AQRP Monthly Technical Report

PROJECT TITLE	Sources of Organic Particulate Matter in Houston: Evidence from DISCOVER-AQ data Modeling and Experiments	PROJECT #	Choose an item. 14-024
PROJECT PARTICIPANTS	Lea Hildebrandt Ruiz and Ying Xu (The University of Texas at Austin) Greg Yarwood Bonyoung Koo (ENVIRON) Gookyoung Heo (University of California, Riverside)	DATE SUBMITTED	5/8/2015
REPORTING PERIOD	**From:** April 9, 2015 **To:** May 8, 2015	REPORT #	11

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 2. Environmental Chamber Experiments and Box Modeling

Environmental chamber experiments were conducted to form secondary organic aerosol (SOA) from the photo-oxidation of linear and branched pentadecane using H_2O_2 as OH radical precursor, with and without added NO_x. Tenax sorbent tubes were collected several times during each experiment for quantification of the IVOC concentration.

The temperature profile of the thermodenuder was evaluated so that it can later be used in the evaporation model to quantify the saturation vapor pressure of organic aerosol formed.

Task 4. Photochemical Modeling

CAMx-ready emissions were processed for the 36/12/4 km modeling domains with IVOC estimates as described in the previous Monthly Technical Report. The base case CAMx simulation has been started for a preliminary evaluation.

Task 5. Discover-AQ Data Analysis

Quality assurance of the bulk composition and concentrations of PM_1 measured by the ACSM was completed, and final data will be shared with other AQRP investigators in early June 2015 together with results from the PMF analysis.

Task 6. PMF Analysis

PMF analysis on organic aerosol mass spectra measured by the ACSM was continued. PMF analysis was also started on gas-phase data collected by the HR-ToF-CIMS.

Identify Problems or Issues Encountered and Proposed Solutions or Adjustments

Goals and Anticipated Issues for the Succeeding Reporting Period

Task 2. Environmental Chamber Experiments and Box Modeling

Several experiments will be conducted every week in order to evaluate the SOA yields of the IVOCs of interest. The thermodenuder will be operated during some of these experiments to evaluate the vapor pressure of the organic aerosol formed.

Task 5. Discover-AQ Data Analysis – UT Austin

Task 6. Positive Matrix factorization – ENVIRON and UT Austin

PMF analysis on organic aerosol mass spectra measured by the ACSM will be finalized and results will be shared with other AQRP investigators in early June 2015. PMF analysis on gas-phase data measured by the HR-ToF-CIMS will be continued.

Detailed Analysis of the Progress of the Task Order to Date

Progress to date has been appropriate. There have been delays and the project end date has been extended to August 31, 2015. We expect to complete all project tasks and spend all funds by the end of the project period (August 31, 2015).

Submitted to AQRP by: Lea Hildebrandt Ruiz

Principal Investigator: Lea Hildebrandt Ruiz