1 Evaporites - Report Three models for all logs combinations (Linear Regression — Polynomiyal Regression — XGBoost Regression)

Table 1: Models - Evaporites

logs	Predict	Linear R2	Linear MAE	Polynomial R2	Polynomial MAE	XGBoost R2	XGBoost MAE
RHOB	SHC	0.6266	156.4977	0.6280	155.9266	0.6359	152.9097
	TC	0.1468	0.5728	0.1544	0.5684	0.1550	0.5611
	TD	0.2108	0.2950	0.2178	0.2929	0.2052	0.2848
PHIN	SHC	0.7276	132.5090	0.7277	132.4948	0.7438	127.0224
	TC	0.7004	0.3383	0.7261	0.32489	0.7336	0.3200
	TD	0.8047	0.1444	0.8509	0.1254	0.8559	0.1230
VSH	SHC	1.5786×10^{-05}	273.5051	1.5591×10^{-05}	273.5052	-3.9504×10^{-05}	273.5127
	TC	0.1954	0.5680	0.1970	0.5674	0.1969	0.5672
	TD	0.1192	0.3280	0.1201	0.3278	0.0918	0.3216
U	SHC	0.3614	208.3203	0.3622	208.4168	0.3692	206.5363
	TC	0.4643	0.4621	0.4781	0.4533	0.4706	0.4501
	TD	0.4968	0.2449	0.5251	0.2353	0.5236	0.2354
DT	SHC	0.9230	70.8774	0.9239	70.6150	0.9292	67.2663
	TC	0.2830	0.5240	0.2835	0.5235	0.2868	0.5149
	TD	0.4084	0.2514	0.4097	0.2503	0.4135	0.2452
AI	SHC	0.8285	104.6623	0.8825	86.7238	0.8859	84.9722
	TC	0.2474	0.5346	0.2510	0.5346	0.2611	0.5282
	TD	0.3557	0.2616	0.3632	0.2614	0.3389	0.2535
RHOB, PHIN	SHC	0.8249	106.3367	0.8352	103.3681	0.8476	98.1268
	TC	0.7431	0.3139	0.7766	0.2946	0.7823	0.2907

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Table 1: Models - Evaporites (Continued)

logs	Predict	Linear R2	Linear MAE	Polynomial R2	Polynomial MAE	XGBoost R2	XGBoost MAE
	TD	0.8298	0.1361	0.8858	0.1119	0.8893	0.1101
RHOB, VSH	SHC	0.6300	155.7023	0.6324	155.0439	0.6410	151.8853
	TC	0.3233	0.5053	0.3268	0.5021	0.3167	0.4925
	TD	0.3129	0.2761	0.3164	0.2742	0.3211	0.2716
RHOB, U	SHC	0.6624	148.0763	0.6841	142.9730	0.6971	138.4538
	TC	0.4644	0.4620	0.5211	0.4327	0.5296	0.4275
	TD	0.5033	0.2414	0.5630	0.2234	0.5584	0.2189
RHOB, DT	SHC	0.9264	69.0904	0.9305	66.8611	0.9366	62.2108
	TC	0.3005	0.5194	0.3144	0.5140	0.3426	0.5003
	TD	0.4349	0.2458	0.4501	0.2421	0.4852	0.2342
RHOB, AI	SHC	0.8431	100.2231	0.9276	68.3916	0.9366	62.0602
	TC	0.2810	0.5235	0.3059	0.5164	0.3481	0.4993
	TD	0.4055	0.2497	0.4415	0.2438	0.4868	0.2342
PHIN, VSH	SHC	0.7738	118.2589	0.7818	115.8644	0.8100	106.1724
	TC	0.7627	0.3023	0.8073	0.2718	0.8173	0.2643
	TD	0.8229	0.1379	0.8746	0.1142	0.8859	0.1097
PHIN, U	SHC	0.7276	132.5234	0.7310	131.7617	0.7470	126.3006
	TC	0.7181	0.3318	0.7476	0.3139	0.7575	0.3072
	TD	0.8161	0.1406	0.8629	0.1207	0.8685	0.1180
PHIN, DT	SHC	0.9498	56.3398	0.9509	55.9302	0.9555	52.3595
	TC	0.7385	0.3198	0.7867	0.2907	0.7989	0.2816
	TD	0.8145	0.1426	0.8784	0.1164	0.8905	0.1102
PHIN, AI	SHC	0.8959	81.7326	0.9329	65.6599	0.9360	63.5705
	TC	0.7377	0.3192	0.7893	0.2879	0.7967	0.2821

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Table 1: Models - Evaporites (Continued)

logs	Predict	Linear R2	Linear MAE	Polynomial R2	Polynomial MAE	XGBoost R2	XGBoost MAE
	TD	0.8171	0.1419	0.8843	0.1136	0.8922	0.1093
VSH, U	SHC	0.4953	183.4277	0.4992	182.3756	0.5030	181.0376
	TC	0.4759	0.4590	0.5036	0.4440	0.5051	0.4424
	TD	0.4971	0.2443	0.5344	0.2339	0.5369	0.2323
VSH, DT	SHC	0.9356	64.5735	0.9372	63.7405	0.9424	59.8920
	TC	0.4316	0.4553	0.4366	0.4521	0.4600	0.4374
	TD	0.4845	0.2316	0.4890	0.2292	0.5129	0.2205
VSH, AI	SHC	0.8405	100.1750	0.8918	83.0755	0.8958	80.9183
	TC	0.3980	0.4672	0.4105	0.4646	0.4205	0.4579
	TD	0.4336	0.2422	0.4492	0.2412	0.4589	0.2359
U, DT	SHC	0.9267	69.1290	0.9316	66.8250	0.9369	63.4045
	TC	0.4941	0.4445	0.5171	0.4335	0.5302	0.4263
	TD	0.5790	0.2168	0.6147	0.2052	0.6250	0.2016
U, AI	SHC	0.8367	102.2434	0.8964	81.4827	0.9007	78.9671
	TC	0.4802	0.4516	0.5225	0.4320	0.5316	0.4259
	TD	0.5500	0.2248	0.6015	0.2105	0.6090	0.2067
DT, AI	SHC	0.9273	68.9337	0.9294	67.5642	0.9368	62.0250
	TC	0.2869	0.5243	0.3115	0.5156	0.3518	0.4996
	TD	0.4145	0.2516	0.4481	0.2426	0.4885	0.2329
RHOB, PHIN, VSH	SHC	0.8571	94.2335	0.8739	88.1159	0.8969	77.1933
	TC	0.7945	0.2824	0.8578	0.2367	0.8754	0.2212
	TD	0.8435	0.1314	0.9093	0.0996	0.9214	0.0931
RHOB, PHIN, U	SHC	0.8281	104.9483	0.8449	99.7468	0.8584	93.6938
	TC	0.7745	0.2995	0.8331	0.2571	0.8398	0.2513

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Table 1: Models - Evaporites (Continued)

logs	Predict	Linear R2	Linear MAE	Polynomial R2	Polynomial MAE	XGBoost R2	XGBoost MAE
	TD	0.8496	0.1302	0.9118	0.0991	0.9149	0.0967
RHOB, PHIN, DT	SHC	0.9522	54.8444	0.9546	53.6933	0.9610	47.7654
	TC	0.7472	0.3126	0.7930	0.2856	0.8061	0.2762
	TD	0.8304	0.1354	0.8875	0.1116	0.9001	0.1053
RHOB, PHIN, AI	SHC	0.9028	78.4091	0.9547	53.6230	0.9604	48.4719
	TC	0.7439	0.3138	0.7918	0.2865	0.8032	0.2780
	TD	0.8322	0.1344	0.8877	0.1115	0.8982	0.1064
RHOB, VSH, U	SHC	0.7048	137.9180	0.7227	133.7322	0.7370	128.6965
	TC	0.4775	0.4577	0.5607	0.4142	0.5717	0.4074
	TD	0.5033	0.2414	0.5779	0.2200	0.5900	0.2148
RHOB, VSH, DT	SHC	0.9399	62.5674	0.9448	59.5089	0.9520	50.2256
	TC	0.4441	0.4511	0.4635	0.4439	0.5220	0.4102
	TD	0.5066	0.2259	0.5261	0.2211	0.5965	0.1972
RHOB, VSH, AI	SHC	0.8579	94.3545	0.9394	62.2450	0.9516	52.3820
	TC	0.4196	0.4561	0.4644	0.4424	0.5237	0.4138
	TD	0.4727	0.2300	0.5245	0.2216	0.5933	0.2010
RHOB, U, DT	SHC	0.9316	66.5926	0.9368	63.8754	0.9423	59.0277
	TC	0.5390	0.4226	0.5847	0.4000	0.6076	0.3882
	TD	0.6342	0.2007	0.6719	0.1882	0.6954	0.1812
RHOB, U, AI	SHC	0.8534	96.5234	0.9345	65.1115	0.9428	59.3350
	TC	0.5315	0.4256	0.5805	0.4026	0.6064	0.3895
	TD	0.6191	0.2042	0.6693	0.1891	0.6913	0.1828
RHOB, DT, AI	SHC	0.9276	68.6749	0.9349	64.3424	0.9372	61.7157
	TC	0.3023	0.5181	0.3234	0.5112	0.3525	0.4993

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Table 1: Models - Evaporites (Continued)

logs	Predict	Linear R2	Linear MAE	Polynomial R2	Polynomial MAE	XGBoost R2	XGBoost MAE
	TD	0.4374	0.2444	0.4624	0.2400	0.4863	0.2328
PHIN, VSH, U	SHC	0.7907	113.7630	0.8043	109.6294	0.8280	101.3844
	TC	0.7628	0.3025	0.8091	0.2698	0.8248	0.2576
	TD	0.8250	0.1371	0.8764	0.1136	0.8902	0.1071
PHIN, VSH, DT	SHC	0.9747	40.4208	0.9787	36.8364	0.9853	29.1360
	TC	0.7900	0.2854	0.8514	0.2408	0.8847	0.2079
	TD	0.8298	0.1367	0.8979	0.1059	0.9239	0.0899
PHIN, VSH, AI	SHC	0.9265	67.7425	0.9615	49.1385	0.9699	41.3863
	TC	0.7912	0.2853	0.8583	0.2354	0.8791	0.2162
	TD	0.8326	0.1362	0.9048	0.1026	0.9217	0.0925
PHIN, U, DT	SHC	0.9503	55.9187	0.9527	54.6371	0.9580	50.3783
	TC	0.7595	0.3093	0.8138	0.2732	0.8255	0.2638
	TD	0.8273	0.1379	0.8926	0.1097	0.9027	0.1039
PHIN, U, AI	SHC	0.8978	80.8596	0.9382	62.8309	0.9417	60.2543
	TC	0.7623	0.3075	0.8304	0.2609	0.8364	0.2549
	TD	0.8318	0.1369	0.9037	0.1044	0.9088	0.1005
PHIN, DT, AI	SHC	0.9533	54.4609	0.9549	53.3241	0.9600	48.0572
	TC	0.7397	0.3188	0.7901	0.2879	0.8050	0.2767
	TD	0.8172	0.1418	0.8862	0.1123	0.8993	0.1057
VSH, U, DT	SHC	0.9577	51.8529	0.9616	49.0386	0.9647	46.2334
	TC	0.5191	0.4332	0.5555	0.4136	0.5757	0.3996
	TD	0.5823	0.2160	0.6279	0.2011	0.6484	0.1920
VSH, U, AI	SHC	0.8735	89.0199	0.9196	71.5152	0.9246	68.4585
	TC	0.5014	0.4425	0.5607	0.4126	0.5708	0.4049

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Table 1: Models - Evaporites (Continued)

logs	Predict	Linear R2	Linear MAE	Polynomial R2	Polynomial MAE	XGBoost R2	XGBoost MAE
	TD	0.5519	0.2245	0.6152	0.2066	0.6272	0.2010
VSH, DT, AI	SHC	0.9397	62.6835	0.9428	60.8383	0.9521	51.7920
	TC	0.4367	0.4556	0.4609	0.4440	0.5381	0.4014
	TD	0.4918	0.2316	0.5257	0.2203	0.6027	0.1947
U, DT, AI	SHC	0.9322	66.6302	0.9370	63.7688	0.9432	58.7656
	TC	0.5081	0.4394	0.5794	0.4044	0.6073	0.3887
	TD	0.5957	0.2140	0.6728	0.1887	0.6964	0.1812
RHOB, PHIN, VSH, U	SHC	0.8593	93.7047	0.8821	85.3634	0.9043	74.4932
	TC	0.7988	0.2811	0.8746	0.2215	0.8926	0.2026
	TD	0.8520	0.1288	0.9182	0.0944	0.9306	0.0865
RHOB, PHIN, VSH, DT	SHC	0.9778	37.8304	0.9816	34.2116	0.9910	20.7520
	TC	0.7972	0.2805	0.8625	0.2319	0.9016	0.1914
	TD	0.8445	0.1305	0.9114	0.0985	0.9404	0.0790
RHOB, PHIN, VSH, AI	SHC	0.9354	63.0497	0.9794	36.2999	0.9892	23.0712
	TC	0.7954	0.2818	0.8625	0.2322	0.8910	0.2041
	TD	0.8459	0.1296	0.9117	0.0985	0.9335	0.0849
RHOB, PHIN, U, DT	SHC	0.9524	54.6590	0.9574	51.9404	0.9643	45.0644
	TC	0.7762	0.2985	0.8397	0.2516	0.8518	0.2401
	TD	0.8515	0.1292	0.9125	0.0987	0.9220	0.0927
RHOB, PHIN, U, AI	SHC	0.9036	78.1220	0.9573	52.0352	0.9635	46.2051
	TC	0.7746	0.2994	0.8393	0.2522	0.8481	0.2440
	TD	0.8537	0.1282	0.9129	0.0987	0.9208	0.0936
RHOB, PHIN, DT, AI	SHC	0.9534	54.3295	0.9576	51.5892	0.9610	47.7696
	TC	0.7492	0.3115	0.7941	0.2850	0.8072	0.2749

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Table 1: Models - Evaporites (Continued)

logs	Predict	Linear R2	Linear MAE	Polynomial R2	Polynomial MAE	XGBoost R2	XGBoost MAE
	TD	0.8331	0.1342	0.8883	0.1114	0.8989	0.1060
RHOB, VSH, U, DT	SHC	0.9683	44.7155	0.9715	42.0849	0.9752	37.6457
	TC	0.5540	0.4139	0.6222	0.3770	0.6682	0.3471
	TD	0.6345	0.2005	0.6869	0.1825	0.7247	0.1685
RHOB, VSH, U, AI	SHC	0.9007	77.3393	0.9654	46.1500	0.9732	40.1157
	TC	0.5432	0.4185	0.6195	0.3794	0.6517	0.3605
	TD	0.6191	0.2042	0.6821	0.1846	0.7159	0.1728
RHOB, VSH, DT, AI	SHC	0.9405	62.2860	0.9474	57.9041	0.9532	50.4057
	TC	0.4442	0.4509	0.4821	0.4364	0.5515	0.3950
	TD	0.5073	0.2251	0.5478	0.2164	0.5945	0.1994
RHOB, U, DT, AI	SHC	0.9329	66.1407	0.9407	61.4531	0.9434	58.3853
	TC	0.5406	0.4214	0.5937	0.3965	0.6088	0.3877
	TD	0.6366	0.1994	0.6817	0.1861	0.6961	0.1812
PHIN, VSH, U, DT	SHC	0.9793	36.5993	0.9839	32.0815	0.9890	24.8305
	TC	0.7912	0.2853	0.8568	0.2361	0.8933	0.1978
	TD	0.8331	0.1353	0.9017	0.1038	0.9301	0.0851
PHIN, VSH, U, AI	SHC	0.9296	66.5597	0.9653	46.8904	0.9732	39.6464
	TC	0.7931	0.2849	0.8692	0.2260	0.8897	0.2053
	TD	0.8370	0.1346	0.9110	0.0992	0.9288	0.0876
PHIN, VSH, DT, AI	SHC	0.9775	38.0790	0.9807	35.0531	0.9912	19.7485
	TC	0.7919	0.2847	0.8602	0.2340	0.8992	0.1937
	TD	0.8330	0.1361	0.9107	0.0988	0.9384	0.0803
PHIN, U, DT, AI	SHC	0.9535	54.2456	0.9575	51.6518	0.9640	45.1632
	TC	0.7629	0.3072	0.8345	0.2576	0.8484	0.2434

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Table 1: Models - Evaporites (Continued)

logs	Predict	Linear R2	Linear MAE	Polynomial R2	Polynomial MAE	XGBoost R2	XGBoost MAE
VSH, U, DT, AI	TD	0.8324	0.1367	0.9103	0.1006	0.9216	0.0932
	SHC	0.9646	47.5171	0.9707	42.8214	0.9747	38.5609
	TC	0.5313	0.4284	0.6085	0.3857	0.6685	0.3454
RHOB, PHIN, VSH, U, DT	TD	0.5983	0.2133	0.6828	0.1843	0.7262	0.1685
	SHC	0.9855	30.5319	0.9887	26.7341	0.9936	18.9239
	TC	0.8008	0.2796	0.8803	0.2158	0.9187	0.1710
RHOB, PHIN, VSH, U, AI	TD	0.8538	0.1277	0.9214	0.0925	0.9513	0.0700
	SHC	0.9421	59.2838	0.9858	29.9509	0.9925	20.8844
	TC	0.7993	0.2807	0.8795	0.2169	0.9090	0.1842
RHOB, PHIN, VSH, DT, AI	TD	0.8557	0.1267	0.9209	0.0930	0.9441	0.0770
	SHC	0.9782	37.5304	0.9823	33.4360	0.9912	19.4690
	TC	0.7978	0.2799	0.8643	0.2307	0.9001	0.1931
RHOB, PHIN, U, DT, AI	TD	0.8462	0.1295	0.9133	0.0978	0.9400	0.0792
	SHC	0.9536	54.1526	0.9601	49.9547	0.9643	44.8476
	TC	0.7781	0.2975	0.8411	0.2509	0.8512	0.2407
RHOB, VSH, U, DT, AI	TD	0.8541	0.1281	0.9135	0.0986	0.9225	0.0925
	SHC	0.9685	44.5835	0.9723	41.4463	0.9752	37.7573
	TC	0.5548	0.4130	0.6344	0.3712	0.6740	0.3424
PHIN, VSH, U, DT, AI	TD	0.6367	0.1993	0.6985	0.1794	0.7287	0.1671
	SHC	0.9836	32.3385	0.9881	27.4616	0.9939	18.1789
	TC	0.7936	0.2844	0.8742	0.2218	0.9159	0.1755
RHOB, PHIN, VSH, U, DT, AI	TD	0.8377	0.1344	0.9195	0.0936	0.9471	0.0745
	SHC	0.9857	30.2564	0.9890	26.3674	0.9933	19.3896

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Table 1: Models - Evaporites (Continued)

logs	Predict	Linear R2	Linear MAE	Polynomial R2	Polynomial MAE	XGBoost R2	XGBoost MAE
	TC	0.8016	0.2791	0.8826	0.2141	0.9092	0.1842
	TD	0.8560	0.1267	0.9234	0.0917	0.9494	0.0723