

DrinC

Drought Indices Calculator



Getting Started Guide



Version 1.0

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Introduction

DrinC is a stand-alone PC software which operates on Windows platforms. The main objective of the software is to facilitate the procedure of the calculation of drought indices, which may be a complicated task especially in the case of the assessment of the spatial distribution of indices.

Three drought indices can be calculated using DrinC:

- Deciles
- SPI (Standardized Precipitation Index)
- RDI (Reconnaissance Drought Index)

Software installation

The recommended system requirements for DrinC are a Pentium 4 processor computer with 128MB of RAM and a version of MS Excel (97 or higher) installed.

Run "DrinC setup.exe" application to initialize the software setup and follow the instructions of the wizard to complete the installation process.

Data input

The input data are the annual or monthly precipitation for the calculation of Deciles and SPI, while potential evapotranspiration (PET) data are also required for the calculation of RDI. There is also the option to use temperature data in order to calculate PET by the Thornthwaite method. Note that a series of at least 30 years period of data must be available in order to have reliable results.

In order to improve the interface of the software the input and output

The image displays two Microsoft Excel spreadsheets side-by-side, both titled "Microsoft Excel - [Filename]".

The left spreadsheet shows a worksheet with the following data:

MONTHLY PRECIPITATION (mm)													
Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Annual	
1965-66	0.0	28.8	55.5	115.4	158.9	45.0	101.4	18.3	20.0	6.0	0.0	0.0	893.2
1966-67	140.3	12.1	64.0	177.3	135.8	115.9	169.7	38.4	6.0	0.0	0.0	896.4	
1967-68	5.0	34.2	50.4	54.0	215.4	89.0	117.5	63.7	15.0	4.0	0.0	896.2	
1968-69	37.2	180.4	276.4	98.5	289.0	15.0	38.5	78.5	16.0	0.0	0.0	1039.4	
1969-70	0.0	13.0	54.3	117.3	85.1	60.4	149.8	63.0	15.0	0.0	0.0	586.5	
1970-71	7.0	83.5	176.0	85.0	181.0	173.1	45.4	45.0	3.0	0.0	0.0	745.0	
1971-72	19.0	25.5	114.0	49.0	14.0	97.0	89.0	101.2	91.0	20.0	0.0	647.1	
1972-73	1.2	133.0	63.5	127.0	268.0	79.0	74.4	58.0	0.0	0.0	0.0	779.0	
1973-74	21.5	110.0	97.0	43.0	129.0	106.0	60.0	28.0	0.0	0.0	0.0	614.0	

The right spreadsheet shows a worksheet with the following data:

Water Year	Annual Precipitation
1965-66	893.2
1966-67	896.4
1967-68	896.2
1968-69	1039.4
1969-70	586.5
1970-71	745.0
1971-72	647.1
1972-73	779.0
1973-74	614.0

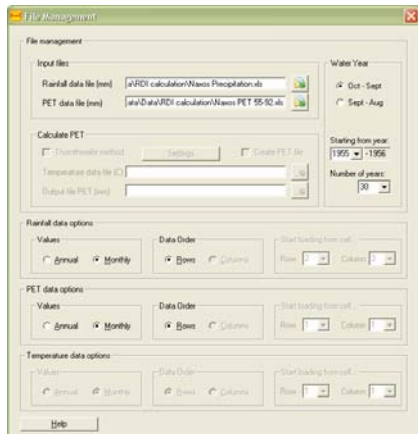
A red box highlights the value 851.4 in cell B10 of the right spreadsheet, and a red arrow points to it from a text box that says "Data loading from cell (Row: 9, Column: 2)".

Examples of the file format (monthly and annual datasets)

files are in MS Excel worksheet format. For the calculation of the indices in annual basis, data may be either annual or monthly, while

for calculations in seasonal basis (monthly, 3-months, 6-months or other time step), monthly data are required.

Regarding the monthly data files, the software is able to recognize automatically the position of the data and to ignore other information included in the file. The file format should contain a line with the name of the months (at least the first letter of each month) of the water year (October – September or September – August). The data of each water year are placed in lines under the respective month.



Annual data should be placed in one column (one value per year).

The data files are selected in the File Management window (menu>Data>File Management).

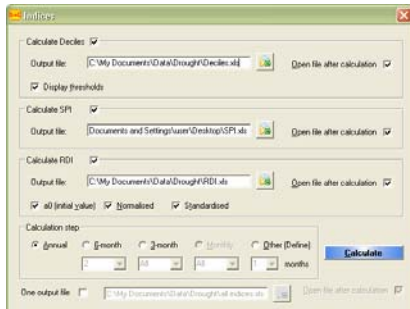
In this window Rainfall and Potential Evapotranspiration (PET) files are defined, as well as the water year period, the first year and the

number of the years of the dataset. If data are on annual basis, the cell where the value of the first year is located should also be defined by the user (e.g. Row: 9, Column: 3).

Calculation Process

The settings for the calculation of the drought indices are defined in the Indices window (menu>Process>Calculate Indices).

By ticking in the relevant boxes, each index (or all indices at once) will be calculated. The outputs may be saved either in separate files by defining the name of the output files in the respective text boxes, or in



the same file for all the indices if the annual calculation step is selected and the 'One output file' box is checked.

For each index there are different output options. For the Deciles each decile threshold may be displayed in the output file, whereas,

for the RDI, each one of the different forms of the index can be selected for output.

Several time steps are available for calculation: monthly, 3-months, 6-months, annual and user defined.

The produced output files are in MS Excel worksheet format, in order to facilitate any further processing.

Input data and results tables

Input data and results are presented in tables (menu>Process>Input Data Tables & Results Tables), where can be edited and saved to new files.

Date Type	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Annual
1999-56	60.1	103.3	75.6	91.1	79.2	70.7	8.2	10.8	1.2				459
1956-57	7.9	25.5	65.2	100.3	4.0	21.2	0.0	29.5	11.5			29.0	241
1967-68	26.0	38.5	75.2	32.7	10.1	13.9	4.7	1.4					12.5
1998-99	9.6	25.0	29.6	67.4	4.2	28.5	6.4	10.9	1.7	19.8			0.1
1959-60	20.0	20.4	65.4	54.5	26.5	56.0	12.2	1.7					0.6
1980-81	10.9	44.6	76.5	113.7	48.1	31.7	0.5	42.4	1.7				370
1961-62	77.0	18.0	128.5	60.3	82.5	63.4	1.4	10.4	0.6			29.5	471
1962-63	22.5	11.0	156.2	29.1	47.2	27.5	5.0	21.0					321
1963-64	42.2	32.9	75.9	56.8	21.7	30.0	3.0	4.6	6.8			20.5	294
1964-65	1.5	22.7	29.5	68.3	71.2	72.8	18.1	33.7	15.5				333
1965-66	10.4	0.1	41.6	77.2	44.0	16.1	9.6	3.0	1.5			11.2	222
1986-87	5.2	26.1	96.3	50.7	32.6	23.4	37.0	6.4	1.1				1.0
1967-68	26.5	54.1	91.9	107.0	66.0	28.5	1.3	12.7	10.4			1.5	0.4
1989-90	60.7	67.2	20.5	109.5	12.5	56.7	27.2	4.1					293
1989-90	3.0	2.4	134.8	45.8	48.9	93.7	4.8	28.6	12.5			0.2	374
1970-71	76.0	30.5	54.5	130.5	106.3	56.7	7.2	1.3	0.2	4.7		0.2	476
1971-72	2.2	19.4	32.1	27.9	36.2	116.3	25.9	12.4		11.2	74.0		360
1972-73	106.0	29.0	44.0	152.3	43.4	28.3	71.7	0.6					0.6
1973-74	26.1	26.9	31.7	14.2	117.2	54.6	10.0	1.9					10.1
1974-75	9.7	90.0	20.5	59.0	65.7	25.1	30.2	4.4	20.6				351



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