Progress Report 3:

To: Javier Clausen, Jaime Severino, José Adán Espejo Preciado, Jorge Abraham del Valle Márquez, Dr. E James Nelson

From: Clark Barlow, Oliver Obregon

Date: 09 Mar 2007

This week our team performed the following tasks:

1. This week we completed the bathymetry file needed for CE-QUAL-W2. This was quite challenging since we encountered a few bugs that prevented us from completing the bathymetry file initially. For instance, we found that WMS crashed when we tried to either compute the top elevation of the reservoir automatically or compute the storage capacity curve. The source code revealed that the problem occurred because our project contained both a TIN and a DEM. Changing the source code to allow both TINs and DEMs to be loaded solved the problem. We also encountered a problem when we finally were able to compute the storage capacity curve. The volume values on the x-axis showed negative instead of positive. The problem likely occurred because trimming a TIN somehow converted TIN area calculations to negative values. The source code was again altered to prevent negative area values from being computed in the calculation of storage volume.

2. We gathered meteorological data from the Tepic city station, which is the closest meteorological gaging station to El Cajon reservoir. This was also a challenging task because although hourly data was provided on the website, the data could only be downloaded in daily increments. Also, the data needed to be formatted to match the format of required model inputs. This meant that dates needed to be converted to Julian days, temperatures to degrees Celsius, wind direction to radians, and cloud cover needed to be converted to an integer value. Josh Draper helped us develop a Unix script that automated a retrieval of a year and a half of hourly data from the meteorological website. This was very helpful, since a task that would have taken hours took just under 45 minutes. We also developed a Visual Basic subroutine that then formatted the data properly and consolidated the data into one file. There is still some work to be done to properly set up the meteorological file, but the most difficult part is behind us.