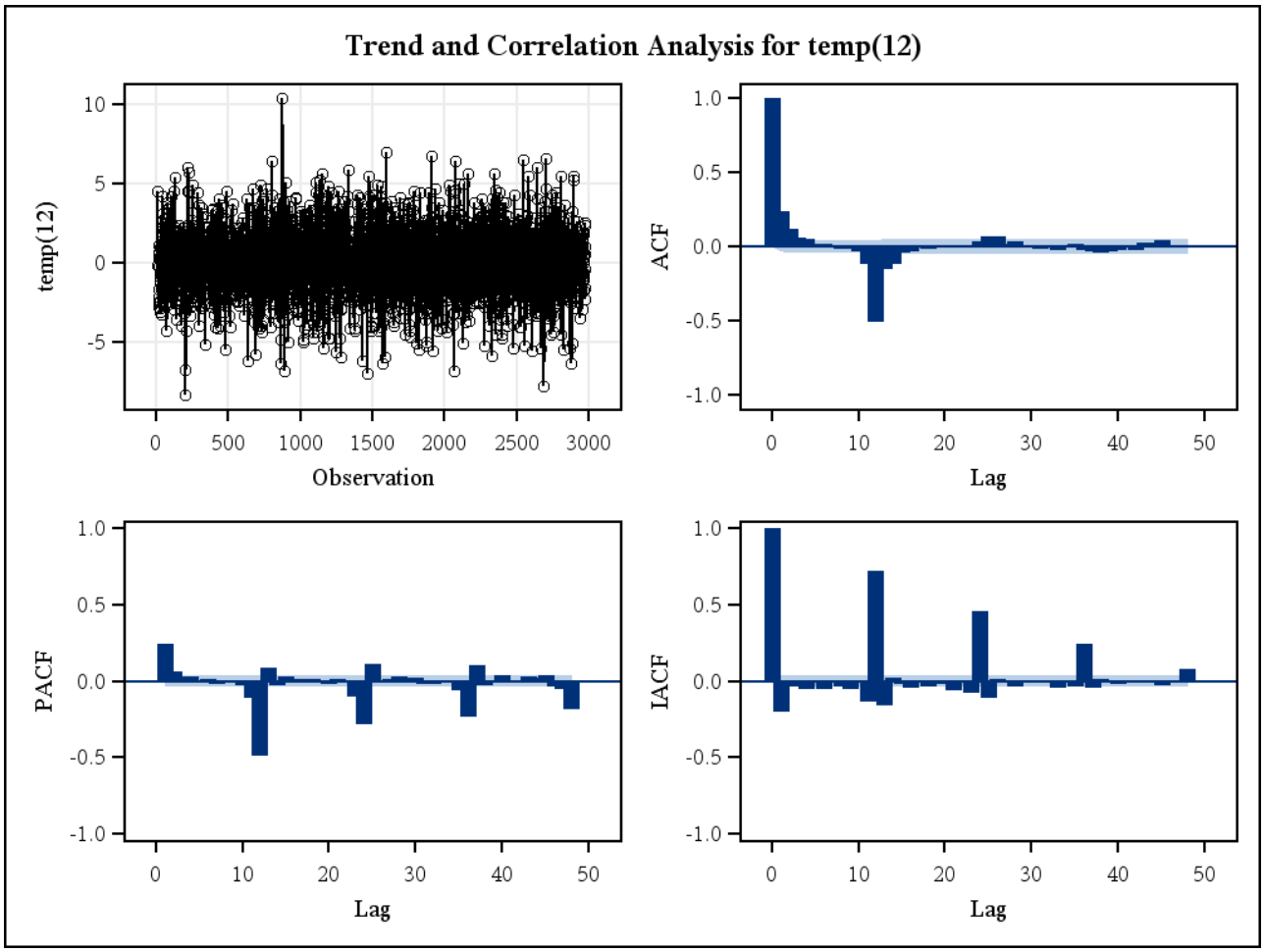
The ARIMA Procedure

Name of Variable = temp	
Period(s) of Differencing	12
Mean of Working Series	-0.00081
Standard Deviation	1.964757
Number of Observations	2964
Observation(s) eliminated by differencing	12

Autocorrelation Check for White Noise									
To Lag	**Chi-Square**	**DF**	**Pr > ChiSq**	**Autocorrelations**					
6	234.33	6	<.0001	0.242	0.118	0.057	0.050	0.020	0.021
12	1054.98	12	<.0001	-0.007	-0.016	-0.014	-0.032	-0.120	-0.510
18	1172.35	18	<.0001	-0.149	-0.118	-0.042	-0.036	-0.008	-0.012
24	1176.34	24	<.0001	0.011	-0.005	0.009	0.000	-0.011	0.031
30	1208.52	30	<.0001	0.069	0.067	0.021	0.032	-0.003	0.002
36	1214.20	36	<.0001	-0.015	-0.007	-0.023	-0.005	0.017	-0.028
42	1228.36	42	<.0001	-0.030	-0.041	-0.030	-0.022	0.002	-0.027
48	1238.11	48	<.0001	0.024	0.030	0.041	0.000	-0.004	0.008

The ARIMA Procedure



Maximum Likelihood Estimation					
Parameter	**Estimate**	**Standard Error**	**t Value**	**Approx Pr > |t|**	**Lag**
MA1,1	0.97895	0.0047382	206.61	<.0001	12
AR1,1	0.23437	0.01823	12.86	<.0001	1
AR1,2	0.05309	0.01873	2.83	0.0046	2
AR1,3	0.04008	0.01824	2.20	0.0280	3

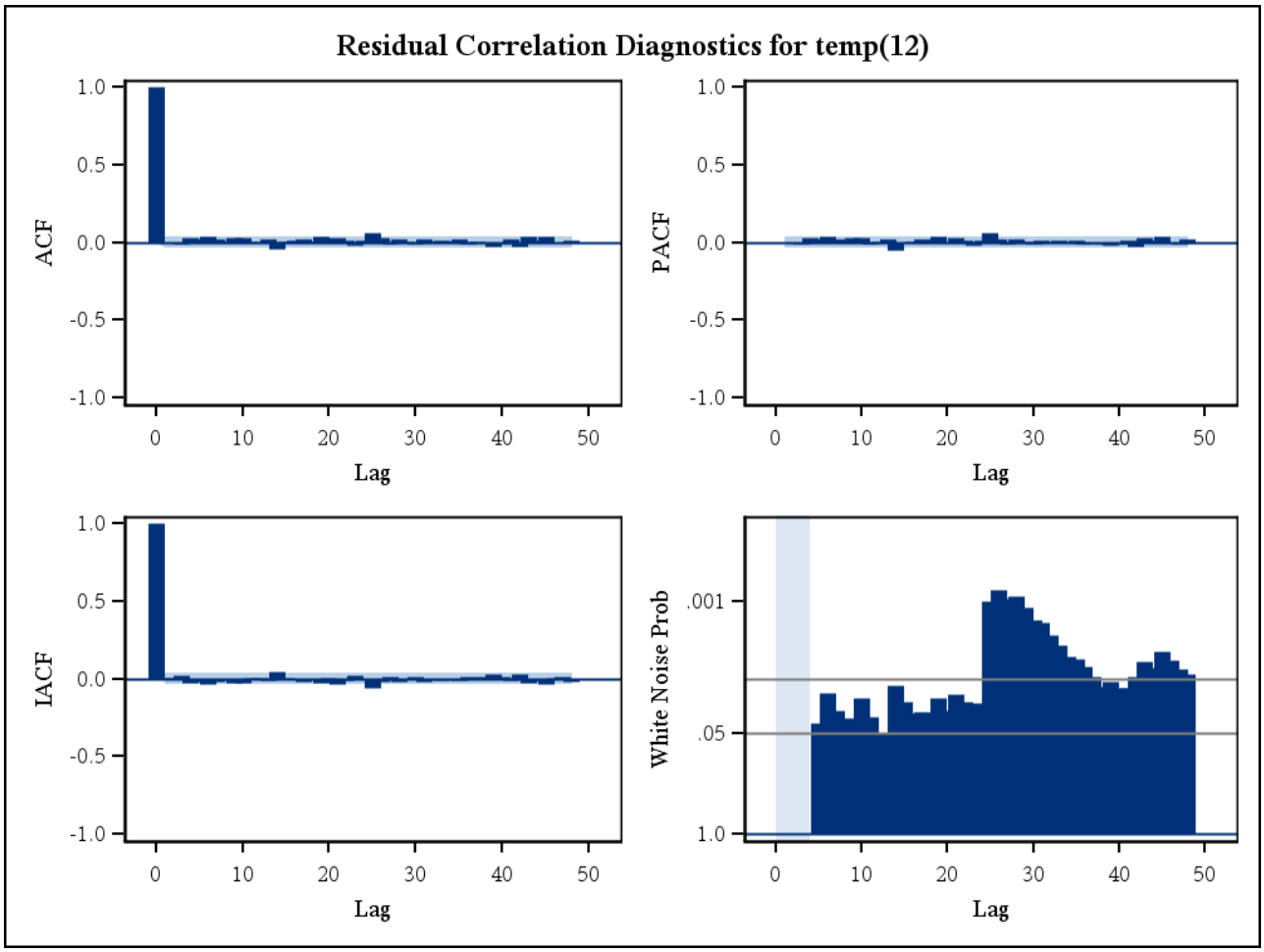
Variance Estimate	1.858605
Std Error Estimate	1.363307
AIC	10290.84
SBC	10314.82
Number of Residuals	2964

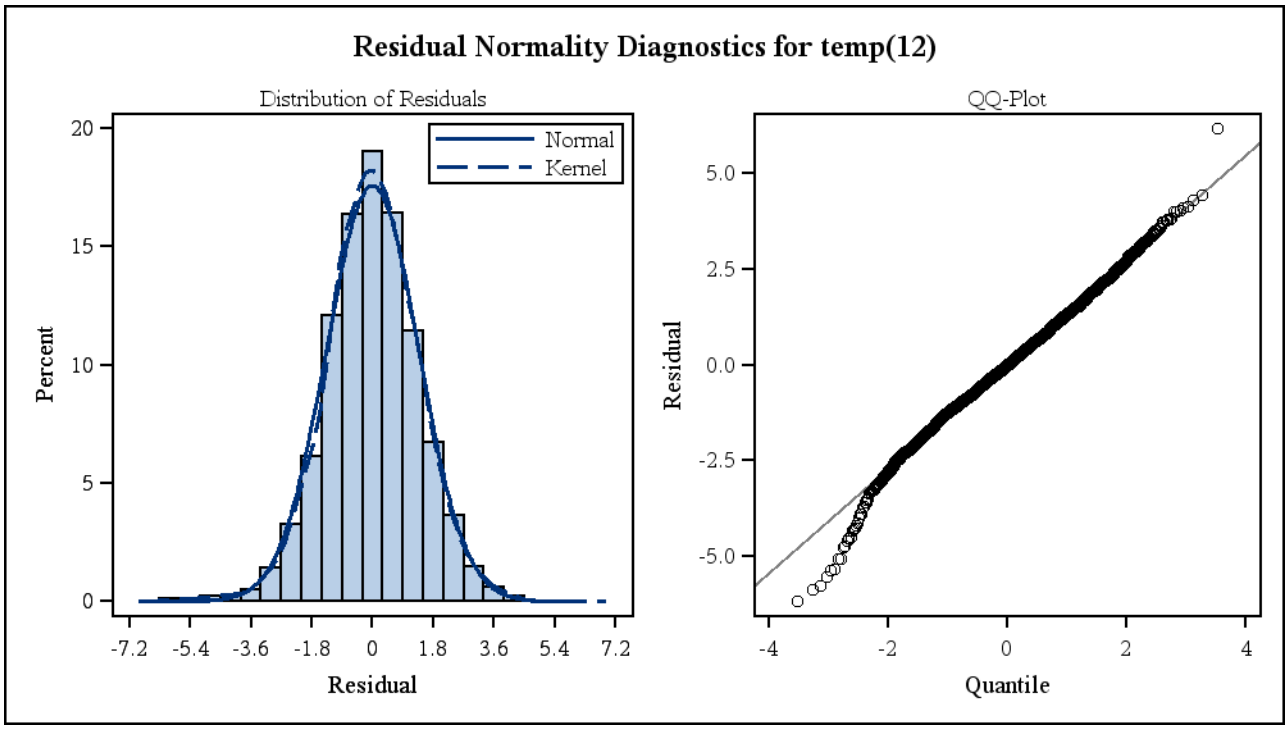
The ARIMA Procedure

Correlations of Parameter Estimates				
Parameter	**MA1,1**	**AR1,1**	**AR1,2**	**AR1,3**
MA1,1	1.000	0.009	0.030	0.025
AR1,1	0.009	1.000	-0.231	-0.060
AR1,2	0.030	-0.231	1.000	-0.230
AR1,3	0.025	-0.060	-0.230	1.000

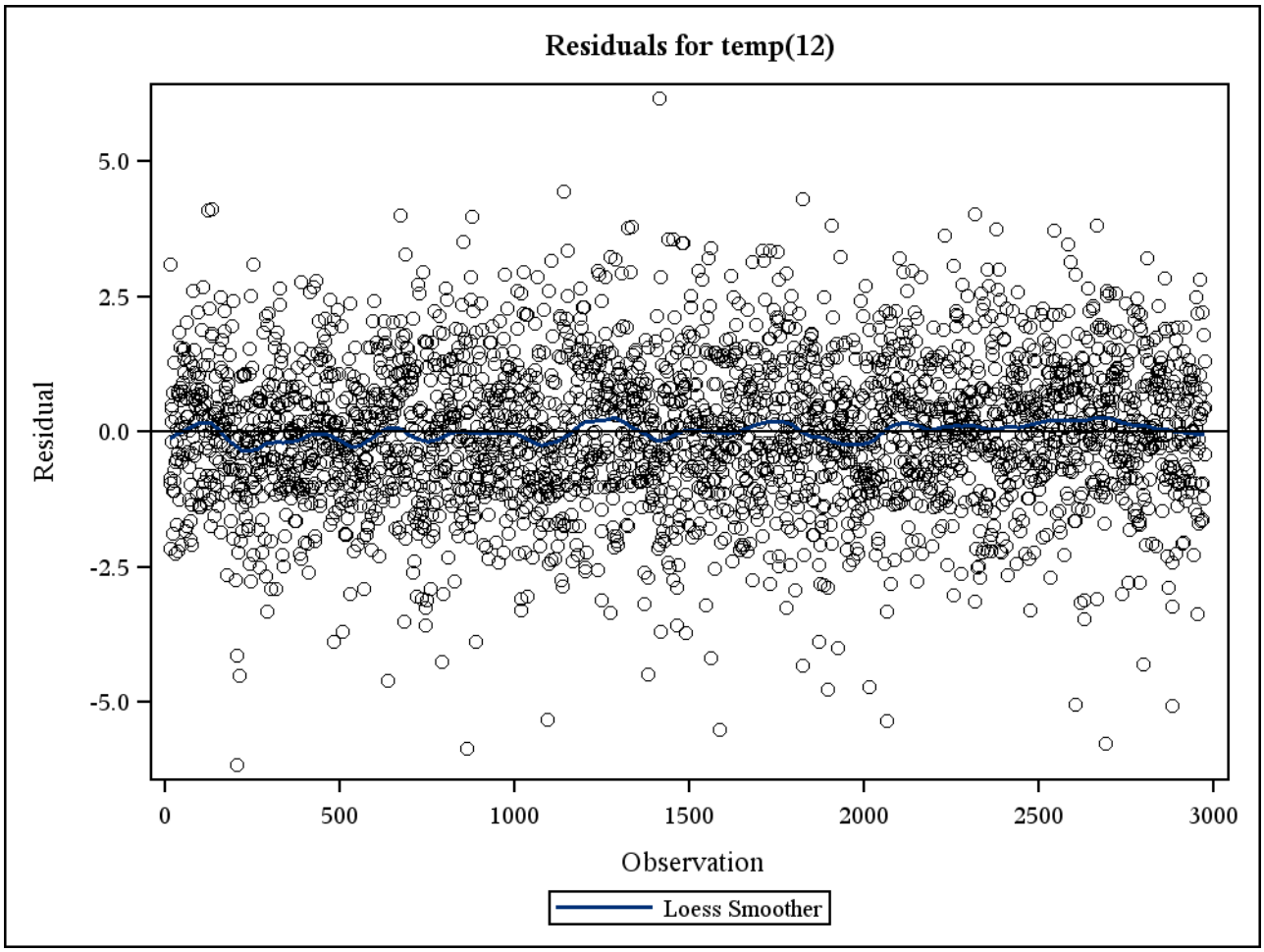
Autocorrelation Check of Residuals									
To Lag	**Chi-Square**	**DF**	**Pr > ChiSq**	**Autocorrelations**					
6	8.33	2	0.0155	-0.002	-0.004	-0.013	0.030	0.019	0.037
12	15.46	8	0.0507	0.018	0.005	0.031	0.032	-0.006	0.004
18	24.53	14	0.0395	0.021	-0.044	0.003	0.011	0.022	0.004
24	34.11	20	0.0254	0.037	-0.005	0.032	0.014	-0.020	0.013
30	52.06	26	0.0018	0.065	0.029	-0.014	0.025	0.008	-0.007
36	55.01	32	0.0069	0.019	0.004	0.011	0.004	0.018	-0.012
42	61.35	38	0.0096	0.004	-0.003	-0.025	-0.013	0.021	-0.030
48	69.37	44	0.0087	0.033	0.011	0.034	-0.005	-0.007	0.013

The ARIMA Procedure





The ARIMA Procedure



Model for variable temp	
Period(s) of Differencing	12

No mean term in this model.

Autoregressive Factors	
Factor 1:	1 - 0.23437 B**(1) - 0.05309 B**(2) - 0.04008 B**(3)

Moving Average Factors	
Factor 1:	1 - 0.97895 B**(12)

Maximum Likelihood Estimation					
Parameter	Estimate	Standard Error	t Value	Approx Pr > |t|	Lag
MA1,1	0.35293	0.06123	5.76	<.0001	1
MA2,1	0.97914	0.0047219	207.36	<.0001	12
AR1,1	0.57604	0.05355	10.76	<.0001	1

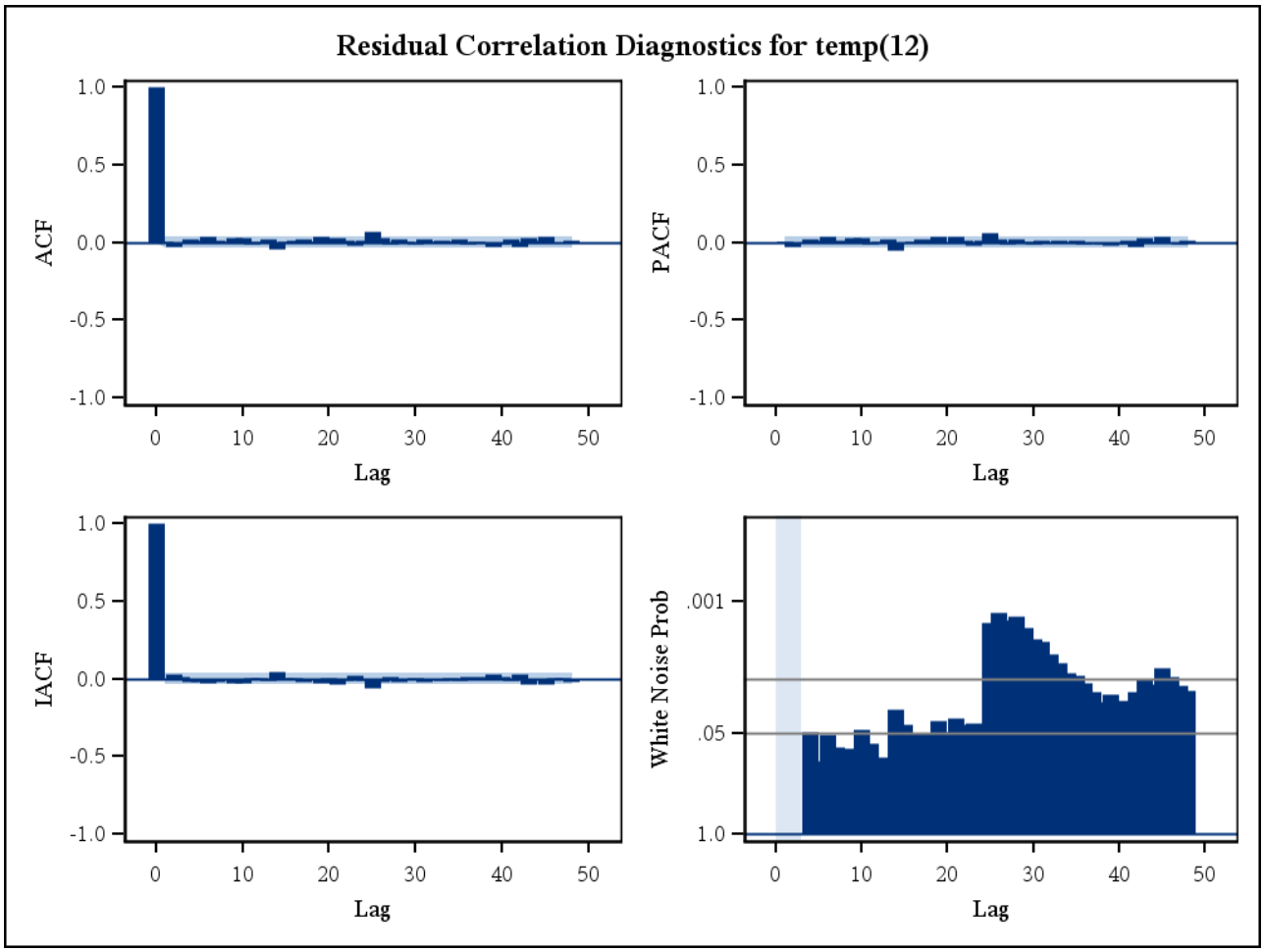
The ARIMA Procedure

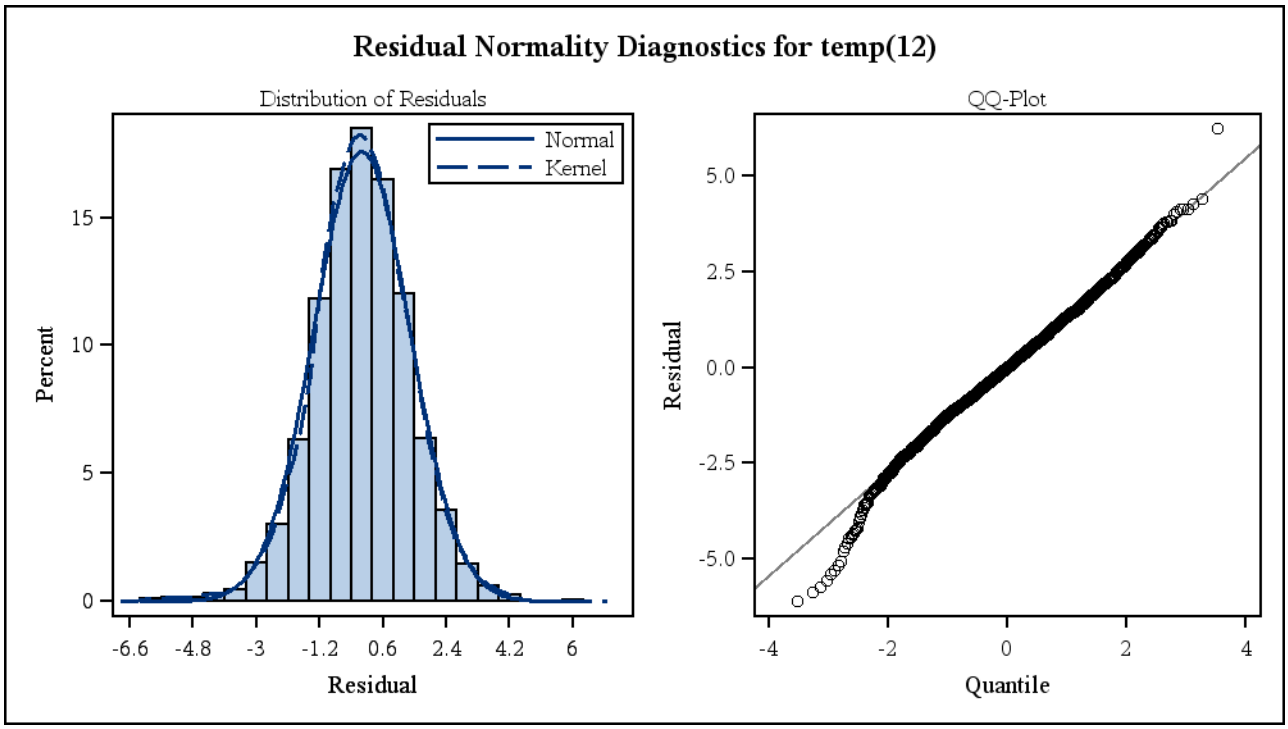
Variance Estimate	1.857358
Std Error Estimate	1.362849
AIC	10287.96
SBC	10305.94
Number of Residuals	2964

Correlations of Parameter Estimates			
Parameter	**MA1,1**	**MA2,1**	**AR1,1**
MA1,1	1.000	0.035	0.960
MA2,1	0.035	1.000	0.043
AR1,1	0.960	0.043	1.000

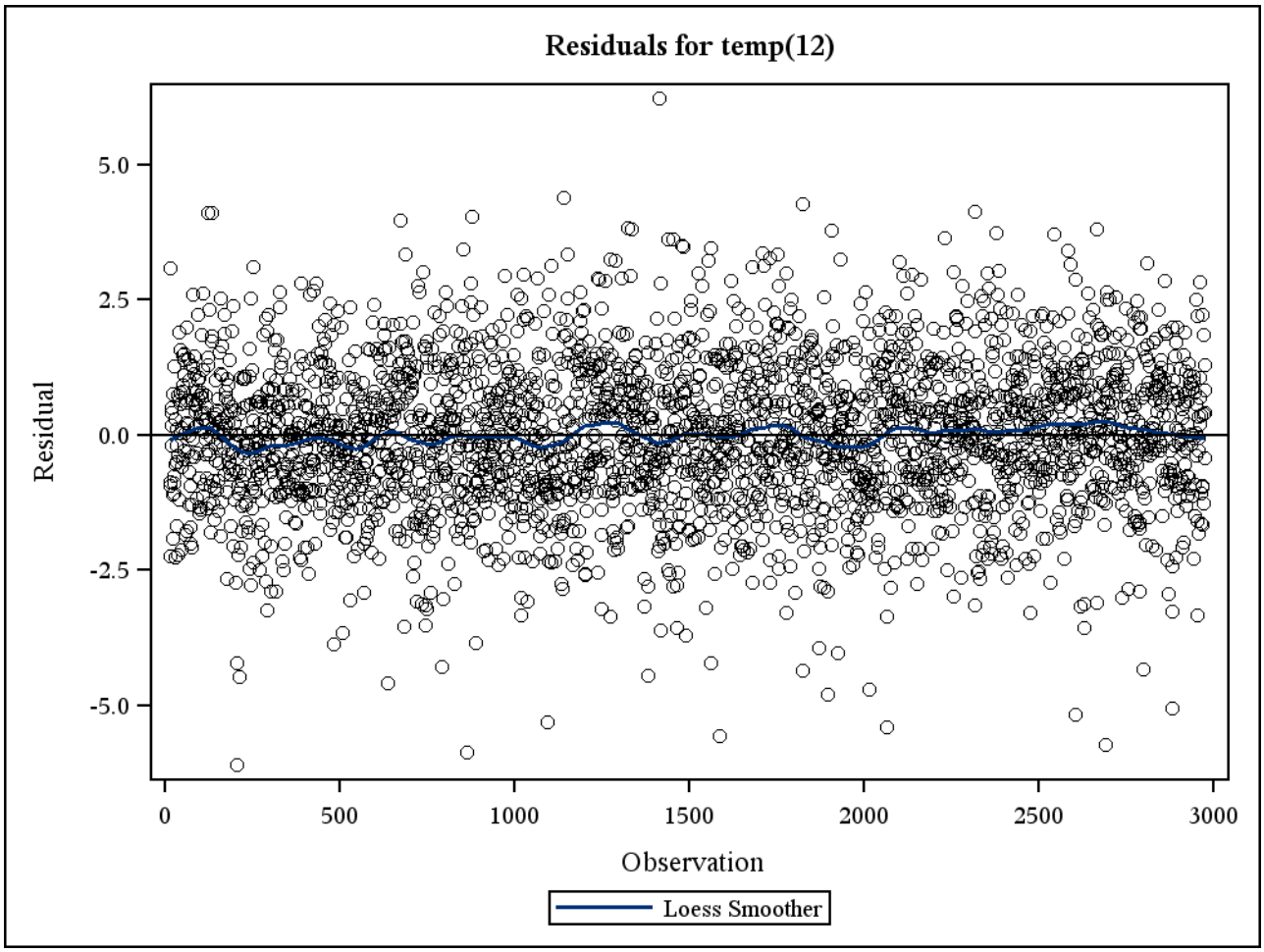
Autocorrelation Check of Residuals									
To Lag	**Chi-Square**	**DF**	**Pr > ChiSq**	**Autocorrelations**					
6	7.69	3	0.0528	0.008	-0.028	-0.005	0.021	0.013	0.033
12	14.62	9	0.1019	0.016	0.002	0.031	0.032	-0.008	0.004
18	23.67	15	0.0709	0.020	-0.045	0.001	0.012	0.020	0.005
24	33.07	21	0.0454	0.036	-0.005	0.031	0.015	-0.022	0.012
30	51.45	27	0.0031	0.066	0.029	-0.015	0.024	0.007	-0.009
36	54.27	33	0.0113	0.019	0.004	0.009	0.005	0.018	-0.012
42	60.59	39	0.0149	0.004	-0.002	-0.027	-0.012	0.020	-0.029
48	68.32	45	0.0140	0.032	0.013	0.034	-0.005	-0.007	0.013

The ARIMA Procedure





The ARIMA Procedure



Model for variable temp	
Period(s) of Differencing	12

No mean term in this model.

Autoregressive Factors	
Factor 1:	1 - 0.57604 B**(1)

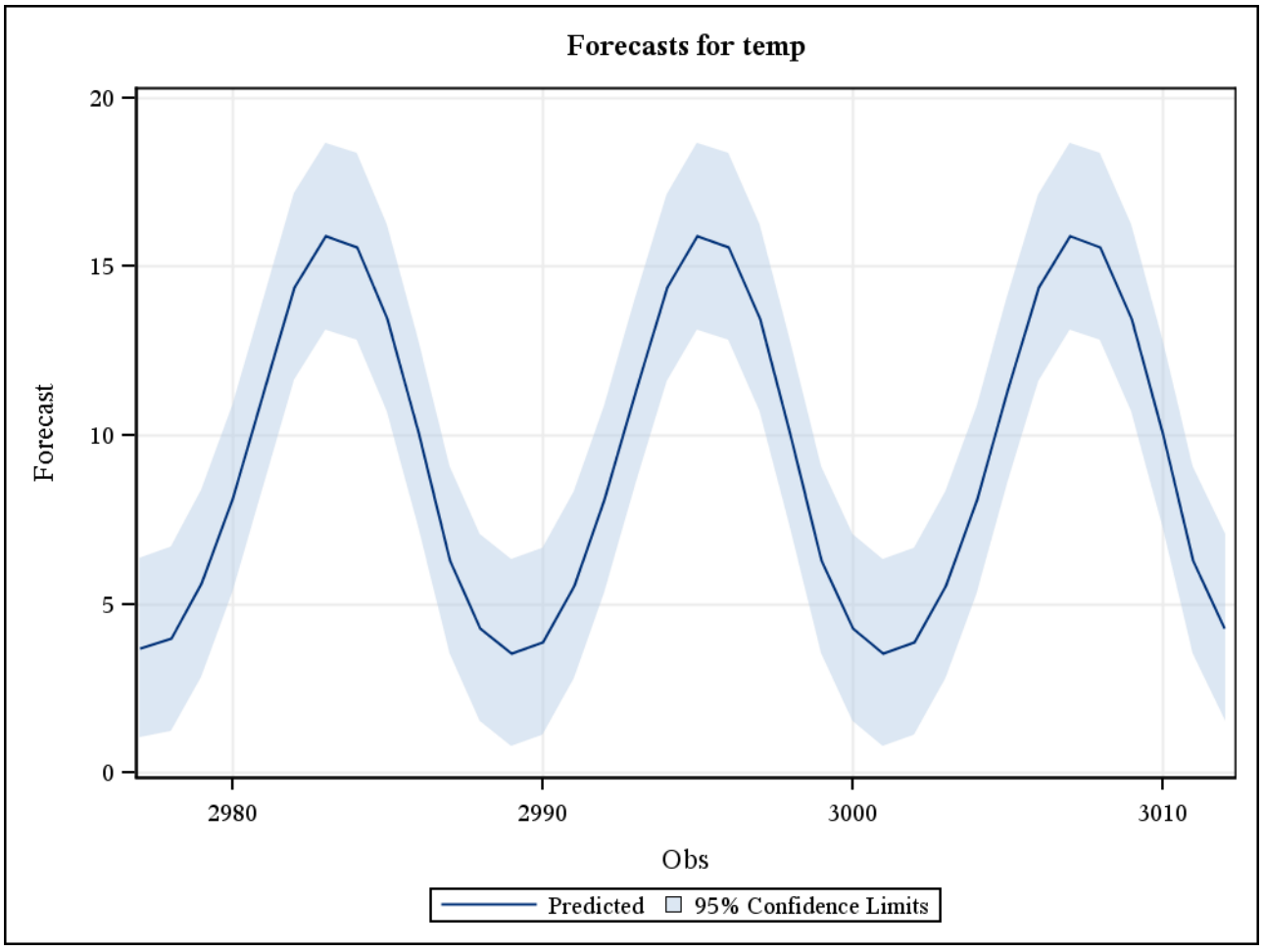
Moving Average Factors	
Factor 1:	1 - 0.35293 B**(1)
Factor 2:	1 - 0.97914 B**(12)

The ARIMA Procedure

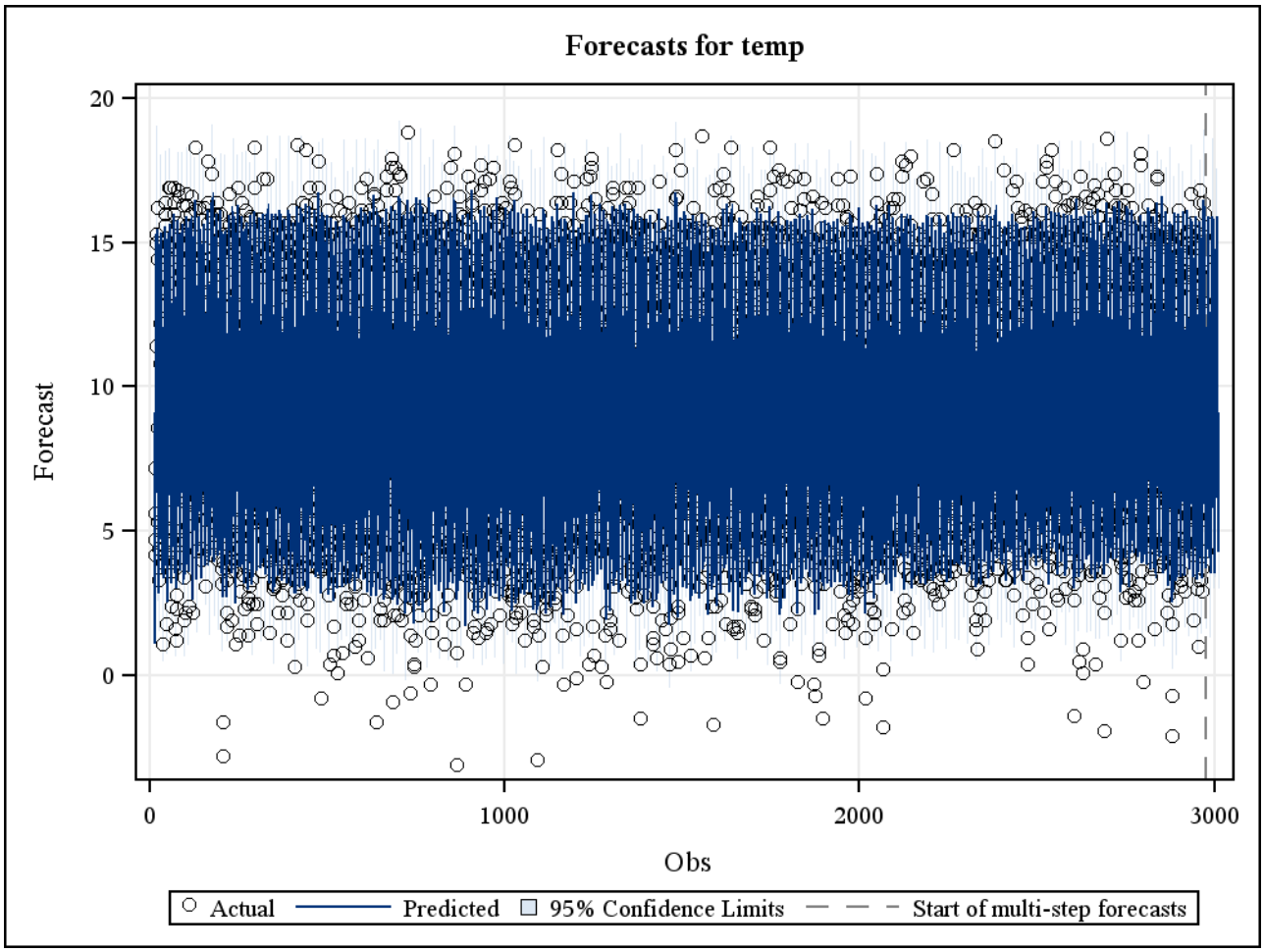
Forecasts for variable temp				
Obs	Forecast	Std Error	95% Confidence Limits	
2977	3.6992	1.3628	1.0281	6.3704
2978	3.9692	1.3964	1.2324	6.7060
2979	5.5985	1.4073	2.8403	8.3568
2980	8.1318	1.4109	5.3665	10.8971
2981	11.3211	1.4121	8.5534	14.0888
2982	14.3928	1.4125	11.6243	17.1612
2983	15.9073	1.4126	13.1386	18.6761
2984	15.5850	1.4127	12.8162	18.3538
2985	13.4731	1.4127	10.7043	16.2420
2986	10.0580	1.4127	7.2891	12.8268
2987	6.3045	1.4127	3.5356	9.0733
2988	4.2864	1.4127	1.5176	7.0553
2989	3.5499	1.4130	0.7805	6.3194
2990	3.8832	1.4130	1.1137	6.6527
2991	5.5490	1.4130	2.7795	8.3185
2992	8.1033	1.4130	5.3338	10.8727
2993	11.3047	1.4130	8.5352	14.0742
2994	14.3833	1.4130	11.6138	17.1528
2995	15.9019	1.4130	13.1324	18.6714
2996	15.5819	1.4130	12.8124	18.3513
2997	13.4713	1.4130	10.7018	16.2408
2998	10.0569	1.4130	7.2874	12.8264
2999	6.3039	1.4130	3.5344	9.0733
3000	4.2861	1.4130	1.5166	7.0556
3001	3.5497	1.4133	0.7797	6.3198
3002	3.8831	1.4133	1.1130	6.6532
3003	5.5489	1.4133	2.7788	8.3190
3004	8.1032	1.4133	5.3331	10.8733
3005	11.3046	1.4133	8.5346	14.0747
3006	14.3833	1.4133	11.6132	17.1534
3007	15.9019	1.4133	13.1318	18.6720

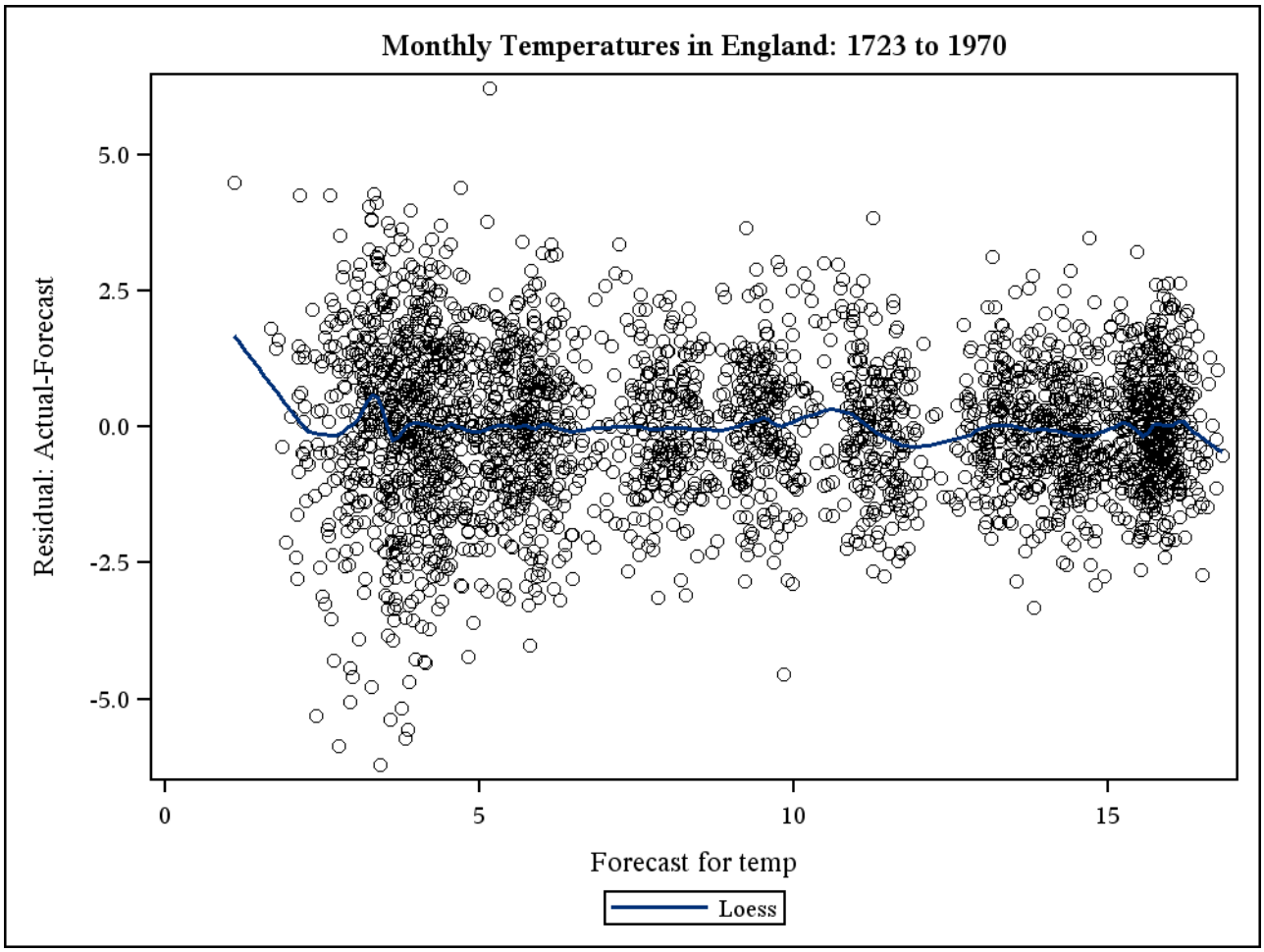
The ARIMA Procedure

Forecasts for variable temp				
Obs	Forecast	Std Error	95% Confidence Limits	
3008	15.5819	1.4133	12.8118	18.3519
3009	13.4713	1.4133	10.7012	16.2414
3010	10.0569	1.4133	7.2868	12.8270
3011	6.3039	1.4133	3.5338	9.0739
3012	4.2861	1.4133	1.5160	7.0562



The ARIMA Procedure




Monthly Temperatures in England: 1723 to 1970
Residual: Actual-Forecast
5.0
2.5
0.0
-2.5
-5.0
0
5
10
15
Forecast for temp
Loess