

# AQRP Monthly Technical Report

<b>PROJECT TITLE</b>	Evaluating Updates to CAMx and NO <sub>x</sub> Emission Inventories using TEMPO Measurements over Texas	<b>PROJECT #</b>	24-004
<b>PROJECT PARTICIPANTS</b>	Ramboll George Washington University Saint Louis University	<b>DATE SUBMITTED</b>	April 10, 2025
<b>REPORTING PERIOD</b>	<b>From:</b> March 1, 2025 <b>To:</b> March 31, 2025	<b>REPORT #</b>	4

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 15<sup>th</sup> of the month following the reporting period shown above.

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## Detailed Accomplishments by Task for reporting period

### Task 1: Texas 4 km CAMx baseline simulation for NO<sub>2</sub> and Ozone

Completed development of aircraft cruise emissions. Completed configuration and completed initial basecase 3-D CAMx source apportionment run. Performed QA procedures and delivered model outputs, sector-specific NO<sub>x</sub> emissions and WRF meteorology to other project participants. Started NO<sub>2</sub> and ozone basecase model performance evaluation at surface monitors.

### Task 2: Create TEMPO NO<sub>2</sub> Diurnal Profiles and Compare to Diurnal NO<sub>x</sub> Emission Maps

Continued processing TEMPO NO<sub>2</sub> columns in preparation for comparison to NO<sub>x</sub> emission maps under Task 2 and CAMx NO<sub>2</sub> columns under Task 3. Compared TEMPO NO<sub>2</sub> columns with CEM NO<sub>x</sub> emissions for select large power plants in Texas.

### Task 3: Comparison of NO<sub>2</sub> Columns between CAMx and TEMPO

Task 3 has not yet been initiated.

### Task 4: CAMx Updates and Testing

Began implementing nitrate photolysis updates in CAMx.

### Task 5: Estimating NO<sub>x</sub> 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 February 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**

Complete basecase model performance evaluation and CAMx model updates. Continue processing TEMPO NO<sub>2</sub> columns and process CAMx diurnal NO<sub>x</sub> emissions as part of Task 2. Begin comparison of NO<sub>2</sub> columns with CAMx under Task 3 and perform flux divergence comparison of CAMx and TEMPO NO<sub>2</sub> columns under Task 5.

**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

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Submitted to AQRP by      Jeremiah Johnson