

Model Statistics, Data, and Plots

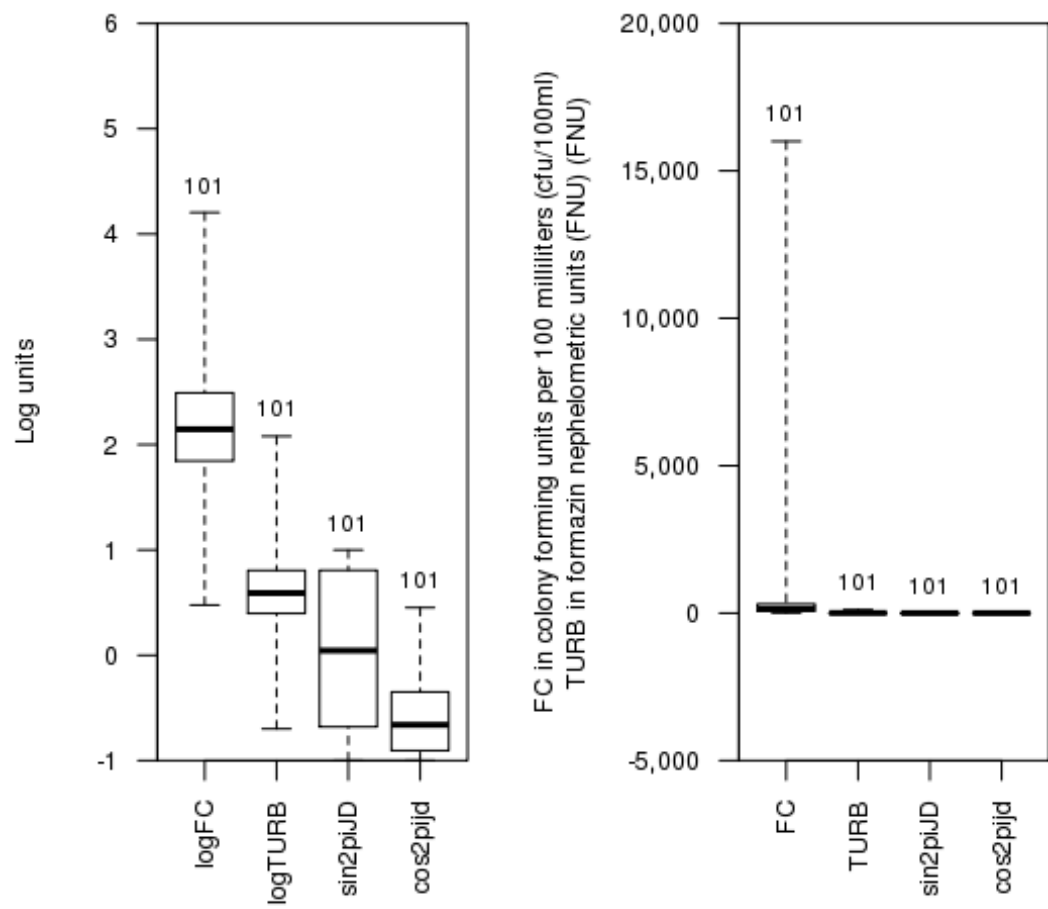
Model

$$\text{logFC} = + 1.1 * \text{logTURB} - 0.288 * \sin 2\pi \text{JD} - 0.774 * \cos 2\pi \text{jd} + 1.12$$

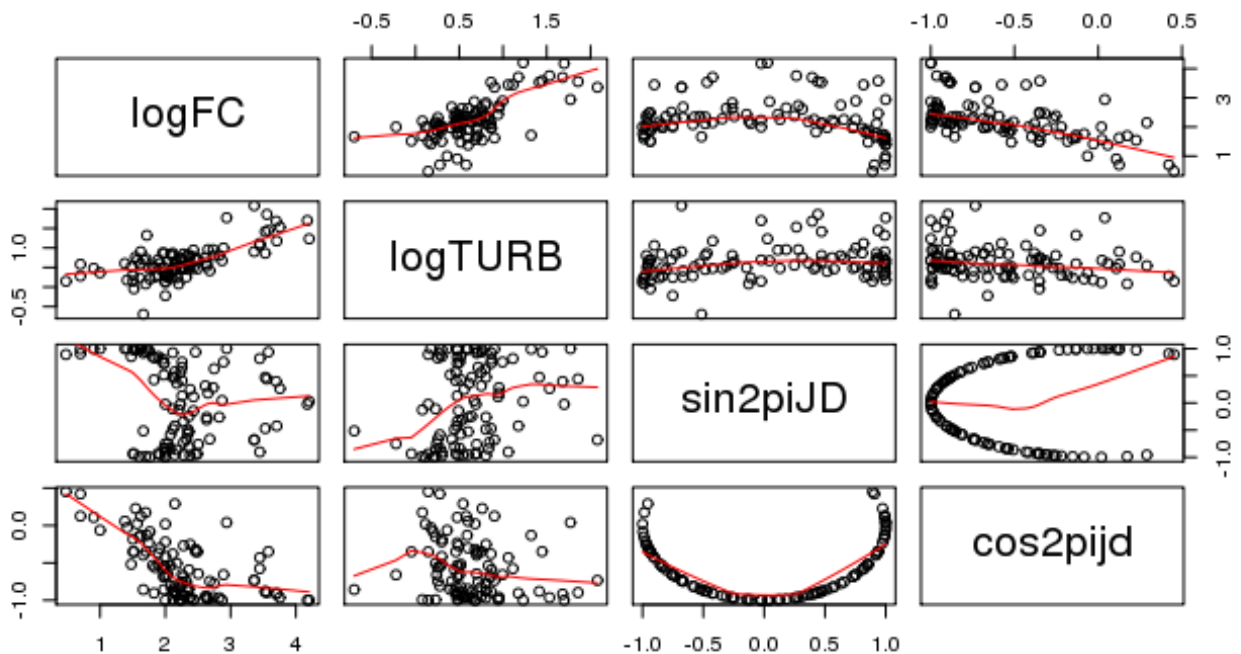
Variable Summary Statistics

	logFC	FC	logTURB	sin2piJD	cos2pijd	TURB
Minimum	0.477	3	-0.699	-1.0000	-1.000	0.2
1st Quartile	1.850	70	0.398	-0.6790	-0.905	2.5
Median	2.150	140	0.591	0.0446	-0.660	3.9
Mean	2.250	861	0.639	0.0376	-0.568	8.5
3rd Quartile	2.490	310	0.806	0.8070	-0.349	6.4
Maximum	4.200	16000	2.080	1.0000	0.453	120.0

Box Plots



Exploratory Plots



Basic Model Statistics

Number of Observations 101
 Standard error (RMSE) 0.349
 Average Model standard percentage error (MSPE) 89.3
 Coefficient of determination (R^2) 0.766
 Adjusted Coefficient of Determination (Adj. R^2) 0.759
 Bias Correction Factor (BCF) 1.4

Variance Inflation Factors (VIF)

	logTURB	sin2piJD	cos2pijd
VIF	1.13	1.12	1.09

Explanatory Variables

	Coefficients	Standard Error	t value	Pr(> t)
(Intercept)	1.120	0.0751	14.9	8.71e-27
logTURB	1.100	0.0845	13.0	6.71e-23
sin2piJD	-0.288	0.0504	-5.7	1.27e-07
cos2pijd	-0.774	0.0944	-8.2	1.00e-12

Correlation Matrix

	Intercept	logTURB	sin2piJD	cos2pijd
Intercept	1.0000	-0.546	0.0246	0.552
logTURB	-0.5460	1.000	-0.2830	0.233
sin2piJD	0.0246	-0.283	1.0000	-0.216
cos2pijd	0.5520	0.233	-0.2160	1.000

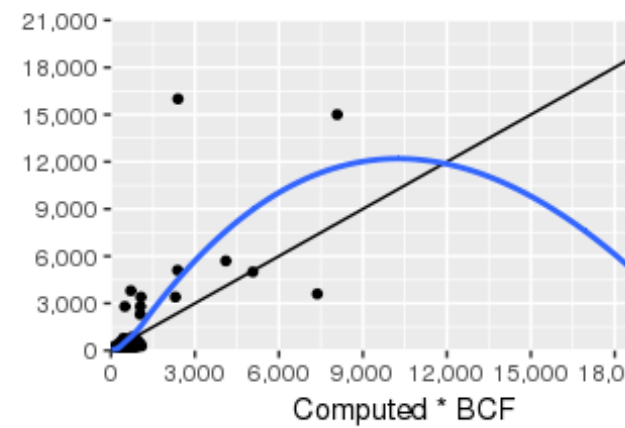
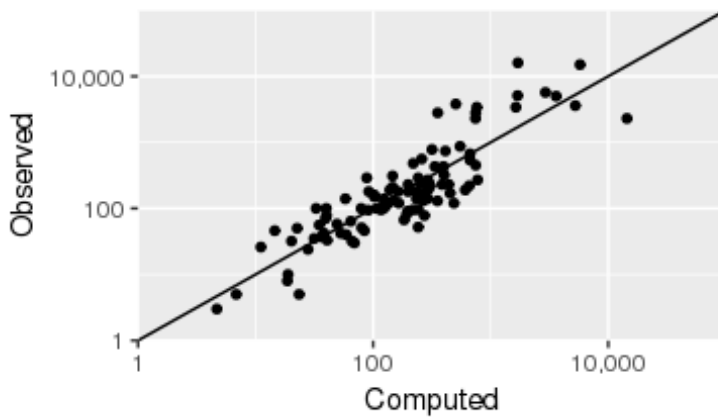
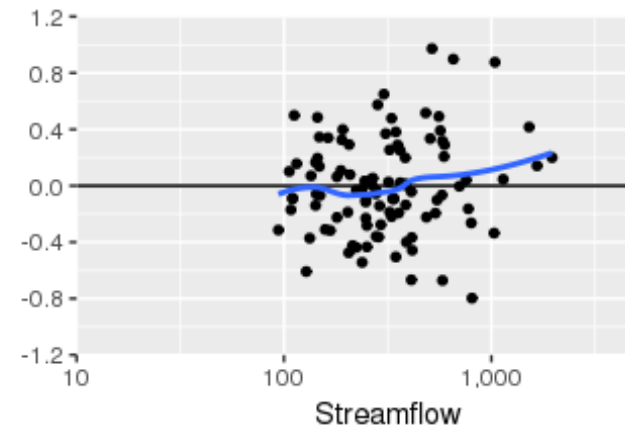
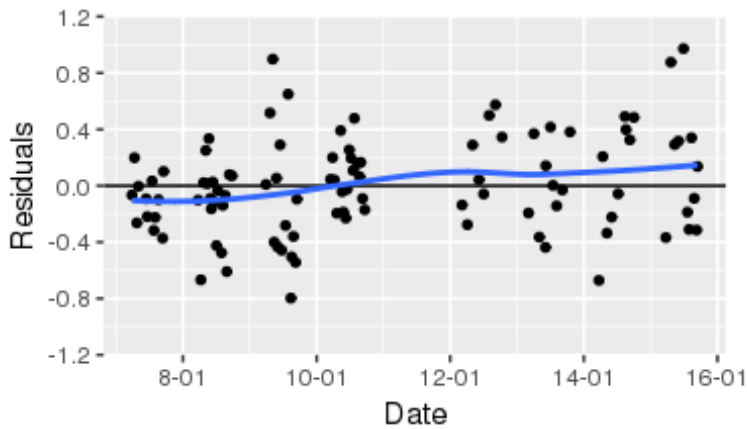
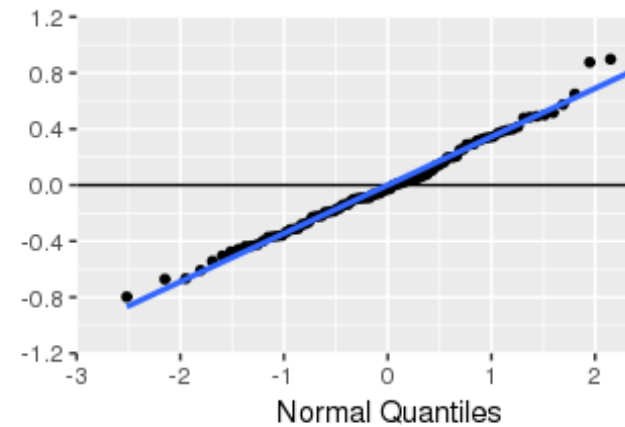
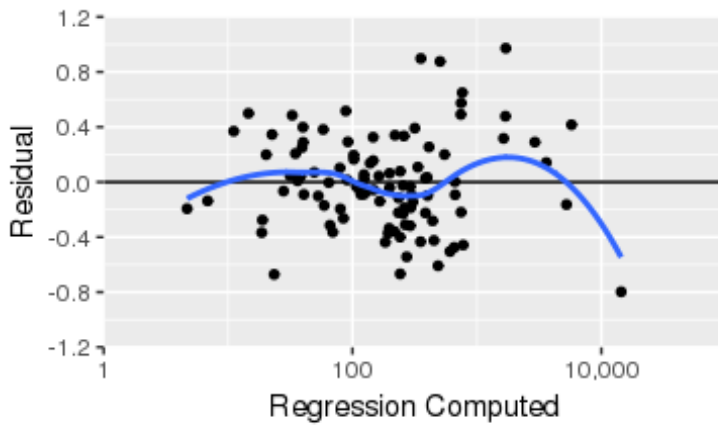
Outlier Test Criteria

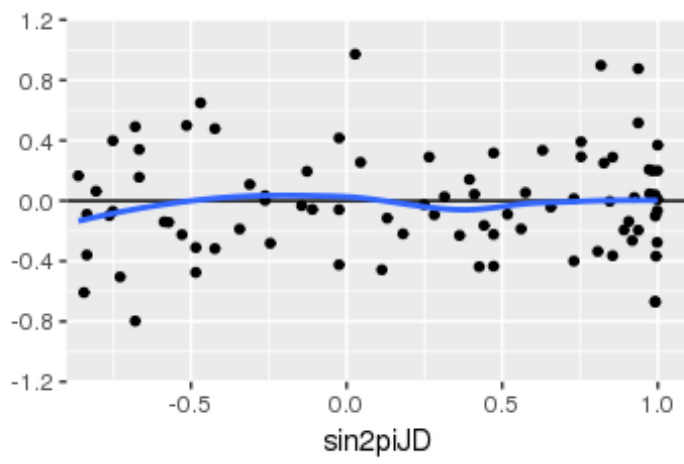
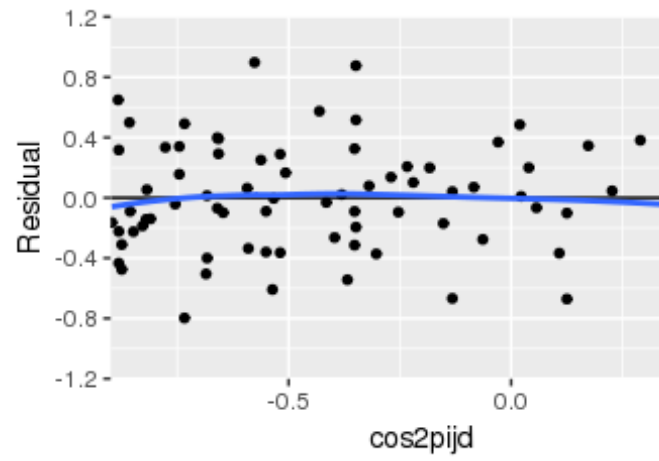
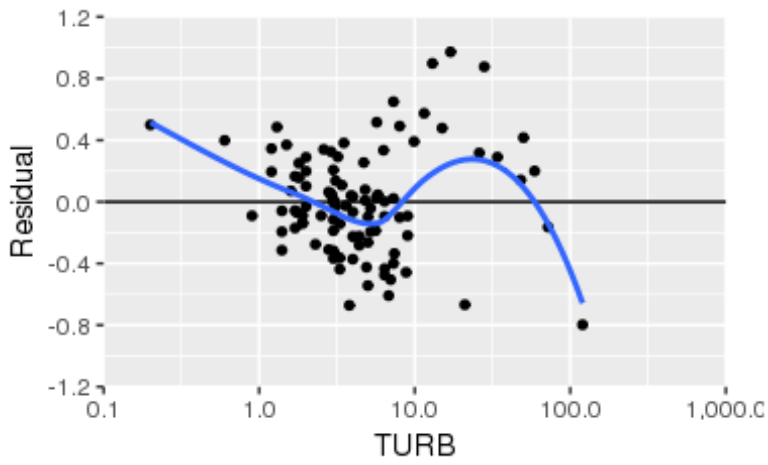
Leverage	Cook's D	DFFITS
0.0891	0.2647	0.3447

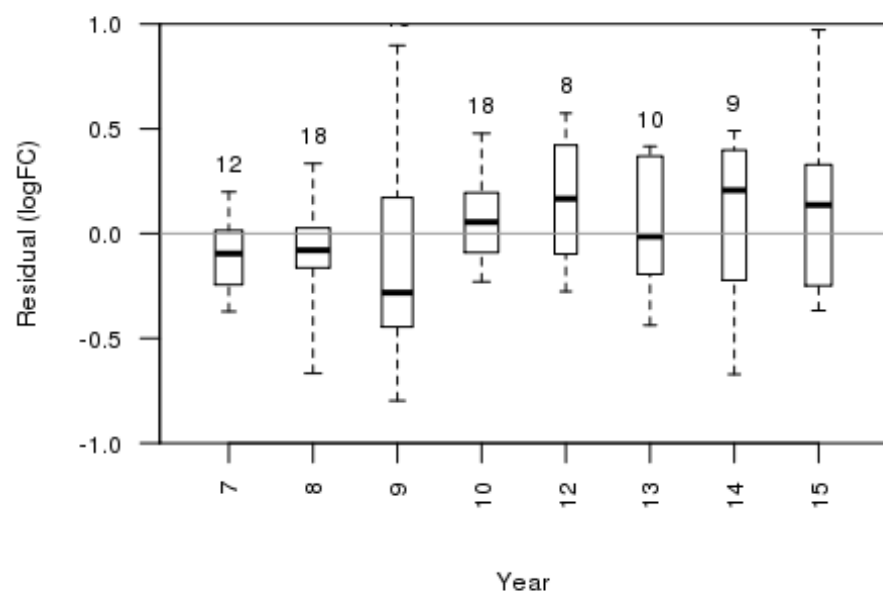
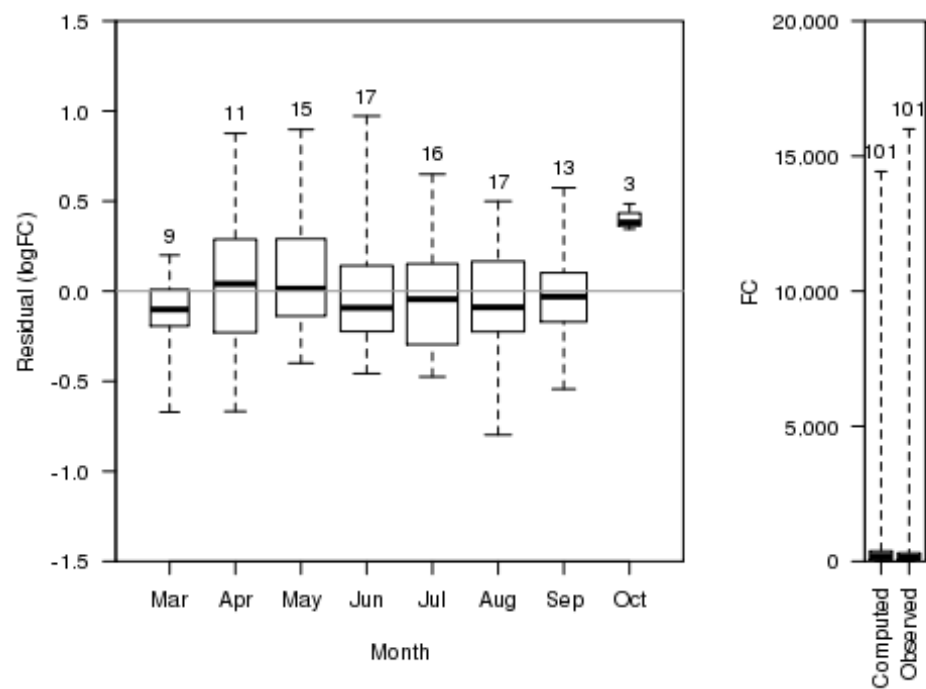
Flagged Observations

	logFC	Estimate	Residual	Standard Residual	Studentized Residual
Leverage	Cook's D	DFFITS			
4/8/08 9:00	1.720	2.380	-0.667	-1.970	-2.000
0.0592	0.06110	-0.502			
5/6/09 11:15	3.450	2.550	0.898	2.610	2.690
0.0285	0.04990	0.461			
8/13/09 7:15	3.360	4.160	-0.798	-2.490	-2.560
0.1550	0.28400	-1.100			
3/29/10 9:15	2.940	2.740	0.200	0.610	0.608
0.1210	0.01280	0.225			
8/1/12 13:00	1.660	1.160	0.499	1.530	1.540
0.1220	0.08070	0.572			
9/4/12 11:45	3.450	2.870	0.574	1.690	1.710
0.0519	0.03910	0.399			
3/4/13 11:45	0.477	0.671	-0.194	-0.582	-0.580
0.0938	0.00878	-0.187			
7/2/13 12:00	4.180	3.760	0.416	1.240	1.240
0.0764	0.03180	0.358			
10/17/13 13:15	2.150	1.760	0.382	1.150	1.150
0.0949	0.03460	0.373			
3/24/14 13:15	0.699	1.370	-0.671	-1.980	-2.010
0.0529	0.05460	-0.474			
10/1/14 11:15	2.000	1.520	0.485	1.430	1.440
0.0638	0.03510	0.377			
4/21/15 11:45	3.580	2.700	0.876	2.580	2.660
0.0562	0.09940	0.650			
6/29/15 10:30	4.200	3.230	0.972	2.840	2.950
0.0363	0.07580	0.572			

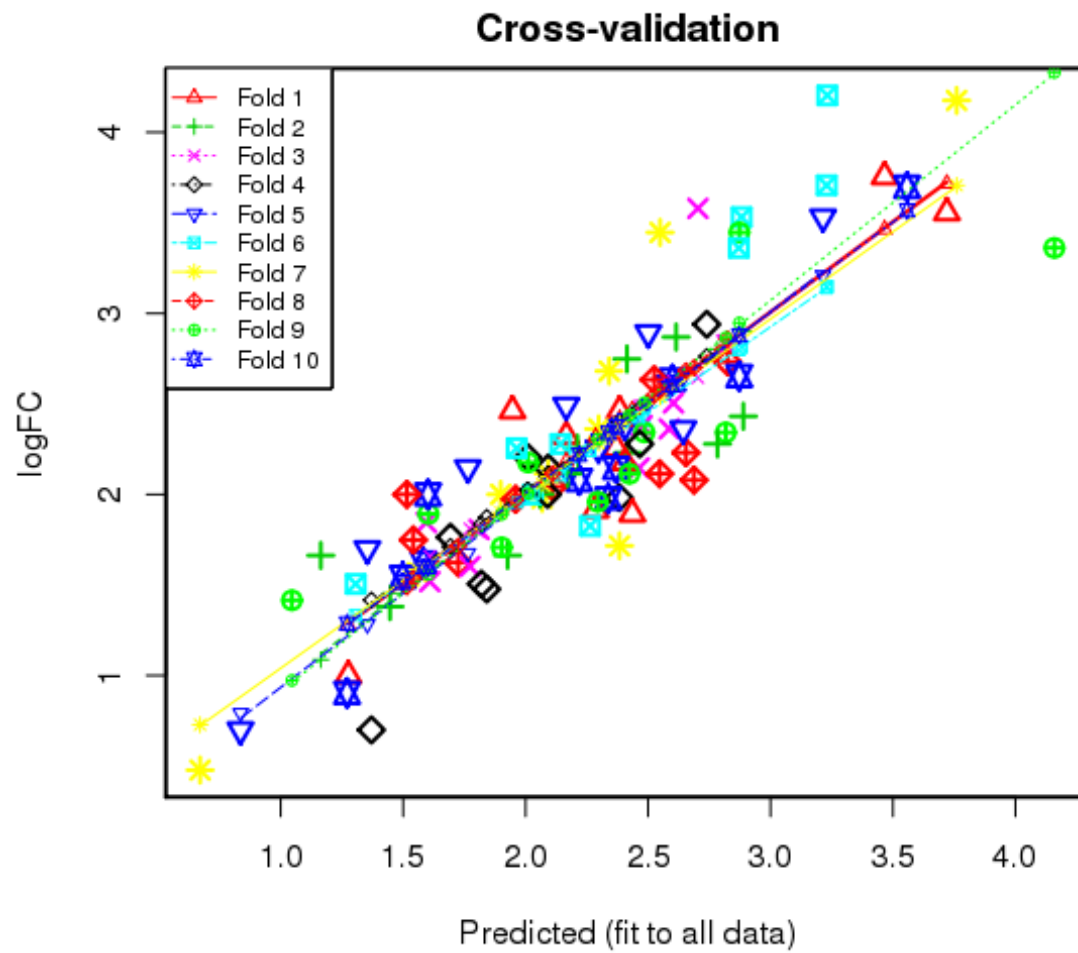
Statistical Plots



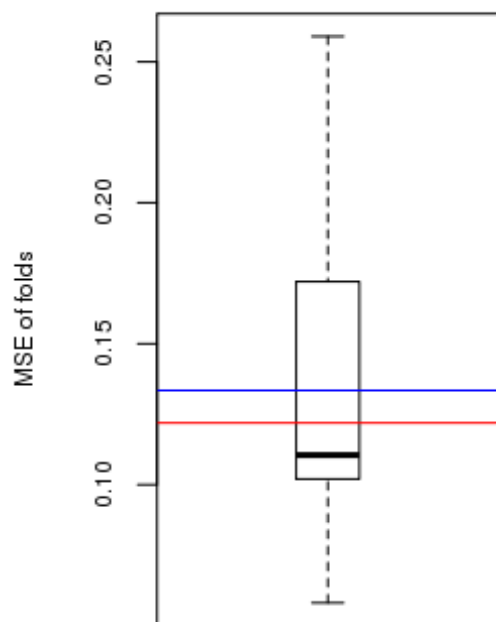




Cross Validation



Minimum MSE of folds: 0.0581
Mean MSE of folds: 0.1330
Median MSE of folds: 0.1100
Maximum MSE of folds: 0.2590
(Mean MSE of folds) / (Model MSE): 1.0900



Red line - Model MSE

Blue line - Mean MSE of folds

Model-Calibration Data Set

Residual	Date	logFC	logTURB	sin2piJD	cos2pijd	FC	TURB	Computed	Computed
0		Normal	Censored					logFC	FC
Quantiles	Values								
1	7-03-28	1.38	0.602	0.998	0.0567	24	4	1.45	39.2
-0.0659	-0.124	--							
2	7-04-11	1.51	0.301	0.983	-0.183	32	2	1.31	28.4
0.199	0.605	--							
3	7-04-24	1.66	0.699	0.918	-0.397	46	5	1.93	119
-0.264	-0.761	--							
4	7-05-03	1.81	0.477	0.846	-0.533	64	3	1.81	90.7
0.00377	0.0496	--							

5	7-06-14	2.73	0.954	0.282	-0.96	540	9	2.82	938
-0.0925	-0.25	--							
6	7-06-20	2.65	0.954	0.181	-0.983	450	9	2.87	1050
-0.219	-0.635	--							
7	7-07-16	2.63	0.602	-0.262	-0.965	430	4	2.6	559
0.0338	0.199	--							
8	7-07-26	2.15	0.477	-0.423	-0.906	140	3	2.46	408
-0.317	-0.939	--							
9	7-08-02	2.36	0.602	-0.529	-0.849	230	4	2.59	542
-0.225	-0.696	--							
10	7-08-20	2.51	0.699	-0.763	-0.647	320	5	2.6	564
-0.0984	-0.302	--							
11	7-09-12	1.91	0.602	-0.953	-0.303	82	4	2.29	271
-0.372	-1.15	--							
12	7-09-17	2	0.301	-0.976	-0.22	100	2	1.9	111
0.102	0.407	--							
13	8-03-24	1.62	0.903	0.992	0.125	42	8	1.72	74.5
-0.101	-0.328	--							
14	8-04-08	1.72	1.32	0.991	-0.132	52	21	2.38	340
-0.667	-1.95	--							
15	8-04-23	2.11	0.863	0.925	-0.381	130	7.3	2.09	174
0.0217	0.149	--							
16	8-05-05	1.85	0.255	0.827	-0.562	70	1.8	1.59	55.2
0.251	0.696	--							
17	8-05-14	1.97	0.477	0.73	-0.683	94	3	1.96	128
0.0141	0.124	--							
18	8-05-22	2.75	0.799	0.63	-0.777	560	6.3	2.41	364
0.335	0.939	--							
19	8-05-30	1.98	0.398	0.517	-0.856	95	2.5	2.07	164
-0.0896	-0.199	--							
20	8-06-04	3.56	1.86	0.442	-0.897	3600	72	3.72	7370
-0.164	-0.462	--							
21	8-06-12	2.61	0.752	0.314	-0.949	410	5.65	2.59	541
0.0268	0.174	--							
22	8-06-23	2.26	0.477	0.13	-0.991	180	3	2.37	330
-0.115	-0.354	--							
23	8-07-02	2.23	0.69	-0.0242	-1	170	4.9	2.65	634
-0.424	-1.25	--							
24	8-07-09	2.43	0.491	-0.144	-0.99	270	3.1	2.46	408
-0.0321	-0.0248	--							
25	8-07-30	2.34	0.806	-0.485	-0.875	220	6.4	2.82	923
-0.475	-1.51	--							
26	8-08-06	2.08	0.279	-0.586	-0.81	120	1.9	2.22	232
-0.14	-0.407	--							
27	8-08-19	2.04	0.243	-0.751	-0.66	110	1.75	2.11	181
-0.0695	-0.149	--							
28	8-08-28	2.08	0.833	-0.844	-0.536	120	6.8	2.69	684
-0.608	-1.8	--							
29	8-09-11	2.46	0.681	-0.948	-0.319	290	4.8	2.38	340
0.0786	0.381	--							

30	8-09-25	1.76	0.204	-0.996	-0.084	58	1.6	1.69	69.2
0.0705	0.354	--							
31	9-03-30	1.57	0.681	1	0.0223	37	4.8	1.56	50.9
0.00915	0.0992	--							
32	9-04-21	2.46	0.756	0.937	-0.349	290	5.7	1.95	124
0.516	1.6	--							
33	9-05-06	3.45	1.11	0.817	-0.576	2800	13	2.55	497
0.898	2.15	--							
34	9-05-14	1.98	0.863	0.73	-0.683	96	7.3	2.38	339
-0.4	-1.2	--							
35	9-05-26	2.15	0.462	0.575	-0.818	140	2.9	2.09	174
0.0538	0.302	--							
36	9-06-02	2.11	0.806	0.472	-0.881	130	6.4	2.55	495
-0.433	-1.31	--							
37	9-06-15	3.76	1.53	0.265	-0.964	5700	34	3.47	4100
0.29	0.795	--							
38	9-06-24	2.43	0.944	0.113	-0.994	270	8.8	2.89	1090
-0.458	-1.44	--							
39	9-07-15	2.36	0.643	-0.245	-0.969	230	4.4	2.64	618
-0.282	-0.829	--							
40	9-07-29	3.53	0.863	-0.47	-0.883	3400	7.3	2.88	1070
0.649	1.8	--							
41	9-08-13	3.36	2.08	-0.679	-0.734	2300	120	4.16	20300
-0.798	-2.52	--							
42	9-08-17	2.28	0.845	-0.728	-0.685	190	7	2.78	853
-0.505	-1.6	--							
43	9-08-27	1.98	0.505	-0.835	-0.551	95	3.2	2.34	305
-0.36	-1.02	--							
44	9-09-08	1.89	0.699	-0.93	-0.368	78	5	2.44	383
-0.544	-1.69	--							
45	9-09-15	2.38	0.806	-0.967	-0.253	240	6.4	2.48	420
-0.0951	-0.276	--							
46	10-03-18	1.54	0.763	0.974	0.227	35	5.8	1.5	44.2
0.0458	0.276	--							
47	10-03-29	2.94	1.77	0.999	0.0395	870	59	2.74	771
0.2	0.635	--							
48	10-04-08	1.62	0.591	0.991	-0.132	42	3.9	1.58	53.7
0.041	0.225	--							
49	10-04-21	1.71	0.716	0.937	-0.349	51	5.2	1.9	112
-0.195	-0.605	--							
50	10-05-12	2.89	0.996	0.753	-0.658	780	9.9	2.5	445
0.391	1.15	--							
51	10-05-20	2.26	0.716	0.656	-0.755	180	5.2	2.3	279
-0.0423	-0.0496	--							
52	10-05-27	2.23	0.748	0.561	-0.828	170	5.6	2.42	367
-0.187	-0.518	--							
53	10-06-09	2.18	0.613	0.363	-0.932	150	4.1	2.41	358
-0.23	-0.728	--							
54	10-06-16	2.38	0.556	0.248	-0.969	240	3.6	2.41	357
-0.0253	0.0248	--							

55	10-06-28	2.87	0.672	0.0446	-0.999	740	4.7	2.61	578
0.255	0.728	--							
56	10-07-08	2.2	0.0792	-0.127	-0.992	160	1.2	2.01	143
0.195	0.575	--							
57	10-07-19	2.63	0.531	-0.311	-0.95	430	3.4	2.53	471
0.108	0.434	--							
58	10-07-26	3.71	1.18	-0.423	-0.906	5100	15	3.23	2380
0.478	1.31	--							
59	10-08-12	2.32	0.255	-0.667	-0.745	210	1.8	2.17	206
0.156	0.518	--							
60	10-08-24	2.36	0.447	-0.805	-0.593	230	2.8	2.3	279
0.0635	0.328	--							
61	10-08-30	2.18	0.23	-0.862	-0.507	150	1.7	2.01	144
0.166	0.546	--							
62	10-09-09	1.52	-0.0458	-0.936	-0.352	33	0.9	1.61	57.1
-0.0905	-0.225	--							
63	10-09-21	1.6	0.23	-0.988	-0.152	40	1.7	1.77	83.1
-0.17	-0.489	--							
64	12-03-06	0.699	0.279	0.907	0.422	5	1.9	0.836	9.62
-0.137	-0.381	--							
65	12-04-04	1	0.362	0.998	-0.0637	10	2.3	1.28	26.5
-0.276	-0.795	--							
66	12-05-02	1.89	0.301	0.855	-0.519	78	2	1.6	56.3
0.289	0.761	--							
67	12-06-06	2.26	0.462	0.411	-0.912	180	2.9	2.21	229
0.0433	0.25	--							
68	12-07-02	2	0.146	-0.0242	-1	100	1.4	2.06	161
-0.0586	-0.0992	--							
69	12-08-01	1.66	-0.699	-0.514	-0.858	46	0.2	1.16	20.5
0.499	1.51	--							
70	12-09-04	3.45	1.06	-0.902	-0.431	2800	11.5	2.87	1050
0.574	1.69	--							
71	12-10-10	1.7	0.0792	-0.985	0.173	50	1.2	1.35	31.7
0.345	1.02	--							
72	13-03-04	0.477	0.146	0.892	0.453	3	1.4	0.671	6.58
-0.194	-0.575	--							
73	13-04-02	1.41	0.176	1	-0.0293	26	1.5	1.05	15.6
0.369	1.06	--							
74	13-05-02	1.48	0.519	0.855	-0.519	30	3.3	1.84	97.5
-0.364	-1.06	--							
75	13-06-05	1.83	0.519	0.426	-0.905	67	3.3	2.26	258
-0.437	-1.37	--							
76	13-06-07	3.7	1.68	0.395	-0.919	5000	48	3.56	5070
0.142	0.489	--							
77	13-07-02	4.18	1.7	-0.0242	-1	15000	50	3.76	8080
0.416	1.25	--							
78	13-07-16	2.83	0.806	-0.262	-0.965	670	6.4	2.82	935
0.00271	0.0744	--							
79	13-08-05	2.34	0.519	-0.572	-0.82	220	3.3	2.49	429
-0.143	-0.434	--							

80	13-09-05	2	0.301	-0.91	-0.415	100	2	2.03	151
-0.0306	0	--							
81	13-10-17	2.15	0.544	-0.957	0.29	140	3.5	1.76	81.6
0.382	1.11	--							
82	14-03-24	0.699	0.58	0.992	0.125	5	3.8	1.37	33
-0.671	-2.15	--							
83	14-04-14	1.75	0.477	0.972	-0.234	56	3	1.54	48.9
0.207	0.665	--							
84	14-05-07	1.96	0.869	0.807	-0.59	91	7.4	2.29	277
-0.336	-0.978	--							
85	14-06-02	2.15	0.643	0.472	-0.881	140	4.4	2.37	329
-0.223	-0.665	--							
86	14-07-07	2.11	0.23	-0.11	-0.994	130	1.7	2.17	208
-0.0572	-0.0744	--							
87	14-08-13	3.36	0.903	-0.679	-0.734	2300	8	2.87	1040
0.491	1.44	--							
88	14-08-19	2	-0.222	-0.751	-0.66	100	0.6	1.6	56.1
0.398	1.2	--							
89	14-09-09	2.49	0.462	-0.936	-0.352	310	2.9	2.17	206
0.326	0.901	--							
90	14-10-01	2	0.114	-1	0.0191	100	1.3	1.52	46
0.485	1.37	--							
91	15-03-25	0.903	0.477	0.994	0.108	8	3	1.27	26.2
-0.367	-1.11	--							
92	15-04-21	3.58	1.45	0.937	-0.349	3800	28	2.7	710
0.876	1.95	--							
93	15-05-12	2.26	0.505	0.753	-0.658	180	3.2	1.96	129
0.292	0.829	--							
94	15-06-02	3.53	1.41	0.472	-0.881	3400	26	3.21	2300
0.317	0.864	--							
95	15-06-29	4.2	1.23	0.0274	-1	16000	17	3.23	2390
0.972	2.52	--							
96	15-07-21	2.28	0.477	-0.344	-0.939	190	3	2.47	411
-0.187	-0.546	--							
97	15-07-30	2.11	0.447	-0.485	-0.875	130	2.8	2.42	373
-0.31	-0.864	--							
98	15-08-12	2.68	0.415	-0.667	-0.745	480	2.6	2.34	308
0.34	0.978	--							
99	15-08-27	2	0.279	-0.835	-0.551	100	1.9	2.09	173
-0.0894	-0.174	--							
100	15-09-09	1.51	0.146	-0.936	-0.352	32	1.4	1.82	92.6
-0.314	-0.901	--							
101	15-09-14	2.28	0.491	-0.963	-0.27	190	3.1	2.14	195
0.137	0.462	--							

Definitions

FC: Fecal coliforms in cfu/100ml (31625)

TURB: Turbidity in FNU (63680)

DY: Date in decimal years

App Version 1.0