

# AQRP Monthly Technical Report

<b>PROJECT TITLE</b>	Texas Urban Vegetation BVOC Emission Source Inventory	<b>PROJECT #</b>	20-007
<b>PROJECT PARTICIPANTS</b>	Ramboll Alex Guenther Wildland Solutions	<b>DATE SUBMITTED</b>	6/14/2021
<b>REPORTING PERIOD</b>	<b>From:</b> May 1, 2021 <b>To:</b> May 31, 2021	<b>REPORT #</b>	11

A Financial Status Report (FSR) and Invoice will be submitted separately from each of the Project Participants reflecting charges for this Reporting Period. No activity was conducted by Wildland Solutions in May, so this report doesn't indicate any work performed by them. 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.

## Detailed Accomplishments by Task for reporting period

*Task 1: High Resolution (8-day, 10-m) LAI and Vegetation Cover Fraction for Urban Texas*  
No work was performed on Task 1 during May 2021.

*Task 2. BVOC Emitting Tree Distributions for Three Major Texas Urban Areas*  
No work was performed on Task 2 during May 2021.

*Task 3. MEGAN and BEIS input data, processors and results*  
Ramboll completed programming new python-based emission factor processor for MEGAN and began testing it. Dr. Guenther completed integration of urban landcover data with global growth form fraction data (4 files for tree, grass, shrub, crop) and created files in netCDF format for input to MEGAN.

*Task 4: Project Reporting and Presentation*  
Dr. Guenther prepared draft of project report on tasks 1, 2, and 3 including appendices describing how to apply the procedures developed for this project. Ramboll developed April MTR and FSR and submitted to AQRP.

## Preliminary Analysis

None.

## Data Collected

None.

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

Due to personal reasons, Mr. Chris Geron is unable to work on updating BELD biogenic emissions landcover database. EPA recently released a new version of BELD (version 5; BELD5) landcover database which we were planning to update for BEIS as part of Task 3. Dr. Guenther looked at the BELD5 database and it appeared to him that BELD5 uses only MODIS landcover to characterize almost all of Texas including the Austin, Houston and San Antonio urban regions that we are interested in for this project. BELD5 does not appear to consider any tree species information for most of Texas and classifies large areas of the landscape as a generic woody savanna or a grassland/cropland. Upon bringing up the issue to EPA, they indicated that this issue will be rectified for the urban areas in BELD6 due to land use data updates. Since BELD5 does not contain any tree data for our target region, it does not make much sense to do any adjustments to the BELD5 database. For these reasons, we propose doing a comparison of Leaf Area Index (LAI) data and emission factors between BEIS and MEGAN models to better understand differences in their underlying data instead of BEIS/BELD5 updates.

### **Goals and Anticipated Issues for the Succeeding Reporting Period**

Integrate fine resolution urban LAI data in an appropriate format for input to MEGAN. Test new MEGAN EFP and source code and assess and compare MEGAN sensitivity to Texas urban vegetation data.

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

None.

**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      Tejas Shah

Principal Investigator      Tejas Shah