

## # HOW TO INSTALL AND USE “REEFFECTS” SOFTWARE

### \*\* Running using Windows \*\*

First make sure you install the following programs:

- Microsoft Visual C++ Redistributable for Visual Studio 2017:  
<https://support.microsoft.com/en-us/help/2977003/the-latest-supported-visual-c-downloads>
- Anaconda with Python 3.6: <https://www.anaconda.com/download/>
- Gnuplot (do not forget to mark the Add to PATH option):  
<https://sourceforge.net/projects/gnuplot/files/latest/download?source=files>

Once you have everything installed, open the Anaconda console (Anaconda Prompt) and 'cd' to the root directory where you unzipped “REEffects.zip” (preferentially in C:\), for example, type cd C:\REEffects. In order to run just type 'run.bat cfg/config\_caucaia\_road'. This is an example configuration file, inside the cfg directory you will see this example.

As with the sample configuration for "road" (file config\_caucaia\_road) the variables you have to set are the following:

A = 0.057

B = 16.12

K = 10000

Rmax = 1000

output\_dir = ./out/caucaia\_road

output\_prefix = caucaia\_road

input\_lines\_file = ./data/caucaia/road.shp

input\_points\_file = ./data/caucaia/sites.shp

Once you have everything installed, open the Anaconda console (Anaconda Prompt) and 'cd' to the root directory where you unzipped "REEffects.zip" (preferentially in C:\), for example, type cd C:\REEffectsRelease1. In order to run just type 'run.bat cfg/config\_caucaia\_edge'. This is an example configuration file, inside the cfg directory you will see this example.

For file config\_caucaia\_edge, the variables you have to set are the following:

A = 0.057

B = 16.12

K = 10000

Rmax = 100000000000

output\_dir = ./out/caucaia\_edge

output\_prefix = caucaia\_edge

input\_lines\_file = ./data/caucaia/forest.shp

input\_points\_file = ./data/caucaia/sites.shp

The A, B, K and Rmax are related to the algorithm itself and their description is left to the paper; everything else is just telling the program where your data files are and where it should save the results.

- output\_dir - Path to the output directory where the results will be saved. Be sure to create the folders or else the program will fail.
- output\_prefix - A string prefixing all output files generated by REEffects software.
- input\_lines\_file - The shape file (used in GIS software) containing the list of roads.
- input\_points\_file - The shape file (used in GIS software) containing the list of points where REEffects software will measure the road index.

You can edit configuration file, inside the cfg directory, using software of document edition, such as NotePad or WordPad.

### **\*\* Installing and Building using Ubuntu \*\***

This steps were tested on vanilla Ubuntu 16.10. Just go to the terminal and type the following sequence of commands:

- First install the required packages:

```
sudo apt-get install git cmake libcgdal-dev libgdal-dev gnuplot python-numpy python-scipy
```

- Clone the repository on your preferred directory:

```
git clone https://github.com/everton1984/REEffects.git
```

- Change to the correct directory, configure and build:

```
cd REEffects
```

```
./configure
```

```
./build
```

- If you get linking errors regarding GDAL, run the configure script and then edit the

```
bin/CMakeFiles/get_chunks.dir/link.txt and by the end of the line append /usr/lib/libgdal.so.2.3.0
```

**\*\* Running \*\***

Make sure you have a config file; examples can be found at the cfg directory. Then go to the root directory and type:

```
./run.sh <config_file>
```

Fill the config\_file part with the address to the config file you want to use.

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