WinSLAMM v 10.2
User's Guide

Parameter Files

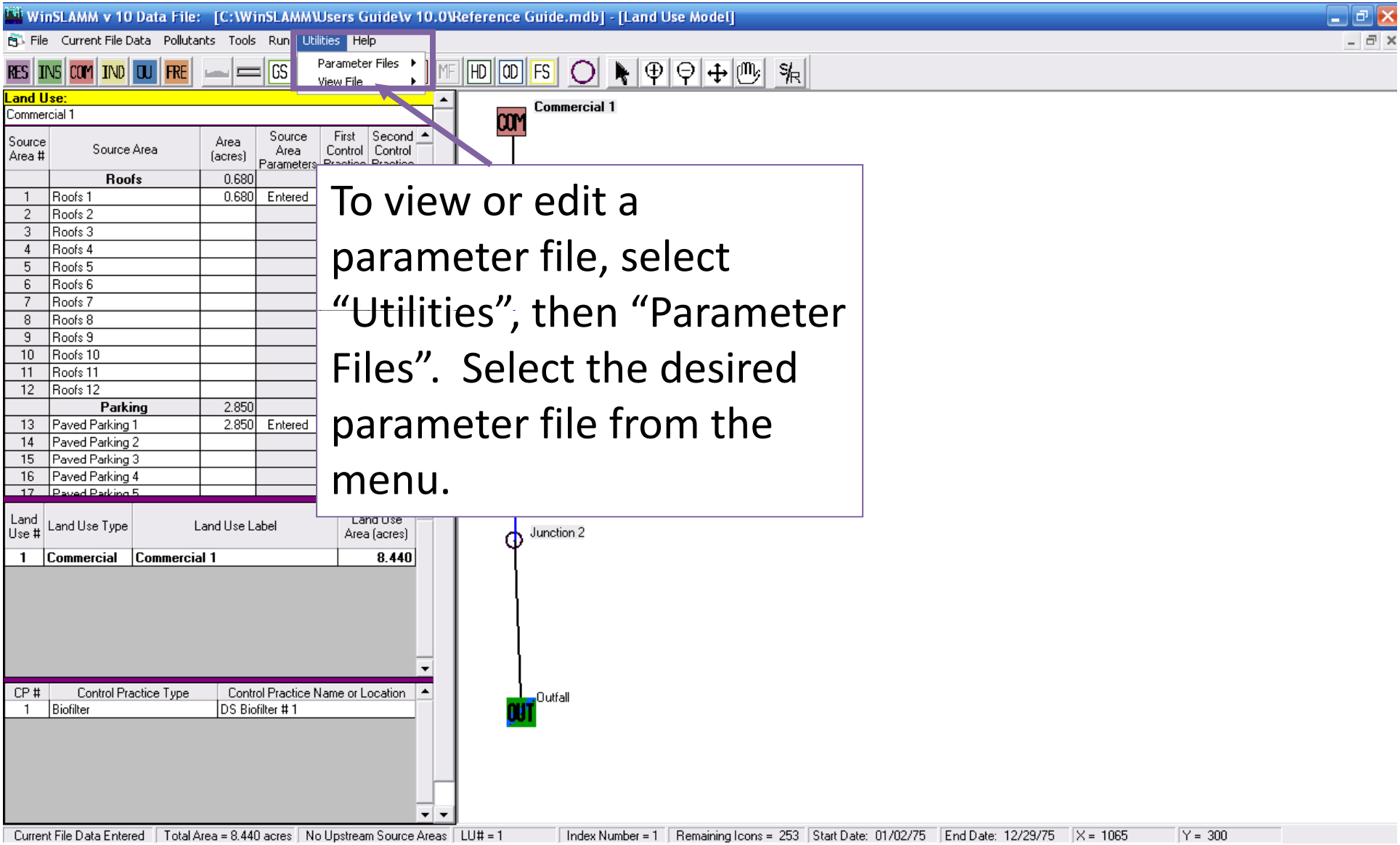
Parameter Files

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.

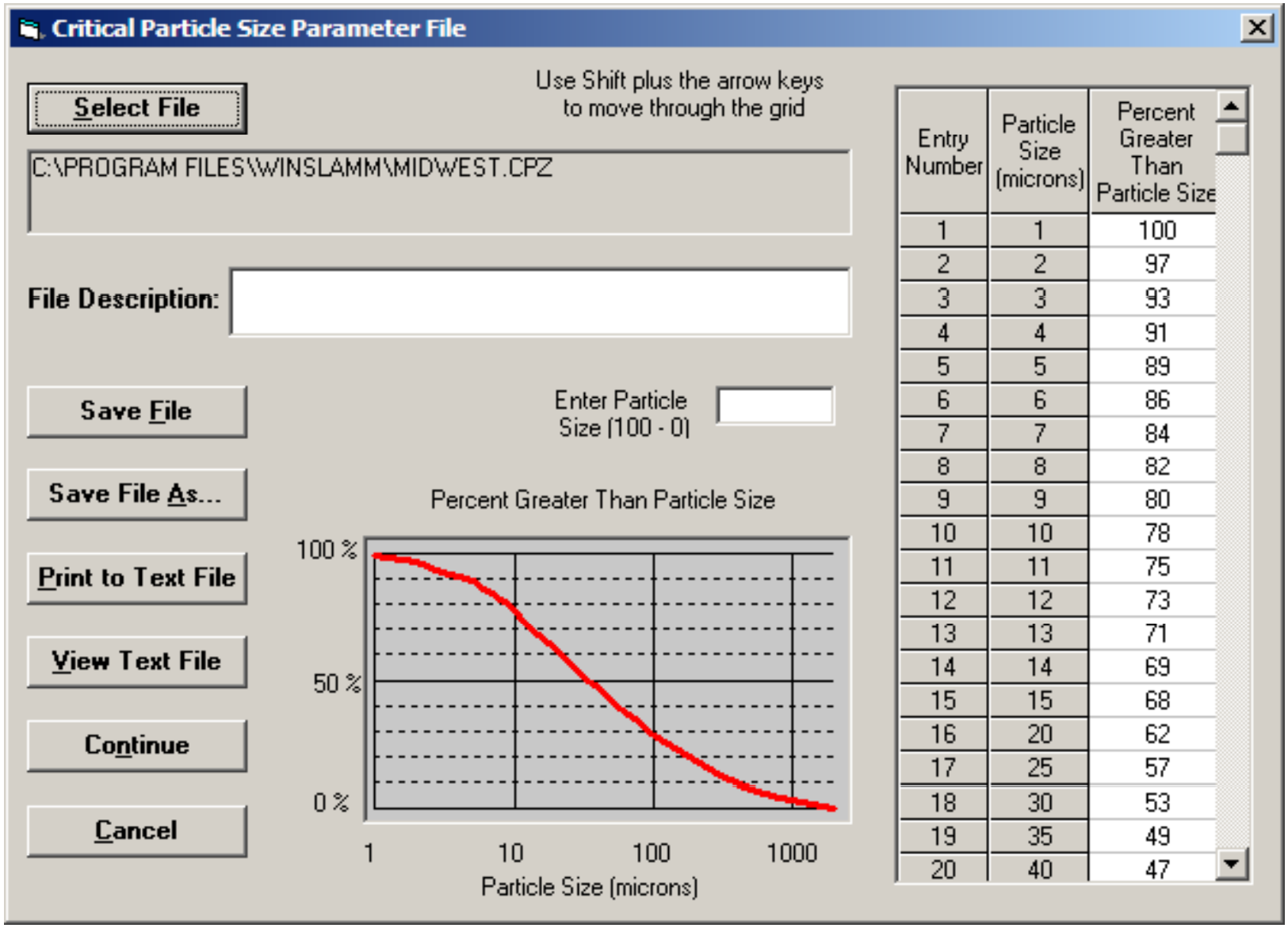
Documentation describing the calibration process can be found at:
http://www.winslamm.com/Select_documentation.html

Parameter Files



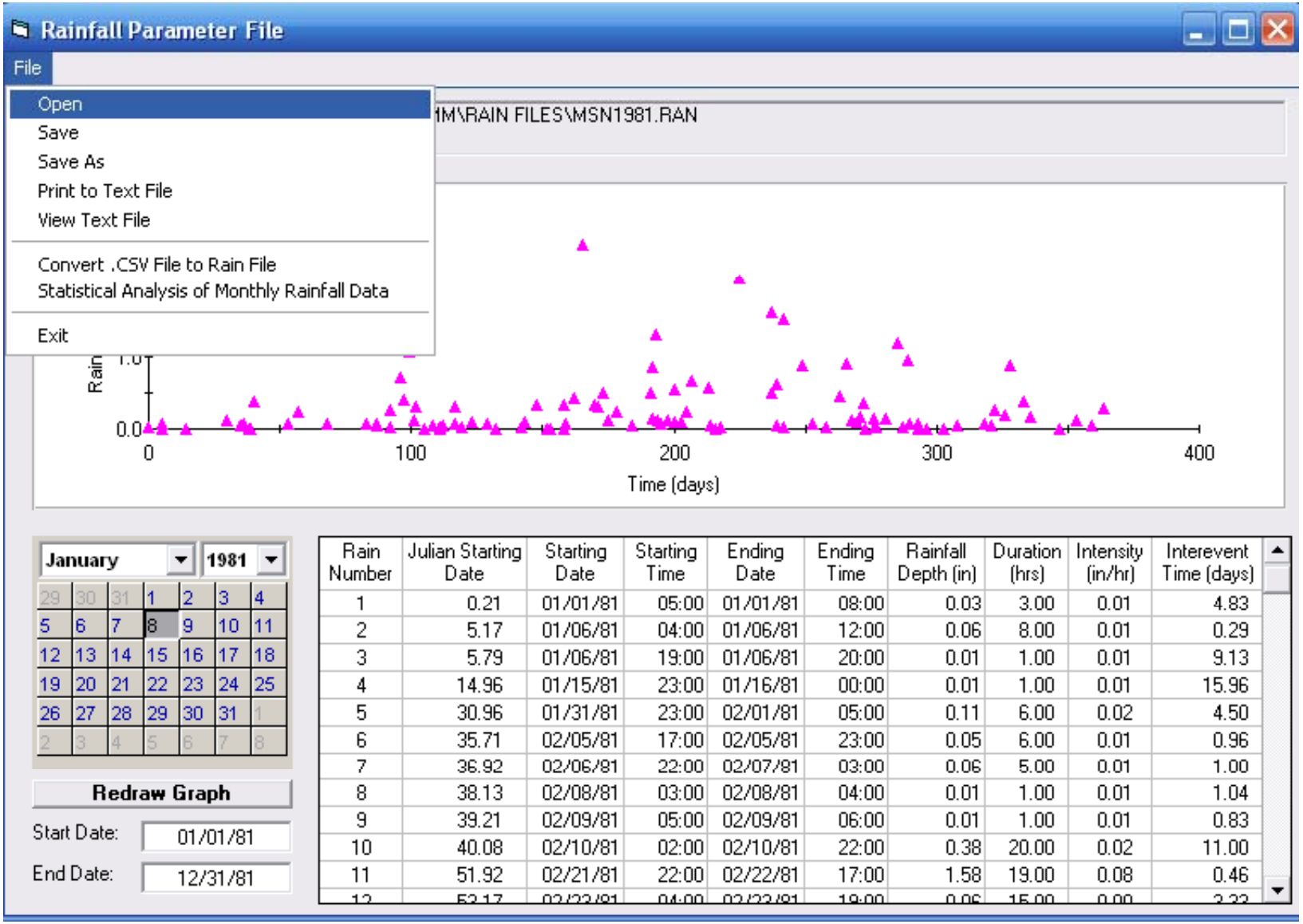
Parameter Files

Particle Size Distribution Editor



Parameter Files

Rainfall File Editor



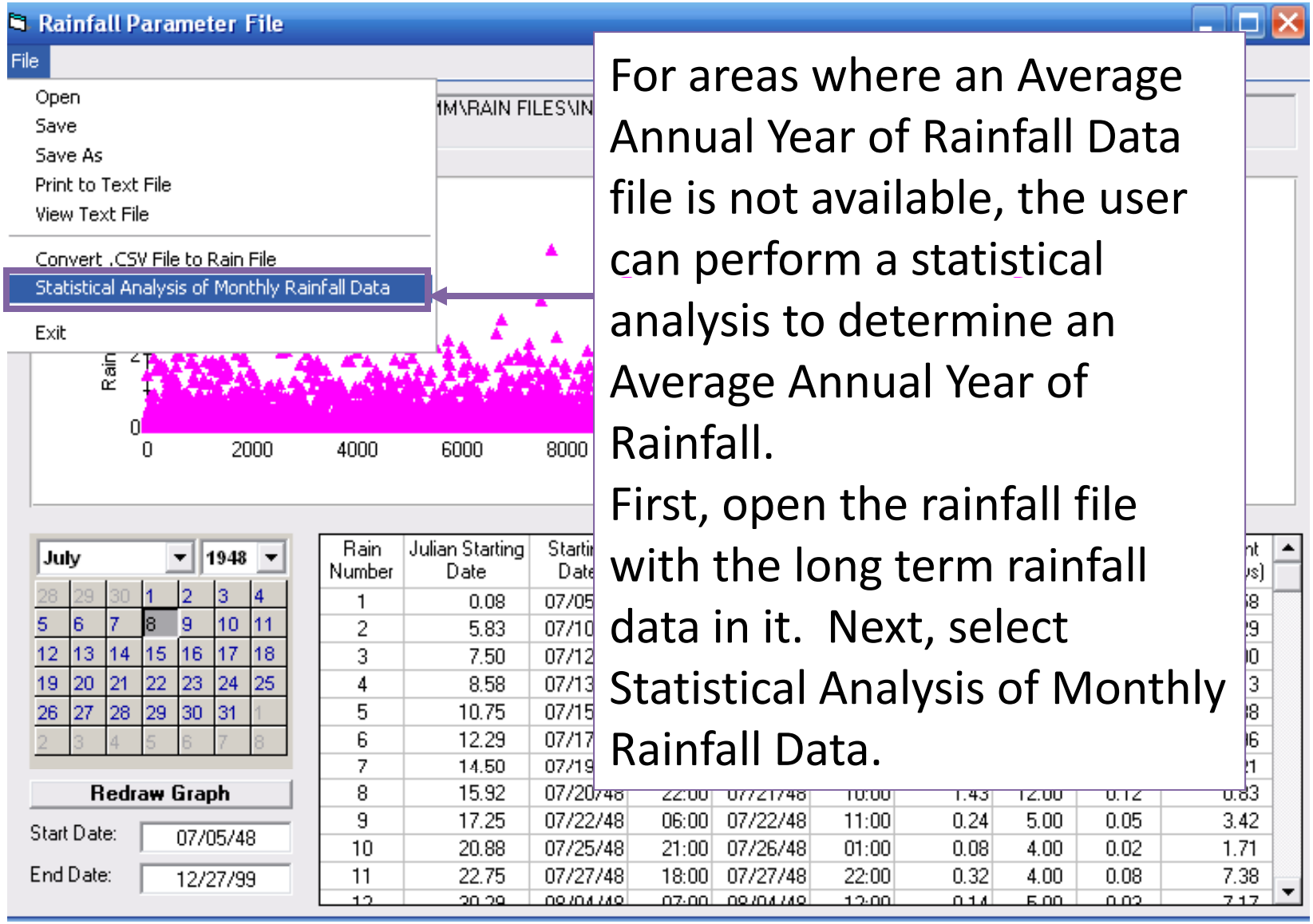
Rain Number	Julian Starting Date	Starting Date	Starting Time	Ending Date	Ending Time	Rainfall Depth (in)	Duration (hrs)	Intensity (in/hr)	Interevent Time (days)
1	0.21	01/01/81	05:00	01/01/81	08:00	0.03	3.00	0.01	4.83
2	5.17	01/06/81	04:00	01/06/81	12:00	0.06	8.00	0.01	0.29
3	5.79	01/06/81	19:00	01/06/81	20:00	0.01	1.00	0.01	9.13
4	14.96	01/15/81	23:00	01/16/81	00:00	0.01	1.00	0.01	15.96
5	30.96	01/31/81	23:00	02/01/81	05:00	0.11	6.00	0.02	4.50
6	35.71	02/05/81	17:00	02/05/81	23:00	0.05	6.00	0.01	0.96
7	36.92	02/06/81	22:00	02/07/81	03:00	0.06	5.00	0.01	1.00
8	38.13	02/08/81	03:00	02/08/81	04:00	0.01	1.00	0.01	1.04
9	39.21	02/09/81	05:00	02/09/81	06:00	0.01	1.00	0.01	0.83
10	40.08	02/10/81	02:00	02/10/81	22:00	0.38	20.00	0.02	11.00
11	51.92	02/21/81	22:00	02/22/81	17:00	1.58	19.00	0.08	0.46

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

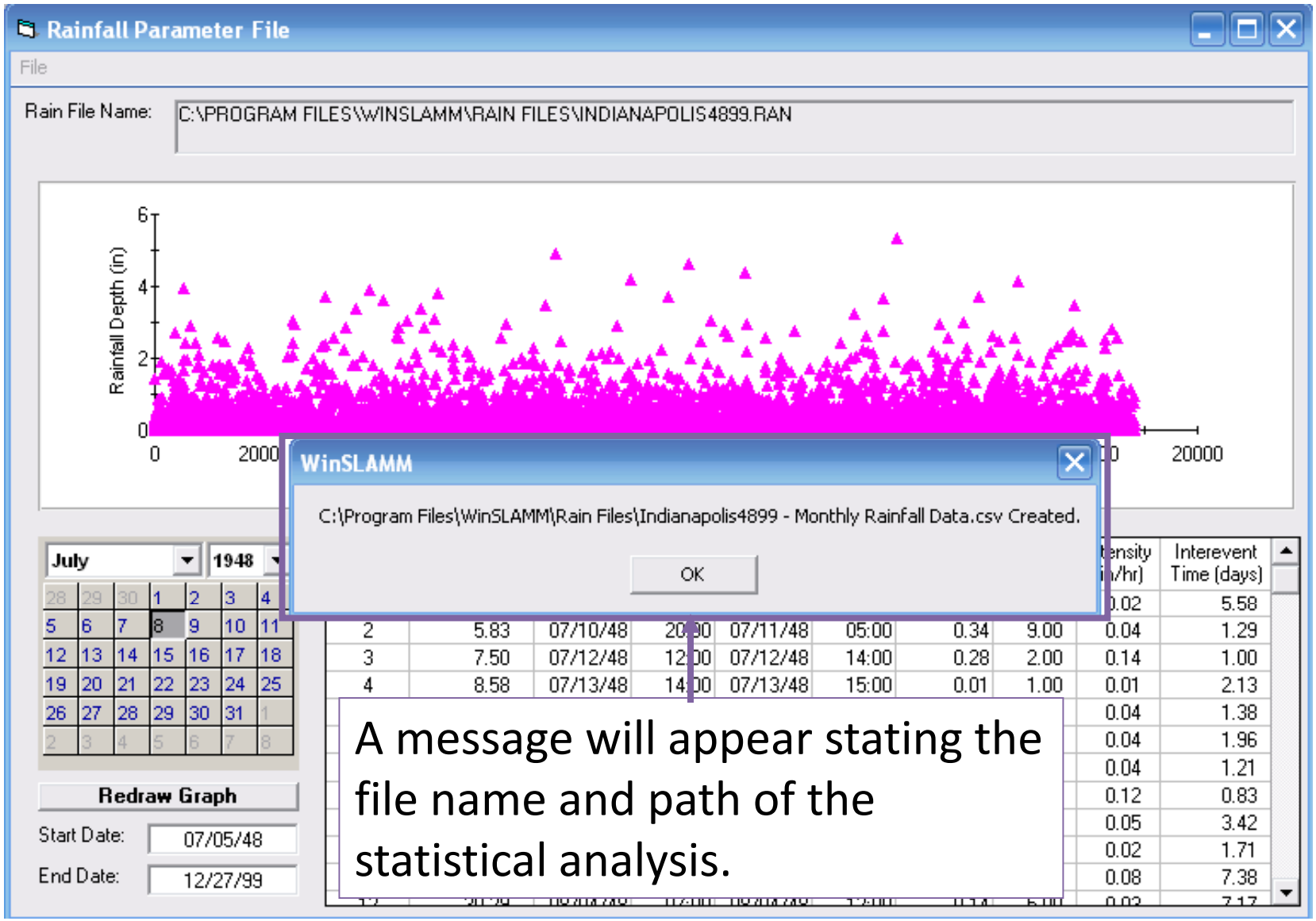


For areas where an Average Annual Year of Rainfall Data file is not available, the user can perform a statistical analysis to determine an Average Annual Year of Rainfall.

First, open the rainfall file with the long term rainfall data in it. Next, select Statistical Analysis of Monthly Rainfall Data.

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	34.64	-5.43	5.43
1957	2.97	1.85										6.70	55.68	15.61	15.61
1958	1.48	0.41										0.66	38.30	-1.77	1.77
1959	4.49	3.22										2.90	39.41	-0.66	0.66
1960	2.35	3.28										1.88	33.41	-6.66	6.66
1961	1.22	3.15										3.05	46.64	6.57	6.57
1962	4.58	2.27										1.09	41.26	1.19	1.19
1963	1.20	0.53										0.86	32.78	-7.29	7.29
1964	2.04	2.01										3.05	36.35	-3.72	3.72
1965	3.86	4.33										3.17	38.31	-1.76	1.76
1966	0.93	2.92										5.23	32.52	-7.55	7.55
1967	1.81	1.84										4.92	34.75	-5.32	5.32
1968	2.96	1.51										4.18	41.05	0.98	0.98
1969	6.19	1.23										2.09	42.82	2.75	2.75
1970	1.12	1.86										2.07	32.93	-7.14	7.14
1971	1.98	5.35										6.02	37.48	-2.59	2.59
1972	1.57	1.15										2.83	40.27	0.20	0.20
1973	2.27	1.11										4.27	42.31	2.24	2.24
1974	3.39	2.58										2.62	41.31	1.24	1.24
1975	4.37	4.13										3.71	46.72	6.65	6.65
1976	2.29	2.90										0.45	33.72	-6.35	6.35

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

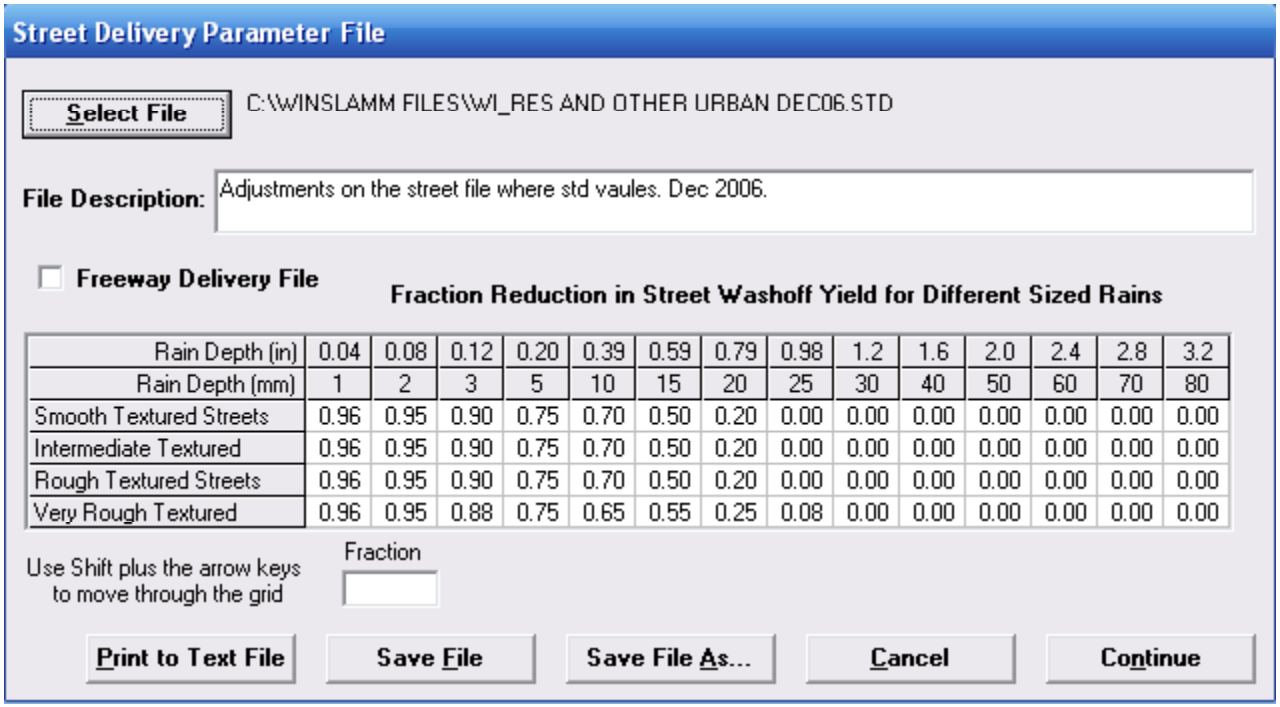
May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total	Deviation From Average	Absolute Deviation	Count	Average	Stnd Deviation	COV	Min	Max
10	14	7	9	10	8	5	11	103	-14.14	14.14	12	8.58	3.53	0.41	0	14
15	13	9	9	14	5	11	11	145	27.86	27.86	12	12.08	3.37	0.28	5	17
11	16	8	7	7	6	10	11	128	10.86	10.86	12	10.67	3.47	0.33	6	16
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

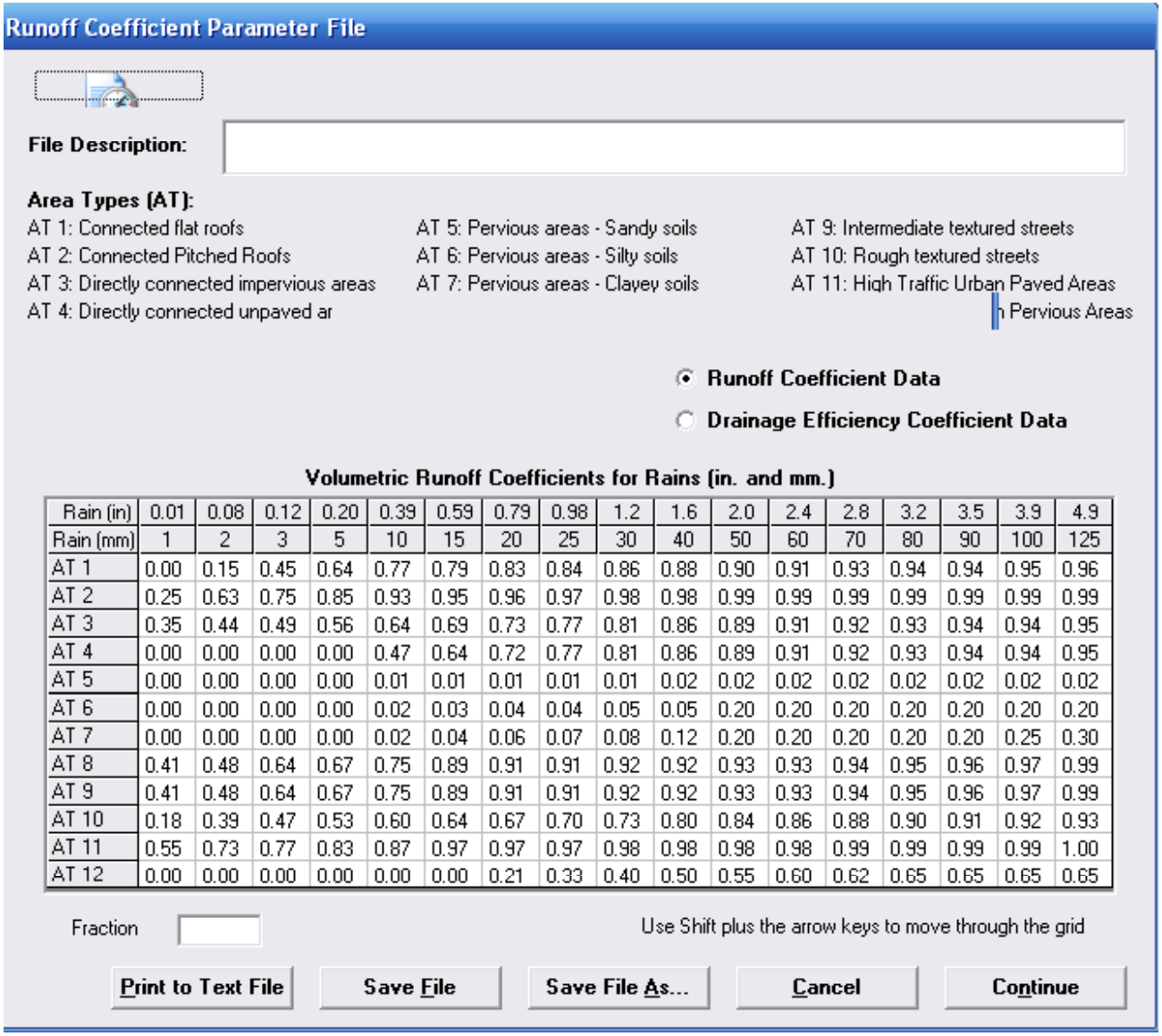


Rain Depth (in)	0.04	0.08	0.12	0.20	0.39	0.59	0.79	0.98	1.2	1.6	2.0	2.4	2.8	3.2
Rain Depth (mm)	1	2	3	5	10	15	20	25	30	40	50	60	70	80
Smooth Textured Streets	0.96	0.95	0.90	0.75	0.70	0.50	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Intermediate Textured	0.96	0.95	0.90	0.75	0.70	0.50	0.20	0.00	0.00	0.00	0.00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

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



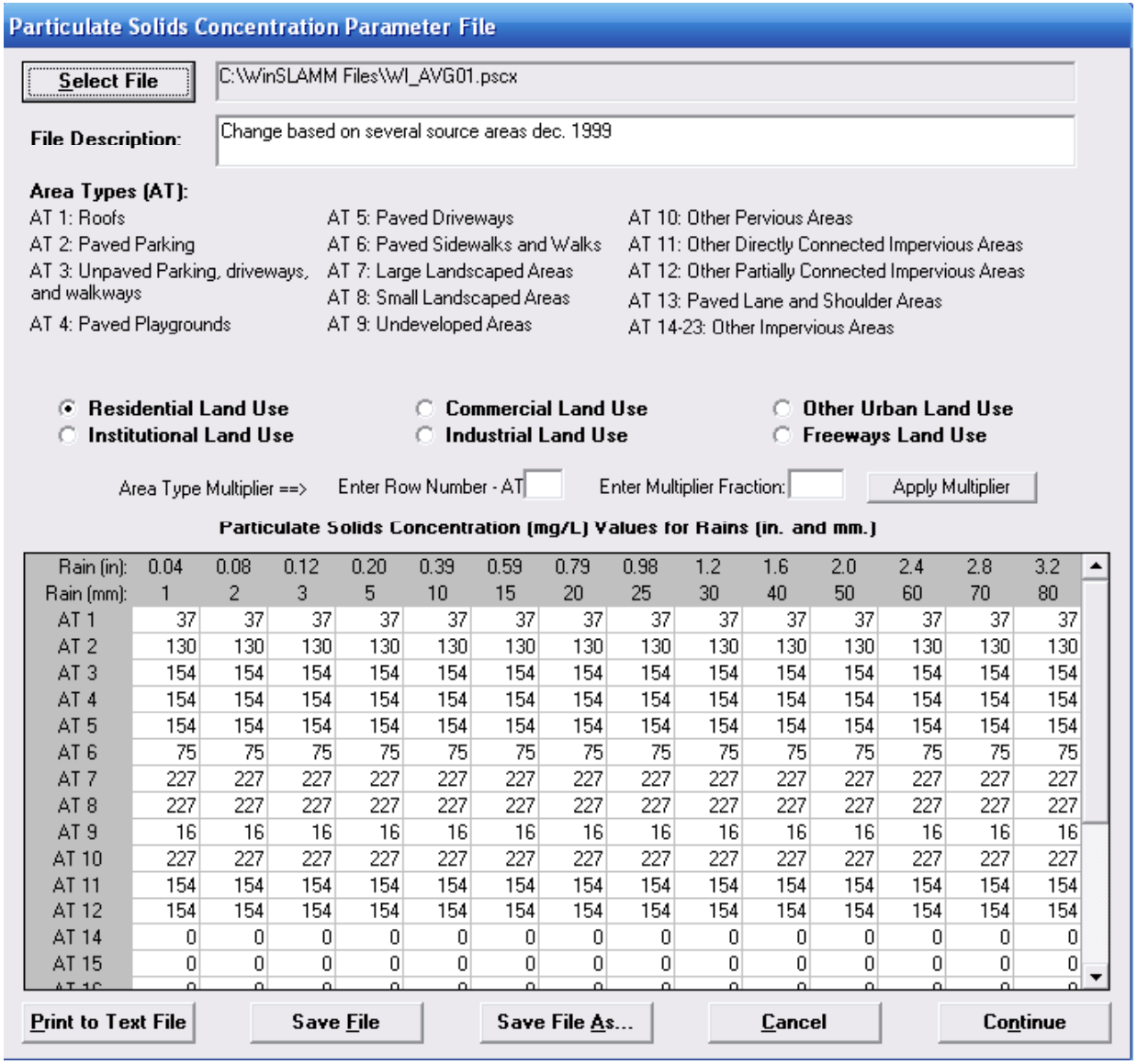
Rain (in)	0.01	0.08	0.12	0.20	0.39	0.59	0.79	0.98	1.2	1.6	2.0	2.4	2.8	3.2	3.5	3.9	4.9
Rain (mm)	1	2	3	5	10	15	20	25	30	40	50	60	70	80	90	100	125
AT 1	0.00	0.15	0.45	0.64	0.77	0.79	0.83	0.84	0.86	0.88	0.90	0.91	0.93	0.94	0.94	0.95	0.96
AT 2	0.25	0.63	0.75	0.85	0.93	0.95	0.96	0.97	0.98	0.98	0.99	0.99	0.99	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

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



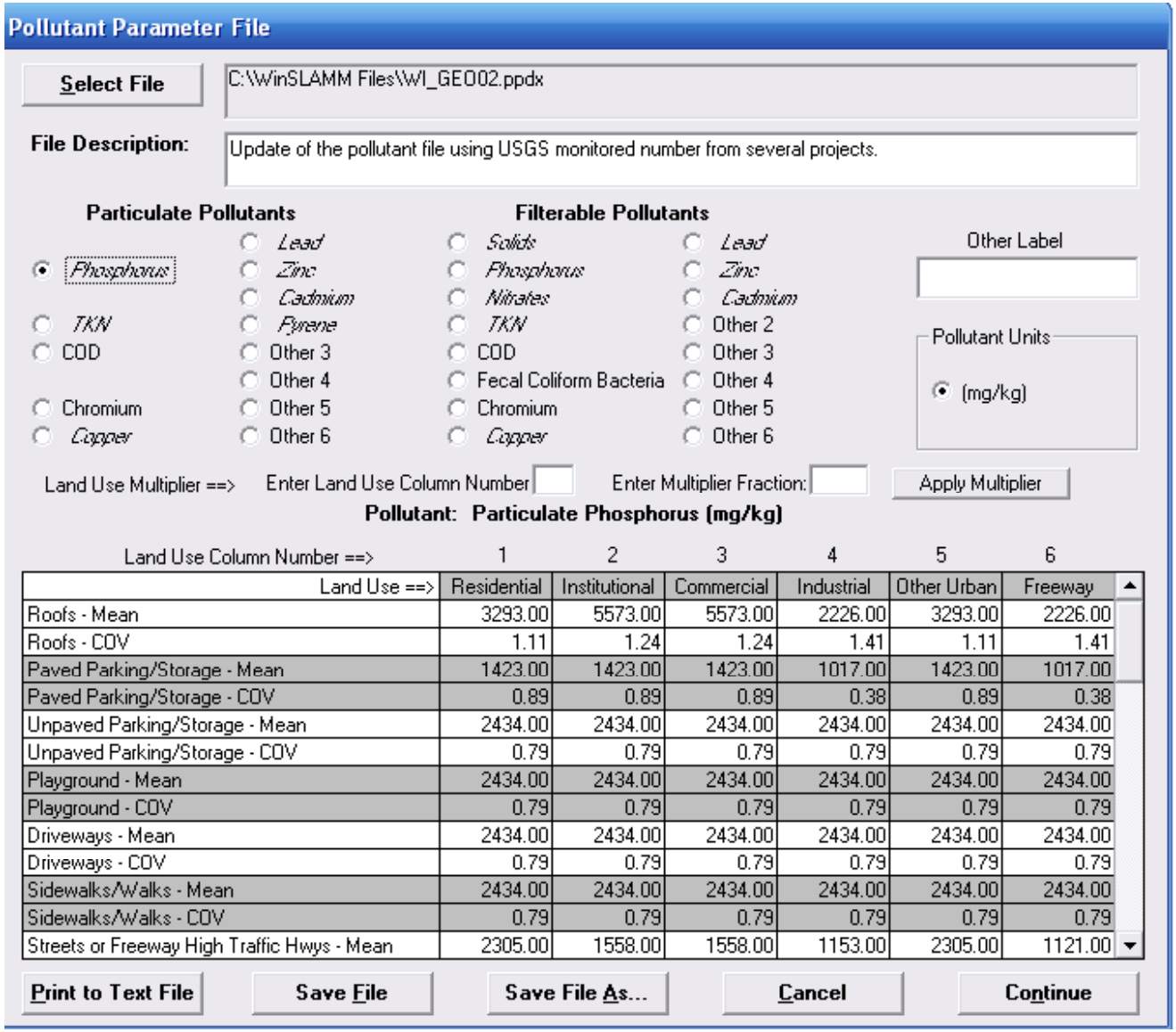
Rain (in):	0.04	0.08	0.12	0.20	0.39	0.59	0.79	0.98	1.2	1.6	2.0	2.4	2.8	3.2
Rain (mm):	1	2	3	5	10	15	20	25	30	40	50	60	70	80
AT 1	37	37	37	37	37	37	37	37	37	37	37	37	37	37
AT 2	130	130	130	130	130	130	130	130	130	130	130	130	130	130
AT 3	154	154	154	154	154	154	154	154	154	154	154	154	154	154
AT 4	154	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

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



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

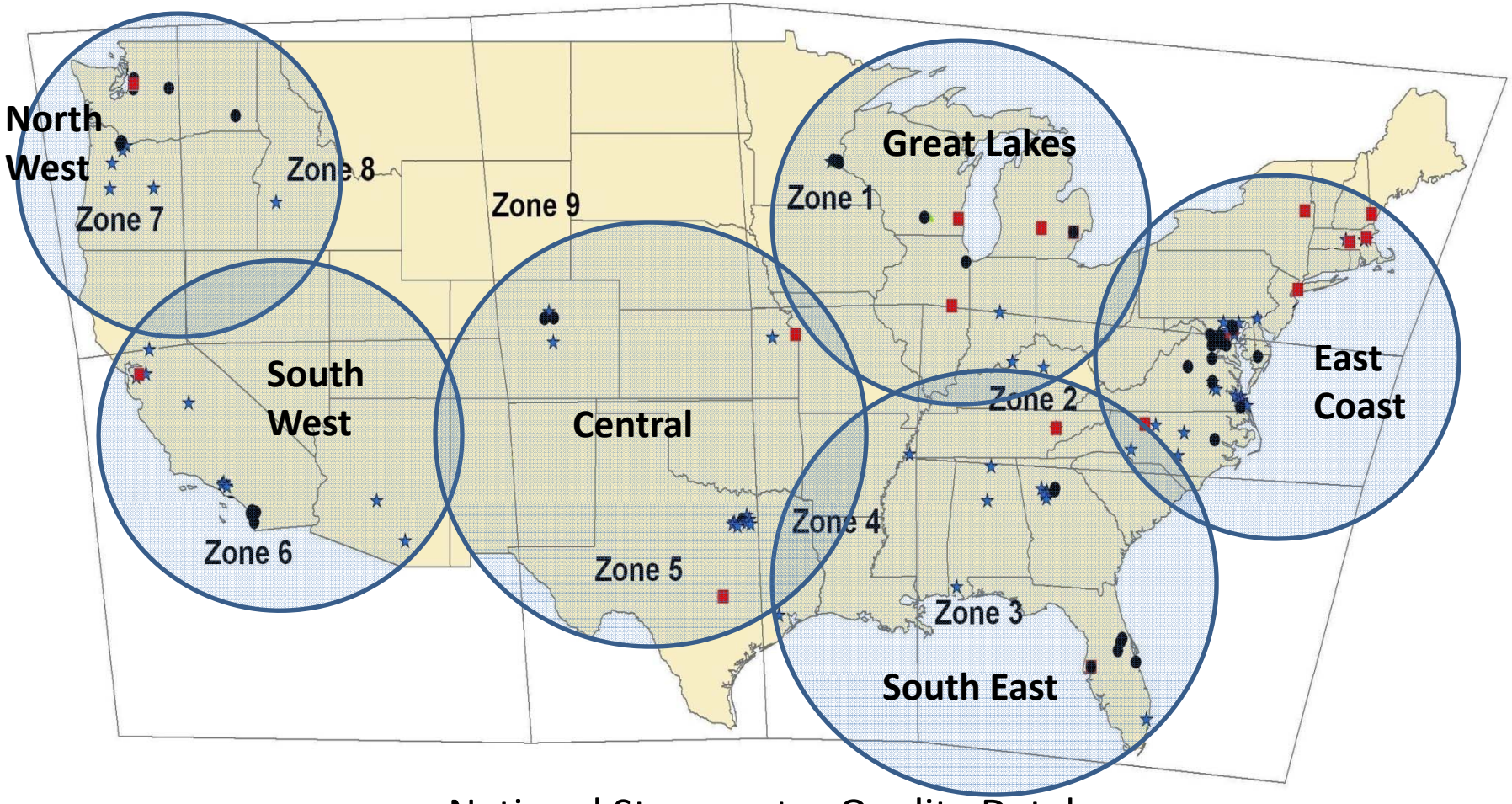
This file contains the Pollutant fractions for each Source Area within each Land Use in the model.

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.

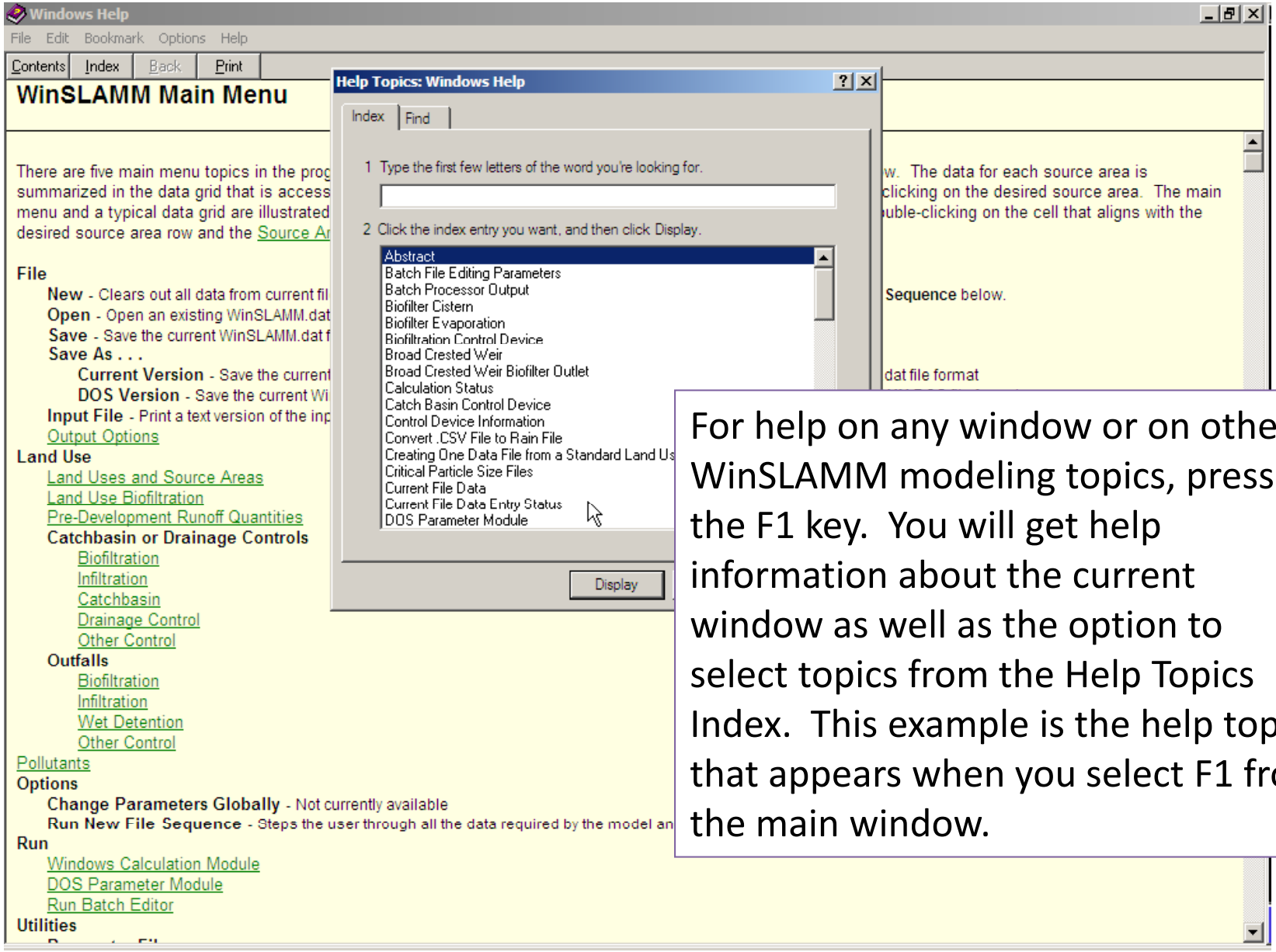
Information regarding the development of the parameter files can be found at: http://www.winslamm.com/Select_documentation.html



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