

AQRP Monthly Technical Report

PROJECT TITLE	New Satellite Tools to Evaluate Emission Inventories: Is a 3-D Model Necessary?	PROJECT #	20-020
PROJECT PARTICIPANTS	University of Wisconsin – Madison Ramboll	DATE SUBMITTED	10/5/2020
REPORTING PERIOD	From: September 1, 2020 To: September 30, 2020	REPORT #	3

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

During this reporting period, work was carried out on Task 1 and Task 2.

Task 1: Simulate NO₂ and SO₂ amounts with the high-resolution WRF-CAMx model

The Ramboll modeling team continued development of the 2019 WRF-CAMx modeling platform. As part of this work, Ramboll generated model-ready emissions that incorporate CEM data for 2019 and also generated MEGAN v3.1 biogenic emissions.

Task 2. Compare model simulations with TROPOMI and near-surface observations

In the Scope of Work, we specified a modeling period of March 15 – October 15, 2019. However, we discovered that the 2019 NRTEEM modeling database being used for the WRF-CAMx modeling platform is missing the last 3 days of model inputs, including WRF meteorology. Since new WRF simulations are beyond the scope of this study, we propose a new modeling period of March 15 – October 12, 2019. We have updated WHIPS software to sample TROPOMI NO₂, tested the update, and begun processing of these data for March – October 2019.

Task 3. Compare satellite data and emissions for power plants and urban areas

Task 3 has not yet been initiated.

Task 4. Evaluate mobile emissions assessments performed with and without

Task 4 has not yet been initiated.

Preliminary Analysis

None.

Data Collected

TROPOMI NO₂ and SO₂ were downloaded from NASA Earthdata for March – October 2019.

Identify Any Problems or Issues Encountered and Proposed Solutions or Adjustments

None.

Goals and Anticipated Issues for the Succeeding Reporting Period

Ramboll will complete development of the 2019 WRF-CAMx modeling platform and submit CAMx simulations for the March 15 – October 12, 2019 period. Model output for a single day will be provided to UW-Madison for testing/validation purposes. We will add capability to WHIPS to process TROPOMI SO₂.

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 Tracey Holloway

Principal Investigator Tracey Holloway