

AQRP Monthly Technical Report

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| PROJECT TITLE | Evaluating Updates to CAMx and NOx Emission Inventories using TEMPO Measurements over Texas | PROJECT # | 24-004 |
| PROJECT PARTICIPANTS | Ramboll George Washington University Saint Louis University | DATE SUBMITTED | May 9, 2025 |
| REPORTING PERIOD | From: April 1, 2025 To: April 30, 2025 | REPORT # | 5 |

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: Texas 4 km CAMx baseline simulation for NO₂ and Ozone

Completed NO₂ and ozone basecase model performance evaluation at surface monitors.

Task 2: Create TEMPO NO₂ Diurnal Profiles and Compare to Diurnal NOx Emission Maps

Continued processing TEMPO NO₂ columns and completed processing of CAMx diurnal NOx emissions.

Task 3: Comparison of NO₂ Columns between CAMx and TEMPO

Task 3 has not yet been initiated.

Task 4: CAMx Updates and Testing

Continued implementing nitrate photolysis updates in CAMx.

Task 5: Estimating NOx Emissions by Sector and by Time of Day using CAMx Source Apportionment and TEMPO Retrievals

Task 5 has not yet been initiated.

Task 6: Project Management and Reporting

Submitted Monthly Technical Report for March 2025.

Preliminary Analysis

None.

Data Collected

None.

Identify Any Problems or Issues Encountered and Proposed Solutions or Adjustments

None.

Goals and Anticipated Issues for the Succeeding Reporting Period

Begin comparison of NO₂ columns with CAMx under Task 3 and perform flux divergence comparison of CAMx and TEMPO NO₂ columns under Task 5. Begin applying MLR technique to CAMx source apportionment results to estimate NO_x emissions by sector and time of day under Task 5. Configure final CAMx simulation informed by comparison to TEMPO satellite measurements and evaluation at surface monitoring stations.

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.

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 Jeremiah Johnson