Community Based Air Quality Monitoring

Washington University Environmental Racism Report

Missouri Foundation for Health Funded:

Partners with **Metropolitan Congregations United**:

Washington University: Jay Turner Lab

The Nature Conservancy

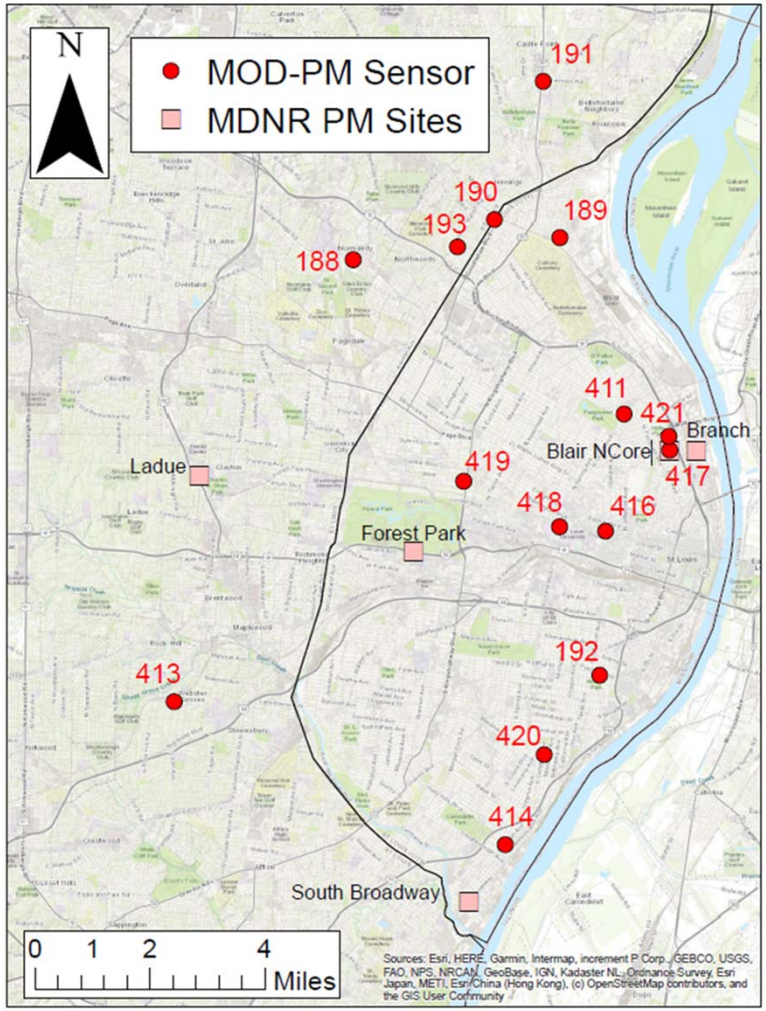
Washington University Environmental Studies Department

Congregations around the St. Louis, MO Region

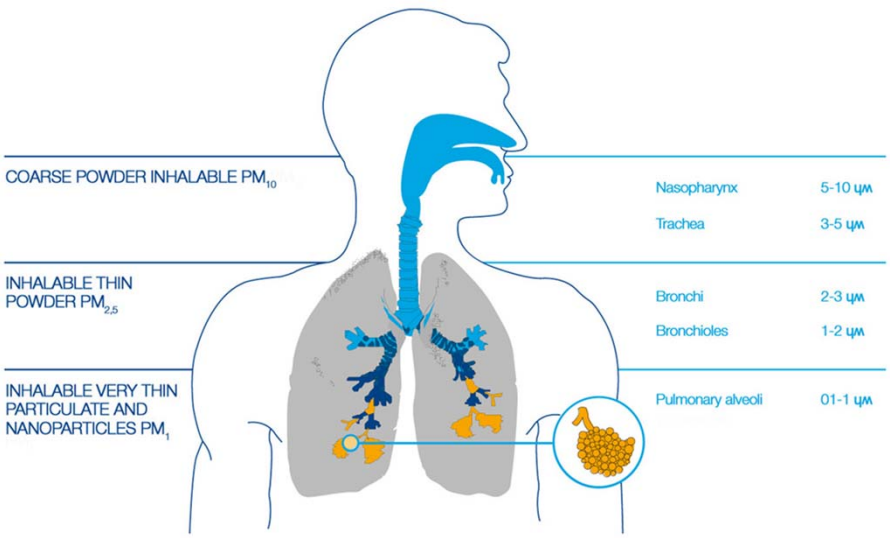
Research and Development Support: Sierra Club

MODULAIR-PM Current Network

Site	MODULAIR Serial Number
St. Ann Parish	188
Our Lady of the Holy Cross	189
New Northside Family Health Center	190
Third Presbyterian Church	191
Epiphany UCC	192
Monument of Faith	193
St John's UCC	411
Webster Groves Presbyterian	413
St Paul's Episcopal Church	414
Central Baptist Church	416
Blair Street	417
College Church	418
First Unitarian	419
St Anthony of Padua	420
Most Holy Trinity	421



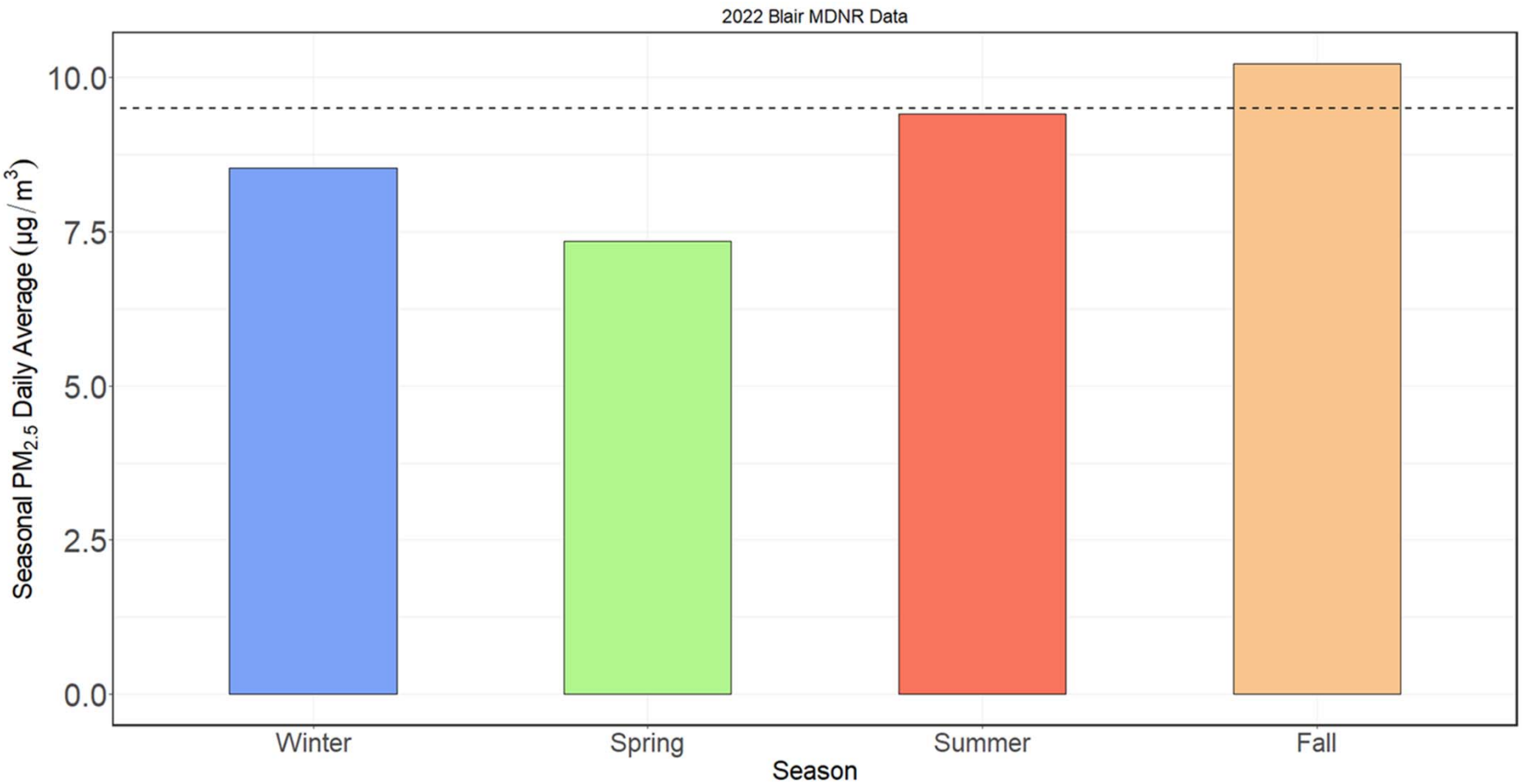
PM 2.5 Health Effects

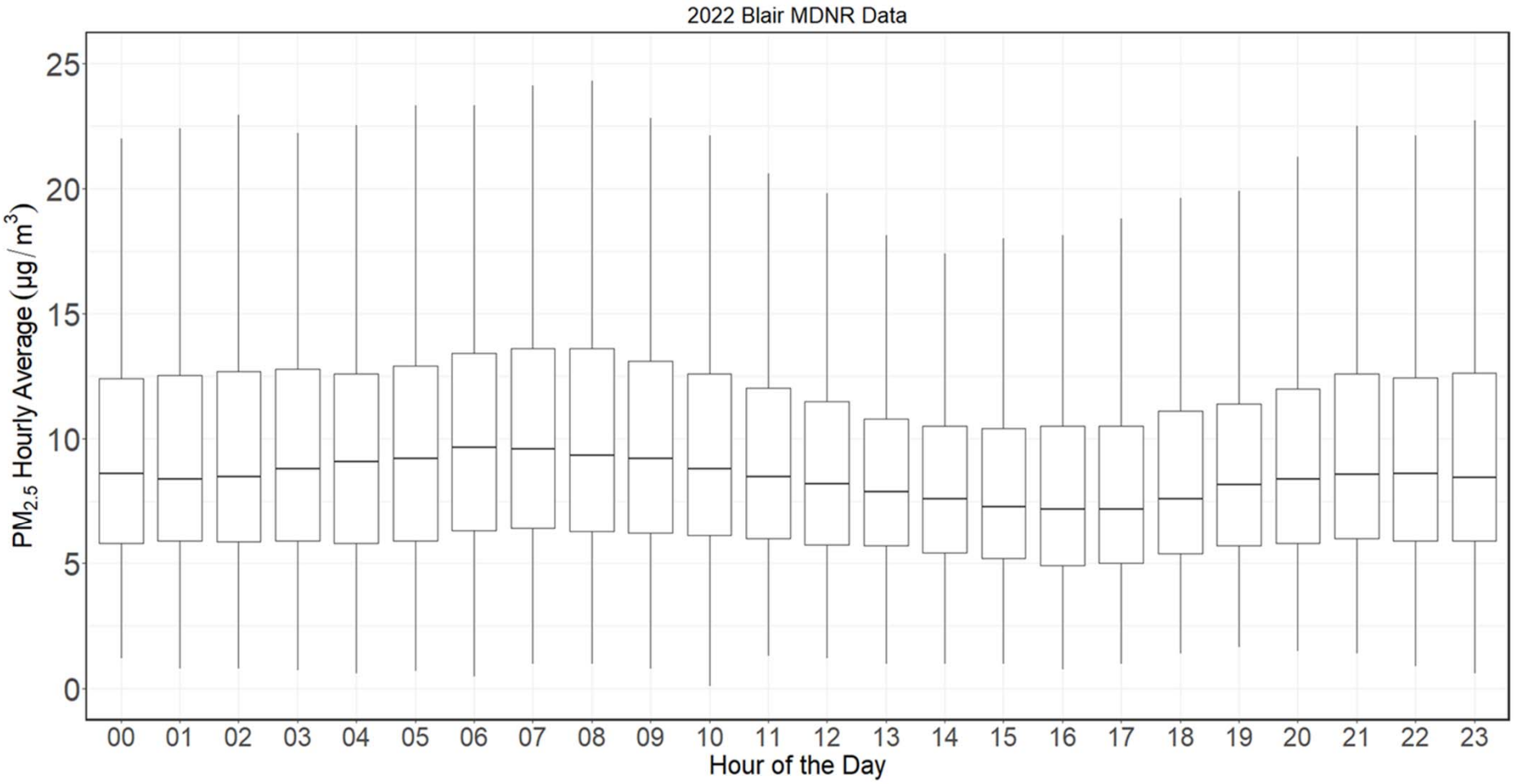


Health Outcome	Size Fraction	Exposure Duration	2009 PM ISA	2019 PM ISA
Mortality	***$PM_{2.5}$***	***Long-term***	***Causal***	***Causal***
		Short-term		
Cardiovascular effects	***$PM_{2.5}$***	***Long-term***	***Causal***	***Causal***
		Short-term		
	UFP	Short-term	Suggestive of, but not sufficient to infer	Suggestive of, but not sufficient to infer
Respiratory effects	***$PM_{2.5}$***	***Long-term***	***Likely to be causal***	***Likely to be causal***
		Short-term		
	UFP	Short-term	Suggestive of, but not sufficient to infer	Suggestive of, but not sufficient to infer
Cancer	***$PM_{2.5}$***	***Long-term***	***Suggestive of, but not sufficient to infer***	***Likely to be causal***
Nervous System effects	***$PM_{2.5}$***	***Long-term***	---	***Likely to be causal***
		Short-term	Inadequate	Suggestive of, but not sufficient to infer
	UFP	Long-term	---	Suggestive of, but not sufficient to infer
		Short-term	Inadequate	Suggestive of, but not sufficient to infer
Metabolic effects	$PM_{2.5}$	Long-term	---	Suggestive of, but not sufficient to infer
		Short-term	---	Suggestive of, but not sufficient to infer
Reproduction and Fertility	$PM_{2.5}$	Long-, Short-term	Suggestive of, but not sufficient to infer	Suggestive of, but not sufficient to infer
Pregnancy and Birth Outcomes				

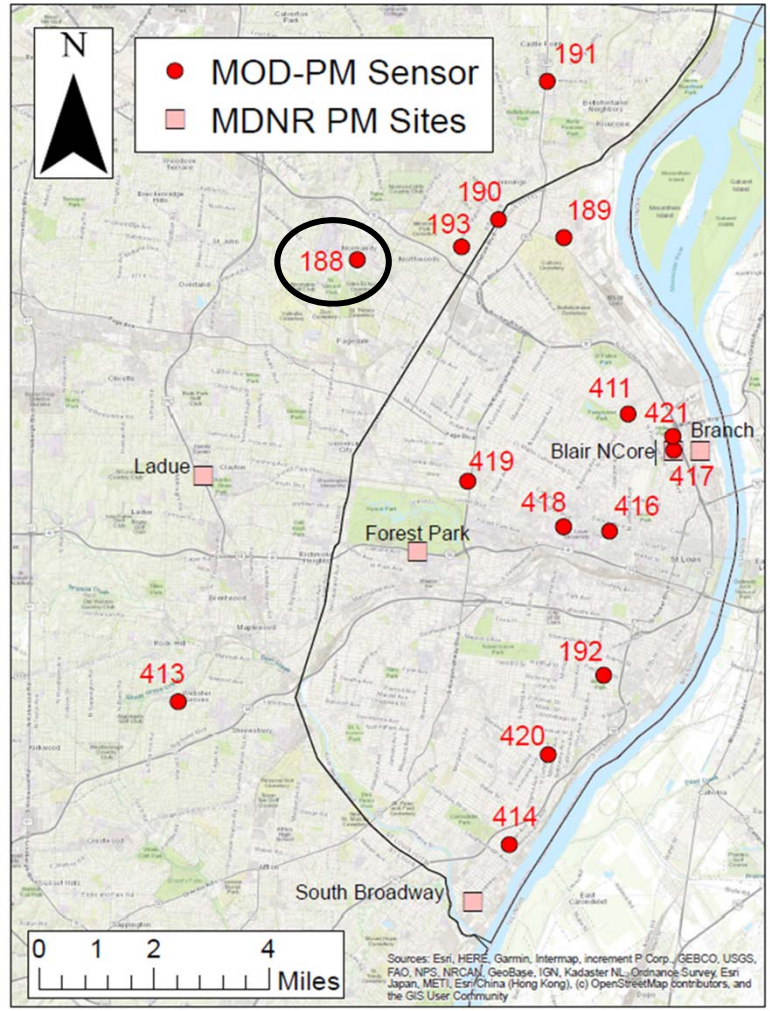
Particulate Matter (PM) Monitoring in St. Louis

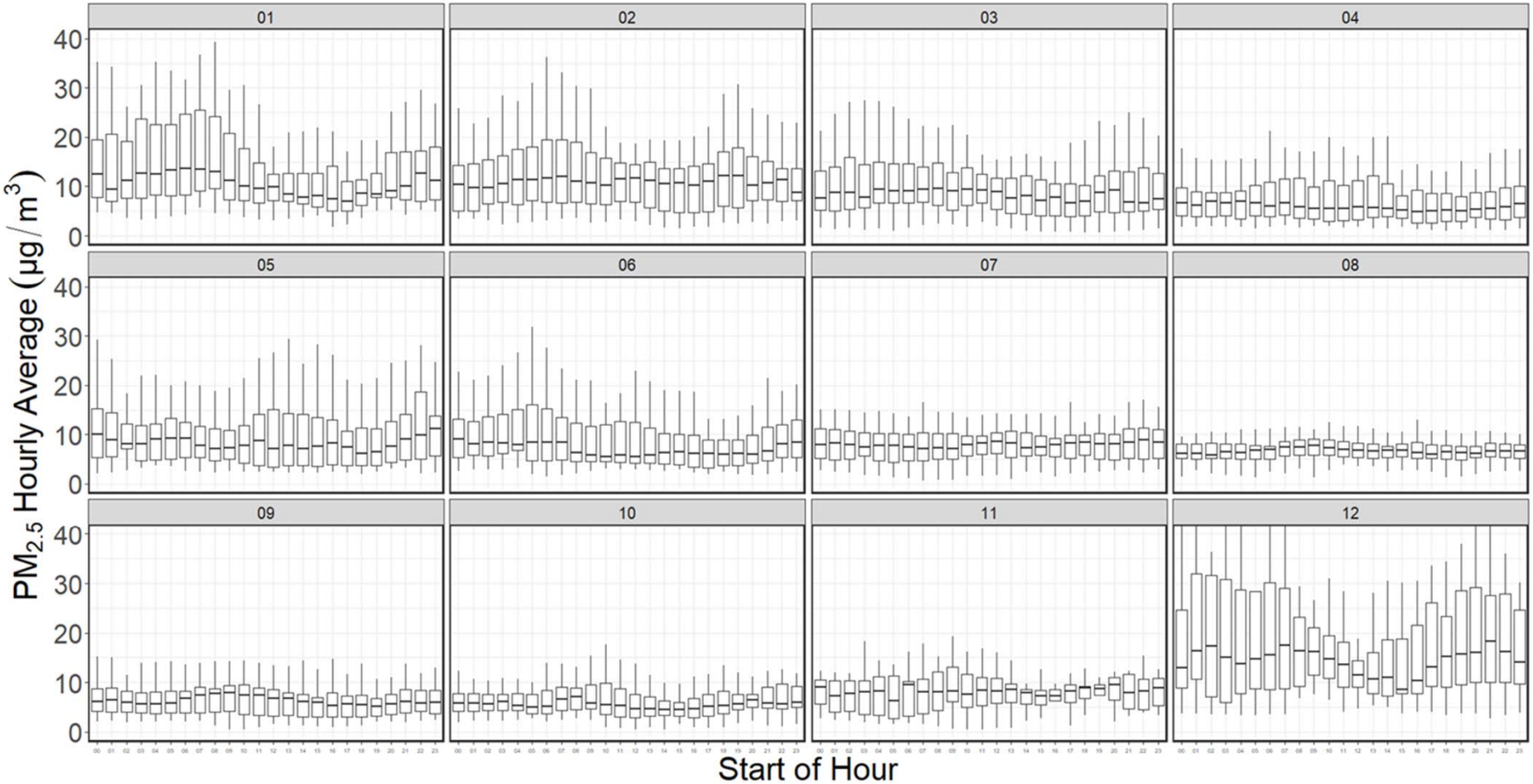
- Community Based Air Quality Monitoring Site Community Meetings:
  - MDNR Reference Grade PM Devices
  - QuantAQ Calibration
  - Educated on Historical Particulate Matter Trends in St. Louis

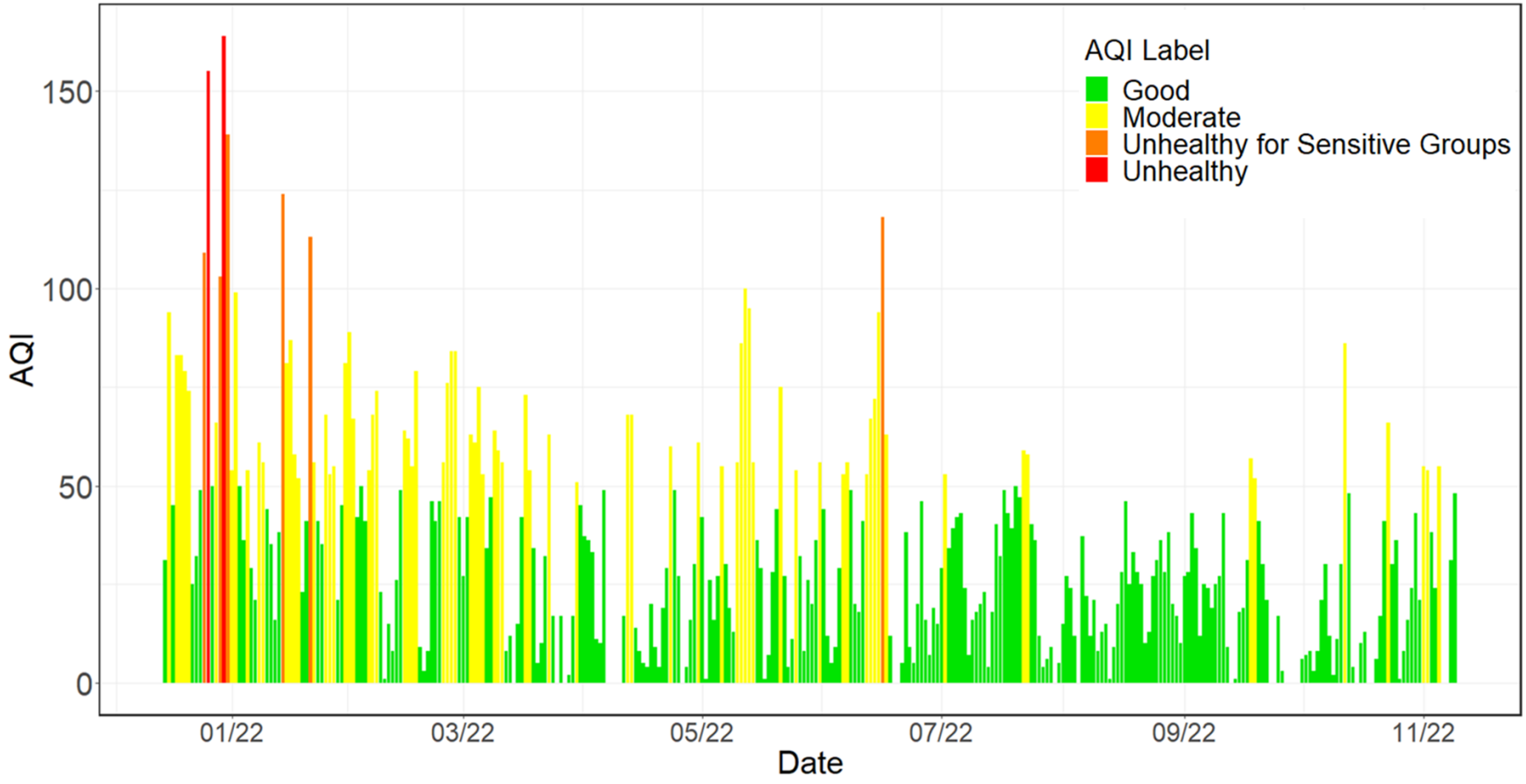

2022 Blair MDNR Data
Seasonal PM2.5 Daily Average (µg / m3)
10.0
7.5
5.0
2.5
0.0
Winter
Spring
Summer
Fall
Season

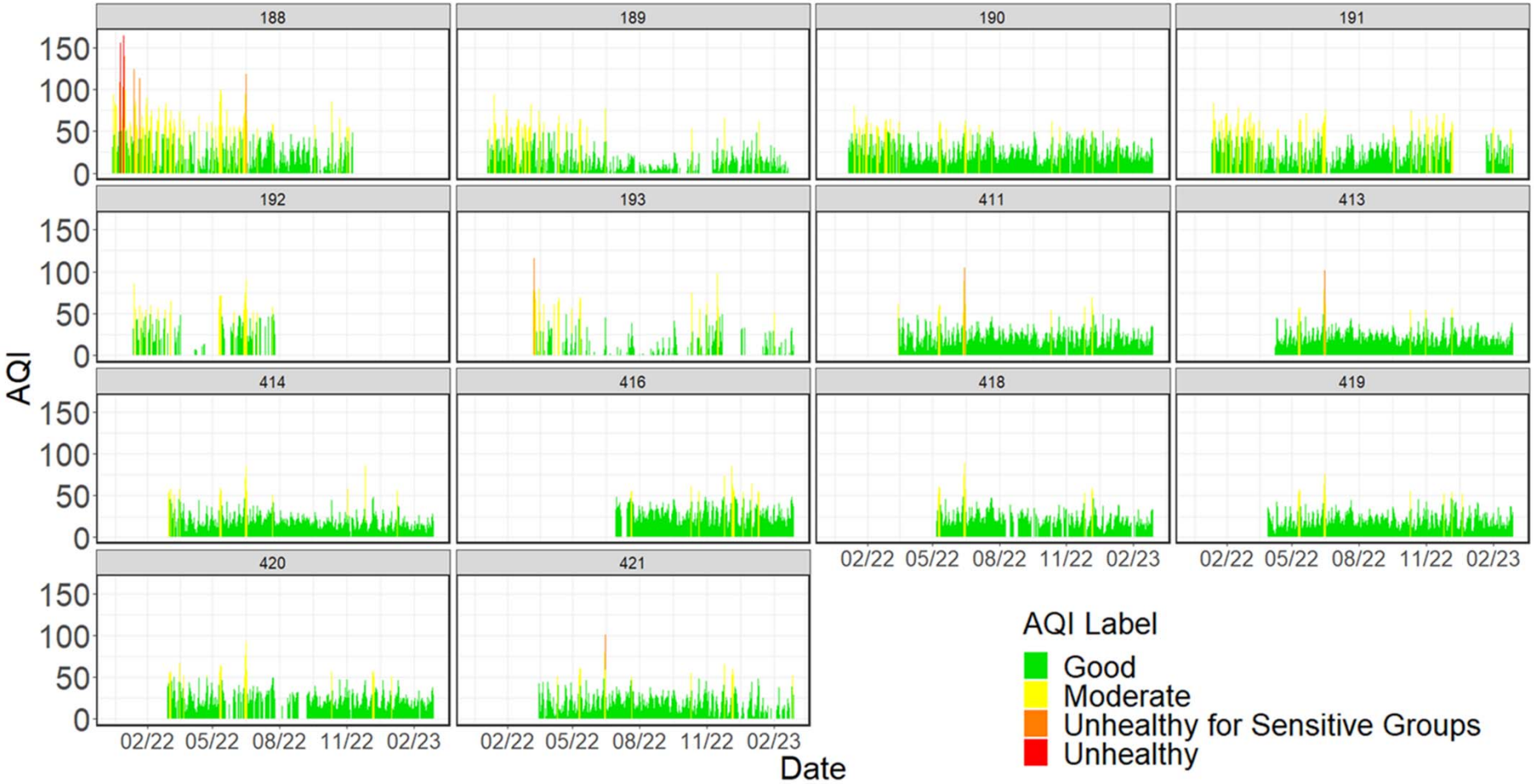

2022 Blair MDNR Data
PM2.5 Hourly Average (µg / m3)
25
20
15
10
5
0
00
01
02
03
04
05
06
07
08
09
10
11
12
13
14
15
16
17
18
19
20
21
22
23
Hour of the Day

Case Study: St. Ann Parish




01
02
03
04
05
06
07
08
09
10
11
12
0
10
20
30
40
PM2.5 Hourly Average (μg / m3)
Start of Hour


AQI Label
Good
Moderate
Unhealthy for Sensitive Groups
Unhealthy
AQI
150
100
50
0
01/22
03/22
05/22
07/22
09/22
11/22
Date


188
189
190
191
192
193
411
413
414
416
418
419
420
421
AQI
150
100
50
0
02/22
05/22
08/22
11/22
02/23
Date
AQI Label
Good
Moderate
Unhealthy for Sensitive Groups
Unhealthy

MCU Environmental Justice Leader Actions

- **Stories:**
  - **Karen Rothery, Sacred Heart Green Team (Valley Park) MO**
- **Examples:**
  - **Over 500 people have signed Air Quality Reform Petitions since May 2022**
  - **Gave Personal Statements at the Missouri Air Conservation Comission since July 2022 and Gamaliel National Strategtic Priority announced in Dec. 2022**
  - **12 meetings held on air quality ranging from small groups to public meetings**
  - **MCU Leaders grew the original work by engaging in citizen science efforts from purple air monitoring installation to social media content creation.**
    - **https://tiktok.com/@climatechangents**
    - https://www.instagram.com/climate_changents/
    - https://www.facebook.com/climatechangents

Questions?

Regional Environmental Justice Zoom Meeting
July 25th at 6:30PM
https://secure.everyaction.com/BfU_YJCMhkaFe-4TVTxflA2