RACE-GIS, a Python Program for Mapping Coastal Engineering Project Data

RACE Coastal Engineering
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Authors Note

If you have a simple question, check out the FAQ section in the back of this manual.

For a more complex question/software problem, email me at Stephen.duncanson@gmail.com.

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AJERA

While powerful, Ajera lacks the ability to display project data geographically. RACE-GIS seeks to fill this void in functionality by using Ajera project and client exports, and formatting the information in a way which can be interpreted by Google Earth.

Being built as an extension of Ajera is one of the core design philosophies of this project. A program needs to be simple, low maintenance, and stay out of the way of the current workflow. Instead of creating a program which requires upkeep, or competes in functionality with Ajera, it makes much more sense to create a program which does one thing, and does it well.

RACE-GIS does not attempt to do anything that Ajera already does. Instead, it acts as a glue between Ajera and other software packages such as Microsoft Excel and Google Earth.

For sake of security and simplicity the movement of project data from Ajera to RACE-GIS is handled with custom inquiry exports. There is a chance that an automated alternative is possible, but it is not worth the risk to the Ajera database. Having a third party program connecting directly to the Ajera database is a risk to both the security of the database, and its contents.

Ajera is an expensive and powerful program, and the tiny bit of effort required to export a spreadsheet is well worth its safety.

Custom export photos

Functionality

Database Management

Flowchart

Google Earth

KML (Keyhole Markup language)

Show sample / Image of example

Placemarks

Lines

Excel

Diagnostic Tools

RACE-GIS includes several helpful methods to not only view the data in AJERA, but to validate it.

(picture of file -> failed geocodes) The ‘Failed Geocodes’ menu option generates a spreadsheet of all the projects where geocoding failed. This is a good indication that the location field is either incomplete or fragmented. Checking this periodically could be a good way of validating location data.

(picture of GM2 bridges)

Other times a job will be displayed in the wrong location. This is due to the fact that the geocoding server will try to guess where the job should be placed when working with a partial address. Each

address has an importance attribute associated with it, a partial address will be placed at the location with the most importance. To avoid this, a complete location should be added to each project.

The bright red placemarks make it obvious if a job is in the incorrect location.

The process to fix this is as follows:

1. fix the location within Ajera (or email a PM who can),
2. export projects list from Ajera, delete the row in the database spreadsheet x:\RACEGIS\database.xlsx which contains the incorrect location,
3. launch RACE-GIS and file -> update spreadsheet.

FAQ

Placemarks at lat/long of 0,0

Incorrectly placed placemark

Why does it take so long to geocode addresses?