

Quantifying Multi-Source Uncertainties in GRACE-Based Estimates of Groundwater Storage Changes in Mainland China

Quanzhou Li ^{1,2}, Yun Pan ^{1,2,*}, Chong Zhang ^{1,2} and Huili Gong ^{1,2}

¹ Beijing Laboratory of Water Resources Security, Capital Normal University, Beijing 100048, China; 2210902036@cnu.edu.cn (Q.L.); chongzhang@cnu.edu.cn (C.Z.); gonghl@cnu.edu.cn (H.G.)

² College of Resources Environment and Tourism, Capital Normal University, Beijing 100048, China

* Correspondence: pan@cnu.edu.cn

Table. S1. Inventory of degree-day model-driven data and global glacier datasets

Data Categories	Data Description	The Data Source
Temperature and Precipitation	ERA5-Land (1999-2020; 0.1°×0.1°)	https://cds.climate.copernicus.eu
Snow depth	ERA5-Land (1999.01; 0.1°×0.1°)	
Temperature and Precipitation Observations	189 Station daily data (1999-2020; T, P)	China Meteorological Data Network, http://data.cma.cn
	100 Station daily data (1999-2020; T, P)	NOAA, https://www.ncei.noaa.gov
	356 Station daily data (1999-2020; T)	
Glacial Mass Balance	WGMS Glacier fluctuation database	https://wgms.ch/
Glacial Factor	Glacier distribution and profile	The Randolph Glacier Inventory 6.0
	Degree day model factor	http://www.scidb.cn/
DEM	ASTER GDEM 30m	Geospatial Data Cloud, http://www.gscloud.cn
Global Glacier Dataset	0.5°× 0.5°(2000-2020)	https://www.sedoo.fr/theia-publication-products/?uuid=c428c5b9-df8f-4f86-9b75-e04c778e29b9

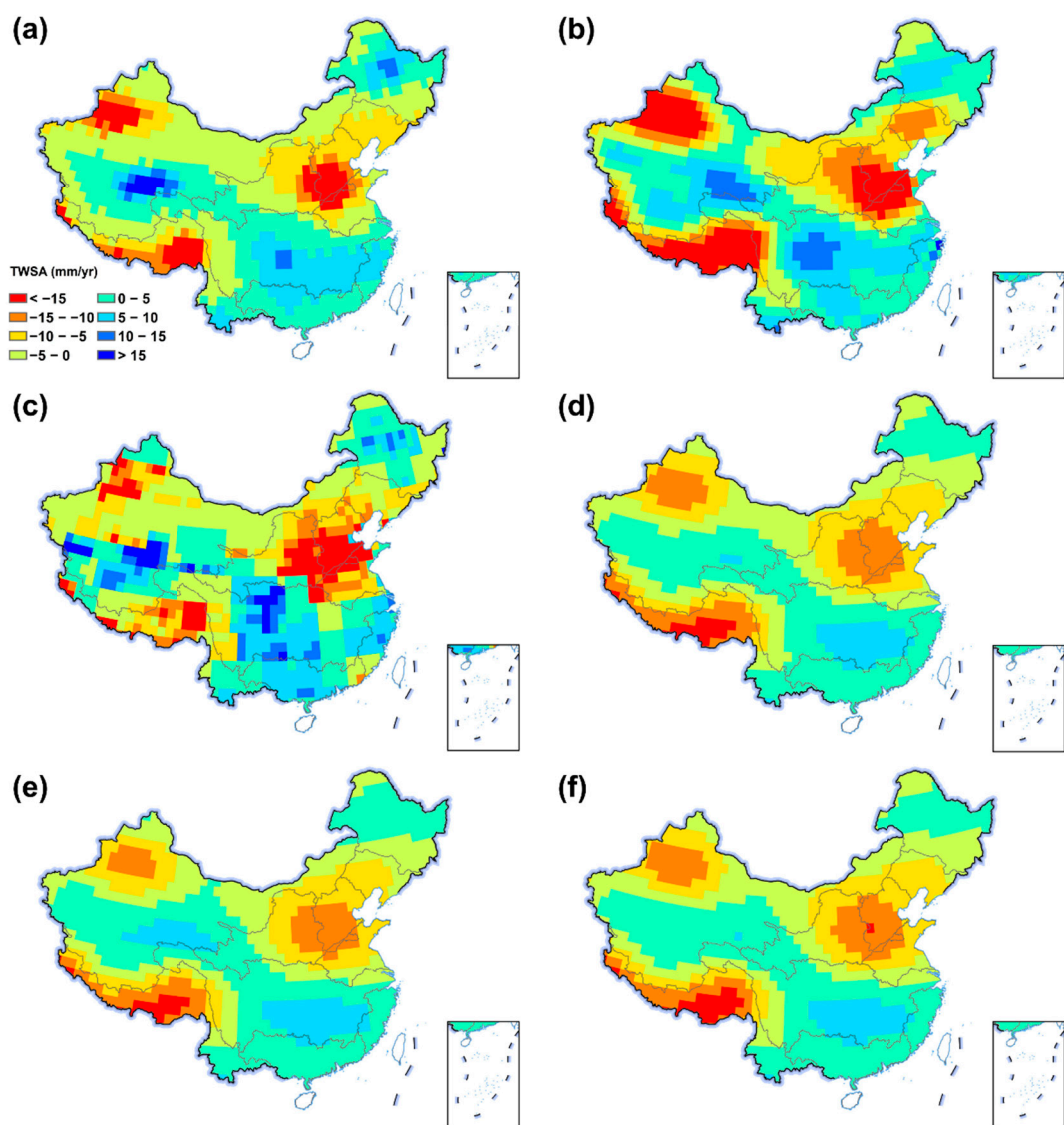


Figure S1. Spatial distribution of annual trends for six GRACE products from 2003-2015 (in mm/yr): (a) CSR mascon; (b) GSFC mascon; (c) JPL mascon; (d) CSR SH; (e) GFZ SH; (f) JPL SH.

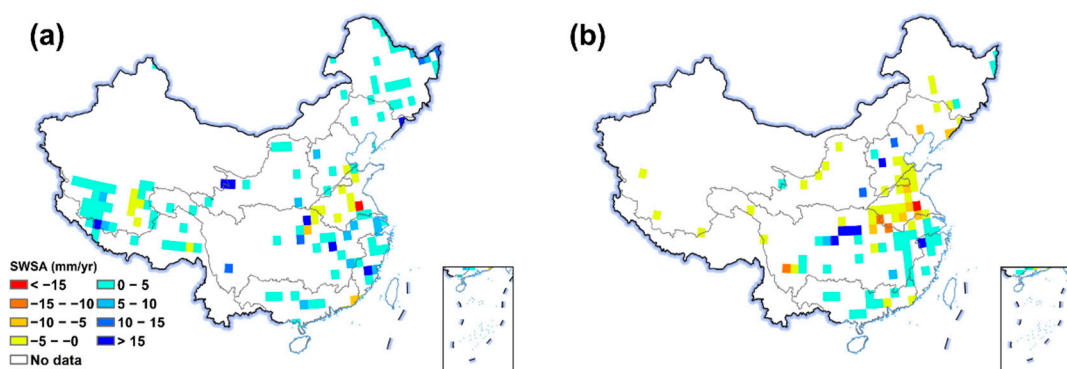


Figure S2. Spatial distribution of annual trends for two SWSA products from 2003-2015 (in mm/yr): (a) WGHM; (b) PCR-GLOBWB.

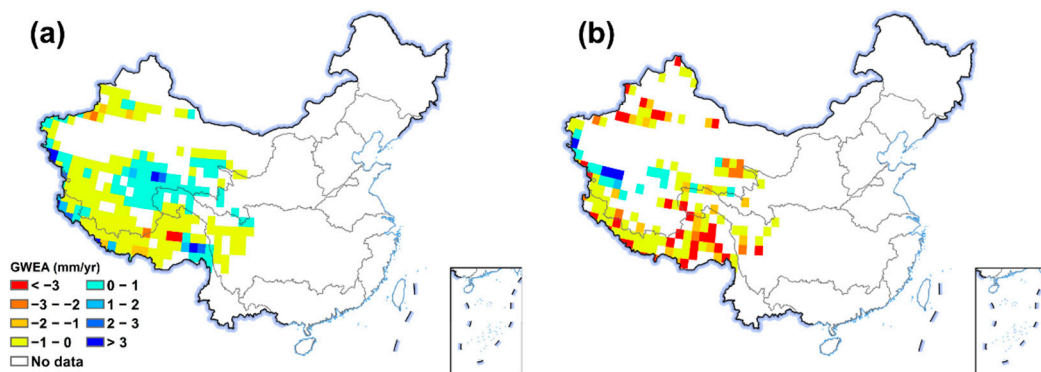


Figure S3. Spatial distribution of annual trends for two GWEA products from 2003-2015 (in mm/yr): (a) Degree-Day model (b) Global Glacier Dataset.

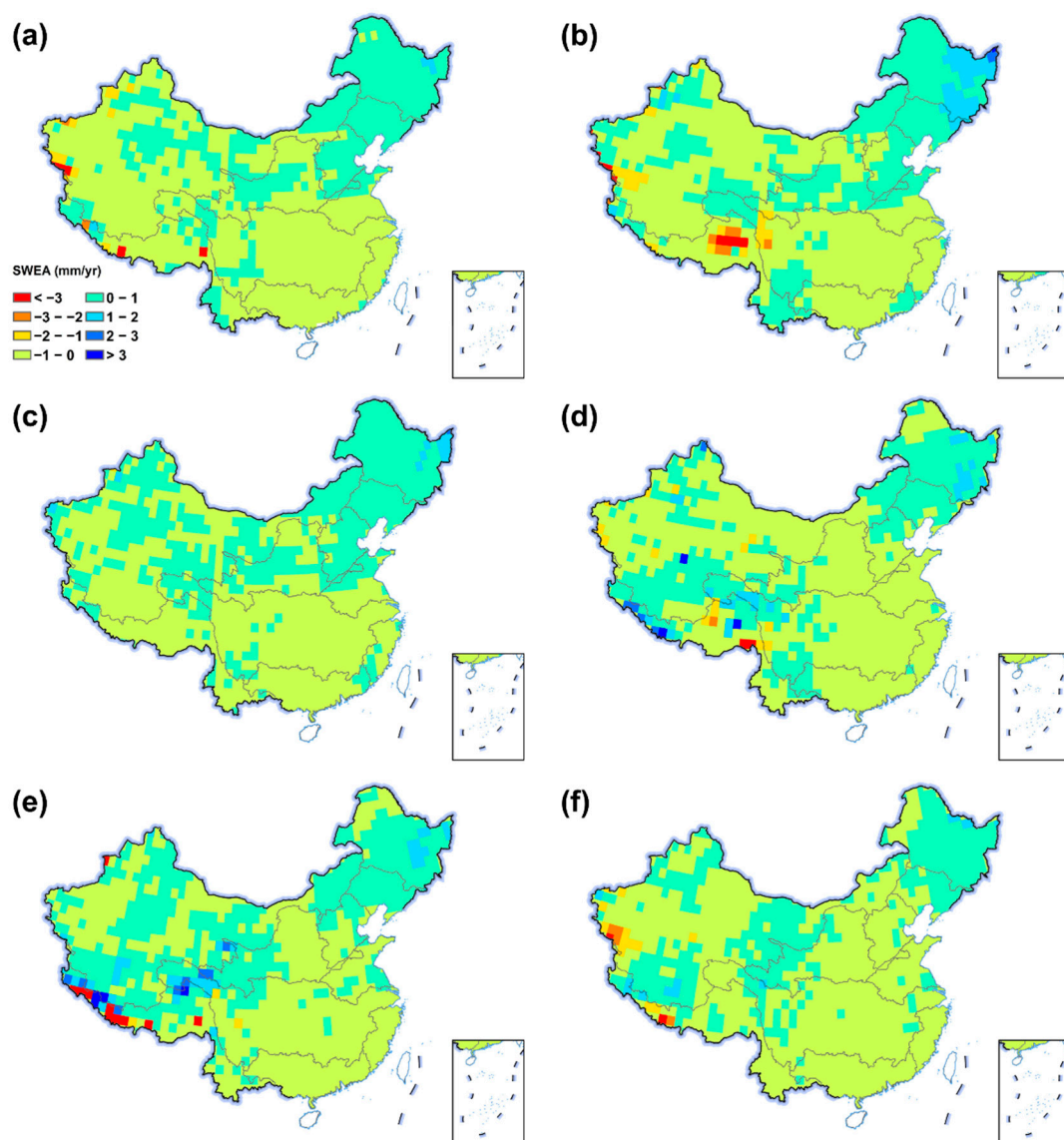


Figure S4. Spatial distribution of annual trends for six SWEA products from 2003-2015 (in mm/yr): (a) NOAH (b) VIC; (c) CLSM; (d) ERA5; (e) WGHM; (f) PCR-GLOBWB.

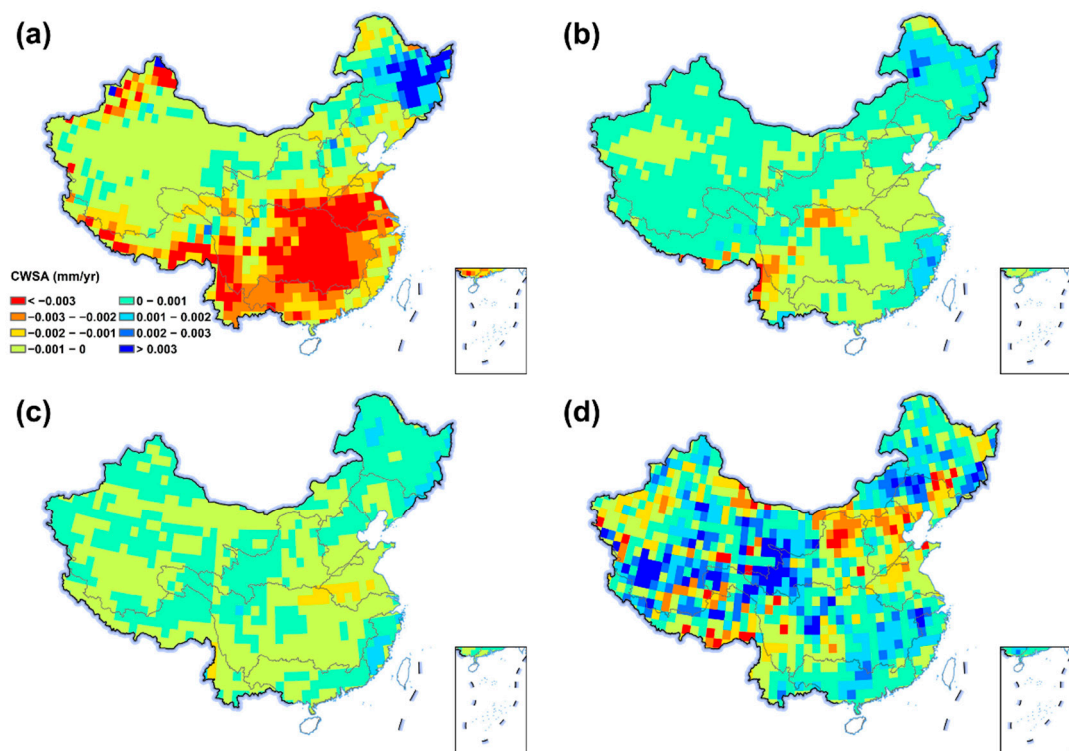


Figure S5. Spatial distribution of annual trends for six CWSA products from 2003-2015 (in mm/yr): (a) NOAH (b) VIC; (c) CLSM; (d) WGHM.

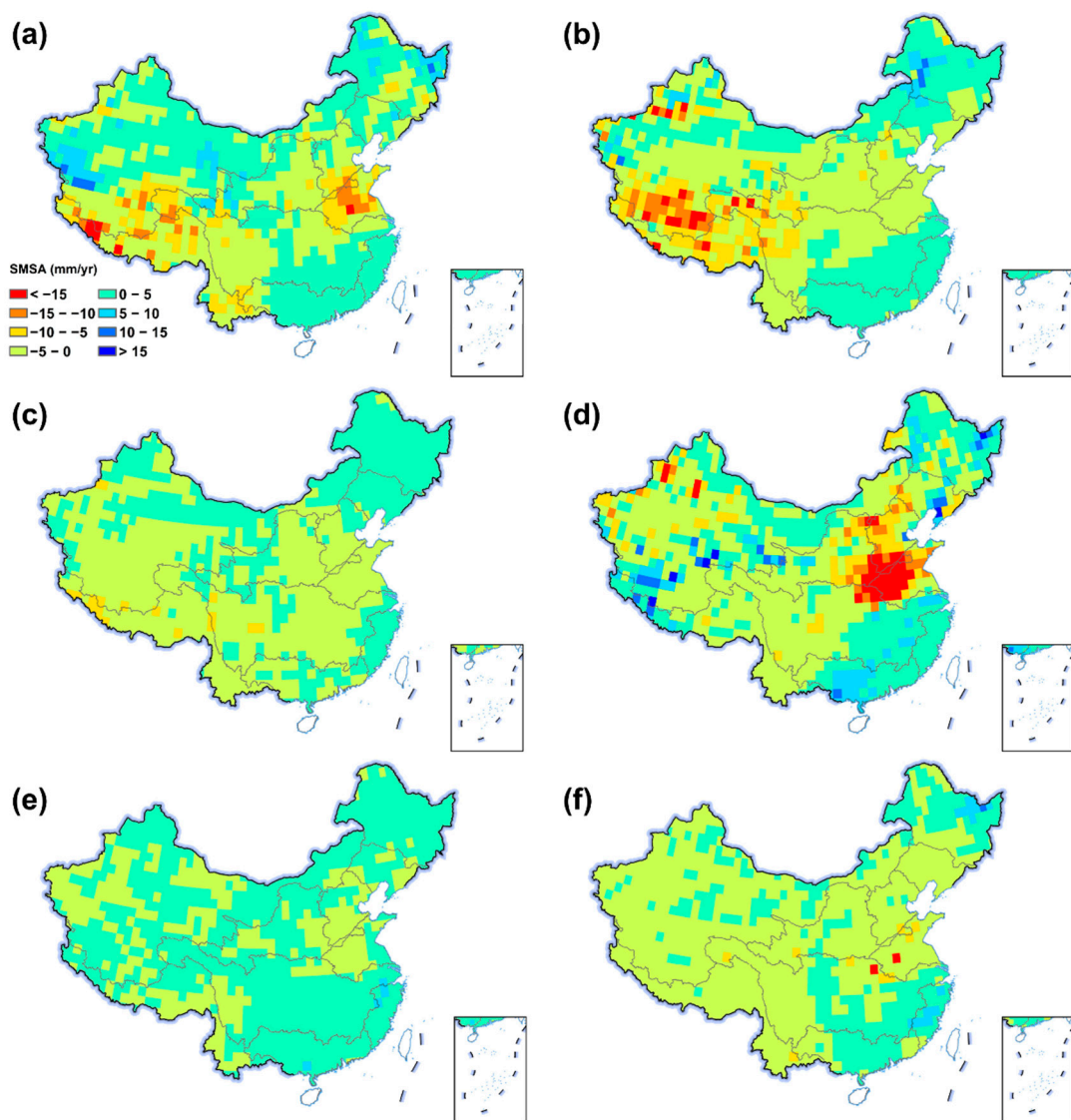


Figure S6. Spatial distribution of annual trends for six SWSA products from 2003-2015 (in mm/yr): (a) NOAH (b) VIC; (c) CLSM; (d) ERA5; (e) WGHM; (f) PCR-GLOBWB.

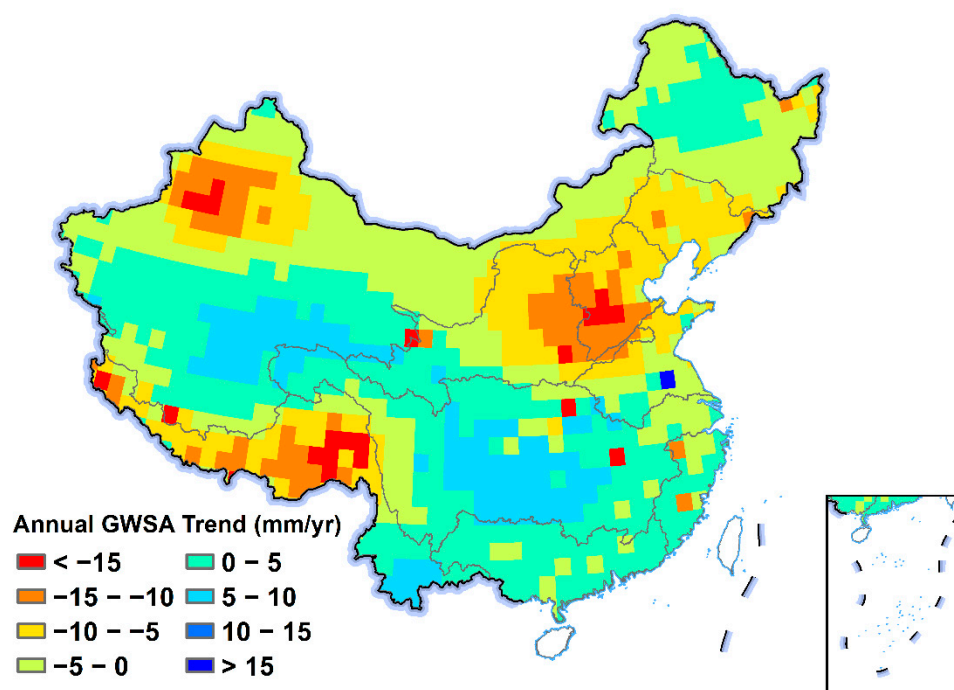


Figure S7. Spatial distribution of mean annual trends of 3,456 GWSA results from 2003-2015 (in mm/yr).