AQRP Monthly Technical Report

PROJECT TITLE	Incorporating Space-borne Observations to Improve Biogenic Emission Estimates in Texas	PROJECT #	14-017
PROJECT PARTICIPANTS	Arastoo Pour-Biazar; Richard McNider; Daniel Cohan	DATE SUBMITTED	10/1/2014
REPORTING PERIOD	**From:** September 1, 2014 **To:** September 30, 2014	REPORT #	5

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
UAH Satellite archives for 2006 and 2013 were examined. It was decided to first generate and evaluate PAR for 2013 against surface observations. This will expedite the preliminary AQ simulations for 2013, while a more complete evaluation can follow. **(TASKS 1&2)**

Preliminary satellite PAR for September 2013 was generated. These estimations included the sensitivity of PAR to Optical Depth (OD). We have started obtaining surface observations from Soil Climate Analysis Network (SCAN) and NOAA's SURFRAD (Surface Radiation) Network for September 2013. **(TASKS 2&3)**

We have also started to perform the preparatory work for performing MEGAN simulations for estimating biogenic emissions. **(TASK 3)**

Preliminary Analysis
Preliminary PAR (Photosynthetically Active Radiation) retrievals for September 2013 were produced and evaluated against surface pyranometer observations from SCAN and SURFRAD networks. The preliminary evaluation indicated some discrepancies that could be due to navigation errors and errors in pairing the data in time and space. While the overall statistics show high correlation, comparing the time series for individual stations indicate a time offset and large discrepancies for overcast periods. We are continuing with the evaluation.

Data Collected
Surface insolation and cloud albedo retrievals for September 2013 were downloaded. The data were examined for data quality. A preliminary parameterization for estimating Photosynthetically Active Radiation (PAR) was devised and applied to the data.

Identify Problems or Issues Encountered and Proposed Solutions or Adjustments
Performing the evaluation and adjusting the retrieval algorithm for the summer of 2006 seemed to delay the delivery of satellite retrievals for test cases in 2013. We started producing satellite PAR for 2013 and performing the evaluation and adjustment for Discover-AQ period.

We also realized that the evaluation task required more programming than anticipated. We have identified some of the problems in pairing the data and are in the process of addressing them.

Goals and Anticipated Issues for the Succeeding Reporting Period
Finish the evaluation of PAR for September 2013 and make refinements to the algorithm.

Detailed Analysis of the Progress of the Task Order to Date
Due to the delay in setting up the contractual requirements, the work started in late August. However, we are trying to simultaneously address the first three tasks in this project so that by the end of December 2014 we will be current with the original deliverable dates.

Arastoo Pour Biazar

Submitted to AQRP by:

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