Package 'RiverBuilder'

July 21, 2025

Type Package

Title River Generation for Given Data Sets

Version 0.1.1

Author Gregory Pasternack <gpast@ucdavis.edu>, Rafaeli Arroyo <rtoarroyo@gmail.com>

Maintainer Gregory Pasternack <gpast@ucdavis.edu>

Description Generates graphs, CSV files, and coordinates related to river valleys when calling the riverbuilder() function.

License GPL-3

Encoding UTF-8

LazyData true

RoxygenNote 6.0.1

NeedsCompilation no

Repository CRAN

Date/Publication 2018-04-09 09:39:19 UTC

Contents

`riverbuilder` *Generates graphs, text files, and coordinates related to a given set of river data.*

Description

Generates graphs, text files, and coordinates related to a given set of river data.

Usage

```
riverbuilder(filename, directory, overwrite)
```

Arguments

`filename`	Name of the file to be processed.
`directory`	Path in which outputs will be generated. If non-empty, it must contain "\\" or "/" between directories/files, and never "\". An empty or invalid argument will result in files being generated in a temporary location.
`overwrite`	Flag that determines whether existing files will be overwritten. If the files already exist and this value is FALSE, the program will stop and produce an error.

Value

None. Output files are generated in the specified (or temporary) directory:

BoundaryPoints.csv - Contains keys that map to specific points in CartesianCoordinates.csv that comprise the boundary around a river's floodplain.

CartesianCoordinates.csv - Contains comma-separated XYZ coordinates for the synthetic river valley. A separate program such as ArcGIS can use these points to generate a 3D model.

Data.csv - Contains coefficients of variation, averages, standard deviations, channel slope, and other important information.

CenterlineCurvature.png - Displays the curvature of the channel's centerline.

CenterlineCurvature.csv - Contains coordinate data that was visualized in CenterlineCurvature.png.

ValleySection.png - Displays the cross section of the channel and floodplain at their midway point.

ValleySection.csv - Contains coordinate data that was visualized in ValleySection.png.

GCS.png - Displays the geometric covariance structures of: bankfull width and thalweg elevation; thalweg elevation and the channel meander.

GCS.csv - Contains coordinate data that was visualized in GCS.png.

LongitudinalProfile.png - Displays the side view of the river which consists of valley top, valley floor, bank top, and thalweg elevation.

LongitudinalProfile.csv - Contains coordinate data that was visualized in LongitudinalProfile.png.

Planform.png - Displays the bird's eye view of the river which consists of the channel meander, channel bank, valley floor, and valley top.

Planform.csv - Contains coordinate data that was visualized in Planform.png.

Source

http://pasternack.ucdavis.edu/research/projects/synthetic-river-valleys/

Examples

```
file <- system.file("extdata", "Input.txt", package="RiverBuilder")
riverbuilder(file, '', TRUE)
```

Index