AQRP Monthly Technical Report

PROJECT TITLE	Quantifying Ozone Production from Light Alkenes Using Novel Measurements of Hydroxynitrate Reaction Products in Houston	**PROJECT #**	14-026
PROJECT PARTICIPANTS	Dr. Tom Ryerson (NOAA) Dr. Greg Yarwood (ENVIRON) Dr. David Parrish	**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 (analysis of the alkene hydroxynitrate data in the context of other measurements) has been completed for the DC-8 flight of primary interest (18 Sep 2013).
- Meteorological and chemical information required for data analysis (Task 2) and modeling (Task 3) for the 18 Sep 2013 DC-8 flight has been extracted.
- Trajectory analysis of the plumes intercepted on this flight has also been completed.
- Identification of the additional SEAC^{4}RS flights that fortuitously intercepted ship channel plumes has been completed and trajectory analyses for these flights are ongoing.
- Meteorological input files for modeling the 18 Sep 2013 flight have been prepared using routine observations as well as meteorological measurements from the DC-8.

Preliminary Analysis

Data Collected

Identify Problems or Issues Encountered and Proposed Solutions or Adjustments

Goals and Anticipated Issues for the Succeeding Reporting Period

- Conduct trajectory analysis of additional plumes sampled by the DC-8 during SEAC^{4}RS to independently identify likely sources.
- Begin analysis of the alkene hydroxynitrate data from other interesting flights in the context of other measurements.
- Extract meteorological data and background concentrations from the aircraft data for other flights of interest identified by the trajectory analysis.

- Complete implementation of the final kinetics scheme for the HRVOC chemistry in SCICHEM.
- Characterize ship channel emissions for SCICHEM modeling using plume measurements from the 18 Sep 2013 flight.
- Conduct SCICHEM simulations for the 18 Sep 2013 flight with and without the HRVOC chemistry.
- Begin organizing data analysis manuscript to be submitted for peer-reviewed publication.

Detailed Analysis of the Progress of the Task Order to Date

Submitted to AQRP by: Greg Yarwood

Principal Investigator: Tom Ryerson