Monthly Technical Report

(Due to AQRP Project Manager on the 8th day of the month following the last day of the reporting period.)

PROJECT TITLE	Targeted Improvements in the Fire INventory from NCAR (FINN) Model for Texas Air Quality Planning	**PROJECT #**	14-011
PROJECT PARTICIPANTS **(Enter all institutions with Task Orders for this Project)**	The University of Texas at Austin ENVIRON International Corporation	**DATE SUBMITTED**	1/7/15
REPORTING PERIOD	**From:** December 1, 2014 **To:** December 31, 2014	**REPORT #**	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 15th of the month following the reporting period shown above.

Detailed Accomplishments by Task

Activities this month focused on preparation of a poster for presentation at the American Geophysical Union (AGU) Fall Meeting in San Francisco, California during December 15-19, 2014, continuing analysis of FINN emission estimates from sensitivity studies that considered different global and U.S. national and regional land cover products, and planning the next steps for the project.

Dr. Kimura presented the poster (#A53A-3205), entitled *The Influence of Land Cover Characterization on Emissions Estimates from the Fire INventory from NCAR (FINN)*, within session A53A: Biomass Burning Impacts on Composition, Clouds, and Climate: SEAC4RS, BBOP, SAMBBA, BORTAS, FLAME-4, and Other Recent Studies III on December 19th, 2014 at the AGU meeting. A copy of the poster was submitted with last month's technical progress report. The meeting was a valuable opportunity to interact with other researchers who are working in the areas of fire detection, characterization, and air quality and climate effects. Dr. Kimura and Dr. McDonald-Buller had a particular focus on reviewing posters that were using the Visible Infrared Imaging Radiometer Suite (VIIRS) instrument on the Suomi National Polar-orbiting Partnership (S-NPP) satellite for automated fire detection and comparisons with the Hazard Mapping System (HMS) as well as with our own findings with the MODIS Rapid Response (MRR) Product.

Preliminary annual CO emission estimates using different land cover representations were presented for Texas and the western and southeastern United States in the poster. For Texas these comparisons included the MODIS Land Cover Type Product, the Global Land Cover – SHARE (GLC-SHARE) released in 2014 by the United Nations Food and Agriculture Organization (FAO), and the high resolution regional land cover product developed by Popescu et al. (2011) for the TCEQ alone as well as merged with the National Agricultural Statistical Service Cropland Data Layer (CDL). The contributions of fires by land cover type during 2012 and the relationship to fuel loading characterization are being analyzed in further detail for these and other regions of the United States.

Data Collected *(Include raw and refine data.)*

As described above.

Identify Problems or Issues Encountered and Proposed Solutions or Adjustments
None this period.

Goals and Anticipated Issues for the Succeeding Reporting Period
A priority next month will be to ensure that all inputs to the FINN model configuration reflect 2012 conditions or the best available close to that time period. The team will continue to work on the algorithms for burn area characterization, clarify whether it is worth looking further at VIIRS or other detection resources, and continue to analyze differences in vegetation distributions and fuel loadings of the various global and regional land cover products under consideration and their effects on FINN estimates of CO, $PM_{2.5}$, NO_X, and other atmospheric pollutants.

We will also request the 2012 CAMx episode that the TCEQ wishes us to use for the project.

Detailed Analysis of the Progress of the Task Order to Date *(Discuss the Task Order schedule, progress being made toward goals of the Work Plan, explanation for any delays in completing tasks and/or project goals. Provide justification for any milestones completed more than one (1) month later than projected.)*
Ongoing.

Submitted to AQRP by:

Principal Investigator: Elena McDonald-Buller