

APPENDIX C. Details of the AGNPS and WATFLOOD Interfaces

The following is a detailed description of the AGNPS and WATFLOOD interfaces. It is presented according to the sequence of the toolbars in the main interface windows. The outline of the different toolbars corresponds to the Section 4.3.2 *Description of the Interface*:

C1. Make/Edit Grid toolbar

- Initialize Database*
- Create Grid*
- Create Tables*
- Edit Grid*

C2. Collect/Edit Data toolbar

- Initial Data*
- Collect Data*
- Flow Direction*
- Cells Editor*
- Additional Cell Data* (Soil Texture, Fertilizer, Pesticide, Point Source, Additional Erosion, Impoundment and Channel)

C3. Run Model toolbar

- Write ASCII File*
- Run Model*

C4. Display Input/Output toolbar

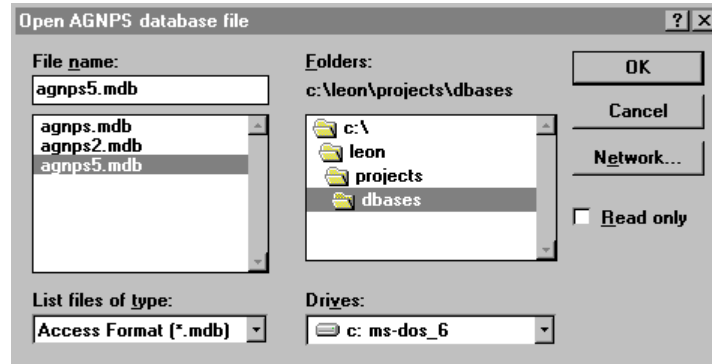
- Edit Ranges*
- Graphic Display I/O*
- Tabular Results*
- Trace Contribution*

C5. Analysis/Scenarios toolbar

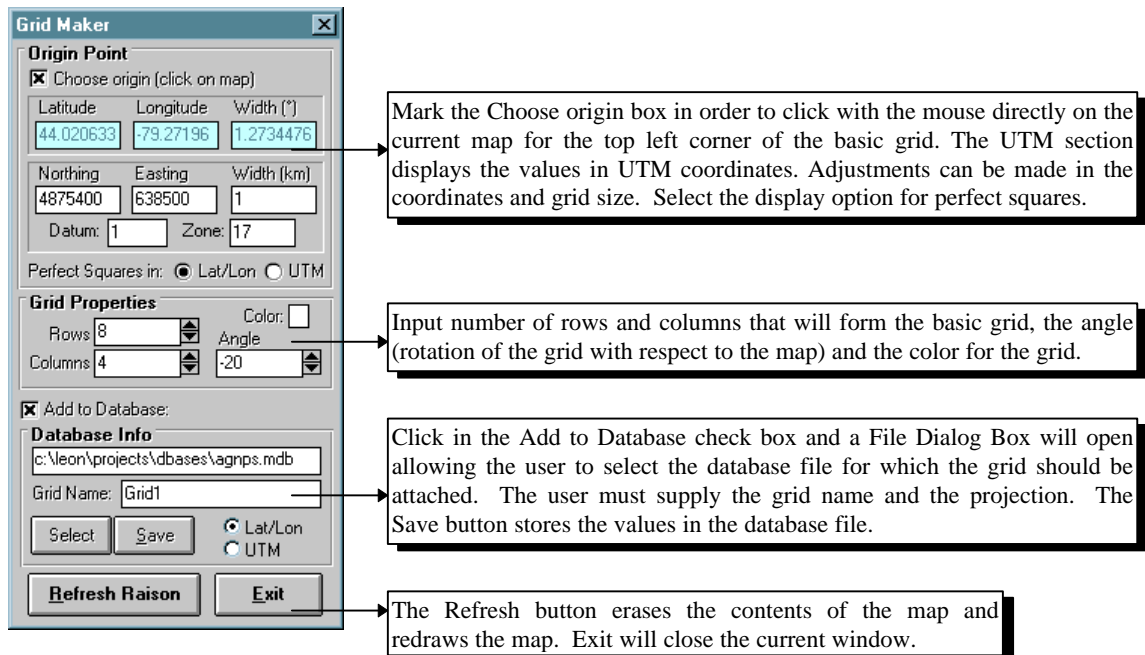
- Duplicate Grid*
- Modify Landuse*
- Summarize Runs*
- Sensitivity Analysis*

C1. Make/Edit Grid Toolbar

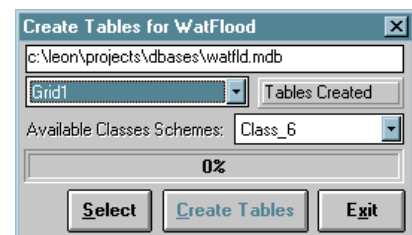
Initialize Database: Will open the *File Dialog Box* that allows the user to select the drive, path and filename of the database to be used in the current window.



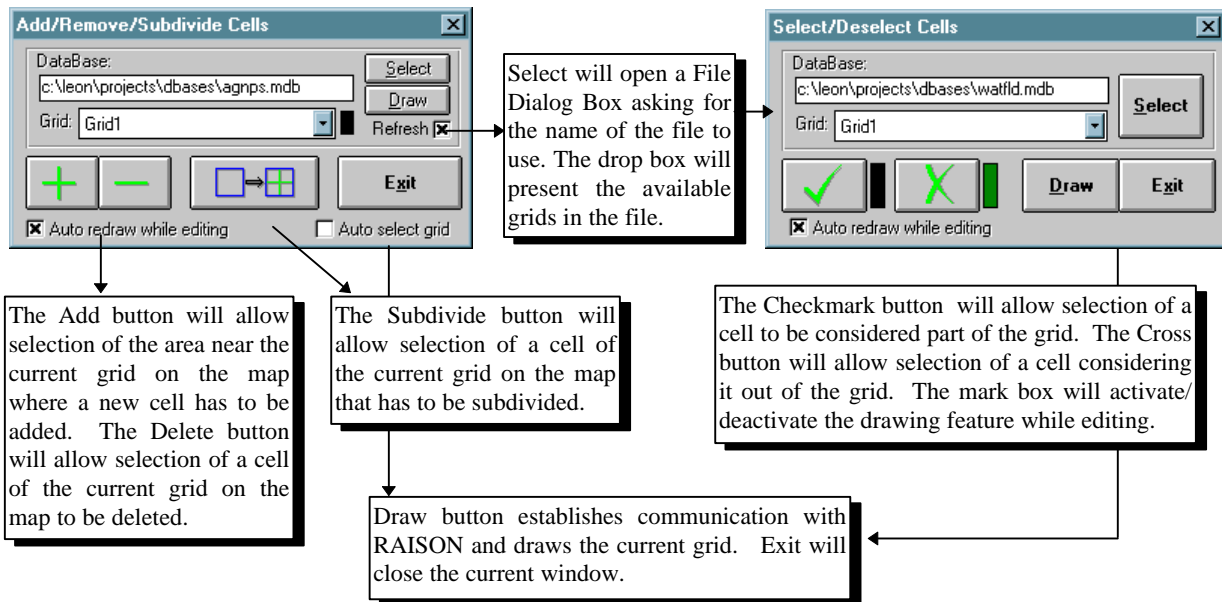
Create Grid: Will open the *Grid Maker* window and allows the user to create a basic grid for the watershed to be modeled, and save it to the selected database.



Create Tables: Open the *Create Tables* window that allows the user to create the database structure to hold the grid data and results. One database file can hold different grids (ie. for various scenarios). If the tables are already created, no action can be taken other than exit. Otherwise a message will prompt to Create Tables for that grid; a status bar shows the percentage achieved.

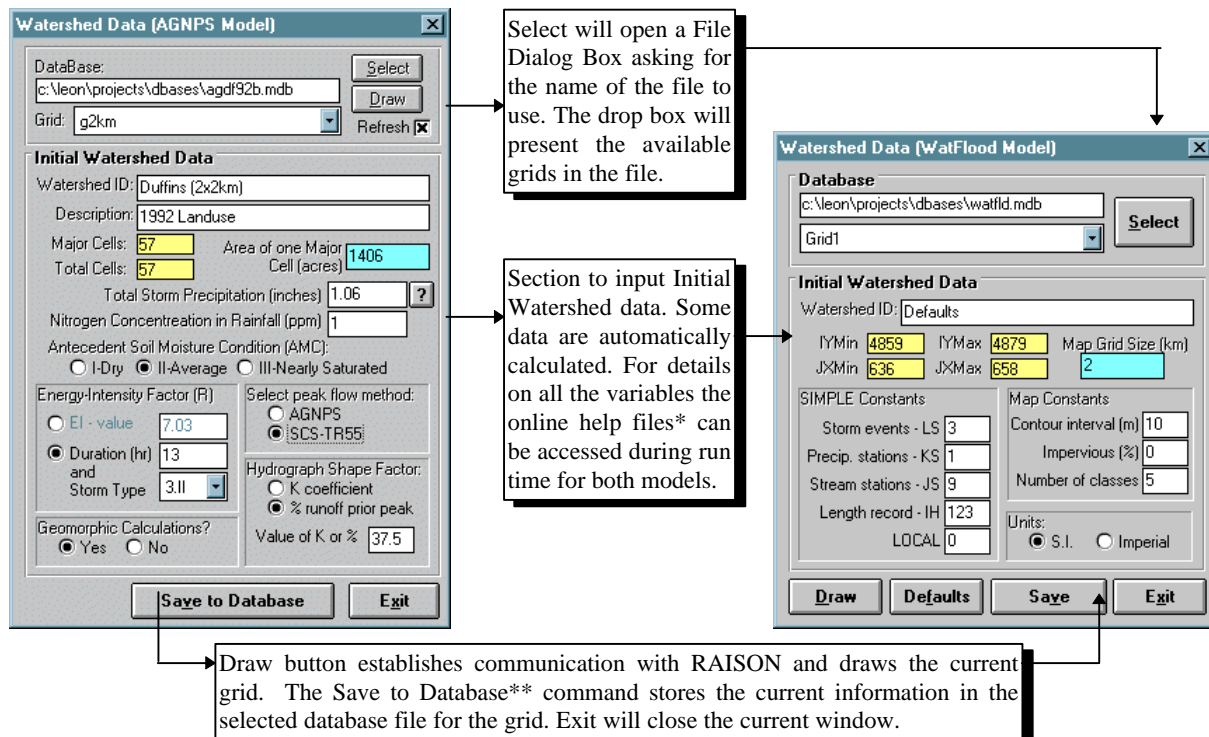


Edit Grid: Will open the *Grid Editor* window and allow the user to modify the basic grid. For the AGNPS model by adding, deleting and subdividing cells (up to three sublevels) and for WATFLOOD by selecting or deselecting cells.



C2. Collect/Edit Data Toolbar

Initial Data: Will open the *Initial Watershed Data* window that allows the user to capture the required initial data for the watershed to be modeled and save them to the selected database.



*The help files consists of clickable images that explain the process being described in this chapter. Additionally, the description for all the variables (see Appendix I for details) is included in such a way that the user can identify them with a short explanation. The AGNPS and WATFLOOD help files were produced with information taken from the original manuals (AGNPS-Young *et. al.* 1994, WATFLOOD- Kouwen, 1995).

**When saving to the database, a verification process takes place to see if all the data are valid (ie. positive values) and if no errors are encountered, will then allow them to be saved in the database. If invalid data are found, an error message will appear and the focus will be set to the variable that needs to be re-entered.

Collect Data: Will open the *Collect Data* window that allows the user to extract the data from maps relative to topography, soil type and landcover. It facilitates the display of the DEM file, and the soil and land use layers from the Map file. The process will calculate the variables that are dependent upon topography, soil and landcover for the selected grid and according to lookup tables as described in the previous chapter.

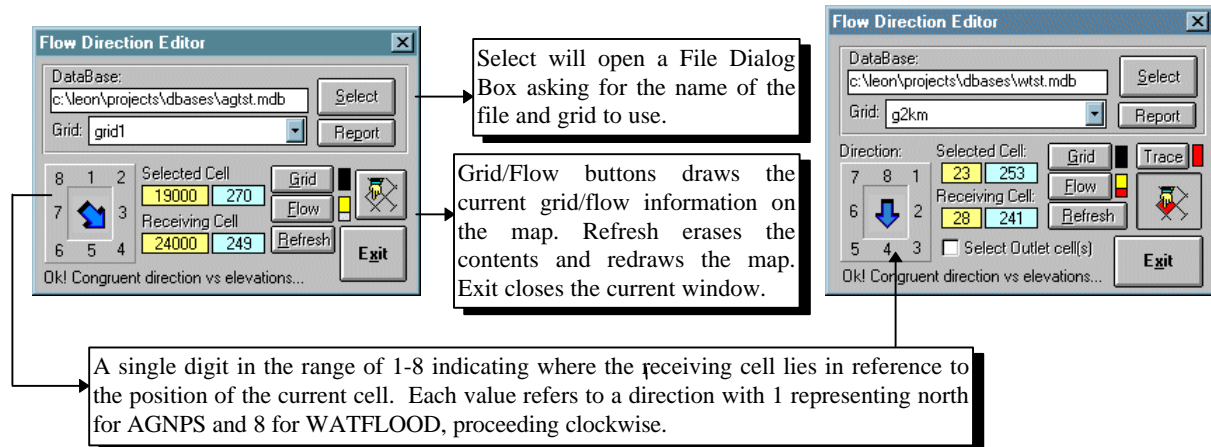
The screenshot shows the 'Collect Map Data' dialog box with the following components and annotations:

- DataBase:** A text field containing 'c:\leon\projects\dbases\agnps.mdb' with a 'Select' button next to it. Annotation: "When the Select command button is pressed, a File Dialog Box will open asking for the name of the file. The drop box presents the available grids in the file."
- Grid:** A dropdown menu showing 'Grid1' and a 'Refresh' checkbox. Annotation: "Allows the selection of the DEM file and the display of the full or reduced version of the file using the different attributes including the legend attached to the layer."
- Digital Elevation Model File:** A text field containing 'c:\leon\projects\dbases\maps\stoufдем.m...' with a 'Draw' button. Below it are 'Reduce DEM' and 'Display reduced temporal DEM' buttons. Annotation: "Allows the selection of the MAP file and the display of the full or reduced version of the file. The combo boxes contain the layer, field and legend to use when displaying the map file for the different attributes (characteristics table). The option check box allows to define the lookup table to use for the selected fields."
- Display:** Radio buttons for 'Elevation', 'Flow direction', and 'Drainage' (with a red arrow icon). A 'Legend' button is also present.
- Maps File (MAP):** A text field containing 'c:\leon\projects\dbases\maps\stoufmap.m...' with a 'Draw' button. Below it are 'Reduce MAP' and 'Display reduced temporal MAP' buttons.
- Map layer:** A dropdown menu showing 'Soils'.
- Field to use in lookup table:** A dropdown menu showing 'SOIL_TYPE'.
- Legend:** A dropdown menu showing 'SCSCode' and a 'Display Legend' button.
- Lookup table (make sure it matches layer and field):** Radio buttons for 'Soil Table' and 'Landuse Table'.
- Buttons:** 'Extract DEM', 'Extract MAP', and 'Exit'.
- Status Bar:** Shows 'Status: Extracting Map Data...' and a progress bar at 32%.

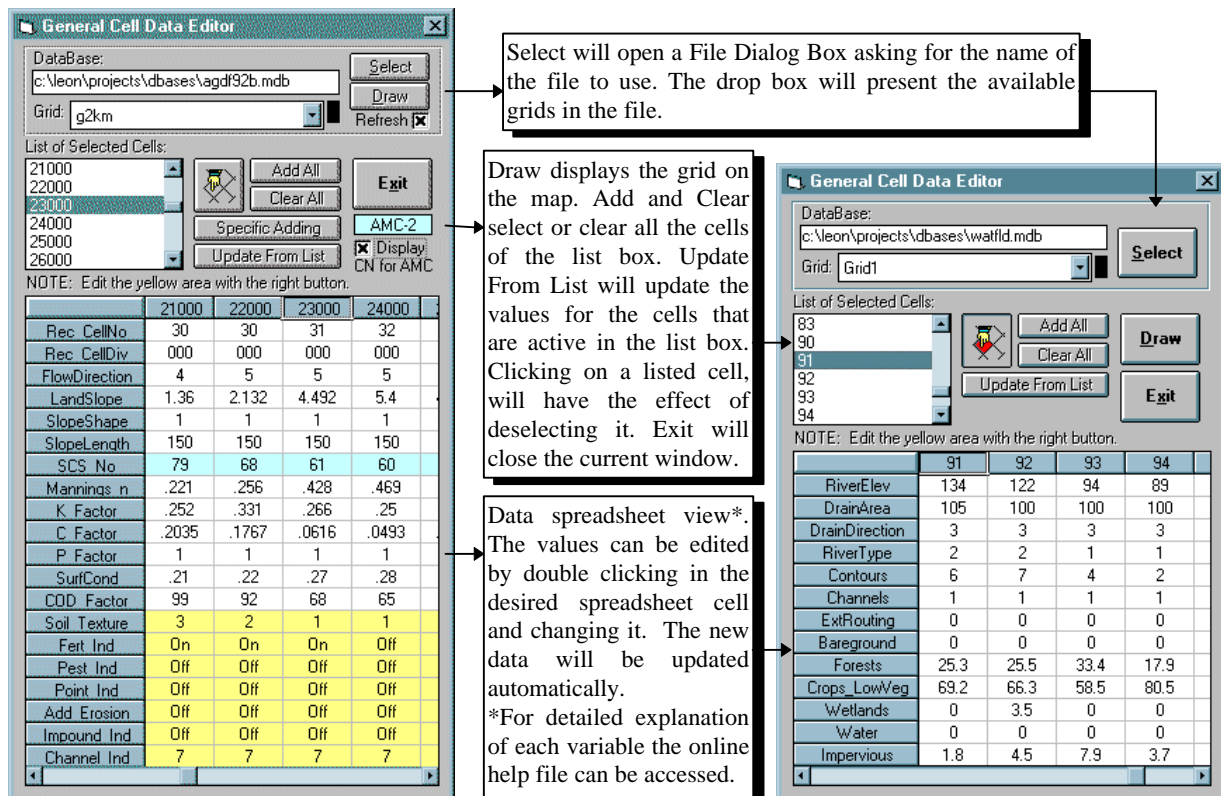
Additional annotations for the 'Extract' buttons:

- Reduce DEM/Map files:** "Reduce DEM/Map files will select a box containing the whole grid and determine if the polygons from the DEM and/or the Map file fall in the borders and delete those outside, creating a temporal file for display."
- Extract DEM:** "Extract DEM will calculate the values for all the variables that depend upon topography, such as flow direction and slope from the digital elevation model file."
- Extract MAP:** "Extract MAP will calculate the intersected areas of the selected layer and field from the map file with the active grid. Using the selected lookup table will calculate and write to the database the resulting values depending on soil type or landuse that intersects with the current grid."

Flow Direction: Will open the *Flow Direction Editor* window helping the user in the editing of the flow directions and receiving cells (AGNPS left, WATFLOOD right).



Cell Editor: Will open the *General Cell Data Editor* that allows the user to edit the cell data for the watershed to be modeled and save them to the selected database. The user can change the values in the spreadsheet view (AGNPS left, WATFLOOD right).

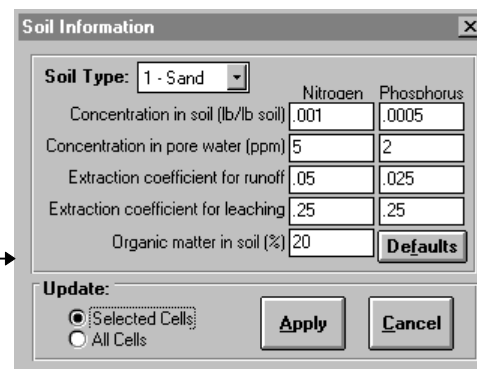


Additional Cell Data

The following variables for the AGNPS model are additional cell related data. When edited, additional windows will pop-up to input/edit the variables related to the additional data:

Soil Texture: The major soil texture classification for the cell from the texture triangle. The *Soil Information* window will pop-up to input/edit the values related to this variable. Initially the values will be defaulted from the *Collect Data* procedure.

The Apply command saves the current information in the selected database file for the grid and the selected cells. Cancel will quit saving and close the current window. For a detailed explanation of each variable the user can access the online help file.



Soil Information

Soil Type: 1 - Sand

	Nitrogen	Phosphorus
Concentration in soil (lb/lb soil)	.001	.0005
Concentration in pore water (ppm)	5	2
Extraction coefficient for runoff	.05	.025
Extraction coefficient for leaching	.25	.25
Organic matter in soil (%)	20	Defaults

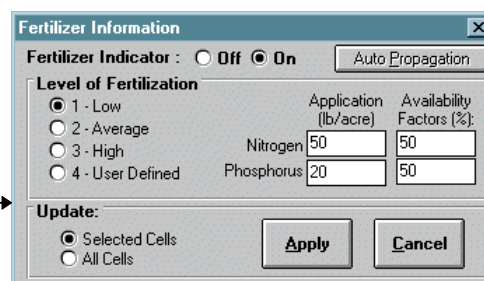
Update:

☒ Selected Cells ☐ All Cells

Apply Cancel

Fertilizer Indicator: A toggle value defines the application of fertilization within the cell. *Off* indicates no fertilization while *On* indicates fertilization being applied. When editing the cell, the *Fertilizer Data* window will appear allowing the data entry.

The Apply command saves the current information in the selected database file for the grid and the selected cells. Cancel will quit saving and close the current window. For a detailed explanation of each variable the user can access the online help file.



Fertilizer Information

Fertilizer Indicator : ☐ Off ☒ On

Level of Fertilization

☒ 1 - Low ☐ 2 - Average ☐ 3 - High ☐ 4 - User Defined

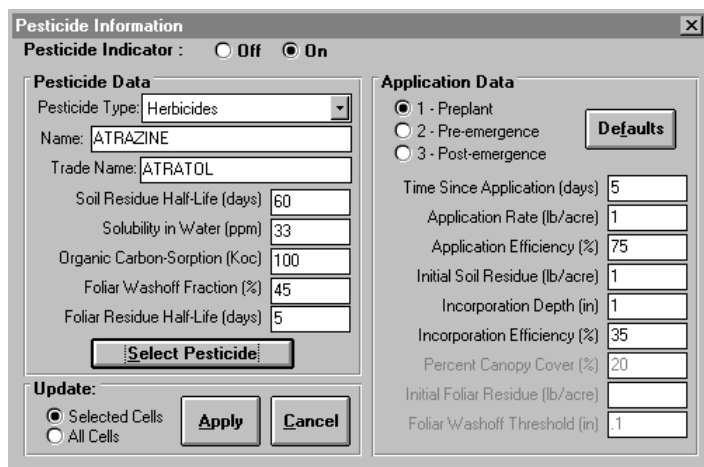
	Application (lb/acre)	Availability Factors (%)
Nitrogen	50	50
Phosphorus	20	50

Update:

☒ Selected Cells ☐ All Cells

Apply Cancel

Pesticide Indicator: A toggle value indicating the presence of pesticide application within the cell. *Off* indicates that no pesticide is applied. When editing the cell, the *Pesticide Data* window will appear allowing the selection of the type of pesticide applied within the cell, time of application and other specific pesticide information. The pesticide data can be selected and retrieved from the pesticide database (PESTIC.MDB) which was converted to Access format from the file provided with AGNPS.



Pesticide Information

Pesticide Indicator : ☐ Off ☒ On

Pesticide Data

Pesticide Type: Herbicides

Name: ATRAZINE

Trade Name: ATRATOL

Soil Residue Half-Life (days): 60

Solubility in Water (ppm): 33

Organic Carbon-Sorption (Koc): 100

Foliar Washoff Fraction (%): 45

Foliar Residue Half-Life (days): 5

Application Data

☒ 1 - Preplant ☐ 2 - Pre-emergence ☐ 3 - Post-emergence

Time Since Application (days): 5

Application Rate (lb/acre): 1

Application Efficiency (%): 75

Initial Soil Residue (lb/acre): 1

Incorporation Depth (in): 1

Incorporation Efficiency (%): 35

Percent Canopy Cover (%): 20

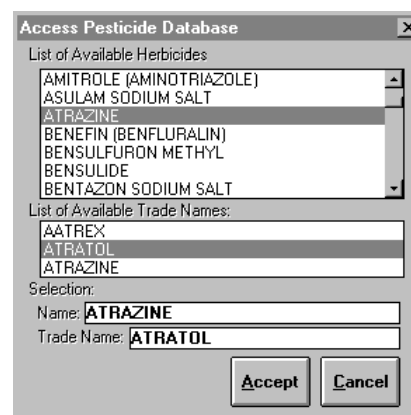
Initial Foliar Residue (lb/acre):

Foliar Washoff Threshold (in): .1

Update:

☒ Selected Cells ☐ All Cells

Apply Cancel



Access Pesticide Database

List of Available Herbicides

AMITROLE (AMINOTRIAZOLE)
ASULAM SODIUM SALT
ATRAZINE
BENEFIN (BENFLURALIN)
BENSULFURON METHYL
BENSULIDE
BENTAZON SODIUM SALT

List of Available Trade Names:

AATREX
ATRATOL
ATRAZINE

Selection:

Name: ATRAZINE

Trade Name: ATRATOL

Accept Cancel

Point Source Indicator: An integer value indicating the presence of point sources (Non-Feedlots and/or Feedlots) within the cell. *Off* indicates no point sources. When editing the cell, the *Point Sources* window will open allowing the selection of Feedlots or Non-Feedlots within the cell. The input window will then pop-up depending on this selection.

Display the active cell, the number of sources in the cell and the active source. The Add and Delete buttons will add or remove point sources from the selected cell. Update will save the data of the active cell source. Propagate will copy the displayed data to all the sources for all of the listed cells.

The Draw button displays the current grid on the map. Clear will remove the cells from the list box. Show cells with data will draw the point sources on the map. Delete data from cell(s) will remove all sources from the selected cells.

Point Source: Feedlots

Active Cell: 2200 #Sources: 4 2

Add Del Update Propagate Data

Fill With Zeros

Selected Cells: 2100, 2200, 4000

Draw Grid Clear List Show cells with data Delete data from cell(s)

Feedlot Data:

Physical Characteristics:

Feedlot Area (acres): 100

Curve Number: 58

Roofed Area (acres): 25

Concentrations for Runoff:

Nitrogen (ppm): 0.50

Phosphorus (ppm): 0.10

COD (ppm): 0.05

AGNPS Buffer Calculations:

☒ Yes ☐ No

Percentage Reductions:

Overland Flow: Nitrogen 0, Phosphorus 0, COD 0

Grassed Drains: Nitrogen 0, Phosphorus 0, COD 0

Area Data

Sub Area	Area 2		Area 3	
	Area (acres)	Curve Number	Area (acres)	Curve Number
1	20	85	80	91
2	25	91	0	0
3	0	0	0	0
4	0	0	0	0
5	0	0	0	0
6	0	0	0	0

Buffer Data

	Buffer Number		
	1	2	3
Slope of Area (%)	1.2	0	0
Surface Constant	0.25	0	0
Flow Length (ft)	100	0	0

Animal Data

Animal #	No. of Animals	COD Ratio	Phosph Ratio	Nitrogen Ratio
1	50	0.76	0.8	0.8
2	0	0	0	0
3	0	0	0	0

Verify Data and Exit

For a detailed explanation of each variable the user can access the online help file.

Point Source: NonFeedlots

Active Cell: 3200 #Sources: 5 3

Add Del Update Propagate Data

NonFeedlot Data

Enter Cell At: ☐ Bottom ☒ Top

Flow Rate (cfs): 1.5

Total Nitrogen (ppm): 0.55

Total Phosphorus (ppm): 0.12

Total COD (ppm): 0.35

Selected Cells: 1000, 3200

Draw Grid Clear List Show cells with data Delete data from cell(s)

Verify Data and Exit

Additional Erosion: An integer value indicating the presence of some type of additional erosion within the cell (Gully, Construction, River Bank, or other). *Off* indicates that no additional erosion is present within the cell. When editing the cell, the *Additional Erosion* window will appear allowing specific information entry for each source within the cell.

Display the active cell, the number of sources in the cell and the active source. The Add and Delete buttons will add or remove point sources from the selected cell. Update will save the data of the active cell source. Propagate will copy the displayed data to all the sources for all of the listed cells. For a detailed explanation of each variable the user can access the online help file.

Additional Erosion

Active Cell: 3400 #Sources: 3 2

Add Del Update Propagate Data

Additional Erosion Data

Type of Erosion: ☒ Gully ☐ Construction ☐ River ☐ Other...

Amount Eroded (tons): 2

Soil Texture: 1

Soil Background Concentration:

Nitrogen (lb/lb soil): 1.25

Phosphorus (lb/lb soil): 1.25

Selected Cells: 2300, 2400, 3400

Draw Grid Clear List Show cells with data Delete data from cell(s)

Verify Data and Exit

Impoundment Indicator: An integer value indicating the presence of impoundment(s) within the cell. *Off* indicates that no impoundments exist within the cell. When editing the cell, the *Impoundment* window will appear allowing specific information for impoundments to be entered.

Display the active cell, the number of sources in the cell and the active source. The Add and Delete buttons will add or remove point sources from the selected cell. Update will save the data of the active cell source. Propagate will copy the displayed data to all the sources for all of the listed cells. For a detailed explanation of each variable the user can access the online help file.

The **Impoundment Sources** dialog box contains the following sections:

- Active Cell:** Displays '3400' and '#Sources: 5'. It includes 'Add', 'Del', 'Update', and 'Propagate Data' buttons.
- Impoundment Data:** Includes input fields for 'Drainage Area (acres)' (12), 'Diameter of Pipe Outlet (in)' (1), and 'Infiltration Rate (in/hr)' (0.75).
- Selected Cells:** A list box showing '2100' and '3400'. It includes 'Draw Grid', 'Clear List', 'Show cells with data', and 'Delete data from cell(s)' buttons.
- Verify Data and Exit:** A button at the bottom.

Channel Indicator: An integer value indicating the type of channel. A value of 0 indicates a cell that is mainly water and a digit (1-8) for channel type. The *Channel* window will appear allowing selection of channel data. For more detail on the variables the user can access the online help file.

The **Channel Information** dialog box contains the following sections:

- Channel Type:** Radio buttons for '1. No Definitive Channel', '2. Drainage Ditch', '3. Road Ditch', '4. Grass Waterway', '5. Ephemeral Stream', '6. Intermittent Stream', '7. Perennial Stream' (selected), and '8. Other Channel Type'.
- Peak Method:** Radio buttons for 'AGNPS' (selected) and 'Geomorphic'.
- Allow Scouring of:** Checkboxes for 'Clay', 'Silt' (checked), and 'Sand'. There are also checkboxes for 'Small Aggreg.' and 'Large Aggreg.', and buttons for 'All' and 'None'.
- Decay Percentages:** Input fields for 'Nitrogen (%)', 'Phosphorus (%)', and 'COD (%)'.
- Use AGNPS Decay Functions:** Radio buttons for 'Yes' (selected) and 'No', with a 'Defaults' button.
- General Channel Data:** Input fields for 'Channel Slope (%)' (2), 'Channel Side Slope (%)' (10), and 'Manning's "n" Coefficient' (.04).
- Geomorphic Channel Data:** Input fields for 'Length Coef' (153), 'Exp' (.6), 'Depth Coef' (.4537), 'Exp' (2192), 'Width Coef' (3.425), and 'Exp' (.3151).
- Non-Geomorphic Channel Data:** Input fields for 'Channel Length (ft)', 'Channel Depth (ft)', and 'Channel Width (ft)'.
- Update:** Radio buttons for 'Selected Cells' (selected) and 'All Cells', with 'Apply' and 'Cancel' buttons.

For a detailed explanation of each variable the user can access the online help file.

The Apply command saves the current information in the selected database file for the grid and the selected cells. Cancel will quit saving and close the current window.

C3. Run Model Toolbar

Write ASCII File: Will open the *Export ASCII* window to allow the user to select the grid file to export into a specified ASCII file that the models can understand. In the case of AGNPS this is done for review purposes only and will not be used to run the model within the interface.

The **Writes AGNPS ASCII File** dialog box contains the following fields and buttons:

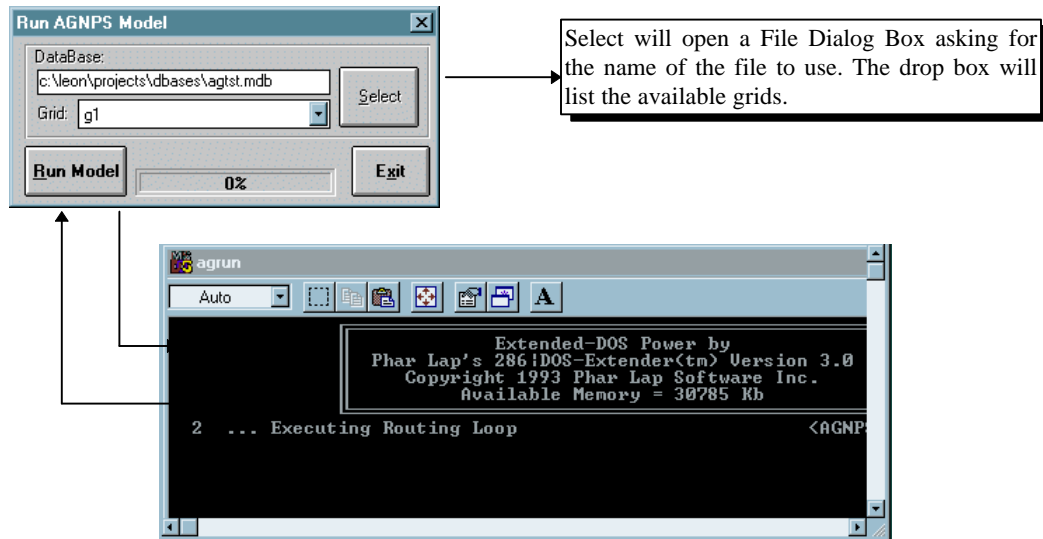
- DataBase:** A text field with 'c:\leon\projects\dbases\agnps.mdb' and a 'Select' button.
- Grid:** A dropdown menu showing 'Gr1L'.
- ASCII File:** A text field with 'c:\leon\projects\dbases\test1.dat' and a file selection icon.
- Export:** A button.
- Exit:** A button.
- Note:** 'This file won't be used to actually run the model.'

Select will open a File Dialog Box asking for the name of the file to use. The drop box will list the available grids. Export will write the database in an ASCII formatted file.

The **Writes MAP File for WatFlood** dialog box contains the following fields and buttons:

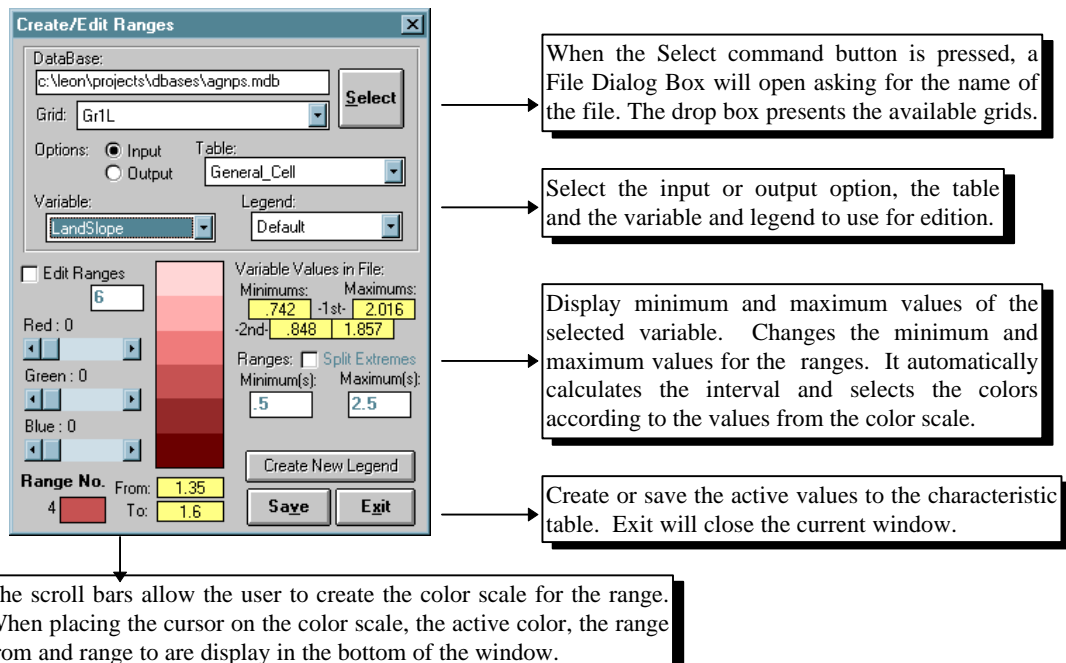
- DataBase:** A text field with 'c:\leon\projects\dbases\watfld.mdb' and a 'Select' button.
- Grid:** A dropdown menu showing 'Grid1'.
- ASCII File:** A text field with 'c:\leon\projects\dbases\watfld.dat' and a file selection icon.
- Export:** A button.
- Exit:** A button.

Run Model: This section will allow the user to run the models for the selected file and grid. In the case of WATFLOOD it will activate the program WATFLOOD for Windows. For AGNPS, with the *Run Model* button the file will be exported to ASCII format, a separate DOS window will show the running status and when the model finishes running, it will import the results into the database file. An additional access to the DOS shell for AGNPS is provided by pressing the *Shell* button.



C4. Display Input/Output Toolbar

Edit Ranges: Will open the *Create/Edit Ranges* window to allow the user to create or edit the table for the ranges to be used when displaying the input data or output results.



Graphic Display I/O: This will open the *Display of Input/Output* window to allow the user to spatially display the input data or the model results stored in the database file for the selected grid, table and variable.

The **Display Input/Output** window contains the following fields and controls:

- DataBase:** A text field showing 'c:\leon\projects\dbases\agnps.mdb' and a **Select** button.
- Grid:** A dropdown menu showing 'Gr1L' and a **Draw** button.
- Options:** Radio buttons for **Input** (selected) and **Output**.
- Table:** A dropdown menu showing 'General_Cell'.
- Variable:** A dropdown menu showing 'K_Factor'.
- Legend:** A dropdown menu showing 'Default'.
- Buttons at the bottom: **Display**, **Legend**, **Refresh**, and **Exit**.

When the Select command button is pressed, a File Dialog Box will open asking for the name of the file. The drop box presents the available grids.

Select the input or output option, the table and the variable and legend to use for display.

The Display button draws the grid for the current variable and characteristics table (legend). Refresh will erase the map contents and redraw it. Exit will close the current window.

Tabular Results: Only created for the AGNPS Interface, it will open the *Tabular Display* window to allow the user to view the model results in tabular form and view a summary of the run.

The **Tabular Output** window contains the following fields and controls:

- DataBase:** A text field showing 'c:\leon\projects\dbases\agnps.mdb' and a **Select** button.
- Grid:** A dropdown menu showing 'Gr1L'.
- List of Selected Cells:** A list box containing cell numbers: 1000, 2000, 3000, 4000, 5100, 5200.
- Output options:** A dropdown menu showing 'Nutrients' and buttons for **Add All** and **Clear All**.
- Buttons: **Summary**, **Draw**, and **Exit**.
- Results spreadsheet view:** A table showing results for selected cells (1000, 2000, 3000, 4000) across various variables.

	1000	2000	3000	4000
DrainArea	200	200	200	600
NitroSedwCell	.9	1.08	1.31	.74
NitroSedOCCell	.35	.37	.59	.35
NitroWatwCell	1.08	1.18	3.71	.91
NitroWatOCCell	.27	.3	.93	.12
NitroConc	.56	.59	1.25	.26
PhosSedwCell	.45	.54	.66	.37
PhosSedOCCell	.17	.19	.3	.17
PhosWatwCell	.15	.17	.75	.12
PhosWatOCCell	.04	.04	.19	.02
PhosConc	.08	.09	.25	.04
CODWatwCell	44.59	61.73	101.49	44.34
CODWatOCCell	11.15	15.43	25.37	5.91
CODConc	23.25	31	34.25	12.48

When the Select command button is pressed, a File Dialog Box will open asking for the name of the file. The drop box presents the available grids.

Draw displays the grid on the map. Add and Clear select or clear all the cells of the list box. Update From List will update the values for the cells that are active in the list box. Clicking on a listed cell, will have the effect of deselecting it. Exit will close the current window. Summary opens in separate window a summary the watershed results.

The **Watershed Summary** window displays the following information:

- Watershed ID:** First full test
- Total drainage area (acres):** 2600.00
- Area of base cell (acres):** 200.00
- Storm precipitation (inches):** 5.00
- Energy/Intensity value:** 15.00
- Values at Watershed Outlet:**
 - Outlet Cell Number: 13.0
 - Runoff Volume (inches): 2.42
 - Peak Runoff Rate (cfs): 1810.43
 - Total Sediment Yield (tons): 165.51
 - Sediment Runoff: 0.33, 0.04
 - Phosphorus: 0.17, 0.01
 - Chemical Oxygen Demand: 2.21
- Sediment Analysis:**

	Area-weight erosion (t/a)	Channel (t/a)	Deliv. Ratio	Enr. Ratio	Conc. (ppm)	Area Yield (t/a)	Yield (tons)
Clay:	0.01	0.00	100	5	70.11	0.02	49.87
Silt:	0.02	0.00	74	3	44.57	0.01	31.71
SmAgg:	0.11	0.00	17	1	69.77	0.02	49.63
LgAgg:	0.06	0.00	16	1	37.02	0.01	26.33
Sand:	0.01	0.00	25	1	11.22	0.00	7.98
TOTAL:	0.22	0.00	29	1	232.70	0.06	165.51

Results spreadsheet view. Allows the user to scroll and view the results in tabular format using a spreadsheet type form for the selected grid and output option. For more information on the output variables and its dimensions the user can go to the online help.

Trace Contribution - Only created for the AGNPS interface, it will open the *Trace Contribution* window that allows the user to see the various sources of pollution in any given cell..

Cell	%	Amount
10000	32.74	87.62
9000	29.21	78.16
6000	15.77	42.21
13100	10.22	27.35
5000	9.65	25.83
2000	1.64	4.40
1000	0.76	2.02

When the Select command button is pressed, a File Dialog Box will open asking for the name of the file. The drop box presents the available grids.

Clicking on a cell, will select it in order to trace the flow route and source contributions up to that point. The Draw Flow button draws the route on the map. Clear will reset the map and form. Exit will close the current window.

Selects the option on the combo boxes of flow routing or type of pollution to monitor upstream of the selected cell. In the spreadsheet view a summary of contributions for each cell is presented, allowing the user to identify where the flow or pollution is coming from. The Brief option will present and sort only the contributing cells (%>0), while the Detailed option will present the values for all the cells in the trace path and display them in the routed order.

In the display options, changes to the minimum and maximum values for the ranges are allowed. It automatically calculates the interval and selects the colors according to the values from the color scale. The scroll bars allow the user to create the color scale for the range. Percentage or amount values can be spatially displayed. When placing the cursor on the color scale, the active color, the range from and range to are display in the bottom of the window. The Display button will spatially draw the cell values using the grid and map currently active.

C5. Analysis/Scenarios Toolbar

Duplicate Grid: This will open the *Duplicate Grid* window that allows the user to duplicate a specific existing grid with a new grid name. Use the Input box to assign the new grid name for the data to be duplicated. If it already exists the program will prompt a message not allowing to use an existing name. When the duplication of the grid is completed, the user will be asked if the related data should be also copied into the newly created grid.

This will allow the user to end up with a full copy of the previous grid or just a mask of the grid where the data extraction process have to be performed again (*ie.* for a different landuse map).

Modify Landuse: This will allow to modify the land coverage percentages. It opens the *Landuse Editor* that allows to change the amounts of land coverage for the different land classes in the selected cells.

Landuse Summary Editor

DataBase: c:\leon\projects\vbases\stfvscen.mdb

Grid: Grid2

List of Selected Cells: 8000, 9000, 10000, 11000, 12000

Change Options: All (100%), Half (50%), Other: 0%

From: Bareground, To: Forests

	9000	10000	11000	12000
Impervious	0	0	0	0
Bareground	90.2	52.1	22.5	8.6
Forests	.2	0	0	0
Crops LowVeg	8.6	39.7	77.4	91.3
Wetlands	0	0	0	0
Water	12	3.7	0	0

0%

When the Select command button is pressed, a File Dialog Box will open asking for the name of the file. The drop box presents the available grids.

Draw displays the grid on the map. Add and Clear select or clear all the cells of the list box. Update From List will update the values for the cells that are active in the list box. Clicking on a listed cell, will have the effect of deselecting it. Exit closes the current window.

Selects the percentage to be used to change coverage from one land class to another. The From and To fields allows the selection of the land classes to change. The spreadsheet view allows to display the percentages of the different land classes in the selected cells. The Recalculate button estimates the parameter values that depend on landuse to reflect the changes on the land classes for the selected cells.

Summarize Runs: Only created for the AGNPS Interface, it display the summary of the different runs. It will open the *Runs Summary* window to view a summary of the different runs stored in the database. The spreadsheet is sizable and it is partitioned in two sections, the first one for the general watershed data and the second one for the summary results of the run. The user can select to display all the runs stored in the file or just the desired ones by clicking in the list of the available grids.

Runs Summary

DataBase: c:\leon\projects\vbases\stfvscen.mdb

Available grids: Grid1, Grid2, Grid3

	Grid1	Grid2
Watershed ID	Stouffville All Forest	Stouffville Landuse (75-83)
Description	97 cells (500m size)	97 cells (500m size)
# Base Cells	97	97
# Total Cells	97	97
Area base cell	87.00	87.00
Drainage area	8439.00	8439.00
Precipitation	2.00	2.00
Energy intensity	15.00	15.00
Nitrogen in rain	0	0
Outlet Cell	97,000	97,000
Runoff Volume	0.01	0.30
Peak Rate	0.97	273.59
Sediment Yield	41.70	133.96
Nitrogen-Sediment	0.06	0.11
Nitrogen-Runoff	0.00	0.00
Phosphorus-Sediment	0.03	0.05
Phosphorus-Runoff	0.00	0.00
COD-Runoff	0.00	0.03
Nitrogen Conc	0.00	0.00
Phosphorus Conc	0.00	0.00
COD Conc	0.13	0.37

Sensitivity Analysis: Perform the sensitivity analysis. It will open the *Sensitivity Analysis* window that allows the user to perform the sensitivity analysis for any given grid and initial (base case) data. Through the buttons, the input for the analysis, the actual batch running of the model and the display of results (normalized gradients and ranking) can be achieved.

Sensitivity Analysis

DataBase: ☒

Grid:

Last Run Date (Base Case): 3/27/98 11:26:12 AM

Last Sensitivity Run Date: 3/30/98 1:07:01 PM

Number of Parameters: 9

Status: 0%

When the Select command button is pressed, a File Dialog Box will open asking for the name of the file. The drop box presents the available grids.

This will open the input data window for the sensitivity analysis, allowing the user to select the parameters to perturb and the percentage of variation.

It will launch the model to run the different files and import the output to perform the normalized sensitivity coefficients calculations.

Sensitivity Parameter Input

Parameter List:

Parameter	Low (%)	High (%)
Precipitation	90	110
El Rfactor	90	110
SCS No	90	110
LandSlope	90	110
SlopeLength	90	110
Mannings_n	90	110
K_Factor	90	110
C_Factor	90	110
P_Factor	90	110

Perturbation Percentage: ☐ 5% ☒ 10% ☐ 20% %

Group: Parameters:

Normalized Sensitivity Gradients

Total Sediment Yield

Output Variation -21 %

38

-27

-28

Parameter

File: [c:\leon\projects\dbases\

☒ File/Grid ☒ Legends

Ranked Normalized Sensitivity Gradients

Total Sediment Yield

Mean Normalized Gradient

-2

2

File: [c:\leon\projects\dbases\agtst.mdb] - Grid: [g1]

☒ File/Grid ☒ Legends