Analýza farmakologických a biochemických dat

Úlohy B8.XX

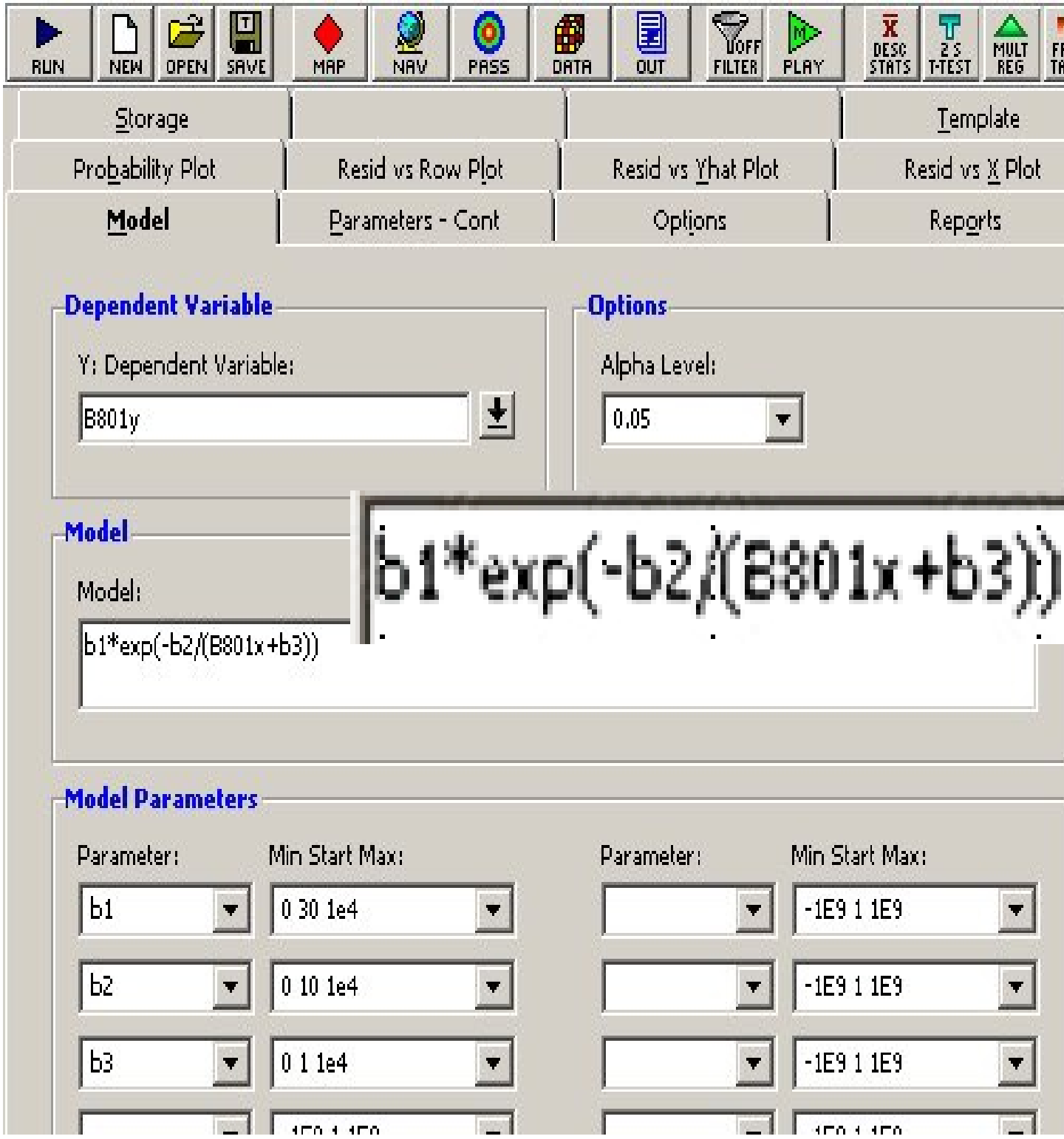
v učebnici

M. Meloun, J. Militký: Kompendium ……, str. 785

Software NCSS2007

Úloha B8.01 ***Závislost hmotnosti očních čoček na stáří králíků***

Model A:



Minimization Phase Section

Itn No.	Error Sum Lambda	Lambda	B1	B2	B3
0	37554.82	0.008	30	10	1
1	21.63762	0.0064	6.023	13.04147	5.976599
2	0.6575491	0.00512	5.513816	15.75935	10.73559
3	0.457491	0.004096	5.540691	17.59318	14.11258
4	0.3628218	0.0032768	5.567667	18.99732	16.80227
5	0.3144474	2.62144E-03	5.587815	20.09319	18.95556
6	0.2900894	2.097152E-03	5.602892	20.94355	20.6535
7	0.2784231	1.677722E-03	5.613997	21.58687	21.95163
8	0.2732778	1.342177E-03	5.62189	22.05297	22.89889
9	0.2712553	1.073742E-03	5.6272	22.37075	23.54787
10	0.2705703	8.589934E-04	5.630517	22.57099	23.95818
11	0.2703772	6.871948E-04	5.632406	22.68552	24.19335
12	0.2703334	5.497558E-04	5.633366	22.74395	24.31346
13	0.2703256	4.398047E-04	5.633796	22.7701	24.36726
14	0.2703246	3.518437E-04	5.633962	22.78023	24.38811
15	0.2703245	2.81475E-04	5.634017	22.78359	24.39501
16	0.2703245	2.2518E-04	5.634033	22.78453	24.39694
17	0.2703245	1.80144E-04	5.634037	22.78475	24.3974
18	0.2703245	1.441152E-04	5.634037	22.78479	24.39749

Convergence criterion met.

Model Estimation Section

Parameter Name	Parameter Estimate	Asymptotic Standard Error	Lower 95% C.L.	Upper 95% C.L.
B1	5.634037	1.802225E-02	5.598102	5.669972
B2	22.78479	0.8751458	21.0398	24.52978
B3	24.39749	1.742805	20.92243	27.87255
Model	B801yx = B1*EXP(-B2/(B801X+B3))			
R-Squared	0.990538			
Iterations	18			

Estimated Model

(5.634037)*EXP(-(22.78479)/((B801X)+(24.39749)))

Analysis of Variance Table

Source	DF	Sum of Squares	Mean Square
Mean	1	1748.469	1748.469
Model	3	1776.77	592.2565
Model (Adjusted)	2	28.30021	14.1501
Error	71	0.2703245	3.807387E-03
Total (Adjusted)	73	28.57053	
Total	74	1777.04	

Asymptotic Correlation Matrix of Parameters

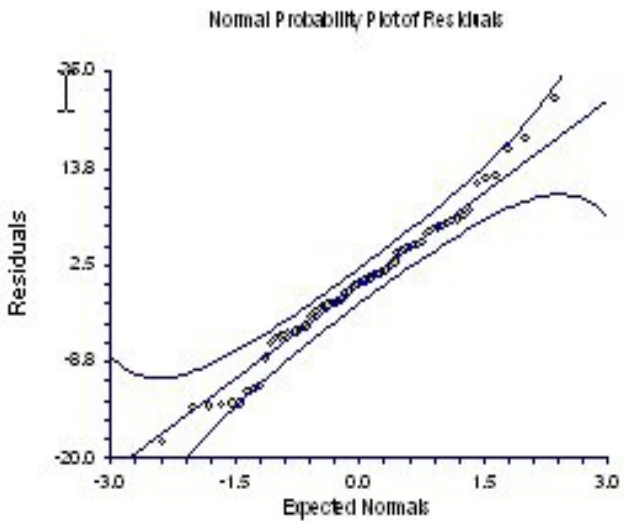
	B1	B2	B3
B1	1.000000	0.859348	0.731951
B2	0.859348	1.000000	0.941367
B3	0.731951	0.941367	1.000000

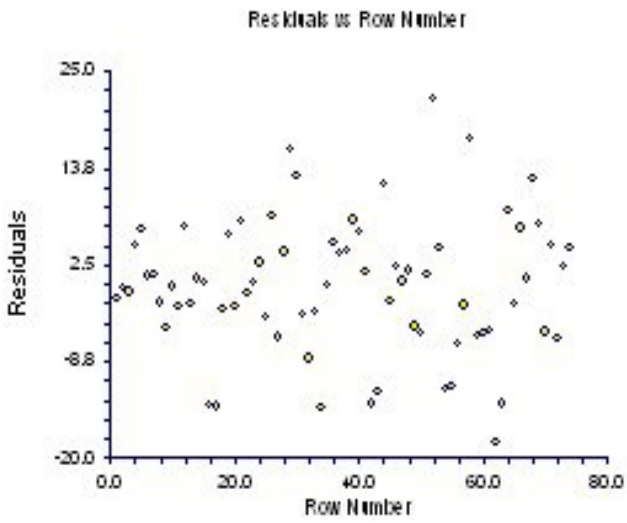
Predicted Values and Residuals Section

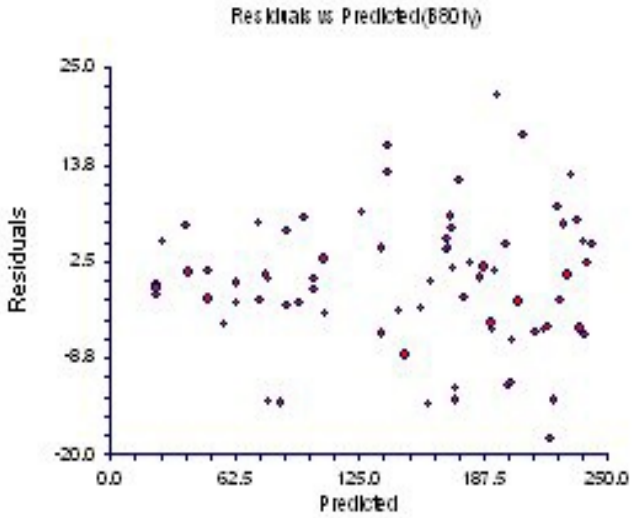
Row No.	Actual B801y	Predicted B801y	Lower 95.0% C.L.	Upper 95.0% C.L.	Residual
1	21.66	22.97361	6.521311	39.42591	-1.31361
2	22.75	22.97361	6.521311	39.42591	-0.2236104
3	22.3	22.97361	6.521311	39.42591	-0.6736104
4	31.25	26.3977	9.973217	42.82217	4.852305
5	44.79	38.17589	21.89756	54.45422	6.614109
6	40.55	39.3638	23.10144	55.62616	1.186202
7	50.25	48.80013	32.65729	64.94298	1.449869
8	46.88	48.80013	32.65729	64.94298	-1.920131
9	52.03	56.85316	40.7938	72.91252	-4.823163
10	63.47	63.53456	47.52845	79.54067	-6.456449E-02
11	61.13	63.53456	47.52845	79.54067	-2.404564
12	81	74.13467	58.18418	90.08516	6.865331
13	73.09	75.15571	59.2089	91.10253	-2.065712
14	79.09	78.17548	62.23798	94.11296	0.9145271
15	79.51	79.16757	63.23268	95.10247	0.3424252
16	65.31	79.16757	63.23268	95.10247	-13.85757
17	71.9	85.90993	69.9872	101.8327	-14.00993
18	86.1	88.69202	72.77191	104.6121	-2.592021
19	94.6	88.69202	72.77191	104.6121	5.907979
20	92.5	94.93842	79.02033	110.8565	-2.438421
21	105	97.51288	81.59441	113.4313	7.487125
22	101.7	102.4835	86.56294	118.4041	-0.7835131
23	102.9	102.4835	86.56294	118.4041	0.4164869
24	110	107.2252	91.30161	123.1488	2.774808
25	104.3	107.994	92.06985	123.9181	-3.693974
26	134.9	126.6475	110.7141	142.5808	8.252538
27	130.68	136.5812	120.651	152.5114	-5.901171
28	140.58	136.5812	120.651	152.5114	3.998829
29	155.3	139.276	123.348	155.204	16.02402
30	152.2	139.276	123.348	155.204	12.92402
31	142.15	145.3667	129.4458	161.2876	-3.216742
32	139.81	148.2268	132.3103	164.1434	-8.416838
33	153.22	156.1454	140.2438	172.0471	-2.925447
34	145.72	159.7688	143.8751	175.6624	-14.04875
35	161.1	160.9312	145.0401	176.8221	0.1688532
36	174.18	169.163	153.2918	185.0343	5.016969
37	173	169.163	153.2918	185.0343	3.836969
38	173.54	169.4957	153.6253	185.3661	4.044275
39	178.86	171.1302	155.2638	186.9967	7.729777
40	177.68	171.4514	155.5857	187.3171	6.228558
41	173.73	172.0883	156.2242	187.9525	1.641675
42	159.98	173.6488	157.7883	189.5094	-13.66884
43	161.29	173.6488	157.7883	189.5094	-12.35884
44	187.07	175.1656	159.3085	191.0226	11.90443
45	176.13	177.7909	161.9396	193.6421	-1.660871
46	183.4	181.0958	165.2511	196.9404	2.304234
47	186.26	185.6747	169.8374	201.5119	0.5853532
48	189.66	187.81	171.9753	203.6446	1.850053
49	186.7	191.378	175.546	207.2099	-4.677967
50	186.8	192.2274	176.3958	208.0591	-5.427449
51	195.1	193.6757	177.8443	209.507	1.424338
52	216.41	194.6813	178.8498	210.5127	21.72872
53	203.23	198.6615	182.8276	214.4955	4.568452
54	188.38	200.2561	184.42	216.0921	-11.87606
55	189.7	201.4537	185.6155	217.2918	-11.75368
56	195.31	201.956	186.1169	217.7951	-6.645998
57	202.63	204.8398	188.9937	220.686	-2.209851
58	224.82	207.661	191.8053	223.5167	17.15904
59	208.03	213.9234	198.036	229.8108	-5.893431
60	212.5	217.9487	202.0321	233.8652	-5.448656

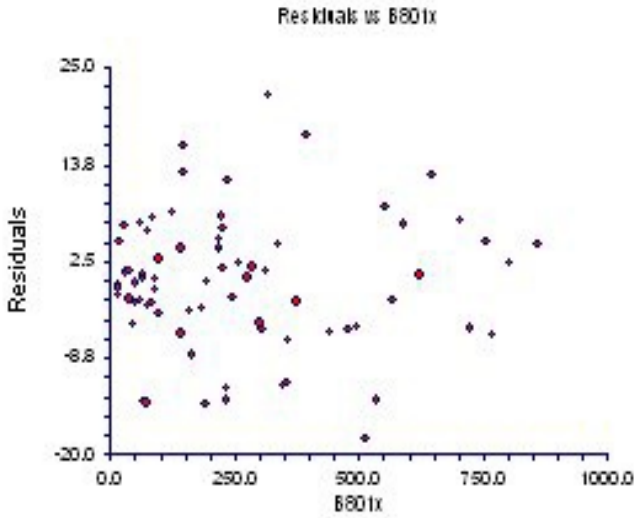
60	212.5	217.9487	202.0321	233.8652	-5.448656
61	214.74	219.7815	203.8492	235.7139	-5.041524
62	203.3	221.415	205.4672	237.3629	-18.11503
63	209.7	223.4007	207.4321	239.3693	-13.70073
64	233.9	225.0094	209.0223	240.9964	8.890642
65	224.2	226.1367	210.1359	242.1376	-1.936737
66	234.7	227.8907	211.8669	243.9144	6.809323
67	231	230.0795	214.0244	246.1345	0.9205077
68	244.3	231.7766	215.6951	247.858	12.52344
69	242.4	235.1163	218.9773	251.2552	7.283738
70	230.77	236.0755	219.9186	252.2323	-5.305448
71	242.57	237.7298	221.5404	253.9192	4.840172
72	232.12	238.3004	222.0993	254.5015	-6.180416
73	242	239.8351	223.6014	256.0688	2.164918
74	246.7	242.2034	225.9157	258.491	4.496623

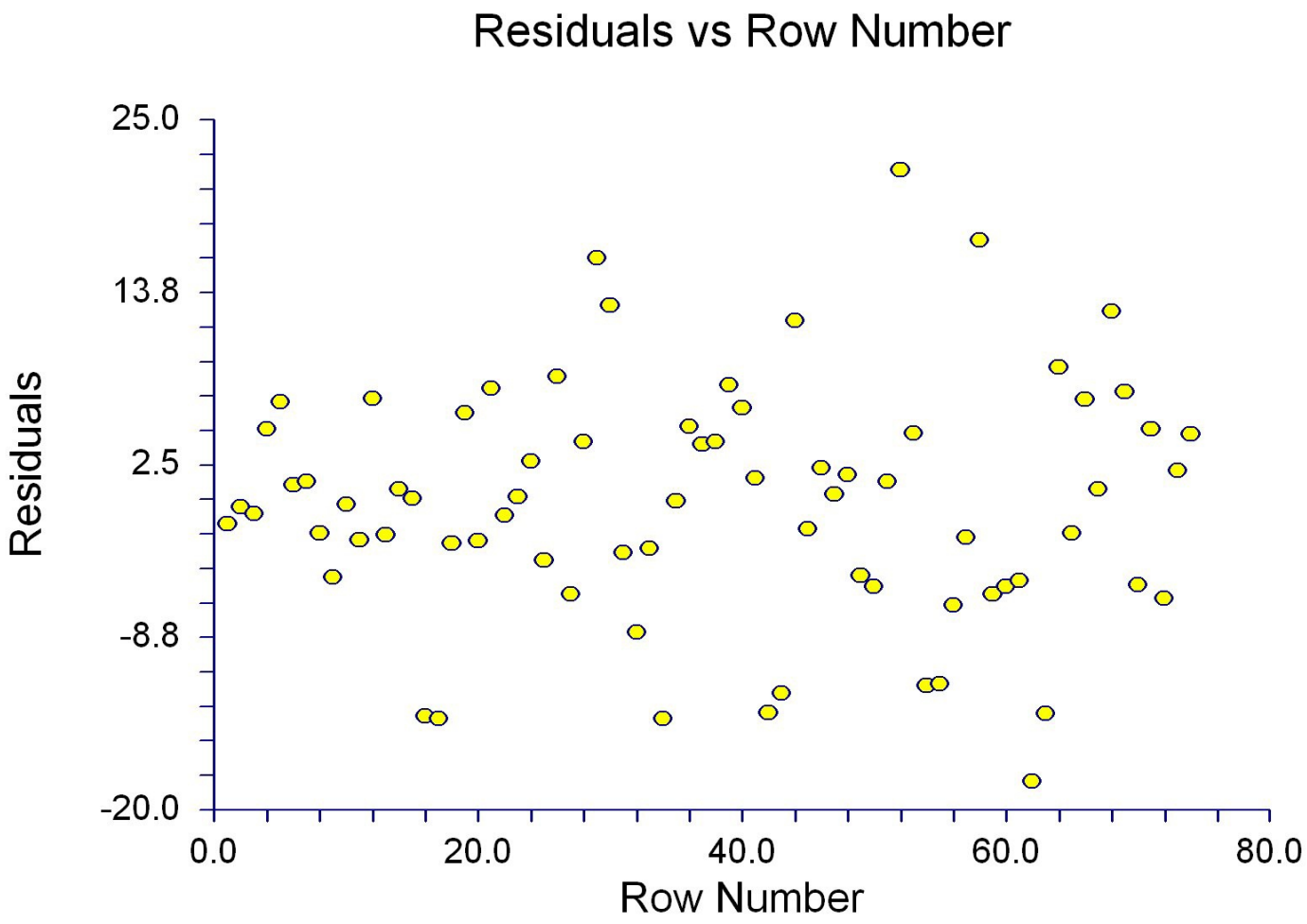
Plot Section










Residuals vs Row Number
25.0
13.8
2.5
-8.8
-20.0
Residuals
0.0
20.0
40.0
60.0
80.0
Row Number

Model B: logaritmická transformace závisle proměnné *y*

RUN | NEW | OPEN | SAVE | MAP | NAV | PASS | DATA | OUT | OFF FILTER | PLAY | DESC STATS | 2 S T-TEST | MULT REG | FREQ TABLE

Storage | Template

Probability Plot | Resid vs Row Plot | Resid vs Yhat Plot | Resid vs X Plot

Model | Parameters - Cont | Options | Reports

Dependent Variable

Y: Dependent Variable:

B801yx

Options

Alpha Level:

0.05

Model

Model:

b1-b2/(B801x+b3)

b1-b2/(B801x+b3)

Model Parameters

Parameter:	Min Start Max:	Parameter:	Min Start Max:
b1	0 30 1e4		-1E9 1 1E9
b2	0 10 1e4		-1E9 1 1E9
b3	0 1 1e4		-1E9 1 1E9

Minimization Phase Section

Itn No.	Error Sum Lambda	Lambda	B1	B2	B3
0	46392.82	0.008	30	10	1
Stepsize reduced to 0.2261278 by bounds.					
Lower bound on active on B3					
1	27908.92	0.0064	24.44806	15.76768	3.133344E-17
2	4.964288	0.00512	5.383507	36.72844	3.133344E-17
3	3.748398	0.004096	5.279839	38.51939	3.133344E-17
Freeing parameter B3					
4	2.477849	0.0032768	5.320755	48.59972	5.216912
5	1.798603	2.62144E-03	5.365413	57.6362	9.024106
6	1.338791	2.097152E-03	5.404681	66.00204	12.27395
7	1.015591	1.677722E-03	5.439209	73.84628	15.30476
8	0.784774	1.342177E-03	5.469858	81.24599	18.17834
9	0.6192263	1.073742E-03	5.497248	88.23141	20.90492
10	0.5011515	8.589934E-04	5.521766	94.79925	23.47959
11	0.4181511	6.871948E-04	5.543642	100.9222	25.88847
12	0.3611626	5.497558E-04	5.563	106.5559	28.11155
13	0.3233153	4.398047E-04	5.579899	111.6461	30.12511
14	0.2992745	3.518437E-04	5.594367	116.1355	31.90472
15	0.2848622	2.81475E-04	5.606428	119.9736	33.42879
16	0.2768378	2.2518E-04	5.616134	123.1274	34.68294
17	0.2727678	1.80144E-04	5.623598	125.5928	35.66455
18	0.2709298	1.441152E-04	5.629015	127.4042	36.38655
19	0.27021	1.152922E-04	5.632673	128.638	36.87875
20	0.2699727	9.223372E-05	5.634935	129.4053	37.18503
21	0.2699087	7.378698E-05	5.636195	129.834	37.35625
22	0.269895	5.902958E-05	5.636817	130.046	37.44093
23	0.2698928	4.722366E-05	5.637085	130.1374	37.47742
24	0.2698925	3.777893E-05	5.637185	130.1714	37.49096
25	0.2698925	3.022315E-05	5.637217	130.1821	37.49524
26	0.2698925	2.417852E-05	5.637225	130.1849	37.49638
27	0.2698925	1.934281E-05	5.637227	130.1856	37.49663
Convergence criterion met.					

Model Estimation Section

Parameter Name	Parameter Estimate	Asymptotic Standard Error	Lower 95% C.L.	Upper 95% C.L.
B1	5.637227	1.815006E-02	5.601037	5.673417
B2	130.1856	5.39331	119.4316	140.9395
B3	37.49663	2.228994	33.05214	41.94112
Model	B801yx = B1-B2/(B801X+B3)			
R-Squared	0.990553			
Iterations	27			

Estimated Model

(5.637227)-(130.1856)/((B801X)+(37.49663))

Analysis of Variance Table

Source	DF	Sum of Squares	Mean Square
Mean	1	1748.469	1748.469
Model	3	1776.77	592.2567
Model (Adjusted)	2	28.30064	14.15032
Error	71	0.2698925	3.801303E-03
Total (Adjusted)	73	28.57053	
Total	74	1777.04	

Asymptotic Correlation Matrix of Parameters

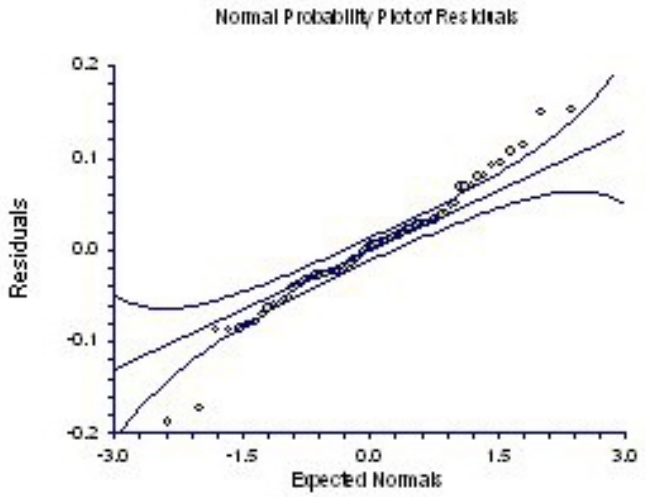
	B1	B2	B3
B1	1.000000	0.881302	0.773501
B2	0.881302	1.000000	0.960072
B3	0.773501	0.960072	1.000000

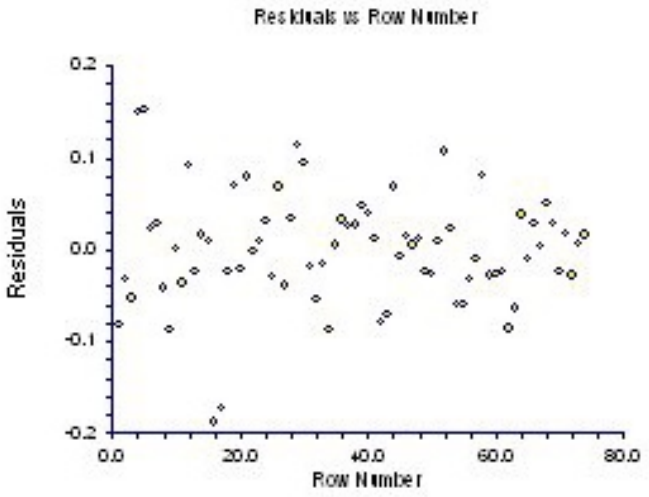
Predicted Values and Residuals Section

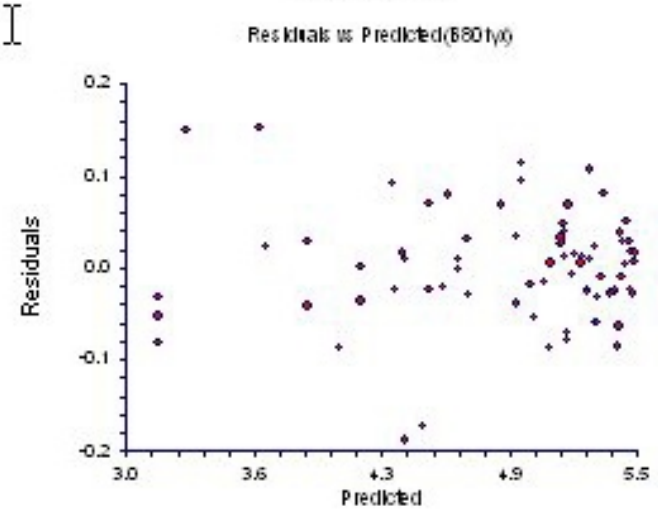
Row No.	Actual B801yx	Predicted B801yx	Lower 95.0% C.L.	Upper 95.0% C.L.	Residual
1	3.075467	3.157342	3.021223	3.293462	-8.187506E-02
2	3.124565	3.157342	3.021223	3.293462	-3.277716E-02
3	3.104587	3.157342	3.021223	3.293462	-5.275563E-02
4	3.442019	3.291398	3.159125	3.423672	0.1506211
5	3.801985	3.649559	3.522571	3.776546	0.1524265
6	3.702536	3.67945	3.552667	3.806233	2.308612E-02
7	3.917011	3.88969	3.763739	4.015642	2.732029E-02
8	3.847591	3.88969	3.763739	4.015642	-4.209911E-02
9	3.95182	4.039792	3.914035	4.165548	-8.797114E-02
10	4.150568	4.149334	4.023639	4.275029	1.233108E-03
11	4.113003	4.149334	4.023639	4.275029	-0.0363315
12	4.394449	4.301944	4.176337	4.427551	9.250528E-02
13	4.291692	4.315501	4.189904	4.441097	-2.380895E-02
14	4.370586	4.354568	4.229008	4.480128	1.601883E-02
15	4.375883	4.367082	4.241535	4.492629	8.80103E-03
16	4.179145	4.367082	4.241535	4.492629	-0.1879366
17	4.275276	4.448281	4.322838	4.573723	-0.1730045
18	4.455509	4.479987	4.354595	4.605379	-2.447752E-02
19	4.549657	4.479987	4.354595	4.605379	6.967054E-02
20	4.527209	4.547777	4.422512	4.673042	-0.0205683
21	4.65396	4.574458	4.44925	4.699667	7.950226E-02
22	4.622027	4.624083	4.49899	4.749177	-2.055528E-03
23	4.633758	4.624083	4.49899	4.749177	9.674813E-03
24	4.70048	4.66928	4.544301	4.79426	3.120039E-02
25	4.647271	4.676424	4.551463	4.801384	-2.915231E-02
26	4.904534	4.836068	4.711553	4.960584	6.846564E-02
27	4.872752	4.911945	4.787635	5.036255	-3.919371E-02
28	4.945777	4.911945	4.787635	5.036255	3.383142E-02
29	5.045359	4.931601	4.80734	5.055862	0.1137577
30	5.025196	4.931601	4.80734	5.055862	9.359446E-02
31	4.956883	4.974693	4.850532	5.098855	-1.781054E-02
32	4.940284	4.994324	4.870203	5.118445	-5.403997E-02
33	5.031875	5.046807	4.922774	5.17084	-1.493217E-02
34	4.981687	5.069961	4.945957	5.193965	-8.827405E-02
35	5.082026	5.077281	4.953284	5.201277	4.744601E-03
36	5.160089	5.127687	5.003719	5.251656	3.240178E-02
37	5.153292	5.127687	5.003719	5.251656	2.560413E-02
38	5.156408	5.129674	5.005706	5.253642	2.673412E-02
39	5.186604	5.139379	5.015411	5.263347	4.722461E-02
40	5.179984	5.141275	5.017307	5.265244	3.870882E-02
41	5.157502	5.145026	5.021057	5.268995	1.247686E-02
42	5.075049	5.154158	5.030186	5.278129	-7.910857E-02
43	5.083204	5.154158	5.030186	5.278129	-7.095338E-02
44	5.231483	5.162957	5.038981	5.286932	6.852631E-02
45	5.171222	5.178013	5.054026	5.302	-6.790581E-03
46	5.211669	5.196661	5.072654	5.320669	1.500813E-02
47	5.227144	5.221957	5.097909	5.346006	5.18622E-03
48	5.245233	5.233546	5.109474	5.357619	1.168663E-02
49	5.229503	5.252627	5.128507	5.376748	-2.312441E-02
50	5.230039	5.257119	5.132986	5.381252	-2.708065E-02
51	5.273512	5.264732	5.140576	5.388888	8.779966E-03
52	5.377175	5.269986	5.145813	5.394159	0.1071886
53	5.314338	5.290524	5.166278	5.414771	2.381393E-02
54	5.238461	5.29864	5.17436	5.422919	-6.017856E-02
55	5.245444	5.304694	5.180388	5.428999	-5.924985E-02
56	5.274588	5.307222	5.182906	5.431539	-3.263448E-02
57	5.311382	5.321623	5.197239	5.446007	-1.024117E-02
58	5.4153	5.33552	5.211064	5.459976	7.978033E-02
59	5.337682	5.365722	5.241086	5.490358	-2.803983E-02
60	5.358942	5.384683	5.259915	5.50945	-2.574083E-02
61	5.369428	5.393204	5.268373	5.518034	-2.377558E-02

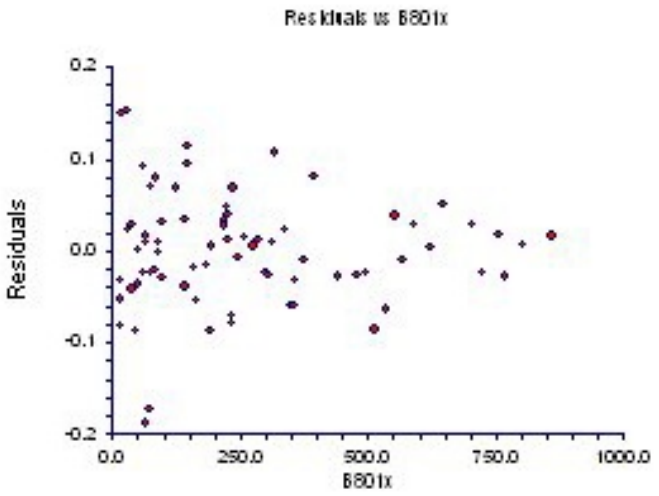
60	5.358942	5.384683	5.259915	5.50945	-2.574083E-02
61	5.369428	5.393204	5.268373	5.518034	-2.377558E-02
62	5.314682	5.400739	5.27585	5.525629	-8.605658E-02
63	5.345678	5.409827	5.284863	5.534791	-6.414915E-02
64	5.454894	5.417131	5.292106	5.542157	3.776207E-02
65	5.412539	5.422221	5.297151	5.547291	-9.682029E-03
66	5.458308	5.430089	5.304948	5.55523	2.821935E-02
67	5.442418	5.439826	5.314592	5.565058	2.592319E-03
68	5.498397	5.447313	5.322006	5.572619	0.0510844
69	5.490589	5.461892	5.336435	5.587349	2.869734E-02
70	5.441422	5.466042	5.34054	5.591544	-2.462033E-02
71	5.49129	5.473161	5.34758	5.598742	0.0181292
72	5.447255	5.475605	5.349997	5.601214	-2.835084E-02
73	5.488938	5.482151	5.356467	5.607835	6.786658E-03
74	5.508173	5.492173	5.36637	5.617976	1.600031E-02

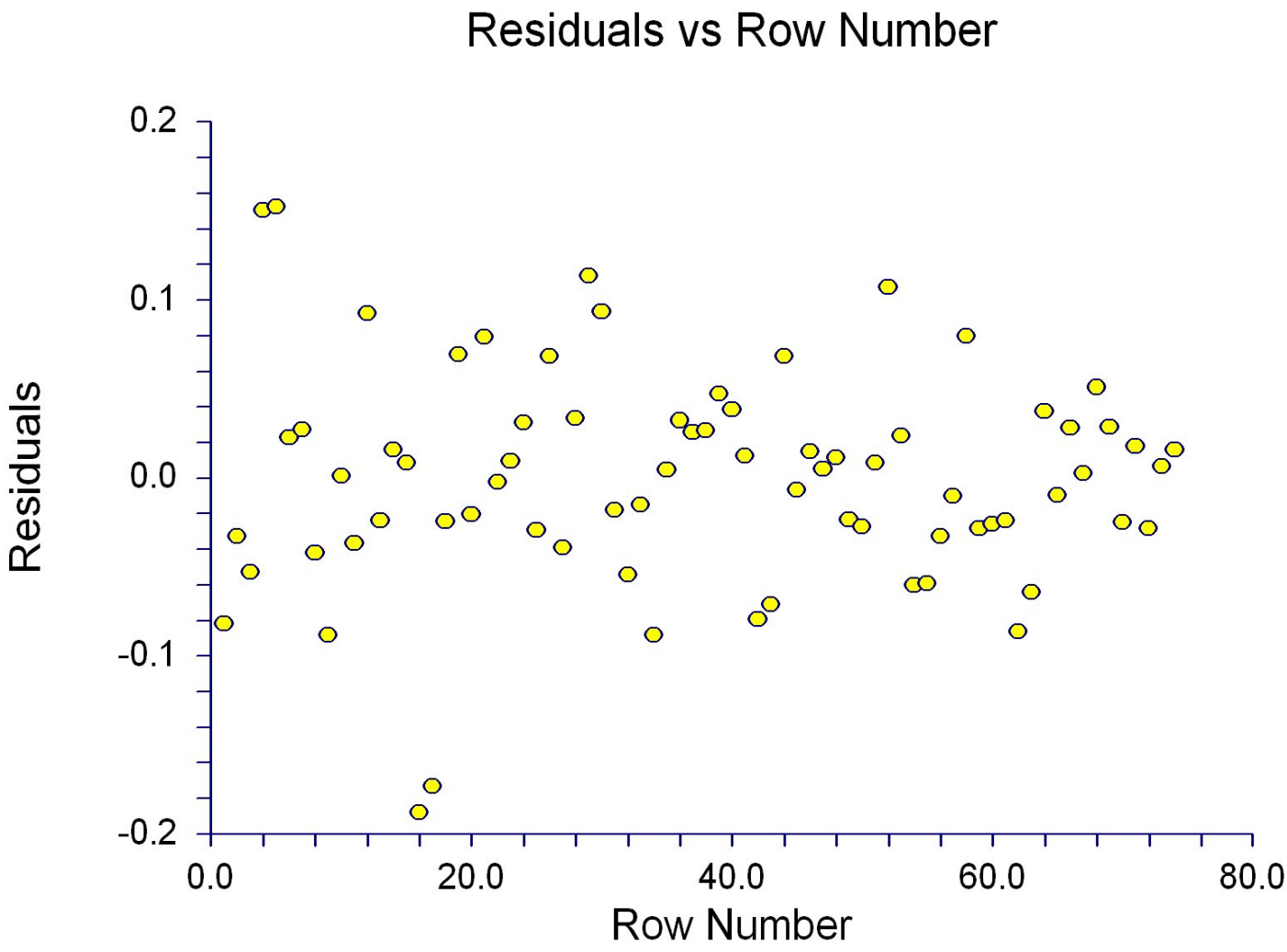
Plot Section










Residuals vs Row Number
Residuals
0.2
0.1
0.0
-0.1
-0.2
0.0
20.0
40.0
60.0
80.0
Row Number

Analýza chemických a fyzikálních dat

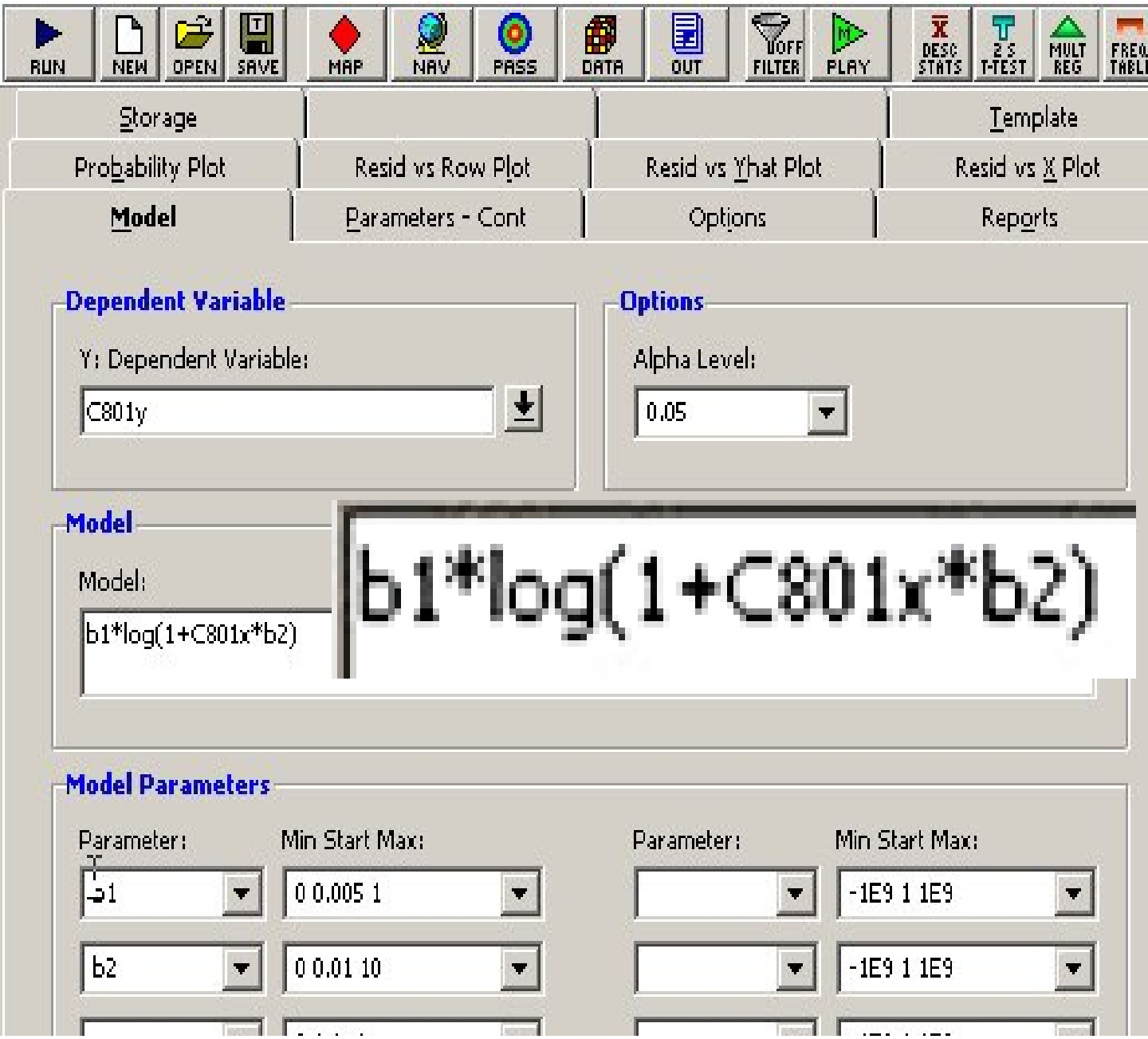
Úlohy C8.XX

v učebnici

M. Meloun, J. Militký: Kompendium ……, str. 788

Software NCSS2007

Úloha C8.01 *Určení parametrů Szyszkovského rovnice*



Minimization Phase Section

Itn No.	Error Sum Lambda	Lambda	B1	B2
0	3.98386E-09	0.008	0.005	0.01
1	3.982127E-09	0.0064	5.009307E-03	1.000465E-02
2	3.979958E-09	0.00512	5.020943E-03	1.001048E-02
3	3.977244E-09	0.004096	5.035492E-03	1.001777E-02
4	3.973845E-09	0.0032768	5.053684E-03	1.002691E-02
5	3.969588E-09	2.62144E-03	5.076432E-03	1.003837E-02
6	3.964253E-09	2.097152E-03	5.10488E-03	1.005275E-02
7	3.957562E-09	1.677722E-03	5.140461E-03	1.007081E-02
8	3.949165E-09	1.342177E-03	5.18497E-03	1.009352E-02
9	3.938615E-09	1.073742E-03	5.240657E-03	1.012212E-02
10	3.925344E-09	8.589934E-04	5.310346E-03	1.015818E-02
11	3.908624E-09	6.871948E-04	5.397581E-03	1.020377E-02
12	3.887517E-09	5.497558E-04	5.506818E-03	1.026153E-02
13	3.860808E-09	4.398047E-04	5.643666E-03	1.033494E-02
14	3.826909E-09	3.518437E-04	5.815192E-03	1.042857E-02
15	3.783729E-09	2.81475E-04	6.030323E-03	1.054848E-02
16	3.728482E-09	2.2518E-04	6.300341E-03	1.070278E-02
17	3.657428E-09	1.80144E-04	6.639538E-03	1.090237E-02
18	3.565491E-09	1.441152E-04	7.066011E-03	1.116198E-02
19	3.445758E-09	1.152922E-04	7.602629E-03	1.150154E-02
20	3.288836E-09	9.223372E-05	8.278047E-03	0.0119478
21	3.082236E-09	7.378698E-05	9.127443E-03	1.253603E-02
22	2.81031E-09	5.902958E-05	1.019198E-02	1.331074E-02
23	2.456292E-09	4.722366E-05	1.151464E-02	1.432297E-02
24	2.009727E-09	3.777893E-05	1.312751E-02	1.561888E-02
25	1.483529E-09	3.022315E-05	1.502333E-02	1.721133E-02
26	9.370189E-10	2.417852E-05	1.710963E-02	1.903119E-02
27	4.746172E-10	1.934281E-05	1.917406E-02	2.088581E-02
28	1.815758E-10	1.547425E-05	0.0209326	2.249891E-02
29	5.070281E-11	1.23794E-05	2.218278E-02	2.366105E-02
30	1.028345E-11	9.903521E-06	2.291869E-02	2.435034E-02
31	1.531236E-12	7.922817E-06	2.328047E-02	2.469053E-02
32	1.751275E-13	6.338253E-06	2.343056E-02	2.483192E-02
33	2.331601E-14	5.070603E-06	2.348332E-02	2.488165E-02
34	1.107943E-14	4.056482E-06	2.349897E-02	2.489642E-02
35	1.037739E-14	3.245186E-06	2.350288E-02	0.0249001
36	1.034913E-14	2.596149E-06	2.350368E-02	2.490087E-02
37	1.034834E-14	2.076919E-06	2.350382E-02	0.024901
38	1.034833E-14	1.661535E-06	2.350383E-02	2.490103E-02
39	1.034833E-14	1.329228E-06	2.350383E-02	2.490104E-02
40	1.034833E-14	1.063382E-06	2.350383E-02	2.490104E-02
41	1.034833E-14	8.507059E-07	2.350382E-02	2.490105E-02
42	1.034833E-14	6.805647E-07	2.350381E-02	2.490106E-02
43	1.034833E-14	5.444518E-07	2.350379E-02	2.490108E-02
44	1.034833E-14	4.355614E-07	2.350378E-02	2.490109E-02
45	1.034833E-14	3.484491E-07	2.350375E-02	2.490112E-02
46	1.034833E-14	2.787593E-07	2.350373E-02	2.490114E-02
47	1.034832E-14	2.230074E-07	0.0235037	2.490118E-02
48	1.034832E-14	1.78406E-07	2.350366E-02	2.490122E-02
49	1.034832E-14	1.427248E-07	2.350361E-02	2.490127E-02
50	1.034832E-14	1.141798E-07	2.350354E-02	2.490134E-02
51	1.034832E-14	9.134385E-08	2.350346E-02	2.490143E-02
52	1.034831E-14	7.307508E-08	2.350336E-02	2.490153E-02
53	1.034831E-14	5.846007E-08	2.350324E-02	2.490166E-02
54	1.03483E-14	4.676805E-08	2.350309E-02	2.490182E-02
55	1.034829E-14	3.741444E-08	0.0235029	2.490203E-02
56	1.034828E-14	2.993155E-08	2.350265E-02	2.490228E-02

343	9.670422E-15	1.339386E-11	9.815915E-03	5.970474E-02
344	9.670128E-15	1.071509E-11	9.798381E-03	5.981177E-02
345	9.66981E-15	8.572069E-12	9.777443E-03	5.994007E-02
346	9.669488E-15	6.857655E-12	9.752712E-03	6.009231E-02
347	9.669196E-15	5.486124E-12	9.723893E-03	6.027068E-02
348	9.668974E-15	4.388899E-12	9.69086E-03	6.047643E-02
349	9.668856E-15	3.511119E-12	9.65375E-03	6.070927E-02
350	9.668834E-15	2.808895E-12	9.613061E-03	6.096664E-02
351	9.668826E-15	2.247116E-12	9.569741E-03	6.124312E-02
352	9.668682E-15	1.797693E-12	9.525214E-03	6.153001E-02
353	9.668259E-15	1.438155E-12	9.481328E-03	6.181553E-02
354	9.667551E-15	1.150524E-12	9.440165E-03	6.208586E-02
355	9.666743E-15	9.204189E-13	9.403743E-03	6.232716E-02
356	9.666088E-15	7.363351E-13	9.373633E-03	6.252814E-02
357	9.665709E-15	5.890681E-13	9.350625E-03	6.268264E-02
358	9.665557E-15	4.712545E-13	9.33456E-03	6.279097E-02
359	9.665515E-15	3.770036E-13	9.324434E-03	6.285944E-02
360	9.665507E-15	3.016029E-13	9.318746E-03	6.289795E-02
361	9.665507E-15	2.412823E-13	9.315933E-03	0.062917
362	9.665507E-15	1.930258E-13	9.314724E-03	0.0629252
363	9.665507E-15	1.544207E-13	9.314276E-03	6.292823E-02
364	9.665507E-15	1.235365E-13	9.314136E-03	6.292918E-02
365	9.665507E-15	9.882922E-14	9.314098E-03	6.292944E-02

Convergence criterion met.

Model Estimation Section

Parameter Name	Parameter Estimate	Asymptotic Standard Error	Lower 95% C.L.	Upper 95% C.L.
B1	9.314098E-03	4.840031E-03	-8.162026E-04	0.0194444
B2	6.292944E-02	3.278094E-02	-5.681859E-03	0.1315407
Model	C801 y = B1*LOG(1+C801X*B2)			
R-Squared	0.999992			
Iterations	365			

Estimated Model

(9.314098E-03)*LOG(1+(C801X)*(6.292944E-02))

Analysis of Variance Table

Source	DF	Sum of Squares	Mean Square
Mean	1	3.523669E-09	3.523669E-09
Model	2	4.763395E-09	2.381697E-09
Model (Adjusted)	1	1.239725E-09	1.239725E-09
Error	19	9.665507E-15	5.087109E-16
Total (Adjusted)	20	1.239735E-09	
Total	21	4.763404E-09	

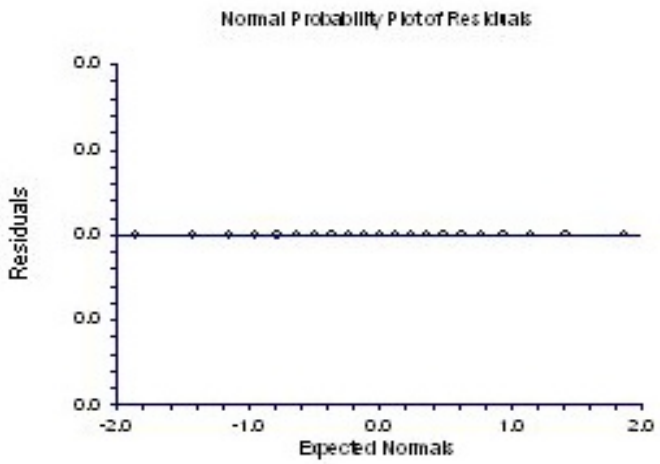
Asymptotic Correlation Matrix of Parameters

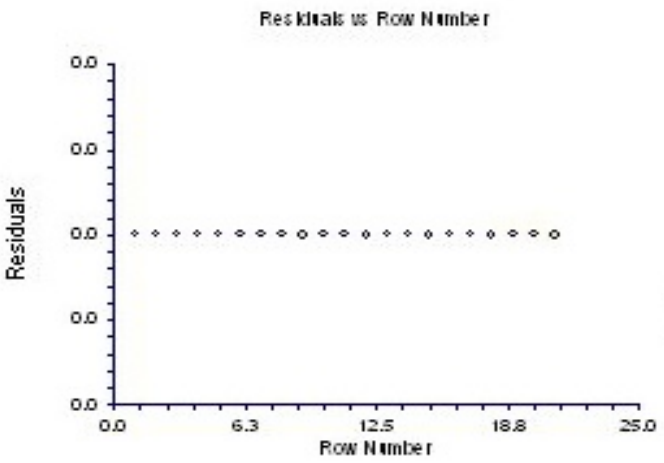
	B1	B2
B1	1.000000	-1.000000
B2	-1.000000	1.000000

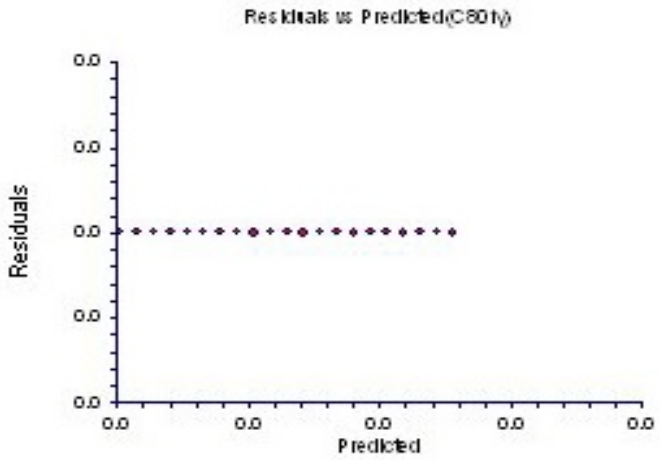
Predicted Values and Residuals Section

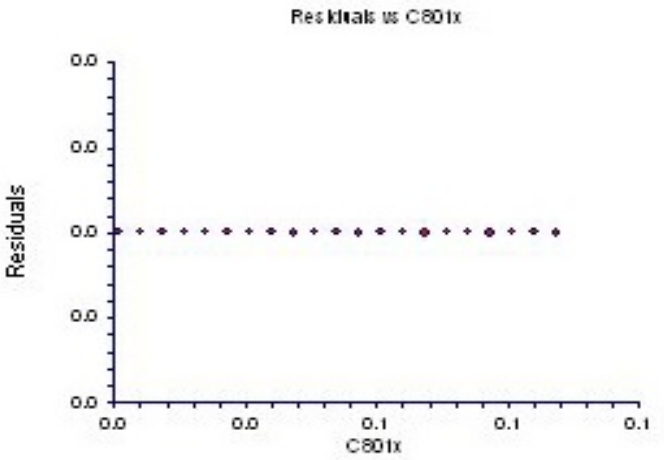
Row No.	Actual C801y	Predicted C801y	Lower 95.0% C.L.	Upper 95.0% C.L.	Residual
1	2.54E-07	2.545454E-07	2.073377E-07	3.017531E-07	-5.454268E-10
2	1.52E-06	1.527032E-06	1.479813E-06	1.574251E-06	-7.032348E-09
3	0.0000028	2.799119E-06	2.751873E-06	2.846365E-06	8.809014E-10
4	4.07E-06	4.070806E-06	4.023516E-06	4.118095E-06	-8.059304E-10
5	5.34E-06	5.342093E-06	5.294744E-06	5.389442E-06	-2.093095E-09
6	6.61E-06	6.612981E-06	6.565557E-06	6.660404E-06	-2.980843E-09
7	7.88E-06	7.883469E-06	7.835955E-06	7.930984E-06	-3.469426E-09
8	9.15E-06	9.153559E-06	9.105938E-06	9.20118E-06	-3.559093E-09
9	0.0000104	1.042325E-05	1.037551E-05	1.047099E-05	-2.32501E-08
10	0.0000117	1.169254E-05	1.164466E-05	1.174042E-05	7.457314E-09
11	0.000013	1.296144E-05	1.29134E-05	1.300947E-05	3.856289E-08
12	0.0000142	1.422993E-05	1.418173E-05	1.427813E-05	-2.993362E-08
13	0.0000155	1.549803E-05	1.544965E-05	1.554641E-05	1.967531E-09
14	0.0000168	1.676573E-05	1.671715E-05	1.681431E-05	3.42661E-08
15	0.000018	1.803304E-05	1.798425E-05	1.808183E-05	-3.303816E-08
16	0.0000193	1.929995E-05	1.925093E-05	1.934896E-05	5.449232E-11
17	0.0000206	2.056646E-05	2.05172E-05	2.061571E-05	3.354382E-08
18	0.0000218	2.183257E-05	2.178306E-05	2.188208E-05	-3.257044E-08
19	0.0000231	2.309829E-05	2.304851E-05	2.314807E-05	1.711479E-09
20	0.0000244	2.436361E-05	2.431355E-05	2.441367E-05	3.638932E-08
21	0.0000256	2.562854E-05	2.557818E-05	2.567889E-05	-2.853716E-08

Plot Section









Úloha C8.02 *Parametry závislosti tenze par vody a dodekanu na teplotě*

RUN | NEW | OPEN | SAVE | MAP | NAV | PASS | DATA | OUT | OFF FILTER | PLAY | DESC STATS | 2 S T-TEST | MULT REG | FREQ TABLE

Storage | Template
Probability Plot | Resid vs Row Plot | Resid vs Yhat Plot | Resid vs X Plot
Model | Parameters - Cont | Options | Reports

Dependent Variable

Y: Dependent Variable:
C802AY

Options

Alpha Level:
0.05

Model

Model:
exp(b1-(b2/(b3+C802ax)))

exp(b1-(b2/(b3+C802ax)))

Model Parameters

Parameter:	Min Start Max:	Parameter:	Min Start Max:
b1	0 16 20		-1E9 1 1E9
b2	0 4000 5000		-1E9 1 1E9
b3	0 250 300		-1E9 1 1E9
	-1E9 1 1E9		-1E9 1 1E9

RUN | NEW | OPEN | SAVE | MAP | NAV | PASS | DATA | OUT | OFF FILTER | PLAY | DESC STATS | 2 S T-TEST | MULT REG | FREQ TABLE

Storage | Template
Probability Plot | Resid vs Row Plot | Resid vs Yhat Plot | Resid vs X Plot
Model | Parameters - Cont | Options | Reports

Options

Lambda:	Lambda Inc.:	Max Iterations:
0.0001	5	5000
Nash Phi:	**Lambda Dec.:**	**Zero:**
1	4	1E-10

Page/Date/Time 1 28.8.2010 5:16:24
Database D:\DATA\Data-NCSS\8kap\C8.S0
Dependent C802ay

Minimization Phase Section

Itn No.	Error Sum Lambda	Lambda	B1	B2	B3
0	67.97111	0.00008	16	4000	250
1	34.25227	0.000064	16.5408	3999.071	234.4863
2	1.871239E-02	0.0000512	16.57931	3996.884	234.164
3	1.678533E-02	4.096E-05	16.57826	3995.621	234.1003
4	1.610971E-02	1.6384E-04	16.57778	3995.313	234.085
5	1.606979E-02	1.31072E-04	16.57717	3994.925	234.0699
6	1.603233E-02	1.048576E-04	16.5764	3994.441	234.0512
7	1.599959E-02	8.388608E-05	16.57544	3993.837	234.028
8	1.598074E-02	6.710886E-05	16.57424	3993.086	233.9991
9	1.565941E-02	2.684355E-04	16.57393	3992.901	233.9903
10	1.562848E-02	2.147484E-04	16.57356	3992.667	233.9812
11	1.559532E-02	1.717987E-04	16.57309	3992.374	233.97
12	1.555918E-02	1.37439E-04	16.57251	3992.009	233.9559
13	1.552226E-02	1.099512E-04	16.57178	3991.554	233.9384
14	1.548886E-02	8.796093E-05	16.57088	3990.987	233.9166
15	1.546669E-02	7.036875E-05	16.56976	3990.281	233.8894
16	1.518156E-02	2.81475E-04	16.56946	3990.107	233.8812
17	1.515251E-02	2.2518E-04	16.56911	3989.887	233.8726
18	1.512106E-02	1.80144E-04	16.56868	3989.612	233.862
19	1.508645E-02	1.441152E-04	16.56813	3989.269	233.8488
20	1.505048E-02	1.152922E-04	16.56745	3988.841	233.8323
21	1.501682E-02	9.223372E-05	16.5666	3988.308	233.8118
22	0.0149921	7.378698E-05	16.56554	3987.644	233.7862
23	1.498774E-02	5.902958E-05	16.56422	3986.818	233.7544
24	1.460364E-02	2.361183E-04	16.56388	3986.615	233.7448
25	1.457208E-02	1.888947E-04	16.56347	3986.357	233.7348
26	1.453924E-02	1.511157E-04	16.56295	3986.035	233.7224
27	1.450458E-02	1.208926E-04	16.56231	3985.635	233.7069
28	1.447118E-02	9.671407E-05	16.56152	3985.135	233.6877
29	1.444471E-02	7.737125E-05	16.56052	3984.512	233.6637
30	1.443504E-02	6.1897E-05	16.55929	3983.737	233.6338
31	1.409583E-02	2.47588E-04	16.55897	3983.546	233.6248
32	1.406623E-02	1.980704E-04	16.55858	3983.305	233.6154
33	1.403506E-02	1.584563E-04	16.5581	3983.003	233.6038
34	1.400172E-02	1.267651E-04	16.5575	3982.627	233.5893
35	0.0139688	1.01412E-04	16.55675	3982.158	233.5712
36	1.394113E-02	8.112964E-05	16.55582	3981.574	233.5487
37	1.392722E-02	6.490371E-05	16.55466	3980.847	233.5206
38	1.362716E-02	2.596148E-04	16.55436	3980.668	233.5122
39	1.359938E-02	2.076919E-04	16.554	3980.441	233.5033
40	1.356981E-02	1.661535E-04	16.55354	3980.158	233.4924
41	1.353781E-02	1.329228E-04	16.55298	3979.805	233.4788
42	1.350554E-02	1.063382E-04	16.55228	3979.365	233.4618
43	0.0134771	8.507059E-05	16.5514	3978.816	233.4407
44	1.345984E-02	6.805647E-05	16.55031	3978.133	233.4143
45	1.319398E-02	2.722259E-04	16.55003	3977.965	233.4064
46	1.316791E-02	2.177807E-04	16.54969	3977.752	233.3981
47	1.313987E-02	1.742246E-04	16.54926	3977.486	233.3878

1986	3.746827E-07	2.267385E-04	16.28996	3817.266	227.053
1987	3.737489E-07	1.813908E-04	16.28996	3817.264	227.0529
1988	3.72781E-07	1.451127E-04	16.28996	3817.263	227.0529
1989	3.717661E-07	1.160901E-04	16.28995	3817.26	227.0528
1990	3.707992E-07	9.287211E-05	16.28995	3817.258	227.0527
1991	3.700533E-07	7.429768E-05	16.28994	3817.254	227.0526
1992	3.698255E-07	5.943815E-05	16.28993	3817.25	227.0524
1993	3.595531E-07	2.377526E-04	16.28993	3817.249	227.0523
1994	3.586838E-07	1.902021E-04	16.28993	3817.248	227.0523
1995	3.577715E-07	1.521617E-04	16.28993	3817.246	227.0522
1996	3.568016E-07	1.217293E-04	16.28992	3817.244	227.0521
1997	3.558536E-07	9.738346E-05	16.28992	3817.241	227.052
1998	3.550742E-07	7.790677E-05	16.28992	3817.238	227.0519
1999	3.547181E-07	6.232542E-05	16.28991	3817.234	227.0517
2000	3.456958E-07	2.493017E-04	16.28991	3817.233	227.0517
2001	3.448858E-07	1.994413E-04	16.2899	3817.232	227.0517
2002	3.440261E-07	1.595531E-04	16.2899	3817.23	227.0516
2003	3.431009E-07	1.276424E-04	16.2899	3817.228	227.0515
2004	3.421763E-07	1.02114E-04	16.28989	3817.226	227.0514
2005	3.413765E-07	8.169117E-05	16.28989	3817.223	227.0513
2006	3.409203E-07	6.535294E-05	16.28988	3817.219	227.0511
2007	3.33545E-07	1.307059E-03	16.28988	3817.219	227.0511

Convergence criterion met.

Nonlinear Regression Report

Page/Date/Time	43 28.8.2010 5:16:30
Database	D:\DATA\Data-NCSS\8kap\C8.S0
Dependent	C802ay

Model Estimation Section

Parameter Name	Parameter Estimate	Asymptotic Standard Error	Lower 95% C.L.	Upper 95% C.L.
B1	16.28988	3.199596E-04	16.2892	16.29057
B2	3817.219	0.198436	3816.793	3817.645
B3	227.0511	7.382919E-03	227.0353	227.067

Model	C802ay = EXP(B1-(B2/(B3+C802AX)))
R-Squared	1.000000
Iterations	2007

Estimated Model
EXP((16.28988)-((3817.219)/((227.0511)+(C802AX))))

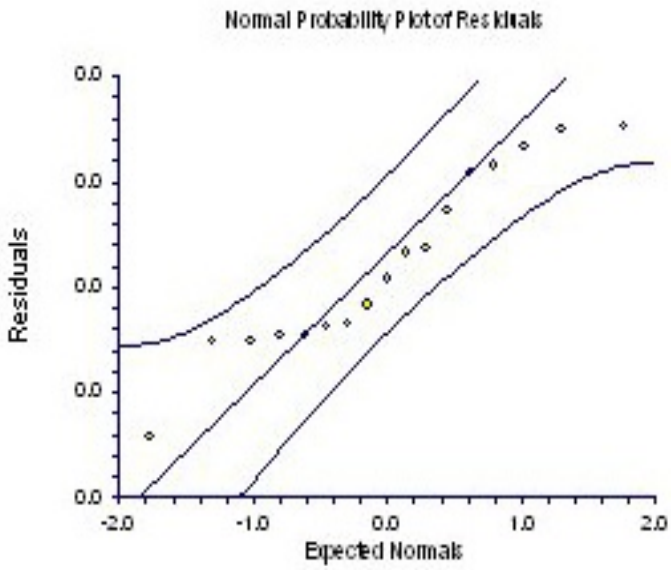
Analysis of Variance Table

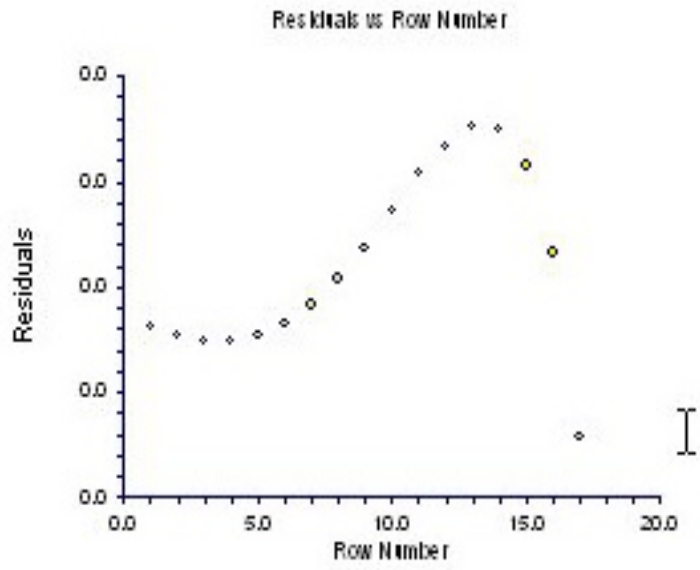
Source	DF	Sum of Squares	Mean Square
Mean	1	16905.05	16905.05
Model	3	32003.1	10667.7
Model (Adjusted)	2	15098.05	7549.024
Error	14	3.467943E-07	2.477102E-08
Total (Adjusted)	16	15098.05	
Total	17	32003.1	

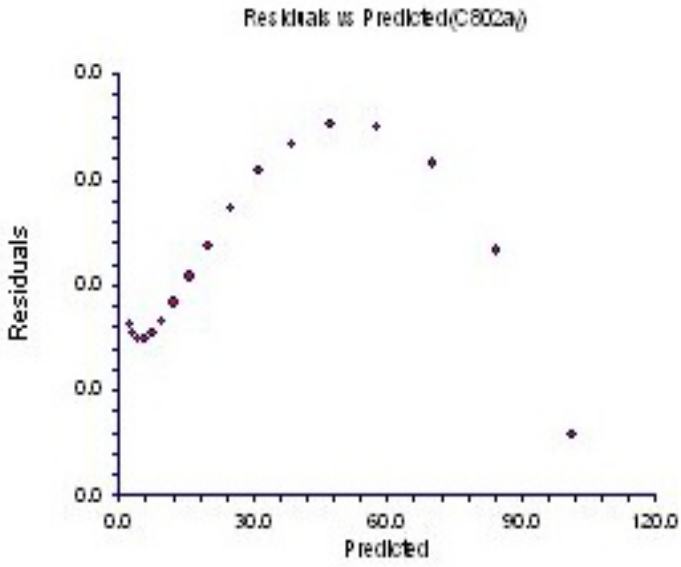
Asymptotic Correlation Matrix of Parameters

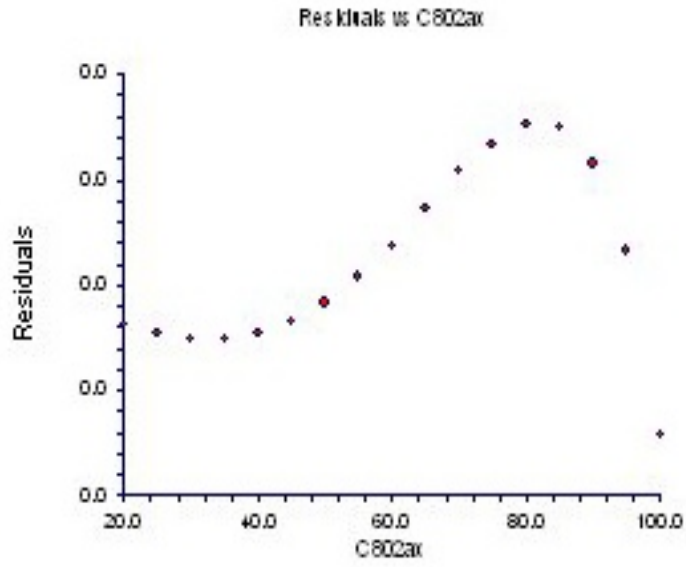
	B1	B2	B3
B1	1.000000	0.999461	0.997508
B2	0.999461	1.000000	0.999284
B3	0.997508	0.999284	1.000000

Plot Section









Úloha C8.03 *Závislost molární tepelné kapacity plynné síry na teplotě*

RUN | NEW | OPEN | SAVE | MAP | NAV | PASS | DATA | OUT | OFF FILTER | PLAY | DESC STATS | 2 S T-TEST | MULT REG | FREQ TABLE | HIST

Storage | Template

Probability Plot | Resid vs Row Plot | Resid vs Yhat Plot | Resid vs X Plot

Model | Parameters - Cont | Options | Reports

Dependent Variable

Y: Dependent Variable:

C803Y

Options

Alpha Level:

0.05

Model

Model:

b1+(b2*C803x)+(b3/(C803x*C803x))

b1+(b2*C803x)+(b3/(C803x*C803x))

Model Parameters

Parameter:	Min Start Max:	Parameter:	Min Start Max:
b1	0 17.865 19		-1E9 1 1E9
b2	0 0.0001 0.01		-1E9 1 1E9
b3	-165129.3 -165110		-1E9 1 1E9
	-1E9 1 1E9		-1E9 1 1E9
	-1E9 1 1E9		-1E9 1 1E9
	-1E9 1 1E9		-1E9 1 1E9
	-1E9 1 1E9		-1E9 1 1E9

Opt 1 Template Id:

Minimization Phase Section

Itn No.	Error Sum Lambda	Lambda	B1	B2	B3
0	11.91988	0.008	17.865	0.0001	-165110
1	7.166118E-03	0.0064	17.9236	5.409645E-04	-165110
2	1.584021E-04	0.00512	17.87367	5.786952E-04	-165110
3	2.479476E-06	0.004096	17.8657	5.844062E-04	-165110
4	5.510538E-08	0.0032768	17.86469	5.851342E-04	-165110
5	2.97746E-08	2.62144E-03	17.86458	5.8521E-04	-165110
6	2.959828E-08	2.097152E-03	17.86457	5.852164E-04	-165110
7	2.959747E-08	1.677722E-03	17.86457	5.852169E-04	-165110

Convergence criterion met.

Model Estimation Section

Parameter Name	Parameter Estimate	Asymptotic Standard Error	Lower 95% C.L.	Upper 95% C.L.
B1	17.86457	9.238514E-05	17.86438	17.86476
B2	5.852169E-04	4.841969E-08	5.851167E-04	5.85317E-04
B3	-165110	39.61881	-165192	-165028
Model	C803y = B1+(B2*C803X)+(B3/(C803X*C803X))			
R-Squared	1.000000			
Iterations	7			

Estimated Model

(17.86457)+((5.852169E-04)*(C803X))+((-165110)/((C803X)*(C803X)))

Analysis of Variance Table

Source	DF	Sum of Squares	Mean Square
Mean	1	8929.967	8929.967
Model	3	8932.164	2977.388
Model (Adjusted)	2	2.197191	1.098596
Error	23	2.959747E-08	1.286847E-09
Total (Adjusted)	25	2.197191	
Total	26	8932.164	

Asymptotic Correlation Matrix of Parameters

	B1	B2	B3
B1	1.000000	-0.989878	-0.958959
B2	-0.989878	1.000000	0.921888
B3	-0.958959	0.921888	1.000000

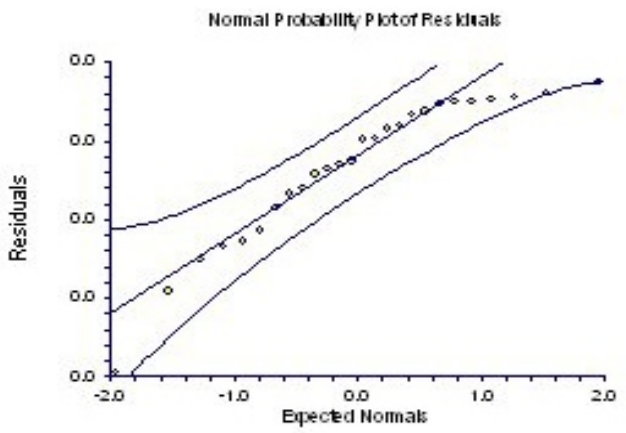
Predicted Values and Residuals Section

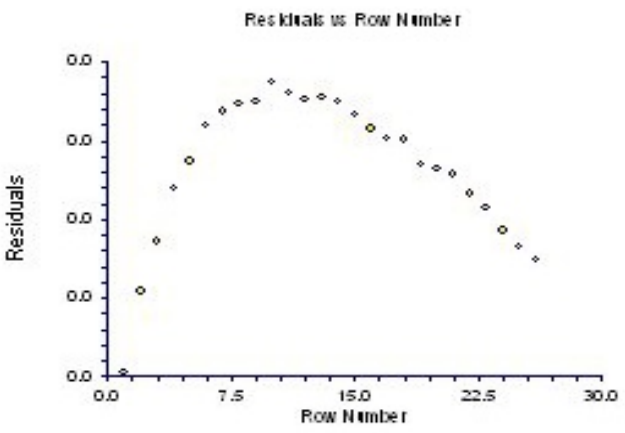
Row No.	Actual C803y	Predicted C803y	Lower 95.0% C.L.	Upper 95.0% C.L.	Residual
1	17.96733	17.96743	17.96735	17.96751	-9.790475E-05
2	18.03665	18.03671	18.03663	18.03679	-5.931324E-05
3	18.09886	18.0989	18.09882	18.09897	-3.557961E-05
4	18.15556	18.15557	18.15549	18.15565	-9.885337E-06
5	18.2079	18.2079	18.20782	18.20798	2.741103E-06
6	18.25677	18.25675	18.25667	18.25683	1.956791E-05
7	18.30282	18.30279	18.30272	18.30287	2.637857E-05
8	18.34657	18.34654	18.34646	18.34662	3.042523E-05
9	18.38842	18.38839	18.38831	18.38847	3.079363E-05
10	18.4287	18.42866	18.42858	18.42874	4.036063E-05
11	18.46764	18.4676	18.46753	18.46768	3.562521E-05
12	18.50546	18.50543	18.50535	18.5055	3.198437E-05
13	18.54233	18.5423	18.54222	18.54237	3.283635E-05
14	18.57838	18.57835	18.57827	18.57842	3.141526E-05
15	18.61372	18.6137	18.61362	18.61377	2.46016E-05
16	18.64845	18.64843	18.64836	18.64851	1.818061E-05
17	18.68265	18.68264	18.68256	18.68271	1.317395E-05
18	18.71639	18.71638	18.7163	18.71645	1.297571E-05
19	18.74971	18.74971	18.74963	18.74978	1.097405E-06
20	18.78268	18.78268	18.7826	18.78276	-6.217414E-07

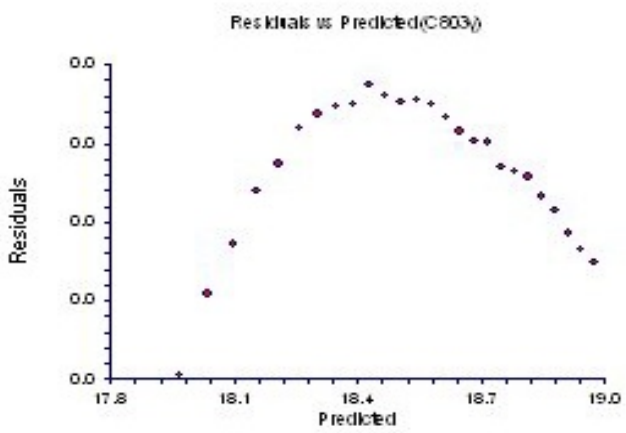
Predicted Values and Residuals Section

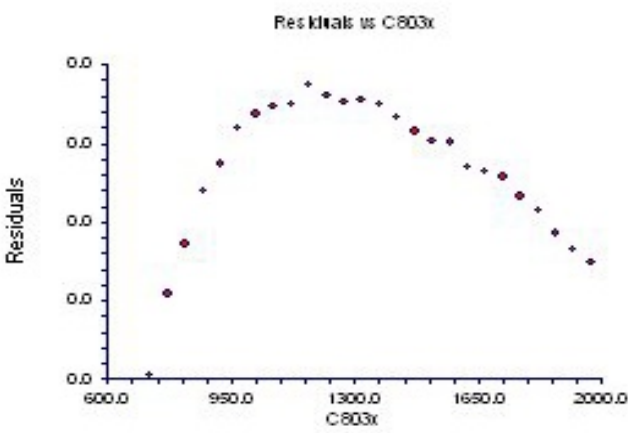
Row No.	Actual C803y	Predicted C803y	Lower 95.0% C.L.	Upper 95.0% C.L.	Residual
1	17.96733	17.96743	17.96735	17.96751	-9.790475E-05
2	18.03665	18.03671	18.03663	18.03679	-5.931324E-05
3	18.09886	18.0989	18.09882	18.09897	-3.557961E-05
4	18.15556	18.15557	18.15549	18.15565	-9.885337E-06
5	18.2079	18.2079	18.20782	18.20798	2.741103E-06
6	18.25677	18.25675	18.25667	18.25683	1.956791E-05
7	18.30282	18.30279	18.30272	18.30287	2.637857E-05
8	18.34657	18.34654	18.34646	18.34662	3.042523E-05
9	18.38842	18.38839	18.38831	18.38847	3.079363E-05
10	18.4287	18.42866	18.42858	18.42874	4.036063E-05
11	18.46764	18.4676	18.46753	18.46768	3.562521E-05
12	18.50546	18.50543	18.50535	18.5055	3.198437E-05
13	18.54233	18.5423	18.54222	18.54237	3.283635E-05
14	18.57838	18.57835	18.57827	18.57842	3.141526E-05
15	18.61372	18.6137	18.61362	18.61377	2.46016E-05
16	18.64845	18.64843	18.64836	18.64851	1.818061E-05
17	18.68265	18.68264	18.68256	18.68271	1.317395E-05
18	18.71639	18.71638	18.7163	18.71645	1.297571E-05
19	18.74971	18.74971	18.74963	18.74978	1.097405E-06
20	18.78268	18.78268	18.7826	18.78276	-6.217414E-07
21	18.81533	18.81533	18.81526	18.81541	-3.44573E-06
22	18.84769	18.8477	18.84763	18.84778	-1.289389E-05
23	18.8798	18.87982	18.87974	18.8799	-1.967451E-05
24	18.91168	18.91171	18.91163	18.91179	-3.04462E-05
25	18.94336	18.9434	18.94332	18.94348	-3.844219E-05
26	18.97486	18.9749	18.97482	18.97498	-4.398528E-05

Plot Section







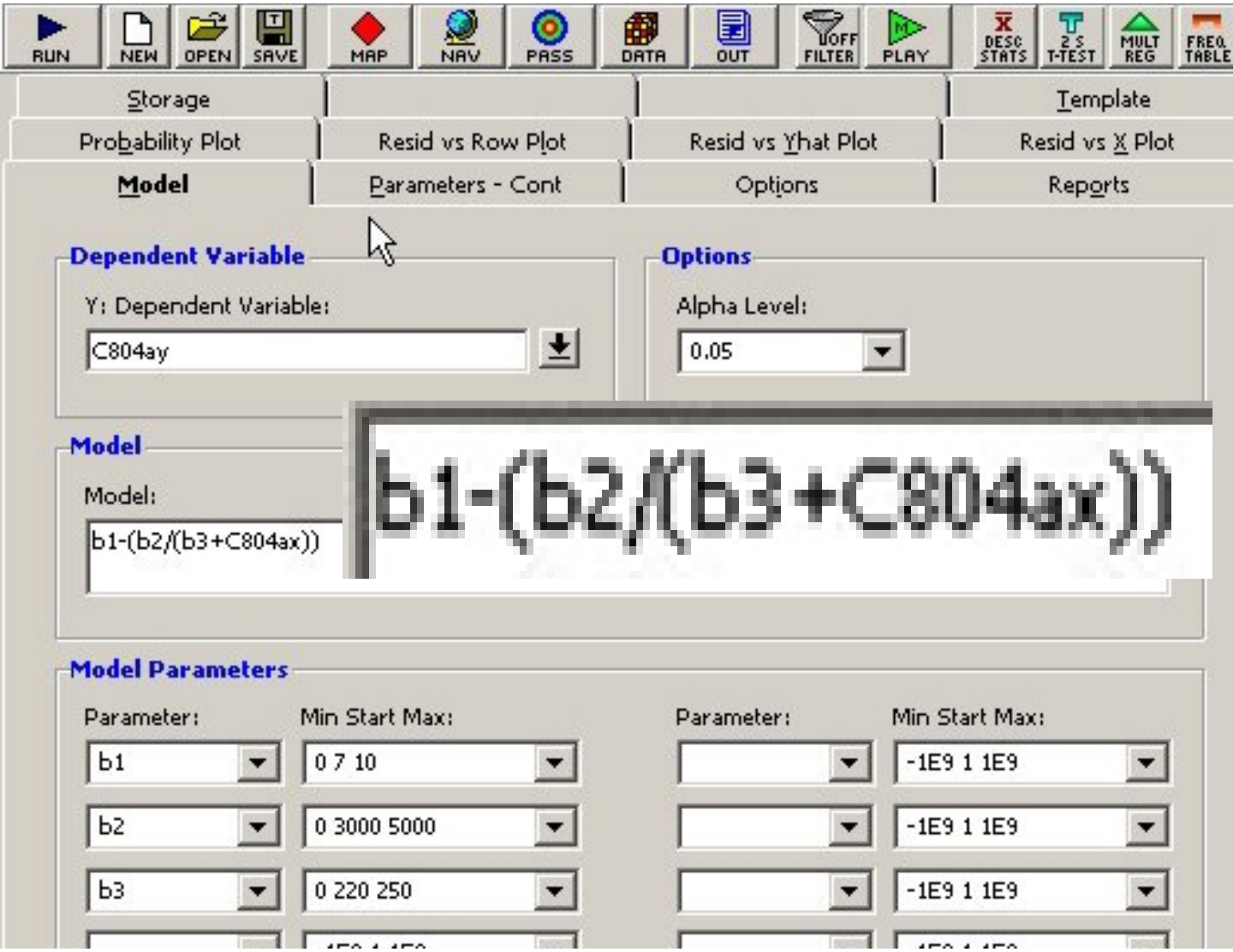


Residuals vs C803x

Residuals vs C803x

Úloha C8.04 ***Parametry Antoineovy rovnice pro kyselinu sírovou a benzen***

C804a: Kyselina sírová



Minimization Phase Section

Itn No.	Error Sum Lambda	Lambda	B1	B2	B3
0	4.296777	0.008	7	3000	220
1	4.179242E-03	0.0064	7.447767	2999.986	220.0589
2	3.853085E-03	0.00512	7.451978	2999.99	220.0109
3	3.814573E-03	0.004096	7.452621	2999.995	219.9501
4	3.766986E-03	0.0032768	7.45339	3000.002	219.8745
5	3.708331E-03	2.62144E-03	7.454344	3000.011	219.7808
6	3.636286E-03	2.097152E-03	7.455525	3000.021	219.6648
7	3.548185E-03	1.677722E-03	7.456986	3000.035	219.5214
8	3.441039E-03	1.342177E-03	7.458787	3000.051	219.3447
9	3.311627E-03	1.073742E-03	7.460999	3000.07	219.1279
10	3.156667E-03	8.589934E-04	7.463703	3000.094	218.8629
11	2.973109E-03	6.871948E-04	7.466993	3000.124	218.541
12	2.758601E-03	5.497558E-04	7.470966	3000.159	218.1527
13	2.512143E-03	4.398047E-04	7.475723	3000.201	217.6885
14	2.234932E-03	3.518437E-04	7.481356	3000.251	217.1398
15	1.931313E-03	2.81475E-04	7.487936	3000.309	216.5002
16	1.609647E-03	2.2518E-04	7.495492	3000.375	215.7677
17	1.282703E-03	1.80144E-04	7.503982	3000.45	214.947
18	9.67083E-04	1.441152E-04	7.513269	3000.531	214.052
19	6.811969E-04	1.152922E-04	7.523096	3000.616	213.1085
20	4.417071E-04	9.223372E-05	7.533076	3000.702	212.1537
21	2.592509E-04	7.378698E-05	7.542717	3000.785	211.2349
22	1.352079E-04	5.902958E-05	7.551486	3000.859	210.402
23	6.150265E-05	4.722366E-05	7.558913	3000.923	209.6988
24	2.406216E-05	3.777893E-05	7.564703	3000.972	209.152
25	8.16993E-06	3.022315E-05	7.568809	3001.006	208.7651
26	2.661933E-06	2.417852E-05	7.571424	3001.029	208.519
27	1.13876E-06	1.934281E-05	7.572904	3001.042	208.3799
28	8.102655E-07	1.547425E-05	7.573639	3001.048	208.311
29	7.562367E-07	1.23794E-05	7.573956	3001.052	208.2813
30	7.495944E-07	9.903521E-06	7.574074	3001.053	208.2704
31	7.489795E-07	7.922817E-06	7.574111	3001.055	208.267
32	7.489141E-07	6.338253E-06	7.574122	3001.056	208.2662
33	7.488782E-07	5.070603E-06	7.574126	3001.058	208.2661
34	7.488352E-07	4.056482E-06	7.574129	3001.06	208.2663
35	7.487816E-07	3.245186E-06	7.574131	3001.063	208.2665
36	7.487145E-07	2.596149E-06	7.574134	3001.066	208.2668
37	7.486307E-07	2.076919E-06	7.574138	3001.07	208.2672
38	7.48526E-07	1.661535E-06	7.574142	3001.075	208.2676
39	7.483951E-07	1.329228E-06	7.574148	3001.081	208.2682
40	7.482314E-07	1.063382E-06	7.574155	3001.089	208.2688
41	7.480269E-07	8.507059E-07	7.574164	3001.098	208.2697
42	7.477715E-07	6.805647E-07	7.574176	3001.111	208.2708
43	7.474522E-07	5.444518E-07	7.57419	3001.126	208.2722
44	7.470534E-07	4.355614E-07	7.574208	3001.145	208.2739
45	7.465552E-07	3.484491E-07	7.57423	3001.169	208.276
46	7.459329E-07	2.787593E-07	7.574258	3001.198	208.2786
47	7.451559E-07	2.230074E-07	7.574293	3001.236	208.2819
48	7.441859E-07	1.78406E-07	7.574336	3001.282	208.2861
49	7.429753E-07	1.427248E-07	7.57439	3001.34	208.2912
50	7.414651E-07	1.141798E-07	7.574457	3001.412	208.2977
51	7.39582E-07	9.134385E-08	7.574542	3001.503	208.3057
52	7.372356E-07	7.307508E-08	7.574647	3001.615	208.3157
53	7.34314E-07	5.846007E-08	7.574778	3001.756	208.3283
54	7.306797E-07	4.676805E-08	7.574942	3001.931	208.3439
55	7.261646E-07	3.741444E-08	7.575145	3002.15	208.3633
56	7.205634E-07	2.993155E-08	7.575399	3002.422	208.3875
57	7.136284E-07	2.394524E-08	7.575715	3002.76	208.4176
58	7.050622E-07	1.915619E-08	7.576107	3003.18	208.455
59	6.945122E-07	1.532496E-08	7.576592	3003.702	208.5014

59	6.945122E-07	1.532496E-08	7.576592	3003.702	208.5014
60	6.815668E-07	1.225996E-08	7.577194	3004.347	208.5589
61	6.657551E-07	9.807971E-09	7.577938	3005.144	208.6298
62	6.465524E-07	7.846377E-09	7.578852	3006.125	208.7171
63	6.233968E-07	6.277102E-09	7.579974	3007.329	208.8242
64	5.957203E-07	5.021681E-09	7.581345	3008.799	208.9549
65	5.630006E-07	4.017345E-09	7.583007	3010.585	209.1137
66	5.248399E-07	3.213876E-09	7.585012	3012.737	209.305
67	4.810722E-07	2.571101E-09	7.587408	3015.31	209.5335
68	4.31897E-07	2.056881E-09	7.590239	3018.352	209.8037
69	3.780224E-07	1.645505E-09	7.593541	3021.903	210.1189
70	3.207853E-07	1.316404E-09	7.597332	3025.982	210.4806
71	2.621946E-07	1.053123E-09	7.601599	3030.576	210.8878
72	2.048341E-07	8.424983E-10	7.606288	3035.628	211.3352
73	1.515796E-07	6.739987E-10	7.611297	3041.03	211.8131
74	1.051379E-07	5.391989E-10	7.616466	3046.609	212.3062
75	6.750852E-08	4.313591E-10	7.621585	3052.14	212.7946
76	3.954052E-08	3.450873E-10	7.626417	3057.364	213.2554
77	2.076328E-08	2.760699E-10	7.630722	3062.024	213.666
78	9.584453E-09	2.208559E-10	7.634311	3065.911	214.0082
79	3.807941E-09	1.766847E-10	7.637079	3068.91	214.272
80	1.27546E-09	1.413478E-10	7.639031	3071.026	214.458
81	3.538377E-10	1.130782E-10	7.640274	3072.374	214.5765
82	8.05717E-11	9.046257E-11	7.64098	3073.139	214.6437
83	1.549917E-11	7.237005E-11	7.641334	3073.522	214.6773
84	3.191085E-12	5.789605E-11	7.641487	3073.688	214.6919
85	1.362199E-12	4.631684E-11	7.641545	3073.751	214.6973
86	1.151918E-12	3.705347E-11	7.641563	3073.771	214.6991
87	1.133604E-12	2.964277E-11	7.641568	3073.776	214.6995
88	1.132427E-12	2.371422E-11	7.641569	3073.777	214.6996
89	1.132372E-12	1.897138E-11	7.641569	3073.777	214.6997

Convergence criterion met.

Model Estimation Section

Parameter Name	Parameter Estimate	Asymptotic Standard Error	Lower 95% C.L.	Upper 95% C.L.
B1	7.641569	1.981511E-05	7.641528	7.641611
B2	3073.777	2.150175E-02	3073.732	3073.822
B3	214.6997	1.895541E-03	214.6957	214.7036

Model	C804ay = B1-(B2/(B3+C804AX))
R-Squared	1.000000
Iterations	89

Estimated Model

(7.641569)-((3073.777)/((214.6997)+(C804AX)))

Analysis of Variance Table

Source	DF	Sum of Squares	Mean Square
Mean	1	82.40903	82.40903
Model	3	84.5034	28.1678
Model (Adjusted)	2	2.094371	1.047185
Error	18	1.132372E-12	6.290956E-14
Total (Adjusted)	20	2.094371	
Total	21	84.5034	

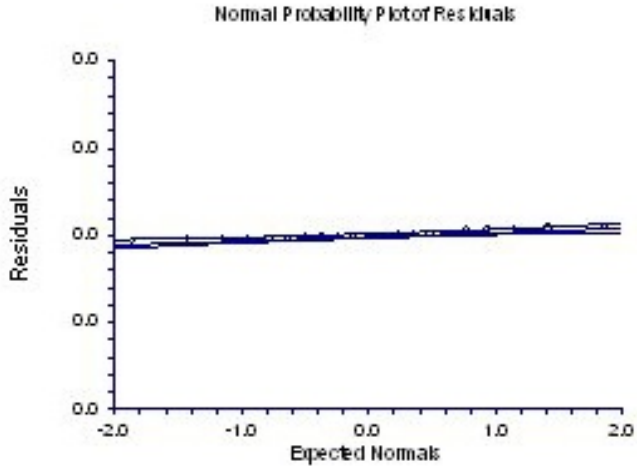
Asymptotic Correlation Matrix of Parameters

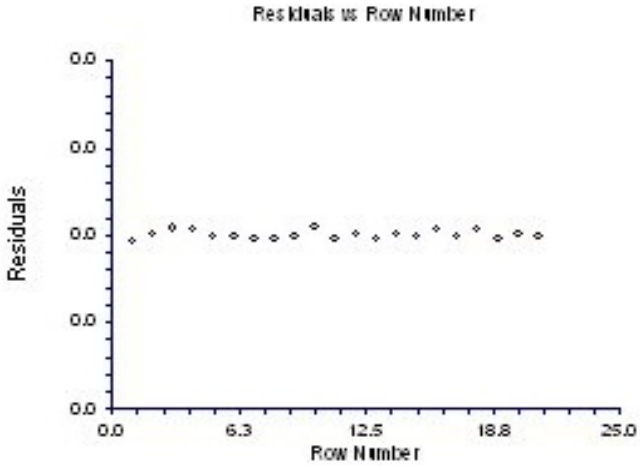
	B1	B2	B3
B1	1.000000	0.999690	0.998770
B2	0.999690	1.000000	0.999693
B3	0.998770	0.999693	1.000000

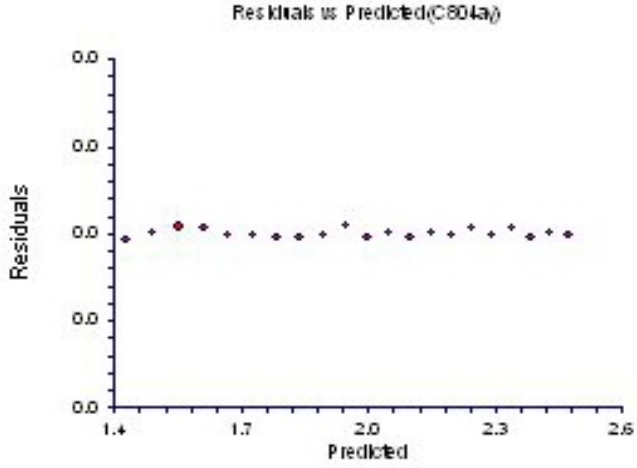
Predicted Values and Residuals Section

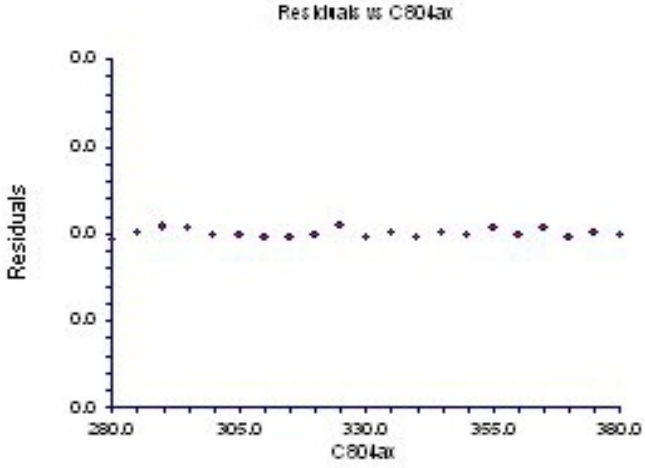
Row No.	Actual C804ay	Predicted C804ay	Lower 95.0% C.L.	Upper 95.0% C.L.	Residual
1	1.428148	1.428148	1.428148	1.428149	-3.530978E-07
2	1.49032	1.49032	1.490319	1.49032	9.500945E-08
3	1.55126	1.55126	1.551259	1.55126	3.955695E-07
4	1.611004	1.611004	1.611003	1.611004	2.962792E-07
5	1.669587	1.669587	1.669587	1.669588	-4.648699E-08
6	1.727043	1.727043	1.727043	1.727044	-1.354403E-07
7	1.783404	1.783404	1.783404	1.783405	-1.962679E-07
8	1.838701	1.838701	1.838701	1.838702	-2.379037E-07
9	1.892964	1.892964	1.892964	1.892965	-1.09418E-07
10	1.946222	1.946222	1.946221	1.946222	4.462551E-07
11	1.998501	1.998501	1.998501	1.998502	-2.584502E-07
12	2.04983	2.04983	2.049829	2.04983	9.627087E-08
13	2.100233	2.100233	2.100233	2.100234	-2.078078E-07
14	2.149736	2.149736	2.149735	2.149736	3.008871E-08
15	2.198362	2.198362	2.198362	2.198363	-1.109494E-07
16	2.246135	2.246135	2.246134	2.246135	2.87941E-07
17	2.293076	2.293076	2.293076	2.293077	-5.11354E-08
18	2.339208	2.339208	2.339207	2.339208	3.625274E-07
19	2.38455	2.38455	2.38455	2.384551	-2.446264E-07
20	2.429124	2.429124	2.429123	2.429125	5.839442E-08
21	2.472948	2.472948	2.472948	2.472949	-1.224898E-07

Plot Section









Úloha C8.05 *Závislost molární tepelné kapacity kyseliny dusičné na teplotě*

Úloha C8.05 *Závislost molární tepelné kapacity kyseliny dusičné na teplotě* Závislost molární tepelné kapacity y [J. K^{-1}. mol^{-1}] na teplotě x [K] je dána

$$y = \beta_1 + \beta_2 x + \beta_3 x^2 + \frac{\beta_4}{x^2},$$

Určete odhady β_1, β_2, β_3 a β_4 pro plynnou fázi kyseliny dusičné z přesných a z experimentálních, tzn. zašuměných dat, když velikost šumu čili náhodné chyby je přibližně 0.001. Adamcová (1989) publikovala pro přesná data odhady parametrů b_1 = 91.826, b_2 = 0.00627, b_3 = 1.76110, b_4 = -9480500. Jsou vaše nalezené odhady spolehlivější? Jak se posuzuje kvalita nalezených odhadů parametrů? Jak posuzujete kvalitu dosažené těsnosti proložení?

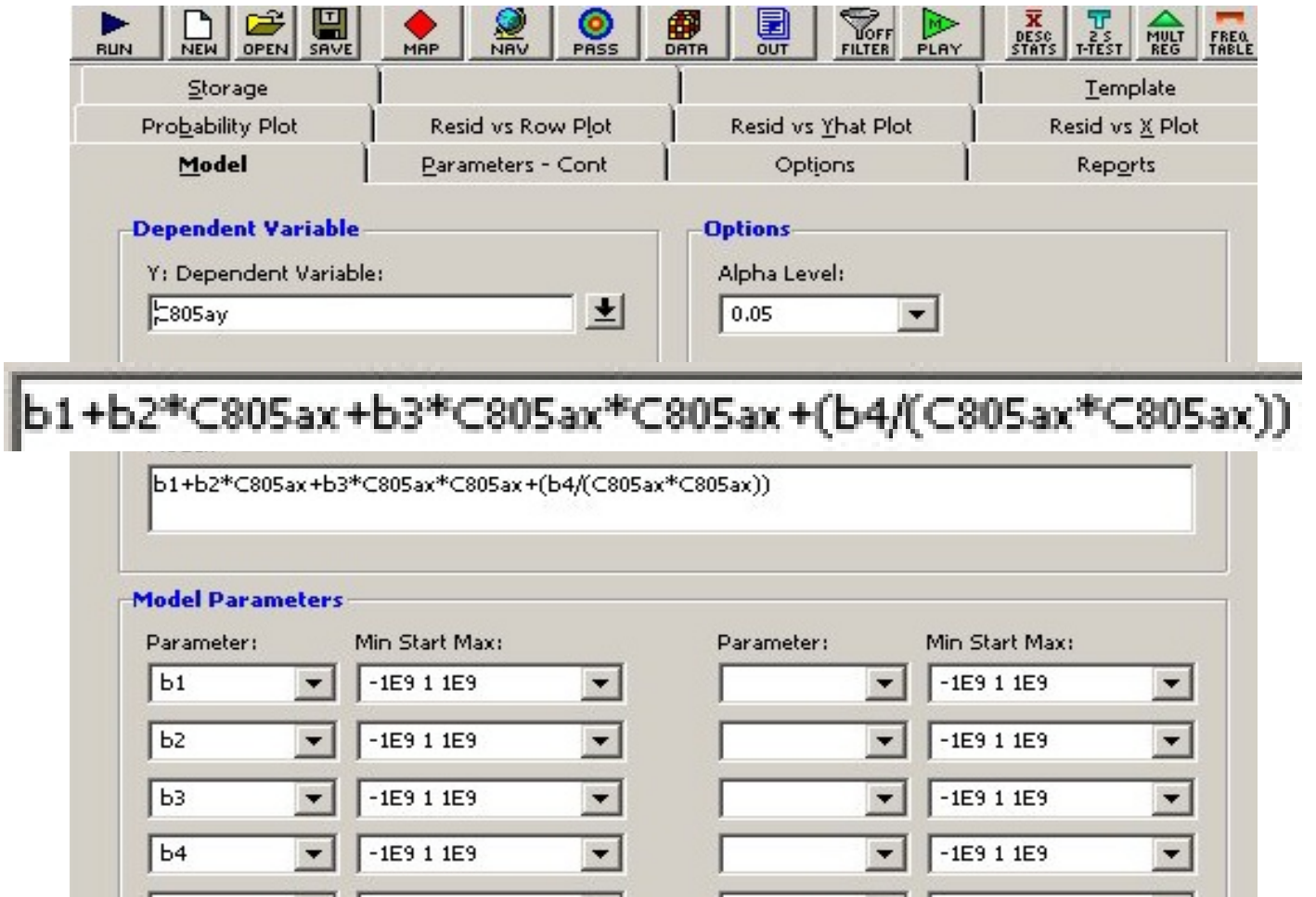
○*Data:* Teplota x [K], molární tepelná kapacita y [J. K^{-1}. mol^{-1}].

1. část: simulovaná data bez šumu:

x	y
330	8.755896
...	...
1200	118.1247

2. část: data s náhodnou chybou okolo 0.001:

x	y
330	8.755874
...	...
1200	118.1249



Minimization Phase Section

Itn No.	Error Sum Lambda	Lambda	B1	B2	B3	B4
0	1.765469E+13	0.00004	1	1	1	1
1	4329395	0.000016	3198.612	-9.342266	6.177063E-03	-267.4999
2	1027.881	0.0000064	-28.24913	0.2026026	-6.637296E-05	-280.3884
3	547.0502	2.56E-06	-63.85591	0.3050421	-1.319711E-04	-289.5042
4	547.0387	1.024E-06	-64.00858	0.3054816	-1.322525E-04	-312.0451
5	547.0322	4.096E-07	-64.00791	0.3054806	-1.322521E-04	-368.3957
6	547.0159	1.6384E-07	-64.0056	0.3054761	-1.322499E-04	-509.2702
7	546.9753	6.5536E-08	-63.99981	0.305465	-1.322443E-04	-861.4435
8	546.8737	2.62144E-08	-63.98534	0.3054372	-1.322304E-04	-1741.795
9	546.6199	1.048576E-08	-63.94917	0.3053678	-1.321956E-04	-3942.162
10	545.9858	4.194304E-09	-63.8588	0.3051943	-1.321087E-04	-9439.889
11	544.4046	1.677722E-09	-63.63319	0.3047611	-1.318917E-04	-23164.29
12	540.4758	6.710886E-10	-63.07123	0.3036821	-1.313513E-04	-57351.26
13	530.8034	2.684355E-10	-61.67895	0.3010088	-1.300124E-04	-142050.5
14	507.5263	1.073742E-10	-58.27542	0.2944739	-1.267393E-04	-349103.6
15	454.5332	4.294967E-11	-50.22307	0.2790128	-1.189955E-04	-838967.4
16	348.6968	1.717987E-11	-32.59097	0.2451582	-1.020391E-04	-1911614
17	190.1172	6.871948E-12	-4.248281E-02	0.1826631	-7.073795E-05	-3891696
18	53.46371	2.748779E-12	43.10839	9.981079E-02	-2.92407E-05	-6516774
19	5.174573	1.099512E-12	76.66958	3.537128E-02	3.034363E-06	-8558463
20	0.1211349	4.398047E-13	89.50691	1.072284E-02	1.537974E-05	-9339421
21	5.500791E-04	1.759219E-13	91.66959	6.570369E-03	1.745954E-05	-9470987
22	4.378149E-07	7.036875E-14	91.82146	6.278757E-03	1.76056E-05	-9480226
23	3.817654E-09	2.81475E-14	91.8258	6.270424E-03	1.760977E-05	-9480490
24	3.76096E-09	1.1259E-14	91.82585	6.270329E-03	1.760982E-05	-9480493

Convergence criterion met.

Model Estimation Section

Parameter Name	Parameter Estimate	Asymptotic Standard Error	Lower 95% C.L.	Upper 95% C.L.
B1	91.82585	8.261243E-05	91.82568	91.82602
B2	6.270329E-03	1.638874E-07	6.269992E-03	6.270666E-03
B3	1.760982E-05	8.525826E-11	1.760964E-05	1.760999E-05
B4	-9480493	4.874951	-9480503	-9480483
Model	C805ay = B1+B2*C805AX+B3*C805AX*C805AX+(B4/(C805AX*C805AX))			
R-Squared	1.000000			
Iterations	24			

Estimated Model

(91.82585)+(6.270329E-03)*(C805AX)+(1.760982E-05)*(C805AX)*(C805AX)+((-9480493)/((C805AX)*(C805AX)))

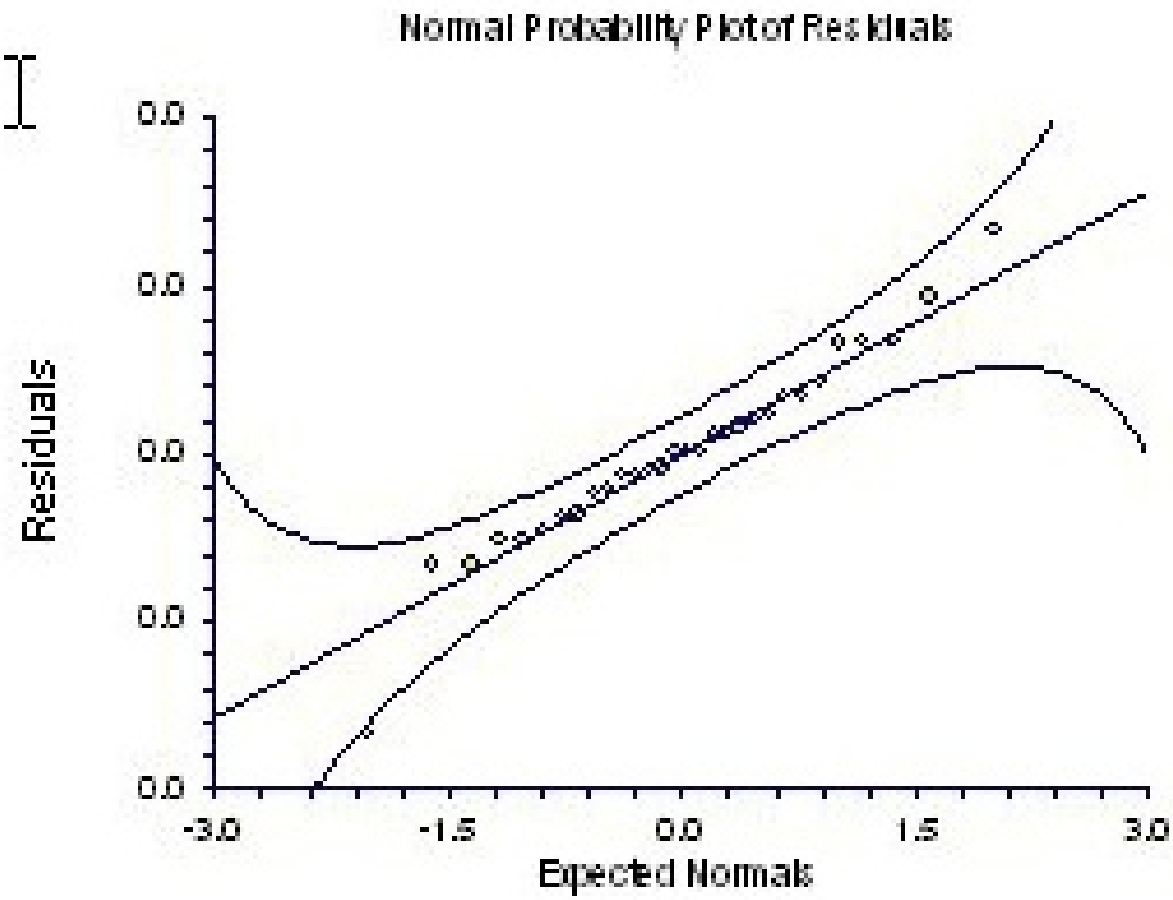
Analysis of Variance Table

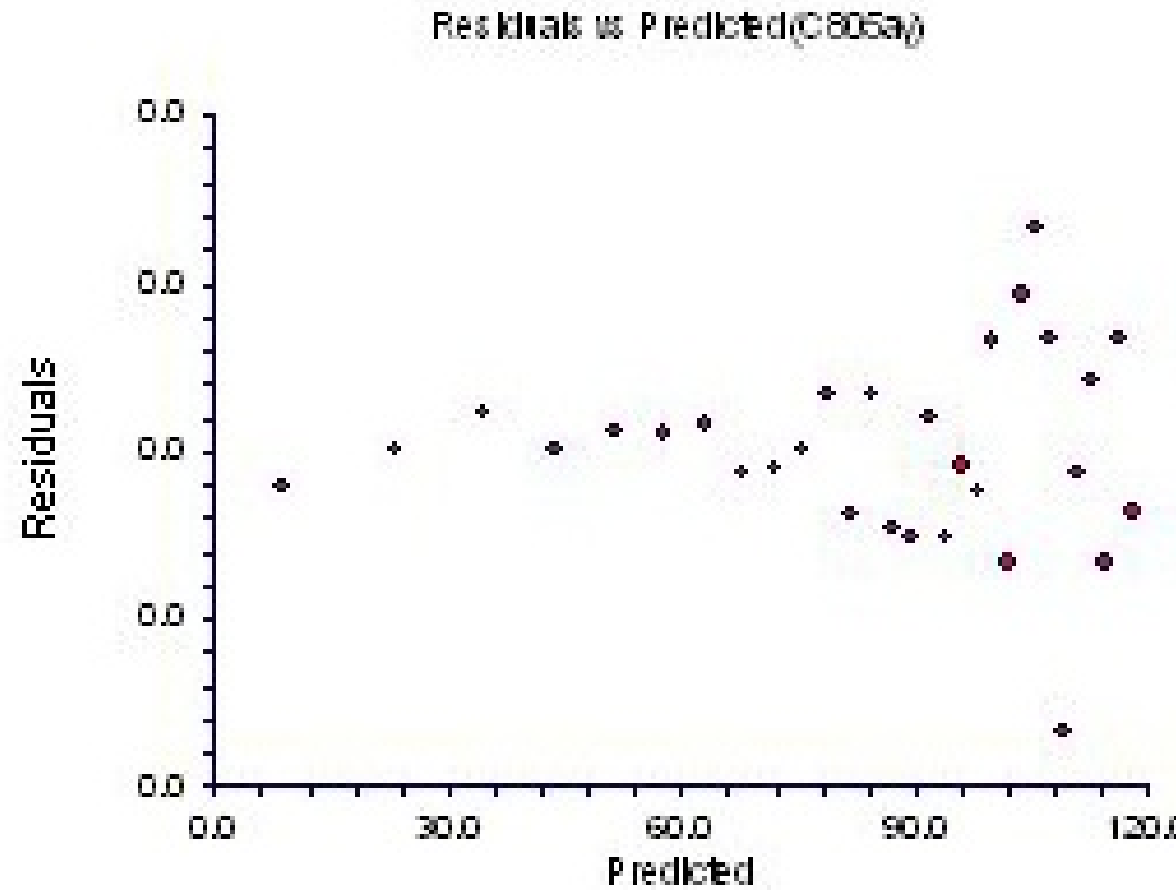
Source	DF	Sum of Squares	Mean Square
Mean	1	208513.8	208513.8
Model	4	232479.8	58119.94
Model (Adjusted)	3	23965.94	7988.646
Error	26	3.76097E-09	1.446527E-10
Total (Adjusted)	29	23965.94	
Total	30	232479.8	

Asymptotic Correlation Matrix of Parameters

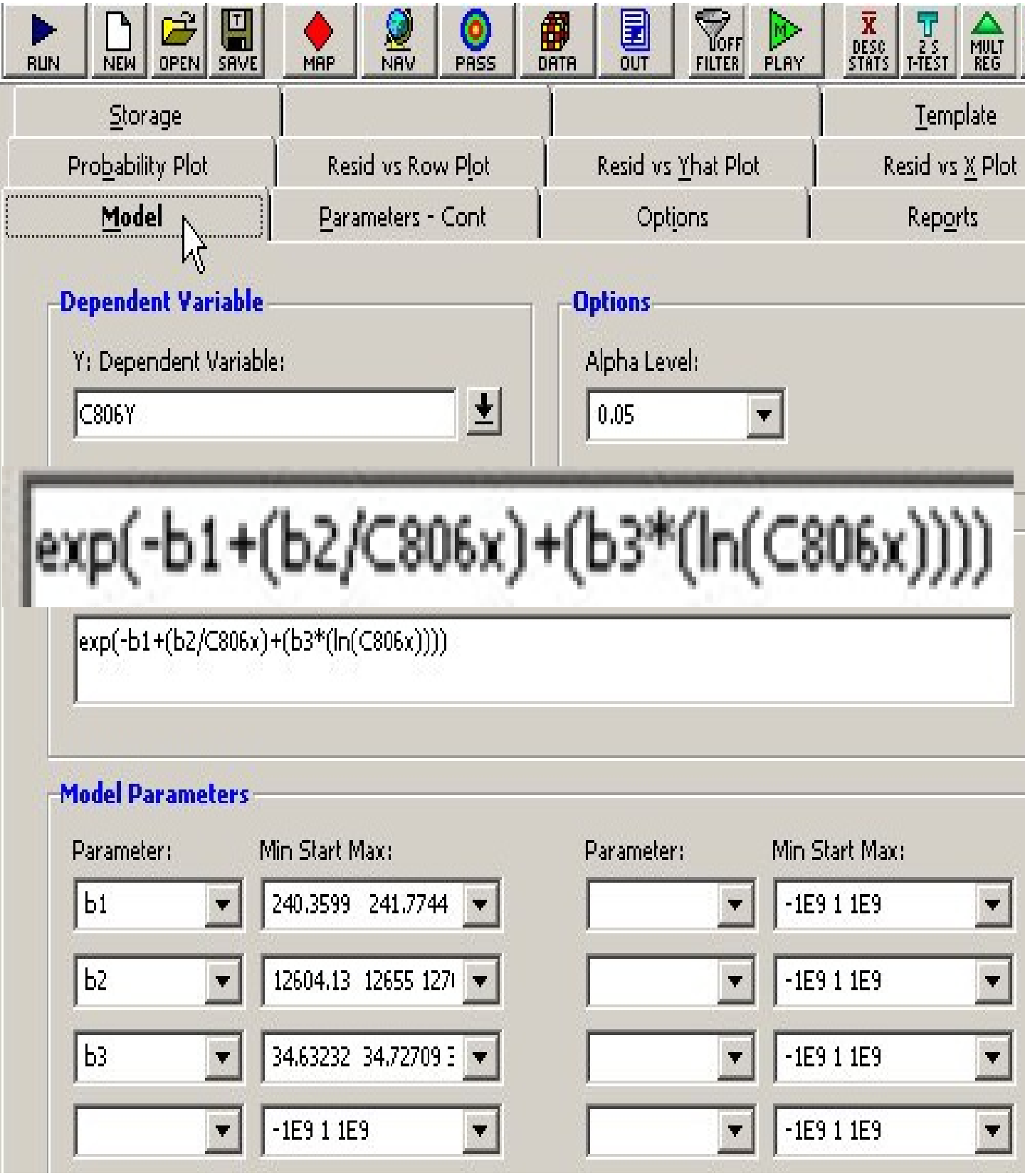
	B1	B2	B3	B4
B1	1.000000	-0.992544	0.974558	-0.970001
B2	-0.992544	1.000000	-0.994248	0.938830
B3	0.974558	-0.994248	1.000000	-0.903881
B4	-0.970001	0.938830	-0.903881	1.000000

Plot Section





Úloha C8.06 *Parametry teplotní závislosti Ostwaldova absorpčního koeficientu*



Minimization Phase Section

Itn No.	Error Sum Lambda	Lambda	B1	B2	B3
0	2.64754E-06	0.0002	241.7744	12655	34.72709
1	2.643359E-06	0.04	241.7744	12655	34.72708
2	2.641536E-06	0.08	241.7744	12655	34.72707
3	2.640774E-06	0.016	241.7742	12655	34.72706
4	2.635687E-06	0.032	241.7742	12655	34.72705
5	2.633233E-06	0.064	241.7742	12655	34.72704
6	2.632358E-06	0.128	241.7742	12655	34.72704
7	2.63072E-06	0.0256	241.7741	12655	34.72703
8	2.628425E-06	0.0512	241.774	12655	34.72702
9	2.627252E-06	0.1024	241.774	12655	34.72702
10	2.625817E-06	0.02048	241.7739	12655	34.72701
11	2.622443E-06	0.04096	241.7739	12655	34.727
12	2.620785E-06	0.08192	241.7739	12655	34.72699
13	2.61994E-06	0.016384	241.7738	12655	34.72698
14	2.6151E-06	0.032768	241.7737	12655	34.72697
15	2.612758E-06	0.065536	241.7737	12655	34.72696

Convergence criterion met.

Model Estimation Section

Parameter Name	Parameter Estimate	Asymptotic Standard Error	Lower 95% C.L.	Upper 95% C.L.
B1	241.7737	0.6691924	240.3678	243.1796
B2	12655	24.06834	12604.43	12705.57
B3	34.72696	4.483143E-02	34.63277	34.82115
Model	C806y = EXP(-B1+(B2/C806X)+(B3*(LNE(C806X))))			
R-Squared	0.999989			
Iterations	15			

Estimated Model

EXP(-(241.7737)+((12655)/(C806X))+((34.72696)*(LN((C806X)))))

Analysis of Variance Table

Source	DF	Sum of Squares	Mean Square
Mean	1	0.7488564	0.7488564
Model	3	0.9906992	0.3302331
Model (Adjusted)	2	0.2418429	0.1209214
Error	18	2.613191E-06	1.451773E-07
Total (Adjusted)	20	0.2418455	
Total	21	0.9907018	

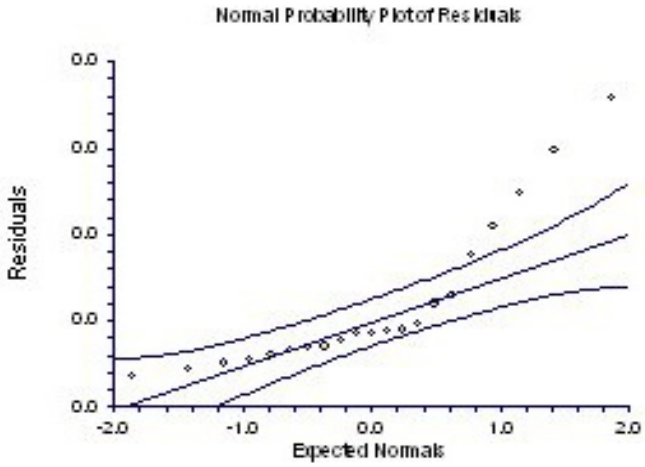
Asymptotic Correlation Matrix of Parameters

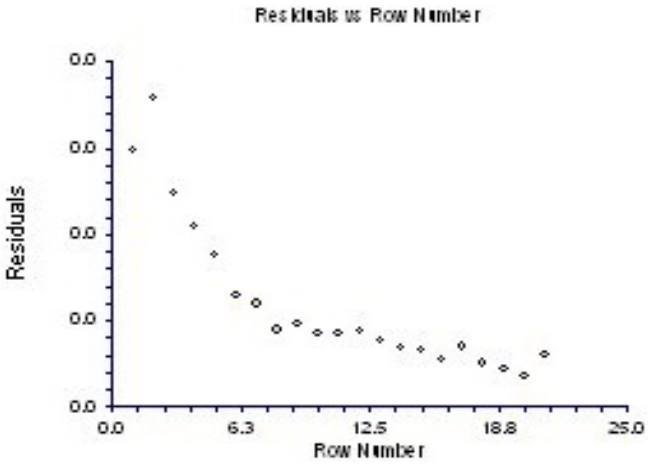
	B1	B2	B3
B1	1.000000	0.999099	0.999947
B2	0.999099	1.000000	0.998612
B3	0.999947	0.998612	1.000000

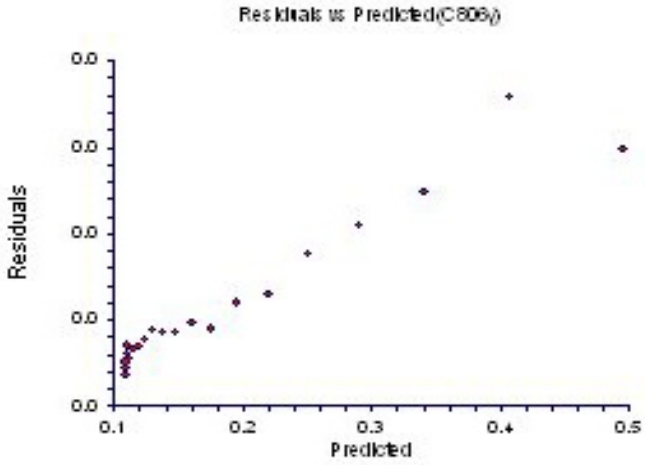
Predicted Values and Residuals Section

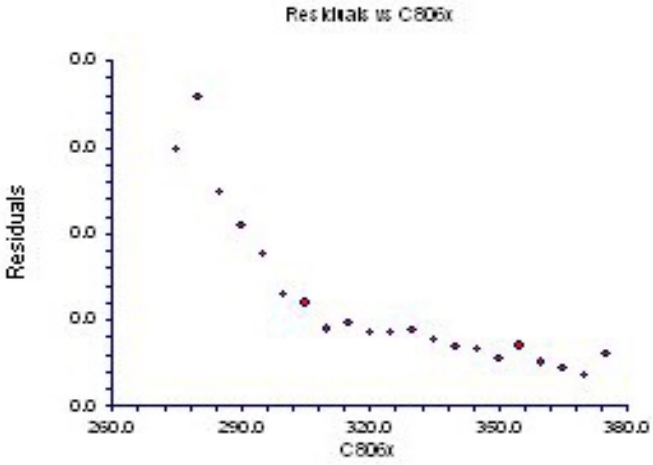
Row No.	Actual C806y	Predicted C806y	Lower 95.0% C.L.	Upper 95.0% C.L.	Residual
1	0.496	0.4955287	0.4945033	0.496554	4.408503E-04
2	0.408	0.4073203	0.4064255	0.4082152	6.547488E-04
3	0.3411	0.3408126	0.3399556	0.3416695	2.666883E-04
4	0.2901	0.2899525	0.2891029	0.2908022	1.298817E-04
5	0.2506	0.2505677	0.2497187	0.2514166	1.721095E-05
6	0.2196	0.2197339	0.2188862	0.2205817	-1.471286E-04
7	0.1952	0.1953709	0.194526	0.1962158	-1.825754E-04
8	0.1757	0.1759774	0.1751366	0.1768182	-2.878801E-04
9	0.1602	0.1604563	0.1596201	0.1612924	-2.657654E-04
10	0.1477	0.1479961	0.1471644	0.1488278	-3.048079E-04
11	0.1377	0.1379906	0.1371627	0.1388185	-2.987074E-04
12	0.1297	0.1299828	0.1291578	0.1308078	-2.903584E-04
13	0.1233	0.1236254	0.122802	0.1244488	-3.326124E-04
14	0.1183	0.1186536	0.1178302	0.1194769	-3.604264E-04
15	0.1145	0.1148643	0.1140392	0.1156893	-3.70882E-04
16	0.1117	0.1121023	0.1112733	0.1129313	-4.087129E-04
17	0.1099	0.1102494	0.1094139	0.1110849	-3.557367E-04
18	0.1088	0.1092169	0.1083718	0.110062	-4.230853E-04
19	0.1085	0.1089393	0.1080808	0.1097978	-4.454689E-04
20	0.1089	0.1093707	0.1084943	0.1102472	-4.76933E-04
21	0.1101	0.1104815	0.1095815	0.1113815	-3.877285E-04

Plot Section

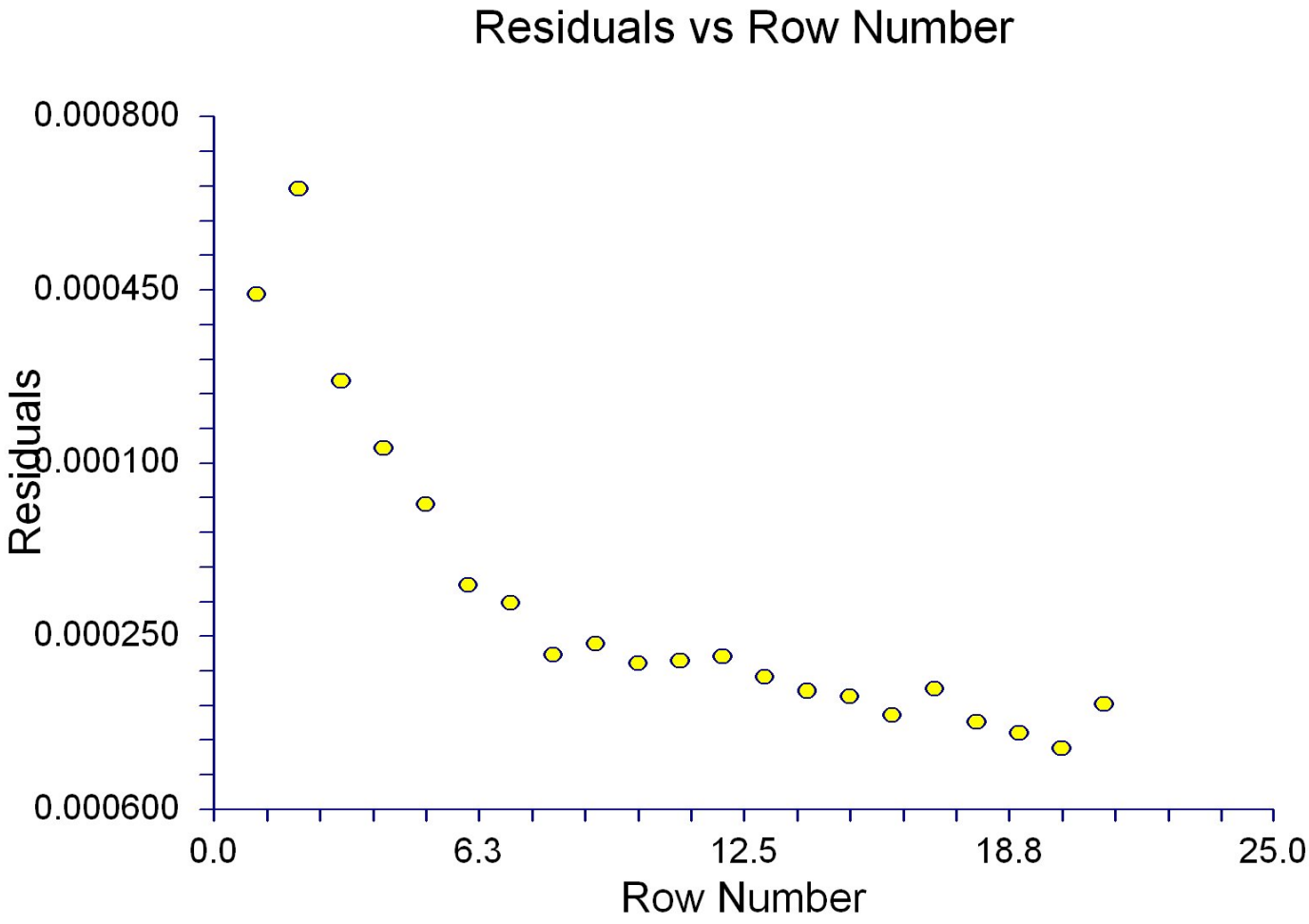


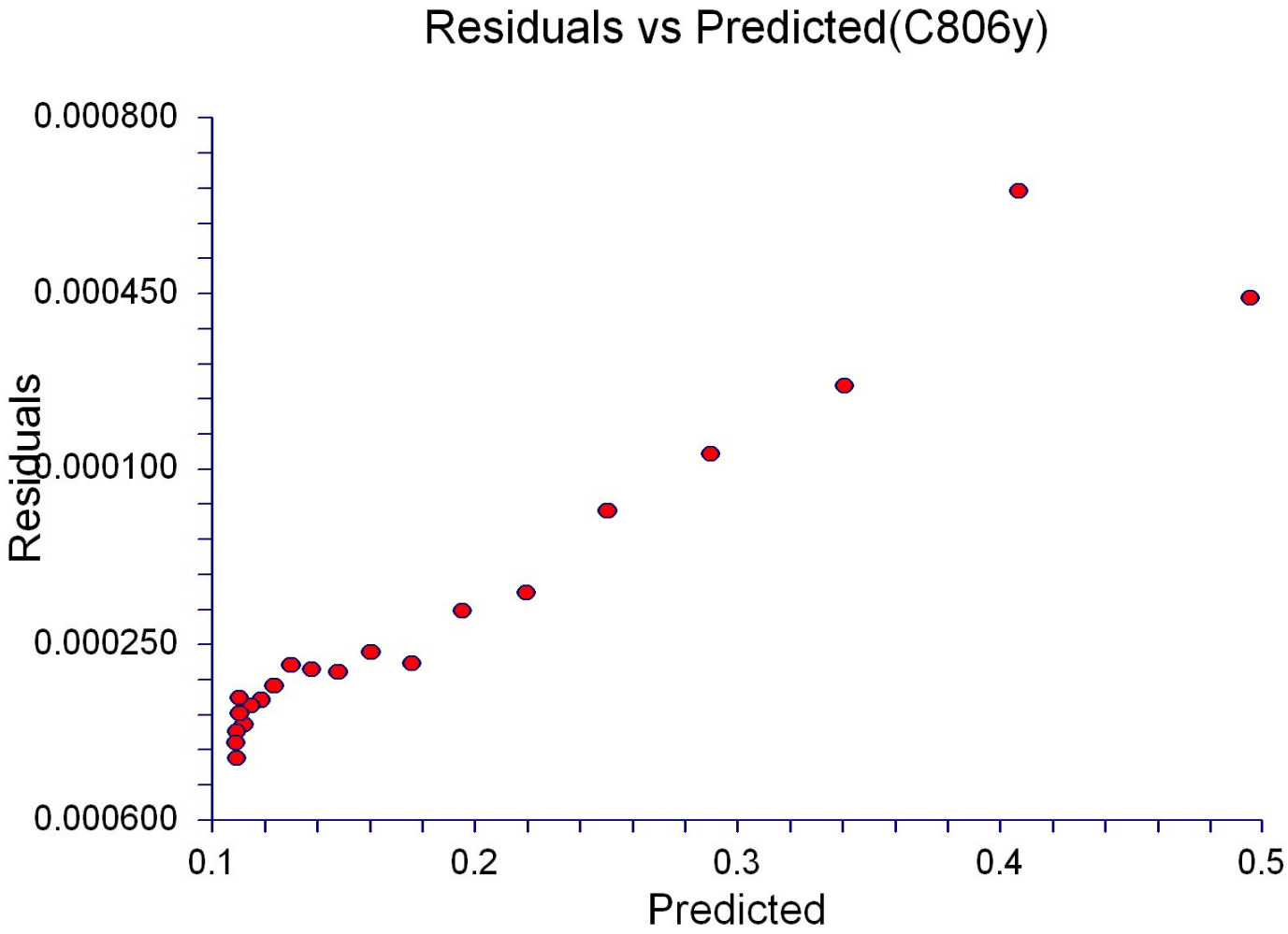






Residuals vs C806x


Residuals vs Row Number
0.000800
0.000450
0.000100
0.000250
0.000600
Residuals
0.0
6.3
12.5
18.8
25.0
Row Number


Residuals vs Predicted(C806y)
0.000800
0.000450
0.000100
0.000250
0.000600
Residuals
0.1
0.2
0.3
0.4
0.5
Predicted

Úloha C8.07 *Parametry teplotní závislosti rozpustnosti sádrovce*

RUN | NEW | OPEN | SAVE | MAP | NAV | PASS | DATA | OUT | UOFF FILTER | PLAY | DESC STATS | 2 S T-TEST | MULT REG | FREQ TABL

Storage | Template

Probability Plot | Resid vs Row Plot | Resid vs Yhat Plot | Resid vs X Plot

Model | Parameters - Cont | Options | Reports

Dependent Variable

Y: Dependent Variable:

C807y

Options

Alpha Level:

0.05

exp(b1-(b2/C807x)-(b3*(ln(C807x))))

exp(b1-(b2/C807x)-(b3*(ln(C807x))))

Model Parameters

Parameter:	Min Start Max:	Parameter:	Min Start Max:
b1	0 125 200		-1E9 1 1E9
b2	0 6160 1e4		-1E9 1 1E9
b3	0 20 100		-1E9 1 1E9

Minimization Phase Section

Itn No.	Error Sum Lambda	Lambda	B1	B2	B3
0	1.627637E-06	0.0002	125	6160	20
1	1.551545E-06	0.00004	125.0032	6160	19.98802
2	1.135892E-06	0.000008	125.0183	6160	19.93042
3	2.481098E-08	0.0000016	125.066	6160	19.74857
4	2.76321E-10	3.2E-07	125.0617	6160	19.76508
5	1.10464E-11	6.4E-08	125.0623	6160	19.76316
6	3.235244E-12	1.28E-08	125.0628	6160	19.76366
7	2.142115E-12	2.56E-08	125.0631	6160	19.76361
8	2.139792E-12	5.12E-08	125.0633	6160	19.76364
9	2.123734E-12	1.024E-07	125.0634	6160	19.76365
10	2.119898E-12	2.048E-07	125.0634	6160	19.76365
11	2.118171E-12	4.096E-07	125.0634	6160	19.76365
12	2.116075E-12	8.192E-08	125.0635	6160	19.76368
13	2.108074E-12	1.6384E-07	125.0636	6160	19.76368
14	2.105991E-12	3.2768E-07	125.0636	6160	19.76368
15	2.105056E-12	6.5536E-08	125.0637	6160	19.76371
16	2.093592E-12	1.31072E-07	125.0637	6160	19.76371
17	2.090882E-12	2.62144E-07	125.0638	6160	19.76372
18	2.089617E-12	5.24288E-07	125.0638	6160	19.76372
19	2.087078E-12	1.048576E-07	125.0639	6160	19.76374
20	2.081748E-12	2.097152E-07	125.0639	6160	19.76374
21	2.080208E-12	4.194304E-07	125.0639	6160	19.76374
22	2.078058E-12	8.388608E-08	125.064	6160	19.76376
23	2.070507E-12	1.677722E-07	125.064	6160	19.76377
24	2.068517E-12	3.355443E-07	125.0641	6160	19.76377
25	2.06743E-12	6.710886E-08	125.0642	6160	19.7638
26	2.056607E-12	1.342177E-07	125.0642	6160	19.7638
27	2.054021E-12	2.684355E-07	125.0643	6160	19.7638
28	2.052813E-12	5.368709E-07	125.0643	6160	19.7638
29	2.050304E-12	1.073742E-07	125.0643	6160	19.76382
30	2.045257E-12	2.147484E-07	125.0644	6160	19.76382
31	2.043785E-12	4.294967E-07	125.0644	6160	19.76382
32	2.041607E-12	8.589934E-08	125.0645	6160	19.76385
33	2.034467E-12	1.717987E-07	125.0645	6160	19.76385
34	2.032566E-12	3.435974E-07	125.0645	6160	19.76385
35	2.031345E-12	6.871948E-08	125.0646	6160	19.76388
36	2.02112E-12	1.37439E-07	125.0647	6160	19.76388
37	2.018652E-12	2.748779E-07	125.0647	6160	19.76388
38	2.017498E-12	5.497558E-07	125.0647	6160	19.76389
39	2.015019E-12	1.099512E-07	125.0648	6160	19.7639
40	2.010239E-12	2.199023E-07	125.0648	6160	19.7639
41	2.008831E-12	4.398046E-07	125.0649	6160	19.7639
42	2.006633E-12	8.796093E-08	125.0649	6160	19.76393
43	1.999877E-12	1.759219E-07	125.065	6160	19.76393
44	1.99806E-12	3.518437E-07	125.065	6160	19.76393
45	1.996721E-12	7.036874E-08	125.0651	6160	19.76396
46	1.987057E-12	1.407375E-07	125.0652	6160	19.76396
47	1.984699E-12	2.81475E-07	125.0652	6160	19.76396
48	1.983586E-12	5.629499E-07	125.0652	6160	19.76396

692	6.240668E-13	4.109481E-07	125.0887	6160	19.76802
693	6.233963E-13	8.218962E-08	125.0887	6160	19.76804
694	6.210851E-13	1.643792E-07	125.0887	6160	19.76804
695	6.20473E-13	3.287585E-07	125.0887	6160	19.76804
696	6.201918E-13	6.57517E-08	125.0888	6160	19.76805
697	6.168367E-13	1.315034E-07	125.0888	6160	19.76806
698	6.160426E-13	2.630068E-07	125.0888	6160	19.76806
699	6.157016E-13	5.260136E-07	125.0889	6160	19.76806
700	6.15016E-13	1.052027E-07	125.0889	6160	19.76807
701	6.133686E-13	2.104054E-07	125.0889	6160	19.76807
702	6.1298E-13	4.208109E-07	125.0889	6160	19.76807
703	6.124591E-13	8.416217E-08	125.089	6160	19.76808
704	6.100807E-13	1.683243E-07	125.089	6160	19.76808
705	6.09506E-13	3.366487E-07	125.089	6160	19.76809
706	6.091789E-13	6.732974E-08	125.0891	6160	19.7681
707	6.060119E-13	1.346595E-07	125.0891	6160	19.7681
708	6.052542E-13	2.693189E-07	125.0891	6160	19.7681
709	6.049289E-13	5.386379E-07	125.0891	6160	19.7681
710	6.04247E-13	1.077276E-07	125.0891	6160	19.76811
711	6.026422E-13	2.154552E-07	125.0892	6160	19.76811
712	6.022866E-13	4.309103E-07	125.0892	6160	19.76812
713	6.016088E-13	8.618207E-08	125.0892	6160	19.76813
714	5.995394E-13	1.723641E-07	125.0892	6160	19.76813
715	5.990455E-13	3.447283E-07	125.0893	6160	19.76813
716	5.988648E-13	6.894565E-08	125.0893	6160	19.76814
717	5.954702E-13	1.378913E-07	125.0893	6160	19.76814
718	5.949756E-13	2.757826E-07	125.0894	6160	19.76815

Minimization Phase Section

Itn No.	**Error Sum Lambda**	**Lambda**	**B1**	**B2**	**B3**

Convergence criterion met.

Model Estimation Section

Parameter Name	**Parameter Estimate**	**Asymptotic Standard Error**	**Lower 95% C.L.**	**Upper 95% C.L.**
B1	125.0894	0.1341389	124.8185	125.3603
B2	6160	7.102729	6145.656	6174.344
B3	19.76815	3.066943E-02	19.70621	19.83009
Model	C807 y = EXP(B1-(B2/C807X)-(B3*(LNE(C807X))))			
R-Squared	0.999979			
Iterations	718			

Estimated Model

EXP((125.0894)-((6160)/(C807X))-((19.76815)*(LN((C807X)))))

Analysis of Variance Table

Source	**DF**	**Sum of Squares**	**Mean Square**
Mean	1	2.78736E-06	2.78736E-06
Model	3	2.816111E-06	9.387037E-07
Model (Adjusted)	2	2.875111E-08	1.437556E-08
Error	41	5.950999E-13	1.451463E-14
Total (Adjusted)	43	2.875171E-08	
Total	44	2.816112E-06	

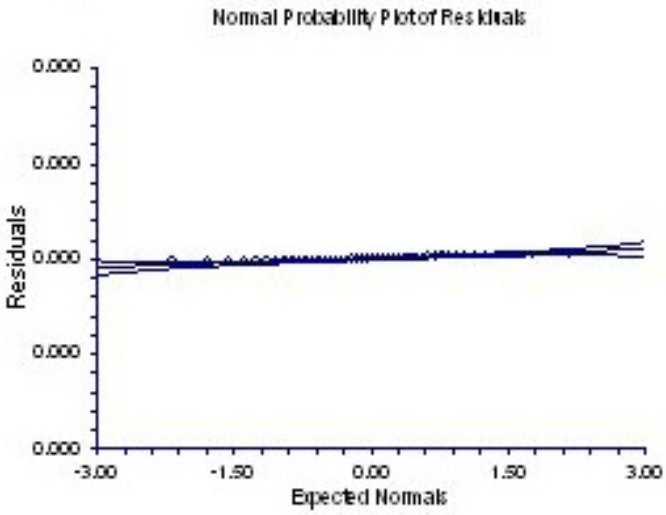
Asymptotic Correlation Matrix of Parameters

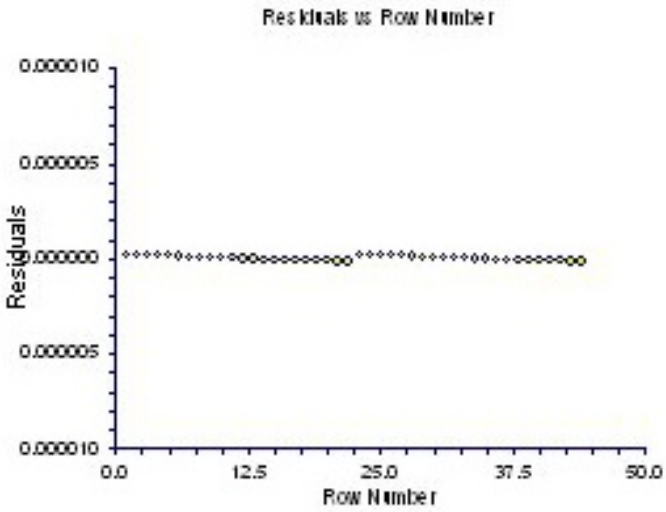
	B1	**B2**	**B3**
B1	1.000000	0.999443	0.999988
B2	0.999443	1.000000	0.999269
B3	0.999988	0.999269	1.000000

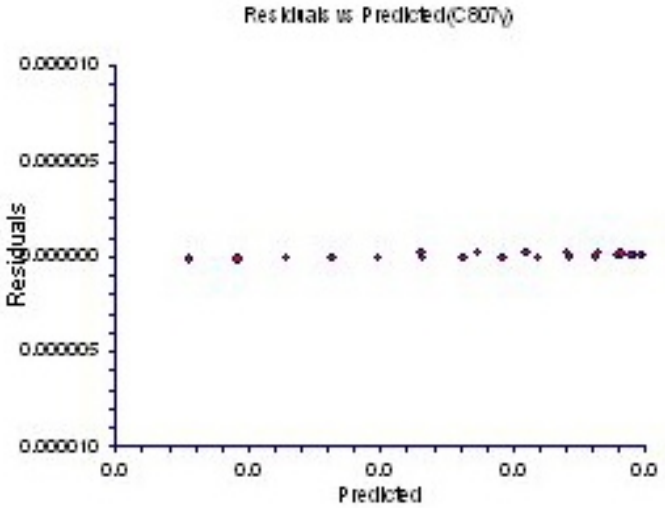
Predicted Values and Residuals Section

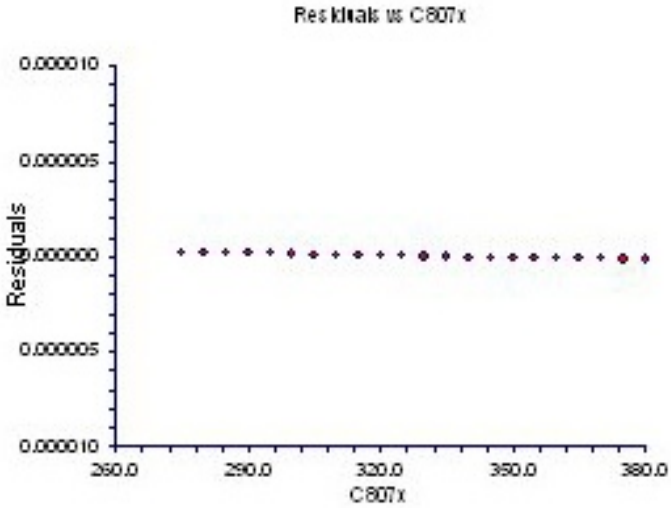
Row No.	Actual C807y	Predicted C807y	Lower 95.0% C.L.	Upper 95.0% C.L.	Residual
1	2.38049E-04	2.378665E-04	2.376135E-04	2.381195E-04	1.883989E-07
2	2.4869E-04	2.485185E-04	2.482663E-04	2.487706E-04	1.777824E-07
3	2.57806E-04	2.57648E-04	2.573967E-04	2.578992E-04	1.645812E-07
4	2.65332E-04	2.651902E-04	2.649399E-04	2.654405E-04	1.485864E-07
5	2.7124E-04	2.711157E-04	2.708663E-04	2.71365E-04	1.313891E-07
6	2.75532E-04	2.75427E-04	2.751785E-04	2.756755E-04	1.122669E-07
7	2.7824E-04	2.781557E-04	2.779079E-04	2.784034E-04	9.173567E-08
8	2.79421E-04	2.79358E-04	2.791108E-04	2.796052E-04	7.051479E-08
9	2.79152E-04	2.791109E-04	2.788641E-04	2.793577E-04	4.868506E-08
10	2.77526E-04	2.775078E-04	2.772611E-04	2.777544E-04	2.585368E-08
11	2.74651E-04	2.746544E-04	2.744079E-04	2.74901E-04	4.176225E-09
12	2.70641E-04	2.706654E-04	2.704188E-04	2.709121E-04	-1.687788E-08
13	2.65616E-04	2.656606E-04	2.654137E-04	2.659075E-04	-3.709678E-08
14	2.59698E-04	2.597619E-04	2.595147E-04	2.600091E-04	-5.648552E-08
15	2.53009E-04	2.530909E-04	2.528433E-04	2.533385E-04	-7.463911E-08
16	2.45667E-04	2.457666E-04	2.455186E-04	2.460147E-04	-9.253475E-08
17	2.37789E-04	2.379037E-04	2.376552E-04	2.381521E-04	-1.077322E-07
18	2.29482E-04	2.296107E-04	2.293618E-04	2.298596E-04	-1.219602E-07
19	2.20849E-04	2.209896E-04	2.207403E-04	2.212389E-04	-1.340568E-07
20	2.11983E-04	2.121346E-04	2.118849E-04	2.123842E-04	-1.452285E-07
21	2.02971E-04	2.031317E-04	2.028818E-04	2.033816E-04	-1.545884E-07
22	1.9389E-04	1.940588E-04	1.938086E-04	1.94309E-04	-1.629341E-07
23	2.38049E-04	2.378665E-04	2.376135E-04	2.381195E-04	1.883989E-07
24	2.4869E-04	2.485185E-04	2.482663E-04	2.487706E-04	1.777824E-07
25	2.57806E-04	2.57648E-04	2.573967E-04	2.578992E-04	1.645812E-07
26	2.65332E-04	2.651902E-04	2.649399E-04	2.654405E-04	1.485864E-07
27	2.7124E-04	2.711157E-04	2.708663E-04	2.71365E-04	1.313891E-07
28	2.75532E-04	2.75427E-04	2.751785E-04	2.756755E-04	1.122669E-07
29	2.7824E-04	2.781557E-04	2.779079E-04	2.784034E-04	9.173567E-08
30	2.79421E-04	2.79358E-04	2.791108E-04	2.796052E-04	7.051479E-08
31	2.79152E-04	2.791109E-04	2.788641E-04	2.793577E-04	4.868506E-08
32	2.77526E-04	2.775078E-04	2.772611E-04	2.777544E-04	2.585368E-08
33	2.74651E-04	2.746544E-04	2.744079E-04	2.74901E-04	4.176225E-09
34	2.70641E-04	2.706654E-04	2.704188E-04	2.709121E-04	-1.687788E-08
35	2.65616E-04	2.656606E-04	2.654137E-04	2.659075E-04	-3.709678E-08
36	2.59698E-04	2.597619E-04	2.595147E-04	2.600091E-04	-5.648552E-08
37	2.53009E-04	2.530909E-04	2.528433E-04	2.533385E-04	-7.463911E-08
38	2.45667E-04	2.457666E-04	2.455186E-04	2.460147E-04	-9.253475E-08
39	2.37789E-04	2.379037E-04	2.376552E-04	2.381521E-04	-1.077322E-07
40	2.29482E-04	2.296107E-04	2.293618E-04	2.298596E-04	-1.219602E-07
41	2.20849E-04	2.209896E-04	2.207403E-04	2.212389E-04	-1.340568E-07
42	2.11983E-04	2.121346E-04	2.118849E-04	2.123842E-04	-1.452285E-07
43	2.02971E-04	2.031317E-04	2.028818E-04	2.033816E-04	-1.545884E-07
44	1.9389E-04	1.940588E-04	1.938086E-04	1.94309E-04	-1.629341E-07

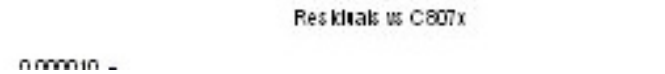
Plot Section











Úloha C8.08 ***Odhad tří parametrů rozšířeného Debyeova-Hückelova vztahu***

C808a: Bromkrezolová zeleň

RUN | NEW | OPEN | SAVE | MAP | NAV | PASS | DATA | OUT | OFF FILTER | PLAY | DESC STATS | 2 S T-TEST | MULT REG | FREQ TABLE

Storage | Template

Probability Plot | Resid vs Row Plot | Resid vs Yhat Plot | Resid vs X Plot

Model | Parameters - Cont | Options | Reports

Dependent Variable

Y: Dependent Variable:

C808ay

Options

Alpha Level:

0.05

b1-((3*0.5115*sqrt(C808ax))/(1+(0.3291*b2*sqrt(C808ax))))+(b3*C808ax)

Model:

b1-((3*0.5115*sqrt(C808ax))/(1+(0.3291*b2*sqrt(C808ax))))+(b3*C808ax)

Model Parameters

Parameter:	Min Start Max:	Parameter:	Min Start Max:
b1	0 5 6		-1E9 1 1E9
b2	5 7 9		-1E9 1 1E9
b3	0 0.1 1		-1E9 1 1E9

Minimization Phase Section

Itn No.	Error Sum Lambda	Lambda	B1	B2	B3
0	1.591419E-02	0.0002	5	7	0.1
1	4.247437E-04	0.00004	5.03526	7.482248	6.957136E-02
2	4.041537E-04	0.000008	5.033684	7.594342	6.841195E-02
3	4.040996E-04	0.0000016	5.033585	7.601102	6.833623E-02
4	4.040996E-04	0.0032	5.033585	7.601109	6.833593E-02
5	4.040996E-04	0.064	5.033585	7.601109	6.833589E-02
6	4.040996E-04	0.128	5.033585	7.601109	6.833587E-02
7	4.040996E-04	0.256	5.033585	7.601109	6.833586E-02
8	4.040996E-04	0.512	5.033585	7.601109	6.833585E-02

Convergence criterion met.

Model Estimation Section

Parameter Name	Parameter Estimate	Asymptotic Standard Error	Lower 95% C.L.	Upper 95% C.L.
B1	5.033585	4.248793E-03	5.023973	5.043196
B2	7.601109	0.2148481	7.115089	8.087129
B3	6.833585E-02	3.436141E-03	6.056276E-02	7.610894E-02

Model C808ay = B1-((3*0.5115*SQR(C808AX))/(1+(0.3291*B2*SQR(C808AX))))+(B3*C808AX)
R-Squared 0.994872
Iterations 8
Estimated Model
(5.033585)-((3*0.5115*SQRT((C808AX)))/(1+(0.3291*(7.601109)*SQRT((C808AX)))))+((6.833585E-02)*(C808AX))

Analysis of Variance Table

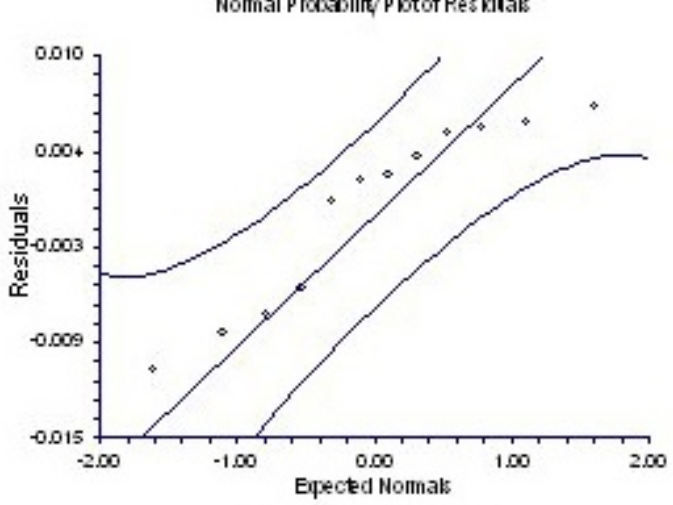
Source	DF	Sum of Squares	Mean Square
Mean	1	271.2537	271.2537
Model	3	271.3321	90.44405
Model (Adjusted)	2	7.840082E-02	3.920041E-02
Error	9	4.040996E-04	4.489996E-05
Total (Adjusted)	11	7.880492E-02	
Total	12	271.3326	

Asymptotic Correlation Matrix of Parameters

	B1	B2	B3
B1	1.000000	-0.824333	0.523994
B2	-0.824333	1.000000	-0.850405
B3	0.523994	-0.850405	1.000000

Predicted Values and Residuals Section

Row No.	Actual C808ay	Predicted C808ay	Lower 95.0% C.L.	Upper 95.0% C.L.	Residual
1	4.901	4.911523	4.894193	4.928853	-1.052309E-02
2	4.871	4.86908	4.852174	4.885986	1.919978E-03
3	4.834	4.83176	4.815237	4.848283	2.240217E-03
4	4.808	4.80462	4.788343	4.820898	3.379821E-03
5	4.765	4.759311	4.74329	4.775333	5.68864E-03
6	4.709	4.714224	4.698126	4.730321	-5.223881E-03
7	4.691	4.685987	4.669613	4.702361	5.013096E-03
8	4.677	4.670257	4.653651	4.686862	6.743367E-03
9	4.664	4.663478	4.646765	4.680191	5.219842E-04
10	4.662	4.668946	4.65229	4.685601	-6.945676E-03
11	4.686	4.694135	4.677362	4.710909	-8.135301E-03
12	4.785	4.779682	4.759074	4.800289	5.318312E-03


Normal Probability Plot of Residuals
Residuals
Expected Normals
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-0.015
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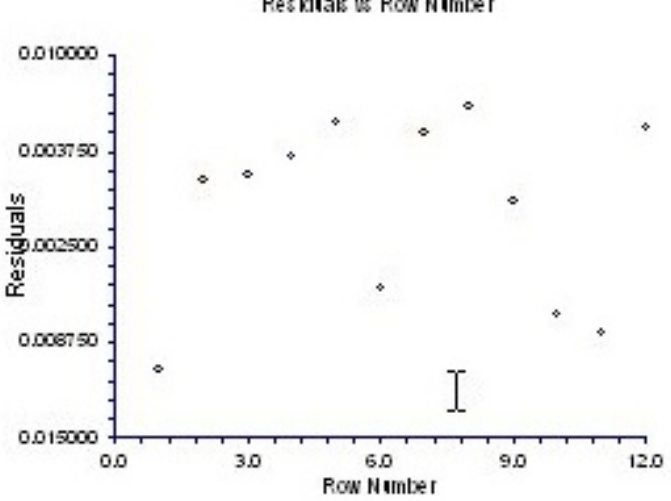
-1.00
0.00
1.00
2.00


Residuals vs Row Number
Residuals
Row Number
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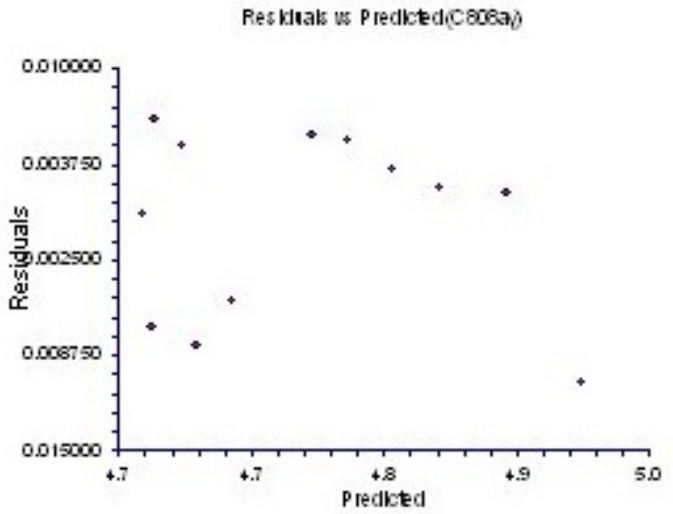
0.002500
0.008750
0.015000
0.0
3.0
6.0
9.0
12.0


Residuals vs Predicted(C808a)
Residuals
Predicted
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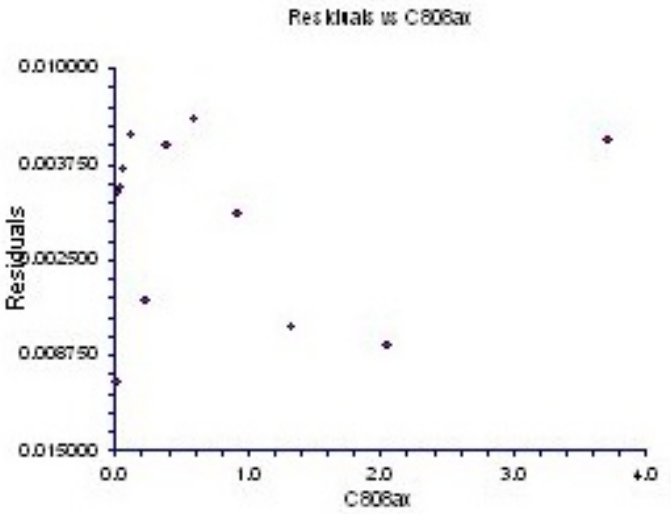
0.003750
0.002500
0.008750
0.015000
4.7
4.7
4.8
4.9
5.0


Residuals vs C808ax
Residuals
C808ax
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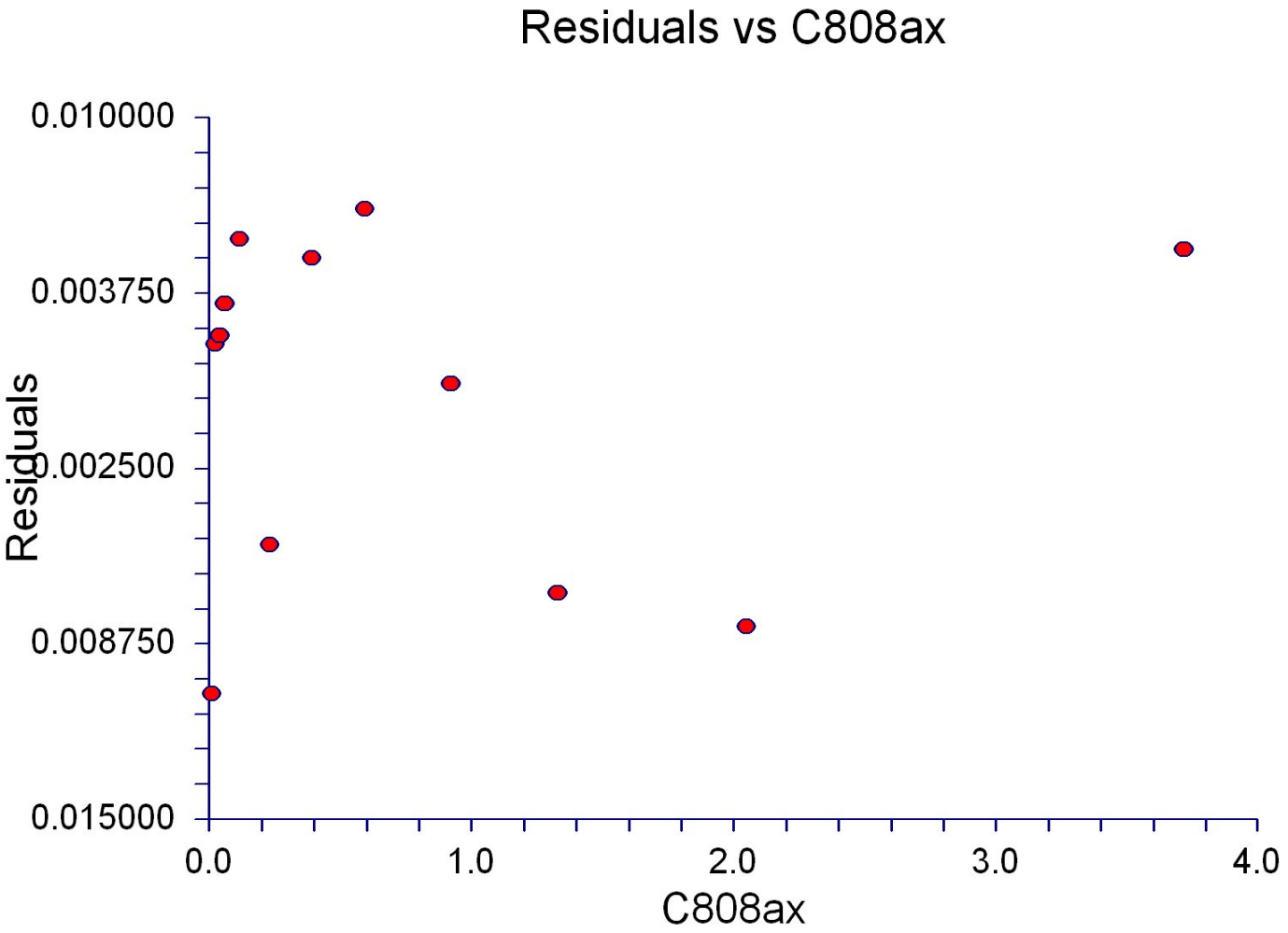
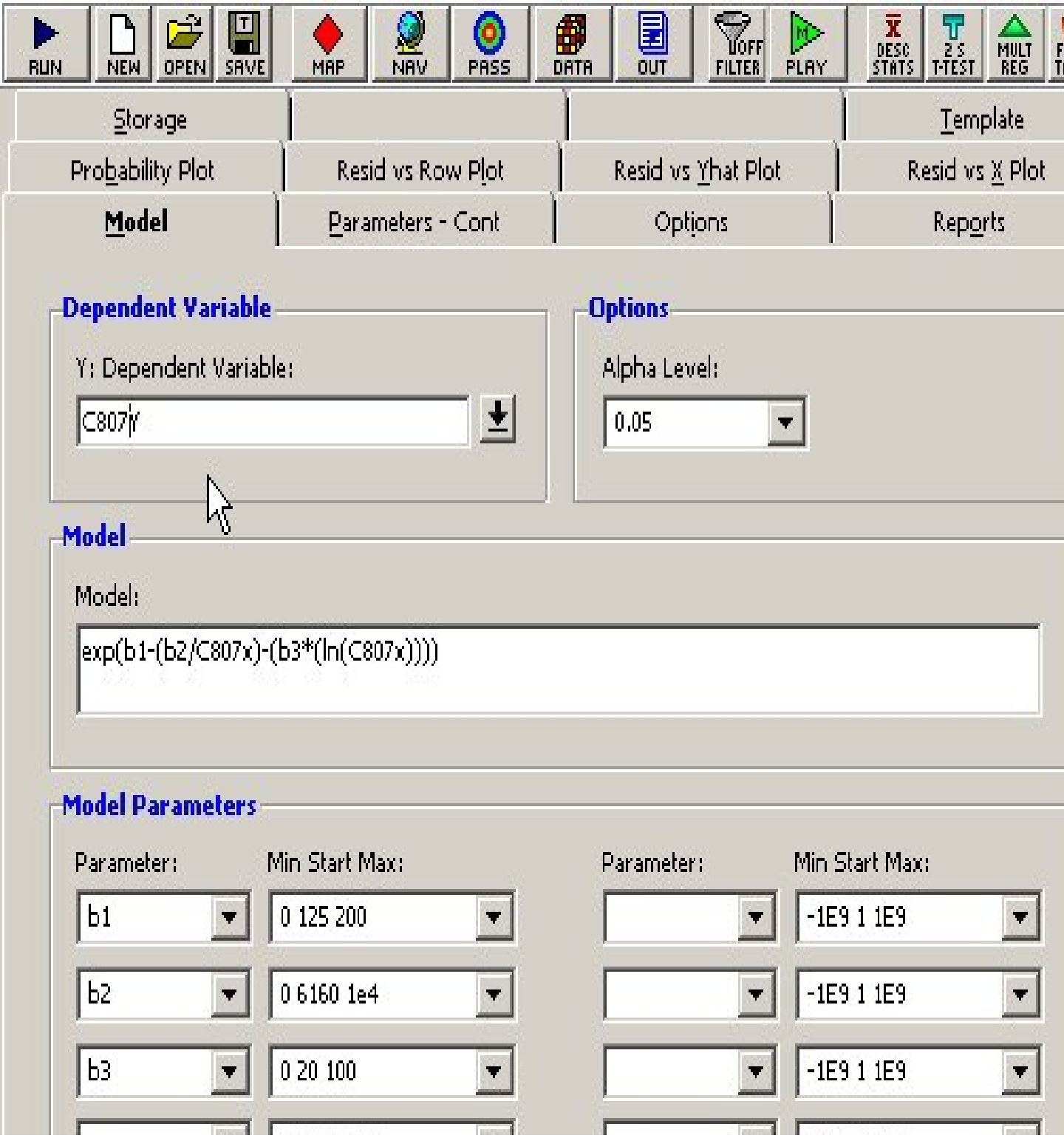
0.003750
0.002500
0.008750
0.015000
0.0
1.0
2.0
3.0
4.0


Residuals vs C808ax
Residuals
C808ax
0.010000
0.003750
0.002500
0.008750
0.015000
0.0
1.0
2.0
3.0
4.0

C808b: Bromfenolová červeň



Minimization Phase Section

Itn No.	Error Sum Lambda	Lambda	B1	B2	B3
0	0.2044608	0.0002	6	7	0.1
1	3.106597E-04	0.00004	6.140421	7.673066	5.673479E-02
2	2.547136E-04	0.000008	6.138299	7.839285	5.538787E-02
3	2.545492E-04	0.0000016	6.13815	7.850195	0.0552905
4	2.545492E-04	0.00032	6.138149	7.850263	5.528942E-02

Convergence criterion met.

Model Estimation Section

Parameter Name	Parameter Estimate	Asymptotic Standard Error	Lower 95% C.L.	Upper 95% C.L.
B1	6.138149	3.371829E-03	6.130521	6.145776
B2	7.850263	0.1758306	7.452506	8.248019
B3	5.528942E-02	2.502587E-03	4.962818E-02	6.095067E-02
Model	C808by = B1-((3*0.5115*SQR(C808BX))/(1+(0.3291*B2*SQR(C808BX))))+(B3*C808BX)			
R-Squared	0.996840			
Iterations	4			

Estimated Model

(6.138149)-((3*0.5115*SQRT((C808BX)))/(1+(0.3291*(7.850263)*SQRT((C808BX)))))+((5.528942E-02)*(C808BX))

Analysis of Variance Table

Source	DF	Sum of Squares	Mean Square
Mean	1	411.7588	411.7588
Model	3	411.8391	137.2797
Model (Adjusted)	2	0.0802957	4.014785E-02
Error	9	2.545492E-04	2.828324E-05
Total (Adjusted)	11	8.055025E-02	
Total	12	411.8394	

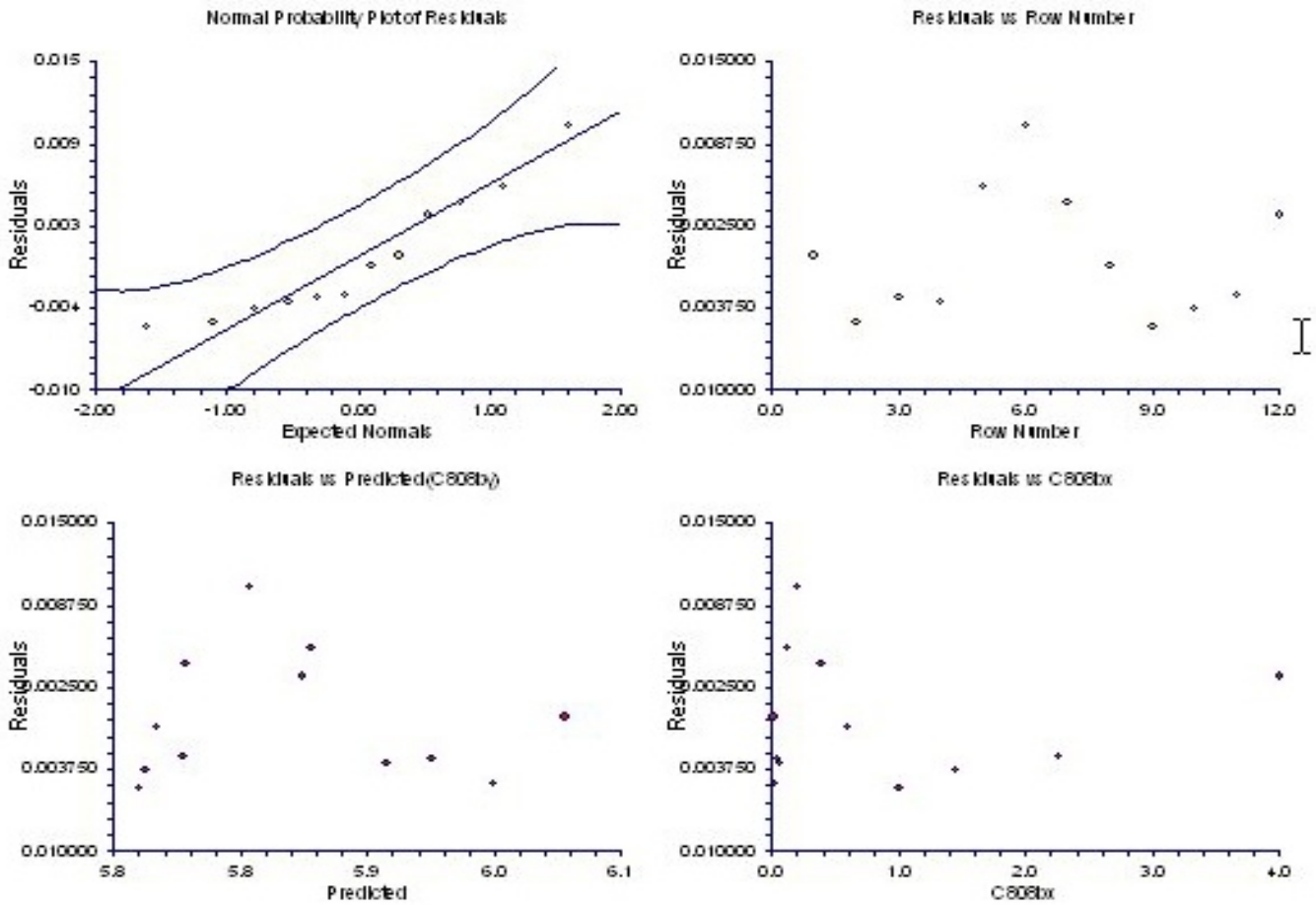
Asymptotic Correlation Matrix of Parameters

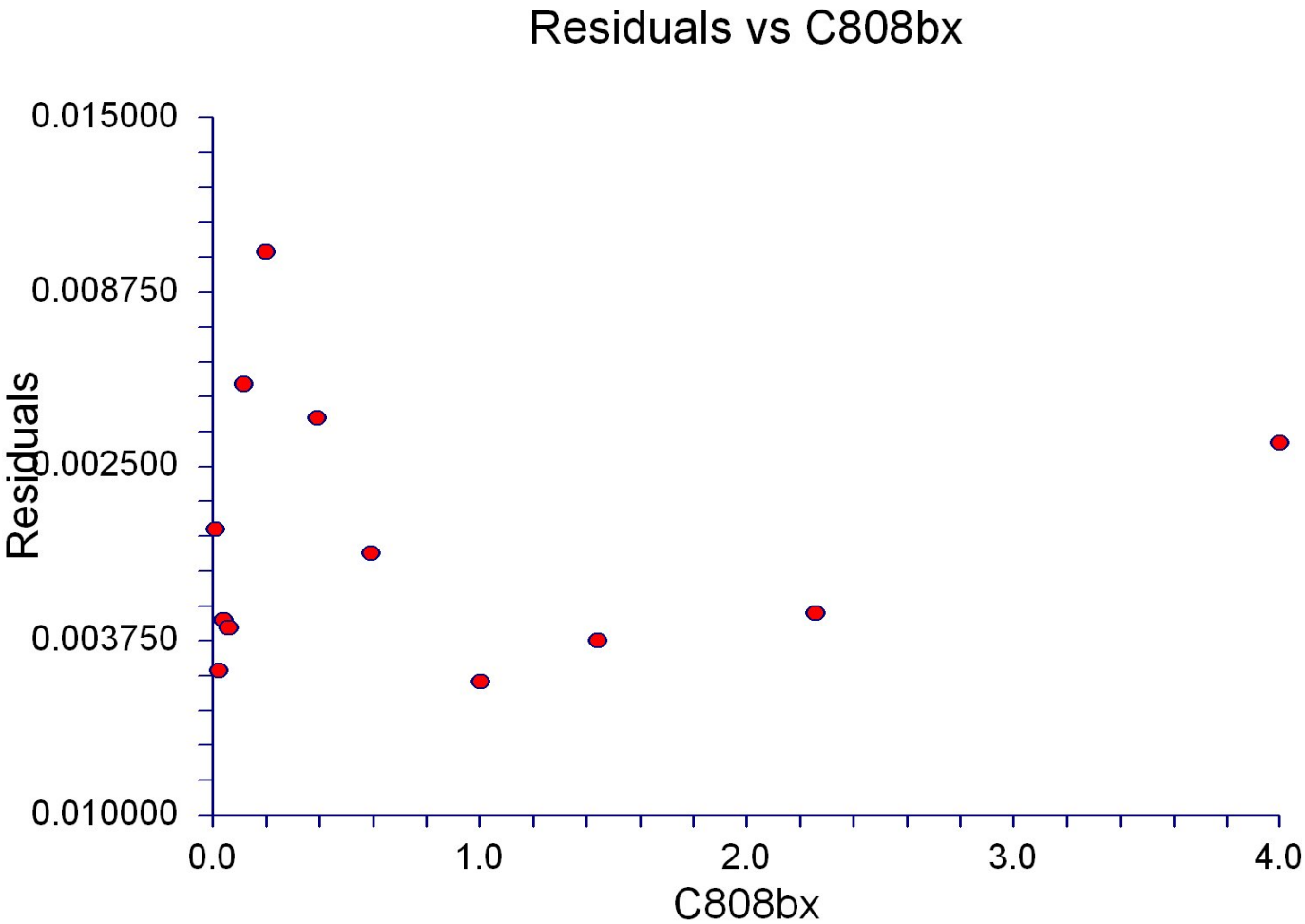
	B1	B2	B3
B1	1.000000	-0.826410	0.526875
B2	-0.826410	1.000000	-0.849216
B3	0.526875	-0.849216	1.000000

Predicted Values and Residuals Section

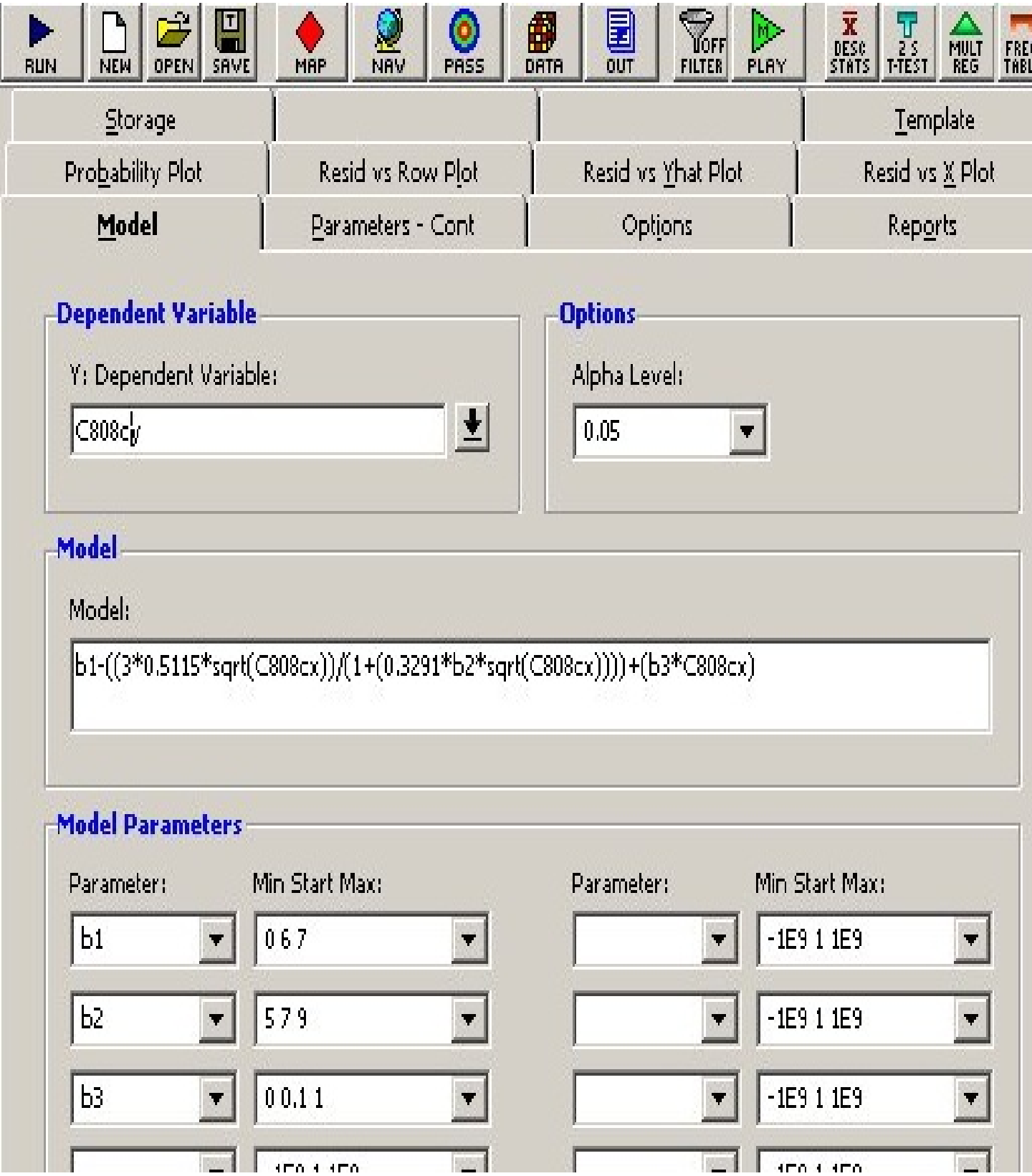
Row No.	Actual C808by	Predicted C808by	Lower 95.0% C.L.	Upper 95.0% C.L.	Residual
1	6.017	6.016757	6.003013	6.030499	2.436239E-04
2	5.97	5.974817	5.961412	5.988221	-4.816584E-03
3	5.935	5.938014	5.924913	5.951115	-3.013629E-03
4	5.908	5.911268	5.89836	5.924176	-3.268179E-03
5	5.872	5.866554	5.853841	5.879267	5.445883E-03
6	5.841	5.830819	5.818076	5.843562	1.018155E-02
7	5.797	5.792779	5.779765	5.805794	4.220524E-03
8	5.775	5.775605	5.762393	5.788816	-6.048275E-04
9	5.76	5.765211	5.7519	5.778522	-5.210788E-03
10	5.765	5.768755	5.755511	5.781999	-3.754941E-03
11	5.788	5.790761	5.777421	5.804102	-2.761682E-03
12	5.865	5.861661	5.845361	5.877962	3.338938E-03

Plot Section





C808c: Bromkrezolový purpur



Minimization Phase Section

Itn No.	Error Sum Lambda	Lambda	B1	B2	B3
0	0.5320563	0.0002	6	7	0.1
1	1.210727E-03	0.00004	6.202023	8.334111	5.710262E-02
2	6.989189E-04	0.000008	6.197599	8.769234	5.513407E-02
3	6.959872E-04	0.0000016	6.197228	8.807011	0.0549601
4	6.959871E-04	3.2E-07	6.197226	8.807238	5.495808E-02
5	6.959871E-04	0.00064	6.197226	8.807238	5.495808E-02

Convergence criterion met.

Model Estimation Section

Parameter Name	Parameter Estimate	Asymptotic Standard Error	Lower 95% C.L.	Upper 95% C.L.
B1	6.197226	5.809744E-03	6.184083	6.210368
B2	8.807238	0.3484831	8.018914	9.595561
B3	5.495808E-02	4.31681E-03	4.519277E-02	6.472338E-02
Model	C808cy = B1-((3*0.5115*SQR(C808CX))/(1+(0.3291*B2*SQR(C808CX))))+(B3*C808CX)			
R-Squared	0.989019			
Iterations	5			

Estimated Model

(6.197226)-((3*0.5115*SQRT((C808CX)))/(1+(0.3291*(8.807238)*SQRT((C808CX)))))+((5.495808E-02)*(C808CX))

Analysis of Variance Table

Source	DF	Sum of Squares	Mean Square
Mean	1	422.9637	422.9637
Model	3	423.0264	141.0088
Model (Adjusted)	2	6.268693E-02	3.134346E-02
Error	9	6.959871E-04	7.73319E-05
Total (Adjusted)	11	6.338292E-02	
Total	12	423.0271	

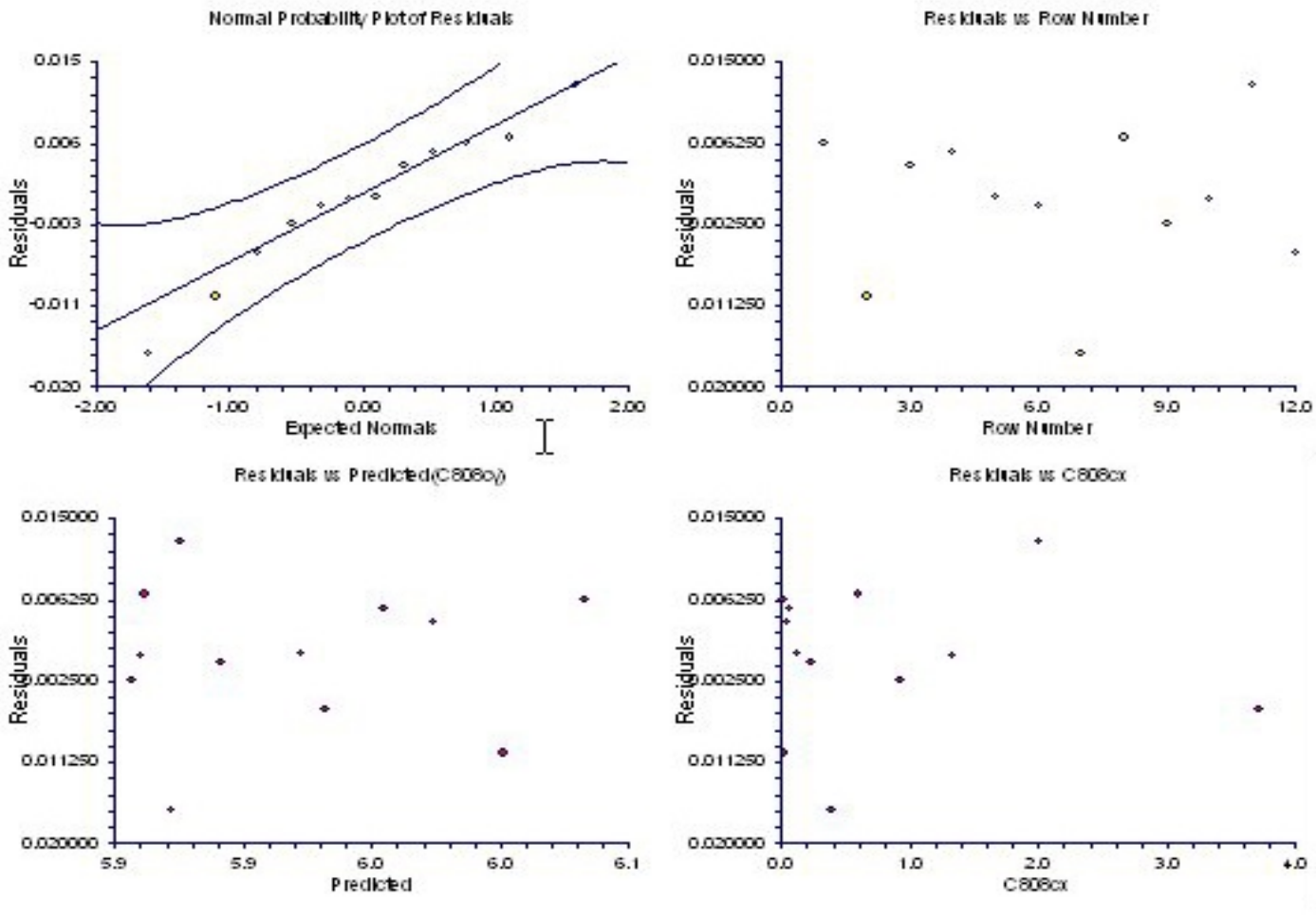
Asymptotic Correlation Matrix of Parameters

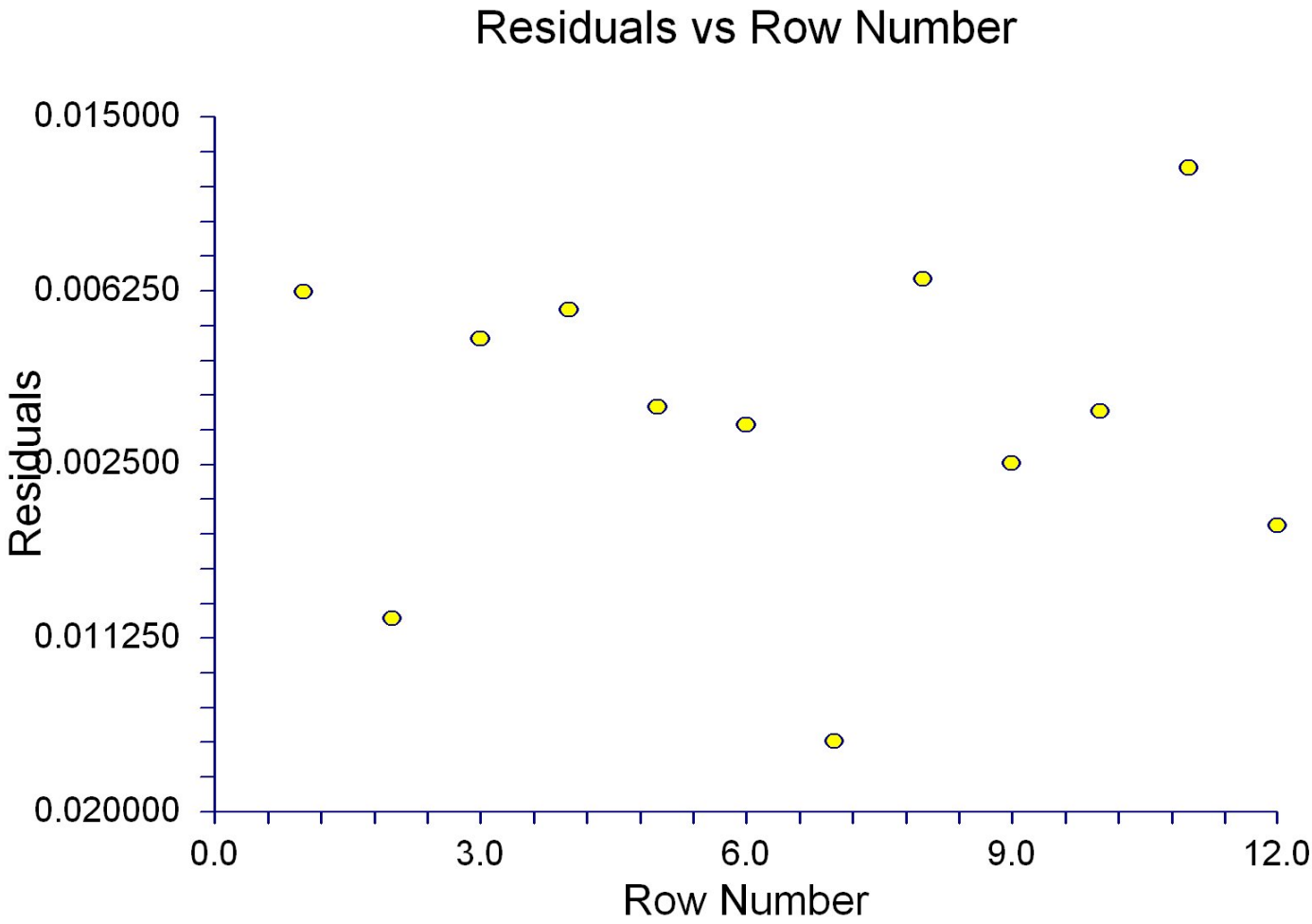
	B1	B2	B3
B1	1.000000	-0.839615	0.521899
B2	-0.839615	1.000000	-0.833776
B3	0.521899	-0.833776	1.000000

Predicted Values and Residuals Section

Row No.	Actual C808cy	Predicted C808cy	Lower 95.0% C.L.	Upper 95.0% C.L.	Residual
1	6.085	6.078807	6.055952	6.101663	6.192429E-03
2	6.029	6.039262	6.01704	6.061483	-1.026184E-02
3	6.009	6.005146	5.983471	6.02682	3.854349E-03
4	5.986	5.980711	5.959371	6.00205	5.289511E-03
5	5.941	5.940599	5.919578	5.96162	4.009106E-04
6	5.901	5.901509	5.880356	5.922662	-5.088439E-04
7	5.861	5.877439	5.855929	5.89895	-1.643951E-02
8	5.871	5.864162	5.842379	5.885945	6.838163E-03
9	5.856	5.858419	5.836538	5.880301	-2.419523E-03
10	5.863	5.862812	5.841018	5.884606	1.879369E-04
11	5.894	5.88155	5.859599	5.903502	1.244987E-02
12	5.947	5.952583	5.925519	5.979648	-5.583378E-03

Plot Section





C808d: Bromthymolová modř

RUN | NEW | OPEN | SAVE | MAP | NAV | PASS | DATA | OUT | OFF FILTER | PLAY | DESC STATS | 2 S T-TEST | MULT REG

Storage | Template

Probability Plot | Resid vs Row Plot | Resid vs Yhat Plot | Resid vs X Plot

Model | Parameters - Cont | Options | Reports

Dependent Variable

Y: Dependent Variable:

C808dy

Options

Alpha Level:

0.05

Model

Model:

b1-((3*0.5115*sqrt(C808dx))/(1+(0.3291*b2*sqrt(C808dx))))+(b3*C808dx)

Model Parameters

Parameter:	Min Start Max:	Parameter:	Min Start Max:
b1	0 8 9		-1E9 1 1E9
b2	5 7 9		-1E9 1 1E9
b3	0 0.1 1		-1E9 1 1E9

Minimization Phase Section

Itn No.	Error Sum Lambda	Lambda	B1	B2	B3
0	8.062638	0.0002	8	7	0.1
1	3.583794E-04	0.00004	7.198073	7.721412	5.457799E-02
2	2.776176E-04	0.000008	7.194845	7.936584	5.291662E-02
3	2.773023E-04	0.0000016	7.194679	7.949544	5.282425E-02
4	2.773023E-04	3.2E-07	7.194677	7.949626	5.282304E-02
5	2.773023E-04	0.0064	7.194677	7.949626	5.282303E-02

Convergence criterion met.

Model Estimation Section

Parameter Name	Parameter Estimate	Asymptotic Standard Error	Lower 95% C.L.	Upper 95% C.L.
B1	7.194677	3.631013E-03	7.186463	7.202891
B2	7.949626	0.1873514	7.525808	8.373445
B3	5.282303E-02	2.584566E-03	4.697634E-02	5.866973E-02
Model	C808dy = B1-((3*0.5115*SQR(C808DX))/(1+(0.3291*B2*SQR(C808DX))))+(B3*C808DX)			
R-Squared	0.996452			
Iterations	5			

Estimated Model

(7.194677)-((3*0.5115*SQRT((C808DX)))/(1+(0.3291*(7.949626)*SQRT((C808DX)))))+((5.282303E-02)*(C808DX))

Analysis of Variance Table

Source	DF	Sum of Squares	Mean Square
Mean	1	573.0739	573.0739
Model	3	573.1518	191.0506
Model (Adjusted)	2	7.787561E-02	3.893781E-02
Error	9	2.773023E-04	3.081137E-05
Total (Adjusted)	11	7.815292E-02	
Total	12	573.1521	

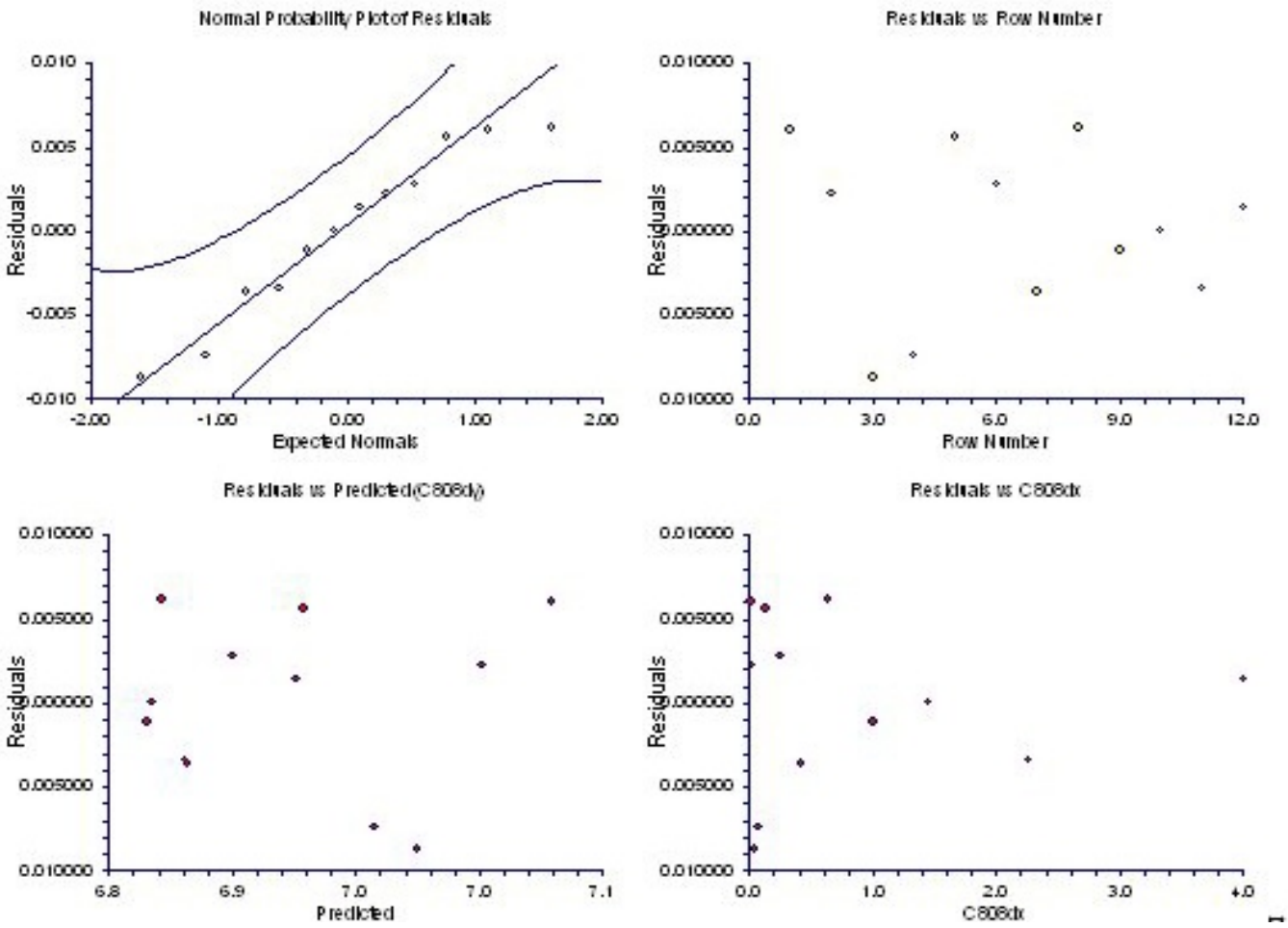
Asymptotic Correlation Matrix of Parameters

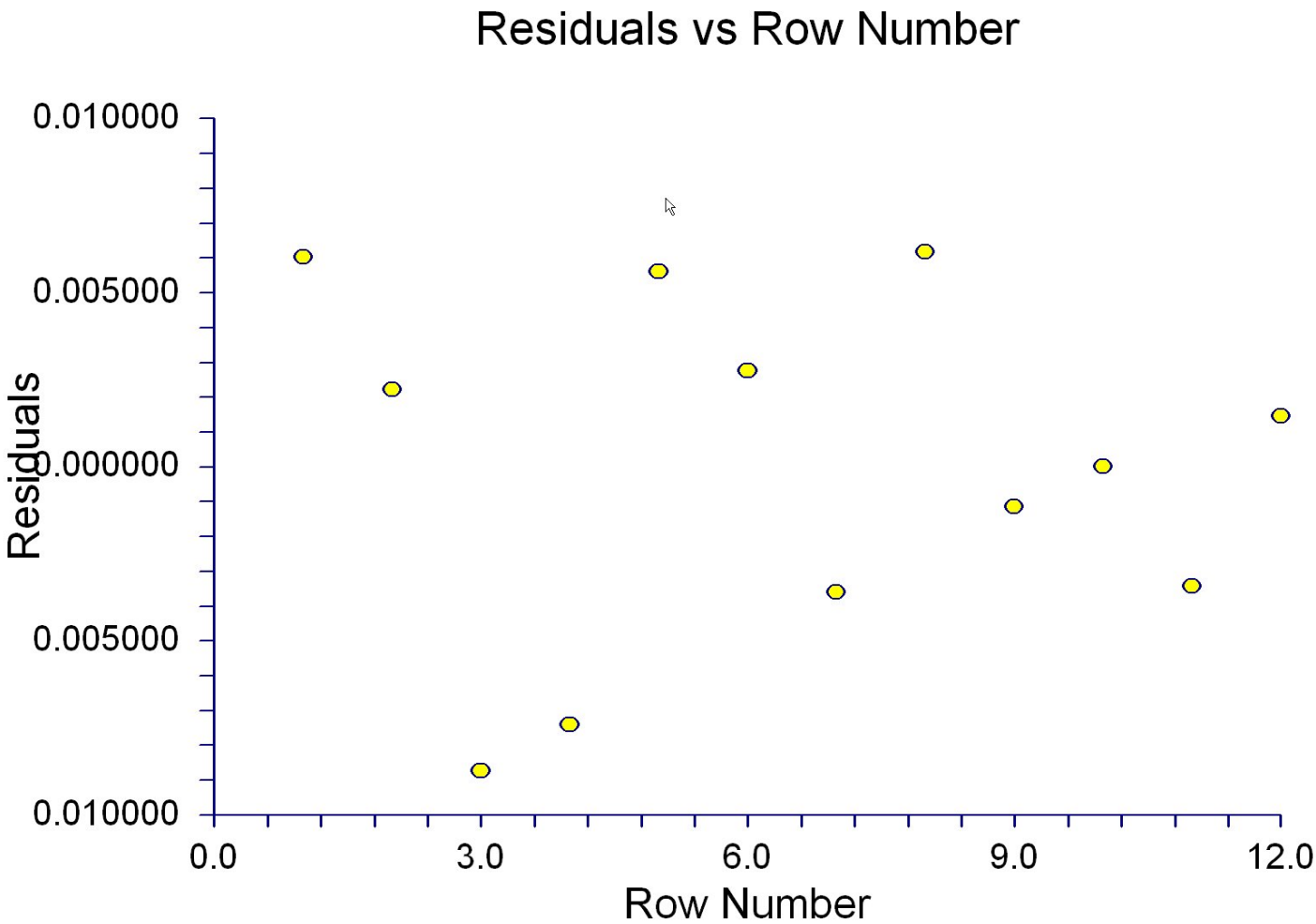
	B1	B2	B3
B1	1.000000	-0.835531	0.529784
B2	-0.835531	1.000000	-0.844114
B3	0.529784	-0.844114	1.000000

Predicted Values and Residuals Section

Row No.	Actual C808dy	Predicted C808dy	Lower 95.0% C.L.	Upper 95.0% C.L.	Residual
1	7.075	7.068971	7.054557	7.083385	6.029056E-03
2	7.029	7.026783	7.012753	7.040814	2.216724E-03
3	6.979	6.987717	6.974044	7.00139	-8.716884E-03
4	6.954	6.961395	6.947927	6.974863	-7.394846E-03
5	6.924	6.918387	6.905117	6.931658	5.612631E-03
6	6.878	6.875234	6.861885	6.888583	2.766162E-03
7	6.844	6.847599	6.834019	6.861178	-3.598433E-03
8	6.838	6.831824	6.818063	6.845586	6.175516E-03
9	6.822	6.82314	6.809301	6.836978	-1.139699E-03
10	6.826	6.825981	6.812201	6.83976	1.944902E-05
11	6.843	6.846424	6.832517	6.86033	-3.423388E-03
12	6.915	6.913546	6.896539	6.930554	1.45369E-03

Plot Section





C808e: Fenolová červeň

RUN | NEW | OPEN | SAVE | MAP | NAV | PASS | DATA | OUT | OFF FILTER | PLAY | DESC STATS | 2 S T-TEST | MULT REG

Storage | Template

Probability Plot | Resid vs Row Plot | Resid vs Yhat Plot | Resid vs X Plot

Model | Parameters - Cont | Options | Reports

Dependent Variable

Y: Dependent Variable:

C808ey

Options

Alpha Level:

0.05

Model

Model:

b1-((3*0.5115*sqrt(C808ex))/(1+(0.3291*b2*sqrt(C808ex))))+(b3*C808ex)

Model Parameters

Parameter:	Min Start Max:	Parameter:	Min Start Max:
b1	6 8 9		-1E9 1 1E9
b2	2 7 12		-1E9 1 1E9
b3	0 0.1 1		-1E9 1 1E9

Minimization Phase Section

Itn No.	Error Sum Lambda	Lambda	B1	B2	B3
0	0.2713287	0.0002	8	7	0.1
1	0.1331973	0.00004	8.03079	2.977237	7.770714E-02
2	1.364964E-03	0.000008	8.041178	3.56113	0.1044222
3	9.019409E-04	0.0000016	8.040617	3.606137	0.1064879
4	9.019349E-04	3.2E-07	8.04064	3.605648	0.1065231
5	9.019349E-04	6.4E-08	8.04064	3.605657	0.1065228
6	9.019349E-04	0.0128	8.04064	3.605656	0.1065228
7	9.019349E-04	0.0256	8.04064	3.605656	0.1065228
8	9.019349E-04	0.0512	8.04064	3.605656	0.1065227
9	9.019349E-04	0.1024	8.04064	3.605656	0.1065227
10	9.019349E-04	0.2048	8.04064	3.605656	0.1065227
11	9.019349E-04	0.4096	8.04064	3.605656	0.1065227
12	9.019349E-04	0.8192	8.04064	3.605656	0.1065227

Convergence criterion met.

Model Estimation Section

Parameter Name	Parameter Estimate	Asymptotic Standard Error	Lower 95% C.L.	Upper 95% C.L.
B1	8.04064	8.733842E-03	8.019988	8.061293
B2	3.605656	0.1934695	3.148174	4.063139
B3	0.1065227	9.036328E-03	8.515517E-02	0.1278902
Model	C808ey = B1-((3*0.5115*SQR(C808EX))/(1+(0.3291*B2*SQR(C808EX))))+(B3*C808EX)			
R-Squared	0.994119			
Iterations	12			

Estimated Model

(8.04064)-((3*0.5115*SQRT((C808EX)))/(1+(0.3291*(3.605656)*SQRT((C808EX)))))+((.1065227)*(C808EX))

Analysis of Variance Table

Source	DF	Sum of Squares	Mean Square
Mean	1	573.1096	573.1096
Model	3	573.262	191.0873
Model (Adjusted)	2	0.1524745	7.623723E-02
Error	7	9.019349E-04	1.288478E-04
Total (Adjusted)	9	0.1533764	
Total	10	573.2629	

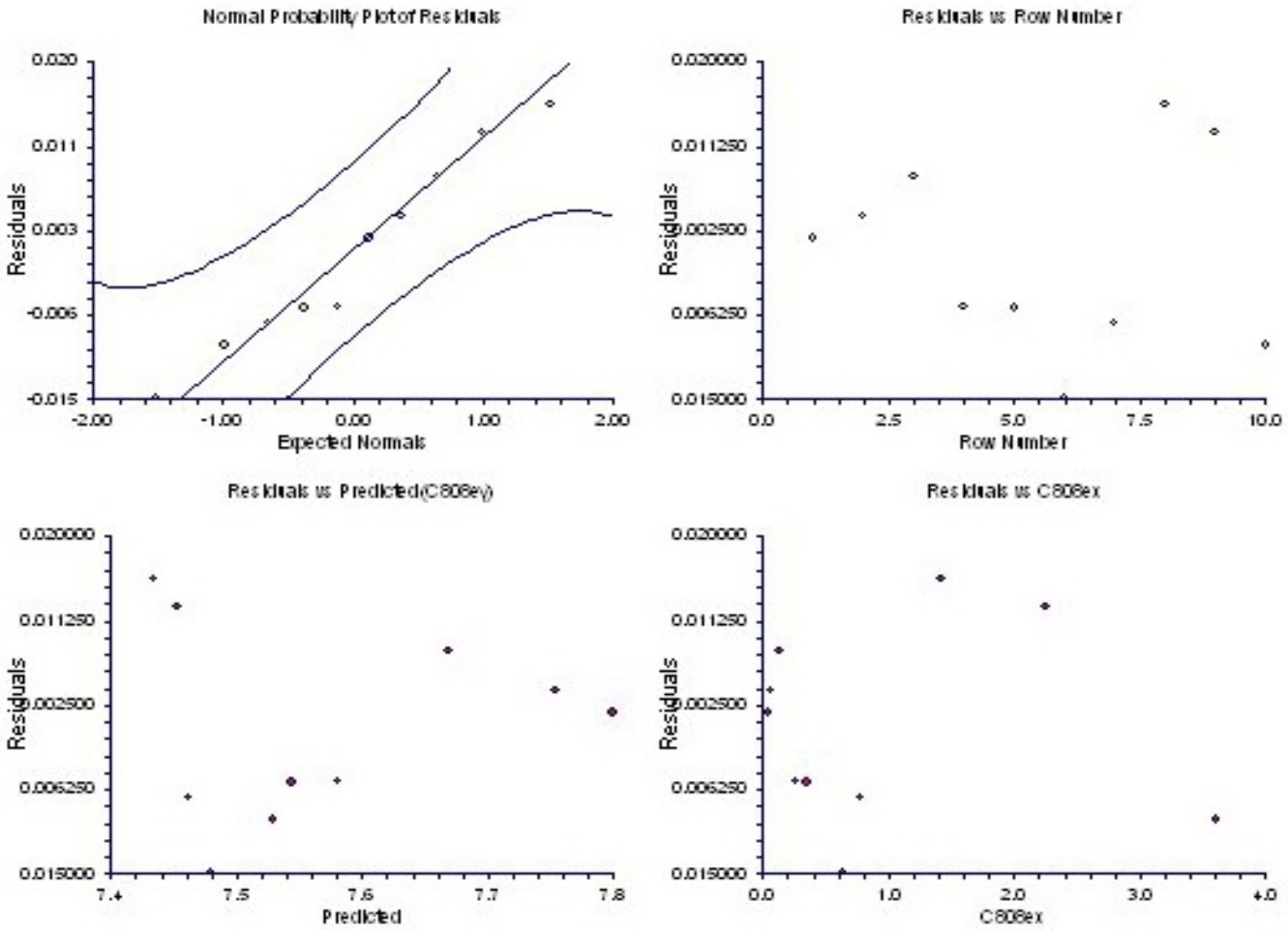
Asymptotic Correlation Matrix of Parameters

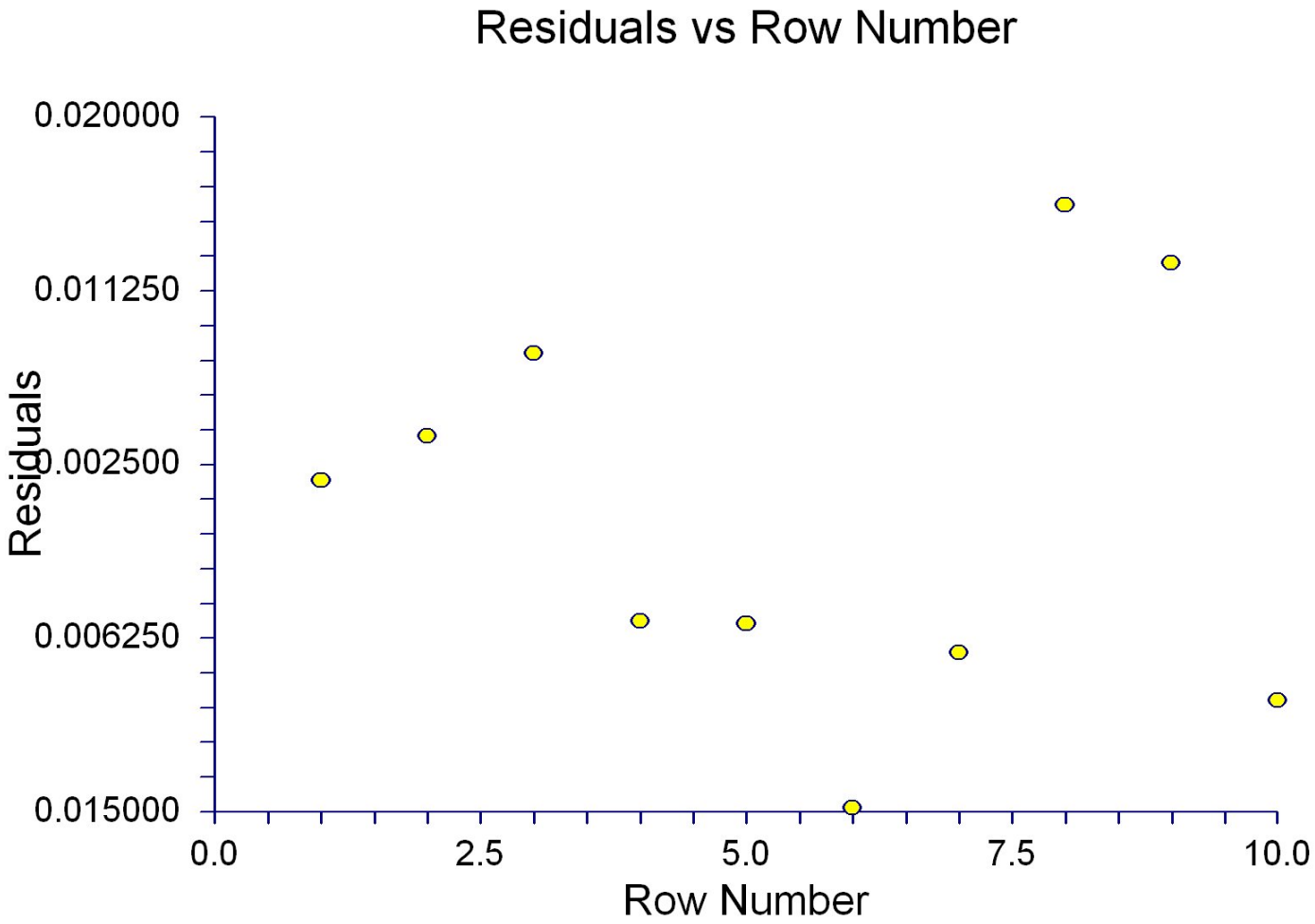
	B1	B2	B3
B1	1.000000	-0.839990	0.656794
B2	-0.839990	1.000000	-0.933327
B3	0.656794	-0.933327	1.000000

Predicted Values and Residuals Section

Row No.	Actual C808ey	Predicted C808ey	Lower 95.0% C.L.	Upper 95.0% C.L.	Residual
1	7.801	7.799287	7.767808	7.830767	1.712772E-03
2	7.758	7.754043	7.723347	7.784739	3.956816E-03
3	7.677	7.668888	7.639542	7.698233	8.112279E-03
4	7.575	7.580374	7.551714	7.609033	-0.0053737
5	7.538	7.543524	7.514769	7.572279	-5.523948E-03
6	7.465	7.479784	7.450223	7.509344	-1.478372E-02
7	7.455	7.461991	7.432092	7.491891	-6.991467E-03
8	7.45	7.434425	7.404162	7.464688	1.557488E-02
9	7.465	7.452329	7.422074	7.482584	1.267138E-02
10	7.52	7.529357	7.492968	7.565747	-9.35765E-03

Plot Section





C808f: Thymolová modř

RUN | NEW | OPEN | SAVE | MAP | NAV | PASS | DATA | OUT | OFF FILTER | PLAY | DESC STATS | 2 S T-TEST | MULT REG

Storage | Template

Probability Plot | Resid vs Row Plot | Resid vs Yhat Plot | Resid vs X Plot

Model | Parameters - Cont | Options | Reports

Dependent Variable

Y: Dependent Variable:

C808fy

Options

Alpha Level:

0.05

Model

Model:

b1-((3*0.5115*sqrt(C808fx))/(1+(0.3291*b2*sqrt(C808fx))))+(b3*C808fx)

Model Parameters

Parameter:	Min Start Max:	Parameter:	Min Start Max:
b1	7 9 12		-1E9 1 1E9
b2	2 7 12		-1E9 1 1E9
b3	0 0.1 1		-1E9 1 1E9

Minimization Phase Section

Itn No.	Error Sum Lambda	Lambda	B1	B2	B3
0	0.4734204	0.0002	9	7	0.1
1	9.112059E-04	0.00004	9.237614	7.757337	6.306056E-02
2	8.221347E-04	0.000008	9.233516	8.018556	0.0609342
3	8.213135E-04	0.0000016	9.233061	8.047333	6.070682E-02
4	8.213133E-04	3.2E-07	9.233043	8.048315	6.069627E-02
5	8.213133E-04	0.0064	9.233043	8.048315	6.069623E-02

Convergence criterion met.

Model Estimation Section

Parameter Name	Parameter Estimate	Asymptotic Standard Error	Lower 95% C.L.	Upper 95% C.L.
B1	9.233043	1.055282E-02	9.20722	9.258864
B2	8.048315	0.4948013	6.83758	9.259049
B3	6.069623E-02	6.316407E-03	4.524054E-02	7.615192E-02
Model	C808fy = B1-((3*0.5115*SQR(C808FX))/(1+(0.3291*B2*SQR(C808FX))))+(B3*C808FX)			
R-Squared	0.979146			
Iterations	5			

Estimated Model

(9.233043)-((3*0.5115*SQRT((C808FX)))/(1+(0.3291*(8.048315)*SQRT((C808FX)))))+((6.069623E-02)*(C808FX))

Analysis of Variance Table

Source	DF	Sum of Squares	Mean Square
Mean	1	719.0621	719.0621
Model	3	719.1006	239.7002
Model (Adjusted)	2	3.856291E-02	1.928145E-02
Error	6	8.213133E-04	1.368855E-04
Total (Adjusted)	8	3.938422E-02	
Total	9	719.1015	

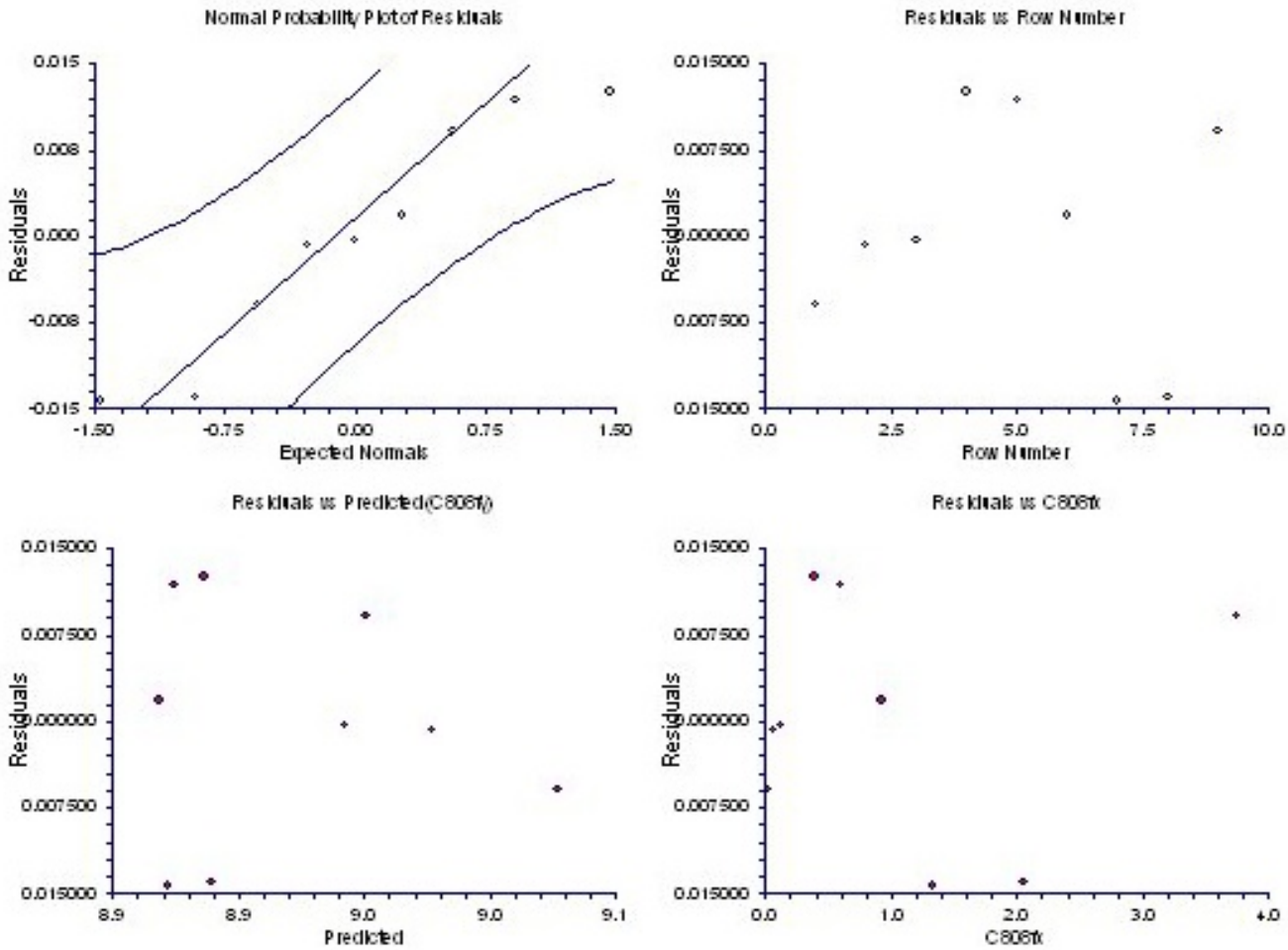
Asymptotic Correlation Matrix of Parameters

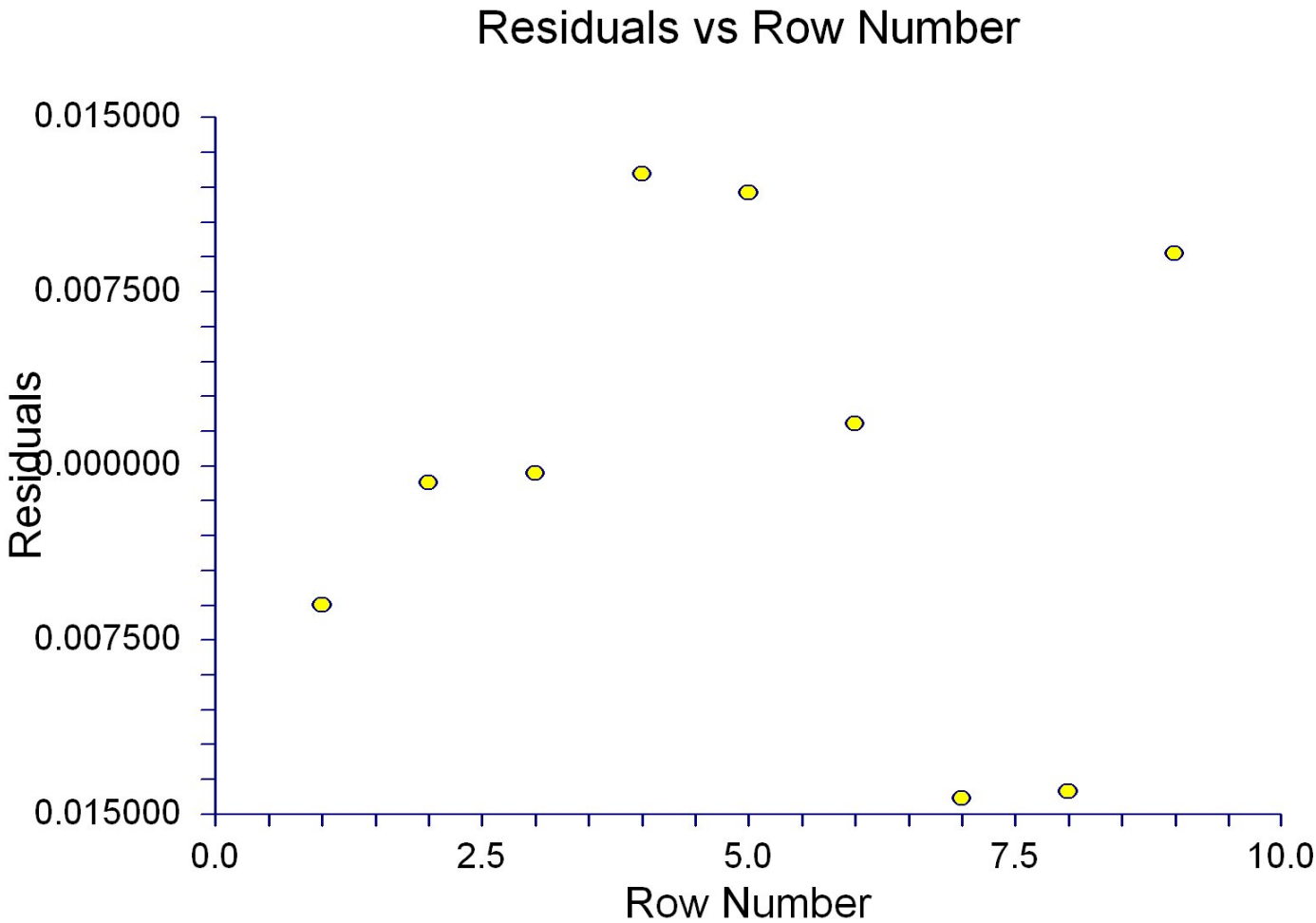
	B1	B2	B3
B1	1.000000	-0.868843	0.556659
B2	-0.868843	1.000000	-0.844037
B3	0.556659	-0.844037	1.000000

Predicted Values and Residuals Section

Row No.	Actual C808fy	Predicted C808fy	Lower 95.0% C.L.	Upper 95.0% C.L.	Residual
1	9.065	9.070971	9.035908	9.106034	-5.971311E-03
2	9.008	9.008716	8.976009	9.041422	-7.153083E-04
3	8.965	8.96532	8.933908	8.996732	-3.195663E-04
4	8.908	8.895427	8.864156	8.926699	1.257286E-02
5	8.892	8.88024	8.84855	8.911931	1.175928E-02
6	8.875	8.873163	8.841257	8.90507	1.836344E-03
7	8.863	8.877312	8.845559	8.909063	-0.0143114
8	8.885	8.899017	8.867233	8.9308	-0.0140173
9	8.985	8.975834	8.936712	9.014956	9.165836E-03

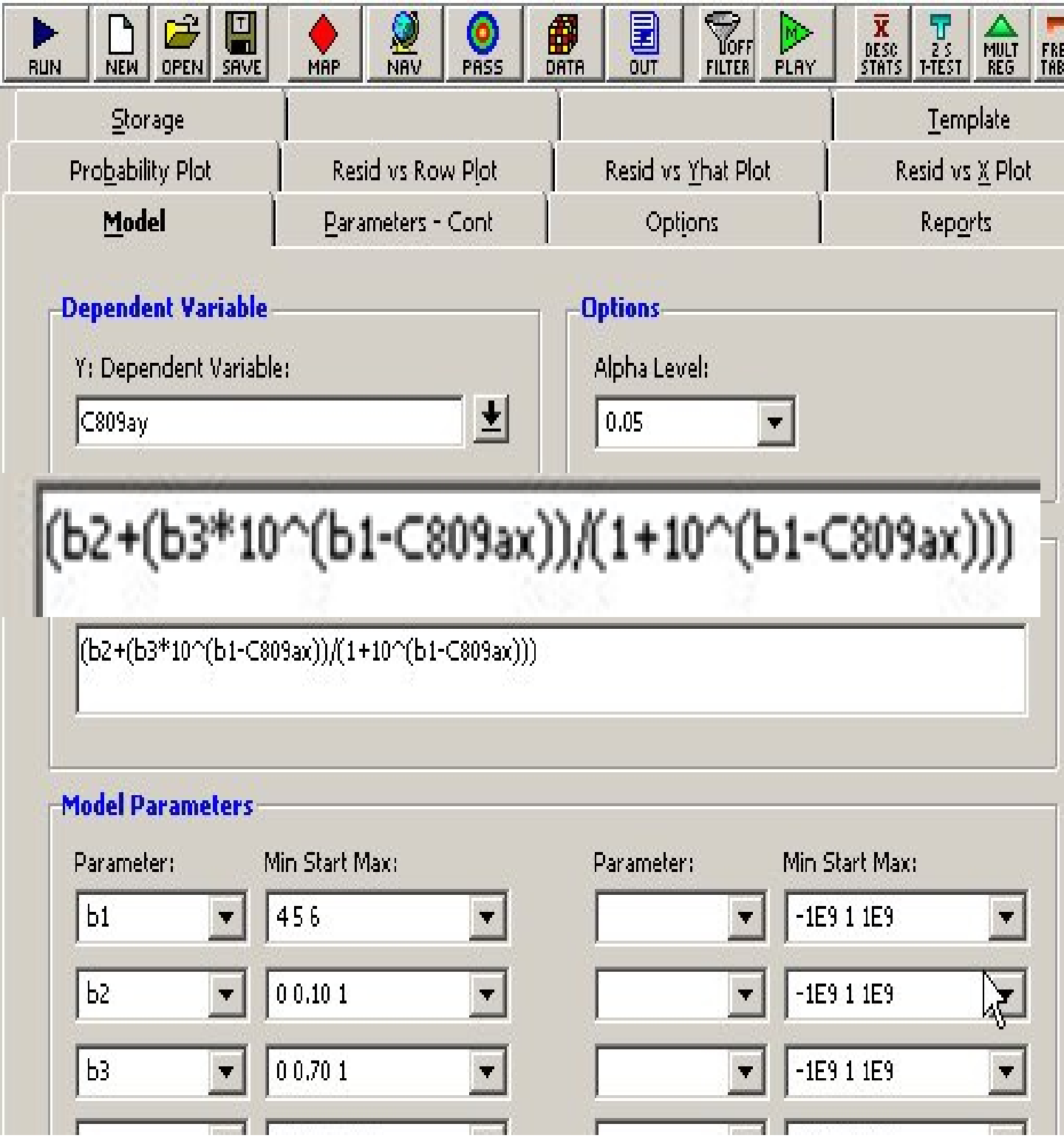
Plot Section





Úloha C8.09 ***Disociační konstanty a molární absorpční koeficienty částic kyseliny HL***

C809a: Bromkrezolová zeleň



Minimization Phase Section

Itn No.	Error Sum Lambda	Lambda	B1	B2	B3
0	0.344551	0.0002	5	0.1	0.7
1	3.875692E-03	0.00004	4.636578	9.286224E-02	0.6013833
2	1.078905E-04	0.000008	4.581841	7.820465E-02	0.6351385
3	9.965099E-05	0.0000016	4.584754	7.786165E-02	0.6358709
4	9.965089E-05	3.2E-07	4.584748	7.786578E-02	0.6358632
5	9.965089E-05	6.4E-08	4.584748	7.786577E-02	0.6358633

Convergence criterion met.

Model Estimation Section

Parameter Name	Parameter Estimate	Asymptotic Standard Error	Lower 95% C.L.	Upper 95% C.L.
B1	4.584748	5.300601E-03	4.573297	4.596199
B2	7.786577E-02	1.474157E-03	7.468104E-02	8.105049E-02
B3	0.6358633	1.953742E-03	0.6316425	0.6400841
Model	C809ay = (B2+(B3*10^(B1-C809AX))/(1+10^(B1-C809AX)))			
R-Squared	0.999878			
Iterations	5			

Estimated Model

((7.786577E-02)+((.6358633)*10^((4.584748)-(C809AX)))/(1+10^((4.584748)-(C809AX))))

Analysis of Variance Table

Source	DF	Sum of Squares	Mean Square
Mean	1	2.371292	2.371292
Model	3	3.186668	1.062223
Model (Adjusted)	2	0.8153762	0.4076881
Error	13	9.965089E-05	7.665453E-06
Total (Adjusted)	15	0.8154758	
Total	16	3.186768	

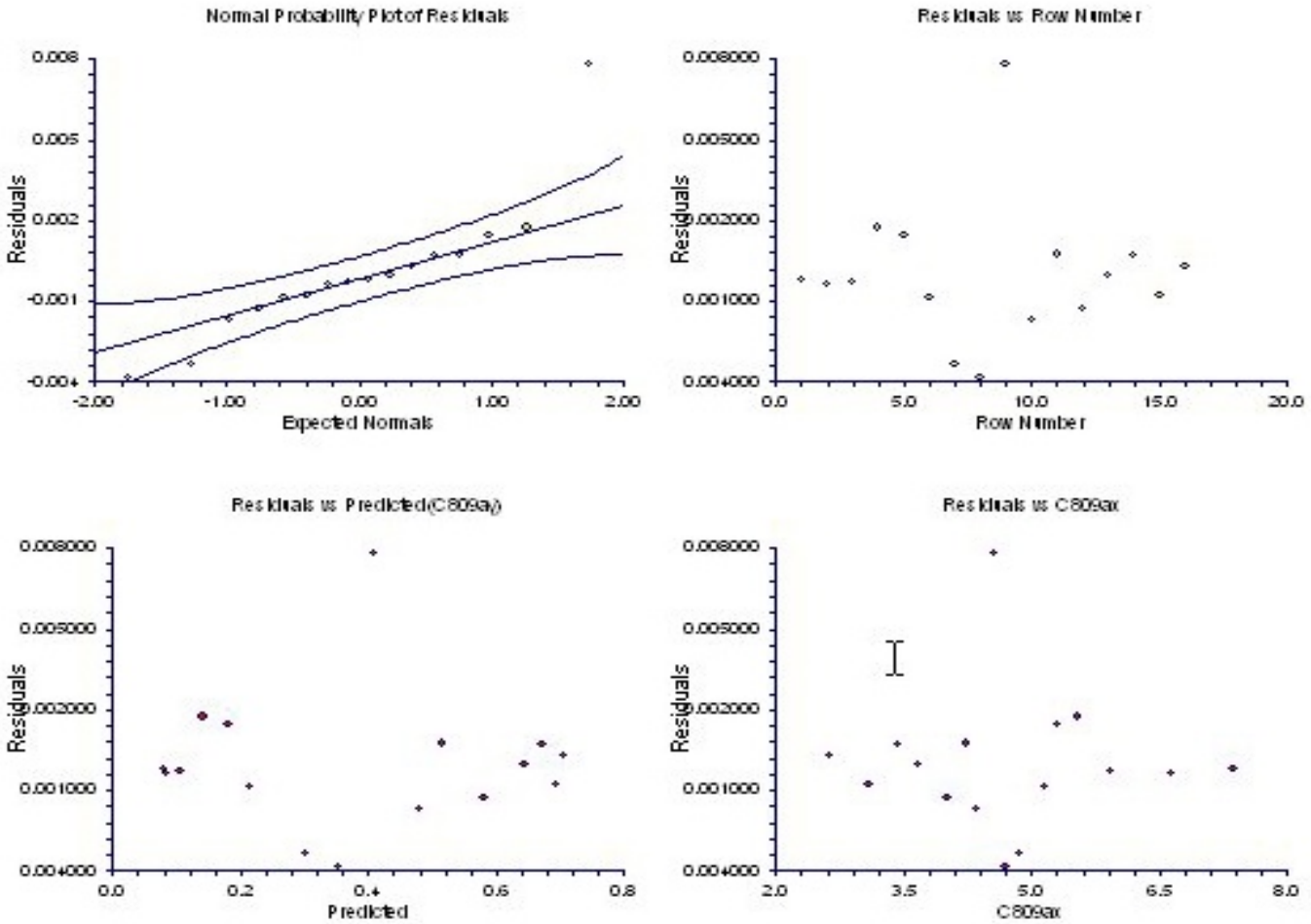
Asymptotic Correlation Matrix of Parameters

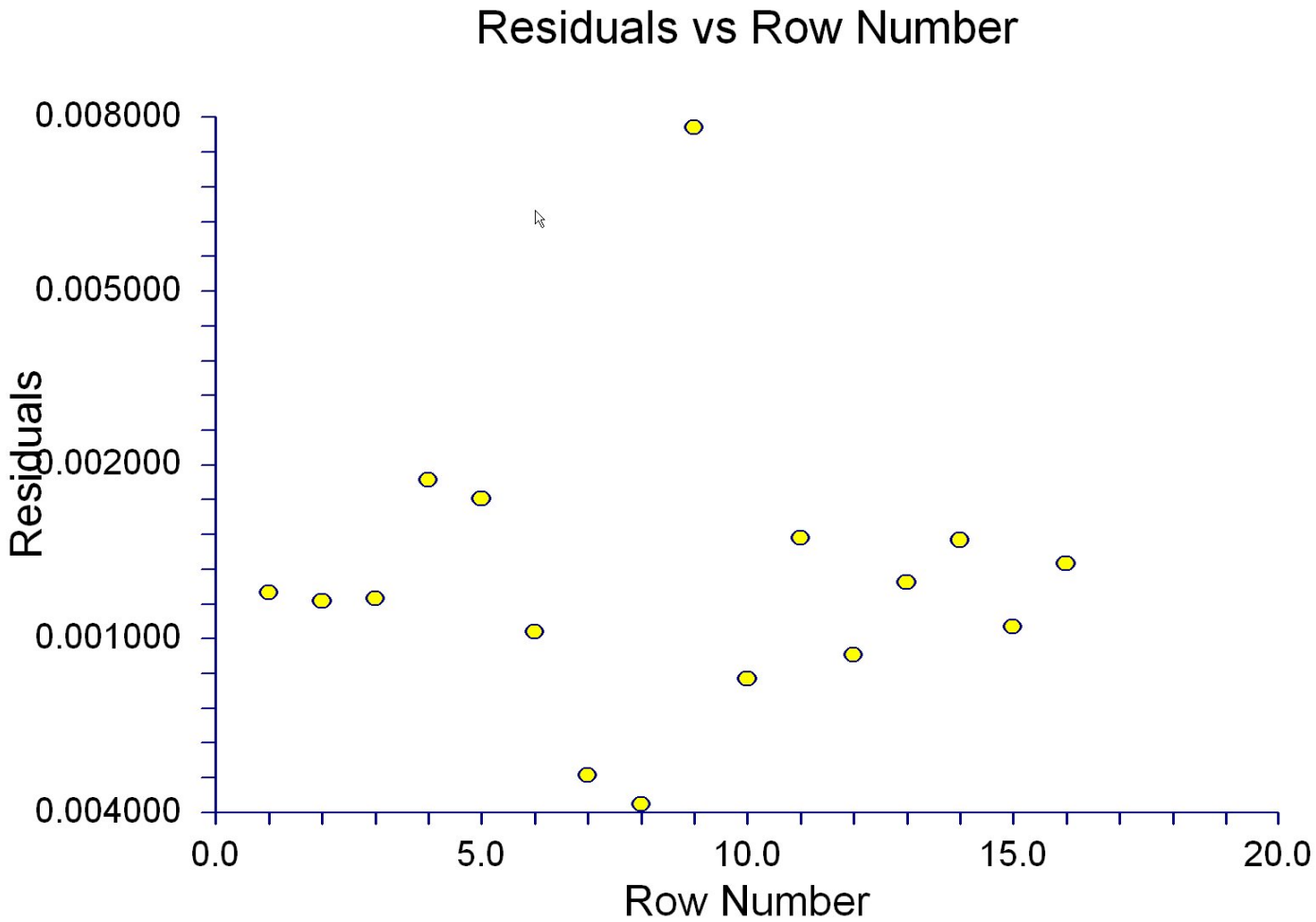
	B1	B2	B3
B1	1.000000	-0.609527	-0.064794
B2	-0.609527	1.000000	-0.597926
B3	-0.064794	-0.597926	1.000000

Predicted Values and Residuals Section

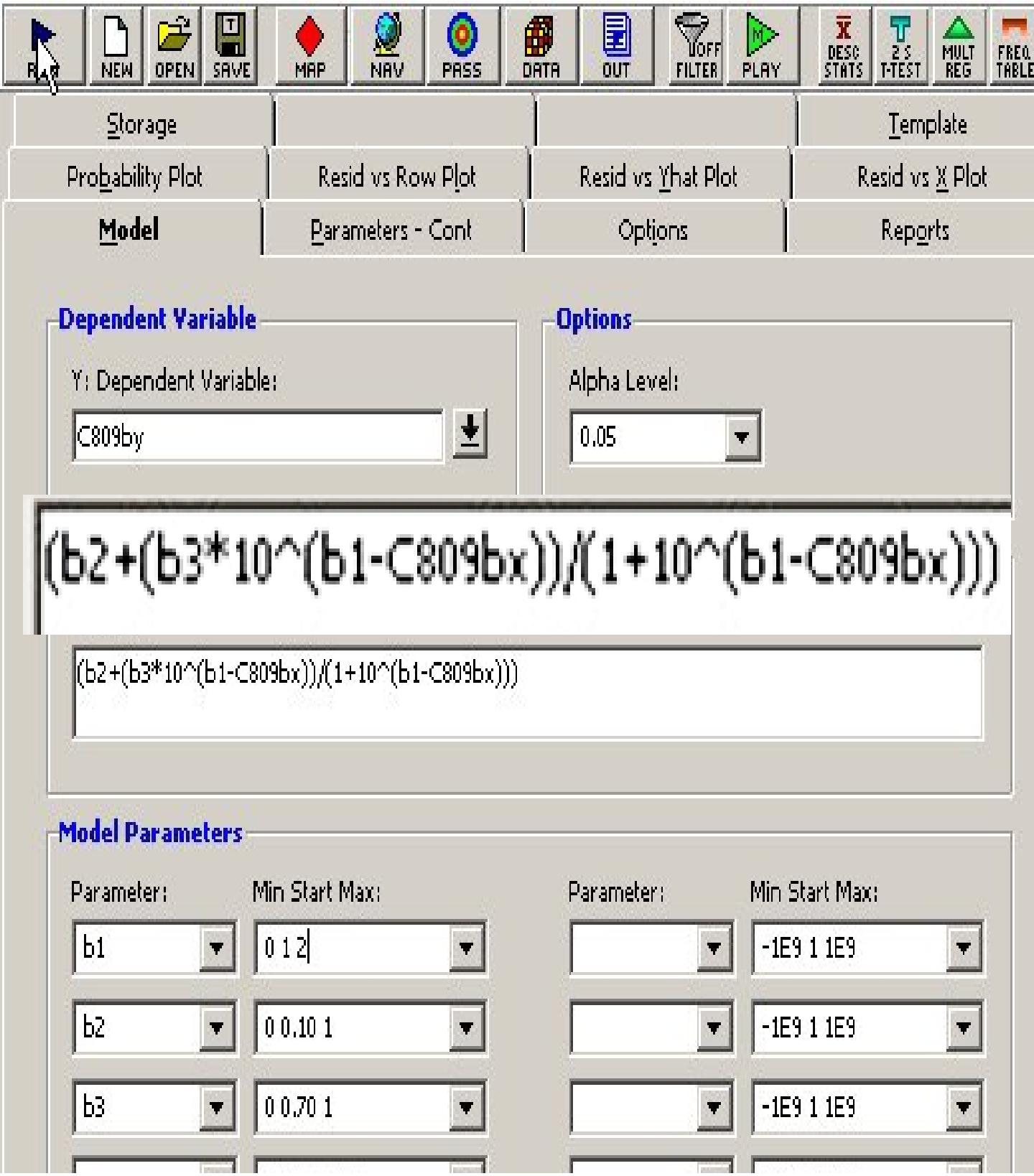
Row No.	Actual C809ay	Predicted C809ay	Lower 95.0% C.L.	Upper 95.0% C.L.	Residual
1	0.0787	7.890665E-02	0.0721402	8.567309E-02	-2.066476E-04
2	0.083	8.335293E-02	7.662724E-02	9.007862E-02	-3.529298E-04
3	0.1051	0.1054008	9.884369E-02	0.111958	-3.008226E-04
4	0.1428	0.1410566	0.1346675	0.1474458	1.743376E-03
5	0.182	0.1805733	0.1742532	0.1868933	1.426746E-03
6	0.213	0.2138806	0.2075547	0.2202065	-8.806108E-04
7	0.2976	0.3009489	0.2945015	0.3073963	-3.348911E-03
8	0.35	0.3538573	0.347351	0.3603636	-3.857286E-03
9	0.4156	0.4077785	0.4012638	0.4142933	7.821455E-03
10	0.478	0.47969	0.4732459	0.4861342	-1.690056E-03
11	0.5165	0.5157525	0.5093621	0.5221429	7.475225E-04
12	0.579	0.5802804	0.5739528	0.5866079	-1.280368E-03
13	0.645	0.6450286	0.6385997	0.6514574	-2.856944E-05
14	0.673	0.6722955	0.6657339	0.678857	7.045369E-04
15	0.6933	0.6940957	0.6873771	0.7008142	-7.95682E-04
16	0.707	0.7067018	0.6998694	0.7135341	2.982645E-04

Plot Section





C809b: p-Nitroanilin



Minimization Phase Section

Itn No.	Error Sum Lambda	Lambda	B1	B2	B3
0	8.129762E-03	0.00002	1	0.1	0.7
1	7.063845E-04	0.000004	1.018847	0.1217726	0.5894052
2	6.994066E-04	0.0000008	1.020754	0.1220863	0.5896996
3	6.994065E-04	0.016	1.020741	0.1220891	0.5897006

Convergence criterion met.

Model Estimation Section

Parameter Name	Parameter Estimate	Asymptotic Standard Error	Lower 95% C.L.	Upper 95% C.L.
B1	1.020741	0.108574	0.7192914	1.322191
B2	0.1220891	0.0306899	0.0368803	0.2072979
B3	0.5897006	2.496481E-02	0.5203871	0.659014
Model	C809by = (B2+(B3*10^(B1-C809BX))/(1+10^(B1-C809BX)))			
R-Squared	0.993225			
Iterations	3			

Estimated Model

((.1220891)+((.5897006)*10^((1.020741)-(C809BX)))/(1+10^((1.020741)-(C809BX))))

Analysis of Variance Table

Source	DF	Sum of Squares	Mean Square
Mean	1	1.142512	1.142512
Model	3	1.245039	0.4150129
Model (Adjusted)	2	0.1025266	0.0512633
Error	4	6.994065E-04	1.748516E-04
Total (Adjusted)	6	0.103226	
Total	7	1.245738	

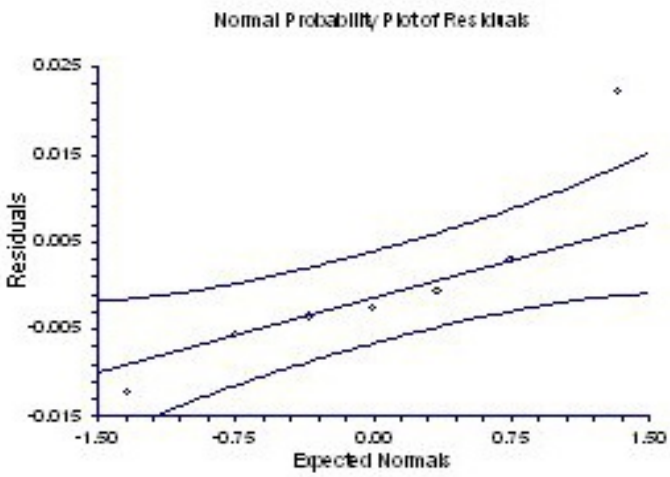
Asymptotic Correlation Matrix of Parameters

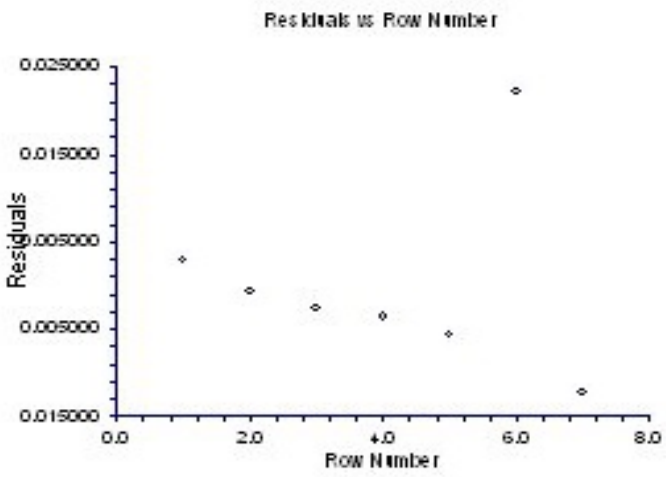
	B1	B2	B3
B1	1.000000	-0.910812	-0.220089
B2	-0.910812	1.000000	-0.169581
B3	-0.220089	-0.169581	1.000000

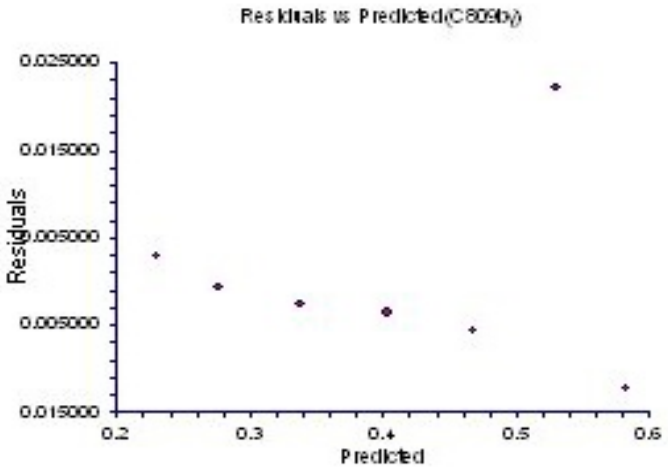
Predicted Values and Residuals Section

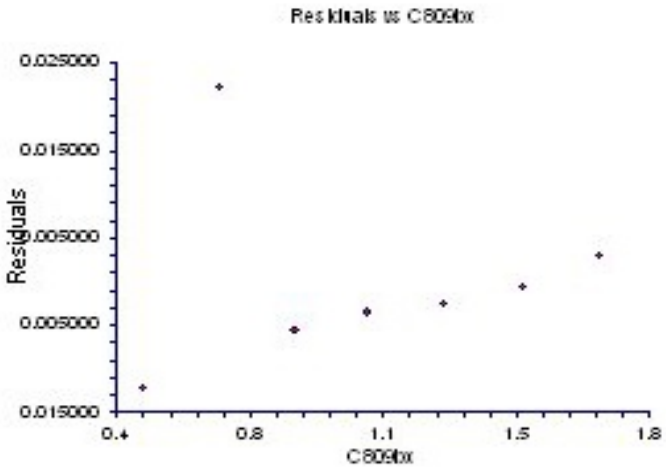
Row No.	Actual C809by	Predicted C809by	Lower 95.0% C.L.	Upper 95.0% C.L.	Residual
1	0.233	0.2301083	0.1821601	0.2780565	2.891703E-03
2	0.276	0.2767209	0.234786	0.3186559	-7.209441E-04
3	0.335	0.3377145	0.2960156	0.3794134	-2.714506E-03
4	0.4	0.4036217	0.3607511	0.4464922	-3.621651E-03
5	0.462	0.4676022	0.4257134	0.509491	-5.602169E-03
6	0.552	0.5299261	0.4880946	0.5717577	2.207386E-02
7	0.57	0.5823045	0.533932	0.630677	-1.230449E-02

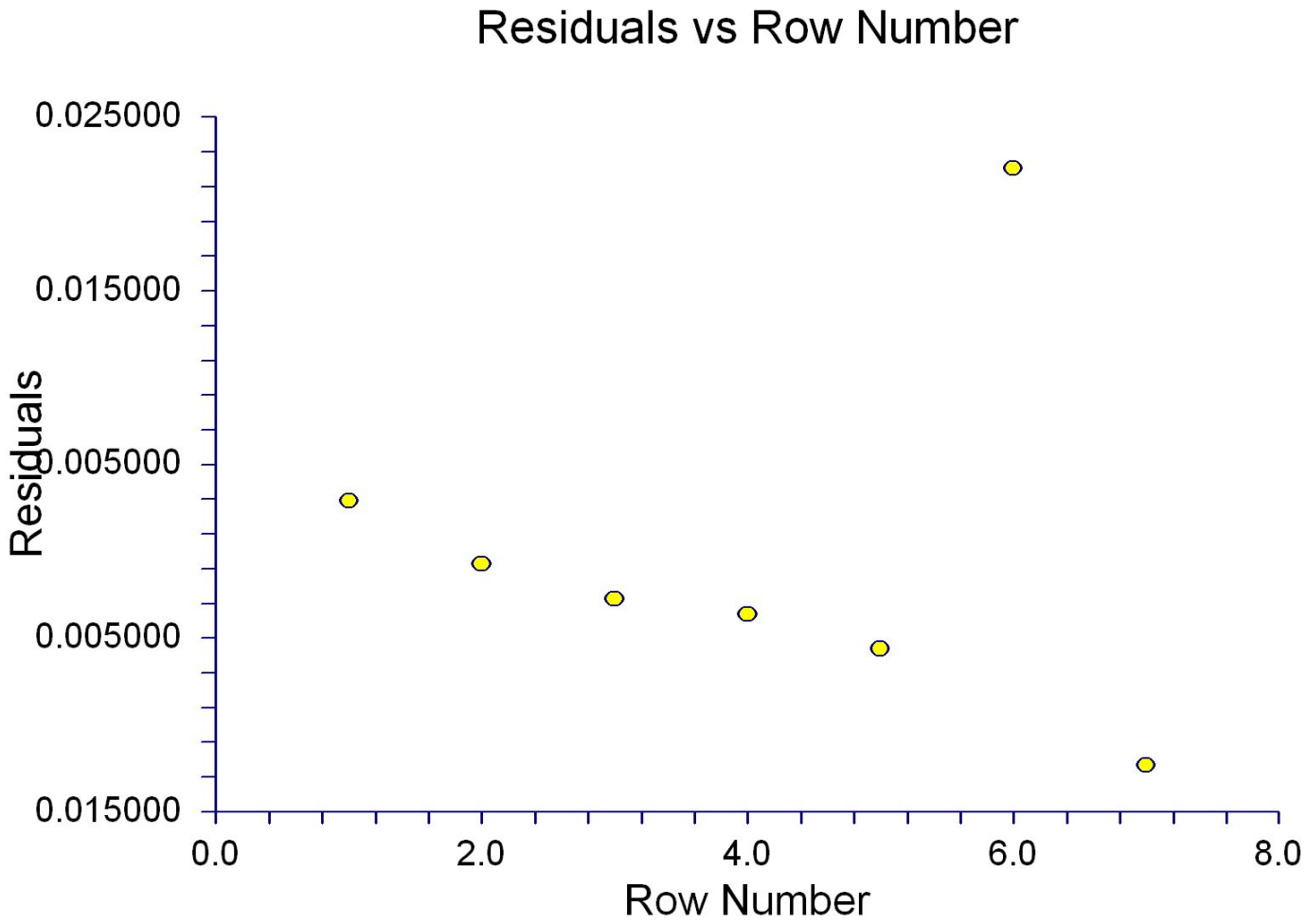
Plot Section











Úloha C8.10 ***Disociační konstanty a molární absorpční koeficienty částic kyseliny H2L***

C810a: Pyrokatechinová violeť

RUN | NEW | OPEN | SAVE | MAP | NAV | PASS | DATA | OUT | OFF FILTER | PLAY | DESC STATS | 2 S T-TEST | MULT REG

Storage | Template

Probability Plot | Resid vs Row Plot | Resid vs Yhat Plot | Resid vs X Plot

Model | Parameters - Cont | Options | Reports

Dependent Variable

Y: Dependent Variable:

C810ay

Options

Alpha Level:

0.05

Model

Model:

(b3+(b4*10^(b1-C810ax))+(b5*10^(b1+b2-2*C810ax)))/(1+(10^(b1-C810ax))+(10^(b1+b2-2*C810ax)))

Model Parameters

Parameter:	Min Start Max:	Parameter:	Min Start Max:
b1	7 9 11		-1E9 1 1E9
b2	7 8 9		-1E9 1 1E9
b3	0 0.1 1		-1E9 1 1E9
b4	0 1 2		-1E9 1 1E9
b5	0 0.1 1		-1E9 1 1E9

Minimization Phase Section

Itn No.	Error Sum Lambda	Lambda	B1	B2	B3	B4
0	2.303809	0.00002	9	8	0.1	1
1	0.9944179	0.000004	9.967264	7.102864	0.4237177	0.5848597
2	0.2198897	0.0000008	9.923795	7.882602	0.3513565	1.006724
3	3.980954E-03	1.6E-07	9.882766	7.553832	0.3622211	1.034348
4	6.523976E-04	3.2E-08	9.833344	7.589057	0.3669667	1.066221
5	6.416868E-04	6.4E-09	9.83465	7.58926	0.3663622	1.067341
6	6.416867E-04	0.0128	9.83464	7.589259	0.3663696	1.067336
7	6.416867E-04	0.256	9.83464	7.589259	0.3663699	1.067336
8	6.416867E-04	0.512	9.83464	7.589259	0.36637	1.067336
9	6.416867E-04	1.024	9.83464	7.589259	0.3663701	1.067336
10	6.416867E-04	0.2048	9.83464	7.589259	0.3663702	1.067336
11	6.416867E-04	0.4096	9.83464	7.589259	0.3663703	1.067336
12	6.416867E-04	0.8192	9.83464	7.589259	0.3663703	1.067336
13	6.416867E-04	1.6384	9.83464	7.589259	0.3663703	1.067336
14	6.416867E-04	3.2768	9.83464	7.589259	0.3663703	1.067336
15	6.416867E-04	0.65536	9.83464	7.589259	0.3663703	1.067336
16	6.416867E-04	1.31072	9.83464	7.589259	0.3663703	1.067336
17	6.416867E-04	2.62144	9.83464	7.589259	0.3663703	1.067336
18	6.416867E-04	0.524288	9.83464	7.589259	0.3663703	1.067336
19	6.416867E-04	1.048576	9.83464	7.589259	0.3663703	1.067336
20	6.416867E-04	2.097152	9.83464	7.589259	0.3663703	1.067336
21	6.416867E-04	4.194304	9.83464	7.589259	0.3663703	1.067336
22	6.416867E-04	0.8388608	9.83464	7.589259	0.3663703	1.067336
23	6.416867E-04	1.677722	9.83464	7.589259	0.3663703	1.067336

Convergence criterion met.

Model Estimation Section

Parameter Name	Parameter Estimate	Asymptotic Standard Error	Lower 95% C.L.	Upper 95% C.L.
B1	9.83464	1.494574E-02	9.80324	9.866039
B2	7.589259	8.617407E-03	7.571154	7.607363
B3	0.3663703	4.708293E-03	0.3564785	0.3762621
B4	1.067336	5.17725E-03	1.056459	1.078213
B5	1.982703E-02	3.411525E-03	1.265968E-02	2.699437E-02

Model C810ay = (B3+(B4*10^(B1-C810AX))+(B5*10^(B1+B2-2*C810AX)))/(1+(10^(B1-C810AX))+(10^(B1+B2-2*C810AX)))

R-Squared 0.999688

Iterations 23

Estimated Model

((.3663703)+((1.067336)*10^((9.83464)-(C810AX)))+((1.982703E-02)*10^((9.83464)+(7.589259)-2*(C810AX))))/(1+(10^((9.83464)-(C810AX)))+(10^((9.83464)+(7.589259)-2*(C810AX))))

Analysis of Variance Table

Source	DF	Sum of Squares	Mean Square
Mean	1	7.039138	7.039138
Model	5	9.092414	1.818483
Model (Adjusted)	4	2.053276	0.5133191
Error	18	6.416867E-04	3.564926E-05
Total (Adjusted)	22	2.053918	
Total	23	9.093056	

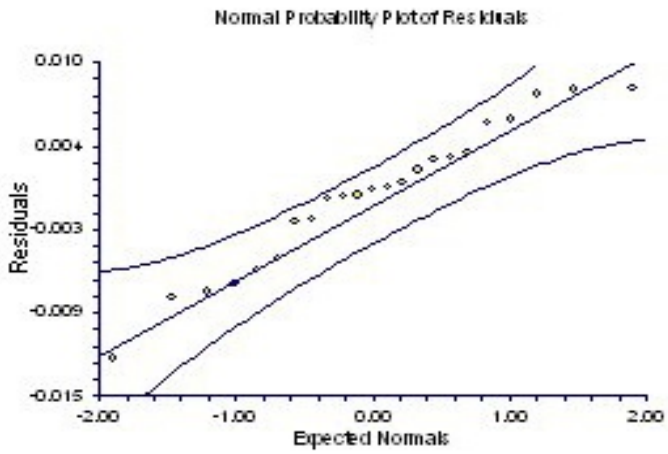
Asymptotic Correlation Matrix of Parameters

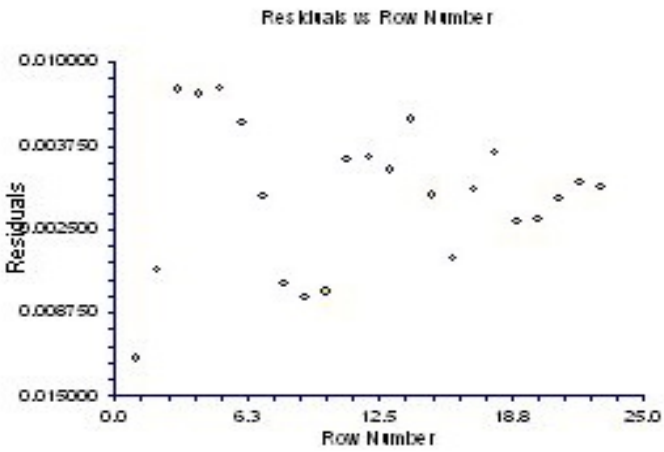
	B1	B2	B3	B4	B5
B1	1.000000	-0.530628	-0.716811	-0.733006	-0.165205
B2	-0.530628	1.000000	0.226303	0.762705	0.592416
B3	-0.716811	0.226303	1.000000	0.322291	0.067692
B4	-0.733006	0.762705	0.322291	1.000000	0.250586
B5	-0.165205	0.592416	0.067692	0.250586	1.000000

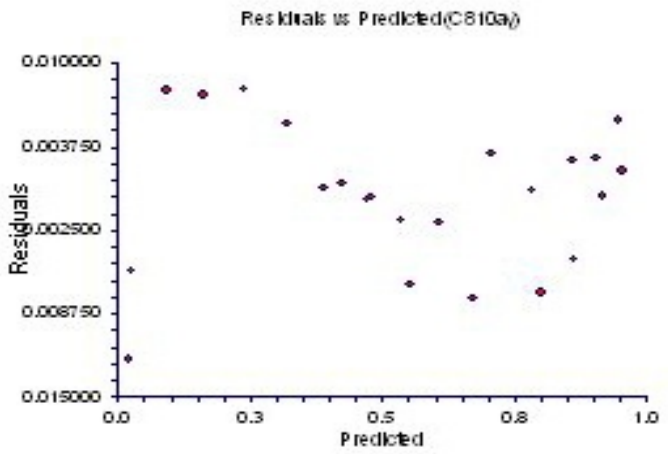
Predicted Values and Residuals Section

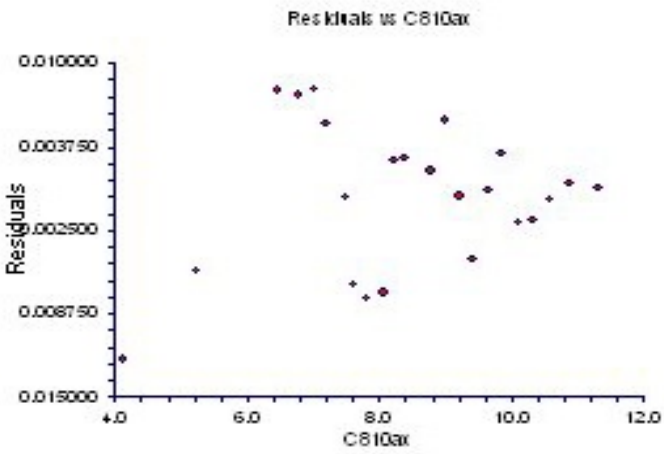
Row No.	Actual C810ay	Predicted C810ay	Lower 95.0% C.L.	Upper 95.0% C.L.	Residual
1	0.008	2.019325E-02	5.751146E-03	3.463535E-02	-1.219325E-02
2	0.019	2.451467E-02	1.013186E-02	3.889748E-02	-5.514671E-03
3	0.101	0.0930237	7.933035E-02	0.106717	7.976303E-03
4	0.169	0.1613846	0.1479846	0.1747847	7.615357E-03
5	0.246	0.237909	0.2245247	0.2512933	8.091001E-03
6	0.326	0.3204669	0.3069189	0.334015	5.533064E-03
7	0.479	0.4790124	0.4651752	0.4928496	-1.238998E-05
8	0.546	0.5525138	0.5386802	0.5663474	-6.513817E-03
9	0.665	0.6726466	0.659009	0.6862842	-7.646598E-03
10	0.793	0.8001814	0.7867433	0.8136196	-7.181452E-03
11	0.862	0.8593259	0.8458164	0.8728355	2.674084E-03
12	0.907	0.9041333	0.8904427	0.9178238	2.866733E-03
13	0.957	0.9550633	0.9411113	0.9690152	1.936717E-03
14	0.952	0.9462668	0.9325127	0.9600208	5.73324E-03
15	0.916	0.9159438	0.9024067	0.929481	5.616078E-05
16	0.858	0.862635	0.849079	0.8761909	-4.634982E-03
17	0.783	0.7825041	0.7686193	0.796389	4.958271E-04
18	0.71	0.7068198	0.692758	0.7208816	3.180132E-03
19	0.606	0.607981	0.5941324	0.6218296	-1.981009E-03
20	0.535	0.5368102	0.5232226	0.5503978	-1.810249E-03
21	0.472	0.472265	0.4585697	0.4859602	-2.650125E-04
22	0.425	0.4240356	0.4097253	0.4383458	9.643718E-04
23	0.389	0.3883713	0.3731669	0.4035757	6.285949E-04

Plot Section









C810b: SNAZOXS

RUN | NEW | OPEN | SAVE | MAP | NAV | PASS | DATA | OUT | OFF FILTER | PLAY | DESC STATS | 2 S T-TEST | MULT REG | FRE TAB

Storage | Template

Probability Plot | Resid vs Row Plot | Resid vs Yhat Plot | Resid vs X Plot

Model | Parameters - Cont | Options | Reports

Dependent Variable

Y: Dependent Variable:

C810by

Options

Alpha Level:

0.05

Model

Model:

(b3+(b4*10^(b1-C810bx))+(b5*10^(b1+b2-2*C810bx)))/(1+(10^(b1-C810bx))+(10^(b1+b2-2*C810bx)))

Model Parameters

Parameter:	Min Start Max:	Parameter:	Min Start Max:
b1	6 7 11		-1E9 1 1E9
b2	1 2.9 4		-1E9 1 1E9
b3	0 0.64 1		-1E9 1 1E9
b4	0 0.5 1		-1E9 1 1E9
b5	0 0.3 1		-1E9 1 1E9

Minimization Phase Section

Itn No.	Error Sum Lambda	Lambda	B1	B2	B3	B4
0	0.0124083	0.00001	7	2.9	0.64	0.5
1	3.730581E-04	0.000001	6.981962	2.882265	0.6491165	0.4813732
2	3.720909E-04	0.0000001	6.983248	2.880599	0.6490534	0.481244

Convergence criterion met.

Model Estimation Section

Parameter Name	Parameter Estimate	Asymptotic Standard Error	Lower 95% C.L.	Upper 95% C.L.
B1	6.983248	1.286941E-02	6.957435	7.009061
B2	2.880599	1.277133E-02	2.854983	2.906215
B3	0.6490534	1.068859E-03	0.6469095	0.6511973
B4	0.481244	1.023073E-03	0.479192	0.4832961
B5	0.2782817	1.402262E-03	0.2754691	0.2810942

Model C810by = (B3+(B4*10^(B1-C810BX))+(B5*10^(B1+B2-2*C810BX)))/(1+(10^(B1-C810BX))+(10^(B1+B2-2*C810BX)))

R-Squared 0.999453

Iterations 2

Estimated Model

((.6490534)+((.481244)*10^((6.983248)-(C810BX)))+((.2782817)*10^((6.983248)+(2.880599)-2*(C810BX))))/(1+(10^((6.983248)-(C810BX)))+(10^((6.983248)+(2.880599)-2*(C810BX))))

Analysis of Variance Table

Source	DF	Sum of Squares	Mean Square
Mean	1	13.87489	13.87489
Model	5	14.55426	2.910852
Model (Adjusted)	4	0.6793753	0.1698438
Error	53	3.720909E-04	7.020584E-06
Total (Adjusted)	57	0.6797474	
Total	58	14.55463	

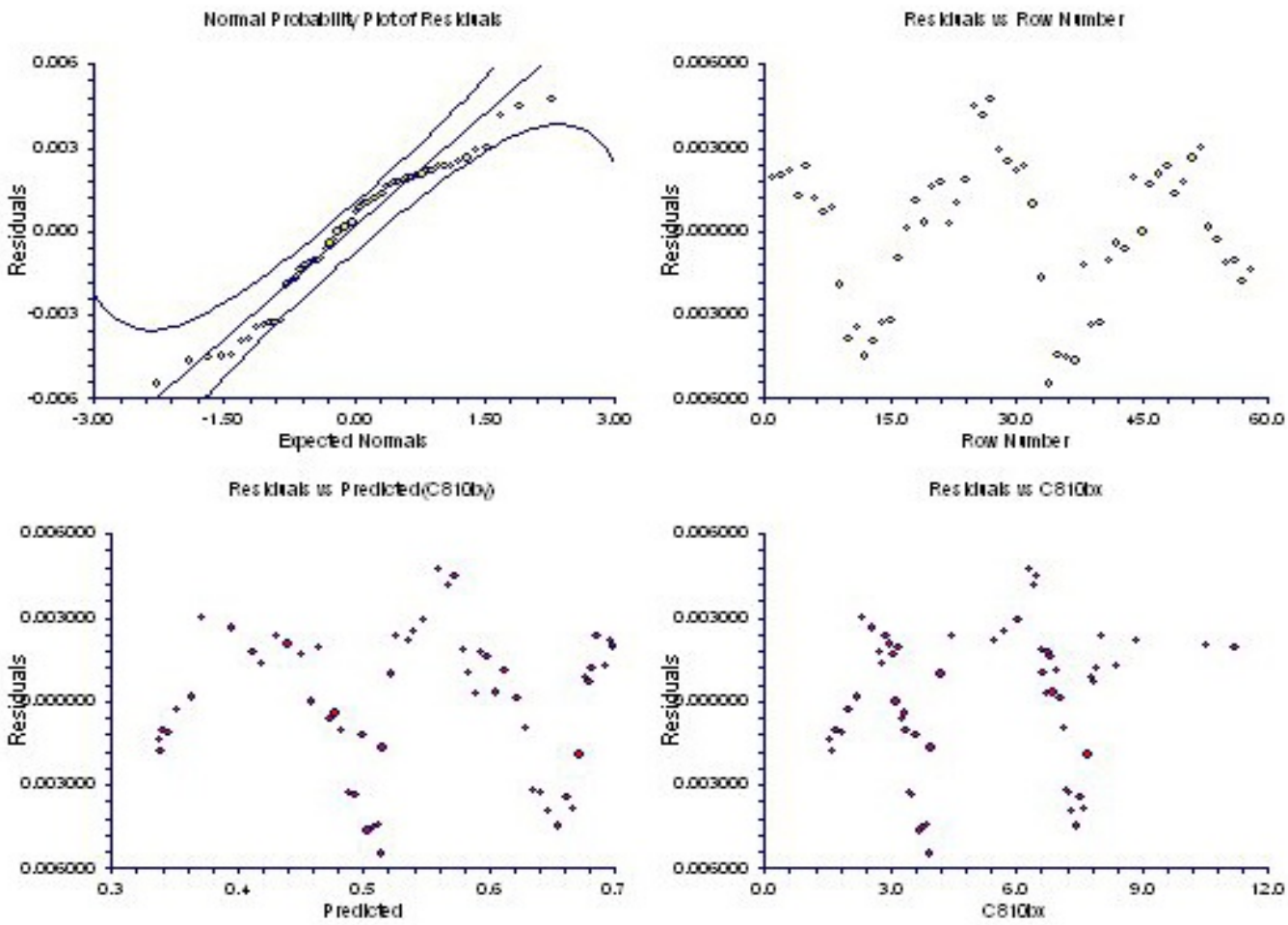
Asymptotic Correlation Matrix of Parameters

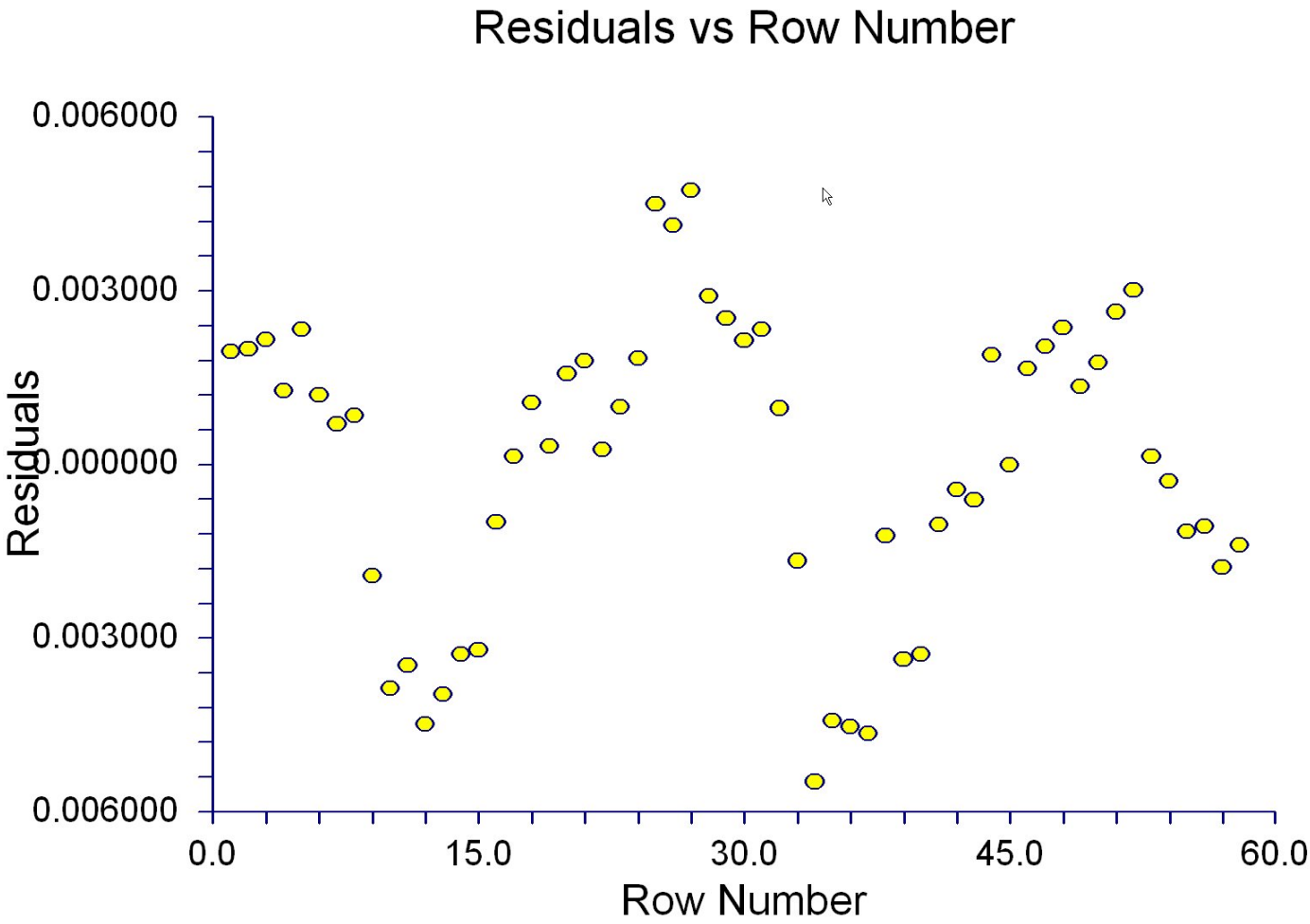
	B1	B2	B3	B4	B5
B1	1.000000	0.409993	0.664169	0.606458	0.157914
B2	0.409993	1.000000	0.125201	0.678103	0.686736
B3	0.664169	0.125201	1.000000	0.185817	0.048124
B4	0.606458	0.678103	0.185817	1.000000	0.261721
B5	0.157914	0.686736	0.048124	0.261721	1.000000

Predicted Values and Residuals Section

Row No.	Actual C810by	Predicted C810by	Lower 95.0% C.L.	Upper 95.0% C.L.	Residual
1	0.651	0.6490437	0.6433133	0.6547742	1.956301E-03
2	0.651	0.6490041	0.6432744	0.6547338	1.99595E-03
3	0.649	0.6468439	0.6411534	0.6525342	2.156215E-03
4	0.644	0.6427239	0.637098	0.6483498	1.27614E-03
5	0.638	0.6356584	0.6301149	0.641202	2.341637E-03
6	0.633	0.6317971	0.6262854	0.6373089	1.20291E-03
7	0.63	0.6292983	0.6238028	0.6347938	7.017624E-04
8	0.628	0.6271578	0.6216738	0.6326419	8.422282E-04
9	0.62	0.6219211	0.6164566	0.6273855	-1.921015E-03
10	0.613	0.6168712	0.6114162	0.6223263	-3.871204E-03
11	0.608	0.6114717	0.6060188	0.6169246	-3.471651E-03
12	0.6	0.6044843	0.5990255	0.6099431	-4.484294E-03
13	0.593	0.5969682	0.5914968	0.6024396	-3.968147E-03
14	0.588	0.5912707	0.5857882	0.5967534	-3.270725E-03
15	0.582	0.5852022	0.579708	0.5906965	-3.202196E-03
16	0.578	0.5789965	0.5734922	0.5845008	-9.964361E-04
17	0.572	0.5718632	0.5663509	0.5773754	1.368711E-04
18	0.563	0.561926	0.556411	0.567441	1.074002E-03
19	0.556	0.5556831	0.5501714	0.5611948	3.169474E-04
20	0.55	0.5484269	0.5429233	0.5539303	1.573158E-03
21	0.545	0.5432111	0.5377157	0.5487065	1.78889E-03
22	0.54	0.5397412	0.5342517	0.5452306	2.58828E-04
23	0.535	0.5340015	0.5285223	0.5394807	9.985073E-04
24	0.532	0.5301625	0.5246897	0.5356352	1.837547E-03
25	0.527	0.5224941	0.5170312	0.527957	4.505891E-03
26	0.522	0.5178727	0.5124121	0.5233333	4.127293E-03
27	0.515	0.5102699	0.5048039	0.5157359	4.730061E-03
28	0.501	0.4980961	0.4925852	0.5036071	2.903824E-03
29	0.492	0.4894778	0.4838987	0.4950568	2.522165E-03
30	0.488	0.4858572	0.4802417	0.4914726	2.142763E-03
31	0.479	0.4766665	0.4710541	0.4822789	2.333458E-03
32	0.473	0.4720267	0.4664637	0.4775897	9.732519E-04
33	0.464	0.4656645	0.4601563	0.4711728	-1.66459E-03
34	0.459	0.4644777	0.4589776	0.4699779	-5.477812E-03
35	0.458	0.4624303	0.4569427	0.4679178	-4.430329E-03
36	0.454	0.4585342	0.4530656	0.4640027	-4.534224E-03
37	0.449	0.4536389	0.4481859	0.459092	-4.639025E-03
38	0.448	0.4492309	0.4437849	0.454677	-1.231005E-03
39	0.44	0.4433583	0.4379132	0.4488034	-3.35838E-03
40	0.435	0.4382812	0.4328309	0.4437316	-3.281306E-03
41	0.431	0.432043	0.4265806	0.4375054	-1.04308E-03
42	0.427	0.4274363	0.4219623	0.4329103	-4.363743E-04
43	0.423	0.4236164	0.4181317	0.4291011	-6.165089E-04
44	0.417	0.4150998	0.4095901	0.4206095	1.900118E-03
45	0.409	0.4090078	0.4034809	0.4145347	-7.85549E-06
46	0.403	0.4013425	0.3957967	0.4068883	1.65743E-03
47	0.392	0.3899538	0.3843887	0.3955188	2.046179E-03
48	0.383	0.3806384	0.375067	0.3862098	2.361533E-03
49	0.37	0.3686464	0.3630792	0.3742135	1.353555E-03
50	0.364	0.3622352	0.356675	0.3677953	1.764793E-03
51	0.348	0.3453626	0.3398282	0.350897	2.637367E-03
52	0.325	0.3219858	0.3164574	0.3275142	3.014201E-03
53	0.314	0.3138562	0.3083037	0.3194088	1.437706E-04
54	0.302	0.3022797	0.2966515	0.307908	-2.797304E-04
55	0.294	0.2951524	0.2894462	0.3008586	-1.152376E-03
56	0.29	0.2910629	0.2852992	0.2968265	-1.062876E-03
57	0.287	0.2887716	0.2829713	0.2945719	-1.771579E-03
58	0.286	0.2873988	0.2815749	0.2932227	-1.398786E-03

Plot Section





C810c: Naftylazoxin 6S

RUN | NEW | OPEN | SAVE | MAP | NAV | PASS | DATA | OUT | OFF FILTER | PLAY | DESC STATS | 2 S T-TEST | MULT REG | FRE TAB

Storage | Template

Probability Plot | Resid vs Row Plot | Resid vs Yhat Plot | Resid vs X Plot

Model | Parameters - Cont | Options | Reports

Dependent Variable

Y: Dependent Variable:

C810CY

Options

Alpha Level:

0.05

Model

Model:

(b3+(b4*10^(b1-C810cx))+(b5*10^(b1+b2-2*C810cx)))/(1+(10^(b1-C810cx))+(10^(b1+b2-2*C810cx)))

Model Parameters

Parameter:	Min Start Max:	Parameter:	Min Start Max:
b1	6 7 11		-1E9 1 1E9
b2	1 2.9 4		-1E9 1 1E9
b3	0 0.64 1		-1E9 1 1E9
b4	0 0.5 1		-1E9 1 1E9
b5	0 0.3 1		-1E9 1 1E9

Minimization Phase Section

Itn No.	Error Sum Lambda	Lambda	B1	B2	B3	B4
0	0.028883	0.00001	7	2.9	0.64	0.5
1	4.681949E-04	0.000001	7.3727	3.073945	0.6356618	0.4702322
2	2.668677E-04	0.0000001	7.304797	3.0676	0.6369916	0.4687829
3	2.658726E-04	1E-08	7.310717	3.067775	0.637314	0.4688157

Convergence criterion met.

Model Estimation Section

Parameter Name	Parameter Estimate	Asymptotic Standard Error	Lower 95% C.L.	Upper 95% C.L.
B1	7.310717	2.614572E-02	7.256178	7.365256
B2	3.067775	2.911071E-02	3.007051	3.128499
B3	0.637314	2.062238E-03	0.6330122	0.6416157
B4	0.4688157	1.539297E-03	0.4656047	0.4720266
B5	0.2858854	3.18199E-03	0.2792479	0.2925229

Model C810cy = (B3+(B4*10^(B1-C810CX))+(B5*10^(B1+B2-2*C810CX)))/(1+(10^(B1-C810CX))+(10^(B1+B2-2*C810CX)))

R-Squared 0.998941

Iterations 3

Estimated Model

((.637314)+((.4688157)*10^((7.310717)-(C810CX)))+((.2858854)*10^((7.310717)+(3.067775)-2*(C810CX))))/(1+(10^((7.310717)-(C810CX)))+(10^((7.310717)+(3.067775)-2*(C810CX))))

Analysis of Variance Table

Source	DF	Sum of Squares	Mean Square
Mean	1	5.697769	5.697769
Model	5	5.948621	1.189724
Model (Adjusted)	4	0.2508521	6.271303E-02
Error	20	2.658726E-04	1.329363E-05
Total (Adjusted)	24	0.251118	
Total	25	5.948887	

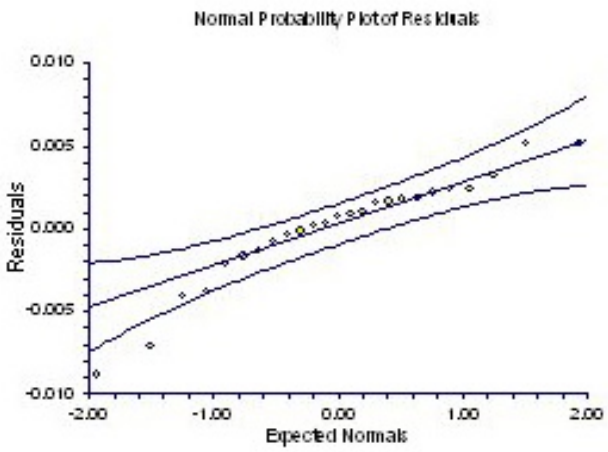
Asymptotic Correlation Matrix of Parameters

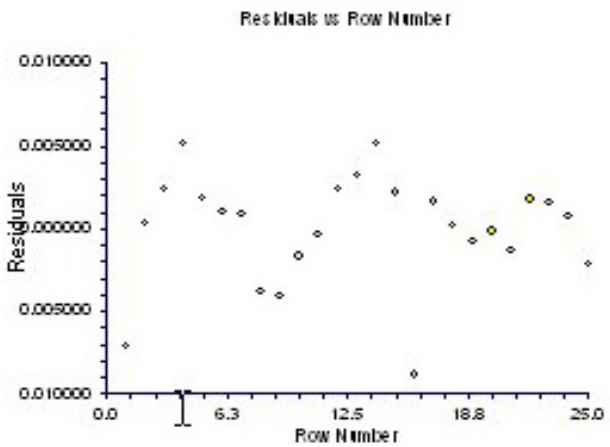
	B1	B2	B3	B4	B5
B1	1.000000	0.248057	0.577391	0.524398	0.098058
B2	0.248057	1.000000	0.063324	0.476681	0.753706
B3	0.577391	0.063324	1.000000	0.134727	0.024925
B4	0.524398	0.476681	0.134727	1.000000	0.189460
B5	0.098058	0.753706	0.024925	0.189460	1.000000

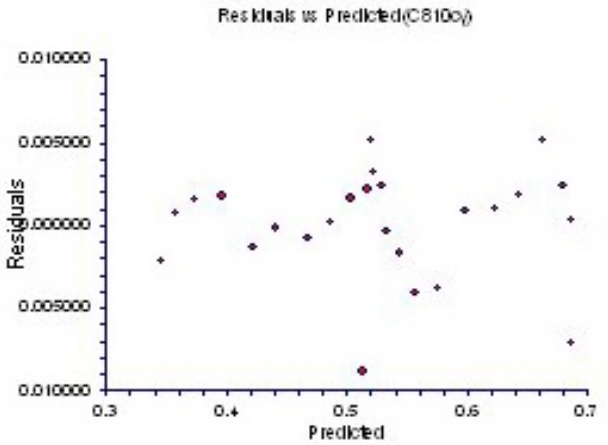
Predicted Values and Residuals Section

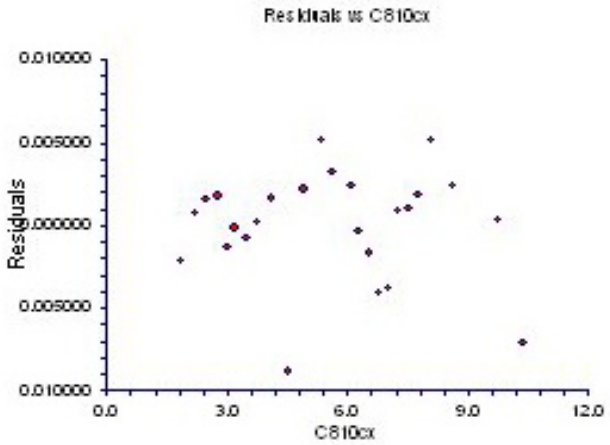
Row No.	Actual C810cy	Predicted C810cy	Lower 95.0% C.L.	Upper 95.0% C.L.	Residual
1	0.63	0.6371705	0.6284395	0.6459014	-7.170475E-03
2	0.637	0.6367034	0.6279945	0.6454123	2.96566E-04
3	0.632	0.6296054	0.6211712	0.6380396	2.394633E-03
4	0.618	0.6128179	0.604661	0.6209748	5.182036E-03
5	0.595	0.5931304	0.5849028	0.601358	1.869611E-03
6	0.574	0.5729765	0.5645699	0.5813832	1.023444E-03
7	0.549	0.5481422	0.5396707	0.5566136	8.578076E-04
8	0.522	0.5258567	0.5175505	0.5341629	-3.856722E-03
9	0.503	0.5071295	0.4990458	0.5152132	-4.129527E-03
10	0.492	0.4936687	0.4856938	0.5016437	-1.668714E-03
11	0.483	0.4833741	0.4753881	0.4913602	-3.7415E-04
12	0.481	0.4786361	0.4706037	0.4866686	2.363864E-03
13	0.475	0.4717595	0.4636131	0.479906	3.240462E-03
14	0.475	0.4698184	0.4616441	0.4779928	5.18156E-03
15	0.469	0.4668154	0.4586517	0.474979	2.184608E-03
16	0.454	0.4628512	0.4547531	0.4709494	-8.851226E-03
17	0.455	0.4533775	0.4453718	0.4613831	1.622517E-03
18	0.437	0.4367748	0.4286928	0.4448569	2.251913E-04
19	0.417	0.4177925	0.4094761	0.4261089	-7.925001E-04
20	0.391	0.3911786	0.3826496	0.3997076	-1.786474E-04
21	0.371	0.3723311	0.3638361	0.3808263	-1.331152E-03
22	0.348	0.3462352	0.3379405	0.3545298	1.764858E-03
23	0.325	0.3234446	0.3151357	0.3317535	1.55538E-03
24	0.308	0.3072885	0.2985732	0.3160038	7.114938E-04
25	0.294	0.2961075	0.2868061	0.3054089	-2.107488E-03

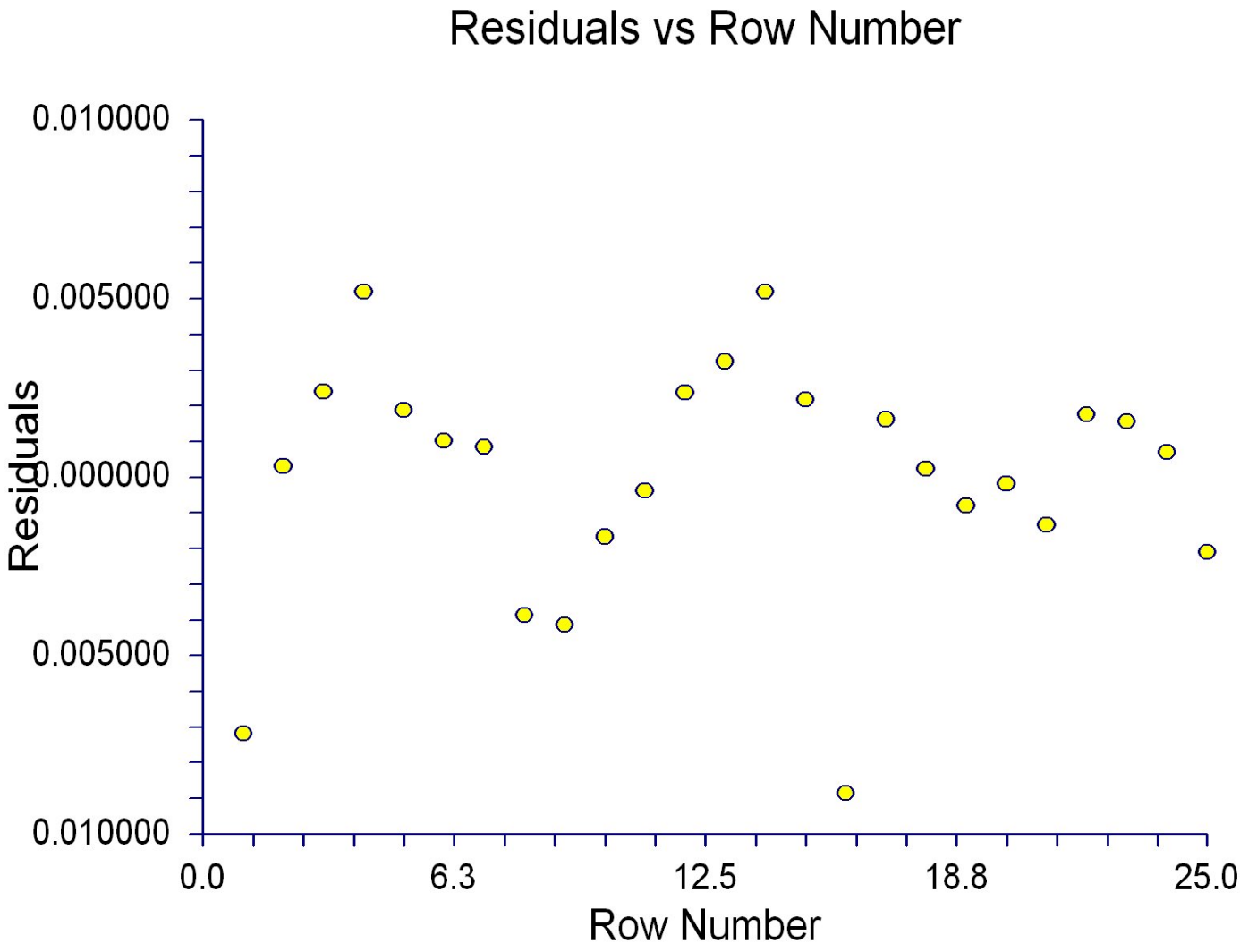
Plot Section










Residuals vs Row Number
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0.005000
0.000000
0.005000
0.010000
Residuals
0.0
6.3
12.5
18.8
25.0
Row Number

Úloha C8.11 *Odhad tří disociačních konstant sulfoazoxinů analýzou A-pH křivky*

C811a: 2-CAPAZOXS

RUN | NEW | OPEN | SAVE | MAP | NAV | PASS | DATA | OUT | OFF FILTER | PLAY | DESC STATS | 2 S T-TEST | MULT REG | FREQ TABLE

Storage | Template

Probability Plot | Resid vs Row Plot | Resid vs Yhat Plot | Resid vs X Plot

Model | Parameters - Cont | Options | Reports

Dependent Variable

Y: Dependent Variable:

C811AY

Options

Alpha Level:

0.05

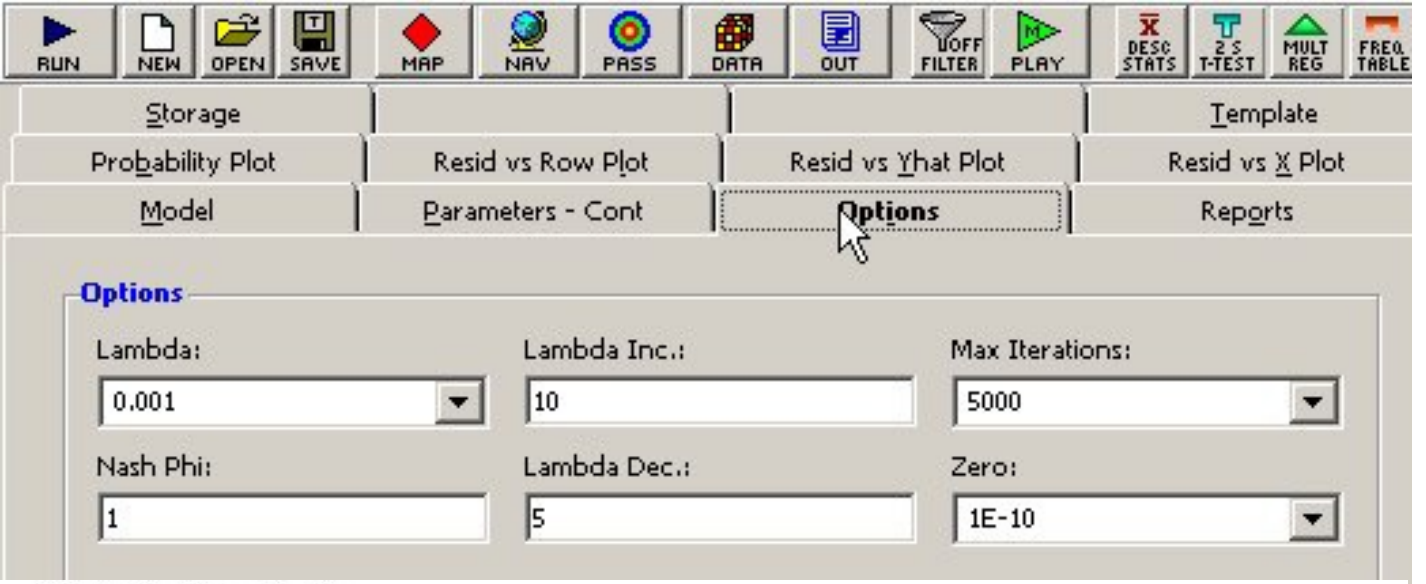
Model

Model:

(b4+(b5*10^(b1-C811ax))+(b6*10^(b1+b2-2*C811ax))+ (b7*10^(b1+b2+b3-3*C811ax)))/(1 +(10^(b1-C811ax))+ (10^(b1+b2-2*C811ax))+ (10^(b1+b2+b3-3*C811ax)))

Model Parameters

Parameter:	Min Start Max:	Parameter:	Min Start Max:
b1	8 9 10		-1E9 1 1E9
b2	4 5 6		-1E9 1 1E9
b3	2 3 4		-1E9 1 1E9
b4	0 0.02 0.2		-1E9 1 1E9
b5	0 0.3 1		-1E9 1 1E9
b6	0 0.5 0.7		-1E9 1 1E9
b7	0 0.8 1		-1E9 1 1E9



Minimization Phase Section

Itn No.	Error Sum Lambda	Lambda	B1	B2	B3	B4
0	0.1058055	0.0005	9	5	3	0.02
1	0.0142949	0.00025	9.099858	4.800729	3.819191	7.942092E-02
2	6.381314E-03	0.000125	9.113731	4.764955	3.43648	7.788955E-02
3	2.666524E-04	0.0000625	9.110624	4.693723	3.548691	7.816183E-02
4	2.520006E-04	3.125E-05	9.110747	4.706725	3.540861	7.814169E-02
5	2.519334E-04	1.5625E-05	9.110701	4.733121	3.542599	7.814587E-02
6	2.518611E-04	7.8125E-06	9.110625	4.782949	3.545794	7.815195E-02
7	2.518014E-04	3.90625E-05	9.110553	4.792589	3.546208	0.0781575
8	2.517678E-04	1.953125E-05	9.11053	4.810063	3.547179	7.815918E-02
9	2.51715E-04	9.765625E-06	9.110484	4.842813	3.548902	7.816284E-02
10	2.516791E-04	4.882812E-06	9.110406	4.900117	3.551623	7.816924E-02
11	2.516177E-04	2.441406E-05	9.110348	4.909816	3.551866	7.817363E-02
12	2.515995E-04	1.220703E-05	9.11033	4.926724	3.552553	7.817501E-02
13	2.515743E-04	6.103516E-06	9.110295	4.956377	3.553693	7.817783E-02
14	2.515552E-04	3.051758E-06	9.110243	5.001616	3.555275	7.818213E-02
15	2.515436E-04	1.525879E-06	9.110184	5.051974	3.556781	7.818697E-02
16	2.515267E-04	7.629395E-07	9.110152	5.076026	3.557343	7.818945E-02
17	2.515265E-04	3.814697E-07	9.110153	5.069708	3.55715	7.818925E-02
18	2.515264E-04	1.907349E-07	9.110149	5.076292	3.557327	7.818957E-02
19	2.515264E-04	9.536743E-06	9.110149	5.075802	3.557309	7.818962E-02
20	2.515264E-04	4.768372E-03	9.110149	5.075801	3.55731	7.818959E-02
21	2.515264E-04	2.384186E-02	9.110149	5.075801	3.55731	7.818956E-02
22	2.515264E-04	0.1192093	9.110149	5.075801	3.55731	7.818954E-02

Convergence criterion met.

Model Estimation Section

Parameter Name	Parameter Estimate	Asymptotic Standard Error	Lower 95% C.L.	Upper 95% C.L.
B1	9.110149	1.536375E-02	9.078773	9.141526
B2	5.075801	3.534013	-2.141616	12.29322
B3	3.55731	9.414376E-02	3.365042	3.749577
B4	7.818954E-02	2.229181E-03	7.363695E-02	8.274213E-02
B5	0.3531666	1.380695E-03	0.3503468	0.3559863
B6	0.3635366	9.725032E-02	0.1649249	0.5621483
B7	0.7643349	4.822303E-03	0.7544864	0.7741833

Model C811ay = (B4+(B5*10^(B1-C811AX))+(B6*10^(B1+B2-2*C811AX))+(B7*10^(B1+B2+B3-3*C811AX)))/(1+(10^(B1-C811AX))+(10^(B1+B2-2*C811AX))+(10^(B1+B2+B3-3*C811AX)))

R-Squared 0.999791

Iterations 22

Estimated Model

((7.818954E-02)+((.3531666)*10^((9.110149)-(C811AX)))+((.3635366)*10^((9.110149)+(5.075801)-2*(C811AX)))+((.7643349)*10^((9.110149)+(5.075801)+(3.55731)-3*(C811AX))))/(1+(10^((9.110149)-(C811AX)))+(10^((9.110149)+(5.075801)-2*(C811AX)))+(10^((9.110149)+(5.075801)+(3.55731)-3*(C811AX))))

Analysis of Variance Table

Source	DF	Sum of Squares	Mean Square
Mean	1	4.993774	4.993774
Model	7	6.195042	0.885006
Model (Adjusted)	6	1.201267	0.2002112
Error	30	2.515264E-04	8.384212E-06
Total (Adjusted)	36	1.201519	
Total	37	6.195293	

Asymptotic Correlation Matrix of Parameters

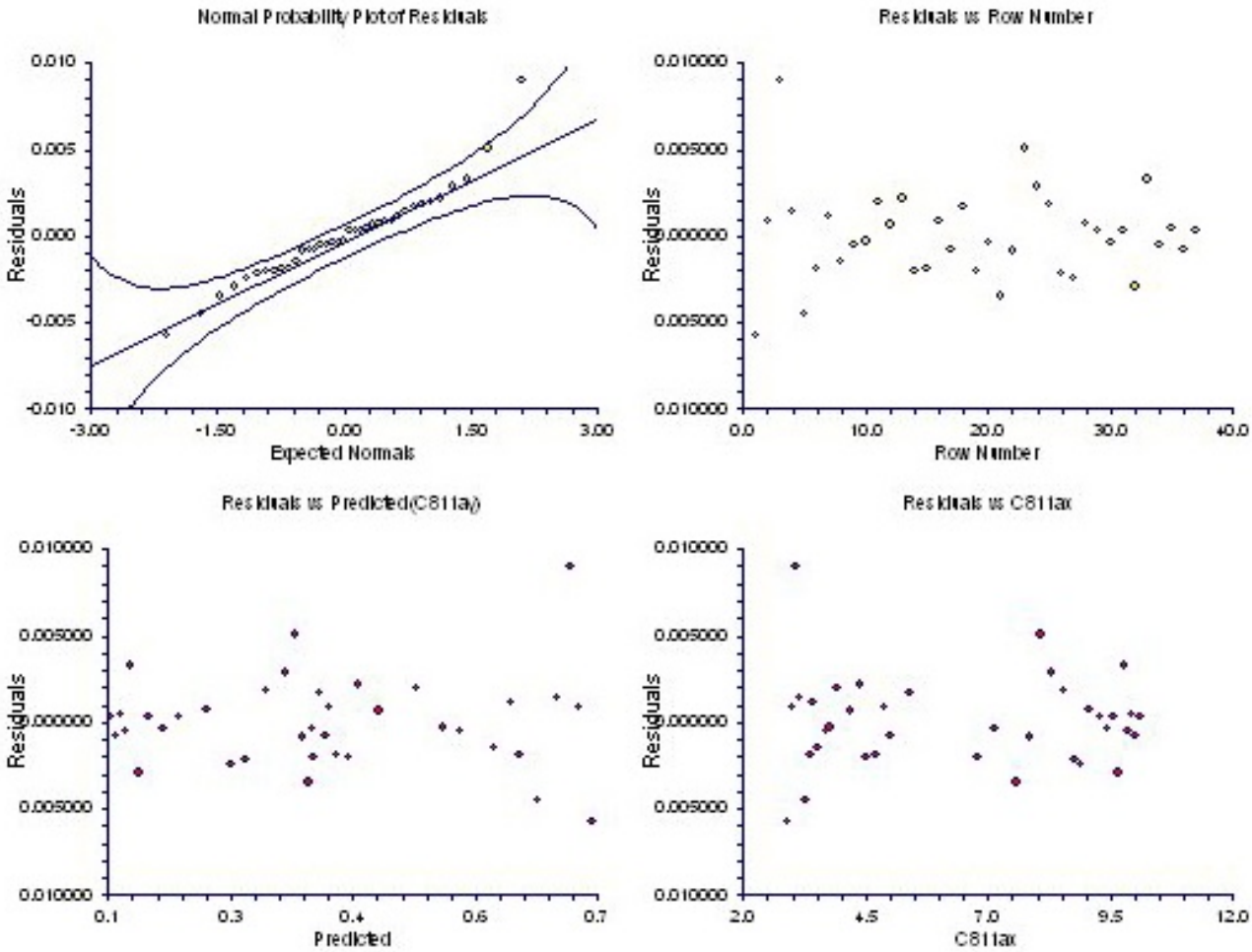
	B1	B2	B3	B4	B5	B6
B1	1.000000	-0.158348	-0.174976	-0.830630	-0.593248	0.163457
B2	-0.158348	1.000000	0.986091	0.098000	0.162832	-0.999653
B3	-0.174976	0.986091	1.000000	0.107005	0.193046	-0.989018
B4	-0.830630	0.098000	0.107005	1.000000	0.329265	-0.100812
B5	-0.593248	0.162832	0.193046	0.329265	1.000000	-0.171672
B6	0.163457	-0.999653	-0.989018	-0.100812	-0.171672	1.000000
B7	-0.035683	0.559747	0.428250	0.025713	-0.000279	-0.548700

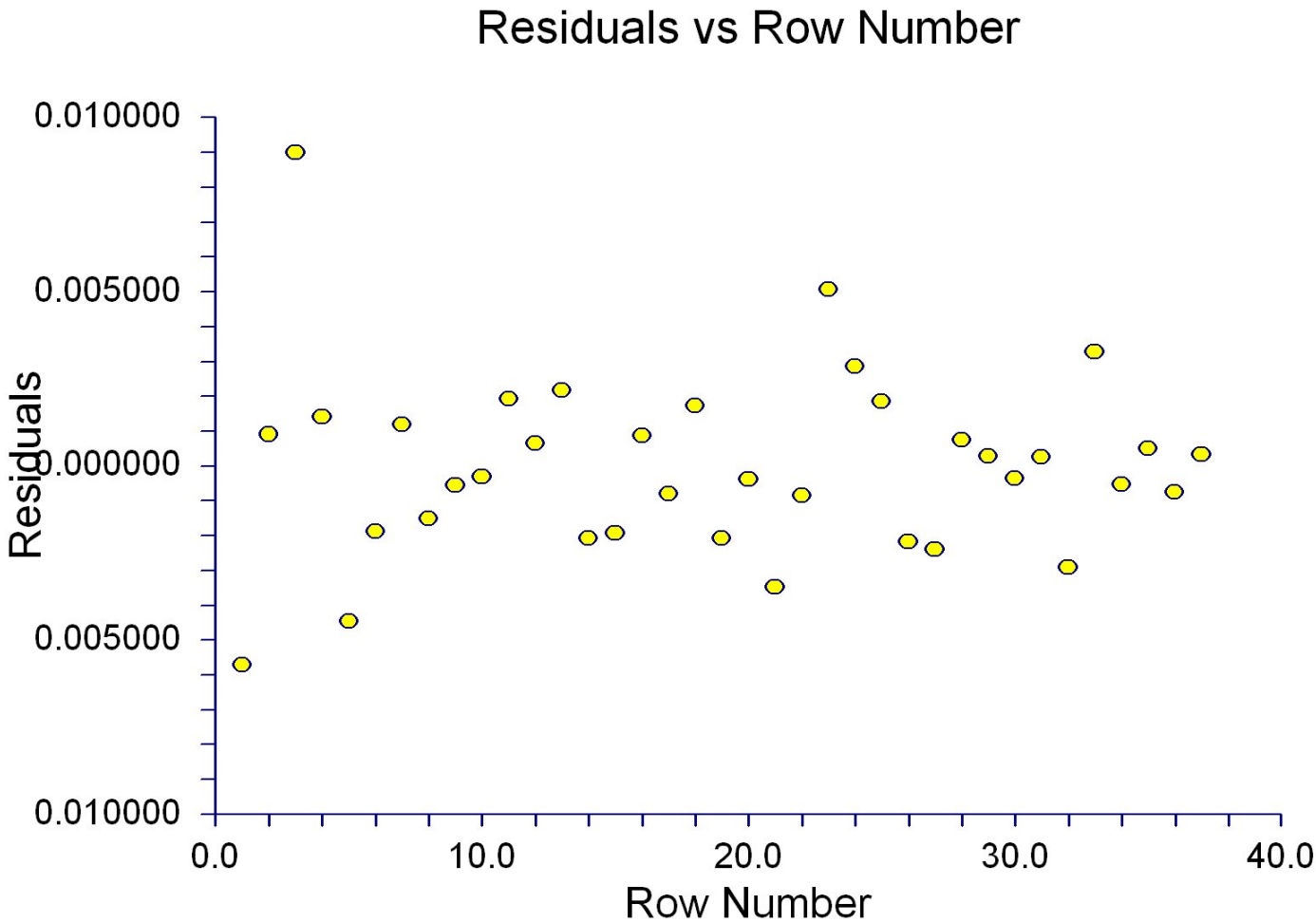
Asymptotic Correlation Matrix of Parameters

	B7
B1	-0.035683
B2	0.559747
B3	0.428250
B4	0.025713
B5	-0.000279
B6	-0.548700
B7	1.000000

Predicted Values and Residuals Section

Row No.	Actual C811ay	Predicted C811ay	Lower 95.0% C.L.	Upper 95.0% C.L.	Residual
1	0.687	0.6927133	0.6857061	0.6997206	-5.713317E-03
2	0.678	0.6770905	0.6704764	0.6837047	9.094891E-04
3	0.675	0.6659974	0.6595595	0.6724353	9.002623E-03
4	0.652	0.6505849	0.6442793	0.6568905	1.415077E-03
5	0.622	0.6264522	0.6201785	0.6327258	-4.452183E-03
6	0.602	0.6038669	0.5975333	0.6102004	-1.866857E-03
7	0.595	0.593812	0.5874459	0.6001782	1.187927E-03
8	0.571	0.5725016	0.5660798	0.5789235	-1.501624E-03
9	0.53	0.5305527	0.5241144	0.536991	-5.526837E-04
10	0.51	0.5103057	0.5038862	0.5167252	-3.05693E-04
11	0.48	0.4780788	0.4716541	0.4845037	1.921147E-03
12	0.432	0.4313487	0.4247505	0.4379469	6.513097E-04
13	0.408	0.4058209	0.3991958	0.412446	2.179112E-03
14	0.392	0.3940691	0.3875182	0.40062	-2.069101E-03
15	0.378	0.3799381	0.3734909	0.3863853	-1.938105E-03
16	0.372	0.3711317	0.3645692	0.3776943	8.682643E-04
17	0.366	0.3667836	0.360034	0.3735333	-7.836324E-04
18	0.36	0.3582654	0.3512032	0.3653276	1.734621E-03
19	0.35	0.3520611	0.3455699	0.3585522	-2.061068E-03
20	0.35	0.3503794	0.3438797	0.356879	-3.793754E-04
21	0.342	0.3454826	0.339042	0.3519231	-3.482578E-03
22	0.338	0.3388553	0.3324986	0.3452121	-8.553127E-04
23	0.335	0.3299298	0.3236538	0.3362058	5.070168E-03
24	0.32	0.3171261	0.3109039	0.3233483	2.873905E-03
25	0.296	0.2941417	0.2878885	0.3003948	1.85832E-03
26	0.266	0.2681623	0.2617938	0.2745308	-2.16227E-03
27	0.248	0.2504024	0.2439648	0.25684	-2.402388E-03
28	0.222	0.2212463	0.2147762	0.2277163	7.537268E-04
29	0.187	0.186705	0.1803457	0.1930643	2.950144E-04
30	0.167	0.1673614	0.1610987	0.1736241	-3.614064E-04
31	0.15	0.1497351	0.1435342	0.155936	2.648968E-04
32	0.135	0.1379094	0.1317087	0.1441101	-2.909428E-03
33	0.13	0.1267301	0.1204785	0.1329817	3.269869E-03
34	0.12	0.1205366	0.1142287	0.1268445	-5.365816E-04
35	0.115	0.1144939	0.1081081	0.1208797	5.060983E-04
36	0.108	0.1087579	0.1022747	0.1152411	-7.578657E-04
37	0.104	0.1036706	9.708019E-02	0.110261	3.293964E-04


Normal Probability Plot of Residuals
Residuals
Expected Normals
Residuals vs Row Number
Residuals
Row Number
Residuals vs Predicted(C811a)
Residuals
Predicted
Residuals vs C811ax
Residuals
C811ax


Residuals vs Row Number
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0.010000
Residuals
0.0
10.0
20.0
30.0
40.0
Row Number

C811b: 3-CAPAZOXS

Storage | | | Template

Probability Plot | Resid vs Row Plot | Resid vs Yhat Plot | Resid vs X Plot

Model | Parameters - Cont | Options | Reports

Dependent Variable

Y: Dependent Variable:

C811b

Options

Alpha Level:

0.05

Model

Model:

(b4+(b5*10^(b1-C811bx))+(b6*10^(b1+b2-2*C811bx))+ (b7*10^(b1+b2+b3-3*C811bx)))/(1 +(10^(b1-C811bx))+ (10^(b1+b2-2*C811bx))+ (10^(b1+b2+b3-3*C811bx)))

Model Parameters

Parameter:	Min Start Max:	Parameter:	Min Start Max:
b1	6 7 10		-1E9 1 1E9
b2	3 4 6		-1E9 1 1E9
b3	2 3 4		-1E9 1 1E9
b4	0 0.2 0.5		-1E9 1 1E9
b5	0 0.3 1		-1E9 1 1E9
b6	0 0.5 0.7		-1E9 1 1E9
b7	0 0.8 1		-1E9 1 1E9

Minimization Phase Section

Itn No.	Error Sum Lambda	Lambda	B1	B2	B3	B4
0	0.642791	0.0005	7	4	3	0.2
1	5.989375E-03	0.00025	7.332754	3.815694	2.506047	0.1393312
2	1.056738E-03	0.000125	7.335562	3.794442	2.742109	0.1375687
3	3.980916E-04	0.0000625	7.335357	3.85677	2.709623	0.1375714
4	3.95198E-04	3.125E-05	7.336772	3.911783	2.718755	0.137554
5	3.950318E-04	1.5625E-05	7.337022	3.916947	2.718837	0.1375523
6	3.950318E-04	0.78125	7.337022	3.916947	2.718837	0.1375523
7	3.950318E-04	3.90625	7.337022	3.916947	2.718837	0.1375523
8	3.950318E-04	19.53125	7.337022	3.916947	2.718837	0.1375523
9	3.950318E-04	9.765625	7.337022	3.916947	2.718837	0.1375523
10	3.950318E-04	4.882813	7.337022	3.916947	2.718837	0.1375523

Convergence criterion met.

Model Estimation Section

Parameter Name	Parameter Estimate	Asymptotic Standard Error	Lower 95% C.L.	Upper 95% C.L.
B1	7.337022	4.899373E-02	7.236818	7.437225
B2	3.916947	0.363857	3.172776	4.661119
B3	2.718837	5.388235E-02	2.608635	2.829039
B4	0.1375523	1.830658E-03	0.1338082	0.1412964
B5	0.2396305	2.557836E-03	0.2343991	0.2448618
B6	0.2982258	3.543472E-02	0.2257536	0.3706979
B7	0.6981838	3.085218E-03	0.6918738	0.7044938

Model C811by = (B4+(B5*10^(B1-C811BX))+(B6*10^(B1+B2-2*C811BX))+(B7*10^(B1+B2+B3-3*C811BX)))/(1+(10^(B1-C811BX))+(10^(B1+B2-2*C811BX))+(10^(B1+B2+B3-3*C811BX)))

R-Squared 0.999647

Iterations 10

Estimated Model

((.1375523)+((.2396305)*10^((7.337022)-(C811BX)))+((.2982258)*10^((7.337022)+(3.916947)-2*(C811BX)))+((.6981838)*10^((7.337022)+(3.916947)+(2.718837)-3*(C811BX))))/(1+(10^((7.337022)-(C811BX)))+(10^((7.337022)+(3.916947)-2*(C811BX)))+(10^((7.337022)+(3.916947)+(2.718837)-3*(C811BX))))

Analysis of Variance Table

Source	DF	Sum of Squares	Mean Square
Mean	1	4.108053	4.108053
Model	7	5.22524	0.7464629
Model (Adjusted)	6	1.117187	0.1861978
Error	29	3.950318E-04	1.362179E-05
Total (Adjusted)	35	1.117582	
Total	36	5.225635	

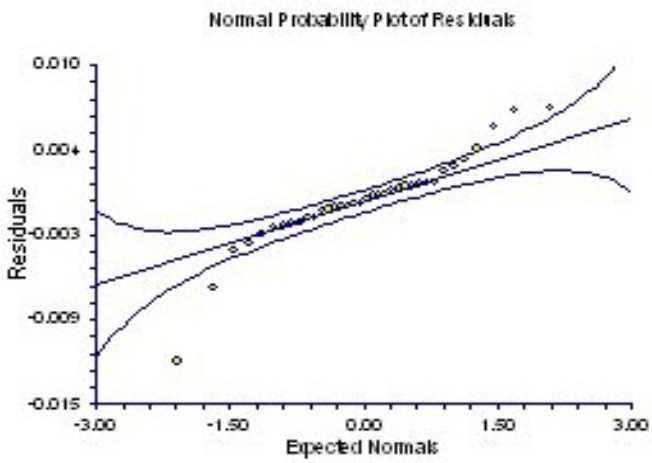
Asymptotic Correlation Matrix of Parameters

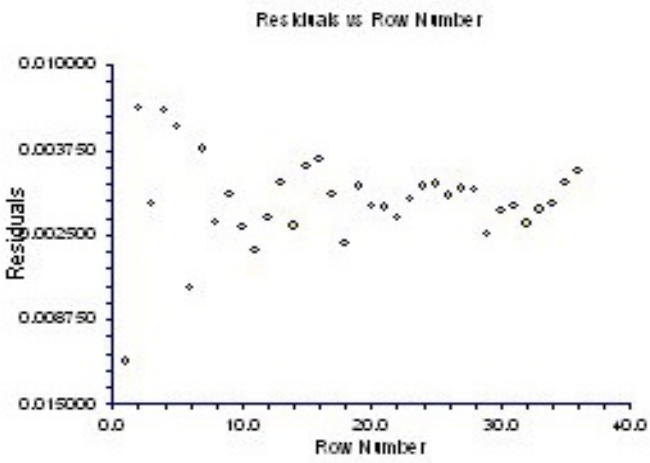
	B1	B2	B3	B4	B5	B6
B1	1.000000	0.347385	0.260737	-0.613403	-0.677144	-0.306638
B2	0.347385	1.000000	0.949117	-0.115168	-0.528457	-0.992102
B3	0.260737	0.949117	1.000000	-0.085999	-0.399785	-0.975315
B4	-0.613403	-0.115168	-0.085999	1.000000	0.229183	0.101396
B5	-0.677144	-0.528457	-0.399785	0.229183	1.000000	0.468301
B6	-0.306638	-0.992102	-0.975315	0.101396	0.468301	1.000000
B7	-0.074656	-0.471487	-0.656063	0.024224	0.117383	0.518385

Predicted Values and Residuals Section

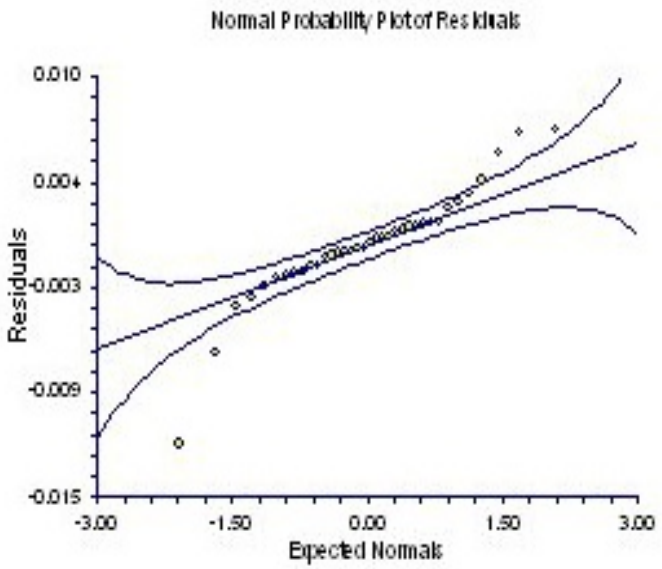
Row No.	Actual C811by	Predicted C811by	Lower 95.0% C.L.	Upper 95.0% C.L.	Residual
1	0.66	0.6718323	0.6631276	0.680537	-1.183231E-02
2	0.666	0.6591045	0.650729	0.6674799	6.895545E-03
3	0.653	0.6532639	0.6449983	0.6615295	-2.639063E-04
4	0.64	0.6332622	0.6252112	0.6413132	6.737793E-03
5	0.631	0.6255459	0.6175246	0.6335672	5.454158E-03
6	0.593	0.5994531	0.5914007	0.6075055	-6.453071E-03
7	0.547	0.5431718	0.534913	0.5514306	3.828239E-03
8	0.53	0.5315283	0.5232586	0.539798	-1.528254E-03
9	0.483	0.4824694	0.4743012	0.4906377	5.306113E-04
10	0.471	0.4729561	0.4648217	0.4810906	-1.956069E-03
11	0.428	0.4316176	0.4235736	0.4396614	-3.617488E-03
12	0.42	0.4212092	0.4131586	0.4292599	-1.209183E-03
13	0.382	0.3806371	0.3724385	0.3888357	1.362948E-03
14	0.366	0.3678455	0.3595865	0.3761045	-1.84545E-03
15	0.35	0.3474409	0.3391234	0.3557584	2.55914E-03
16	0.327	0.3239765	0.3156898	0.3322632	3.023535E-03
17	0.295	0.2945627	0.2862809	0.3028446	4.372997E-04
18	0.273	0.2760935	0.2675942	0.2845928	-3.093488E-03
19	0.272	0.2709026	0.2623481	0.2794571	1.09742E-03
20	0.257	0.2574016	0.2489356	0.2658675	-4.015735E-04
21	0.245	0.2454649	0.2371198	0.25381	-4.648801E-04
22	0.238	0.239225	0.2304949	0.2479551	-1.225033E-03
23	0.232	0.2319152	0.223469	0.2403614	8.478232E-05
24	0.222	0.2209242	0.2128104	0.229038	1.075773E-03
25	0.22	0.2187362	0.2106382	0.2268342	1.26377E-03
26	0.205	0.2045961	0.1963887	0.2128035	4.039142E-04
27	0.192	0.1910822	0.1827313	0.1994331	9.177731E-04
28	0.18	0.1791381	0.1708166	0.1874596	8.618612E-04
29	0.164	0.166482	0.1583581	0.174606	-2.482035E-03
30	0.155	0.155775	0.1478199	0.1637302	-7.750514E-04
31	0.153	0.1534237	0.1454827	0.1613647	-4.236716E-04
32	0.147	0.1486676	0.1407052	0.15663	-1.667556E-03
33	0.144	0.1446433	0.1365918	0.1526948	-6.432912E-04
34	0.14	0.1401803	0.13193	0.1484307	-1.803564E-04
35	0.14	0.1386126	0.1302631	0.1469621	1.38741E-03
36	0.14	0.1378611	0.1294581	0.146264	2.138922E-03

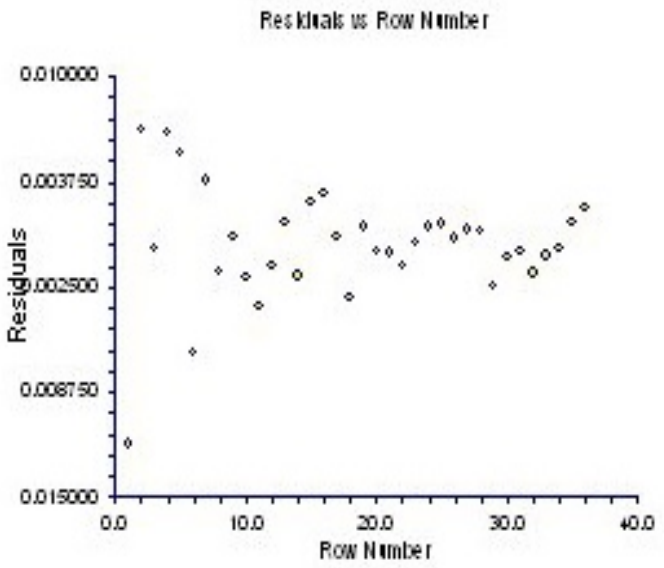
Plot Section

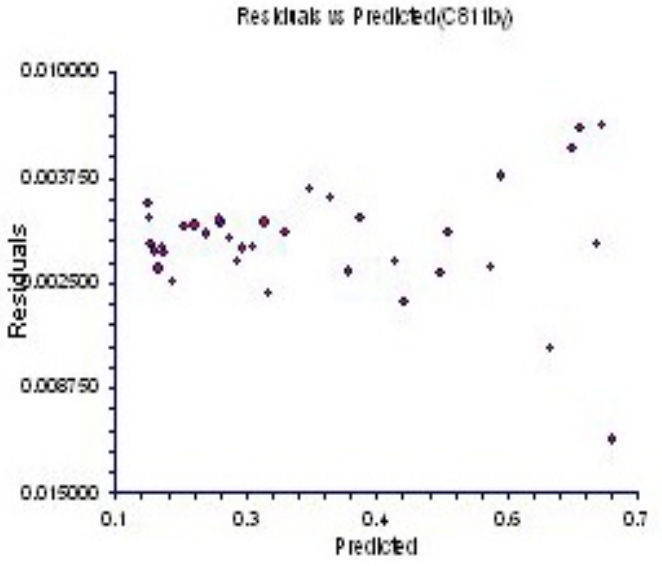


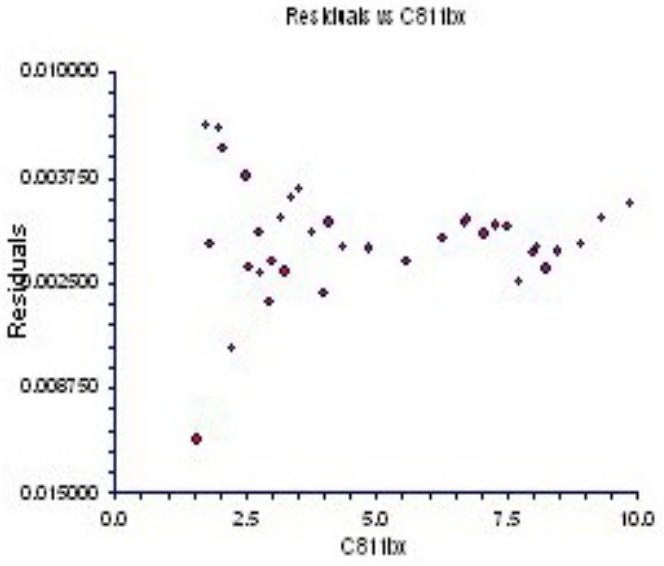


Plot Section









Analýza environmentálních, potravinářských a zemědělských dat dat

Úlohy E8.XX

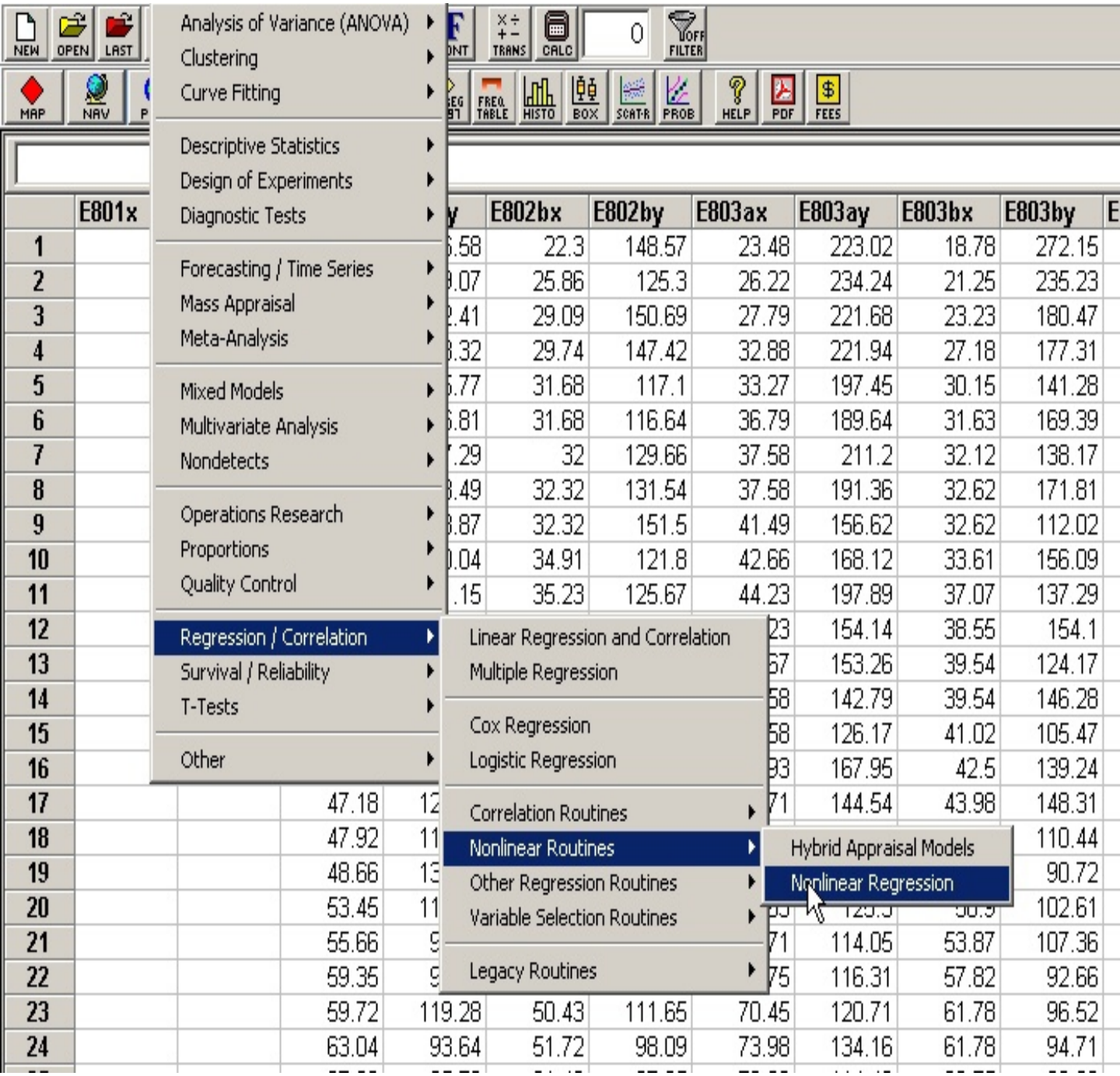
v učebnici

M. Meloun, J. Militký: Kompendium ……, str. 800

Software NCSS2007

Úloha E8.01 Úroda ovoce v závislosti na stáří ovocného stromu

	E801x	E801y	E802ax	E802ay	E802bx	E802by	E803ax	E803ay	E803bx	E803by	E804ax
1	2	2	20.64	176.58	22.3	148.57	23.48	223.02	18.78	272.15	9
2	2	3	26.91	159.07	25.86	125.3	26.22	234.24	21.25	235.23	14
3	3	2	26.91	122.41	29.09	150.69	27.79	221.68	23.23	180.47	21
4	5	10	28.02	128.32	29.74	147.42	32.88	221.94	27.18	177.31	28
5	4	5	32.44	125.77	31.68	117.1	33.27	197.45	30.15	141.28	42
6	3	3	34.28	126.81	31.68	116.64	36.79	189.64	31.63	169.39	57
7	2	1	36.49	117.29	32	129.66	37.58	211.2	32.12	138.17	63
8	3	4	38.71	133.49	32.32	131.54	37.58	191.36	32.62	171.81	70
9	4	7	39.44	128.87	32.32	151.5	41.49	156.62	32.62	112.02	79
10	4	6	39.81	110.04	34.91	121.8	42.66	168.12	33.61	156.09	
11	3	3	40.92	111.15	35.23	125.67	44.23	197.89	37.07	137.29	
12	5	12	42.76	134.12	38.47	117.78	44.23	154.14	38.55	154.1	
13			43.5	99.94	39.44	101.5	51.67	153.26	39.54	124.17	
14			45.34	128.7	41.05	113.22	55.58	142.79	39.54	146.28	
15			45.71	152.17	41.7	136.43	55.58	126.17	41.02	105.47	
16			46.82	100.36	44.28	117.54	57.93	167.95	42.5	139.24	
17			47.18	123.32	45.9	87.2	58.71	144.54	43.98	148.31	
18			47.92	114.44	46.55	107.41	59.5	151.3	45.47	110.44	
19			48.66	131.27	48.16	129.68	60.67	130.52	49.92	90.72	
20			53.45	115.12	48.49	104.63	62.63	125.3	50.9	102.61	
21			55.66	95.52	48.81	114.15	67.71	114.05	53.87	107.36	
22			59.35	94.94	49.78	99.85	75	116.31	57.82	92.66	
23			59.72	119.28	50.43	111.65	70.45	120.71	61.78	96.52	
24			63.04	93.64	51.72	98.09	73.98	134.16	61.78	94.71	
25			67.09	85.73	61.42	87.85	73.98	114.48	63.75	99.86	
26			68.93	89.26	65.29	75.45	78.67	91.17	67.71	93.37	
27			69.3	88.55	67.23	87.01	95.9	101.27	71.66	89.78	
28			73.36	76.31	71.44	90.1	96.68	97.33	77.59	69.34	
29			80.73	76.63	73.05	81.08	96.68	101.37	80.56	73.74	
30			89.58	90.53	86.63	65.33	101.38	97.2	86.49	75.17	
31			95.47	71.28	96	58.49	103.72	87.12	88.46	72.98	
32			98.05	56.61	98.91	65.67	104.51	81.71	89.45	79.94	
33			98.42	75.09	103.44	67.19	105.68	76.44	90.93	79.13	
34			102.48	65.26	105.05	54.01	108.03	87.1	92.91	70.93	
35			105.8	64.48	111.19	60.92	117.82	84.54	101.81	60.99	
36			106.53	61.84	113.78	53.48	127.21	69.09	103.78	74.09	
37			108.75	65.19	119.92	61.62	134.26	64.4	115.15	49.45	
38			115.38	57.1	120.89	26.32	137.39	66.81	123.06	56.65	
39			150.77	52.68	126.71	61.21	151.87	63.01	144.31	47.84	
40			152.24	47.01	138.99	41.67	163.61	55.45	155.68	40.03	
41			155.19	44.28	146.75	45.26	166.35	62.54	158.15	38.7	
42					160.97	46.45	184.75	54.68	180.39	28.96	
43											
44											
45											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FEES
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Clustering
Curve Fitting
Descriptive Statistics
Design of Experiments
Diagnostic Tests
Forecasting / Time Series
Mass Appraisal
Meta-Analysis
Mixed Models
Multivariate Analysis
Nondetects
Operations Research
Proportions
Quality Control
Regression / Correlation
Survival / Reliability
T-Tests
Other
Linear Regression and Correlation
Multiple Regression
Cox Regression
Logistic Regression
Correlation Routines
Nonlinear Routines
Other Regression Routines
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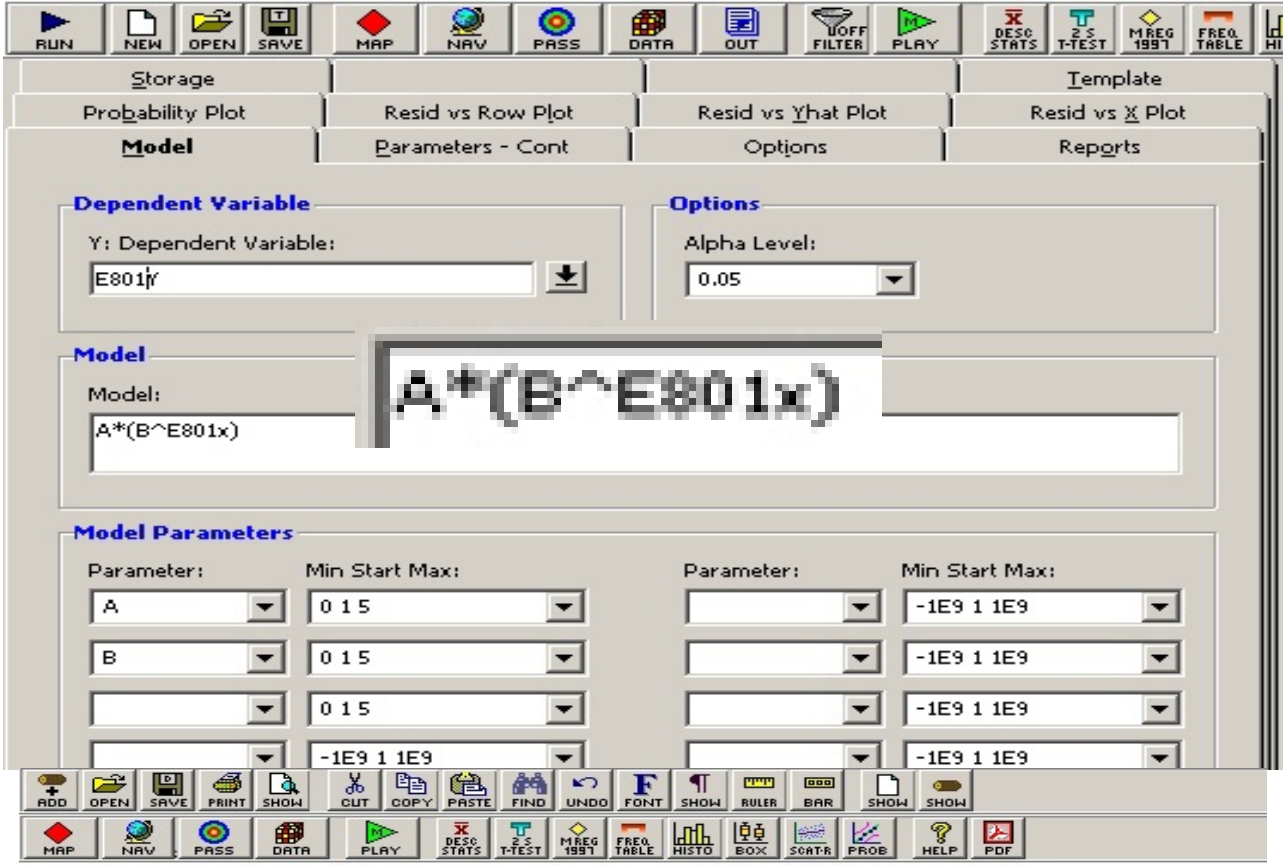

Nonlinear Regression Report

Page/Date/Time	1 8/27/2010 9:33:08 AM
Database	E:\Data\Data-NCSS\8kap\E8.S0
Dependent	E801y

Minimization Phase Section

Itn No.	Error Sum Lambda	Lambda	A	B
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Stepsize reduced to 0.1738652 by bounds.				
Stepsize reduced to 0.1752663 by bounds.				
Stepsize reduced to 0.1809233 by bounds.				
Stepsize reduced to 0.2044299 by bounds.				
Stepsize reduced to 0.3149623 by bounds.				
1	75.65422	0.9216	1.821878	1.472047
2	34.27524	0.6912	1.629984	1.448799
3	27.25092	0.5184	1.514326	1.445143
4	25.17725	0.3888	1.43071	1.455147
5	23.24403	0.2916	1.350298	1.473176
6	21.07603	0.2187	1.262234	1.496778
7	18.75508	0.164025	1.165471	1.525415
8	16.41603	0.1230187	1.06298	1.558917
9	14.21673	9.226406E-02	0.9594795	1.596765
10	12.30804	6.919805E-02	0.860292	1.637814
11	10.79659	5.189854E-02	0.7703208	1.680238
12	9.718517	0.0389239	0.6932002	1.721656
13	9.036822	2.919293E-02	0.6308554	1.759467
14	8.662589	0.0218947	0.583524	1.791363
15	8.489013	1.642102E-02	0.5500686	1.815868
16	8.423227	1.231577E-02	0.5283706	1.832722
17	8.403612	9.236825E-03	0.5157239	1.842902
18	8.399195	6.927618E-03	0.5092659	1.848191
19	8.398475	5.195714E-03	0.5064528	1.850509
20	8.398396	3.896785E-03	0.5054325	1.85135
21	8.39839	2.922589E-03	0.5051301	1.8516
22	8.39839	2.191942E-03	0.5050578	1.85166

Convergence criterion met.

Model Estimation Section

Parameter Name	Parameter Estimate	Asymptotic Standard Error	Lower 95% C.L.	Upper 95% C.L.
A	0.5050578	0.1358738	0.2023121	0.8078035
B	1.85166	0.109386	1.607933	2.095387
Model	E801y = A*(B^E801X)			
R-Squared	0.933169			
Iterations	22			

Estimated Model

(.5050578)*((1.85166)^(E801X))

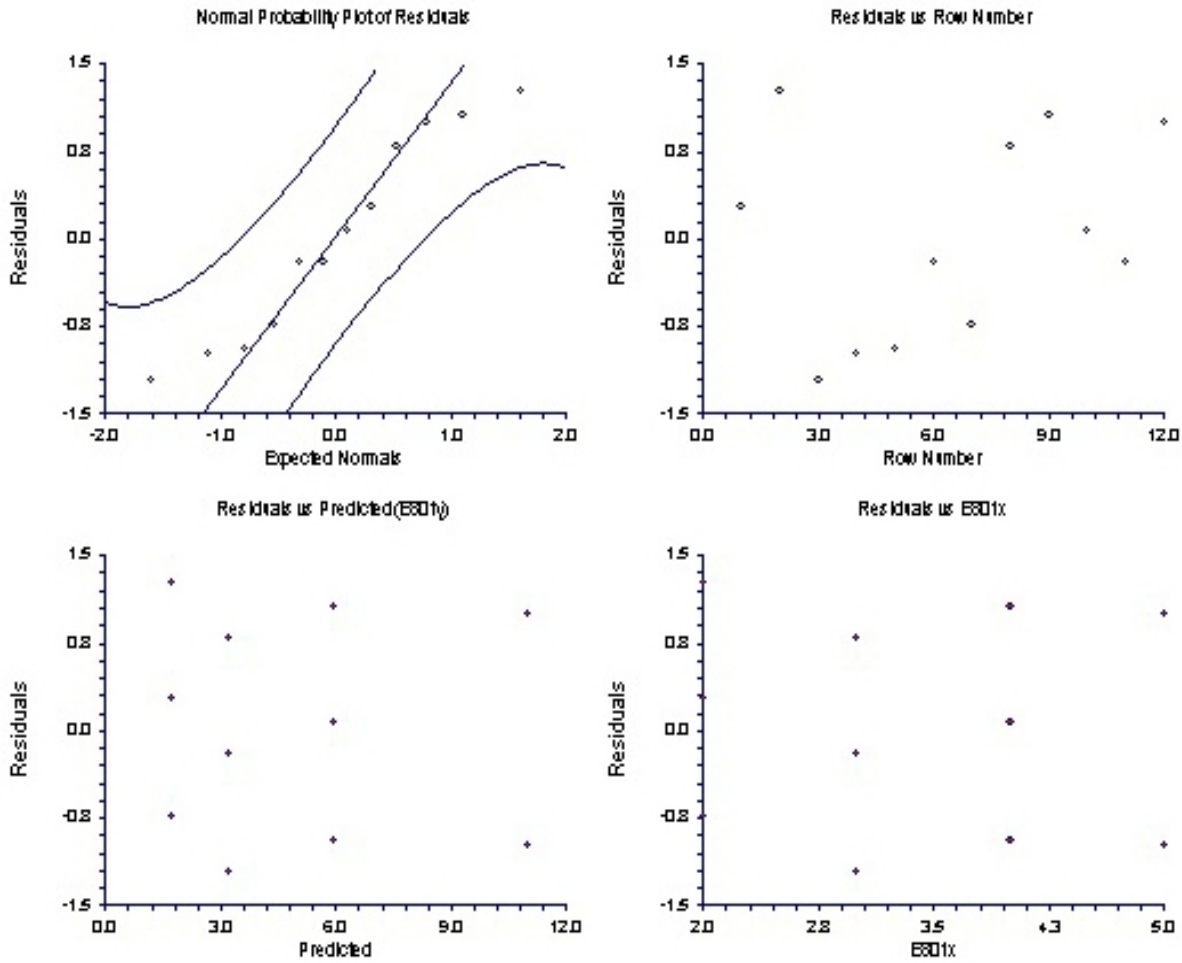
Asymptotic Correlation Matrix of Parameters

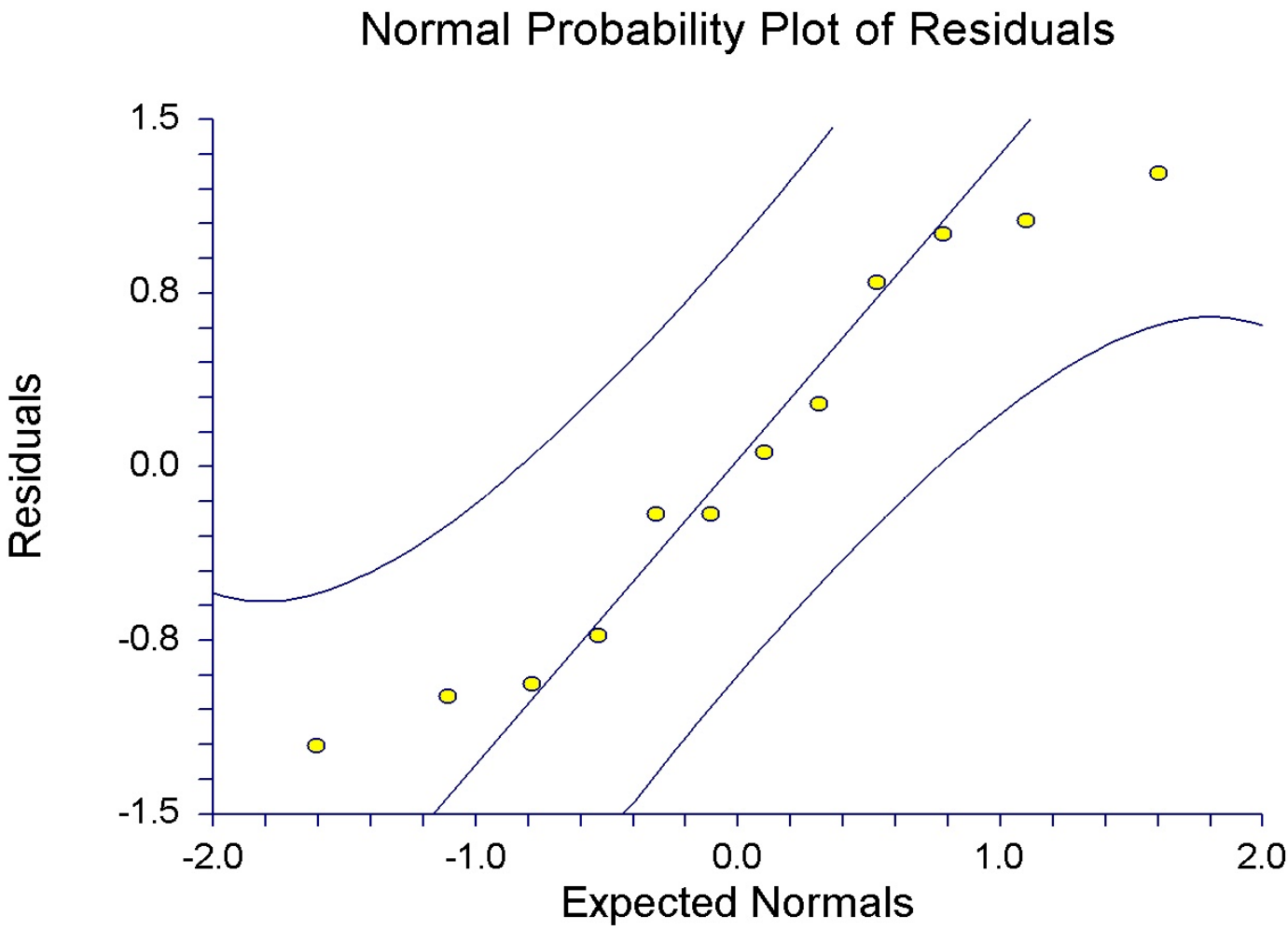
	A	B
A	1.000000	-0.985299
B	-0.985299	1.000000

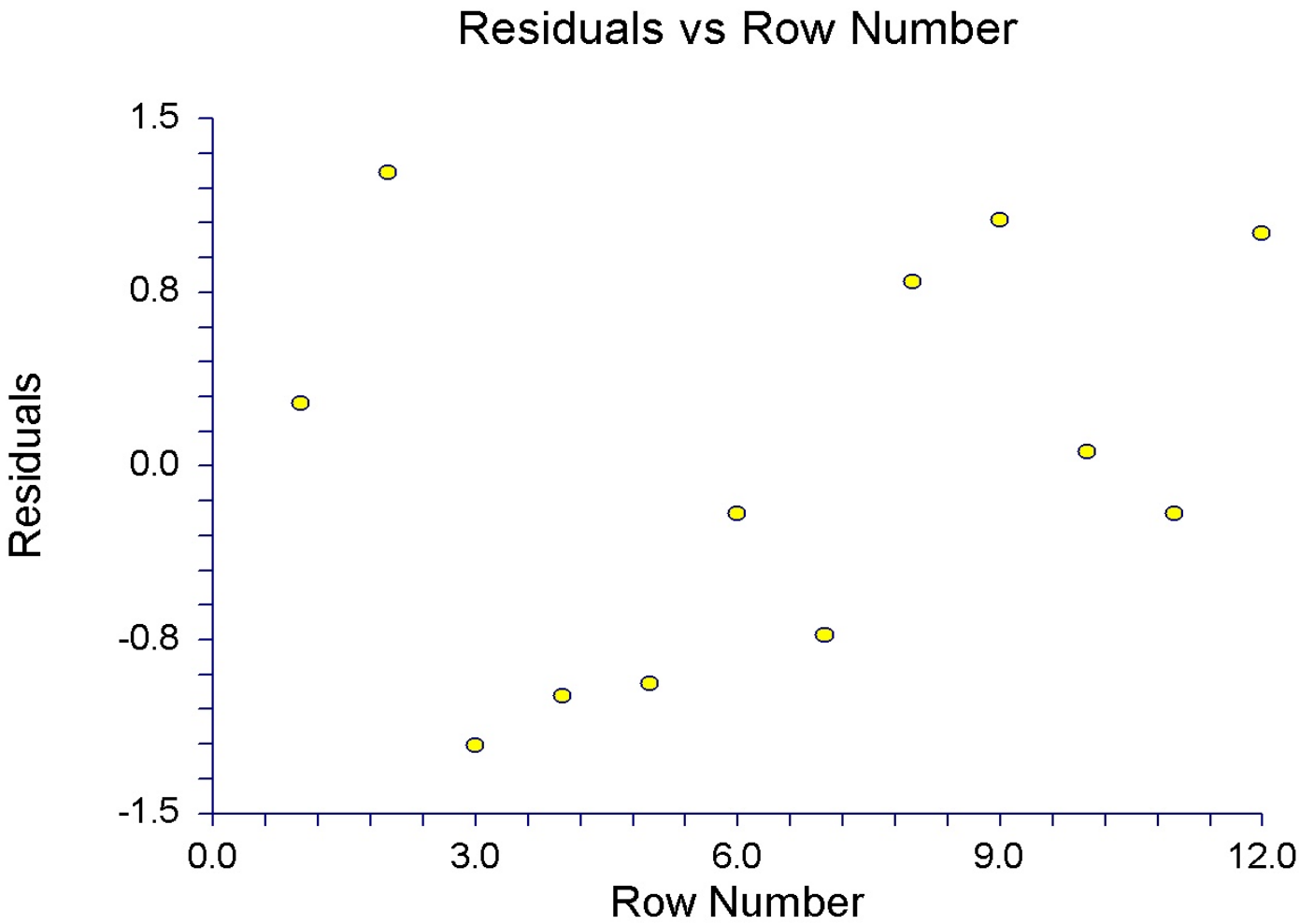
Predicted Values and Residuals Section

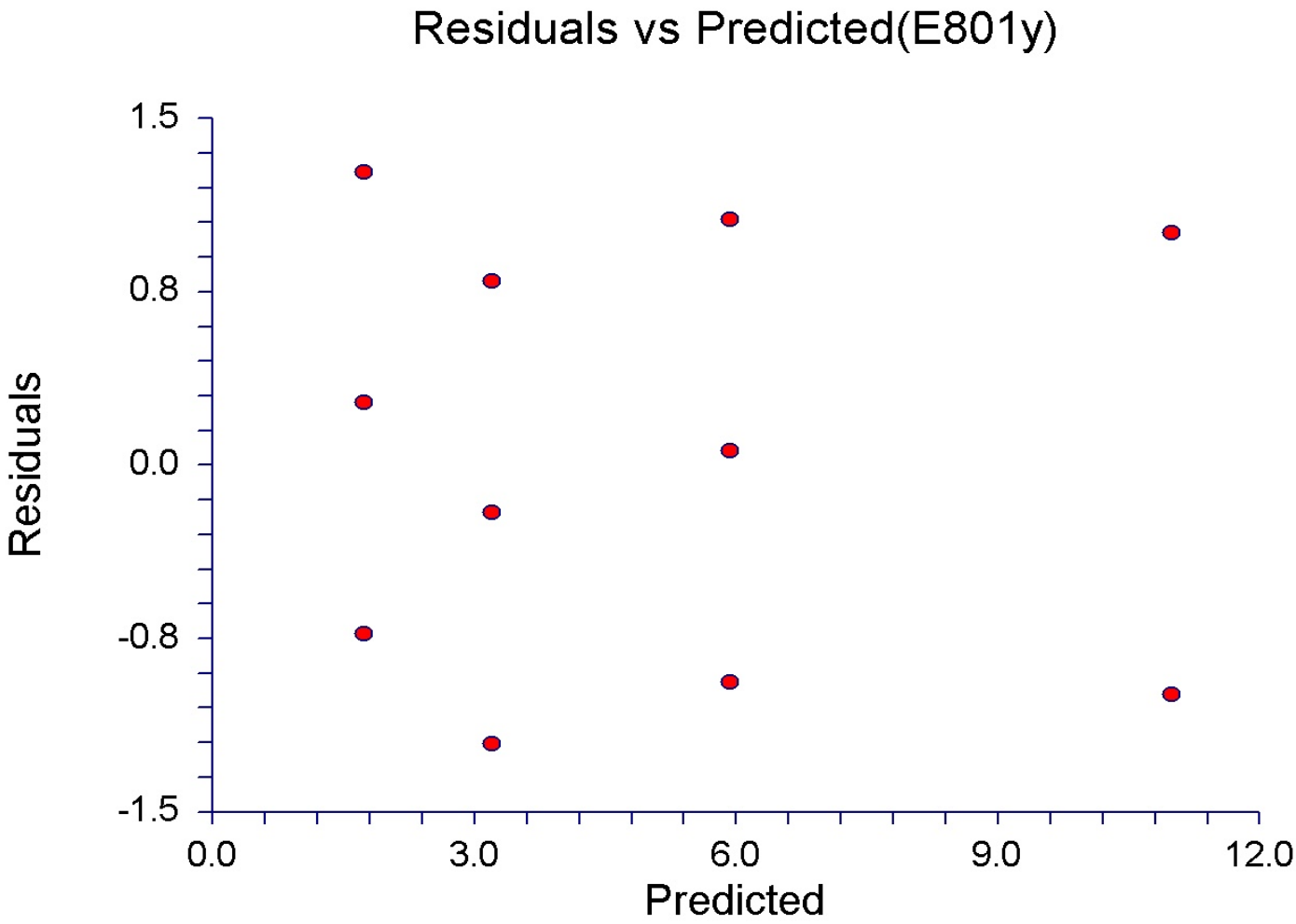
Row No.	Actual E801y	Predicted E801y	Lower 95.0% C.L.	Upper 95.0% C.L.	Residual
1	2	1.731664	-0.3946889	3.858016	0.2683361
2	3	1.731664	-0.3946889	3.858016	1.268336
3	2	3.206453	1.046428	5.366477	-1.206453
4	10	10.99379	8.531079	13.4565	-0.9937889
5	5	5.93726	3.775801	8.09872	-0.9372609
6	3	3.206453	1.046428	5.366477	-0.2064529
7	1	1.731664	-0.3946889	3.858016	-0.7316639
8	4	3.206453	1.046428	5.366477	0.7935471
9	7	5.93726	3.775801	8.09872	1.062739
10	6	5.93726	3.775801	8.09872	6.273915E-02
11	3	3.206453	1.046428	5.366477	-0.2064529
12	12	10.99379	8.531079	13.4565	1.006211

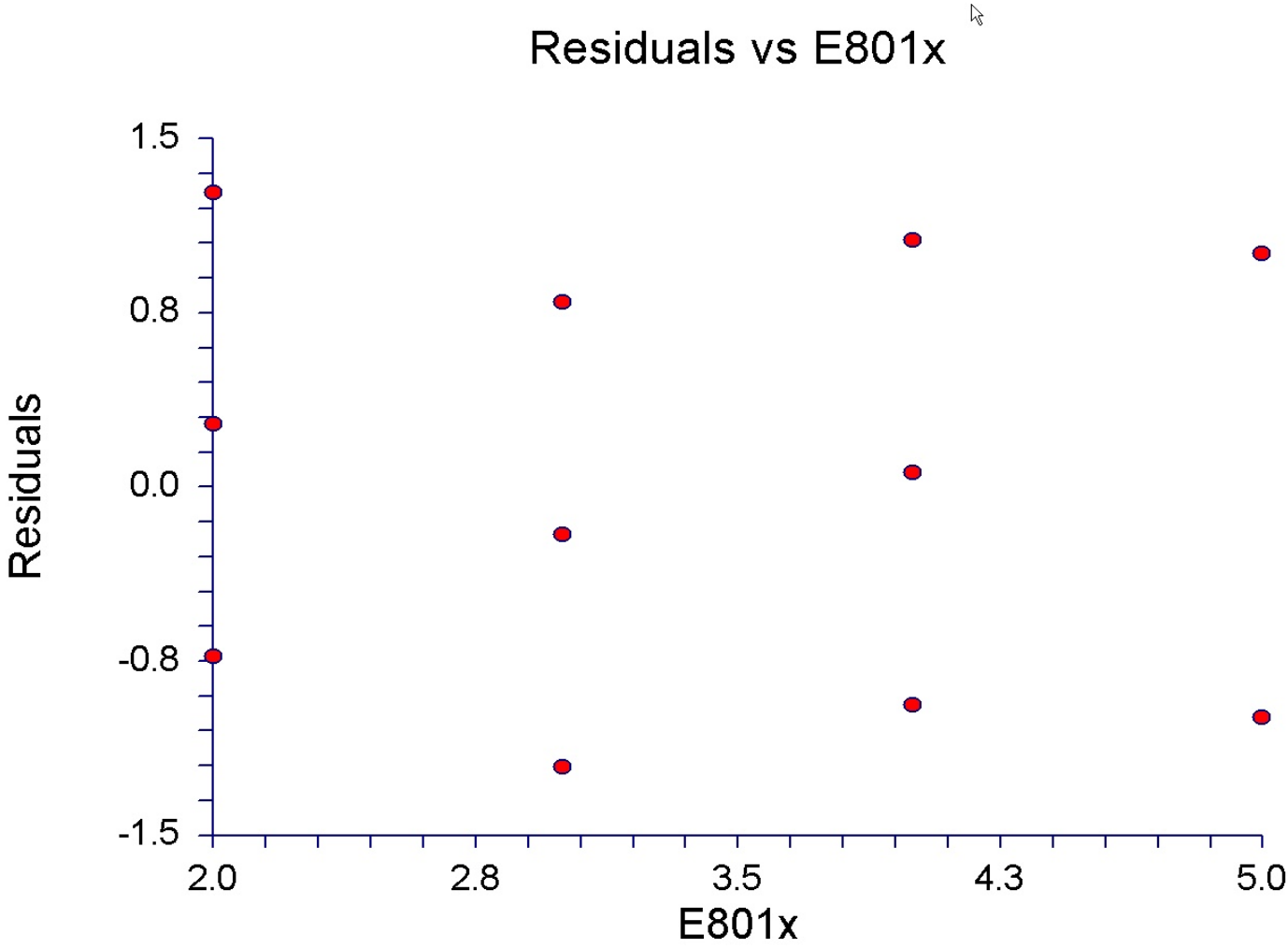
Plot Section



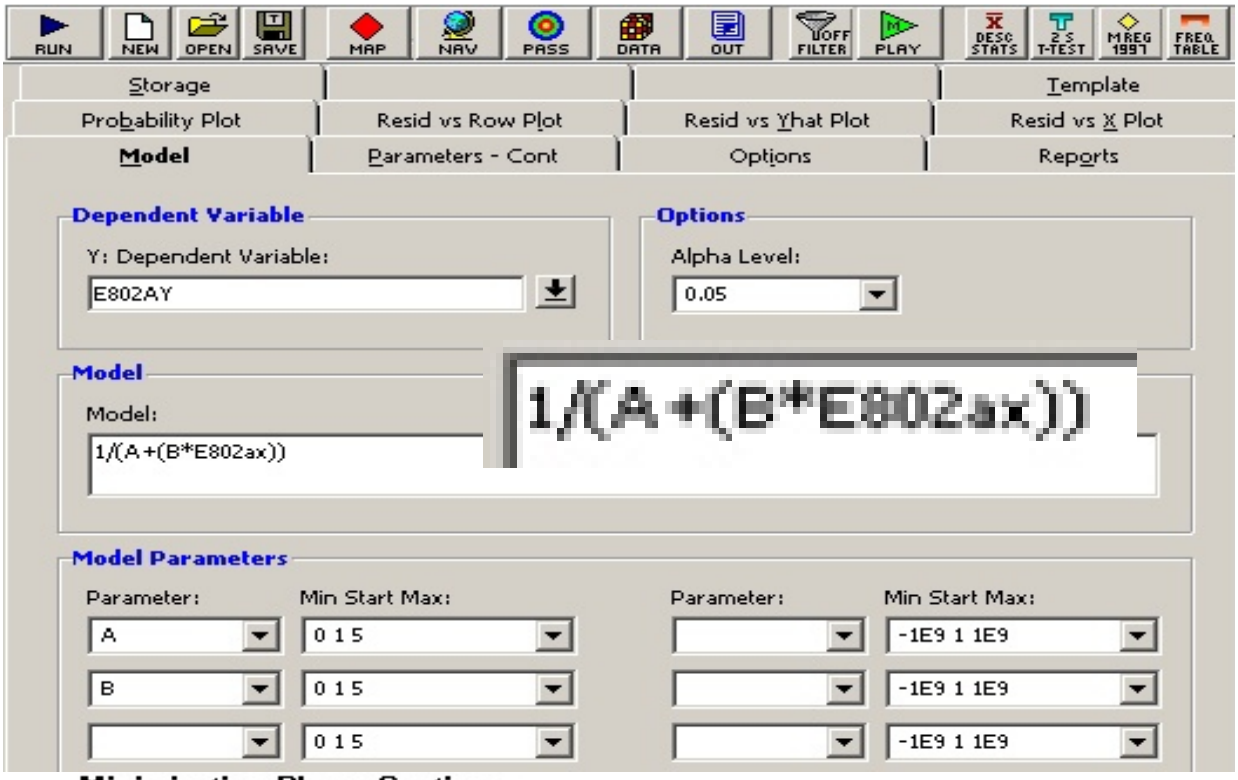

Normal Probability Plot of Residuals
Residuals
1.5
0.8
0.0
-0.8
-1.5
-2.0
-1.0
0.0
1.0
2.0
Expected Normals


Residuals vs Row Number
Residuals
1.5
0.8
0.0
-0.8
-1.5
0.0
3.0
6.0
9.0
12.0
Row Number


Residuals vs Predicted(E801y)
Residuals
1.5
0.8
0.0
-0.8
-1.5
0.0
3.0
6.0
9.0
12.0
Predicted


Residuals vs E801x
Residuals
1.5
0.8
0.0
-0.8
-1.5
2.0
2.8
3.5
4.3
5.0
E801x

Úloha E8.02 Úroda ovoce v závislosti na stáří ovocného stromu



Minimization Phase Section

Itn No.	Error Sum Lambda	Lambda	A	B
0	453665.2	0.00002	1	1
Stepsize reduced to 1.927164E-04 by bounds.				
Lower bound on active on B				
1	449053.8	0.000004	1.712575	6.234162E-17
Stepsize reduced to 5.838272E-03 by bounds.				
Stepsize reduced to 5.838571E-03 by bounds.				
Stepsize reduced to 5.84156E-03 by bounds.				
Stepsize reduced to 5.871458E-03 by bounds.				
Stepsize reduced to 6.170438E-03 by bounds.				
Stepsize reduced to 9.160236E-03 by bounds.				
Stepsize reduced to 3.905822E-02 by bounds.				
Stepsize reduced to 0.338038 by bounds.				
2	447006.3	80	1.197954	6.234162E-17
Stepsize reduced to 0.7454646 by bounds.				
3	445940.2	160	1.035615	6.234162E-17
4	433898.3	32	0.4071949	6.234162E-17
Stepsize reduced to 0.826867 by bounds.				
5	431107.2	64	0.3565706	6.234162E-17
6	405646.7	12.8	0.1654387	6.234162E-17
Stepsize reduced to 0.8823282 by bounds.				
7	399232.5	25.6	0.1453803	6.234162E-17
8	346082.4	5.12	7.092602E-02	6.234162E-17
Stepsize reduced to 0.9979132 by bounds.				
9	332966.3	10.24	6.259317E-02	6.234162E-17
10	242945.5	2.048	3.310931E-02	6.234162E-17
11	73075.23	0.4096	7.818787E-03	6.234162E-17
Freeing parameter B				
12	26336.36	0.08192	8.091571E-03	2.188688E-05
13	10227.83	0.016384	6.061783E-03	6.59585E-05
14	6070.56	0.0032768	4.136062E-03	1.013412E-04
15	6051.908	6.5536E-04	0.0040304	1.028154E-04
16	6051.844	1.31072E-04	4.033357E-03	1.026635E-04
17	6051.839	2.62144E-05	4.033016E-03	1.026814E-04
Convergence criterion met.				

Parameter Name	Parameter Estimate	Asymptotic Standard Error	Lower 95% C.L.	Upper 95% C.L.
A	4.033016E-03	3.991223E-04	3.225715E-03	4.840317E-03
B	1.026814E-04	9.546977E-06	8.337081E-05	1.21992E-04

Model E802ay = 1/(A+(B*E802AX))
R-Squared 0.855037
Iterations 17
Estimated Model
1/((4.033016E-03)+((1.026814E-04)*(E802AX)))

Analysis of Variance Table

Source	DF	Sum of Squares	Mean Square
Mean	1	412092.7	412092.7
Model	2	447788.3	223894.2
Model (Adjusted)	1	35695.68	35695.68
Error	39	6051.839	155.1754
Total (Adjusted)	40	41747.52	
Total	41	453840.2	

Asymptotic Correlation Matrix of Parameters

	A	B
A	1.000000	-0.919138
B	-0.919138	1.000000

Model Estimation Section

Parameter Name	Parameter Estimate	Asymptotic Standard Error	Lower 95% C.L.	Upper 95% C.L.
A	4.033016E-03	3.991223E-04	3.225715E-03	4.840317E-03
B	1.026814E-04	9.546977E-06	8.337081E-05	1.21992E-04

Model E802ay = 1/(A+(B*E802AX))
R-Squared 0.855037
Iterations 17
Estimated Model
1/((4.033016E-03)+((1.026814E-04)*(E802AX)))

Analysis of Variance Table

Source	DF	Sum of Squares	Mean Square
Mean	1	412092.7	412092.7
Model	2	447788.3	223894.2
Model (Adjusted)	1	35695.68	35695.68
Error	39	6051.839	155.1754
Total (Adjusted)	40	41747.52	
Total	41	453840.2	

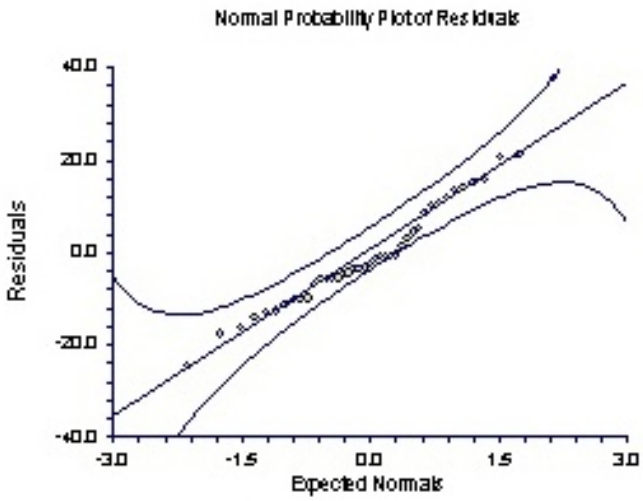
Asymptotic Correlation Matrix of Parameters

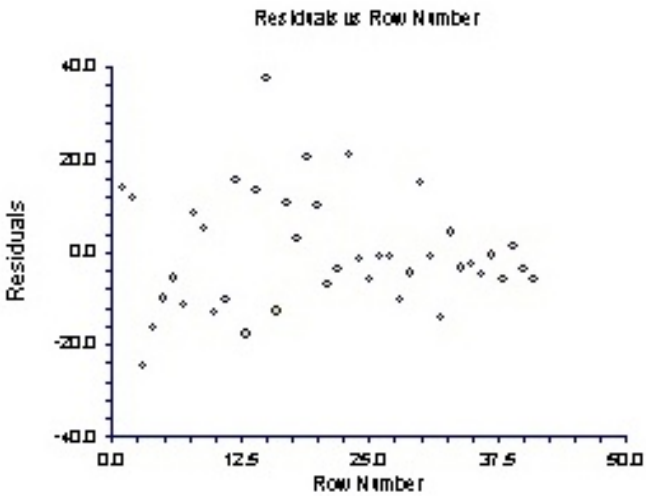
	A	B
A	1.000000	-0.919138
B	-0.919138	1.000000

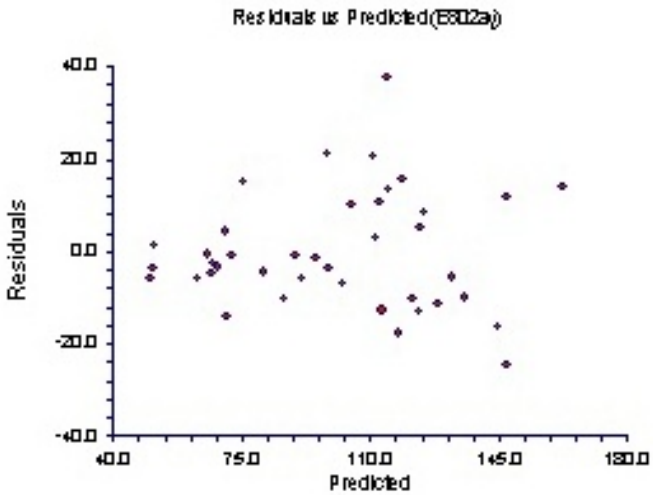
Predicted Values and Residuals Section

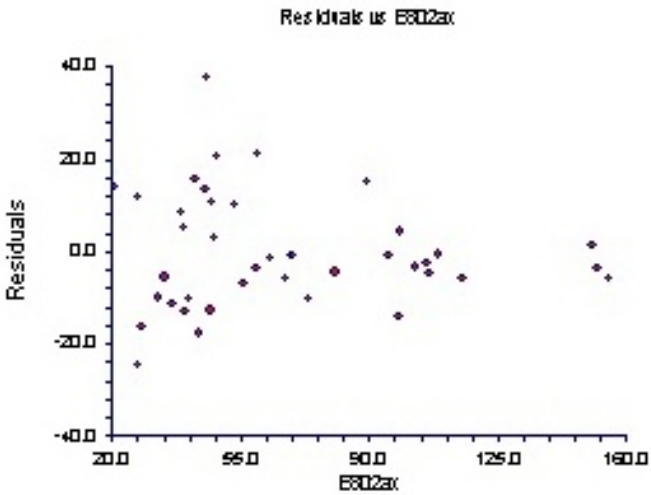
Row No.	Actual E802ay	Predicted E802ay	Lower 95.0% C.L.	Upper 95.0% C.L.	Residual
1	176.58	162.5393	134.3722	190.7063	14.04074
2	159.07	147.1416	120.5006	173.7827	11.92834
3	122.41	147.1416	120.5006	173.7827	-24.73166
4	128.32	144.7147	118.2408	171.1886	-16.3947
5	125.77	135.7958	109.7923	161.7992	-10.02576
6	126.81	132.3989	106.5219	158.2759	-5.588885
7	117.29	128.537	102.7735	154.3005	-11.24702
8	133.49	124.878	99.19566	150.5604	8.611947
9	128.87	123.72	98.05841	149.3815	5.150033
10	110.04	123.1412	97.48919	148.7931	-13.10116
11	111.15	121.4368	95.81004	147.0635	-10.28677
12	134.12	118.7131	93.11796	144.3082	15.40692
13	99.94	117.6518	92.06633	143.2373	-17.71182
14	128.7	115.0935	89.52559	140.6614	13.60652
15	152.17	114.5924	89.02709	140.1577	37.57759
16	100.36	113.115	87.55579	138.6743	-12.75503
17	123.32	112.644	87.08625	138.2018	10.67597
18	114.44	111.6881	86.13264	137.2435	2.751931
19	131.27	110.7482	85.19426	136.3021	20.5218
20	115.12	105.0273	79.46758	130.587	10.09272
21	95.52	102.5824	77.01393	128.1508	-7.062391
22	94.94	98.7444	73.15681	124.332	-3.804405
23	119.28	98.37534	72.78563	123.9651	20.90465
24	93.64	95.18324	69.57378	120.7927	-1.543248
25	85.73	91.55907	65.92514	117.193	-5.829077
26	89.26	90.00216	64.35744	115.6469	-0.7421656
27	88.55	89.69546	64.0486	115.3423	-1.145463
28	76.31	86.46239	60.79331	112.1315	-10.15239
29	76.63	81.15247	55.44966	106.8553	-4.522468
30	90.53	75.57885	49.84772	101.31	14.95115
31	71.28	72.27518	46.53203	98.01833	-0.9951835
32	56.61	70.91733	45.17044	96.66422	-14.30733
33	75.09	70.72677	44.97941	96.47412	4.363229
34	65.26	68.70111	42.94973	94.4525	-3.441116
35	64.48	67.12893	41.37562	92.88224	-2.648932
36	61.84	66.79284	41.03926	92.54642	-4.952843
37	65.19	65.79113	40.03704	91.54522	-0.6011332
38	57.1	62.97073	37.21766	88.72379	-5.870729
39	52.68	51.2445	25.53585	76.95316	1.435498
40	47.01	50.85117	25.14512	76.55722	-3.841172
41	44.28	50.07977	24.37903	75.78052	-5.799777

Plot Section









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Úloha E8.03 Model výnosu úrody cibule typu WIS ve dvou lokalitách

RUN | NEW | OPEN | SAVE | MAP | NAV | PASS | DATA | OUT | UOFF FILTER | PLAY | DESC STATS | 2 S T-TEST | MREG 1997 | FREQ TABLE

Storage | Template

Probability Plot | Resid vs Row Plot | Resid vs Yhat Plot | Resid vs X Plot

Model | Parameters - Cont | Options | Reports

Dependent Variable

Y: Dependent Variable:

E803AY

Options

Alpha Level:

0.05

Model

Model:

1/(A+(B*E803ax))

Model Parameters

Parameter:	Min Start Max:	Parameter:	Min Start Max:
A	0 1 5		-1E9 1 1E9
B	0 1 5		-1E9 1 1E9
	0 1 5		-1E9 1 1E9
	-1E9 1 1E9		-1E9 1 1E9

Minimization Phase Section

Itn No.	Error Sum Lambda	Lambda	A	B
0	821348.6	0.00002	1	1
Stepsize reduced to 1.300863E-04 by bounds.				
Lower bound on active on B				
1	813950.9	0.000004	1.427734	-6.364267E-17
Stepsize reduced to 5.40819E-03 by bounds.				
Stepsize reduced to 5.408423E-03 by bounds.				
Stepsize reduced to 5.410758E-03 by bounds.				
Stepsize reduced to 5.434107E-03 by bounds.				
Stepsize reduced to 5.667591E-03 by bounds.				
Stepsize reduced to 8.002433E-03 by bounds.				
Stepsize reduced to 3.135085E-02 by bounds.				
Stepsize reduced to 0.2648351 by bounds.				
2	809212.1	80	0.8785375	-6.364267E-17
Stepsize reduced to 0.7344769 by bounds.				
3	807250.6	160	0.7576168	-6.364267E-17
4	786302.7	32	0.3052149	-6.364267E-17
Stepsize reduced to 0.8521639 by bounds.				
5	781535.5	64	0.2683946	-6.364267E-17
6	739133.4	12.8	0.1282603	-6.364267E-17
Stepsize reduced to 0.8790485 by bounds.				
7	728114.6	25.6	0.1126515	-6.364267E-17
8	636561.7	5.12	5.477396E-02	-6.364267E-17
Stepsize reduced to 0.9983559 by bounds.				
9	614055.8	10.24	4.834161E-02	-6.364267E-17
10	459625.4	2.048	0.0255794	-6.364267E-17
11	168226.2	0.4096	6.039333E-03	-6.364267E-17
Freeing parameter B				
12	69998.98	0.08192	6.118923E-03	1.800337E-05
13	17743.04	0.016384	3.744436E-03	5.957952E-05
14	5640.001	0.0032768	2.009133E-03	8.905808E-05
15	5615.666	6.5536E-04	2.033724E-03	8.772623E-05
16	5614.936	1.31072E-04	2.031446E-03	8.790555E-05
17	5614.936	2.62144E-05	2.031842E-03	8.787955E-05
18	5614.933	5.24288E-06	2.031777E-03	8.788351E-05
Convergence criterion met.				

Model Estimation Section

Parameter Name	Parameter Estimate	Asymptotic Standard Error	Lower 95% C.L.	Upper 95% C.L.
A	2.031777E-03	1.863049E-04	1.655241E-03	2.408313E-03
B	8.788351E-05	4.642664E-06	7.850034E-05	9.726669E-05
Model	E803ay = 1/(A+(B*E803AX))			
R-Squared	0.950894			
Iterations	18			

Estimated Model

1/((2.031777E-03)+((8.788351E-05)*(E803AX)))

Analysis of Variance Table

Source	DF	Sum of Squares	Mean Square
Mean	1	707220.6	707220.6
Model	2	815949.9	407974.9
Model (Adjusted)	1	108729.3	108729.3
Error	40	5614.933	140.3733
Total (Adjusted)	41	114344.3	
Total	42	821564.8	

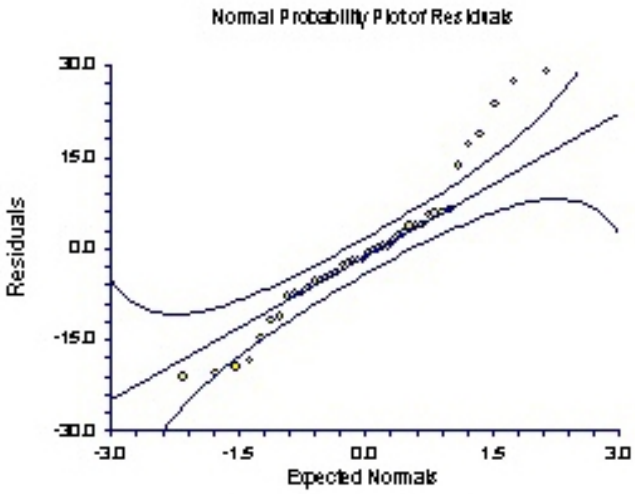
Asymptotic Correlation Matrix of Parameters

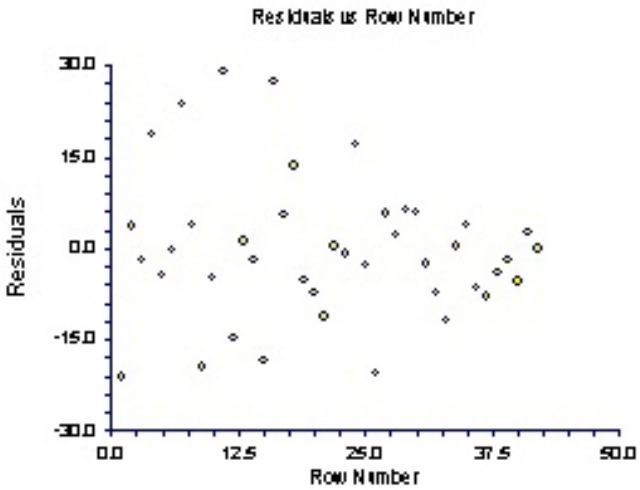
	A	B
A	1.000000	-0.913476
B	-0.913476	1.000000

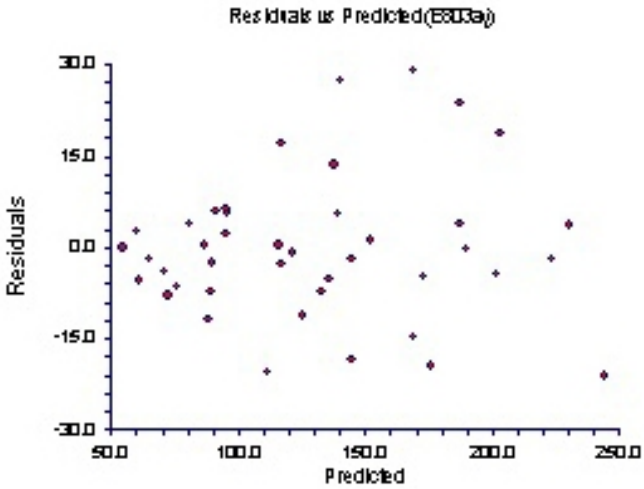
Predicted Values and Residuals Section

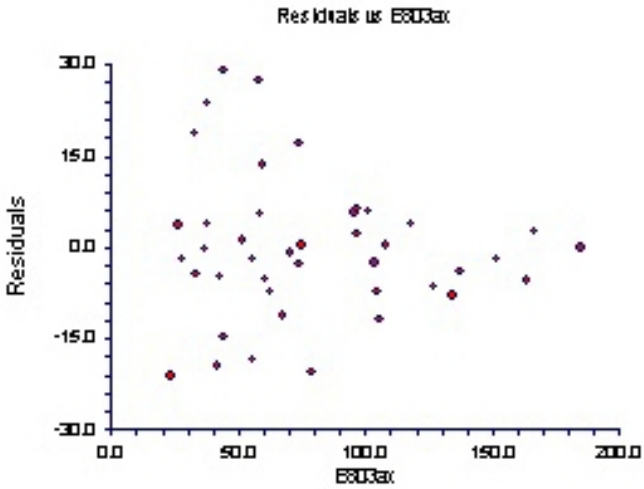
Row No.	Actual E803ay	Predicted E803ay	Lower 95.0% C.L.	Upper 95.0% C.L.	Residual
1	223.02	244.1834	217.3077	271.0591	-21.16345
2	234.24	230.6229	204.6311	256.6147	3.617077
3	221.68	223.5106	197.8882	249.1331	-1.830661
4	221.94	203.1947	178.3207	228.0688	18.74523
5	197.45	201.7894	176.9525	226.6264	-4.339423
6	189.64	189.9331	165.3463	214.5199	-0.2931238
7	211.2	187.4611	162.9137	212.0085	23.73886
8	191.36	187.4611	162.9137	212.0085	3.898865
9	156.62	176.1164	151.7027	200.53	-19.49638
10	168.12	172.9838	148.5953	197.3723	-4.863827
11	197.89	168.9513	144.5888	193.3139	28.93867
12	154.14	168.9513	144.5888	193.3139	-14.81133
13	153.26	152.1441	127.8298	176.4583	1.115932
14	142.79	144.5851	120.2707	168.8995	-1.795097
15	126.17	144.5851	120.2707	168.8995	-18.4151
16	167.95	140.3929	116.0749	164.7108	27.55712
17	144.54	139.0546	114.7352	163.3741	5.485356
18	151.3	137.725	113.4039	162.0461	13.57499
19	130.52	135.8018	111.4781	160.1255	-5.281864
20	125.3	132.6978	108.3694	157.0261	-7.397784
21	114.05	125.2761	100.9356	149.6165	-11.22609
22	116.31	115.9684	91.61405	140.3227	0.3416152
23	120.71	121.6076	97.26127	145.9539	-0.8976058
24	134.16	117.1866	92.83385	141.5393	16.9734
25	114.48	117.1866	92.83385	141.5393	-2.706603
26	91.17	111.7871	87.42814	136.1461	-20.61715
27	101.27	95.60406	71.24281	119.9653	5.665924
28	97.33	94.9816	70.62086	119.3423	2.348393
29	101.37	94.9816	70.62086	119.3423	6.388393
30	97.2	91.39592	67.03919	115.7526	5.804074
31	87.12	89.70979	65.35555	114.064	-2.589801
32	81.71	89.1545	64.80116	113.5078	-7.444513
33	76.44	88.34464	63.99268	112.6966	-11.90464
34	87.1	86.76163	62.41265	111.1106	0.3383676

Plot Section

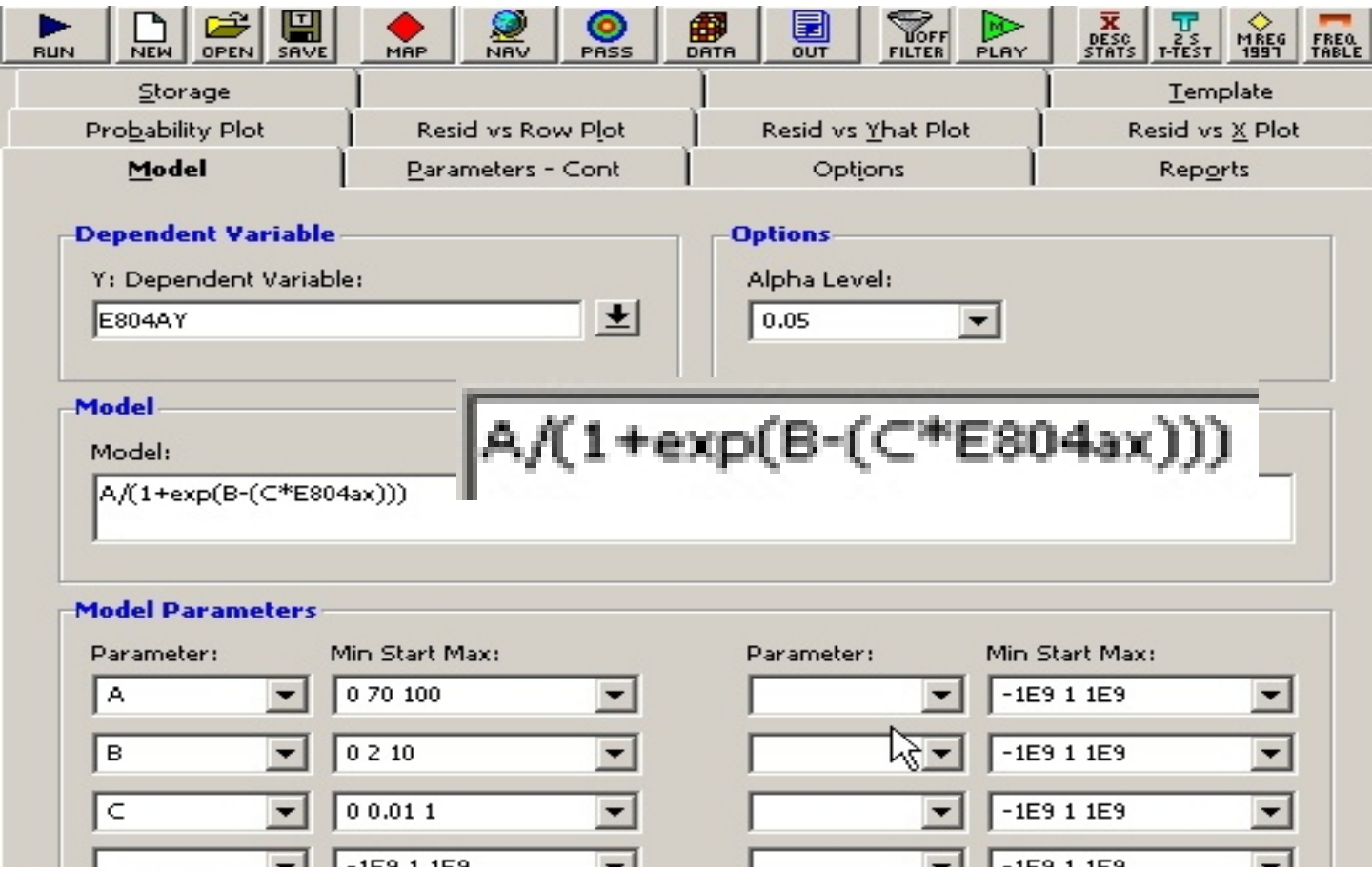








Úloha E8.04 Růstový model časové závislosti narostlé trávy a cibule



Minimization Phase Section

Itn No.	Error Sum Lambda	Lambda	A	B	C
0	10101.66	0.00002	70	2	0.01
Stepsize reduced to 0.1696542 by bounds.					
1	5953.971	0.00004	26.1686	1.627235	7.599917E-02
Stepsize reduced to 0.8916034 by bounds.					
Stepsize reduced to 0.9003996 by bounds.					
Stepsize reduced to 0.9921517 by bounds.					
2	4965.737	0.008	63.84669	3.165085	4.624285E-02
3	1109.245	0.0016	53.0734	1.209552	5.245505E-02
4	610.7946	0.00032	76.16374	2.599717	5.055373E-02
5	307.4174	0.000064	61.06981	2.408398	6.732025E-02
6	10.73713	0.0000128	72.62759	2.621375	6.614964E-02
7	8.059655	2.56E-06	72.38972	2.618748	6.744356E-02
8	8.056595	5.12E-07	72.47223	2.617581	6.733485E-02
9	8.056554	1.024E-07	72.46887	2.617719	0.067343

Convergence criterion met.

Model Estimation Section

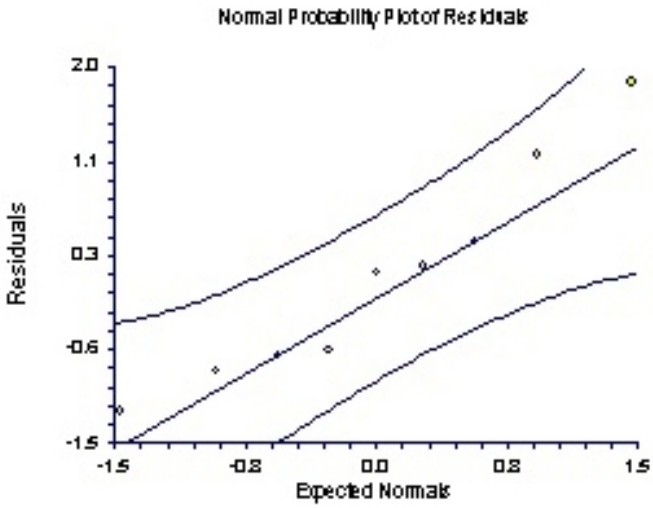
Parameter Name	Parameter Estimate	Asymptotic Standard Error	Lower 95% C.L.	Upper 95% C.L.
A	72.46887	1.724683	68.24873	76.68902
B	2.617719	8.909836E-02	2.399704	2.835735
C	0.067343	3.461876E-03	5.887209E-02	0.0758139

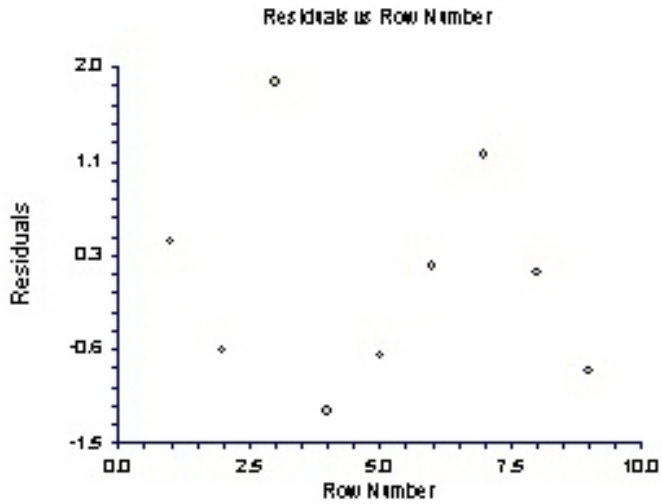
Model	E804ay = A/(1+EXP(B-(C*E804AX)))
R-Squared	0.998267
Iterations	9

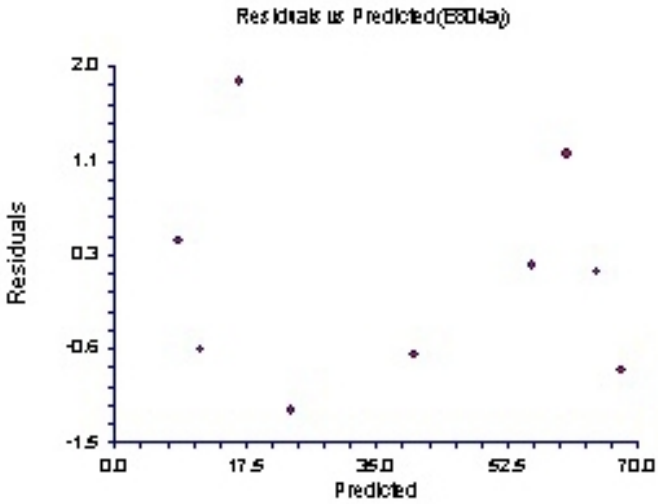
Estimated Model

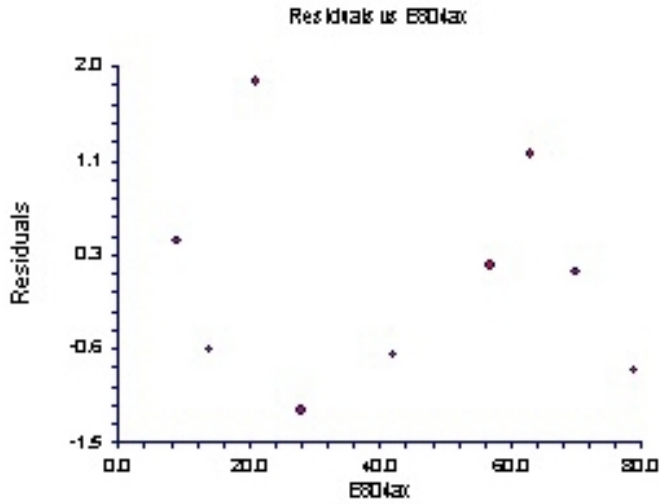
(72.46887)/(1+EXP((2.617719)-((.067343)*(E804AX))))

Plot Section

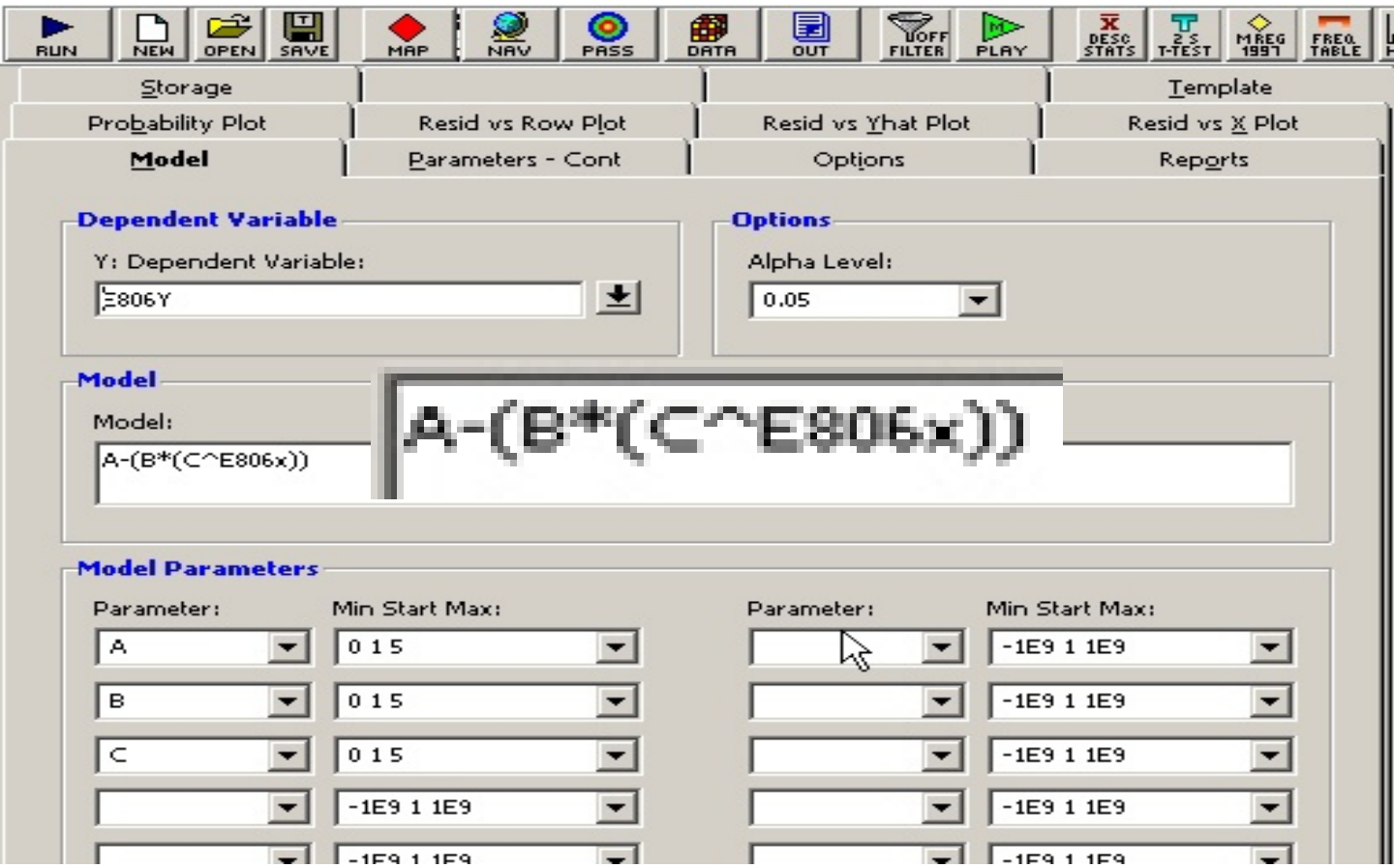


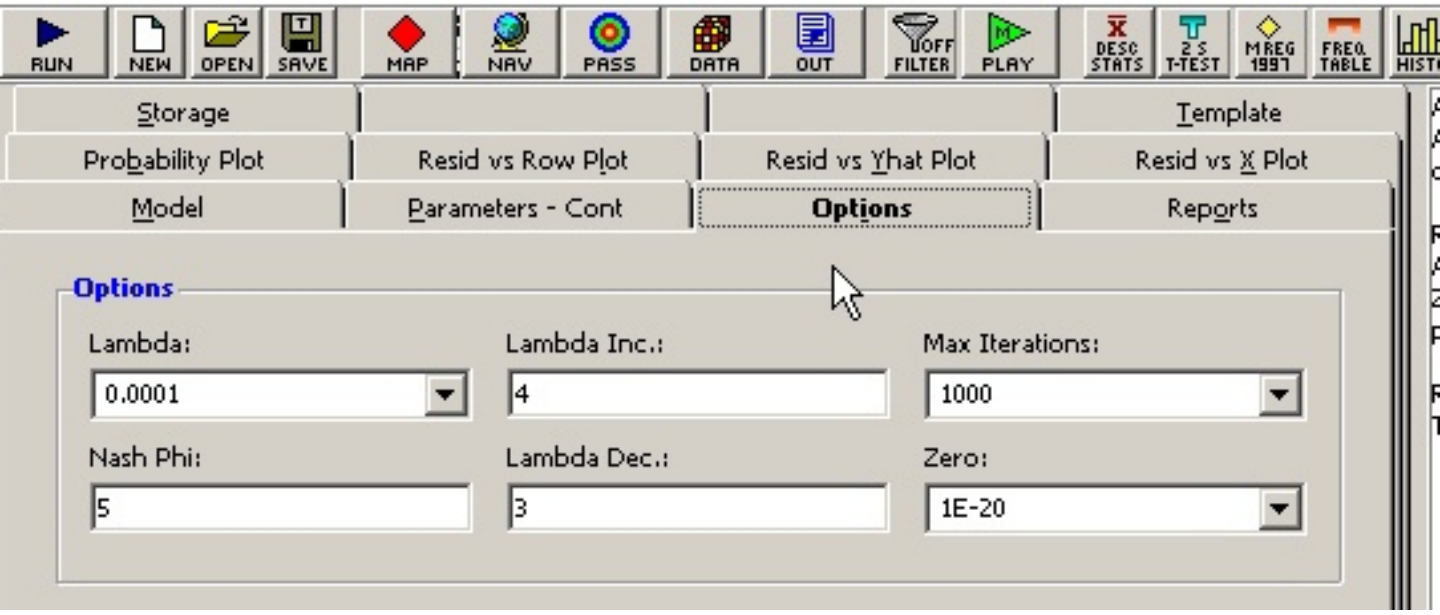






Úloha E8.06 Růstový model délky kapustňáka Ochechule bahenní v závislosti na stáří





ADD OPEN SAVE PRINT SHOW CUT COPY PASTE FIND UNDO FONT SHOW RULER BAR SHOW SHOW

MAP NAV PASS DATA PLAY DESC STATS 2 S T-TEST MREG 1997 FREQ TABLE HISTO BOX SCAT-R PROB HELP PDF

Nonlinear Regression Report

Page/Date/Time 1 8/27/2010 9:27:23 AM
Database E:\Data\Data-NCSS\8kap\E8.S0
Dependent E806

Minimization Phase Section

Itn No.	Error Sum Lambda	Lambda	A	B	C
0	149.1947	0.000075	1	1	1
Stepsize reduced to 0.9861282 by bounds.					
Lower bound on active on B					
1	4.9947	5.625E-05	2	1.371516E-17	0.9730758
2	1.961274	4.21875E-05	2.335163	1.371516E-17	0.9730758
Freeing parameter B					
3	0.4301875	3.164063E-05	3.567765	1.62755	0.9730758
Stepsize reduced to 0.4916381 by bounds.					
Stepsize reduced to 0.6414635 by bounds.					
4	0.4062591	0.006075	3.433023	1.520237	0.9686134
5	0.3707269	4.55625E-03	3.215659	1.324863	0.9609853
6	0.3643232	3.417188E-03	2.878385	1.030591	0.942723
7	0.2455853	1.025156E-02	2.757095	0.9652068	0.9168747
8	0.1989762	7.688672E-03	2.681029	0.9491271	0.8897207
9	0.1870919	5.766504E-03	2.670869	0.9679202	0.8769887
10	0.1867692	4.324878E-03	2.668241	0.9723693	0.8743177
11	0.1867605	3.243658E-03	2.66733	0.9726014	0.873814
12	0.1867598	2.432744E-03	2.667131	0.972594	0.8737186
13	0.1867597	1.824558E-03	2.667095	0.9725913	0.8737017
14	0.1867597	1.368418E-03	2.667089	0.972591	0.8736989
15	0.1867597	1.026314E-03	2.667089	0.972591	0.8736985
16	0.1867597	7.697354E-04	2.667088	0.972591	0.8736984
Convergence criterion met.					

Model Estimation Section

Parameter Name	Parameter Estimate	Asymptotic Standard Error	Lower 95% C.L.	Upper 95% C.L.
A	2.667088	5.880566E-02	2.545719	2.788457
B	0.972591	6.485695E-02	0.8387329	1.106449
C	0.8736984	2.212822E-02	0.828028	0.9193688

Model E806y = A-(B*(C^E806X))
R-Squared 0.904776
Iterations 16
Estimated Model
(2.667088)-((.972591)*((.8736984)^(E806X)))

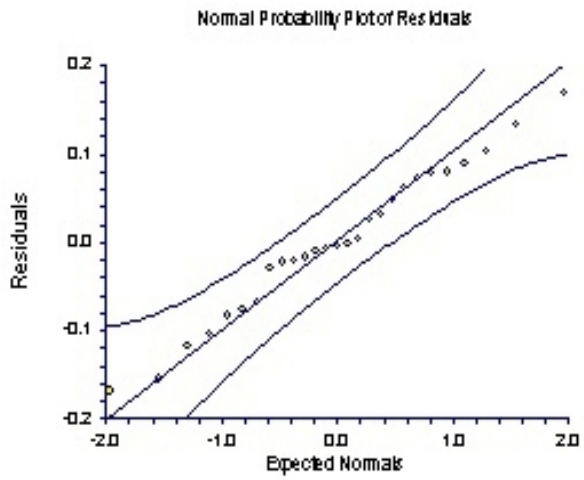
ADD OPEN SAVE PRINT SHOW CUT COPY PASTE FIND UNDO FONT SHOW RULER BAR SHOW SHOW

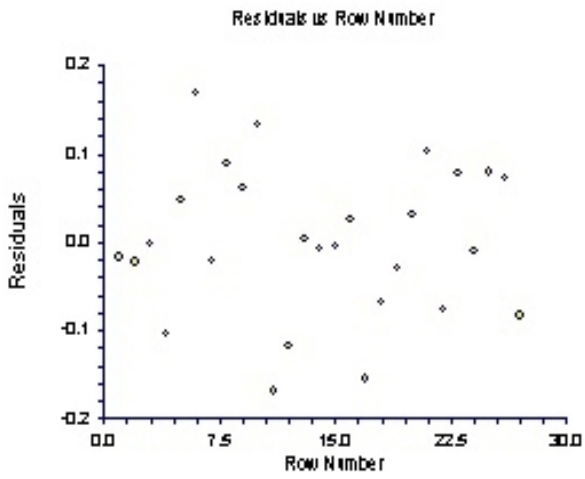
MAP NAV PASS DATA PLAY DESC STATS 2 S T-TEST MREG 1997 FREQ TABLE HISTO BOX SCAT-R PROB HELP PDF

Predicted Values and Residuals Section

Row No.	Actual E806y	Predicted E806y	Lower 95.0% C.L.	Upper 95.0% C.L.	Residual
1	1.8	1.817337	1.612971	2.021703	-1.733701E-02
2	1.85	1.87281	1.67437	2.07125	-2.281016E-02
3	1.87	1.87281	1.67437	2.07125	-2.810162E-03
4	1.77	1.87281	1.67437	2.07125	-0.1028102
5	2.02	1.973129	1.781173	2.165084	4.687126E-02
6	2.27	2.100358	1.910992	2.289724	0.1696421
7	2.15	2.171937	1.98258	2.361294	-2.193687E-02
8	2.26	2.171937	1.98258	2.361294	8.806313E-02
9	2.35	2.289115	2.09957	2.47866	6.088502E-02
10	2.47	2.336854	2.147563	2.526144	0.1331464
11	2.19	2.358412	2.169331	2.547493	-0.1684119
12	2.26	2.378563	2.189729	2.567397	-0.1185628
13	2.4	2.397398	2.208834	2.585962	2.601813E-03
14	2.39	2.397398	2.208834	2.585962	-7.398187E-03
15	2.41	2.415004	2.226717	2.603291	-5.003998E-03
16	2.5	2.47466	2.287294	2.662025	2.533999E-02
17	2.32	2.47466	2.287294	2.662025	-0.15466
18	2.43	2.498964	2.311802	2.686126	-0.068964
19	2.47	2.498964	2.311802	2.686126	-2.896401E-02
20	2.56	2.529788	2.342476	2.717099	3.021242E-02
21	2.65	2.547129	2.359398	2.73486	0.1028711
22	2.47	2.547129	2.359398	2.73486	-7.712888E-02
23	2.64	2.56228	2.373885	2.750674	7.772006E-02
24	2.56	2.569122	2.380311	2.757933	-9.121999E-03
25	2.7	2.620469	2.424699	2.81624	7.953095E-02
26	2.72	2.647706	2.442896	2.852515	7.229447E-02
27	2.57	2.653258	2.445627	2.860889	-8.325838E-02

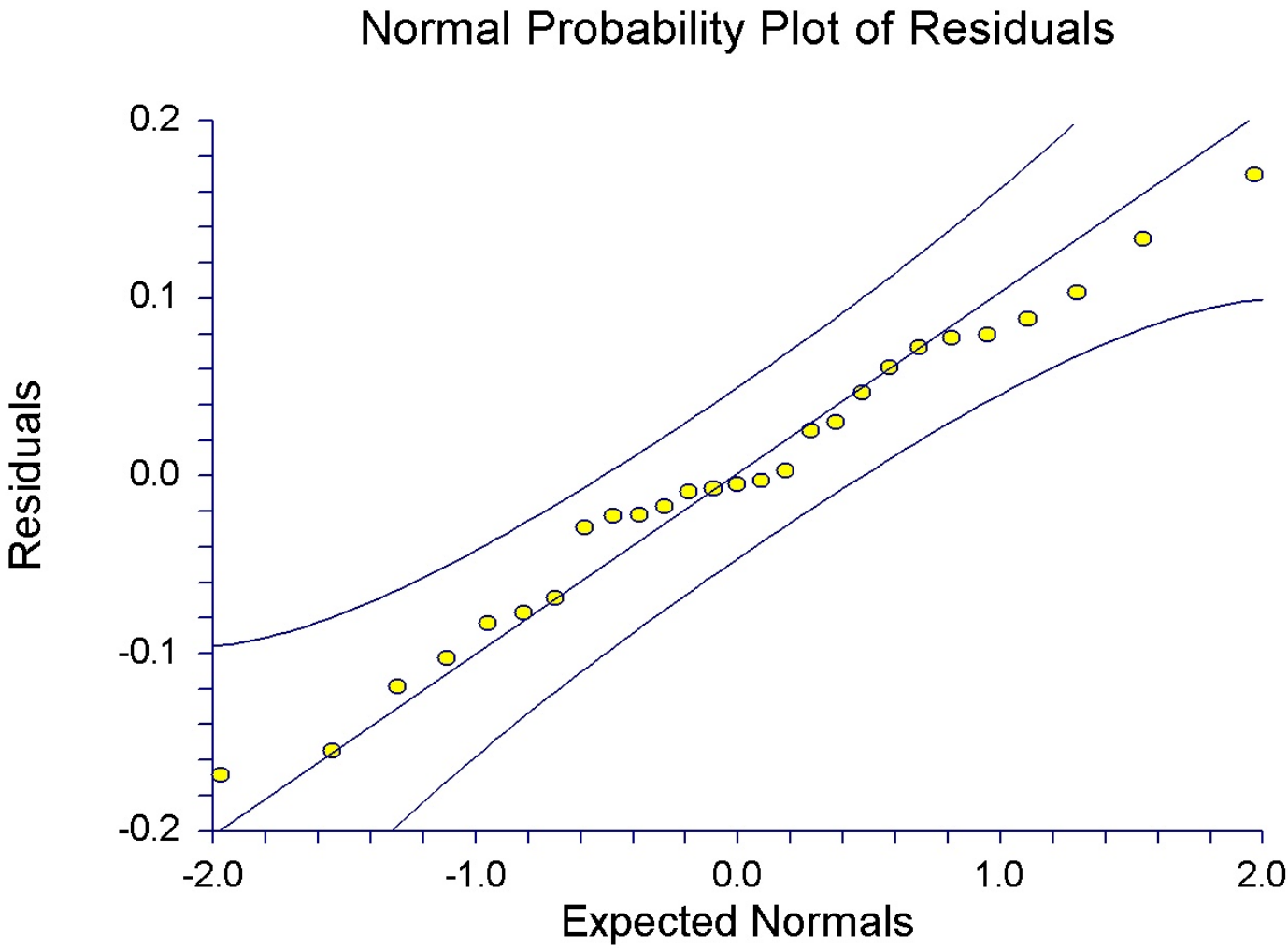
Plot Section

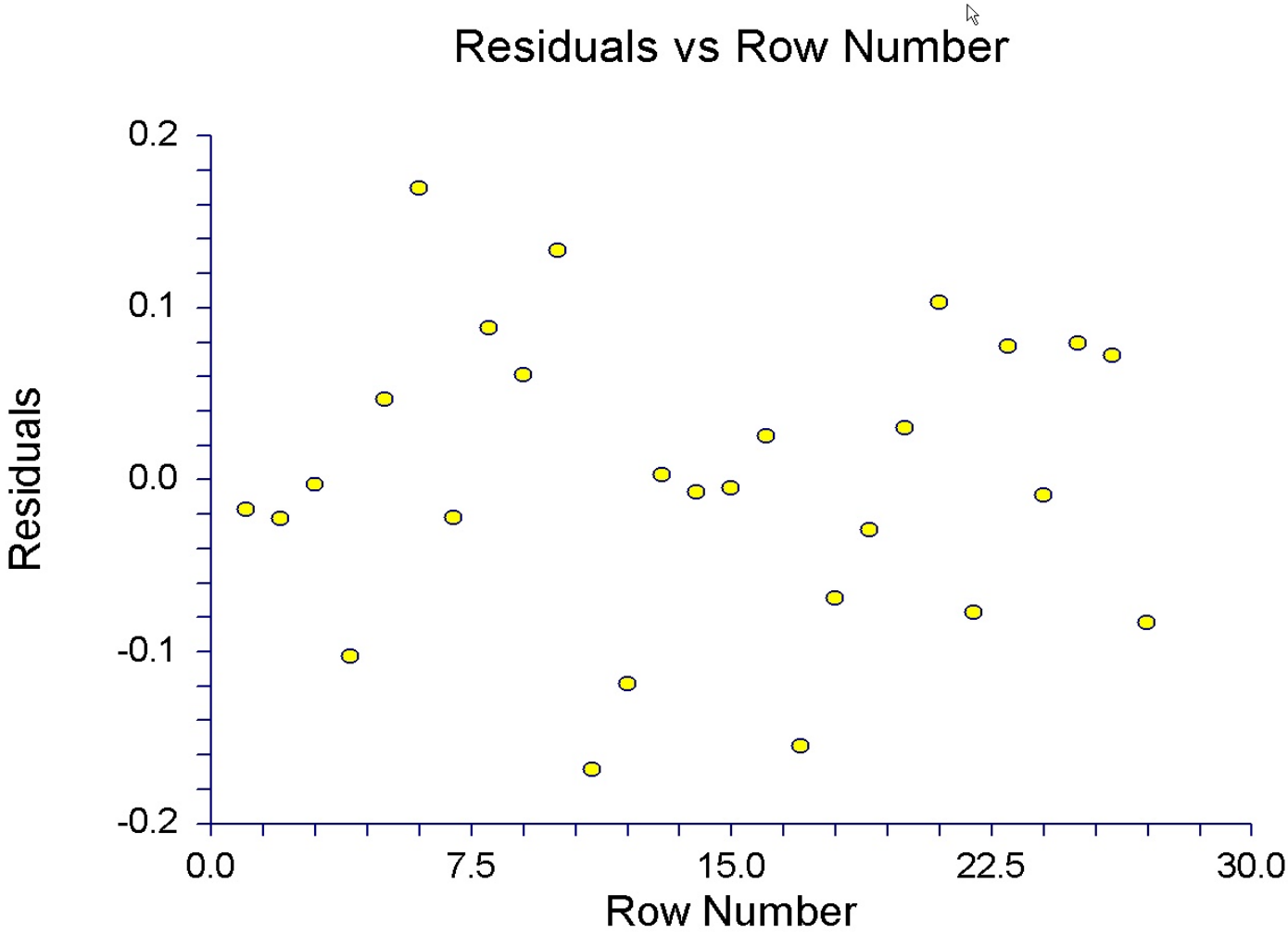


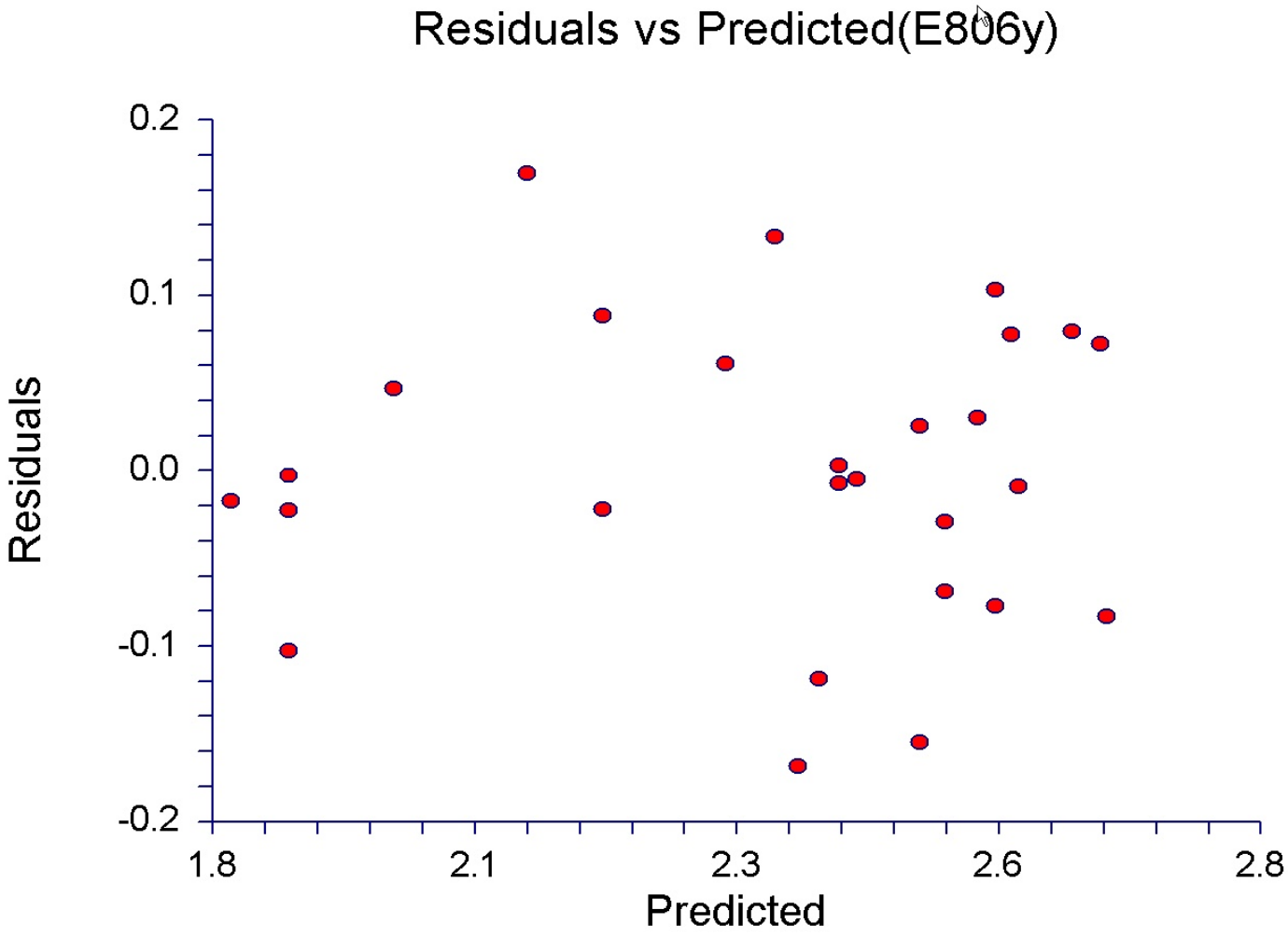


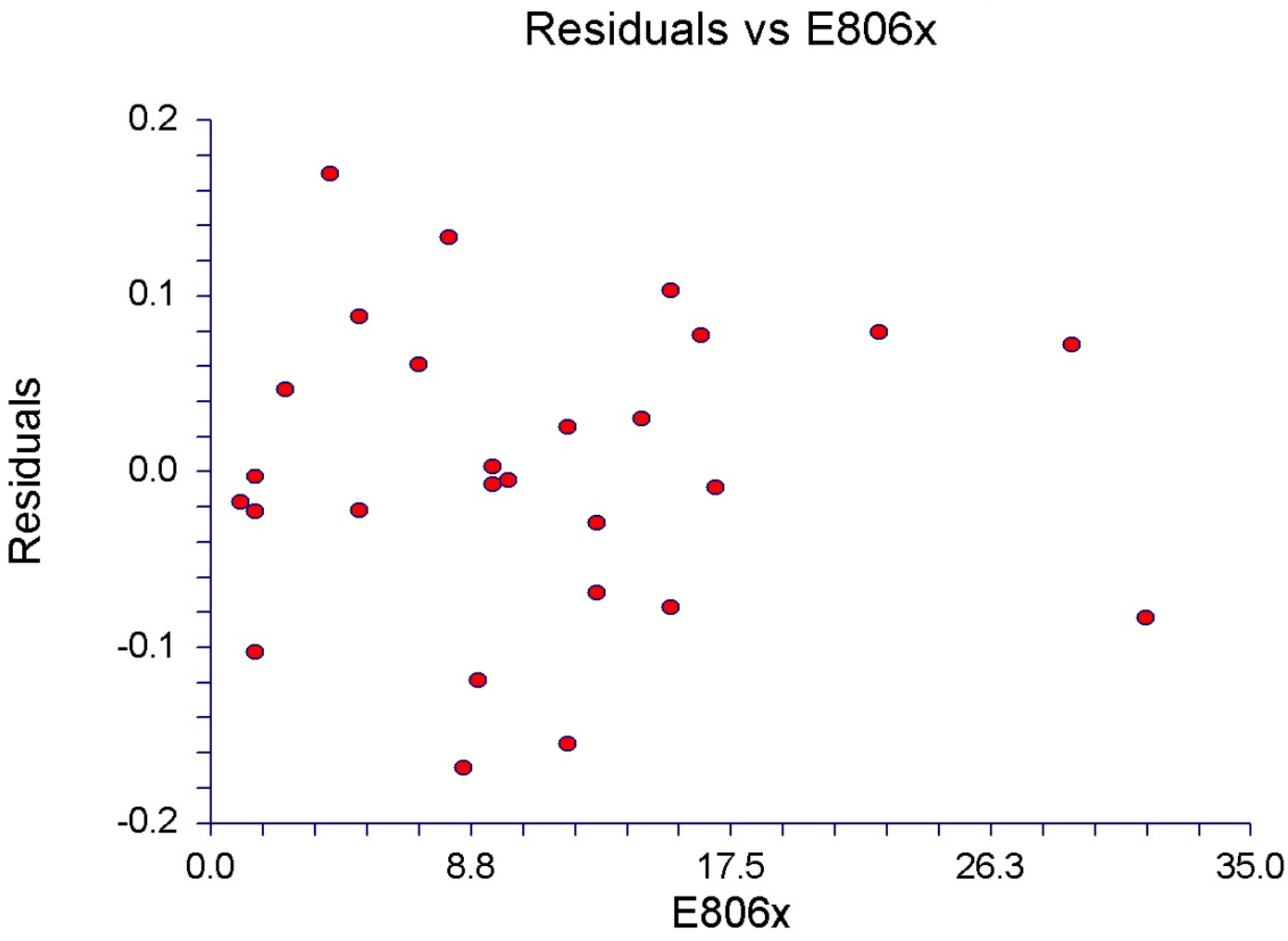
Residuals vs Predicted(E806y)

Residuals vs E806x


Normal Probability Plot of Residuals
Residuals
0.2
0.1
0.0
-0.1
-0.2
-2.0
-1.0
0.0
1.0
2.0
Expected Normals


Residuals vs Row Number
Residuals
0.2
0.1
0.0
-0.1
-0.2
0.0
7.5
15.0
22.5
30.0
Row Number


Residuals vs Predicted(E806y)
Residuals
0.2
0.1
0.0
-0.1
-0.2
1.8
2.1
2.3
2.6
2.8
Predicted


Residuals vs E806x
Residuals
0.2
0.1
0.0
-0.1
-0.2
0.0
8.8
17.5
26.3
35.0
E806x