

Table S1. Drought classification based on the Standardized Precipitation Evapotranspiration Index (SPEI).

SPEI values	Flood/Drought category
≥ 0.5	Wet
-0.49 -- 0.49	Near normal
-0.99 -- -0.50	Mild drought
-1.49 -- -1.00	Moderate drought
-1.99 -- -1.50	Severe drought
≤ -2.0	Extreme drought

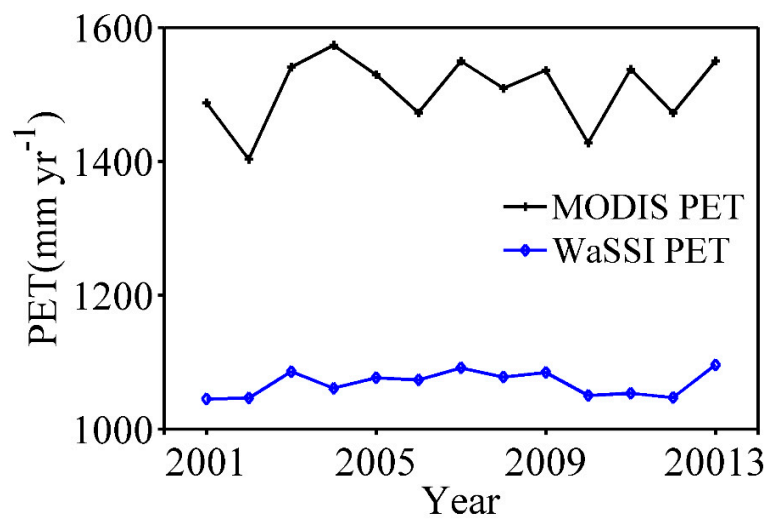


Figure S1. The comparison of the modelled potential evapotranspiration (PET) and the observed PET from 2001 to 2013.

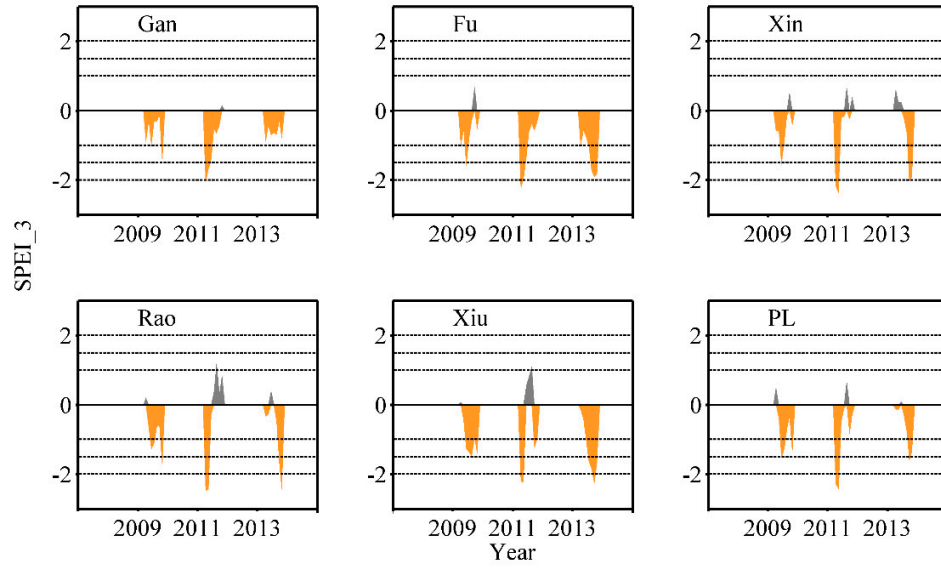


Figure S2. Area-averaged SPEI at 3-month scales in the six large sub-watersheds in the growing season of 2009, 2011, and 2013. The six sub-watersheds include the Gan River (Gan), Fu River (Fu), Xin River (Xin), Rao River (Rao), and Xiu River (Xiu), and Poyang Lake area (PL).

Table S2. The percentages of forest cover and cropland cover in the six large sub-watersheds.

	Forest	Cropland
Gan	76%	23%
Fu	75%	24%
Xin	72%	27%
Rao	88%	11%
Xiu	85%	13%
L	32%	52%

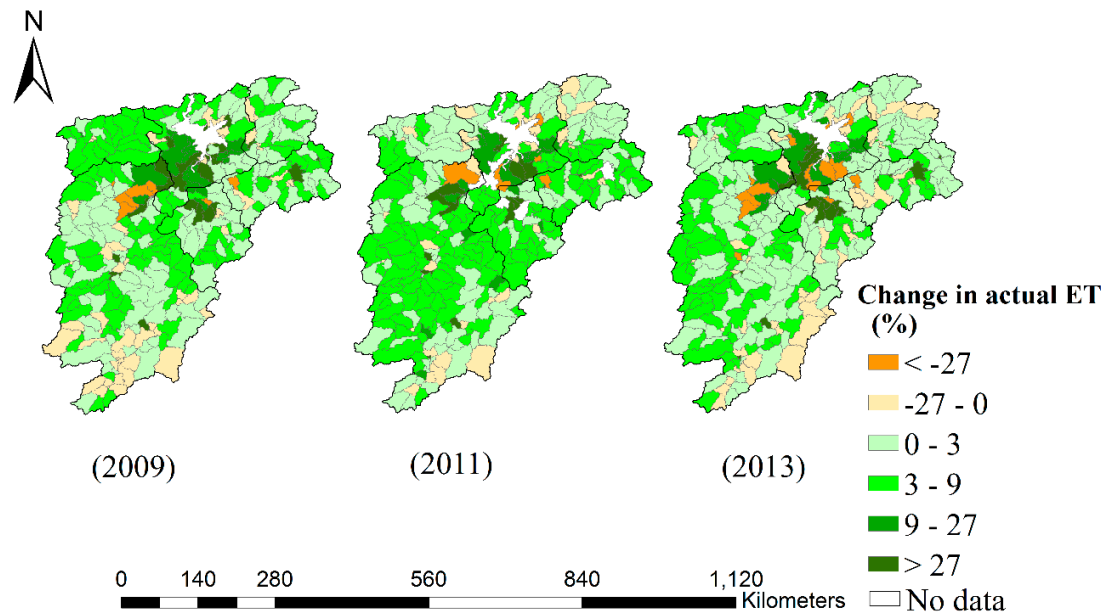


Figure S3. The relative differences (%) in actual evapotranspiration (ET) between the two model simulations (S1–S2) during the growing season of 2009 (long-duration moderate drought), 2011 (short-duration extreme drought), and 2013 (short-duration moderate drought), respectively.