Ambient air monitoring data summary report

Platte River Biogas, LLC Comprehensive Report

Air Toxics and Ozone Precursor Program [ATOPs]

10.30.2025

COLORADO
Air Pollution Control Division
Department of Public Health & Environment

1. Executive Summary

1.1. Report Purpose

The purpose of this report is to summarize the air data observed by the Colorado Department of Public Health and Environment (CDPHE) from 12/18/2024 through 1/16/2025 and 6/2/2025 through 10/3/2025 near the Platte River Biogas, LLC (PRB) facility in La Salle, CO that processes manure into renewable gas.

1.2. Background Information

- Platte River Biogas, LLC (PRB) is a facility in La Salle, CO that processes manure into renewable gas. CDPHE and Weld County have received numerous health and odor concerns from nearby residents.
- Elevated levels of hydrogen sulfide (H_2S) from CDPHE mobile monitoring led to further investigation.
    - Hydrogen sulfide levels measured near open air manure pits on facility property on 10/30/2024 were above health guideline values, but within occupational safety limits.
- CDPHE conducted continuous monitoring of H_2S and the greenhouse gases methane (CH_4) and ethane (C_2H_6) from 12/18/2024 through 1/16/2025 at a nearby residence. Levels of H_2S were below both acute and chronic exposure health guideline value levels.
- A Teledyne T101 H_2S analyzer, and an Aeris Ultra MIRA LDS CH_4/C_2H_6 analyzer, deployed within the Mobile Air Remote MOnitoring Trailer (MARMOT) as a portable stationary air quality monitor, was positioned approximately 930 feet west of the eastern boundary of Platte River Biogas, LLC.
- Because increased temperatures can cause greater release of H_2S, CH_4, and C_2H_6 emissions from the open air manure pits, measurements were continued in the summer months. This report presents the H_2S, CH_4, and C_2H_6 levels measured from 12/18/2024 through 1/16/2025 and 6/2/2025 through 10/3/2025.

1.3. Air Monitoring Objective

- The Air Toxics and Ozone Precursors Programs (ATOPs) within the Air Pollution Control Division (APCD) of the CDPHE deployed a portable stationary air monitoring asset in response to the request of the Compliance and Enforcement Program.

1.4. Key Findings

- Observations showed a maximum 1-hour rolling H_2S average of 24.5 ppbV during the summer (6/2/25 through 10/3/25) with winds from the direction of PRB, which coincided with a higher wind speed (10.8 mph).
- Elevated H_2S measurements from typical values are mainly from the direction of PRB.
- The average H_2S concentration for the winter (12/18/24 through 1/16/25) was 0.84 ppbV.
- The average H_2S concentration for the summer (6/2/25 through 10/3/25) was 0.94 ppbV.
- The maximum 1-hour rolling CH_4 average was observed to be 18.61 ppmV with winds from the direction of PRB during the summer (6/2/25 through 10/3/25).
- The deployment average CH_4 concentration was 2.79 ppmV for the winter (12/18/24 through 1/16/25).
- The deployment average CH_4 concentration was 2.53 ppmV for the period from 6/2/25 through 10/3/25.

2. Introduction

Concerned residents submitted numerous odor and health complaints to CDPHE and Weld County regarding the Platte River Biogas (PRB) facility, located near La Salle, CO. In response, CDPHE-APCD-ATOPS deployed the Mobile Air Remote MOnitoring Trailer (MARMOT) as a stationary monitoring platform for two time periods: December 18, 2024 through January 16, 2025 (winter) and June 2, 2025 and ending October 3, 2025 (summer) (Figure 1).

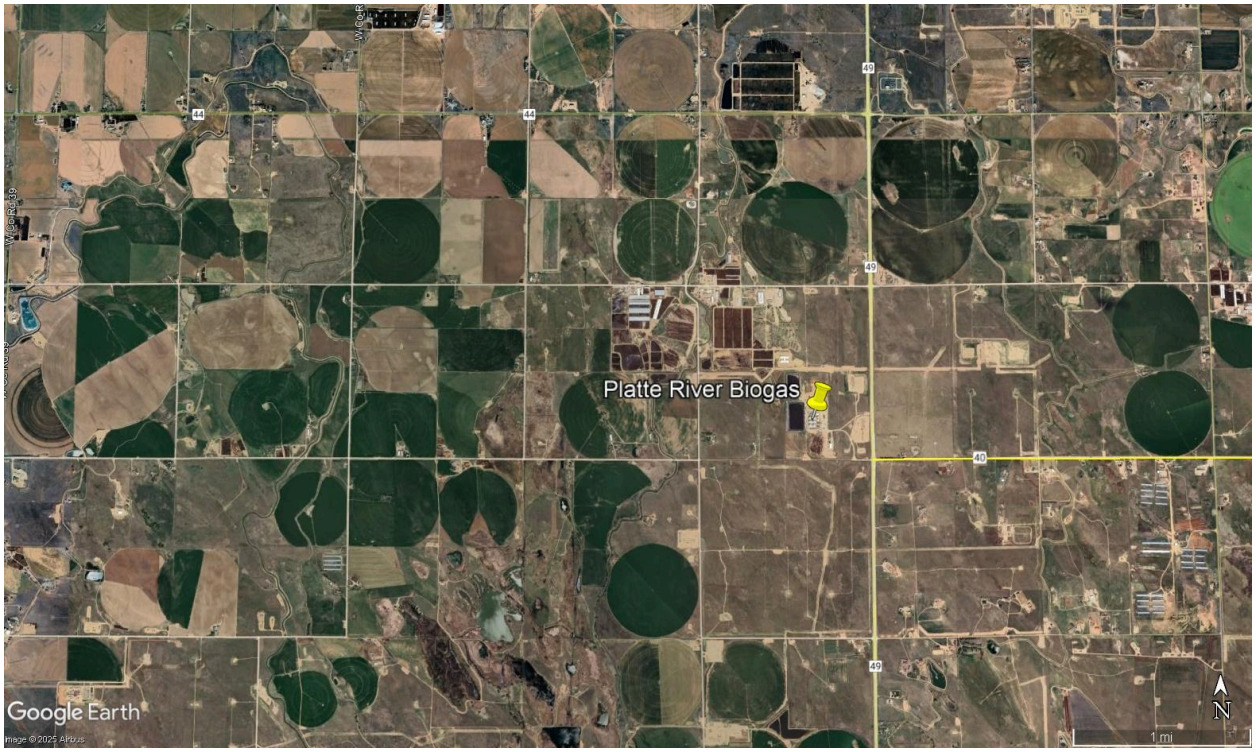

Figure 1: Satellite image of Platte River Biogas, LLC in Weld County. Platte River Biogas is marked by the yellow push pin, on the northwest corner of the intersection of Weld County Road 40 and Weld County Road 49. Air quality measurements were made from the west of the Platte River Biogas facility, such that wind directions observed by the Mobile Air Remote MOnitoring Trailer (MARMOT) between 23° and 97° during the winter and wind directions between 25° and 105° during the summer indicated measurements coming from the direction of Platte River Biogas.

The MARMOT contained a Teledyne T101 H_2S analyzer to measure H_2S concentrations, an Aeris Ultra MIRA LDS analyzer to measure methane (CH_4), and ethane (C_2H_6) concentrations, and a Gill Maximet GMX501 meteorological station to measure wind speed and wind direction to assess the direction the pollutants are travelling.

3. Methods

3.1. Stationary Measurements

The MARMOT was deployed December 18, 2024 through January 16, 2025 (winter) and June 2 through October 3, 2025 (summer) for continuous monitoring of PRB emissions.

3.1.1. MARMOT

The MARMOT is a customized trailer with cutting-edge scientific instrumentation to measure real-time air pollution events. The MARMOT is insulated, and contains a temperature-controlled instrument case, allowing the scientific instrumentation to run in all weather conditions. It contains a custom calibration system that allows for automated calibration schedules, and operator-controlled multi-point and single point calibrations of the scientific instrumentation. All instrumentation and the calibration system can be monitored remotely, allowing the operator to monitor data and respond to outages or issues rapidly. For this deployment, it was configured to accept shore power for instrumentation and temperature control.

For the winter and summer deployments, the MARMOT was equipped with a Teledyne T101 H_2S analyzer, an Aeris Ultra MIRA LDS CH_4/C_2H_6 analyzer, and a Gill Maximet GMX501 meteorological station to meet the monitoring objectives for this deployment as follows:

1. Continuously measure and report on H_2S concentrations.
2. Continuously measure and report on CH_4 and C_2H_6 concentrations.
3. Identify source direction of emissions.

During the winter deployment, the MARMOT was also equipped with an AROMA-VOC to measure benzene, and toluene concentrations. The concentrations of benzene and toluene were near typical background values, so it was determined measurements would not be performed during the summer deployment. As a result, the benzene and toluene measurements are not listed in this report. Details of the benzene and toluene measurements can be found in the Platte River Biogas Winter Report. Minor differences exist between the statistics of H_2S reported in the Platte River Biogas Winter Report and the reported statistics for that time period in this report. This is due to a change in the treatment of negative values less than the negative of the detection limit (see Section 3.4 of this report for more details).

3.1.1.1. Teledyne T101 H_2S Analyzer

The Teledyne measures hydrogen sulfide through fluorescence, a process in which a molecule emits visible light. In order for this process to occur, hydrogen sulfide must be changed to sulfur dioxide (SO_2) by heating which changes each individual hydrogen sulfide molecule to an individual SO_2 molecule. That SO_2 molecule then absorbs light from an ultraviolet lamp and re-releases visible light where it is detected to represent the

hydrogen sulfide concentration. This process produces a measurement approximately once per second.

3.1.1.2. Aeris Ultra MIRA LDS Analyzer

The Aeris collects air samples, and quantifies methane and ethane by how much infrared light has been absorbed by each compound. It collects data once per second.

3.2. Meteorology - Gill Maximet GMX501

The Gill Maximet GMX501 is a sensor that measures meteorological parameters on a continuous 1-second time resolution. It measures wind speed, wind direction, barometric pressure, temperature, relative humidity, and solar radiation. This weather station operates by continuously emitting a series of electronic outputs. Two sets of receiving sensors are arranged orthogonally around a central mast to measure the wind speed and direction based upon the time of flight difference between when the ultrasonic pulses are received. A glass window at the top of the meteorological station measures the light intensity from solar radiation. Barometric pressure, temperature, and relative humidity are obtained through other sensors on the station. This instrument is fixed to a vertical mast approximately 12 feet above ground level to avoid any ground or structural interferences.

3.3. Data Processing

Data collected includes H_2S concentrations, CH_4 concentrations, C_2H_6 concentrations, and meteorological parameters, including temperature, humidity, wind speed, and wind direction, at a 1-second time resolution. Backgrounds of H_2S instrument response were taken every 24 hours during winter, every 6 hours during summer, and subtracted from the instrument signal. Backgrounds of CH_4 and C_2H_6 concentrations were taken daily and subtracted from the instrument signal. Invalidated data were removed from the dataset. This was identified from instrument parameters such as insufficient instrument lamp voltages, which prevent accurate quantification of H_2S, CH_4 or C_2H_6. All data in this report is averaged to 1 hour, and maximums are rolling 1 hour averages, from 1-minute averaged data.

3.4. Data Evaluation

All data from measurements performed by the Teledyne and Aeris are managed by the following method for statistical analyses. Any 1 second measurements with negative values between the negative of the detection limit and zero are replaced with zeroes as non-detects for further averaging and statistical analysis. Any 1 second measurements

greater than 0, but less than the detection limit, the lowest value the instrument can reliably detect, are replaced with half of the detection limit value for further averaging and statistical analysis. Any measurements less than the negative of the detection limit are invalidated and not included in statistical analysis. These values are filtered in this way to account for variability within an instrument response and to limit bias from being overly high or low. The detection limits, number of 1-hour non-detects, number of 1-hour below detect limit measurements, and total number of valid hours sampled for H_2S, CH_4 and C_2H_6 are listed in Table A1. The distribution of 1-hour non-detects, samples below the method detection limit, and valid samples for H_2S are shown in the Appendix as a histogram for the winter (Figure A1) and summer (Figure A2).

3.5. Quality Control & Assurance

To ensure reliability and validity of field measurements, proper quality control (QC) and quality assurance (QA) must be carried out before, during, and after data collection. QC processes ensure instruments are operating properly throughout a measurement period to maintain consistency. QA processes implement checks and validation of the collected data to ensure completeness and accuracy. By carrying out proper QC and QA, confidence in the data is established. QA processes were performed in the form of multipoint calibrations and regular calibration checks. The deployment was initiated with a 5-point calibration on both the Teledyne and Aeris, and then followed by daily calibration checks to assess instrument response reliability to ensure that it remained within 30% of the expected value for each measured compound. If the calibration check revealed instrument response was outside of 30% of the expected value, a new multipoint calibration was performed.

The instrument background was also evaluated in the form of measuring the instrument response from a cylinder of clean air daily for the Aeris, and every 6 hours for the Teledyne. If the instrument zero was outside of the positive or negative of the method detection limit (the smallest value that can be reliably measured), the instrument zero response was re-established.

4. Deployment Summary

4.1. Hydrogen Sulfide (H_2S)

4.1.1. Winter

The average hydrogen sulfide concentration during winter was observed to be 0.84 ppb (Figure 2 and Table A1). The median observation fell below the method detection limit

(0.4 ppb) of the Teledyne, demonstrating a higher frequency of concentrations measured below the average. The maximum hydrogen sulfide rolling one-hour average concentration during the deployment was 20.3 ppb, observed on 1/15/2025 between 1:02 - 2:02 AM (Figure 2). This measurement was associated with a wind direction of 88°, consistent with the direction of the manure piles present at Platte River Biogas, based on satellite observation (Figure 1).

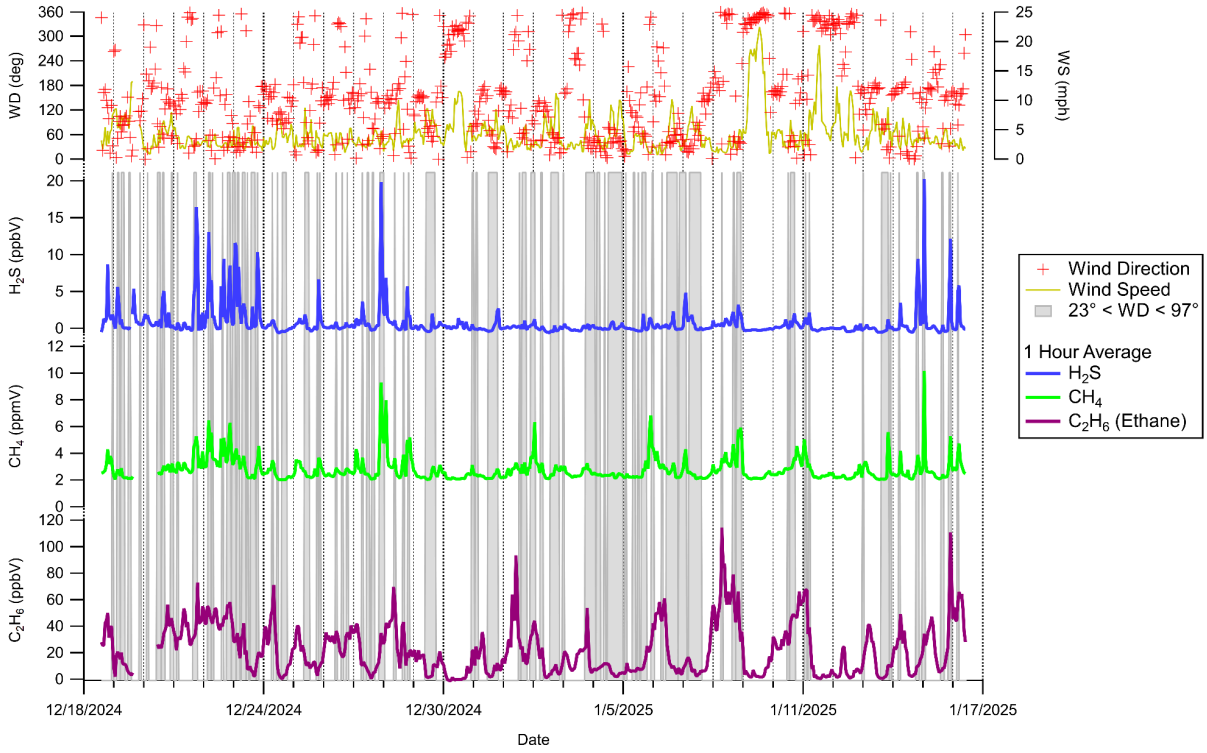

Figure 2: Four panel figure, from top to bottom, showing time series of 1-hour averaged measurements of wind direction (red markers, top panel, left axis), wind speed in mph (yellow line, right axis), hydrogen sulfide (H_2S) in ppbV (blue line), methane (CH_4) in ppmV (green line), and ethane (C_2H_6) in ppbV (purple line) for the time period of December 18, 2024 through January 16, 2025. Gray shading shows periods of time when winds were coming from the direction of Platte River Biogas.

In order to evaluate the source winds of hydrogen sulfide pollution, a polar plot was generated (Figure 3). These plots show the wind direction (described by angle) and wind speed (shown as distance from the plot center) measured for each hydrogen sulfide one hour measurement. By color-coding the plot by hydrogen sulfide concentration, the source direction of hydrogen sulfide pollution can be identified. The highest hydrogen sulfide concentrations were observed from winds that were coming from NE of the residence, typically at lower wind speeds (wind speeds < 5 mph), as shown in Figure 3. This suggests that the majority of hydrogen sulfide pollution

observed at the residence is from source winds from the direction of the Platte River Biogas facility.

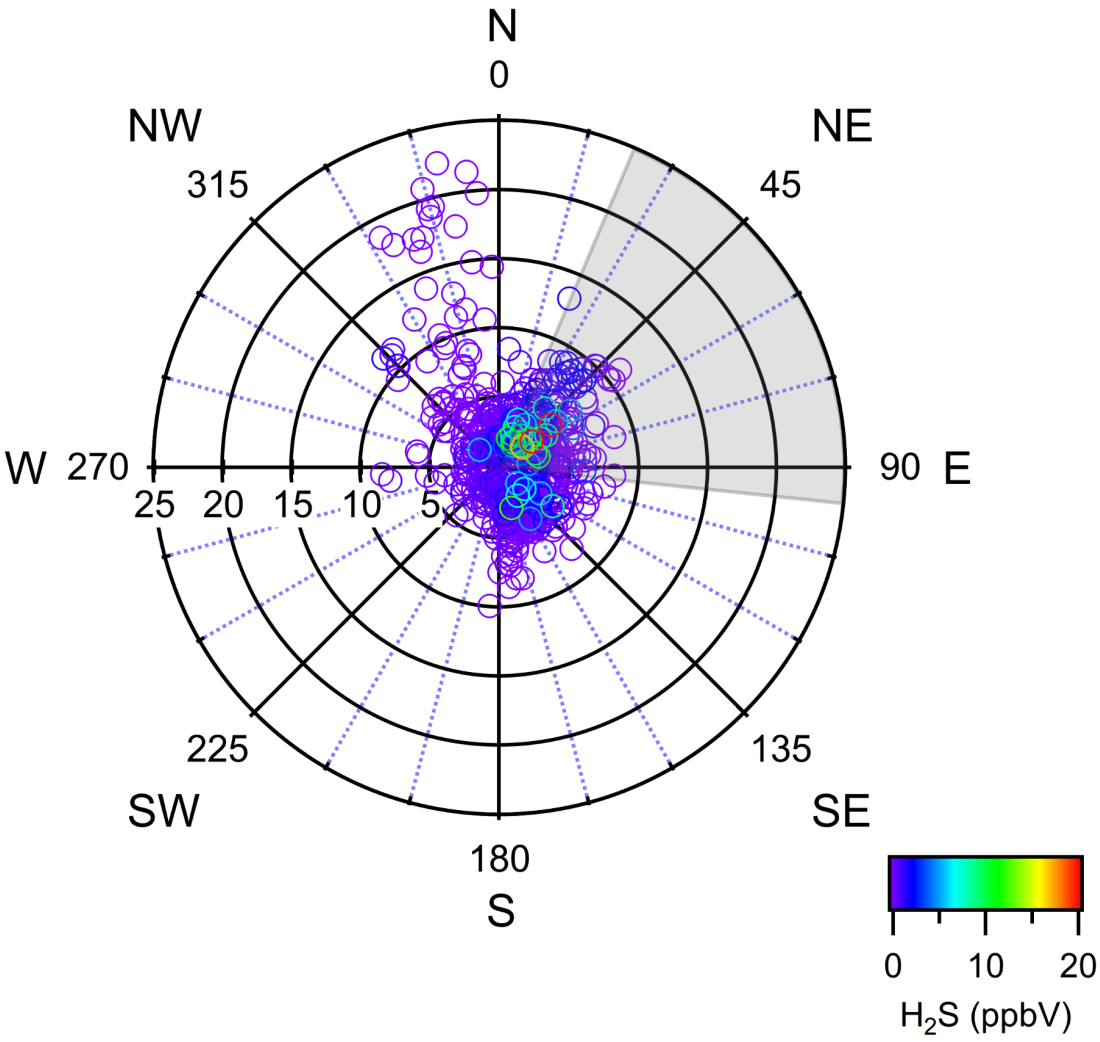

Figure 3: Polar plot of one hour averages of wind speed and wind direction measurements collected during the winter. The angle data is wind direction (degrees) and the radial data is wind speed (mph). Each marker is colored by the hydrogen sulfide (H2S) concentration determined at the same time a given wind speed and direction measurement is made to demonstrate the potential source winds of the

pollution. Gray shading shows winds coming from the direction of Platte River Biogas (23° - 97°).

4.1.2. Summer

The deployment average H_2S concentration for the sampling period from June 2 through October 3, 2025 was 0.94 ppbV (Figures 4-7, Figure A3). The maximum rolling 1-hour average of H_2S was 24.5 ppbV, observed on July 31, 2025 from 5:04 - 6:04 PM (Figure 5). The average wind direction was 55°, which is from the direction of PRB.

All the hourly-averaged H_2S concentrations greater than 10 ppbV occurred with winds coming from the direction of PRB (Figure 8). While many of these measurements occurred at low wind speeds (0-4 mph, indicative of calm to light air), the highest hourly-averaged concentration occurred with an average wind speed of 10.8 mph, indicating a wind speed equivalent to a gentle breeze. This is unusual, as pollution typically accumulates at lower wind speeds, while high winds transport and dilute pollution from a nearby source more rapidly. This suggests that the monitoring location may have been subjected to higher H_2S concentrations had there not been a gentle breeze.

Of the 65 H_2S measurements greater than 5 ppbV, a value that is clearly elevated above background levels, 28 came from the direction of PRB (Figure 8). Of the remaining 37 that did not come from the direction of PRB, 35 were associated with low wind speeds (0-4 mph, indicative of calm to light air). The direction of low wind speeds is more uncertain, and could indicate periods where pollution can accumulate in a given region.

Wind directions are unlikely to remain consistent for an hour, so it is helpful to look at 1 minute data to better identify the source of H_2S levels. When looking at one minute data, almost all H_2S concentrations elevated from typical values are coming from the direction of PRB (Figure A4).

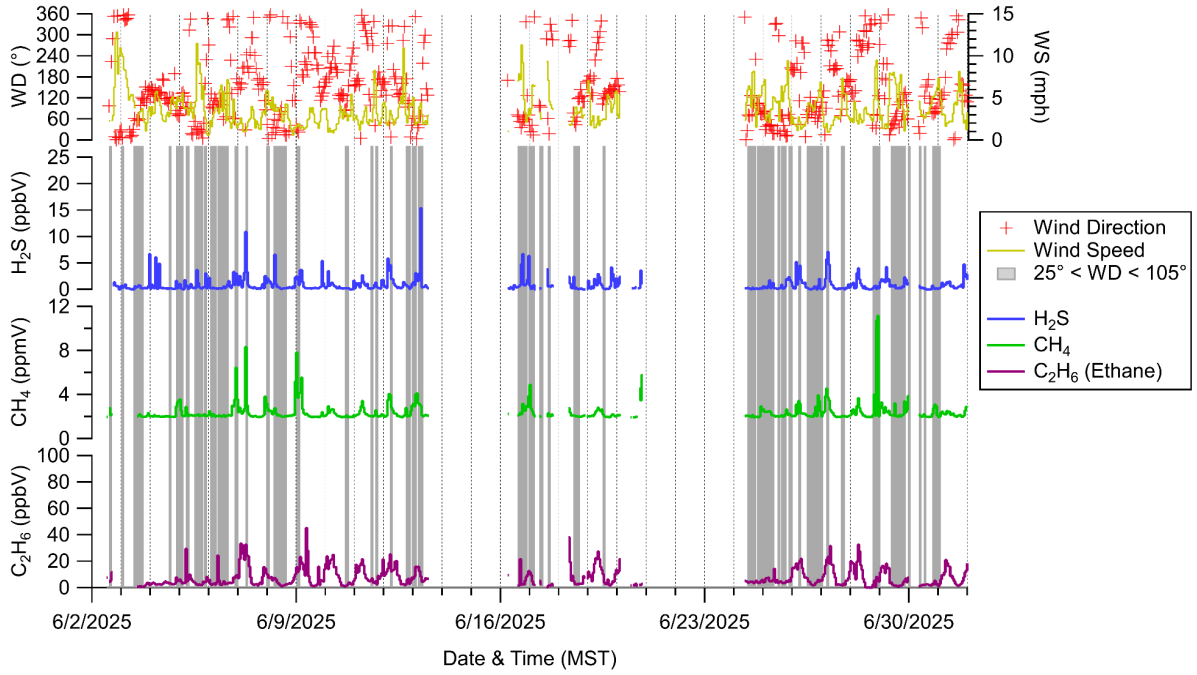

Figure 4: Four panel figure, from top to bottom, showing time series of 1-hour averaged measurements of wind direction (red markers, top panel, left axis), wind speed in mph (yellow line, right axis), hydrogen sulfide (H_2S) in ppbV (blue line), methane (CH_4) in ppmV (green line), and ethane (C_2H_6) in ppbV (purple line) for the time period of June 2, 2025 through July 2, 2025. Gray shading shows periods of time when winds were coming from the direction of Platte River Biogas.

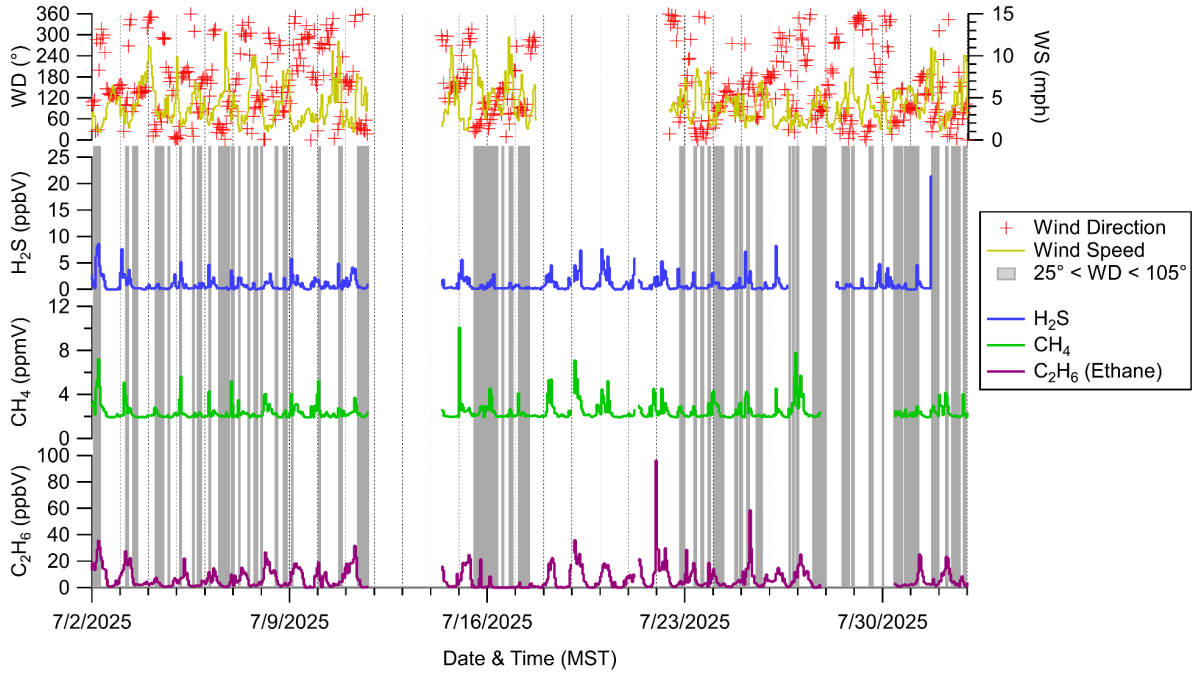

Figure 5: Four panel figure, from top to bottom, showing time series of 1-hour averaged measurements of wind direction (red markers, top panel, left axis), wind speed in mph (yellow line, right axis), hydrogen sulfide (H_2S) in ppbV (blue line), methane (CH_4) in ppmV (green line), and ethane (C_2H_6) in ppbV (purple line) for the time period of July 2, 2025 through August 2, 2025. Gray shading shows periods of time when winds were coming from the direction of Platte River Biogas.

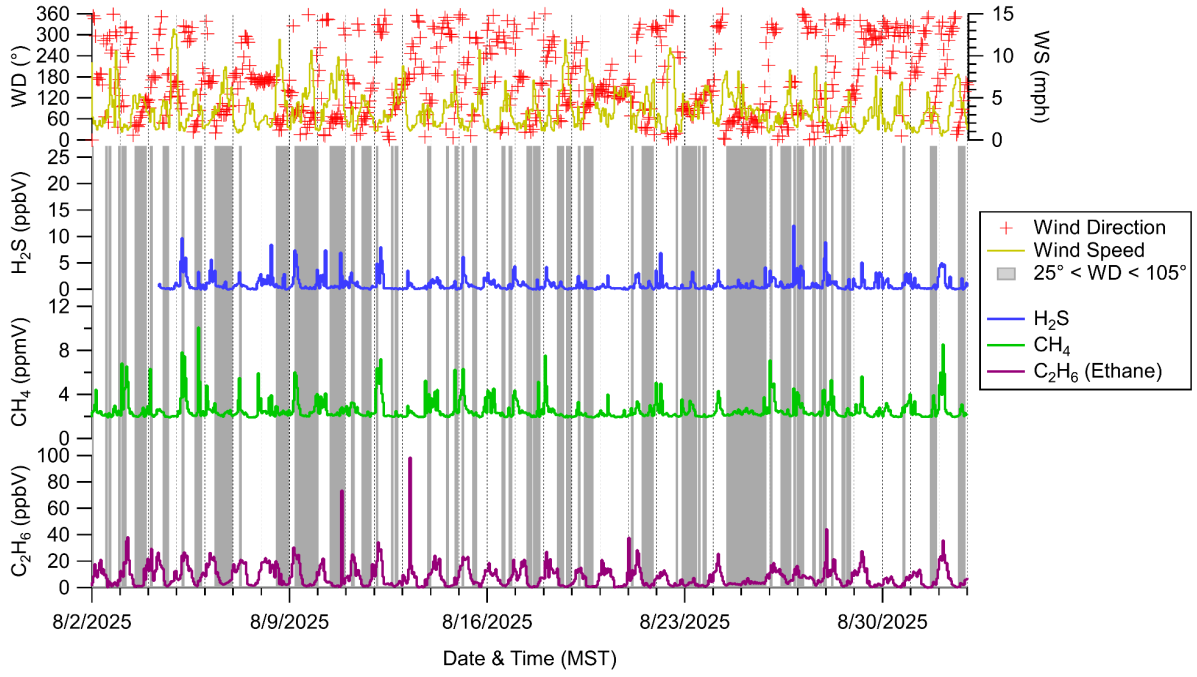

Figure 6: Four panel figure, from top to bottom, showing time series of 1-hour averaged measurements of wind direction (red markers, top panel, left axis), wind speed in mph (yellow line, right axis), hydrogen sulfide (H_2S) in ppbV (blue line), methane (CH_4) in ppmV (green line), and ethane (C_2H_6) in ppbV (purple line) for the time period of August 2, 2025 through September 2, 2025. Gray shading shows periods of time when winds were coming from the direction of Platte River Biogas.

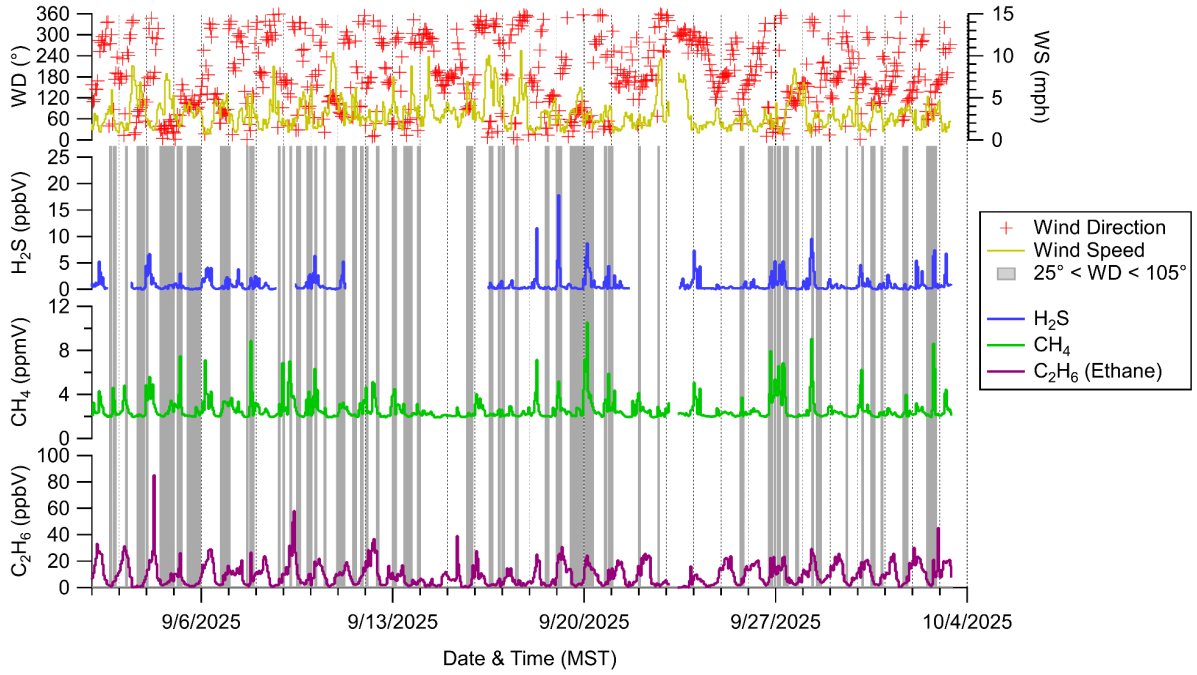

Figure 7: Four panel figure, from top to bottom, showing times series of 1-hour averaged measurements of wind direction (red markers, top panel, left axis), wind speed in mph (yellow line, right axis), hydrogen sulfide (H_2S) in ppbV (blue line), methane (CH_4) in ppmV (green line), and ethane (C_2H_6) in ppbV (purple line) for the time period of September 2, 2025 through October 3, 2025. Gray shading shows periods of time when winds were coming from the direction of Platte River Biogas.

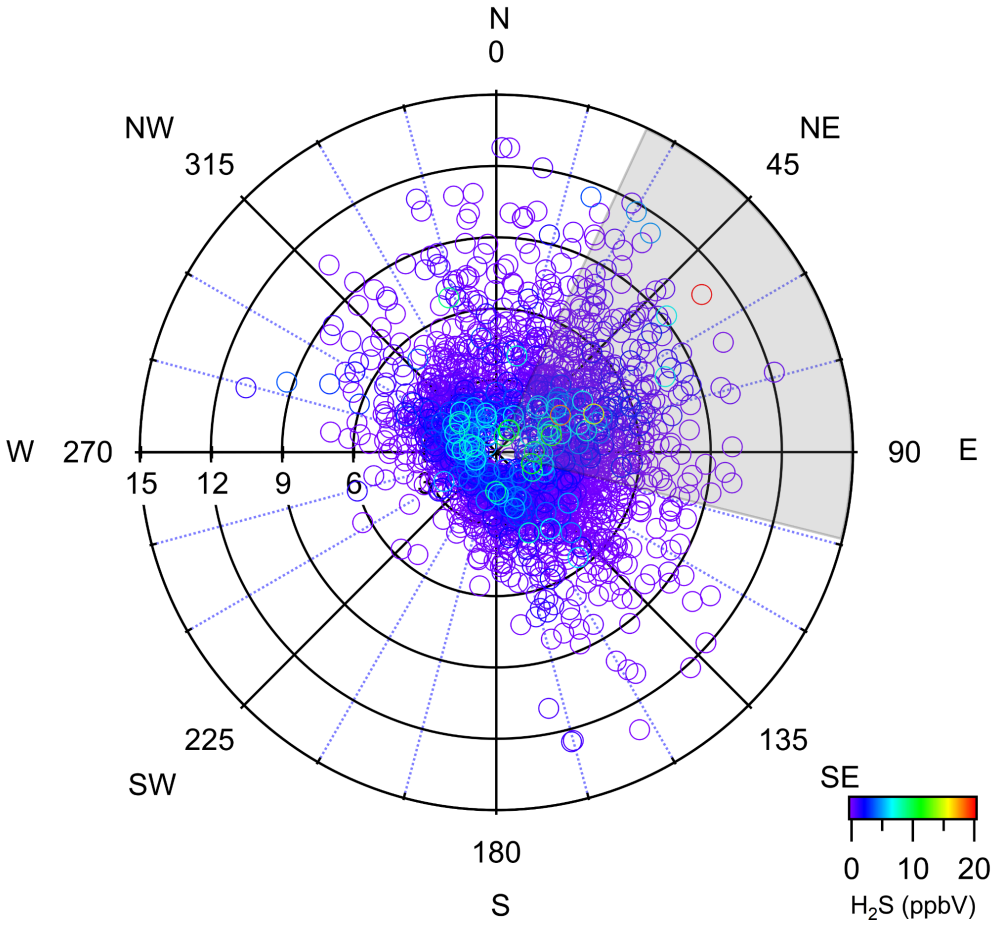

Figure 8: Polar plot of one hour averages of wind speed and wind direction made during the summer. The angle data is wind direction (degrees) and the radial data is wind speed (mph). Each marker is colored by the hydrogen sulfide (H_2S) concentration determined at the same time a given wind speed and direction measurement is made to demonstrate the potential source winds of the pollution. Gray shading shows winds coming from the direction of Platte River Biogas (25° - 105°).

4.2. Methane (CH_4)

4.2.1. Winter

The deployment average methane (CH_4) concentration for the sampling period from December 18, 2024 through January 16, 2025 was 2.79 ppmV (Figure 2). The maximum rolling 1-hour average of CH_4 was 10.22 ppmV, observed on January 15, 2025 from 1:03 AM - 2:03 AM (Figure 2). The average wind direction was 52°, which is from the direction of PRB.

Of the hourly-averaged measurements above 6 ppmV, denoting a clearly elevated signal relative to typical background values, all but two occurred with winds coming from the direction of PRB (Figure 9). All of these measurements occurred with wind speeds less than 5 mph, which typically allow pollutants to accumulate in a given region.

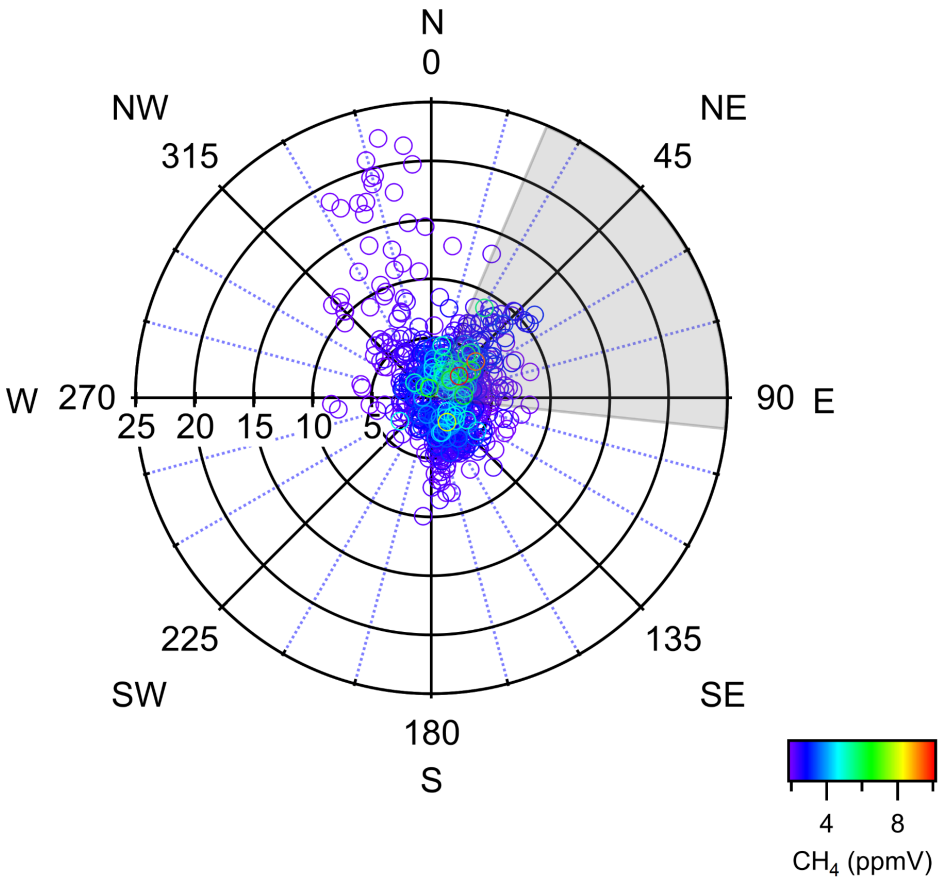

Figure 9: Polar plot of one hour averages of wind speed and wind direction measurements made during the winter. The angle data is wind direction (degrees) and the radial data is wind speed (mph). Each marker is colored by the methane (CH_4) concentration determined at the same time a given wind speed and direction measurement is made to demonstrate the potential source winds of the pollution. Gray shading shows winds coming from the direction of Platte River Biogas (23° - 97°).

4.2.2. Summer

The average methane (CH_4) concentration for the sampling period from June 2 through October 3, 2025 was 2.53 ppmV (Figures 4-7, Figure A3). The maximum rolling 1-hour

average of CH_4 was 18.61 ppmV, observed on June 28, 2025 from 9:33 - 10:33 PM (Figure 4). The average wind direction was 71°, which is from the direction of PRB.

Of the hourly-averaged measurements above 10 ppmV, a value clearly above background levels, all but one occurred with winds coming from the direction of PRB (Figure 10). While many of these measurements occurred at low wind speeds, the second highest hourly-averaged concentration occurred with an average wind speed of 9.5 mph, indicative of a gentle breeze.

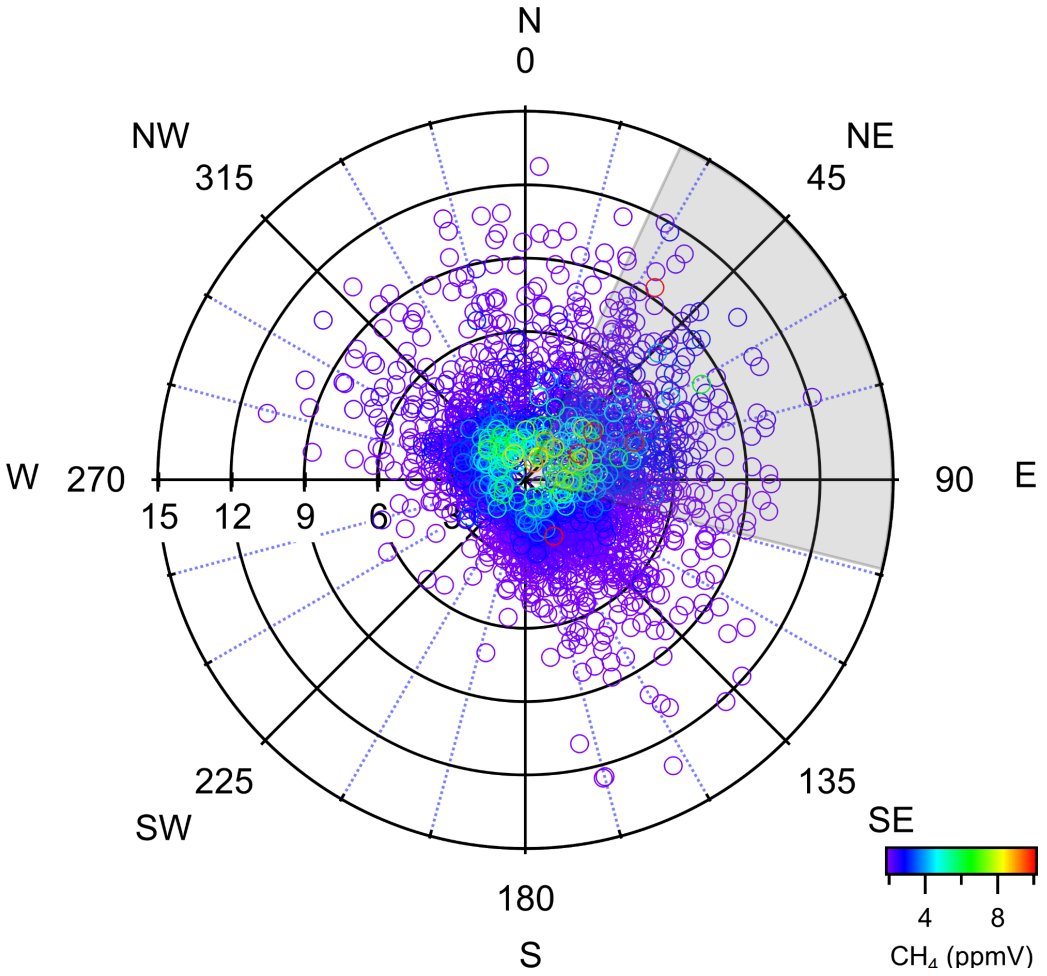

Figure 10: Polar plot of one hour averages of wind speed and wind direction measurements made during the summer. The angle data is wind direction (degrees) and the radial data is wind speed (mph). Each marker is colored by the methane (CH_4) concentration determined at the same time a given wind speed and direction measurement is made to demonstrate the potential source winds of the pollution. Gray shading shows winds coming from the direction of Platte River Biogas (25° - 105°).

4.3 Ethane (C_2H_6)

4.3.1. Winter

The deployment average ethane concentration for the sampling period from December 18, 2024 through January 16, 2025 was 22.2 ppbV (Figure 2). The maximum rolling 1-hour average of ethane was 120.9 ppbV, observed on January 8, 2025 from 6:46 - 7:46 AM (Figure 2). The average wind direction was 29°, which is from the direction of PRB.

Elevated hourly-averaged measurements of ethane above 40 ppbV were observed from all directions during sampling (Figure 11). This suggests that PRB is not the primary source of ethane in the area, but rather there are multiple sources of ethane.

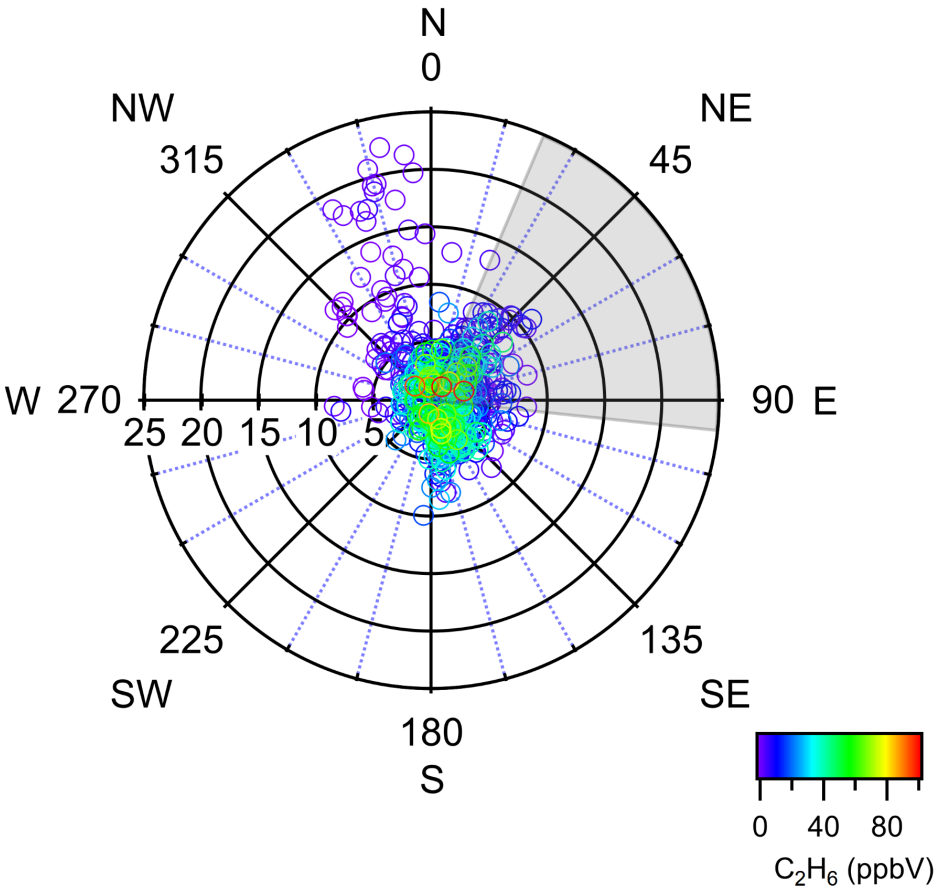

Figure 11: Polar plot of one hour averages of wind speed and wind direction measurements made during the winter. The angle data is wind direction (degrees) and the radial data is wind speed (mph). Each marker is colored by the ethane (C_2H_6)

concentration determined at the same time a given wind speed and direction measurement is made to demonstrate the potential source winds of the pollution. Gray shading shows winds coming from the direction of Platte River Biogas (23° - 97°).

4.3.2. Summer

The deployment average ethane concentration for the sampling period from June 2 through October 3, 2025 was 8.3 ppbV (Figures 4-7, Figure A3). The maximum rolling 1-hour average of ethane was 115.7 ppbV, observed from July 21, 2025 11:25 PM through July 22, 2025 12:25 AM (Figure 5). No wind direction measurement was taken at this time. The maximum rolling 1-hour average taken with a coinciding wind direction measurement was 98.5 ppbV, observed on August 13, 2025 from 6:06 - 7:06 AM with an average wind direction of 180° (Figure 6). This is not from the direction of PRB.

Of the hourly-averaged measurements above 40 ppbV, which are clearly elevated above background levels, only one occurred from the direction of PRB (Figure 12). For these elevated concentrations, the majority of associated wind speed measurements is low (<5 mph). The direction of low wind speeds is more uncertain, making it more challenging to determine where the wind is coming from. However, given that elevated ethane concentrations above background levels are associated with all wind directions, this suggests that the majority of observed ethane is not coming from the direction of PRB, but rather from one or more different sources.

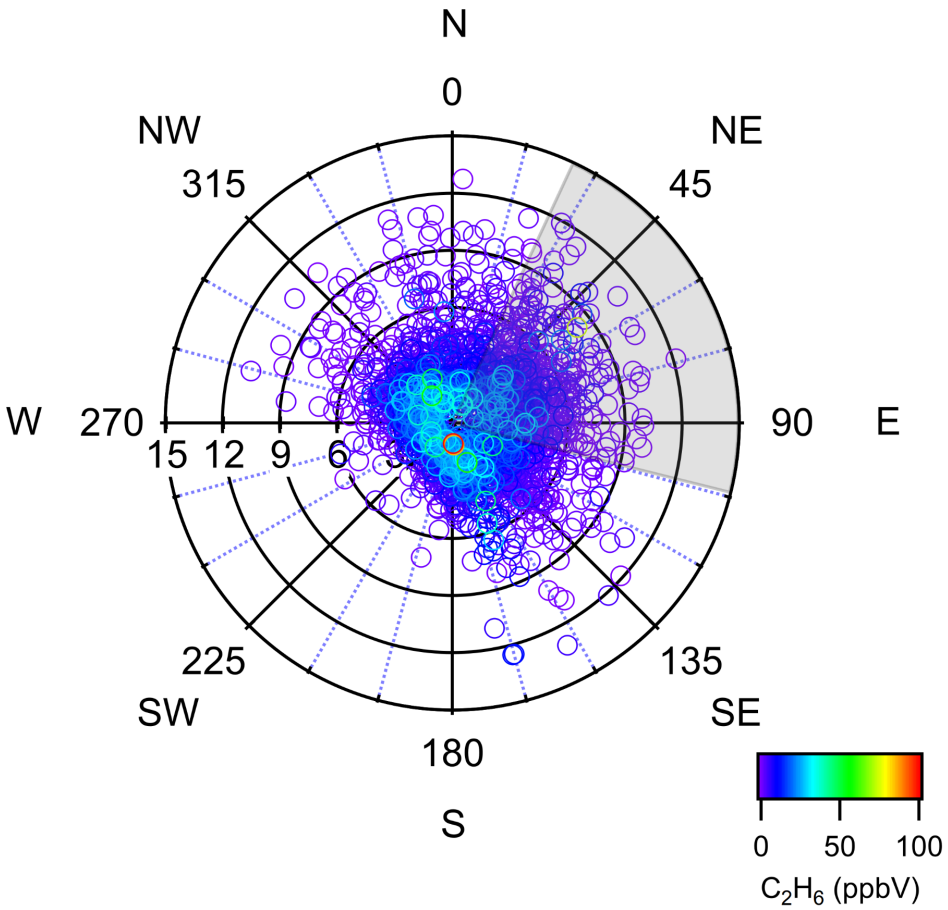

Figure 12: Polar plot of one hour averages of wind speed and wind direction measurements made during the summer. The angle data is wind direction (degrees) and the radial data is wind speed (mph). Each marker is colored by the ethane (C_2H_6) concentration determined at the same time a given wind speed and direction measurement is made to demonstrate the potential source winds of the pollution. Gray shading shows winds coming from the direction of Platte River Biogas (25° - 105°).

5. Comparative Analysis

CDPHE-APCD-ATOPS performed two monitoring periods of hydrogen sulfide (H_2S), methane (CH_4), and ethane (C_2H_6) near Platte River Biogas, LLC (PRB) to respond to community health and odor concerns. The first monitoring period was from December 18, 2024 through January 16, 2025 (winter), and the most recent one was from June 2, 2025 through October 3, 2025 (summer). Comparative statistics are shown in Table A1.

Measurements of H_2S showed an average concentration of 0.94 ppbV from June 2 through October 3, 2025, with a maximum one-hour rolling average of 24.5 ppbV. These

are 12% higher than the average (0.84 ppbV) and 21% higher than the maximum one-hour rolling average (20.3 ppbV) from the winter measurement period. Elevated H_2S measurements above typical values came from the direction of the PRB facility. A weighted average from the number of hours of summer and winter measurements result in an estimated annual average H_2S concentration of 0.92 ppbV at the sampling location.

A maximum CH_4 one-hour rolling average of 18.61 ppmV downwind of the PRB facility was observed during the summer measurement period, which was 82% greater than the maximum concentration of 10.22 ppmV measured during the winter measurement period. However, the summer average concentration of 2.53 ppmV was 9% lower than the winter average of 2.79 ppmV. A weighted average from the number of hours of the summer and winter measurements result in an estimated annual average CH_4 concentration of 2.58 ppmV at the sampling location.

The highest ethane measurements during the summer measurement period were not from the direction of PRB. This was similar in the winter sampling period in which many of the highest measurements were not from the direction of PRB; however, there is evidence of ethane emissions from PRB in two instances during the winter, suggesting PRB is not the only source of ethane in the area.

Appendix A

Table A1: Hydrogen sulfide (H_2S), methane (CH_4), and ethane (C_2H_6) statistics collected by the Mobile Air Remote MOnitoring Trailer west of the Platte River Biogas, LLC Facility.

Statistic	**H_2S (ppbV)**	**H_2S (ppbV)**	**CH_4 (ppmV)**	**CH_4 (ppmV)**	**C_2H_6 (ppbV)**	**C_2H_6 (ppbV)**
Sampling Period	Winter	Summer	Winter	Summer	Winter	Summer
Maximum	20.3	24.5	10.22	18.61	120.9	115.7
Minimum	ND*	ND*	2.01	1.90	ND*	ND*
Average	0.84	0.94	2.79	2.53	22.2	8.3
Median	<MDL**	<MDL**	2.49	2.20	17.9	5.5
Standard	2.1	1.5	0.87	0.94	18.9	8.3

Deviation						
Number of Hours Valid Sampling	681	2362	674	2602	674	2577
Method Detection Limit (MDL)	0.4	0.4	0.001	0.001	0.5	0.5
Number of Non-Detects	130	48	0	0	1	10
Number of Measure-ments Below MDL	439	1189	0	0	17	85

*ND = Non-detect.

**<MDL = Below method detection limit.

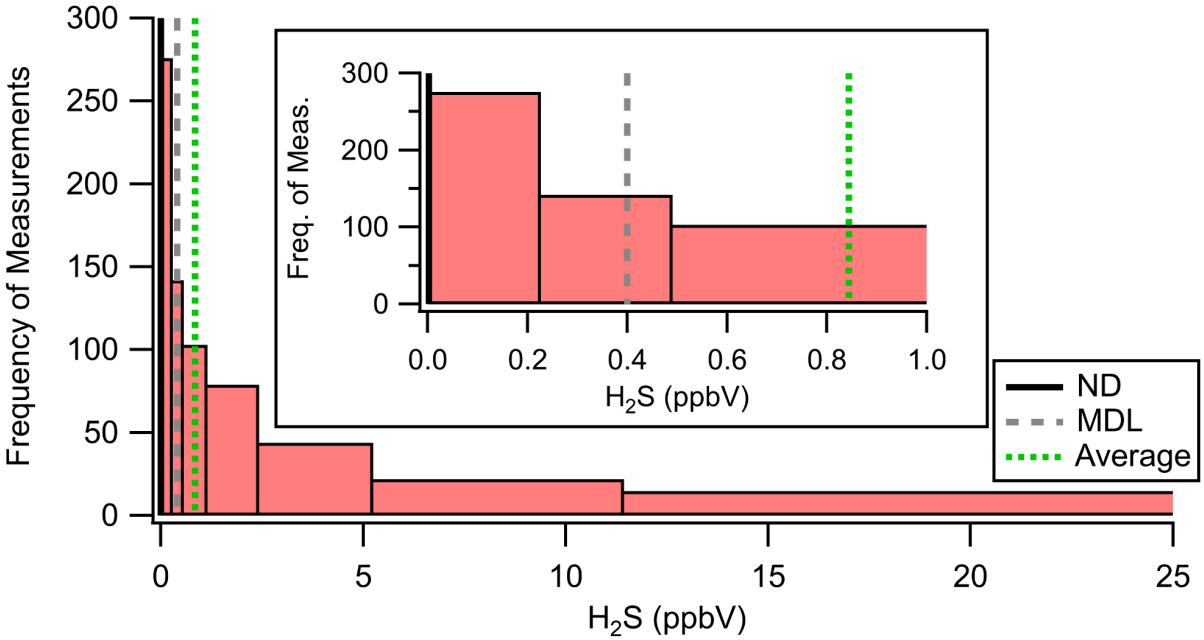

Figure A1: Figure of a histogram of H_2S (ppbV) observations from the Teledyne T101 H_2S analyzer from December 18, 2024 to January 16, 2025. Inset figure shows a zoom-in of the histogram from H_2S levels between 0 and 1 ppbV. Data shows that 19.2% of the total sampling hours are non-detects (ND, vertical black solid line), and 64.4% are below the method detection limit (MDL, vertical grey dashed line). The small number of higher concentration measurements result in an average (vertical green dotted line) above the median.

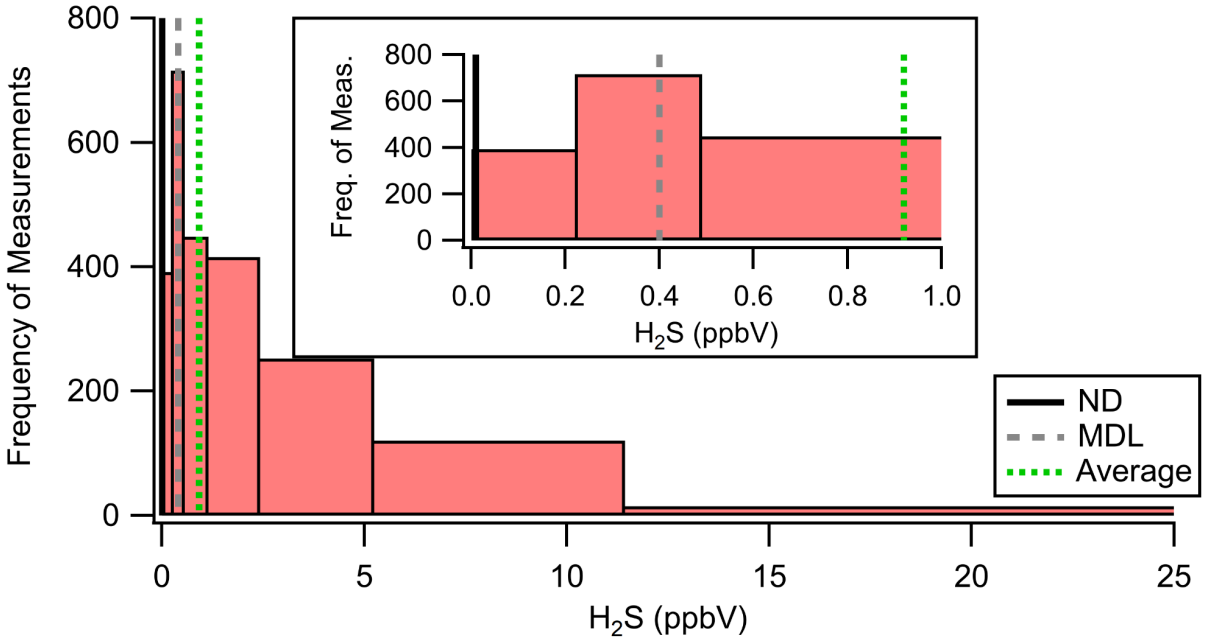

Figure A2: Figure of a histogram of H_2S (ppbV) observations from the Teledyne T101 H_2S analyzer from June 2 to October 3, 2025. Inset figure shows a zoom-in of the histogram from H_2S levels between 0 and 1 ppbV. Data shows that 2.0% of the total sampling hours are non-detects (ND, vertical black solid line), and 50.3% are below the method detection limit (MDL, vertical grey dashed line). The small number of higher concentration measurements result in an average (vertical green dotted line) above the median.

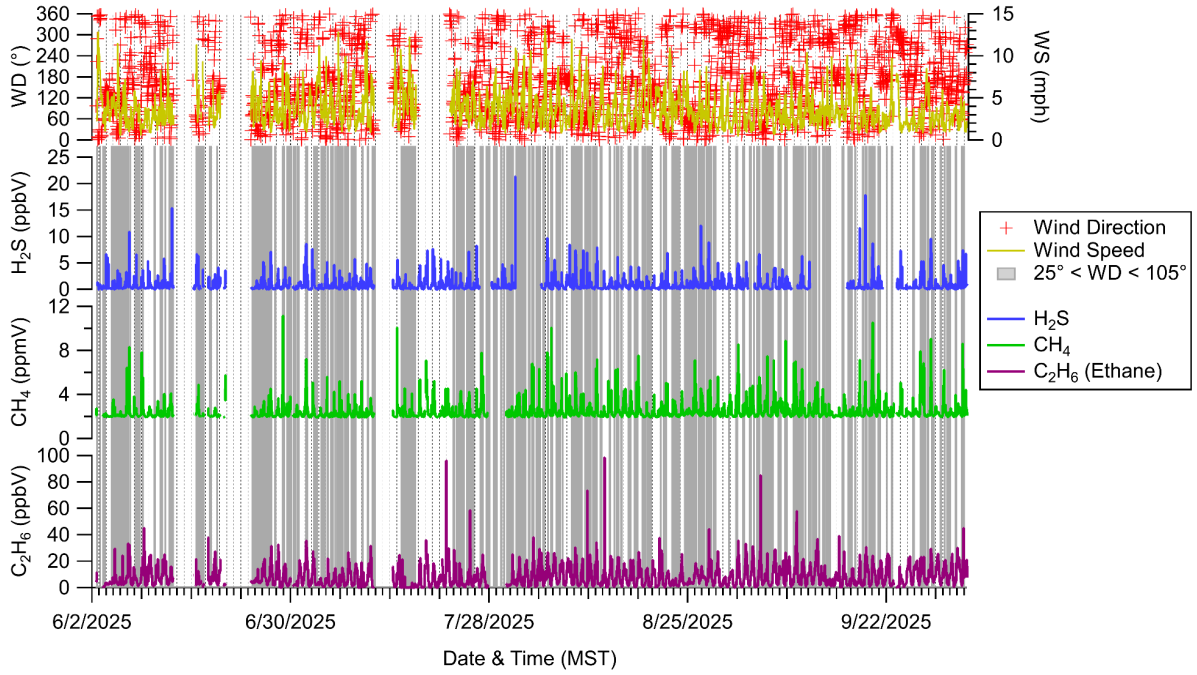

Figure A3: Four panel figure, from top to bottom, showing time series of 1-hour averaged measurements of wind direction (red markers, top panel, left axis), wind speed in mph (yellow line, right axis), hydrogen sulfide (H_2S) in ppbV (blue line), methane (CH_4) in ppmV (green line), and ethane (C_2H_6) in ppbV (purple line) for the time period of June 2, 2025 through October 3, 2025. Gray shading shows periods of time when winds were coming from the direction of Platte River Biogas.

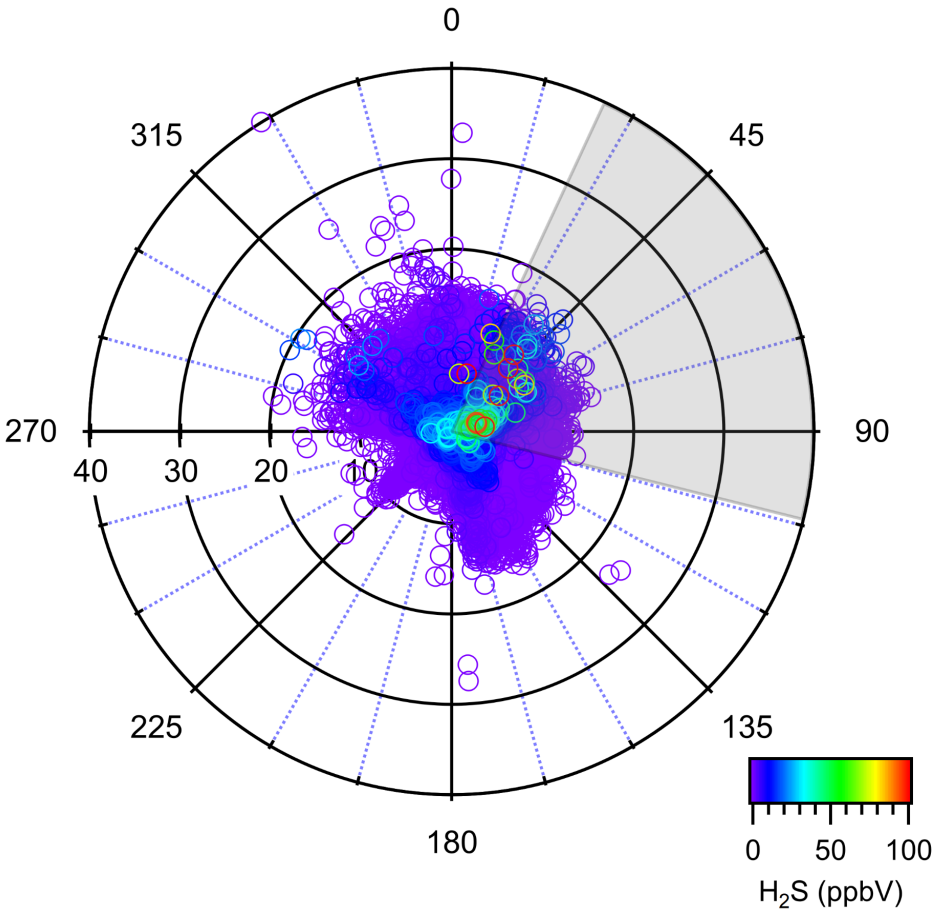

Figure A4: Polar plot of one minute averages of wind speed and wind direction measurements made during the summer. The angle data is wind direction (degrees) and the radial data is wind speed (mph). Each marker is colored by the hydrogen sulfide (H_2S) concentration determined at the same time a given wind speed and direction measurement is made to demonstrate the potential source winds of the pollution. Gray shading shows winds coming from the direction of Platte River Biogas (25° - 105°).