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**Texas Commission on Environmental Quality
New Technology Research & Development (NTRD) Program
Monthly Project Status Report**

Contract Number: 582-5-70807-0009

Grantee: The University of Texas at Austin

Date Submitted: May 16, 2006

Report for the **Monthly** period:

Starting Date April 1, 2006 Ending Date April 30, 2006

Section I. Accomplishments (*Please provide a bulleted list of project accomplishments as well as a description of their importance to the project.*)

The project involves the collaboration of two University of Texas at Austin research centers: the Center for Space Research (CSR) and the Center for Energy and Environmental Resources (CEER). The CSR team is led by Melba Crawford (Co-PI), Gordon Wells (Co-PI) and Teresa Howard. The CEER team is led by Elena McDonald-Buller and David Allen.

Accomplishments in April by the two research teams include the following:

- The CEER team's accomplishments for April were concentrated in Subtask 2.1.4. CEER obtained all of the necessary meteorological data for input into the GloBEIS model. New land cover data for the August 23-September 1, 2000, Houston/Galveston and Beaumont/Port Arthur (HGBPA) episode was compiled previously. CEER constructed a land cover database for the 4-km grid HGBPA modeling subdomain by combining the Wiedinmyer LULC dataset for the portion of the region within Texas with the TCEQ dataset that was prepared by Mark Estes in 2001. The latter, which is a combination of TNRCC and Beld 3.1 data, is used for the subdomain area that falls within Louisiana.
- The requirements for Subtask 2.1.4.1 were met for the HGBPA episode. Biogenic emissions were estimated at CEER with GloBEIS 3.1 using, in turn, the new Landsat-derived land cover database developed by CSR and the legacy Wiedinmyer-based LULC dataset. CEER commenced work on Subtasks 2.1.4.2 and 2.1.4.3. Comparisons of results and sensitivities to various GloBEIS options is ongoing.
- As part of Subtask 2.3.1, CSR previously acquired regional MODIS-derived Leaf Area Index (LAI) data from the NASA Landcover Distributed Active Archive Center (DAAC). During April, CSR focused on year 2000 data products as a priority. The QA/QC flags that accompany the LAI products were used to identify pixels contaminated with cloud cover or containing poor geometry. The pixels that did not meet the satisfactory QA/QC flag as specified by NASA were reassigned a value of 0. Unfortunately, due to the large amount of cloud cover along the southeast Texas coast during the months of August through October 2000, insufficient data exists to make periodic estimates of the regional LAI. As a consequence, the 8-day LAI products were integrated to create a regional LAI map.

- As part of Subtask 2.4.1.1, CSR continued its investigation of the relationship of changes in the standard Palmer Drought Severity Index reported for regions of Texas during 1999-2000 to changes in the time series of cloud-free composite AVHRR NDVI data for selected areas. CSR developed a methodology to convert historical PDSI weekly values, stored in ASCII text files, into gridded GeoTiffs for use in geostatistical analysis. The year 2001 data were used as the test case.
- To meet the requirements of Task 2.6, CSR selected four study regions in West Texas to compare AMSR-E soil moisture measurements with precipitation data. Time series of soil moisture and precipitation records were developed and compared qualitatively. CSR identified two field areas in which sufficient field soil moisture data are available for comparison with AMSR-E.
- CSR and CEER staff held a 2-hour meeting on Tuesday, April 25, at CSR to assess progress and to plan for the remaining project activities. A decision was made to reconvene regularly on a monthly basis, as the project approaches its final objectives.

Indicate which part of the Grant Activities as defined in the grant agreement, the above accomplishments are related to:

As noted, the accomplishments are primarily related to Tasks 2.1, 2.3, 2.4 and 2.6, with specific Subtasks 2.1.4.1, 2.1.4.2, 2.1.4.3, 2.3.1, 2.4.1.1 and 2.6 receiving particular attention.

Section II: Problems/Solutions

<p>Problem(s) Identified</p> <p>(Please report anticipated or unanticipated problem(s) encountered and its effect on the progress of the project)</p>	<p><i>As a result of the large amount of cloud cover over southeastern Texas during the months of August – October 2000, insufficient data is available to represent the regional Leaf Area Index using the standard 8-day composite dataset.</i></p>
<p>Proposed Solution(s)</p> <p>(Please report any possible solution(s) to the problem(s) that were considered/encountered)</p>	<p><i>Consequently, the 8-day LAI products were integrated to create a regional LAI map.</i></p>

