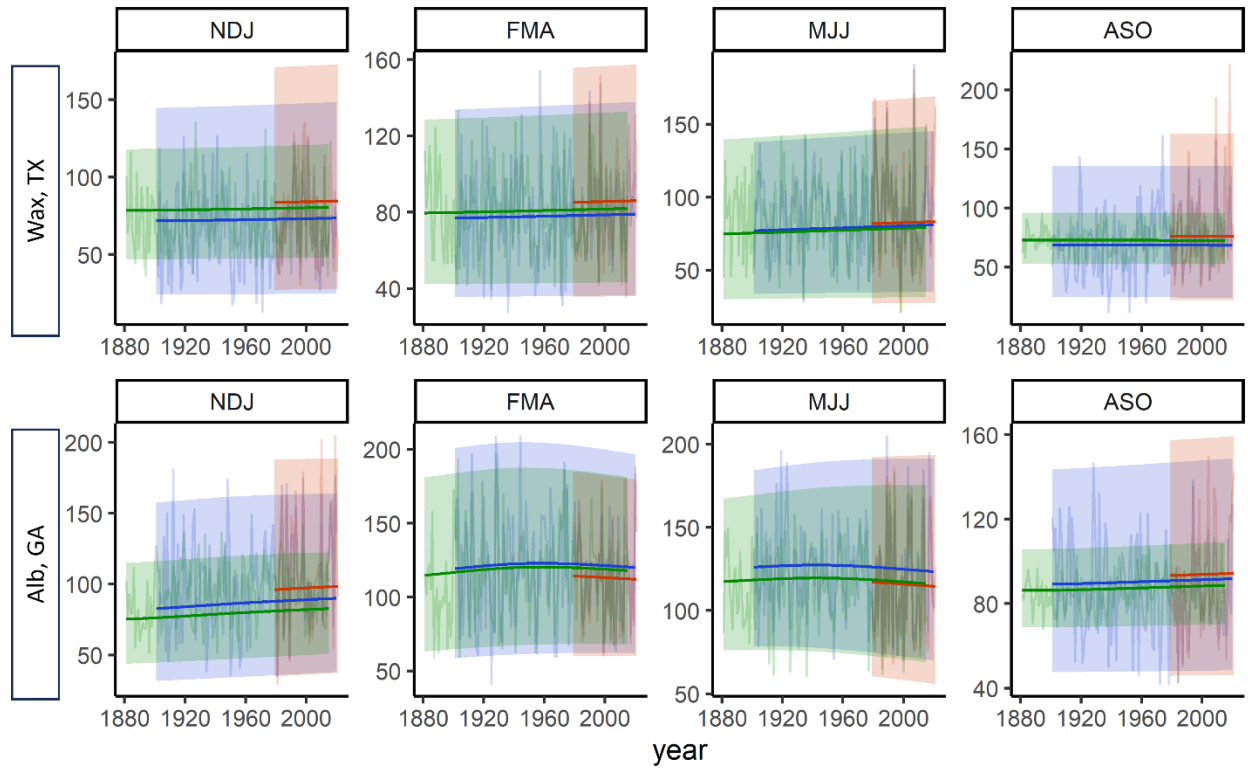


Figure S 4 (Continue). Modeled mean, drought and pluvials anomaly (SPI = -1.5 and +1.5, marked shaded area)

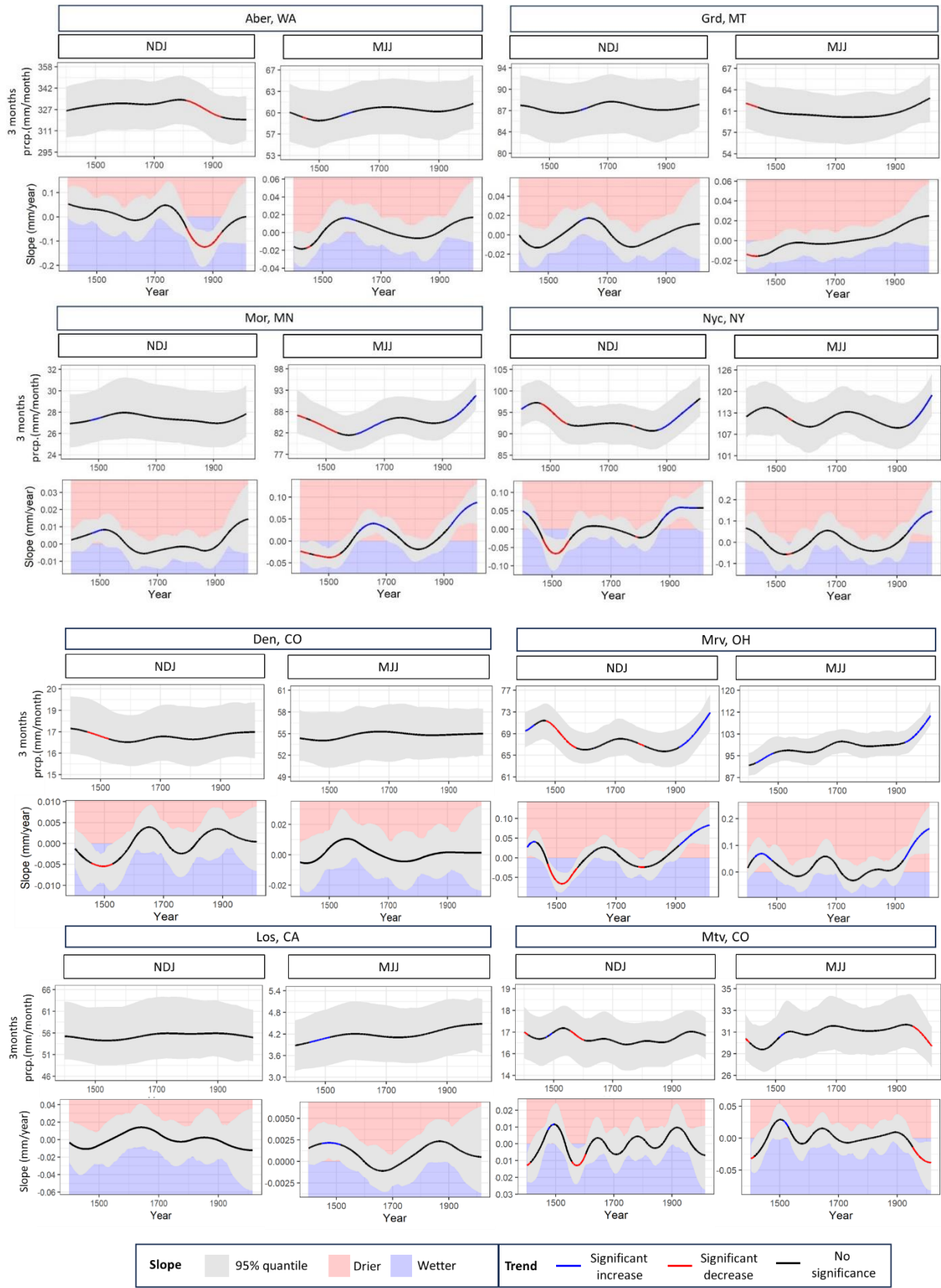


Figure S 5. Modeled mean trends marked the periods experiencing significant changes (upper), the first derivatives of modeled mean (lower).



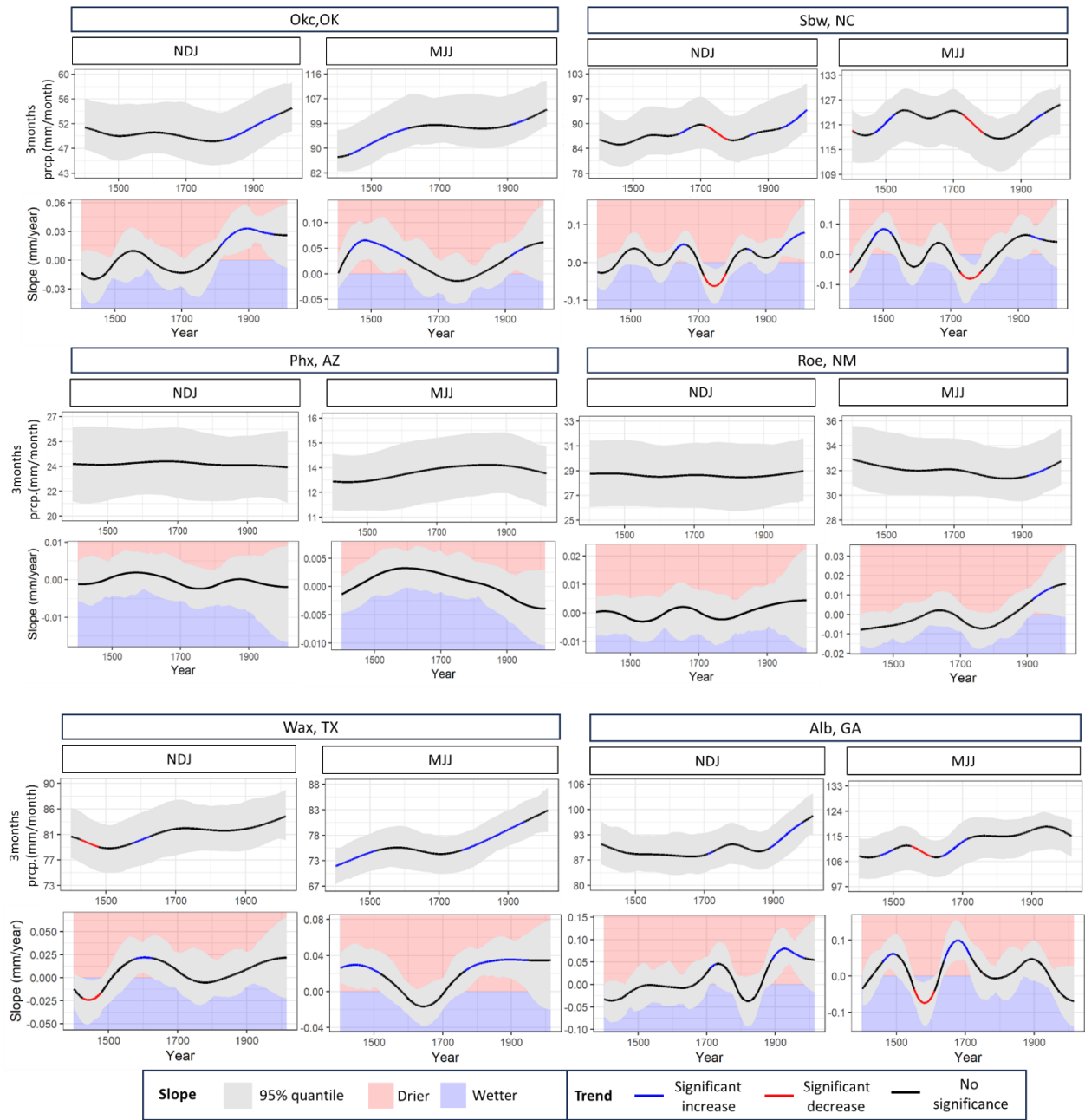


Figure S 5 (Continue). Modeled mean trends marked the periods experiencing significant changes (upper), the first derivatives of modeled mean (lower).