

An effective machine learning model for the estimation of reference evapotranspiration under data-limited conditions

SARAVANAN KARUPPANAN¹ , SARAVANAN RAMASAMY², BALAJI LAKSHMINARAYANAN²,
SREEMANTHRARUPINI NARIANGADU ANUTHAMAN²

¹*Dhanalakshmi Srinivasan College of Engineering and Technology, Mamallapuram, Chennai, India*

²*Centre for Water Resources, Anna University, Chennai, India*

Electronic Supplementary Material (ESM)

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Table S1. Statistics of the machine learning and empirical models for estimating the ET_o using the temperature-based approach for the considered weather stations

Station	Models	R^2	RMSE	NSE	Models	R^2	RMSE	NSE	Models	R^2	RMSE	NSE
Annamalai Nagar	HS	0.560	0.923	0.126	S	0.587	1.054	-0.140	TAB	0.888	0.432	0.888
	LSTM1	0.700	0.707	0.699	LSTM2	0.641	0.787	0.627	LSTM3	0.956	0.319	0.896
	ANN1	0.661	1.051	0.264	ANN2	0.604	1.140	0.130	ANN3	0.950	0.509	0.735
	SVM1	0.636	1.124	0.156	SVM2	0.608	1.164	0.094	SVM3	0.945	0.472	0.771
Bangalore	HS	0.615	0.795	0.440	S	0.657	0.960	0.252	TAB	0.783	0.529	0.783
	LSTM1	0.707	0.705	0.615	LSTM2	0.677	0.919	0.287	LSTM3	0.956	0.451	0.820
	ANN1	0.648	1.021	0.395	ANN2	0.567	1.228	0.123	ANN3	0.894	0.484	0.793
	SVM1	0.648	1.034	0.379	SVM2	0.612	1.159	0.220	SVM3	0.883	0.525	0.755
Coimbatore	HS	0.666	1.054	0.289	S	0.742	0.910	0.540	TAB	0.729	0.973	0.395
	LSTM1	0.729	1.001	0.444	LSTM2	0.846	0.777	0.614	LSTM3	0.819	0.919	0.531
	ANN1	0.640	1.325	0.327	ANN2	0.726	1.150	0.493	ANN3	0.714	1.238	0.420
	SVM1	0.630	1.372	0.278	SVM2	0.727	1.156	0.488	SVM3	0.729	0.973	0.395
Kovilpatti	HS	0.766	1.082	0.586	S	0.809	0.988	0.655	TAB	0.826	0.949	0.681
	LSTM1	0.880	0.934	0.714	LSTM2	0.866	0.894	0.738	LSTM3	0.922	0.834	0.772
	ANN1	0.833	1.186	0.615	ANN2	0.892	0.904	0.732	ANN3	0.853	1.102	0.668
	SVM1	0.829	1.193	0.601	SVM2	0.832	1.127	0.652	SVM3	0.848	1.106	0.665
Tirupati	HS	0.812	1.054	0.660	S	0.867	0.921	0.740	TAB	0.868	0.896	0.754
	LSTM1	0.859	0.994	0.711	LSTM2	0.904	0.803	0.812	LSTM3	0.900	0.837	0.795
	ANN1	0.815	1.137	0.649	ANN2	0.830	1.072	0.688	ANN3	0.839	1.059	0.696
	SVM1	0.820	1.123	0.658	SVM2	0.828	1.079	0.684	SVM3	0.834	1.064	0.693

R^2 – coefficient of determination; RMSE – root mean square error; NSE – Nash Sutcliffe efficiency; HS – Hargreaves-Samani equation; LSTM – long short-term memory neural network; ANN – artificial neural network; SVM – support vector regression; S – Schendel equation; TAB – Tabari and Talee model; BROc – Brockamp-Wenner model