AQRP Monthly Technical Report

PROJECT TITLE	Advanced Analysis of Ozone Formation Potential, VOC Sensitivity, and Source Apportionment in the El Paso-Juárez Airshed	**PROJECT #**	26-030
PROJECT PARTICIPANTS	**PIs:** Pawel K. Misztal, Lea Hildebrandt Ruiz, David W. Sullivan, Elena C. McDonald-Buller, Yosuke Kimura **Graduate Students and Postdocs:** Daniel Sung, Shihao Zhai, Hyeonjun Lee, Chun-Ying Chao	**DATE SUBMITTED**	08/10/2026
REPORTING PERIOD	**From:** 7/01/2026 **To:** 7/31/2026	**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 1-5: During the initial period of the project, the PIs discussed the plan and have been assembling data collected in 24-024. Dr. Sullivan supplied TCEQ station data and conducted an analysis based on every-6th day 24-hour canister data to examine how toluene concentrations have changed in El Paso between 1993 and 2025. The analysis showed negative slopes for all seven canister sites, implying decreasing toluene concentrations over the years. The Womble site has the longest history with data from 1993 to 2025, some 1,794 samples in all. Figure 1 shows mean toluene concentrations at Womble and Chamizal by quarter and the declining trends over the years. Seasonal fluctuations are also seen with peaks in winters.

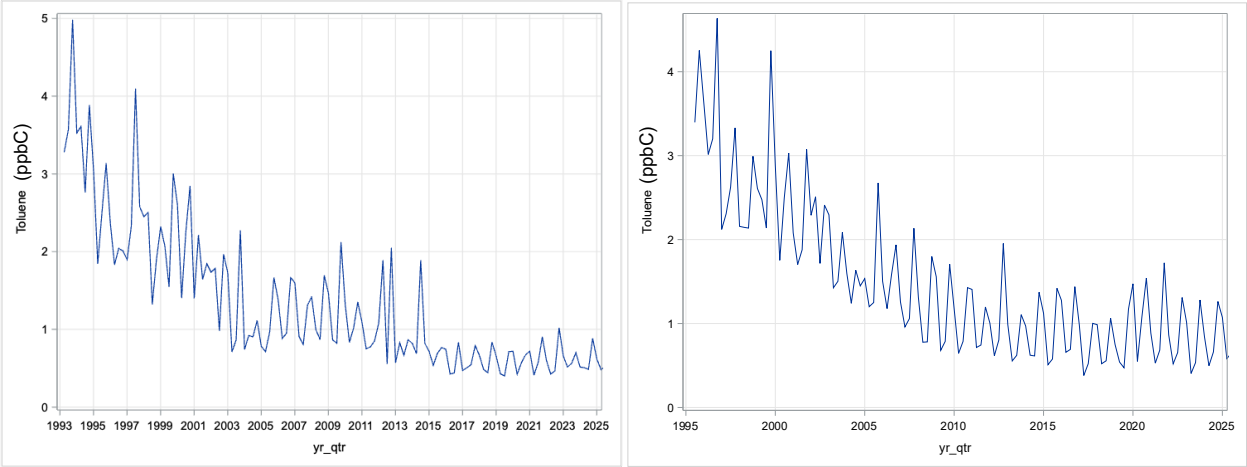


Figure 1. *Declining trends in quarterly average toluene concentration (ppbC) at (a) the Womble site from 1993 to 2025 and the Chamizal site from 1995 to 2025.*

Additional graphs from other stations are shown in the Appendix. VOC data from these sites will be useful for analyses in Tasks 1-5. Drs. Kimura and McDonald-Buller are working to incorporate observational data collected during 2025 at the TCEQ Chamizal, Delta Drive, and University of Texas at El Paso (UTEP) sites that have automated gas chromatograph (AutoGC) sampling and Womble and Socorro Hueco canister sampling site with their analyses of predictions from the Comprehensive Air Quality Model with Extensions (CAMx) platform developed for the airshed during AQRP 24-024.

Ozone formation potential work has been initiated and data inputs gathered. Elena McDonald-Buller and Pawel Misztal submitted abstract for the CMAS conference based on the analysis from this project.

The team met for a kick-off meeting and discussed the plan for the collaborative project execution.

Preliminary Analysis
Ozone formation analysis, PMF of AMS data, and comparisons of mobile observations and TCEQ data are ongoing.

Data Collected
None

Identify Any Problems or Issues Encountered and Proposed Solutions or Adjustments
None

Goals and Anticipated Issues for the Succeeding Reporting Period

The ozone formation framework and initial analysis will be conducted in the next reporting period with preparation for the detailed ozone regime sensitivity analysis. Initial analysis of the additional observational data is planned in the next reporting period. Plans for analyses associated with Tasks 1-5 will be further optimized in discussions with PIs. PMF analysis of the AMS data is continuing. TCEQ suggestions 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 (i.e.: 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**

Pawel K. Misztal*, Elena C. McDonald-Buller*, Yosuke Kimura, Ling Huang, David W. Sullivan, Lea Hildebrandt Ruiz, Daniel Sung, Shihao Zhai, Evelyn Deveraux, Chun-Ying Chao, Kacper Przykaza, Kyle Druckman, and Chris Emery: Unraveling Transboundary Influences on Air Quality in the El Paso-Jurez Airshed through Complementary Advanced Measurements and Photochemical Modeling, Accepted Abstract for CMAS 2026. ***Presenting authors**

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.

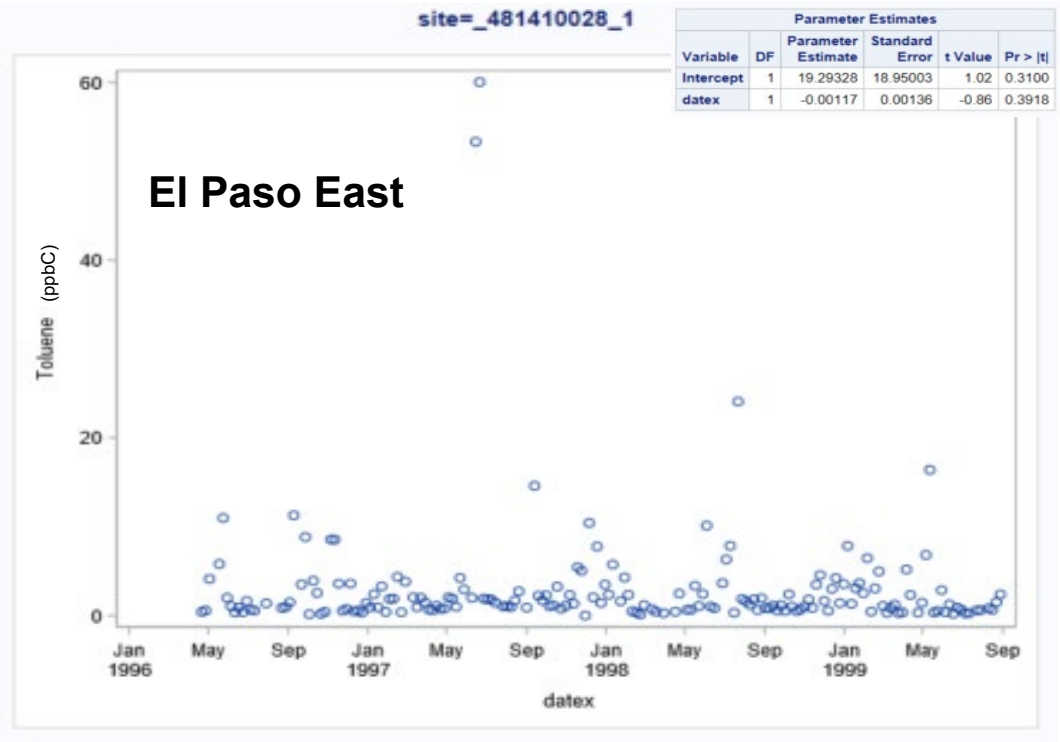
None

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?

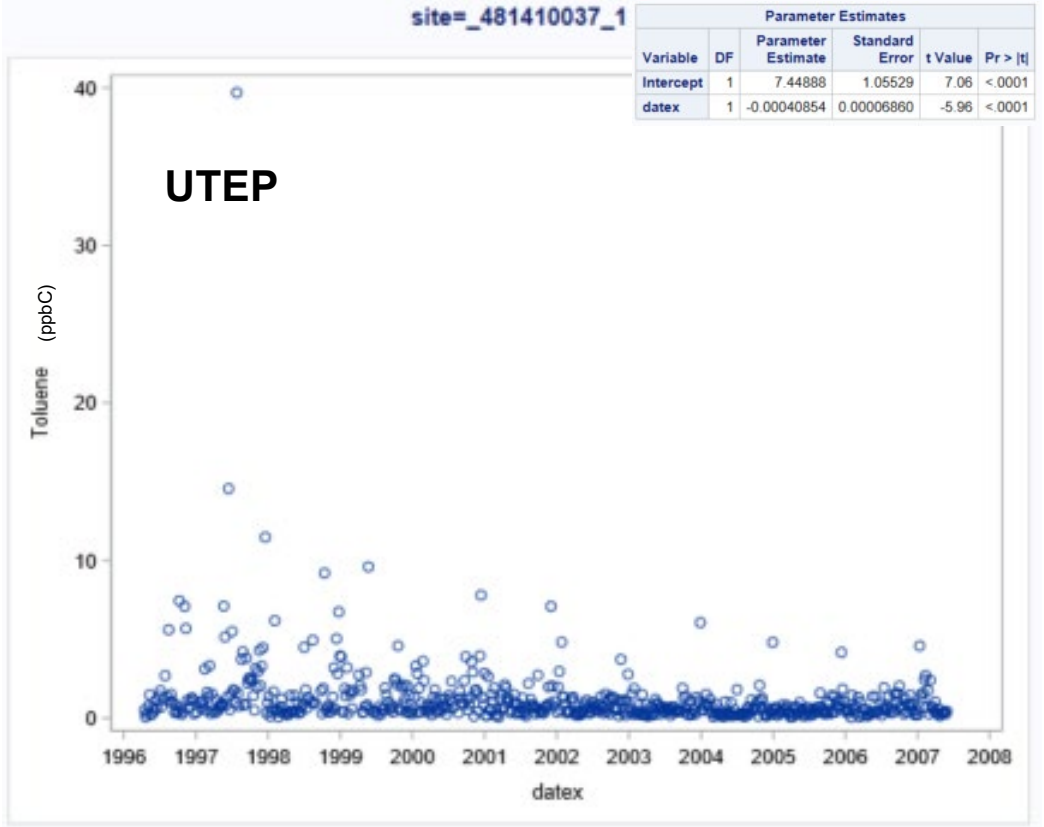
☒ **Yes** ☐ **No**

Submitted to AQRP by
Pawel Misztal

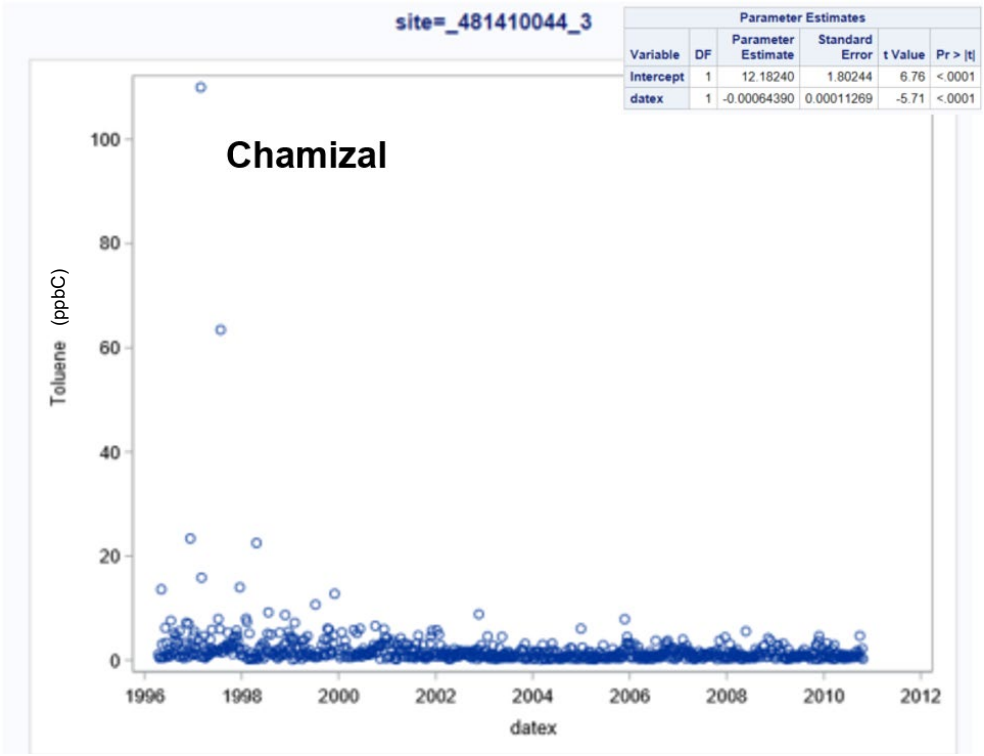
Appendix A



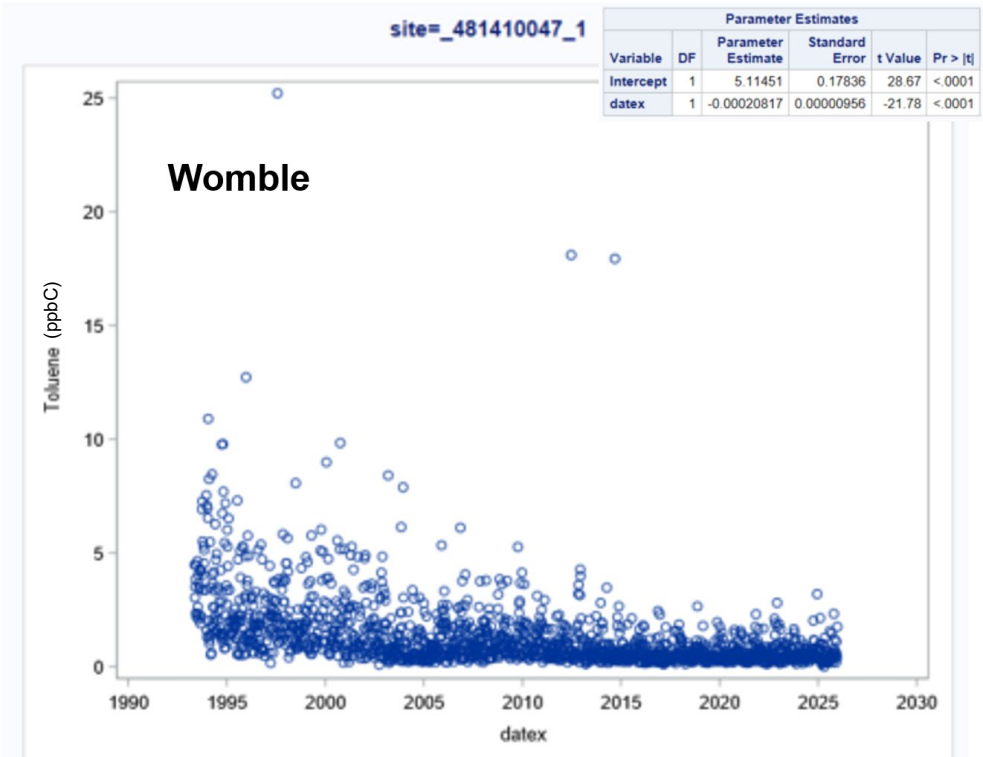
Appendix Figure A: Toluene variability at the El Paso East station.



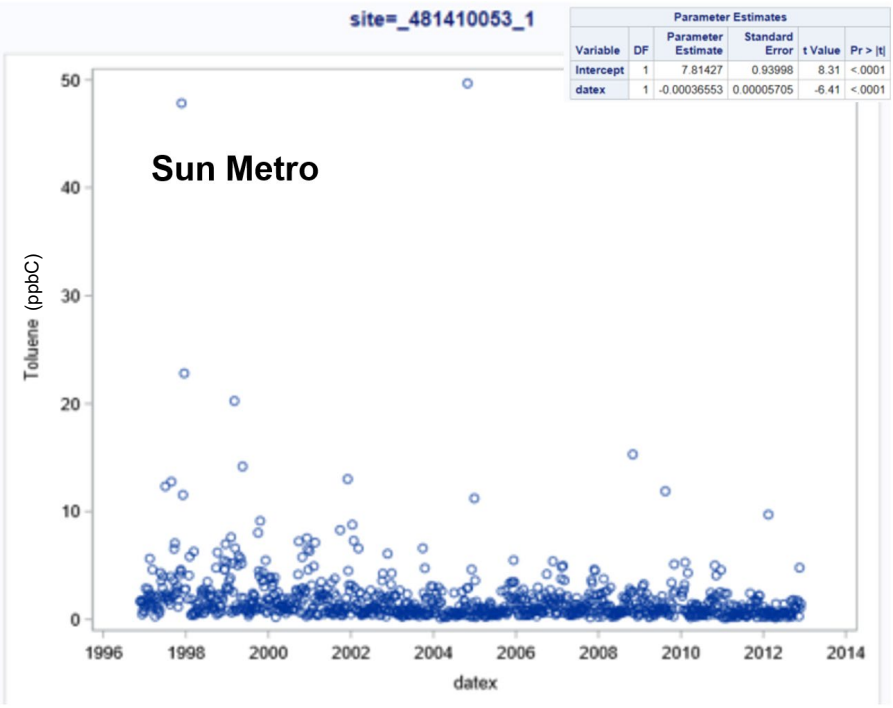
Appendix Figure B: Toluene variability at the UTEP station.



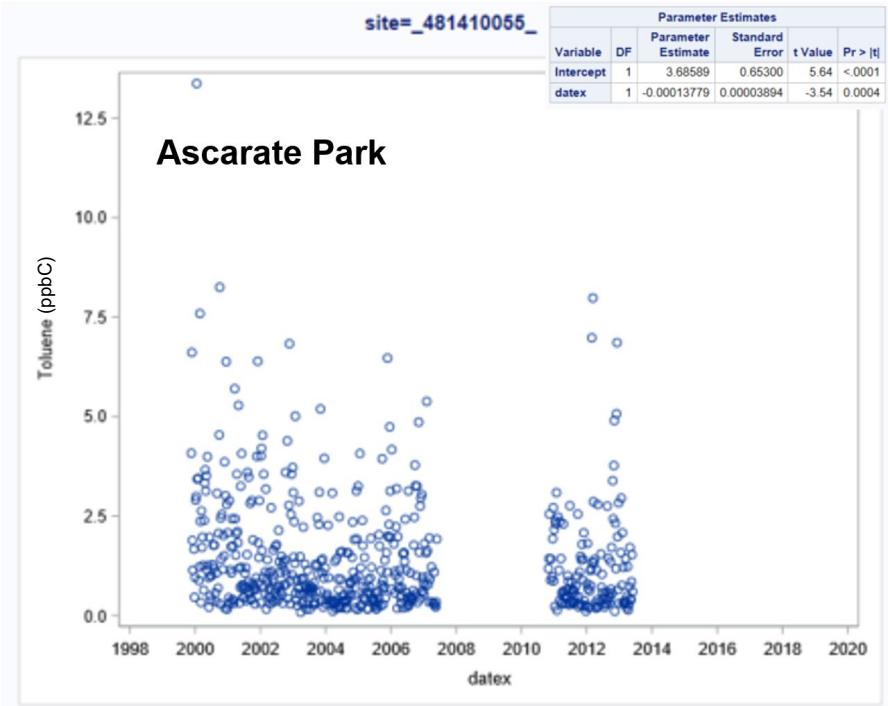
Appendix Figure C: Toluene variability at the Chamizal station.



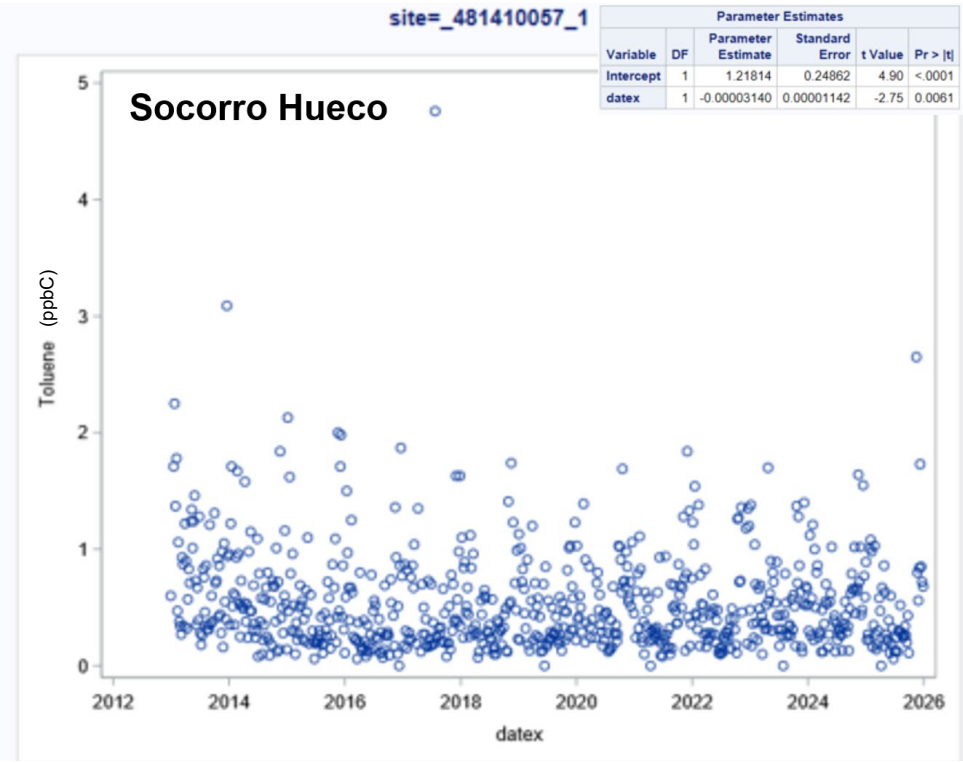
Appendix Figure D: Toluene variability at the Womble station.



Appendix Figure E: Toluene variability at the Sun Metro station.



Appendix Figure F: Toluene variability at Ascarate Park.



Appendix Figure G: Toluene variability at the Socorro Hueco station.