

AQRP Monthly Technical Report

PROJECT TITLE	Source-sector NO _x emissions analysis with sub-kilometer scale airborne observations in Houston during TRACER-AQ	PROJECT #	22-023
PROJECT PARTICIPANTS	George Washington University Ramboll	DATE SUBMITTED	10/11/2022
REPORTING PERIOD	From: September 1, 2022 To: September 30, 2022	REPORT #	2

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: Simulate NO₂, HCHO, O₃ at 444 × 444 m² spatial resolution using WRF-CAMx
Beginning to initialize the WRF simulation.

Task 2. Process the GCAS measurements
Preliminary comparison between GCAS and Pandora NO₂ and HCHO in the TRACER-AQ domain has been completed. This is assuming the NASA GEOS-CF simulation *a priori* profiles. GCAS agrees with Pandora to within ± 21% for NO₂.

Task 3. Process the satellite NO₂ data
Task 3 has not yet been initiated.

Task 4. Calculating NO_x from NO₂ airshed measurements
Task 4 has not yet been initiated.

Task 5. Comparison of NO₂, HCHO, O₃ between model, aircraft, and satellite
Task 5 has not yet been initiated.

Task 6. Use of machine learning to estimate emission factors for individual sectors
Task 6 has not yet been initiated.

Preliminary Analysis

None.

Data Collected

None.

Identify Any Problems or Issues Encountered and Proposed Solutions or Adjustments

Project approvals are occurring later than anticipated and we will adjust task schedules as needed.

Goals and Anticipated Issues for the Succeeding Reporting Period

Continue developing WRF-CAMx modeling platform by simulating meteorology and processing emissions.

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 AQR 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 AQR 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 Daniel Goldberg

Principal Investigator Daniel Goldberg