

Figure S1. Distribution of average soil moisture about the in situ, ERA5-Land and CLDAS from 2013 to 2017.

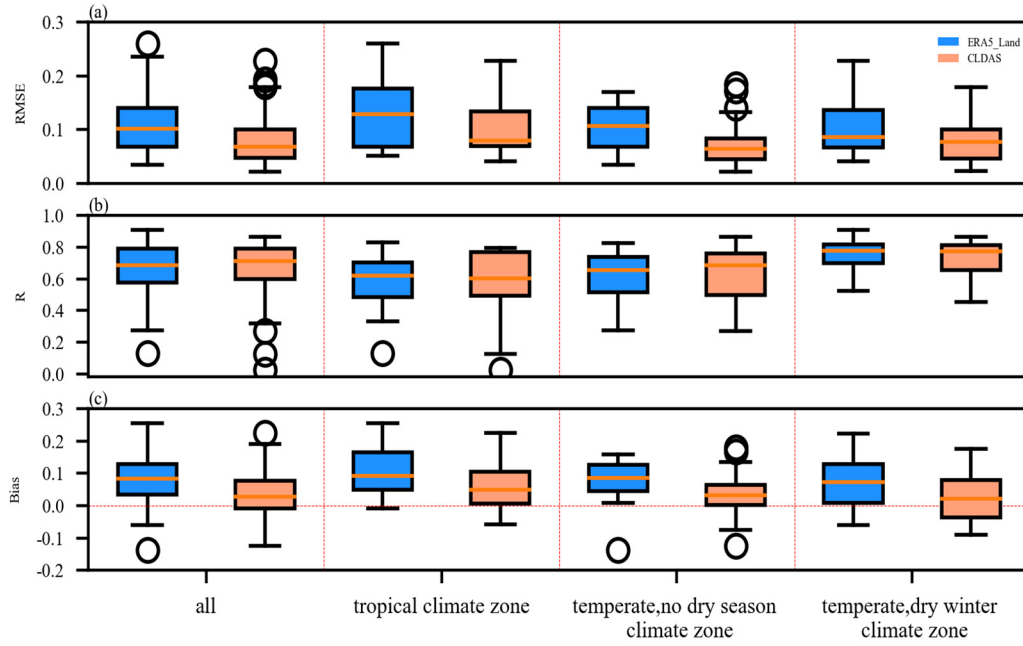


Figure S2. RMSE, R and Bias of the SM between the ERA5-Land and in situ data and between CLDAS and in situ data in the whole study area and the three climate zones.

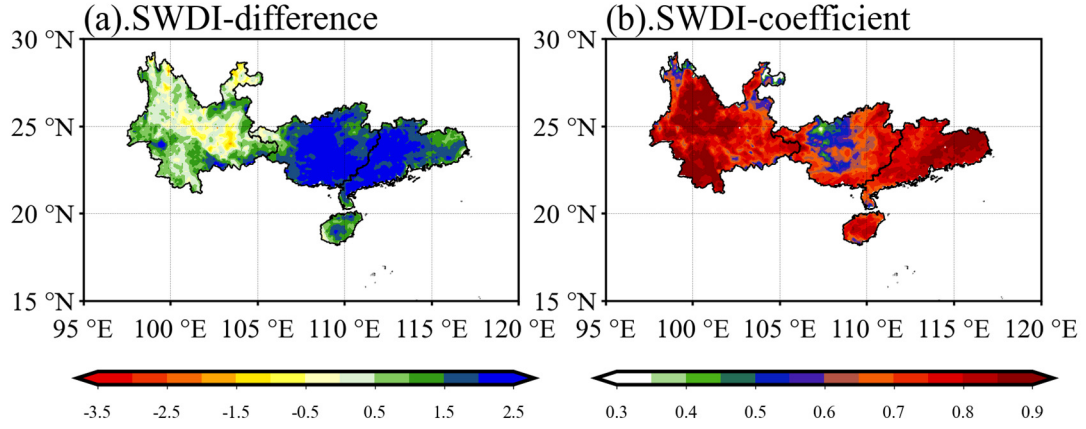


Figure S3. Spatial distribution of difference (a) and correlation coefficient (b) between ERA5-Land and CLDAS. All values of SWDI for the periods from 2013 to 2017.

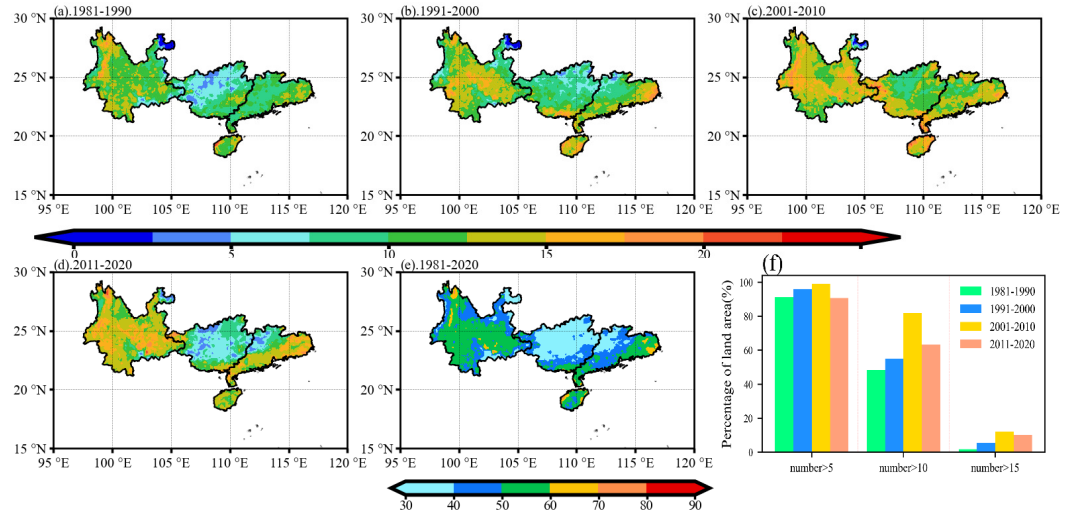


Figure S4. The distribution of drought event number for 1981-1990 (a), 1991-2000 (b), 2001-2010 (c), 2011-2020 (d) and 1981-2020 (e) according to SWDI and the proportion of drought number in each decade (f). Note that Figure 10e has a different legend from others.

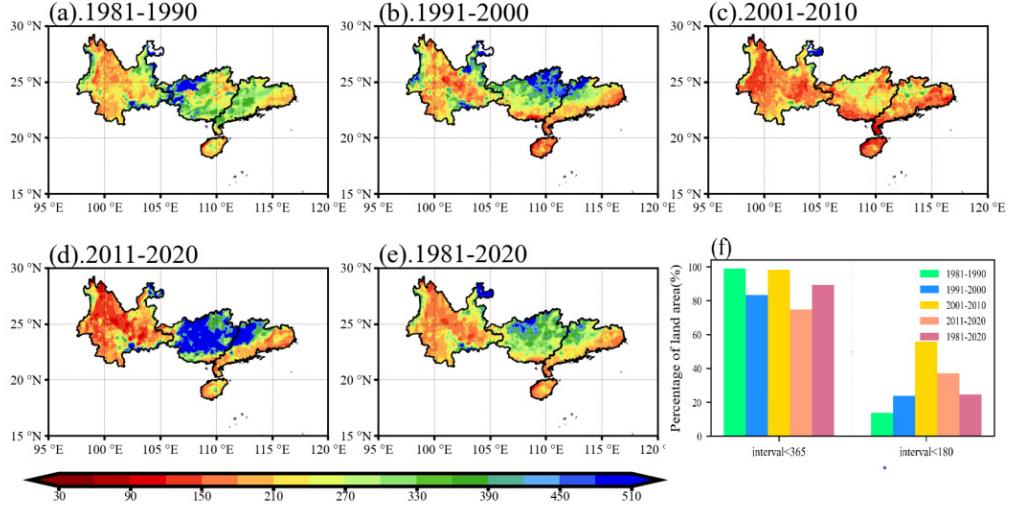


Figure S5. The distribution of drought event interval for 1981-1990 (a), 1991-2000 (b), 2001-2010 (c), 2011-2020 (d) and 1981-2020 (e) according to SWDI and the proportion of drought interval in each period (f).

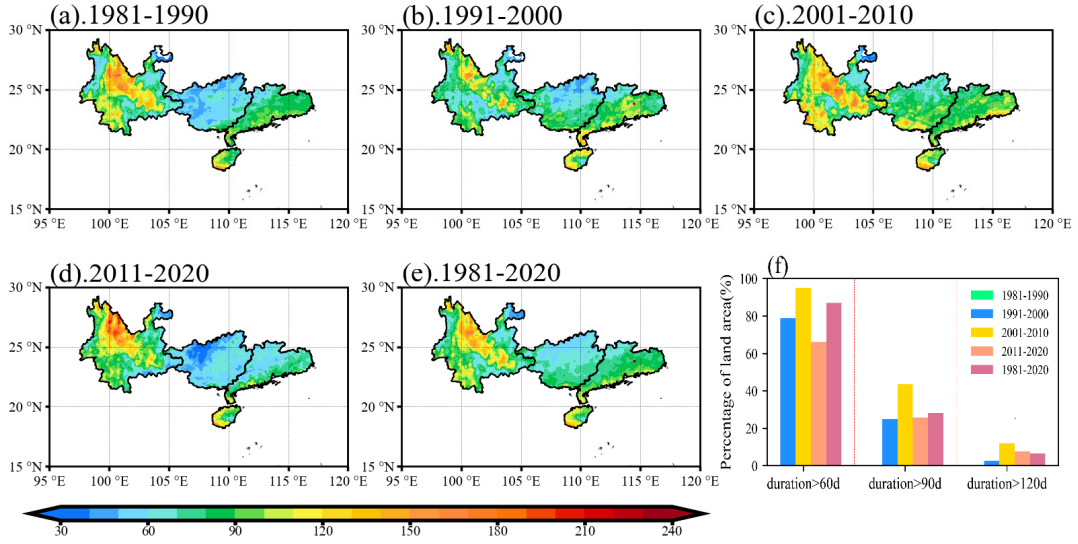


Figure S6. The distribution of drought event duration for 1981-1990 (a), 1991-2000 (b), 2001-2010 (c), 2011-2020 (d) and 1981-2020 (e) according to SWDI and the proportion of drought duration in each period (f).

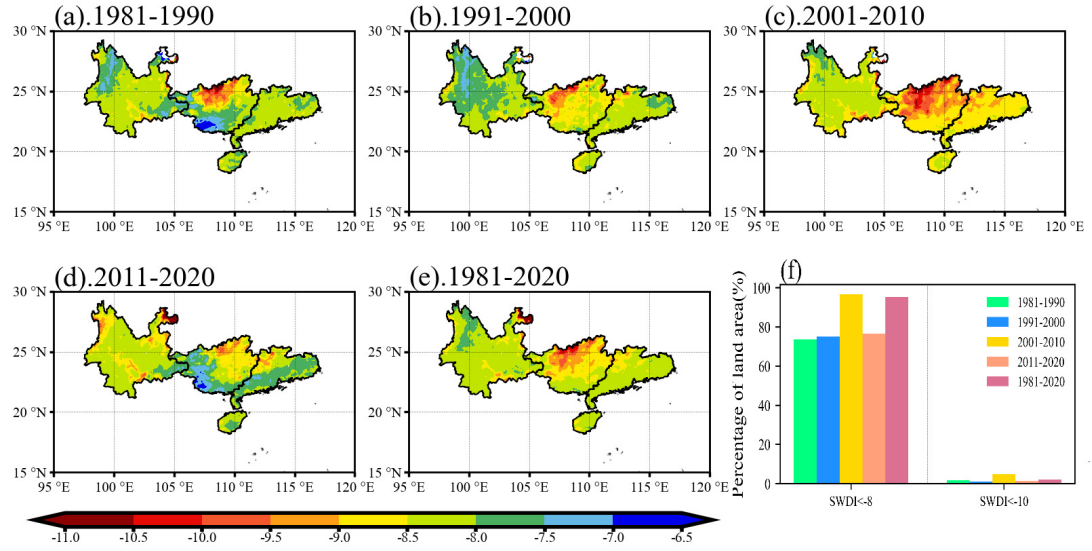


Figure S7. The distribution of drought event severity for 1981-1990 (a), 1991-2000 (b), 2001-2010 (c), 2011-2020 (d) and 1981-2020 (e) according to SWDI and the proportion of drought severity in each period (f).