

CDPHE Methane Monitoring Program Update

Stefanie Shoup

Office of Innovations in Planning and Air Quality Data
Air Pollution Control Division

Presentation to Southern Ute Indian Tribe/State of Colorado
Joint Environmental Commission Meeting
11/20/24



COLORADO
Department of Public
Health & Environment

GHG Monitoring Reports and Data Website

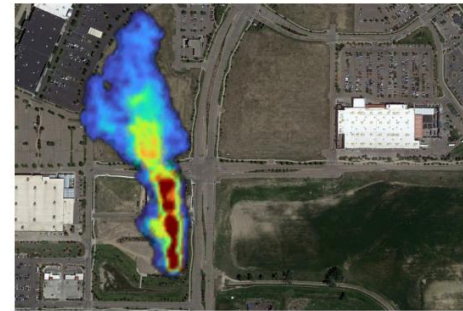
- APCD Published new website as a repository for all past and current monitoring projects
 - <https://cdphe.colorado.gov/greenhouse-gas-monitoring-projects-reports-and-data>
- All existing projects back to 2021 have their interim and final reports published here.
- As new projects are developed and generate results, all reports and data will be accessible at this page.



Aerial Methane Plume Mapping Summary Report

- Summarizes [Carbon Mapper](#) surveys conducted in 2021-23
 - 394 emission plumes identified at 225 distinct locations
 - O&G facilities, agricultural operations, landfills, and coal mines
 - Detailed operator survey and investigations with 2023 O&G sources detected
 - 88% of sources could be attributed to a specific operator. Of these,
 - 60% from unexpected emission sources
 - 32% from manually triggered events
 - 8% from normal operating process conditions
 - 19/60 (32%) of attributed sources had an associated repair action, leading to approximately 3.6 ± 1.5 Metric tons / Hour of emission reductions

Aerial Methane Plume Mapping
Summary Report

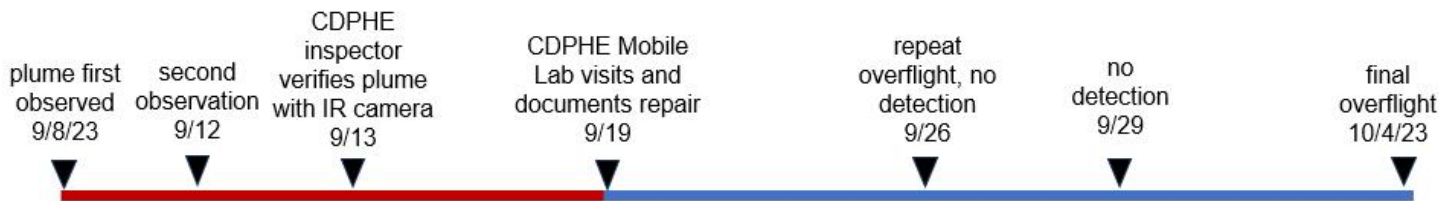
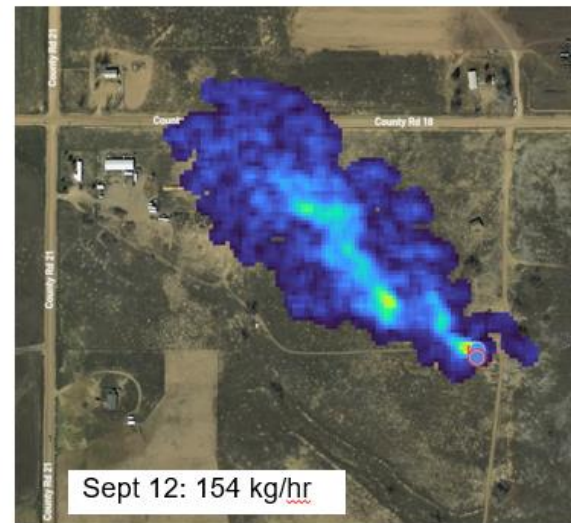
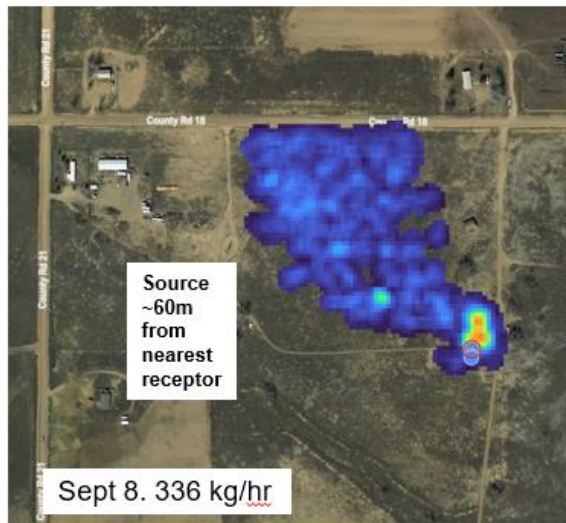


October 2024
Office of Innovations in Planning and Air Quality Data



COLORADO
Air Pollution Control Division
Department of Public Health & Environment

Mitigation and Response Example



Climate Pollution Reduction Grant Award

- APCD received \$23M from EPA in Colorado's Climate Pollution Reduction Grant award application
- Primary goal is to extend satellite and aerial survey work beyond the O&G sector to mitigate methane emissions from landfills and coal mines
 - APCD currently in the development of a Landfill Methane Rule to be enacted by the AQCC in 2025
 - "Rapid Response" program to respond to detected emission sources
- Currently working with CEO/EPA on Quality Management Plan and hiring new staff to manage the project.
 - Aiming to begin developing projects Spring 2025



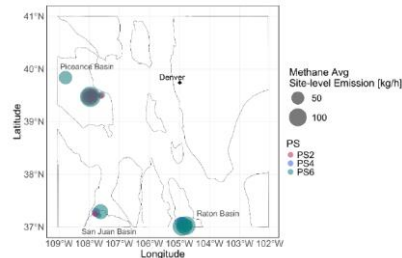
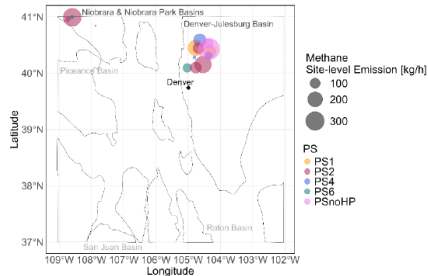
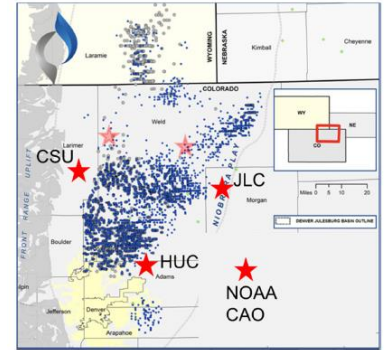
Update on Existing Projects

- CU-UMD Mass Balance Campaigns
 - Publication on 2021 flights to be submitted to Journal
 - Interim 2023 results available on APCD website
 - Final report due in June 2025
- AMMBEC 2024
 - Coordinated campaign with NOAA & NASA in July 2024
 - Dual mission of Denver air quality studies and DJ Basin methane emission quantification
 - Interim results will be available in Feb 2025
- Carbon Mapper
 - First light Satellite data available on [Data Portal](#)
 - In discussions to collect operational statewide data in 2025+ for CPRG



Update on Existing Projects

- CSU - SABER
 - Tower network established in DJ Basin
 - Two campaigns conducted with Bridger Photonics
 - Project report due June 2025
- CSU - COBE
 - Flight Campaigns nearly complete statewide with GHGSat, InsightM and Bridger Photonics
 - One round of operator responses complete
 - Modeling and interpretation ongoing



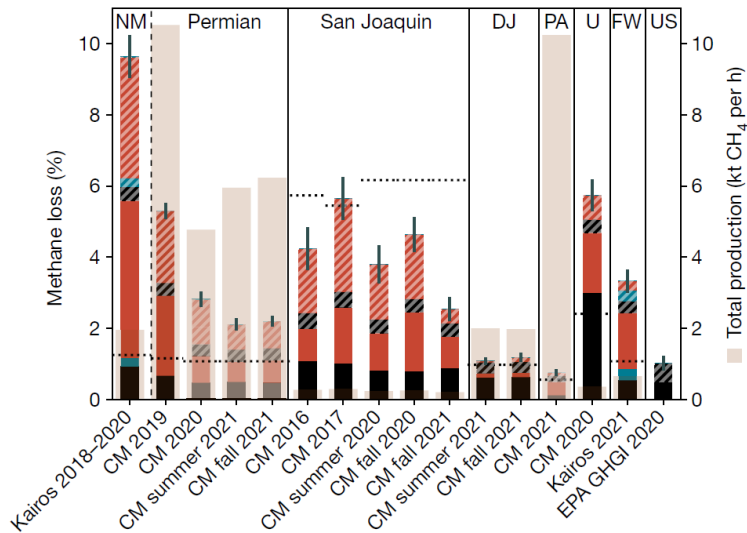
Source	Emission (Mg CH ₄ h ⁻¹)
Oil and gas (EI-ME)	24.1
<i>Oil and Gas (EPA)</i>	<i>8.6</i>
Agriculture	10.2
Landfill	2.8
Other	3.5
Total (EI-ME)	40.6
<i>Total (EPA)</i>	<i>25.1</i>



Recent studies show progress in DJB intensity

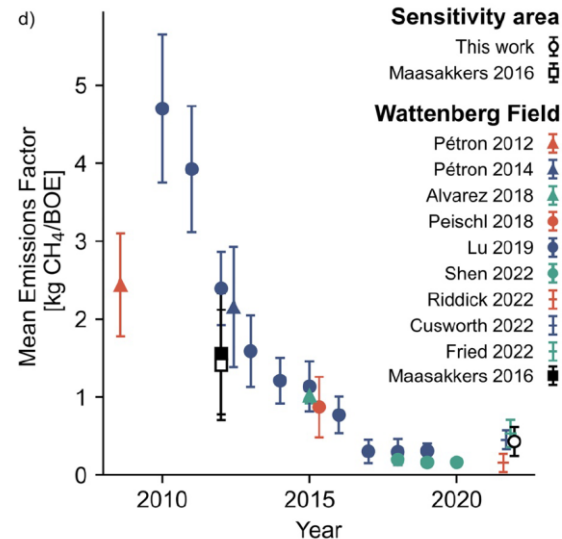
Sherwin et al 2024

- Synthesis of Rutherford et al 2021 model & Carbon Mapper/Kairos data
- 1.08% Loss rate 95CI:[0.98,1.18]



Mead et al 2024

- Inversion of 3 months of continuous CH₄, C₂H₆ and NH₃ measurements
- Overall decreasing CH₄ intensity trend over last decade



Thank you!



COLORADO
Department of Public
Health & Environment