Tool Descriptions – Survey Tools (Excel Workbooks)

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**bulk\_analysis.xls**

1. Purpose

An excel version of a standardized chart for recording sieved grain analyses.

1. Usage

Fill out as your normally would. Calculations are performed automatically.

1. Notes

None.

**pebble\_count\_num\_to\_bin.xls**

1. Purpose

Turns a list of pebbles into a binned count.

1. Usage

Enter pebble sizes in the blue boxes. Once complete, click the big button. The binned sizes appear in cells L127:L154.

1. Notes

You must fill every cell; empty cells are assumed to be silt/clay.

**excelerate\_template\_pebble.xlsm**

1. Purpose

Plots and analyzes binned pebble counts.

1. Usage

Enter counts in cells H45:O67 and H69:O72. Click on the colored year box and hit “Set Year” to plot, display and analyze that year’s data.

1. Notes

None.

**excelerate\_template\_pro\_FxlAssessment.xlsm**

1. Purpose

Plots and analyzes functional assessment surveys.

1. Usage

Enter data in the green columns. This data is all given in the output from survey\_cleaner.R (it is also given by survey\_cleaner.py sans compound and simplified morphology). Once the data is entered, click on the graph and hit the “Scale Chart” button. You can view the profile analysis in the Ri-Po tab. Some calculations in this tab require for a riffle bkf width (cell BB16) and average riffle depth (cell BB17) to be specified.

1. Notes

None.

**excelerate\_template\_pro\_MONITORING.xlsm**

1. Purpose

Like excelerate\_template\_pro\_FxlAssessment.xlsm but can plot multiple years of data and has slightly different output.

1. Usage

Do all that you would for excelerate\_template\_pro\_FxlAssessment.xlsm. To change the year of data that is shown and analyzed, click on the cell that contains the year (in the template these are filled with a bold A, B, C, etc.) and the hit “Set Year” button.

1. Notes

None.

**excelerate\_template\_xs\_NC.xlsm** and **excelerate\_template\_xs\_TN.xlsm**

1. Purpose

Plot and analyze multiple years of cross section data. Each template was designed specifically with the standards of each state in mind.

1. Usage

Enter stationing and elevations for each year of data beginning in row 52. All data is displayed by default, but to set the year of data that will be analyzed click the cell in row 50 that corresponds to the data you want to analyze then hit “Set Year”. To scale the chart according to the selected year’s data, click the graph then “Scale Chart”. Data to be displayed in the print area must be manually copied and pasted. In the NC template you can use the “Set Bkf by Area” button macro to do exactly that. The TN template contains additional macros to set the bankfull by flow as well, in additional to an optimization macro. Cells with golden text can be adjusted; cells with blue text should not be changed.

1. Notes

**hardpoint\_worksheet.xlsx**

1. Purpose

A companion workbook for survey\_stretch.R. Allows you to compare two stream surveys and stretch/compress the stationing of the second survey by matching points between the surveys that should have identical stationing.

1. Usage

Enter the stationing and elevations for survey 1 in columns B and C. Enter the stationing and elevations for survey 2 in columns E and F. Close the workbook and run survey\_stretch.R

1. Notes

Only survey two will be adjusted.

**hydrograph.xlsx**

1. Purpose

A companion workbook for hydrograph.R. Produces PDFs of plots comparing stream and rain gauge data.

1. Usage

In the first tab (gauge data), create a pair of column headers for each gauge: date-time and depth. Then paste appropriate data in each column.

In the second tab (Rainfall) paste the date data in Column A and the rainfall depth data in Column B.

In the third tab (FieldStats) create a column header for each gauge beginning in Column B. Enter in the appropriate information (gauge cap elevation, string length, thalweg elevation, bankfull elevation, regression coefficients). The regression coefficients c3, c2, c1 relate the channel stage to channel discharge. The equation is Q = c3^3\*x + c2^2\*x + c1\*x. You must determine this yourself based on the surveyed XS morphology.

In the fourth tab (AxisTicks) specify what dates you want to show on the x-axis in the plot in Column A beginning in row 2.

When all data is entered, run hydrograph.R.

1. Notes

Depth unit for rain is inches. Depth unit for streams is feet.

Do not change the order of the tabs. The tabs should be in the following order:

GaugeData, Rainfall, FieldStats, AxisTick

**offcoord\_elevation\_correction.xlsx**

1. Purpose

This workbook corrects the elevation of an assumed survey based on points of known elevation.

1. Usage

Enter the known points (from record drawings) in columns A, B and C. In columns H:K enter the data for the survey. Column K (setup) is used to group points of a like setup together. Two points are in the same setup if they were collected without breaking down and moving the total station. The description column (Column J) is used to match names with Column C. If a match is found, it is assumed the correct elevation for that point in the survey is corresponding elevation in Column B. These matched points are “control points” used for elevation correction.

Once the data is collected, enter all unique setup numbers in Column V. In Column C specify “setup groups”. A setup group is collection of setups that are related. In general if a setup backsights to the location of a previous setup, then that is a setup group. All points in a setup group will have their elevation adjusted by the average deviation of the collected control point elevations from the correct control point elevations in that group. You can see the corrected elevations in a setup by entering a setup number (not setup group) in cell Q3. Columns AB, AC and AD are not used for any calculations but can be useful for keeping track of things. “Begin” and “End” are meant to specify the first and last shot numbers in a setup. Column Z shows the factor that is calculated for a setup; AA shows the factor that will be applied to that setup and any other setups in that group. If the setup is its own group, the entry in Column Z and Column AA will be the same.

If you are satisfied, the adjusted survey elevations can be copied from Column F.

1. Notes

Columns that should not be touched have red headers. Columns that require data to be entered have green headers.

If not match is found for a surveyed point then the corresponding cells in Columns L and M will be blank. If there should be a match, double check that you have entered your known point names (Column C) correctly.

**regional\_curve\_prediction\_worksheet.xlsx**

1. Purpose

Plots regional curve data points against collected data and calculates a power regression with 95% confidence intervals.

1. Usage

Paste regional curve data in B3:E52. Adjust the formula in Column H to get the log response of the variable you are interested in. Enter the data for the reaches you surveyed in K3:N52. Edit your chart to display the dependent variable you’re interested in. The power fit and upper and lower bounds are in R28:T30. The equations are of form y = intercept + a\*x^b.

1. Notes

None.

**xs\_reduction.xlsx**

1. Purpose

Takes a survey and randomly reduces it to a specified number of points, generally so it can fit in a printout.

1. Usage

Paste the survey in Columns A and B starting on row 6. In cell B2 specify how many points to keep. If any points in the survey absolutely should not be removed, set the corresponding cell in Column C to TRUE. A randomly reduced set of stations and elevations can be found in Columns T and U. If you want to compare the reduced survey to the original, check the Comparison tab.

1. Notes

None.