

AQRP Monthly Technical Report

PROJECT TITLE	Sources of Organic Particulate Matter in Houston: Evidence from DISCOVER-AQ data Modeling and Experiments	PROJECT #	14-024
PROJECT PARTICIPANTS	Lea Hildebrandt Ruiz and Ying Xu (The University of Texas at Austin) Greg Yarwood Bonyoung Koo (ENVIRON) Gookyong Heo (University of California, Riverside)	DATE SUBMITTED	3/9/2015
REPORTING PERIOD	From: February 1, 2015 To: February 28, 2015	REPORT #	9

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

More thorough analysis of the IVOC wall losses was performed. The first SOA formation experiments were conducted, and analysis is currently underway.

Task 4. Photochemical Modeling

TCEQ updated their latest emission inventory data and provided anthropogenic emissions for the on-road, off-road, non-road, area, and elevated source sectors. The emissions data by source sector were analyzed to estimate emissions of organic compounds (IVOC and POA) from different source types (gasoline and diesel vehicles, meat cooking, biomass burning, etc.) which are needed for the VBS modeling.

Task 5. Discover-AQ Data Analysis

Analysis of gas-phase data from the High Resolution Time – of – Flight Chemical Ionization Mass Spectrometer (HR-ToF-CIMS) was continued. This included identification and fitting / integration of over 800 ion peaks. We are now in the process of condensing and summarizing the information in these data.

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

The focus over the next month will be to continue to conduct 2-3 experiments 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

Results from the analysis of inorganic ions from collected filters should be available any time now. (The analysis is performed by researchers at the Desert Research Institute.) Analysis of the complex data from the HR-ToF-CIMS will be continued.

Task 6. Positive Matrix factorization – ENVIRON and UT Austin

We anticipate that we will complete the PMF analysis by the end of March. Data from the HR-ToF-CIMS may help in the physical interpretation of factors.

Detailed Analysis of the Progress of the Task Order to Date

Progress to date has been appropriate. There have been delays, but overall we do not anticipate problems completing all project tasks by the end of the project period (June 30, 2015).

Submitted to AQRP by: Lea Hildebrandt Ruiz

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