Introduction à la spectroscopie de sol

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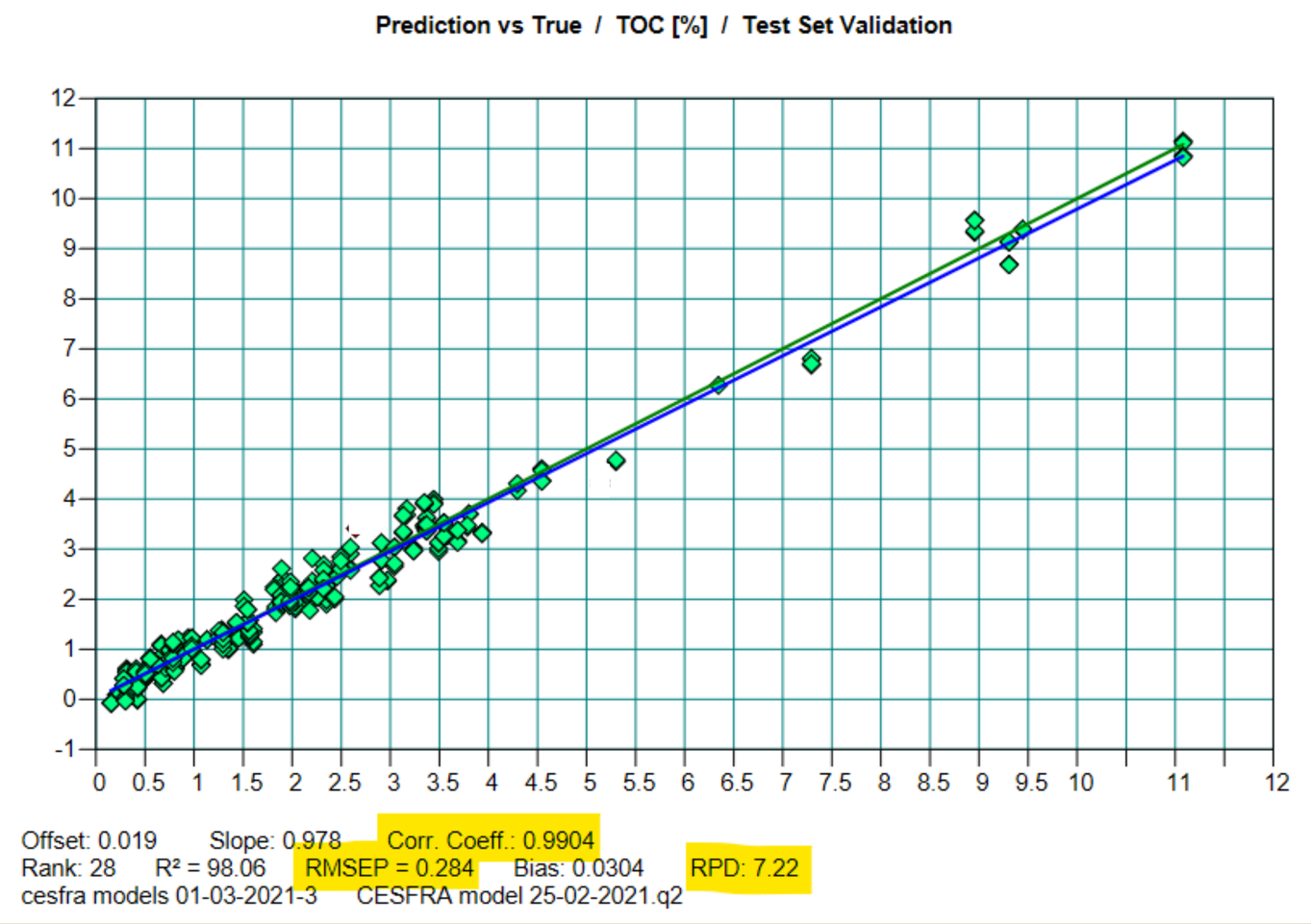
Spectroscopie de sol: Predictions

Spectroscopie: Résultats

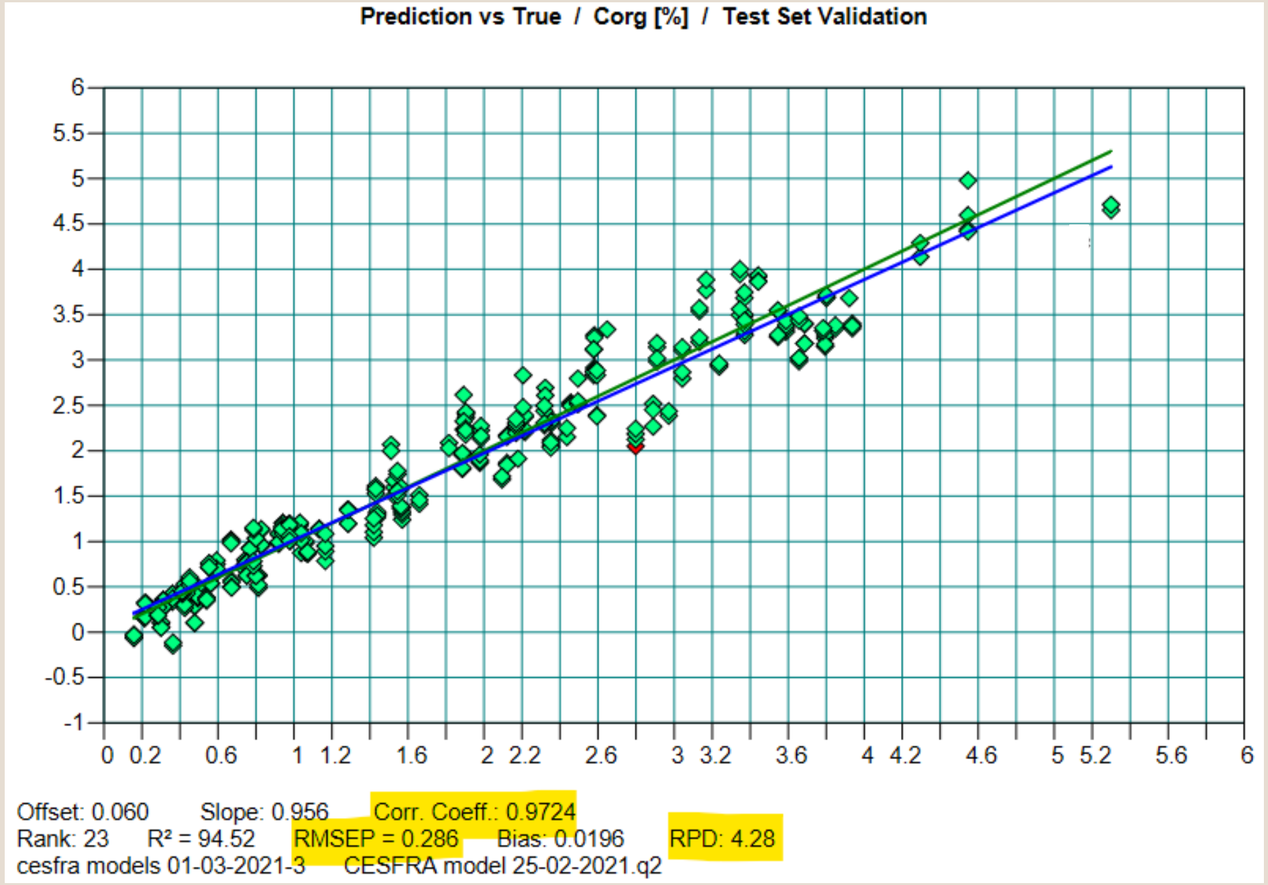
Total Carbon



File Name	True	Prediction	Difference
S000136UK2	2.216	2.436	-0.22
S000167UK2	0.937	1.114	-0.177
S000167UK2	0.937	1.315	-0.378
S000167UK2	0.937	1.123	-0.186
S000170UK2	1.964	2.133	-0.169
S000170UK2	1.964	2.157	-0.193
S000171UK2	1.141	1.095	0.0458
S000171UK2	1.141	0.9764	0.165
S000172UK2	1.676	1.732	-0.0557
S000172UK2	1.676	1.823	-0.147
S000180UK2	5.734	5.329	0.405
S000180UK2	5.734	5.363	0.371
S000180UK2	5.734	5.332	0.402
S000180UK2	5.734	5.364	0.37
S000185UK2	3.866	4.151	-0.285
S000185UK2	3.866	4.166	-0.3
S000185UK2	3.866	4.068	-0.202
S000185UK2	3.866	4.084	-0.218
S000186UK2	1.855	1.595	0.26
S000186UK2	1.855	1.614	0.241

Spectroscopie: Résultats

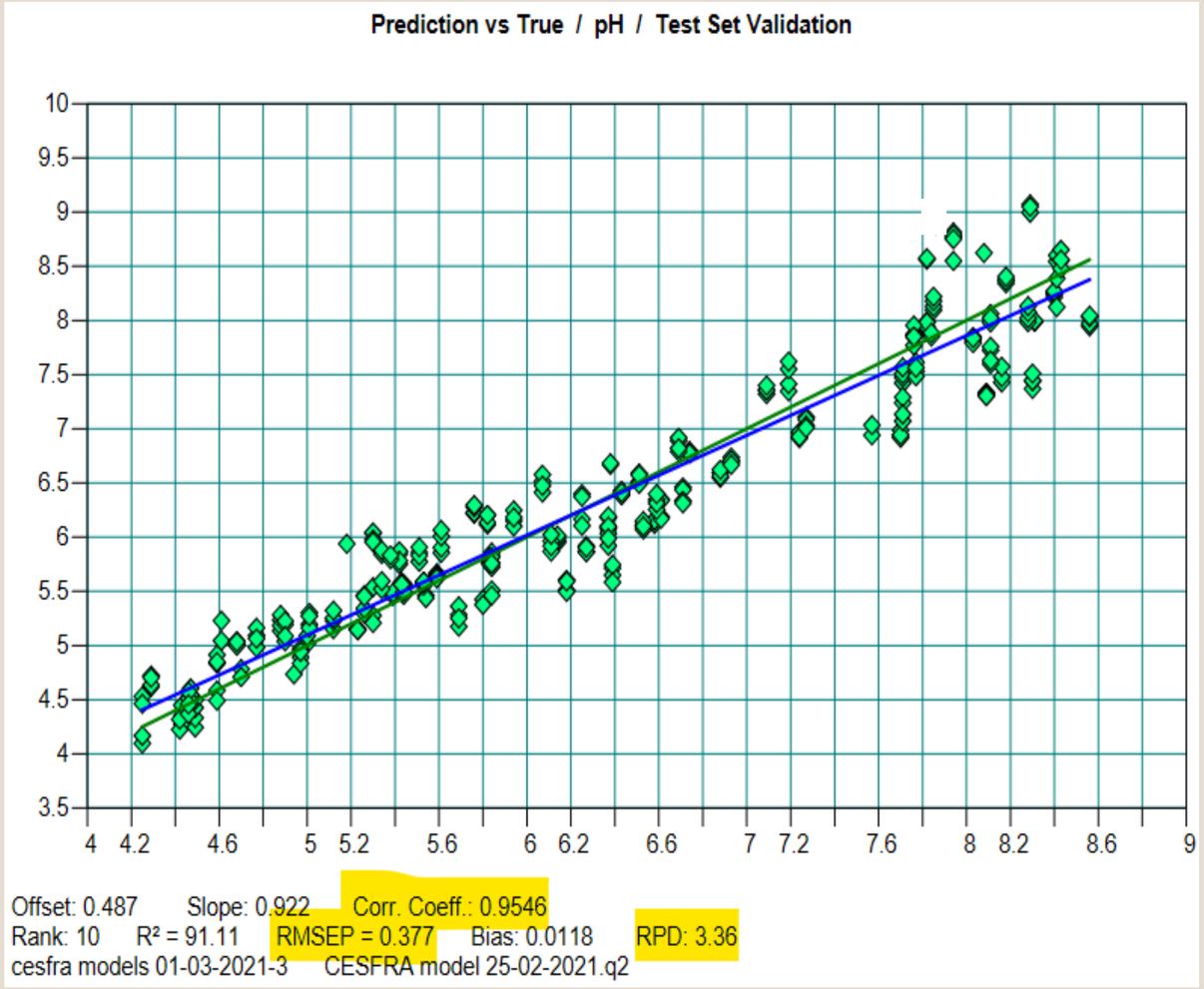
Organic Carbon



File Name	True	Prediction	Difference
S000136UK2	2.216	2.374	-0.158
S000167UK2	0.937	1.136	-0.199
S000167UK2	0.937	1.125	-0.188
S000167UK2	0.937	1.143	-0.206
S000170UK2	1.964	2.245	-0.281
S000170UK2	1.964	2.269	-0.305
S000171UK2	1.141	1.152	-0.011
S000171UK2	1.141	1.031	0.11
S000172UK2	1.676	1.634	0.0424
S000172UK2	1.676	1.759	-0.0832
S000180UK2	5.734	5.375	0.359
S000180UK2	5.734	5.418	0.316
S000180UK2	5.734	5.367	0.367
S000180UK2	5.734	5.401	0.333
S000185UK2	3.866	4.153	-0.287
S000185UK2	3.866	4.177	-0.311
S000185UK2	3.866	4.022	-0.156
S000185UK2	3.866	4.043	-0.177

Spectroscopie: Résultats

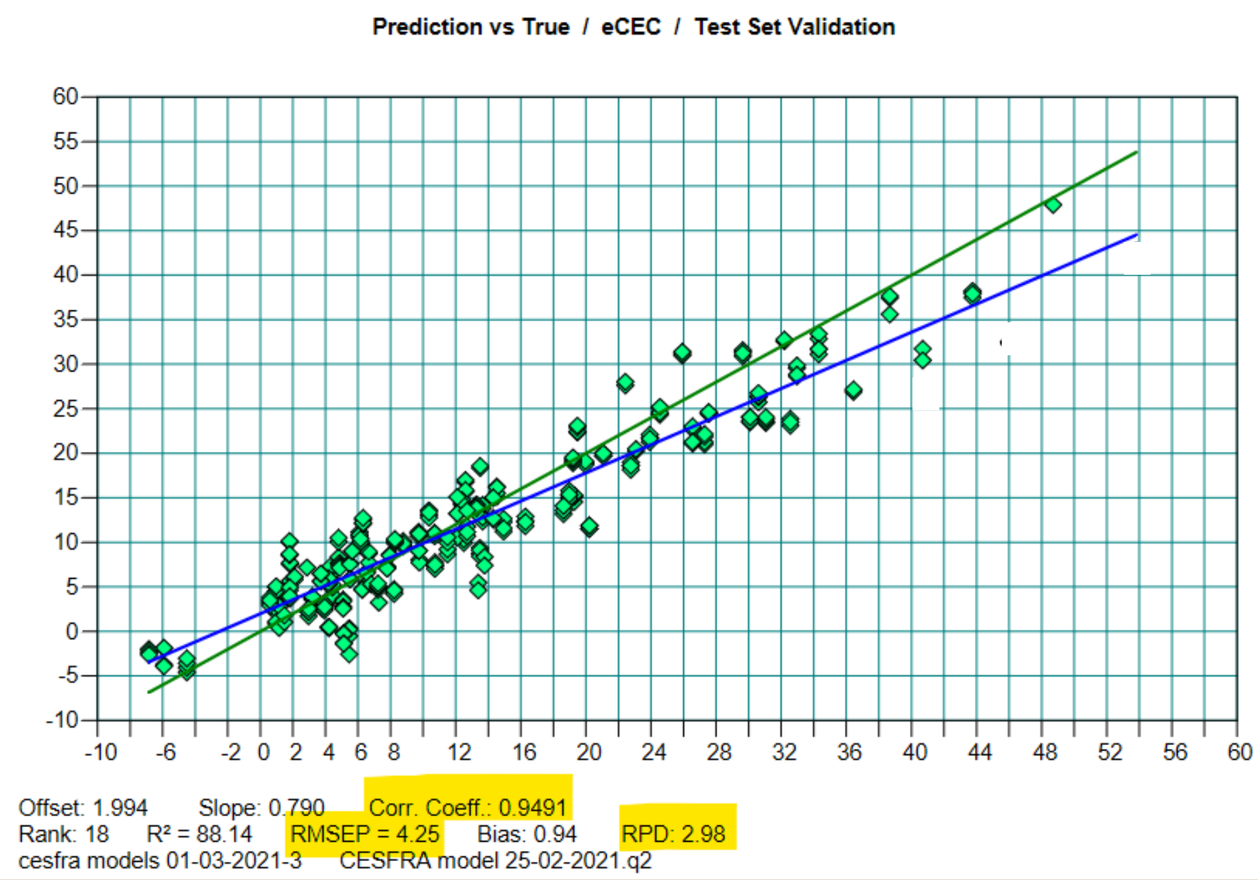
pH (Water)



File Name	True	Prediction	Difference
S000227UK2	7.82	8.085	-0.265
S000228UK2	8.17	7.558	0.612
S000228UK2	8.17	7.602	0.568
S000230UK2	7.85	7.884	-0.0335
S000230UK2	7.85	7.908	-0.0585
S000230UK2	7.85	8.032	-0.182
S000230UK2	7.85	8.067	-0.217
S000239UK2	8.03	7.685	0.345
S000239UK2	8.03	7.715	0.315
S000239UK2	8.03	7.721	0.309
S000239UK2	8.03	7.756	0.274
S000240UK2	7.84	7.897	-0.0572
S000240UK2	7.84	7.914	-0.074
S000240UK2	7.84	7.892	-0.0523
S000240UK2	7.84	7.92	-0.0797
S000247UK2	8.05	7.998	0.0518
S000247UK2	8.05	8.133	-0.0829

Spectroscopie: Résultats

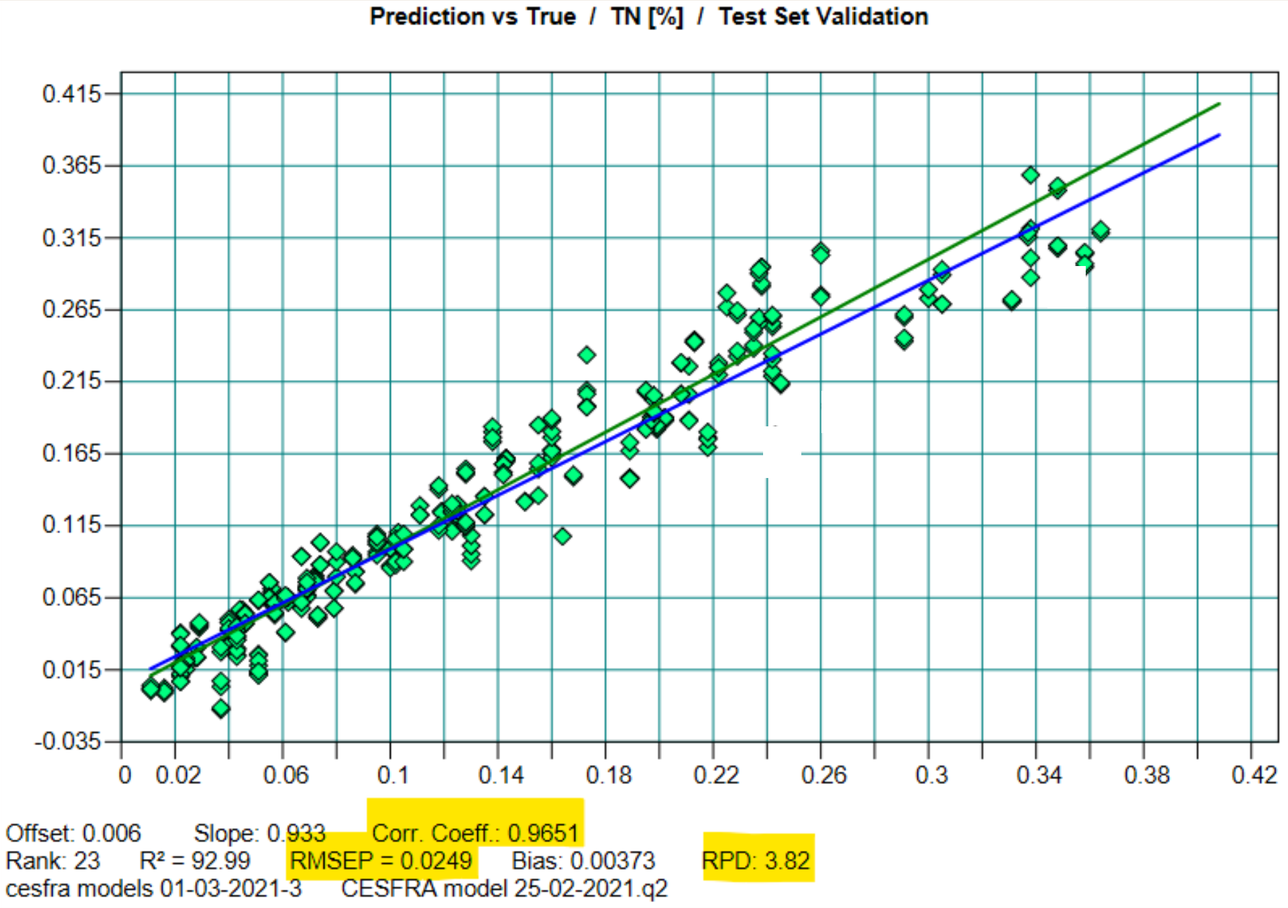
Cation Exchange Capacity



File Name	True	Prediction	Difference
S000227UK2	25.918	27.84	-1.92
S000228UK2	22.617	22.54	0.0816
S000228UK2	22.617	22.72	-0.108
S000230UK2	43.762	41.15	2.61
S000230UK2	43.762	41.31	2.45
S000230UK2	43.762	40.23	3.53
S000230UK2	43.762	40.7	3.06
S000239UK2	29.642	29.26	0.38
S000239UK2	29.642	29.42	0.222
S000239UK2	29.642	28.66	0.984
S000239UK2	29.642	29	0.64
S000240UK2	32.2	33.59	-1.39
S000240UK2	32.2	33.86	-1.66

Spectroscopie: Résultats

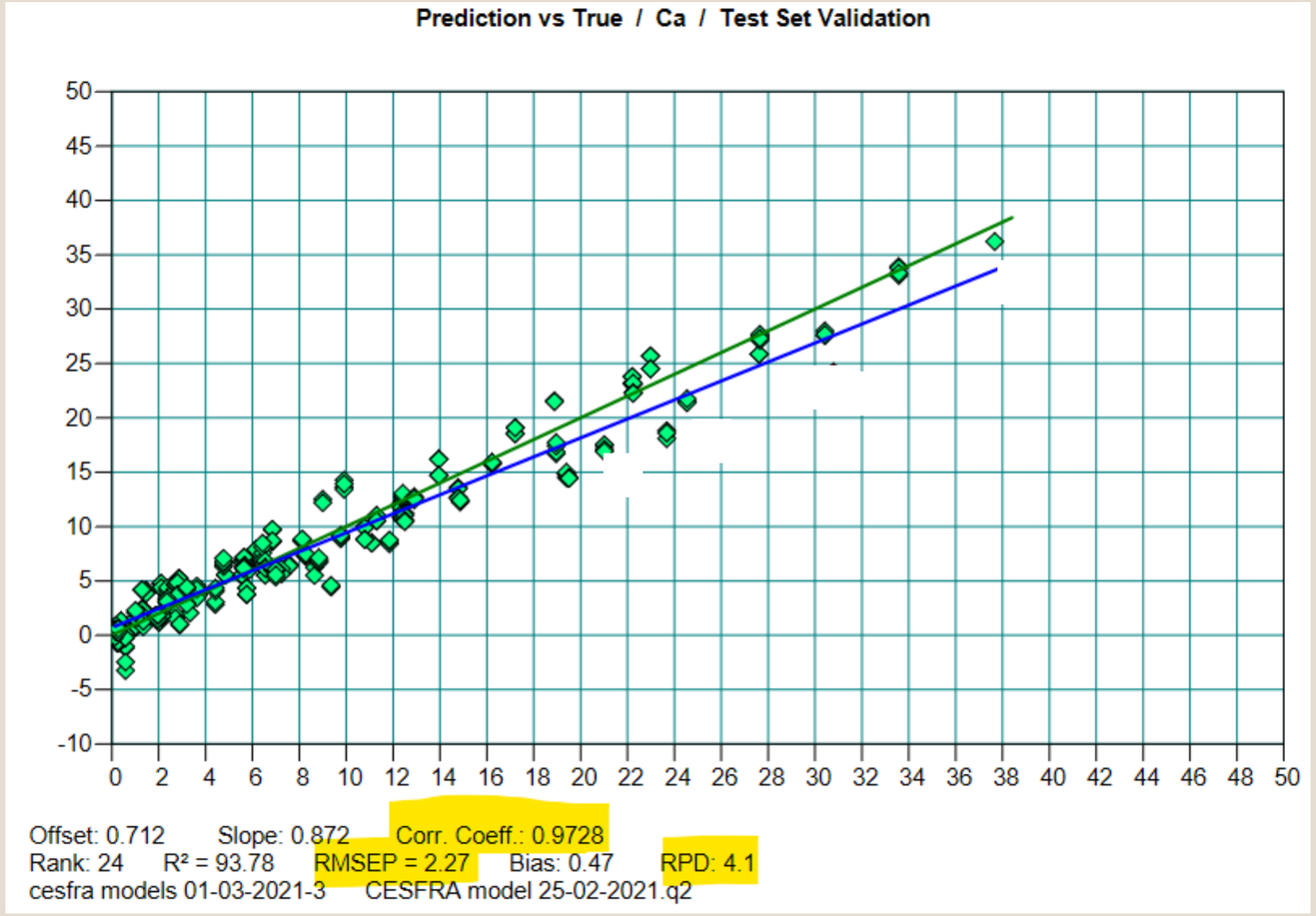
Total Nitrogen



File Name	True	Prediction	Difference
S000136UK2	0.135	0.1475	-0.0125
S000167UK2	0.051	0.05544	-0.00444
S000167UK2	0.051	0.0575	-0.0065
S000167UK2	0.051	0.05518	-0.00418
S000170UK2	0.146	0.1718	-0.0258
S000170UK2	0.146	0.1713	-0.0253
S000171UK2	0.089	0.09573	-0.00673
S000171UK2	0.089	0.08675	0.00225
S000172UK2	0.12	0.1219	-0.00194
S000172UK2	0.12	0.1301	-0.0101
S000180UK2	0.321	0.3068	0.0142
S000180UK2	0.321	0.3112	0.00984
S000180UK2	0.321	0.307	0.014
S000180UK2	0.321	0.3111	0.00991
S000185UK2	0.22	0.2491	-0.0291
S000185UK2	0.22	0.2528	-0.0328
S000185UK2	0.22	0.242	-0.022
S000185UK2	0.22	0.2462	-0.0262

Spectroscopie: Résultats

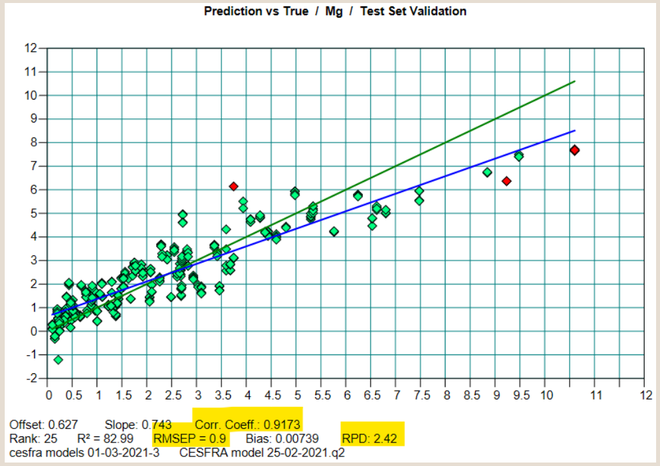
Calcium



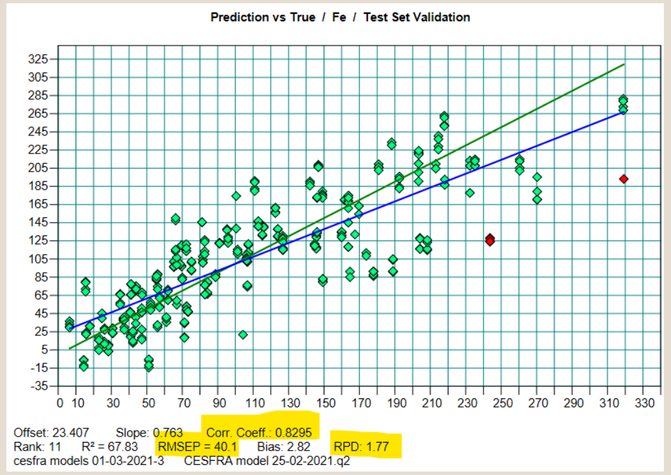
File Name	True	Prediction	Difference
S000227UK2	22.209	22.52	-0.311
S000228UK2	16.471	14.13	2.34
S000228UK2	16.471	14.33	2.15
S000230UK2	33.567	34.97	-1.4
S000230UK2	33.567	34.99	-1.42
S000230UK2	33.567	34.11	-0.54
S000230UK2	33.567	34.5	-0.936
S000239UK2	22.979	23.3	-0.321
S000239UK2	22.979	23.42	-0.439
S000239UK2	22.979	22.63	0.353
S000239UK2	22.979	22.77	0.207
S000240UK2	27.615	26.65	0.969
S000240UK2	27.615	26.8	0.816
S000240UK2	27.615	27.6	0.0184
S000240UK2	27.615	27.76	-0.15

Spectroscopie: Résultats

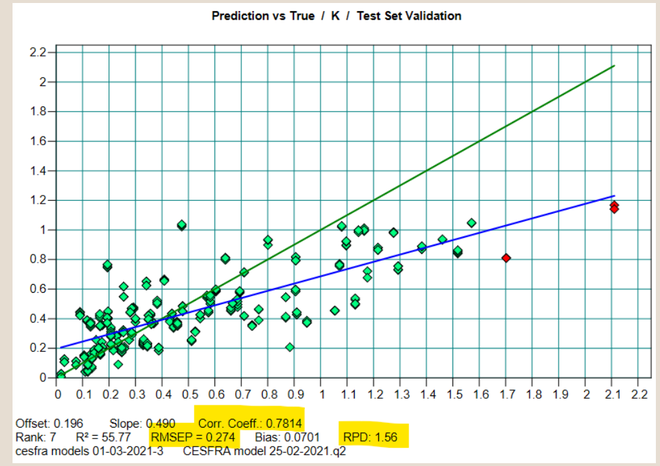
Mg



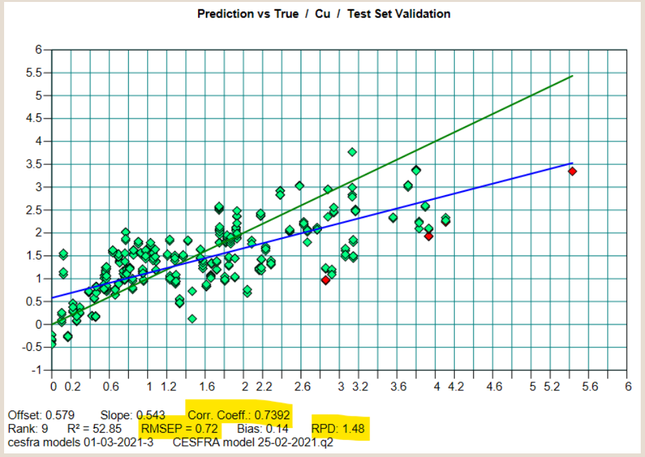
Fe



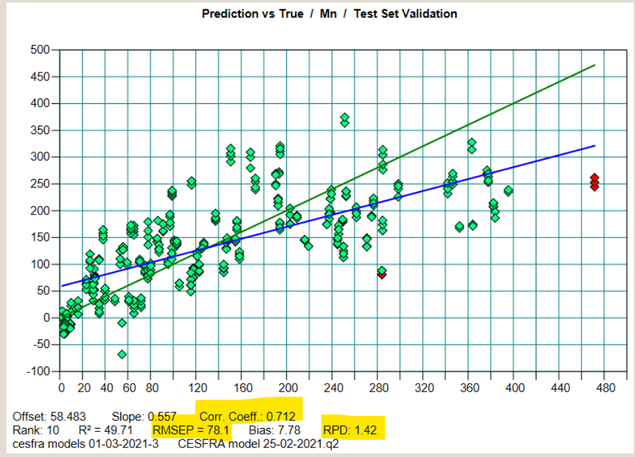
K



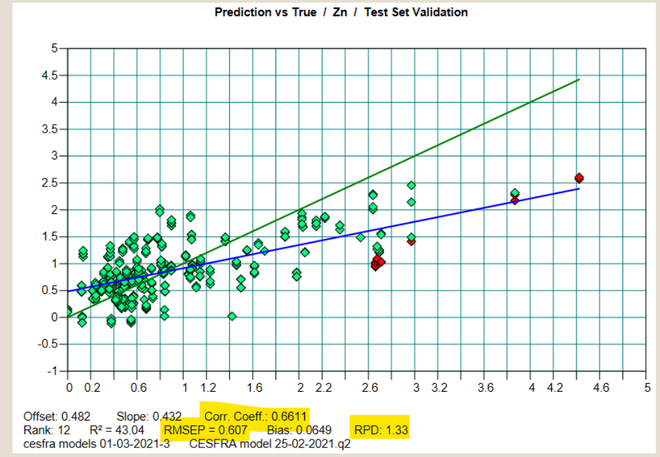
Cu



Mn



Zn



Soil spectroscopy: Laboratory set-up

Spectroscopie de sol: Mise en place du laboratoire

Laboratoire de spectroscopie de sol

Broyeur: Broyage

Etuve : séchage

Spectroscopic Instruments

MIR

Tensor II

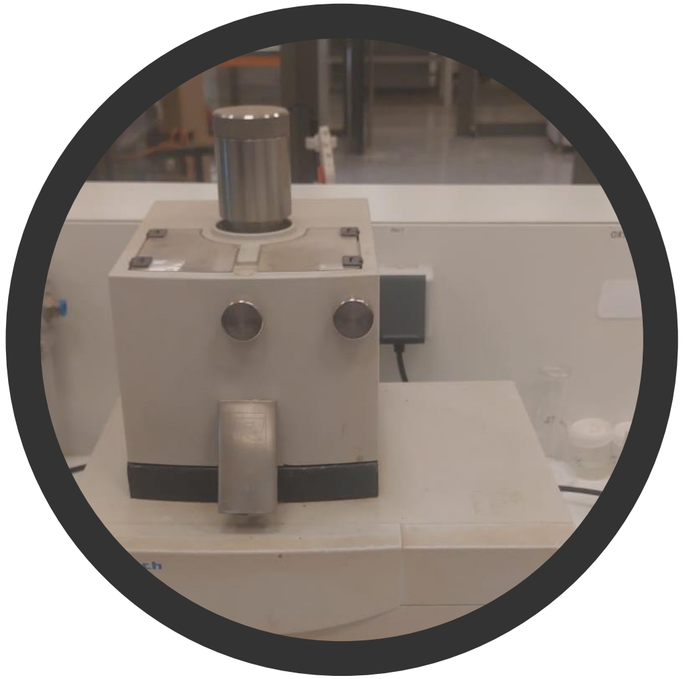
Alpha II

NIR, Vis-NIR

pistolet de nettoyage à air comprimé

Bonnes predictions

- ✓ Soil Total and Organic C
- ✓ pH
- ✓ Total N
- ✓ Texture
- ✓ Extractable Al, Ca, Mg
- ✓ CEC
- ✓ Total P
- ✓ P sorption
- ✓ Water holding capacity



Spectroscopie de sol: Mise en place du laboratoire

Photographie : © UM6P

Photographie : © UM6P

Spectroscopie de sol: Conclusion

VS

- √ **Rapide,**
- √ **Peu coûteux,**
- √ **Alternative écologique,**
- √ **Un seul technicien peut générer tous les résultats,**
- √ **Peu de préparations d'échantillons,**
- √ **Peut être utilisé pour un diagnostic sur le terrain,**
- √ **Précise**

- ⏱️ **Méthodes long ,**
- 💸 **Coûteuses,**
- 💼 **Nécessite un investissement important pour l'achat d'équipements sophistiqués,**
- 🏢 **Occupe un grand espace,**
- 👩‍🔬 **Mobilise de nombreux techniciens,**
- ☠️ **Utilise des réactifs chimiques dangereux,**
- 🧪 **Génère des déchets dangereux.**

Thank you

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