

Community Measurements of Aviation Emissions Contribution to Ambient Air Quality

Boston University School of Public Health

PI: Kevin J. Lane PhD, MA

PM: Jeetendra Upadhyay

Cost Share Partner: Women's Health Study Initiative

Research Approach:

- Collection and analysis of community air pollution measurements UFP, and beginning NO₂ and SO₂.
- Stationary sites and mobile monitoring are being conducted continuously at varying distances from flight paths for Boston Logan International Airport.
- Statistical analyses of stationary and mobile measurements with flight activity data and meteorology to determine aircraft contributions to ground measurements for source attribution.

Objective:

- Measure aviation-related air pollution such as ultrafine particles (UFP) using a stationary and mobile monitoring platform near Boston Logan International Airport.
- Quantify the contribution of flight activity to community air pollution.

Project Benefits:

- Improved understanding of aviation-related UFP in communities near airports.
- Pairing of empirical monitoring data and source attribution models to validate dispersion air pollution models that could be applied at airports across the US.

Major Accomplishments (to date):

- We have collected air pollution data at stationary sites across multiple years during COVID-19.
- Over 700 hours of mobile air pollution data has been collected covering a wide variation of meteorology and ramp-up of aviation activities.

Future Work / Schedule:

- Analysis of mobile and stationary data is being used to identify aviation-related air pollution source attribution during COVID-19.
- Regression modeled source attribution estimates of NO₂ and SO₂ will be compared to outputs from dispersion models with ASCENT Project 19.