

Wind-induced sediment dynamics impact on turbidity for waterworks in Taihu Basin based on numerical simulation

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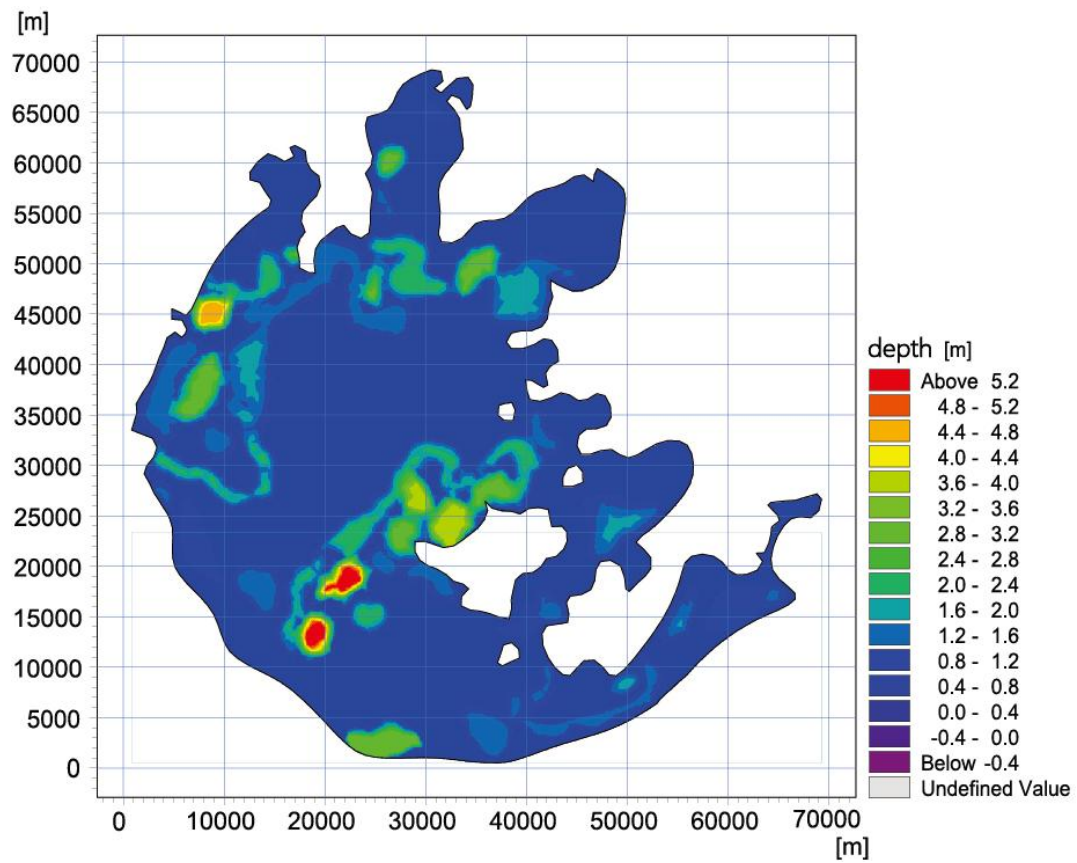
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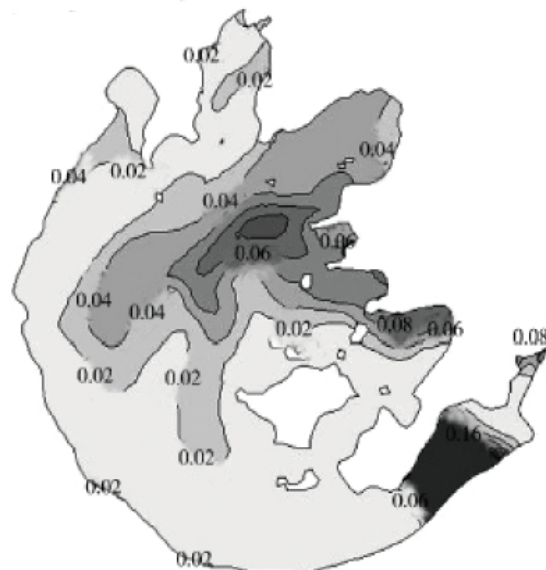
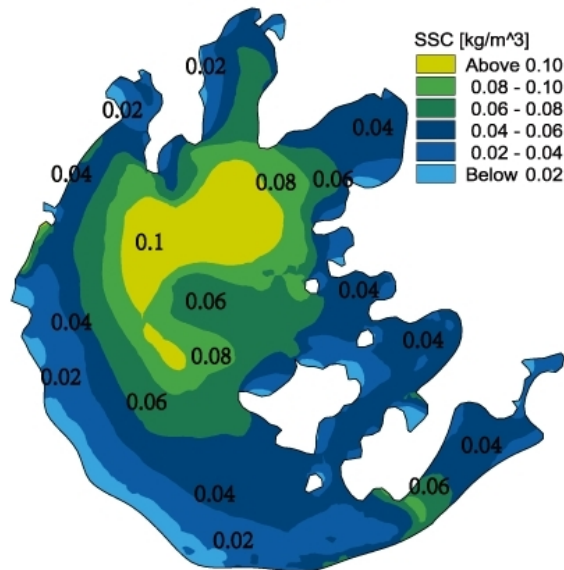
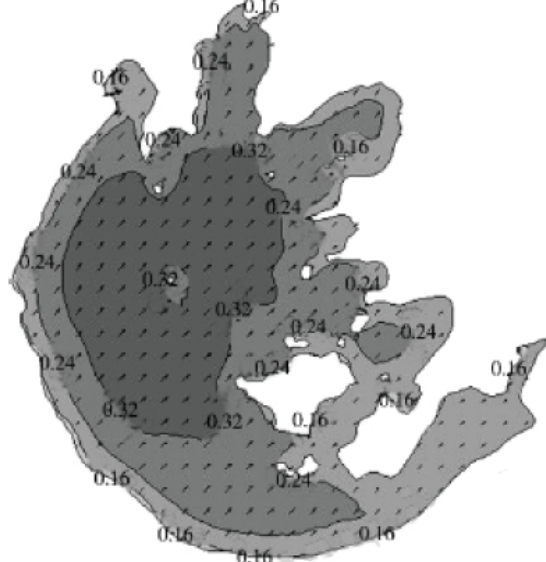
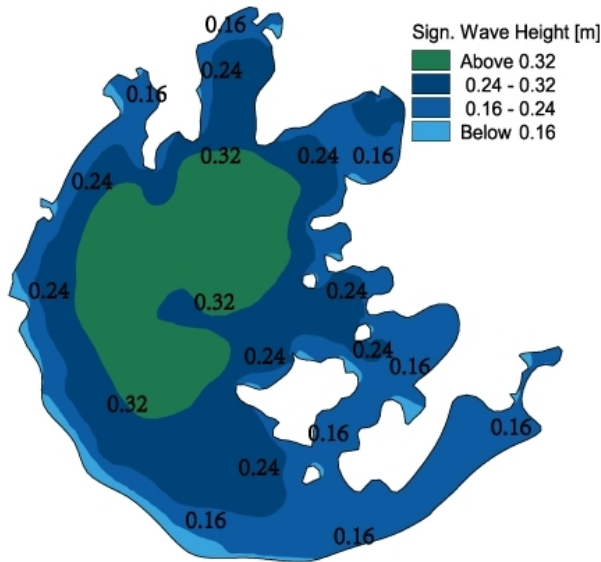
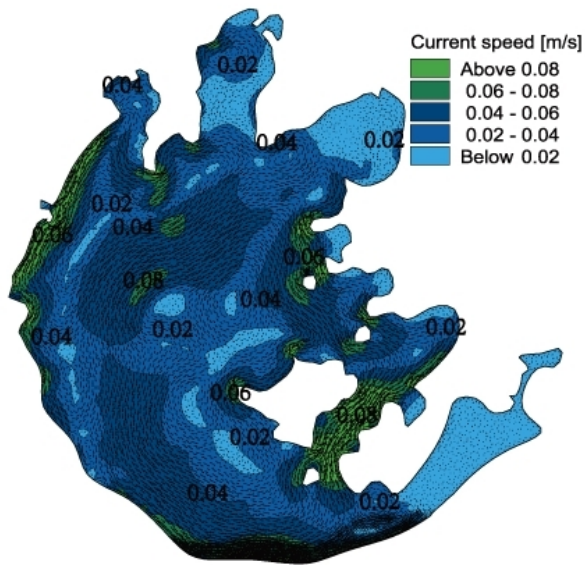
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Online Resource 1 Thickness of bed layer



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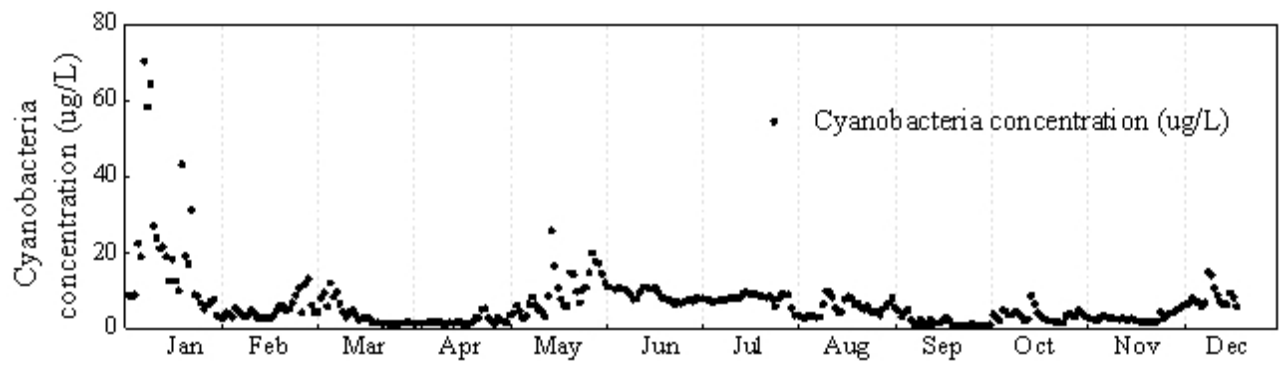
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Online Resource 2 Model results of the current study (left) and in Zhao et al., 2018 (right)

Online Resource 3 Model parameters

Model	Parameters	Value
HD Model	Bed resistance (Manning number)	31 ($\text{m}^{1/3}/\text{s}$)
	Horizontal eddy viscosity coefficient (μ_h)	0.28 m^2/s
	Vertical eddy viscosity coefficient (μ_v)	0.3 m^2/s
		0.001255(at 7 m/s)~
	Wind friction coefficient (c_d)	0.002425(at 25 m/s)
		(default)
	Coriolis parameter (f)	Vary in domain
SW Model	Initial surface elevation	0 (m)
	Initial $u/v/w$ -velocity	0.01 (m/s)
	Minimum frequency (σ_{min})	0.05 (Hz, default)
	Maximum frequency (σ_{max})	0.4 (Hz, default)
	Wave breaking (constant Gamma data)	0.8 (default)
MT Model	Bottom friction (constant Nikuradse roughness, k_s)	0.03
	Number of fractions	2
	Number of layers	2
	Thickness of layer 1	0.1 (m)
	Thickness of layer 2	Fig.S1
	Proportion of fraction 1 in layer 1 & 2	0.8
	Proportion of fraction 2 in layer 1 & 2	0.2

Mean settling velocity of fraction 1 (w_{s1})	0.00002 (m/s)
Mean settling velocity of fraction 2 (w_{s2})	0.0008 (m/s)
Critical shear stress for deposition of fraction 1 (τ_{cd1})	0.03 (N/m ²)
Critical shear stress for deposition of fraction 2 (τ_{cd2})	0.08 (N/m ²)
Critical shear stress for erosion of layer 1 (τ_{ce1})	0.02(N/m ²)
Critical shear stress for erosion of layer 2 (τ_{ce2})	0.05(N/m ²)
Erosion coefficient of layer 1 (Q_1)	0.00002
Erosion coefficient of layer 2 (Q_2)	0.0001
Dry density of bed layer1 (ρ_{b1})	180 (kg/m ³)
Dry density of bed layer2 (ρ_{b2})	320 (kg/m ³)
Horizontal dispersion coefficient of fraction 1 & 2 (D_x, D_y)	0.8 m ² /s
Vertical dispersion coefficient of fraction 1 & 2(D_z)	1 m ² /s
Power of erosion for bed layer 1 (α)	4
Power of erosion for bed layer 2 (n)	1
Initial concentration of fraction 1 & 2	0.01 (kg/m ³)



Online Resource 4 Day-mean series of Cyanobacteria concentration