

New QA Analyst Introduction

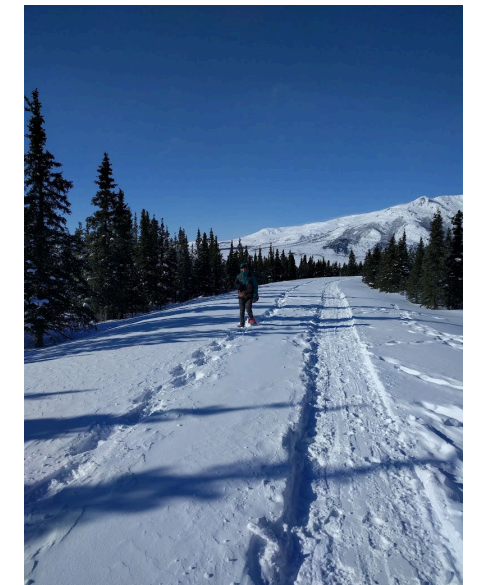
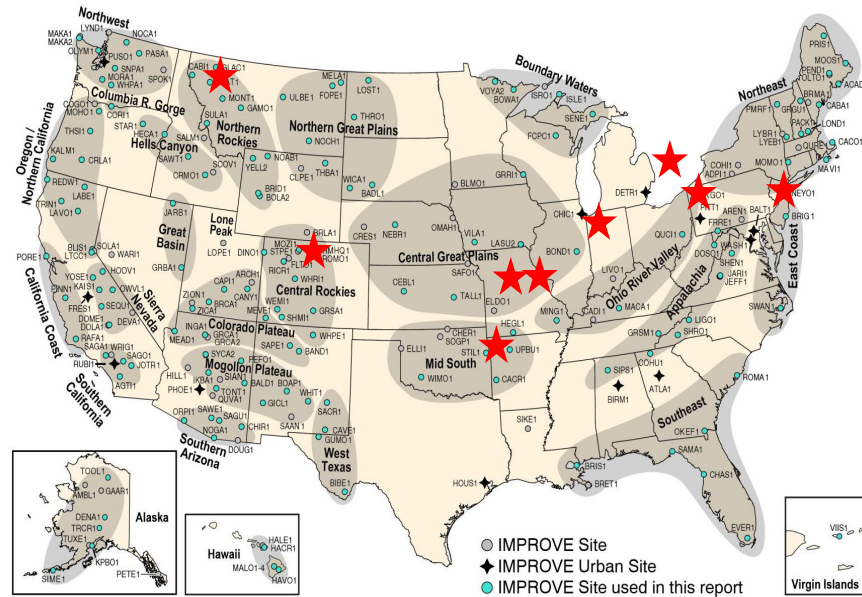
Bonne Ford

Quick summary: I love data and have really broad interests in air quality.

Personal Background

Born in Kalispell, but I've lived all over.

My family loves the National Parks.
(obviously very partial to Glacier)



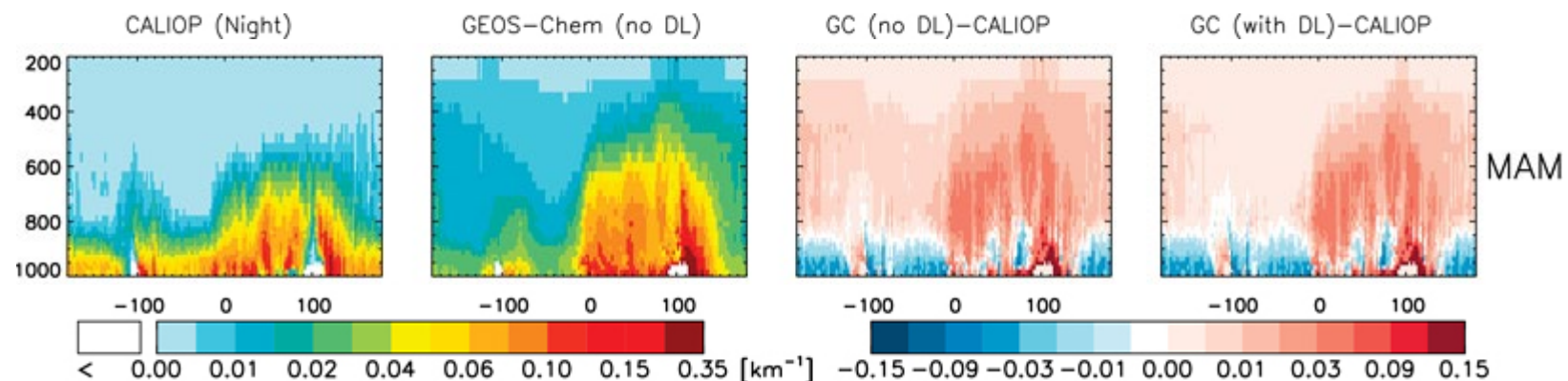
Academic/Professional Background

- Been at Colorado State University in the Department of Atmospheric Science since 2008
 - MS and PhD with Colette Head (2008-2014)
 - Postdoc with Jeff Pierce (2015-2016)
 - Research Scientist with Jeff Pierce (working with John Volckens and Emily Fischer) (2017-2023)



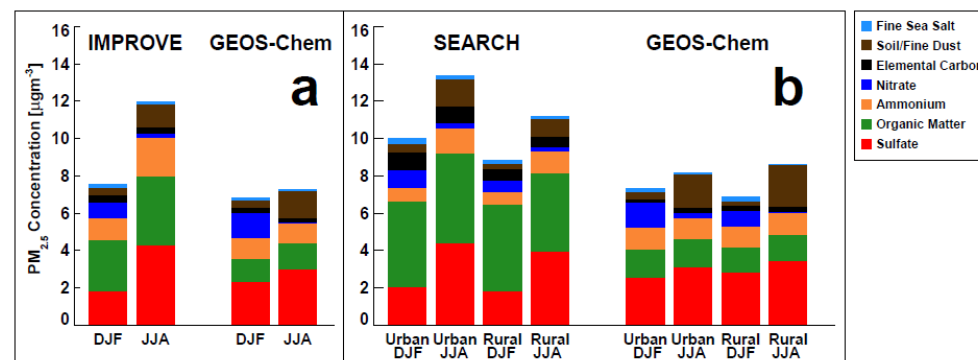
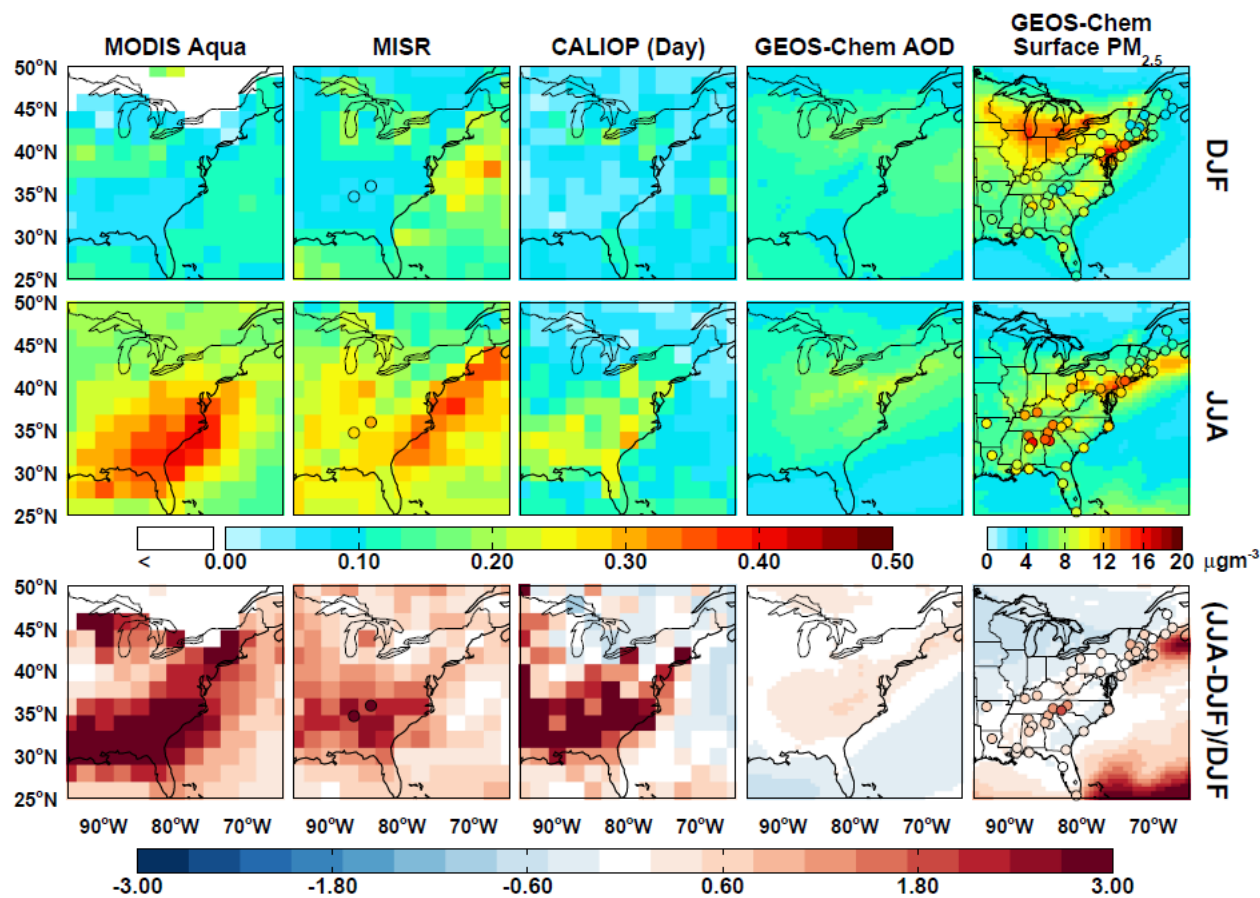
Research Interests/Background

- Satellite observations for air quality



Research Interests/Background

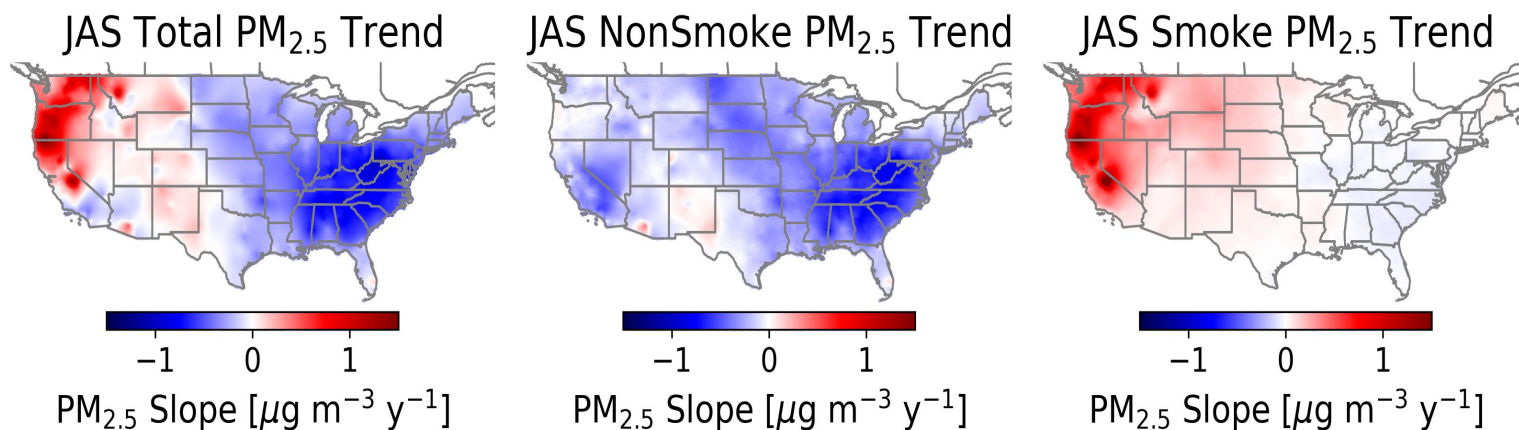
- Observation and model comparisons



Research Interests/Background

- Smoke impacts on air quality, air quality trends, and health (also crime and productivity)

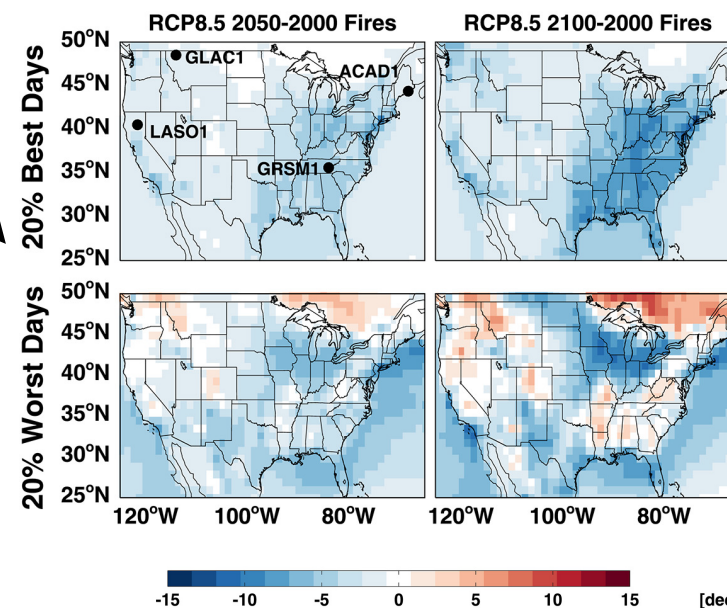
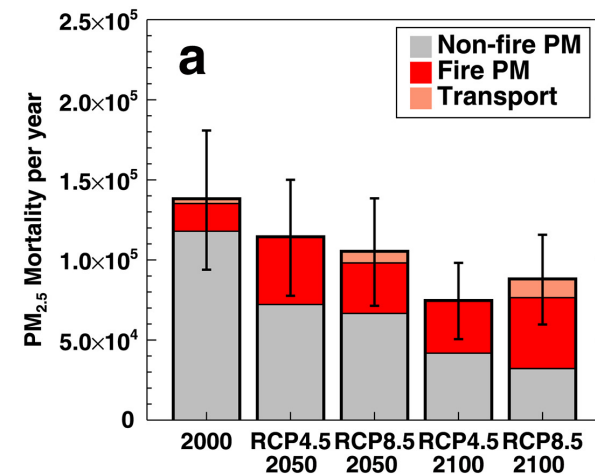
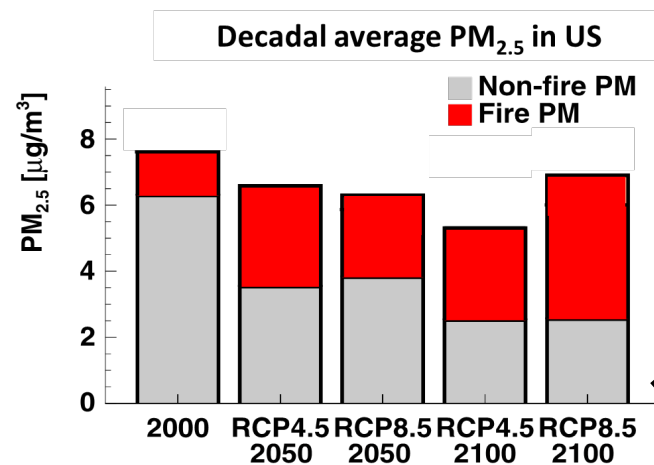
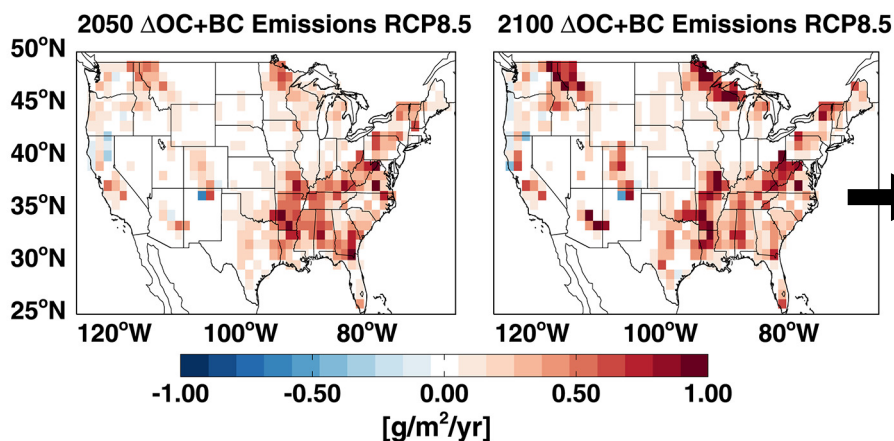
2006 – 2020 trends in summer PM_{2.5}



Research Interests/Background

- Smoke impacts on air quality, trends, and health

Changes in Fire Emissions



Research Interests/Background

- Communication about air quality

How well do Facebook posts about air quality correlate with air quality measures?

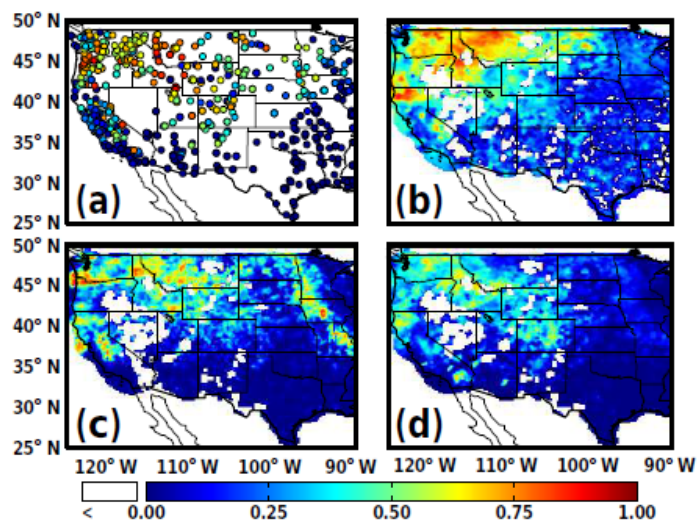
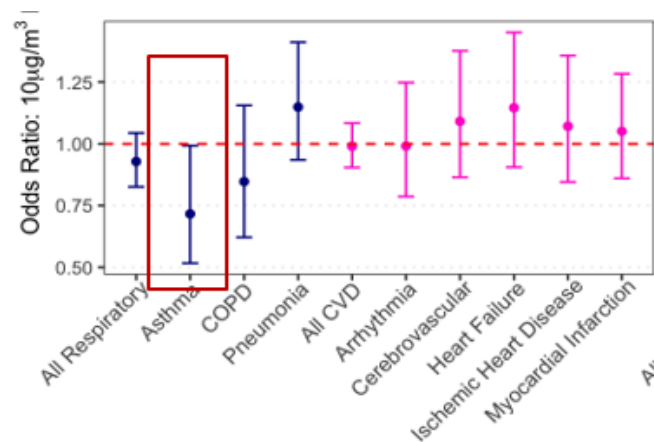
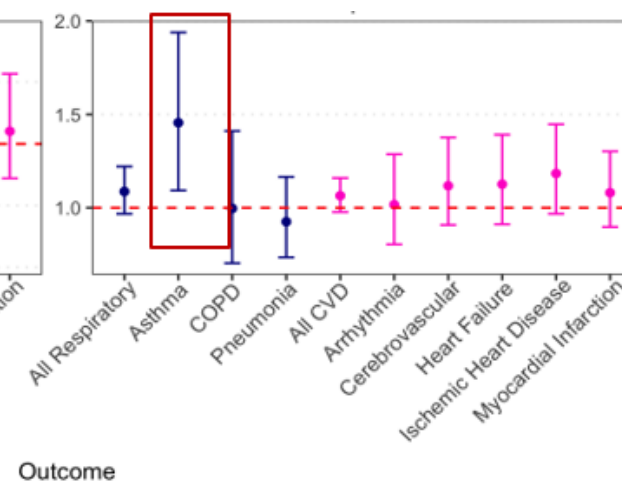


Figure 3. R^2 values for % of Facebook posters and (a) surface measurements of $PM_{2.5}$ (for sites with > 35 days of measurements), (b) WRF-Chem $PM_{2.5}$, (c) MODIS AOD when cloud fraction was below 0.75, and (d) HMS smoke product for the period of 5 June to 30 September 2015.

Colorado Local Fires 2012



Transported Smoke 2015

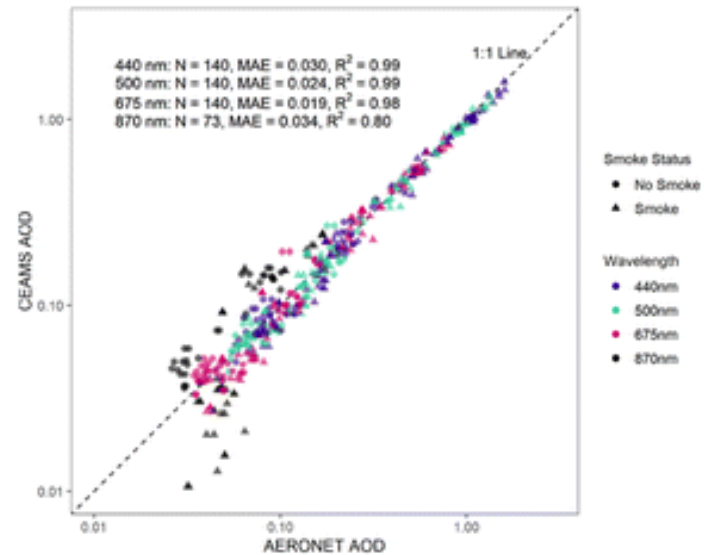


Outcome

Magzamen et al., 2021

Research Interests/Background

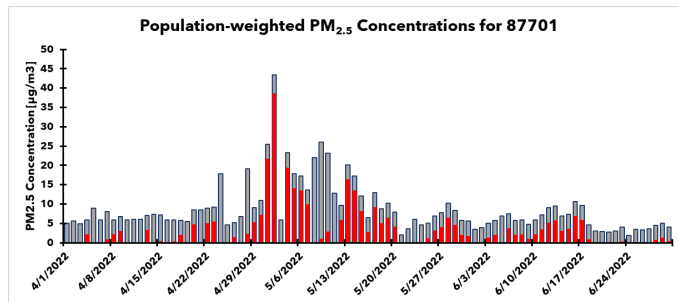
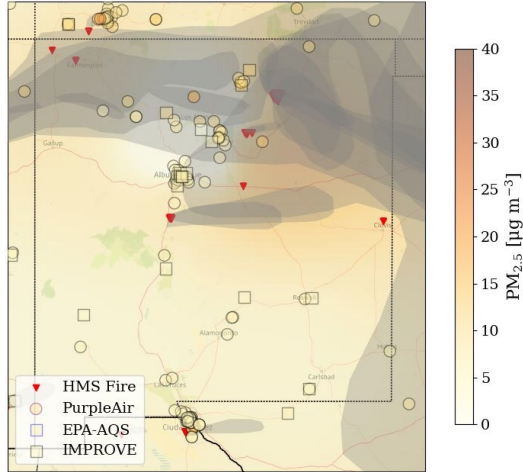
- Low-cost sensors, citizen science



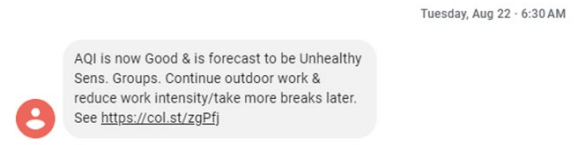
Projects Over the Last Year

Population-level smoke exposure estimates for NM 2022

PM_{2.5}, Fires, and HMS Smoke 20 April 2022



Automated Text Message and Email Air Quality Alert System for outdoor workers for in Fort Collins (did not design logos)



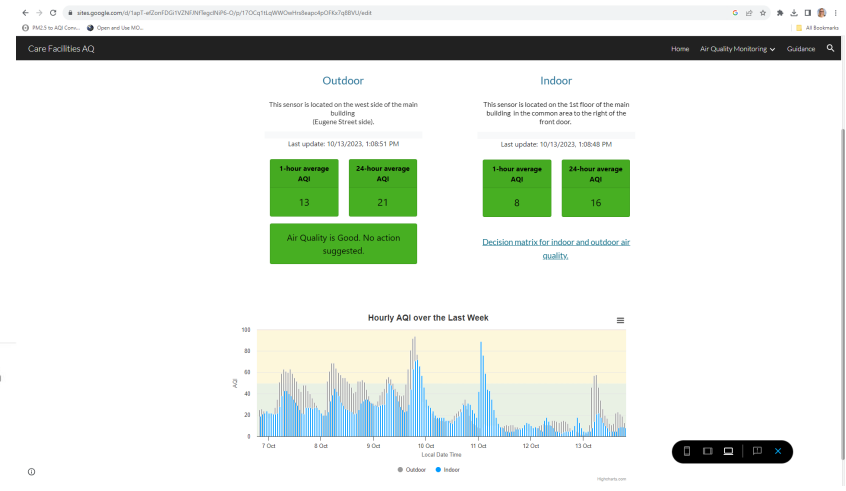
The air quality is forecast to be **unhealthy for sensitive groups** for ozone today in Fort Collins.

Guidance: Continue with outdoor work but take more breaks, ideally indoors, and avoid high-intensity activities. If you experience symptoms (e.g., irritated eyes or throat, coughing, headache, dizziness, and/or shortness of breath), further reduce your time outside to decrease risks to your health.

For more information: <https://bit.ly/FoCoAirAware>
 For current air quality conditions: <https://www.fcgov.com/airquality/aqdata>

[Unsubscribe Preferences](#)

Tools and Dashboards for visualizing/managing PurpleAir Sensors



Sensor Name	1-Hour Average	24-Hour Average	Last Updated
CSU-ATS-Flatiron	0.6 µg/m³	0.8 µg/m³	8/14/2022, 9:58:10 PM
CSU-ATS-Loveland	0 µg/m³	0 µg/m³	4/4/2022, 1:44:31 PM
CSU-ATS-Streets	0.4 µg/m³	0.7 µg/m³	8/14/2022, 9:57:23 PM
CSU-ATS-Bonner	0 µg/m³	0.4 µg/m³	8/14/2022, 9:57:31 PM
CSU-ATS-Horseshoeth	1.2 µg/m³	1.6 µg/m³	8/14/2022, 9:58:26 PM
CSU-ATS-Carter	7.1 µg/m³	2.6 µg/m³	8/14/2022, 9:58:06 PM

Goals for this upcoming year

- Develop a thorough understanding of the historical record and scientific findings from the IMPROVE network
- Use IMPROVE data to understand and recreate essential data products and trends
- Help improve and update documentation

Practices that are important in my work

- Creating shareable, easy to follow code (<https://gist.github.com/bonneford>)
- User-friendly data products
- Documentation
- Building tools and procedures for efficiency