

Model Statistics, Data, and Plots

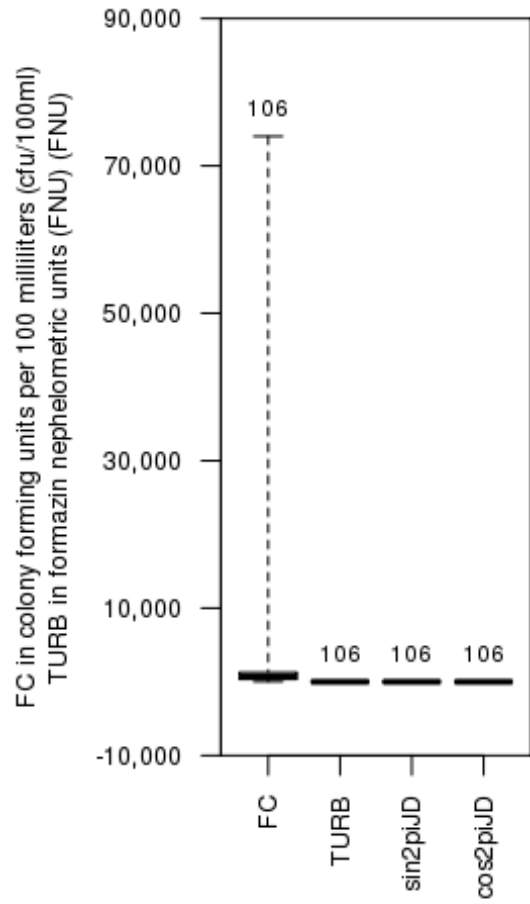
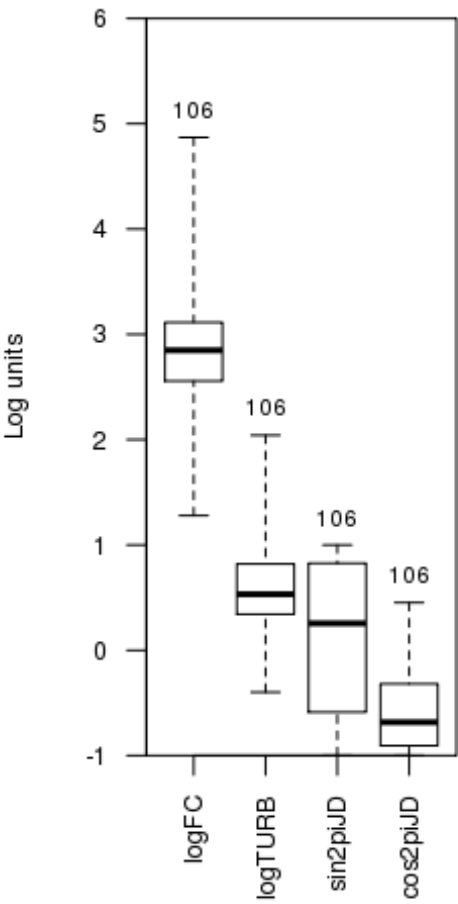
Model

$$\text{logFC} = + 0.758 * \text{logTURB} - 0.293 * \sin 2\pi \text{JD} - 0.529 * \cos 2\pi \text{JD} + 2.13$$

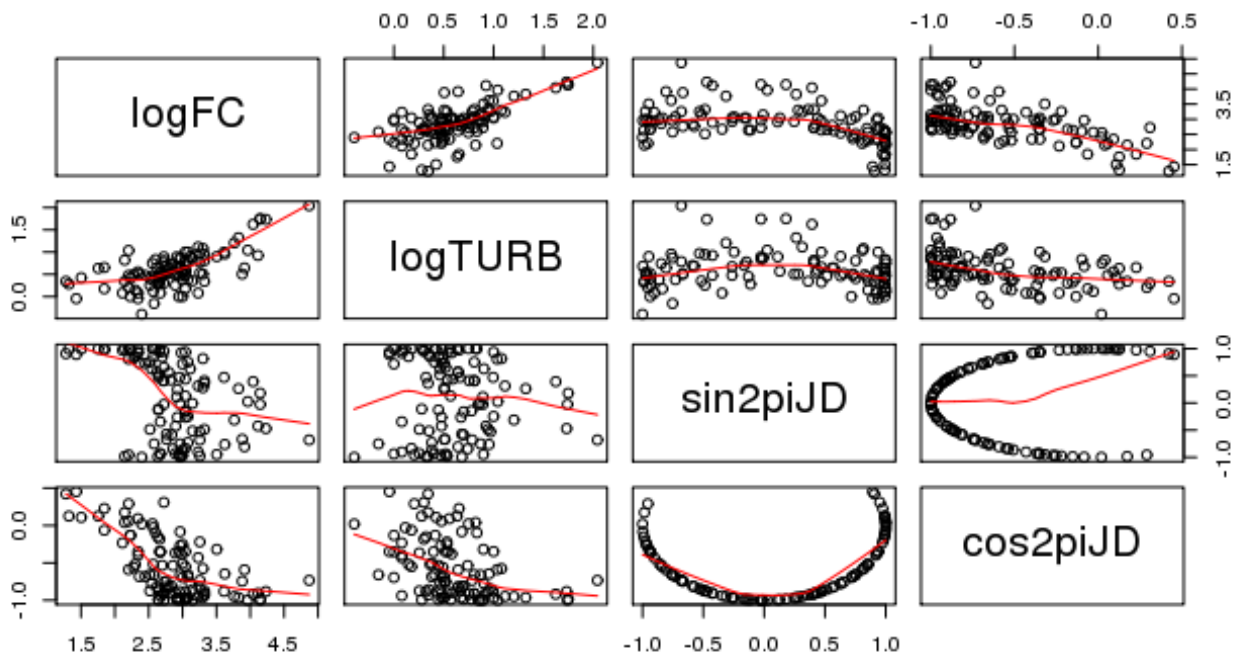
Variable Summary Statistics

	logFC	FC	logTURB	sin2piJD	cos2piJD	TURB
Minimum	1.28	19	-0.398	-1.000	-1.000	0.40
1st Quartile	2.56	360	0.342	-0.588	-0.906	2.20
Median	2.85	705	0.531	0.255	-0.683	3.40
Mean	2.86	2440	0.599	0.107	-0.566	7.29
3rd Quartile	3.11	1300	0.820	0.826	-0.319	6.60
Maximum	4.87	74000	2.040	1.000	0.453	110.00

Box Plots



Exploratory Plots



Basic Model Statistics

Number of Observations	106
Standard error (RMSE)	0.348
Average Model standard percentage error (MSPE)	89
Coefficient of determination (R^2)	0.695
Adjusted Coefficient of Determination (Adj. R^2)	0.686
Bias Correction Factor (BCF)	1.38

Variance Inflation Factors (VIF)

logTURB	sin2piJD	cos2piJD
1.22	1.05	1.28

Explanatory Variables

	Coefficients	Standard Error	t value	Pr(> t)
(Intercept)	2.130	0.0686	31.10	7.33e-54
logTURB	0.758	0.0911	8.32	4.12e-13
sin2piJD	-0.293	0.0485	-6.05	2.47e-08
cos2piJD	-0.529	0.0964	-5.49	2.98e-07

Correlation Matrix

	Intercept	logTURB	sin2piJD	cos2piJD
Intercept	1.000	-0.455	-0.211	0.476
logTURB	-0.455	1.000	-0.044	0.423
sin2piJD	-0.211	-0.044	1.000	-0.214
cos2piJD	0.476	0.423	-0.214	1.000

Outlier Test Criteria

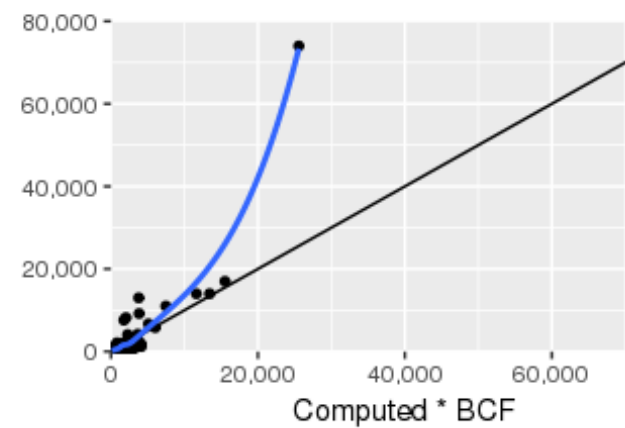
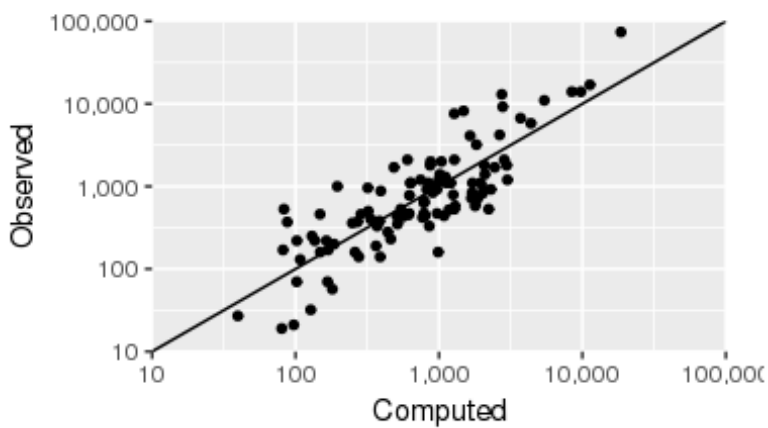
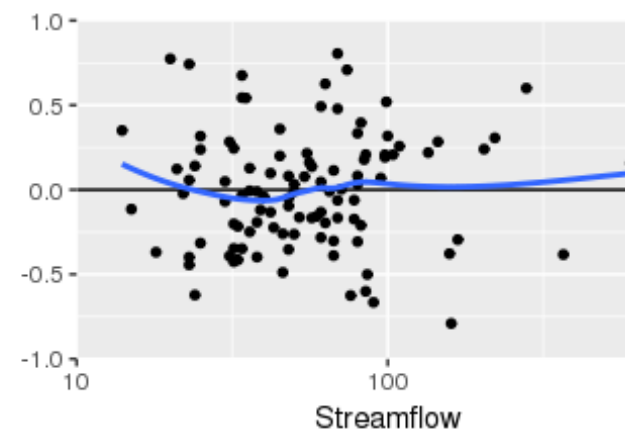
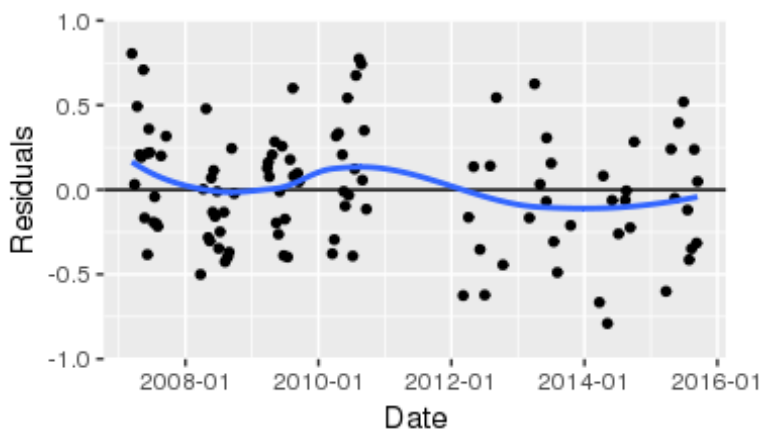
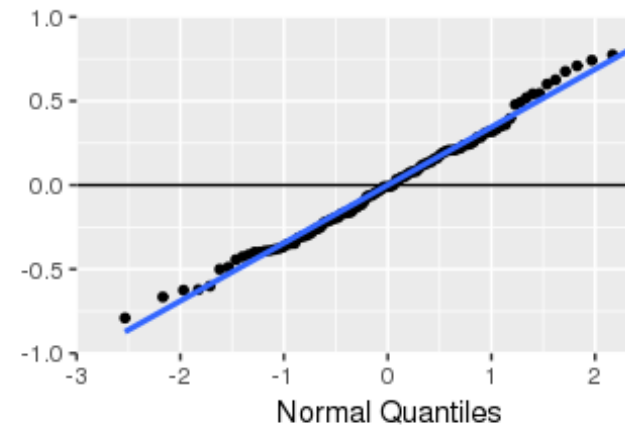
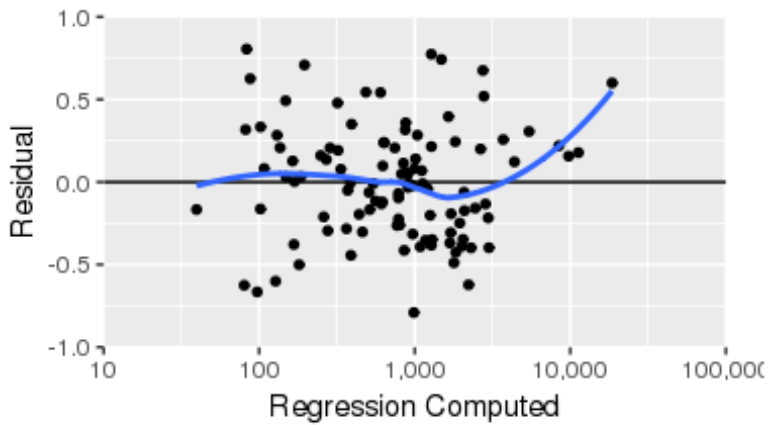
Leverage	Cook's D	DFFITS
0.0849	0.2647	0.3365

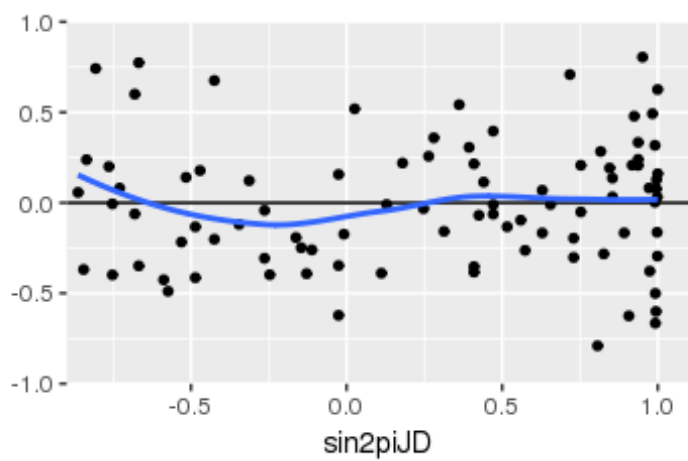
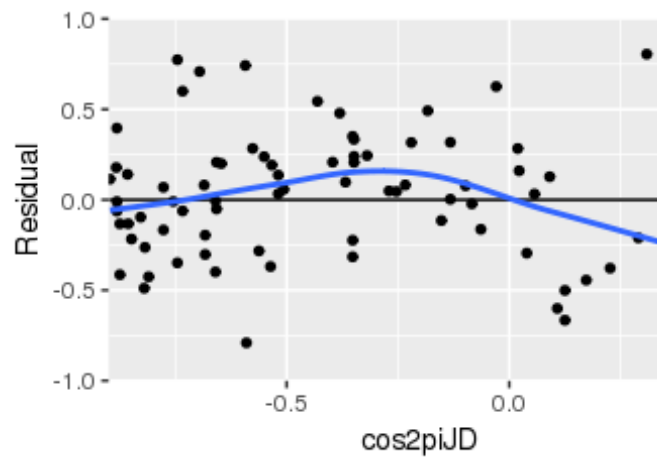
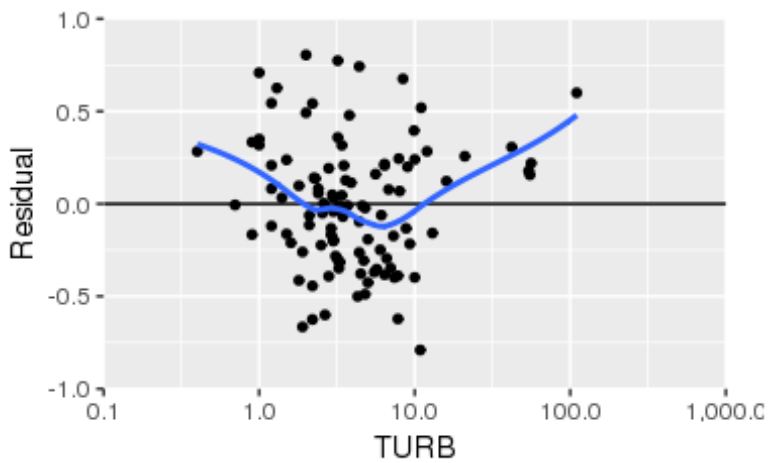
Flagged Observations

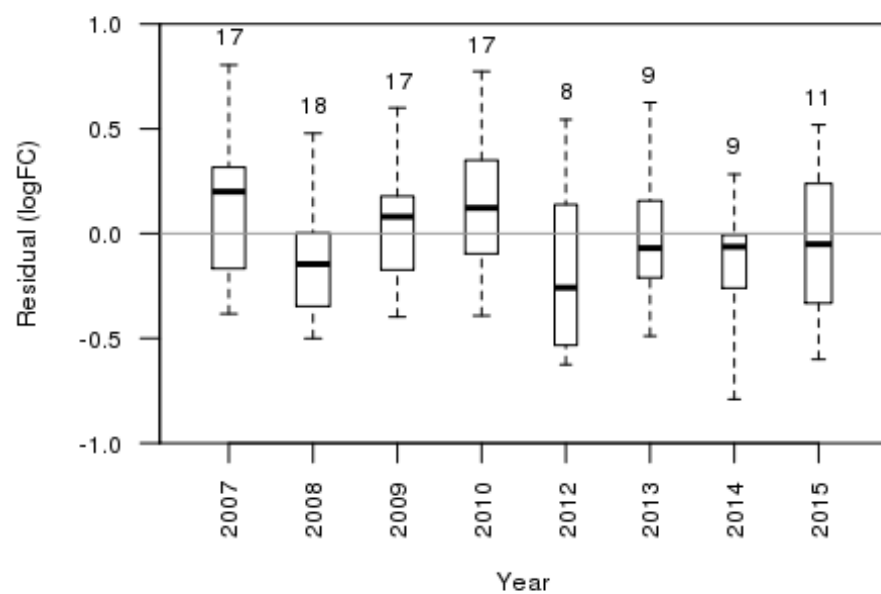
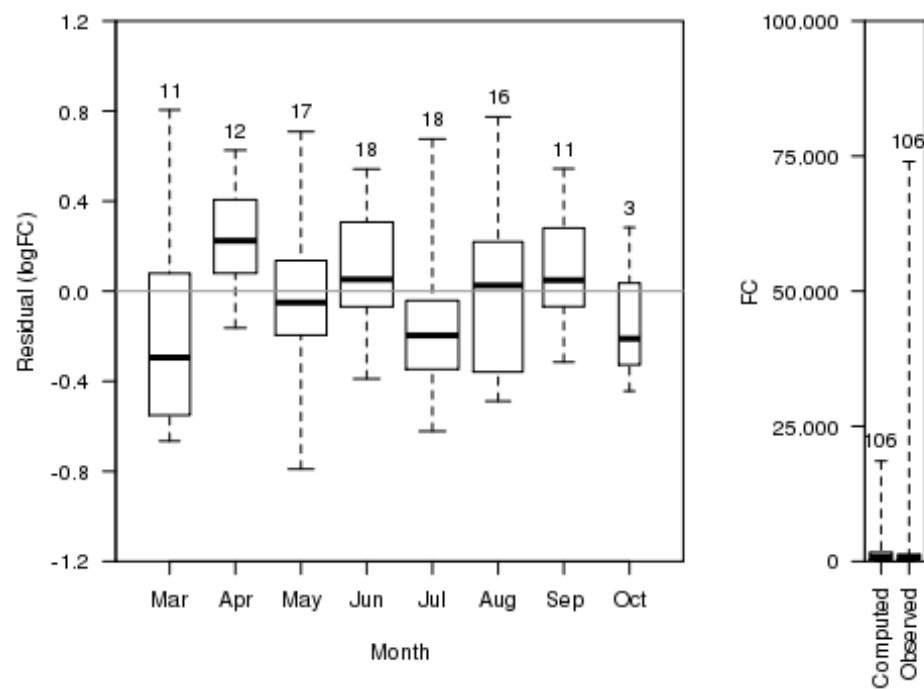
	logFC	Estimate	Residual	Standard Residual	Studentized
Residual	Leverage	Cook's D	DFFITS		
03/13/2007 07:50	2.72	1.92	0.805	2.390	
2.440	0.0608	0.0921	0.622		
05/15/2007 10:00	3.00	2.29	0.709	2.090	
2.120	0.0498	0.0571	0.486		
03/24/2008 08:45	1.76	2.26	-0.501	-1.480	-
1.490	0.0527	0.0304	-0.351		
07/29/2009 12:30	4.23	4.05	0.178	0.536	
0.535	0.0887	0.0070	0.167		
08/13/2009 08:15	4.87	4.27	0.600	1.870	
1.900	0.1530	0.1580	0.806		
08/12/2010 08:15	3.88	3.11	0.774	2.250	
2.300	0.0226	0.0293	0.349		
08/24/2010 08:30	3.91	3.17	0.742	2.160	
2.200	0.0255	0.0305	0.356		
03/06/2012 08:45	1.28	1.90	-0.625	-1.870	-
1.890	0.0734	0.0689	-0.532		
09/04/2012 10:00	3.23	2.69	0.544	1.600	
1.610	0.0454	0.0304	0.352		
10/10/2012 09:30	2.15	2.59	-0.444	-1.330	-
1.330	0.0798	0.0383	-0.393		
04/02/2013 08:30	2.57	1.94	0.626	1.840	
1.860	0.0406	0.0357	0.382		
10/17/2013 11:45	2.20	2.41	-0.211	-0.635	-
0.633	0.0913	0.0101	-0.201		
03/24/2014 11:45	1.32	1.99	-0.665	-1.960	-
1.980	0.0456	0.0457	-0.434		
05/07/2014 09:15	2.20	2.99	-0.790	-2.310	-
2.360	0.0307	0.0421	-0.420		
10/01/2014 09:45	2.40	2.11	0.283	0.857	
0.856	0.0989	0.0202	0.284		

03/25/2015 10:45	1.51	2.11	-0.600	-1.770	-
1.780	0.0451	0.0368	-0.388		

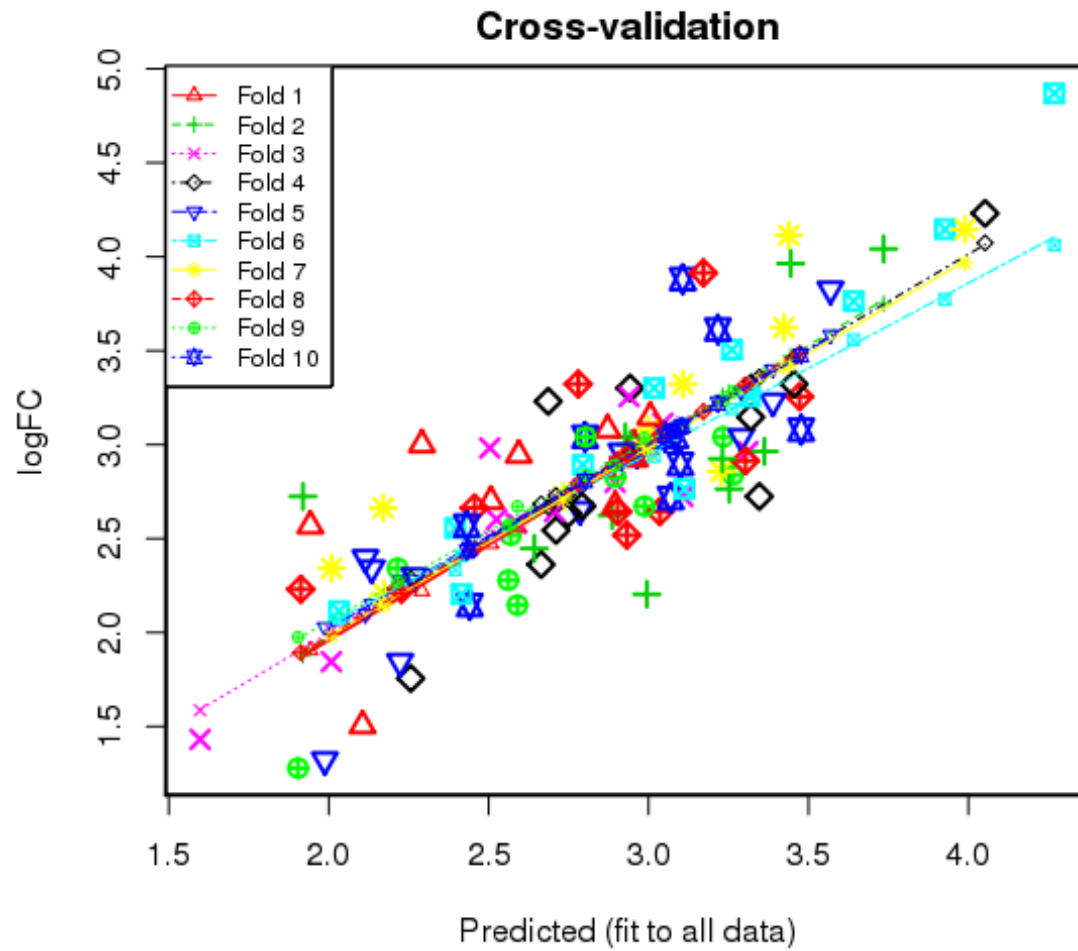
Statistical Plots



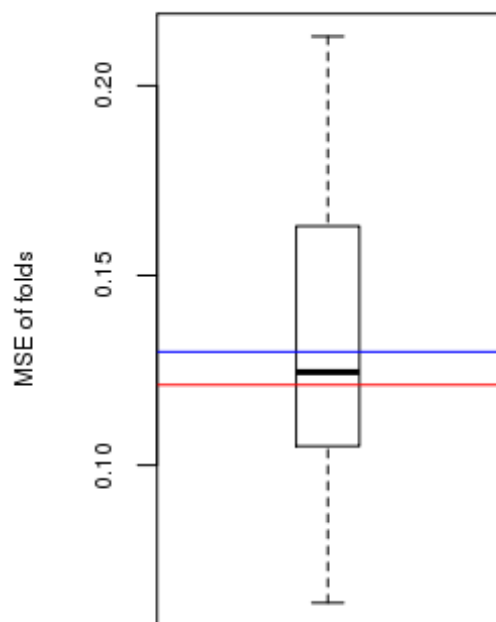




Cross Validation



Minimum MSE of folds: 0.0637
Mean MSE of folds: 0.1300
Median MSE of folds: 0.1240
Maximum MSE of folds: 0.2130
(Mean MSE of folds) / (Model MSE): 1.0700



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	2007-03-13	2.72	0.301	0.951	0.309	530	2	1.92	114
0.805	2.53	--							
2	2007-03-28	2.2	0.477	0.998	0.0567	160	3	2.17	205
0.0317	0.0827	--							
3	2007-04-11	2.66	0.301	0.983	-0.183	460	2	2.17	204
0.492	1.28	--							
4	2007-04-24	2.34	0.0792	0.918	-0.397	220	1.2	2.13	188
0.208	0.644	--							

5	2007-05-03	2.7	0.447	0.845	-0.533	500	2.8	2.51	442
0.192	0.531	--							
6	2007-05-15	3	0	0.718	-0.696	1000	1	2.29	269
0.709	1.83	--							
7	2007-05-22	2.54	0.462	0.629	-0.777	350	2.9	2.71	707
-0.167	-0.426	--							
8	2007-06-06	3.32	0.806	0.409	-0.912	2100	6.4	3.11	1760
0.215	0.673	--							
9	2007-06-06	2.72	0.806	0.409	-0.912	530	6.4	3.11	1760
-0.383	-1.09	--							
10	2007-06-14	3.3	0.505	0.28	-0.96	2000	3.2	2.94	1200
0.359	1.14	--							
11	2007-06-20	4.15	1.75	0.18	-0.983	14000	56	3.93	11600
0.22	0.703	--							
12	2007-07-10	3.04	0.699	-0.163	-0.987	1100	5	3.23	2360
-0.192	-0.478	--							
13	2007-07-16	3.04	0.477	-0.264	-0.965	1100	3	3.08	1670
-0.0418	-0.106	--							
14	2007-07-26	2.9	0.477	-0.425	-0.906	790	3	3.1	1730
-0.202	-0.531	--							
15	2007-08-02	3.26	0.968	-0.531	-0.849	1800	9.3	3.47	4080
-0.217	-0.587	--							
16	2007-08-20	3.62	0.954	-0.764	-0.647	4200	9	3.42	3650
0.2	0.559	--							
17	2007-09-17	3.26	0.531	-0.976	-0.22	1800	3.4	2.94	1200
0.316	0.971	--							
18	2008-03-24	1.76	0.633	0.992	0.125	57	4.3	2.26	248
-0.501	-1.62	--							
19	2008-04-08	2.23	0.415	0.991	-0.132	170	2.6	2.23	232
0.00301	0.059	--							
20	2008-04-23	2.98	0.58	0.924	-0.381	960	3.8	2.5	439
0.479	1.23	--							
21	2008-05-05	2.28	0.491	0.826	-0.562	190	3.1	2.56	501
-0.283	-0.733	--							
22	2008-05-14	2.36	0.505	0.73	-0.683	230	3.2	2.66	635
-0.302	-0.797	--							
23	2008-05-22	3.11	0.903	0.629	-0.777	1300	8	3.04	1530
0.069	0.202	--							
24	2008-05-30	2.65	0.462	0.516	-0.856	450	2.9	2.79	840
-0.132	-0.299	--							
25	2008-06-04	3.04	0.591	0.441	-0.897	1100	3.9	2.93	1160
0.114	0.324	--							
26	2008-06-12	3.23	1.11	0.313	-0.949	1700	13	3.39	3370
-0.158	-0.349	--							
27	2008-06-23	3.04	0.568	0.129	-0.991	1100	3.7	3.05	1550
-0.00983	-0.0118	--							
28	2008-07-02	2.96	0.845	-0.0258	-1	920	7	3.31	2810
-0.347	-0.898	--							
29	2008-07-09	3.04	0.778	-0.146	-0.99	1100	6	3.29	2680
-0.248	-0.644	--							

30	2008-07-30	3.32	0.944	-0.486	-0.875	2100	8.8	3.45	3920
-0.133	-0.324	--							
31	2008-08-06	2.84	0.699	-0.588	-0.81	690	5	3.26	2530
-0.426	-1.4	--							
32	2008-08-19	2.96	0.869	-0.753	-0.66	920	7.4	3.36	3170
-0.399	-1.28	--							
33	2008-08-28	2.86	0.74	-0.845	-0.536	720	5.5	3.23	2320
-0.369	-1.01	--							
34	2008-09-11	3.51	0.898	-0.948	-0.319	3200	7.9	3.26	2510
0.244	0.797	--							
35	2008-09-25	2.96	0.681	-0.997	-0.084	920	4.8	2.99	1330
-0.0227	-0.059	--							
36	2009-03-26	2.34	0.556	0.996	0.091	220	3.6	2.22	226
0.127	0.374	--							
37	2009-03-30	2.56	0.748	1	0.0223	360	5.6	2.4	342
0.161	0.478	--							
38	2009-04-06	2.6	0.833	0.995	-0.098	400	6.8	2.52	461
0.0773	0.226	--							
39	2009-04-21	2.66	0.544	0.937	-0.349	460	3.5	2.46	393
0.207	0.587	--							
40	2009-05-06	3.3	1.08	0.817	-0.576	2000	12	3.02	1430
0.284	0.898	--							
41	2009-05-14	2.45	0.477	0.73	-0.683	280	3	2.64	605
-0.196	-0.504	--							
42	2009-05-26	2.62	0.643	0.574	-0.818	420	4.4	2.89	1060
-0.263	-0.703	--							
43	2009-06-02	2.95	0.663	0.471	-0.881	900	4.6	2.96	1270
-0.01	-0.0354	--							
44	2009-06-15	3.83	1.32	0.264	-0.964	6700	21	3.57	5100
0.257	0.83	--							
45	2009-06-24	2.91	0.892	0.112	-0.994	820	7.8	3.3	2760
-0.389	-1.14	--							
46	2009-07-01	3.15	0.863	-0.0086	-1	1400	7.3	3.32	2870
-0.174	-0.452	--							
47	2009-07-15	3.08	1	-0.247	-0.969	1200	10	3.48	4130
-0.398	-1.23	--							
48	2009-07-29	4.23	1.73	-0.471	-0.883	17000	54	4.05	15500
0.178	0.504	--							
49	2009-08-13	4.87	2.04	-0.681	-0.734	74000	110	4.27	25600
0.6	1.54	--							
50	2009-08-17	3.08	0.38	-0.73	-0.685	1200	2.4	3	1370
0.0809	0.25	--							
51	2009-09-08	2.89	0.255	-0.931	-0.368	780	1.8	2.79	857
0.0977	0.299	--							
52	2009-09-15	3	0.531	-0.968	-0.253	1000	3.4	2.95	1240
0.0458	0.13	--							
53	2010-03-18	1.85	0.653	0.974	0.227	70	4.5	2.22	230
-0.378	-1.05	--							
54	2010-03-29	2.15	0.82	0.999	0.0395	140	6.6	2.44	380
-0.295	-0.765	--							

55	2010-04-08	2.23	0	0.991	-0.132	170	1	1.91	113
0.318	1.01	--							
56	2010-04-21	2.34	-0.0458	0.937	-0.349	220	0.9	2.01	140
0.334	1.05	--							
57	2010-05-12	3.08	0.806	0.753	-0.658	1200	6.4	2.87	1020
0.207	0.615	--							
58	2010-05-20	2.72	0.519	0.655	-0.755	530	3.3	2.73	746
-0.00964	0.0118	--							
59	2010-05-27	2.8	0.643	0.56	-0.828	630	4.4	2.9	1080
-0.0961	-0.226	--							
60	2010-06-09	3.32	0.342	0.362	-0.932	2100	2.2	2.78	829
0.542	1.4	--							
61	2010-06-16	2.92	0.505	0.247	-0.969	840	3.2	2.96	1250
-0.0324	-0.0827	--							
62	2010-07-08	2.64	0.447	-0.129	-0.992	440	2.8	3.04	1490
-0.392	-1.18	--							
63	2010-07-19	3.76	1.2	-0.313	-0.95	5800	16	3.64	6020
0.122	0.349	--							
64	2010-07-26	4.11	0.924	-0.425	-0.906	13000	8.4	3.44	3770
0.676	1.71	--							
65	2010-08-12	3.88	0.505	-0.668	-0.745	7600	3.2	3.11	1760
0.774	2.17	--							
66	2010-08-24	3.91	0.643	-0.806	-0.593	8200	4.4	3.17	2040
0.742	1.97	--							
67	2010-08-30	3	0.38	-0.863	-0.507	1000	2.4	2.94	1210
0.0571	0.178	--							
68	2010-09-09	2.94	0	-0.937	-0.352	880	1	2.59	541
0.35	1.09	--							
69	2010-09-21	2.63	0.322	-0.989	-0.152	430	2.1	2.75	770
-0.115	-0.25	--							
70	2012-03-06	1.28	0.342	0.907	0.422	19	2.2	1.9	110
-0.625	-1.97	--							
71	2012-04-04	1.85	0.176	0.998	-0.0637	70	1.5	2.01	140
-0.163	-0.374	--							
72	2012-05-02	2.57	0.362	0.854	-0.519	370	2.3	2.43	372
0.136	0.4	--							
73	2012-06-06	2.72	0.756	0.409	-0.912	520	5.7	3.07	1610
-0.353	-0.971	--							
74	2012-07-02	2.72	0.892	-0.0258	-1	530	7.8	3.35	3060
-0.622	-1.83	--							
75	2012-08-01	3.15	0.352	-0.516	-0.858	1400	2.25	3.01	1390
0.141	0.426	--							
76	2012-09-04	3.23	0.0792	-0.903	-0.431	1700	1.2	2.69	668
0.544	1.46	--							
77	2012-10-10	2.15	0.342	-0.984	0.173	140	2.2	2.59	535
-0.444	-1.46	--							
78	2013-03-04	1.43	-0.0458	0.892	0.453	27	0.9	1.6	54.5
-0.166	-0.4	--							
79	2013-04-02	2.57	0.114	1	-0.0293	370	1.3	1.94	120
0.626	1.62	--							

80	2013-05-02	2.3	0.146	0.854	-0.519	200	1.4	2.27	255
0.0326	0.106	--							
81	2013-06-05	2.83	0.538	0.425	-0.905	670	3.45	2.9	1080
-0.0693	-0.202	--							
82	2013-06-07	4.04	1.62	0.394	-0.919	11000	42	3.73	7470
0.306	0.934	--							
83	2013-07-02	4.15	1.74	-0.0258	-1	14000	55	3.99	13400
0.157	0.452	--							
84	2013-07-16	2.92	0.672	-0.264	-0.965	840	4.7	3.23	2340
-0.307	-0.83	--							
85	2013-08-05	2.76	0.681	-0.574	-0.82	580	4.8	3.25	2460
-0.489	-1.54	--							
86	2013-10-17	2.2	0.204	-0.956	0.29	160	1.6	2.41	358
-0.211	-0.559	--							
87	2014-03-24	1.32	0.279	0.992	0.125	21	1.9	1.99	134
-0.665	-2.17	--							
88	2014-04-14	2.11	0.0792	0.972	-0.234	130	1.2	2.03	148
0.0818	0.275	--							
89	2014-05-07	2.2	1.04	0.806	-0.59	160	10.8	2.99	1360
-0.79	-2.53	--							
90	2014-06-02	2.64	0.322	0.471	-0.881	440	2.1	2.71	699
-0.0627	-0.178	--							
91	2014-07-07	2.64	0.279	-0.112	-0.994	440	1.9	2.9	1100
-0.26	-0.673	--							
92	2014-08-13	3.26	0.785	-0.681	-0.734	1800	6.1	3.32	2850
-0.0615	-0.154	--							
93	2014-08-19	2.58	-0.155	-0.753	-0.66	380	0.7	2.59	530
-0.00611	0.0354	--							
94	2014-09-09	2.67	0.398	-0.937	-0.352	470	2.5	2.9	1080
-0.224	-0.615	--							
95	2014-10-01	2.4	-0.398	-1	0.0191	250	0.4	2.11	179
0.283	0.863	--							
96	2015-03-25	1.51	0.423	0.994	0.108	32	2.65	2.11	175
-0.6	-1.71	--							
97	2015-04-21	3.04	1	0.937	-0.349	1100	10	2.8	871
0.24	0.765	--							
98	2015-05-12	2.52	0.407	0.753	-0.658	330	2.55	2.57	510
-0.0505	-0.13	--							
99	2015-06-02	3.61	0.996	0.471	-0.881	4100	9.9	3.22	2270
0.396	1.18	--							
100	2015-06-29	3.96	1.04	0.0258	-1	9200	11	3.44	3830
0.519	1.34	--							
101	2015-07-21	2.67	0.0792	-0.346	-0.939	470	1.2	2.79	852
-0.12	-0.275	--							
102	2015-07-30	2.52	0.255	-0.486	-0.875	330	1.8	2.93	1180
-0.414	-1.34	--							
103	2015-08-12	2.76	0.512	-0.668	-0.745	580	3.25	3.11	1780
-0.348	-0.934	--							
104	2015-08-27	3.04	0.176	-0.836	-0.551	1100	1.5	2.8	875
0.238	0.733	--							

105	2015-09-09	2.67	0.519	-0.937	-0.352	470	3.3	2.99	1340
-0.315	-0.863	--							
106	2015-09-14	2.96	0.47	-0.963	-0.27	920	2.95	2.91	1130
0.0489	0.154	--							

Definitions

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

TURB: Turbidity in FNU (63680)

DY: Date in decimal years

App Version 1.0