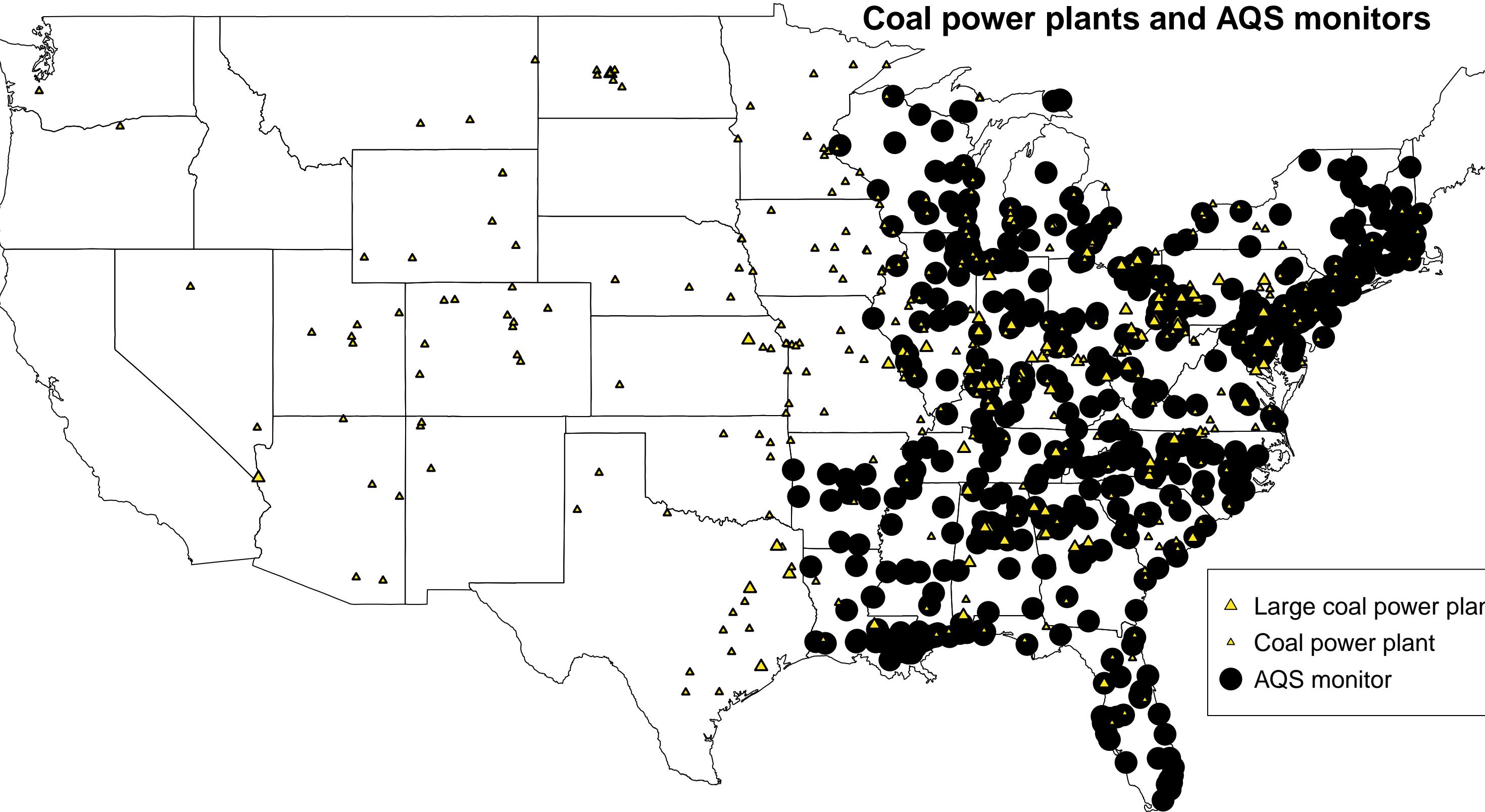
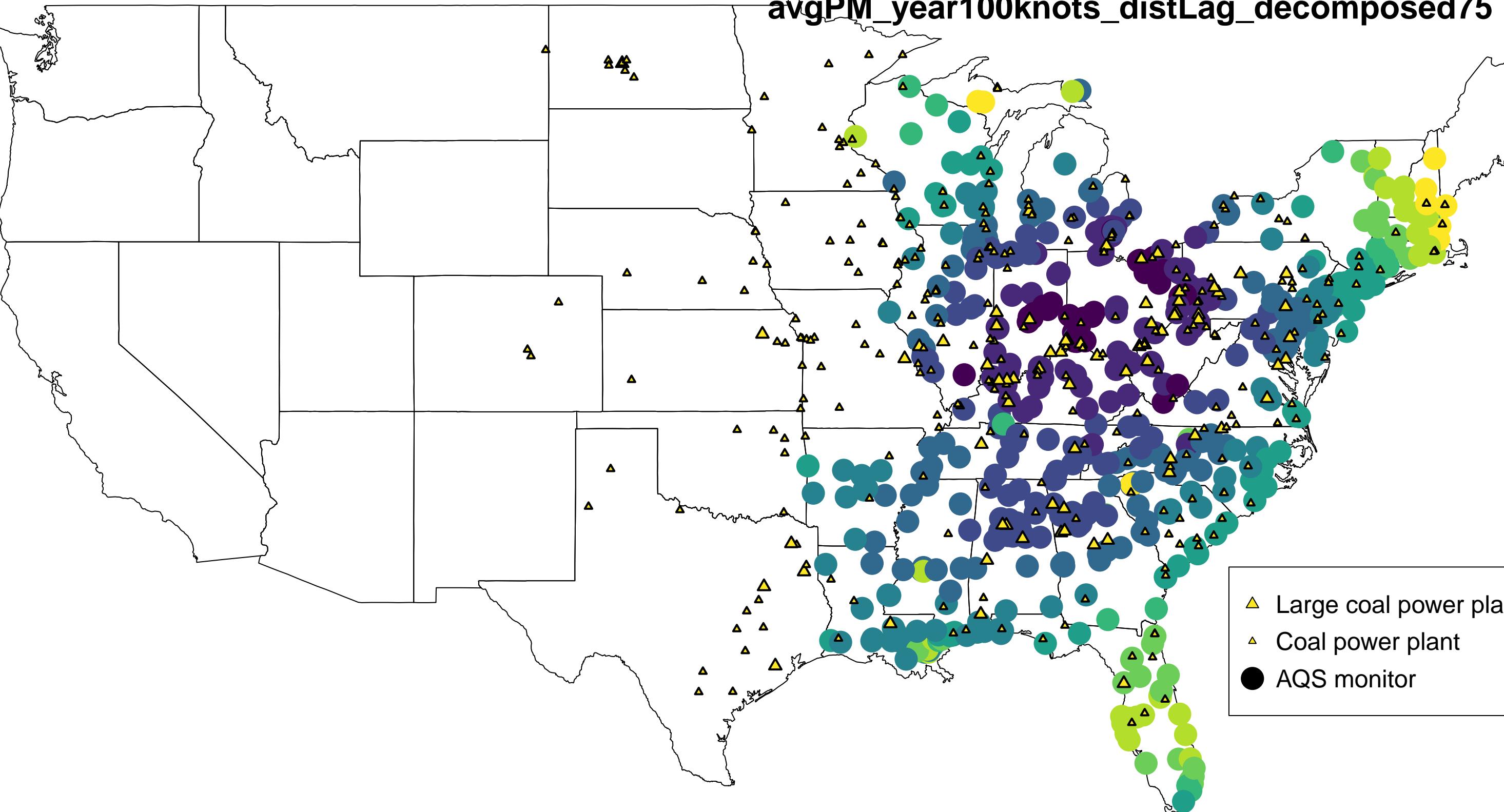


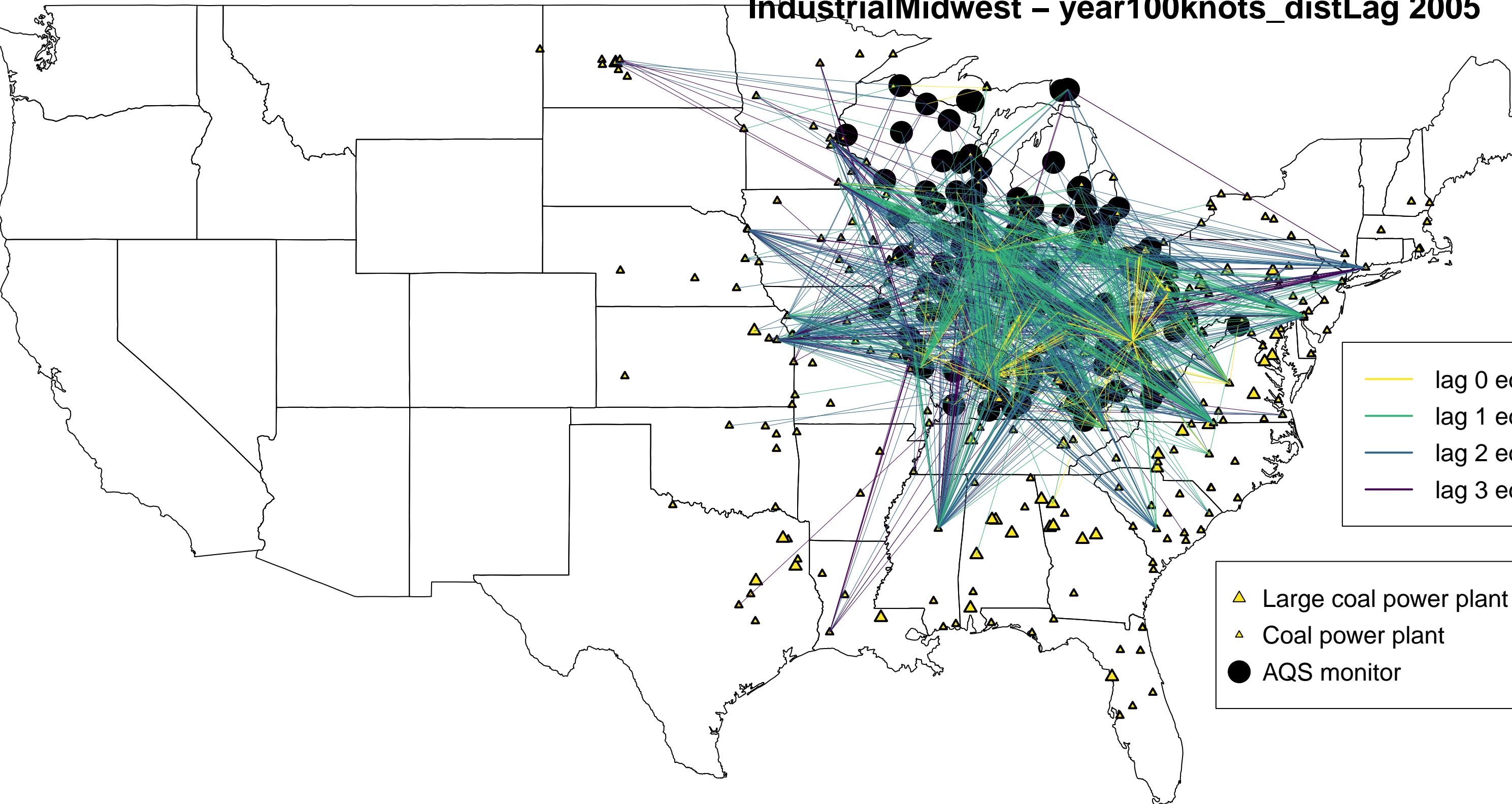
## Coal power plants and AQS monitors



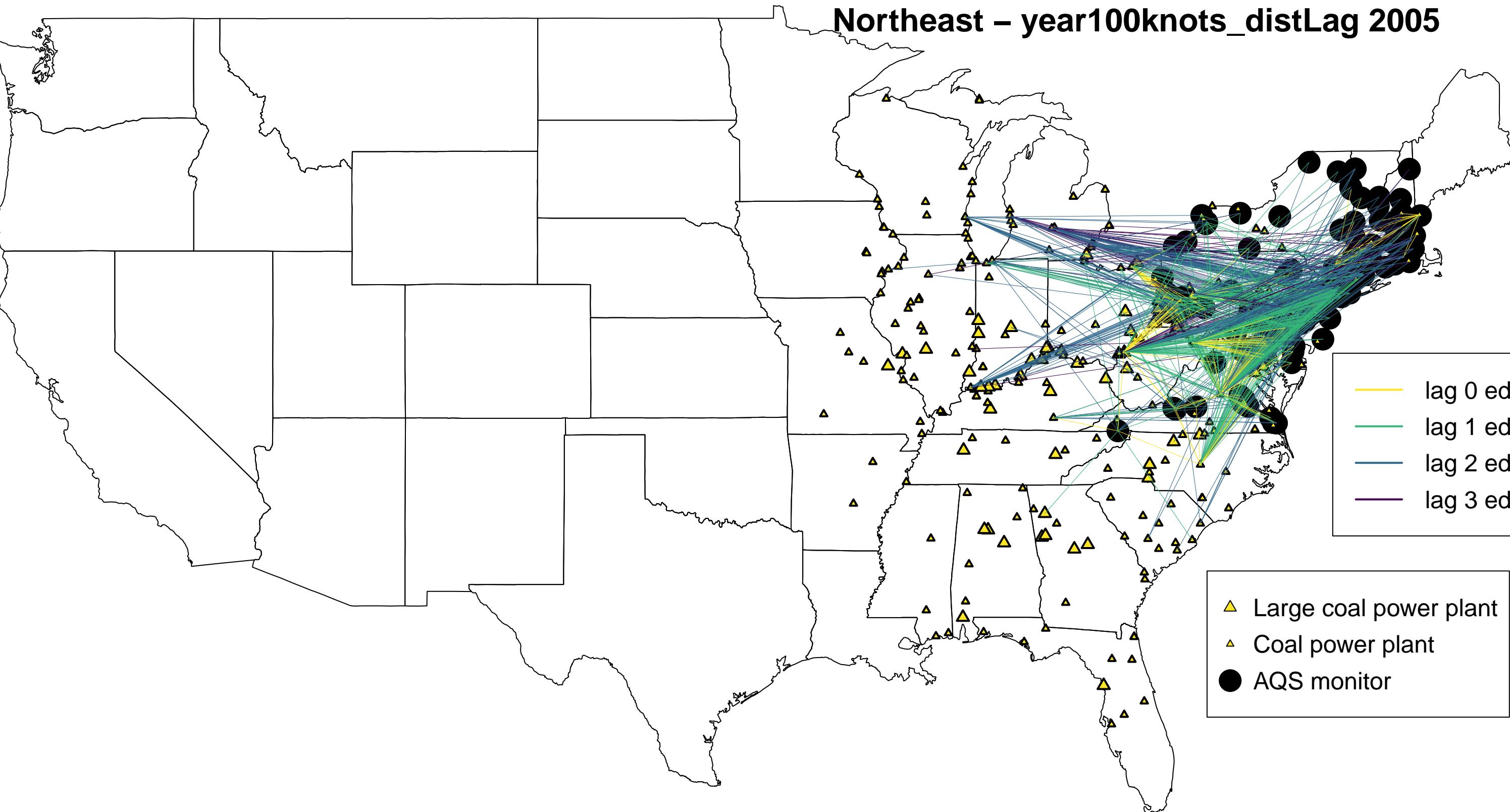
avgPM\_year100knots\_distLag\_decomposed75



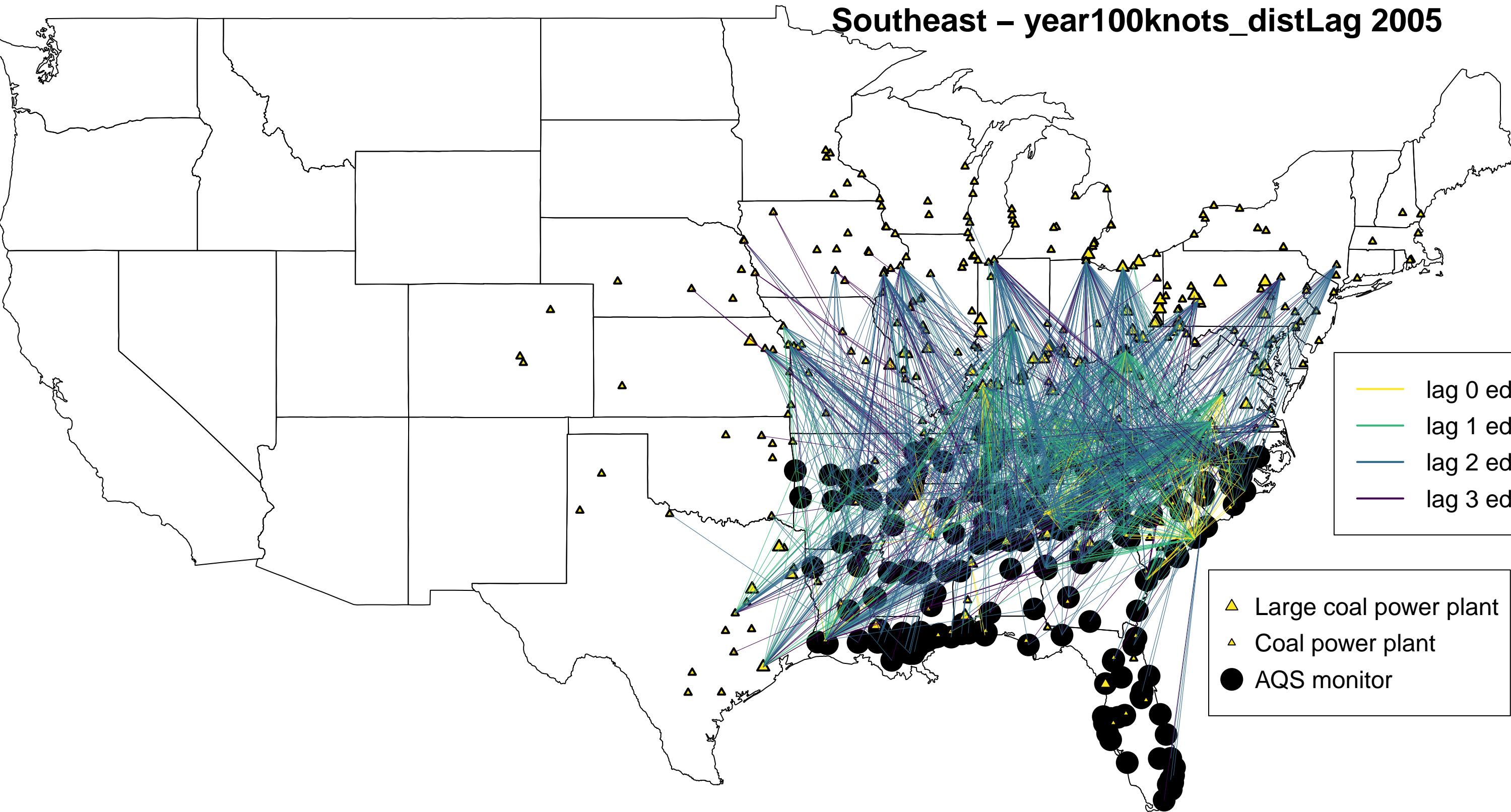
# IndustrialMidwest – year100knots\_distLag 2005



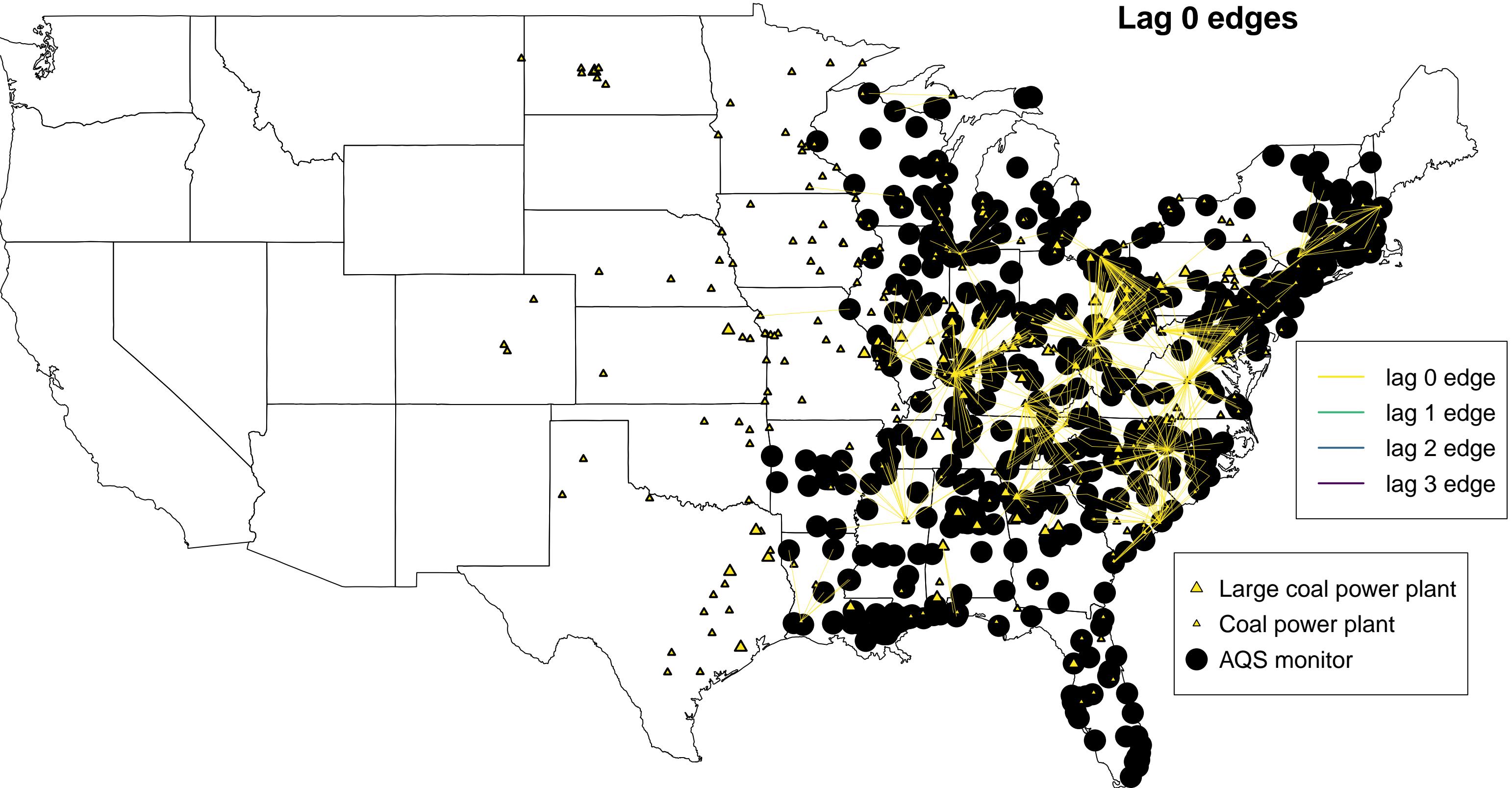
# Northeast – year100knots\_distLag 2005



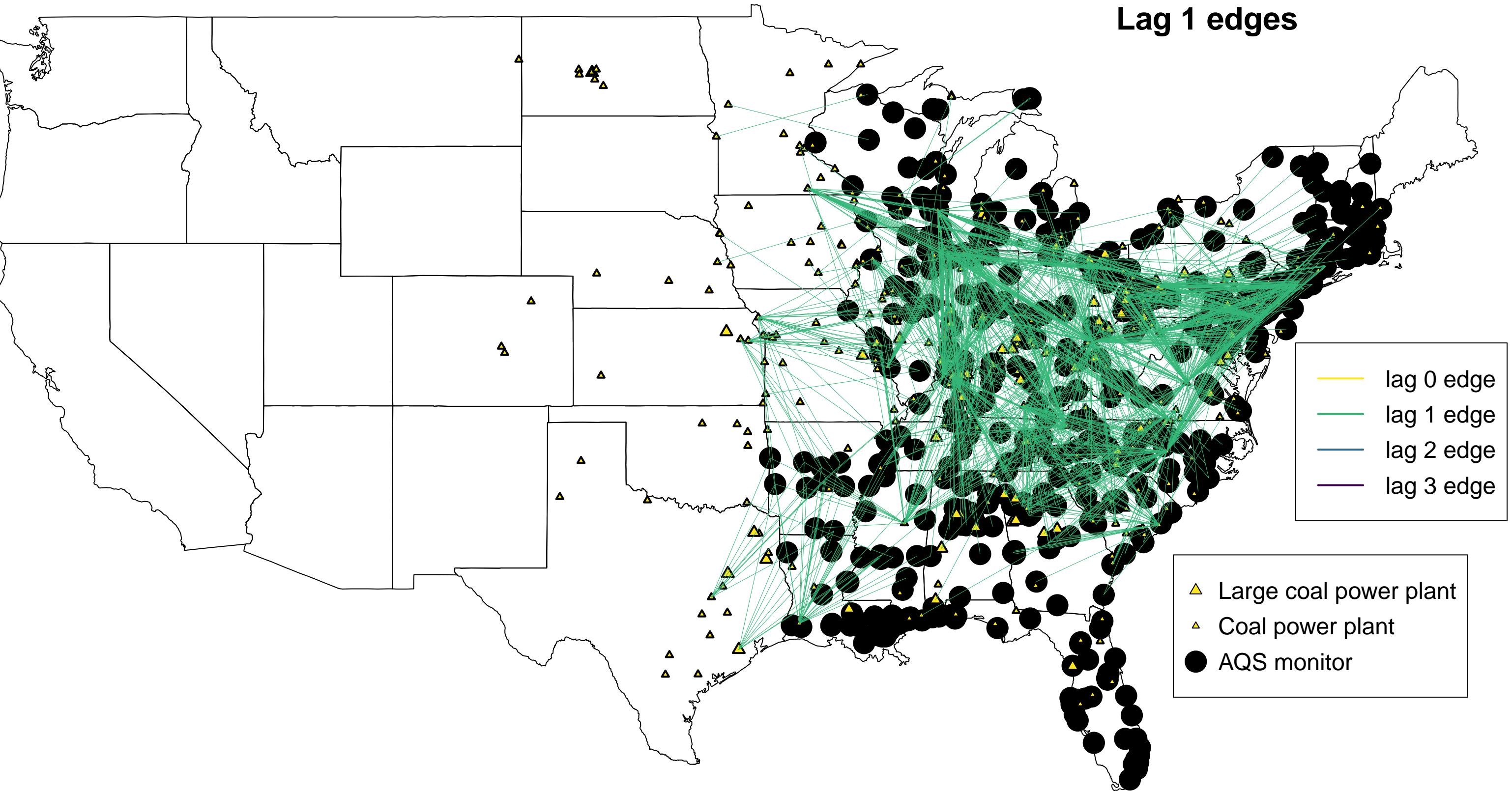
# Southeast – year100knots\_distLag 2005



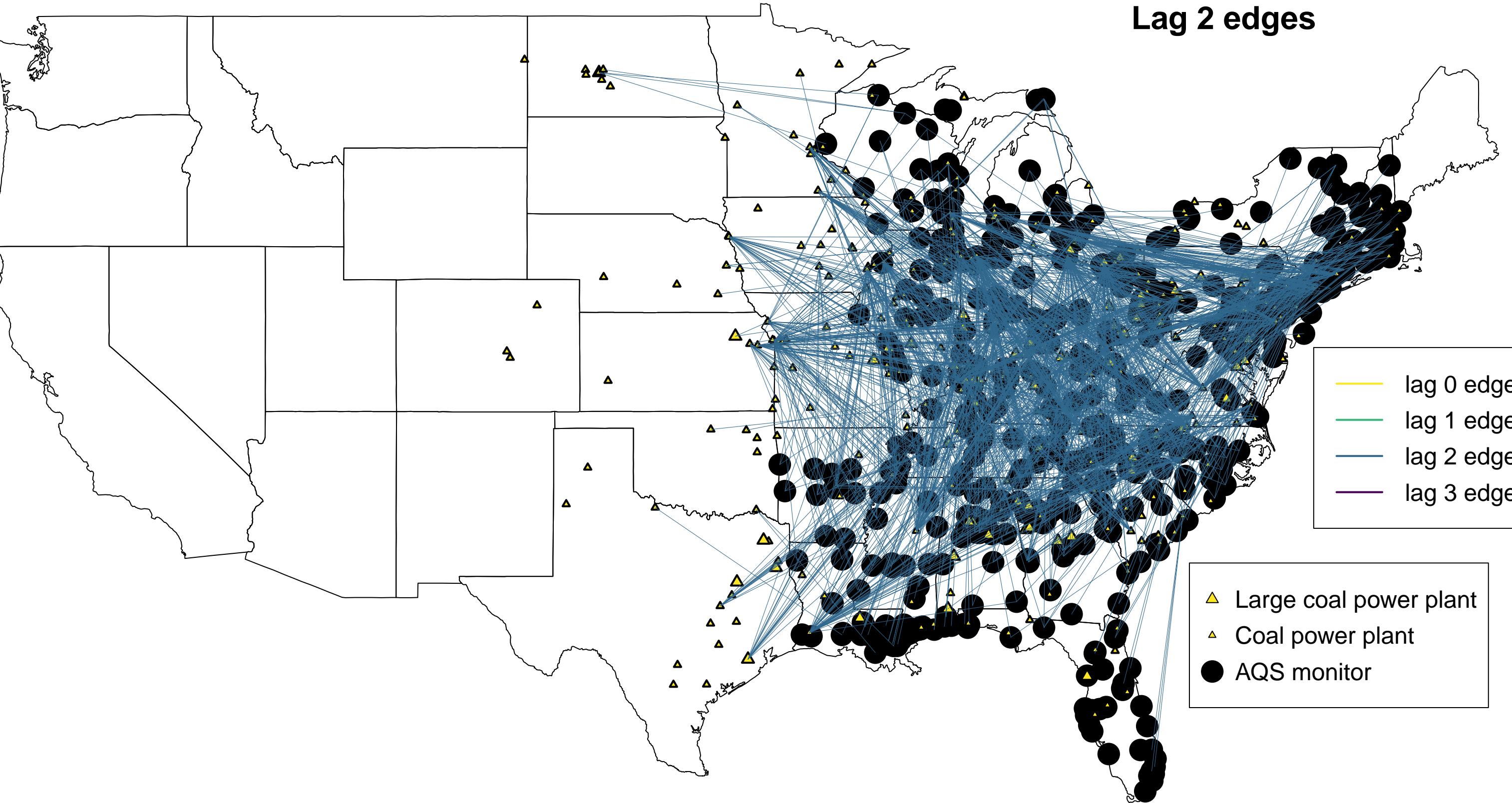
## Lag 0 edges



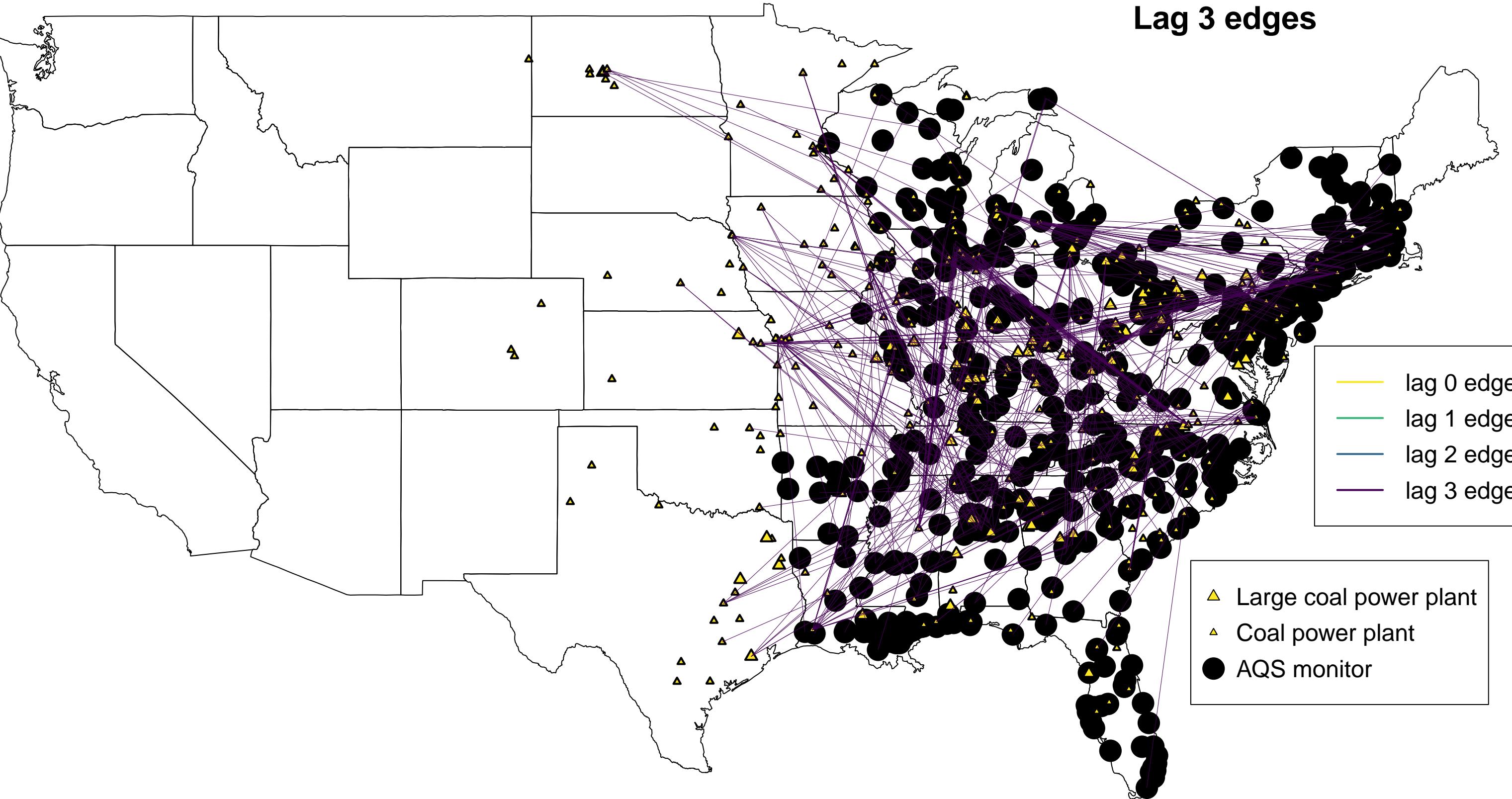
## Lag 1 edges

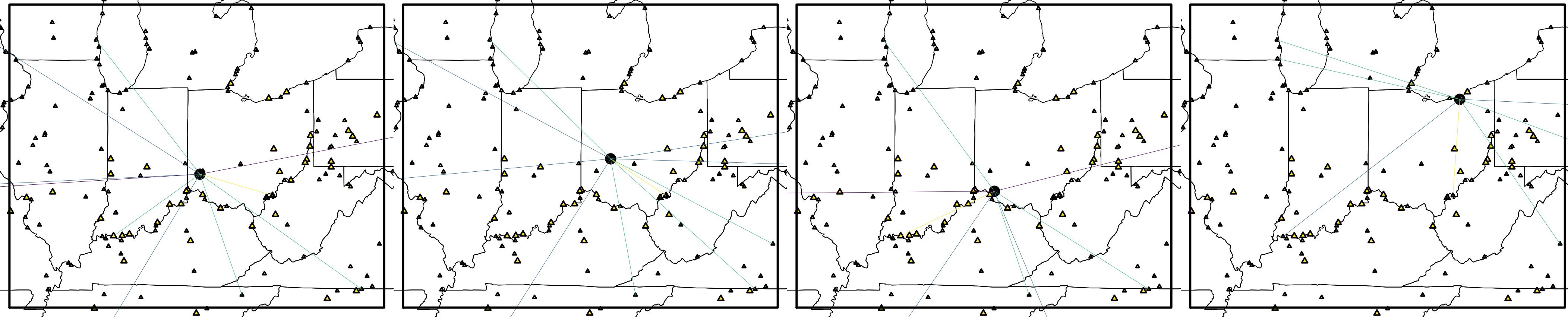
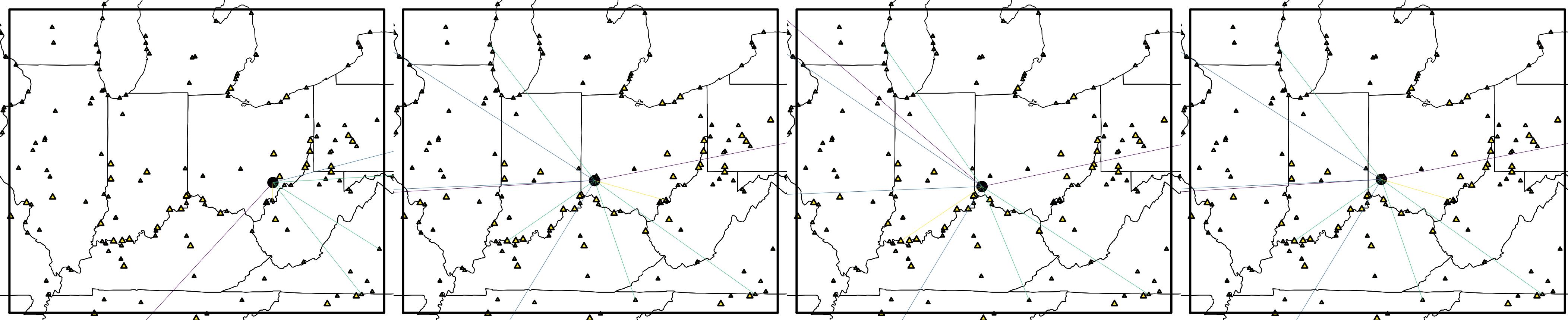


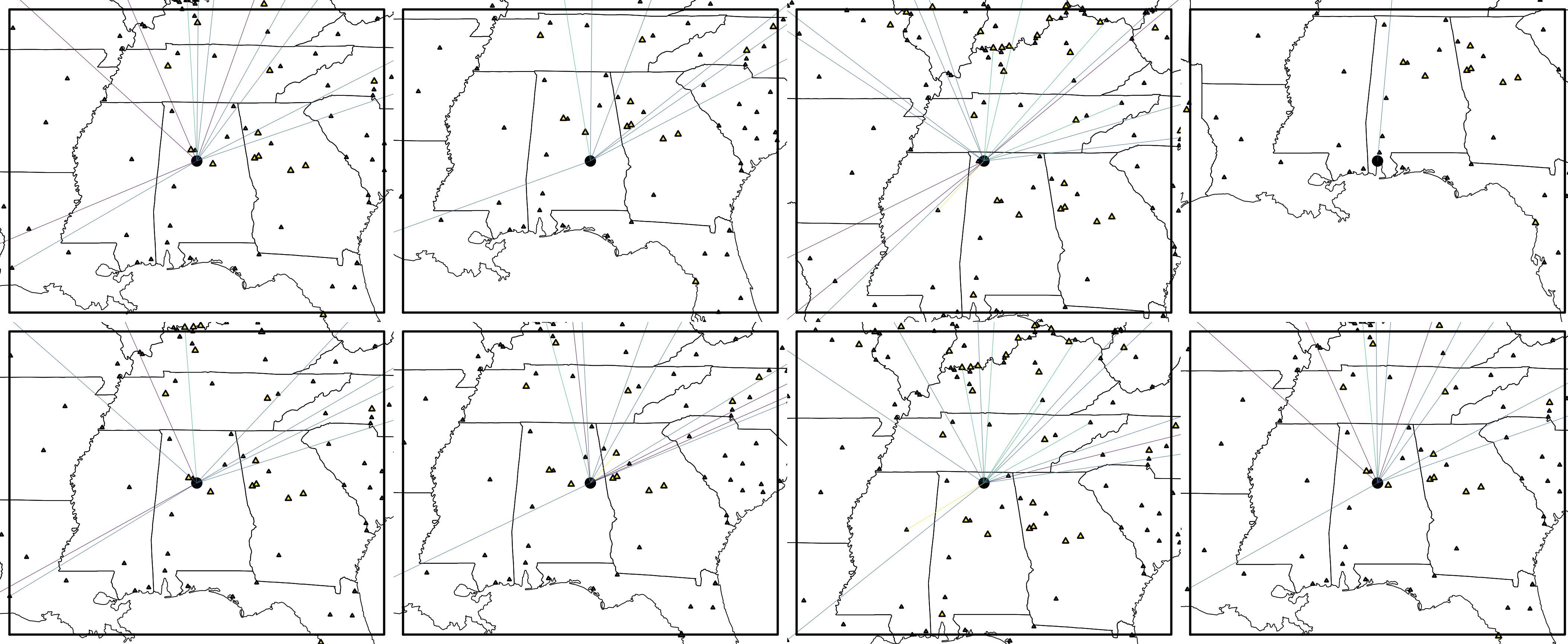
## Lag 2 edges

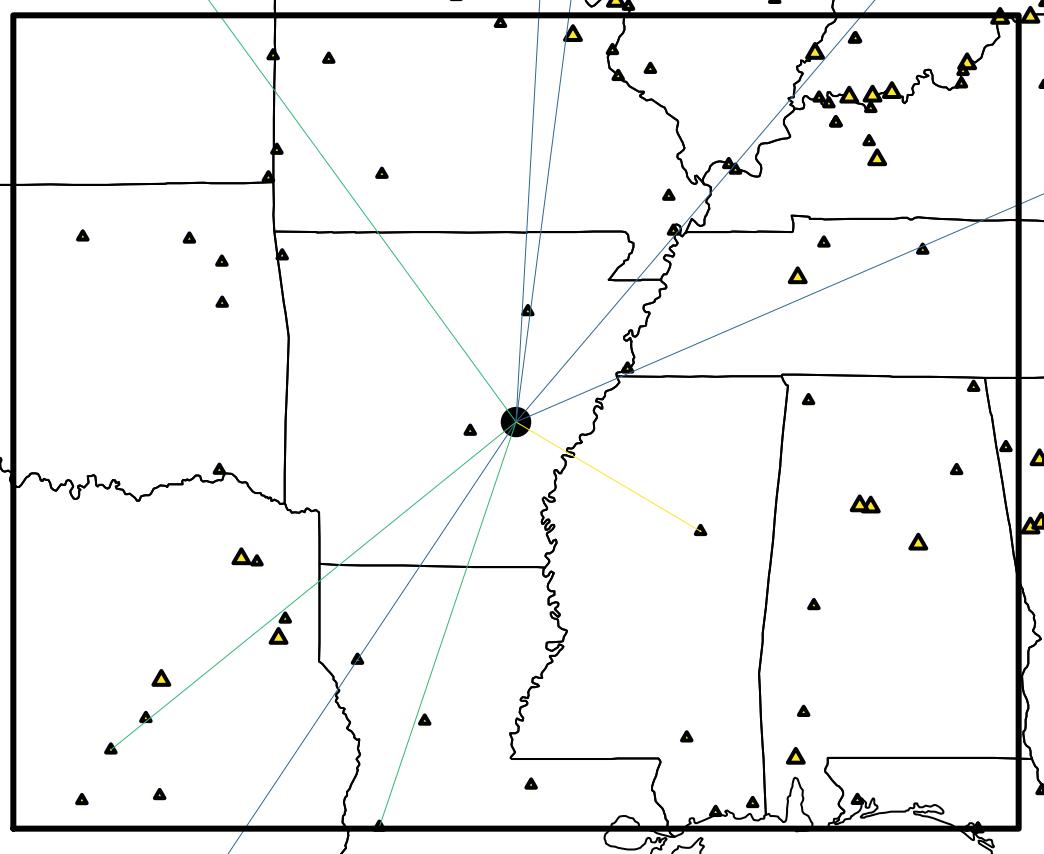
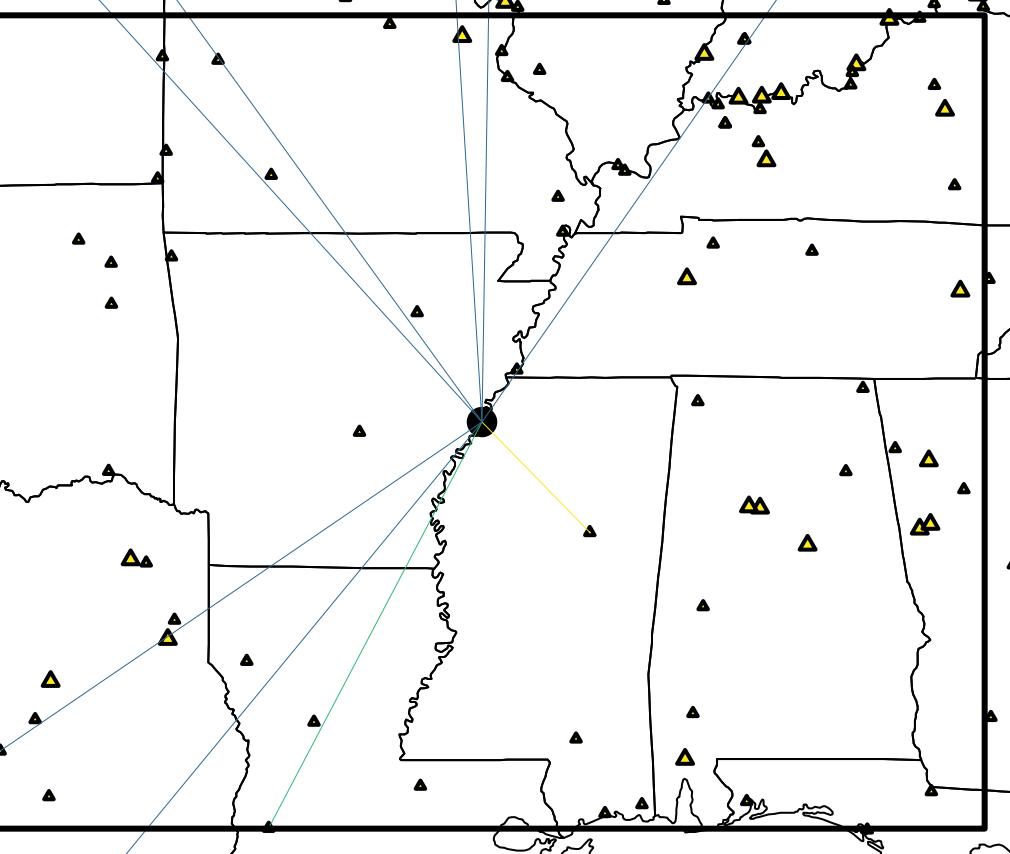
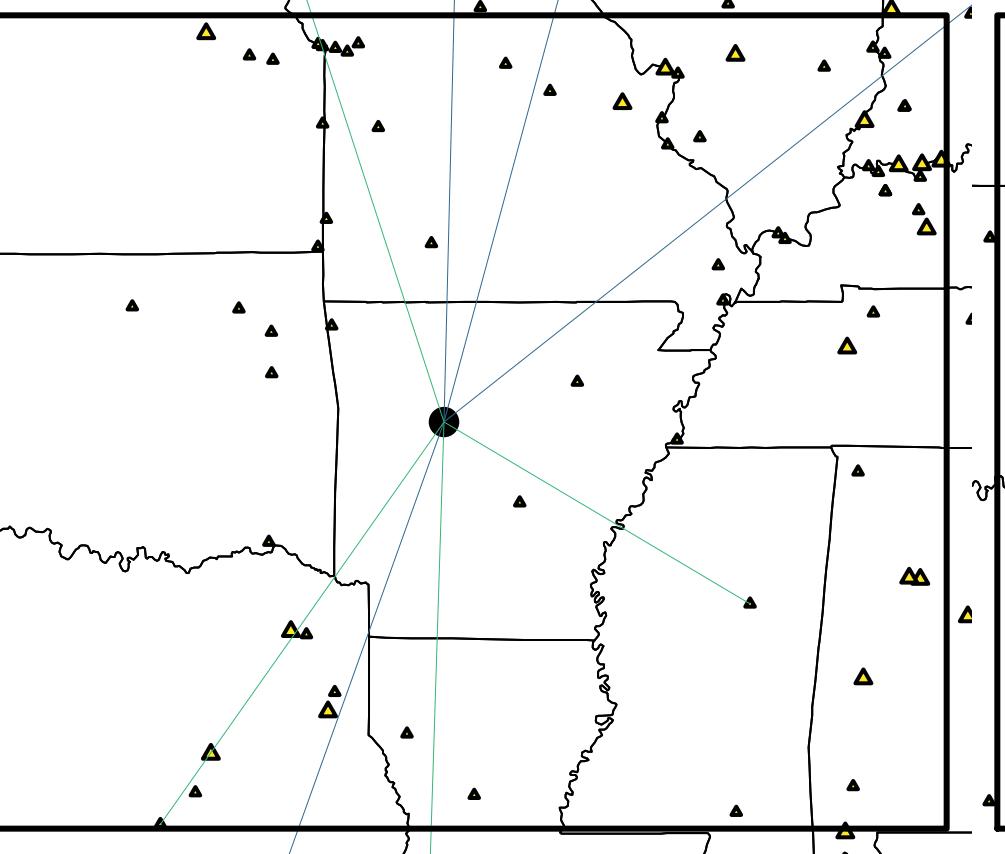
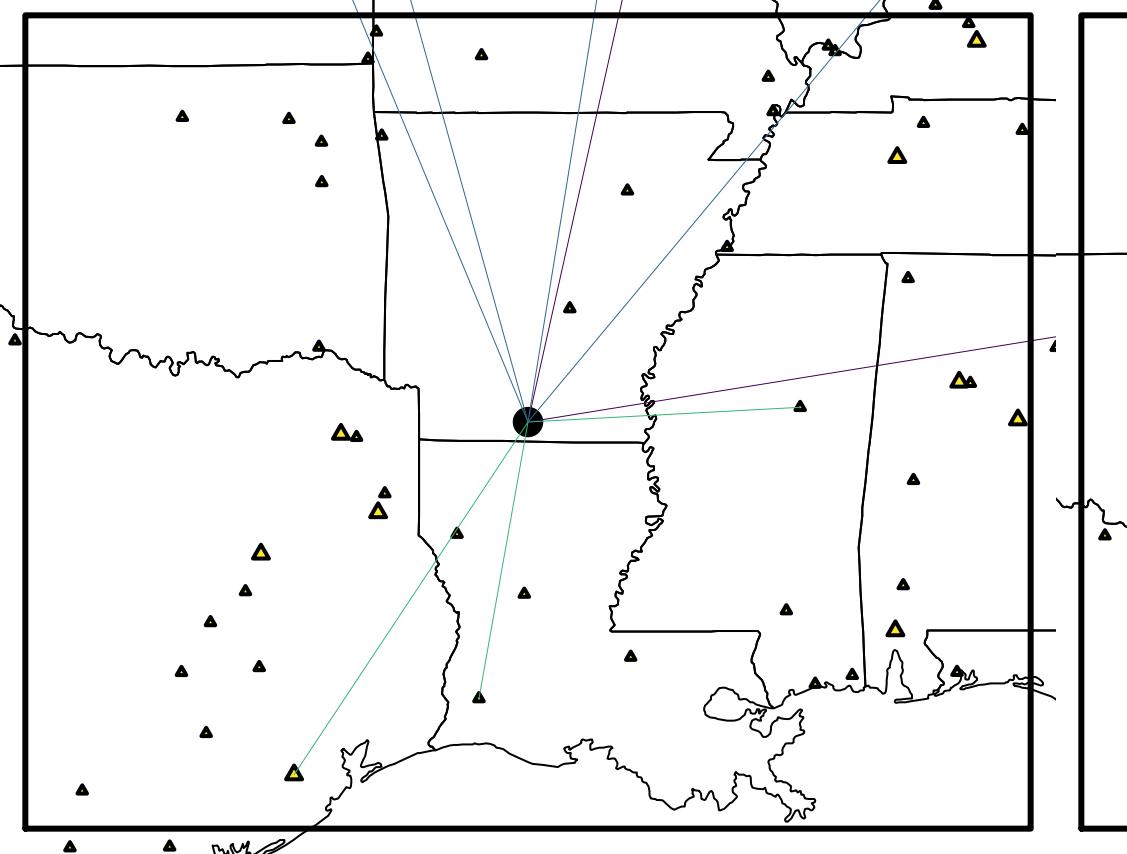
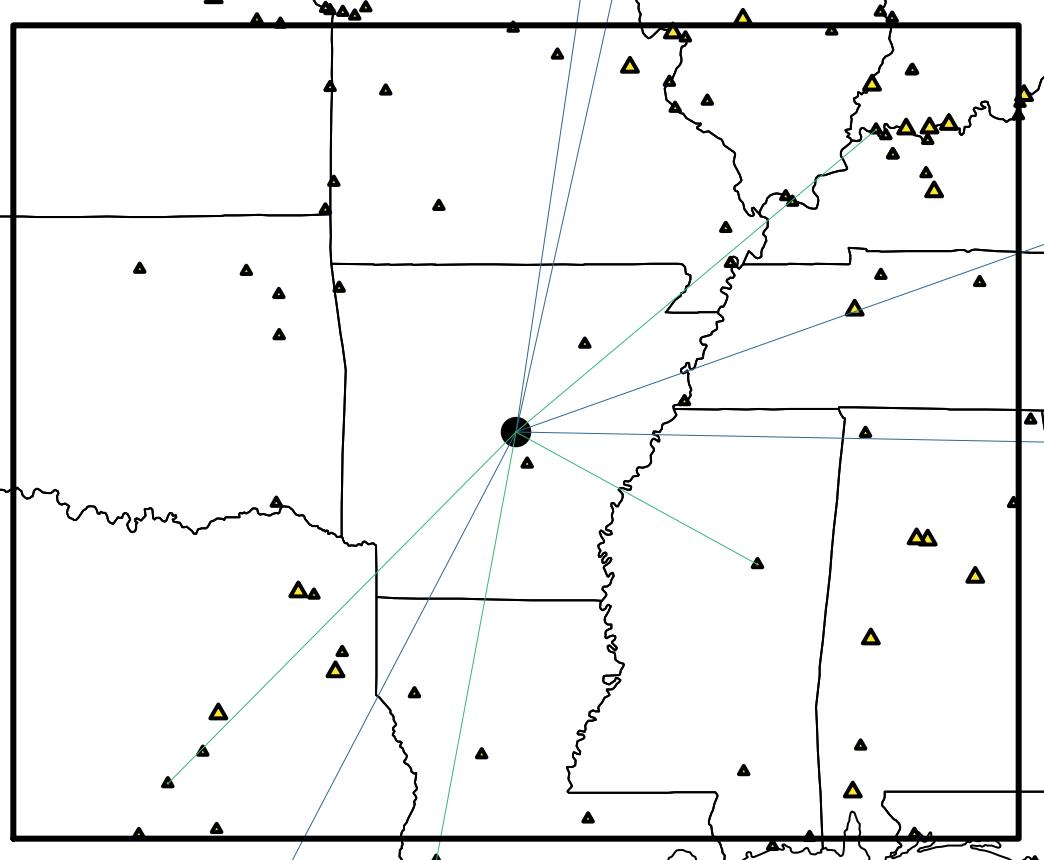
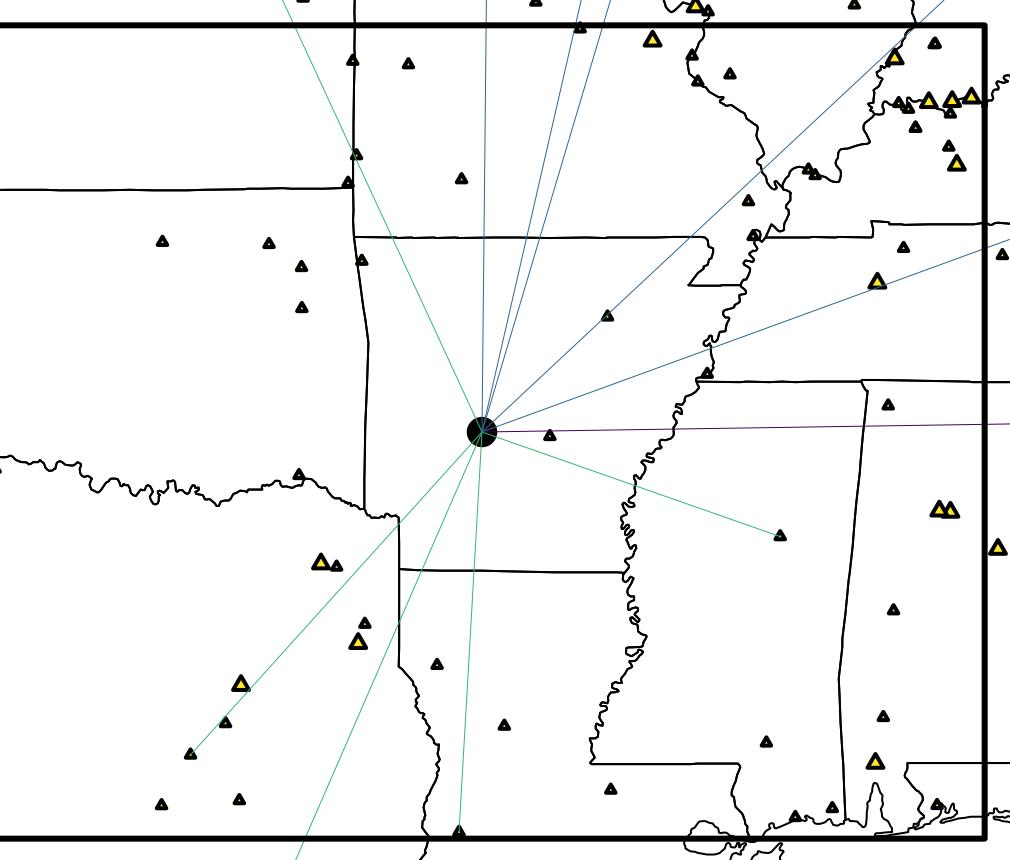
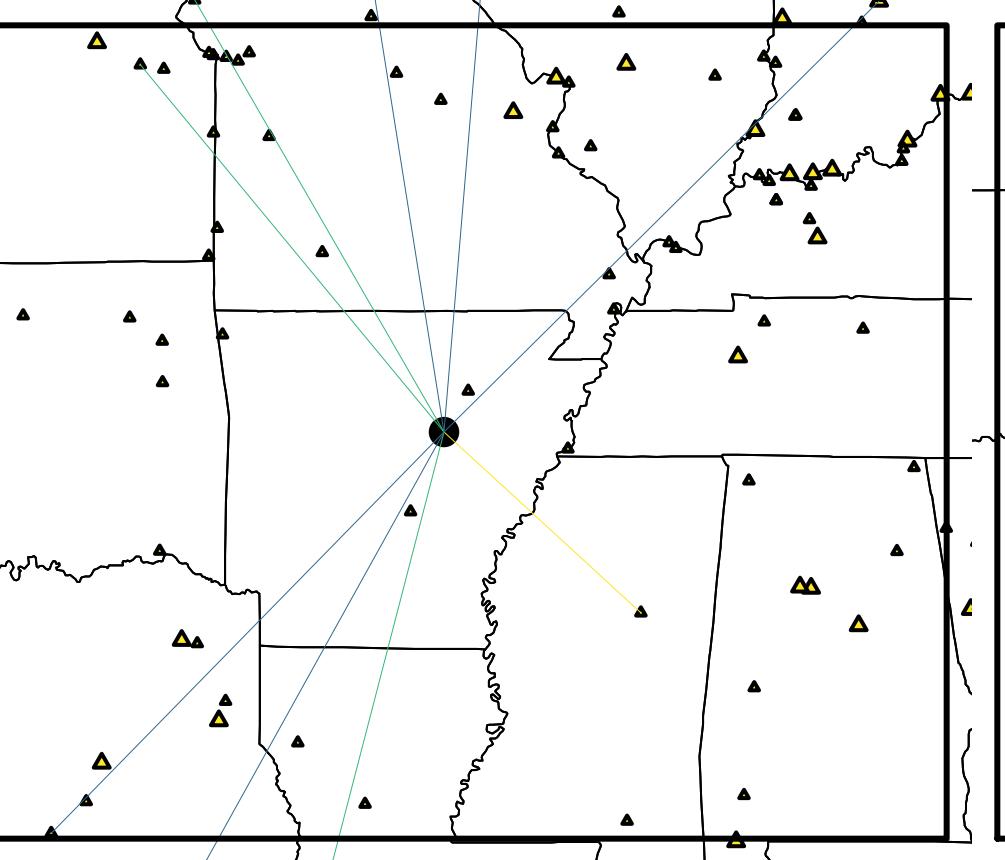
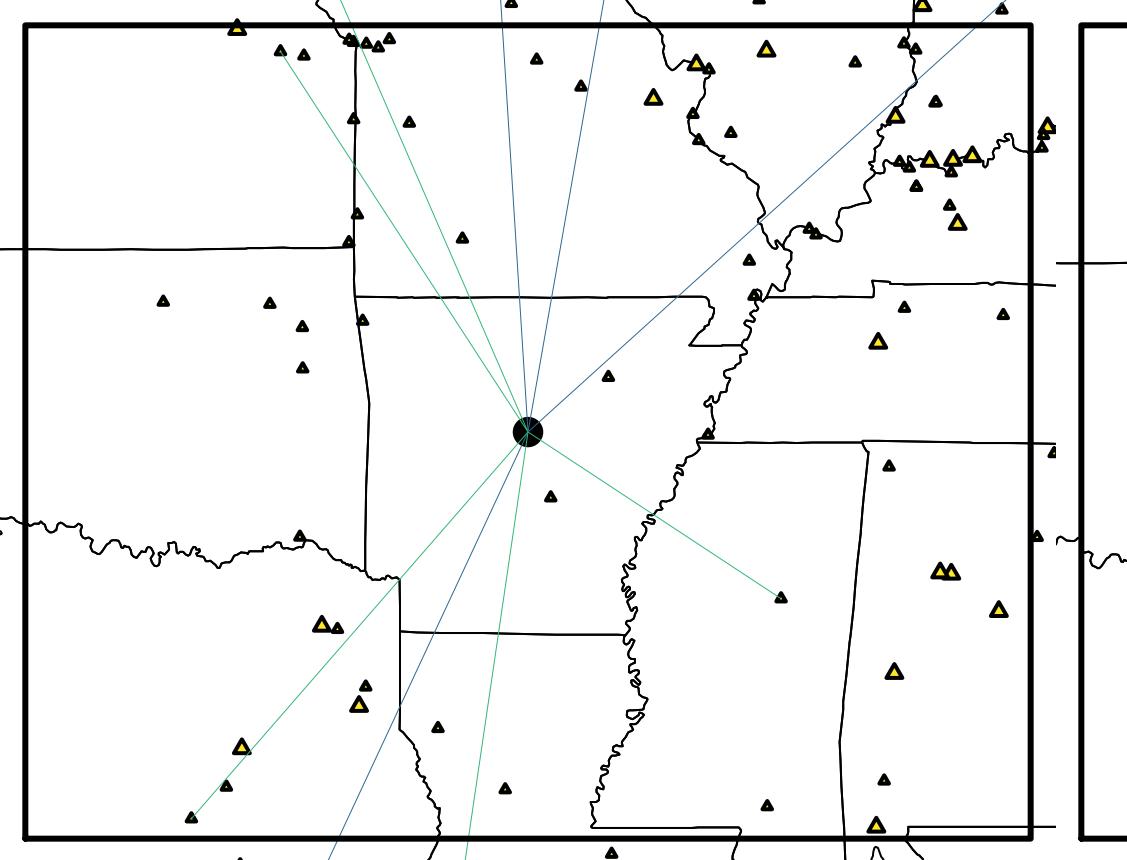


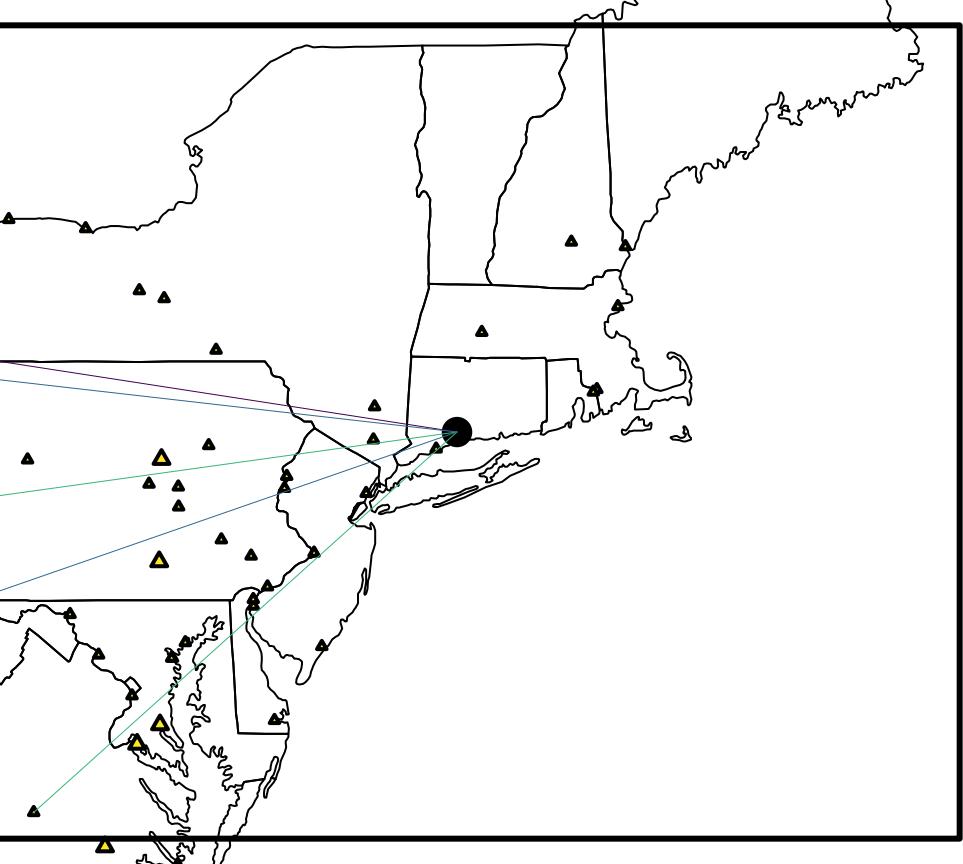
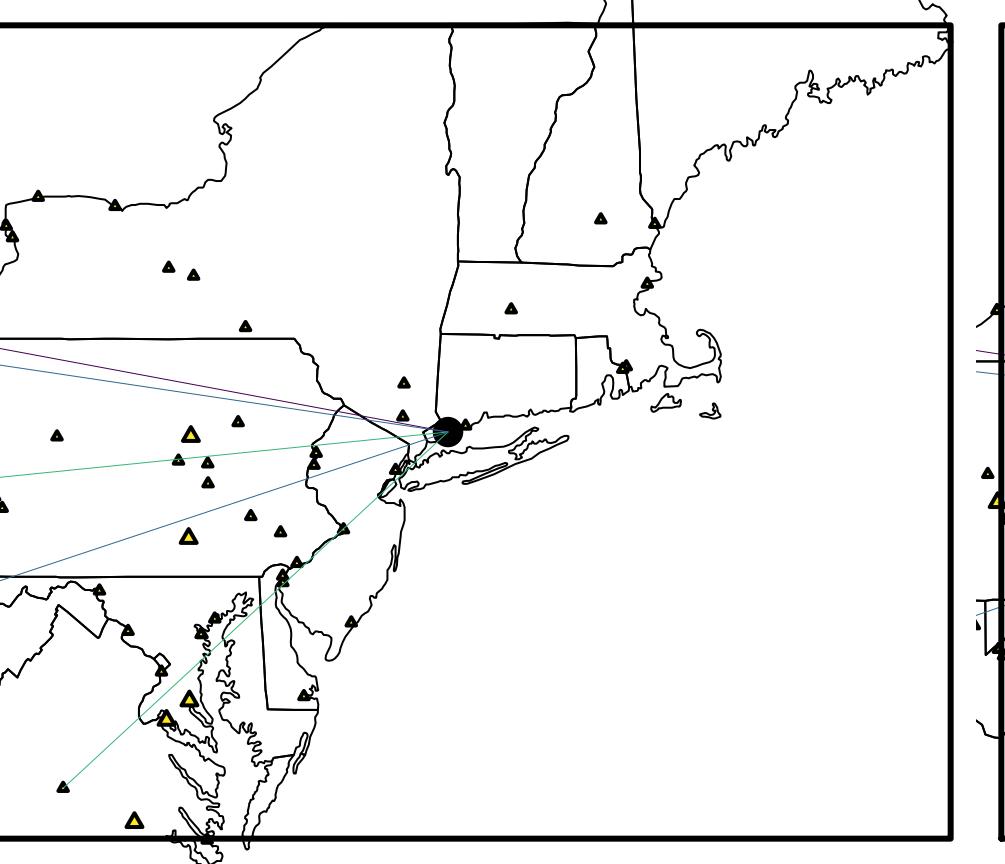
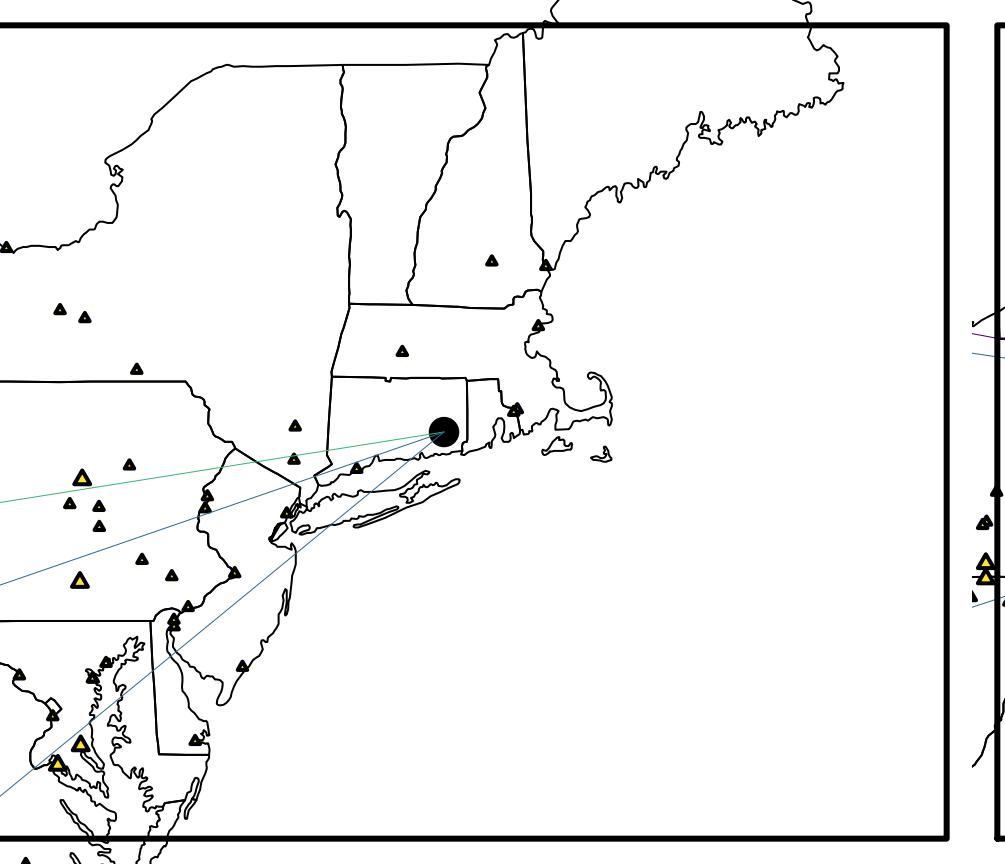
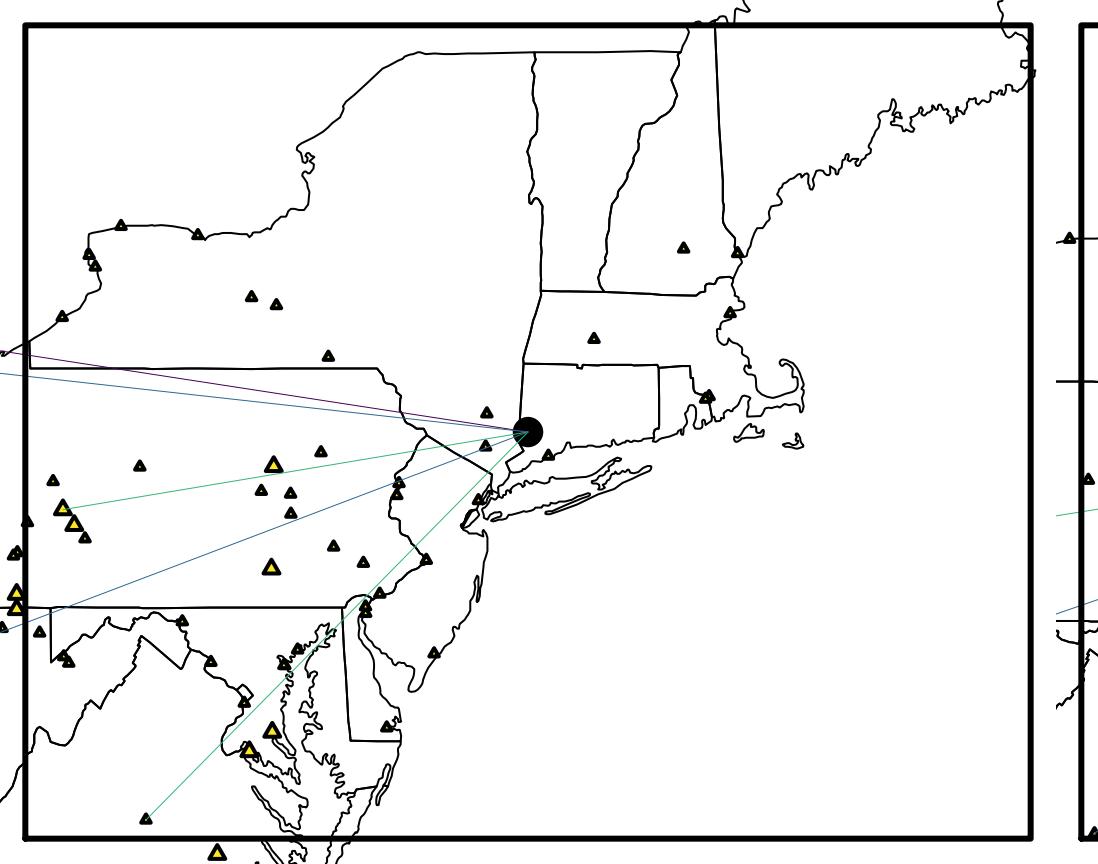
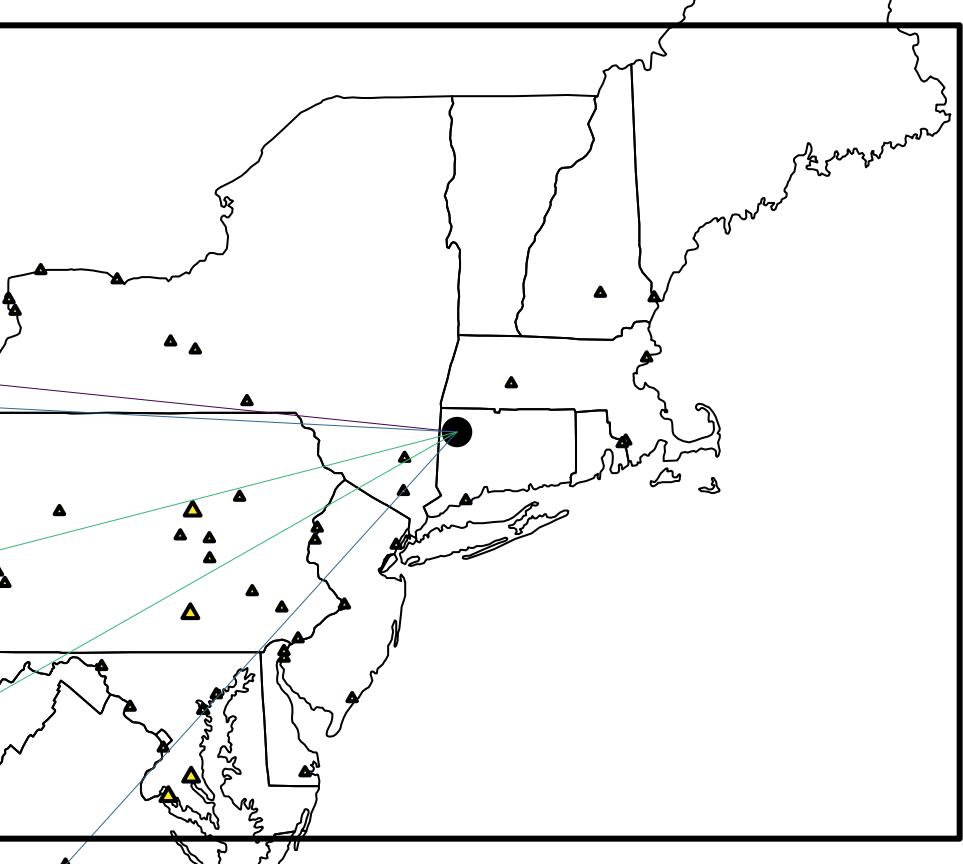
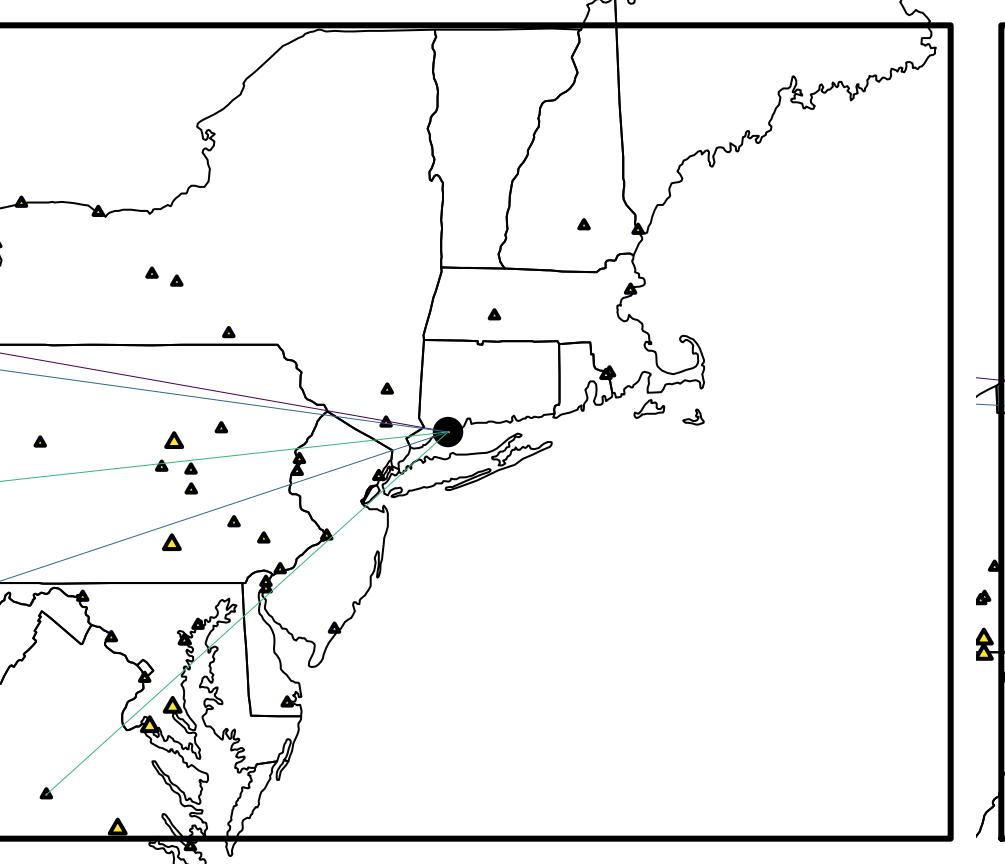
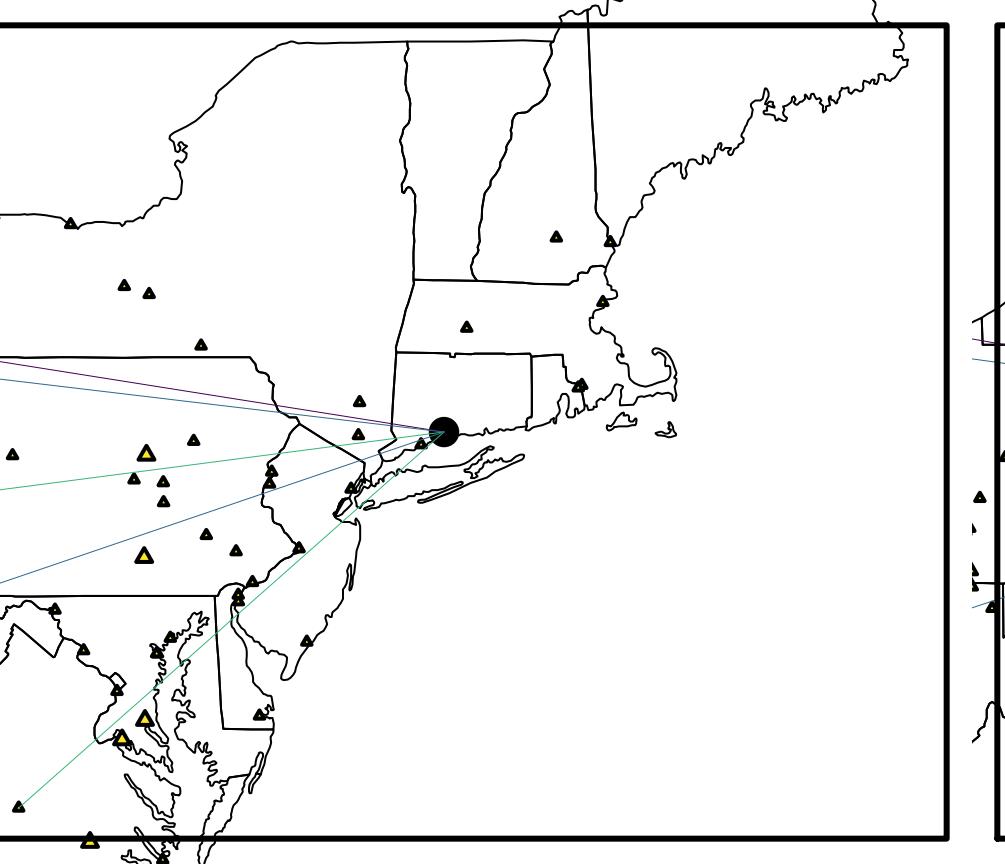
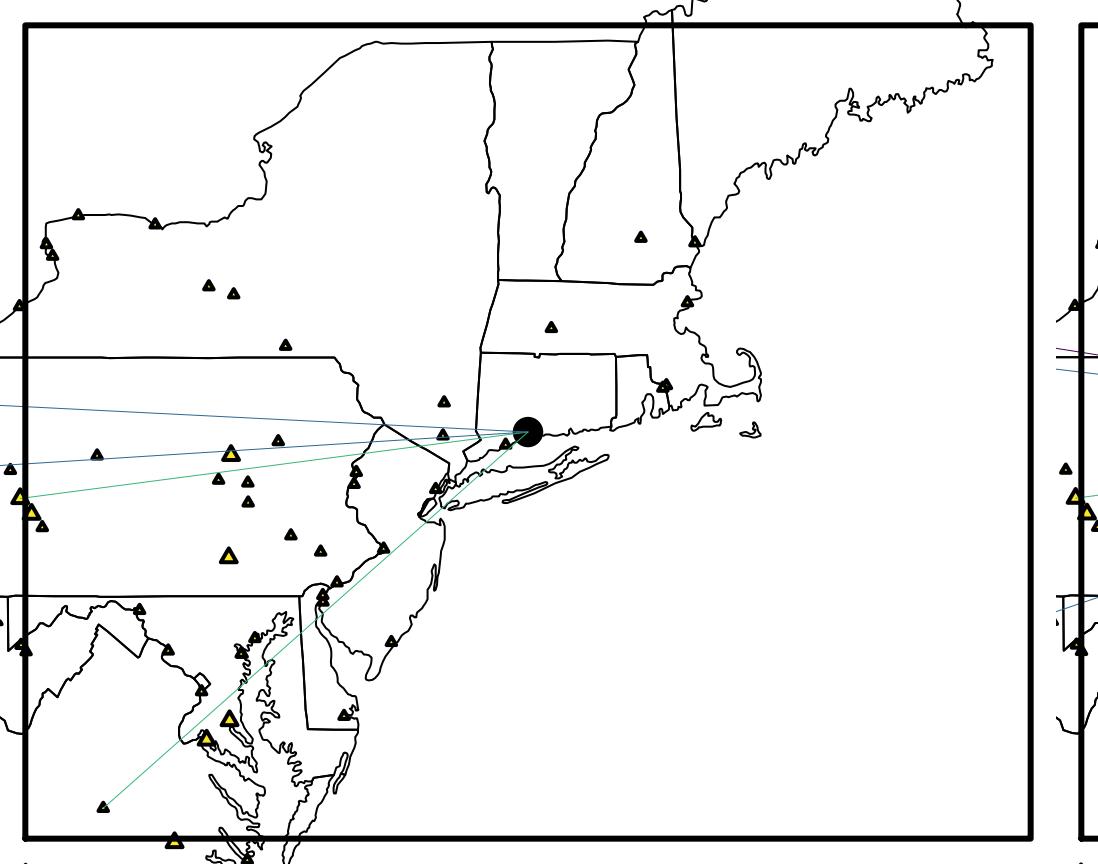
## Lag 3 edges

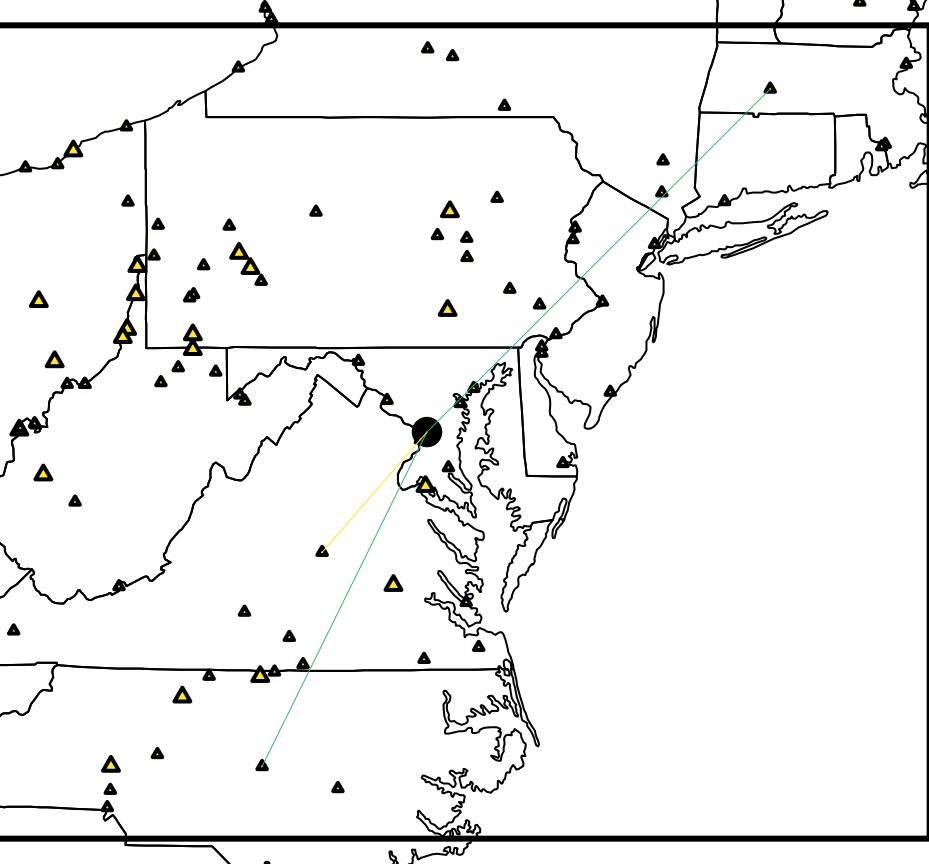
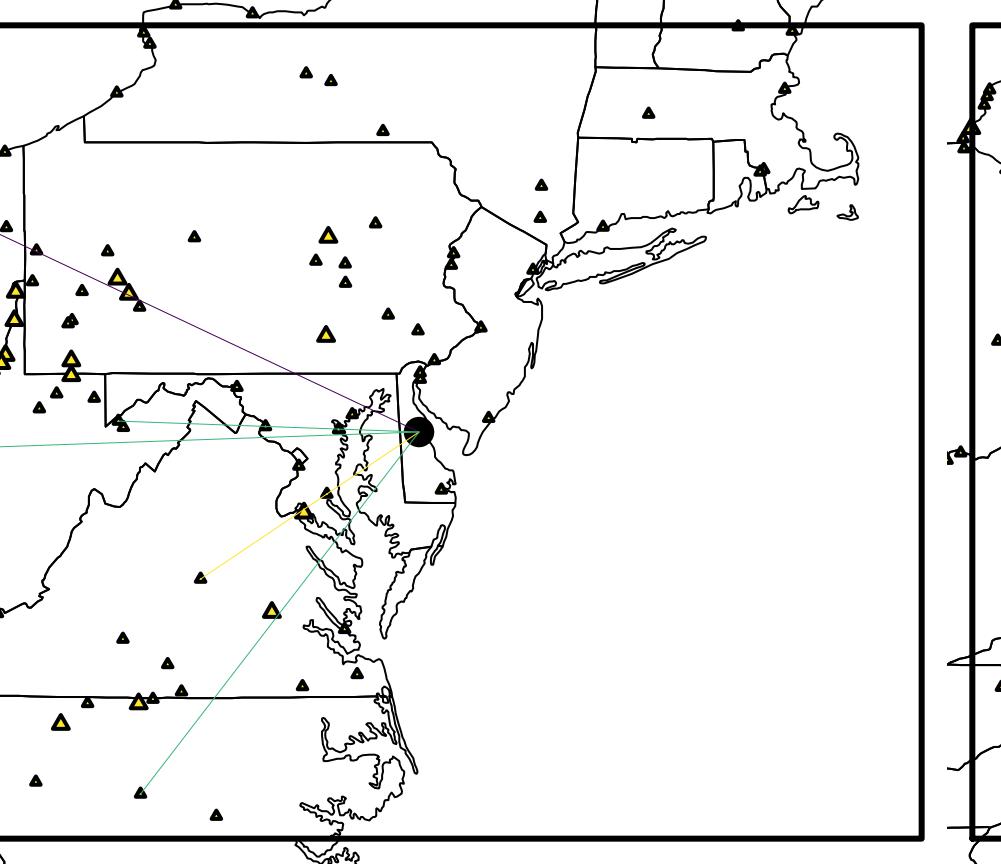
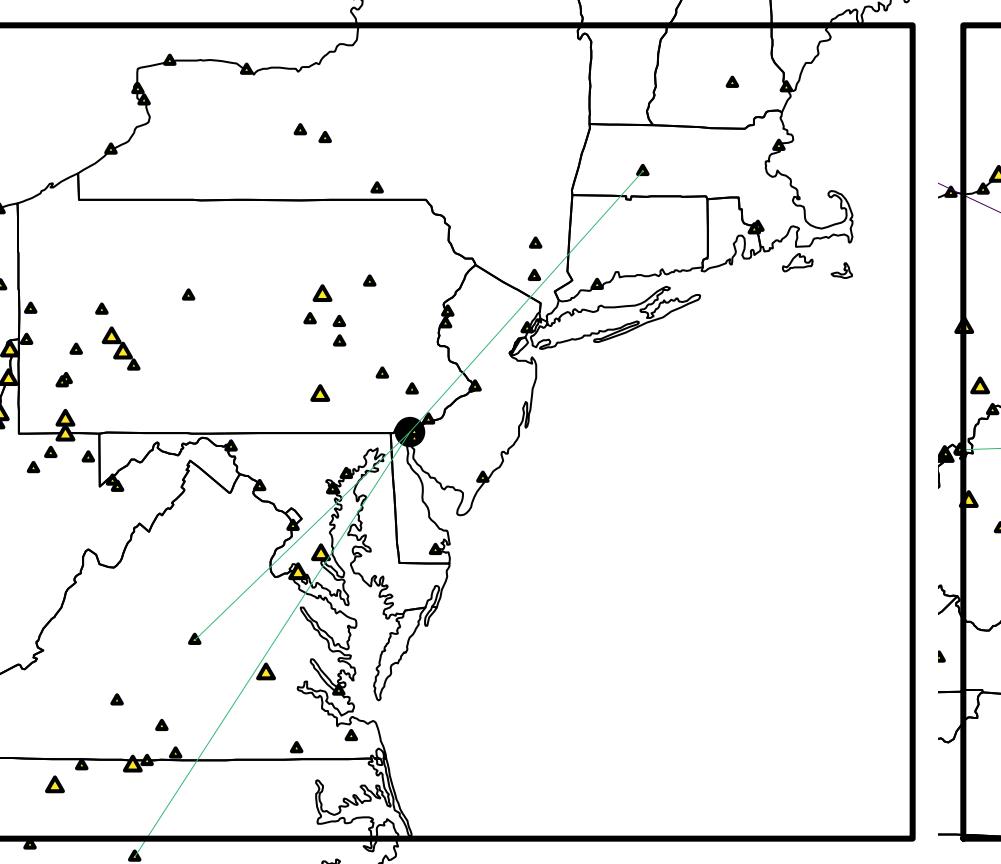
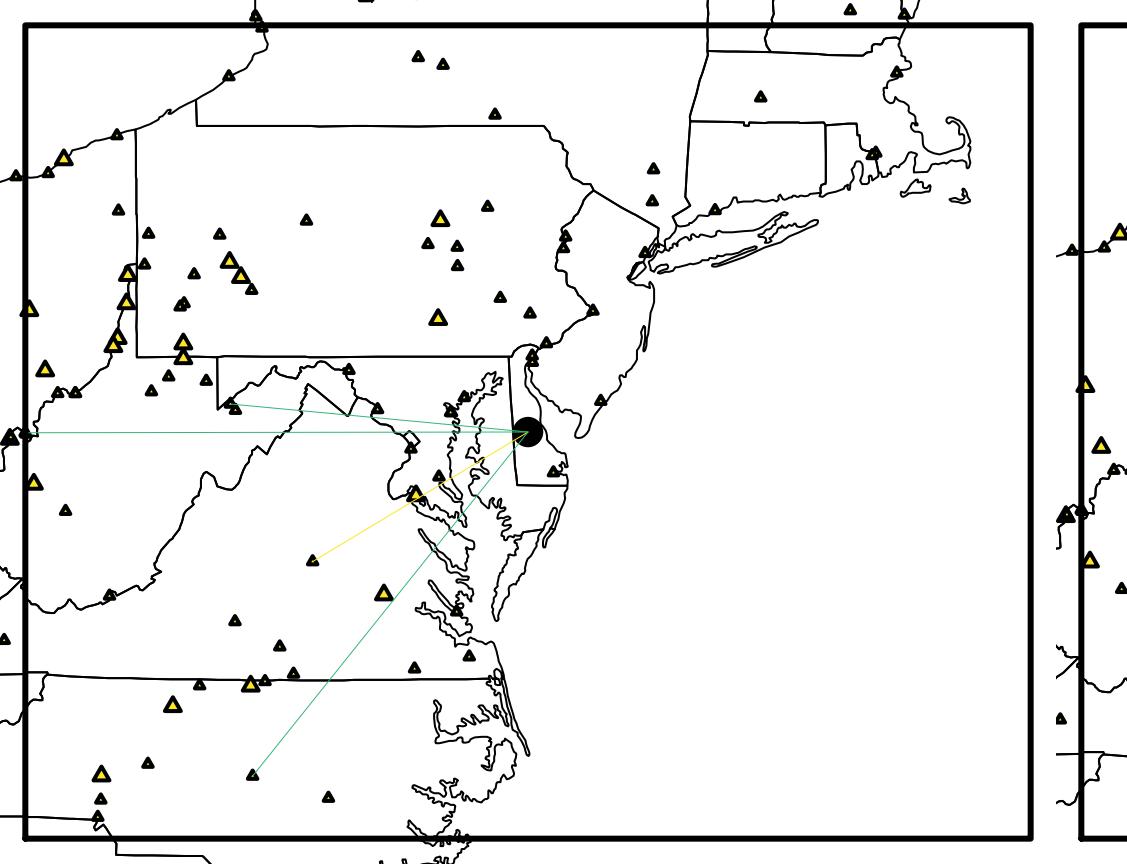
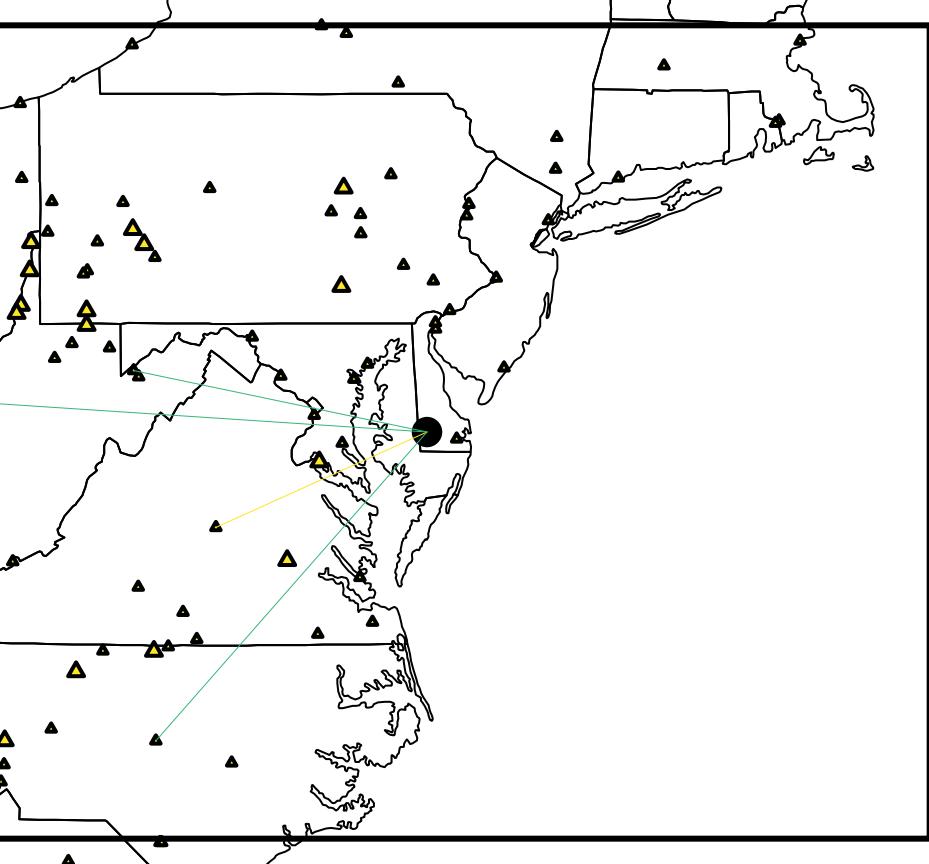
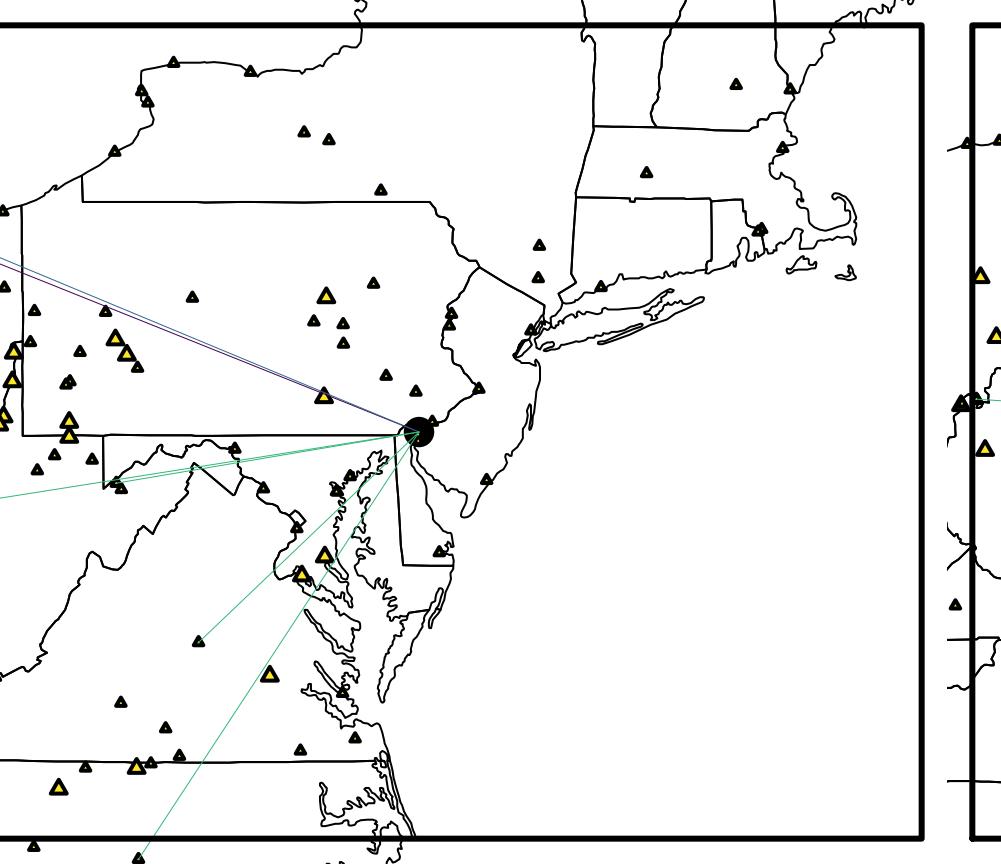
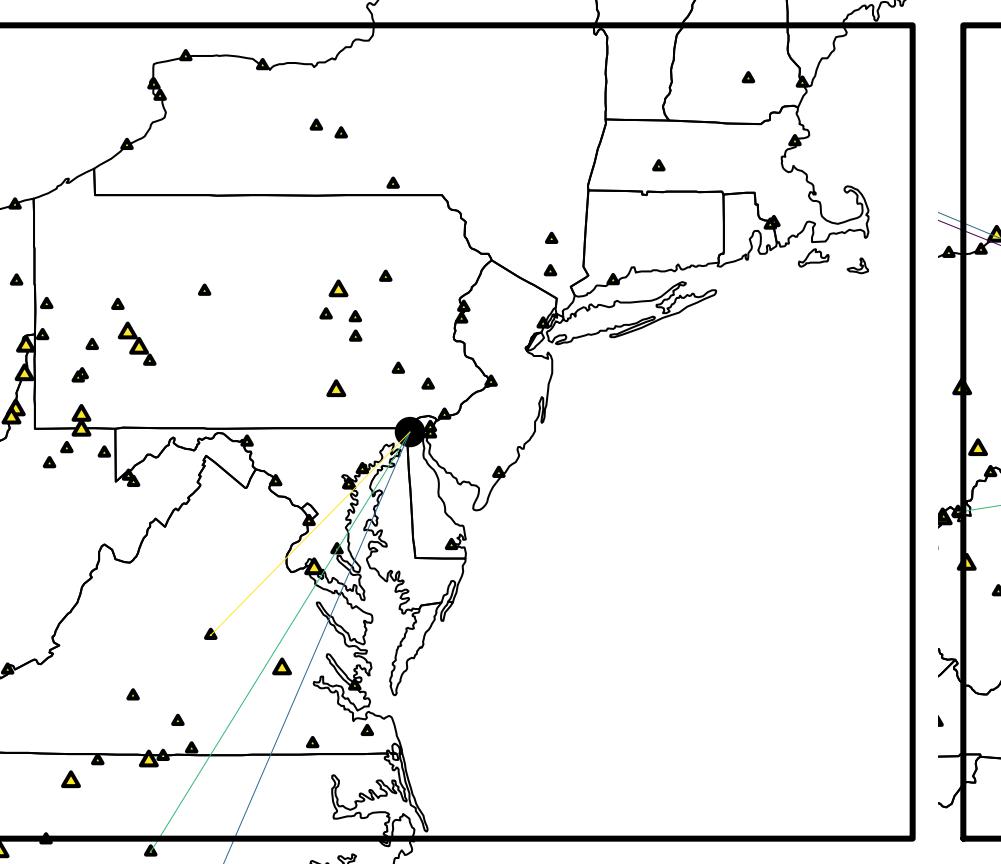
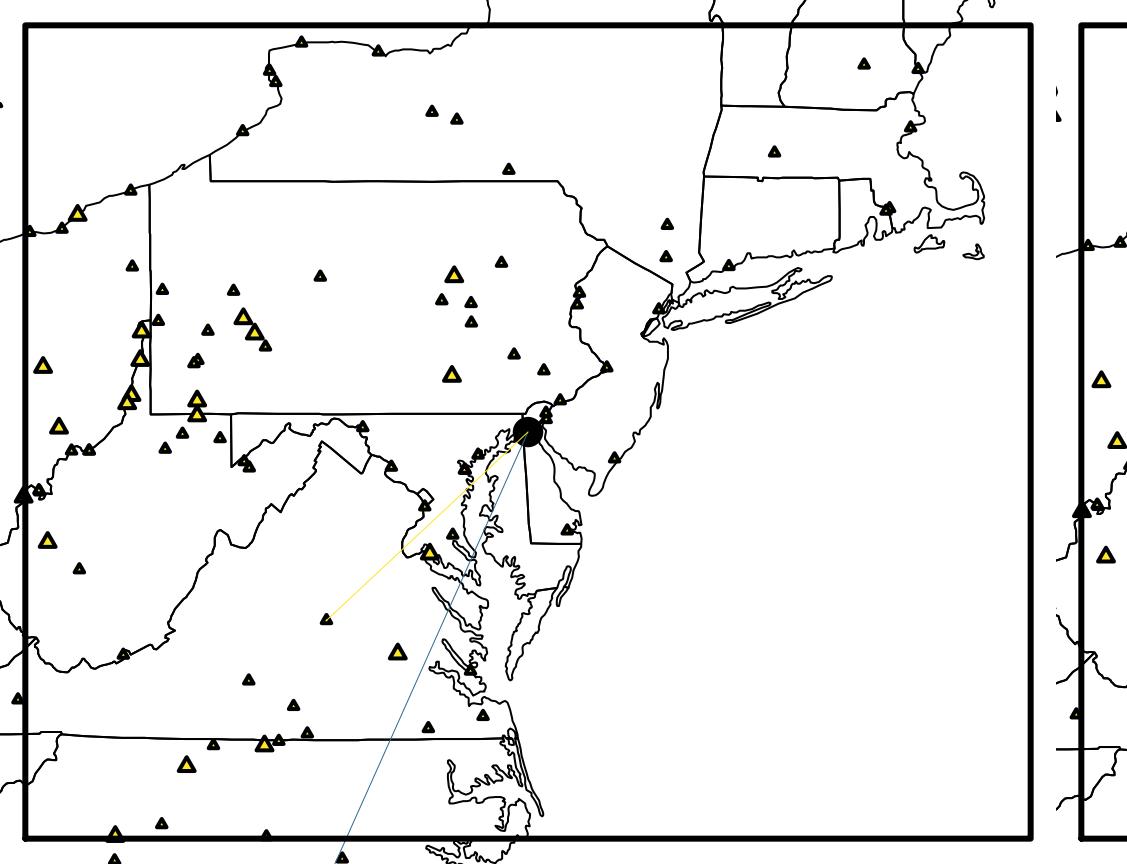


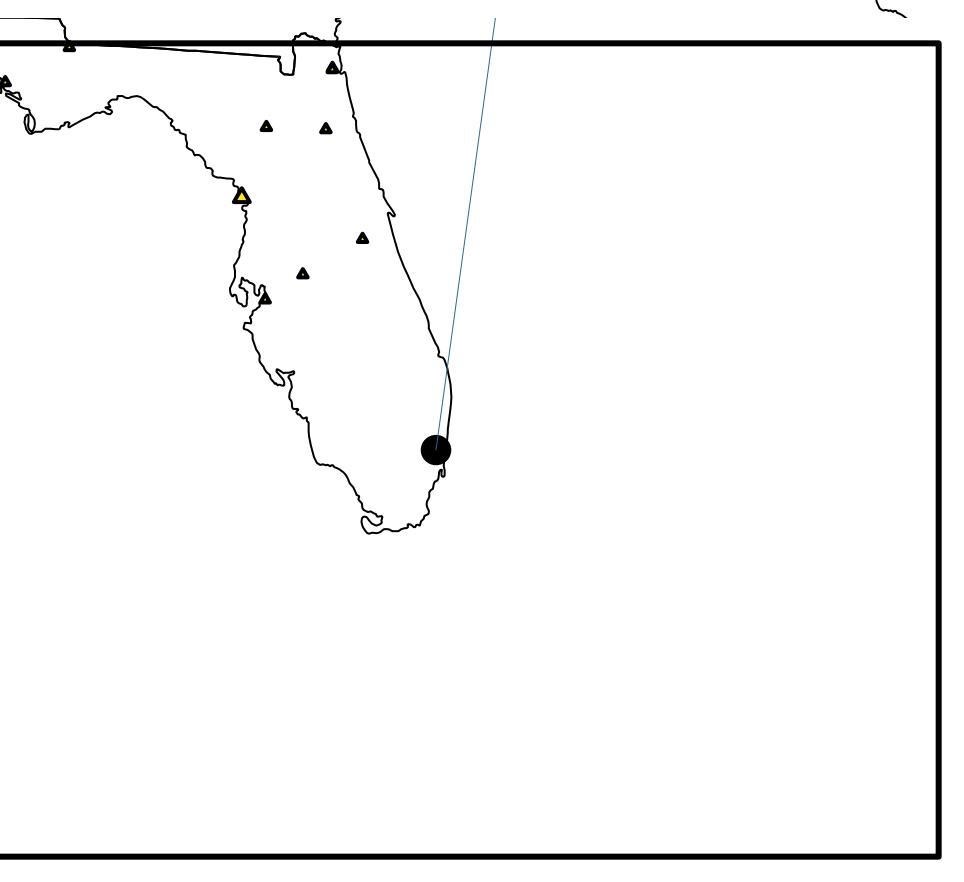
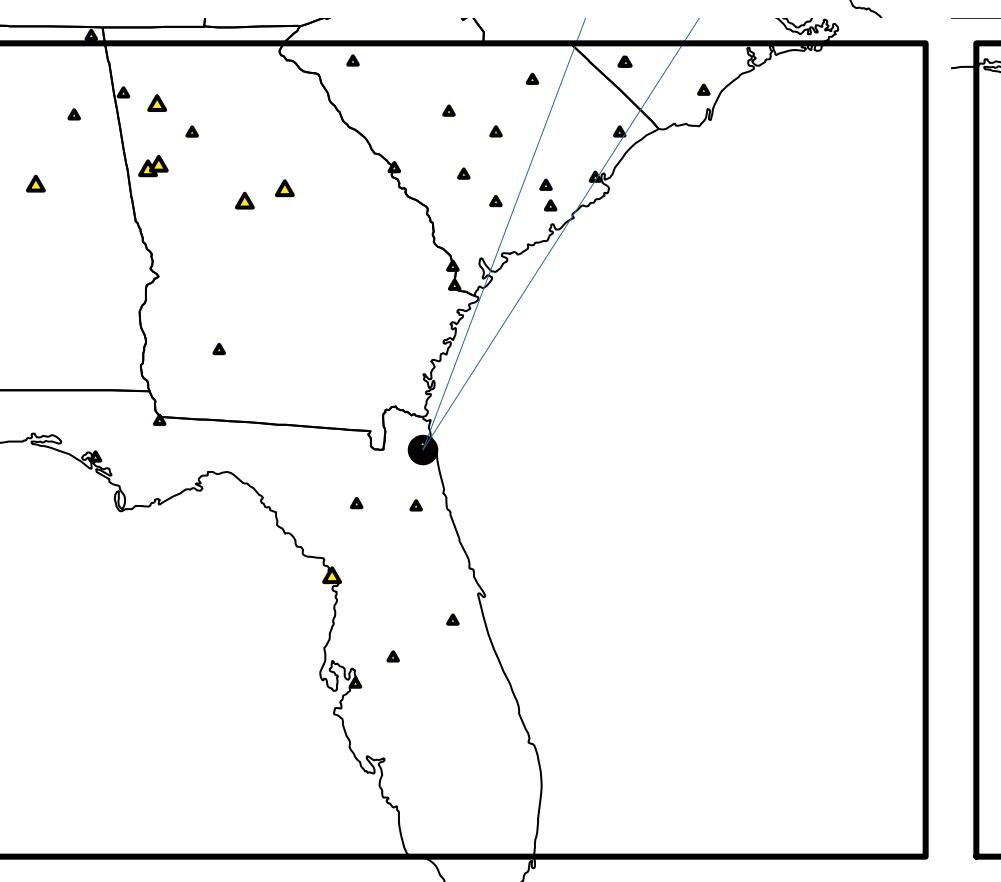
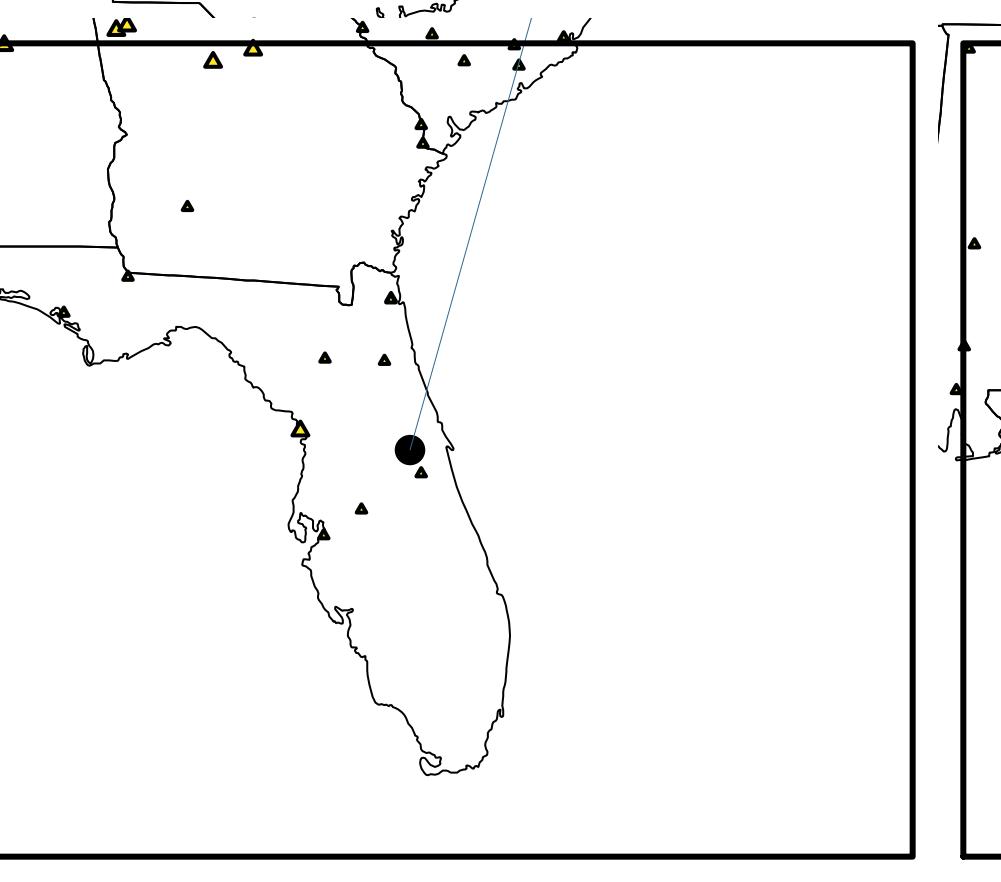
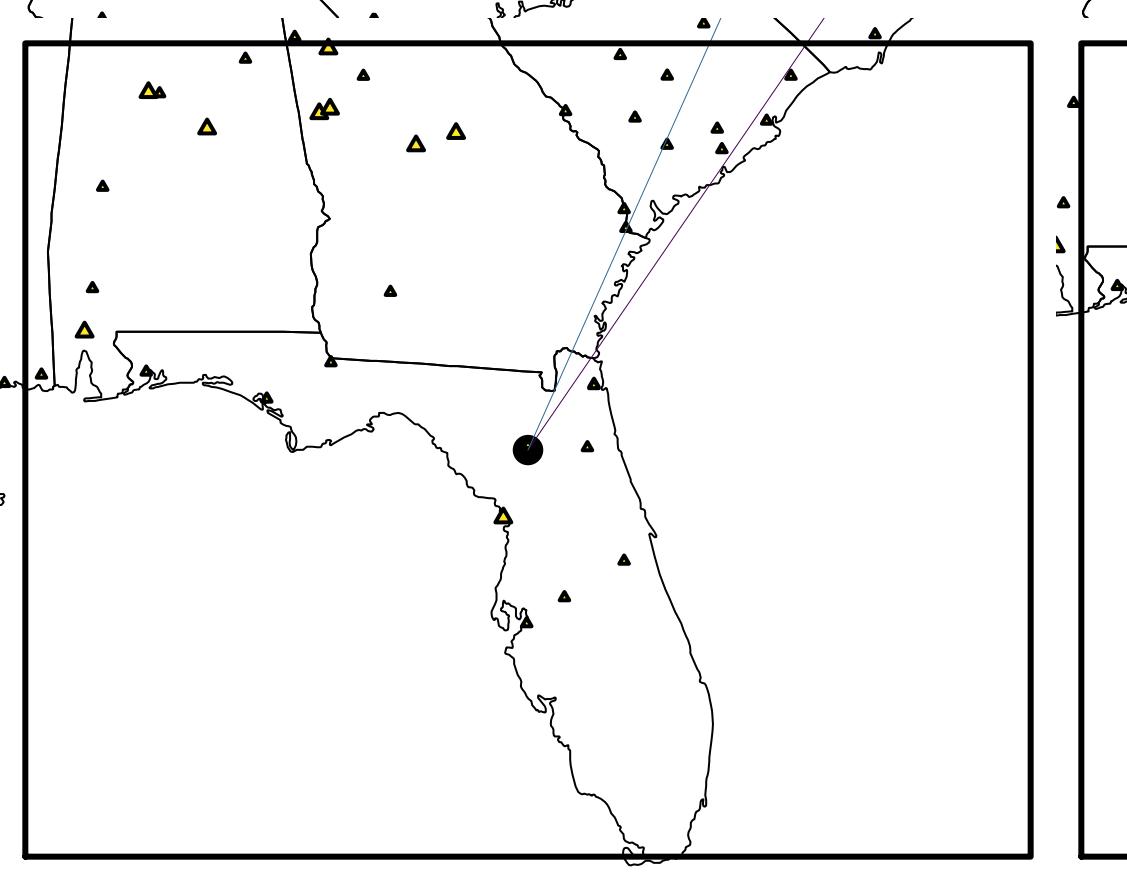
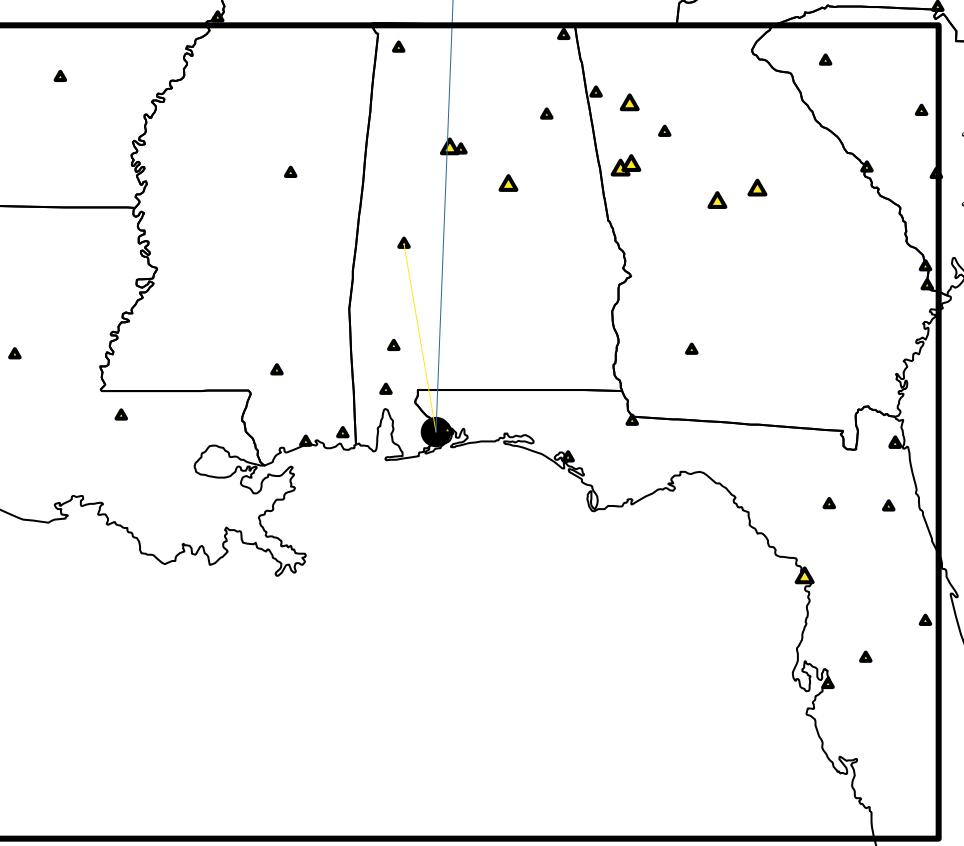
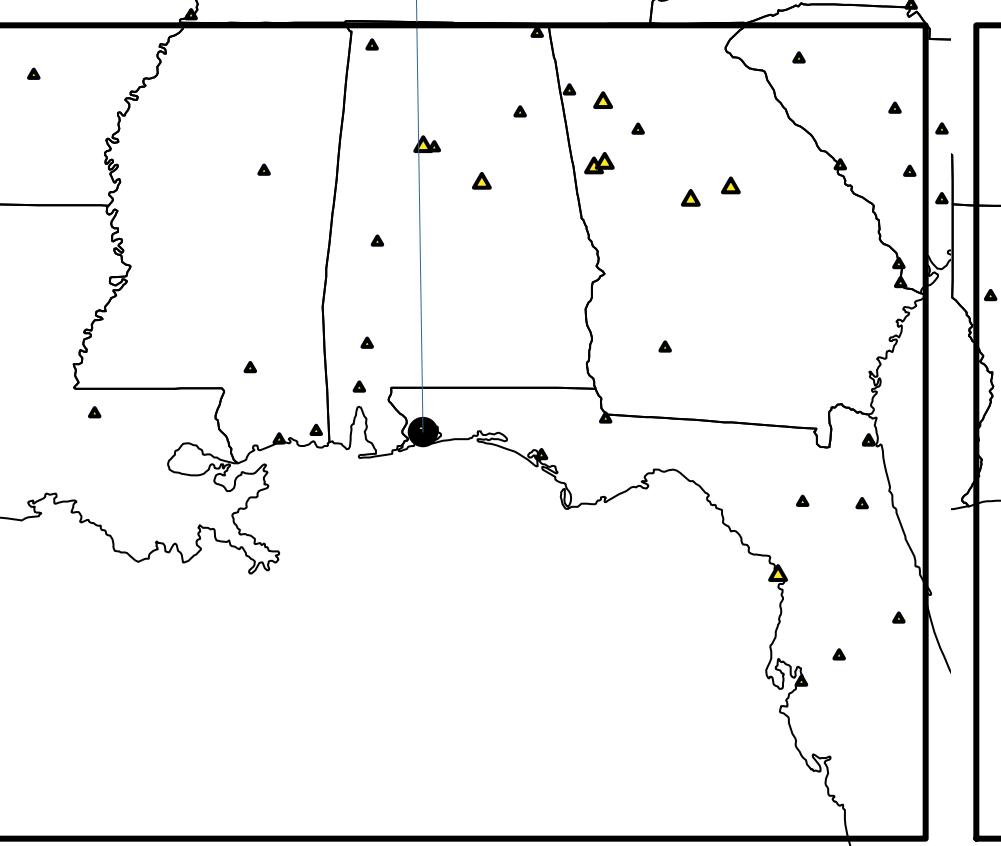
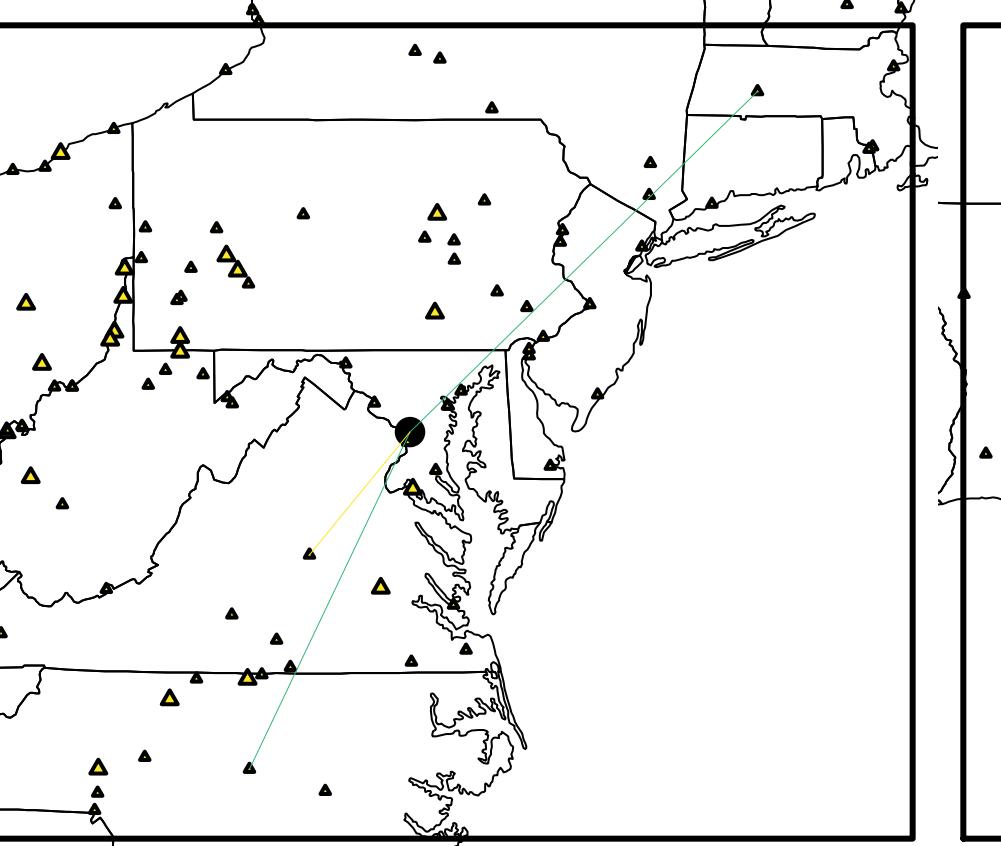
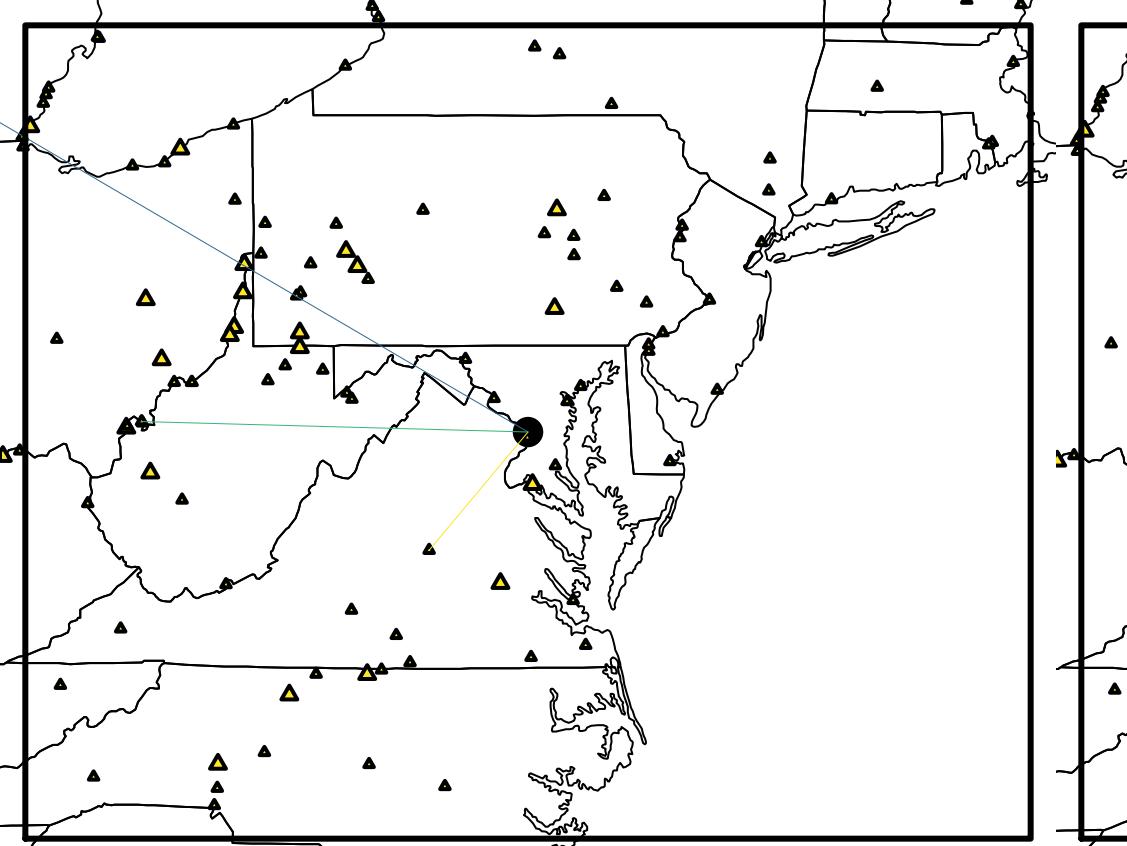


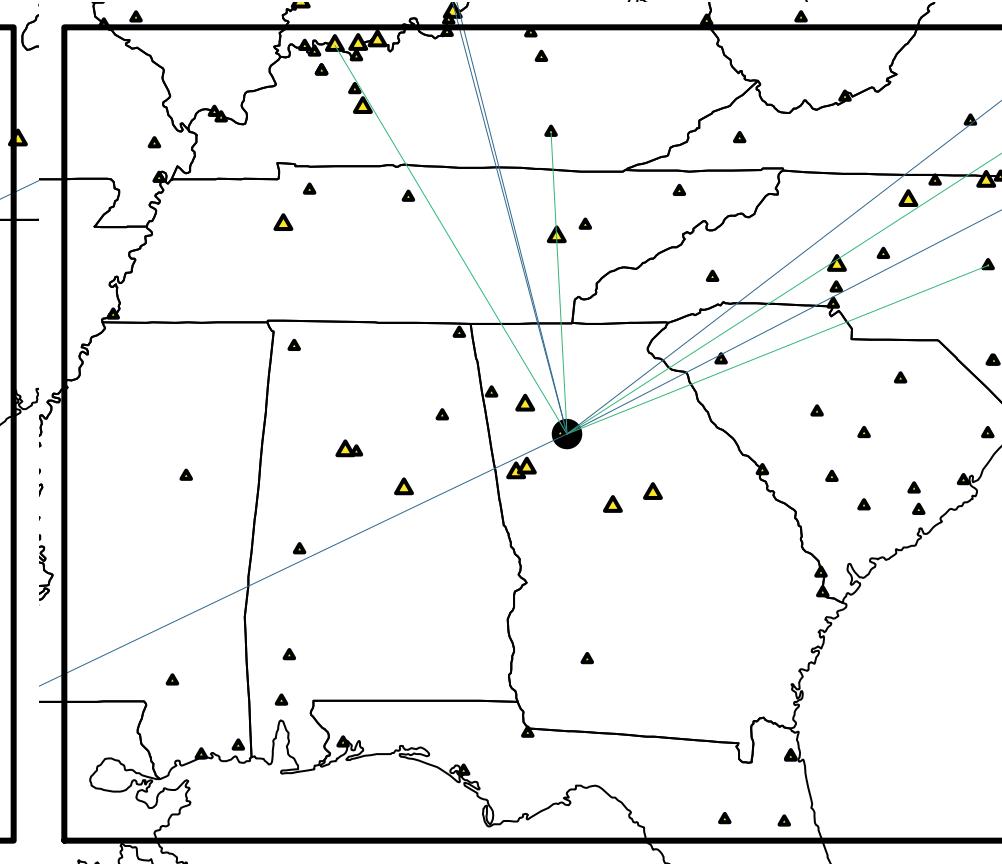
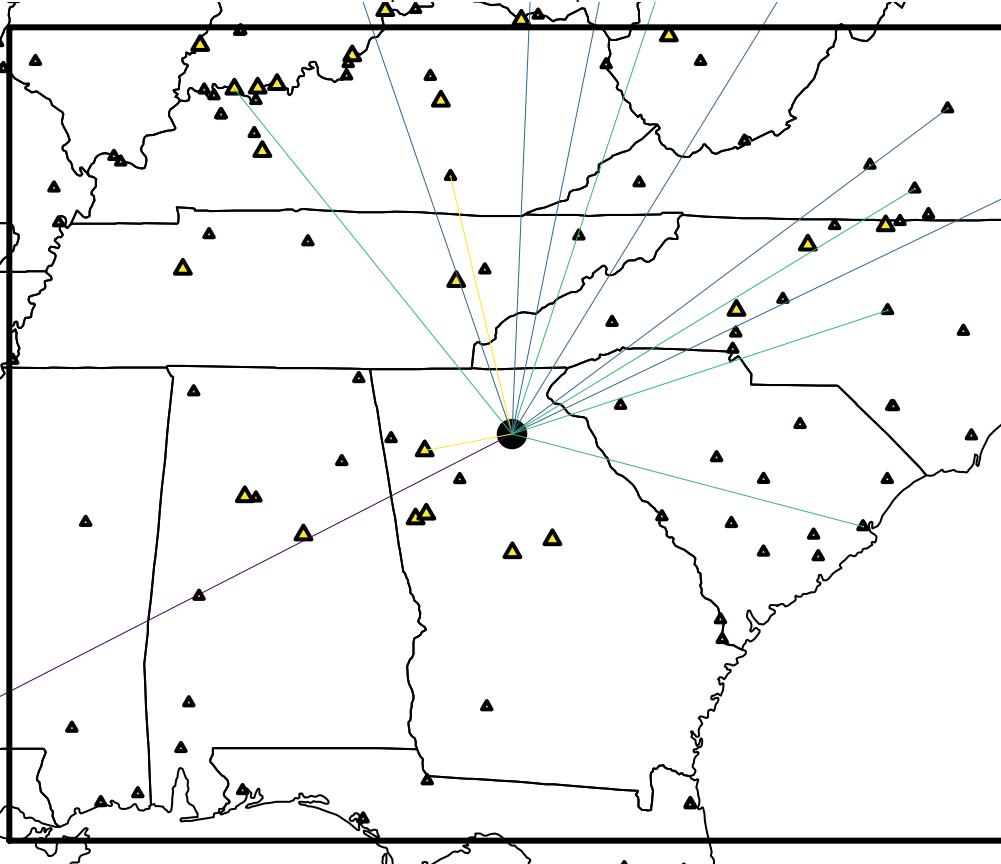
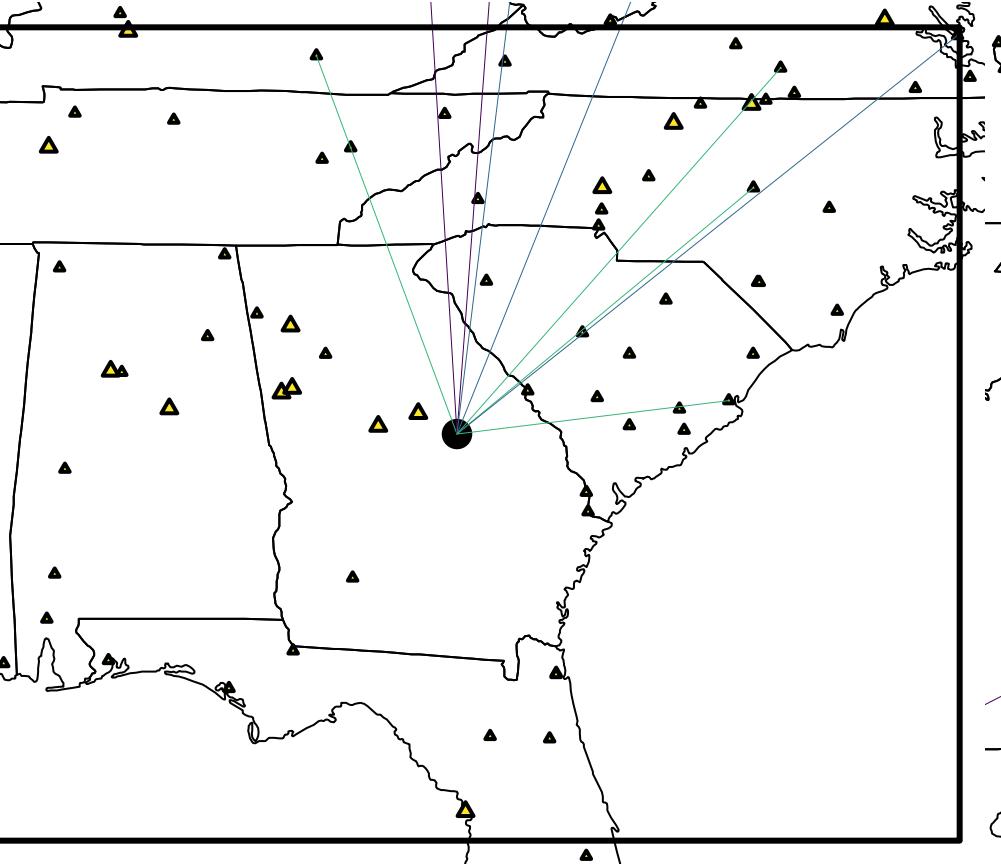
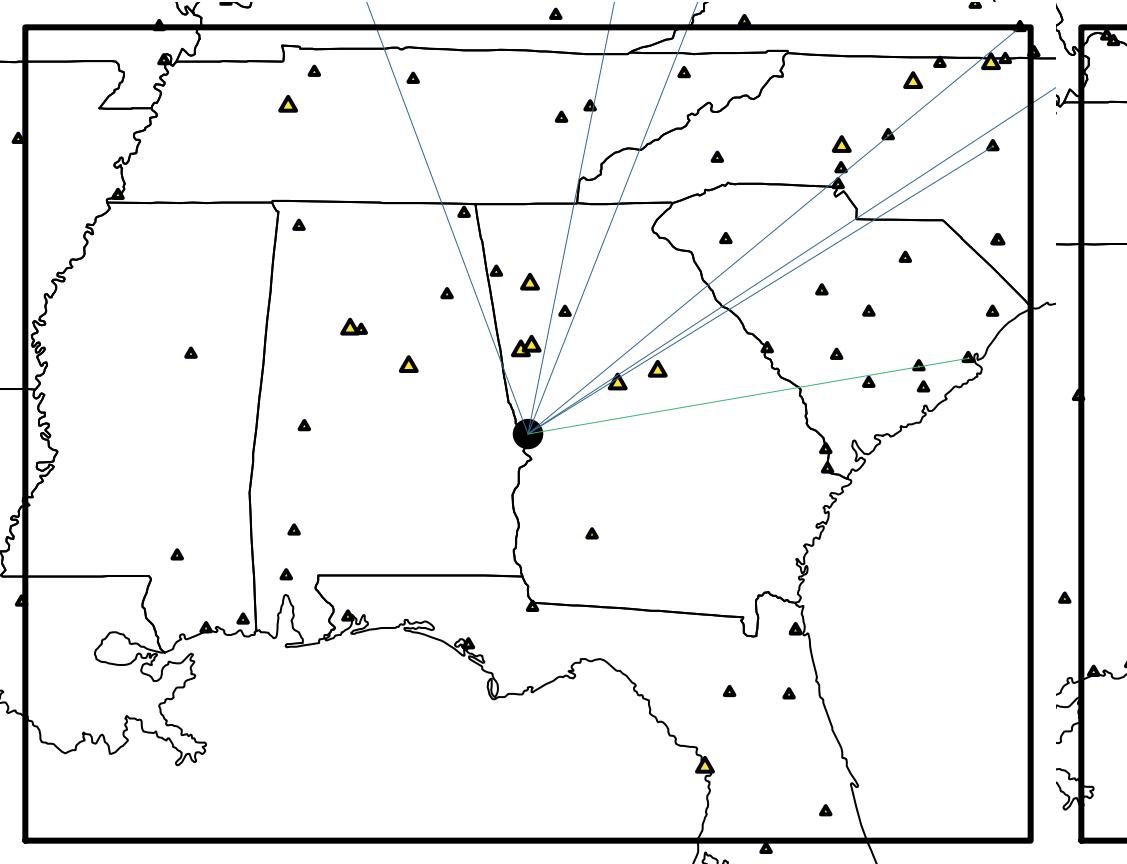
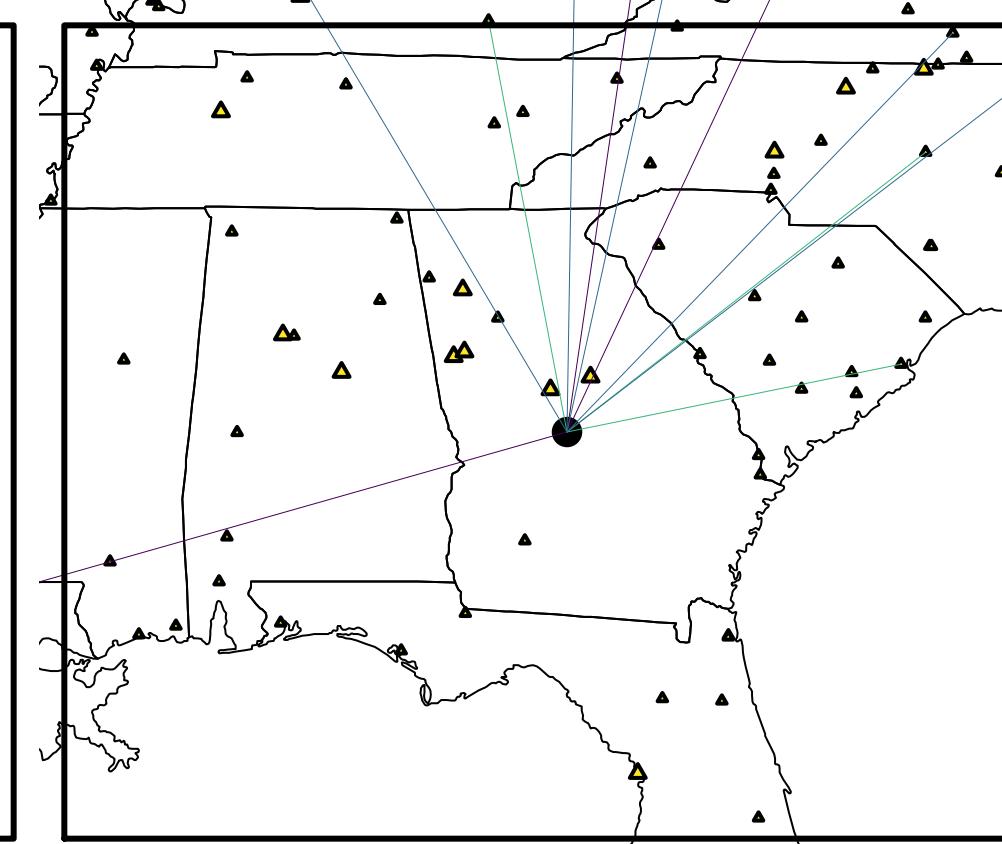
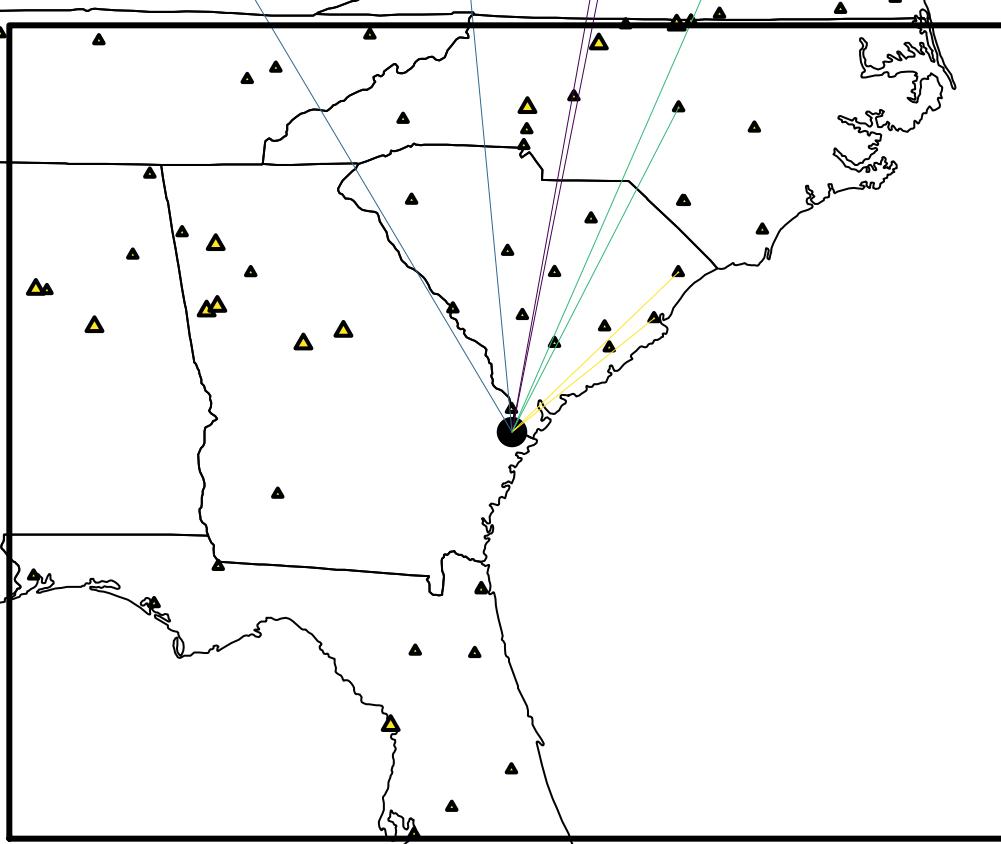
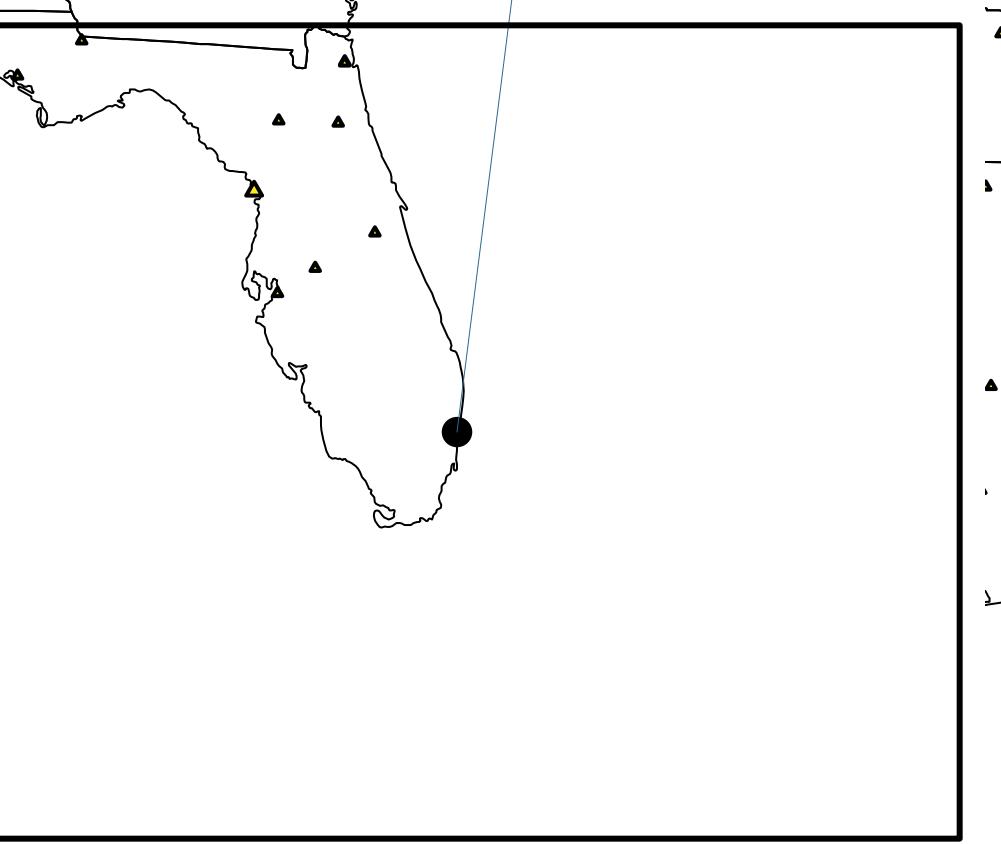
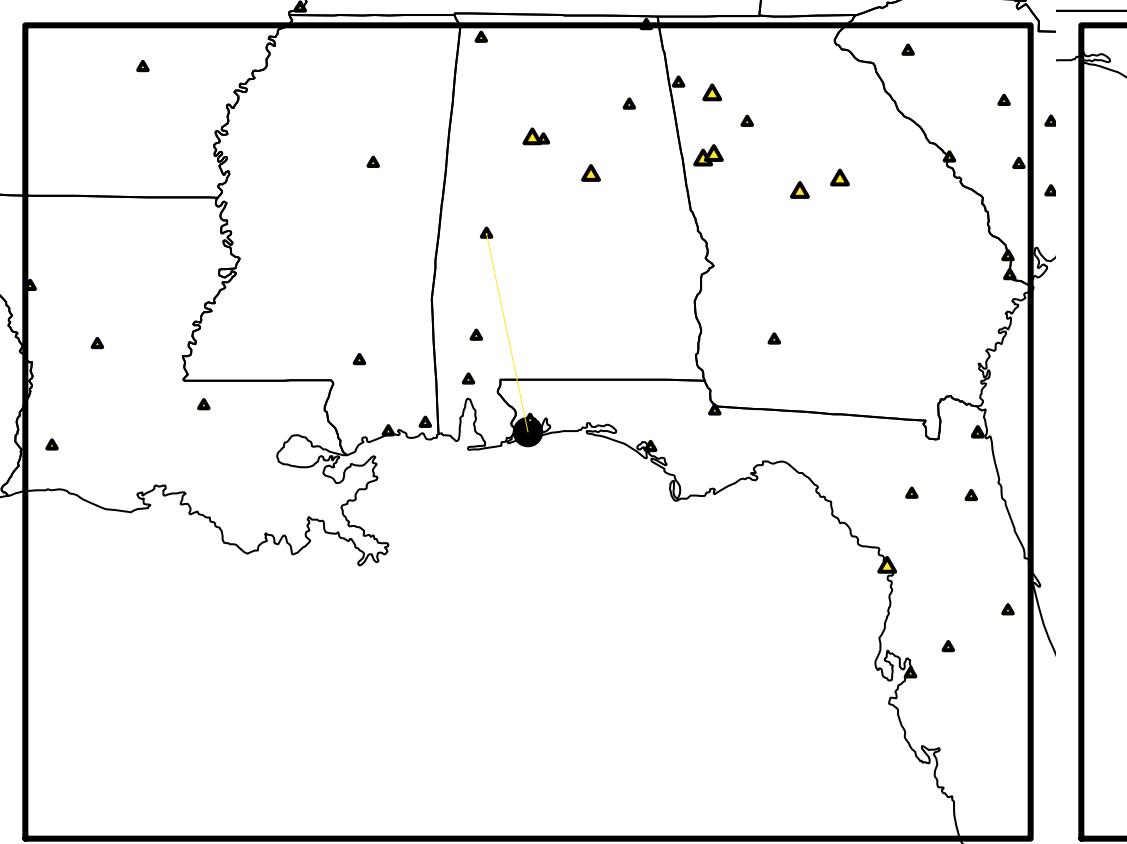


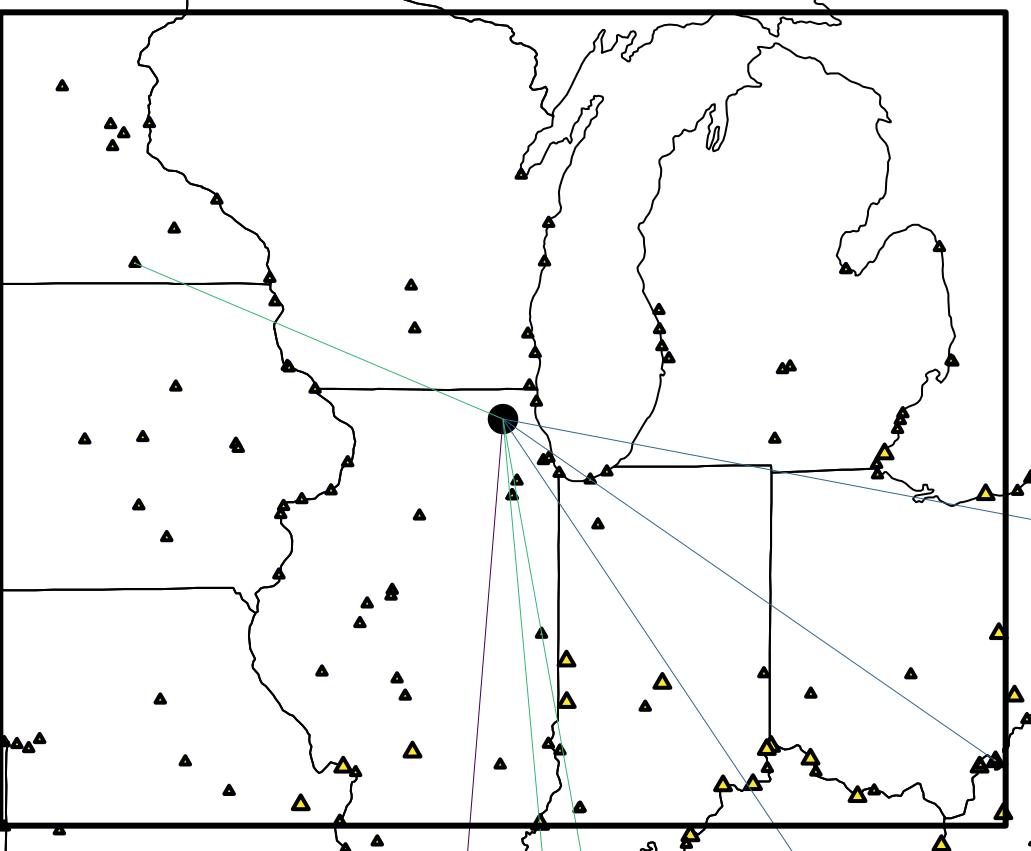
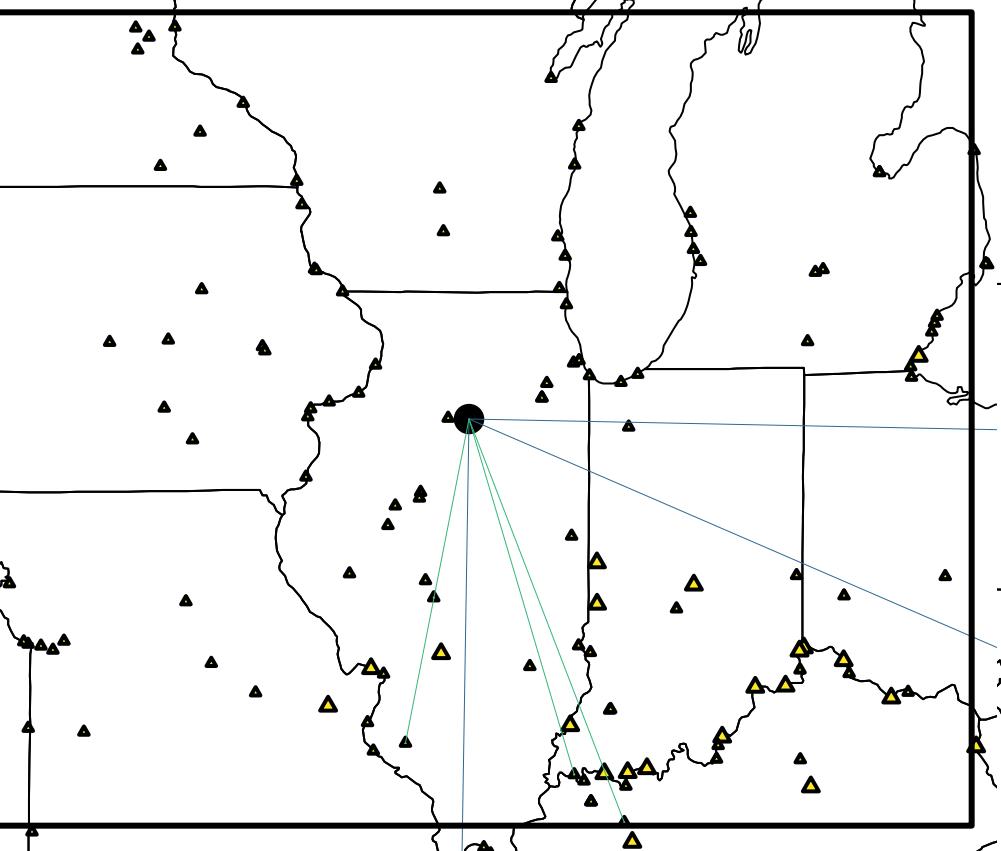
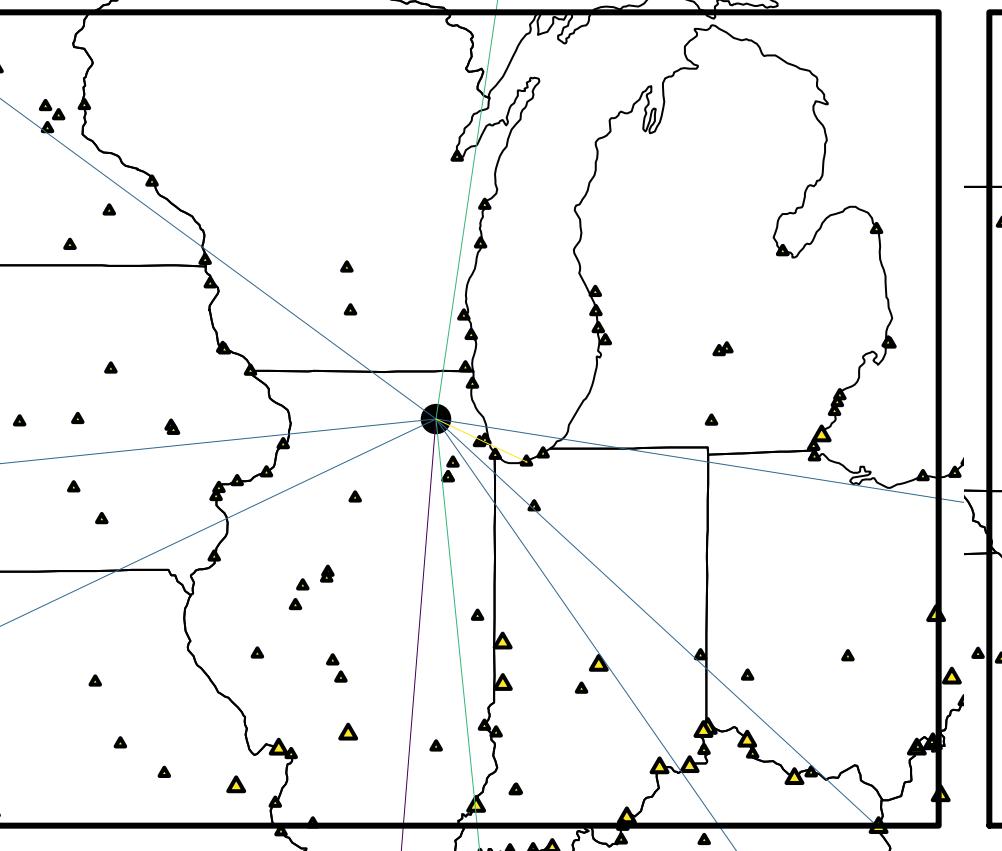
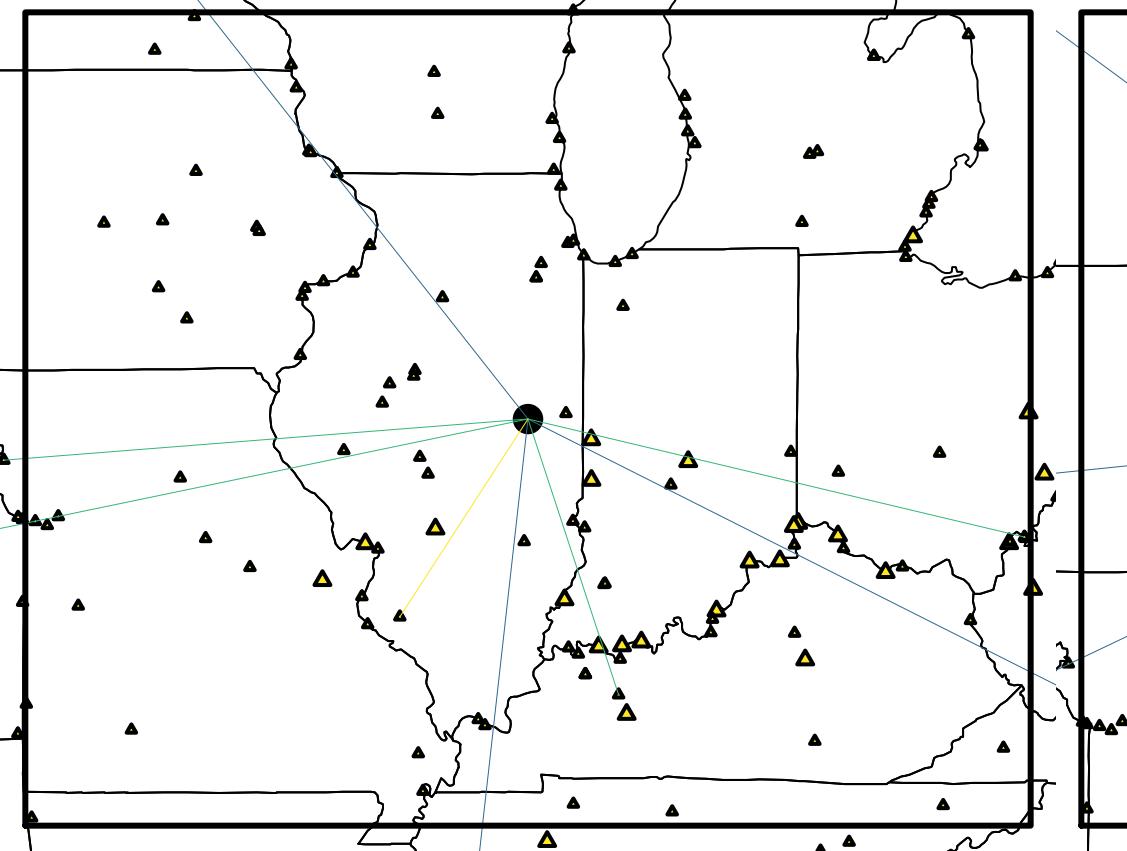
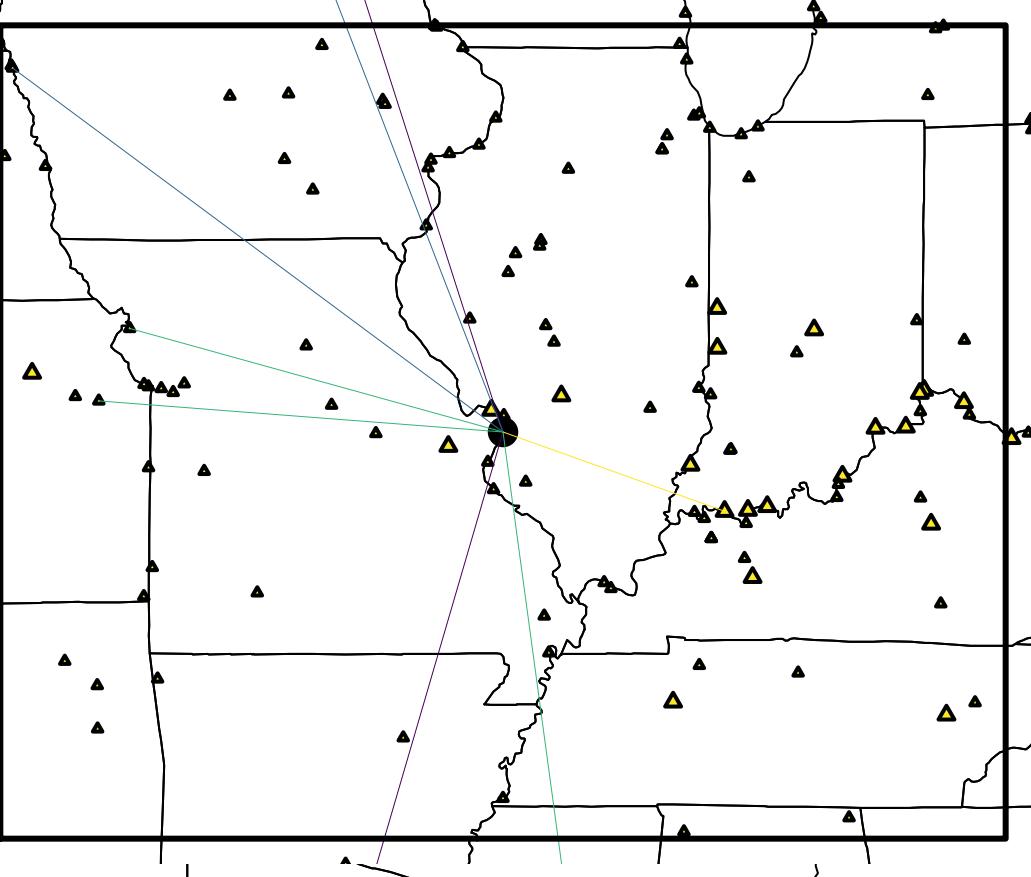
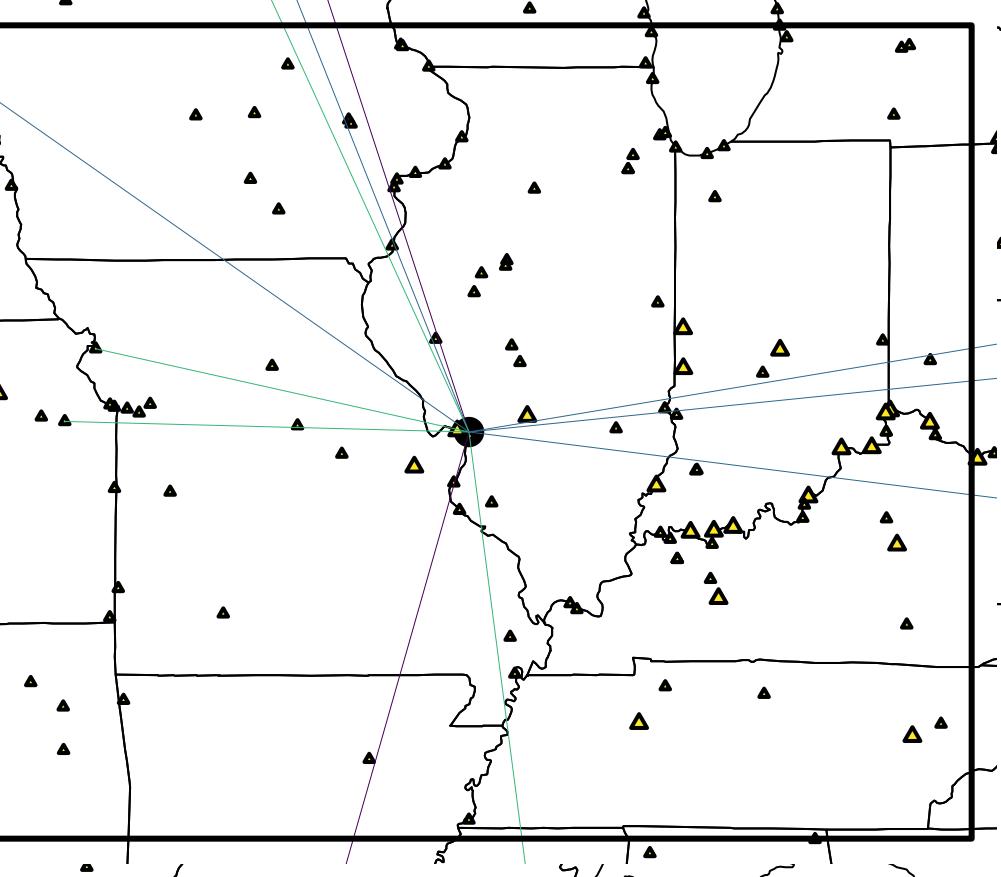
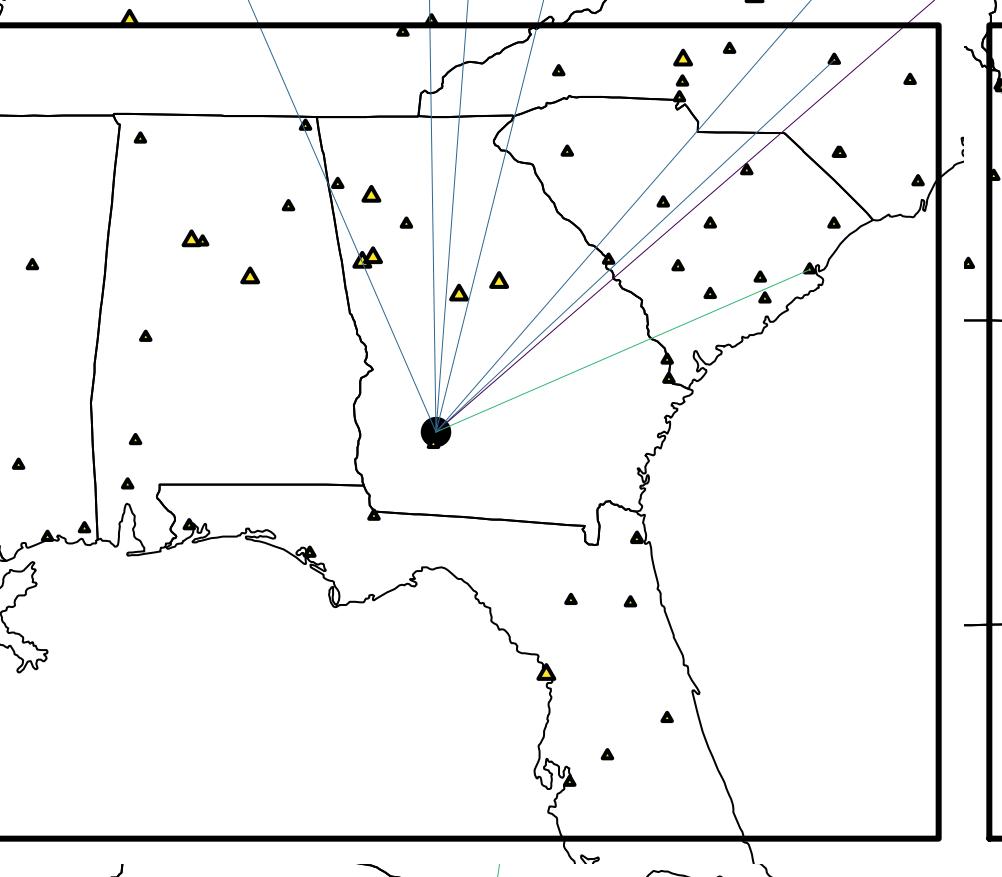
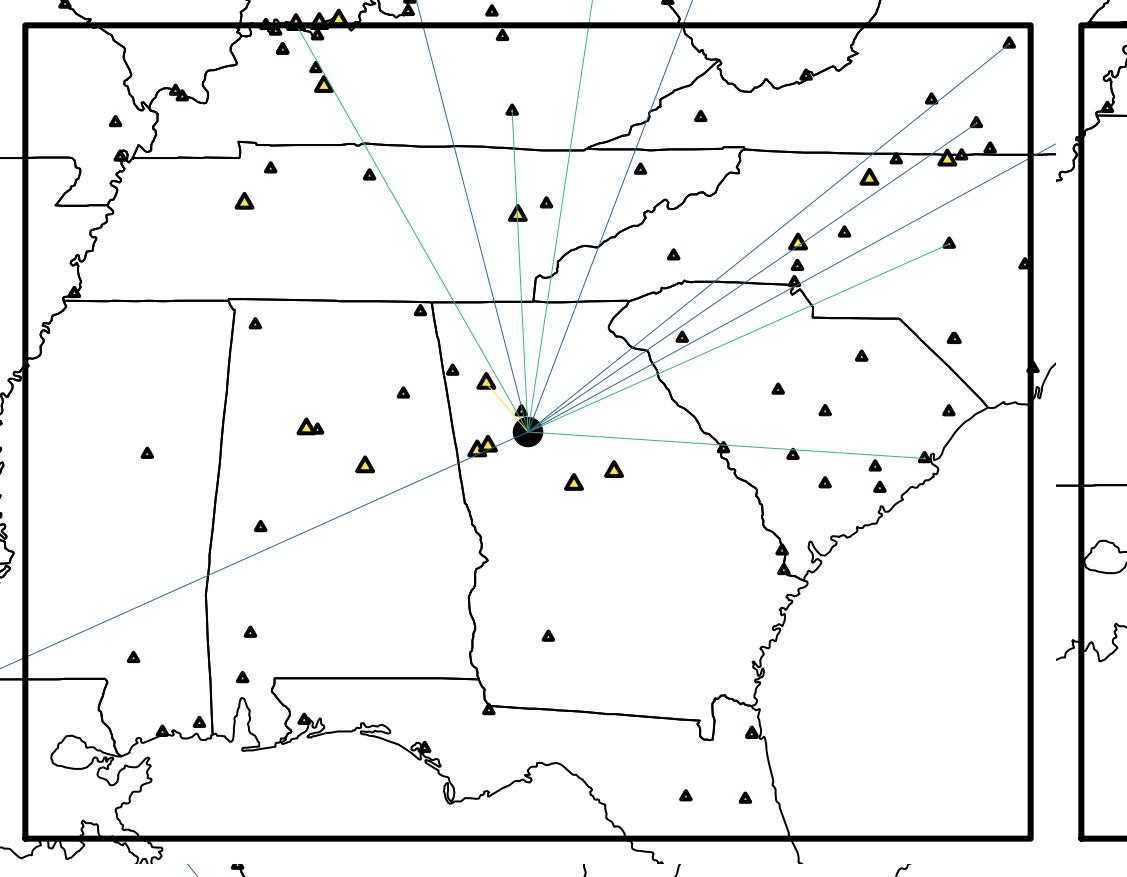


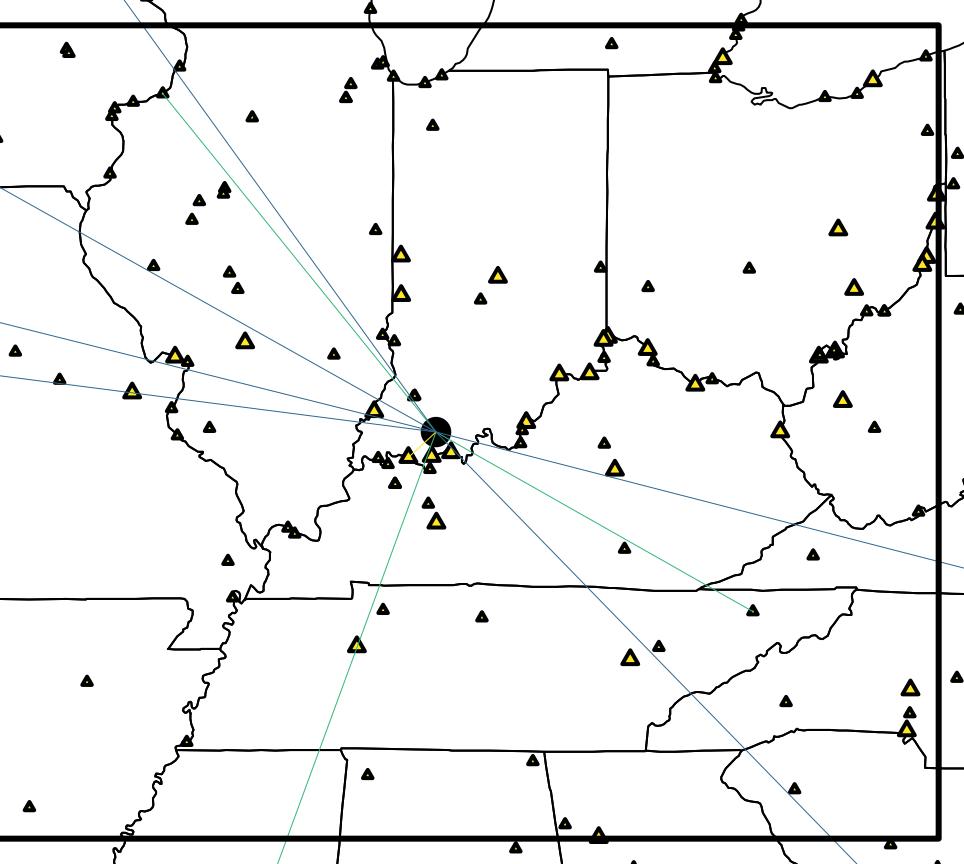
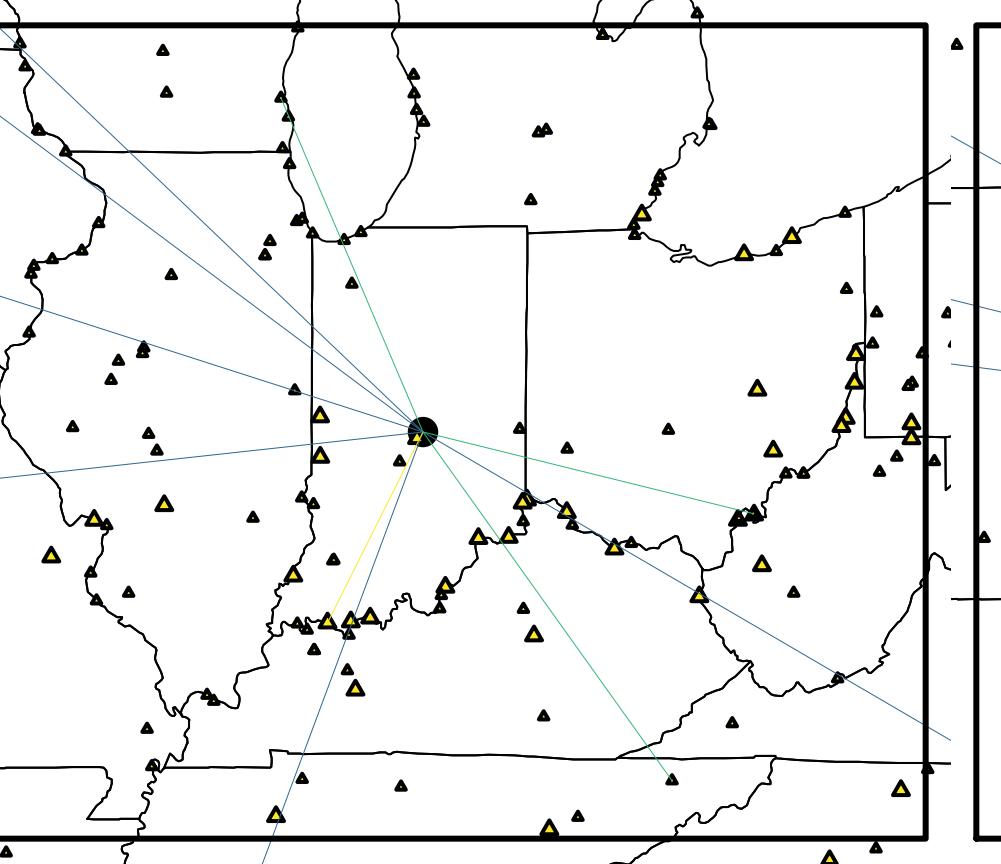
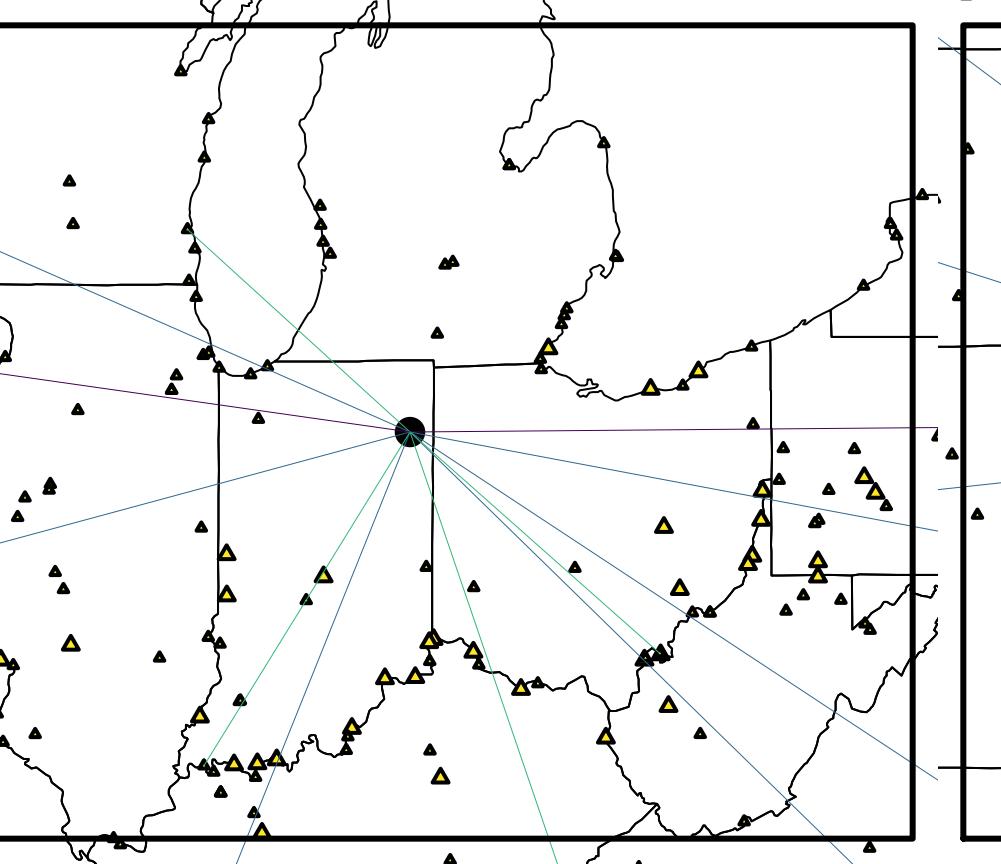
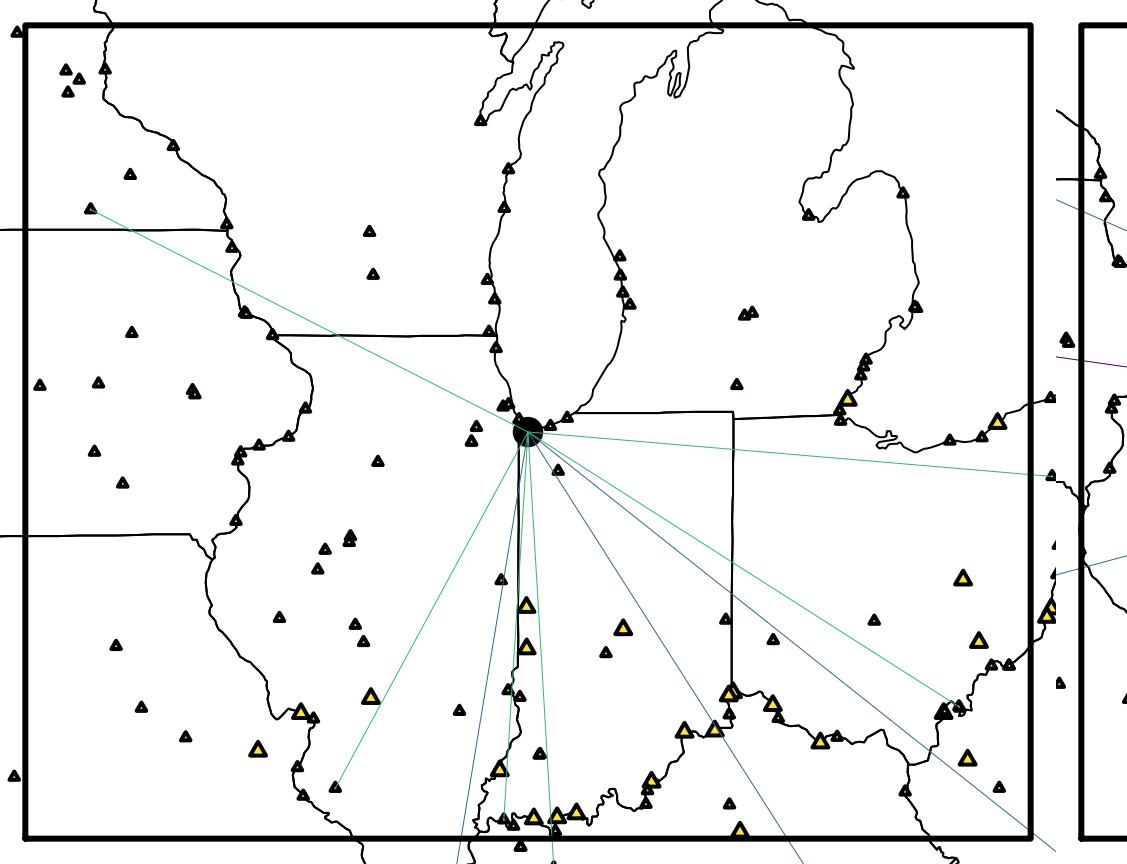
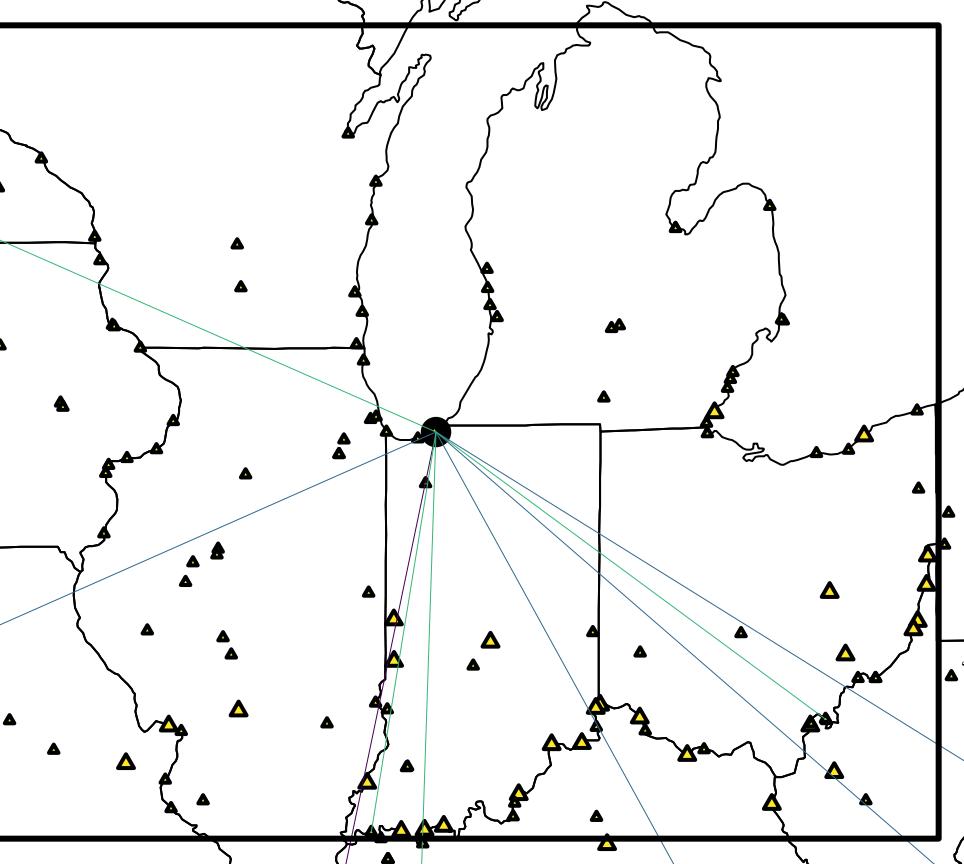
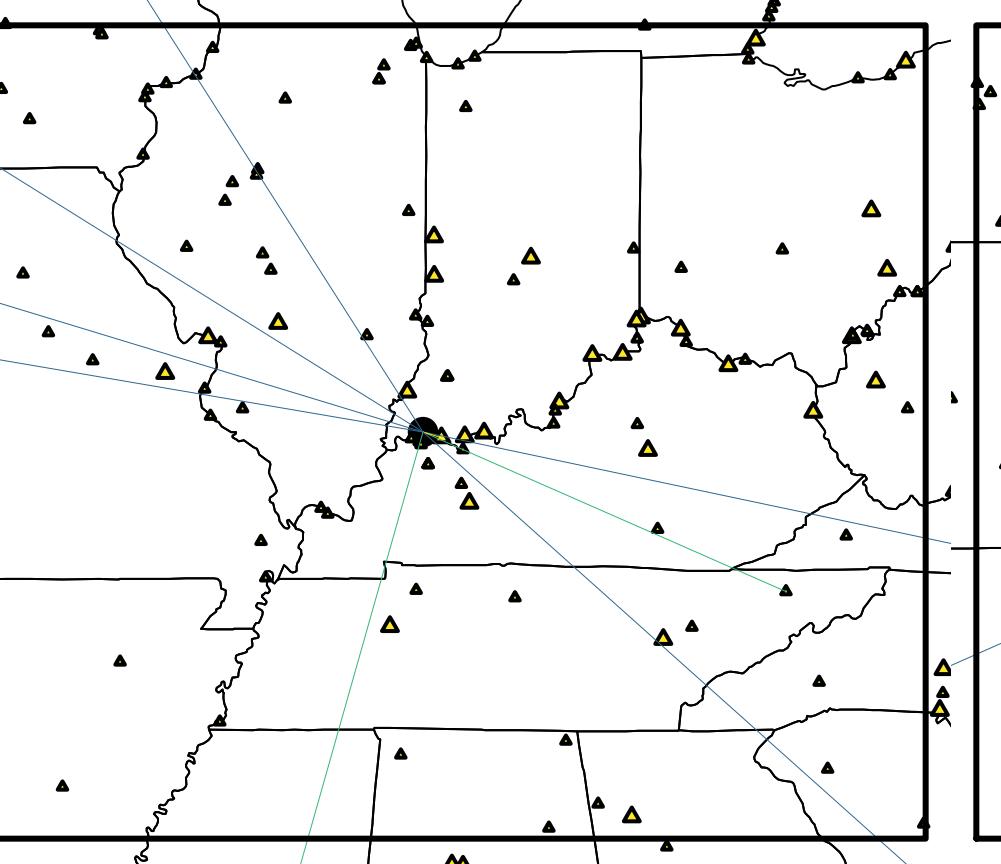
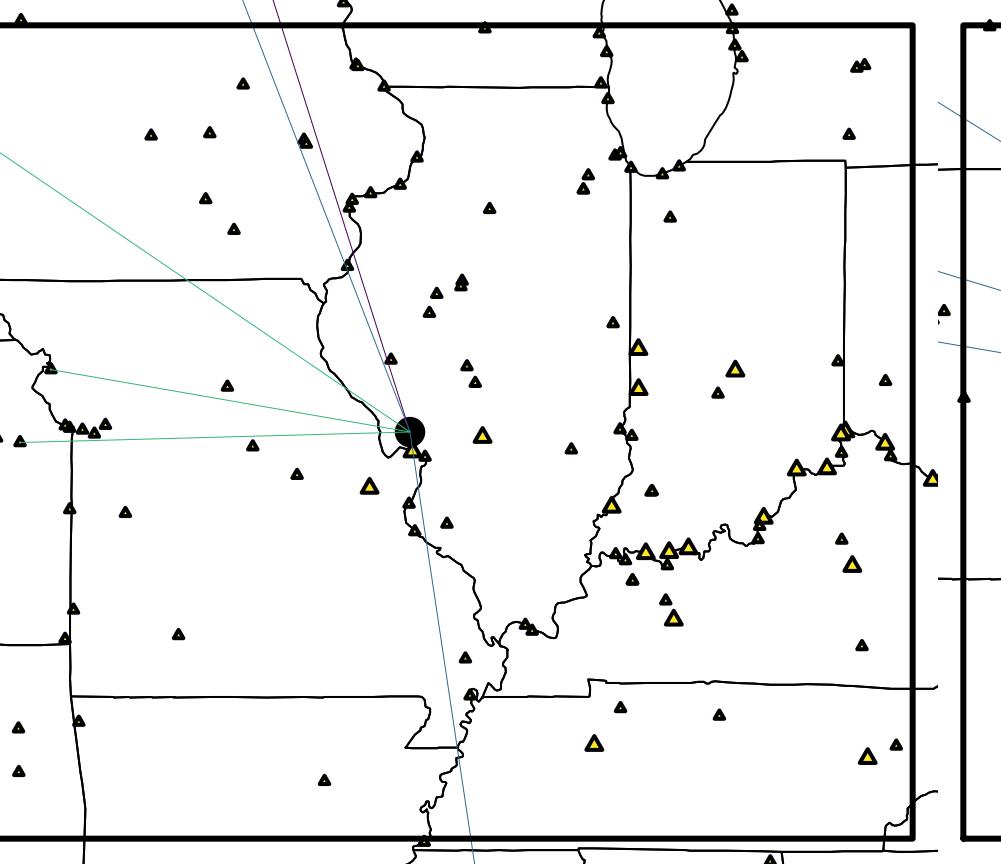
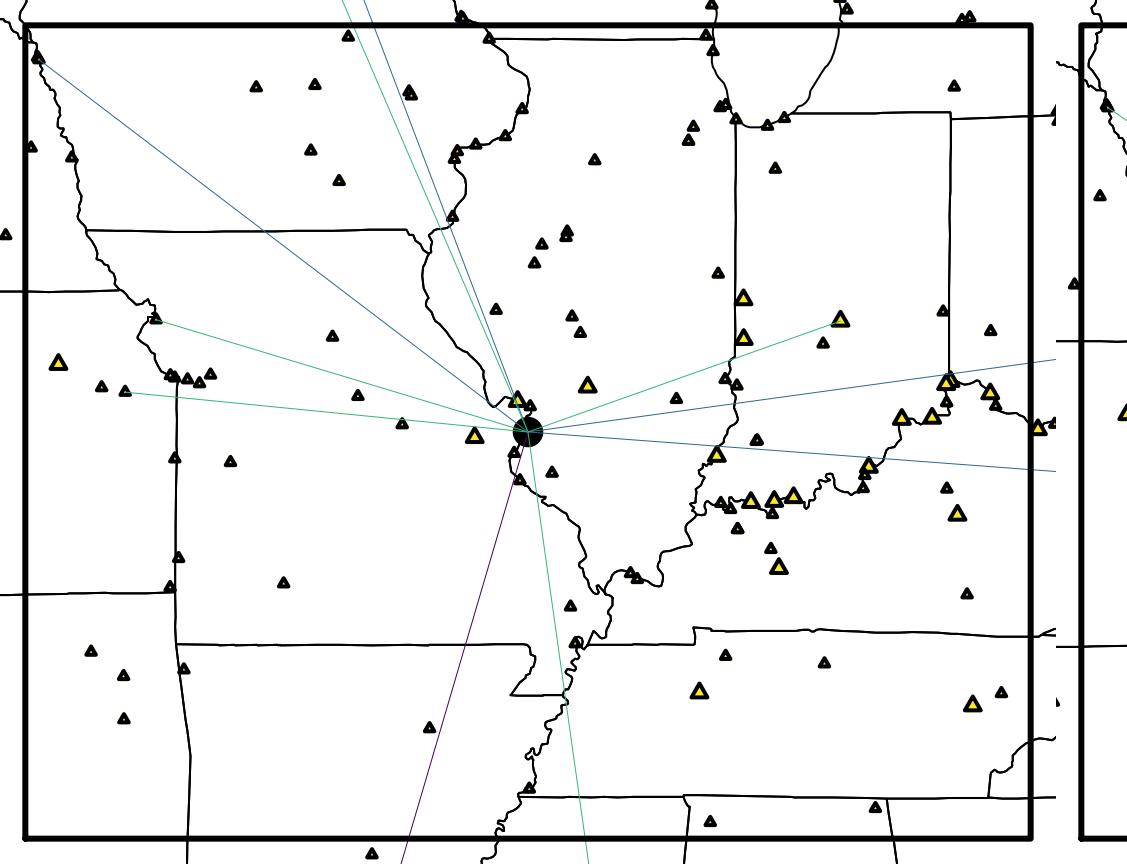


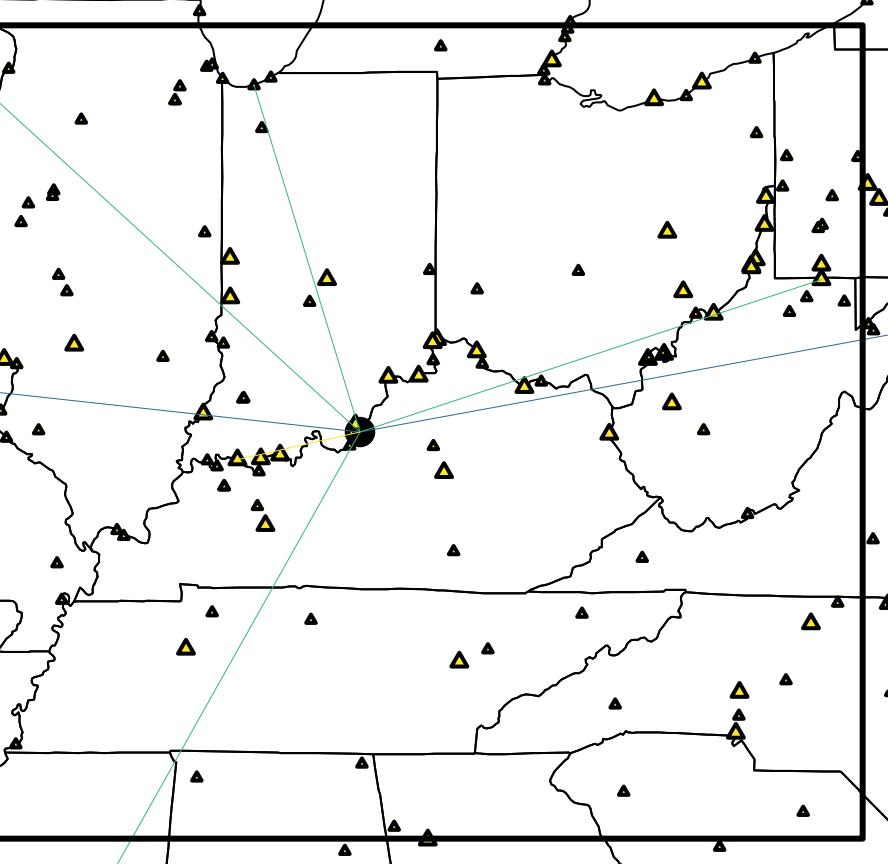
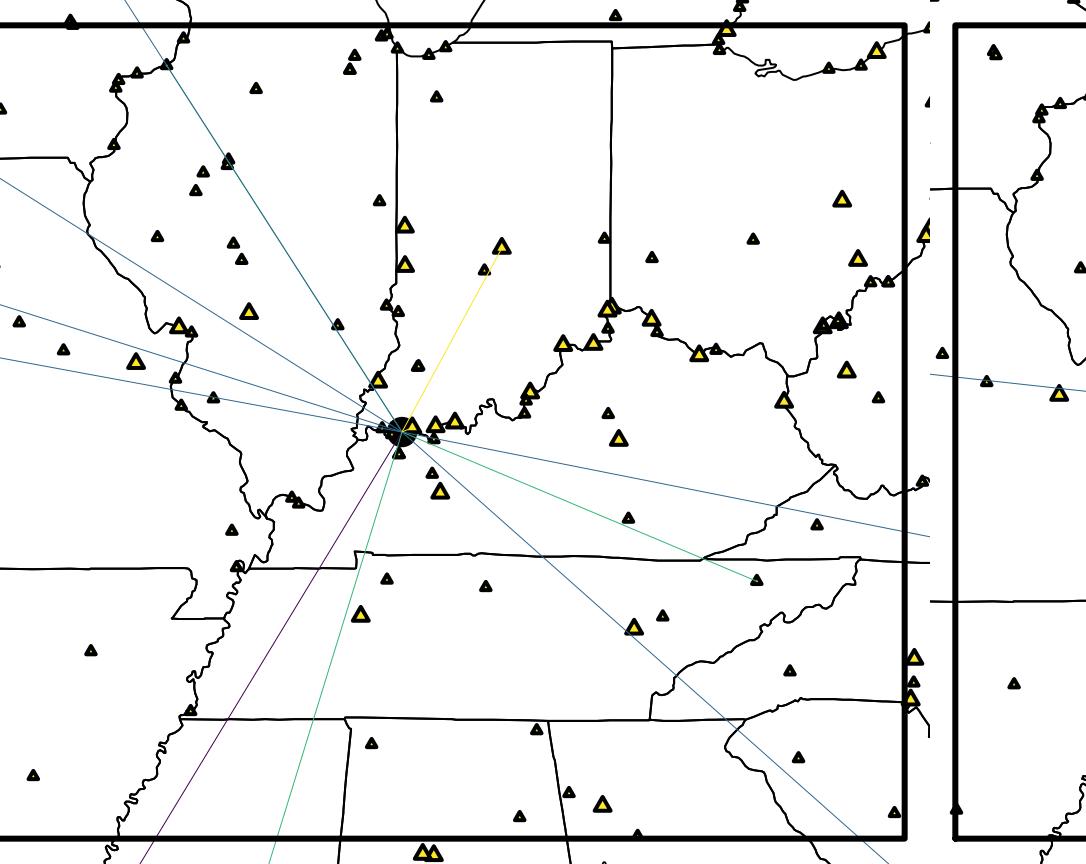
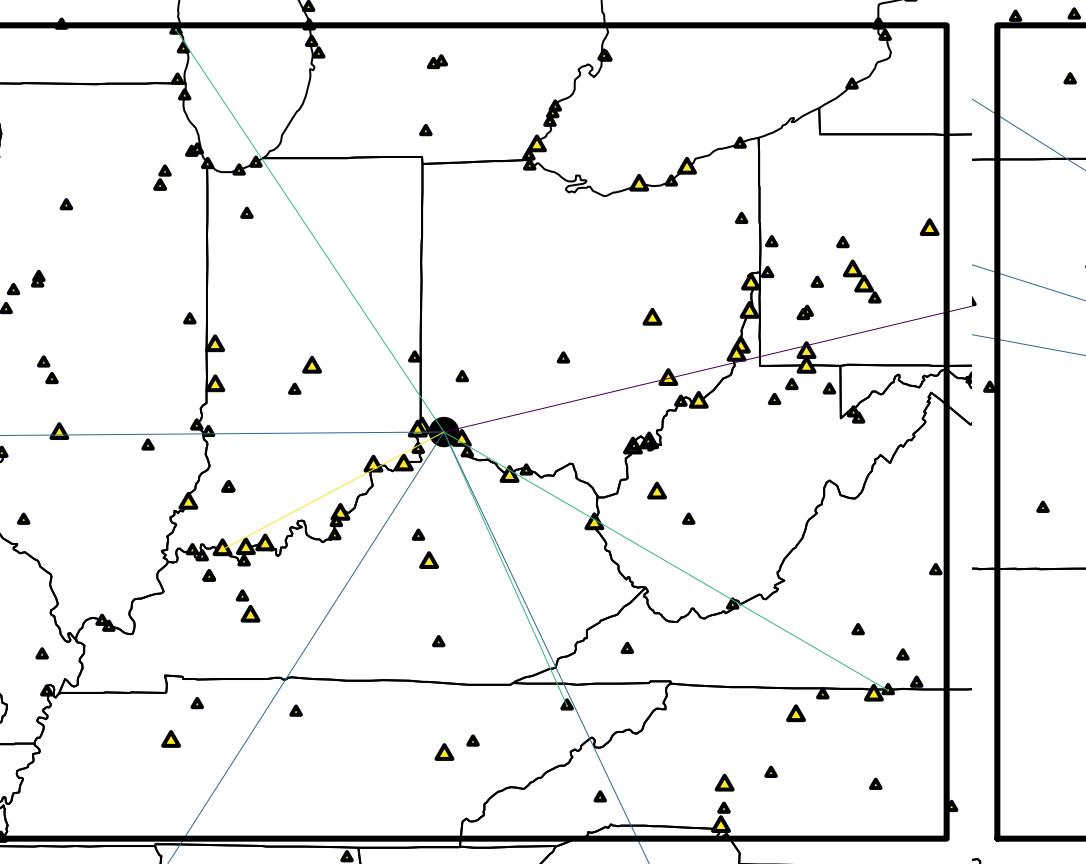
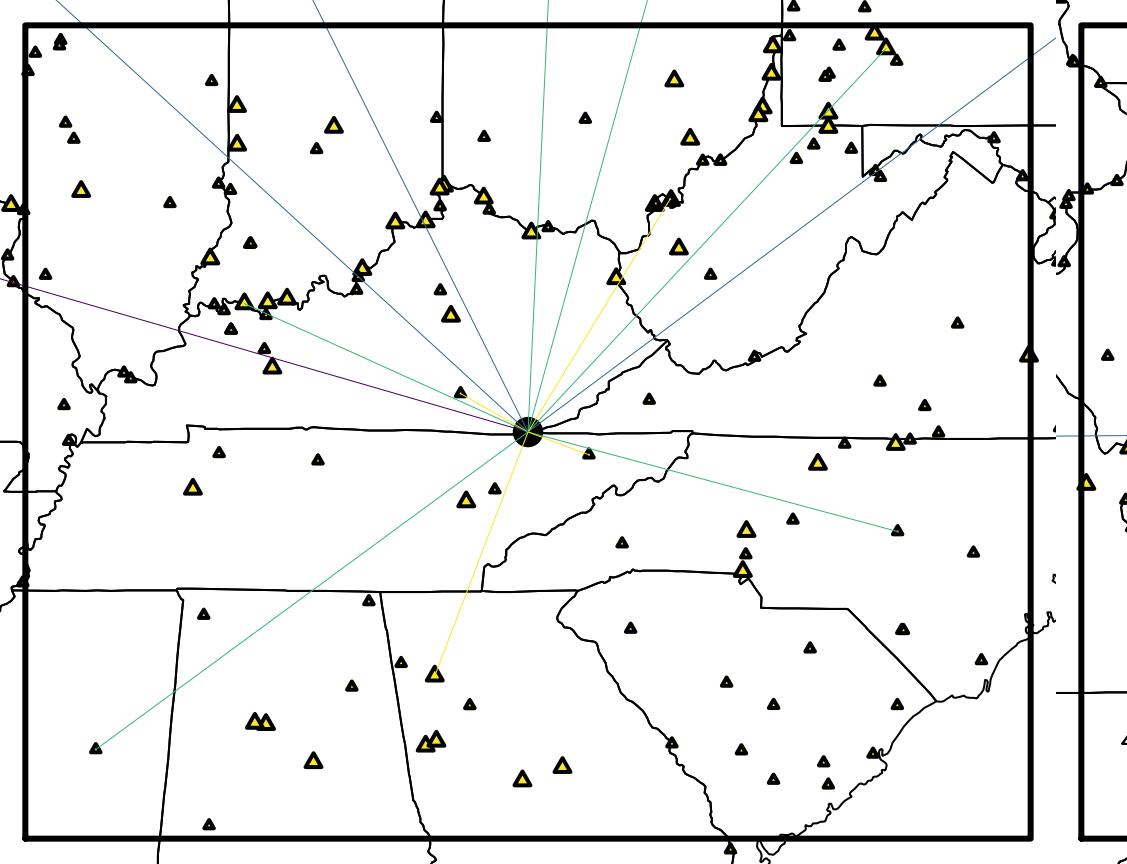
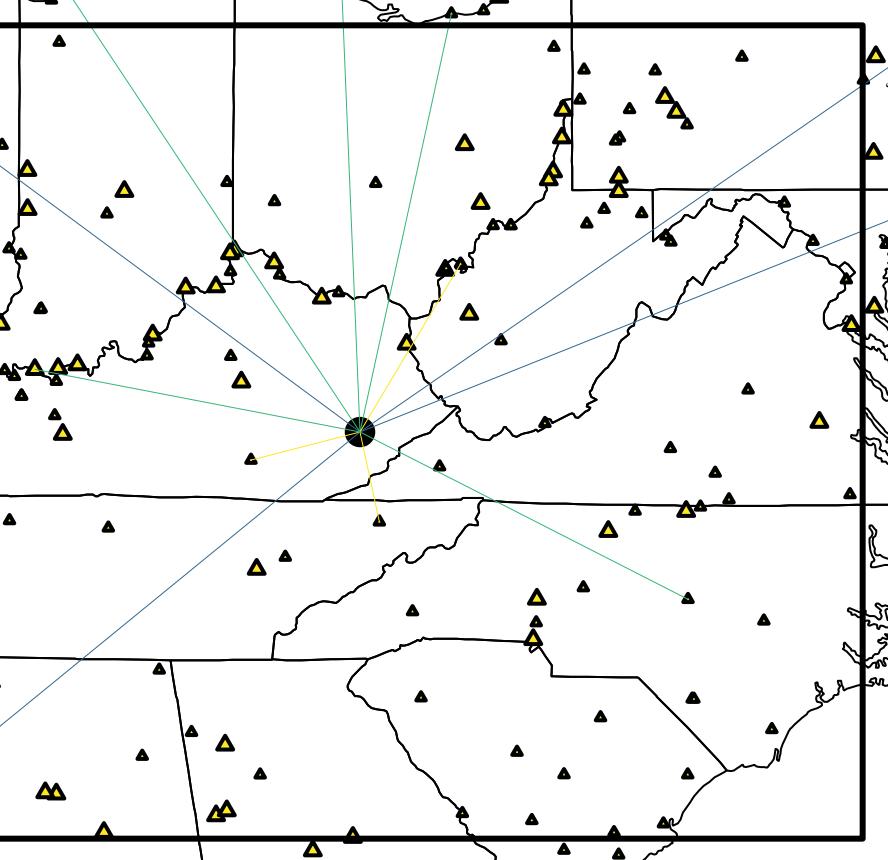
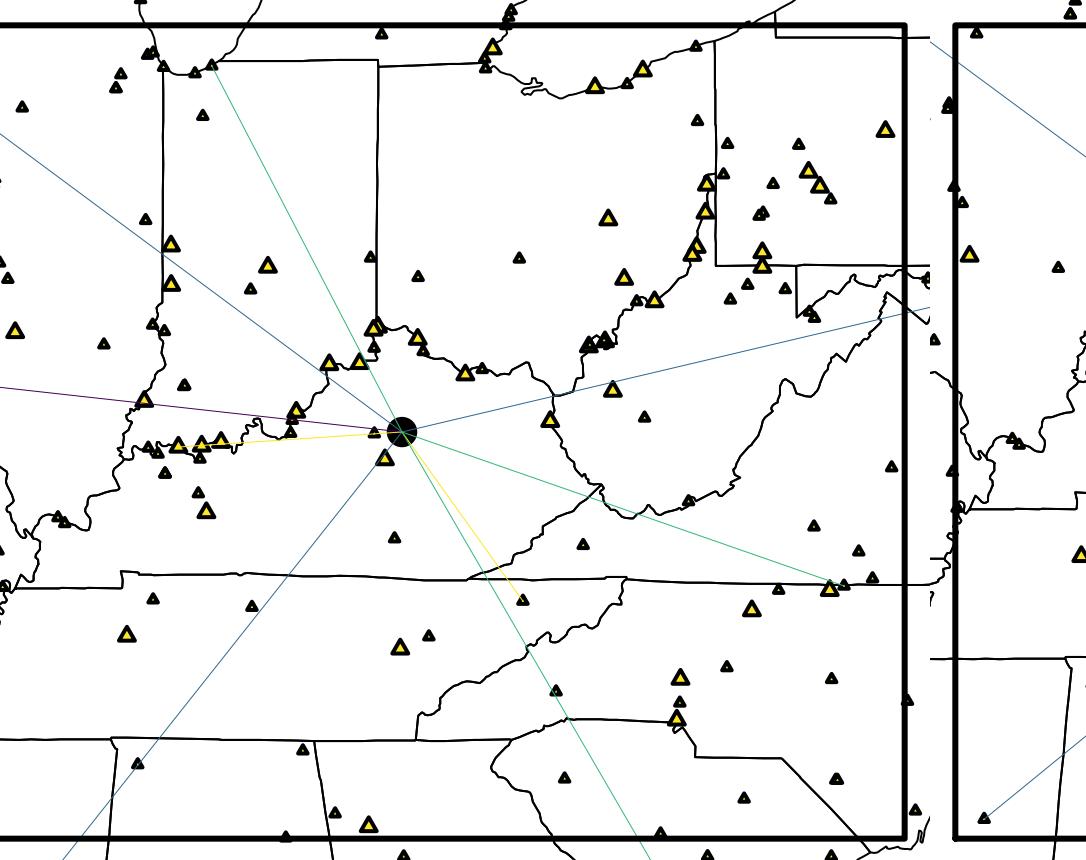
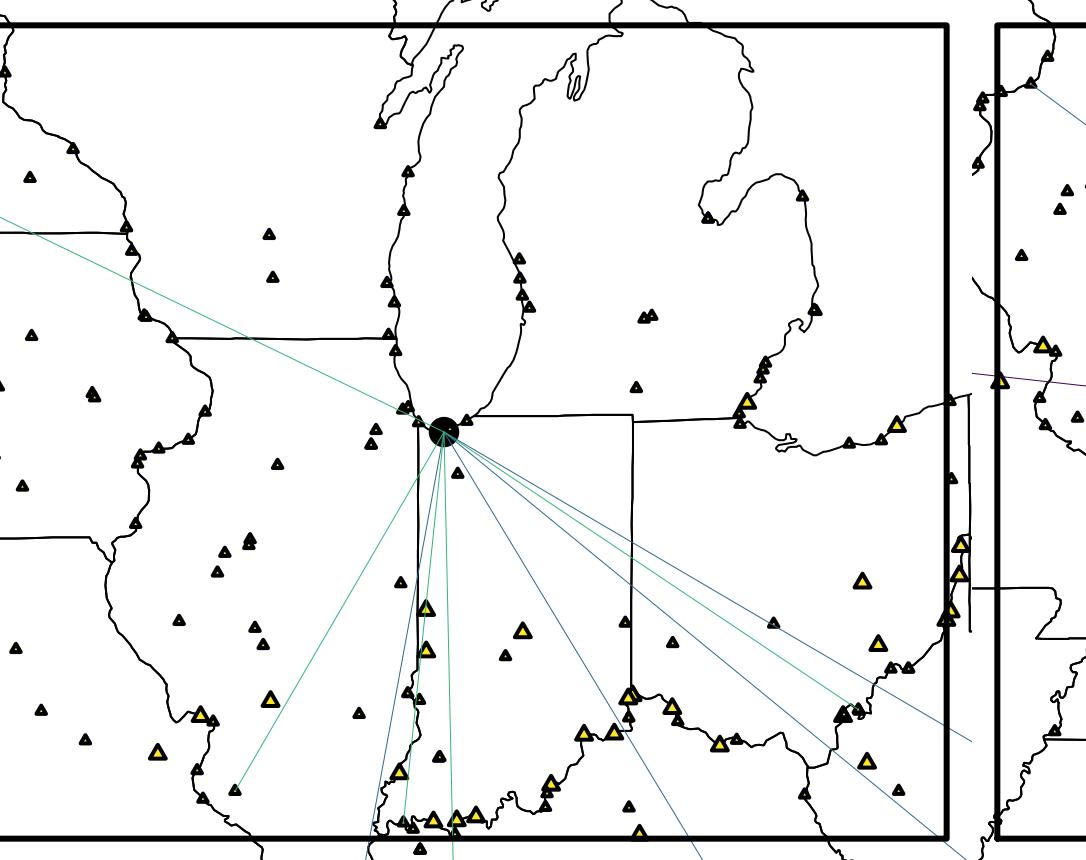
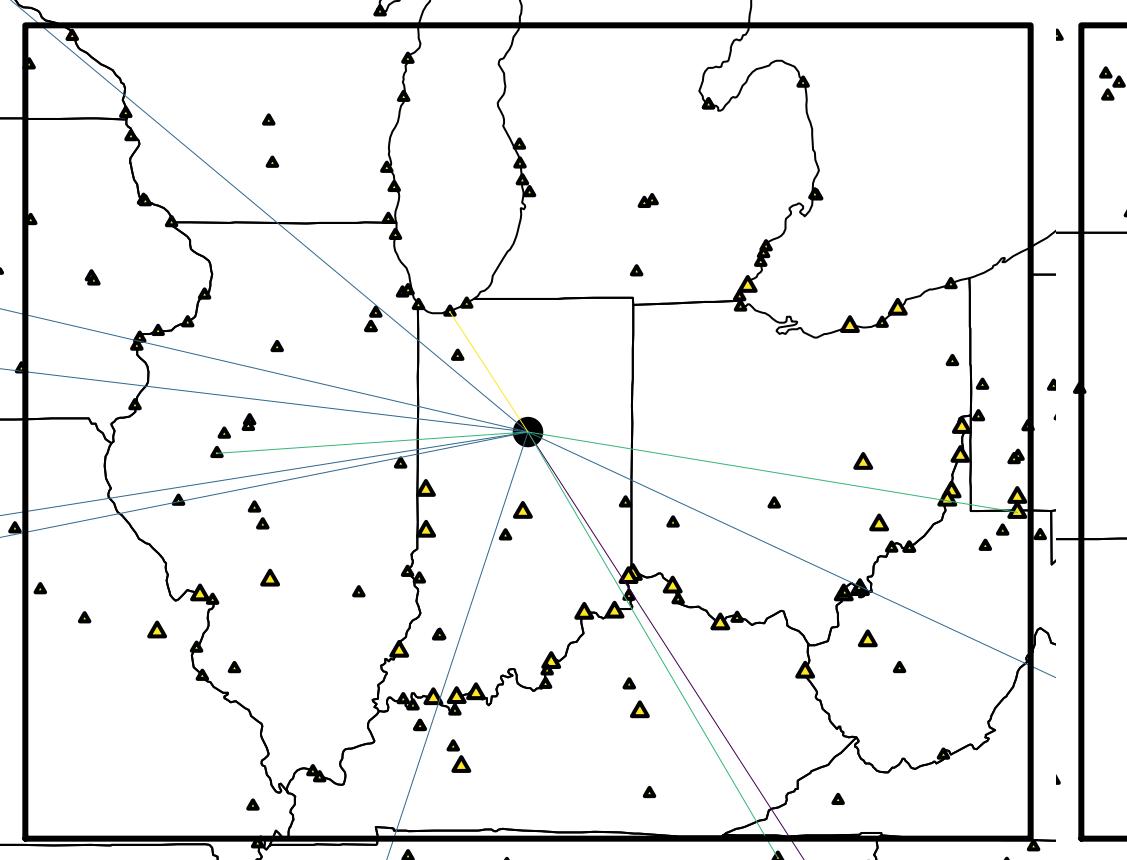


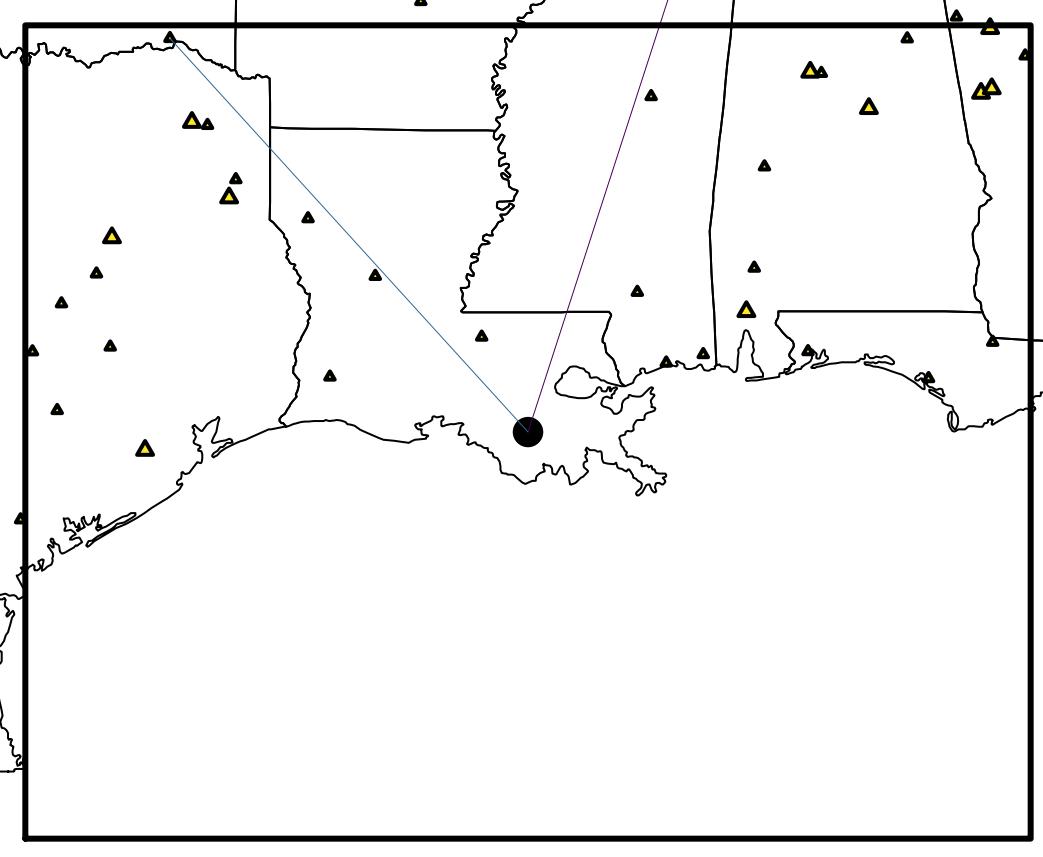
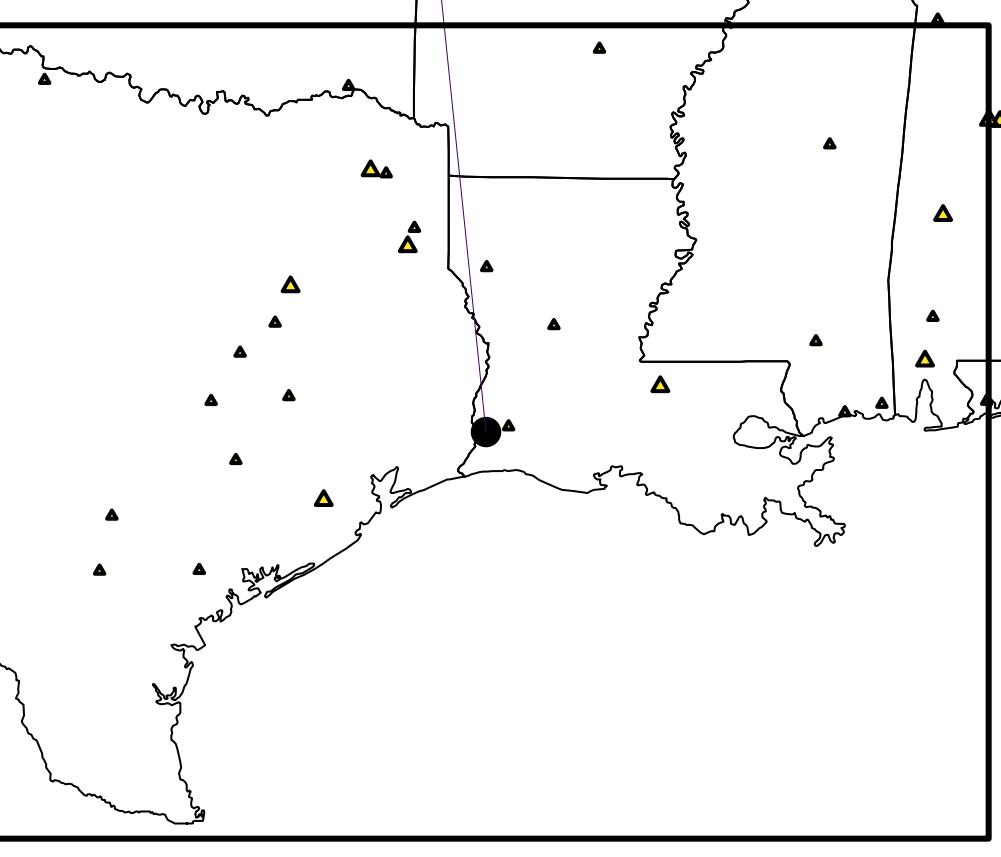
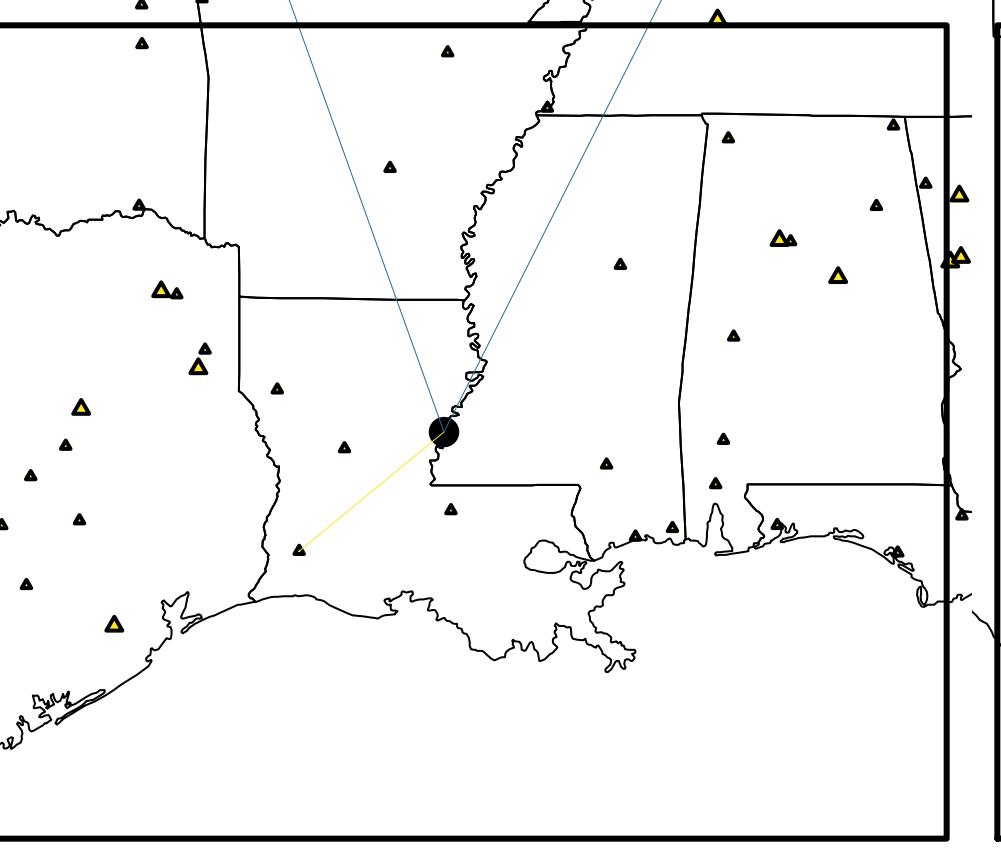
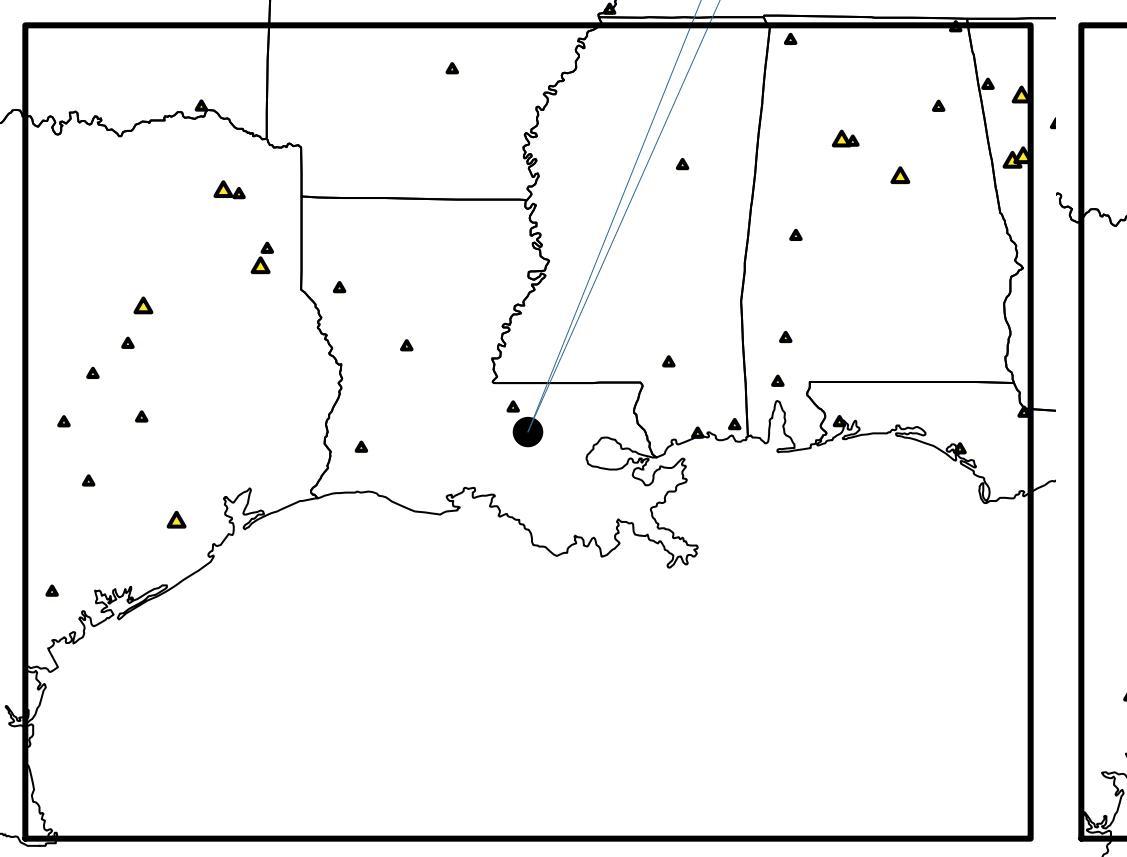
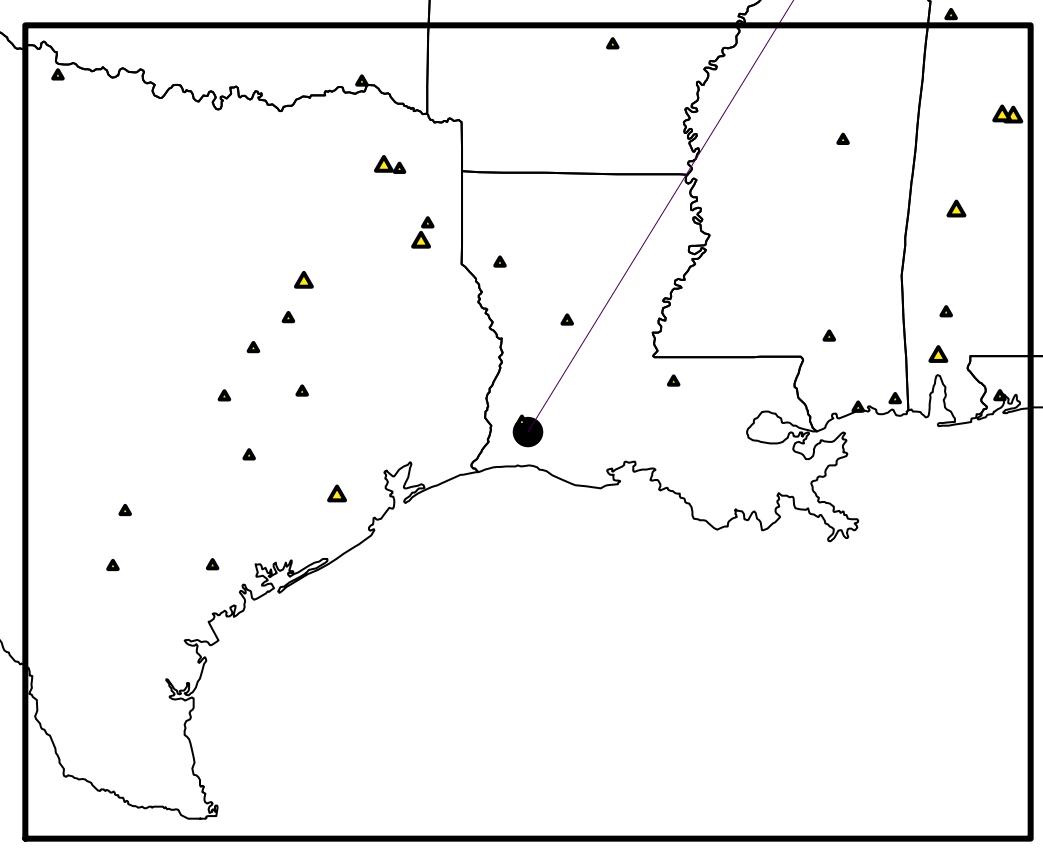
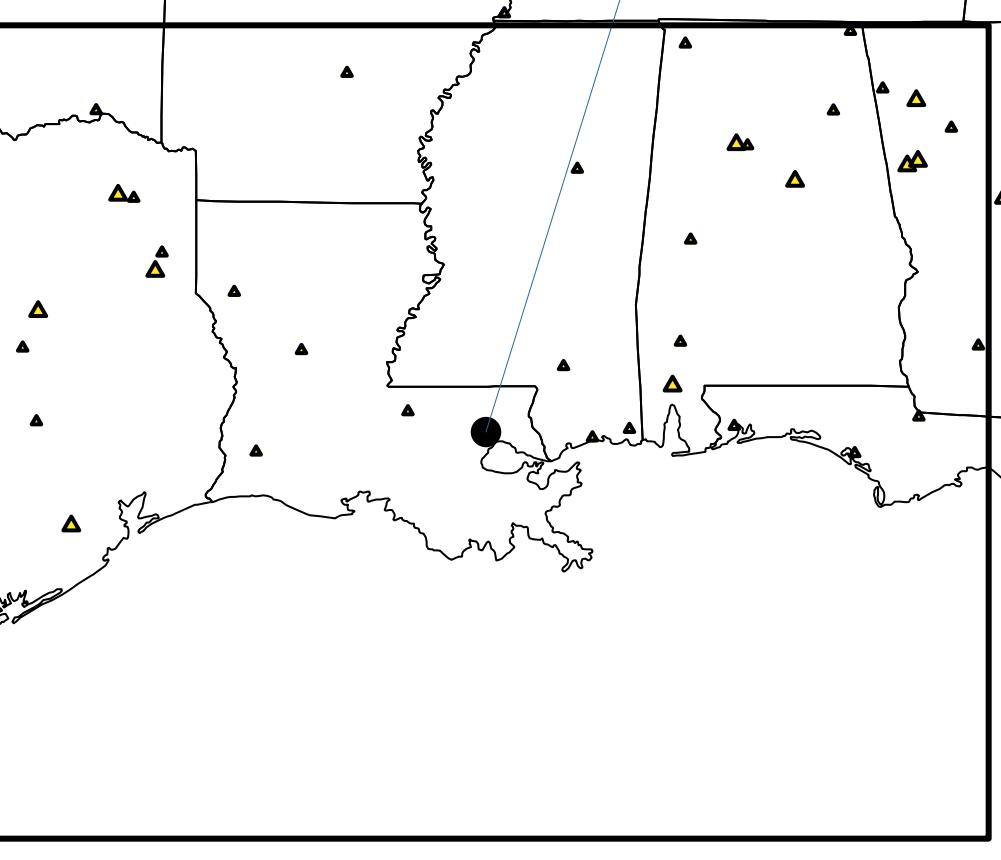
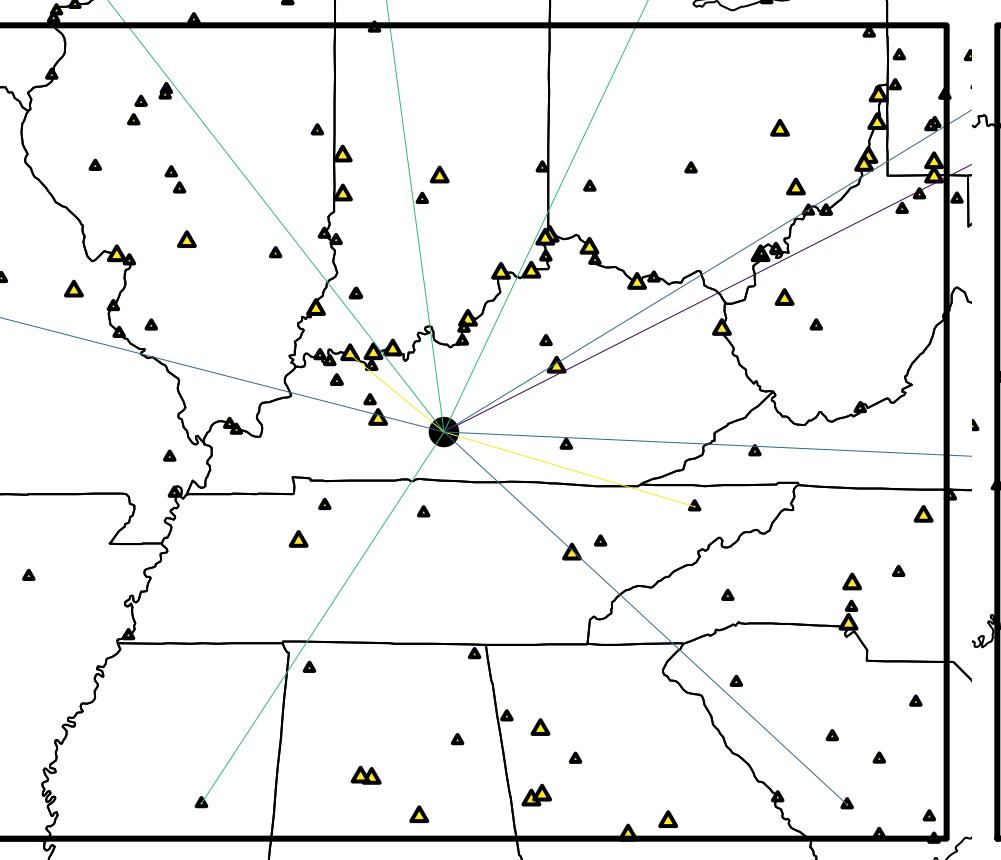
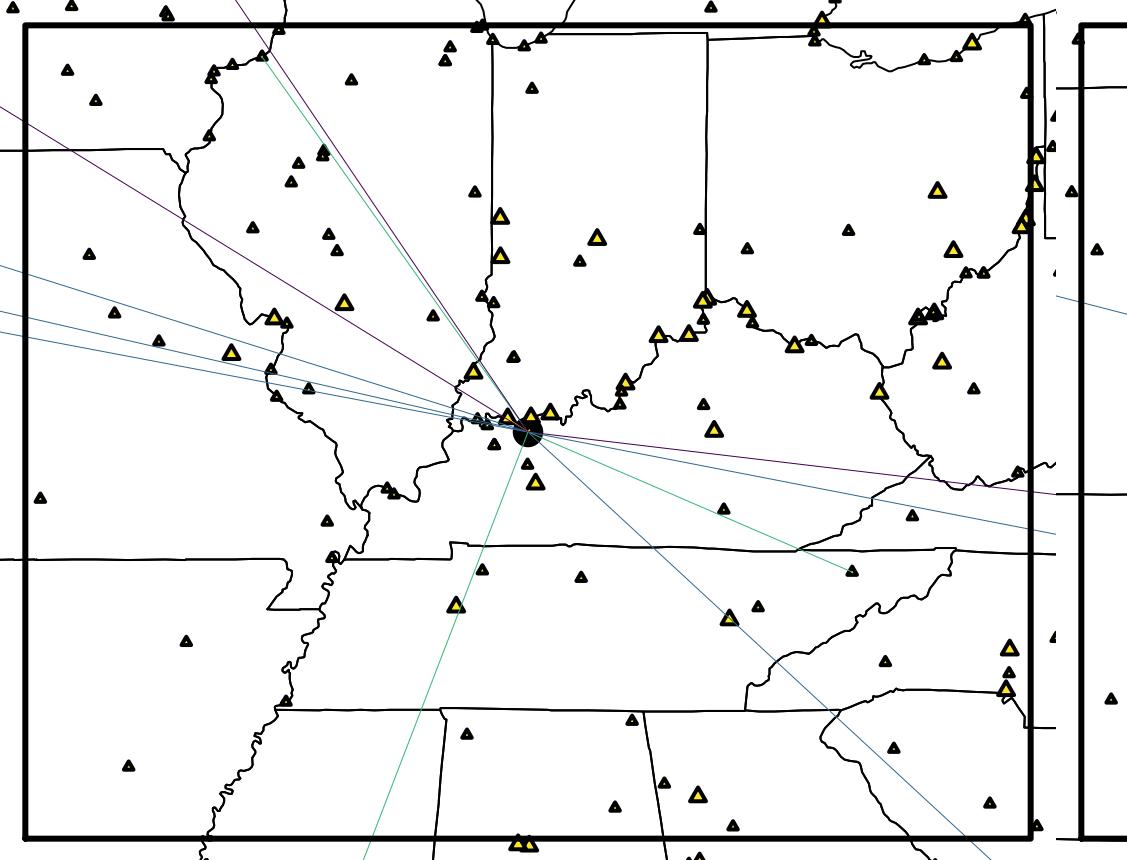


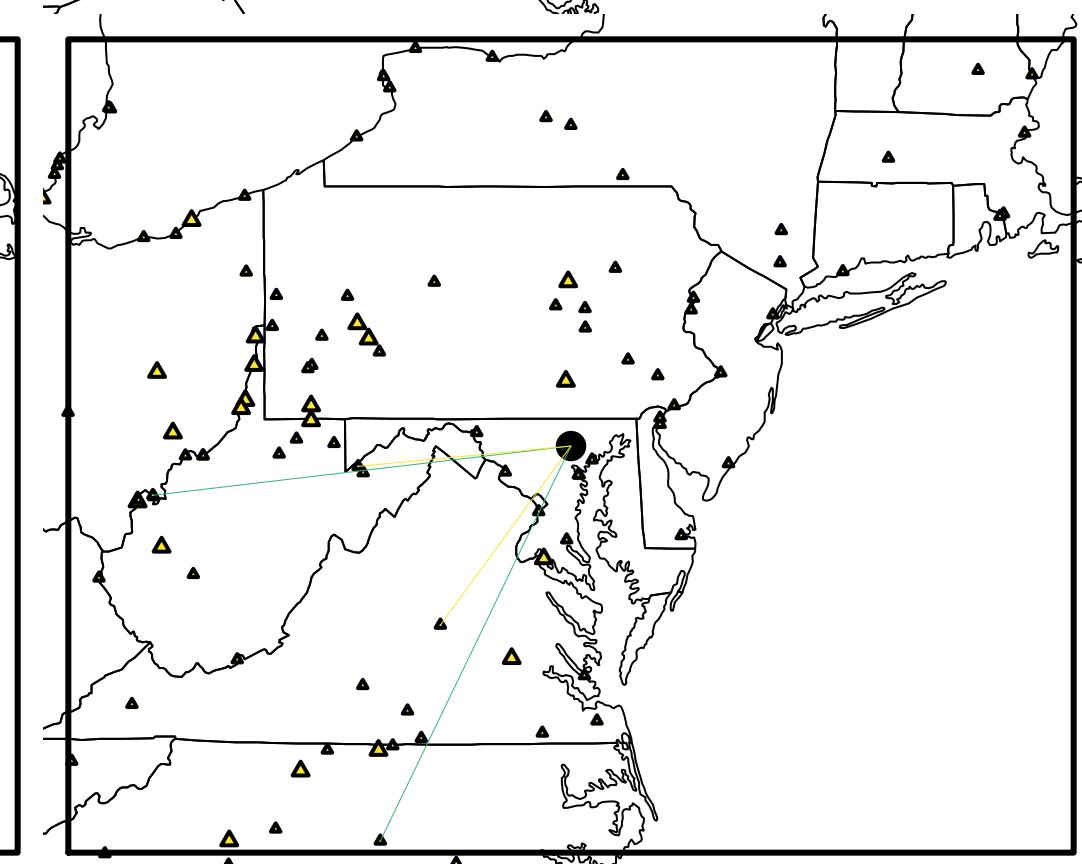
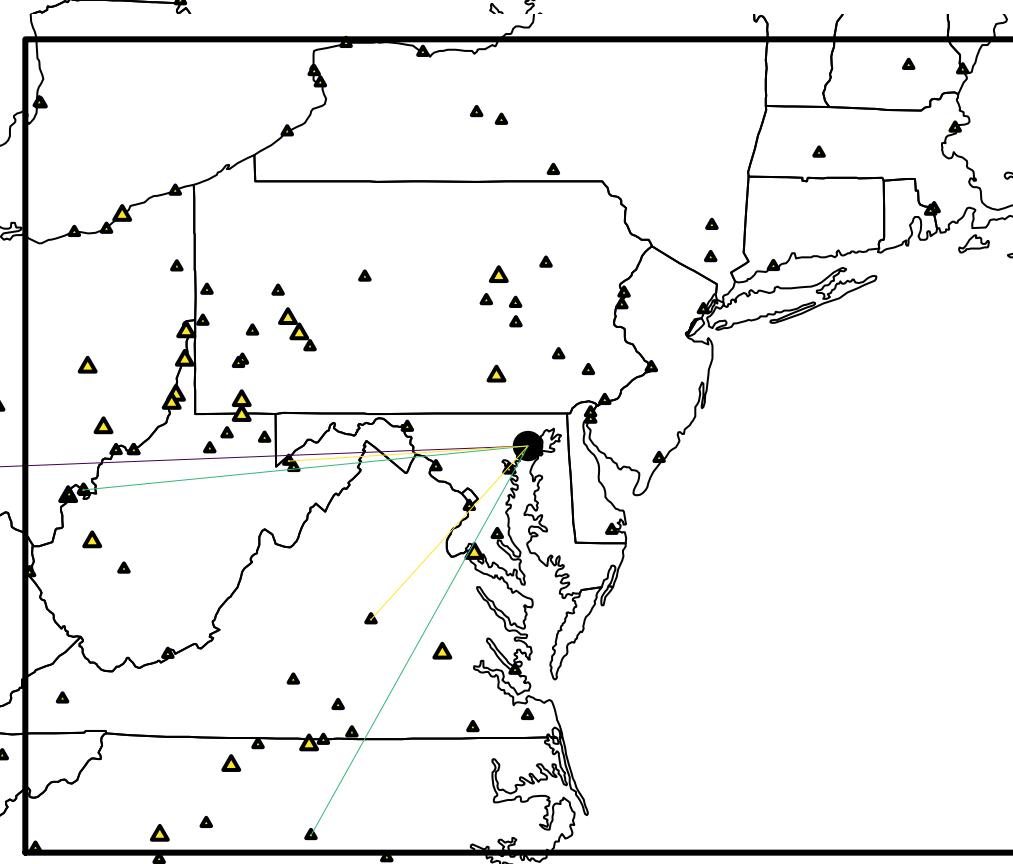
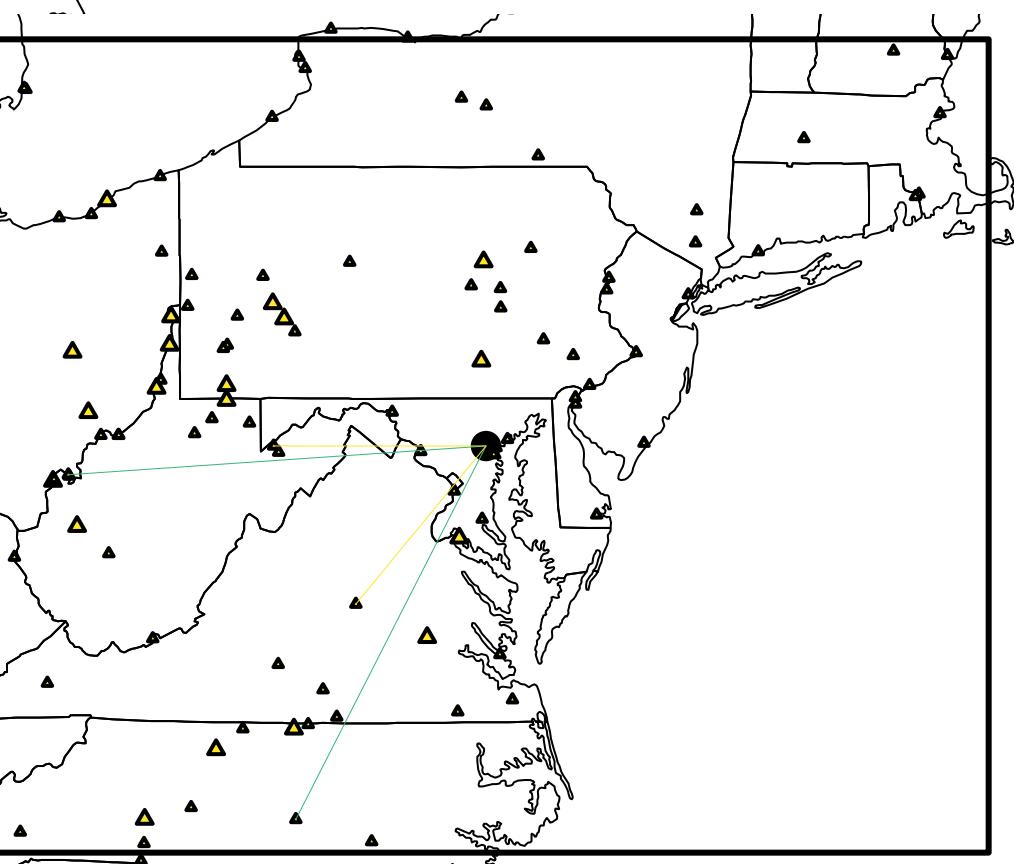
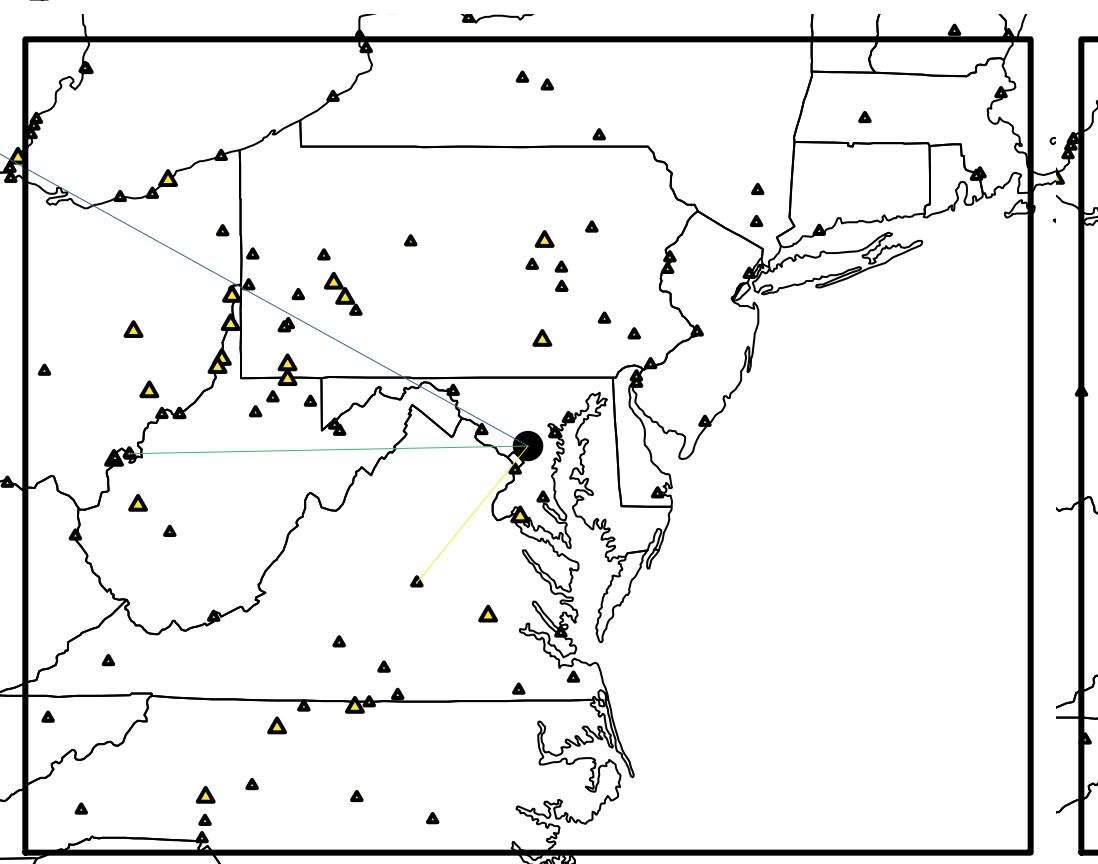
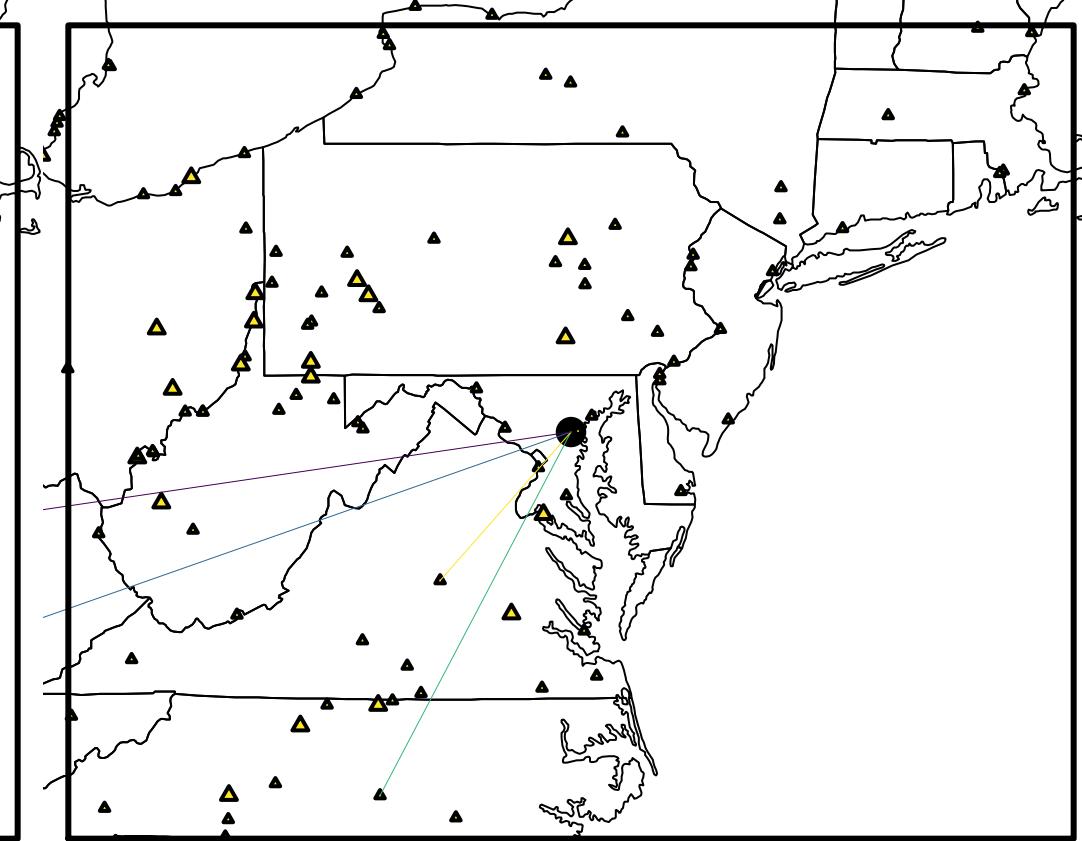
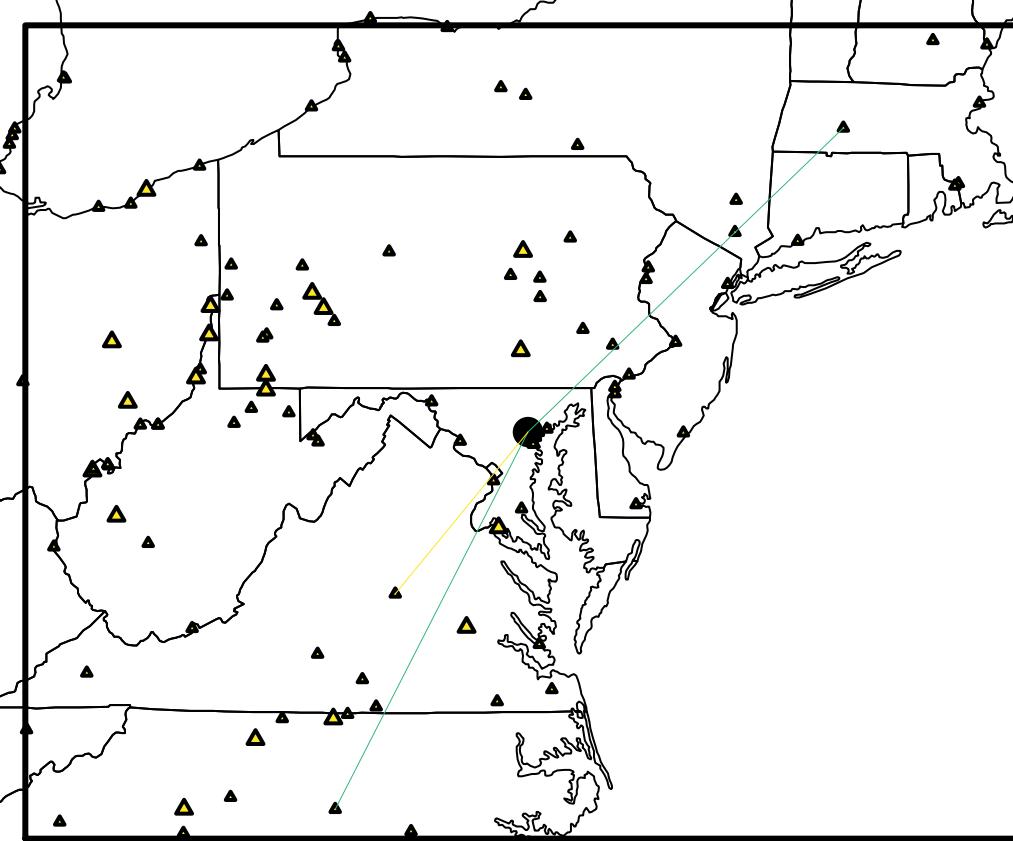
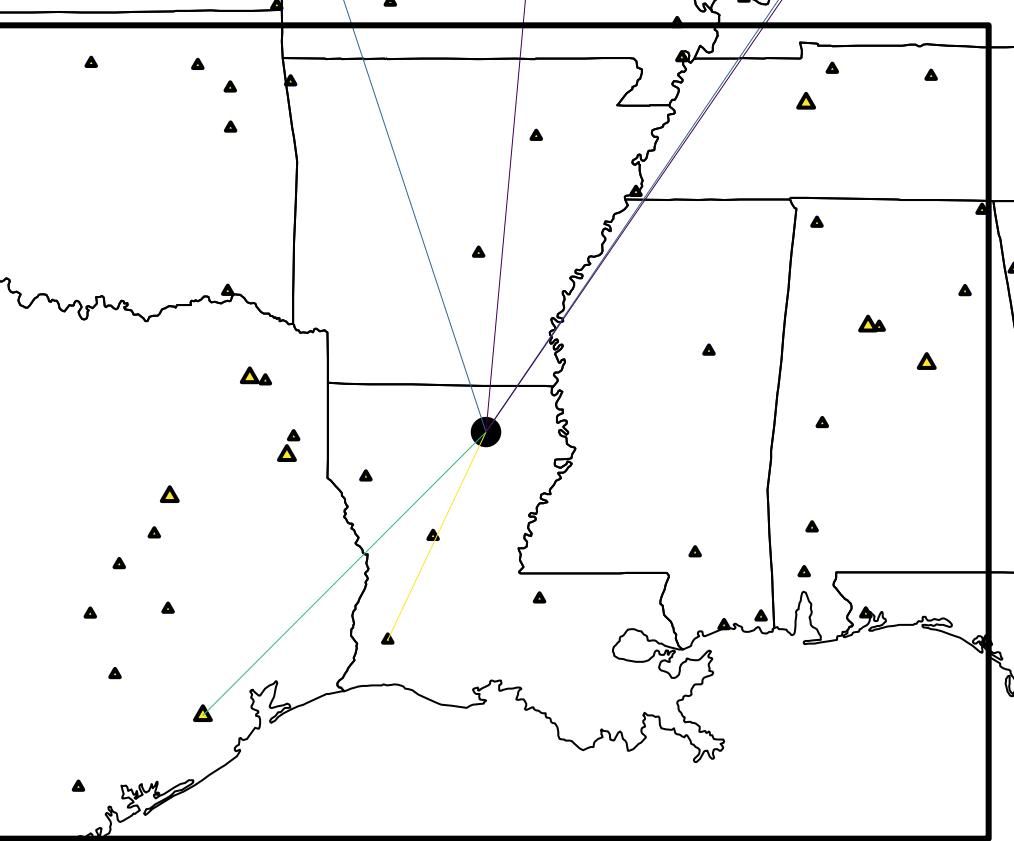
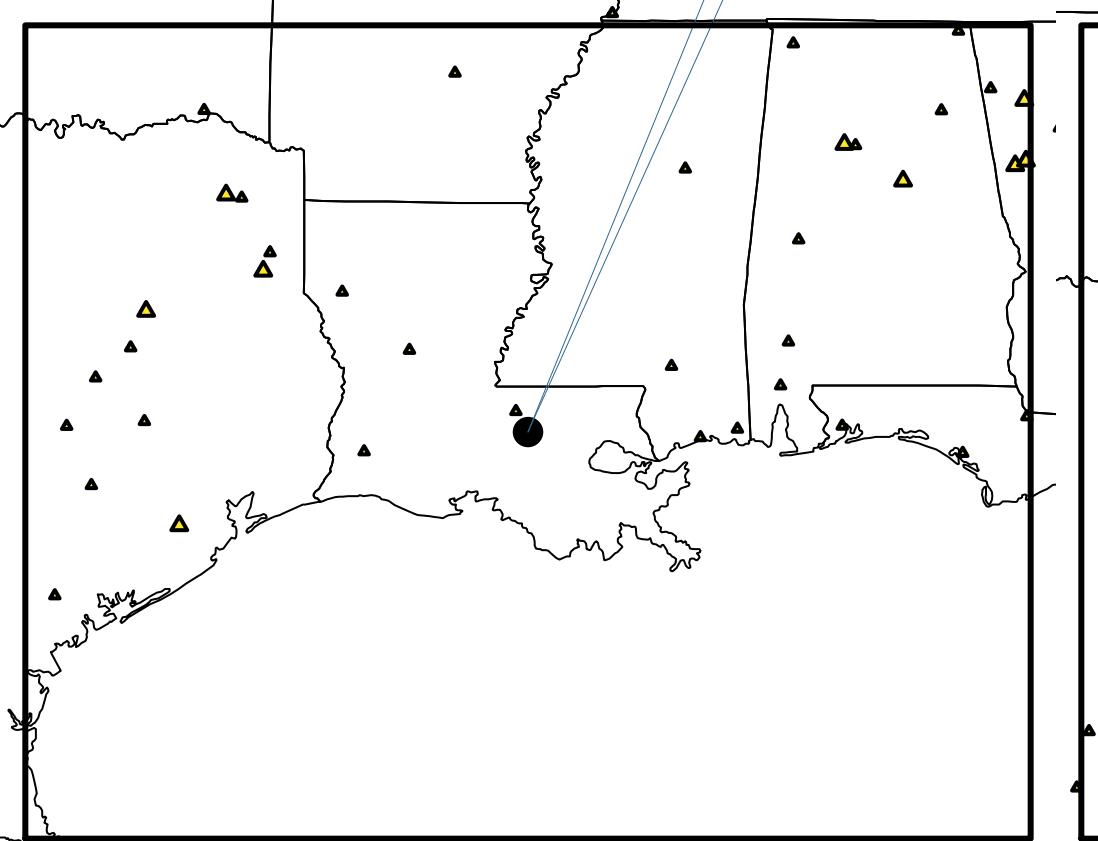


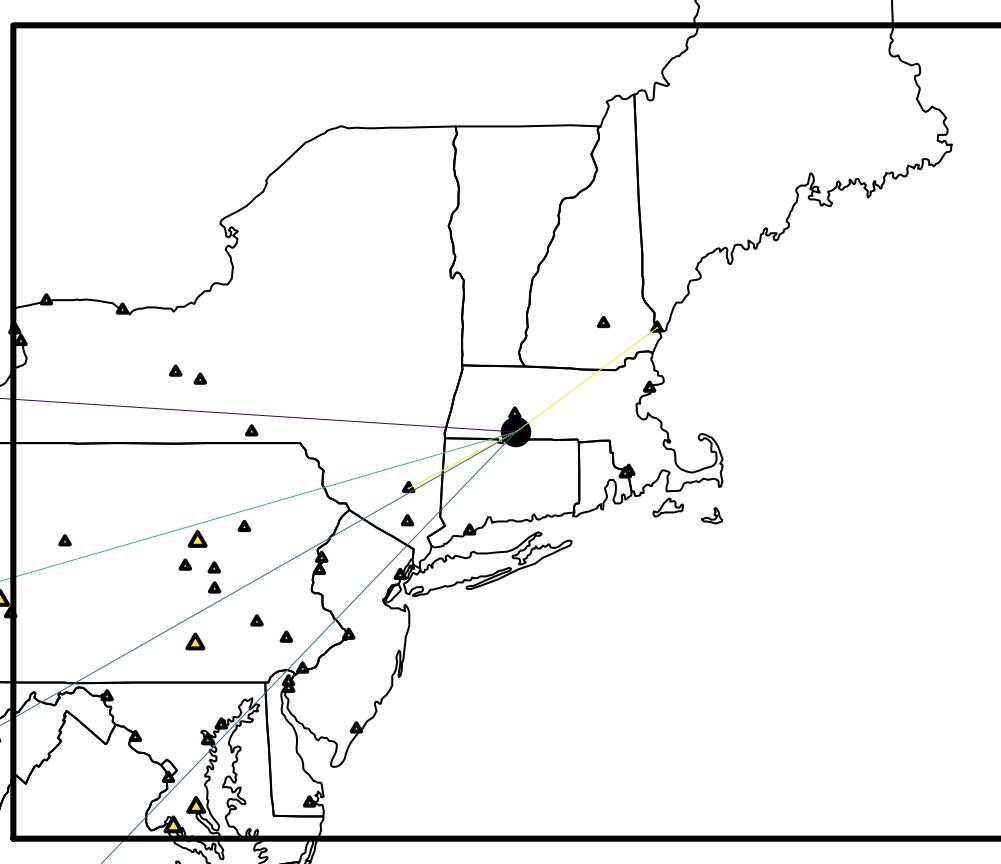
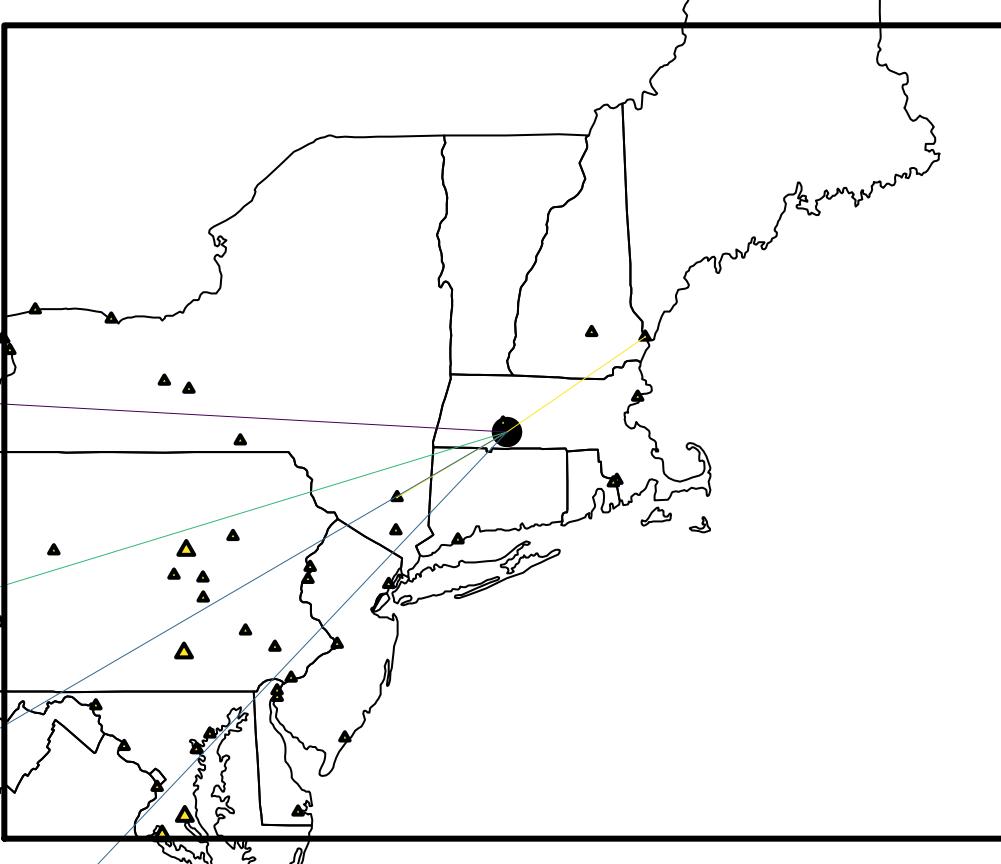
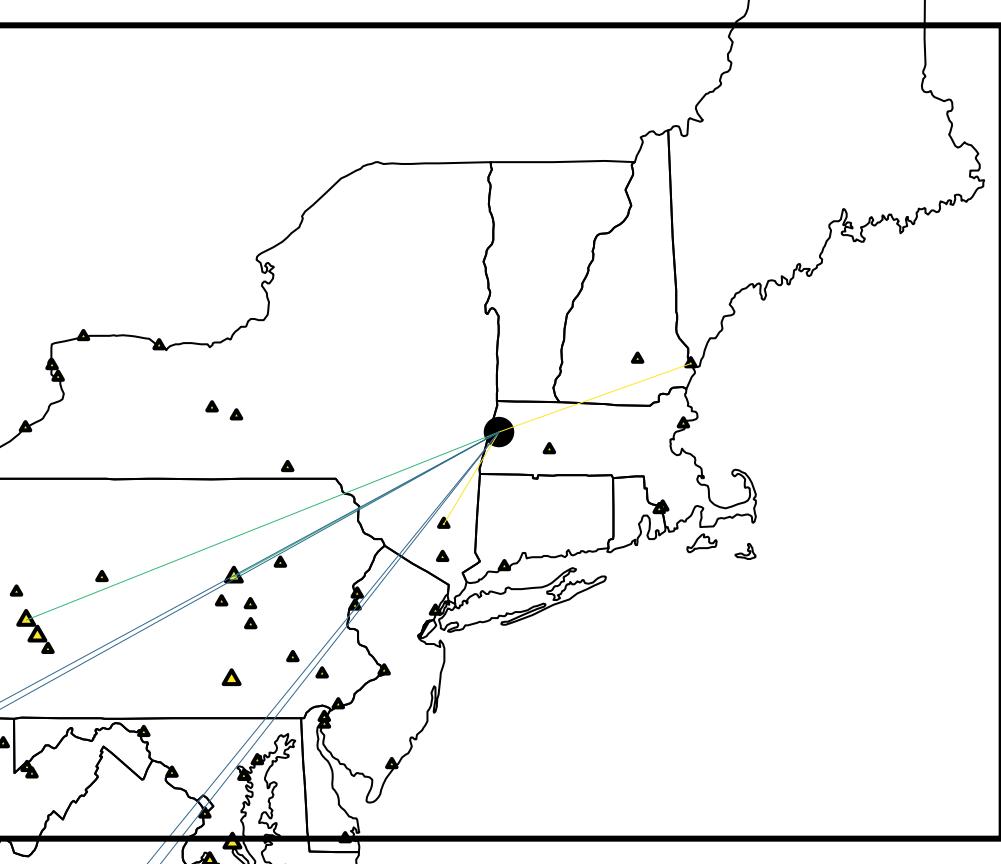
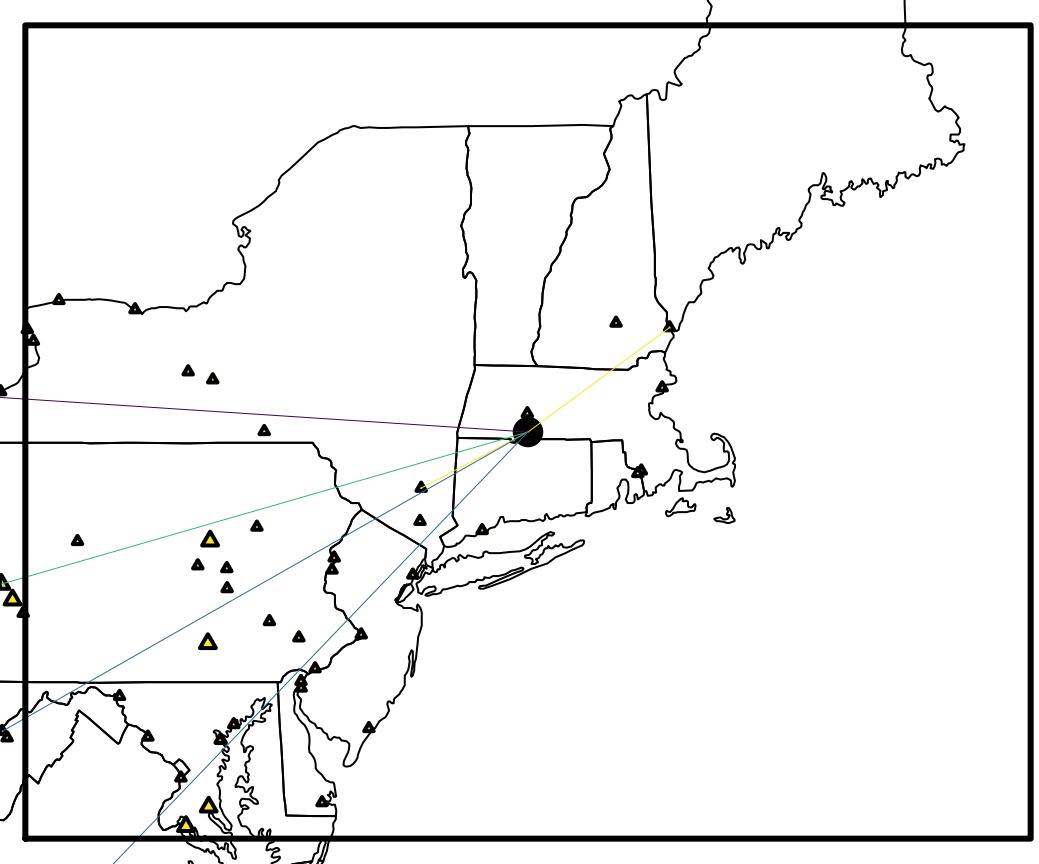
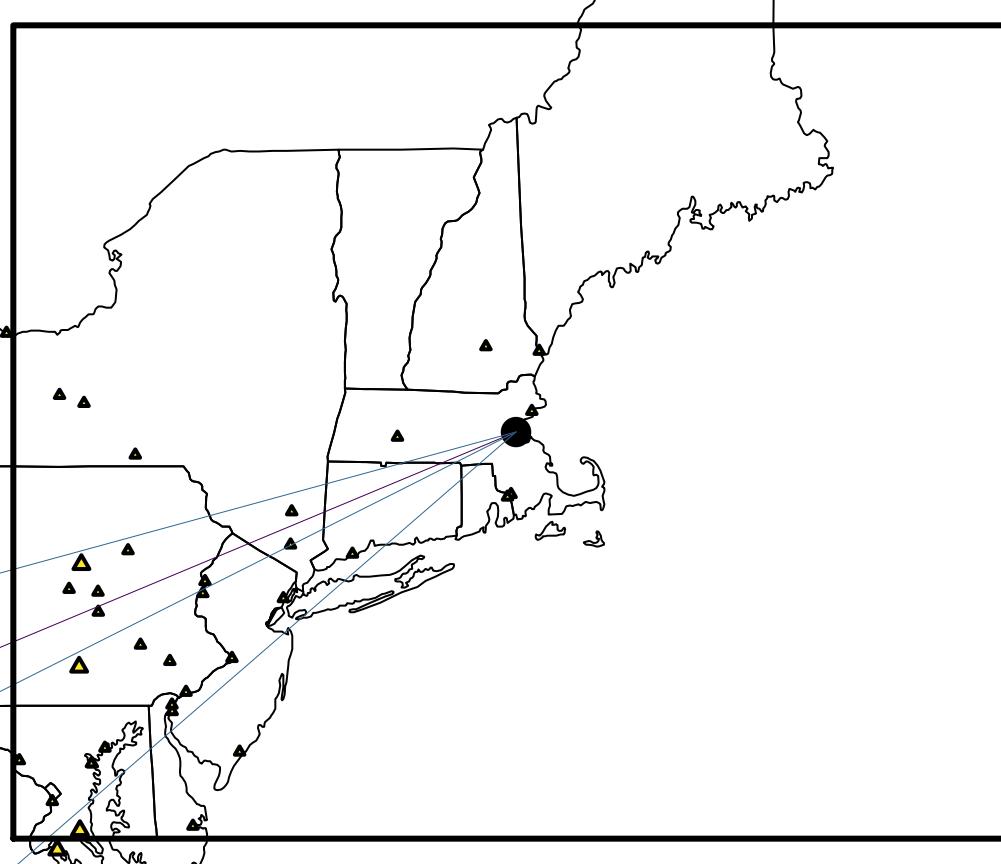
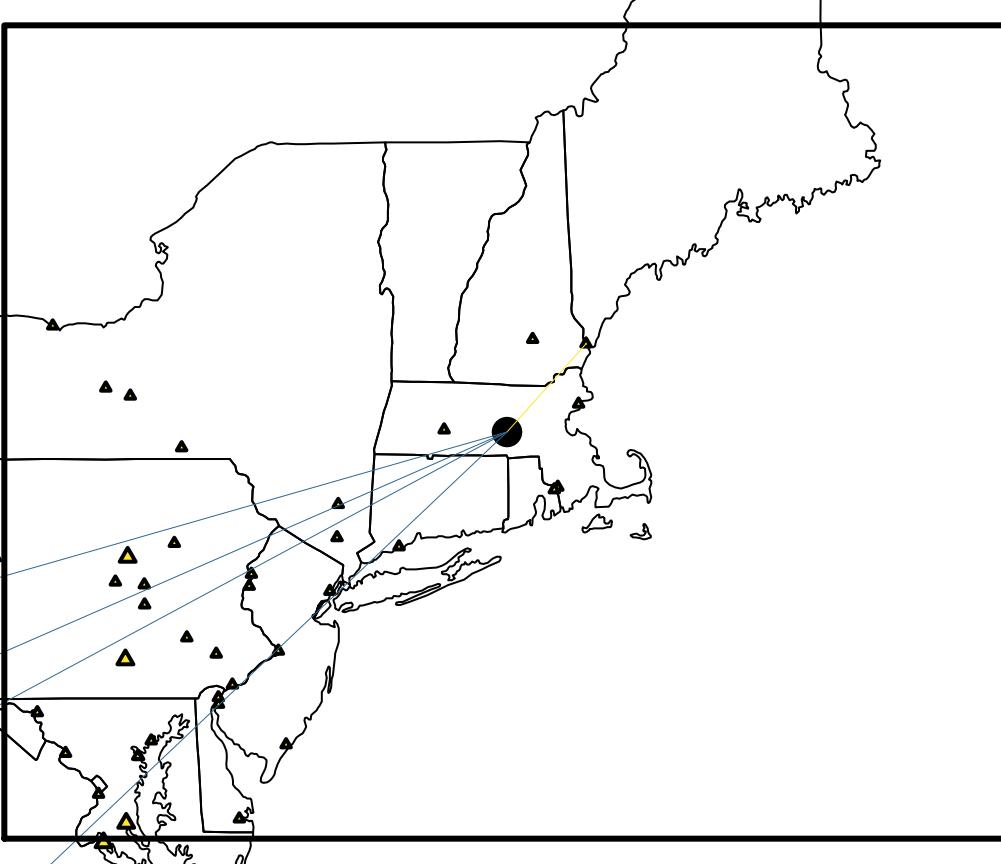
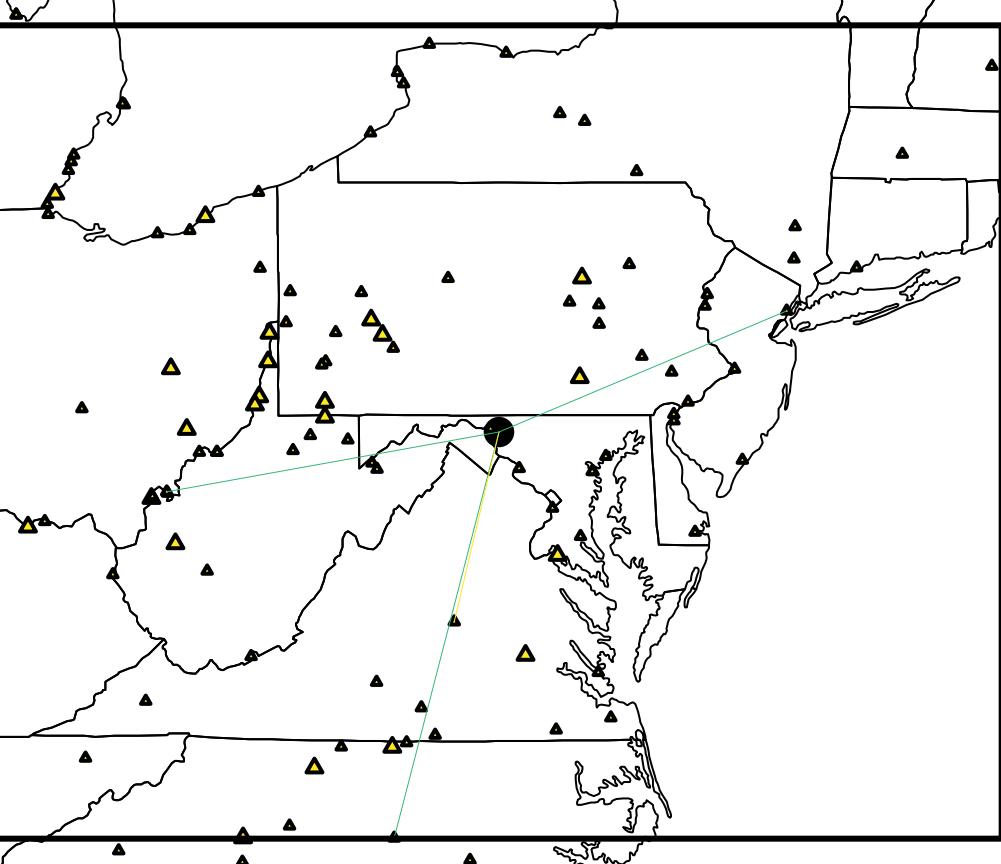
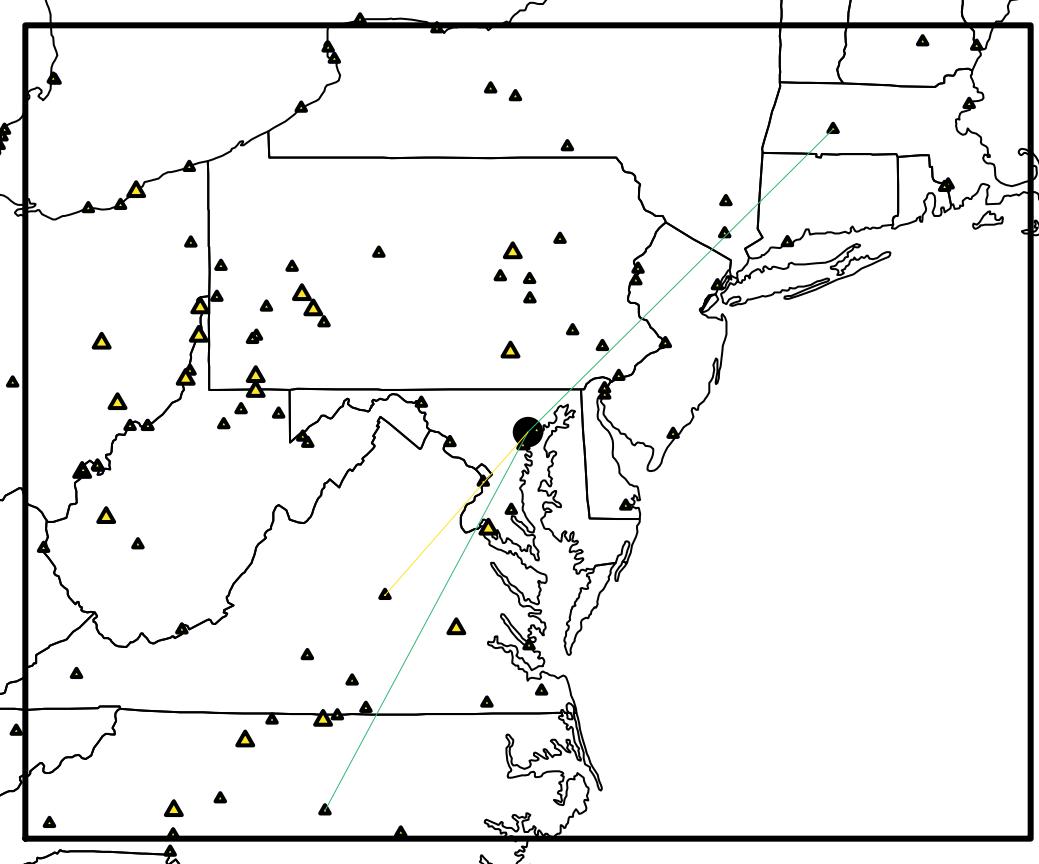


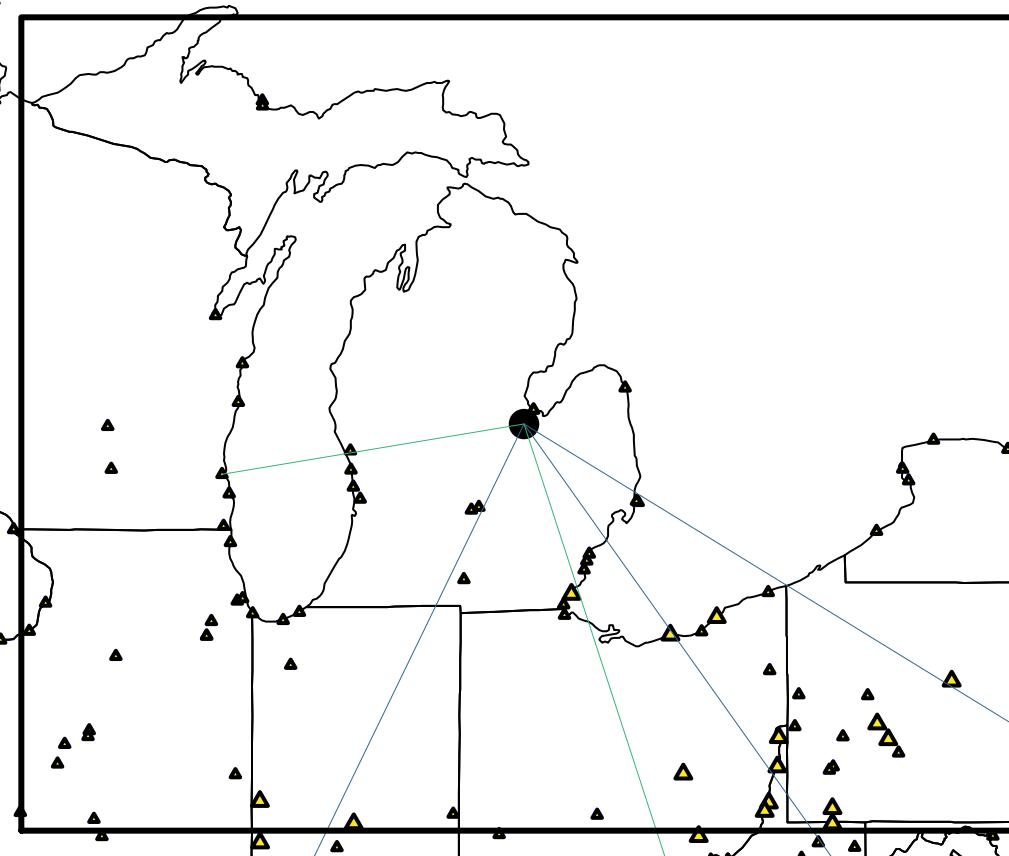
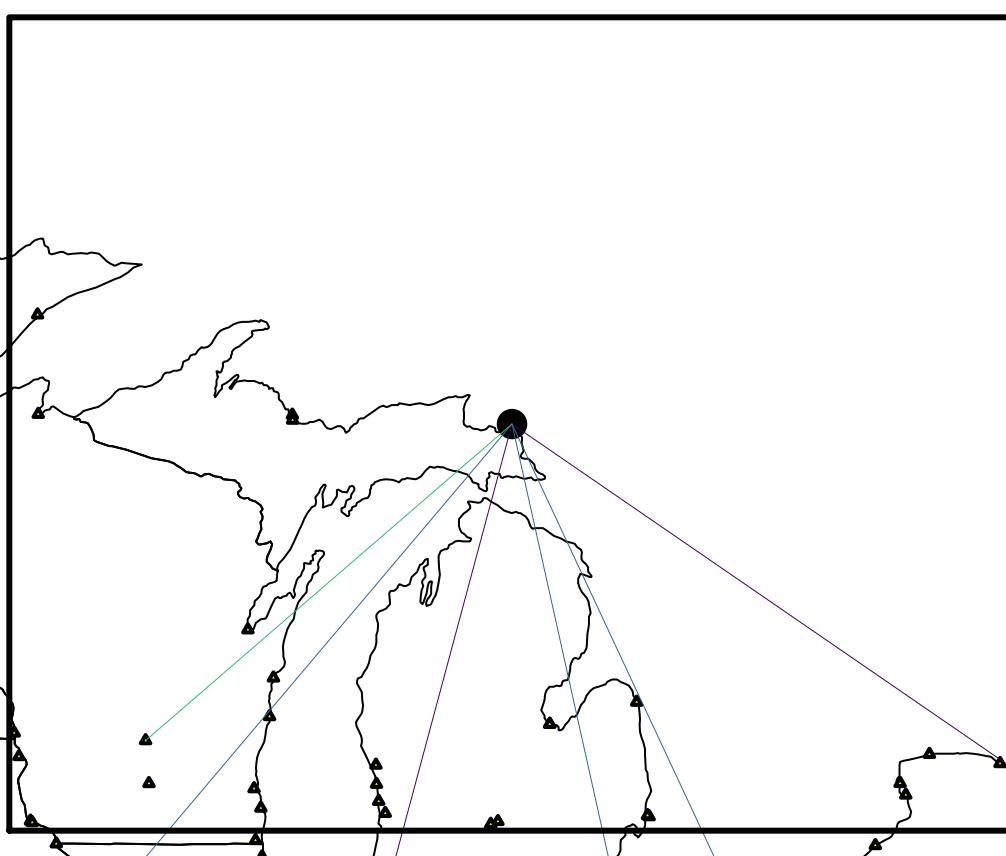
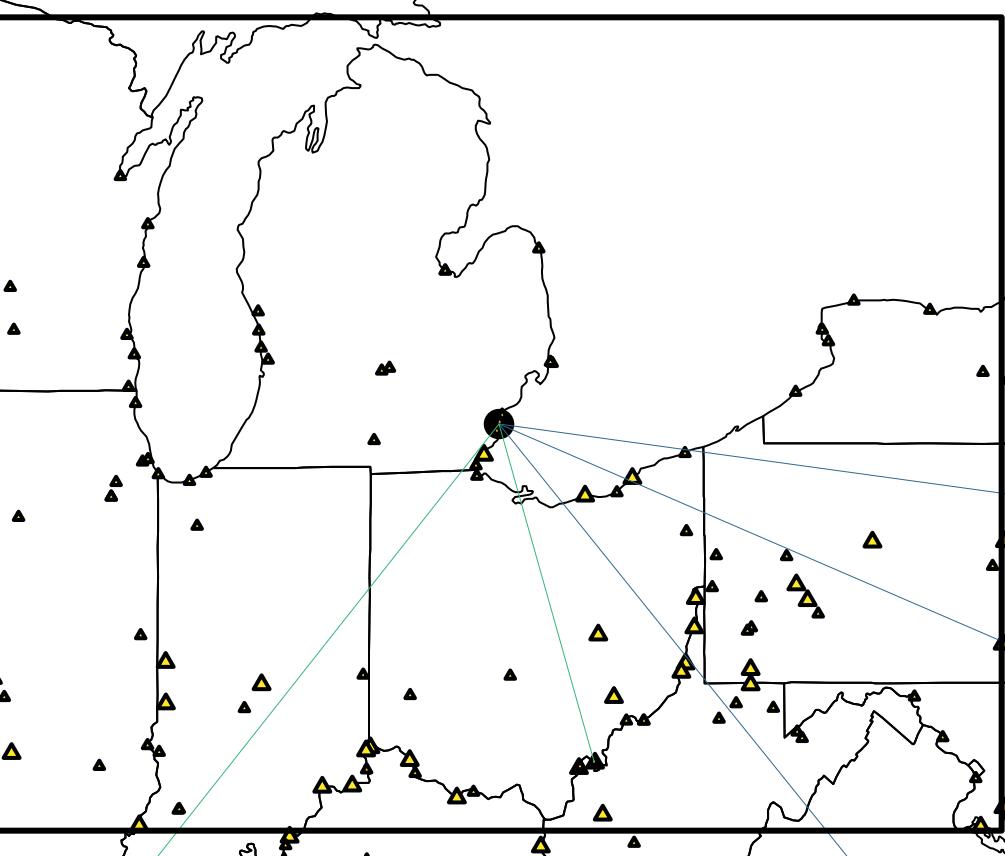
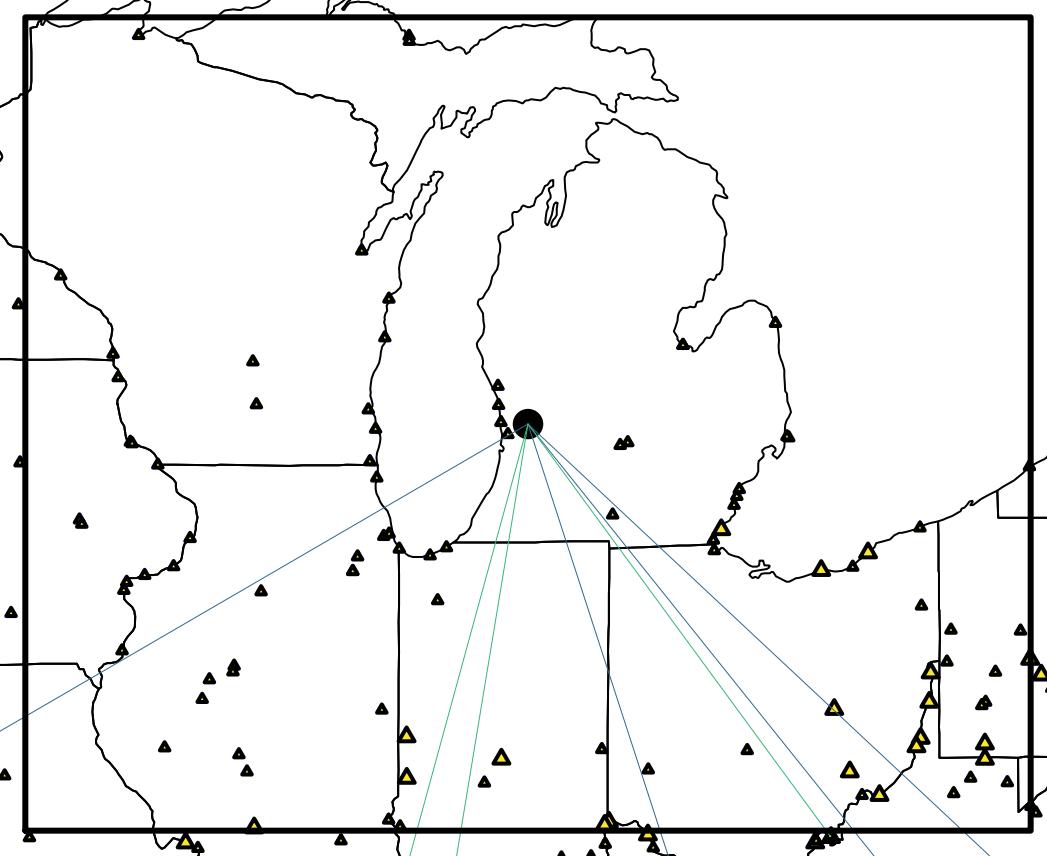
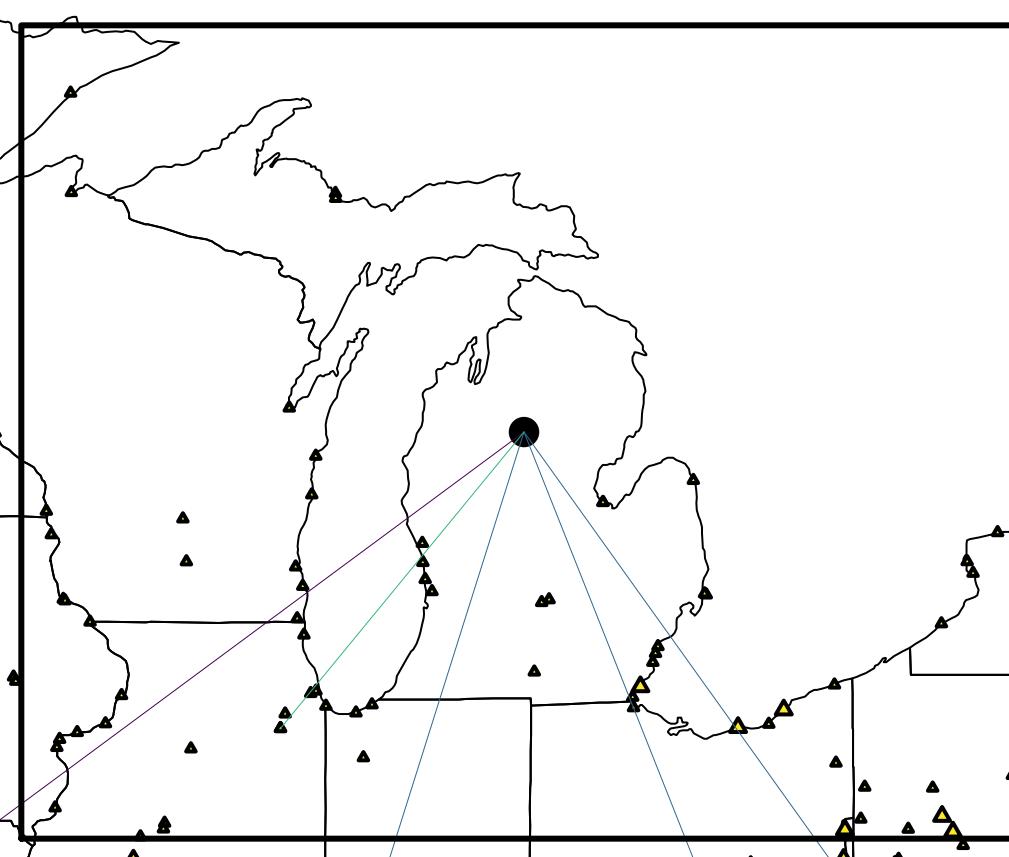
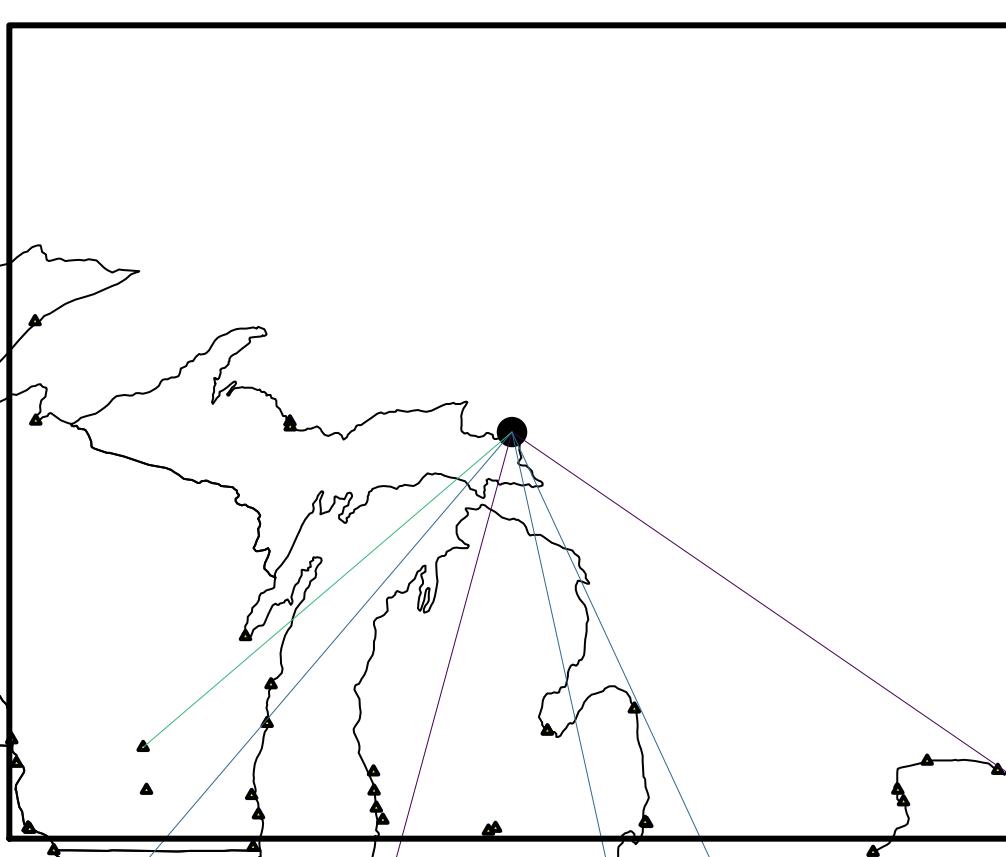
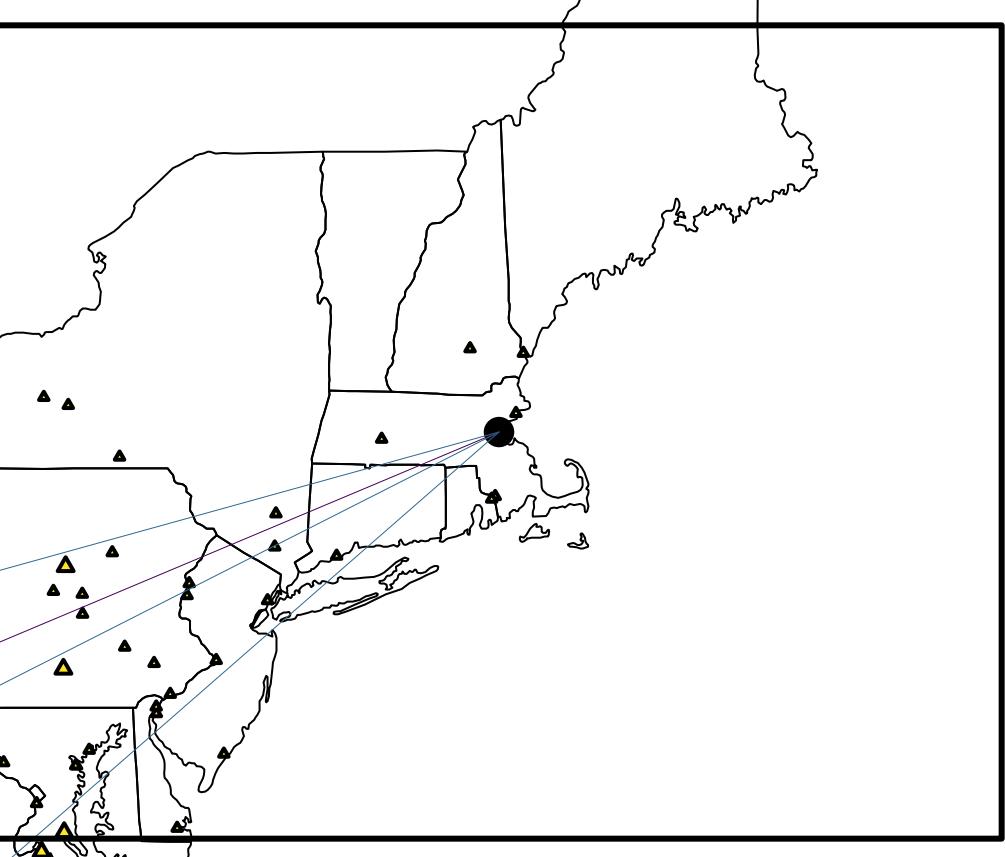
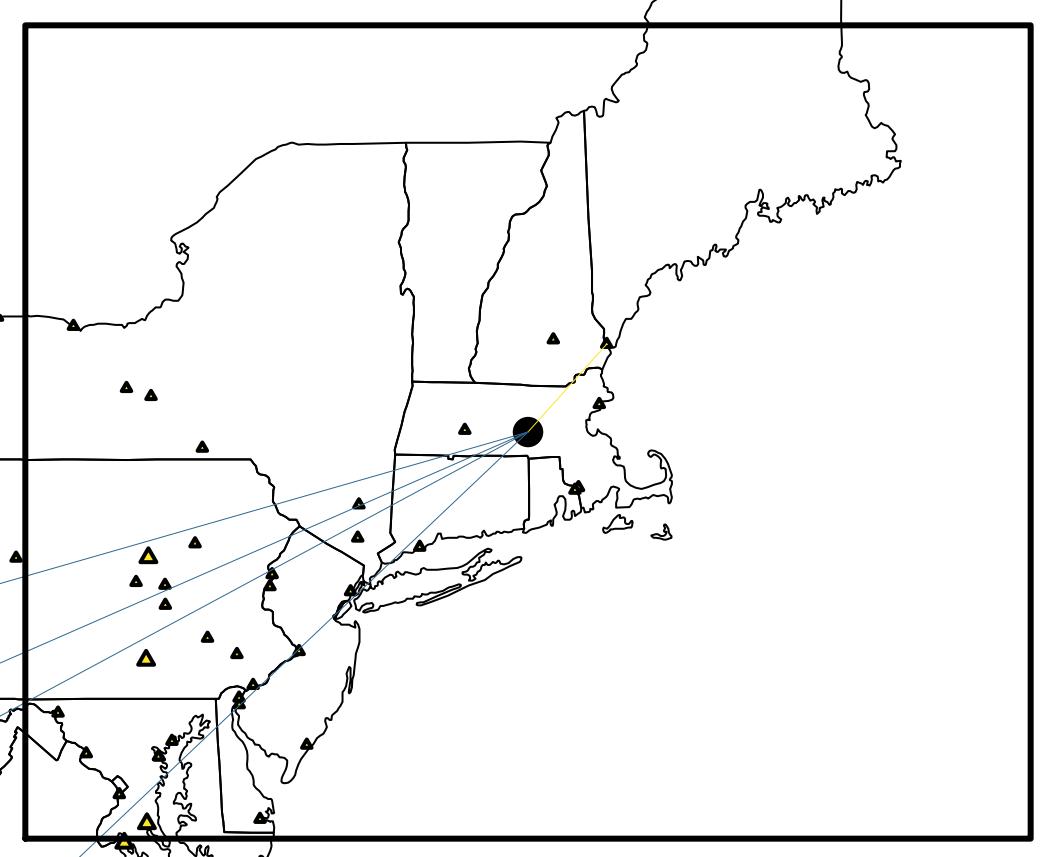


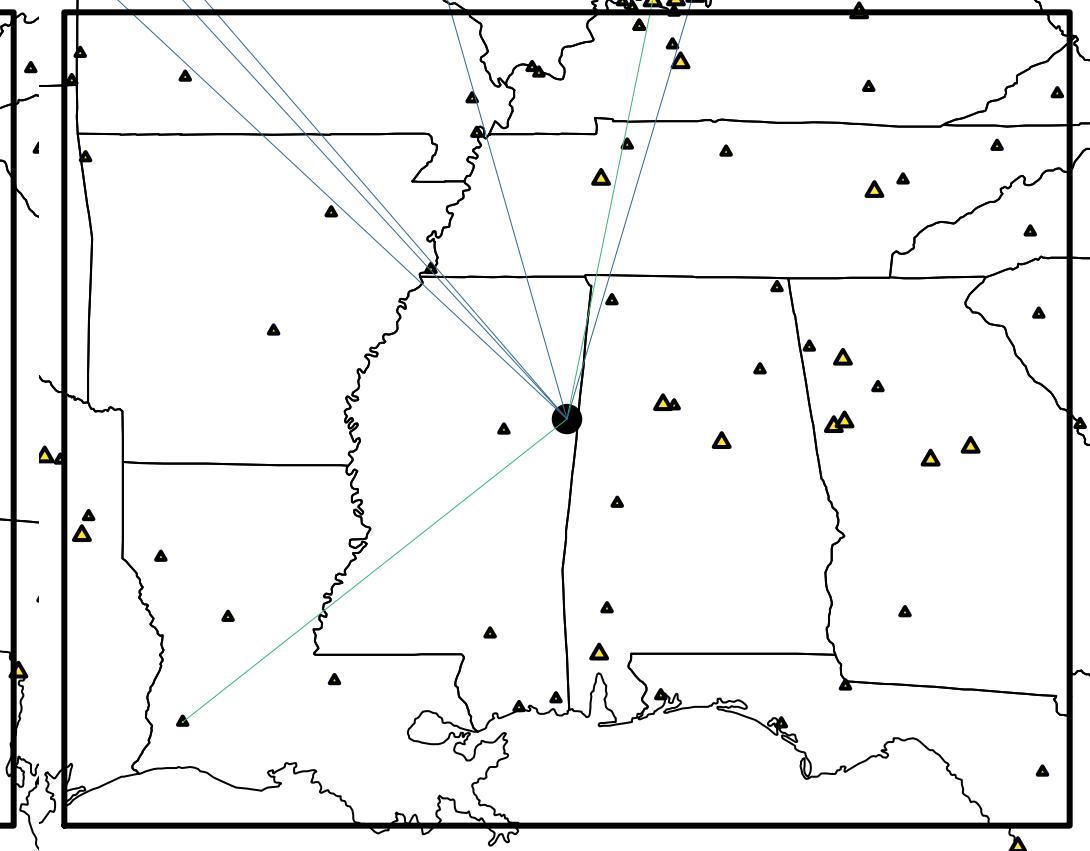
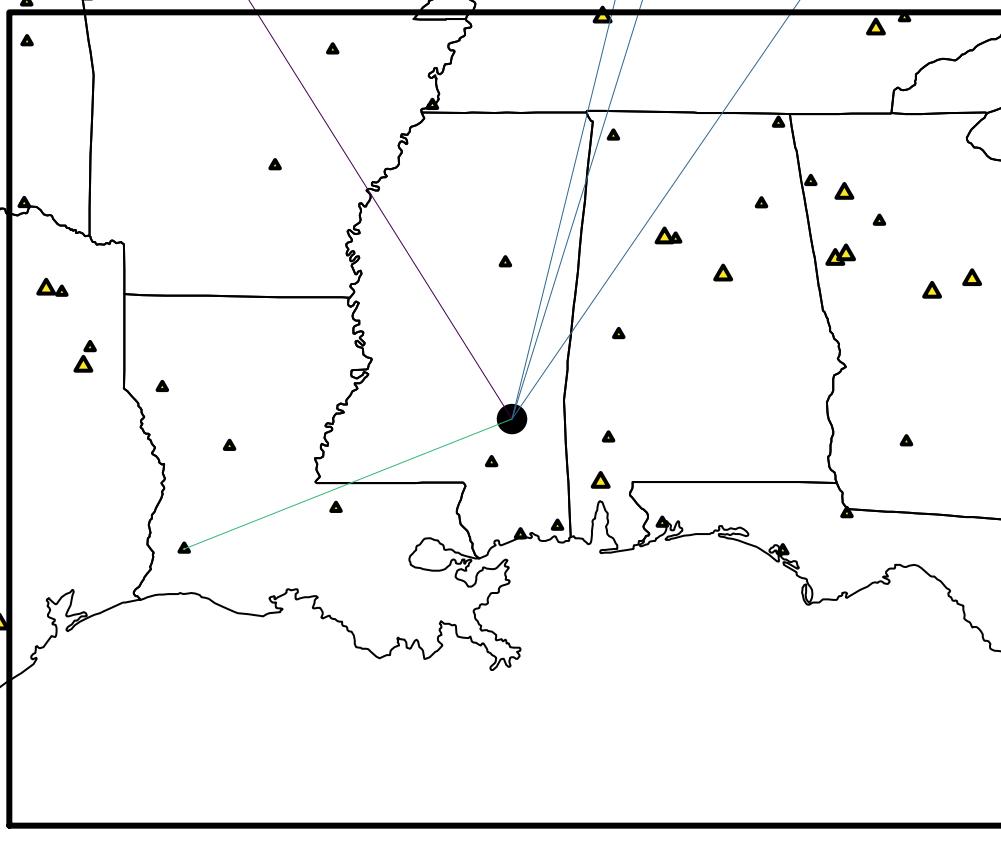
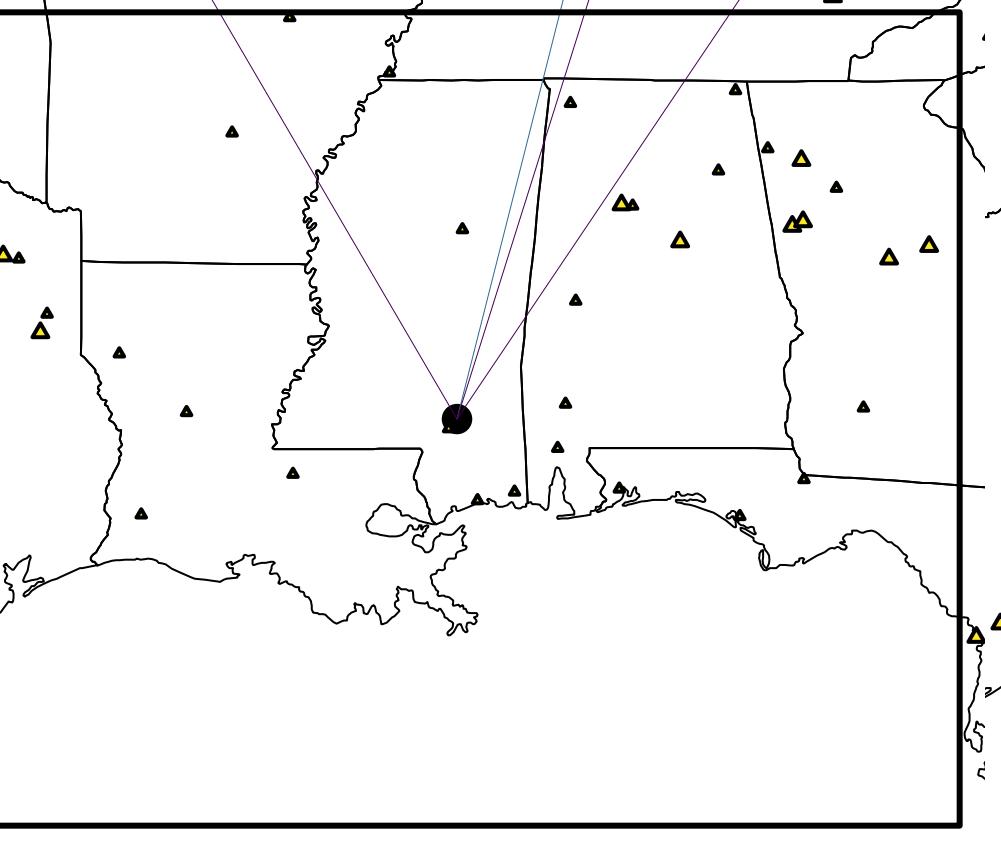
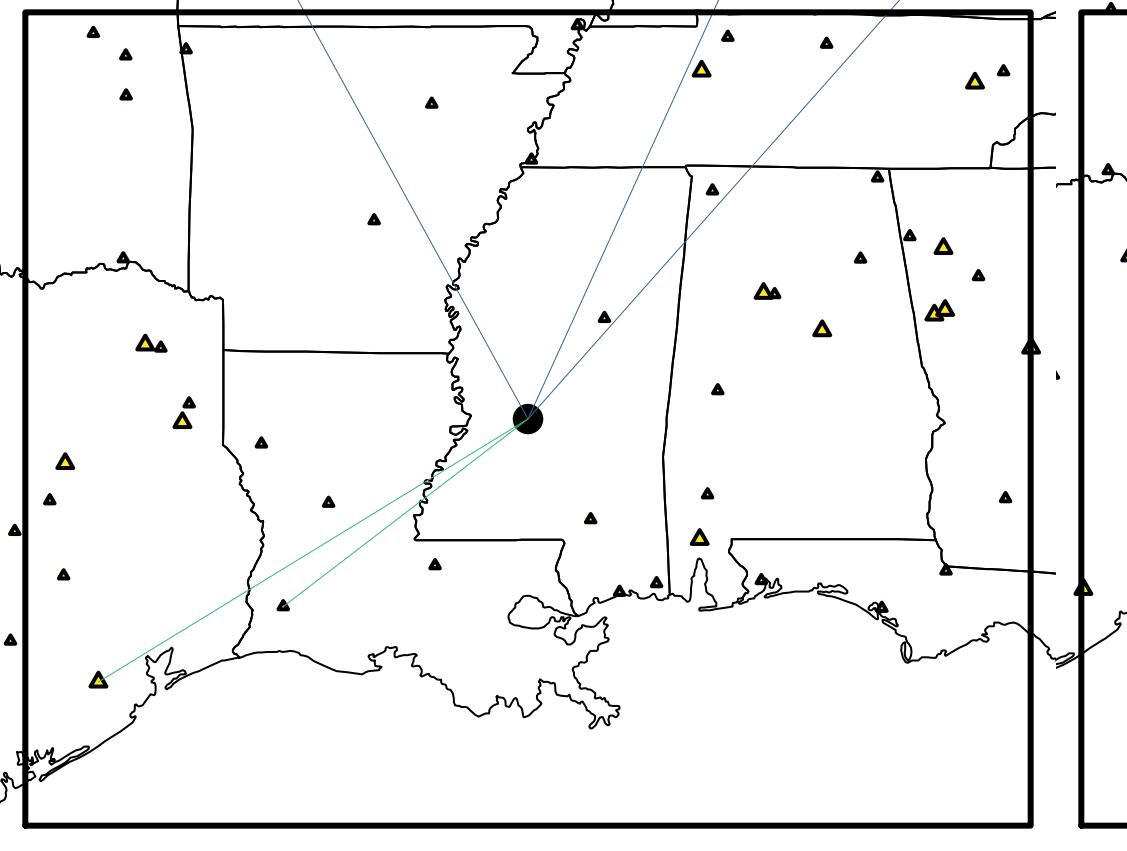
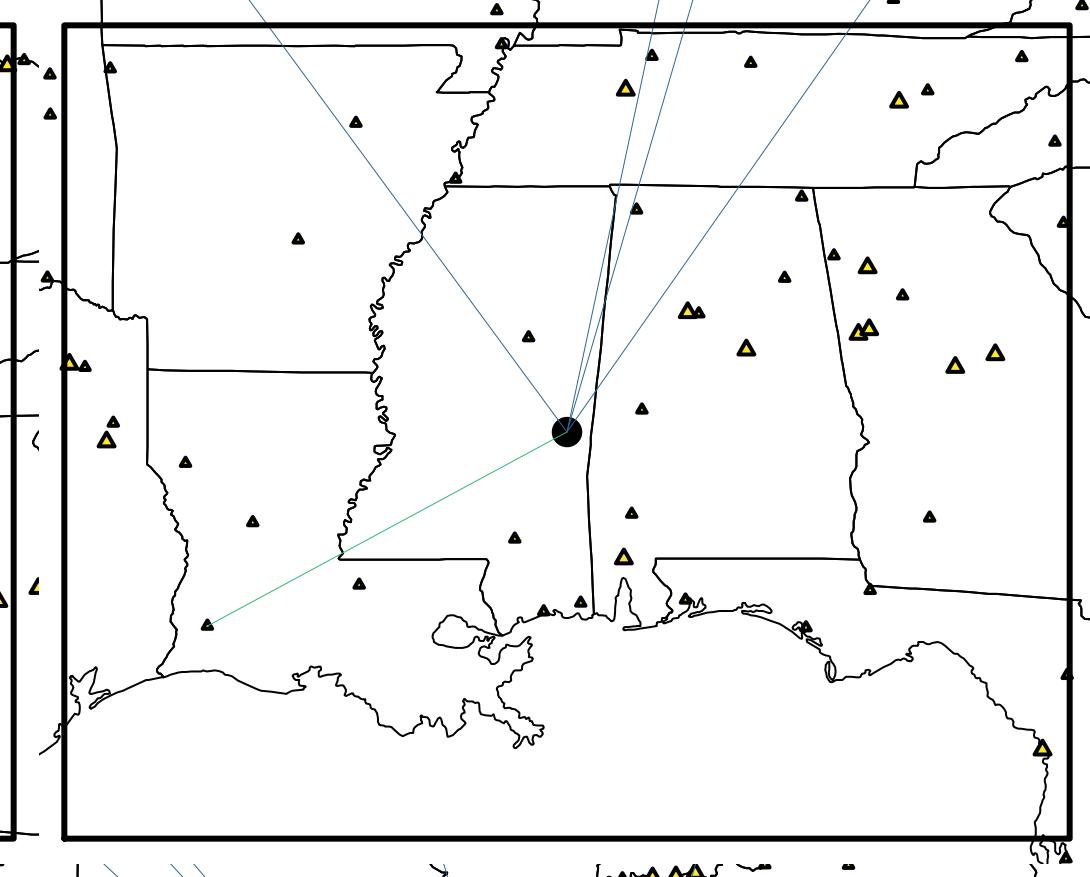
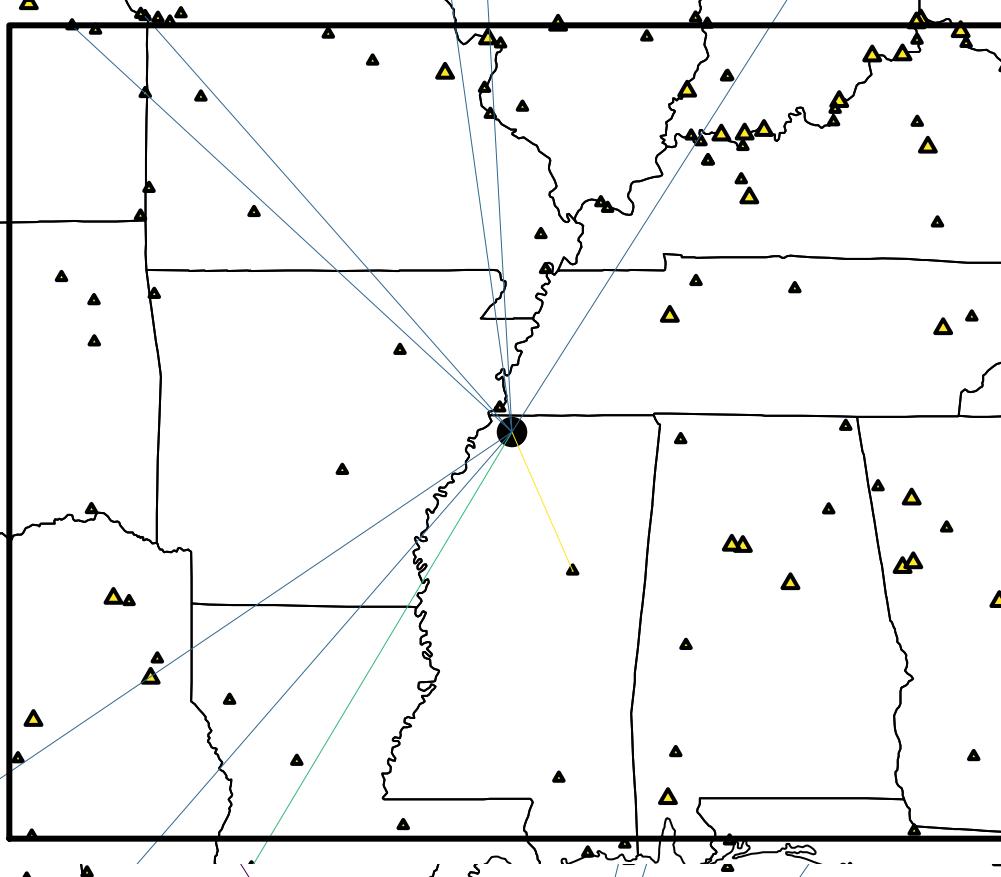
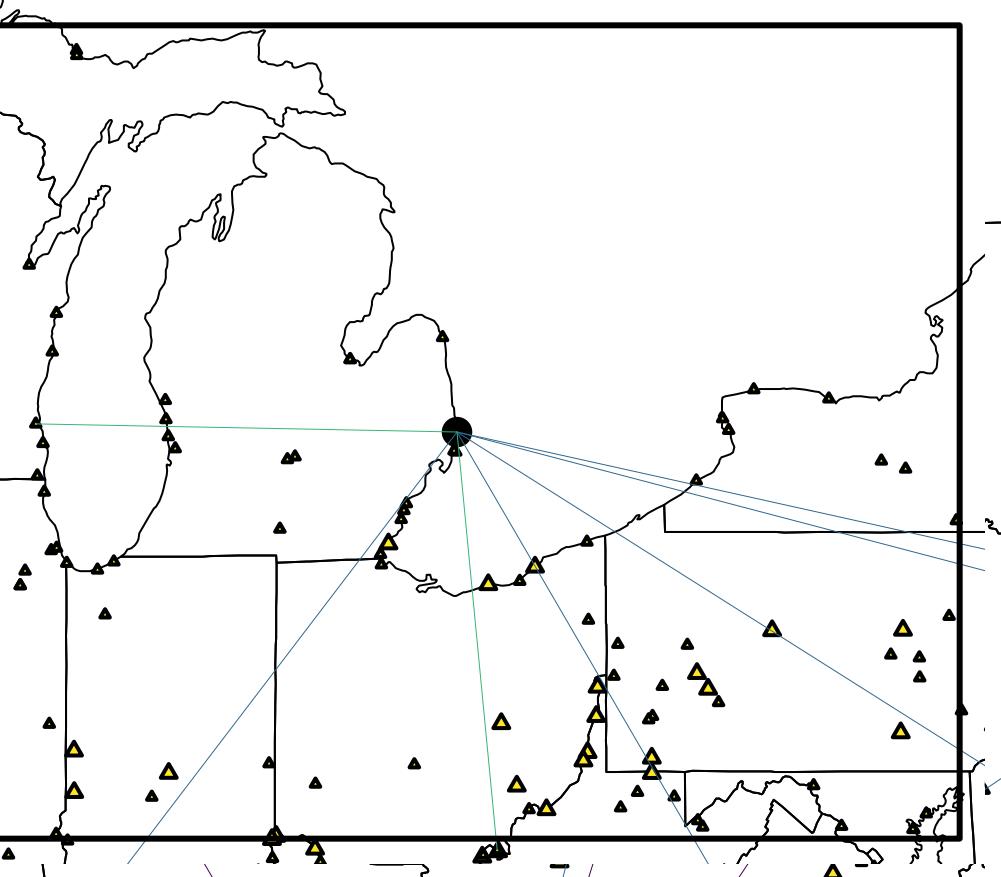
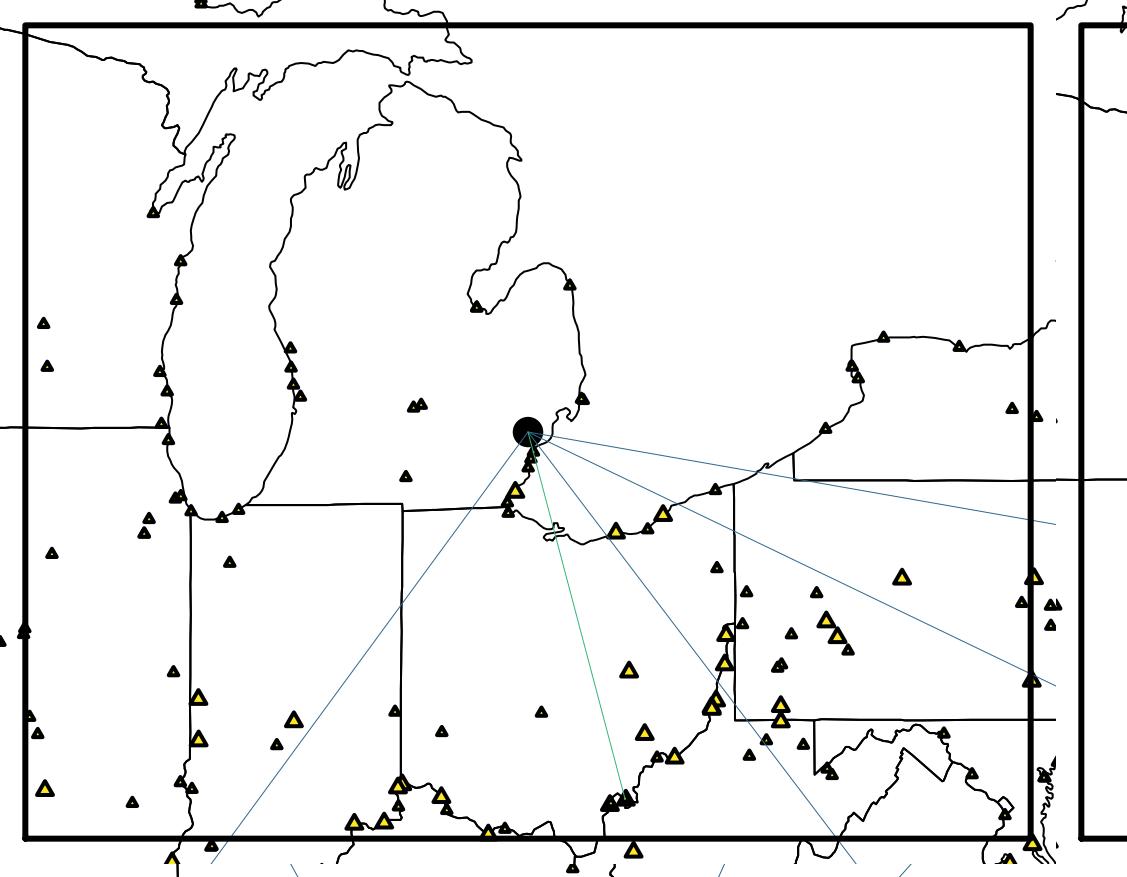


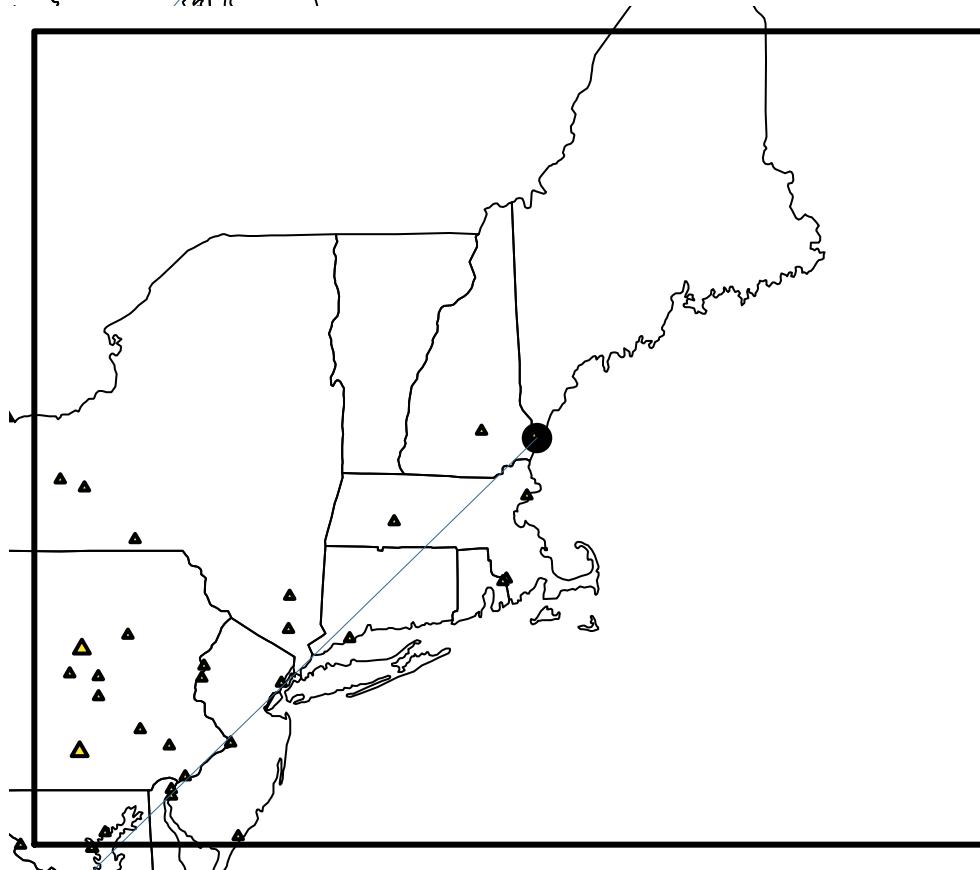
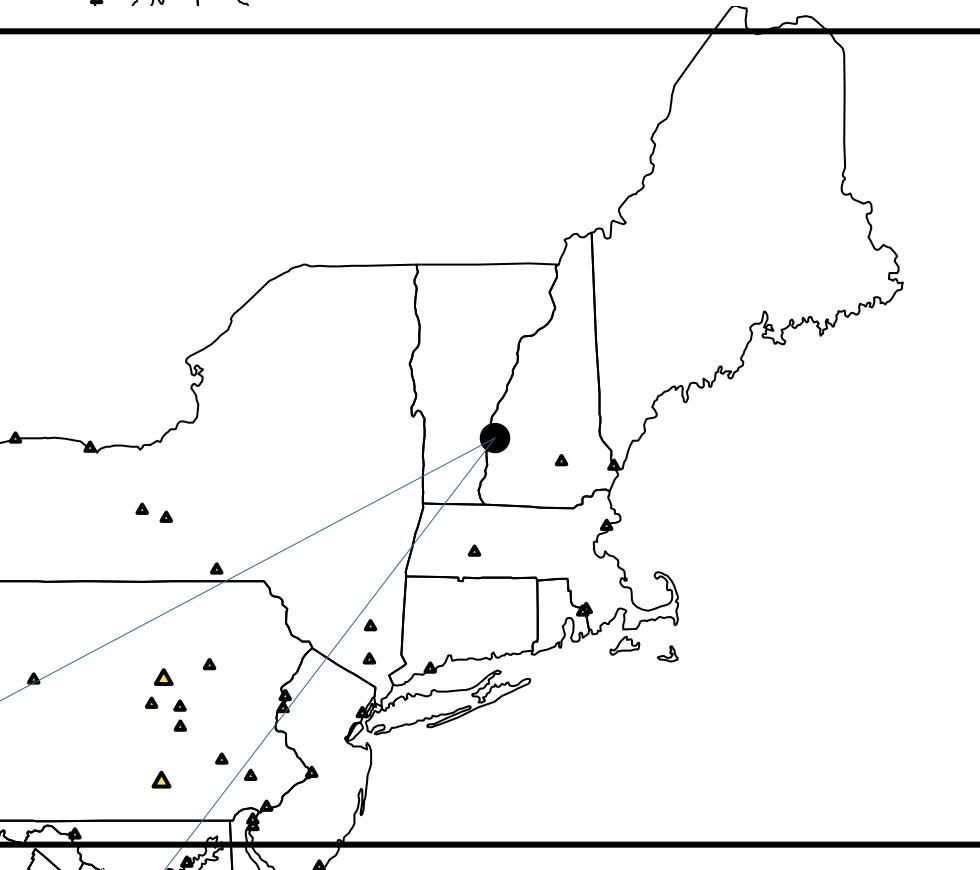
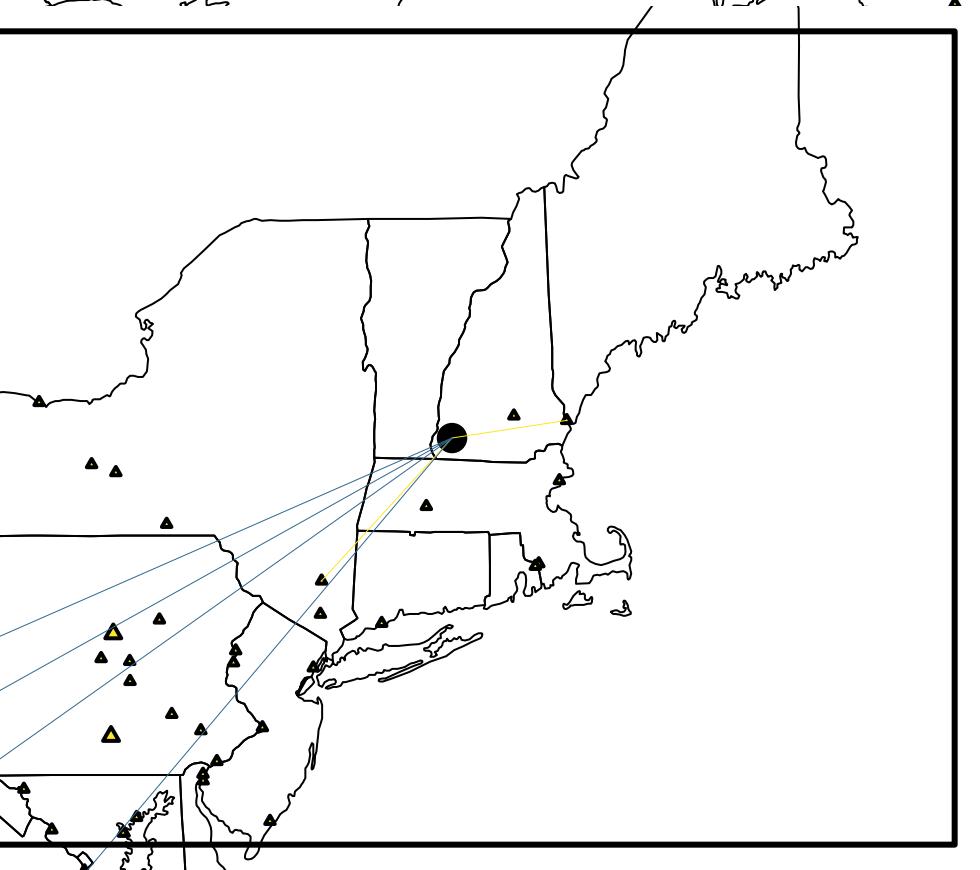
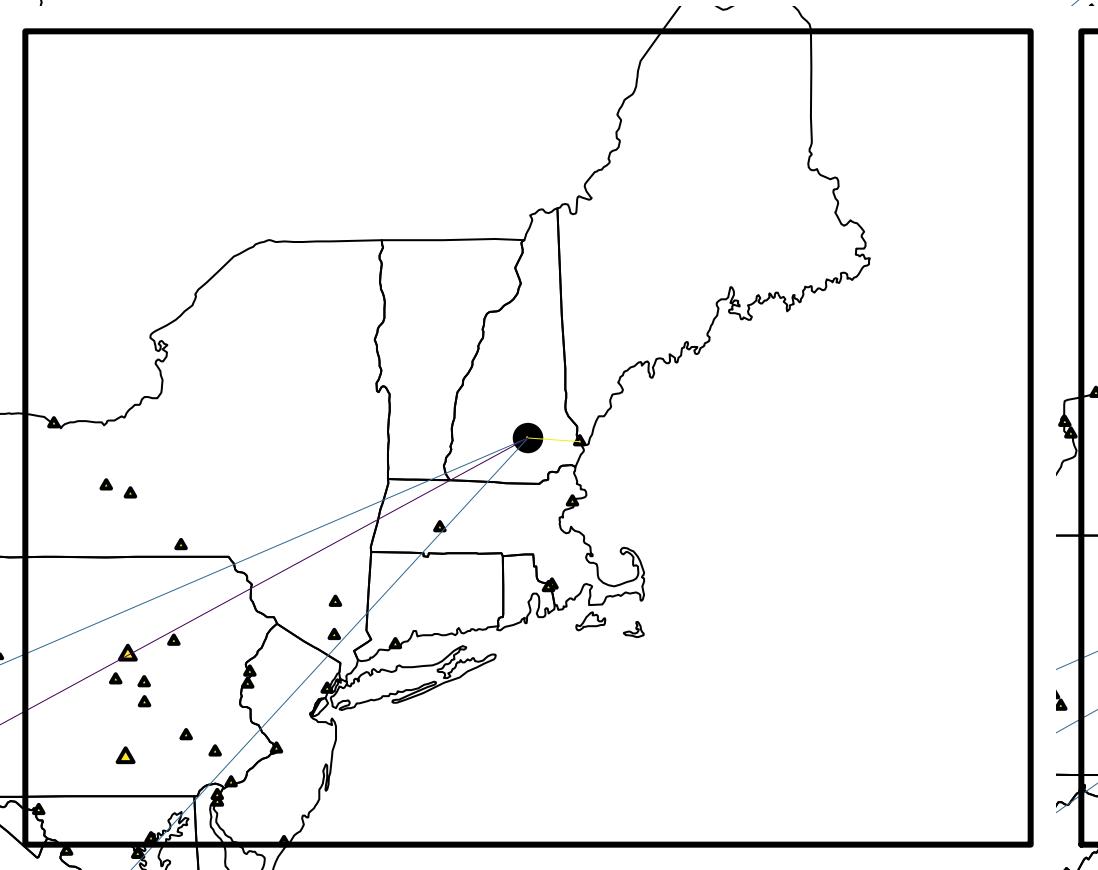
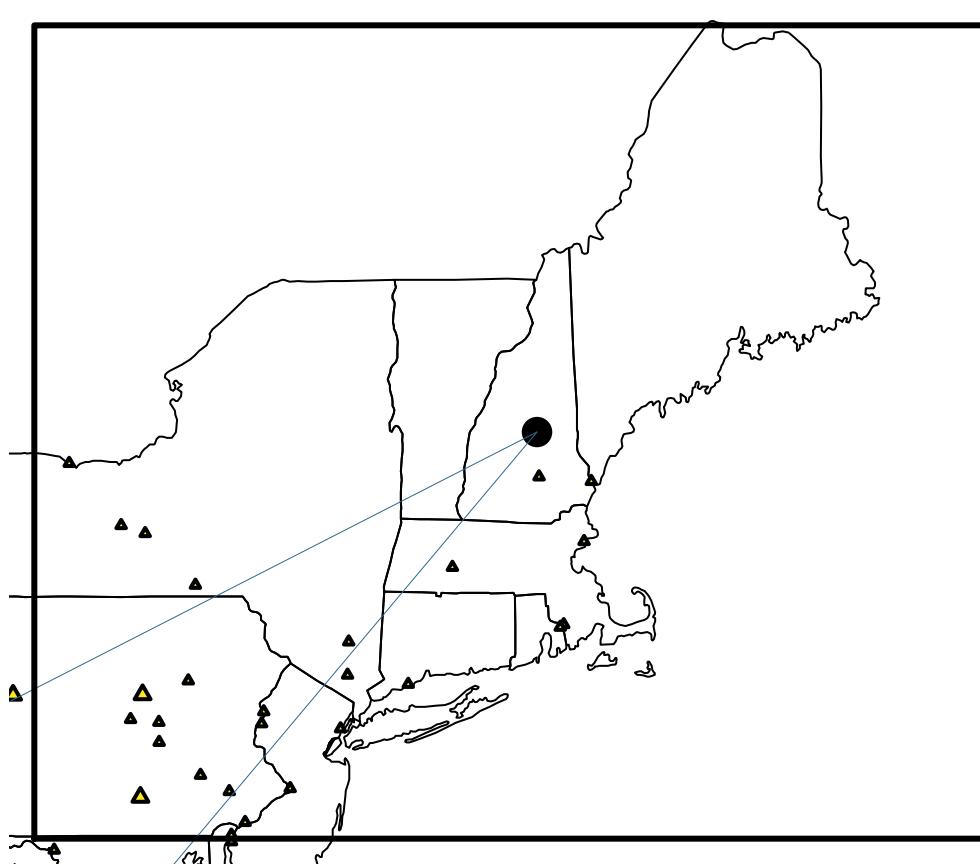
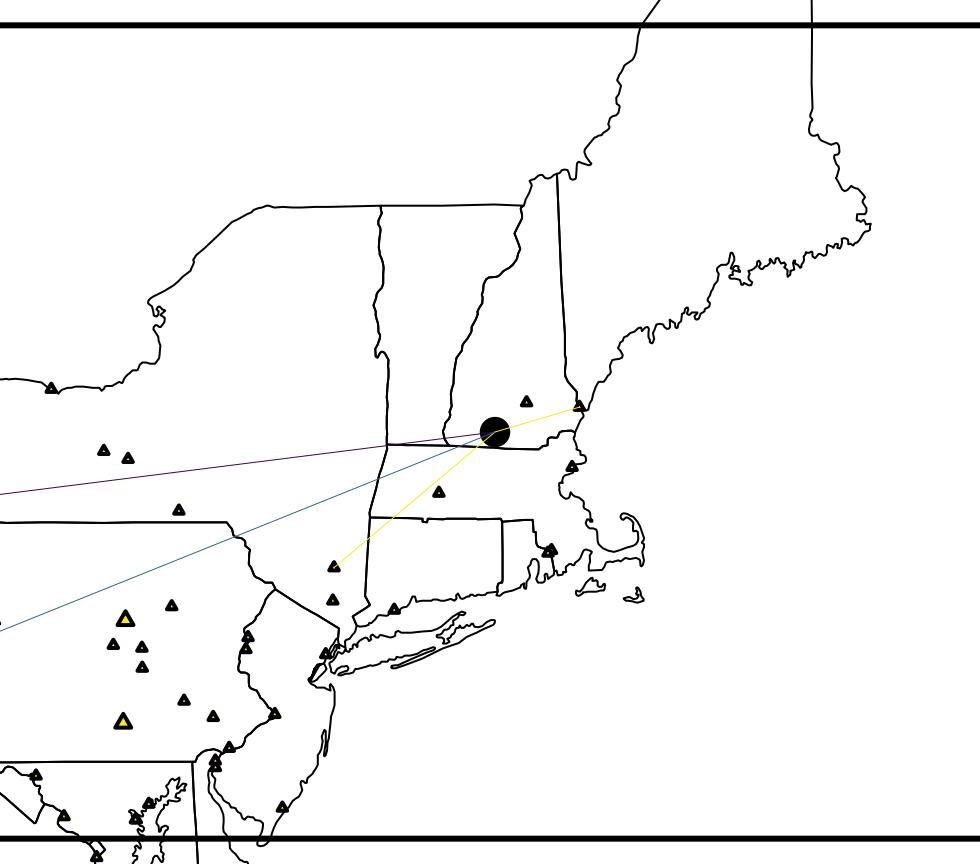
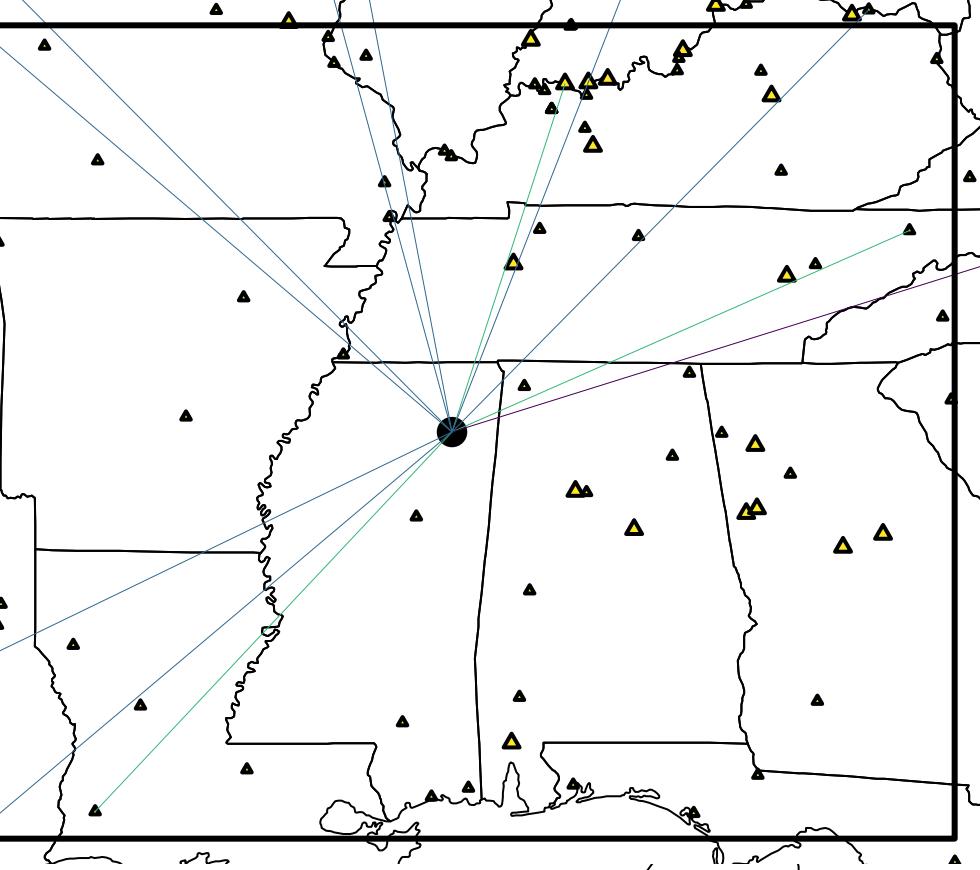
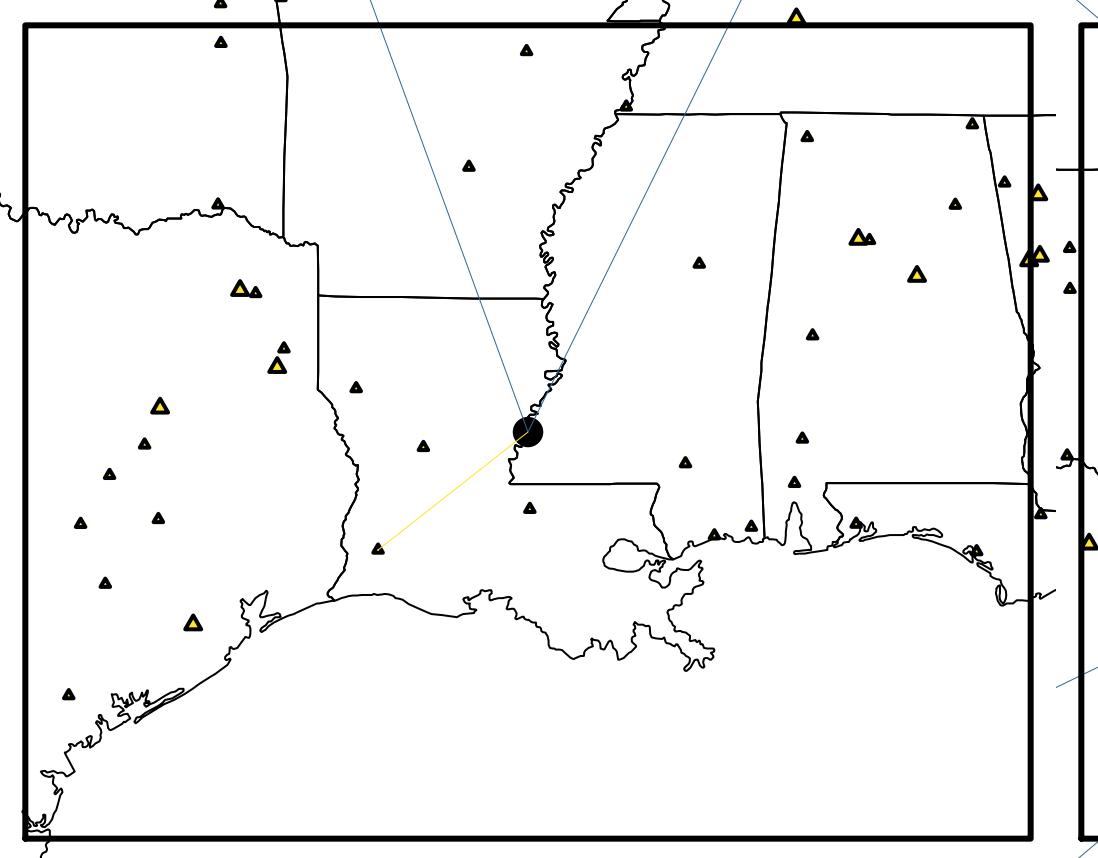


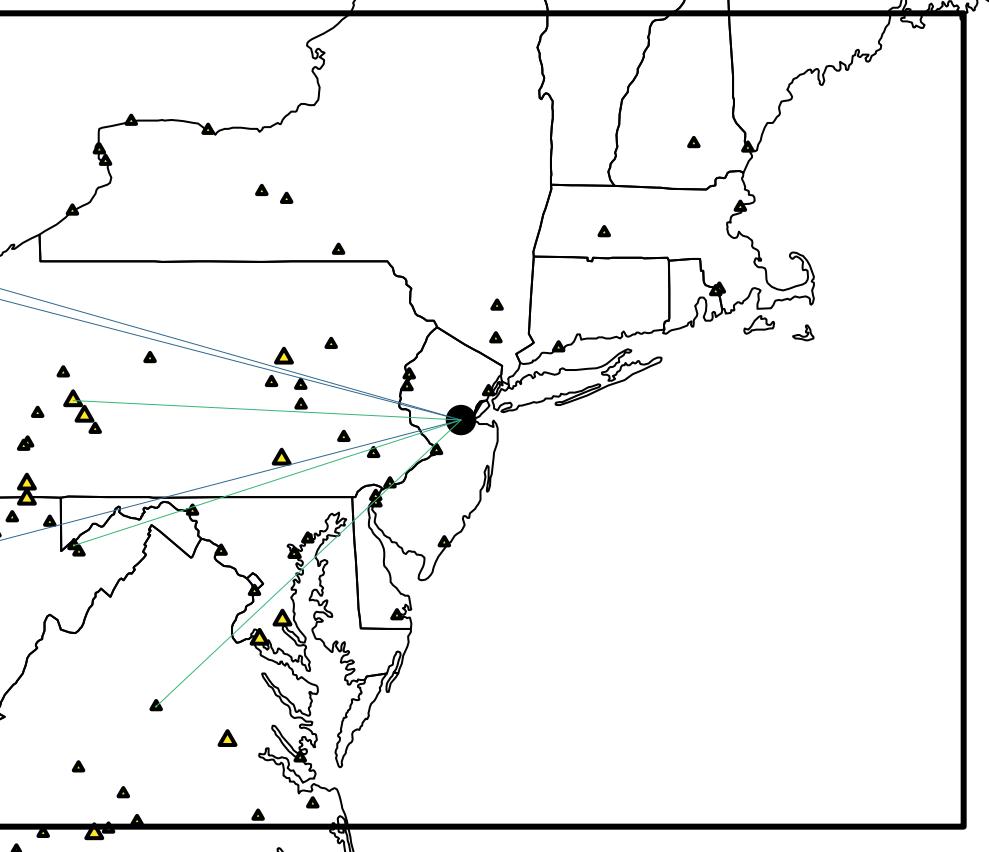
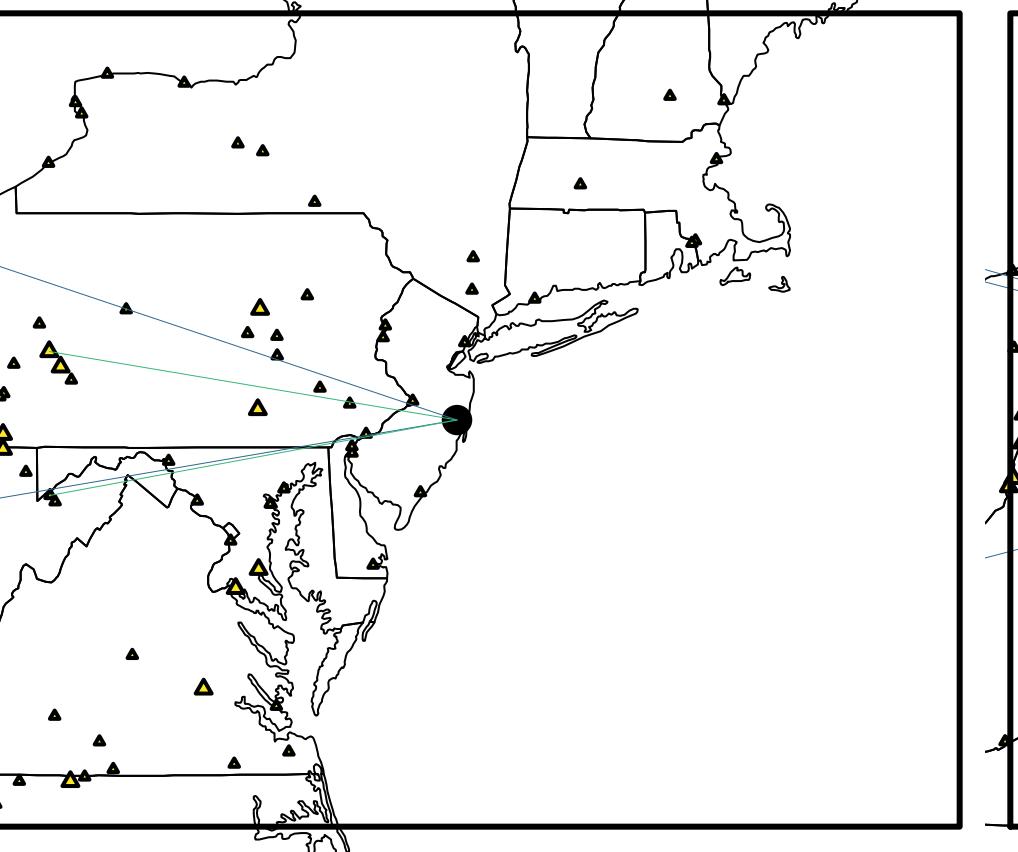
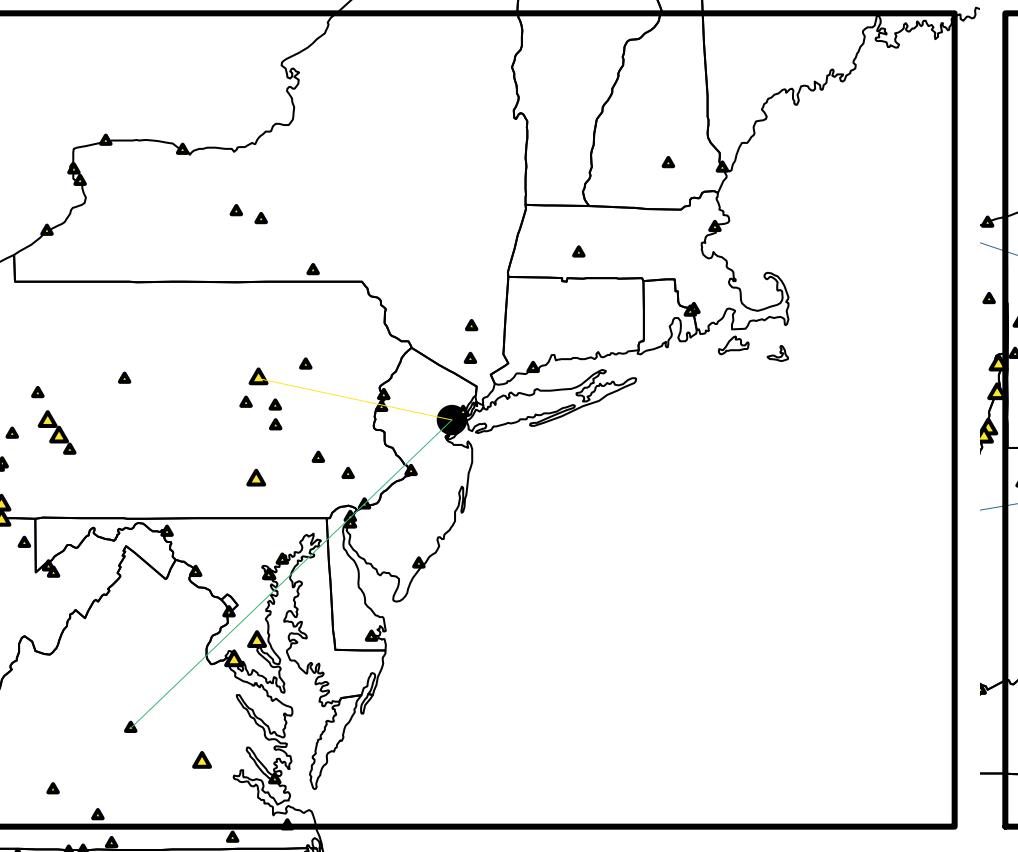
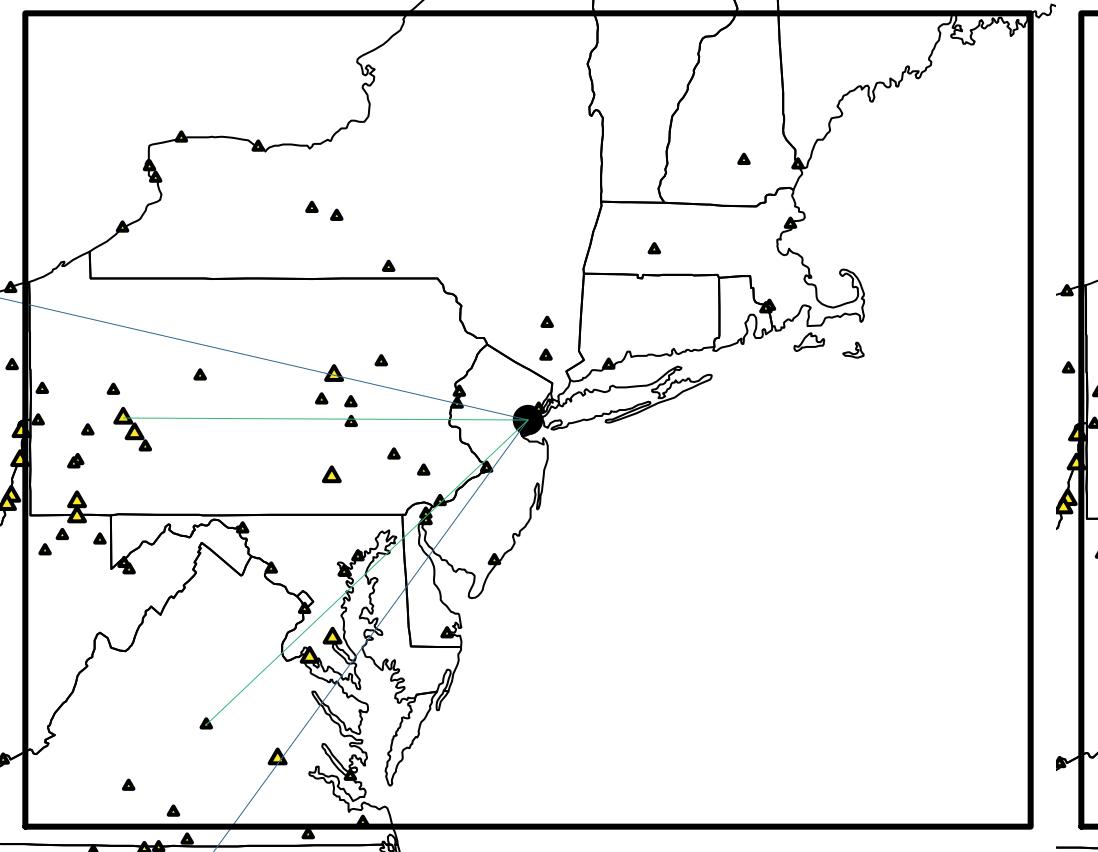
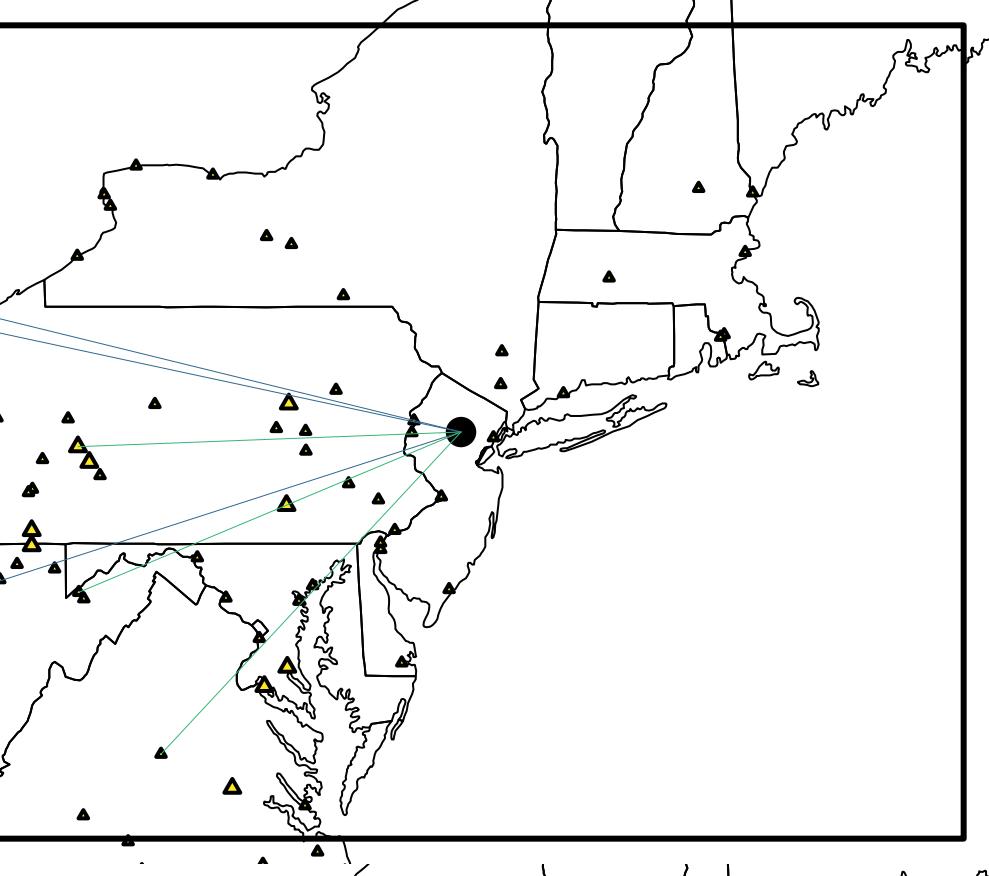
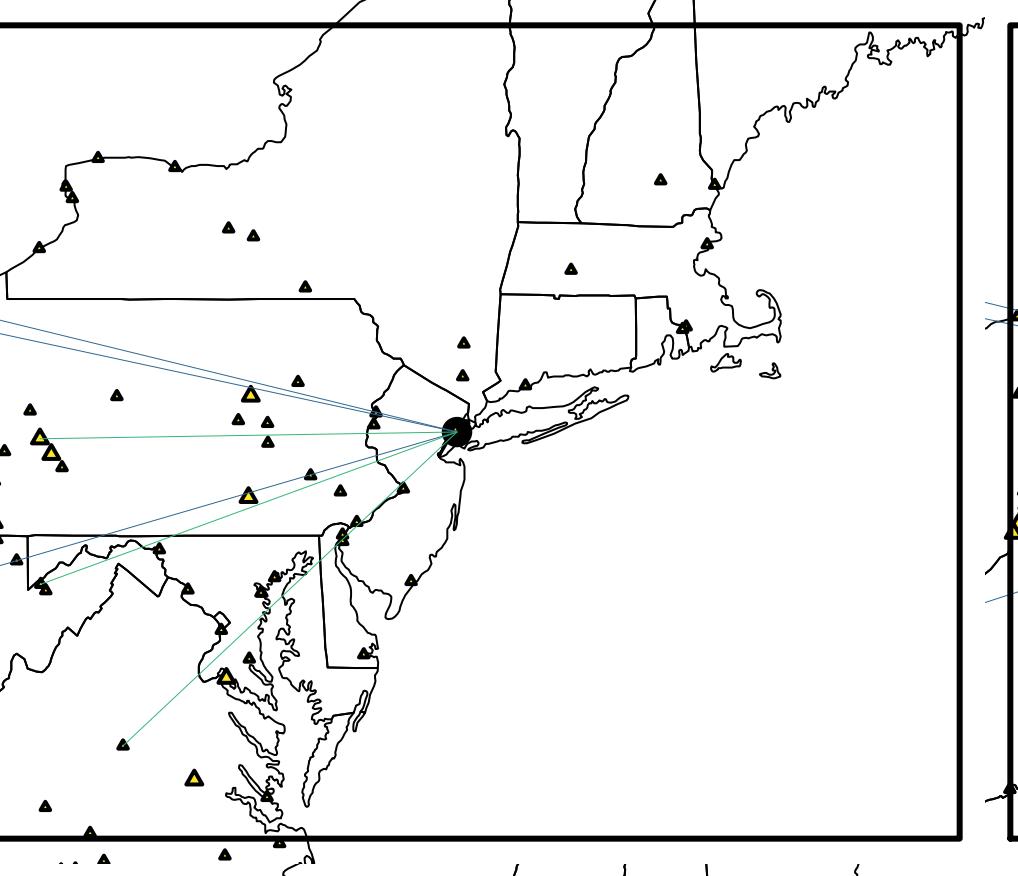
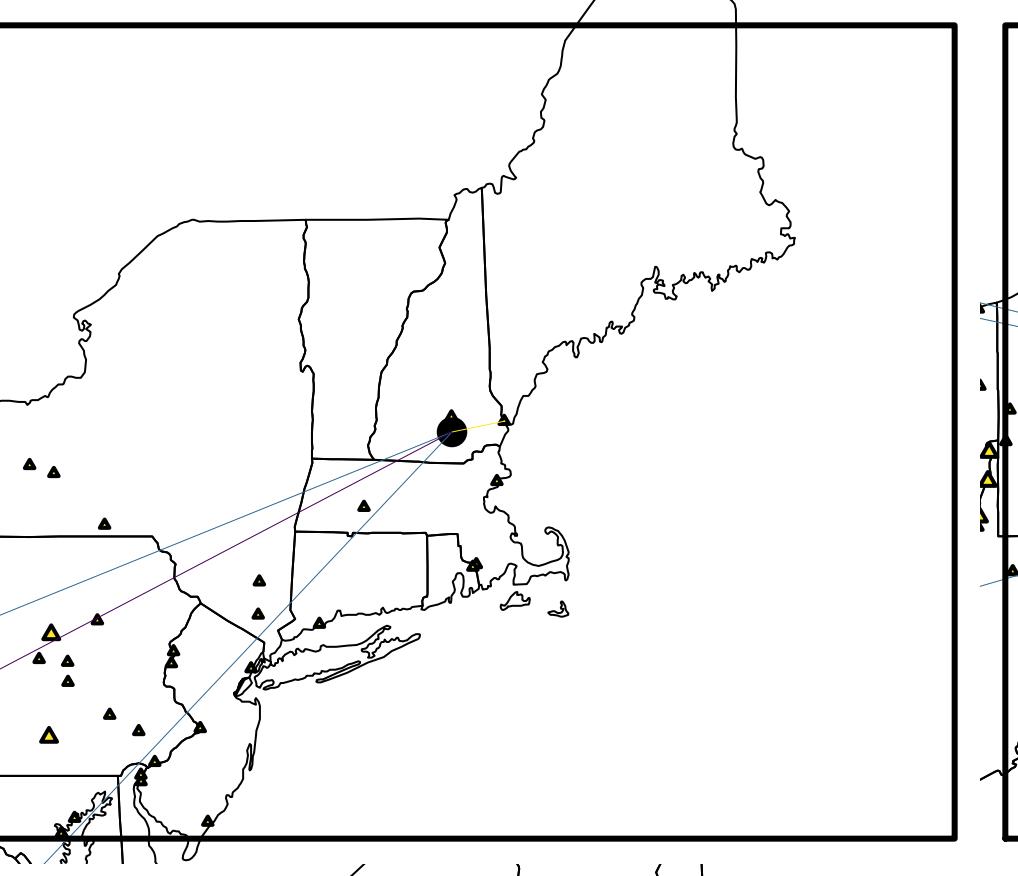
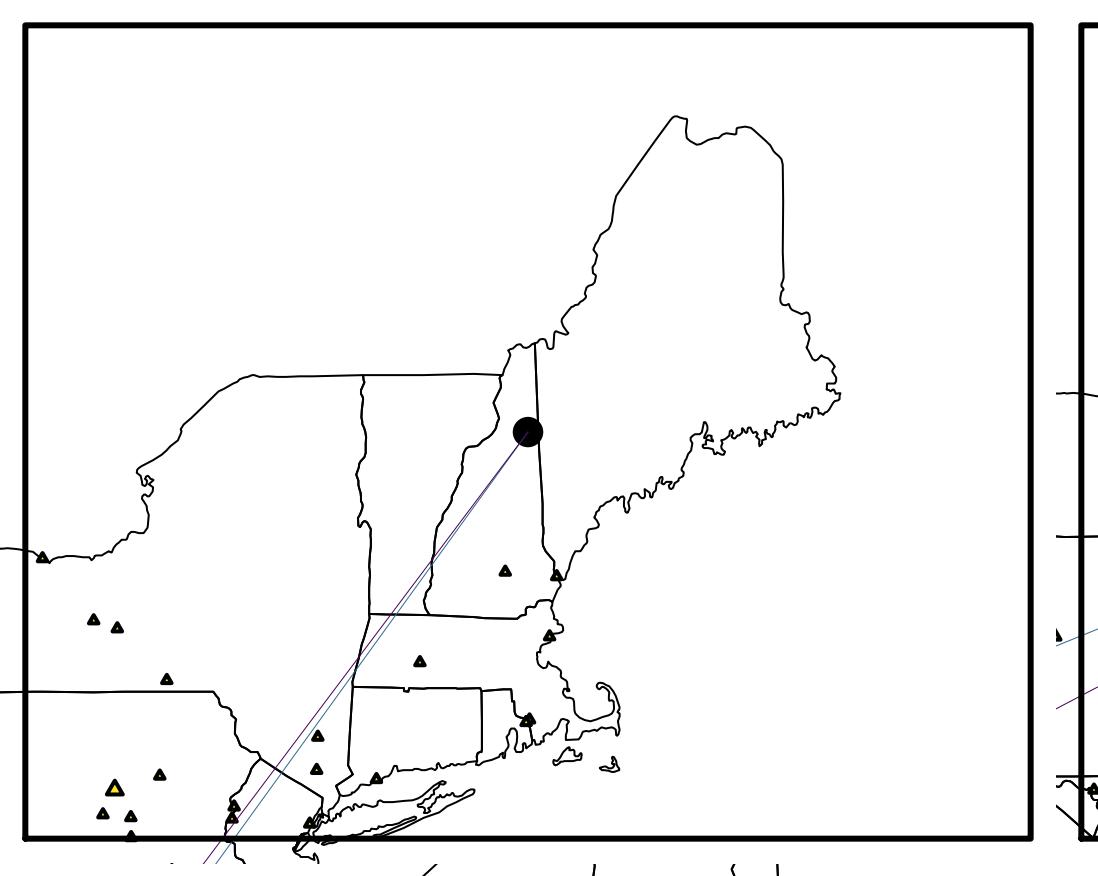


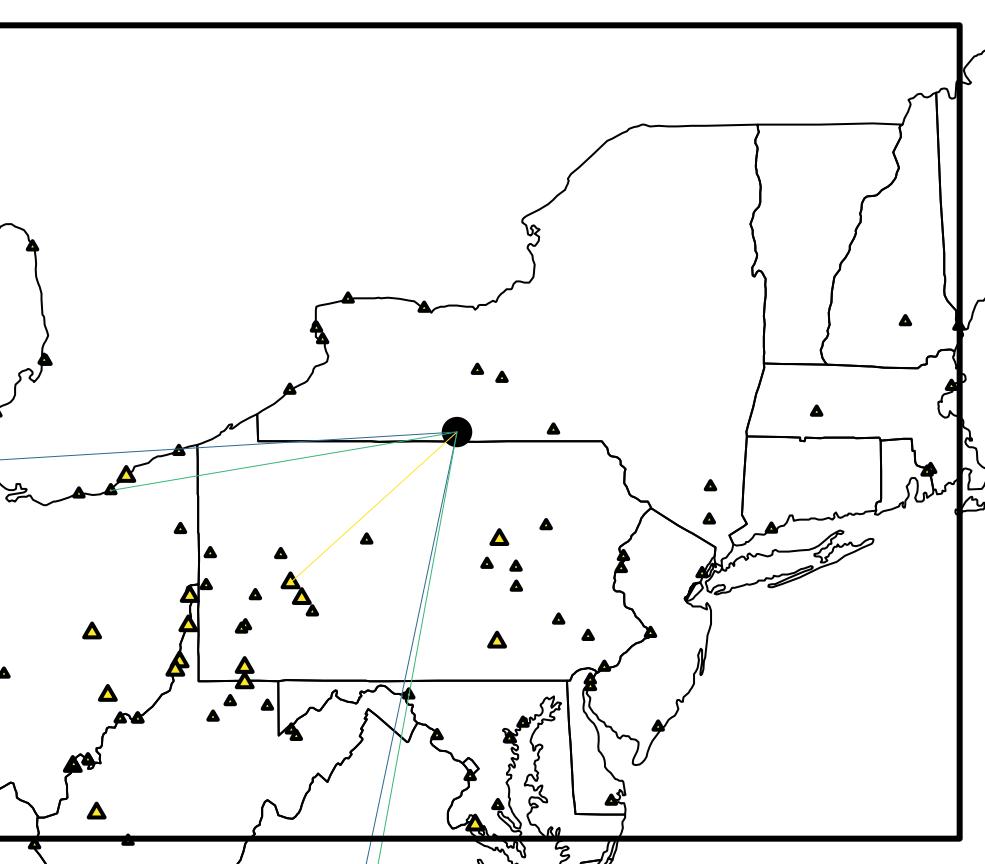
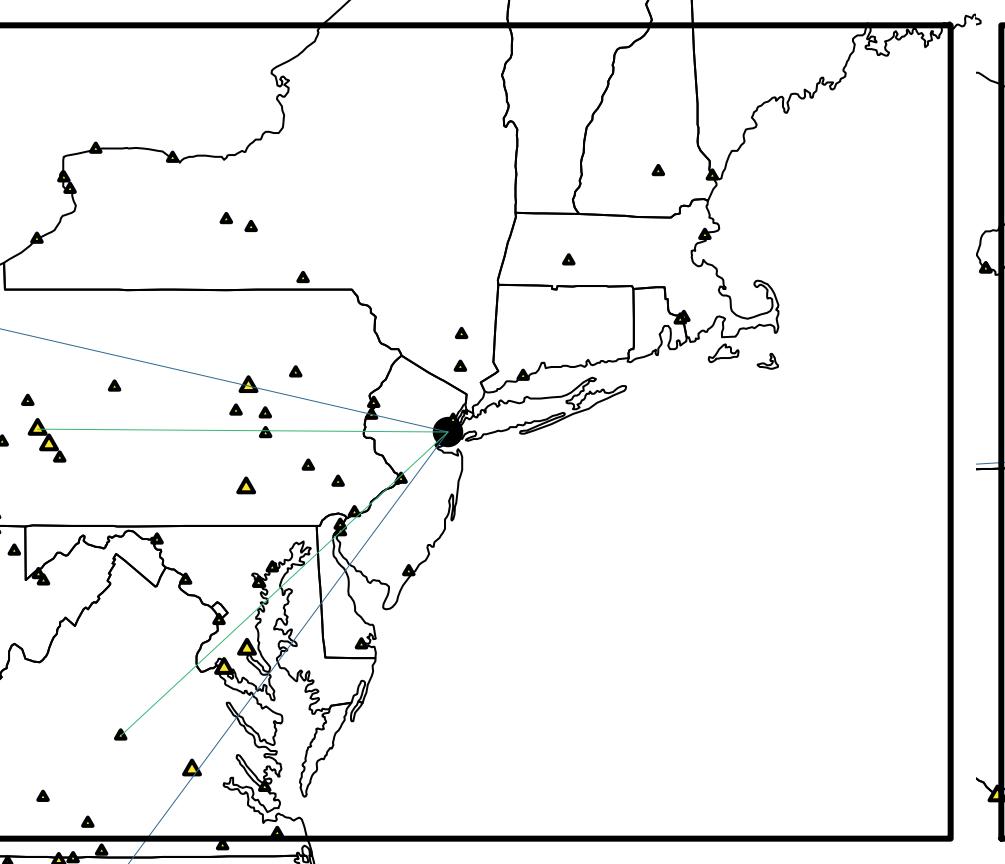
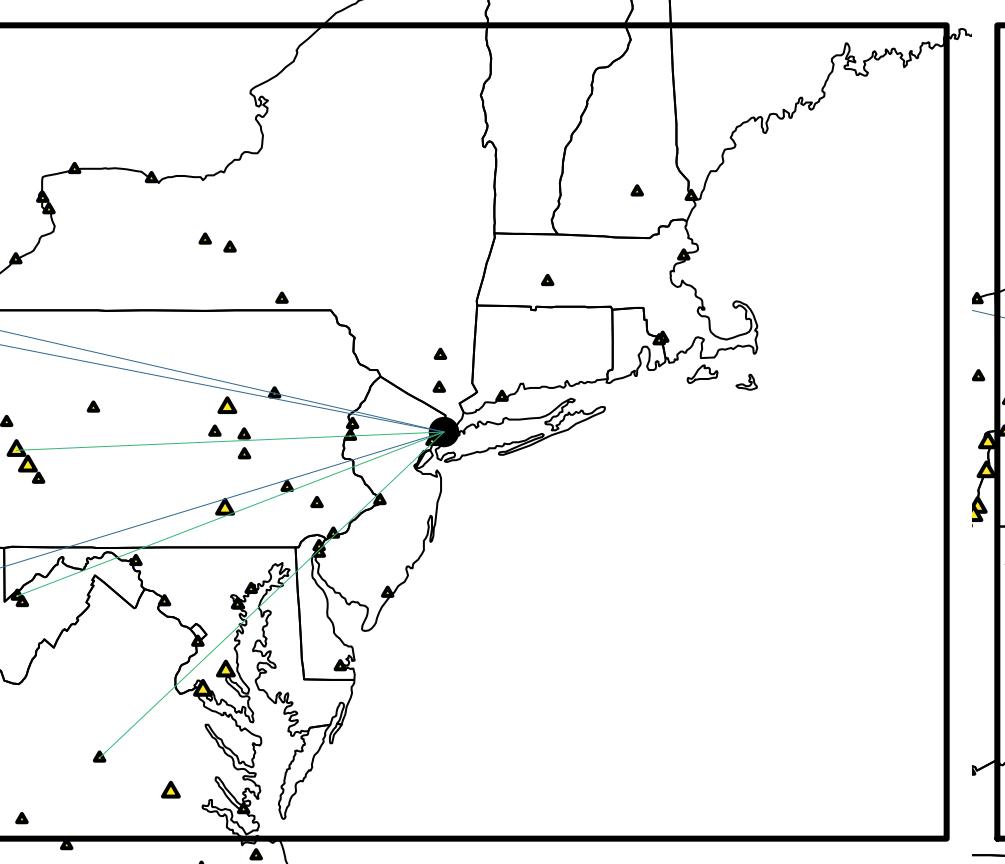
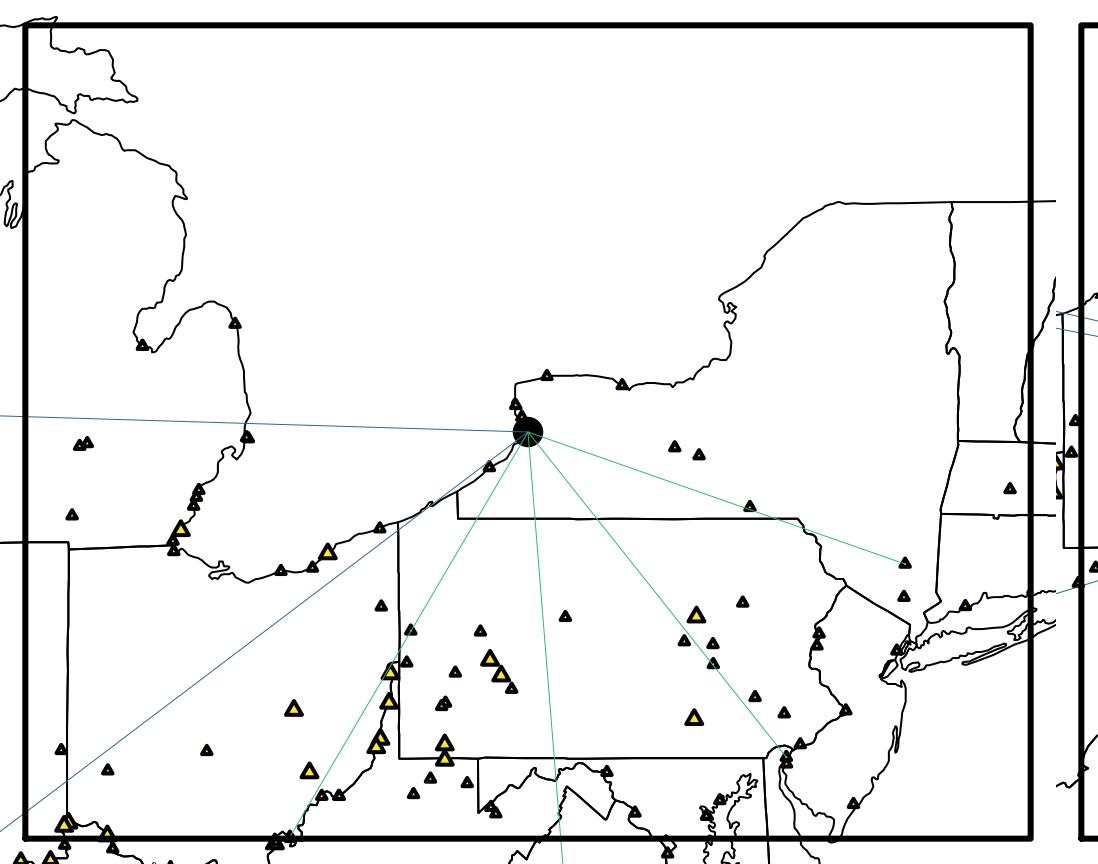
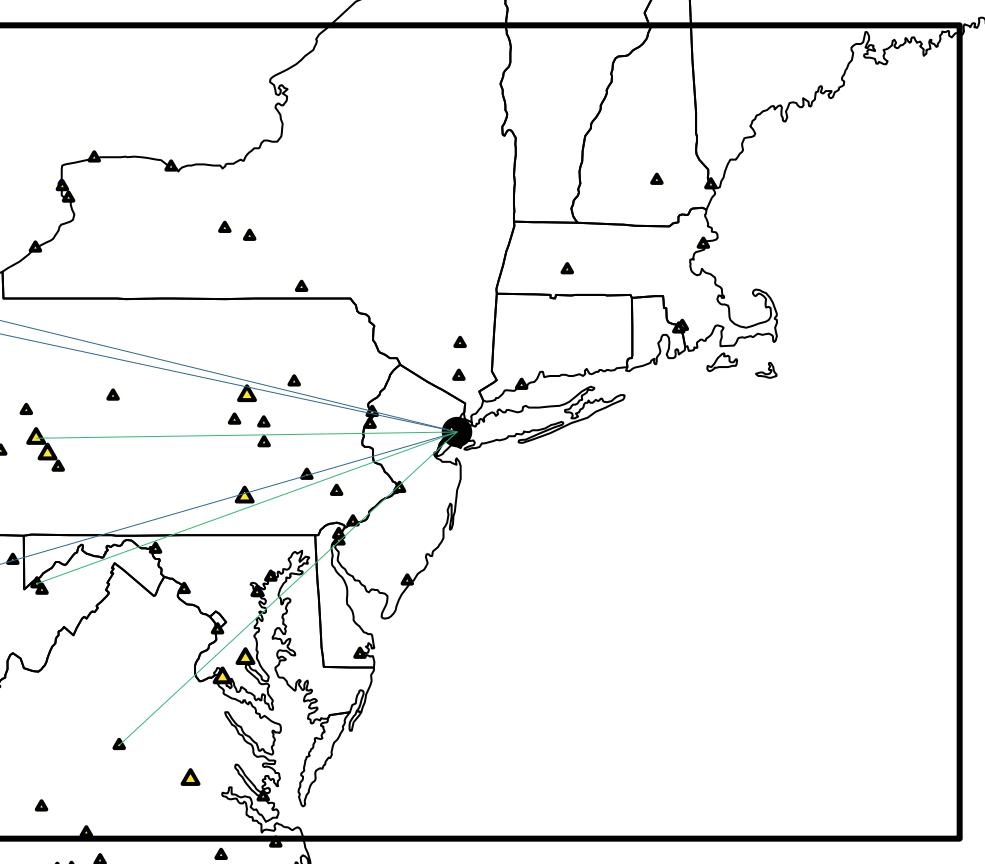
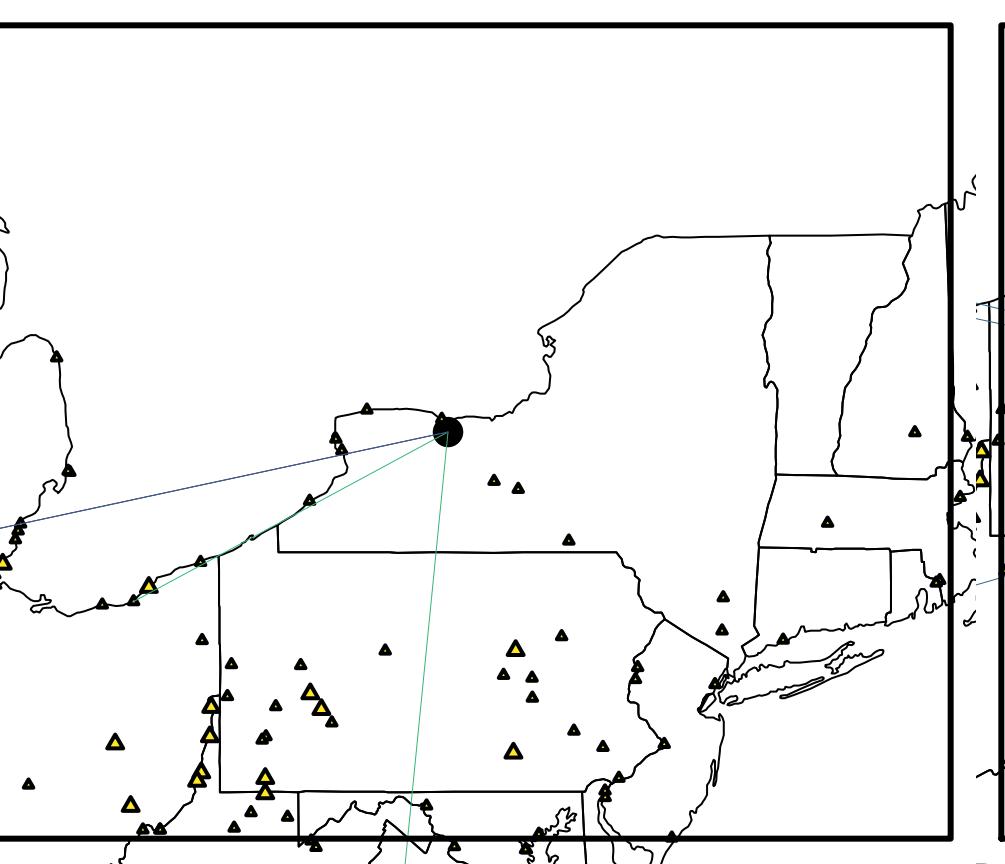
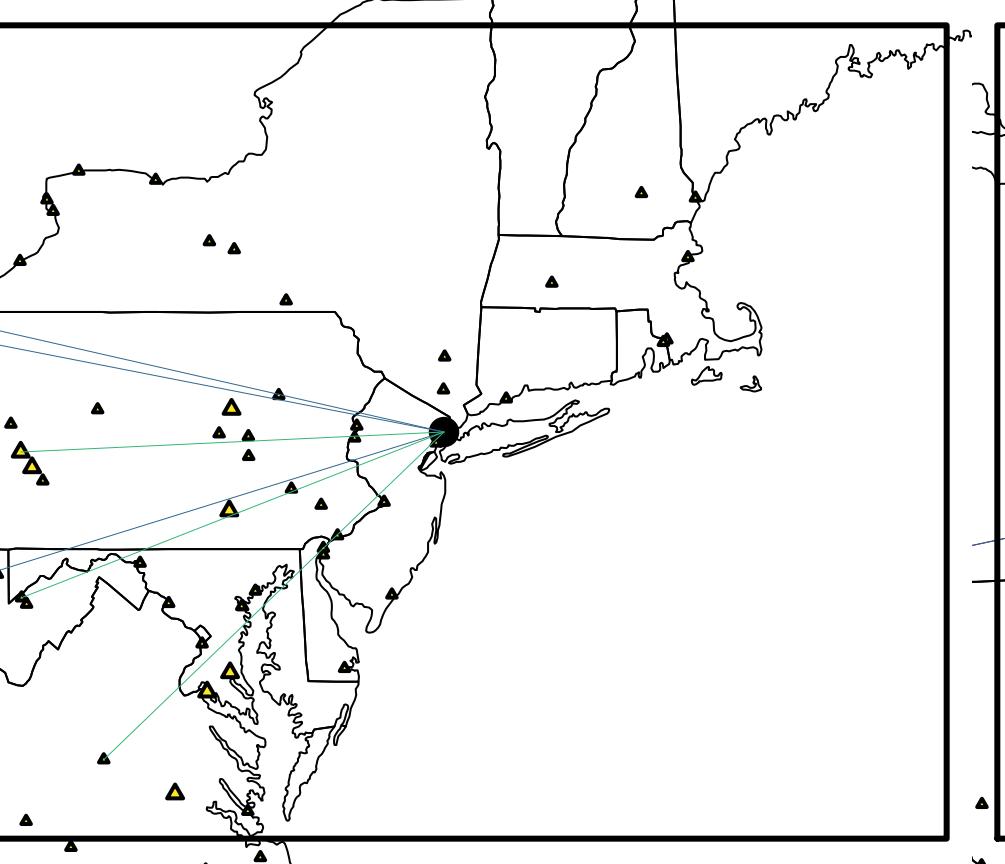
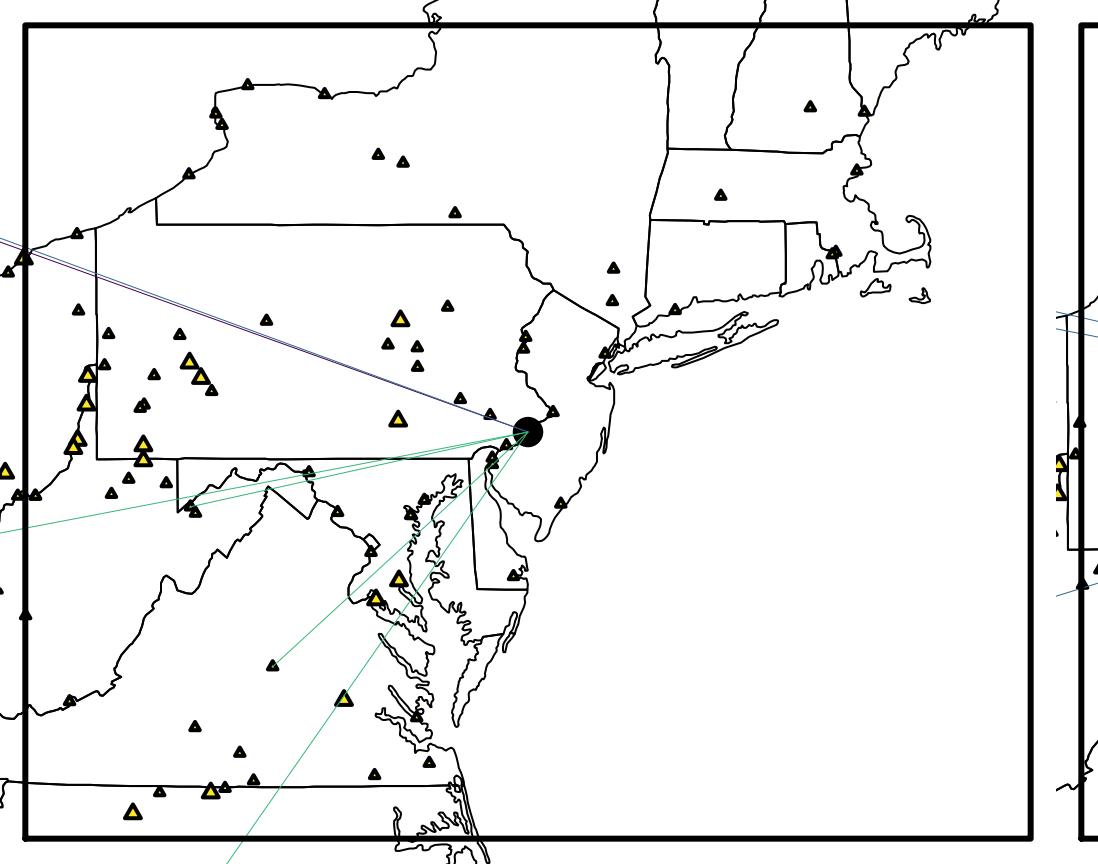


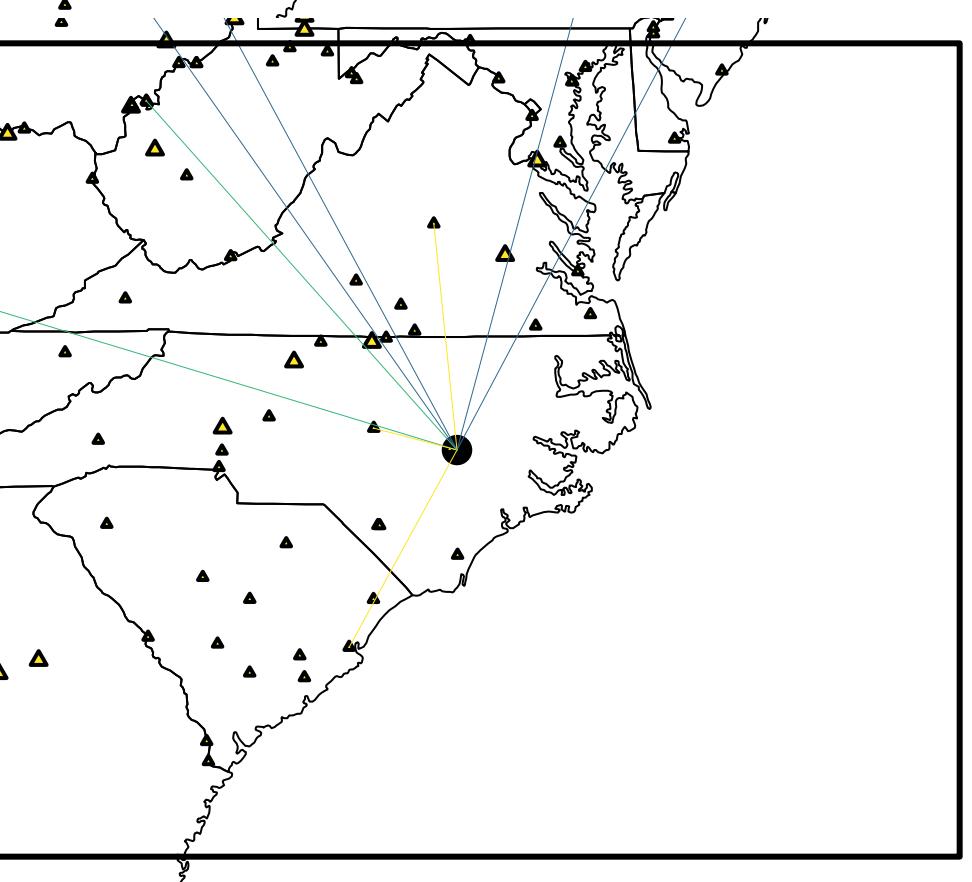
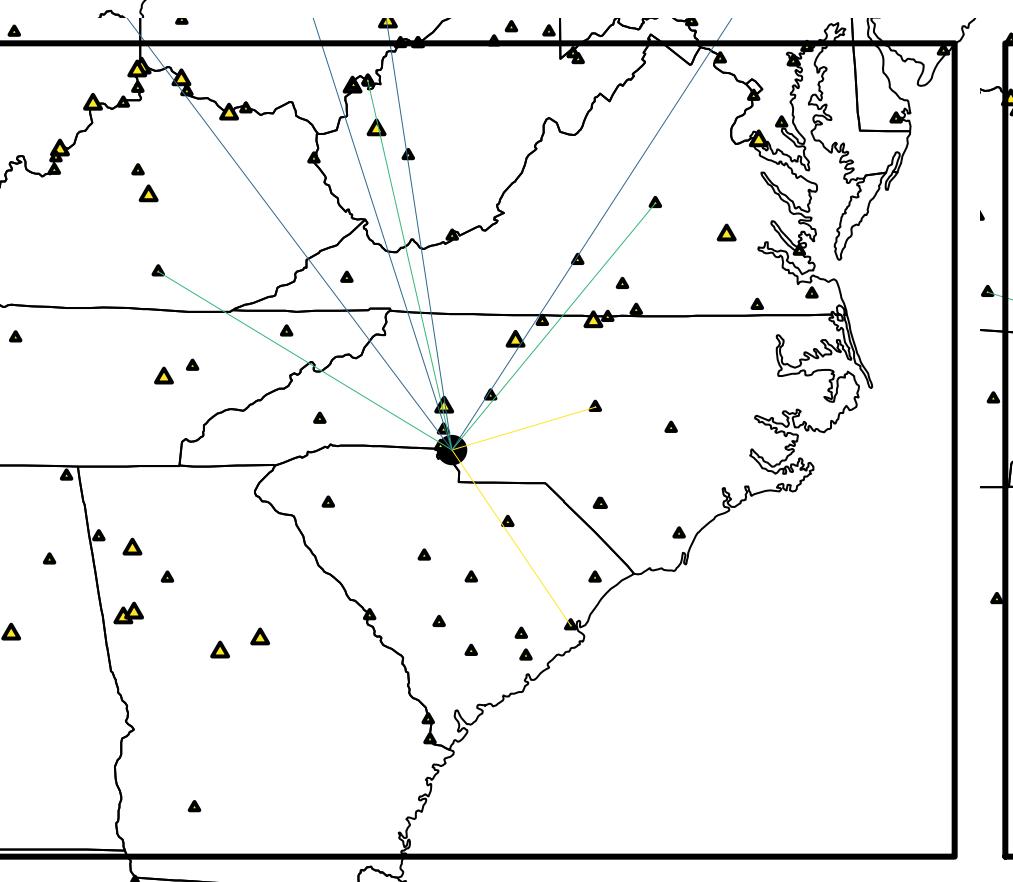
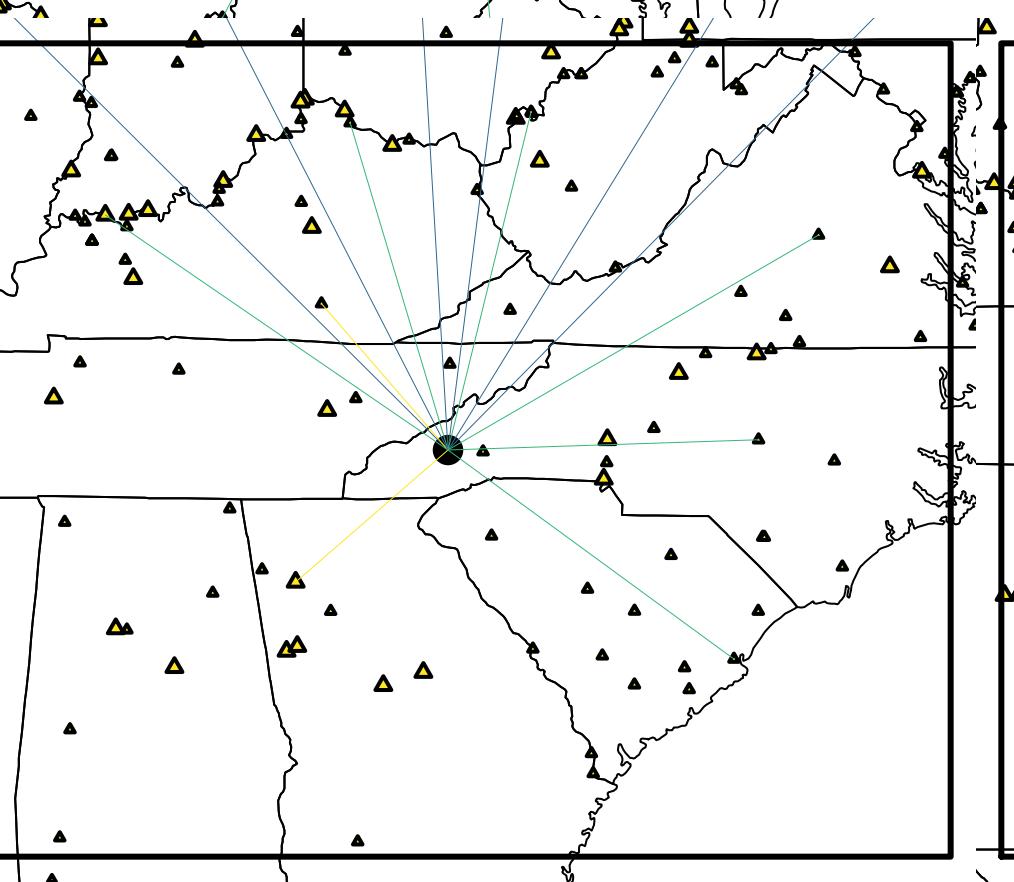
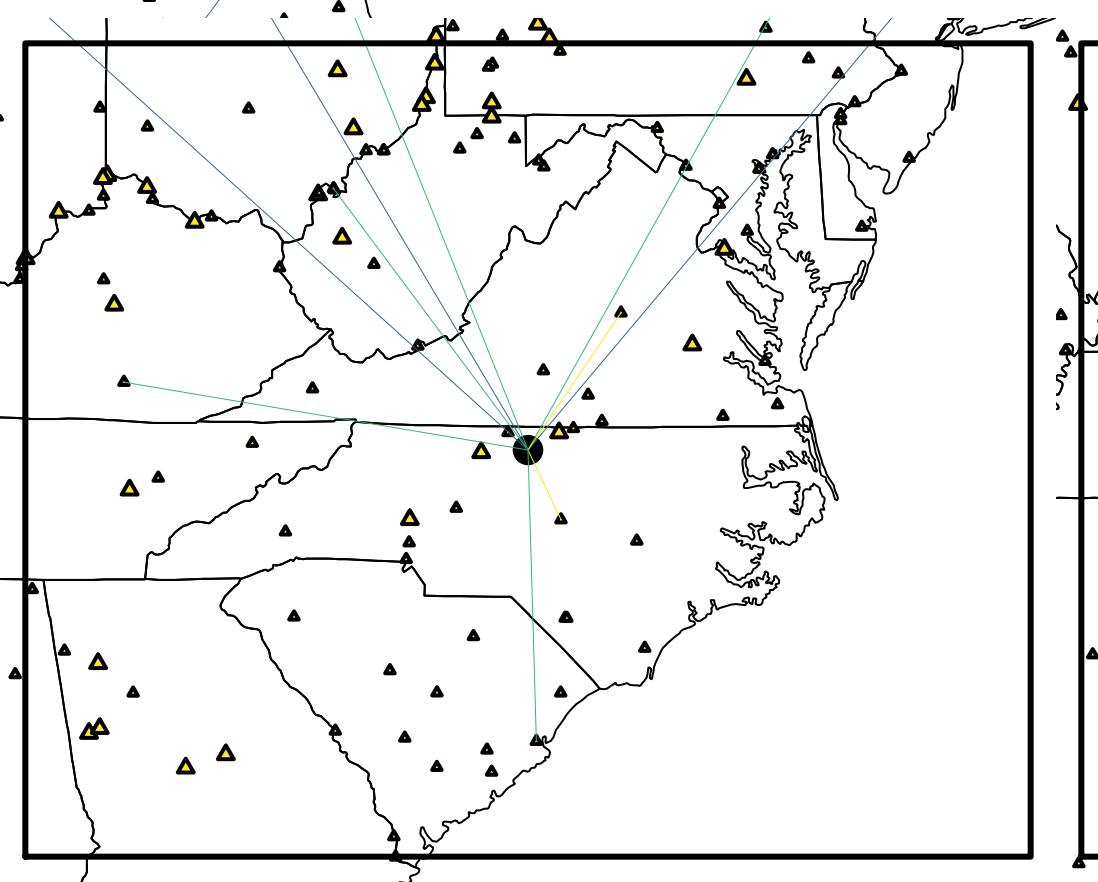
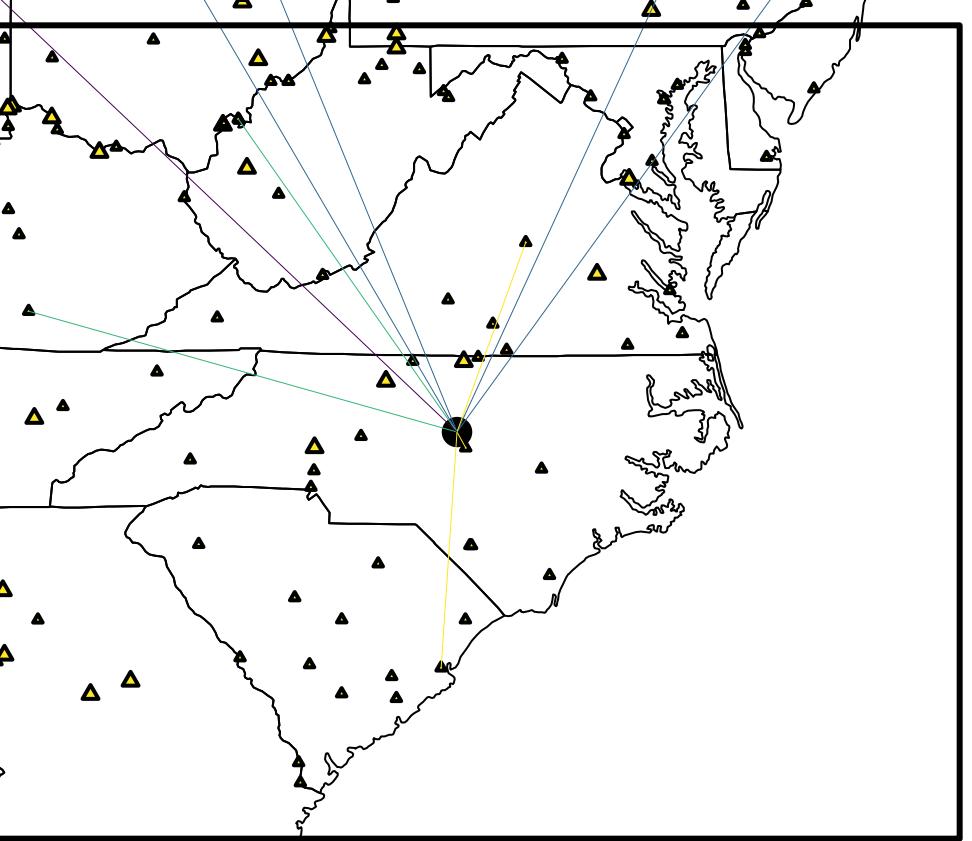
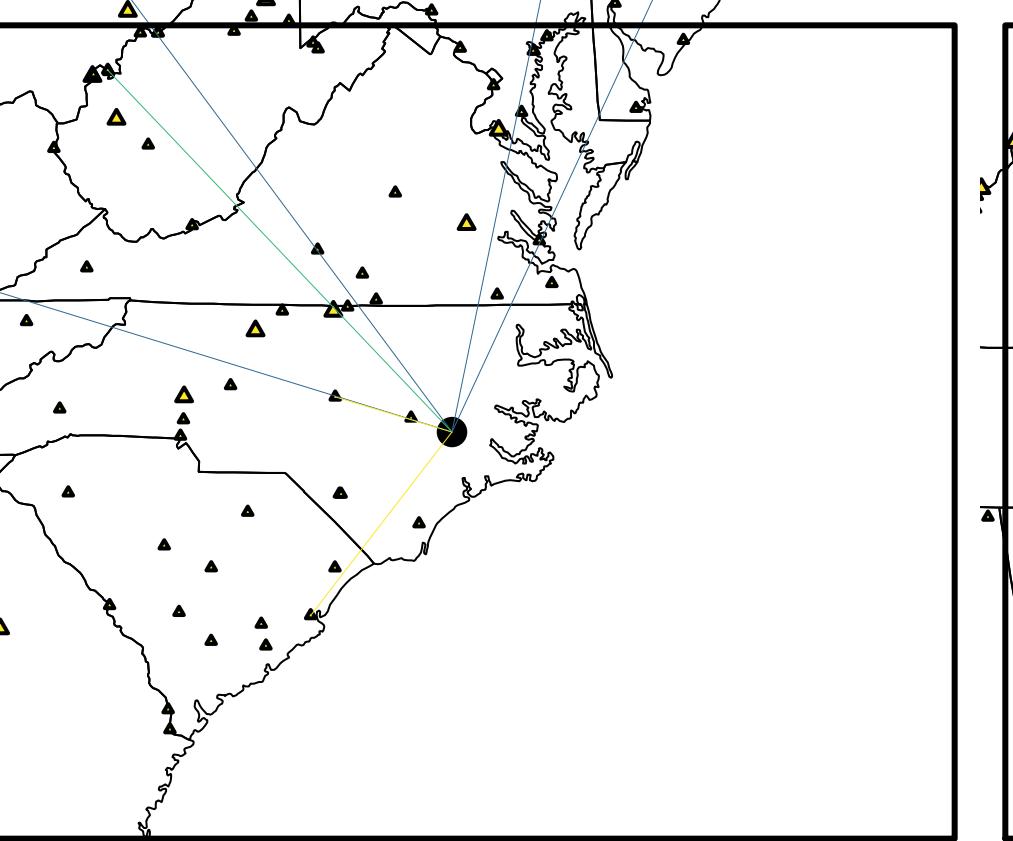
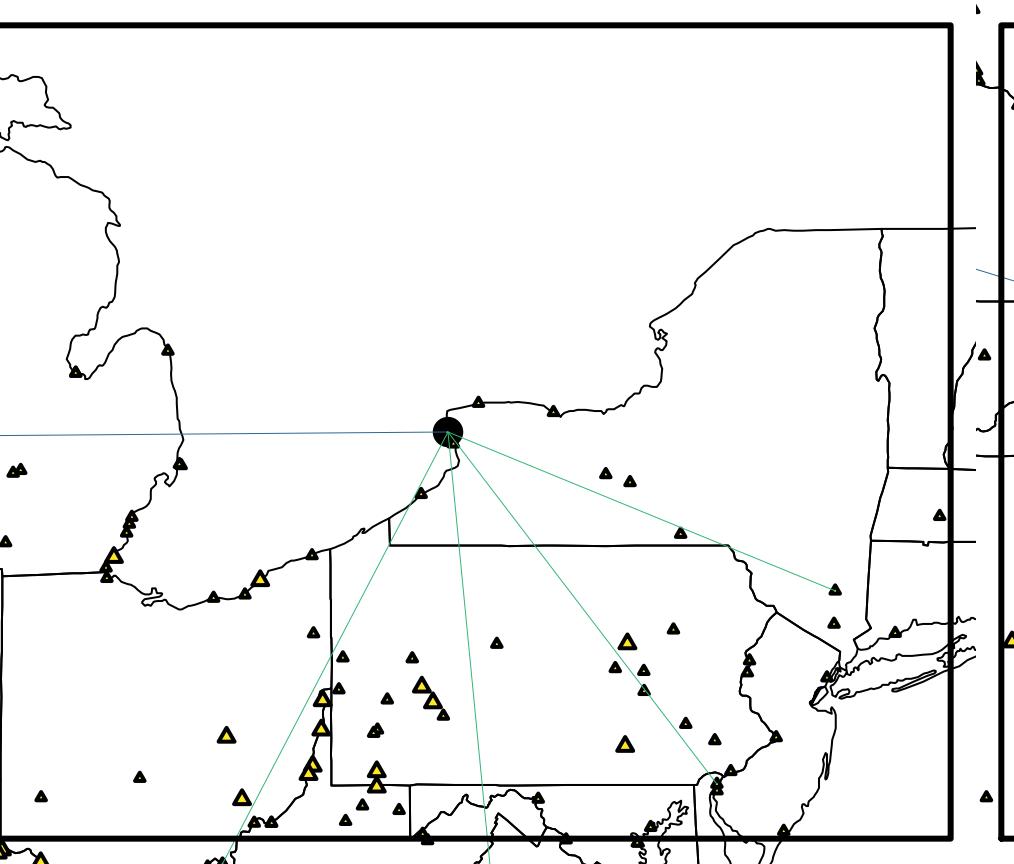
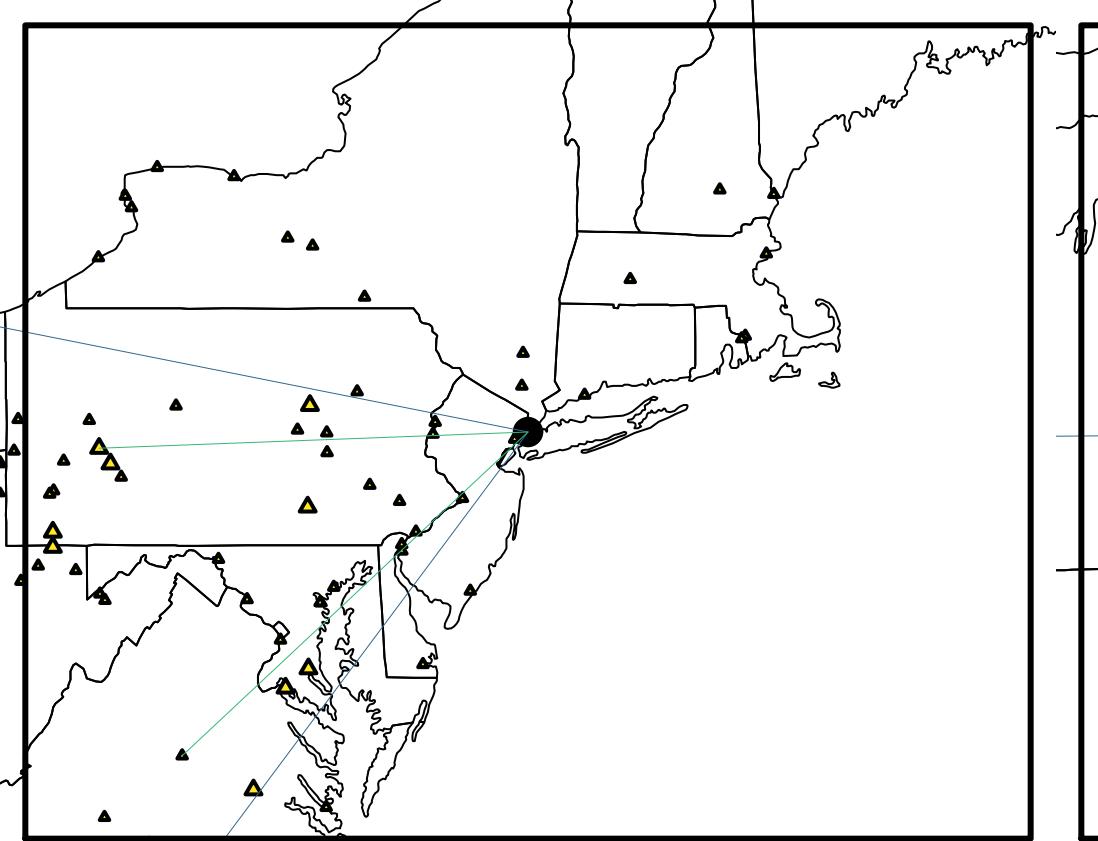


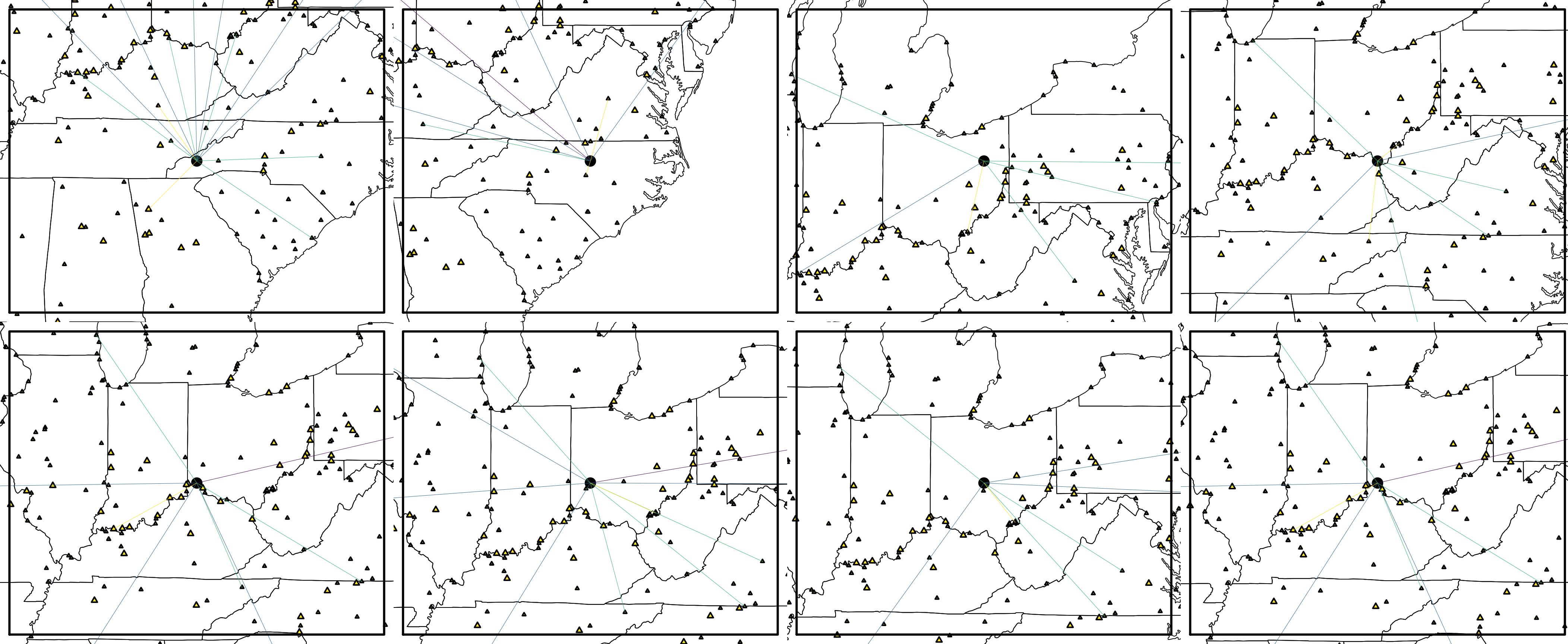


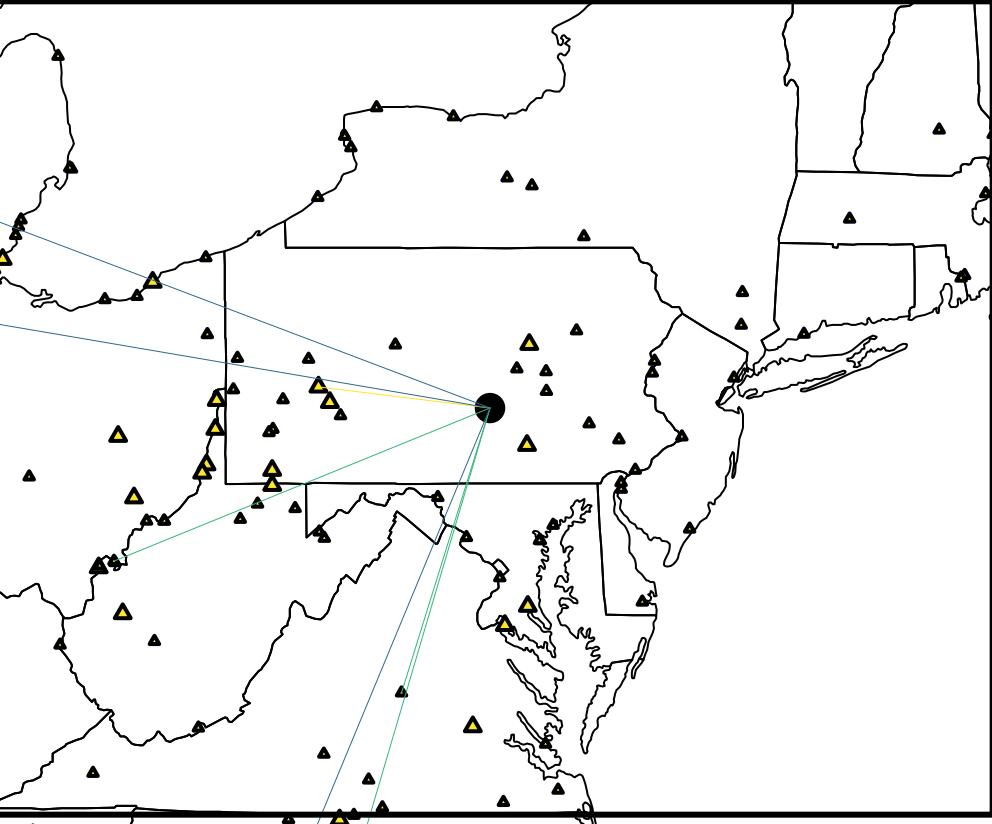
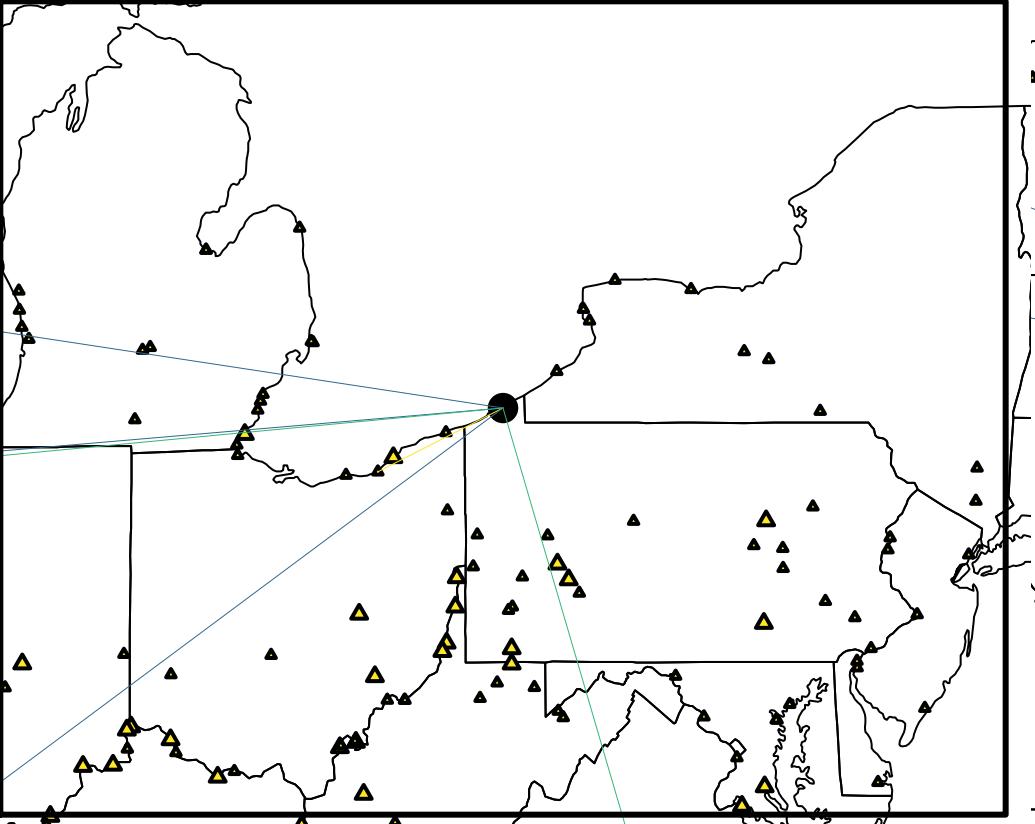
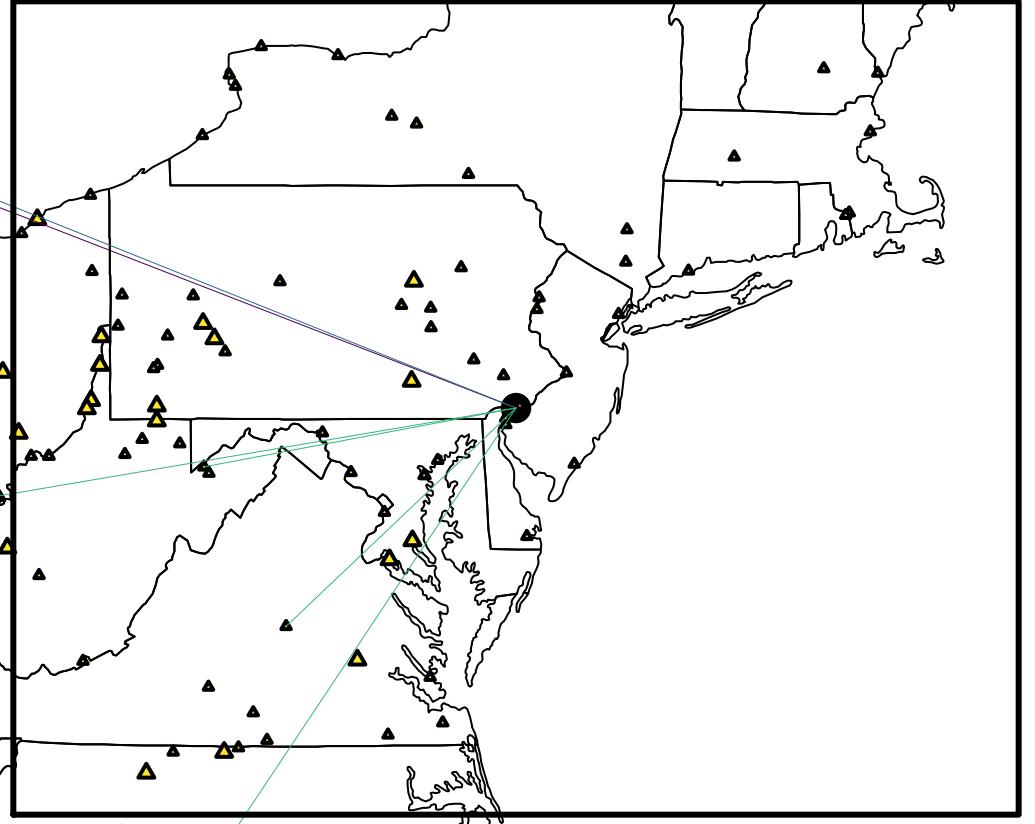
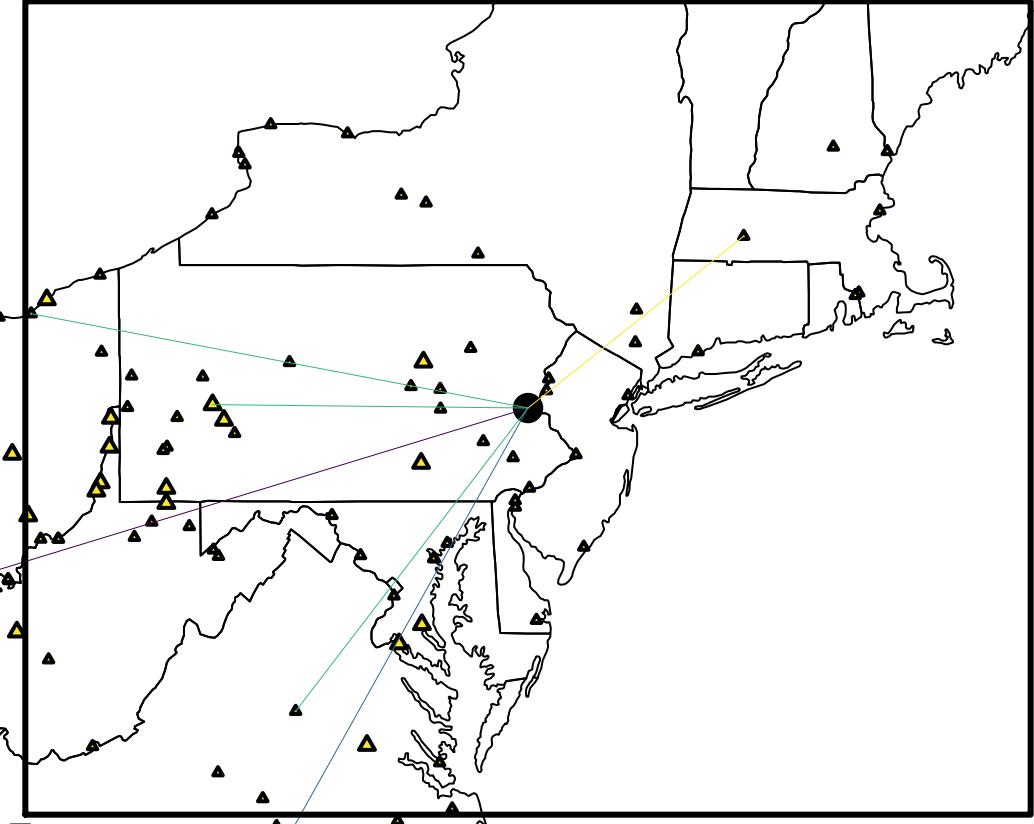
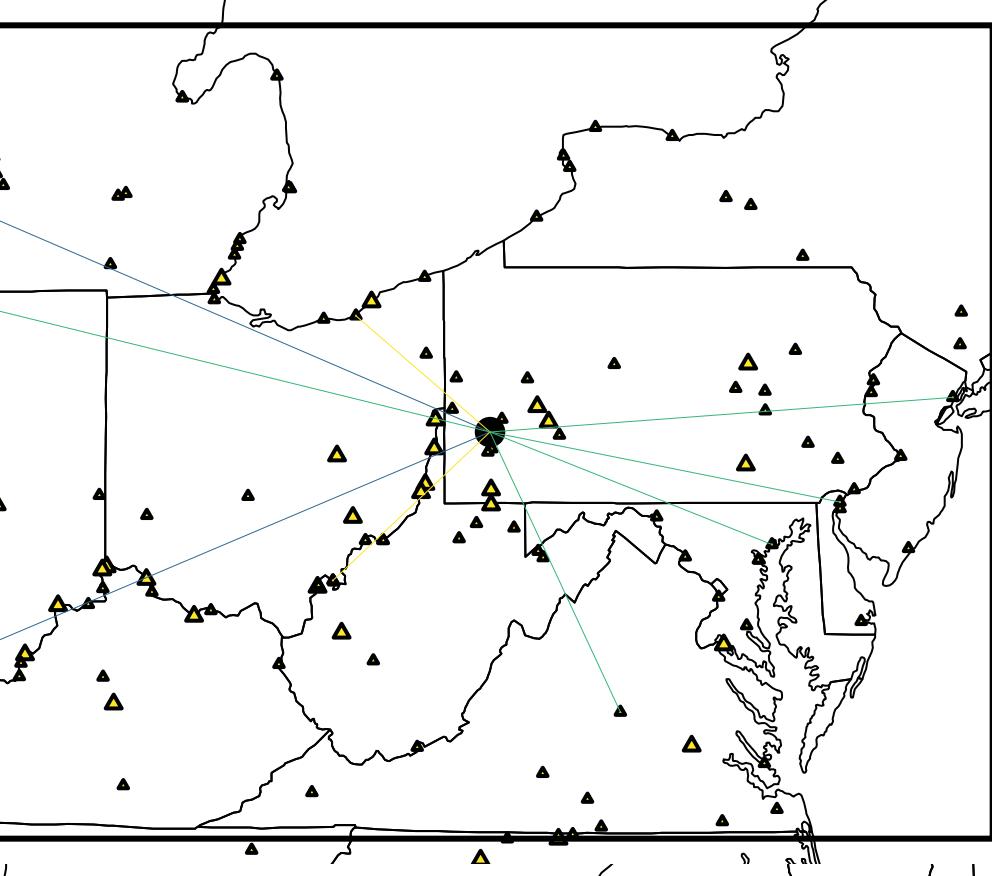
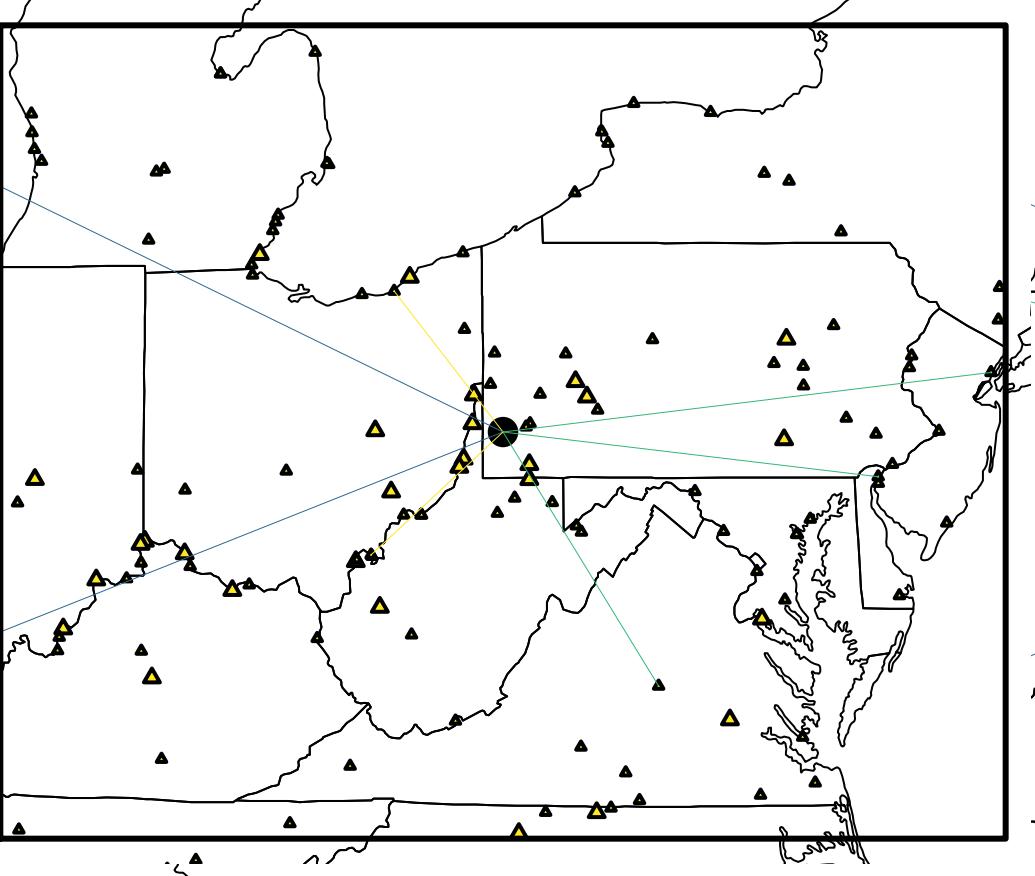
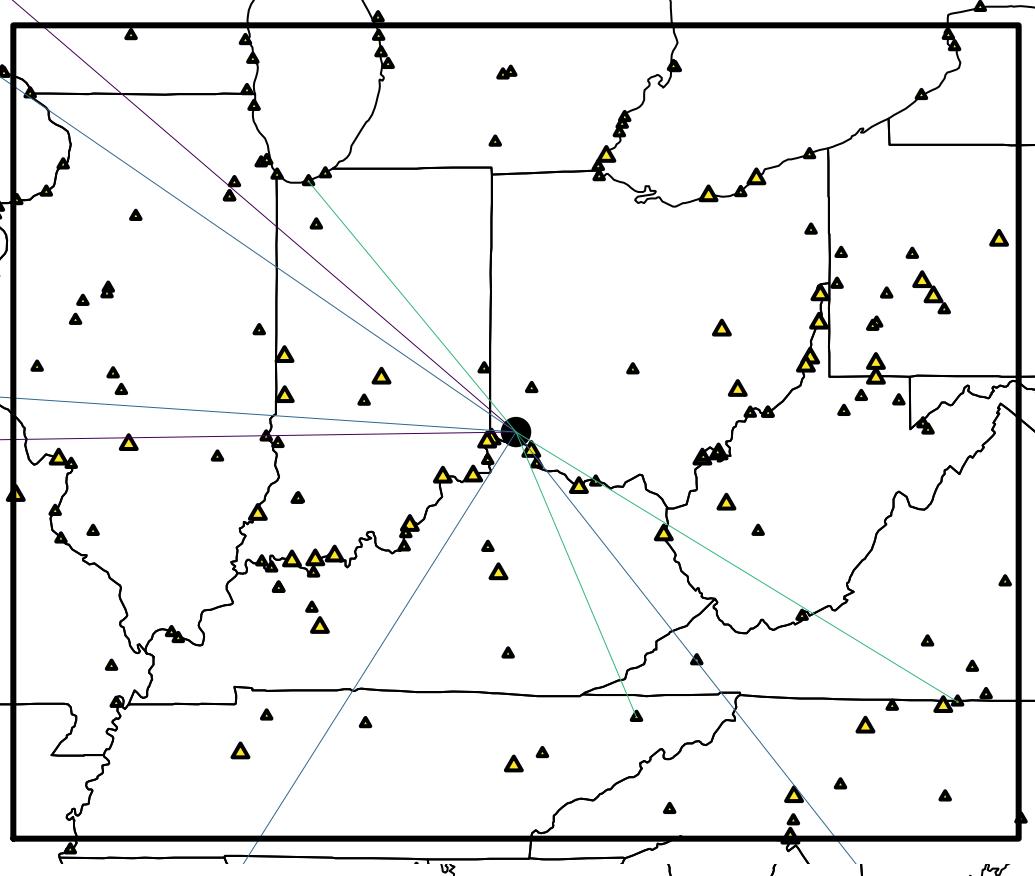
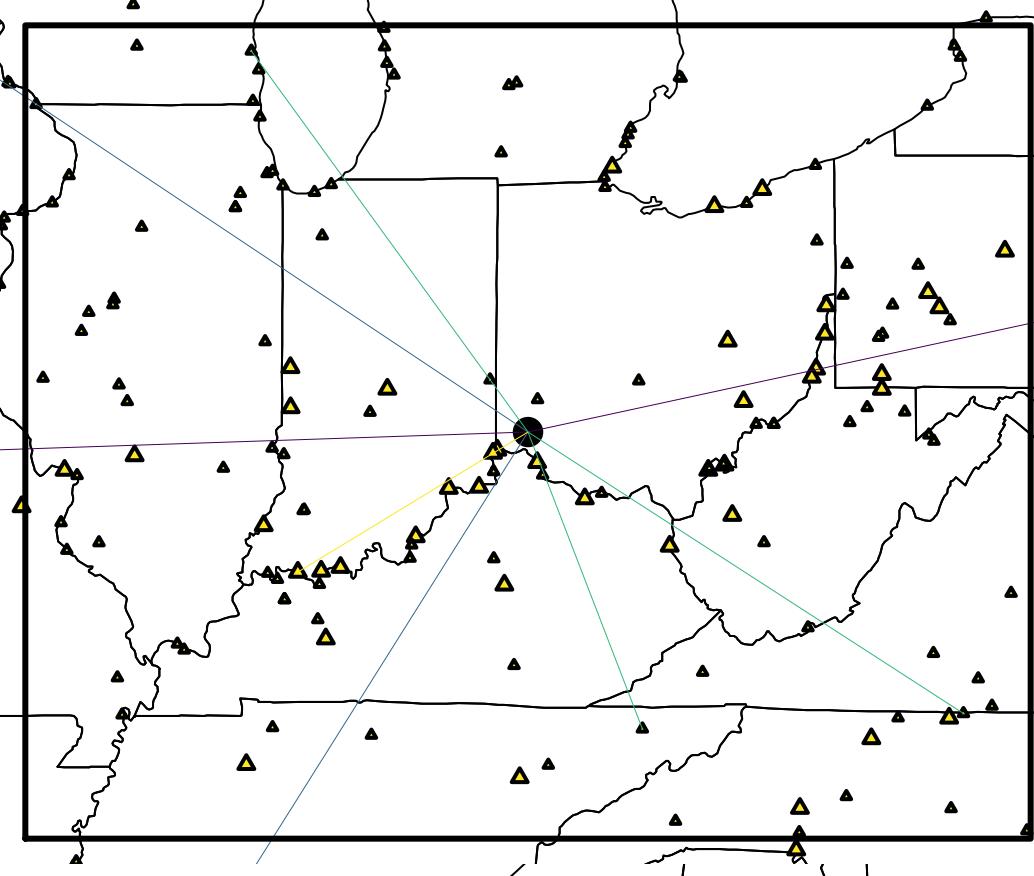


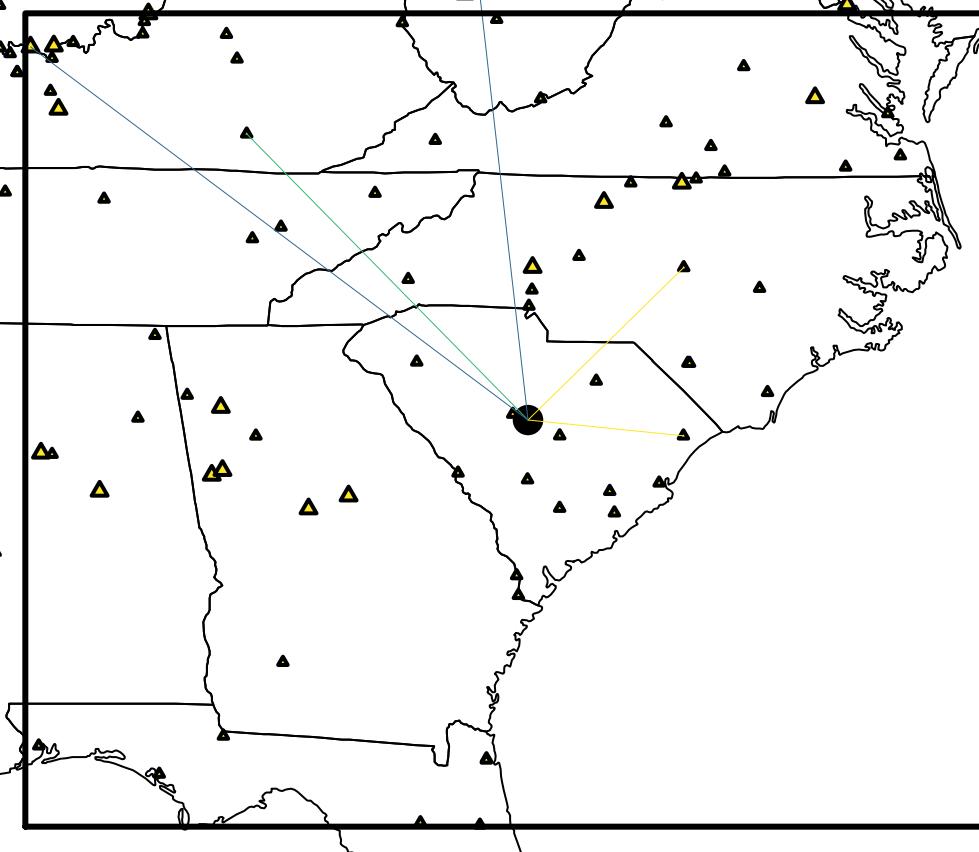
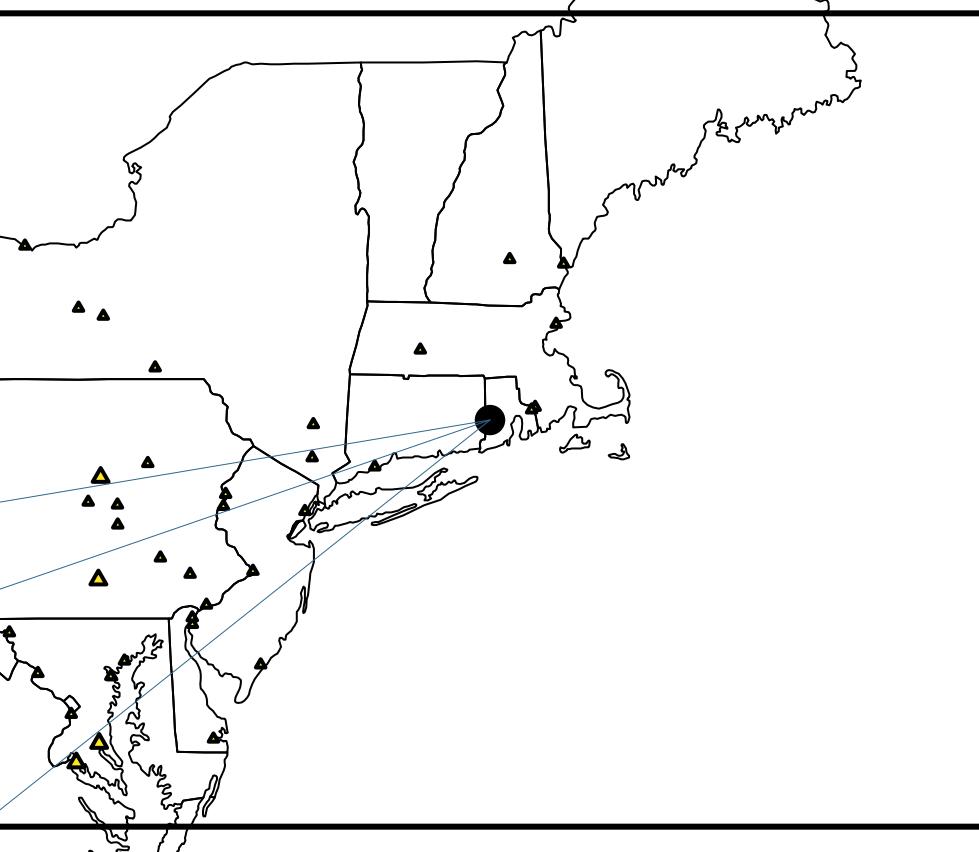
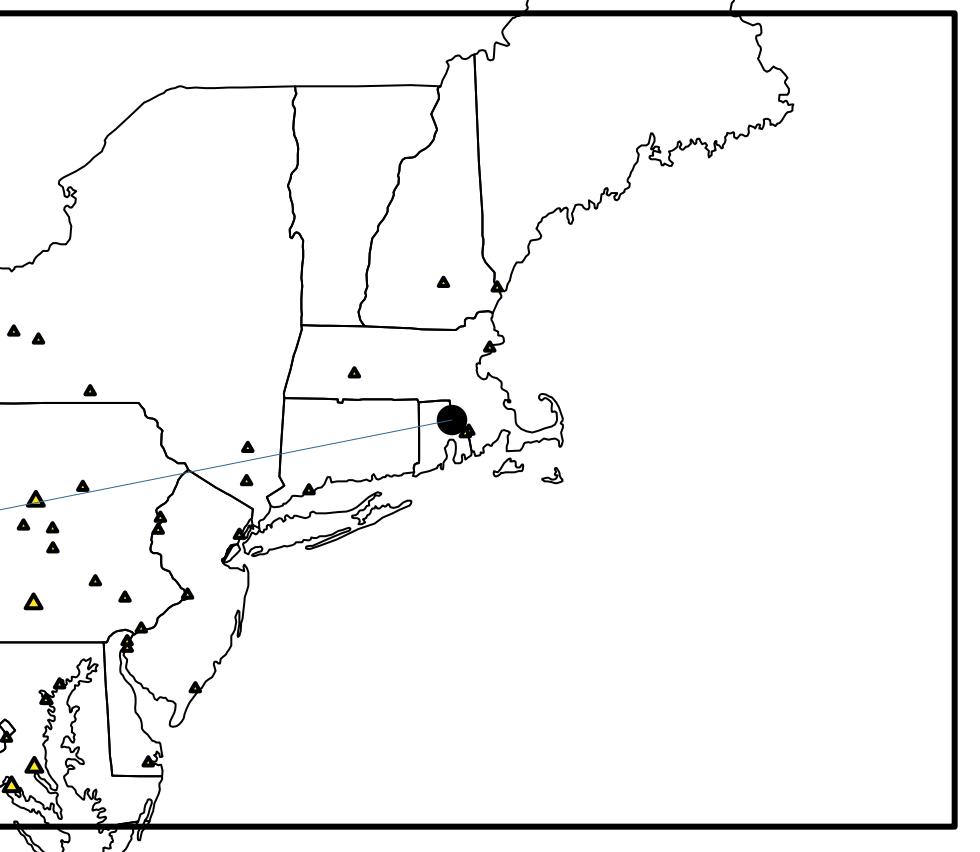
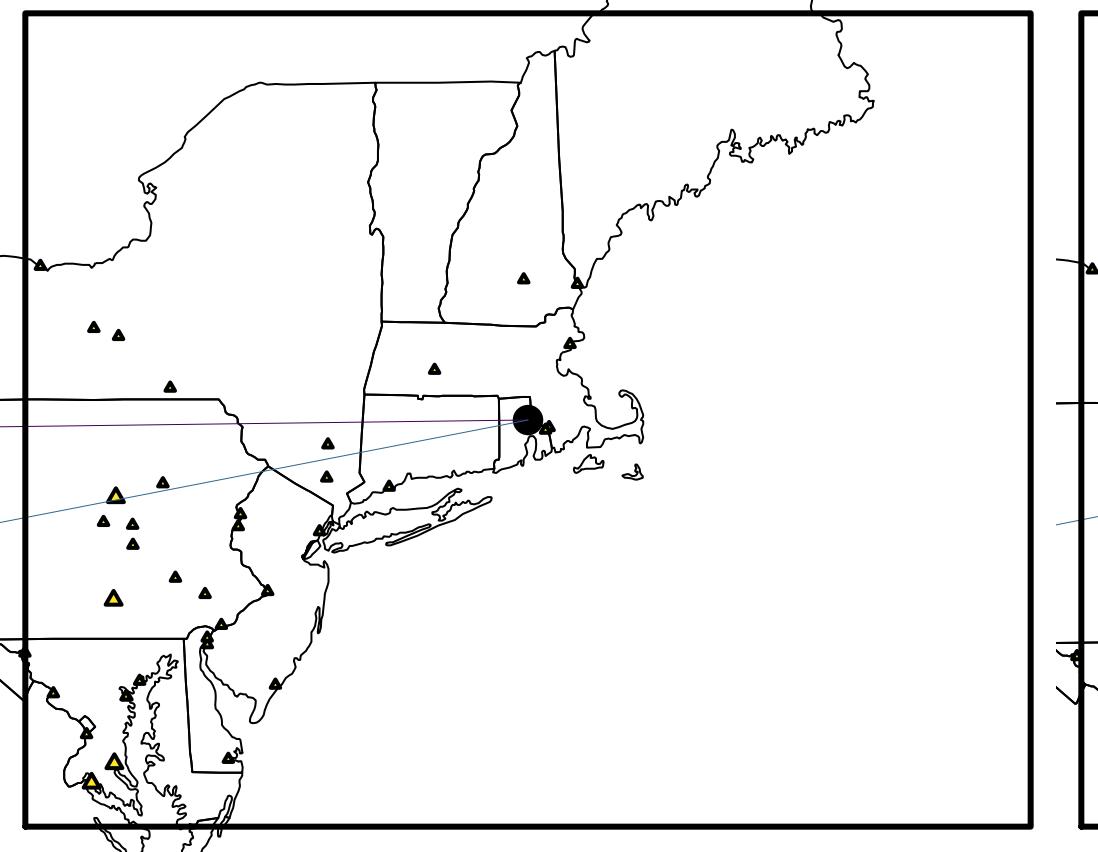
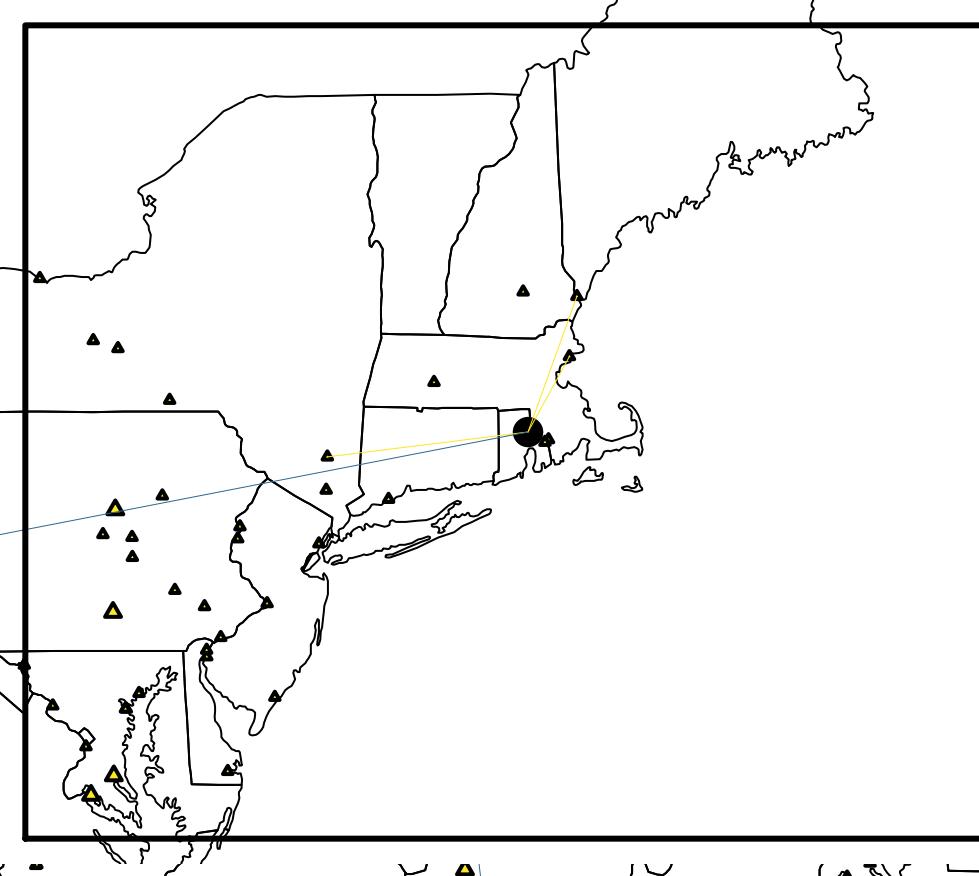
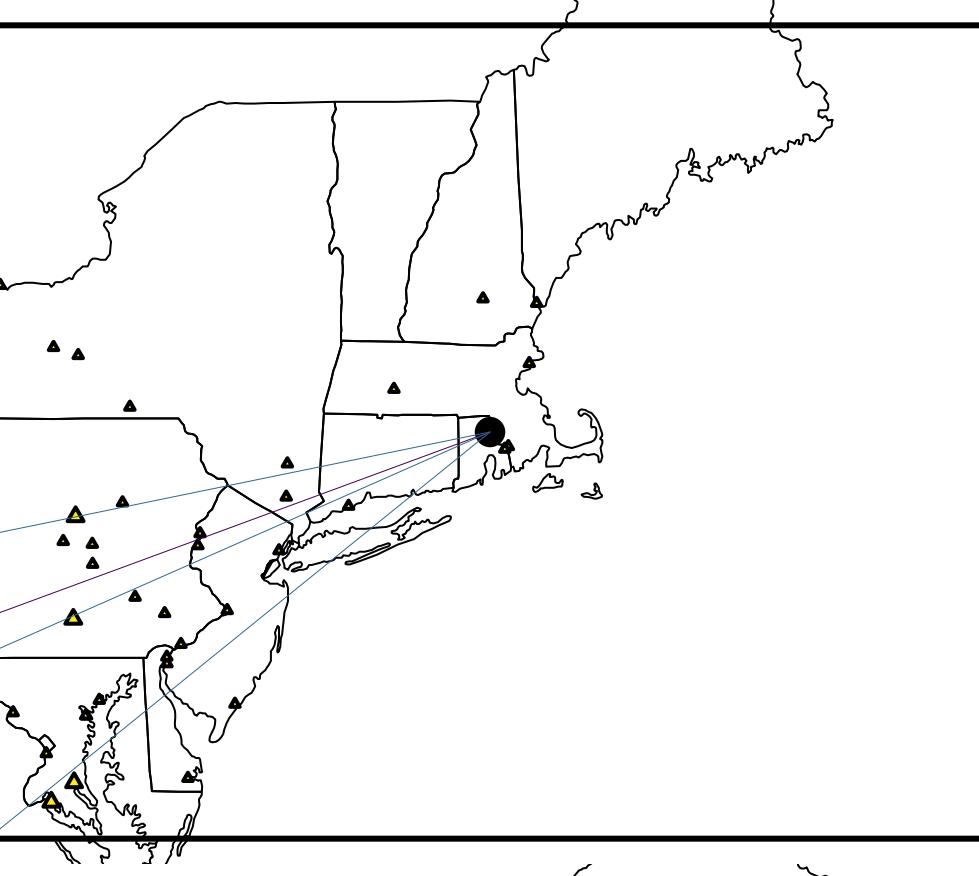
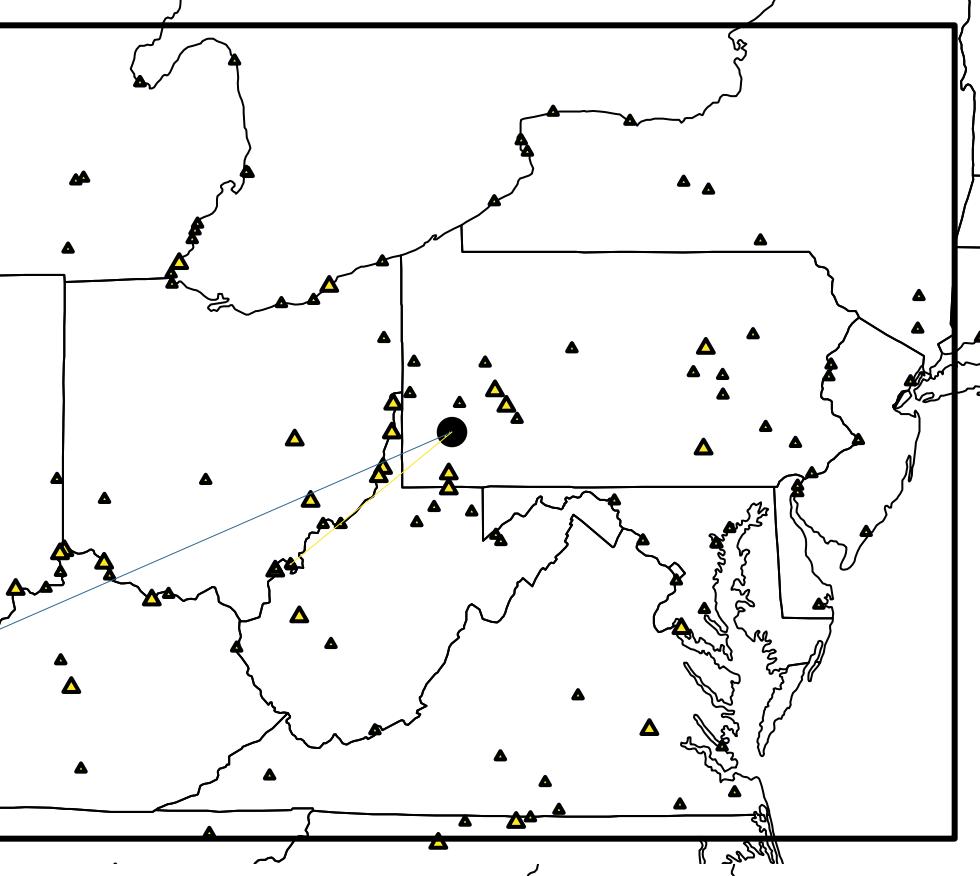
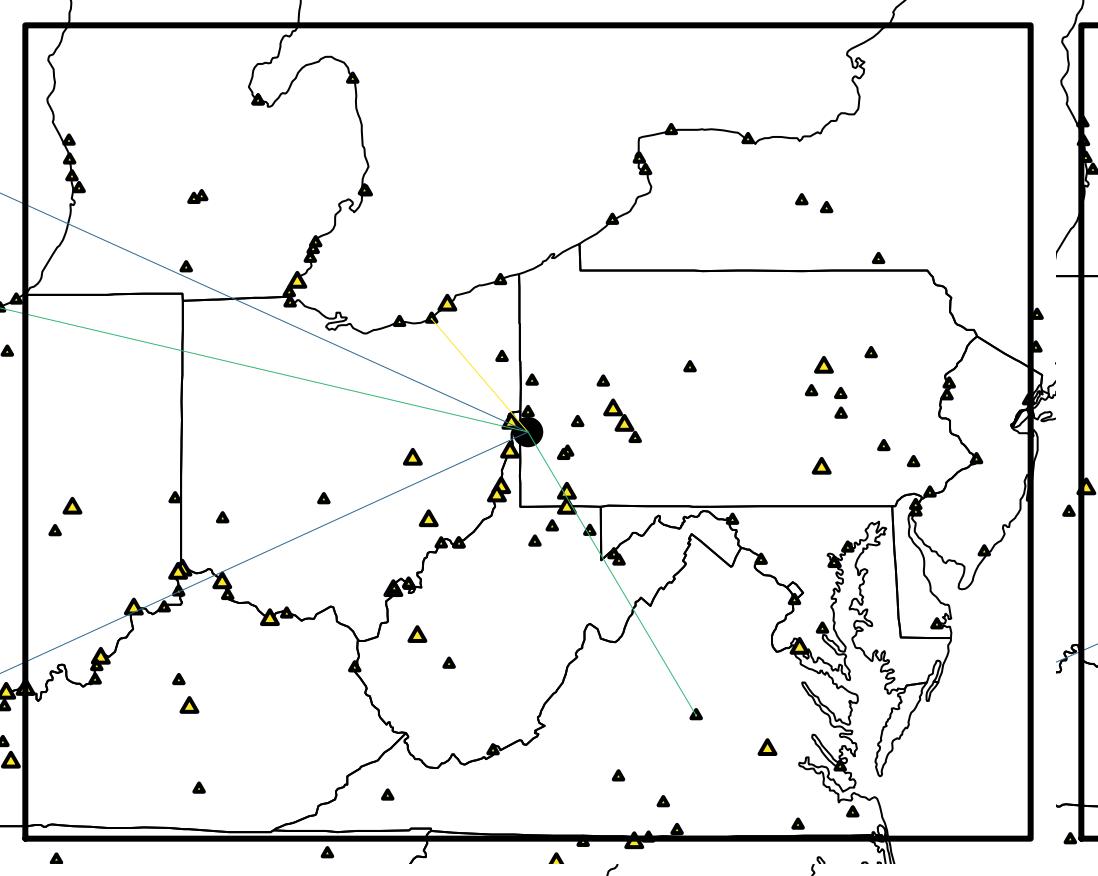


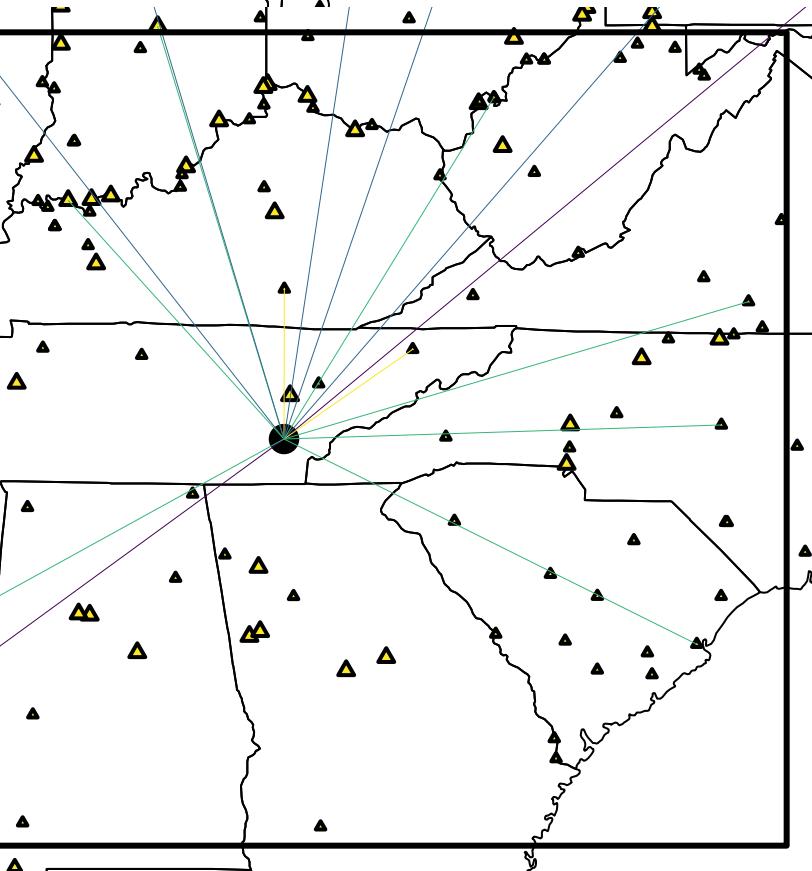
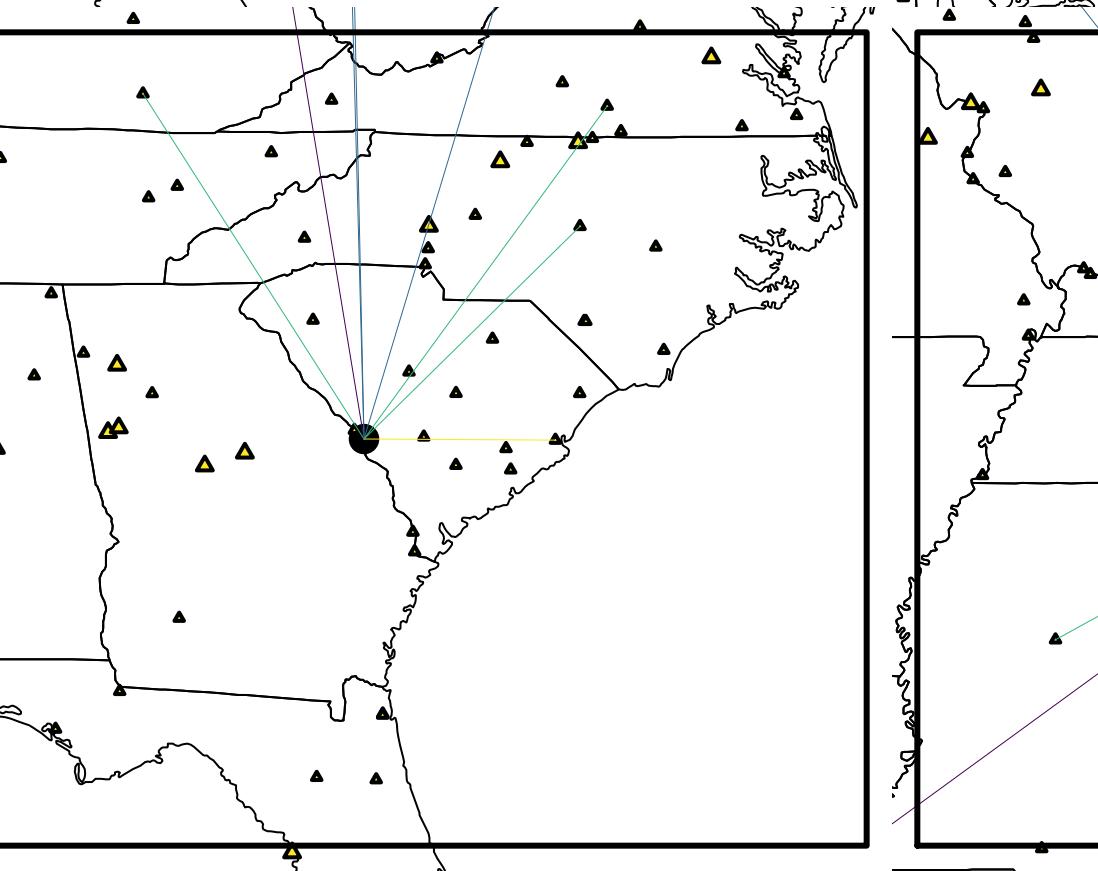
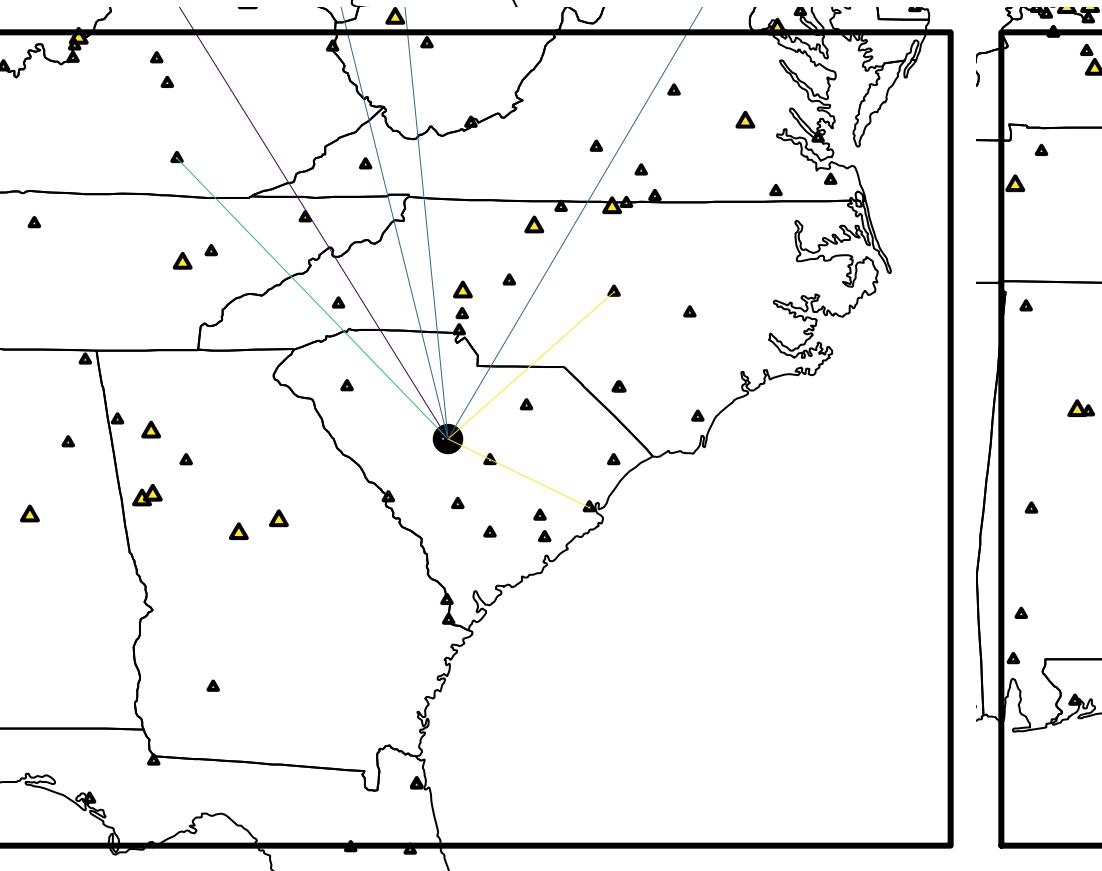
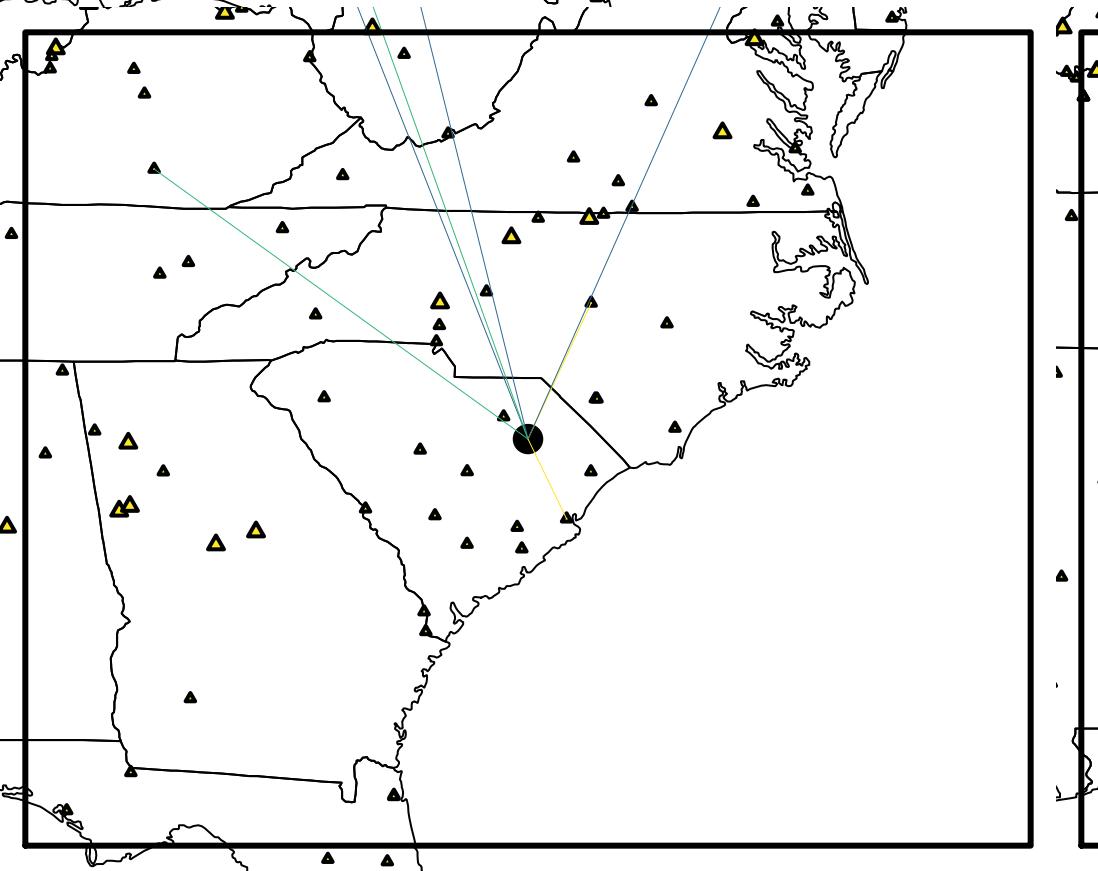
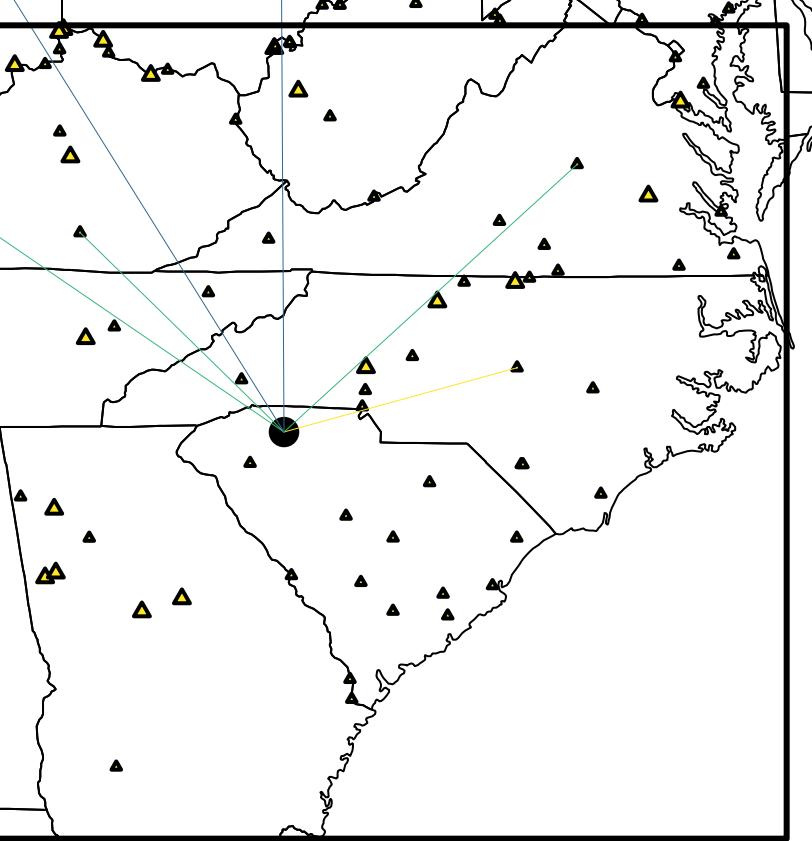
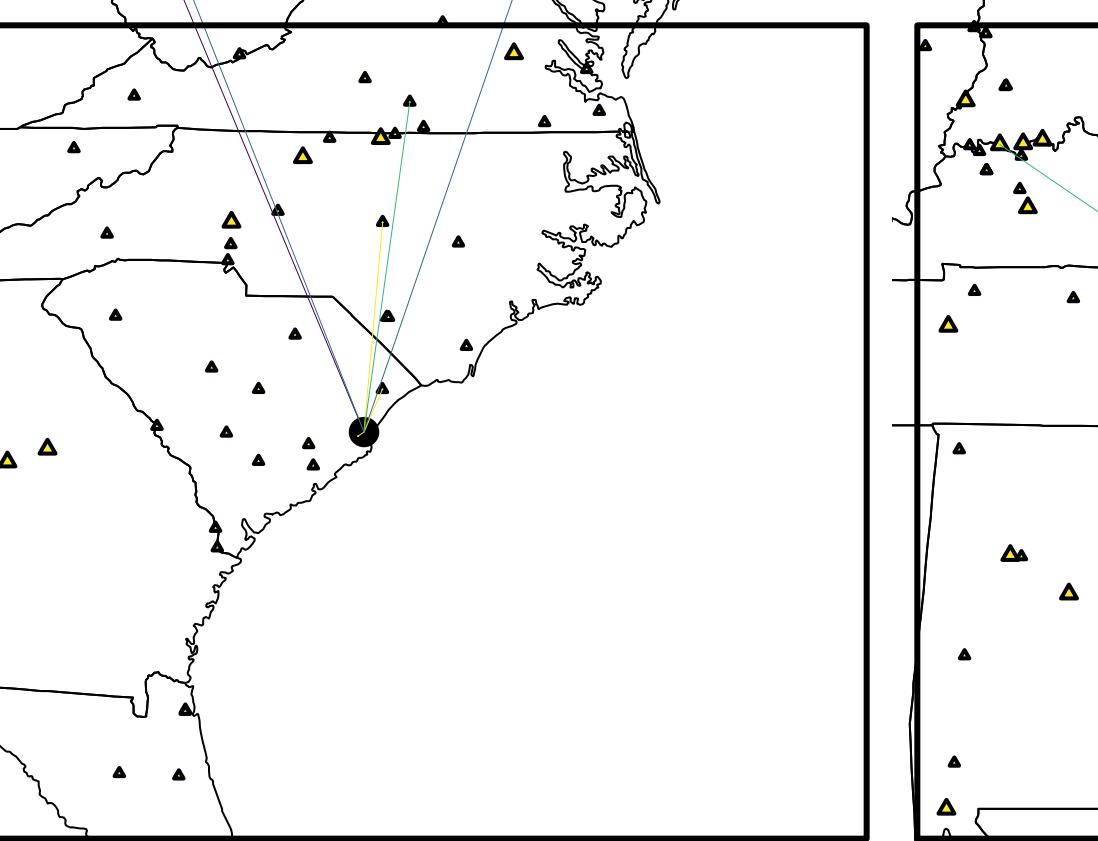
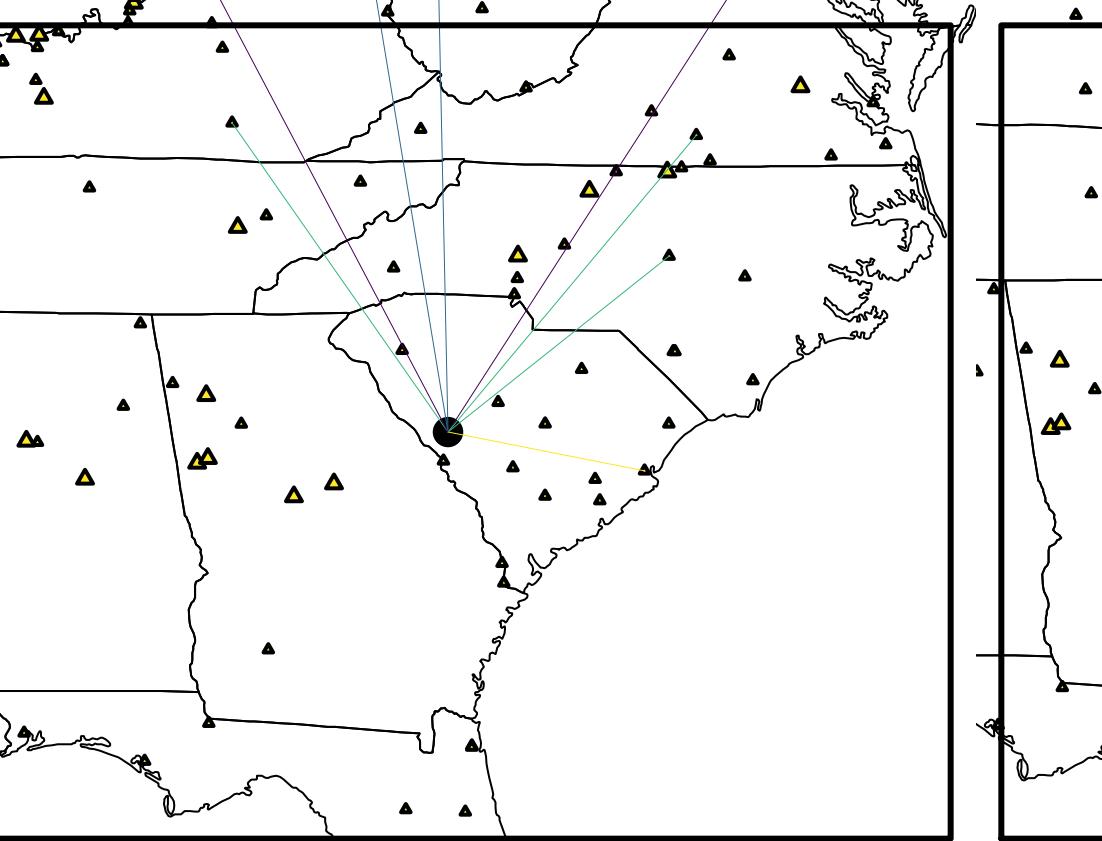
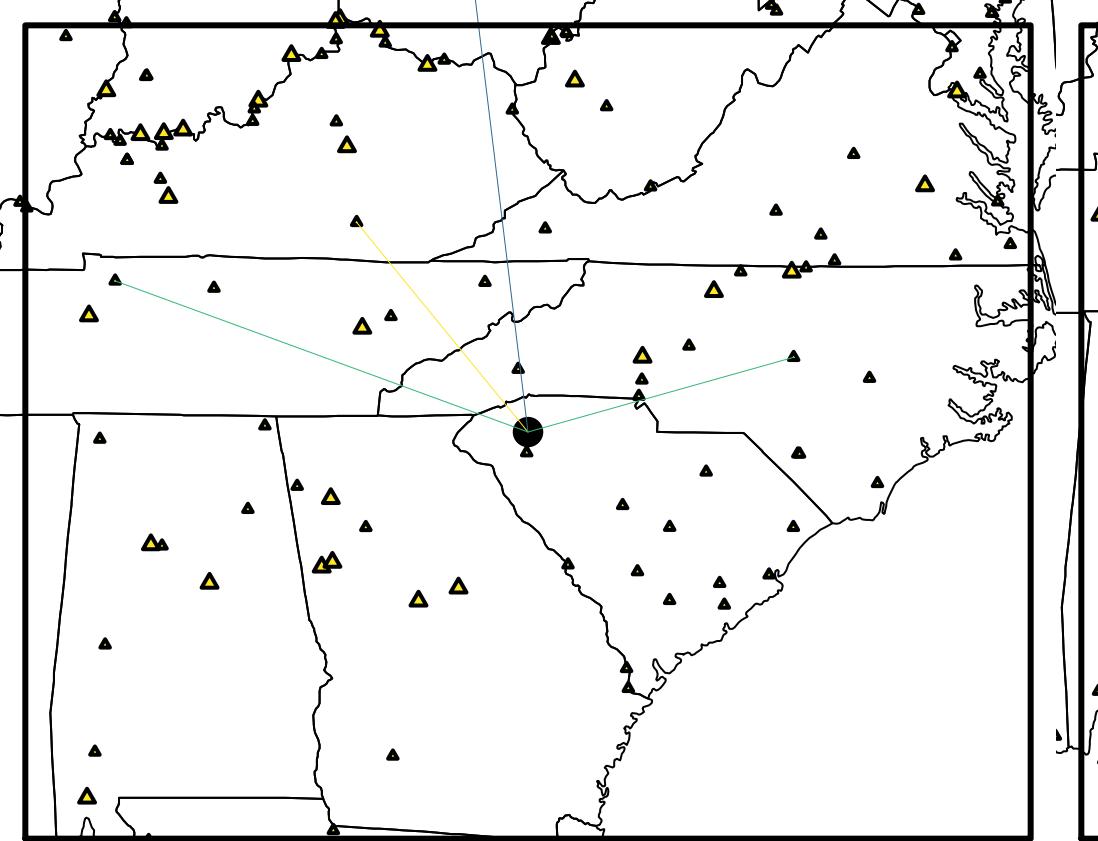


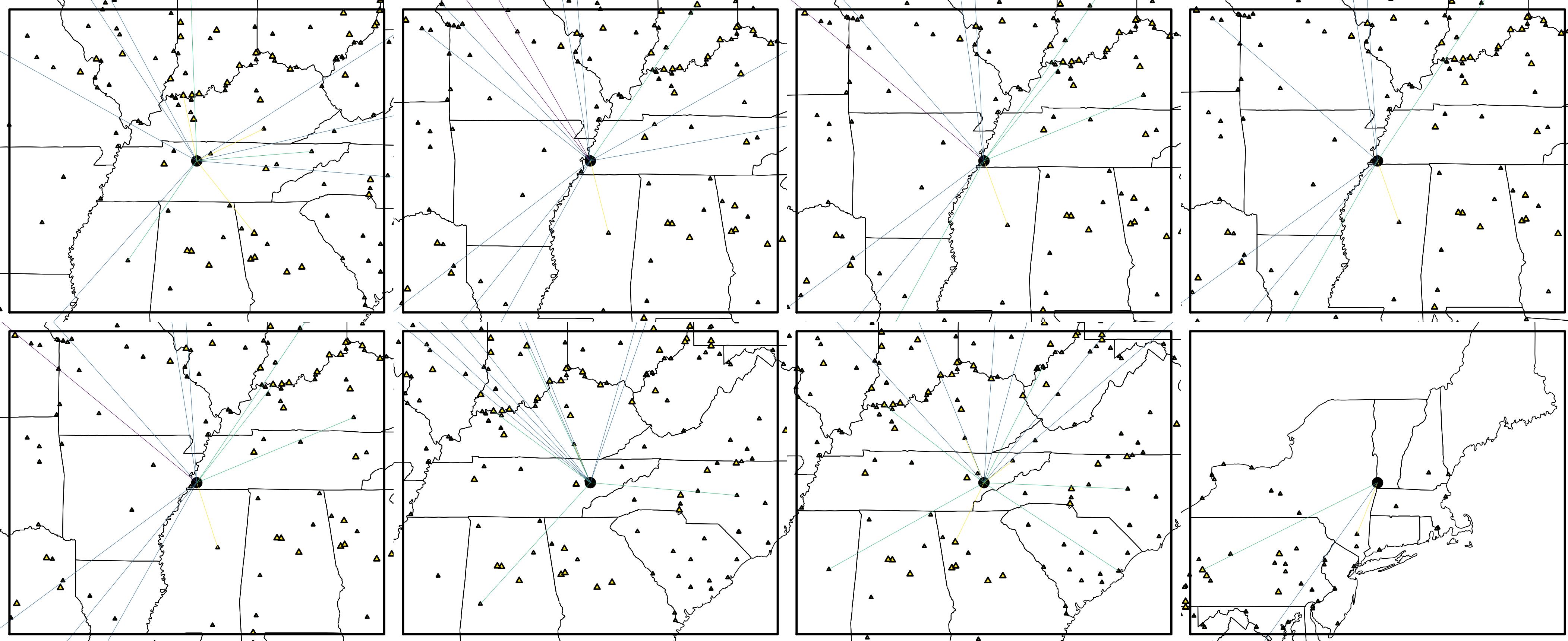


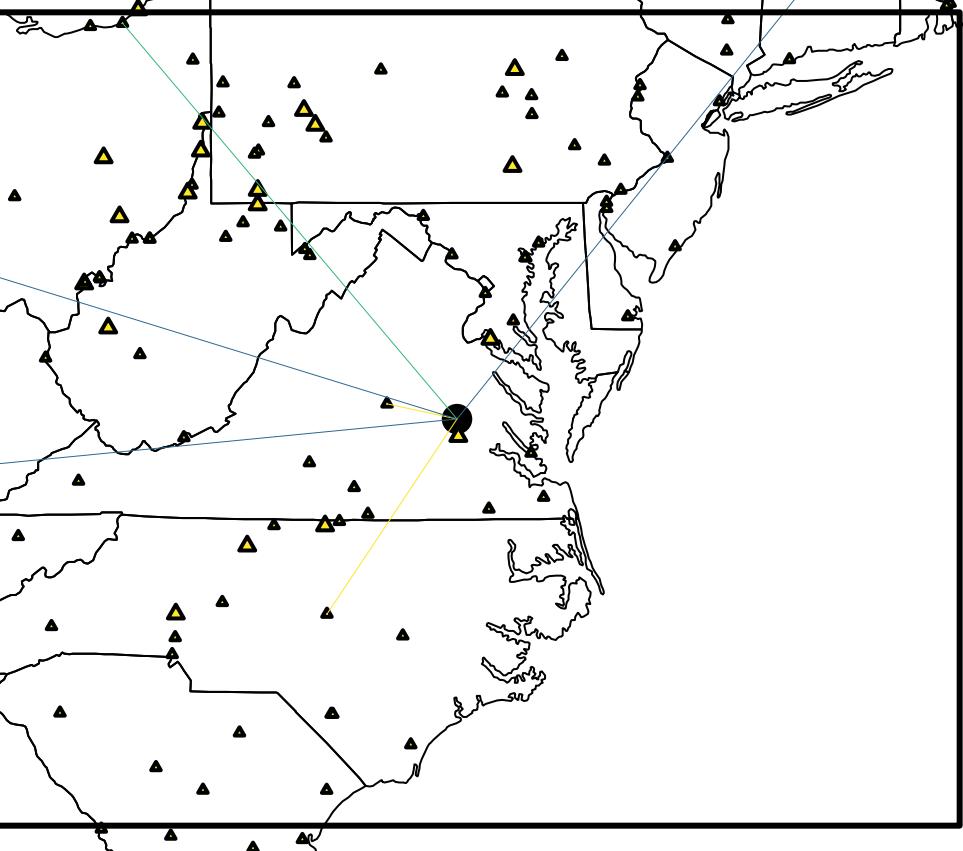
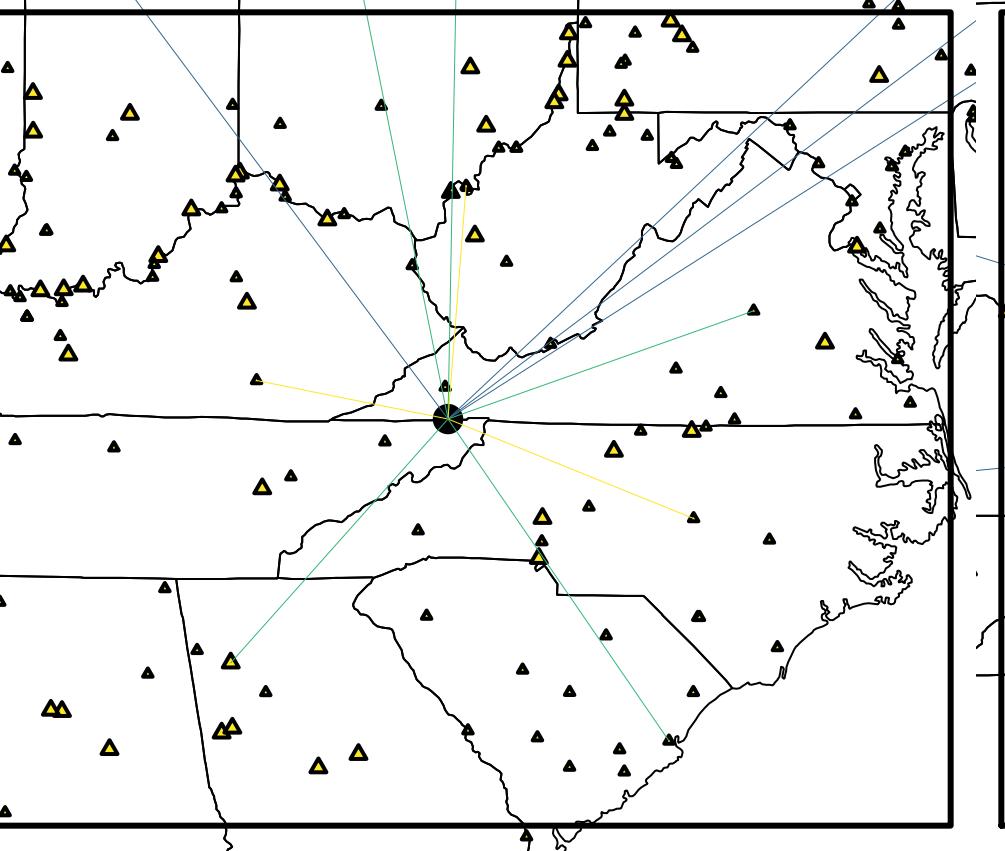
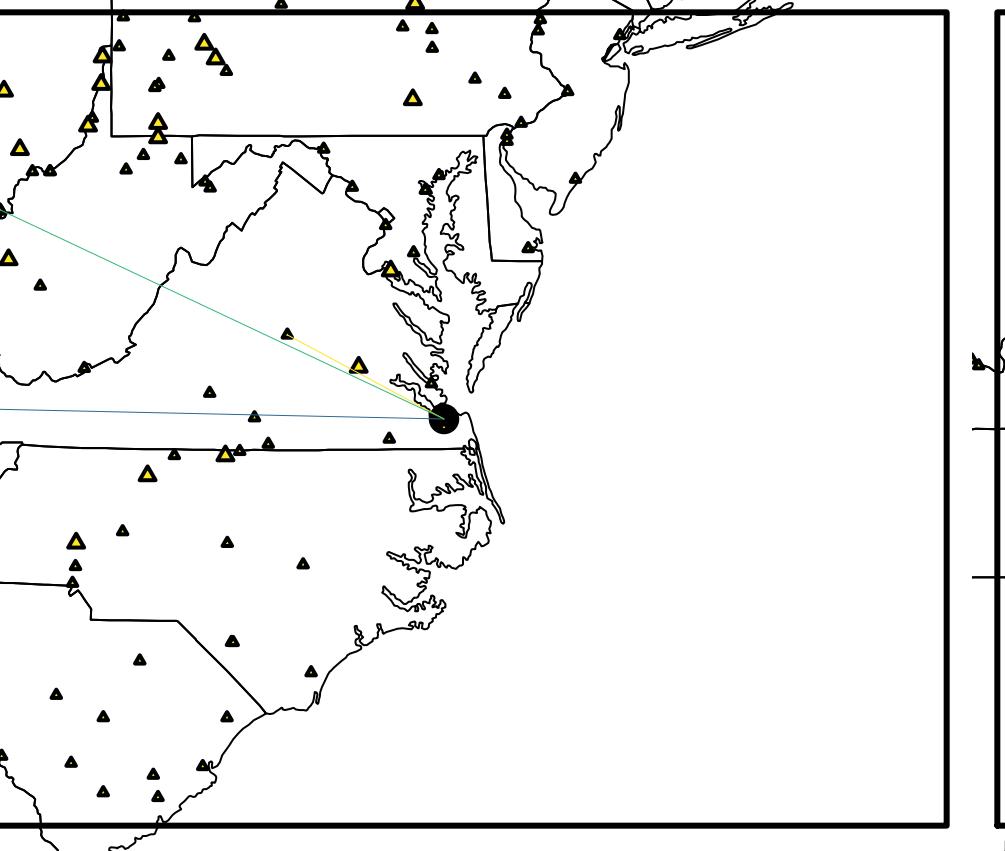
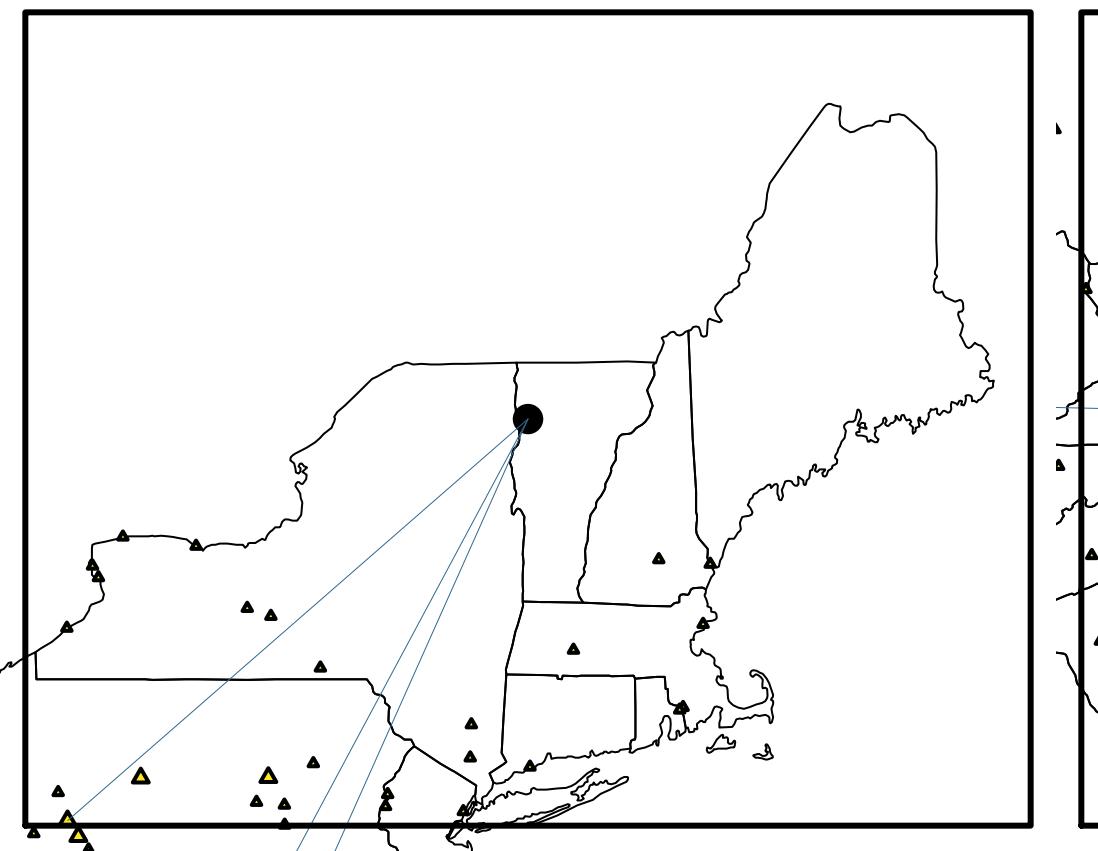
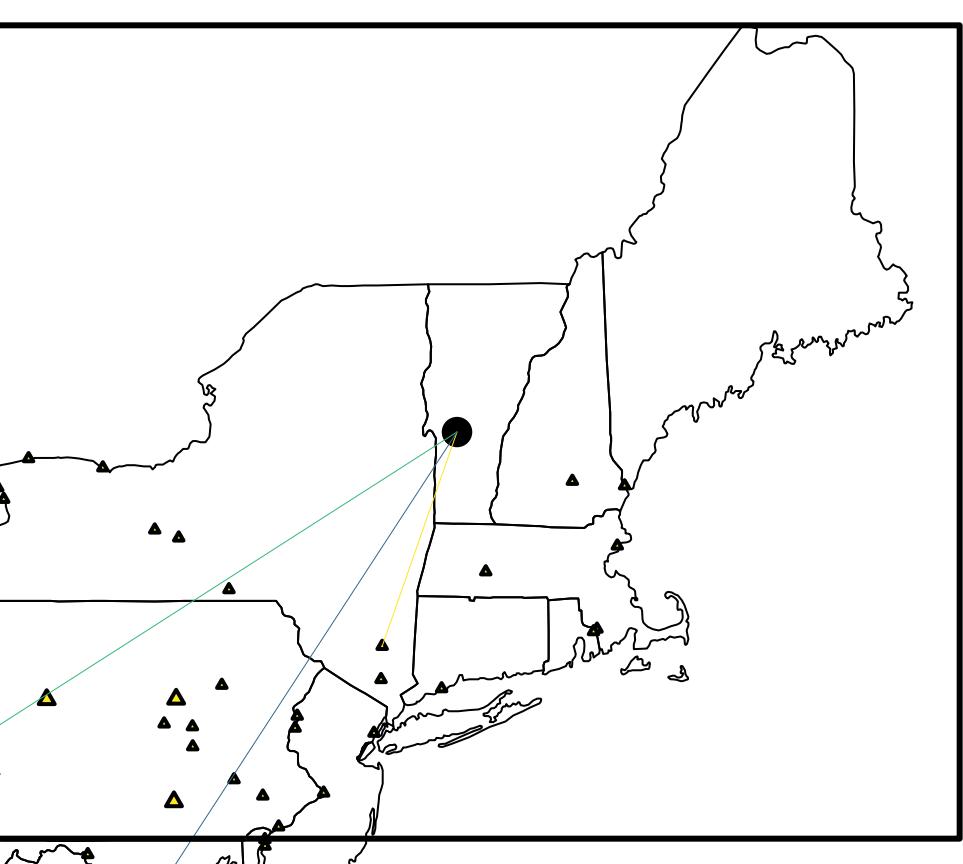
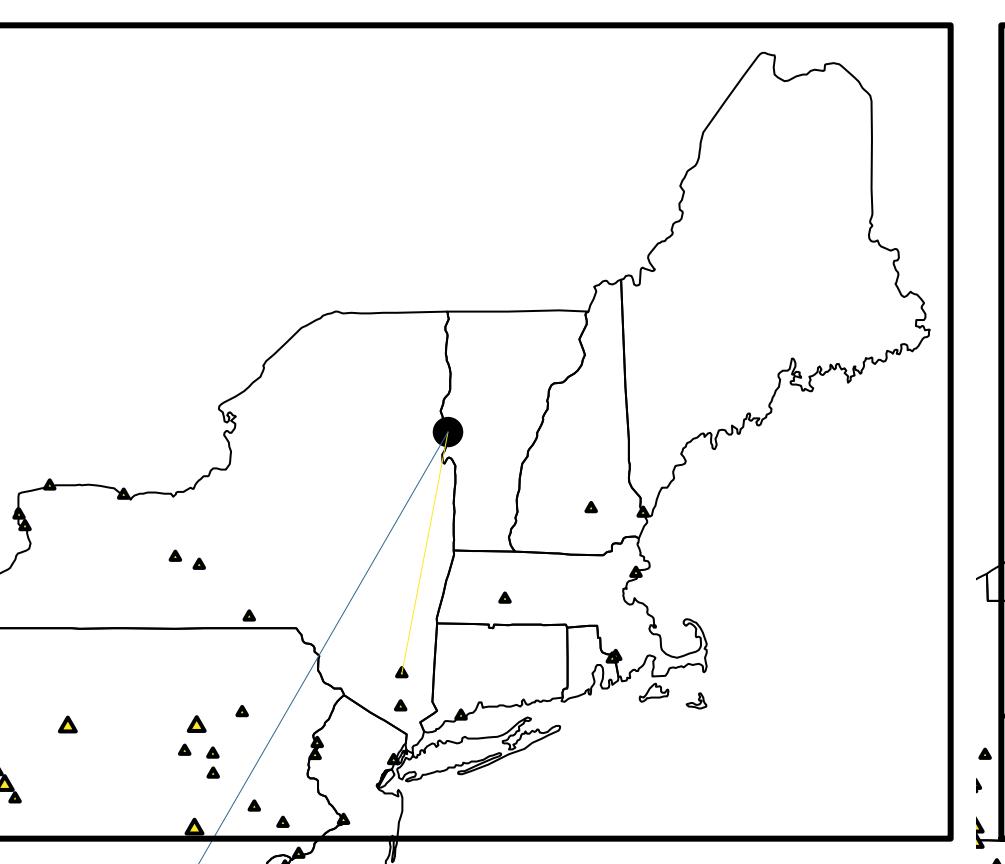
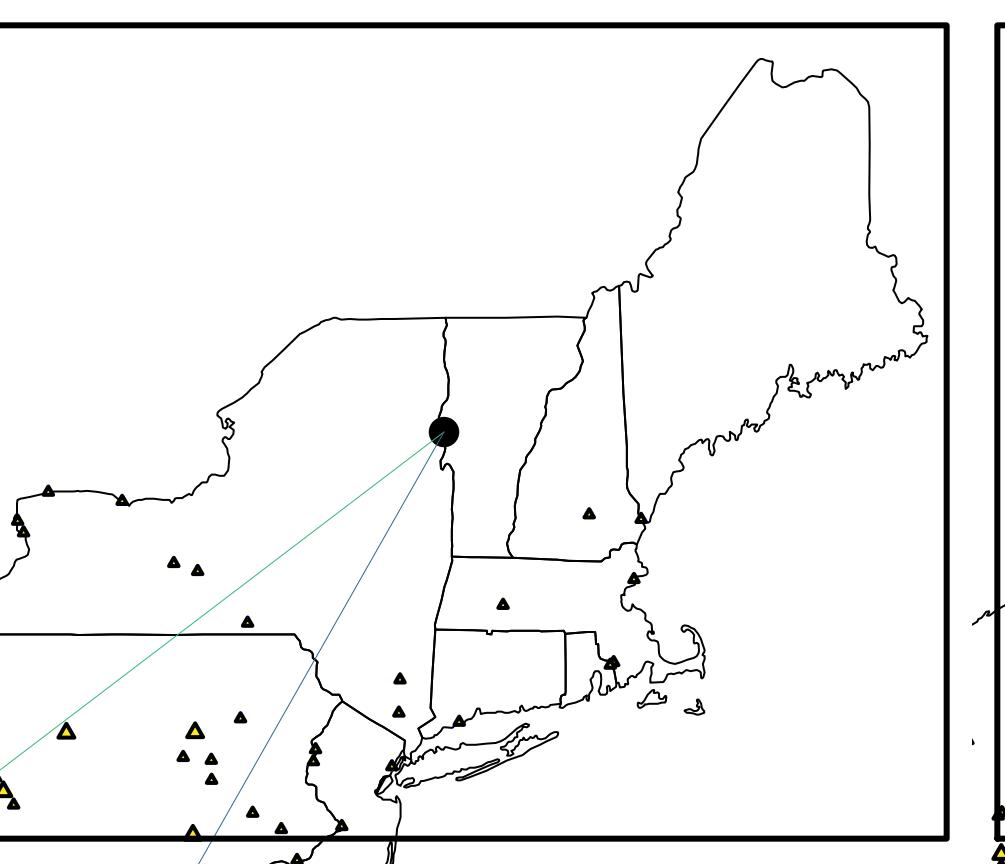
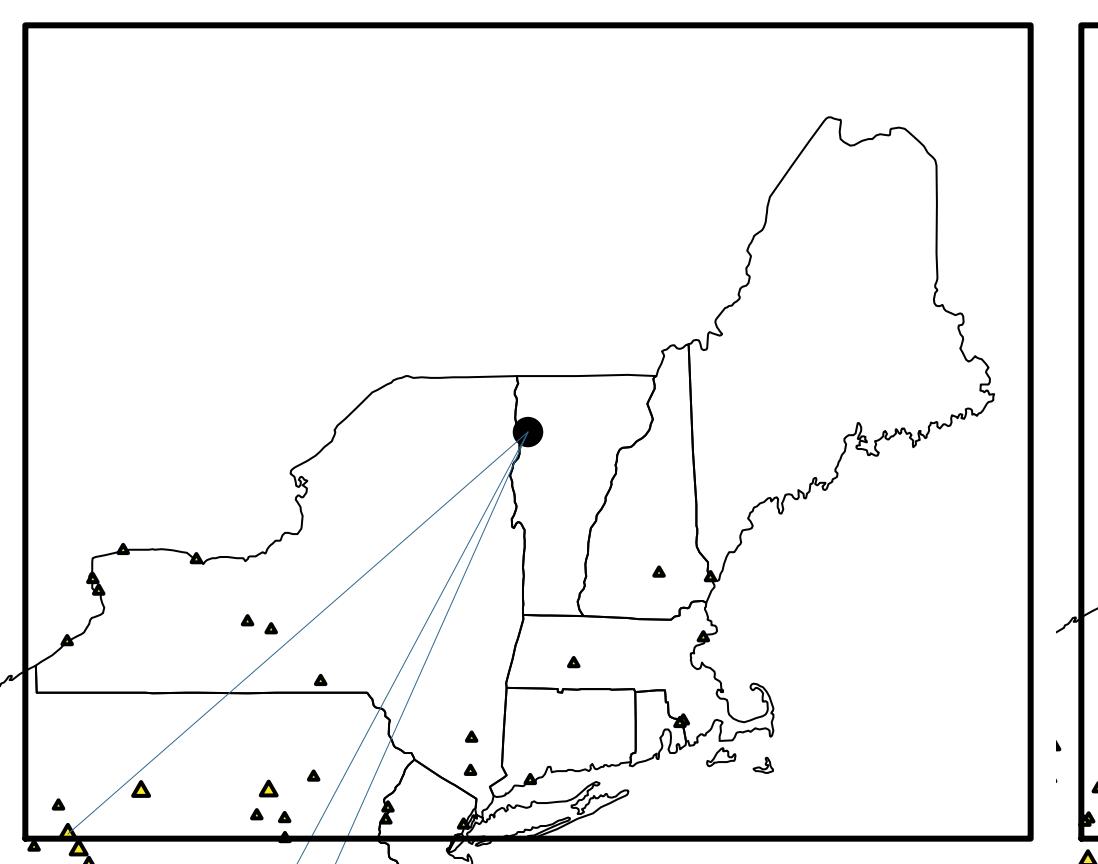


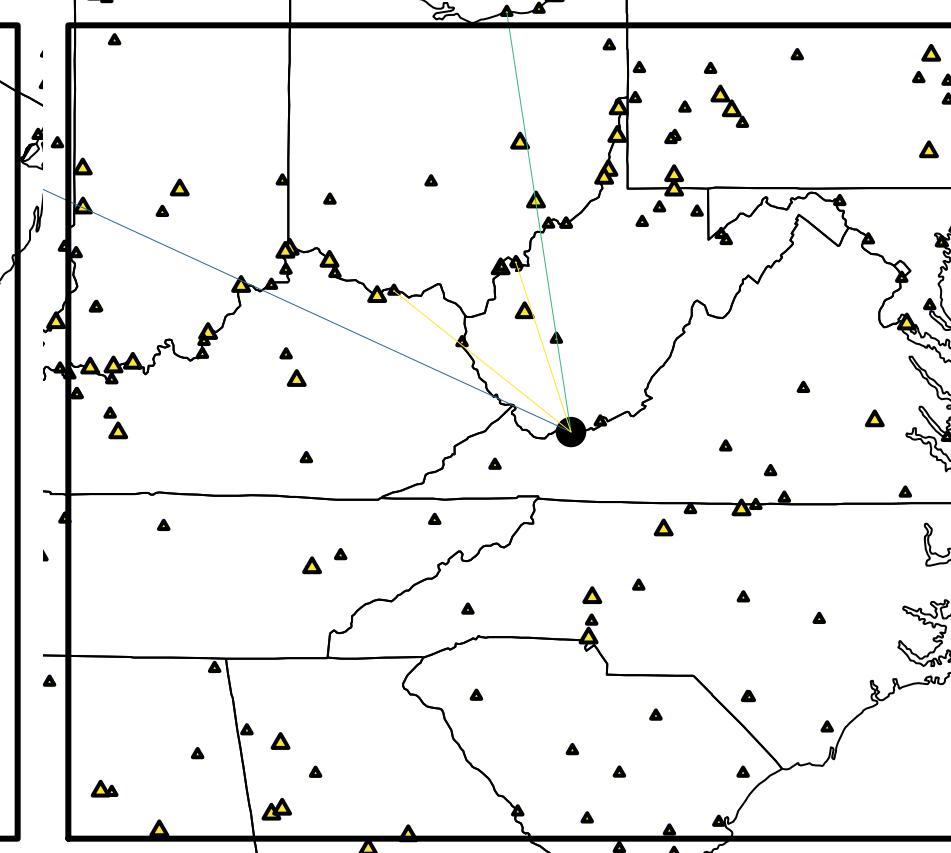
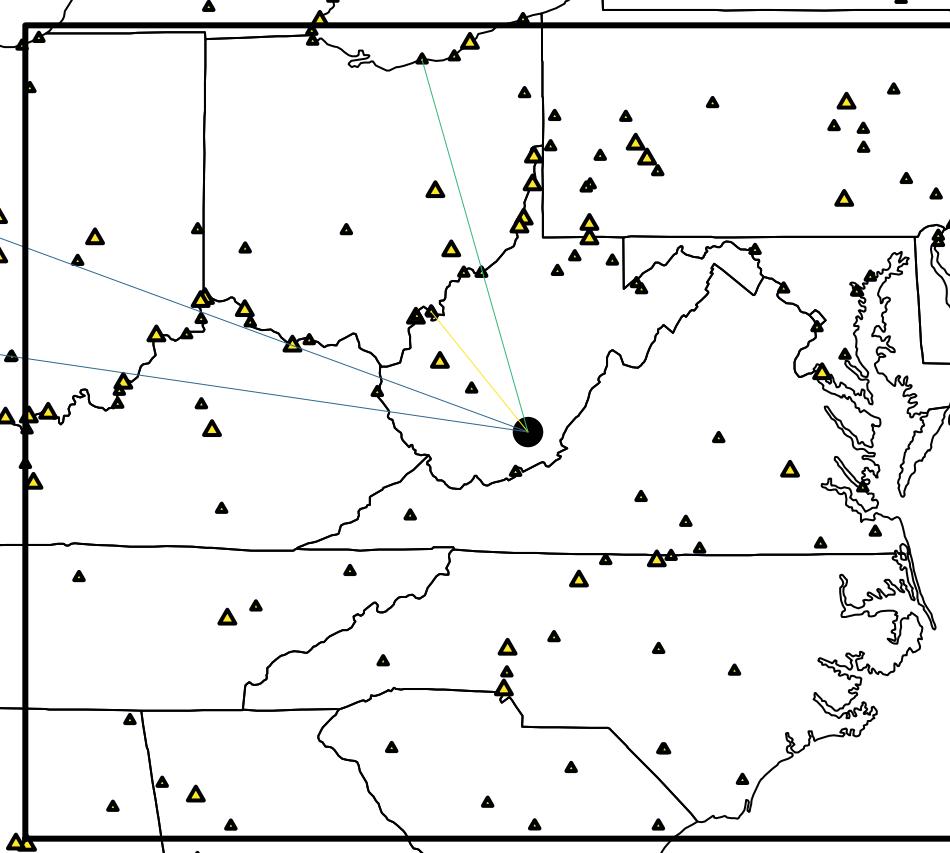
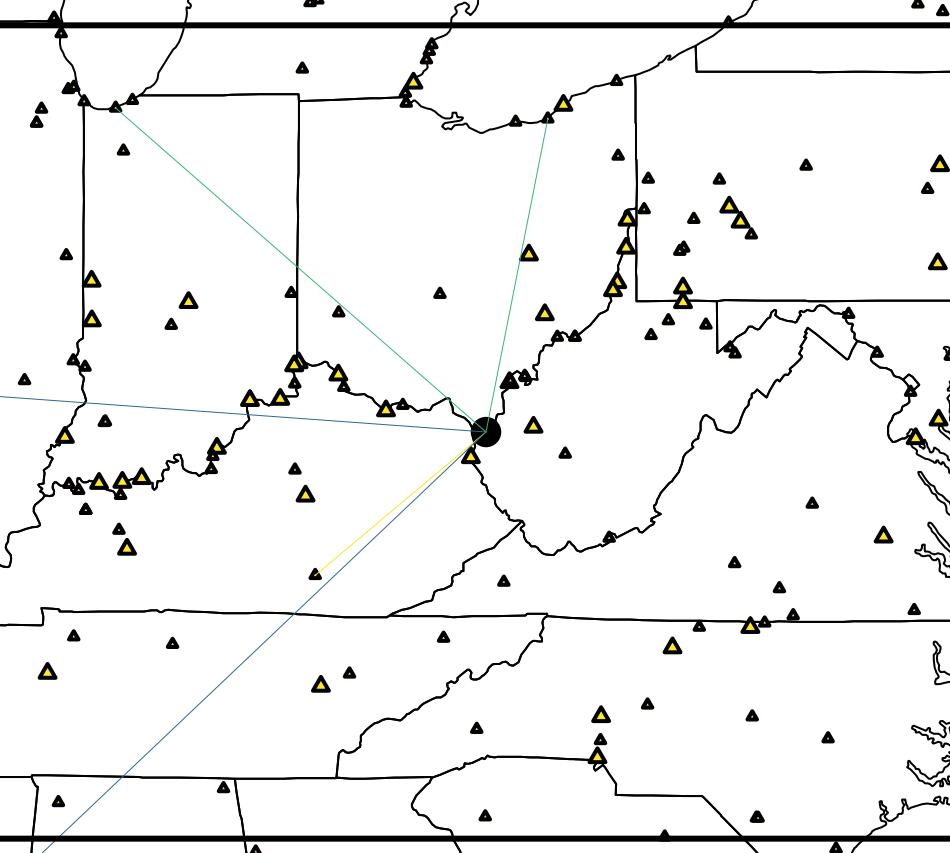
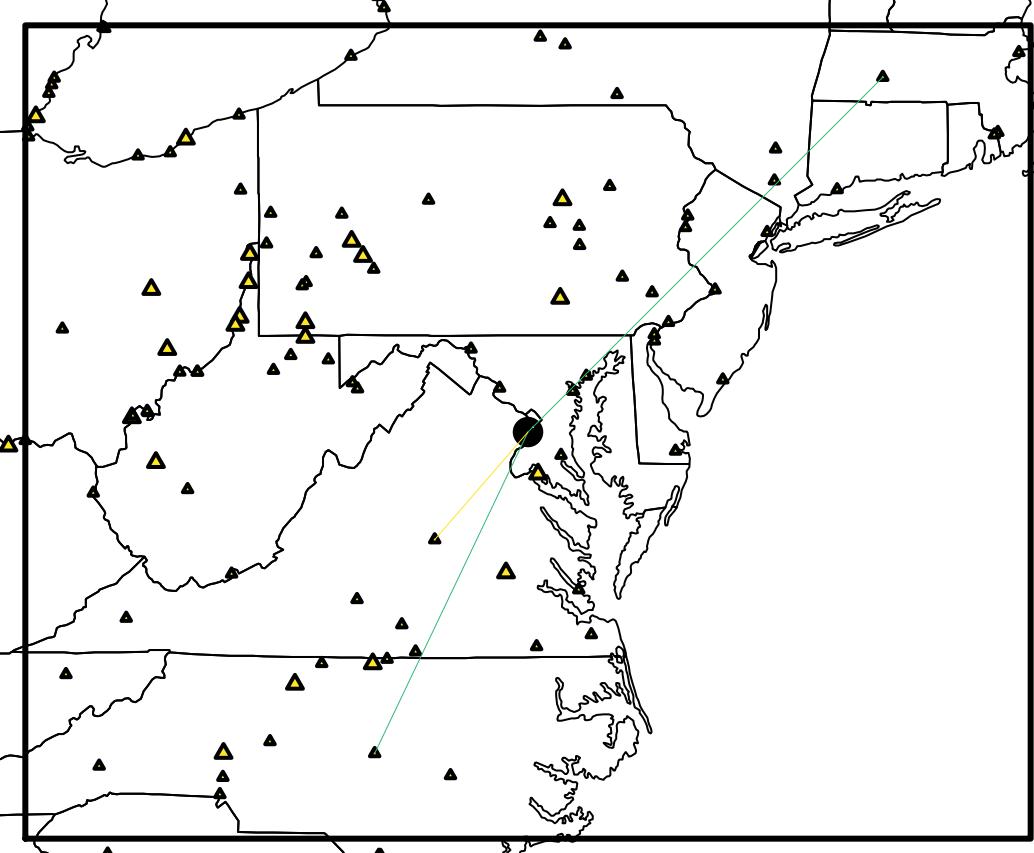
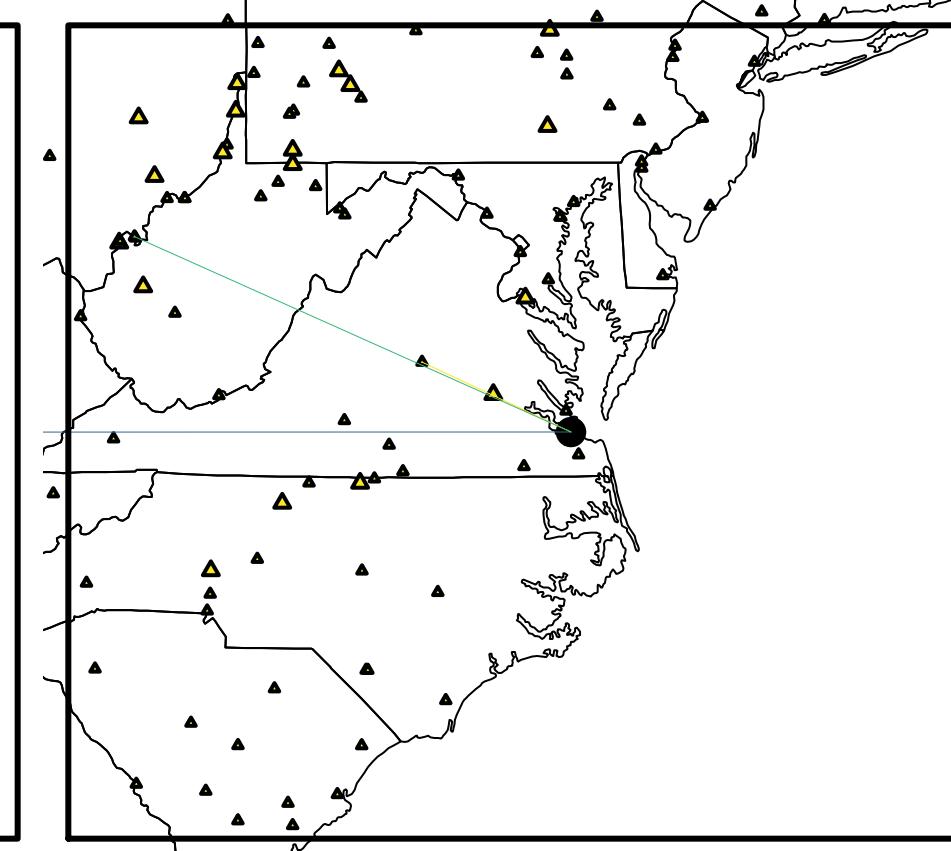
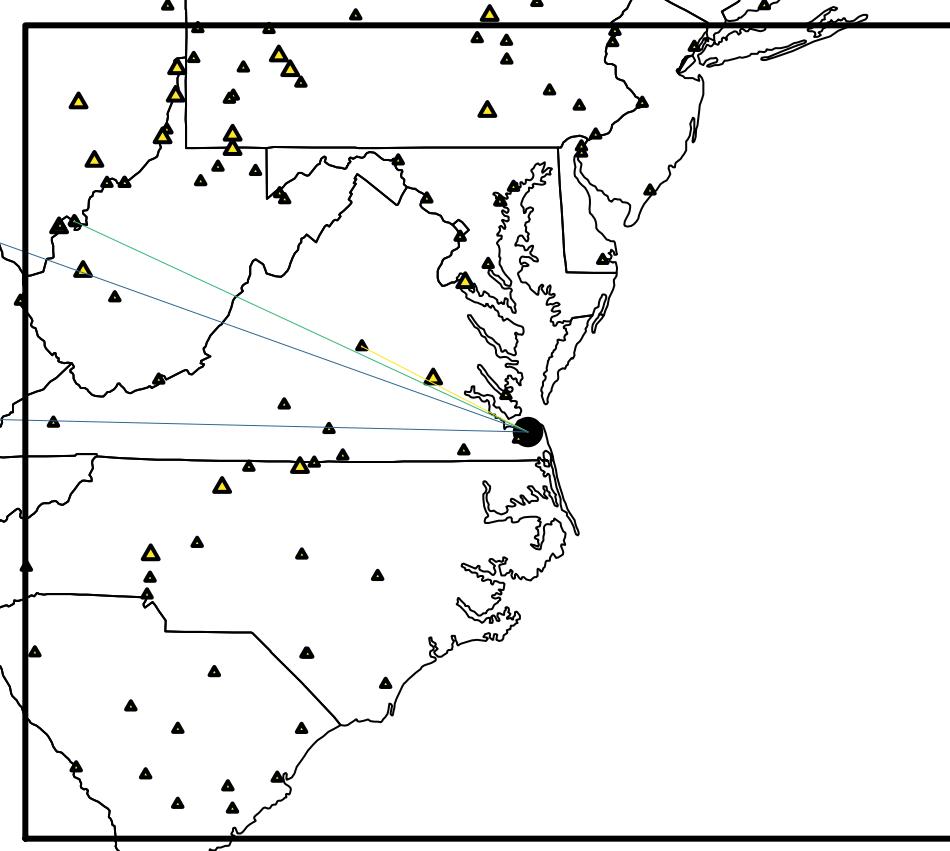
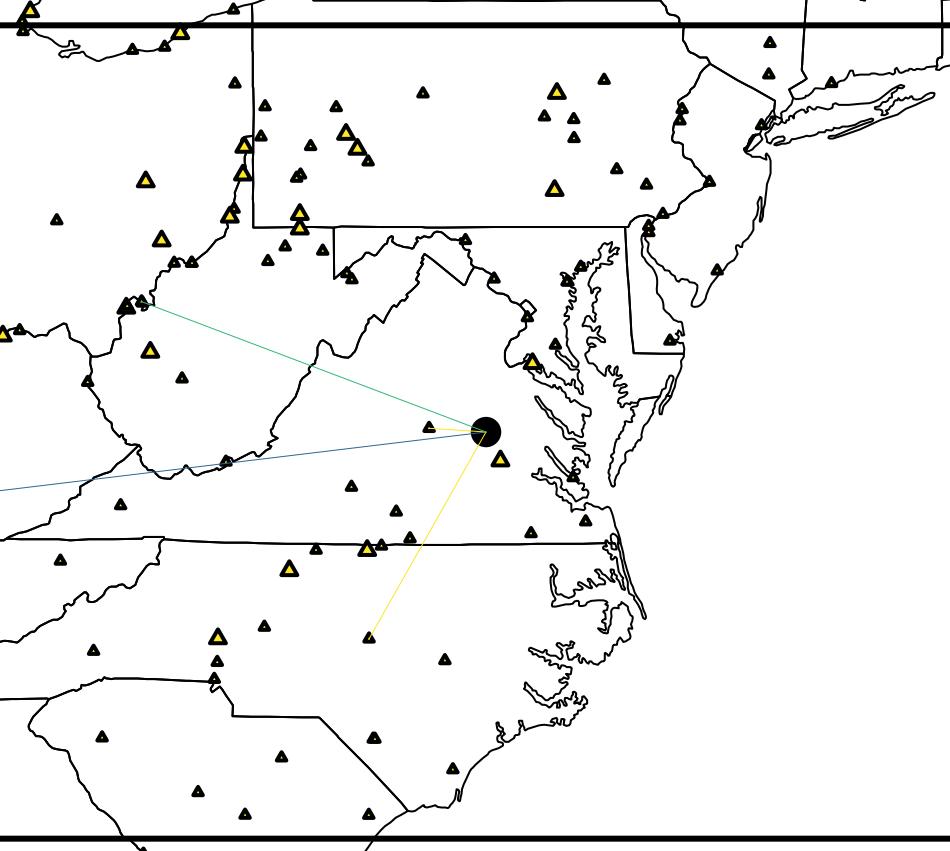
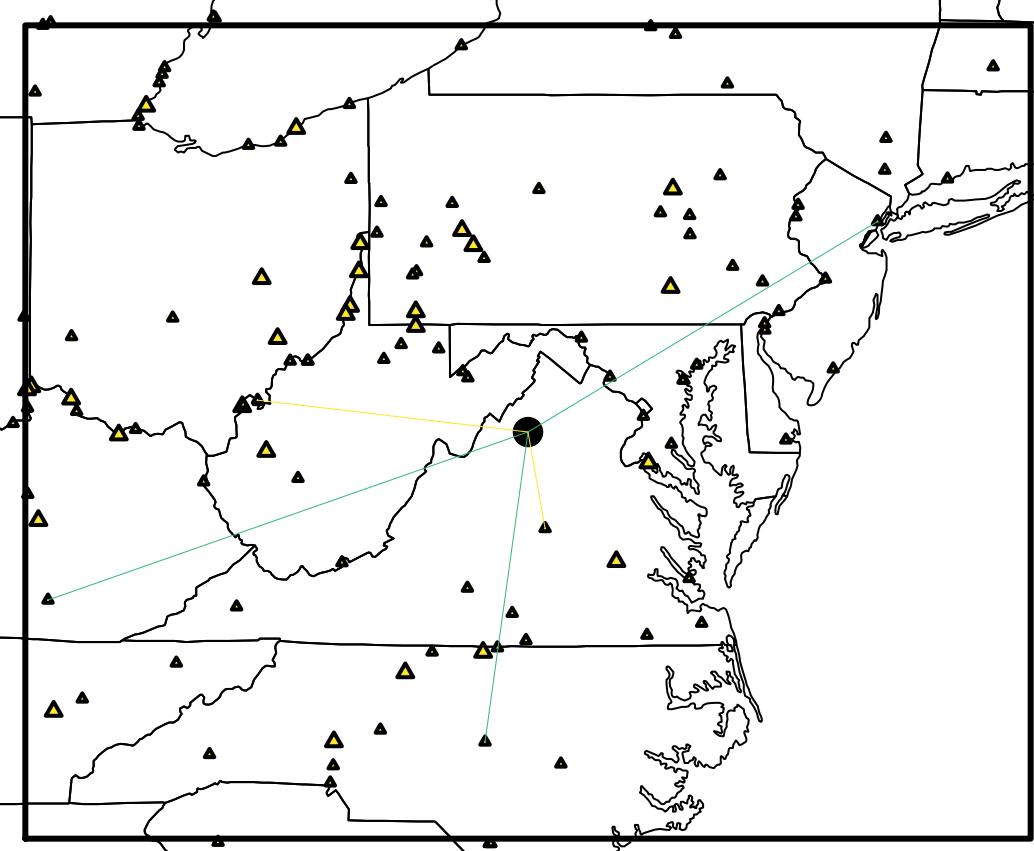


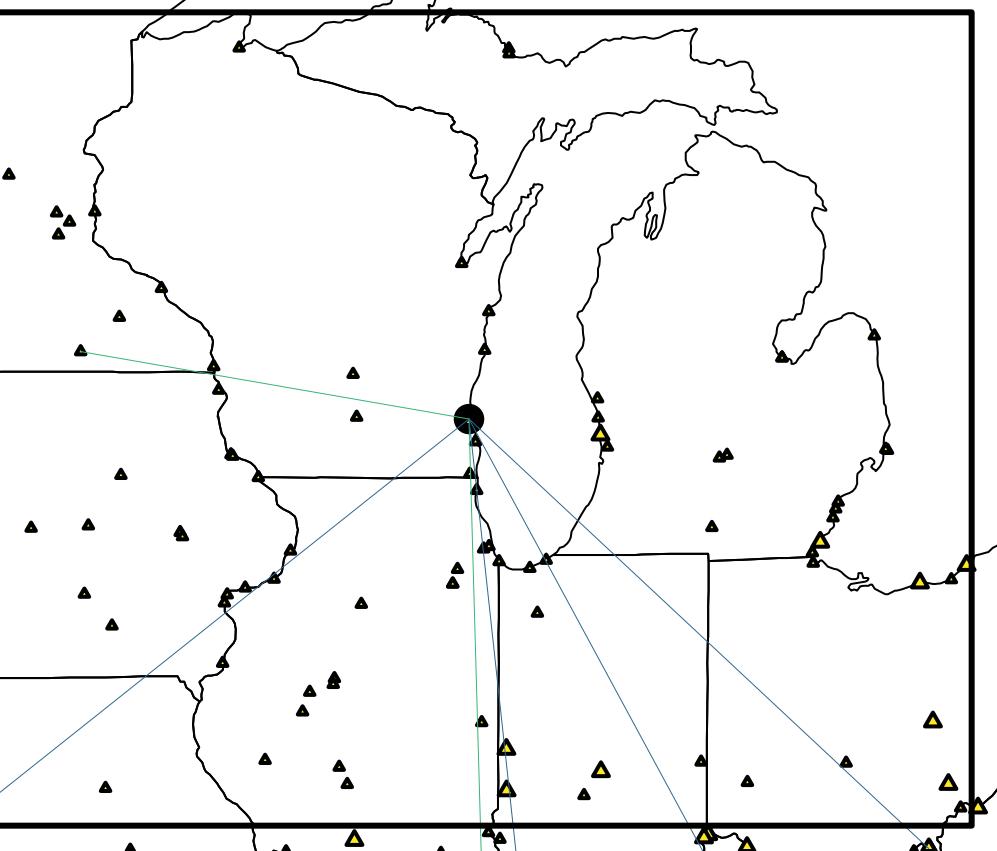
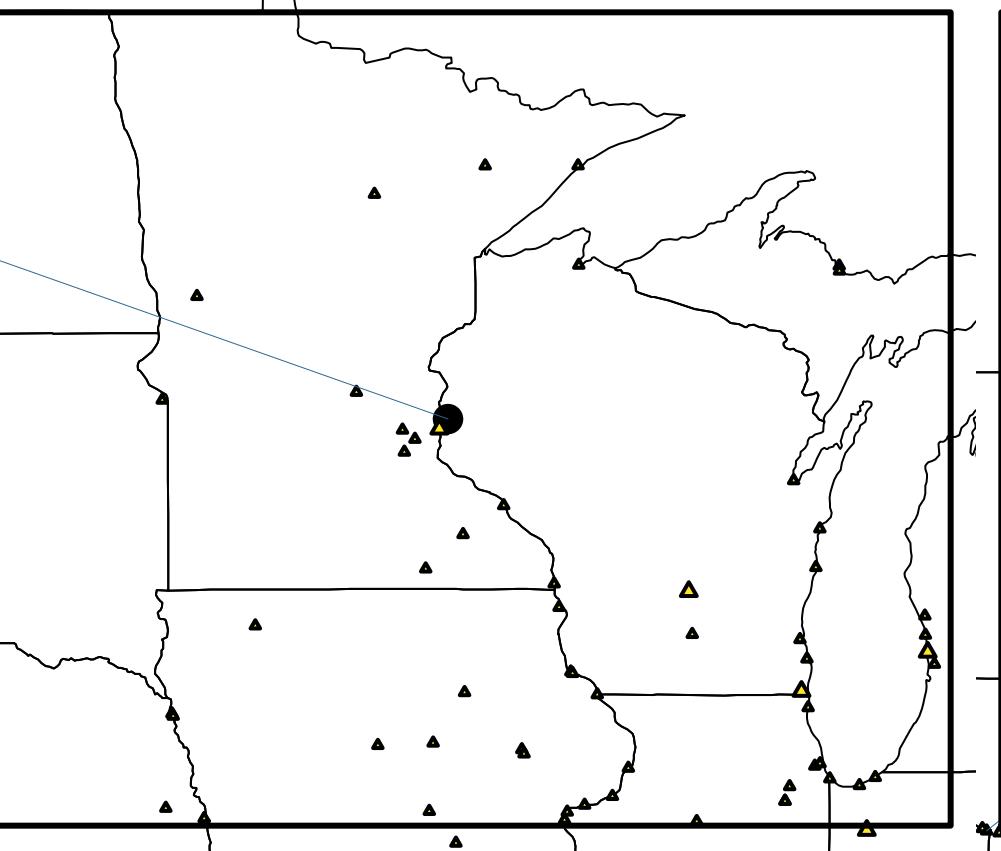
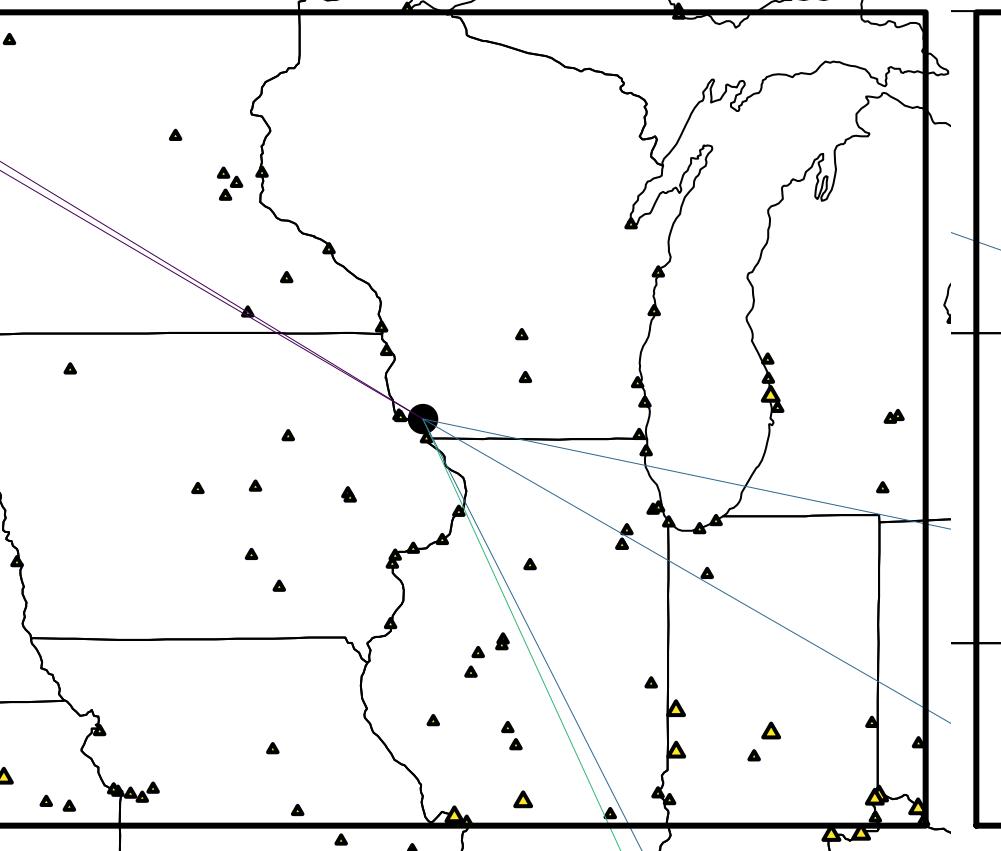
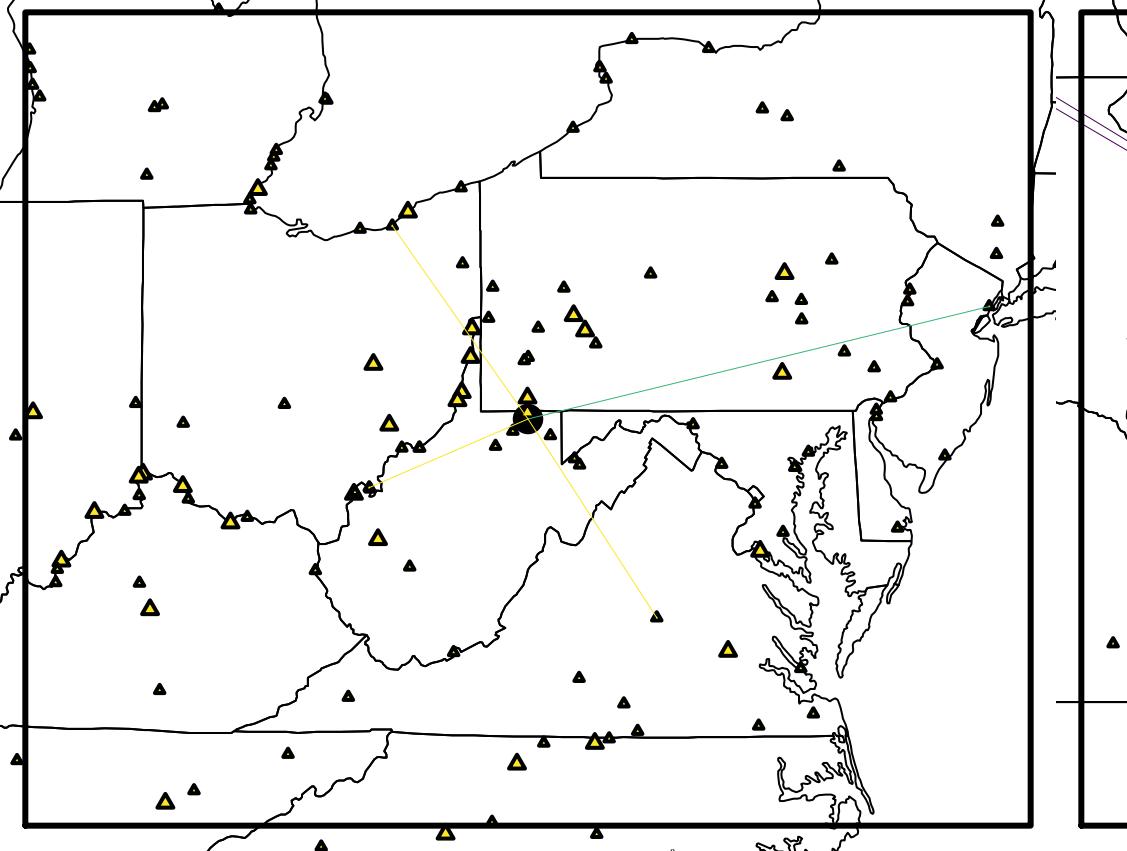
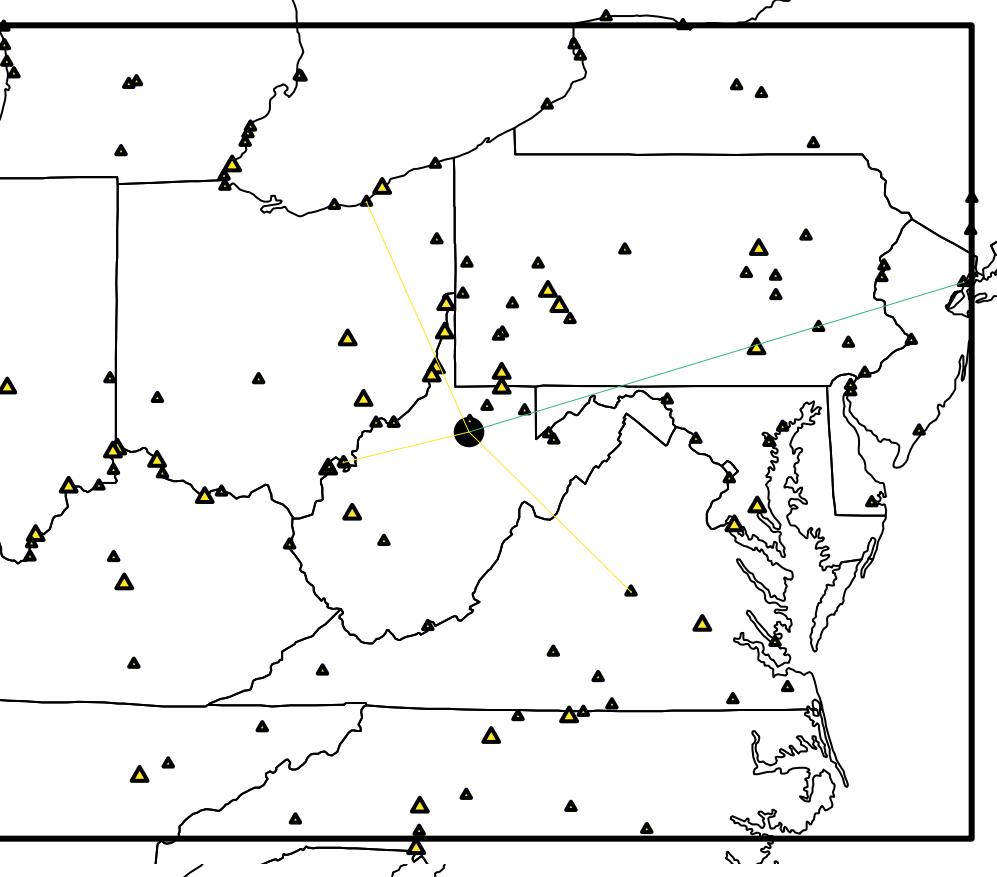
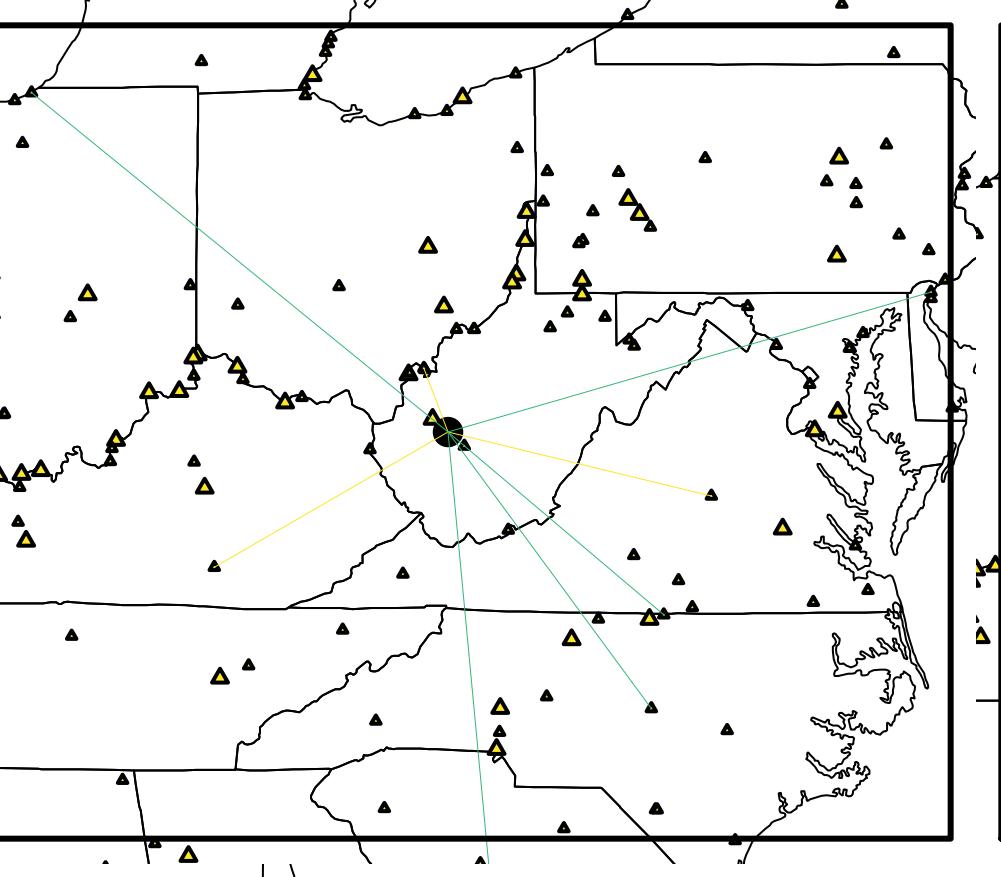
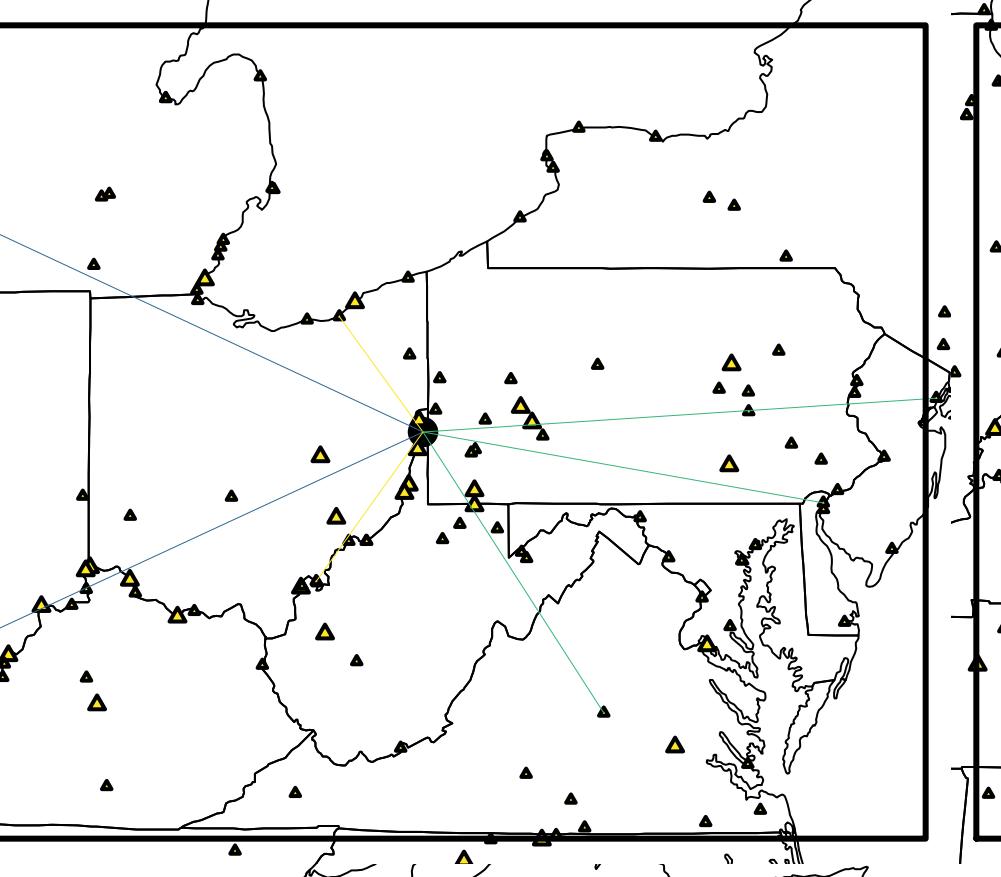
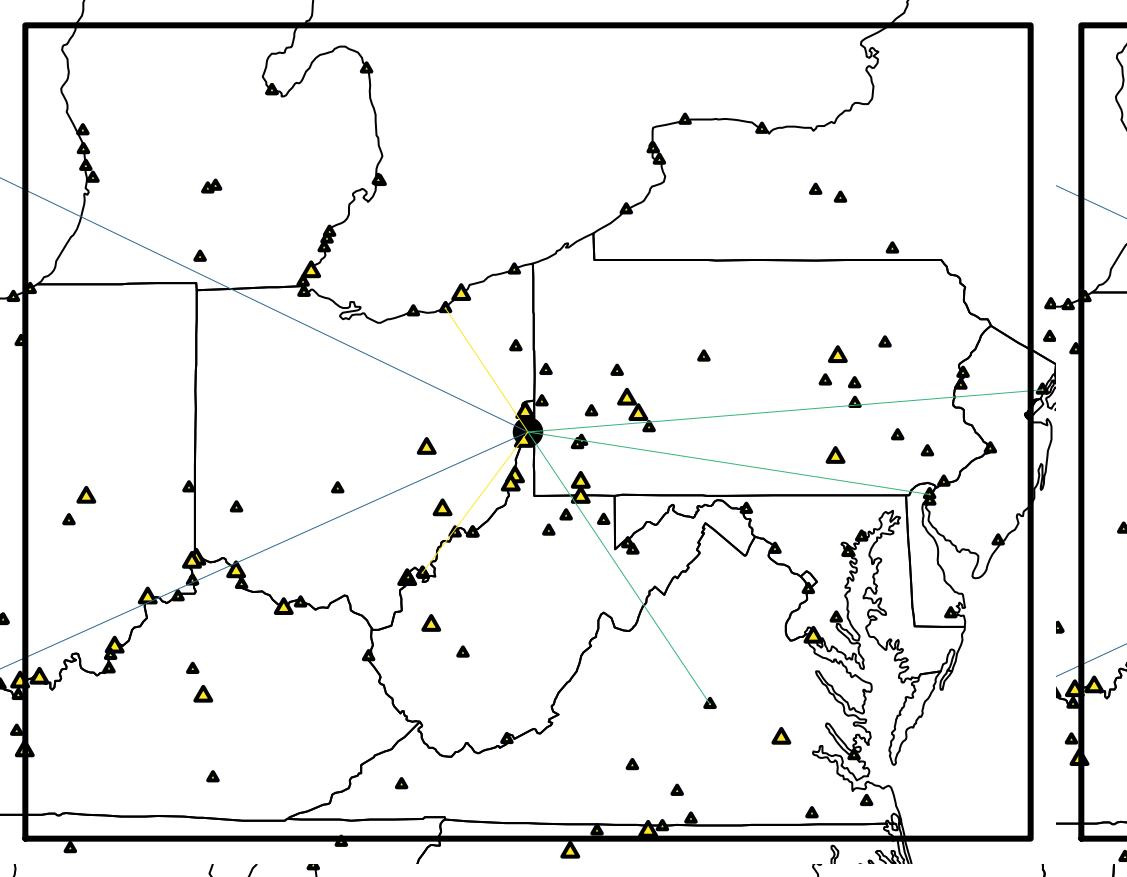


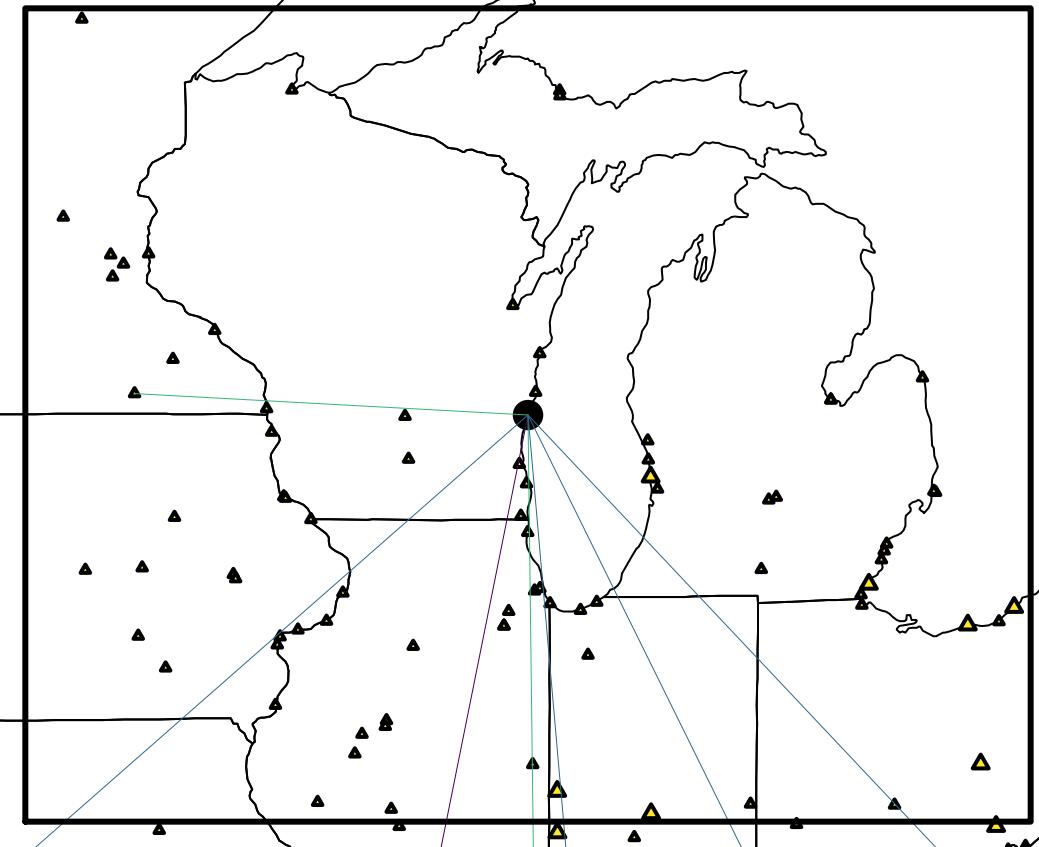
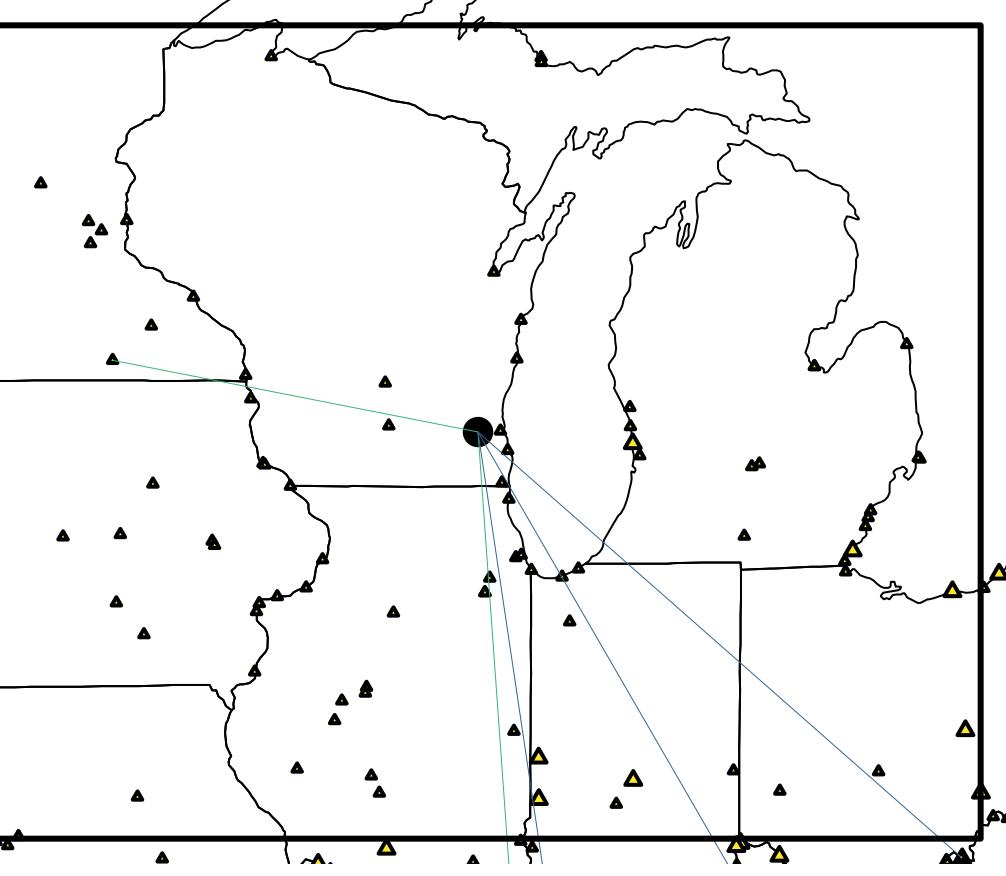
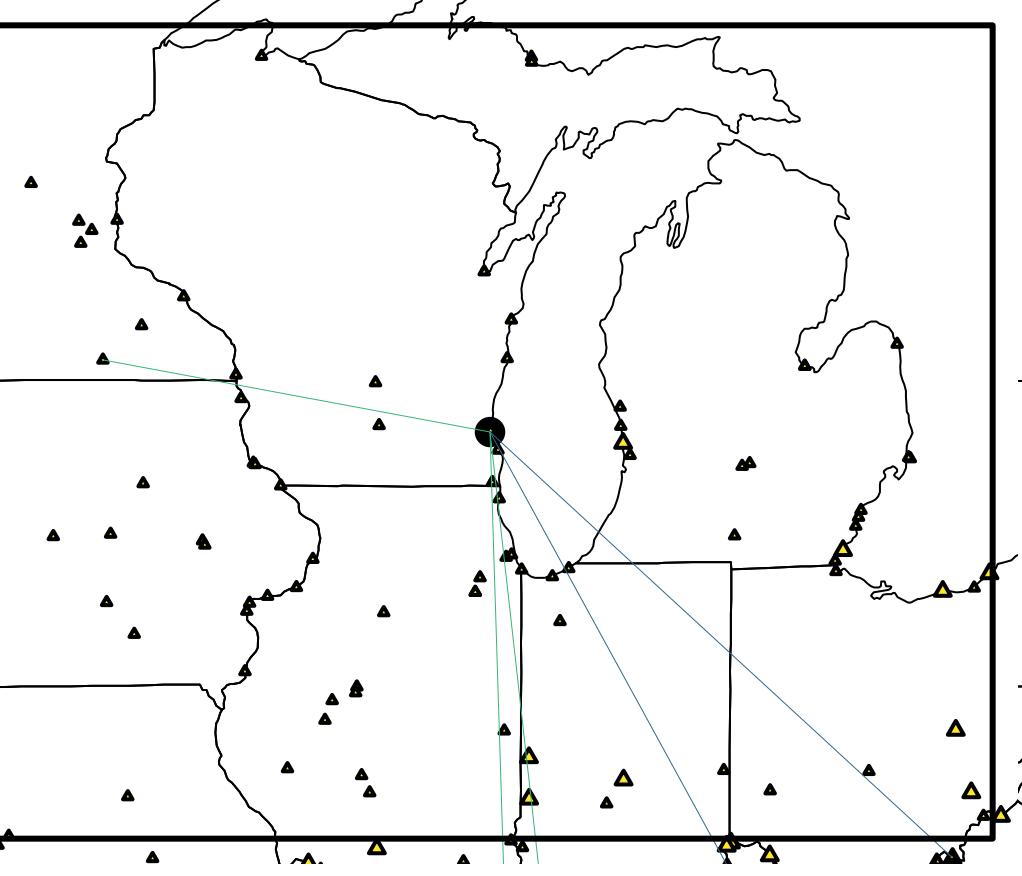
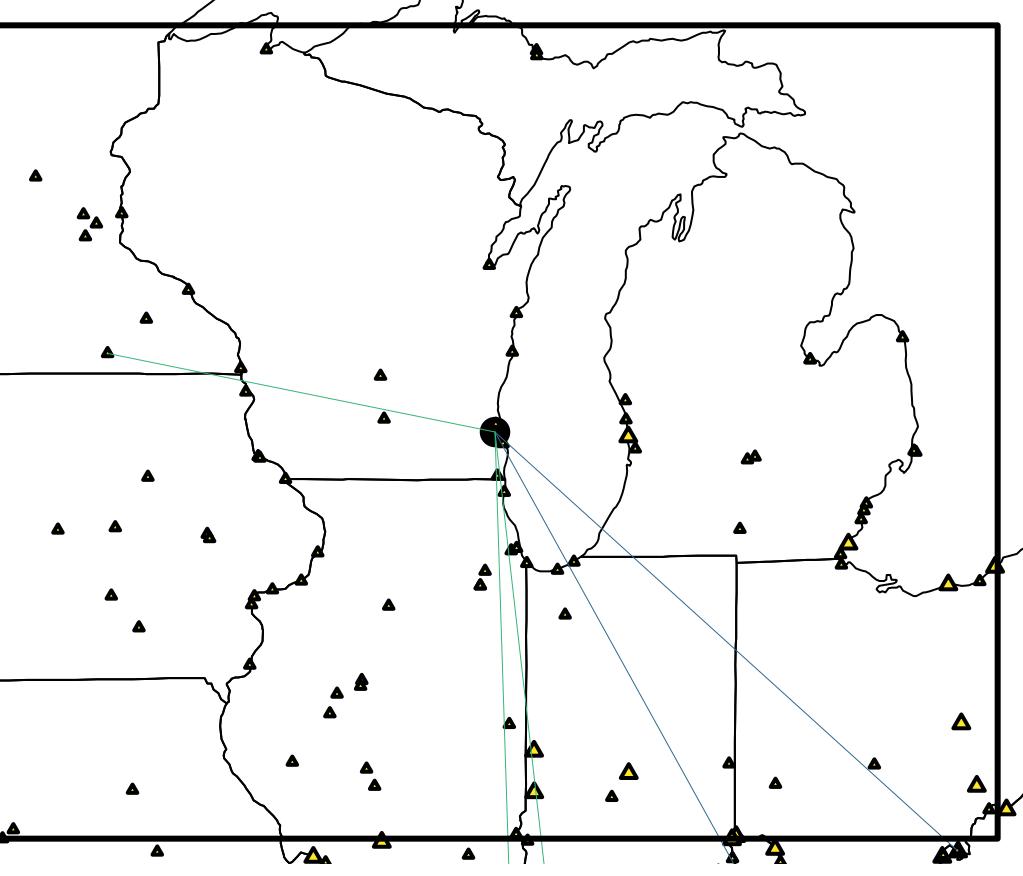
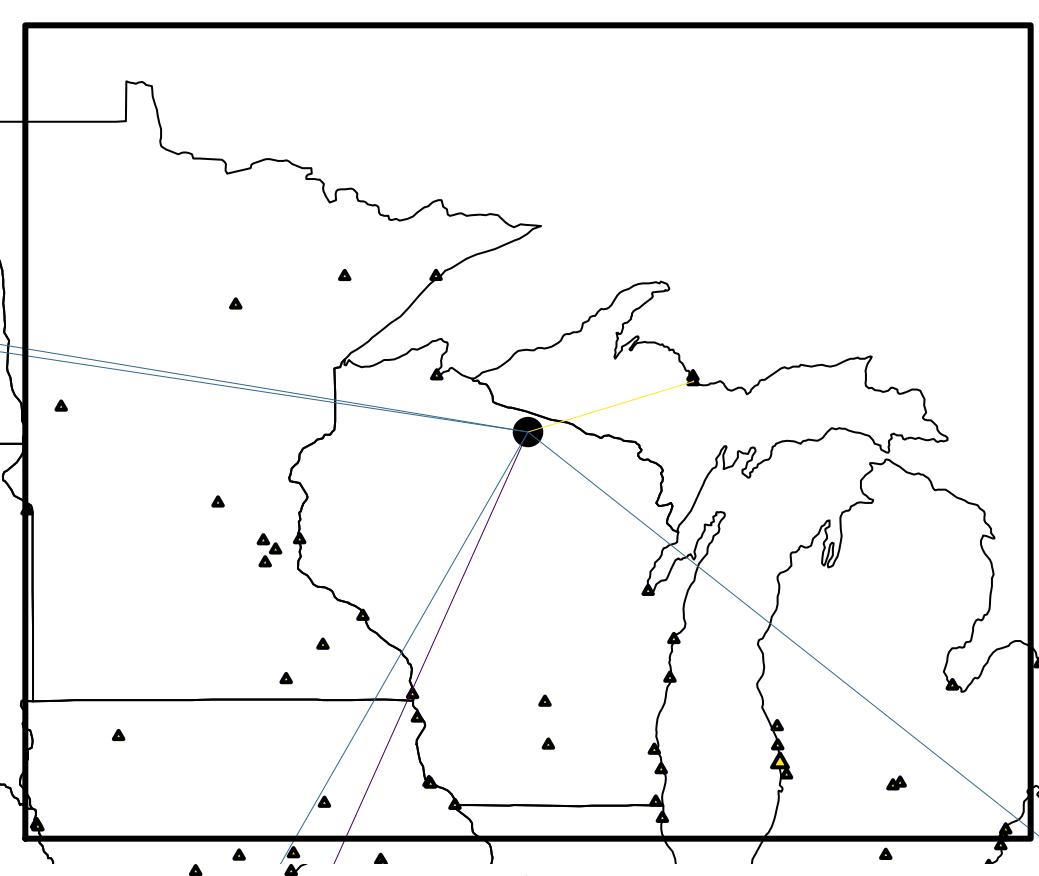


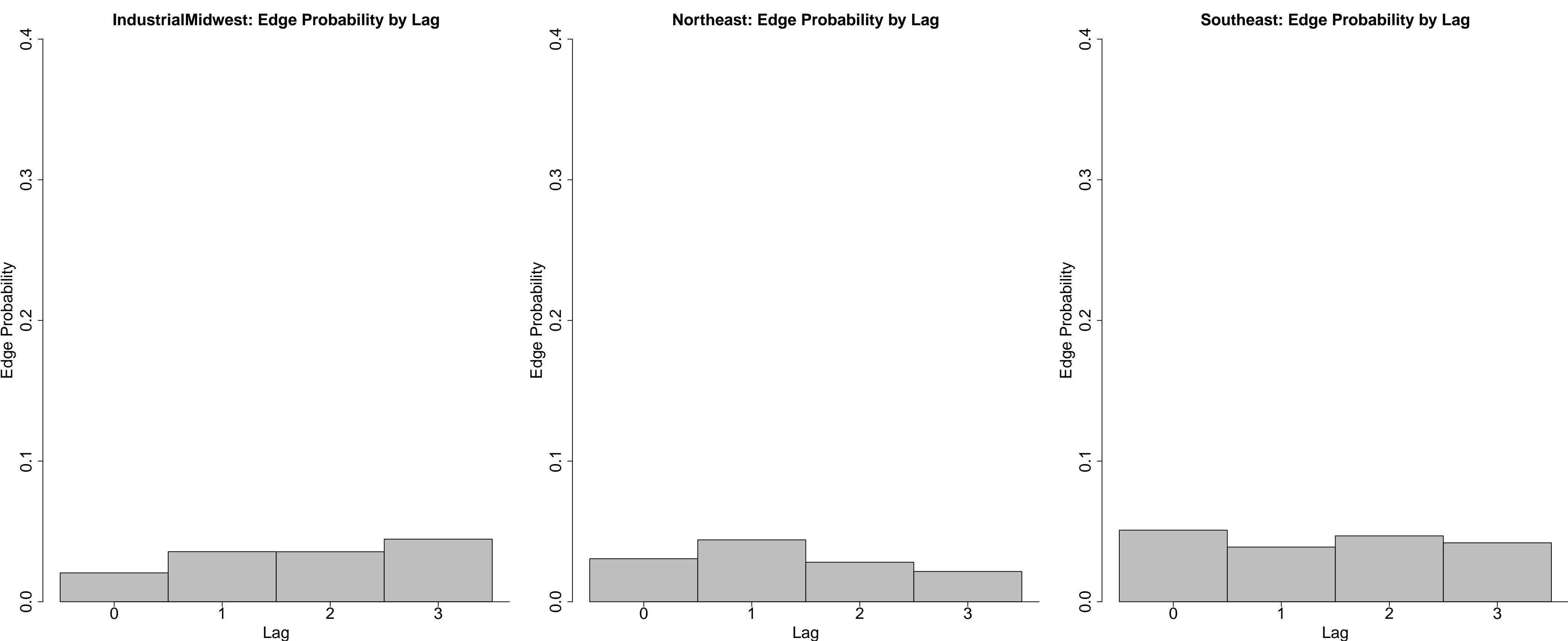




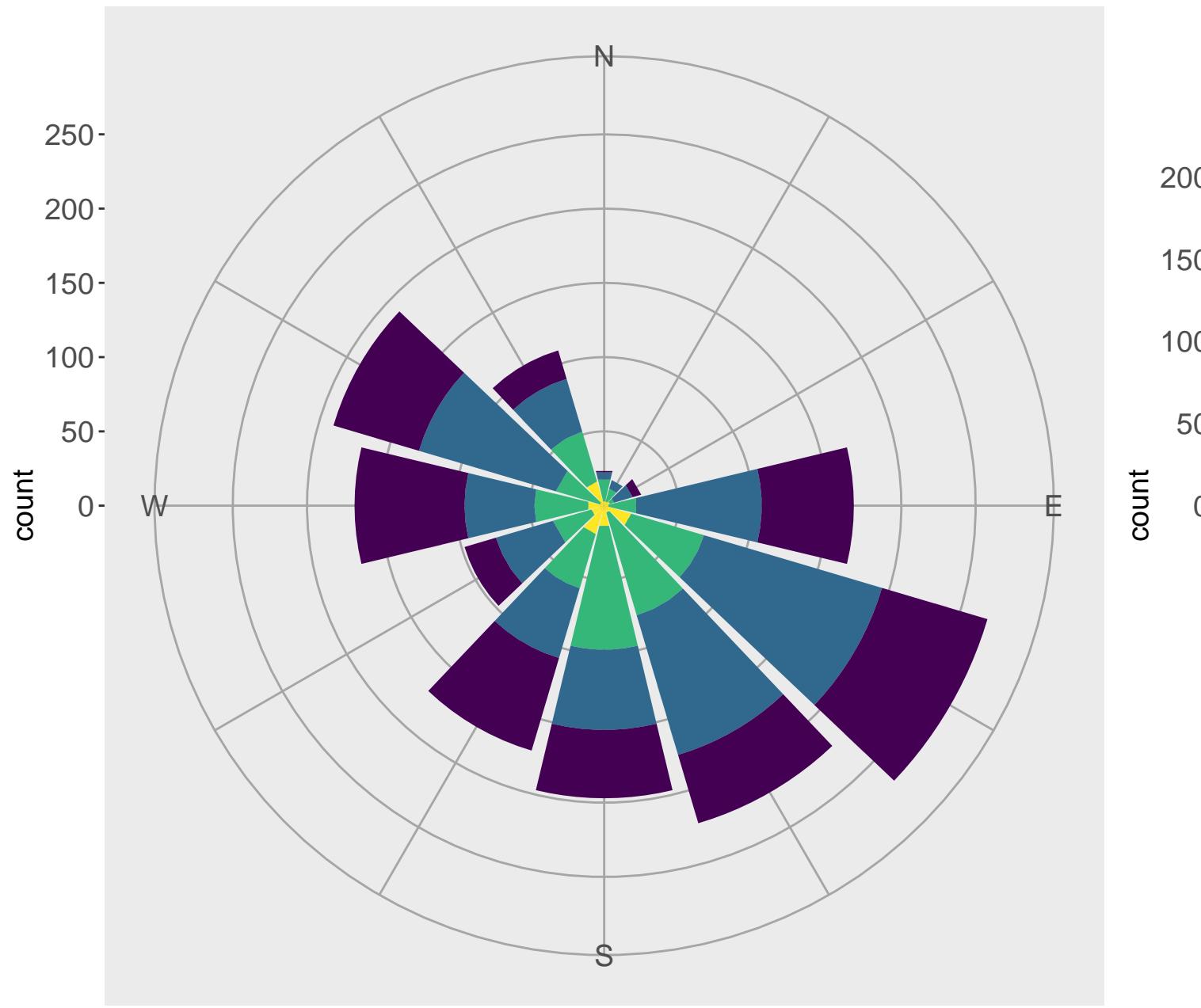




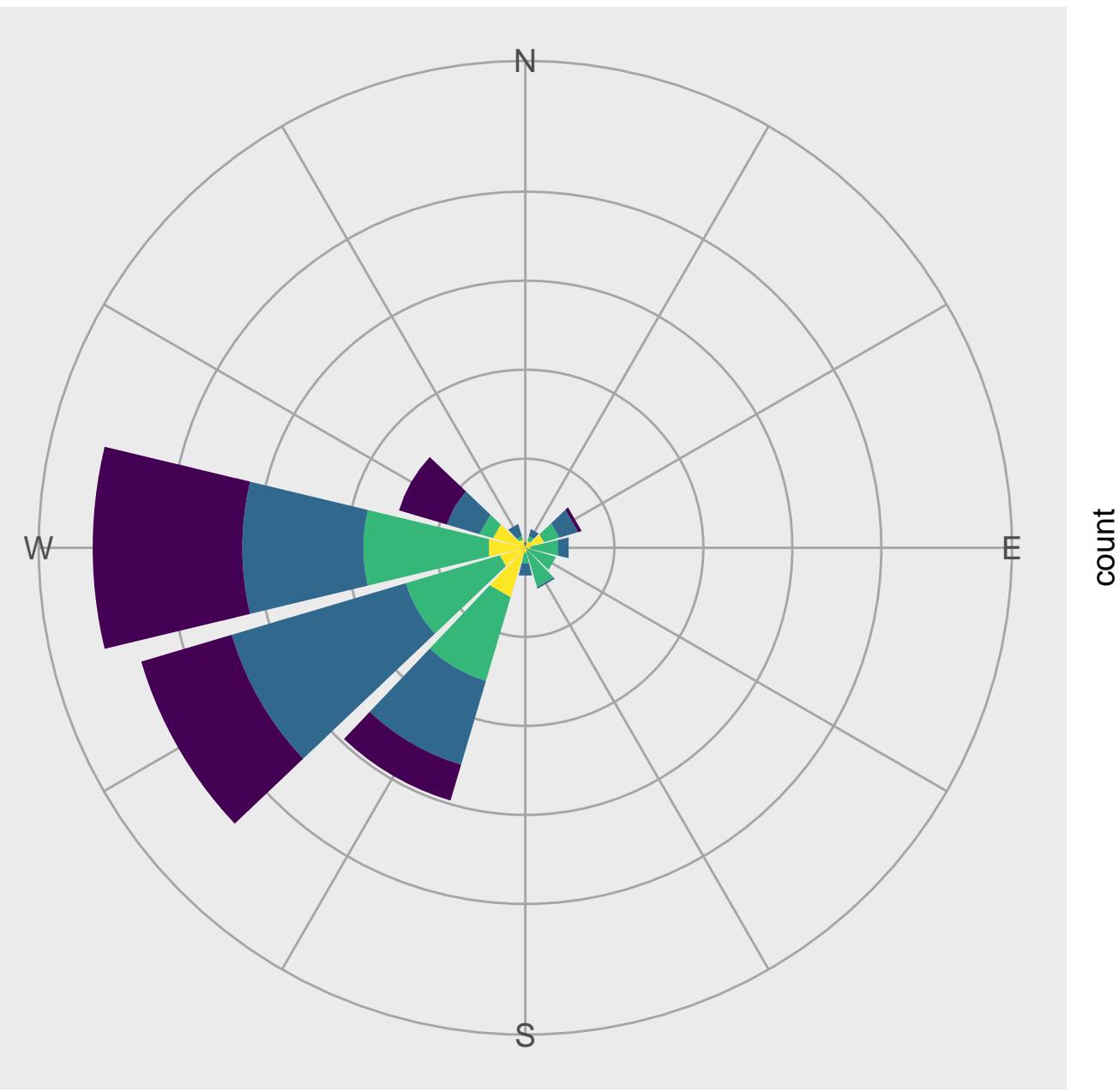




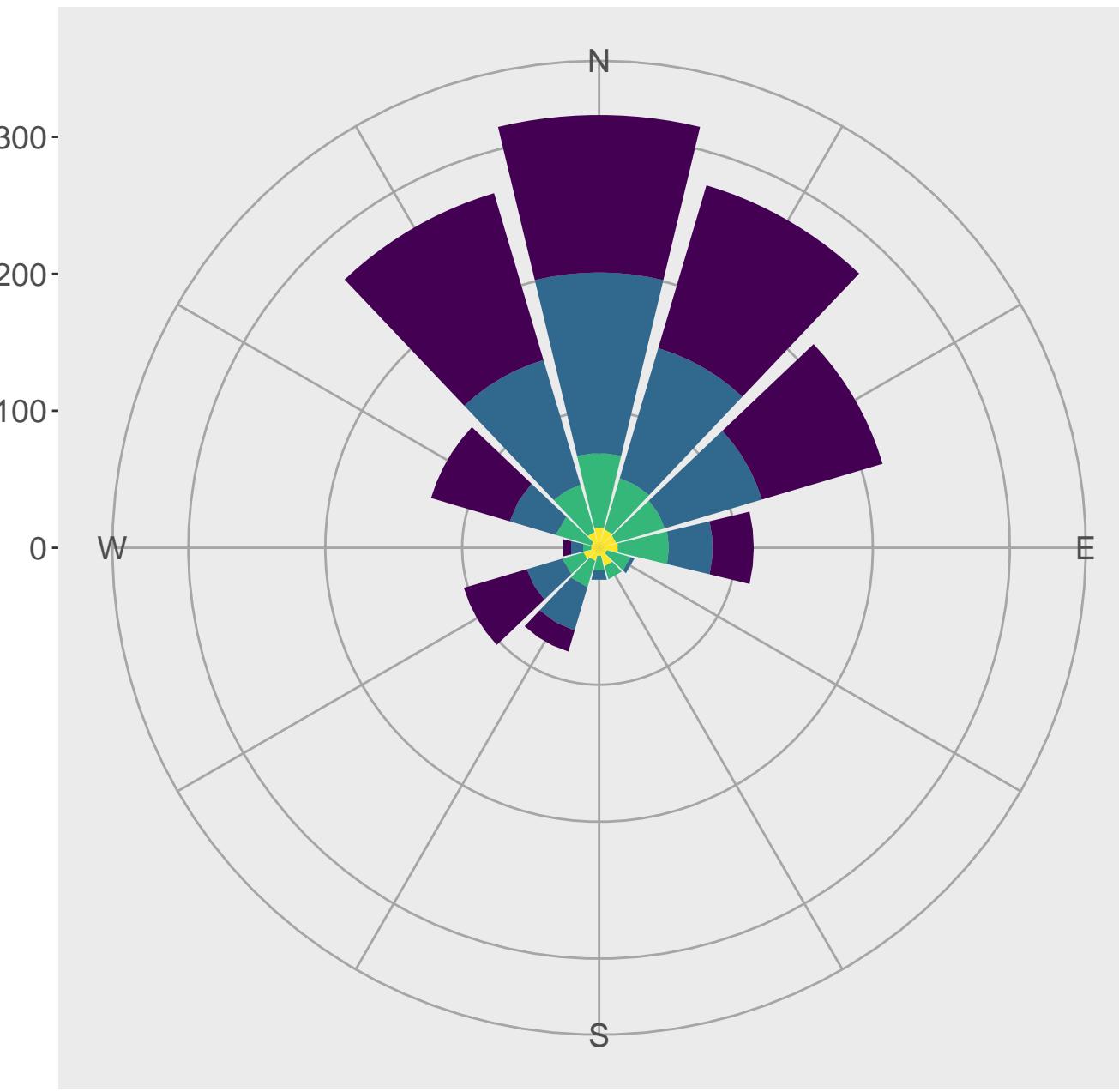
**Edge counts by distance/direction to source  
Industrial Midwest receptors**



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



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

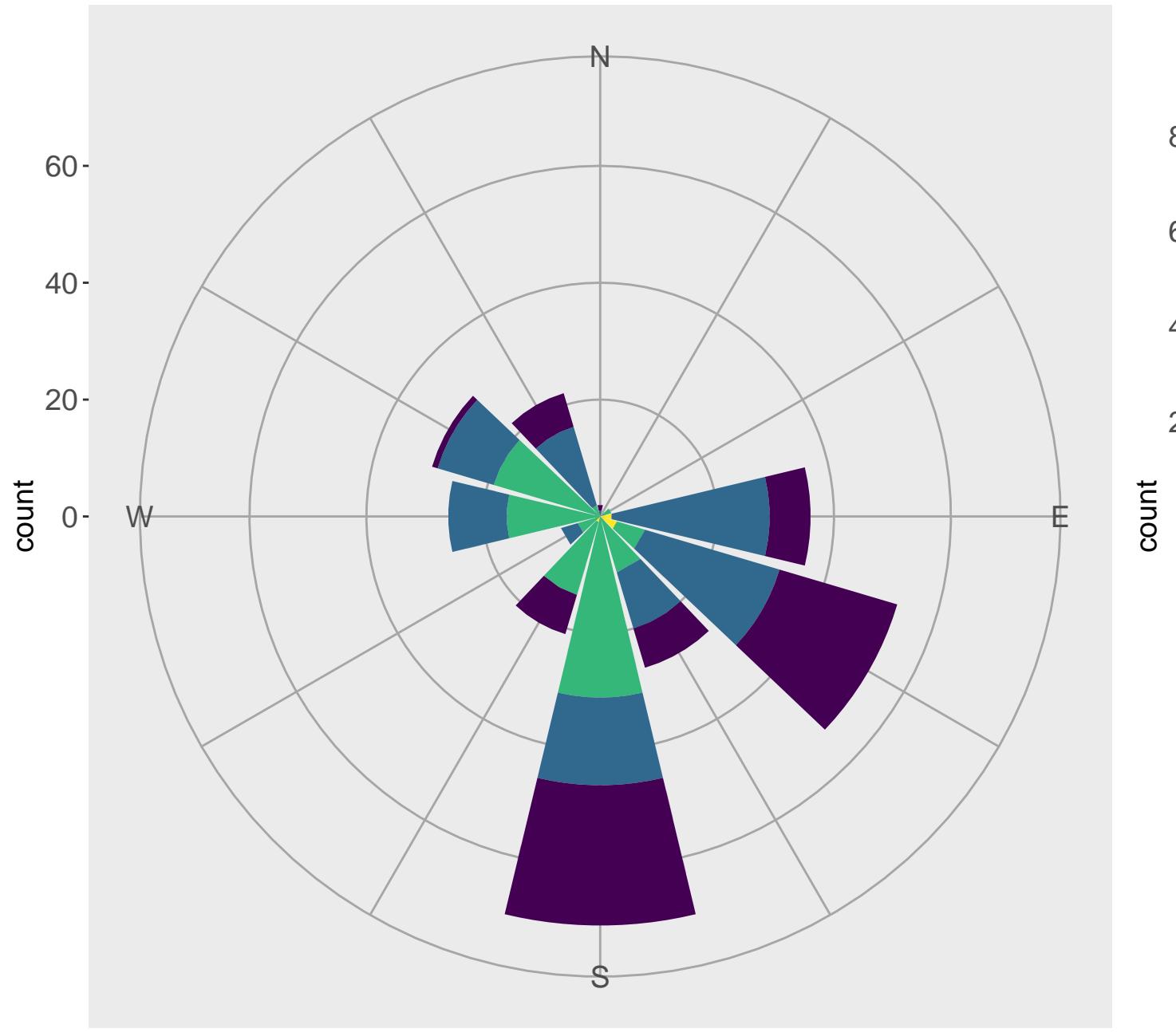


Distance to Source (km)  750–1000  500–750  250–500  0–250

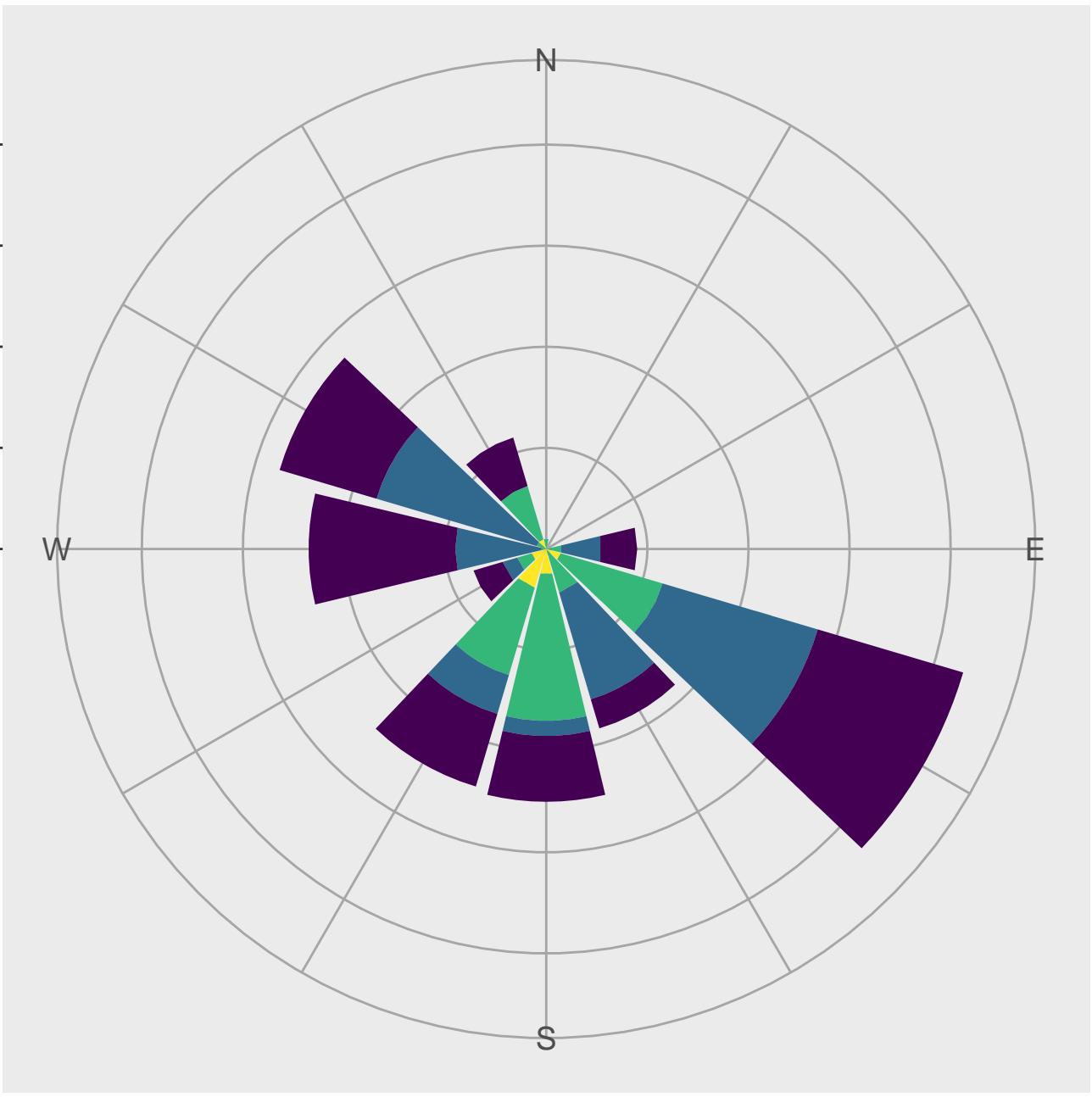
Distance to Source (km)  750–1000  500–750  250–500  0–250

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

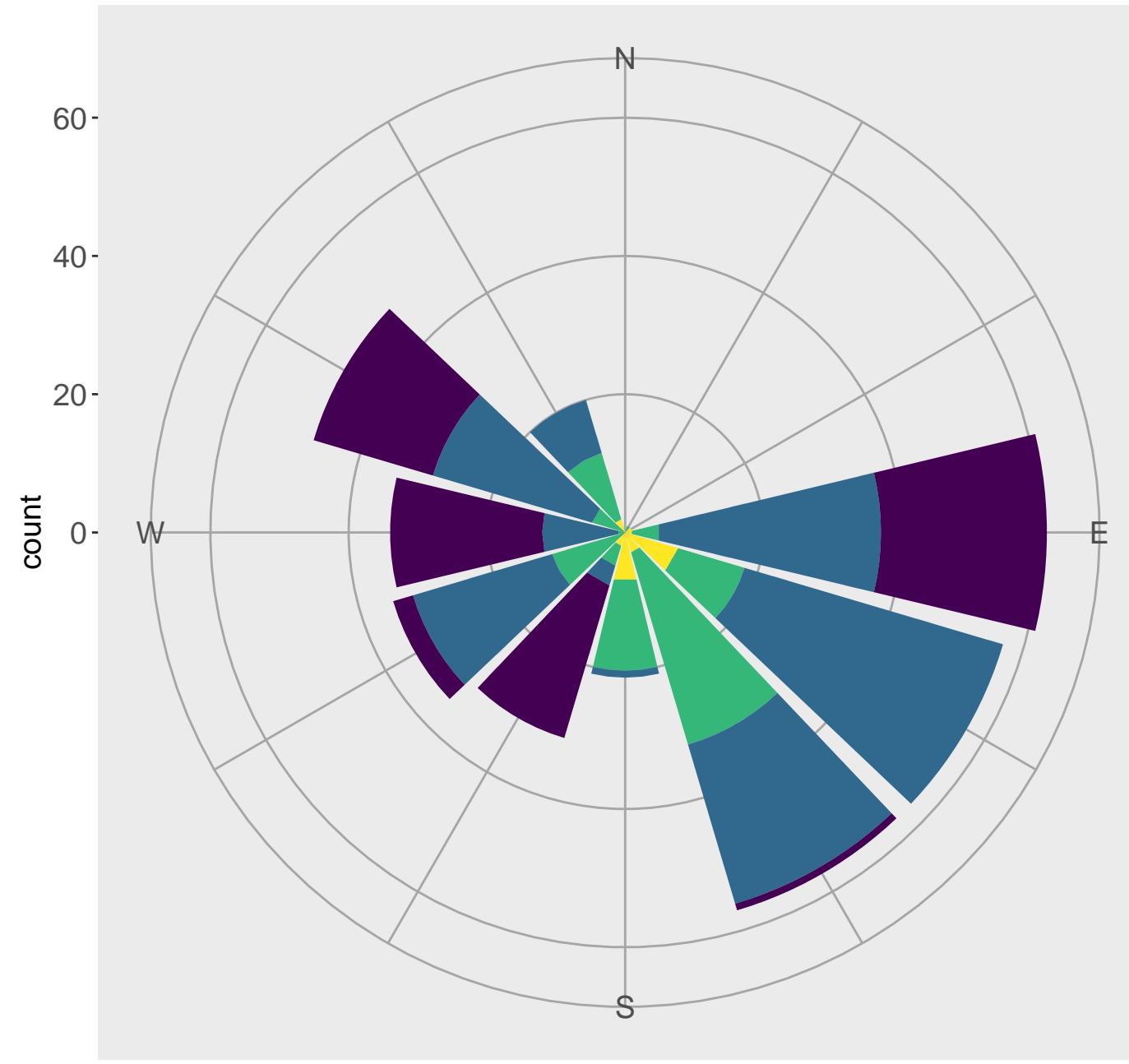
**Edge counts by distance/direction to source  
Illinois receptors**



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



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

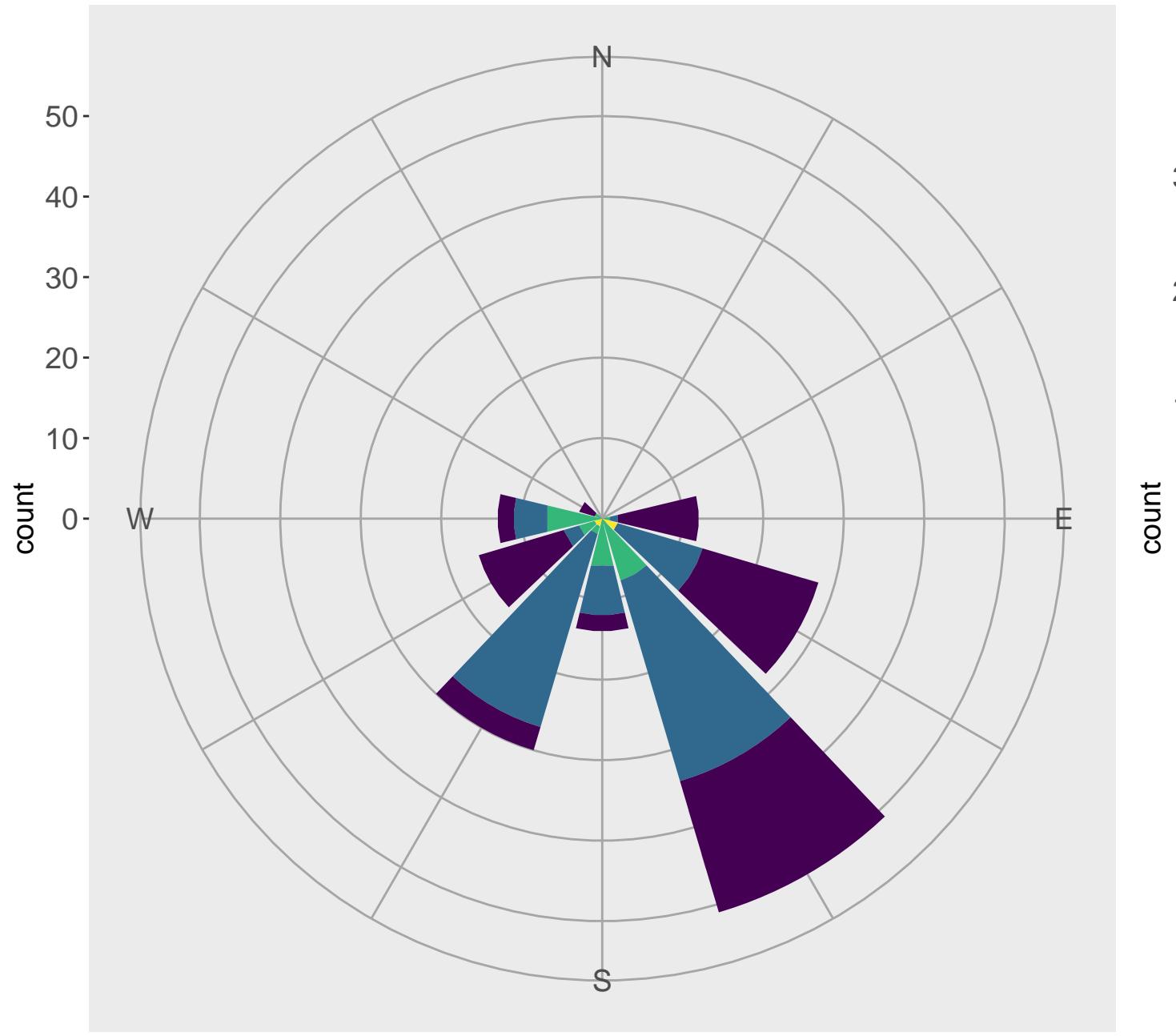


Distance to Source (km)    750–1000    500–750    250–500    0–250

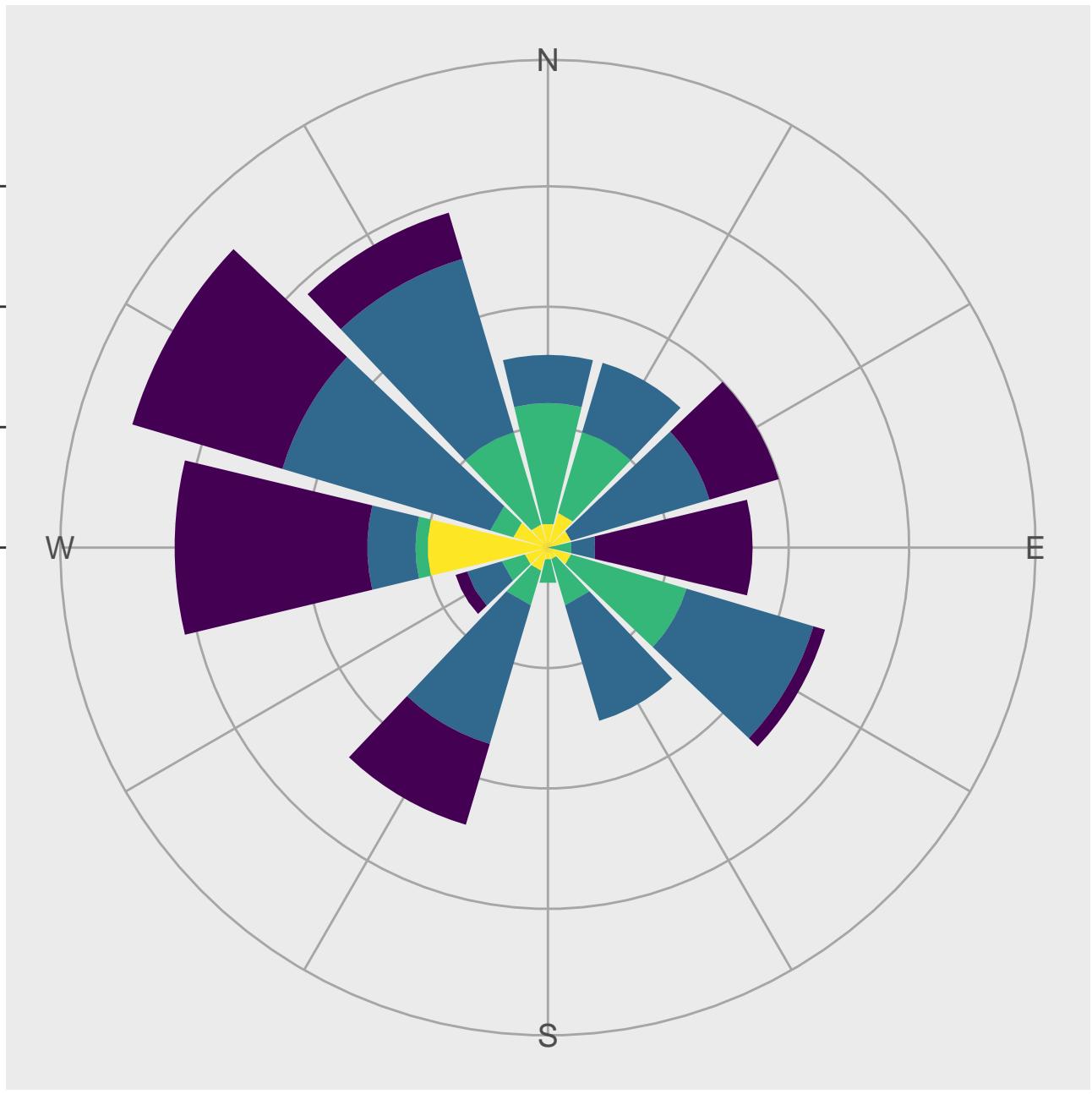
Distance to Source (km)    750–1000    500–750    250–500    0–250

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

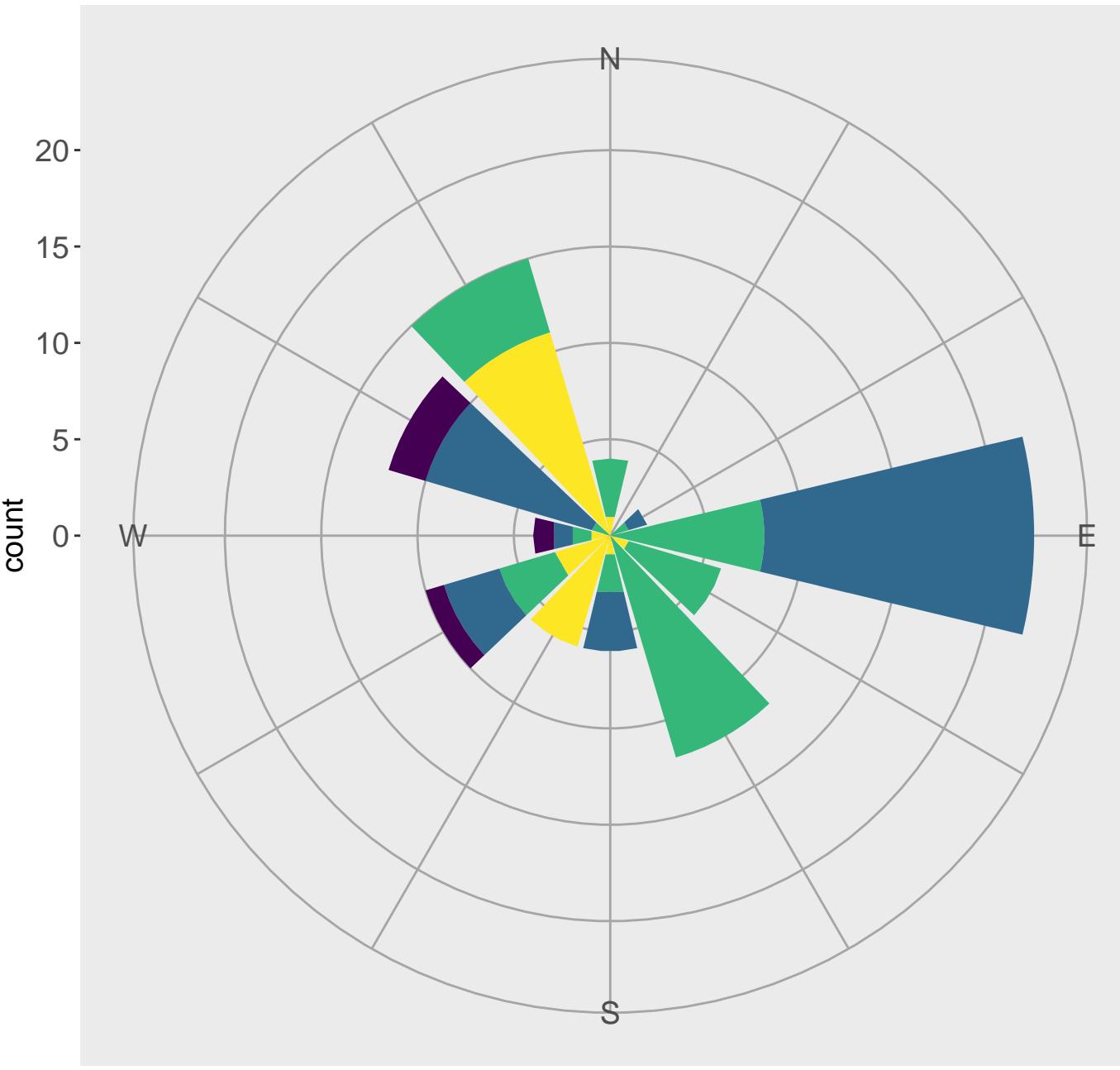
**Edge counts by distance/direction to source  
Michigan receptors**



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



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

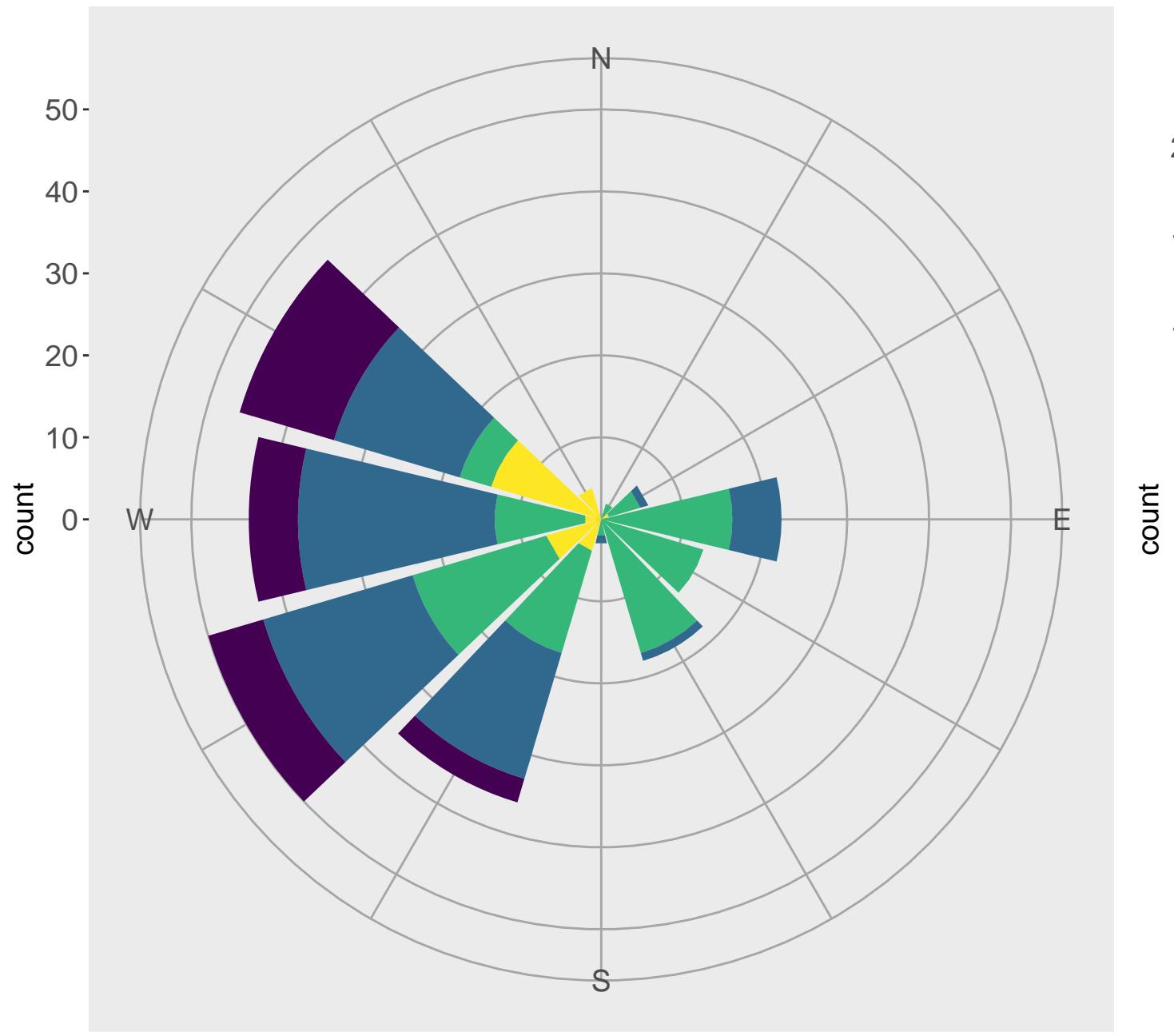


Distance to Source (km)    750–1000    500–750    250–500    0–250

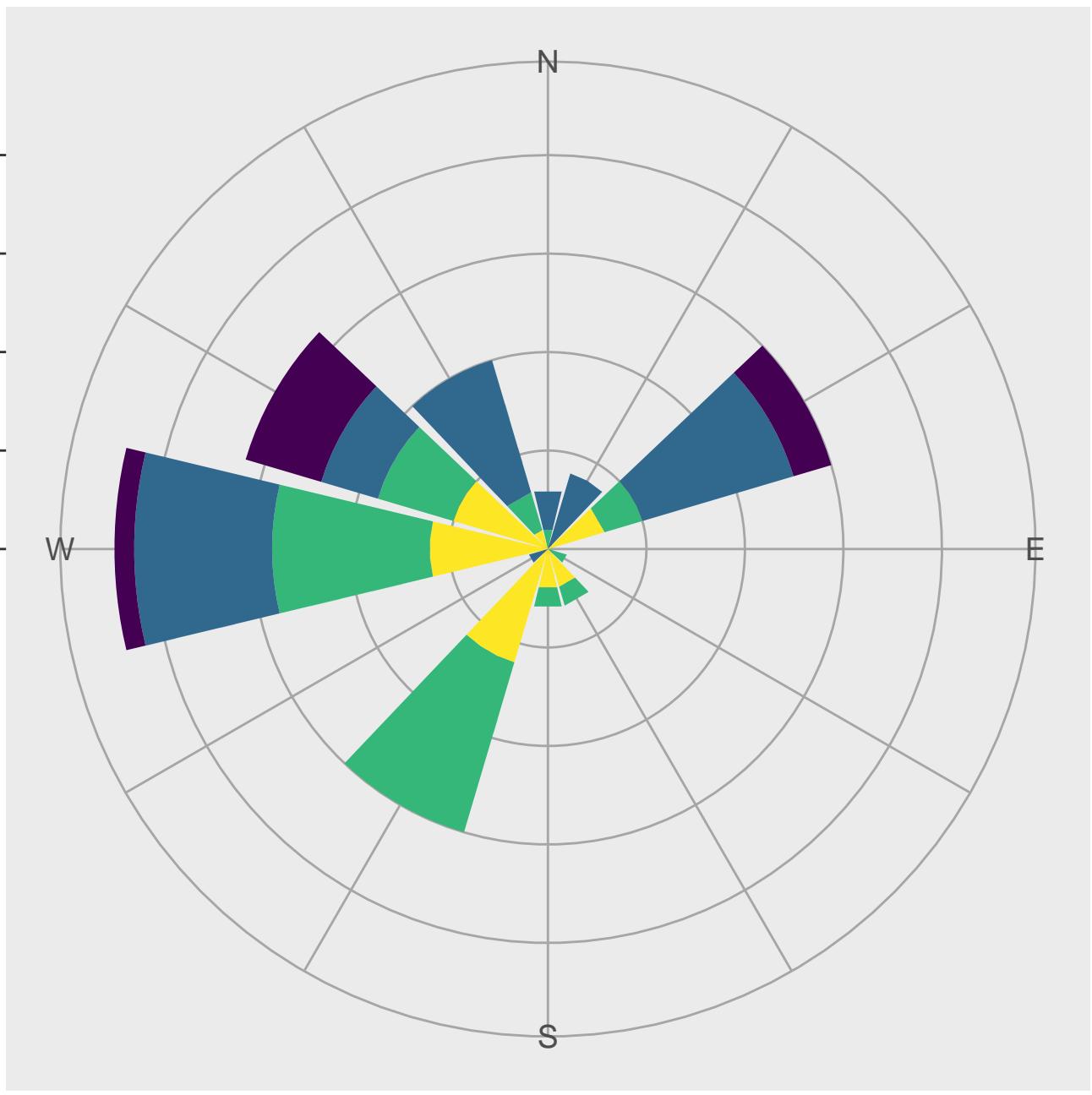
Distance to Source (km)    750–1000    500–750    250–500    0–250

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

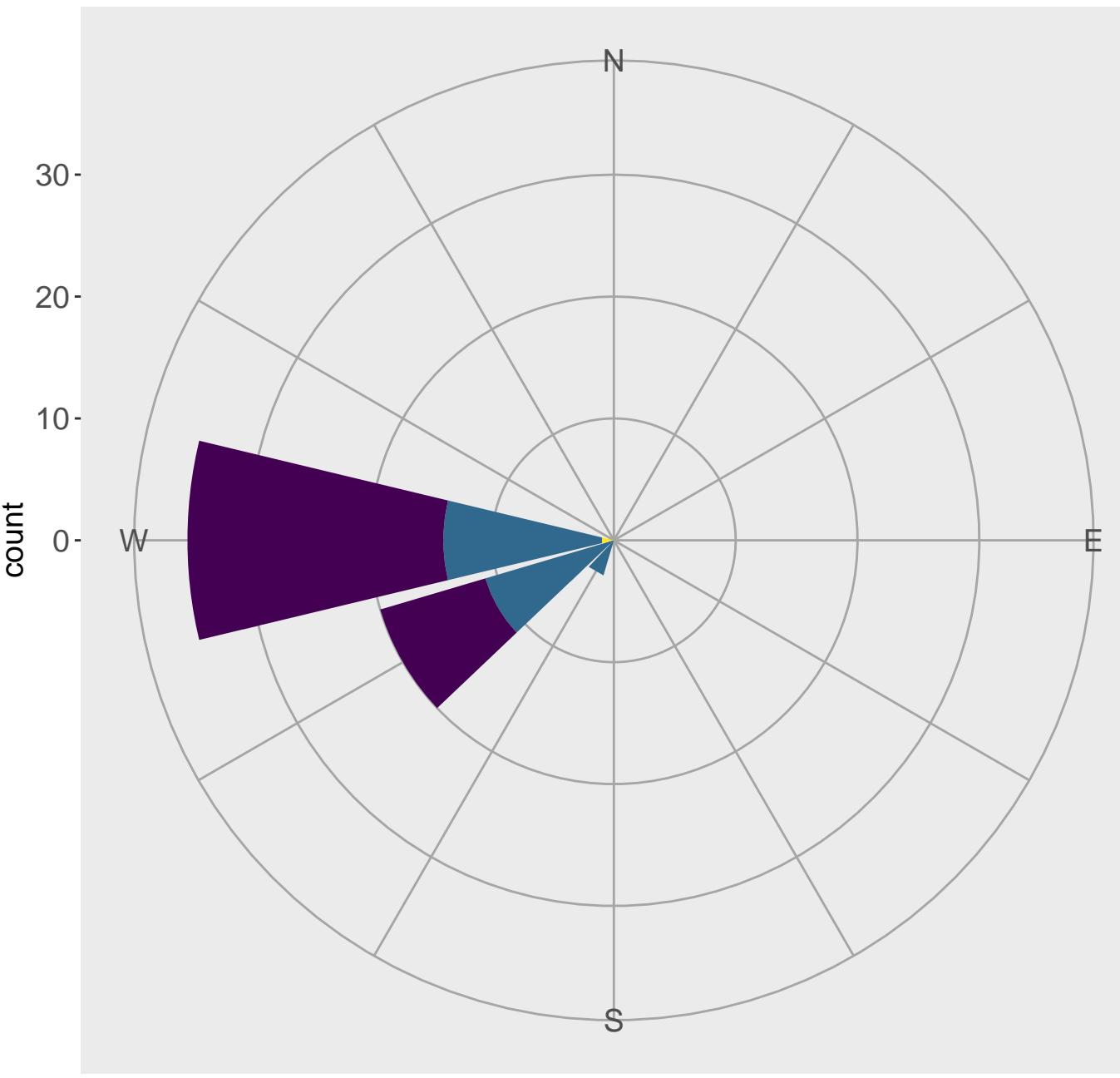
**Edge counts by distance/direction to source**  
Pennsylvania receptors



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



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

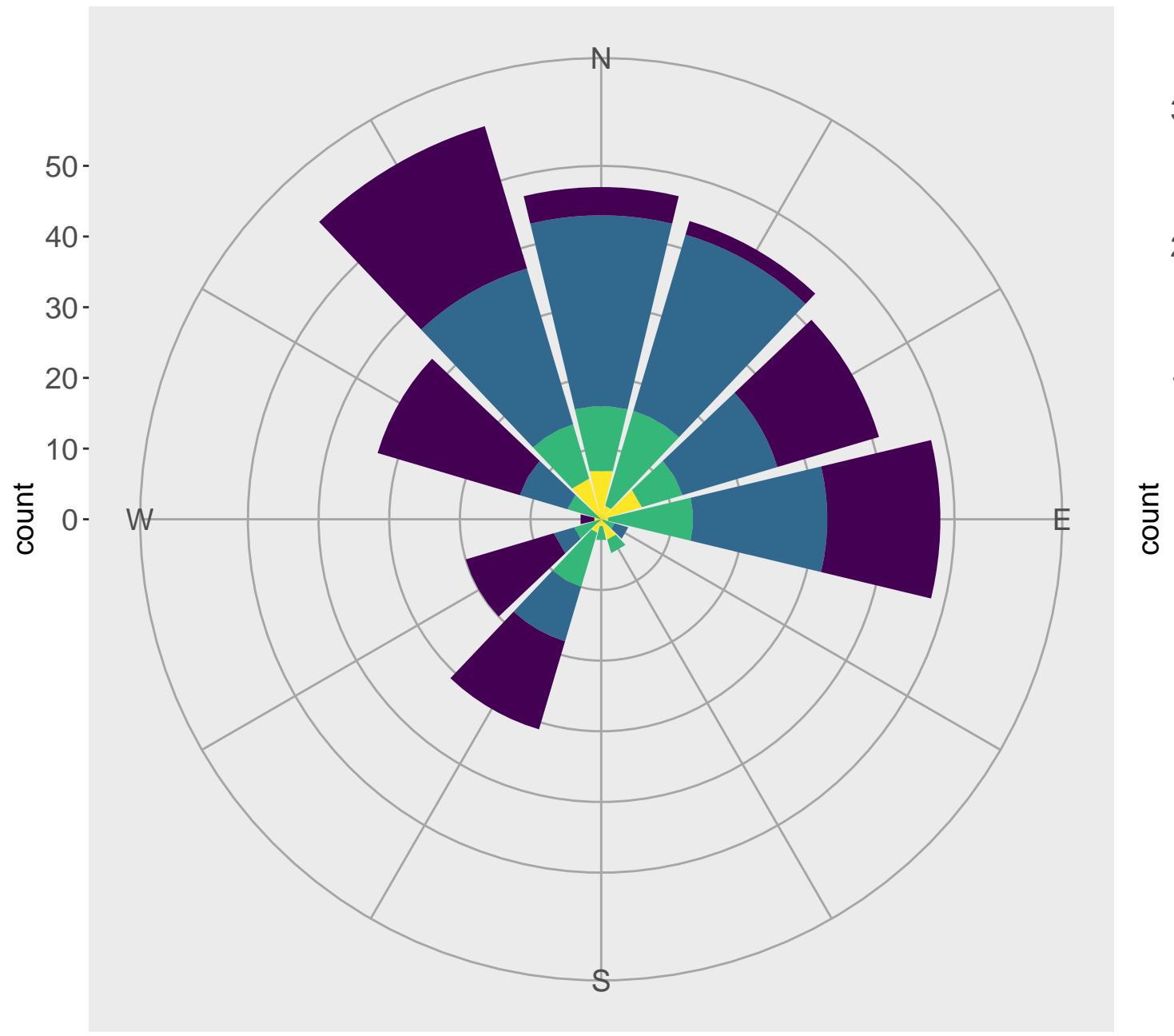


Distance to Source (km)    750–1000    500–750    250–500    0–250

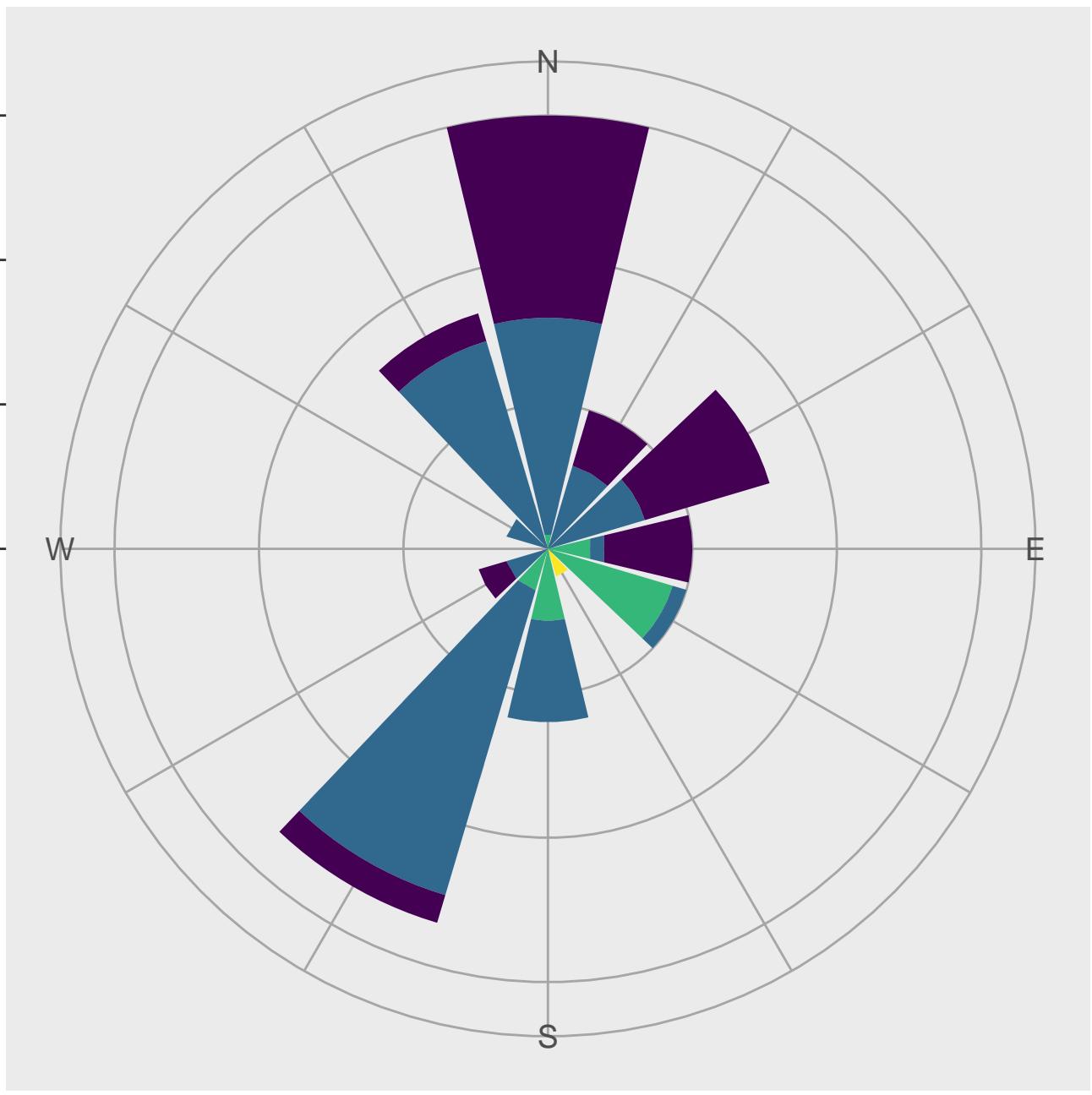
Distance to Source (km)    750–1000    500–750    250–500    0–250

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

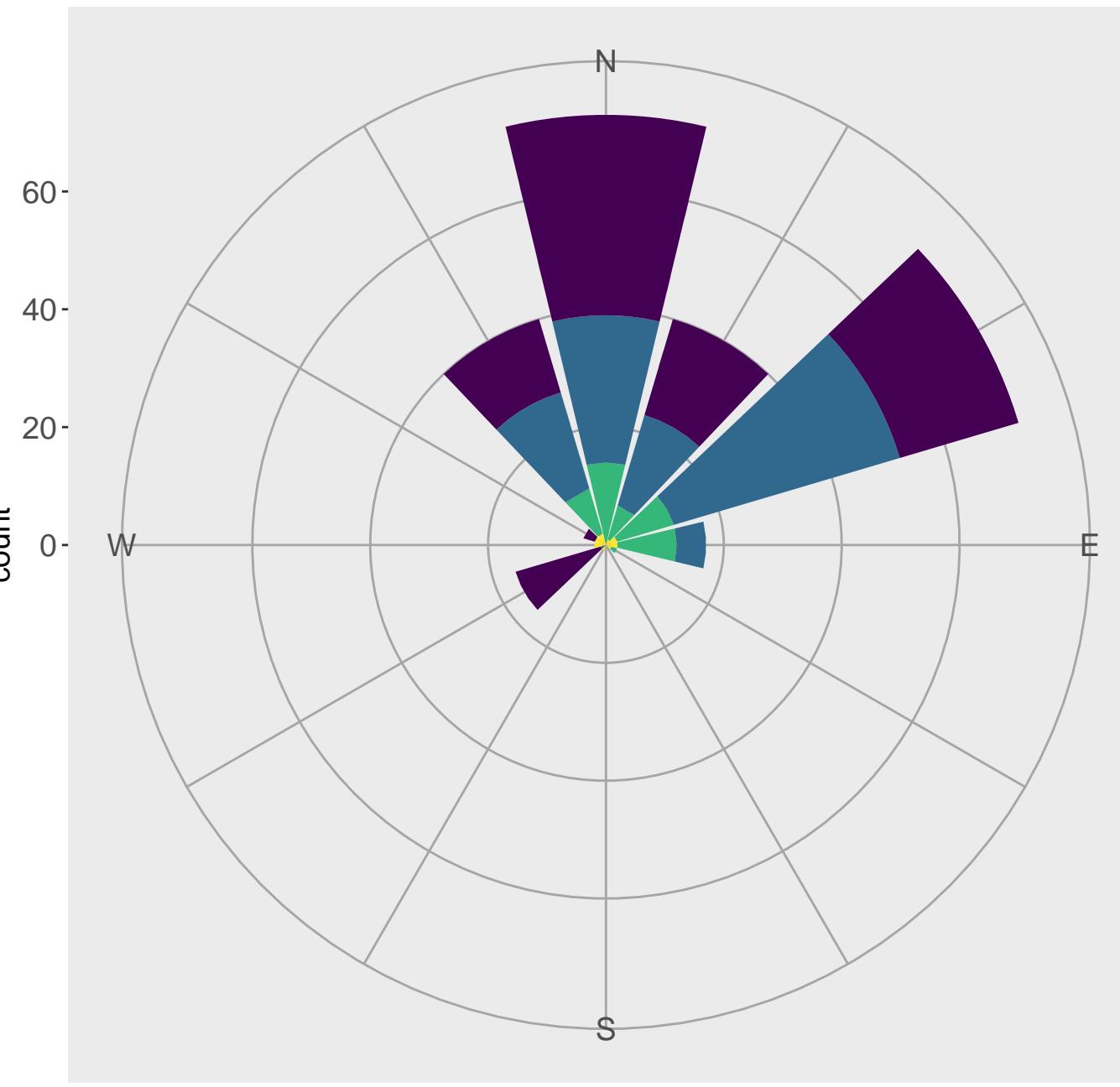
**Edge counts by distance/direction to source**  
Tennessee receptors



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



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

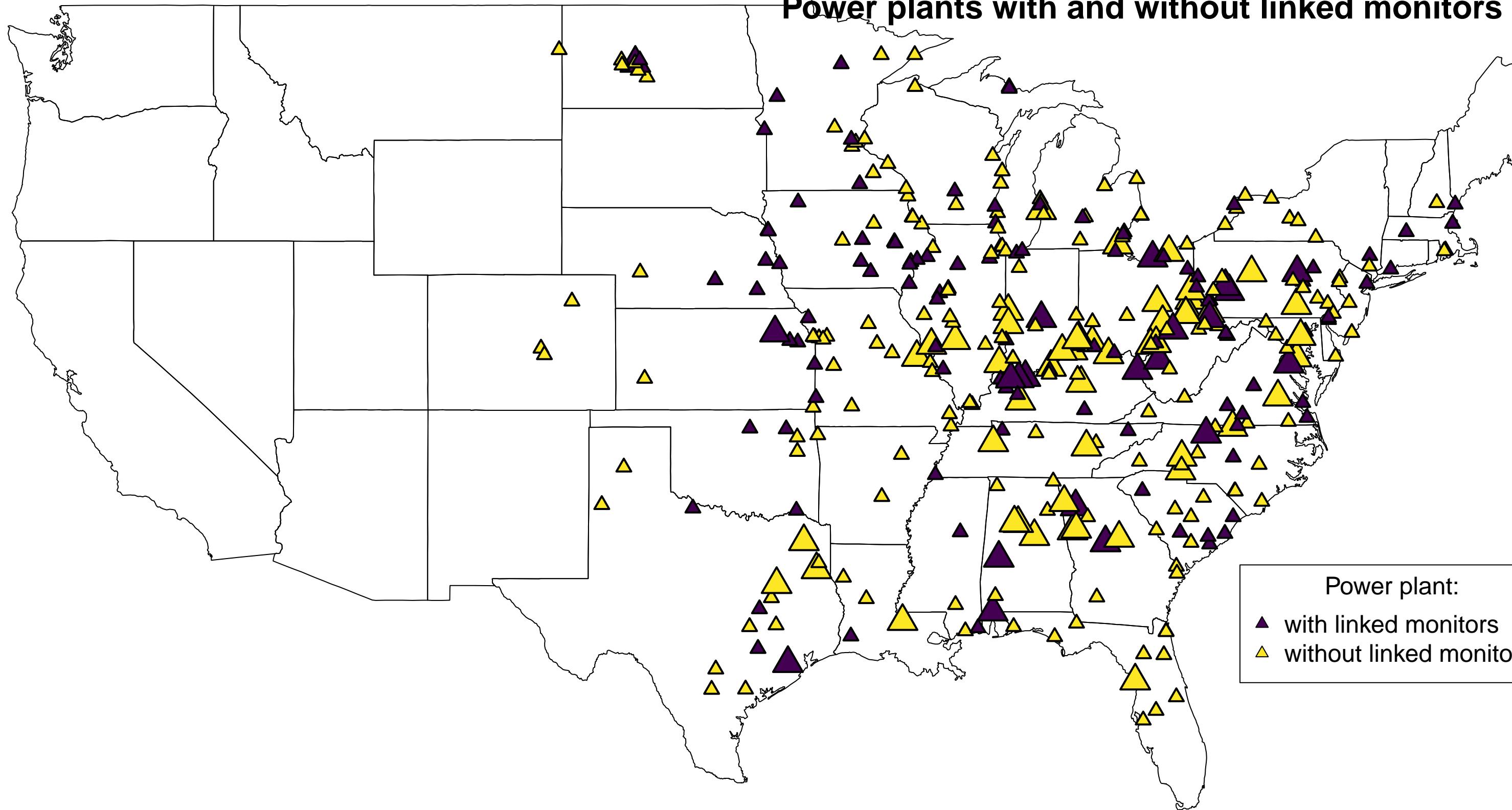


Distance to Source (km)    750–1000    500–750    250–500    0–250

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

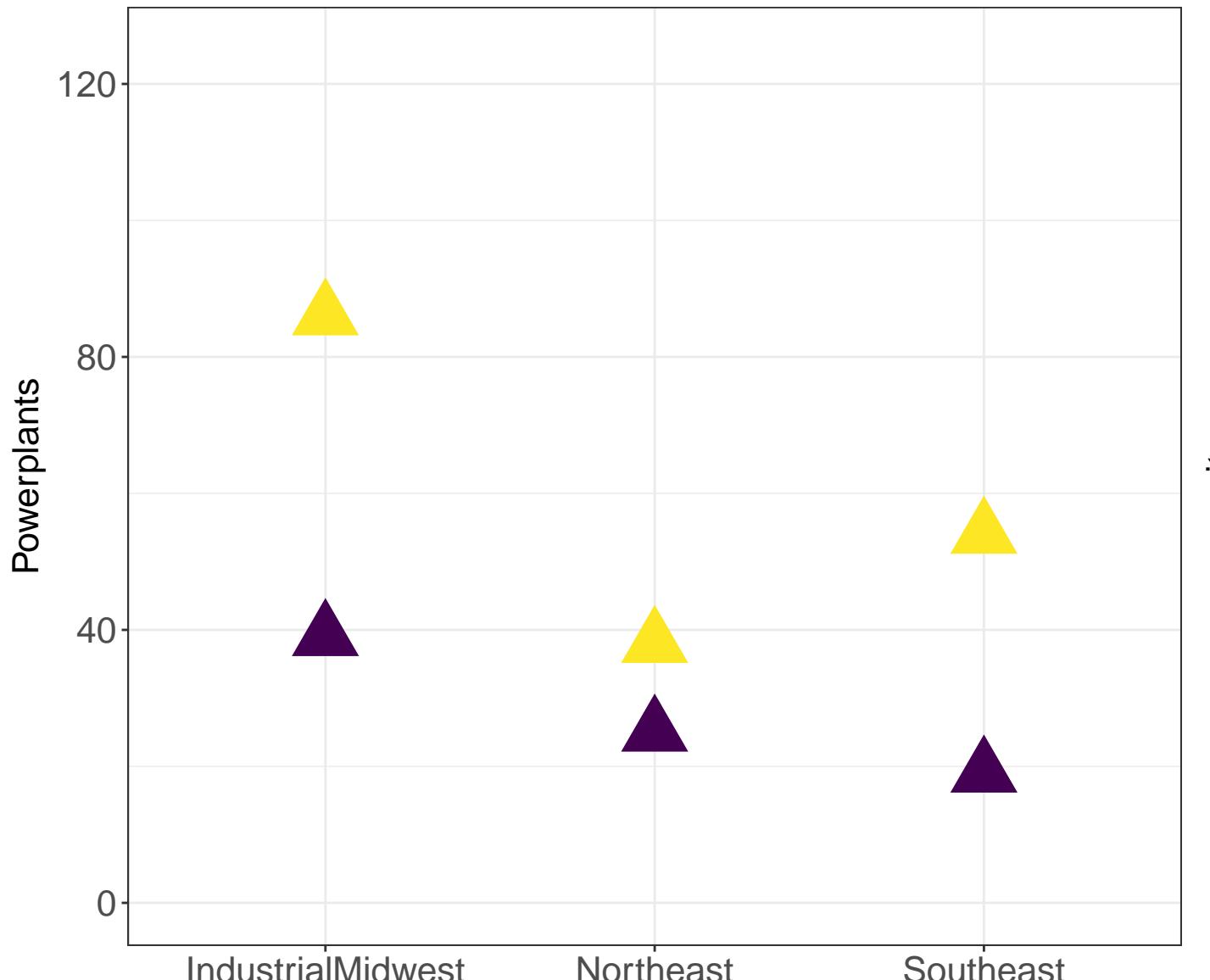
Distance to Source (km)    750–1000    500–750    250–500    0–250

## Power plants with and without linked monitors

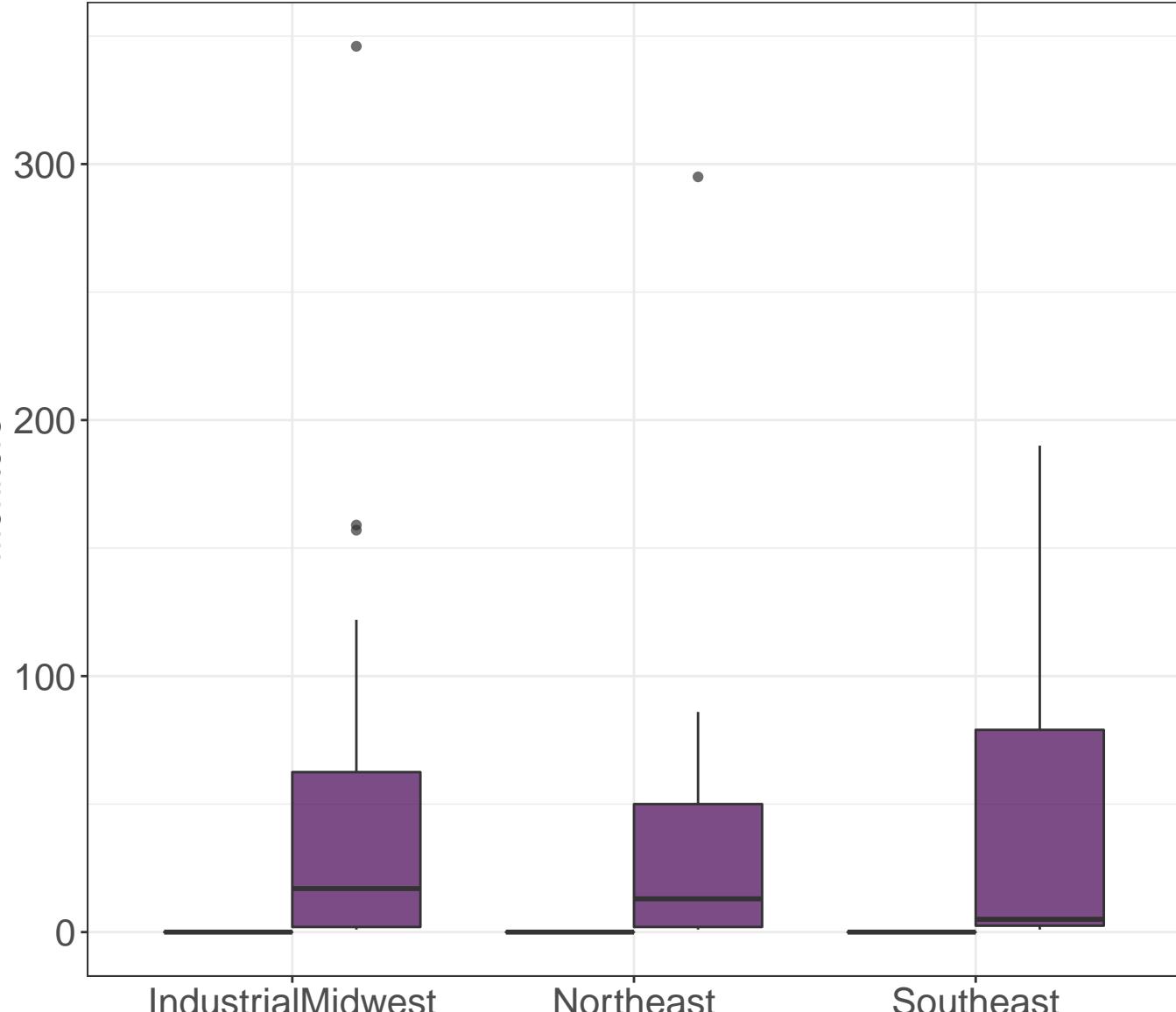


# Why do some power plants have linked monitors and others do not?

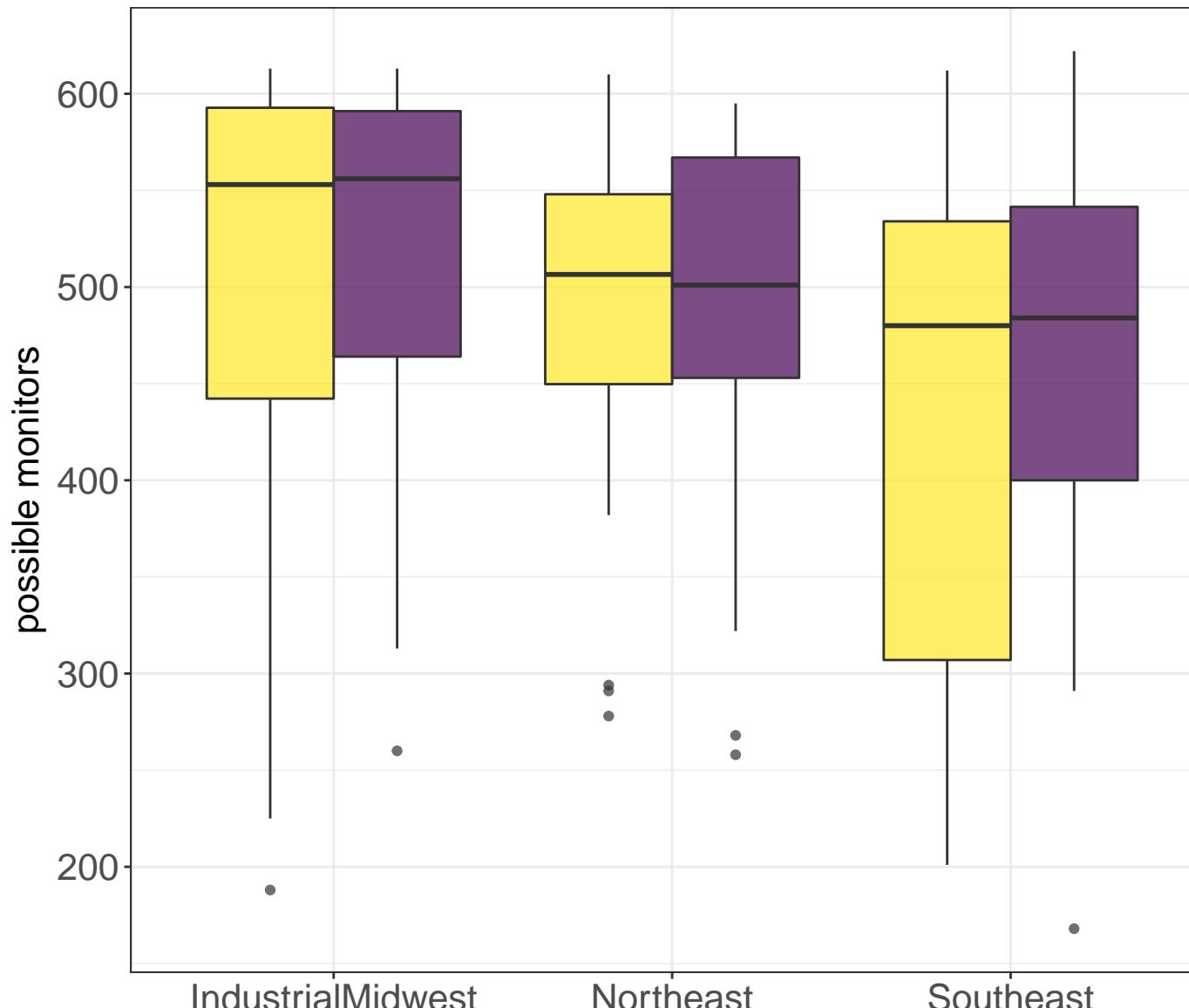
Number of powerplants



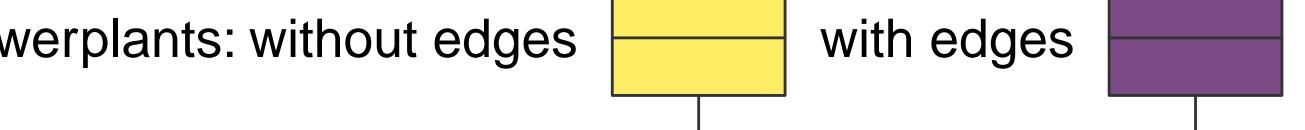
Number of linked monitors



Number of possible linked monitors



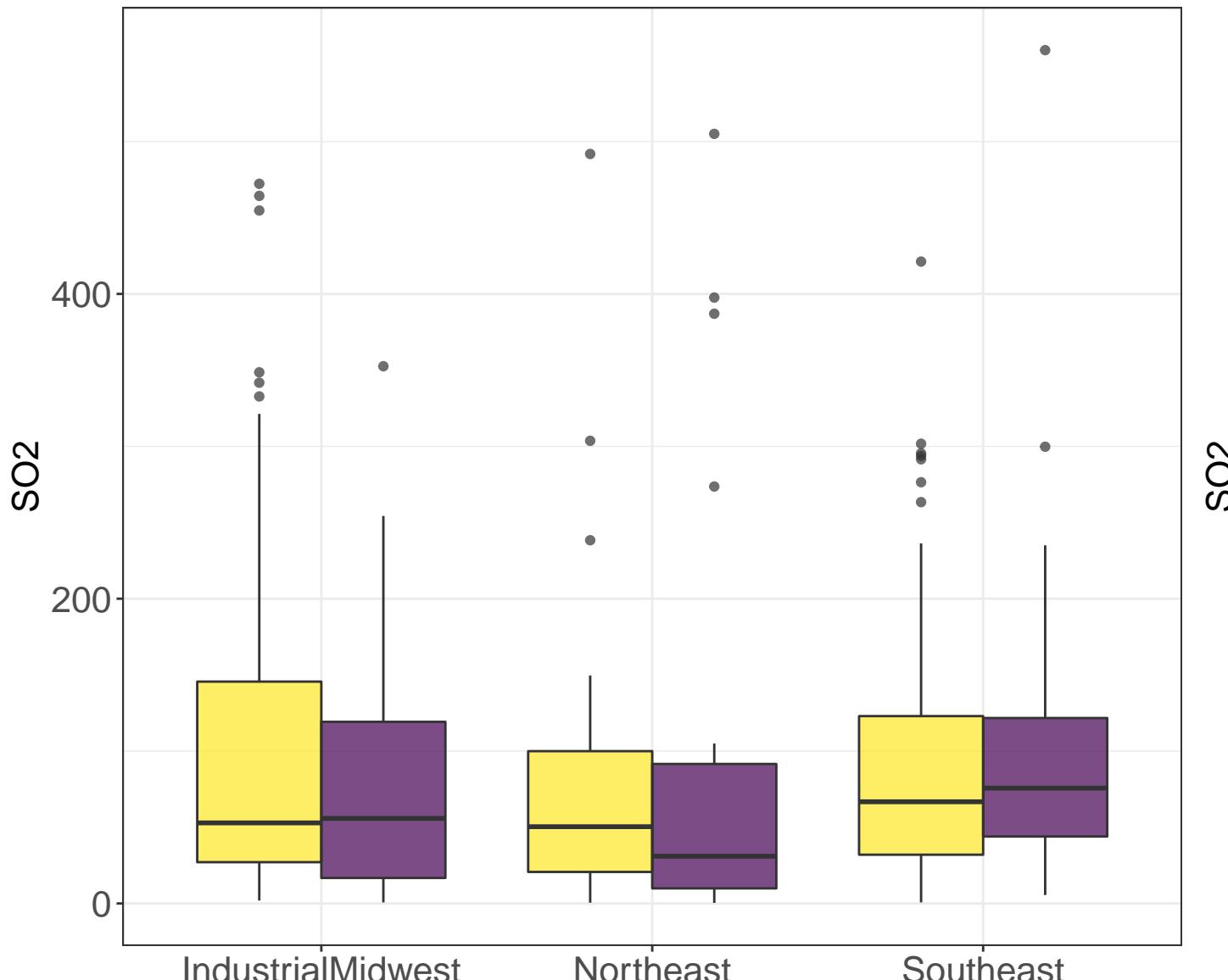
Powerplants: without edges



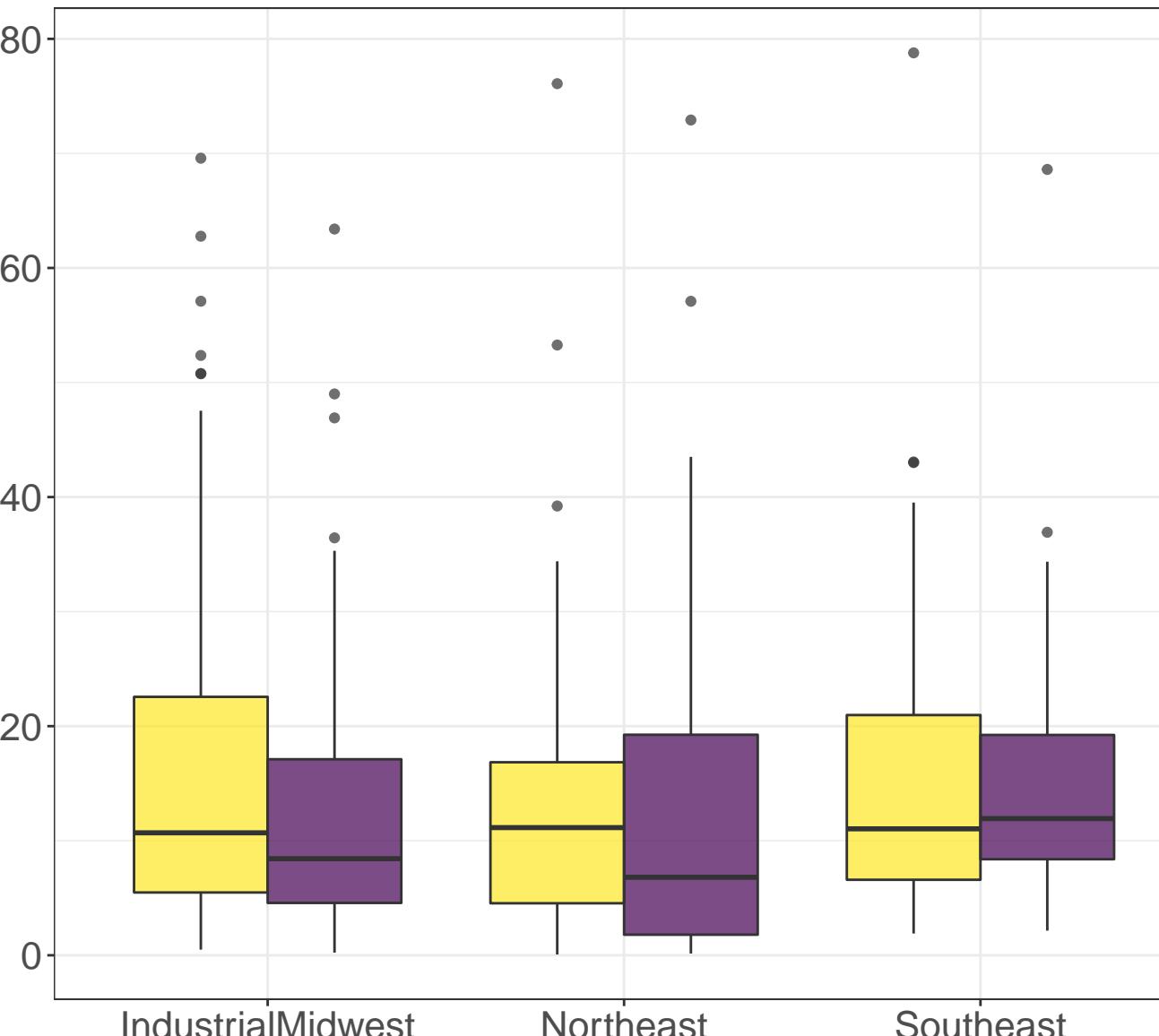
with edges

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

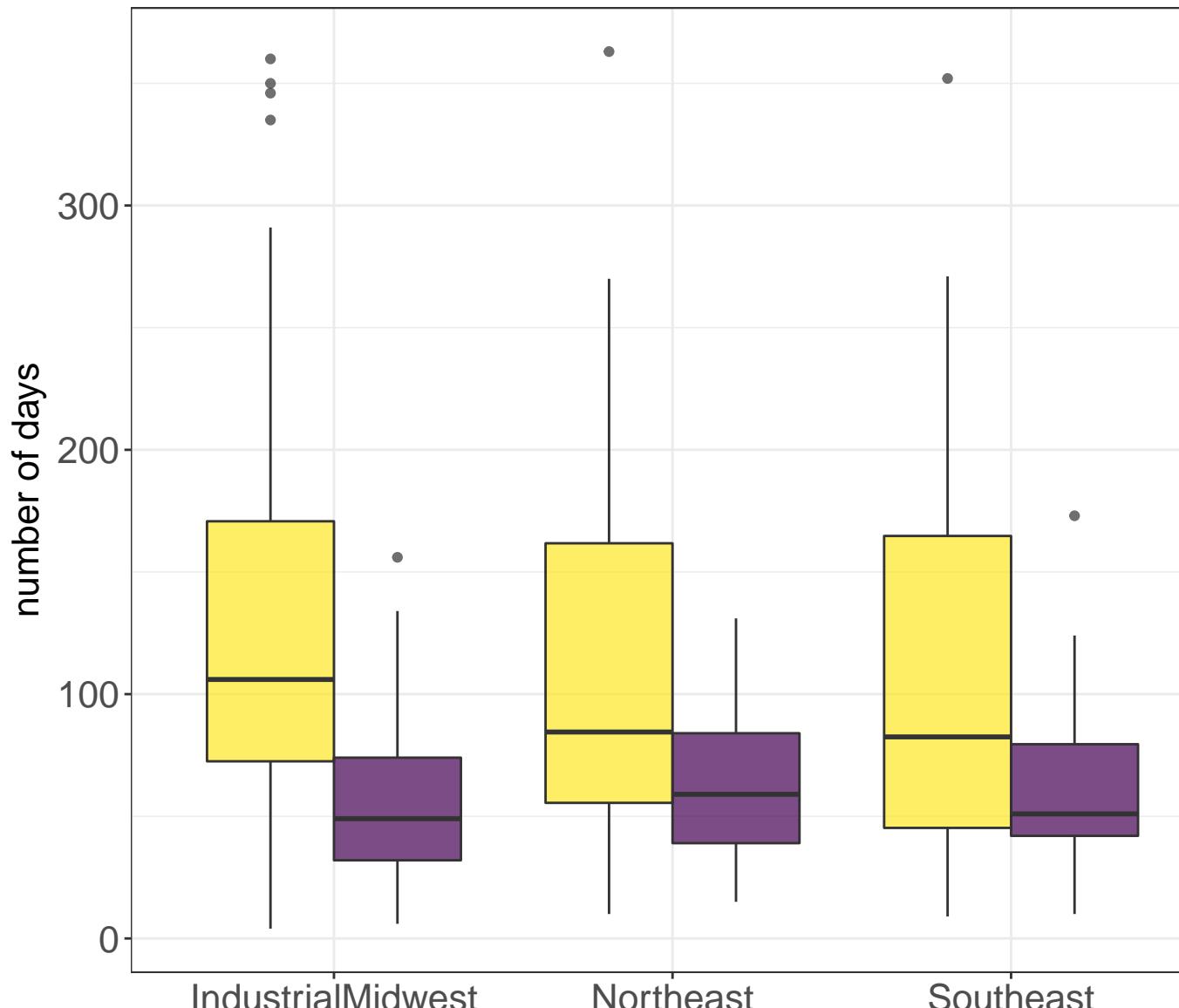
Average daily emissions



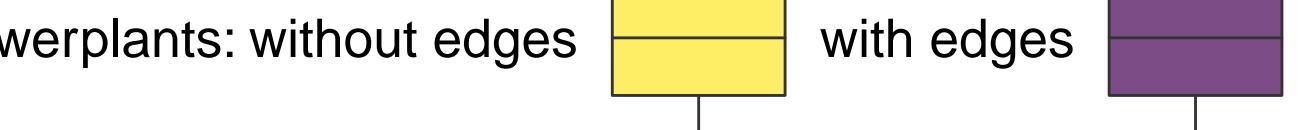
Standard deviation in daily emissions



Number of days with missing emissions data



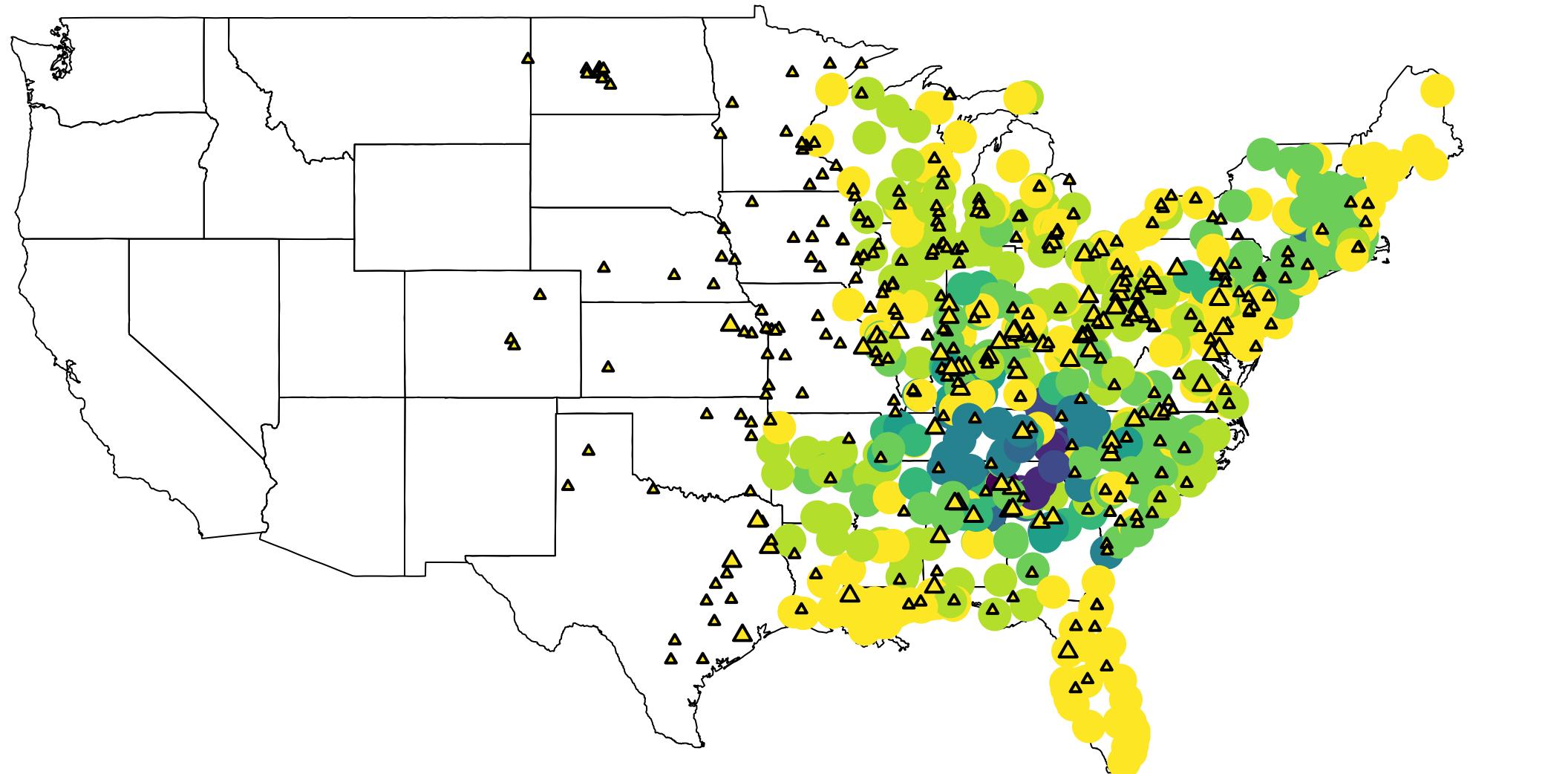
Powerplants: without edges



with edges

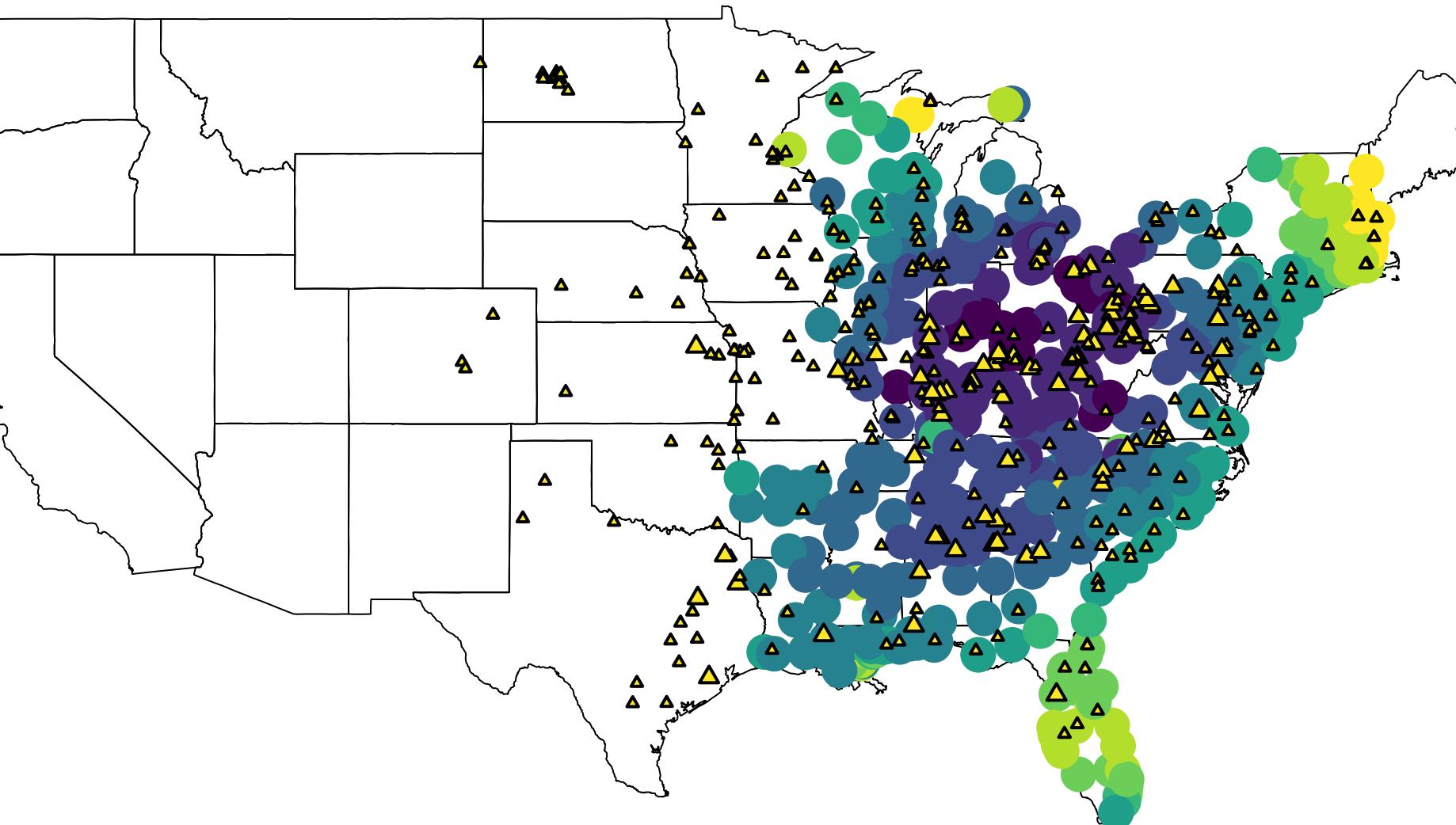
Monitor exposure:

sum of avgemissions\*(1/log(distance)), year100knots\_distLag 2005

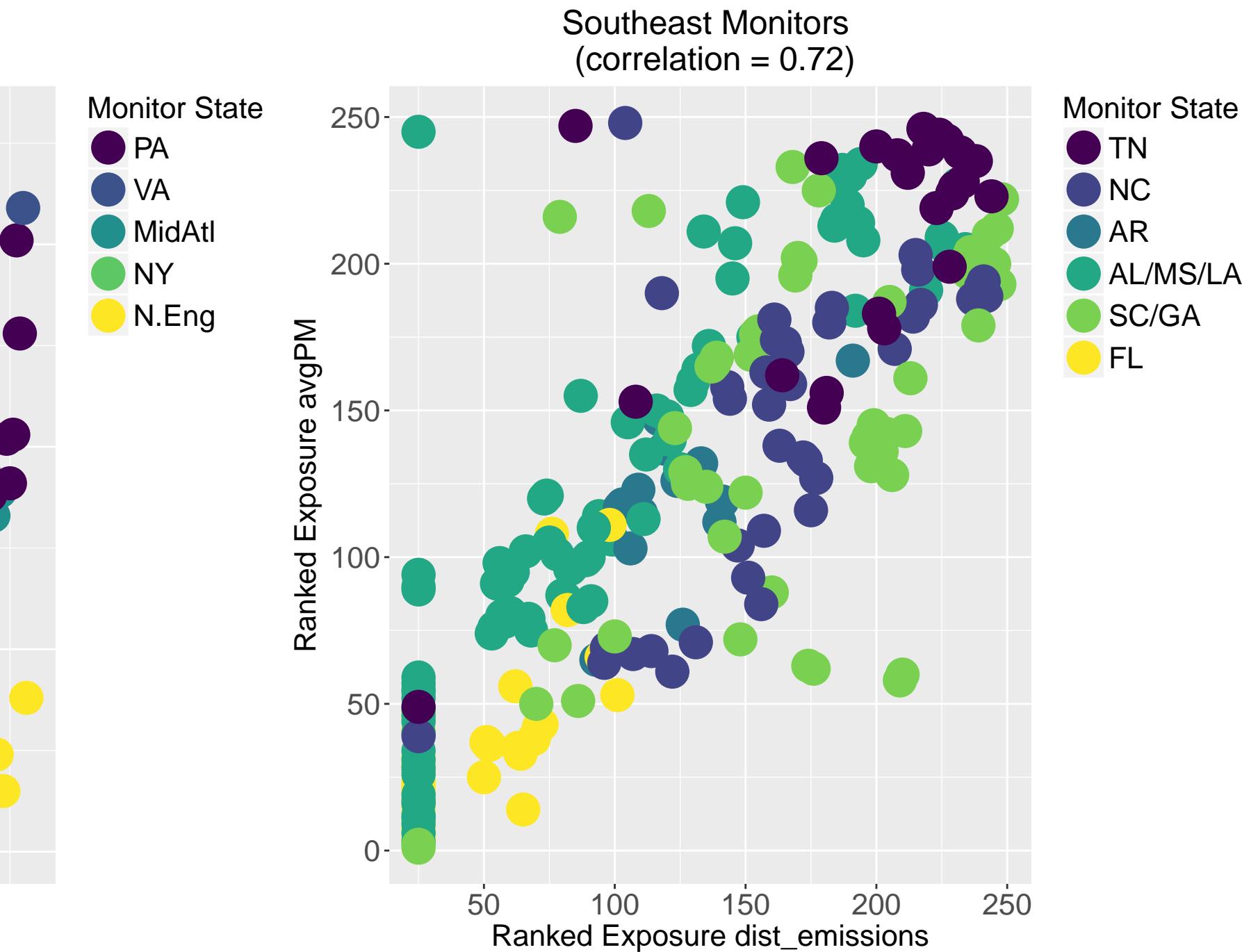
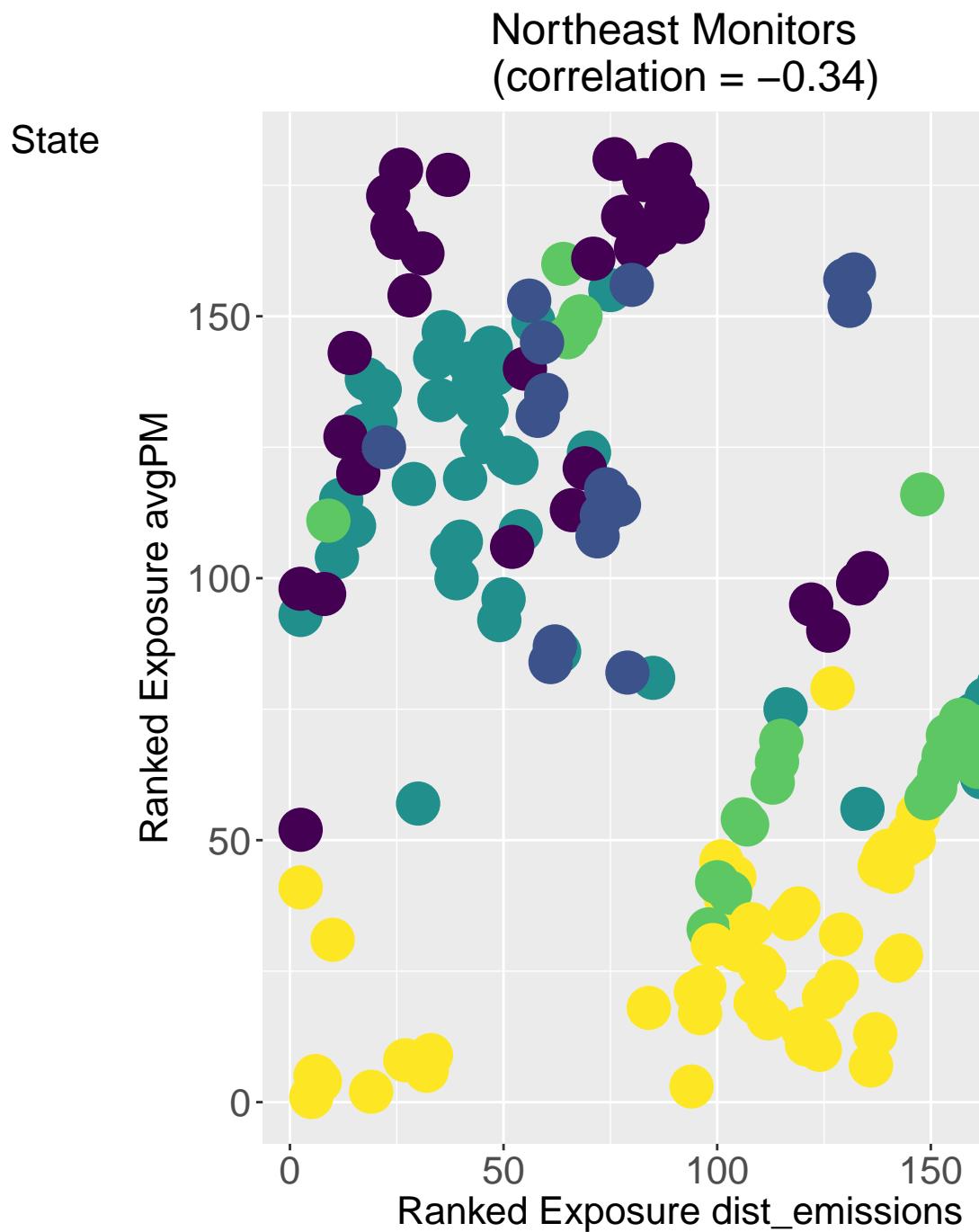
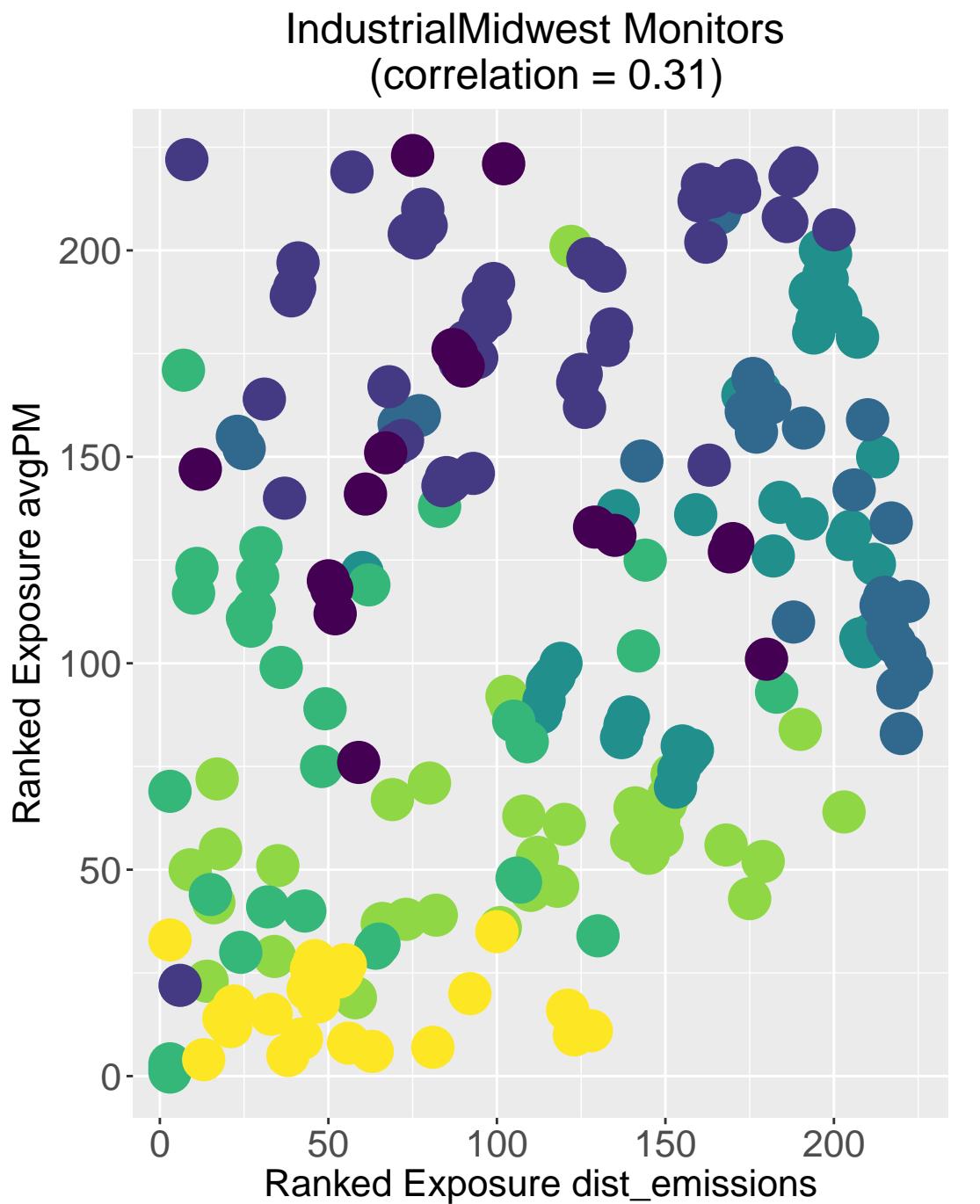


Monitor exposure:

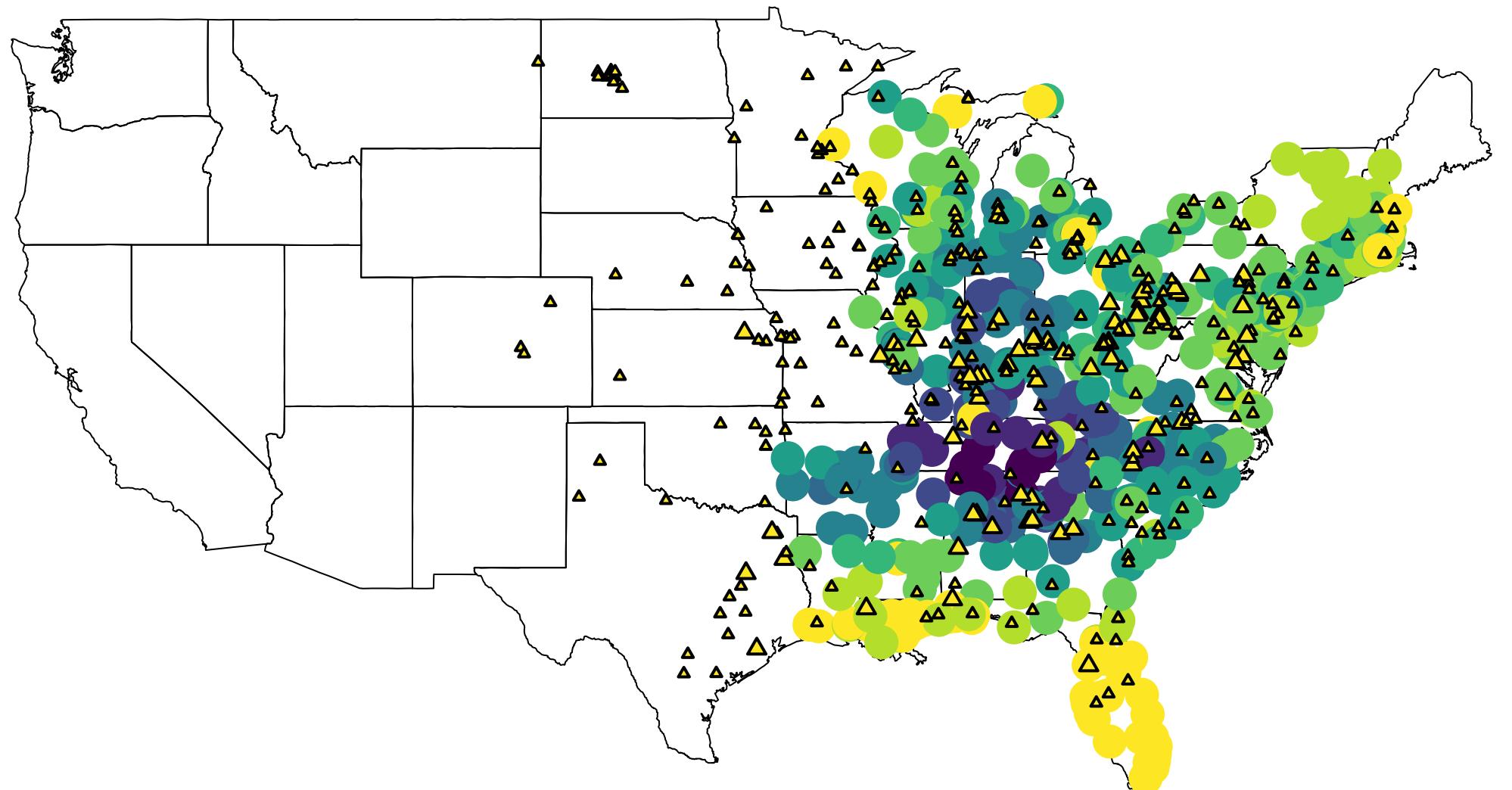
avgPM, decomposed75 year100knots\_distLag 2005



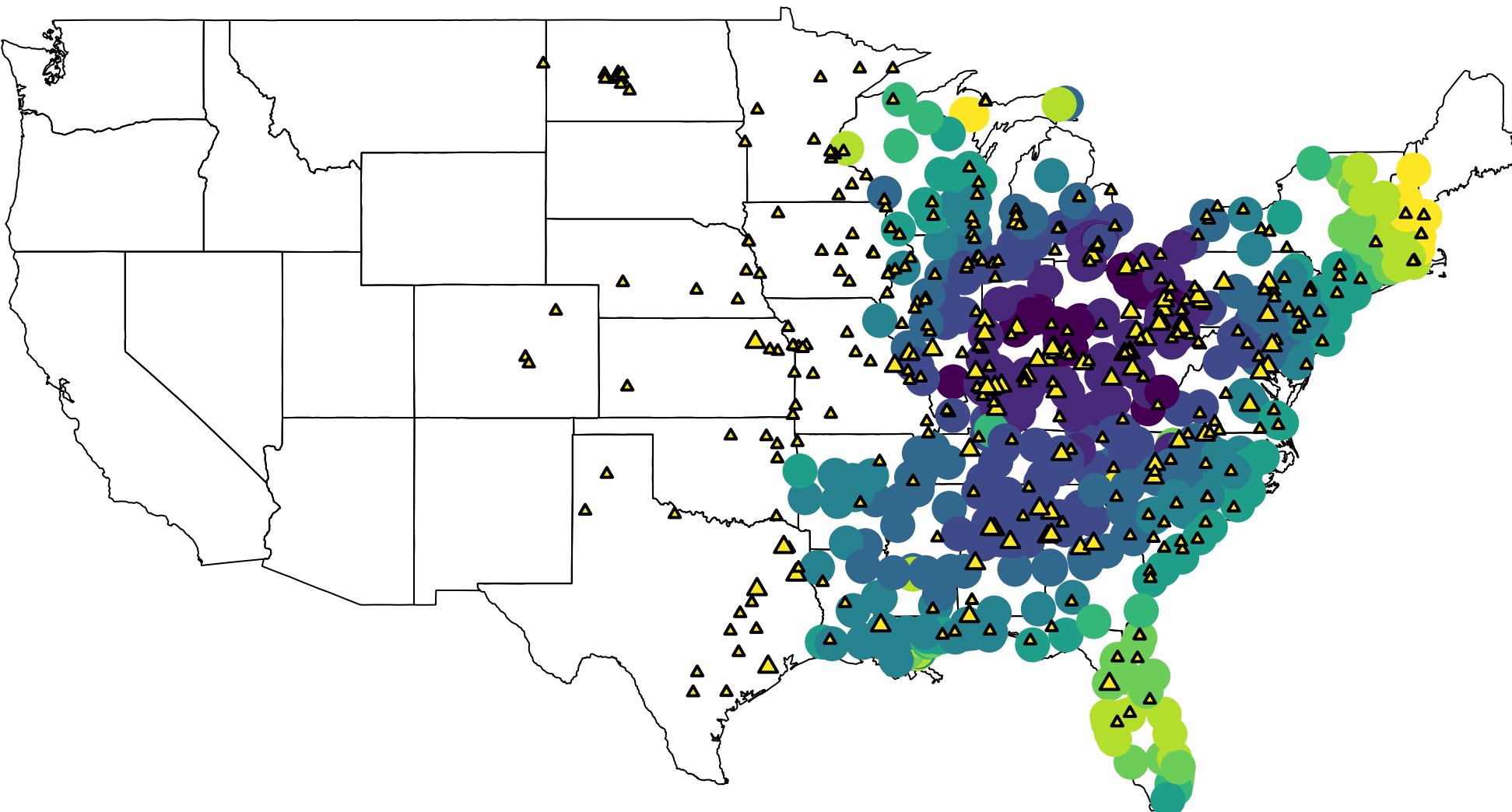
# Comparison of coal emissions exposure (sum of $(1/\log(\text{distance})) * \text{avgemissions}$ vs. low freq PM)



**Monitor exposure: num\_edges, year100knots\_distLag 2005**

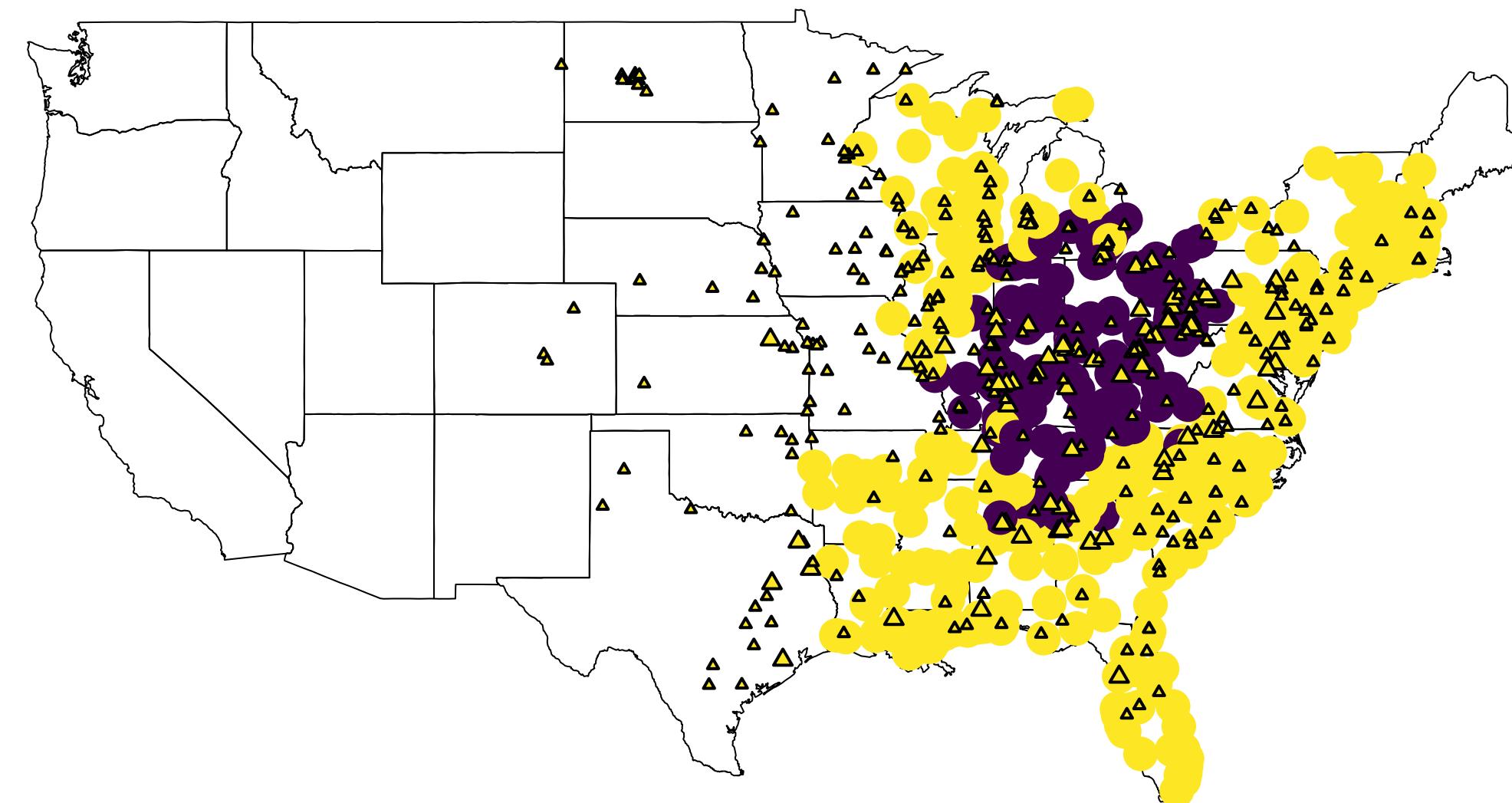
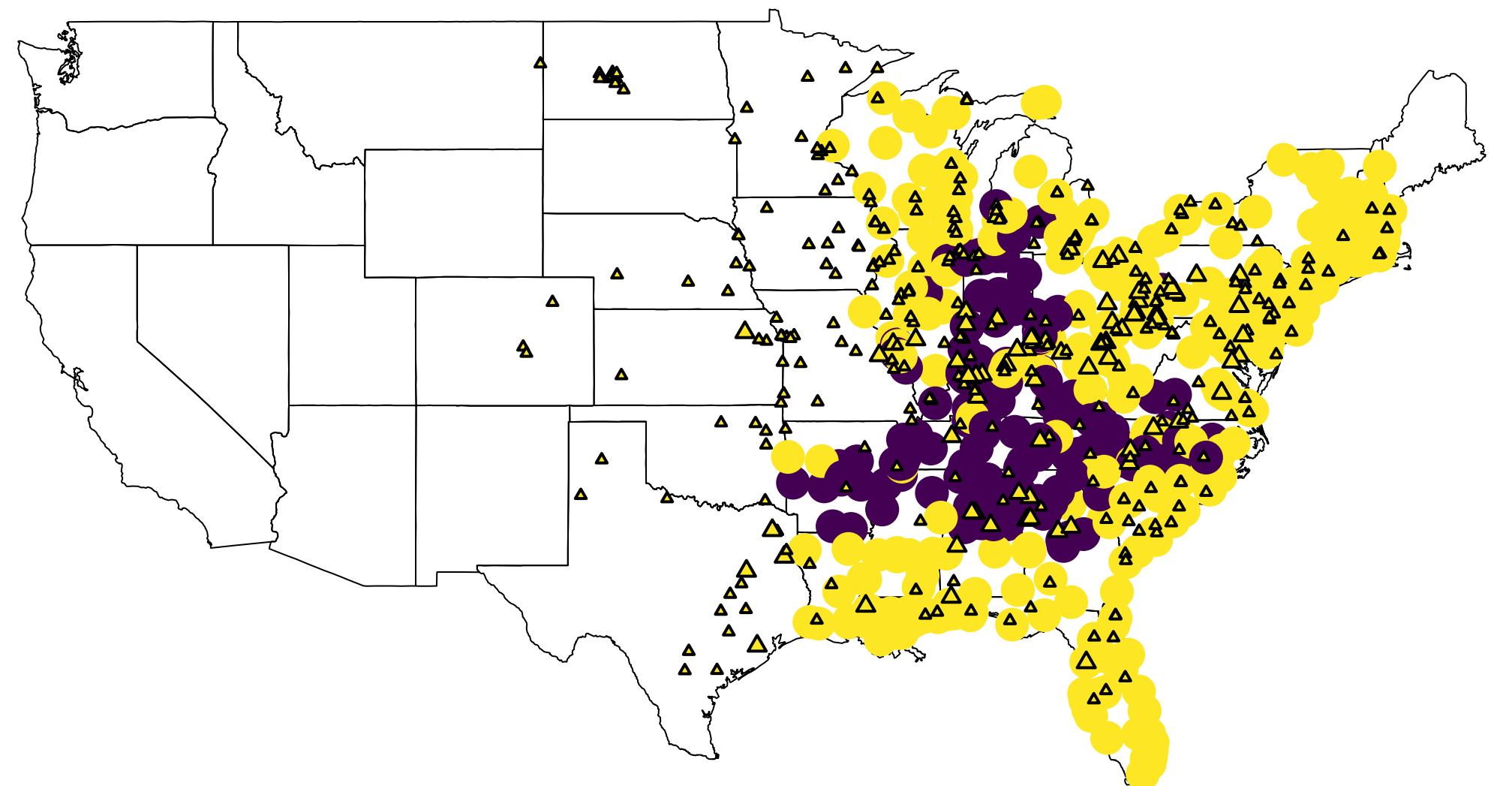


**Monitor exposure: avgPM, decomposed75 year100knots\_distLag 2005**

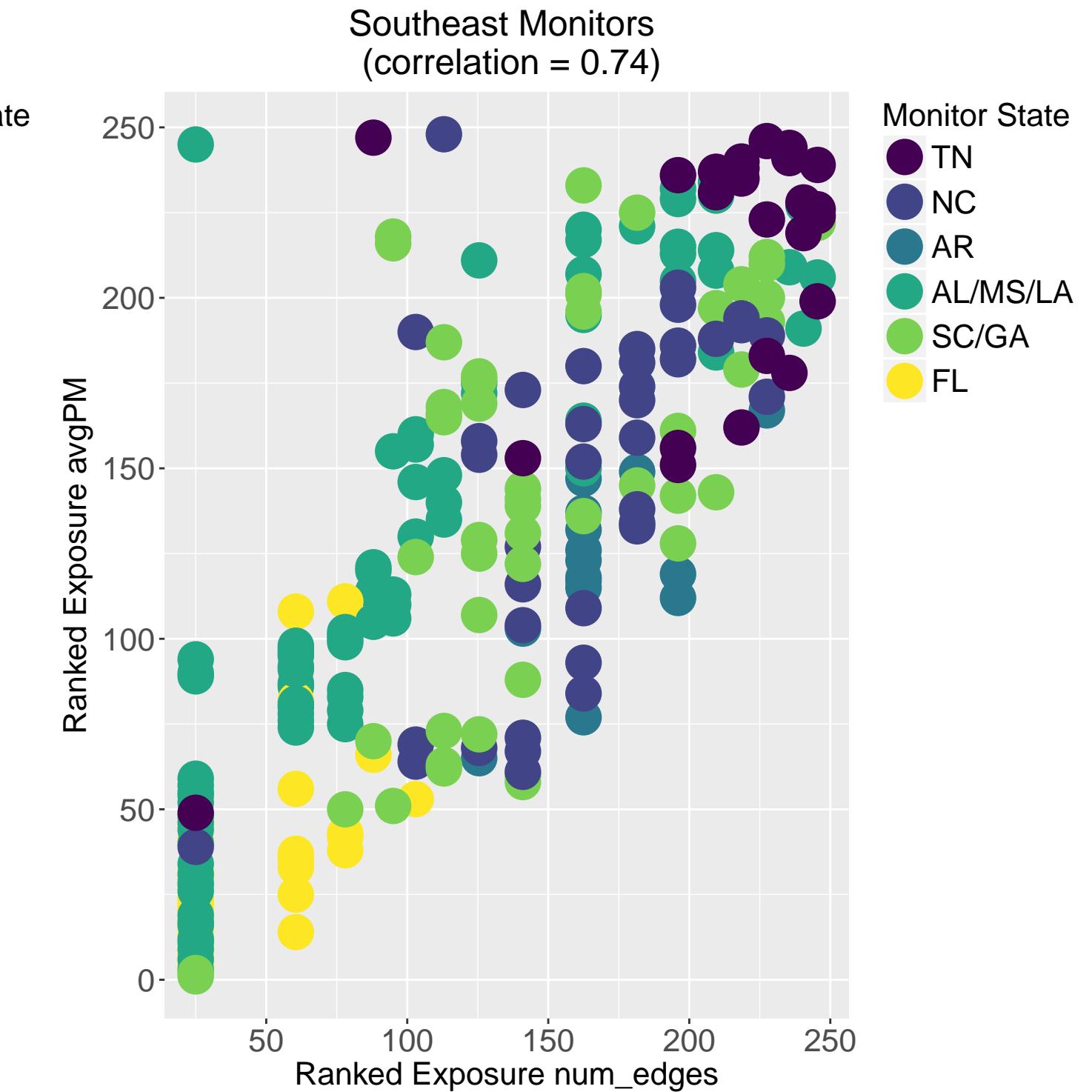
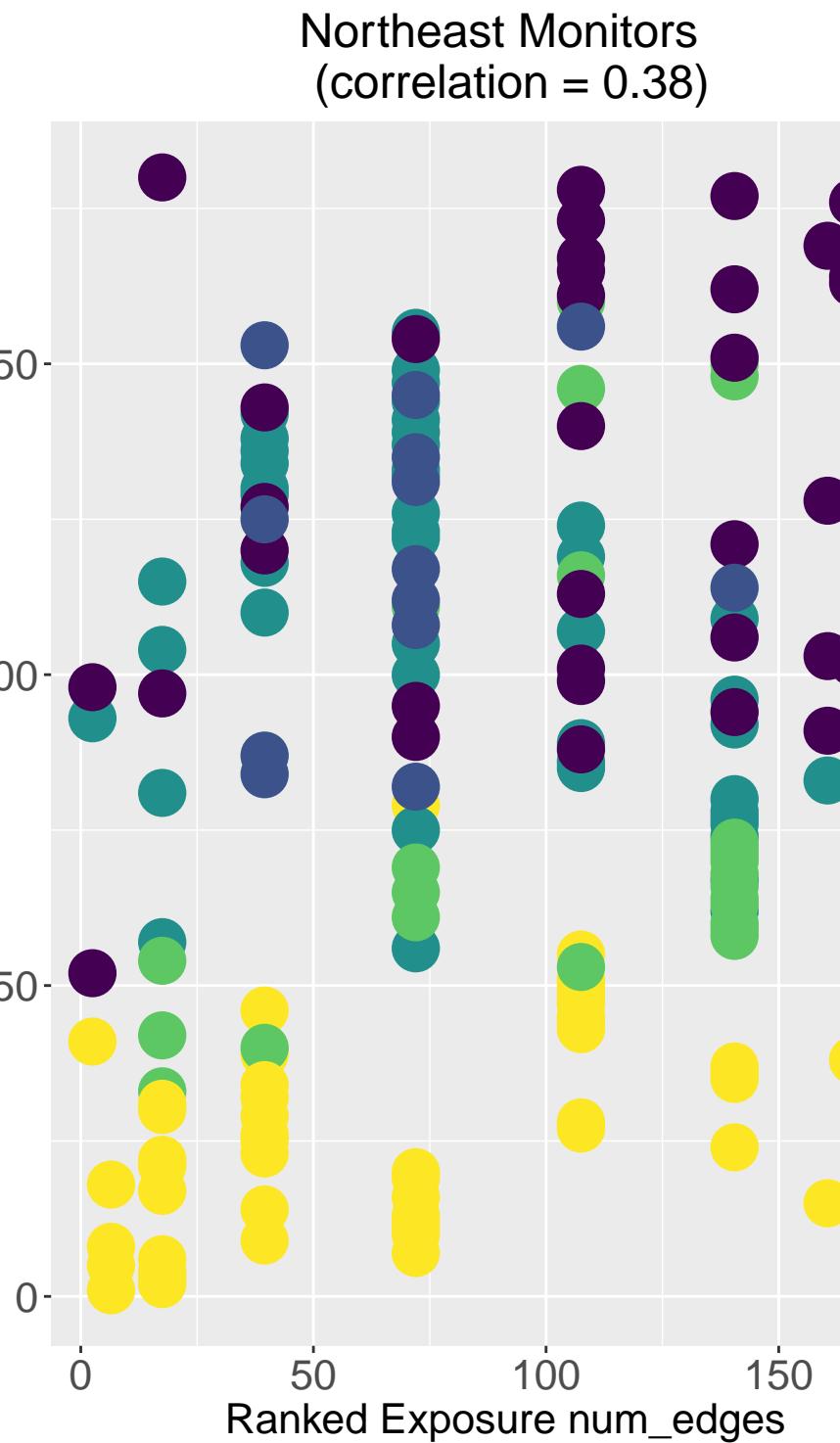
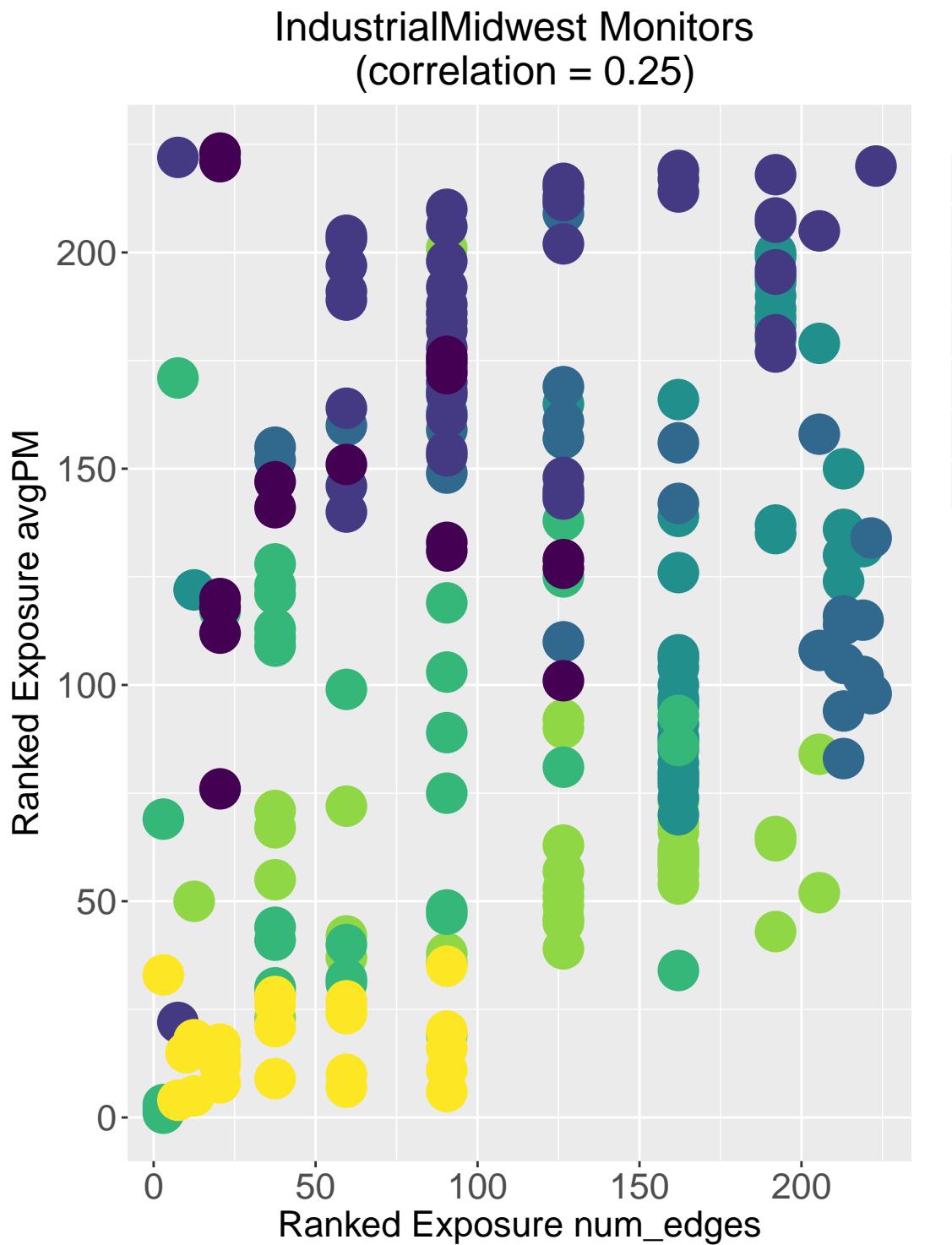


**Highest exposed: num\_edges, year100knots\_distLag 2005**

**Highest exposed: avgPM, decomposed75 year100knots\_distLag 2005**



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



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

