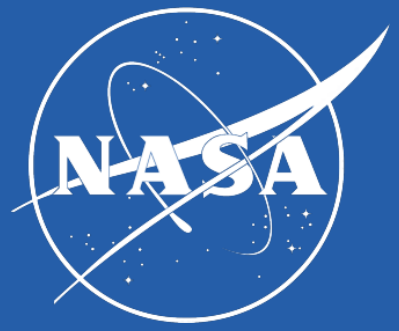


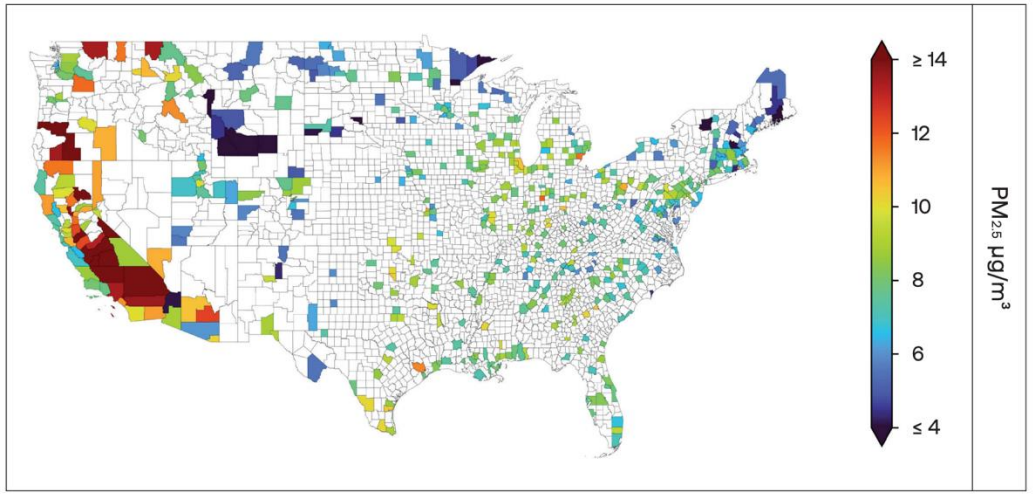
Filling Gaps in Unmonitored Regions: HAQAST work from University of Wisconsin--Madison

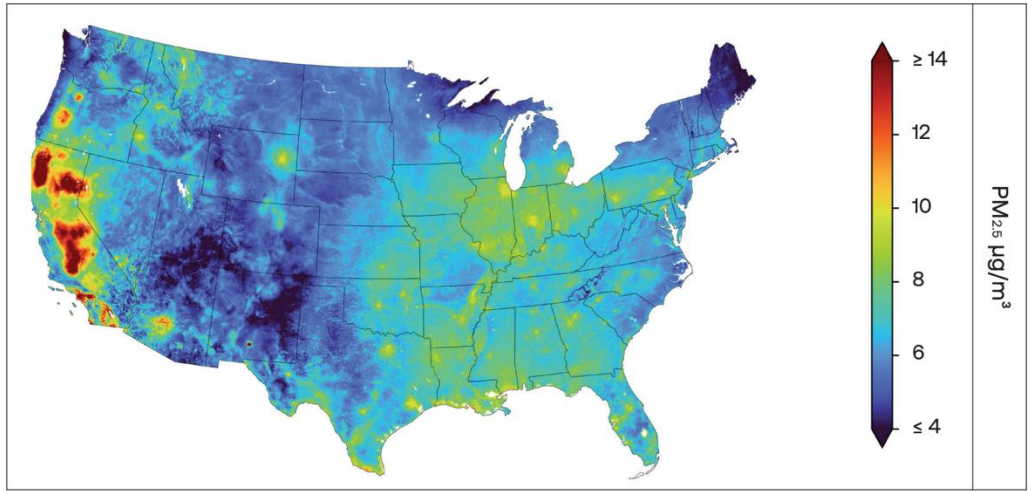
Tracey Holloway, Jenny Bratburd, Monica Harkey, Pat Reddy, Lizzy Kysela, Summer Acker, Cara Scalpone, Olivia Goins, and Brad Pierce

Partners and Stakeholders

$PM_{2.5}$ "Design Values" from Satellite-Derived Data

Comparison of Monitor vs. Satellite-Derived Data





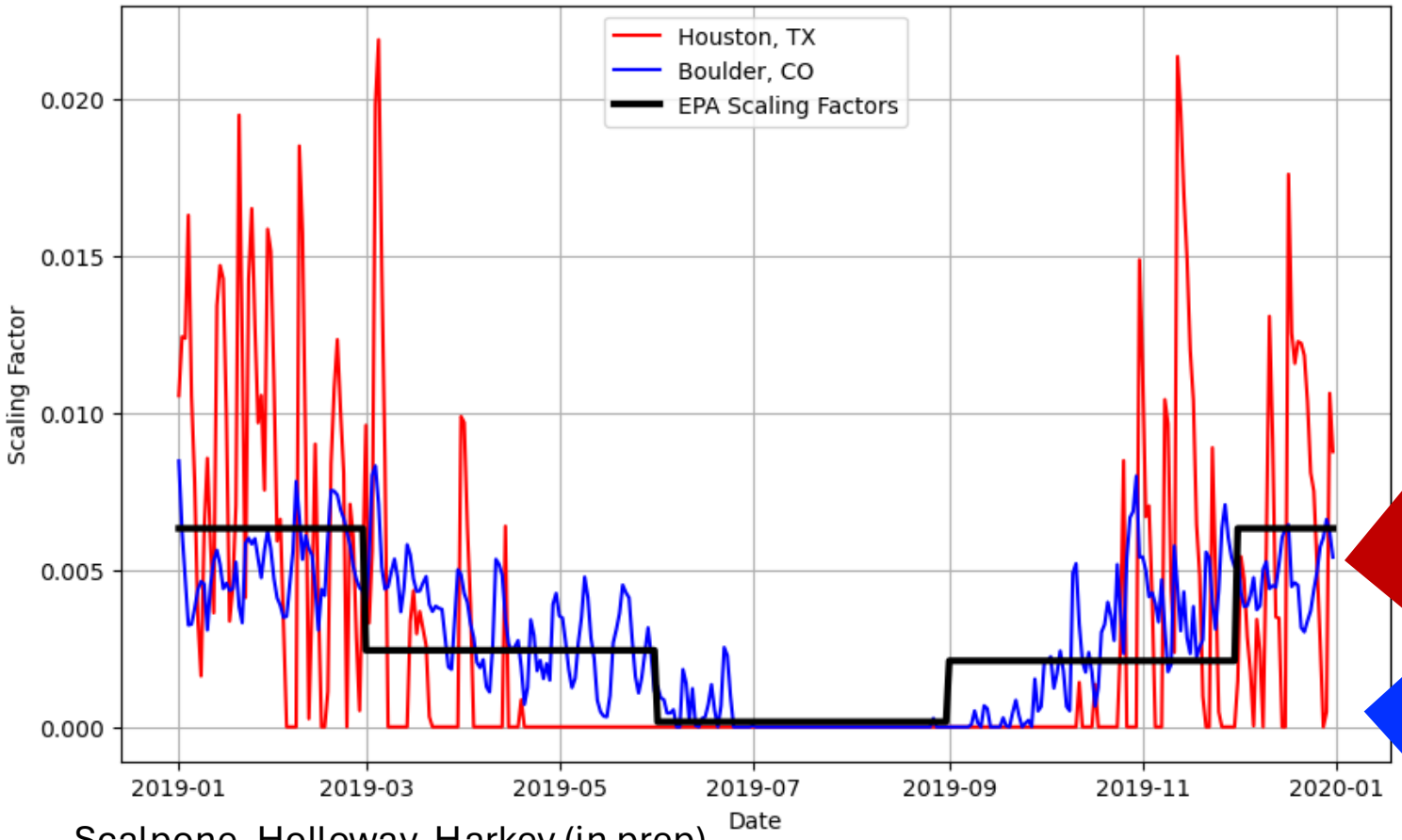
American Lung Association

The American Lung Association "Something in the Air" report highlights the potential for satellite data to be leveraged in under-monitored areas with high exposures to ambient air pollution.

Figure 1. Monitor County Design Values (CDVs) from the Environmental Protection Agency, showing $PM_{2.5}$ for the years 2020-2022.
Figure 2. Satellite-derived estimates of $PM_{2.5}$ County Design Value Equivalents (CDVEs) for 2020-2022 (American Lung Association, 2024).

New emission inventory to support analysis of wintertime satellite NO_2

Daily Gridded, Temperature-Based Temporal Allocation for 2017 NEI
Residential Fuel Combustion

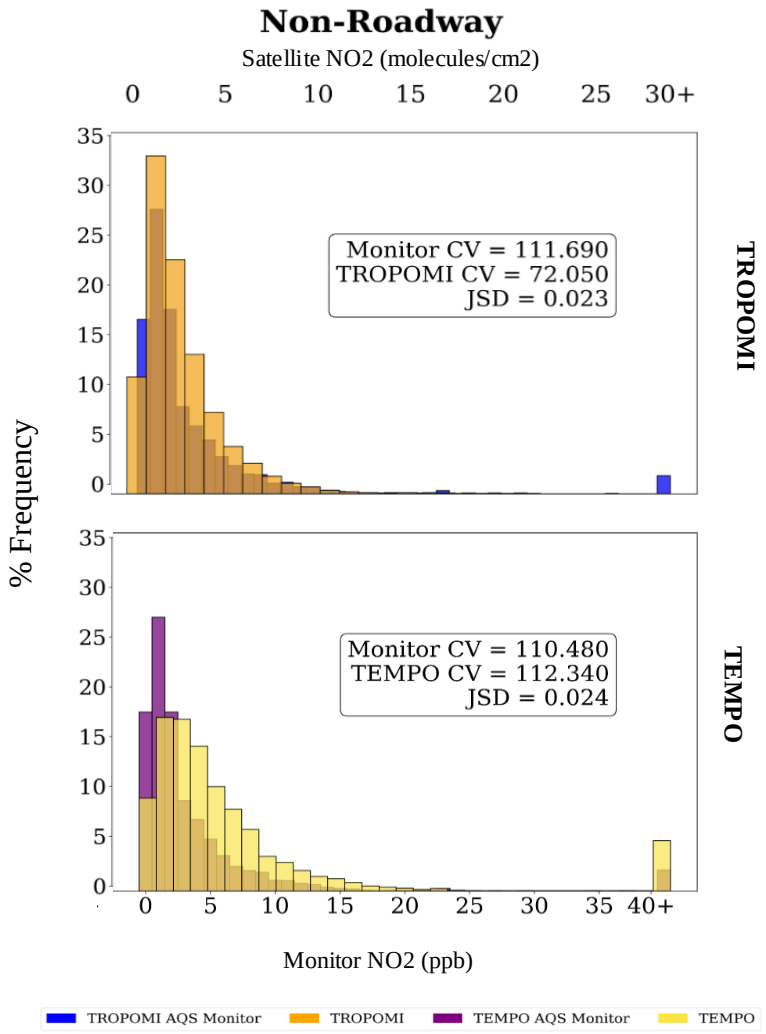


Scalpone, Holloway, Harkey (in prep)

Houston, TX (warm climate) will allocate emissions to fewer specific cold days.

Boulder, CO (cold climate) will allocate more emissions to spring and late fall.

Characterizing near-surface NO_2 from TROPOMI and TEMPO



Left from Acker, Holloway et al., ACP in Review - Figure 3. July 2024 frequency distributions of NO2 as measured by AQS monitors, TROPOMI, and TEMPO for Non-Roadway monitors locations. The boxes show the Coefficient of Variation (CV) and Jensen Shannon Divergence (JSD) for each monitor classification.

Simulated Surface-Column NO_2 Connections for Satellite Applications

JGR Atmospheres

M. Harkey[1] and T. Holloway[1,2]

A Comparison of Regression Methods for Inferring Near-Surface NO_2 With Satellite Data

JGR Atmospheres

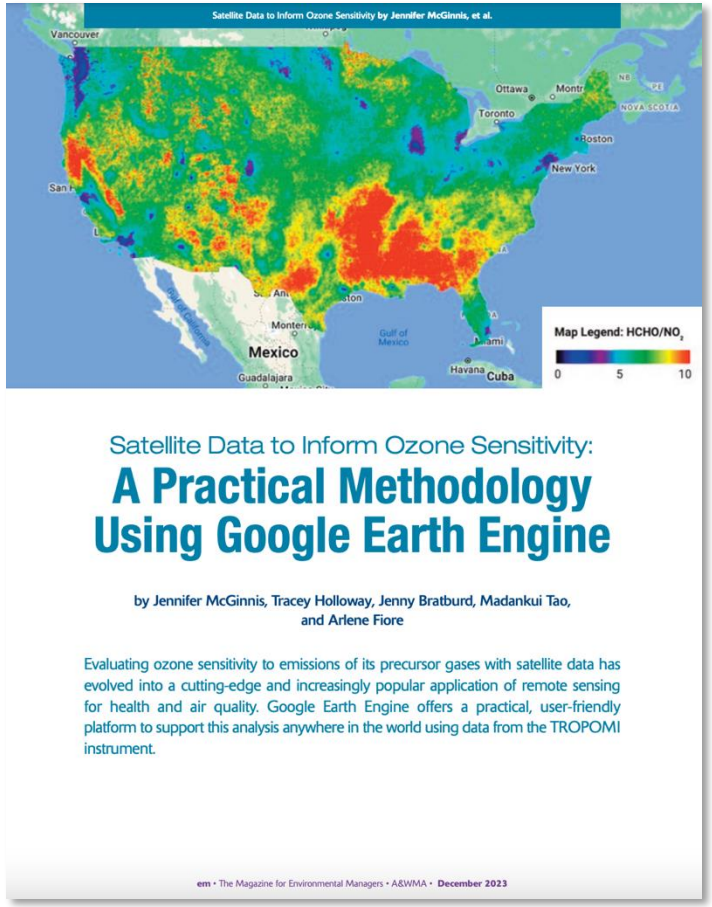
Eliot J. Kim[1,2], Tracey Holloway[1,3], Ajinkya Kokandakar[4], Monica Harkey[1], Stephanie Elkins[5], Daniel L. Goldberg[6], and Colleen Heck[1]

Evaluating NO_x emissions and their effect on O_3 production in Texas using TROPOMI NO_2 and HCHO

EGU European Geosciences Union

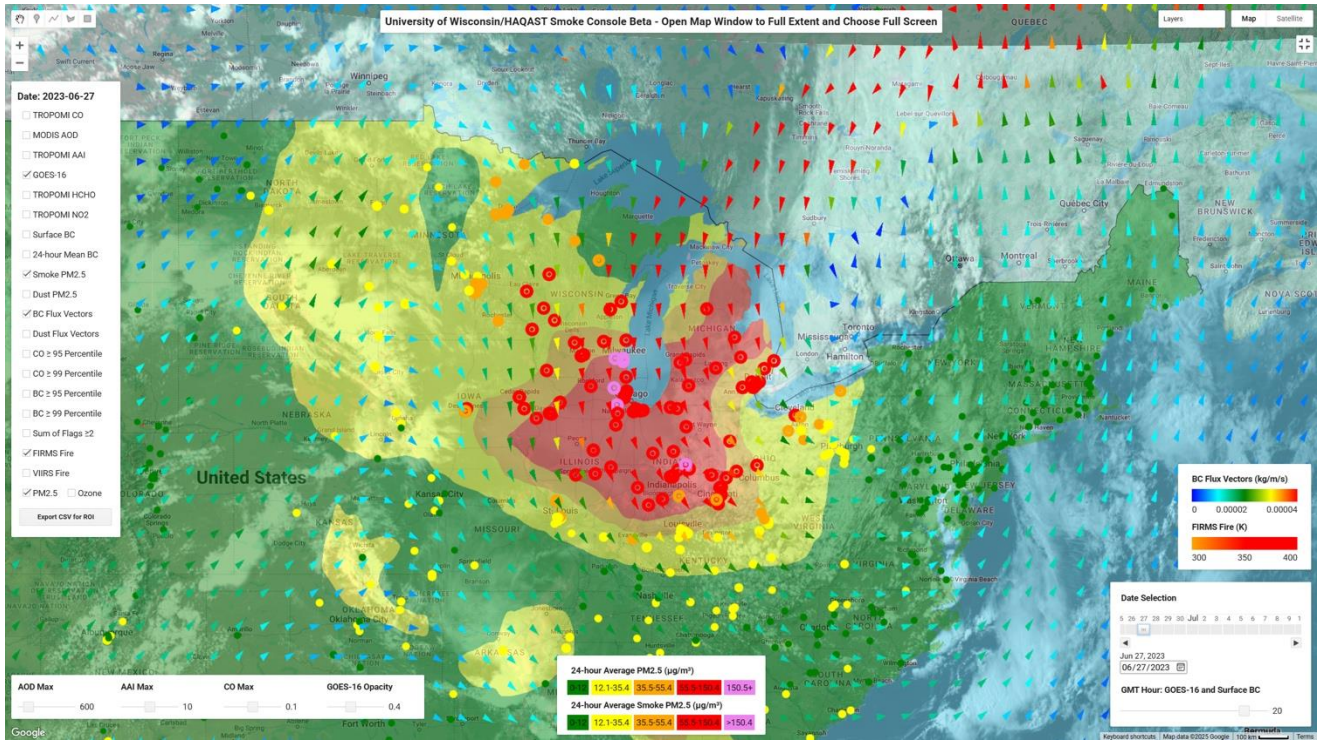
Daniel L. Goldberg, Monica Harkey, Benjamin de Foy, Laura Judd, Jeremiah Johnson, Greg Yarwood, and Tracey Holloway

Google Earth Engine Tools for Satellite Data Applications



A Practical Methodology Using Google Earth Engine (McGinnis, 2023)

Google Earth Engine has been used to access satellite data and characterize exceptional events.



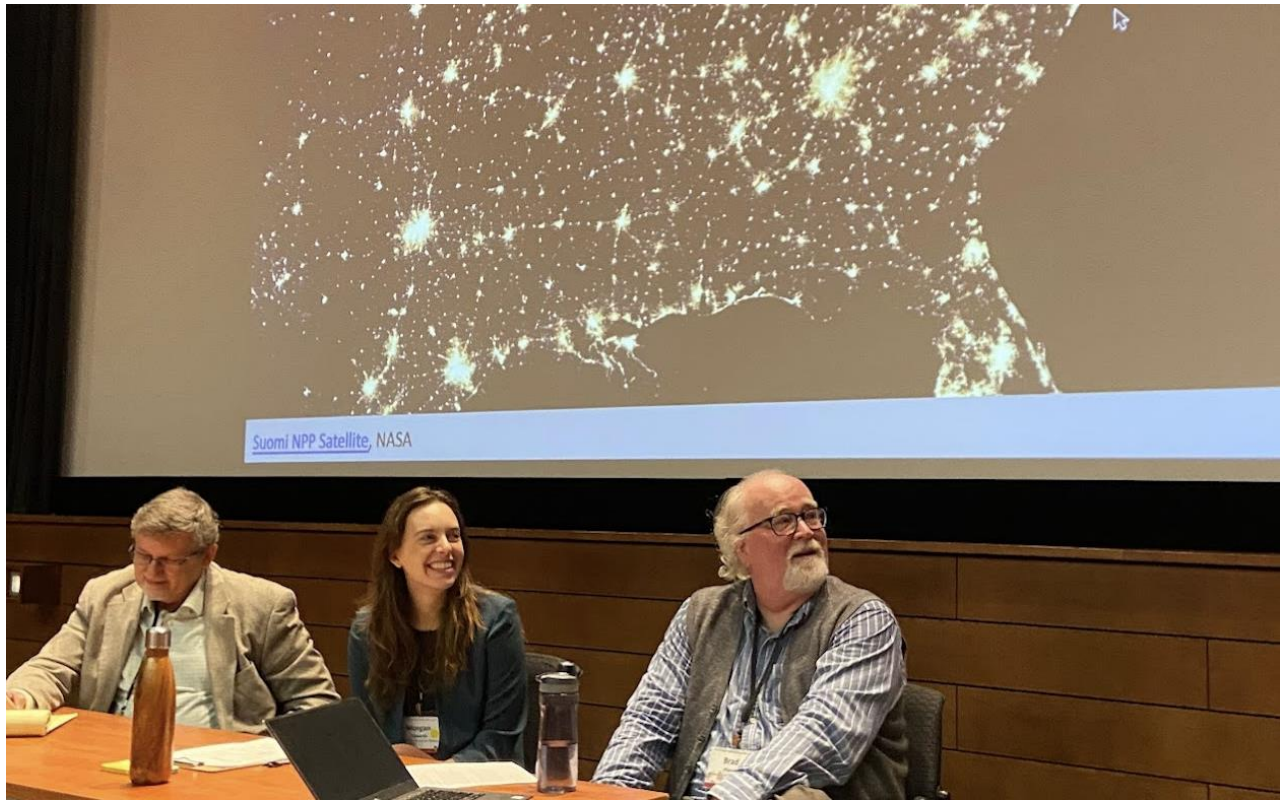
(Reddy, 2025)

TROPOMI Absorbing Aerosol Index, GOES 16 true color imagery, Smoke PM2.5 (in ug/m^3), black carbon flux vectors, FIRMS fire detections, and $PM_{2.5}$ observations (in ug/m^3) for June 27, 2023. From HAQAST Smoke Console.

Energy in Unmonitored Areas

Satellite Data Applications for Sustainable Energy Transitions

Morgan R. Edwards[1,2], Tracey Holloway[2,3], R. Bradley Pierce[3,4], Lew Blank[1], Madison Broddle[5], Eric Choi[6], Bryan N. Duncan[7], Ángel Esparza[6], Giacomo Falchetta[8,9,10], Meredith Fritz[11], Holly K. Gibbs[2,12,13], Henry Hundt[1], Tyler Lark[2,13], Amy Leibrand[11,14], Fei Liu[7,15], Becca Madsen[16], Tanya Maslak[11], Bhartendu Pandey[17], Karen C. Seto[18] and Paul W. Stackhouse Jr.[19]*



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