

AQRP Monthly Technical Report

PROJECT TITLE	Integrated Airborne-Mobile Ground Observations and Inventory for Enhanced VOC Source Attribution and Ozone Precursor Mapping in Texas	PROJECT #	26-029
PROJECT PARTICIPANTS	Pawel Misztal, Lea Hildebrandt Ruiz, Yue Zhang, Nathan Malarich, Munkhbayar Baasandorj	DATE SUBMITTED	05/10/2026
REPORTING PERIOD	From: Project Start To: 5/10/2026	REPORT #	1

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

Task 1: Preparatory activities so far included regular participation of project PIs in coordination meetings for TexAQS 2026 (Wednesdays at 1 pm CDT) followed by flight planning coordination meetings with minutes recorded. TCEQ representatives were also present, and focal areas and target sources were discussed. PIs have met with AQRP director who provided suggestions on the work plan.

On April 1, PIs met with TCEQ to discuss questions and TCEQ recommendation for areas of interest which were taken into account for the work plan and in planning mobile routes. In the May 6th coordination meeting, stationary site coordination and preliminary mobile tracks were discussed. Data centers were identified as a non-traditional source whose impact on O₃ and PM_{2.5} attainment is currently unquantified.

Figure 1 shows preliminary aircraft flight tracks (shown as pink lines) and mobile routes (shown as dark blue lines) in the three focal areas whereas Figures 2, 3, and 4 zoom in on each of the areas, Dallas, Houston, and San Antonio, respectively. Doug Boyer (TCEQ) provided CSV with TCEQ stations in Texas. In designing the routes, locations of the auto-GC and VOC canister CAMS stations were taken into account for collocation opportunities. Industrial, waste management sources, and data centers have also been considered. The plan is to perform at least 20 repeats of the tracks in each metropolitan region, with each lab contributing 10 drives. The length of each track is about 3-4 hrs so the team will aim to perform at least two of those per day. Additional drives will occur in Austin in the last two days of the campaign. Austin track will be shorter to allow more repetitions and will run near data centers, EV and semiconductor manufacturing, wastewater, and other sources in SE Austin.

The campaign's preliminary schedule is available at the following link <https://utexas.box.com/s/w7ywby2vc41b92hfd2x6033hkslnqgh>. The first drive is planned to coincide with the first research flight in Dallas on May 30th. The second week of the campaign will happen in Houston, while the last week in San Antonio and Austin. This order has been recently revised to avoid overlapping the Houston mobile measurements with the FIFA World Cup 2026

in Houston. Stationary measurements will continue in Houston throughout the campaign led by Yue Zhang, James Flynn, and NOAA through a ground supersite with 20+ instruments, including 4 mass spectrometers to provide comprehensive quantification of both gas and particle phase species. Ground supersite will be operated throughout the TexAQS 2026 campaign, and data will be complementary to the mobile data. The UT HR-ToF-AMS and UT Picarro HCHO/CH₄ instruments will be deployed at those ground sites as part of this project. Other ground data are available to be shared with TCEQ and the mobile measurement team upon request with the supersite PI.

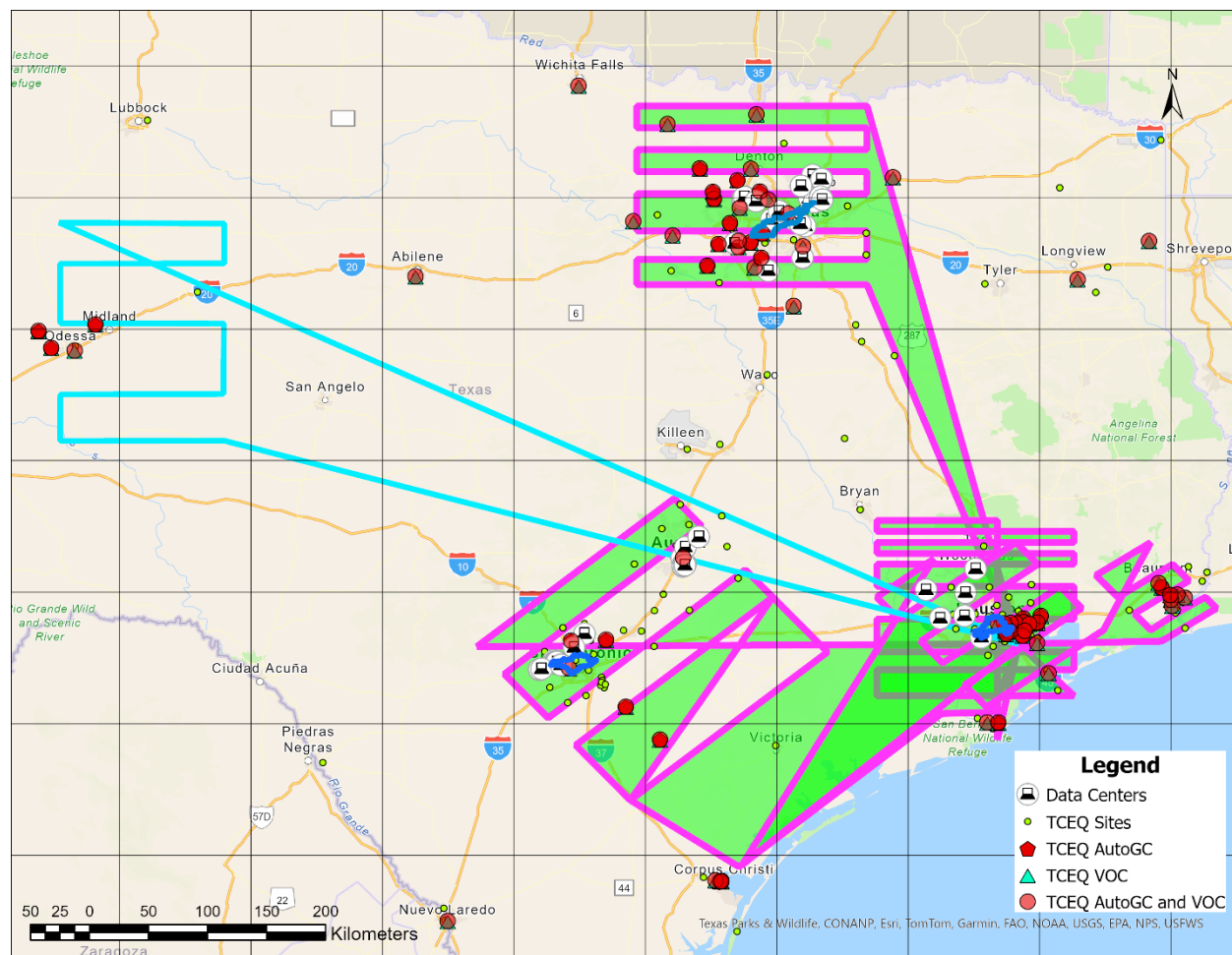


Figure 1. Overall map showing preliminary flight tracks (pink for DFW, Houston, and San Antonio, and light blue for the Permian Basin) and ground mobile deployments (dark blue).



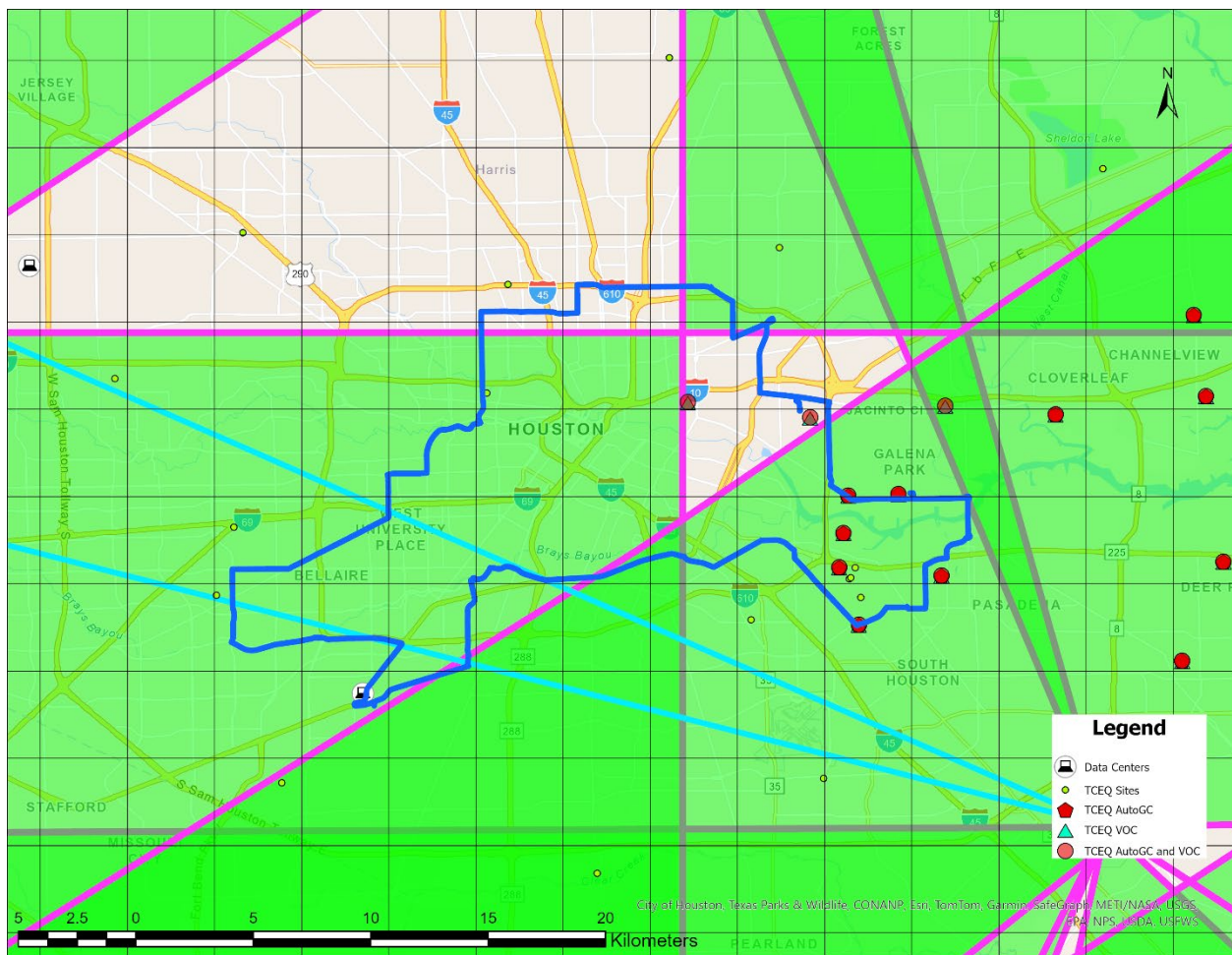


Figure 3. Planned driving route for Houston.

4. The mobile campaign will proceed week by week across the three focal regions: Dallas in the first week (with the initial mobile drive coinciding with the first research flight on May 30), Houston in the second week, and San Antonio in the third week. Stationary measurements will continue in Houston throughout the campaign. Austin drives will be added at the end of the campaign to overlap with the final aircraft passes on June 13 and 14. Each metropolitan region is targeted for at least 20 track repetitions split between the two mobile labs (10 per lab), with two approximately 3-hour drives per day. Concentric driving patterns optimized for paired upwind/downwind sampling will be implemented. KML files of the planned routes can be found [in this folder](#). Any suggestions from TCEQ are welcome.

Detailed Analysis of the Progress of the Task Order to Date

None

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.

None

**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

Submitted to AQRP by
Pawel Misztal