

Supplementary materials are listed as follows to support the main text:

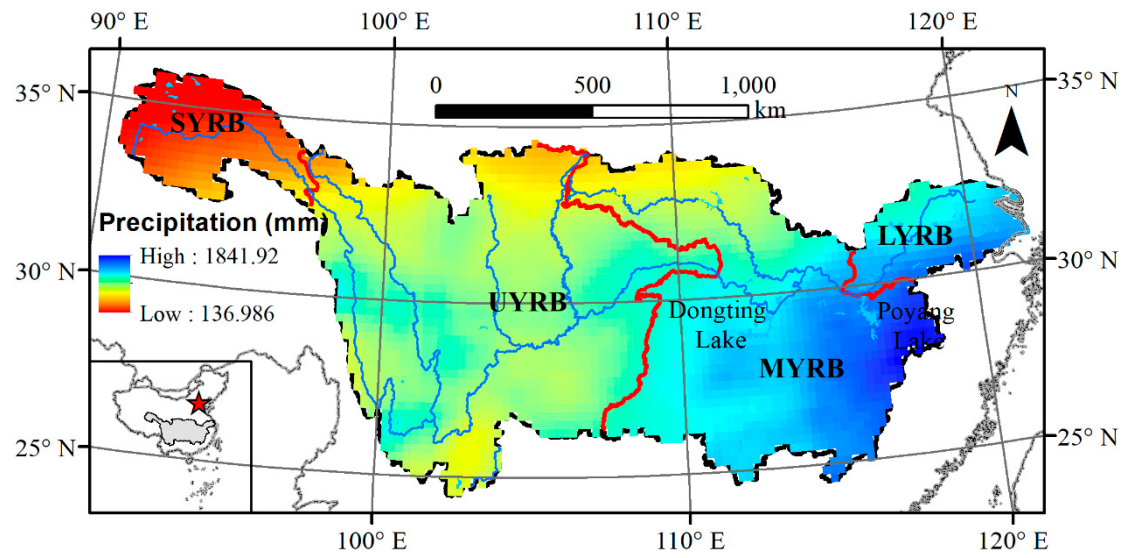


Figure S1. Spatial distribution of the average annual precipitation in the YRB.

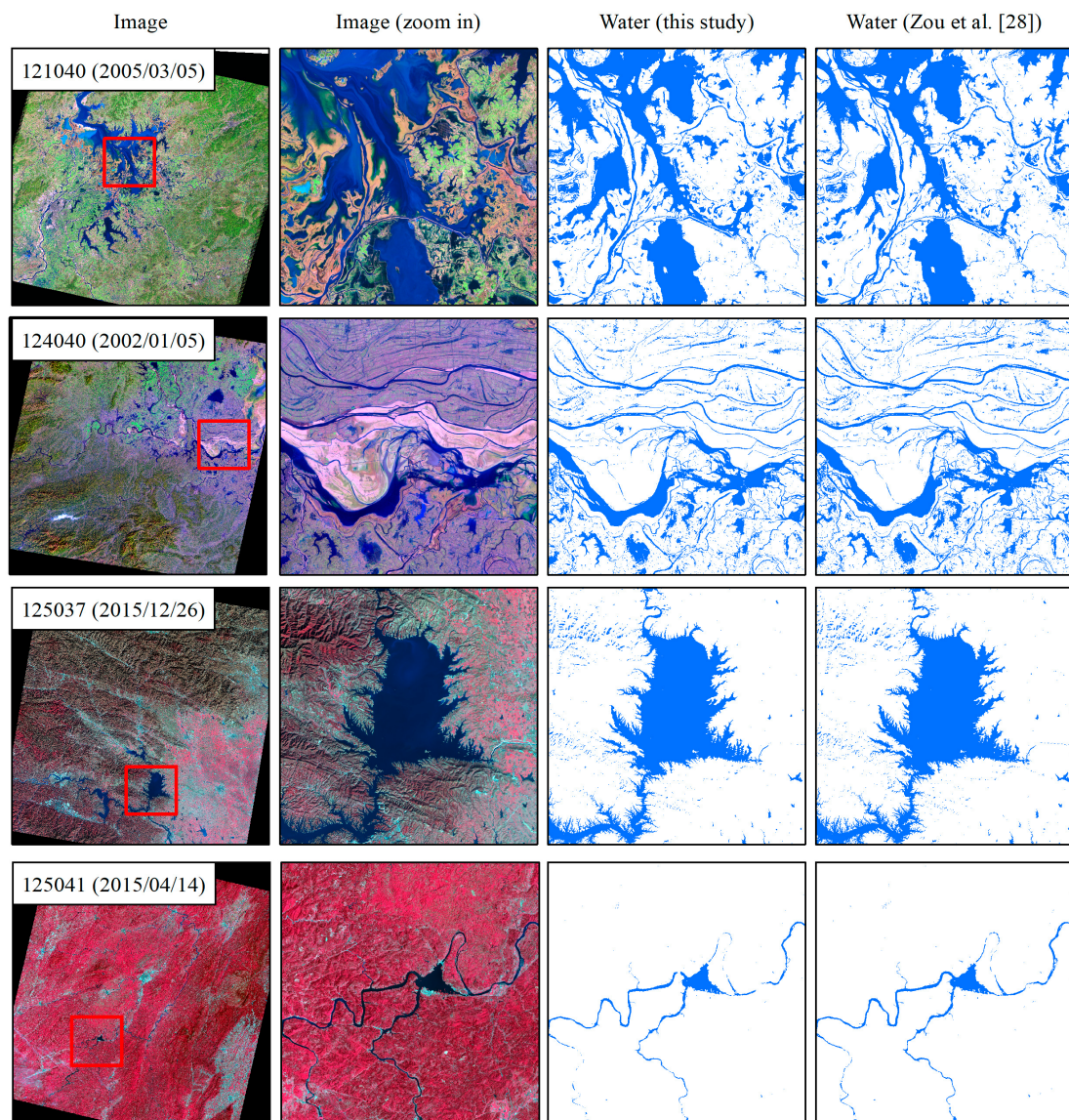


Figure S2. Comparisons of the water detection rule of this study and Zou et al. [28] in the non-urban regions.

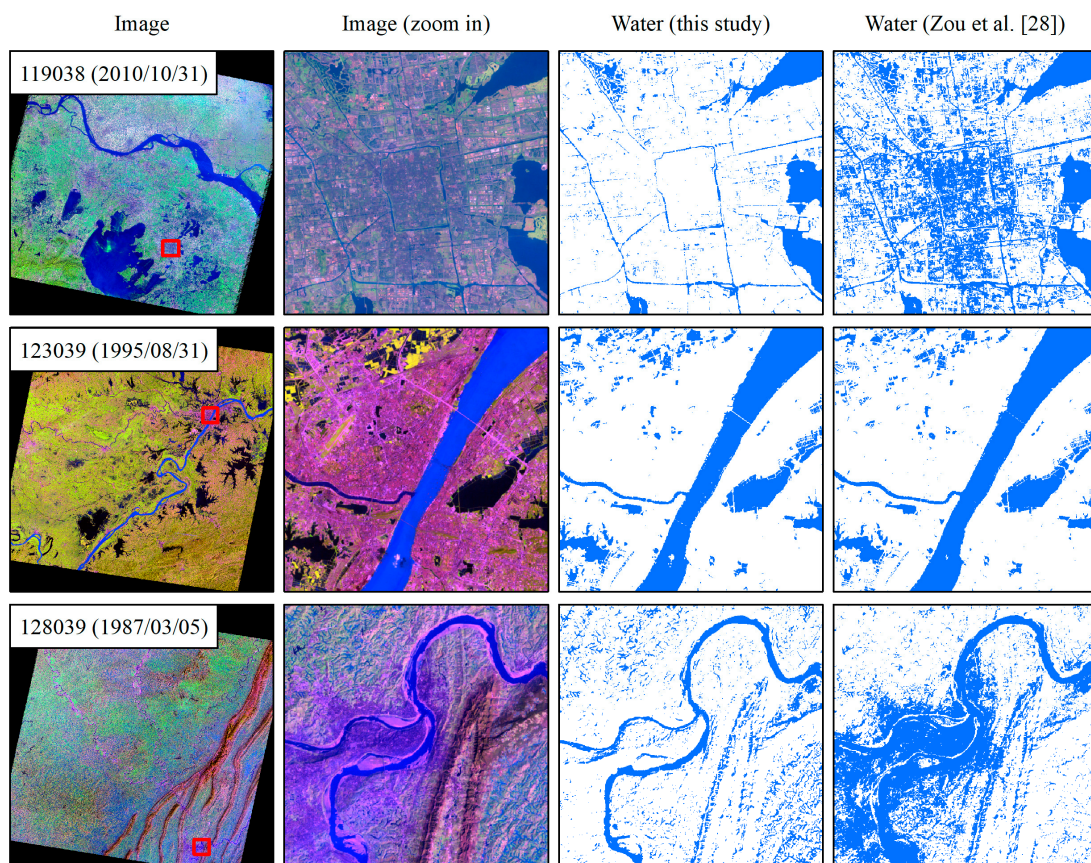


Figure S3. Comparisons of the water detection rule of this study and Zou et al. [28] in the urban regions.

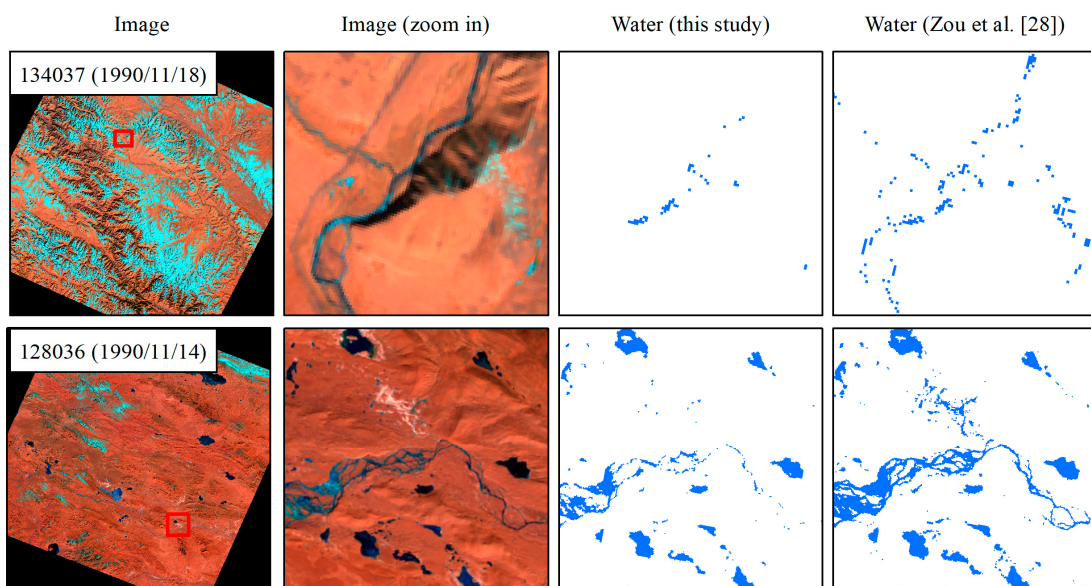


Figure S4. Comparisons of the water detection rule of this study and Zou et al. [28] in the plateau region.

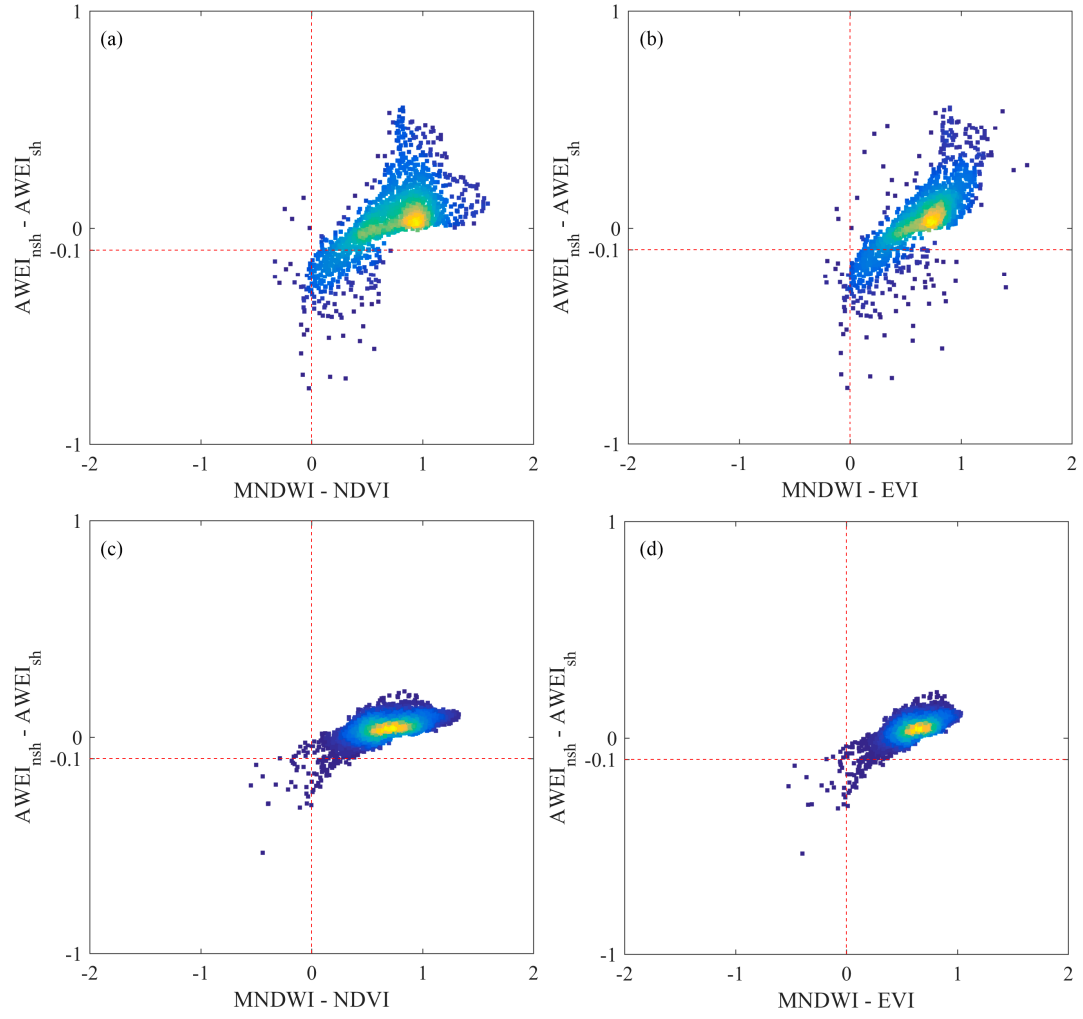


Figure S5. The scatter density of water samples. (a) and (b) indicates the water samples from the sampling plot with Landsat path ≥ 131 . (c) and (d) indicates the water samples from the sampling plot with Landsat path < 131 .

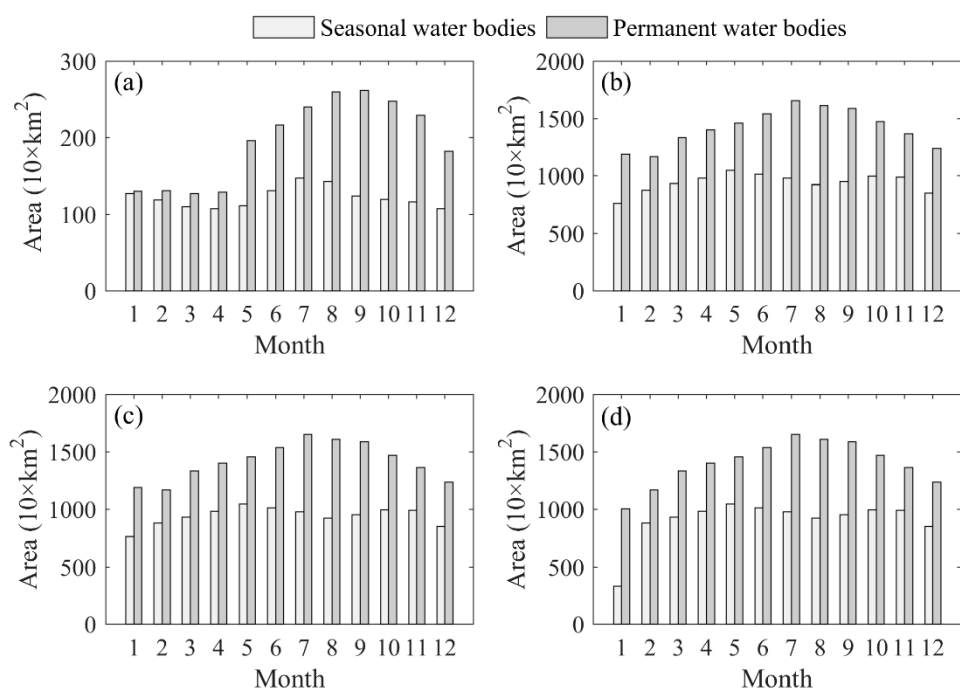


Figure S6. The monthly variation of open-surface water bodies for 1984 to 2018 in the (a) SYRB, (b) UYRB, (c) MYRB and (d) LYRB.

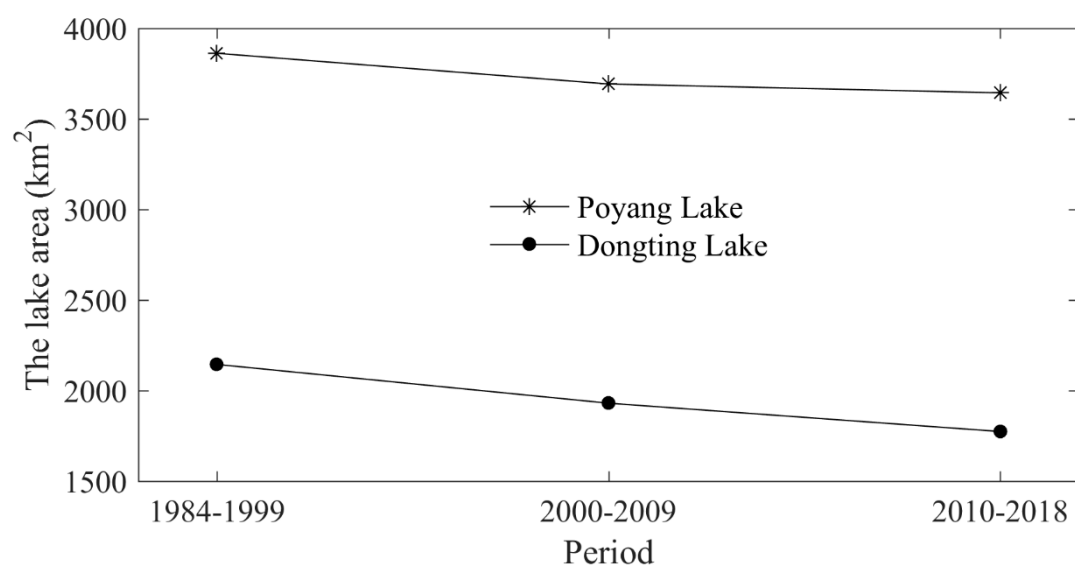


Figure S7. The changes of lake area in Poyang Lake and Dongting Lake.

Table S1. The Landsat and Sentinel image for accuracy assessment.

Landsat		Sentinel	
PathRow	Date	Tile Number	Date
119038	2017.12.05	T51RTQ	2017.12.05
	2017.12.21		2017.12.20
	2018.02.23		2018.02.23
121038	2018.07.31	T50SNA	2018.07.31
	2018.10.03		2018.10.04
121040	2017.12.19	T50RMT	2017.12.18
	2018.07.31		2018.07.31
	2018.10.03		2018.10.04
123039	2017.07.26	T50RQU	2017.07.24
	2017.10.30		2017.11.01
	2018.04.08		2018.04.10
124040	2017.07.17	T49RFN	2017.07.17
	2017.12.24		2017.12.24
	2018.11.25		2018.11.24
125037	2018.09.29	T49SES	2018.09.28
126039	2018.07.18	T49RBQ	2018.07.18
	2018.08.19	T49RCQ	2018.08.19
128039	2018.09.02	T48RXU	2018.09.01
129037	2018.04.02	T48SWB	2018.04.02
	2018.06.05		2018.06.06
130041	2018.02.20	T48RTR	2018.02.19
131039	2017.11.07	T47RQP	2017.11.06
134037	2017.08.24	T47SLS	2017.08.24
138036	2018.08.23	T46SDD	2018.08.23