

# 1    **Clastics - Report Three models for all logs combinations (Linear Regression — Polynomiya Regression — XGBoost Regression)**

Table 1: Models - Clastics

logs	Predict	Linear R2	Linear MAE	Polynomial R2	Polynomial MAE	XGBoost R2	XGBoost MAE
RHOB	SHC	0.9914	48.4196	0.9915	48.2822	0.9927	37.6576
	TC	0.9229	0.2334	0.9554	0.1507	0.9559	0.1478
	TD	0.8843	0.1635	0.9567	0.0807	0.9595	0.0729
PHIN	SHC	0.9973	28.3153	0.9973	28.2771	0.9983	15.2806
	TC	0.9283	0.2266	0.9644	0.1365	0.9652	0.1322
	TD	0.8940	0.1591	0.9751	0.0640	0.9791	0.0518
VSH	SHC	$-1.3591e-06$	607.6688	$-2.3518e-06$	607.6691	$-6.9000e-06$	607.6712
	TC	0.0095	0.9373	0.0095	0.9373	-0.0285	0.9215
	TD	0.0046	0.5072	0.0046	0.5072	-0.0600	0.4885
U	SHC	0.8191	235.1824	0.8444	219.5572	0.8501	212.9195
	TC	0.7497	0.4026	0.7509	0.4067	0.7561	0.3804
	TD	0.7167	0.2343	0.7174	0.2308	0.7318	0.2135
DT	SHC	0.9976	26.1760	0.9976	26.1613	0.9987	12.5138
	TC	0.9247	0.2314	0.9598	0.1434	0.9603	0.1389
	TD	0.8890	0.1612	0.9675	0.0711	0.9716	0.0600
AI	SHC	0.9212	167.8129	0.9924	50.8218	0.9984	14.0258
	TC	0.9540	0.1604	0.9612	0.1388	0.9609	0.1374
	TD	0.9695	0.0657	0.9696	0.0644	0.9711	0.0605
RHOB, PHIN	SHC	0.9982	23.0030	0.9984	21.5378	0.9994	8.4681
	TC	0.9291	0.2256	0.9662	0.1322	0.9693	0.1225

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Table 1: Models - Clastics (Continued)

logs	Predict	Linear R2	Linear MAE	Polynomial R2	Polynomial MAE	XGBoost R2	XGBoost MAE
RHOB, VSH	TD	0.8941	0.1590	0.9755	0.0634	0.9803	0.0496
	SHC	0.9920	47.1457	0.9921	46.7976	0.9933	36.0364
	TC	0.9285	0.2266	0.9637	0.1381	0.9649	0.1333
RHOB, U	TD	0.8864	0.1628	0.9600	0.0783	0.9639	0.0691
	SHC	0.9941	39.8437	0.9942	39.7562	0.9956	26.5660
	TC	0.9278	0.2273	0.9629	0.1398	0.9634	0.1369
RHOB, DT	TD	0.8894	0.1612	0.9661	0.0734	0.9692	0.0641
	SHC	0.9976	26.1321	0.9977	25.3782	0.9991	10.7337
	TC	0.9255	0.2303	0.9611	0.1408	0.9625	0.1360
RHOB, AI	TD	0.8891	0.1611	0.9676	0.0710	0.9727	0.0592
	SHC	0.9915	48.2693	0.9969	30.1736	0.9990	10.8929
	TC	0.9603	0.1424	0.9612	0.1386	0.9614	0.1357
PHIN, VSH	TD	0.9700	0.0623	0.9710	0.0608	0.9726	0.0593
	SHC	0.9989	17.8382	0.9991	15.9249	0.9997	7.0076
	TC	0.9318	0.2210	0.9687	0.1274	0.9707	0.1202
PHIN, U	TD	0.8949	0.1587	0.9759	0.0628	0.9804	0.0498
	SHC	0.9978	25.1257	0.9979	25.0435	0.9989	11.7941
	TC	0.9284	0.2265	0.9645	0.1359	0.9659	0.1307
PHIN, DT	TD	0.8940	0.1591	0.9752	0.0638	0.9794	0.0512
	SHC	0.9984	21.9164	0.9985	21.2562	0.9996	7.4388
	TC	0.9283	0.2265	0.9646	0.1358	0.9681	0.1256
PHIN, AI	TD	0.8942	0.1590	0.9751	0.0638	0.9800	0.0505
	SHC	0.9973	28.0899	0.9984	21.4874	0.9996	7.7286
	TC	0.9629	0.1392	0.9657	0.1313	0.9687	0.1229

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Table 1: Models - Clastics (Continued)

logs	Predict	Linear R2	Linear MAE	Polynomial R2	Polynomial MAE	XGBoost R2	XGBoost MAE
VSH, U	TD	0.9695	0.0662	0.9792	0.0524	0.9798	0.0505
	SHC	0.8202	234.7007	0.8459	218.7511	0.8515	212.2065
	TC	0.7663	0.3963	0.7744	0.3907	0.7833	0.3656
VSH, DT	TD	0.7263	0.2329	0.7337	0.2251	0.7489	0.2094
	SHC	0.9984	21.1259	0.9985	20.2495	0.9998	7.4893
	TC	0.9294	0.2240	0.9660	0.1312	0.9744	0.1134
VSH, AI	TD	0.8906	0.1605	0.9694	0.0691	0.9837	0.0460
	SHC	0.9224	167.1298	0.9931	48.9742	0.9994	9.5955
	TC	0.9579	0.1548	0.9677	0.1258	0.9712	0.1197
U, DT	TD	0.9706	0.0650	0.9713	0.0628	0.9798	0.0511
	SHC	0.9976	26.1505	0.9976	26.0854	0.9988	12.3440
	TC	0.9248	0.2312	0.9599	0.1435	0.9610	0.1390
U, AI	TD	0.8893	0.1611	0.9679	0.0710	0.9724	0.0597
	SHC	0.9371	144.0762	0.9934	45.4739	0.9988	12.4256
	TC	0.9542	0.1590	0.9623	0.1371	0.9629	0.1359
DT, AI	TD	0.9714	0.0613	0.9716	0.0621	0.9731	0.0591
	SHC	0.9976	26.1428	0.9976	25.9484	0.9991	10.6205
	TC	0.9605	0.1420	0.9612	0.1386	0.9611	0.1360
RHOB, PHIN, VSH	TD	0.9698	0.0634	0.9710	0.0608	0.9725	0.0592
	SHC	0.9995	12.3754	0.9996	10.0780	0.9999	4.4823
	TC	0.9332	0.2191	0.9712	0.1210	0.9724	0.1155
RHOB, PHIN, U	TD	0.8950	0.1587	0.9765	0.0618	0.9812	0.0483
	SHC	0.9982	23.0035	0.9984	21.2074	0.9995	8.2537
	TC	0.9298	0.2247	0.9670	0.1312	0.9710	0.1199

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Table 1: Models - Clastics (Continued)

logs	Predict	Linear R2	Linear MAE	Polynomial R2	Polynomial MAE	XGBoost R2	XGBoost MAE
RHOB, PHIN, DT	TD	0.8942	0.1590	0.9757	0.0633	0.9809	0.0491
	SHC	0.9984	21.2822	0.9987	19.3267	0.9998	5.4533
	TC	0.9300	0.2242	0.9670	0.1309	0.9717	0.1177
RHOB, PHIN, AI	TD	0.8948	0.1587	0.9760	0.0630	0.9819	0.0479
	SHC	0.9982	23.0014	0.9986	20.2431	0.9998	5.4841
	TC	0.9633	0.1382	0.9675	0.1276	0.9718	0.1177
RHOB, VSH, U	TD	0.9738	0.0601	0.9800	0.0510	0.9819	0.0479
	SHC	0.9952	36.5636	0.9955	35.2083	0.9968	22.2277
	TC	0.9320	0.2212	0.9689	0.1277	0.9701	0.1224
RHOB, VSH, DT	TD	0.8906	0.1608	0.9683	0.0712	0.9727	0.0593
	SHC	0.9985	21.1211	0.9986	20.2179	0.9998	7.0114
	TC	0.9305	0.2227	0.9682	0.1272	0.9776	0.1062
RHOB, VSH, AI	TD	0.8907	0.1605	0.9702	0.0684	0.9854	0.0436
	SHC	0.9921	46.9307	0.9978	25.6830	0.9997	7.3466
	TC	0.9646	0.1376	0.9681	0.1254	0.9772	0.1076
RHOB, U, DT	TD	0.9710	0.0624	0.9728	0.0589	0.9851	0.0441
	SHC	0.9976	26.1415	0.9977	25.1282	0.9991	10.2232
	TC	0.9278	0.2272	0.9641	0.1371	0.9664	0.1306
RHOB, U, AI	TD	0.8903	0.1607	0.9696	0.0696	0.9748	0.0571
	SHC	0.9941	39.8191	0.9972	28.4016	0.9992	9.9765
	TC	0.9626	0.1399	0.9640	0.1354	0.9663	0.1307
RHOB, DT, AI	TD	0.9715	0.0620	0.9725	0.0599	0.9752	0.0571
	SHC	0.9976	26.0911	0.9977	25.2128	0.9992	10.1271
	TC	0.9606	0.1420	0.9617	0.1378	0.9621	0.1353

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Table 1: Models - Clastics (Continued)

logs	Predict	Linear R2	Linear MAE	Polynomial R2	Polynomial MAE	XGBoost R2	XGBoost MAE
PHIN, VSH, U	TD	0.9704	0.0622	0.9710	0.0608	0.9727	0.0591
	SHC	0.9992	15.2175	0.9994	13.0630	0.9998	5.8944
	TC	0.9321	0.2206	0.9693	0.1255	0.9710	0.1192
PHIN, VSH, DT	TD	0.8949	0.1587	0.9761	0.0624	0.9806	0.0493
	SHC	0.9996	11.0847	0.9998	8.4491	0.9999	5.9214
	TC	0.9319	0.2208	0.9696	0.1255	0.9762	0.1096
PHIN, VSH, AI	TD	0.8950	0.1587	0.9763	0.0623	0.9852	0.0441
	SHC	0.9989	17.6032	0.9998	8.4496	0.9999	5.3743
	TC	0.9666	0.1330	0.9704	0.1198	0.9726	0.1165
PHIN, U, DT	TD	0.9706	0.0654	0.9798	0.0512	0.9820	0.0483
	SHC	0.9985	21.0704	0.9986	20.3684	0.9997	6.7537
	TC	0.9284	0.2265	0.9648	0.1354	0.9688	0.1238
PHIN, U, AI	TD	0.8942	0.1590	0.9753	0.0637	0.9805	0.0498
	SHC	0.9978	25.0814	0.9985	21.2019	0.9997	7.2273
	TC	0.9636	0.1381	0.9658	0.1313	0.9692	0.1222
PHIN, DT, AI	TD	0.9719	0.0632	0.9793	0.0520	0.9802	0.0500
	SHC	0.9984	21.9058	0.9985	20.6792	0.9998	5.6878
	TC	0.9657	0.1343	0.9676	0.1281	0.9713	0.1183
VSH, U, DT	TD	0.9776	0.0572	0.9800	0.0506	0.9816	0.0482
	SHC	0.9985	21.0743	0.9986	20.1402	0.9998	7.2505
	TC	0.9294	0.2240	0.9660	0.1311	0.9752	0.1116
VSH, U, AI	TD	0.8907	0.1605	0.9696	0.0689	0.9845	0.0450
	SHC	0.9374	144.0657	0.9942	42.7873	0.9997	8.0968
	TC	0.9583	0.1523	0.9682	0.1245	0.9723	0.1177

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Table 1: Models - Clastics (Continued)

logs	Predict	Linear R2	Linear MAE	Polynomial R2	Polynomial MAE	XGBoost R2	XGBoost MAE
VSH, DT, AI	TD	0.9721	0.0613	0.9730	0.0607	0.9819	0.0488
	SHC	0.9985	21.0959	0.9986	20.1818	0.9998	7.0438
	TC	0.9646	0.1367	0.9679	0.1257	0.9771	0.1072
U, DT, AI	TD	0.9708	0.0632	0.9728	0.0588	0.9851	0.0440
	SHC	0.9976	26.1122	0.9976	25.8842	0.9991	10.2665
	TC	0.9613	0.1412	0.9636	0.1368	0.9656	0.1318
RHOB, PHIN, VSH, U	TD	0.9714	0.0618	0.9723	0.0603	0.9747	0.0575
	SHC	0.9995	12.3421	0.9996	10.0011	0.9999	4.3753
	TC	0.9336	0.2185	0.9718	0.1203	0.9734	0.1141
RHOB, PHIN, VSH, DT	TD	0.8951	0.1586	0.9767	0.0617	0.9815	0.0481
	SHC	0.9997	10.1536	0.9998	6.8958	0.9999	4.1654
	TC	0.9338	0.2186	0.9729	0.1191	0.9800	0.1004
RHOB, PHIN, VSH, AI	TD	0.8956	0.1584	0.9781	0.0606	0.9873	0.0409
	SHC	0.9995	12.3817	0.9998	8.1415	0.9999	4.2427
	TC	0.9667	0.1326	0.9722	0.1172	0.9795	0.1022
RHOB, PHIN, U, DT	TD	0.9744	0.0596	0.9807	0.0500	0.9872	0.0414
	SHC	0.9985	21.0388	0.9987	19.1153	0.9998	5.4432
	TC	0.9311	0.2227	0.9689	0.1283	0.9749	0.1125
RHOB, PHIN, U, AI	TD	0.8950	0.1587	0.9768	0.0624	0.9837	0.0462
	SHC	0.9982	22.9971	0.9986	20.0433	0.9998	5.5439
	TC	0.9636	0.1381	0.9688	0.1262	0.9746	0.1132
RHOB, PHIN, DT, AI	TD	0.9738	0.0601	0.9804	0.0509	0.9838	0.0461
	SHC	0.9985	21.2521	0.9987	19.2412	0.9998	5.4080
	TC	0.9661	0.1337	0.9679	0.1270	0.9719	0.1174

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Table 1: Models - Clastics (Continued)

logs	Predict	Linear R2	Linear MAE	Polynomial R2	Polynomial MAE	XGBoost R2	XGBoost MAE
RHOB, VSH, U, DT	TD	0.9777	0.0569	0.9802	0.0504	0.9820	0.0478
	SHC	0.9985	20.9321	0.9986	19.8802	0.9998	6.7911
	TC	0.9320	0.2209	0.9710	0.1232	0.9799	0.1011
RHOB, VSH, U, AI	TD	0.8916	0.1602	0.9721	0.0670	0.9869	0.0416
	SHC	0.9952	36.4927	0.9982	22.9088	0.9998	6.9596
	TC	0.9661	0.1347	0.9698	0.1231	0.9796	0.1029
RHOB, VSH, DT, AI	TD	0.9721	0.0618	0.9741	0.0582	0.9865	0.0427
	SHC	0.9985	21.0877	0.9986	20.1455	0.9998	6.9905
	TC	0.9647	0.1368	0.9688	0.1239	0.9776	0.1062
RHOB, U, DT, AI	TD	0.9713	0.0620	0.9735	0.0584	0.9855	0.0435
	SHC	0.9976	26.1004	0.9978	24.9681	0.9992	9.6988
	TC	0.9629	0.1399	0.9647	0.1340	0.9664	0.1307
PHIN, VSH, U, DT	TD	0.9715	0.0620	0.9731	0.0594	0.9752	0.0569
	SHC	0.9996	10.3169	0.9998	7.4168	0.9999	5.2738
	TC	0.9321	0.2206	0.9700	0.1244	0.9771	0.1076
PHIN, VSH, U, AI	TD	0.8951	0.1586	0.9766	0.0619	0.9858	0.0432
	SHC	0.9992	15.1721	0.9998	8.2338	0.9999	5.1016
	TC	0.9668	0.1324	0.9705	0.1197	0.9735	0.1150
PHIN, VSH, DT, AI	TD	0.9725	0.0626	0.9799	0.0509	0.9831	0.0471
	SHC	0.9996	11.0857	0.9998	7.0981	0.9999	4.3995
	TC	0.9684	0.1302	0.9723	0.1181	0.9792	0.1023
PHIN, U, DT, AI	TD	0.9779	0.0571	0.9810	0.0498	0.9869	0.0413
	SHC	0.9985	21.0468	0.9986	20.2577	0.9998	5.7557
	TC	0.9657	0.1343	0.9689	0.1271	0.9731	0.1154

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Table 1: Models - Clastics (Continued)

logs	Predict	Linear R2	Linear MAE	Polynomial R2	Polynomial MAE	XGBoost R2	XGBoost MAE
VSH, U, DT, AI	TD	0.9778	0.0569	0.9804	0.0508	0.9824	0.0475
	SHC	0.9985	21.0501	0.9986	19.8817	0.9998	6.8465
	TC	0.9649	0.1360	0.9695	0.1242	0.9783	0.1048
	TD	0.9721	0.0616	0.9740	0.0584	0.9859	0.0429
RHOB, PHIN, VSH, U, DT	SHC	0.9997	10.0905	0.9998	6.8293	0.9999	4.1680
	TC	0.9345	0.2178	0.9744	0.1165	0.9820	0.0962
	TD	0.8958	0.1584	0.9788	0.0600	0.9885	0.0394
RHOB, PHIN, VSH, U, AI	SHC	0.9995	12.3477	0.9998	8.0259	0.9999	4.1583
	TC	0.9668	0.1324	0.9732	0.1161	0.9811	0.0993
	TD	0.9744	0.0595	0.9811	0.0499	0.9883	0.0399
RHOB, PHIN, VSH, DT, AI	SHC	0.9997	10.1292	0.9998	6.8936	0.9999	4.2003
	TC	0.9689	0.1299	0.9735	0.1152	0.9799	0.1005
	TD	0.9779	0.0569	0.9820	0.0487	0.9875	0.0407
RHOB, PHIN, U, DT, AI	SHC	0.9985	21.0116	0.9988	19.0314	0.9998	5.1959
	TC	0.9671	0.1329	0.9698	0.1244	0.9751	0.1121
	TD	0.9778	0.0570	0.9810	0.0500	0.9837	0.0462
RHOB, VSH, U, DT, AI	SHC	0.9985	20.8939	0.9986	19.8050	0.9998	6.7990
	TC	0.9663	0.1349	0.9717	0.1197	0.9800	0.1014
	TD	0.9722	0.0618	0.9755	0.0570	0.9869	0.0416
PHIN, VSH, U, DT, AI	SHC	0.9996	10.3082	0.9998	6.9664	0.9999	4.4355
	TC	0.9684	0.1302	0.9732	0.1170	0.9801	0.1005
	TD	0.9781	0.0569	0.9815	0.0496	0.9873	0.0410
RHOB, PHIN, VSH, U, DT, AI	SHC	0.9997	10.0684	0.9998	6.8274	0.9999	4.1235

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Table 1: Models - Clastics (Continued)

logs	Predict	Linear R2	Linear MAE	Polynomial R2	Polynomial MAE	XGBoost R2	XGBoost MAE
	TC	0.9696	0.1292	0.9751	0.1126	0.9819	0.0966
	TD	0.9781	0.0570	0.9827	0.0481	0.9887	0.0389