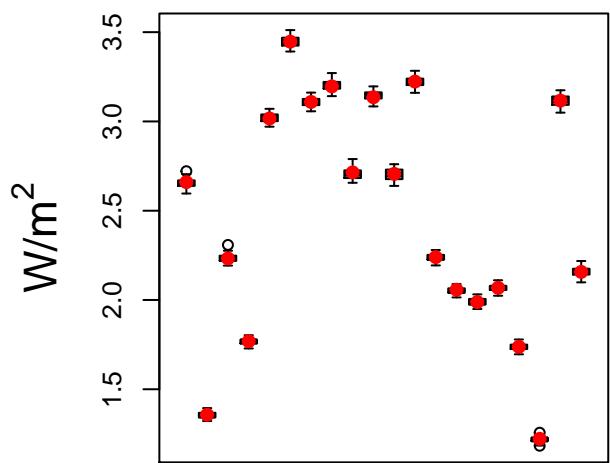
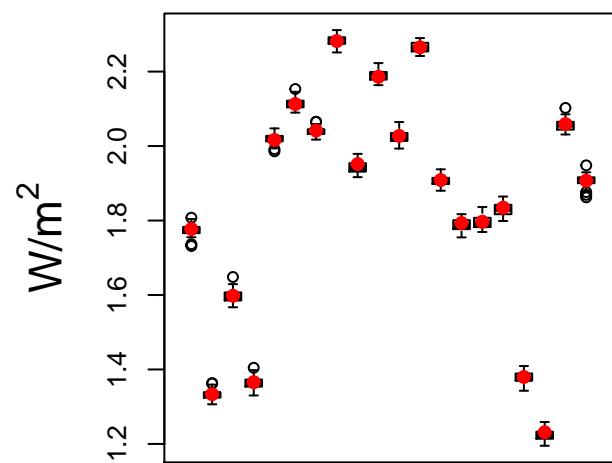
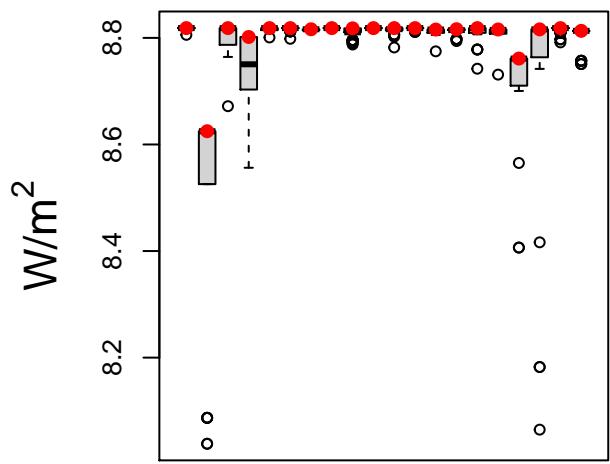
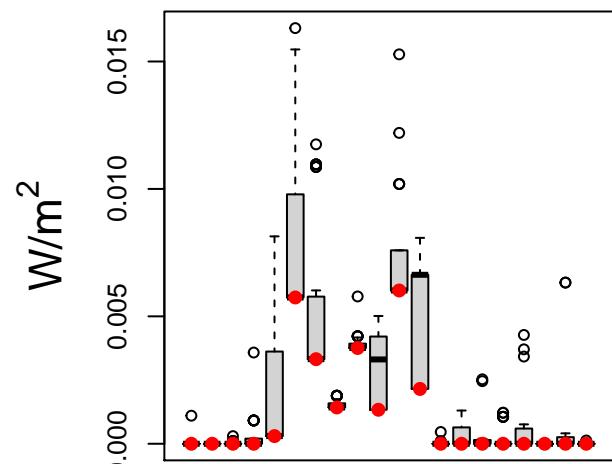
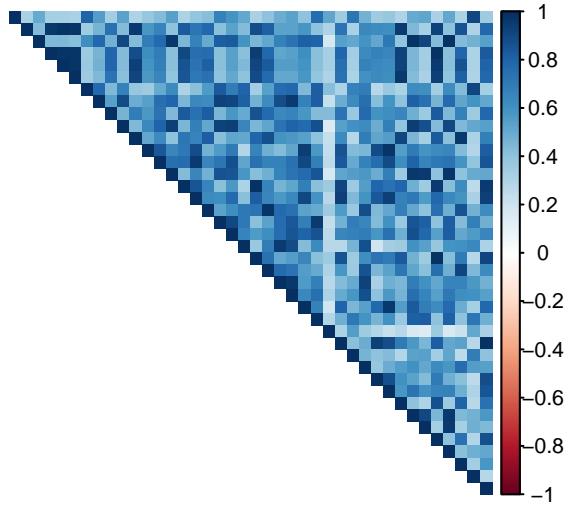
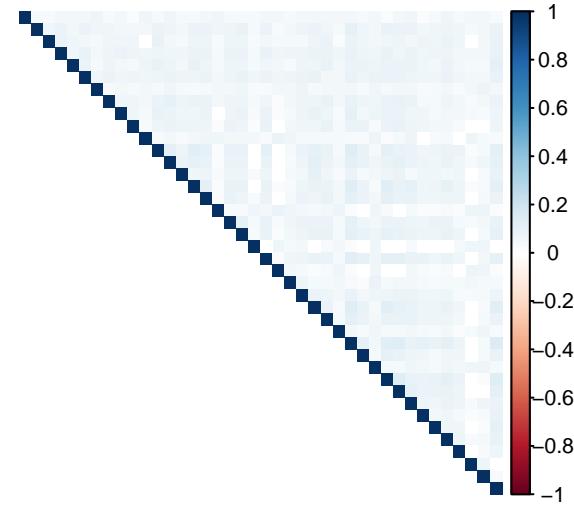


**Mean – Wind****Stan Dev – Wind****Maximum – Wind****Minimum – Wind**

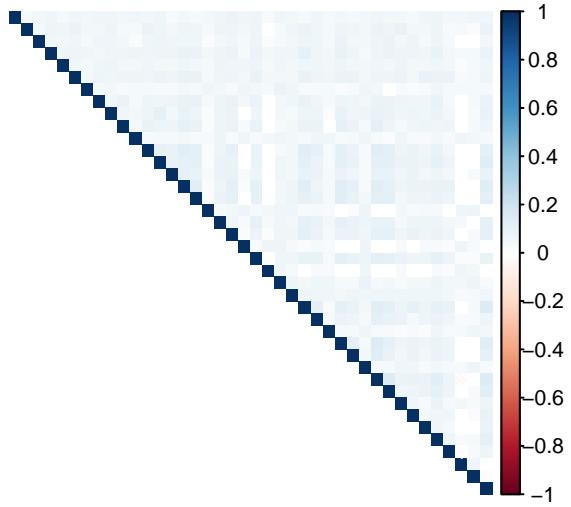
**Cross Correlation  
Data**



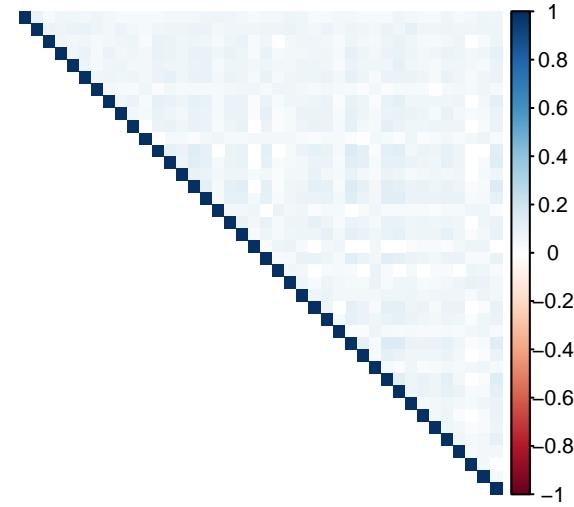
**Cross Correlation  
Simulation Run – 29**



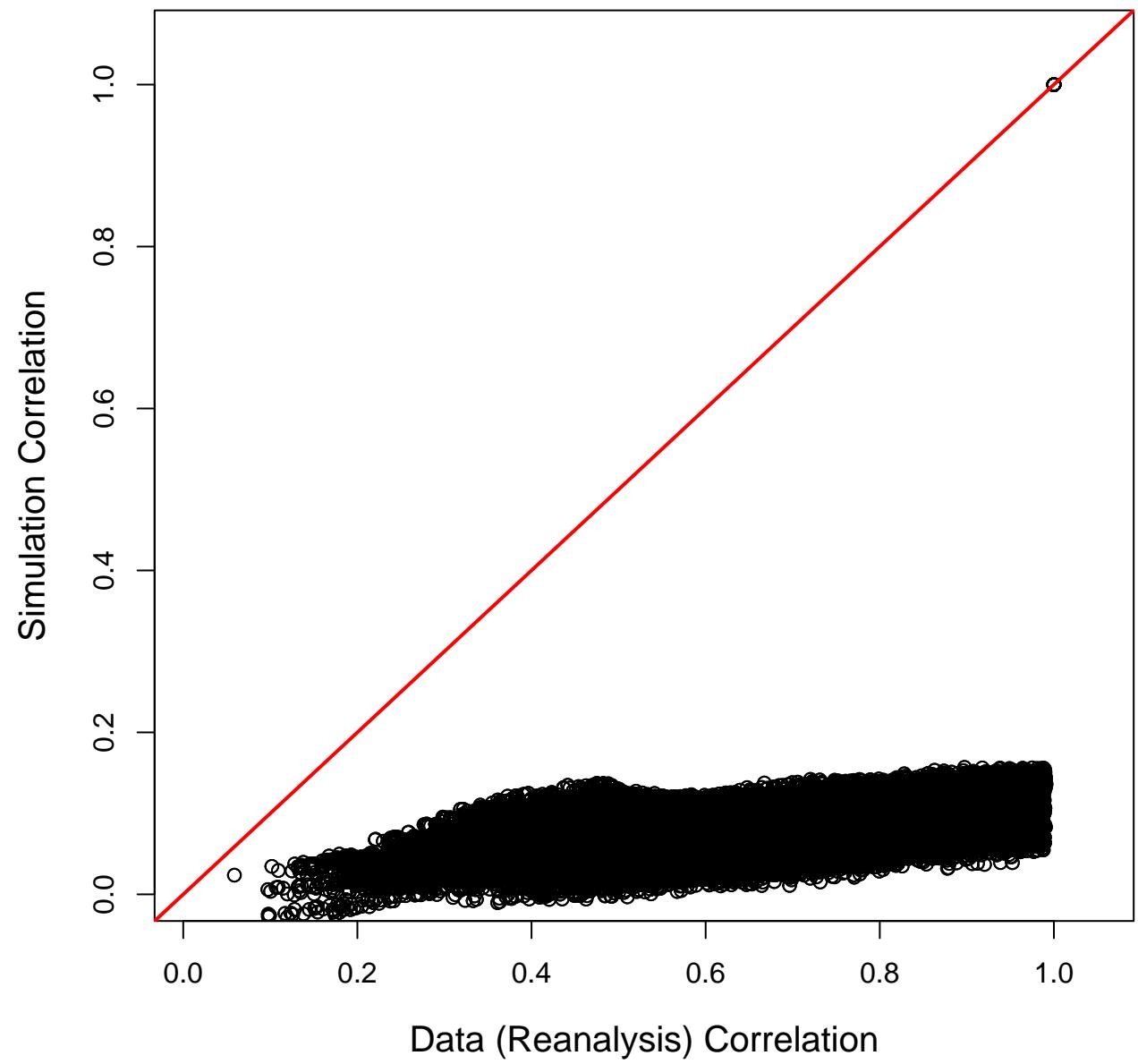
**Cross Correlation  
Simulation Run – 25**



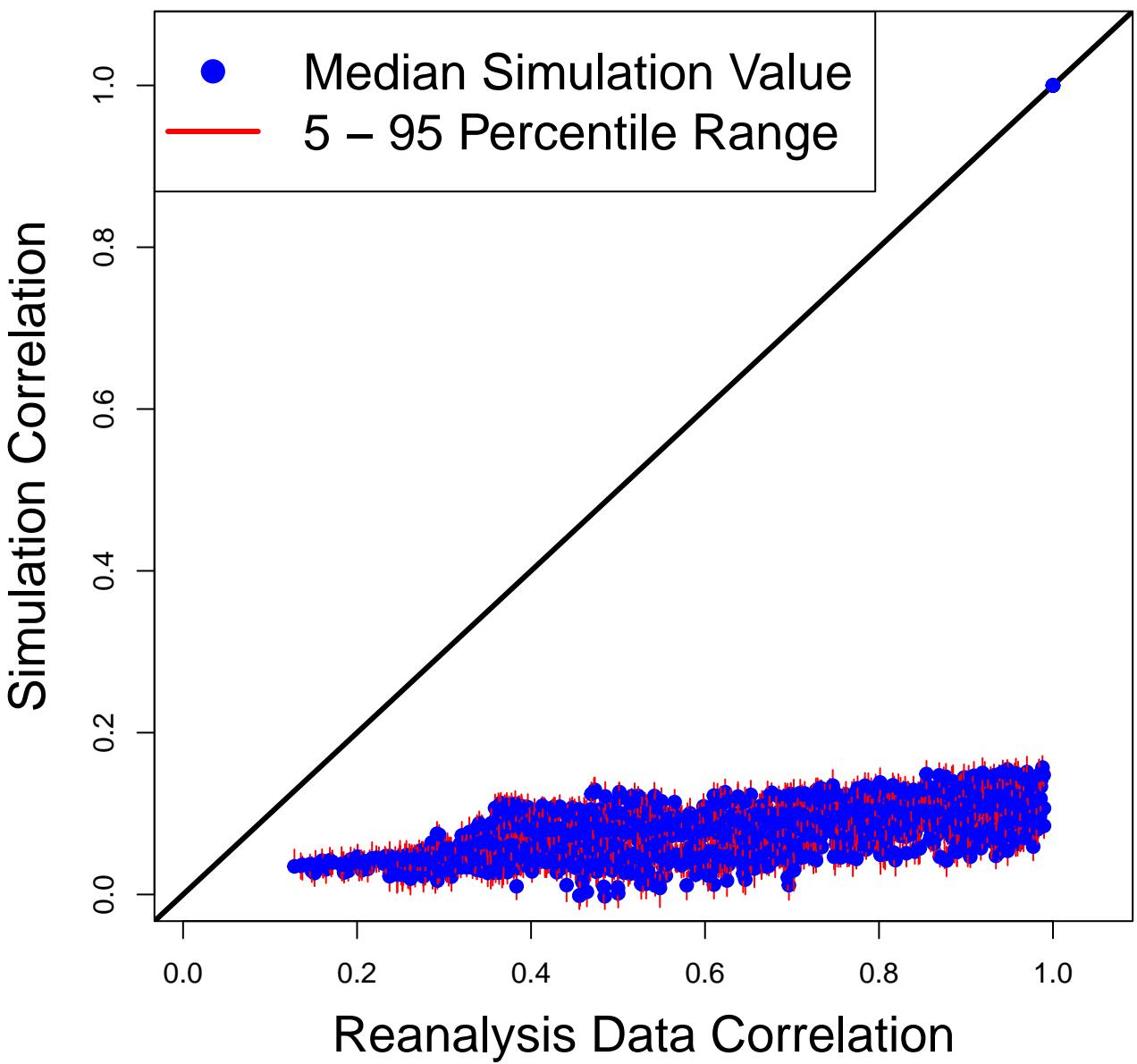
**Cross Correlation  
Simulation Run – 42**



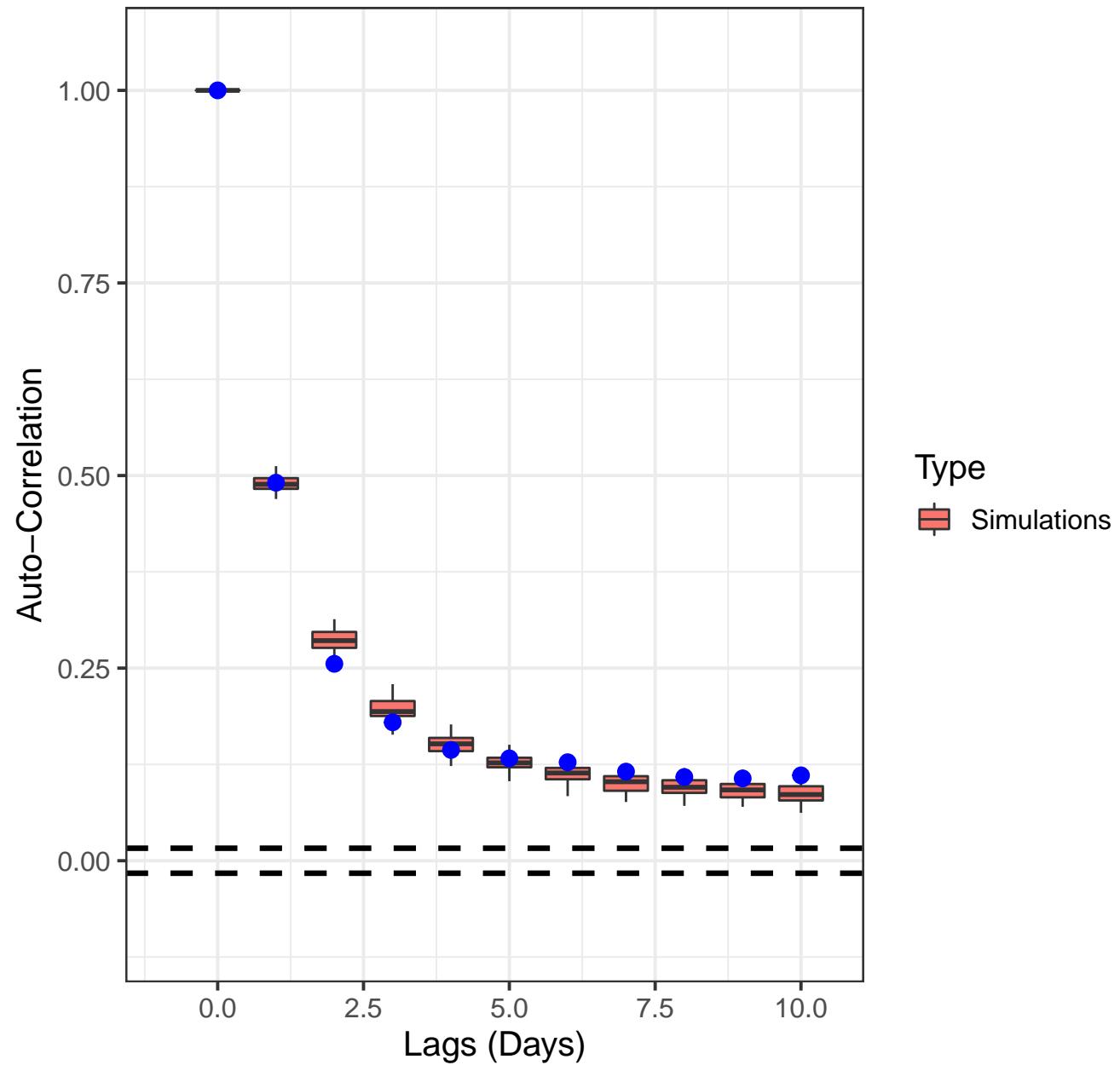
## Cross Site Correlations – Wind

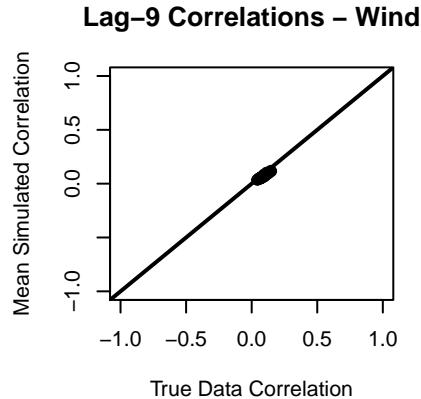
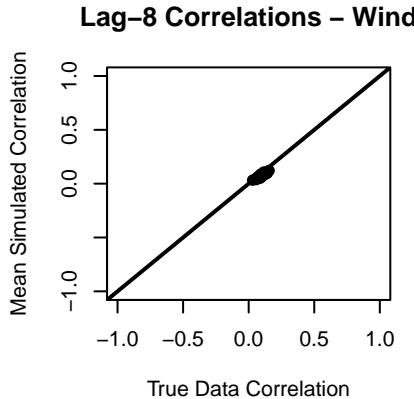
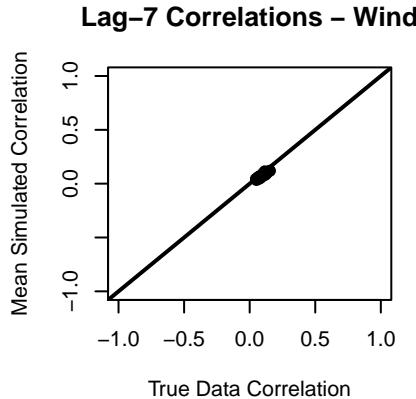
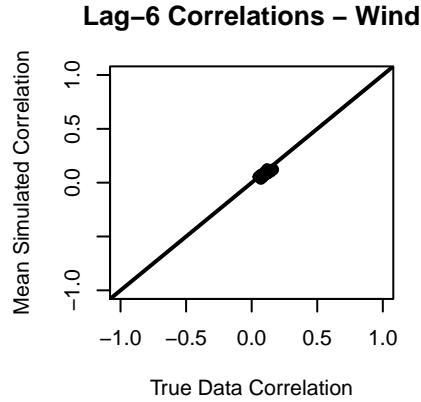
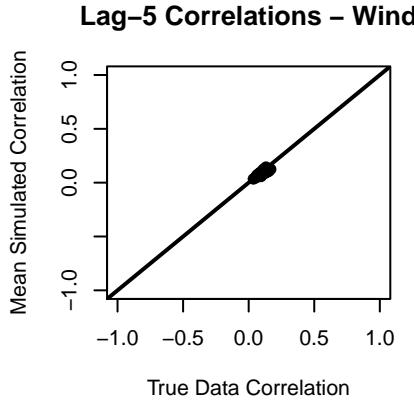
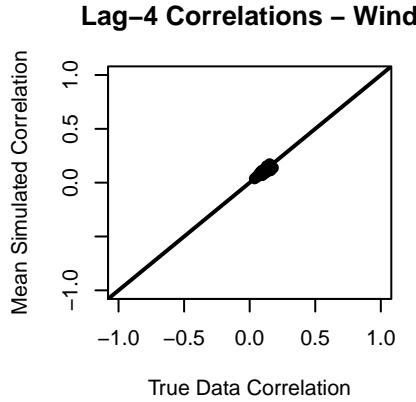
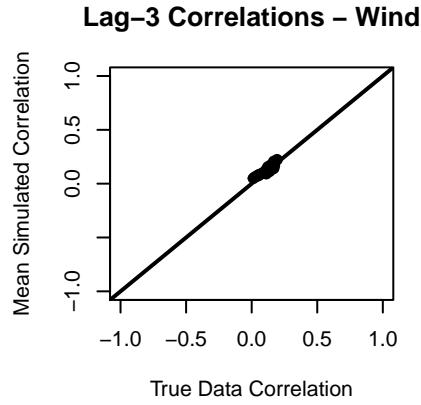
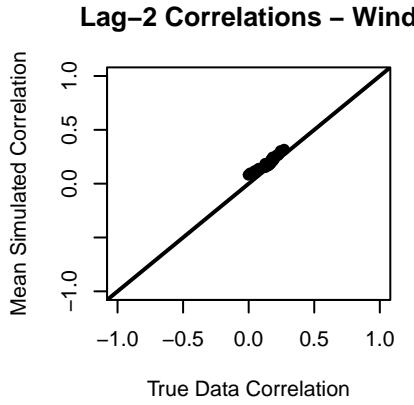
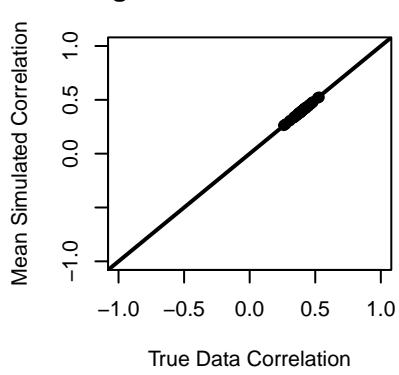


## Cross Site Correlations – Wind

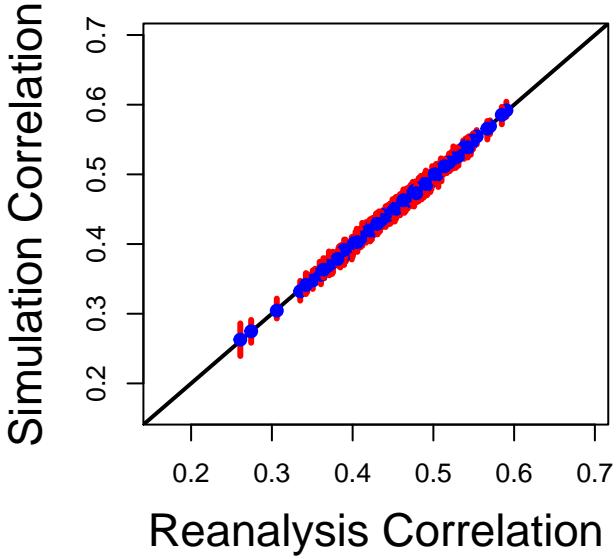


# ACF – Single Random Site – Wind

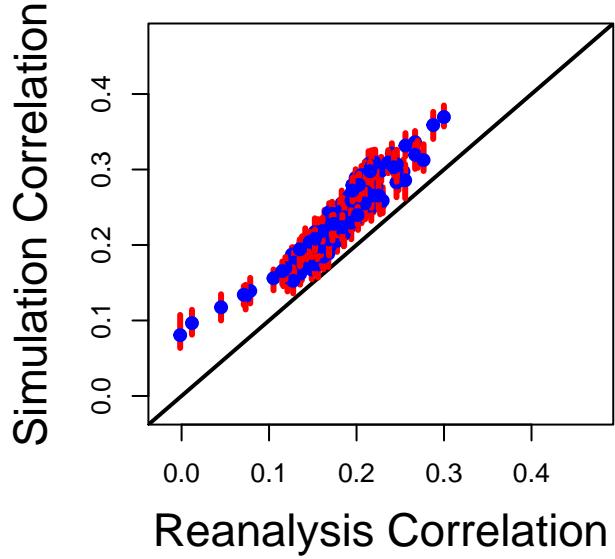




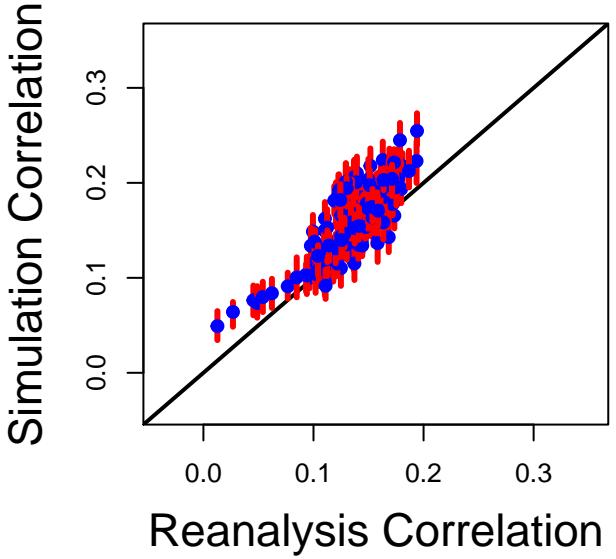
### Lag-1 – Wind



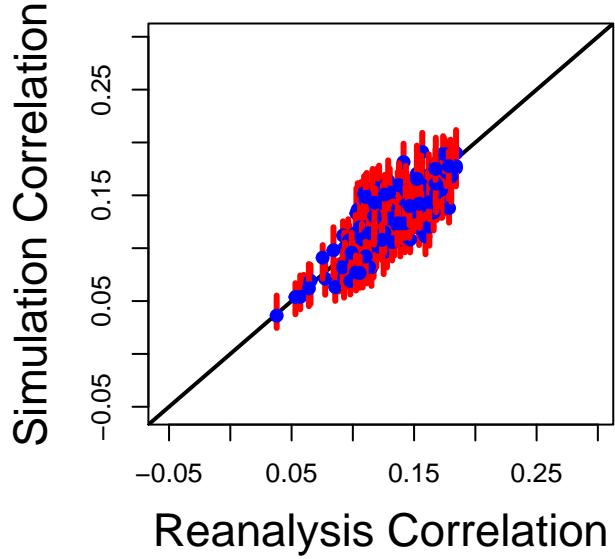
### Lag-2 – Wind



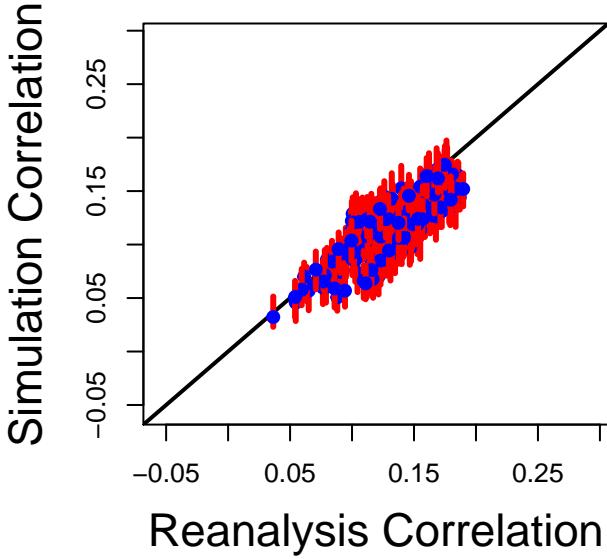
### Lag-3 – Wind



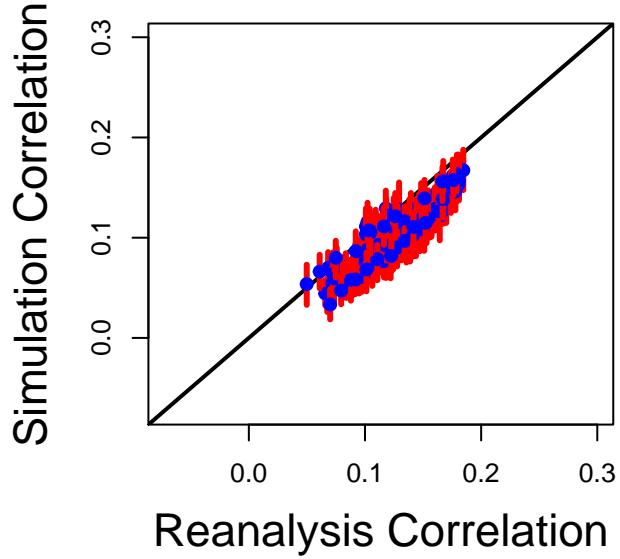
### Lag-4 – Wind



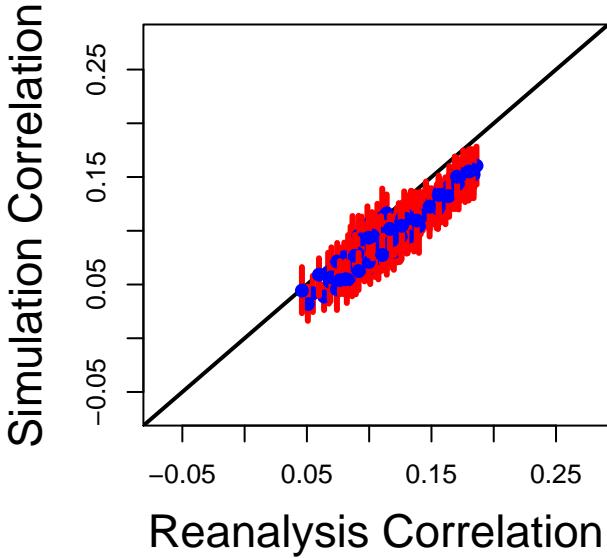
### Lag-5 – Wind



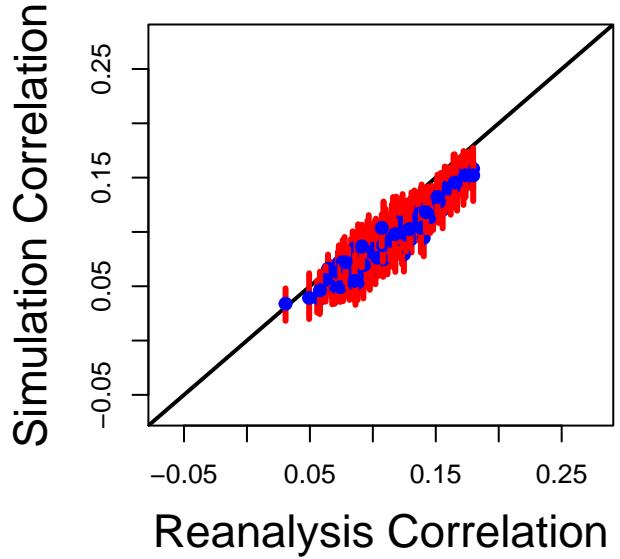
### Lag-6 – Wind



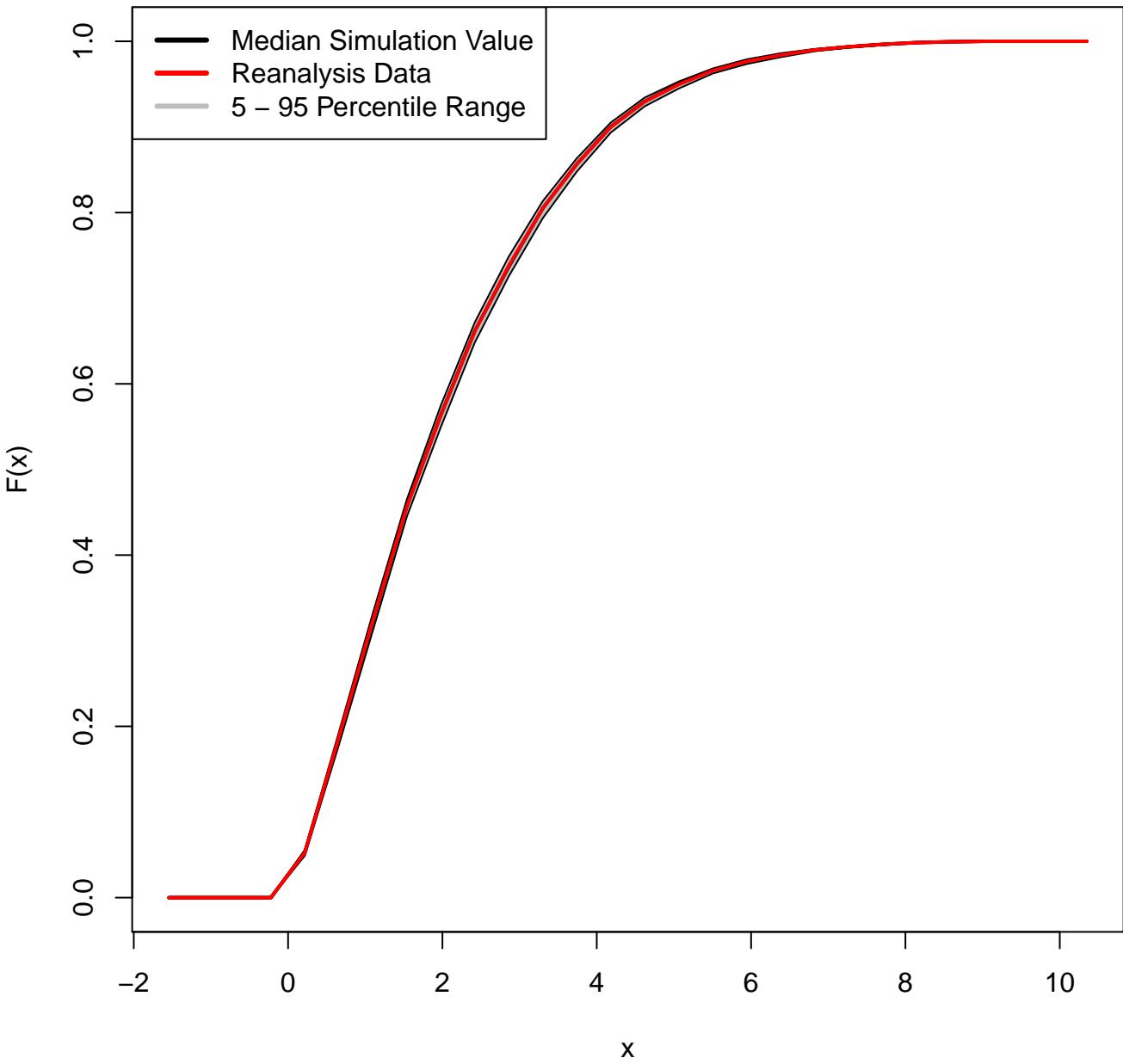
### Lag-7 – Wind



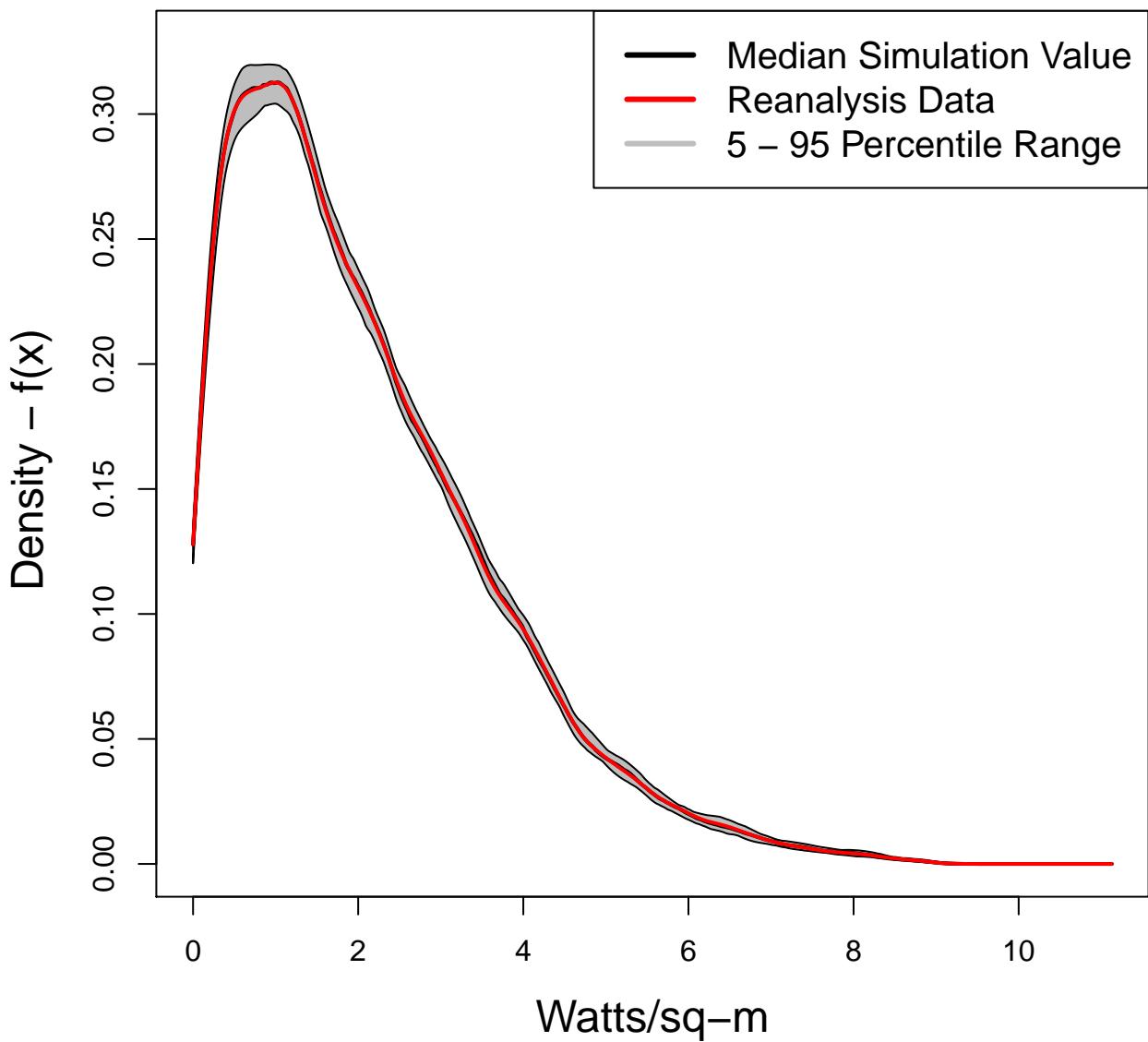
### Lag-8 – Wind

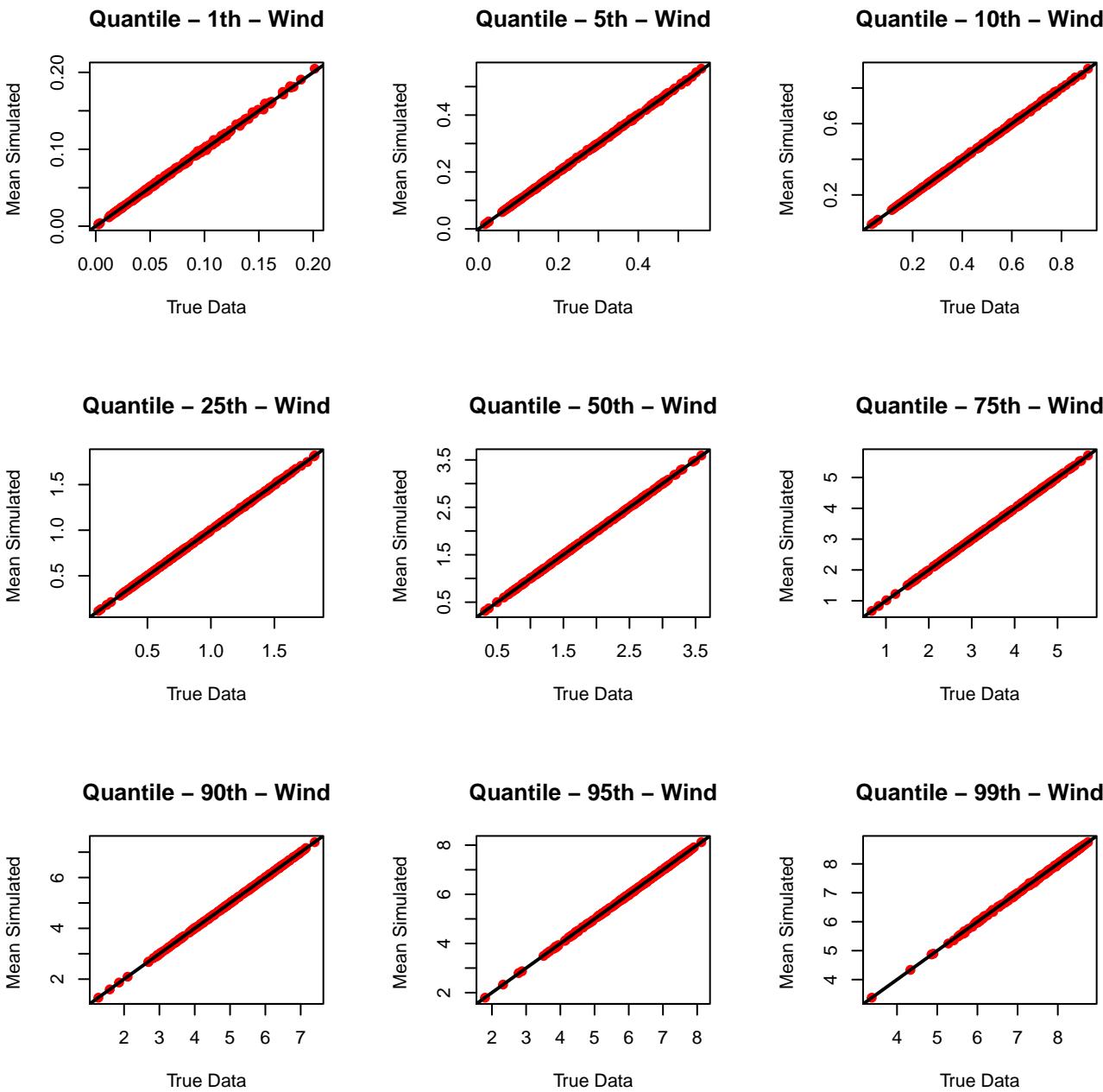


## True vs Simulated CDF for Single Site – Wind

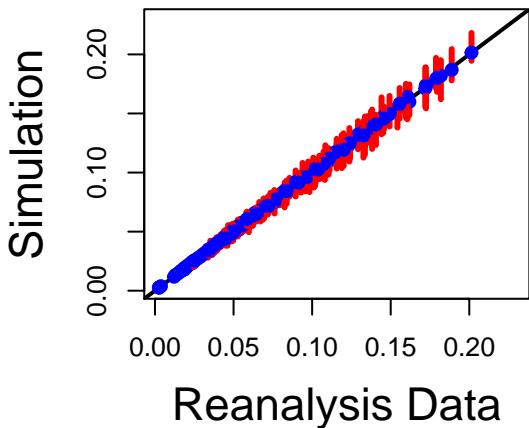


## PDF at a single site – Wind

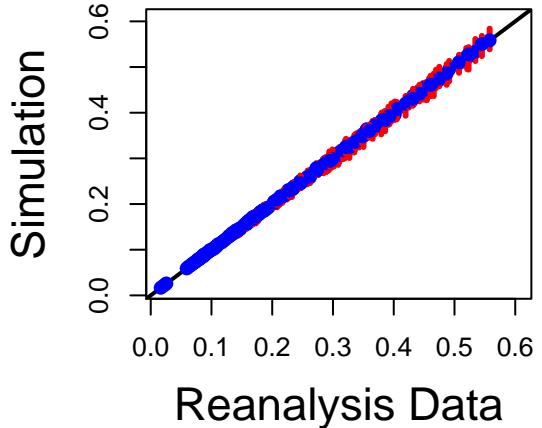




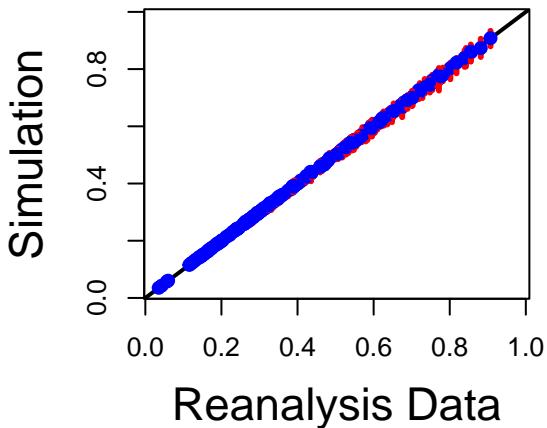
## 1th Quantile – Wind



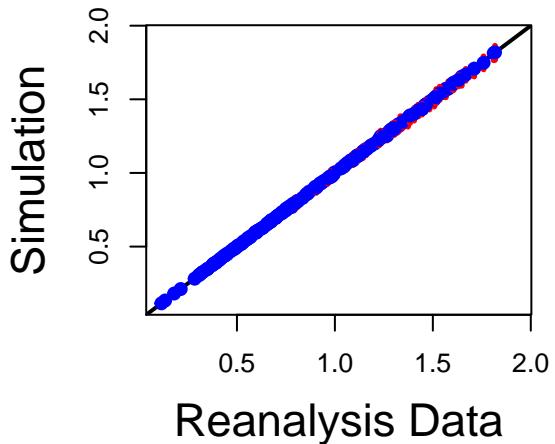
## 5th Quantile – Wind



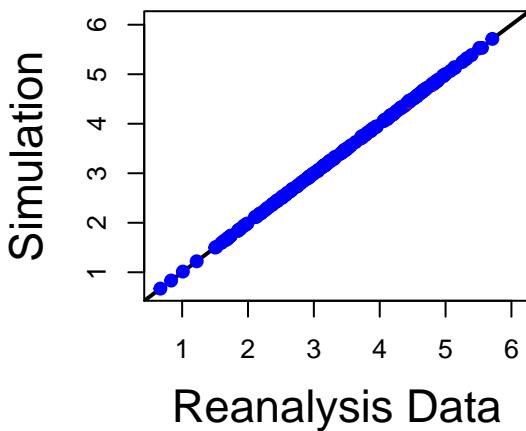
## 10th Quantile – Wind



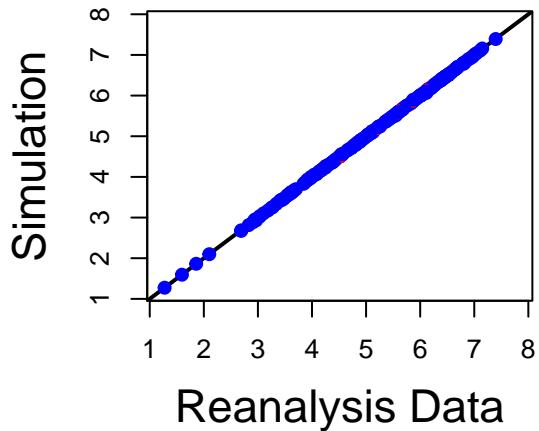
## 25th Quantile – Wind



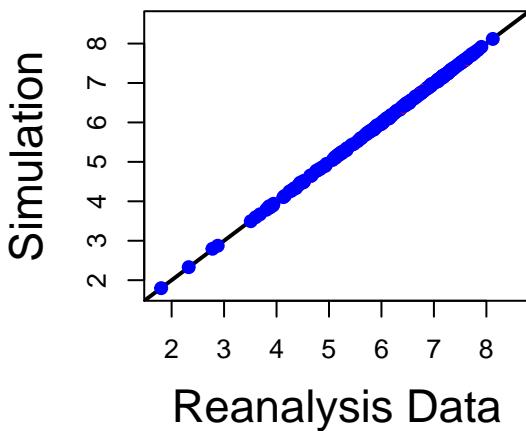
## 75th Quantile – Wind



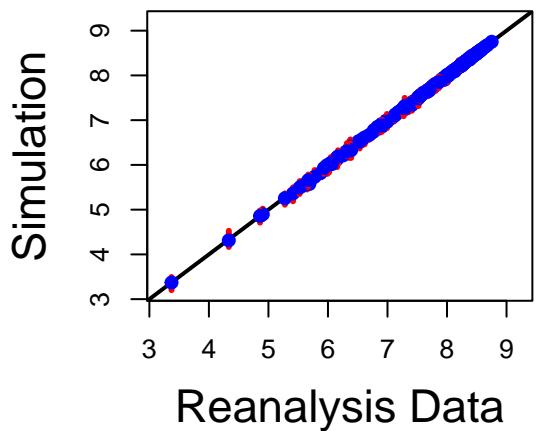
## 90th Quantile – Wind



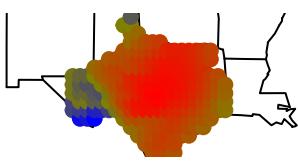
## 95th Quantile – Wind



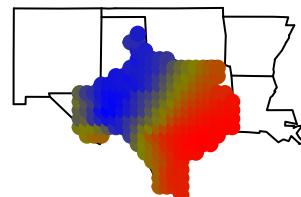
## 99th Quantile – Wind



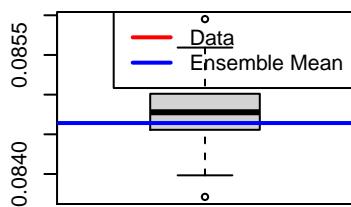
**PC-1 – Wind–63%**



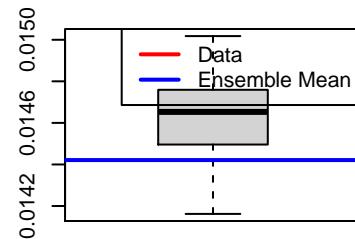
**PC-2 – Wind–13%**



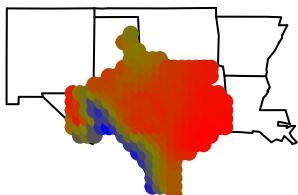
**Simulated PC-1 Variance Wind**



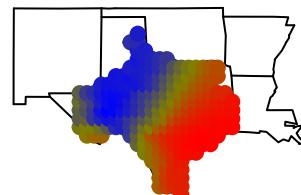
**Simulated PC-2 Variance Wind**



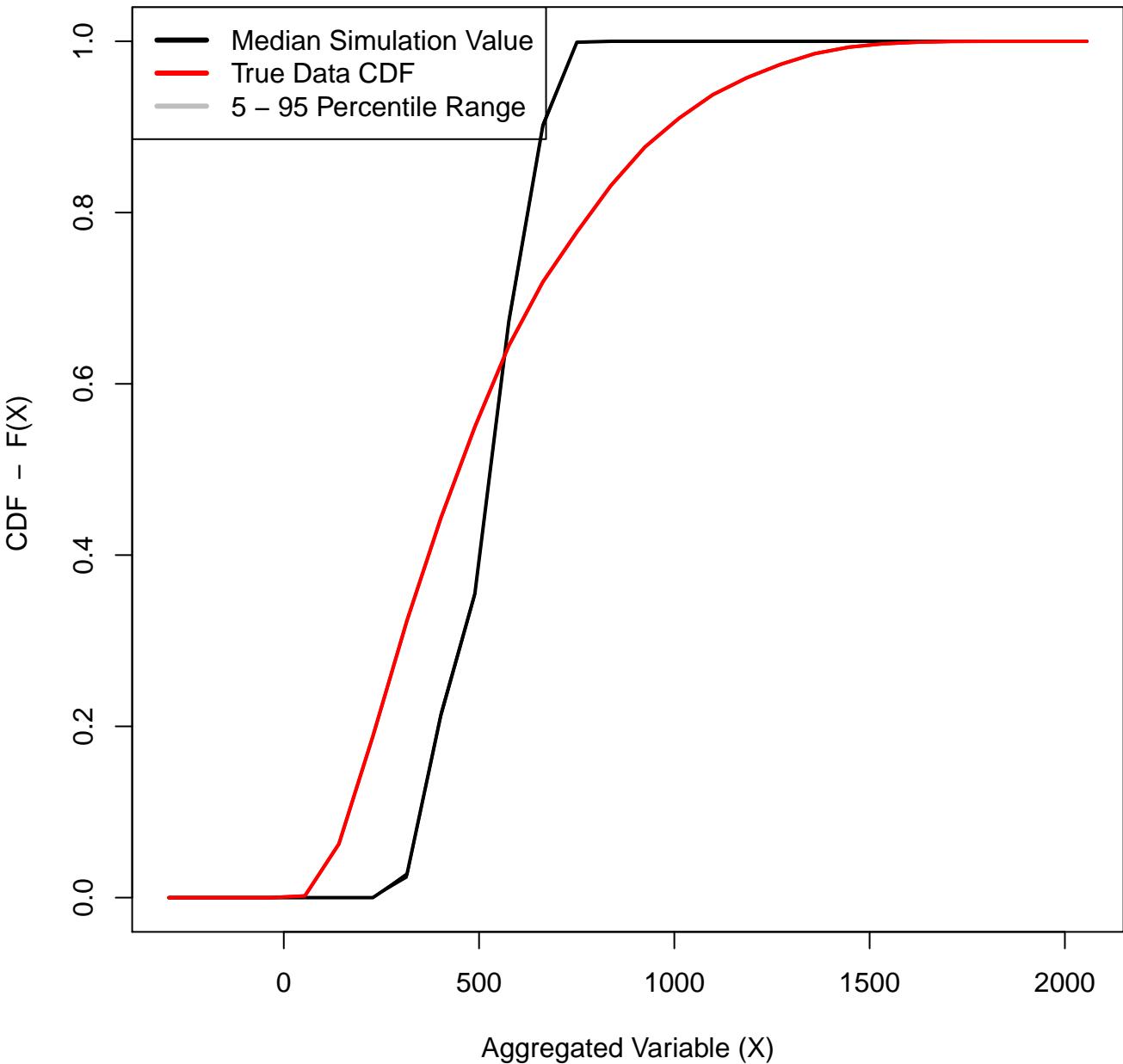
**Ensemble Mean PC-1 – Wind–8%**



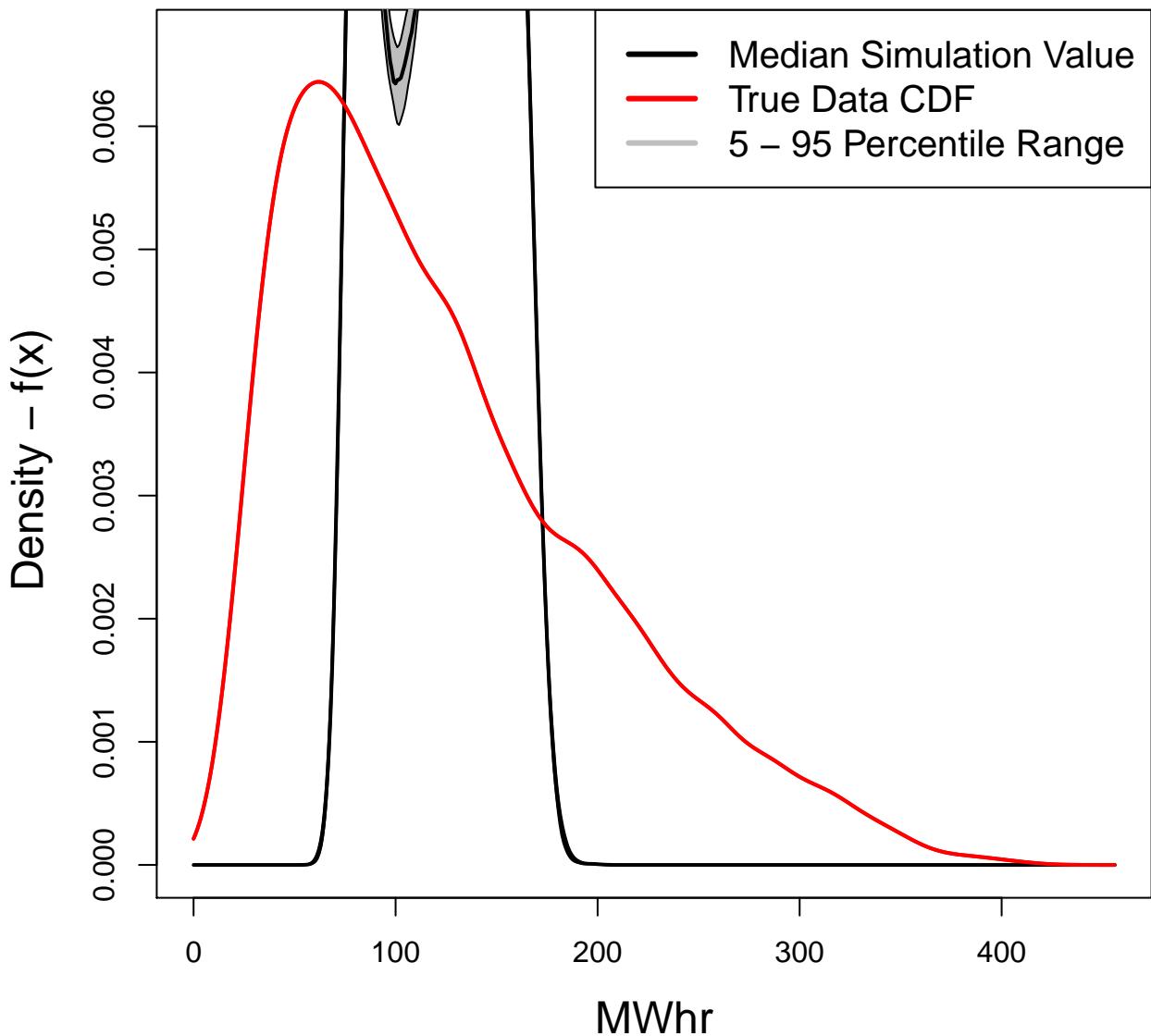
**Ensemble Mean PC-2 – Wind–1%**

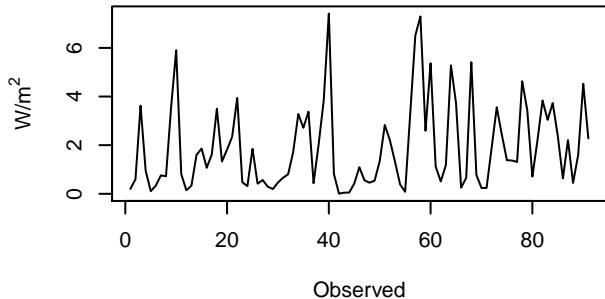
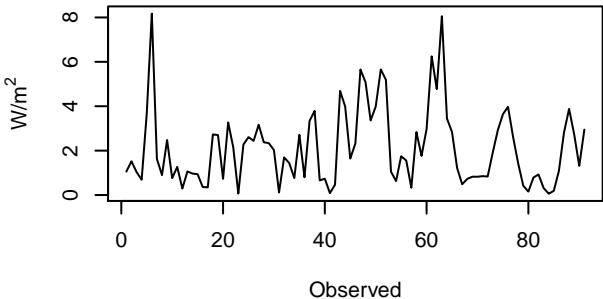
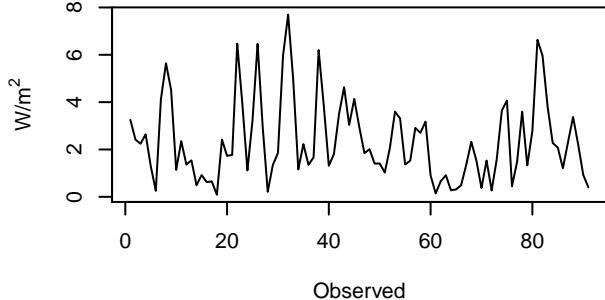
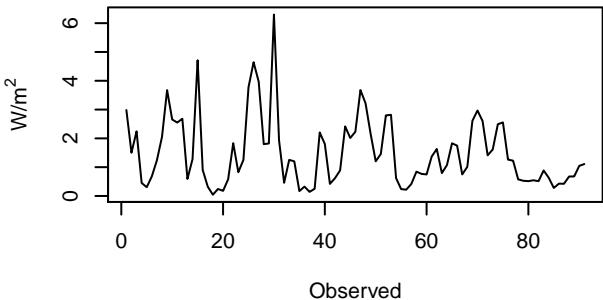
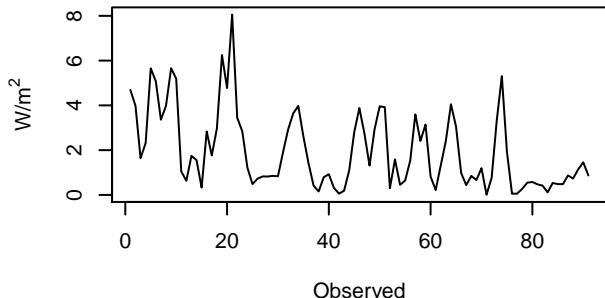
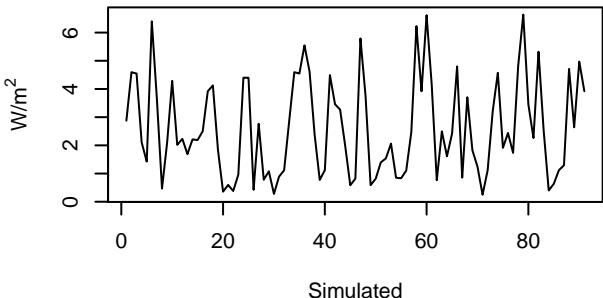


## Simulated CDF for Entire Field – Wind

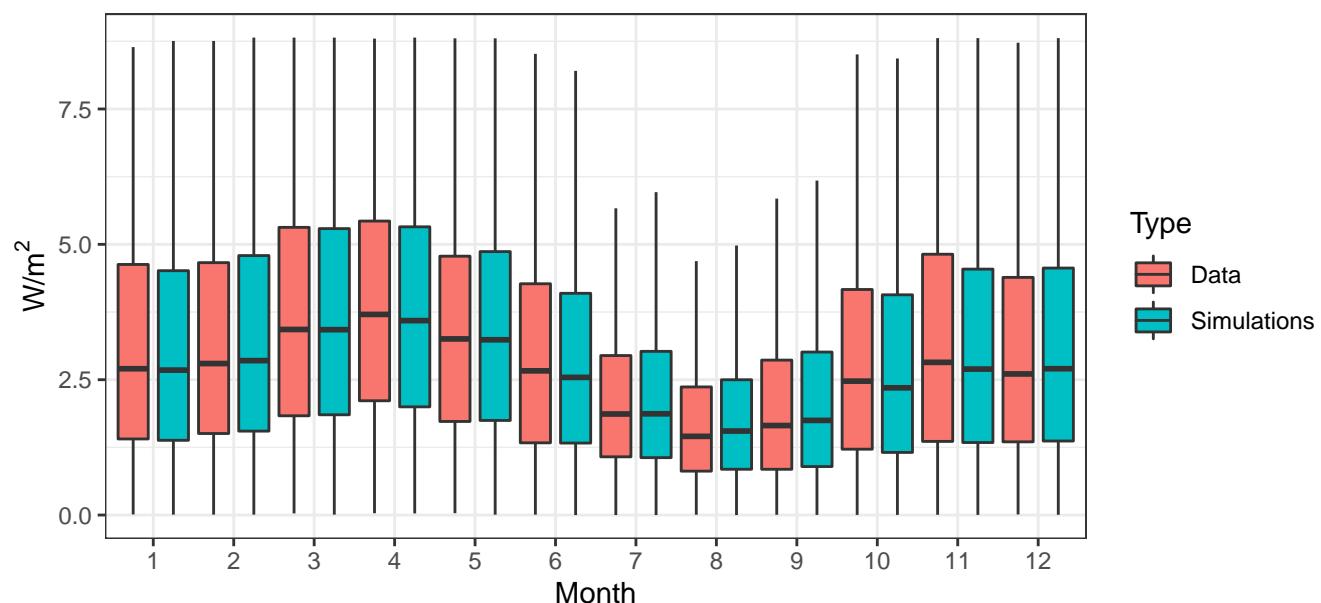


## Daily Generation Potential across ERCOT – Wind

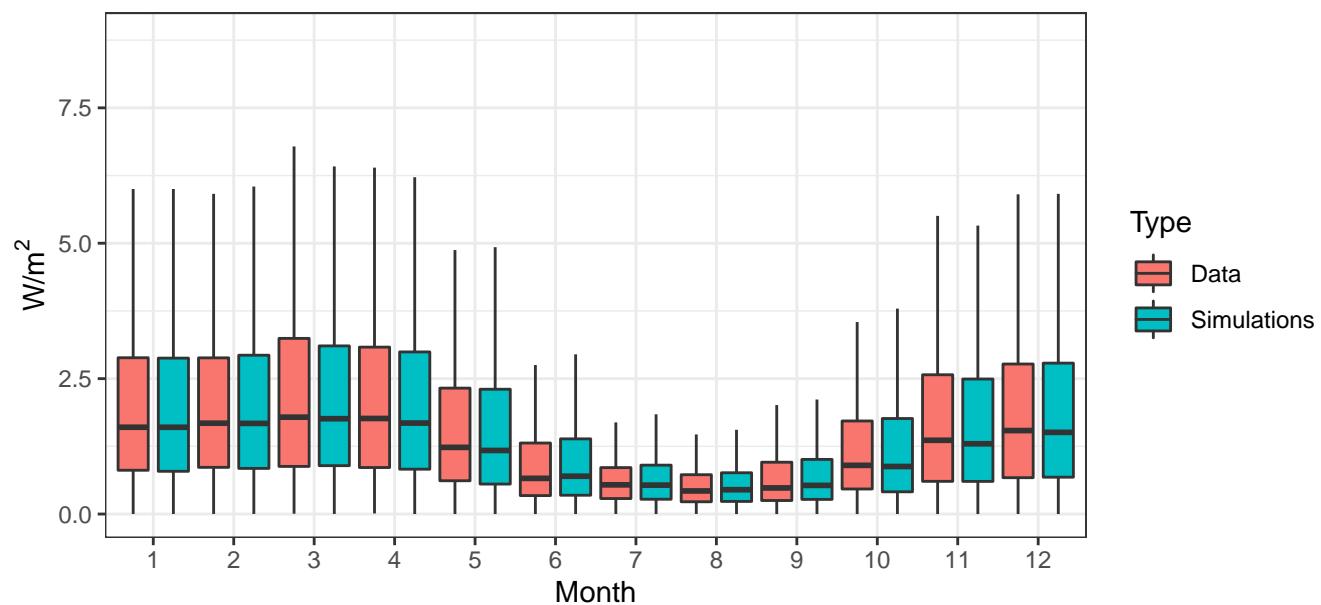




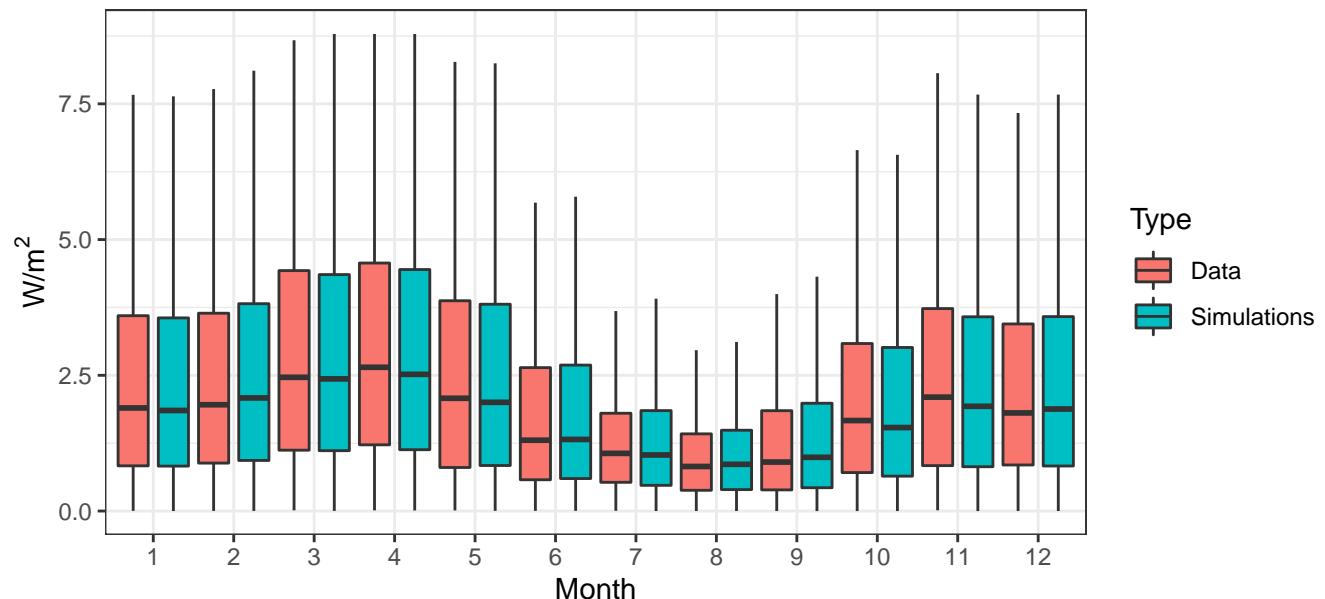
## Wind Distribution for Site/Grid – 43



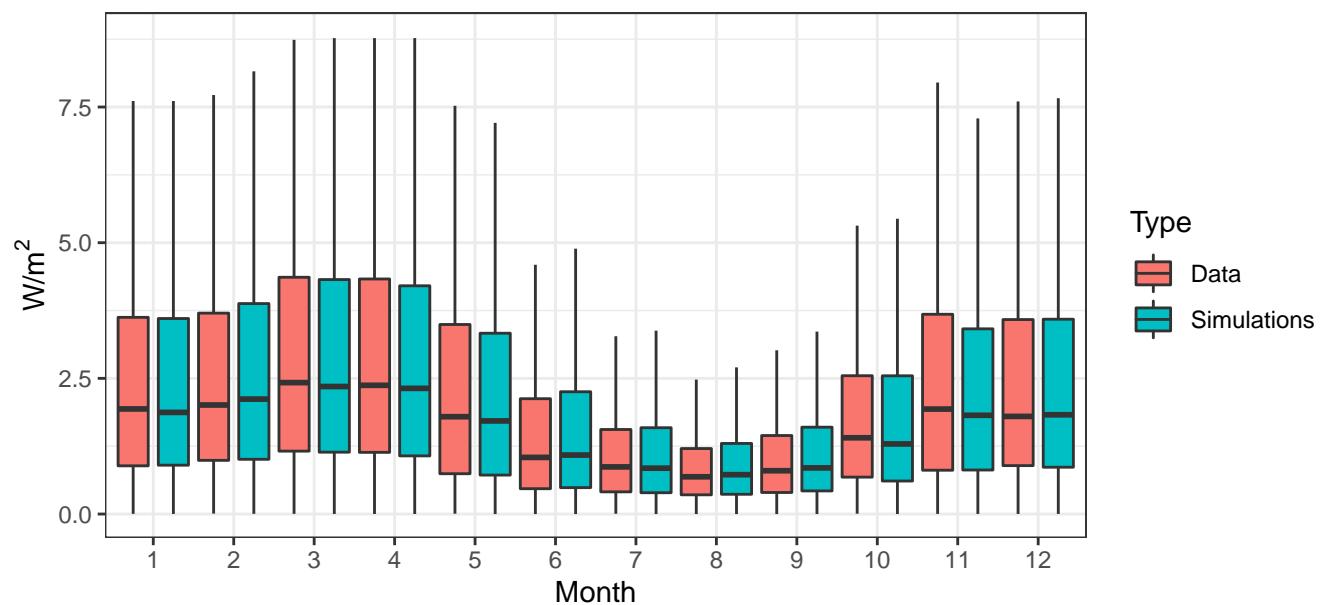
## Wind Distribution for Site/Grid – 192



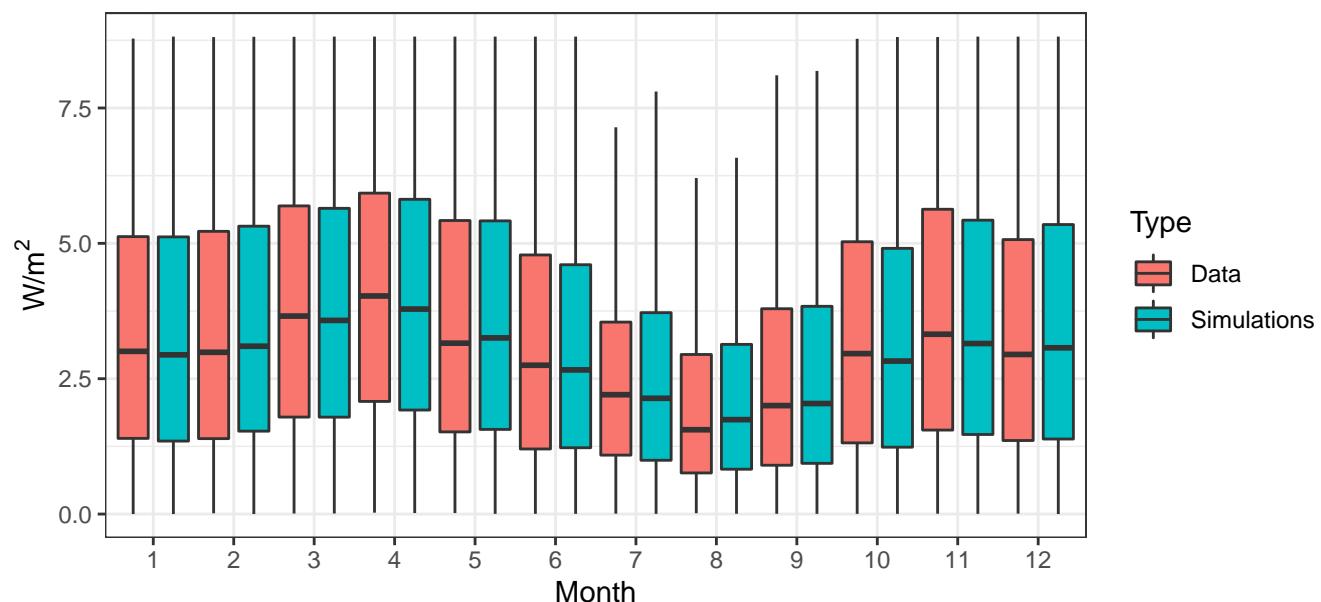
## Wind Distribution for Site/Grid – 157



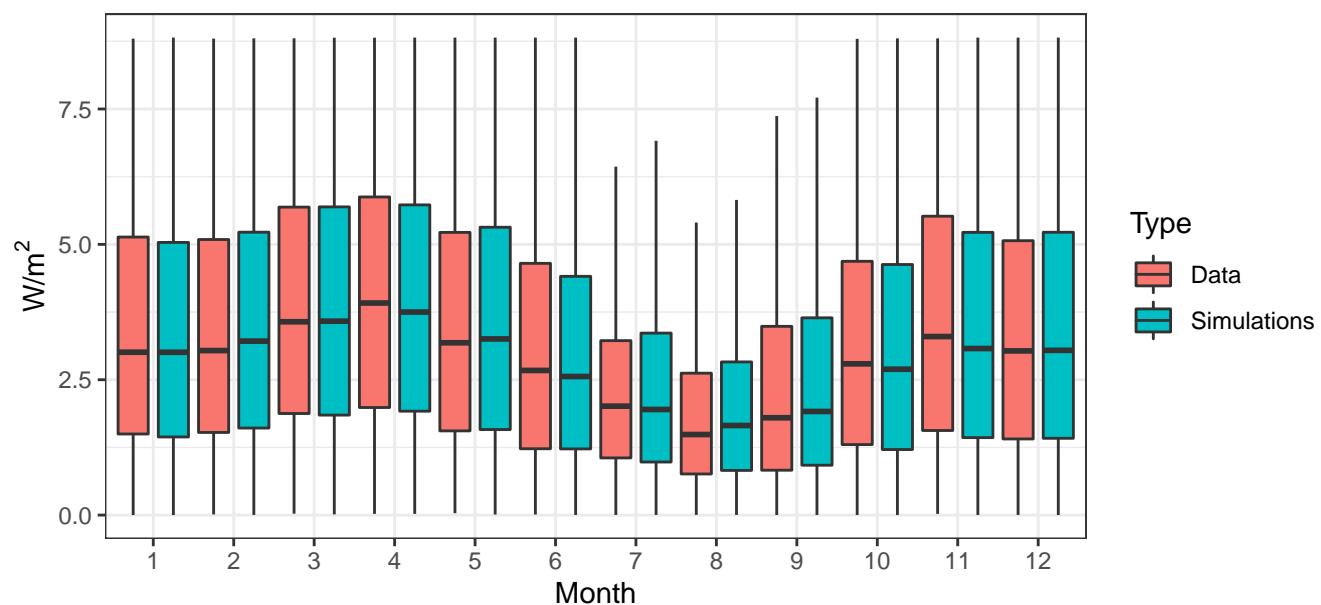
## Wind Distribution for Site/Grid – 187



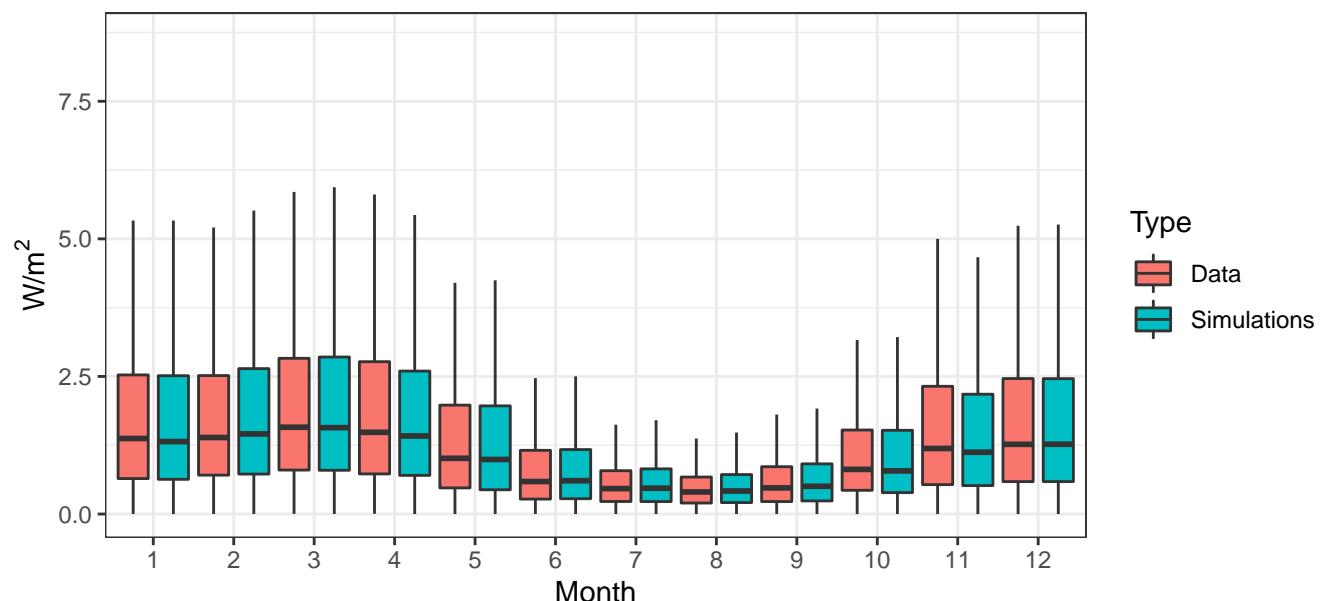
## Wind Distribution for Site/Grid – 65



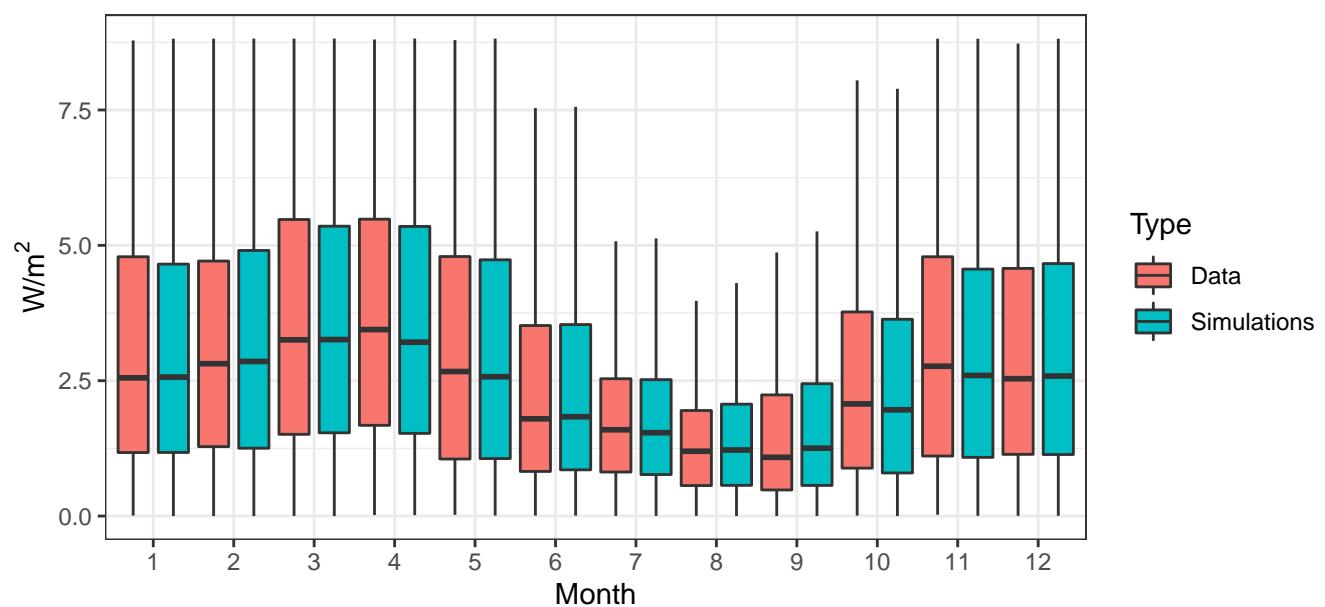
## Wind Distribution for Site/Grid – 64



## Wind Distribution for Site/Grid – 212

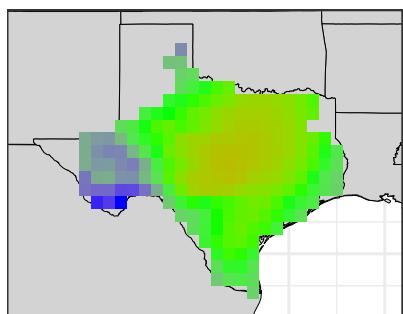


## Wind Distribution for Site/Grid – 138

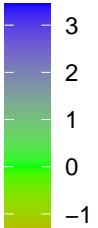


## Data PC-1 Wind

Fractional Variance – 63%

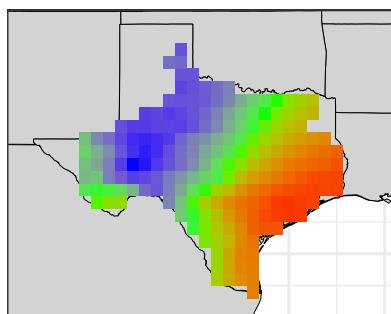


Eigenvectors

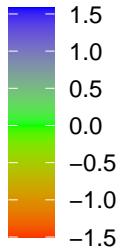


## Data PC-1 Wind

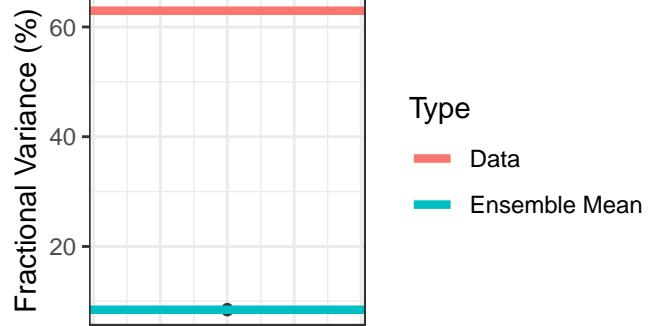
Fractional Variance – 13%



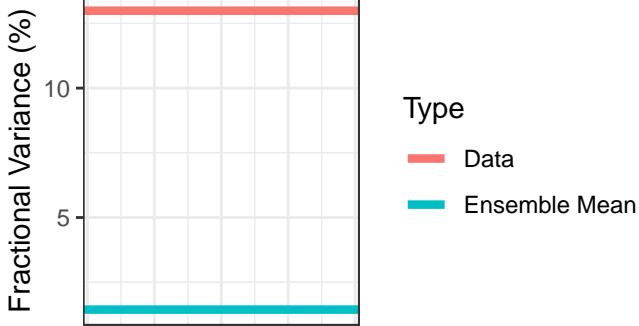
Eigenvectors



## Simulated PC-1 Variance Wind

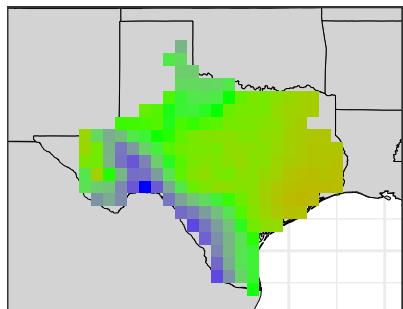


## Simulated PC-2 Variance Wind

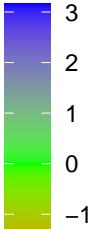


## Ensemble Mean PC-1 Wind

Fractional Variance – 8%

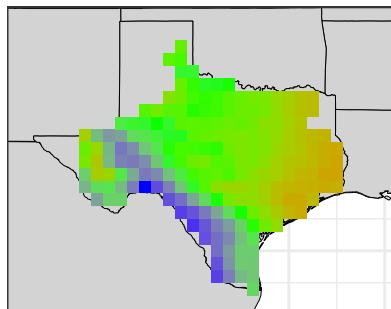


Eigenvectors

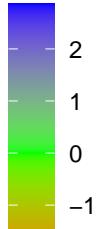


## Ensemble Mean PC-2 Wind

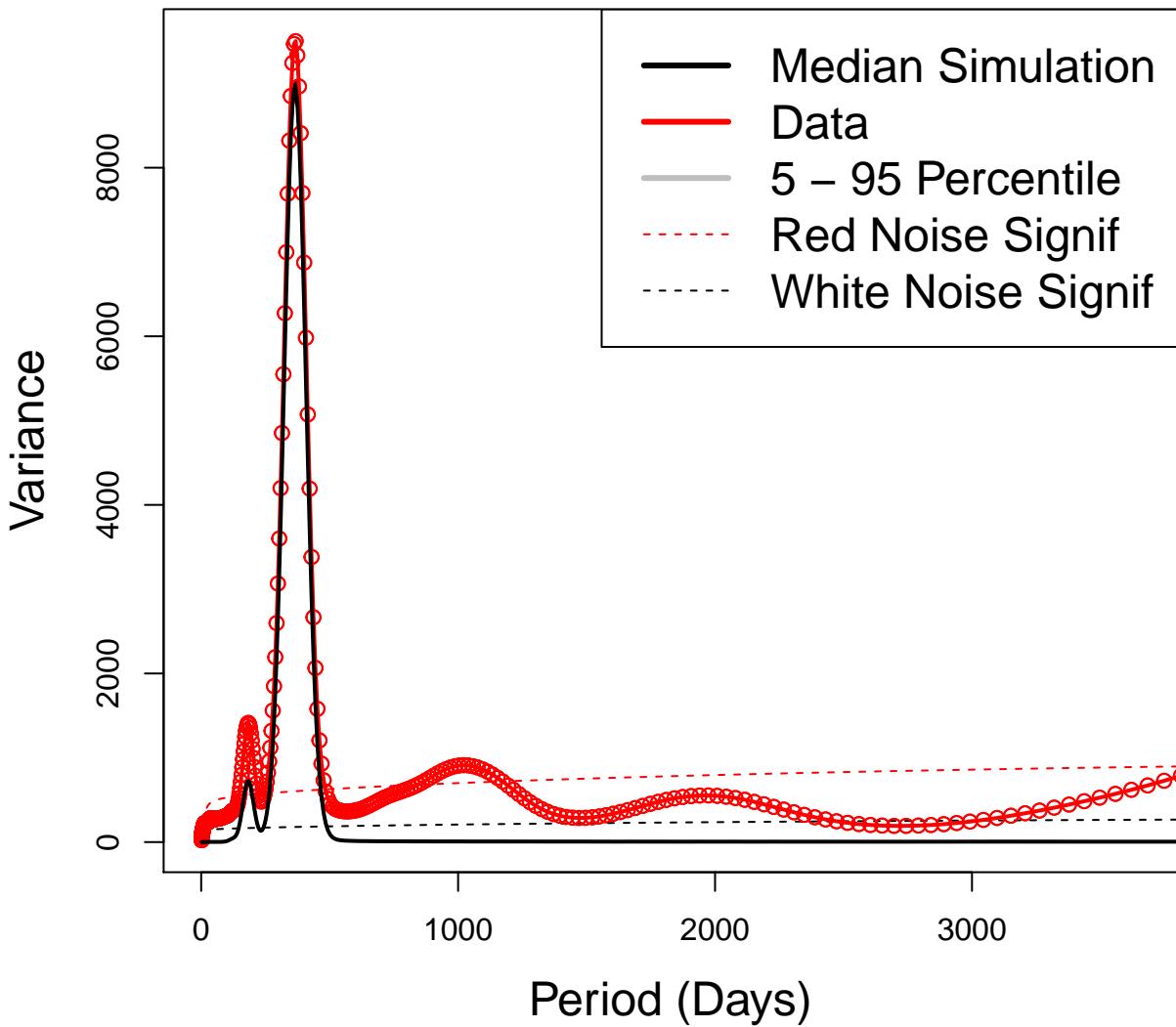
Fractional Variance – 1%



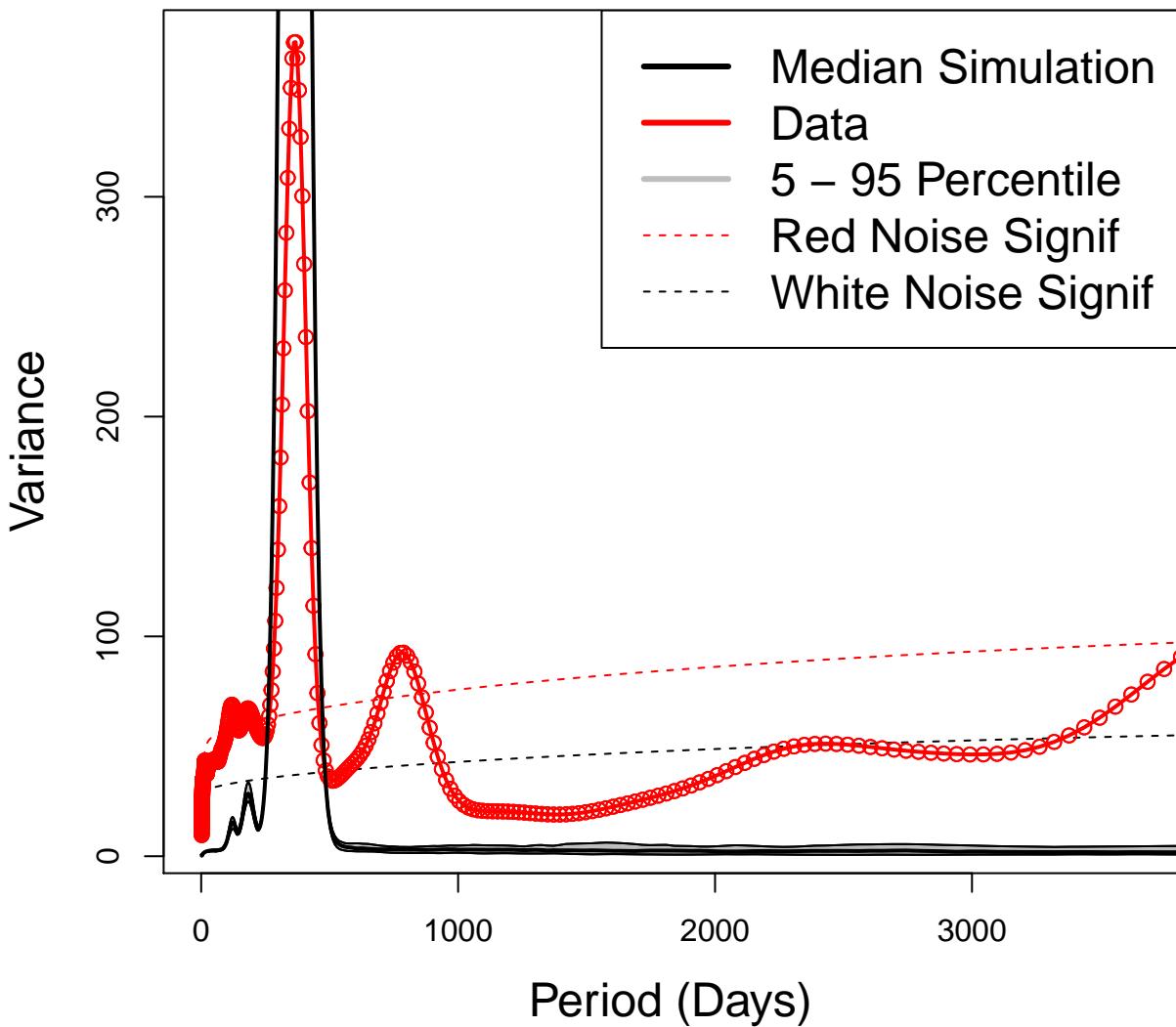
Eigenvectors



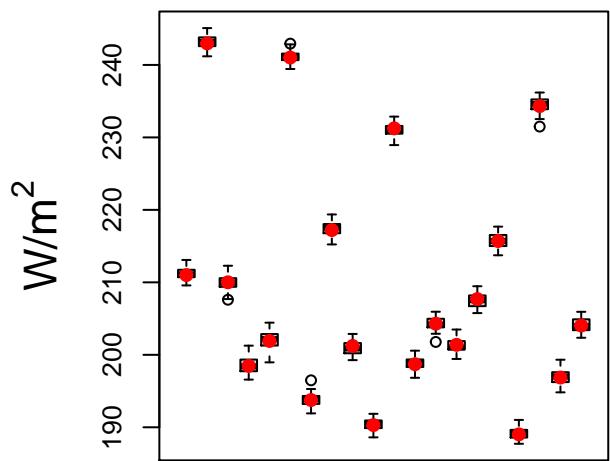
# Global Wavelet Spectrum PC – 1 Wind



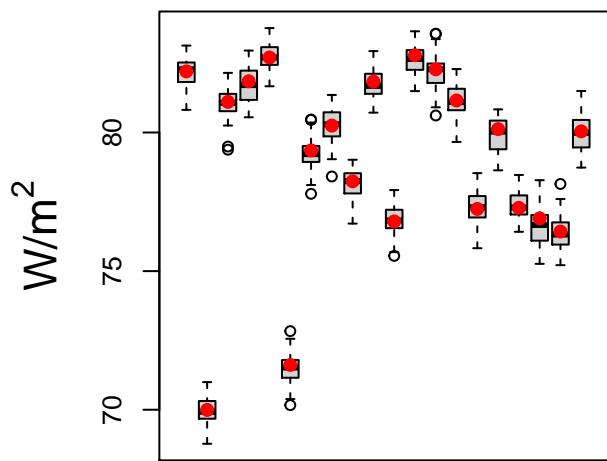
## Global Wavelet Spectrum PC – 2 Wind



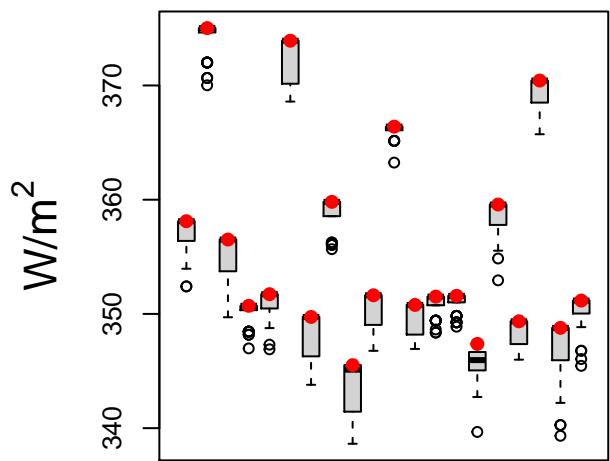
**Mean – Solar**



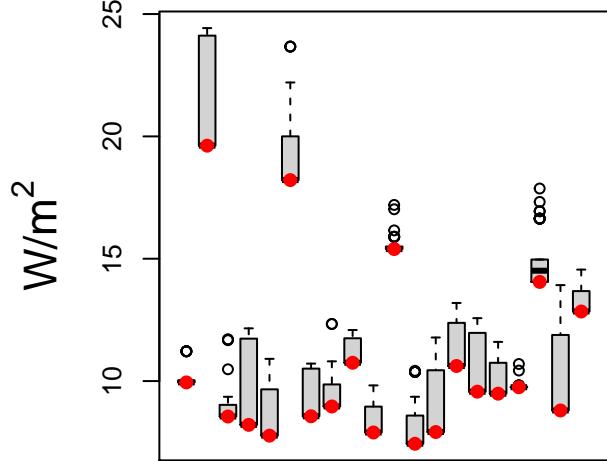
**Stan Dev – Solar**



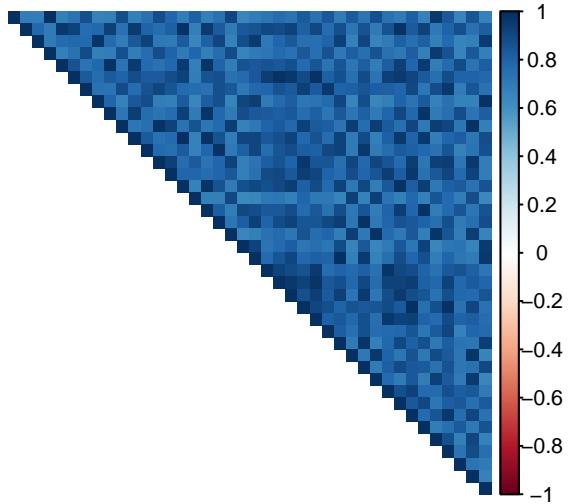
**Maximum – Solar**



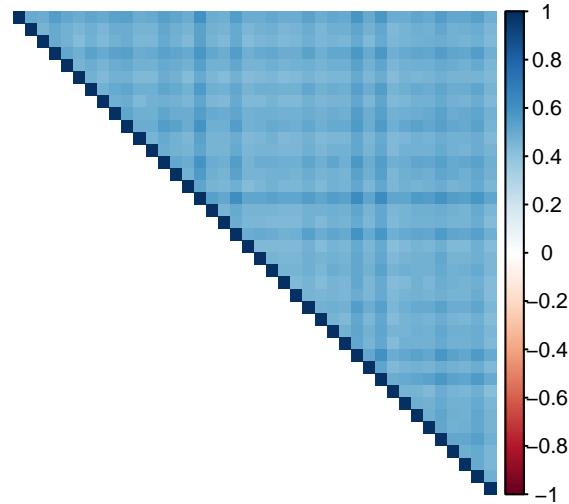
**Minimum – Solar**



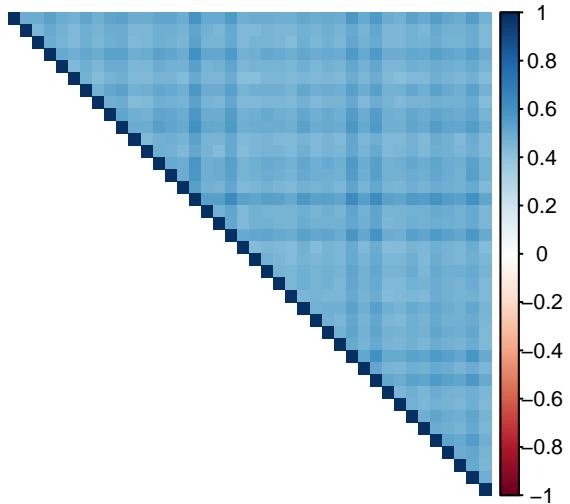
**Cross Correlation  
Data**



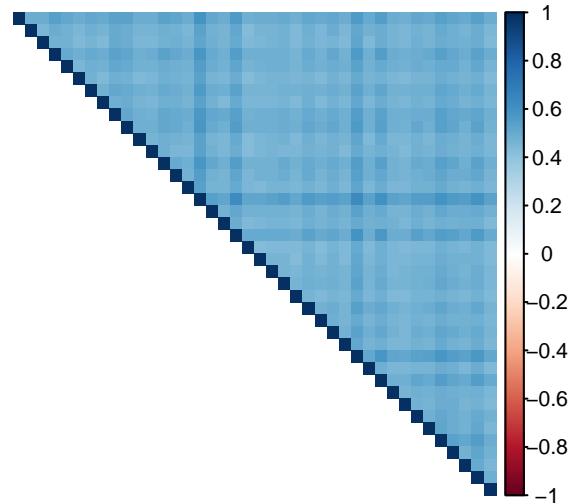
**Cross Correlation  
Simulation Run – 44**



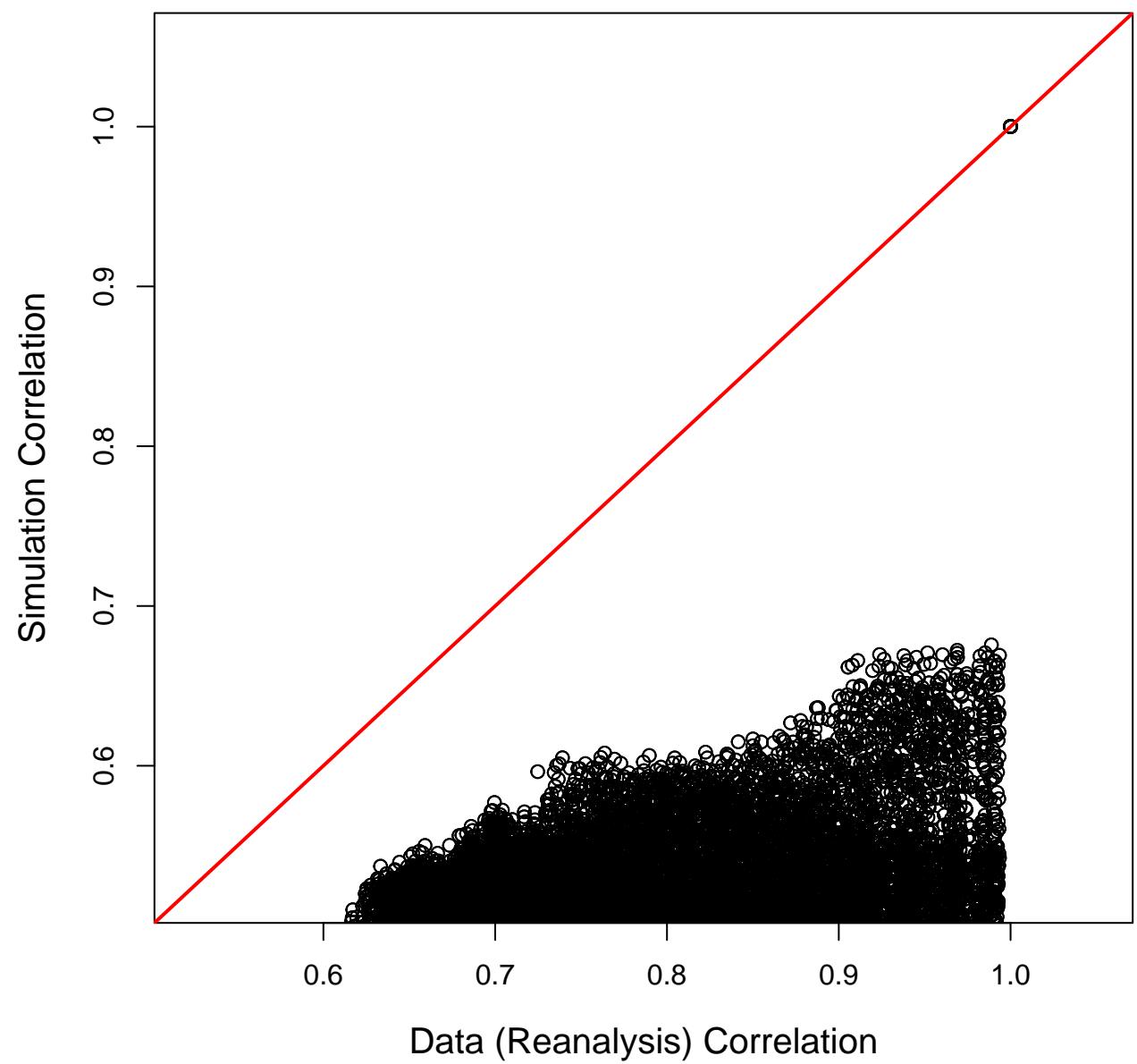
**Cross Correlation  
Simulation Run – 12**



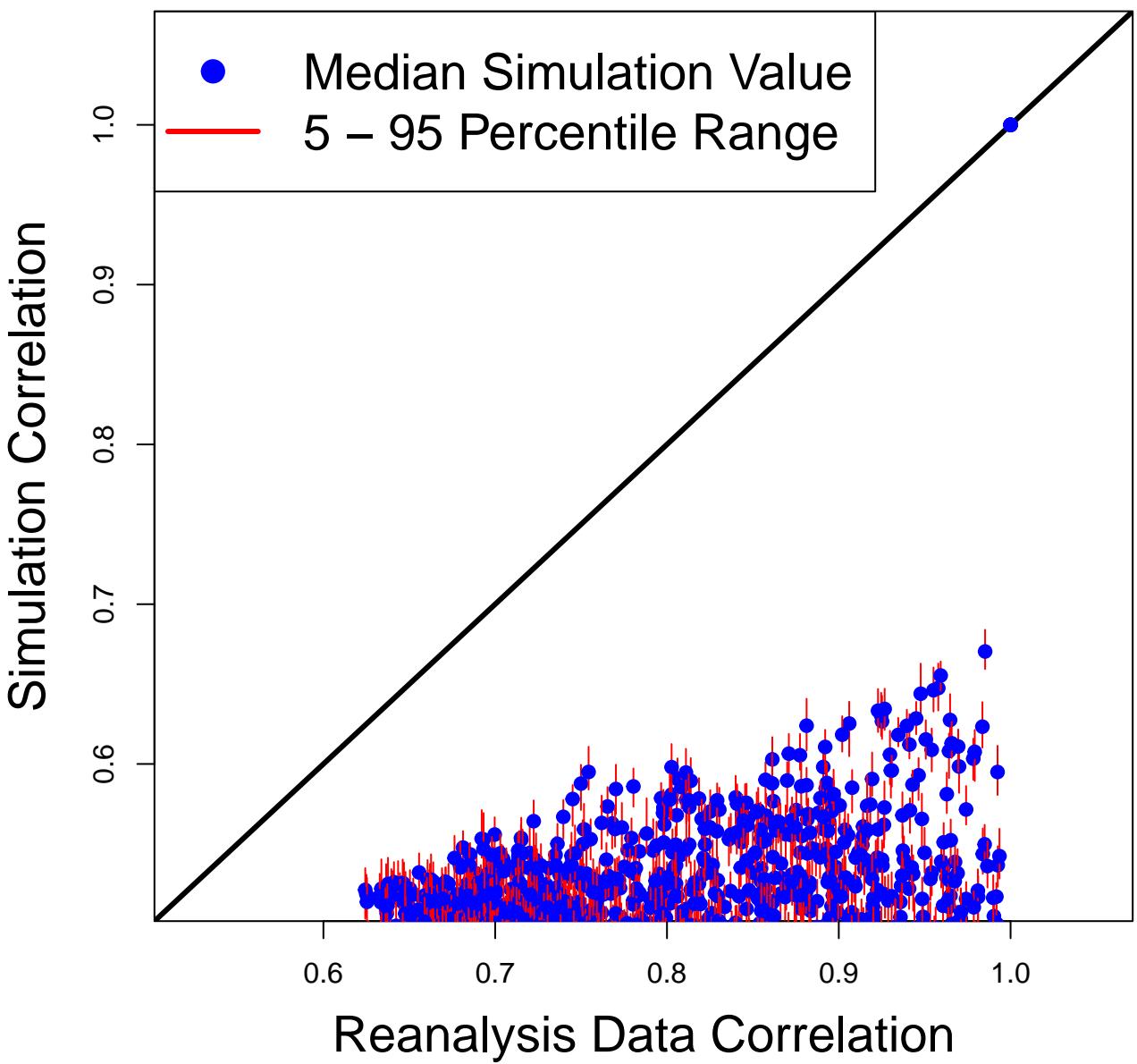
**Cross Correlation  
Simulation Run – 37**



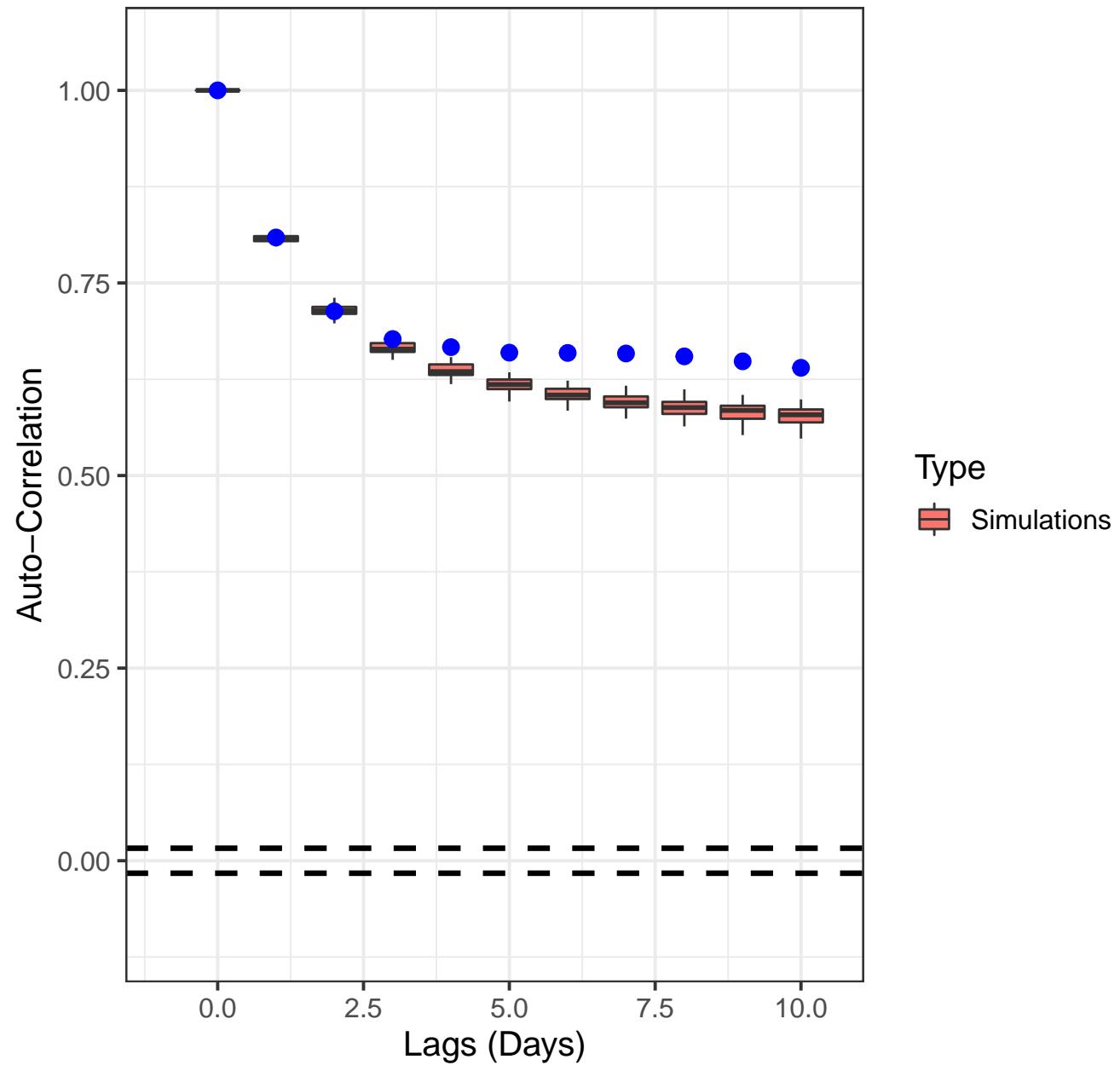
## Cross Site Correlations – Solar

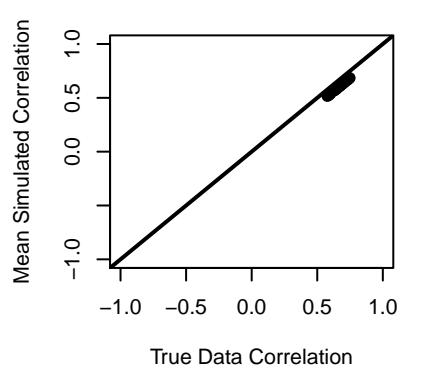
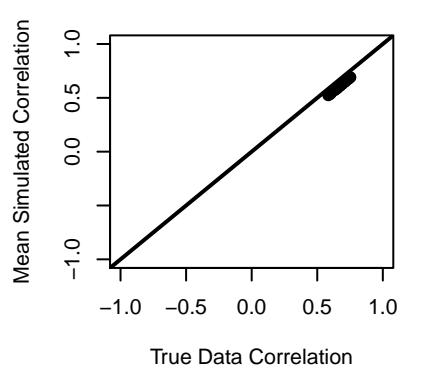
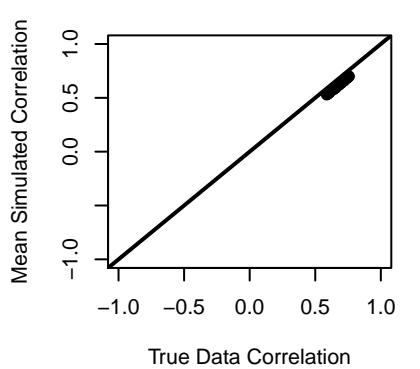
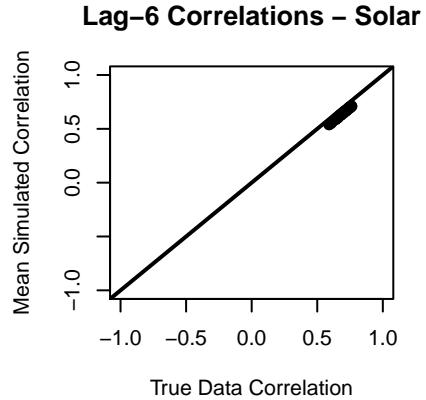
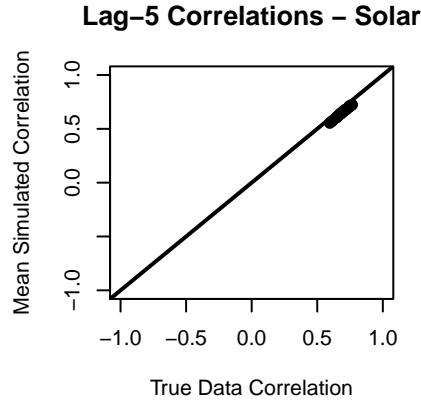
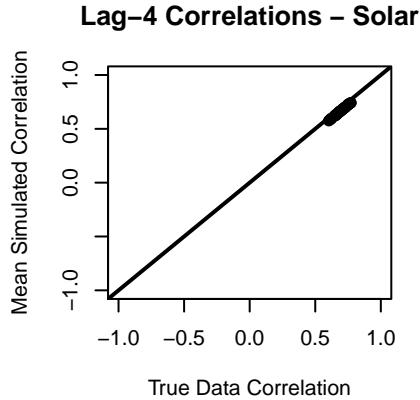
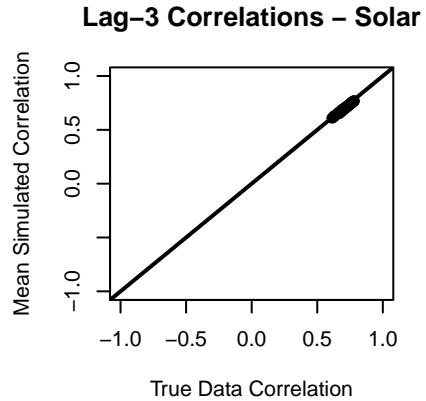
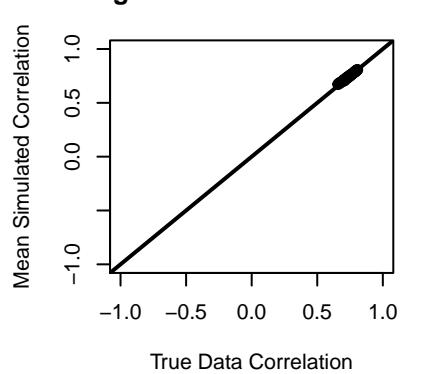
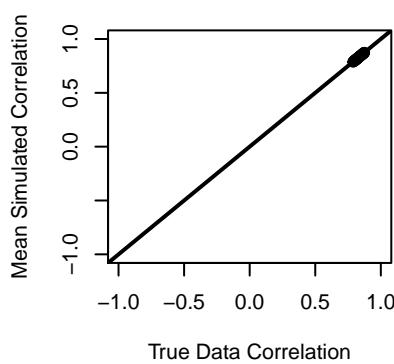


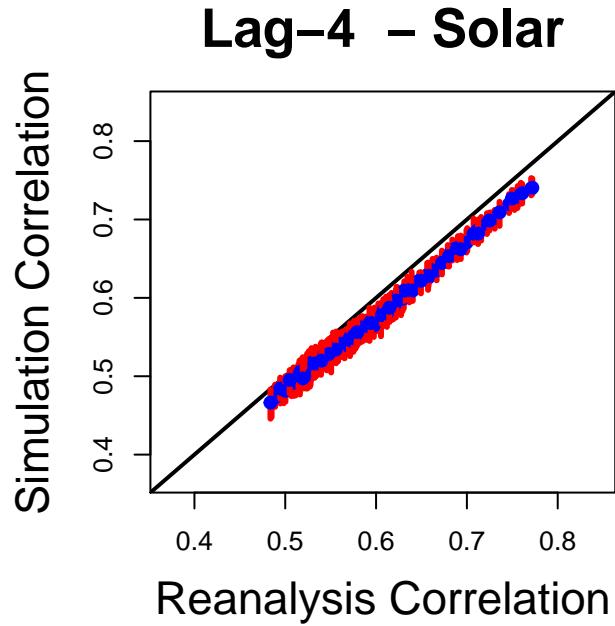
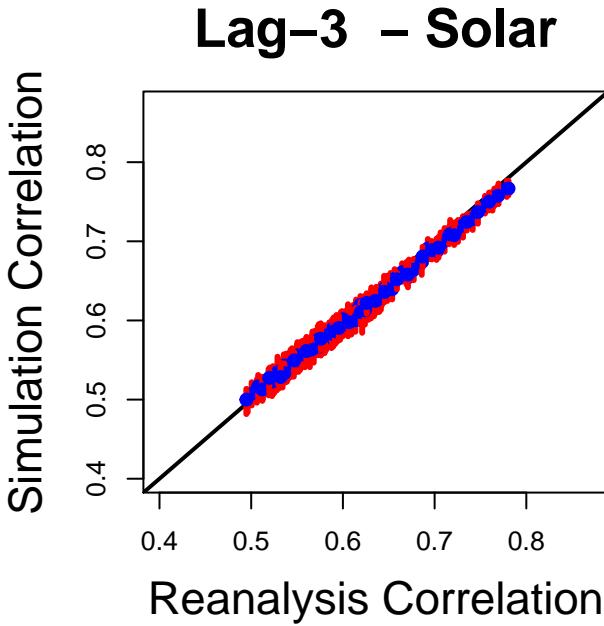
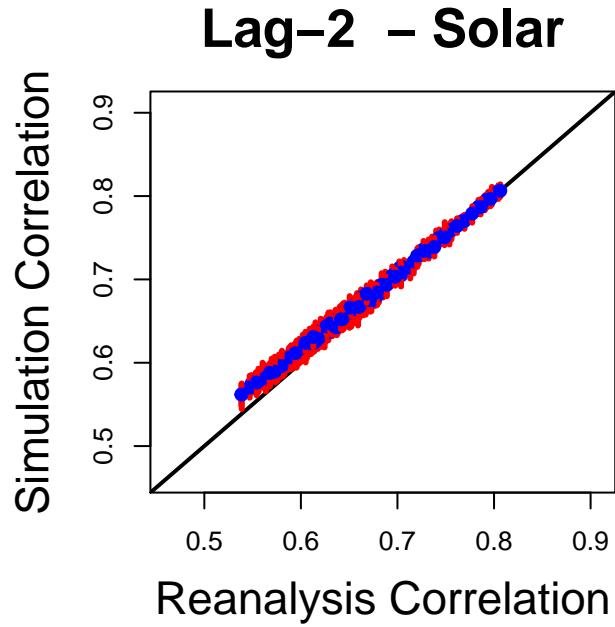
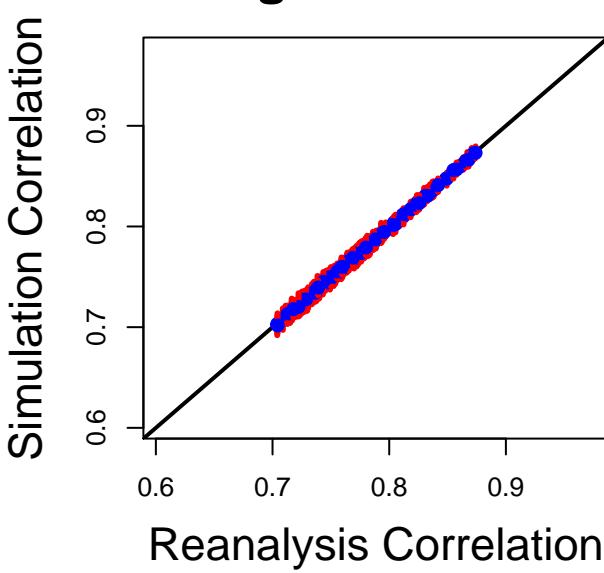
## Cross Site Correlations – Solar

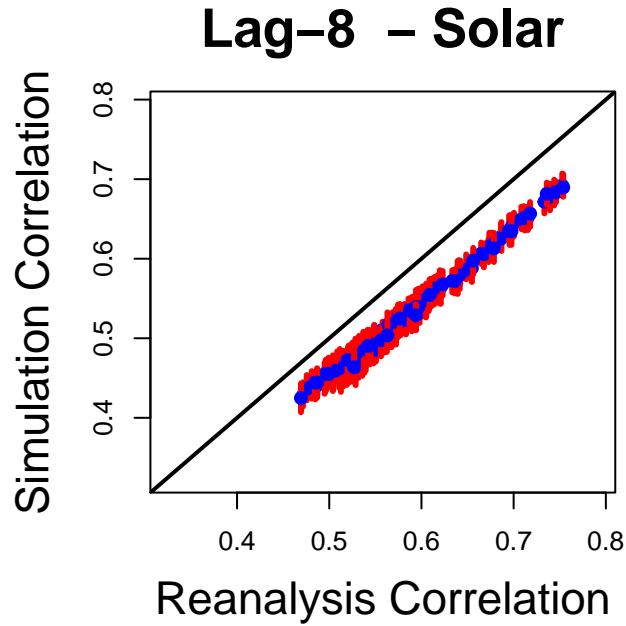
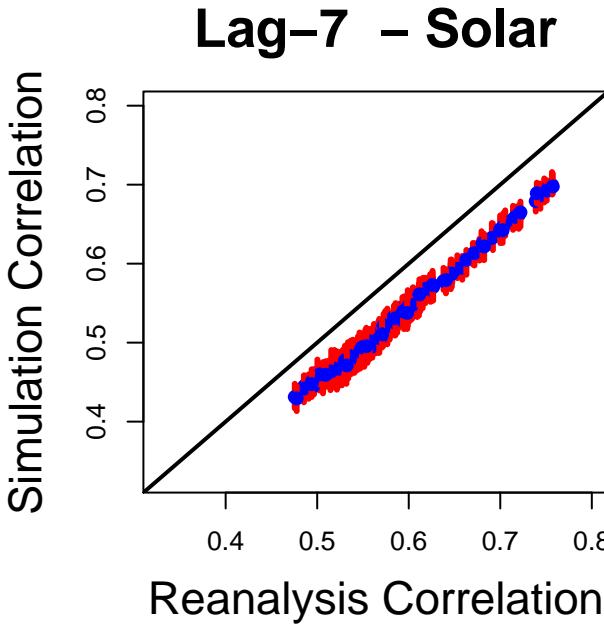
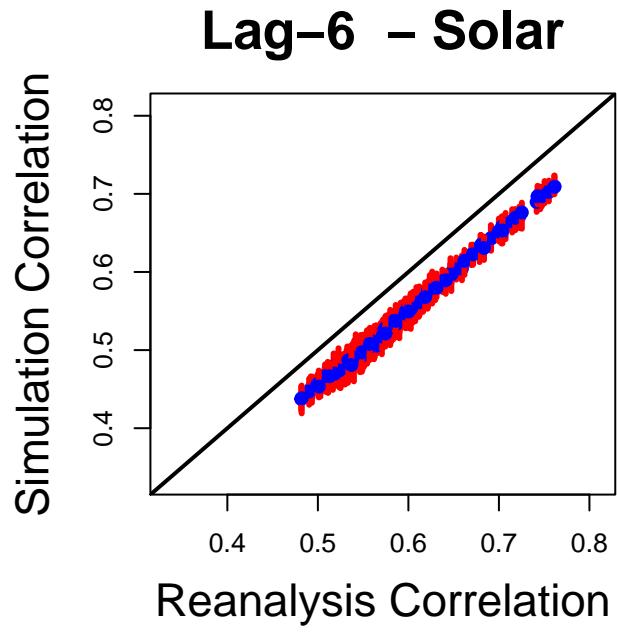
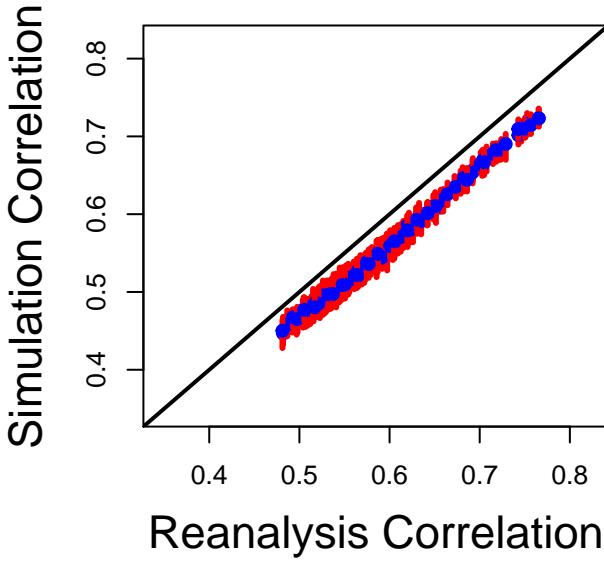


# ACF – Single Random Site – Solar

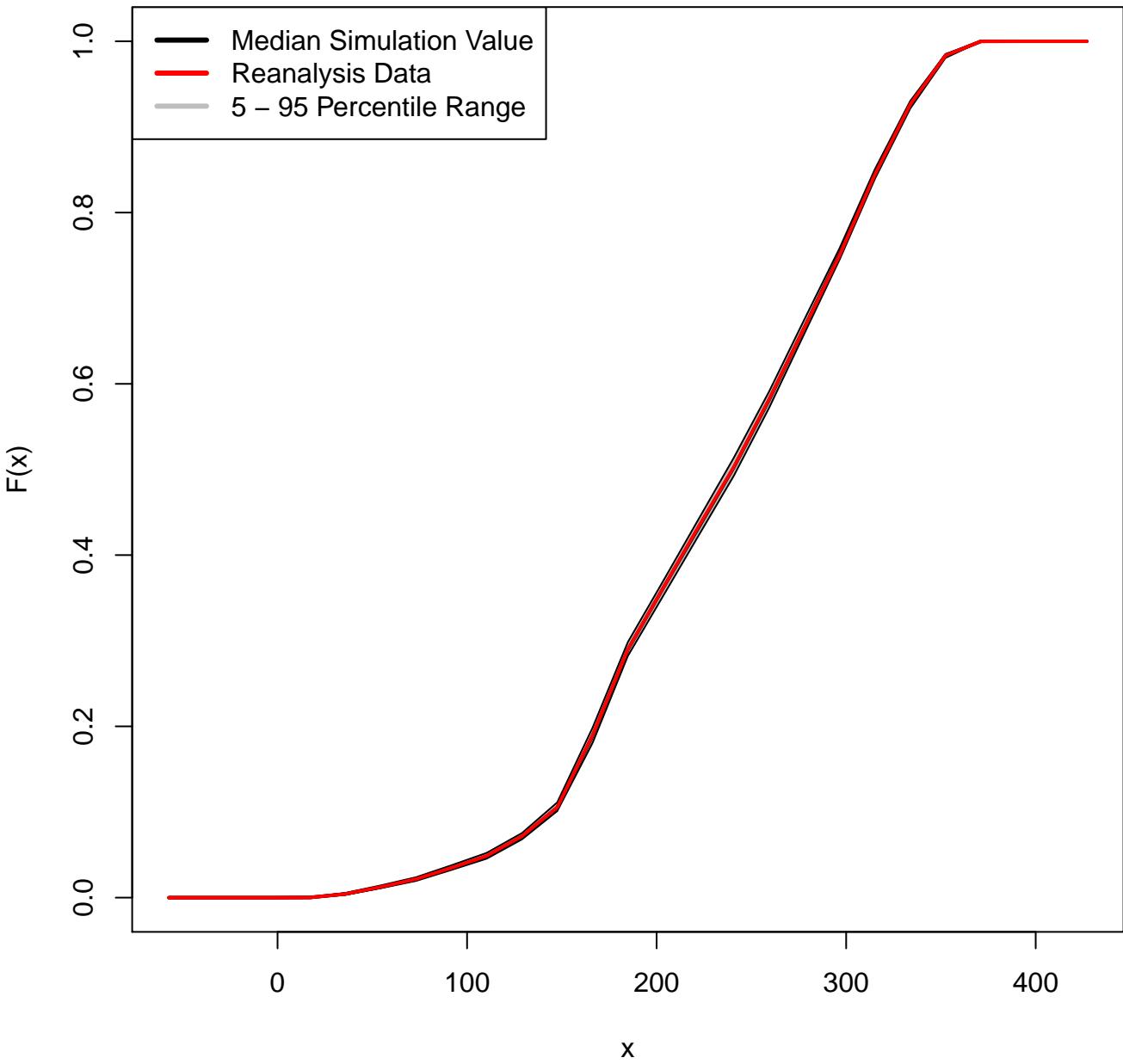




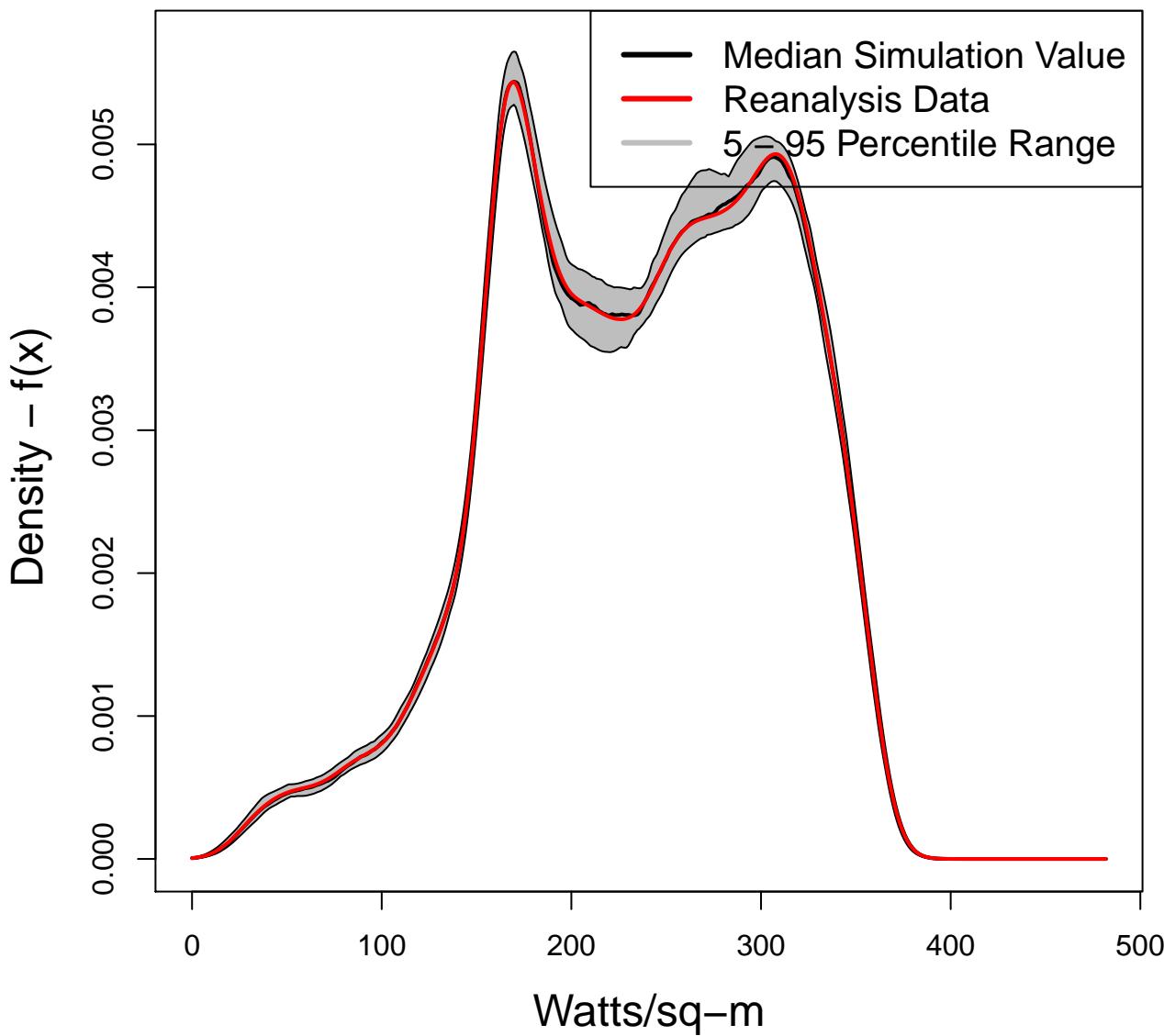


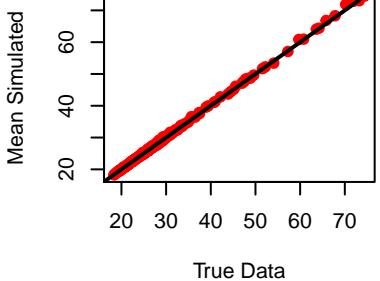
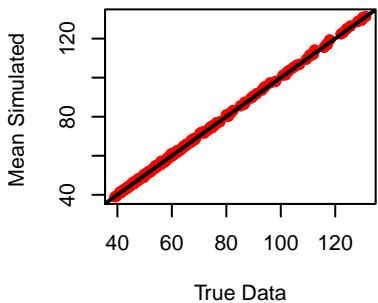
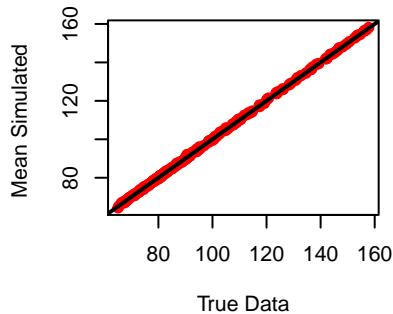
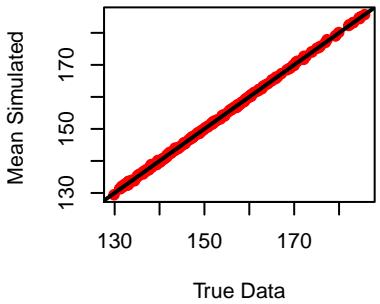
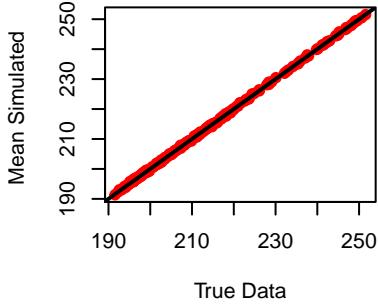
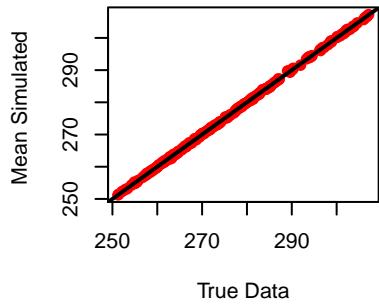
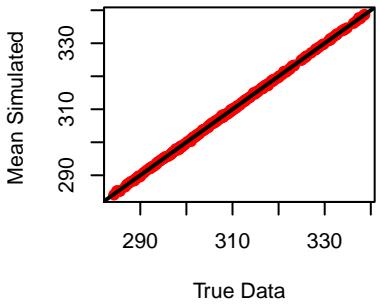
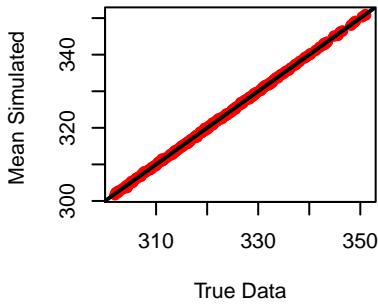
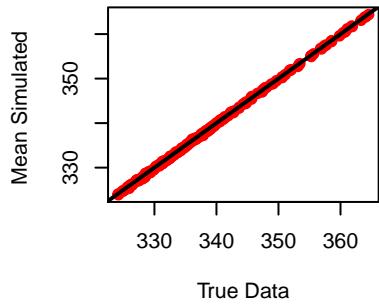


## True vs Simulated CDF for Single Site – Solar

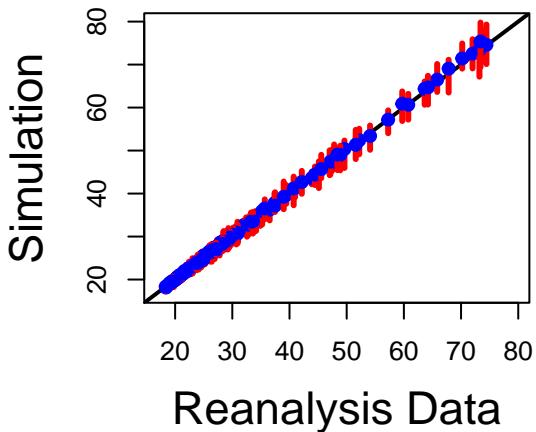


## PDF at a single site – Solar

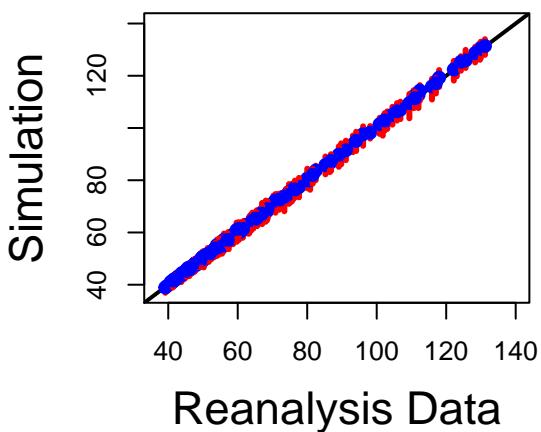


**Quantile – 1th – Solar****Quantile – 5th – Solar****Quantile – 10th – Solar****Quantile – 25th – Solar****Quantile – 50th – Solar****Quantile – 75th – Solar****Quantile – 90th – Solar****Quantile – 95th – Solar****Quantile – 99th – Solar**

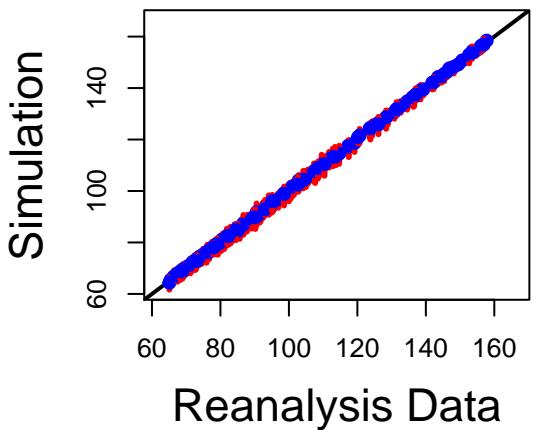
## 1th Quantile – Solar



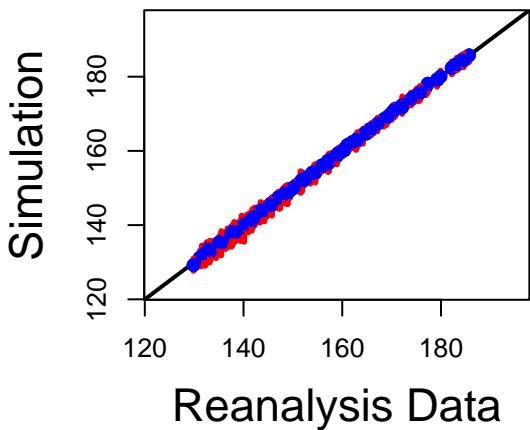
## 5th Quantile – Solar



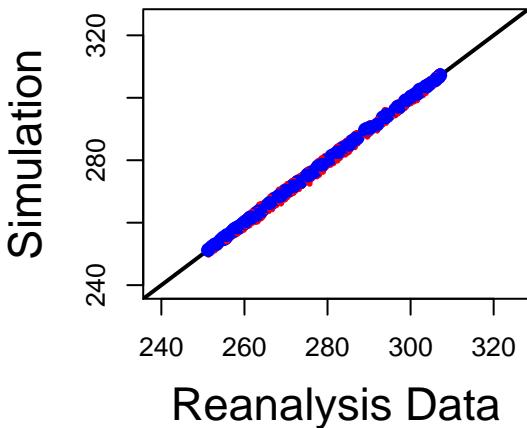
## 10th Quantile – Solar



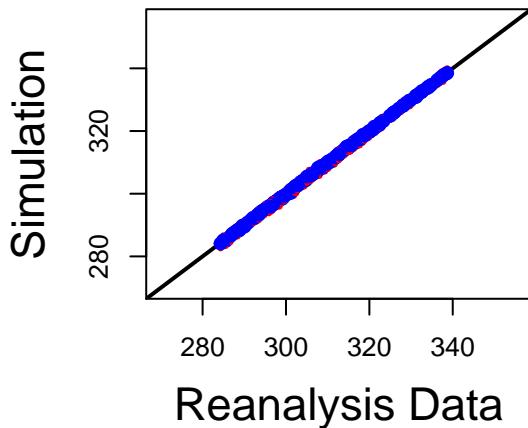
## 25th Quantile – Solar



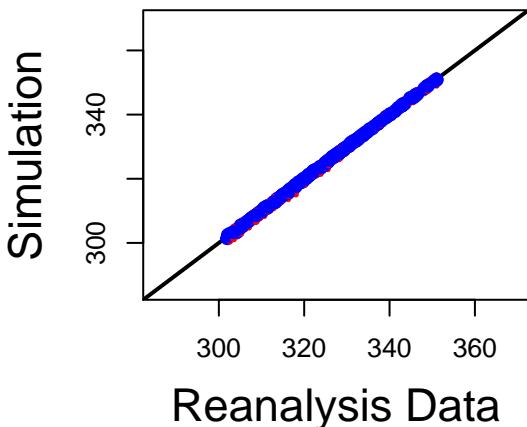
## 75th Quantile – Solar



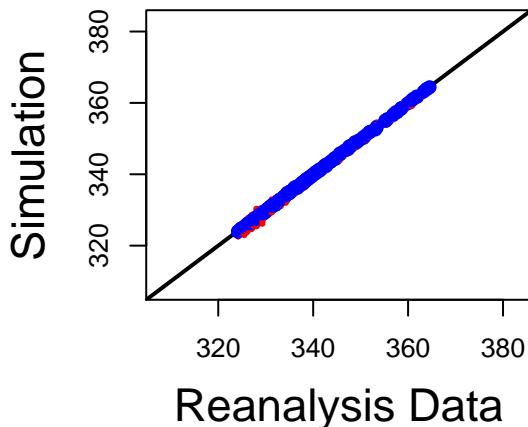
## 90th Quantile – Solar



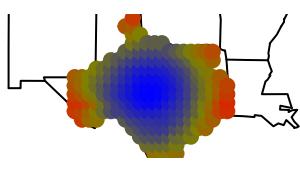
## 95th Quantile – Solar



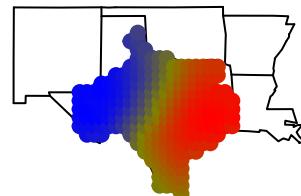
## 99th Quantile – Solar



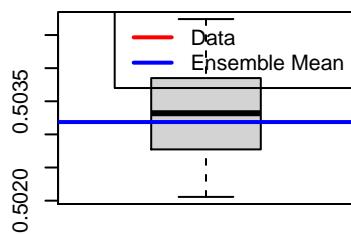
**PC-1 – Solar–80%**



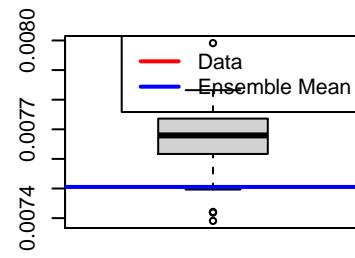
**PC-2 – Solar–7%**



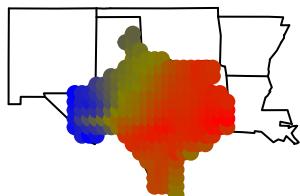
**Simulated PC-1 Variance Solar**



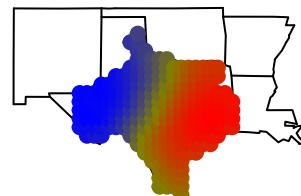
**Simulated PC-2 Variance Solar**



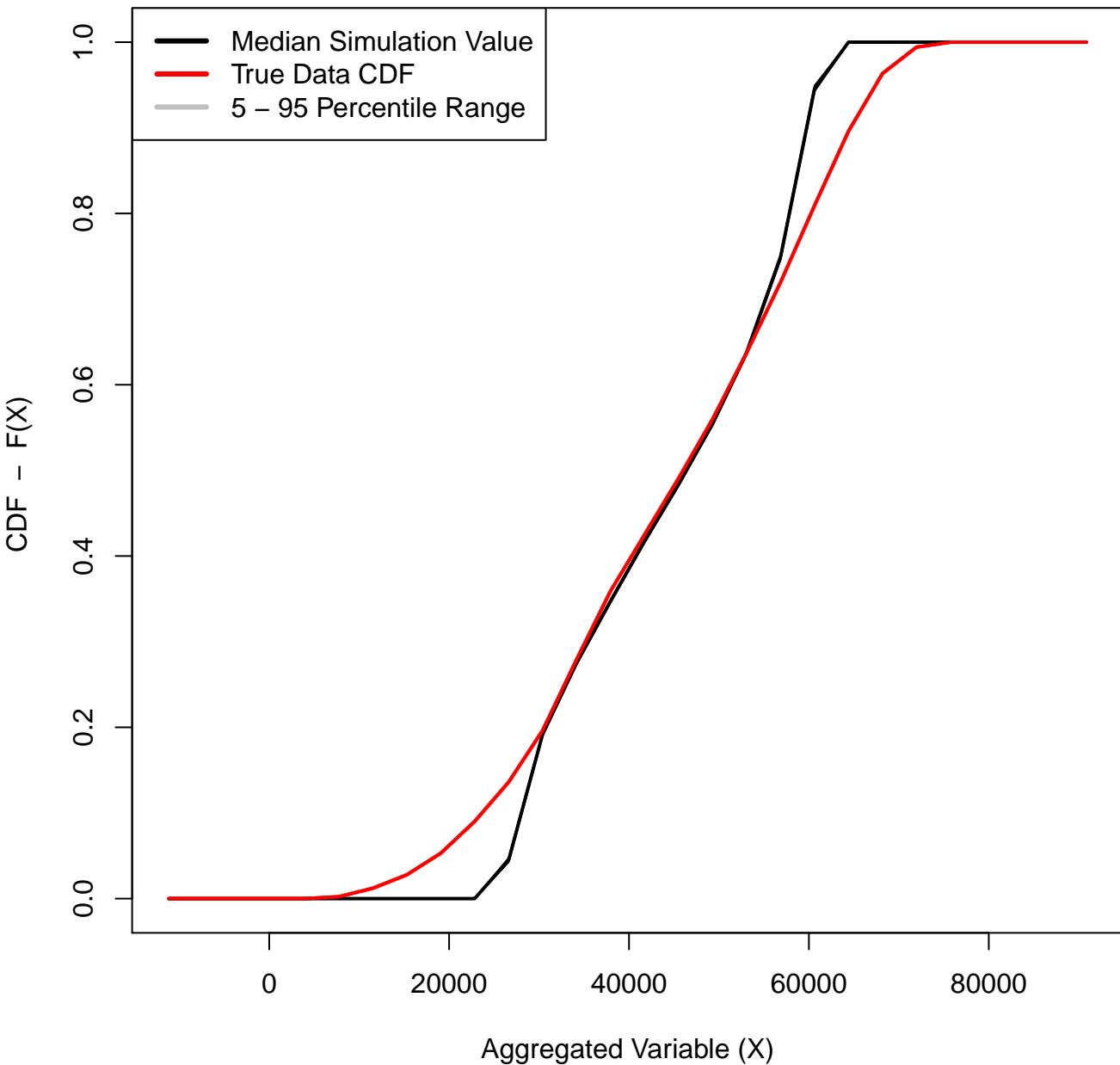
**Ensemble Mean PC-1 – Solar–50%**



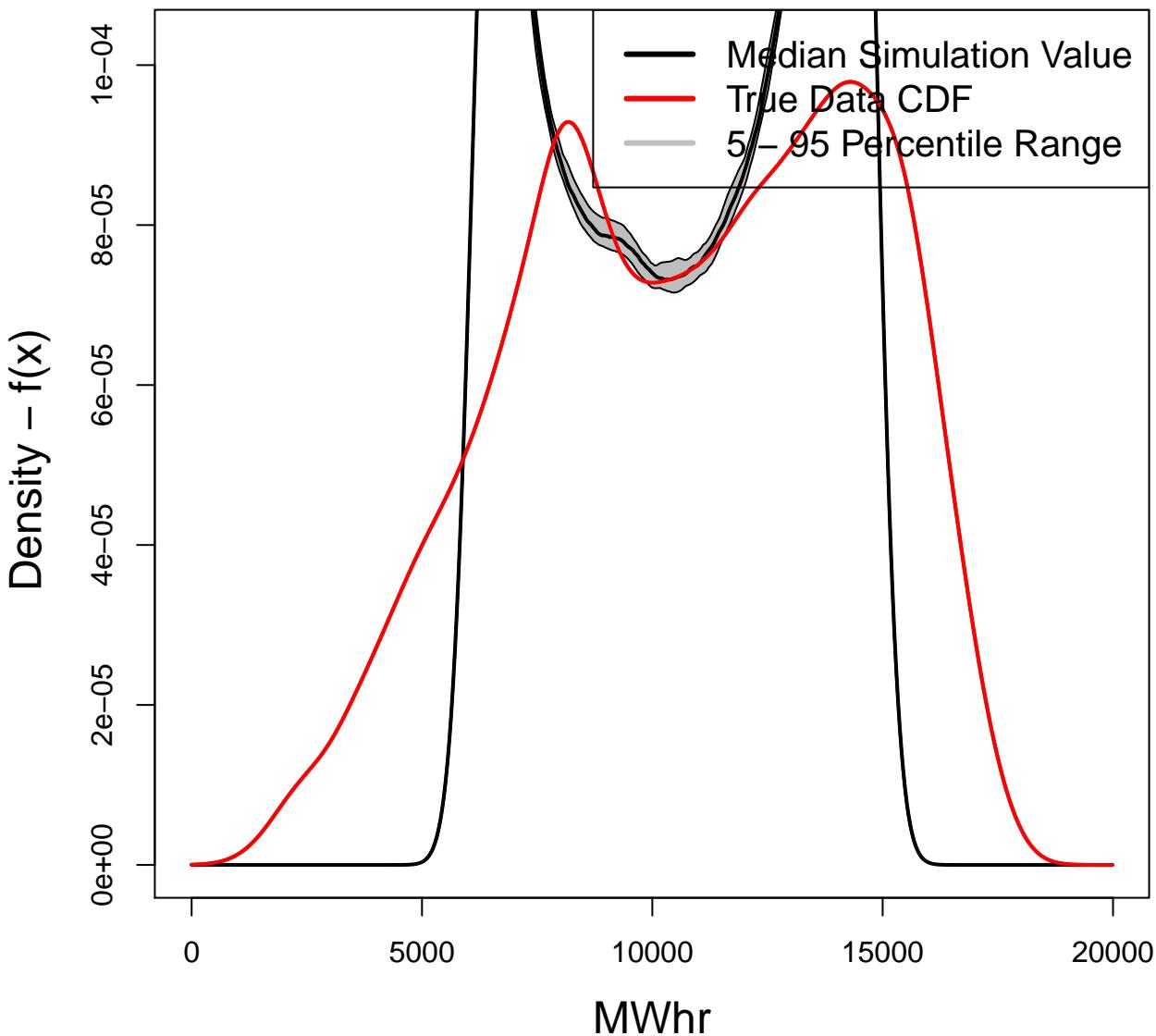
**Ensemble Mean PC-2 – Solar–1%**

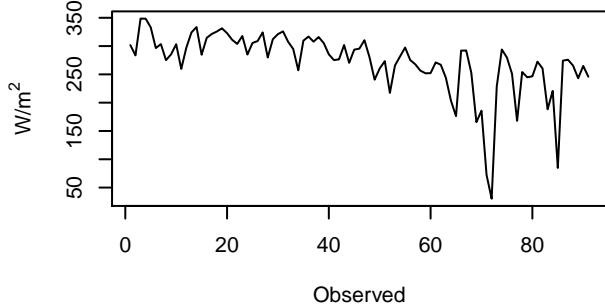
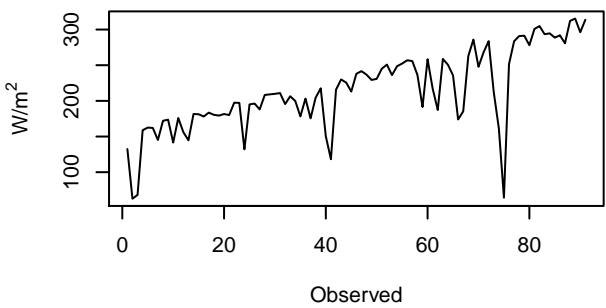
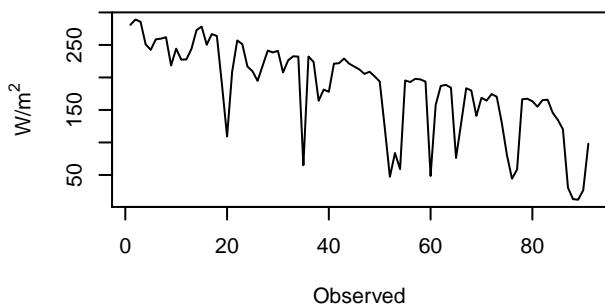
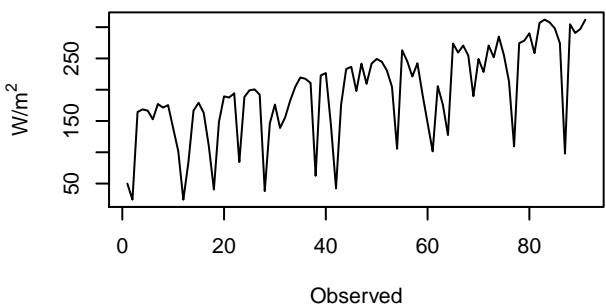
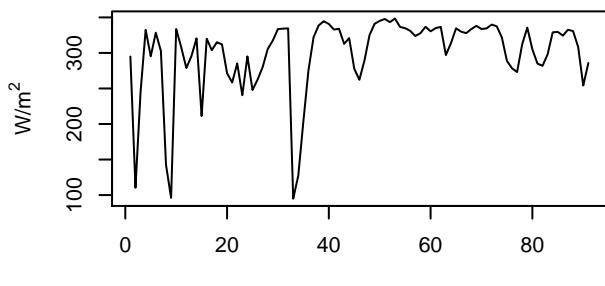
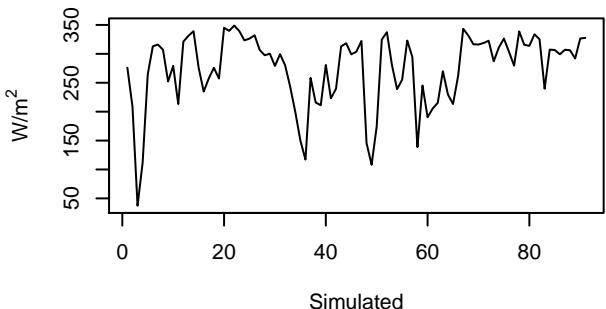


## Simulated CDF for Entire Field – Solar

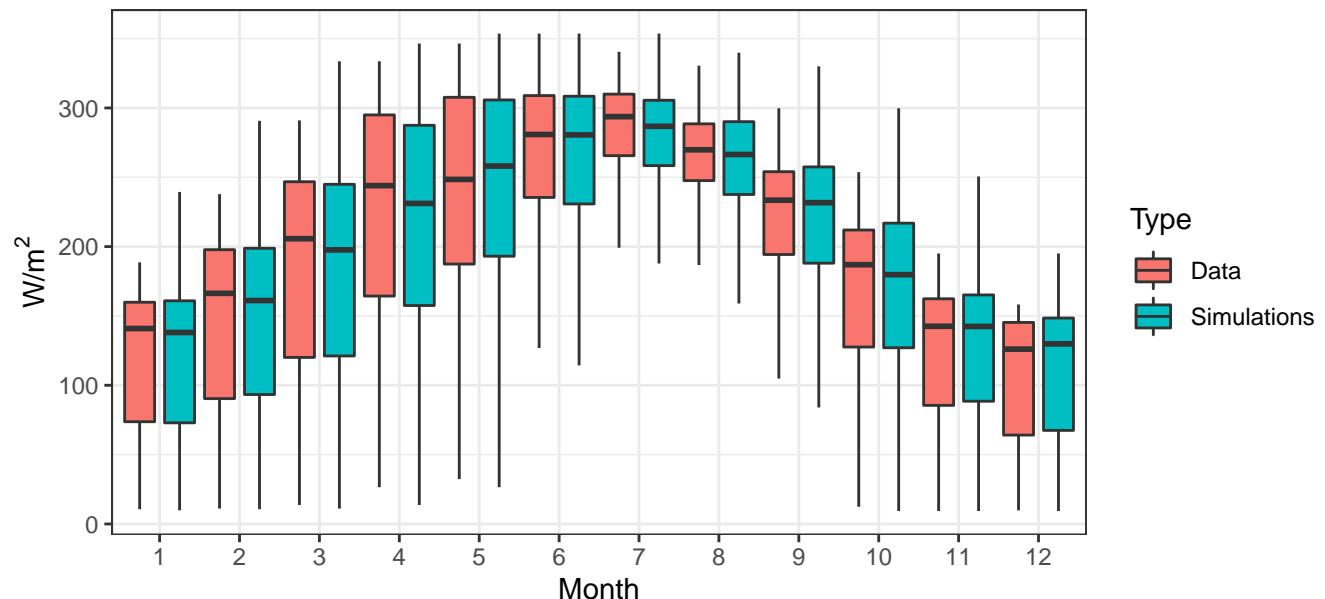


## Daily Generation Potential across ERCOT – Solar

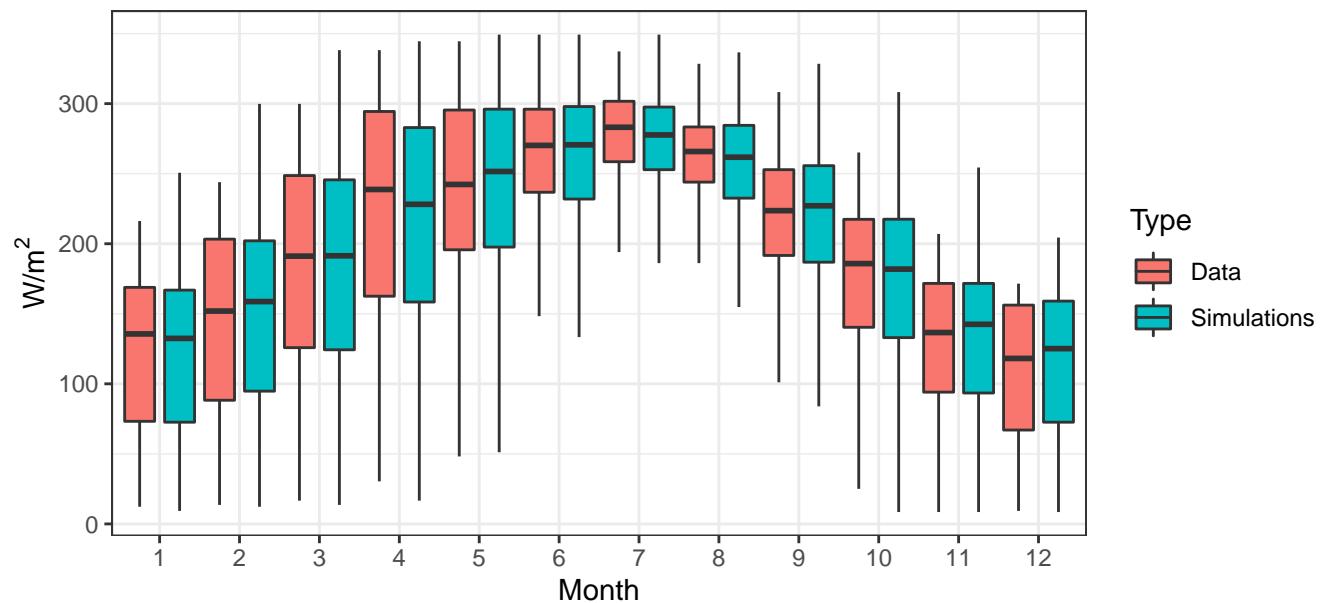




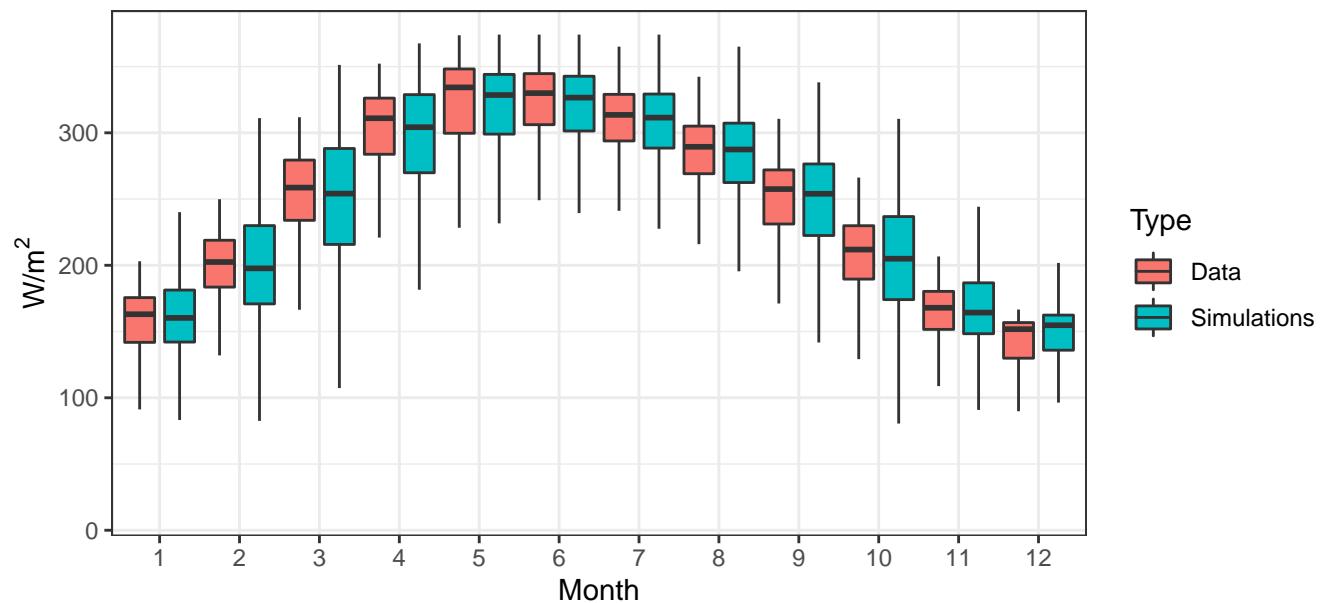
## Solar Distribution for Site/Grid – 177



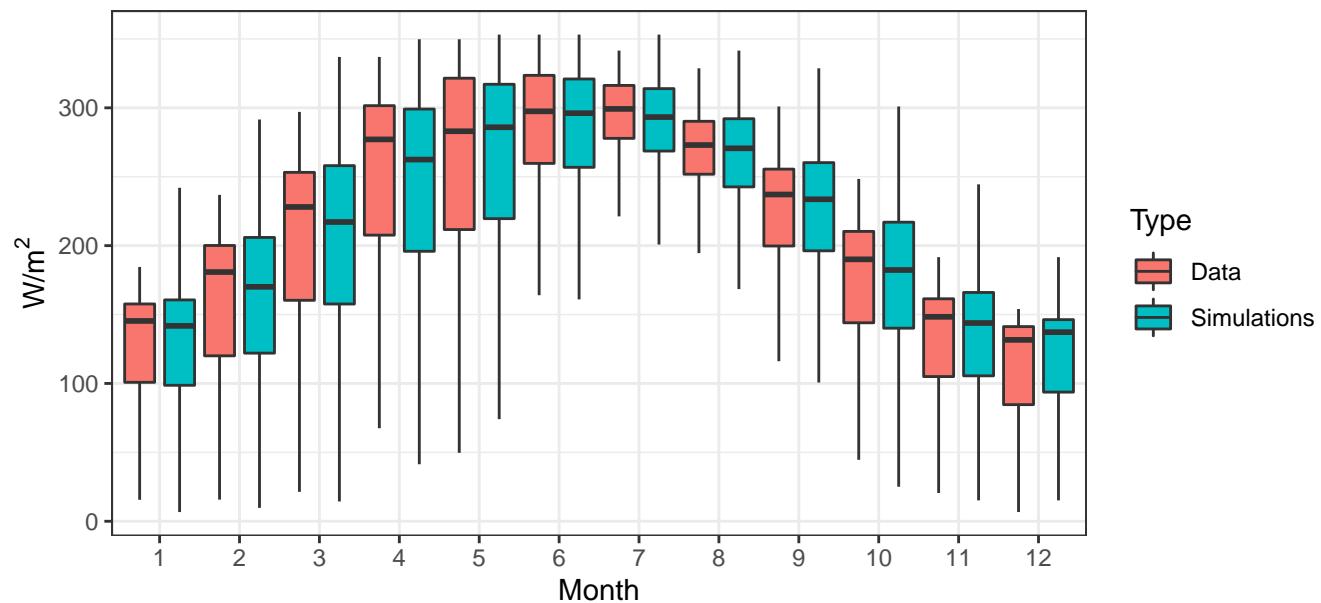
## Solar Distribution for Site/Grid – 161



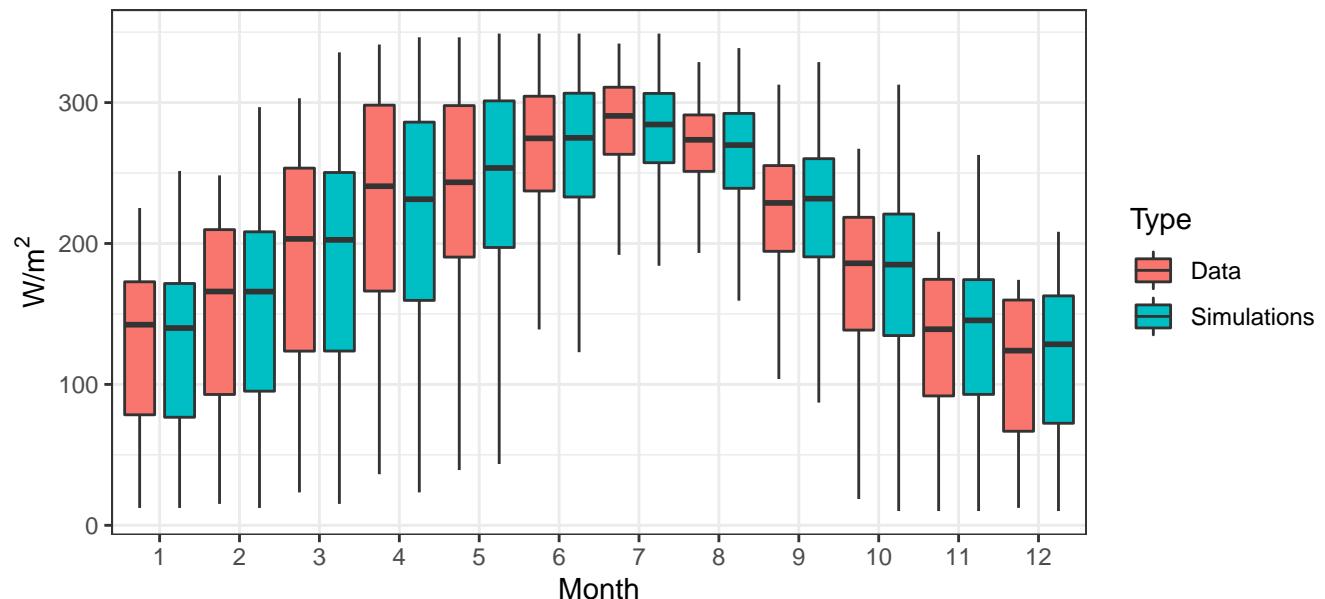
## Solar Distribution for Site/Grid – 16



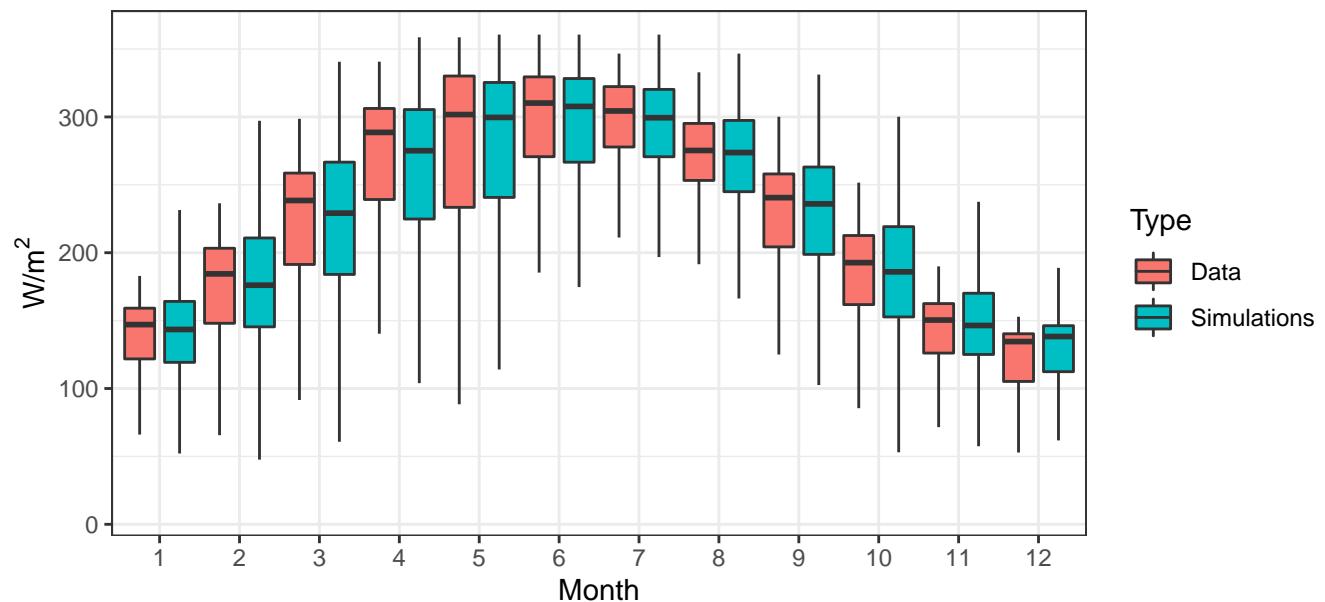
## Solar Distribution for Site/Grid – 125



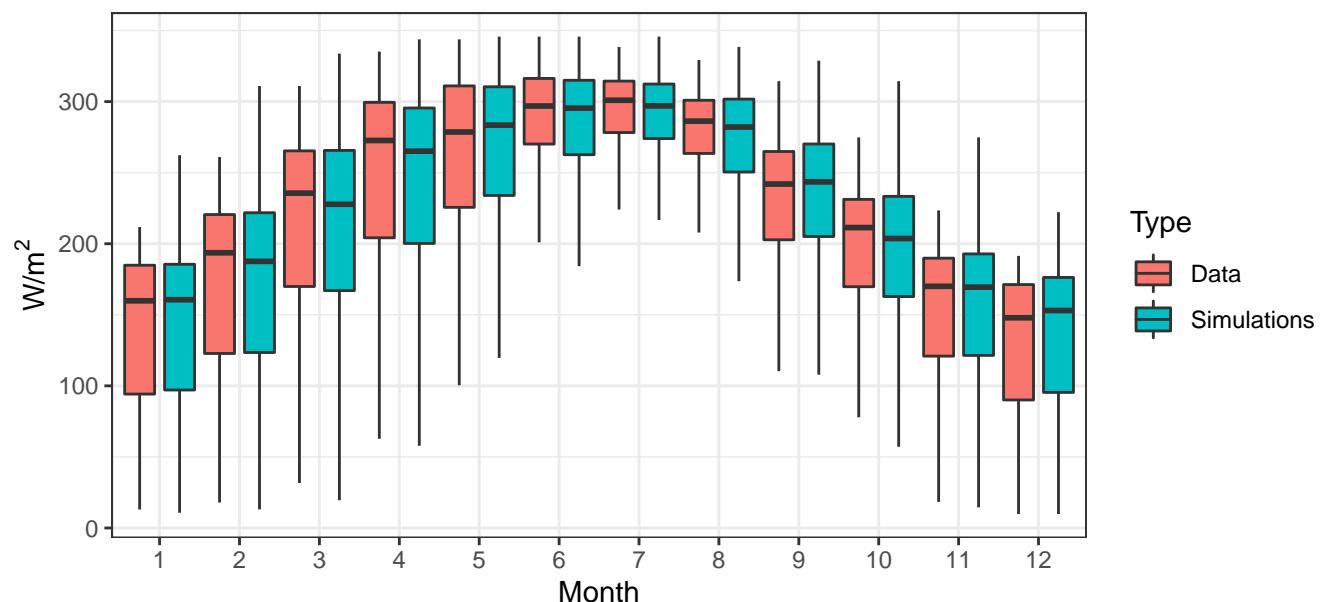
## Solar Distribution for Site/Grid – 117



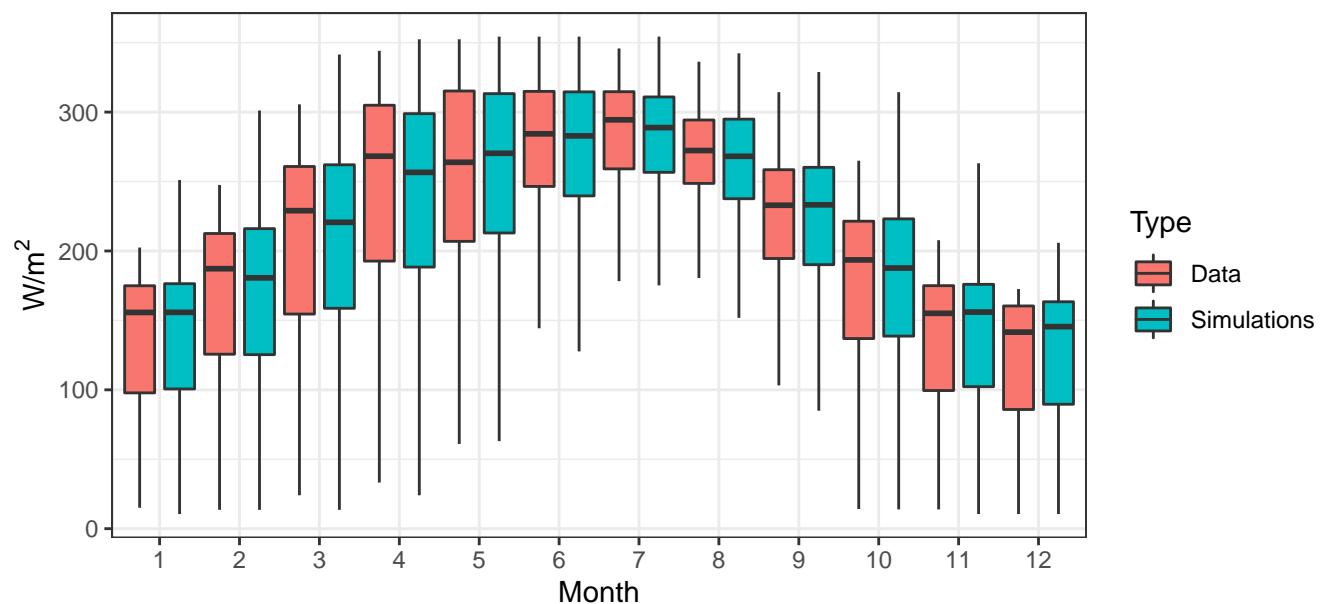
## Solar Distribution for Site/Grid – 65



## Solar Distribution for Site/Grid – 95

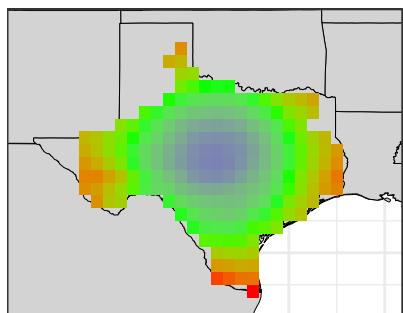


## Solar Distribution for Site/Grid – 72



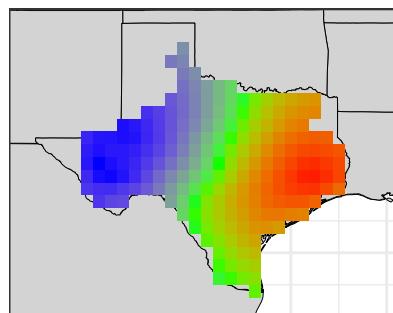
## Data PC-1 Solar

Fractional Variance – 80%

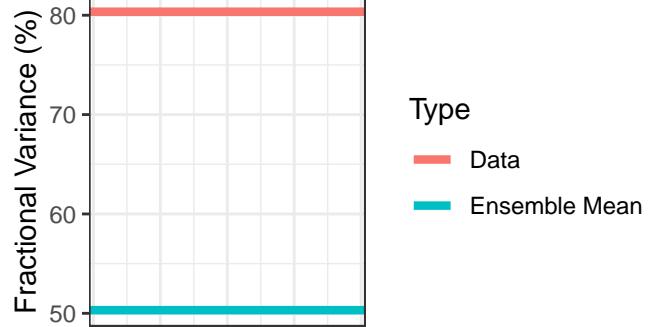


## Data PC-1 Solar

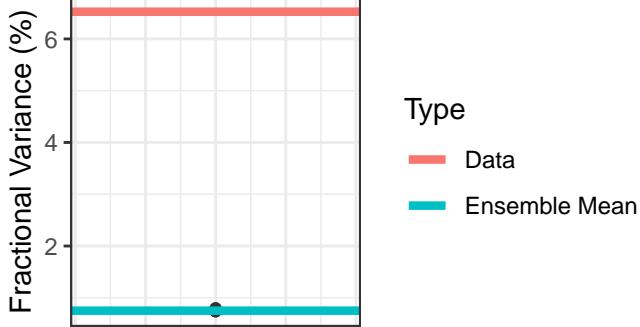
Fractional Variance – 7%



## Simulated PC-1 Variance Solar

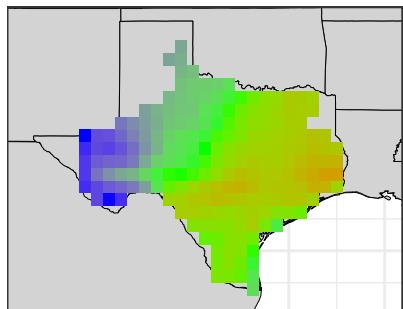


## Simulated PC-2 Variance Solar



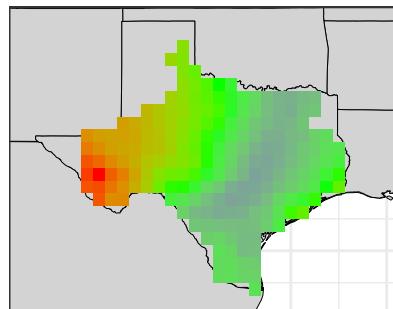
## Ensemble Mean PC-1 Solar

Fractional Variance – 50%



## Ensemble Mean PC-2 Solar

Fractional Variance – 1%



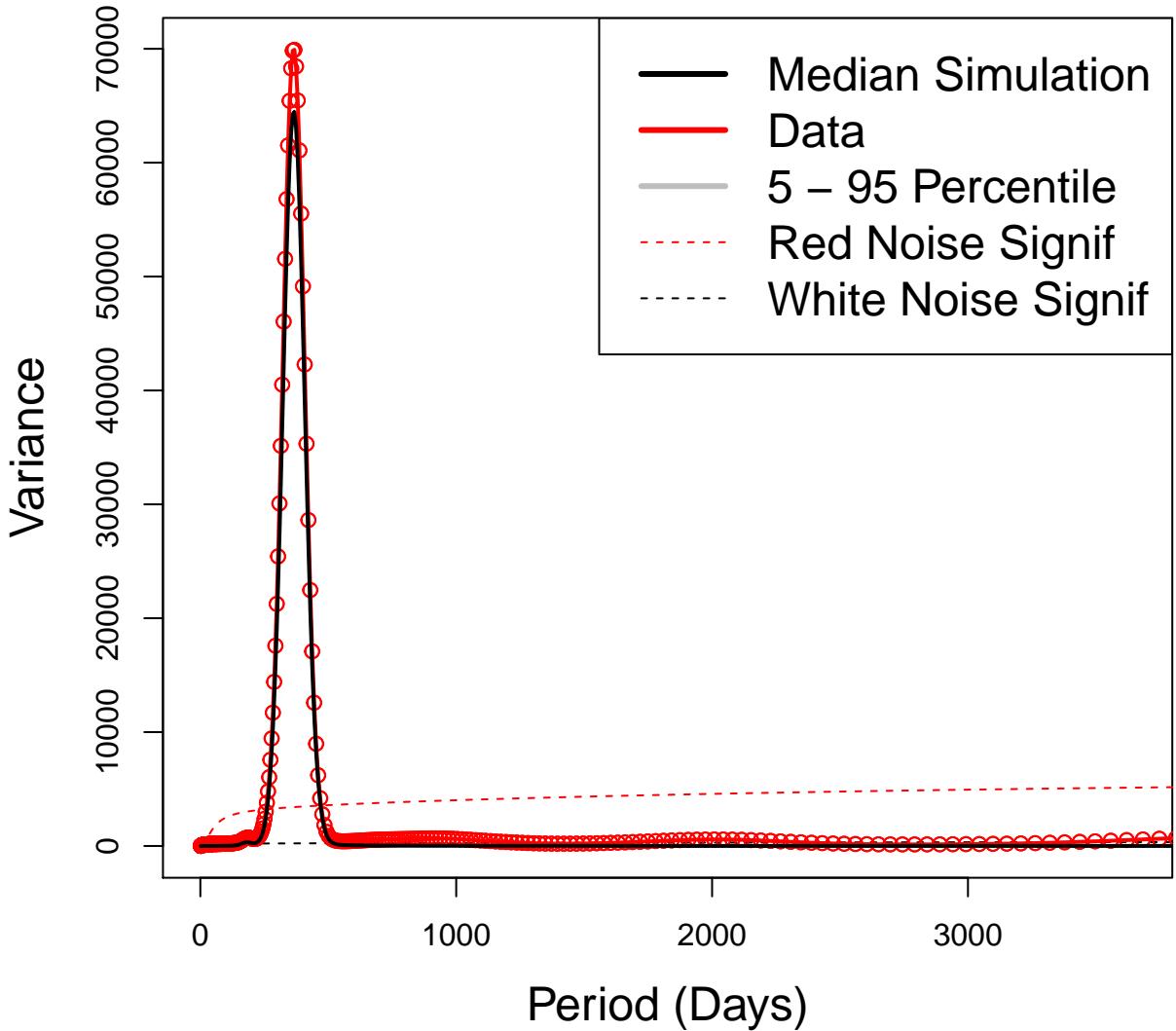
Eigenvectors

1.5  
1.0  
0.5  
0.0  
-0.5  
-1.0

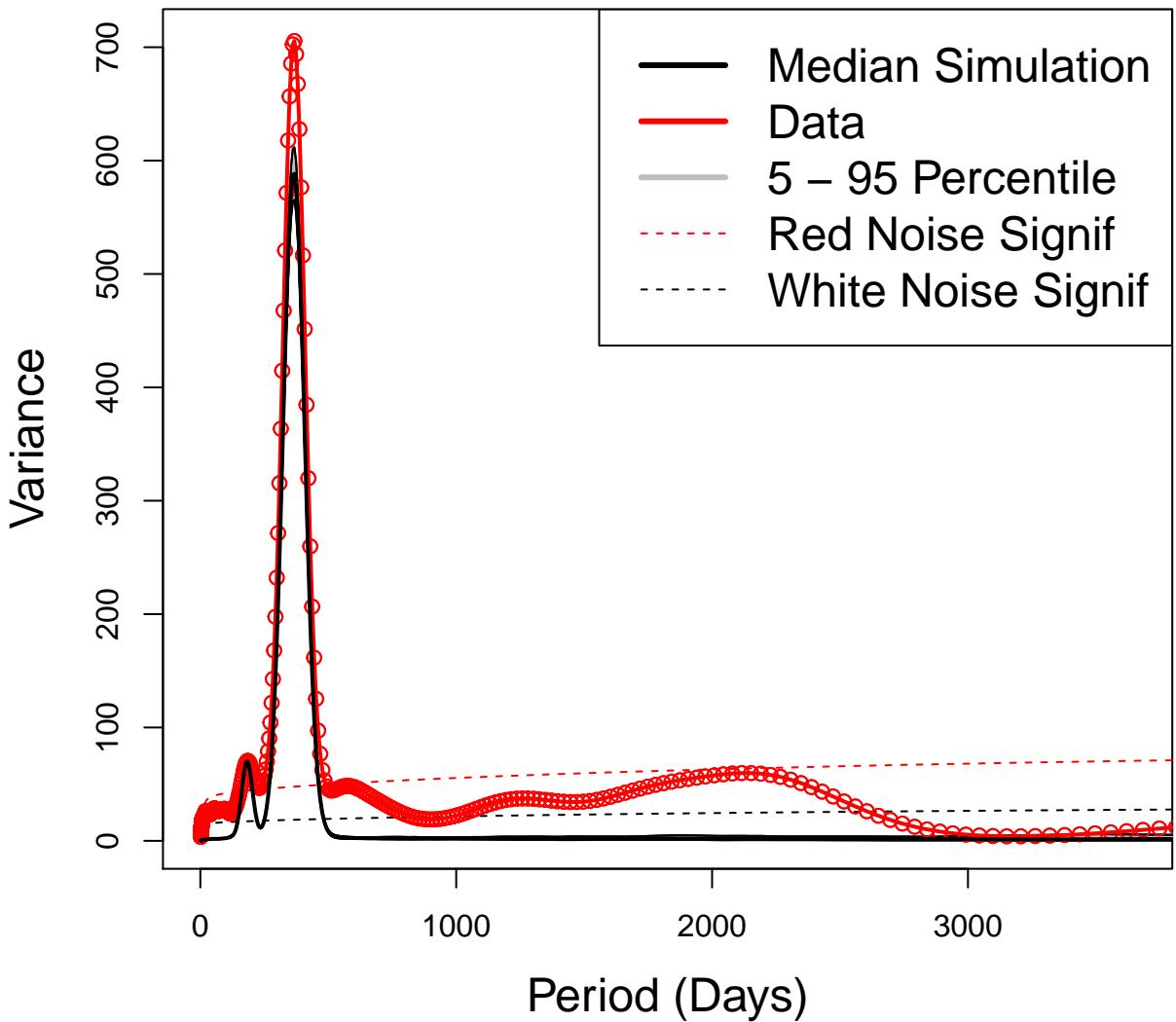
Type  
Data  
Ensemble Mean

Eigenvectors  
2  
1  
0  
-1  
-2

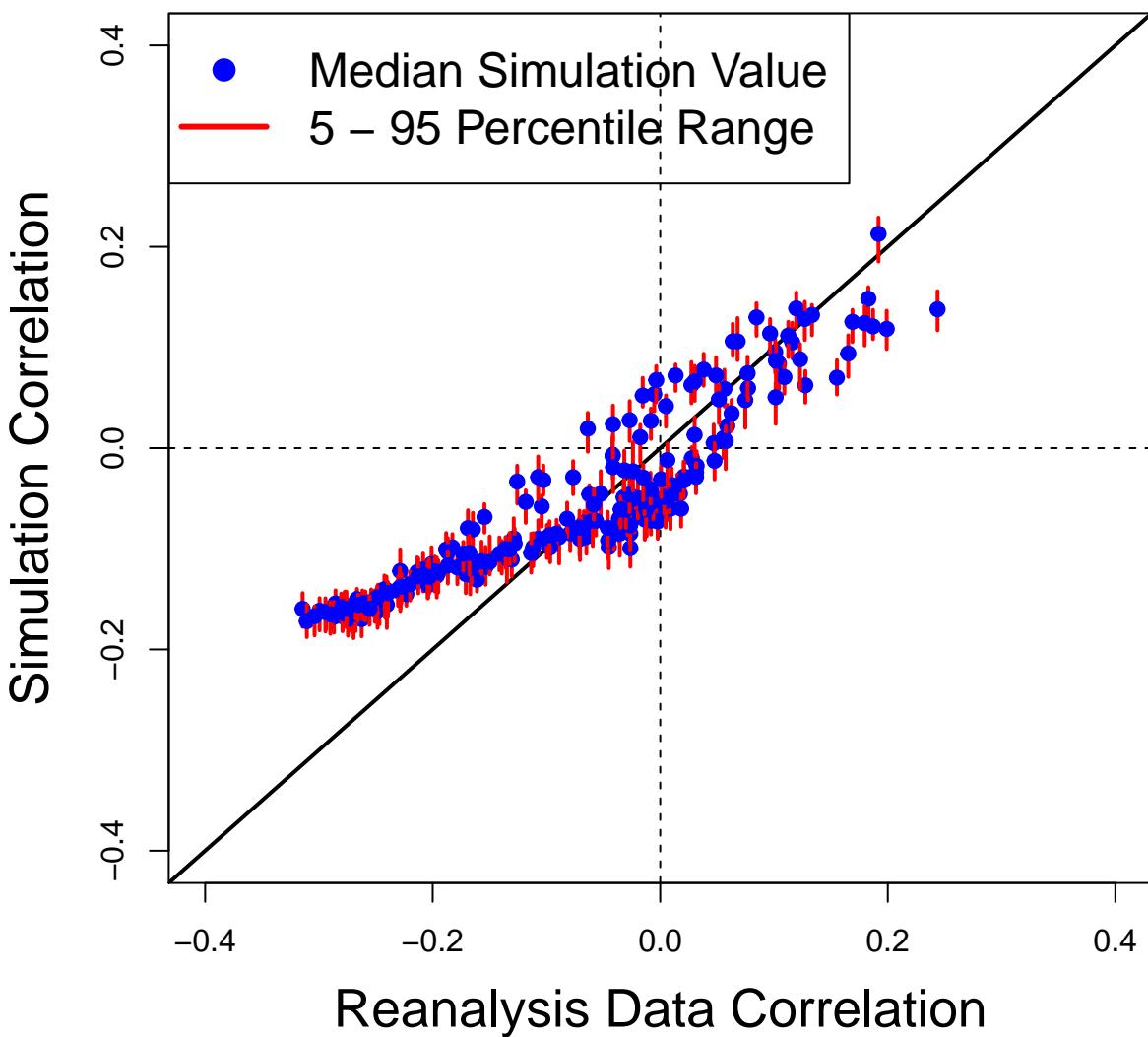
# Global Wavelet Spectrum PC – 1 Solar



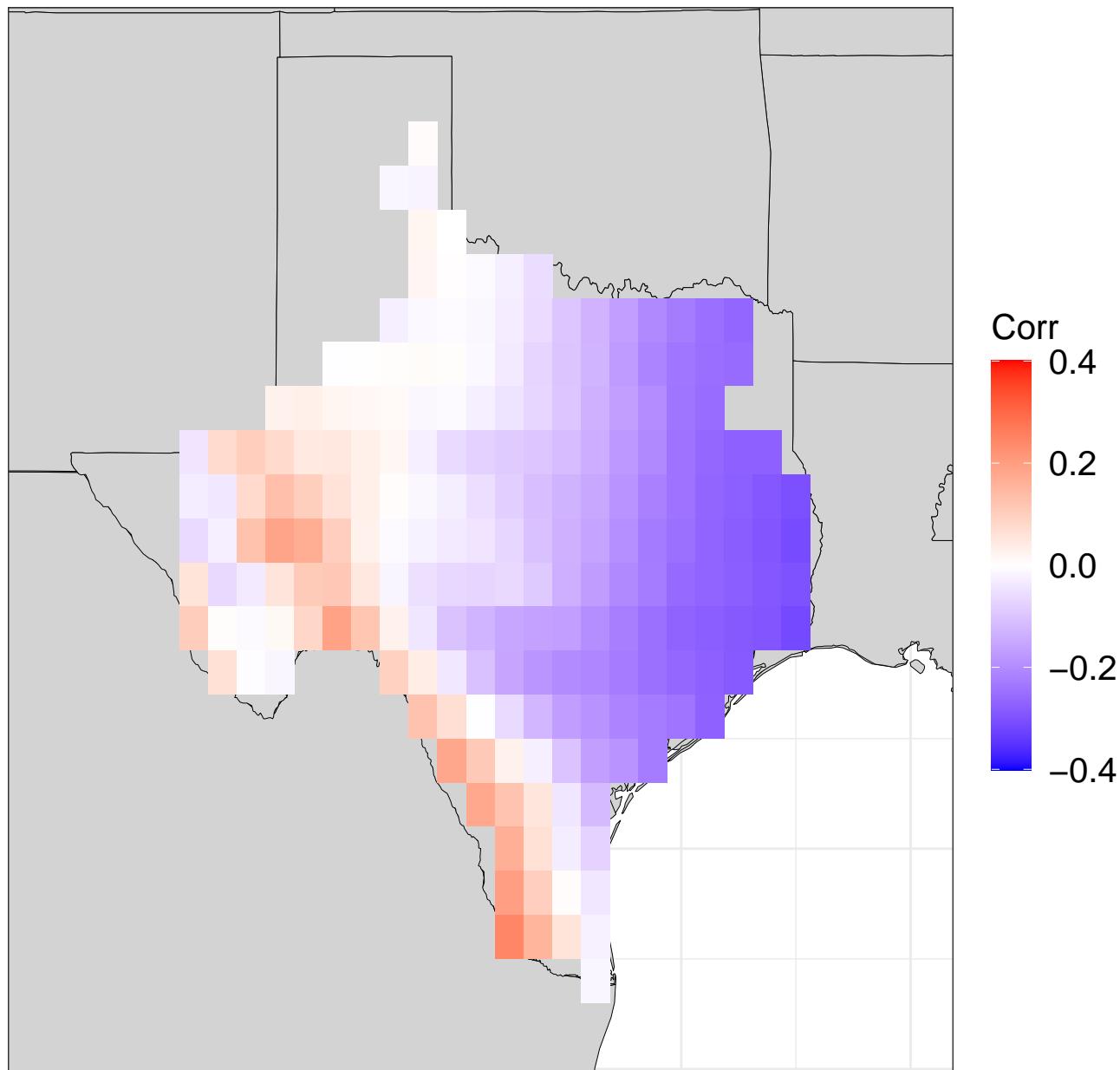
## Global Wavelet Spectrum PC – 2 Solar



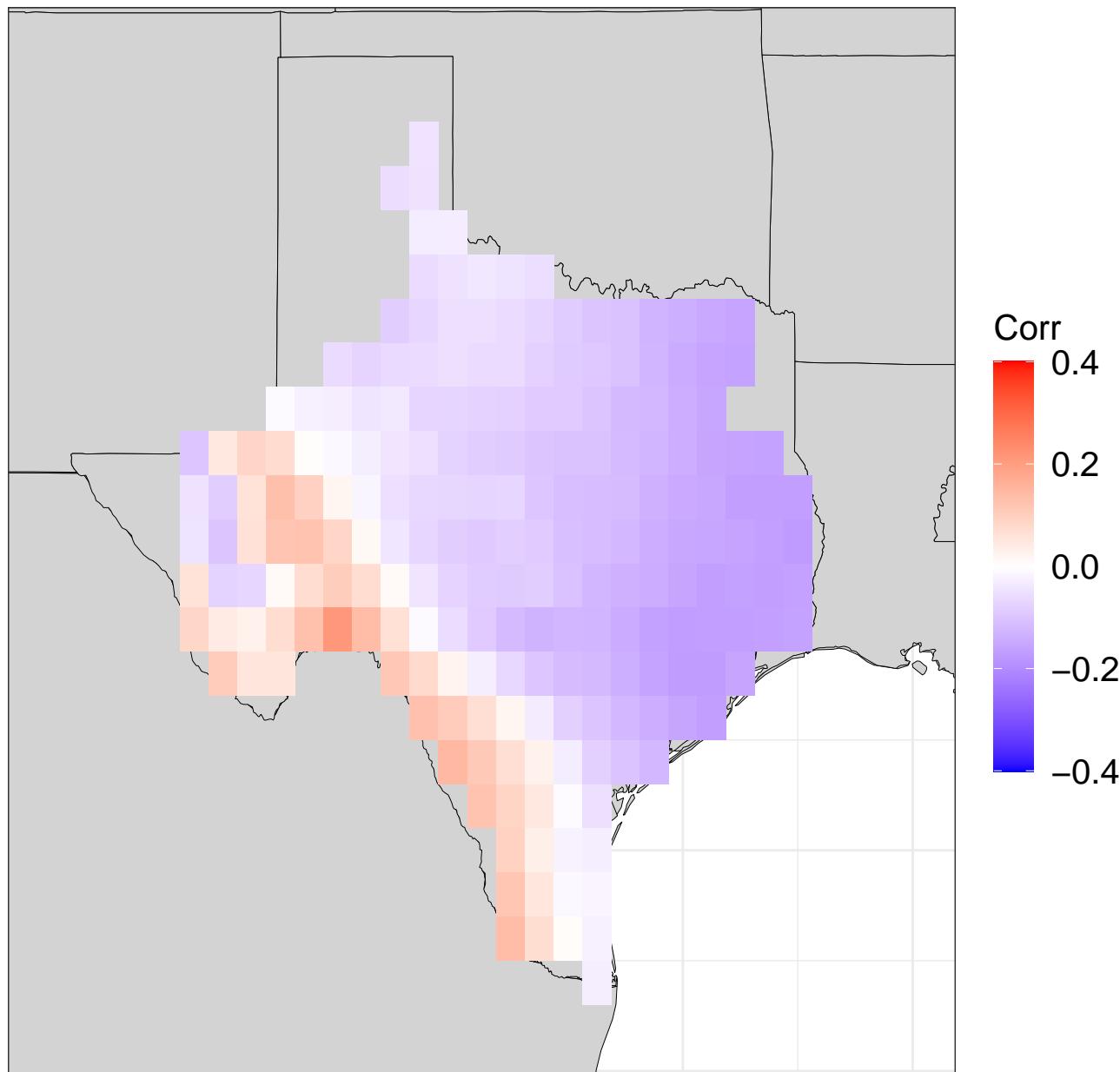
# Simulation vs Data Correlation



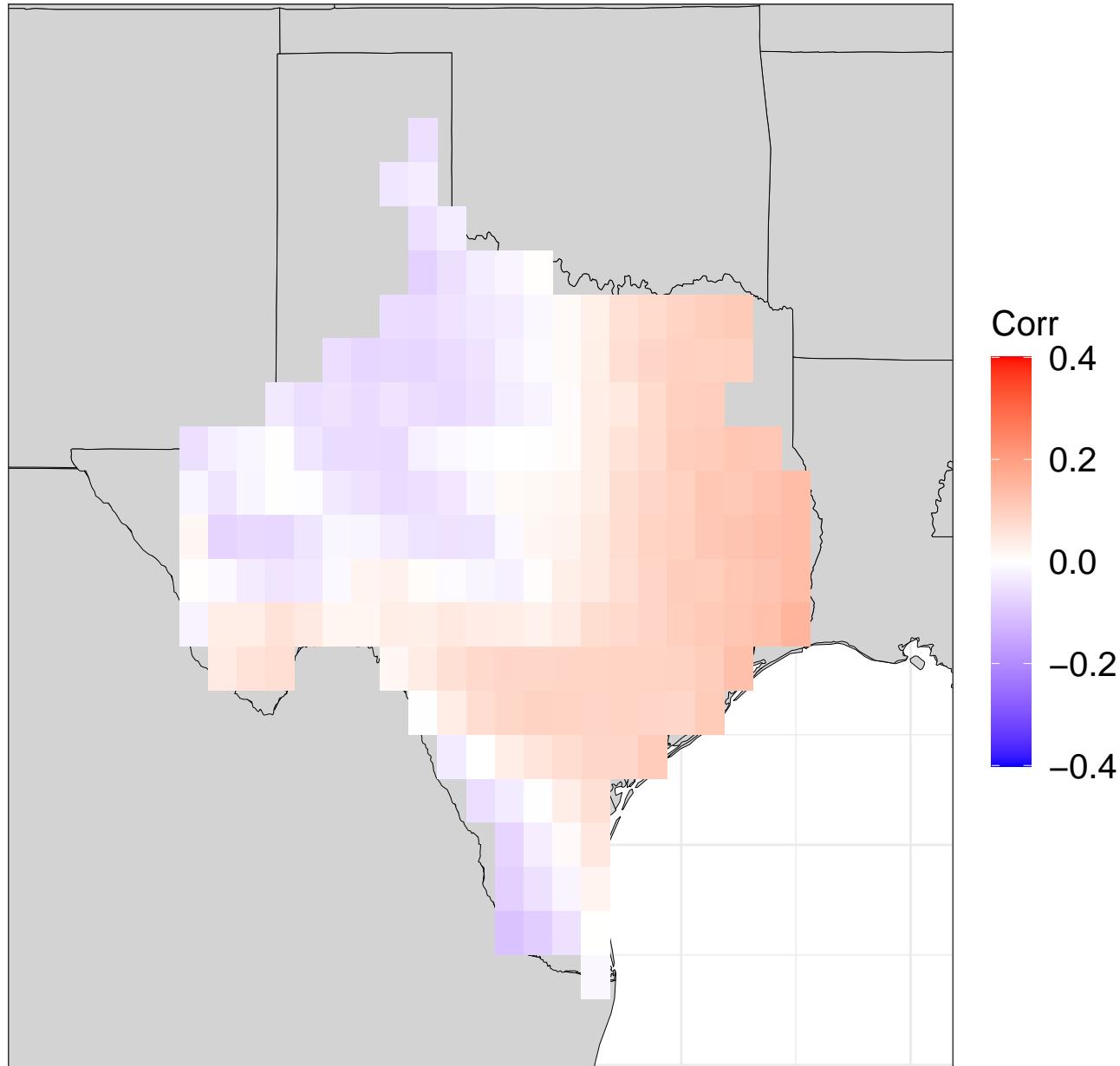
# Reanalysis Data Correlation

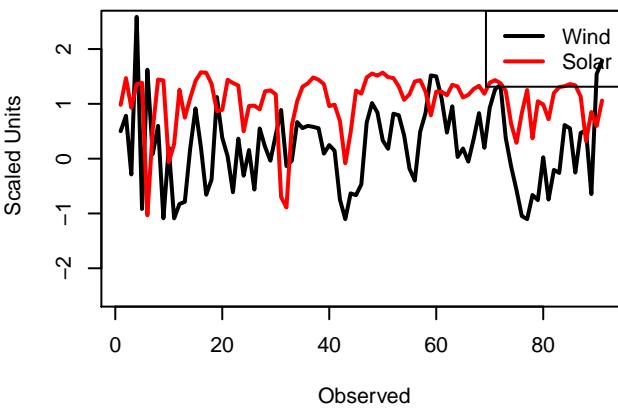
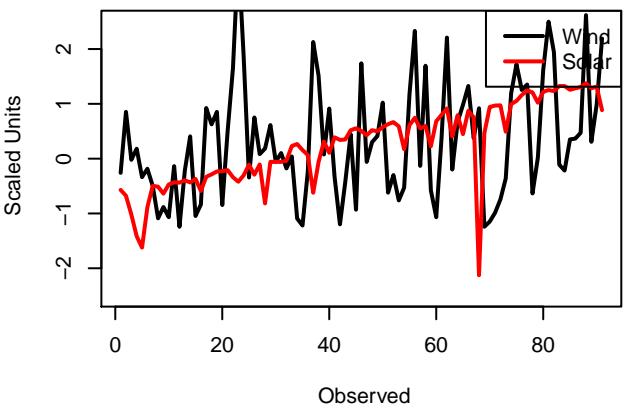
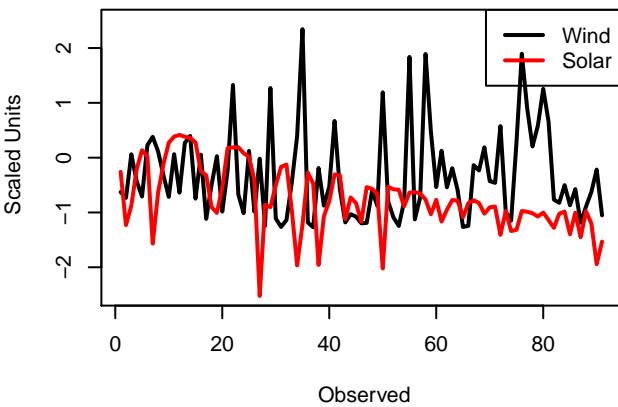
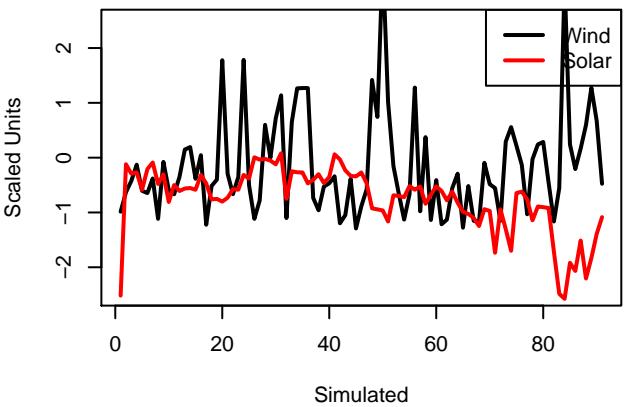
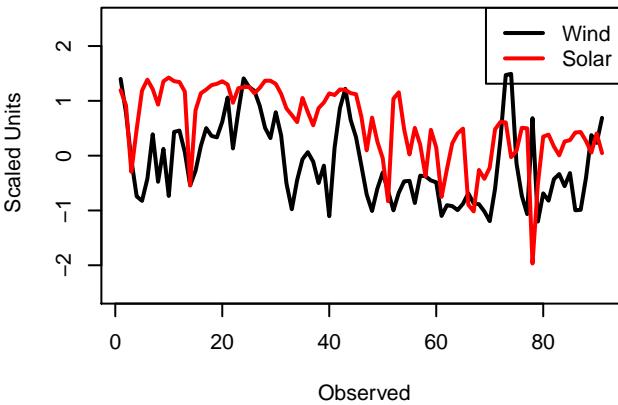
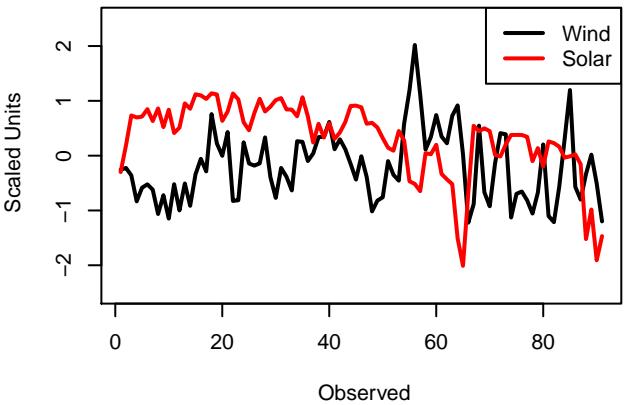


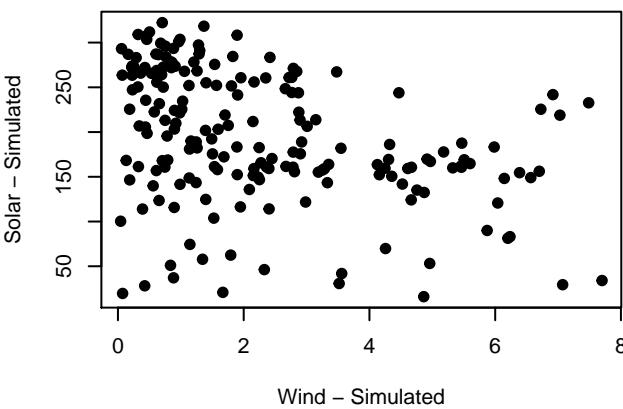
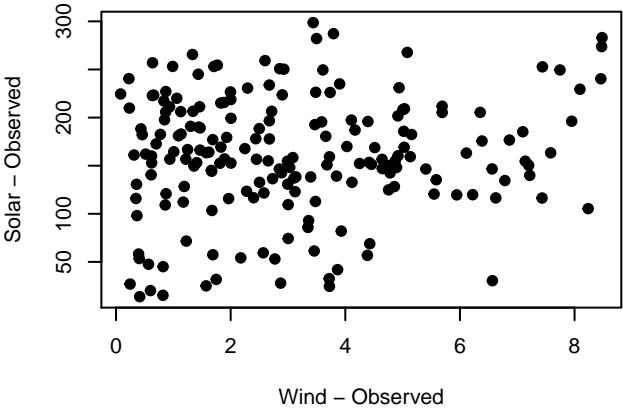
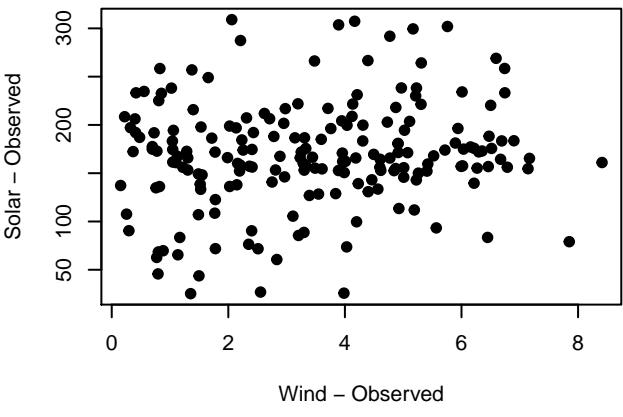
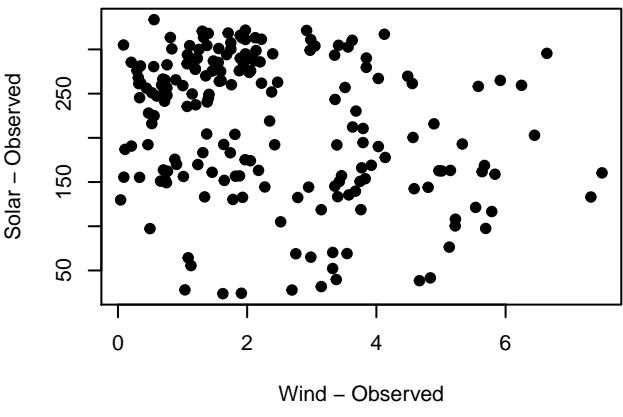
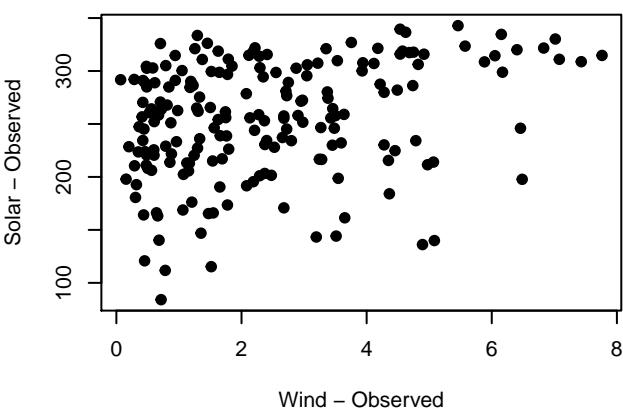
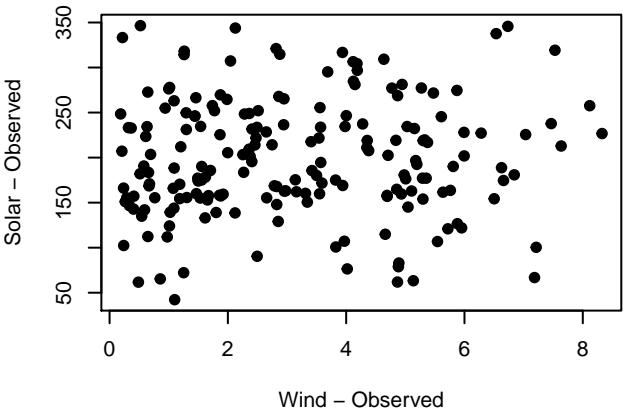
# Median Simulation Correlation



# Difference between Renalysis Data and Simulations

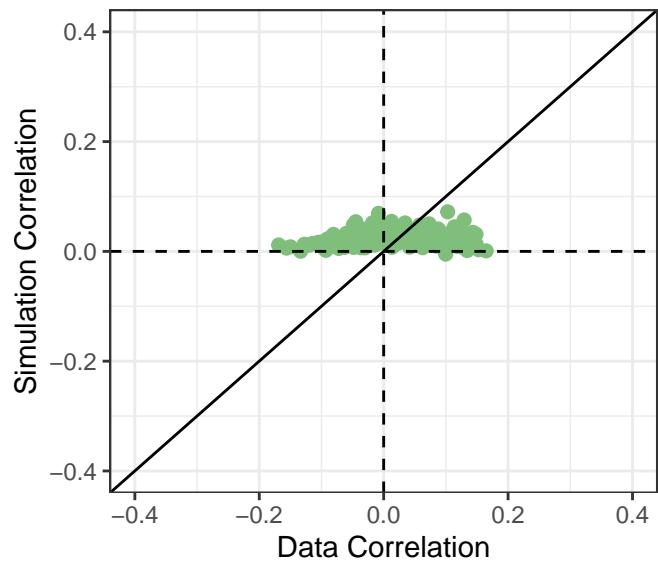






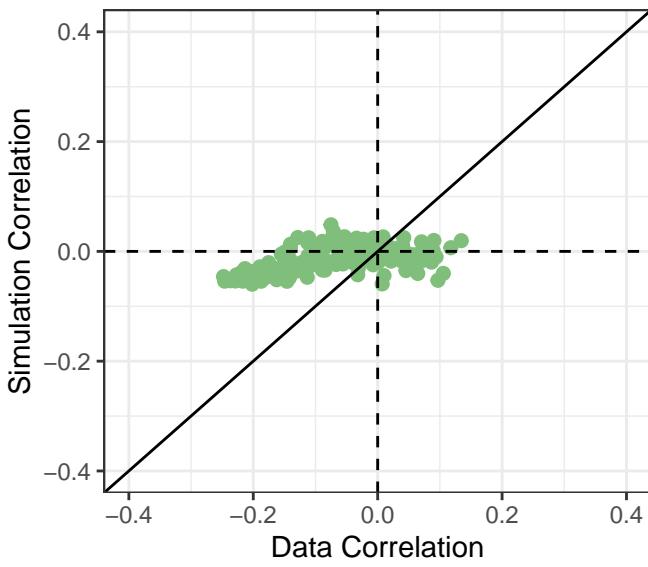
### Simulation vs Data Correlation

Dec–Jan–Feb



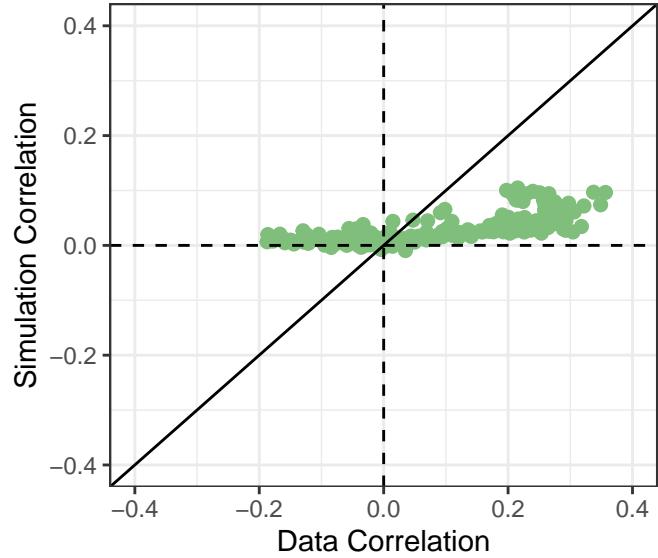
### Simulation vs Data Correlation

Mar–April–May



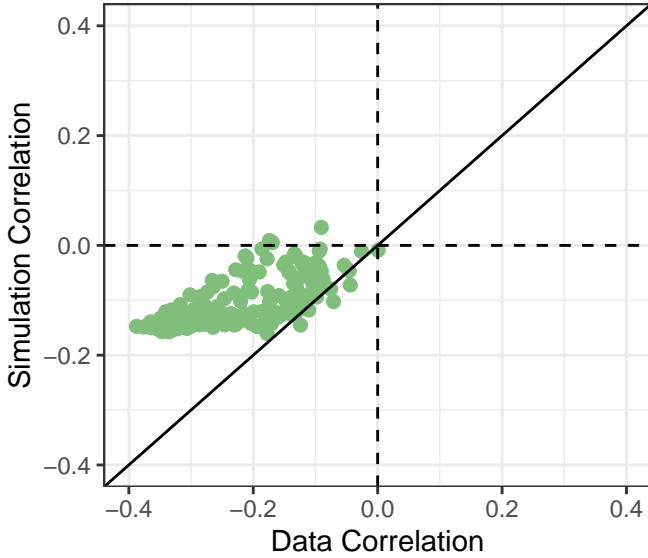
### Simulation vs Data Correlation

Jun–July–Aug



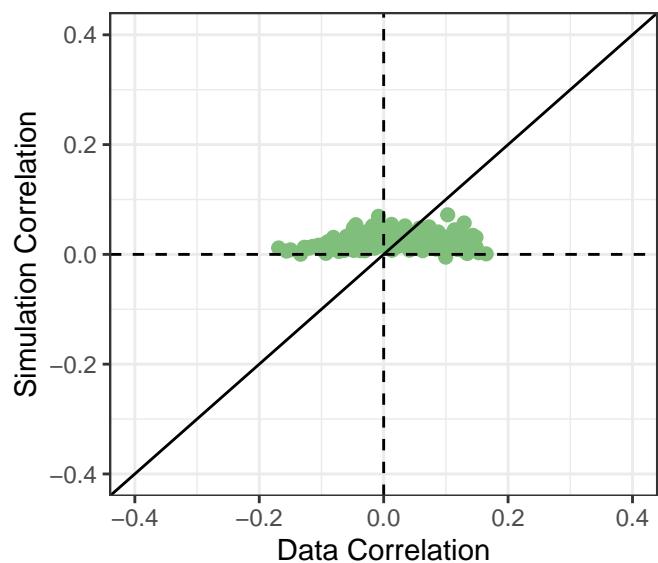
### Simulation vs Data Correlation

Sept–Oct–Nov

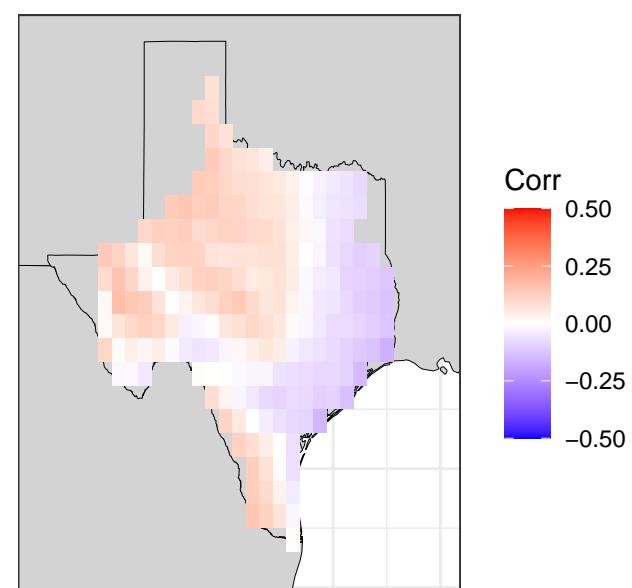


### Simulation vs Data Correlation

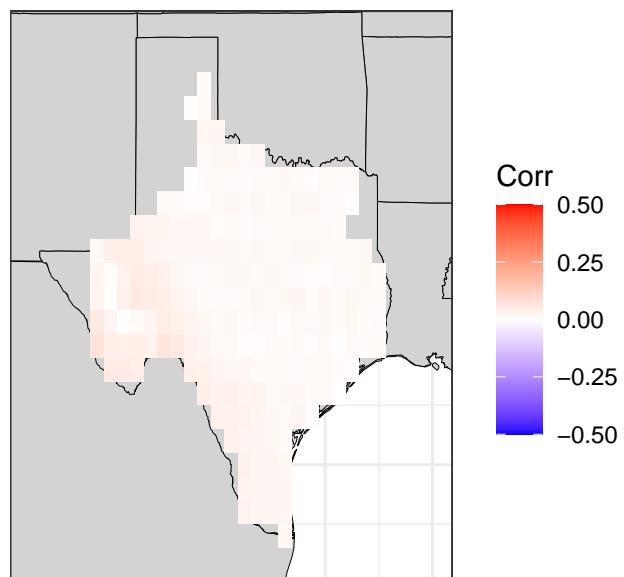
Dec–Jan–Feb



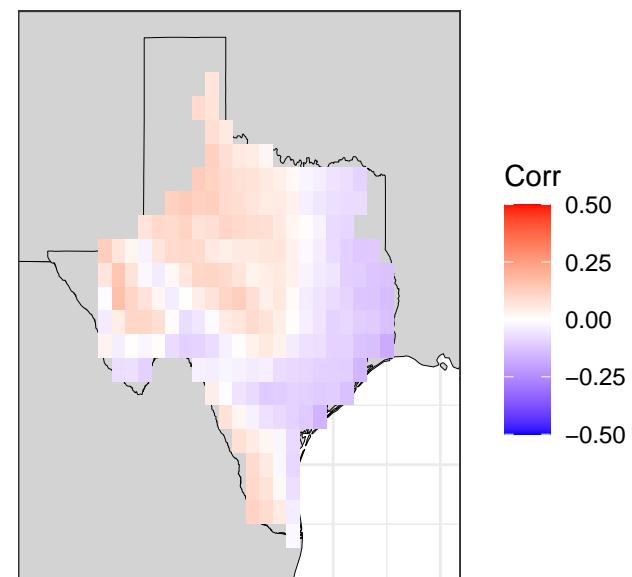
### Reanalysis Data Correlation – DJF



### Median Simulation Correlation – DJF

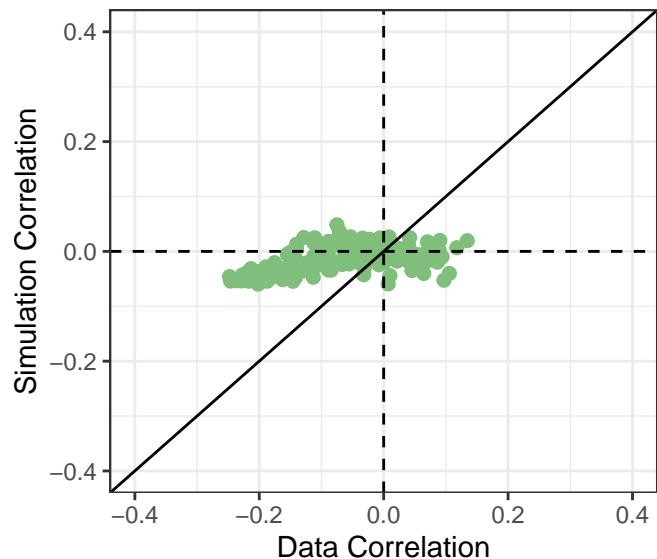


### Difference between Data and Simulations

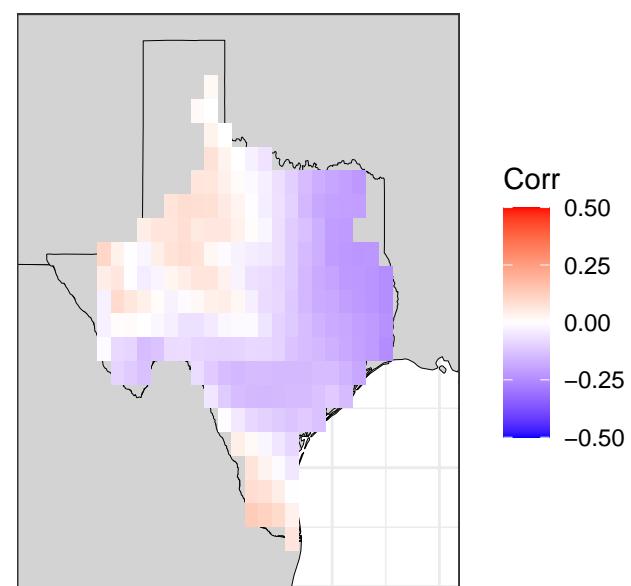


### Simulation vs Data Correlation

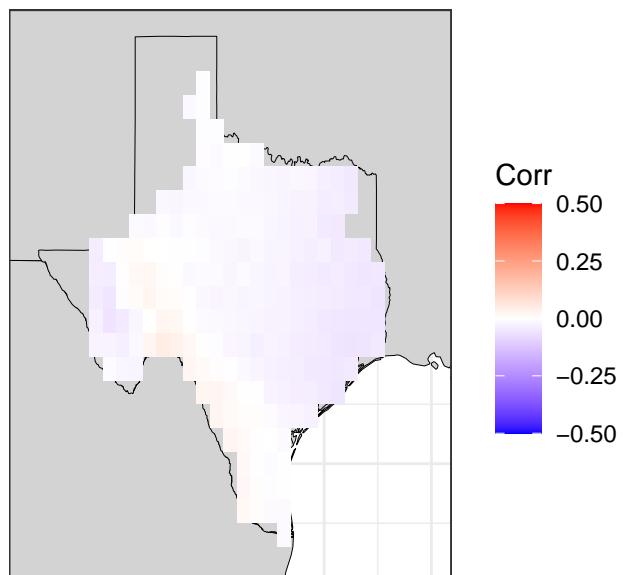
Mar–April–May



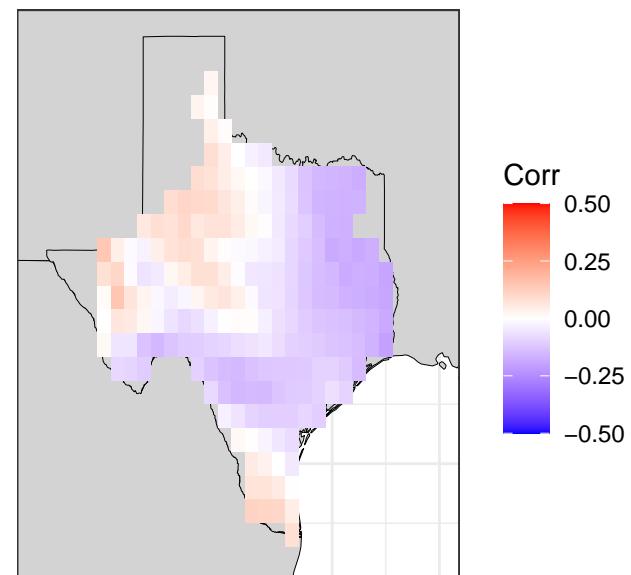
### Reanalysis Data Correlation – MAM



### Median Simulation Correlation – MAM

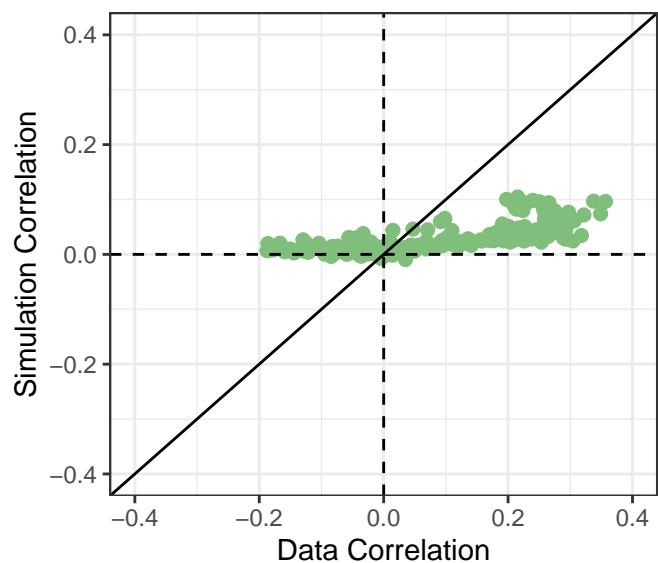


### Difference between Data and Simulations

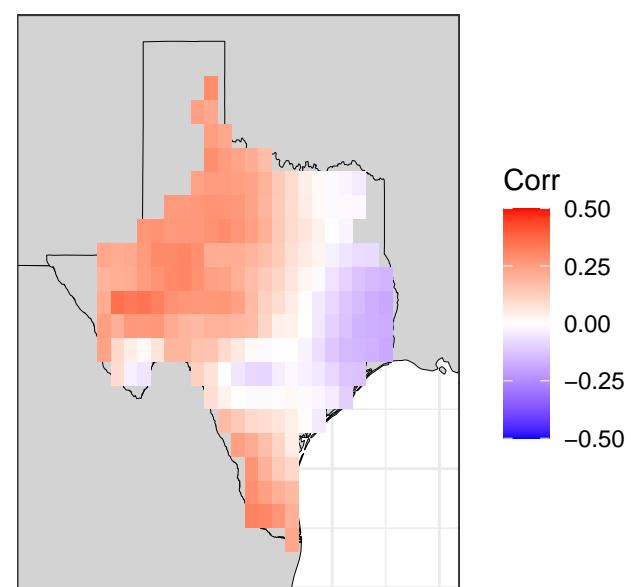


### Simulation vs Data Correlation

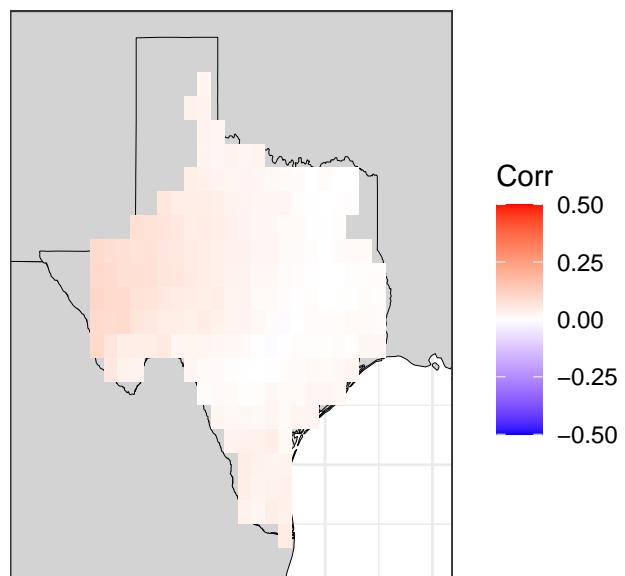
Jun–July–Aug



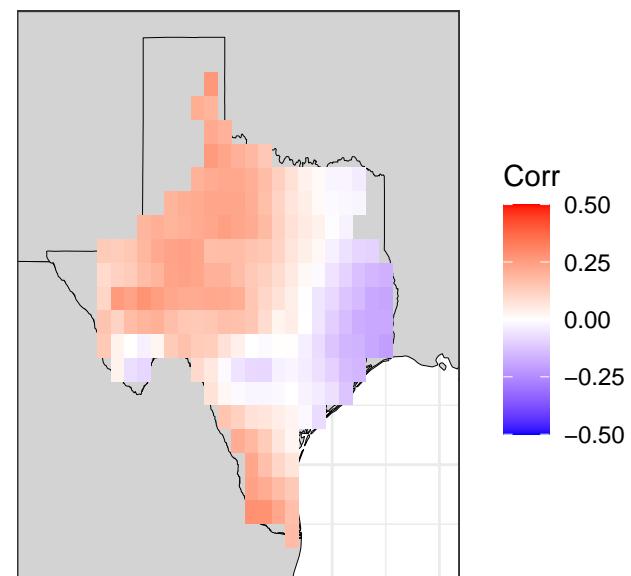
### Reanalysis Data Correlation – JJA



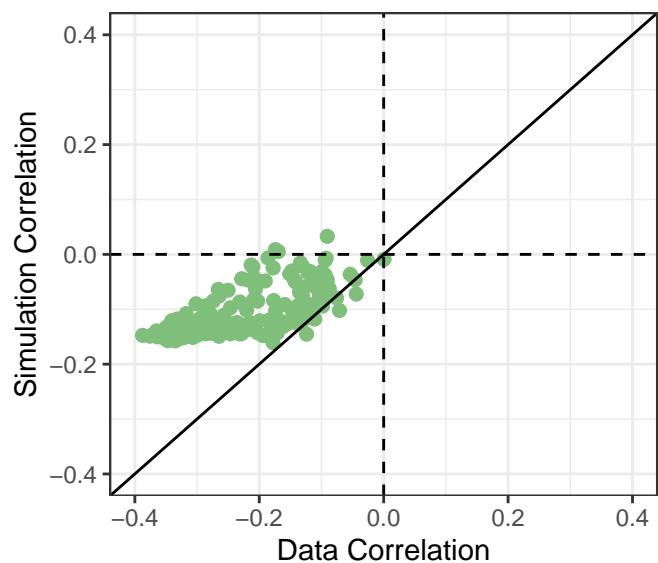
### Median Simulation Correlation – JJA



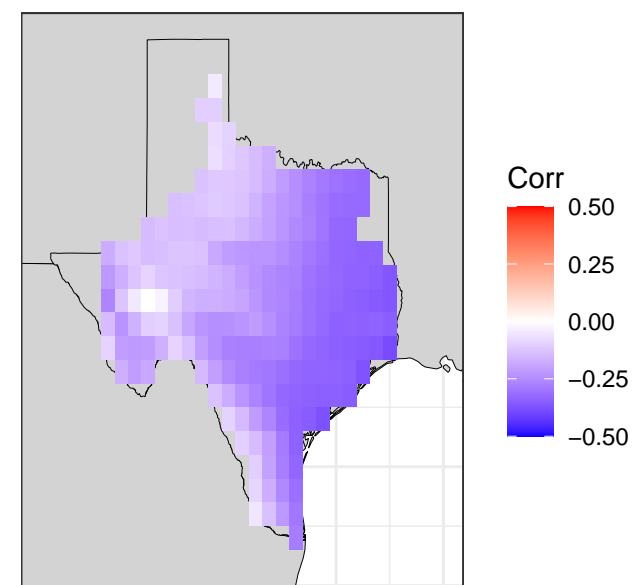
### Difference between Data and Simulations



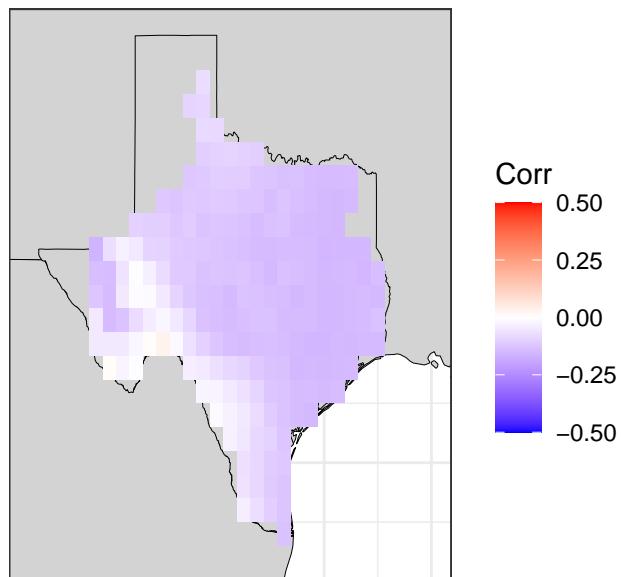
Simulation vs Data Correlation  
Sept–Oct–Nov



Reanalysis Data Correlation – SON



Median Simulation Correlation – SON



Difference between Data and Simulations

