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The PLS Procedure

Data Set	WORK.COMBINED
Factor Extraction Method	Partial Least Squares
PLS Algorithm	NIPALS
Number of Response Variables	2
Number of Predictor Parameters	11
Missing Value Handling	Exclude
Number of Factors	4

Number of Observations Read	686
Number of Observations Used	685

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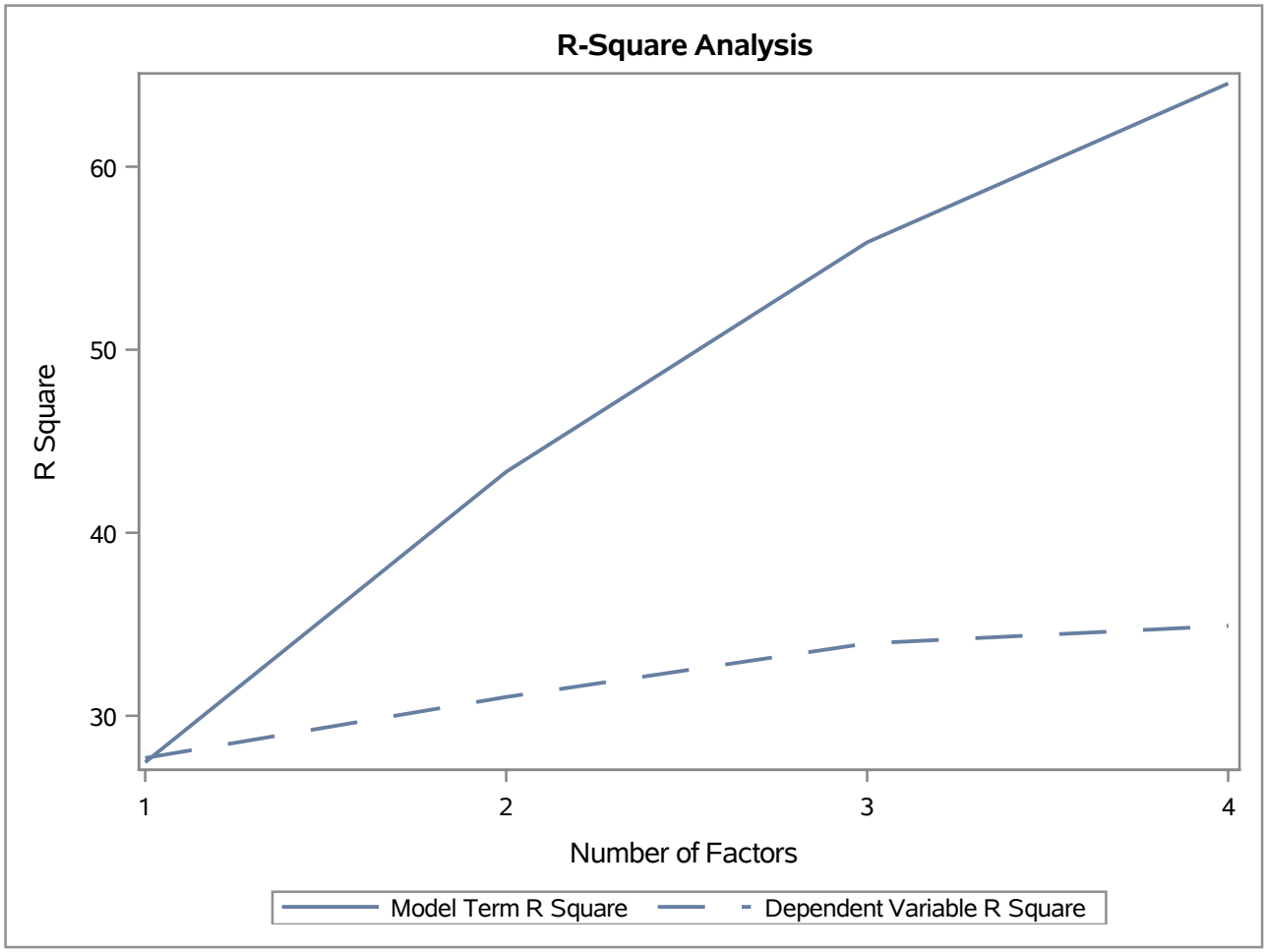
The PLS Procedure

Percent Variation Accounted for by Partial Least Squares Factors				
	Model Effects		Dependent Variables	
Number of Extracted Factors	Current	Total	Current	Total
1	27.4578	27.4578	27.6928	27.6928
2	15.8708	43.3286	3.3339	31.0267
3	12.5392	55.8678	2.9252	33.9518
4	8.6780	64.5458	0.9642	34.9160



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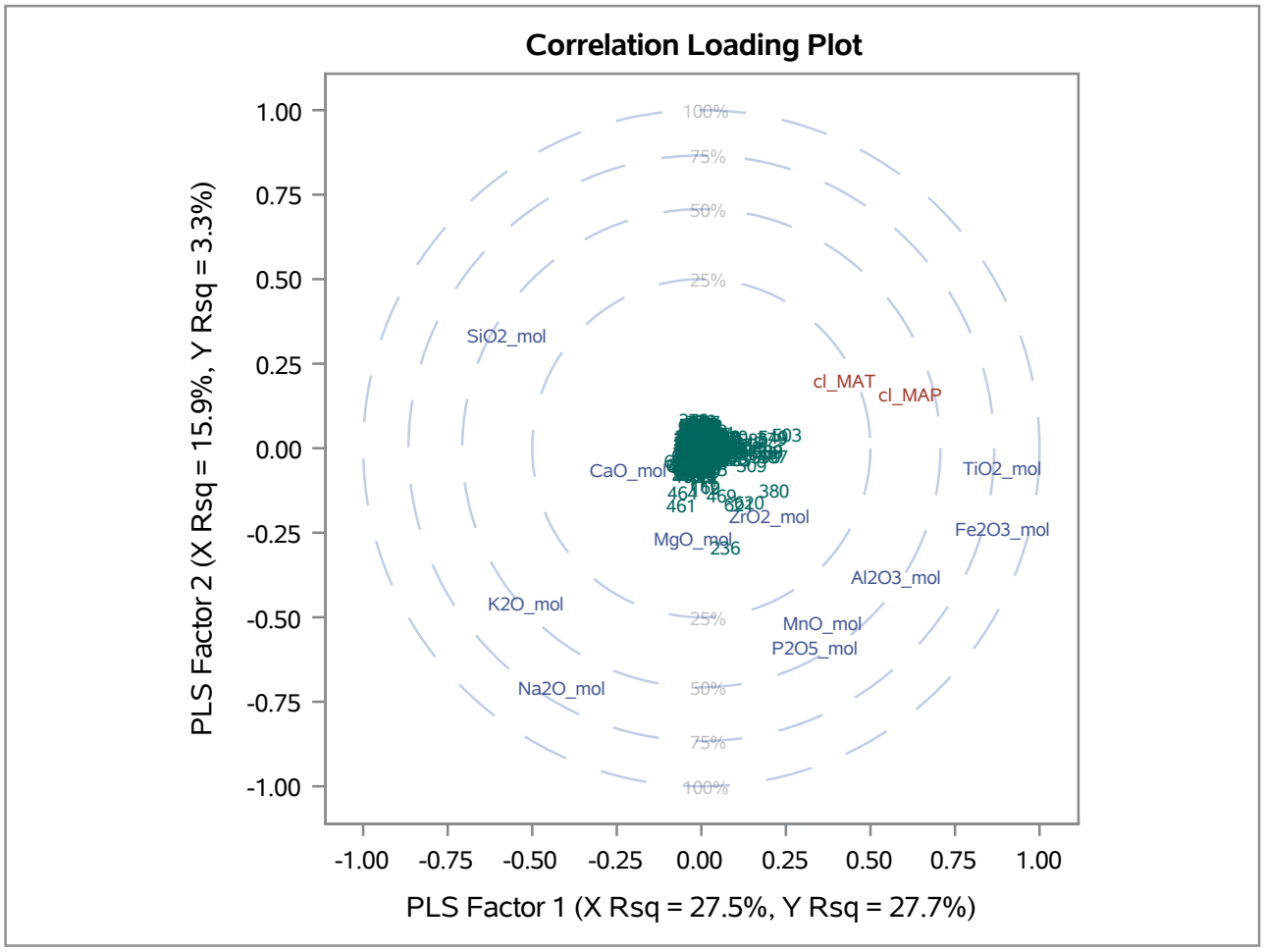
The PLS Procedure



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Model Effect Loadings											
Number of Extracted Factors	Fe2O3_mol	MnO_mol	P2O5_mol	SiO2_mol	TiO2_mol	ZrO2_mol	Al2O3_mol	CaO_mol	Na2O_mol	MgO_mol	K2O_mol
1	0.513714	0.205686	0.195084	-0.329866	0.513298	0.117083	0.331364	-0.122771	-0.237096	-0.014725	-0.297376
2	-0.178545	-0.389823	-0.443425	0.253761	-0.042478	-0.152806	-0.285867	-0.046786	-0.535315	-0.202138	-0.344464
3	0.100886	0.021633	-0.110369	0.471091	0.139968	-0.182509	0.141526	-0.747503	0.166039	-0.127402	0.282409
4	0.168516	-0.137421	-0.082974	-0.323420	0.116866	-0.265794	-0.346126	0.267706	0.233654	0.704306	-0.121730

Model Effect Weights											
Number of Extracted Factors	Fe2O3_mol	MnO_mol	P2O5_mol	SiO2_mol	TiO2_mol	ZrO2_mol	Al2O3_mol	CaO_mol	Na2O_mol	MgO_mol	K2O_mol
1	0.510356	0.113086	0.075416	-0.282304	0.563764	0.028880	0.272329	-0.185028	-0.374420	-0.039958	-0.375449
2	-0.194060	-0.399765	-0.489627	0.188053	-0.002540	-0.317949	-0.282647	-0.032186	-0.543755	-0.118266	-0.286523
3	0.200515	-0.067819	-0.127582	0.378701	0.285616	-0.267590	-0.158246	-0.803719	0.332177	0.116532	0.287686
4	0.126940	-0.164264	0.000011292	-0.441989	0.229505	-0.190802	-0.590481	0.255350	0.234622	0.568352	-0.063251

Model Effect Weights	
Number of Extracted Factors	Inner Regression Coefficients
1	0.428222
2	0.195431
3	0.205948
4	0.142129

Dependent Variable Weights		
Number of Extracted Factors	cl_MAP	cl_MAT
1	0.826661	0.562701
2	0.621747	0.783218
3	0.816071	-0.577951
4	0.947001	-0.321231

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The TPSPLINE Procedure
Dependent Variable: cl_MAT

Summary of Input Data Set	
Number of Non-Missing Observations	685
Number of Missing Observations	0
Unique Smoothing Design Points	685

Summary of Final Model	
Number of Regression Variables	0
Number of Smoothing Variables	4
Order of Derivative in the Penalty	3
Dimension of Polynomial Space	15

Summary Statistics of Final Estimation	
log10(n*Lambda)	-2.5123
Smoothing Penalty	390723.1774
Residual SS	6305.2153
Tr(I-A)	538.0432
Model DF	146.9568
Standard Deviation	3.4233
GCV	14.9196

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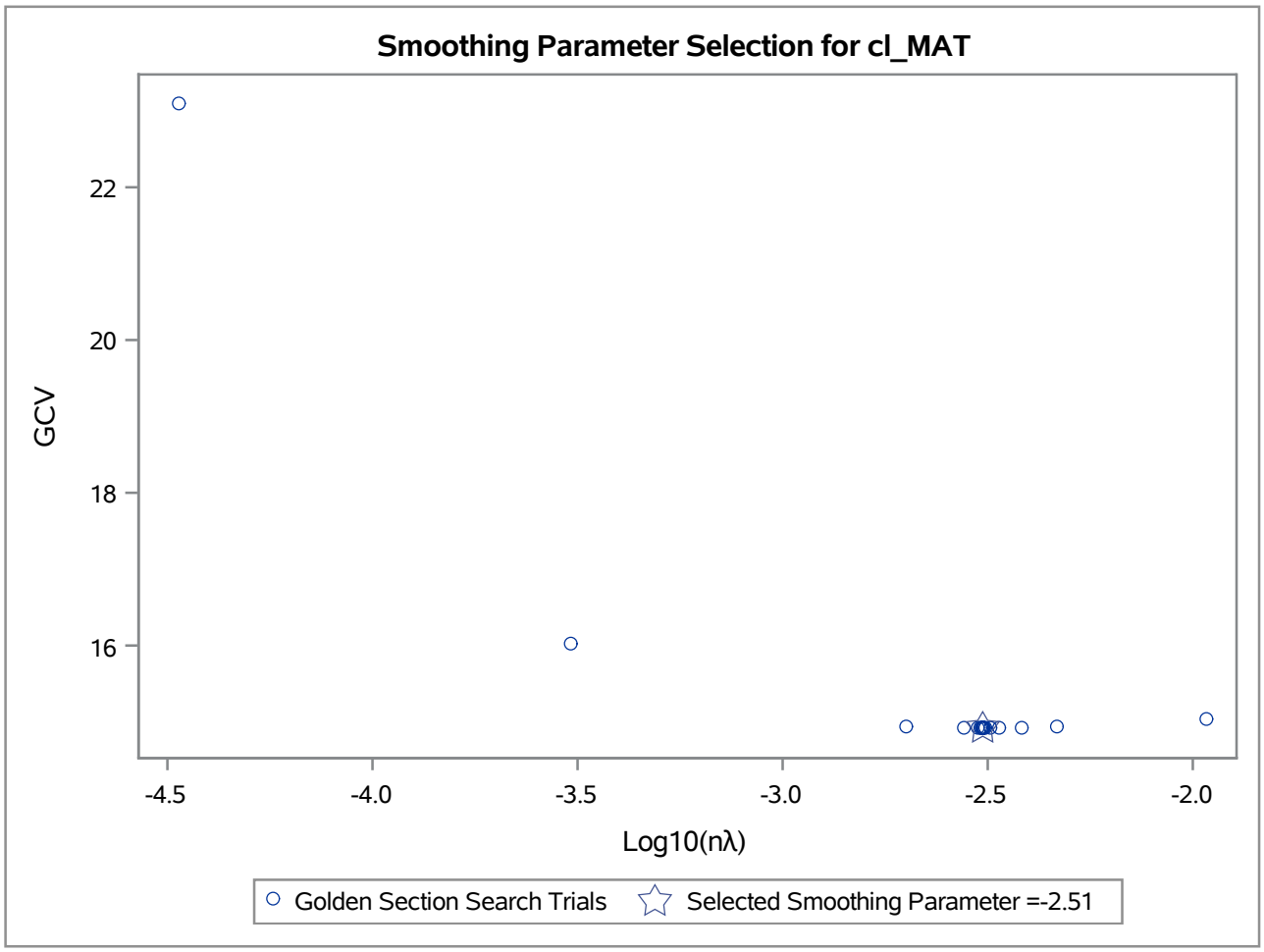
The TPSPLINE Procedure
Dependent Variable: cl_MAT



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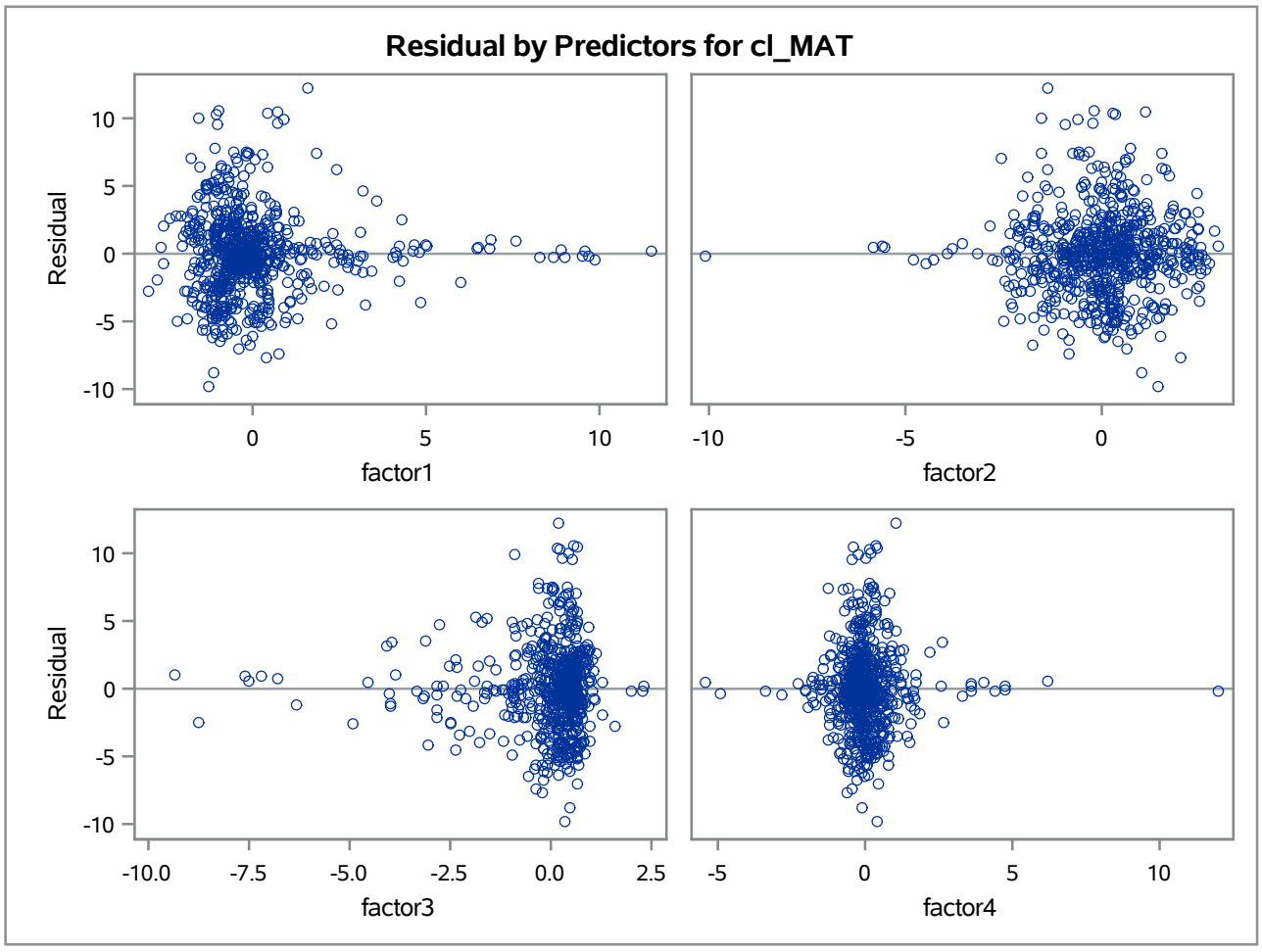
The TPSPLINE Procedure
Dependent Variable: cl_MAT



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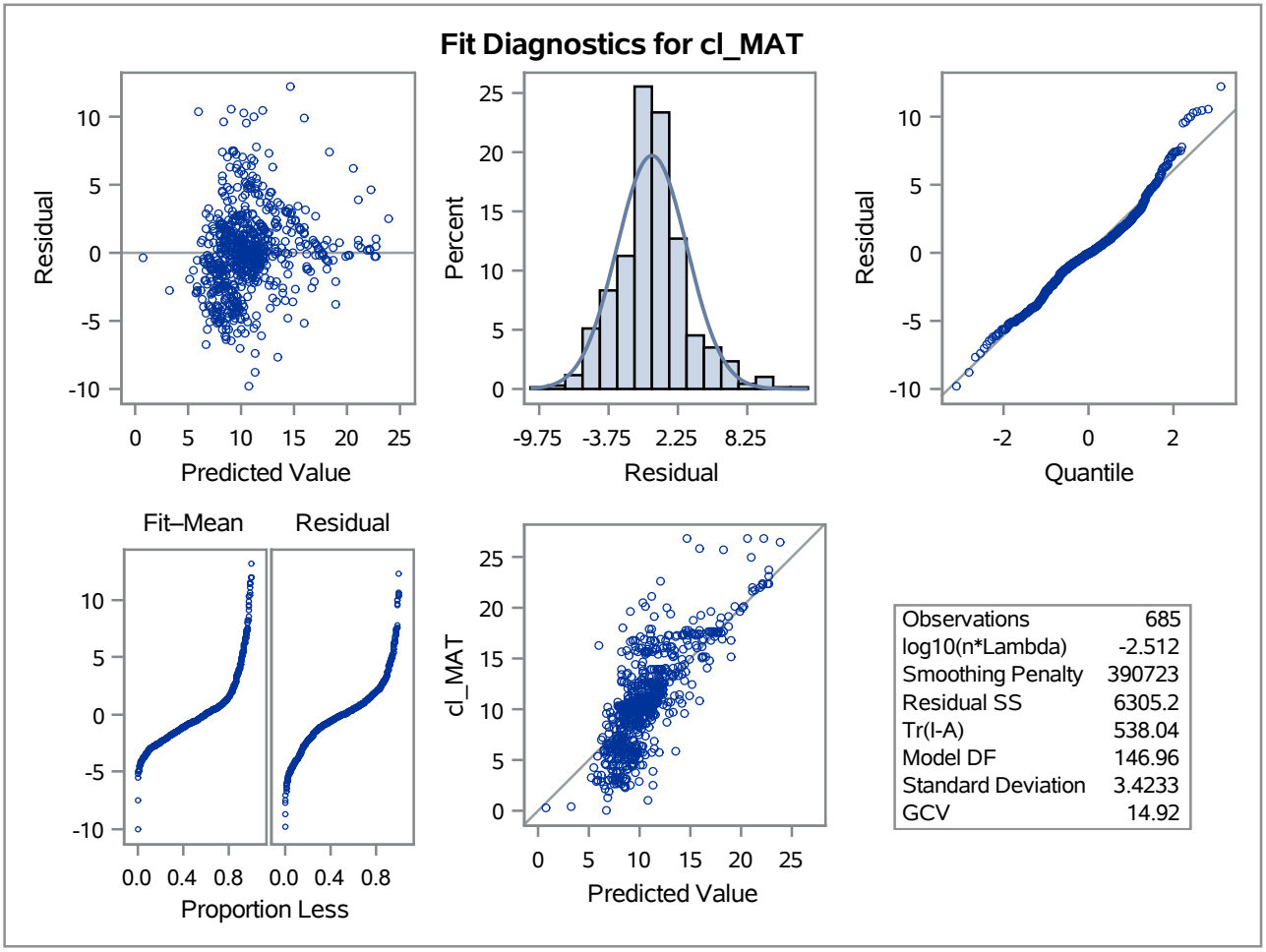
The TPSPLINE Procedure
Dependent Variable: cl_MAT



Observations	685
log10(n*Lambda)	-2.512
Smoothing Penalty	390723
Residual SS	6305.2
Tr(I-A)	538.04
Model DF	146.96
Standard Deviation	3.4233
GCV	14.92

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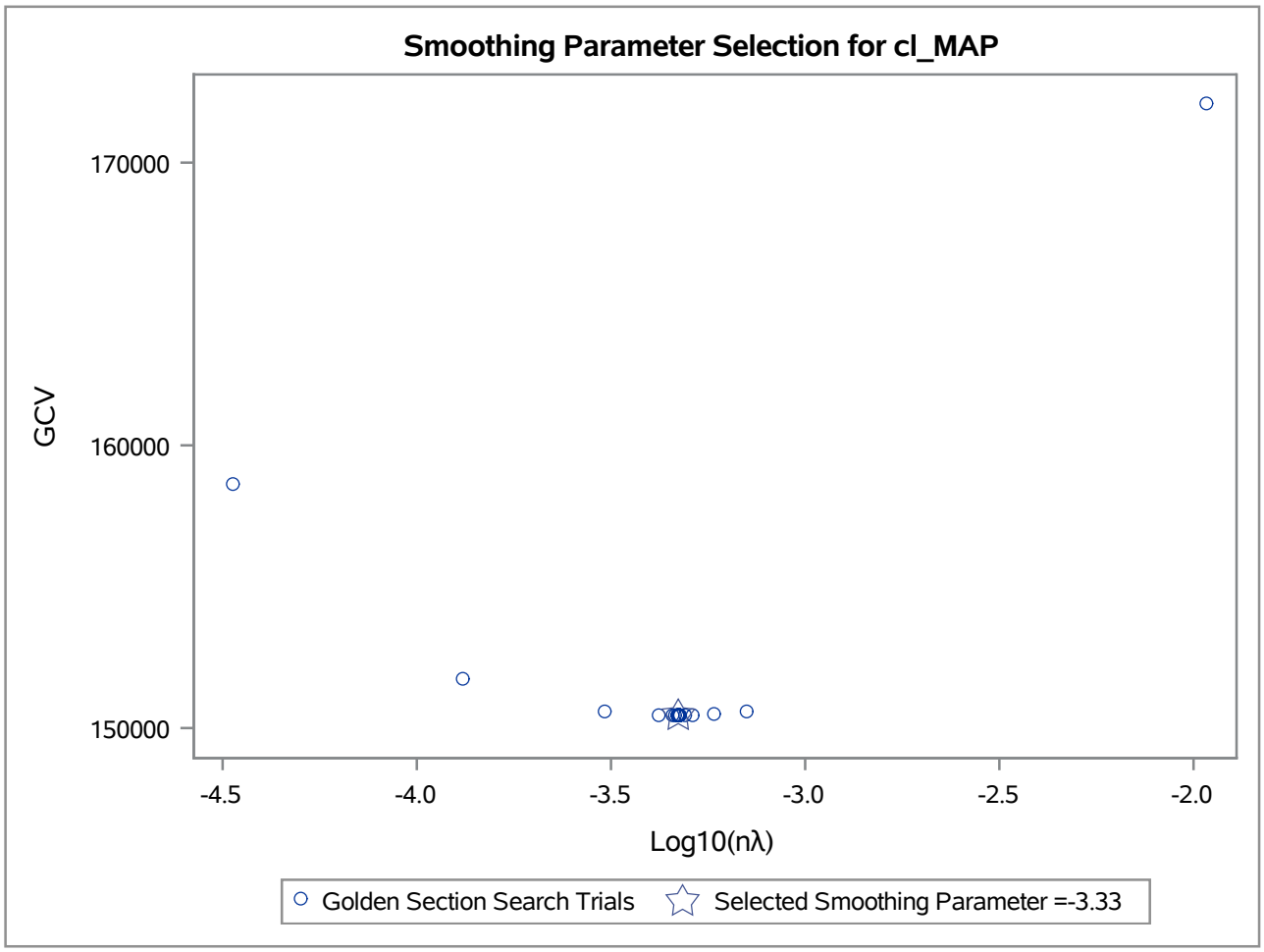
The TPSPLINE Procedure
Dependent Variable: cl_MAP

Summary of Input Data Set	
Number of Non-Missing Observations	685
Number of Missing Observations	0
Unique Smoothing Design Points	685

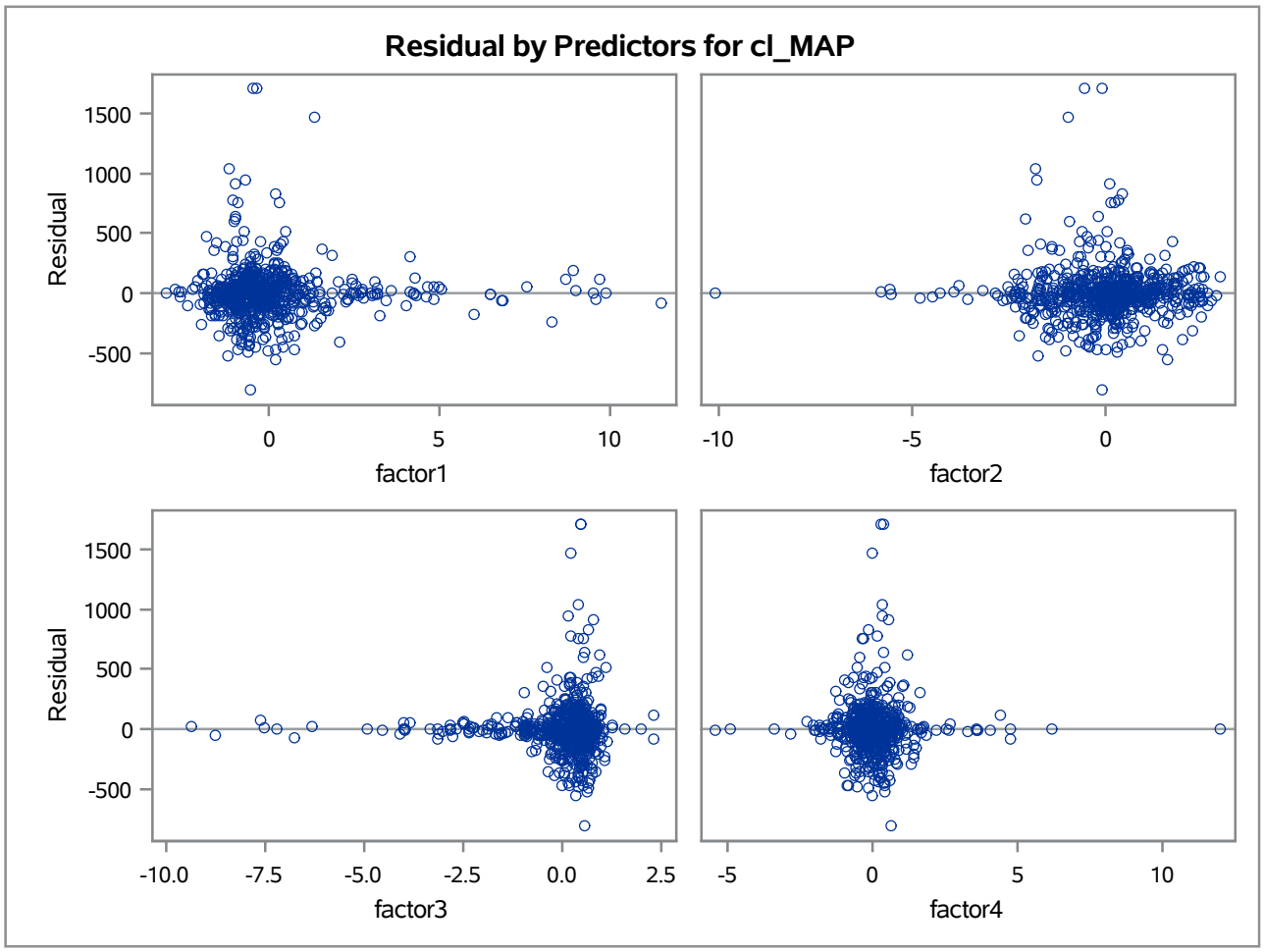
Summary of Final Model	
Number of Regression Variables	0
Number of Smoothing Variables	4
Order of Derivative in the Penalty	3
Dimension of Polynomial Space	15

Summary Statistics of Final Estimation	
log10(n*Lambda)	-3.3268
Smoothing Penalty	38851254106
Residual SS	31562943.630
Tr(I-A)	379.0894
Model DF	305.9106
Standard Deviation	288.5479
GCV	150447.4532

The TPSPLINE Procedure
Dependent Variable: cl_MAP



The TPSPLINE Procedure
Dependent Variable: cl_MAP



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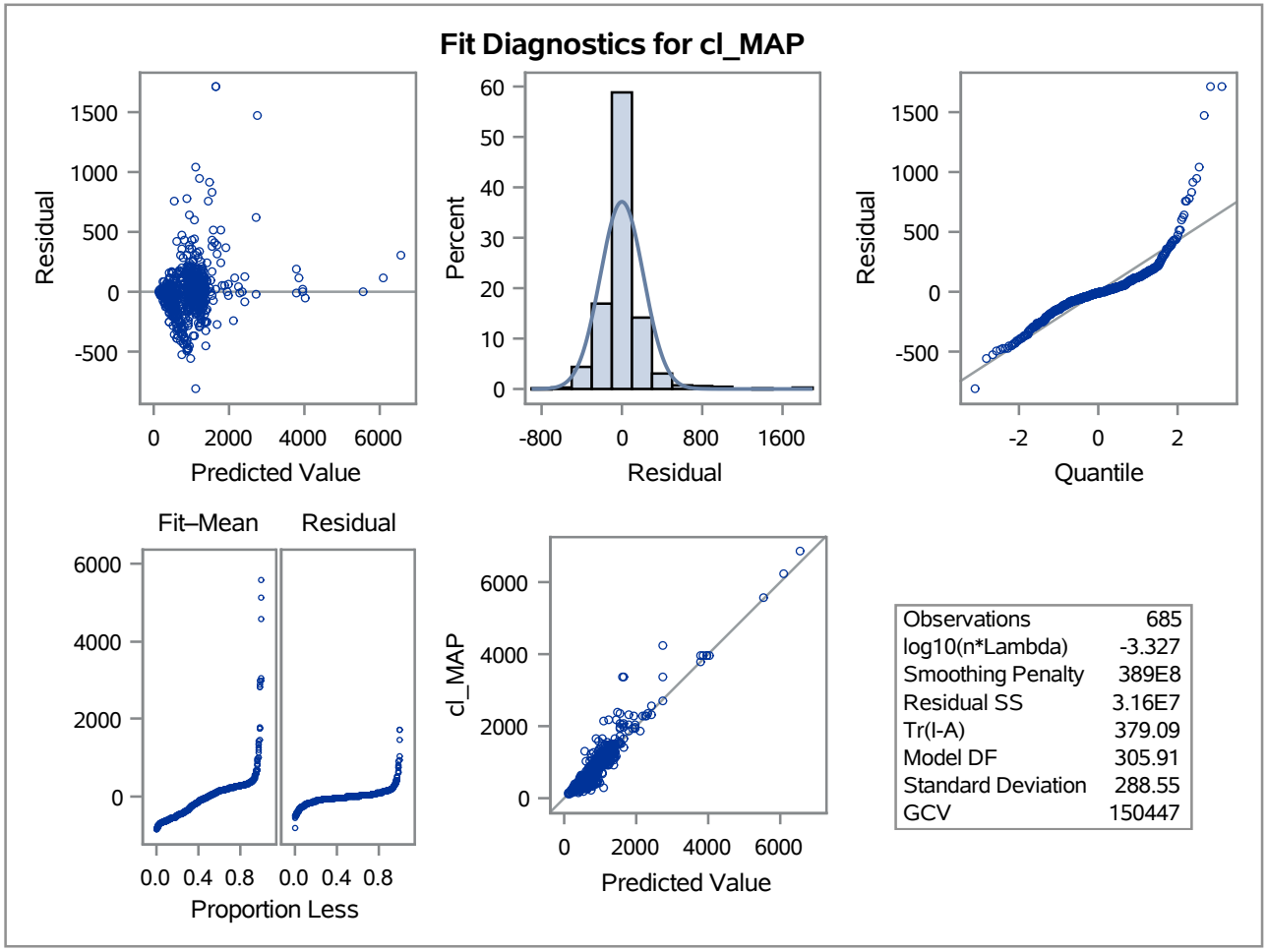
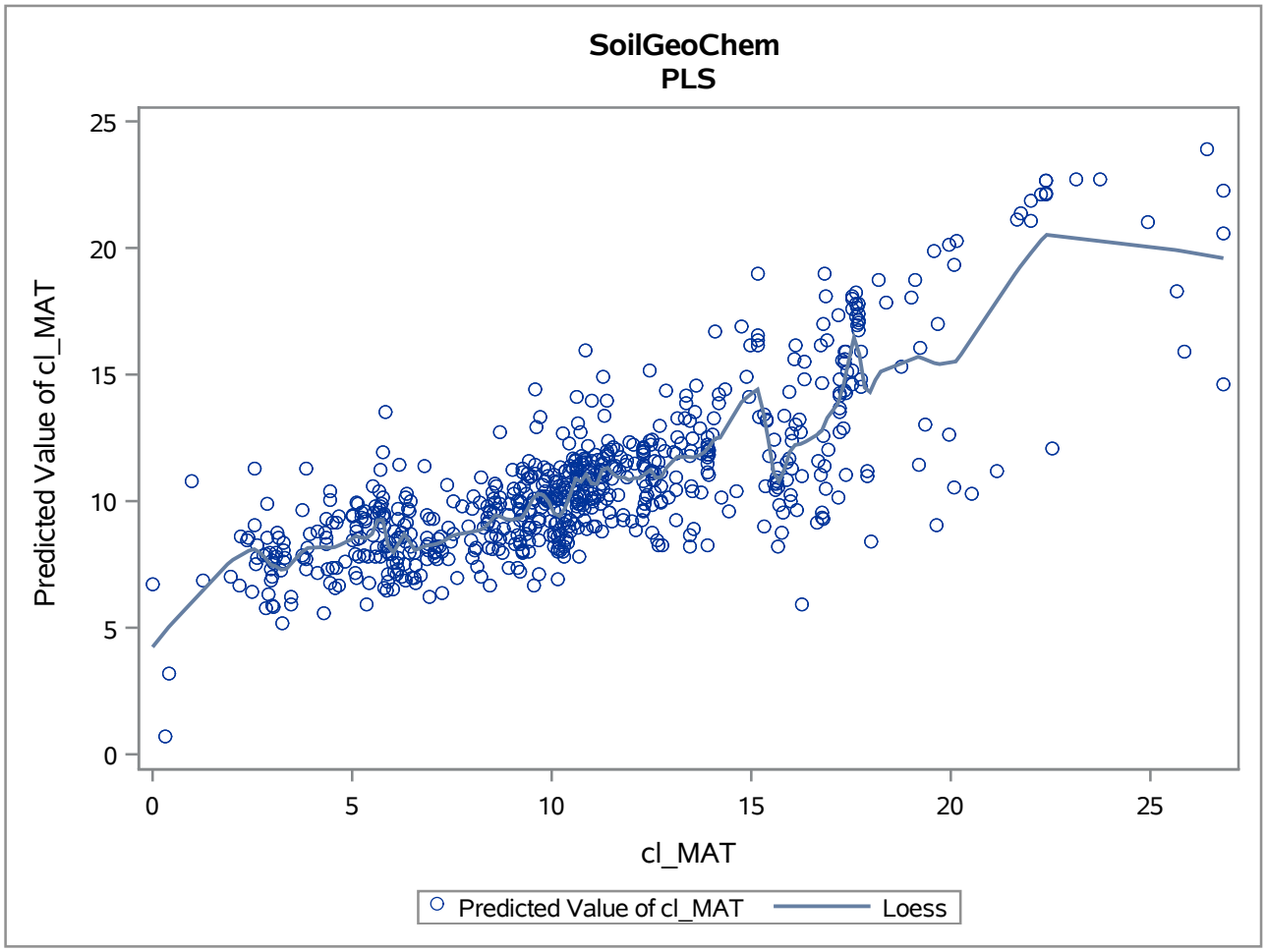
The TPSPLINE Procedure
Dependent Variable: cl_MAP



Observations	685
log10(n*Lambda)	-3.327
Smoothing Penalty	389E8
Residual SS	3.16E7
Tr(I-A)	379.09
Model DF	305.91
Standard Deviation	288.55
GCV	150447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Predicted Value of cl_MAT
cl_MAT
0
5
10
15
20
25
Predicted Value of cl_MAT
Loess

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The QUANTREG Procedure

Model Information		
Data Set	WORK.ESTIMATED	
Dependent Variable	P_cl_MAT	Predicted Value of cl_MAT
Number of Independent Variables	1	
Number of Observations	685	
Optimization Algorithm	Interior	

Number of Observations Read	685
Number of Observations Used	685

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The QUANTREG Procedure
Quantile Level = 0.1

Quantile Level and Objective Function	
Quantile Level	0.1
Objective Function	208.8014
Predicted Value at Mean	8.4381

Parameter Estimates		
Parameter	**DF**	**Estimate**
Intercept	1	5.0378
cl_MAT	1	0.3164

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The QUANTREG Procedure
Quantile Level = 0.5

Quantile Level and Objective Function	
Quantile Level	0.5
Objective Function	505.2535
Predicted Value at Mean	10.6904

Parameter Estimates		
Parameter	**DF**	**Estimate**
Intercept	1	5.3999
cl_MAT	1	0.4923

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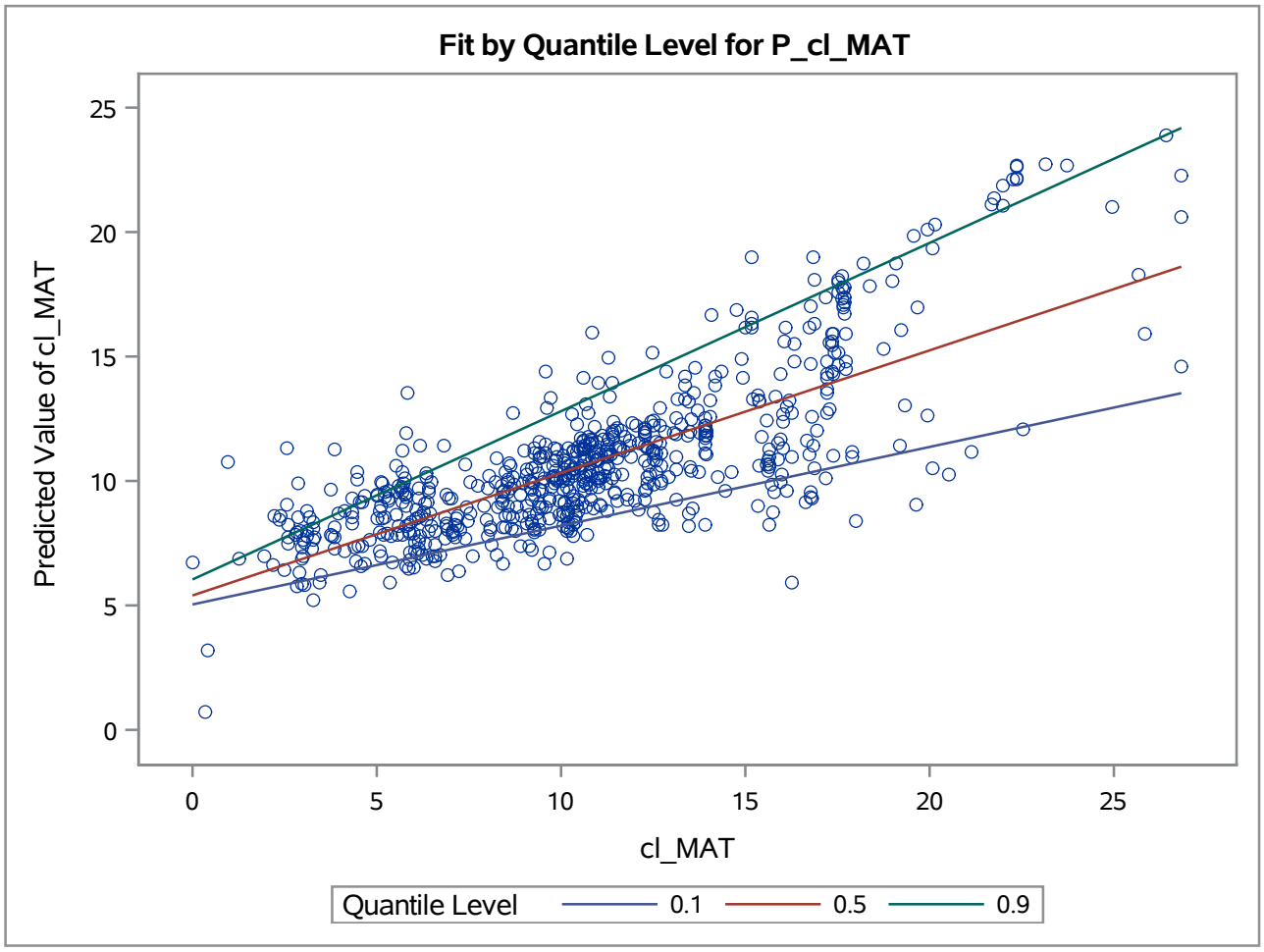
The QUANTREG Procedure
Quantile Level = 0.9

Quantile Level and Objective Function	
Quantile Level	0.9
Objective Function	239.0802
Predicted Value at Mean	13.3074

Parameter Estimates		
Parameter	**DF**	**Estimate**
Intercept	1	6.0422
cl_MAT	1	0.6761

The QUANTREG Procedure



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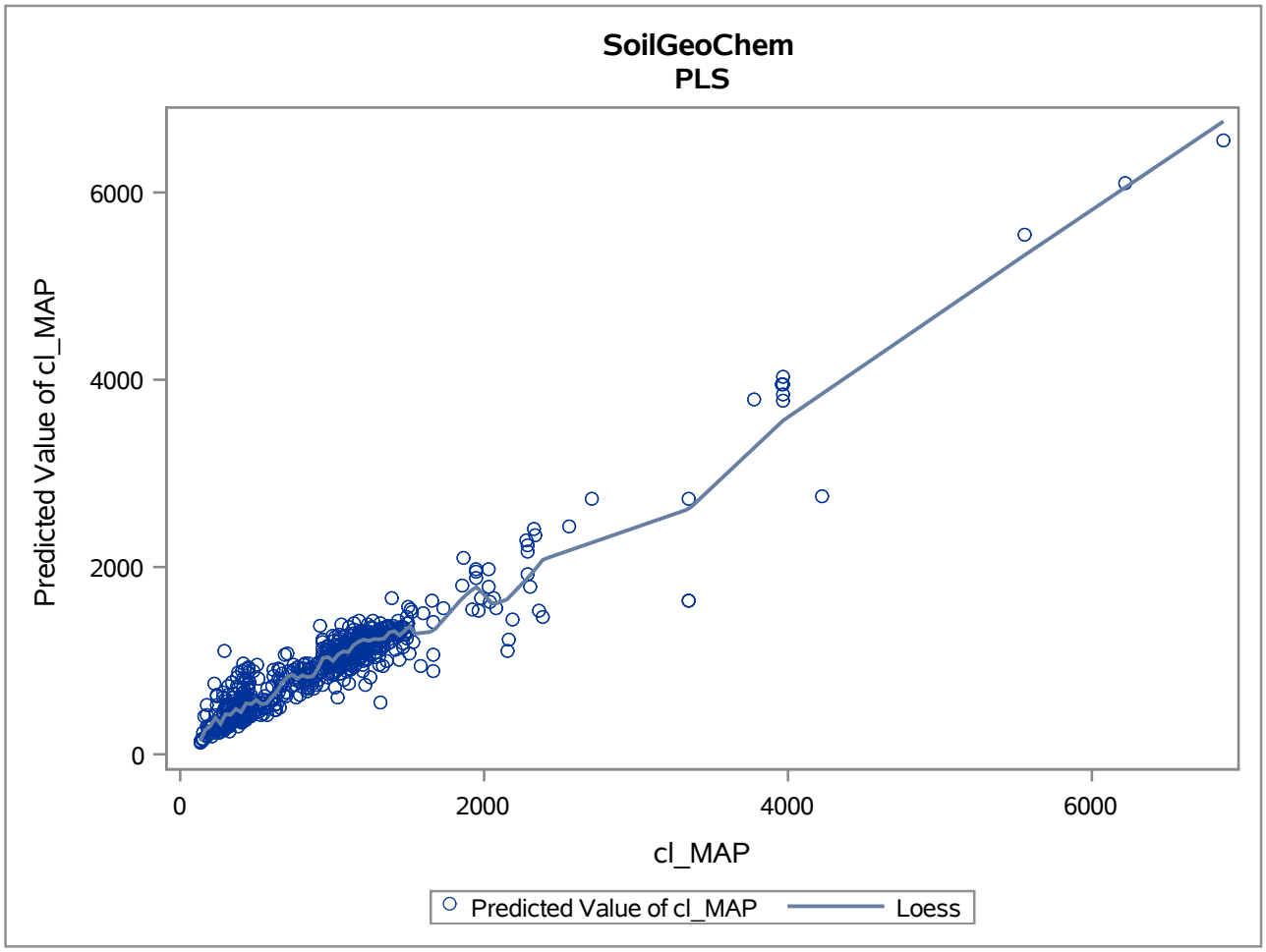
Obs	PEDON_ID	cl_MAT	P_cl_MAT	n	q_10	q_50	q_90
1	00P0001	12.36	10.5931021	1	8.94905	11.4854	14.3990
2	00P0006	12.27	9.24340987	2	8.92057	11.4411	14.3382
3	00P0011	12.295	9.6282379	3	8.92848	11.4534	14.3551
4	00P0016	11.8	9.45386323	4	8.77184	11.2097	14.0204
5	00P0021	12.01	9.20775098	5	8.83830	11.3131	14.1624
6	00P0041	5.35	5.90627659	6	6.73079	8.0340	9.6595
7	00P0043	6.42	7.96551077	7	7.06938	8.5608	10.3829
8	00P0052	11.335	11.1711926	8	8.62470	10.9807	13.7060
9	00P0054	11.63	12.0388257	9	8.71805	11.1260	13.9055
10	00P0055	11.675	10.2644088	10	8.73229	11.1481	13.9359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Predicted Value of cl_MAP
6000
4000
2000
0
0
2000
4000
6000
cl_MAP
Predicted Value of cl_MAP
Loess

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PLS

The QUANTREG Procedure

Model Information		
Data Set	WORK.ESTIMATED	
Dependent Variable	P_cl_MAP	Predicted Value of cl_MAP
Number of Independent Variables	1	
Number of Observations	685	
Optimization Algorithm	Interior	

Number of Observations Read	685
Number of Observations Used	685

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The QUANTREG Procedure
Quantile Level = 0.1

Quantile Level and Objective Function	
Quantile Level	0.1
Objective Function	20759.5674
Predicted Value at Mean	789.4254

Parameter Estimates		
Parameter	**DF**	**Estimate**
Intercept	1	75.0852
cl_MAP	1	0.7345

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The QUANTREG Procedure
Quantile Level = 0.5

Quantile Level and Objective Function	
Quantile Level	0.5
Objective Function	41007.4981
Predicted Value at Mean	975.5018

Parameter Estimates		
Parameter	**DF**	**Estimate**
Intercept	1	82.1281
cl_MAP	1	0.9185

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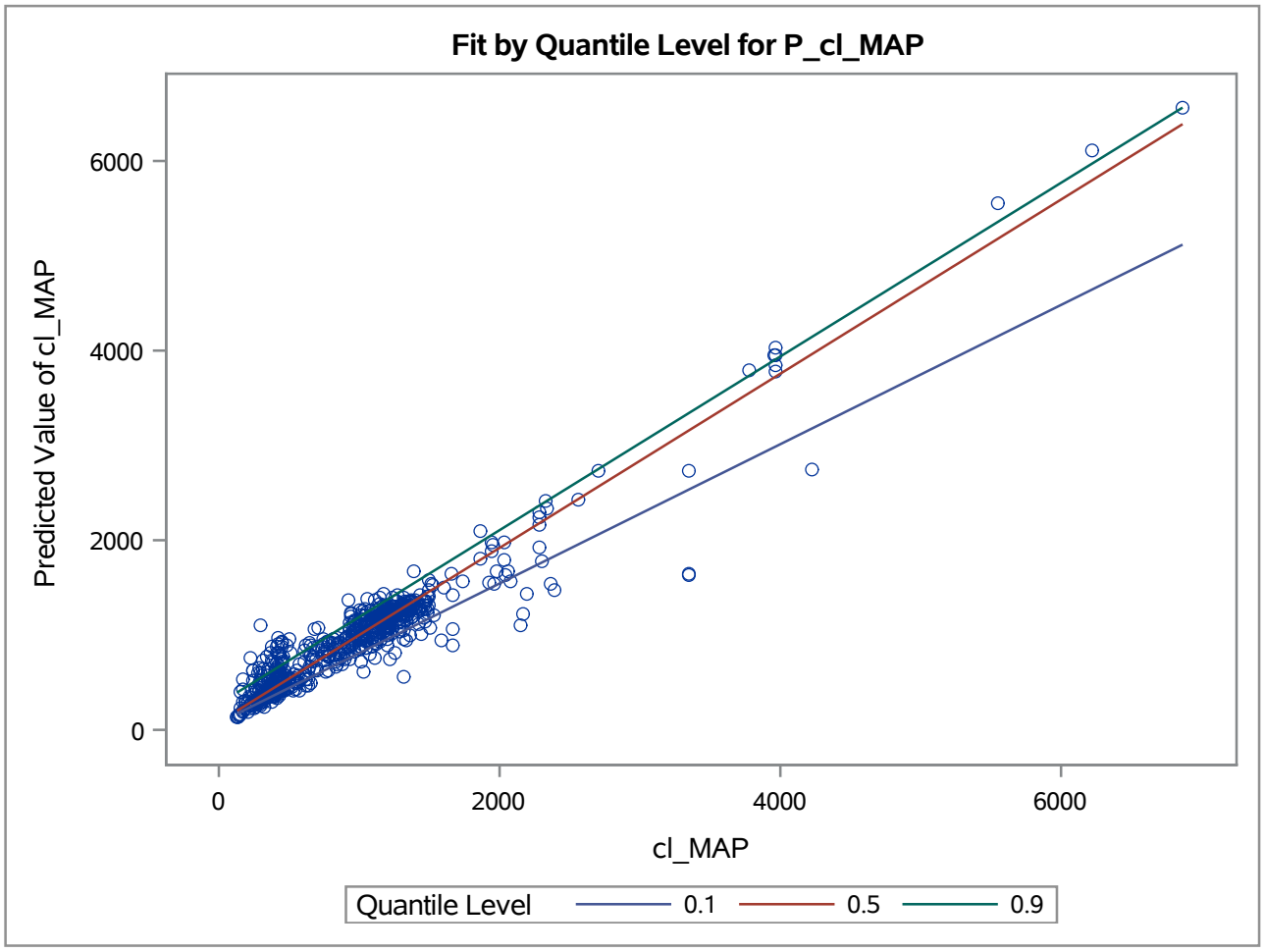
The QUANTREG Procedure
Quantile Level = 0.9

Quantile Level and Objective Function	
Quantile Level	0.9
Objective Function	20930.6714
Predicted Value at Mean	1165.3504

Parameter Estimates		
Parameter	**DF**	**Estimate**
Intercept	1	274.5430
cl_MAP	1	0.9159

The QUANTREG Procedure



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Predictions

Obs	Pedon_ID	low_MAP	best_MAP	high_MAP	low_MAT	best_MAT	high_MAT
1	Ngira20	1299	1769	2238	16.8	20.9	25