**Functions**

**Data Preparation**

This set of functions should contain procedures designed to prepare the data for analysis. These are functions that are not necessarily specific to any data set or type of dataset and generally can easily be used within other applications

**Repair Geometry**

*Function Arguments*:

Input File (Shapefile)

*Internal Processing*: Counts the number of features with geometry errors, tries to repair them and counts the number of errors left after the repair.

*Returns*: [string - containing initial errors, String – containing final errors]

**Check Multipart**

*Function Arguments*:

Input File (Shapefile)

Workspace (Folder)

*Internal Processing*: Counts the number of features in a shapefile, executes the Multi-part to Single Part’ tool and then recounts the features to see if the number of features has increased. The output shapefile which results from running the Multi-part to Single Part tool is then deleted.

*Returns*: String – The number of features generated by Multipart to Single Part minus the original number of features

**Check Area**

*Function Arguments*:

Input File (Shapefile)

Workspace (Folder)

*Internal Processing*: Re-projects to an equal area project, a copy of the input file into the workspace. Area is then calculated to a new field for the re-projected shapefile. This is then compared to the AREA in the original shapefile. The purpose of this comparison is to verify whether or not the AREA field is up to date. NOTE: This function assumes that there is a field in the original input shapefile labeled ‘AREA’.

*Returns*: [String – Original Area Sum, String – Final Area Sum, String – Difference between original and final Sums]

**Check Topology**

*Function Arguments*:

*Internal Processing*:

*Returns*:

**Check Format**

**Generate GLIMS IDs**

**Generate RGI ID’s**

**Generate Header**

**Data Analysis**

This set of functions should contain procedures designed to run more sophisticated analysis on glaciers and is essential a library of useful statistics for analysis of glacier outlines. While a few of these can be used with other applications, many are dependent on the outputs of other functions within this module. For example, the calculation of glacier aspect first requires a calculation of a glaciers centerline.

**Get Aspect**

**Get Attributes**

**Get Centerline**

**Get Hypsometry**

**Get Properties**

**Get Slope**

**Get Statistics**

**Subset**

**Raster to Polygon**