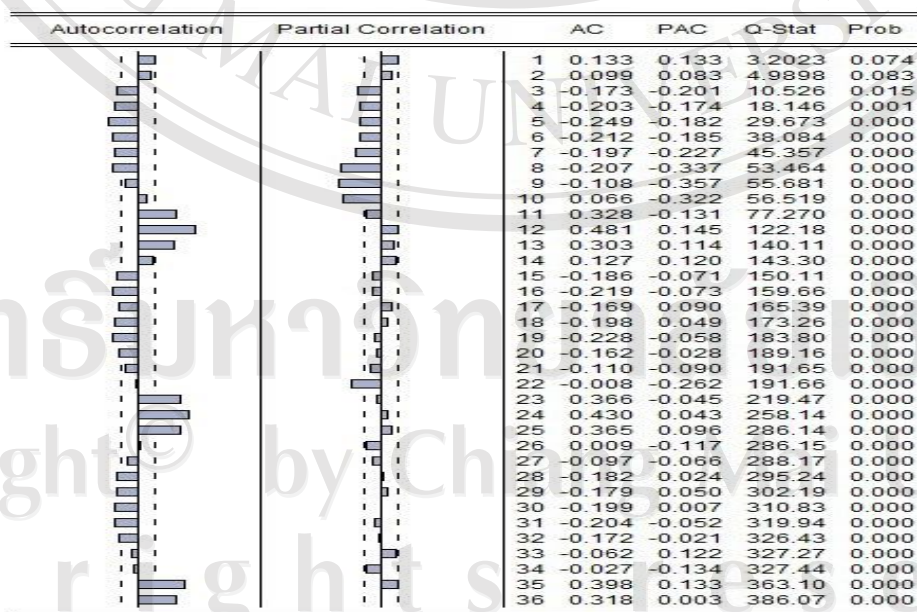
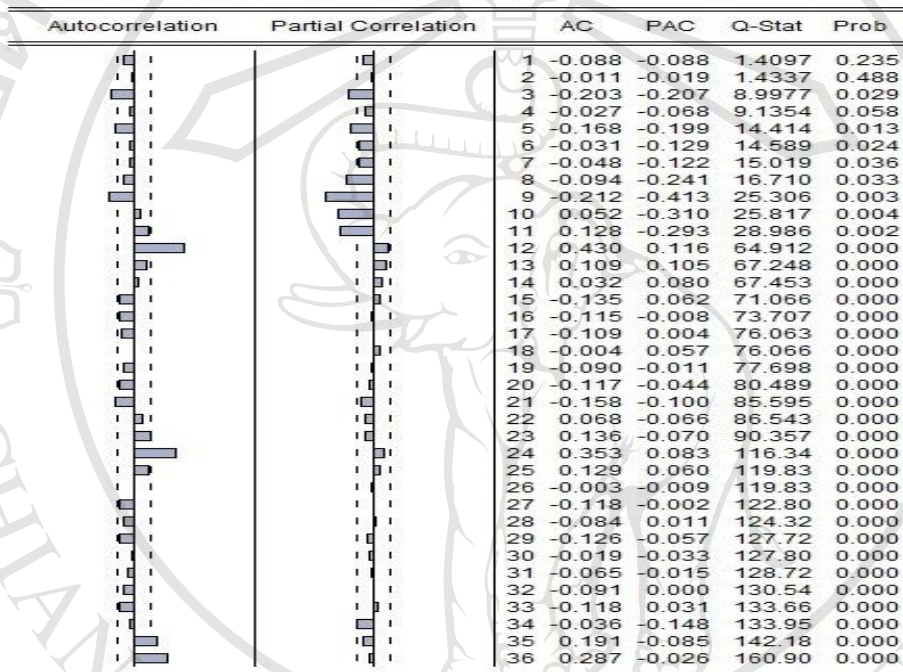
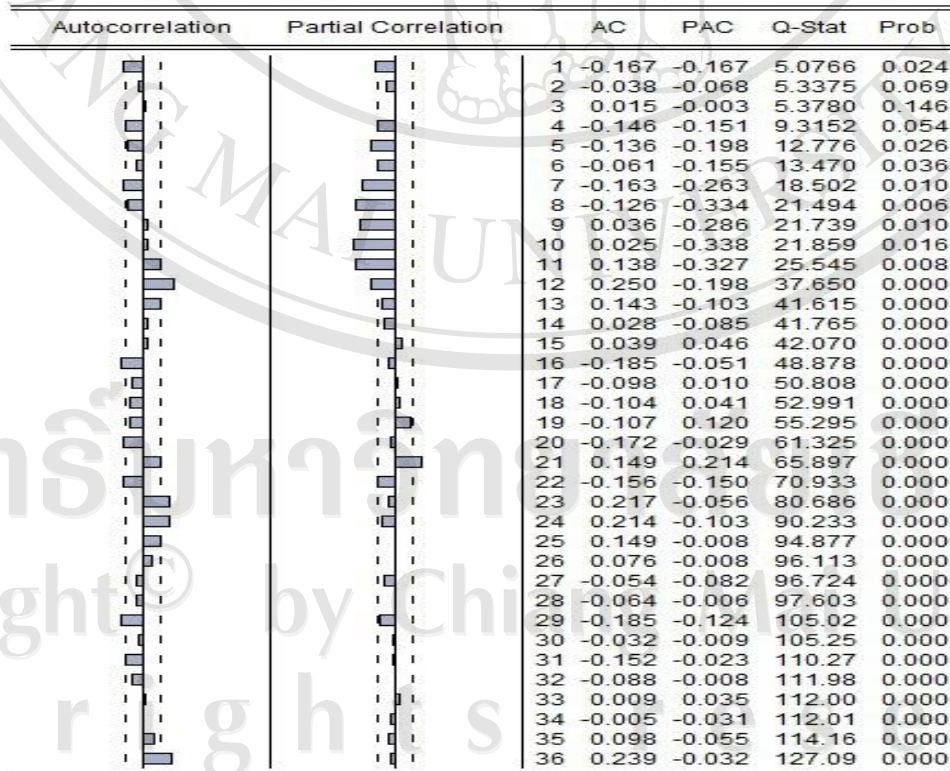
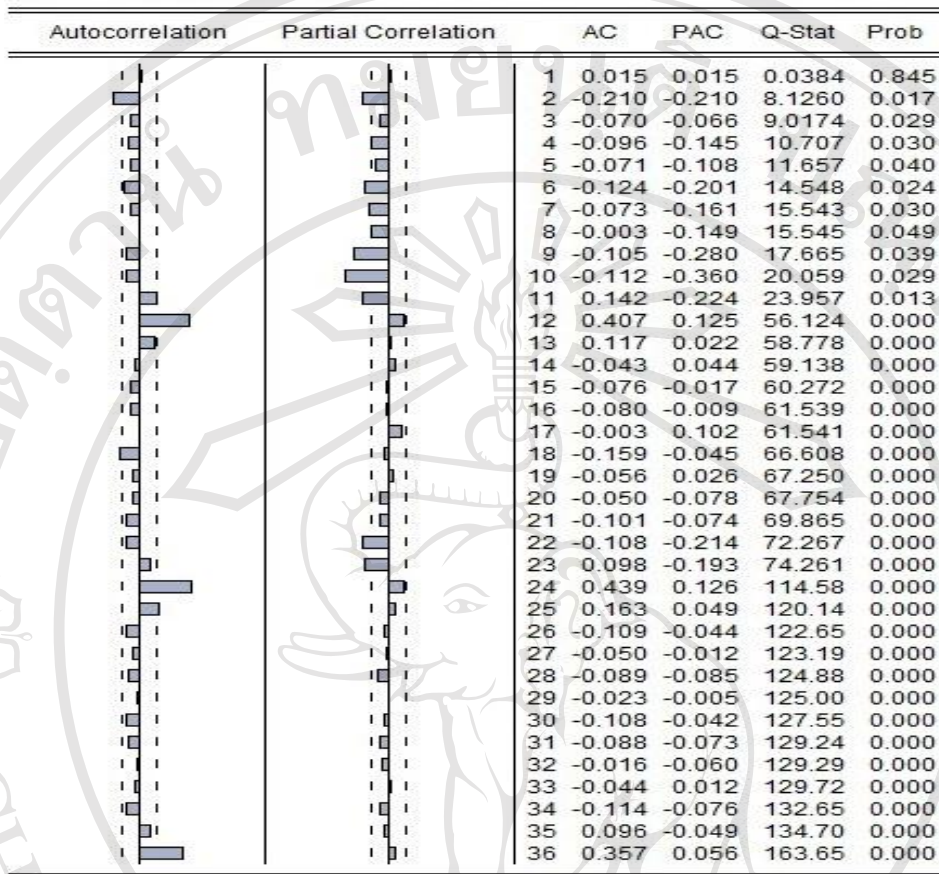


ภาคผนวก

ผลการวิเคราะห์หาตัวแบบการพยากรณ์ปริมาณมลพิษในจังหวัดเชียงใหม่

correlogram





Autocorrelation	Partial Correlation	AC	PAC	Q-Stat	Prob	
		1	-0.561	-0.561	57.222	0.000
		2	0.206	-0.159	64.960	0.000
		3	-0.164	-0.179	69.921	0.000
		4	0.001	-0.238	69.921	0.000
		5	0.058	-0.099	70.546	0.000
		6	-0.031	-0.067	70.722	0.000
		7	0.032	-0.049	70.917	0.000
		8	-0.062	-0.099	71.648	0.000
		9	0.004	-0.124	71.651	0.000
		10	0.009	-0.095	71.668	0.000
		11	0.014	-0.065	71.707	0.000
		12	0.027	-0.018	71.849	0.000
		13	0.016	0.050	71.898	0.000
		14	-0.082	-0.058	73.216	0.000
		15	0.030	-0.076	73.389	0.000
		16	-0.012	-0.052	73.416	0.000
		17	0.053	0.006	73.985	0.000
		18	-0.032	-0.016	74.192	0.000
		19	0.019	0.007	74.269	0.000
		20	-0.150	-0.208	78.854	0.000
		21	0.144	-0.104	83.077	0.000
		22	-0.016	0.002	83.129	0.000
		23	-0.015	-0.093	83.175	0.000
		24	0.011	-0.105	83.200	0.000
		25	-0.075	-0.158	84.369	0.000
		26	0.151	0.032	89.182	0.000
		27	-0.079	0.049	90.504	0.000
		28	0.017	-0.061	90.568	0.000
		29	-0.007	-0.039	90.579	0.000
		30	-0.020	-0.010	90.662	0.000
		31	0.039	0.033	90.999	0.000
		32	-0.012	0.064	91.030	0.000
		33	-0.030	-0.027	91.231	0.000
		34	-0.001	-0.101	91.231	0.000
		35	0.040	0.026	91.583	0.000
		36	-0.001	0.089	91.583	0.000

Estimation

Dependent Variable: D(CO)

Method: Least Squares

Date: 09/20/12 Time: 04:11

Sample (adjusted): 2541M03 2554M12

Included observations: 166 after adjustments

Convergence achieved after 16 iterations

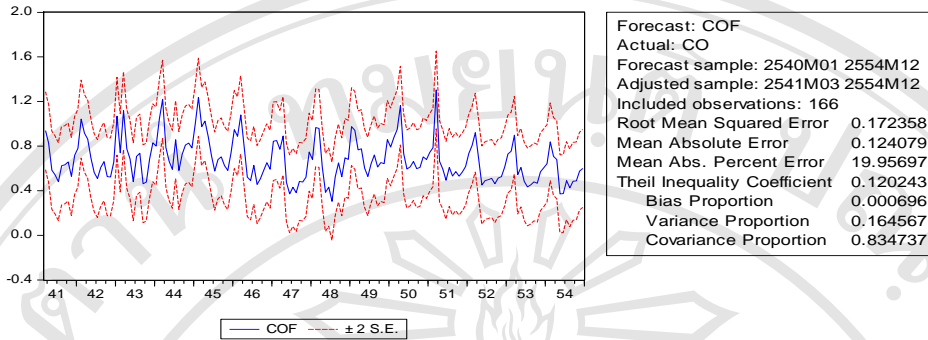
MA Backcast: 2541M02

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.001938	0.000764	-2.537715	0.0121
AR(1)	0.474765	0.070423	6.741653	0.0000
SAR(12)	0.536353	0.066640	8.048547	0.0000
MA(1)	-0.999934	0.012930	-77.33686	0.0000

R-squared	0.402022	Mean dependent var	-0.002108
Adjusted R-squared	0.390949	S.D. dependent var	0.223563
S.E. of regression	0.174472	Akaike info criterion	-0.630299
Sum squared resid	4.931381	Schwarz criterion	-0.555311
Log likelihood	56.31481	Hannan-Quinn criter.	-0.599861
F-statistic	36.30435	Durbin-Watson stat	2.079147
Prob(F-statistic)	0.000000		

Inverted AR Roots	.95	.82-.47i	.82+.47i	.47
	.47-.82i	.47+.82i	.00+.95i	.00-.95i
	-.47+.82i	-.47-.82i	-.82+.47i	-.82-.47i

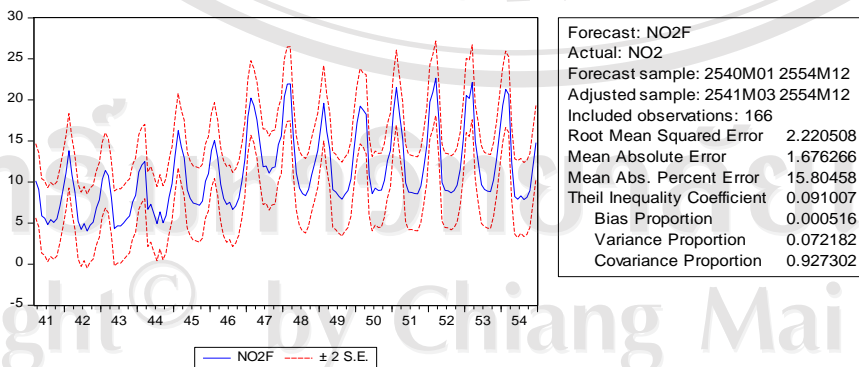
Inverted MA Roots	-.95
	1.00



Dependent Variable: D(NO2)
 Method: Least Squares
 Date: 09/20/12 Time: 04:25
 Sample (adjusted): 2541M03 2554M12
 Included observations: 166 after adjustments
 Convergence achieved after 34 iterations
 MA Backcast: 2540M02 2541M02

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.236222	0.332859	0.709676	0.4789
AR(1)	0.249099	0.101586	2.452093	0.0153
SAR(12)	1.032397	0.013800	74.81093	0.0000
MA(1)	-0.825939	0.059054	-13.98613	0.0000
SMA(12)	-0.918421	0.028684	-32.01807	0.0000

R-squared	0.595994	Mean dependent var	0.034337
Adjusted R-squared	0.585956	S.D. dependent var	3.504049
S.E. of regression	2.254724	Akaike info criterion	4.493590
Sum squared resid	818.4885	Schwarz criterion	4.587324
Log likelihood	-367.9679	Hannan-Quinn criter.	4.531637
F-statistic	59.37712	Durbin-Watson stat	2.049769
Prob(F-statistic)	0.000000		

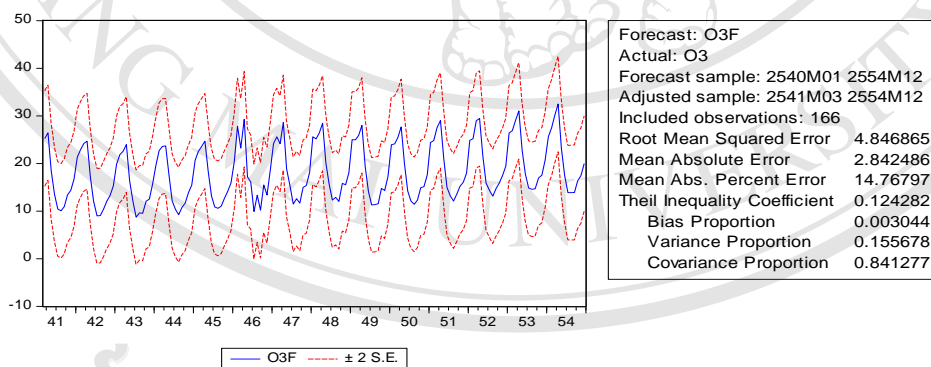


Dependent Variable: D(O3)
 Method: Least Squares
 Date: 09/20/12 Time: 04:39
 Sample (adjusted): 2541M03 2554M12
 Included observations: 166 after adjustments
 Convergence achieved after 40 iterations
 MA Backcast: 2540M01 2541M02

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-18.26198	3577.873	-0.005104	0.9959
AR(1)	-0.897821	0.045322	-19.80979	0.0000
SAR(12)	0.999917	0.016071	62.21751	0.0000
MA(2)	-0.901801	0.049838	-18.09474	0.0000
SMA(12)	-0.919024	0.035061	-26.21239	0.0000

R-squared	0.574355	Mean dependent var	-0.025602
Adjusted R-squared	0.563779	S.D. dependent var	7.451591
S.E. of regression	4.921551	Akaike info criterion	6.054782
Sum squared resid	3899.689	Schwarz criterion	6.148517
Log likelihood	-497.5469	Hannan-Quinn criter.	6.092830
F-statistic	54.31227	Durbin-Watson stat	1.988642
Prob(F-statistic)	0.000000		

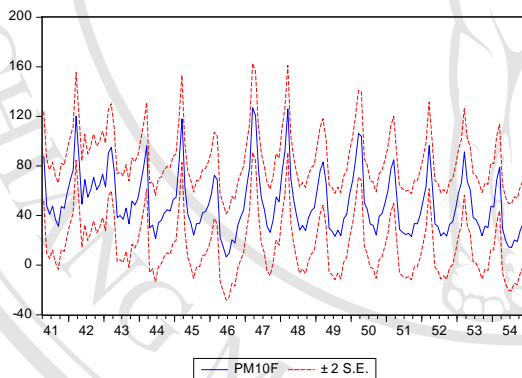
Inverted AR Roots	1.00	.87-.50i	.87+.50i	.50-.87i
	.50+.87i	.00-1.00i	-.00+1.00i	-.50+.87i
	-.50-.87i	-.87+.50i	-.87-.50i	-.90
	-1.00			
Inverted MA Roots	.99	.95	.86-.50i	.86+.50i
	.50-.86i	.50+.86i	.00+.99i	-.00-.99i
	-.50+.86i	-.50-.86i	-.86+.50i	-.86-.50i
	-.95	-.99		



Dependent Variable: D(PM10)
 Method: Least Squares
 Date: 09/20/12 Time: 04:46
 Sample (adjusted): 2541M04 2554M12
 Included observations: 165 after adjustments
 Convergence achieved after 34 iterations
 MA Backcast: 2540M03 2541M03

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.251983	13.63780	-0.018477	0.9853
AR(2)	-0.184350	0.080083	-2.301995	0.0226
SAR(12)	0.988147	0.015385	64.22648	0.0000
MA(1)	-0.420749	0.077842	-5.405167	0.0000
SMA(12)	-0.939307	0.016831	-55.80669	0.0000

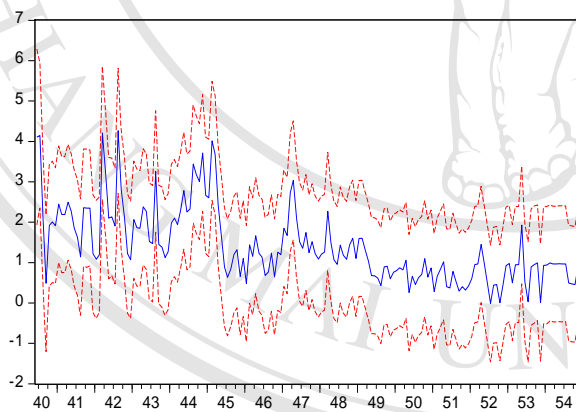
R-squared	0.524390	Mean dependent var	-0.615758
Adjusted R-squared	0.512500	S.D. dependent var	24.89151
S.E. of regression	17.37956	Akaike info criterion	8.578301
Sum squared resid	48327.85	Schwarz criterion	8.672421
Log likelihood	-702.7098	Hannan-Quinn criter.	8.616507
F-statistic	44.10250	Durbin-Watson stat	1.889822
Prob(F-statistic)	0.000000		



Forecast: PM10F
 Actual: PM10
 Forecast sample: 2540M01 2554M12
 Adjusted sample: 2541M04 2554M12
 Included observations: 165
 Root Mean Squared Error 17.11421
 Mean Absolute Error 12.05748
 Mean Abs. Percent Error 25.58712
 Theil Inequality Coefficient 0.150336
 Bias Proportion 0.000000
 Variance Proportion 0.056056
 Covariance Proportion 0.943944

Dependent Variable: D(SO2)
 Method: Least Squares
 Date: 09/20/12 Time: 14:13
 Sample (adjusted): 2540M06 2554M12
 Included observations: 175 after adjustments
 Convergence achieved after 15 iterations
 MA Backcast: 2540M04 2540M05

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.031199	0.051140	-0.610068	0.5426
AR(1)	-0.757945	0.094542	-8.017041	0.0000
AR(4)	0.007030	0.033748	0.208314	0.8352
AR(2)	-0.282014	0.083097	-3.393780	0.0009
MA(1)	0.707460	0.120478	5.872120	0.0000
MA(2)	0.234812	0.108666	2.160872	0.0321
R-squared	0.513990	Mean dependent var	-0.057429	
S.D. dependent var	1.001595	S.E. of regression	0.708509	
Akaike info criterion	2.182377	Sum squared resid	84.83556	
Schwarz criterion	2.290884	Log likelihood	-184.9580	
Hannan-Quinn criter.	2.226391	F-statistic	35.74596	
Durbin-Watson stat	2.072696			
Inverted AR Roots	.13	-.20	-.34-.38i	-.34+.38i
Inverted MA Roots	-.35-.33i	-.35+.33i		



Forecast: SO2F
 Actual: SO2
 Forecast sample: 2540M01 2554M12
 Adjusted sample: 2540M06 2554M12
 Included observations: 175
 Root Mean Squared Error 0.696258
 Mean Absolute Error 0.473120
 Mean Abs. Percent Error 37.35239
 Theil Inequality Coefficient 0.209124
 Bias Proportion 0.000019
 Variance Proportion 0.003445
 Covariance Proportion 0.996536

— SO2F — ± 2 S.E.

ประวัติผู้เขียน

ชื่อ-สกุล

นางสาวสายสวาท มั่นธโน

วัน เดือน ปีเกิด

14 เมษายน 2529

ประวัติการศึกษา

สำเร็จการศึกษามัธยมศึกษาตอนปลาย โรงเรียนหอพระ

ปีการศึกษา 2546

สำเร็จการศึกษาระดับปริญญาตรี วิทยาศาสตร์บัณฑิต สาขาวิชาสถิติ

มหาวิทยาลัยเชียงใหม่ ปีการศึกษา 2550

ประวัติการทำงาน

นักสถิติปฏิบัติการ แขวงทางเชียงใหม่ที่ 3

ลิขสิทธิ์มหาวิทยาลัยเชียงใหม่

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