

The following supplement accompanies the article

A coupled surface-subsurface modeling framework to assess the impact of climate change on freshwater wetlands

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Table S1. List of calibrated parameters for each watershed.

	KC		YWC		LJR		SC	
	Priori estimation	Factor	Priori estimation	Factor	Priori estimation	Factor	Priori estimation	Factor
Matrix conductivity (horizontal) (m day ⁻¹)	8.35 x 10 ⁻³ - 10.9	0.46	8.35 x 10 ⁻³ - 10.9	0.98	3.79 x 10 ⁻² - 2.59	4.65	0.108 - 10.9	0.06
Matrix conductivity (vertical) (m day ⁻¹)	8.35 x 10 ⁻⁴ - 1.09	15.34	8.35 x 10 ⁻⁴ - 1.09	5.10	3.79 x 10 ⁻³ - 0.259	80.50	1.08 x 10 ⁻² - 1.09	0.29
Macropore conductivity (horizontal) (m day ⁻¹)	83.5 - 1.09 x 10 ⁵	4.45	83.5 - 1.09 x 10 ⁵	1.00	3.79 x 10 ² - 2.59 x 10 ⁴	3.60	1.08 x 10 ³ - 1.09 x 10 ⁵	0.03
Macropore conductivity (vertical) (m day ⁻¹)	8.51 x 10 ⁻² - 2.54 x 10 ²	0.07	8.51 x 10 ⁻² - 2.54 x 10 ²	4.00	10.7 - 1.75 x 10 ²	31.88	1.64 - 2.57 x 10 ²	4.03
Infiltration rate (m day ⁻¹)	8.51 x 10 ⁻⁴ - 2.54	8.03	8.51 x 10 ⁻⁴ - 2.54	1.00	0.01 - 0.18	1.28	1.64 x 10 ⁻² - 2.57	0.34
Macropore depth (m)	1.00	1.23	1.00	1.00	1.00	0.48	1.00	0.36
Porosity (m ³ m ⁻³)	0.24 - 0.49	0.24	0.24 - 0.49	0.32	0.27 - 0.40	1.10	0.24 - 0.46	1.26
van Genuchten parameter α (m ⁻¹)	1.43 x 10 ⁻² - 6.62	0.11	1.43 x 10 ⁻² - 6.62	2.10	2.08 - 4.76	0.79	1.33 - 6.63	3.84
van Genuchten parameter β	1.09 - 1.46	2.23	1.09 - 1.46	1.00	1.12 - 1.35	2.76	1.08 - 1.45	3.69
River Mannings roughness (day m ^{-1/3})	4.63 x 10 ⁻⁷	4.40	4.63 x 10 ⁻⁷	1.00	4.63 x 10 ⁻⁷ - 5.79 x 10 ⁻⁷	14.20	4.63 x 10 ⁻⁷	0.19
River bed conductivity (horizontal) (m day ⁻¹)	0.60	6.00	0.60	19.80	0.60	0.50	0.60	0.09
River bed conductivity (vertical) (m day ⁻¹)	0.10	11.00	0.10	49.10	0.10	0.04	0.10	0.09
Transpiration factor	1.00	0.37	1.00	0.50	1.00	0.60	1.00	0.37
Soil evaporation factor	1.00	0.30	1.00	0.30	1.00	0.50	1.00	0.30

	EMC		MC		LR	
	Priori estimation	Factor	Priori estimation	Factor	Priori estimation	Factor
Matrix conductivity (horizontal) (m day ⁻¹)	0.108 - 6.56	0.80	1.25 - 5.21	1.10	8.45 x 10 ⁻⁴ - 7.18	4.10
Matrix conductivity (vertical) (m day ⁻¹)	1.08 x 10 ⁻² - 0.656	1.80	0.125 - 0.521	5.00	8.45 x 10 ⁻⁵ - 0.718	1.30
Macropore conductivity (horizontal) (m day ⁻¹)	1.08 x 10 ³ - 6.56 x 10 ⁴	0.80	1.25 x 10 ⁴ - 5.21 x 10 ⁴	1.00	8.45 - 7.18 x 10 ⁴	0.80
Macropore conductivity (vertical) (m day ⁻¹)	1.61 - 1.32 x 10 ²	3.20	11.0 - 127	4.00	1.01 - 1.50 x 10 ²	11.00
Infiltration rate (m day ⁻¹)	1.61 x 10 ⁻² - 1.32	2.10	0.110 - 1.27	1.00	1.01 x 10 ⁻² - 1.50	12.00
Macropore depth (m)	1.00	0.30	1.00	0.90	1.00	0.93
Porosity (m ³ m ⁻³)	0.24 - 0.49	0.45	0.38 - 0.47	0.53	0.36 - 0.70	0.55
van Genuchten parameter α (m ⁻¹)	1.11 - 6.14	0.51	1.79 - 9.53	2.00	2.01 - 6.55	0.45
van Genuchten parameter β	1.08 - 1.44	2.10	1.16 - 1.73	1.30	1.10 - 1.90	1.50
River Mannings roughness (day m ^{-1/3})	4.63 x 10 ⁻⁷	1.20	4.63 x 10 ⁻⁷	1.00	4.63 x 10 ⁻⁷	1.00
River bed conductivity (horizontal) (m day ⁻¹)	0.60	5.10	0.60	21.00	0.60	4.10
River bed conductivity (vertical) (m day ⁻¹)	0.10	2.80	0.10	52.00	0.10	0.80
Transpiration factor	1.00	0.37	1.00	0.50	1.00	0.60
Soil evaporation factor	1.00	0.30	1.00	0.30	1.00	0.50