



WinSLAMM v 10.1 User's Guide

Parameter Files

Parameter Files

The model uses several parameter files to describe the runoff volume and pollutant load generation. The parameter files are based on years of research data from source area and control device monitoring. The user can view each of these files through the Parameter File Editor.

Model files can be calibrated to project-site monitoring data through modification of the parameter files.

Documentation describing the calibration process can be found at:

http://www.winslamm.com/Select_documentation.html

Parameter Files

The screenshot shows the WinSLAMM v 10 Data File interface. The title bar indicates the file path: [C:\WinSLAMM\Users Guide\10.0\Reference Guide.mdb] - [Land Use Model]. The menu bar includes File, Current File Data, Pollutants, Tools, Run, Utilities, and Help. The Utilities menu is open, showing 'Parameter Files' and 'View File'. A purple arrow points from the 'Parameter Files' menu item to a text box. The main window displays a 'Land Use' table with columns for Source Area #, Source Area, Area (acres), Source Area Parameters, First Control Practice, and Second Control Practice. The table lists various land use types like Roofs and Parking. Below the table, there is a 'Land Use #', 'Land Use Type', 'Land Use Label', and 'Land Use Area (acres)' section. At the bottom, there is a 'CP #', 'Control Practice Type', and 'Control Practice Name or Location' section. The status bar at the bottom shows: Current File Data Entered, Total Area = 8.440 acres, No Upstream Source Areas, LU# = 1, Index Number = 1, Remaining Icons = 253, Start Date: 01/02/75, End Date: 12/29/75, X = 1065, Y = 300.

Land Use:

Source Area #	Source Area	Area (acres)	Source Area Parameters	First Control Practice	Second Control Practice
Roofs					
1	Roofs 1	0.680	Entered		
2	Roofs 2				
3	Roofs 3				
4	Roofs 4				
5	Roofs 5				
6	Roofs 6				
7	Roofs 7				
8	Roofs 8				
9	Roofs 9				
10	Roofs 10				
11	Roofs 11				
12	Roofs 12				
Parking					
13	Paved Parking 1	2.850	Entered		
14	Paved Parking 2				
15	Paved Parking 3				
16	Paved Parking 4				
17	Paved Parking 5				

Land Use #

Land Use #	Land Use Type	Land Use Label	Land Use Area (acres)
1	Commercial	Commercial 1	8.440

CP #

CP #	Control Practice Type	Control Practice Name or Location
1	Biofilter	DS Biofilter # 1

Diagram: A diagram showing a 'Commercial 1' area (represented by a red 'COM' icon) connected to 'Junction 2' (a blue circle) and an 'Outfall' (a green 'OUT' icon).

To view or edit a parameter file, select "Utilities", then "Parameter Files". Select the desired parameter file from the menu.

Parameter Files

Particle Size Distribution Editor

Critical Particle Size Parameter File

Use Shift plus the arrow keys to move through the grid

Select File

C:\PROGRAM FILES\WINSLAMM\MIDWEST.CPZ

File Description:

Save File

Save File As...

Print to Text File

View Text File

Continue

Cancel

Enter Particle Size (100 - 0)

Percent Greater Than Particle Size

100 %

50 %

0 %

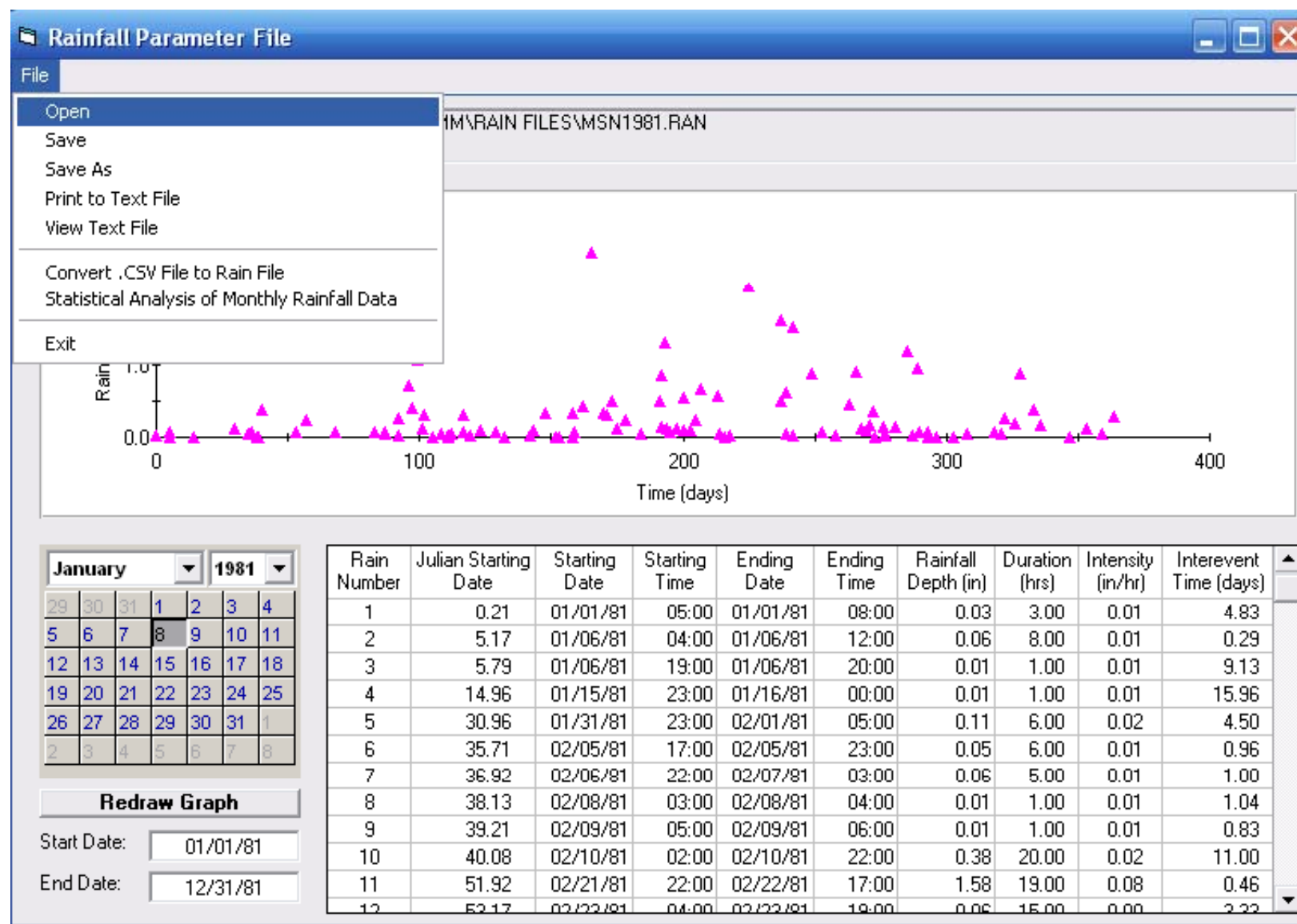
1 10 100 1000

Particle Size (microns)

Entry Number	Particle Size (microns)	Percent Greater Than Particle Size
1	1	100
2	2	97
3	3	93
4	4	91
5	5	89
6	6	86
7	7	84
8	8	82
9	9	80
10	10	78
11	11	75
12	12	73
13	13	71
14	14	69
15	15	68
16	20	62
17	25	57
18	30	53
19	35	49
20	40	47

Parameter Files

Rainfall File Editor

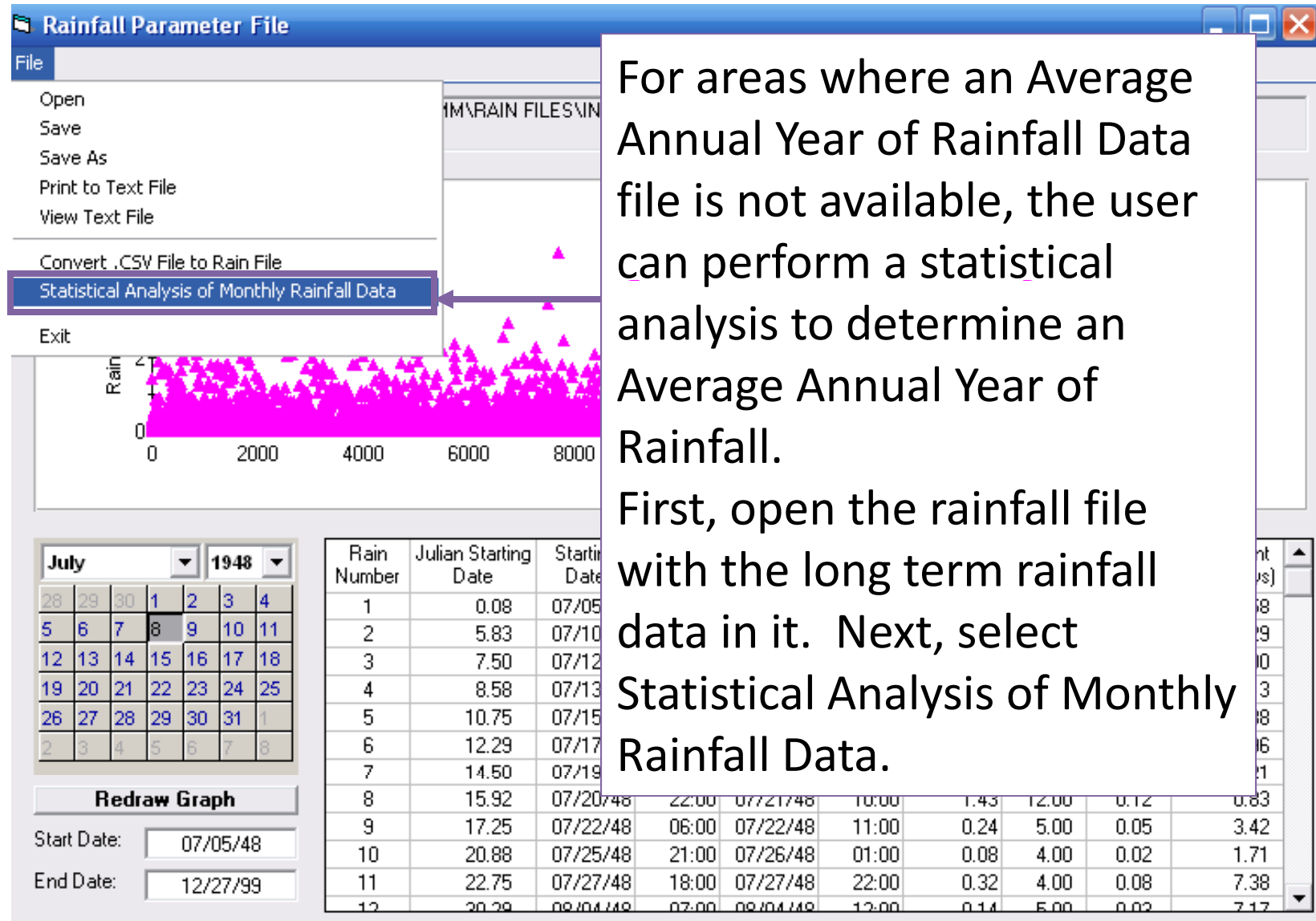


Average Annual Rainfall Analysis

The program will calculate a series of statistics for the rainfall data entered. The user can review the rainfall data and statistics and determine the average annual year of rainfall.

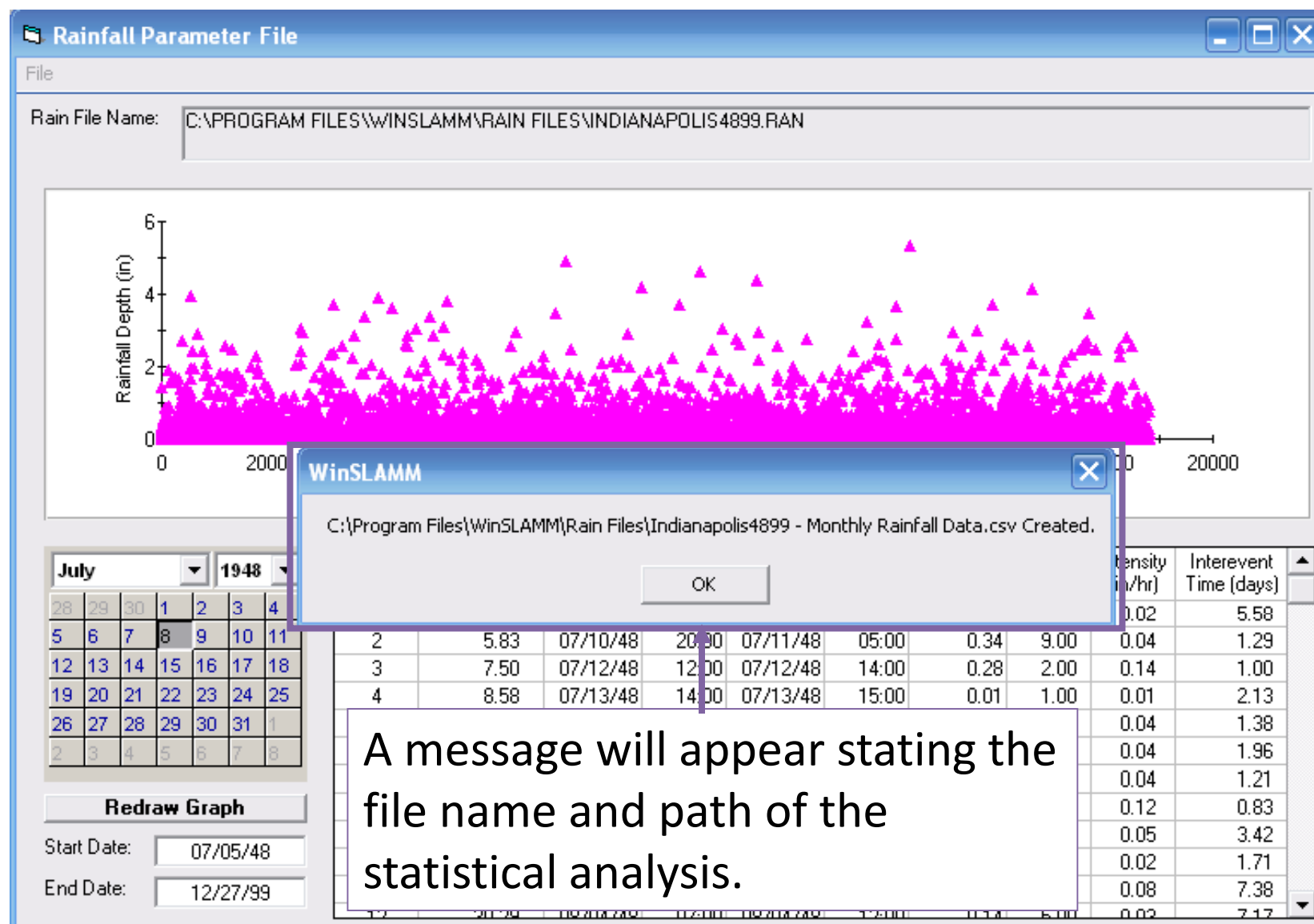
Parameter Files

Rainfall File Editor



Parameter Files

Rainfall File Editor



Parameter Files

Rainfall File Editor

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total	Deviation From Average	Absolute Deviation
1949	0.00	2.38	3.16	1.62	2.75	4.18	2.95	6.64	2.52	4.25	0.89	4.32	35.66	-4.41	4.41
1950	12.72	5.29	3.89	3.43	2.68	6.55	2.15	4.08	4.96	0.98	5.52	3.00	55.25	15.18	15.18
1951	3.07	3.64	3.16	3.26	2.78	5.77	3.12	2.43	2.39	3.28	5.21	4.68	42.79	2.72	2.72
1952	3.69	2.71	5.77	3.99	3.90	6.17	2.45	2.46	4.62	0.64	3.87	3.01	43.28	3.21	3.21
1953	2.57	1.93	5.41	3.22	4.46	4.86	6.19	1.76	1.44	1.70	2.29	2.42	38.25	-1.82	1.82
1954	3.40	2.64	2.99	2.34	2.47	0.66	2.40	2.73	0.96	3.92	1.32	2.10	27.93	-12.14	12.14
1955	2.09	2.36	2.24	3.31	3.37	1.79	5.24	1.21	6.01	4.27	5.32	0.70	37.91	-2.16	2.16
1956	1.05	3.99											3.86	-5.43	5.43
1957	2.97	1.85											6.70	15.61	15.61
1958	1.48	0.41											0.66	-1.77	1.77
1959	4.49	3.22											2.90	-0.66	0.66
1960	2.35	3.28											1.88	-6.66	6.66
1961	1.22	3.15											3.05	6.57	6.57
1962	4.58	2.27											1.09	1.19	1.19
1963	1.20	0.53											0.86	-7.29	7.29
1964	2.04	2.01											3.05	-3.72	3.72
1965	3.86	4.33											3.17	-1.76	1.76
1966	0.93	2.92											5.23	-7.55	7.55
1967	1.81	1.84											4.92	-5.32	5.32
1968	2.96	1.51											4.18	0.98	0.98
1969	6.19	1.23											2.09	2.75	2.75
1970	1.12	1.86											2.07	-7.14	7.14
1971	1.98	5.35											6.02	-2.59	2.59
1972	1.57	1.15											2.83	0.20	0.20
1973	2.27	1.11											4.27	2.24	2.24
1974	3.39	2.58											2.62	1.24	1.24
1975	4.37	4.13											3.71	6.65	6.65
1976	2.29	2.90											0.45	-6.35	6.35
1977	4.59	2.62	2.82	4.84	2.78	2.86	2.57	4.47	4.62	4.57	2.84	4.44	38.45	4.02	4.02

This shows an example of the data provided by the Statistical Analysis for each year of rainfall in the rainfall file. The top part of the spreadsheet calculates statistics for the rainfall values in each month. The bottom part of the spreadsheet calculates statistics for the number of rain events in each month.

Parameter Files

Rainfall File Editor

May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total	Deviation From Average	Absolute Deviation	Count	Average	Std Deviation	COV	Min	Max
10	14	7	9	10	8	5	11	103	-14.14	14.14	12	8.58	3.53	0.41	0	14
15	13	9	9	14	5	11	11	145	27.86	27.86	12	12.08	3.37	0.28	5	17
11	16	8	7	7	6	10	11	128	10.86	10.86	12	10.67	3.47	0.33	6	16
17	12	7	8	4	5	10	14	116	-1.14	1.14	12	9.67	3.89	0.40	4	17
14	8	6	6	5	4	8	8	113	-4.14	4.14	12	9.42	4.83	0.51	4	20
14	5	7	16	5	11	10	12	127	9.86	9.86	12	10.58	3.37	0.32	5	16
9	10	11	7	7	8	8	5	111	-6.14	6.14	12	9.25	2.34	0.25	5	13
15	9	12	7	5	3	7	11	116	-1.14	1.14	12	9.67	3.65	0.38	3	15
15	20	8	8	9	4	9	11	133	15.86	15.86	12	11.08	4.52	0.41	4	20
12	13	15	8	9	7	9	6	113	-4.14	4.14	12	9.42	3.45	0.37	3	15
13	4	10										9.75	2.49	0.26	4	13
13	10	5										7.92	3.00	0.38	3	13
12	9	16										10.08	3.29	0.33	6	16
8	8	7										8.33	1.92	0.23	6	13
8	7	11										7.42	3.73	0.50	1	16
6	12	11										9.08	4.58	0.50	2	17
8	8	8										9.17	2.48	0.27	6	14
6	7	9										7.92	2.39	0.30	4	13
12	8	10										9.50	3.15	0.33	6	15
18	9	8										9.25	3.52	0.38	5	18
9	13	10										8.67	2.46	0.28	5	13
11	9	12										9.75	2.22	0.23	5	12
8	10	13										9.08	3.53	0.39	4	15
10	8	6										11.25	2.86	0.25	6	15
16	13	9										11.58	4.64	0.40	6	19
17	13	6										10.67	3.68	0.34	6	17
11	9	7										9.75	2.93	0.30	5	14
10	11	10	6	6	5	4	9	100	-17.14	17.14	12	8.33	3.08	0.37	4	15
8	11	7	12	9	8	16	14	127	9.86	9.86	12	10.58	3.03	0.29	7	16
13	6	11	12	6	12	7	13	131	13.86	13.86	12	10.92	3.12	0.29	6	16
9	11	16	13	2	14	12	10	146	28.86	28.86	12	12.17	4.26	0.35	2	18
..	..	-	..	-	-	..	-	...	...	...	..	...	...	...	-	..

This shows more data provided by the Statistical Analysis for each year of rainfall in the rainfall file.

The user can use the data in this spreadsheet to determine which year of rainfall represents an average annual year.

Parameter Files

Street Delivery File Editor

Street Delivery Parameter File

Select File C:\WINSLAMM FILES\WI_RES AND OTHER URBAN DEC06.STD

File Description: Adjustments on the street file where std vaules. Dec 2006.

☐ **Freeway Delivery File**

Fraction Reduction in Street Washoff Yield for Different Sized Rains

Rain Depth (in)	0.04	0.08	0.12	0.20	0.39	0.59	0.79	0.98	1.2	1.6	2.0	2.4	2.8	3.2
Rain Depth (mm)	1	2	3	5	10	15	20	25	30	40	50	60	70	80
Smooth Textured Streets	0.96	0.95	0.90	0.75	0.70	0.50	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Intermediate Textured	0.96	0.95	0.90	0.75	0.70	0.50	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rough Textured Streets	0.96	0.95	0.90	0.75	0.70	0.50	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Very Rough Textured	0.96	0.95	0.88	0.75	0.65	0.55	0.25	0.08	0.00	0.00	0.00	0.00	0.00	0.00

Use Shift plus the arrow keys to move through the grid

Fraction

Print to Text File **Save File** **Save File As...** **Cancel** **Continue**

This file contains the washoff coefficients for the various street textures and rainfall depths. This file is used for the Street Source Area only.

Parameter Files

Runoff Coefficient File Editor

Runoff Coefficient Parameter File



File Description:

Area Types (AT):

AT 1: Connected flat roofs	AT 5: Pervious areas - Sandy soils	AT 9: Intermediate textured streets
AT 2: Connected Pitched Roofs	AT 6: Pervious areas - Silty soils	AT 10: Rough textured streets
AT 3: Directly connected impervious areas	AT 7: Pervious areas - Clayey soils	AT 11: High Traffic Urban Paved Areas
AT 4: Directly connected unpaved ar		AT 12: Pervious Areas

☒ **Runoff Coefficient Data**

☐ **Drainage Efficiency Coefficient Data**

Volumetric Runoff Coefficients for Rains (in. and mm.)

Rain (in)	0.01	0.08	0.12	0.20	0.39	0.59	0.79	0.98	1.2	1.6	2.0	2.4	2.8	3.2	3.5	3.9	4.9
Rain (mm)	1	2	3	5	10	15	20	25	30	40	50	60	70	80	90	100	125
AT 1	0.00	0.15	0.45	0.64	0.77	0.79	0.83	0.84	0.86	0.88	0.90	0.91	0.93	0.94	0.94	0.95	0.96
AT 2	0.25	0.63	0.75	0.85	0.93	0.95	0.96	0.97	0.98	0.98	0.99	0.99	0.99	0.99	0.99	0.99	0.99
AT 3	0.35	0.44	0.49	0.56	0.64	0.69	0.73	0.77	0.81	0.86	0.89	0.91	0.92	0.93	0.94	0.94	0.95
AT 4	0.00	0.00	0.00	0.00	0.47	0.64	0.72	0.77	0.81	0.86	0.89	0.91	0.92	0.93	0.94	0.94	0.95
AT 5	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
AT 6	0.00	0.00	0.00	0.00	0.02	0.03	0.04	0.04	0.05	0.05	0.20	0.20	0.20	0.20	0.20	0.20	0.20
AT 7	0.00	0.00	0.00	0.00	0.02	0.04	0.06	0.07	0.08	0.12	0.20	0.20	0.20	0.20	0.20	0.25	0.30
AT 8	0.41	0.48	0.64	0.67	0.75	0.89	0.91	0.91	0.92	0.92	0.93	0.93	0.94	0.95	0.96	0.97	0.99
AT 9	0.41	0.48	0.64	0.67	0.75	0.89	0.91	0.91	0.92	0.92	0.93	0.93	0.94	0.95	0.96	0.97	0.99
AT 10	0.18	0.39	0.47	0.53	0.60	0.64	0.67	0.70	0.73	0.80	0.84	0.86	0.88	0.90	0.91	0.92	0.93
AT 11	0.55	0.73	0.77	0.83	0.87	0.97	0.97	0.97	0.98	0.98	0.98	0.98	0.99	0.99	0.99	0.99	1.00
AT 12	0.00	0.00	0.00	0.00	0.00	0.00	0.21	0.33	0.40	0.50	0.55	0.60	0.62	0.65	0.65	0.65	0.65

Fraction

Use Shift plus the arrow keys to move through the grid

This file contains the runoff coefficients for the Source Areas in the model.

The program multiplies the area of the Source Area times the Runoff coefficient for each rainfall event times a conversion factor to determine the Runoff Volume for each source area and rainfall event.

Parameter Files

Particulate Solids Concentration File Editor

Particulate Solids Concentration Parameter File

Select File C:\WinSLAMM Files\W\I_AVG01.pscx

File Description: Change based on several source areas dec. 1999

Area Types (AT):

AT 1: Roofs	AT 5: Paved Driveways	AT 10: Other Pervious Areas
AT 2: Paved Parking	AT 6: Paved Sidewalks and Walks	AT 11: Other Directly Connected Impervious Areas
AT 3: Unpaved Parking, driveways, and walkways	AT 7: Large Landscaped Areas	AT 12: Other Partially Connected Impervious Areas
AT 4: Paved Playgrounds	AT 8: Small Landscaped Areas	AT 13: Paved Lane and Shoulder Areas
	AT 9: Undeveloped Areas	AT 14-23: Other Impervious Areas

☒ **Residential Land Use** ☐ **Commercial Land Use** ☐ **Other Urban Land Use**
☐ **Institutional Land Use** ☐ **Industrial Land Use** ☐ **Freeways Land Use**

Area Type Multiplier ==> Enter Row Number - AT Enter Multiplier Fraction: **Apply Multiplier**

Particulate Solids Concentration (mg/L) Values for Rains (in. and mm.)

Rain (in):	0.04	0.08	0.12	0.20	0.39	0.59	0.79	0.98	1.2	1.6	2.0	2.4	2.8	3.2
Rain (mm):	1	2	3	5	10	15	20	25	30	40	50	60	70	80
AT 1	37	37	37	37	37	37	37	37	37	37	37	37	37	37
AT 2	130	130	130	130	130	130	130	130	130	130	130	130	130	130
AT 3	154	154	154	154	154	154	154	154	154	154	154	154	154	154
AT 4	154	154	154	154	154	154	154	154	154	154	154	154	154	154
AT 5	154	154	154	154	154	154	154	154	154	154	154	154	154	154
AT 6	75	75	75	75	75	75	75	75	75	75	75	75	75	75
AT 7	227	227	227	227	227	227	227	227	227	227	227	227	227	227
AT 8	227	227	227	227	227	227	227	227	227	227	227	227	227	227
AT 9	16	16	16	16	16	16	16	16	16	16	16	16	16	16
AT 10	227	227	227	227	227	227	227	227	227	227	227	227	227	227
AT 11	154	154	154	154	154	154	154	154	154	154	154	154	154	154
AT 12	154	154	154	154	154	154	154	154	154	154	154	154	154	154
AT 14	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AT 15	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AT 16	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Print to Text File **Save File** **Save File As...** **Cancel** **Continue**

This file contains the Particulate Solids Concentrations for each Source Area within each Land Use in the model.

The program multiplies the Runoff Volume of each Source Area within each Land Use times the Particulate Solids Concentration for each rainfall event times a conversion factor to determine the Particulate Solids Loading for each Source Area and rainfall event.

Parameter Files

Pollutant File Editor

Pollutant Parameter File

Select File C:\WinSLAMM Files\W1_GEO02.ppdX

File Description: Update of the pollutant file using USGS monitored number from several projects.

Particulate Pollutants

☒ *Phosphorus*

☐ TKN

☐ COD

☐ Chromium

☐ Copper

Filterable Pollutants

☐ Lead

☐ Zinc

☐ Cadmium

☐ Pyrene

☐ Other 3

☐ Other 4

☐ Other 5

☐ Other 6

☐ Solids

☐ Phosphorus

☐ Nitrates

☐ TKN

☐ COD

☐ Fecal Coliform Bacteria

☐ Chromium

☐ Copper

☐ Lead

☐ Zinc

☐ Cadmium

☐ Other 2

☐ Other 3

☐ Other 4

☐ Other 5

☐ Other 6

Other Label

Pollutant Units

☒ (mg/kg)

Land Use Multiplier ==> Enter Land Use Column Number Enter Multiplier Fraction: **Apply Multiplier**

Pollutant: Particulate Phosphorus (mg/kg)

Land Use Column Number ==> 1 2 3 4 5 6

Land Use ==>	Residential	Institutional	Commercial	Industrial	Other Urban	Freeway
Roofs - Mean	3293.00	5573.00	5573.00	2226.00	3293.00	2226.00
Roofs - COV	1.11	1.24	1.24	1.41	1.11	1.41
Paved Parking/Storage - Mean	1423.00	1423.00	1423.00	1017.00	1423.00	1017.00
Paved Parking/Storage - COV	0.89	0.89	0.89	0.38	0.89	0.38
Unpaved Parking/Storage - Mean	2434.00	2434.00	2434.00	2434.00	2434.00	2434.00
Unpaved Parking/Storage - COV	0.79	0.79	0.79	0.79	0.79	0.79
Playground - Mean	2434.00	2434.00	2434.00	2434.00	2434.00	2434.00
Playground - COV	0.79	0.79	0.79	0.79	0.79	0.79
Driveways - Mean	2434.00	2434.00	2434.00	2434.00	2434.00	2434.00
Driveways - COV	0.79	0.79	0.79	0.79	0.79	0.79
Sidewalks/Walks - Mean	2434.00	2434.00	2434.00	2434.00	2434.00	2434.00
Sidewalks/Walks - COV	0.79	0.79	0.79	0.79	0.79	0.79
Streets or Freeway High Traffic Hwys - Mean	2305.00	1558.00	1558.00	1153.00	2305.00	1121.00

Print to Text File **Save File** **Save File As...** **Cancel** **Continue**

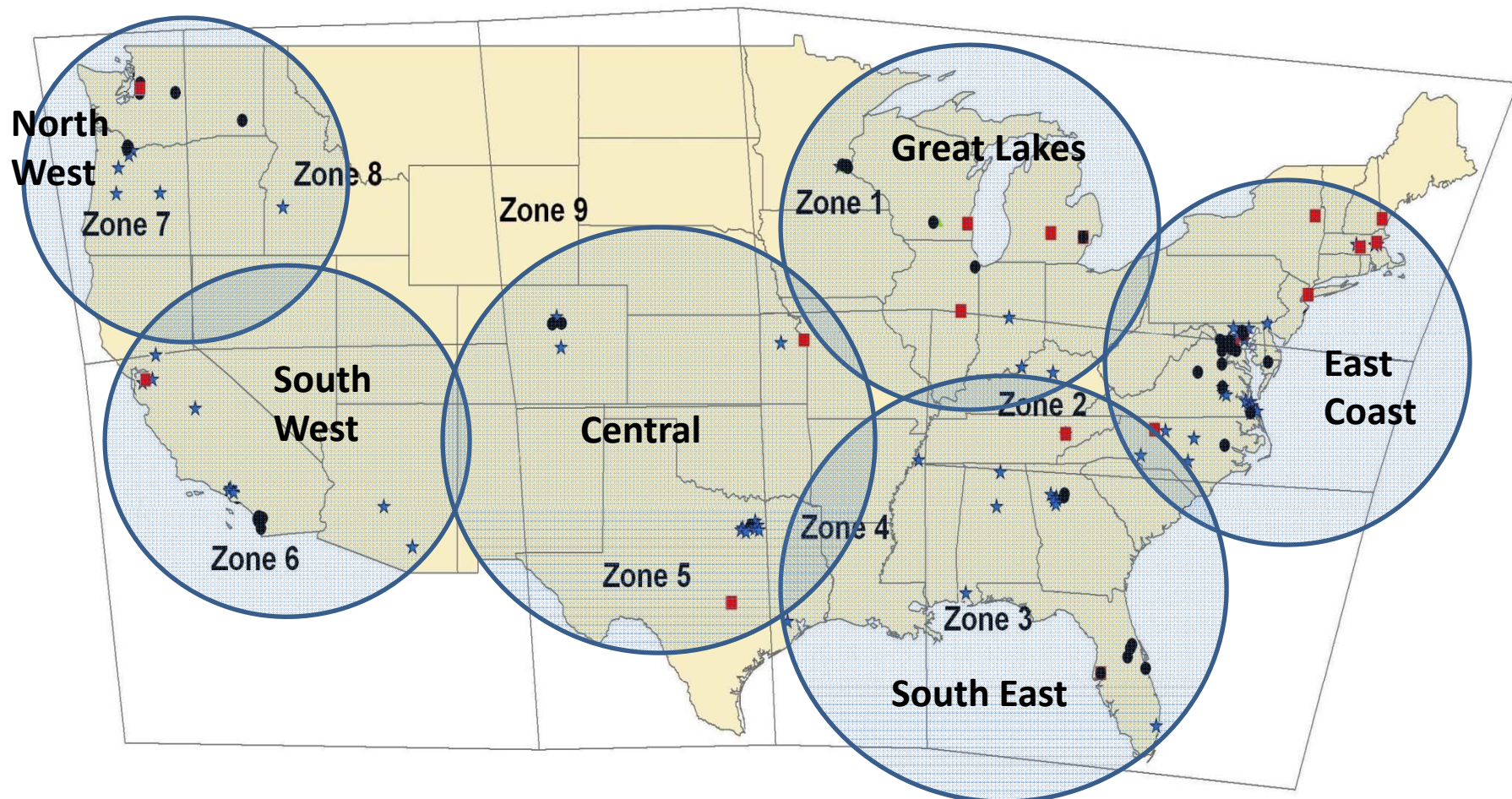
This file contains the Pollutant fractions for each Source Area within each Land Use in the model.

The program multiplies the Particulate Solids Loading of each Source Area within each Land Use times the Pollutant fraction for each rainfall event times a conversion factor to determine the Pollutant Loading for each Source Area and rainfall event.

Parameter Files

The program comes with several parameter files. Choose the parameter file closest to your project location. If using the program outside the United States, please contact PVA for the most appropriate parameter files for your geographic location.

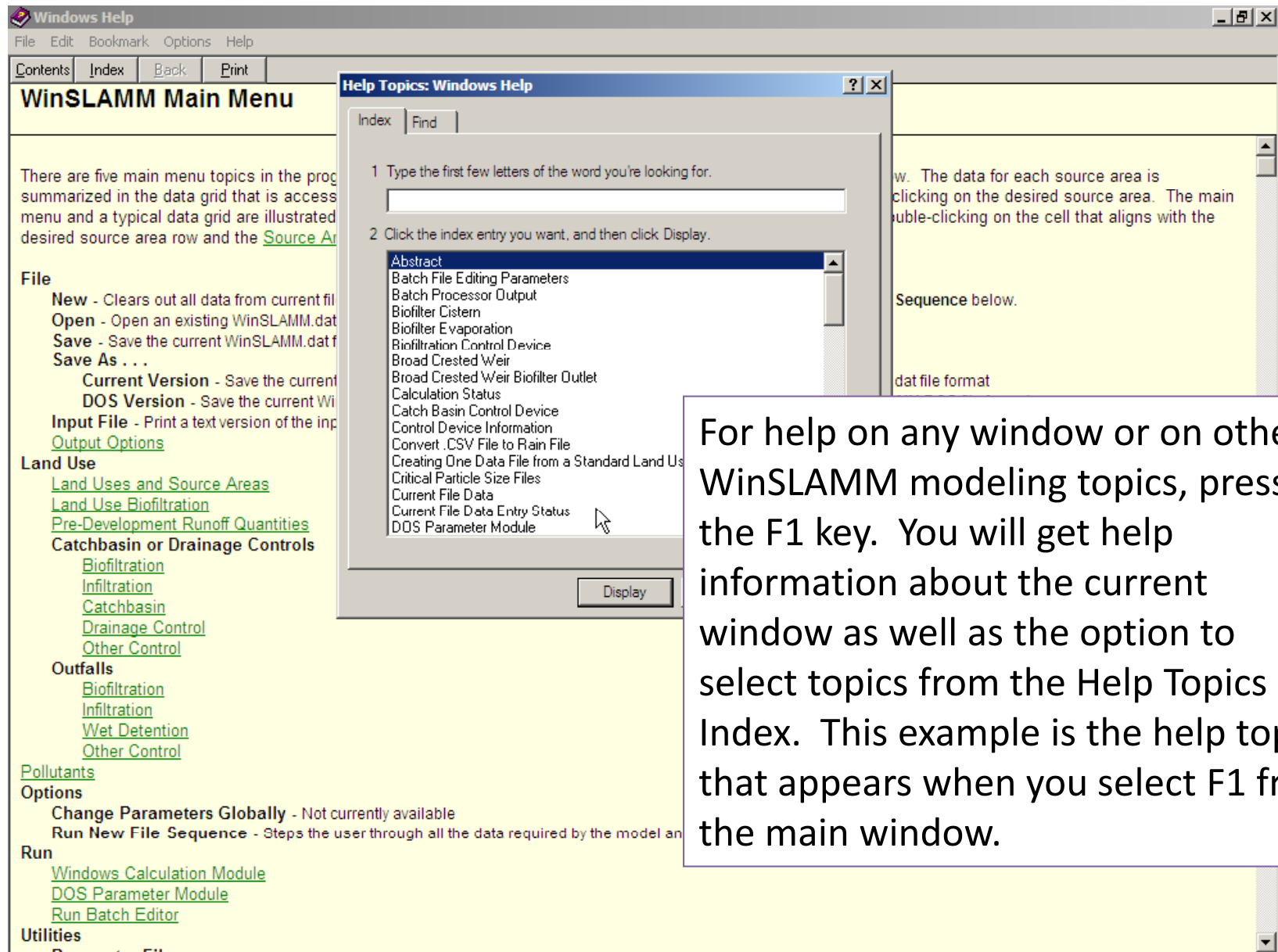
Information regarding the development of the parameter files can be found at:
http://www.winslamm.com/Select_documentation.html



National Stormwater Quality Database

For Additional Information
See . . .

The Context-Sensitive Help in the Program



For help on any window or on other WinSLAMM modeling topics, press the F1 key. You will get help information about the current window as well as the option to select topics from the Help Topics Index. This example is the help topic that appears when you select F1 from the main window.



Questions?

For model information, go to www.winslamm.com
Remember to Press the “F1” to access the Help File