Tool Descriptions – Survey Tools (R Scripts)

Sky Jones

5/16/2019

**Hydrograph.R**

1. Purpose

Creates hydrographs from stream and rain gauge data. Uses the companion excel workbook hydrograph.xlsx.

1. Usage

Enter the directory that your data is in as the variable “mywd”. Enter the filename, without extension, as the variable “datasource” (should be a .xlsx file). These are the only two variables that need to be set. Run the script. The graphs will be produced as PDFs in the directory that was specified.

1. Notes

Requires the readxl and tibble libraries.

**Survey\_cleaner.R**

1. Purpose

Reads in a stream survey and parses it to create tabular data for surveyed profiles and cross sections. Outputs one multitabbed Excel workbook for streams and one multitabbed Excel workbook for profiles.

1. Usage

Enter the directory that your data is in as the variable “mywd”. Enter the filename, without extension, as the variable “datasource” (should be a .xlsx file). These are the only two variables that need to be set. Run the script. Output will be saved in the directory specified.

1. Notes

Requires the xlsx library.

Columns in the survey file should be in the following order: Name, Northing, Easting, Elevation, Description. “Name” is somewhat misleading as it corresponds to shot number.

Shot descriptions should be formatted in a particular way. In general, this format is *[surveyType][name]-[morph1]-[morph2]-…-[morphN]\_[comment]*. *surveyType* can be xs or pro. *name* can be anything, but should be consistent throughout a profile or cross section. A list of valid morphs are as follows:

|  |  |
| --- | --- |
| **Morph** | **Meaning** |
| thw | thalweg |
| ri | riffle |
| po | pool |
| hc | headcut |
| tob | top of bank |
| bkf | bankfull |
| ws | water surface |
| xs | cross section |
| str | structure |

In profiles, and non-substrate shot (anything that does not have a thw, ri, po or hc call) will be “backstacked” onto the previous substrate shots.

For cross sections, all calls are assumed to represent the ground surface. In profiles, only thw, ri, po and hc calls represent the ground.

Anything after an underscore will be ignored.

Example calls:

*proUT2-ri* (profile UT2, riffle)

*proUT2-ri -ws*(profile UT2, riffle and water surface)

*proUT2-ws\_adjust1ft* (profile UT2, comment to adjust by 1ft)

*xsUT2ri-bkf* (riffle cross section on UT2, bankfull)

**survey\_stretch.R**

1. Purpose

Stretch and compress parts of a survey by pinning points to a previous survey. Uses the hardpoint\_worksheet.xlsx companion file.

1. Usage

Run the script. You will be prompted to select your worksheet. Once you have opened it, both surveys will plot. The script it meant to pin survey 2 to survey 1. Select a point on survey 1 and then select the point on survey 2 that should have the same station as the previous point. Continue picking pairs of points this way. When done, hit the escape key. The adjusted survey 2 will plot over survey 1, and the new stationing will be copied to your clipboard. You need at least two pairs of points to perform an adjustment.

1. Notes

Requires the xlsx library.

The stretching/compression is only applied to stationing; elevations are left unadjusted.