

# AQRP Monthly Technical Report

|                             |   |                       |            |
|-----------------------------|---|-----------------------|------------|
| <b>PROJECT TITLE</b>        | <i>Evaluating the Ability of Statistical and Photochemical Models to Capture the Impacts of Biomass Burning Smoke on Urban Air Quality in Texas</i> | <b>PROJECT #</b>      | 22-003     |
| <b>PROJECT PARTICIPANTS</b> | Matthew Alvarado, Jen Hegarty, Rick Pernak  | <b>DATE SUBMITTED</b> | 02-10-2022 |
| <b>REPORTING PERIOD</b>     | <b>From:</b> January 1, 2023<br><b>To:</b> January 31, 2023   | <b>REPORT #</b>       | 6          |

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 15<sup>th</sup> of the month following the reporting period shown above.

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## Detailed Accomplishments by Task for reporting period

During this reporting period we have written and successfully tested code to determine whether smoke occurred at a monitor location on a given day from the HMS smoke polygons. A remaining challenge is that in the current configuration it will take ~ 38.9 hours to process 10 years of data. We are investigating if breaking up the runs into multiple batch jobs and then combining the resulting .csv files later will give faster performance.

The STILT runs for this project are also on-going, and we expect to have those completed in the next quarter.

## Preliminary Analysis

None to date.

## Data Collected

None to date.

## Identify Any Problems or Issues Encountered and Proposed Solutions or Adjustments

The HMS to GOES scripts have many python package dependencies. We discovered that it is critical to start with a “clean” conda environment and install all the necessary packages at once for the installation to work properly. It is also recommended to install all of the packages from the same repository to avoid incompatibilities. We have documented this process and will include this information with the code delivered to TCEQ upon completion of this project.

## Goals and Anticipated Issues for the Succeeding Reporting Period

In the next reporting period, we will begin our GAM analysis to determine the impact of smoke on O<sub>3</sub> and PM<sub>2.5</sub>.

### **Detailed Analysis of the Progress of the Task Order to Date**

Completed initial drafts of Work Plan and QAPP. Held project kickoff. Started work on STILT analyses and gathering data for GAMM studies. Wrote and tested code to determine whether smoke occurred at a monitor location on a given day from the HMS smoke polygons

**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

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

None

**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

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Submitted to AQRP by  
Matthew J. Alvarado