

AQRP Monthly Technical Report

PROJECT TITLE	Quantifying the Emissions and Spatial/Temporal Distributions of Consumer Volatile Chemical Products (VCPs) in the Greater Houston Area	PROJECT #	22-020
PROJECT PARTICIPANTS	Dr. Yue Zhang, Alana Dederó, Zhenli Lai, Dr. Ying Qi, Hee Won Yim	DATE SUBMITTED	11/10/2022
REPORTING PERIOD	From: 10/1/2022 To: 10/31/2022	REPORT #	3

A Financial Status Report (FSR) and Invoice will be submitted separately from each of the Project Participants reflecting charges for this Reporting Period. I understand that the FSR and Invoice are due to the AQRP by the 15th of the month following the reporting period shown above.

Detailed Accomplishments by Task for reporting period

1. Successfully deployed our instrument (Vocus, aerosol mass spectrometer, CO monitor, NO₂ monitor, soot monitor, scanning electric mobility sizer, ozone monitor, and other supporting devices) around Houston
2. Designed four different routes around Houston to sample the volatile consumer products (VCP) and other species in the Greater Houston area

Data Collected

1. We have collected full suite of data of the trace gases (Vocus), particle phase chemical composition (AMS), CO, NO₂, O₃, aerosol size distribution, GPS location through our deployment around the Houston.
2. We have collected the above gas and particle information both during the day and at night, during weekends and weekdays, and on sunny and cloudy days.

Identify Any Problems or Issues Encountered and Proposed Solutions or Adjustments

The deployment initially took longer than expected so the team members had to work until 2-3 am for the first couple of deployment. As we streamlined the process the deployment schedule resumed to be reasonable.

Goals and Anticipated Issues for the Succeeding Reporting Period

1. First goal is to provide at least 10 deployment-related data to the AQRP
2. Second goal is to understand the VCP and aerosol concentration in the ambient environment in Houston
3. Third goal is to understand whether the current VCP inventory matches the ambient data.

Based on the current progress, our first goal is on track. We will analyze the data after the field deployment to achieve the second and the third goal.

Detailed Analysis of the Progress of the Task Order to Date

We are currently conducting field measurement and performed some of the data analysis. Below are the route maps we have conducted during this field study. We plan to analyze the full suite of data after the deployment finishes.

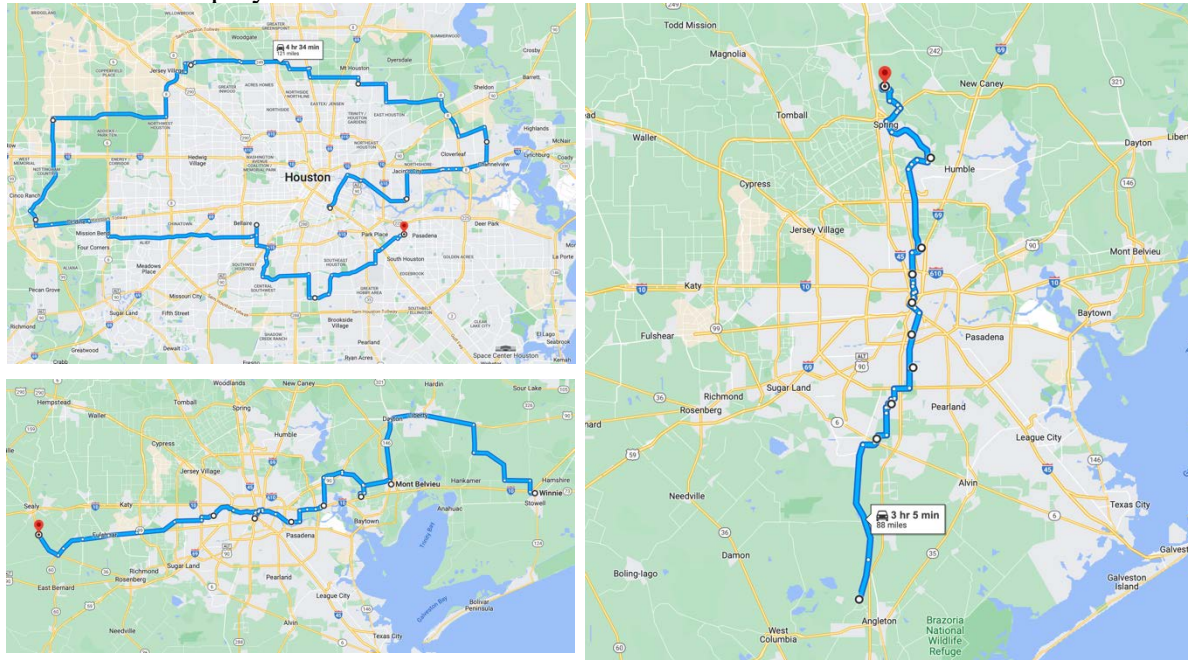


Figure 1. Deployment map during the field project in October 2022

In addition, below are the exterior and the interior images of the mobile lab. We have a wireless 5G service that can connect all instruments and project the screen to the front passenger seat.



Figure 2. Exterior, roof top, and interior image of the mobile laboratory

Do you have any publications related to this project currently under development? If so, please provide a working title, and the journals you plan to submit to.

Yes No

Do you have any publications related to this project currently under review by a journal? If so, what is the working title and the journal name? Have you sent a copy of the article to your AQRP Project Manager and your TCEQ Liaison?

Yes No

Do you have any bibliographic publications (ie: publications that cite the project) related to this project that have been published? If so, please list the reference information. List all items for the lifetime of the project.

Yes No

Do you have any presentations related to this project currently under development? If so, please provide working title, and the conference you plan to present it (this does not include presentations for the AQRP Workshop).

Yes No

Do you have any presentations related to this project that have been published? If so, please list reference information. List all items for the lifetime of the project.

Yes No

Have any personnel changes occurred that were not listed in the original proposal? If so, please include a detailed description of the personnel change(s) below.

Yes No

Are any delays expected in the progress of the research? If so, please include a detailed description of the potential delay below.

Yes No

Describe any possible concerns/issues (technical or non-technical) that AQRP should be made aware of.

Are you anticipating using all the available funds allocated to this project by the end date? If not, why and approximately what is the amount to be returned?

Yes No

The whole funding is expected to be used by the end of the project date.

Submitted to AQRP by Dr. Yue Zhang