

Monthly Technical Report

PROJECT TITLE	Development and Evaluation of an Interactive Sub-Grid Cloud Framework for the CAMx Photochemical Model	PROJECT #	14-025
PROJECT PARTICIPANTS	ENVIRON International Corporation Texas A&M University	DATE SUBMITTED	1/6/15
REPORTING PERIOD	From: 12/1/2014 To: 12/31/2014	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

This project was initiated on May 21, 2014. This report documents progress during the month of December 2014.

Task 1: Preparation and Software Design

This task was completed in August.

Tasks 2 and 3: Implementation of a Sub-Grid Convective Model in CAMx

EPA transferred their “multi-scale” Kain-Fritsch (MSKF) version of WRF on January 6. It will be necessary to review the new WRF code, and implement any additional modifications to support the transfer of convective model fields (vertical fluxes, convective time scales, etc.) to CAMx. The updated WRF-CAMx system must then be tested for single- and nested-grid configurations to ensure the modeling system is working properly.

Task 4: Model Evaluation

No progress during the reporting period.

Preliminary Analysis

None this period.

Data Collected

ENVIRON collected existing modeling datasets (emissions, initial/boundary conditions, etc.) to support WRF/CAMx model testing over the September 2013 DISCOVER-AQ and 2008 START08 periods. Data were compiled on a hard disk drive and transferred to Texas A&M (TAMU). Final WRF and CAMx model code will be transferred to TAMU after testing CAMx with the latest MSKF version of WRF.

Identify Problems or Issues Encountered and Proposed Solutions or Adjustments

No additional model modifications, tests or analyses were conducted during the reporting period as we awaited EPA's delivery of their latest version of WRF/MSKF.

Goals and Anticipated Issues for the Succeeding Reporting Period

We will modify WRF/MSKF to add necessary output fields to support the CAMx convection routine and then perform basic testing. Delivery of updated WRF and CAMx codes to TAMU is expected to occur in January. We do not anticipate other major technical, budget or schedule issues.

Detailed Analysis of the Progress of the Task Order to Date

Progress on Task 1 (software design) was completed in August. Task 2 (implementation of a sub-grid convective model in CAMx) and Task 3 (implementation of chemistry and wet deposition) were started in August and completed in October; additional testing using the EPA's WRF/MSKF will occur in January. Task 4 (model evaluation) is expected to begin in February.

The project remains on budget, but the schedule is roughly one month behind. Project completion and delivery of the final AQRP-reviewed report is scheduled for June 30, 2015.

Submitted to AQRP by: Chris Emery

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