

AQRP Monthly Technical Report

PROJECT TITLE	Improving Estimates of Wind-Blown Dust from Natural and Agricultural Sources	PROJECT #	20-011
PROJECT PARTICIPANTS	Chris Emery, Tejas Shah, Uarporn Nopmongcol, Greg Yarwood (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

Task 1: Review Current CAMx WBDUST Estimates

Completed review of WBDUST emission estimates and resulting CAMx concentrations for PM_{2.5} soil components and coarse PM mass against IMPROVE data. Results were summarized in a Task 1 Technical Memorandum submitted to AQRP and the TCEQ liaison on September 18.

Task 2: Review Alternative Methods and Datasets

Began documenting the WBD formulations that were reviewed (two in WRF-Chem and one in CMAQ) and contrasting to the current WBDUST method. Continued to implement WBDUST algorithm updates based on our review of the peer-reviewed literature with initial process testing to understand dust emission sensitivity.

Task 3: Update the WBDUST Model and Evaluate Impacts in CAMx MP

Began setting up a modeling system and approach to more formally test WBDUST updates developed under Task 2.

Task 4: Project Reporting and Presentation

Developed August MTR and FSR and submitted to AQRP on August 4 and 14, respectively.

Preliminary Analysis

From our Task 2 review and initial process sensitivity testing, we are achieving improved WBD emission patterns in space and time using certain algorithm formulations from the CMAQ approach. However, no formal model testing has been conducted with comparisons to measurements, as the assessments made to date are process-oriented to understand emissions sensitivity to updates, and to perform QA/QC checks on updated code. More formalized model testing is expected to begin in October. Progress is ahead of proposed schedule.

Data Collected

None collected during the reporting period.

Identify Any Problems or Issues Encountered and Proposed Solutions or Adjustments

None during the reporting period.

Goals and Anticipated Issues for the Succeeding Reporting Period

Continue developing the Task 2 WBD model inter-comparison report, continue to conduct process-oriented testing of emission model updates and QA/QC code checks, and start formalized model testing of WBDUST updates. No anticipated issues for the succeeding reporting period.

Detailed Analysis of the Progress of the Task Order to Date

This project initiated on July 28 with the execution of the AQRP Task Order. All tasks remain on budget and on schedule for completion according to our work plan.

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
Chris Emery, Ramboll