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

Table 1: Models - Carbonates

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

Table 1: Models - Carbonates (Continued)

logs	Predict	Linear R2	Linear MAE	Polynomial R2	Polynomial MAE	XGBoost R2	XGBoost MAE
	TD	0.8941	0.1590	0.9755	0.0634	0.9803	0.0496
RHOB, VSH	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
	TD	0.8864	0.1628	0.9600	0.0783	0.9639	0.0691
RHOB, U	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
	TD	0.8894	0.1612	0.9661	0.0734	0.9692	0.0641
RHOB, DT	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
	TD	0.8891	0.1611	0.9676	0.0710	0.9727	0.0592
RHOB, AI	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
	TD	0.9700	0.0623	0.9710	0.0608	0.9726	0.0593
PHIN, VSH	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
	TD	0.8949	0.1587	0.9759	0.0628	0.9804	0.0498
PHIN, U	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
	TD	0.8940	0.1591	0.9752	0.0638	0.9794	0.0512
PHIN, DT	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
	TD	0.8942	0.1590	0.9751	0.0638	0.9800	0.0505
PHIN, AI	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

Table 1: Models - Carbonates (Continued)

logs	Predict	Linear R2	Linear MAE	Polynomial R2	Polynomial MAE	XGBoost R2	XGBoost MAE
	TD	0.9695	0.0662	0.9792	0.0524	0.9798	0.0505
VSH, U	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
	TD	0.7263	0.2329	0.7337	0.2251	0.7489	0.2094
VSH, DT	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
	TD	0.8906	0.1605	0.9694	0.0691	0.9837	0.0460
VSH, AI	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
	TD	0.9706	0.0650	0.9713	0.0628	0.9798	0.0511
U, DT	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
	TD	0.8893	0.1611	0.9679	0.0710	0.9724	0.0597
U, AI	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
	TD	0.9714	0.0613	0.9716	0.0621	0.9731	0.0591
DT, AI	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
	TD	0.9698	0.0634	0.9710	0.0608	0.9725	0.0592
RHOB, PHIN, VSH	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
	TD	0.8950	0.1587	0.9765	0.0618	0.9812	0.0483
RHOB, PHIN, U	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

Table 1: Models - Carbonates (Continued)

logs	Predict	Linear R2	Linear MAE	Polynomial R2	Polynomial MAE	XGBoost R2	XGBoost MAE
	TD	0.8942	0.1590	0.9757	0.0633	0.9809	0.0491
RHOB, PHIN, DT	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
	TD	0.8948	0.1587	0.9760	0.0630	0.9819	0.0479
RHOB, PHIN, AI	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
	TD	0.9738	0.0601	0.9800	0.0510	0.9819	0.0479
RHOB, VSH, U	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
	TD	0.8906	0.1608	0.9683	0.0712	0.9727	0.0593
RHOB, VSH, DT	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
	TD	0.8907	0.1605	0.9702	0.0684	0.9854	0.0436
RHOB, VSH, AI	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
	TD	0.9710	0.0624	0.9728	0.0589	0.9851	0.0441
RHOB, U, DT	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
	TD	0.8903	0.1607	0.9696	0.0696	0.9748	0.0571
RHOB, U, AI	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
	TD	0.9715	0.0620	0.9725	0.0599	0.9752	0.0571
RHOB, DT, AI	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

Table 1: Models - Carbonates (Continued)

logs	Predict	Linear R2	Linear MAE	Polynomial R2	Polynomial MAE	XGBoost R2	XGBoost MAE
	TD	0.9704	0.0622	0.9710	0.0608	0.9727	0.0591
PHIN, VSH, U	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
	TD	0.8949	0.1587	0.9761	0.0624	0.9806	0.0493
PHIN, VSH, DT	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
	TD	0.8950	0.1587	0.9763	0.0623	0.9852	0.0441
PHIN, VSH, AI	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
	TD	0.9706	0.0654	0.9798	0.0512	0.9820	0.0483
PHIN, U, DT	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
	TD	0.8942	0.1590	0.9753	0.0637	0.9805	0.0498
PHIN, U, AI	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
	TD	0.9719	0.0632	0.9793	0.0520	0.9802	0.0500
PHIN, DT, AI	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
	TD	0.9776	0.0572	0.9800	0.0506	0.9816	0.0482
VSH, U, DT	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
	TD	0.8907	0.1605	0.9696	0.0689	0.9845	0.0450
VSH, U, AI	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

logs	Predict	Linear R2	Linear MAE	Polynomial R2	Polynomial MAE	XGBoost R2	XGBoost MAE
	TD	0.9721	0.0613	0.9730	0.0607	0.9819	0.0488
VSH, DT, AI	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
	TD	0.9708	0.0632	0.9728	0.0588	0.9851	0.0440
U, DT, AI	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
	TD	0.9714	0.0618	0.9723	0.0603	0.9747	0.0575
RHOB, PHIN, VSH, U	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
	TD	0.8951	0.1586	0.9767	0.0617	0.9815	0.0481
RHOB, PHIN, VSH, DT	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
	TD	0.8956	0.1584	0.9781	0.0606	0.9873	0.0409
RHOB, PHIN, VSH, AI	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
	TD	0.9744	0.0596	0.9807	0.0500	0.9872	0.0414
RHOB, PHIN, U, DT	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
	TD	0.8950	0.1587	0.9768	0.0624	0.9837	0.0462
RHOB, PHIN, U, AI	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
	TD	0.9738	0.0601	0.9804	0.0509	0.9838	0.0461
RHOB, PHIN, DT, AI	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

logs	Predict	Linear R2	Linear MAE	Polynomial R2	Polynomial MAE	XGBoost R2	XGBoost MAE
	TD	0.9777	0.0569	0.9802	0.0504	0.9820	0.0478
RHOB, VSH, U, DT	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
	TD	0.8916	0.1602	0.9721	0.0670	0.9869	0.0416
RHOB, VSH, U, AI	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
	TD	0.9721	0.0618	0.9741	0.0582	0.9865	0.0427
RHOB, VSH, DT, AI	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
	TD	0.9713	0.0620	0.9735	0.0584	0.9855	0.0435
RHOB, U, DT, AI	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
	TD	0.9715	0.0620	0.9731	0.0594	0.9752	0.0569
PHIN, VSH, U, DT	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
	TD	0.8951	0.1586	0.9766	0.0619	0.9858	0.0432
PHIN, VSH, U, AI	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
	TD	0.9725	0.0626	0.9799	0.0509	0.9831	0.0471
PHIN, VSH, DT, AI	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
	TD	0.9779	0.0571	0.9810	0.0498	0.9869	0.0413
PHIN, U, DT, AI	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

Table 1: Models - Carbonates (Continued)

logs	Predict	Linear R2	Linear MAE	Polynomial R2	Polynomial MAE	XGBoost R2	XGBoost MAE
	TD	0.9778	0.0569	0.9804	0.0508	0.9824	0.0475
VSH, U, DT, AI	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

Table 1: Models - Carbonates (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