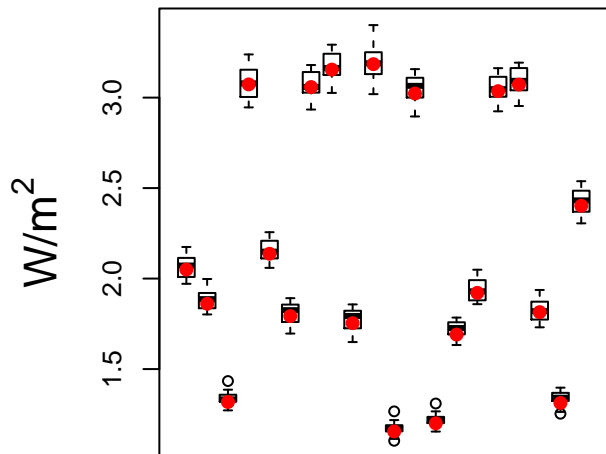
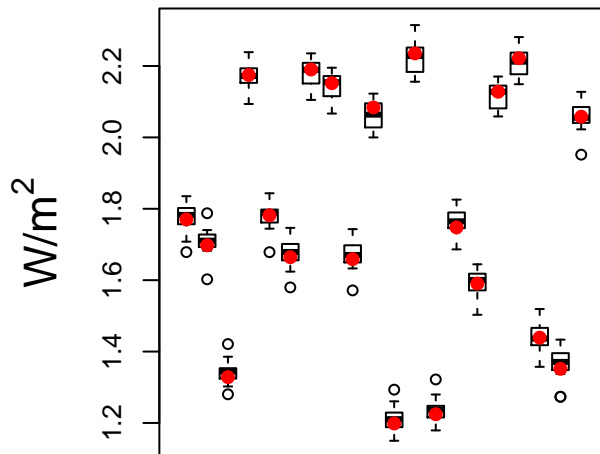


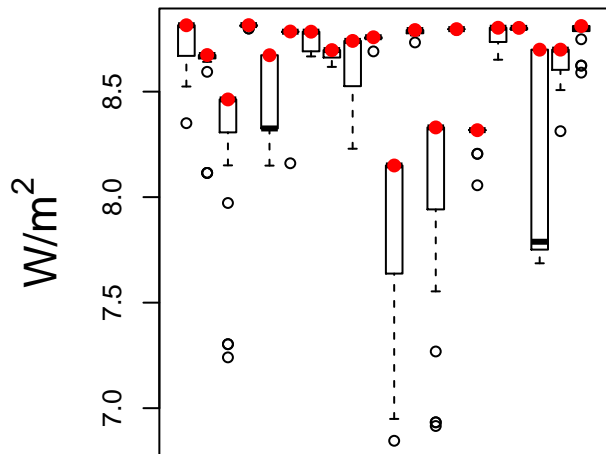
Mean – Wind



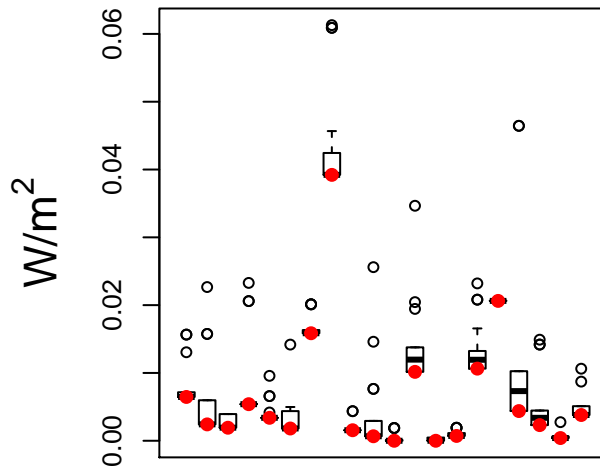
Stan Dev – Wind



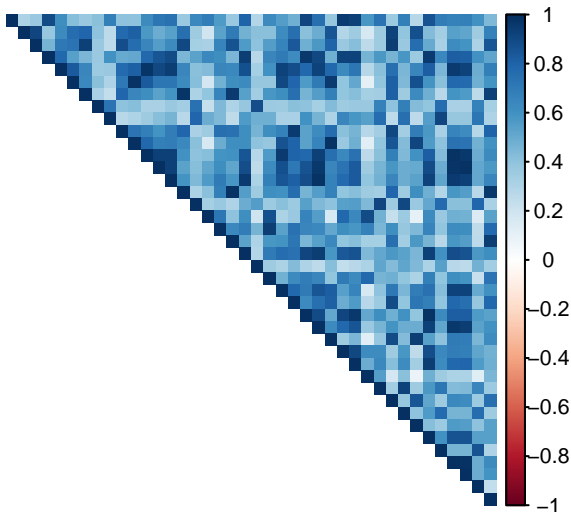
Maximum – Wind



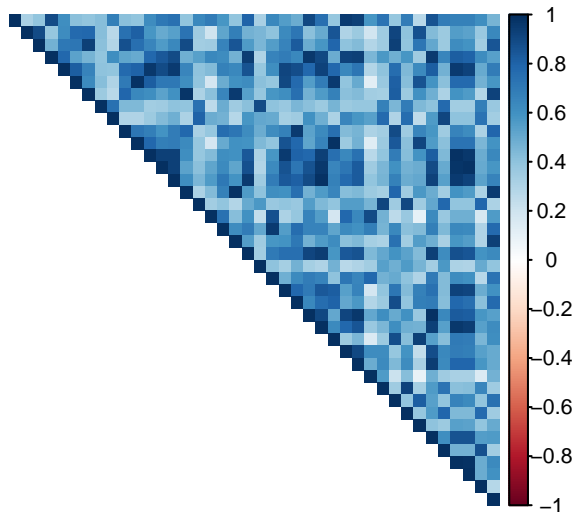
Minimum – Wind



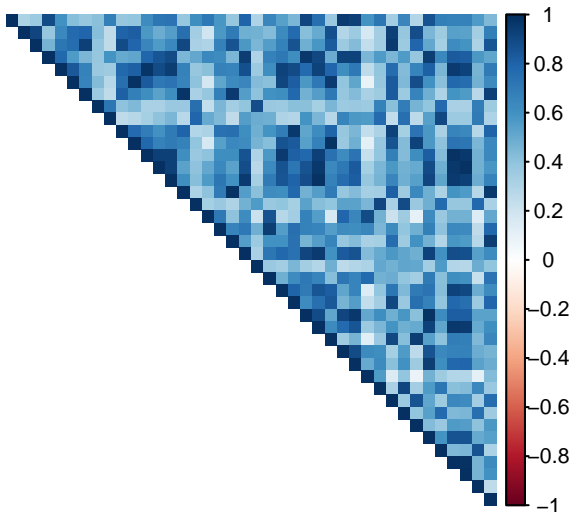
**Cross Correlation  
Data**



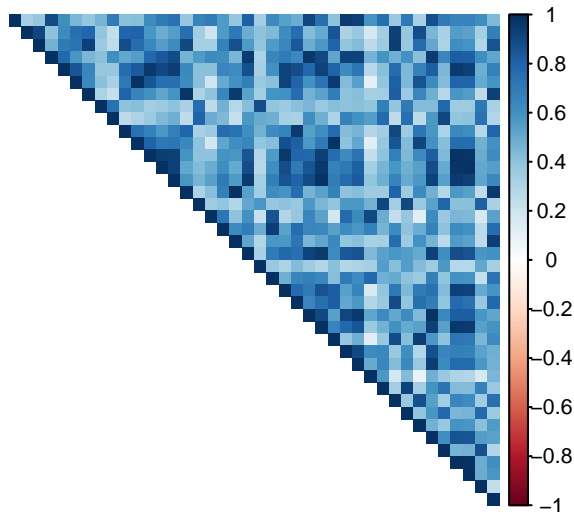
**Cross Correlation  
Simulation Run – 5**



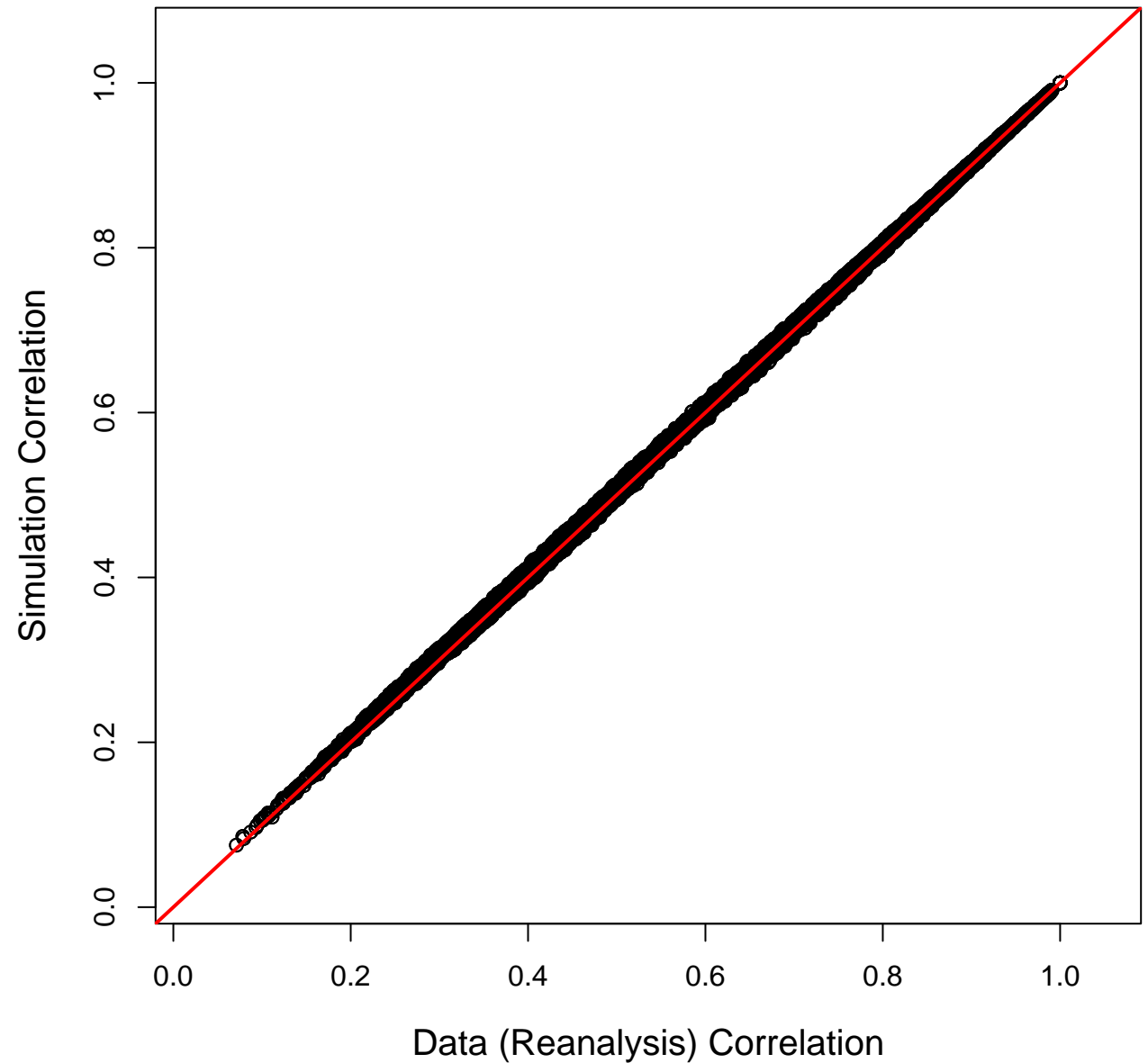
**Cross Correlation  
Simulation Run – 20**



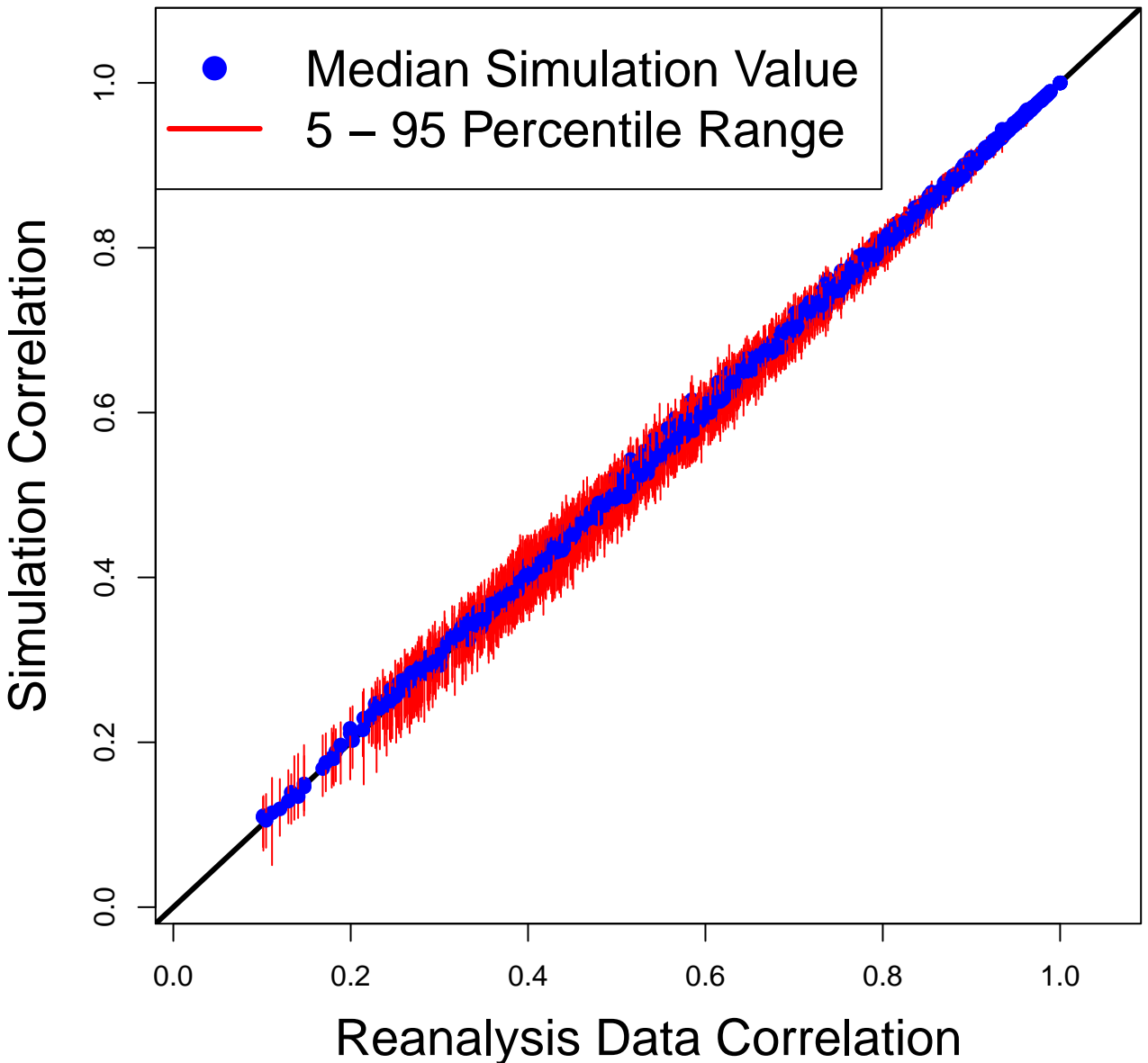
**Cross Correlation  
Simulation Run – 12**



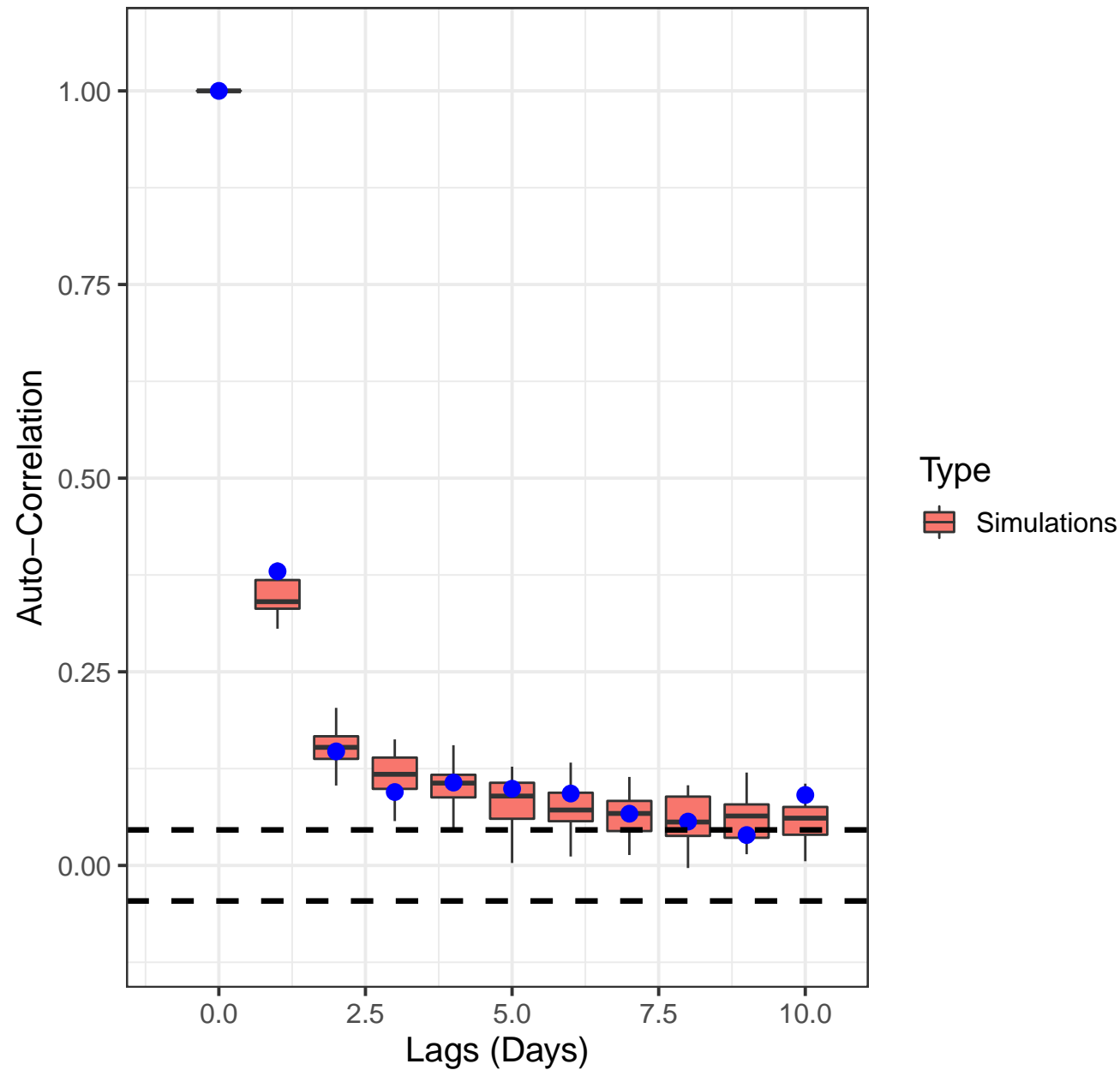
## Cross Site Correlations – Wind



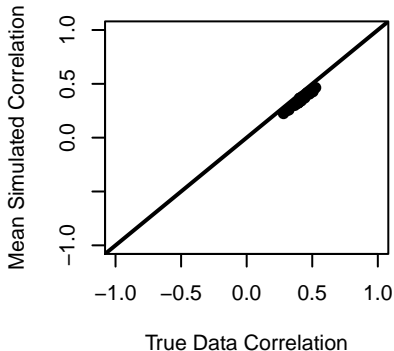
## Cross Site Correlations – Wind



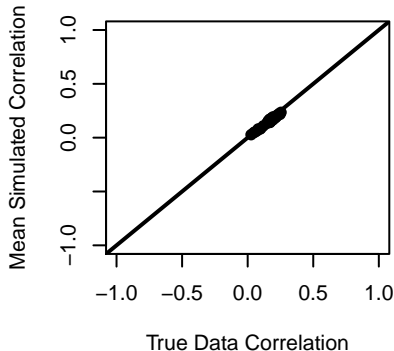
# ACF – Single Random Site – Wind



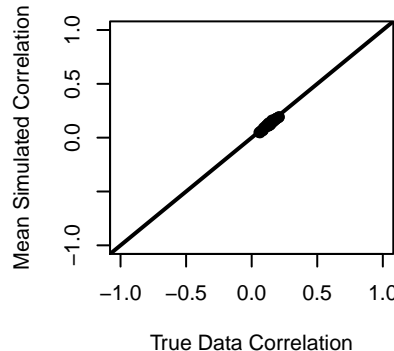
**Lag-1 Correlations – Wind**



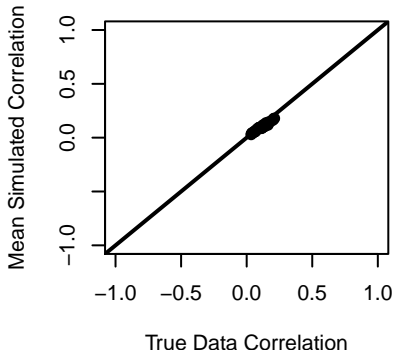
**Lag-2 Correlations – Wind**



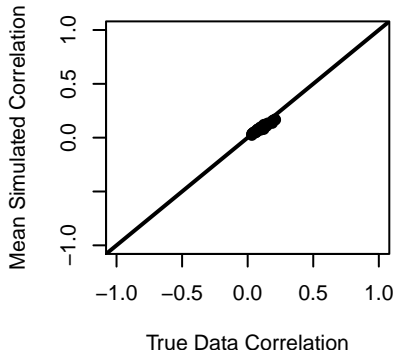
**Lag-3 Correlations – Wind**



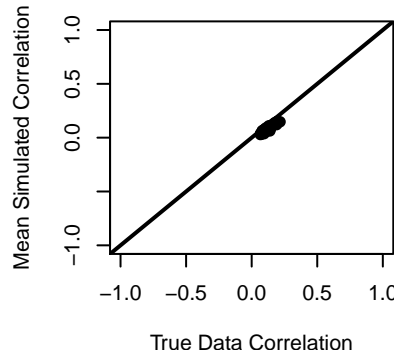
**Lag-4 Correlations – Wind**



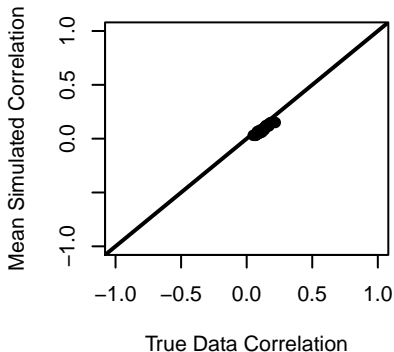
**Lag-5 Correlations – Wind**



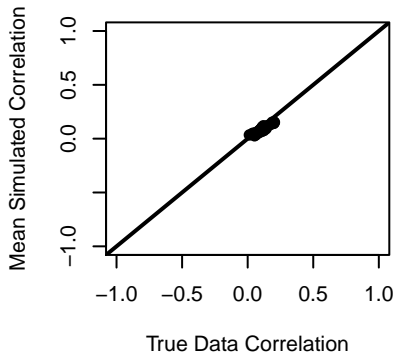
**Lag-6 Correlations – Wind**



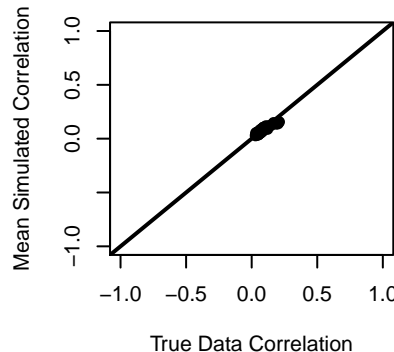
**Lag-7 Correlations – Wind**



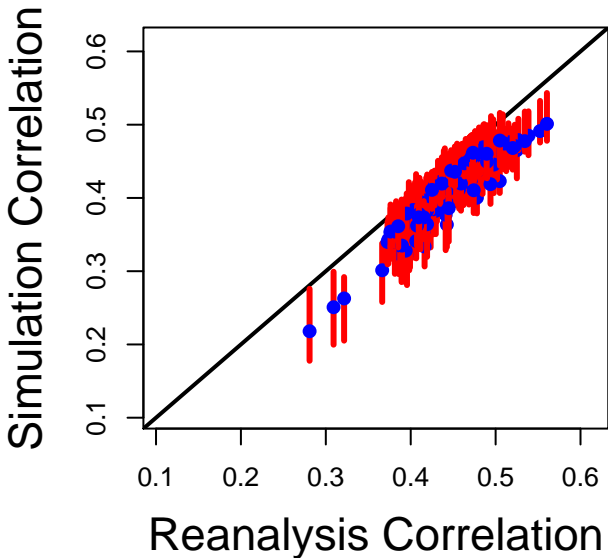
**Lag-8 Correlations – Wind**



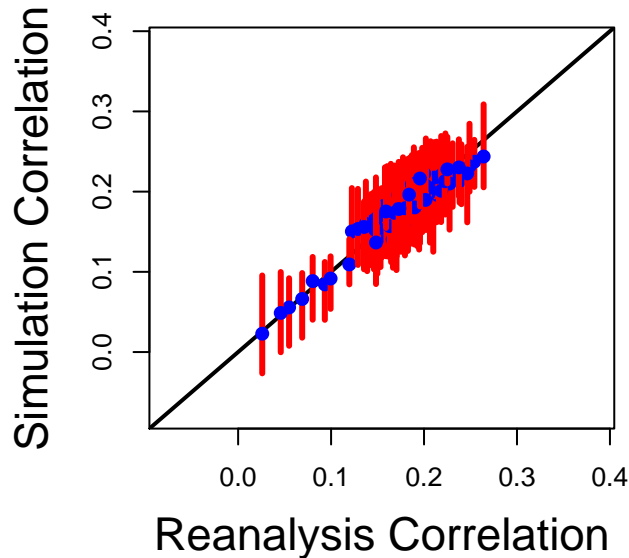
**Lag-9 Correlations – Wind**



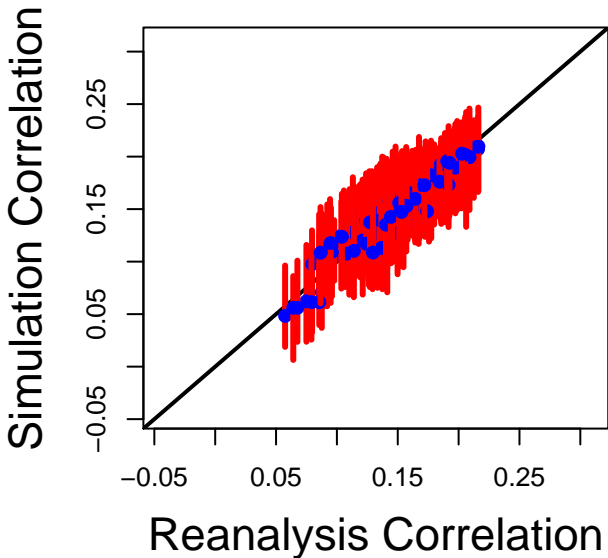
**Lag-1 - Wind**



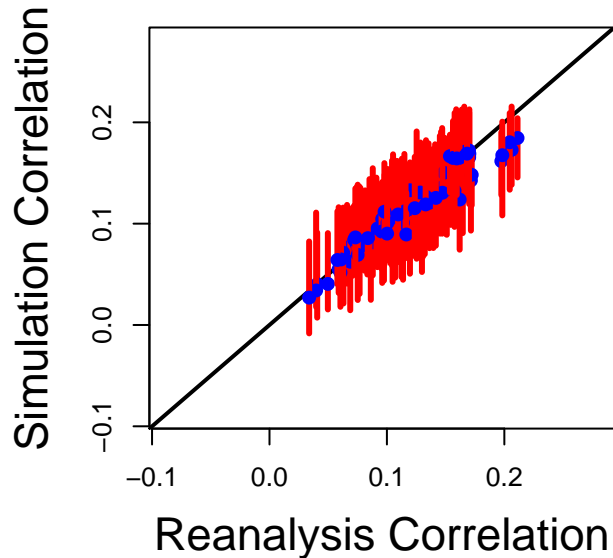
**Lag-2 - Wind**



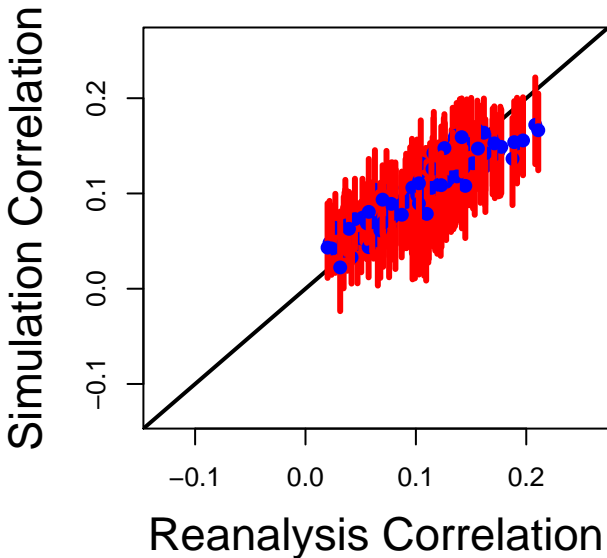
**Lag-3 - Wind**



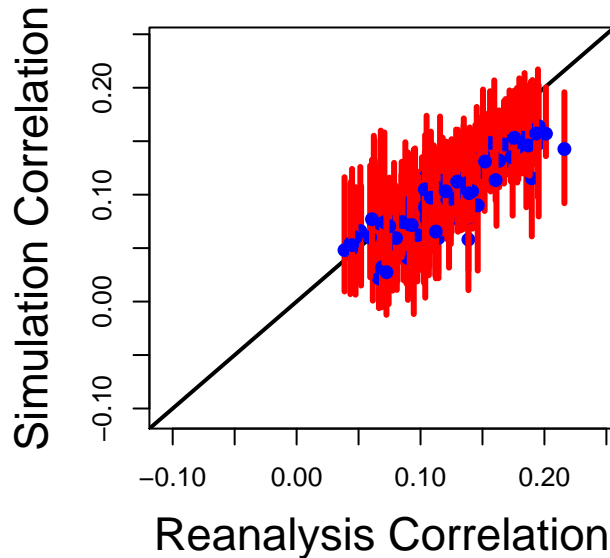
**Lag-4 - Wind**



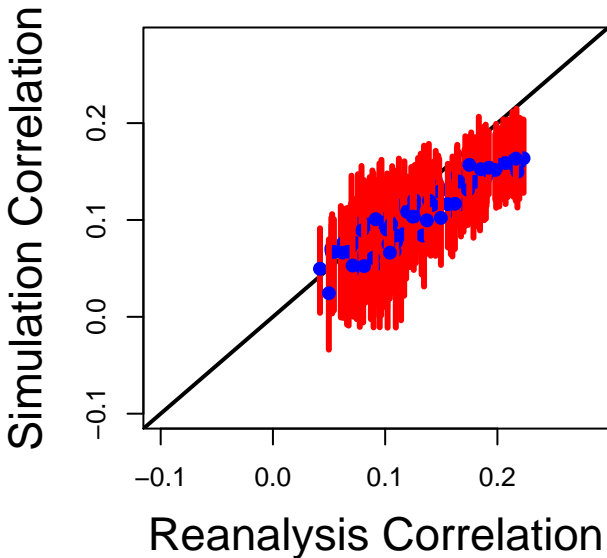
**Lag-5 - Wind**



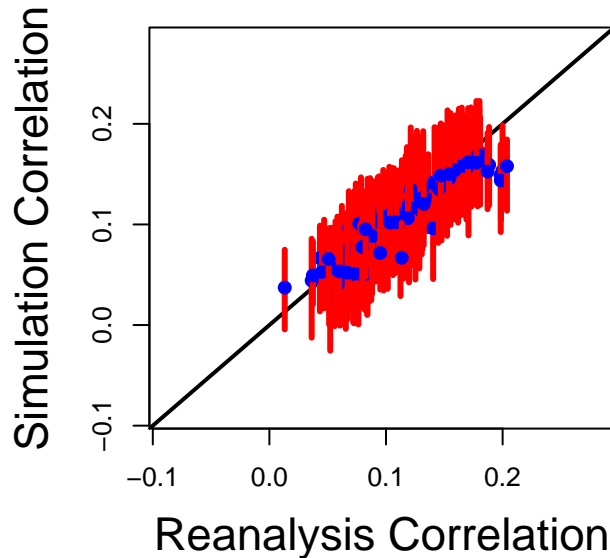
**Lag-6 - Wind**



**Lag-7 - Wind**

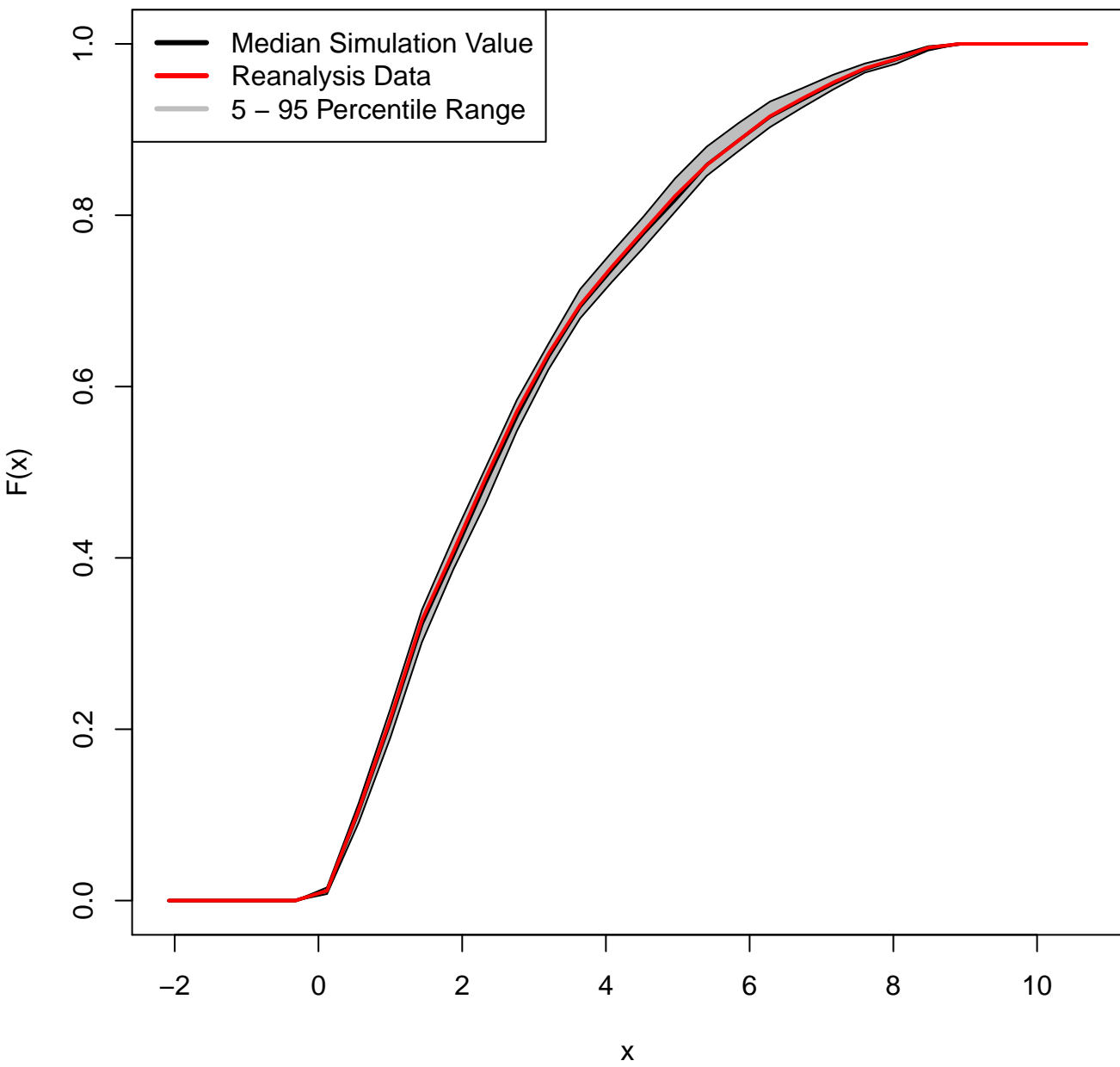


**Lag-8 - Wind**

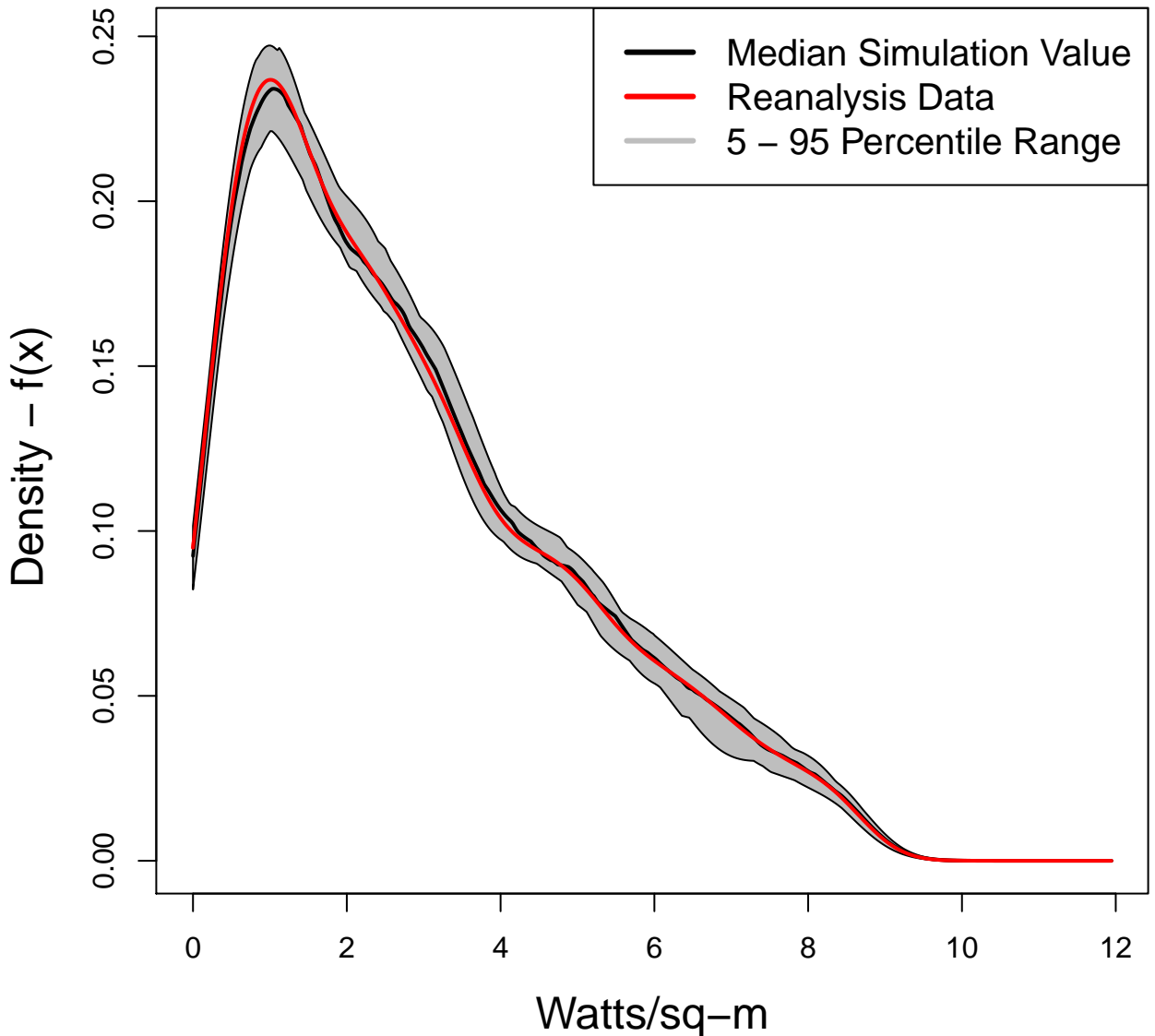




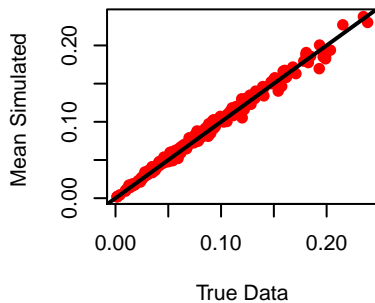
**True vs Simulated CDF for Single Site – Wind**



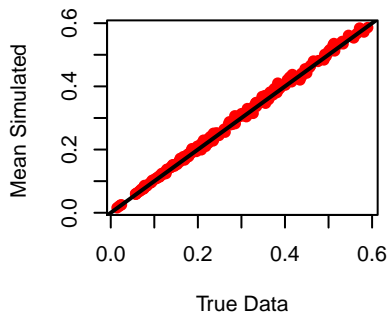
# PDF at a single site – Wind



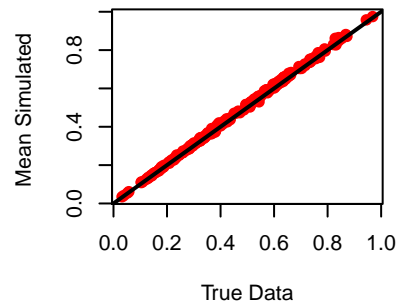
**Quantile – 1th – Wind**



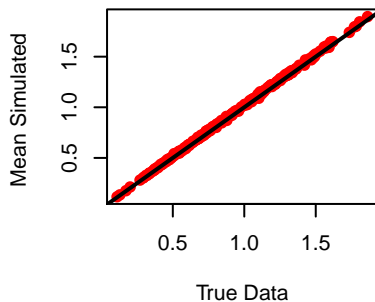
**Quantile – 5th – Wind**



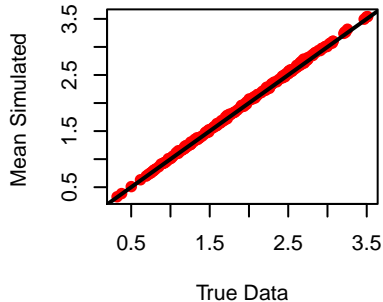
**Quantile – 10th – Wind**



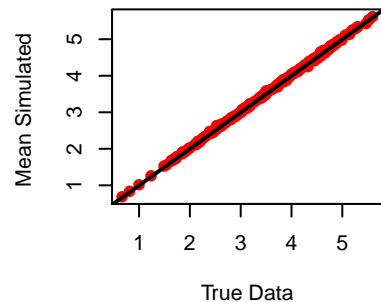
**Quantile – 25th – Wind**



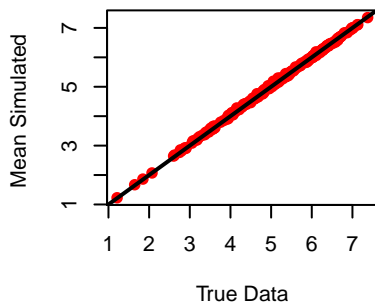
**Quantile – 50th – Wind**



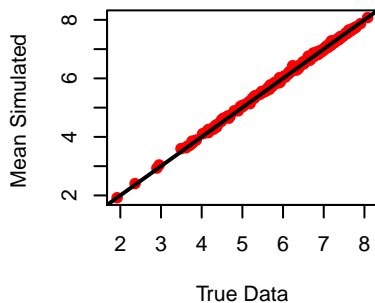
**Quantile – 75th – Wind**



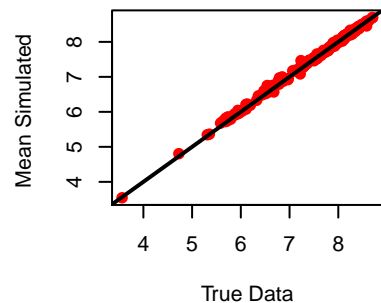
**Quantile – 90th – Wind**



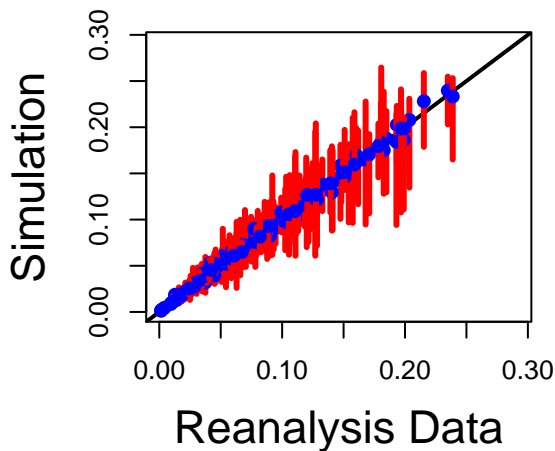
**Quantile – 95th – Wind**



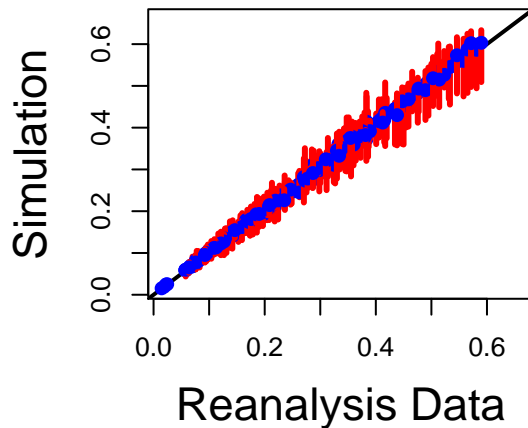
**Quantile – 99th – Wind**



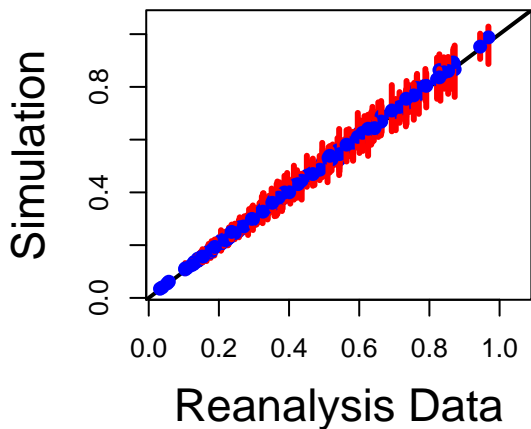
### 1th Quantile – Wind



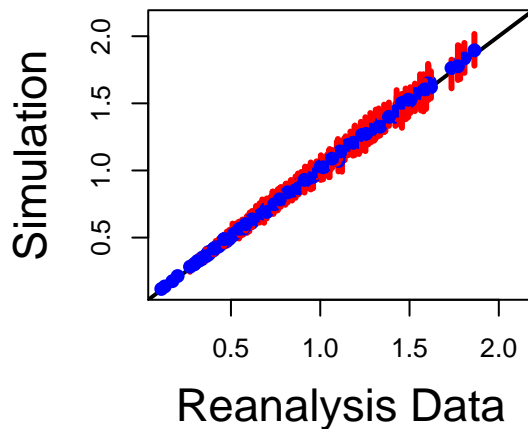
### 5th Quantile – Wind



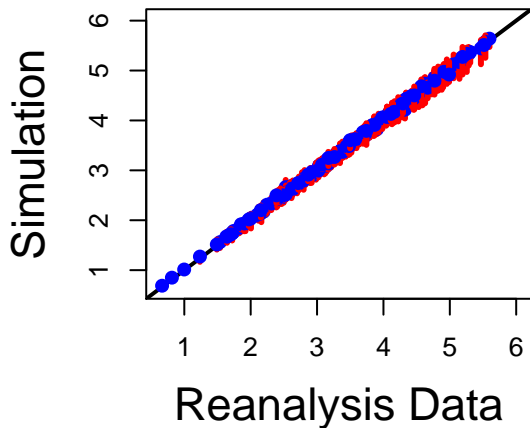
### 10th Quantile – Wind



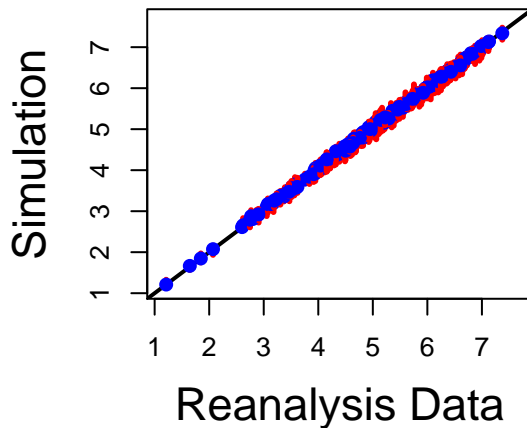
### 25th Quantile – Wind



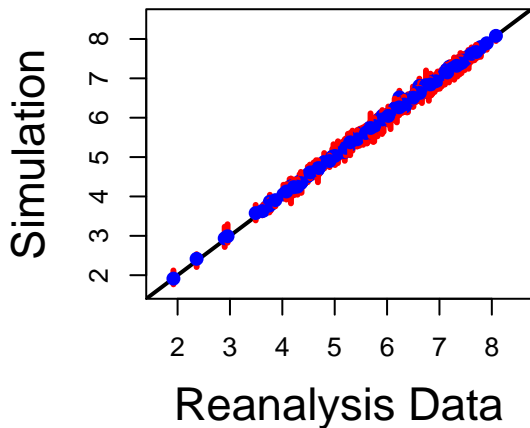
### 75th Quantile – Wind



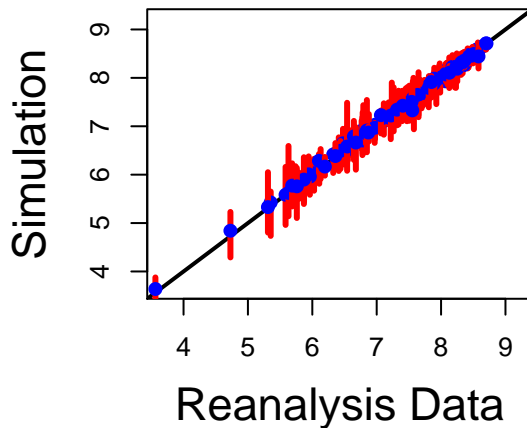
### 90th Quantile – Wind



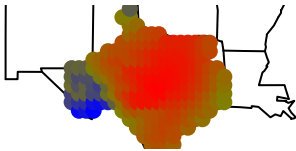
### 95th Quantile – Wind



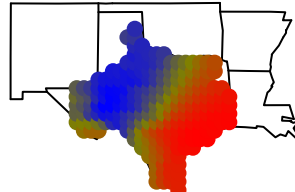
### 99th Quantile – Wind



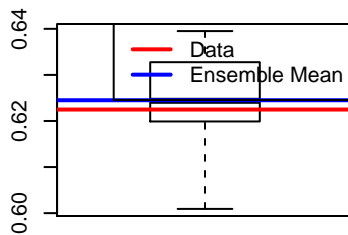
**PC-1 – Wind-62%**



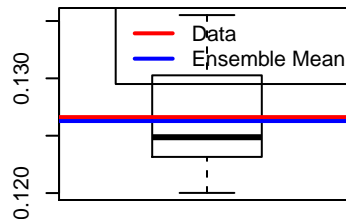
**PC-2 – Wind-13%**



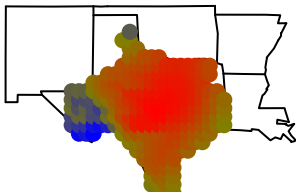
**Simulated PC-1 Variance Wind**



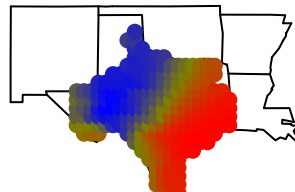
**Simulated PC-2 Variance Wind**



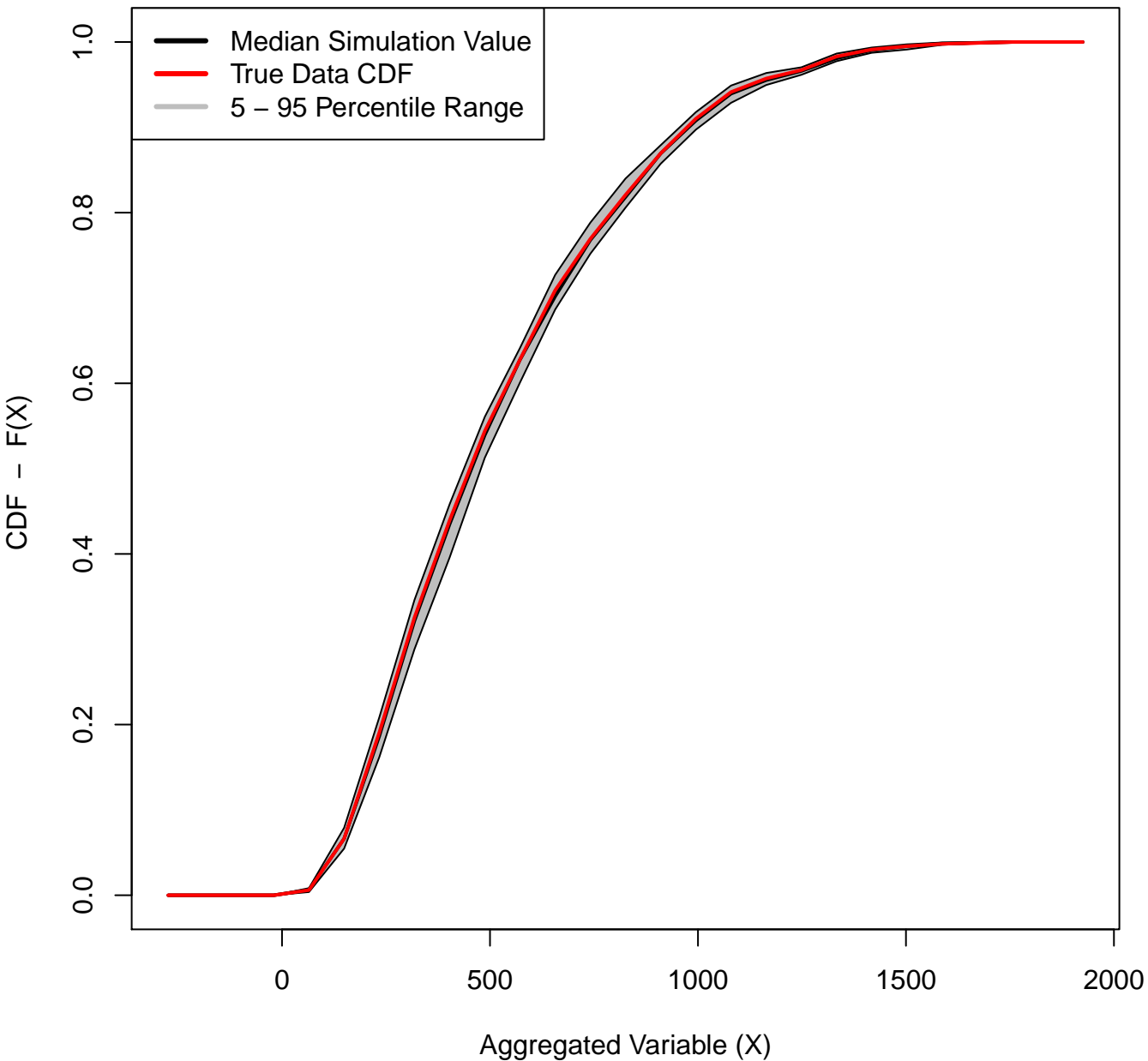
**Ensemble Mean PC-1 – Wind-62%**



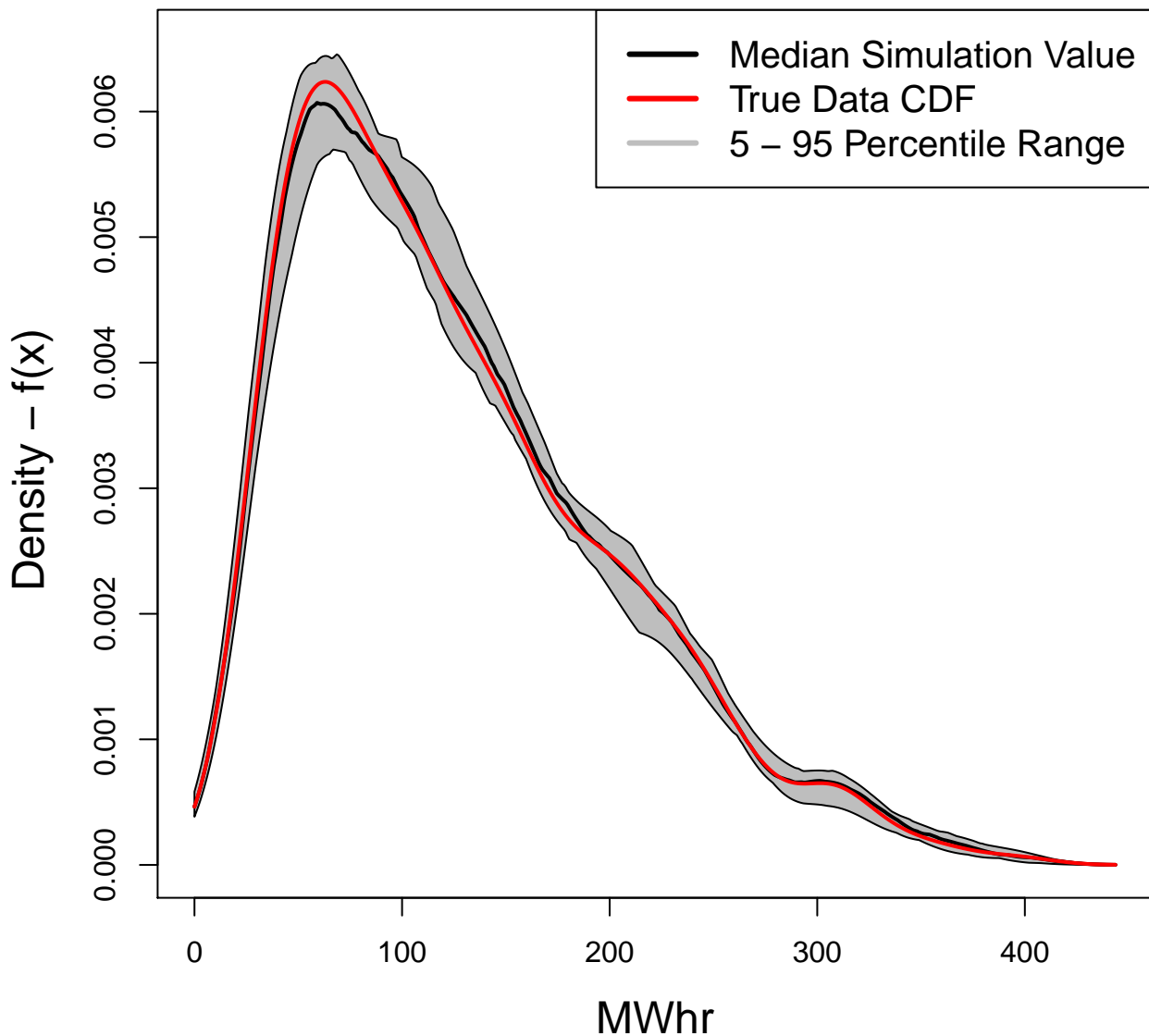
**Ensemble Mean PC-2 – Wind-13%**



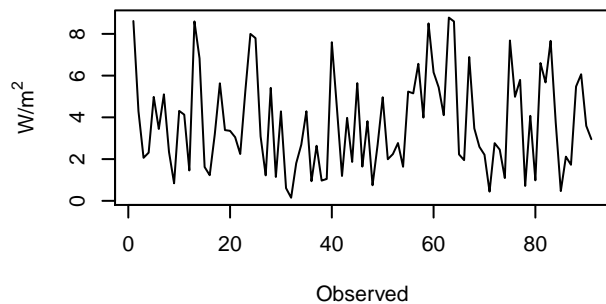
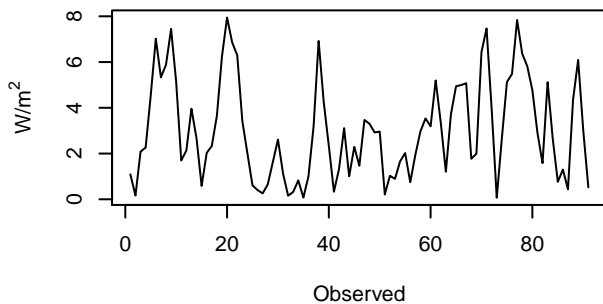
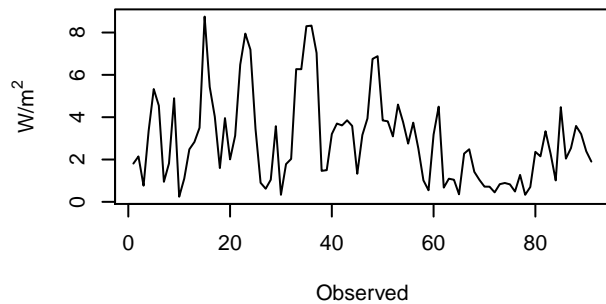
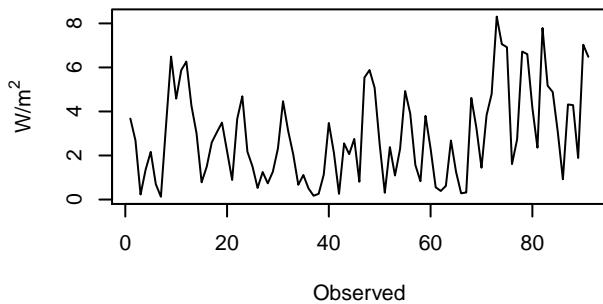
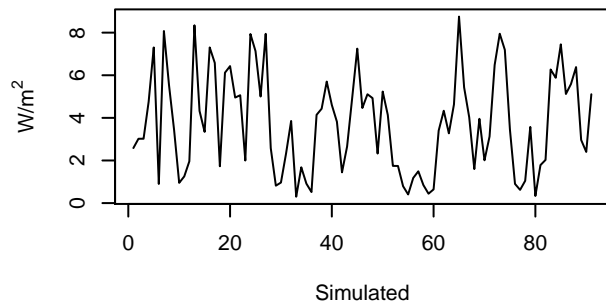
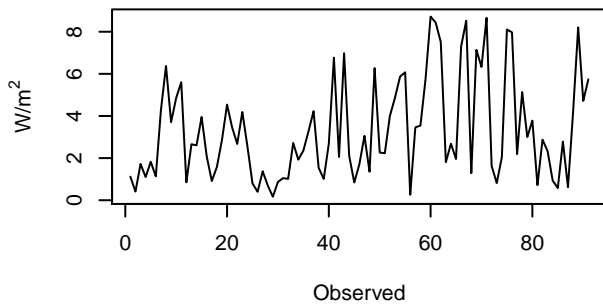
## Simulated CDF for Entire Field – Wind



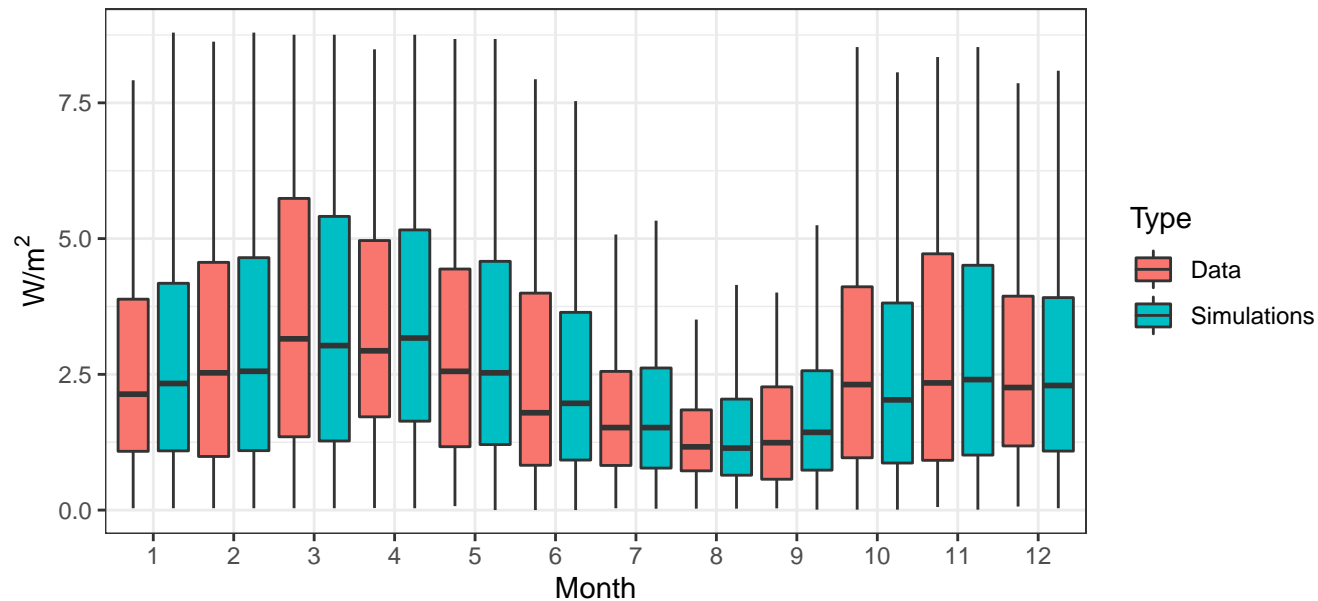
## Daily Generation Potential across ERCOT – Wind



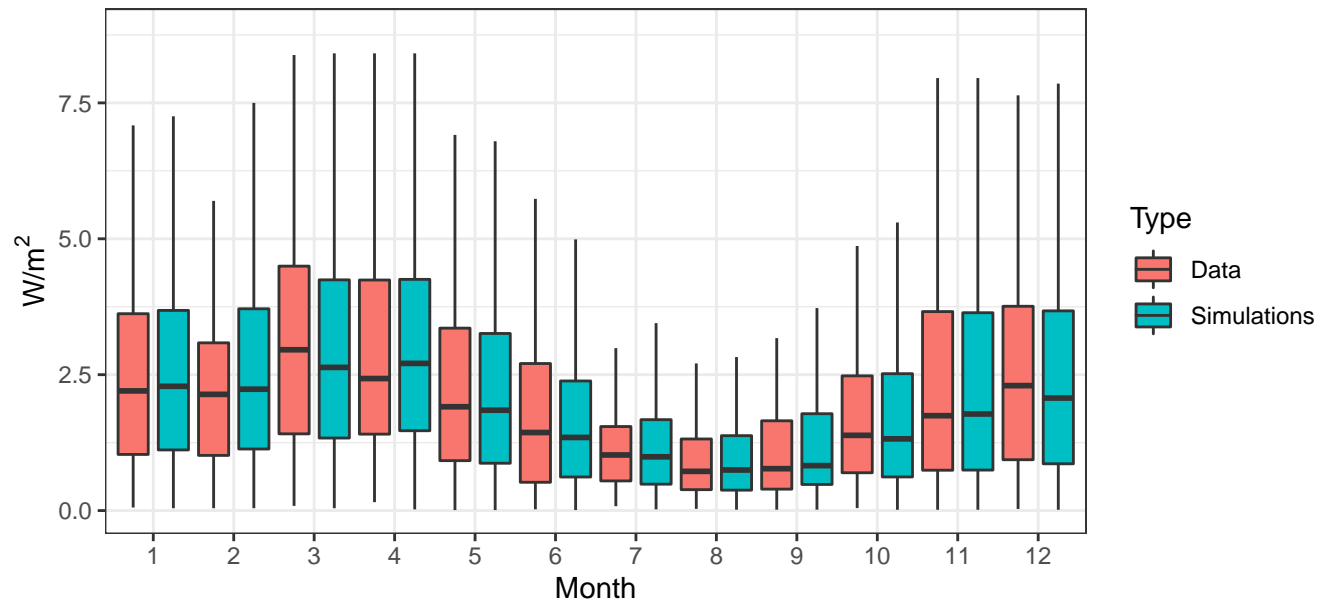




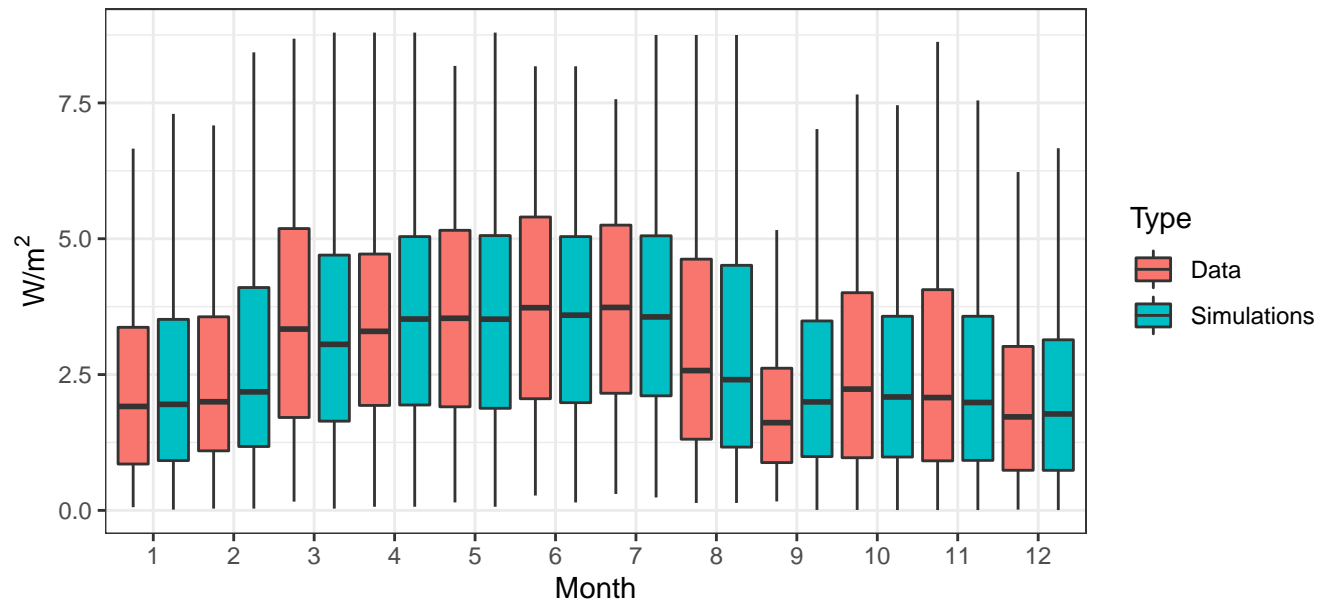
### Wind Distribution for Site/Grid – 139



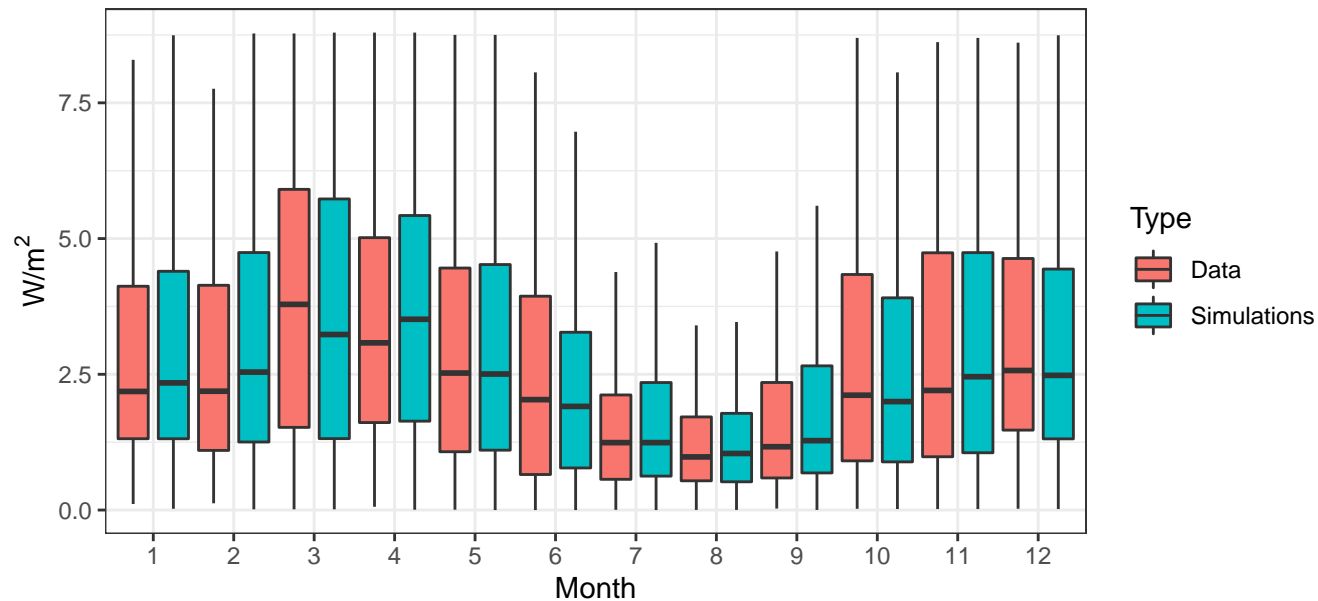
### Wind Distribution for Site/Grid – 161



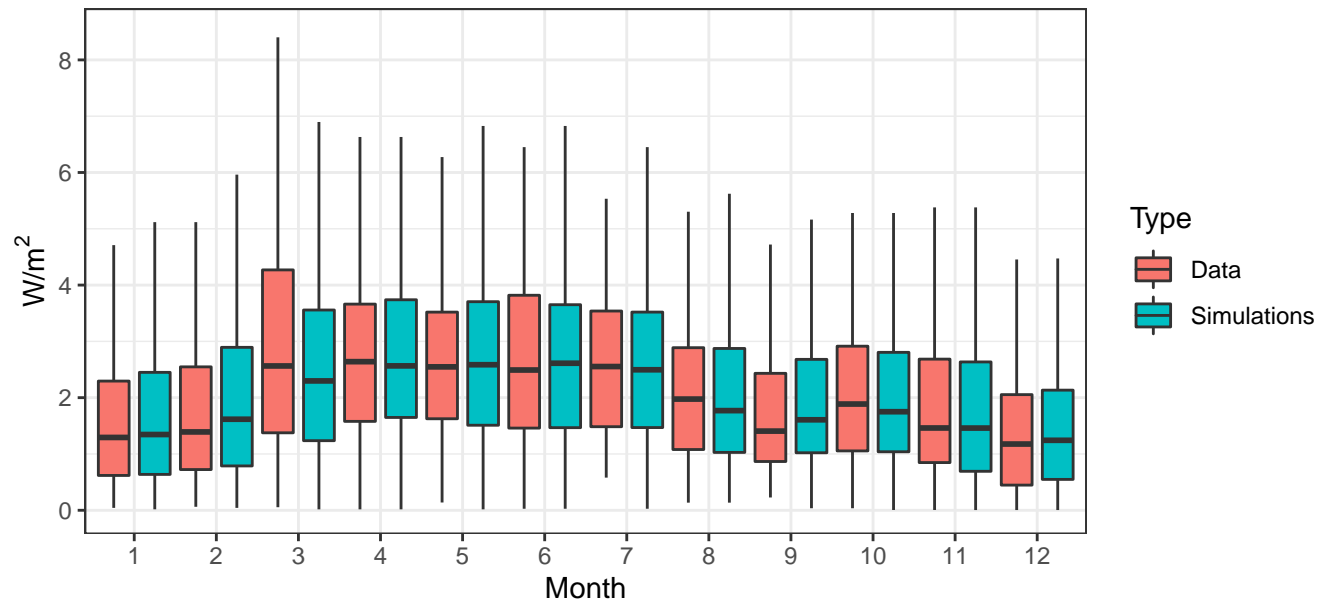
### Wind Distribution for Site/Grid – 95



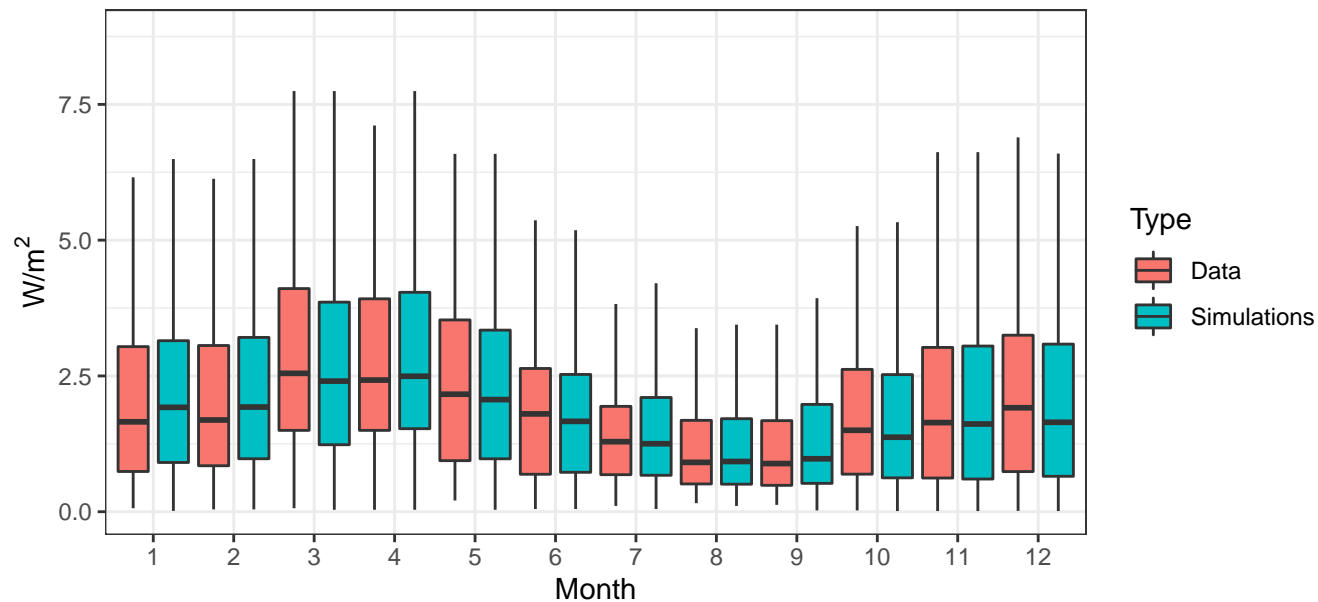
### Wind Distribution for Site/Grid – 178



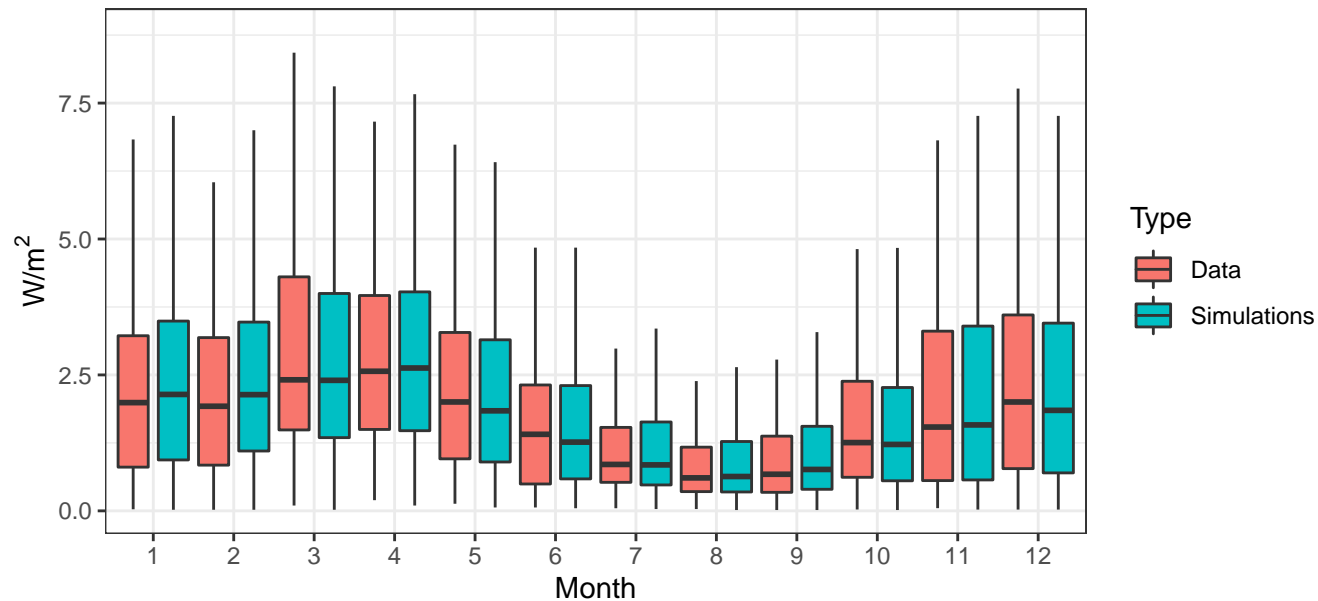
### Wind Distribution for Site/Grid – 69



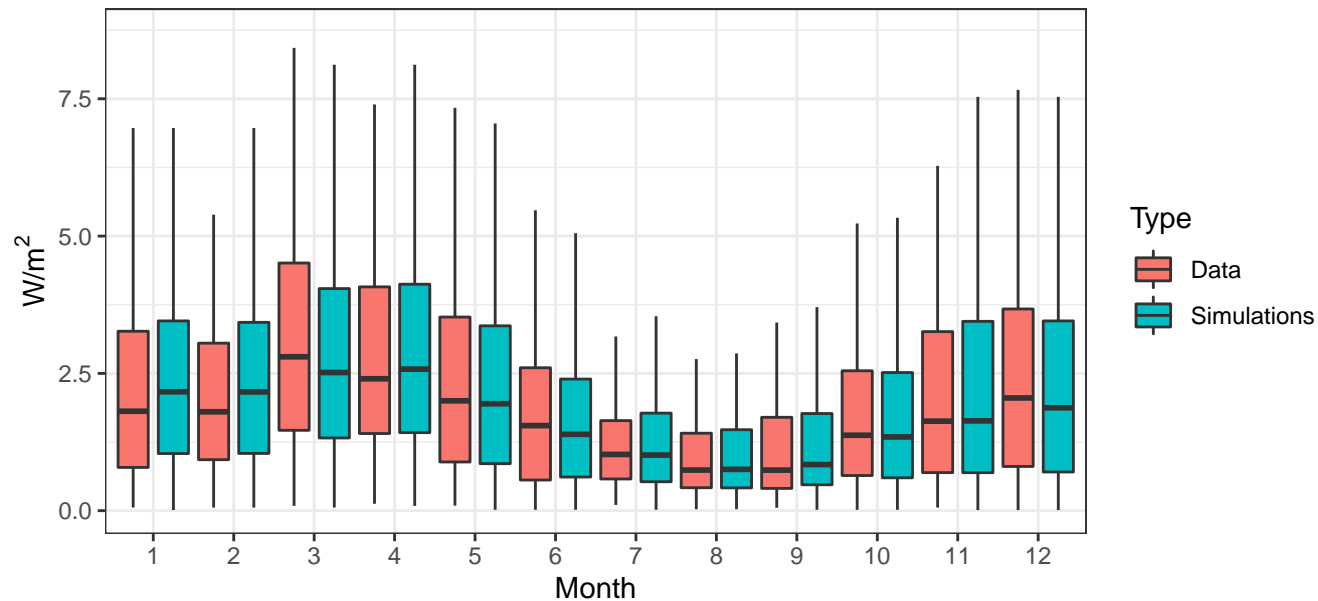
### Wind Distribution for Site/Grid – 132



### Wind Distribution for Site/Grid – 159

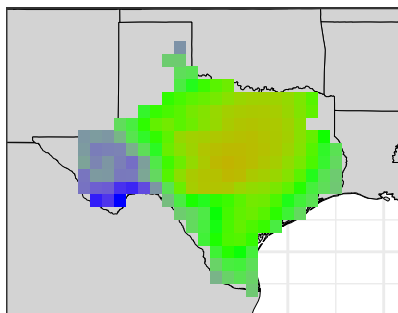


### Wind Distribution for Site/Grid – 149

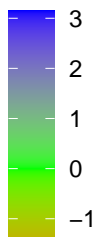


# Data PC-1 Wind

Fractional Variance – 62%

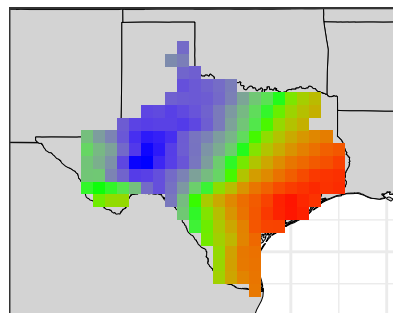


## Eigenvectors

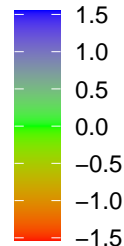


# Data PC-1 Wind

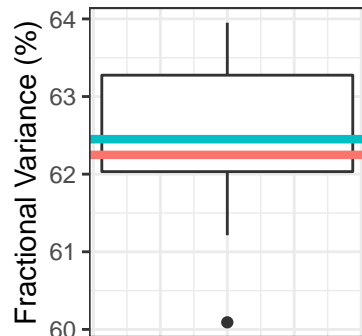
Fractional Variance – 13%



## Eigenvectors



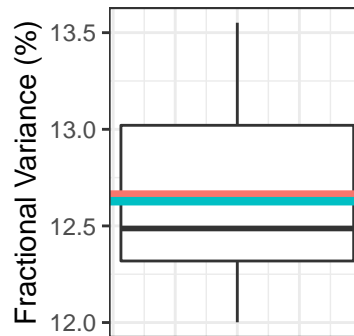
# Simulated PC-1 Variance Wind



## Type

— Data  
— Ensemble Mean

# Simulated PC-2 Variance Wind

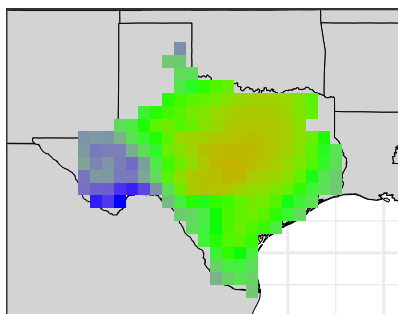


## Type

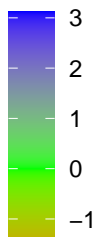
— Data  
— Ensemble Mean

# Ensemble Mean PC-1 Wind

Fractional Variance – 62%

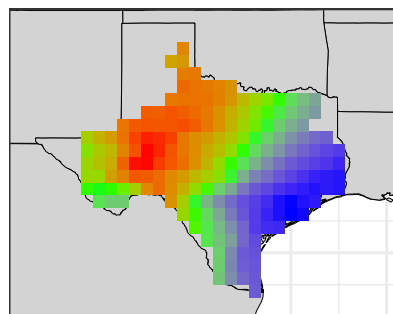


## Eigenvectors

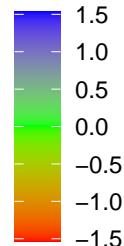


# Ensemble Mean PC-2 Wind

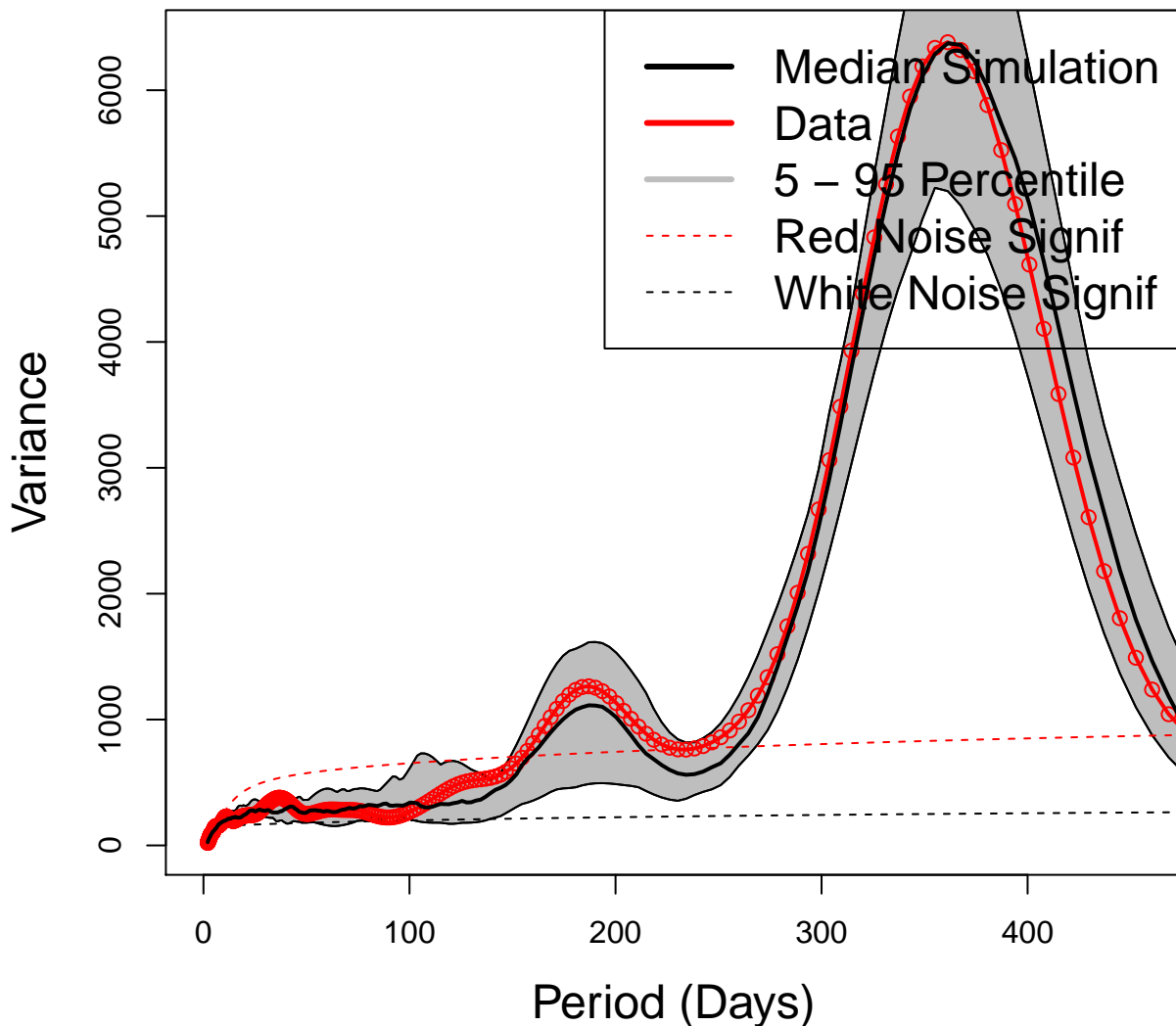
Fractional Variance – 13%



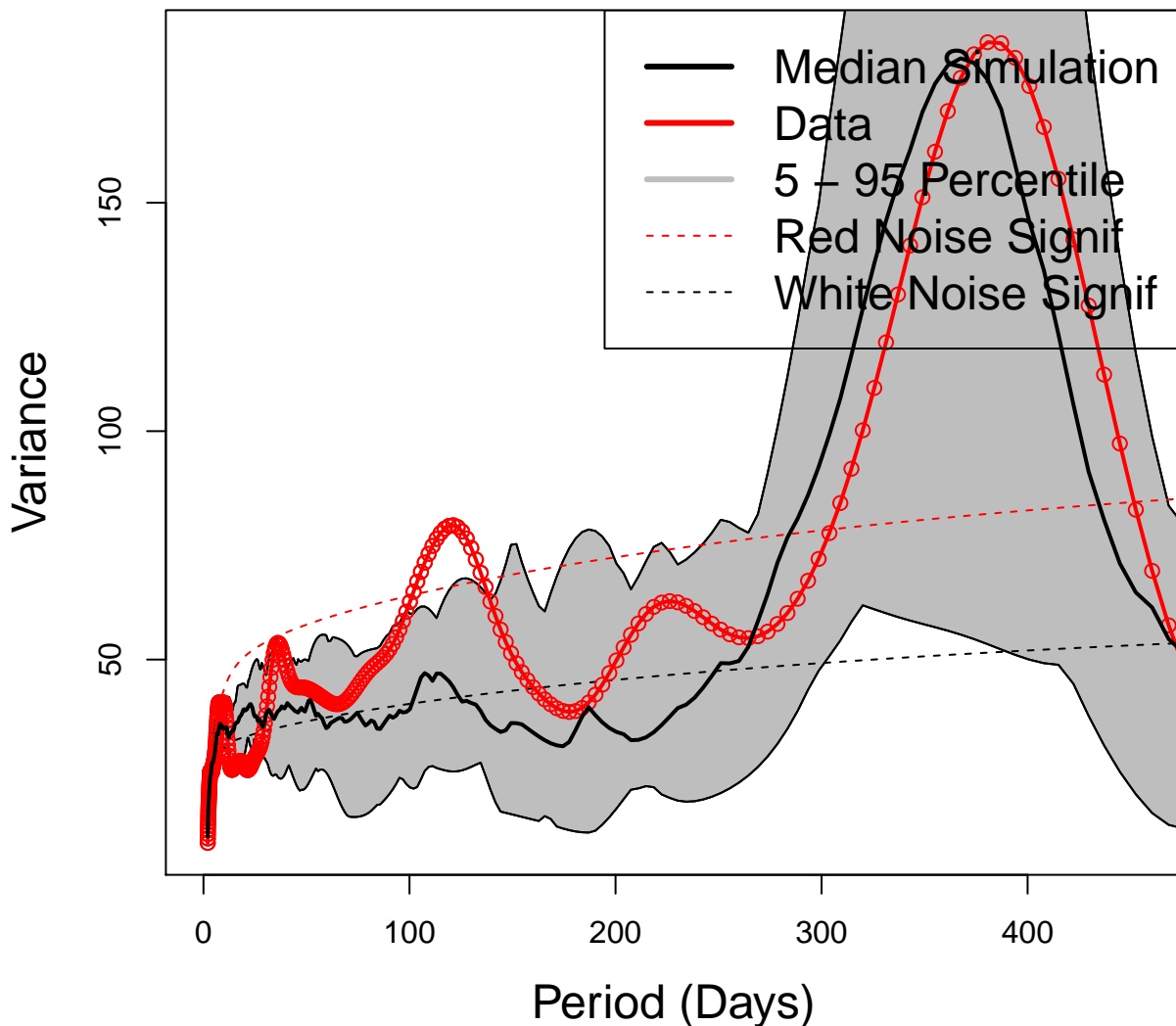
## Eigenvectors



# Global Wavelet Spectrum PC – 1 Wind

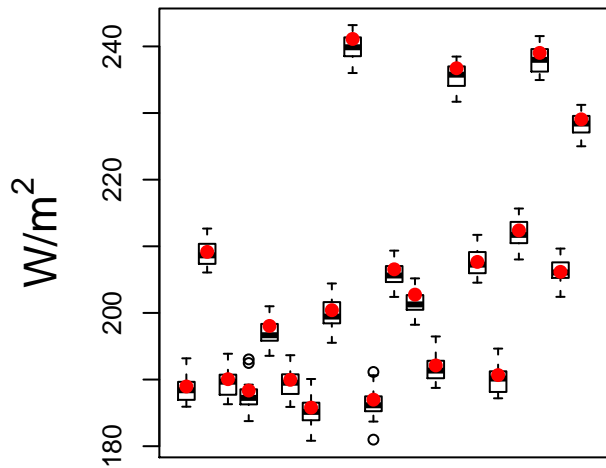


## Global Wavelet Spectrum PC – 2 Wind

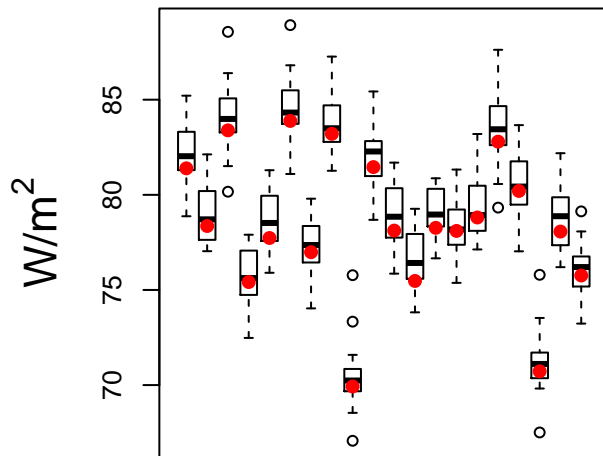




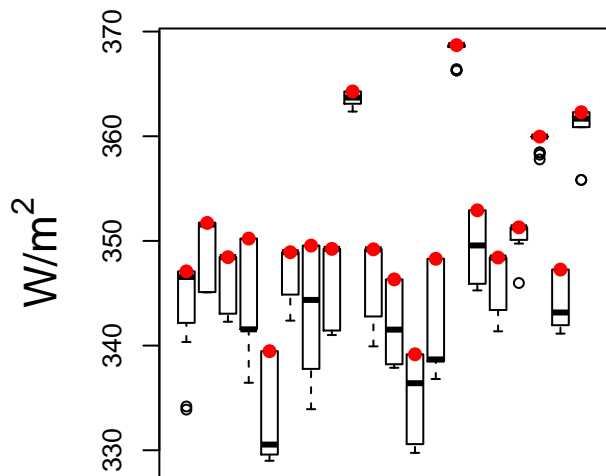
Mean – Solar



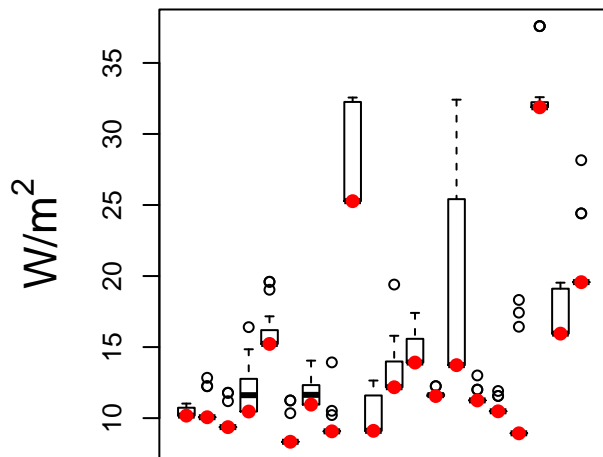
Stan Dev – Solar



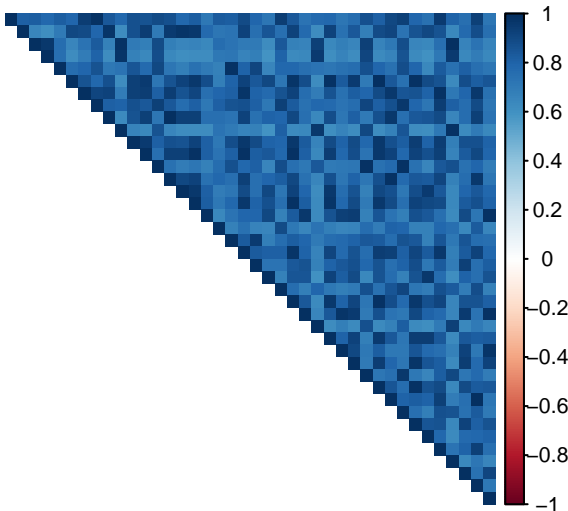
Maximum – Solar



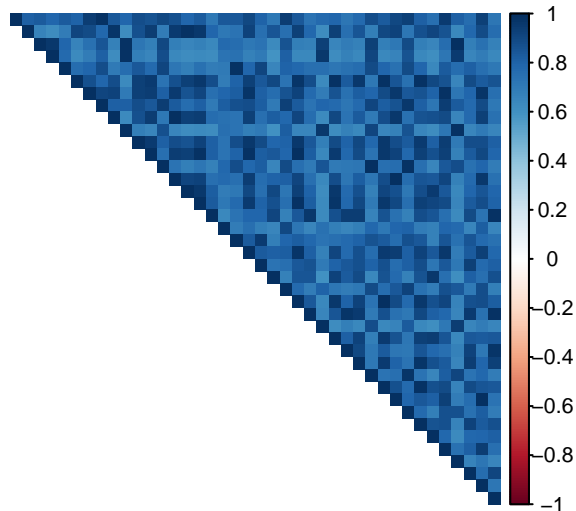
Minimum – Solar



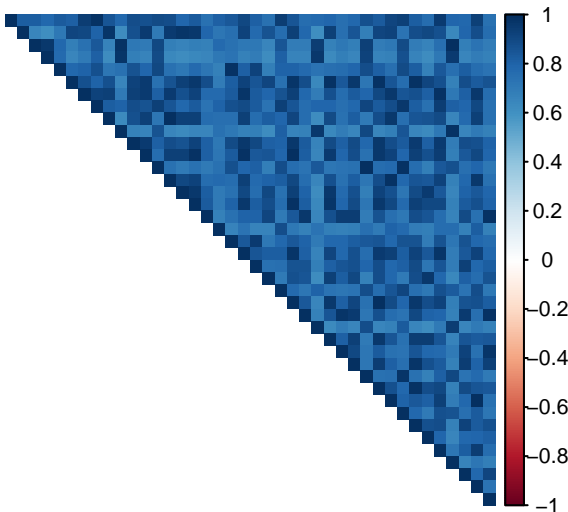
**Cross Correlation  
Data**



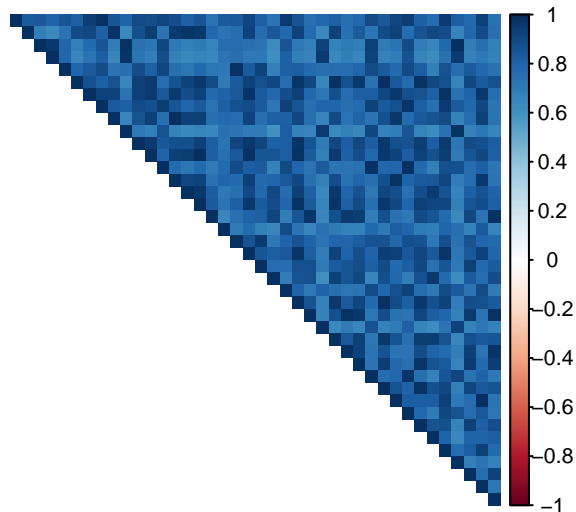
**Cross Correlation  
Simulation Run – 18**



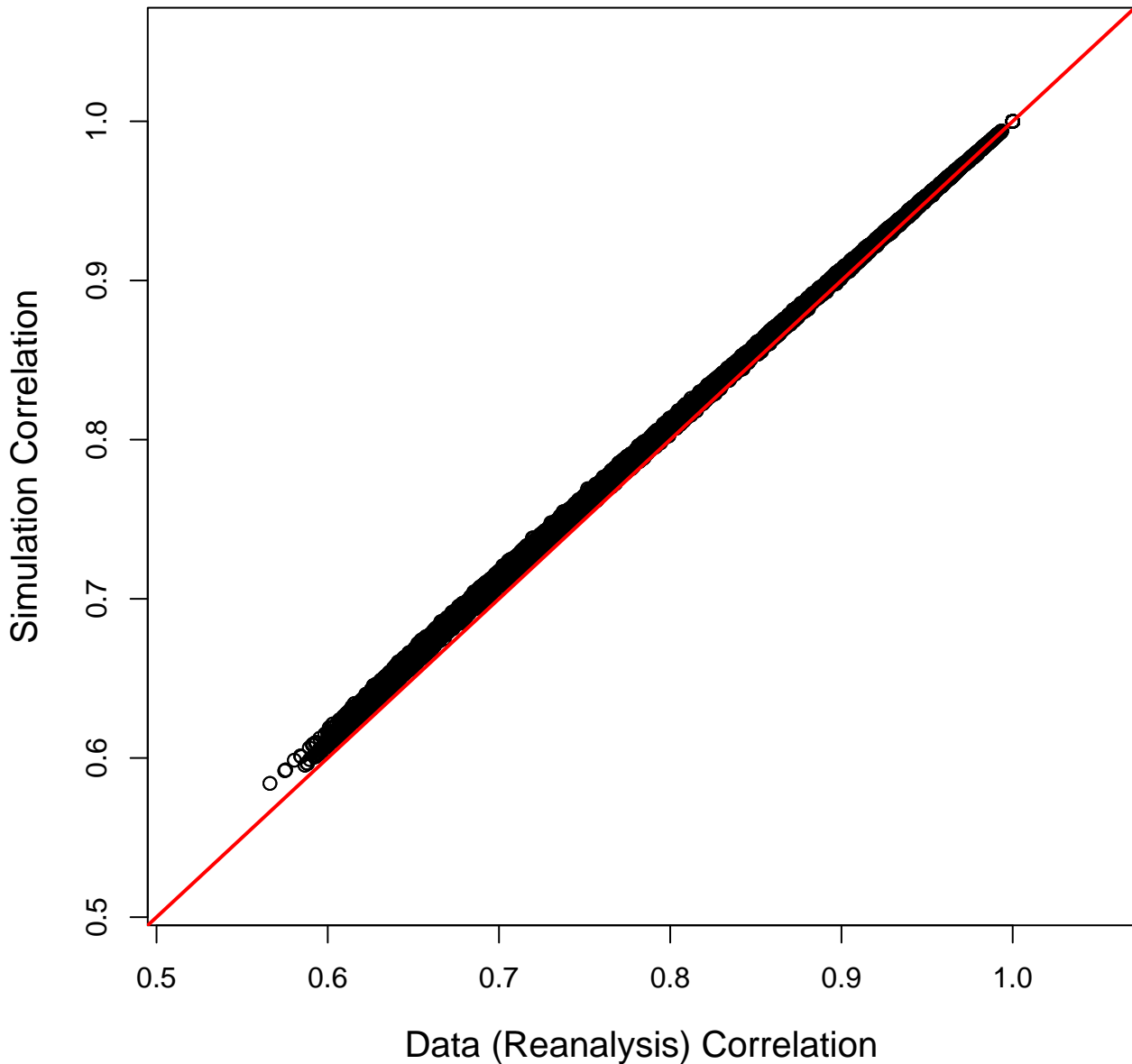
**Cross Correlation  
Simulation Run – 8**



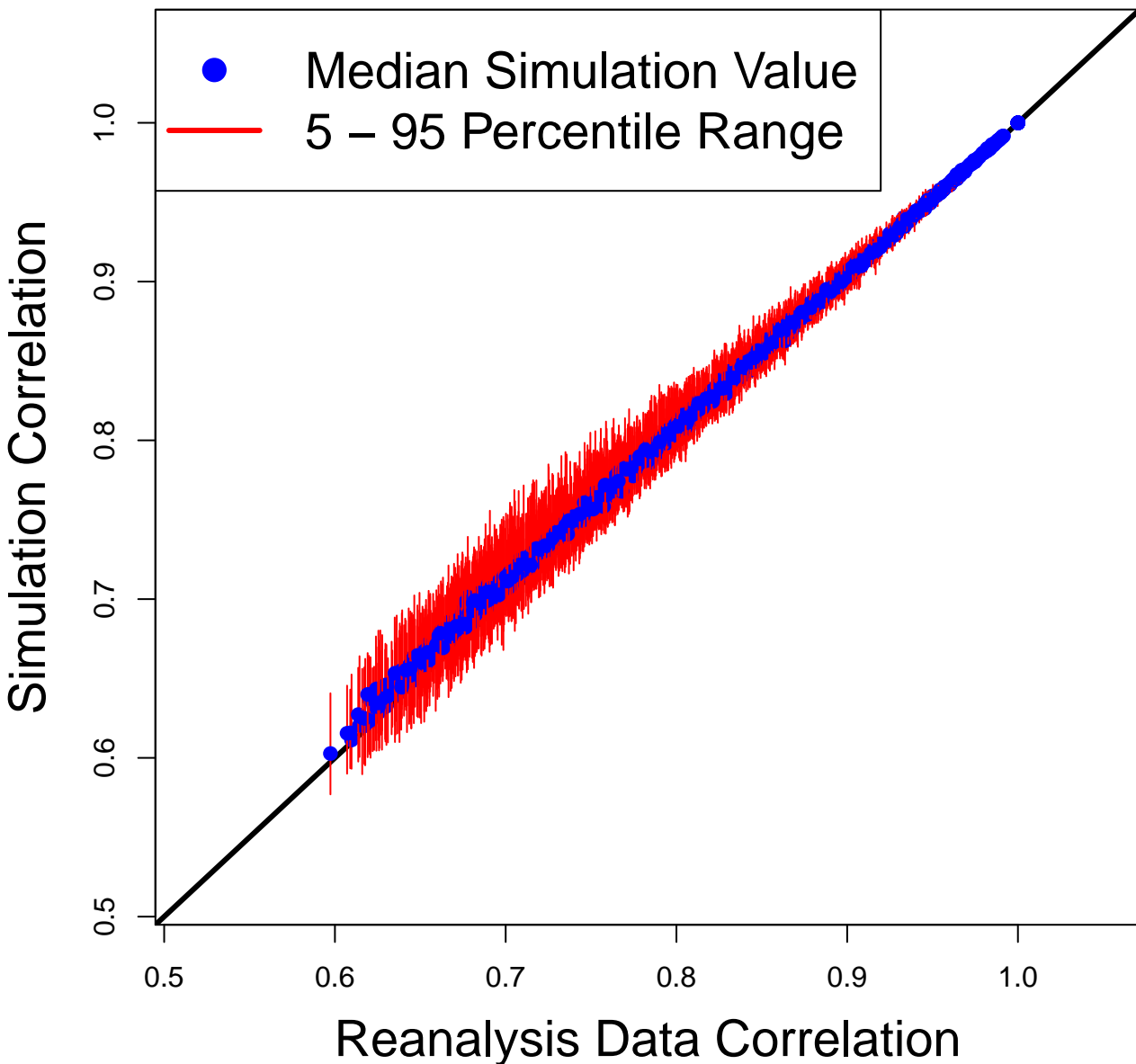
**Cross Correlation  
Simulation Run – 17**



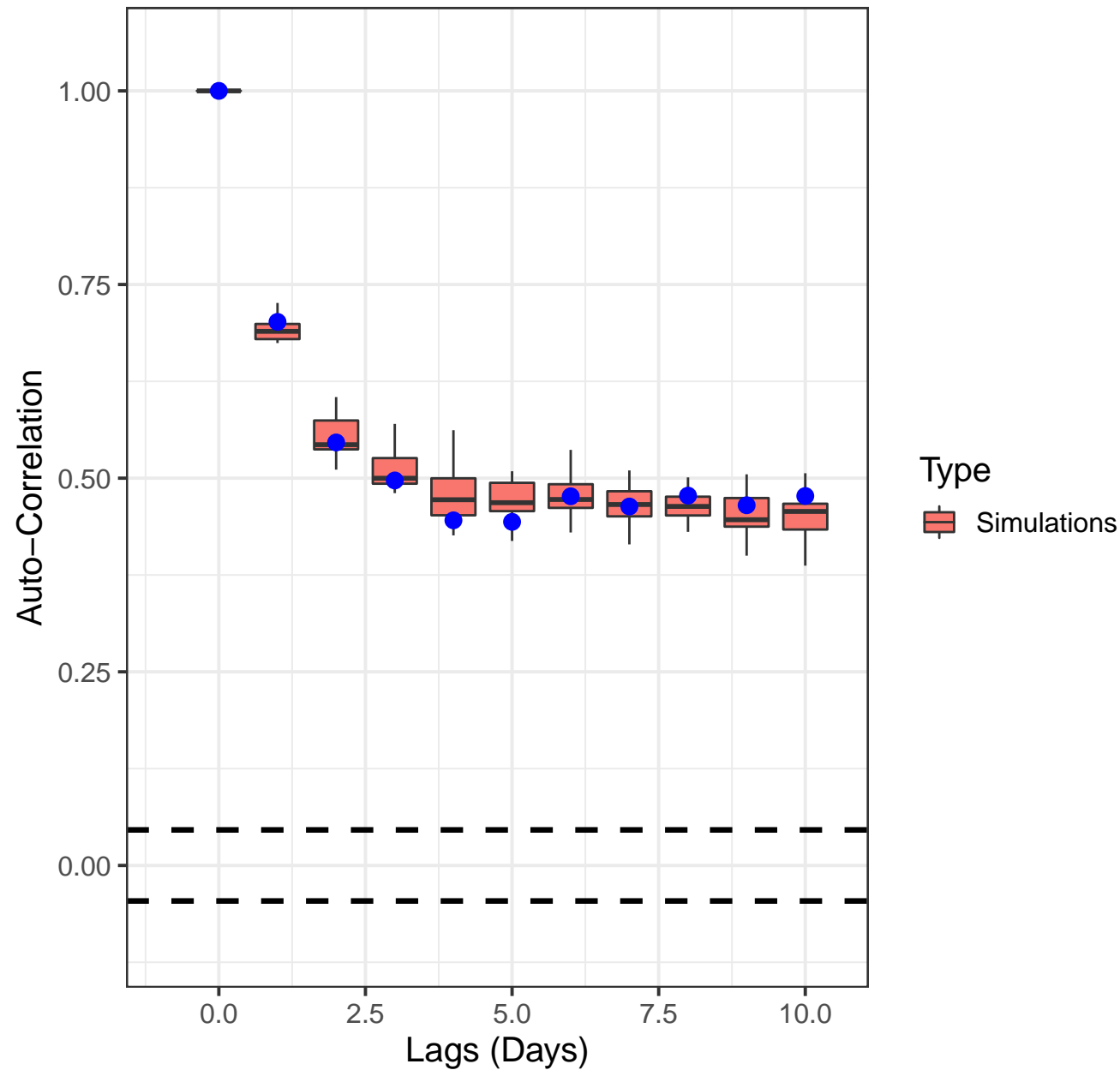
## Cross Site Correlations – Solar



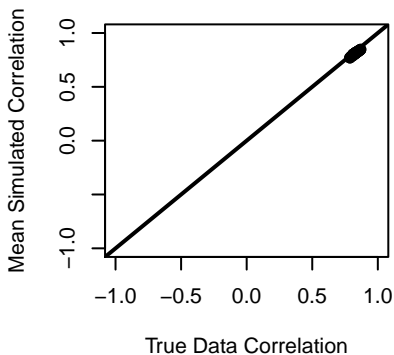
## Cross Site Correlations – Solar



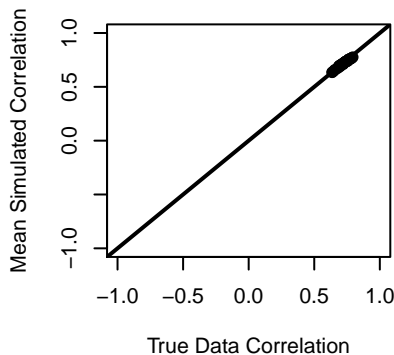
# ACF – Single Random Site – Solar



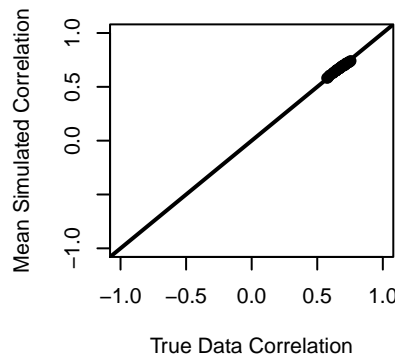
**Lag-1 Correlations – Solar**



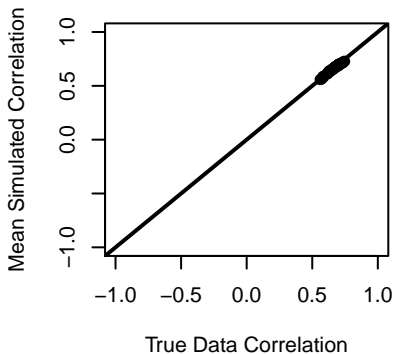
**Lag-2 Correlations – Solar**



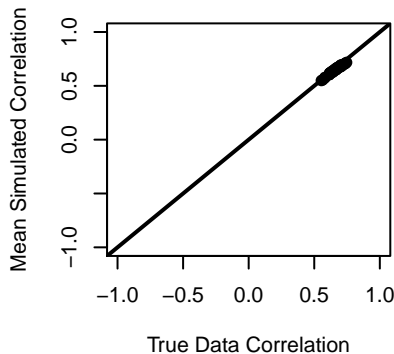
**Lag-3 Correlations – Solar**



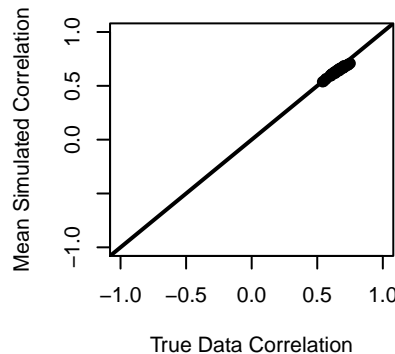
**Lag-4 Correlations – Solar**



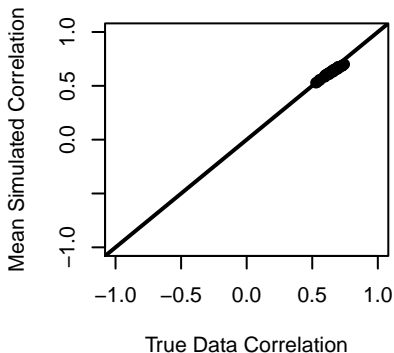
**Lag-5 Correlations – Solar**



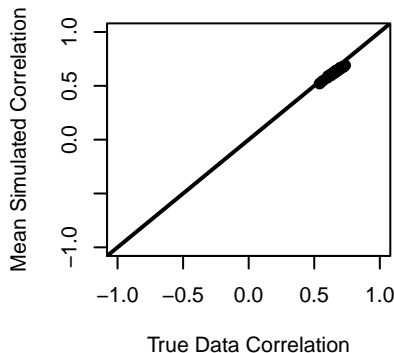
**Lag-6 Correlations – Solar**



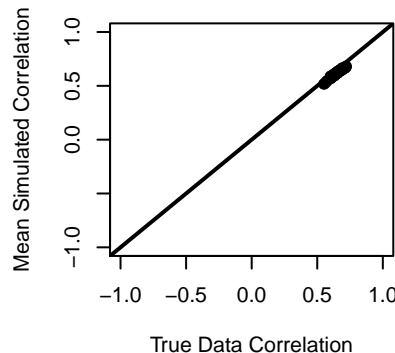
**Lag-7 Correlations – Solar**



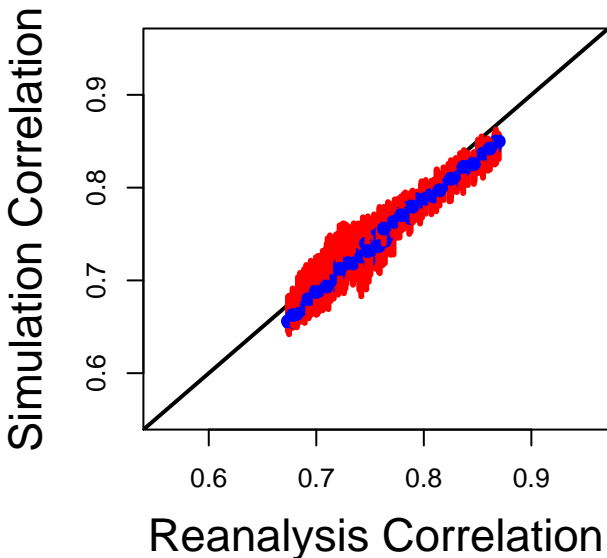
**Lag-8 Correlations – Solar**



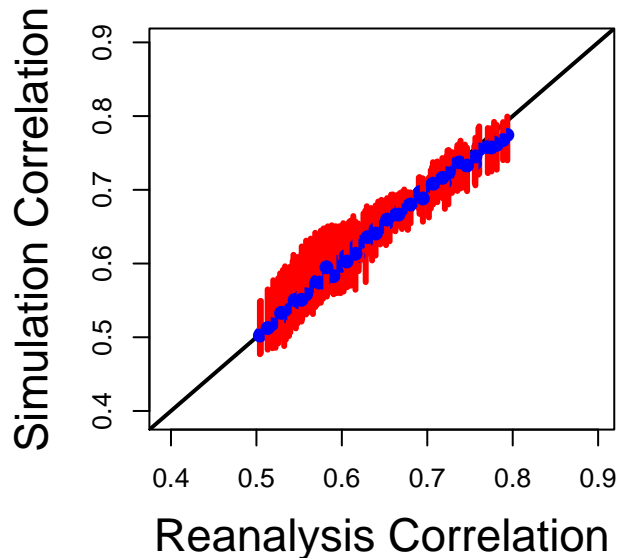
**Lag-9 Correlations – Solar**



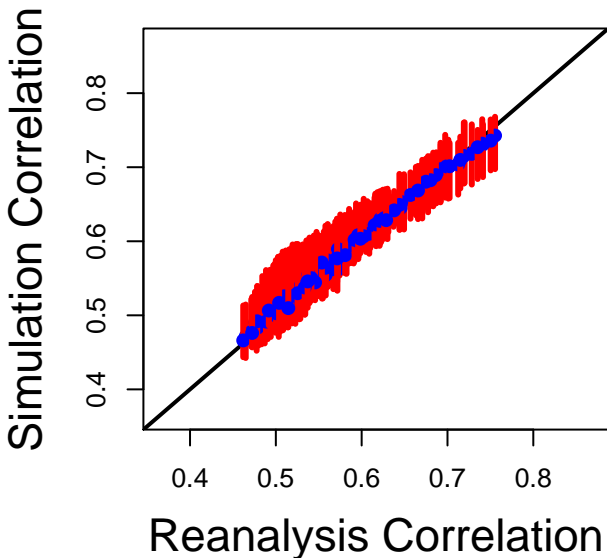
**Lag-1 - Solar**



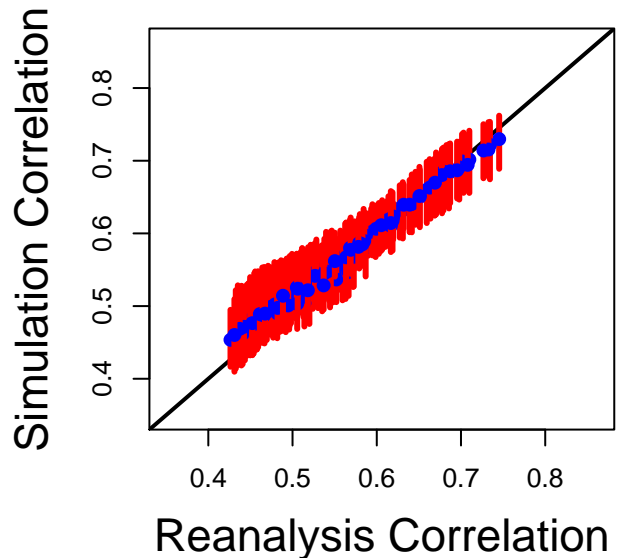
**Lag-2 - Solar**



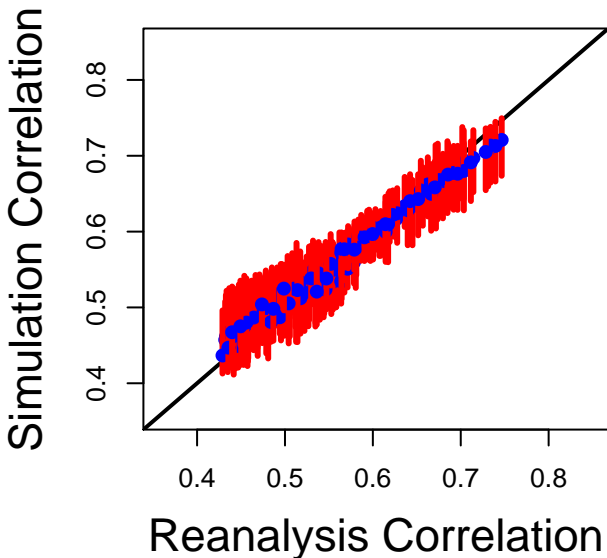
**Lag-3 - Solar**



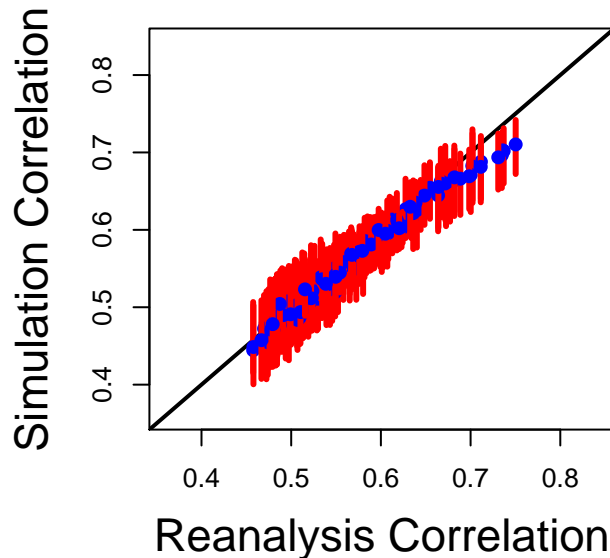
**Lag-4 - Solar**



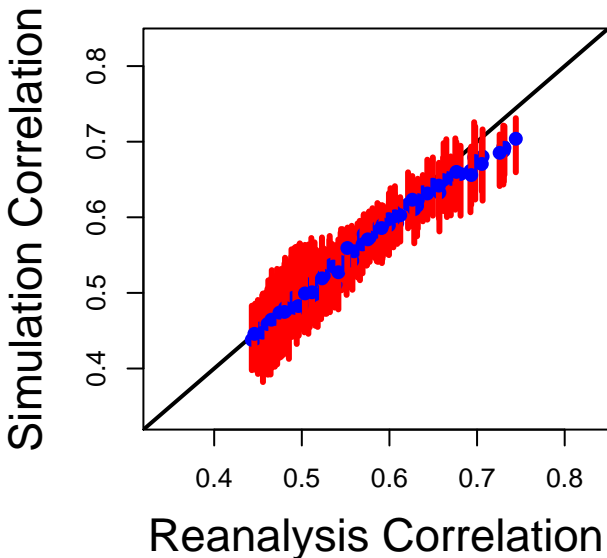
**Lag-5 - Solar**



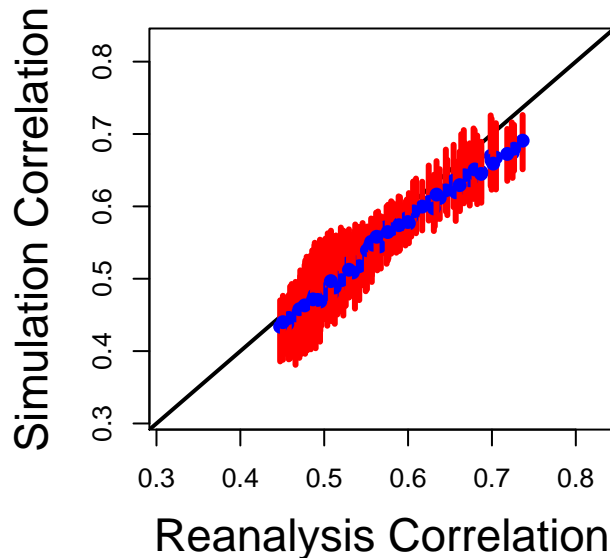
**Lag-6 - Solar**



**Lag-7 - Solar**

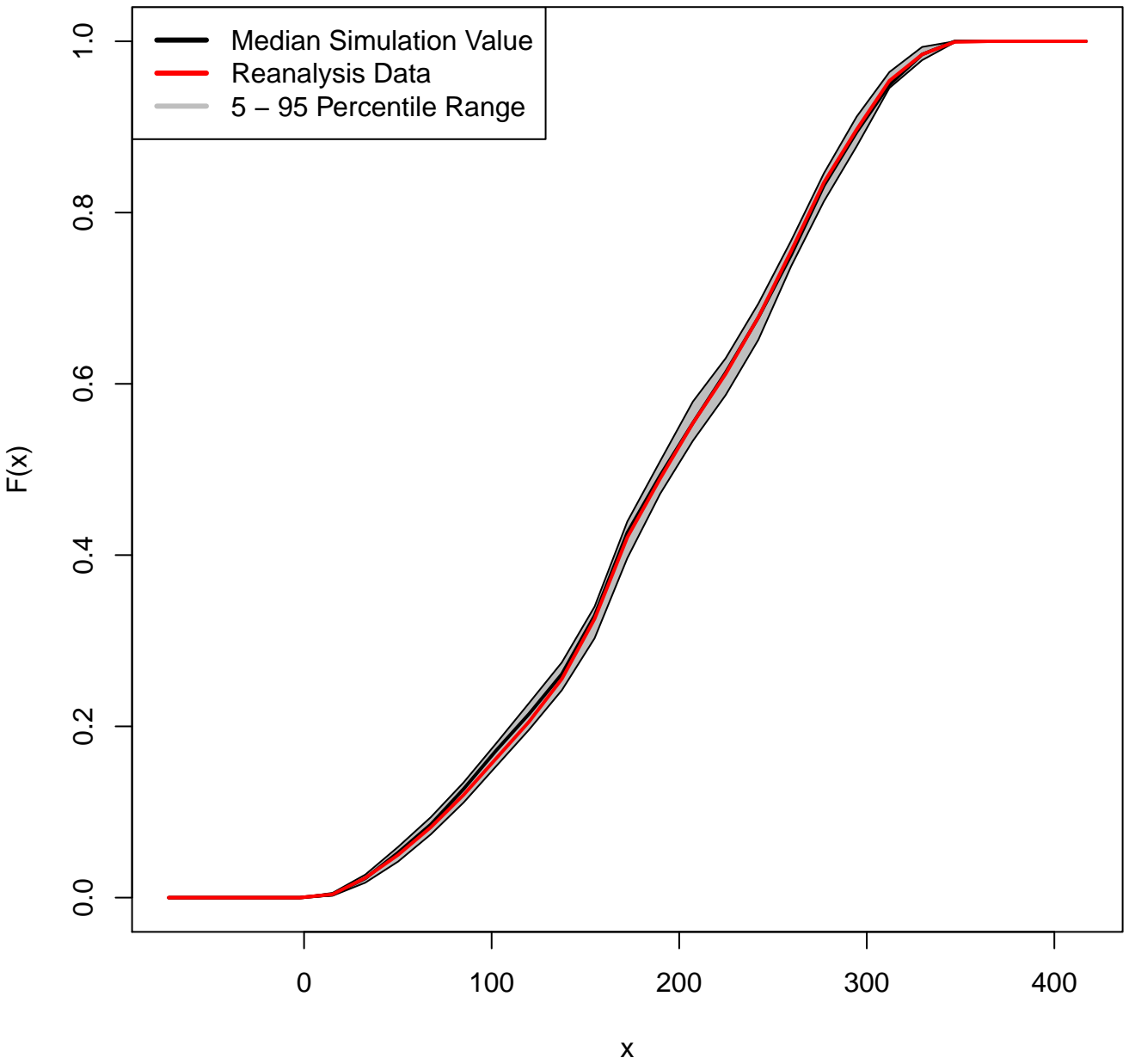


**Lag-8 - Solar**

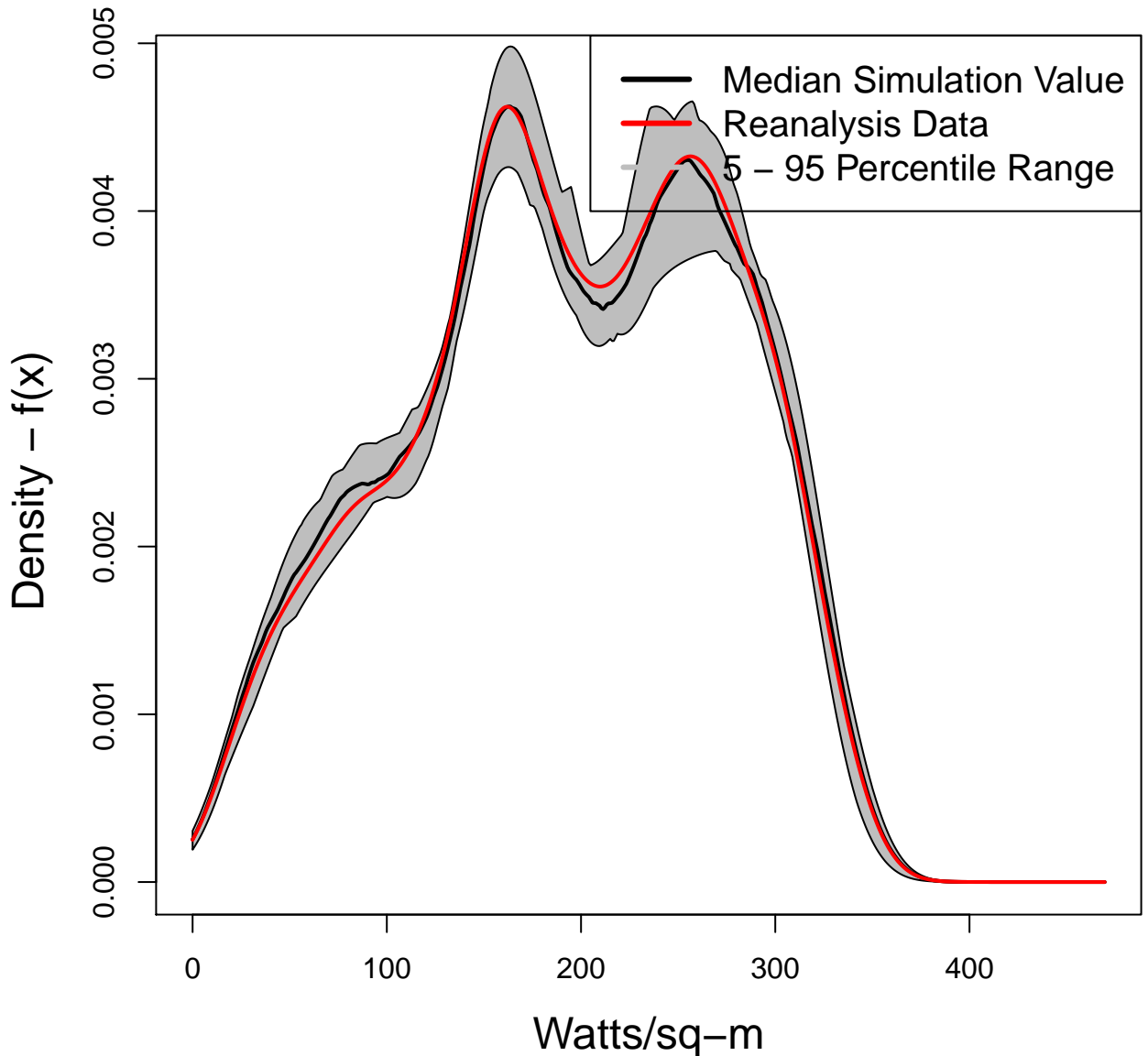




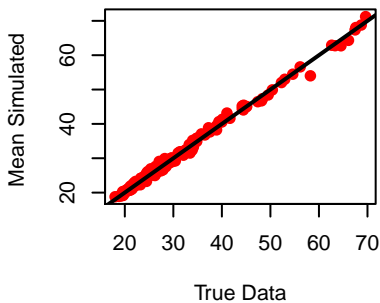
**True vs Simulated CDF for Single Site – Solar**



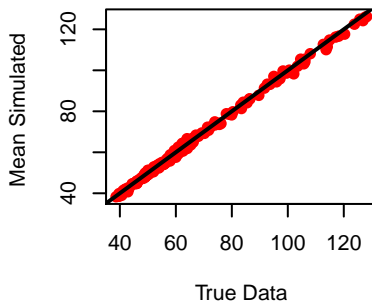
# PDF at a single site – Solar



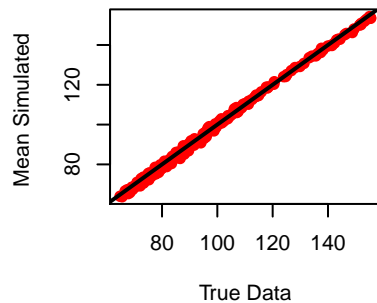
**Quantile – 1th – Solar**



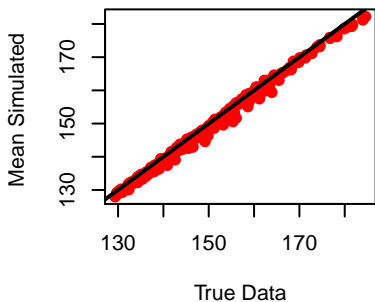
**Quantile – 5th – Solar**



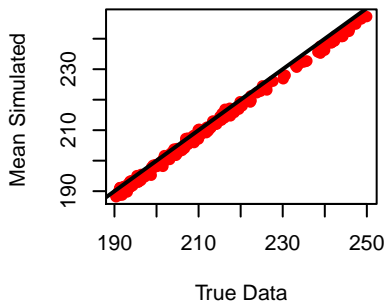
**Quantile – 10th – Solar**



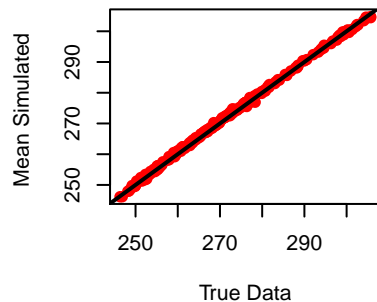
**Quantile – 25th – Solar**



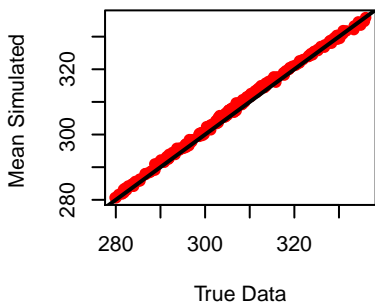
**Quantile – 50th – Solar**



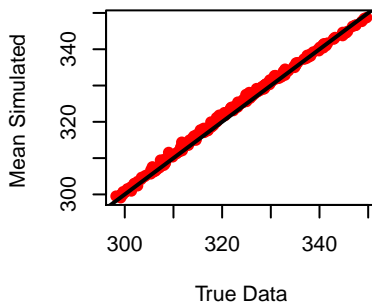
**Quantile – 75th – Solar**



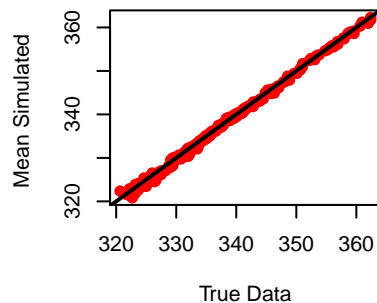
**Quantile – 90th – Solar**



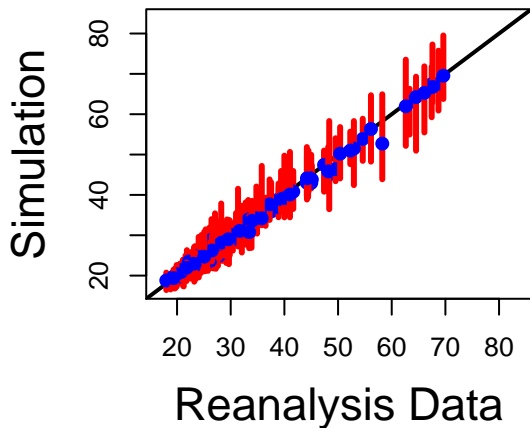
**Quantile – 95th – Solar**



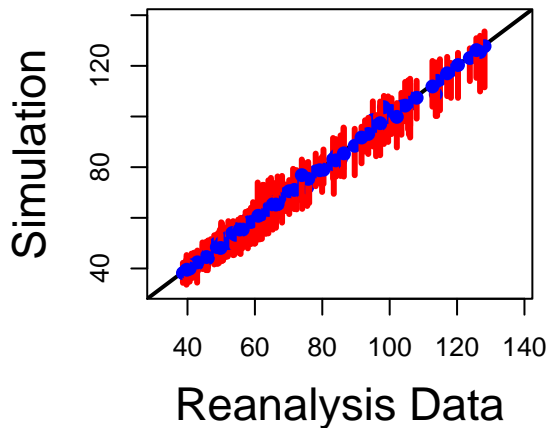
**Quantile – 99th – Solar**



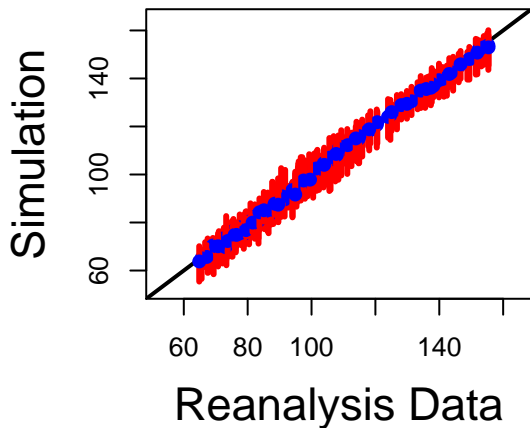
**1th Quantile – Solar**



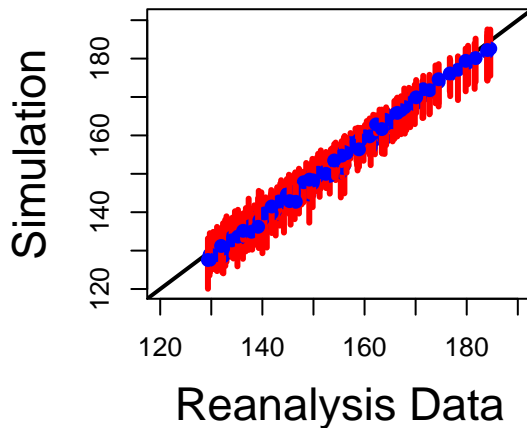
**5th Quantile – Solar**



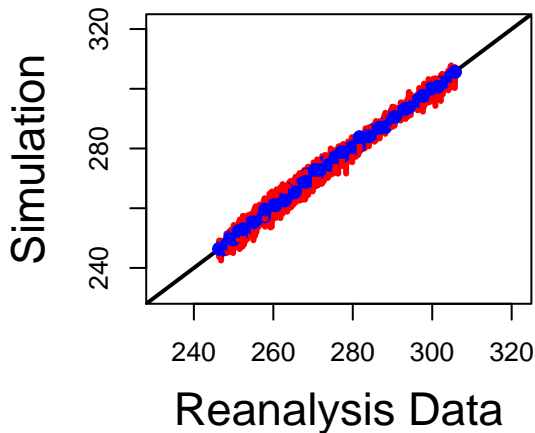
**10th Quantile – Solar**



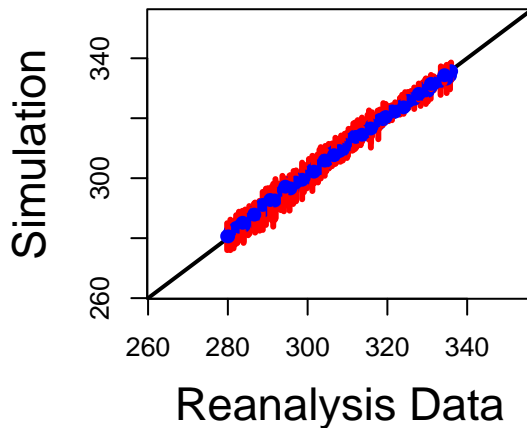
**25th Quantile – Solar**



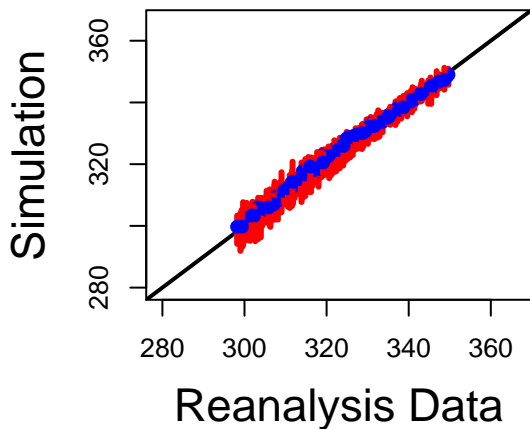
**75th Quantile – Solar**



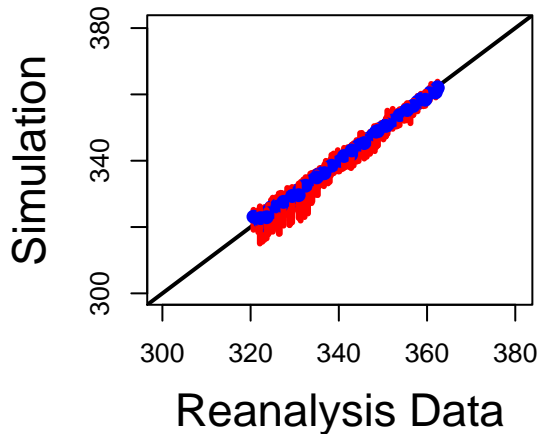
**90th Quantile – Solar**



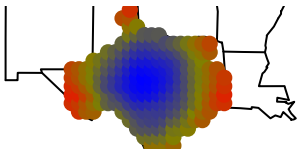
**95th Quantile – Solar**



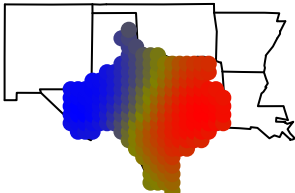
**99th Quantile – Solar**



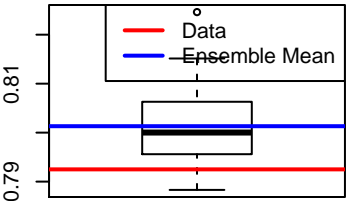
**PC-1 – Solar-79%**



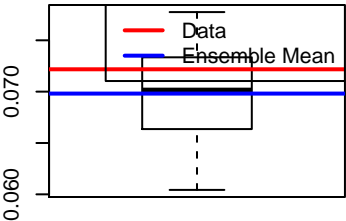
**PC-2 – Solar-7%**



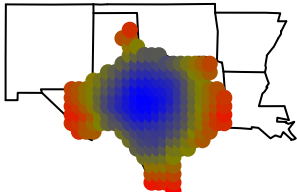
**Simulated PC-1 Variance Solar**



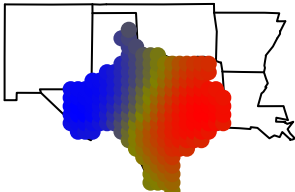
**Simulated PC-2 Variance Solar**



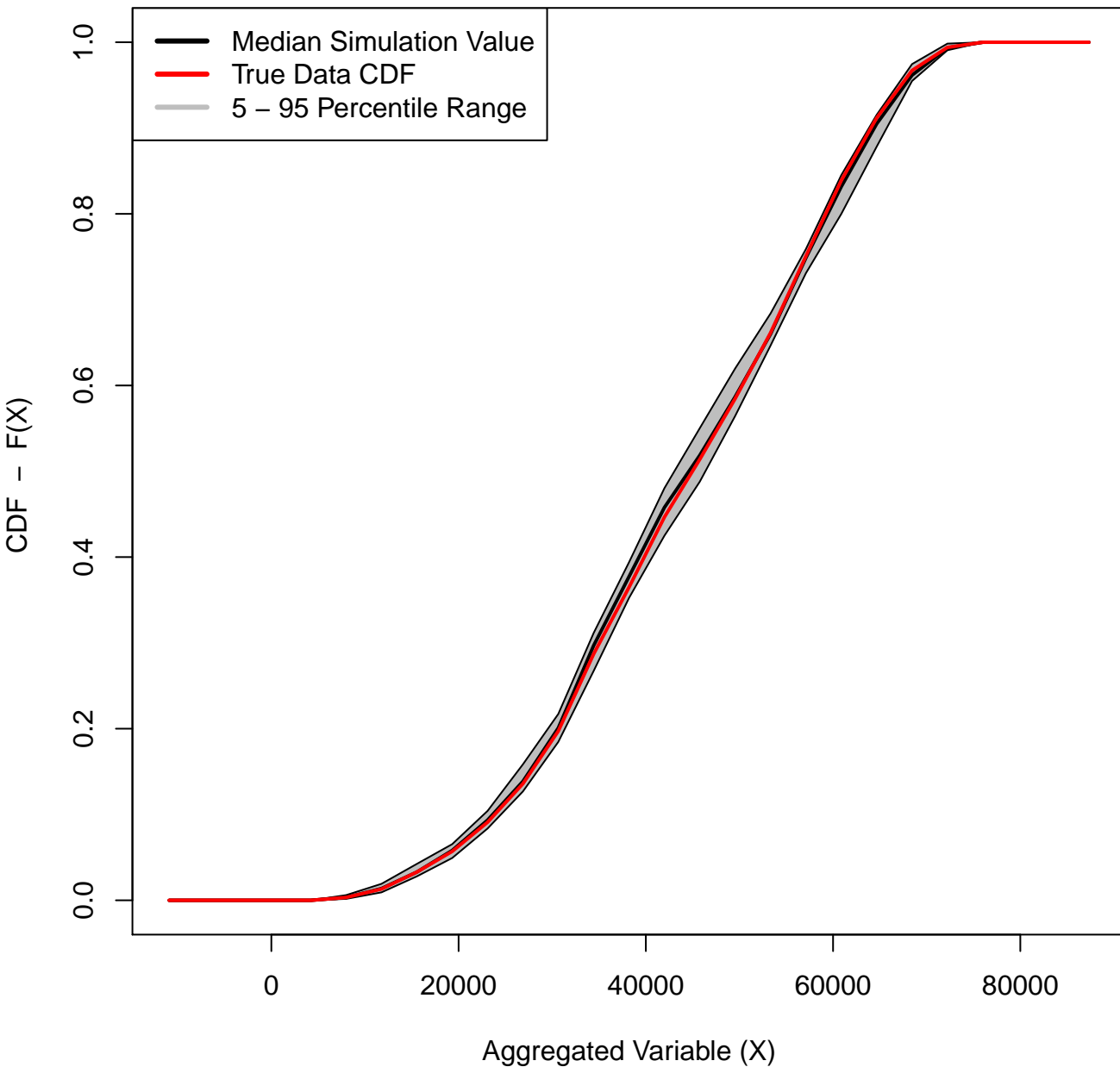
**Ensemble Mean PC-1 – Solar-80%**



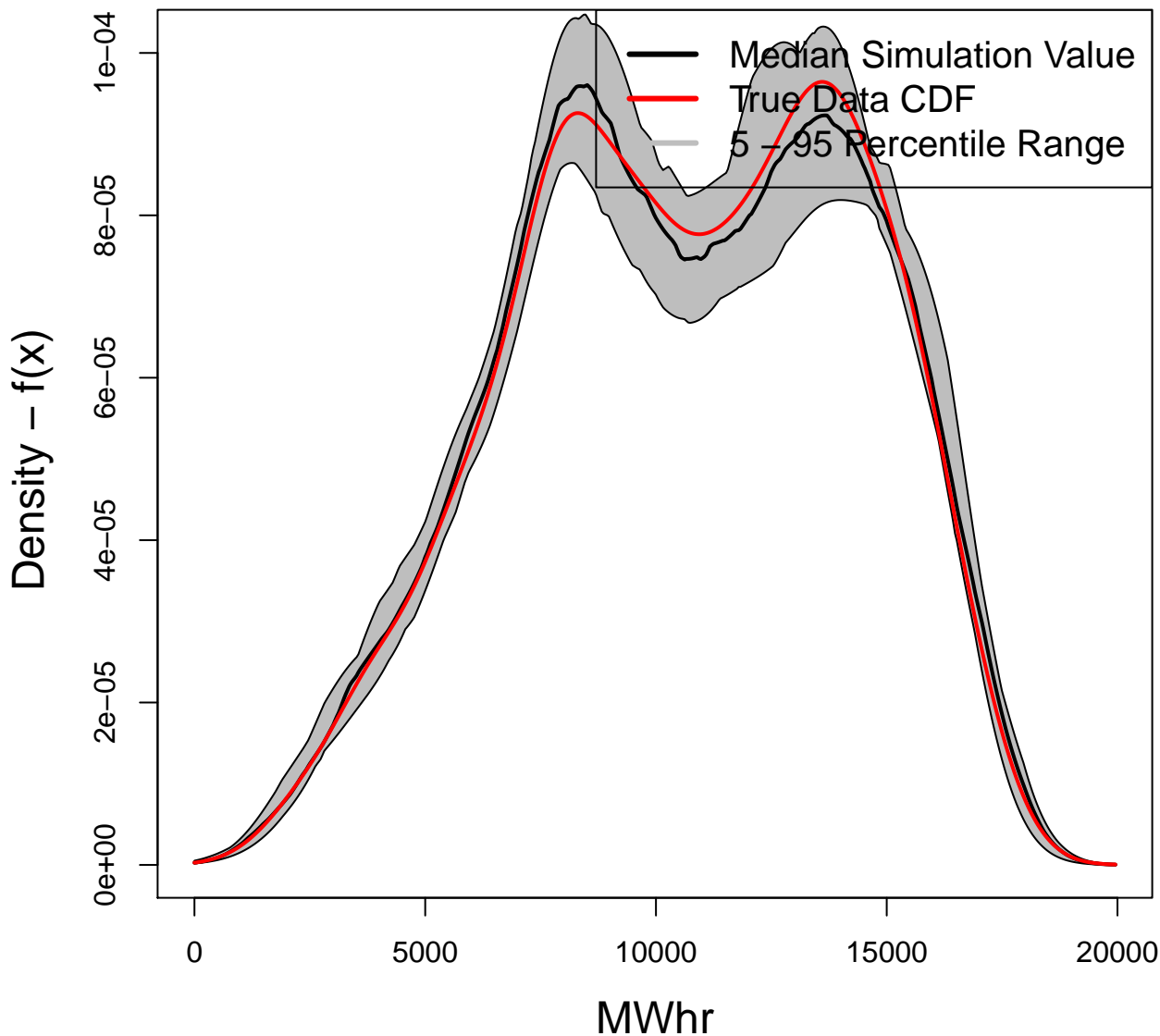
**Ensemble Mean PC-2 – Solar-7%**



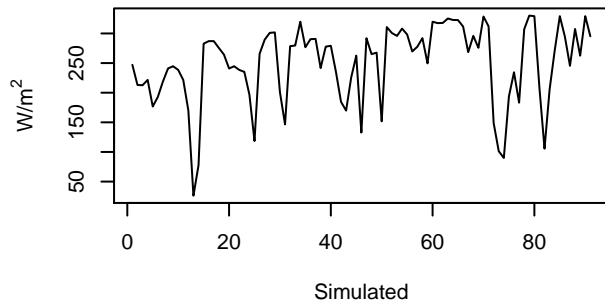
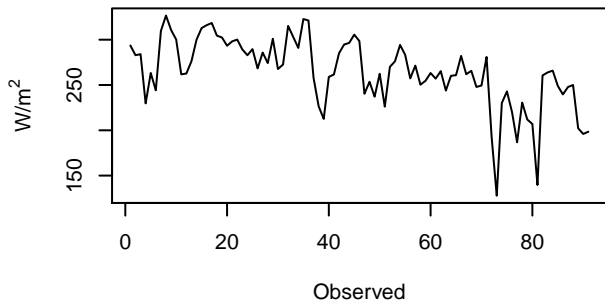
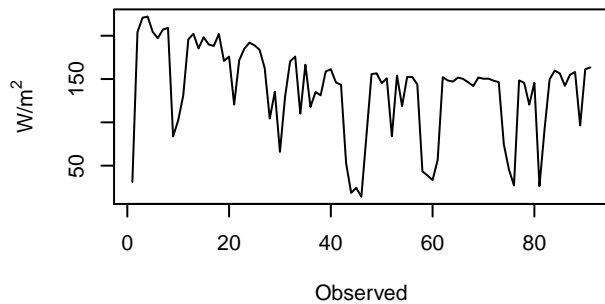
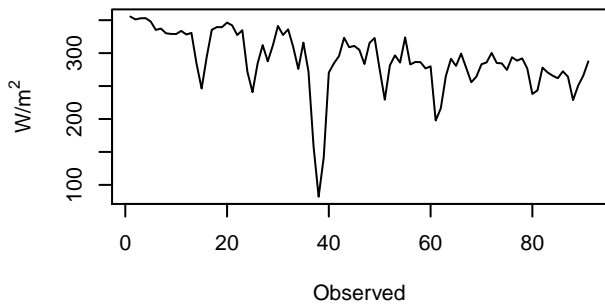
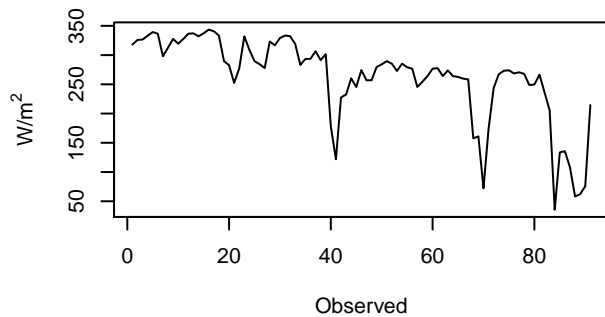
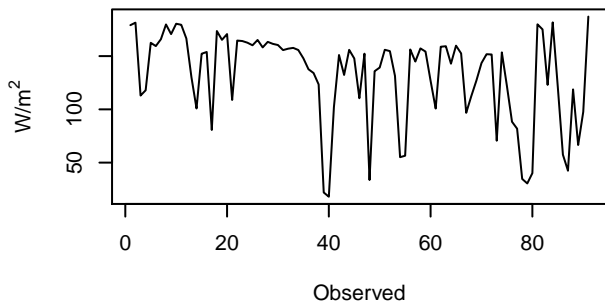
## Simulated CDF for Entire Field – Solar



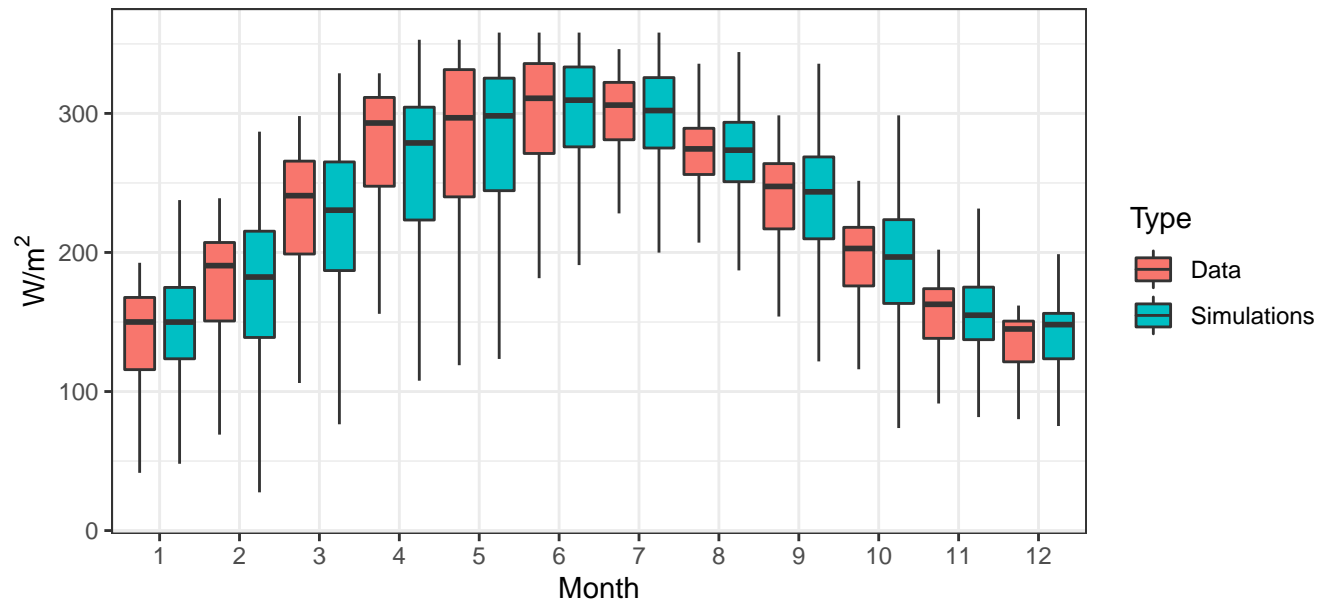
## Daily Generation Potential across ERCOT – Solar



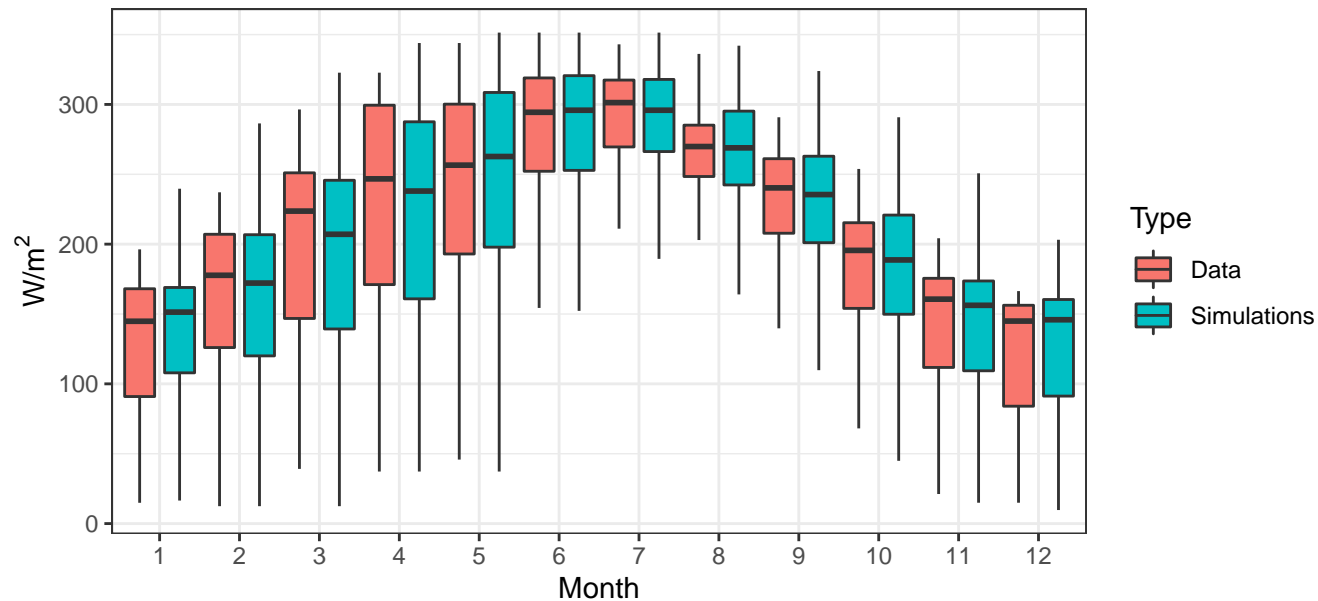




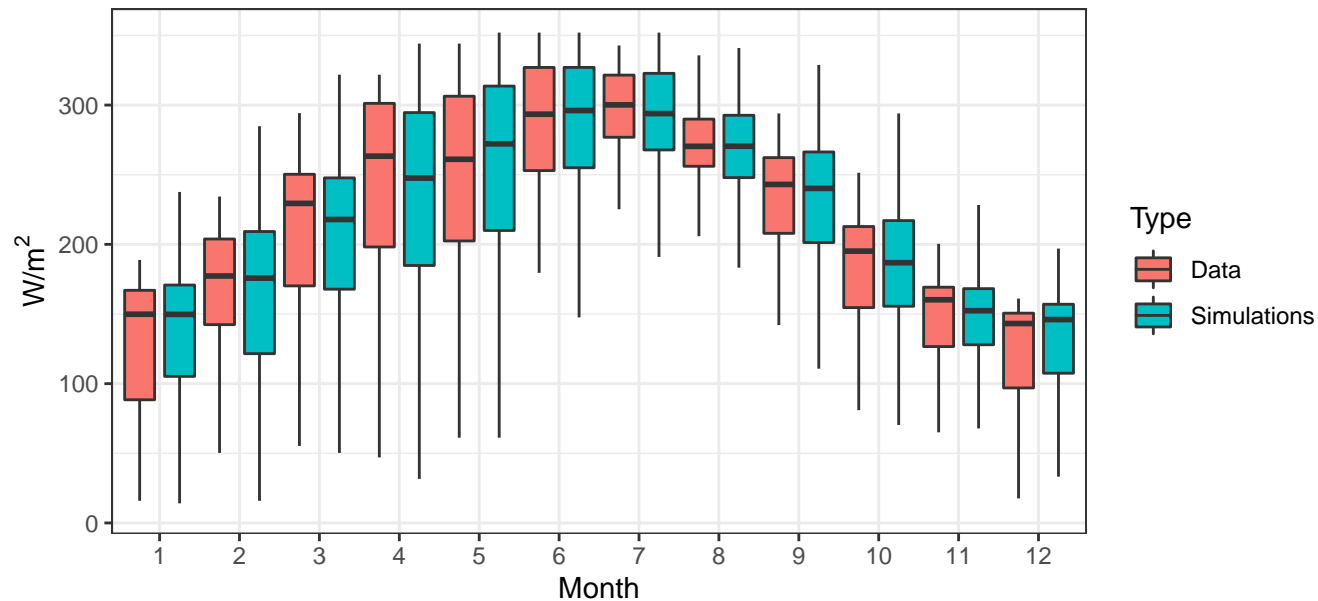
### Solar Distribution for Site/Grid – 42



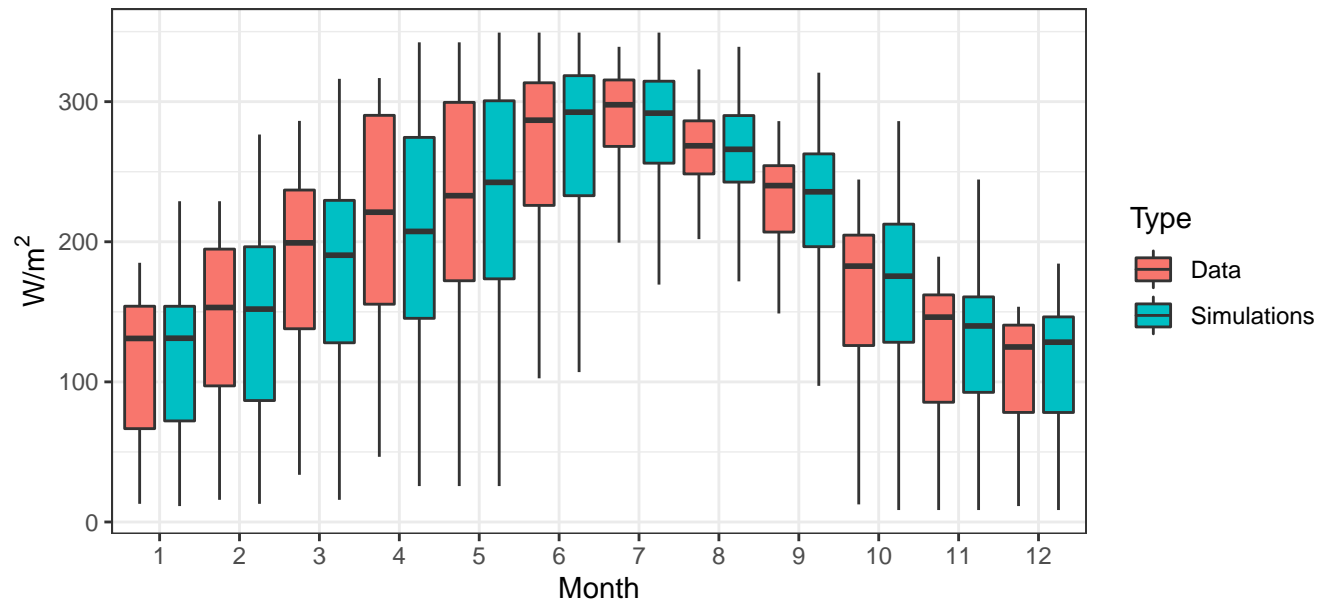
### Solar Distribution for Site/Grid – 103



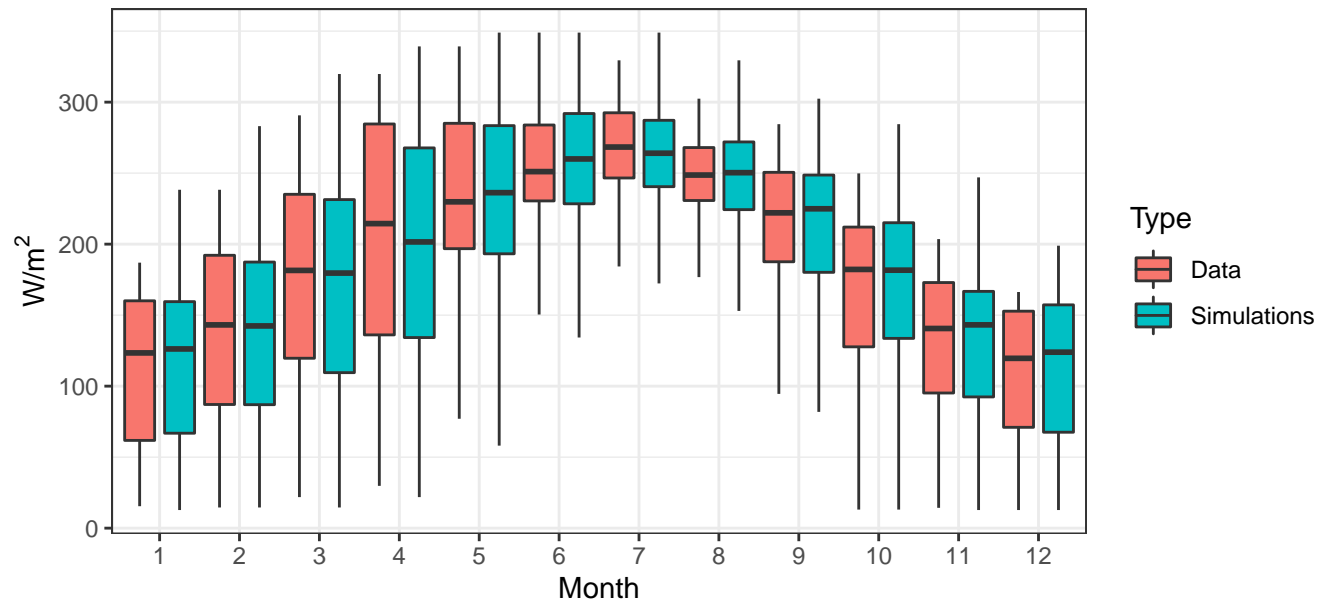
### Solar Distribution for Site/Grid – 89



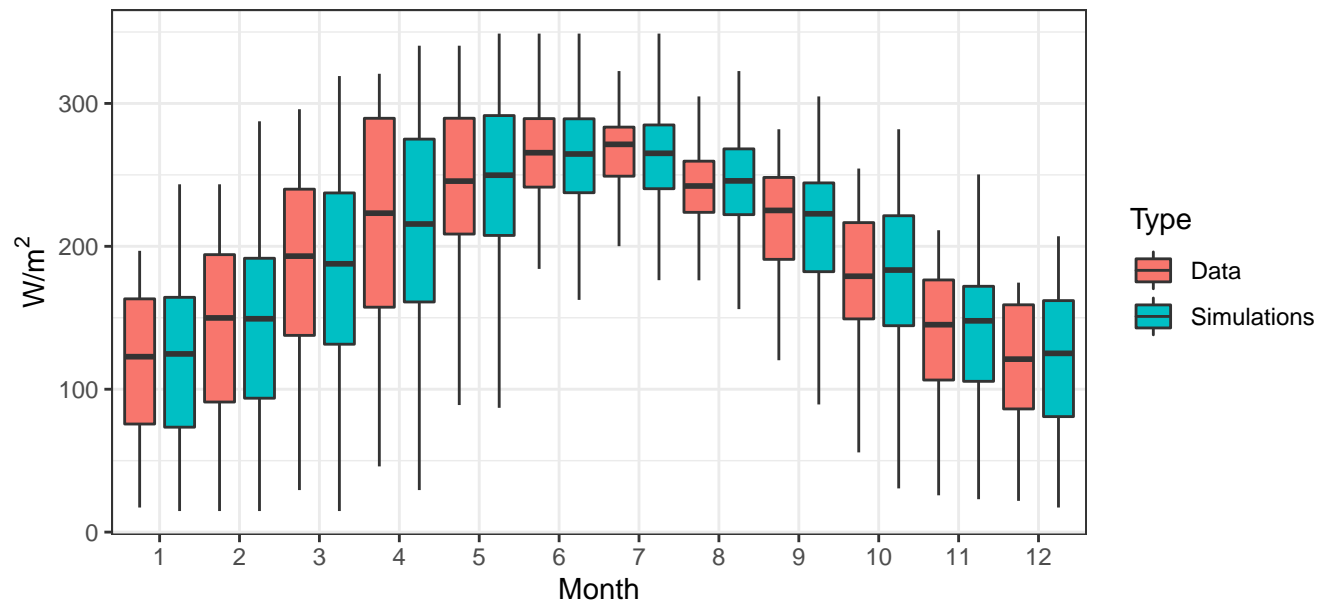
### Solar Distribution for Site/Grid – 178



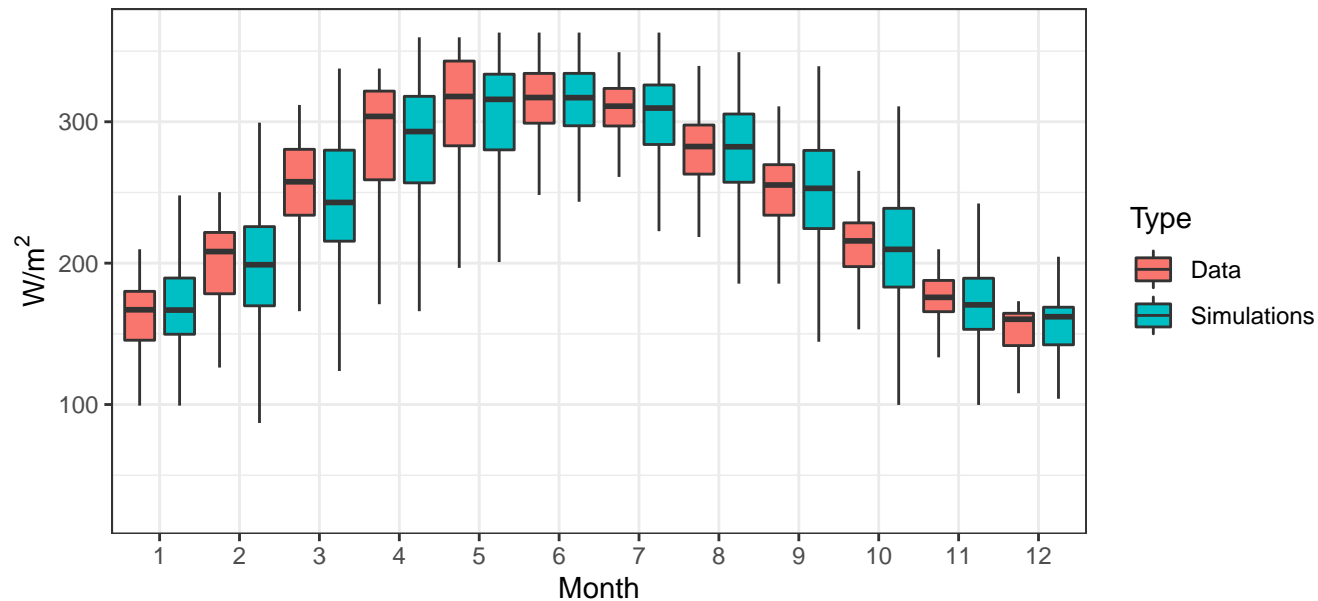
### Solar Distribution for Site/Grid – 193



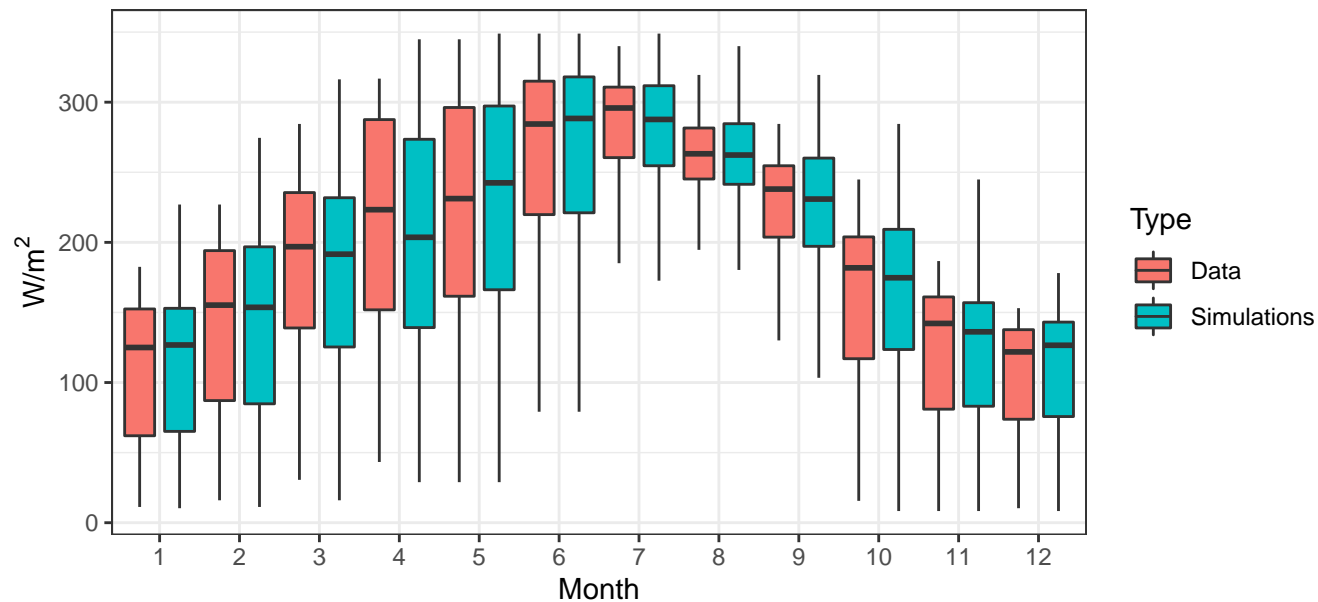
### Solar Distribution for Site/Grid – 180



# Solar Distribution for Site/Grid – 19

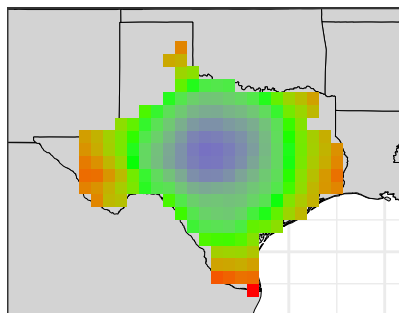


# Solar Distribution for Site/Grid – 189

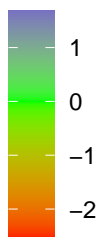


## Data PC-1 Solar

Fractional Variance – 79%

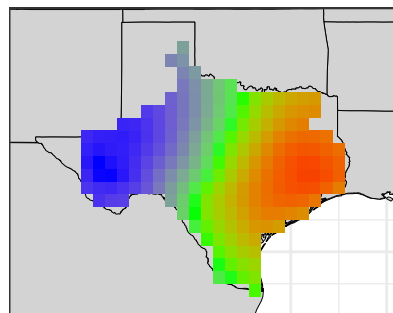


Eigenvectors

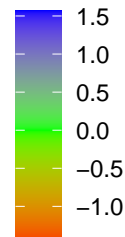


## Data PC-1 Solar

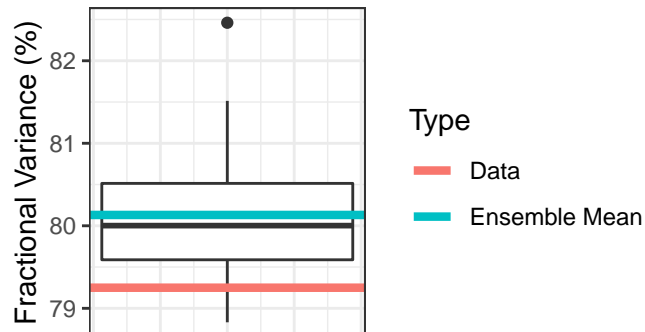
Fractional Variance – 7%



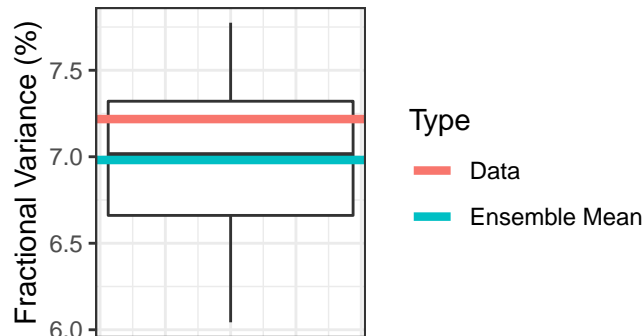
Eigenvectors



## Simulated PC-1 Variance Solar

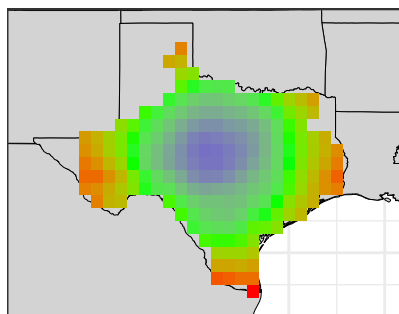


## Simulated PC-2 Variance Solar

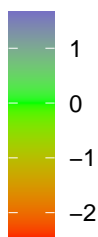


## Ensemble Mean PC-1 Solar

Fractional Variance – 80%

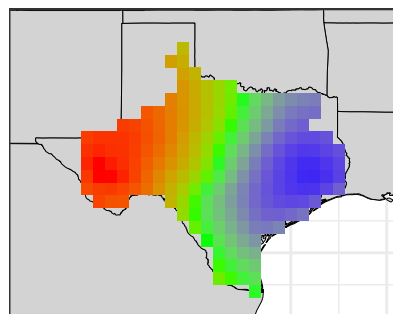


Eigenvectors

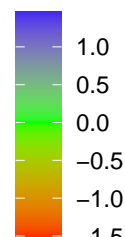


## Ensemble Mean PC-2 Solar

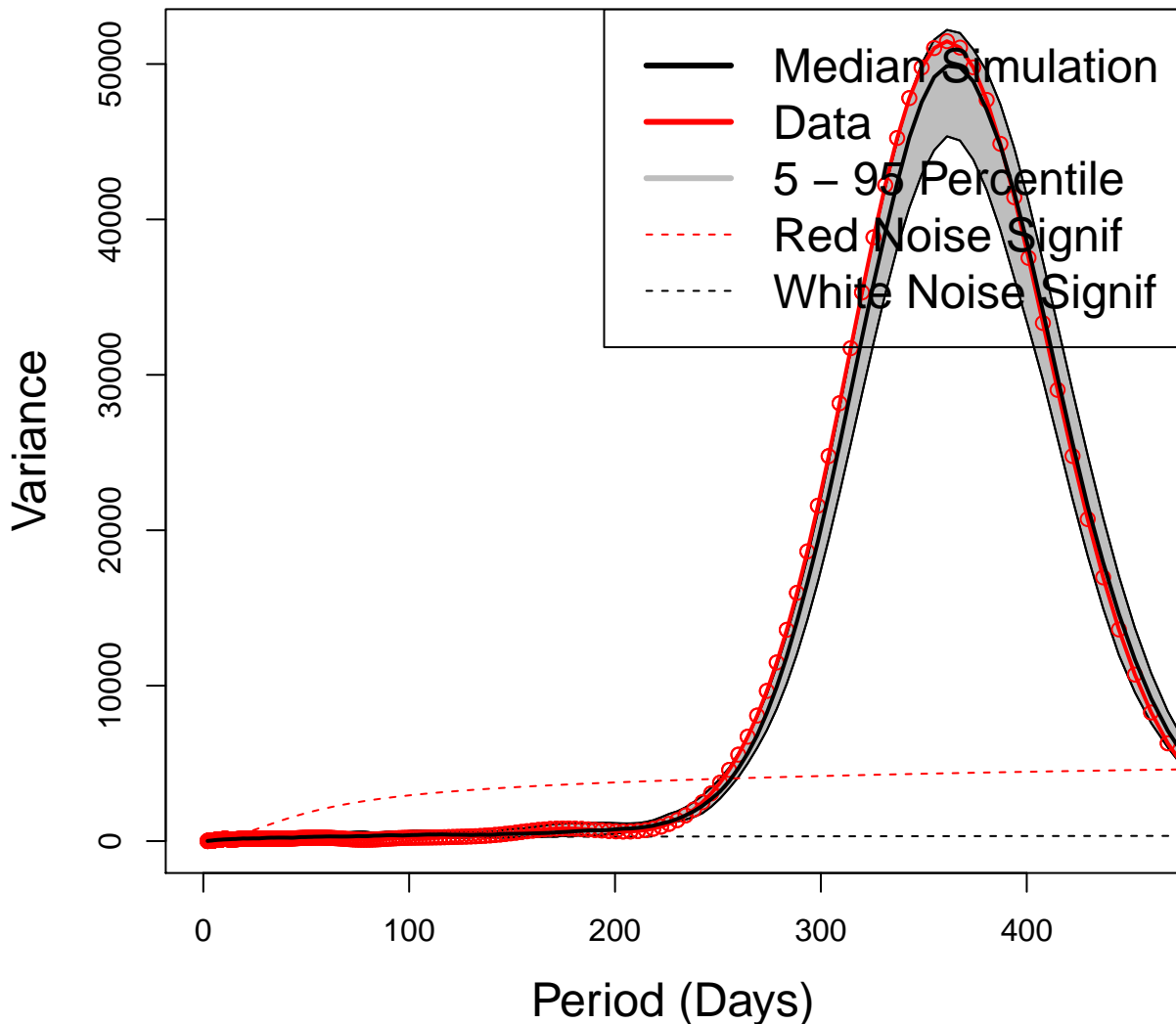
Fractional Variance – 7%



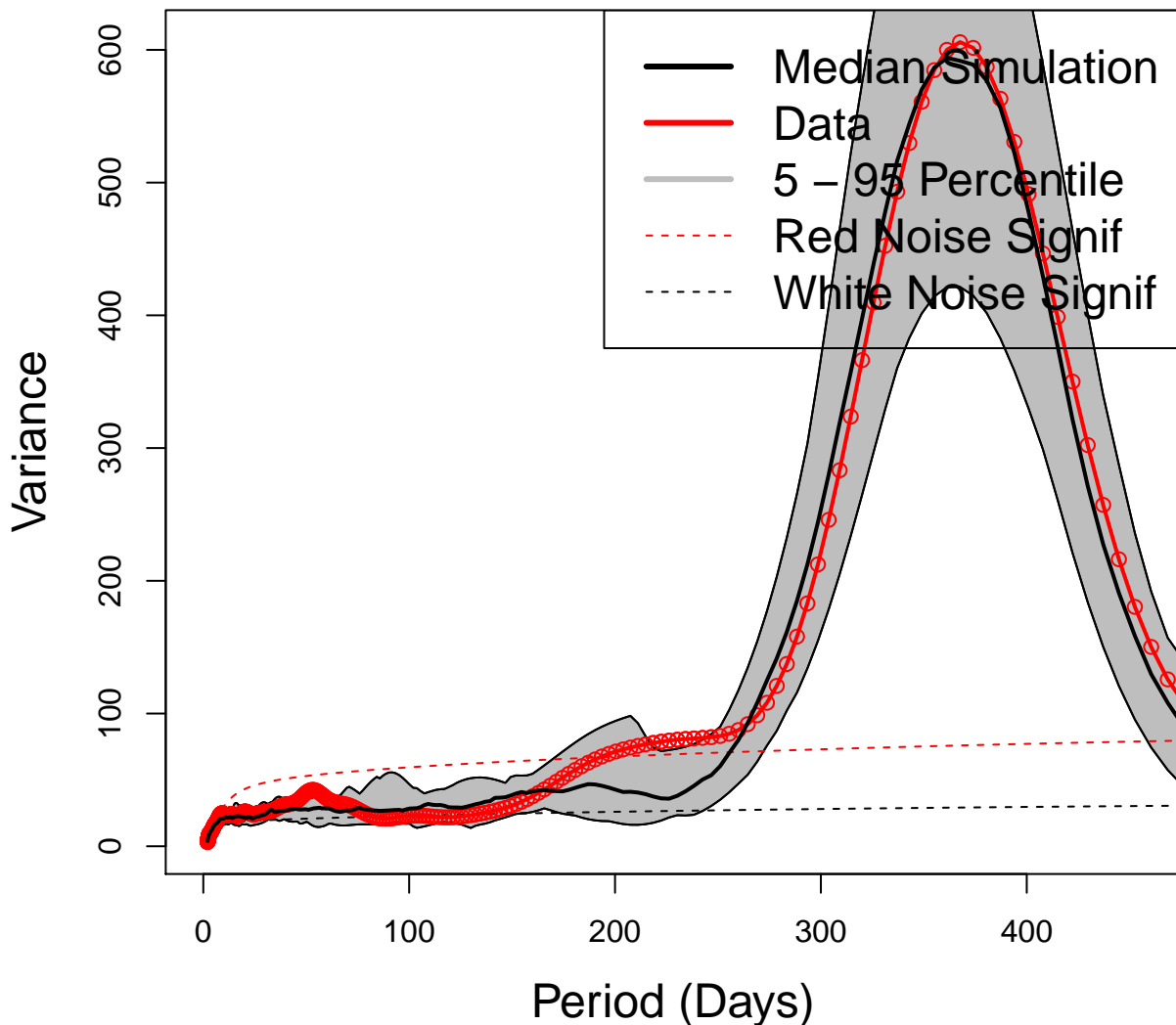
Eigenvectors



# Global Wavelet Spectrum PC – 1 Solar

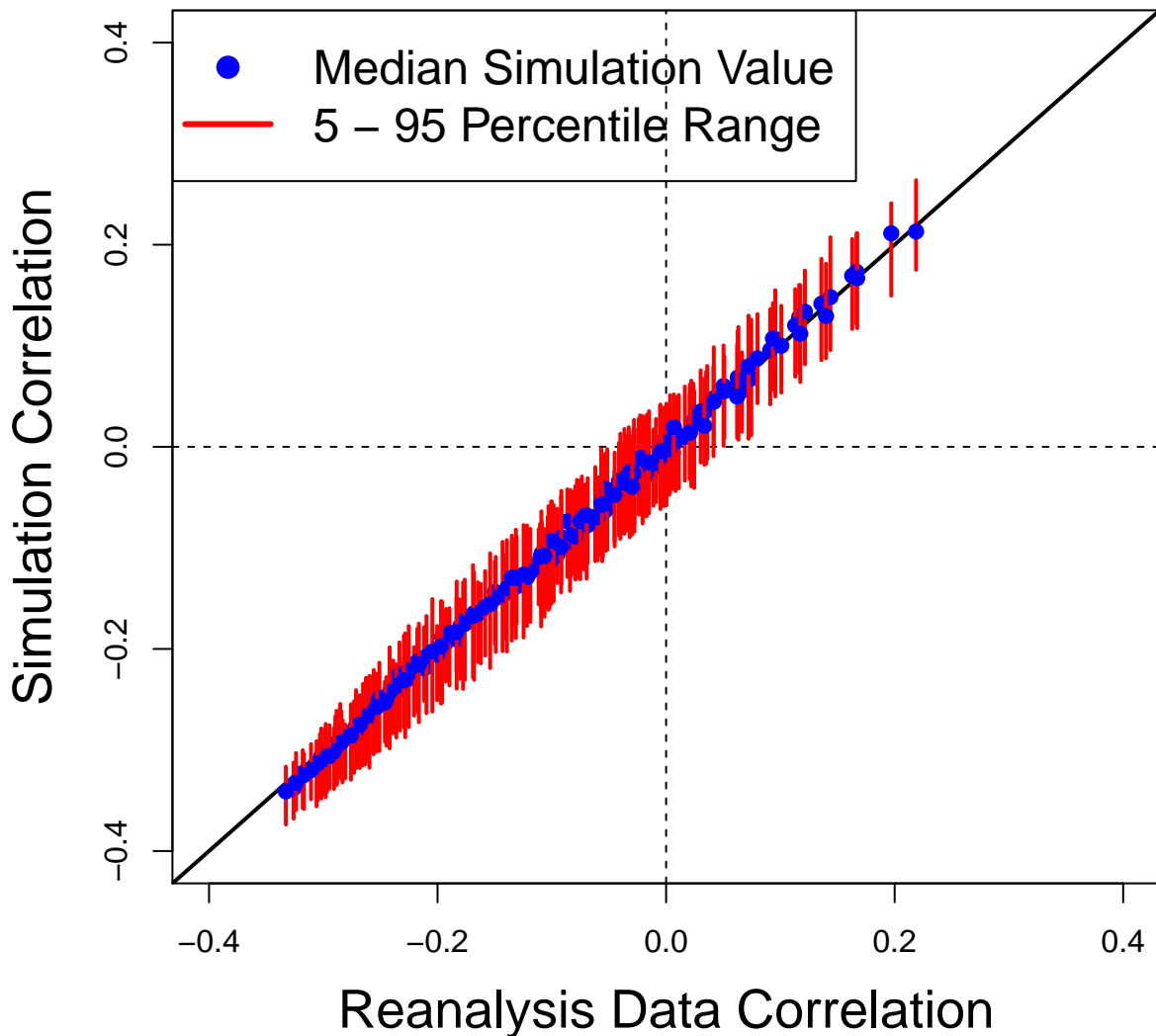


# Global Wavelet Spectrum PC – 2 Solar

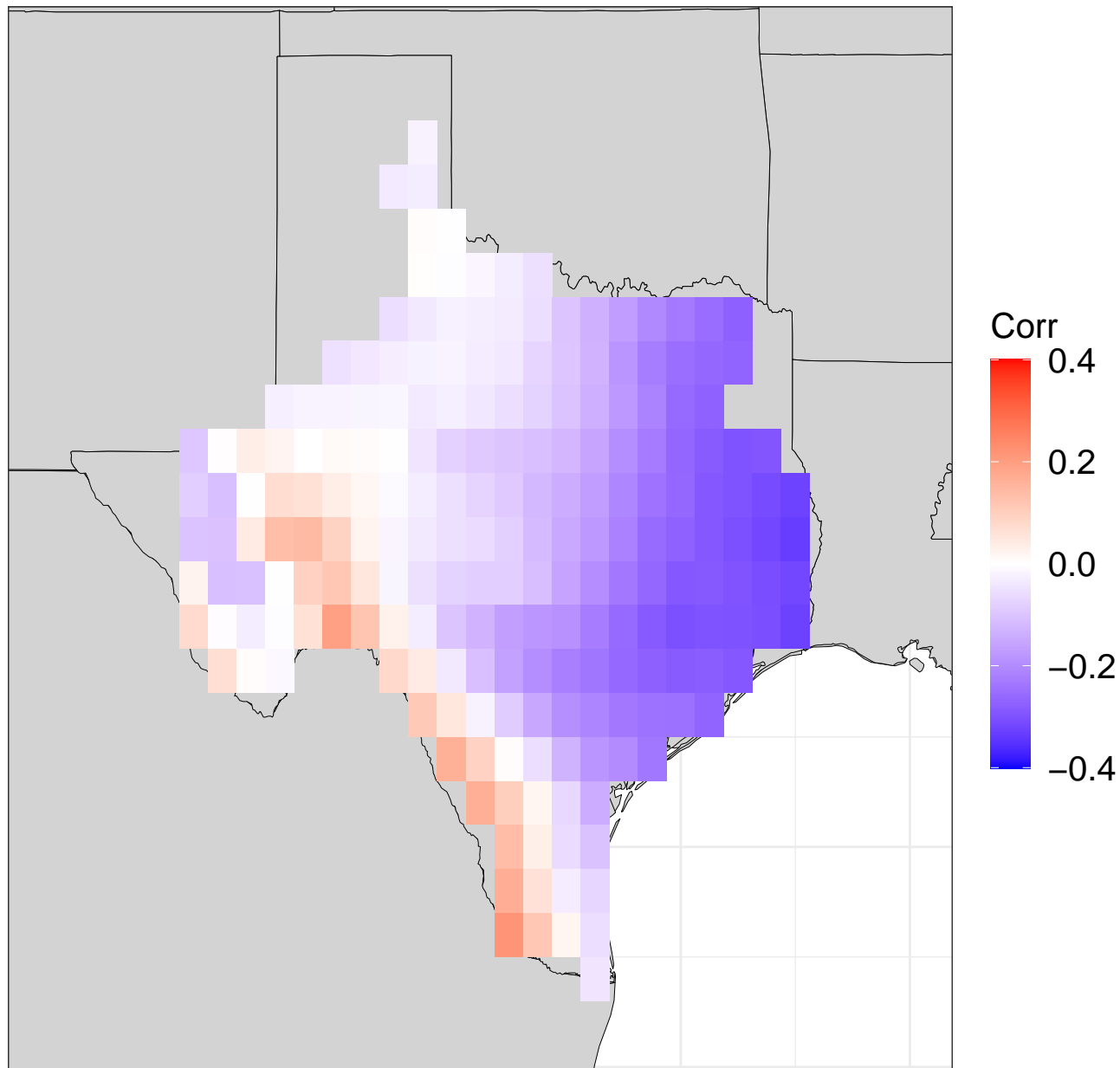




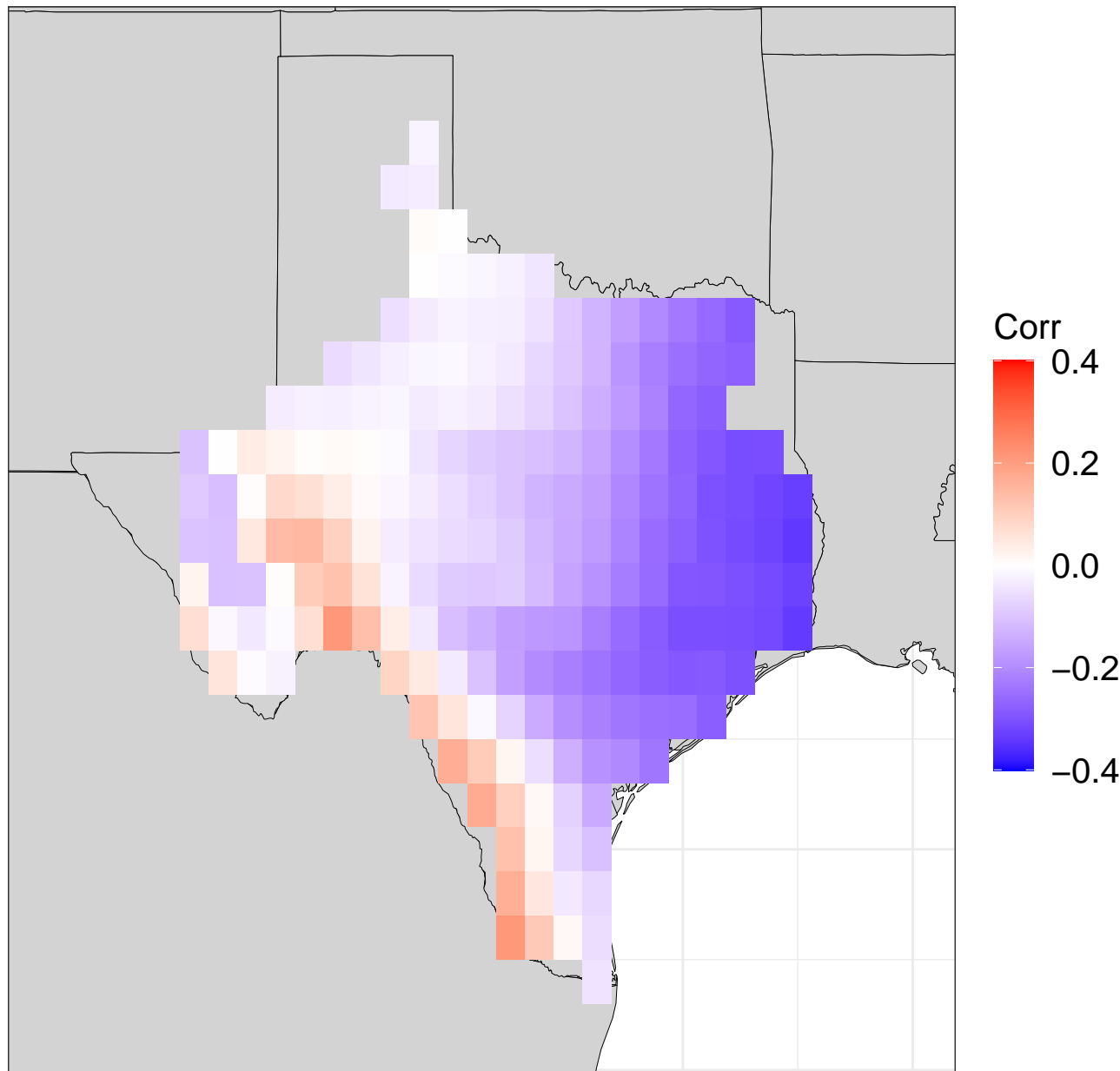
# Simulation vs Data Correlation



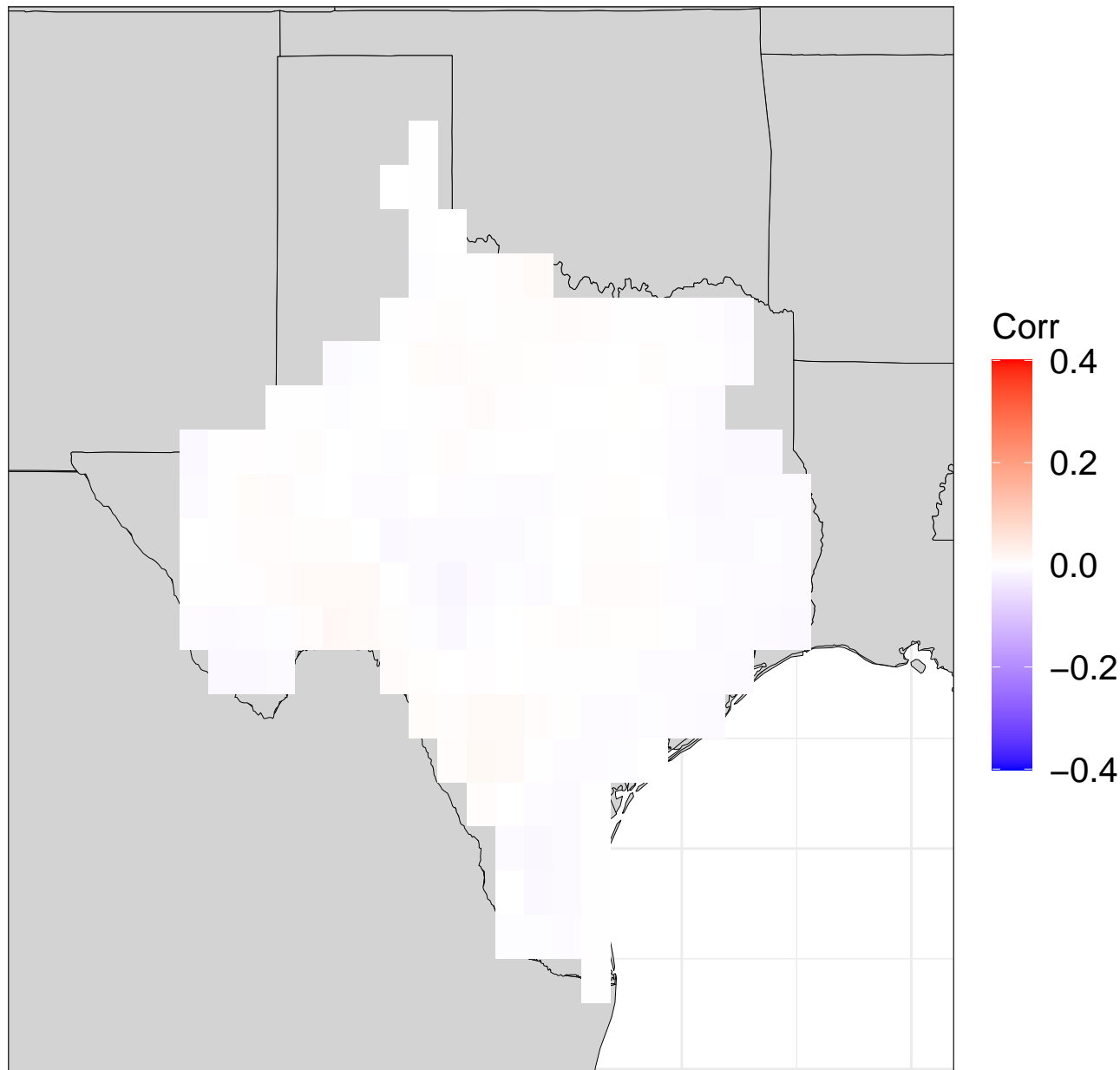
# Reanalysis Data Correlation

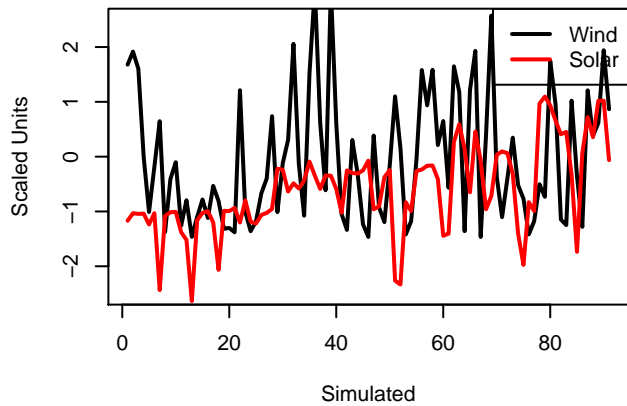
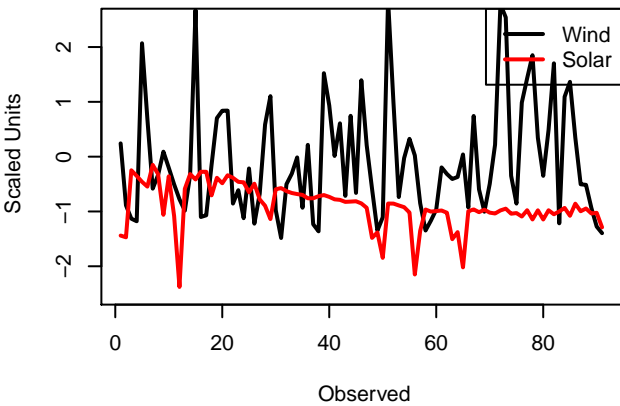
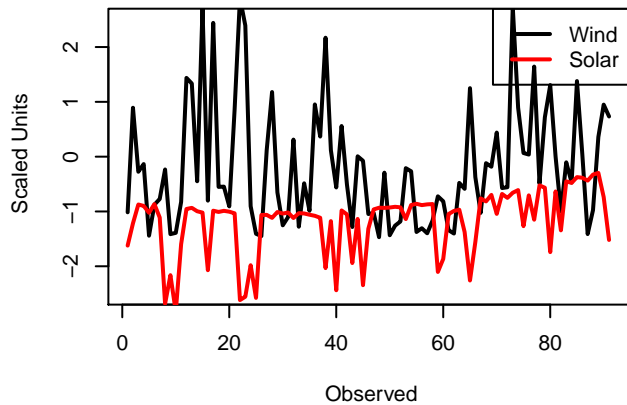
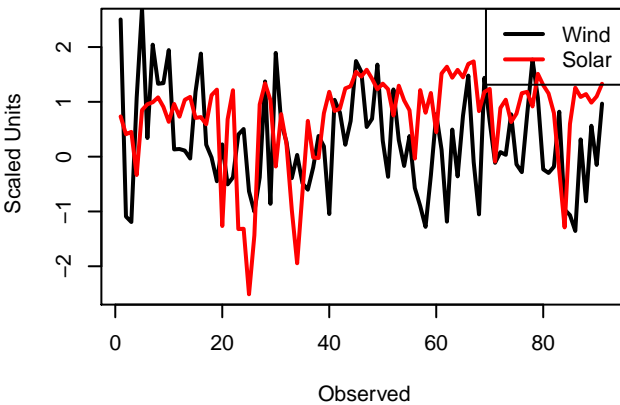
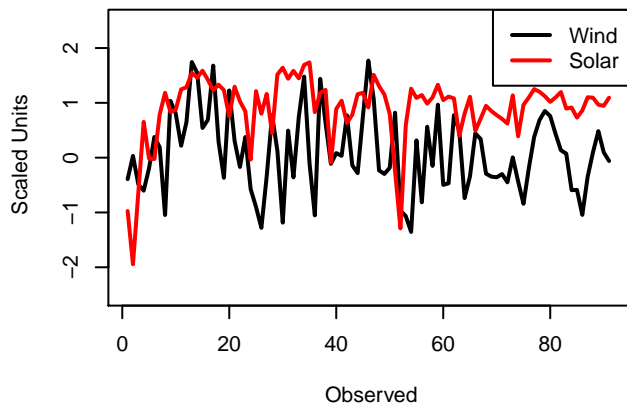
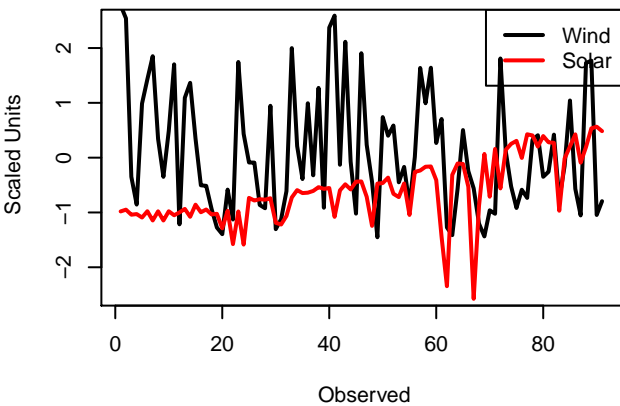


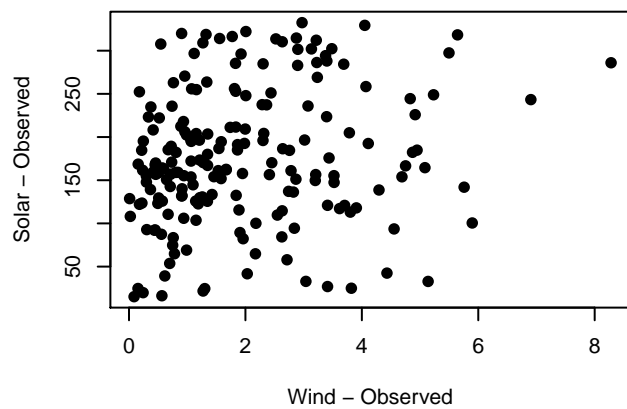
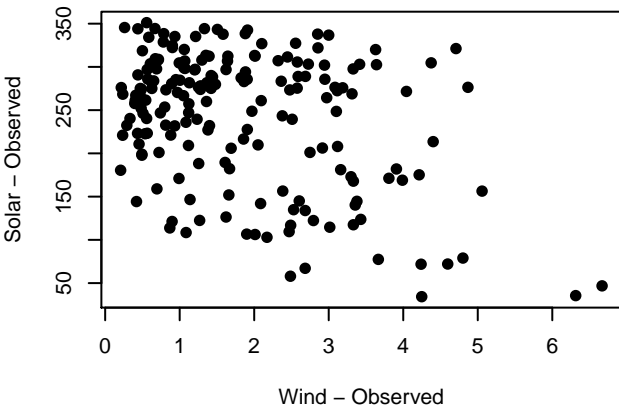
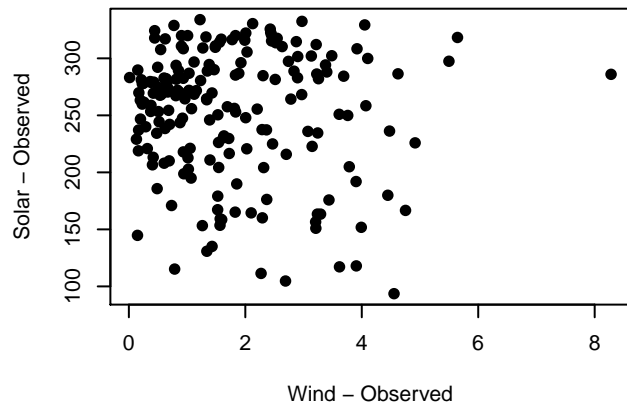
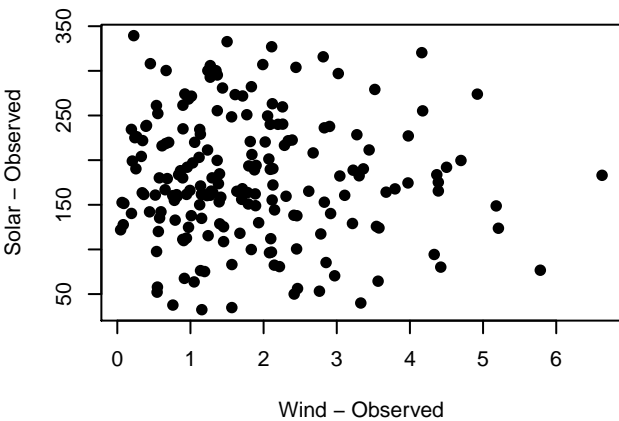
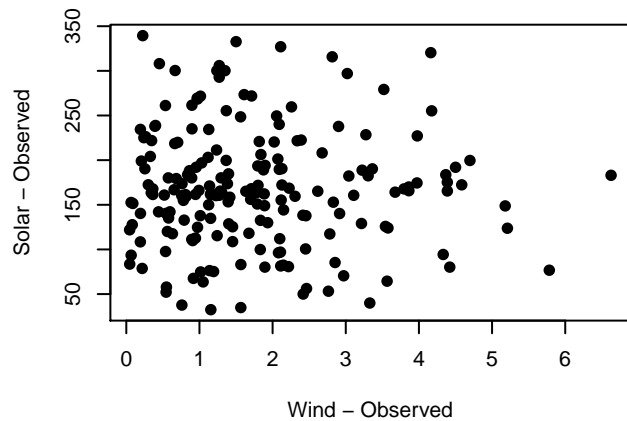
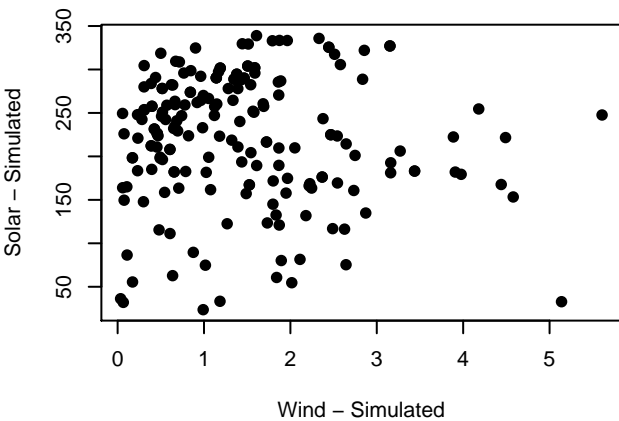
# Median Simulation Correlation



# Difference between Renalysis Data and Simulations

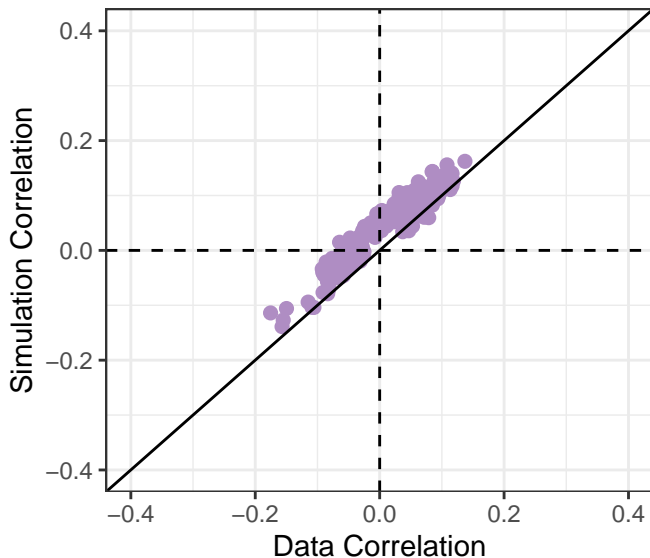






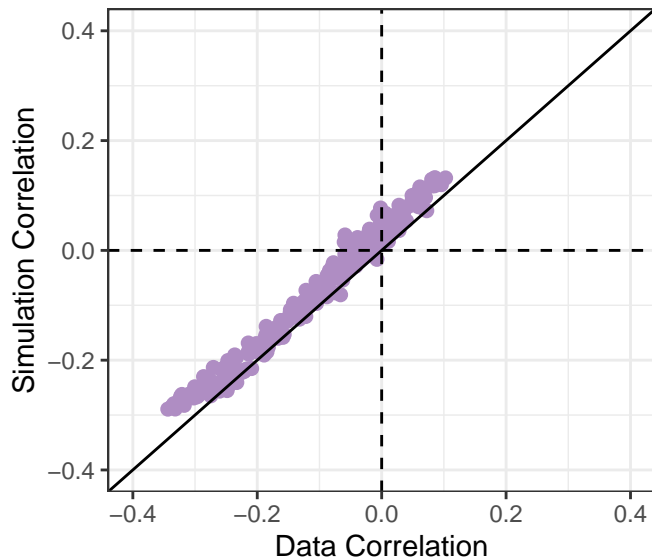
Simulation vs Data Correlation

Dec-Jan-Feb



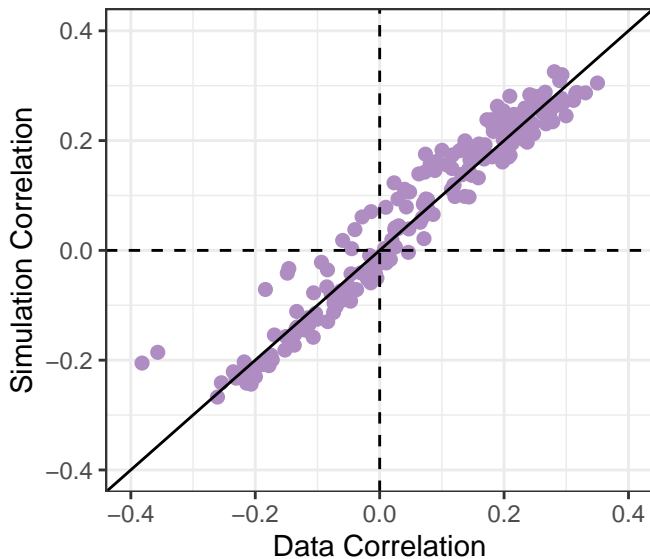
Simulation vs Data Correlation

Mar-April-May



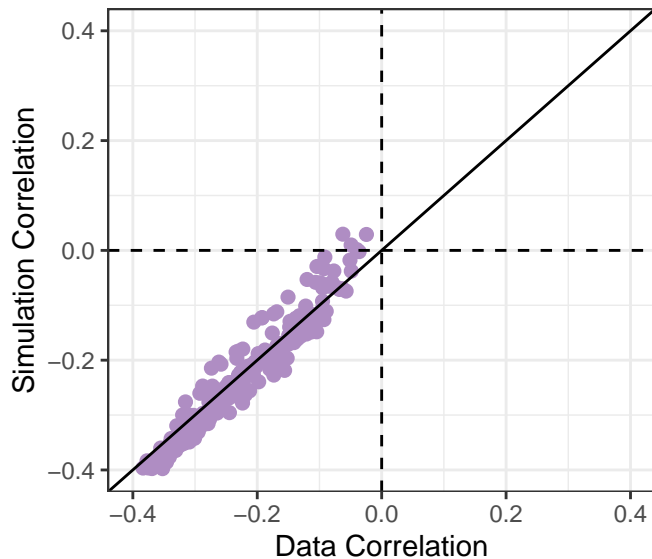
Simulation vs Data Correlation

Jun-July-Aug



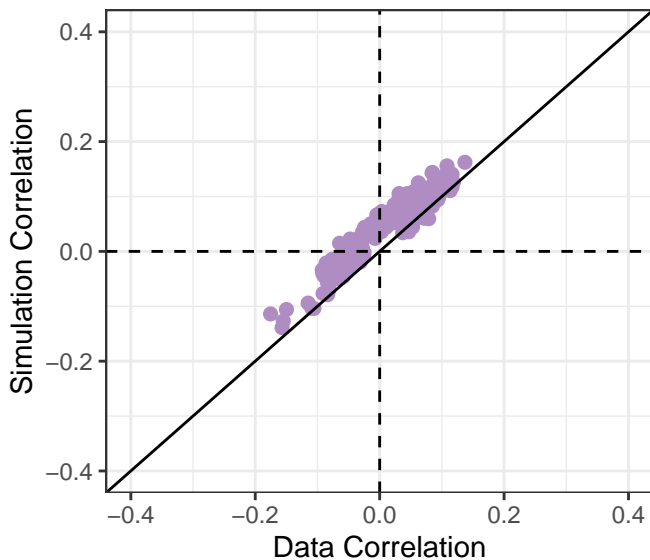
Simulation vs Data Correlation

Sept-Oct-Nov

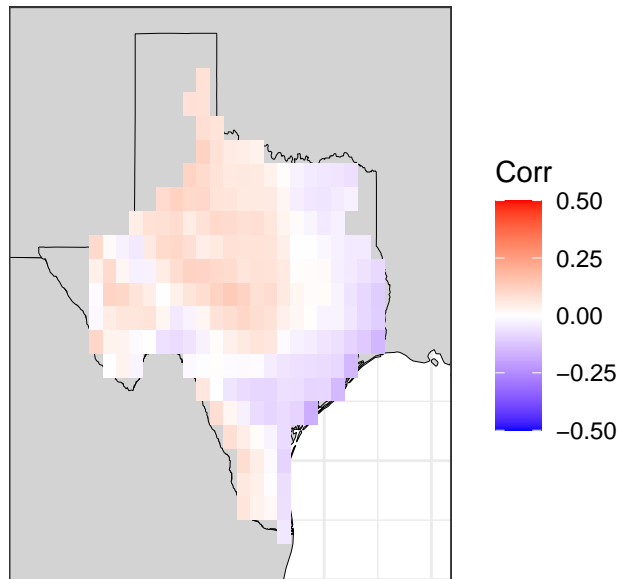


### Simulation vs Data Correlation

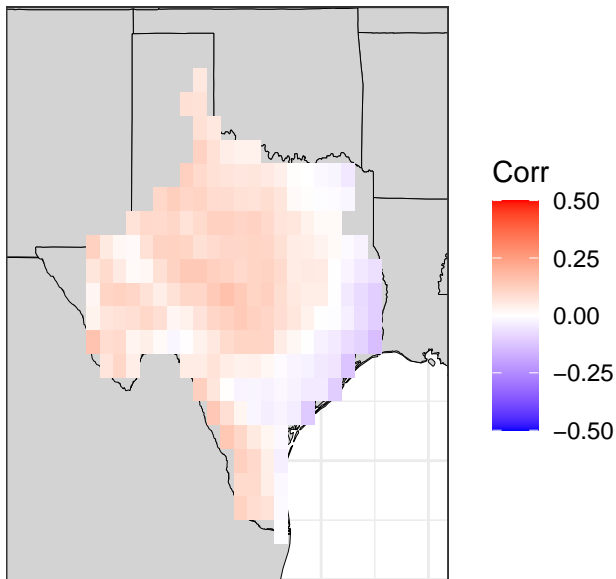
Dec-Jan-Feb



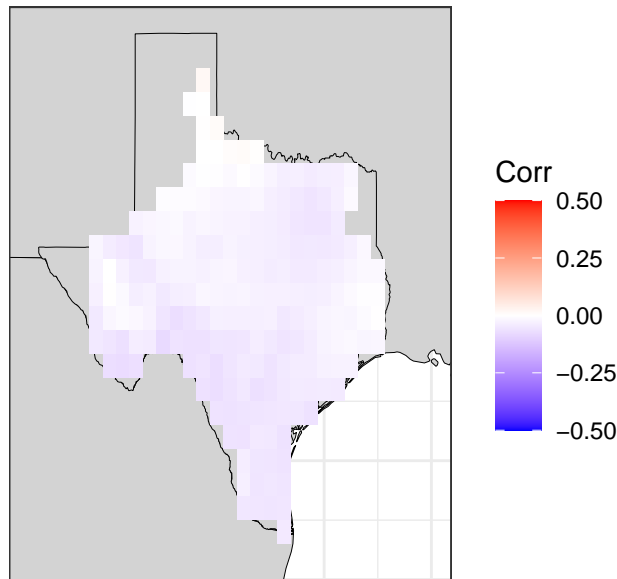
### Reanalysis Data Correlation – DJF



### Median Simulation Correlation – DJF



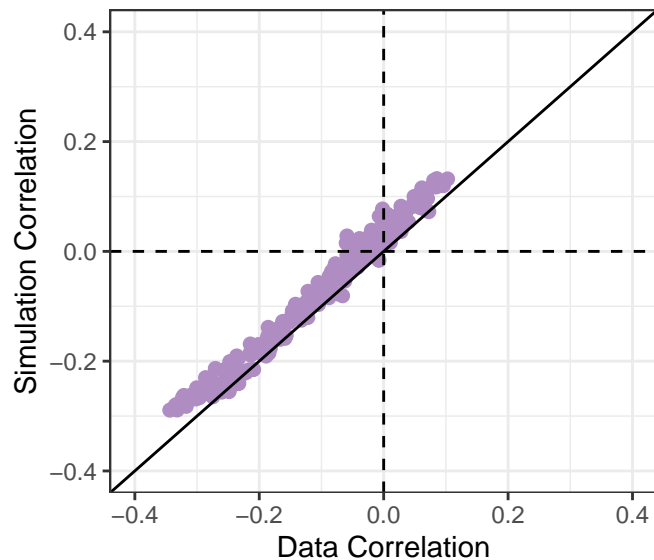
### Difference between Data and Simulations



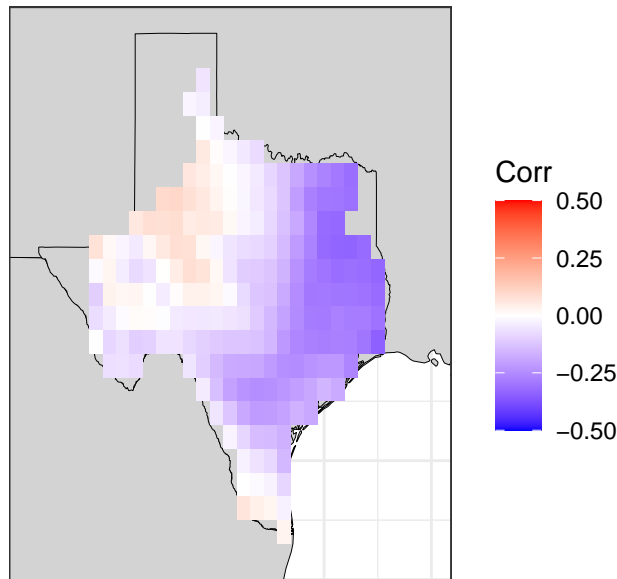


### Simulation vs Data Correlation

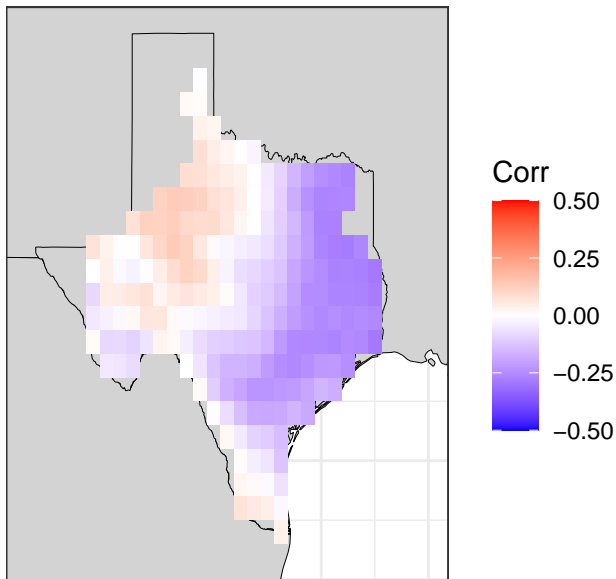
Mar–April–May



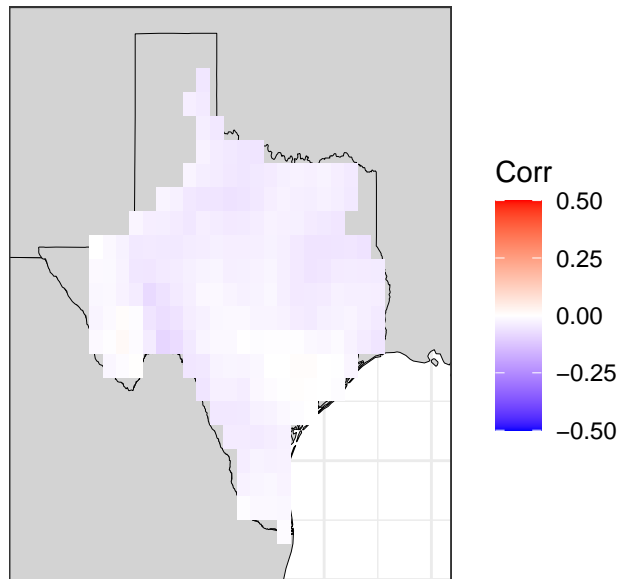
### Reanalysis Data Correlation – MAM



### Median Simulation Correlation – MAM

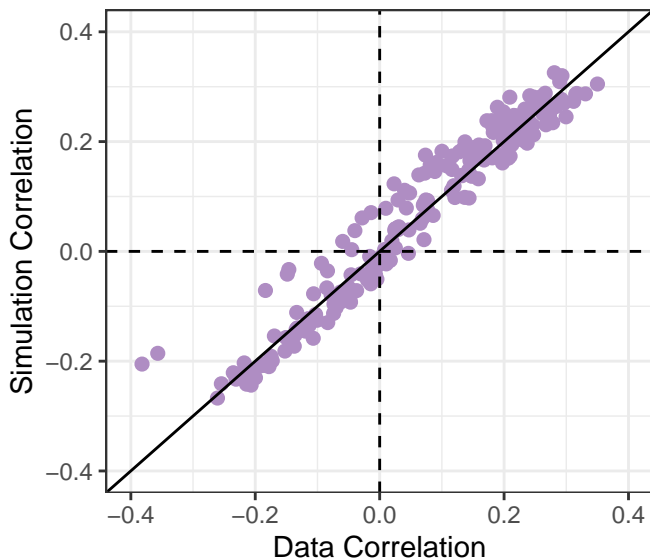


### Difference between Data and Simulations

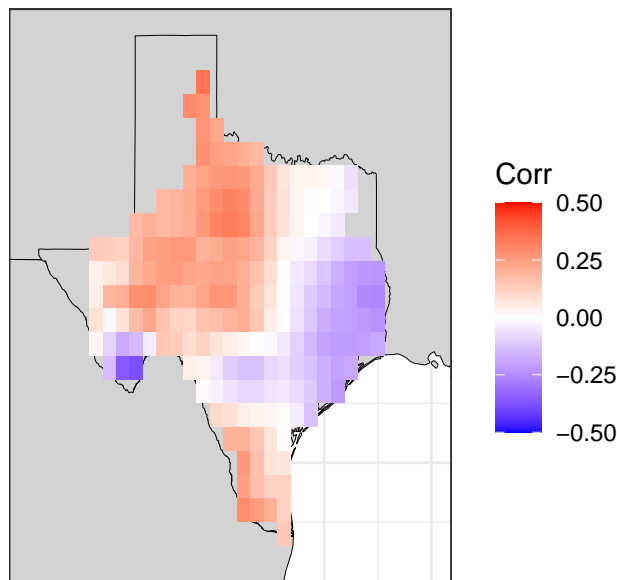


# Simulation vs Data Correlation

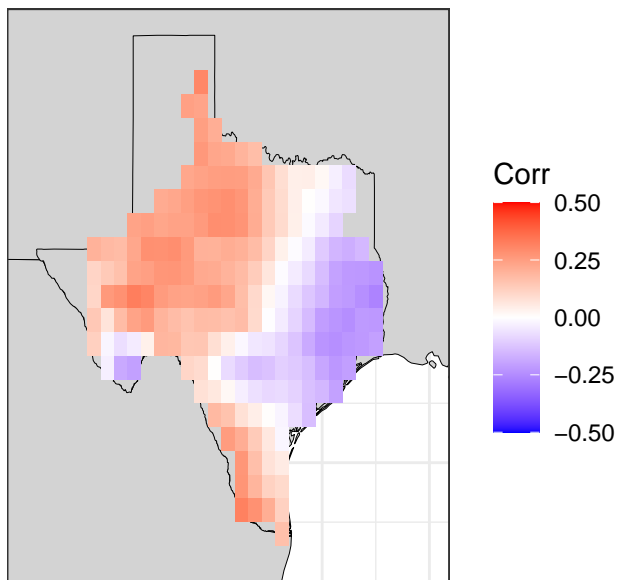
Jun–July–Aug



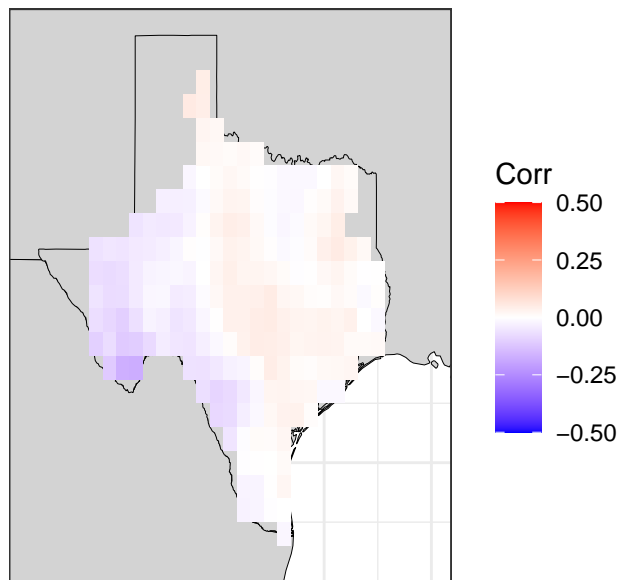
# Reanalysis Data Correlation – JJA



# Median Simulation Correlation – JJA

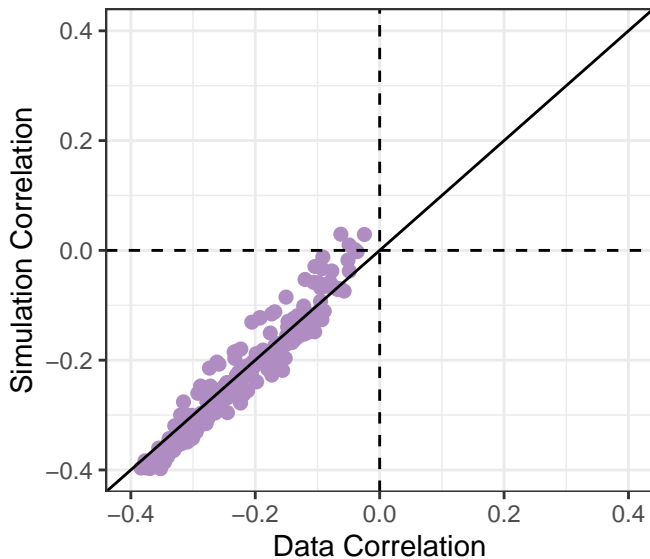


# Difference between Data and Simulations

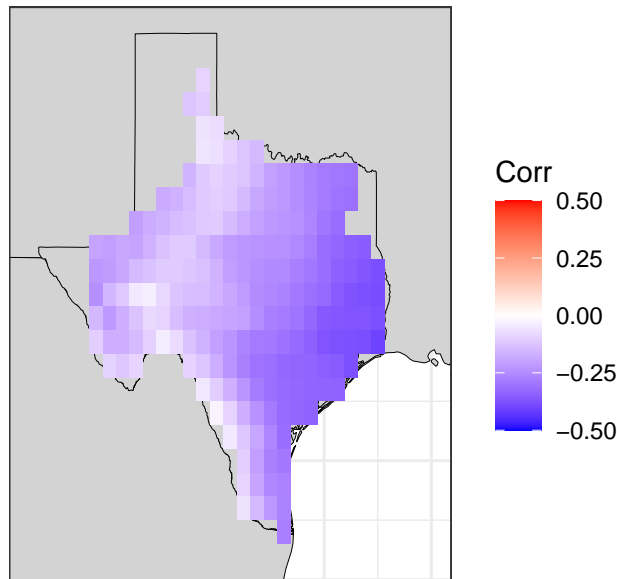


# Simulation vs Data Correlation

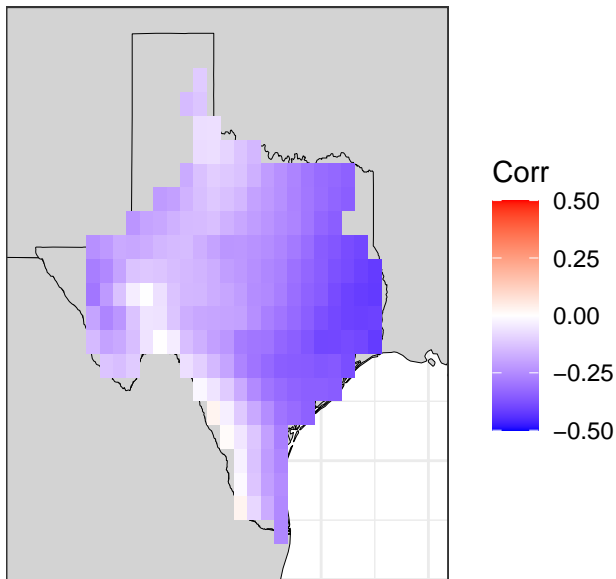
Sept–Oct–Nov



# Reanalysis Data Correlation – SON



# Median Simulation Correlation – SON



# Difference between Data and Simulations

