

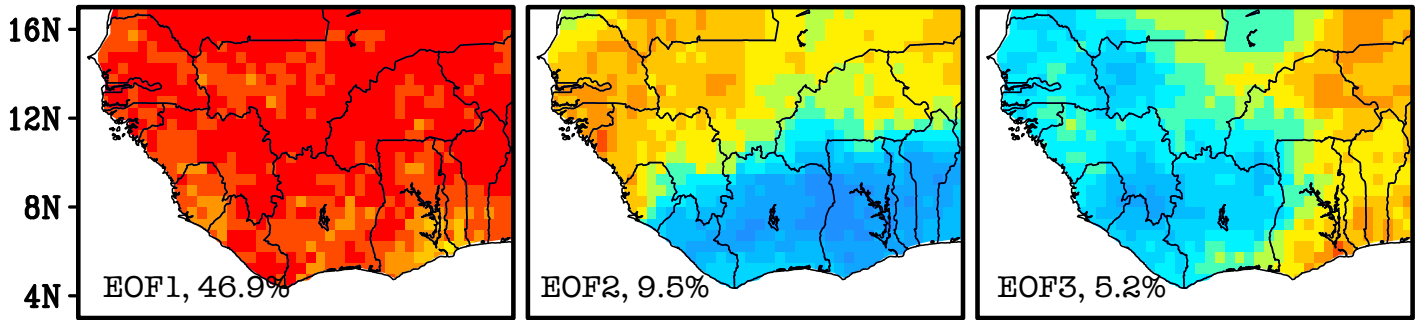
	(i) Instrumental scPDSI	(ii) JISAO Sahel Rainfall	(iii) NRI Sahel Rainfall	(iv) NRI Gulf of Guinea Rainfall
WSDA PC1	0.77* (PC1)	0.61*	0.66*	0.18
WSDA PC2	0.42* (PC3)	0.08	0.13	0.21
WSDA PC3	0.59* (PC2)	0.45*	0.39*	0.43*

Table S1: Correlation between the PCs of WSDA and the (i) PCs of instrumental scPDSI, (ii) the JISAO Sahel rainfall index, (iii) the NRI Sahel rainfall index, and (iv) the NRI Gulf of Guinea rainfall index over their respective overlapping time periods. Note that PC2 (PC3) of WSDA is correlated to PC3 (PC2) of instrumental scPDSI. * denotes significance at $p < .01$.



Figure S1: West Africa with its 10 river basins , including the Senegal River Basin (1) and Volta River Basin (7). Stanzel et al. 2018.

Instrumental scPDSI



Reconstructed scPDSI

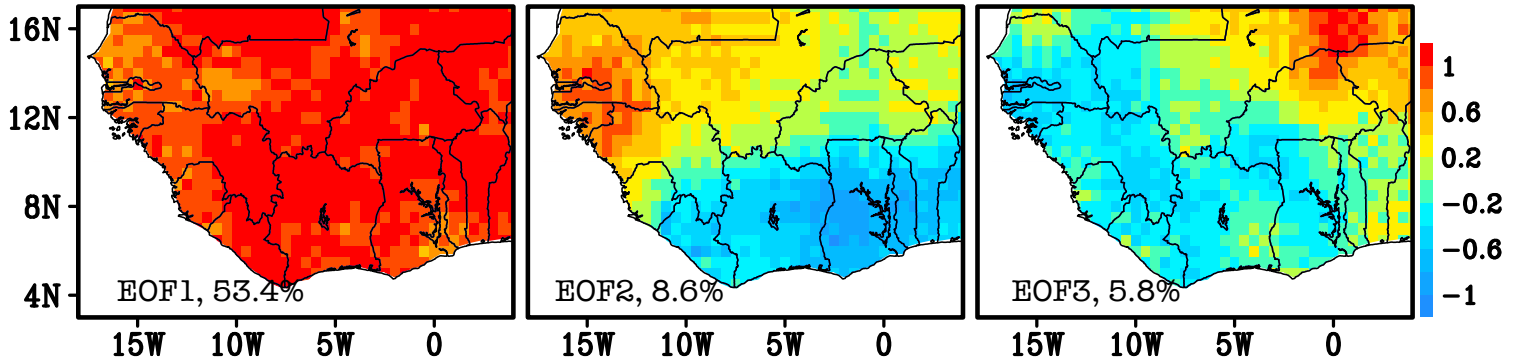


Figure S2: EOF patterns of reconstructed scPDSI over West Africa (i.e., WSDA). The percent variance explained by each principal component is indicated. The EOF analysis is based on 1901-1989, a period that compares instrumental-only to tree-ring-only scPDSI.

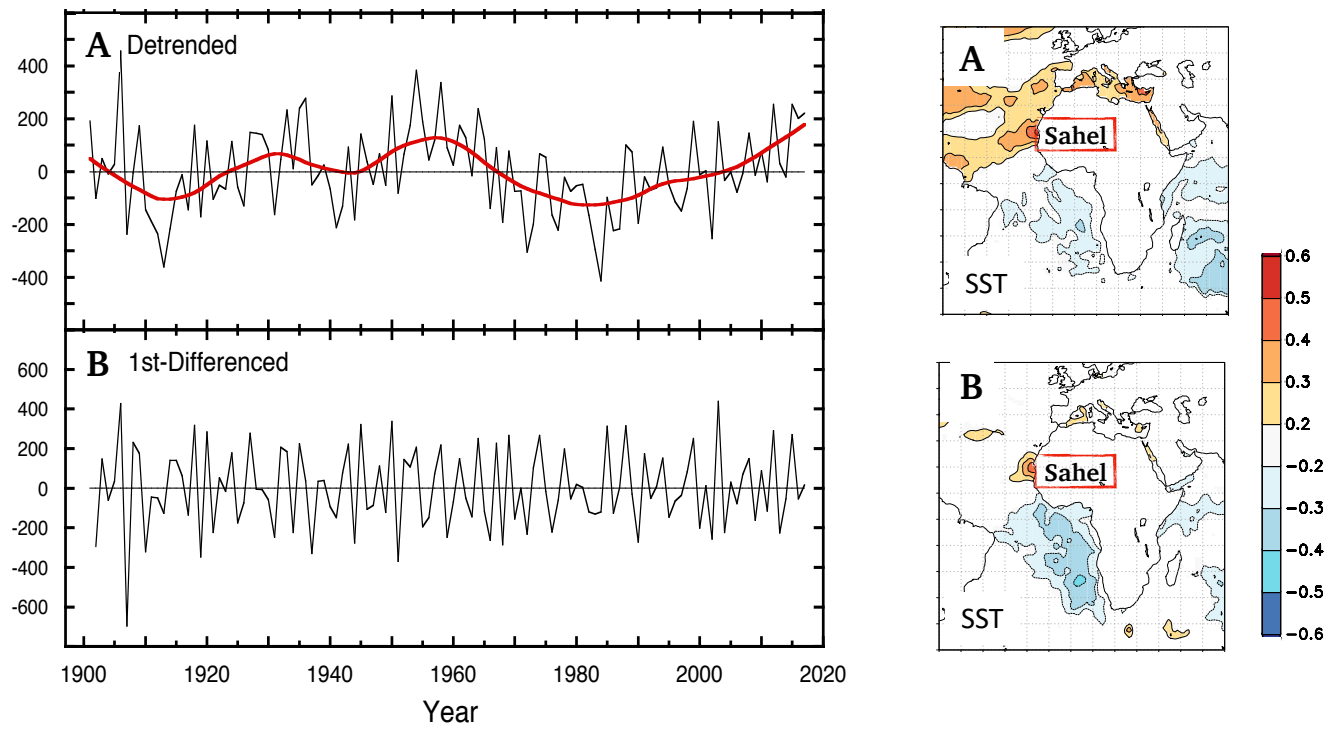


Figure S3: Correlation of summer (JJA) rainfall index (left panel) with SST (right, $p < 0.10$ areas shaded) from 1901-2020. Rainfall time series in (A) is detrended and first differenced in (B). Rainfall is averaged over the Sahel (red boxes). Unit is mm.