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Development of early-warning protocol for predicting *chlorophyll-a* concentration using machine learning models in freshwater and estuarine reservoirs, Korea

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Models: SVM and ANN

Target: Chl-a Concentration in two reservoirs in Korea

Data: Weekly data of 7 years

Water quality observations: chl-a, phosphate phosphorus, ammonium nitrogen, nitrate nitrogen, water temperature

Meteriological data: solar radiation, wind speed

Matrices:

Site	Model (training function)	Model parameters	NSE[c]		R^{2c}		MAE[c]	
			Tr[d]	Vl[d]	Tr	Vl	Tr	Vl
JAR	ANN (Purelin/Purelin)	lr[a]: 0.10 mo[a]: 0.10 # N[a]: 5	0.71	0.73	0.71	0.74	0.52	0.85
	SVM (Linear)	C[b]: 53.04 ε[b]: 0.06 σ[b]: 10.00	0.71	0.75	0.71	0.75	0.53	0.84
YSR	ANN (Purelin/Purelin)	lr: 0.10 mo: 0.29 # N: 5	0.63	0.41	0.63	0.43	5.72	5.73
	SVM (Gaussian RBF)	C: 42.00 ε: 0.10 σ: 6.63	0.63	0.45	0.64	0.45	5.78	5.81

Major conclusions:

SVM better than ANN