Project Goals

- Prepare air quality and public health stakeholders for data from the next-generation satellite instruments such as MAIA, TEMPO, and GOES-R series

- Use actual or synthetic data of these instruments to demonstrate how the new information can enhance stakeholders’ decision support activities
Study Aims after Descoping

- NYC – no change after communication
- Decision support systems: (1) Community Air Survey (NYCCAS) - to evaluate how air quality differs across New York City, (2) Syndromic Surveillance of ED visits for emergency response and situational awareness
- Proposed deliverables: (1) generate synthetic MAIA PM2.5 speciation data, and (2) develop daily PM\textsubscript{2.5} model with GOES-R AOD
We developed a Bayesian downscaler similar to MAIA’s operational L4 PM product algorithm for NYC using U. Iowa’s WRF-Chem simulations in 2018.
Model Prediction Surfaces
Work During NCE

- Communicate with New York City Department of Health and Mental Hygiene on data quality and analytical support to compare with existing methods
- Package PM2.5 product into MAIA L4 netCDF file template
- Complete development of the daily PM2.5 model using GOES-16 AOD data – massive data volume and a potential challenge for stakeholder use
- Generate daily PM2.5 concentrations to support NYC’s Syndromic Surveillance program
- Expected end of project ARL: 7 (Functionality Demonstrated)
GA EPD study aims after Descoping

- Change of scope after communication
- Decision support system: CMAQ NO2 simulations
- Proposed deliverables: (1) WRF-Chem simulations of ground level NO2 in 2018; (2) a data fusion model with OMI/TROPOMI, WRF-Chem data, and ground observations as input; (3) gridded predicted MDA1 NO2 concentrations
Work During NCE

- WRF-Chem simulation complete. Compile other data in Emory.
- Process extra NO2 measurements from a GA EPD research site to enhance spatial coverage
- Complete NO2 model development
- Work with GA EPD on result interpretation and evaluate value of information
- Expected end of project ARL: 7 (Functionality Demonstrated)
Other research products last year

- Manuscripts:

- Presentations in ISEE (Cromar), Asthma, Airways and the Environment Conference (Cromar), MAC-MAQ (Liu), NIEHS Meeting on Integrating Multiscale Geospatial Environmental Data into Large Population Health Studies (Liu)