

▼ File: E:\logzoocanal.syz

Number of Variables : 45

Number of Cases : 28

SYSTAT Rectangular file E:\logzoocanal.syz,  
Created data file Thu Jul 17 10:46:51 2014 containing variables:

\$PONTOS_DE_COLE-TA\$	RIQUEZA_ZOO	BIOTOPO	COLETA	EIXO	PONTOS
PH	LOGCOND	LOGTURB	LOGOD	LOGCOR	LOGALCA
LOGDUR	LOGBICAR	LOGDBO	LOGDQO	LOGNITRA	LOGNITRI
LOGDUR(1)	LOGN_ORGA	LOGPT	LOGP_ORT	LOGSÓLIDOS_TOTAS-IS	LOGSÓLIDOS_DISS-OL_TOTAIS
LOGSÓLIDOS_SU-SP-EN_TOTAIS	LOGCLORETO_TOTATA-L	LOGCLORO_RESID	LOGCOT	LOGCOD	LOGSULFATO
LOGSULFETO	LOGCáLCIO_TOTAL-CAT_	LOGMAGNésIO_TOT-AL_MGT_	LOGSÓDIO_TOTAL-NAT_	LOGPOTássIO_TOT-AL_KT_	LOGMANGANês_TOT-AL_MNT_
LOGZINCOTOTAL_ZNT_	LOGCHUMBO_TOTATL-PBT_	LOGARSênIO_TOTATA-AST_	LOGSELÊNIO_TOTATA-SET_	LOGALUMÍNIODISS-SOLVIDO_AL_DISS-	LOGFERRO_TOTAL-FET_
LOGFERRO_DISSOL-VIDO_FE_DISS_	LOGCOBRE_DISSOL-VIDO_CU_DISS_	LOGSÍLICA_SOLÚV-EL			

▼ OLS Regression

8 case(s) are deleted due to missing data.  
 Unable to enter effect 2.  
 This effect may fail tolerance checks.  
 Unable to enter effect 3.  
 This effect may fail tolerance checks.  
 Unable to enter effect 4.  
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 Unable to enter effect 11.  
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 Unable to enter effect 14.  
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 Unable to enter effect 15.  
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 Unable to enter effect 16.  
 This effect may fail tolerance checks.  
 Unable to enter effect 21.  
 This effect may fail tolerance checks.  
 Unable to enter effect 23.  
 This effect may fail tolerance checks.  
 Unable to enter effect 26.  
 This effect may fail tolerance checks.  
 Unable to enter effect 27.  
 This effect may fail tolerance checks.  
 Unable to enter effect 30.  
 This effect may fail tolerance checks.  
 Unable to enter effect 31.  
 This effect may fail tolerance checks.  
 Unable to enter effect 33.  
 This effect may fail tolerance checks.

Unable to enter effect 35.  
 This effect may fail tolerance checks.  
 Unable to enter effect 37.  
 This effect may fail tolerance checks.  
 Unable to enter effect 40.  
 This effect may fail tolerance checks.  
 The following effects have lost degrees of freedom.

Effect	Initial df	Lost df	Final df
PH	1	1	0
LOGCOND	1	1	0
LOGTURB	1	1	0
LOGCOR	1	1	0
LOGALCA	1	1	0
LOGBICAR	1	1	0
LOGDQO	1	1	0
LOGDUR(1)	1	1	0
LOGN_ORGA	1	1	0
LOGPT	1	1	0
LOGCLORETO_TOTAL	1	1	0
LOGCOT	1	1	0
LOGSULFETO	1	1	0
LOGCáLCIO_TOTAL_CAT_	1	1	0
LOGPOTáSSIO_TOTAL_KT_	1	1	0
LOGMANGANês_TOTAL_MNT_	1	1	0
LOGCHUMBO_TOTAL_PBT_	1	1	0
LOGSELÊNIO_TOTAL_SET_	1	1	0
LOGFERRO_TOTAL_FET_	1	1	0
LOGSÍLICA_SOLúVEL	1	1	0

Dependent Variable	RIQUEZA_ZOO
N	20
Multiple R	1,000
Squared Multiple R	1,000
Adjusted Squared Multiple R	1,000
Standard Error of Estimate	0,000

Regression Coefficients $B = (X'X)^{-1}X'Y$					
Effect	Coefficient	Standard Error	Std. Coefficient	Tolerance	p-Value
CONSTANT	-66,436	0,000	0,000	.	..
PH	.	.	.	.	..
LOGCOND	.	.	.	.	..
LOGTURB	.	.	.	.	..
LOGOD	16,869	0,000	0,231	0,000	..
LOGCOR	.	.	.	.	..
LOGALCA	.	.	.	.	..
LOGDUR	-63,905	0,000	-1,411	0,000	..
LOGBICAR	.	.	.	.	..
LOGDBO	-33,407	0,000	-0,570	0,000	..
LOGDQO	.	.	.	.	..
LOGNITRA	-27,596	0,000	-0,796	0,000	..
LOGNITRI	18,023	0,000	0,131	0,000	..
LOGDUR(1)	.	.	.	.	..
LOGN_ORGA	.	.	.	.	..
LOGPT	.	.	.	.	..
LOGP_ORT	151,922	0,000	1,016	0,001	..

Regression Coefficients B = (X'X) <sup>-1</sup> X'Y						
Effect	Coefficient	Standard Error	Std. Coefficient	Tolerance	t	p-Value
LOGSólIDOS_TOTAIS	-71,407	0,000	-2,939	0,000	..	
LOGSólIDOS_DISSOL__TOTAIS	90,956	0,000	3,276	0,000	..	
LOGSólIDOS_SUSPEN_TOTAIS	-0,097	0,000	-0,005	0,000	..	
LOGCLORETO_TOTAL	.	.	.	.	..	
LOGCLORO_RESID	-0,094	0,000	-0,008	0,000	..	
LOGCOT	.	.	.	.	..	
LOGCOD	-10,499	0,000	-0,638	0,006	..	
LOGSULFATO	83,424	0,000	1,034	0,000	..	
LOGSULFETO	.	.	.	.	..	
LOGCáLCIO_TOTAL__CAT__	.	.	.	.	..	
LOGMAGNésIO_TOTAL__MGT__	-1,039	0,000	-0,017	0,000	..	
LOGSódIO_TOTAL__NAT__	-2,963	0,000	-0,060	0,000	..	
LOGPOTássIO_TOTAL__KT__	.	.	.	.	..	
LOGMANGANês_TOTAL__MNT__	.	.	.	.	..	
LOGZINCOTOTAL__ZNT__	-0,458	0,000	-0,052	0,001	..	
LOGCHUMBO_TOTAL__PBT__	.	.	.	.	..	
LOGARSÊNIO_TOTAL__AST__	-2,727	0,000	-0,068	0,000	..	
LOGSELÊNIO_TOTAL__SET__	.	.	.	.	..	
LOGALUMÍNIO_DISSOLVIDO__AL_DISS__	5,485	0,000	0,447	0,000	..	
LOGFERRO_TOTAL__FET__	.	.	.	.	..	
LOGFERRO_DISSOLVIDO__FE_DISS__	18,845	0,000	1,200	0,000	..	
LOGCOBRE_DISSOLVIDO__CU_DISS__	-21,692	0,000	-0,661	0,000	..	
LOGSÍLICA_SOLúVEL	.	.	.	.	..	

Analysis of Variance					
Source	SS	df	Mean Squares	F-Ratio	p-Value
Regression	560,800	19	29,516	.	.
Residual	0,000	0	0,000		

Residuals have not been saved due to errors.

## ▼ OLS Regression

3 case(s) are deleted due to missing data.

Dependent Variable	RIQUEZA_ZOO
N	25
Multiple R	0,939
Squared Multiple R	0,881
Adjusted Squared Multiple R	0,524
Standard Error of Estimate	3,412

Regression Coefficients B = (X'X) <sup>-1</sup> X'Y						
Effect	Coefficient	Standard Error	Std. Coefficient	Tolerance	t	p-Value
CONSTANT	32,234	44,259	0,000	.	0,728	0,494
LOGOD	22,772	15,818	0,433	0,219	1,440	0,200
LOGDUR	-39,601	18,821	-0,880	0,114	-2,104	0,080
LOGDBO	-14,275	14,462	-0,355	0,154	-0,987	0,362
LOGNITRA	-17,442	12,966	-0,500	0,143	-1,345	0,227
LOGNITRI	24,621	29,698	0,175	0,443	0,829	0,439

Regression Coefficients $B = (X'X)^{-1}X'Y$						
Effect	Coefficient	Standard Error	Std. Coefficient	Tolerance	t	p-Value
LOGP_ORT	128,579	44,484	0,849	0,230	2,890	0,028
LOGSólIDOS_TOTAIS	-89,828	60,637	-4,710	0,002	-1,481	0,189
LOGSólIDOS_DISSOL_TOTAIS	102,487	61,597	4,764	0,002	1,664	0,147
LOGSólIDOS_SUSPEN_TOTAIS	10,716	11,836	0,634	0,040	0,905	0,400
LOGCLORO_RESID	1,009	5,555	0,085	0,090	0,182	0,862
LOGCOD	-3,481	5,327	-0,226	0,165	-0,654	0,538
LOGSULFATO	29,566	39,478	0,360	0,086	0,749	0,482
LOGMAGNésIO_TOTAL_MGT_	4,129	11,905	0,101	0,235	0,347	0,741
LOGSólDIO_TOTAL_NAT_	-8,444	9,934	-0,200	0,359	-0,850	0,428
LOGZINCOTOTAL_ZNT_	-0,016	1,832	-0,002	0,429	-0,009	0,993
LOGALUMÍNIO_DISSOLVIDO_AL_DISS_	4,964	4,216	0,411	0,163	1,177	0,284
LOGFERRO_DISSOLVIDO_FE_DISS_	8,962	7,857	0,588	0,075	1,141	0,297
LOGCOBRE_DISSOLVIDO_CU_DISS_	-12,498	7,081	-0,374	0,441	-1,765	0,128

Analysis of Variance					
Source	SS	df	Mean Squares	F-Ratio	p-Value
Regression	516,781	18	28,710	2,466	0,134
Residual	69,859	6	11,643		

#### WARNING

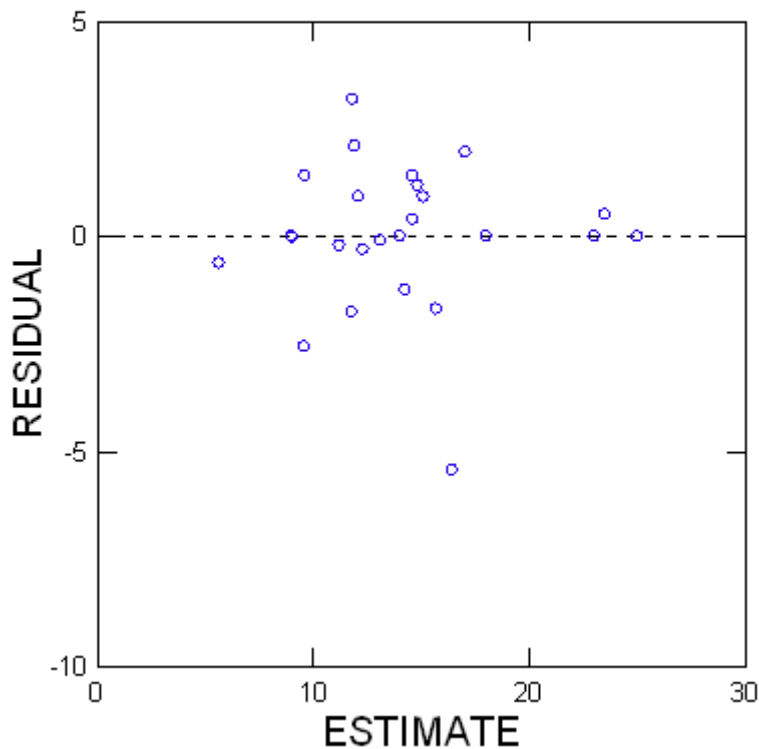
Case 4 is an Outlier (Studentized Residual : -16,461)  
Case 24 has large Leverage (Leverage : 1,000)

Durbin-Watson D-Statistic	2,770
First Order Autocorrelation	-0,391

Information Criteria	
AIC	136,637
AIC (Corrected)	346,637
Schwarz's BIC	161,014

Residuals have been saved.

## Plot of Residuals vs. Predicted Values



## OLS Regression

1 case(s) are deleted due to missing data.  
 Unable to enter effect 3.  
 This effect may fail tolerance checks.  
 Unable to enter effect 5.  
 This effect may fail tolerance checks.  
 Unable to enter effect 6.  
 This effect may fail tolerance checks.  
 The following effects have lost degrees of freedom.

Effect	Initial df	Lost df	Final df
LOGCáDMIO_TOTAL_CDT_	1	1	0
LOGCROMO_TOTAL_CRT_	1	1	0
LOGMERCúRIO_TOTAL_HGT_	1	1	0

Dependent Variable	RIQUEZA_ZOO
N	50
Multiple R	0,429
Squared Multiple R	0,184
Adjusted Squared Multiple R	0,000
Standard Error of Estimate	6,332

Regression Coefficients $B = (X'X)^{-1}X'Y$						
Effect	Coefficient	Standard Error	Std. Coefficient	Tolerance	t	p-Value
CONSTANT	-154,342	480,867	0,000	.	-0,321	0,750
LOGCLORETO_TOTAL	15,834	23,124	0,104	0,900	0,685	0,498

Regression Coefficients $B = (X'X)^{-1}X'Y$						
Effect	Coefficient	Standard Error	Std. Coefficient	Tolerance	t	p-Value
LOGCáDMIO_TOTAL_CDT_	.	.	.	.	.	.
LOGCHUMBO_TOTAL_PBT_	1,928	7,044	0,042	0,905	0,274	0,786
LOGCROMO_TOTAL_CRT_	.	.	.	.	.	.
LOGMERCÚRIO_TOTAL_HGT_	.	.	.	.	.	.
LOGARSÊNIO_TOTAL_AST_	11,572	21,468	0,079	0,980	0,539	0,593
LOGSELÊNIO_TOTAL_SET_	2,009	32,288	0,022	0,165	0,062	0,951
LOGNIQUEL_TOTAL_NIT_	2,451	10,222	0,123	0,080	0,240	0,812
LOGALUMÍNIO DISSOLVIDO_AL DISS_	4,331	4,410	0,189	0,562	0,982	0,332
LOGFERRO_TOTAL_FET_	1,297	7,530	0,079	0,099	0,172	0,864
LOGFERRO DISSOLVIDO_FE DISS_	3,914	7,911	0,218	0,108	0,495	0,624
LOGCOBRE DISSOLVIDO_CU DISS_	-103,303	220,526	-0,185	0,134	-0,468	0,642
LOGSÍLICA_SOLÚVEL	-10,015	7,445	-0,271	0,514	-1,345	0,186

Analysis of Variance					
Source	SS	df	Mean Squares	F-Ratio	p-Value
Regression	352,202	10	35,220	0,878	0,561
Residual	1.563,578	39	40,092		

#### WARNING

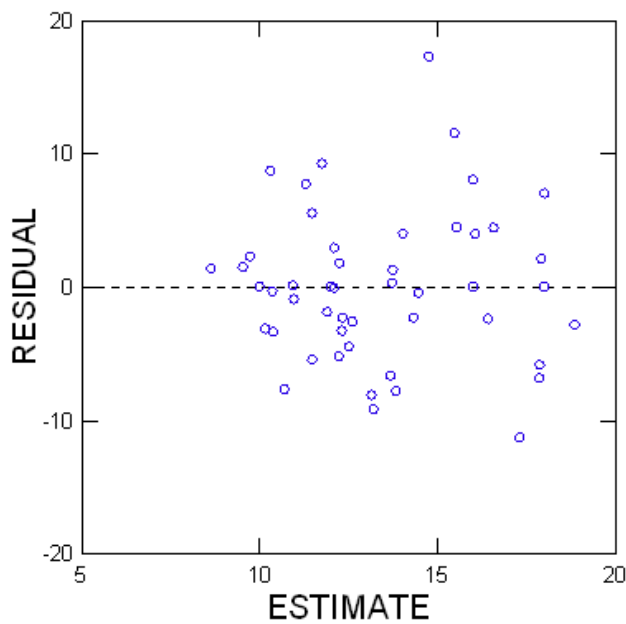
Case 23 is an Outlier (Studentized Residual : 3,081)  
Case 40 has large Leverage (Leverage : 0,996)  
Case 47 has large Leverage (Leverage : 0,780)

Durbin-Watson D-Statistic	1,815
First Order Autocorrelation	0,073

Information Criteria	
AIC	338,029
AIC (Corrected)	346,462
Schwarz's BIC	360,974

Residuals have been saved.

## Plot of Residuals vs. Predicted Values



### ▼ OLS Regression

1 case(s) are deleted due to missing data.

Dependent Variable	RIQUEZA_ZOO
N	50
Multiple R	0,106
Squared Multiple R	0,011
Adjusted Squared Multiple R	0,000
Standard Error of Estimate	6,282

Regression Coefficients $B = (X'X)^{-1}X'Y$						
Effect	Coefficient	Standard Error	Std. Coefficient	Tolerance	p-Value	
CONSTANT	1,988	15,414	0,000	.	0,129	0,898
LOGCLORETO_TOTAL	16,113	21,766	0,106	1,000	0,740	0,463

Analysis of Variance					
Source	SS	df	Mean Squares	F-Ratio	p-Value
Regression	21,625	1	21,625	0,548	0,463
Residual	1.894,15548	39,462			

### WARNING

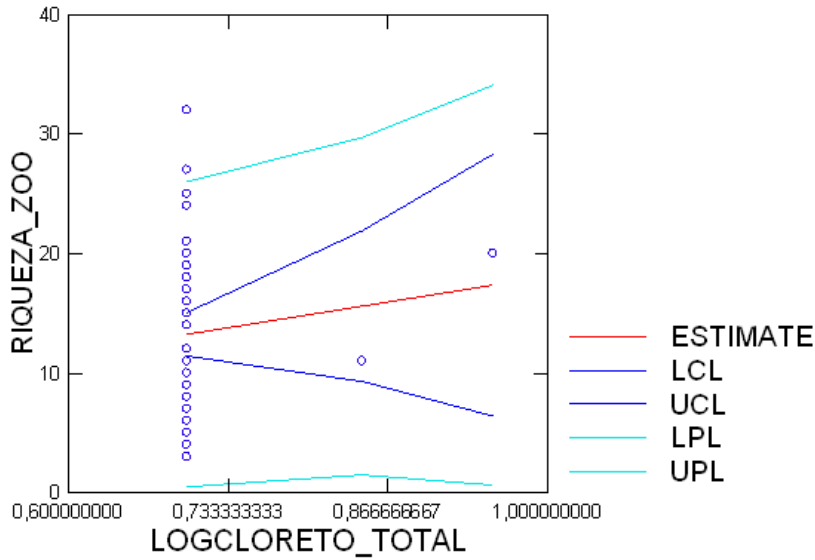
Case 23 is an Outlier (Studentized Residual : 3,315)  
 Case 25 has large Leverage (Leverage : 0,249)  
 Case 47 has large Leverage (Leverage : 0,754)

Durbin-Watson D-Statistic	1,854
First Order Autocorrelation	0,043

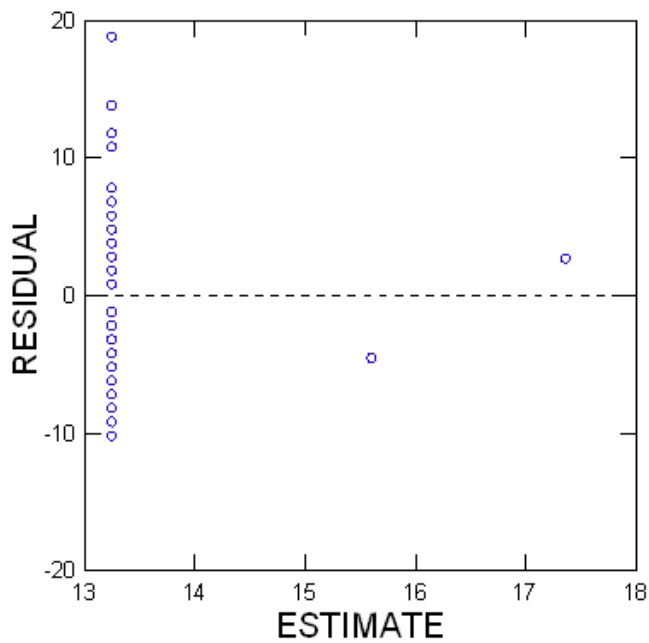
### Information Criteria

AIC	329,619
AIC (Corrected)	330,141
Schwarz's BIC	335,355

Confidence Interval and Prediction Interval



Plot of Residuals vs. Predicted Values



### ▼ OLS Regression

12 case(s) are deleted due to missing data.



Dependent Variable	RIQUEZA_ZOO
N	93
Multiple R	0,595
Squared Multiple R	0,354
Adjusted Squared Multiple R	0,309
Standard Error of Estimate	5,995

Regression Coefficients $B = (X'X)^{-1}X'Y$						
Effect	Coefficient	Standard Error	Std. Coefficient	Tolerance	t	p-Value
CONSTANT	88,947	39,645	0,000	.	2,244	0,027
PROFUNDIDADE	0,254	0,435	0,055	0,837	0,584	0,561
PH	-2,328	0,713	-0,305	0,864	-3,266	0,002
COND	12,335	3,039	0,374	0,886	4,059	0,000
TURB	0,678	2,644	0,025	0,780	0,256	0,798
OD	0,622	1,994	0,029	0,880	0,312	0,756
TEMP(1)	-50,013	27,784	-0,188	0,690	-1,800	0,075

Analysis of Variance					
Source	SS	df	Mean Squares	F-Ratio	p-Value
Regression	1.693,2186	282,203	7,853	0,000	
Residual	3.090,58886	35,937			

#### WARNING

Case 11 has large Leverage (Leverage : 0,354)

Case 22 has large Leverage (Leverage : 0,307)

Case 34 has large Leverage (Leverage : 0,312)

Case 98 has large Leverage (Leverage : 0,254)

Durbin-Watson D-Statistic	0,716
First Order Autocorrelation	0,637

Information Criteria	
AIC	605,750
AIC (Corrected)	607,464
Schwarz's BIC	626,010

Residuals have been saved.

Plot of Residuals vs. Predicted Values

