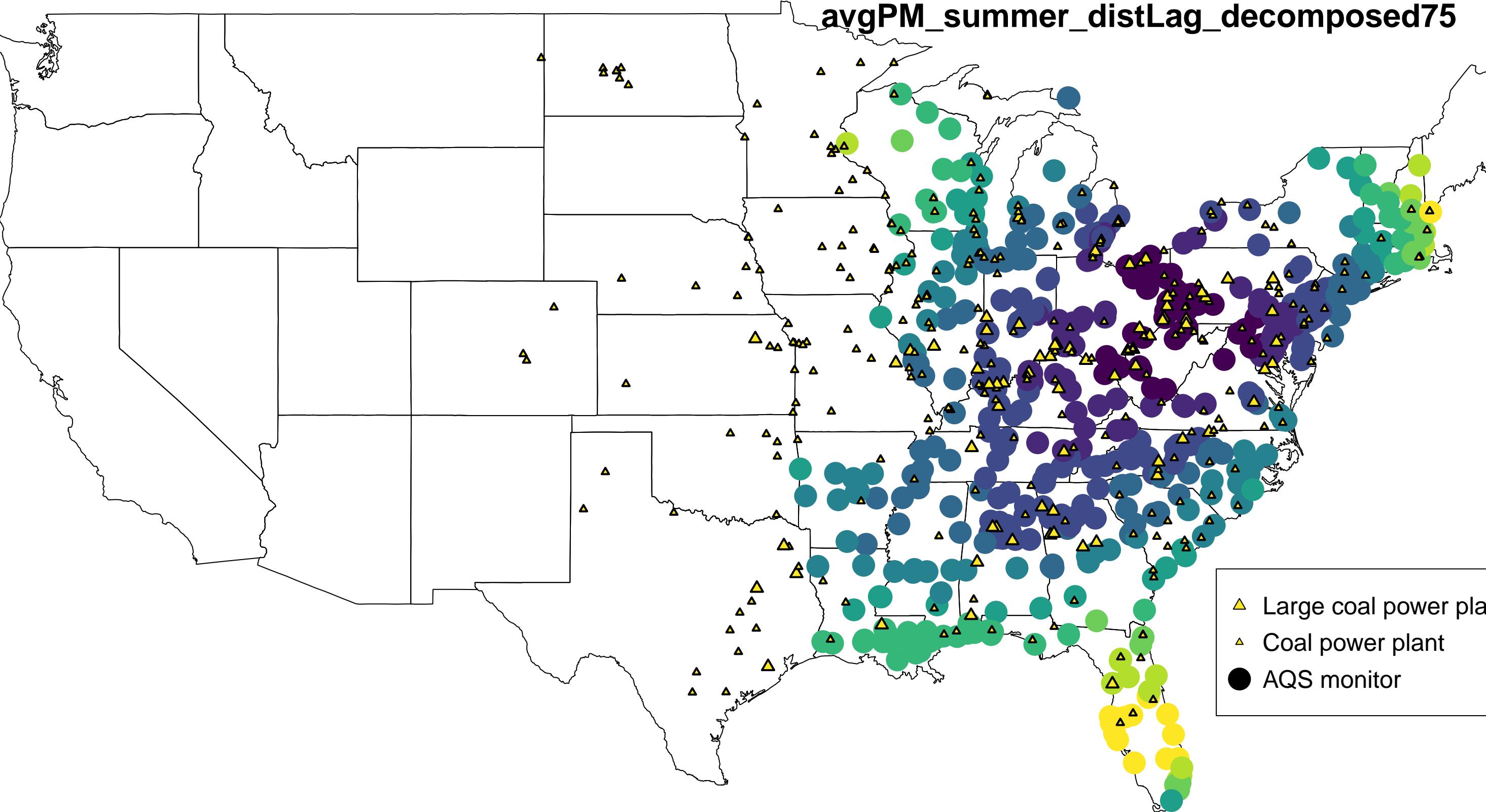


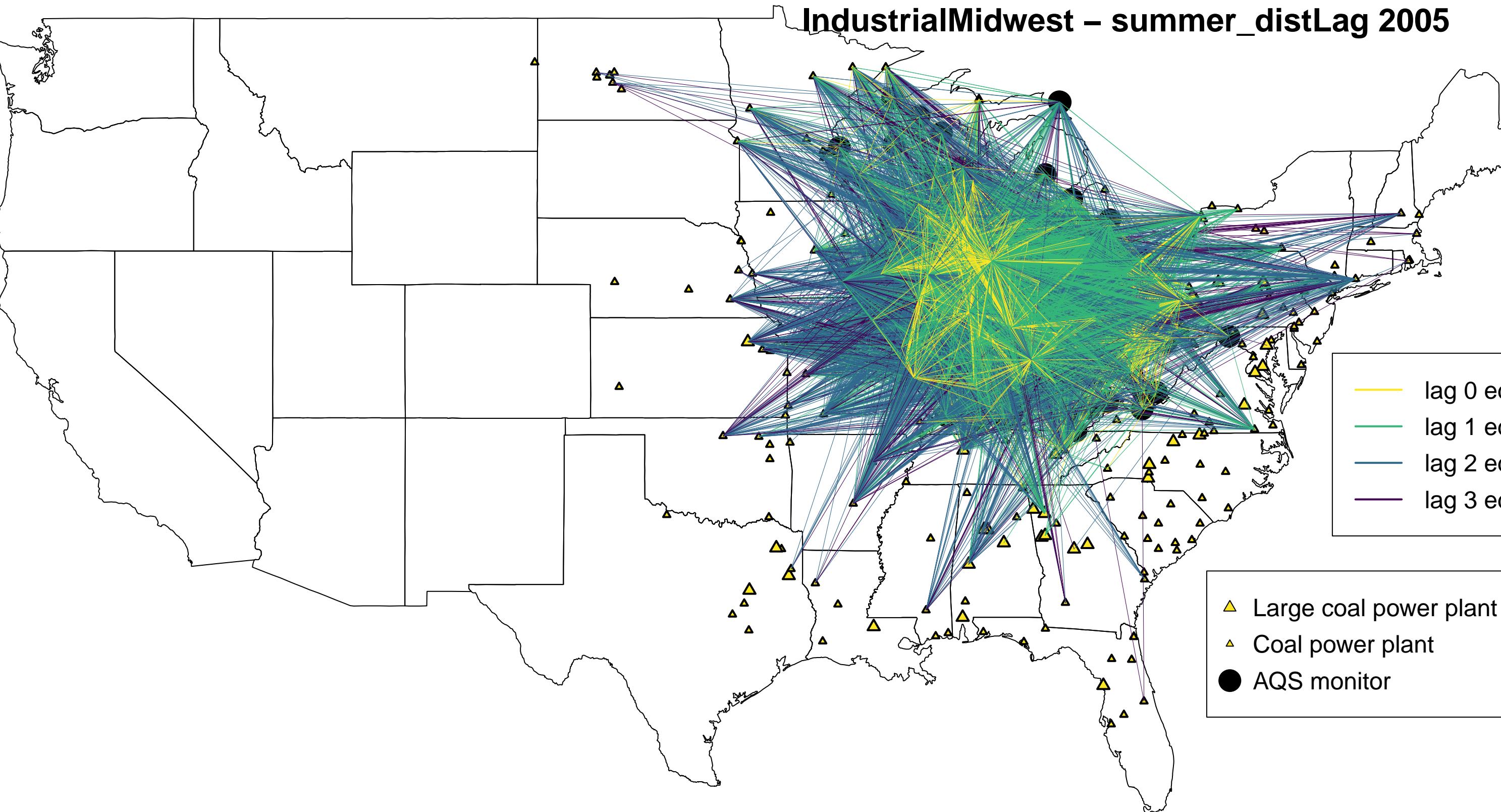
## Coal power plants and AQS monitors



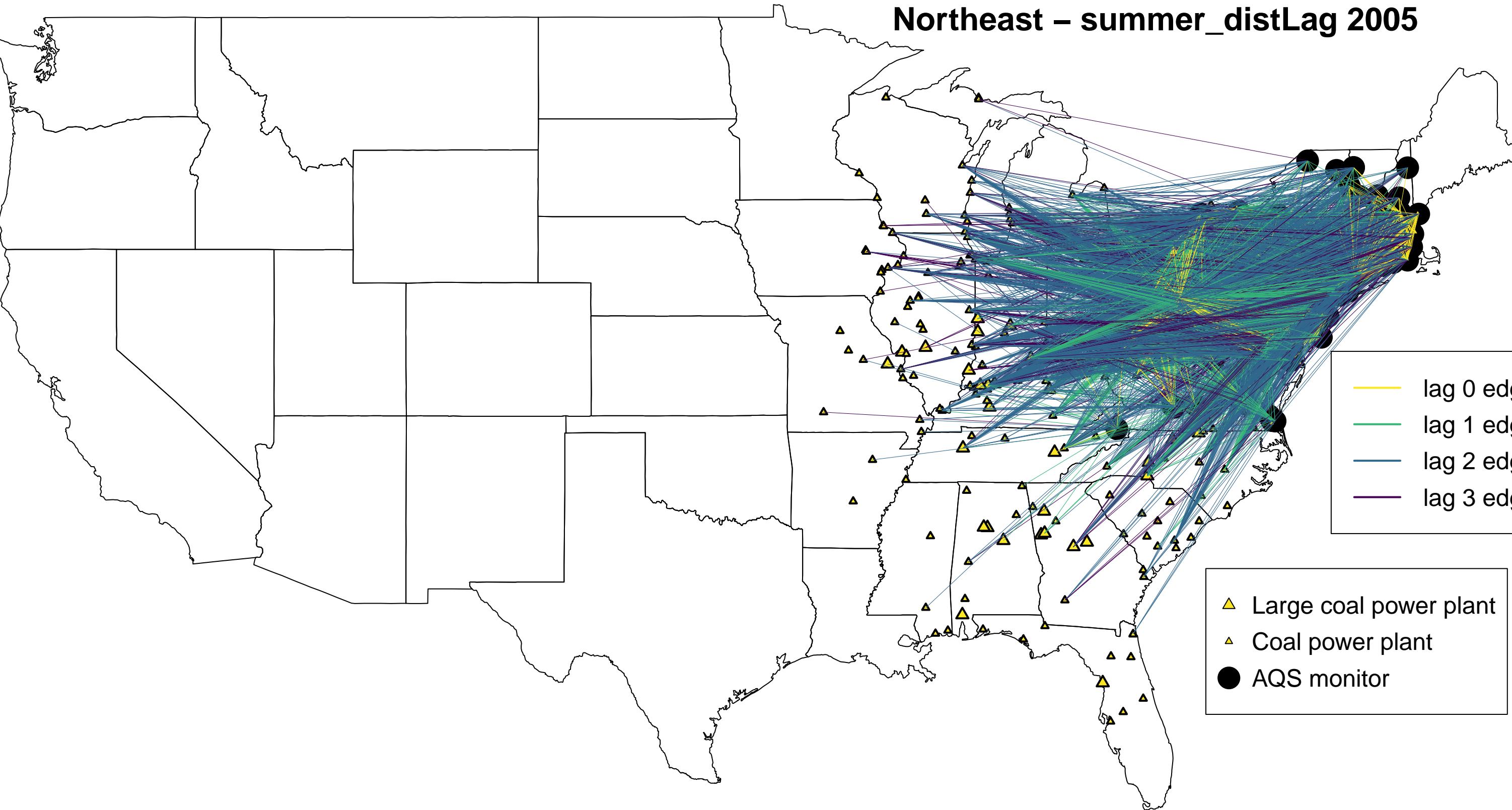
**avgPM\_summer\_distLag\_decomposed75**



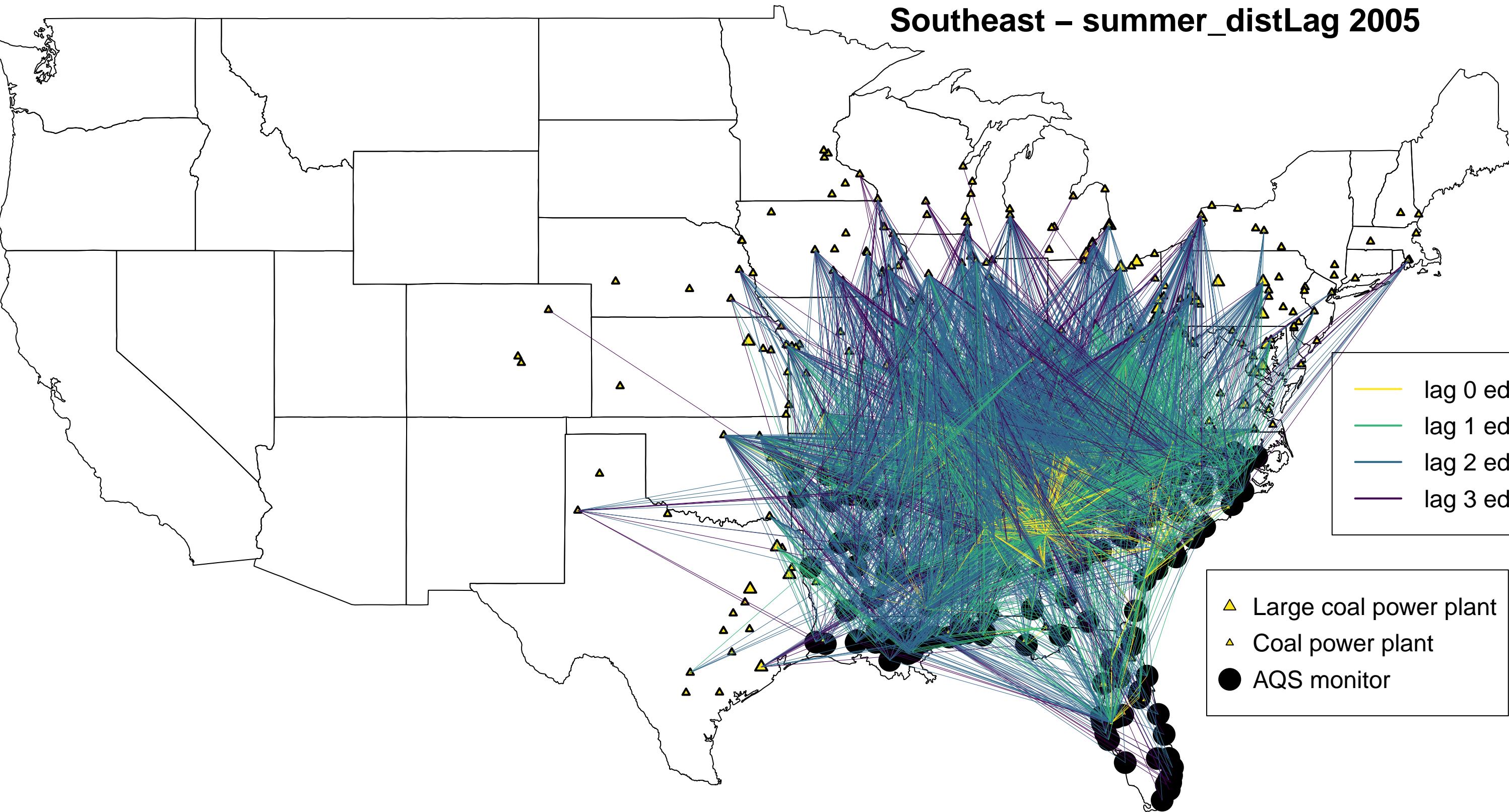
# IndustrialMidwest – summer\_distLag 2005



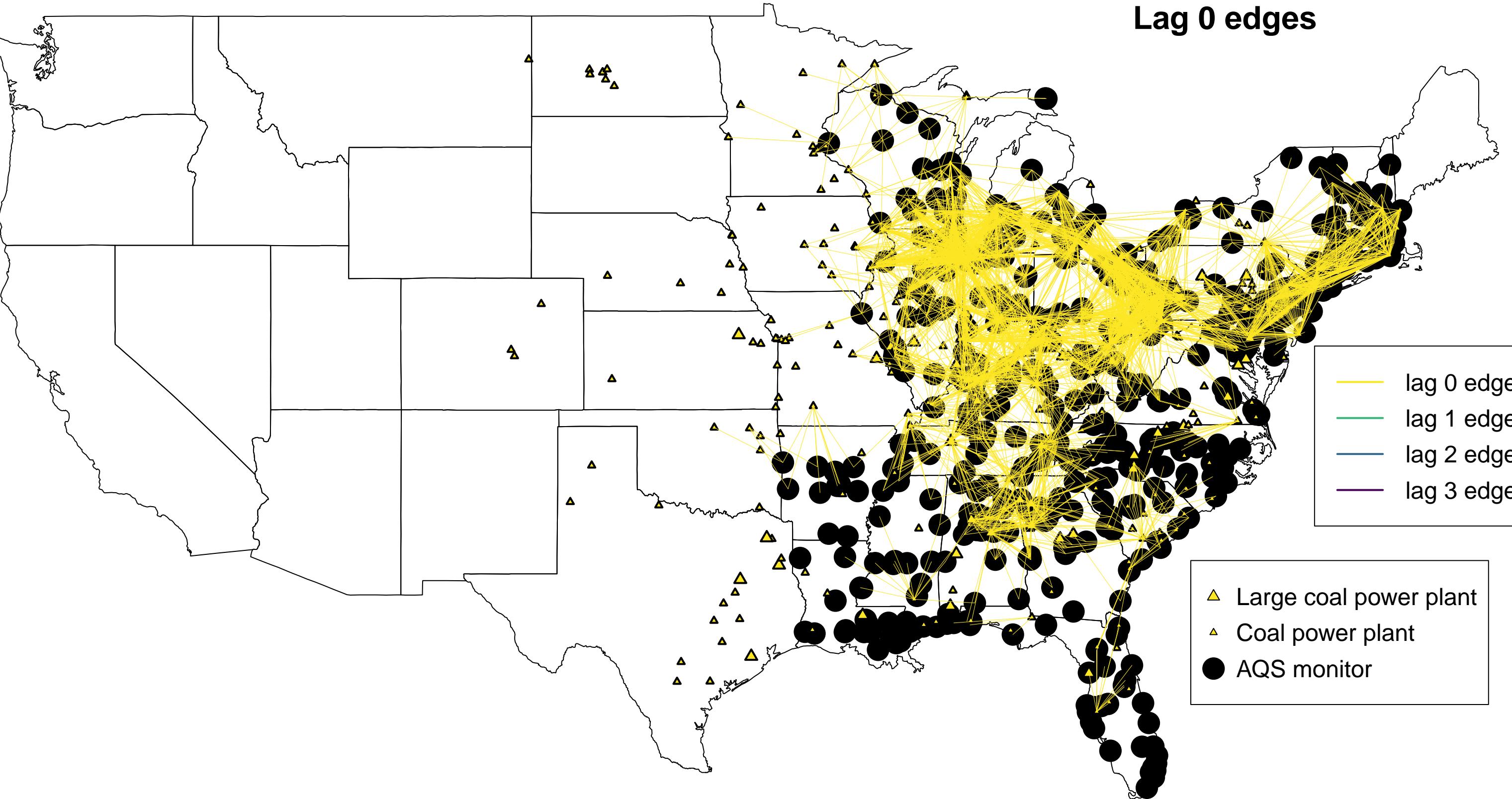
## Northeast – summer\_distLag 2005



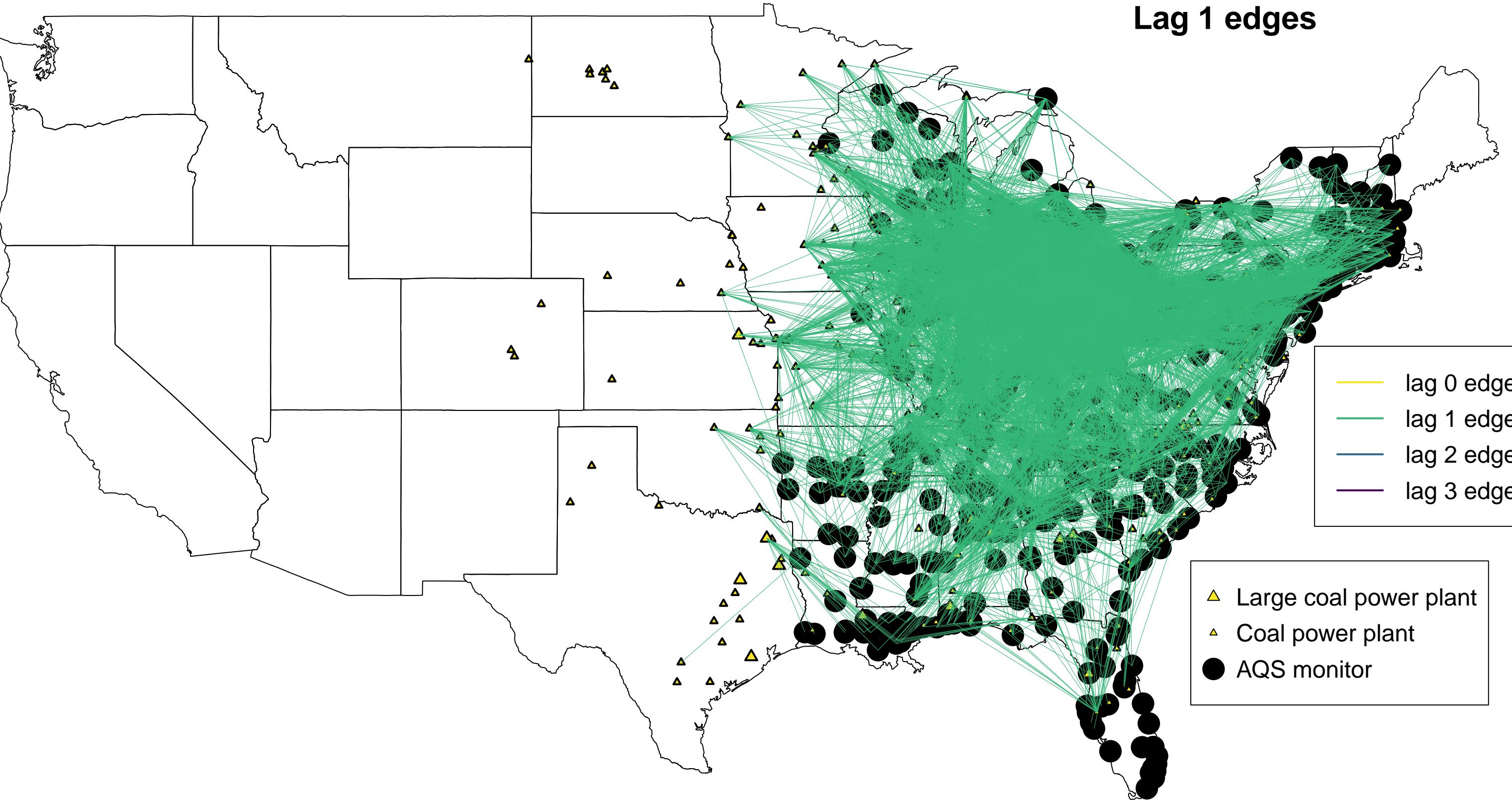
## Southeast – summer\_distLag 2005



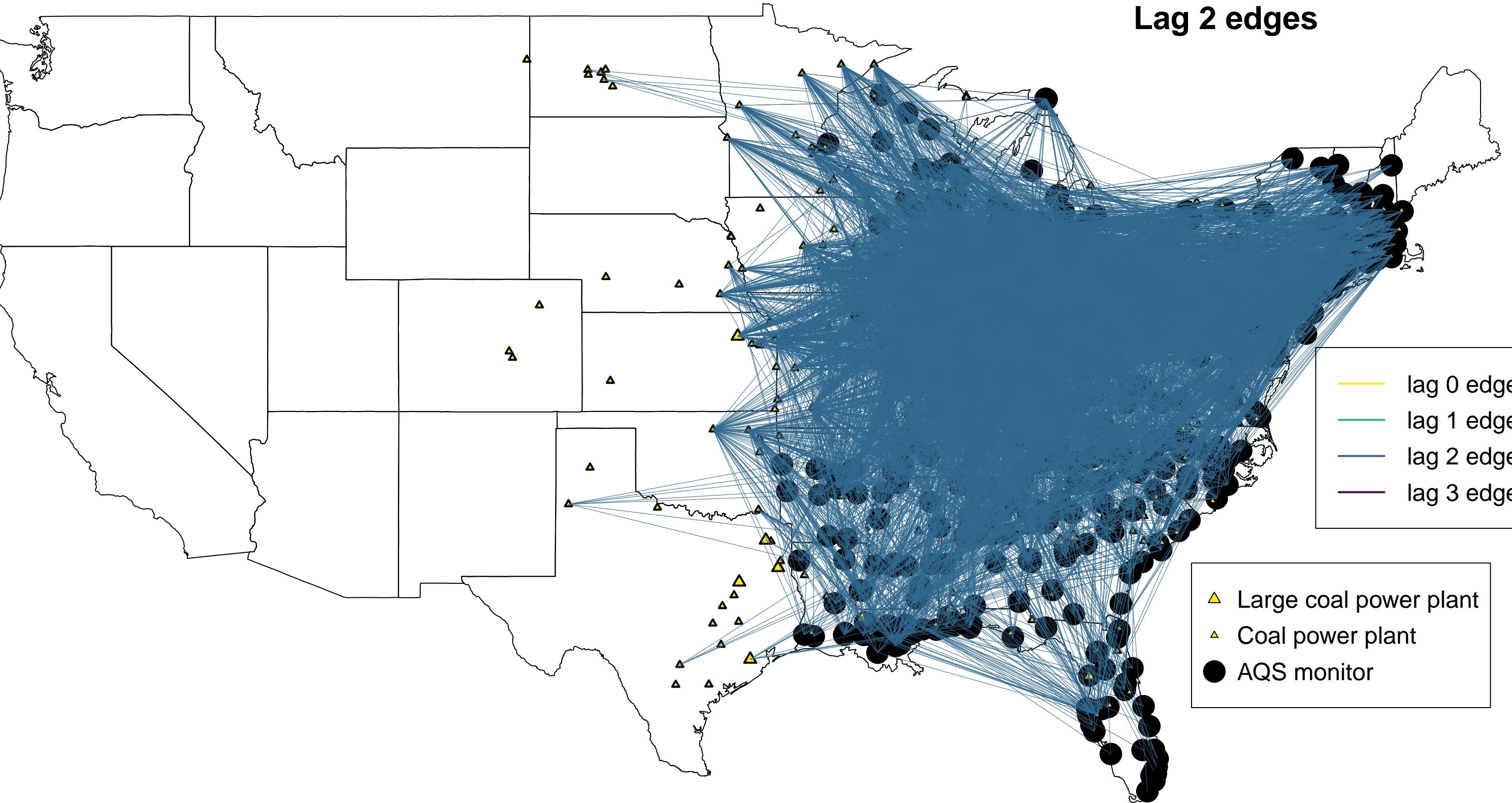
## Lag 0 edges



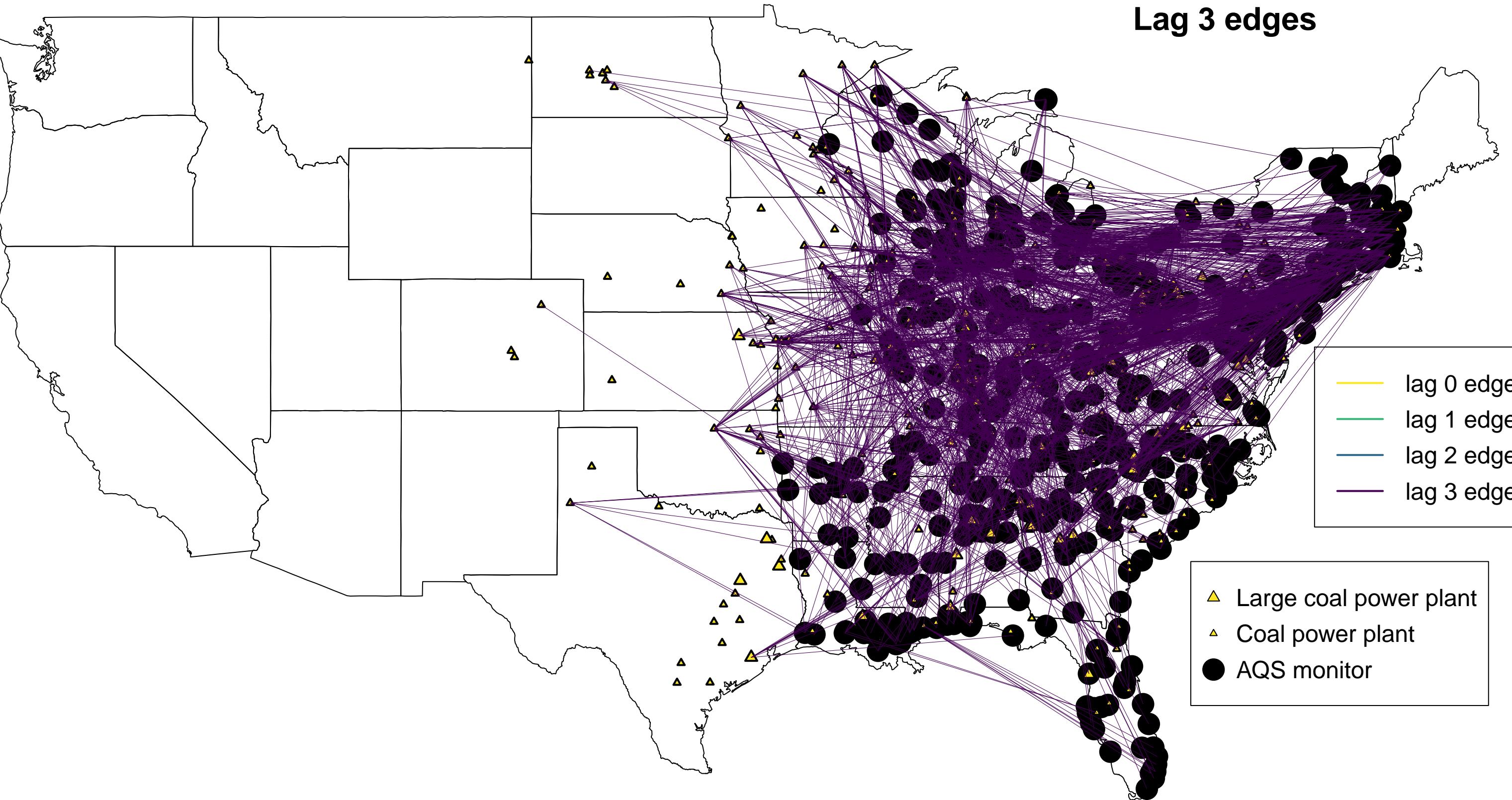
## Lag 1 edges

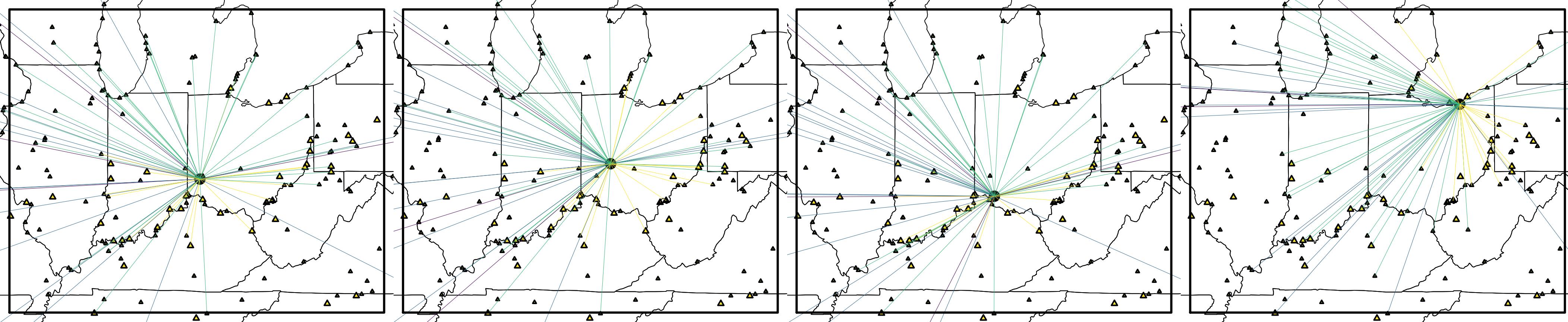
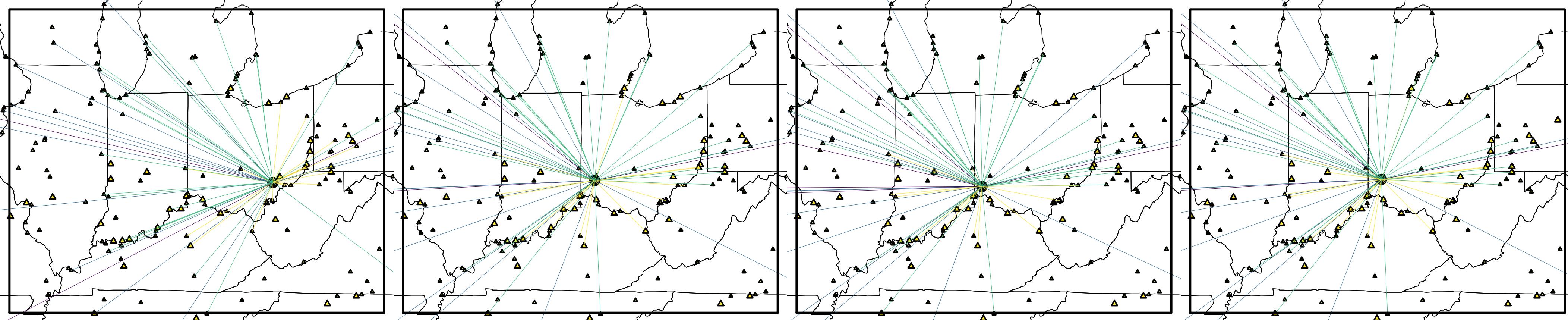


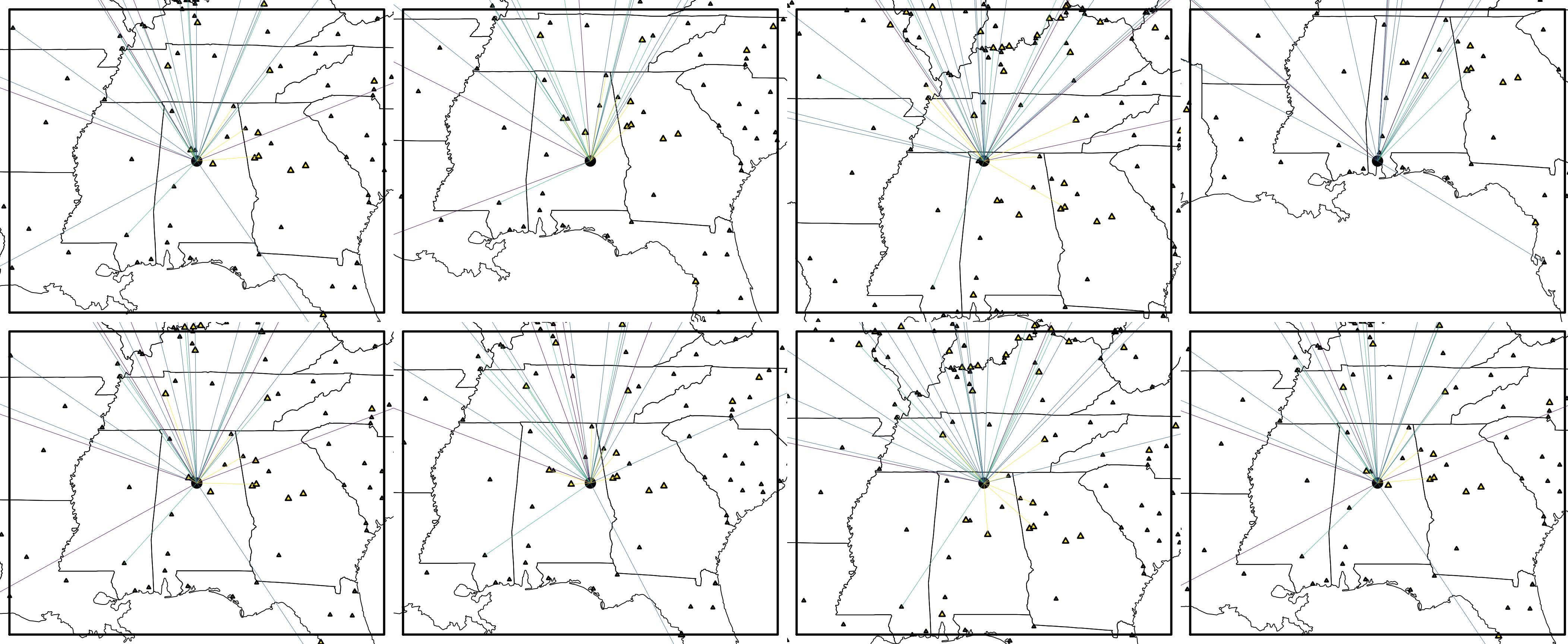
## Lag 2 edges

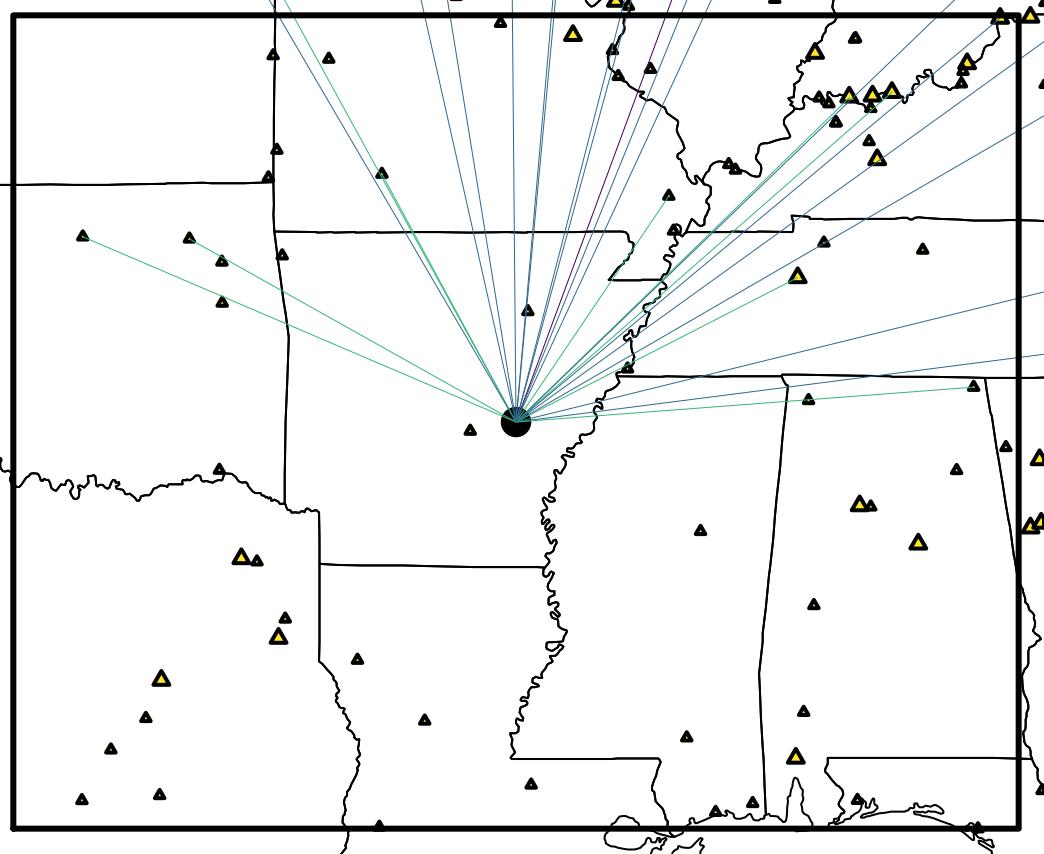
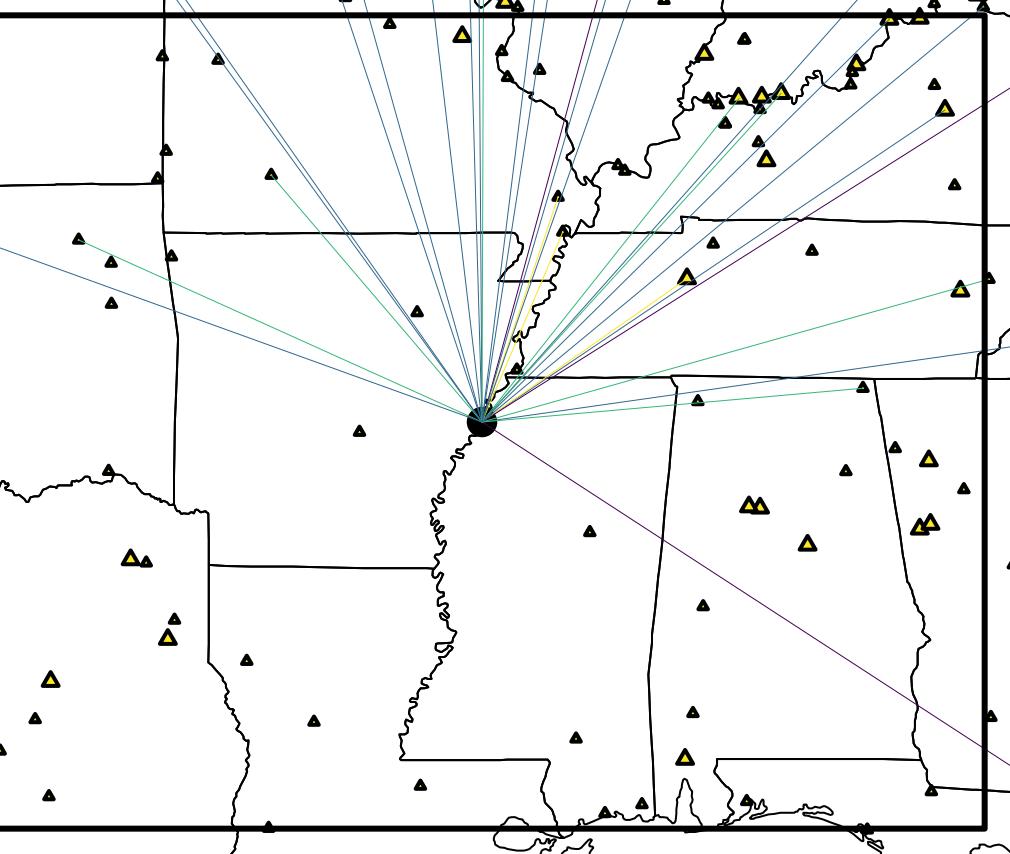
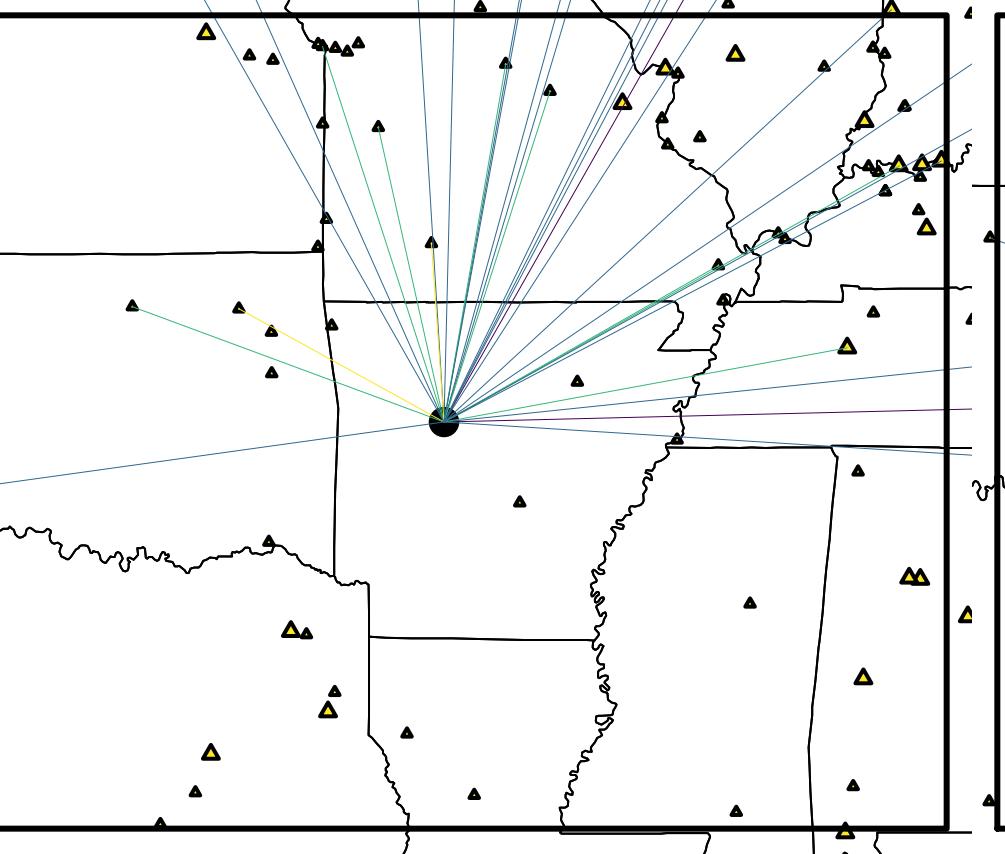
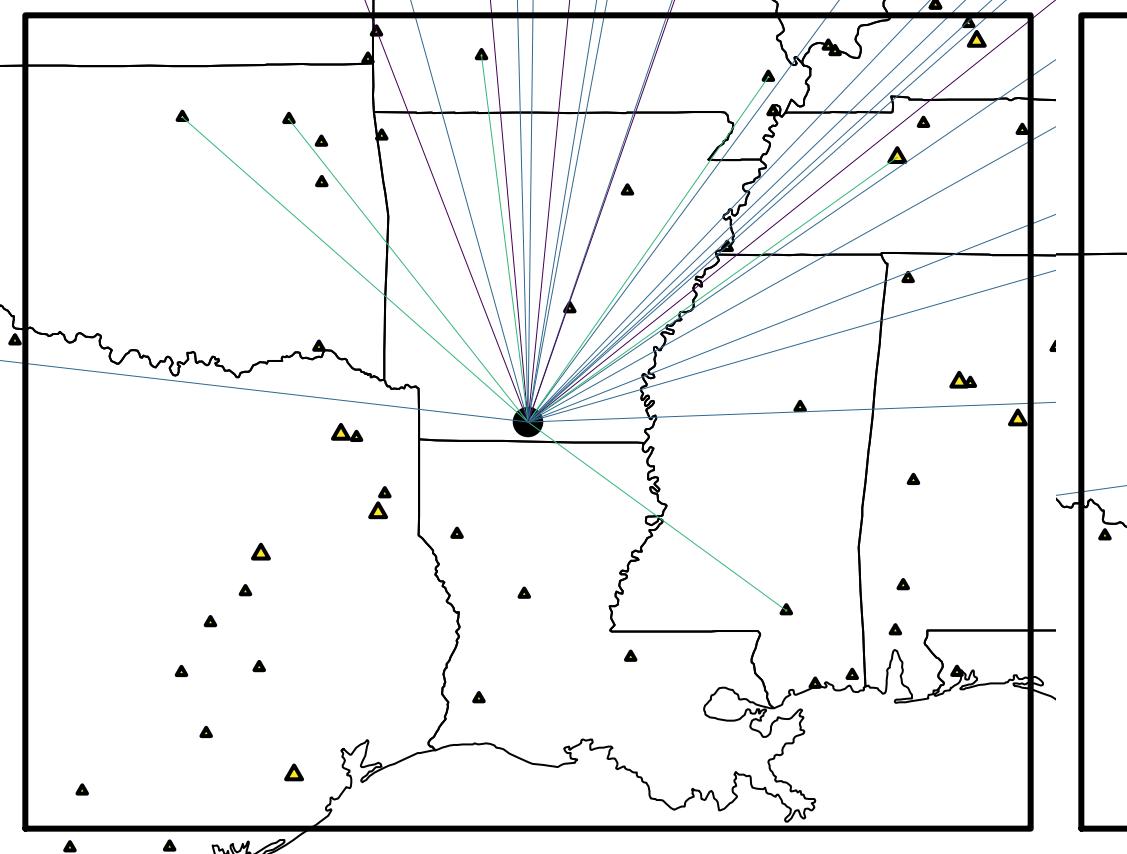
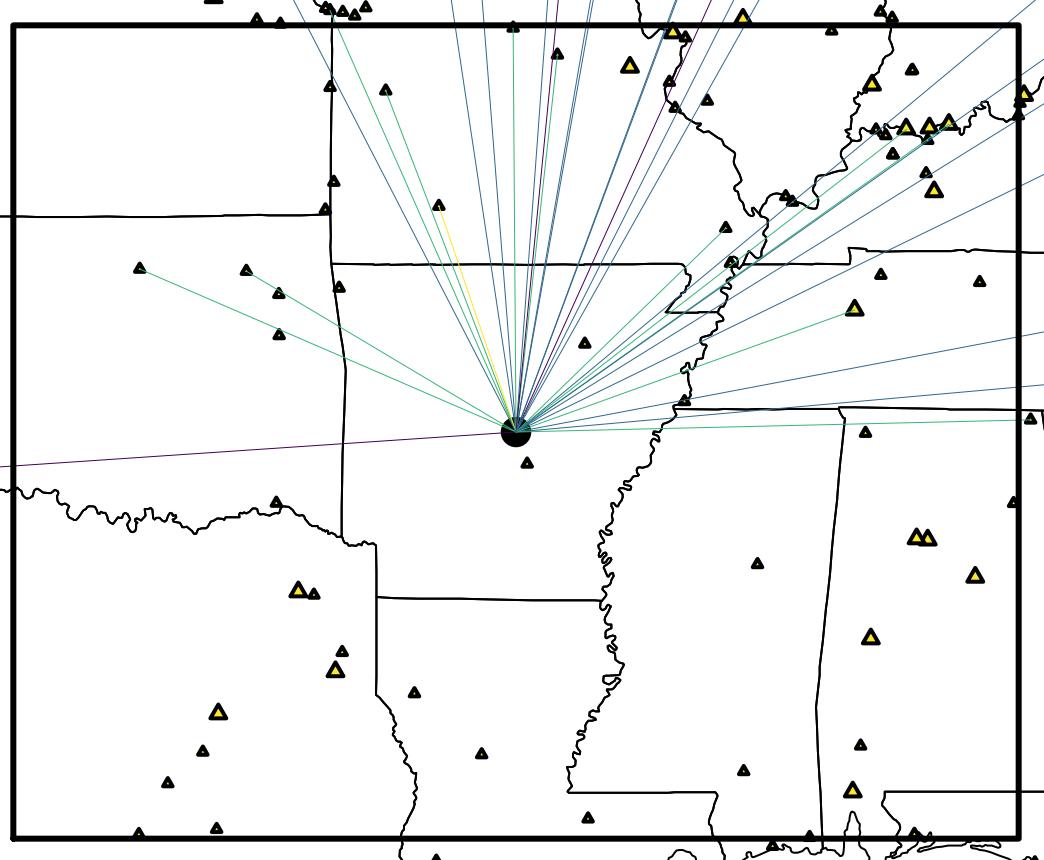
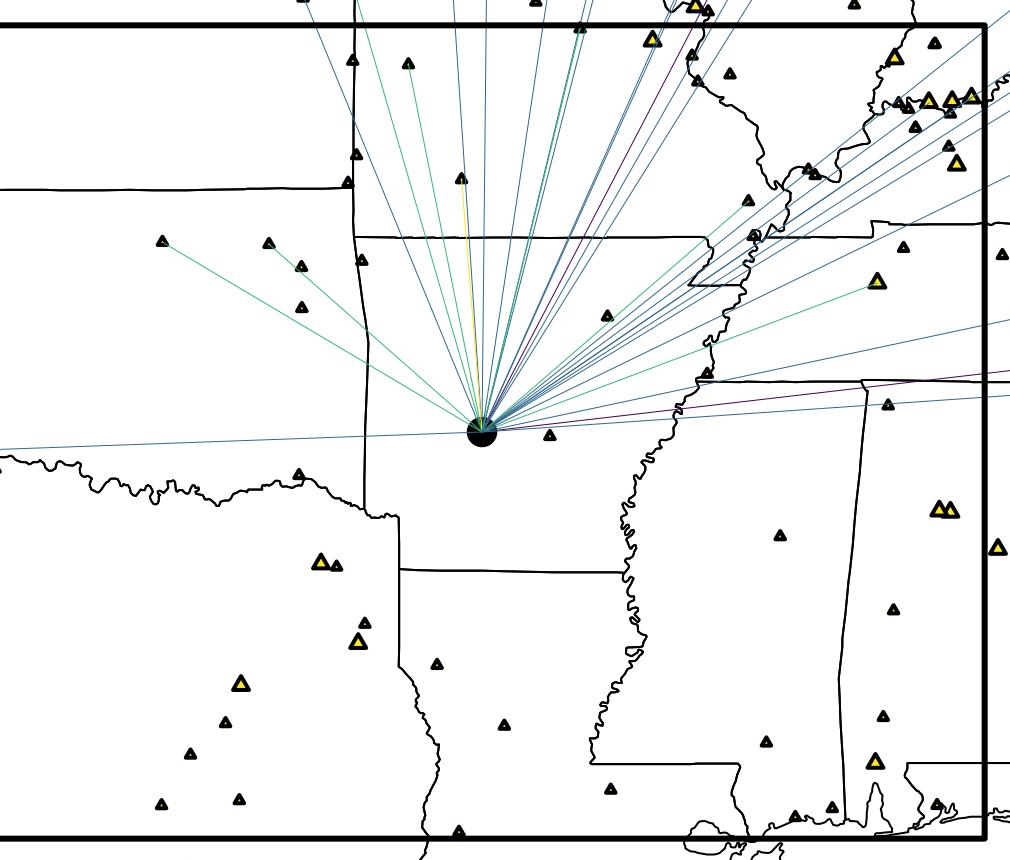
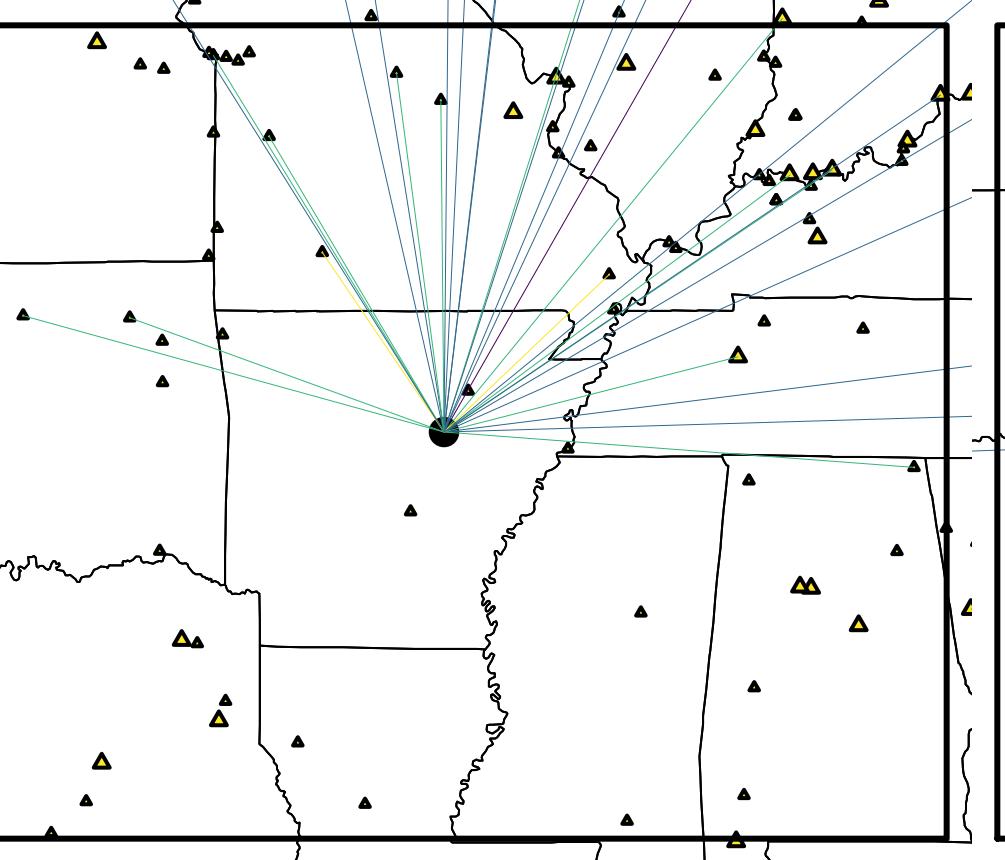
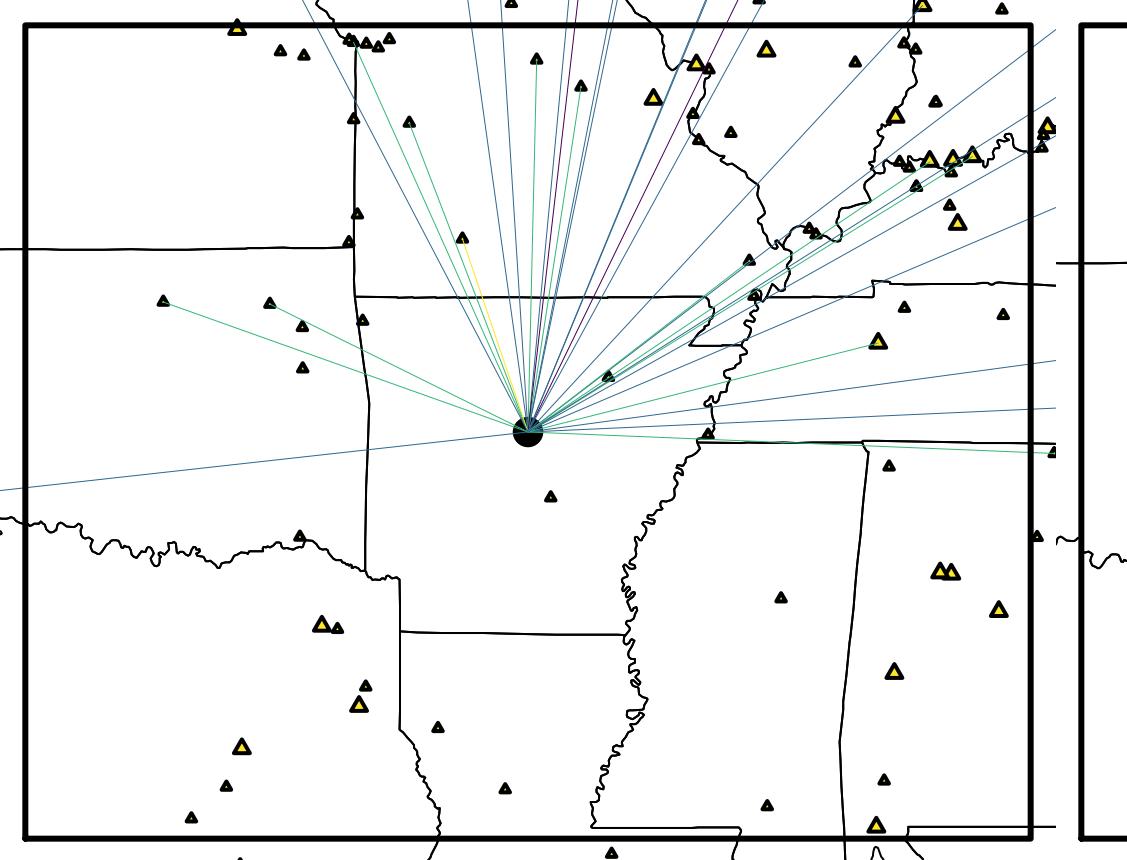


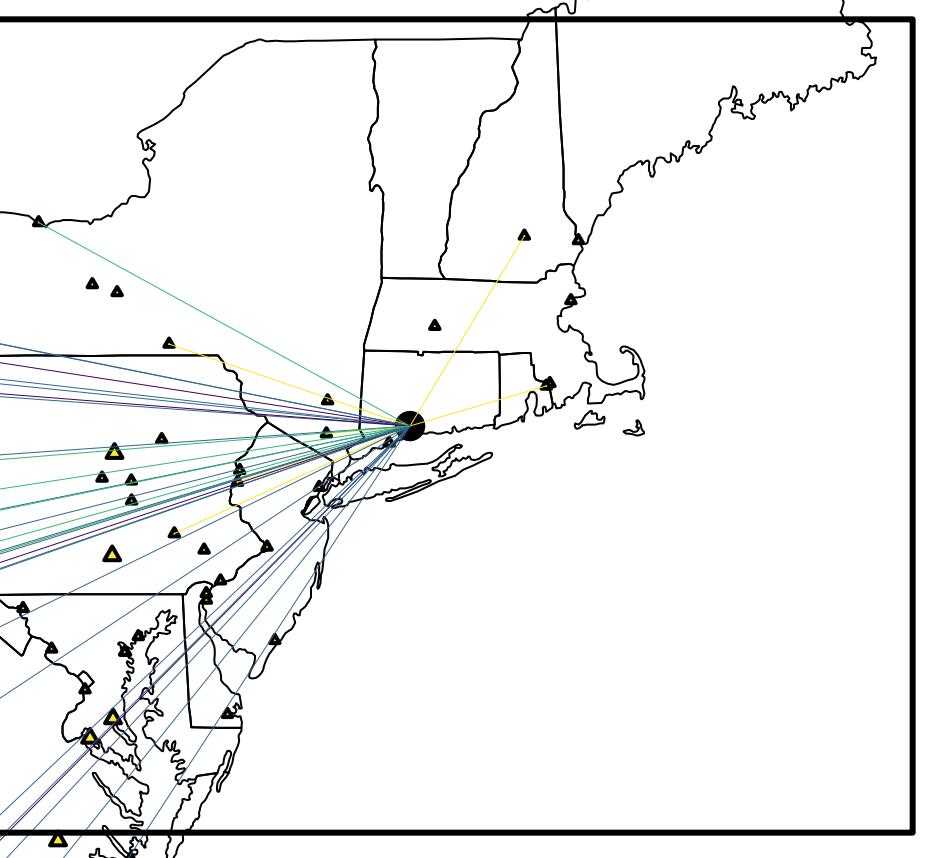
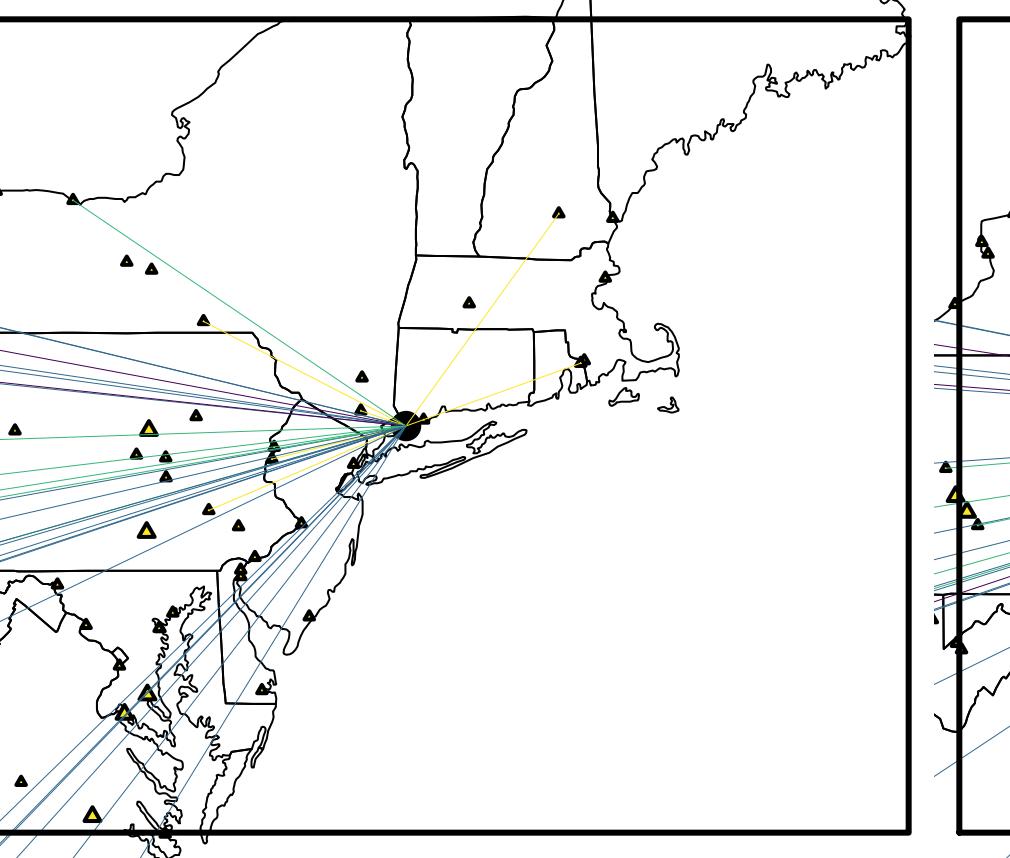
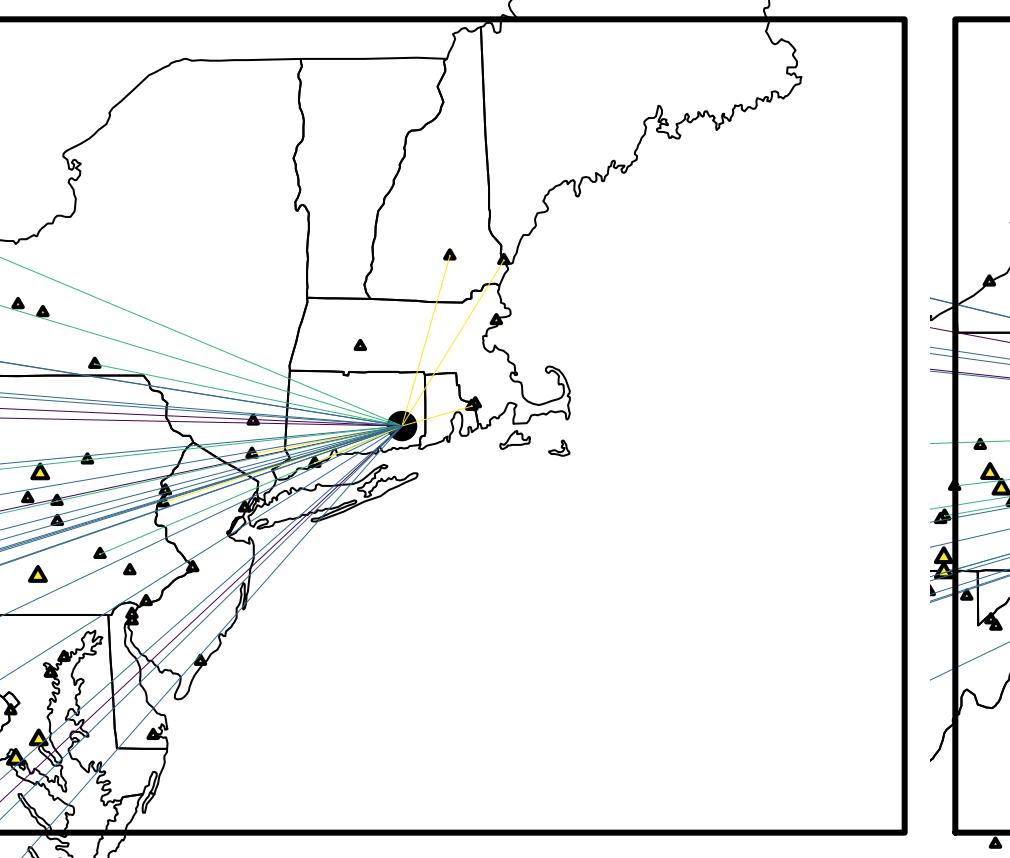
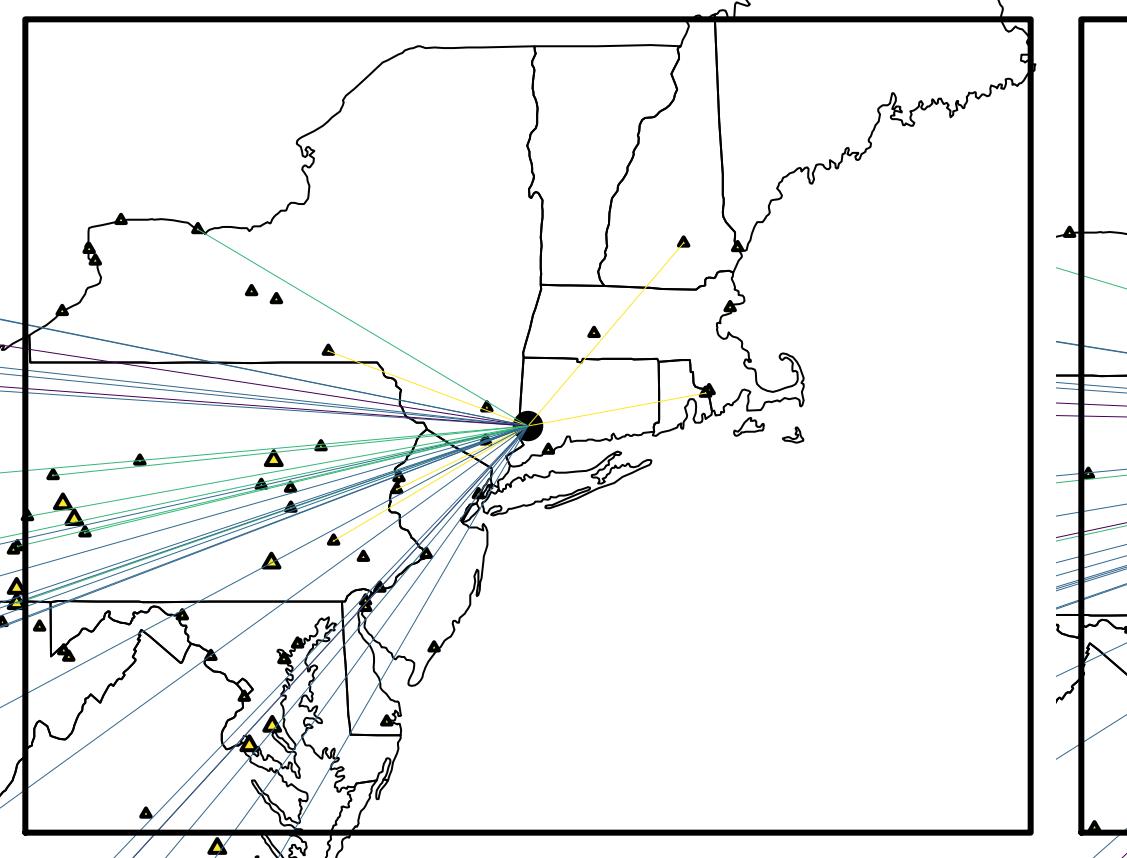
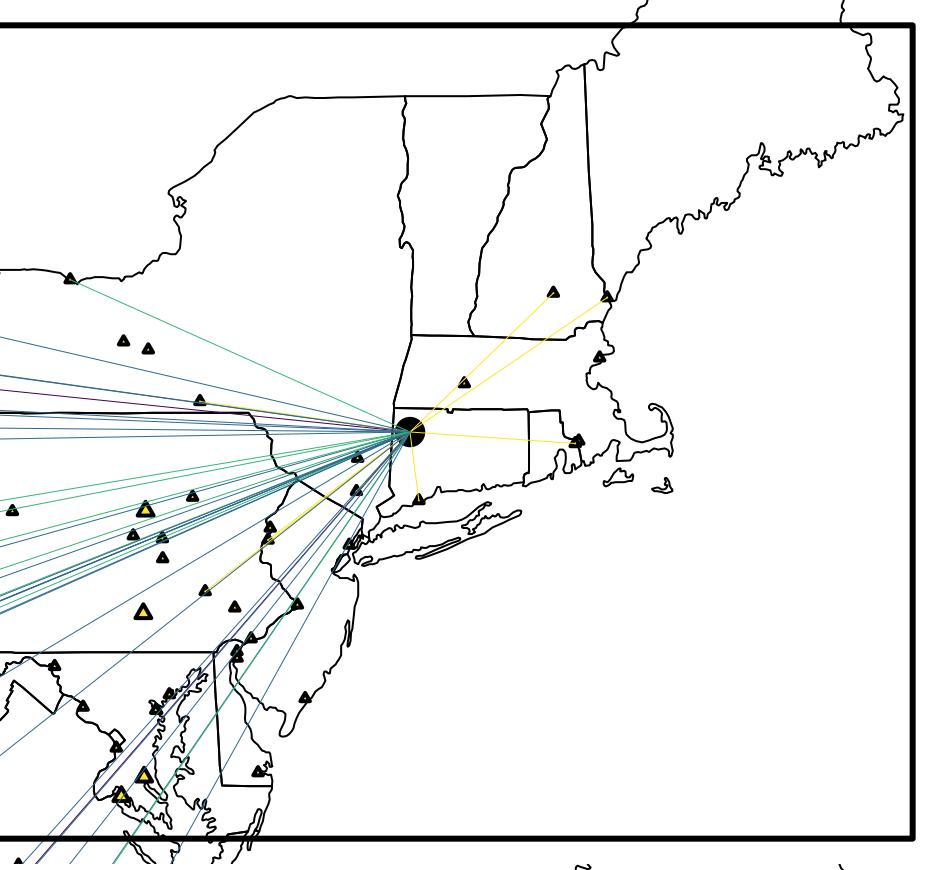
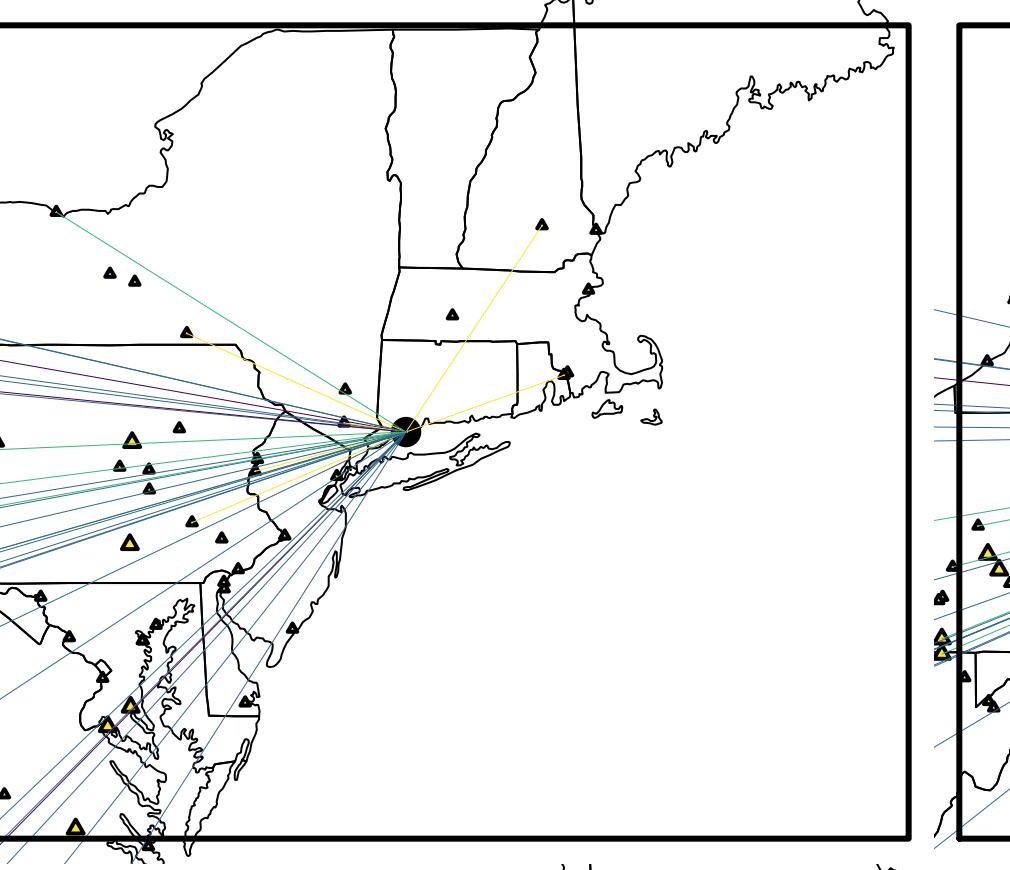
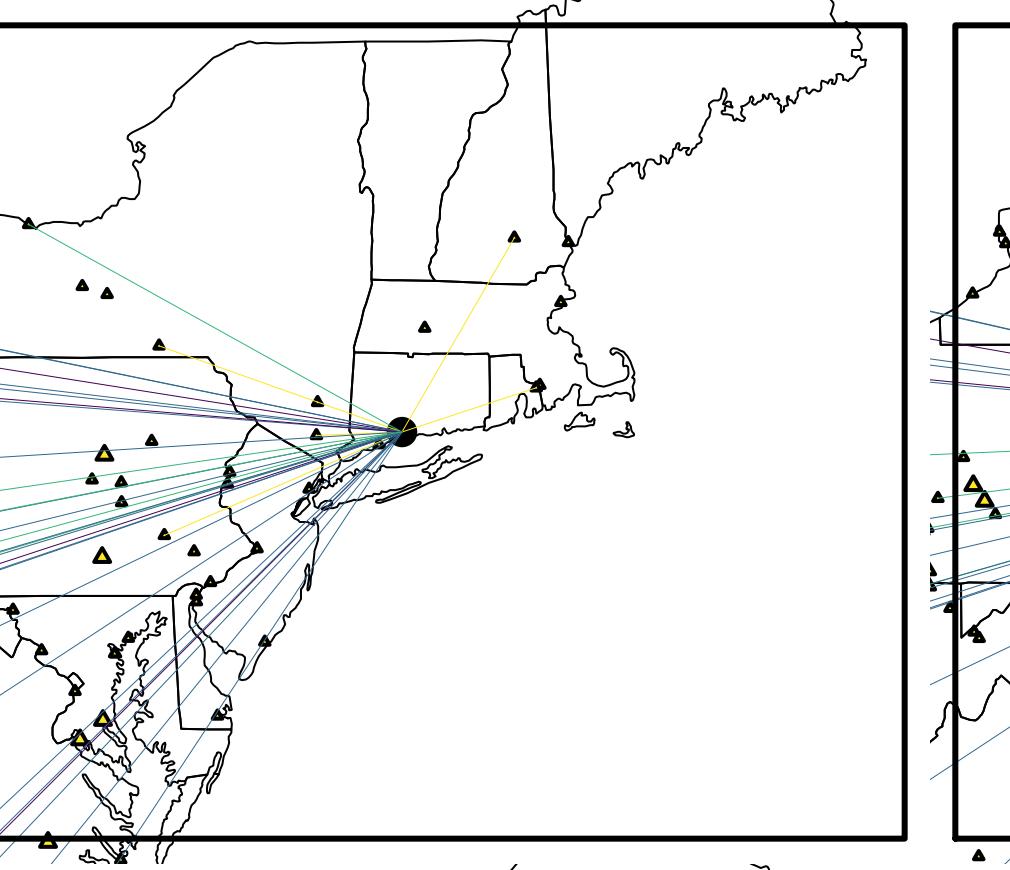
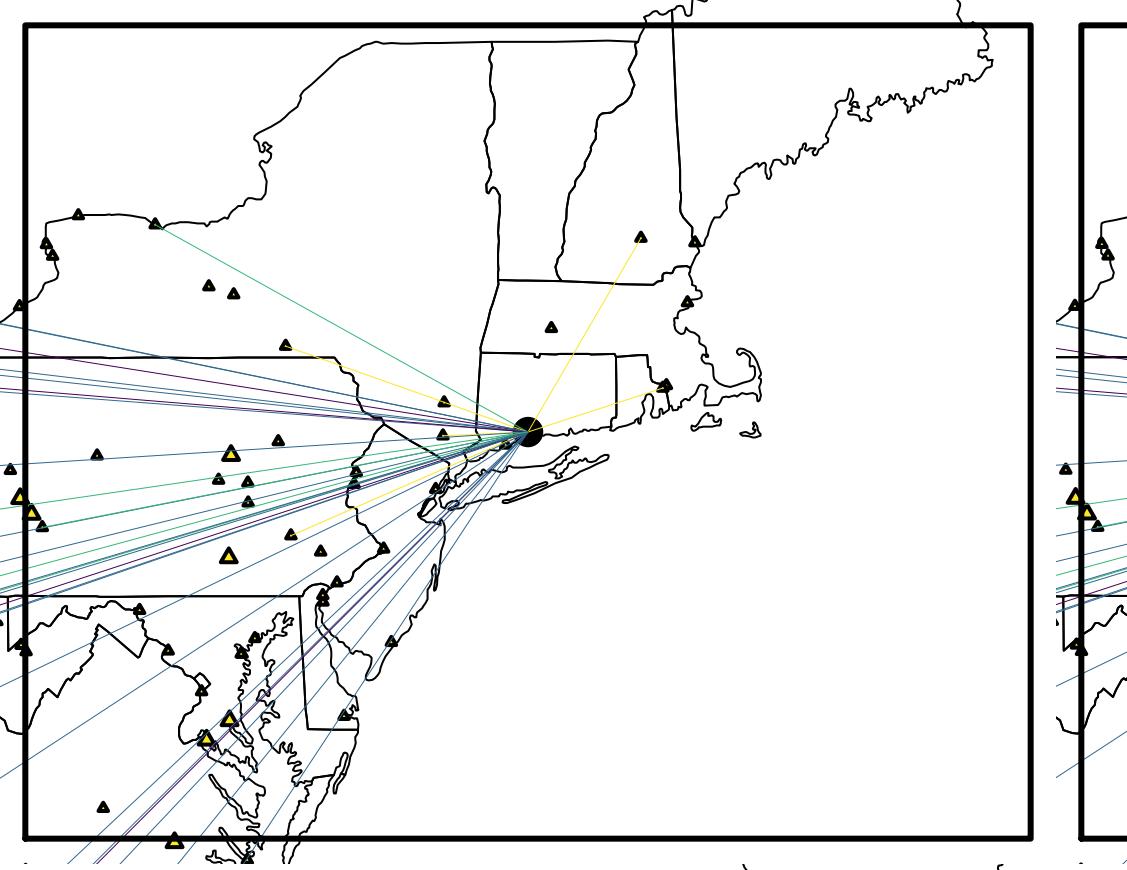
## Lag 3 edges

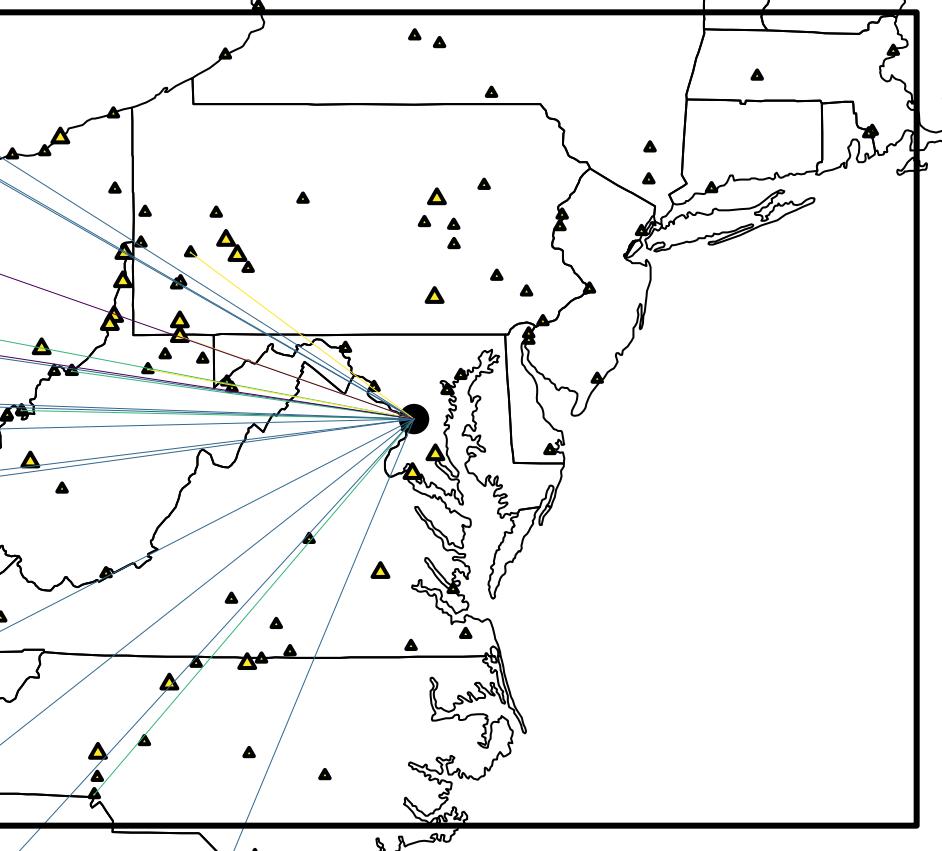
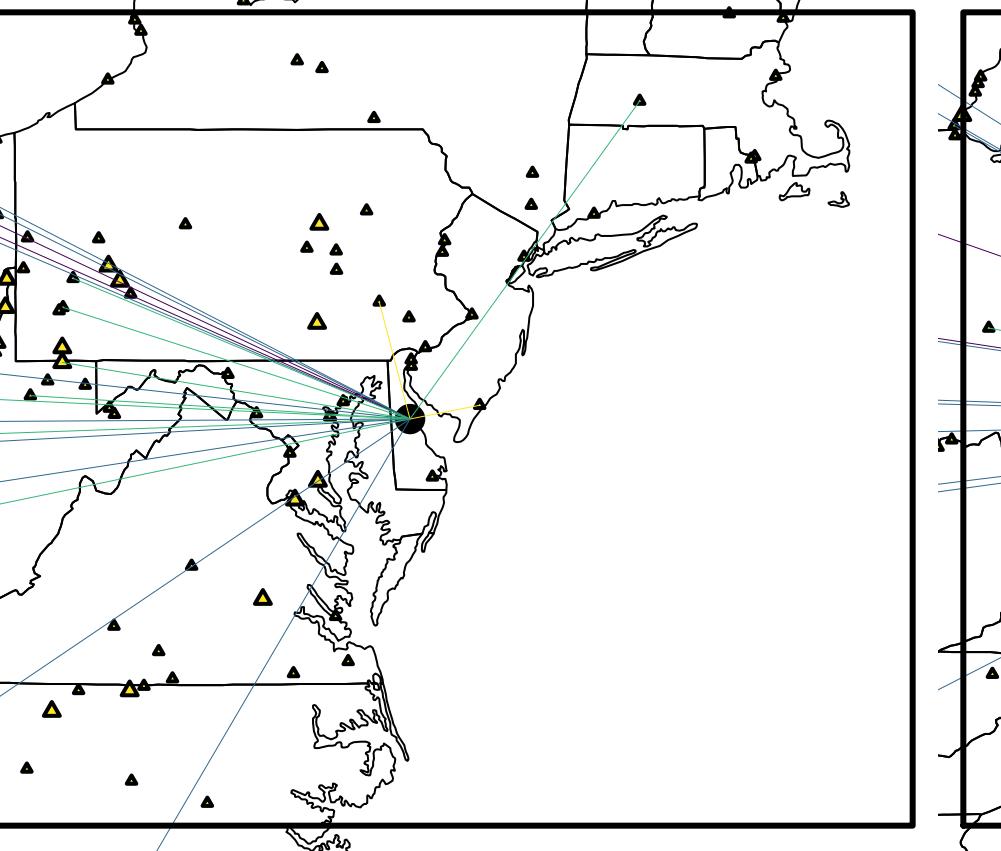
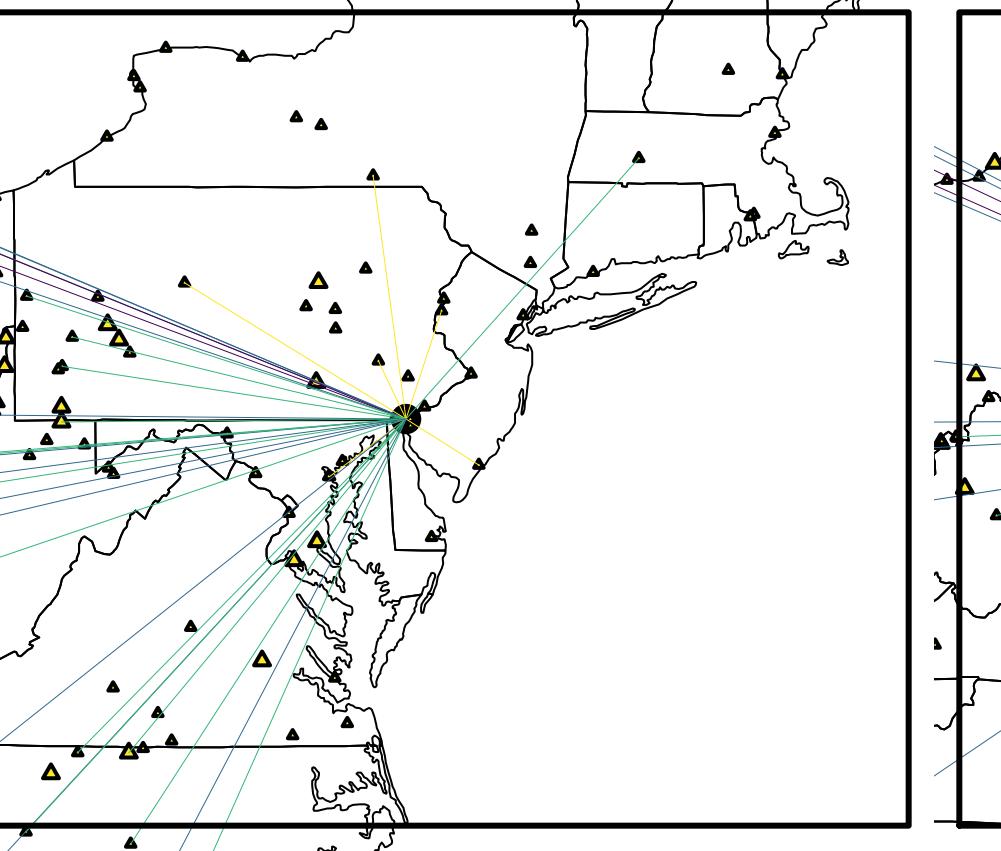
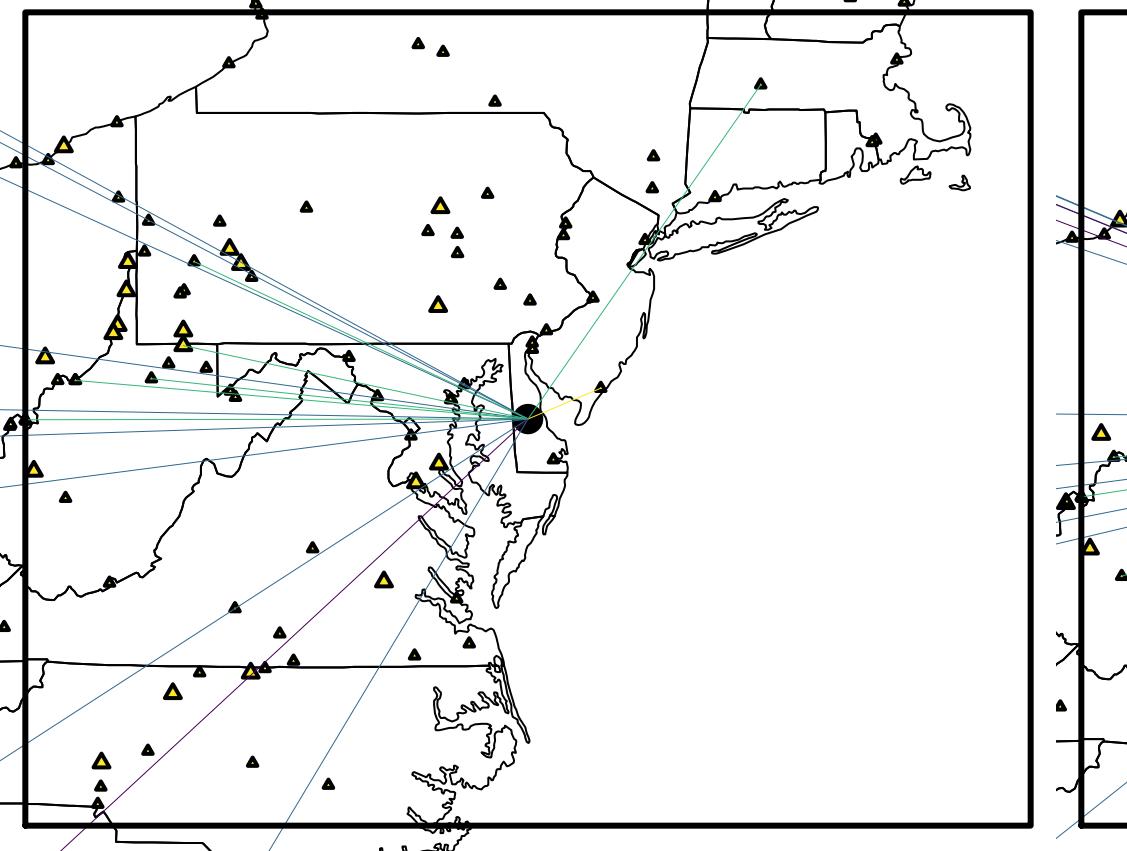
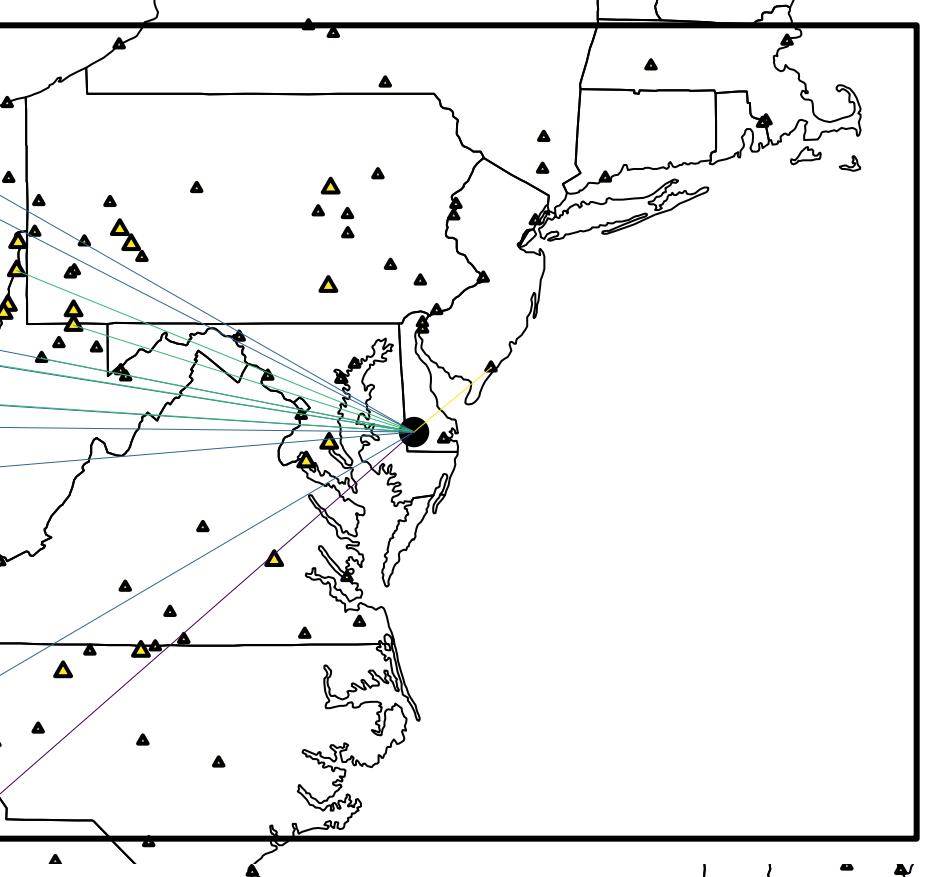
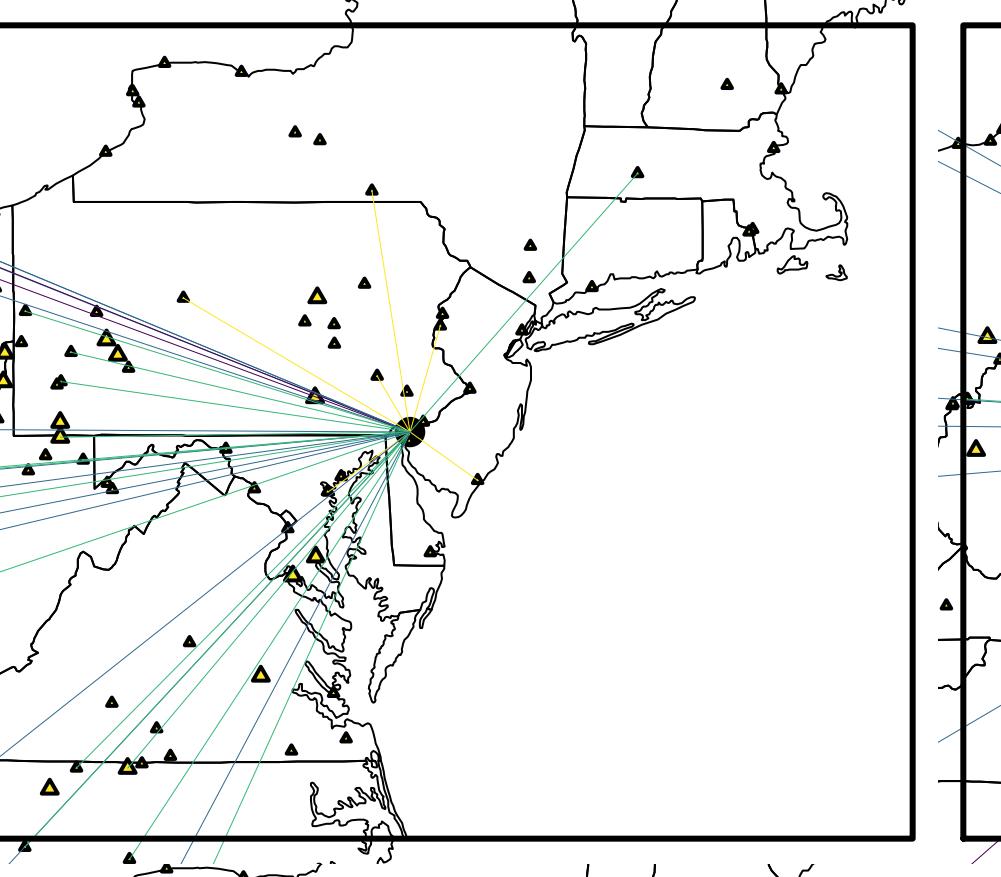
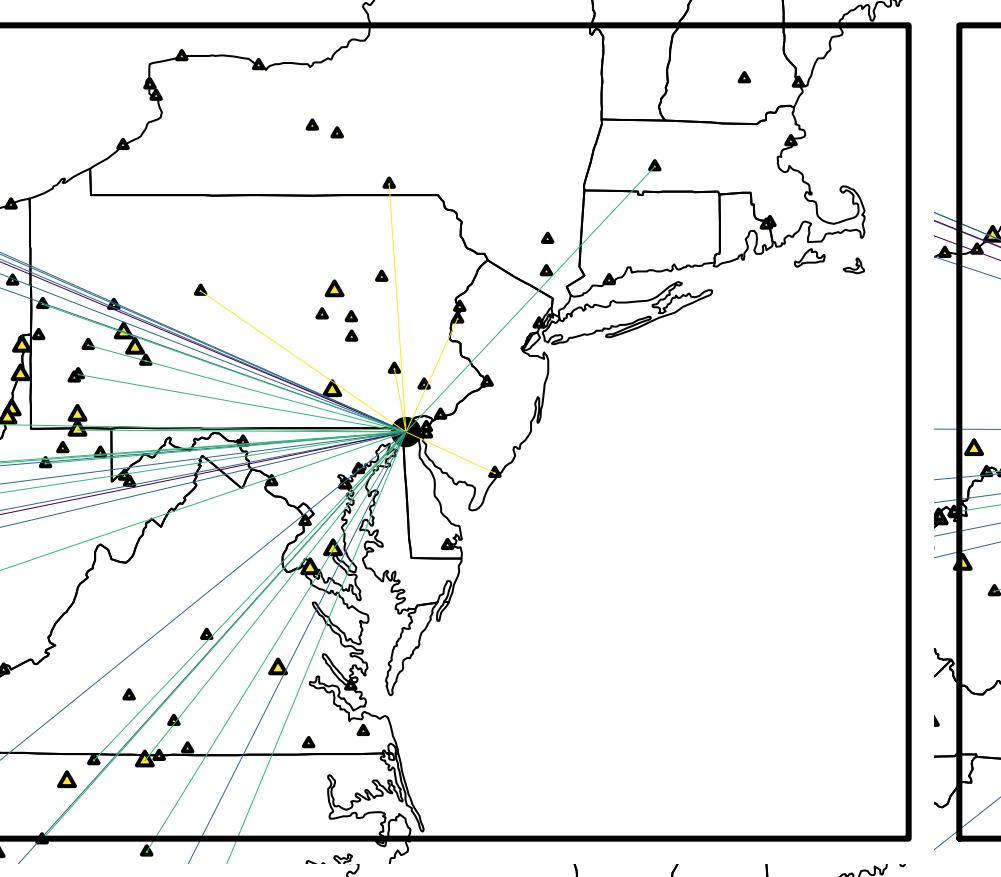
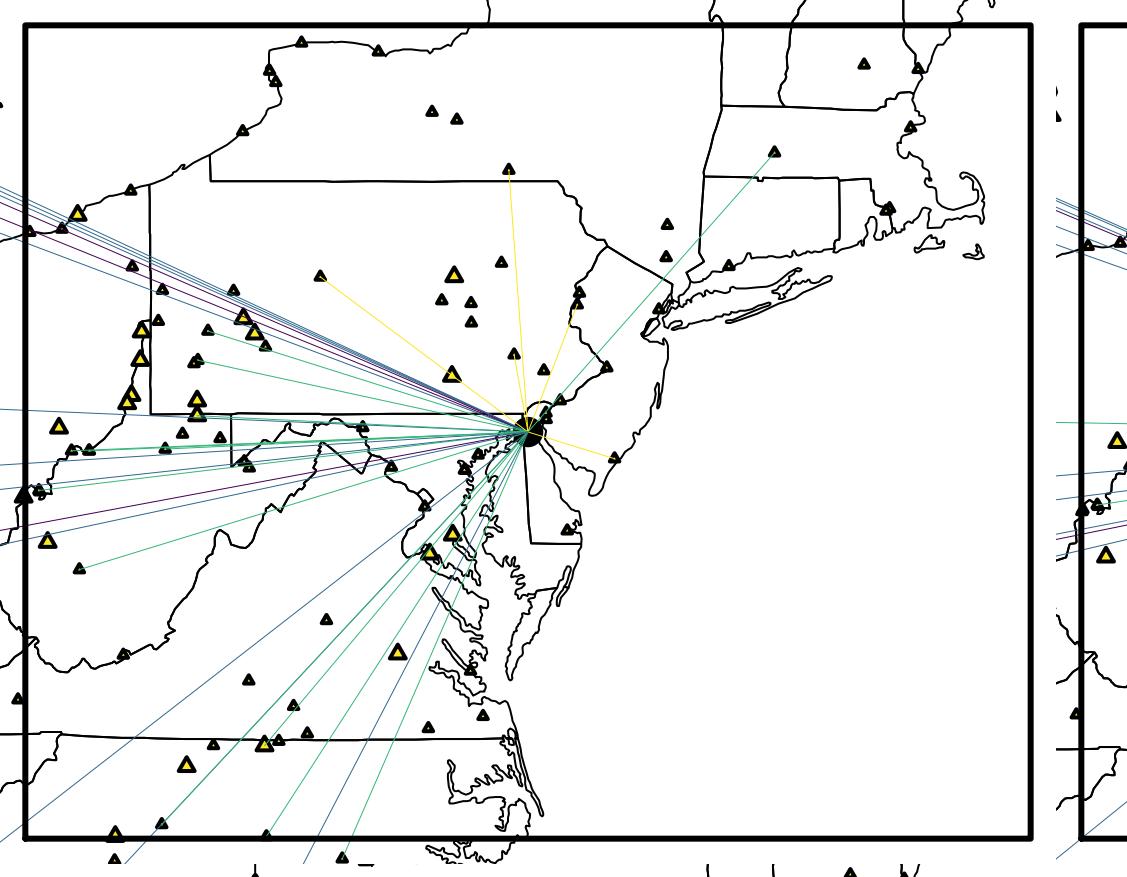


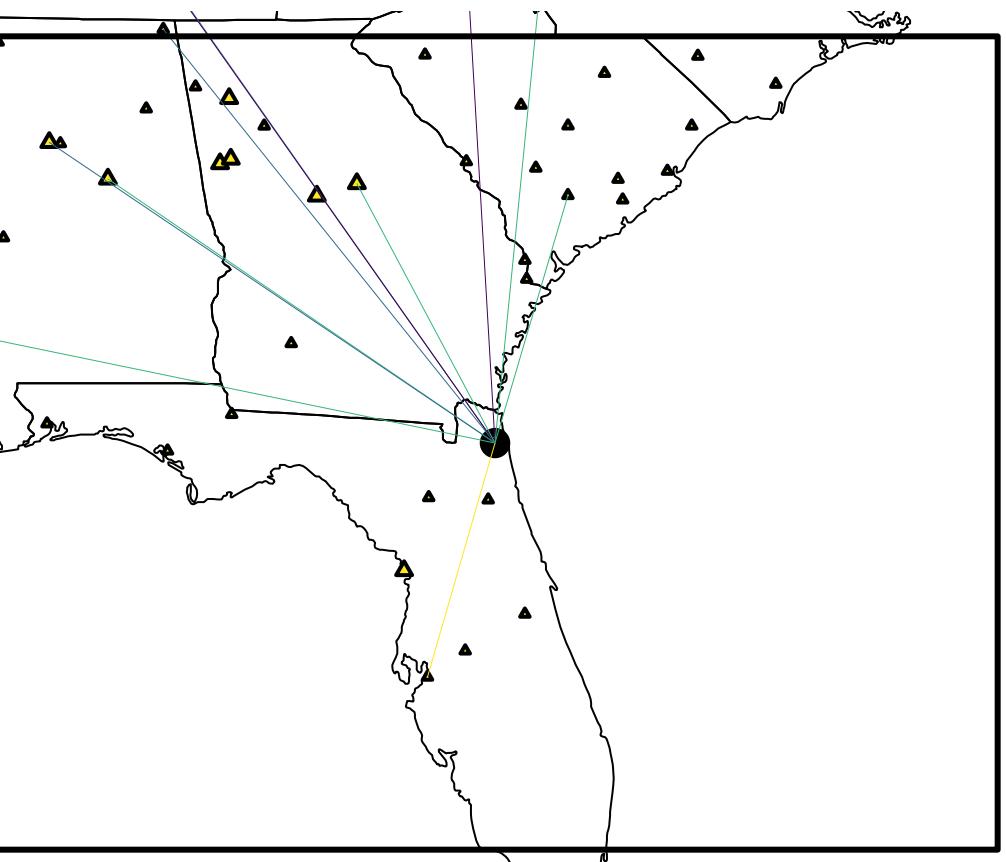
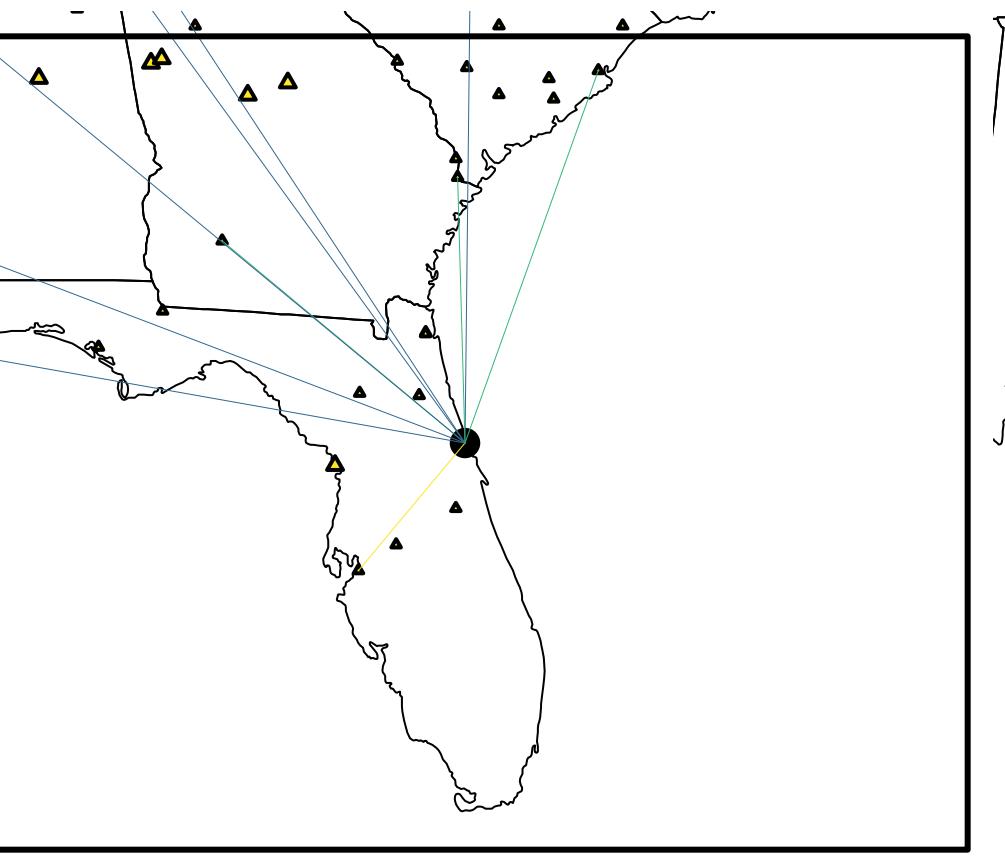
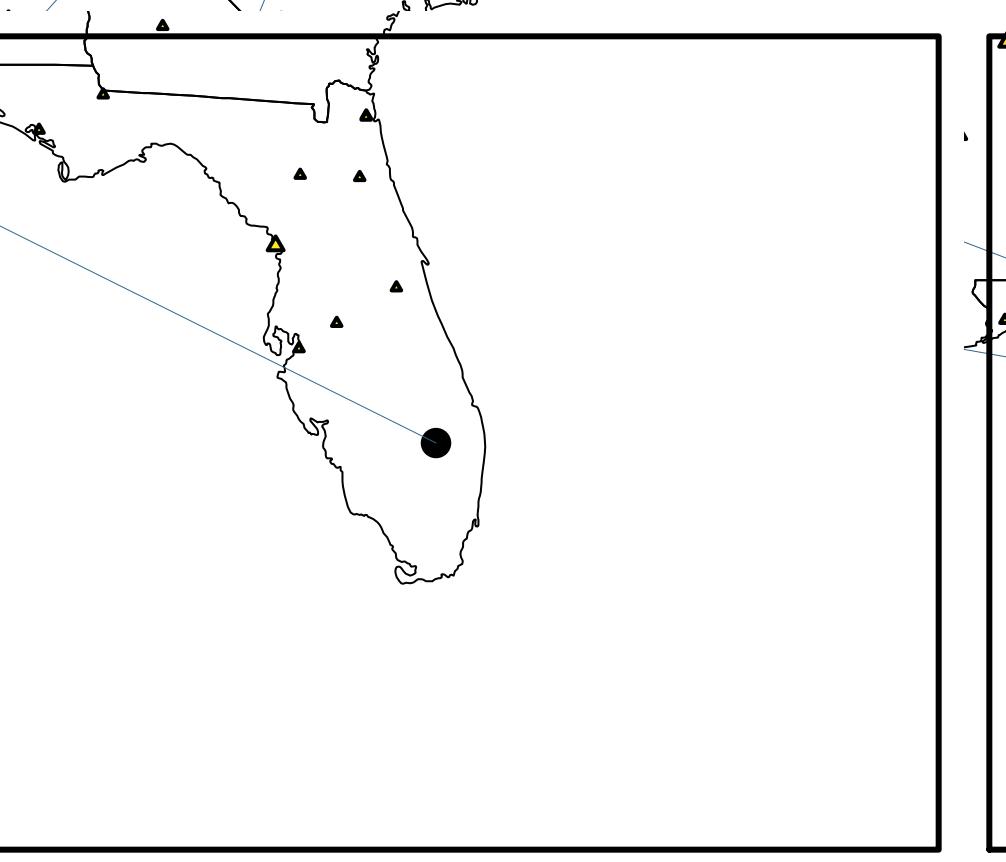
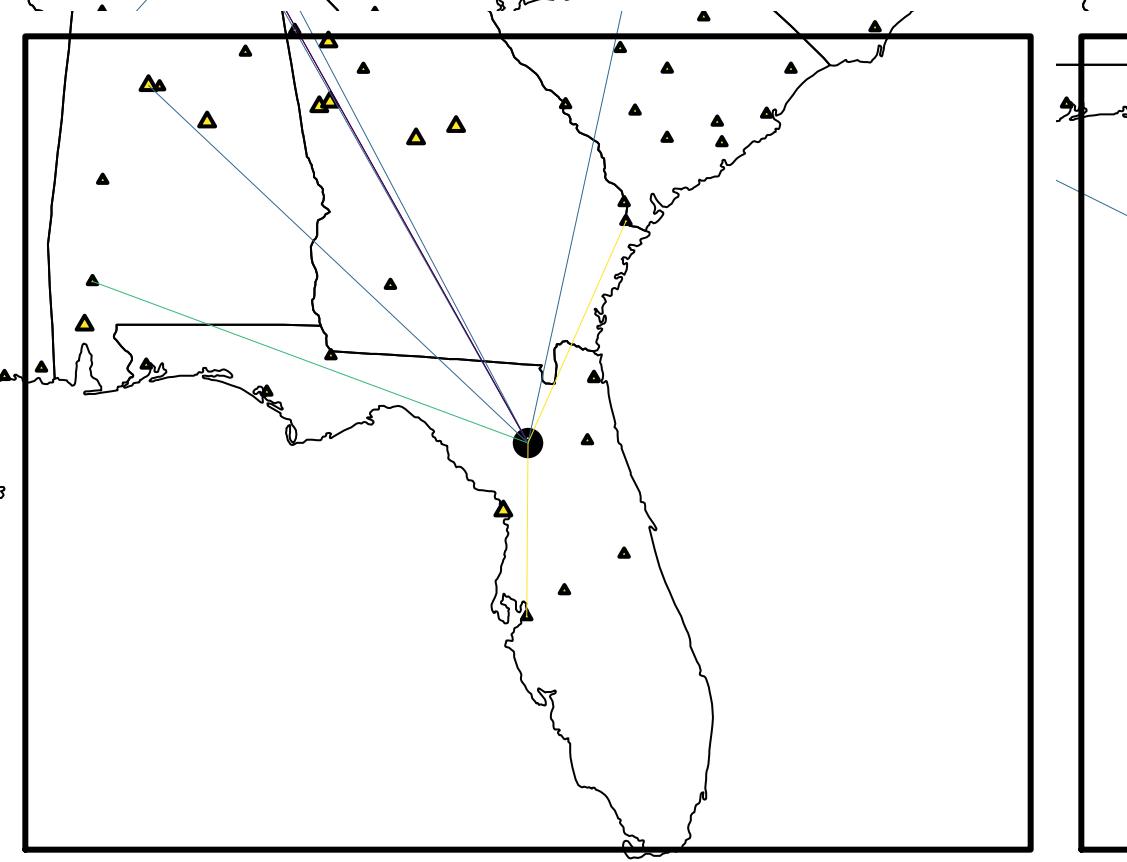
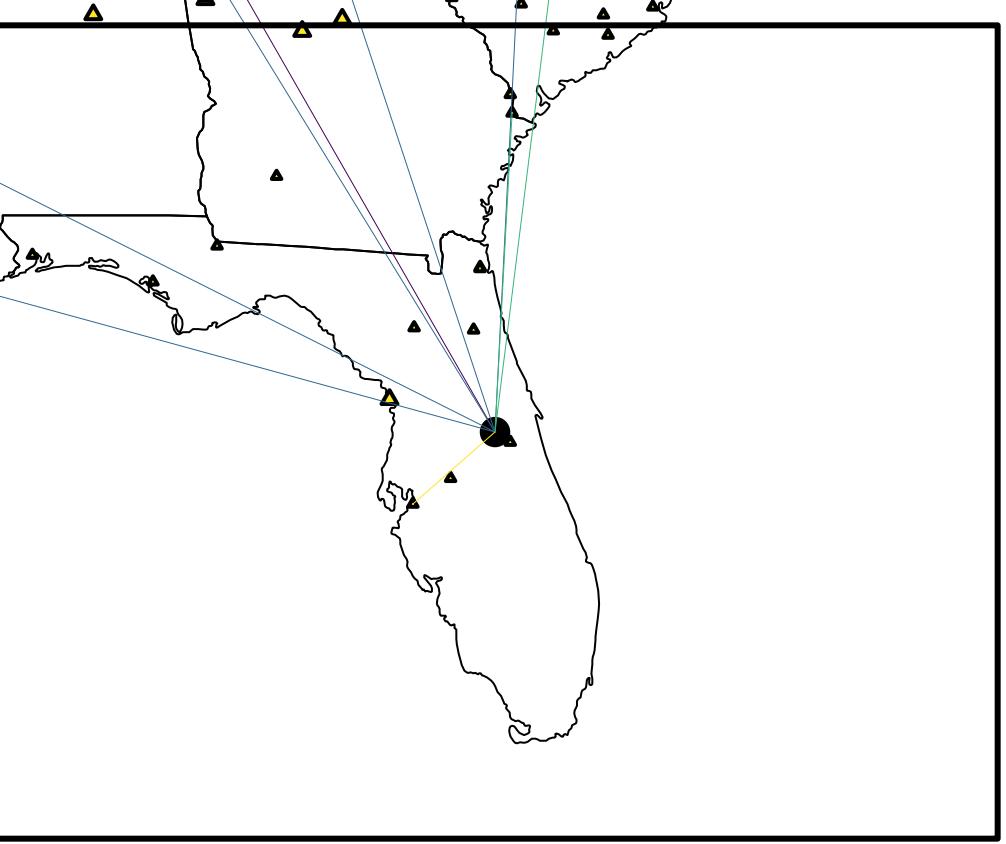
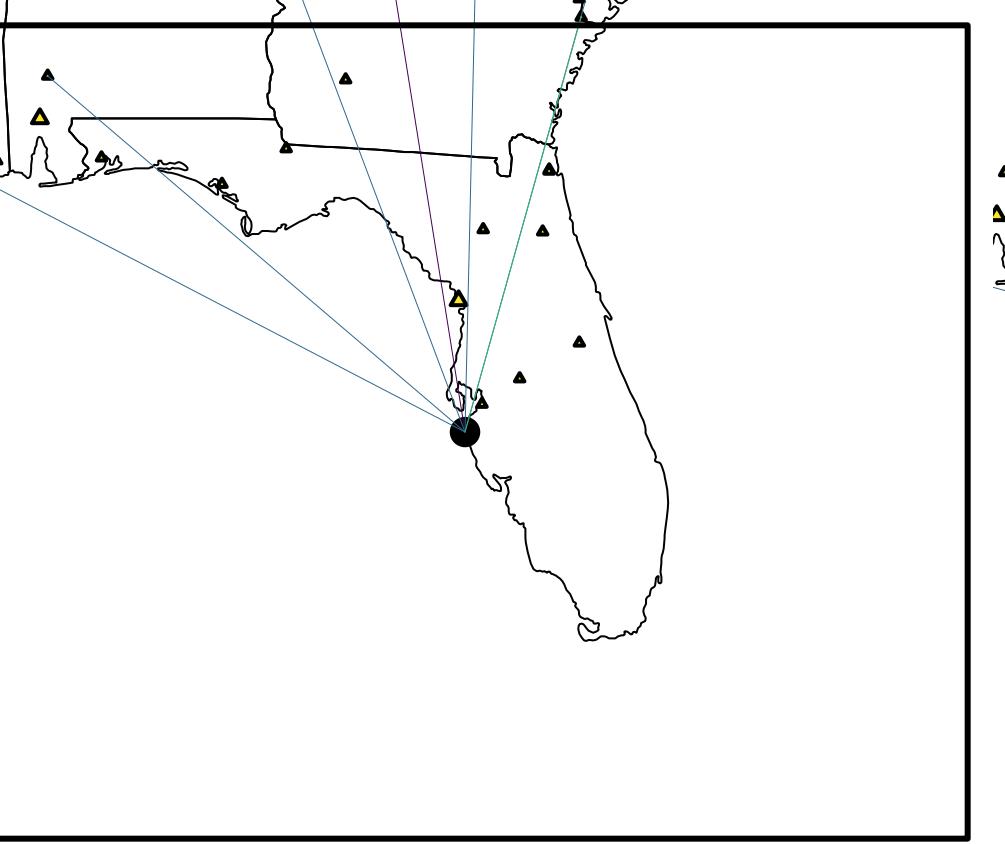
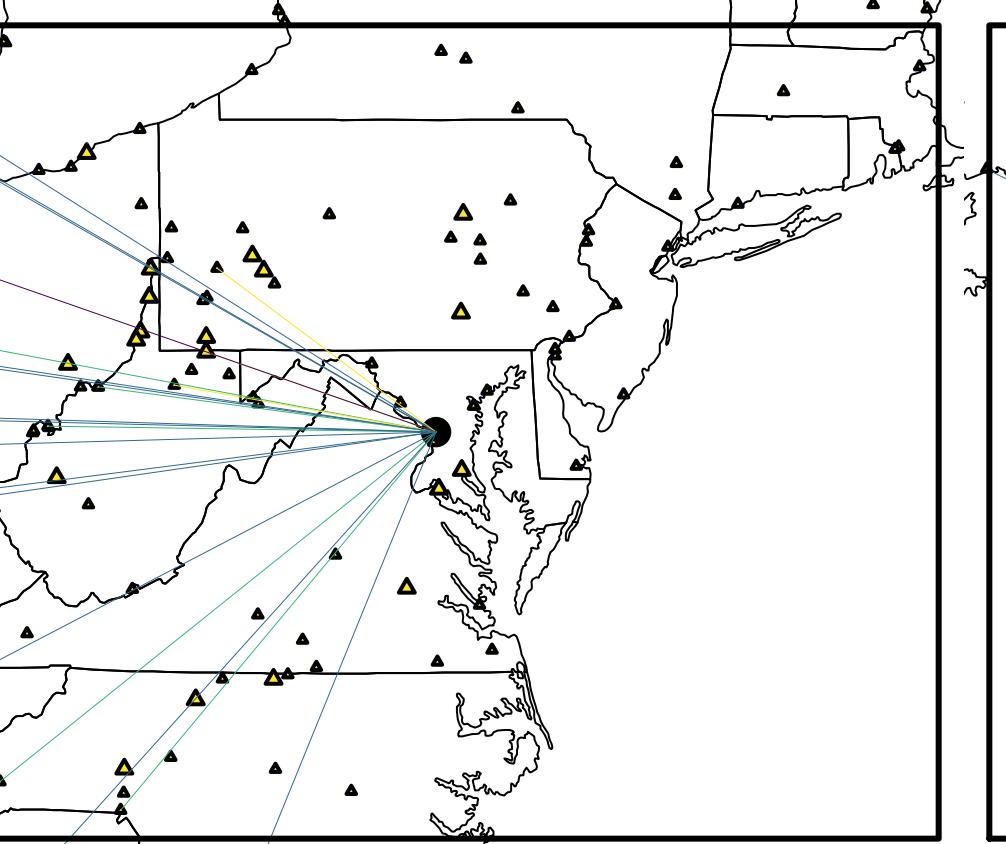
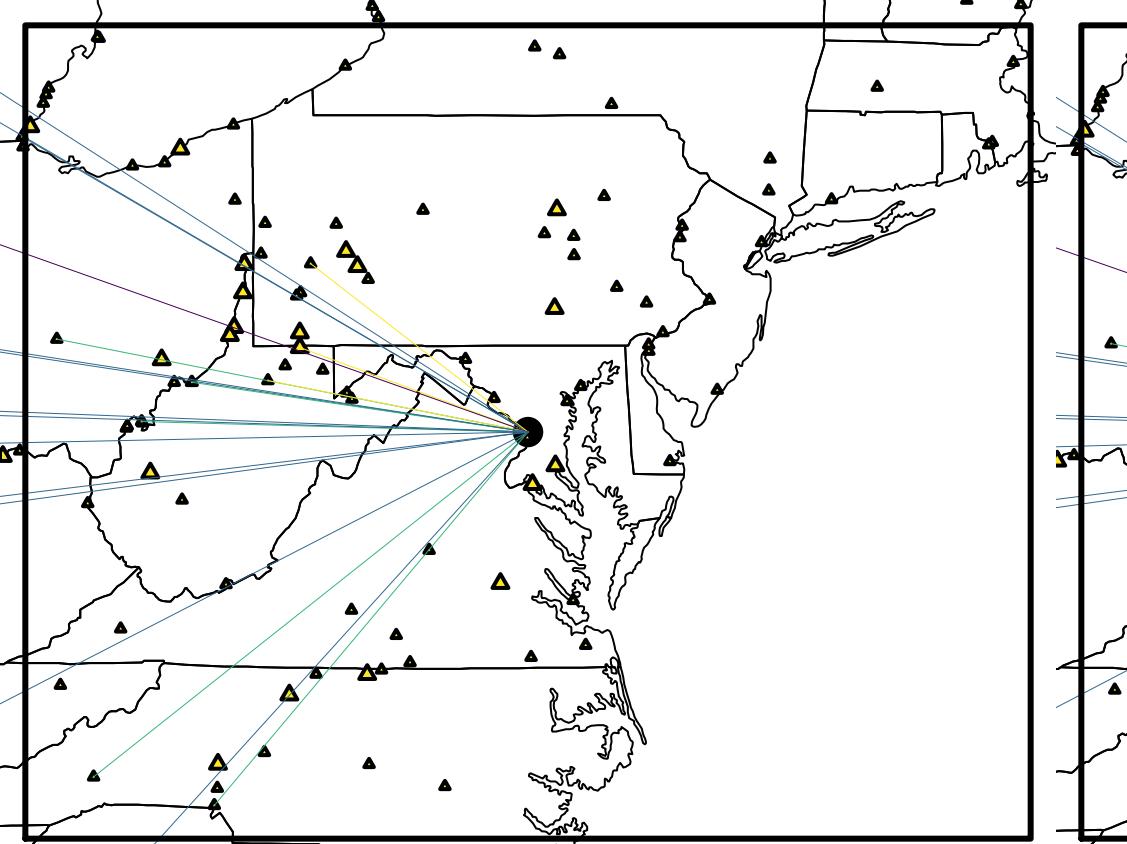


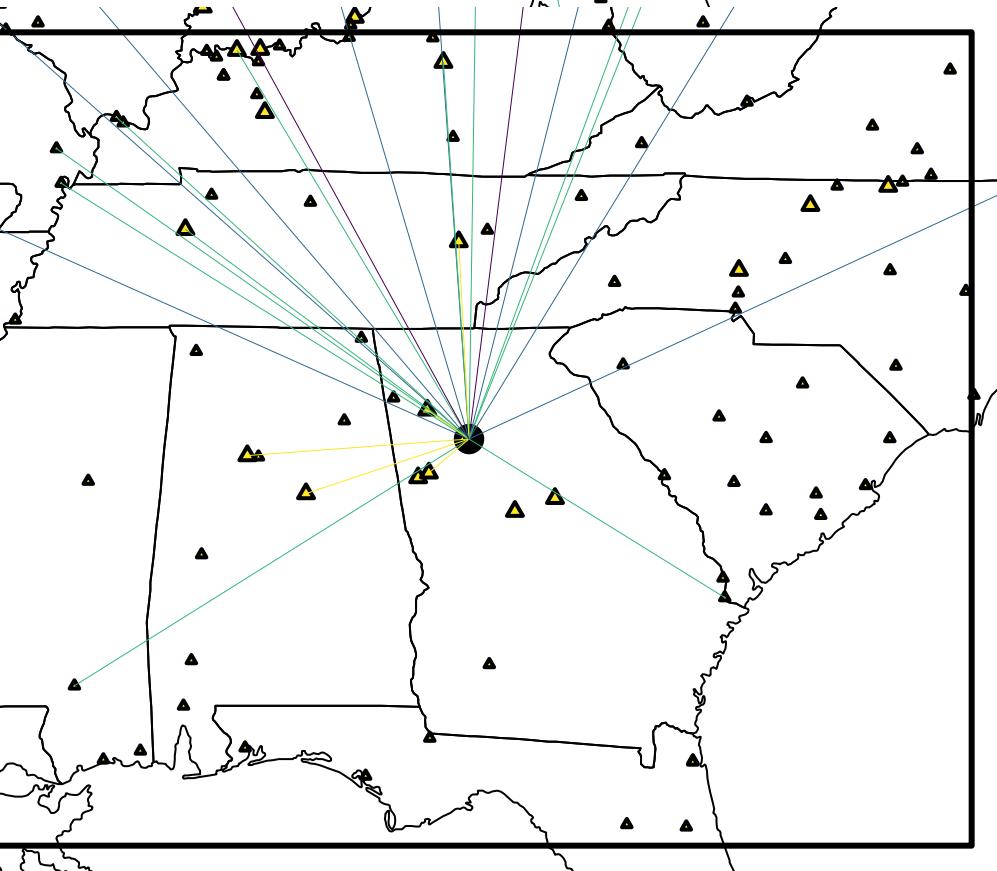
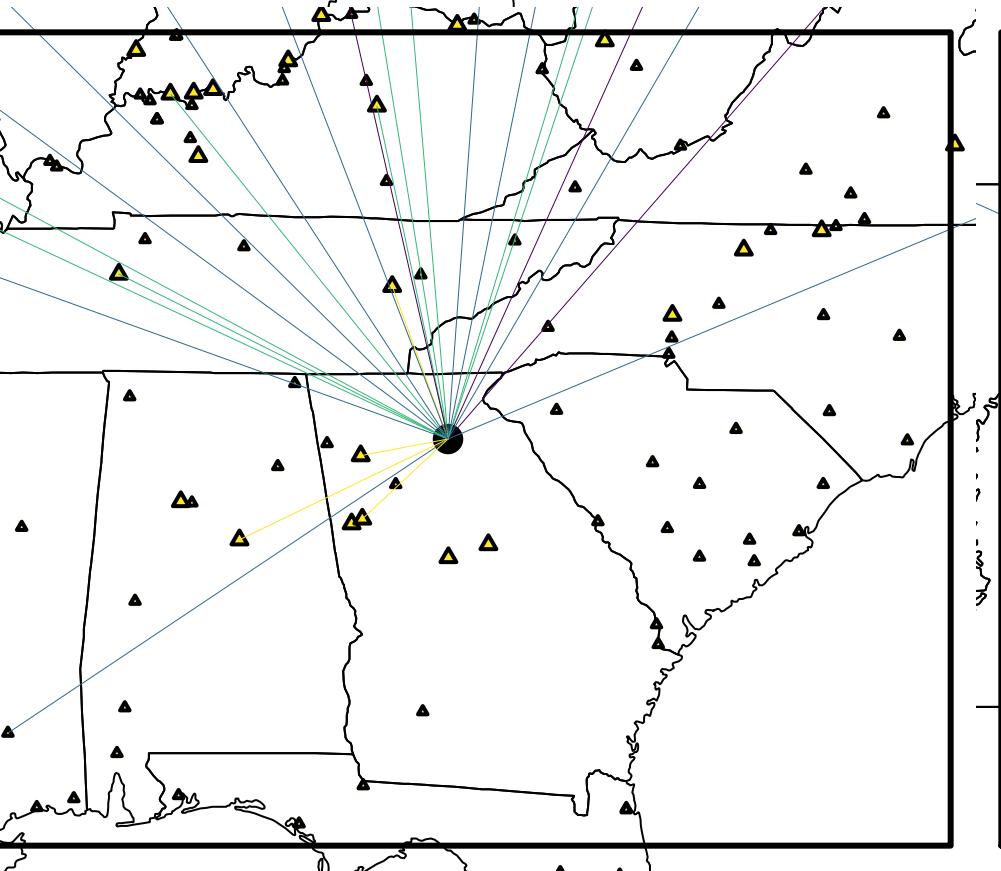
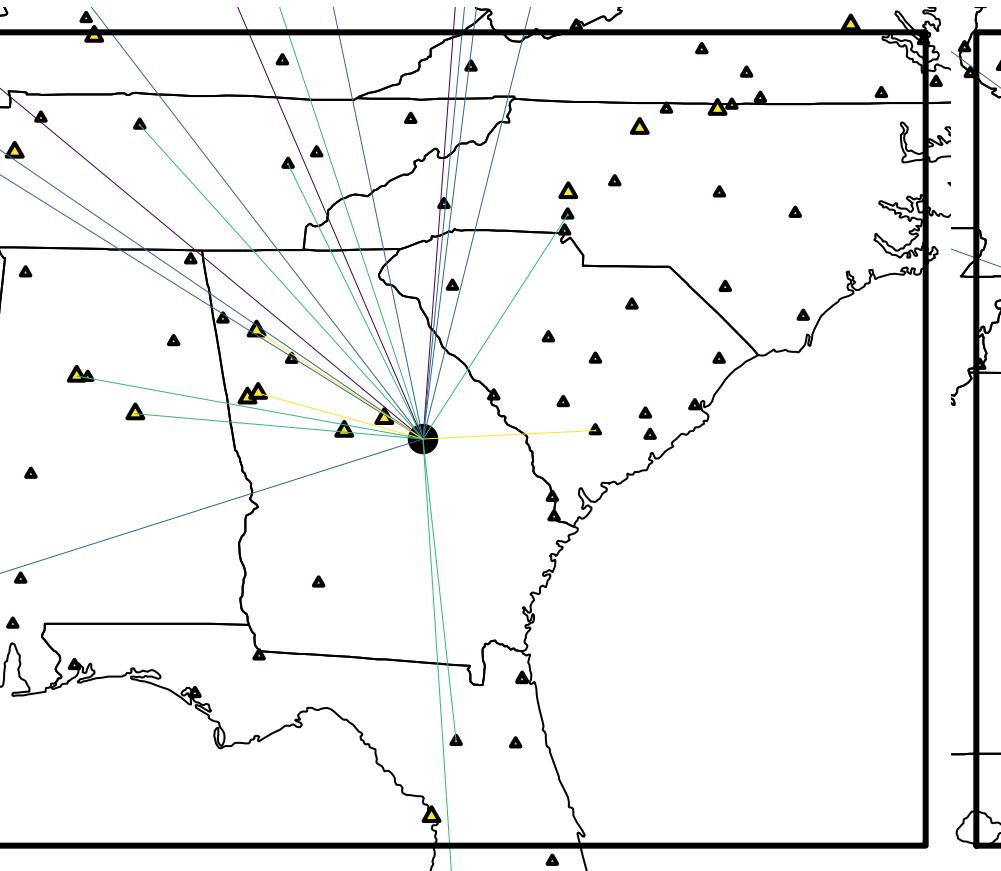
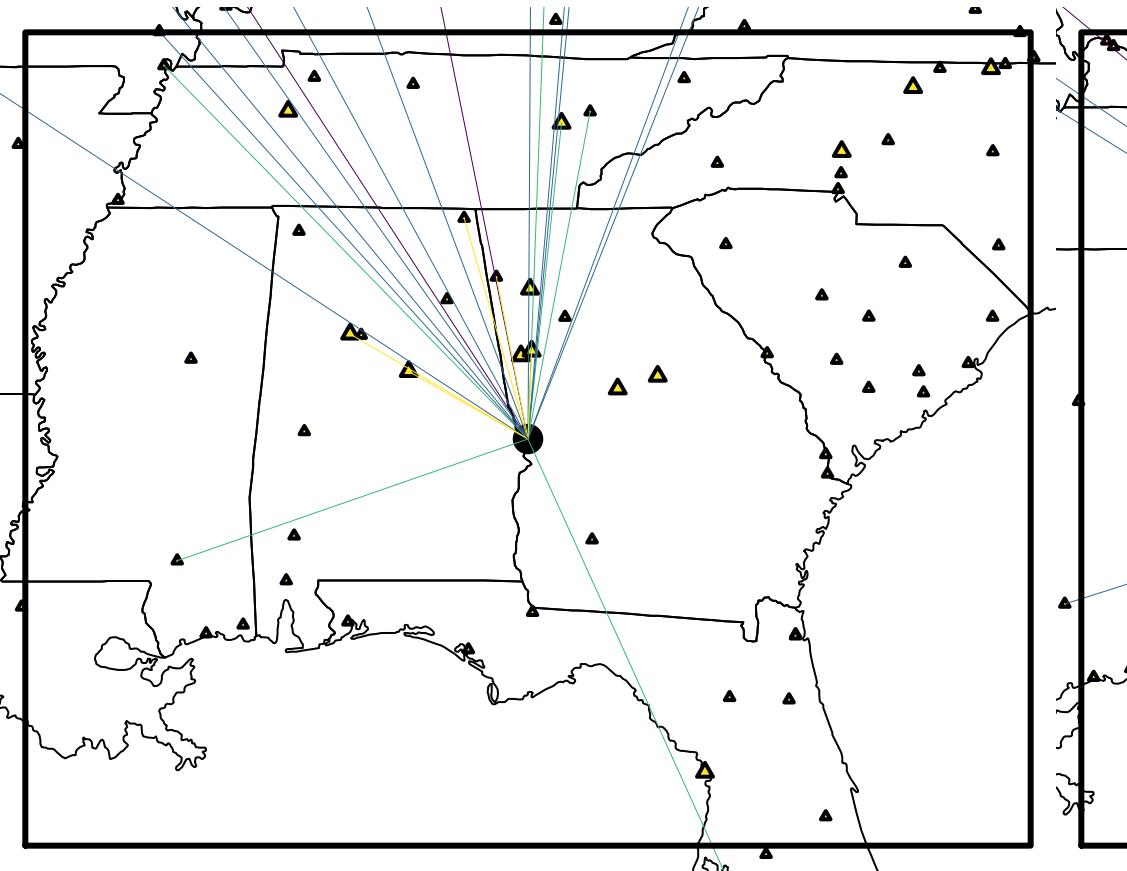
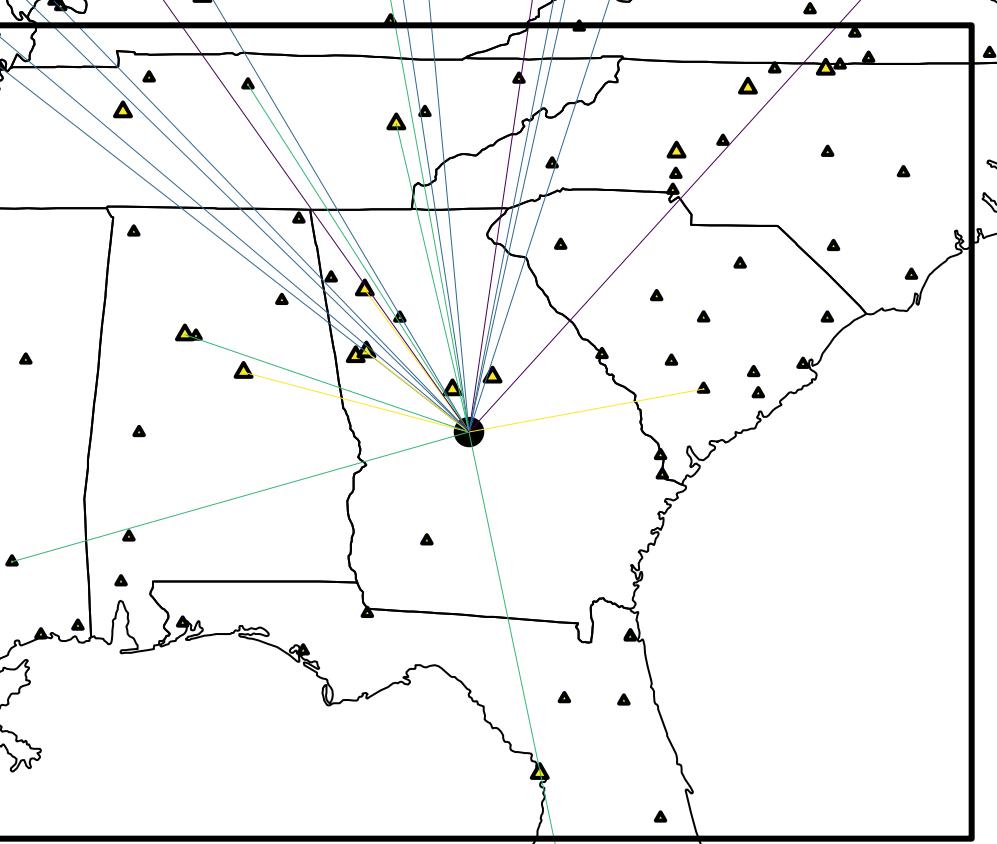
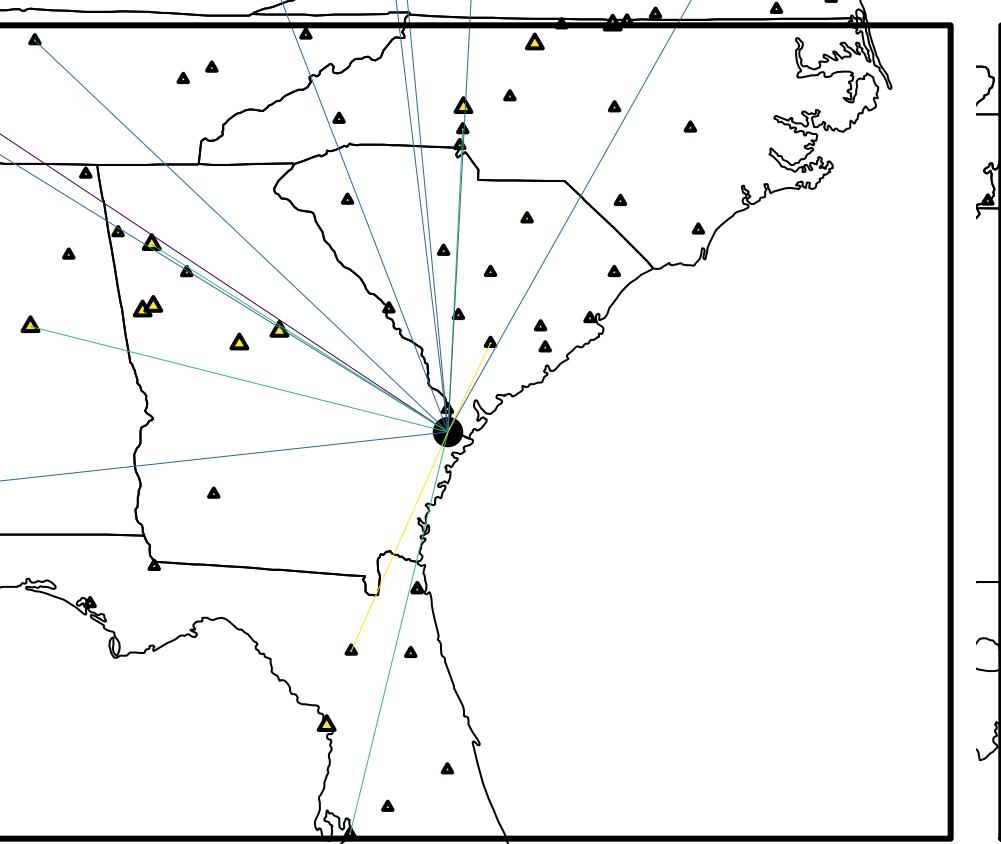
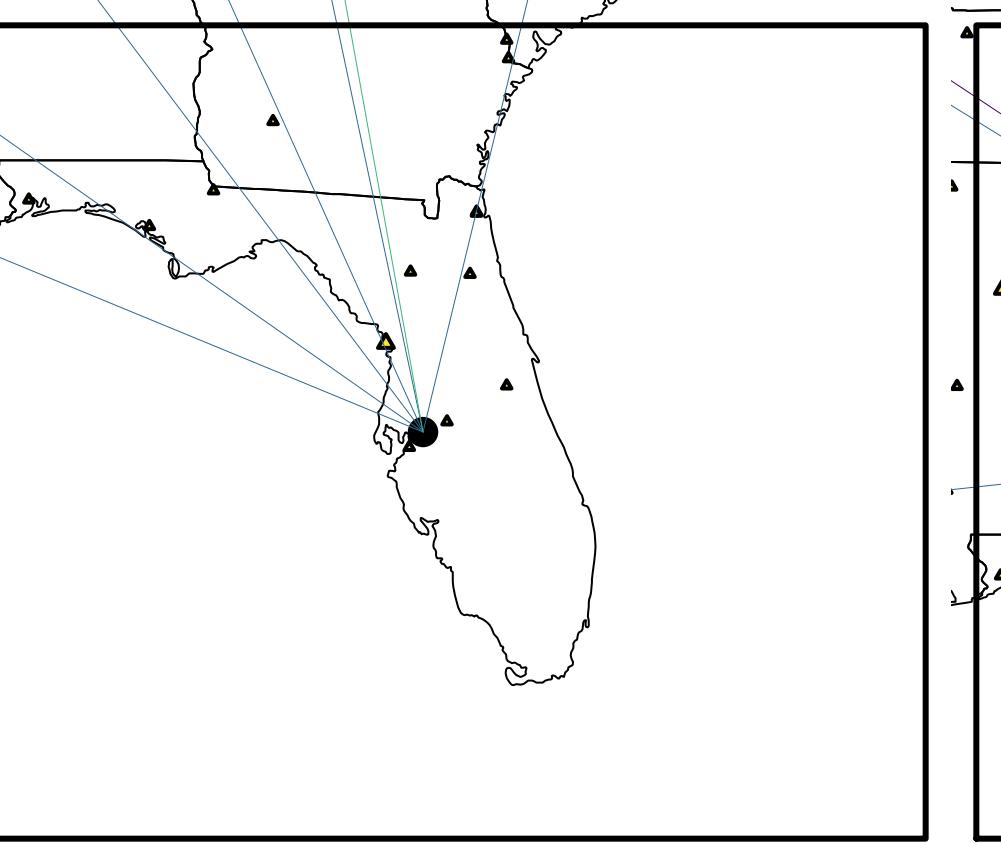
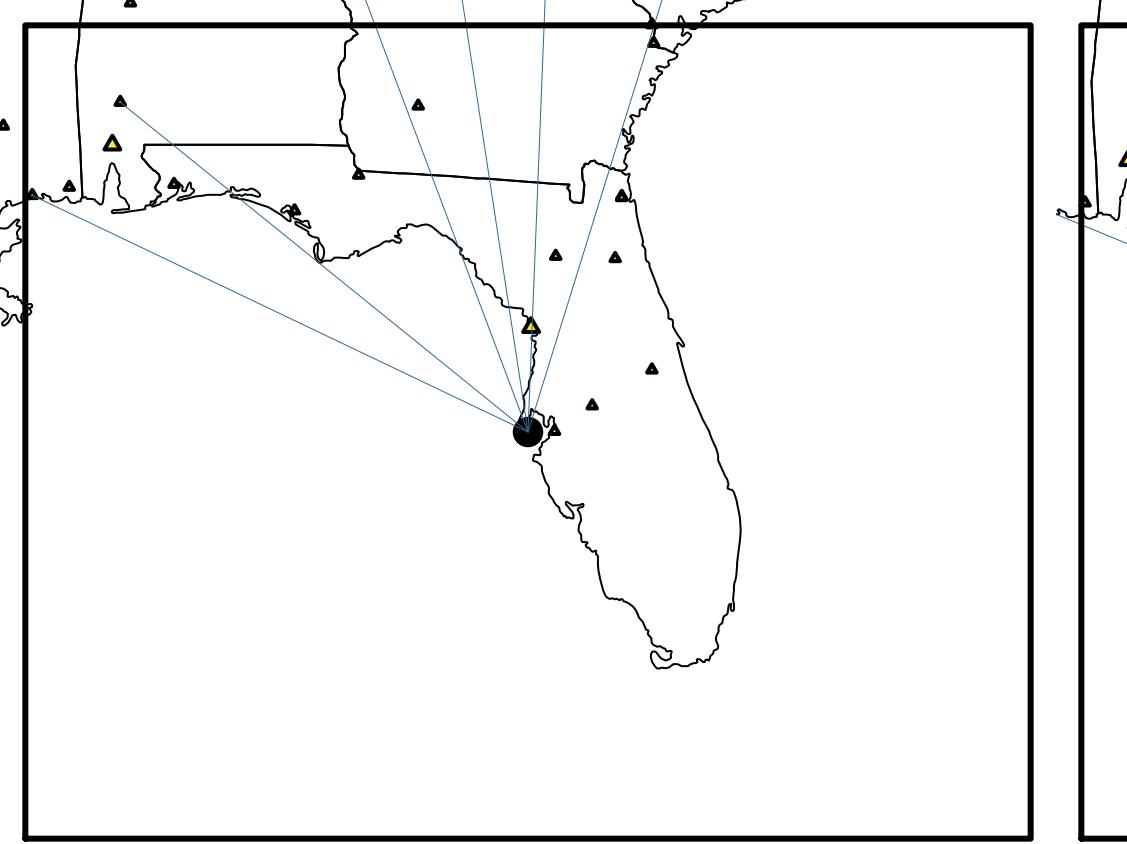


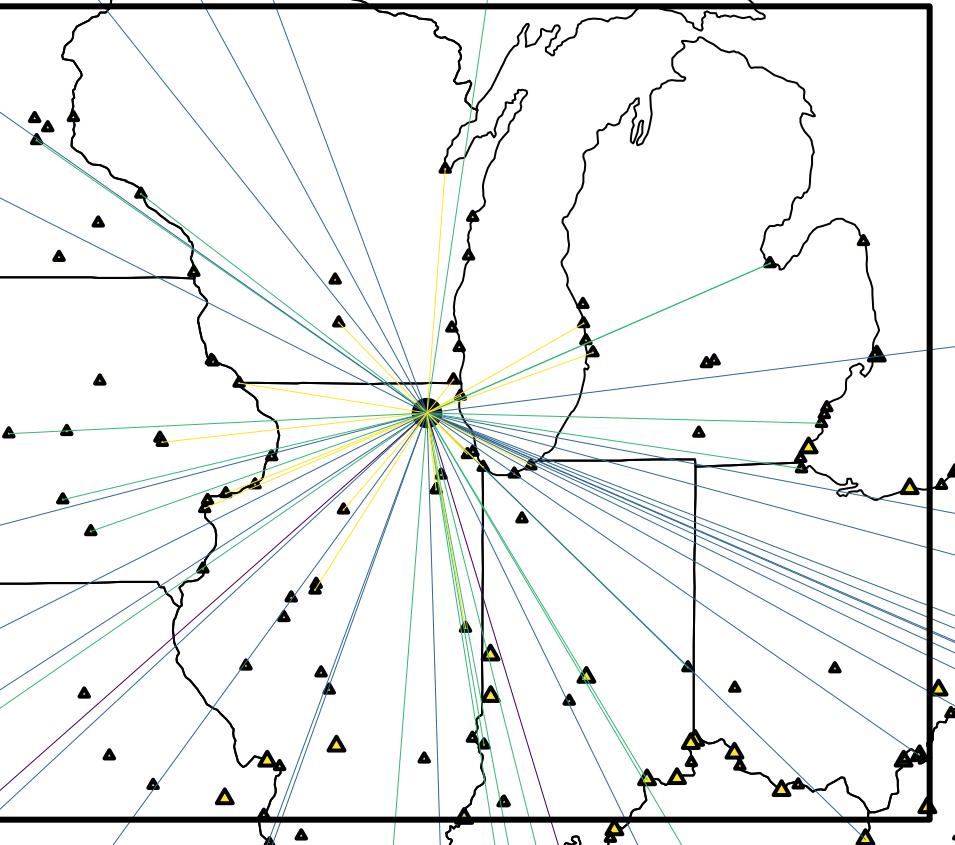
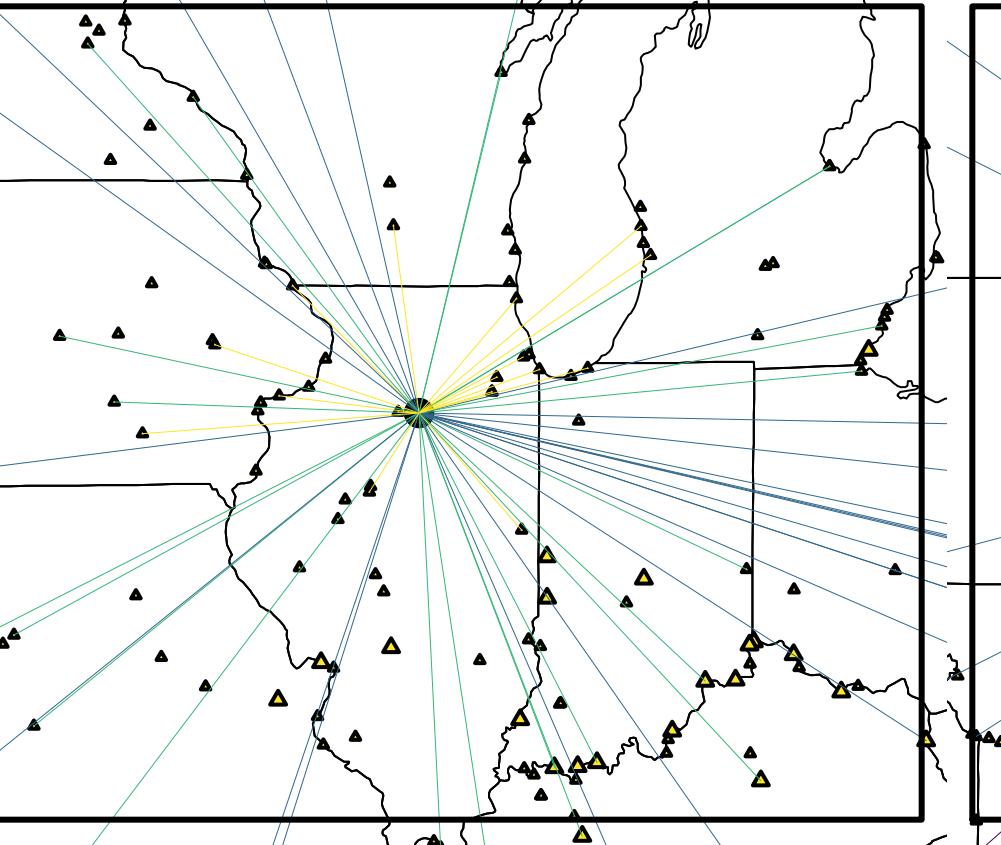
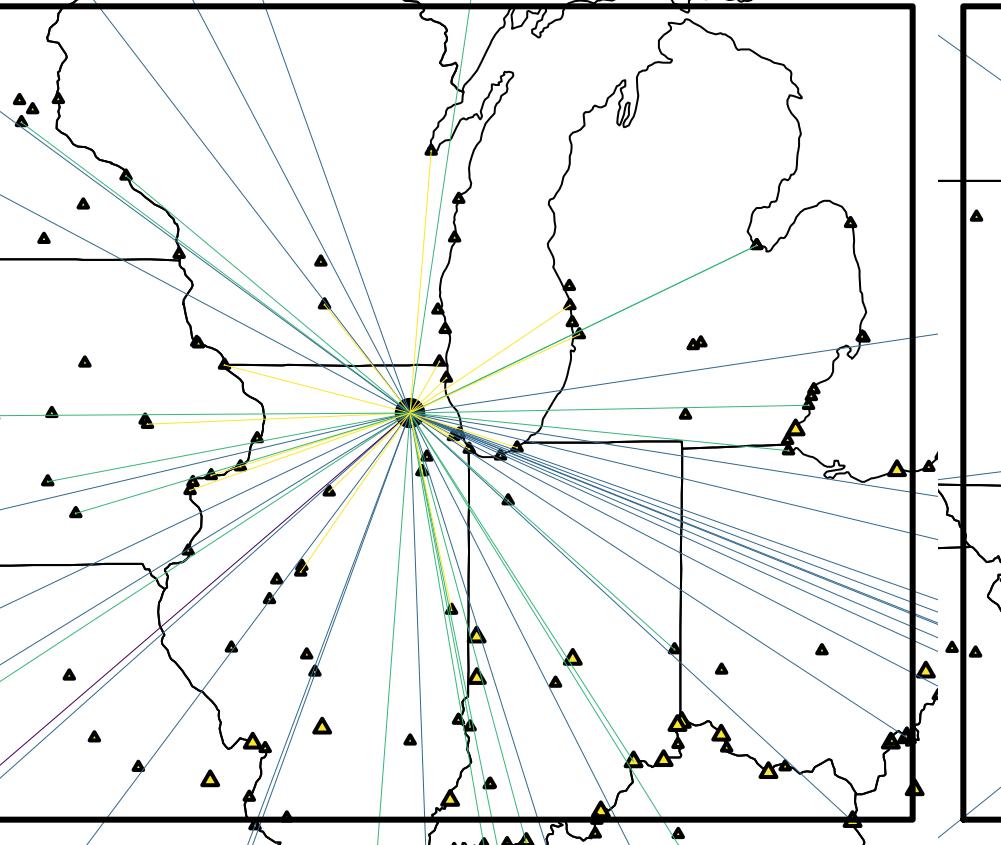
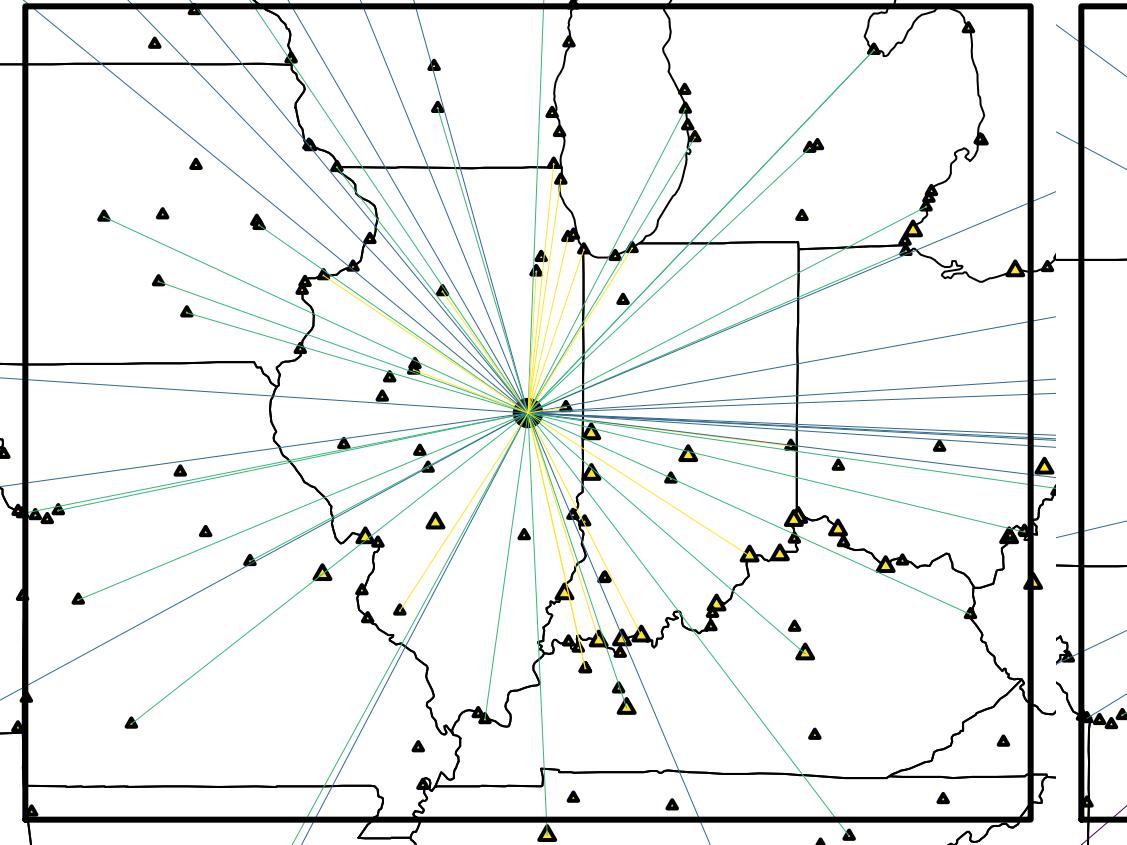
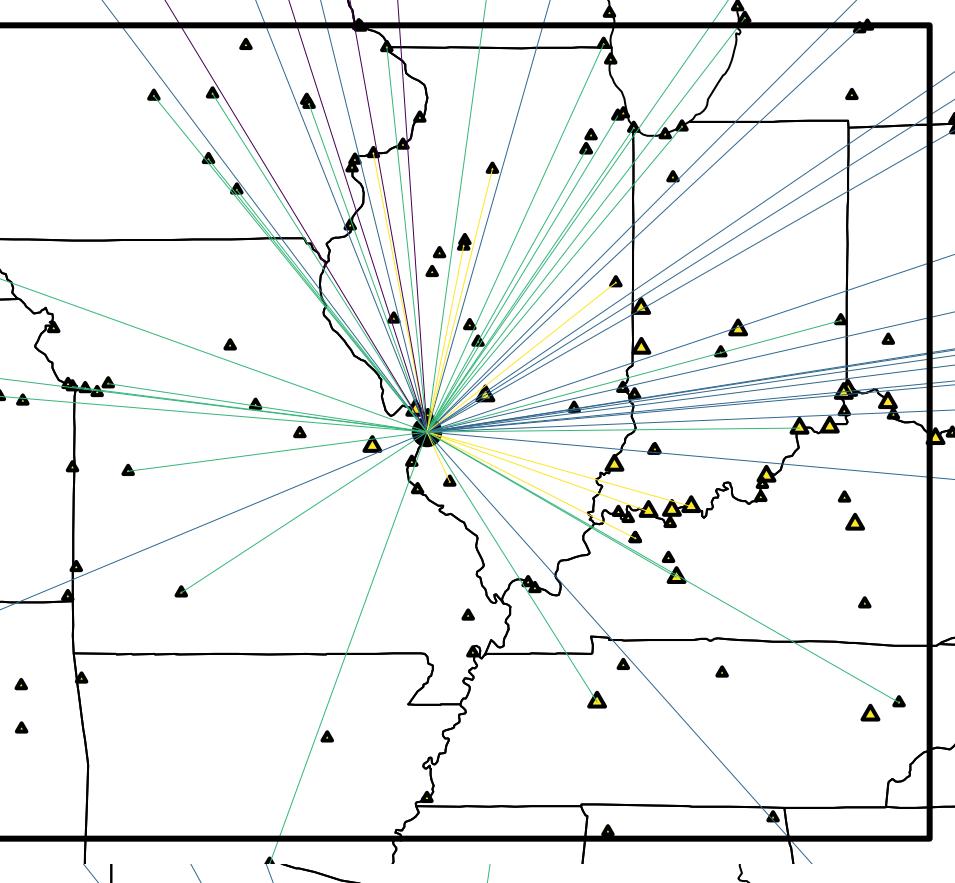
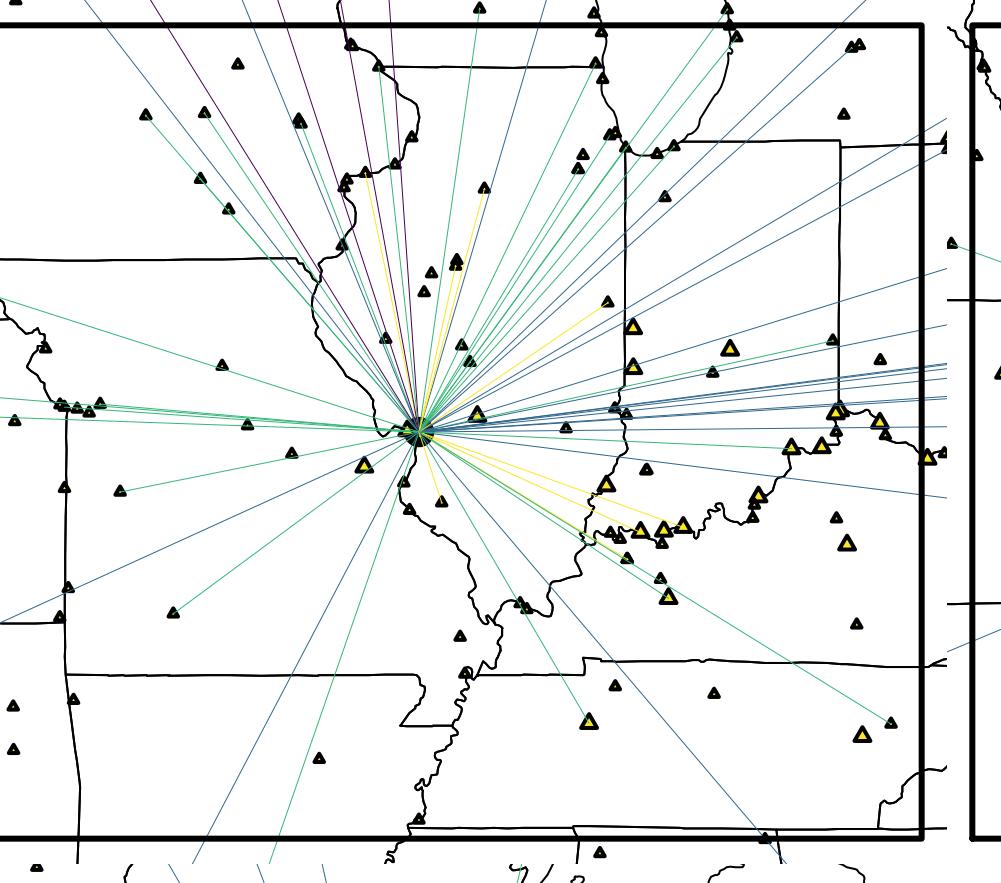
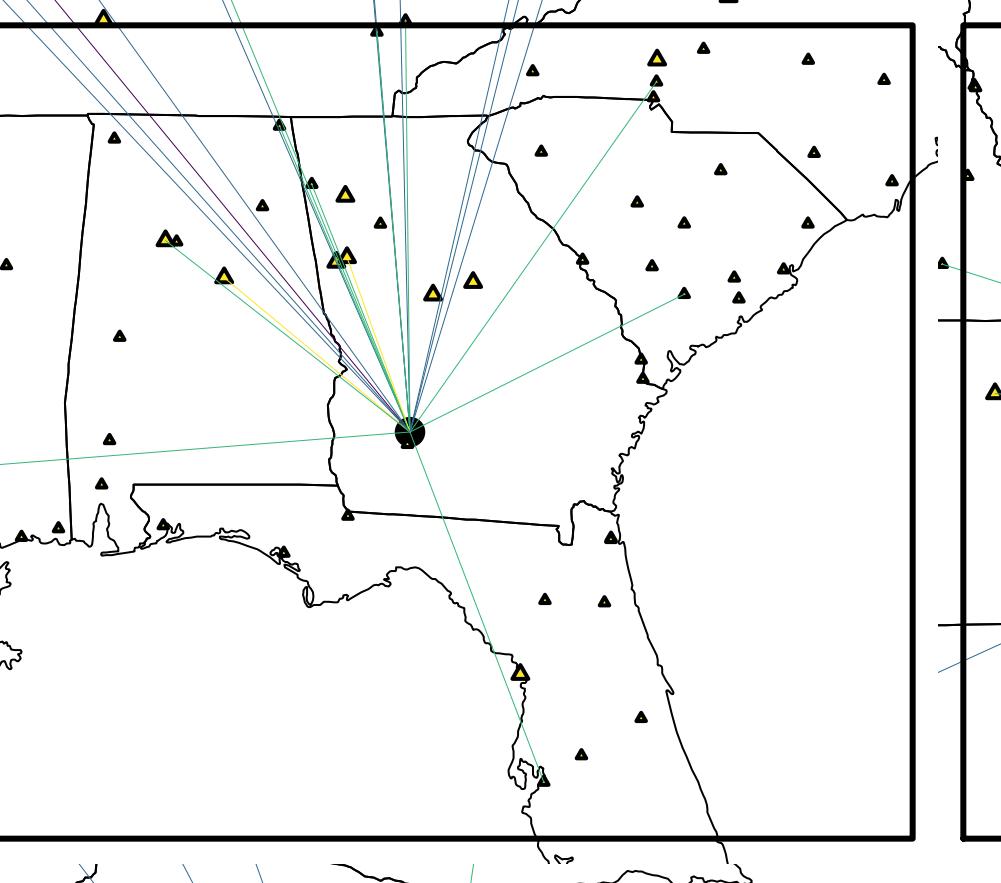
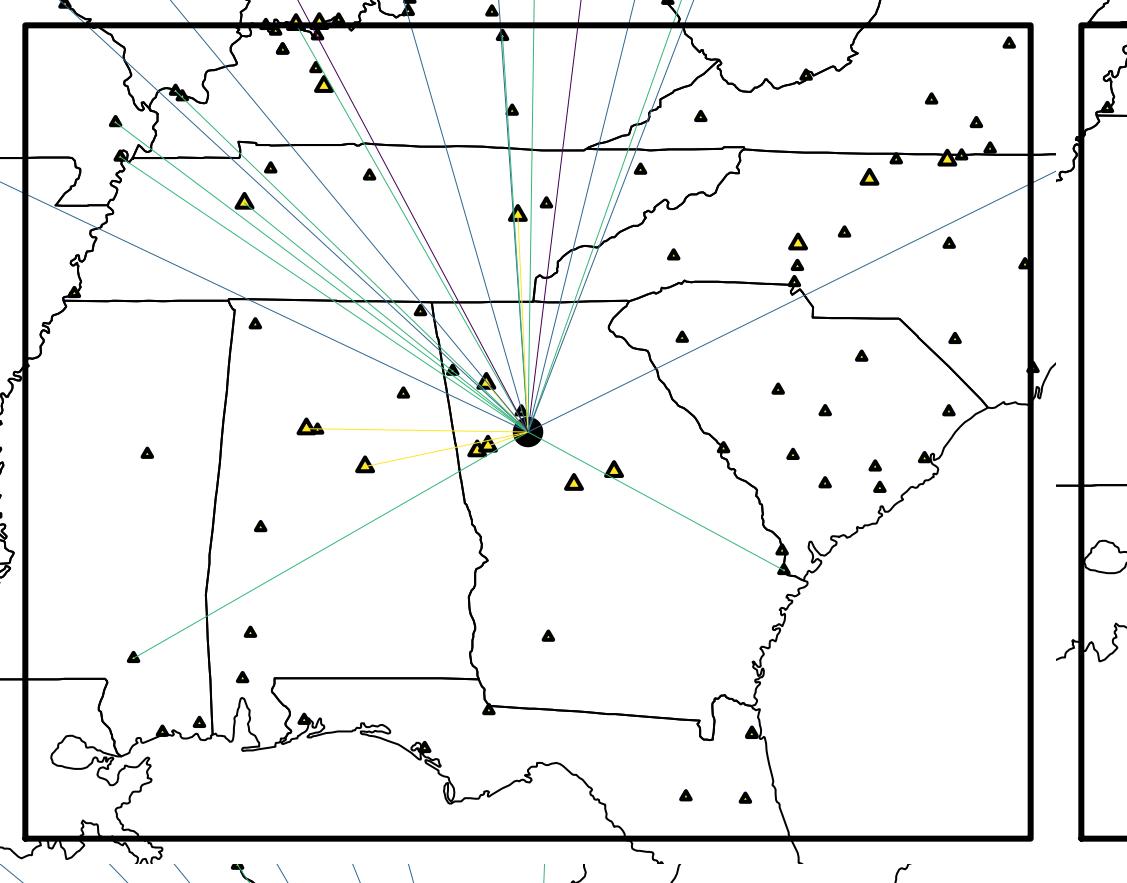


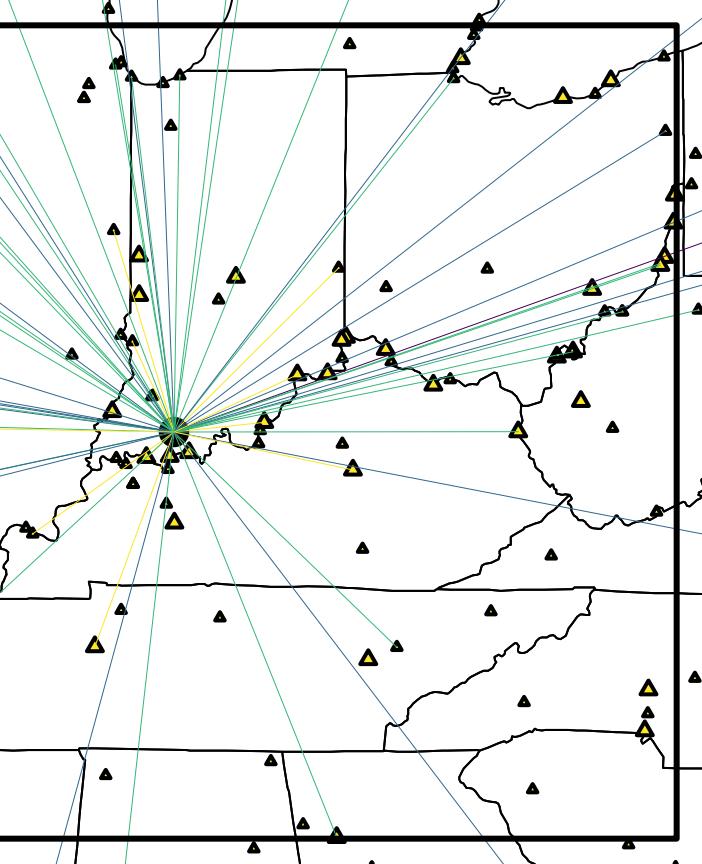
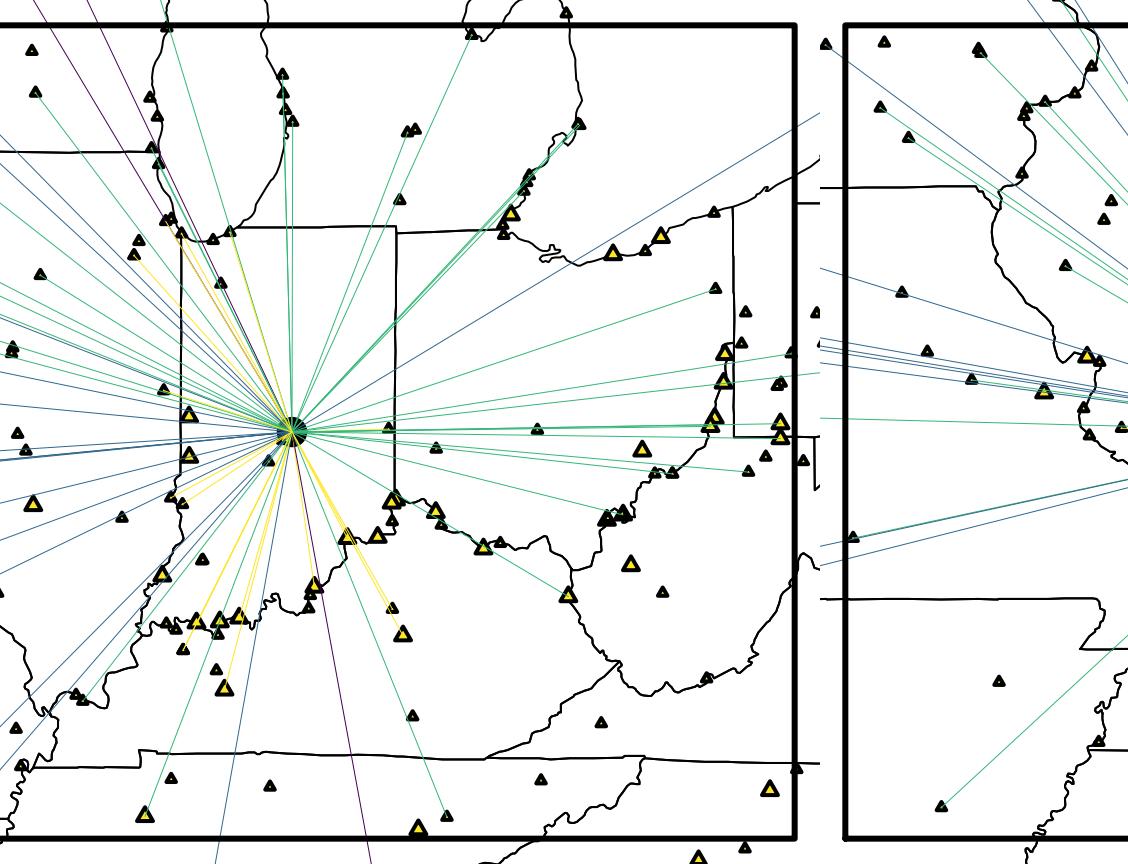
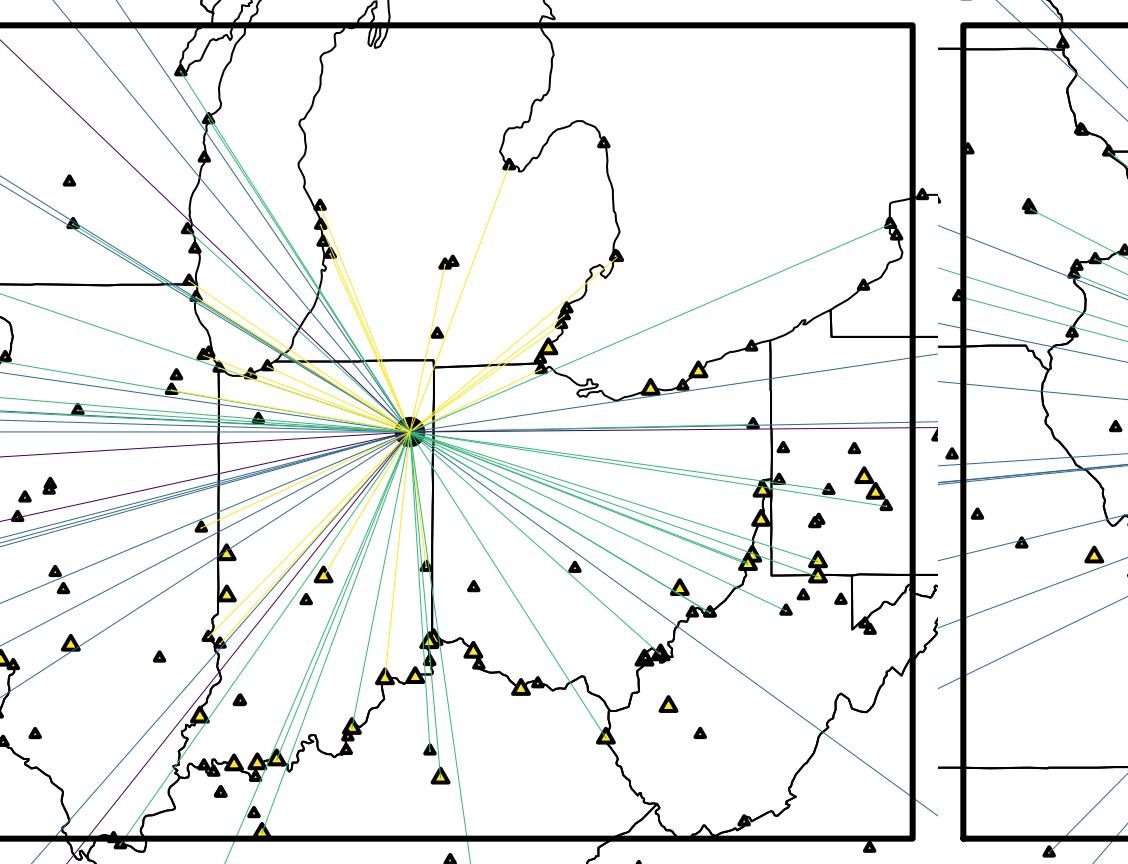
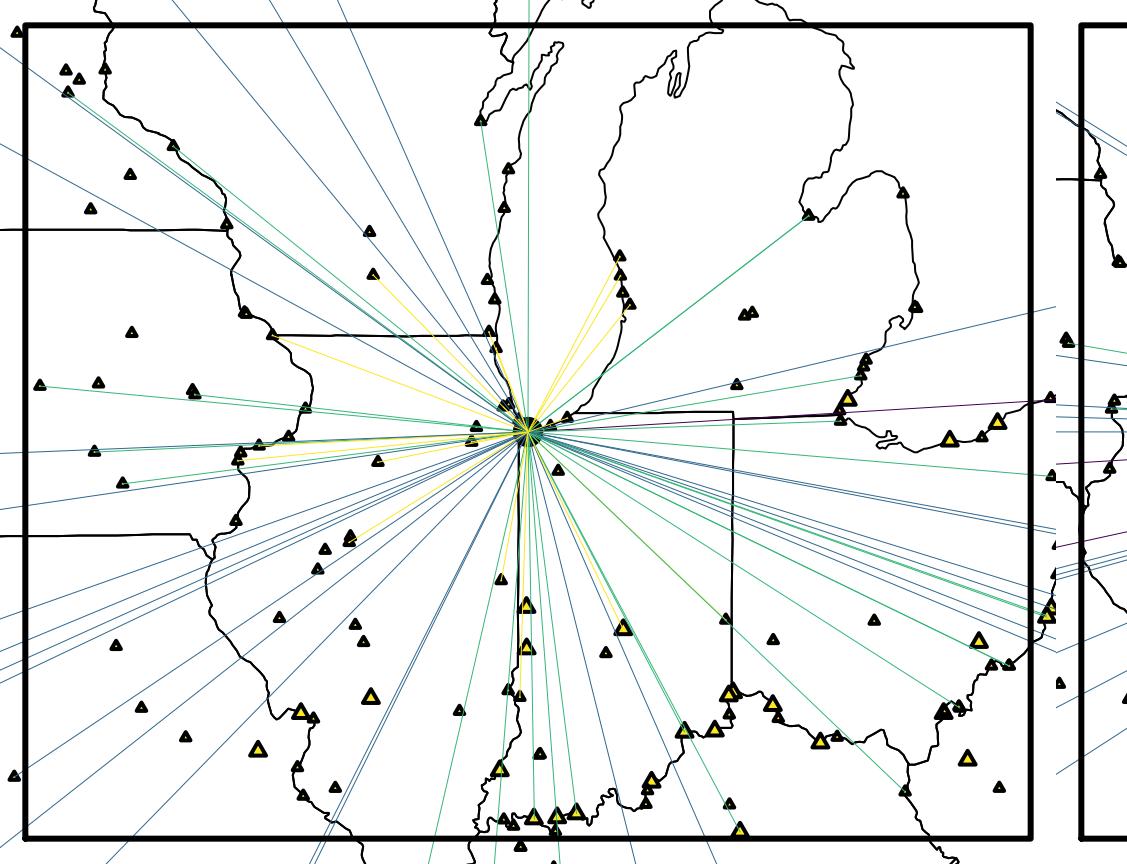
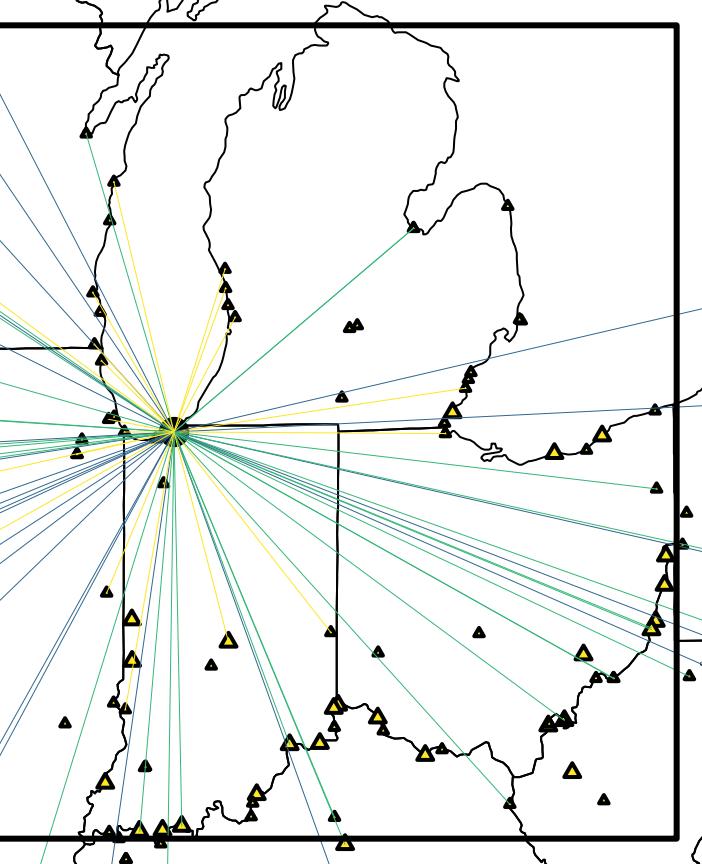
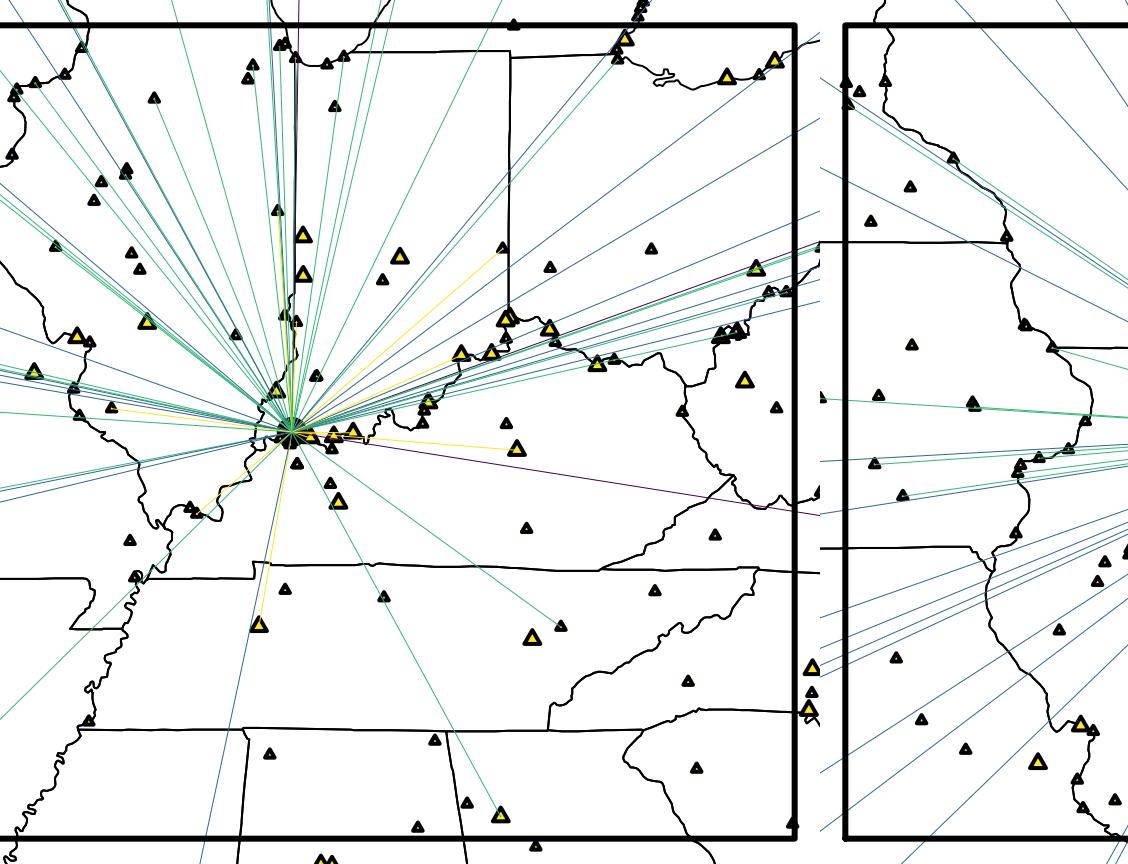
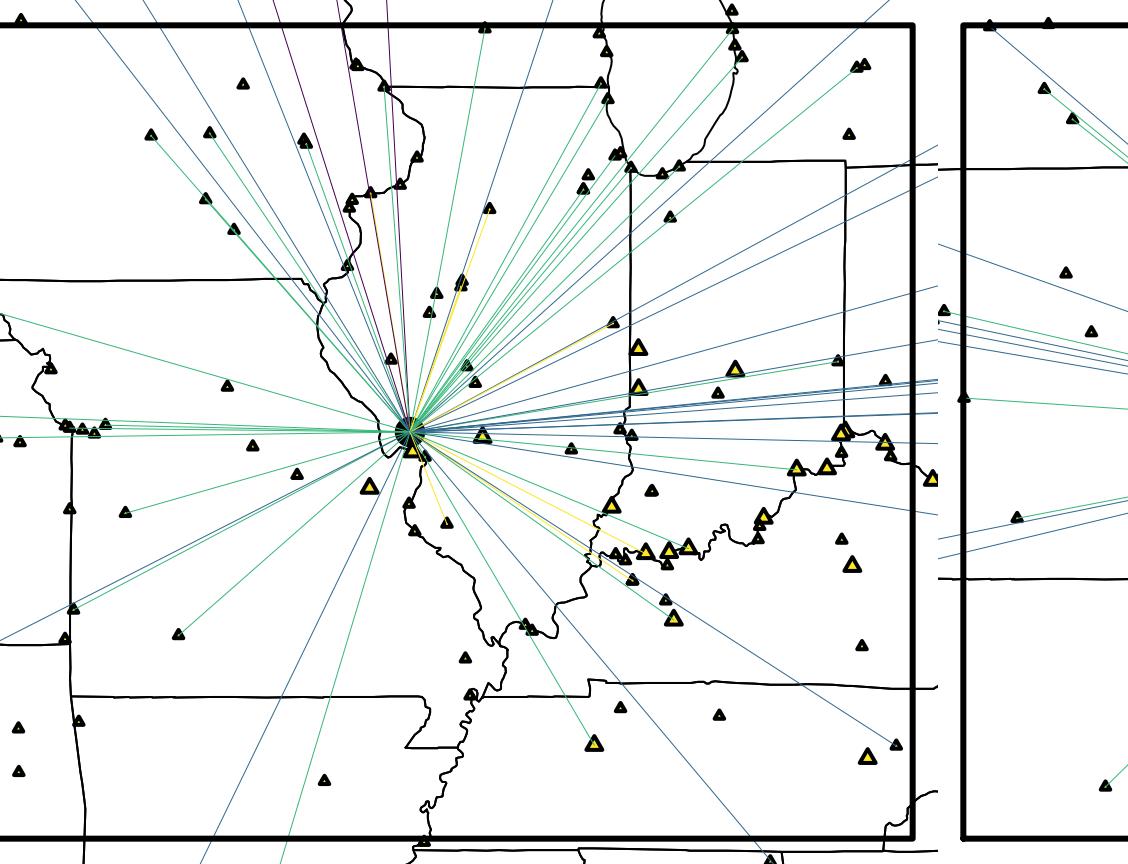
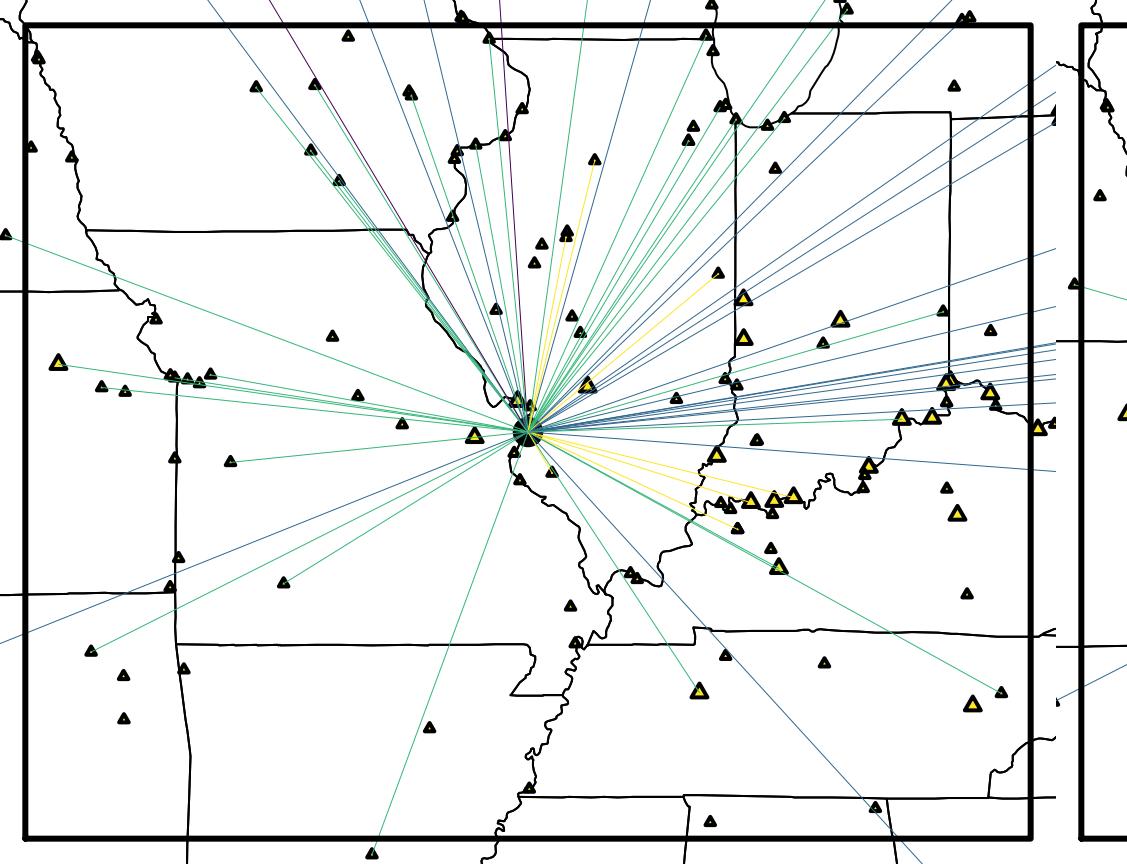


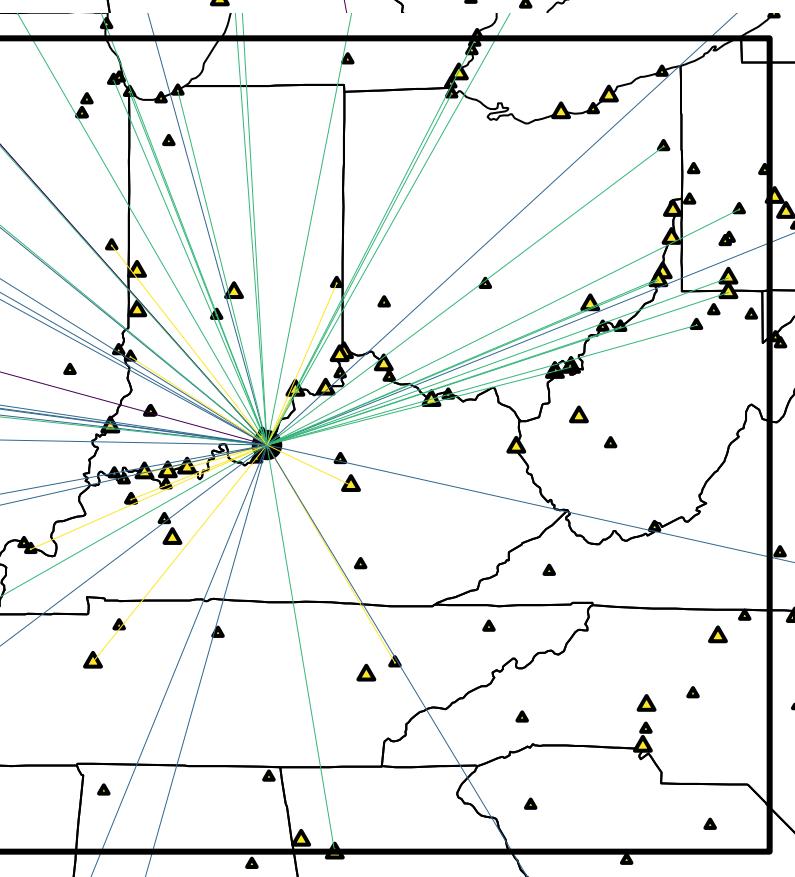
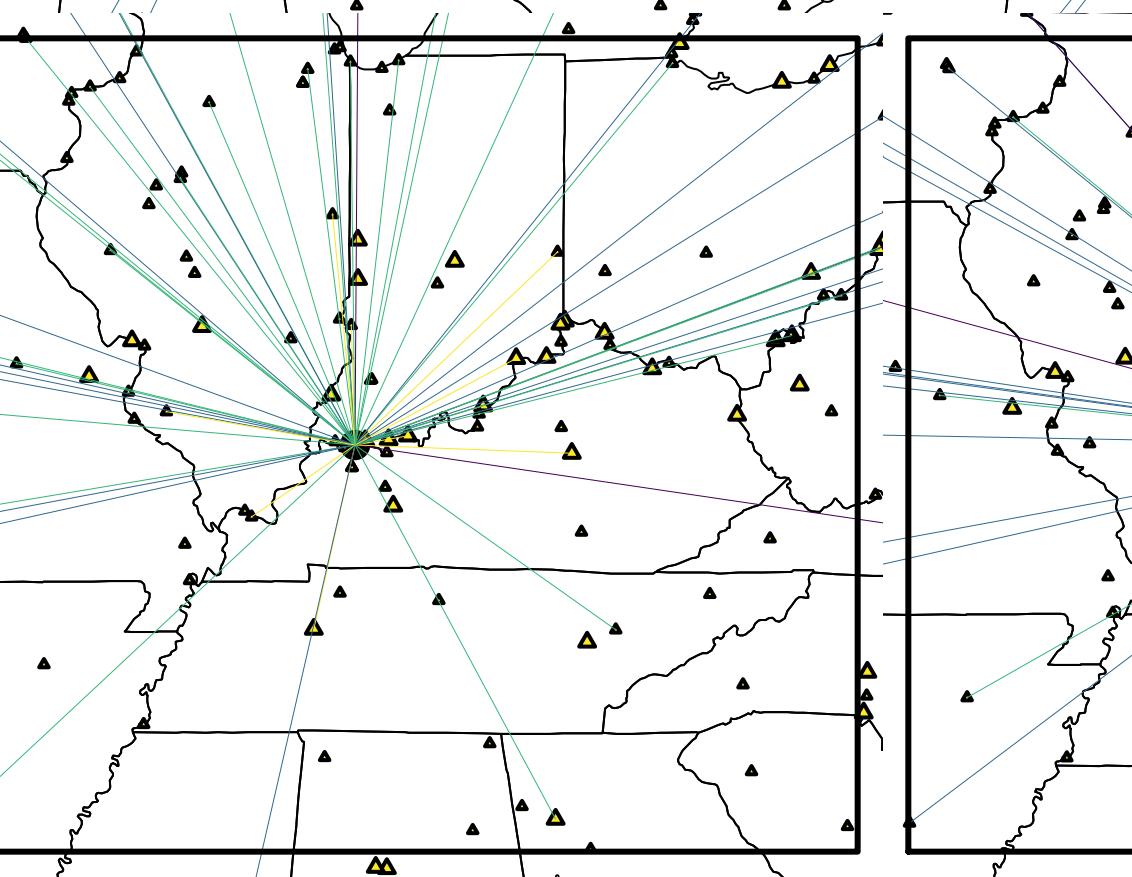
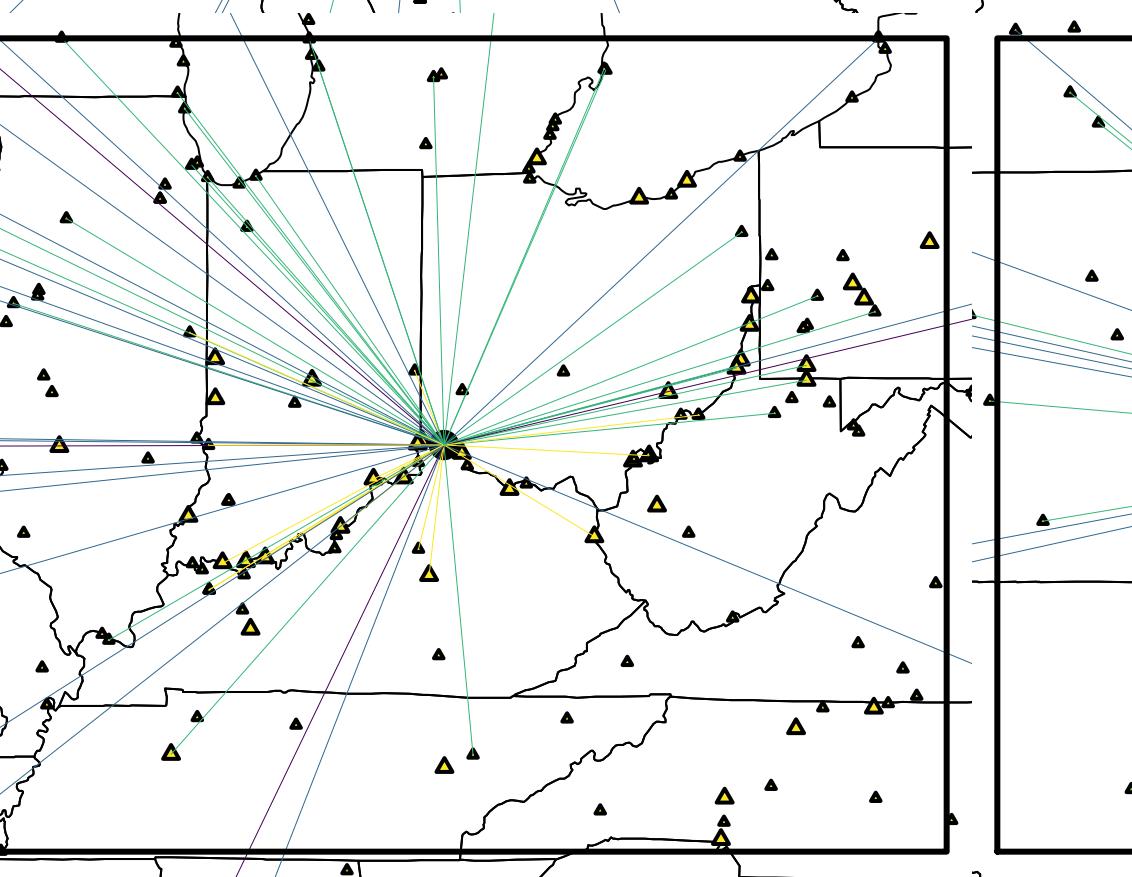
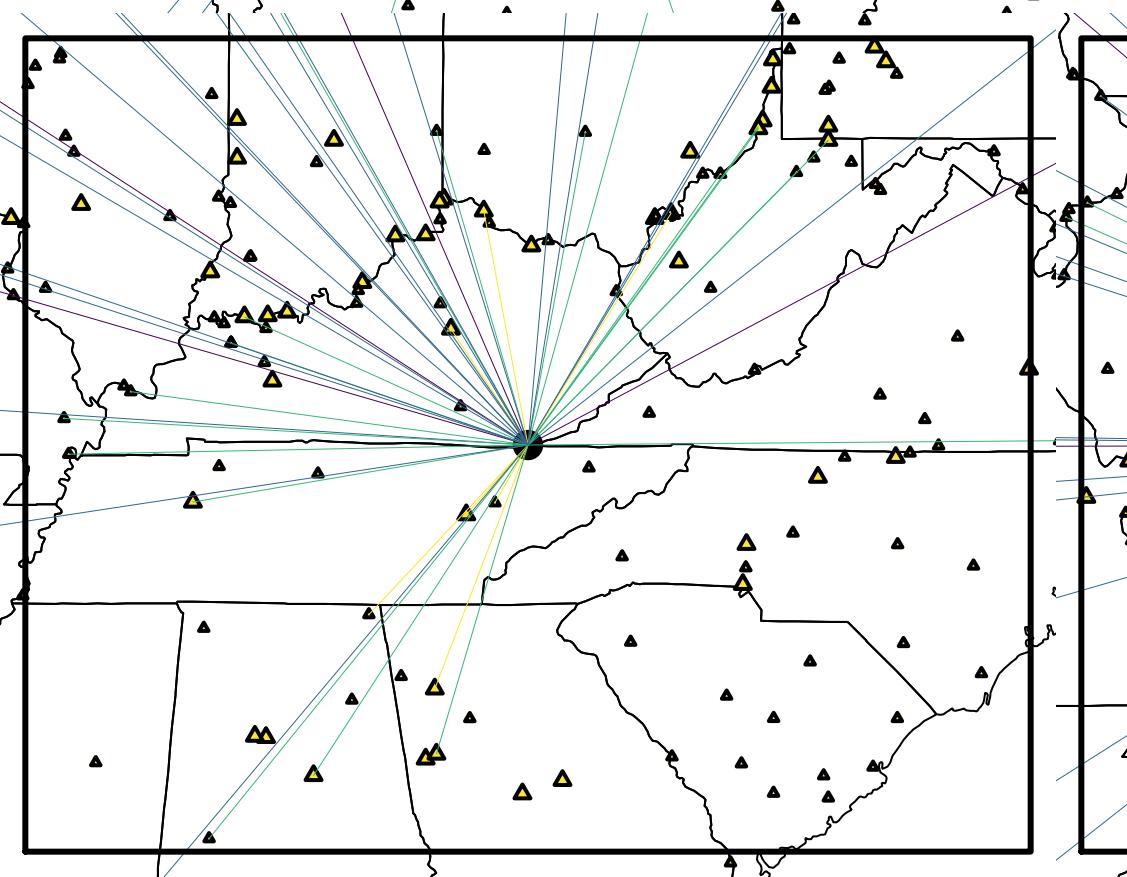
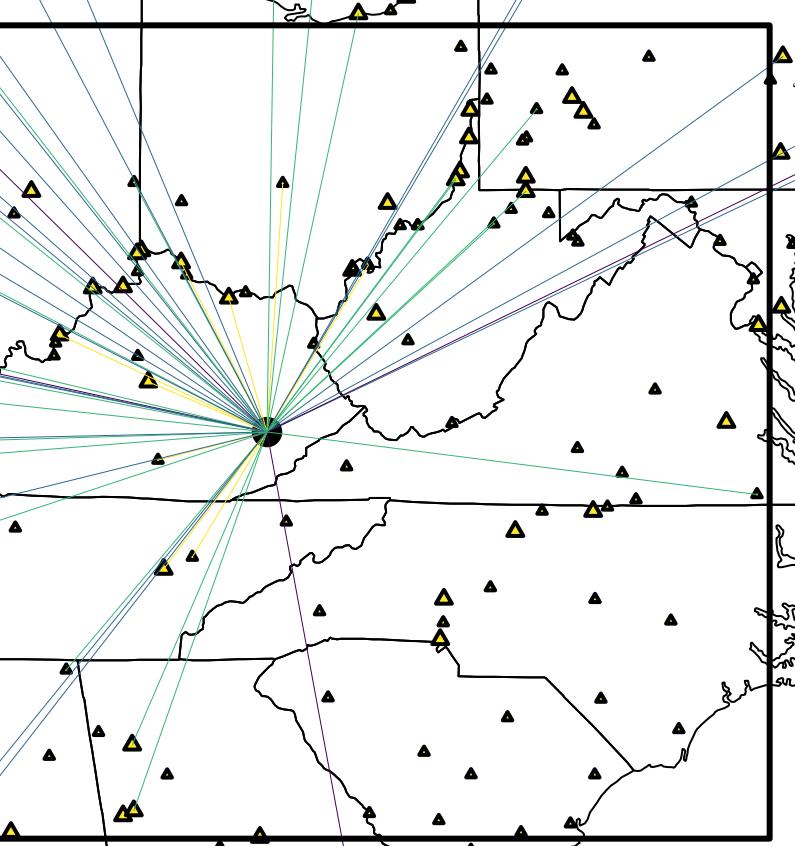
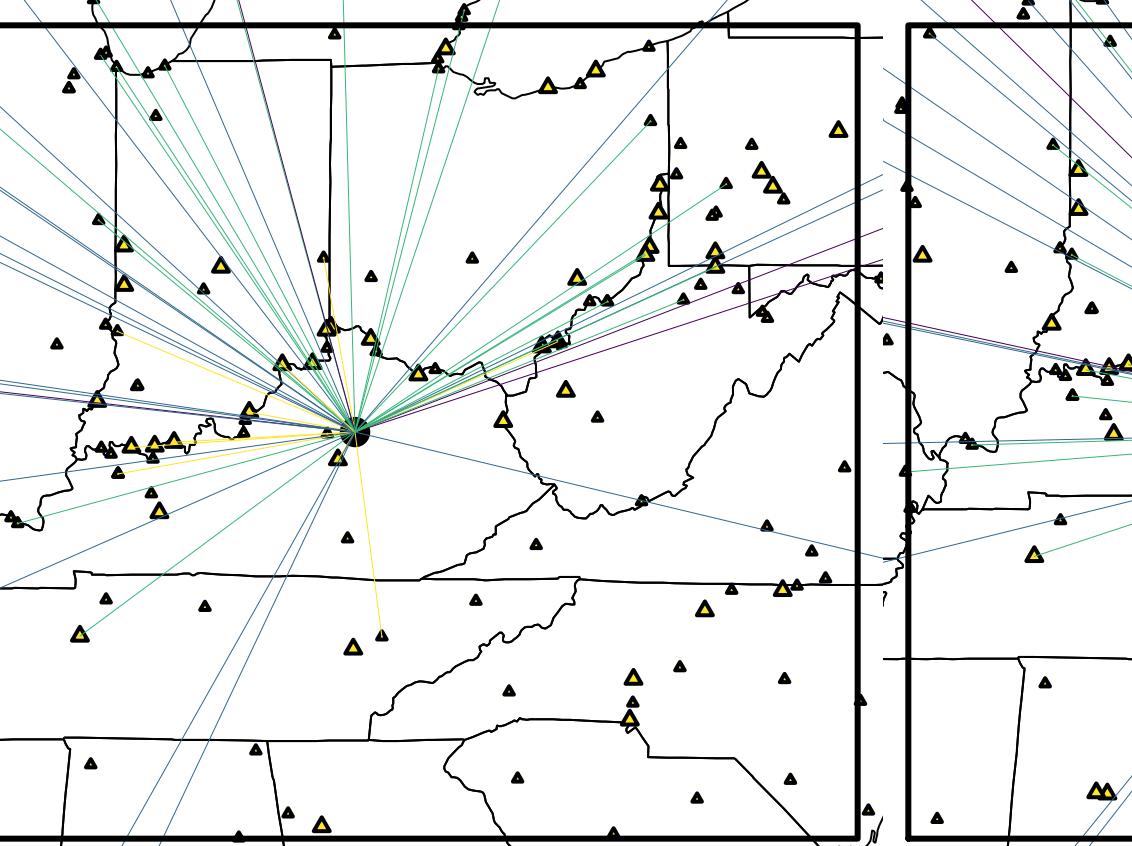
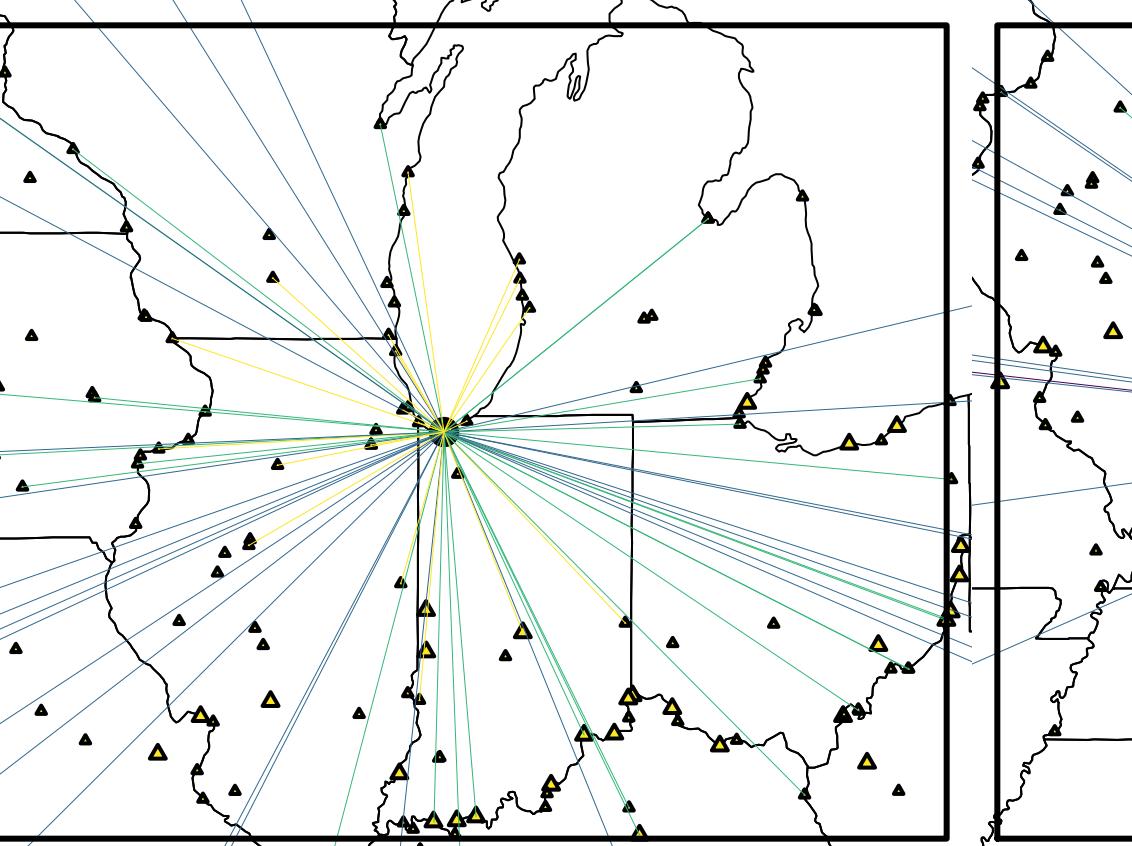
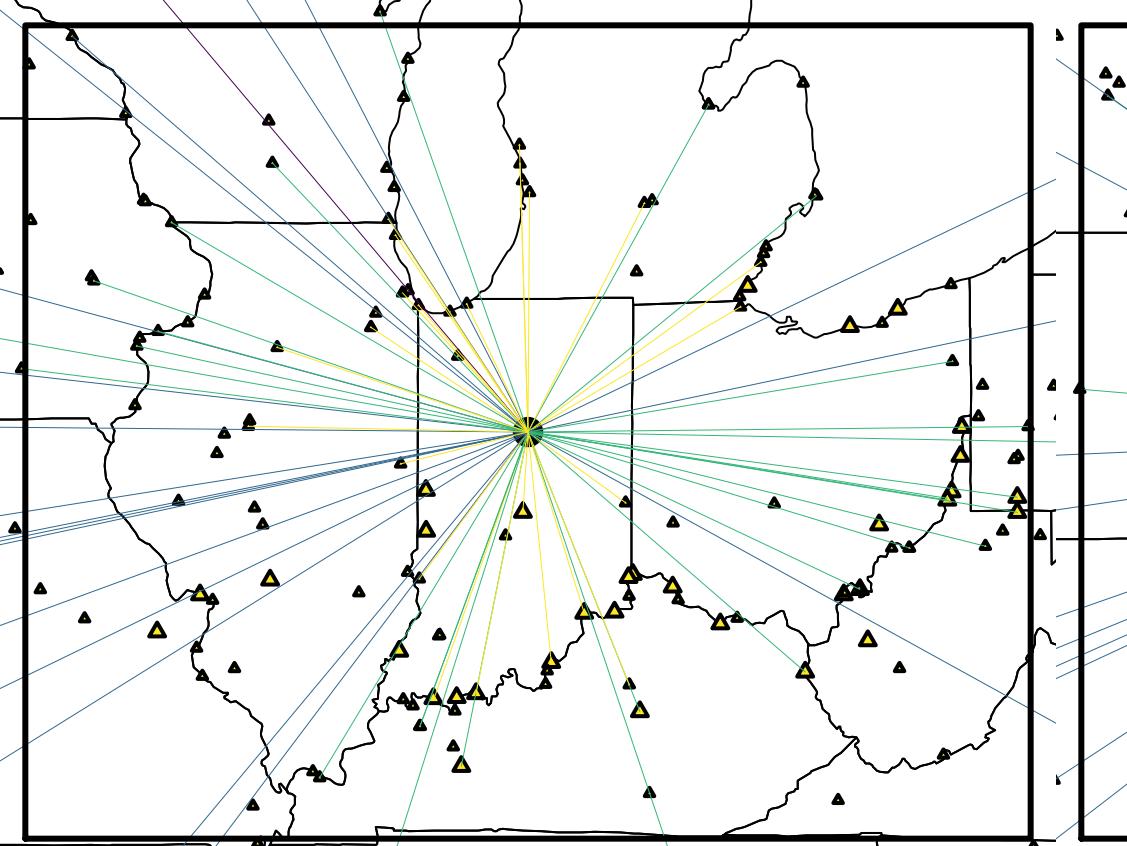


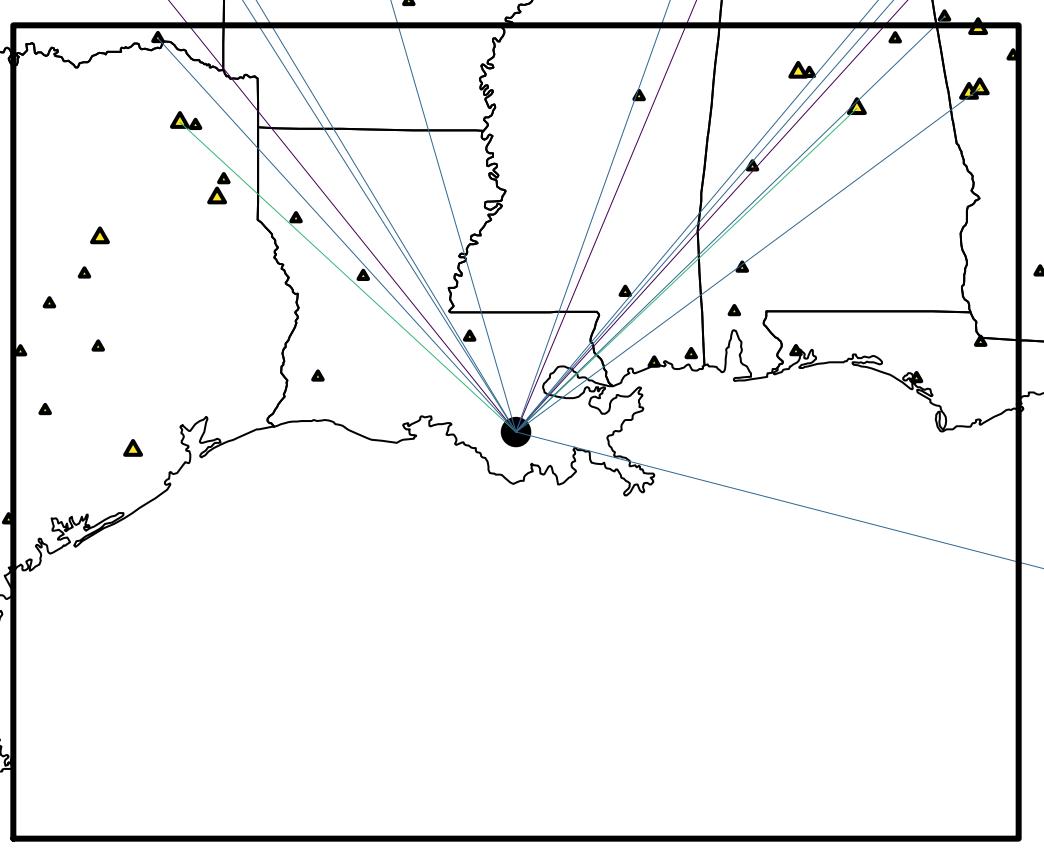
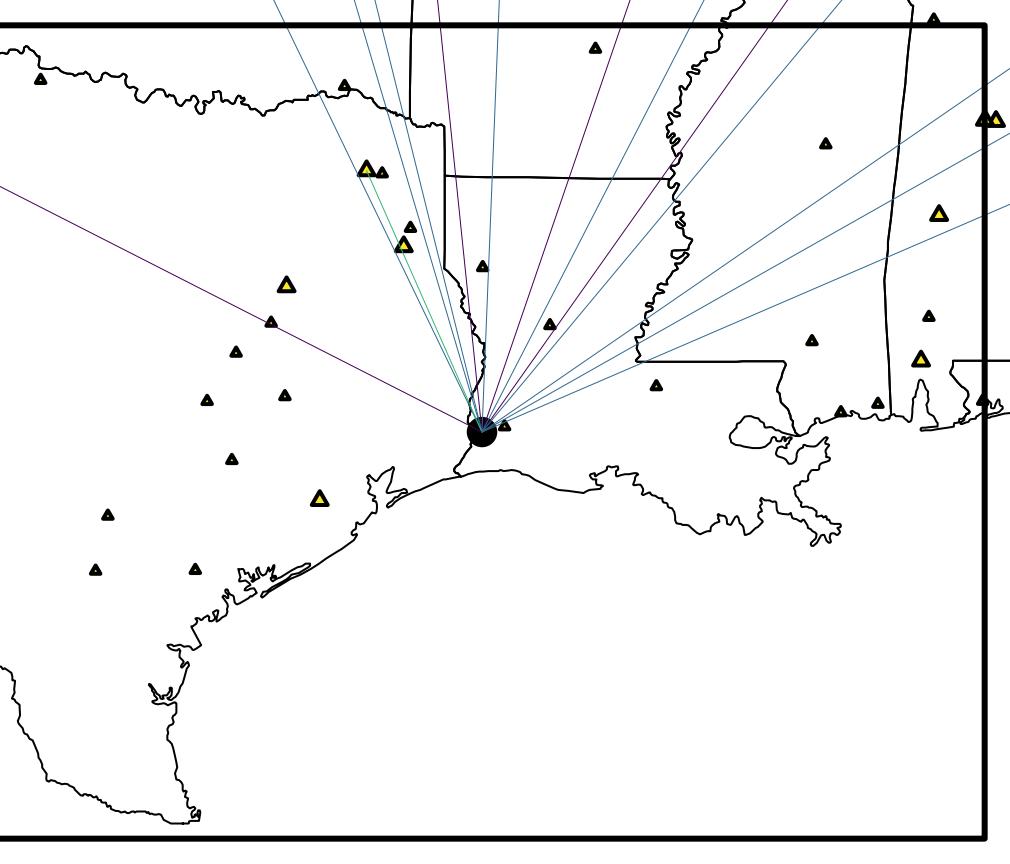
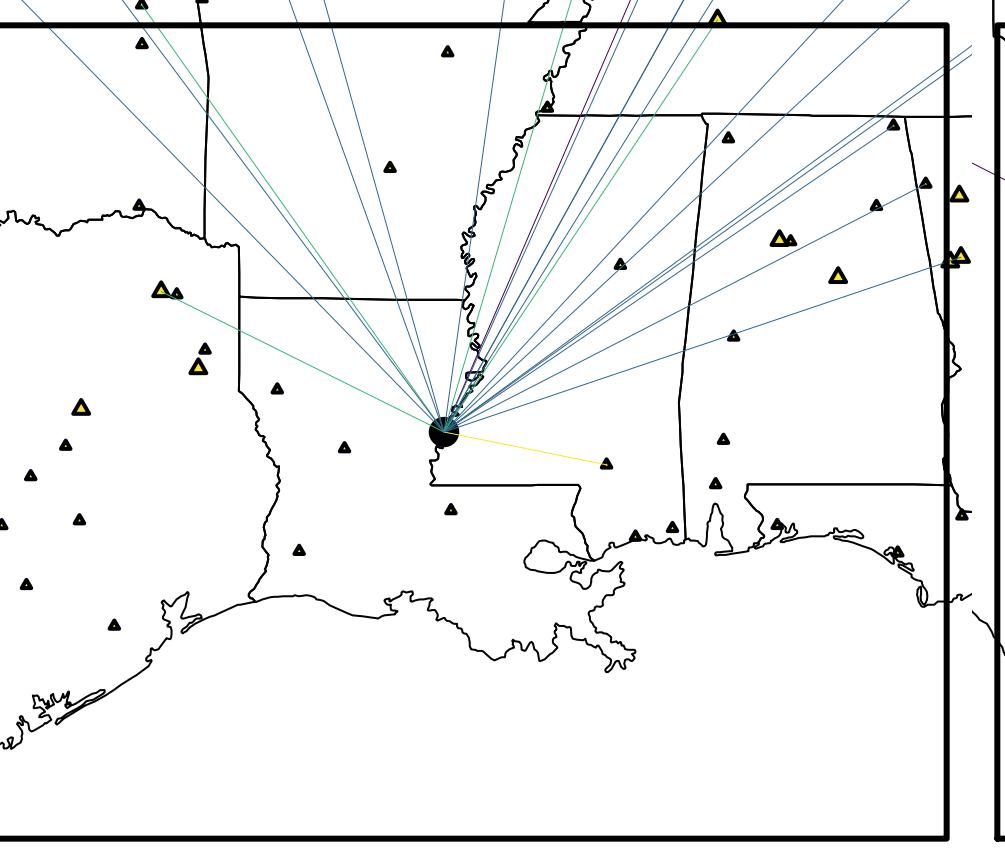
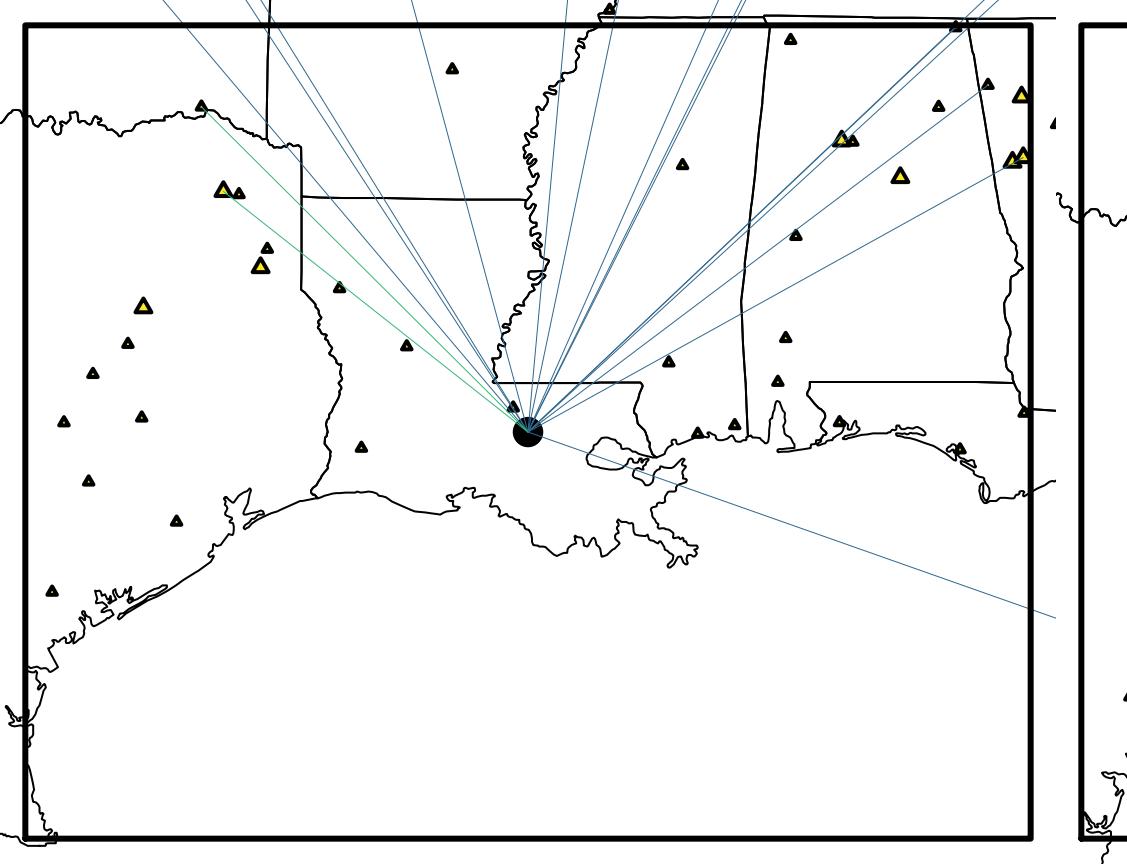
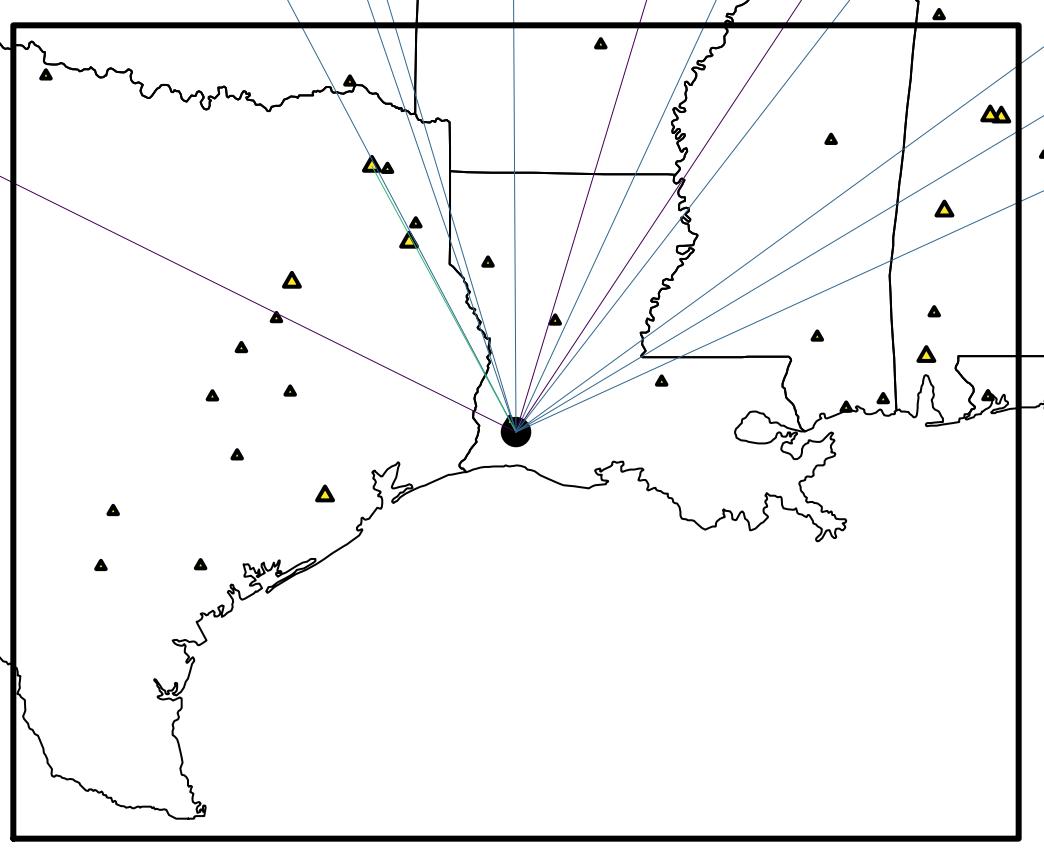
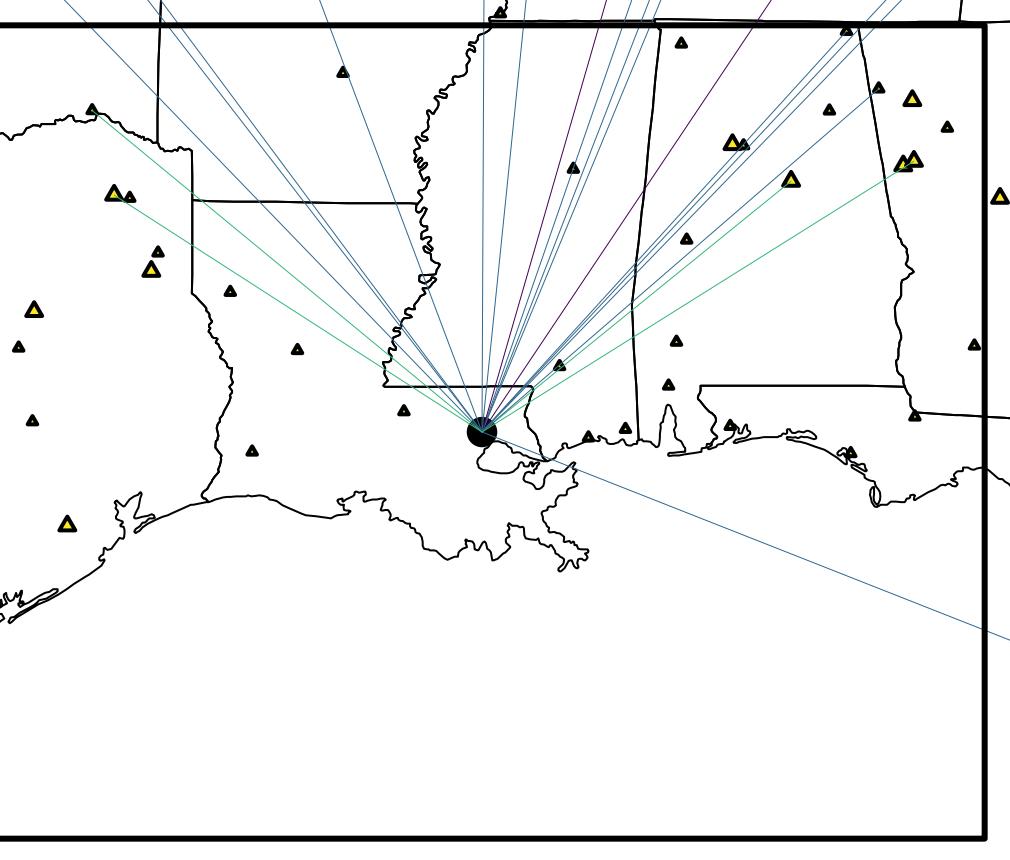
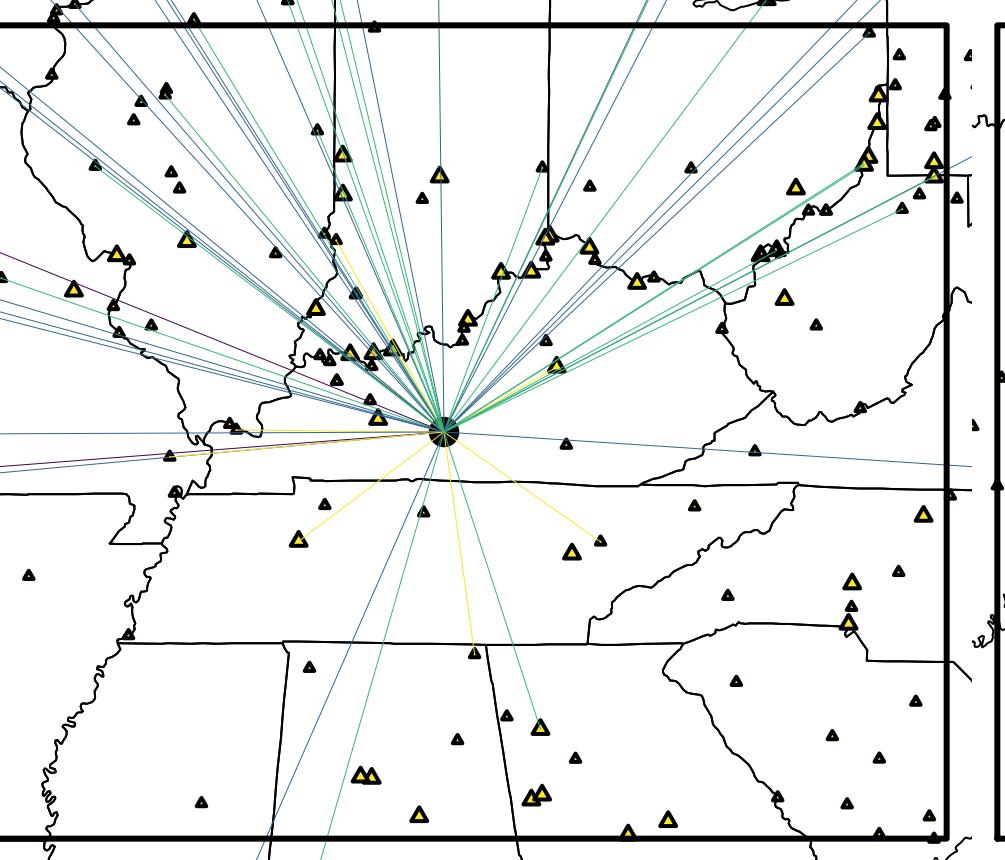
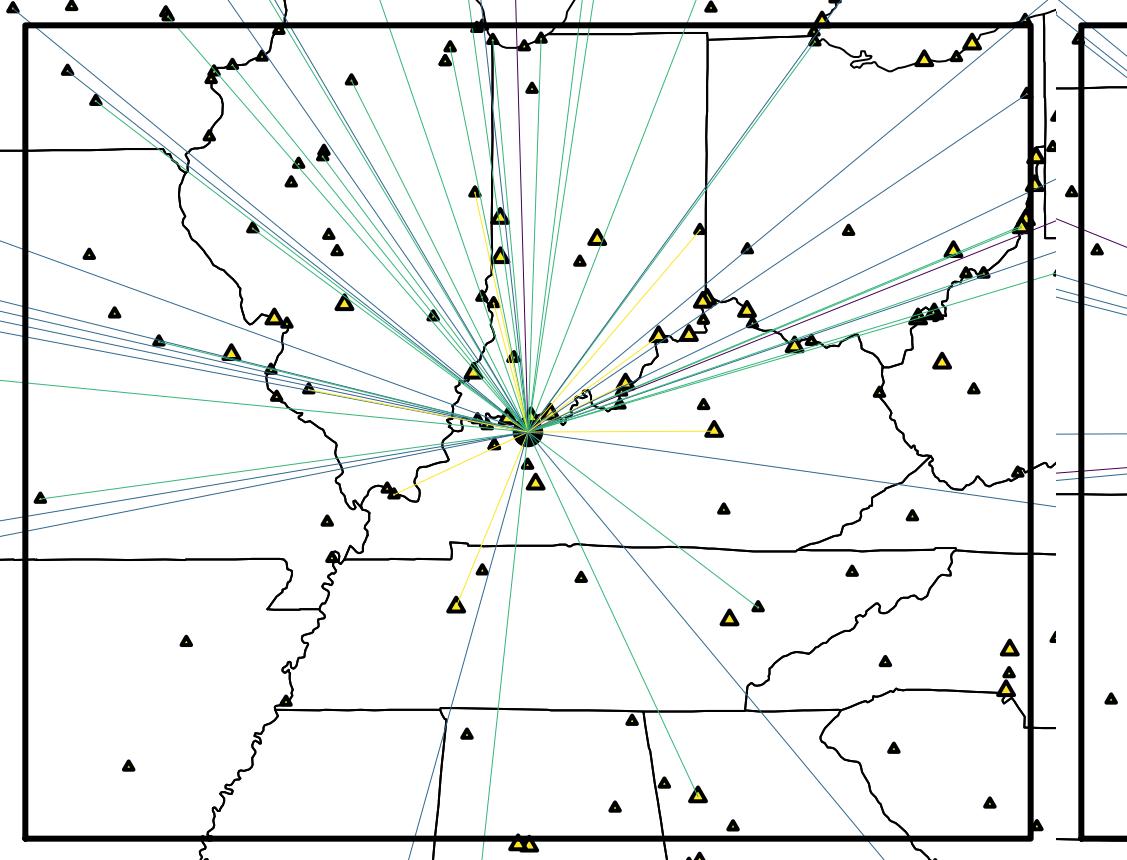


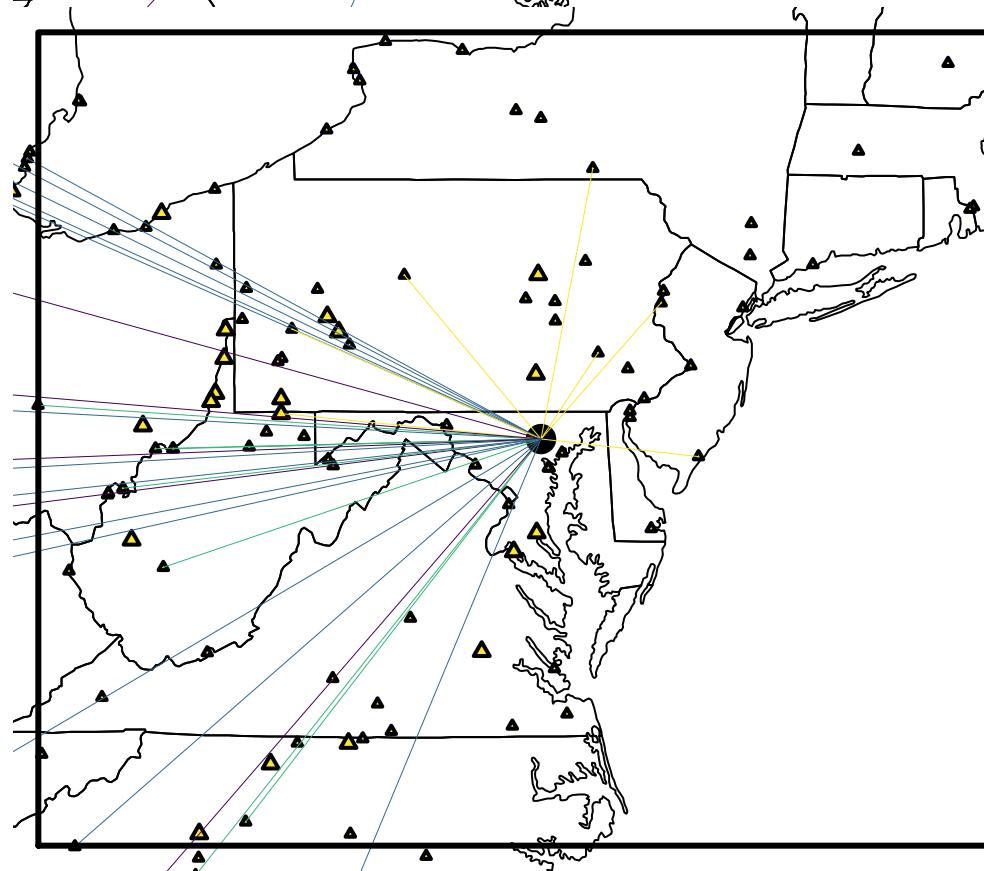
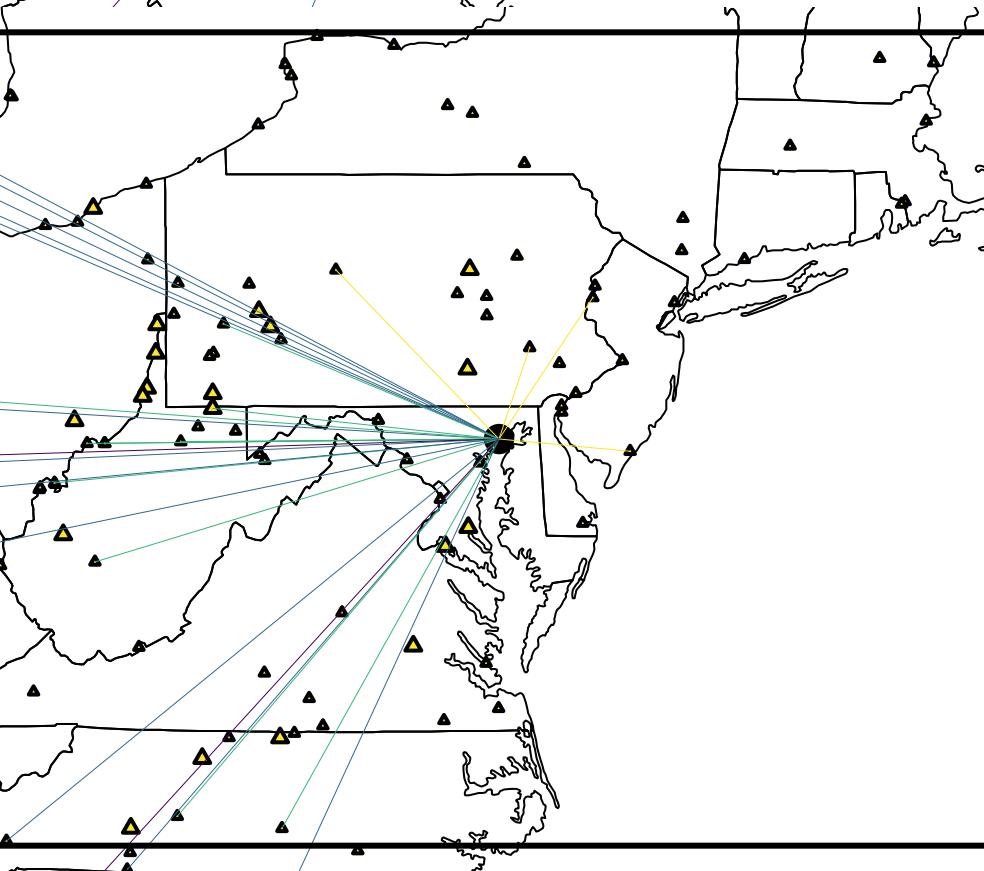
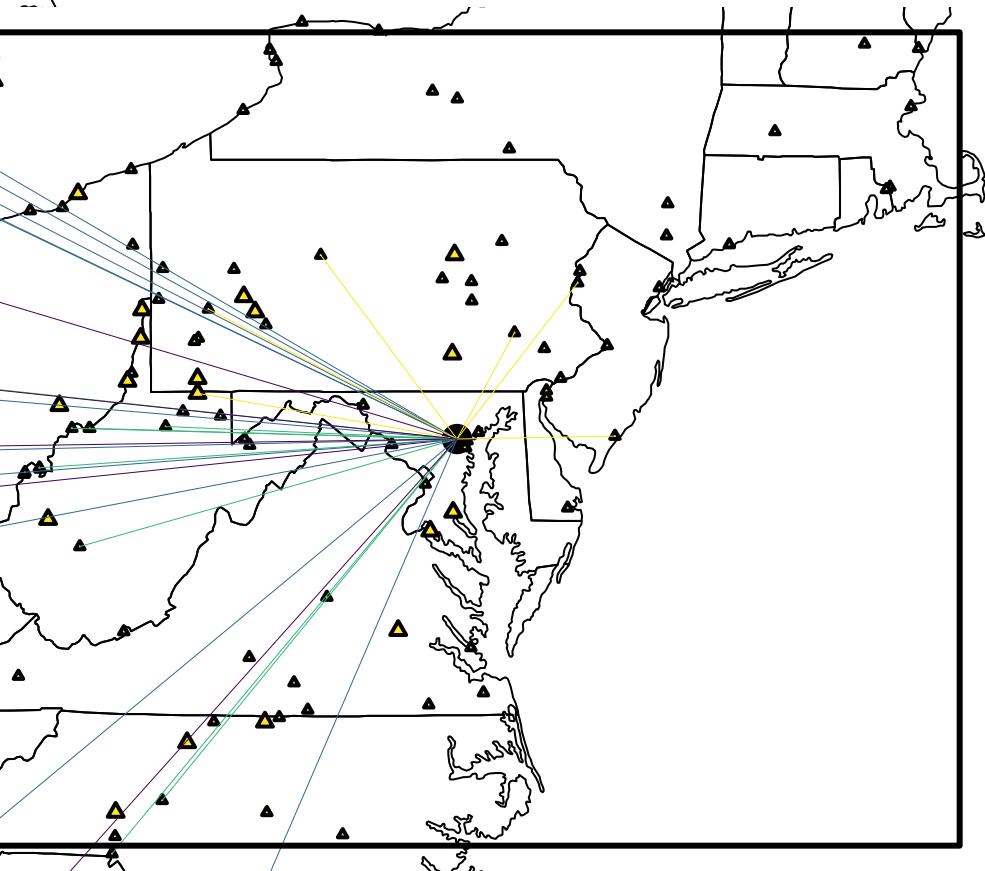
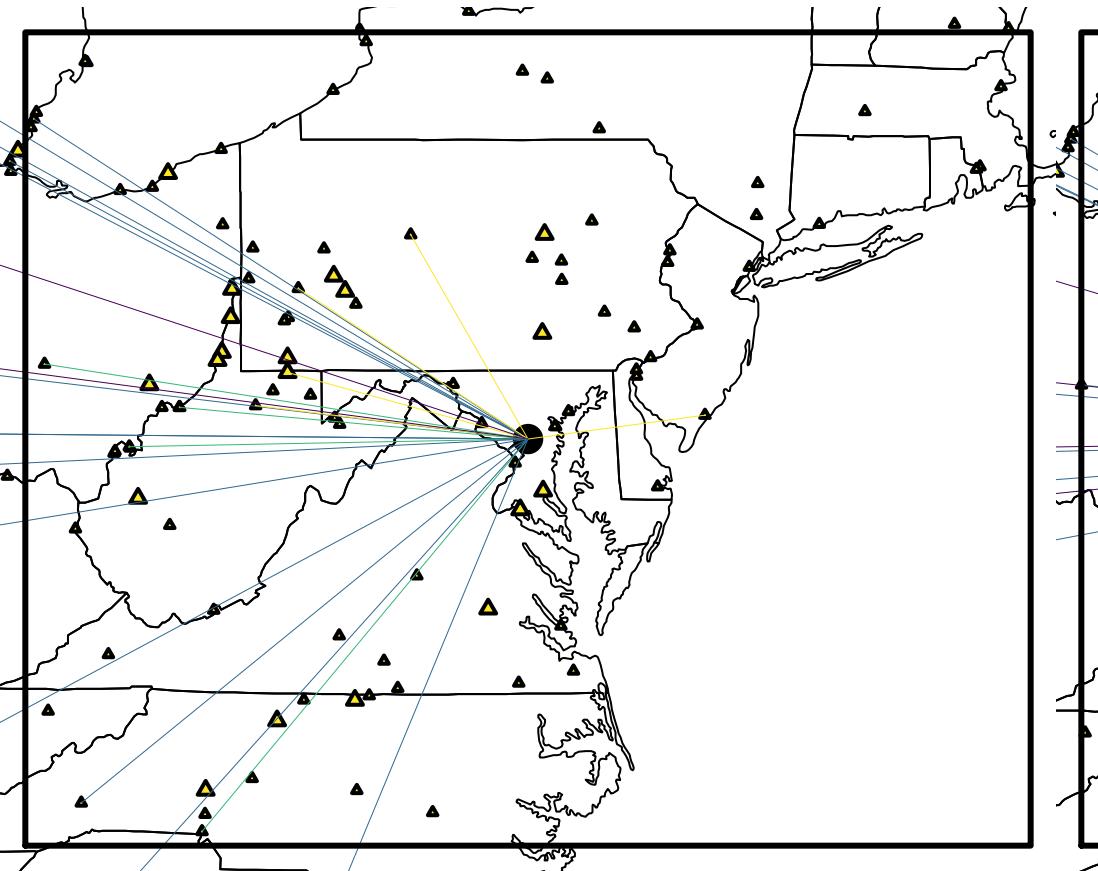
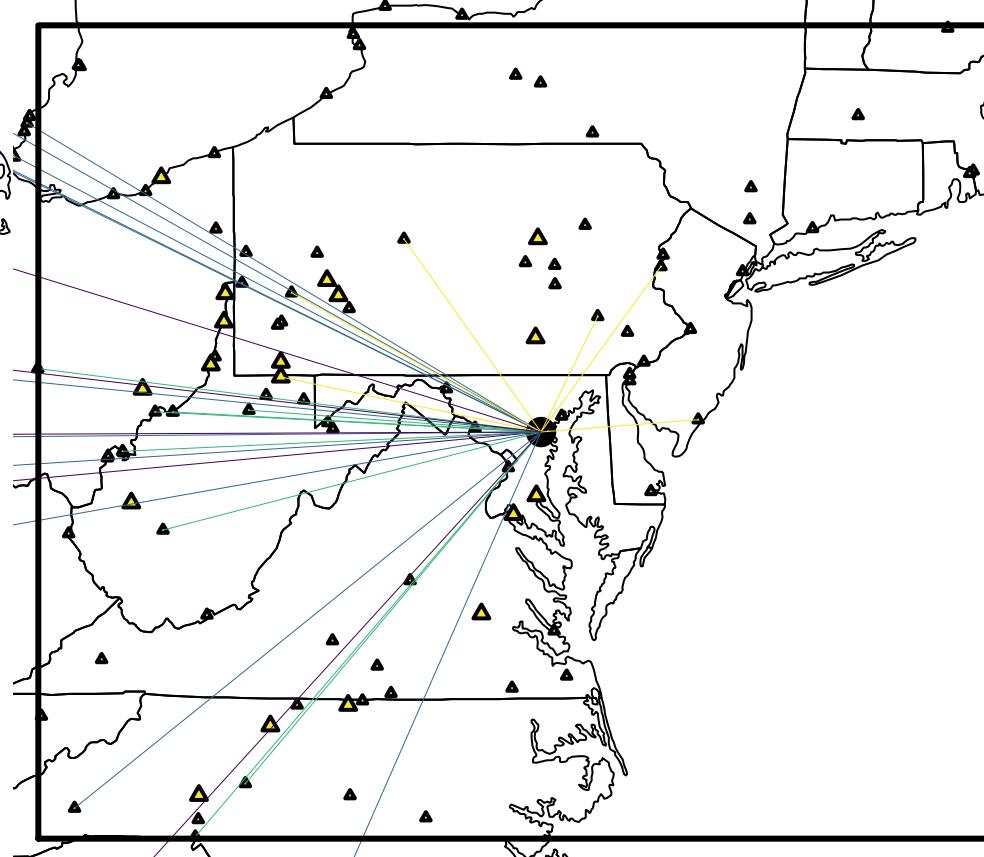
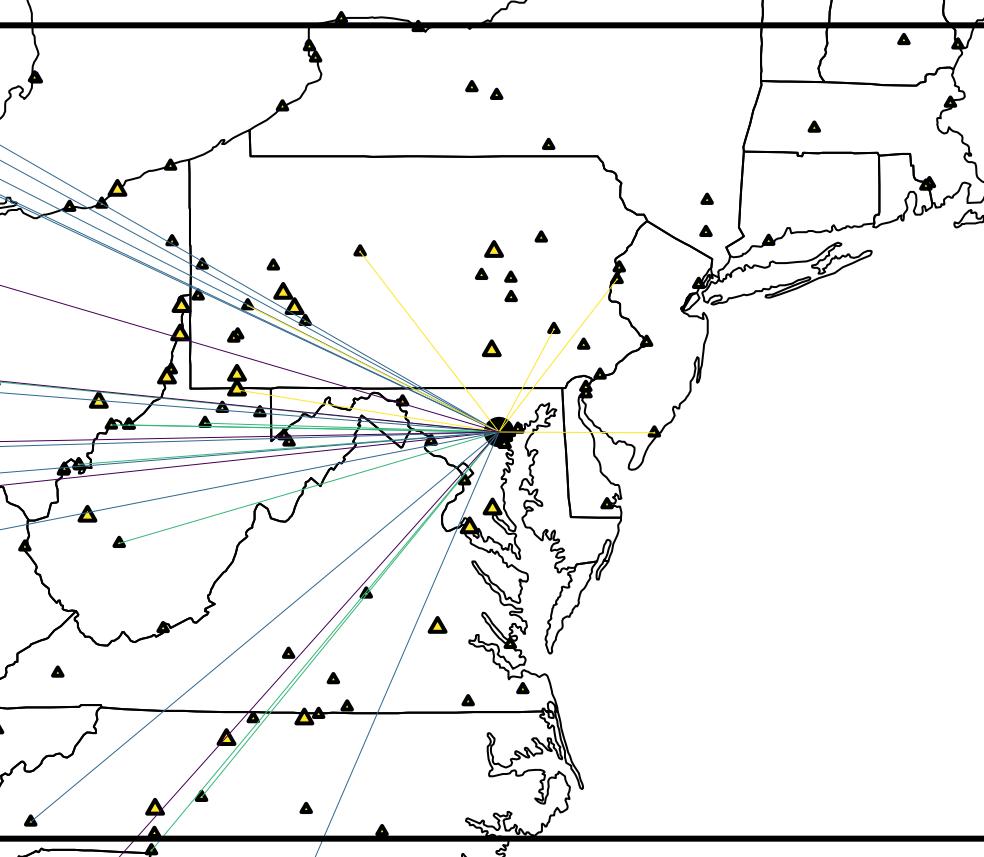
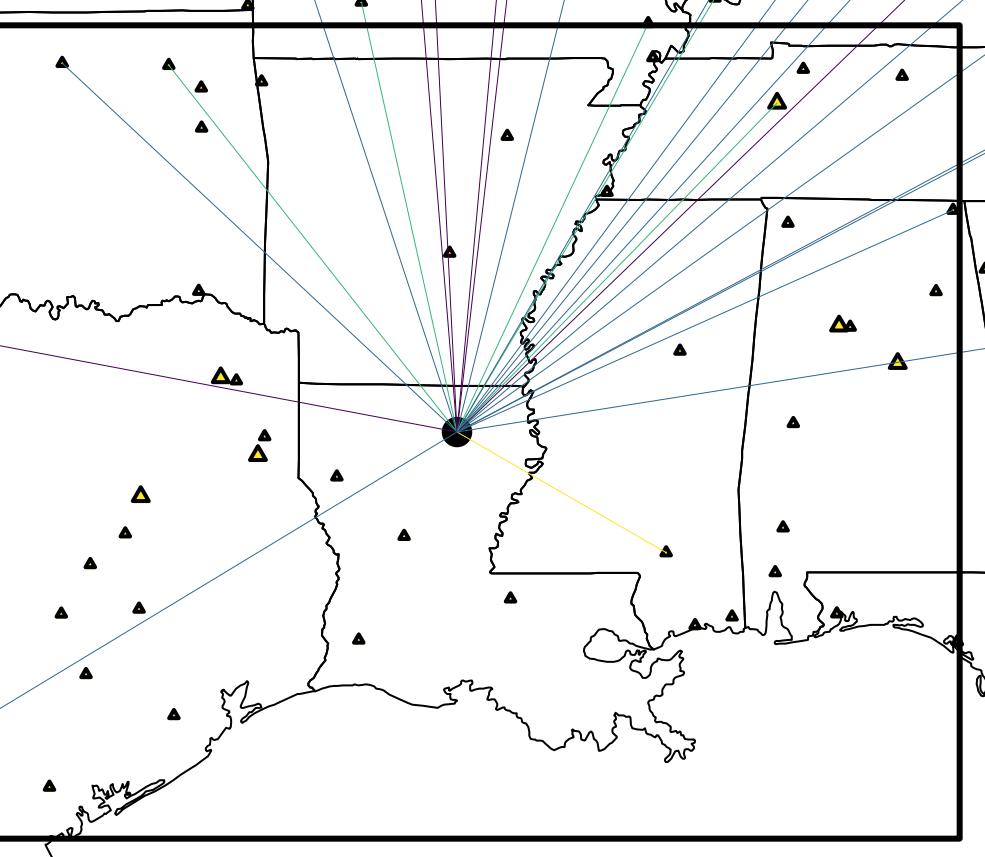
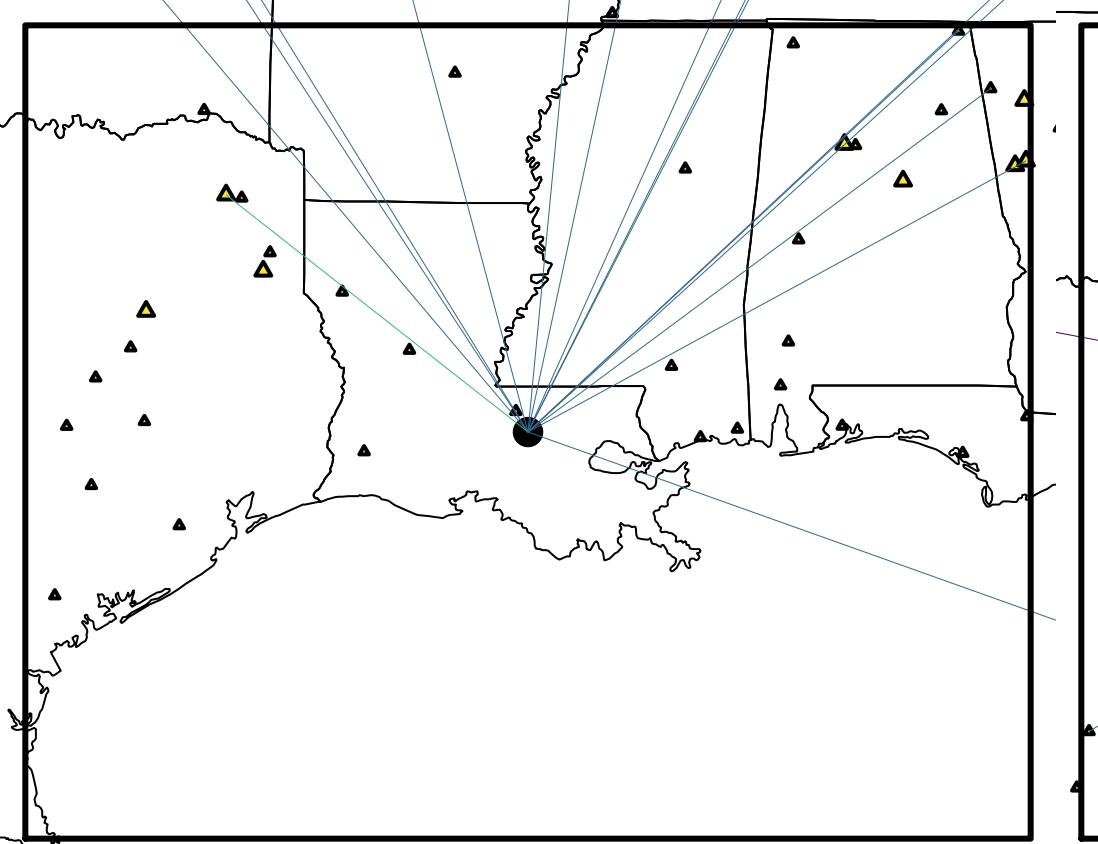


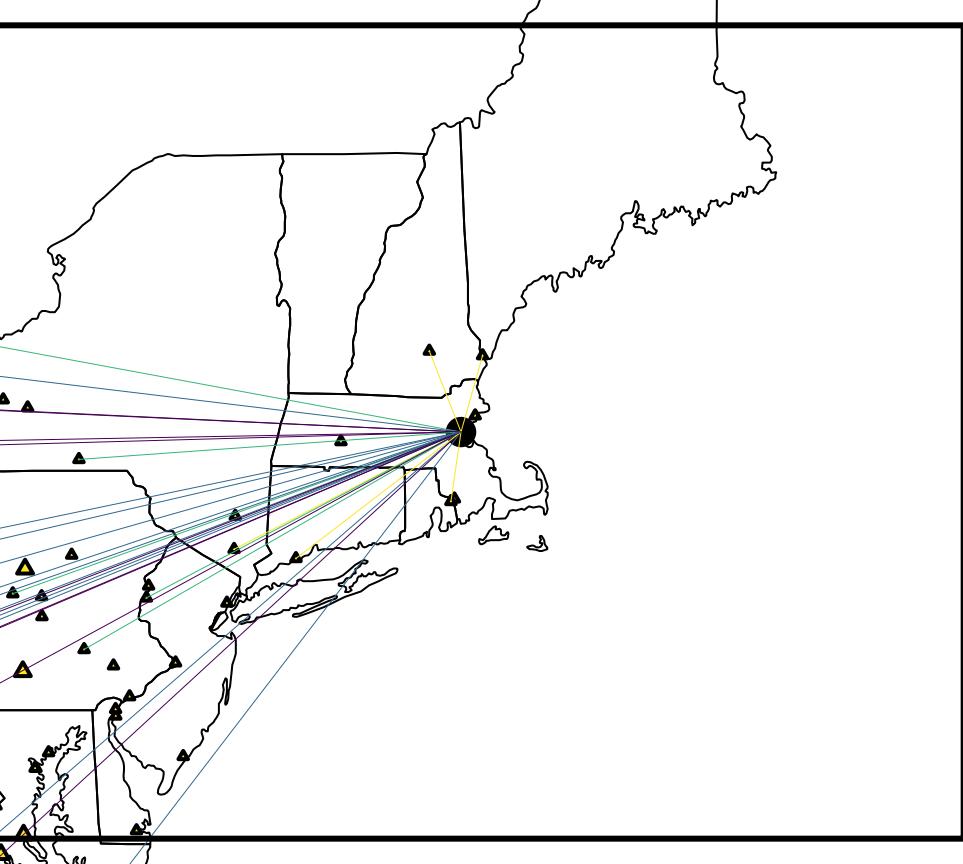
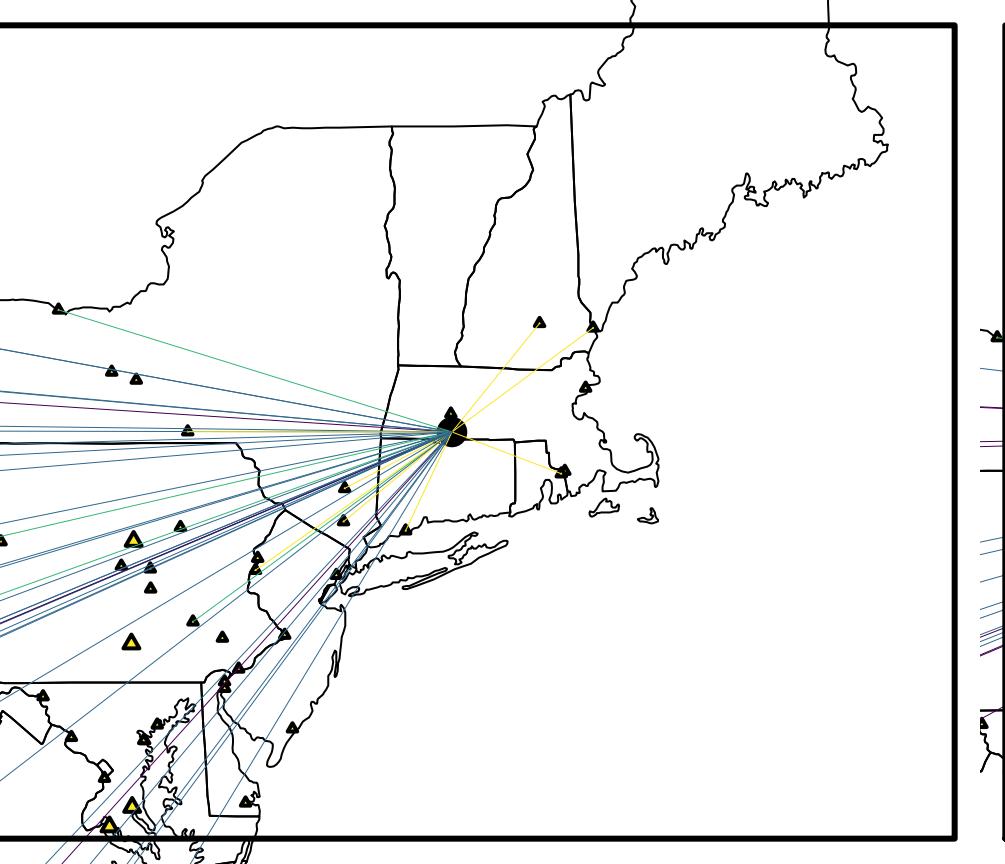
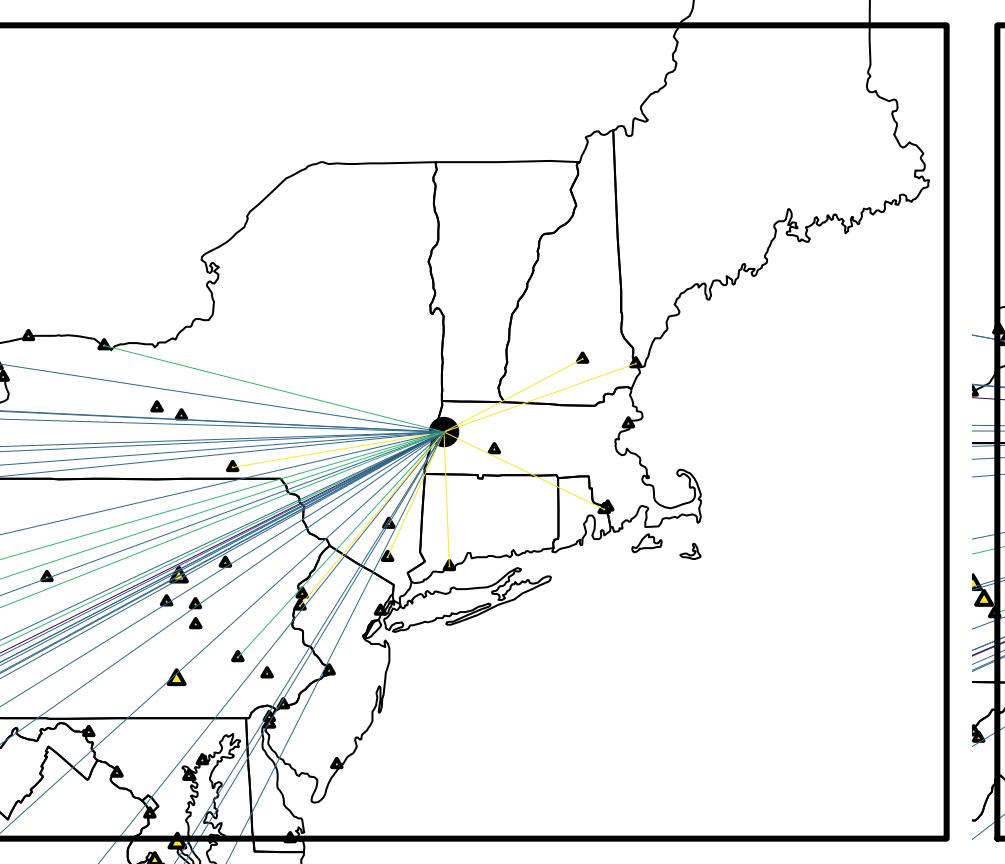
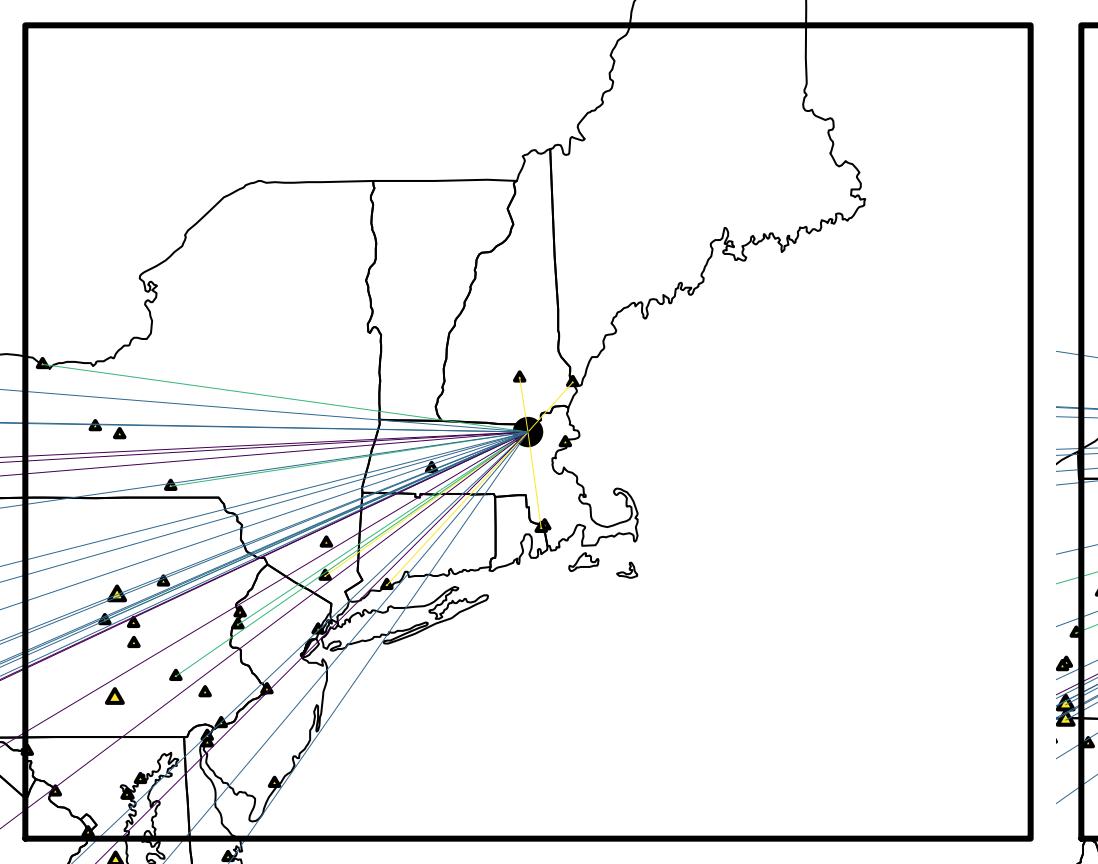
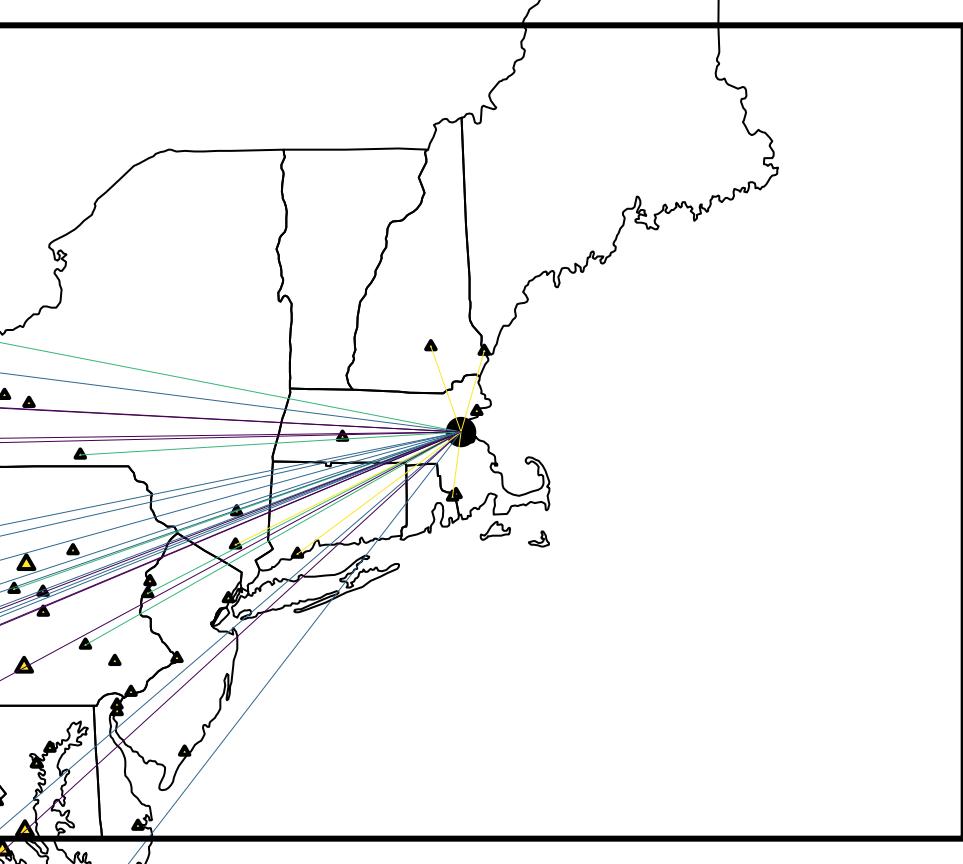
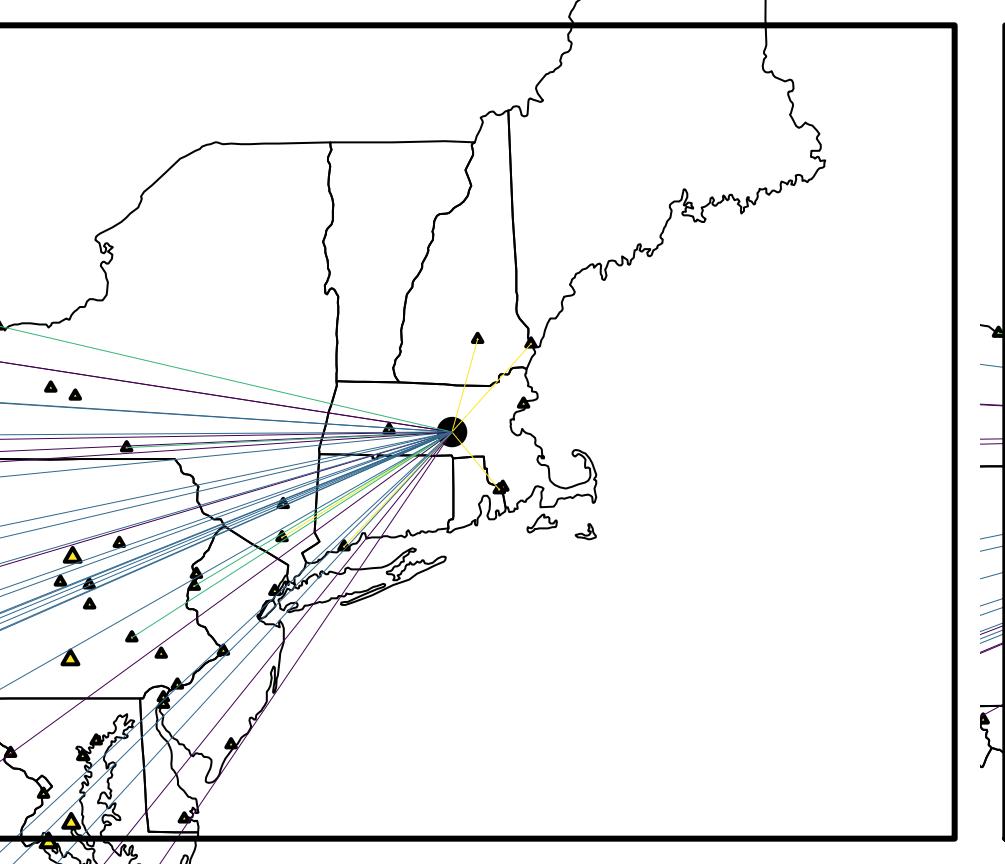
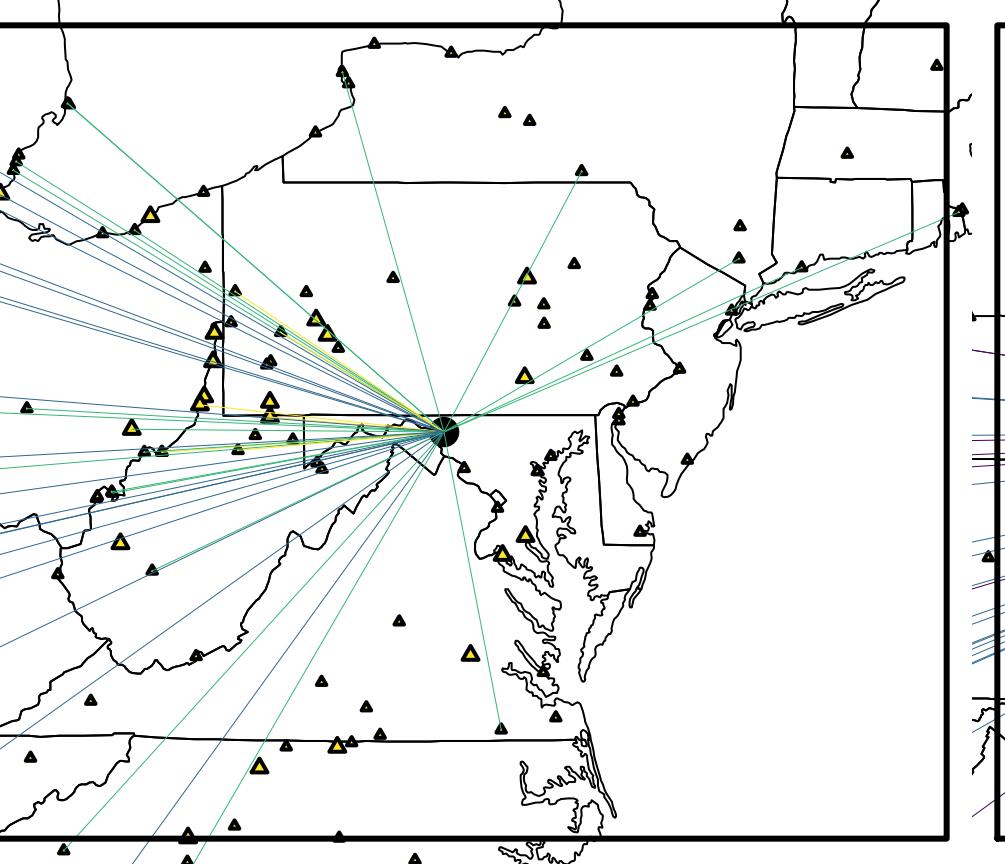
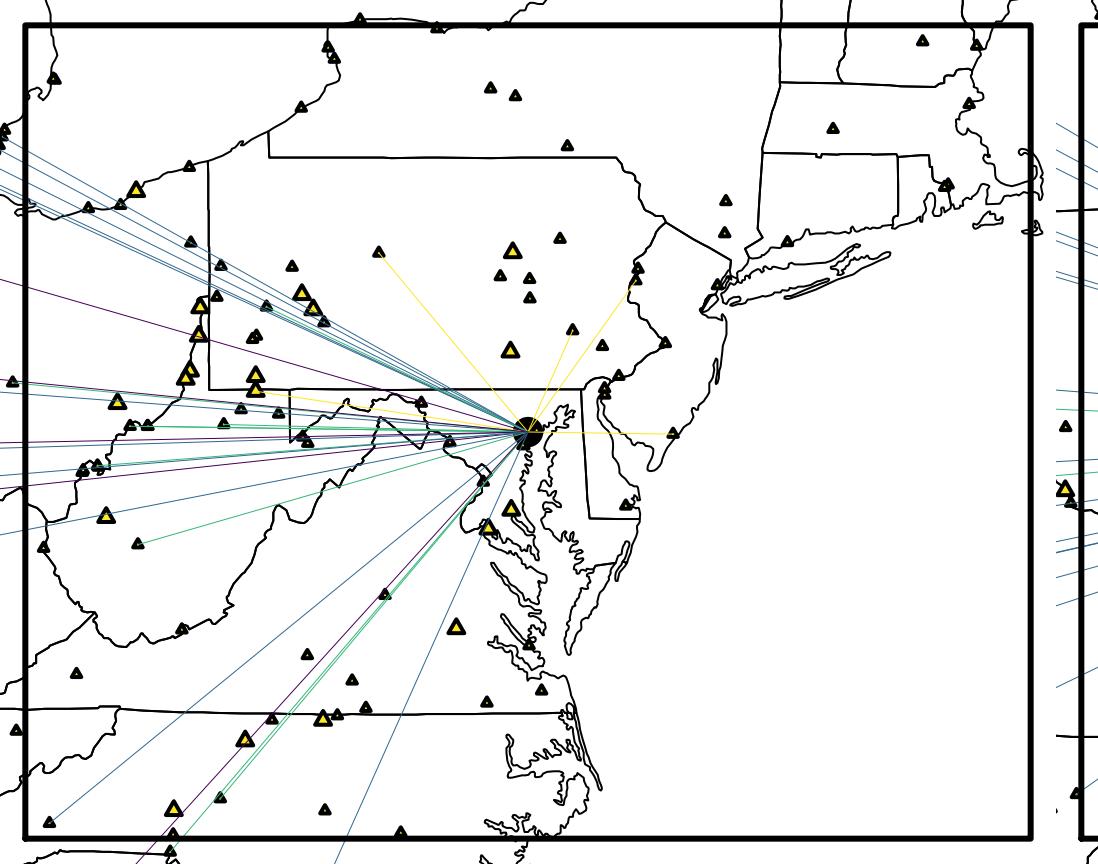


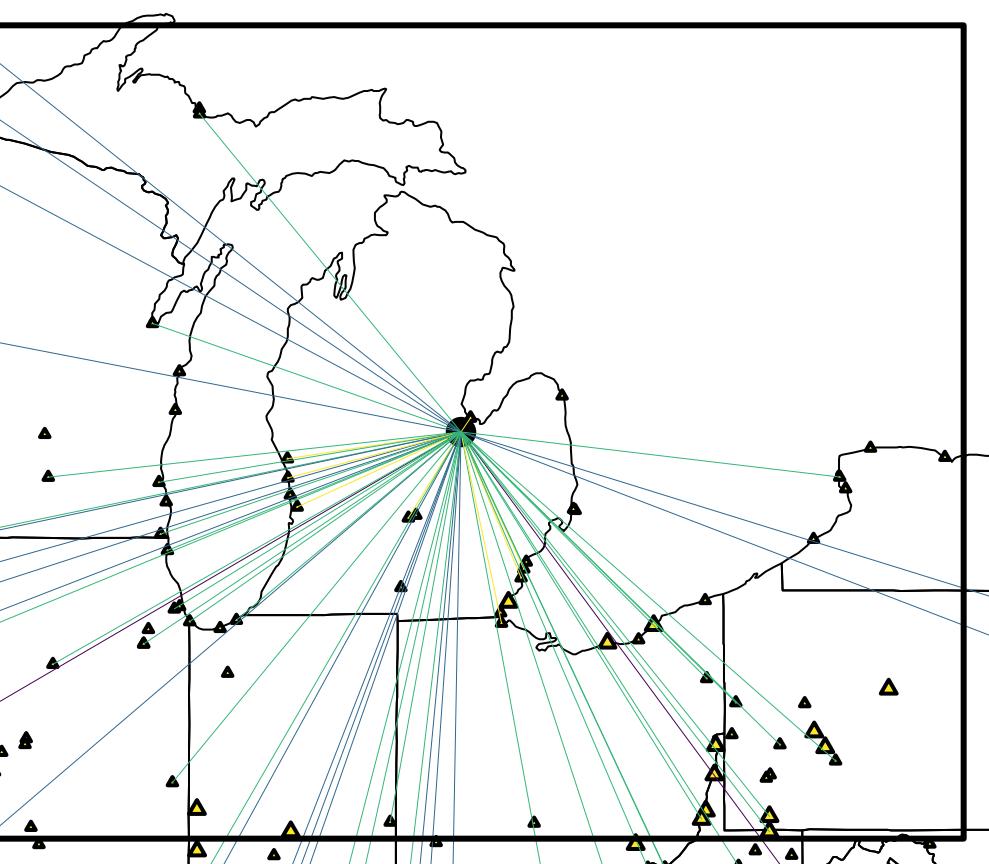
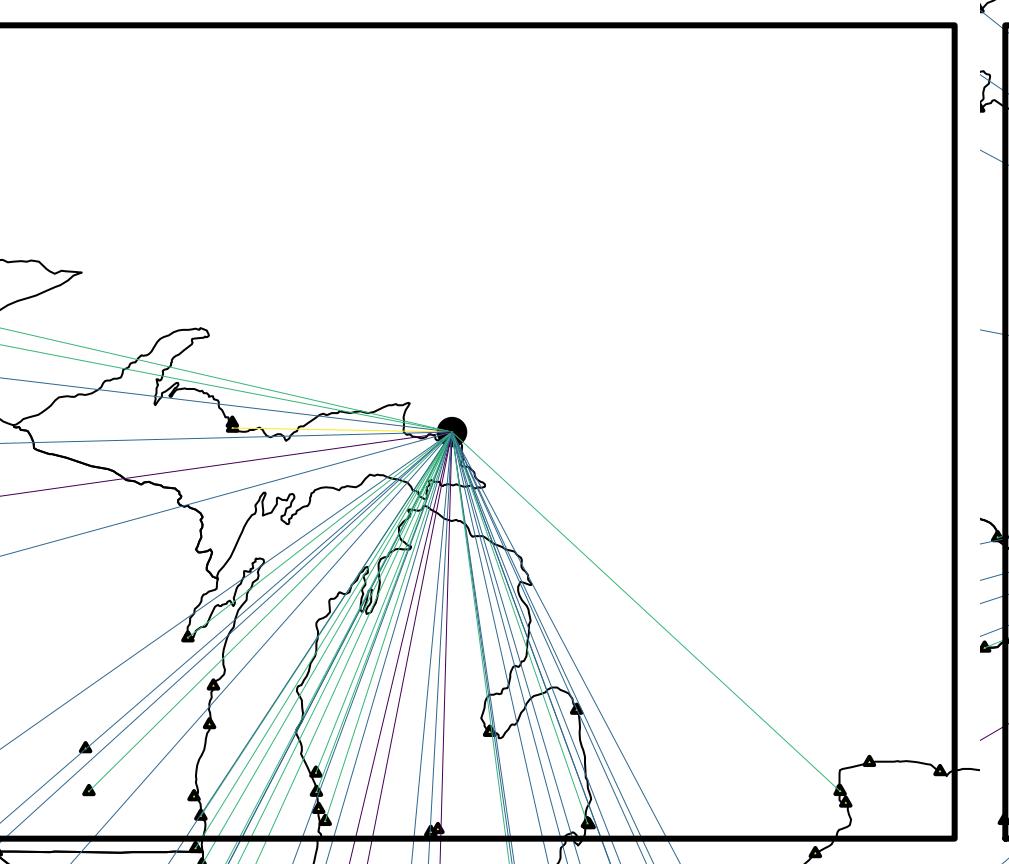
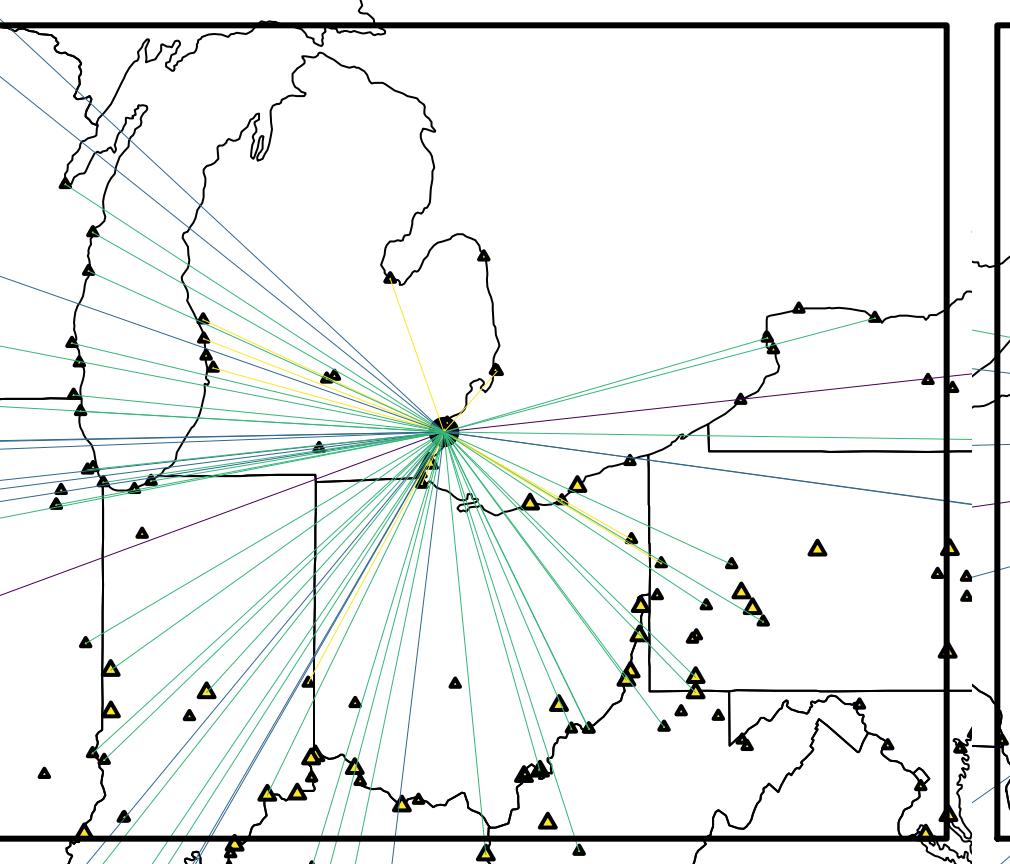
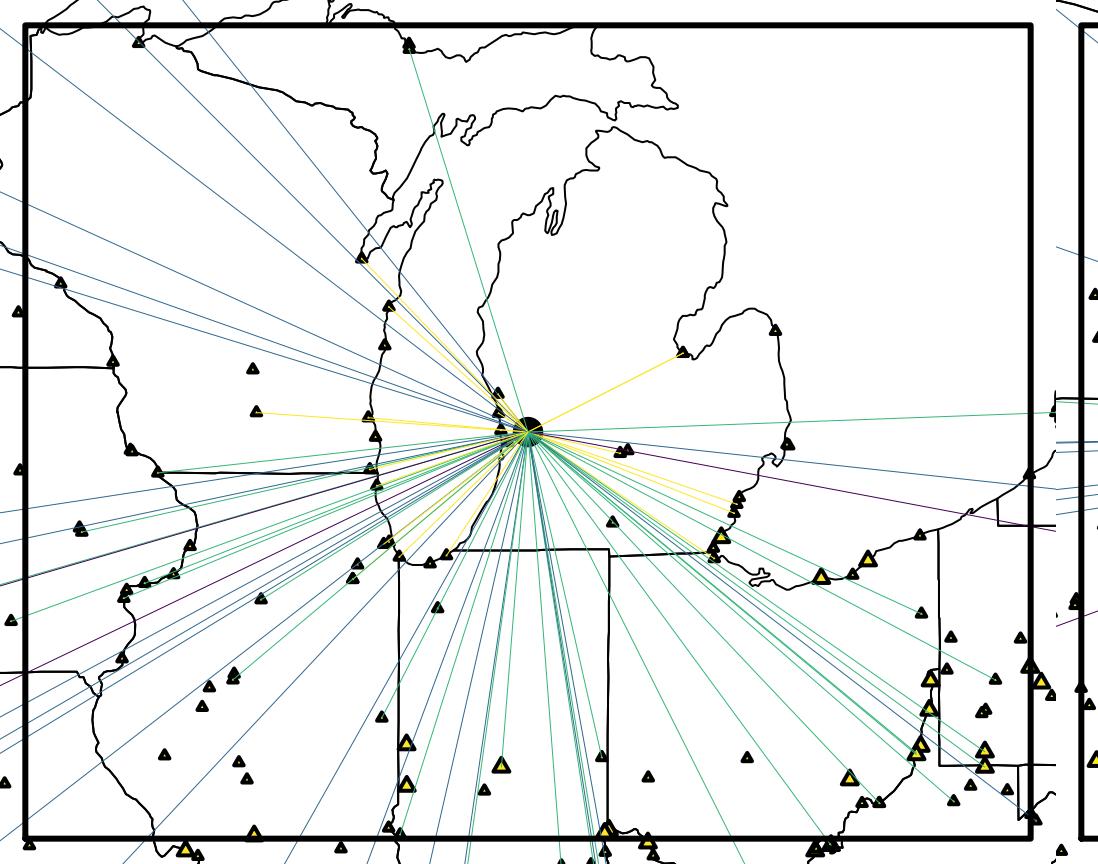
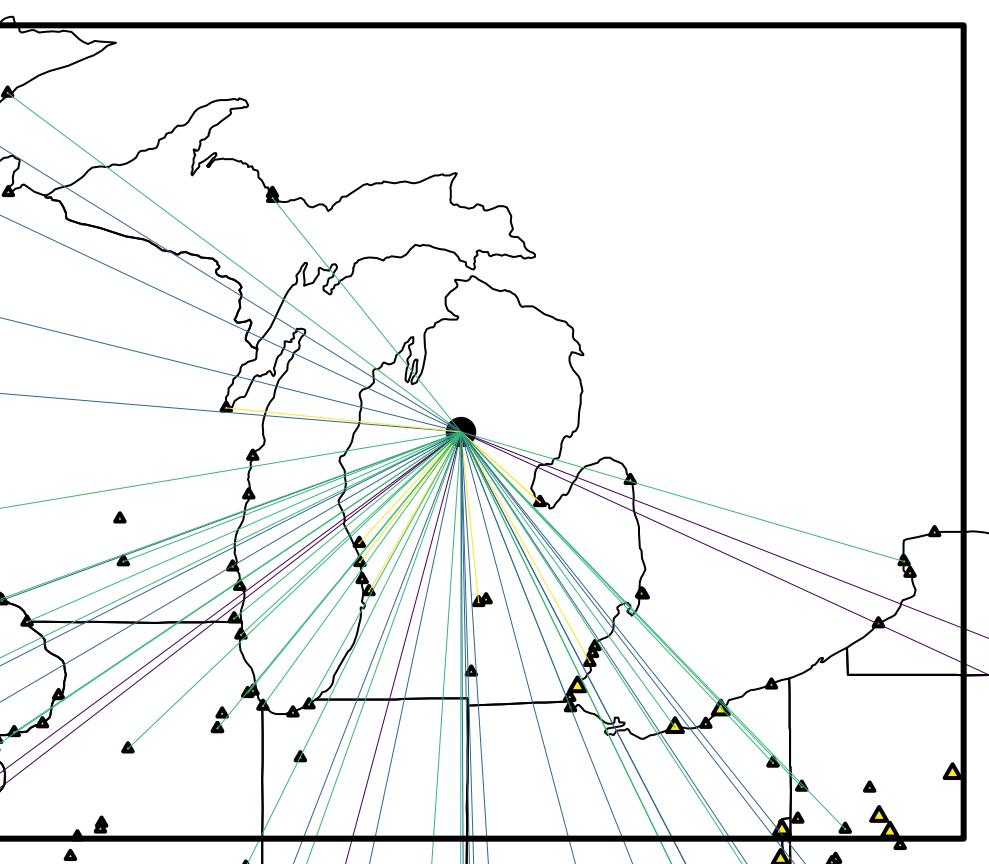
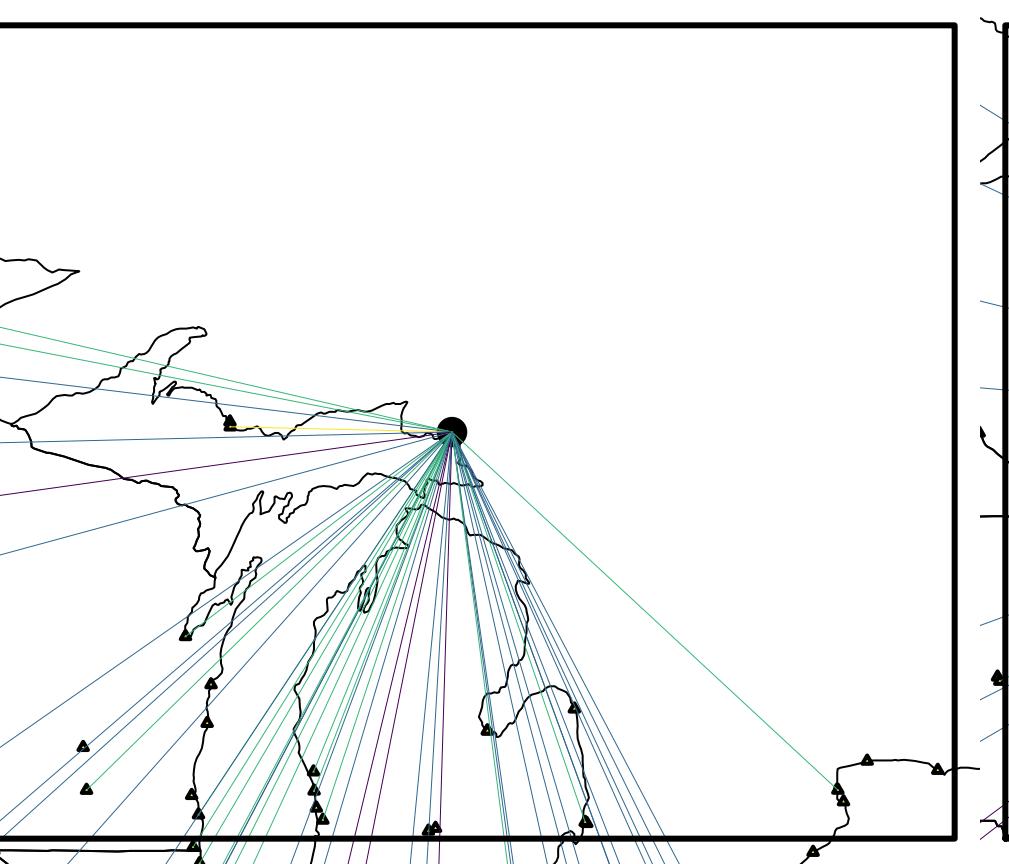
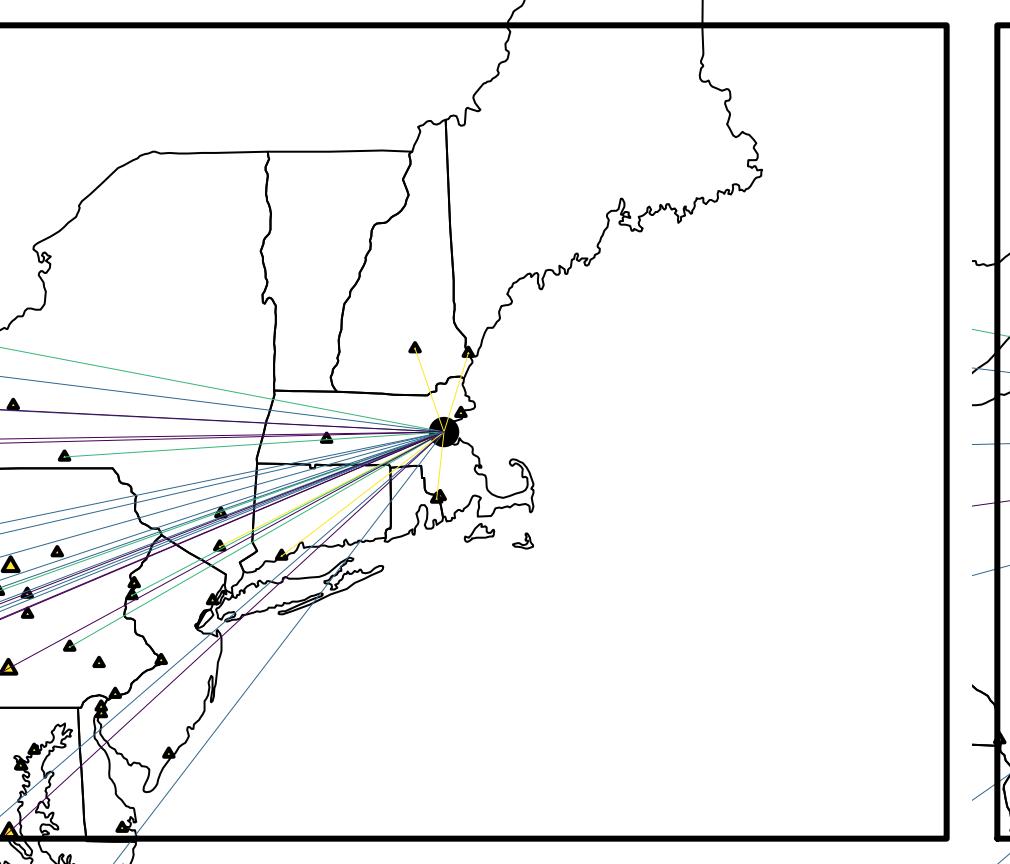
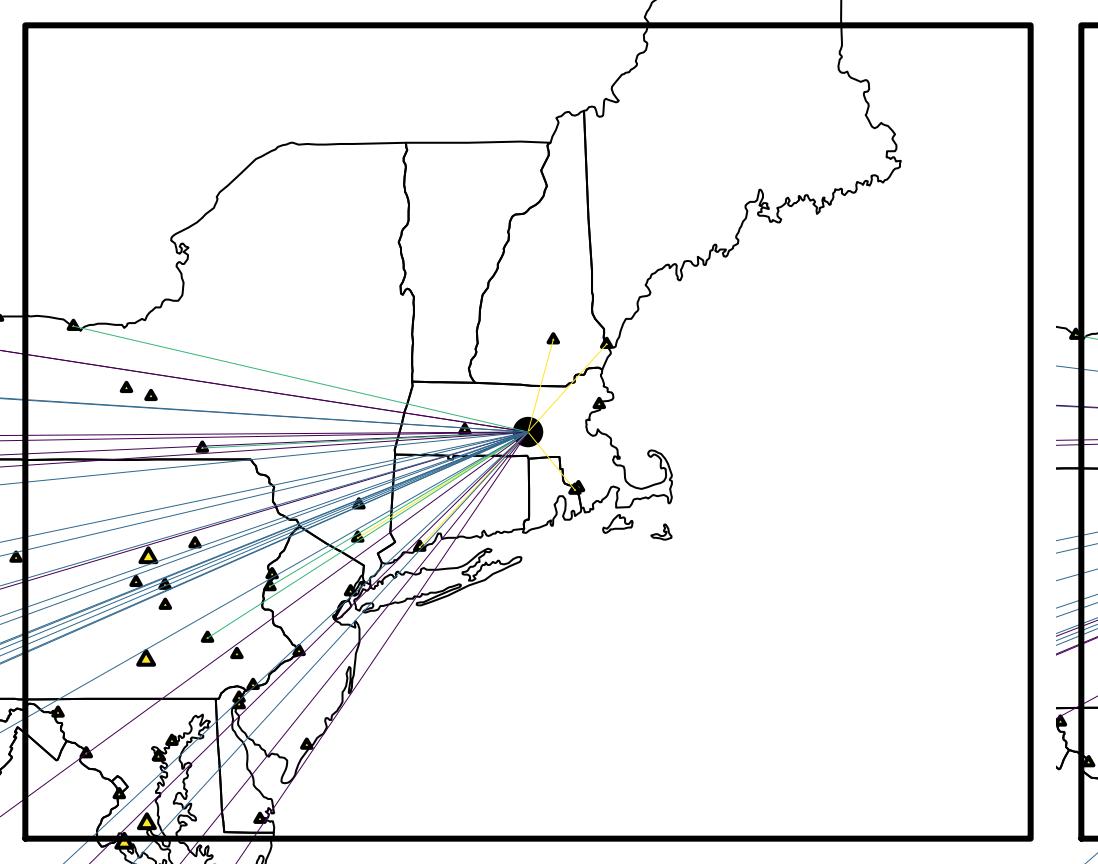


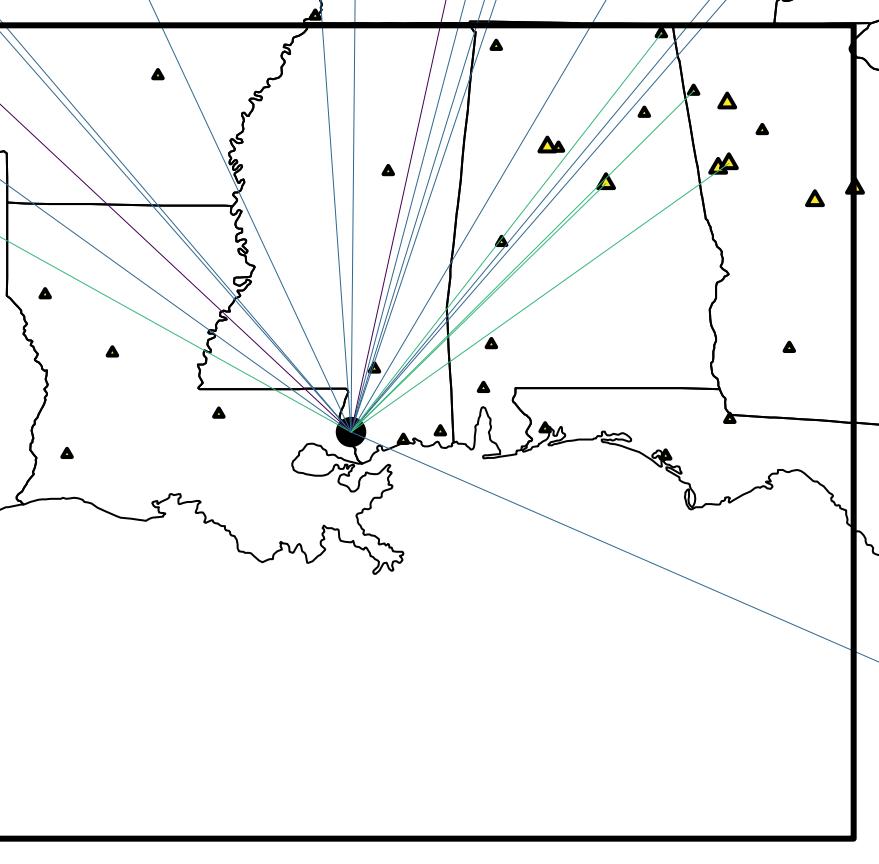
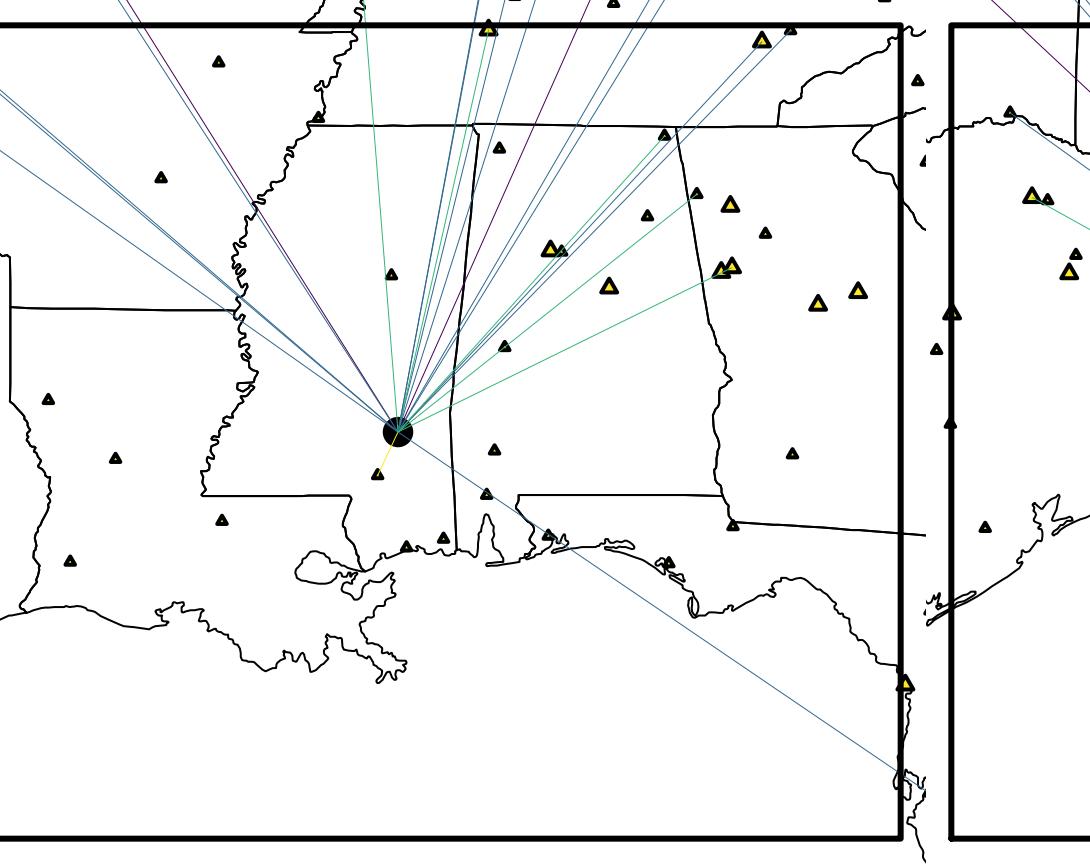
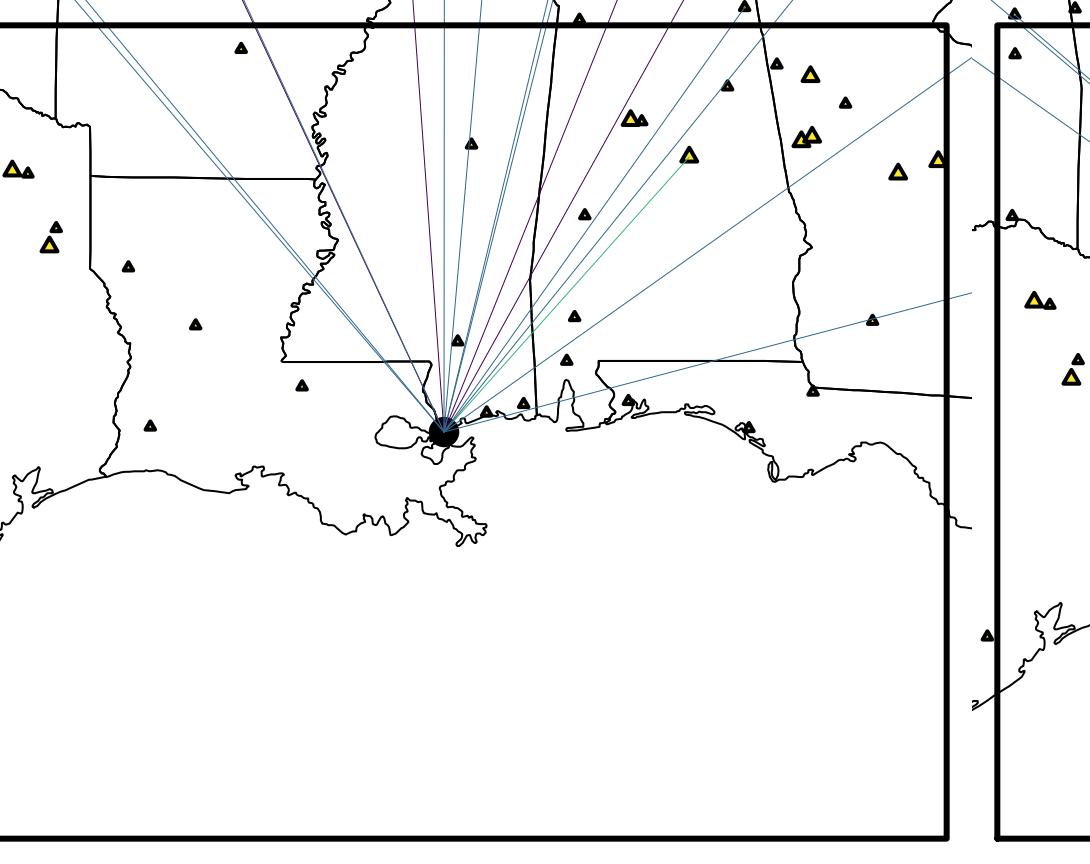
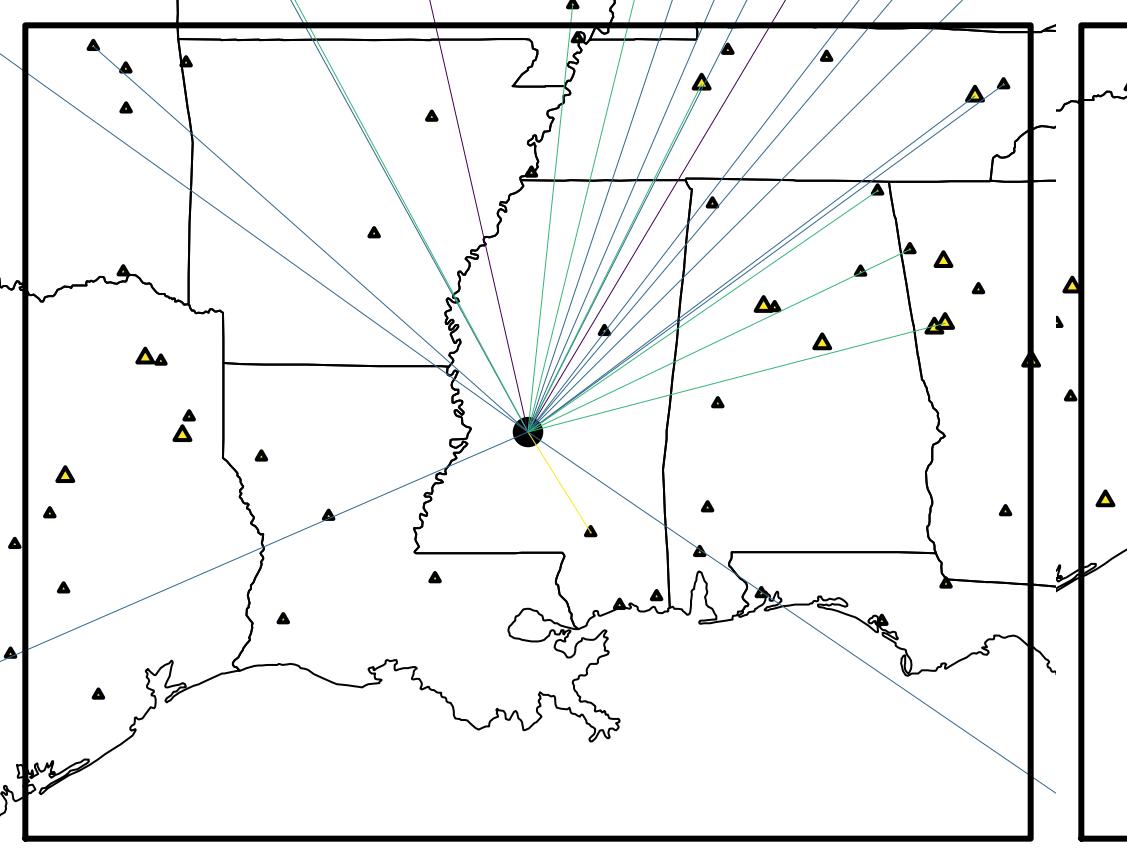
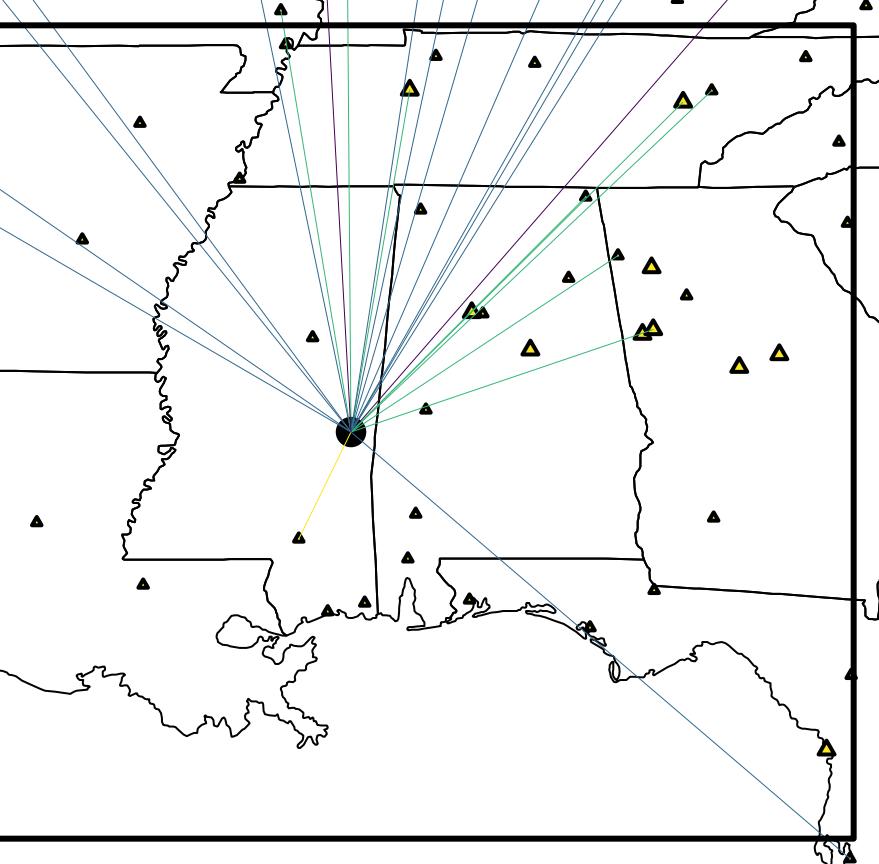
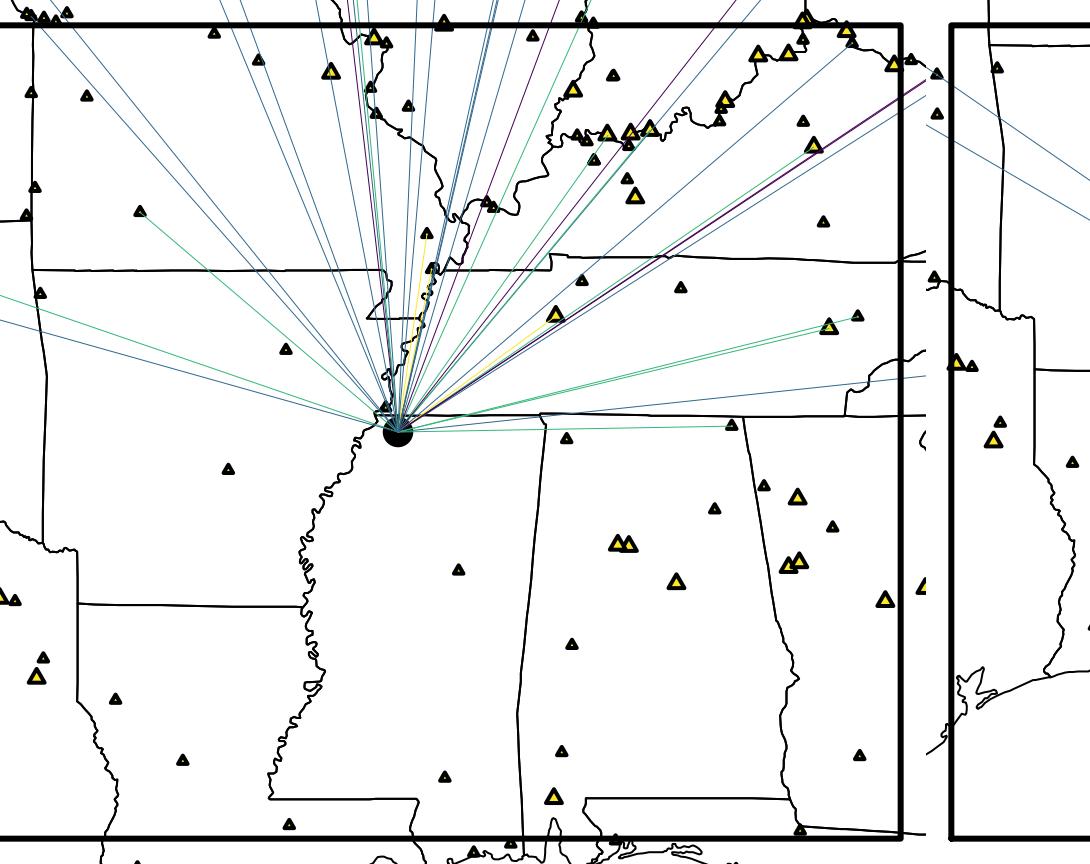
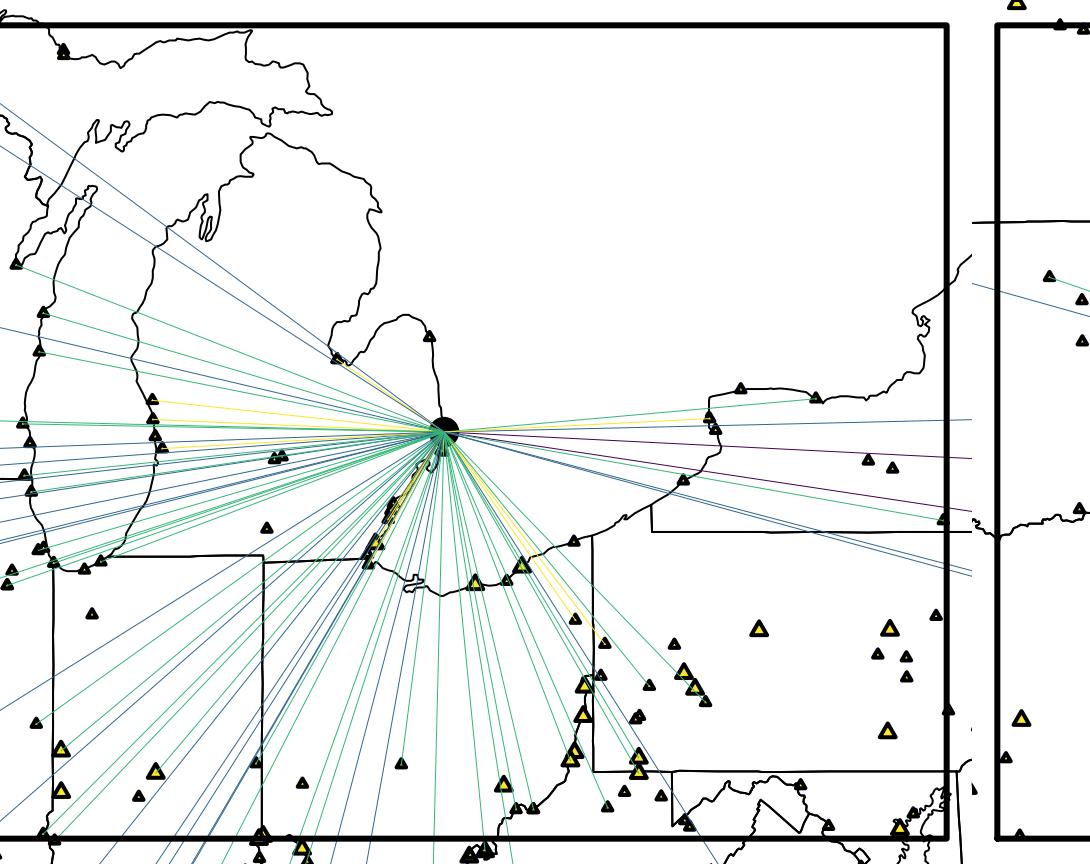
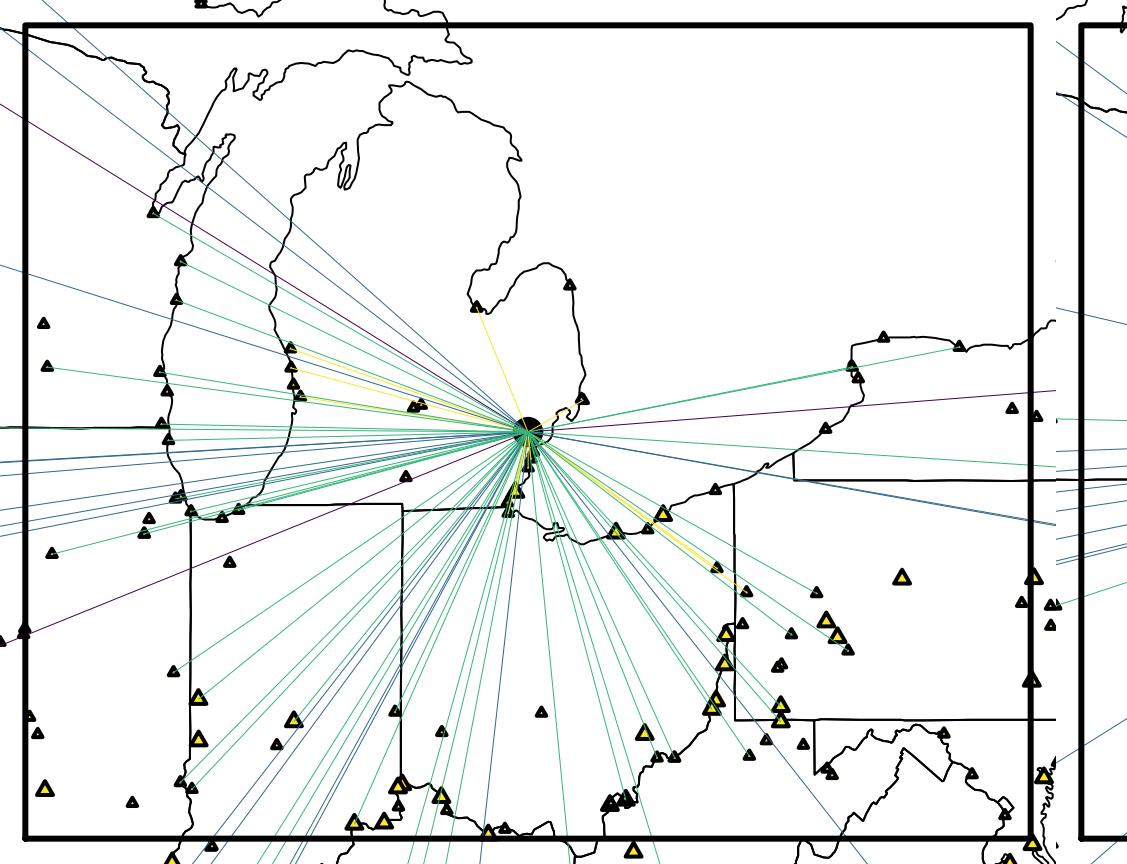


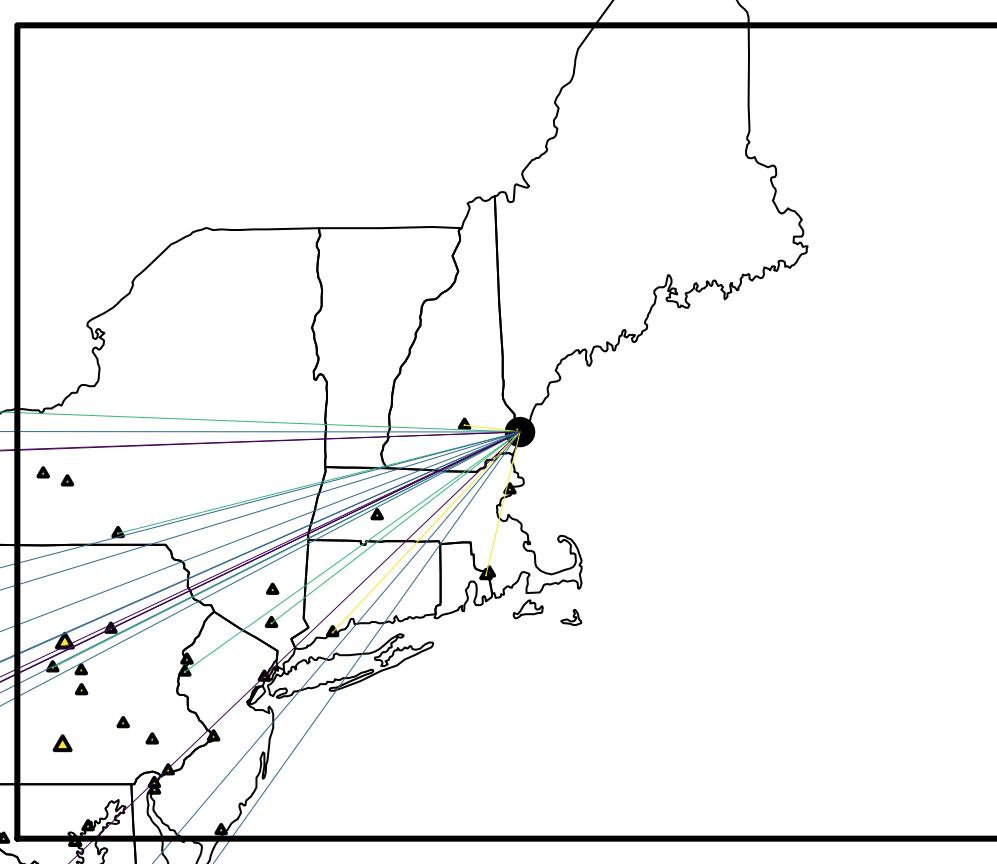
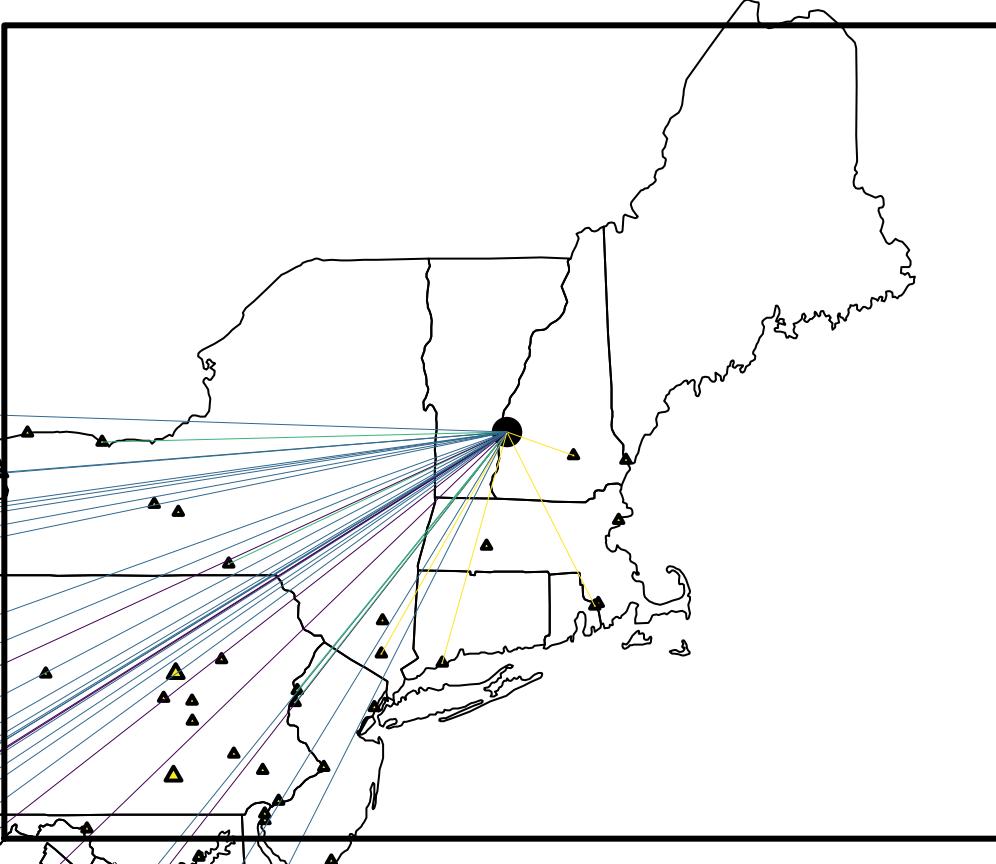
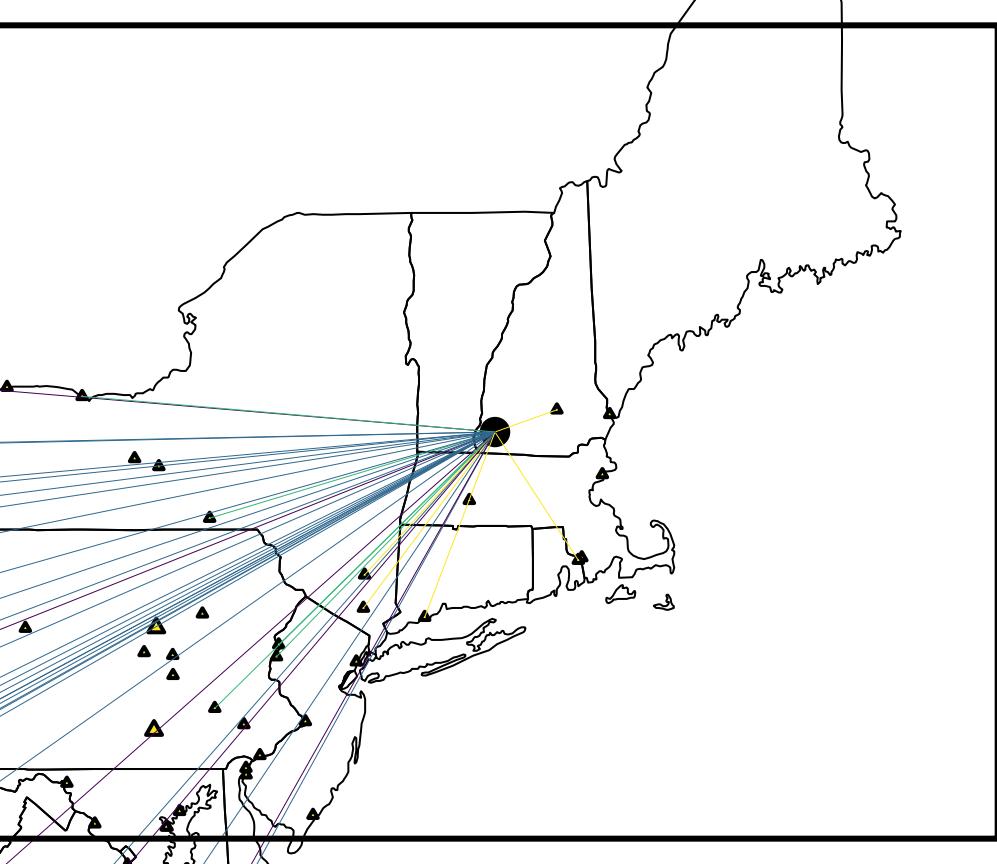
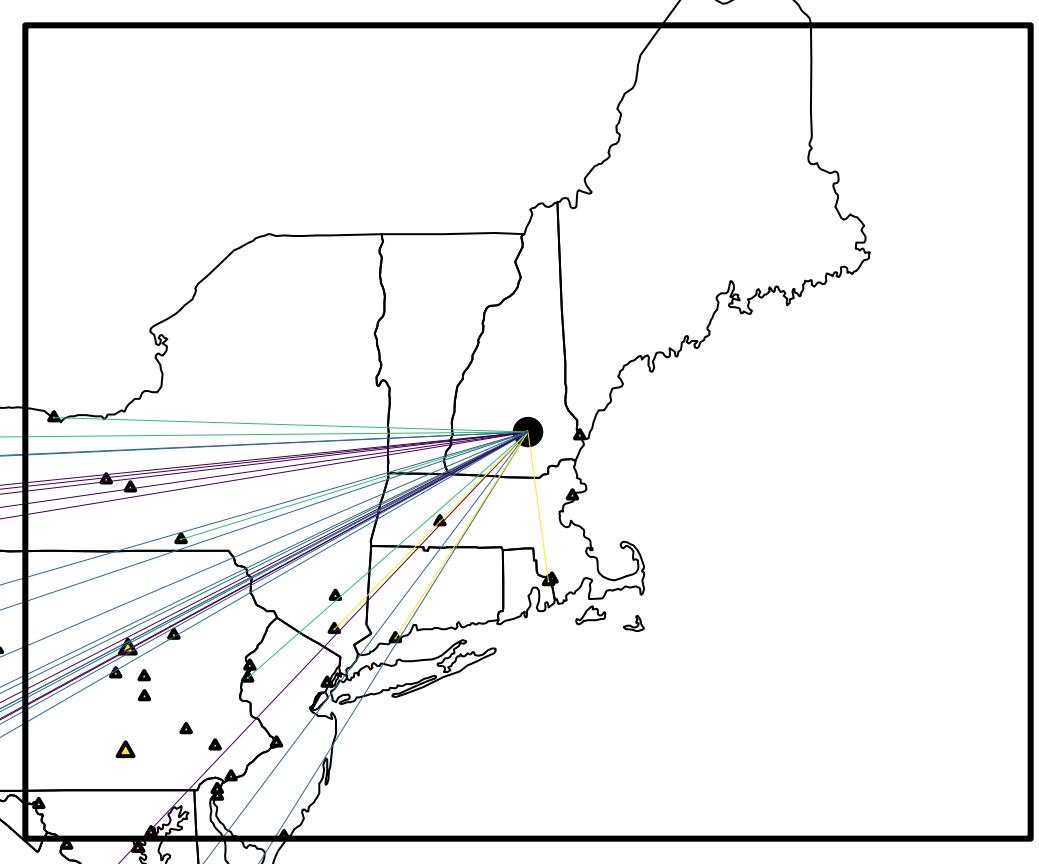
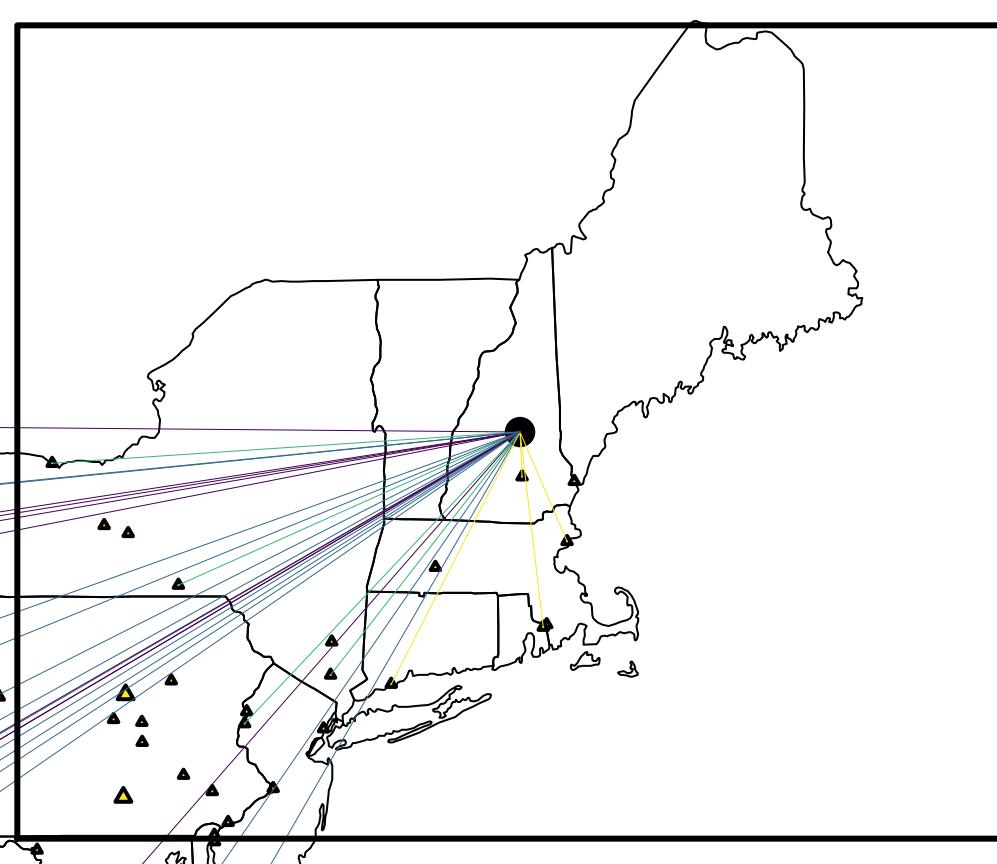
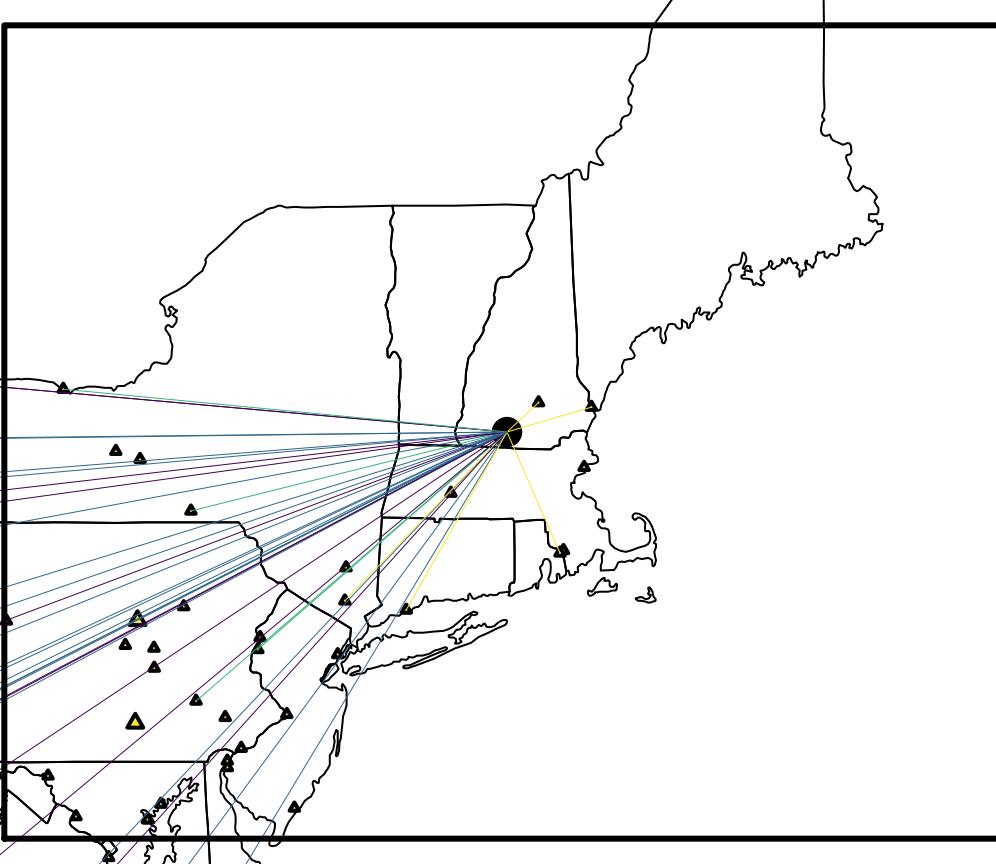
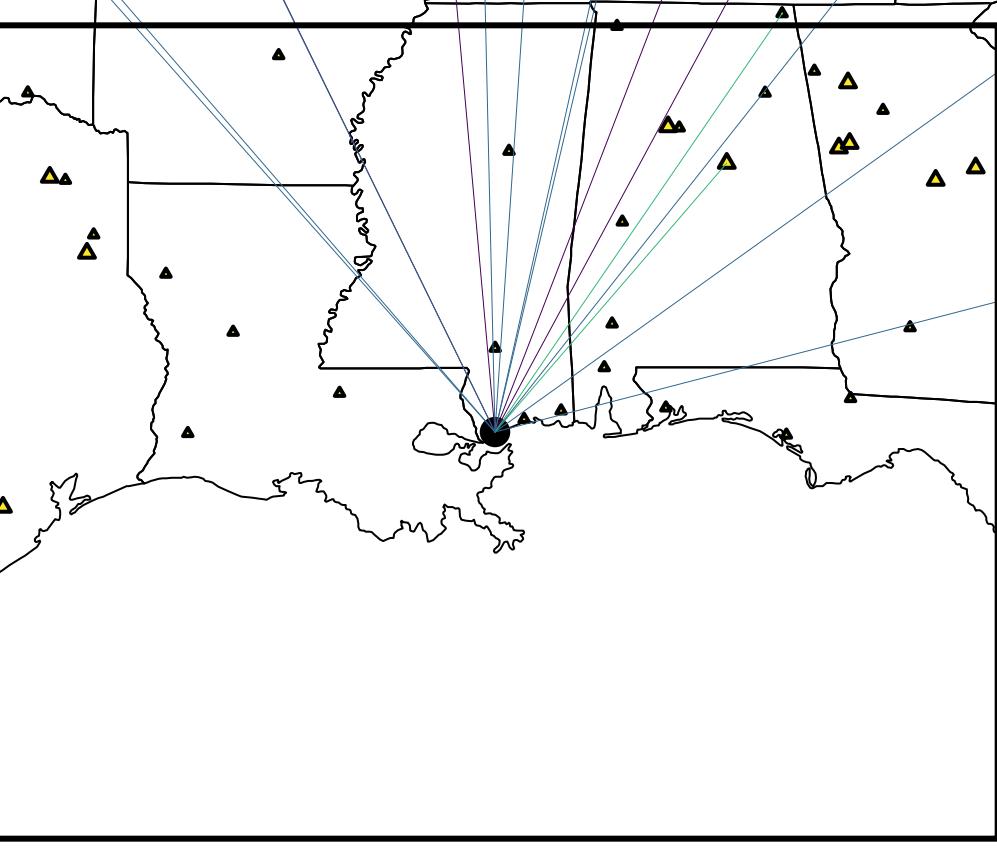
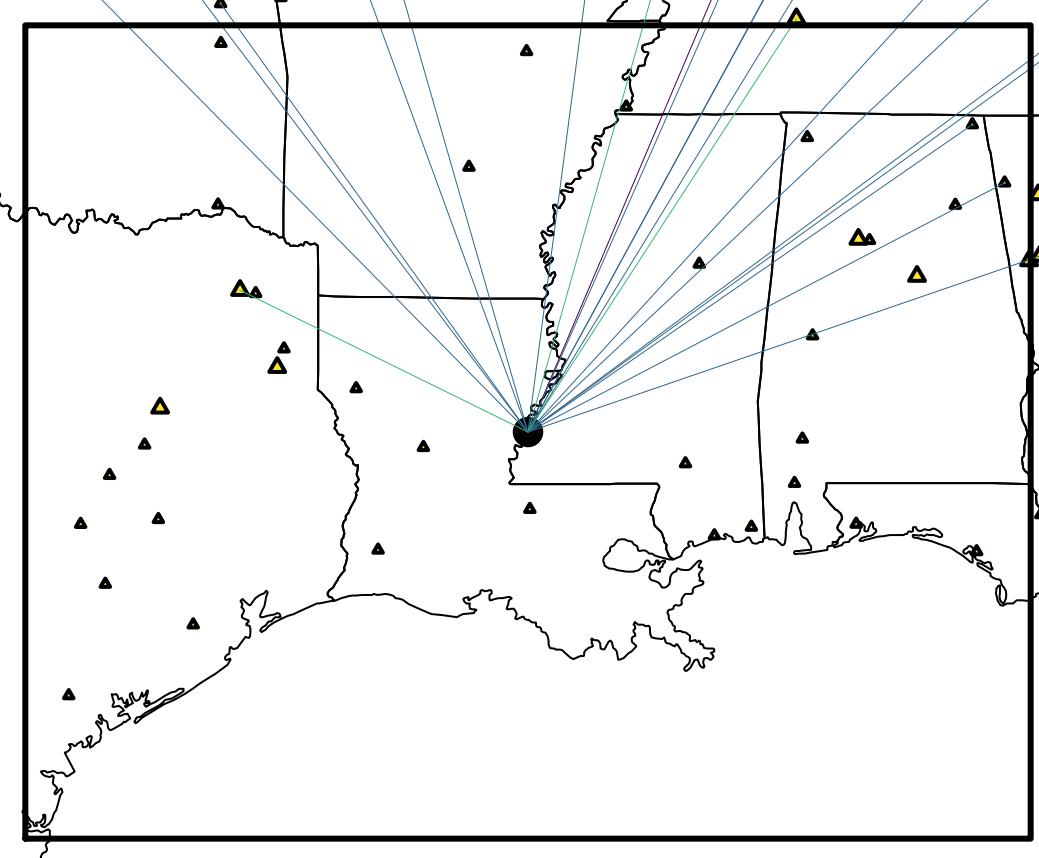


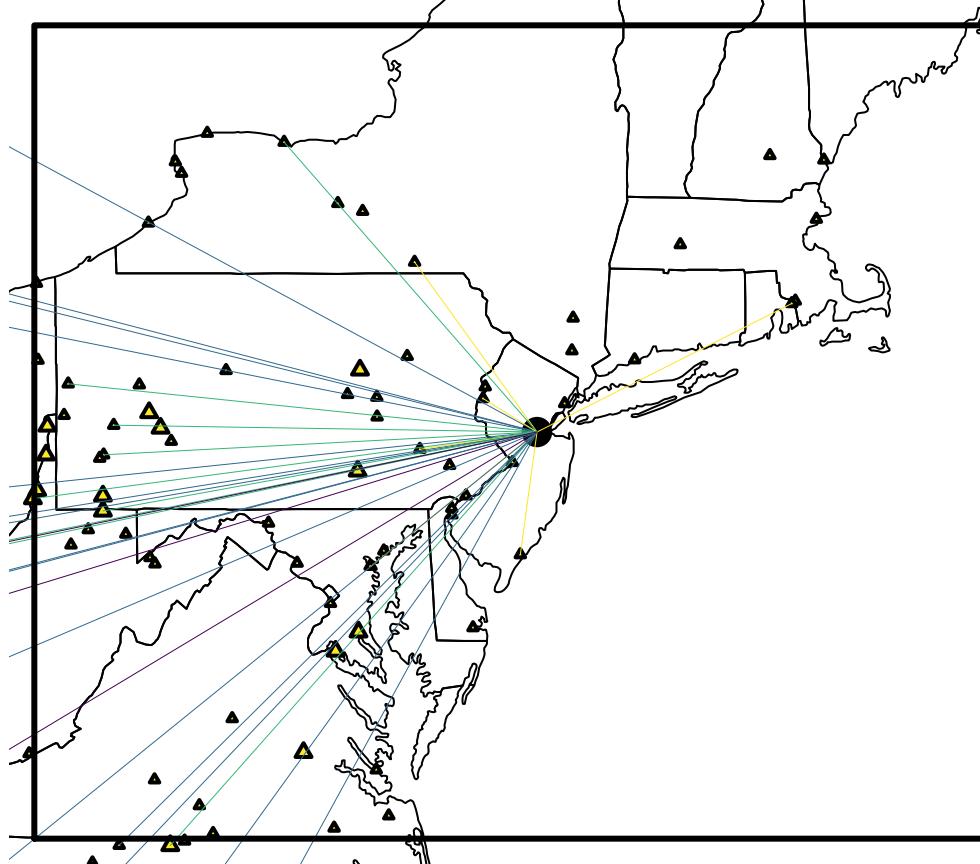
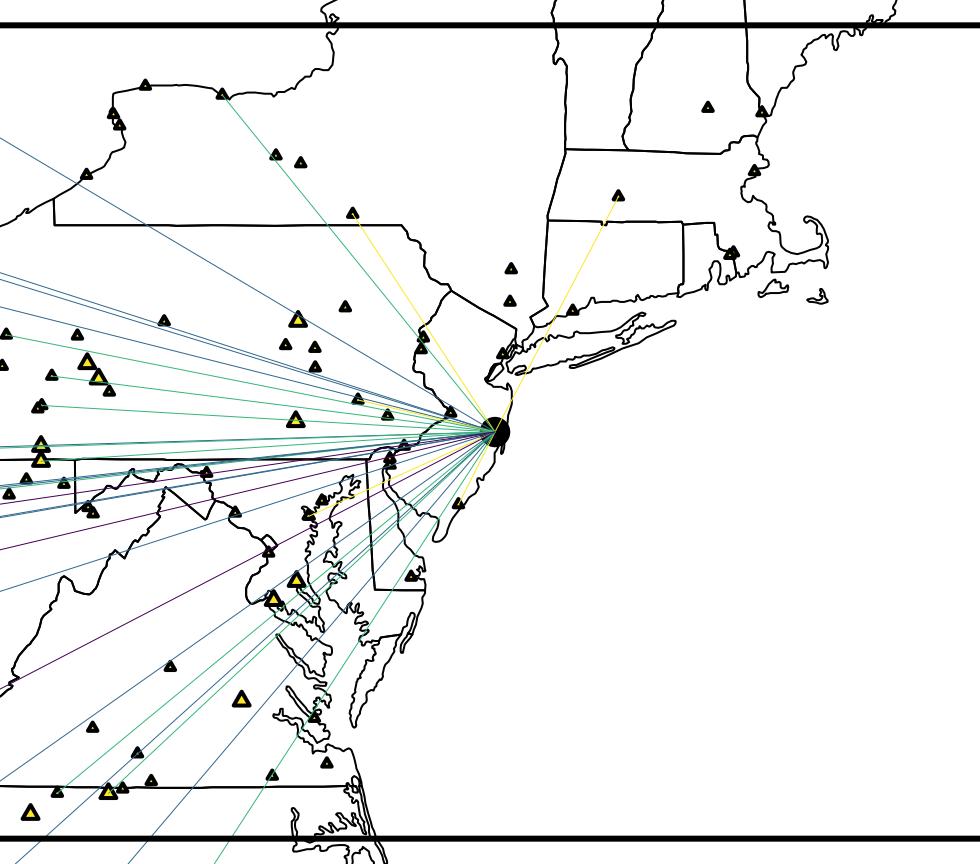
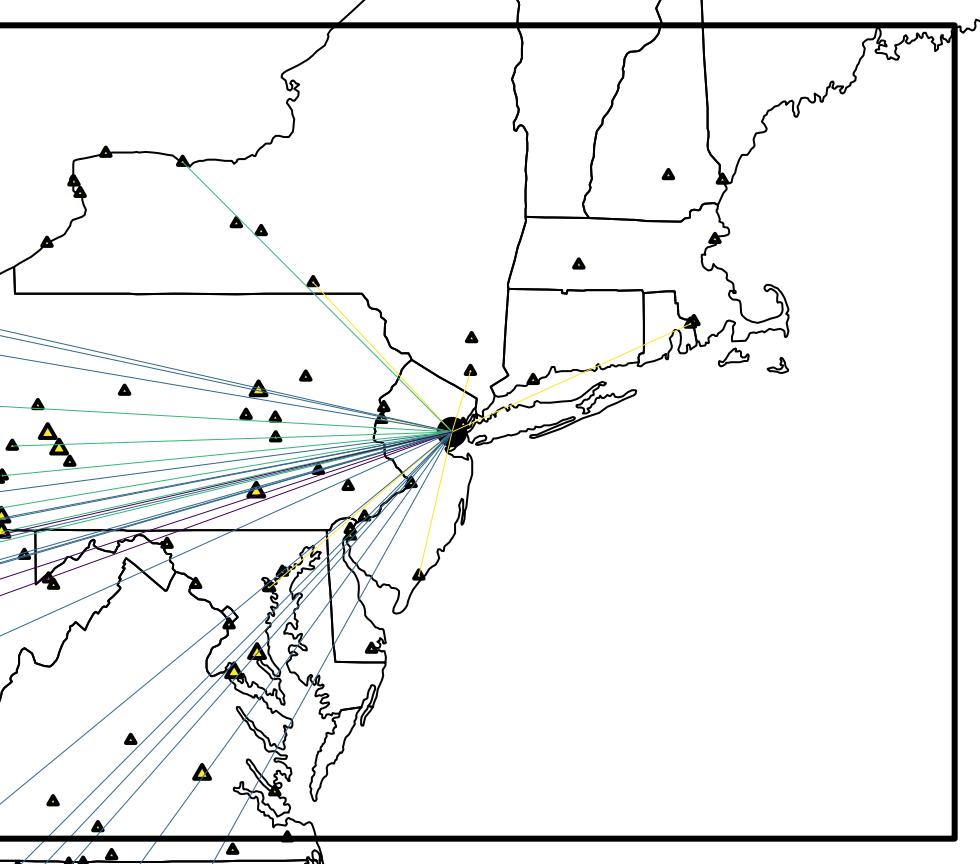
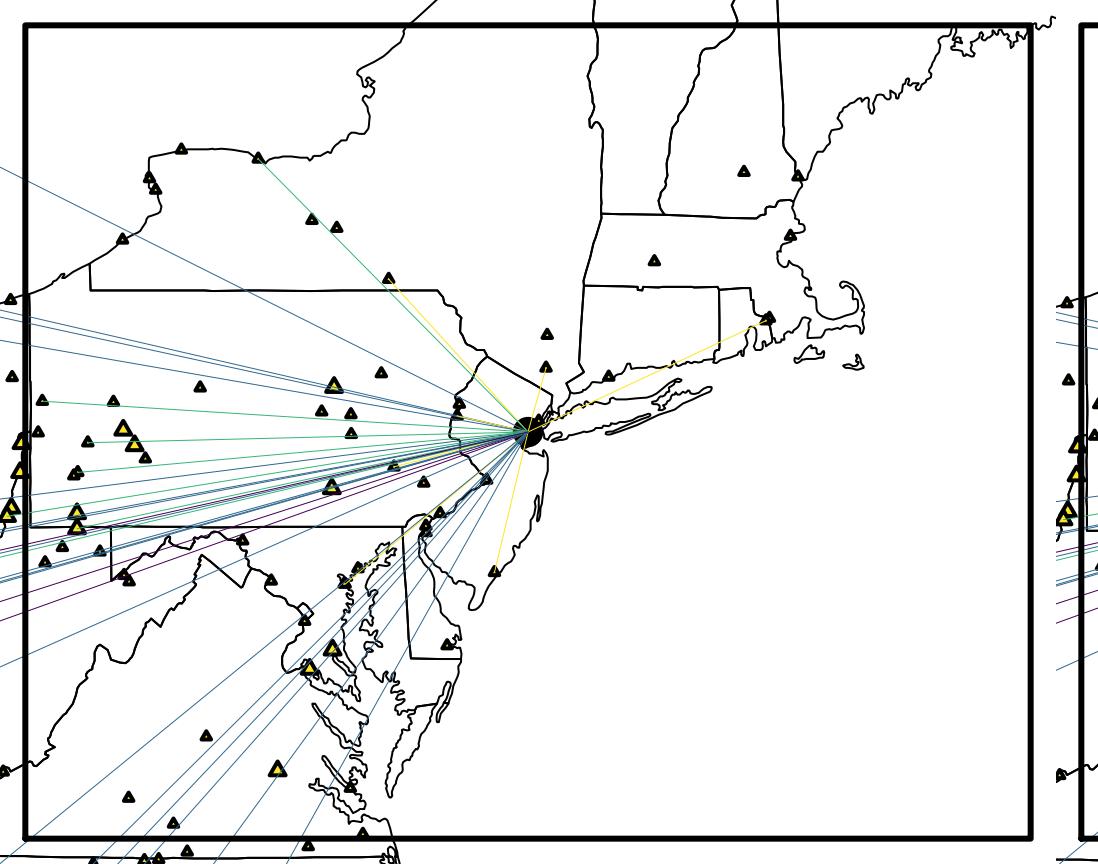
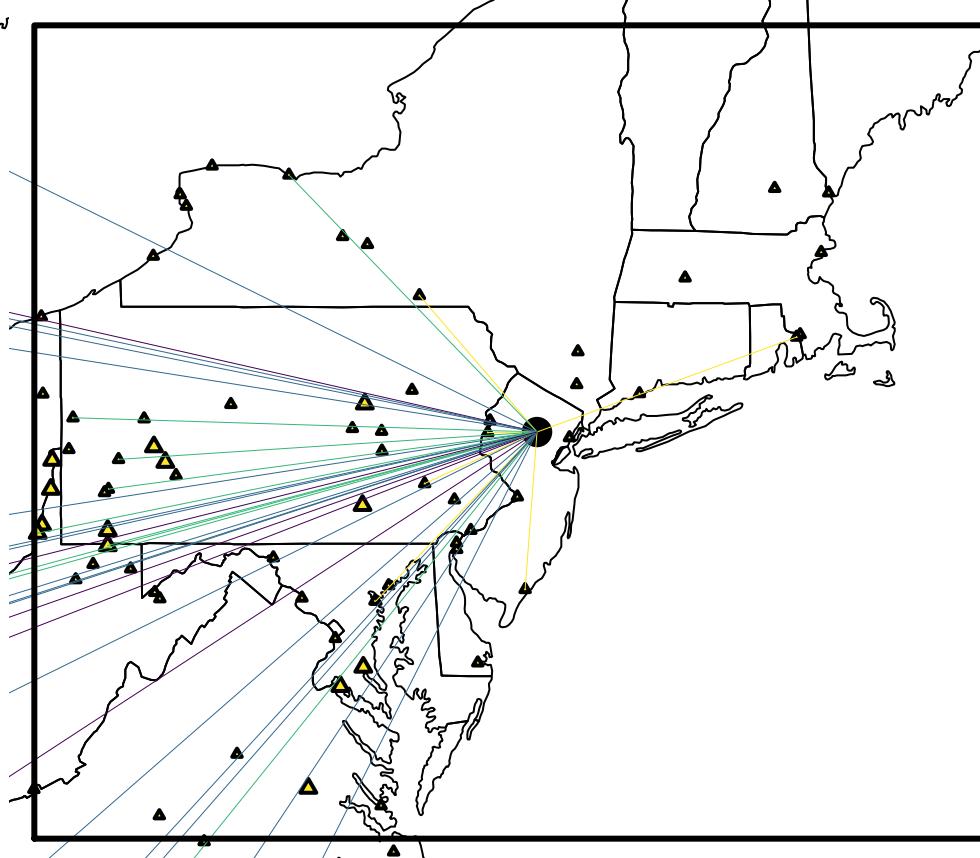
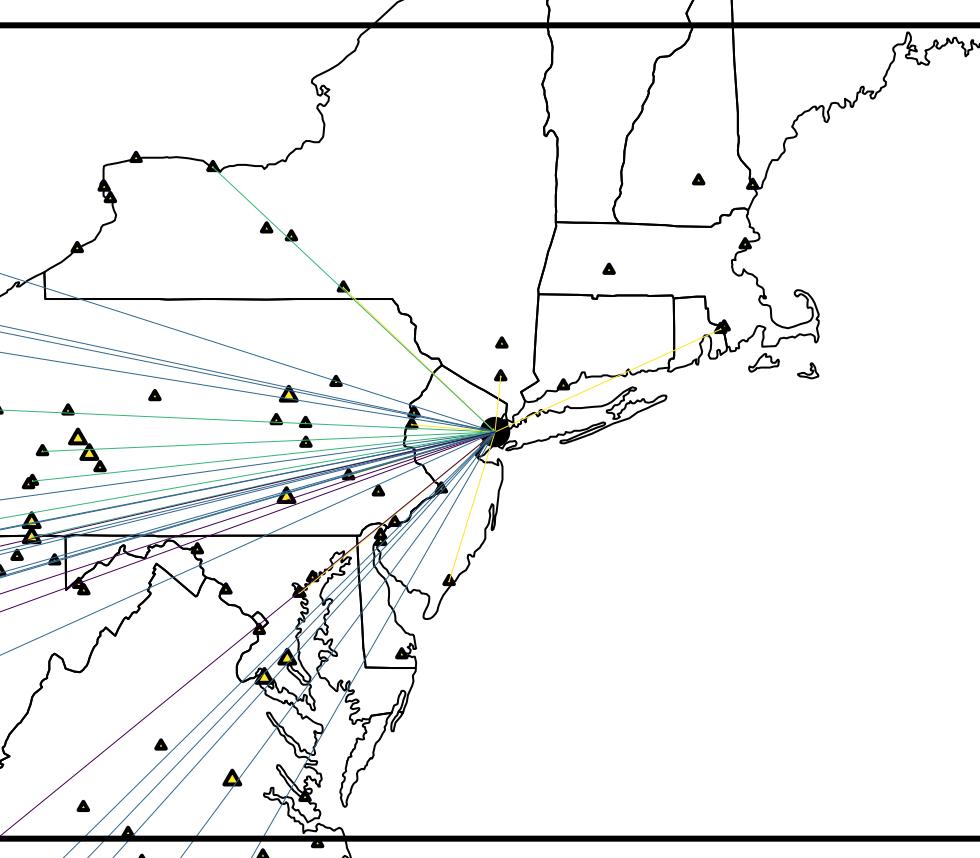
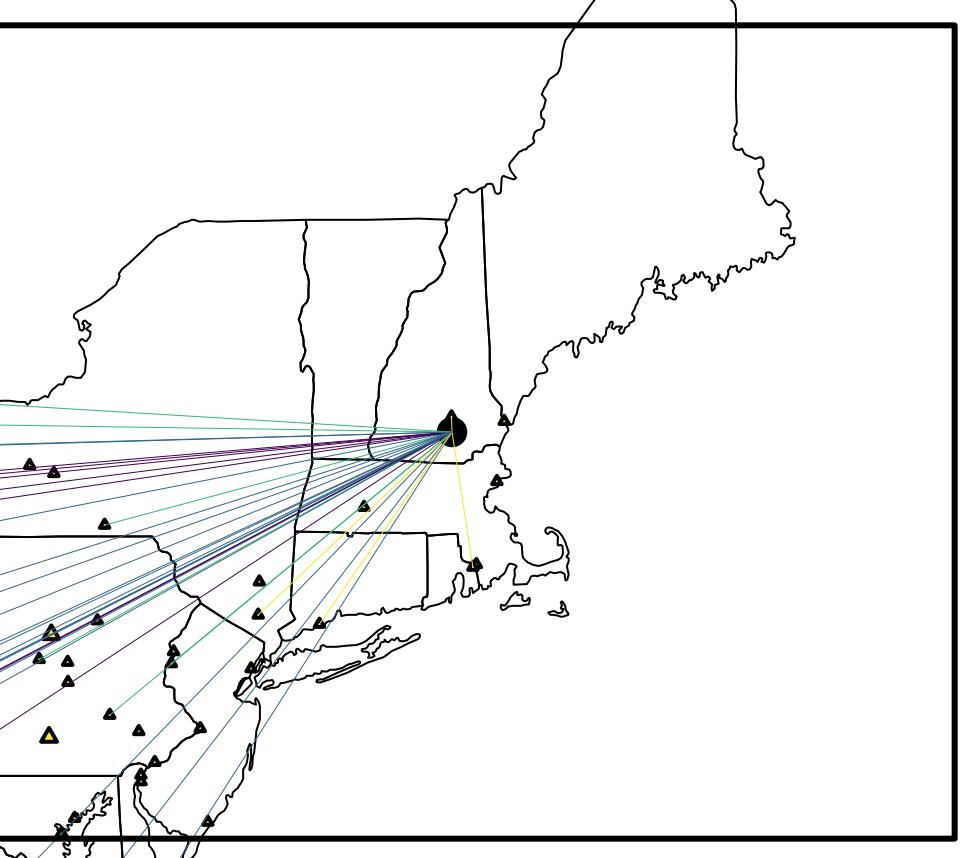
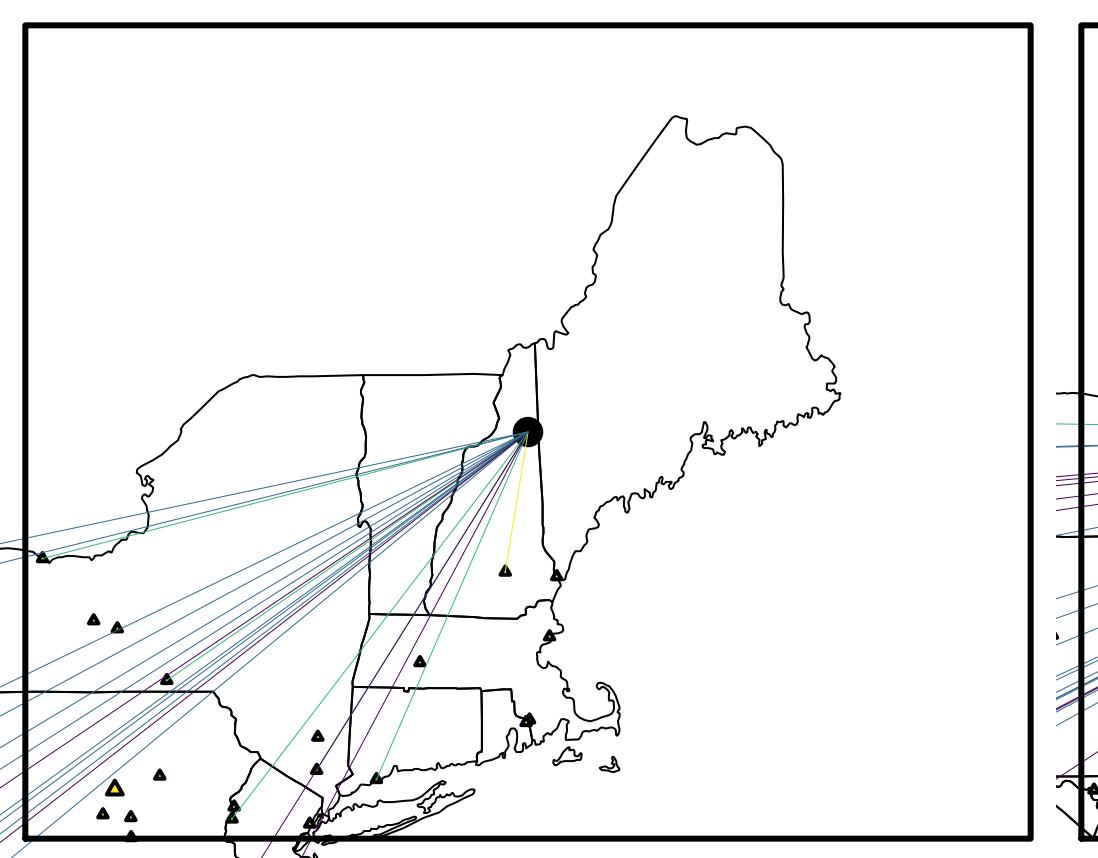


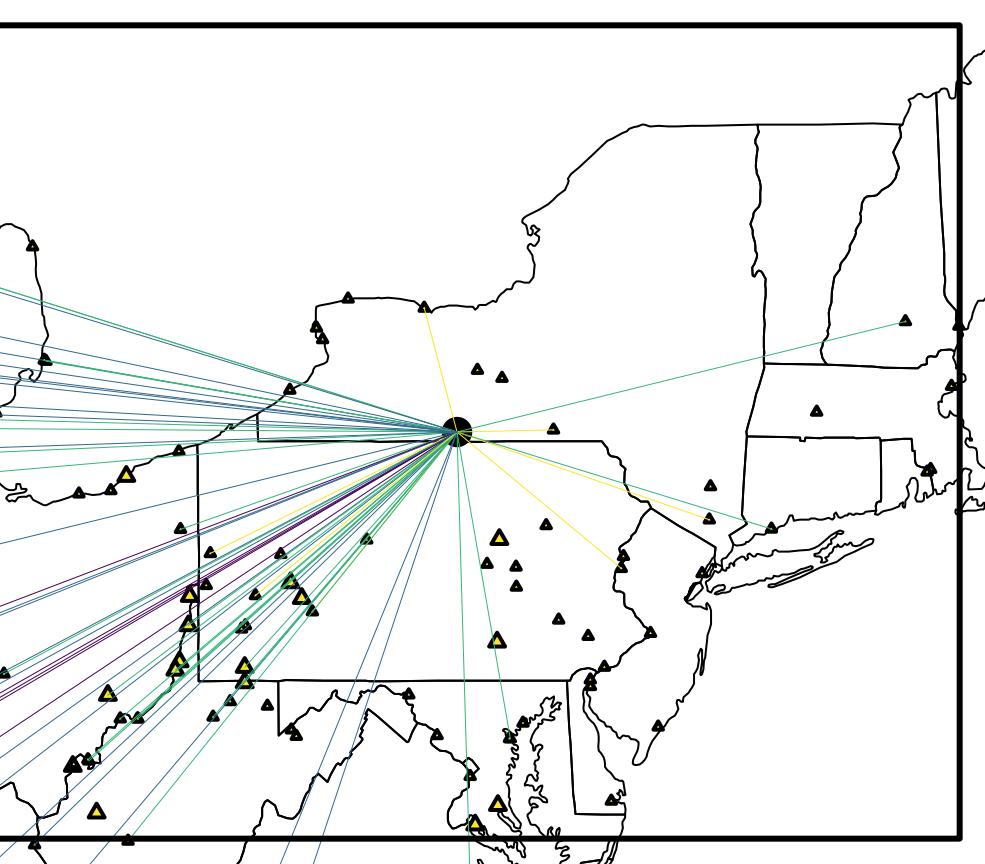
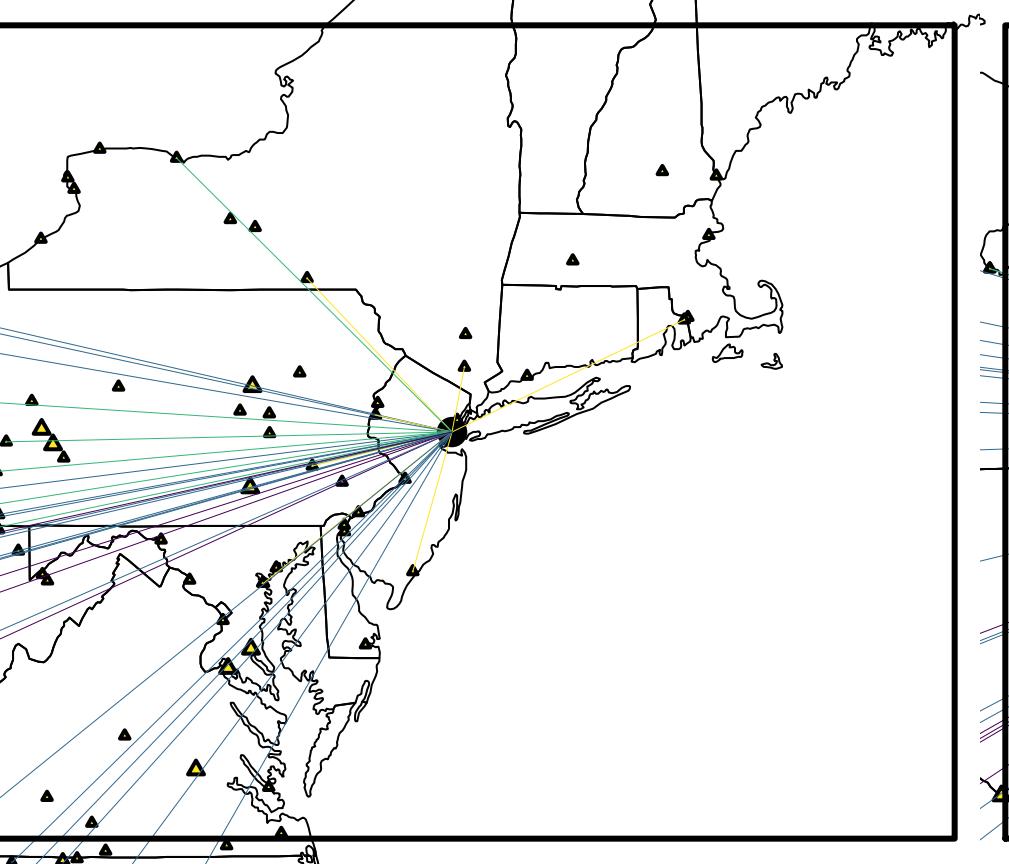
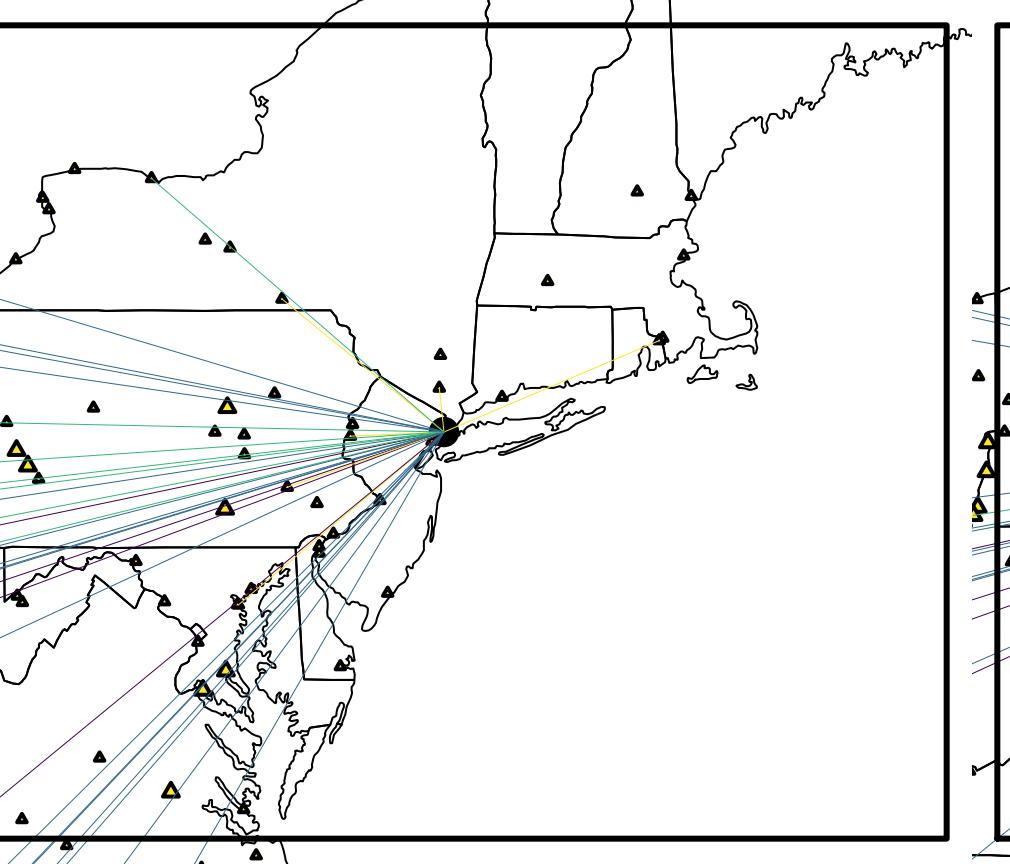
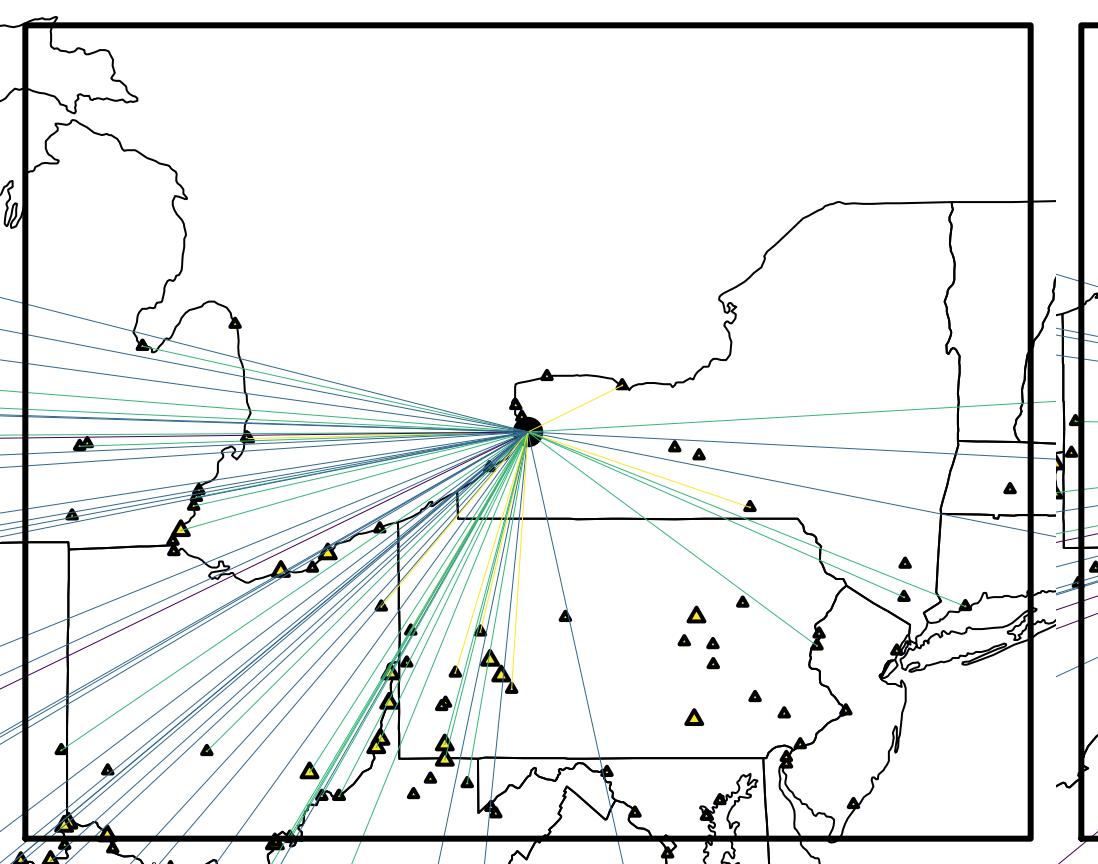
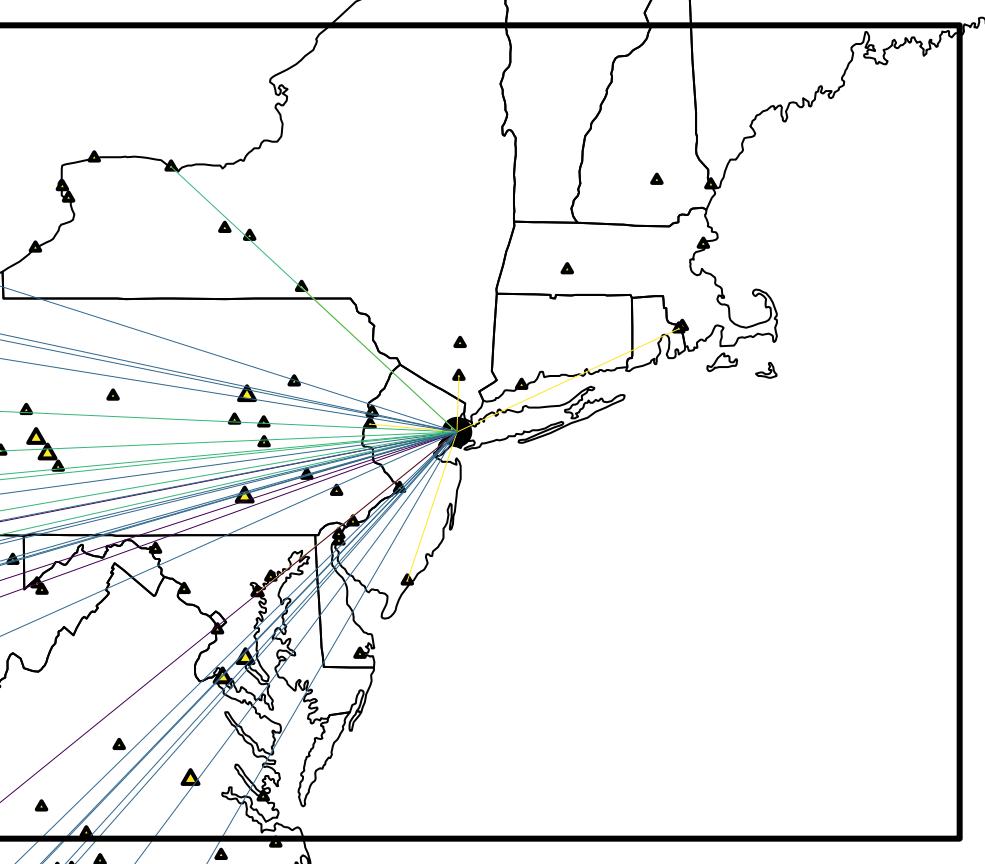
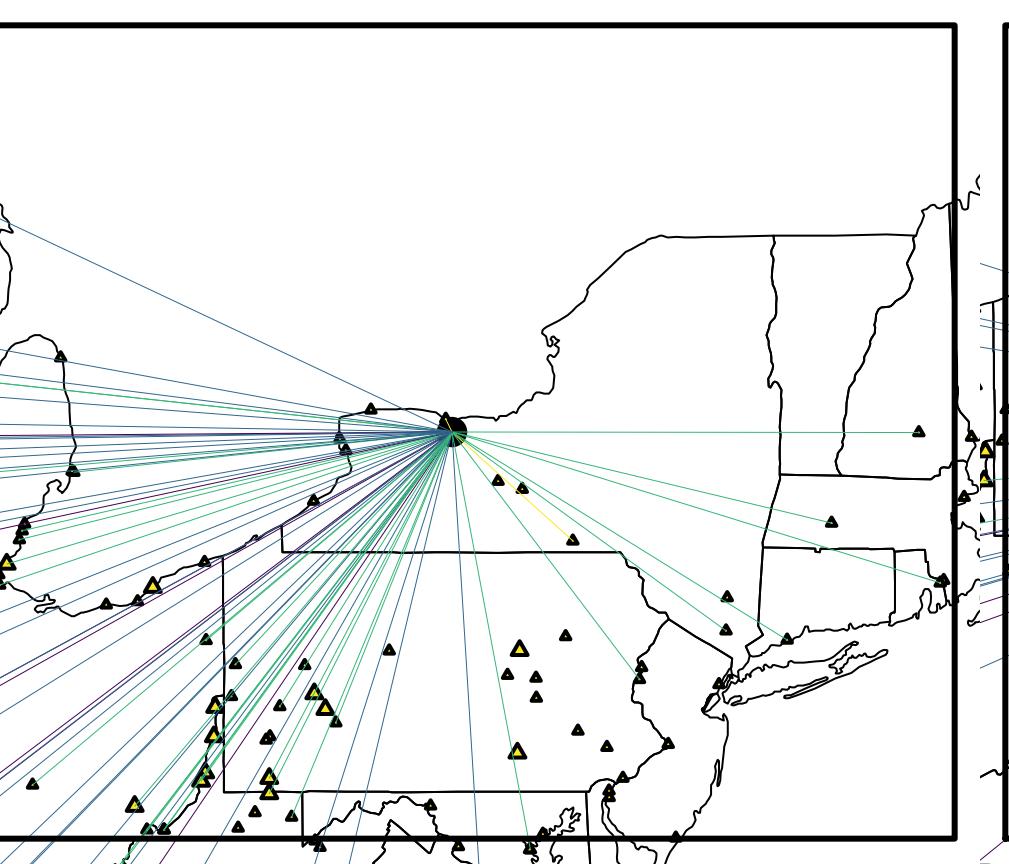
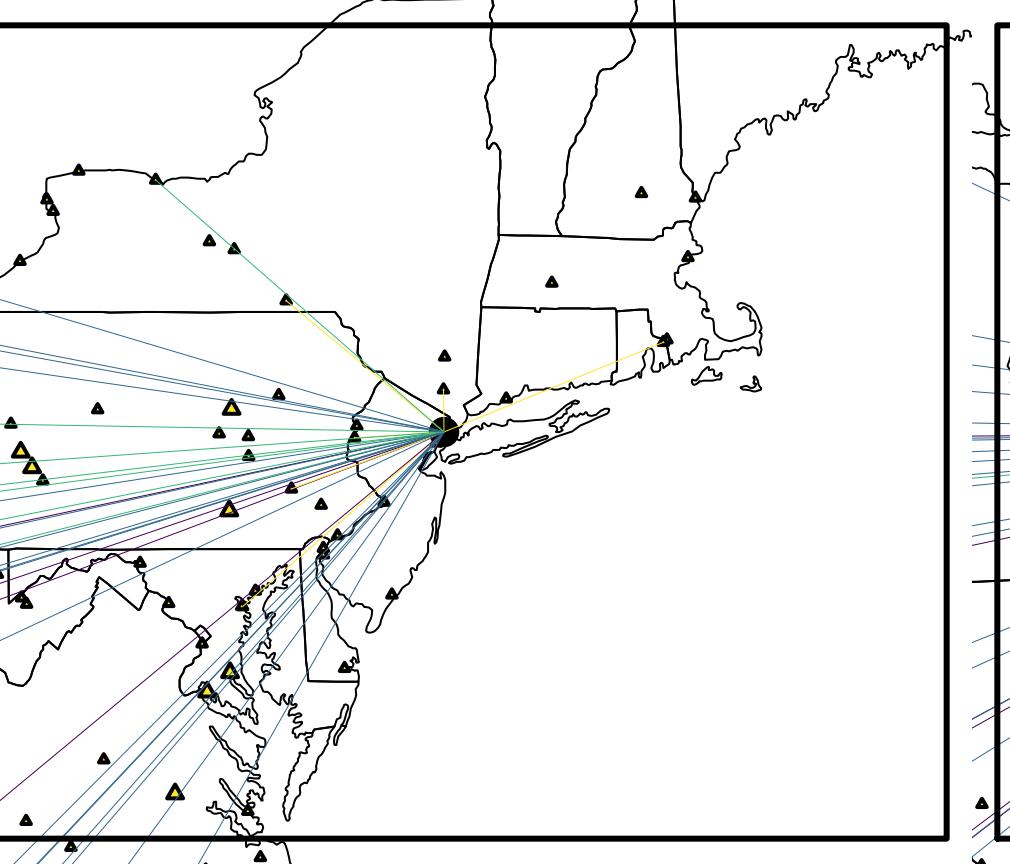
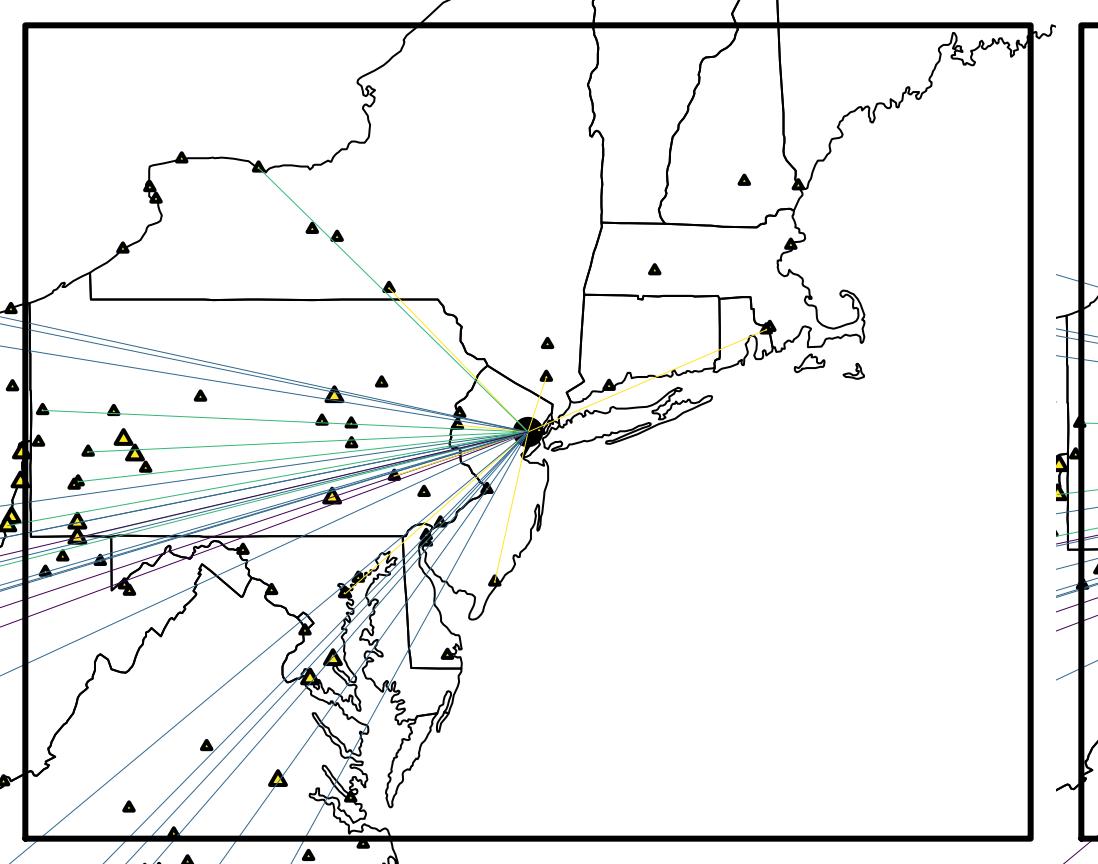


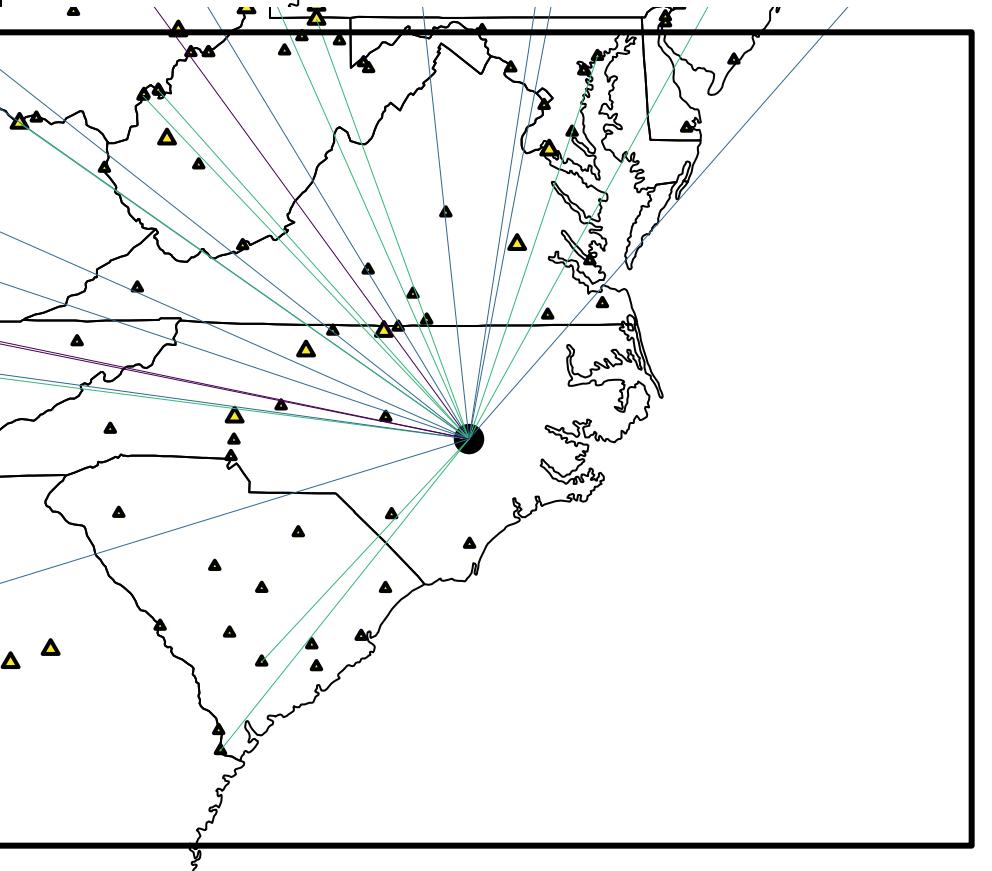
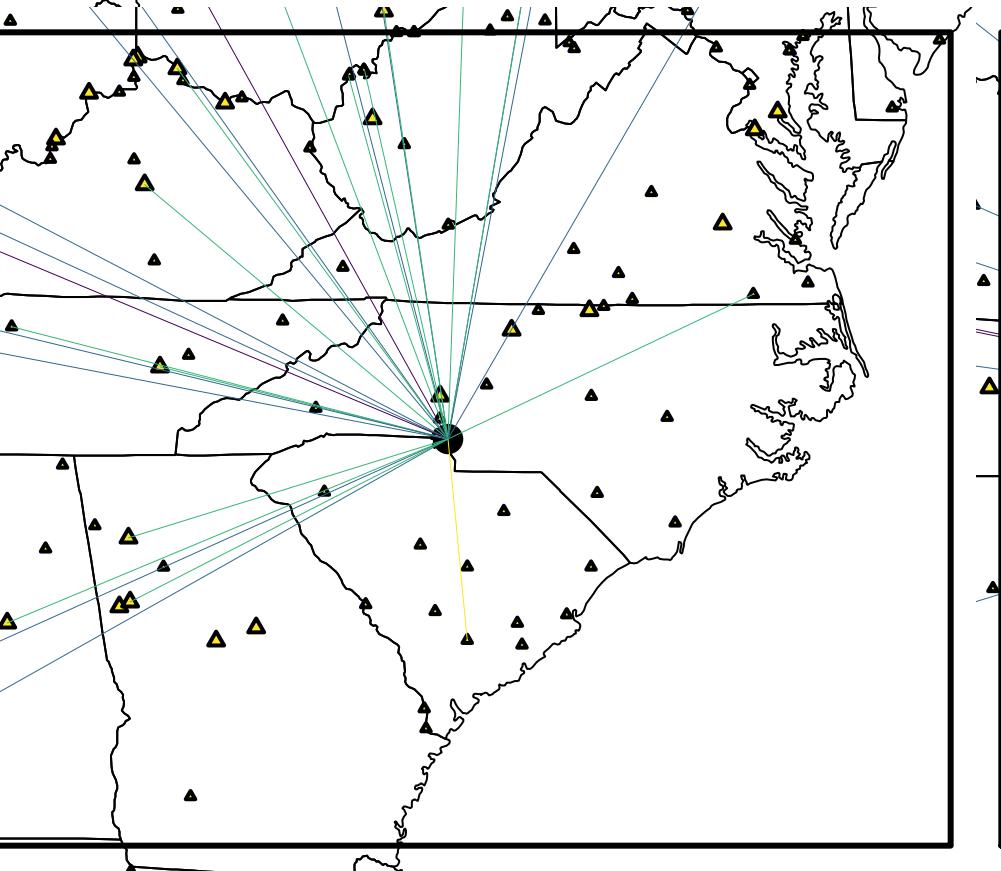
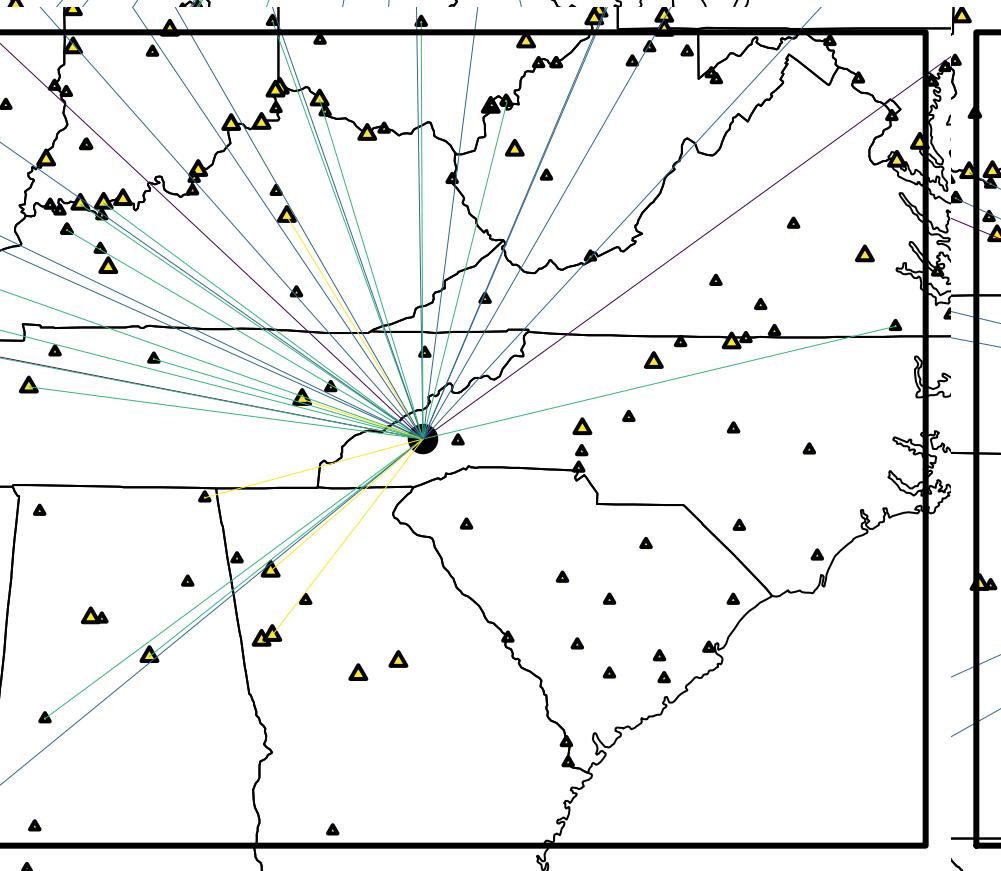
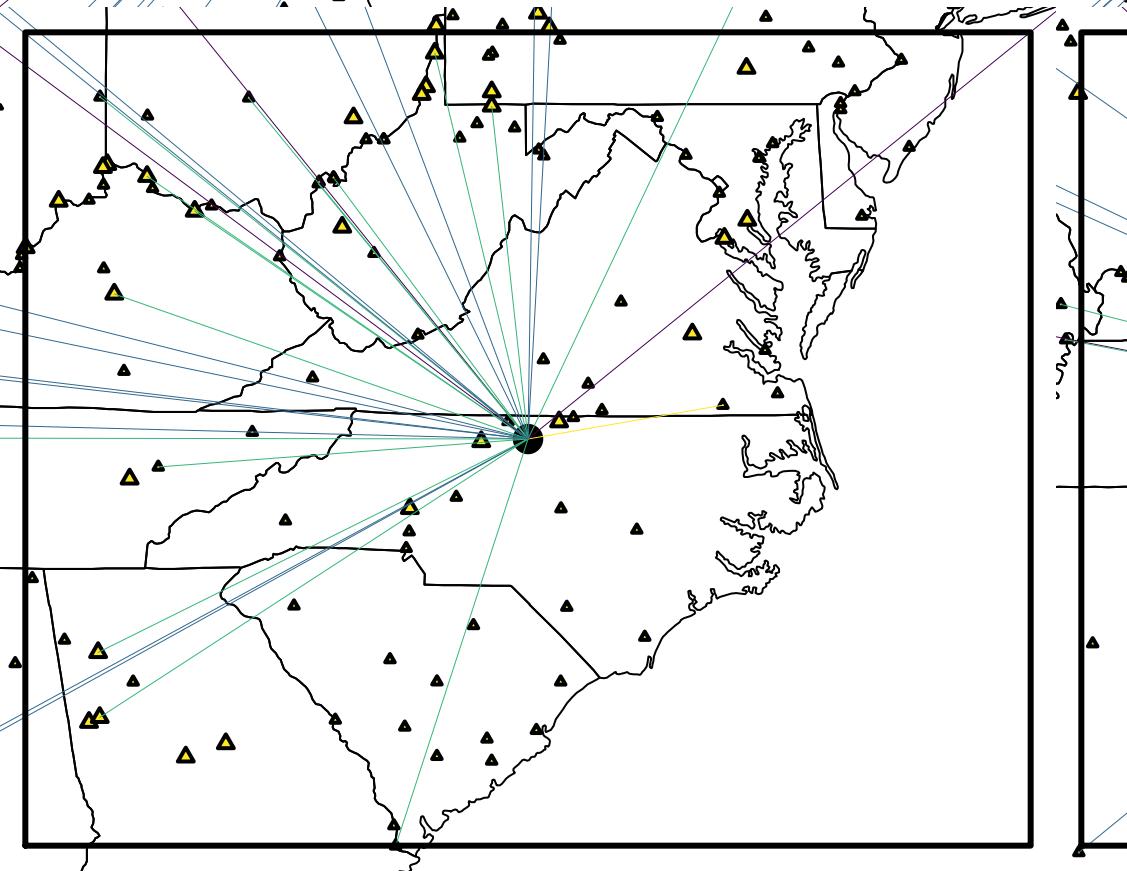
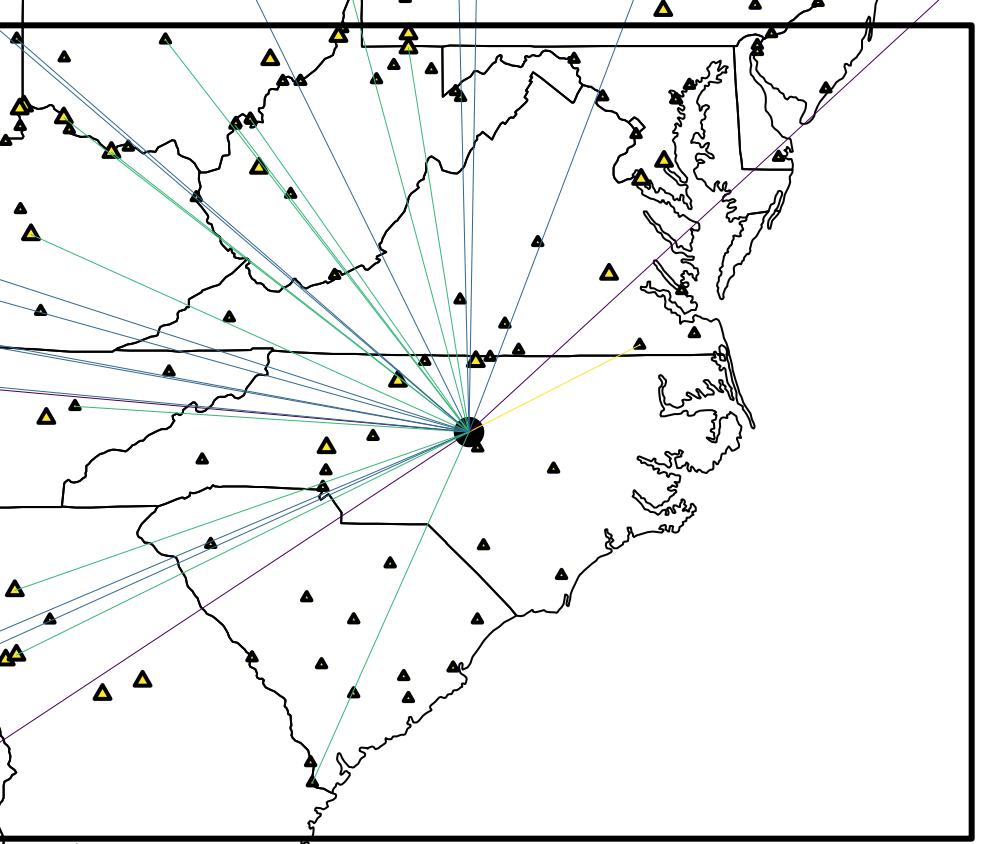
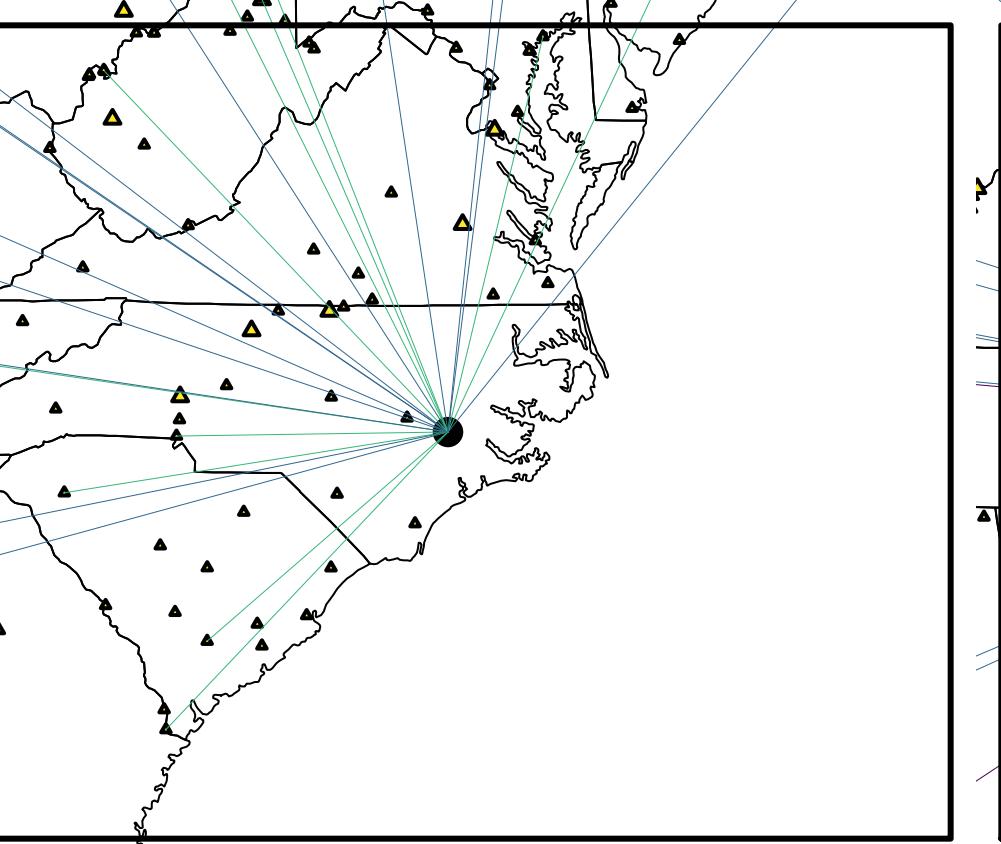
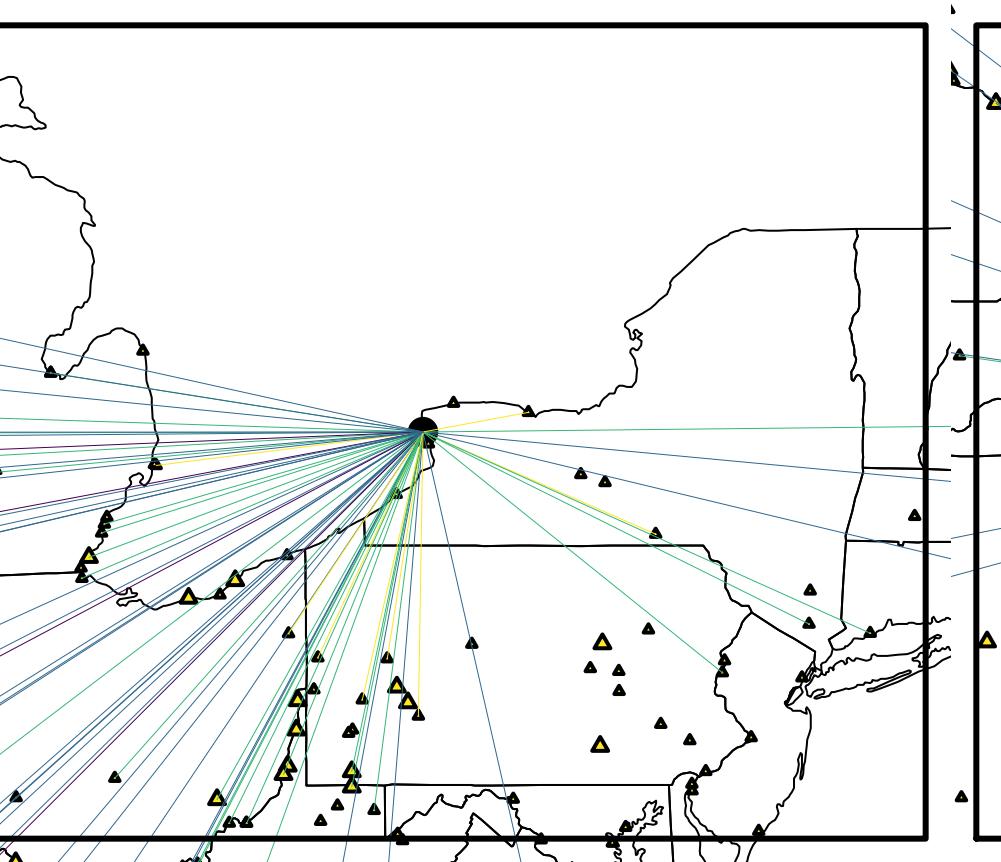
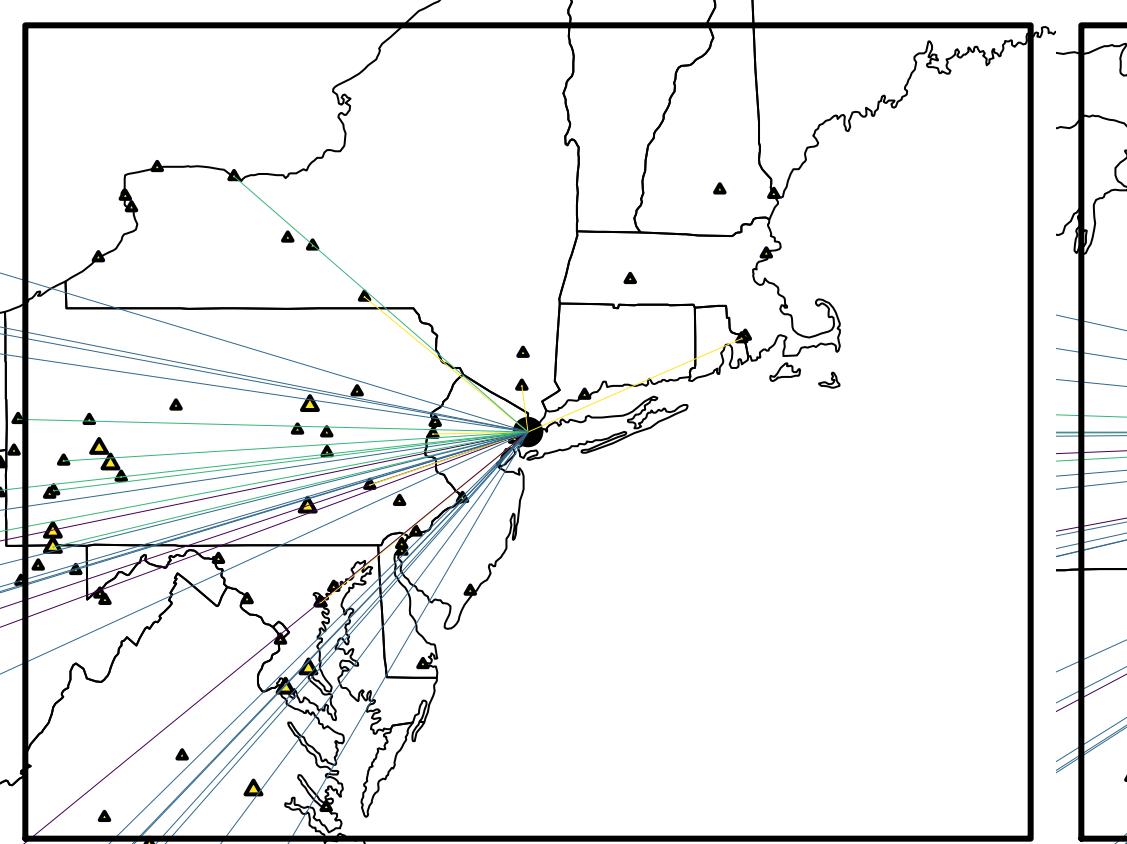


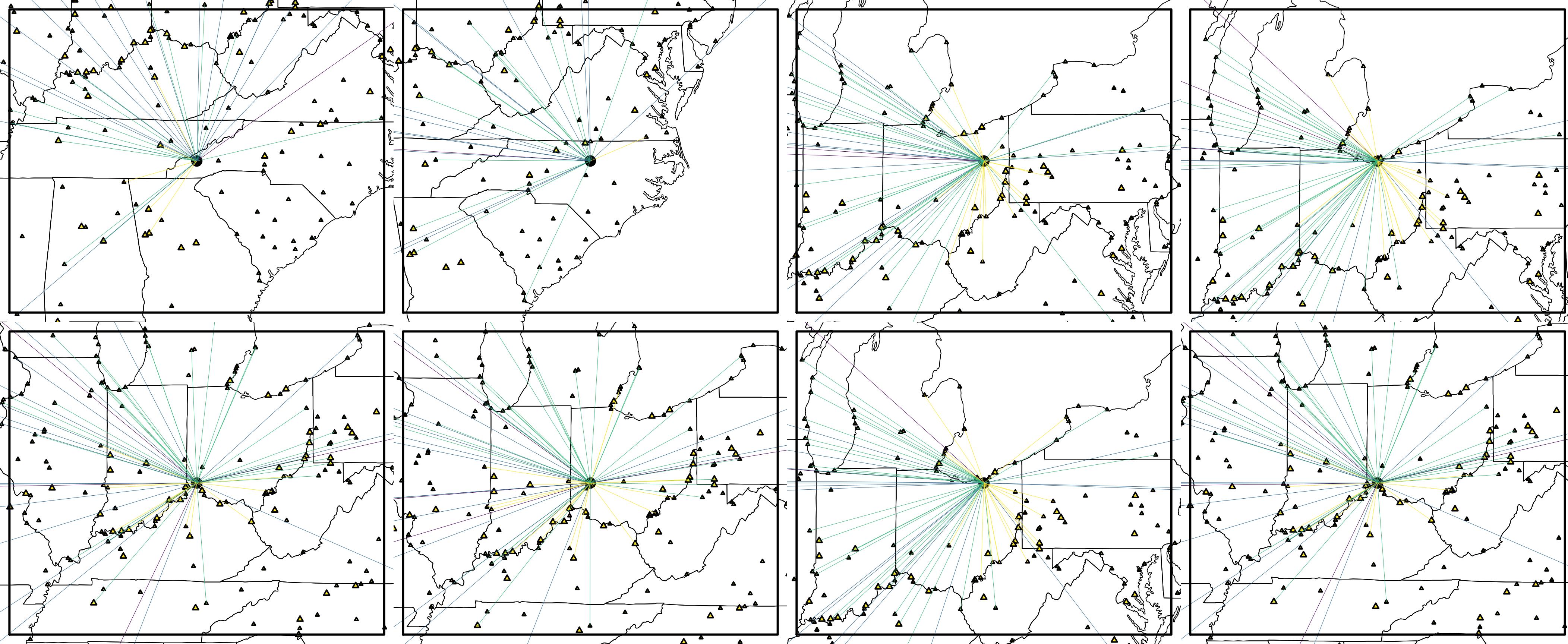


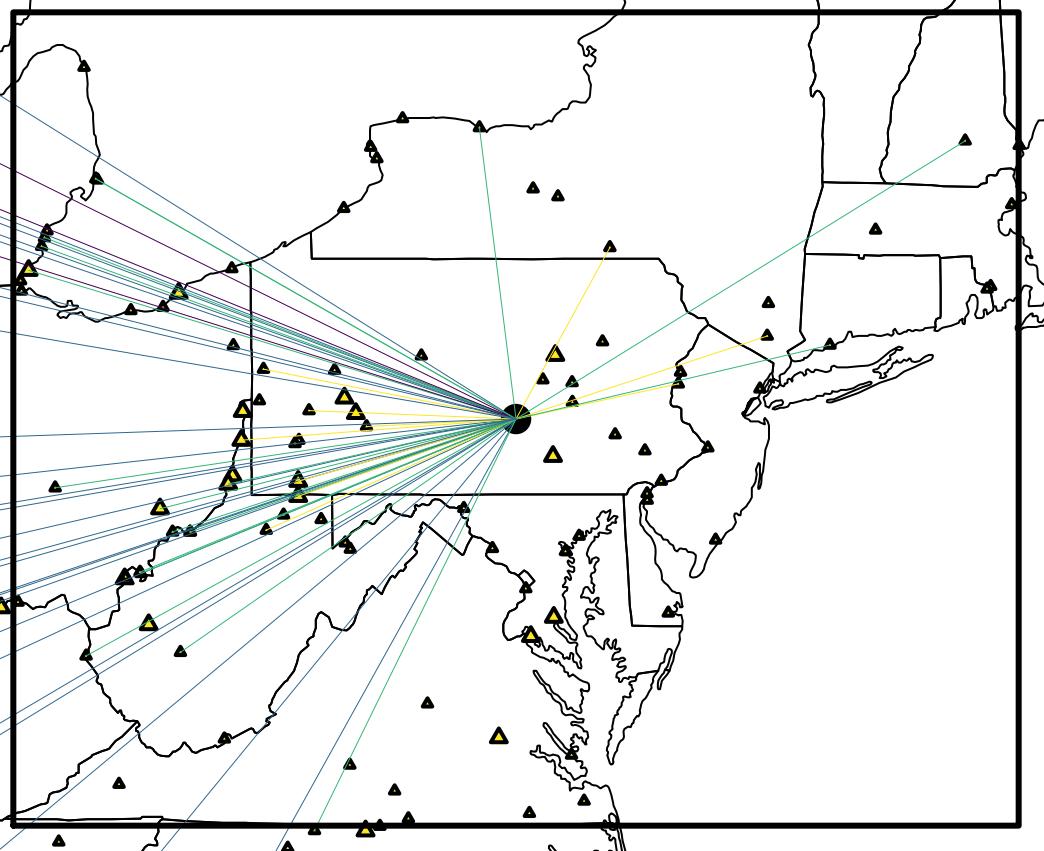
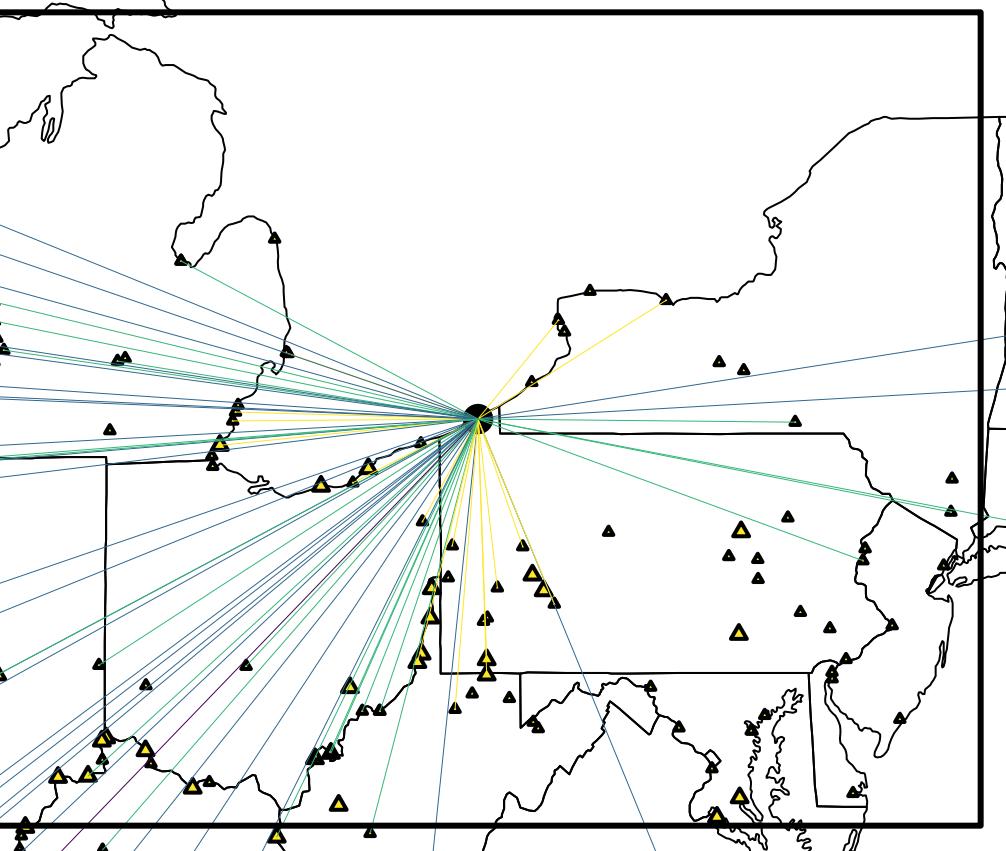
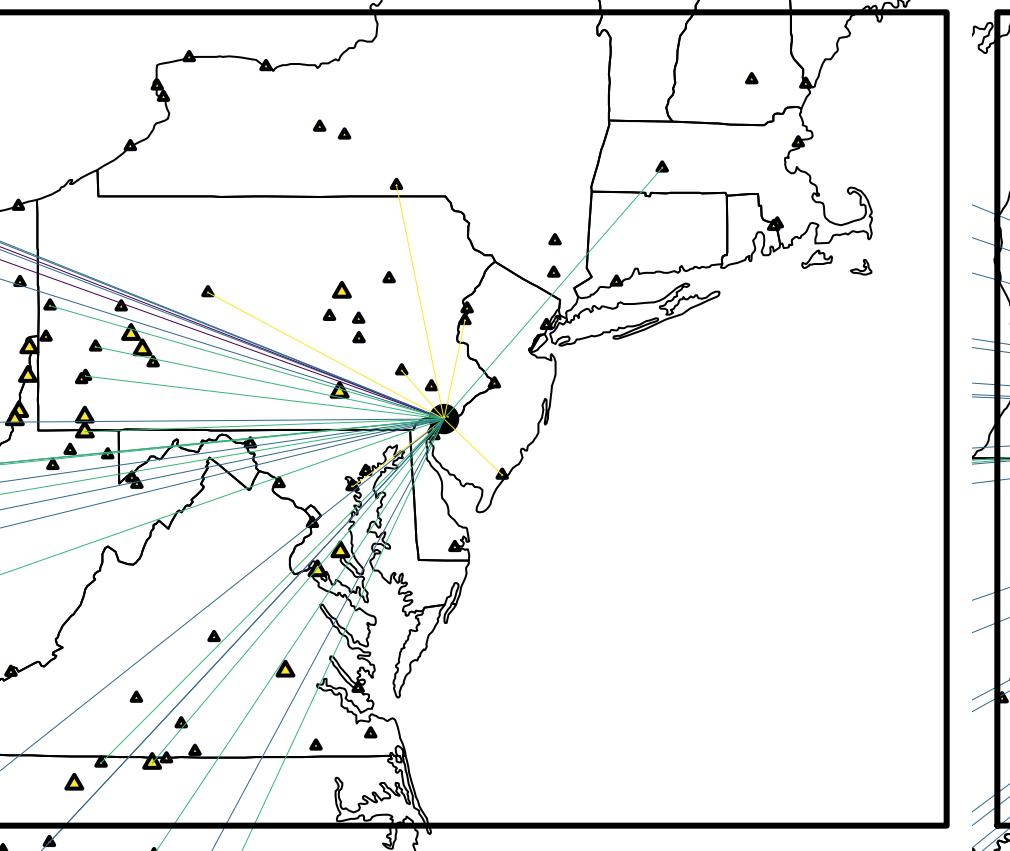
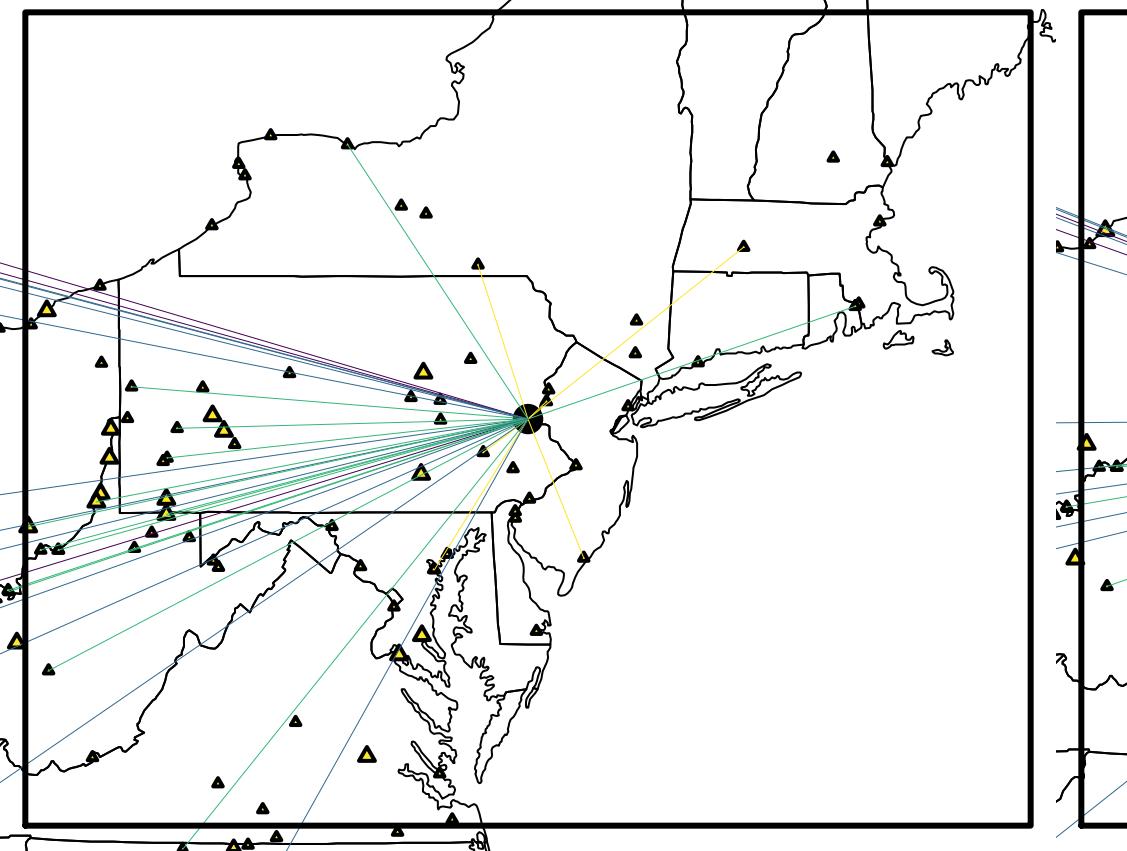
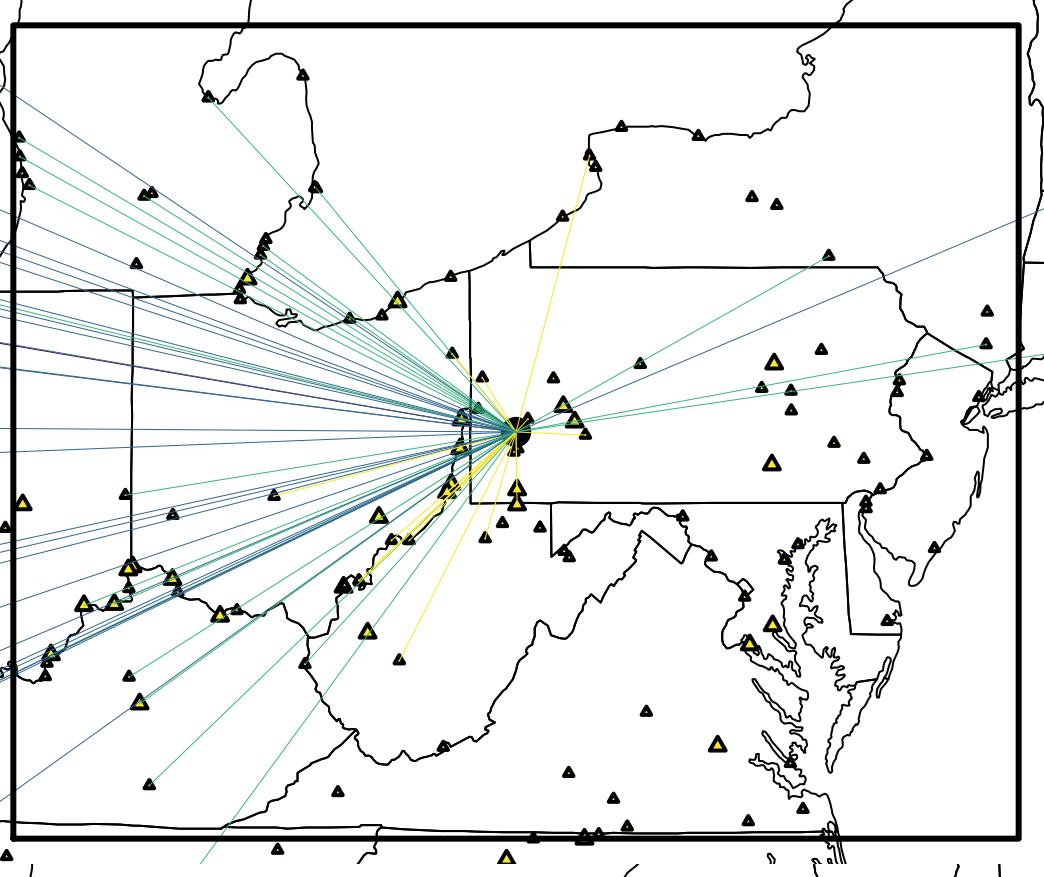
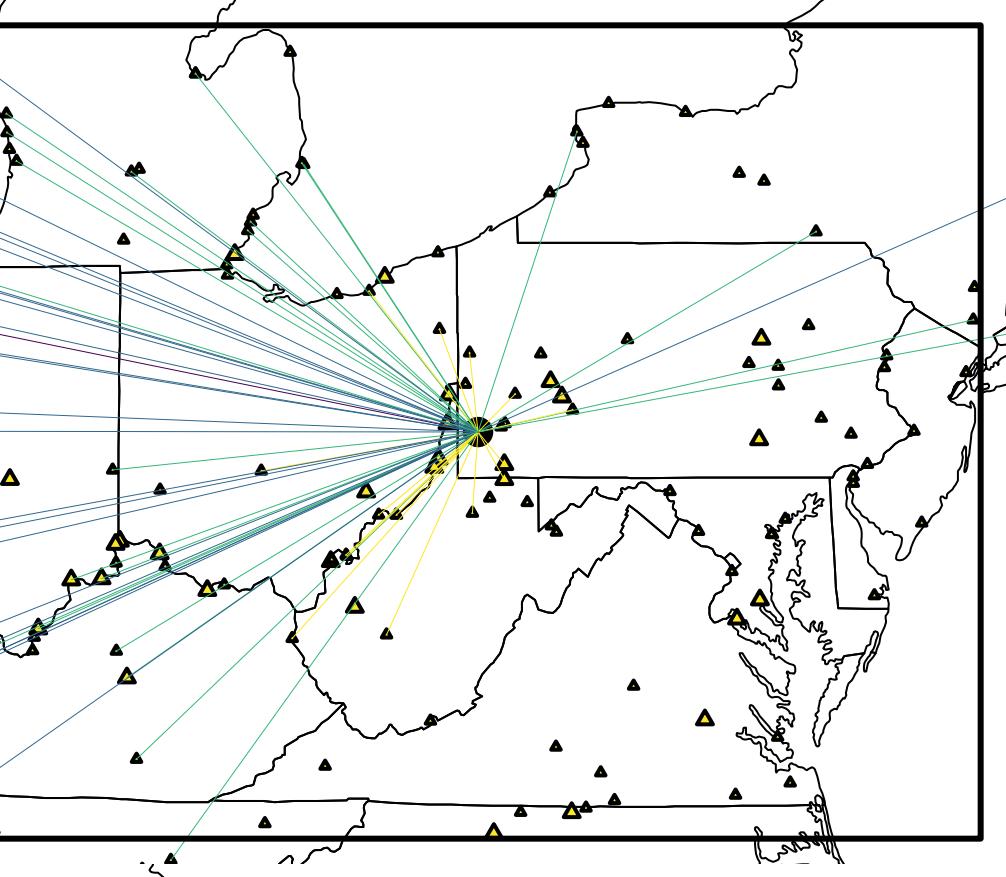
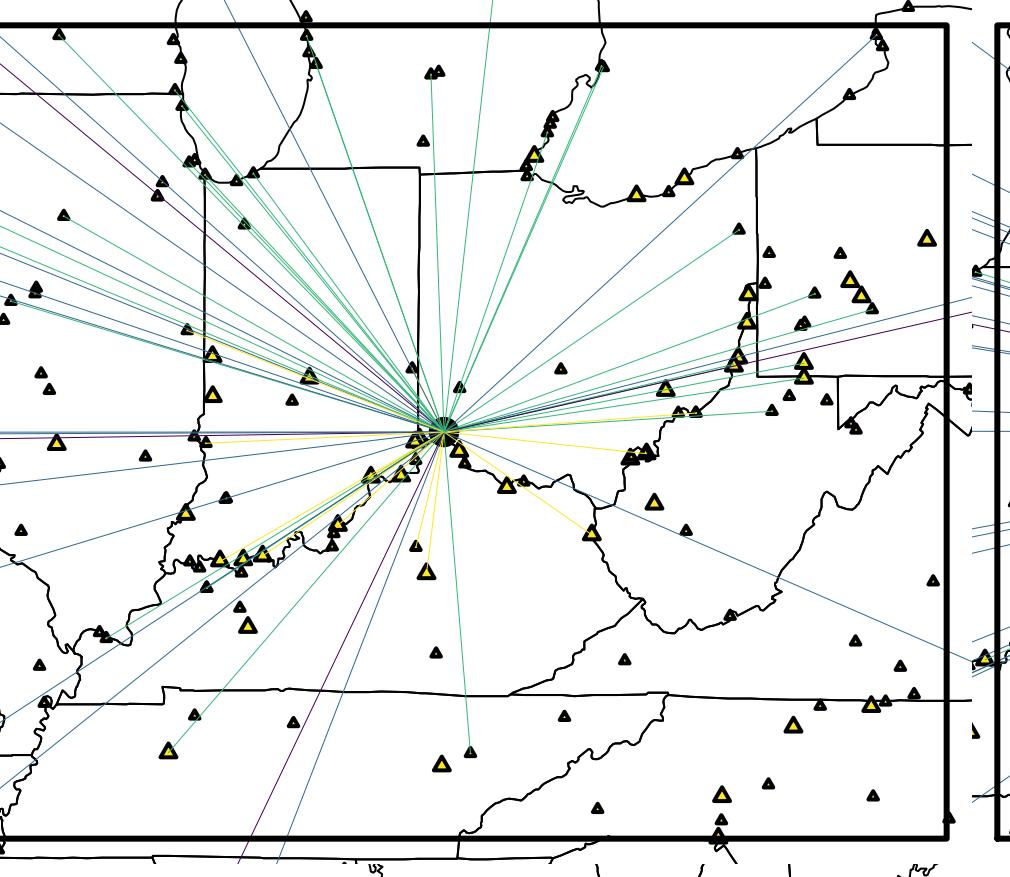
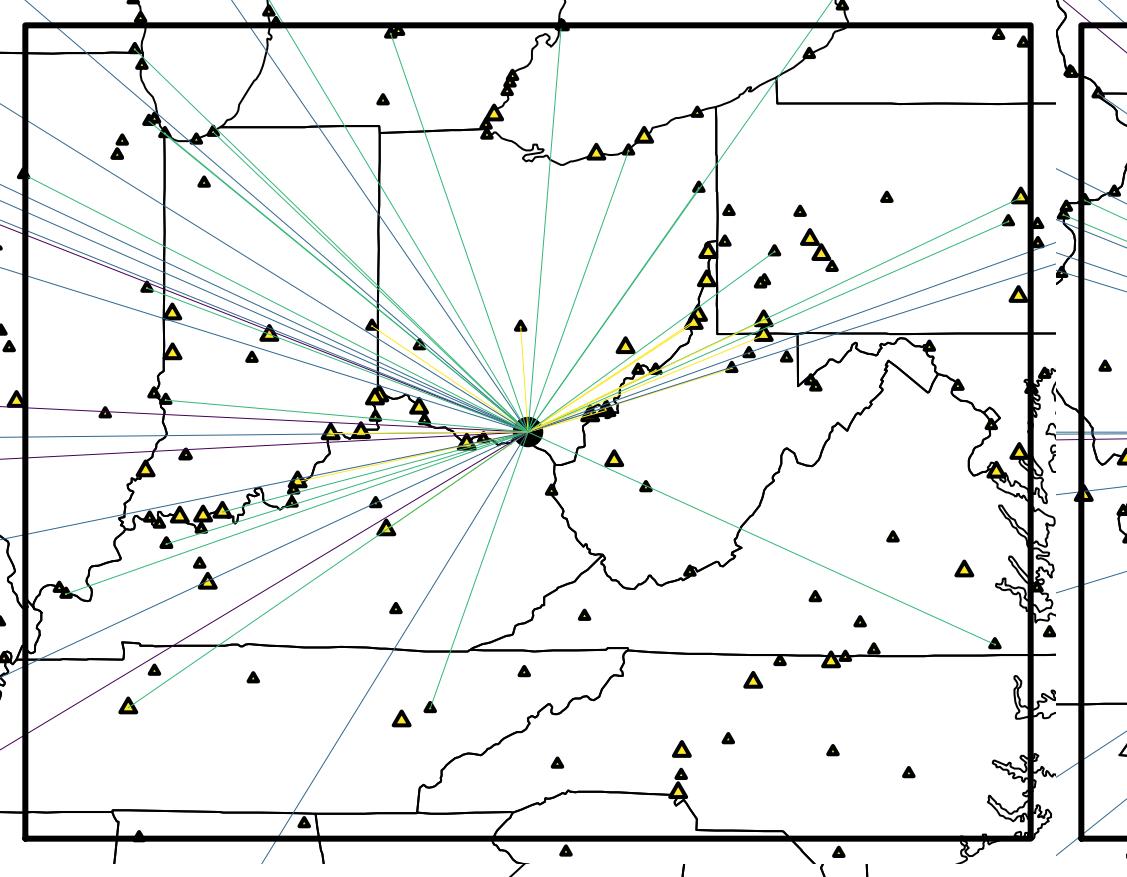


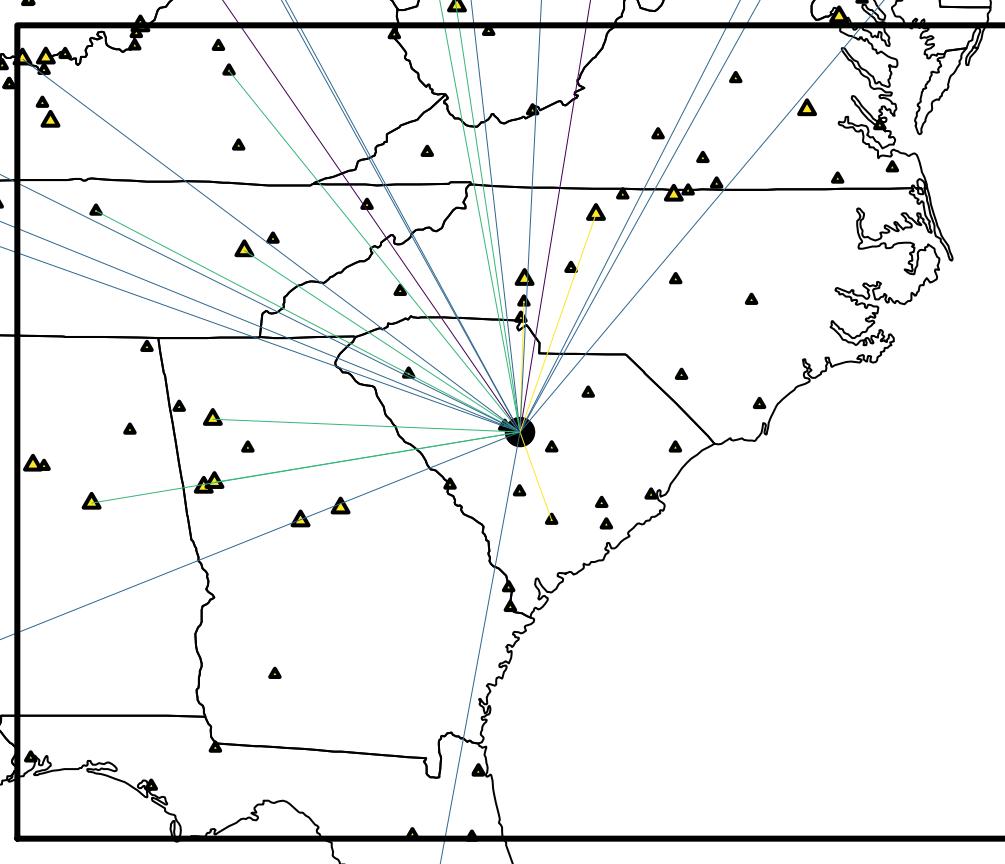
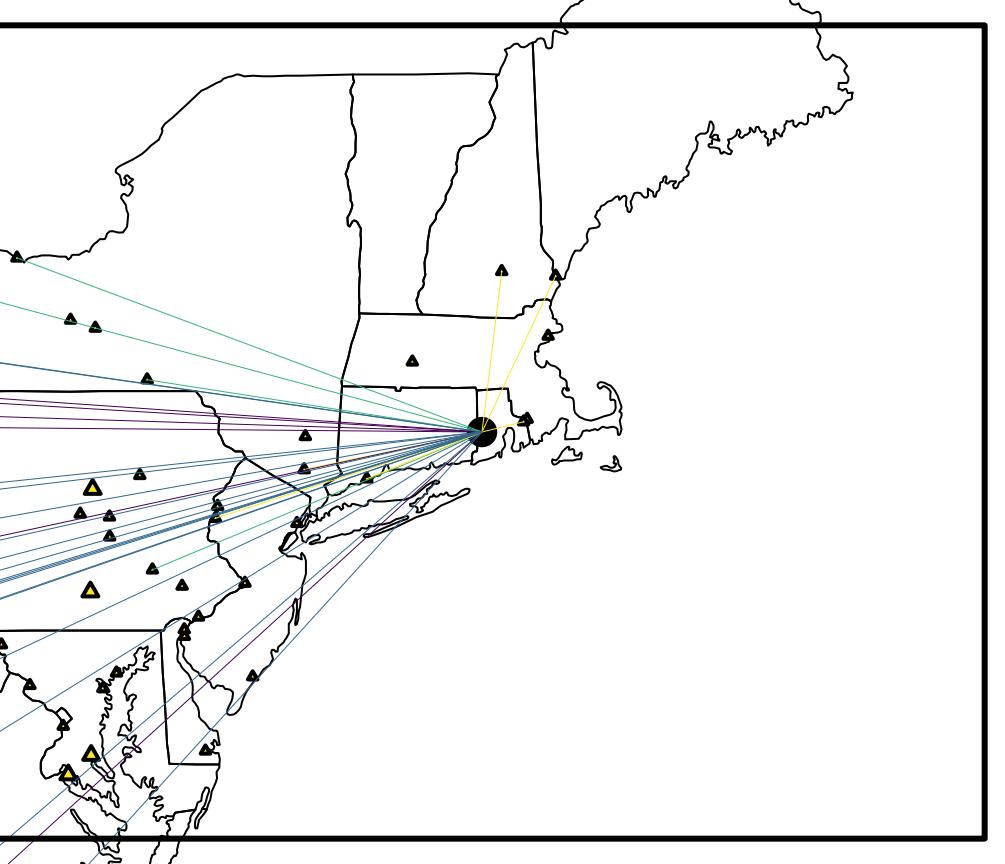
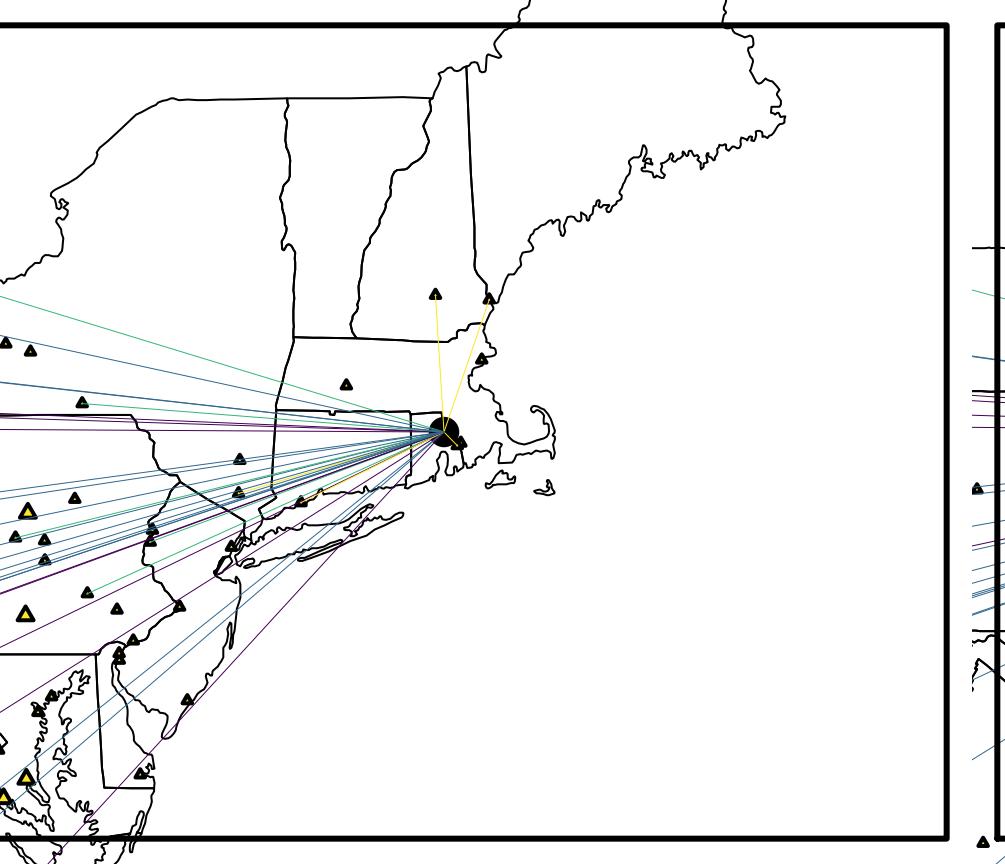
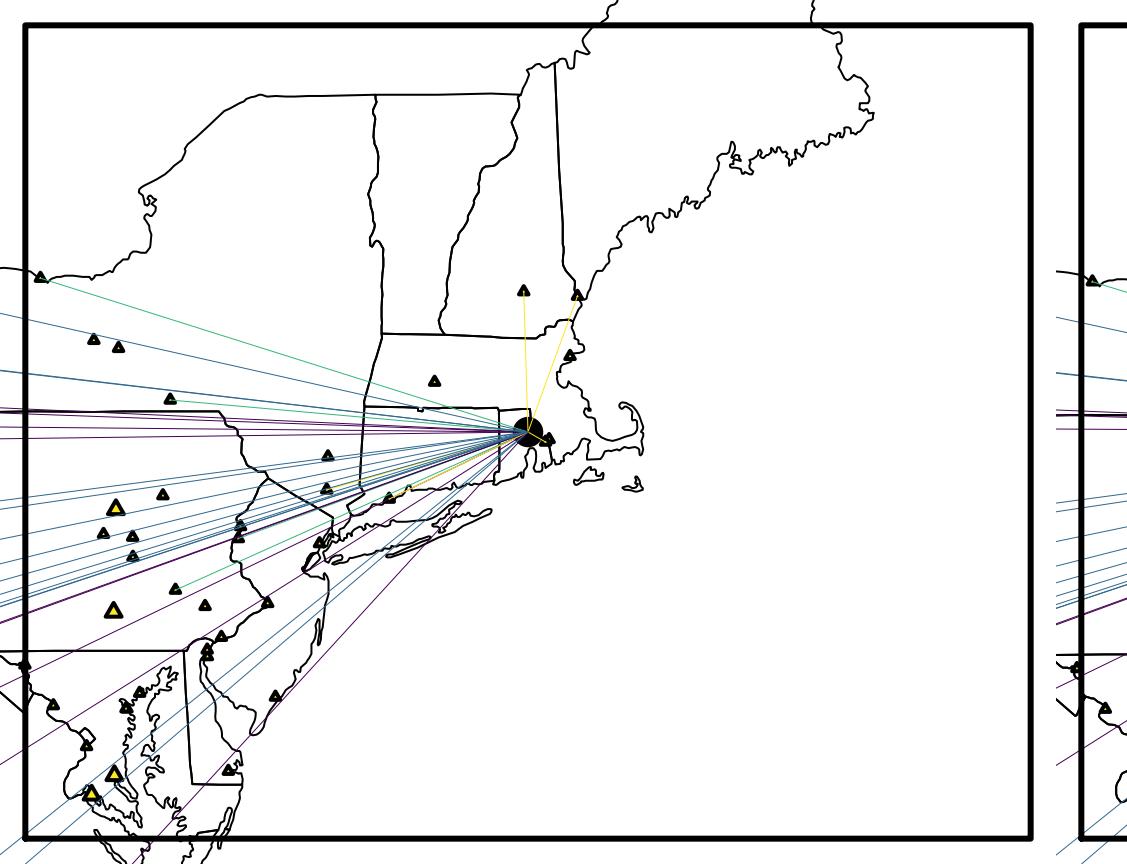
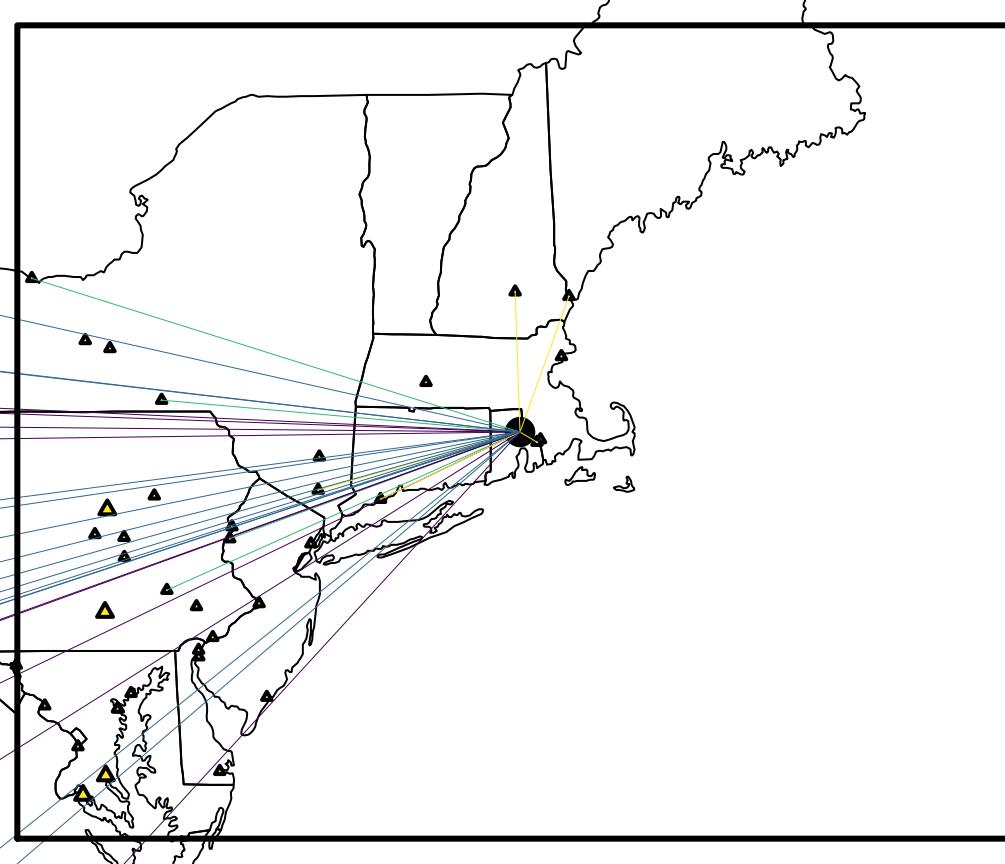
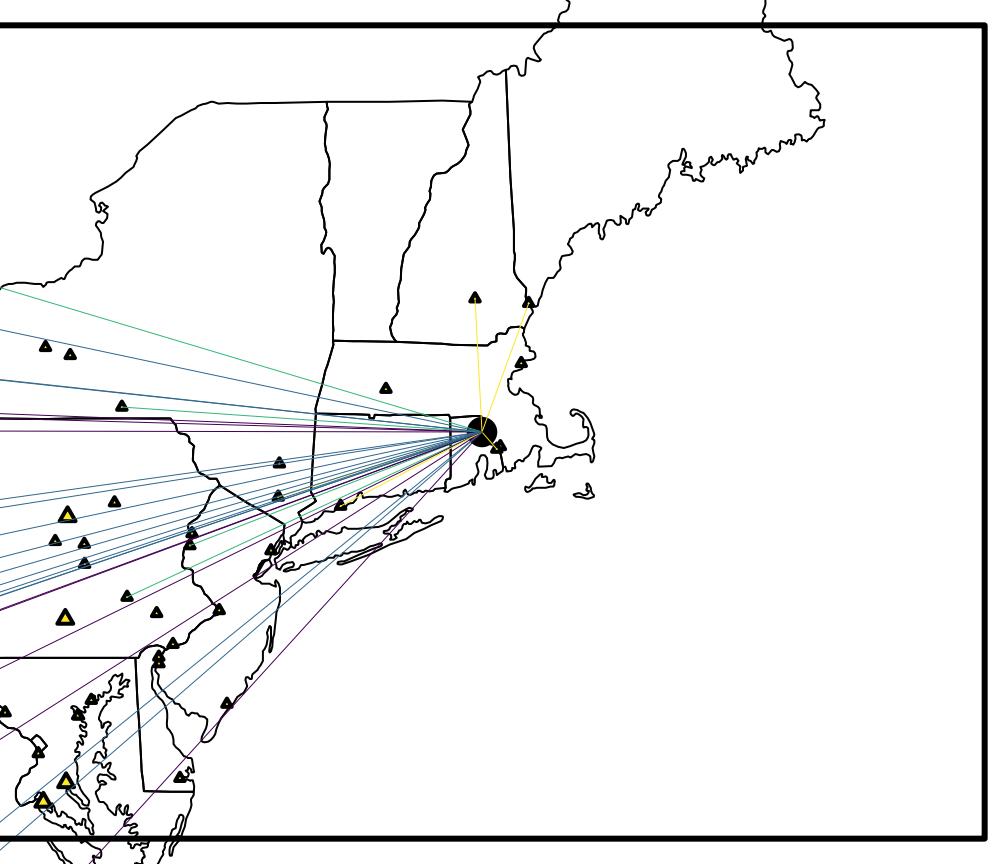
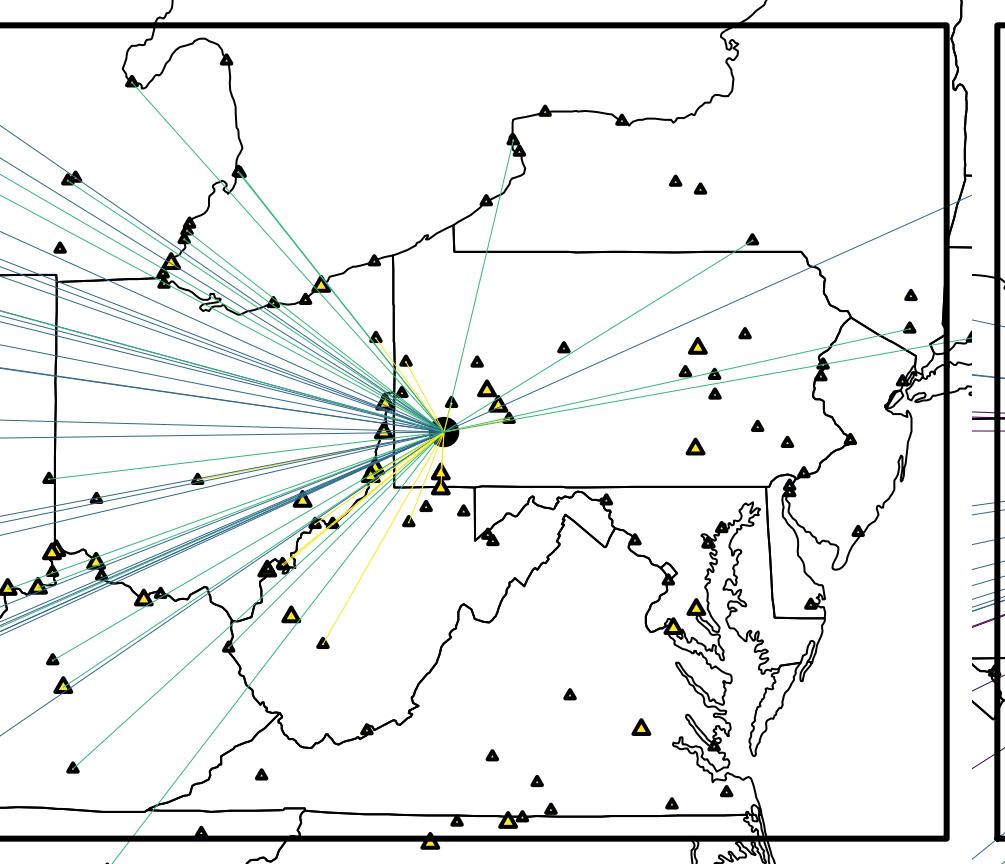
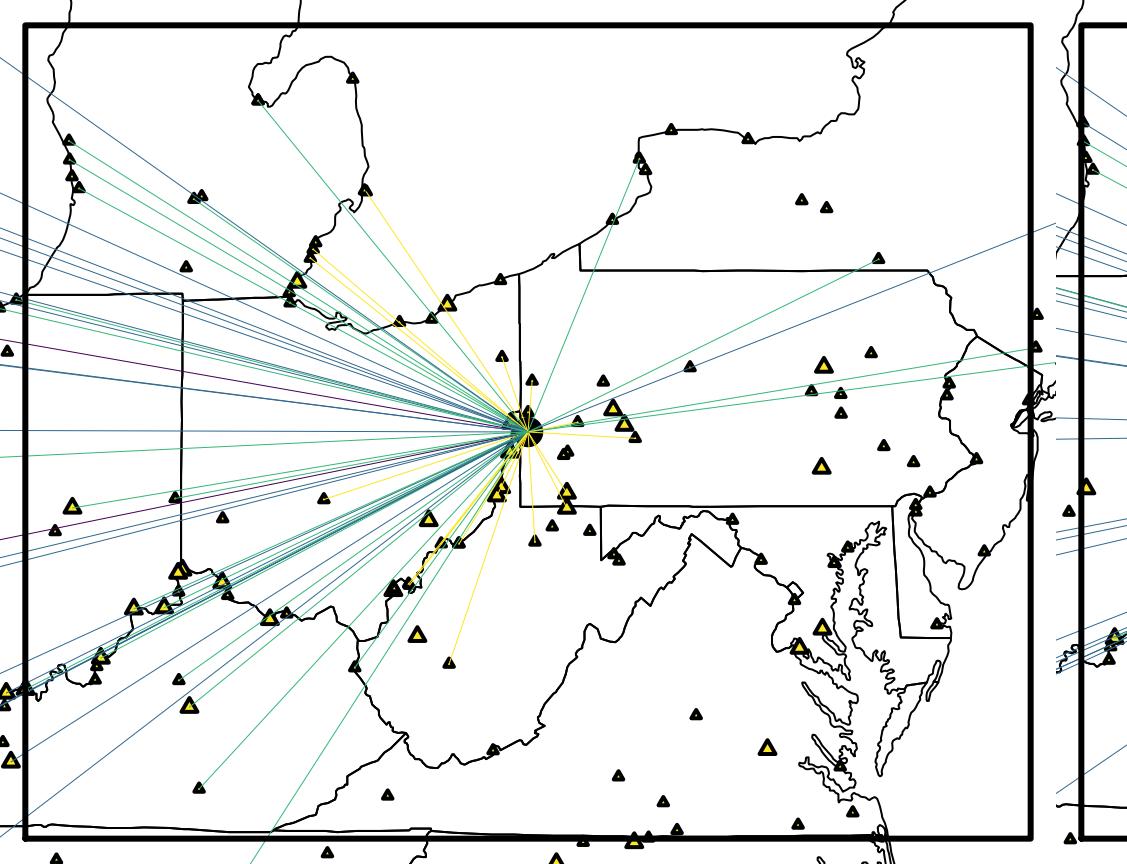


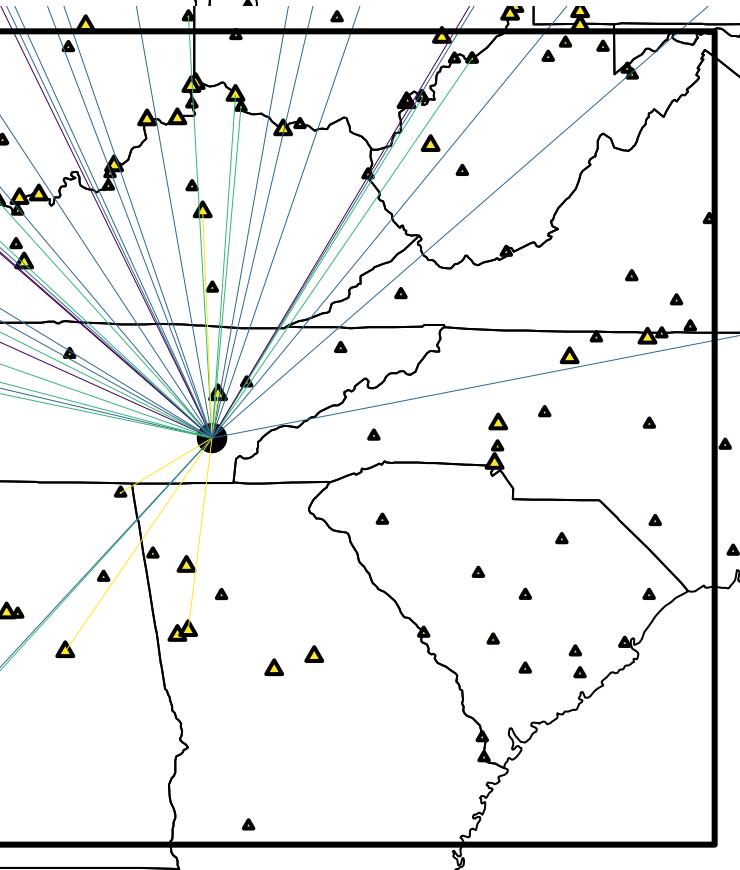
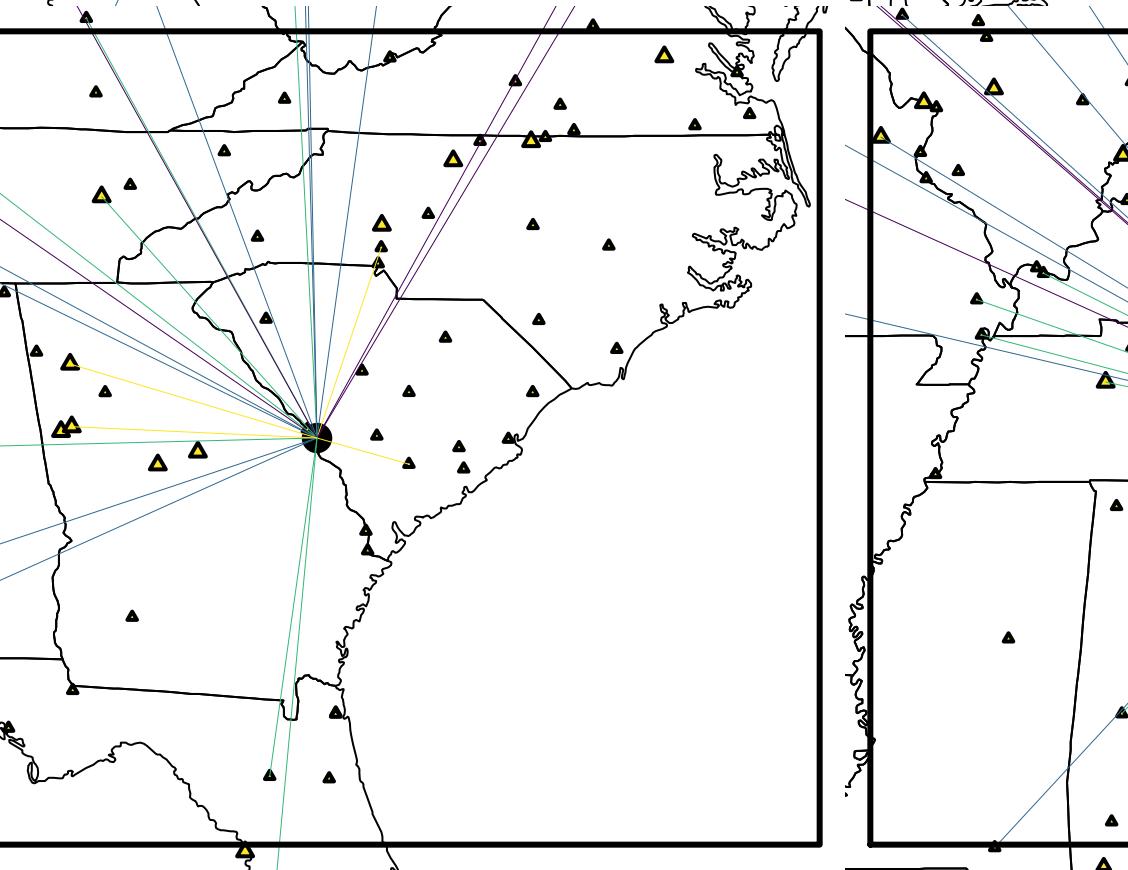
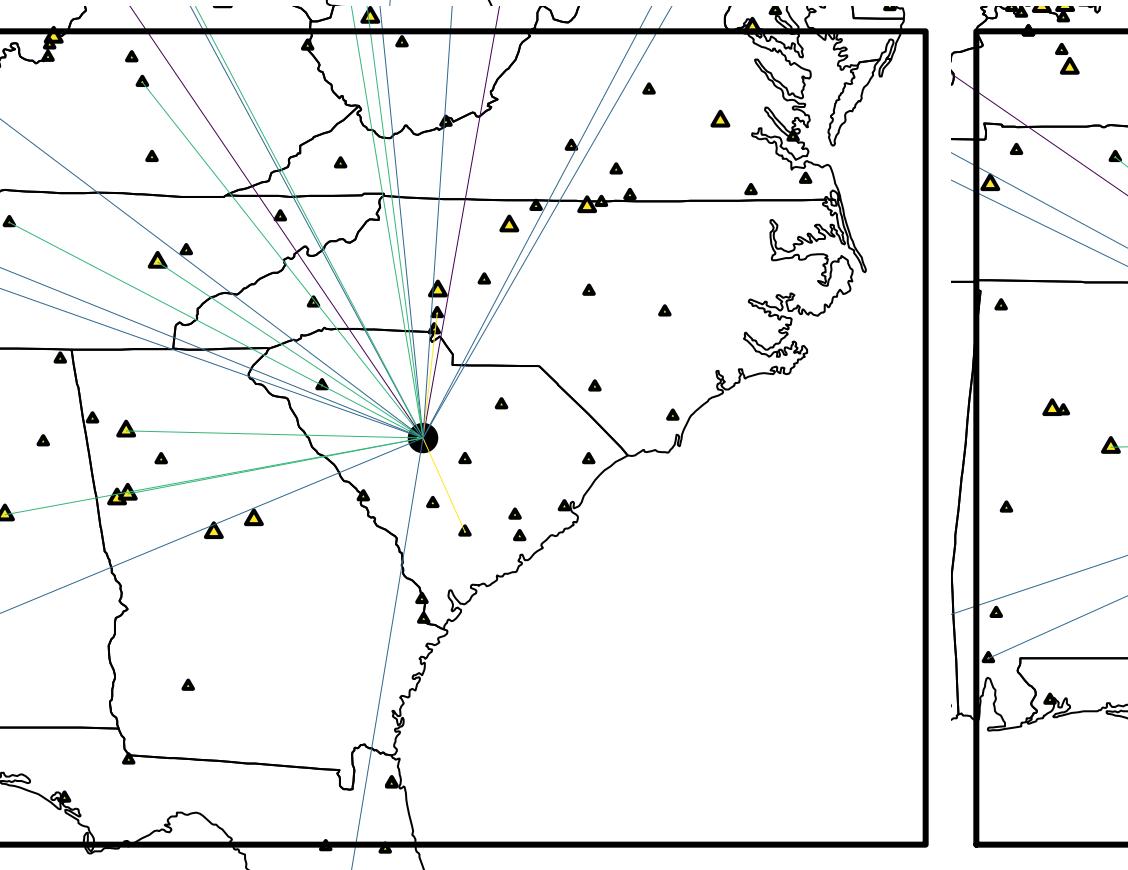
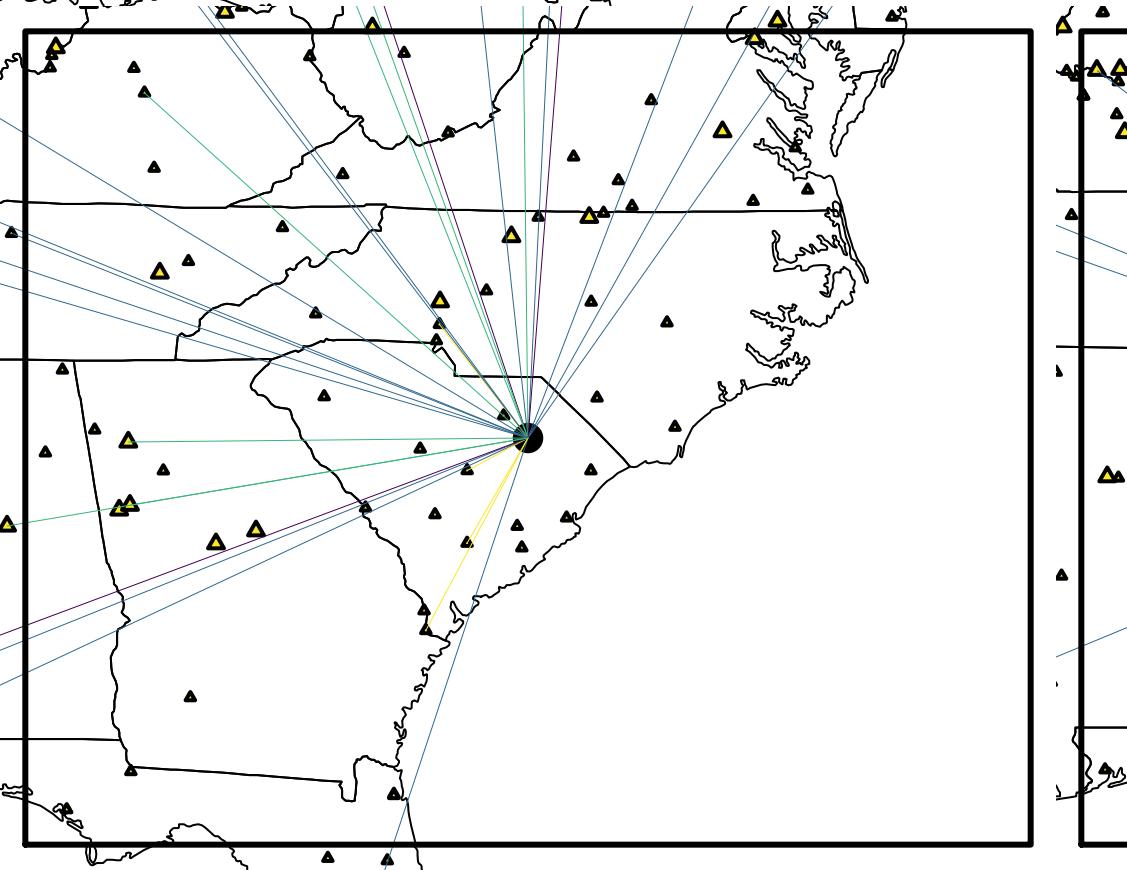
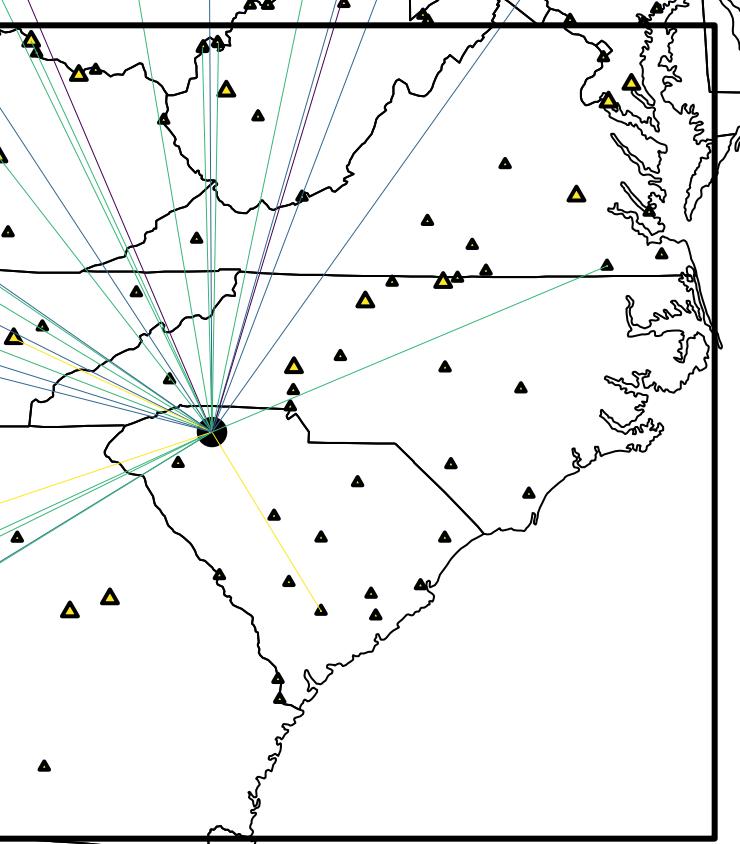
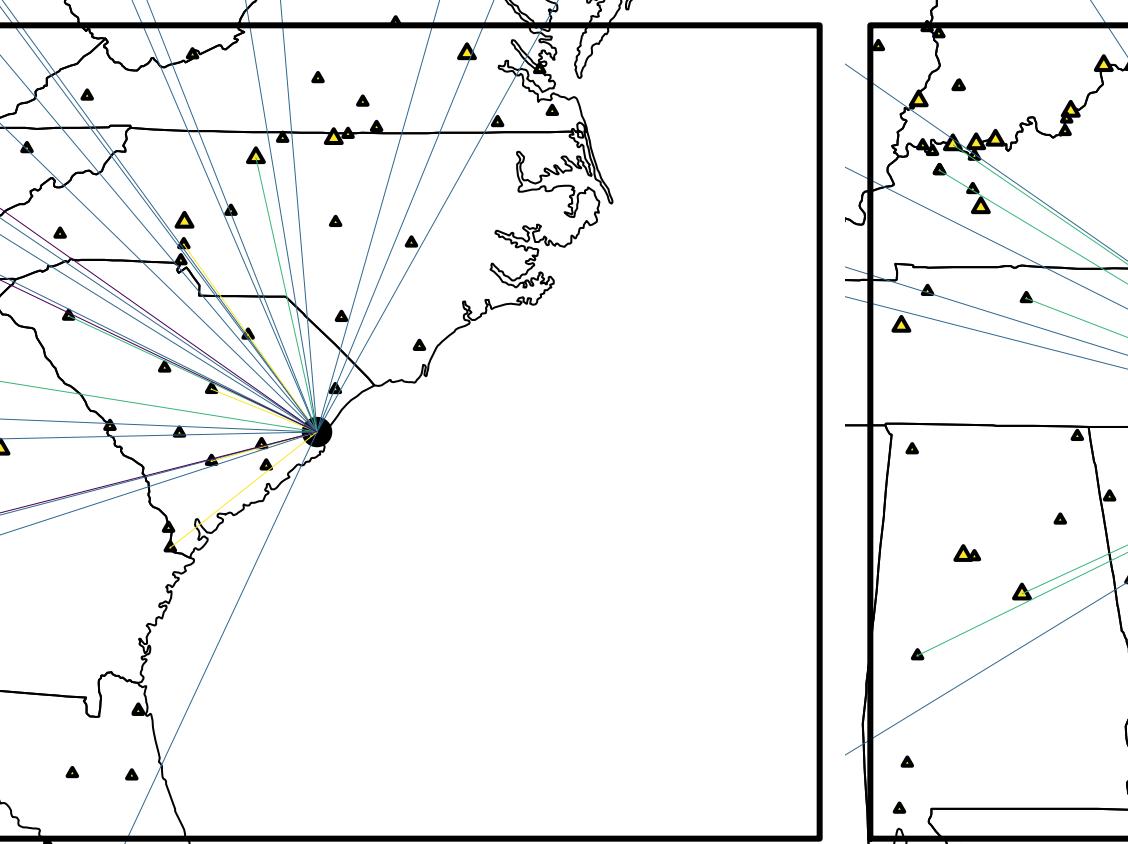
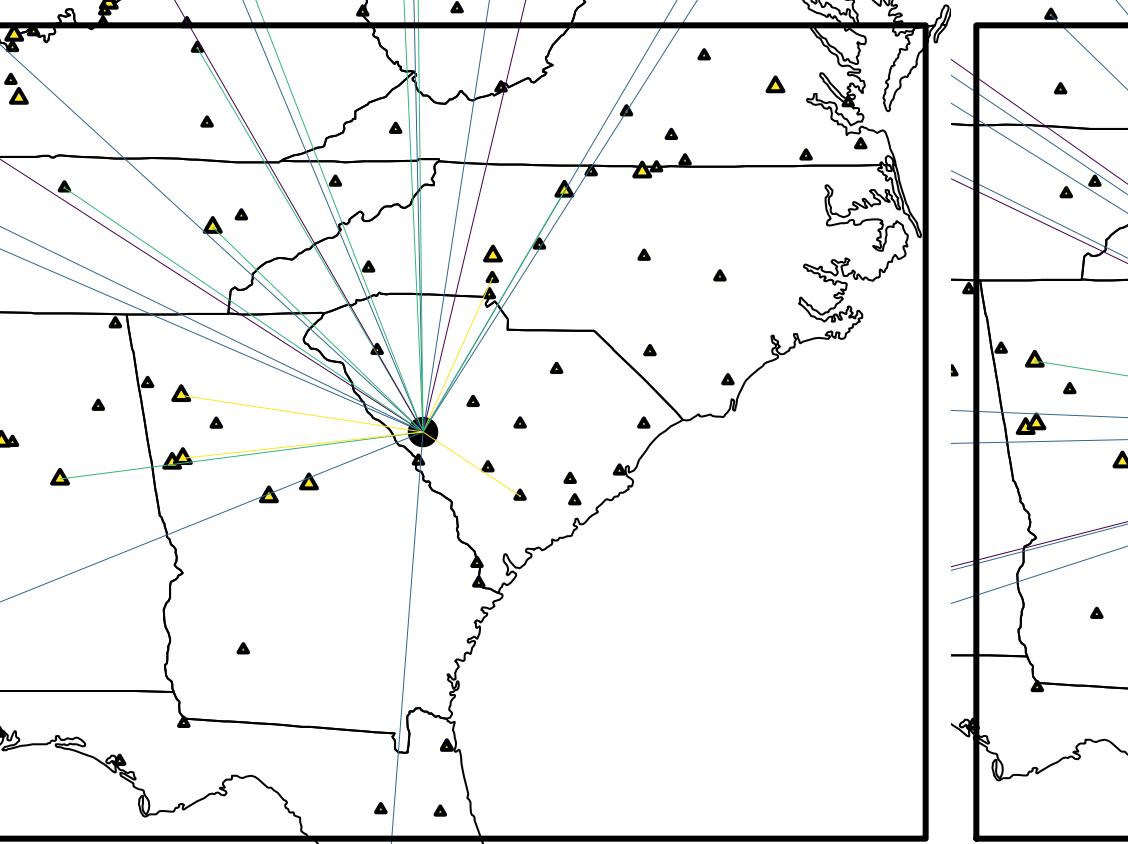
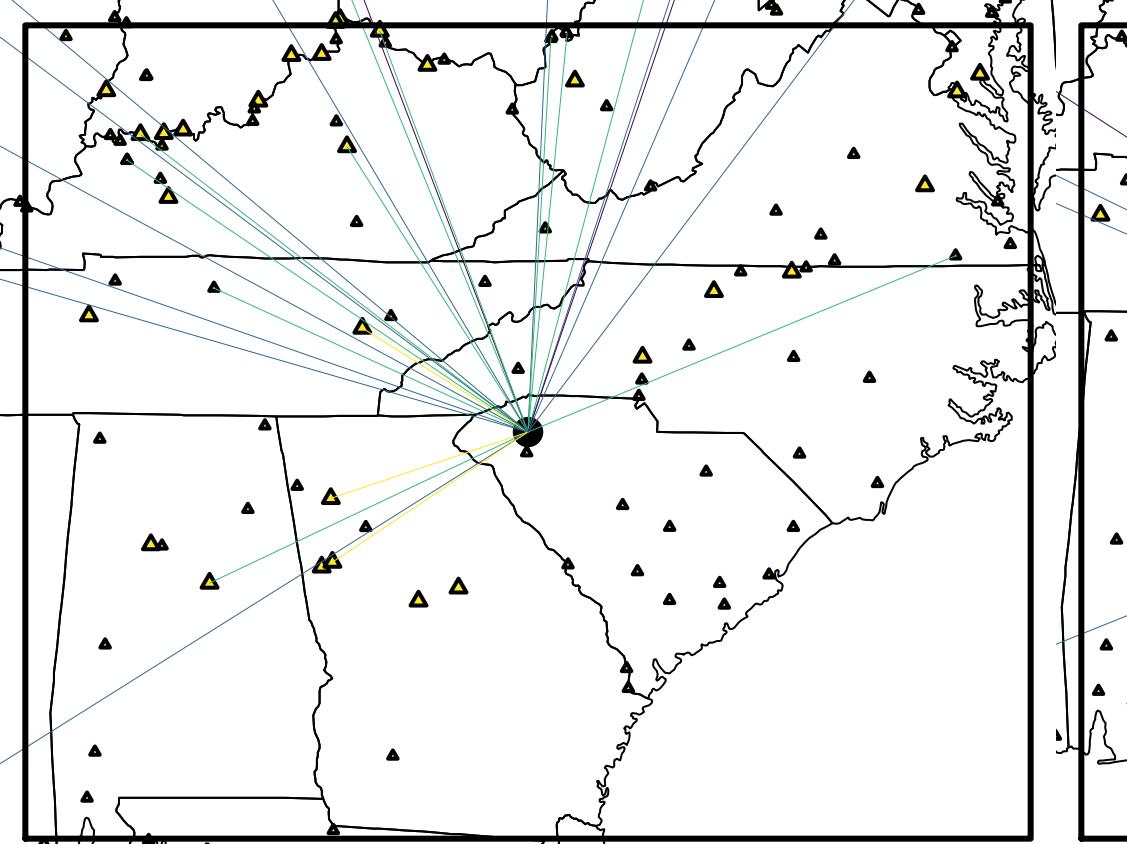


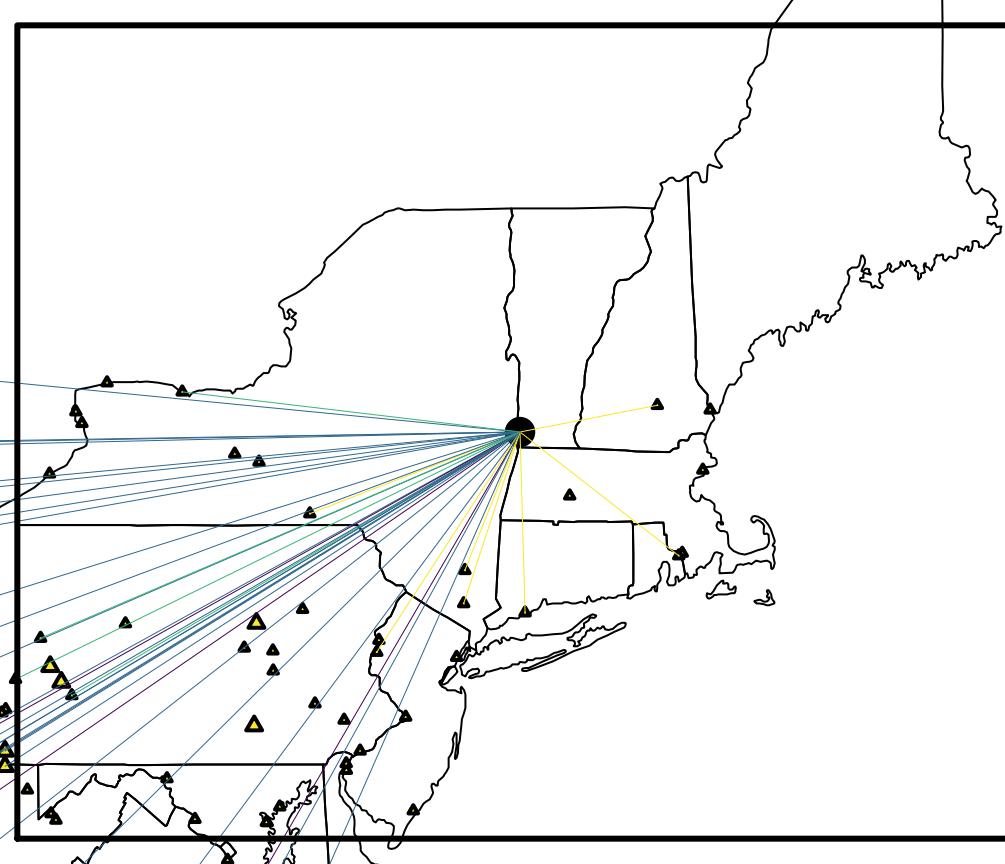
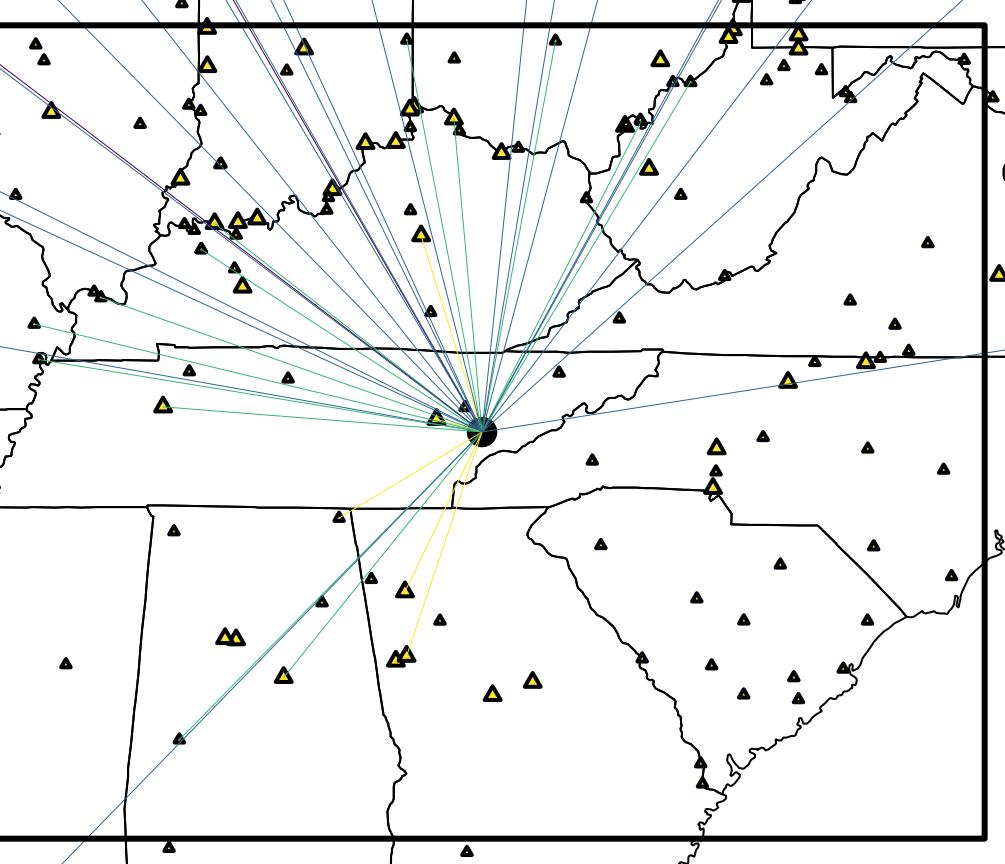
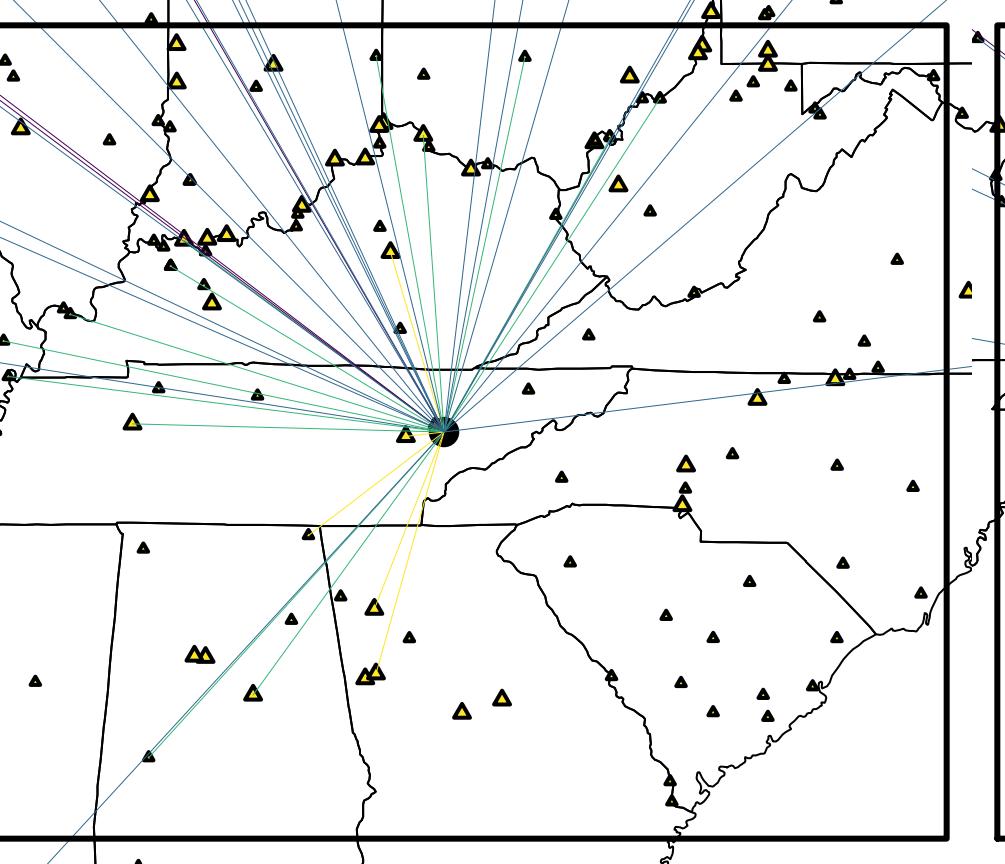
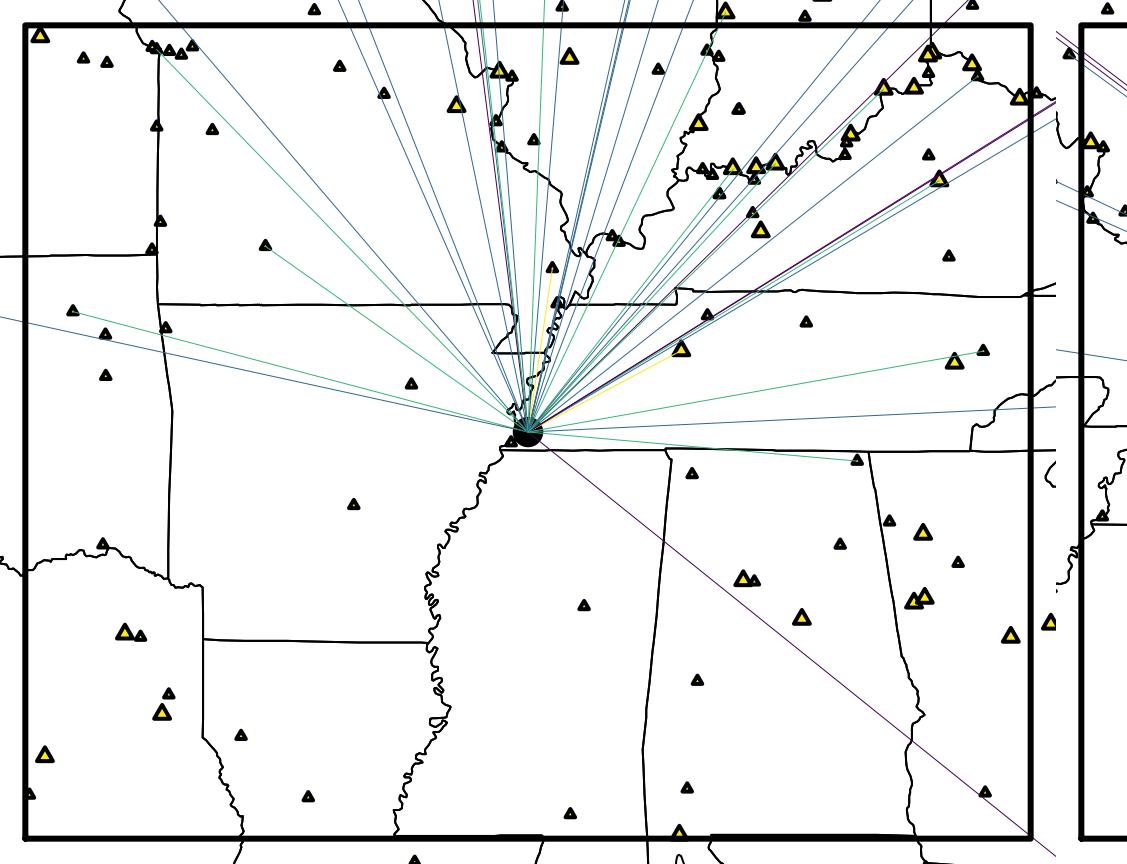
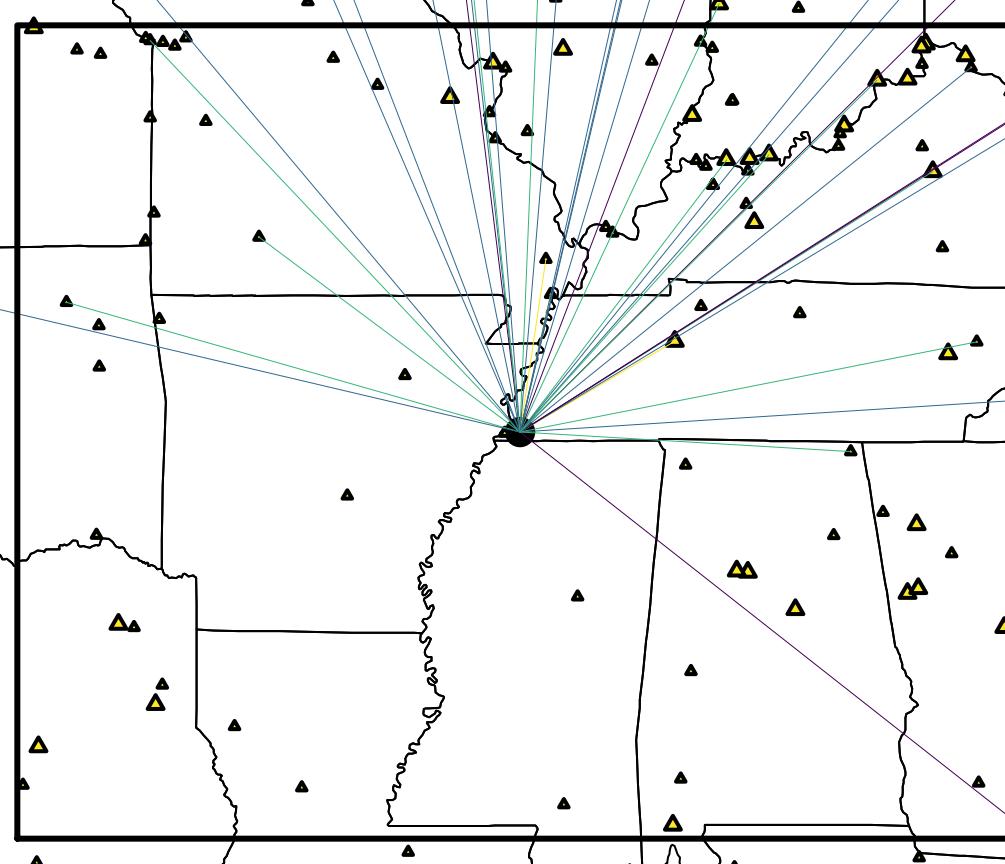
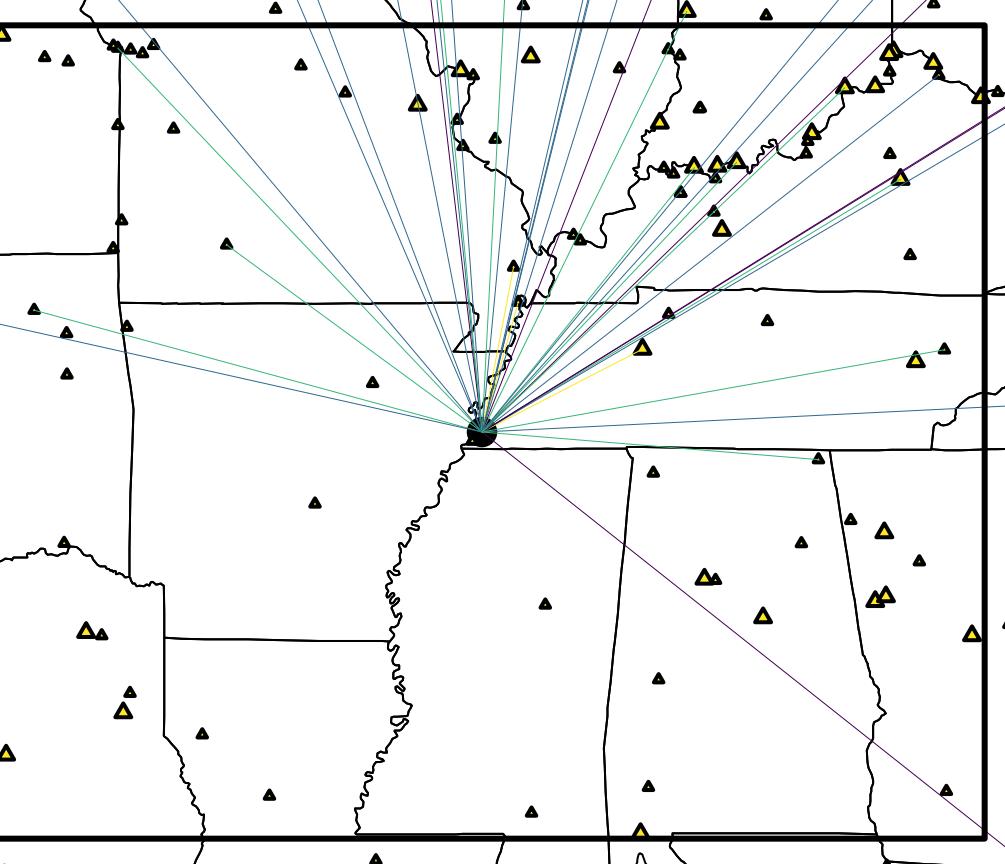
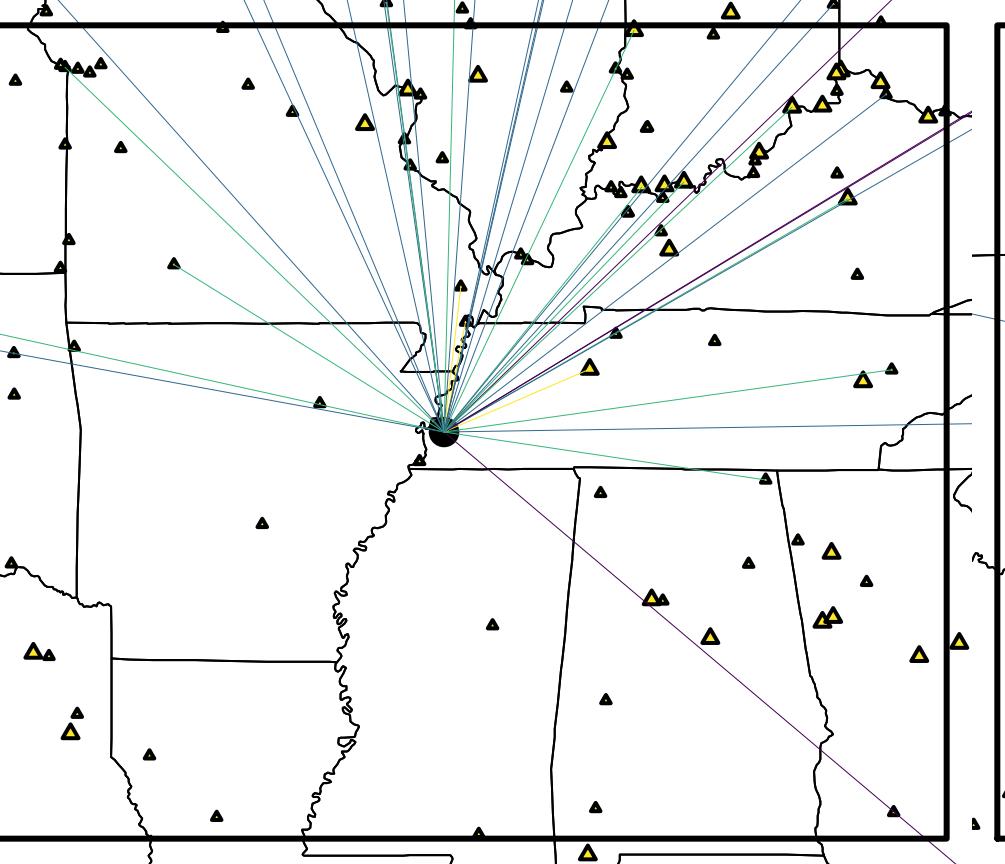
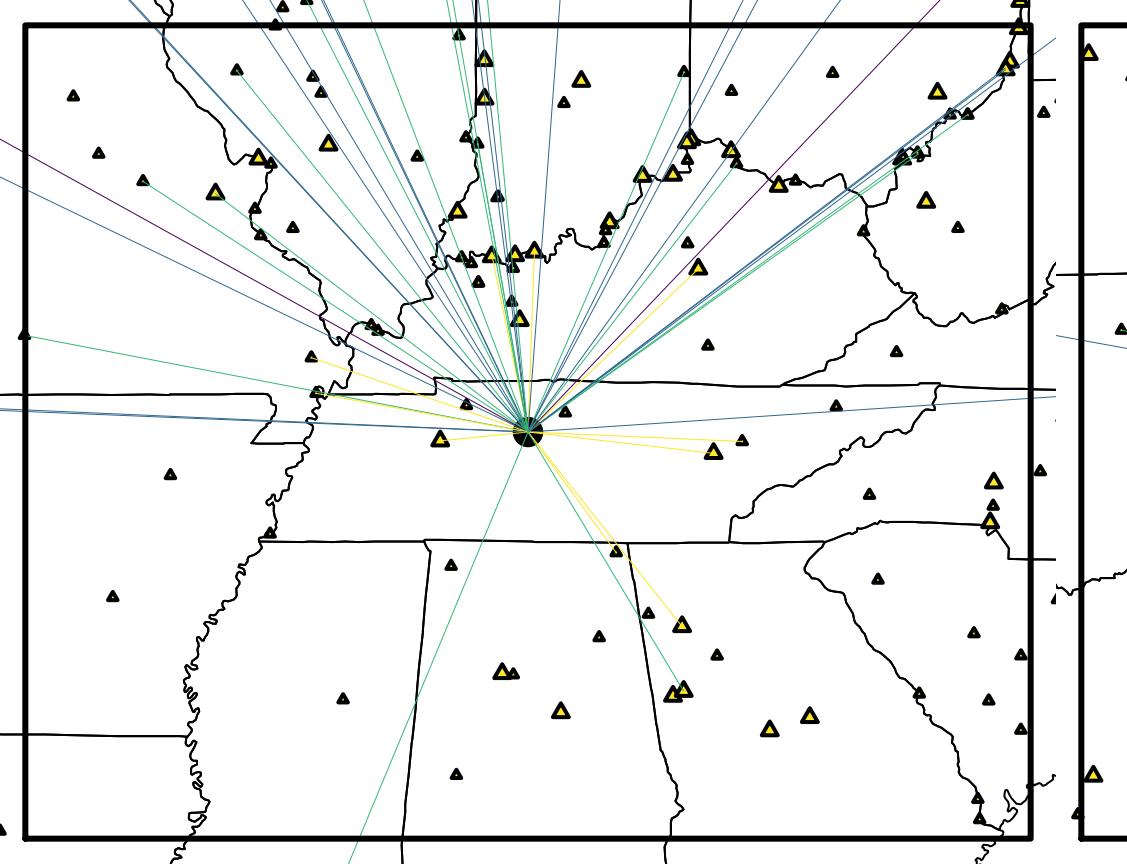


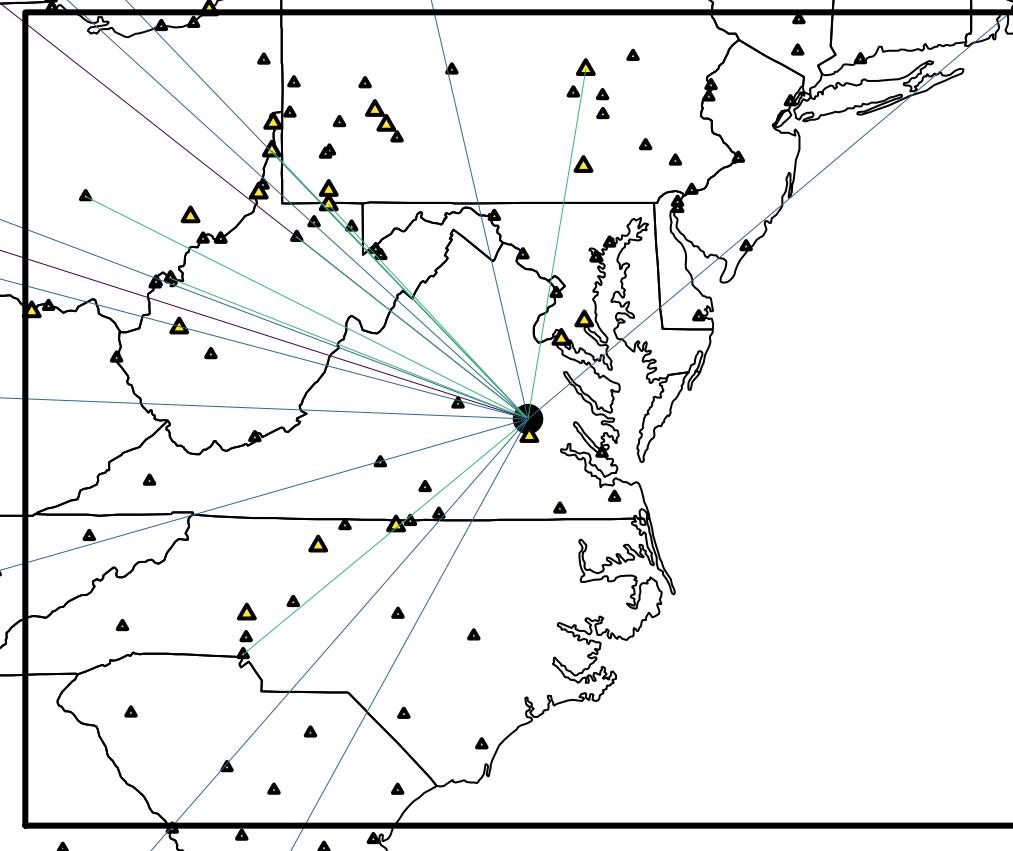
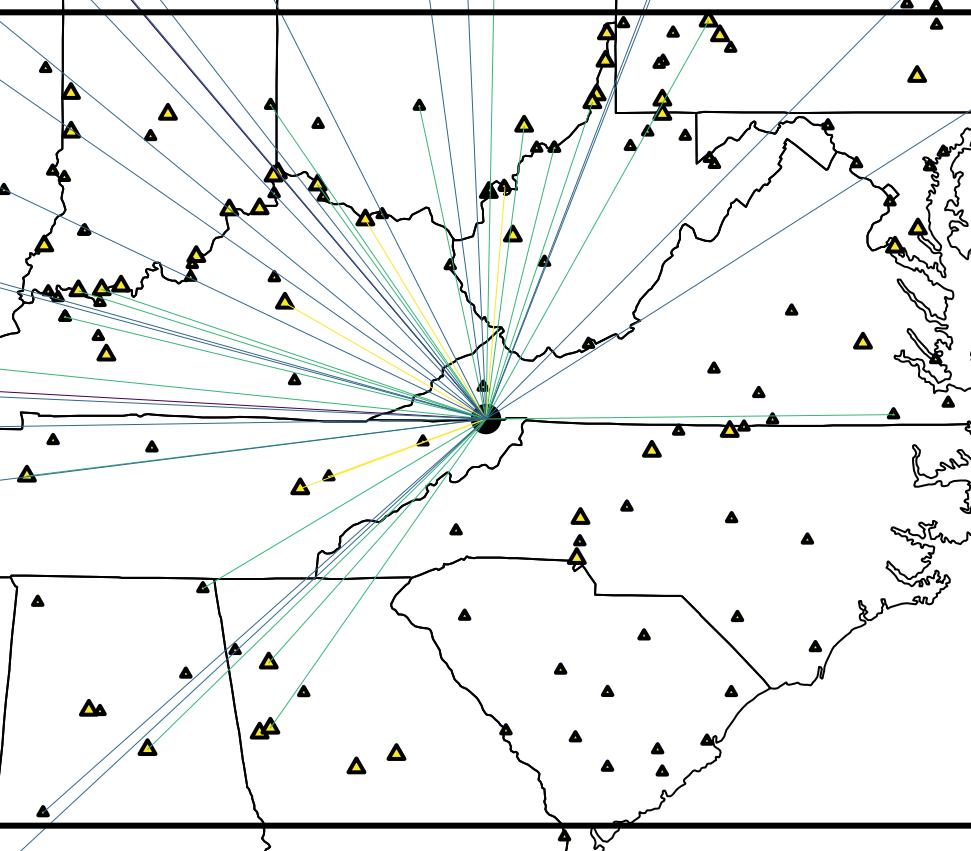
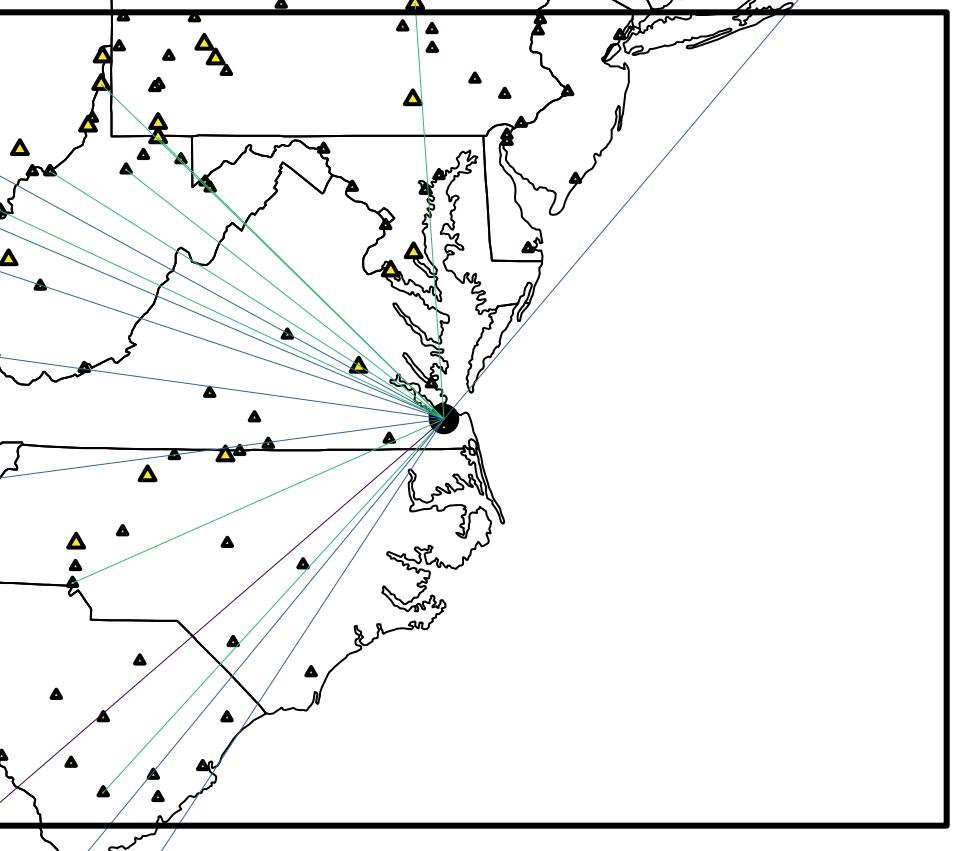
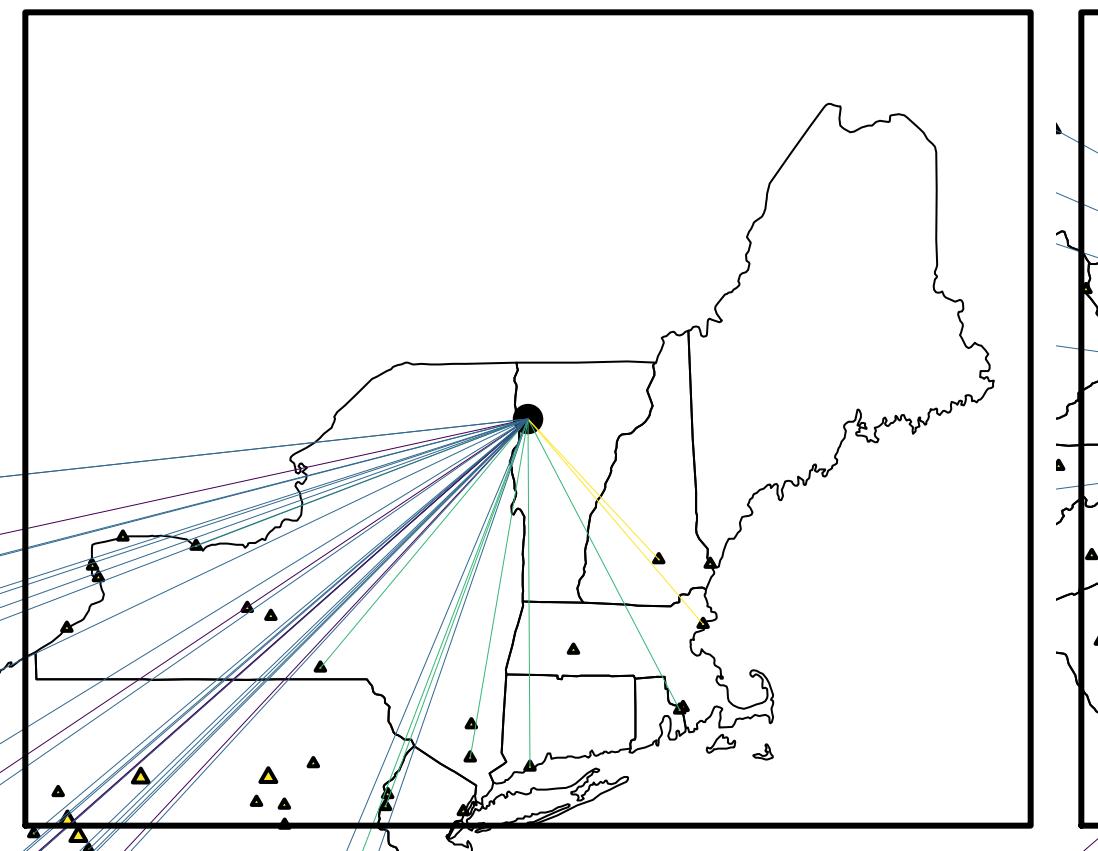
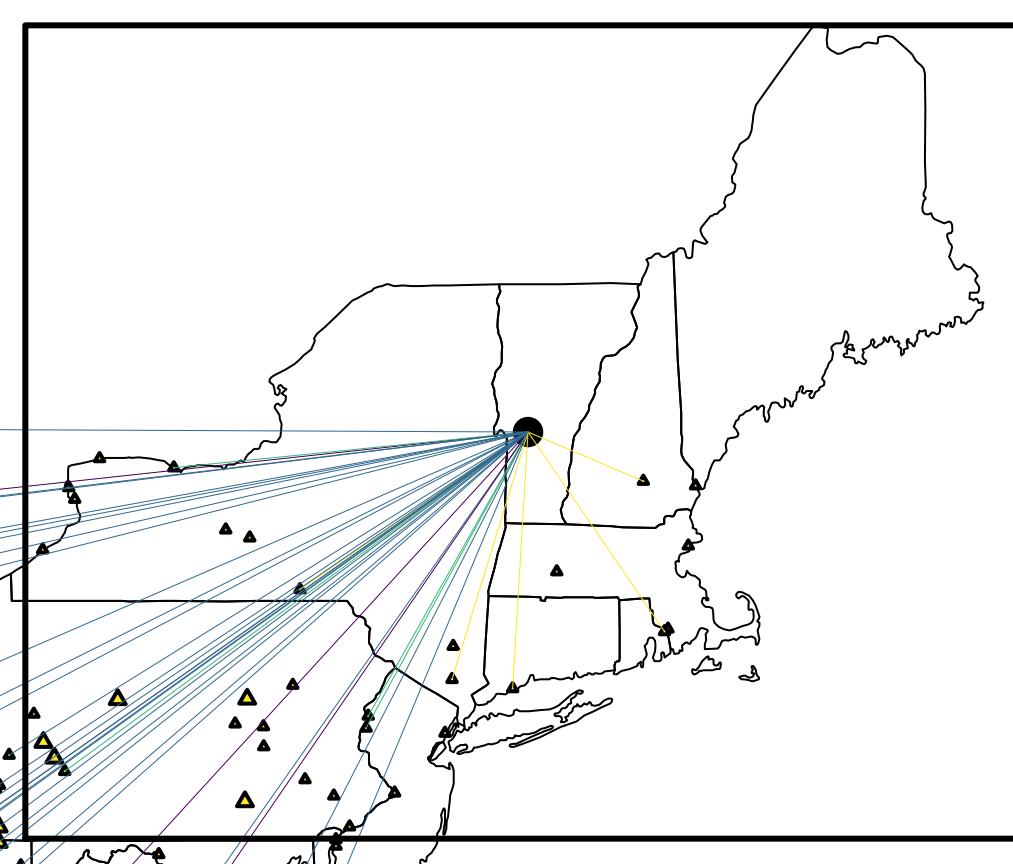
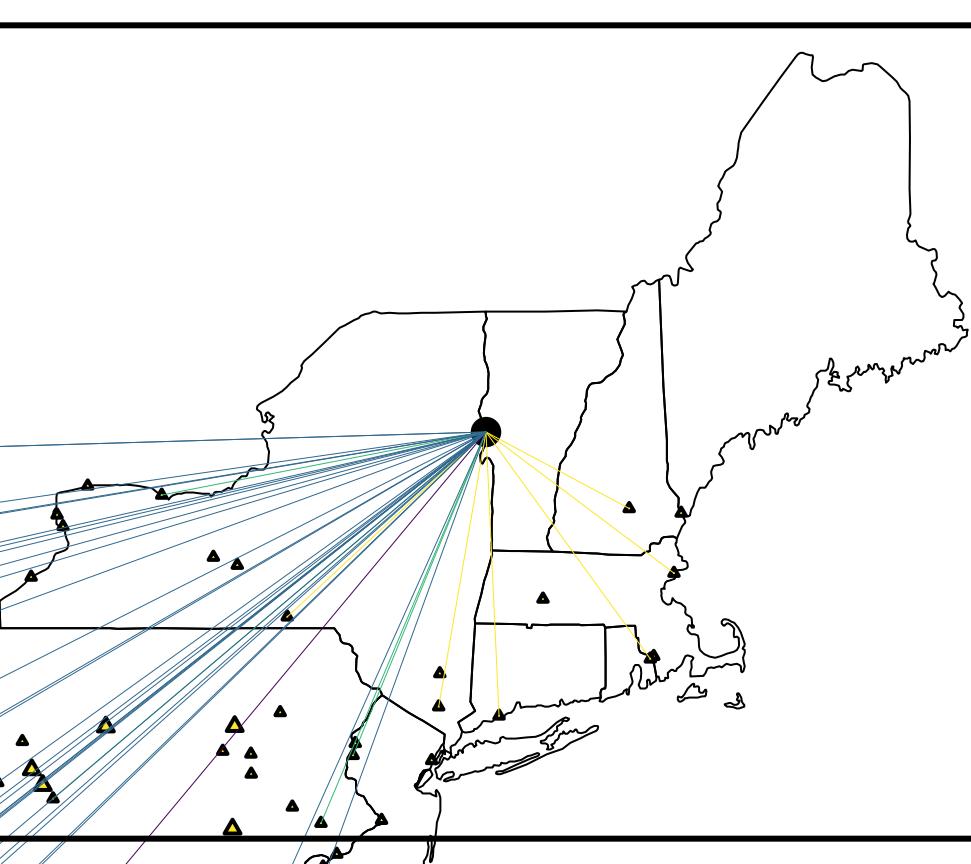
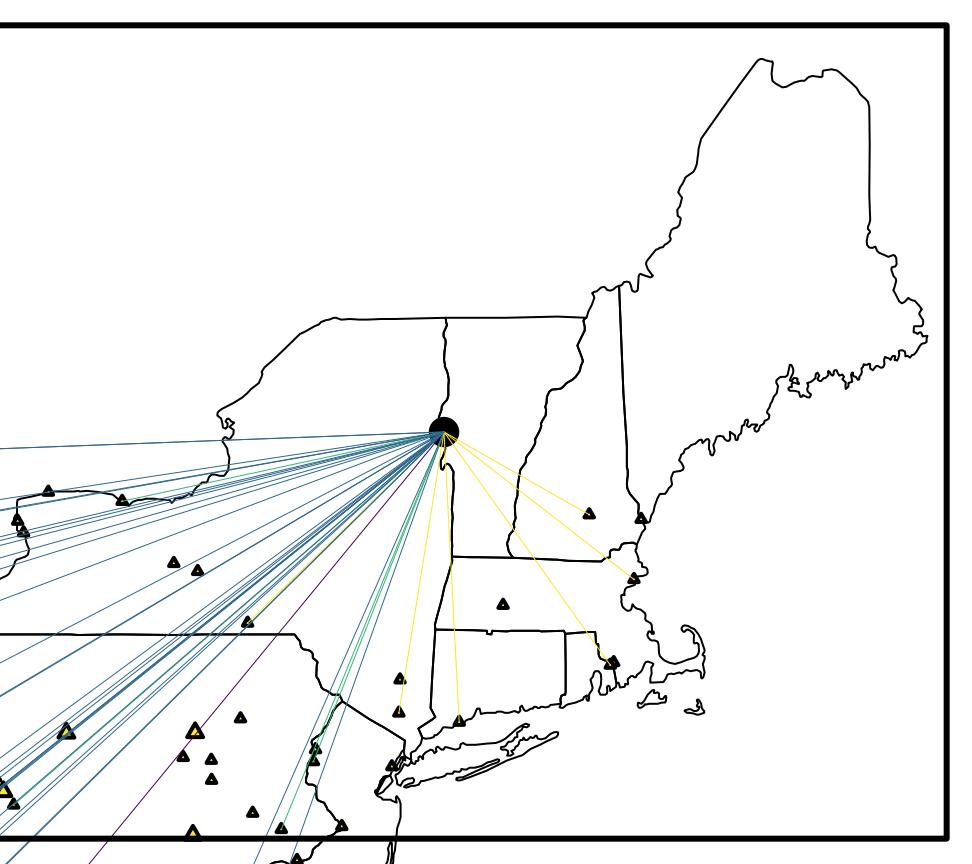
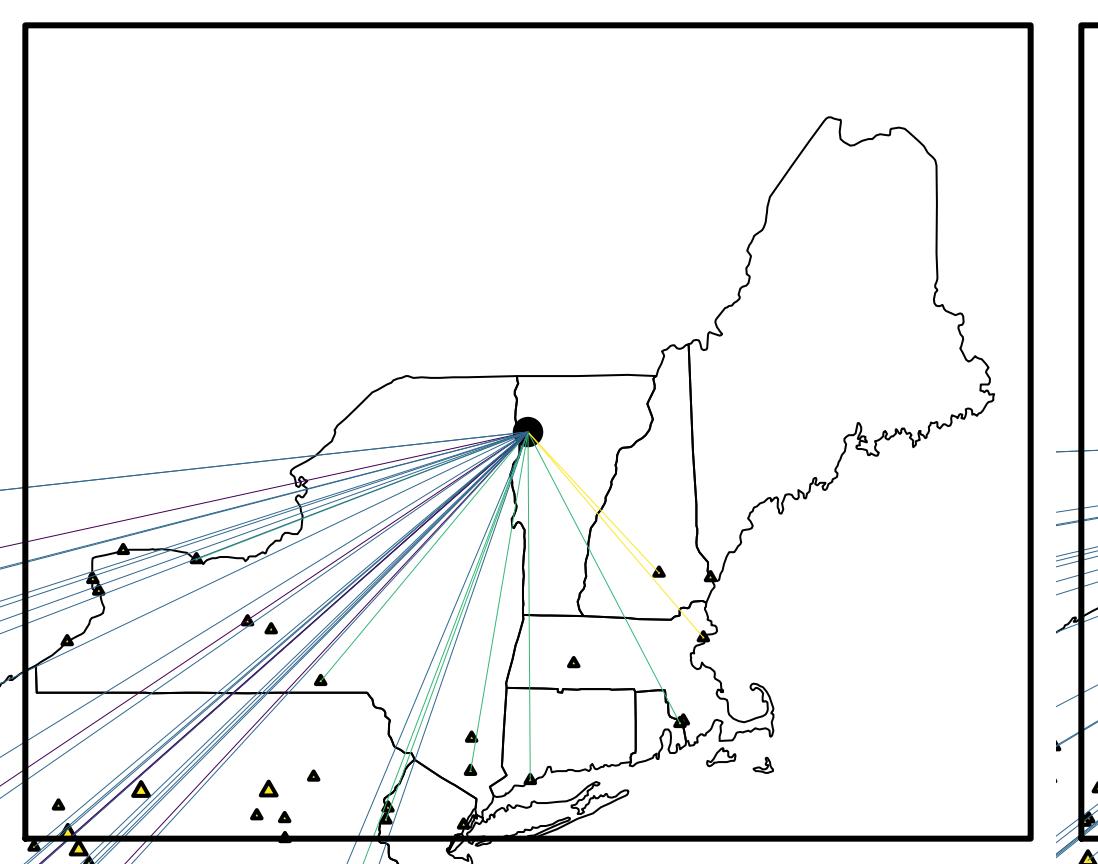


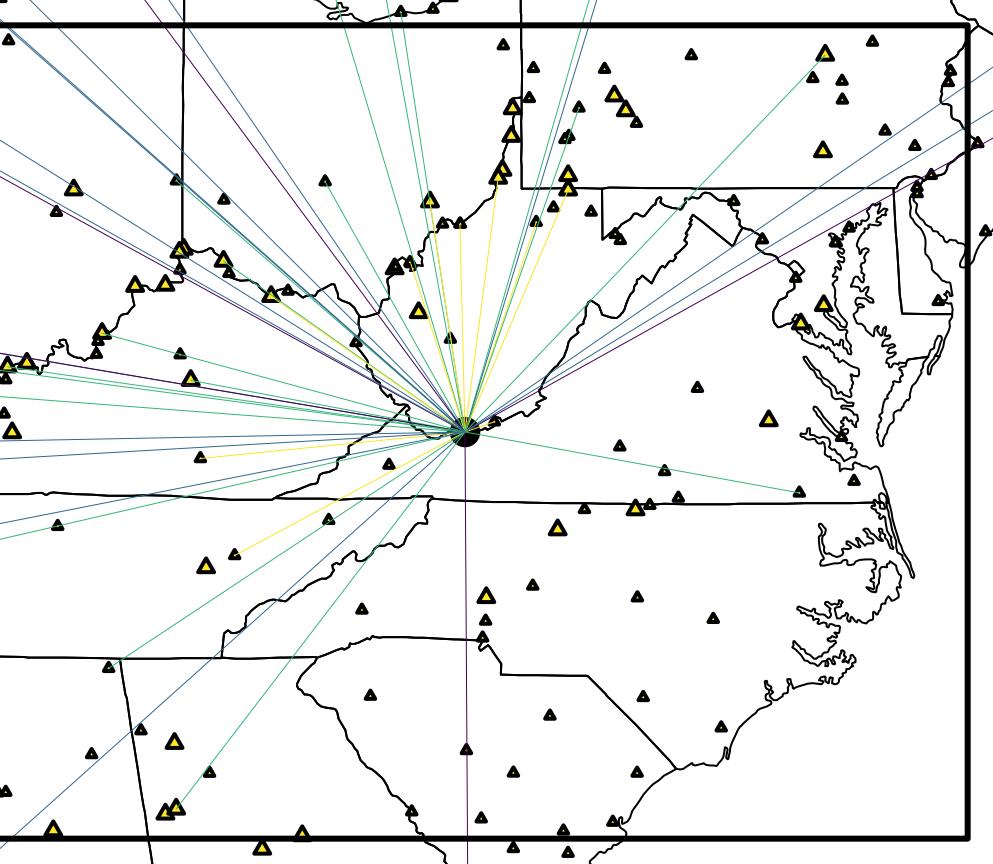
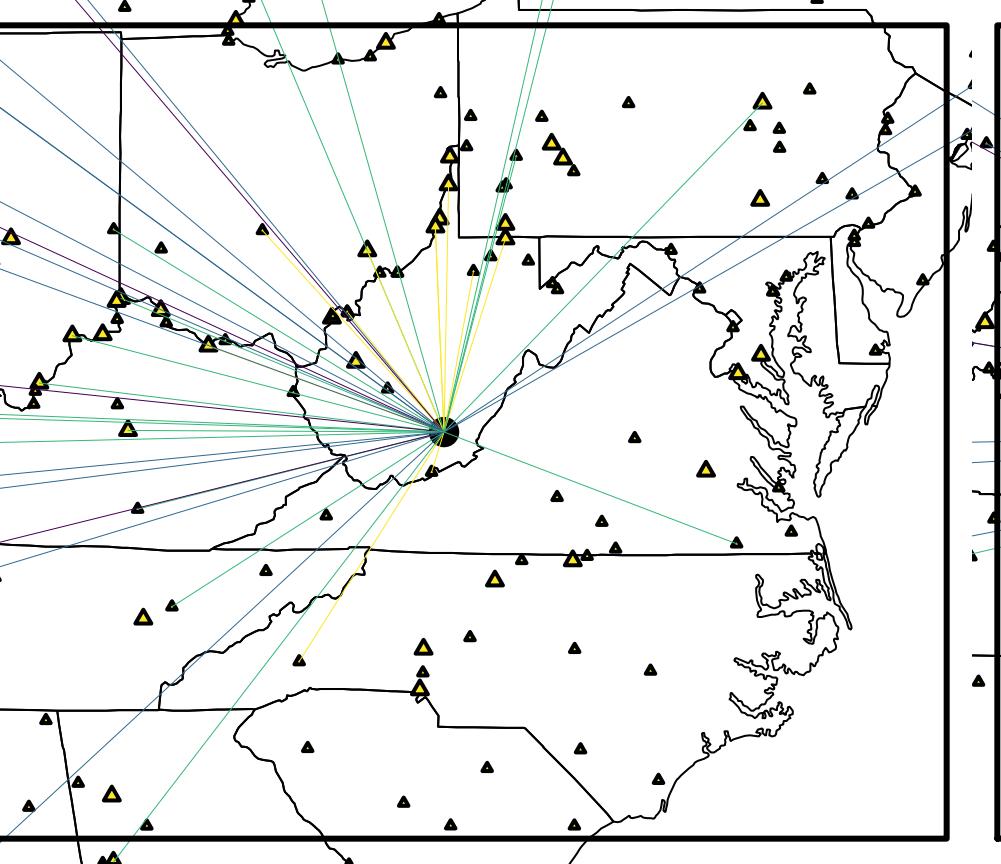
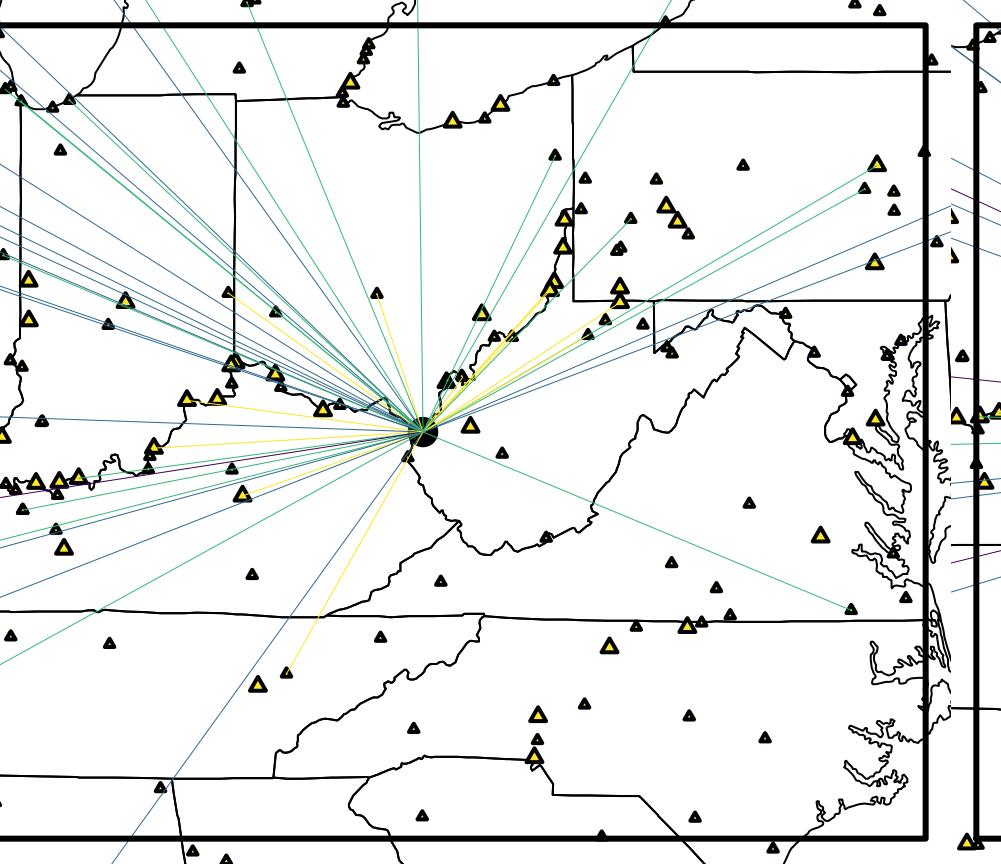
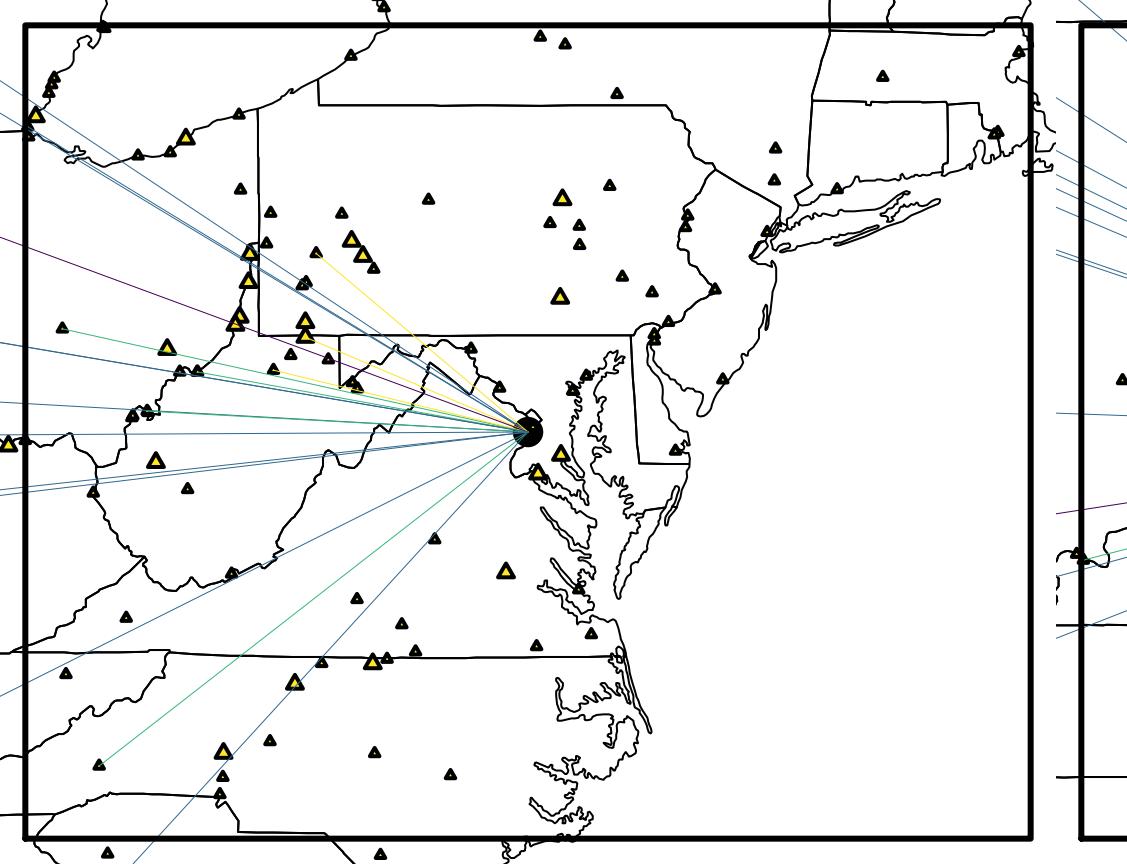
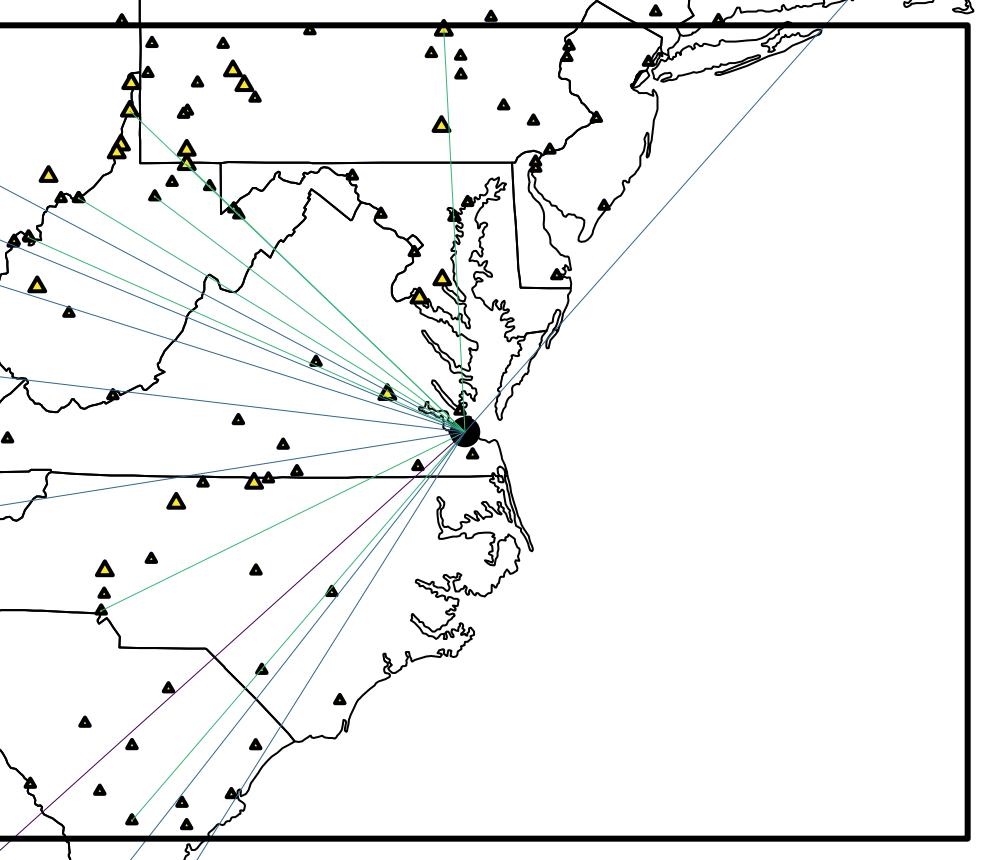
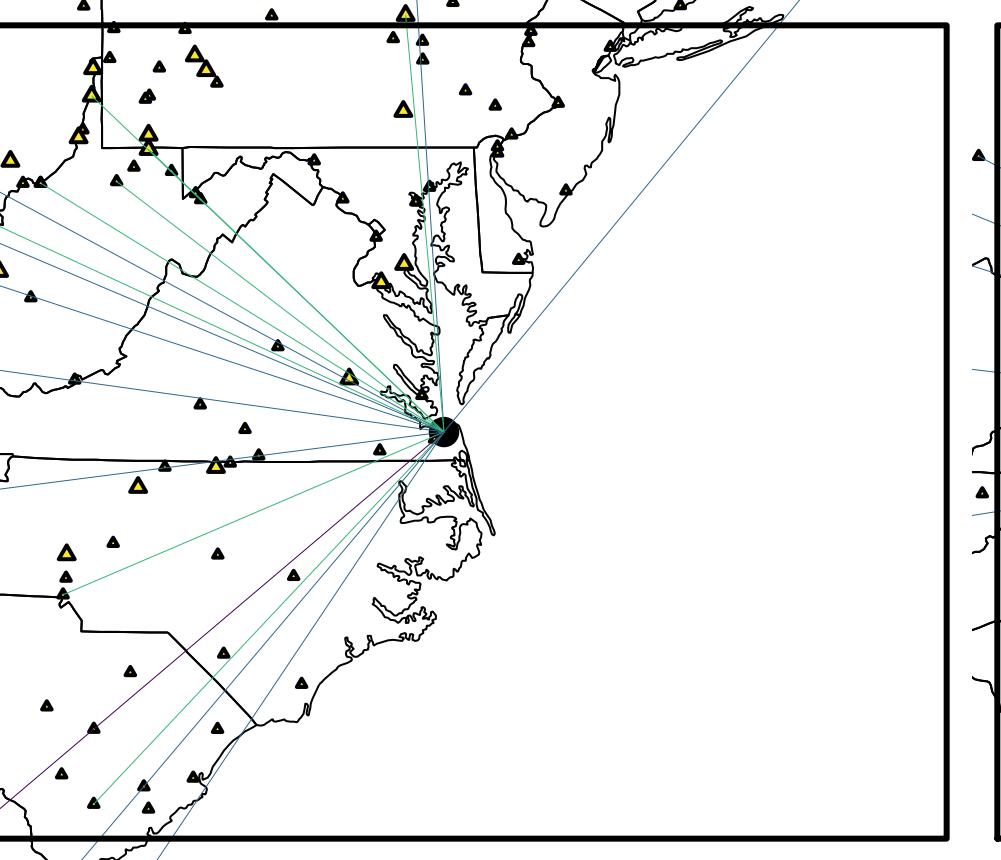
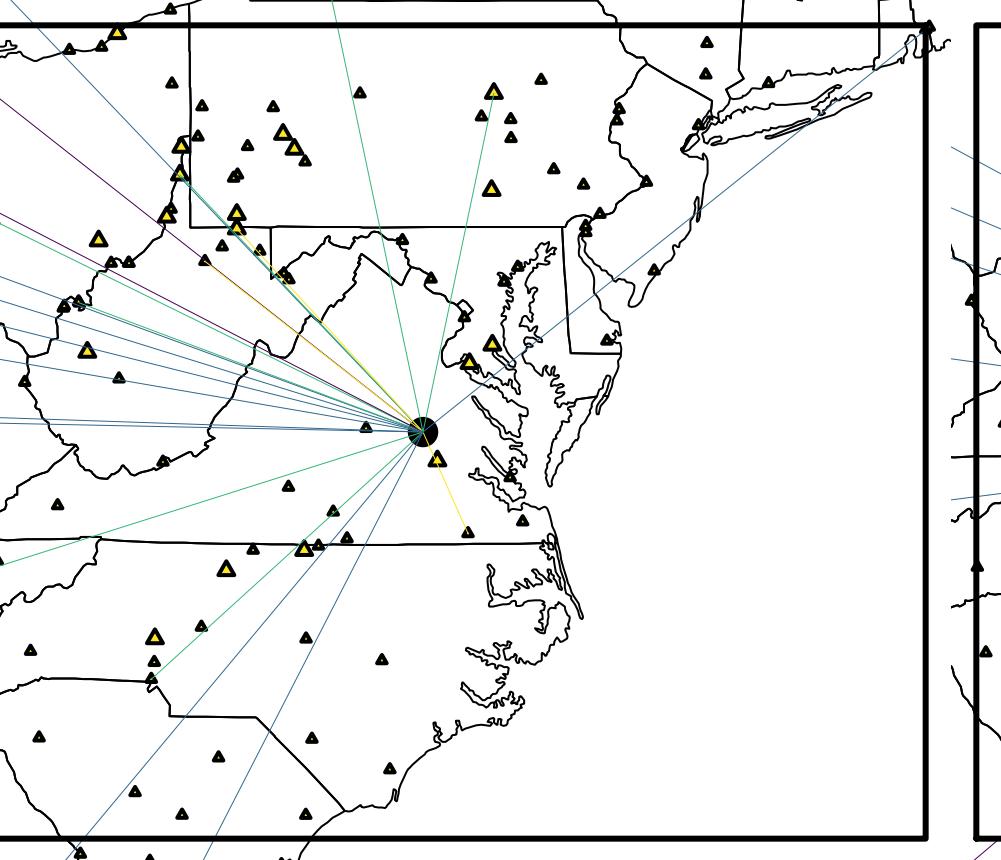
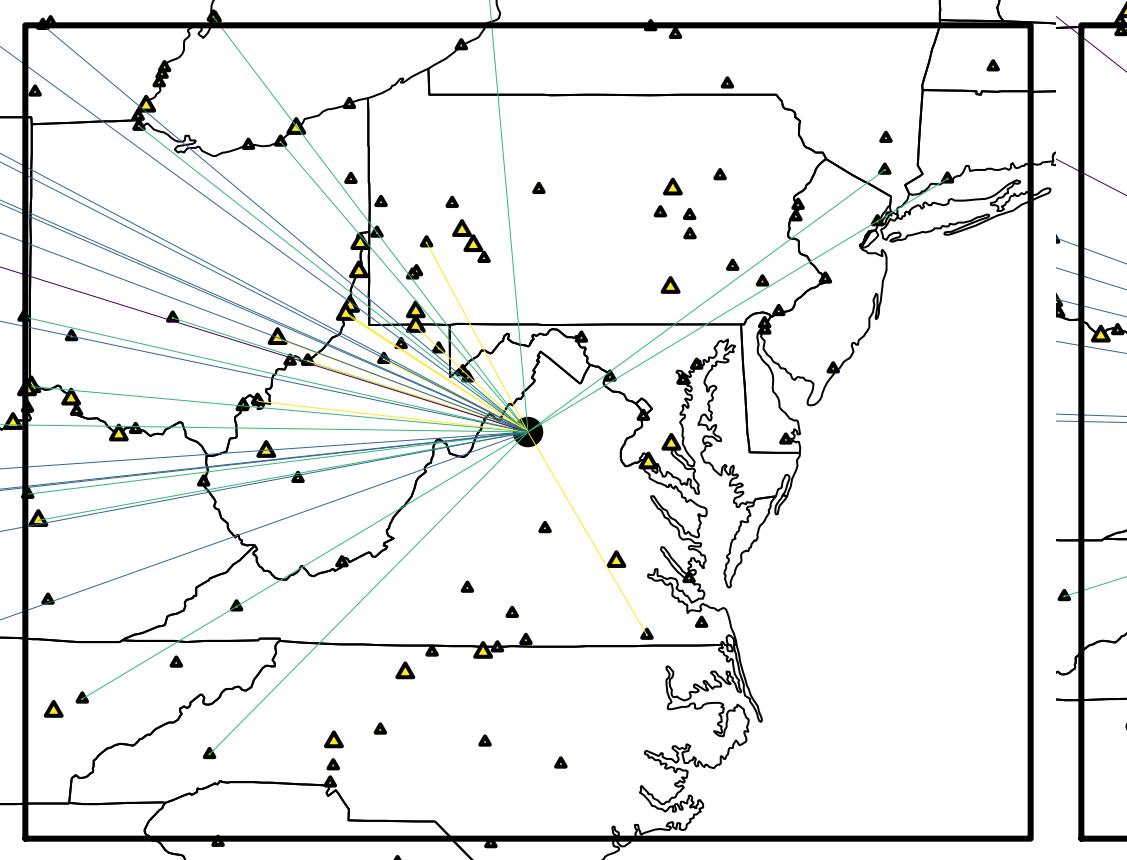


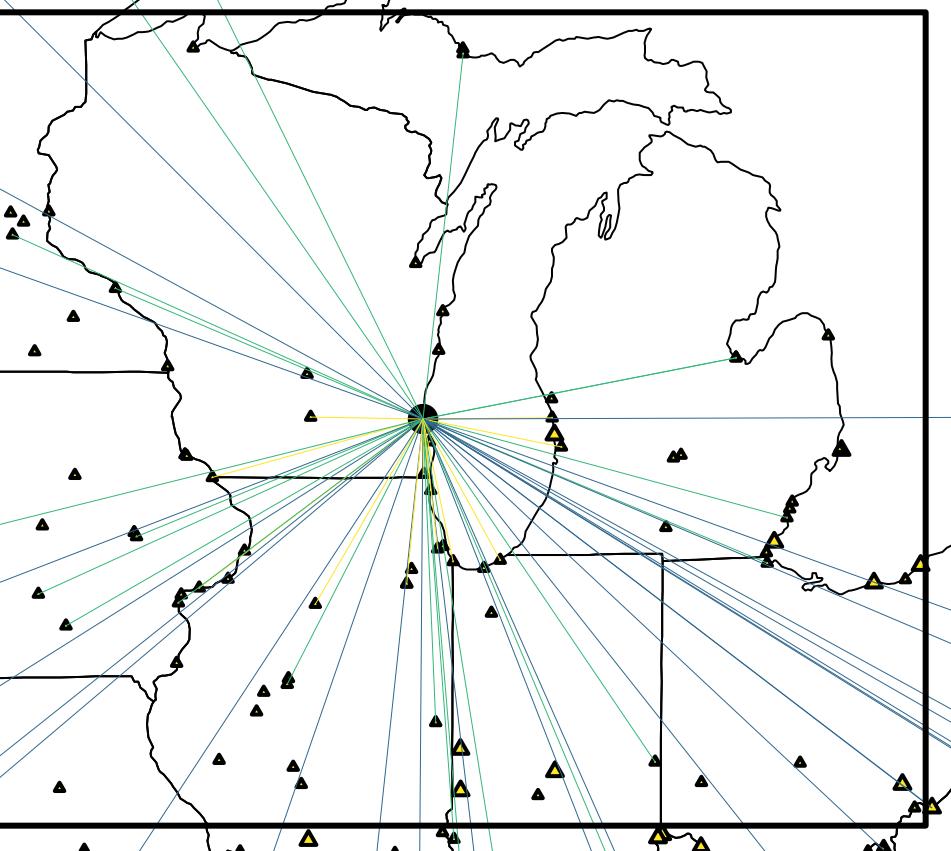
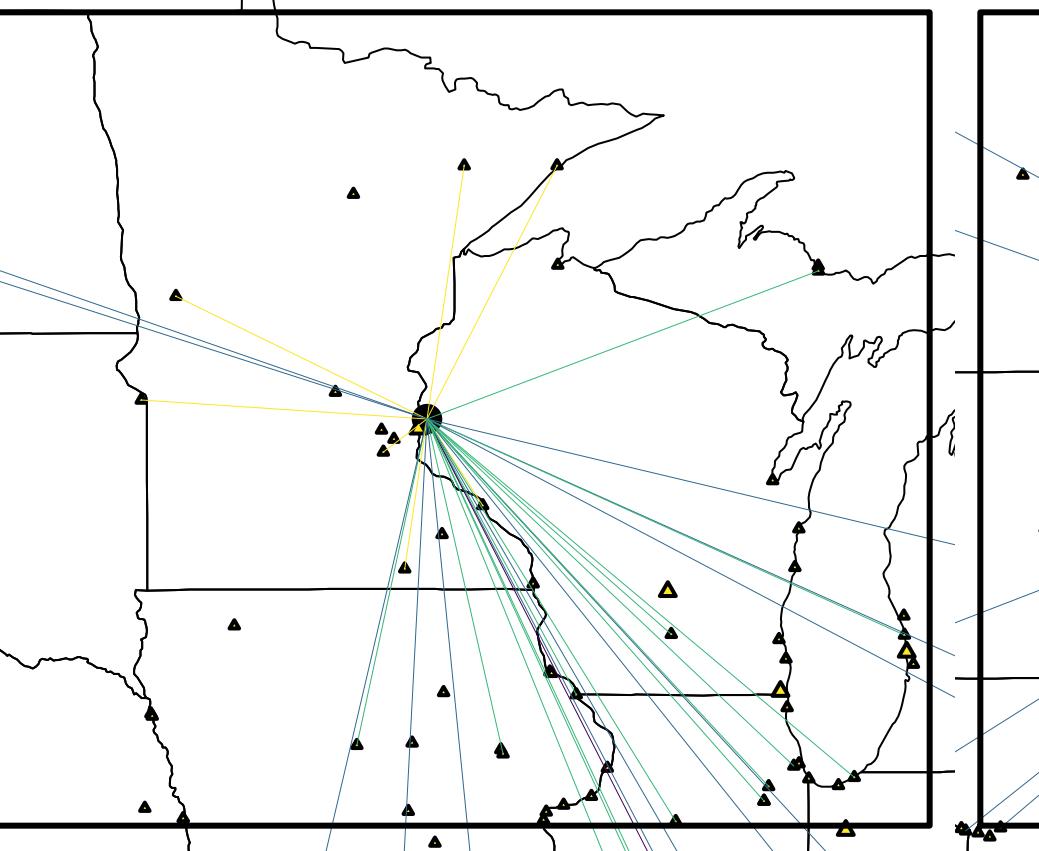
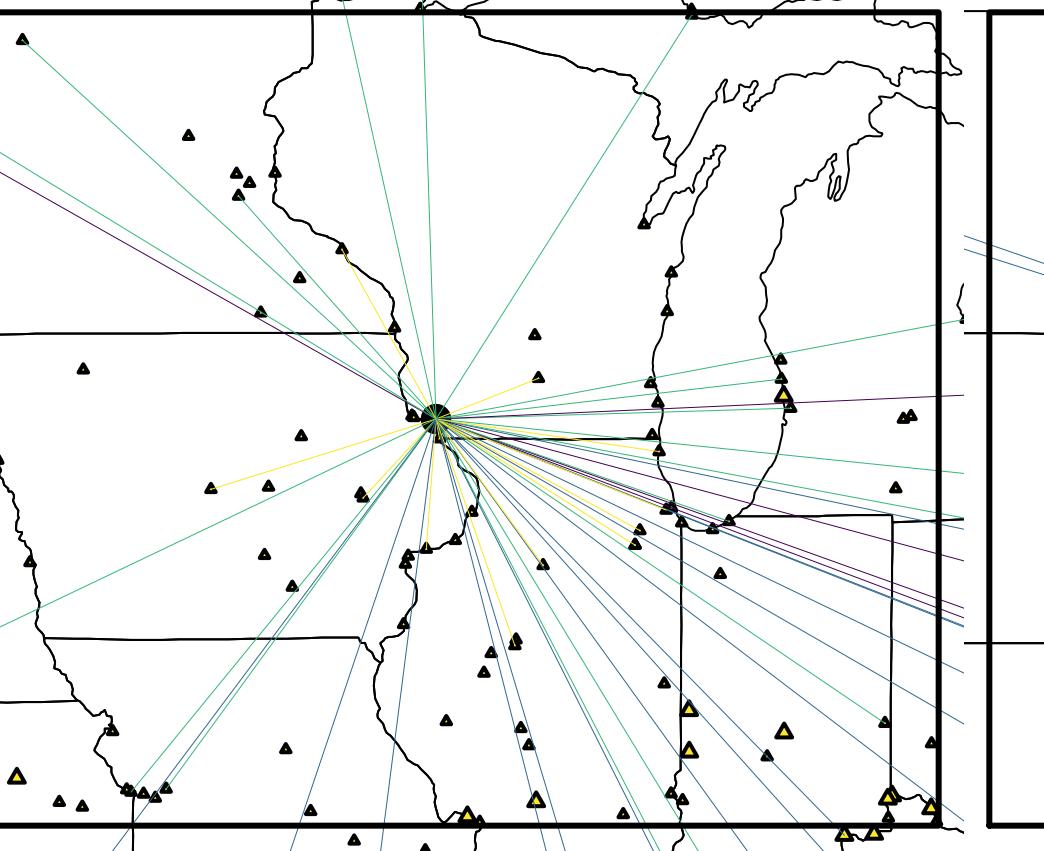
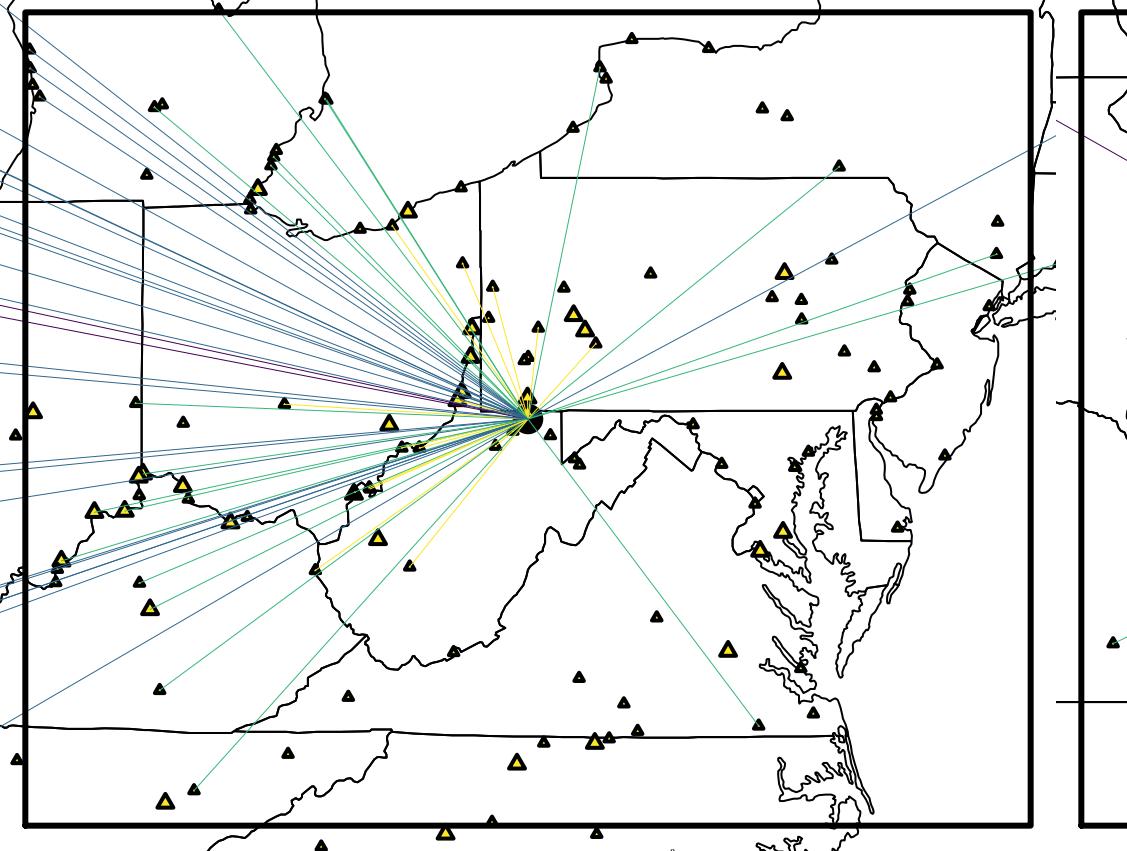
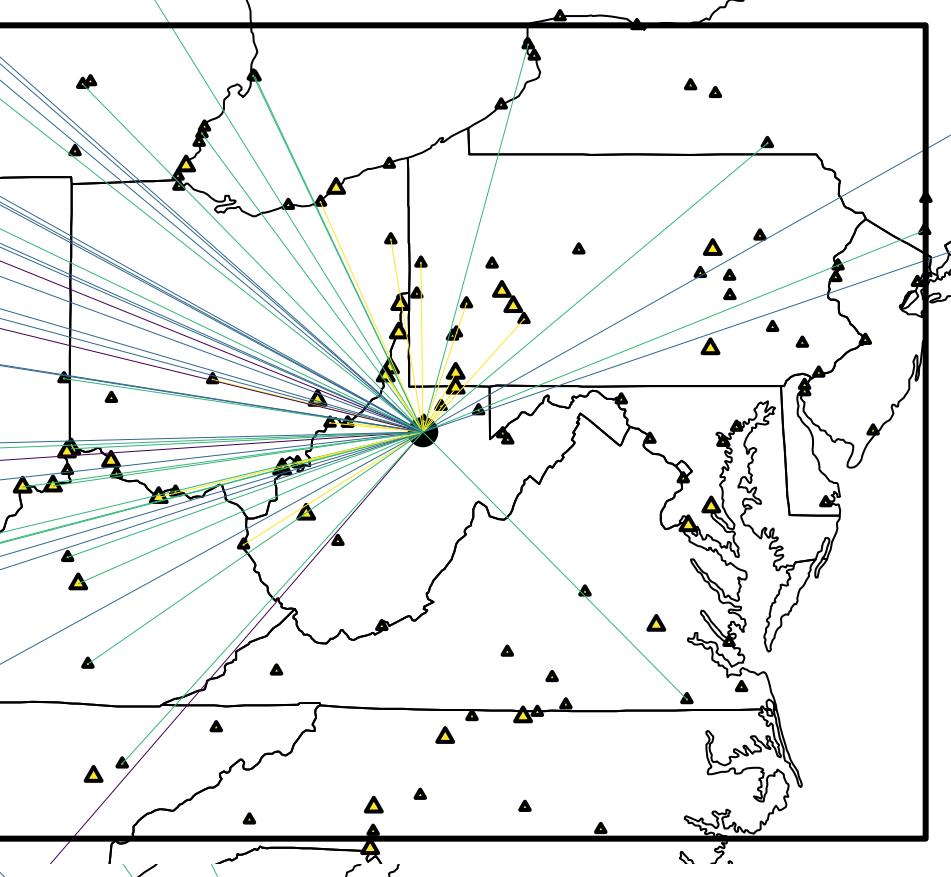
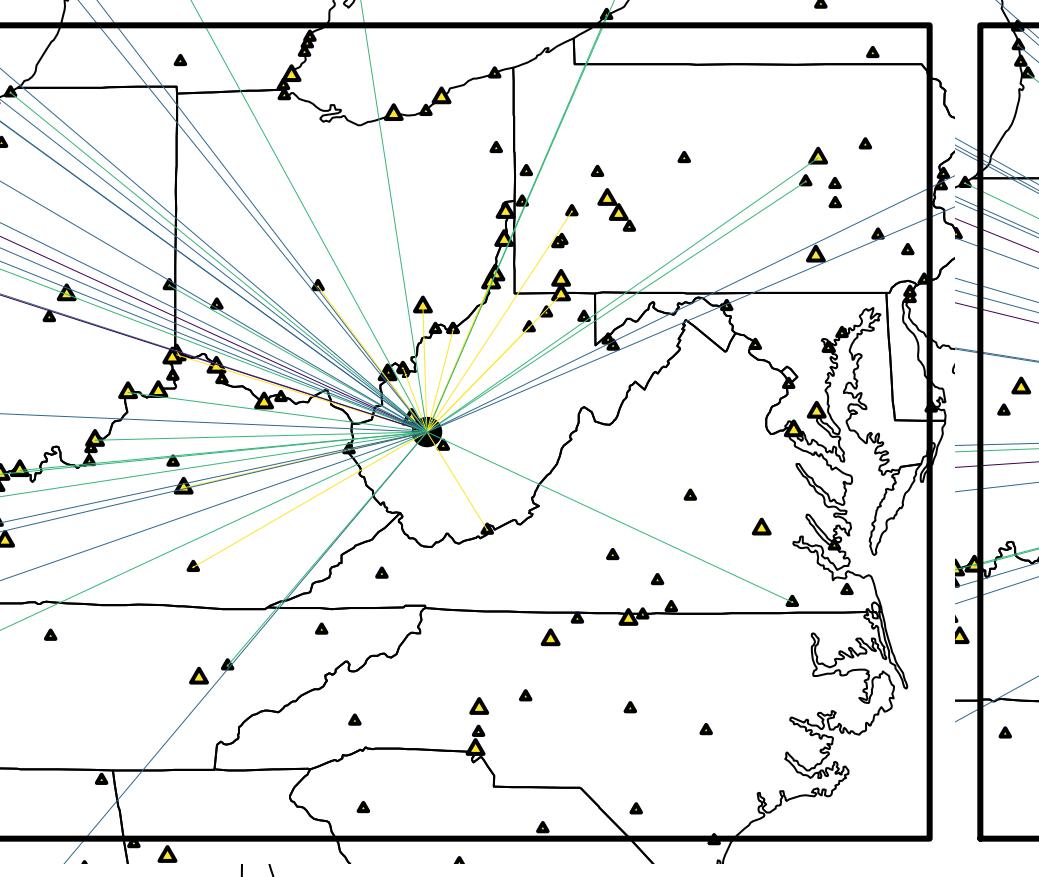
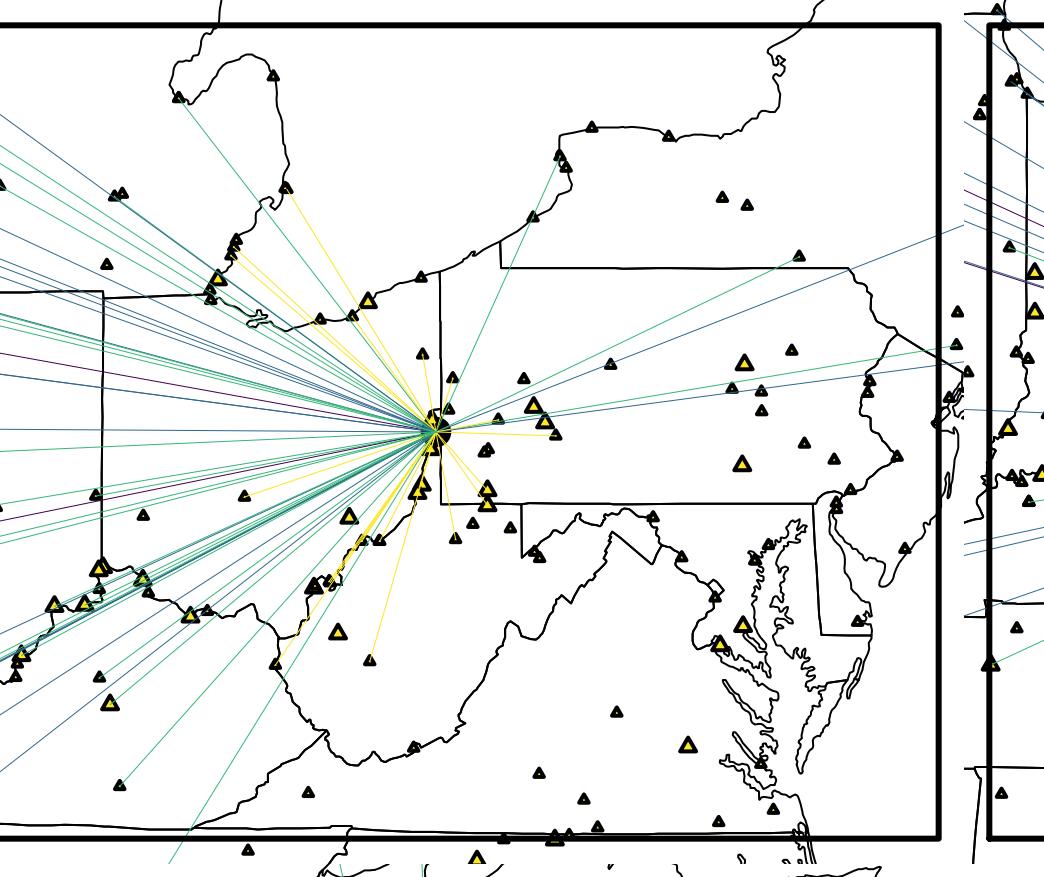
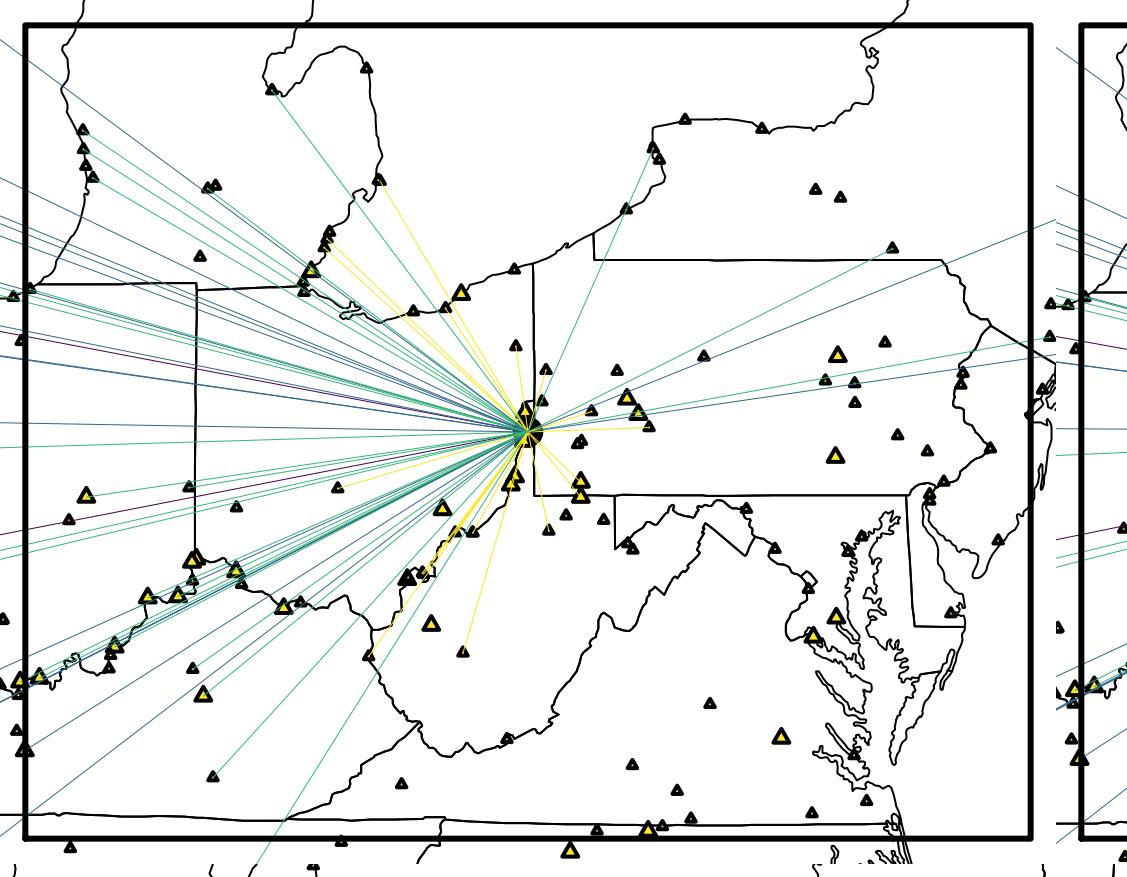


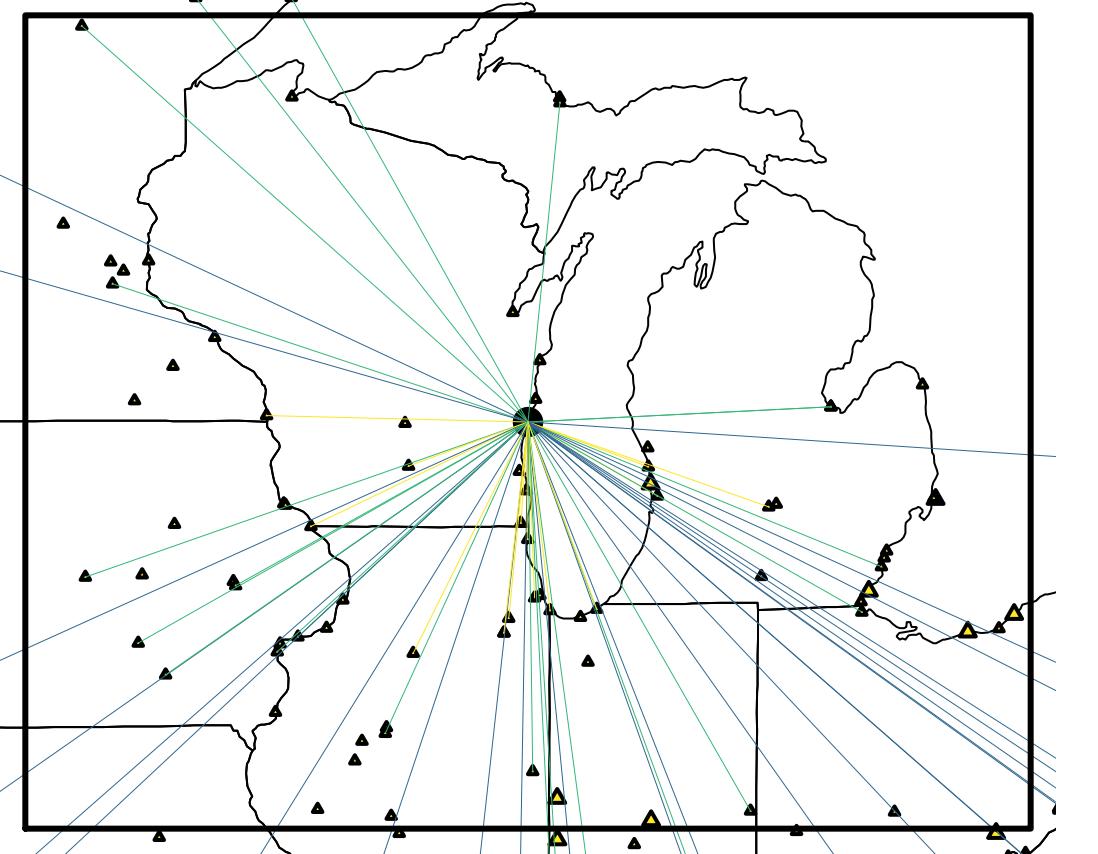
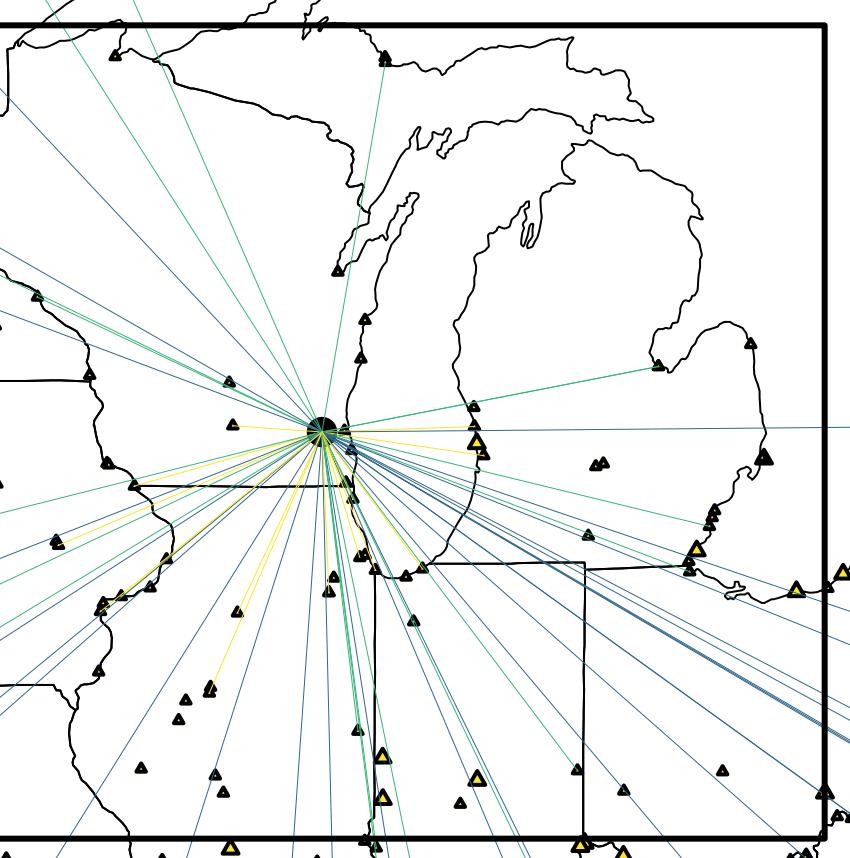
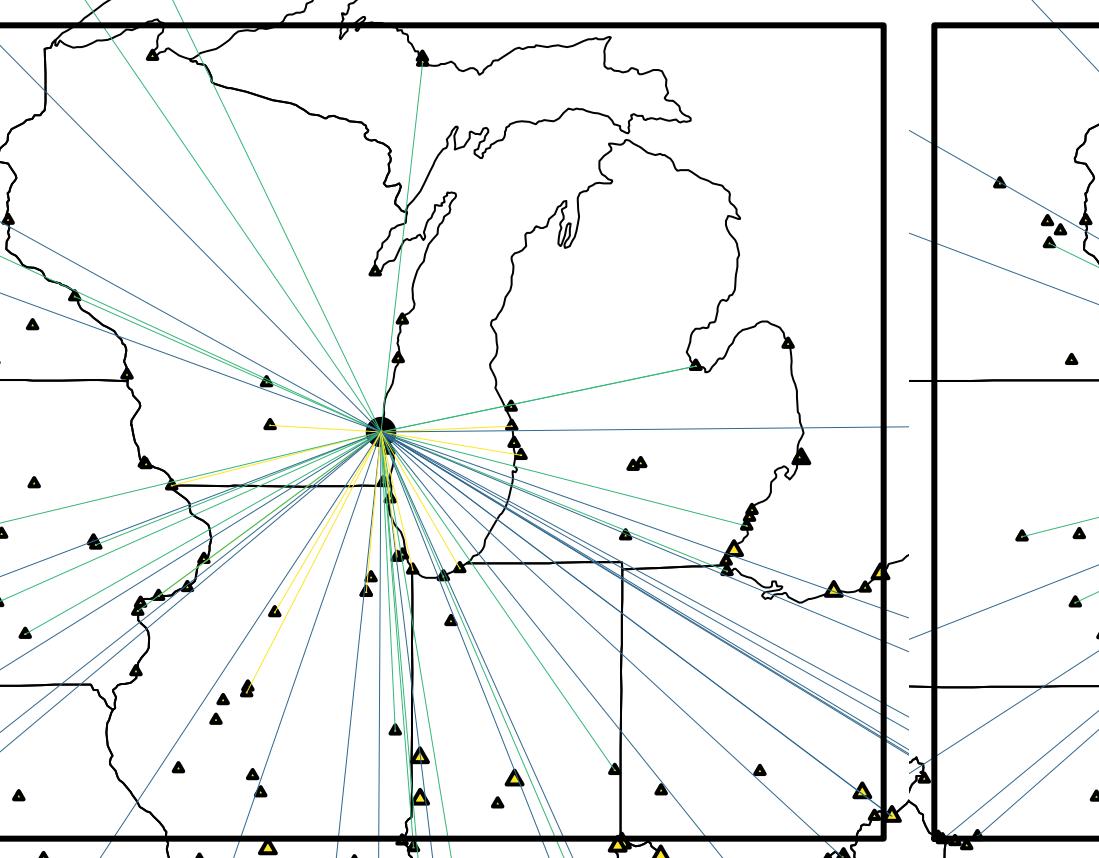
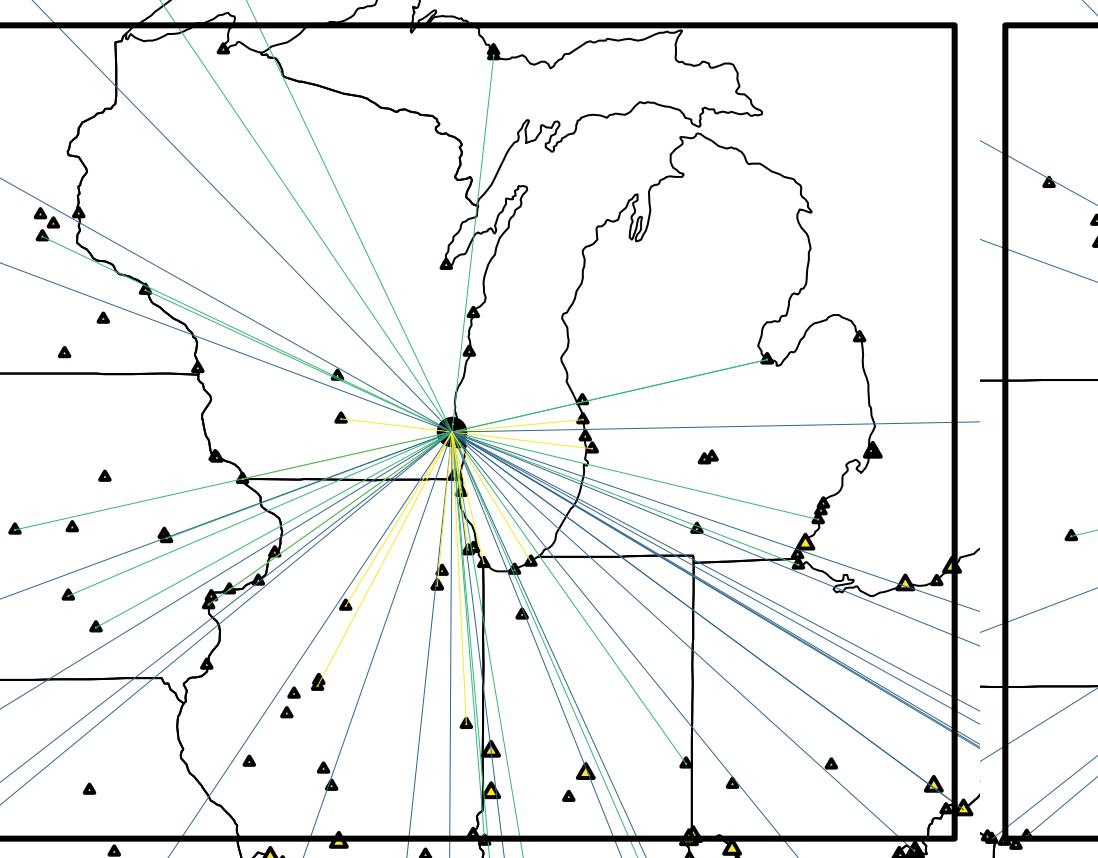
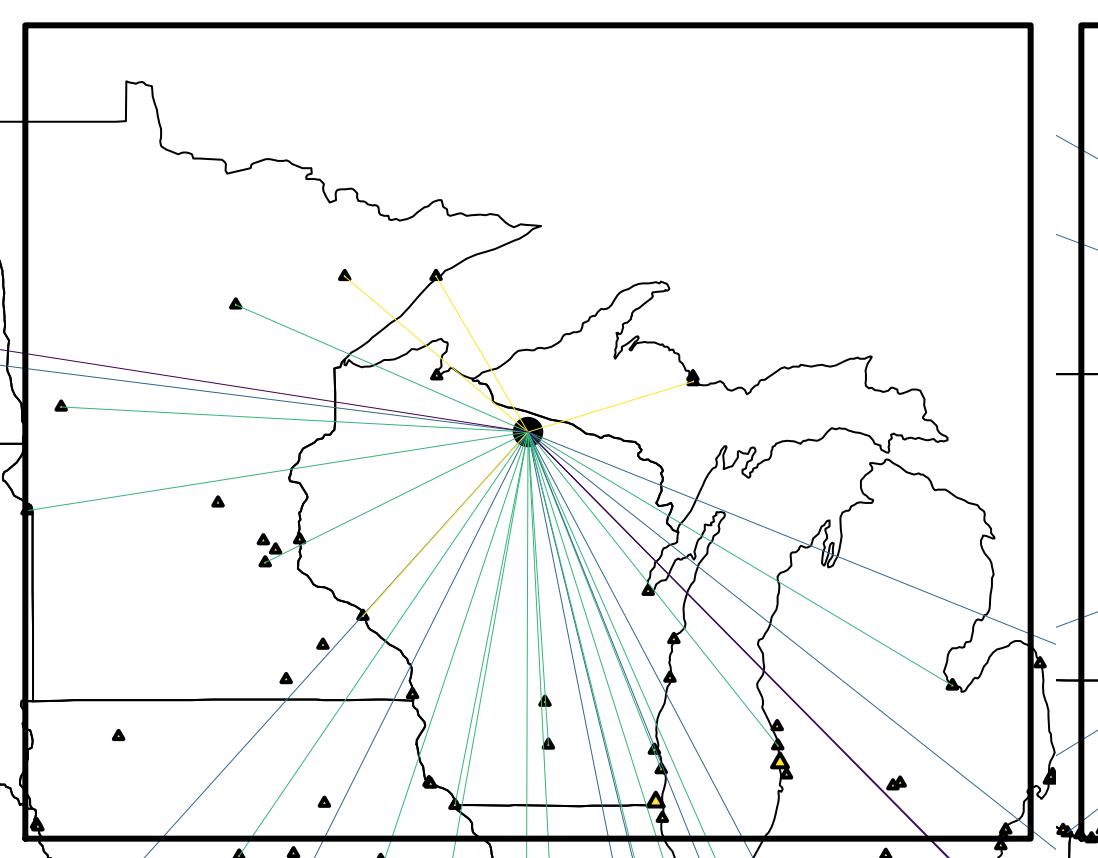




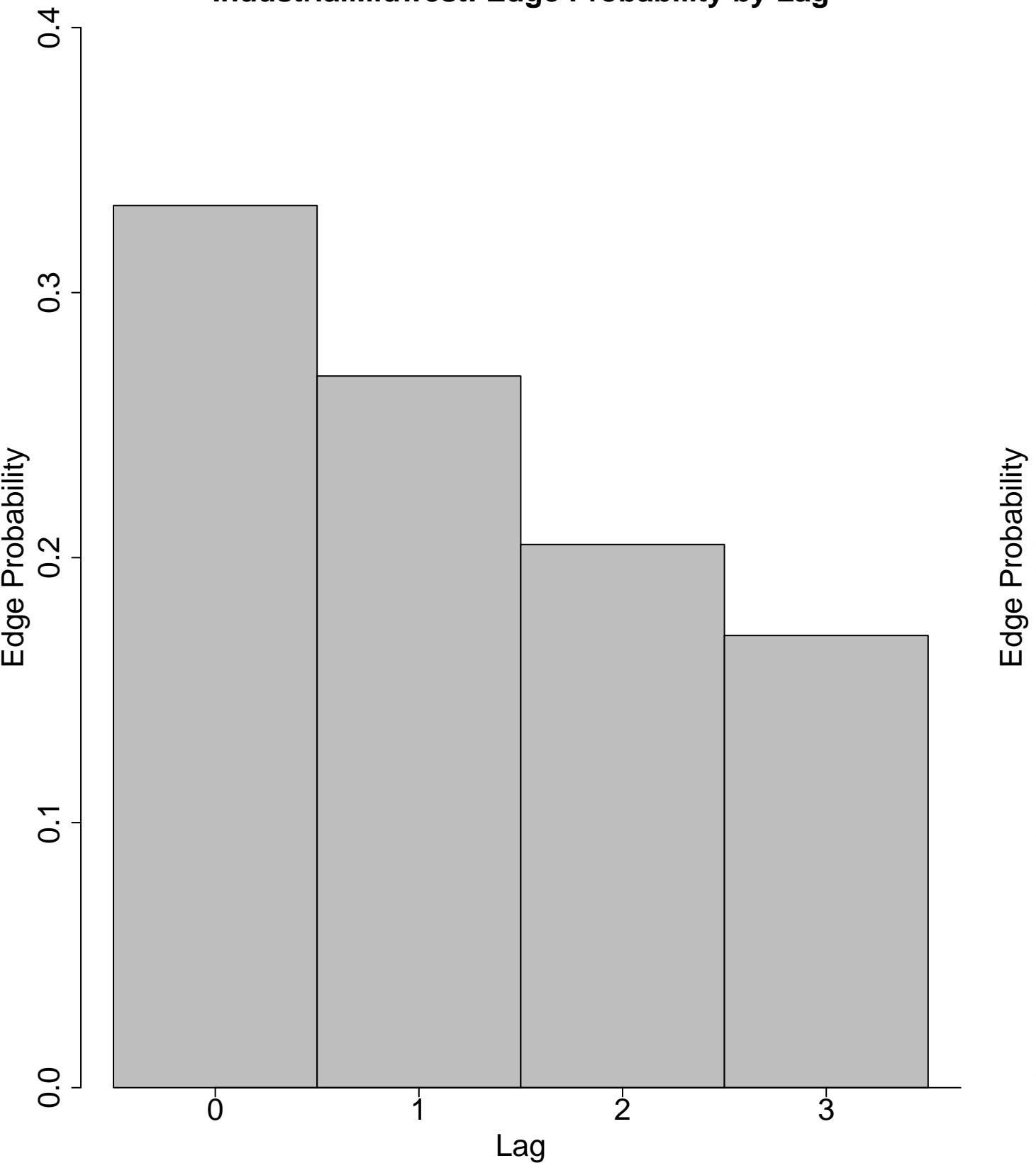




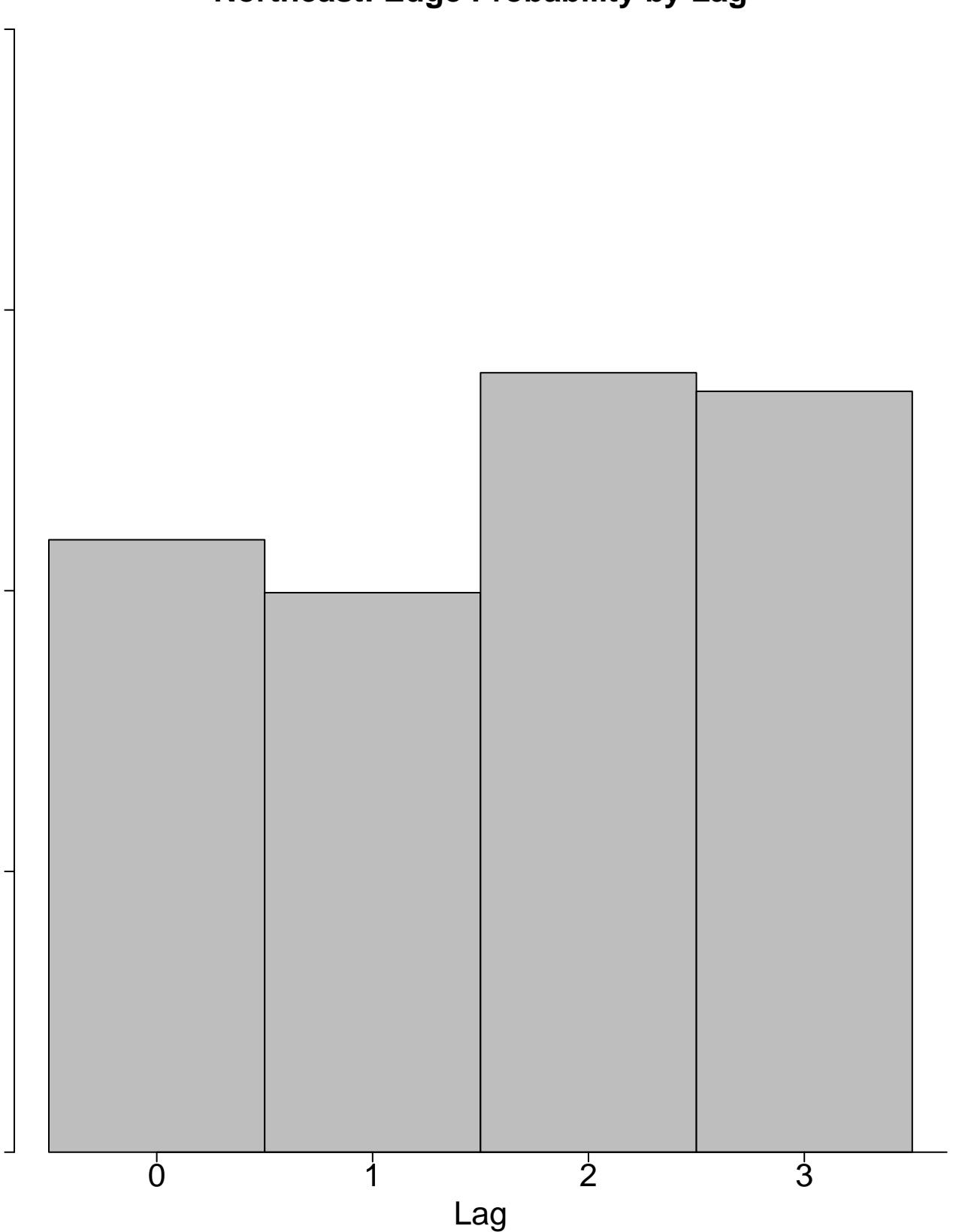




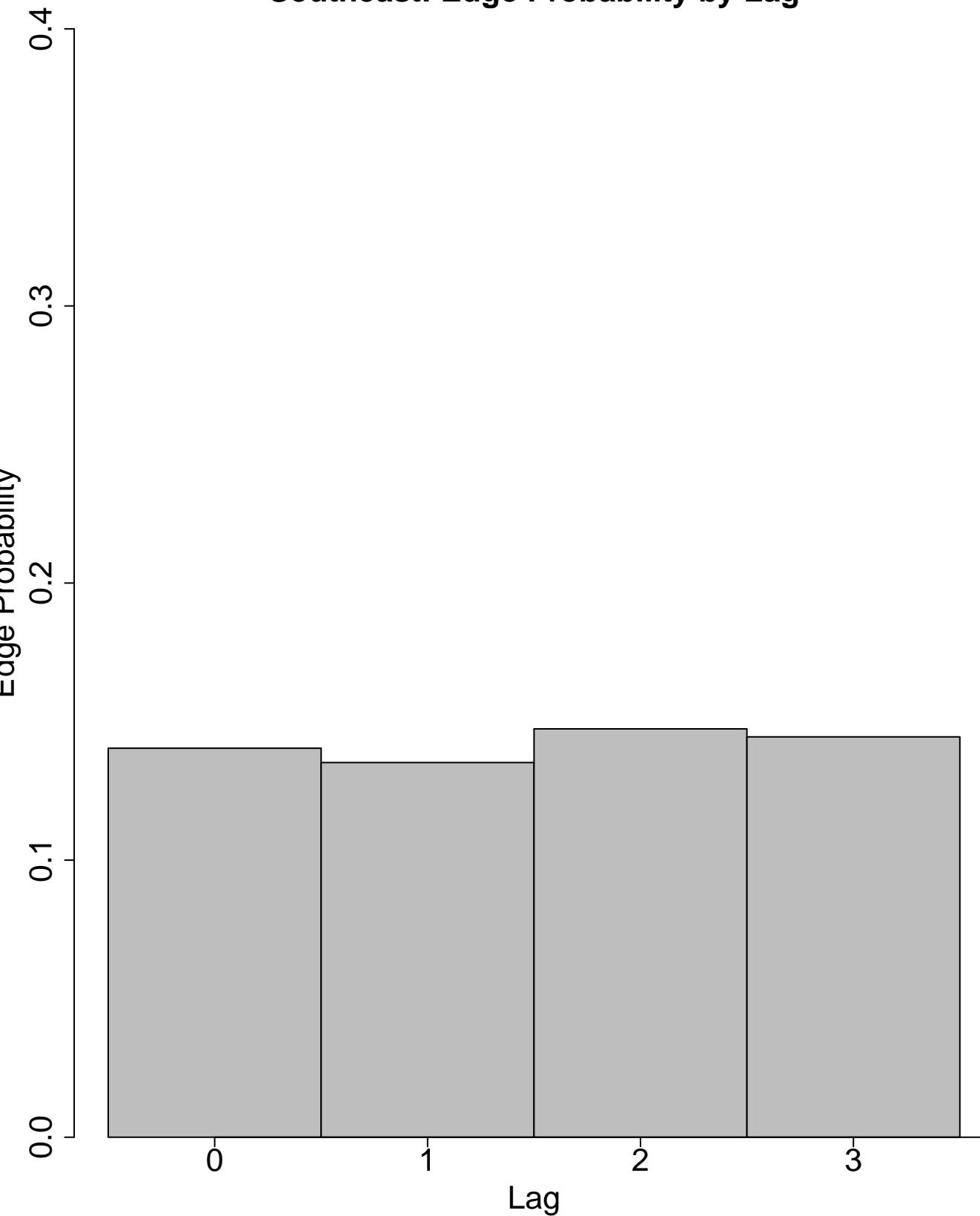
**IndustrialMidwest: Edge Probability by Lag**



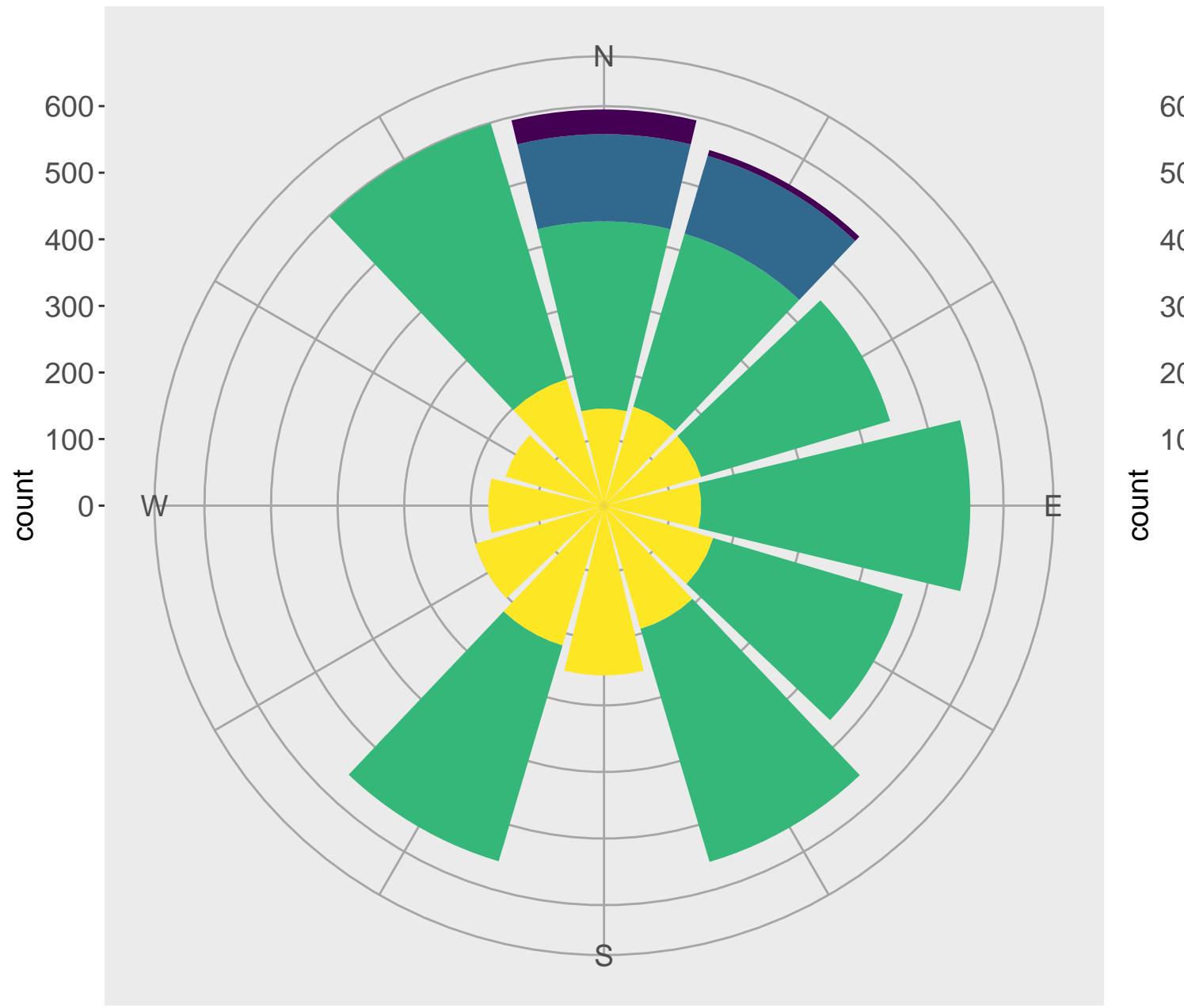
**Northeast: Edge Probability by Lag**



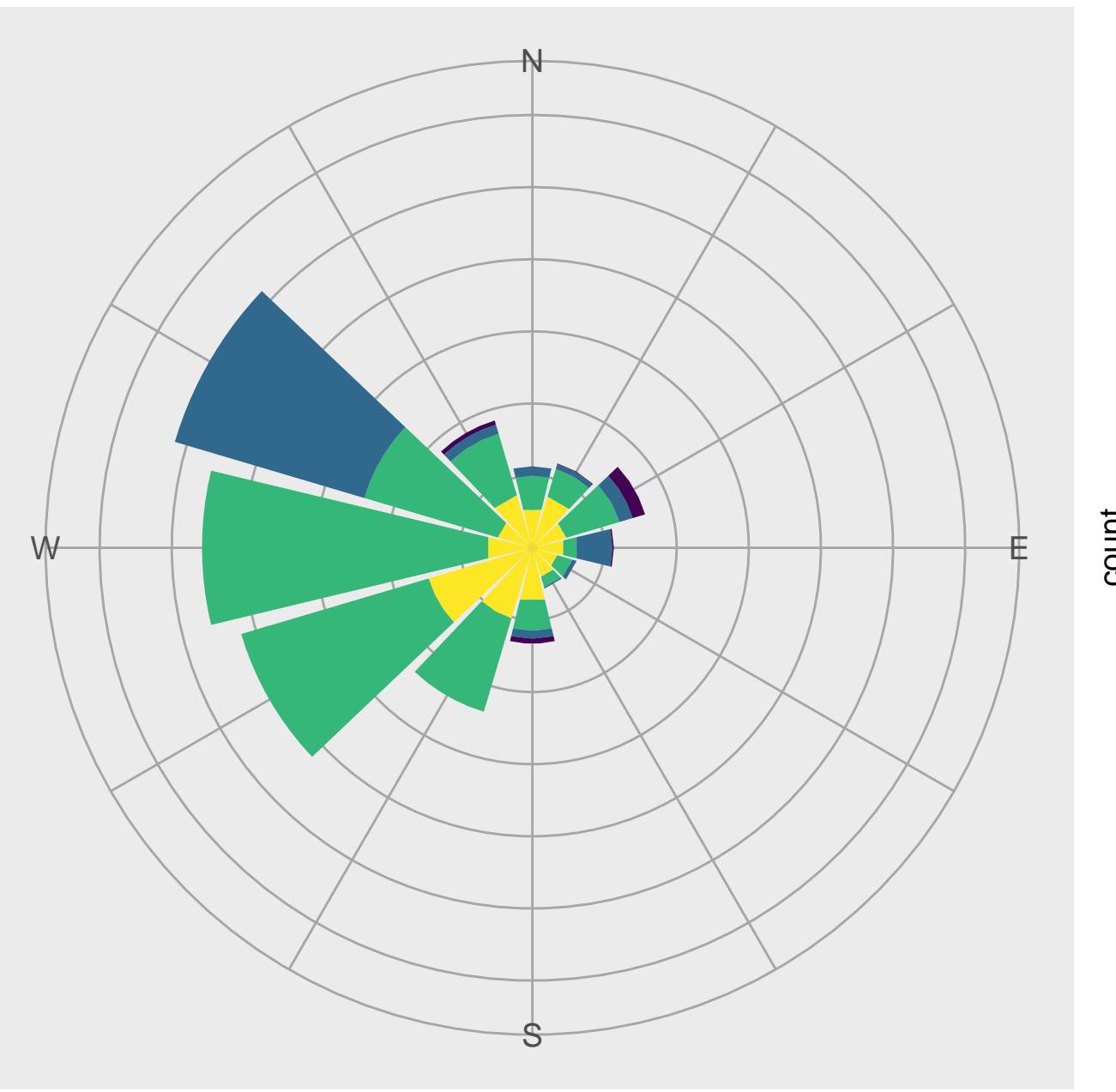
**Southeast: Edge Probability by Lag**



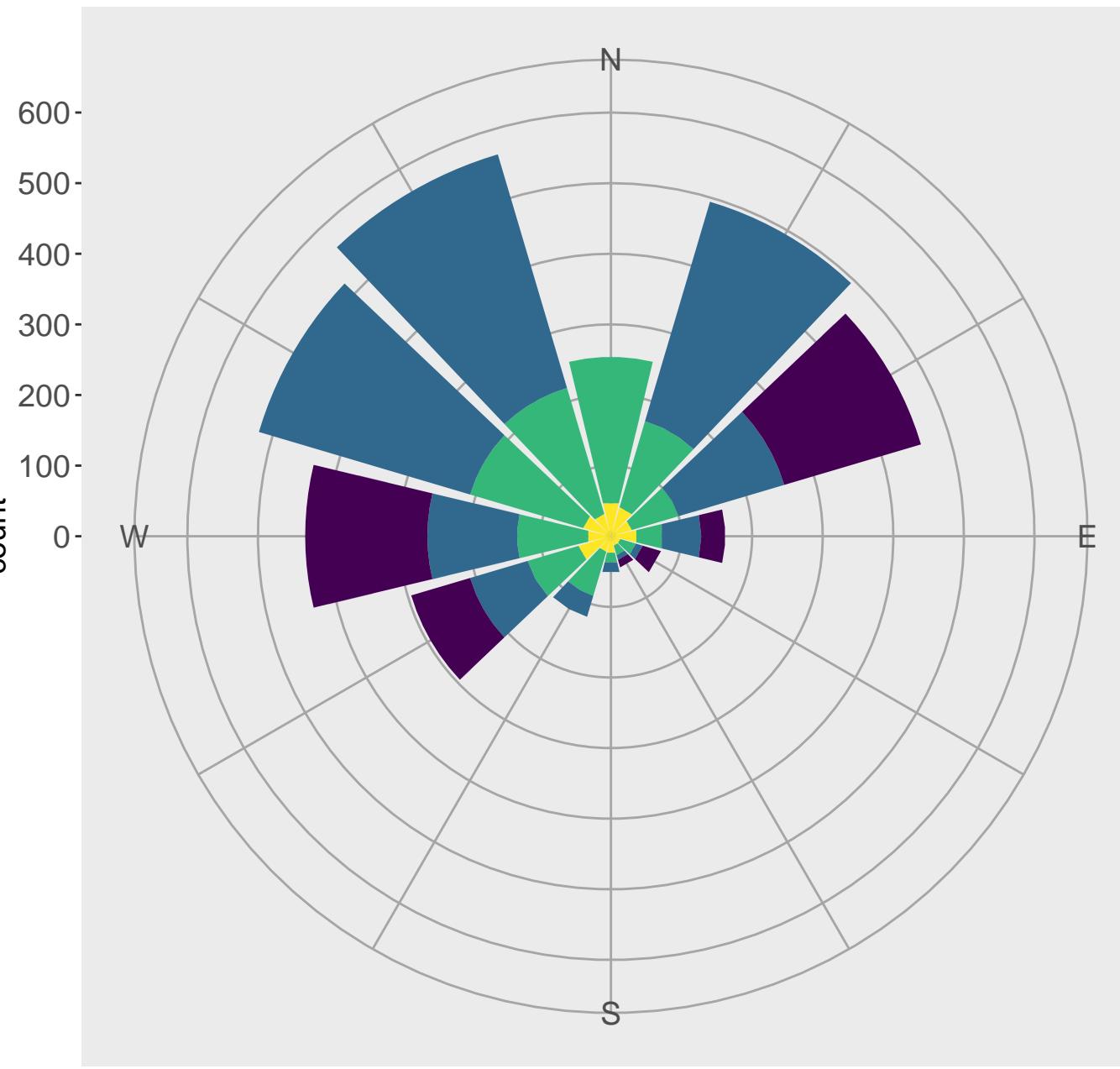
**Edge counts by distance/direction to source  
Industrial Midwest receptors**



**Edge counts by distance/direction to source  
Northeast receptors**



**Edge counts by distance/direction to source  
Southeast receptors**

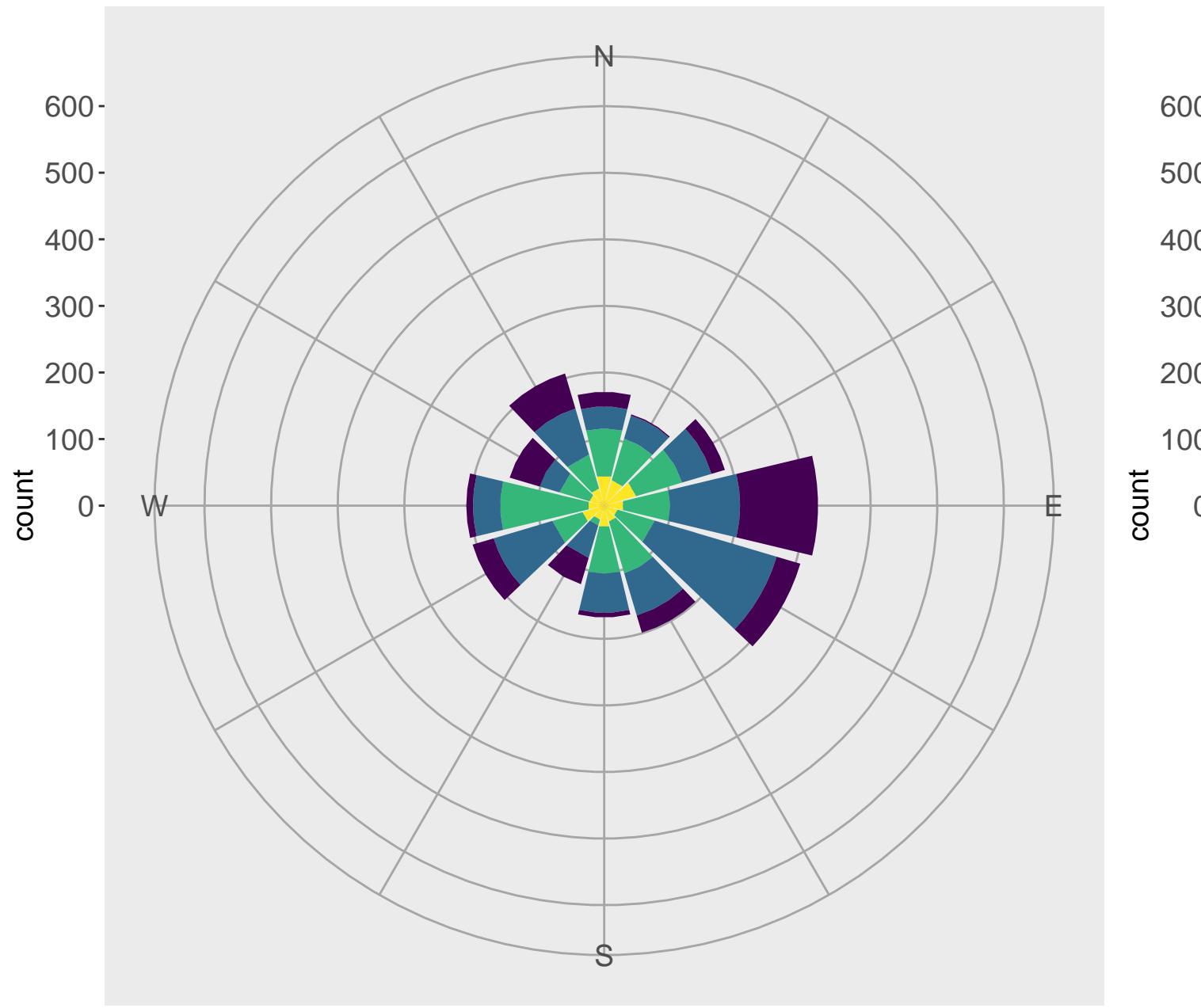


Distance to Source (km)    750–1000    500–750    250–500    0–250

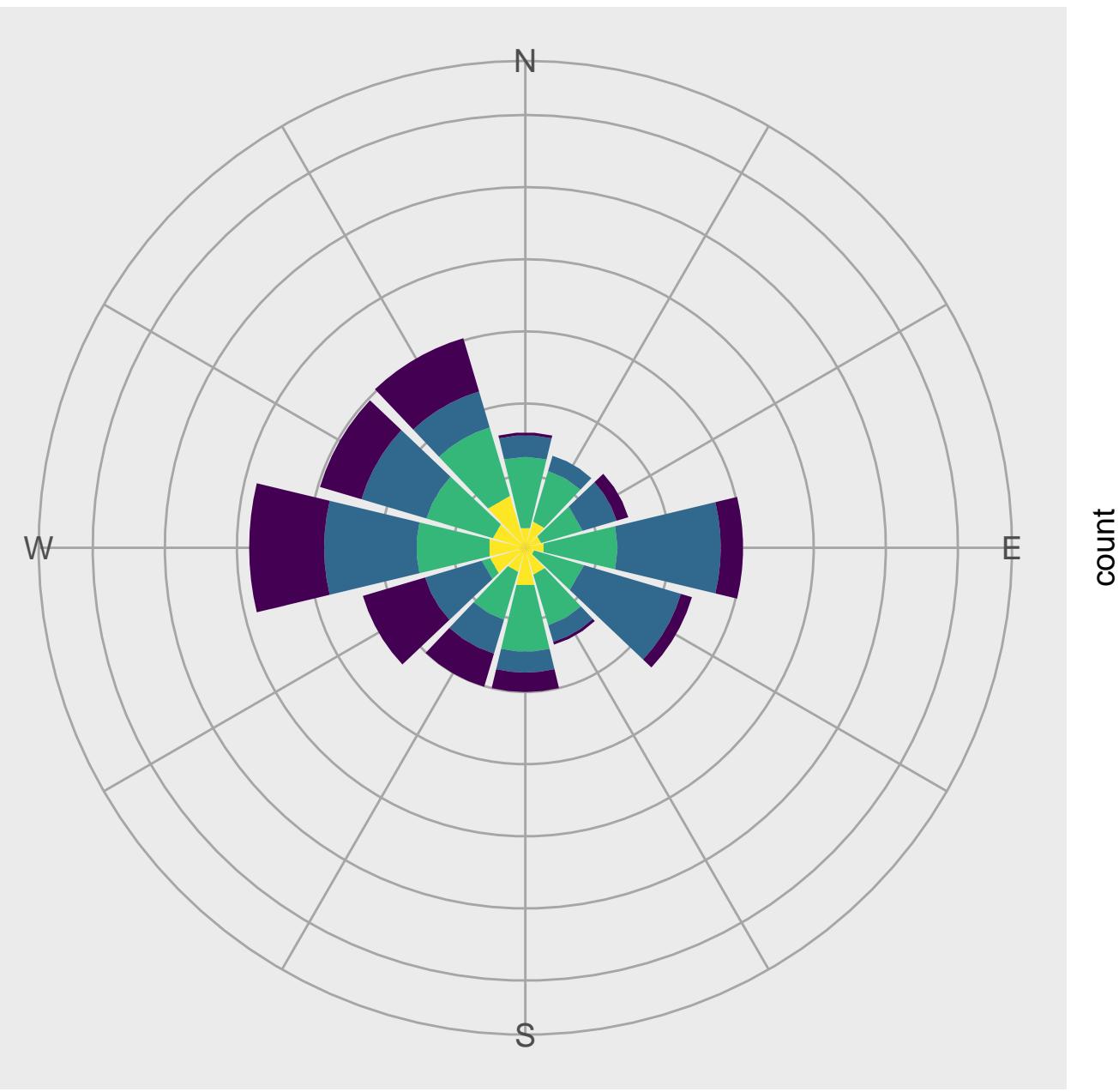
Distance to Source (km)    750–1000    500–750    250–500    0–250

Distance to Source (km)    750–1000    500–750    250–500    0–250

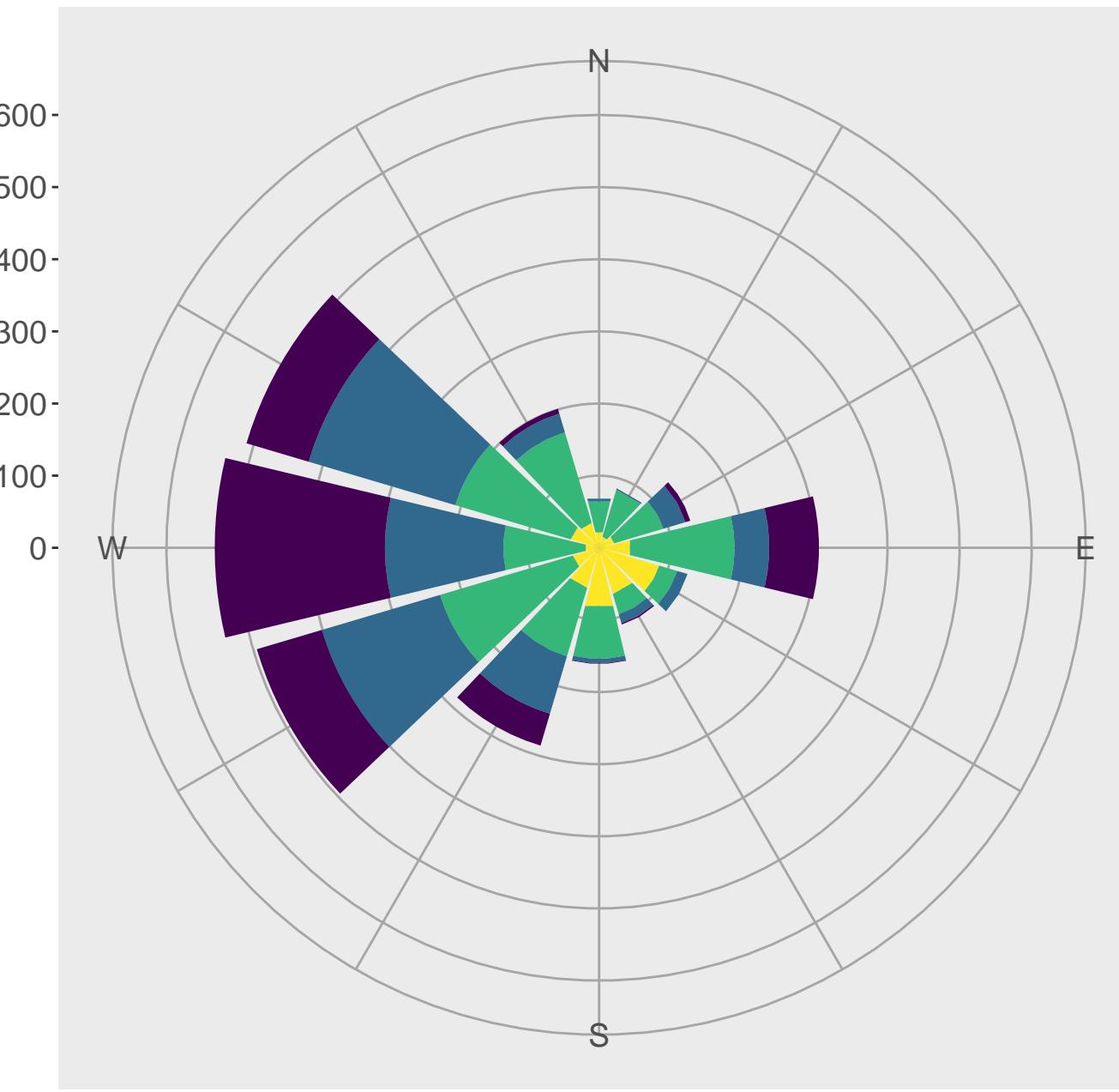
**Edge counts by distance/direction to source  
Illinois receptors**



**Edge counts by distance/direction to source  
Indiana receptors**



**Edge counts by distance/direction to source  
Ohio receptors**

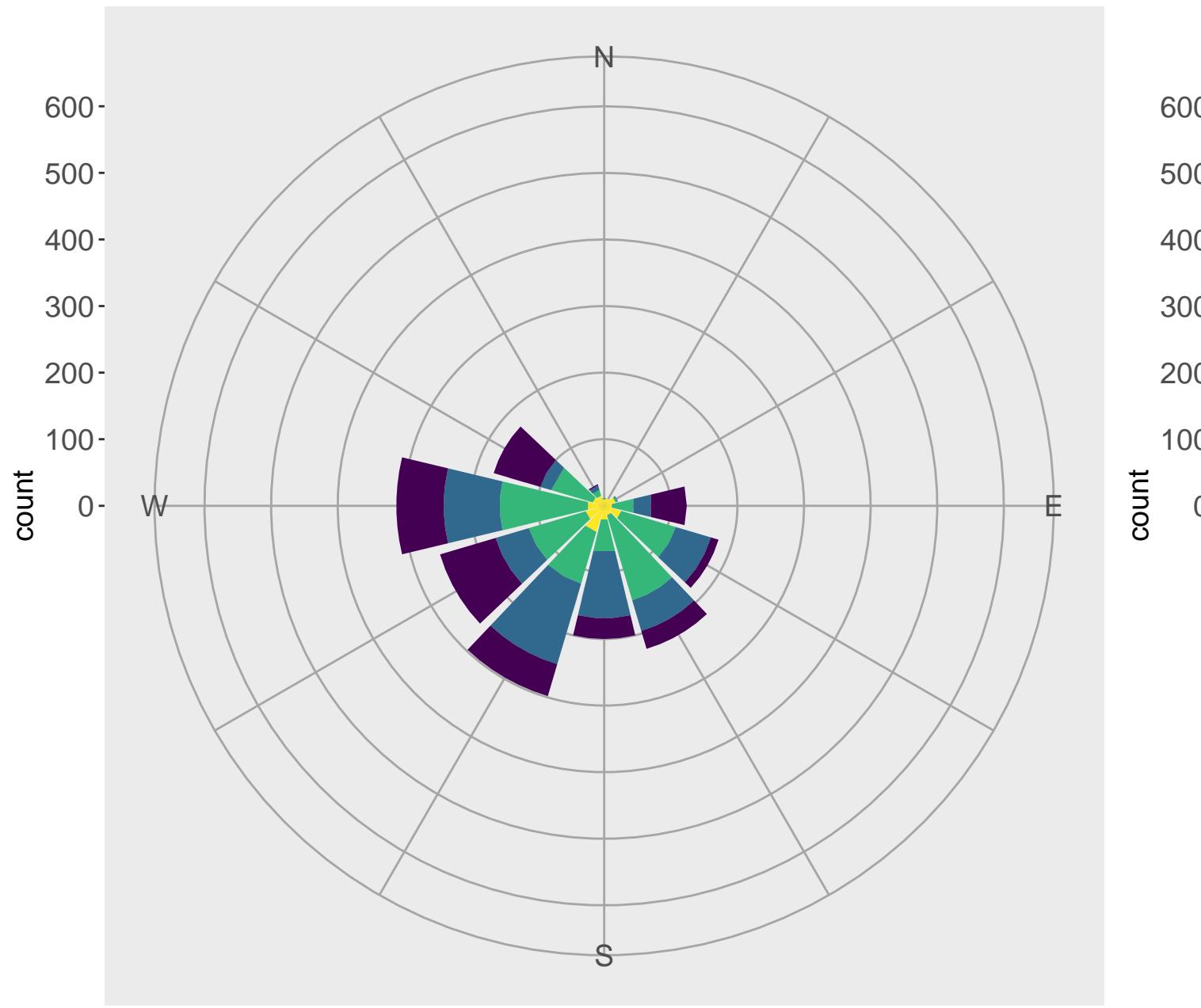


Distance to Source (km)    750–1000    500–750    250–500    0–250

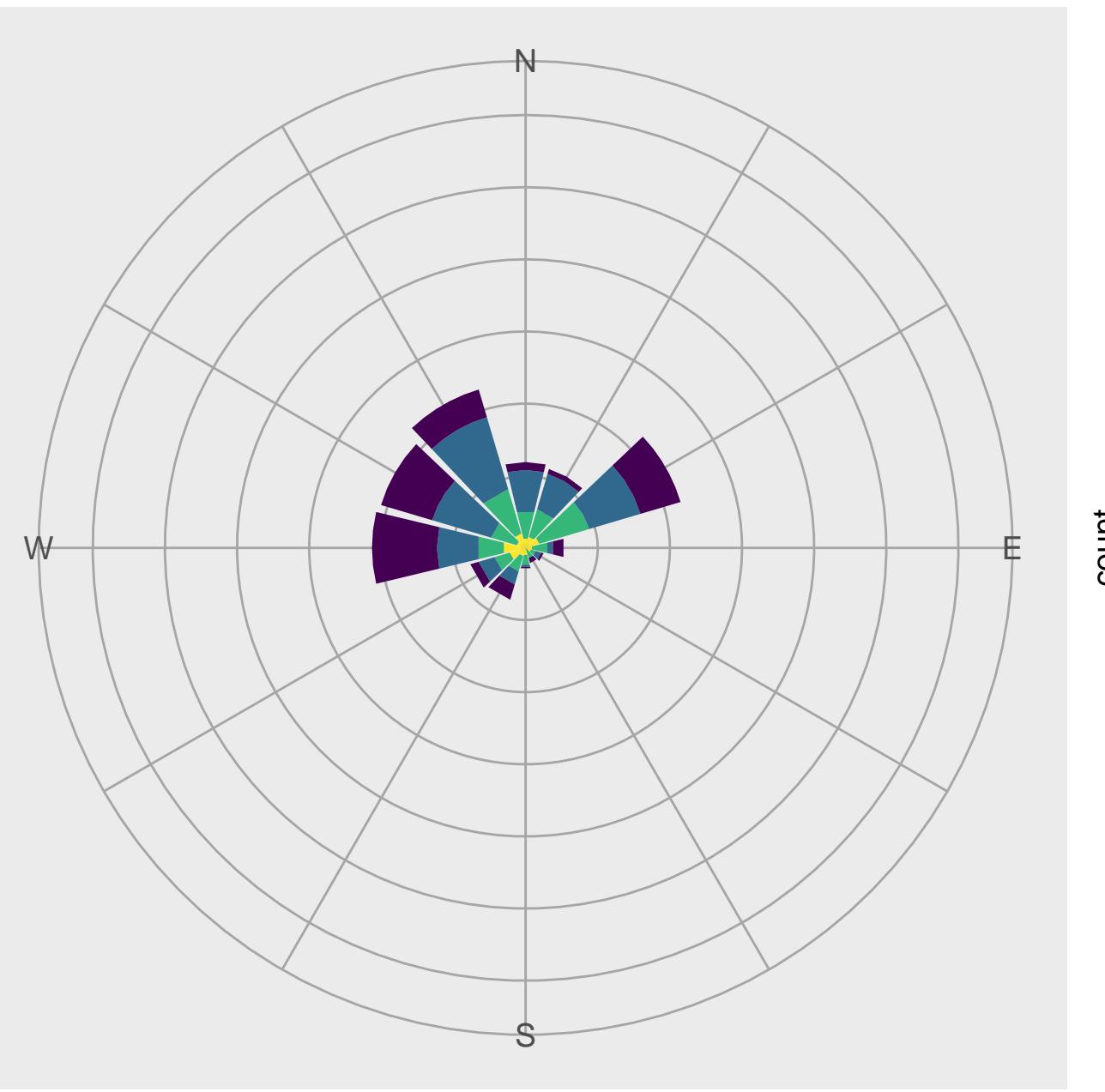
Distance to Source (km)    750–1000    500–750    250–500    0–250

Distance to Source (km)    750–1000    500–750    250–500    0–250

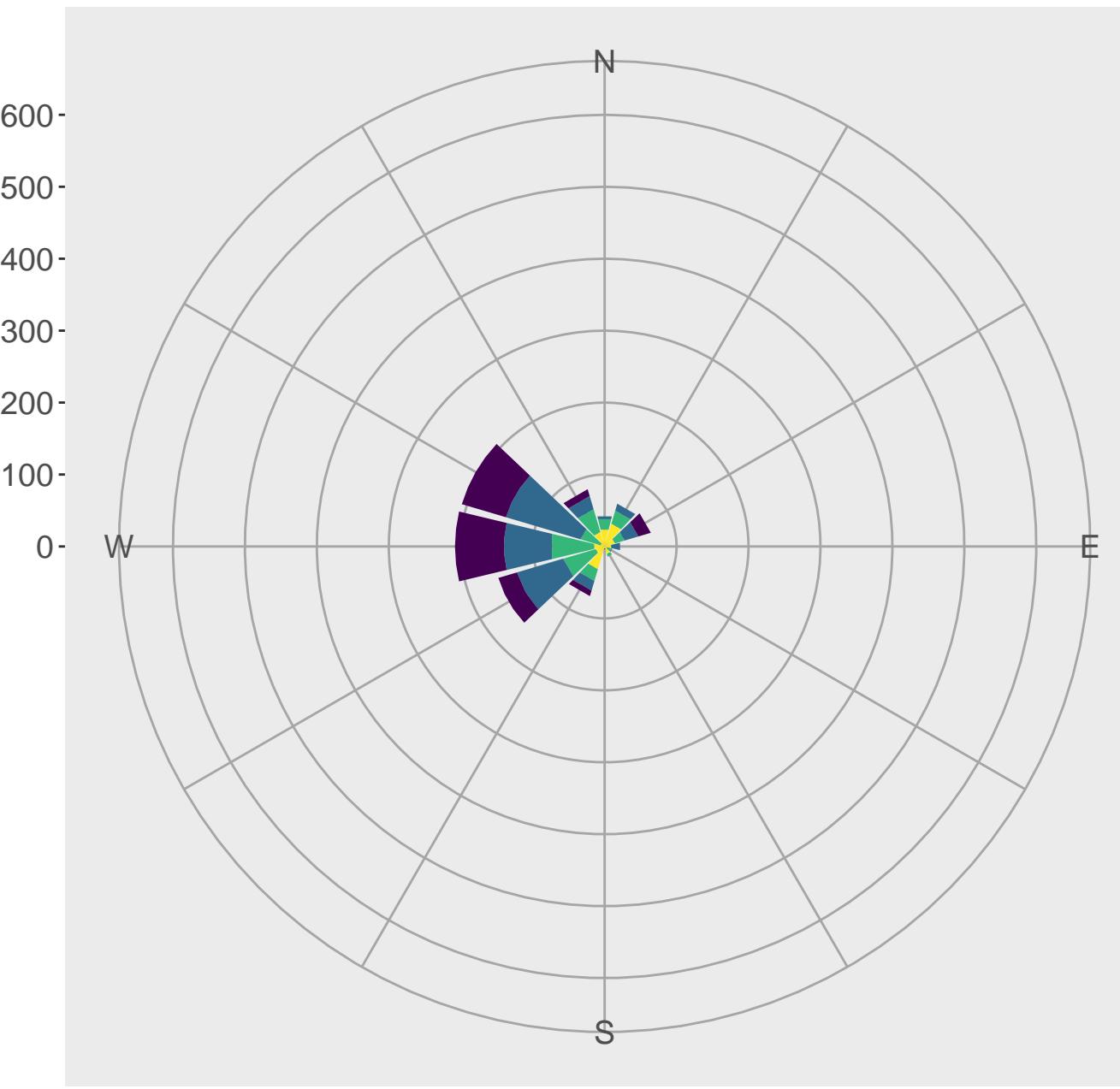
**Edge counts by distance/direction to source**  
Michigan receptors



**Edge counts by distance/direction to source**  
Kentucky receptors



**Edge counts by distance/direction to source**  
West Virginia receptors

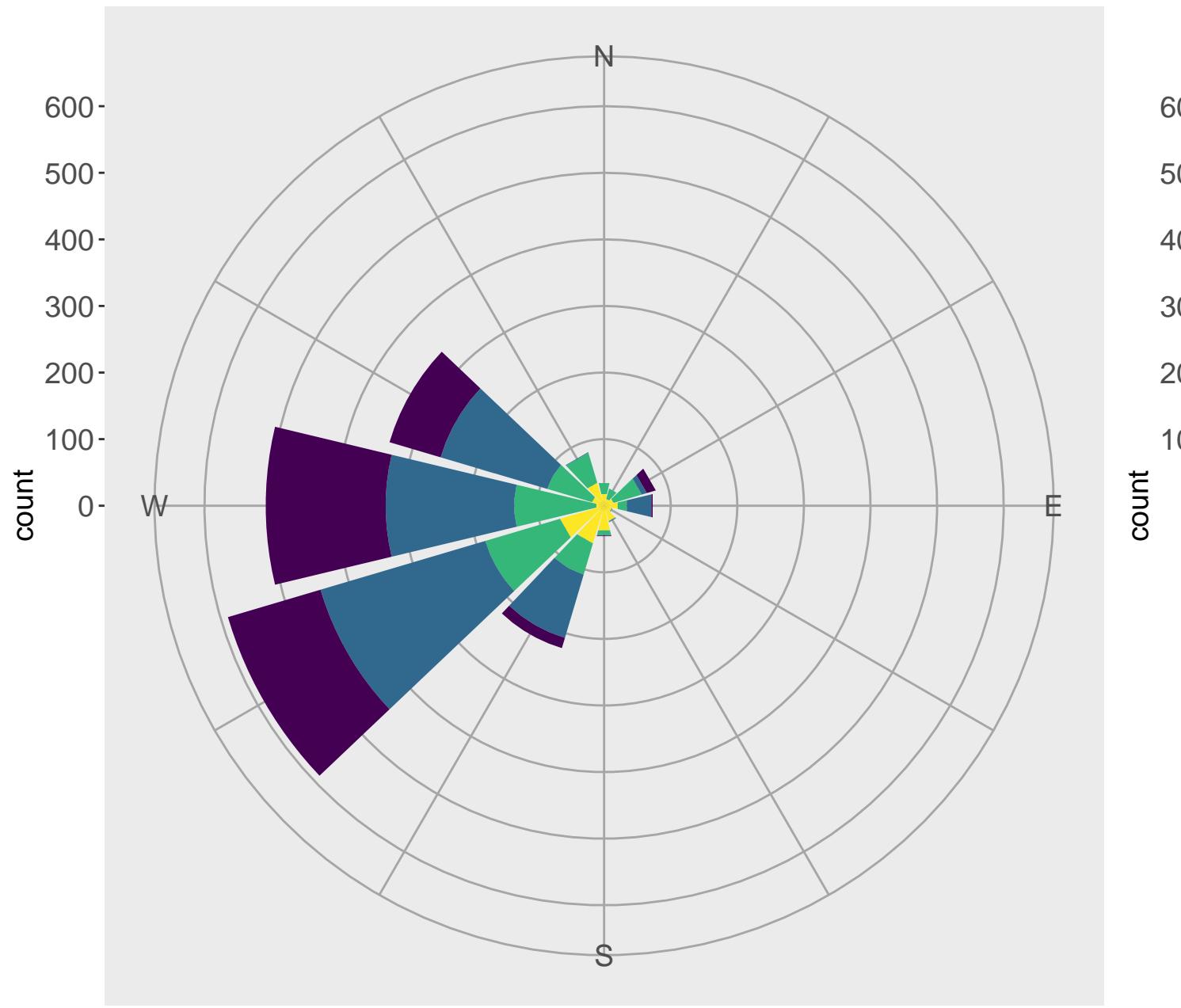


Distance to Source (km)    750–1000    500–750    250–500    0–250

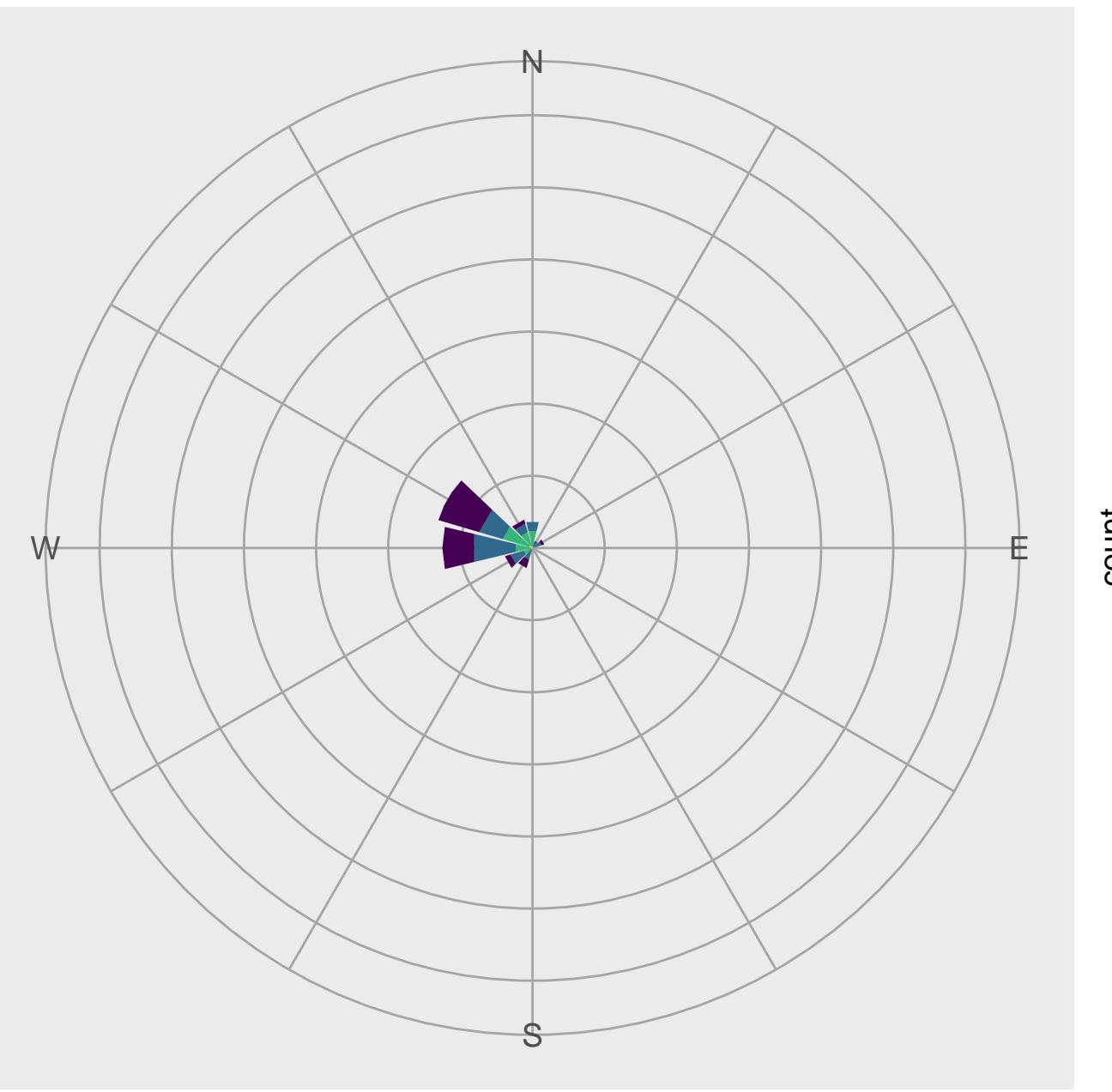
Distance to Source (km)    750–1000    500–750    250–500    0–250

Distance to Source (km)    750–1000    500–750    250–500    0–250

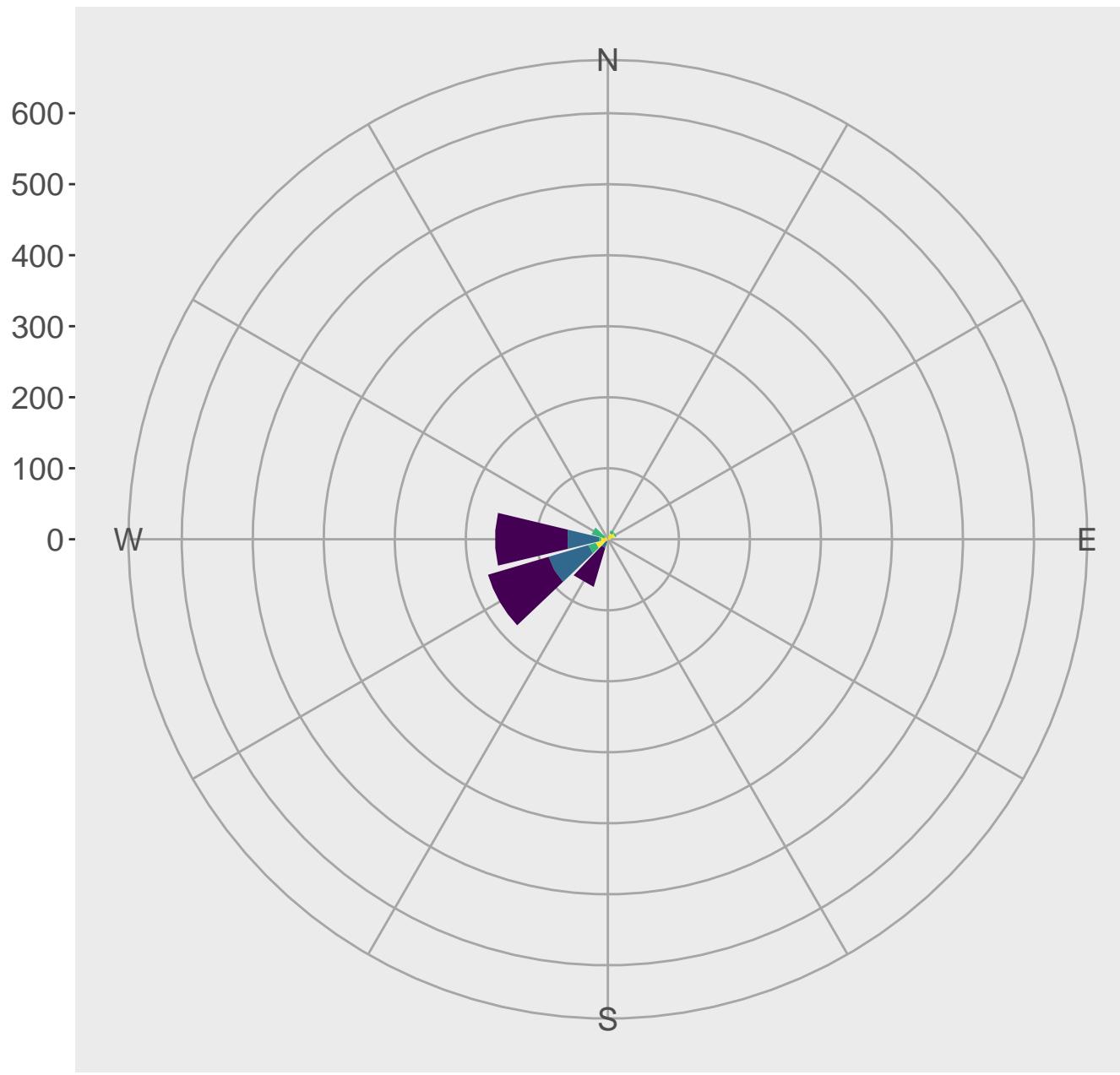
**Edge counts by distance/direction to source**  
Pennsylvania receptors



**Edge counts by distance/direction to source**  
Virginia receptors



**Edge counts by distance/direction to source**  
Connecticut receptors

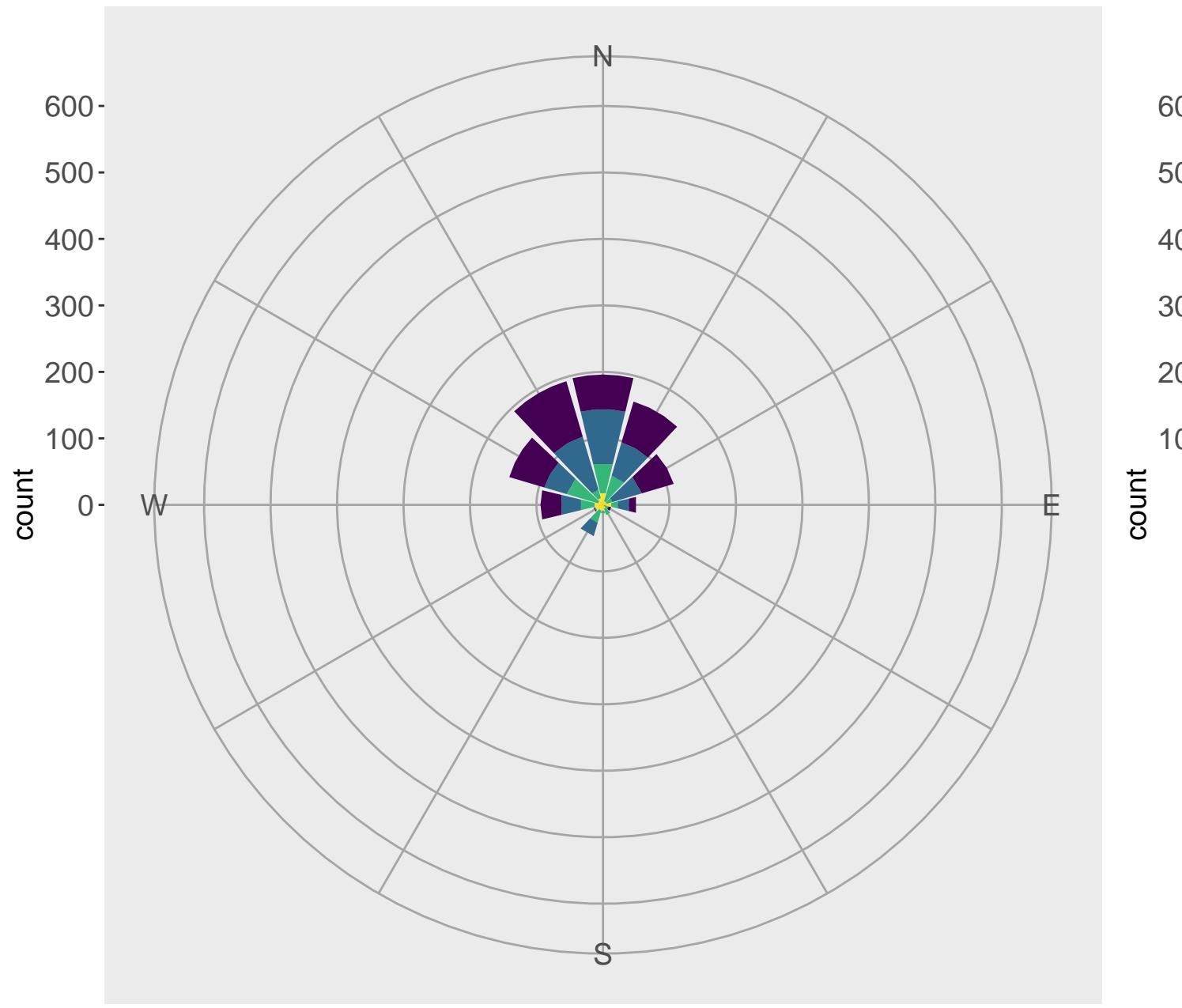


Distance to Source (km)    750–1000    500–750    250–500    0–250

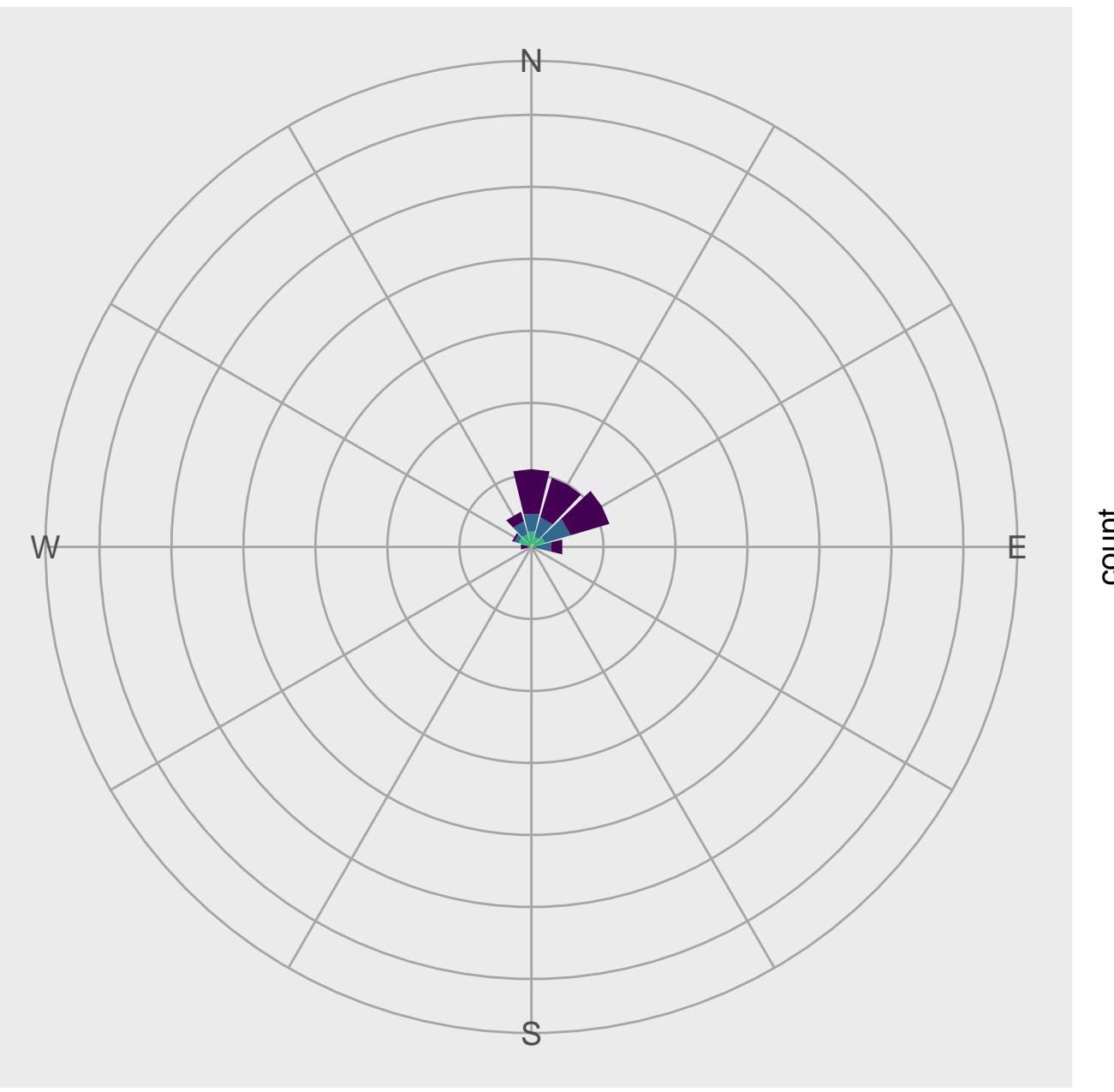
Distance to Source (km)    750–1000    500–750    250–500    0–250

Distance to Source (km)    750–1000    500–750    250–500    0–250

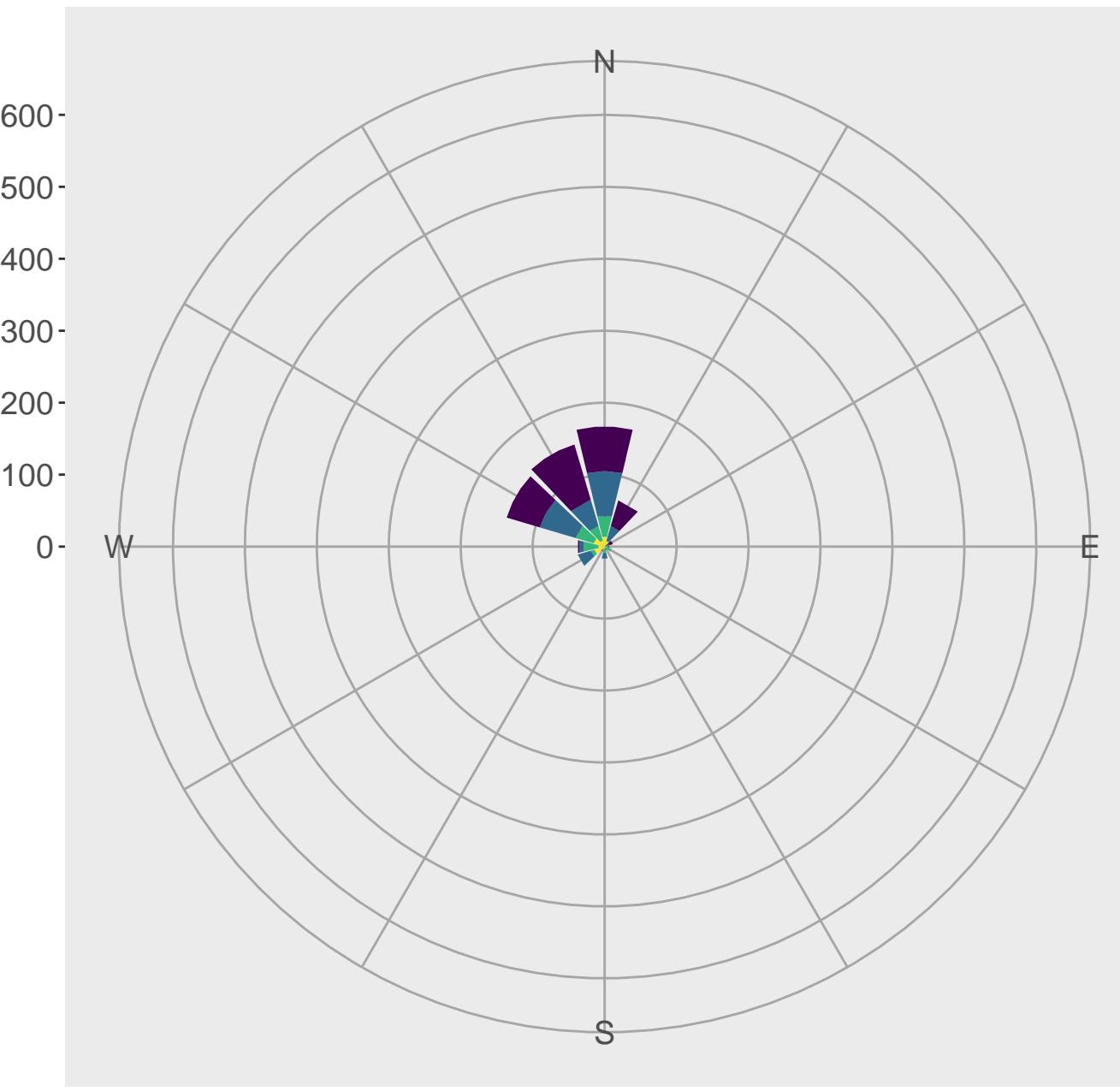
**Edge counts by distance/direction to source**  
Tennessee receptors



**Edge counts by distance/direction to source**  
Arkansas receptors



**Edge counts by distance/direction to source**  
Georgia receptors

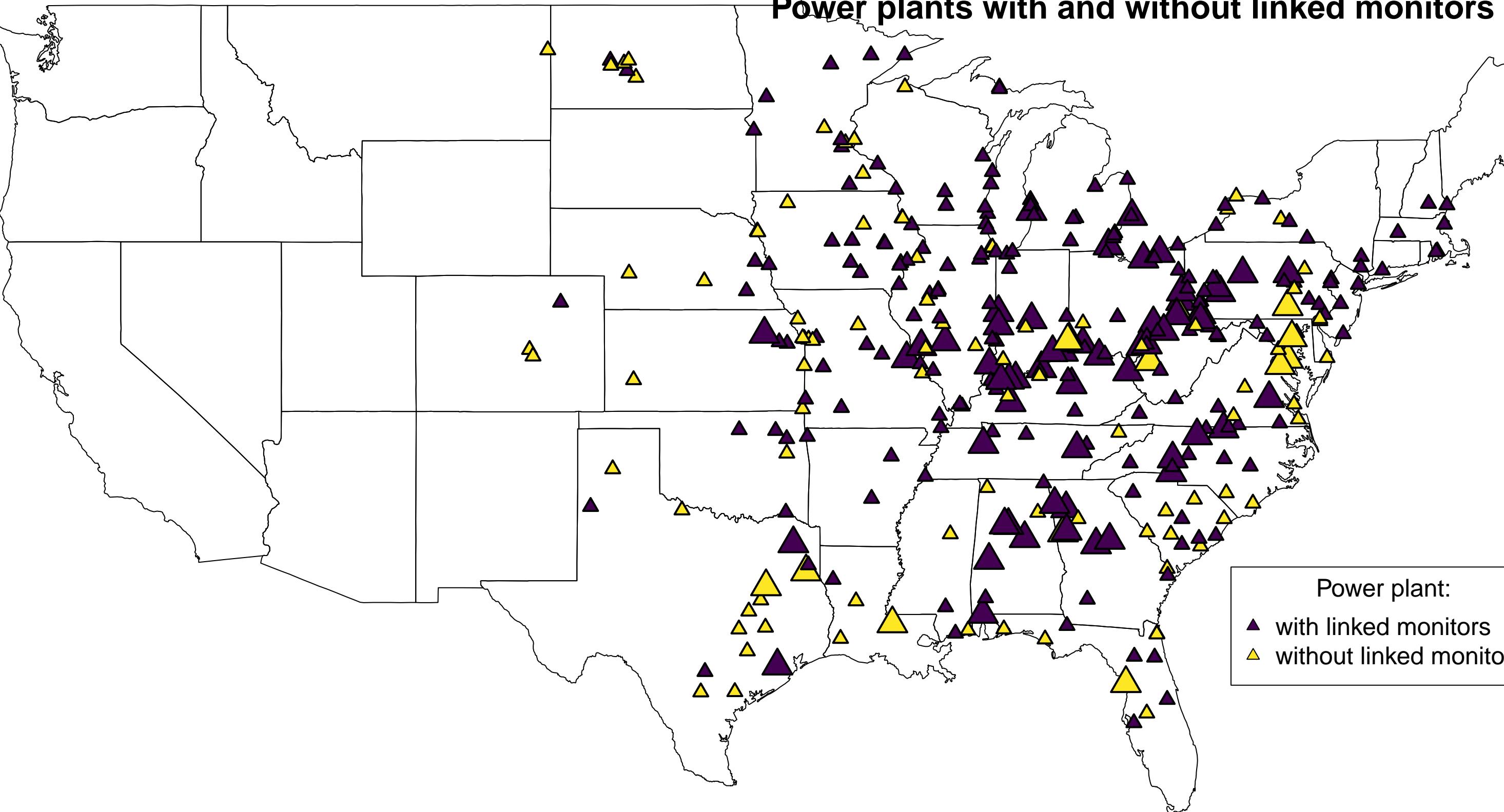


Distance to Source (km)    750–1000    500–750    250–500    0–250

Distance to Source (km)    750–1000    500–750    250–500    0–250

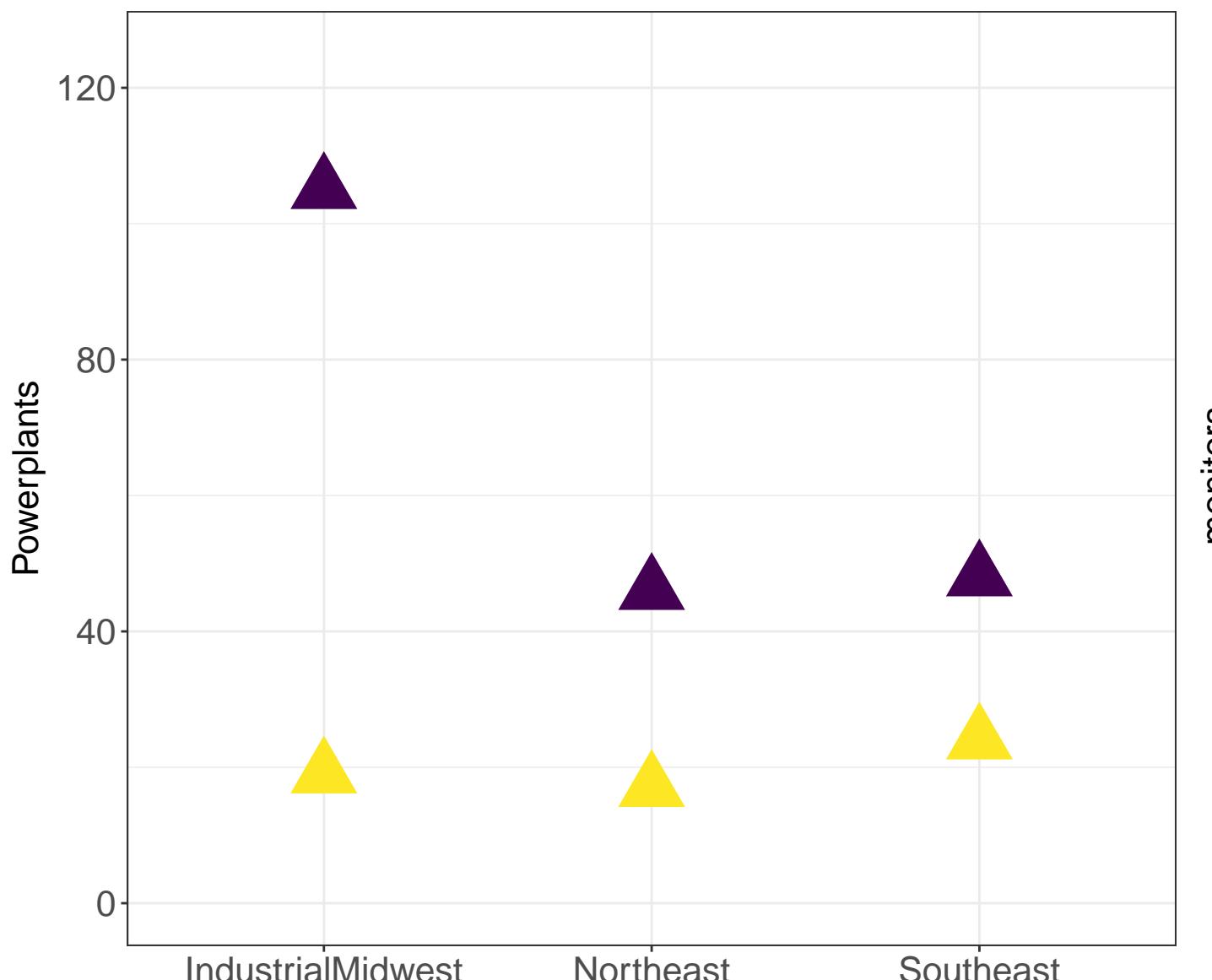
Distance to Source (km)    750–1000    500–750    250–500    0–250

## Power plants with and without linked monitors

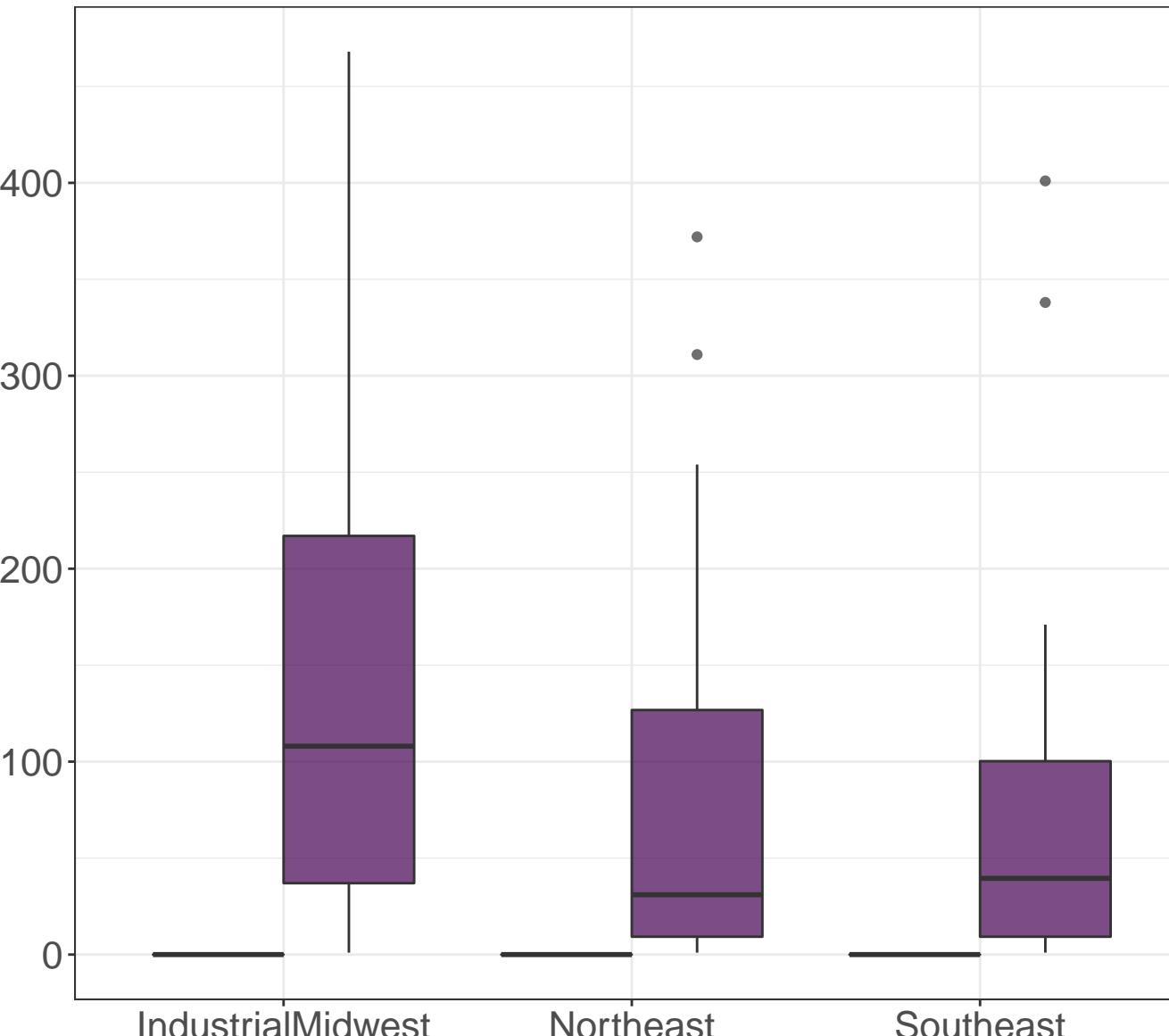


# Why do some power plants have linked monitors and others do not?

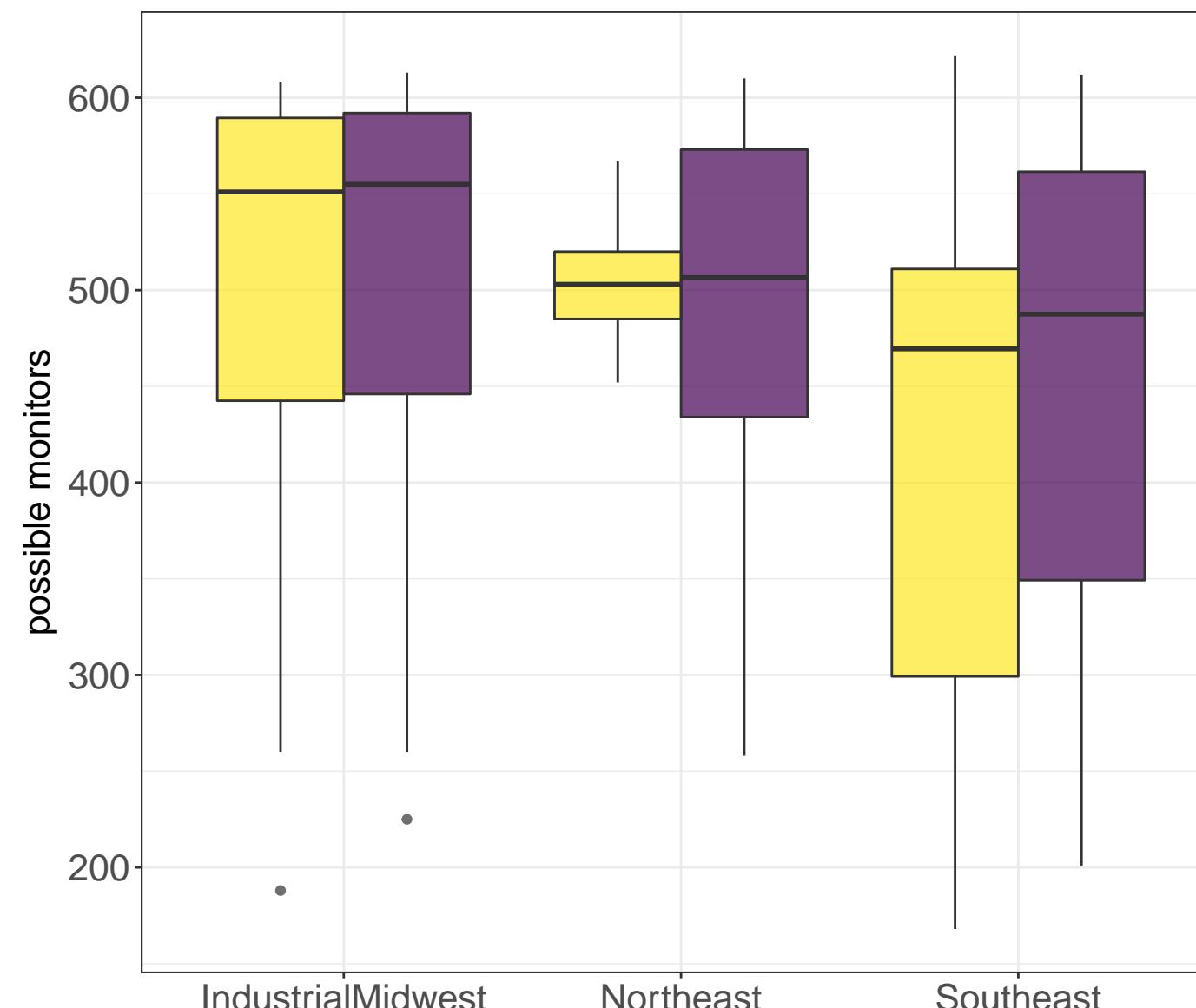
Number of powerplants



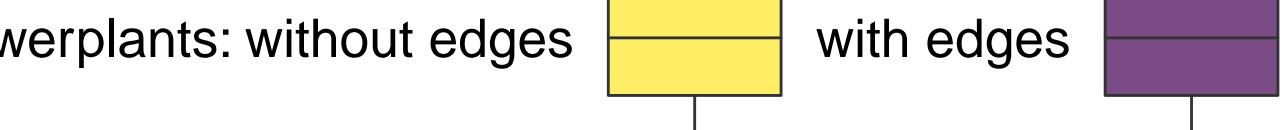
Number of linked monitors



Number of possible linked monitors

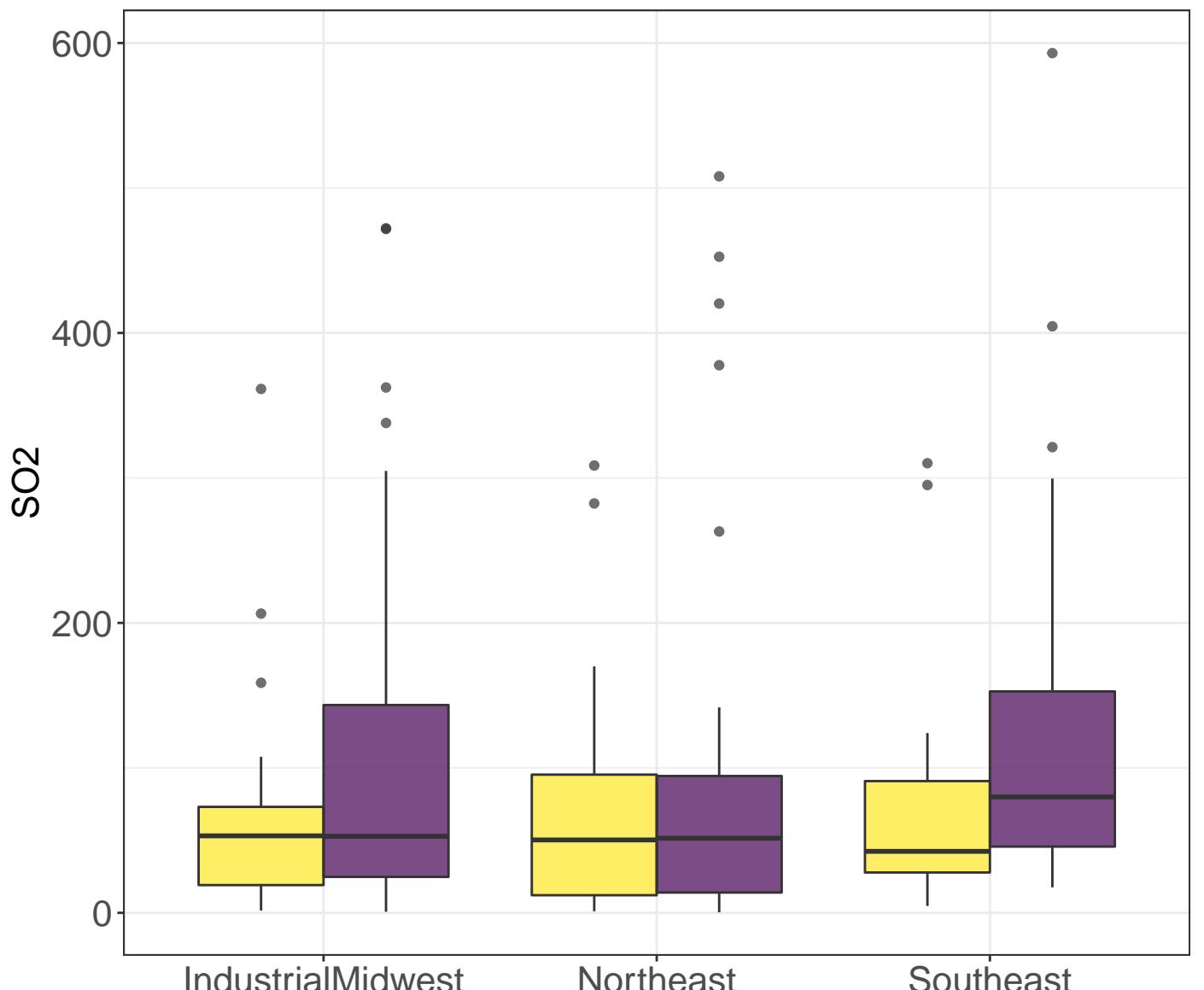


Powerplants: without edges

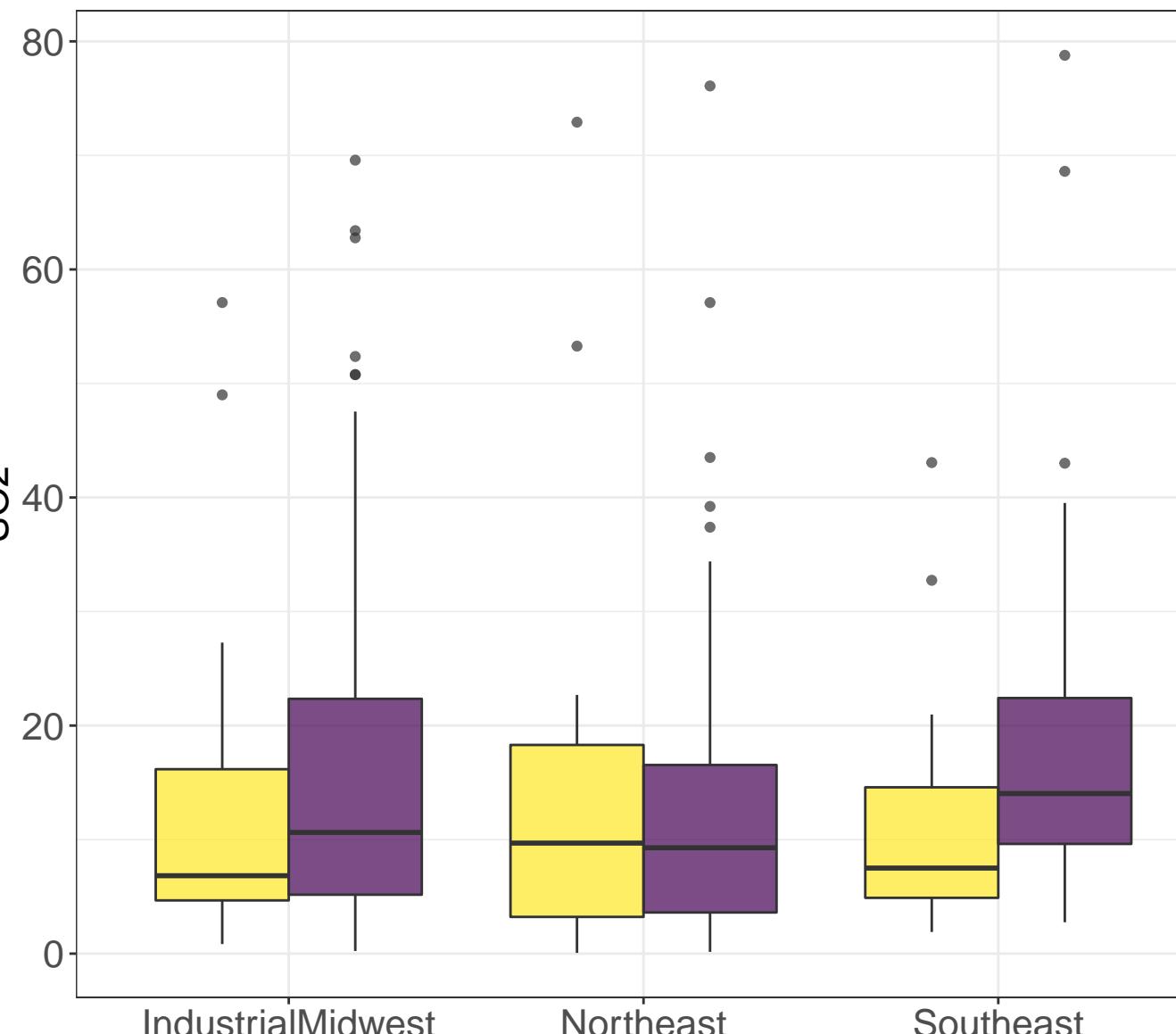


# Why do some power plants have linked monitors and others do not?

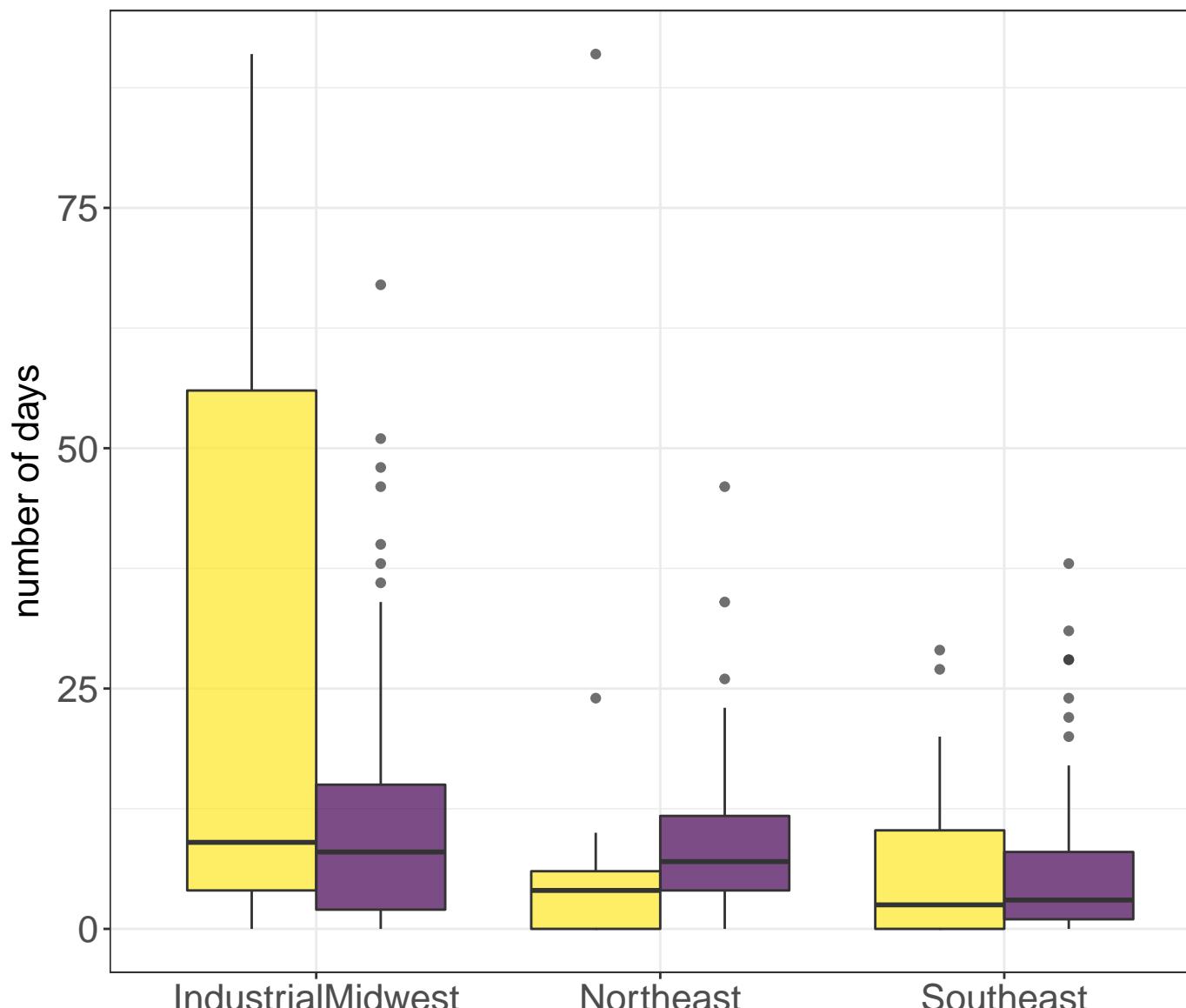
Average daily emissions



Standard deviation in daily emissions



Number of days (out of 91 total) with missing emissions data

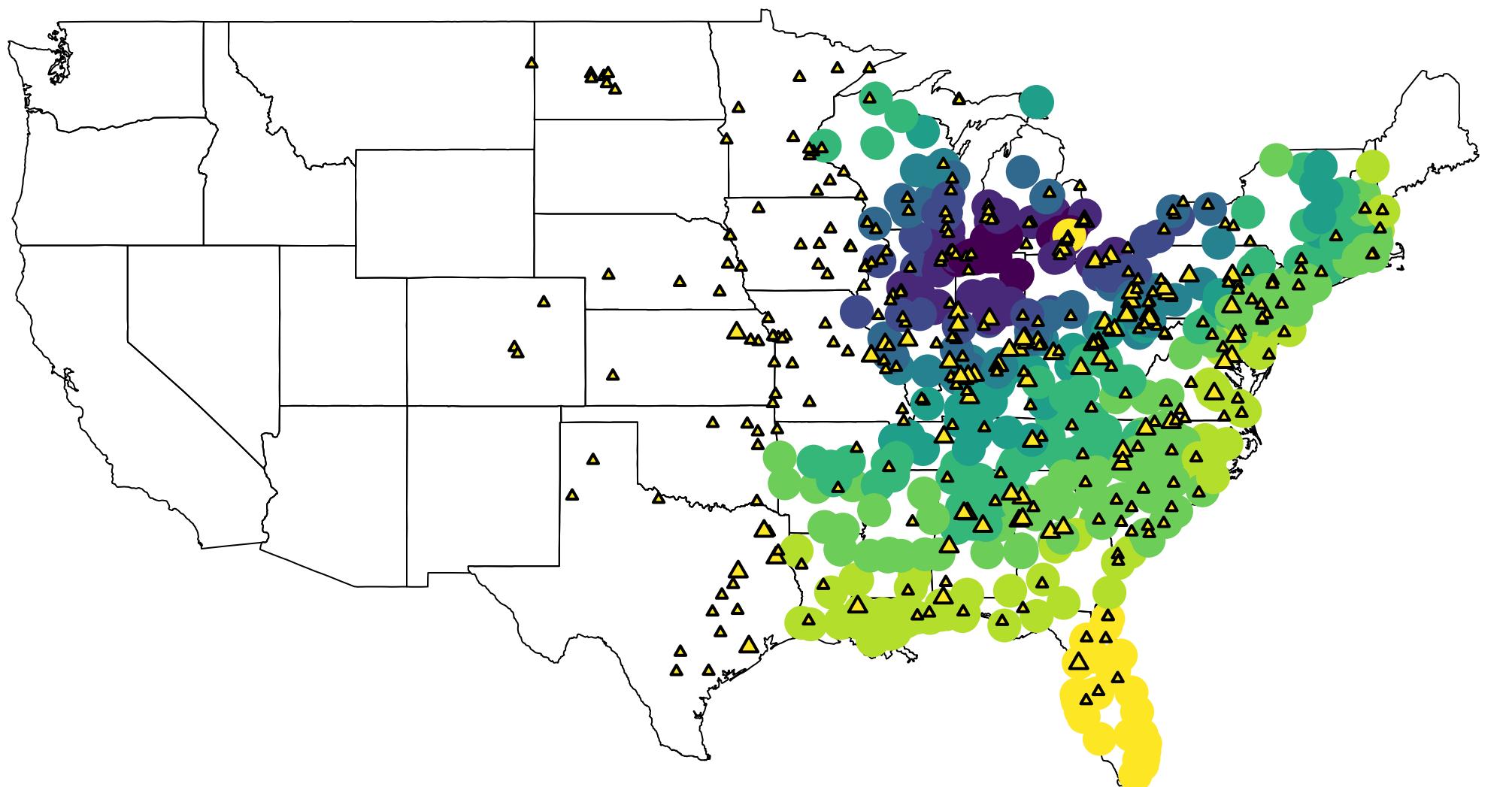


Powerplants: without edges

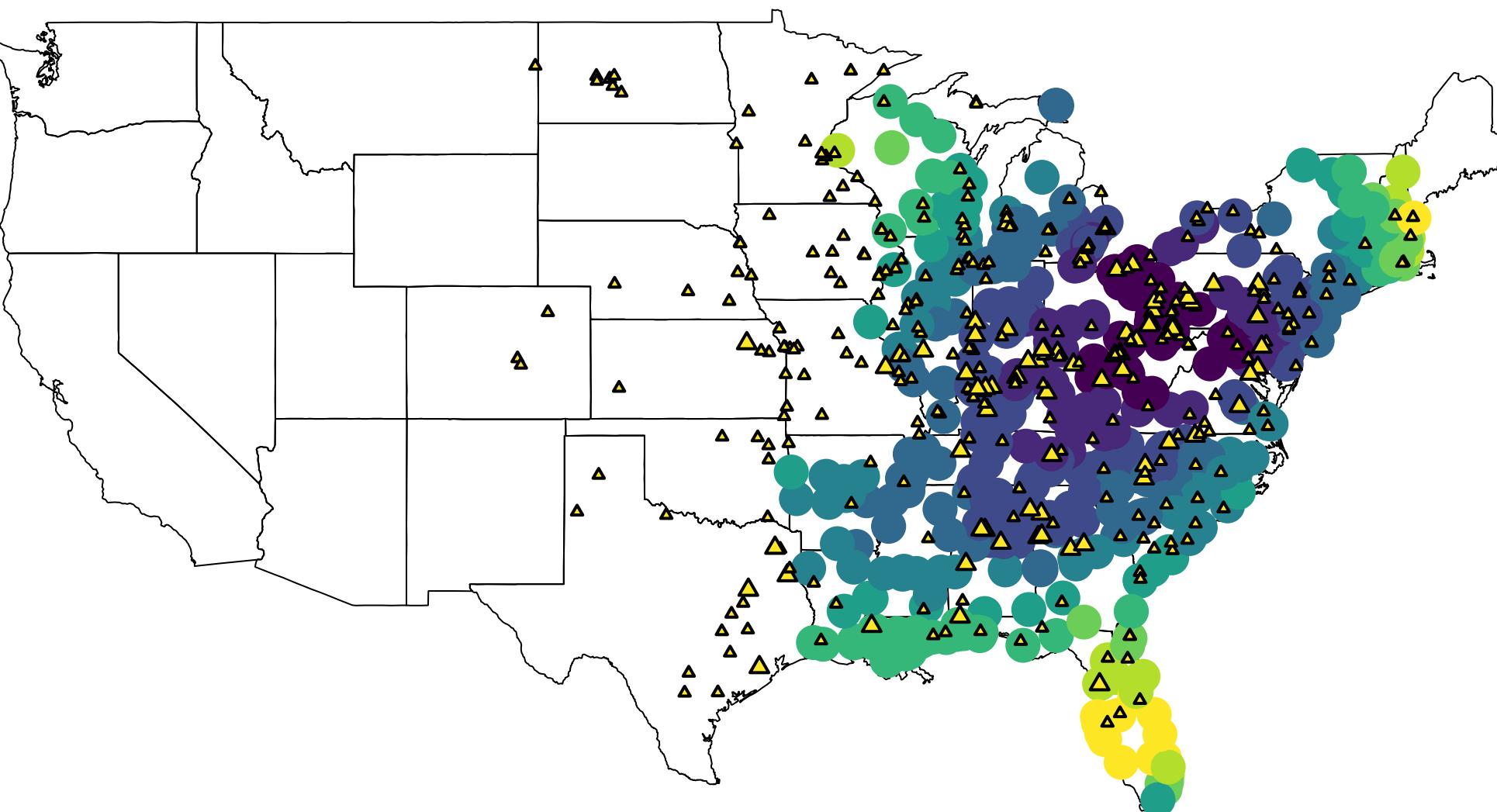


with edges

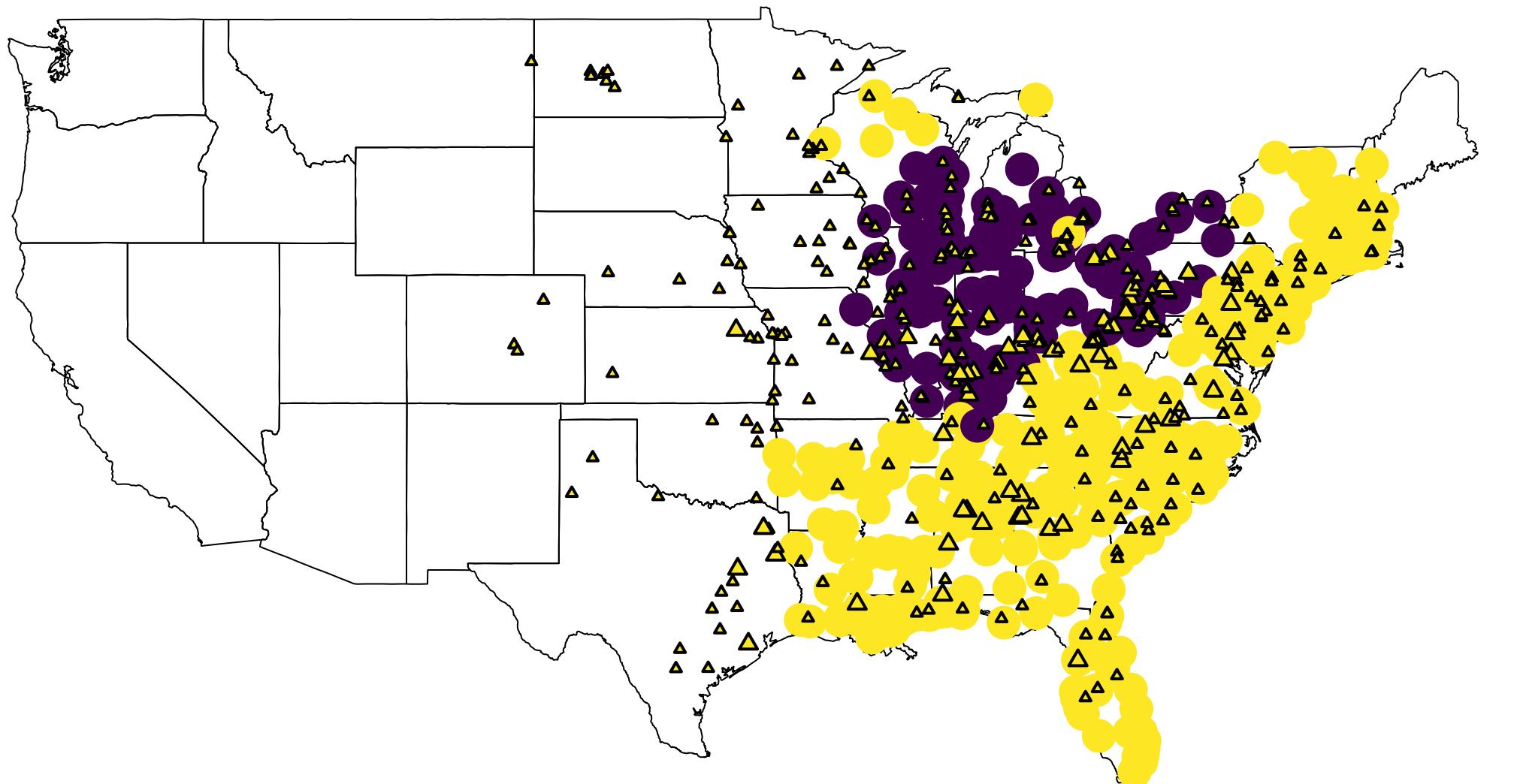
**Monitor exposure: sum of gams.coeff, summer\_distLag 2005**



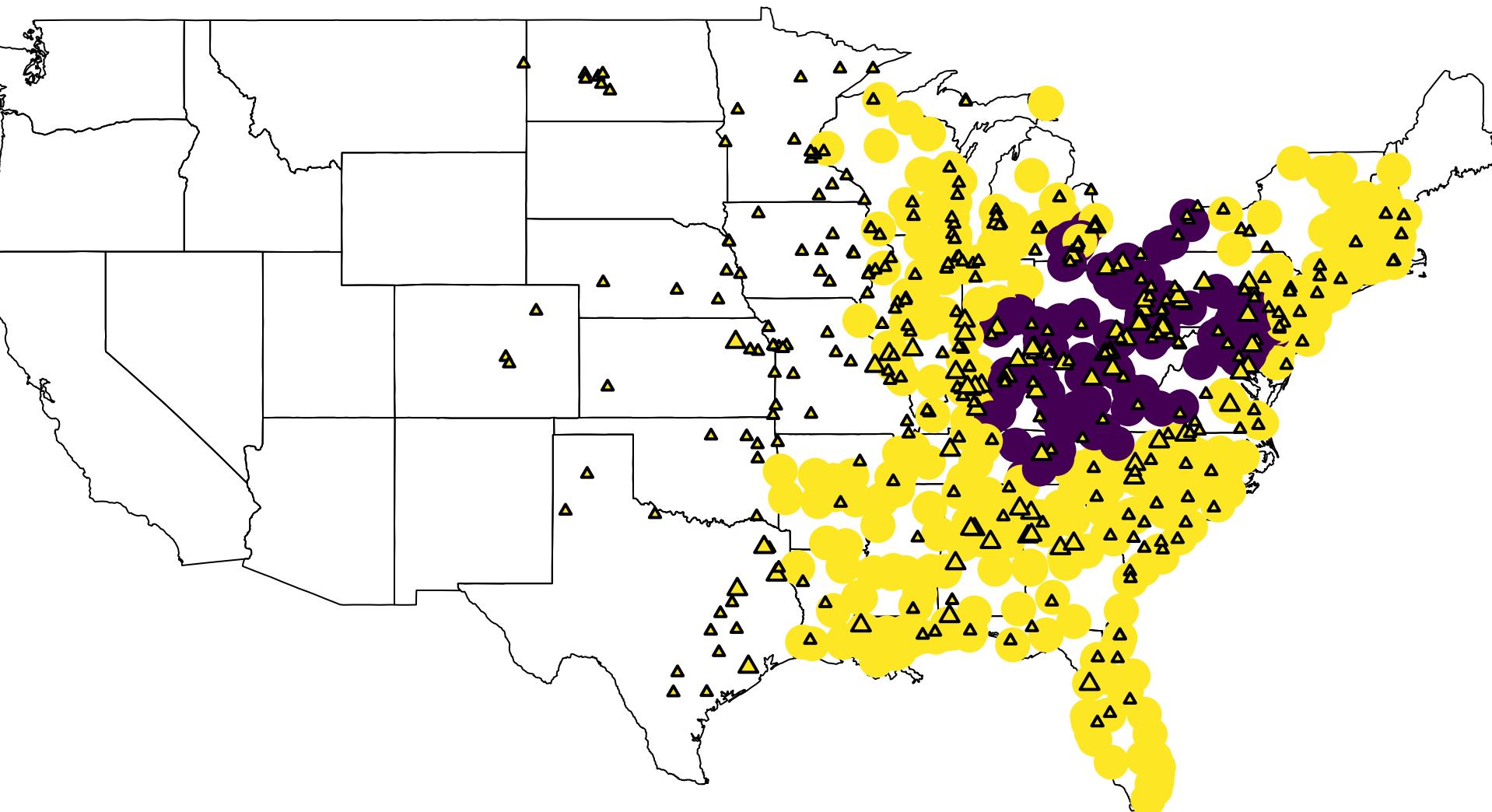
**Monitor exposure: avgPM, decomposed75 summer\_distLag 2005**



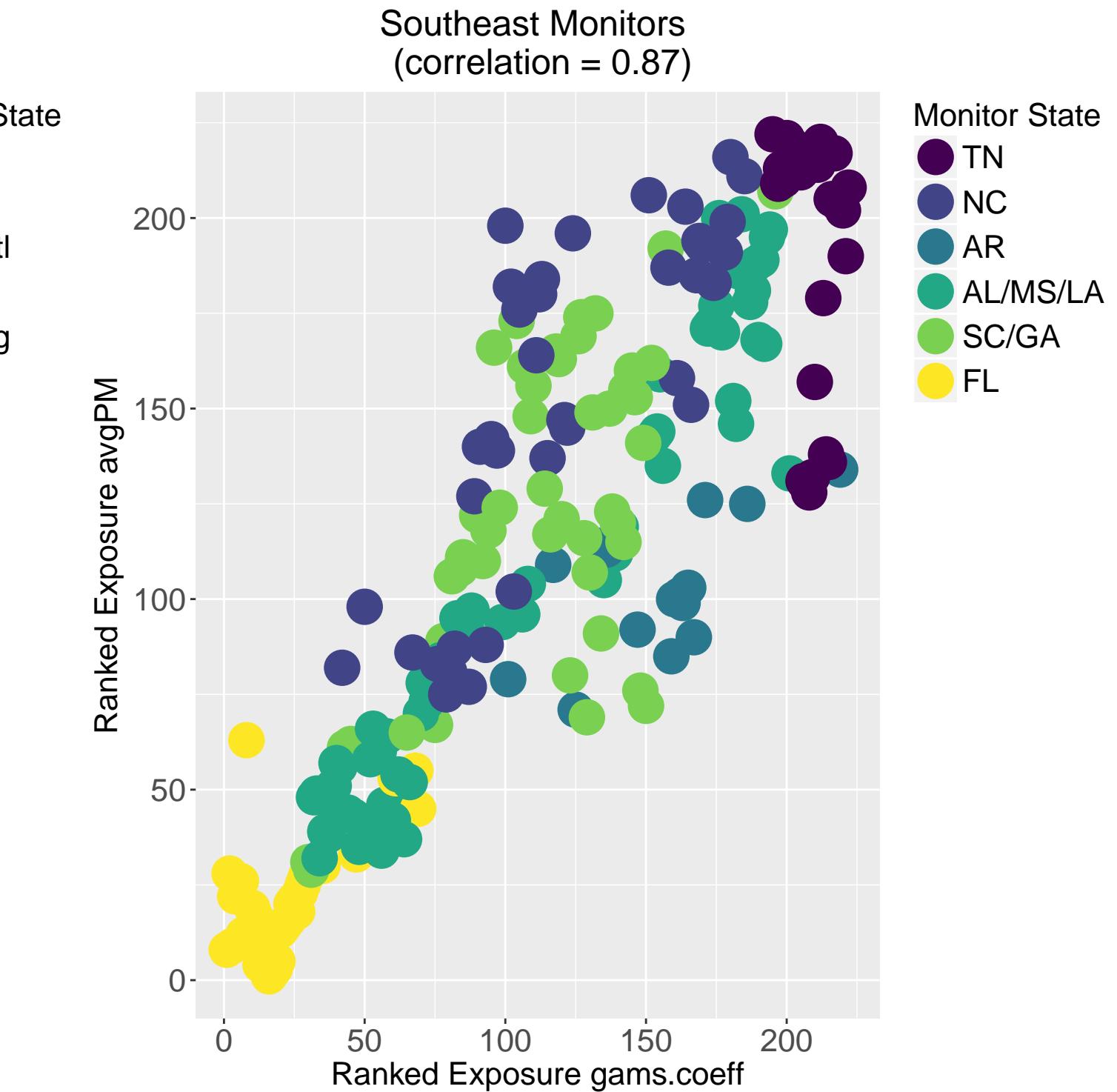
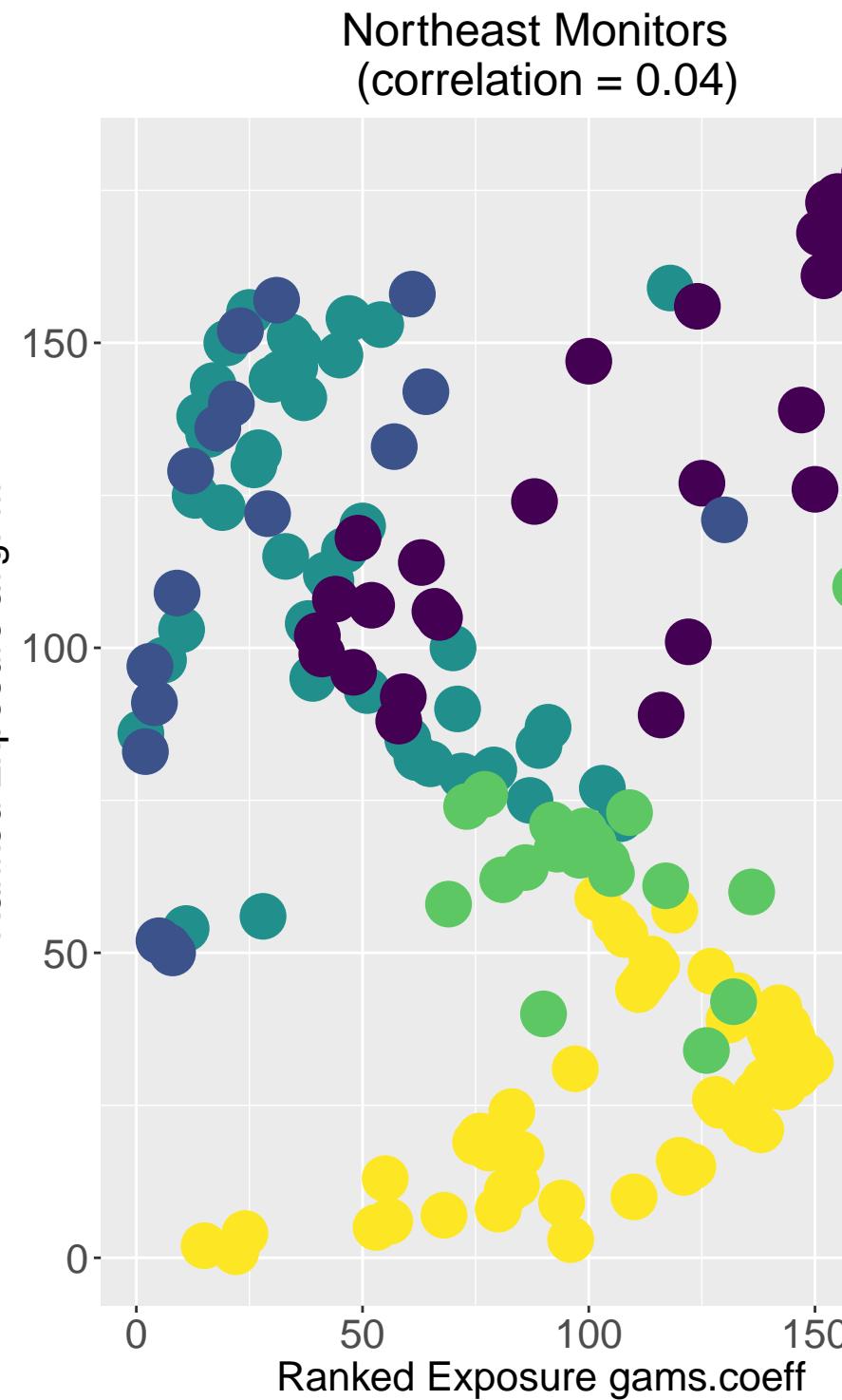
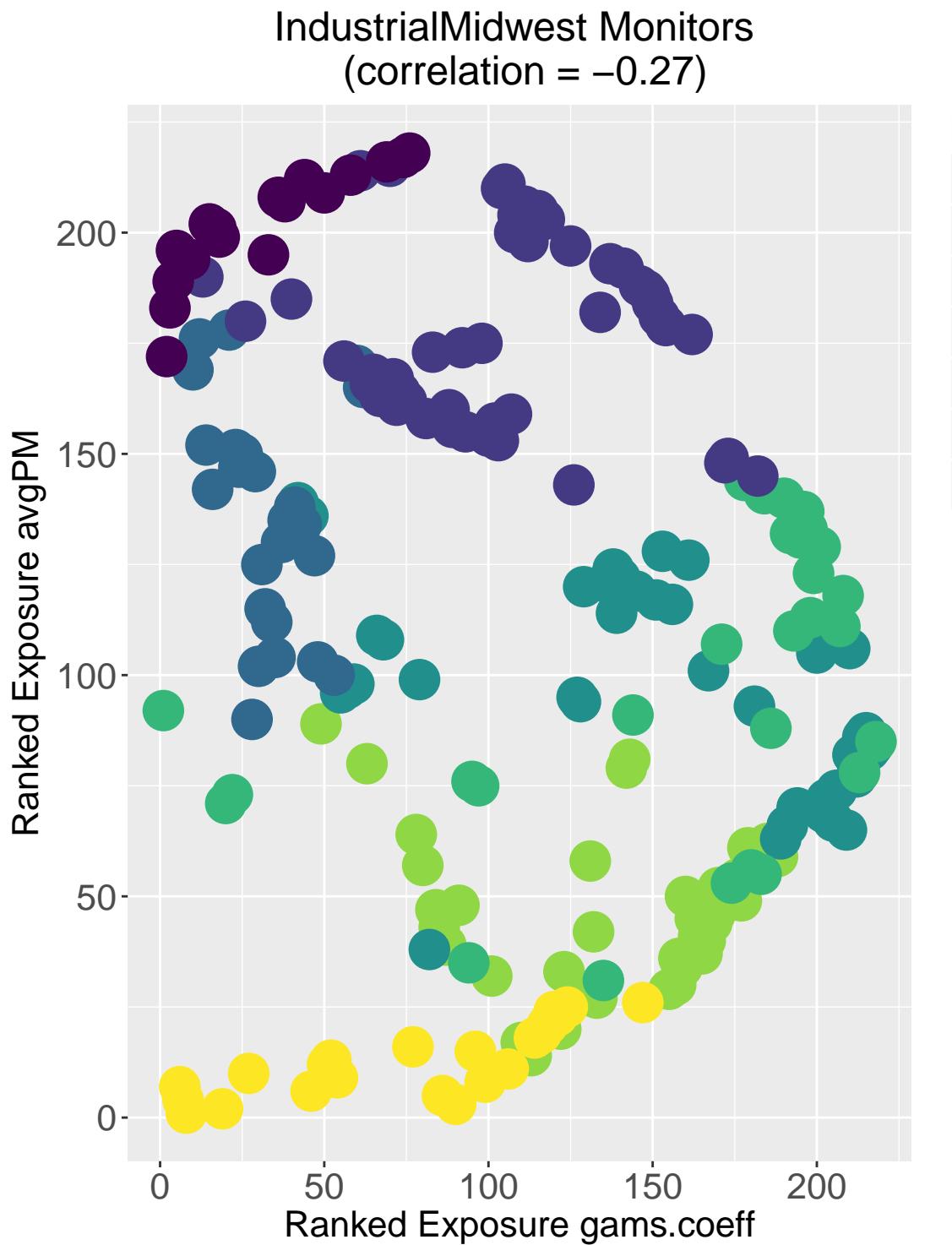
**Highest exposed: sum of gams.coeff, summer\_distLag 2005**



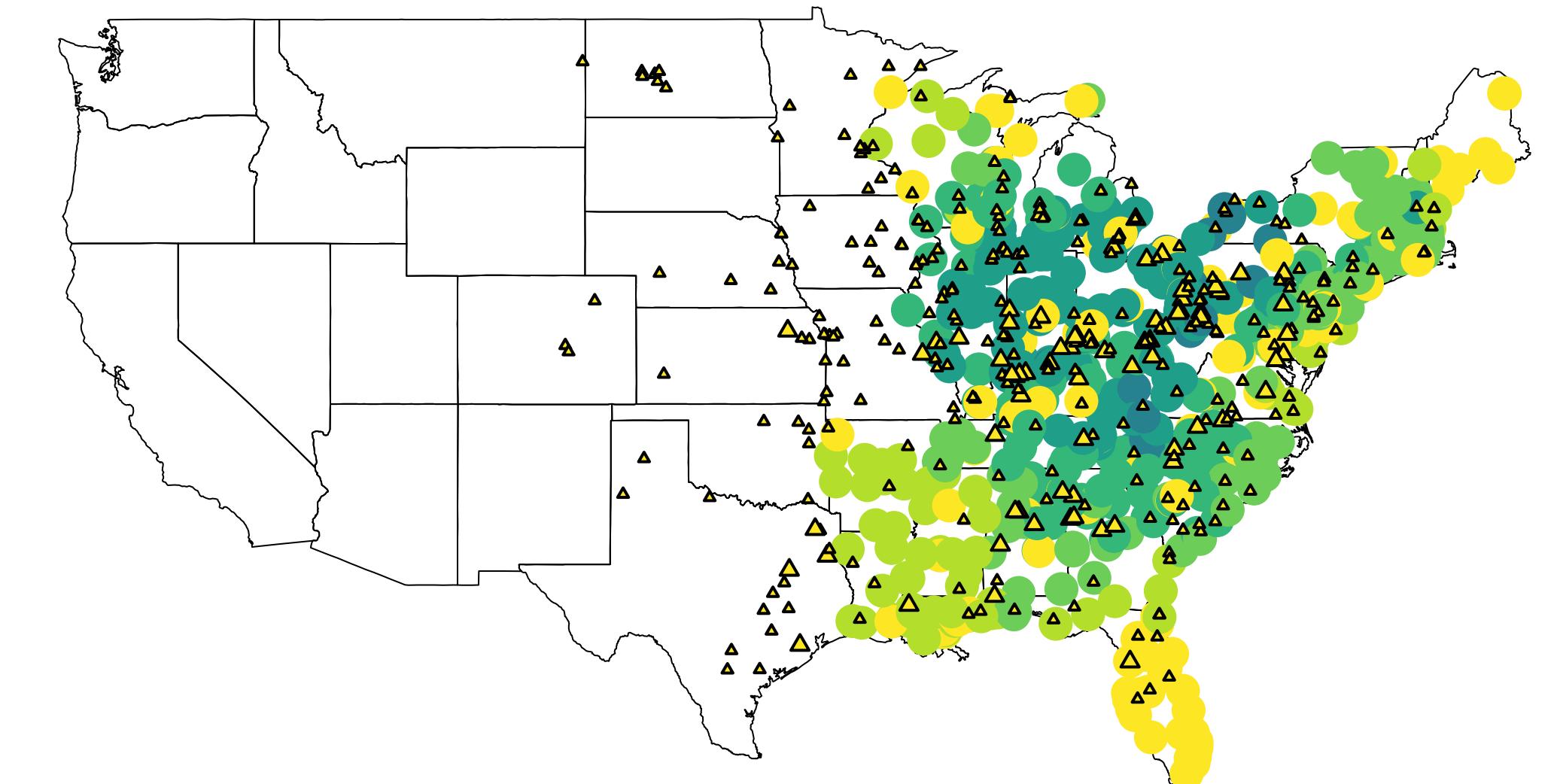
**Highest exposed: avgPM, decomposed75 summer\_distLag 2005**



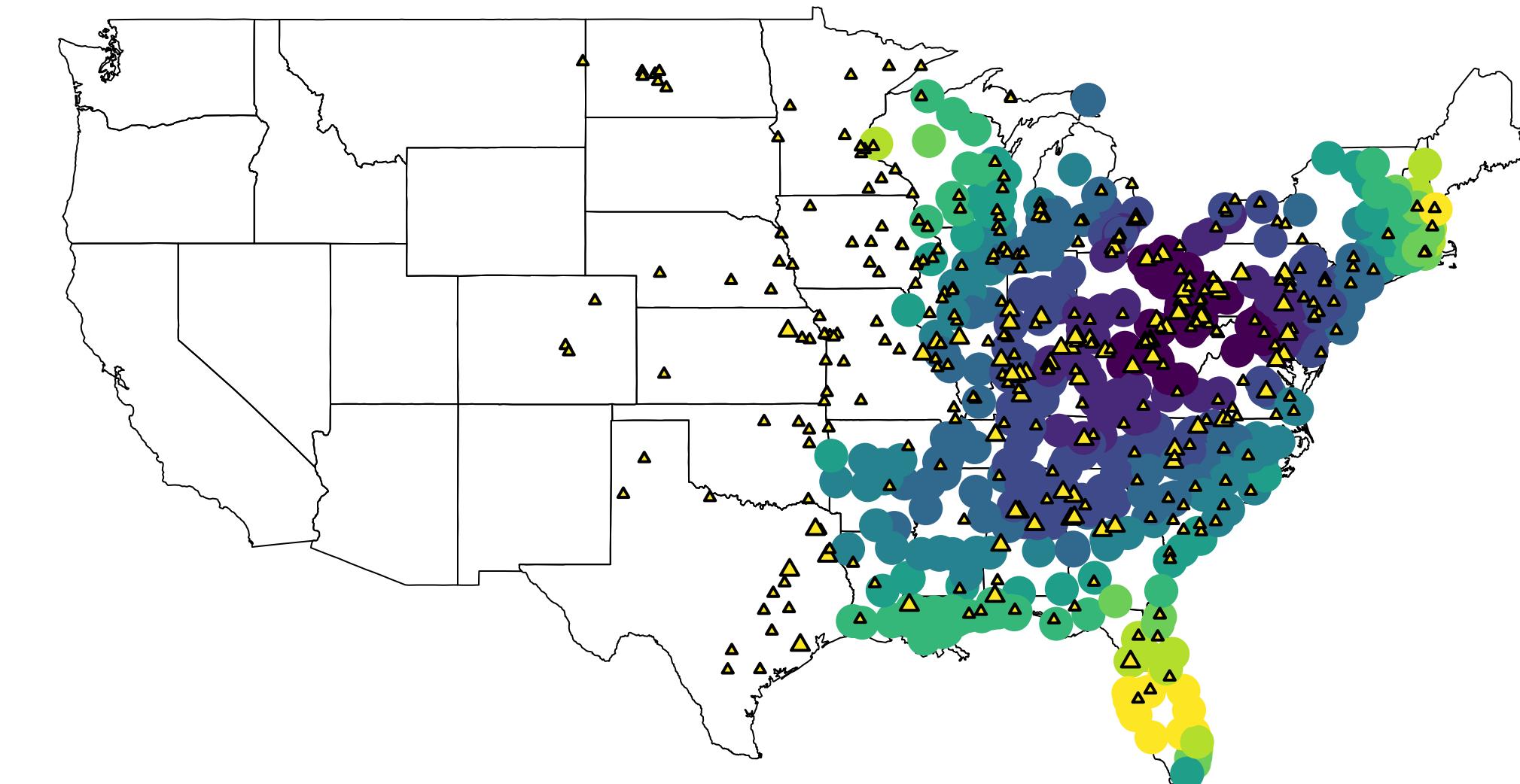
# Comparison of coal emissions exposure (sum of gams.coeff vs. low freq PM)



Exposure: sum of avgemissions\*(1/distance), summer\_distLag 2005

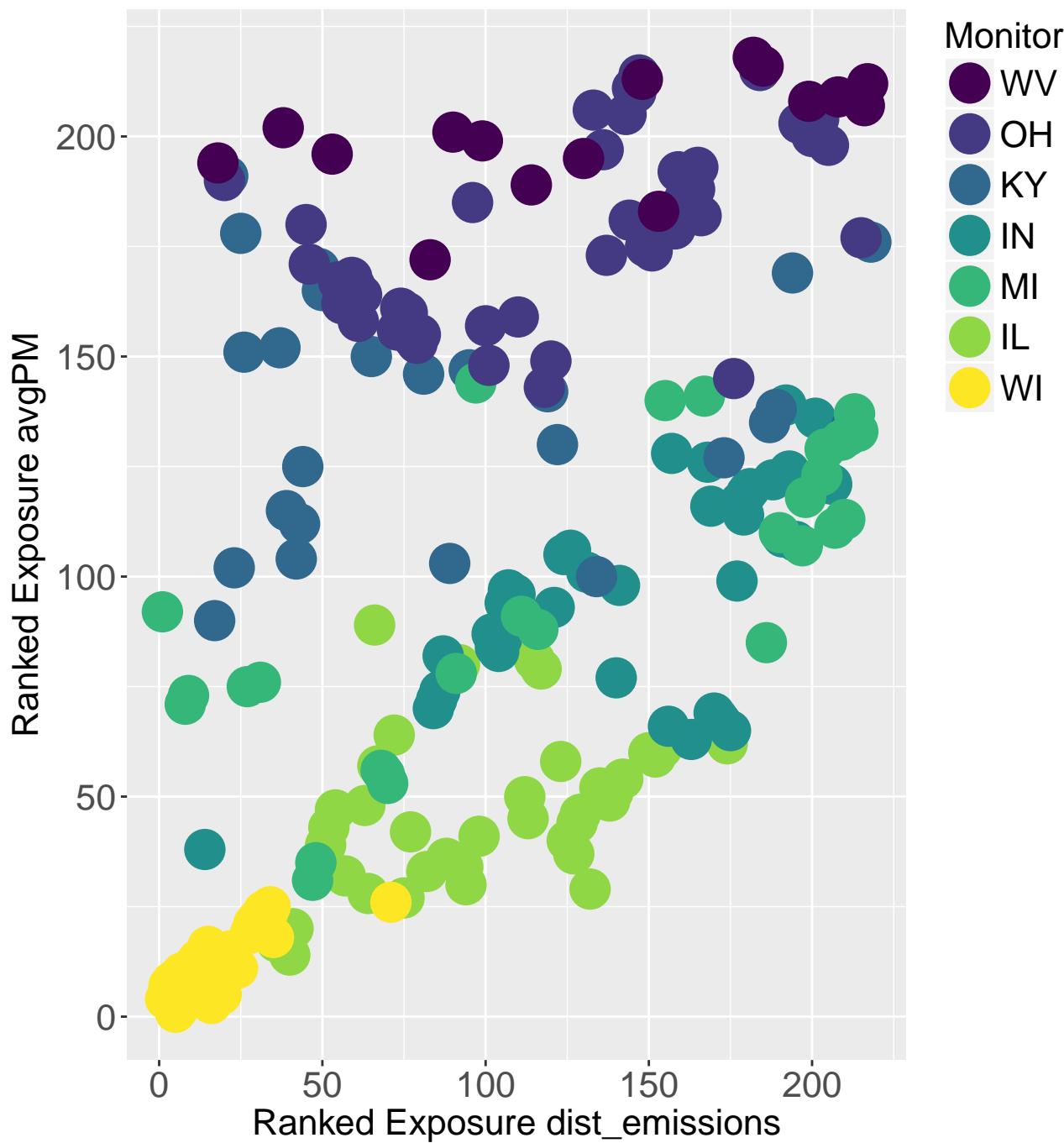


Monitor exposure: avgPM, decomposed75 summer\_distLag 2005

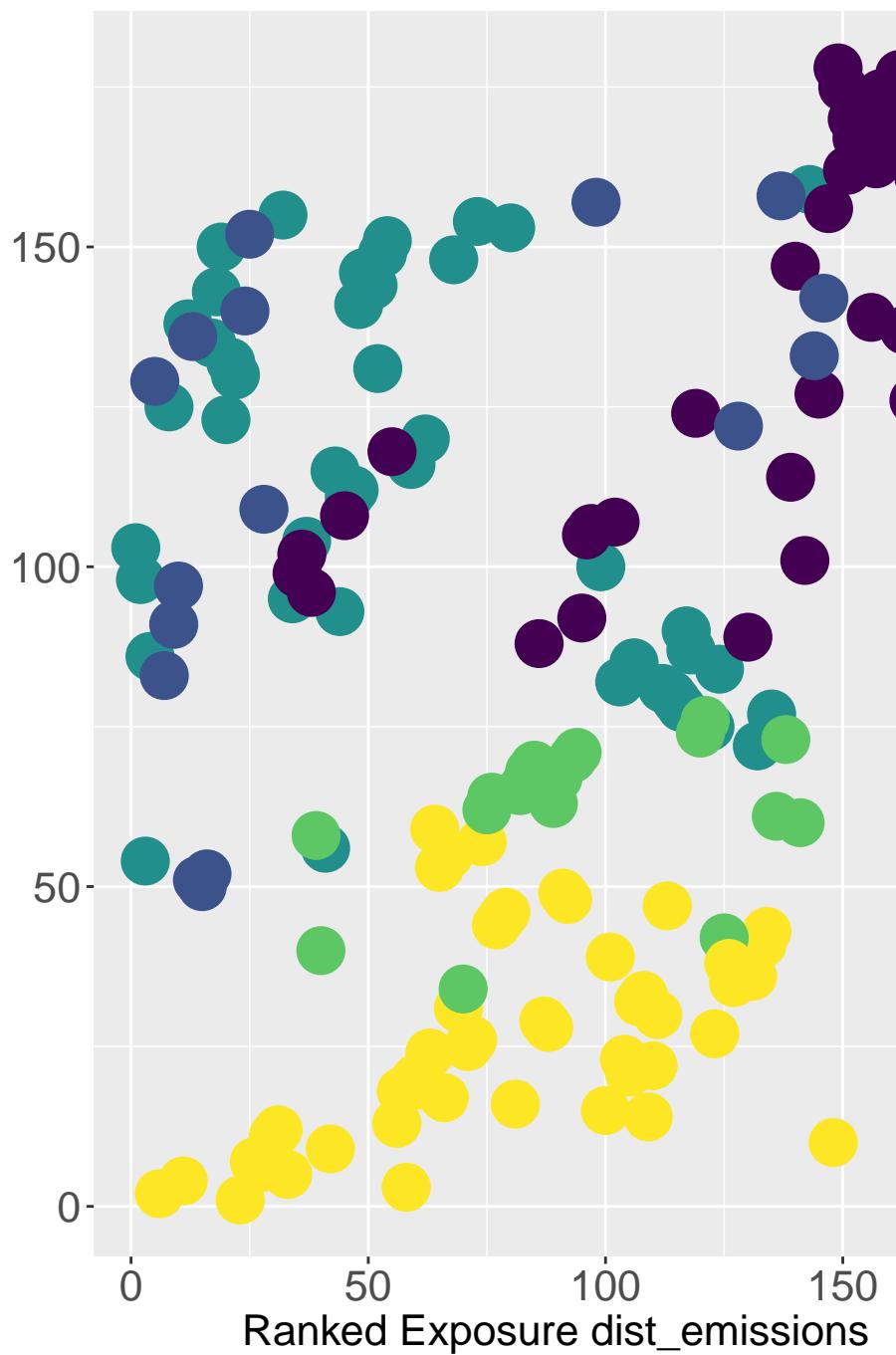


# Comparison of coal emissions exposure (sum of (1/distance)\*avgemissions vs. low freq PM)

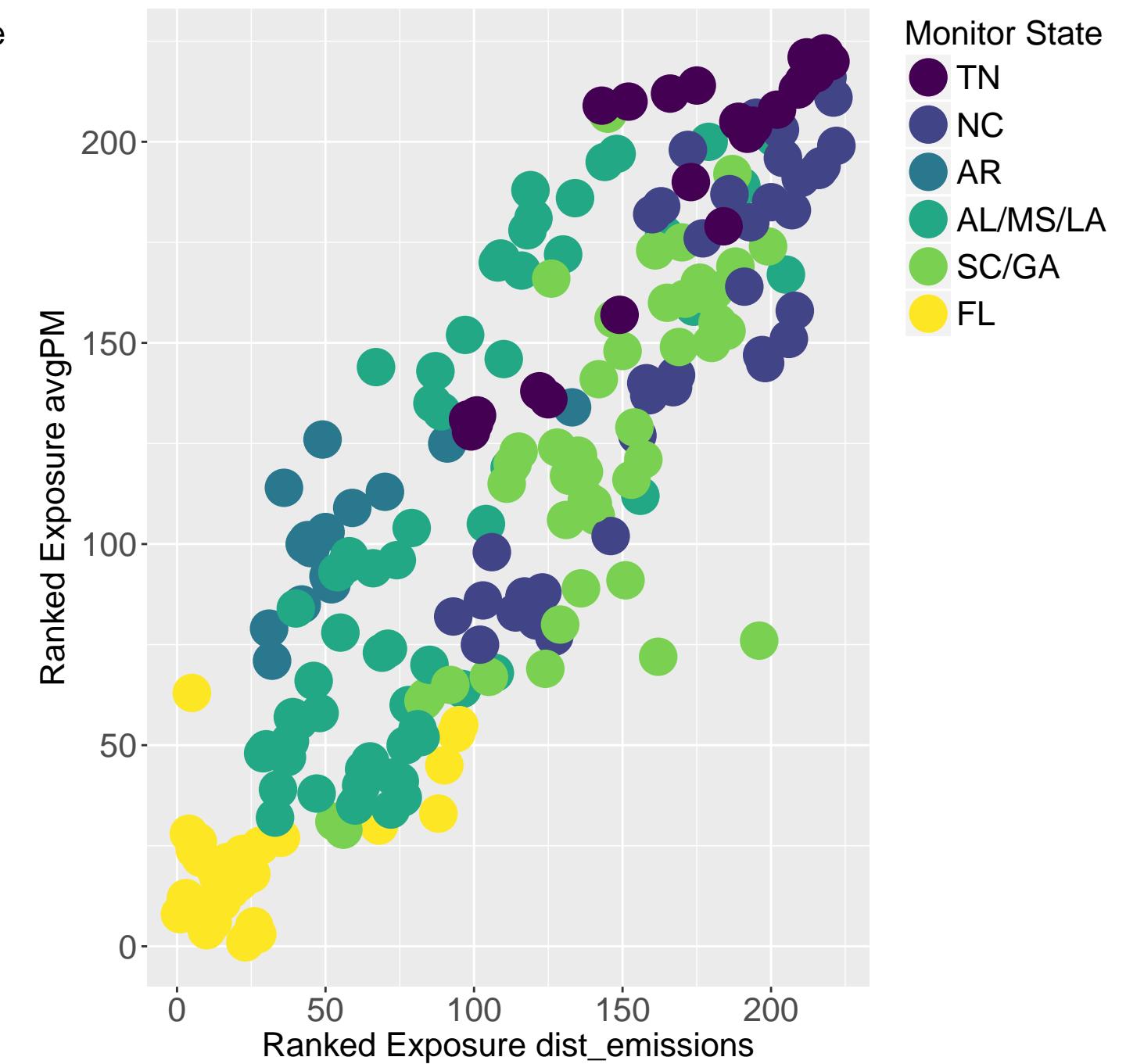
Industrial Midwest Monitors  
(correlation = 0.04)



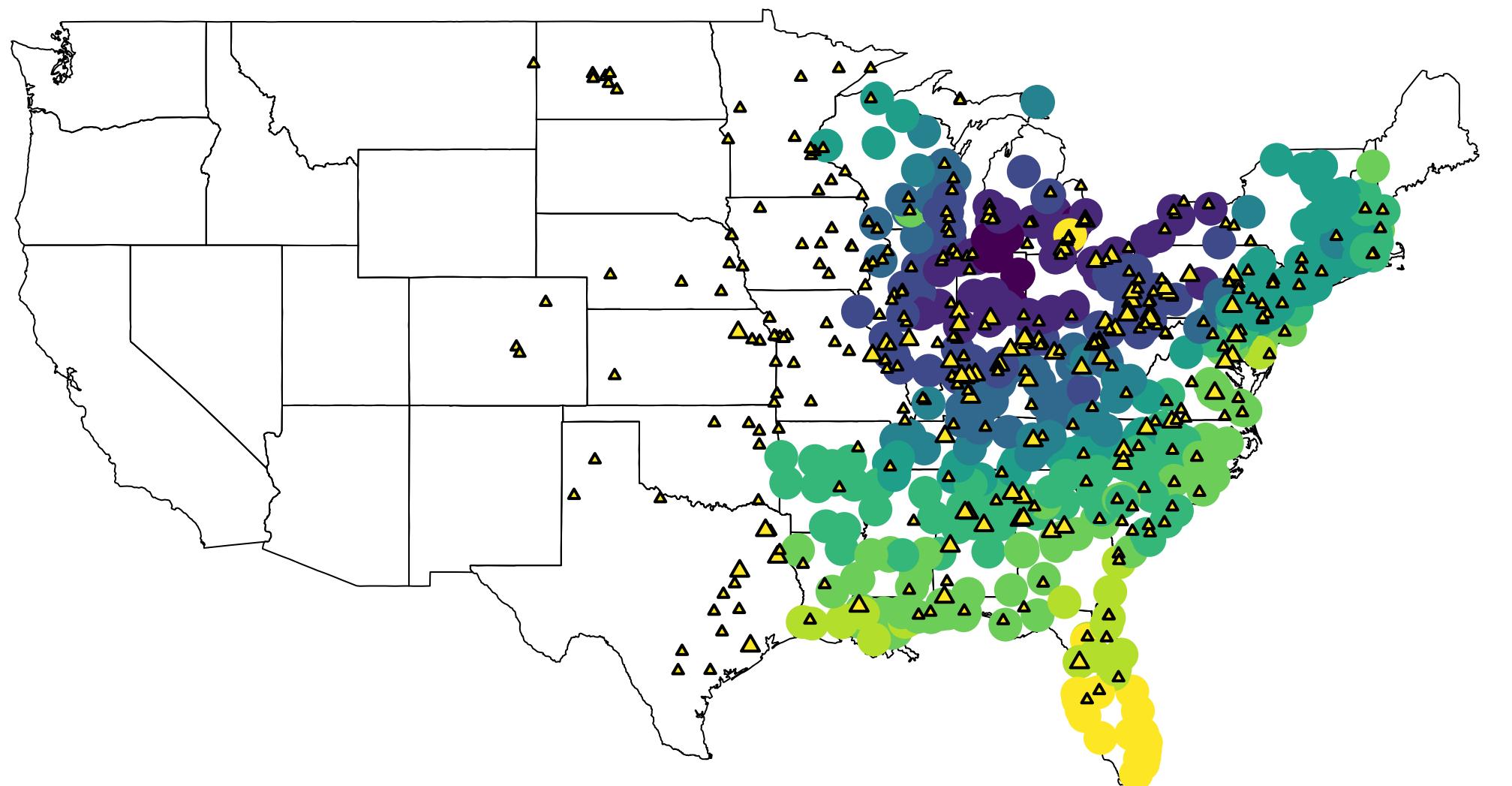
Northeast Monitors  
(correlation = -0.35)



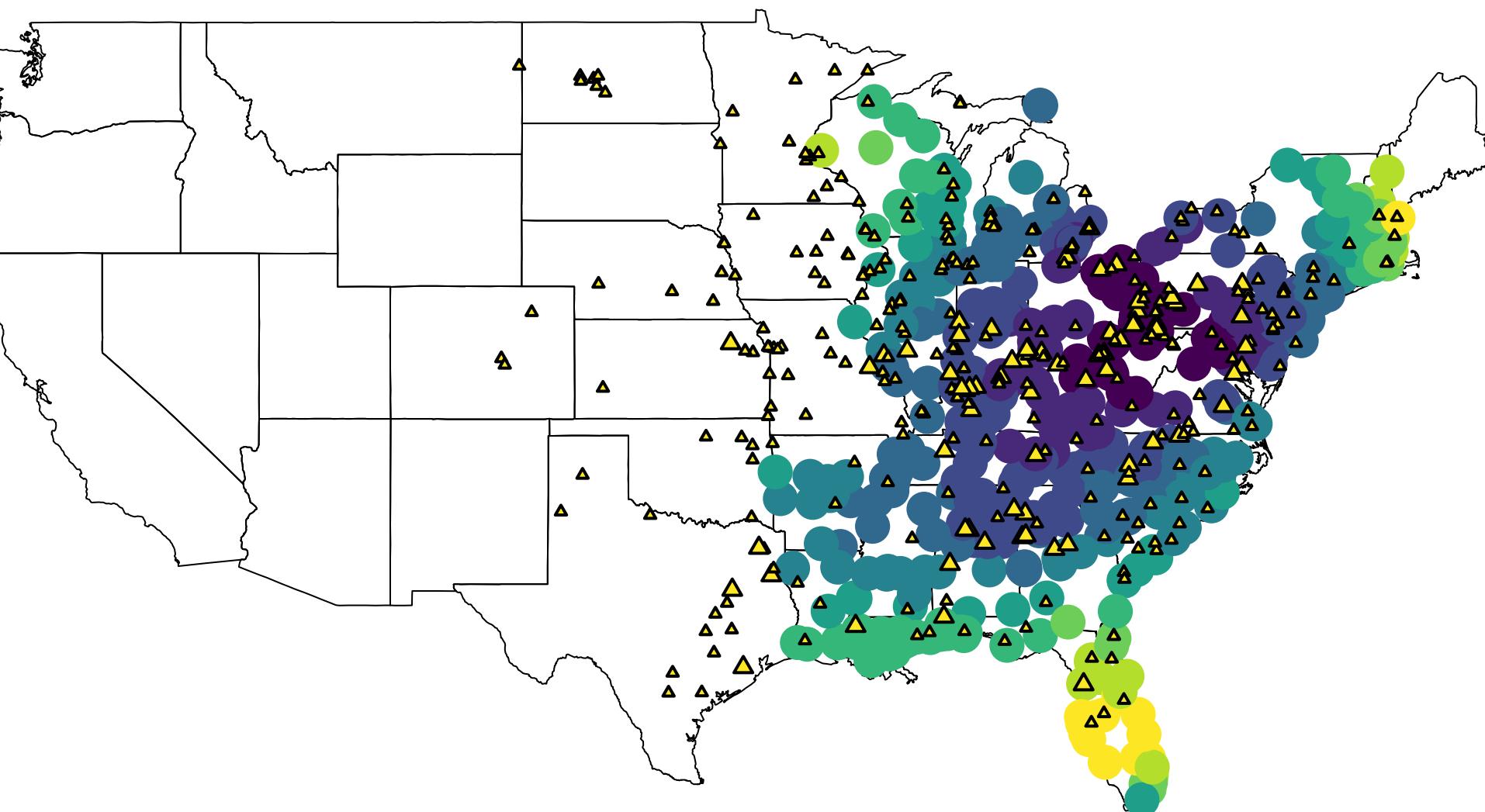
Southeast Monitors  
(correlation = 0.13)



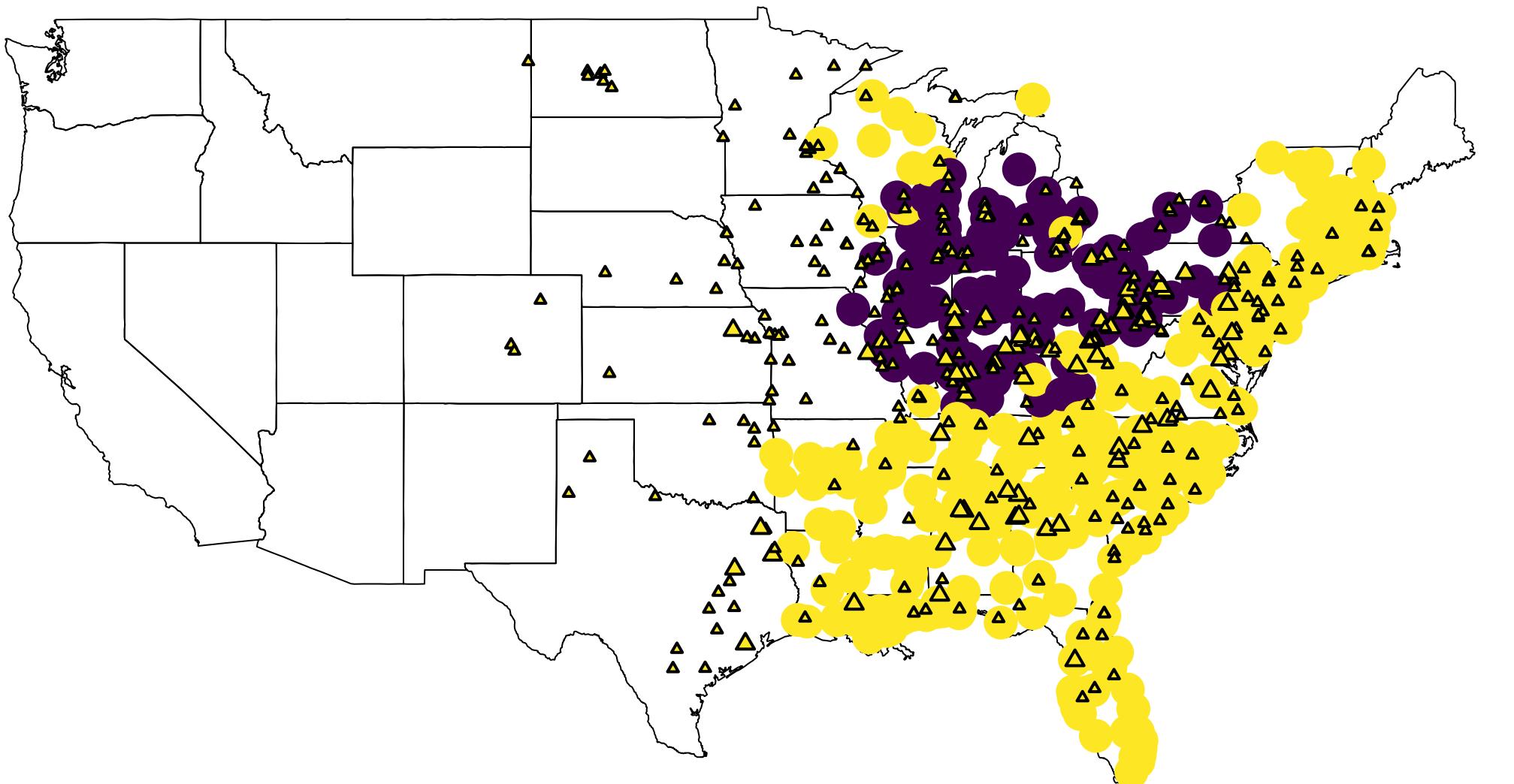
**Monitor exposure: num\_edges, summer\_distLag 2005**



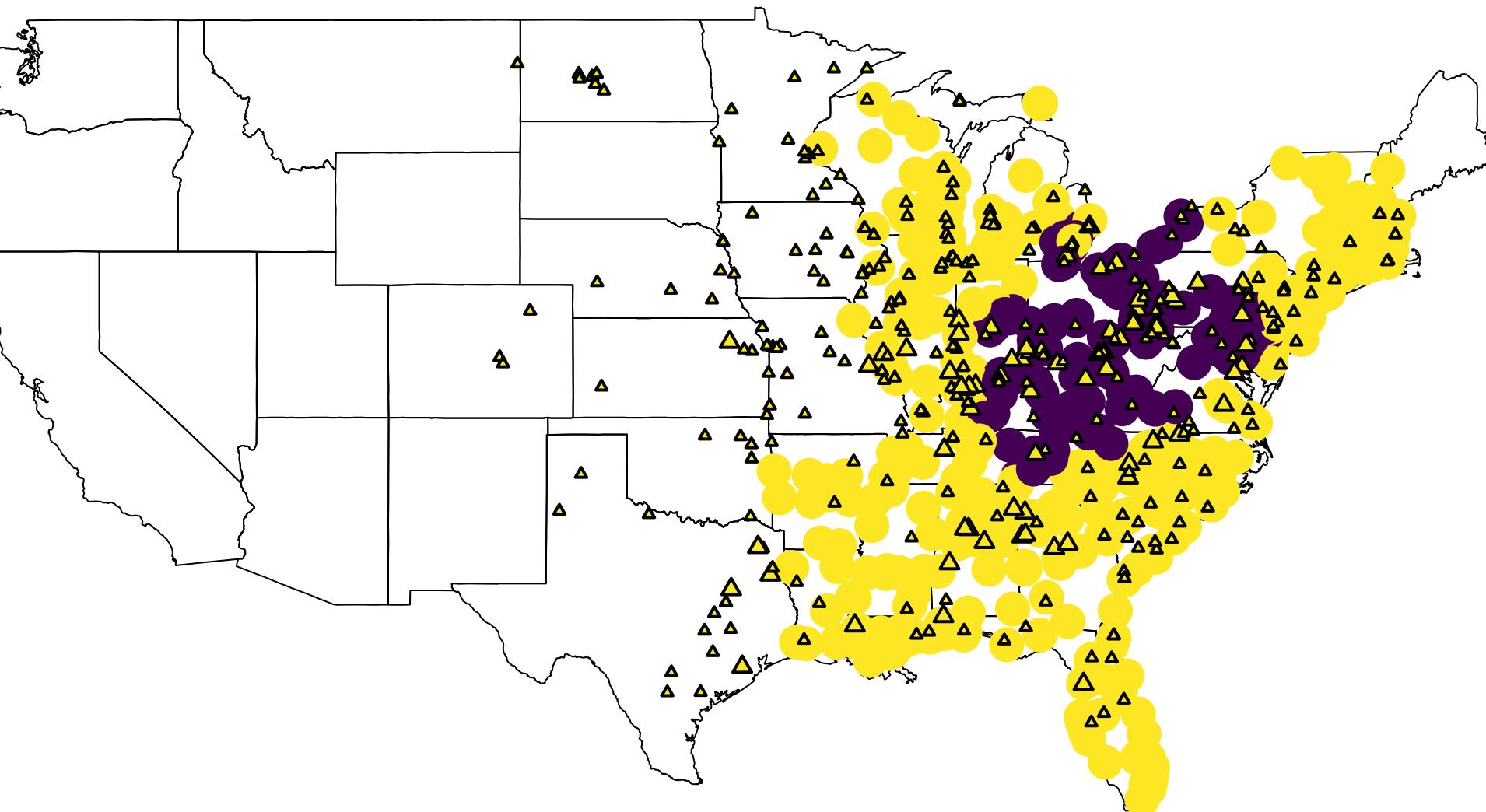
**Monitor exposure: avgPM, decomposed75 summer\_distLag 2005**



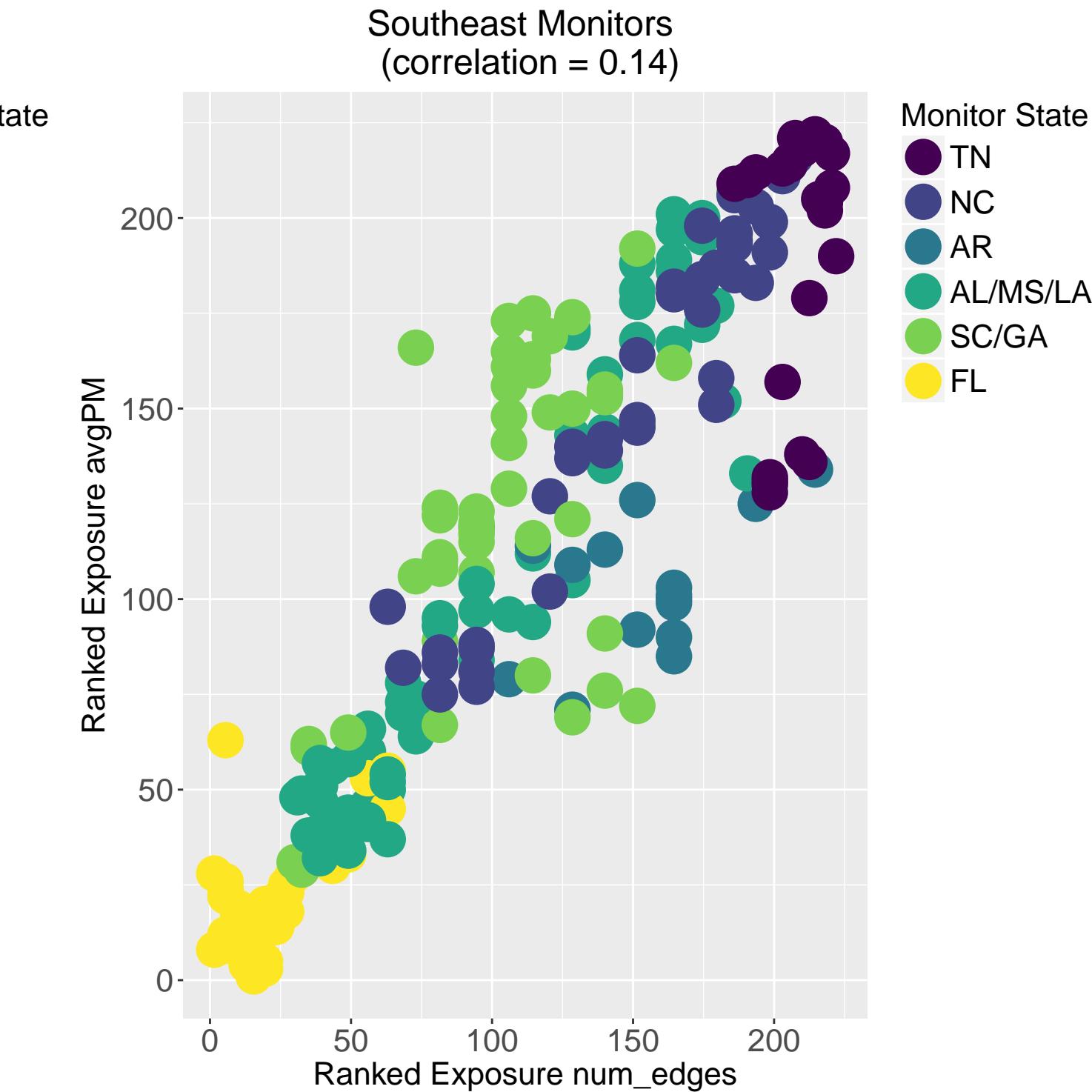
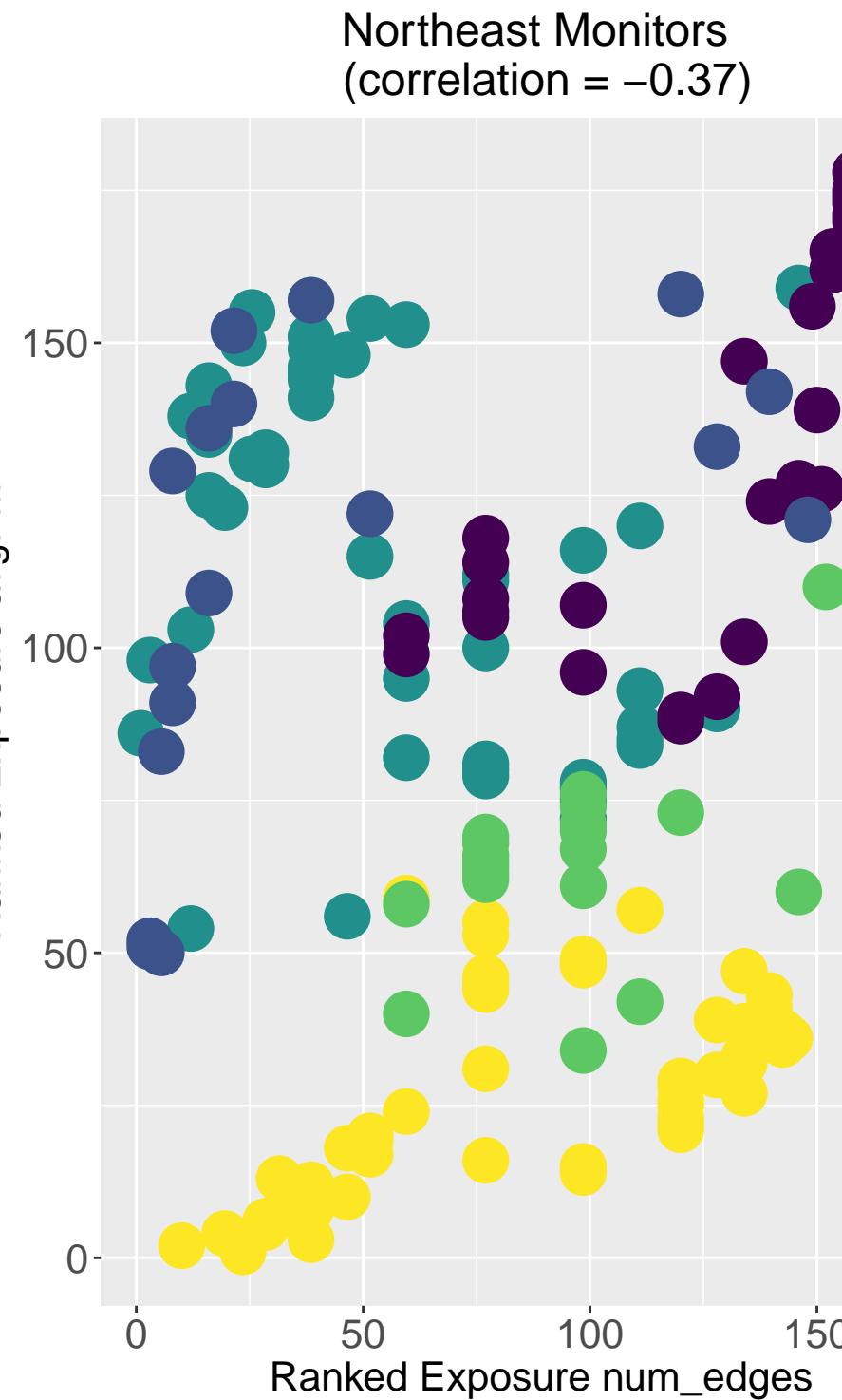
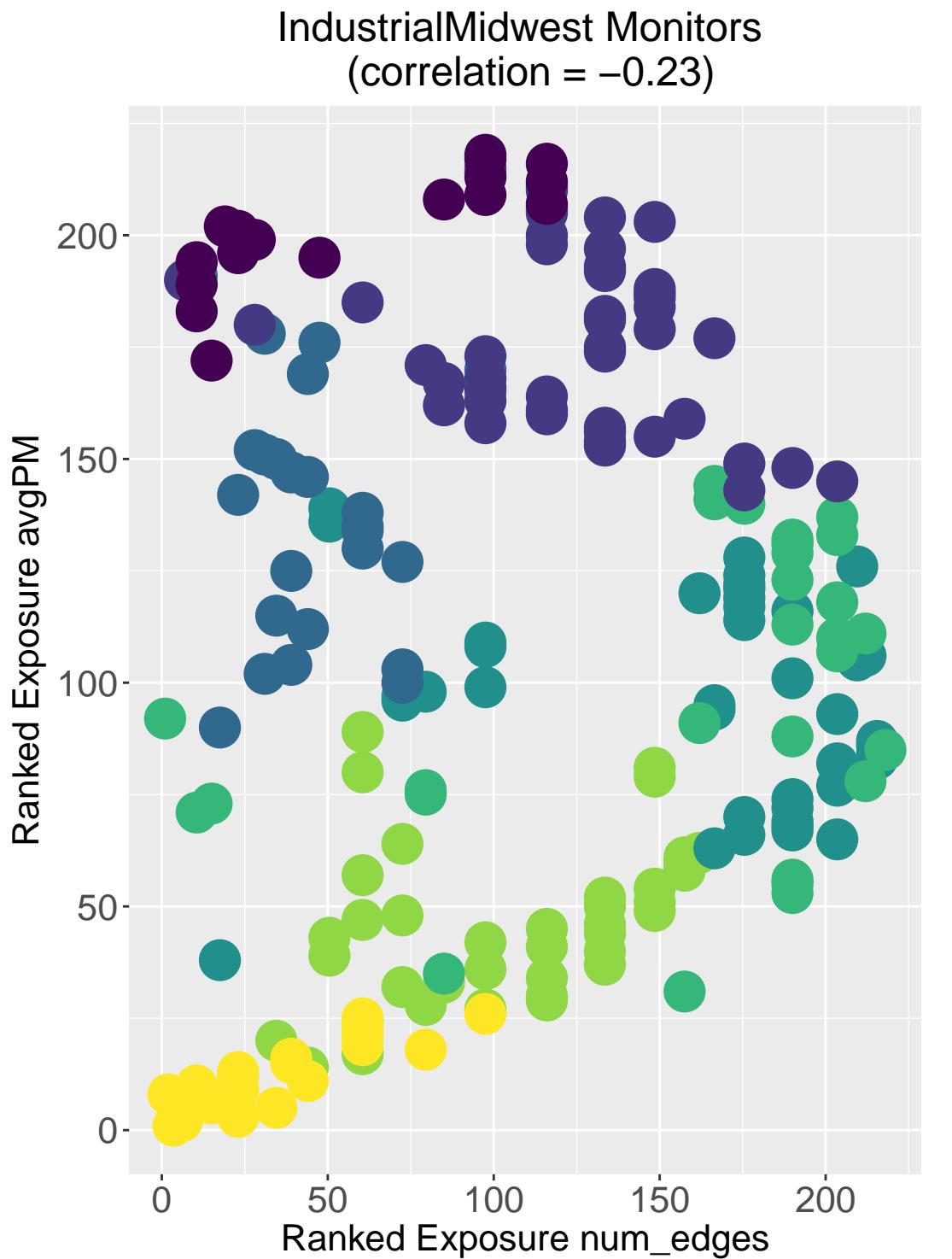
**Highest exposed: num\_edges, summer\_distLag 2005**



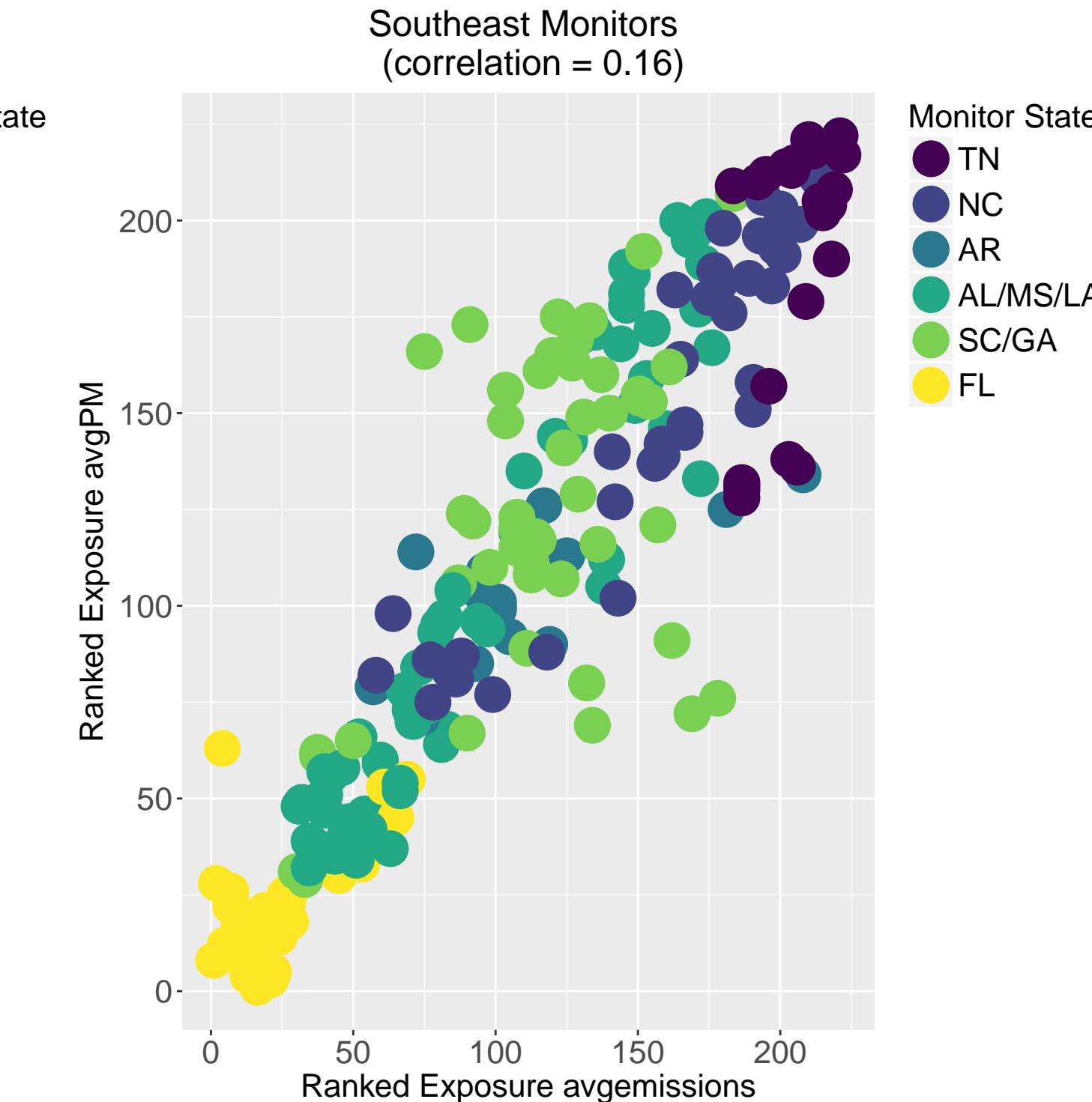
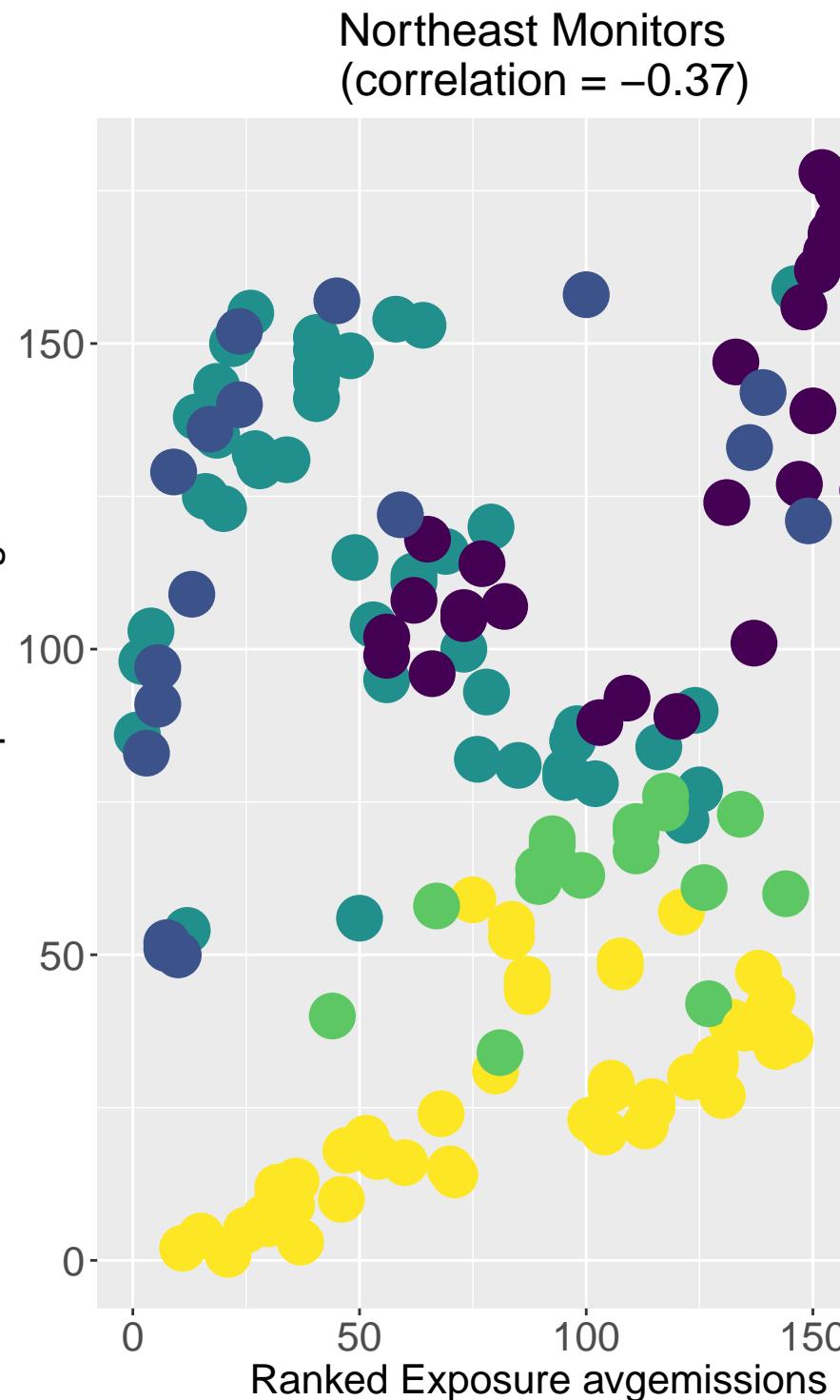
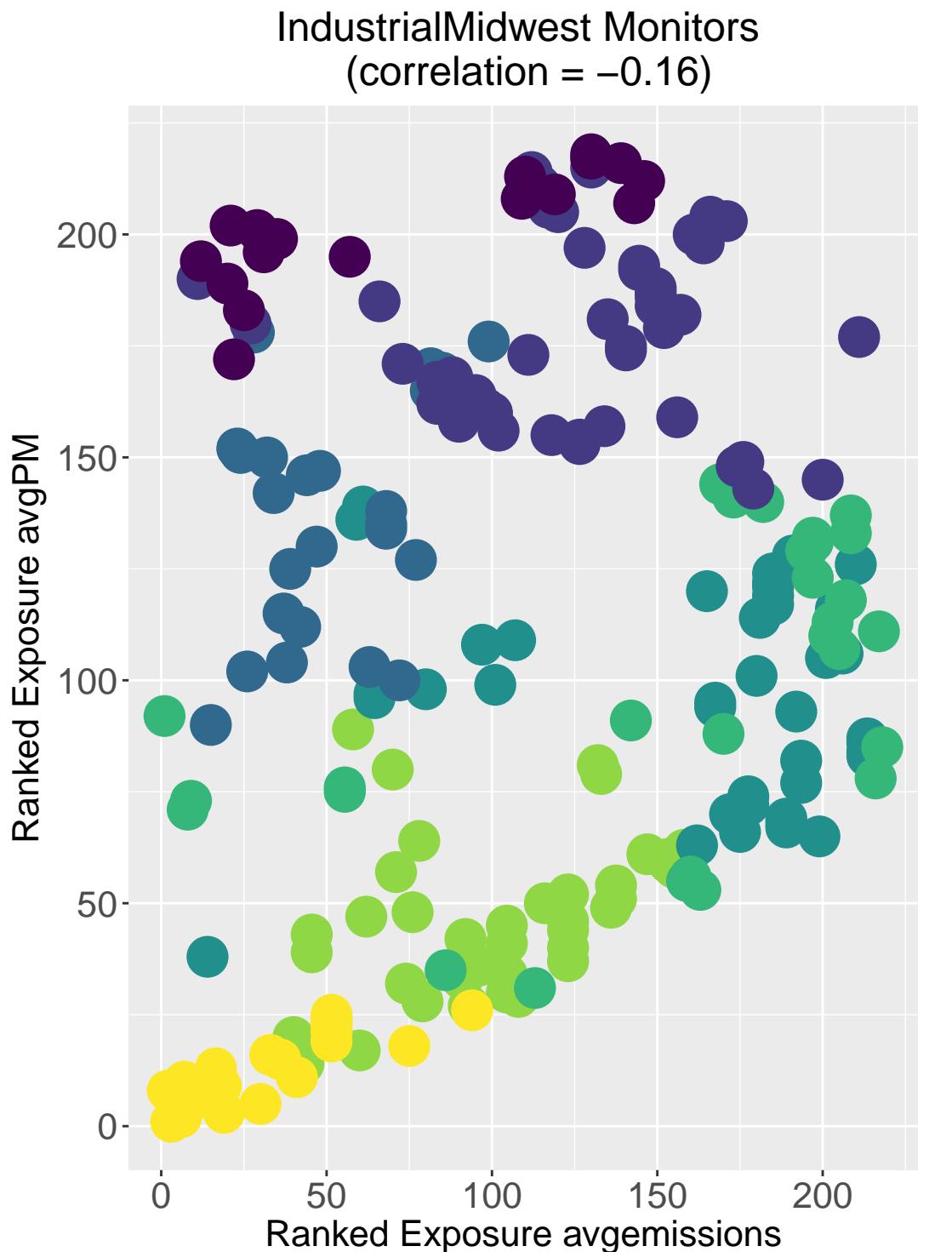
**Highest exposed: avgPM, decomposed75 summer\_distLag 2005**



# Comparison of coal emissions exposure (num\_edges vs. low freq PM)



# Comparison of coal emissions exposure (avgemissions vs. low freq PM)



# Comparison of coal emissions exposure (avgemissions vs. low freq PM)

