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Bathymetry Data for Lakes Azuei and Enriquillo

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Recommended Citation

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This data set supports and forms the basis for the development of Digital Bathymetry Models (DBM) for Lakes Azuei (Haiti) and Enriquillo (Dominican Republic). Bathymetric Data is typically acquired using Sonar devices that measure the depth at specific points along a boat track and for which the longitude and latitude is recorded. From the resulting point cloud one develop a seamless representation of the floor of the lake on either a raster set (which is what we have done) or try to use a contour (vector representation) model in which the depth contours appear as polygons or -lines. The raw data set was acquired in 2013 for both lakes during multiple filed trips to both Haiti and the Dominican Republic. For more on the data collection details see our report at: https://academicworks.cuny.edu/cc_pubs/477

The set consists of three classes:

Sonar Data:

Note that the variable measured is depth from surface which itself is NOT geo referenced. Hence, it is necessary to establish what the lake levels were at that particular day or week in time for example with respect to WGS84. This can be done via Landsat imagery (which is referenced to WGS84 as a standard) or through the use of Google Earth Pro which provides elevation data on mouse-over. These are just suggestions however, we merely wanted to point out the fact that Sonar Depth data needs a vertical reference.

Survey_Data.xlsx
This is an EXCEL file that contains the raw SONAR data. The data was collected during several field campaigns throughout 2013. It is not quality controlled.

Survey_Data_QCed.xlsx
This is basically the same content as the previous file but with corrections for obvious under- and overshoots that were eliminated.

Lake_Azuei_SonarSurveyData.zip
This Zip-file contains the Shapefile in which the lat/lon and sonar read of each sonar point for Lake Azuei has been stored. It can also be used to depict the sonar track lines.

Lake_Enriquilloi_SonarSurveyData.zip
This Zip-file contains the Shapefile in which the lat/lon and sonar read of each sonar point for Lake Enriquillo has been stored. It can also be used to depict the sonar track lines.

Shoreline Data:

There are 2 files for this type, one each for Lake Azuei and Lake Enriquillo containing the Lakes' outlines. These are needed for the ANUDEM interpolation algorithm to define the borders of the interpolation region. The shore lines have been extracted and developed from Landsat

imagery that matches the sonar data collection timeframes. Because Shapefiles are really a compilation of 7 different individual files we have zipped them together to form just one file.

Lake_Azuei_Shoreline.zip

Lake_Enriquillo_Shoreline.zip

Digital Bathymetry Model (DBM) Data:

These TIFF-format files constitute the final outcome of the DBM development. Since TIFF files are raster based they also need to define how many rows and columns each image consists of and what the raster size is; for these images it is 30x30 meters. This was chosen so that the DBM can be easily stitched to the surrounding Digital Elevation Model and also because 30m worked out well from an optimization point of view, i.e. to find a raster size that produces as small an error as possible. There are 2 files of this type, one each for Lake Azuei and Lake Enriquillo. Each of the TIFF files comes with 3 supporting files to form a quadruplet that too we zipped together for easier handling.

Lake_Azuei_DBM.zip

Lake_Enriquillo_DBM.zip