

Coordination of Flood Control under Urbanization on the Taihu Plain: Basin, City and Region Perspectives

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Table S1 Basic information of sluices along the Yangtze River in the WCXY region.

ID	Name	River channel	Gate width (m)	Bottom elevation (m)	Design flow rate (m ³ /s)	Design pump discharge flow (m ³ /s)	Scheduling rules (gate drainage)
1	Weicun	Desheng	24	0	300	60	Changzhou > 4.0m
2	Zaogang	Zaogang	16	0	190	40	Changzhou > 4.0m
3	Xingouhe	Xingou	48	-1	460	180	Changzhou > 4.0m Wuxi > 3.6m
4	Xinxiagang	Xinxiagang	10	-0.5	45	45	Qingyang > 3.7m
5	Dingbo	Xicheng	24	0	240	-	Qingyang > 3.7m
6	Baiqugang	Baiqugang	20	-1.5	100	100	Qingyang > 3.7m
7	Zhangjiagang	Zhangjiagang	40	-0.1	387	-	Wuxi > 3.6m
8	Shiyiwei	Ergan	14	0.5	180	-	Wuxi > 3.6m
9	Zoumatang	Zoumatang	36	-1	207	-	Wuxi > 3.6m

Table. S2 Basic information of the LEFCP in the WCXY region.

LEFCP	ID	Name	Check- gate net width (m)	Design pump discharge flow (m ³ /s)	River channel	Operation Rules
Changzhou	10	Dayunhedong	2×16	100	Jinghang	When Sanbaojie exceeds 4.3m, close the gate; when Sanbaojie exceeds 4.5m, turn on the pump to drain; when Changzhou exceeds 4.8m, close the pump.
	11	Cailinggang	12	20	Cailinggang	
	12	Nanyunhe	12	30	Nanyunhe	
	13	Xinzha	60	--	Jinghang	
	14	Zaoganghenan	2×10	50	Zaogang	
	15	Beitanghe	12	30	Beitang	
	16	Laozaoganghe	8	10	Laozaogang	
	17	Yonghui	8	10	Yonghui	
	19	Hengtanghebei	2×10	40	Hengtang	
	20	Dinghenghe	6	15	Dingheng	
Wuxi	21	Jiangjian	3×25	60	Guyunhe	When Nanmen exceeds 3.8m, close the gate and start the LEFCP.
	22	Xianliqiao	16(2×20)	75	Liangxi	
	23	Liminqiao	16	60	Sunan	
	24	Bodugang	6	45	Bodugang	
	25	Jiulihe	6	45	Jiuli	
	26	Beixingtang	16	60	Beixingtang	
	27	Yandaigang	2×12	100	Yandaigang	

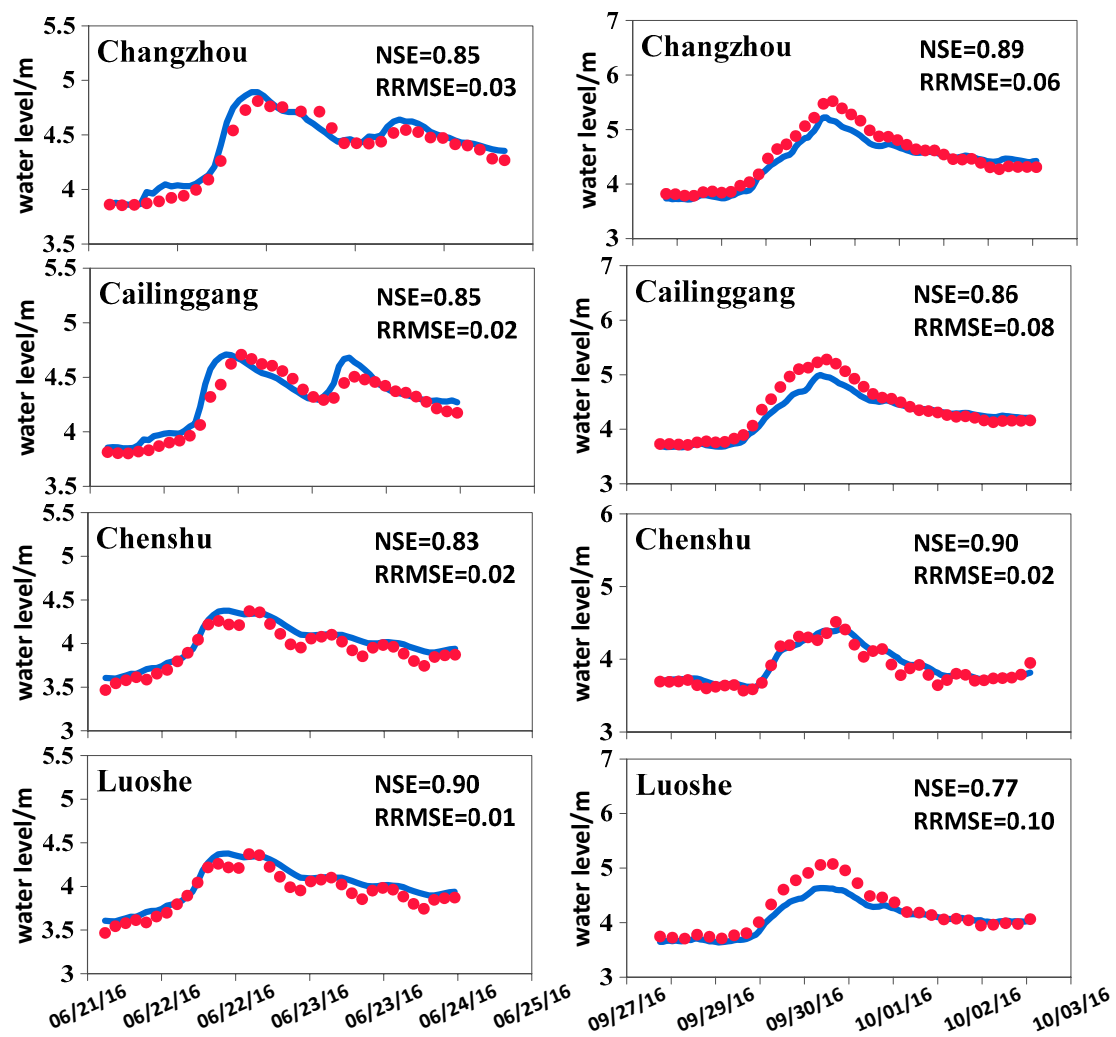


Figure S1 The calibration results of the MIKE model.

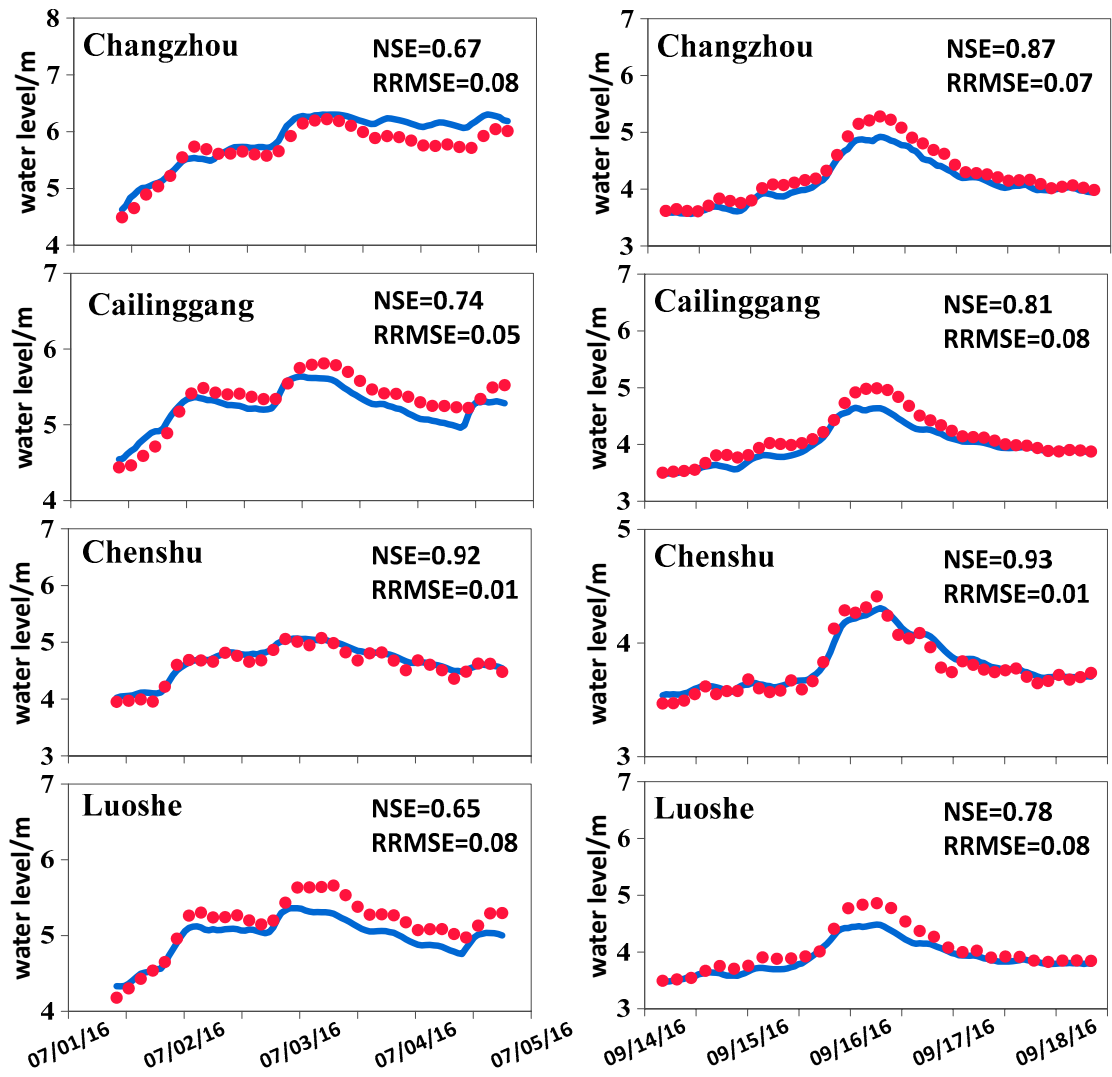


Figure S2 The validation results of the MIKE model.

Table S3 Scheduling optimization schemes for strengthening coordination of flood control at different levels

Level	Optimized Solutions	Operation rules of sluices along the Yangtze River		Operation rules of the LEFCP
Basin-Region	S8	Weicun, Zaogang	Changzhou >3.73m	
		Xingouhe Shiyiwei, Zhangjiagang, Zoumatang	Wuxi > 3.2m	Sanbaojie > 4.57m
		Dingbo, Baiqugang, Xinxiagang	Qingyang>3.35m	Nanmen >4.2m
Basin - City	S7	Weicun, Zaogang	Changzhou >3.87m	
		Xingouhe Shiyiwei, Zhangjiagang, Zoumatang	Wuxi > 3.4m	Sanbaojie > 4.57m
		Dingbo, Baiqugang, Xinxiagang	Qingyang>3.53m	Nanmen >4.2m
Region - City	S5	Weicun, Zaogang	Changzhou > 3.87m	
		Xingouhe Shiyiwei, Zhangjiagang, Zoumatang	Wuxi > 3.4m	Changzhou (Sanbaojie)>4.43m
		Dingbo, Baiqugang, Xinxiagang	Qingyang>3.53m	Wuxi (Nanmen) >4.0m