

AQRP Monthly Technical Report

PROJECT TITLE	Characterization of Corpus Christi and San Antonio Air Quality During the 2020 Ozone Season	PROJECT #	20-003
PROJECT PARTICIPANTS	Robert Griffin, Rice James Flynn and Yuxuan Wang, UH Rebecca Sheesley and Sascha Usenko, Baylor	DATE SUBMITTED	9 October 2020
REPORTING PERIOD	From: 1 September 2020 To: 30 September 2020	REPORT #	2

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 for reporting period

The bulk of the work performed in this month was related to Task #1, campaign preparation.

The team has continued training of new graduate students and research staff and of instrumentation and mobile air quality laboratory preparation (including generation of a strategy for the new facility preparation by Baylor, including instrument requirements and trailer upgrades). Specifically, the HR-ToF-AMS calibrations have begun at Rice, both as a check on the instrument and to train new staff. In addition, a new computer to run this instrument has been ordered (not charged to this project). Each of the trace gas instruments was evaluated and checked for issues. They were cleaned and turned on in the laboratory at the University of Houston. They were fed calibration gas to check that they were working. The only one that needs to be serviced is the LGR instrument for measurement of CO, which needs the pump diaphragms and filters replaced and mirrors cleaned as preventative maintenance. LGR was contacted to get a quote for the kit they sell. Also, the LICOR-7000 for measurement of CO₂ was modified for better performance, and it is ready for deployment. Both cells are pressure controlled and the sample flows are controlled with MKS flow controllers. The reference cell was set up to sample from a CO₂ gas standard at a low flow rate. Because we are now including the TAPs in this project (for measurement of aerosol optical properties to assist in identification of biomass burning influence), we have begun upgrading our TAPs (at Baylor) with a new ultraviolet light source and performing recalibrations. Reservations have been made for a recreational vehicle site on the Gulf of Mexico outside Corpus Christi for the first part of the planned spring campaign in April 2021, and discussions about lodging preferences (considering safety protocols) have begun amongst the investigators and their team members.

Additional work was performed for Task #3, data analysis. Here, the initial process for generation of model input files to allow for data analysis post campaign was continued.

Preliminary Analysis

None yet

Data Collected

None yet

Identify Any Problems or Issues Encountered and Proposed Solutions or Adjustments

As referenced in the first monthly report, delays in finalizing task orders and issues associated with the COVID pandemic have necessitated shifting the field work from fall 2020 to spring 2021. With approval from the AQRP, we have adjusted and added to the scientific questions to be addressed using our field data analysis and modeling.

Goals and Anticipated Issues for the Succeeding Reporting Period

Model: Continue generation of appropriate input files for three-dimensional modeling efforts, continued training of researchers on use of the three-dimensional model

Field: Continue preparation of mobile air quality laboratory, continue assessment of equipment maintenance needs, continue training of researchers on equipment usage (including generation of HR-ToF-AMS test data for training), and continue assessment of locations for deployment (in light of the new statement of work) and travel planning.

Detailed Analysis of the Progress of the Task Order to Date

Given the late start and the approved change in project field work, we believe that our progress on the project has been appropriate.

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 (ie: publications that cite the project) 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

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

Have any personnel changes occurred that were not listed in the original proposal? If so, please include a detailed description of the personnel change(s) below.

Yes No

Are any delays expected in the progress of the research? If so, please include a detailed description of the potential delay below.

Yes No

See response above regarding problems encountered. This is more a shift in timing as it will not impact our ability to complete the project by the scheduled end date.

Describe any possible concerns/issues (technical or non-technical) that AQRP should be made aware of.

None not addressed previously.

Are you anticipating using all the available funds allocated to this project by the end date? If not, why and approximately what is the amount to be returned?

Yes No

Submitted to AQRP by Robert J. Griffin