

## Appendix 2

### User Manual

#### INSTALLATION

The easiest way to install and run the Goose Tool is:

- 1) Copy Folder "PIG" from Appendix 4 (Tool and Python Code) folder and paste to Disk "C:/"
- 2) Execute the project "Test.aprx"
- 3) Look for the Toolbox named "Test"
- 4) Execute Tool "Goose Analysis"
- 5) Run the tool with default parameters.


















Note: Default values are configured to be working in path "C:/PIG"

**Caution:** The correlation function is sensible to NULL values in the variables. Be sure to use an *attribute filter* for the correlation variables, specially field by default ws\_mtss. The attribute filter could be **(WS\_MTSS IS NOT NULL)**.

Filter 2: Attributes

Field 1	ws_mtss
Where Clause 1	is not null
Field 2	vg_mtss_gcd
Where Clause 2	is not null

PC > Local Disk (C:) > PIG

Name	Date modified	Type	Size
 all_all_head	7/19/2019 7:25 PM	File folder	
 all_all_tailvg8	7/19/2019 7:25 PM	File folder	
 all_all_tailvg14	7/19/2019 7:25 PM	File folder	
 all_spring_tailvg10	7/19/2019 7:25 PM	File folder	
 all_spring_tailvg13	7/19/2019 7:25 PM	File folder	
 all_springautumn_tailvg14	7/19/2019 7:25 PM	File folder	
 Test.gdb	7/19/2019 7:25 PM	File folder	
 SystemManualDocumentPIG_and_Birds....	7/19/2019 10:17 AM	Adobe Acrobat D...	1,056 KB
 Test.aprx	7/19/2019 10:11 AM	ArcGIS Project File	3,893 KB
 Test.tbx	7/18/2019 11:30 AM	ArcGIS Toolbox	48 KB
 lines_filter0.lyrx	7/10/2019 7:53 PM	LYRX File	11 KB
 lines_fltter2.lyrx	7/10/2019 7:53 PM	LYRX File	11 KB
 lines_routes_distancemts.lyrx	7/19/2019 10:09 AM	LYRX File	33 KB
 barChartSeasBS.py	7/15/2019 11:03 AM	Python File	10 KB
 boxplotWV_Season.py	7/11/2019 10:56 AM	Python File	3 KB
 calculate_cumulativdistances_in_pointsf...	6/25/2019 10:35 AM	Python File	2 KB
 correlation.py	7/16/2019 9:24 PM	Python File	25 KB

## USER INTERFACE

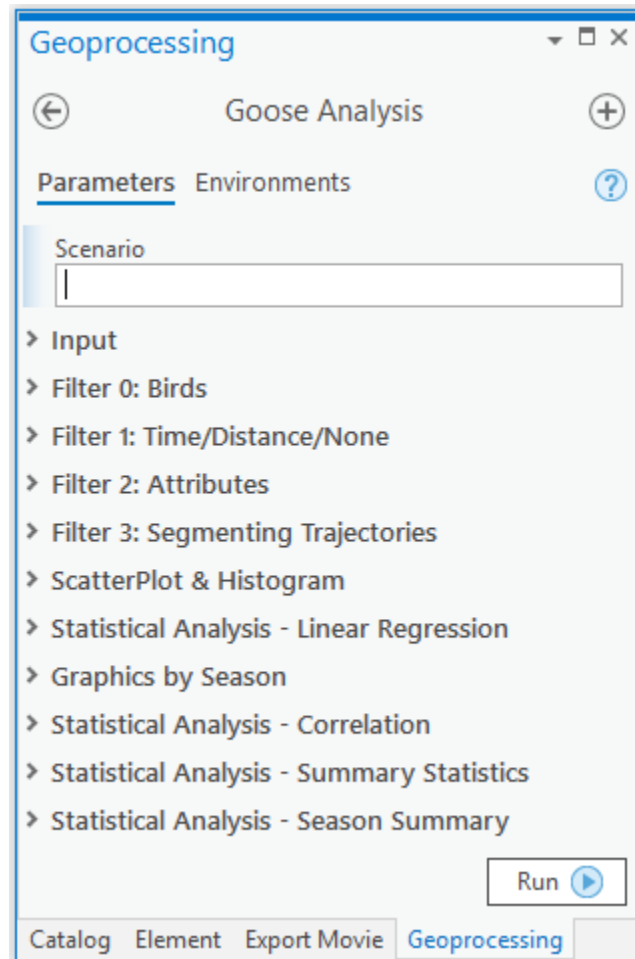






Figure 1. User interface – Goose Analysis Tool

Section	Description of user input
Scenario <input type="text" value="spring"/>	Scenario: Name of the scenario
Input Folder <input type="text" value="PIG"/> 2  Workspace <input type="text" value="Test.gdb"/> 3  Routes <input type="text" value="lines_routes_distancemts_3857"/> 4  Points <input type="text" value="points_3857"/> 5 	2- Folder: Output base folder  3- Workspace: Input and output file geodatabase  4- Routes: Routes (XYM) of tracked path  5- Points: Tracked bird points with all variables as fields
Input Filter 0: Birds Field <input type="text" value="bird_name"/> 6 Birds <input type="text" value="['Folkert', 'Kees', 'Ale', 'Jacob', 'Niki', '79694', ..]"/> 7 Fields <input type="text" value="['timestamp', 'dist_acum_bird_mts_gcd', ..]"/> 8	6- Field with the bird ID. It could be tag_ident or bird_name  7- List of bird ID. It could be unique values inside tag_ident or bird_name  8- Fields needed for the analysis inside tracked bird points (input 5 in this table) : timestamp, cumulative distance between point and object id
Filter 1: Time/Distance/None Type <input type="text" value="Time"/> Range <input type="text" value="['2007-03-01 00:00:00', '2007-06-01 00:00:00']"/>	For type of filter 1, the user can select Time, Distance or None. Either Distance or Time, its range need to be written in Range text box.
Filter 2: Attributes Field 1 <input type="text" value="ws_mtss"/> Where Clause 1 <input type="text" value="is not null"/> Field 2 <input type="text" value="vg_mtss_gcd"/> Where Clause 2 <input type="text" value="is not null"/>	Name of fields and where clause to use as filter by attributes. It is possible to use two fields to filter by attributes Example 1: ws_mtss is not null vg_mtss_gcd is not null Example 2: ws_mtss > 0 vg_mtss_gcd > 2
Filter 3: Segmenting Trajectories <input type="checkbox"/> Segment Track	Not implemented. Future work.

<div> <div>▼ ScatterPlot &amp; Histogram</div> <div>Field List</div> <div>['vg_mtss_gcd','ws_mtss']</div> <div>Horizontal Label</div> <div>Bird Ground Velocity - Vg [Mts/Sec]</div> <div>Vertical Label</div> <div>Wind Support - Ws [Mts/Sec]</div> <div>Main Label</div> <div>Ws vs Vg</div> </div>	<div>Variables and graphic labels to create the scatter plot/histograms graphic.</div>
<div> <div>▼ Statistical Analysis - Linear Regression</div> <div>Unique ID</div> <div>FID</div> <div>Dependent Variable</div> <div>vg_mtss_gcd</div> <div>Independent Variables</div> <div>[["ws_mtss"], ["wc_mtss"], ["wswc_mtss"]]</div> </div>	<div>Unique ID: existing integer unique ID (different to OBJECTID) inside tracked point feature class (input 4 in this table)</div> <div>Dependent variable</div> <div>Independent variables</div>
<div> <div>▼ Graphics by Season</div> <div>Fields</div> <div>['season', 'MEAN_vg_mtss_gcd', 'bird_name']</div> <div>Horizontal Label</div> <div>Birds - Seasons</div> <div>Vertical Label</div> <div>Bird Ground Speed - Vg - [Mts/Sec]</div> <div>Main Label</div> <div>Average Vg by Bird by Season</div> <div>Field</div> <div>['season', 'MEAN_vg_mtss_gcd', 'bird_name']</div> <div>Vertical Label</div> <div>B Bird Ground Speed - Vg - [Mts/Sec]</div> <div>Main Label</div> <div>Average and St. Dev of Vg by Season</div> </div>	<div>Variables and graphic labels to create graphics by season.</div> <div>Section A: First part A is for the graphic bird-season (X axe with Bird names),</div> <div>Section B: Second part B is for the graphic season-bird (X axe with Season names)</div>
<div> <div>▼ Statistical Analysis - Correlation</div> <div>Fields</div> <div>['vg_mtss_gcd', 'ws_mtss', 'wc_mtss', 'wswc_mtss']</div> </div>	<div>List of fields to calculate matrix of correlation</div>
<div> <div>▼ Statistical Analysis - Summary Statistics</div> <div>Summary Statistics</div> <div>vg_mtss_gcd Mean; vg_mtss_gcd MEDIAN; vg_mt:</div> </div>	<div>List of fields and statistical parameters names to calculate summary statistics</div>

<div> <div> ▼ Statistical Analysis - Season Summary </div> <div> <div>Fields</div> <div>["season", "bird_name"]</div> </div> <div> <div>Summary Statistics</div> <div>[["vg_mtss_gcd", "MEAN"], ["vg_mtss_gcd", "STD"]]</div> </div> </div>	<p>Fields: List of fields inside Birds point track (input 4 in this table).</p> <p>Summary Statistics: List of fields and statistical parameters names to calculate summary statistics by fields provided in “Fields”</p>
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*Table 1. Description of the user interface for the tool.*