

Figure S1. Overview of the input precipitation (Pr) and potential evapotranspiration (PET) and output SPEI.

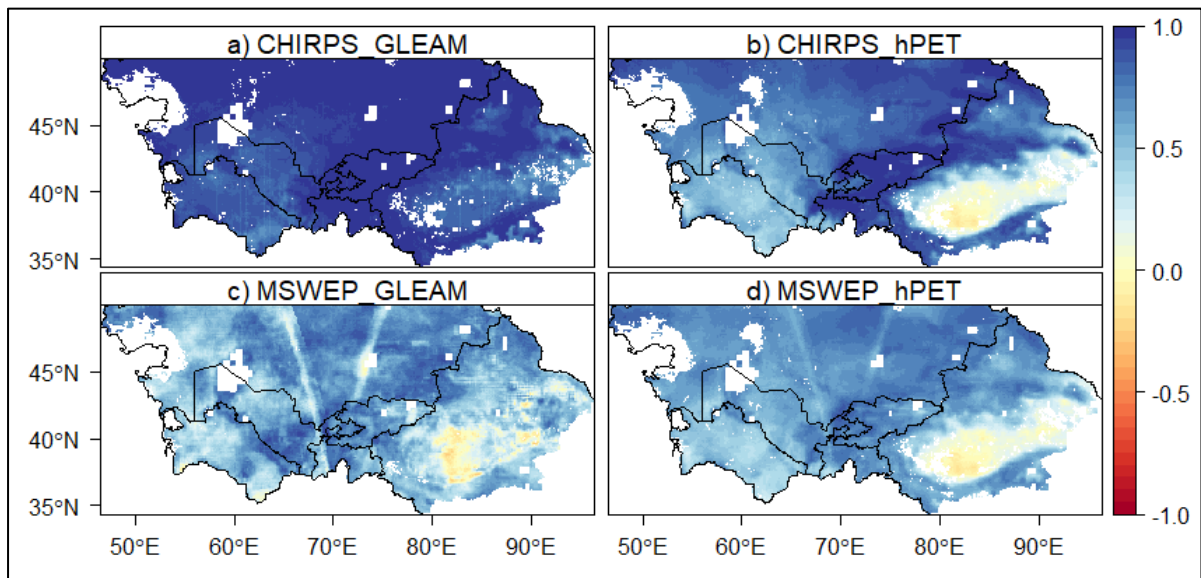


Figure S2. Temporal correlation between the new high-resolution SPEI (SPEI-HR) based on (a) CHIRPS\_GLEAM, (b) CHIRPS\_hPET, (c) MSWEP-GLEAM, and (d) MSWEP-hPET, and Central Asia SPEI (CA-SPEI) for SPEI-1 month during the period 1981–2018.

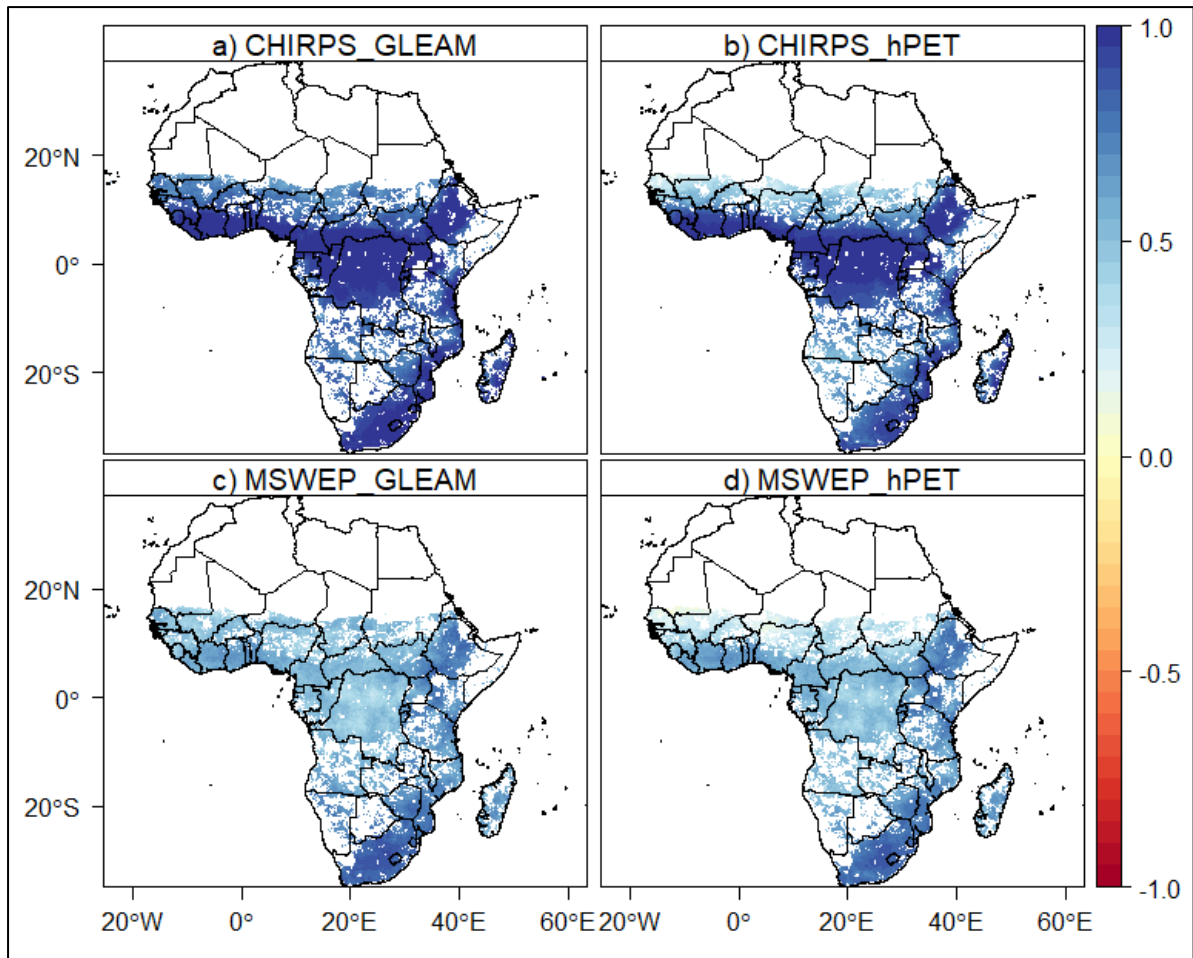


Figure S3. Temporal correlation between the new high-resolution SPEI (SPEI-HR) based on (a) CHIRPS\_GLEAM, (b) CHIRPS\_hPET, (c) MSWEP-GLEAM, and (d) MSWEP-hPET, and Pan African SPEI (AF-SPEI) for SPEI-1 month during the period 1981–2016.