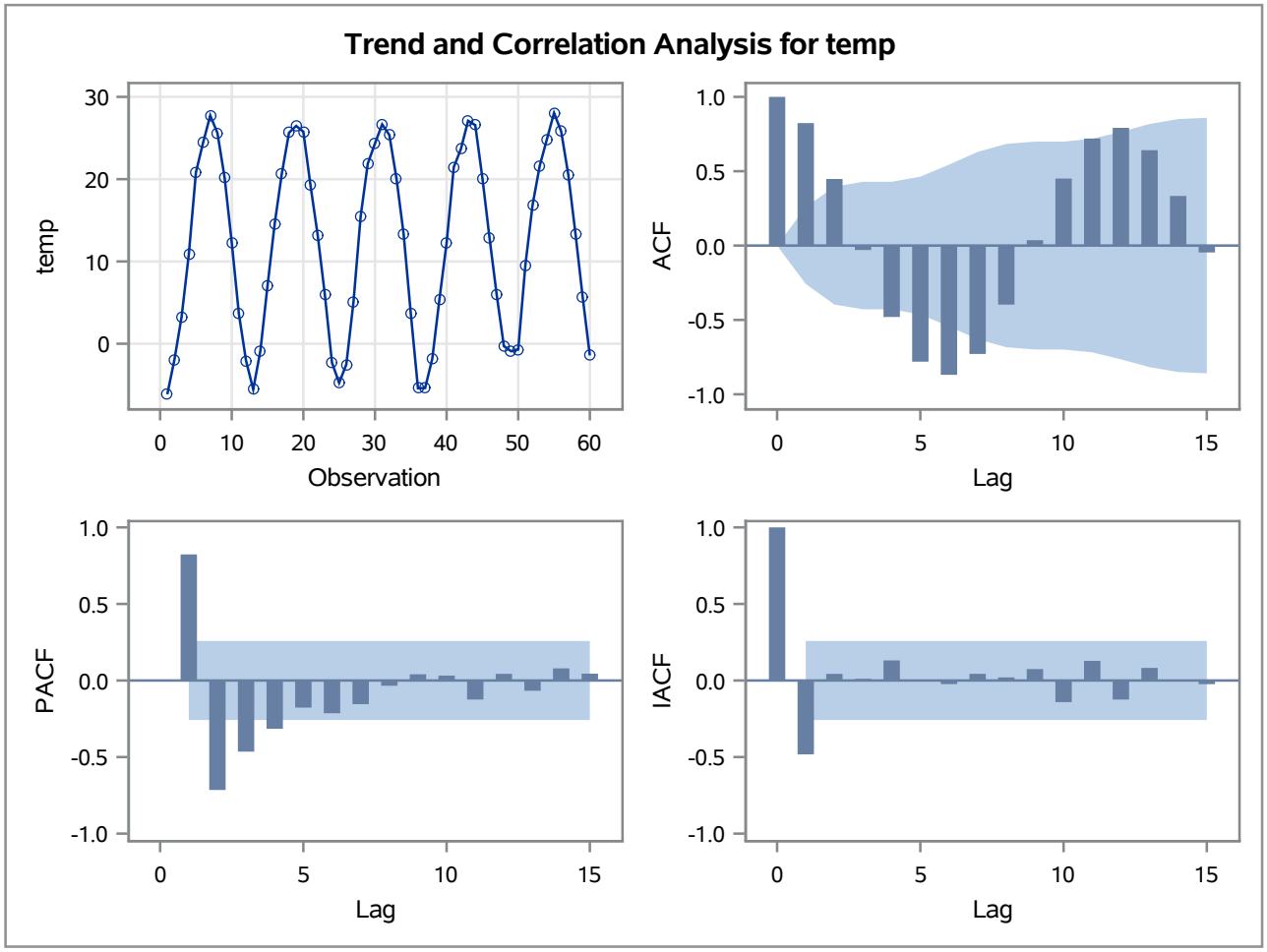
Name of Variable = temp	
Mean of Working Series	12.38096
Standard Deviation	11.18162
Number of Observations	60

Autocorrelation Check for White Noise									
To Lag	**Chi-Square**	**DF**	**Pr > ChiSq**	**Autocorrelations**					
6	164.21	6	<.0001	0.823	0.448	-0.030	-0.480	-0.781	-0.869
12	315.83	12	<.0001	-0.729	-0.397	0.036	0.451	0.720	0.791



Warning: Estimates did not improve after a ridge was encountered in the objective function. The iteration process has been terminated.

Warning: Estimates may not have converged.

ARIMA Estimation Optimization Summary	
Estimation Method	Maximum Likelihood
Parameters Estimated	4
Termination Criteria	Maximum Relative Change in Estimates
Iteration Stopping Value	0.001
Criteria Value	3.71E-15
Maximum Absolute Value of Gradient	4.475379

ARIMA Estimation Optimization Summary	
R-Square Change from Last Iteration	0.002529
Objective Function	Log Gaussian Likelihood
Objective Function Value	-120.698
Marquardt's Lambda Coefficient	1E12
Numerical Derivative Perturbation Delta	0.001
Iterations	17
Warning Message	Estimates may not have converged.

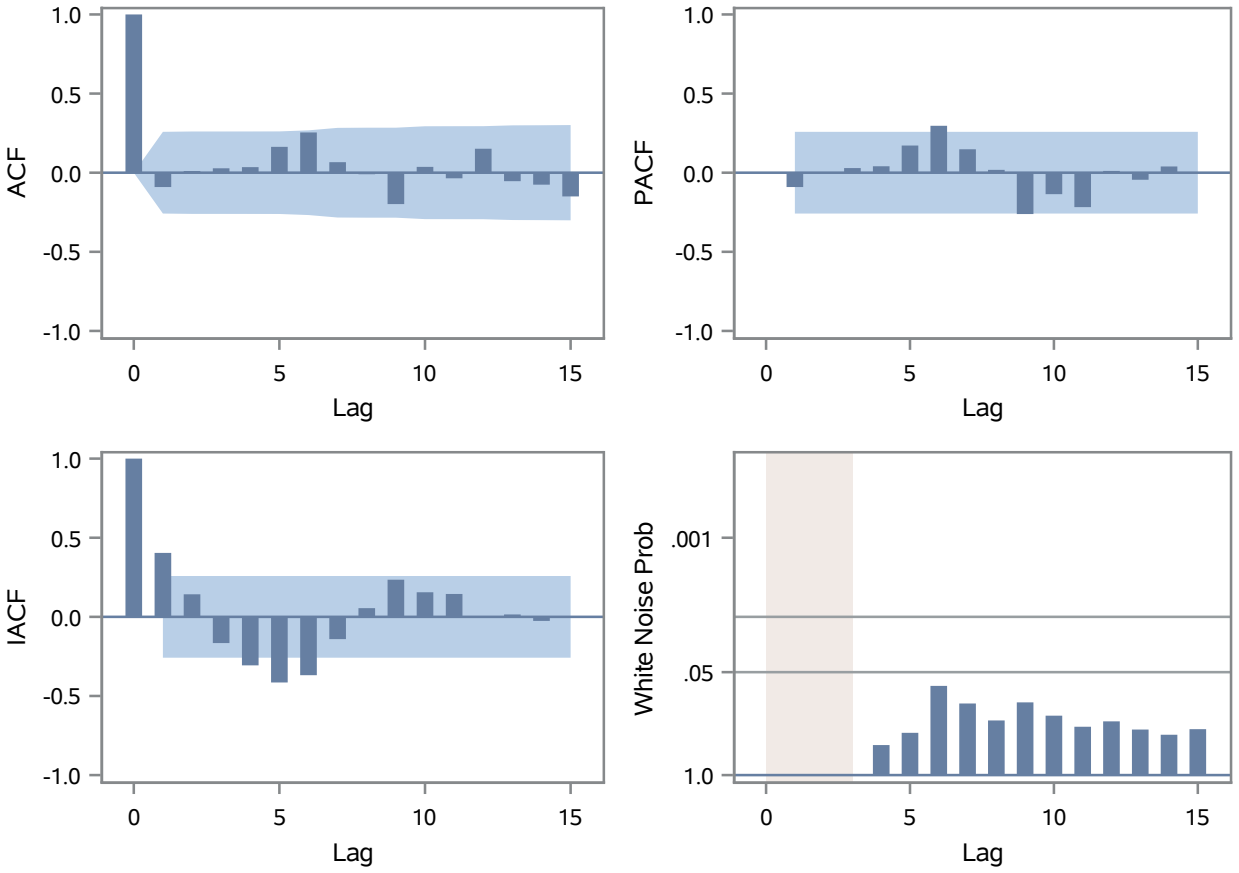
Maximum Likelihood Estimation					
Parameter	**Estimate**	**Standard Error**	**t Value**	**Approx Pr > |t|**	**Lag**
MU	12.37618	0.21744	56.92	<.0001	0
MA1,1	0.75104	0.09293	8.08	<.0001	1
AR1,1	1.72422	0.01458	118.29	<.0001	1
AR1,2	-0.98976	0.01134	-87.28	<.0001	2

Constant Estimate	3.286398
Variance Estimate	3.102083
Std Error Estimate	1.761273
AIC	249.3953
SBC	257.7727
Number of Residuals	60

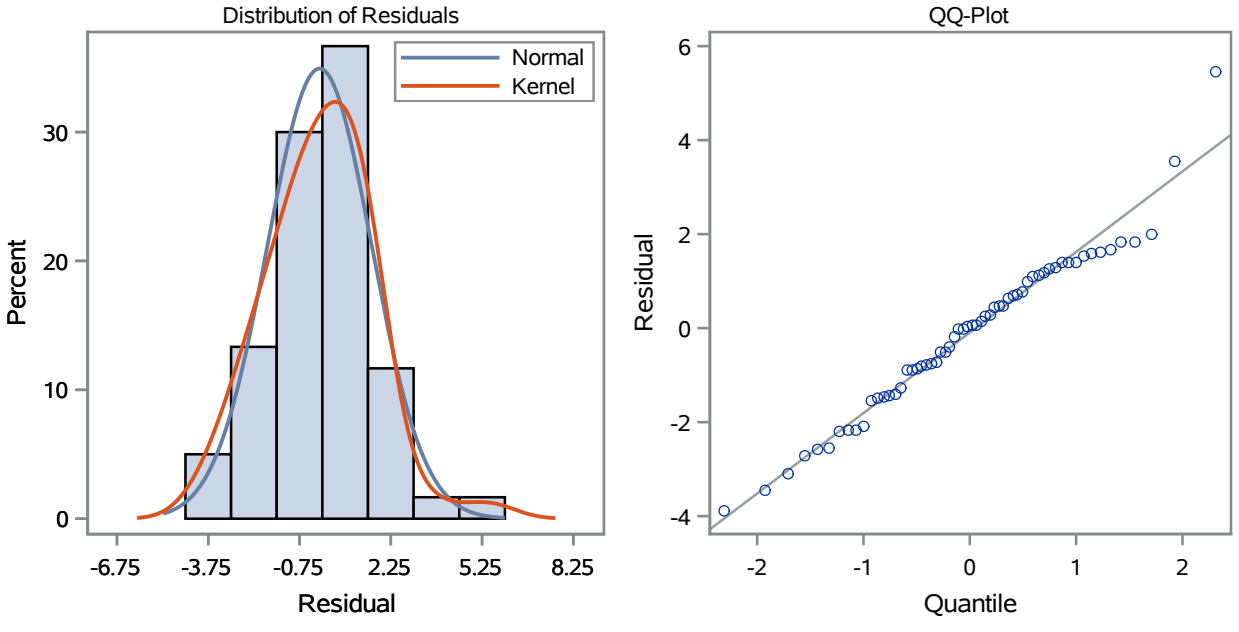
Correlations of Parameter Estimates				
Parameter	**MU**	**MA1,1**	**AR1,1**	**AR1,2**
MU	1.000	-0.093	-0.099	0.016
MA1,1	-0.093	1.000	0.227	-0.100
AR1,1	-0.099	0.227	1.000	-0.695
AR1,2	0.016	-0.100	-0.695	1.000

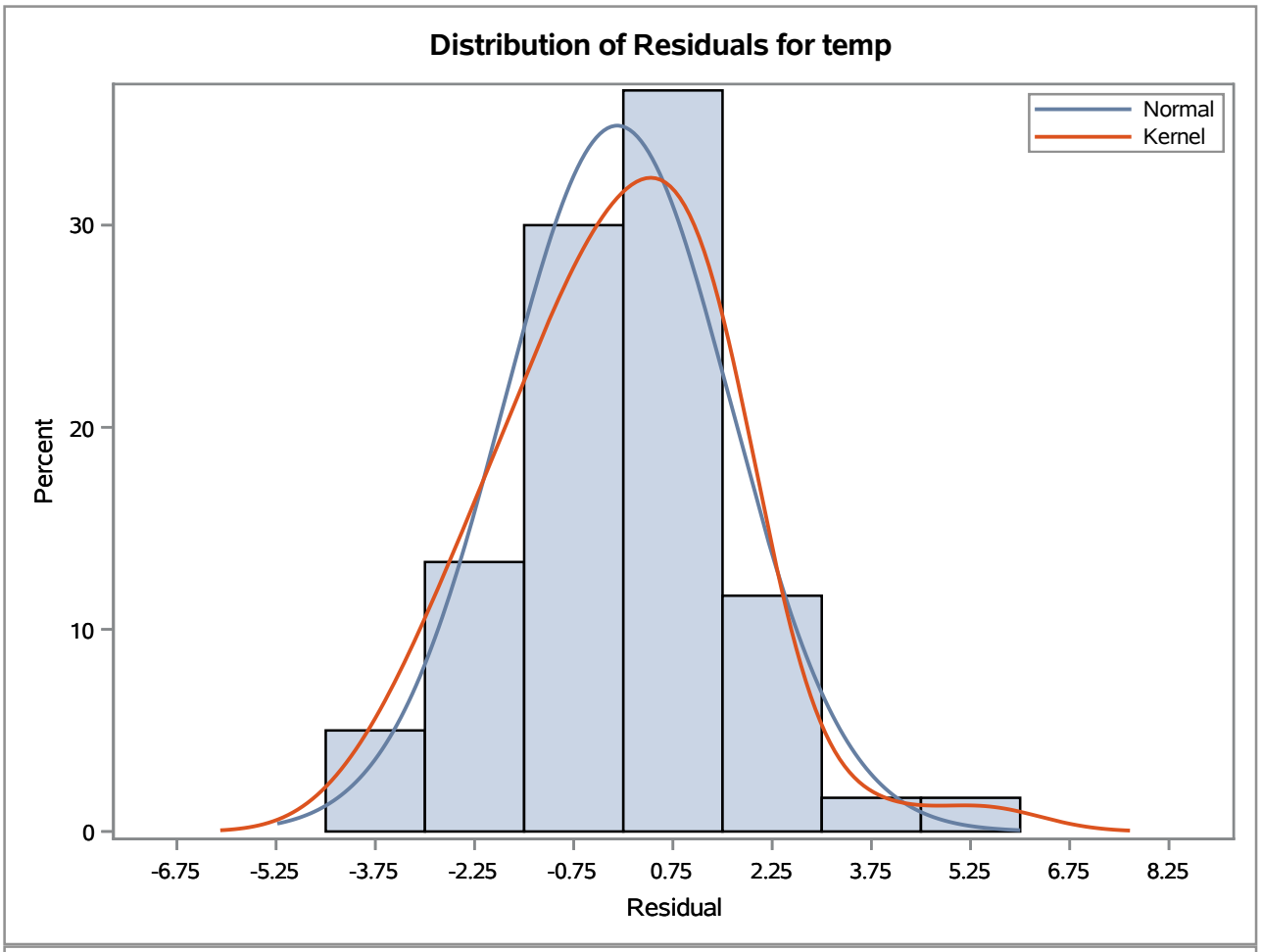
Autocorrelation Check of Residuals									
To Lag	**Chi-Square**	**DF**	**Pr > ChiSq**	**Autocorrelations**					
6	7.07	3	0.0696	-0.089	0.012	0.029	0.037	0.166	0.257
12	12.27	9	0.1987	0.070	-0.007	-0.194	0.042	-0.031	0.156
18	18.66	15	0.2298	-0.050	-0.071	-0.144	-0.137	0.012	0.167
24	28.54	21	0.1255	-0.087	-0.055	-0.078	-0.175	0.184	0.137

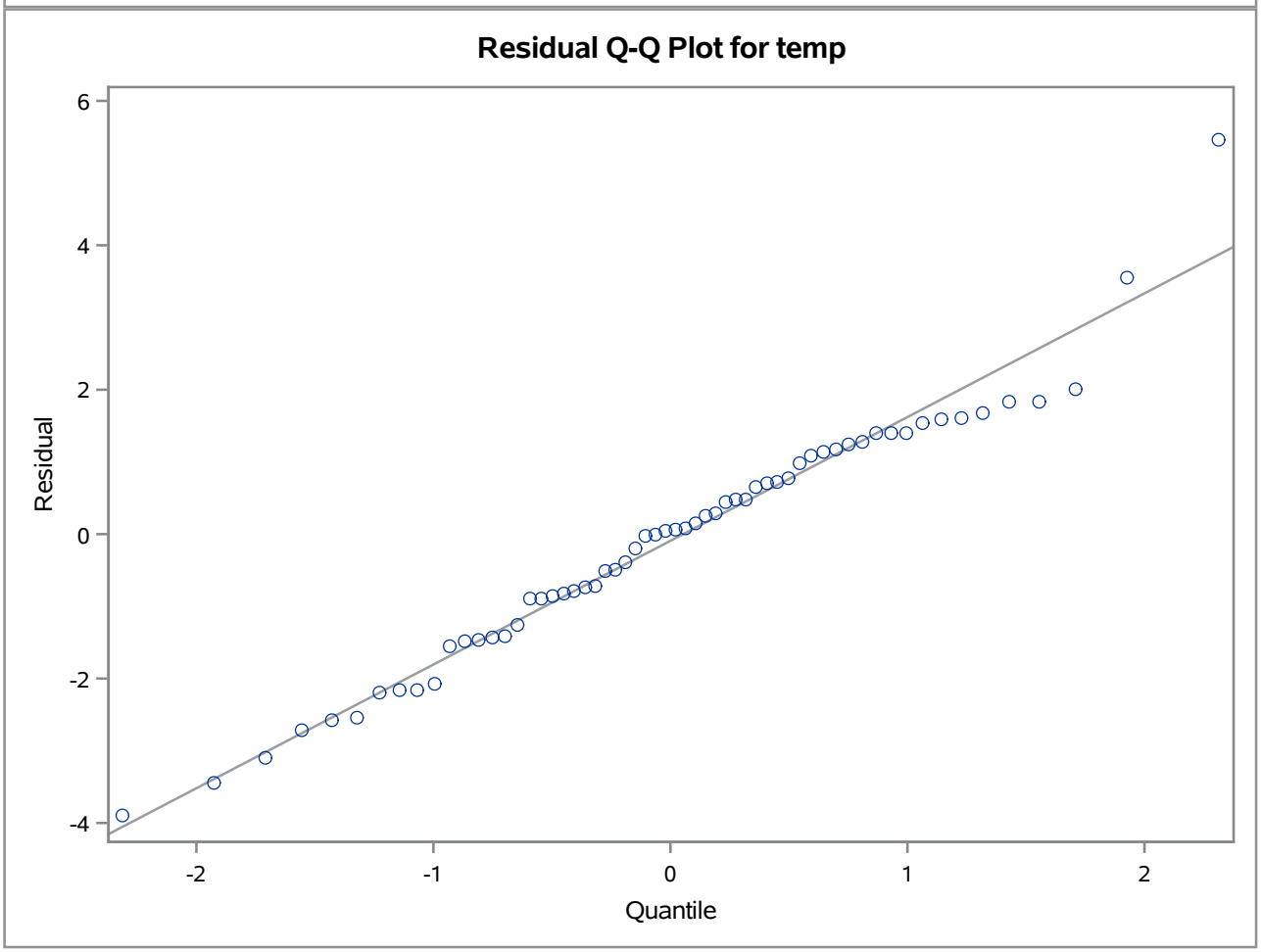
Residual Correlation Diagnostics for temp



Residual Normality Diagnostics for temp




Distribution of Residuals for temp
Normal
Kernel
Percent
30
20
10
0
-6.75
-5.25
-3.75
-2.25
-0.75
0.75
2.25
3.75
5.25
6.75
8.25
Residual


Residual Q-Q Plot for temp
Residual
6
4
2
0
-2
-4
-2
-1
0
1
2
Quantile

Model for variable temp	
Estimated Mean	12.37618

Autoregressive Factors	
Factor 1:	1 - 1.72422 B**(1) + 0.98976 B**(2)

Moving Average Factors	
Factor 1:	1 - 0.75104 B**(1)

Name of Variable = pollution	
Mean of Working Series	94.20369
Standard Deviation	27.42528
Number of Observations	60

Autocorrelation Check for White Noise									
To Lag	**Chi-Square**	**DF**	**Pr > ChiSq**	**Autocorrelations**					
6	17.55	6	0.0075	0.127	-0.028	-0.041	-0.061	-0.214	-0.435
12	26.25	12	0.0099	-0.151	0.049	-0.026	-0.113	0.110	0.254

Correlation of pollution and temp	
Number of Observations	60
Variance of transformed series pollution	1283.684
Variance of transformed series temp	8.569053

Both series have been prewhitened.

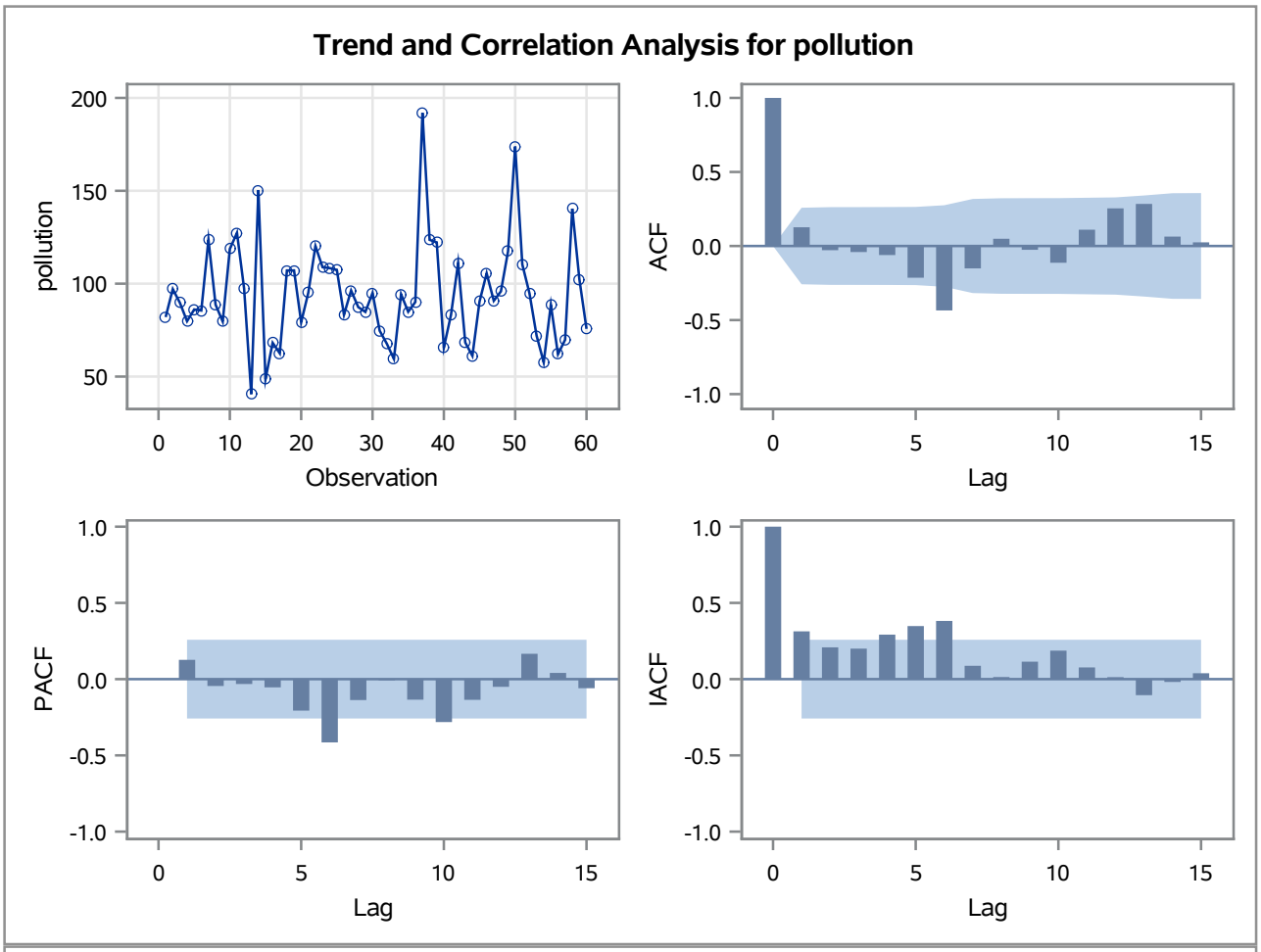
Crosscorrelation Check Between Series									
To Lag	**Chi-Square**	**DF**	**Pr > ChiSq**	**Crosscorrelations**					
5	2.63	6	0.8541	0.051	-0.169	0.091	0.058	-0.022	-0.022
11	8.08	12	0.7791	-0.120	0.184	-0.108	0.038	-0.142	0.097

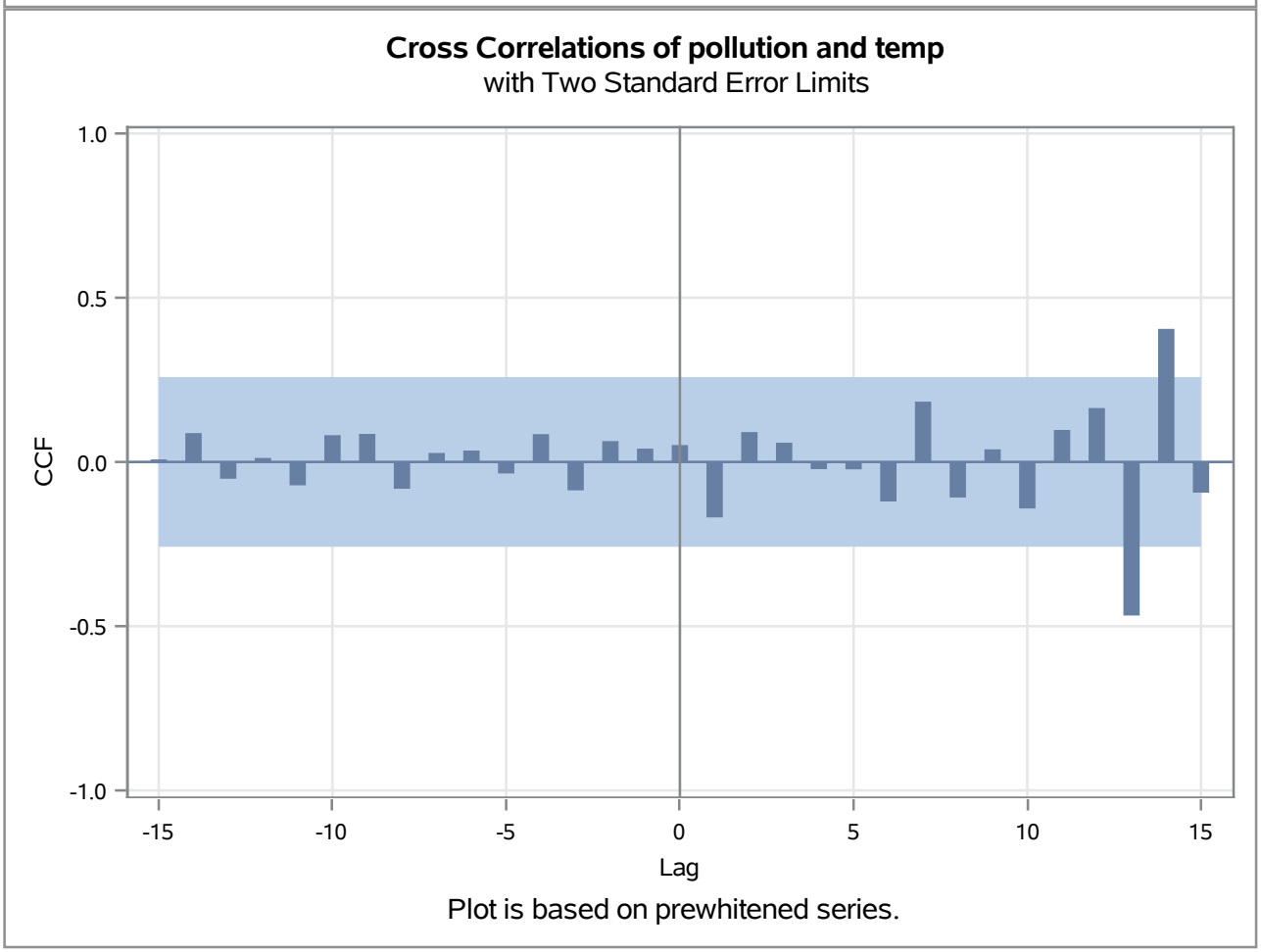
Both variables have been prewhitened by the following filter:

Prewhitening Filter

Autoregressive Factors	
Factor 1:	1 - 1.72422 B**(1) + 0.98976 B**(2)

Moving Average Factors	
Factor 1:	1 - 0.75104 B**(1)


Trend and Correlation Analysis for pollution
pollution
Observation
ACF
Lag
PACF
Lag
IACF
Lag

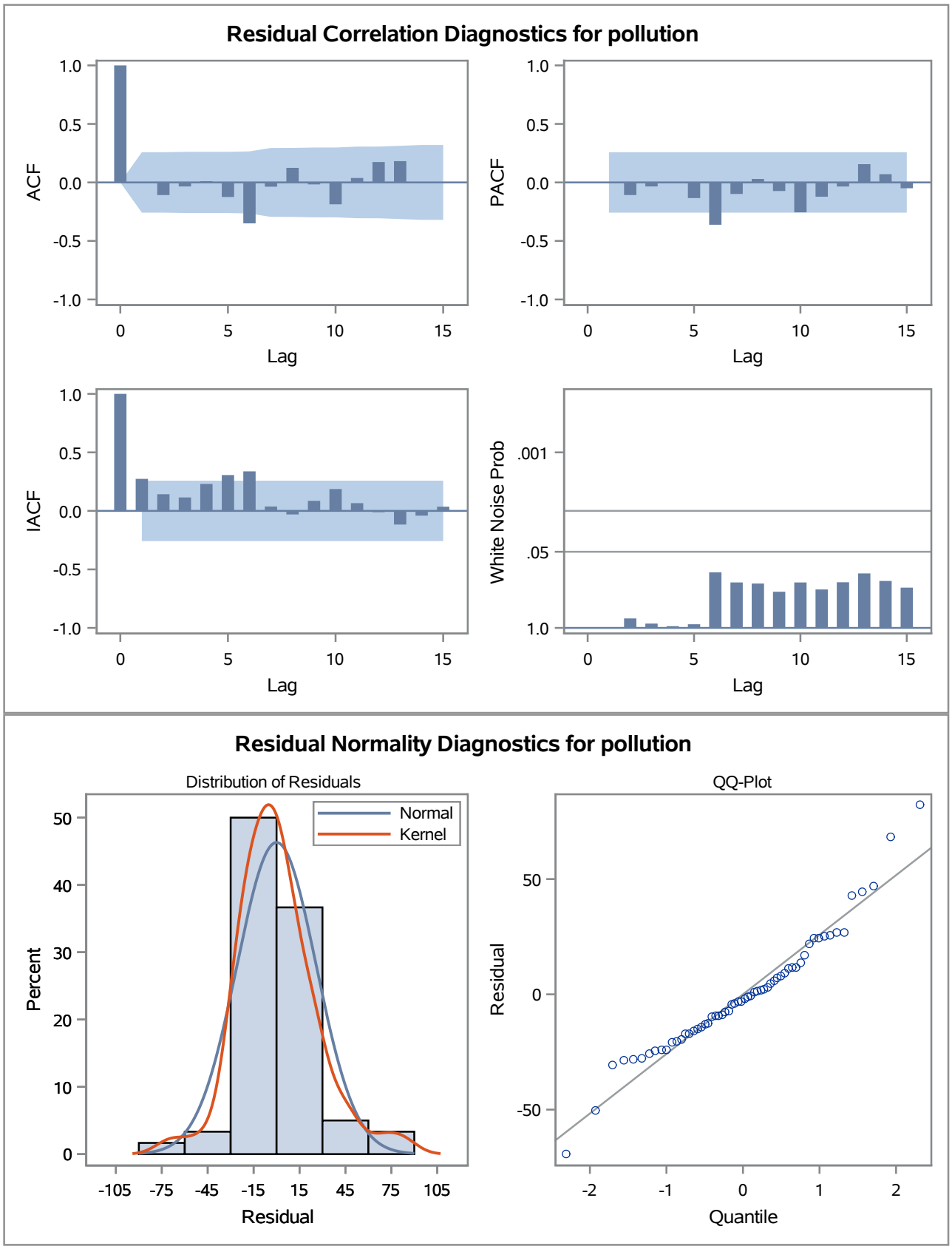

Cross Correlations of pollution and temp
with Two Standard Error Limits
CCF
Lag
Plot is based on prewhitened series.

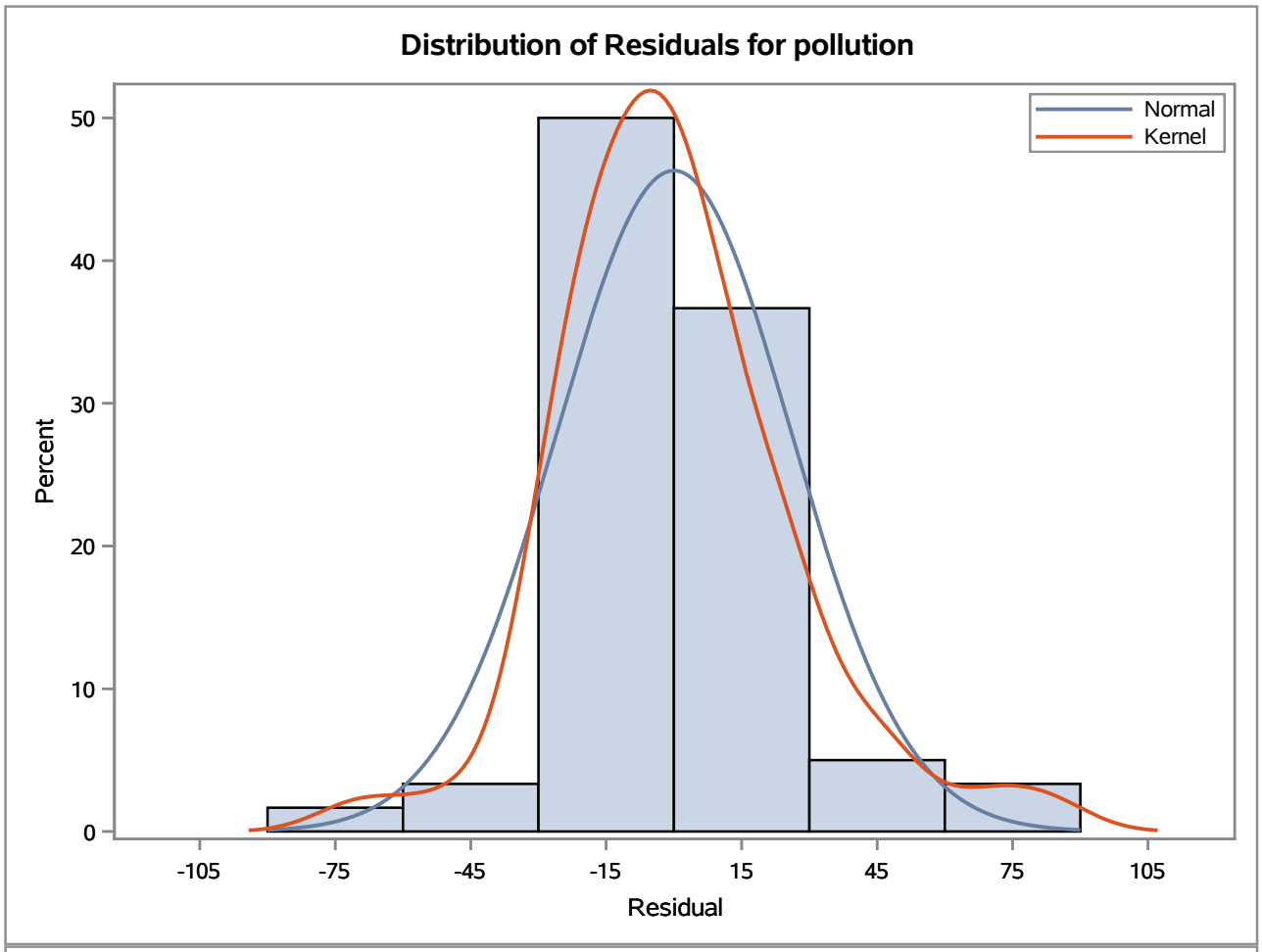
Maximum Likelihood Estimation							
Parameter	Estimate	Standard Error	t Value	Approx Pr > |t|	Lag	Variable	Shift
MU	105.01352	5.02087	20.92	<.0001	0	pollution	0
NUM1	-0.87310	0.30096	-2.90	0.0037	0	temp	0

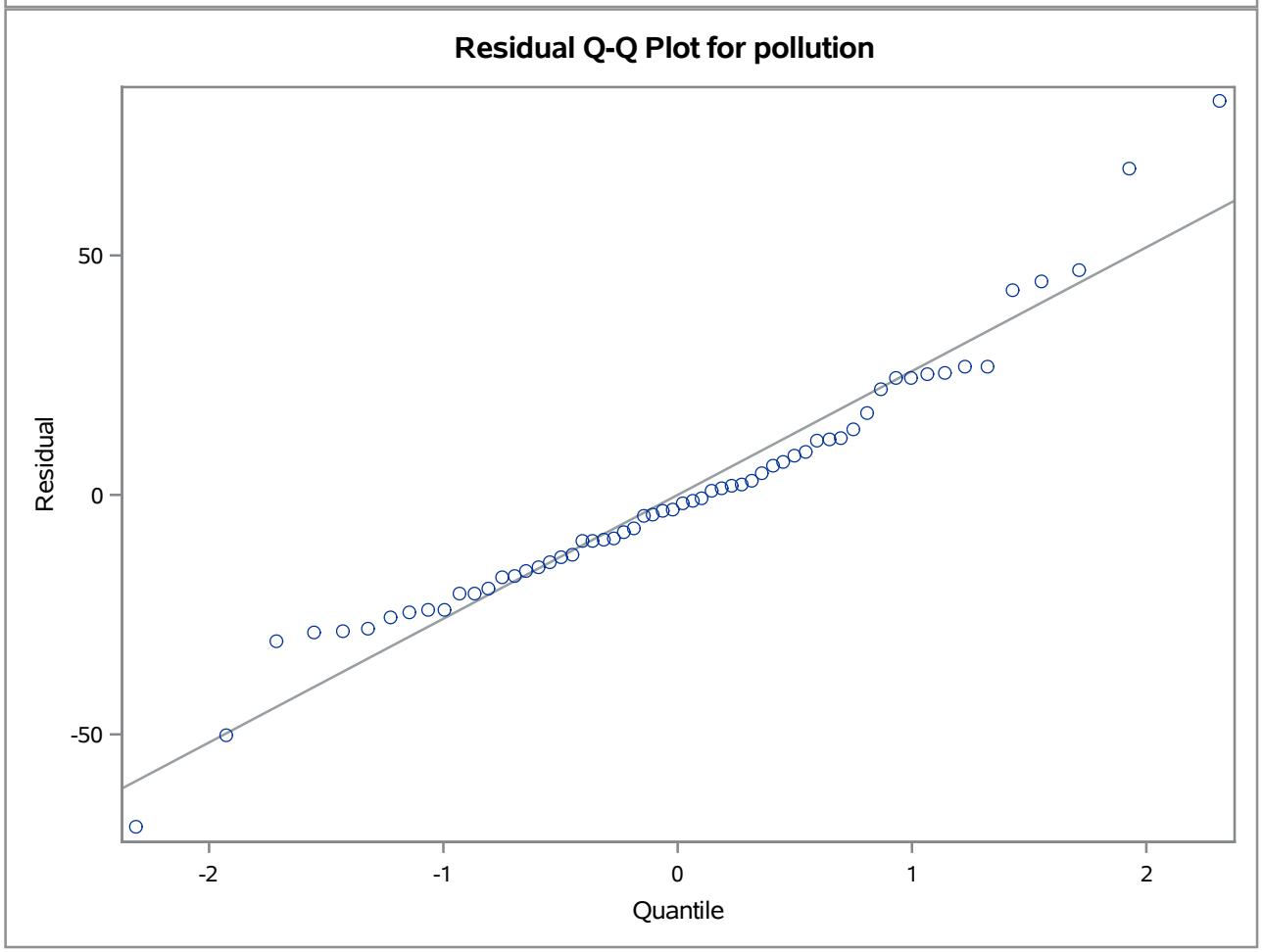
Constant Estimate	105.0135
Variance Estimate	679.4854
Std Error Estimate	26.06694
AIC	563.5187
SBC	567.7074
Number of Residuals	60

Correlations of Parameter Estimates			
Variable	Parameter	pollution MU	temp NUM1
pollution	MU	1.000	-0.742
temp	NUM1	-0.742	1.000

Autocorrelation Check of Residuals									
To Lag	Chi-Square	DF	Pr > ChiSq	Autocorrelations					
6	10.30	6	0.1124	0.001	-0.108	-0.034	0.011	-0.124	-0.350
12	16.58	12	0.1660	-0.036	0.125	-0.017	-0.187	0.038	0.174
18	21.07	18	0.2757	0.182	0.002	-0.003	0.080	-0.116	-0.043
24	27.97	24	0.2615	0.011	0.092	0.024	-0.201	0.048	-0.134


Residual Correlation Diagnostics for pollution
ACF
PACF
IACF
White Noise Prob
Lag
Residual Normality Diagnostics for pollution
Distribution of Residuals
Normal
Kernel
Percent
Residual
QQ-Plot
Residual
Quantile


Distribution of Residuals for pollution
Normal
Kernel
Percent
50
40
30
20
10
0
-105
-75
-45
-15
15
45
75
105
Residual


Residual Q-Q Plot for pollution
Residual
50
0
-50
-2
-1
0
1
2
Quantile

Crosscorrelation Check of Residuals with Input temp									
To Lag	**Chi-Square**	**DF**	**Pr > ChiSq**	**Crosscorrelations**					
5	3.99	6	0.6784	0.182	-0.160	-0.045	0.036	0.025	-0.061
11	8.87	12	0.7140	-0.066	0.120	-0.223	0.105	-0.036	0.022
17	13.30	18	0.7737	0.110	-0.205	0.072	0.036	-0.099	0.059
23	14.61	24	0.9317	0.021	0.032	-0.038	-0.077	0.019	0.113

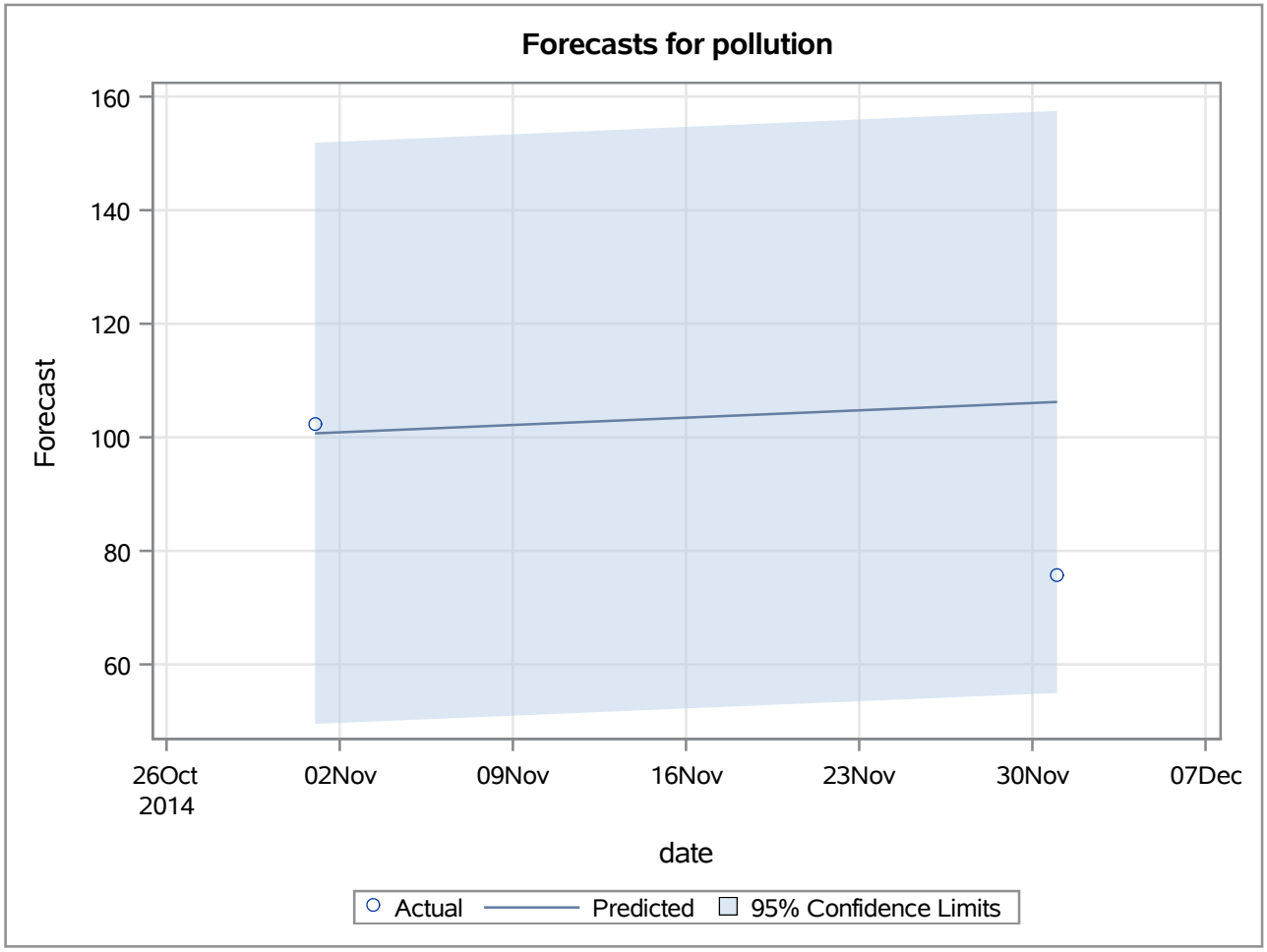
Model for variable pollution	
Estimated Intercept	105.0135

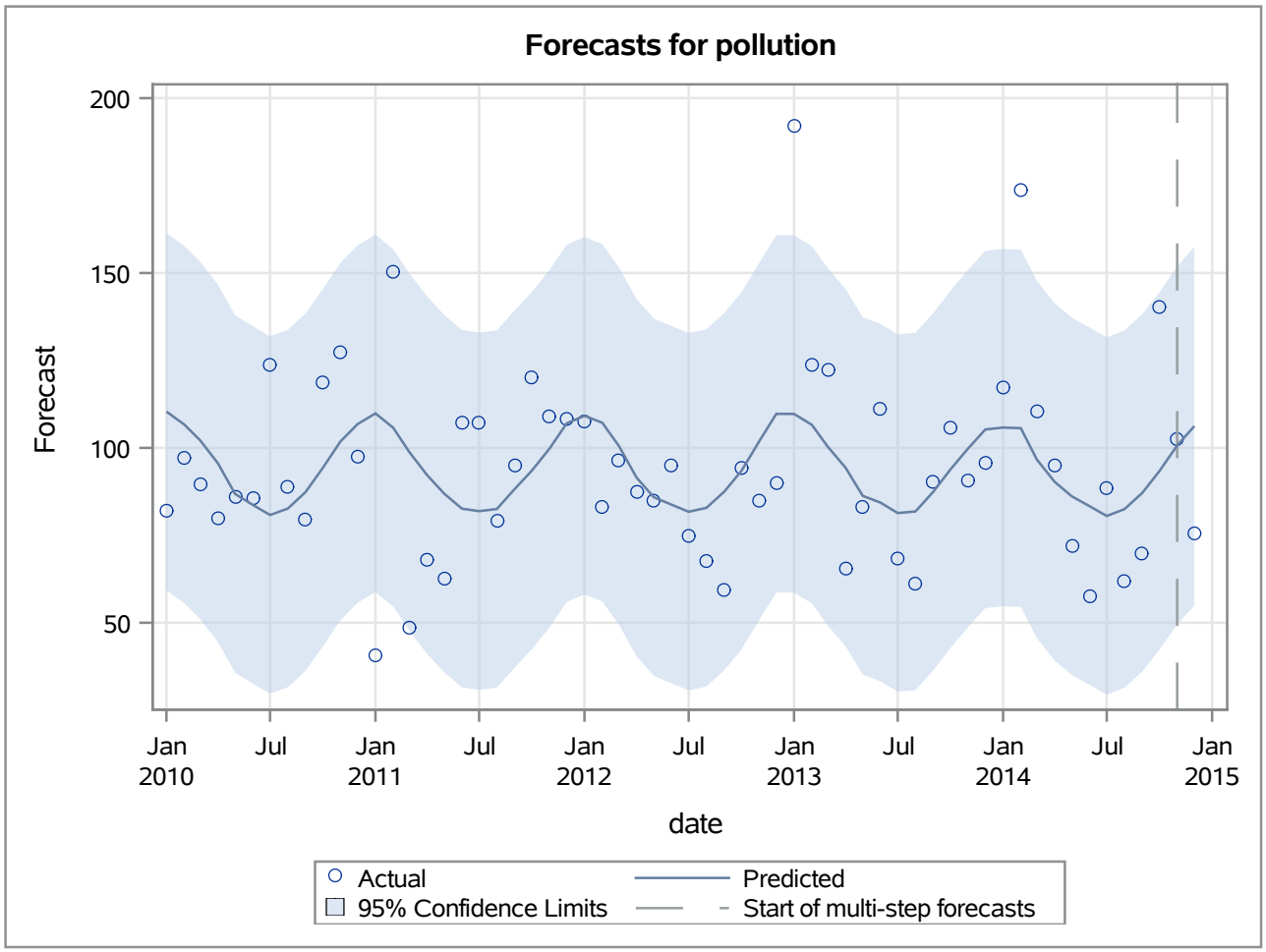
Input Number 1	
Input Variable	temp
Overall Regression Factor	-0.8731

Forecasts for variable pollution						
Obs	**Forecast**	**Std Error**	**95% Confidence Limits**		**Actual**	**Residual**
1	110.3770	26.0669	59.2868	161.4673	82.0264	-28.3506
2	106.6922	26.0669	55.6019	157.7824	97.0893	-9.6029
3	102.1384	26.0669	51.0481	153.2286	89.6734	-12.4650
4	95.5780	26.0669	44.4877	146.6682	79.8069	-15.7710
5	86.8251	26.0669	35.7348	137.9153	86.0820	-0.7431
6	83.6795	26.0669	32.5893	134.7698	85.5375	1.8580
7	80.8026	26.0669	29.7123	131.8928	123.6478	42.8453
8	82.6520	26.0669	31.5618	133.7423	88.6815	6.0294
9	87.3647	26.0669	36.2745	138.4550	79.6319	-7.7328
10	94.2746	26.0669	43.1843	145.3649	118.6626	24.3880
11	101.8619	26.0669	50.7716	152.9521	127.3778	25.5159
12	106.8160	26.0669	55.7258	157.9063	97.3333	-9.4827
13	109.8625	26.0669	58.7722	160.9528	40.5470	-69.3155
14	105.7593	26.0669	54.6690	156.8496	150.3214	44.5621
15	98.8420	26.0669	47.7517	149.9322	48.6546	-50.1874
16	92.2614	26.0669	41.1711	143.3517	68.1806	-24.0808
17	86.9284	26.0669	35.8381	138.0186	62.5121	-24.4163
18	82.6197	26.0669	31.5294	133.7099	107.1111	24.4914
19	81.9033	26.0669	30.8131	132.9936	107.1384	25.2351
20	82.5241	26.0669	31.4339	133.6144	79.2366	-3.2876
21	88.2221	26.0669	37.1318	139.3123	95.1403	6.9182
22	93.4801	26.0669	42.3899	144.5704	120.2406	26.7605

Forecasts for variable pollution						
Obs	Forecast	Std Error	95% Confidence Limits		Actual	Residual
23	99.7919	26.0669	48.7016	150.8821	108.8708	9.0789
24	107.0238	26.0669	55.9335	158.1140	108.3737	1.3499
25	109.1678	26.0669	58.0775	160.2581	107.4435	-1.7242
26	107.2063	26.0669	56.1160	158.2966	83.2730	-23.9333
27	100.5846	26.0669	49.4944	151.6749	96.3360	-4.2486
28	91.5035	26.0669	40.4132	142.5938	87.3972	-4.1063
29	85.8957	26.0669	34.8054	136.9859	84.7782	-1.1174
30	83.7644	26.0669	32.6742	134.8547	94.9861	11.2217
31	81.7390	26.0669	30.6488	132.8293	74.6707	-7.0683
32	82.8597	26.0669	31.7695	133.9500	67.7137	-15.1460
33	87.4739	26.0669	36.3836	138.5641	59.5014	-27.9725
34	93.3862	26.0669	42.2960	144.4765	94.3293	0.9431
35	101.8340	26.0669	50.7437	152.9242	84.8806	-16.9534
36	109.7358	26.0669	58.6455	160.8260	90.1169	-19.6188
37	109.7088	26.0669	58.6185	160.7990	191.9745	82.2657
38	106.6038	26.0669	55.5135	157.6941	123.6176	17.0138
39	100.2936	26.0669	49.2033	151.3839	122.2379	21.9443
40	94.3192	26.0669	43.2290	145.4095	65.6542	-28.6651
41	86.2806	26.0669	35.1903	137.3708	83.1801	-3.1005
42	84.3404	26.0669	33.2502	135.4307	111.1069	26.7665
43	81.3647	26.0669	30.2744	132.4549	68.3347	-13.0300
44	81.8141	26.0669	30.7239	132.9044	61.1586	-20.6555
45	87.4424	26.0669	36.3521	138.5326	90.3694	2.9271
46	93.8193	26.0669	42.7290	144.9095	105.5901	11.7708
47	99.8501	26.0669	48.7598	150.9404	90.7931	-9.0570
48	105.2693	26.0669	54.1791	156.3596	95.8629	-9.4064
49	105.8115	26.0669	54.7212	156.9018	117.4422	11.6307
50	105.6268	26.0669	54.5365	156.7170	173.8378	68.2110
51	96.6627	26.0669	45.5725	147.7530	110.3374	13.6746
52	90.3066	26.0669	39.2163	141.3969	94.8361	4.5295
53	86.1433	26.0669	35.0530	137.2335	72.0605	-14.0828
54	83.3315	26.0669	32.2412	134.4218	57.6875	-25.6440
55	80.5280	26.0669	29.4377	131.6182	88.6142	8.0863
56	82.4866	26.0669	31.3963	133.5768	62.0121	-20.4745
57	87.1113	26.0669	36.0210	138.2016	69.8056	-17.3057
58	93.3651	26.0669	42.2749	144.4554	140.3669	47.0018

Forecasts for variable pollution						
Obs	Forecast	Std Error	95% Confidence Limits		Actual	Residual
59	100.6935	26.1123	49.5144	151.8726	102.3486	1.6551
60	106.2247	26.1551	54.9616	157.4877	75.6882	-30.5365





Outlier Detection Summary	
Maximum number searched	2
Number found	2
Significance used	0.05

Outlier Details

Obs	Type	Estimate	Chi-Square	Approx Prob>ChiSq
37	Additive	82.26568	13.29	0.0003
13	Additive	-69.31547	10.91	0.0010