

CALCULATION OF DROUGHT INDEX, VICTORIA MARK II

General Instructions

- (a) The Drought Index is calculated at 1600 hours on every day, if rain is not falling at the time, from the Previous Drought Index, current relative humidity, temperature, windspeed and the amount of rainfall in the last 24 hours. If it is raining at 1600 hours, do not calculate Today's Drought Index. On the following day, use the amount of rain that fell in the last 48 hours.
- (b) Start with a Drought Index of 0 on the third day after the snow leaves the operational area, or three days after a rainfall greater than 1.5 inches.

Standard Drying Rate

The Standard Drying Rate is used in the absence of the effect of rains .06 inches or more, and is determined from Table I.

Case I - If no rain or .01 inches of rain occurs:

- (a) Add the Drying Factor (DF) from Table I to the Previous Drought Index (DIO) to determine Today's Drought Index (DI).

Case II - If from .02 to .05 inches of rain occurs:

- (a) Reduce the Drying Factor (DF) obtained from Table I. by one, and add the Reduced Drying Factor (DF-1) to the Previous Drought Index (DIO) to determine Today's Drought Index (DI).

Accelerated Drying Rate

An Accelerated Drying Rate is initiated on the first day that .06 inches or more rain ceases; the value is determined from Tables I and II. The use of an Accelerated Drying Rate is maintained, whether or not rain

falls on succeeding days, until Today's Drought Index (DI) reaches or exceeds the Base Drought Index (DI*), which is the Drought Index for the last day on which the Standard Drying Rate was used. When this occurs, use the Base Drought Index (DI*) as the Drought Index for the day and return to the Standard Drying Rate.

Note that once conditions for the Standard Drying Rate have been reached, DI* will not be required until the next rain of .06 inches or more, when a new value will be used.

Case III - Initiation of Accelerated Drying following a rainfall of .06 inches or more:

- (a) Determine the Drying Factor (DF) from Table I.
- (b) Enter Table II with the amount of rain and Previous Drought Index (DI_o) to obtain the Drought Index at Cessation of Rain (DI_r) and the accompany Acceleration Quotient (Q).
- (c) Add the product of the Drying Factor (DF) and the Acceleration Quotient (Q) to the Drought Index at Cessation of Rain (DI_r) to obtain Today's Drought Index (DI).

Case IV - During a period of Accelerated Drying, if no rain, or .01 inches of rain occurs:

- (a) Add the product of the Drying Factor (DF) from Table I and the predetermined Acceleration Quotient (Q) to the Previous Drought Index (DI_o) to obtain Today's Drought Index (DI).
- (b) Repeat (a) each day until the qualification for returning to the Standard Drying Rate is satisfied, or Case V or VI becomes applicable.

Case V - During a period of Accelerated Drying if a rain of from .02 to .05 inches occurs:

- (a) Reduce the Drying Factor (DF) from Table I by one, and add the product of the Reduced Drying Factor (DF-1) and the predetermined Acceleration Quotient (Q) to the Previous Drought Index (DI_o) to obtain Today's Drought Index (DI).

Case VI - During a period of Accelerated Drying if a rain of .06 inches or more occurs:

- (a) Initiate a new Accelerated Drying Rate by entering Table II with the amount of rain and the Previous Drought Index (DI_o) to determine a new Drought Index at the Cessation of Rain (DI_r) and a new Acceleration Quotient (Q). Continue as in Case III, IV or V, which ever is applicable.
- (b) Maintain the new Accelerated Drying Rate until either the qualification for returning to the Standard Drying Rate is satisfied, or case VI repeats.

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TABLE I. Drying Factor

Relative Humidity (%)	Temperature (°F)					
	Less than 70			70 or higher		
	Wind Speed (m.p.h.)					
	0 - 4	5 - 9	10+	0 - 4	5 - 9	10+
	Drying Factor					
76 or more	2	2	2	2	2	2
66 - 75	2	2	3	2	3	3
46 - 65	2	3	3	2	3	3
36 - 45	2	3	3	3	3	4
16 - 35	3	3	4	3	4	4
15 or less	3	4	4	4	4	4

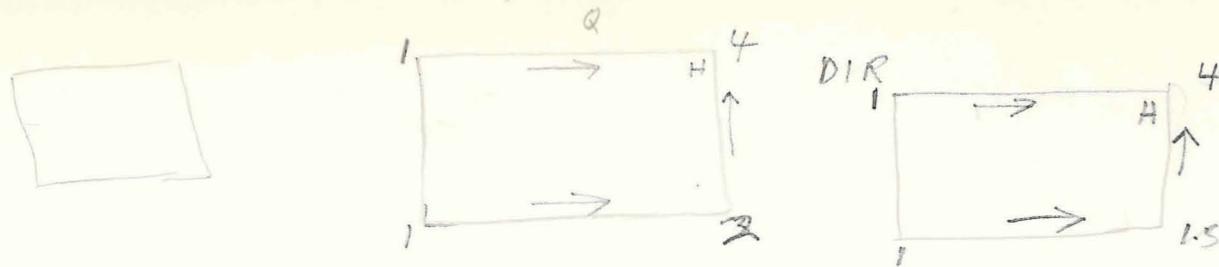


TABLE II Acceleration Quotient and Drought Index at Cessation of Rain

Rainfall in Inches	Drought Index before Rain (DIO)																								
	0 to 2	3 to 9	10 to 16	17 to 23	24 to 30	31 to 37	38 to 44	45 to 51	52 to 58	59 to 65	66 to 72	73 to 81	82 to 90	91 to 99	100 to 108	109 to 117	118 to 126	127 to 137	138 to 148	149 to 161	162 to 174	175 to 187	188 to 200	201 to 213	214 to 226

Acceleration Quotient (Q) and Drought Index at Cessation of Rain (DIR)

Acceleration Quotient (Q) and Drought Index at Cessation of Rain (DIR)	To account for the effect of .02 - .05 in. of rain subtract 1 from the Drying Factor. Acceleration Quotient remains unchanged.																										
.02 - .05	Q	To account for the effect of .02 - .05 in. of rain subtract 1 from the Drying Factor. Acceleration Quotient remains unchanged.																									
	DIR	*	X	Y																							
.06 - .10	Q	1.0	1.1	1.2	1.4	1.6	1.9	2.2	2.5	2.9	3.3	3.8	4.4	5.2	6.2	7.2	8.5	9.9	11.7	13.9	16.7	20.1	23.1	28.1	32.6	37.5	42.5
	DIR	0	4	10	17	23	30	36	43	49	55	61	68	75	82	89	95	101	107	113	119	125	130	135	138	141	143
.11 - .15	Q	1.0	1.1	1.2	1.4	1.6	1.8	2.1	2.4	2.7	3.1	3.5	4.1	4.8	5.6	6.6	7.6	8.7	10.2	11.9	14.0	16.5	19.2	22.1	25.1	28.3	31.7
	DIR	0	2	9	15	21	28	34	40	45	51	57	63	69	75	81	86	91	97	100	106	110	114	117	119	121	123
.16 - .20	Q	1.0	1.0	1.2	1.3	1.5	1.7	2.0	2.3	2.6	3.0	3.3	3.9	4.5	5.2	6.0	6.9	7.9	9.0	10.4	12.1	14.1	16.1	18.3	20.6	23.1	25.4
	DIR	0	1	7	13	20	25	31	37	42	47	53	58	64	69	74	79	83	88	91	95	99	102	104	106	107	108
.21 - .30	Q	1.0	1.0	1.1	1.3	1.5	1.7	1.9	2.1	2.4	2.7	3.1	3.5	4.1	4.7	5.4	6.1	6.9	7.8	8.6	10.2	11.7	13.3	14.9	16.5	18.3	20.0
	DIR	0	0	5	11	17	22	28	33	38	43	47	52	57	62	67	71	74	78	81	84	86	89	90	91	93	93
.31 - .40	Q	1.0	1.0	1.1	1.2	1.4	1.5	1.7	2.0	2.2	2.5	2.8	3.2	3.6	4.1	4.7	5.2	5.8	6.6	7.4	8.4	9.5	10.6	11.7	13.0	14.2	15.4
	DIR	0	0	2	8	13	18	23	28	33	37	41	45	50	54	57	60	63	66	68	71	73	75	76	77	78	78
.41 - .50	Q	1.0	1.0	1.0	1.2	1.3	1.4	1.6	1.8	2.0	2.3	2.5	2.8	3.2	3.6	4.1	4.5	5.1	5.6	6.3	6.5	7.9	8.8	9.7	10.6	11.5	12.5
	DIR	0	0	0	5	10	15	19	24	28	32	35	39	43	46	49	52	54	57	59	61	62	64	65	65	66	66
.51 - .60	Q	1.0	1.0	1.0	1.1	1.2	1.3	1.5	1.7	1.9	2.1	2.3	2.6	2.9	3.3	3.6	4.0	4.4	4.9	5.5	5.8	6.8	7.5	8.2	8.9	9.5	10.2
	DIR	0	0	0	2	7	11	16	19	23	27	30	33	37	40	42	45	47	48	51	52	54	55	55	56	57	57
.61 - .80	Q	1.0	1.0	1.0	1.0	1.1	1.2	1.3	1.5	1.6	1.8	2.0	2.2	2.5	2.8	3.1	3.4	3.7	4.1	4.5	5.0	5.5	6.0	6.5	7.1	7.7	8.2
	DIR	0	0	0	0	3	9	11	14	17	20	23	26	29	32	34	36	37	39	41	42	43	44	45	45	46	46
.81 - 1.00	Q	1.0	1.0	1.0	1.0	1.0	1.0	1.1	1.3	1.4	1.5	1.7	1.8	2.1	2.3	2.5	2.7	3.0	3.2	3.5	3.9	4.3	4.7	5.1	5.4	5.8	6.2
	DIR	0	0	0	0	0	1	4	7	10	13	15	18	21	23	24	26	27	29	30	31	32	32	33	33	34	34
1.01 - 1.20	Q	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.1	1.2	1.3	1.4	1.5	1.7	1.8	2.0	2.2	2.4	2.6	2.8	3.1	3.3	3.6	3.9	4.2	4.5	4.8
	DIR	0	0	0	0	0	0	0	2	4	7	9	11	13	15	16	18	19	20	21	22	23	23	24	24	24	24
1.21 - 1.50	Q	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.1	1.2	1.3	1.4	1.5	1.7	1.8	1.9	2.1	2.3	2.5	2.7	2.9	3.1	3.3	3.5
	DIR	0	0	0	0	0	0	0	0	0	0	2	3	5	7	8	9	10	11	12	13	13	14	14	14	15	15
1.51 +	Q	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.1	1.2	1.3	1.4	1.5	1.5	1.7	
	DIR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2	2	2	2	2

* -2
X -3

Examples illustrating the calculation of DROUGHT INDEX, VICTORIA MARK II

M = missing record, R = raining

Date	Temperature (°F)	Relative Humidity (%)	Wind (m.p.h.)	Rain (in.)	Drying Factor (DF)	Acceleration Quotient (Q)	(DF x Q)	Previous Drought Index (DI _O)	Drought Index After Rain (DI _r)	Today's Drought Index (DI)	Case Illustrated
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Snow disappeared from operational areas on April 29.

MAY											
1										0	
2	58	48	3		2			0		0+2 = 2	I
3	60	30	2		3			2		2+3 = 5	I
4	63	28	4		3			5		5+3 = 8	I
5	65	22	10		4			8		8+4 = 12	I
6	M	M	M	R	M			12		raining	
7	60	34	11	Trace	4			12		12+4 = 16	I
8	M	M	M	R	M			16		raining	
9	58	64	5	.03	3-1=2			16		16+2 = 18	II
10	60	50	2	.04	2-1=1			18		18+1 = 19	II
11	M	M	M	R	M			19		raining	
12	63	76	2	.25	2	1.3	2x1.3=2.6	19	11	11+2.6= 14	III
13	66	37	6		3	1.3	3x1.3=3.9	14		14+3.9= 18	IV
14	68	26	0		3			18		18+3 = 21	I
15	70	24	7		4			21		21+4 = 25	I
16	62	64	5	.05	3-1=2			25		25+2 = 27	II
17	70	33	6		4			27		27+4 = 31	I
18	71	24	5		4			31		31+4 = 35	I

JULY											
20	76	21	6		4			76		80	I
21	69	72	1	.40	2	3.2	2x3.2=6.4	80	45	45+6.4= 51	III
22	72	37	2		3	3.2	3x3.2=9.6	51		51+9.6= 61	IV
23	68	58	0	.30	2	2.8	2x2.8=5.6	61	43	43+5.6= 49	VI
24	69	48	4		3	2.8	3x2.8=8.4	49		49+8.4= 57	IV
25	70	60	7	.04	3-1=2	2.8	2x2.8=5.6	57		57+5.6= 63	V
26	72	38	1		3	2.8	3x2.8=8.4	63		63+8.4= 71	IV
27	76	22	5		4	2.8	4x2.8=11.2	71		71+11.2= 80	IV
28	78	21	6		4			80		80+4 = 84	I
29	72	49	5		3			84		84+3 = 87	I
30	70	34	9	.05	4-1=3			87		87+3 = 90	II