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User's Guide for Assessment Tract Aggregation GUI (ATA GUI)— A Graphical User Interface for the AggtEx.fn R Script

Chapter 21 of
Section C, Computer Programs, of
Book 7, Automated Data Processing and Computations

Techniques and Methods 7–C21

U.S. Department of the Interior
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U.S. Geological Survey
James F. Reilly II, Director

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Abbreviations

ATA GUI	Assessment Tract Aggregation GUI
CRAN	Comprehensive R Archive Network
CSV	comma-separated values
CV	coefficient of variation
GUI	graphical user interface
PMF	probability mass function
USGS	U.S. Geological Survey

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Abstract

The U.S. Geological Survey three-part method for mineral resource assessments estimates numbers of undiscovered mineral deposits as probability distributions in geologically defined regions termed "permissive tracts." This report describes a graphical user interface (GUI) script developed in open-source statistical software (R) that aggregates estimated undiscovered deposits of a given type from two or more permissive tracts using the AggtEx.fn R script. The AggtEx.fn R script aggregates undiscovered deposit estimates assuming independence, total dependence, or some degree of correlation among aggregated areas, given a user-specified correlation matrix. The script outputs three sets of aggregated estimates based on those three assumptions.

The GUI script described in this report, Assessment Tract Aggregation GUI (ATA GUI), provides an easy-to-use tool that supports implementation of the AggtEx.fn R script, installation of the R packages needed to run the application, and creation of a combined input file from individual files generated by the MapMark4GUI software. Users can also use EMINERS output information by creating a file of output values following the MapMark4GUI output file format. The probabilistic estimates of aggregated undiscovered deposits produced by ATA GUI can be used as input for MapMark4GUI to estimate contained resources for the aggregated tracts. MapMark4GUI uses Monte Carlo simulation to combine undiscovered deposit estimates with tonnage and grade models to simulate undiscovered mineral resources for a region of interest. This simulation includes the amounts of commodities and rock that could be present within a permissive tract. This report includes instructions on installing and running the ATA GUI script and describes the input and output files used and created during the aggregation process.

Introduction

Assessment Tract Aggregation GUI (ATA GUI) is a graphical user interface (GUI) developed by the U.S. Geological Survey (USGS) to support implementation of the USGS AggtEx.fn R script (Schuenemeyer and others, 2011). The AggtEx.fn script is used to aggregate estimated numbers of undiscovered mineral deposits when combining multiple assessment area estimates for a given deposit type (Schuenemeyer and others, 2011).

ATA GUI provides an easy-to-use tool that simplifies the specification of run parameters and development of input files when using the AggtEx.fn aggregation script. The GUI also provides an automated option to develop the required probability distribution input file from multiple individual tract files, including some MapMark4GUI output files. The GUI is written and accessed in the R statistical programming language. This user's guide presents instructions on installing and running ATA GUI.

Background

The USGS uses a three-part form of assessment to estimate numbers of undiscovered deposits within a study area (Singer and Menzie, 2010). Using Monte Carlo simulations, these estimates of undiscovered deposits are combined with tonnage and grade models developed for a specific deposit type to estimate the amounts of commodities and rock that could be present in the study area. Study areas typically include multiple permissive tracts for a given deposit type. To combine estimated resources for multiple permissive tracts in a study area and provide uncertainty estimates, the probabilistic estimates of numbers of undiscovered deposits for all tracts of a given deposit type are aggregated assuming three criteria options: (1) statistical independence, (2) total dependence, and (3) some degree of correlation among the aggregated tract areas.

In the USGS method, Monte Carlo simulation is done by using the USGS MapMark4 and MapMark4GUI R packages (Ellefsen, 2017a, b; Shapiro, 2018) or the EMINERS program (Bawiec and Spanski, 2012; Duval, 2012). Using probabilistic estimates of undiscovered deposits elicited at different confidence levels, MapMark4 computes the probability mass function (PMF) that describes the frequency of occurrence of integer numbers of undiscovered deposits (NDepositsPmf). The different confidence levels are the probability percentiles for the deposits being present. A high percentile represents a high chance of deposits being present for a specific deposit type (Schuenemeyer and others, 2011). For example, the confidence levels could be the 90th 50th, 10th, 5th, and 1st percentiles, with the 90th percentile featuring the highest chance of deposits and the 1st percentile featuring the lowest. The NDepositsPmf software class outputs the probability that the number of undiscovered deposits is exactly equal to an integer value. These PMF estimates can be used as input for the aggregation script (Ellefsen, 2017a, b; Shapiro, 2018). Similarly, EMINERS output includes a table listing the probability of occurrence of integral numbers of undiscovered deposits that can be formatted for input to ATA GUI (Bawiec and Spanski, 2012; Duval, 2012).

Assessment Tract Aggregation GUI

ATA GUI provides a GUI dialog box that allows users to easily implement the AggtEx.fn aggregation script created by Schuenemeyer and others (2011) without the need to copy or edit the underlying R code. Users can easily enter the aggregation parameters by browsing and selecting files using a process similar to that of the Windows File Explorer application. ATA GUI also provides an automated process for combining individual tract PMF results to create a new probability distribution input file for the aggregation script. The individual files can be created by using any process that generates a PMF showing estimated numbers of deposits and associated probabilities, including simulated results. This automated option allows both the MapMark4 PMF and (or) similarly formatted files using EMINERS probability output information to be used as inputs for the aggregation script (Schuenemeyer and others, 2011). Once the input files have been set, the GUI provides a button to start the aggregation process. Figure 1 is an example of the ATA GUI dialog box. Figures 2 and 3 show the dialog boxes for the probability distribution input.

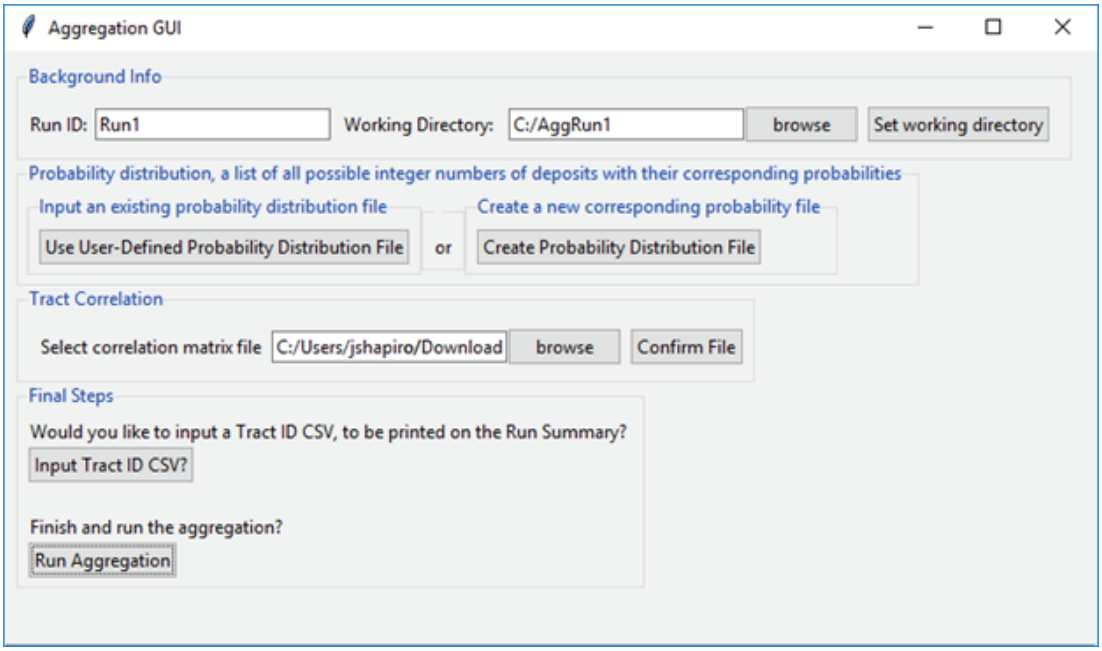

Figure 1. Screen capture showing the Assessment Tract Aggregation GUI dialog box. In this example, the run identification, working directory, and correlation matrix input file have been set.

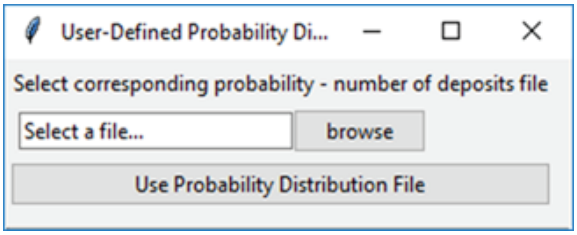

Figure 2. Screen capture showing the dialog box that appears after clicking the "Use User-Defined Probability Distribution" button in Assessment Tract Aggregation GUI.

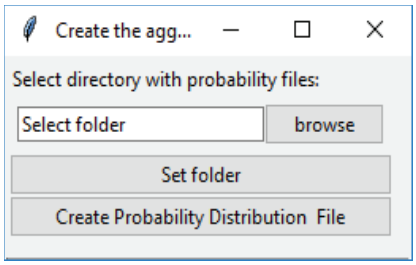

Figure 3. Screen capture showing the dialog box that appears after clicking the "Create Probability Distribution File" button in Assessment Tract Aggregation GUI.

Assessment Tract Aggregation GUI Package

The ATA GUI package includes the R-script code for the GUI, the script for automatic installation of the required R-script packages, a set of sample user input files that can be used for a trial run of the GUI, and a set of sample output files. The R-script code for the GUI, RunAggregateGUI.R, will launch and run ATA GUI. Prior to running ATA GUI, prerequisite R packages need to be installed. The installation process can be automated by running the installation script, InstallPackages.R. The ATA GUI package is provided as a zipped folder that contains the following ATA GUI R scripts and supplementary example files:

- InstallPackages.R—The R script used to automatically install the R packages needed to run the GUI.
- RunAggregateGUI.R—The R script used to launch and run ATA GUI.
- CorrespondingEstimates.csv—A sample combined tract probability distribution input file in comma-separated values (CSV) format that lists numbers of deposits and associated probabilities and can be used as input for a trial run of the GUI.
- CorrelationTab.csv—A sample correlation matrix input file in CSV format that shows tract correlations and can be used as input for a trial run of the GUI.
- SampleFiles – Copy—A folder containing sample individual tract PMF (Conduit1_03_PMF_Probs1.csv through Conduit1_03_PMF_Probs7.csv) and list (List-Files.csv) input files in CSV format that can be used as input for a trial run of the automated process to create a combined tract probability distribution file.
- Run1NewAggCProbsFile.csv—An example combined tract probability distribution file in CSV format that was generated by the GUI.
- Run1AgEx.csv—An example aggregated estimates output file in CSV format.
- BiasCorr.csv—An example correlation bias output file in CSV format.
- Run1Summary.txt—An example summary output file in text format.
- UserGuide_ATAGUI.pdf—A copy of this ATA GUI user's guide.

Input Files

To successfully run the AggtEx.fn aggregation script, two input files are required: (1) a combined tract probability distribution file and (2) a correlation matrix of user-defined dependencies among the tracts to be aggregated (Schuenemeyer and others, 2011). ATA GUI supports input of files in CSV format.

Combined Tract Probability Distribution File

The first input file, the combined tract probability distribution file, is a combined list of numbers of deposits and the associated probabilities from each tract's PMF. This list can be created using results from the USGS MapMark4 or EMINERS programs. The combined tract probability distribution file can be prepared before running ATA GUI, or it can be created within the GUI. The file includes the following three columns:

- TractID—This column lists the tract identification (for example, T1, T2, and T3 for tracts 1, 2, and 3).
- NDeposits—This column lists the index of the number of deposits for each tract. The numbers must be integers listed in sequential order in separate rows, starting with 0 and ending with the maximum number of deposits for that tract.
- RelProbs—This column lists the probabilities associated with the number of deposits in each tract. The probabilities should be formatted as long-format decimal numbers.

Figure 4 shows a portion of the sample probability distribution file provided in the ATA GUI package (CorrespondingEstimates.csv). The figure shows only

two of the seven tracts included in the file. In tract 1, the probability of 0 undiscovered deposits is 0.01, the probability of 10 deposits is 0.04, and the probability of 18 deposits is 0.0005. Note that the probabilities for each tract sum to 1, and each number of deposits has an associated probability.

	A	B	C
1	TractID	NDeposits	RelProbs
2	T1	0	0.010286
3	T1	1	0.038395
4	T1	2	0.078281
5	T1	3	0.115398
6	T1	4	0.137535
7	T1	5	0.140622
8	T1	6	0.127897
9	T1	7	0.106008
10	T1	8	0.081451
11	T1	9	0.058751
12	T1	10	0.040165
13	T1	11	0.026222
14	T1	12	0.016446
15	T1	13	0.009958
16	T1	14	0.005844
17	T1	15	0.003335
18	T1	16	0.001856
19	T1	17	0.00101
20	T1	18	0.000539
21	T2	0	0.010286
22	T2	1	0.038395
23	T2	2	0.078281
24	T2	3	0.115398
25	T2	4	0.137535
26	T2	5	0.140622
27	T2	6	0.127897
28	T2	7	0.106008
29	T2	8	0.081451
30	T2	9	0.058751
31	T2	10	0.040165
32	T2	11	0.026222
33	T2	12	0.016446
34	T2	13	0.009958
35	T2	14	0.005844
36	T2	15	0.003335
37	T2	16	0.001856
38	T2	17	0.00101
39	T2	18	0.000539

Figure 4. Screen capture showing an example user-defined combined tract probability distribution file. This example shows the estimated deposit numbers and associated probabilities for two of seven tracts. The sample combined tract probability distribution file is provided in the Assessment Tract Aggregation GUI package.

	A	B	C	D	E	F	G	H
1		T1	T2	T3	T4	T5	T6	T7
2	T1	1						
3	T2	0.75	1					
4	T3	0.75	0.75	1				
5	T4	0.75	0.75	0.75	1			
6	T5	0.75	0.75	0.75	0.75	1		
7	T6	0.75	0.75	0.75	0.75	0.75	1	
8	T7	0.75	0.75	0.75	0.75	0.75	0.75	1

Figure 5. Screen capture showing an example correlation matrix file that contains user-defined dependencies among the tracts to be aggregated. The example correlation matrix file is included in the Assessment Tract Aggregation GUI package.

Correlation Matrix File

The second input file is the correlation matrix of user-defined dependencies among the permissive tracts. The values in the matrix are the pairwise correlations specified by the user for each tract pair (Schuenemeyer and others, 2011). The matrix table rows and columns each represent a tract, and the headings are the tract identifications. The body of the matrix contains the correlation coefficients as decimal numeric values between 0 and 1; a value of 1 represents total dependence (complete correlation), and a value of 0 represents total independence (no correlation). Only the lower diagonal of the correlation table needs to be filled out (Schuenemeyer and others, 2011). A sample correlation matrix for the aggregation of seven tracts is provided in the ATA GUI package (CorrelationTab.csv) and is shown in figure 5.

Installation Instructions

Required Software

ATA GUI was developed to be used with an R console, software that can read and process R scripts. It is recommended that you use the Comprehensive R Archive Network (CRAN) 64- or 32-bit R console to run the GUI. To download the R console for Windows, go to the CRAN R project website (https://cran.r-project.org/bin/windows/base). At the website, click on the "Download R for Windows" option and follow the instructions provided at the website to complete the installation. The version available for download will be the current release.

Required Packages

When working with R, many processes are dependent on external packages that can be installed and uploaded to the R console for future work. ATA GUI requires several R packages to run. R packages need only be installed once so long as the packages have not been removed or edited; however, packages can be reinstalled multiple times without errors. A script provided in the GUI package (InstallPackages.R) installs the following required packages automatically:

- ggplot2
- gWidgets
- gWidgetstcltk
- dplyr
- compositions
- mvtnorm
- ks

The installation script should be run in the R compiler. While running, two dialogs will open. The first dialog will ask whether you would like to use a personal library. Click "Yes" to save the required packages to a personal library on your computer memory—this is the recommended option. The second dialog will ask you to select a CRAN download mirror. The mirror USA (CA 1) [https] is recommended. Once these steps are complete, the required packages will be installed automatically.

Launching Assessment Tract Aggregation GUI

To start ATA GUI, open the R console and click "File" and "Open script." Navigate to and select the ATA GUI run file (RunAggregateGUI.R) to open the R script for the GUI. Next, click "Edit" in the R console menu and select "Run all." The GUI script will run and launch the GUI dialog box. The script is complete when the "Run Aggregation" button appears at the bottom of the GUI dialog (fig. 1).

ATA GUI has four user interactive sections to support the implementation of the aggregation script: Background Info, Probability Distribution, Tract Correlation, and Final Steps. Each section must be completed in sequential order for a successful aggregation run.

Background Information

The first user input in the "Background Info" section is the run identification (Run ID), which is a user-specified, unique name that identifies the aggregation run. The Run ID is an alphanumeric character string with no limit on length; no symbols are permitted. The Run ID is incorporated into the beginning of each output file's name, except for the BiasCorr.csv file, to enable easy identification of files related to a particular run. In this user's guide, italic in file names indicates where the user-entered Run ID will be incorporated (for example, *RunID*AgEx.csv).

The second user input is setting the working directory for the aggregation process, which is where the output files are stored. To aid organization, it is recommended that input and output files be stored in separate folders. To set the working directory, click on the "browse" button next to the working directory input box. Navigate to and click on the intended folder to highlight it, then click "Select Folder." Confirm the selected output folder as the working directory by clicking on the "Set working directory" button in the main GUI dialog. The address of the working directory will be printed on the R console, confirming that the working directory was successfully registered to the process run.

Probability Distribution

The "Probability Distribution" section of the GUI is where the combined tract probability distribution file is input to the GUI. Users can either input an existing user-defined probability distribution file or create a new input file using the GUI's automated process to combine individual tract files, which can be output files from MapMark4GUI.

Using an Existing Combined Tract Probability Distribution File

To use an existing user-defined probability distribution file, click the "Use User-Defined Probability Distribution File" button. A new dialog will open (fig. 2); click the "browse" button to find and select the file. Next, click on the "Use Probability Distribution File" button to set the numbers of deposits and corresponding probabilities to the program variables.

Creating a Combined Tract Probability Distribution File

The GUI provides an automated process to create a probability distribution file from multiple individual tract PMF files. The individual files can be output from MapMark4GUI, or they can be created by the user for each permissive tract. The script combines the data for multiple tracts and creates a properly formatted probability distribution file.

The process of creating the probability distribution file has several steps. First, place copies of the individual tract files containing the numbers of undiscovered deposits and the corresponding probabilities in a single folder. If using the output files from MapMark4GUI, the files will be named "*RunID*_03_PMF_Probs.csv." Each tract file must have a unique name. Once the files have been copied to a single folder, create a CSV file that lists the individual tract files in the order in which the tracts will be aggregated. The tracts can be aggregated in any order; however, the order should be consistent with the correlation matrix. The list file must be saved as "ListFiles.csv" in the folder containing the individual tract files. The list file is formatted as shown in figure 6 and contains the following information:

- The identification of each tract (for example, T1, T2, and T3 for tracts 1, 2, and 3).
- The names of the individual tract files (either user-created files or MapMark4GUI output files [*RunID*_03_PMF_Probs.csv]).

Once the folder and the list file have been prepared, click on the "Create Probability Distribution File" button in the GUI dialog. A new dialog will open (fig. 3) and ask for the directory address of the folder. Click "browse" and then select the folder. Next, click "Set folder" to set the folder address

in the R script. Click on the "Create Probability Distribution File" button to run the combination and aggregation process and create a new combined tract probability input file. This process will also set the new file as the input parameter, allowing the file to be used in the aggregation processes.

Tract Correlation

In the "Tract Correlation" section of the GUI, the user inputs a correlation matrix CSV file that describes correlations among the tracts. Navigate to the folder that contains the matrix CSV file by clicking the "browse" button to the right of the "Set correlation matrix file" text box, select the file, and click "Confirm File." A sample correlation file (CorrelationTab.csv) is included in the ATA GUI package.

Final Steps

The final GUI section is where the aggregation process parameters are registered and the aggregation process is started. If you would like the tract identifiers to be printed in the summary results, enter a file that lists the complete tract identifier associated with each tract (for example, T1, T2, and T3). The file can be the ListFiles.csv file or another file with the same format. Once all run parameters have been set, click on the "Run Aggregation" button to execute the script.

	A	B	C
1	T1	Conduit1_03_PMF_Probs1.csv	TractID1
2	T2	Conduit1_03_PMF_Probs2.csv	TractID2
3	T3	Conduit1_03_PMF_Probs3.csv	TractID3
4	T4	Conduit1_03_PMF_Probs4.csv	TractID4
5	T5	Conduit1_03_PMF_Probs5.csv	TractID5
6	T6	Conduit1_03_PMF_Probs6.csv	TractID6
7	T7	Conduit1_03_PMF_Probs7.csv	TractID7

Figure 6. Screen capture showing an example of a list file that is used in the automated process for creating a combined tract probability distribution file from multiple individual tract files. The individual tract files are listed in the order in which the tracts will be aggregated. The example list file is included in the Assessment Tract Aggregation GUI package.

Output Files

ATA GUI generates three output files. The first two present the results generated by the AggtEx.fn script (Schuenemeyer and others, 2011), and the third summarizes the GUI input parameters.

The first output file (*RunID*AgEx.csv) contains the aggregated undiscovered deposit estimates generated by the AggtEx.fn script (fig. 7). The file has three rows of values. The first row gives the aggregated results assuming independence among tracts. The second row shows the aggregated results produced by using the user-defined correlation matrix. The final row shows the aggregated results assuming total dependence among the tracts (Schuenemeyer and others, 2011). Each row has estimated numbers of undiscovered deposits at five percentile values (10, 50, 90, 95, and 99). The final three columns provide the mean, standard deviation, and coefficient of variation (CV) statistics. The CV is the standard deviation divided by the mean number of undiscovered deposits. The standard deviation and CV increase from independence to correlation to total dependence (Schuenemeyer and others, 2011).

The second output file (BiasCorr.csv) is a correlation bias table that is created and exported only if bias is found in the user-specified correlation matrix. This file shows the pairwise bias between the tracts in the correlation input file (Schuenemeyer and others, 2011). Figure 8 shows an example of a correlation bias output file. In the example, the third tract held the bias.

The third output file is a text summary listing the input parameters for a given run. The summary includes the following information:

- Run ID
- Date and time of the run
- Address of the working directory
- Address of the correlation matrix (correlation table file)
- Address of the combined tract probability distribution file (corresponding probability file)
- Corresponding probability table
- Correlation table

The summary file will also list any correlation bias to the run. Figure 9 is an example summary file from a run using the sample input files.

	A	B	C	D	E	F	G	H	I	J
1	Tracts	Assoc	P10	P50	P90	P95	P99	Mean	Std_Dev	CV
2	7	Independ	30	40	50	54	61	40.197	8.019872	0.199514
3	7	Correlatio	19	38	63	71	85	40.197	16.96789	0.422118
4	7	Depender	14	36	69	77	98	40.197	20.64161	0.513511

Figure 7. Screen capture showing an example aggregated estimates output file that shows the aggregated results and the mean, standard deviation (Std_Dev), and coefficient of variation (CV) statistics. An example aggregated estimates file is included in the Assessment Tract Aggregation GUI package.

	A	B	C	D	E	F	G
1	V1	V2	V3	V4	V5	V6	V7
2	1	0.649301	0.173147	0.649301	0.649301	0.649301	0.649301
3	0.649301	1	0.649301	0.649301	0.649301	0.649301	0.649301
4	0.173147	0.649301	1	0.649301	0.649301	0.649301	0.649301
5	0.649301	0.649301	0.649301	1	0.649301	0.649301	0.649301
6	0.649301	0.649301	0.649301	0.649301	1	0.649301	0.649301
7	0.649301	0.649301	0.649301	0.649301	0.649301	1	0.649301
8	0.649301	0.649301	0.649301	0.649301	0.649301	0.649301	1

Figure 8. Screen capture showing an example bias correlation output file in which the third tract held bias. The example bias correlation file is included in the Assessment Tract Aggregation GUI package.

A

Run1Summary.txt - Notepad

File Edit Format View Help

```
Run ID:
[1] "Run1"


Date:
[1] "Thu Sep 20 2018"
Time:
[1] "2:14:54 PM "


Working Directory:
[1] "C:/AggRun1"


Correlation Table File:
[1] "C:/Users/jshapiro/Downloads/AggregationPackage71818 (3)/AggregationPackage71818/SampleInputs/CorrelationTab.csv"
Corresponding Probability File:
[1] "C:/AggRun1/Run1NewAggCProbsFile.csv"


Corresponding Probability:
    TractID NDeposits    RelProbs
1        T1         0 0.010286162
2        T1         1 0.038395455
3        T1         2 0.078280633
4        T1         3 0.115397891
5        T1         4 0.137535217
6        T1         5 0.140621757
7        T1         6 0.127897343
8        T1         7 0.106007697
9        T1         8 0.081451269
10       T1         9 0.058750703
11       T1        10 0.040165267
12       T1        11 0.026222184
13       T1        12 0.016446334
14       T1        13 0.009957837
15       T1        14 0.005843856
16       T1        15 0.003335248
17       T1        16 0.001856437
18       T1        17 0.001010191
19       T1        18 0.000538517
20       T2         0 0.010286162
21       T2         1 0.038395455
22       T2         2 0.078280633
23       T2         3 0.115397891
24       T2         4 0.137535217
25       T2         5 0.140621757
26       T2         6 0.127897343
27       T2         7 0.106007697
28       T2         8 0.081451269
29       T2         9 0.058750703
30       T2        10 0.040165267
31       T2        11 0.026222184
32       T2        12 0.016446334
33       T2        13 0.009957837
34       T2        14 0.005843856
35       T2        15 0.003335248
36       T2        16 0.001856437
37       T2        17 0.001010191
38       T2        18 0.000538517
39       T3         0 0.010286162
40       T3         1 0.038395455
41       T3         2 0.078280633
42       T3         3 0.115397891
43       T3         4 0.137535217
44       T3         5 0.140621757
45       T3         6 0.127897343
```

B

```
Correlation Table:
     T1   T2   T3   T4   T5   T6 T7
T1 1.00   NA   NA   NA   NA   NA NA
T2 0.75 1.00   NA   NA   NA   NA NA
T3 0.75 0.75 1.00   NA   NA   NA NA
T4 0.75 0.75 0.75 1.00   NA   NA NA
T5 0.75 0.75 0.75 0.75 1.00   NA NA
T6 0.75 0.75 0.75 0.75 0.75 1.00 NA
T7 0.75 0.75 0.75 0.75 0.75 0.75  1
```

Figure 9. Screen captures showing an example summary output file that lists the input parameters for the aggregation run. *A*, Run identification, run date and time, working directory, input files, and some of the corresponding probability table (tracts 1 through 3). *B*, Correlation table. The example summary output file is included in the Assessment Tract Aggregation GUI package.

Using the Aggregation Results to Estimate Undiscovered Resources with MapMark4GUI

The estimated probabilistic undiscovered deposit numbers generated by ATA GUI can be used to define a PMF of the aggregated tracts, which can be used by Monte Carlo software such as MapMark4GUI (Shapiro, 2018) to estimate the amount and variance of estimated contained resources. First, choose the preferred set of aggregated results (dependent, independent, or correlation matrix estimates). When running the MapMark4GUI script, select either the negative binomial or the MARK3 PMF option inside the "Model Information" section. If selecting the MARK3 PMF option, enter the aggregated results in the "Enter the N90, N50, N10, N05, and N01 percentiles" text box. If selecting the negative binomial option, use the aggregated results for the 90-, 50-, and 10-percentile levels in the negative binomial estimates input file. Figure 10 shows the MapMark4GUI "Model Information" section where the aggregated estimates results can be entered for the MARK3 option. See Shapiro (2018) for detailed instructions on installing and running MapMark4GUI.

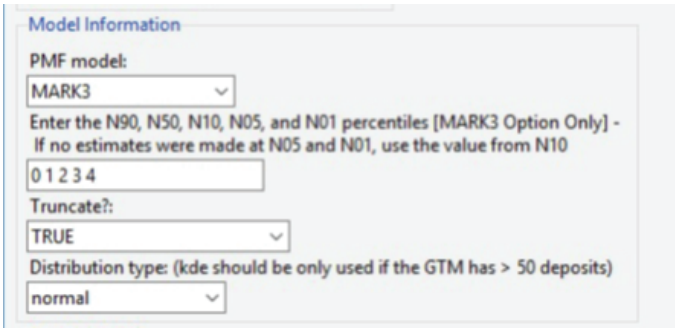

Figure 10. Screen capture showing the "Model Information" section of the MapMark4GUI dialog box where the aggregated estimates results can be entered.

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