Table S1. Statistical parameters for each considered input variables scenario (according to Table 8) and for each tested optimizer for MLP, LSTM and convolutional models.

| | | Scenarios | | | | | | | | | | | |
		TP1	TP2	TP3	TP4	TP5	TP6	TP&AT1	TP&AT2	TP&AT3	TP&AT4	TP&AT5	TP&AT6
		MLP											
Adagrad	NSE	-0.46	0.56	0.59	0.12	0.60	0.21	-0.10	0.10	0.71	-0.59	-	0.19
	R²	0.20	0.66	0.59	0.46	0.63	0.59	0.22	0.50	0.72	0.24	-	0.46
	PBIAS	-80.8	16.0	-0.5	11.1	8.8	93.6	-41.4	12.5	6.2	-56.3	-	12.2
	RMSE	13.9	7.5	7.2	10.8	7.5	10.1	12.0	10.9	6.1	14.4	-	10.3
Adam	NSE	-0.64	0.10	0.59	0.53	0.60	0.37	-	0.16	0.72	-0.06	-	-0.13
	R²	0.19	0.51	0.61	0.54	0.83	0.62	-	0.64	0.74	0.47	-	0.50
	PBIAS	-54.6	-92.7	-16.4	15.3	-26.4	27.4	-	37.6	-19.3	-58.7	-	-96.7
	RMSE	14.7	10.9	7.2	7.8	7.1	9.1	-	10.5	6.0	11.8	-	12.1
Adamax	NSE	-0.23	0.41	0.69	0.49	0.80	0.40	-0.20	-0.34	0.69	0.06	0.74	0.06
	R²	0.21	0.70	0.72	0.56	0.85	0.60	0.24	0.46	0.70	0.49	0.76	0.55
	PBIAS	-36.5	36.0	-54.9	-18.0	-17.3	-32.7	-33.4	42.5	-8.0	-49.9	21.3	-69.8
	RMSE	12.7	8.8	6.2	8.2	5.0	8.8	12.5	13.3	6.2	11.1	5.8	11.1
Nadam	NSE	-0.57	-0.12	0.46	0.34	0.66	0.01	-0.10	0.42	0.67	0.02	0.80	0.36
	R²	0.20	0.61	0.71	0.53	0.81	0.60	0.24	0.61	0.68	0.47	0.85	0.49
	PBIAS	-104.4	-86.0	11.7	-42.5	-26.0	-79.0	-58.0	-6.9	0.7	-88.0	-29.6	34.7
	RMSE	14.4	12.1	8.3	9.3	6.6	11.3	12.0	8.7	6.5	11.4	5.1	9.1
RMSprop	NSE	-0.08	0.56	0.68	0.30	0.68	0.04	-0.08	-0.36	0.66	-1.36	0.65	-0.51
	R²	0.20	0.67	0.71	0.56	0.85	0.59	0.22	0.59	0.68	0.47	0.76	0.55
	PBIAS	-26.5	-19.9	-17.6	-62.8	-39.2	-58.6	-51.7	-67.0	-24.2	-101.2	-50.4	-95.5
	RMSE	11.9	7.6	6.4	9.6	6.4	11.2	11.9	13.3	6.6	17.7	6.7	14.0
SGD	NSE	-0.49	0.31	0.63	-	0.73	0.42	-0.29	0.15	-	0.17	0.66	0.10
	R²	0.20	0.62	0.63	-	0.75	0.60	0.24	0.46	-	0.41	0.68	0.42
	PBIAS	-58.0	51.0	-8.9	-	-1.5	0.3	-67.5	40.7	-	-39.4	-5.6	-12.1
	RMSE	14.0	9.5	6.9	-	5.9	8.7	13.0	10.5	-	10.5	6.6	10.8
		LSTM											
Adagrad	NSE	0.56	0.51	-	0.50	0.48	-0.03	0.01	-	0.07	-0.41	0.51	-0.02
	R²	0.58	0.69	-	0.58	0.53	0.57	0.41	-	0.18	0.50	0.60	0.57

	PBIAS	-6.2	-35.1	-	-23.9	13.1	-39.0	17.8	-	5.6	-51.7	2.7	-26.7
	RMSE	7.6	8.0	7.0	8.1	8.2	11.5	11.4	-	10.9	13.6	7.9	11.5
Adam	NSE	0.15	0.24	0.62	-	0.49	0.22	0.30	-0.42	0.38	-0.83	0.43	0.63
	R^2	0.56	0.69	0.63	-	0.57	0.72	0.34	0.66	0.67	0.55	0.59	0.70
	PBIAS	-47.3	-58.5	17.2	-	38.3	-101.4	26.4	1.4	53.7	-149.5	33.9	30.1
	RMSE	10.5	9.9	-	-	8.1	10.1	9.6	13.7	8.9	15.5	8.5	6.9
Adamax	NSE	0.25	0.46	0.59	-	0.75	-	0.54	0.51	0.51	-0.66	0.42	0.47
	R^2	0.56	0.72	0.64	-	0.83	-	0.61	0.64	0.55	0.38	0.60	0.64
	PBIAS	-43.9	-38.5	11.7	-	15.8	-	38.4	9.4	15.5	-10.3	46.2	14.2
	RMSE	9.9	8.4	7.3	-	5.6	-	7.8	8.0	7.9	14.8	8.6	8.3
Nadam	NSE	0.53	0.33	0.72	0.63	0.69	0.10	0.21	0.41	0.69	-0.26	0.62	-0.75
	R^2	0.62	0.61	0.72	0.67	0.75	0.70	0.56	0.64	0.75	0.52	0.75	0.61
	PBIAS	-40.4	-8.5	-8.0	-24.6	-37.7	-121.1	-94.9	-58.0	-6.8	-107.4	8.1	-146.2
	RMSE	7.9	9.3	6.0	6.9	6.3	10.8	10.2	8.8	6.3	12.9	7.0	15.1
RMSprop	NSE	0.66	0.25	0.74	0.14	0.72	-0.07	0.59	-0.16	0.53	-0.26	0.42	-0.51
	R^2	0.66	0.59	0.76	0.66	0.72	0.54	0.61	0.57	0.64	0.63	0.72	0.68
	PBIAS	8.9	9.4	13.6	-100.0	-6.3	-56.6	-18.0	-122.9	-17.0	-145.1	13.4	-150.2
	RMSE	6.7	9.9	5.8	10.6	6.0	11.8	7.3	12.3	7.8	12.9	8.6	14.0
SGD	NSE	0.39	-0.85	0.59	-0.08	0.60	0.46	0.23	-0.13	-0.63	-1.15	-0.06	-3.12
	R^2	0.56	0.69	0.61	0.04	0.68	0.69	0.43	0.38	0.47	0.44	0.23	0.36
	PBIAS	-19.5	-67.4	-20.0	-49.3	20.9	-37.6	11.1	-96.6	72.6	-104.8	-21.0	6.9
	RMSE	9.0	15.6	7.2	11.9	7.1	8.3	10.0	12.2	14.5	16.8	11.7	23.2
Convolutional													
Adagrad	NSE	-0.57	-0.13	0.67	-	0.83	0.39	-0.24	-0.12	0.60	0.48	0.66	0.18
	R^2	0.21	0.50	0.71	-	0.84	0.53	0.23	0.60	0.65	0.53	0.75	0.44
	PBIAS	-89.1	31.6	-19.0	-	-4.4	4.5	-21.9	5.5	-21.4	-2.7	21.6	-26.9
	RMSE	14.4	12.2	6.4	-	4.6	8.9	12.8	12.1	7.1	8.3	6.6	10.3
Adam	NSE	-0.21	0.29	0.72	0.28	0.83	-0.30	-0.12	-0.38	0.62	0.00	0.40	0.09
	R^2	0.21	0.57	0.72	0.58	0.85	0.67	0.22	0.63	0.68	0.65	0.72	0.66
	PBIAS	-69.0	-71.9	0.9	69.3	-14.0	-111.2	-40.0	-103.7	11.5	-95.8	-27.0	-54.9
	RMSE	12.6	9.6	6.0	9.7	4.6	13.0	12.1	13.4	6.9	11.5	8.8	10.8
Adamax	NSE	-0.19	0.28	0.76	0.39	0.71	0.20	-0.14	0.29	0.60	0.12	0.46	0.24
	R^2	0.20	0.52	0.77	0.65	0.76	0.65	0.23	0.67	0.66	0.63	0.81	0.64

	PBIAS	-79.6	-61.0	-10.5	-23.7	-21.0	-44.9	-52.3	-39.8	20.4	-103.8	-11.8	-6.2
	RMSE	12.5	9.7	5.5	9.0	6.1	10.2	12.3	9.7	8.5	10.8	8.4	9.9
Nadam	NSE	-0.23	-0.10	0.62	0.13	0.86	-0.13	-0.35	0.19	0.67	0.02	0.56	0.01
	R^2	0.21	0.63	0.62	0.68	0.87	0.67	0.23	0.62	0.72	0.61	0.69	0.64
	PBIAS	-18.3	-8.7	-6.7	-91.7	10.5	-90.2	-46.6	-20.7	-3.0	-32.0	31.1	-1.6
	RMSE	12.7	12.0	6.9	10.7	4.2	12.1	13.3	10.3	7.2	11.3	7.4	11.3
RMSprop	NSE	-0.36	-0.03	0.61	0.03	0.82	0.23	-0.64	0.03	0.29	0.29	0.71	-0.69
	R^2	0.21	0.59	0.74	0.66	0.83	0.65	0.24	0.73	0.66	0.58	0.74	0.60
	PBIAS	-102.2	-72.8	-58.1	-91.4	-1.8	-58.0	-126.1	1.7	-67.3	-67.0	-14.4	-125.9
	RMSE	13.4	11.6	7.1	11.3	4.9	10.0	14.7	11.3	9.5	9.6	6.1	14.8
SGD	NSE	-0.24	0.12	0.71	-0.23	0.73	0.34	-0.22	0.39	0.68	0.40	0.68	0.53
	R^2	0.21	0.47	0.73	0.33	0.86	0.59	0.23	0.55	0.69	0.50	0.71	0.66
	PBIAS	-76.5	-8.2	-14.7	-12.3	-48.9	-0.3	-48.4	33.0	-9.1	-26.0	-12.7	-46.1
	RMSE	12.8	10.7	6.1	12.7	5.9	9.2	12.7	8.9	6.4	8.9	6.4	7.8