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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	Impute Average
Number of Factors	4

Number of Observations Read	686
Number of Observations Used	686

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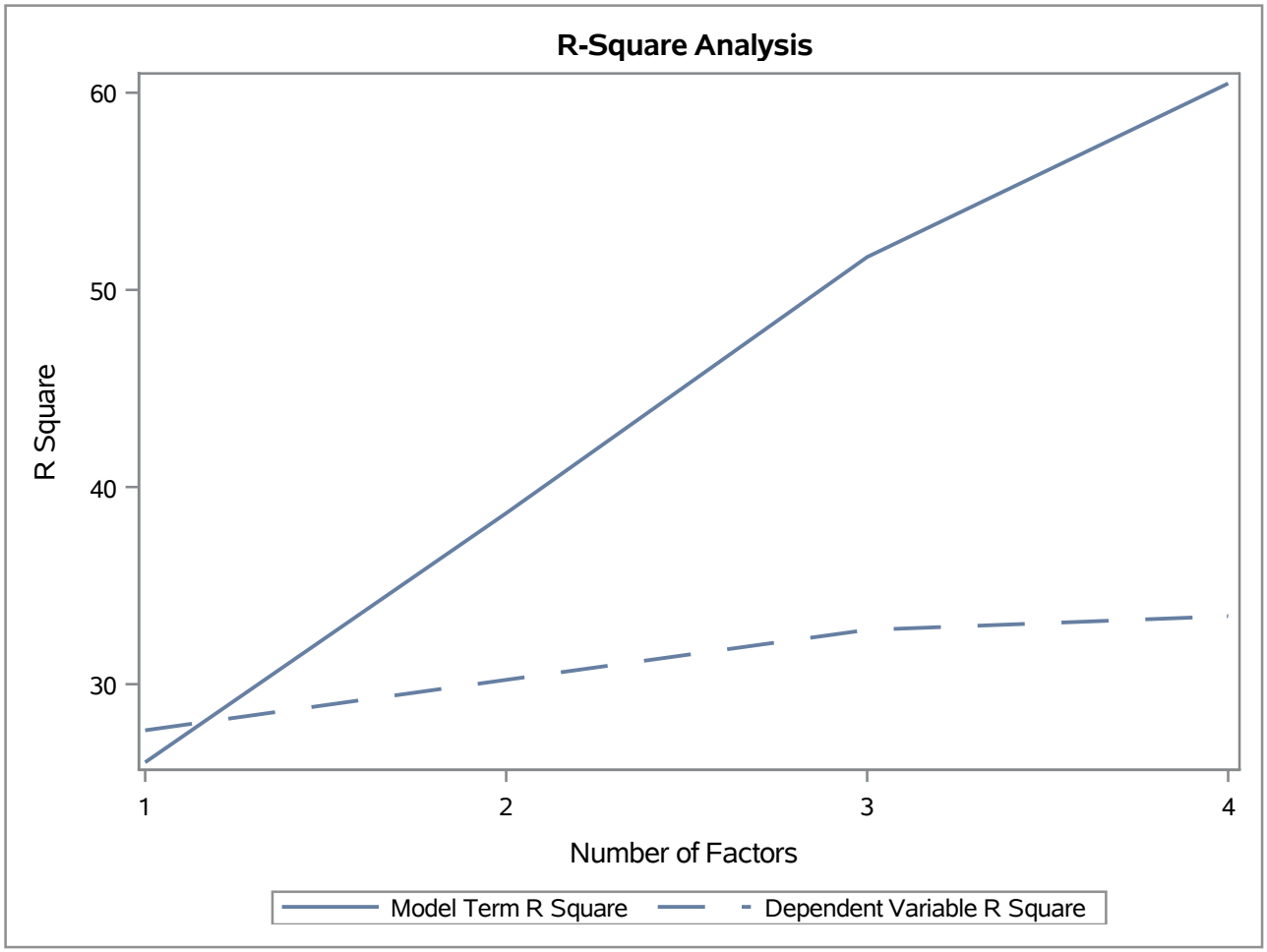
The PLS Procedure

Percent Variation Accounted for by Partial Least Squares Factors				
	Model Effects		Dependent Variables	
Number of Extracted Factors	Current	Total	Current	Total
1	26.0369	26.0369	27.6606	27.6606
2	12.6358	38.6728	2.5584	30.2190
3	12.9925	51.6652	2.5346	32.7536
4	8.8033	60.4686	0.6950	33.4486



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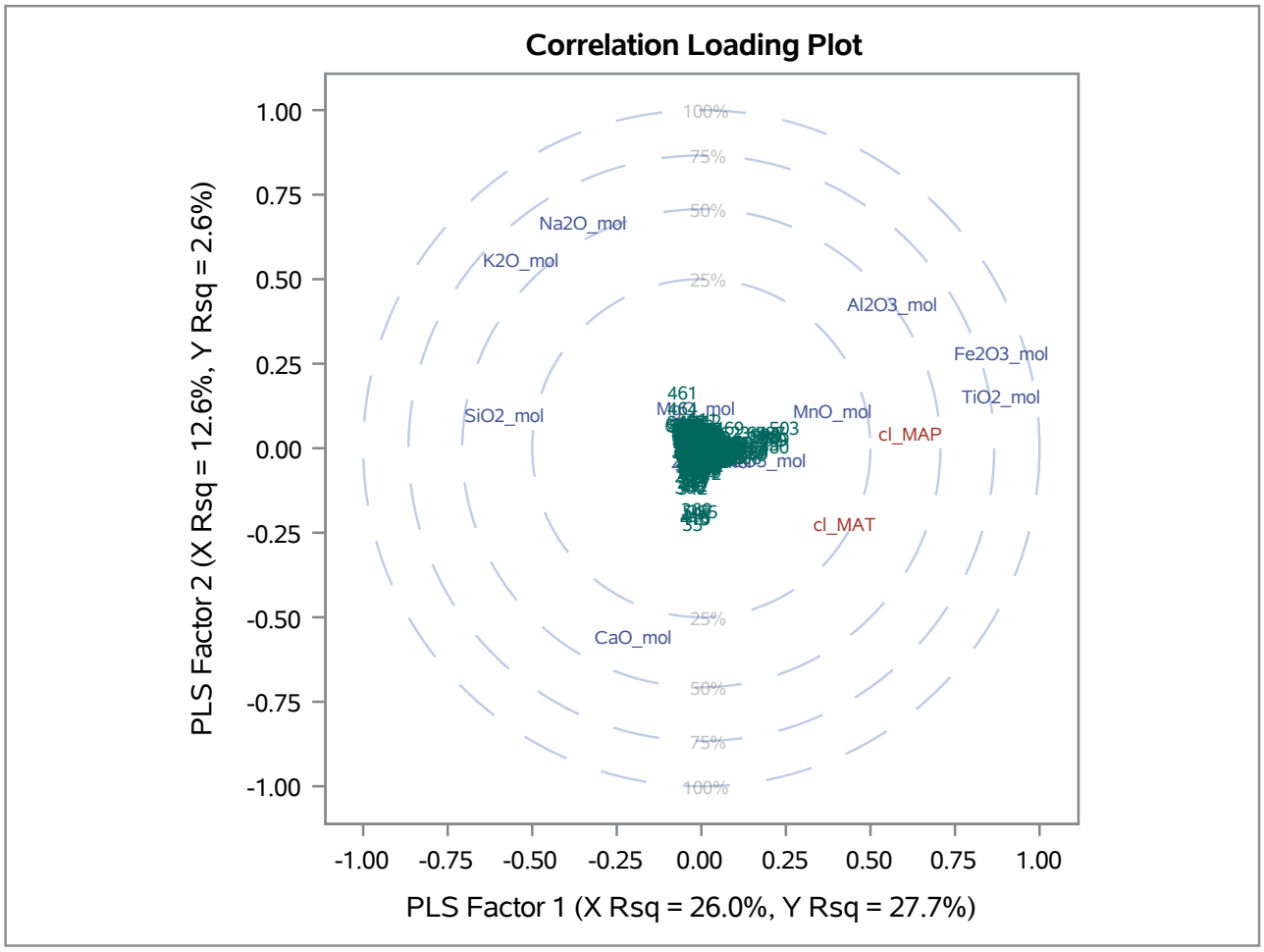
The PLS Procedure



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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	0.524887	0.228709	0.109352	-0.342570	0.525625	0.018503	0.334498	-0.116263	-0.206883	-0.010289	-0.312949
2	0.238637	0.095972	-0.027572	0.085907	0.131624	-0.032803	0.362482	-0.471264	0.566603	0.102288	0.471504
3	-0.088539	-0.279153	-0.267591	0.540796	0.081889	-0.017101	-0.167645	-0.567857	-0.337835	-0.267202	-0.084112
4	0.145191	-0.191724	-0.186339	-0.264068	0.143718	-0.014895	-0.475046	0.250916	0.160668	0.686818	-0.175128

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	0.506758	0.149902	0.060640	-0.282587	0.567583	0.014440	0.272542	-0.179438	-0.328395	-0.040626	-0.374825
2	0.311704	0.126142	-0.040899	0.104866	0.186486	-0.038016	0.118564	-0.533160	0.636958	0.195933	0.429265
3	-0.078354	-0.429852	-0.313116	0.456969	0.197319	-0.043578	-0.398063	-0.557648	-0.342017	-0.069756	-0.091169
4	0.124295	-0.126096	0.013264	-0.355339	0.231011	-0.043431	-0.715191	0.223024	0.157596	0.575868	-0.091490

Model Effect Weights	
Number of Extracted Factors	Inner Regression Coefficients
1	0.439496
2	0.191867
3	0.188333
4	0.119805

Dependent Variable Weights		
Number of Extracted Factors	cl_MAP	cl_MAT
1	0.826281	0.563258
2	0.195050	-0.980793
3	0.996204	0.087049
4	0.875952	-0.482398

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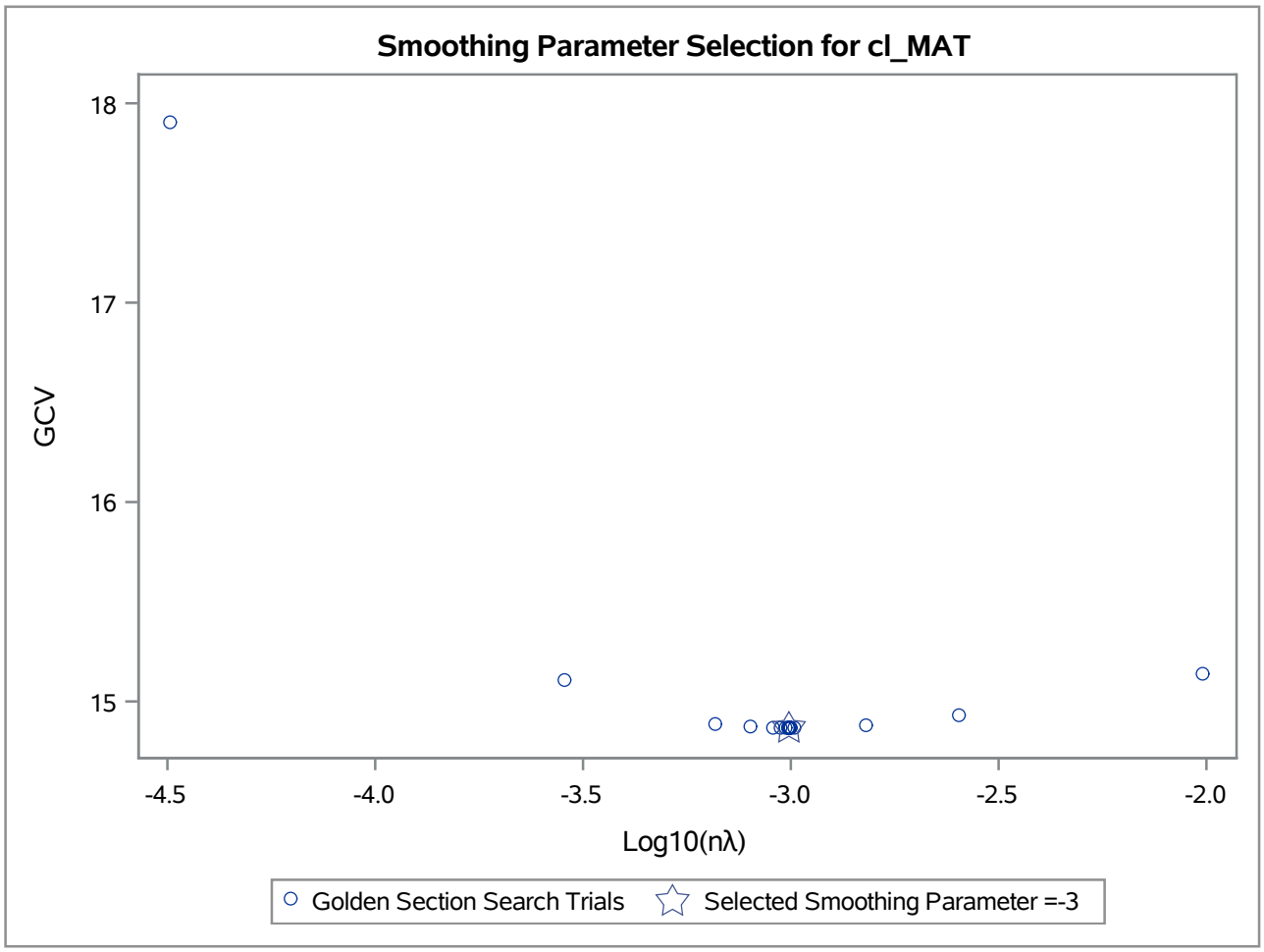
The TPSPLINE Procedure
Dependent Variable: cl_MAT

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

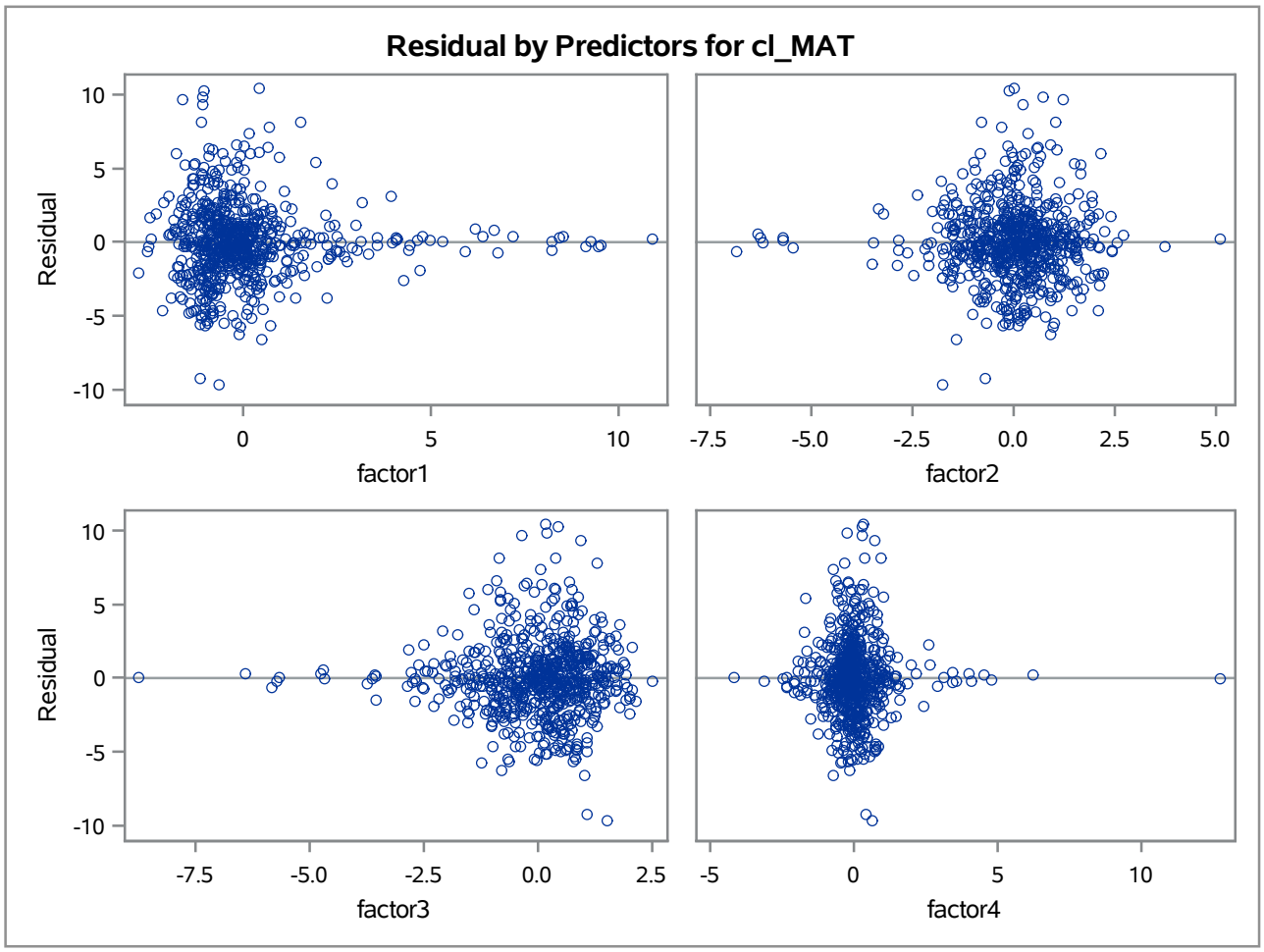
Summary of Final Model	
Number of Regression Variables	0
Number of Smoothing Variables	4
Order of Derivative in the Penalty	3
Dimension of Polynomial Space	15

Summary Statistics of Final Estimation	
log10(n*Lambda)	-3.0046
Smoothing Penalty	1568177.3466
Residual SS	4447.2015
Tr(I-A)	452.6721
Model DF	232.3279
Standard Deviation	3.1344
GCV	14.8665

The TPSPLINE Procedure
Dependent Variable: cl_MAT



The TPSPLINE Procedure
Dependent Variable: cl_MAT



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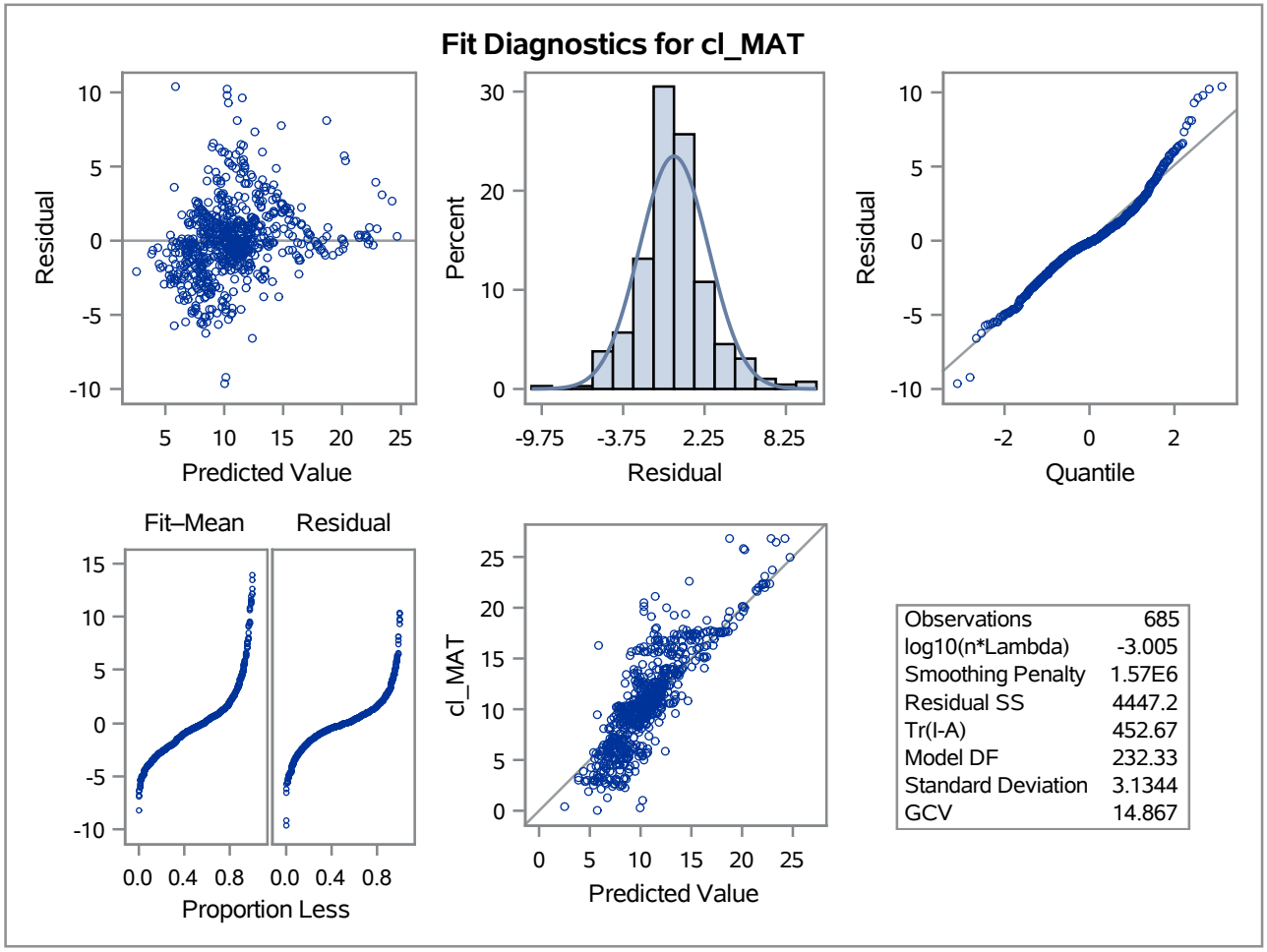
The TPSPLINE Procedure
Dependent Variable: cl_MAT



Observations	685
log10(n*Lambda)	-3.005
Smoothing Penalty	1.57E6
Residual SS	4447.2
Tr(I-A)	452.67
Model DF	232.33
Standard Deviation	3.1344
GCV	14.867

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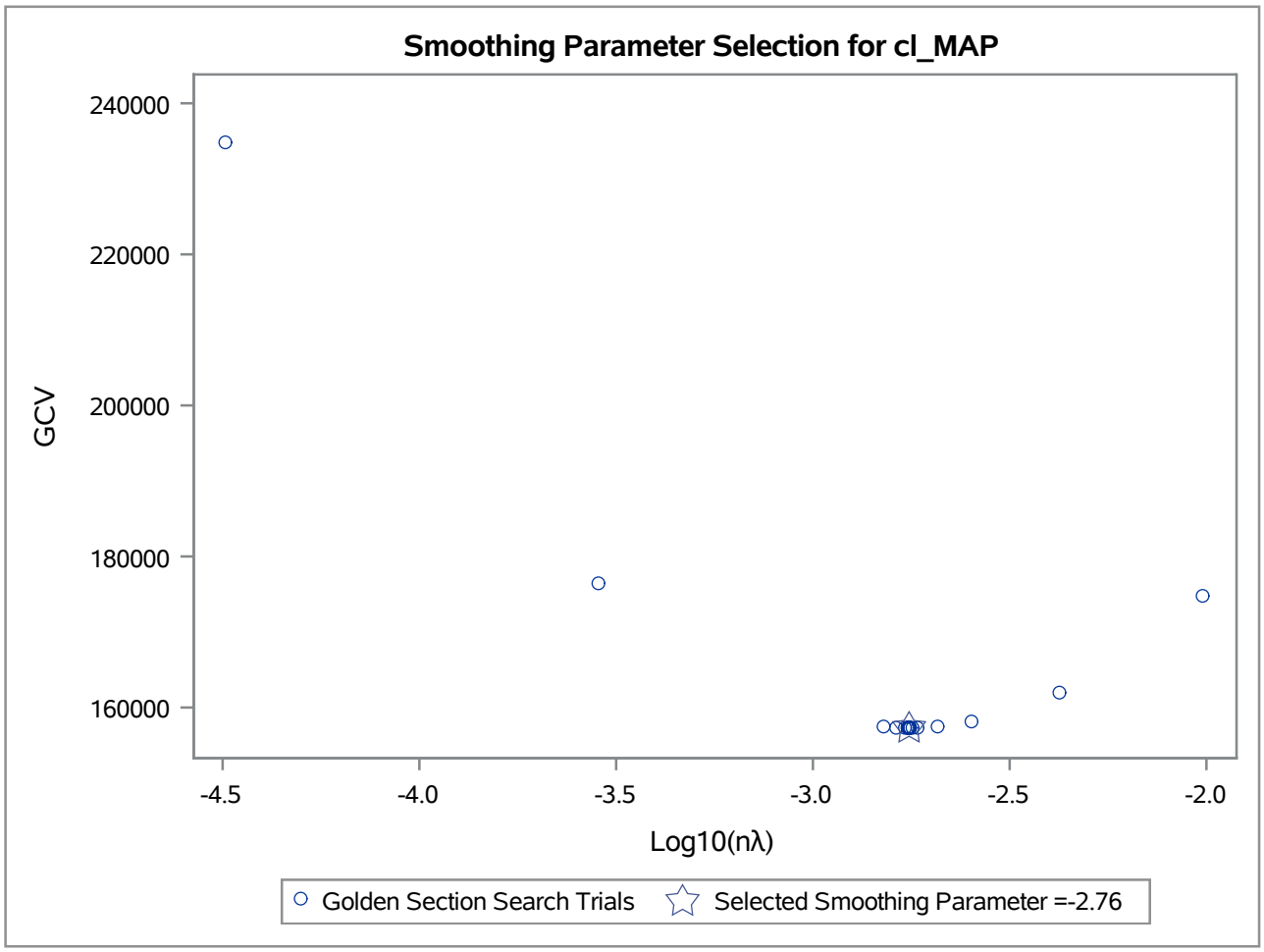
The TPSPLINE Procedure
Dependent Variable: cl_MAP

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

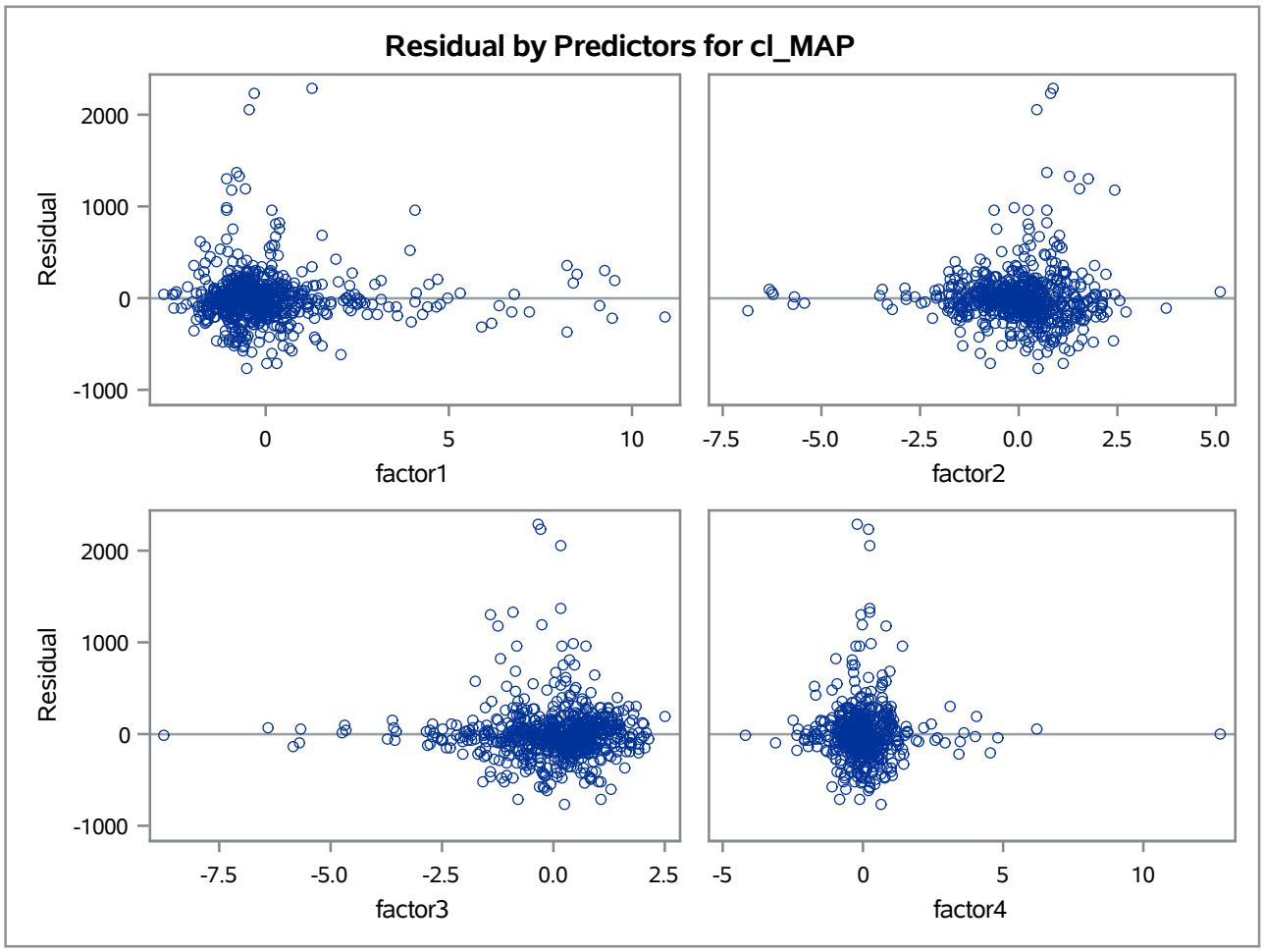
Summary of Final Model	
Number of Regression Variables	0
Number of Smoothing Variables	4
Order of Derivative in the Penalty	3
Dimension of Polynomial Space	15

Summary Statistics of Final Estimation	
log10(n*Lambda)	-2.7556
Smoothing Penalty	11012811554
Residual SS	57502880.895
Tr(I-A)	500.4362
Model DF	184.5638
Standard Deviation	338.9772
GCV	157283.3265

The TPSPLINE Procedure
Dependent Variable: cl_MAP



The TPSPLINE Procedure
Dependent Variable: cl_MAP



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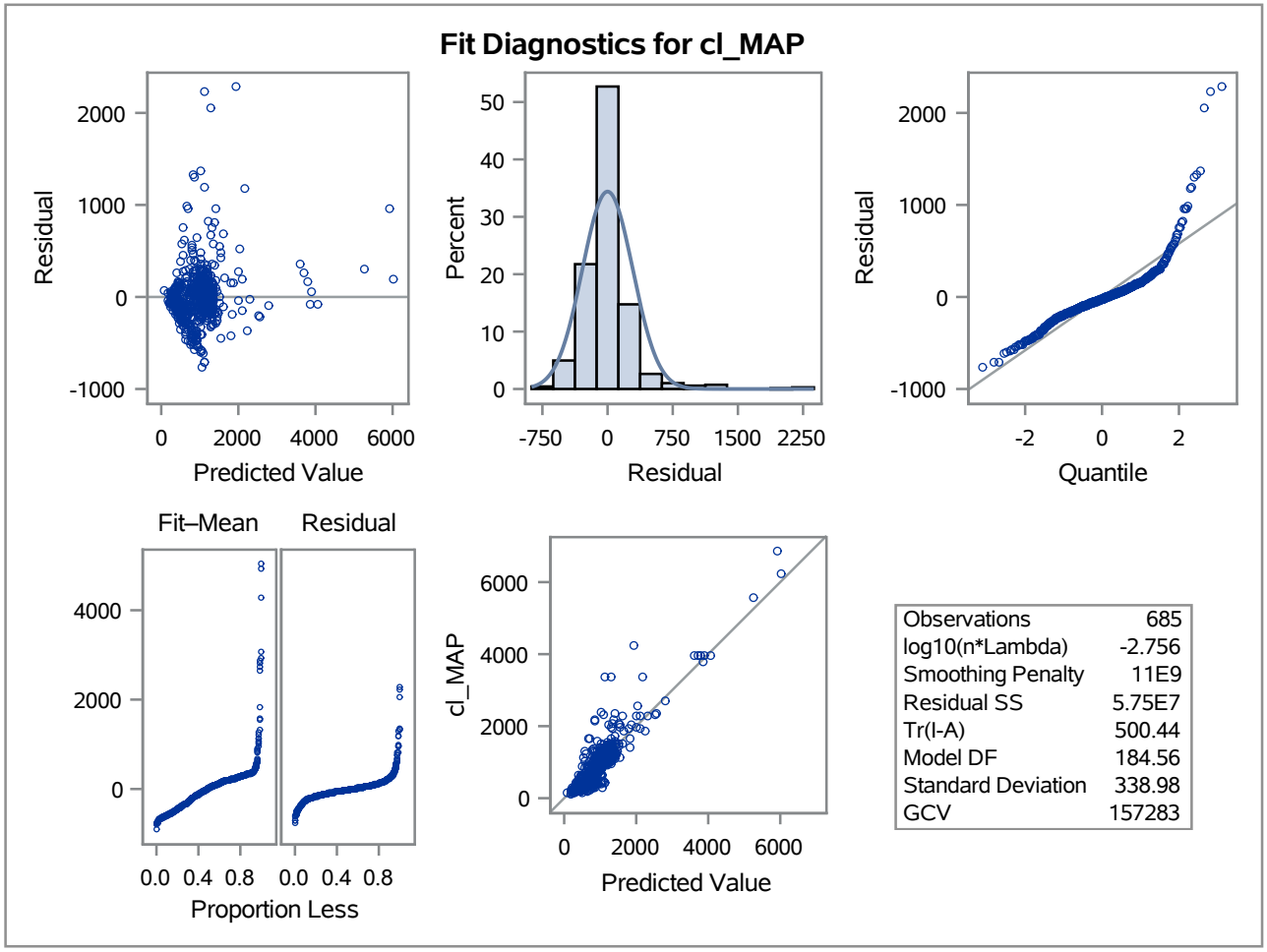
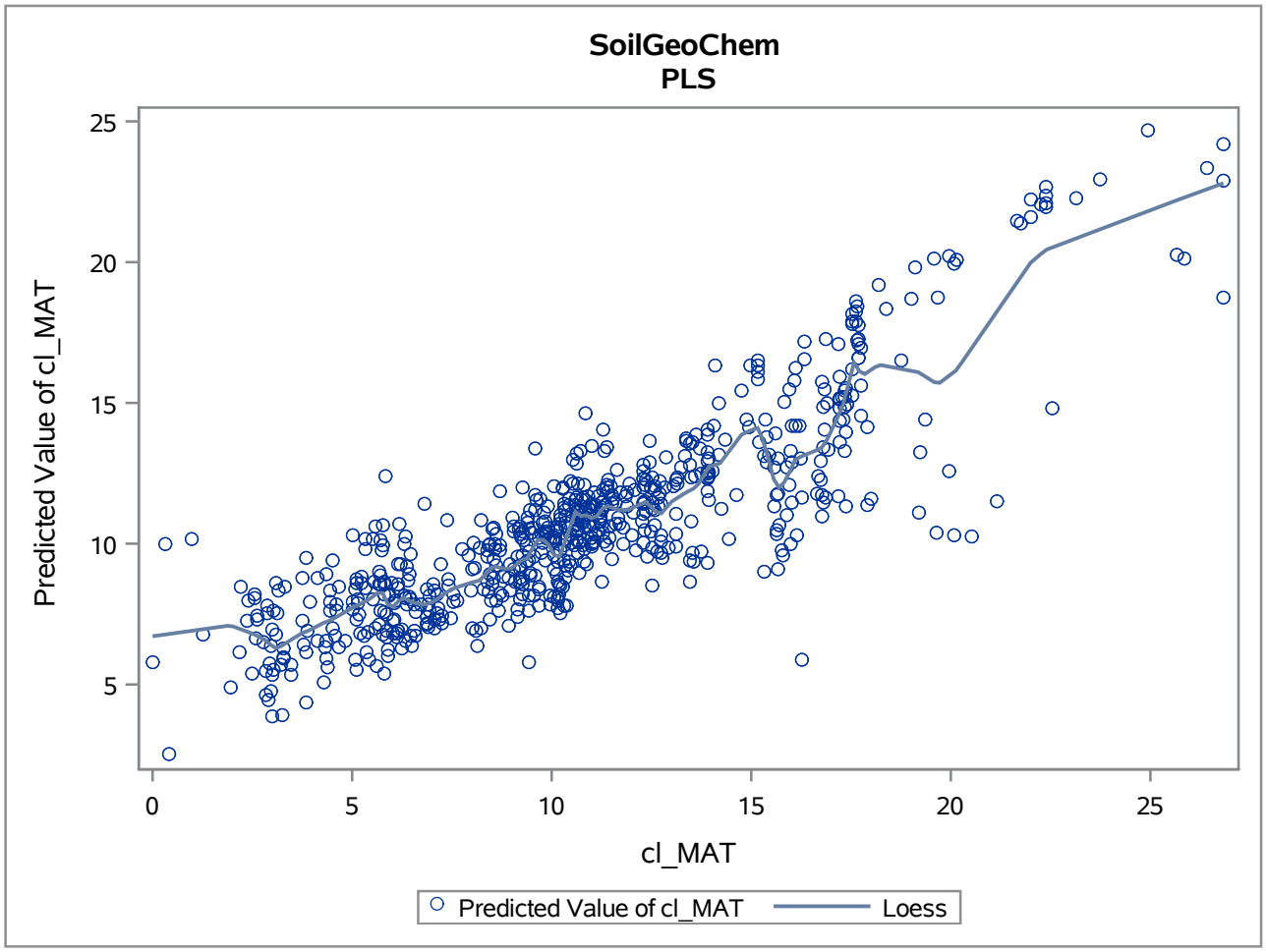
The TPSPLINE Procedure
Dependent Variable: cl_MAP



Observations	685
log10(n*Lambda)	-2.756
Smoothing Penalty	11E9
Residual SS	5.75E7
Tr(I-A)	500.44
Model DF	184.56
Standard Deviation	338.98
GCV	157283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Predicted Value of cl_MAT
25
20
15
10
5
0
5
10
15
20
25
cl_MAT
Predicted Value of cl_MAT
Loess

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PLS

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	199.0286
Predicted Value at Mean	8.5308

Parameter Estimates		
Parameter	**DF**	**Estimate**
Intercept	1	3.7964
cl_MAT	1	0.4406

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The QUANTREG Procedure
Quantile Level = 0.5

Quantile Level and Objective Function	
Quantile Level	0.5
Objective Function	451.2823
Predicted Value at Mean	10.7480

Parameter Estimates		
Parameter	**DF**	**Estimate**
Intercept	1	3.9494
cl_MAT	1	0.6327

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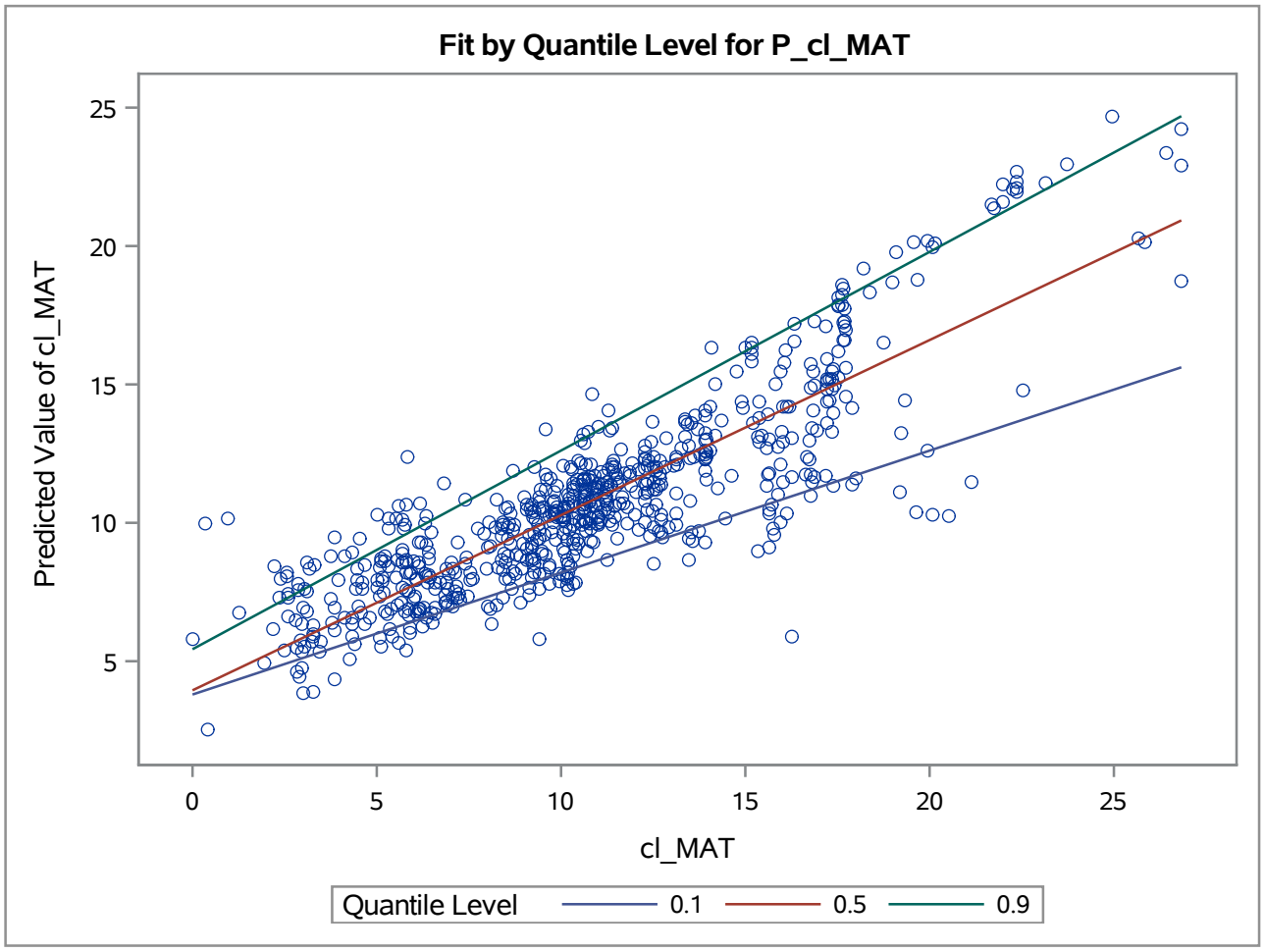
The QUANTREG Procedure
Quantile Level = 0.9

Quantile Level and Objective Function	
Quantile Level	0.9
Objective Function	212.4691
Predicted Value at Mean	13.1456

Parameter Estimates		
Parameter	**DF**	**Estimate**
Intercept	1	5.4328
cl_MAT	1	0.7178

The QUANTREG Procedure



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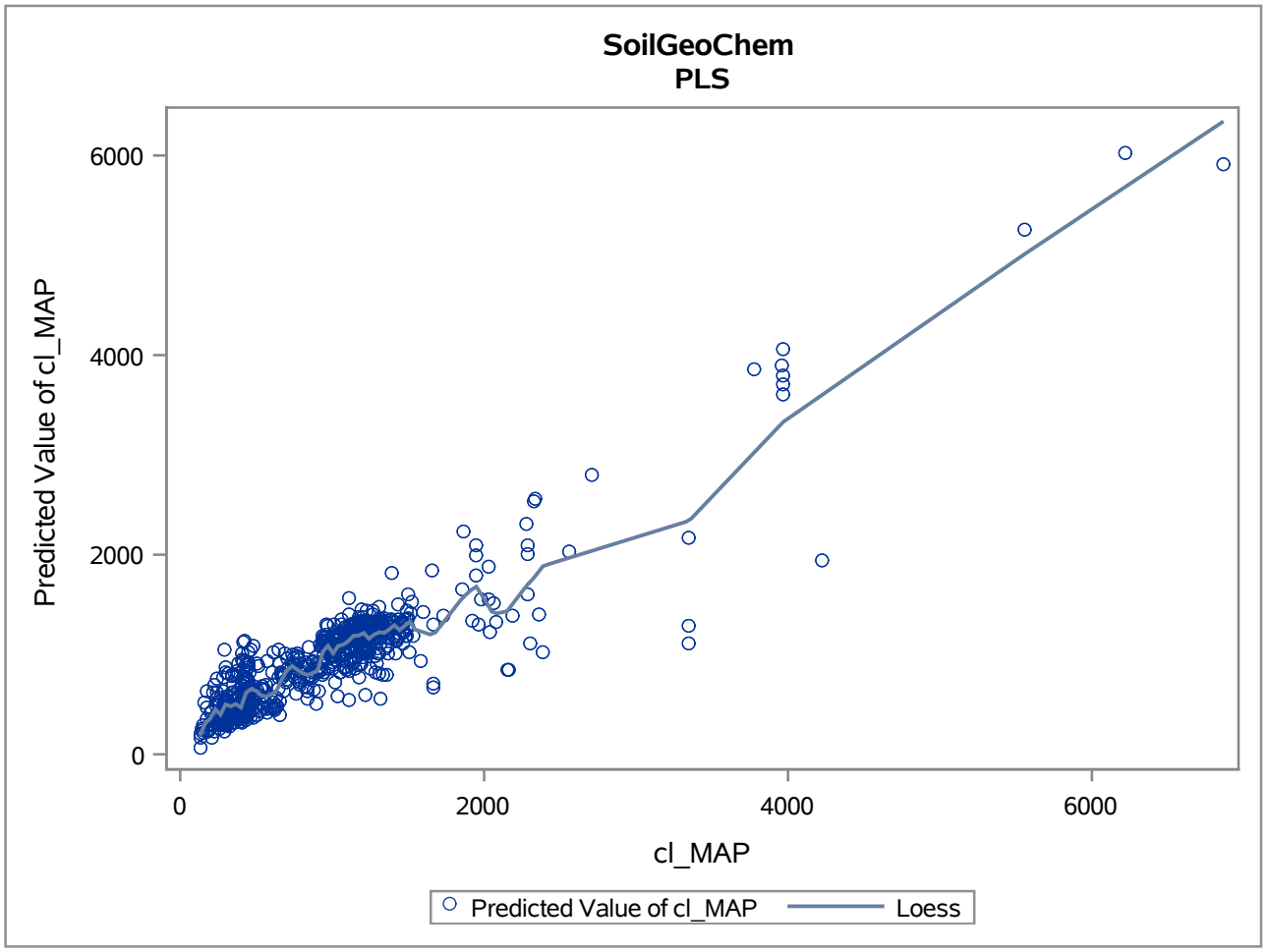
Obs	PEDON_ID	cl_MAT	P_cl_MAT	n	q_10	q_50	q_90
1	00P0001	12.36	12.2490294	1	9.24215	11.7696	14.3045
2	00P0006	12.27	10.7827887	2	9.20250	11.7126	14.2399
3	00P0011	12.295	11.4005235	3	9.21351	11.7284	14.2578
4	00P0016	11.8	10.583015	4	8.99542	11.4152	13.9025
5	00P0021	12.01	10.2845481	5	9.08794	11.5481	14.0533
6	00P0041	5.35	6.1535539	6	6.15355	7.3343	9.2729
7	00P0043	6.42	8.09009583	7	6.62499	8.0113	10.0409
8	00P0052	11.335	10.0752713	8	8.79054	11.1210	13.5688
9	00P0054	11.63	12.6347128	9	8.92051	11.3077	13.7805
10	00P0055	11.675	10.9098339	10	8.94034	11.3362	13.8128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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	27135.7418
Predicted Value at Mean	703.9933

Parameter Estimates		
Parameter	**DF**	**Estimate**
Intercept	1	126.9932
cl_MAP	1	0.5933

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The QUANTREG Procedure
Quantile Level = 0.5

Quantile Level and Objective Function	
Quantile Level	0.5
Objective Function	53783.8340
Predicted Value at Mean	984.0997

Parameter Estimates		
Parameter	**DF**	**Estimate**
Intercept	1	171.6590
cl_MAP	1	0.8353

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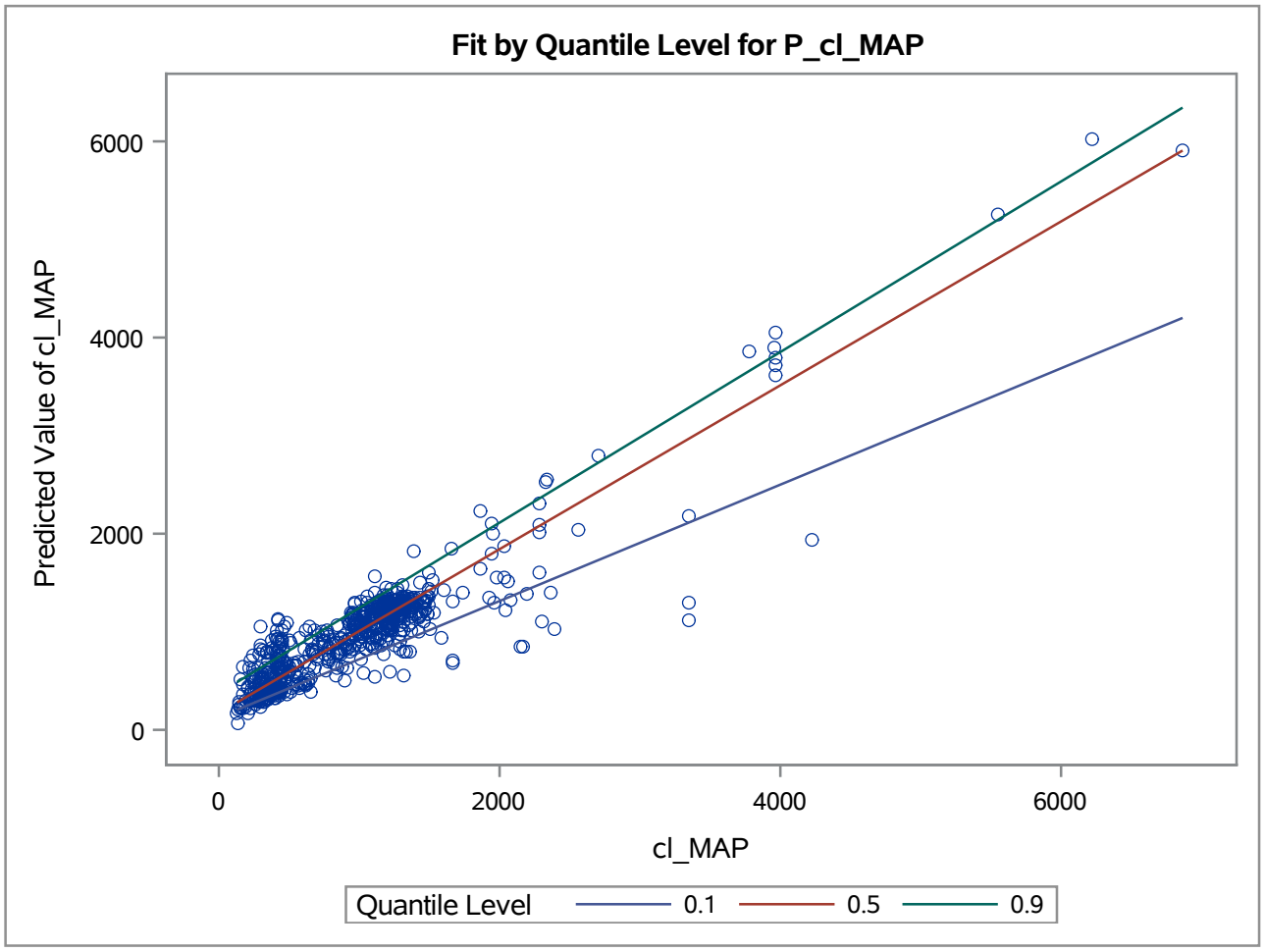
The QUANTREG Procedure
Quantile Level = 0.9

Quantile Level and Objective Function	
Quantile Level	0.9
Objective Function	25698.8930
Predicted Value at Mean	1219.1971

Parameter Estimates		
Parameter	**DF**	**Estimate**
Intercept	1	373.3424
cl_MAP	1	0.8697

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	2327	2810	3293	8.7	13.7	18.6
2	Ngira20	2327	2810	3293	8.7	13.7	18.6