

AQRP Monthly Technical Report

PROJECT TITLE	Development and Evaluation of the FINNv.2 Global Model Application and Fire Emissions Estimates for the Expanded Texas Air Quality Modeling Domain	PROJECT #	18-022
PROJECT PARTICIPANTS	University of Texas at Austin Sonoma Technology, Inc. Dr. Christine Wiedinmyer	DATE SUBMITTED	5/8/2019
REPORTING PERIOD	From: 4/1/2019 To: 4/30/2019	REPORT #	7

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

Task 1. Development and Release of the FINN v2 Global Application

The objective of this work is to introduce the next generation of the FINN modeling system that will be designated and publicly released as FINNv2. The development of FINNv2 has largely been completed with some debugging and refinements continuing as simulations are completed. The development of the speciation profile for non-methane organic compounds (NMOCs) from FINNv2 for the MOZART-T1 chemical mechanism has been completed; the team made the decision to speciate all NO and NO₂ emissions as NO₂ as was done for the previous AQRP project (14-011). The team consulted Wilfrid Schroeder of NOAA about the “type” field in the VIIRS active fire data records that distinguishes vegetation fires, active volcanoes, other static land sources, and offshore detections which include all detections over water. Input to FINNv2 is now screened with consideration of these flags to remove volcanic and anthropogenic stationary sources.

Task 2. FINN v2 Global Emissions Estimates

Seven North American FINNv2 simulations have been completed: one for 2012 based on active fire detections from MODIS only and six with fire detections based on MODIS and VIIRS in combination for 2012 through 2017. Initial intercomparisons of emissions estimates from FINN v1.5 (obtained from the NOAA data portal: <https://www2.acom.ucar.edu/modeling/finn-fire-inventory-ncar>) and FINNv2 for 2012 have also been made. Two global simulations, for 2016 and 2018, have also been completed. Analyses of the results for all simulations are on-going.

Task 3. Assessment of FINN Performance Using Satellite Observations

This work seeks to assess FINNv2 outputs using satellite retrievals of aerosol optical depth. Satellite retrievals have been obtained for the period 2012 through 2017 for use in the assessment. In addition, test runs of HYSPLIT dispersion of FINNv2 simulations and review of test results are on-going.

Preliminary Analysis

As above.

Data Collected

None.

Identify Problems or Issues Encountered and Proposed Solutions or Adjustments

None.

Goals and Anticipated Issues for the Succeeding Reporting Period

Major goals for the next reporting period include completing the CAMx simulations, as well as continuing to work on the assessment of model performance.

Detailed Analysis of the Progress of the Task Order to Date

The project is proceeding as planned.

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 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

Two presentations will be made at the 2019 Emission Inventory Conference on August 2, 2019 in Dallas, Texas.

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

Submitted to AQRP by
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