Econometric Modeler Analysis

Summary of results from the Econometric Modeler App

Econometrics Toolbox Version 5.1 (R2018b)

29-Apr-2020

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1. Time Series: irradiancia_teste

1.1. Time Series Plot

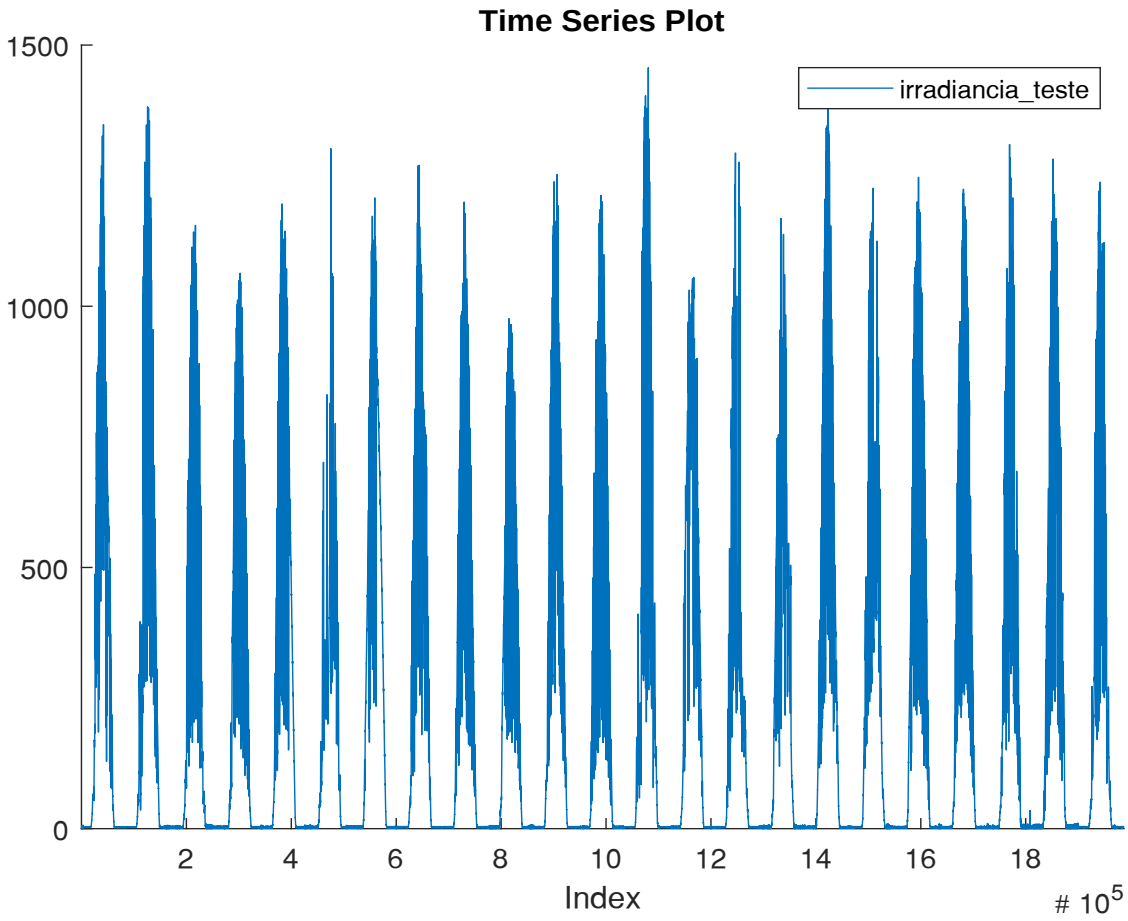

Figura 1.1. Time Series Plot of irradiancia_teste

1.2. Sample Autocorrelation Function

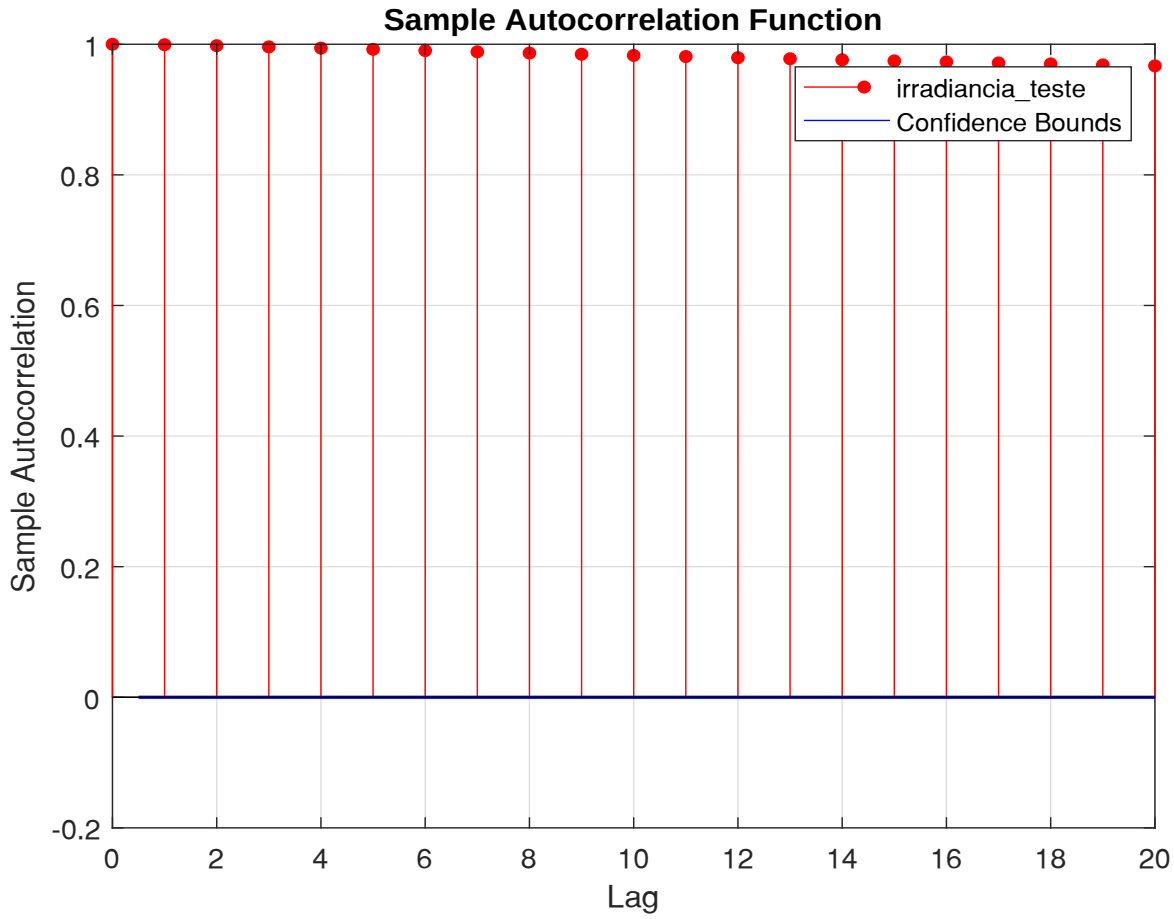

Figura 1.2. Sample autocorrelation function of irradiancia_teste

1.3. Sample Partial Autocorrelation Function

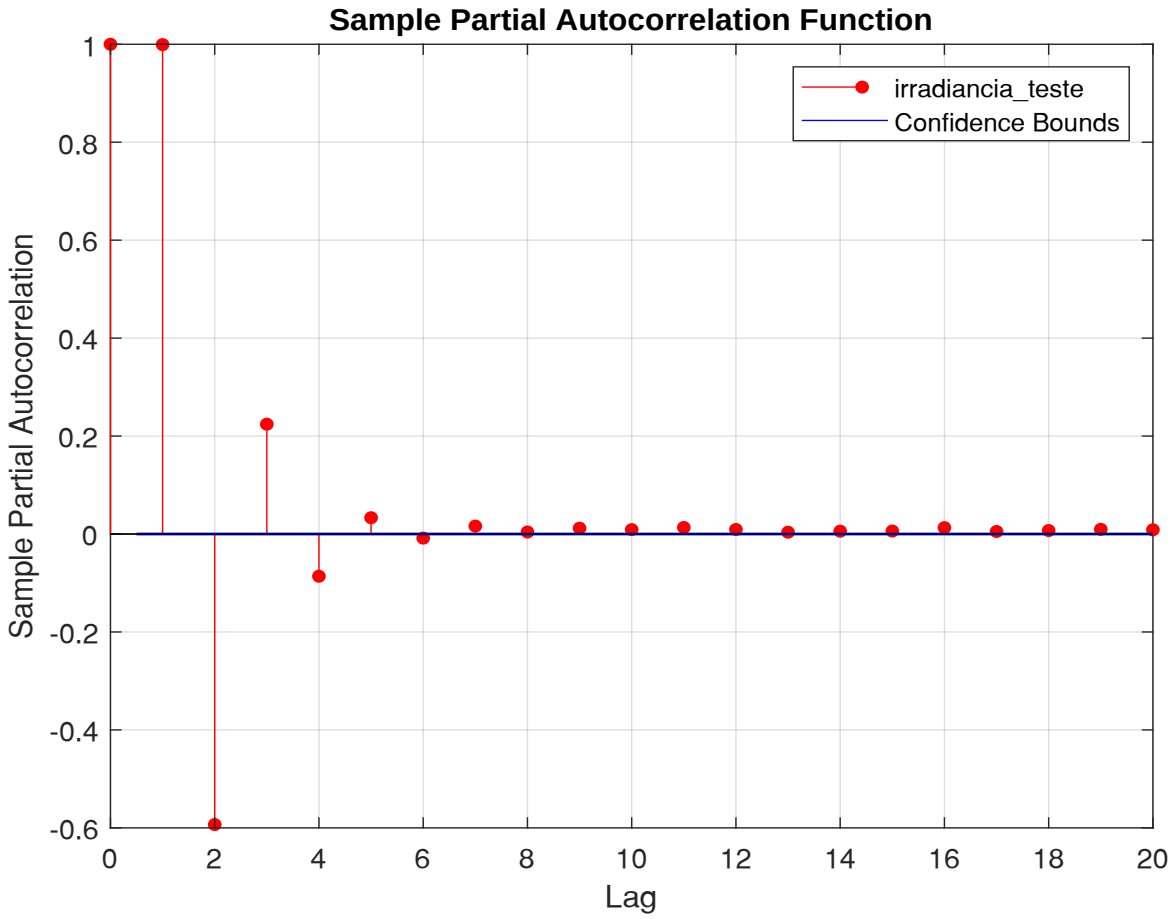

Figura 1.3. Sample partial autocorrelation function of irradiancia_teste

2. Time Series: IRRADIANCIA1Diff

Time series IRRADIANCIA1Diff is the first-order difference of time series irradiancia_teste.

2.1. Time Series Plot

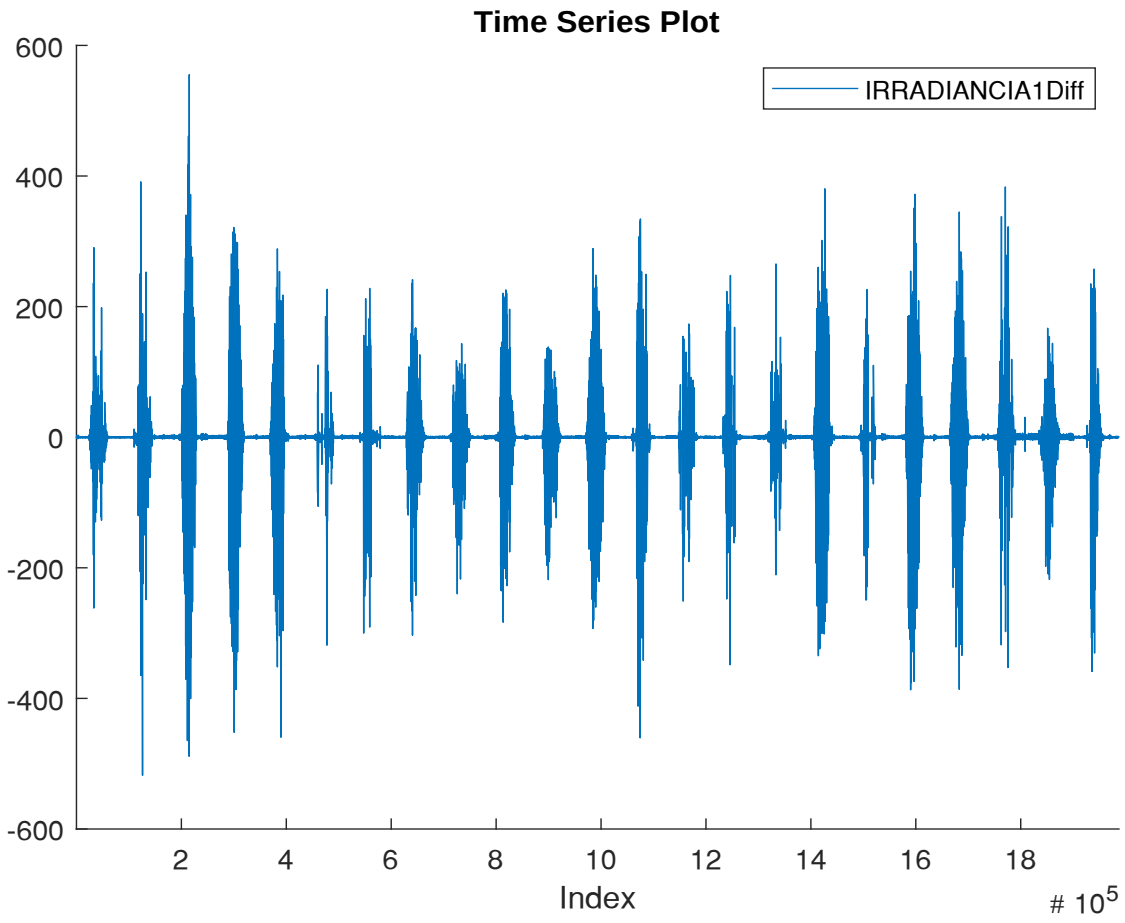

Figura 2.1. Time Series Plot of IRRADIANCIA1Diff

2.2. Sample Autocorrelation Function

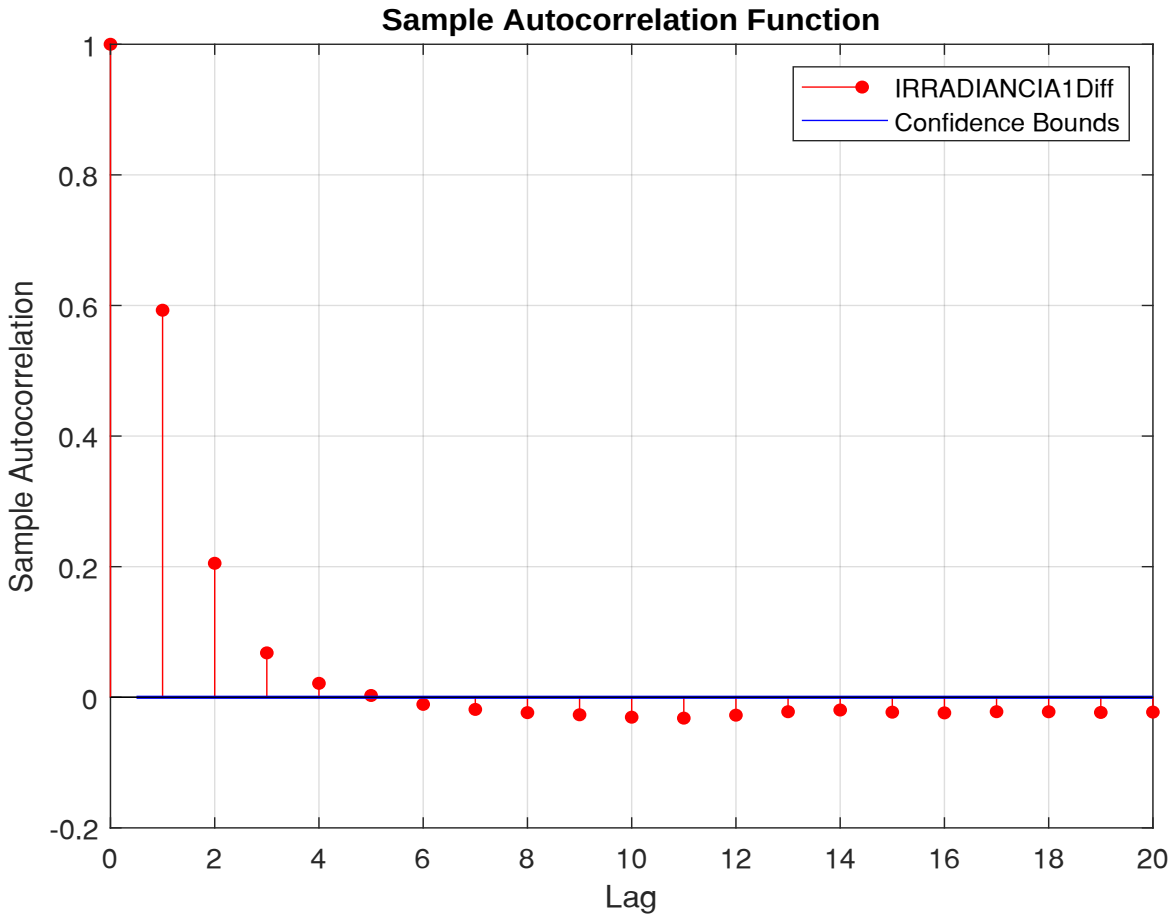

Figura 2.2. Sample autocorrelation function of IRRADIANCIA1Diff

2.3. Sample Partial Autocorrelation Function

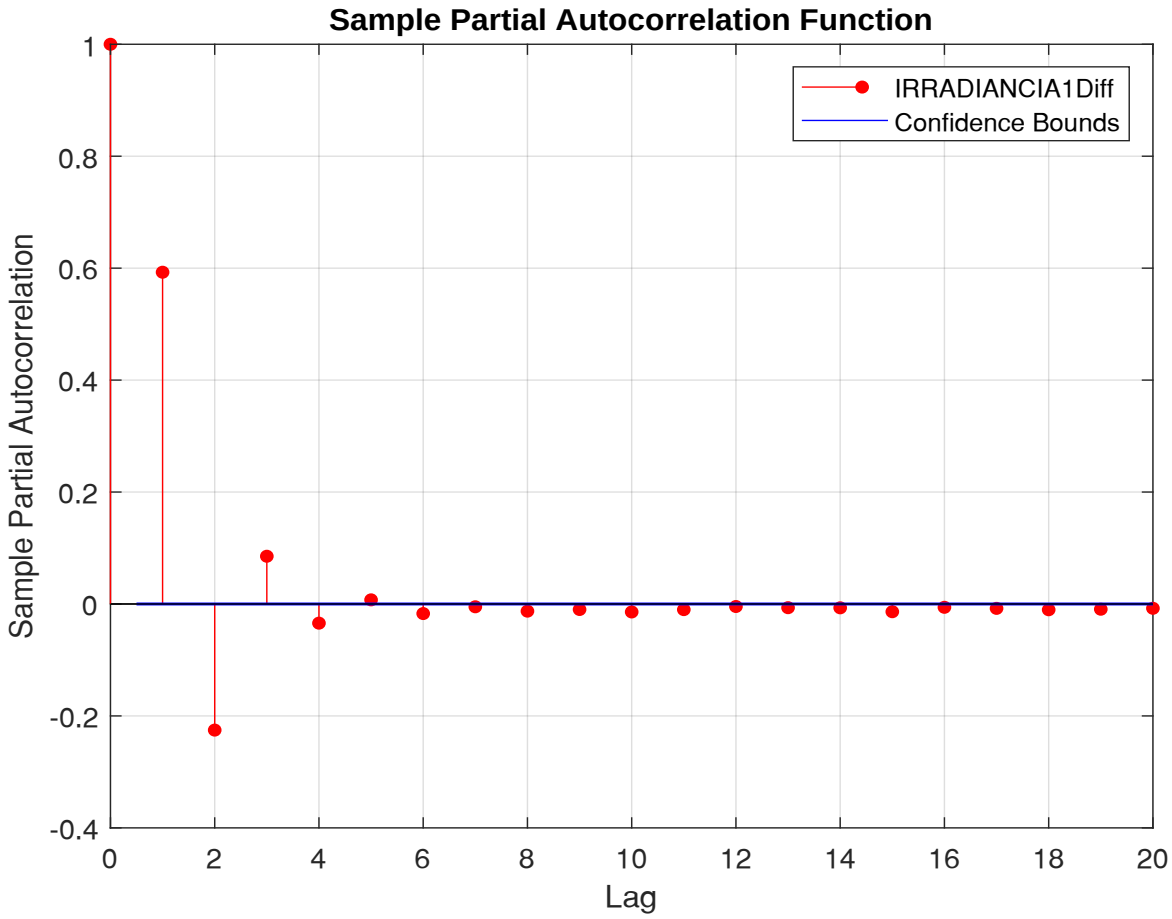

Figura 2.3. Sample partial autocorrelation function of IRRADIANCIA1Diff

3. ARIMA(2,1,2) Model (Gaussian Distribution) (ARIMA_irradiancia_teste)

Autoregressive integrated moving average model of time series irradiancia_teste with the following equation:

$$(1 - \phi_1 L - \phi_2 L^2)(1 - L)y_t \;=\; c \;+\; (1 + \theta_1 L + \theta_2 L^2)\varepsilon_t$$

3.1. Model Estimation

Tabela 3.1. Estimation Results

Parameter	Value	StandardError	TStatistic	PValue
Constant	5.0725e-08	1.53e-05	0.0033154	0.99735
AR{1}	1.35	0.00013417	10062.2817	0
AR{2}	-0.35881	0.00013317	-2694.4348	0
MA{1}	-0.60603	0.00012505	-4846.2918	0
MA{2}	-0.39178	0.00012486	-3137.7967	0
Variance	83.1315	0.0081848	10156.8606	0

Tabela 3.2. Goodness of Fit

AIC	14423576.2973
BIC	14423651.3107

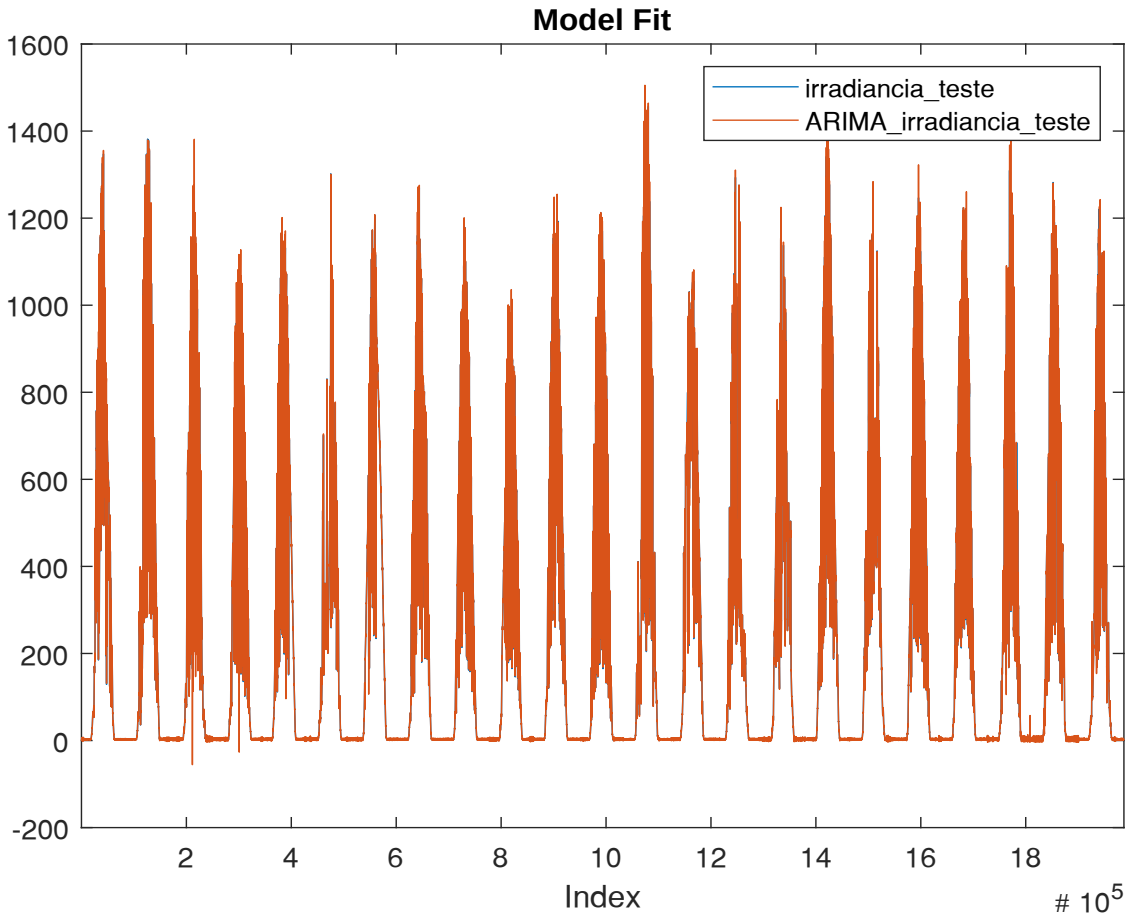

Figura 3.1. Plot the fit of model ARIMA_irradiancia_teste time series irradiancia_teste

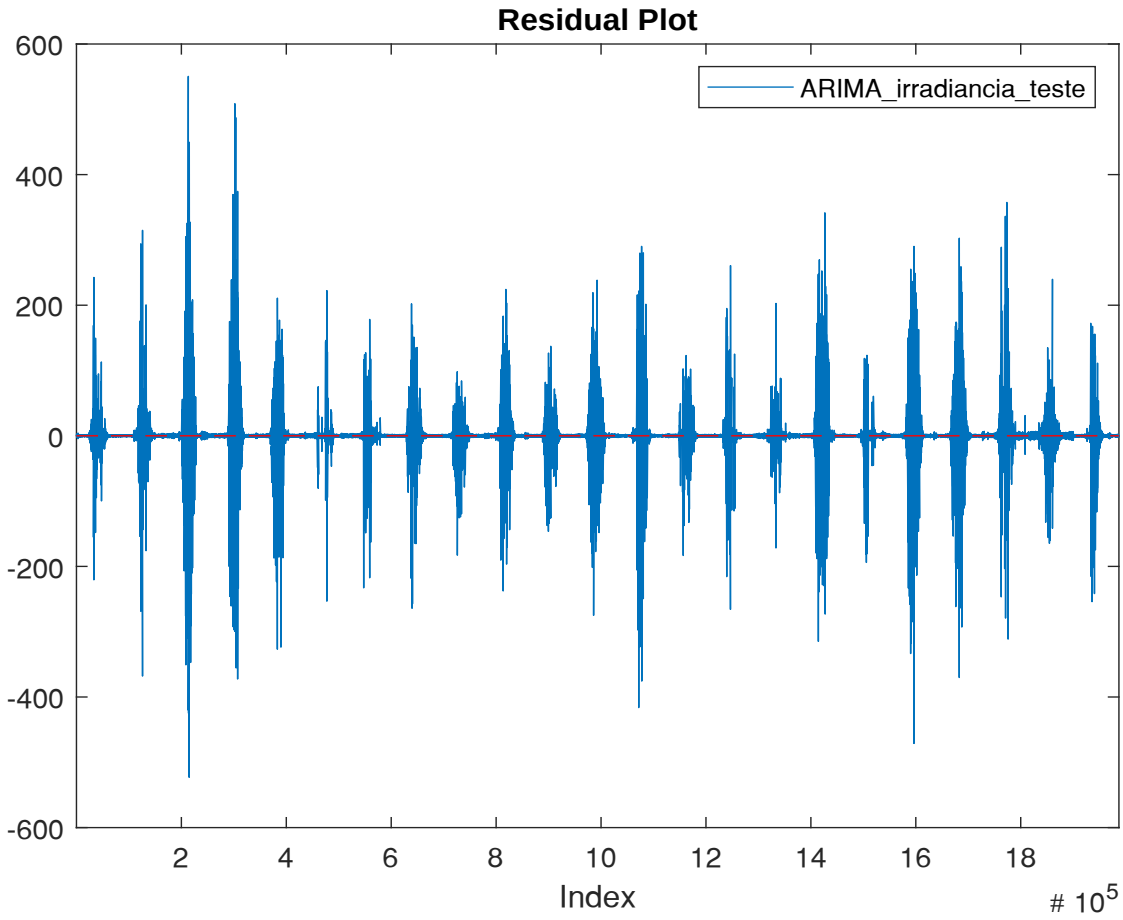

Figura 3.2. Plot of the residuals of model ARIMA_irradiancia_teste

3.2. Residual Histogram

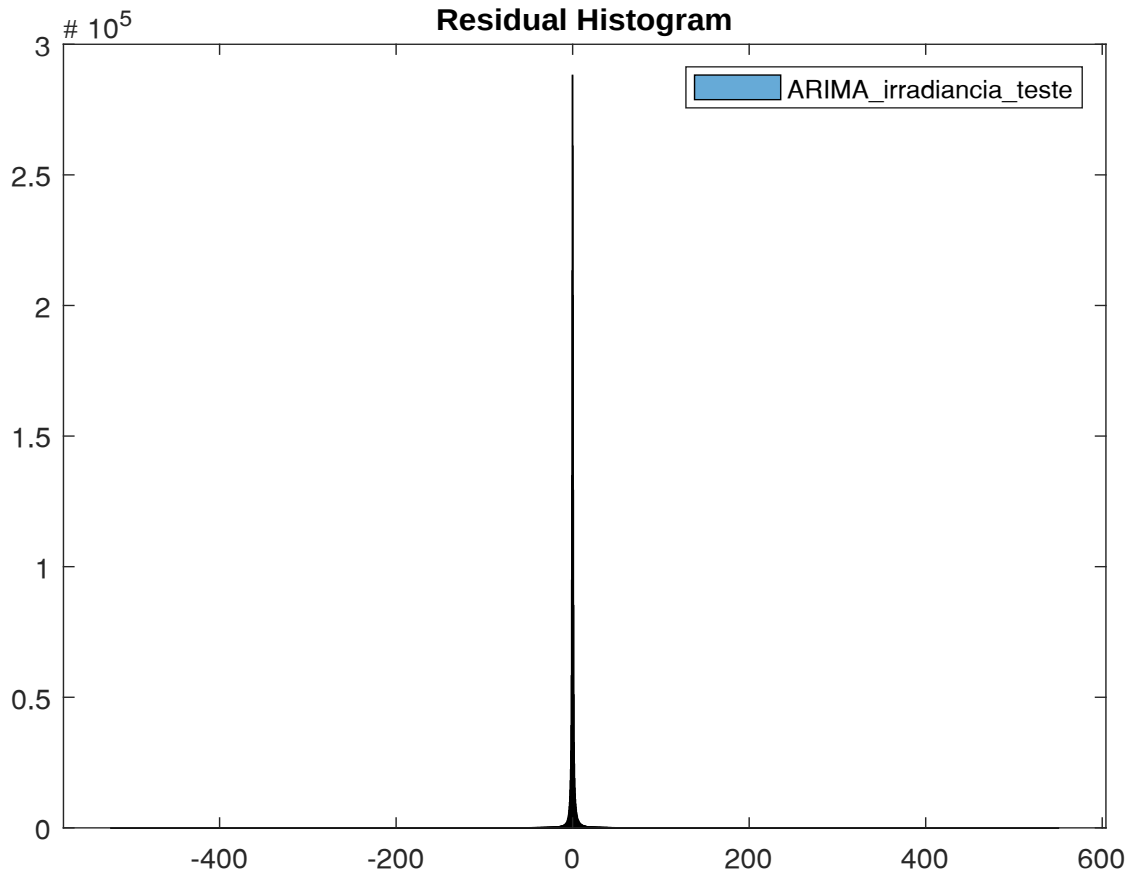

Figura 3.3. A histogram of the residuals of model ARIMA_irradiancia_teste.

3.3. Residual Quantile-Quantile plot

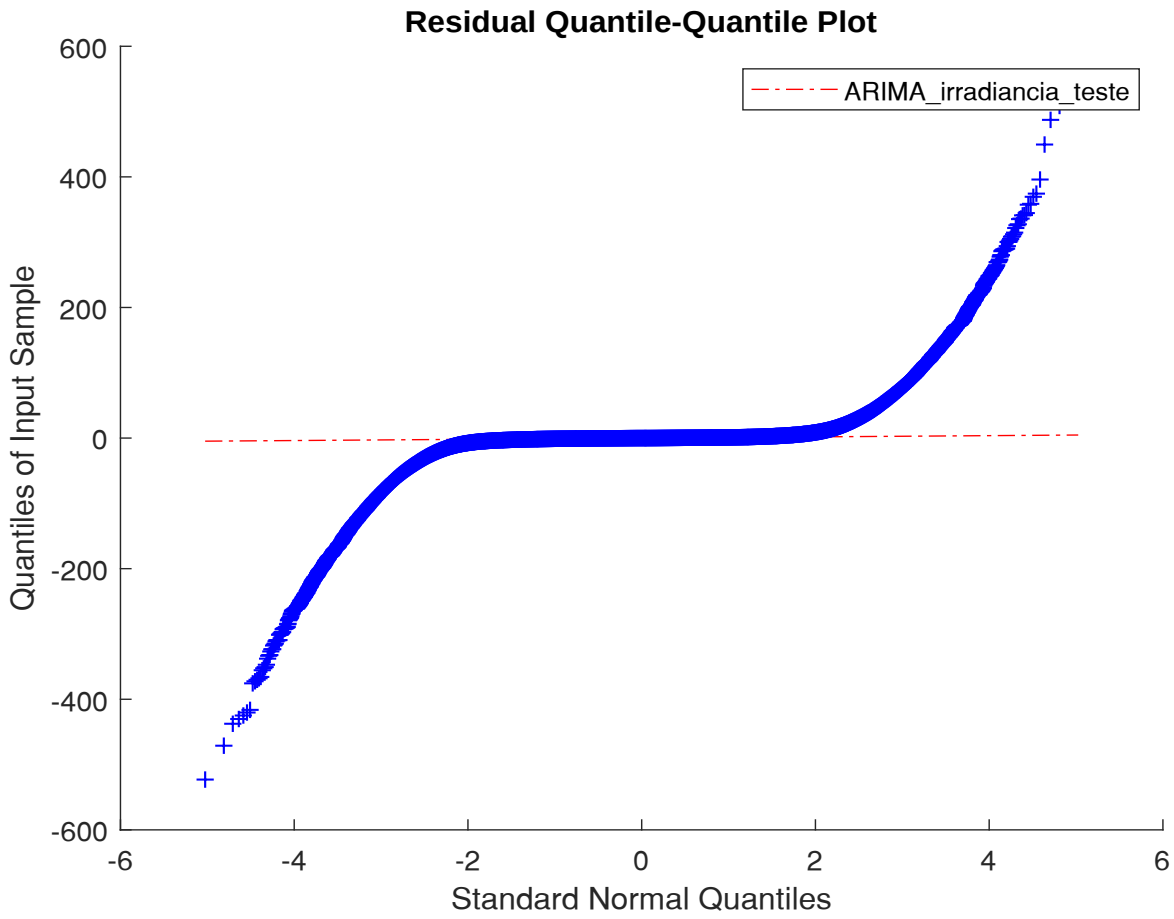

Figura 3.4. Quantile-quantile plot of the residuals of model ARIMA_irradiancia_teste.

3.4. Residual Sample Autocorrelation Function

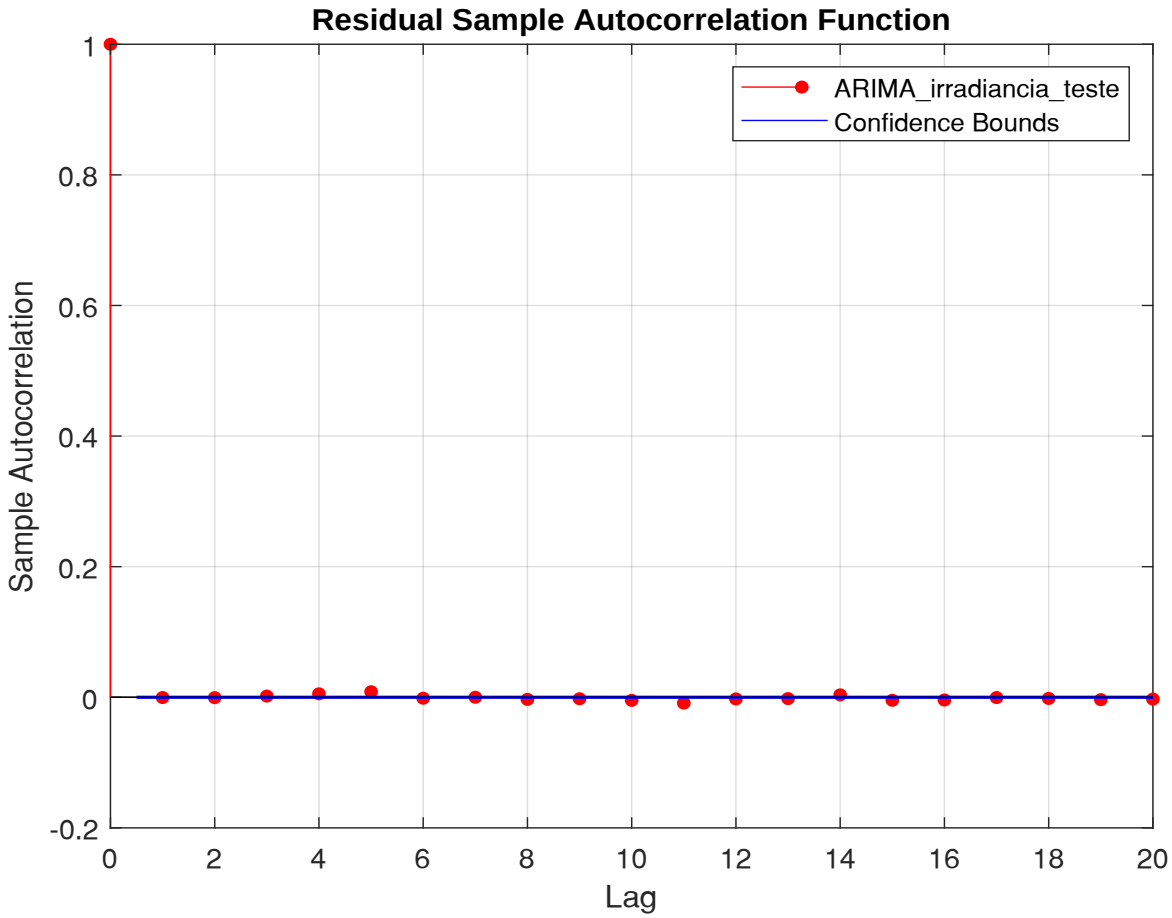

Figura 3.5. Sample autocorrelation function of the residuals of ARIMA_irradiancia_teste

4. ARIMA(2,1,1) Model (Gaussian Distribution) (ARIMA_irradiancia_teste2)

Autoregressive integrated moving average model of time series irradiancia_teste with the following equation:

$$(1 - \phi_1 L - \phi_2 L^2)(1 - L)y_t \;=\; c \;+\; (1 + \theta_1 L)\varepsilon_t$$

4.1. Model Estimation

Tabela 4.1. Estimation Results

Parameter	Value	StandardError	TStatistic	PValue
Constant	-6.8083e-05	0.0090869	-0.0074925	0.99402
AR{1}	0.36274	0.00036124	1004.1682	0
AR{2}	-0.0096685	0.00027006	-35.802	1.0296e-280
MA{1}	0.38616	0.00035777	1079.3547	0
Variance	83.5752	0.0076123	10978.9448	0

Tabela 4.2. Goodness of Fit

AIC	14434157.7807
BIC	14434220.2918

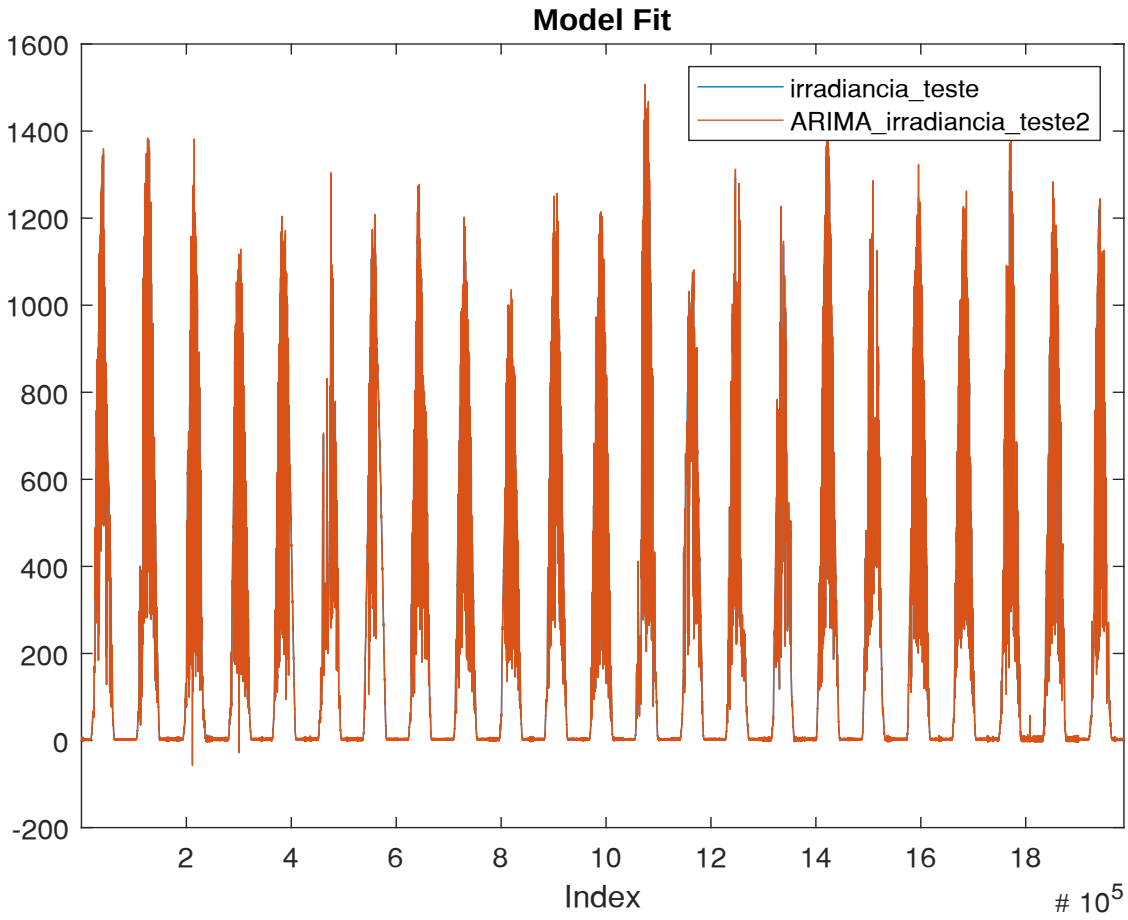

Figura 4.1. Plot the fit of model ARIMA_irradiancia_teste2 time series irradiancia_teste

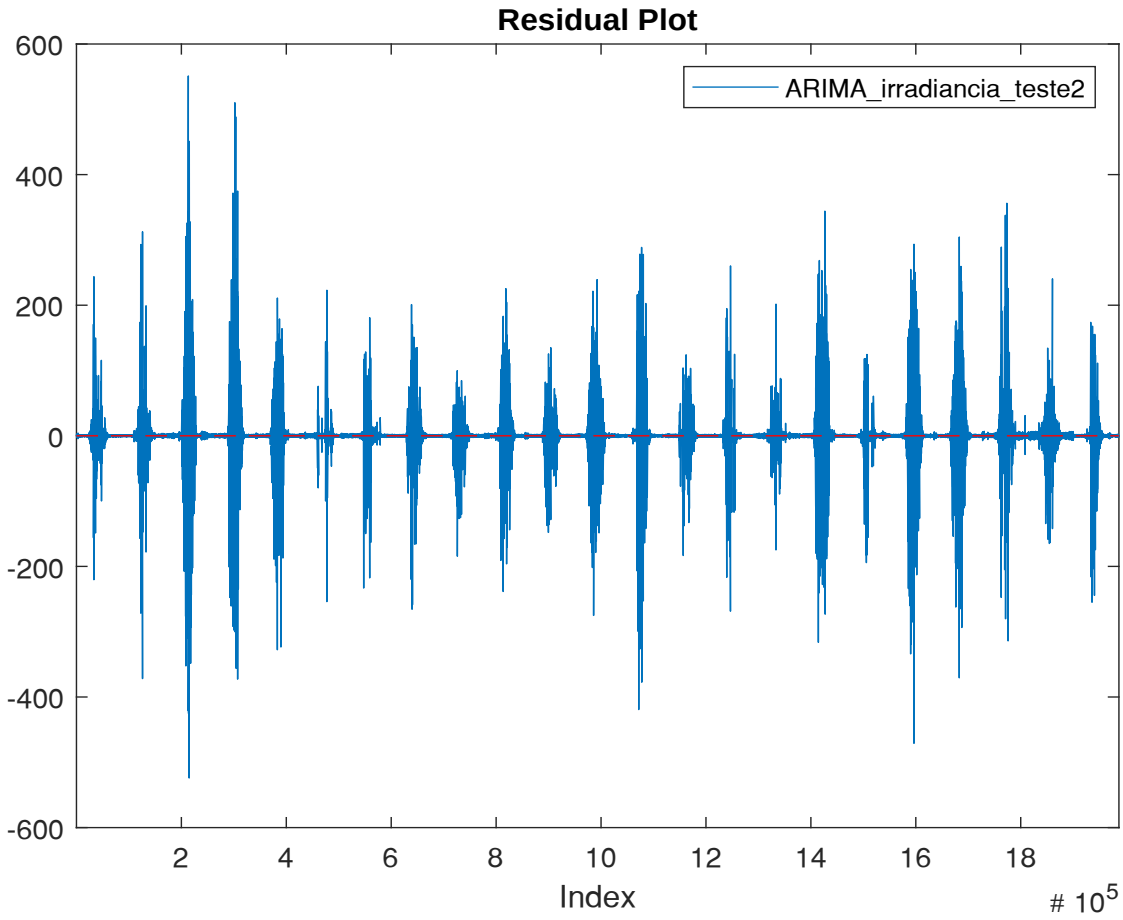

Figura 4.2. Plot of the residuals of model ARIMA_irradiancia_teste2

5. ARIMA(2,1,0) Model (Gaussian Distribution) (ARIMA_irradiancia_teste3)

Autoregressive integrated moving average model of time series irradiancia_teste with the following equation:

$$(1 - \phi_1 L - \phi_2 L^2)(1 - L) y_t \ = \ c \ + \ \varepsilon_t$$

5.1. Model Estimation

Tabela 5.1. Estimation Results

Parameter	Value	StandardError	TStatistic	PValue
Constant	1.3057e-05	0.0065828	0.0019834	0.99842
AR{1}	0.72628	7.3253e-05	9914.7438	0
AR{2}	-0.22532	9.2556e-05	-2434.4012	0
Variance	84.2993	0.007714	10928.1546	0

Tabela 5.2. Goodness of Fit

AIC	14451311.6325
BIC	14451361.6414

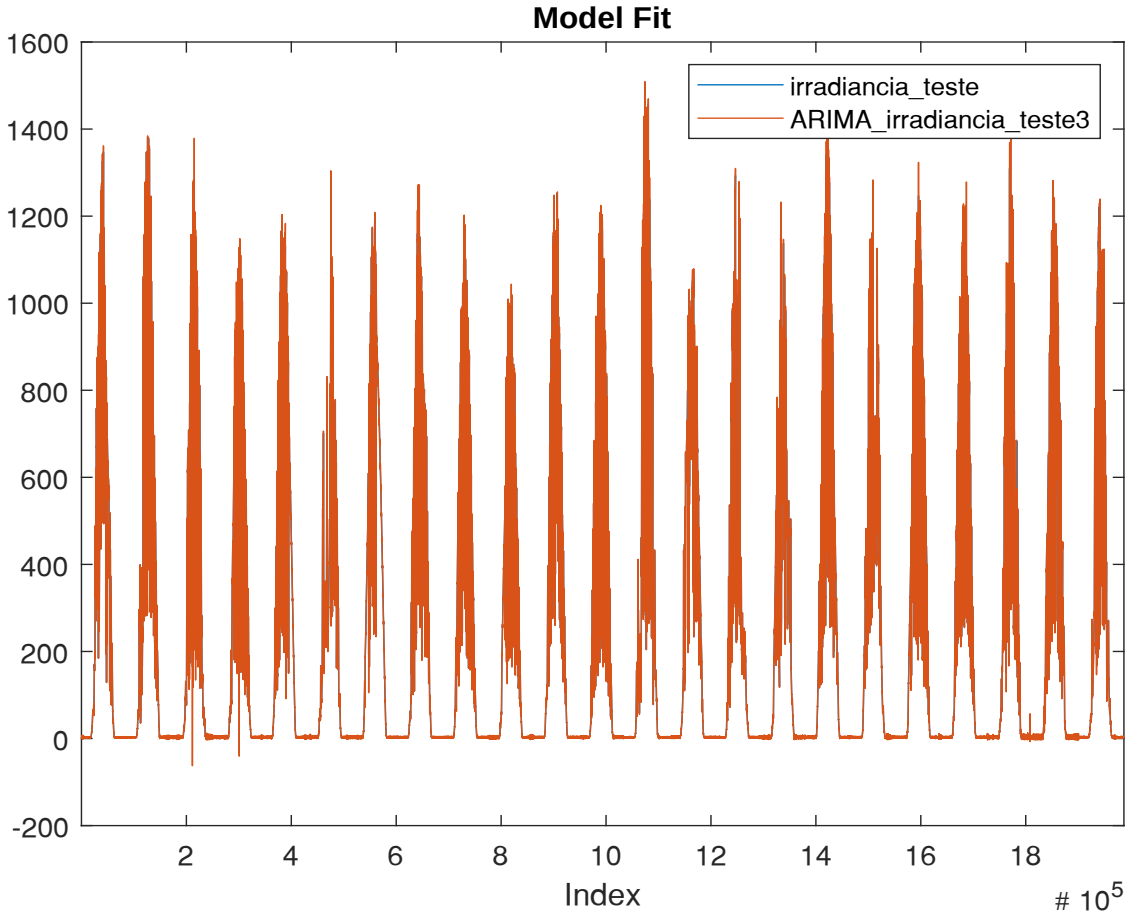

Figura 5.1. Plot the fit of model ARIMA_irradiancia_teste3 time series irradiancia_teste

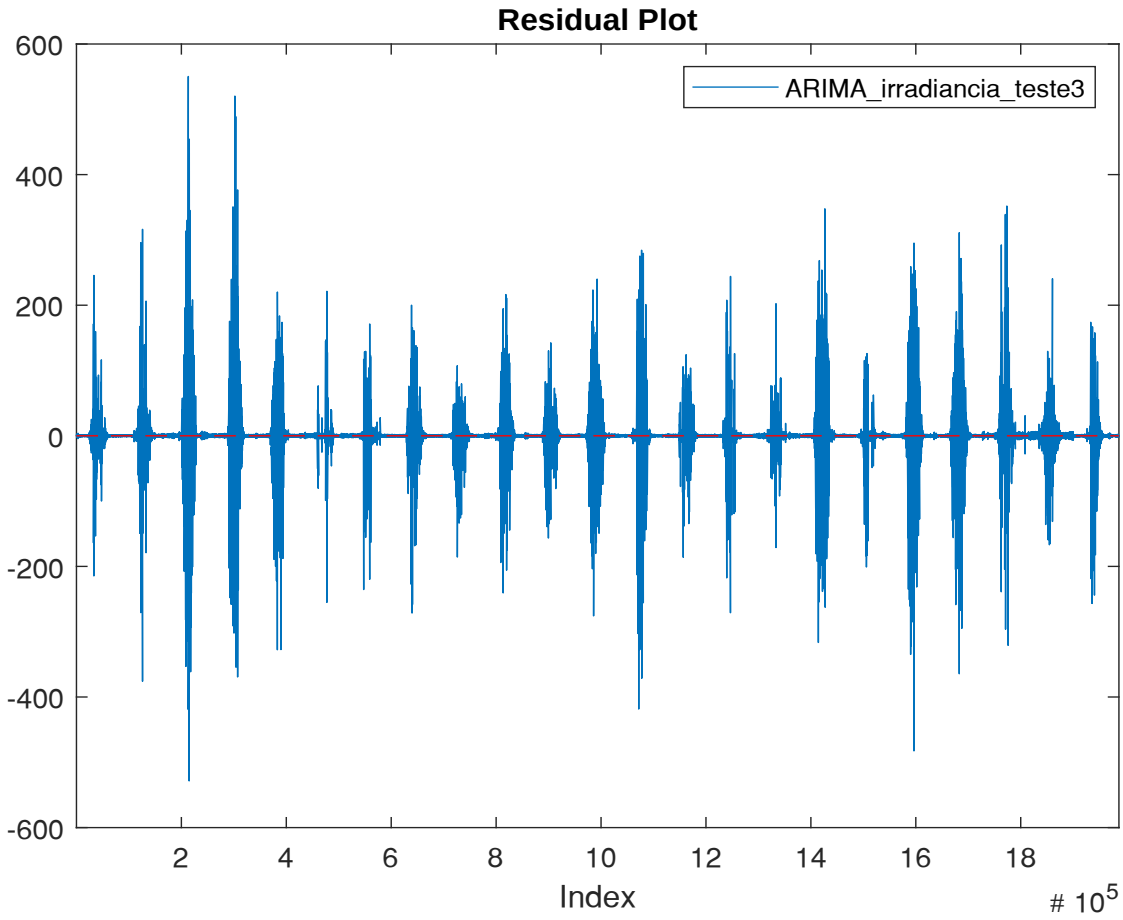

Figura 5.2. Plot of the residuals of model ARIMA_irradiancia_teste3

6. ARIMA(1,1,2) Model (Gaussian Distribution) (ARIMA_irradiancia_teste4)

Autoregressive integrated moving average model of time series irradiancia_teste with the following equation:

$$(1 - \phi_1 L)(1 - L)y_t \ = \ c \ + \ (1 + \theta_1 L + \theta_2 L^2)\varepsilon_t$$

6.1. Model Estimation

Tabela 6.1. Estimation Results

Parameter	Value	StandardError	TStatistic	PValue
Constant	0.00038164	0.0093365	0.040876	0.96739
AR{1}	0.33542	0.00045576	735.9563	0
MA{1}	0.41346	0.00045303	912.6553	0
MA{2}	0.010777	0.0003062	35.1966	2.25e-271
Variance	83.5757	0.0076121	10979.2628	0

Tabela 6.2. Goodness of Fit

AIC	14434158.5358
BIC	14434221.0469

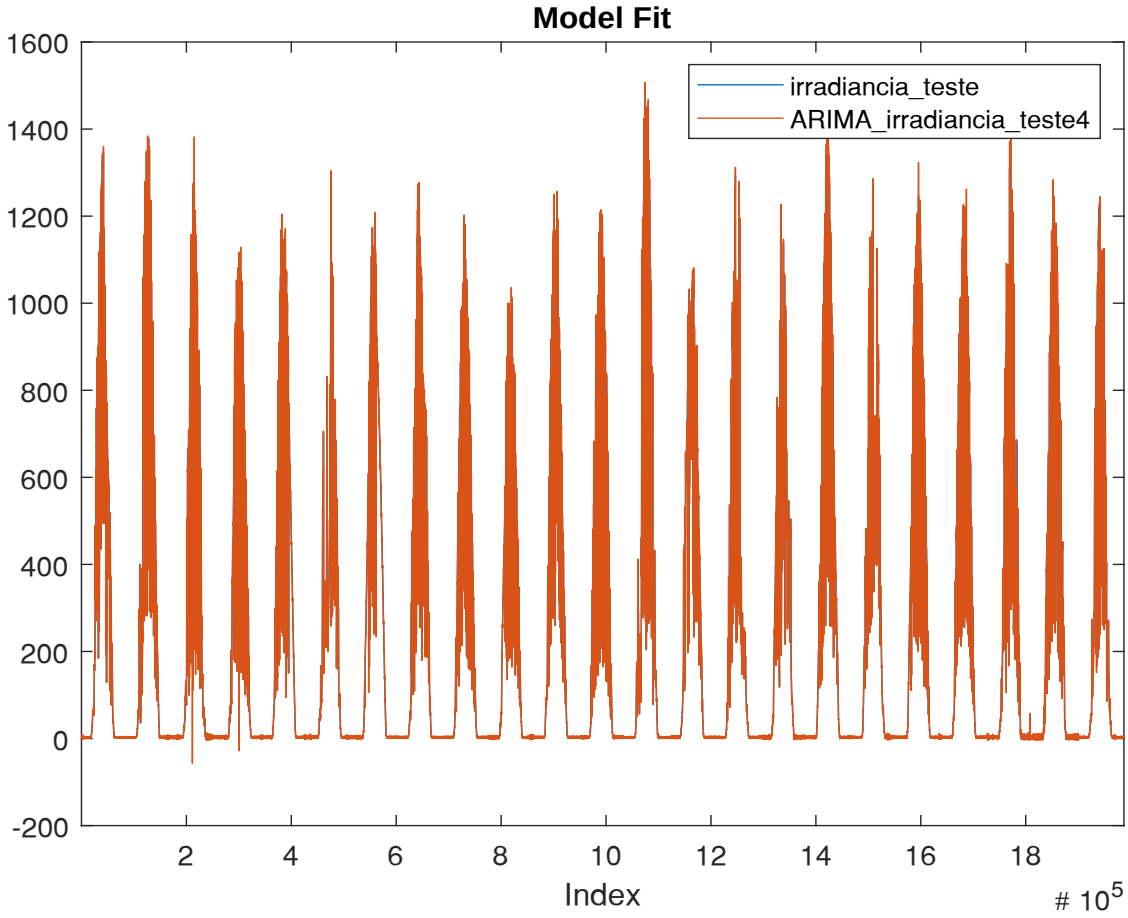

Figura 6.1. Plot the fit of model ARIMA_irradiancia_teste4 time series irradiancia_teste

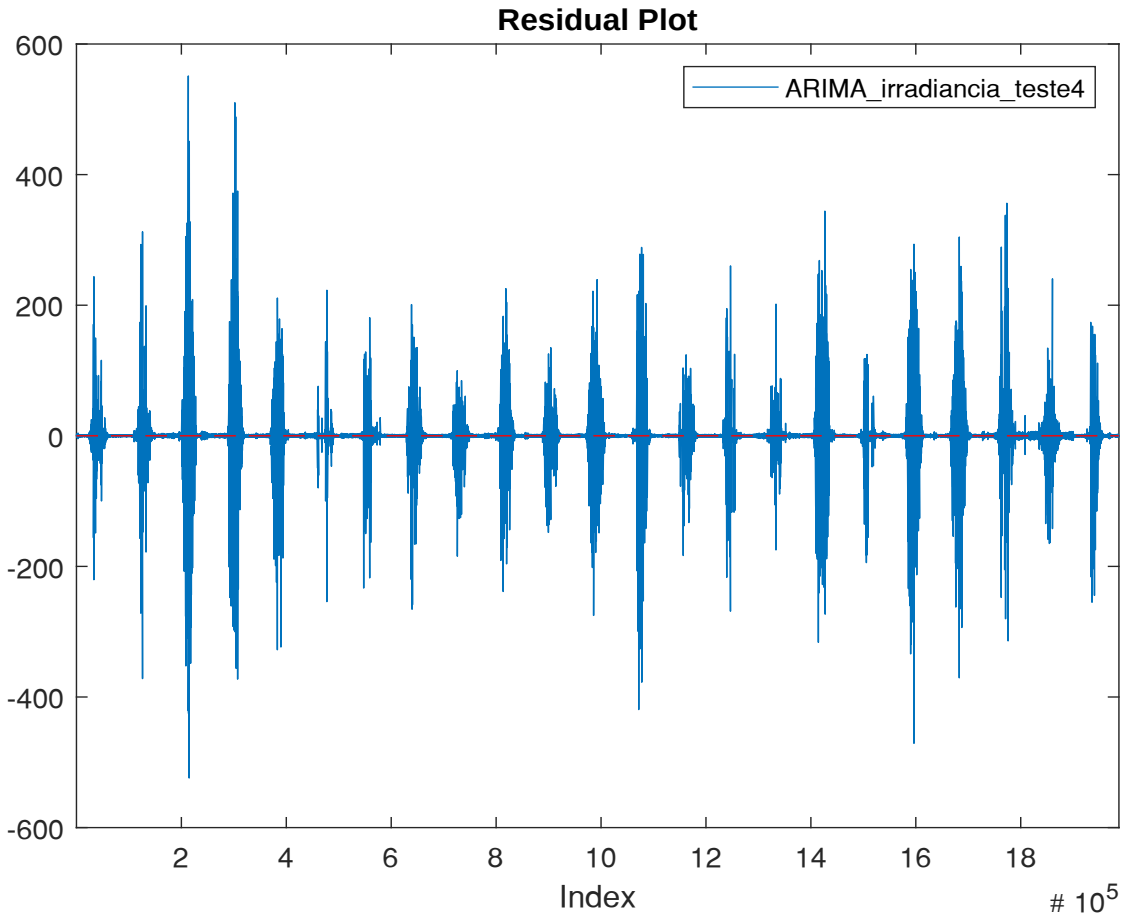

Figura 6.2. Plot of the residuals of model ARIMA_irradiancia_teste4

7. ARIMA(1,1,1) Model (Gaussian Distribution) (ARIMA_irradiancia_teste5)

Autoregressive integrated moving average model of time series irradiancia_teste with the following equation:

$$(1 - \phi_1 L)(1 - L)y_t \;=\; c \;+\; (1 + \theta_1 L)\varepsilon_t$$

7.1. Model Estimation

Tabela 7.1. Estimation Results

Parameter	Value	StandardError	TStatistic	PValue
Constant	0.00019036	0.0091637	0.020773	0.98343
AR{1}	0.34978	0.00013245	2640.7921	0
MA{1}	0.39859	0.00012266	3249.6301	0
Variance	83.5744	0.0076035	10991.5325	0

Tabela 7.2. Goodness of Fit

AIC	14434184.7745
BIC	14434234.7834

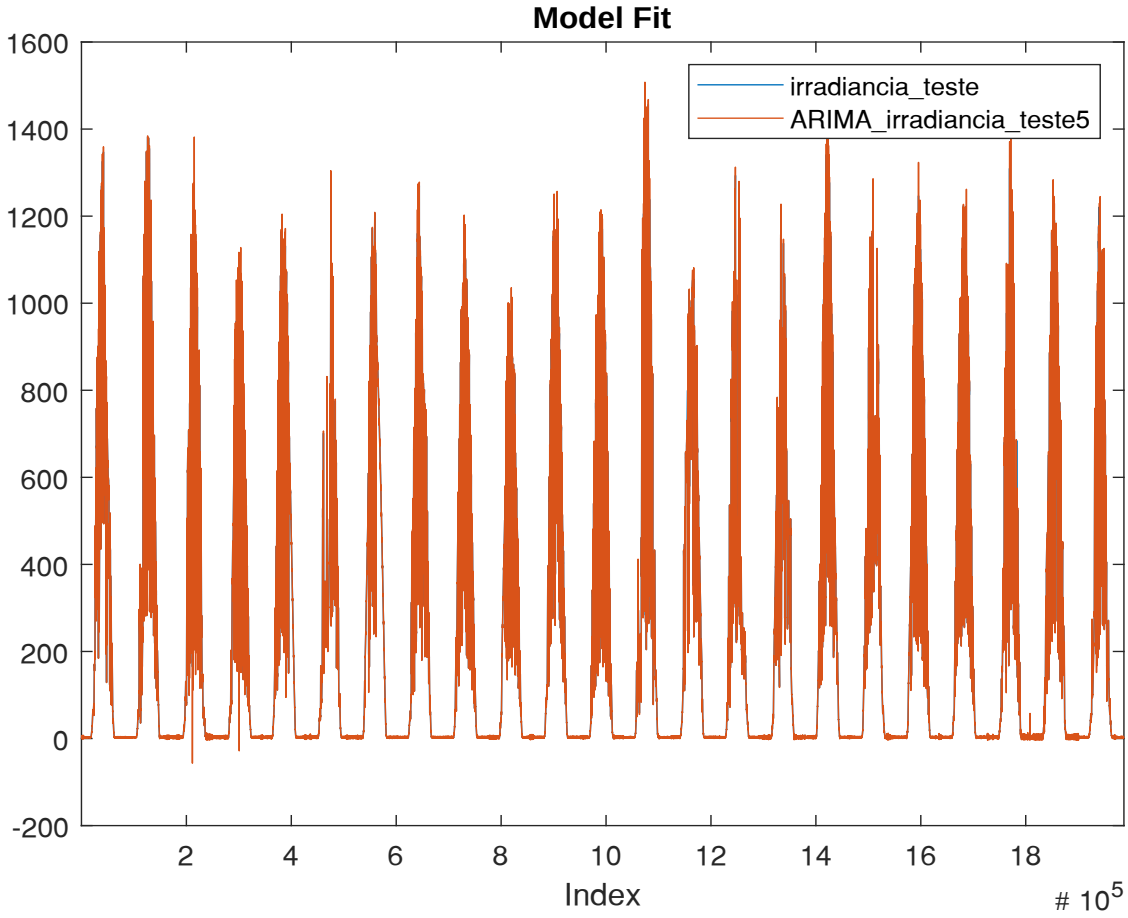

Figura 7.1. Plot the fit of model ARIMA_irradiancia_teste5 time series irradiancia_teste

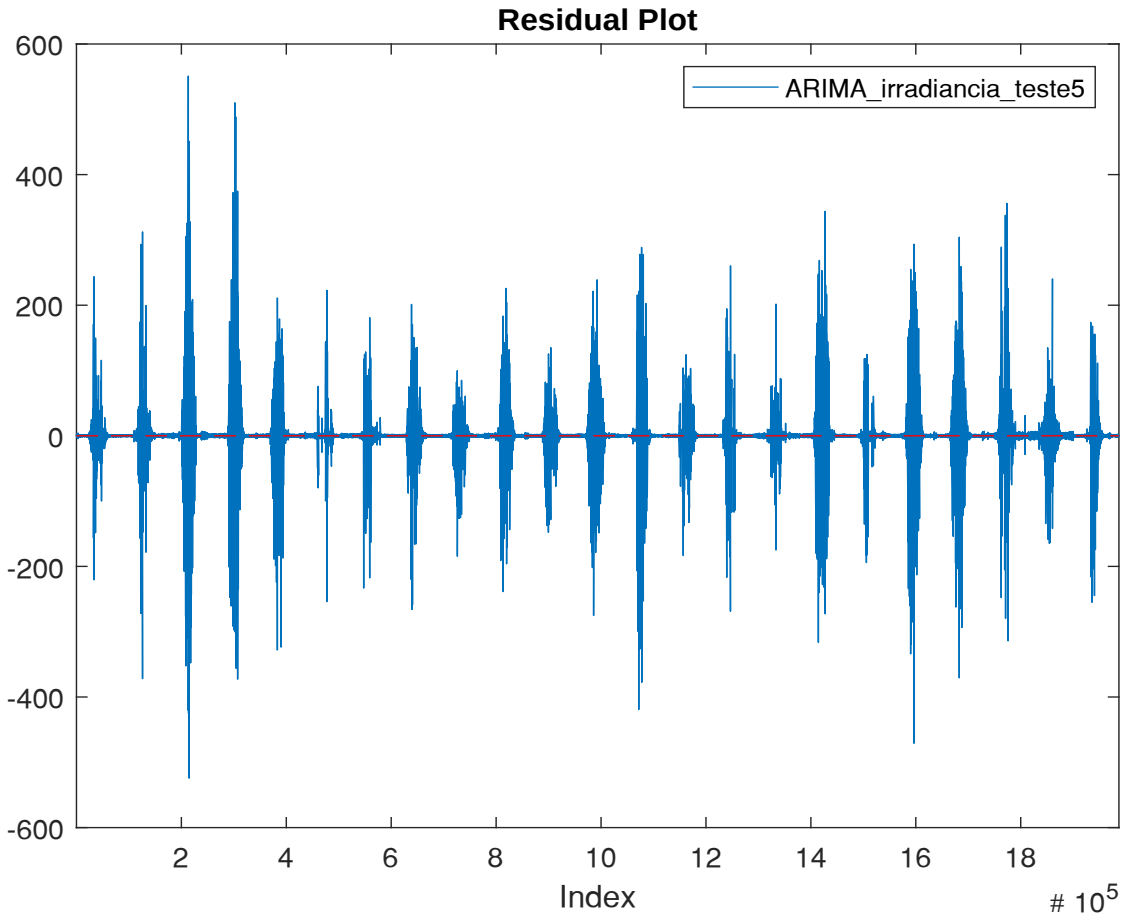

Figura 7.2. Plot of the residuals of model ARIMA_irradiancia_teste5

8. ARIMA(1,1,0) Model (Gaussian Distribution) (ARIMA_irradiancia_teste6)

Autoregressive integrated moving average model of time series irradiancia_teste with the following equation:

$$(1 - \phi_1 L)(1 - L)y_t \ = \ c \ + \ \varepsilon_t$$

8.1. Model Estimation

Tabela 8.1. Estimation Results

Parameter	Value	StandardError	TStatistic	PValue
Constant	1.3038e-05	0.0067536	0.0019305	0.99846
AR{1}	0.59273	6.95e-05	8528.5002	0
Variance	88.8078	0.0081338	10918.3591	0

Tabela 8.2. Goodness of Fit

AIC	14554844.8732
BIC	14554882.3799

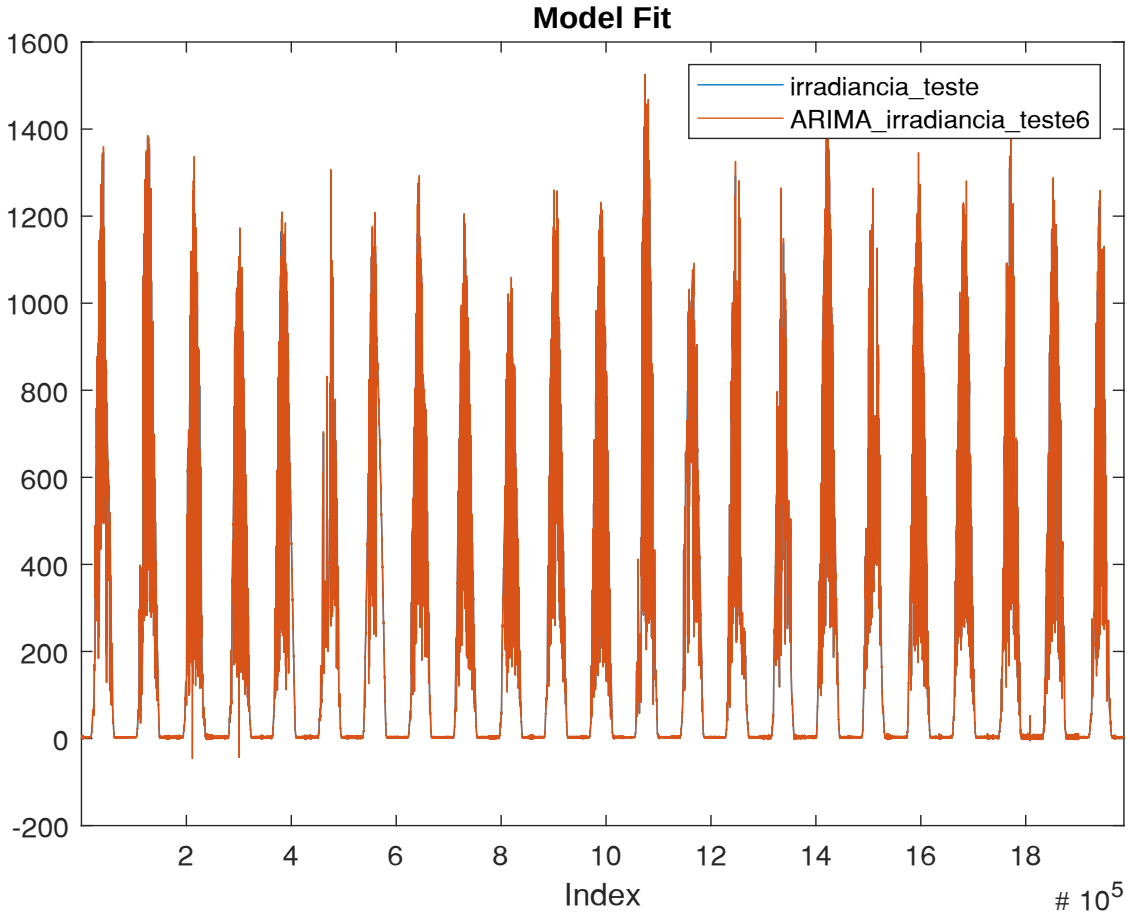

Figura 8.1. Plot the fit of model ARIMA_irradiancia_teste6 time series irradiancia_teste

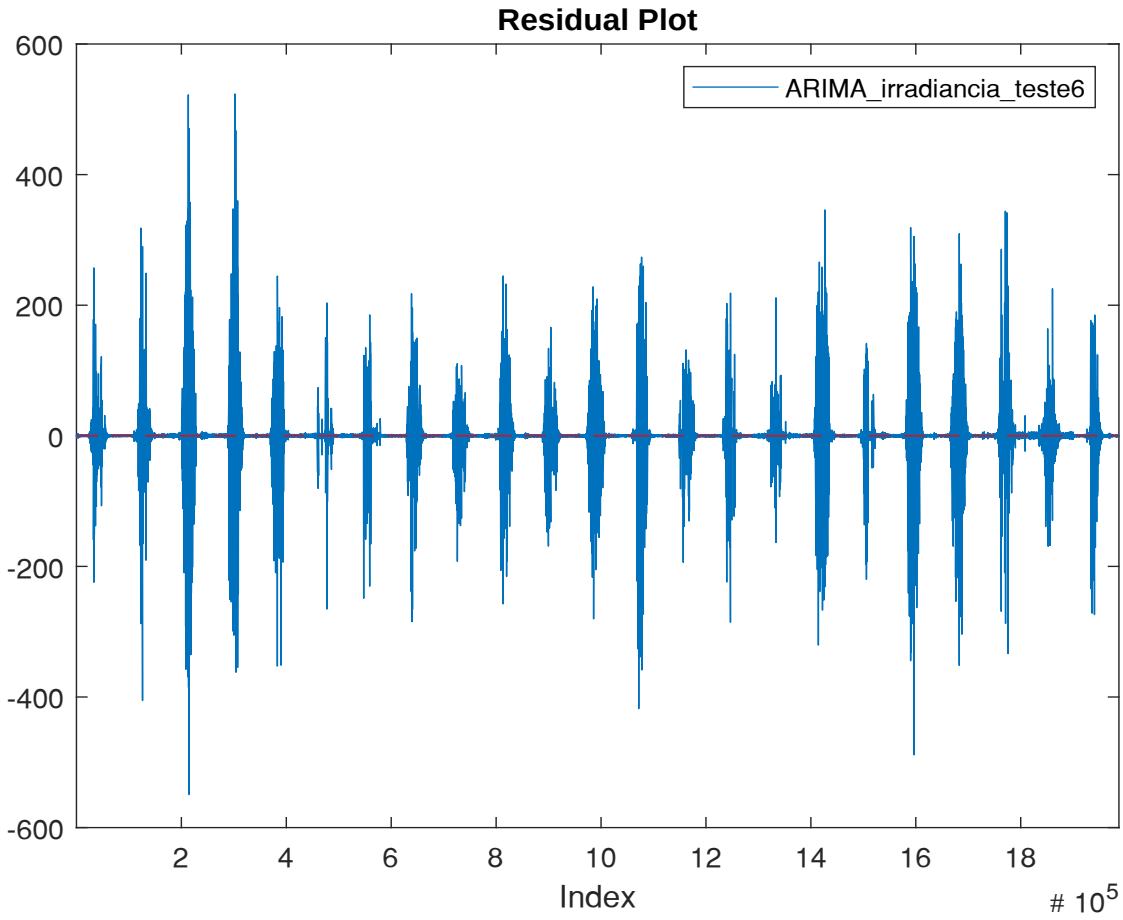

Figura 8.2. Plot of the residuals of model ARIMA_irradiancia_teste6

9. ARIMA(0,1,2) Model (Gaussian Distribution) (ARIMA_irradiancia_teste7)

Autoregressive integrated moving average model of time series irradiancia_teste with the following equation:

$$(1 - L)y_t \;=\; c \;+\; (1 + \theta_1 L + \theta_2 L^2)\varepsilon_t$$

9.1. Model Estimation

Tabela 9.1. Estimation Results

Parameter	Value	StandardError	TStatistic	PValue
Constant	-3.4683e-06	0.012739	-0.00027226	0.99978
MA{1}	0.73562	7.2132e-05	10198.2482	0
MA{2}	0.20738	8.6384e-05	2400.7195	0
Variance	84.0326	0.0076589	10971.8418	0

Tabela 9.2. Goodness of Fit

AIC	14445016.4103
BIC	14445066.4192

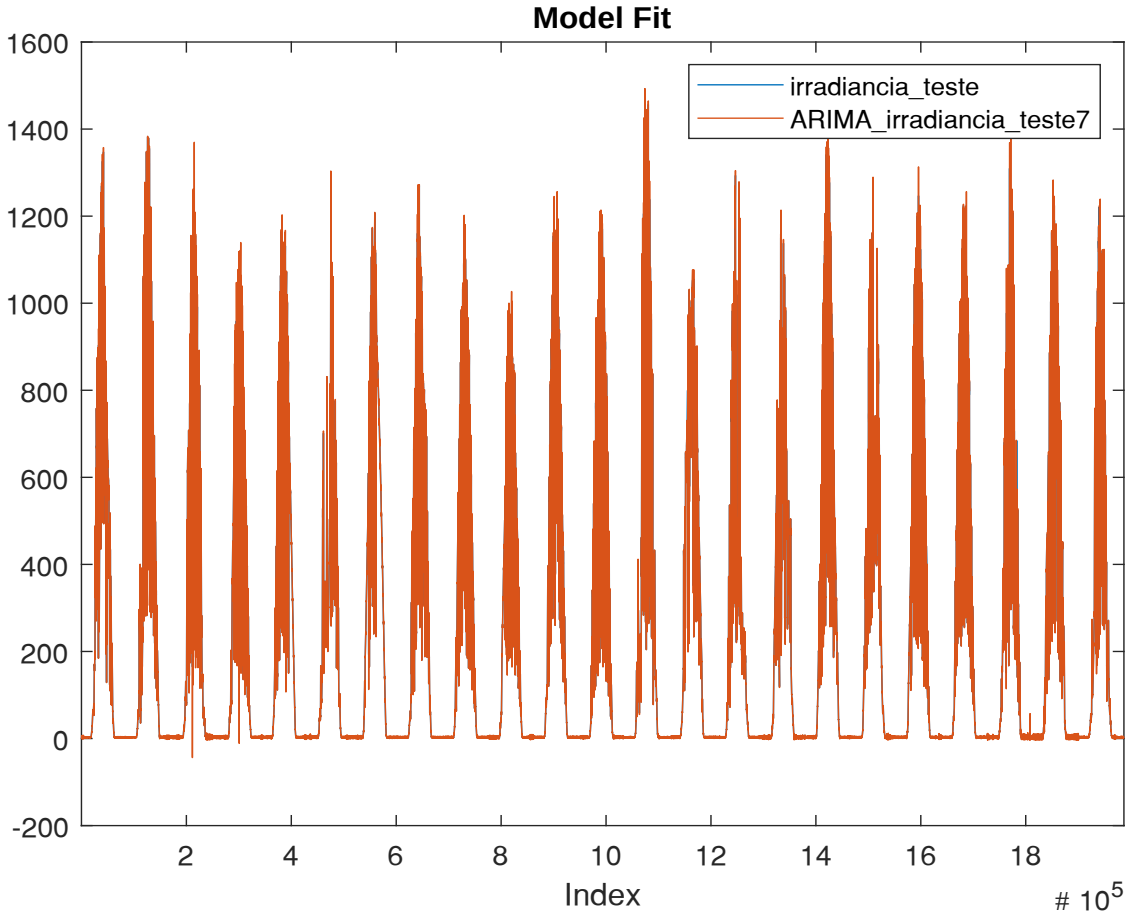

Figura 9.1. Plot the fit of model ARIMA_irradiancia_teste7 time series irradiancia_teste

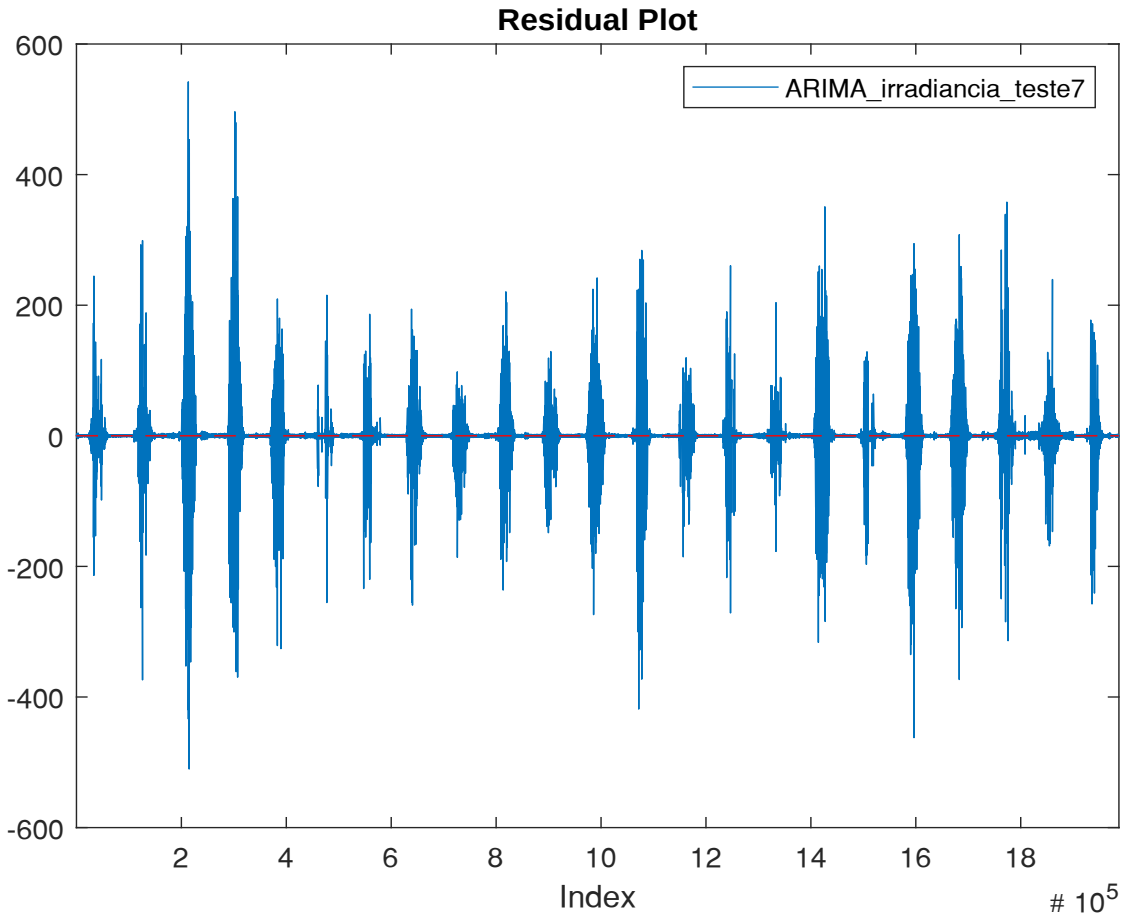

Figura 9.2. Plot of the residuals of model ARIMA_irradiancia_teste7

10. ARIMA(0,1,1) Model (Gaussian Distribution) (ARIMA_irradiancia_teste8)

Autoregressive integrated moving average model of time series irradiancia_teste with the following equation:

$$(1 - L)y_t = c + (1 + \theta_1 L)\varepsilon_t$$

10.1. Model Estimation

Tabela 10.1. Estimation Results

Parameter	Value	StandardError	TStatistic	PValue
Constant	0.00035581	0.010874	0.032721	0.9739
MA{1}	0.62243	6.1965e-05	10044.8583	0
Variance	87.9878	0.0083206	10574.7021	0

Tabela 10.2. Goodness of Fit

AIC	14536414.534
BIC	14536452.0407

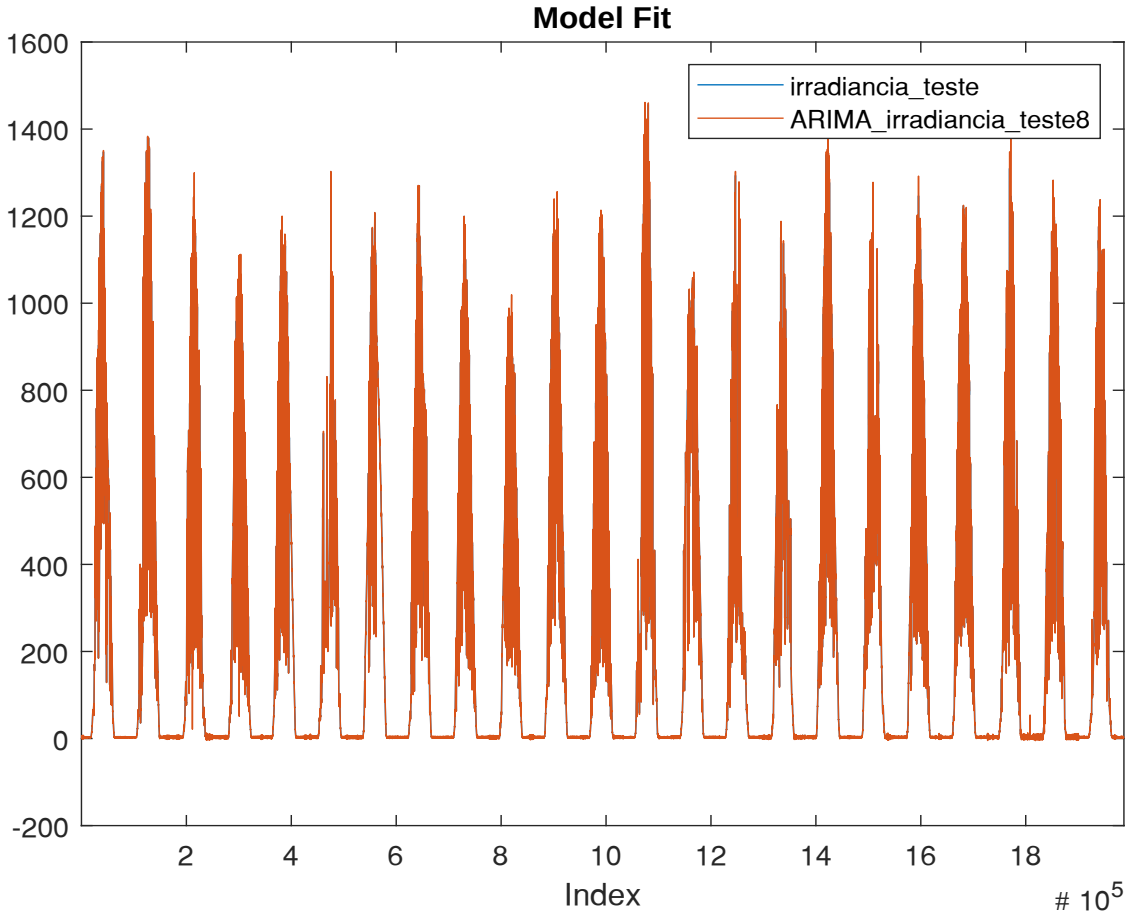

Figura 10.1. Plot the fit of model ARIMA_irradiancia_teste8 time series irradiancia_teste

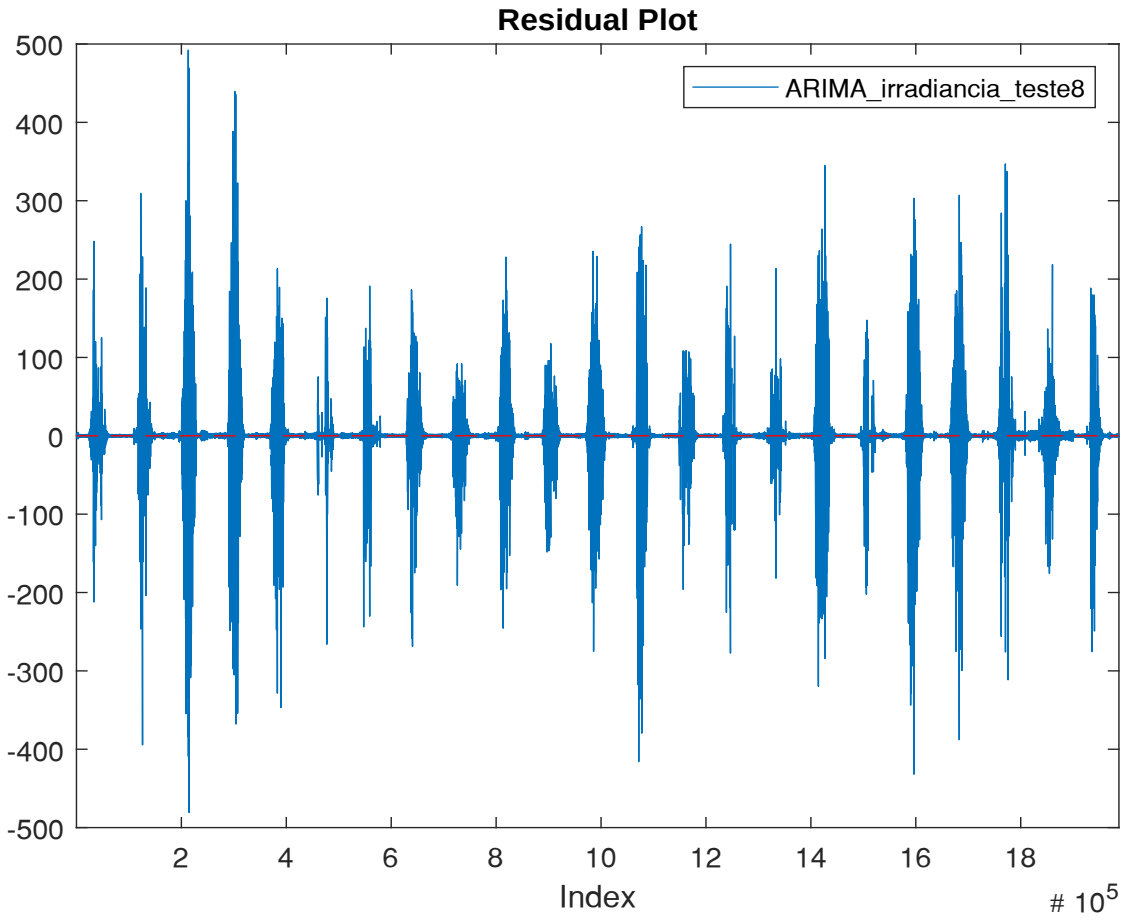

Figura 10.2. Plot of the residuals of model ARIMA_irradiancia_teste8