

INTENSITY AND PERIODICITY OF  
SPRING PRECIPITATION IN  
THE WILLAMETTE VALLEY

by

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# INTENSITY AND PERIODICITY OF SPRING PRECIPITATION IN THE WILLAMETTE VALLEY

## CHAPTER I

### PURPOSE AND SCOPE

In the field of climate there appears to be an ever-increasing need for detail. Average figures alone do not convey an adequate conception to students of this subject. As instrumental and areal coverage become more detailed, the opportunity for more thorough study and fuller understanding of climate is increased.

The study of precipitation, as an example, should include closer considerations of type, form, and amount. This is true for annual, seasonal, and intra-seasonal precipitation. Of no less importance is the need for more detailed study of precipitation intensity. Similarly, the subject of dry periods deserves more complete analysis as it is closely related to precipitation regimes.

Much instrumental data on precipitation is available in standard sources, but not in a form which allows ready comparison of type, form, seasonal and intra-seasonal amounts, intensity, and dry periods. Re-processing and graphical presentation of these data often is an aid to a more complete understanding of climate, and may be of further use in applied climate.

## Purpose

This study is concerned with such a detailed analysis of spring precipitation in the Willamette Valley. The major items to be treated in the succeeding chapters are seasonal, monthly, intra-monthly, and daily amounts of precipitation, and varying lengths of dry periods. An additional purpose is the graphical presentation of these data. Graphs have been drawn that emphasize time relationships. Although there are numerous forms of graphs which can be used, the most basic form and one of the most useful is a daily occurrence graph, showing, in black, the occurrence of precipitation on each day, in each month, during each year. This type of graph facilitates comparison between the parts of spring at a given station, and between different stations. A number of additional types of graphs are used for summary purposes. Data is also presented in tabular form to facilitate numerical comparison and analysis. This was done to acquire a better quantitative understanding of different aspects of spring precipitation.

## Scope

This study deals exclusively with five weather stations located within the Willamette Valley. They are, from north to south: Hillsboro, McMinnville, Salem, Albany, and

Eugene. These stations were chosen primarily for distribution, and length and completeness of record. Although there are three or four more stations that might have been added, they were not used for one of the following reasons:

1. They are located in isolated fingers of the Valley proper, or too close to the surrounding foothills.
2. The distance between them and the selected stations is so small as to cause the precipitation data to be all but identical and therefore only of value in verification.

The time period selected includes the months of March, April, May, and June. Although four complete months are utilized, a survey of the precipitation patterns during this part of the year indicates that they form a homogeneous group. In addition, March serves as the transition between winter and spring, while June acts as its counterpart between spring and summer. For a study of this kind the inclusion of transition months is preferable to working with fractions of months as would be required if the calendar spring period were used.

The data used are from a twenty-year period including the years of 1939 and 1958. This period was chosen as being representative of the current climate, and of

sufficient length to allow detailed analysis of the data.

Data used in this paper came from several sources:

"Climatological Data" published by the U. S. Department of Commerce, Weather Bureau; Weather Bureau stations at Salem and Eugene; and the Birds Eye Division of General Foods Corporation in Hillsboro, Oregon.

## CHAPTER II

### BASIC CONSIDERATIONS

Before detailed analysis can be made, certain basic aspects of spring precipitation should be established. The recognition of the similarity of the precipitation characteristics at the several stations proved useful in establishing time and amount criteria for all the stations, and allowed a single station to be used as an example on occasion.

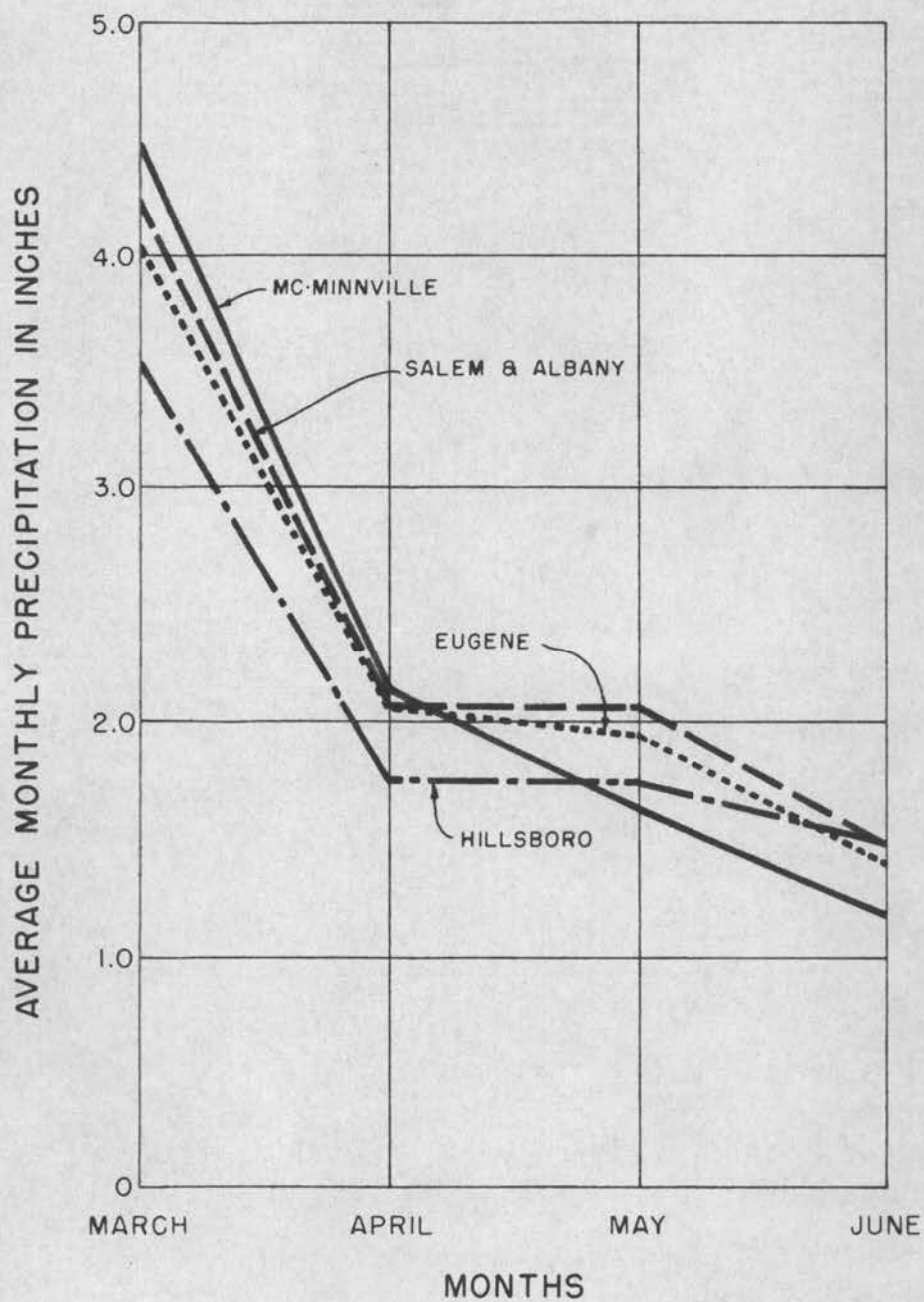
A study of Figure 1 reveals that the difference between the values of average monthly precipitation for all the five stations is very small, being less than one inch in each of the four months. It is noteworthy that averages for Albany and Salem are so similar that, at the scale used, one curve had to be used to indicate both of them.

A knowledge of average daily precipitation is basic to the understanding of climate. Consideration of the variations in such data from month to month during the spring aids in forming a more complete picture.

The term intensity is commonly used to refer to the amount of precipitation occurring in a given time period. In this study the term will be used with reference to minimum threshold amounts. Hence the occurrence of .05 inch or

FIGURE 1

6



COMPARISON OF AVERAGE MONTHLY PRECIPITATION

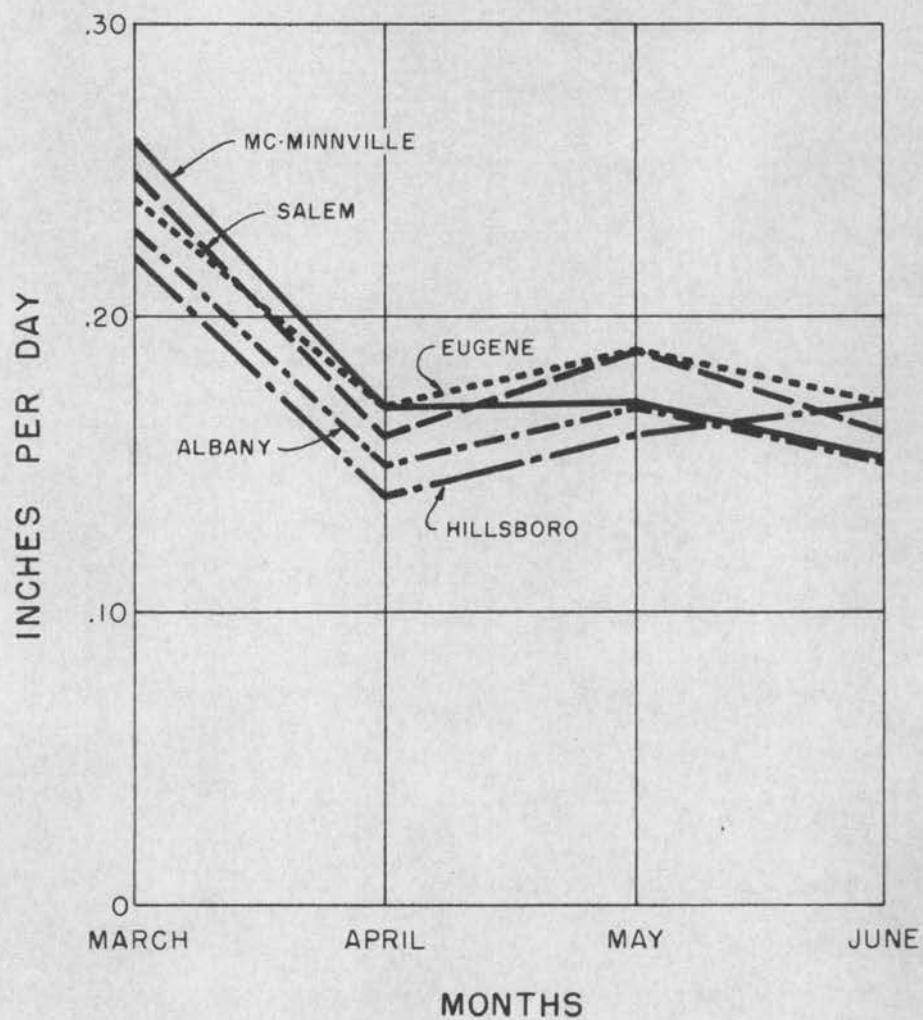
more per day may be referred to as a day with a minimum intensity of .05 inch.

In similar fashion it is useful to be able to compare daily precipitation intensities of the several months. If all daily precipitation intensities for a month are averaged, one obtains an average daily figure representative of that month. Figure 2 again shows the homogeneous characteristics of the stations in the Willamette Valley, for the average intensity of any one station varies less than .05 inch each month from that of the others.

Figure 3 shows the comparison of rainy periods between two of the five stations. It further suggests similarity of the stations in the Willamette Valley. The rainy periods considered are 3-5, 6-8, 9-12, and 13 or more days in length. They are shown on a monthly division basis. The figures in the columns show the number of occurrences of rainy periods for each month and each year. At the bottom of the table appear the totals for both stations. A quick glance at the total figures seems to show a substantial variation between these two stations, but a closer look at the individual years will show that much of the difference lies in a few years, while most of the years have a difference of one occurrence. The total figures also show that the greatest variation between the stations appears in the 3-5 day length of rainy period.

FIGURE 2

8



COMPARISON OF AVERAGE DAILY INTENSITIES  
BY MONTHS

FIGURE 3  
RAINY PERIODS OF .01" OR MORE PER DAY  
COMPARISON OF ALBANY AND HILLSBORO

MONTH	MARCH								APRIL								MAY								JUNE							
STATION	ALBANY				HILLSBORO				ALBANY				HILLSBORO				ALBANY				HILLSBORO				ALBANY				HILLSBORO			
DAYS YEAR	3-5	6-8	9-12	13+	3-5	6-8	9-12	13+	3-5	6-8	9-12	13+	3-5	6-8	9-12	13+	3-5	6-8	9-12	13+	3-5	6-8	9-12	13+	3-5	6-8	9-12	13+	3-5	6-8	9-12	13+
1939	4	1			4	2							1				1				1	1			1				1			
1940	4	1			2	1			1								2	1			1											
1941	1				2				3	1			3	1			4	1			5	1			2				1			
1942	4	1			1				2				1				5	1			4				1				4	1		
1943	3	1			3	1			2				2								2				3	1			4	1		
1944	4	1			3				6	2	1	1	4	1											2							
1945	4	1			5	2	1		5	1	1		4	2			3	1	1		5	2	1	1								
1946	8	3	2		6	2			2				3				1				1				4				4	1	1	
1947	5	1			5	1			4	1	1		3	1											4	1	1		3	1	1	
1948	6	2	1	1	3	1	1		8	3	2		6	2	1		5	1			3								1			
1949	7	2	1	1	4	1	1		1				1				2				2											
1950	5	2	1	1	6	2	1	1	3				1				2	1			1	1						1				
1951	4	1			1				1				1				3				1											
1952	5	1			5				1								1								4	1			2	1		
1953	6	2	1	1	6	2	1	1	5	1	1		3	1			8	2	1	1	6	1	1		3	1			3			
1954	1								3	1	1						2				2				5	2	1	1	4	1	1	
1955	5	1			2				6	2	1		6	2	1	1	2							2				1				
1956	6	2			5	2											2							1				2				
1957	7	2	1	1	6	1	1		1				1				4	1			3	1			1			1				
1958	6	2			3	1			5	2	1		6	2	1	1	3				1				4	1						
TOTAL	95	23	7	5	72	19	6	2	59	14	9	1	46	12	3	2	50	9	2	1	38	7	2	1	37	7	2	1	32	6	3	

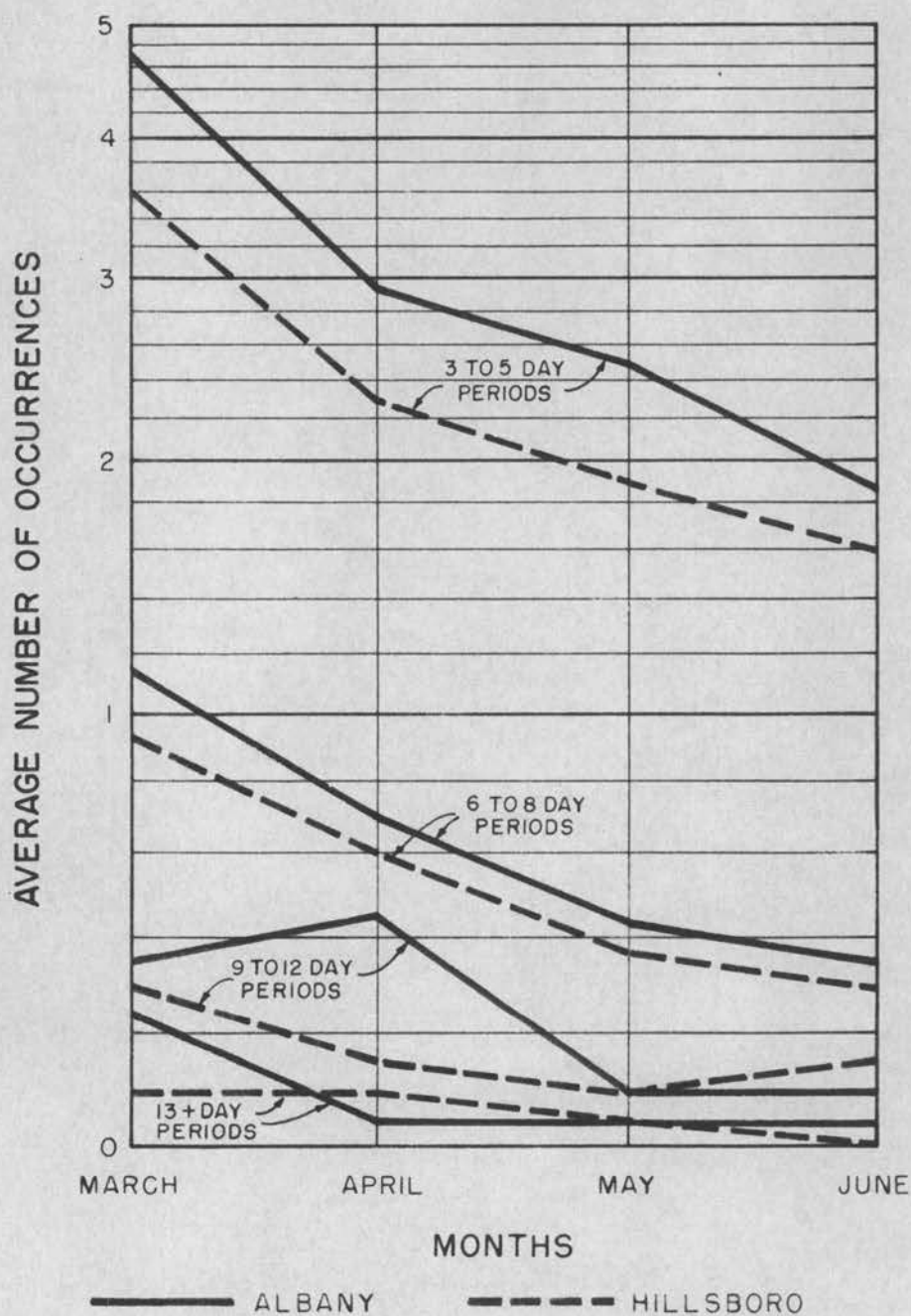
Figure 4 is a graphical representation of Figure 3. It rather definitely establishes that the difference between stations is quite small and has a tendency to become smaller as the length of the rainy period increases. The one exception is the 9-12 day periods in the month of April. It also shows that generally the difference tends to become less as summer approaches.

In any study of precipitation intensity the establishment of the highest minimum daily intensity figure that will provide a representative picture of rainy periods is basic. This is especially important from the standpoint of periodicity of spring precipitation, for while the occurrence of days with large amounts may be of interest as a special case, selection of too high a basic daily amount will eliminate most groups of rainy days.

In the preliminary research, daily intensity figures for .02, .05, .10, .15, .20 and .25 inch were studied on Daily Occurrence Graphs. The following points were noted:

1. The difference in number of occurrences of rainy days having between .02 and .05 inch, between .10 and .15 inch, and between .20 and .25 inch was not great, allowing the use of one of the values from each of the three groups.

FIGURE 4



RAINY PERIODS OF  
.01" MINIMUM PRECIPITATION PER DAY

2. Use of the value of .25 inch per day showed a definite loss in group patterns of rainy days over the lower values, and in fact showed a tendency toward the elimination of group patterns.

On the basis of these two features, minimum daily intensity figures of .05 inch per day, .15 inch per day, and .25 inch per day were selected. A supplementary graph was compiled showing the number of occurrences of rainy days having a minimum of .50 inch per day. This graph (Figure 5) is added to this chapter to show the lack of rainy day groups which occur when this precipitation figure is used as a minimum. A close look at Figure 5 will show that use of this intensity causes the Willamette Valley to have the appearance of a dry climate region.

Division of the spring into monthly units allows a more careful scrutiny of the periodicity of precipitation within the season. Such division, however, may result in loss of a number of occurrences during data tabulation. A comparison of two methods of data treatment was made, and Figure 6 shows the results of the comparison. This table compares the number of occurrences of rainy periods with a minimum of .01 inch per day, for one station, which result from treatment of the data by months and by season.

WET PERIODS WITH A MINIMUM INTENSITY OF .50" / DAY — ALBANY

FIGURE 6  
COMPARISON OF  
RAINY PERIODS OF .01" OR MORE PER DAY  
ALBANY

14

DAYS	3-5		6-8		9-12		13+	
PERIOD YEAR	SP.	MO.	SP.	MO.	SP.	MO.	SP.	MO.
1939	6	6	1	1				
1940	8	7	2	2				
1941	11	10	2	2	1			
1942	12	12	2	2				
1943	9	8	2	2	1			
1944	12	12	3	3	1	1	1	1
1945	12	12	3	3	2	2		
1946	15	15	3	3	2	2		
1947	13	13	4	3	2	2	1	
1948	19	19	6	6	3	3	1	1
1949	10	10	2	2	1	1	1	1
1950	10	10	3	3	1	1	1	1
1951	8	8	2	1				
1952	11	11	2	2				
1953	22	22	8	6	4	3	2	2
1954	11	11	3	3	3	2	2	1
1955	15	15	4	3	1	1		
1956	9	9	2	2				
1957	13	13	3	3	1	1	1	1
1958	18	18	6	5	1	1	1	
TOTAL	244	241	59	53	24	20	11	8

An examination of the totals will show that the numerical difference is not great. When this difference between total spring data and monthly spring data is transposed into percentages, the difference increases as the length of the rainy period increases. This is not surprising, for as the period length increases the relative importance of each occurrence increases. This difference, however, never becomes greater than 27 per cent, and then only in the transition month of June. The differences in the months of April and May are 10 and 17 per cent, respectively.

In similar fashion one may compare the number of occurrences of rainy days, with higher minimum daily values. These comparisons are shown in Figures 7, 8 and 9. As the minimum daily intensities increase, the maximum percentage difference decreases (.05 inch min/day being 26 per cent, .15 inch min/day being 14 per cent, and .25 inch min/day being 10 per cent).

On the basis of the above evaluations it was decided that there would be no significant loss in reliability by subdividing the spring period into definite months. On the other hand, there is some advantage in using these subdivisions. This gain is primarily one of ease in use of the data in coordinating climatic data and economic

FIGURE 7  
COMPARISON CHART FOR AN INTENSITY OF .05" MINIMUM PER DAY  
ALBANY

DAYS PERIOD YEAR	1		2		3		4		5		6		7		8		9		10	
	SP.	MO.	SP.	MO.	SP.	MO.	SP.	MO.	SP.	MO.	SP.	MO.	SP.	MO.	SP.	MO.	SP.	MO.	SP.	MO.
1939	25	25	11	11	3	3	2	2	1	1										
1940	29	29	10	10	6	5	2	2	2	2	2	2	1							
1941	43	43	15	15	7	7	3	3	2	2	1	1	1							
1942	46	46	17	17	3	3	3	3	1											
1943	39	39	14	13	7	7	4	2	2	1	1	1	1	1	1					
1944	34	34	12	11	4	4	3	3	2	1	1	1	1	1	1	1	1	1	1	1
1945	49	49	18	18	10	10	6	6	3	3	2	2	2	2	1	1	1	1		
1946	37	37	14	13	6	6	4	3	1	1	1	1	1	1	1	1				
1947	44	44	17	17	10	10	6	5	4	4	2	2	2	1	2	1	2	1	1	1
1948	49	49	21	21	7	7	2	2	2	2	2	2	1	1						
1949	31	31	13	11	6	6	3	3	2	2	1	1	1	1	1	1	1	1	1	1
1950	38	38	13	12	6	5	3	3	3	3	1	1	1	1						
1951	29	29	12	11	5	5	2	1	1	1	1	1	1	1						
1952	38	38	13	11	5	5	2	2	1	1										
1953	53	53	20	20	11	10	5	5	2	2	2	2	2	2	1	1	1	1		
1954	36	36	15	14	6	6	4	4	2	2	1	1	1	1	1	1	1	1		
1955	49	49	19	19	9	9	5	5	5	3	2	1	1							
1956	37	37	11	11	5	4	3	3	1	1	1	1								
1957	45	45	19	18	8	8	5	5	2	2	2	2	1	1	1	1	1	1	1	1
1958	47	47	18	17	7	7	4	3	2	2	1		1							
TOTAL	768	768	302	290	131	127	71	65	40	36	24	22	19	14	10	8	8	7	4	3

FIGURE 8

17

COMPARISON CHART FOR AN INTENSITY OF .15" MINIMUM PER DAY  
ALBANY

DAYS PERIOD YEAR	1		2		3		4		5		6		7		8		9		10	
	SP.	MO.	SP.	MO.	SP.	MO.	SP.	MO.	SP.	MO.	SP.	MO.	SP.	MO.	SP.	MO.	SP.	MO.	SP.	MO.
1939	10	10	3	3	1	1														
1940	18	18	4	4	3	3	1	1	1											
1941	25	25	7	7	4	4	1	1												
1942	20	20	6	6																
1943	24	24	7	4	3	3	1													
1944	16	16	4	4	1	1	1	1												
1945	30	30	10	10	5	5	2	2	1	1	1	1	1	1						
1946	21	21	7	7	1	1	1	1	1	1										
1947	26	26	9	9	5	5	1	1												
1948	30	30	7	7	3	3	1	1												
1949	19	19	3	3	2	2	1	1												
1950	22	22	5	5	2	2	1	1												
1951	15	15	5	5	2	2	1	1	1	1	1	1								
1952	20	20	3	3																
1953	29	29	9	9	2	2														
1954	20	20	6	6	2	2	2	2												
1955	31	31	11	10	6	6	4	4	2	1										
1956	21	21	5	5	2	2	2	2	1	1										
1957	32	32	10	9	3	3	2	2	1	1	1	1	1	1	1	1	1	1		
1958	25	25	7	7	3	3														
TOTAL	454	454	128	123	50	50	22	21	7	6	3	3	2	2	1	1	1	1		

## ALBANY

[illegible]

enterprises, which for the most part are based on time units smaller than a season.

The last major point considered was the establishment of a definition of dry periods. To do this, the number of occurrences of dry periods varying in length from one day to 10 days were tabulated (Figures 10 through 13). These charts show as a dry day, days with trace, .01, .02 and .03 inch precipitation. Figure 14 was drawn to show the comparisons graphically. In this Figure only three period lengths are shown: 3 days, 6 days and 9 days, allowing correlation between this graph and those showing rainy periods.

The first major fact shown by Figure 14 is, of course, that as the length of the dry period increases, the average number of occurrences decreases. For a given length of dry period there is an increase in the number of occurrences as the amount of precipitation included increases. Although this increase in occurrences lessens as the length of dry period increases, when the frequency of occurrence of low intensity precipitation in the Willamette Valley is considered, the importance of this point becomes evident. Since the inclusion of increasingly larger daily amounts results in gradual merging of the identity of wet and dry days, without a significant break, it was arbitrarily

FIGURE 10 20  
 DRY PERIODS - INCLUDING DAYS WITH T PREC.  
 ALBANY - APRIL

DAYS YEAR	1	2	3	4	5	6	7	8	9	10
1939	25	11	6	5	4	2	2	2	1	1
1940	18	7	4	2	1	1				
1941	16	7	4	3	2	1	1	1	1	1
1942	15	5	3	2	1	1	1	1		
1943	15	4	3	2	1	1	1	1	1	
1944	9	3	2							
1945	13	5	3	2	1	1	1	1	1	
1946	19	7	5	2	1	1	1			
1947	14	6	4	2	2	2	1			
1948	5	1	1							
1949	22	9	6	4	3	2	2	2	1	1
1950	15	6	2	1	1	1	1			
1951	27	13	9	6	5	4	3	3	3	2
1952	20	9	5	4	1	1	1	1	1	
1953	12	5	2	1	1					
1954	18	8	5	3	2	2	1	1	1	1
1955	8	2	1	1						
1956	21	8	5	2	2	1	1	1	1	1
1957	20	8	4	3	3					
1958	10	3	2	1	1					
TOTAL	322	127	76	46	32	21	17	14	10	7

FIGURE II  
 DRY PERIODS - INCLUDING DAYS WITH .01" PREC.  
 ALBANY - APRIL

DAYS YEAR	1	2	3	4	5	6	7	8	9	10
1939	26	12	7	5	5	2	2	2	2	2
1940	20	8	4	2	2	1	1	1	1	1
1941	16	7	4	3	2	1	1	1	1	1
1942	17	6	4	3	1	1	1	1	1	
1943	16	5	3	2	1	1	1	1	1	
1944	11	3	2							
1945	14	5	3	2	1	1	1	1	1	
1946	19	7	5	2	1	1	1			
1947	15	7	4	3	2	2	2	2		
1948	8	1	1							
1949	23	10	7	4	3	3	2	2	2	1
1950	16	6	3	1	1	1	1			
1951	27	13	9	6	5	4	3	3	3	2
1952	21	10	5	4	2	1	1	1	1	1
1953	15	7	3	2	1	1				
1954	18	8	5	3	2	2	1	1	1	1
1955	8	2	1	1						
1956	21	8	5	2	2	1	1	1	1	1
1957	20	8	4	3	3					
1958	10	3	2	1	1					
TOTAL	341	136	81	49	35	23	19	17	15	10

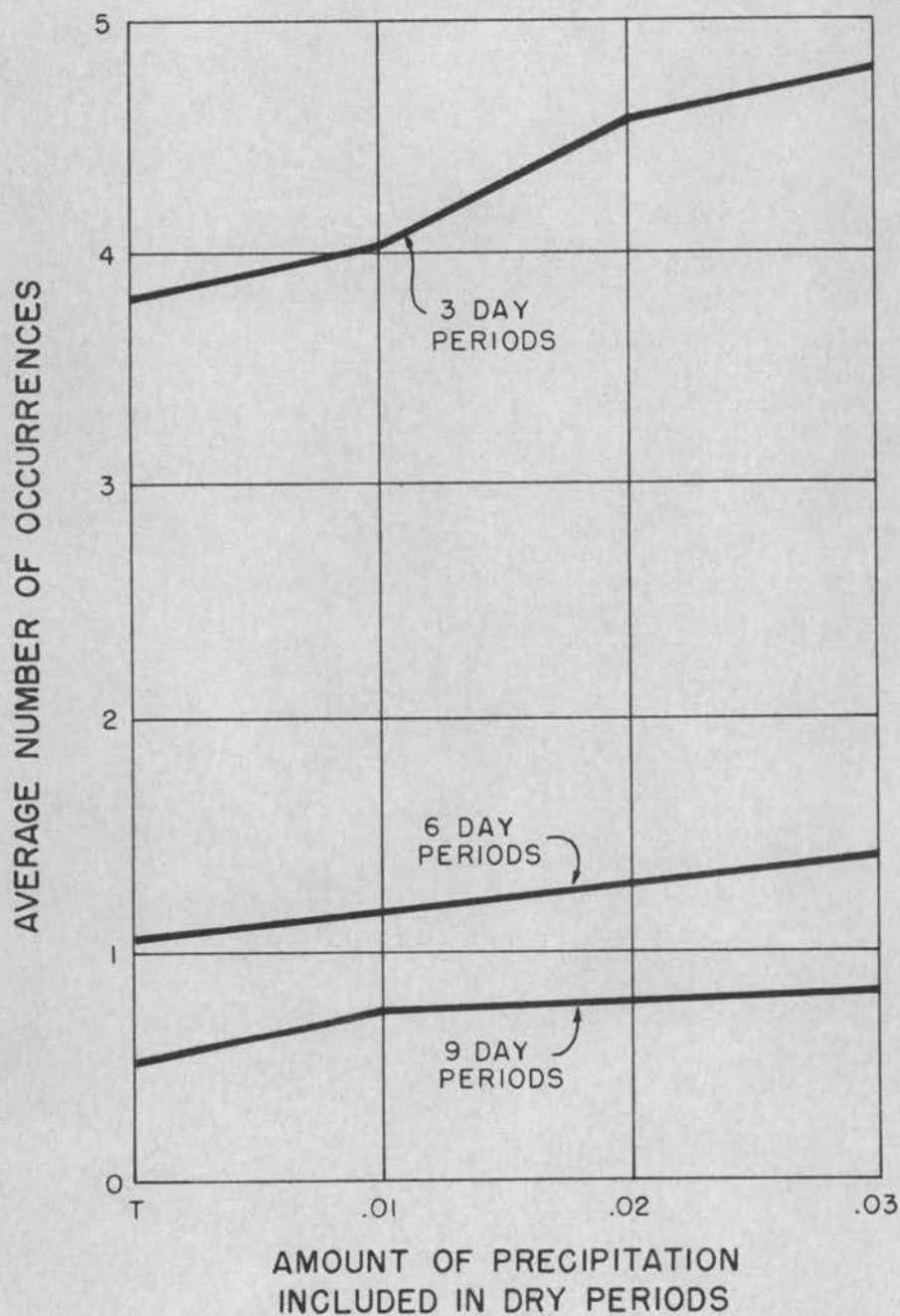
FIGURE 12 22  
 DRY PERIODS - INCLUDING DAYS WITH .02" PREC.  
 ALBANY - APRIL

DAYS YEAR	1	2	3	4	5	6	7	8	9	10
1939	26	12	7	5	5	2	2	2	2	2
1940	22	10	5	3	2	1	1	1	1	1
1941	17	8	5	4	2	2	1	1	1	1
1942	18	7	4	3	2	2	1	1	1	
1943	16	5	3	2	1	1	1	1	1	
1944	14	5	3	2	1					
1945	16	6	4	3	1	1	1	1	1	
1946	19	7	5	2	1	1	1			
1947	15	7	4	3	2	2	2	2		
1948	11	3	2							
1949	23	10	7	4	3	3	2	2	2	1
1950	20	8	5	2	2	1	1	1	1	1
1951	27	13	9	6	5	4	3	3	3	2
1952	23	10	5	4	3	1	1	1	1	1
1953	19	9	3	2	1	1				
1954	19	8	6	3	2	2	1	1	1	1
1955	10	2	1	1	1					
1956	23	10	7	4	2	2	1	1	1	1
1957	20	8	4	3	3					
1958	11	3	2	1	1					
TOTAL	366	151	91	57	40	26	19	18	16	11

FIGURE 13 23  
 DRY PERIODS - INCLUDING DAYS WITH .03" PREC.  
 ALBANY - APRIL

DAYS YEAR	1	2	3	4	5	6	7	8	9	10
1939	26	12	7	5	5	2	2	2	2	2
1940	22	10	5	3	2	1	1	1	1	1
1941	17	8	5	4	2	2	1	1	1	1
1942	18	7	4	3	2	2	1	1	1	
1943	17	5	4	2	1	1	1	1	1	
1944	15	5	3	2	1					
1945	16	6	4	3	1	1	1	1	1	
1946	21	8	5	3	3	2	2			
1947	16	7	4	3	2	2	2	2		
1948	14	4	3							
1949	24	11	7	4	3	3	2	2	2	1
1950	20	8	5	2	2	1	1	1	1	1
1951	27	13	9	6	5	4	3	3	3	2
1952	24	11	6	4	4	2	2	2	2	2
1953	20	9	4	2	1	1				
1954	19	8	6	3	2	2	1	1	1	1
1955	10	2	1	1	1					
1956	25	14	7	5	2	2	2	1	1	1
1957	21	8	5	3	3					
1958	13	4	2	1	1					
TOTAL	385	160	96	59	43	28	22	19	17	12

FIGURE 14



DRY PERIODS OF DIFFERENT LENGTH  
ALBANY - MONTH OF APRIL

decided that no day with measurable precipitation would be considered a dry day, but days with trace figures would be included as this amount is too small to be measured on official instruments and its inclusion should not alter the final results appreciably.

Using the previous factors as a base for study, several phases of spring precipitation in the Willamette Valley may be considered in detail. The succeeding chapters deal with these phases, with charts and graphs made for each of the five stations used in this study.

## CHAPTER III

## RAINY PERIODS

The study of rainy periods may reasonably begin with consideration of the smallest measurable daily precipitation. Figures 15 through 24 show the following aspects of rainy periods having a minimum daily precipitation of .01 inch. (1) There is a greater number of short length rainy periods than there are periods of longer length. (2) The length of rainy periods fluctuates between different groups of years. (3) The patterns of rainfall further establish homogeneity between the various stations. (4) There is a tendency for a greater number of years to have less rather than more than the average number of rainy days. A single station is used to portray the years having average, maximum and minimum number of rainy days. In the twenty-year period studied the total number of rainy days for Albany was 1086 out of a possible 2440 days, while the station with the fewest, Hillsboro, had 973.

Totals at the bottom of Figures 15 through 19 show some significant points. First, the difference between the total number of occurrences of 3-5 day periods and 6-8 day periods is considerably greater than between any of the others. It should be noted that in these calculations the

periods of greater length include several consecutive shorter length periods. Although this method might indicate erroneous results regarding spread in differences, when isolated periods of similar length are utilized the spread of the differences between the total number of occurrences does not change.

Second, although the total number of occurrences of 3-5 day rainy periods in each month is highest for the station of Albany, there is no single station which is consistently lower than the rest. In addition there is no constantly high or low-value station for the other three selected rainy period lengths.

A study of the individual months reveals the following facts: in March there is a general trend for rainy periods to fluctuate between a prevalence of shorter lengths in the early 1940's and middle 1950's, and longer lengths in the late 1940's and early 1950's. The months of April and May also show this trend, but in different years than those of the preceeding month. For the majority of the stations the middle 1940's and the middle 1950's show the occurrence of longer length periods. By June the length of rainy periods is considerably reduced so that this fluctuation is not as prevalent as in the three preceeding months.

A study of the daily occurrence graphs (Figures 20 through 24) reveals time relationships between the rainy periods. Here again, the homogeneity of the stations is evident. A definite pattern in one portion of the graph for one station will have, with slight variations, its counterpart at the same place on the graphs for the rest of the stations.

Each of the graphs shows a general decrease, both in length and number of rainy periods as summer approaches. In individual years, however, this trend may be interrupted by moderately long rainy periods in the month of June.

Although similarity is evident, the several stations do not have identical spring precipitation characteristics. Albany (Figure 23) may be used as an example of a station having more relatively long rainy periods seldom broken up by individual rainy days. In fact, an absence of individual rainy days is prevalent.

A complete count of the number of rainy days in the four months studied shows that during this twenty-year period there were 1086 rainy days with a minimum of .01 inch per day. The average number of rainy days per year was 54, with 78 the highest number of occurrences and 34 the lowest. When these figures are compared to selected years the following points may be noted.

The years of 1939 and 1951 have the fewest rainy days (34), but there the identity ends. The former year has a fairly continuous wet spell for the first half of March, followed by two months of dry weather broken up by only five days of rain. This in turn is followed by approximately a month of separate two and three-day wet spells, which is then succeeded by an 11-day dry spell. In 1951 two-thirds of March was rainy; April was almost completely dry, while the first half of May consisted of a 16-day period of which three-fourths was wet. The last half of May and all of June was a dry spell with only three days of rain.

The year with the greatest number of wet days was 1953, with 78 days of rain. During this year there were only four dry periods of five or more days each, one in the first half of March, another during the first five days in April, and two in the last half of June. The major part of the spring season was rainy with wet periods generally being broken up by two and three-day dry spells.

A year with almost as many rainy days was 1948 (71). During this year the regime was different, for instead of a relatively continuous wet four-month period, the months of March and April were entirely wet, followed by a rather dry May and June with isolated short rainy periods no longer than three days.

During the 20-year period studied there were three years having the average number of 54 rainy days--1950, 1954, and 1957. Two other years, 1941 and 1952, were within one day of the average figure. It is noteworthy that the three years having the same average number of rainy days and one of the two years with 53 rainy days were all within the last nine years studied. Of the three average years, 1954 and 1957 have precipitation characteristics similar to those of the wettest year, 1953, but with fewer rainy days, while 1950 was similar to 1948 but again had fewer rainy days. Of the remaining years, eight were below and six were above the average.

# RAINY PERIODS OF .01" OR MORE PER DAY HILLSBORO

MONTH	MARCH				APRIL				MAY				JUNE			
DAYS YEAR	3-5	6-8	9-12	13+	3-5	6-8	9-12	13+	3-5	6-8	9-12	13+	3-5	6-8	9-12	13+
1939	4	2			1				1	1			1			
1940	2	1							1							
1941	2				3	1			5	1			1			
1942	1				1				4				4	1		
1943	3	1			2				2				4	1		
1944	3				4	1										
1945	5	2	1		4	2			5	2	1	1				
1946	6	2			3				1				4	1	1	
1947	5	1			3	1							3	1	1	
1948	3	1	1		6	2	1		3				1			
1949	4	1	1		1				2							
1950	6	2	1	1	1				1	1			1			
1951	1				1				1							
1952	5												2	1		
1953	6	2	1	1	3	1			6	1	1		3			
1954									2				4	1	1	
1955	2				6	2	1	1					1			
1956	5	2											2			
1957	6	1	1		1				3	1			1			
1958	3	1			6	2	1	1	1							
TOTAL	72	19	6	2	46	12	3	2	38	7	2	1	32	6	3	

# RAINY PERIODS OF .01" OR MORE PER DAY

## McMINNVILLE

MONTH	MARCH				APRIL				MAY				JUNE			
YEAR \ DAYS	3-5	6-8	9-12	13+	3-5	6-8	9-12	13+	3-5	6-8	9-12	13+	3-5	6-8	9-12	13+
1939	4	2			1				2	1			1			
1940	3	1			2											
1941	1				3	1			4	1			1			
1942	4	1			1				3	1			4	1		
1943	4	1			4	2										
1944	3				5	1										
1945	6	3	1	1	3				4	1	1					
1946	4	1			2				1				1			
1947	5	1			4	1	1						4	1	1	
1948	3	1	1		5	1			3	1						
1949	5	1	1		1				1							
1950	6	2	1	1	1				2	1			2			
1951	4	2	1	1	1				1							
1952	3				2								1			
1953	3	1			3	1			6	1	1		2			
1954	2				1				1				2			
1955	3				5	1	1						2	1		
1956	4	1							2				2			
1957	4								3				1			
1958	3	1			5	1			1							
TOTAL	74	19	5	3	49	9	2		34	7	2		23	3	1	

FIGURE 17

# RAINY PERIODS OF .01" OR MORE PER DAY SALEM

MONTH	MARCH				APRIL				MAY				JUNE			
DAYS YEAR	3-5	6-8	9-12	13+	3-5	6-8	9-12	13+	3-5	6-8	9-12	13+	3-5	6-8	9-12	13+
1939	4	2			1				3	1	1		2			
1940	4	1			3				2	1						
1941	2				3	1			4	2			2			
1942	2	1			2	1			1				3	1		
1943	3	1			3	1							2			
1944	2				3	1	1		2				1			
1945	4	2	1	1	4	1	1		4	2	1	1				
1946	5	1			1				1				3			
1947	4				4	1	1						3	1	1	
1948	5	2	1	1	6	2			2	1						
1949	6	2	1	1	2				1							
1950	6	2	1	1	4	1			2	1			3			
1951	4	1	1		1				3	1						
1952	4	1			1								2			
1953	4	1	1		2	1			5	1	1		1			
1954	1				3	1	1		2				4	1		
1955	4				6	2	1	1	1				1			
1956	4	1							3	1			2			
1957	7	2	1	1	2				3	1			1			
1958	4	1			4	1	1		2				1			
TOTAL	79	21	7	5	55	14	6	1	41	12	3	1	31	3	1	

FIGURE 18

34

# RAINY PERIODS OF .01" OR MORE PER DAY ALBANY

MONTH	MARCH				APRIL				MAY				JUNE			
DAYS YEAR	3-5	6-8	9-12	13+	3-5	6-8	9-12	13+	3-5	6-8	9-12	13+	3-5	6-8	9-12	13+
1939	4	1							1				1			
1940	4	1			1				2	1						
1941	1				3	1			4	1			2			
1942	4	1			2				5	1			1			
1943	3	1			2								3	1		
1944	4	1			6	2	1	1					2			
1945	4	1			5	1	1		3	1	1					
1946	8	3	2		2				1				4			
1947	5	1			4	1	1						4	1	1	
1948	6	2	1	1	8	3	2		5	1						
1949	7	2	1	1	1				2							
1950	5	2	1	1	3				2	1						
1951	4	1			1				3							
1952	5	1			1				1				4	1		
1953	6	2	1	1	5	1	1		8	2	1	1	3	1		
1954	1				3	1	1		2				5	2	1	1
1955	5	1			6	2	1		2				2			
1956	6	2							2				1			
1957	7	2	1	1	1				4	1			1			
1958	6	2			5	2	1		3				4	1		
TOTAL	95	23	7	5	59	14	9	1	50	9	2	1	37	7	2	1

FIGURE 19

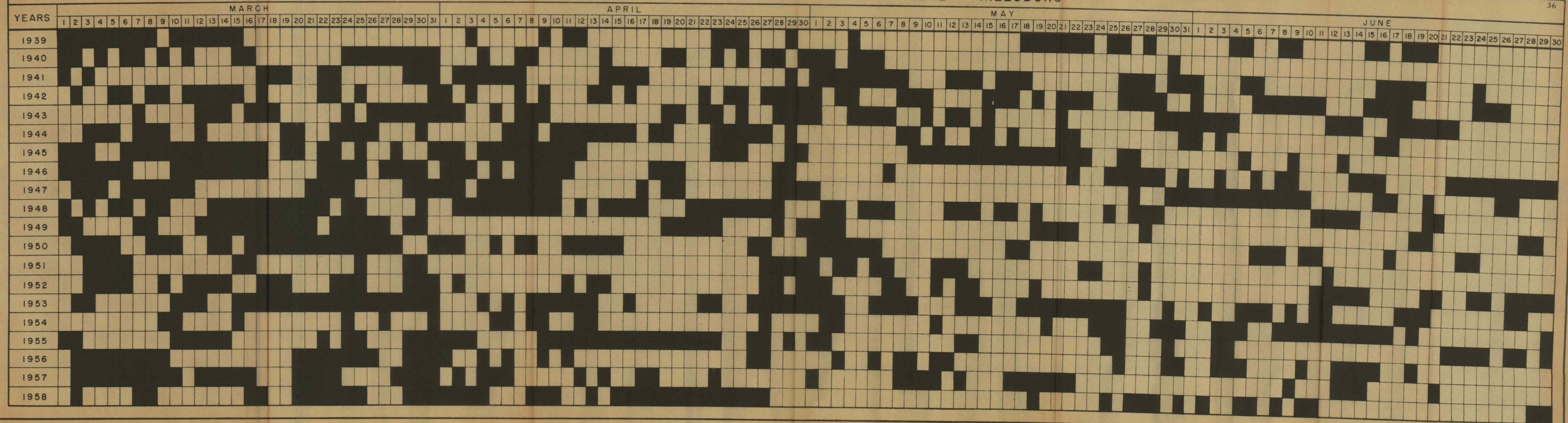
35

# RAINY PERIODS OF .01" OR MORE PER DAY EUGENE

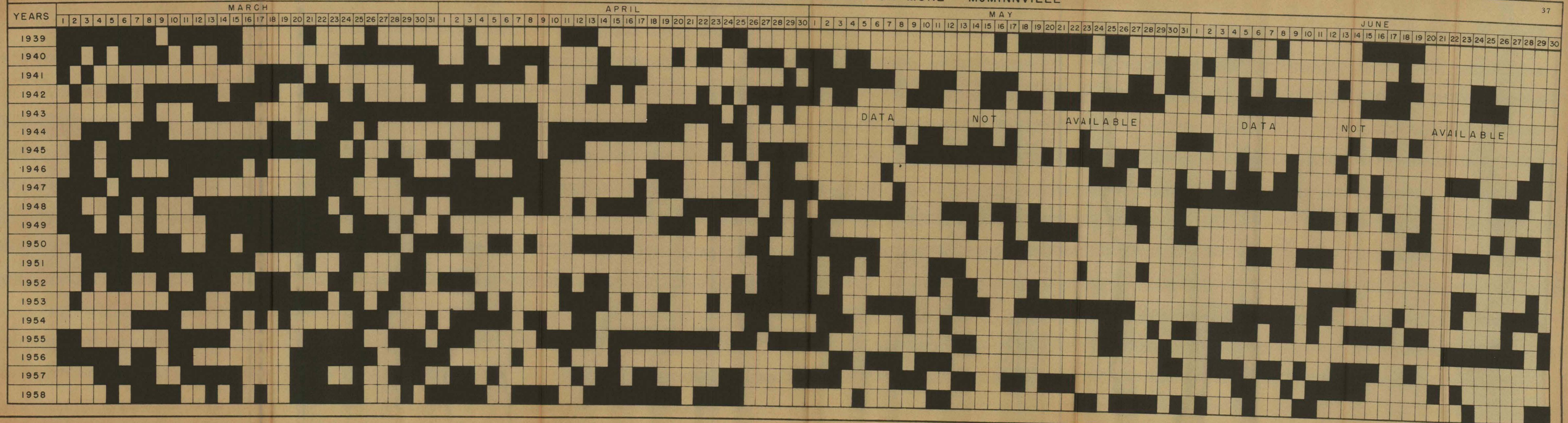
MONTH	MARCH				APRIL				MAY				JUNE			
DAYS YEAR	3-5	6-8	9-12	13+	3-5	6-8	9-12	13+	3-5	6-8	9-12	13+	3-5	6-8	9-12	13+
1939	4	1							3	1			1			
1940	4	1			3				1							
1941	3	1			2	1			4	1			2			
1942	2	1			2				2				1			
1943	4	1			3				2				2			
1944	2	1			6	2	1	1	2				1			
1945	6	2	1		4	1	1		3	1	1					
1946	5	1			2				1				3			
1947	4	1			4	1	1						4	1		
1948	4	2	1	1	7	3	1		4	1			1			
1949	5	1	1		1											
1950	5	2	1	1	2				2	1			2			
1951	2	1			1				3	1						
1952	4								1				2			
1953	4	1	1		3	1			4	1	1		1			
1954	1				1				1				2			
1955	4				2				1							
1956	2								3	1						
1957	7	2	1	1	1				2							
1958	4	1			3	1	1						1			
TOTAL	76	20	6	3	47	10	5	1	39	8	2		23	1		

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## 36



RAINY PERIODS WITH .01"/DAY PRECIPITATION OR MORE - McMINNVILLE



## — SALEM

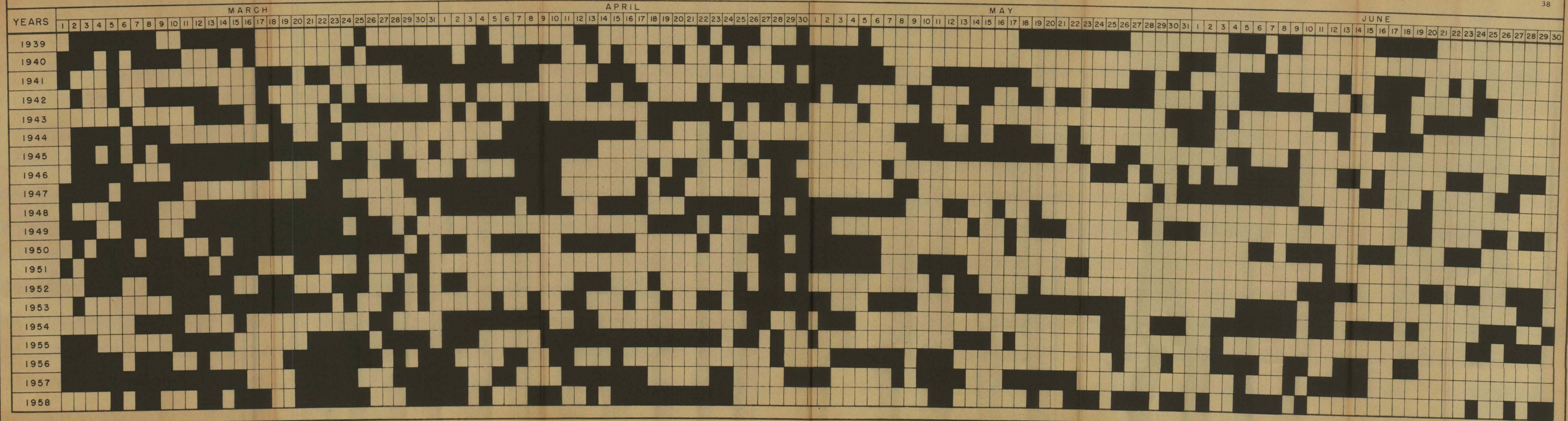


FIGURE 23

## RAINY PERIODS WITH .01"/DAY PRECIPITATION OR MORE — ALBANY

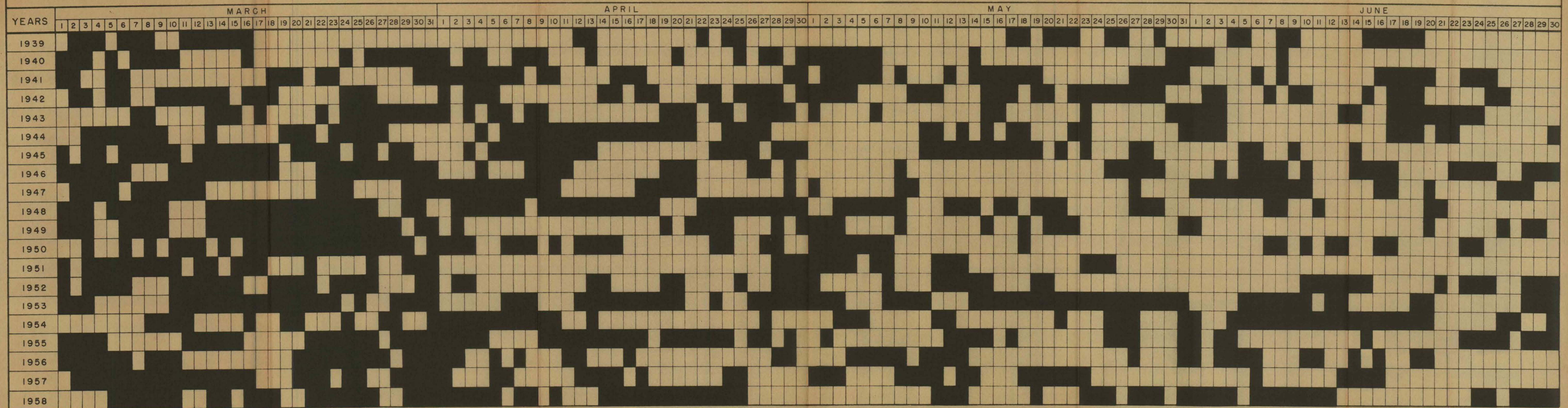


FIGURE 24

RAINY PERIODS WITH .01"/DAY PRECIPITATION OR MORE — EUGENE

[illegible]

## CHAPTER IV

RAINY PERIODS BASED ON MINIMUM AMOUNTS  
OF .05, .15 AND .25 INCH PER DAY

Characteristics of precipitation are revealed more fully when a range of minimum daily intensity levels are considered. Figures 25 through 39 show the following aspects of rainy periods based on higher intensities:

(1) Differences between the number of occurrences for various stations increases with an increase in the minimum daily precipitation figure. (2) Again, there is a predominance of short-length rainy periods. (3) As with the .01 inch basis, the lower intensities have more years below rather than above the average number of rainy days, but this characteristic does not appear when the minimum daily intensity level is raised to .25 inch.

Two points regarding periods based on higher daily rainfall amounts are evident from Figures 25 through 39. First, as the minimum daily precipitation figure increases, the difference between the number of occurrences for the various stations also increases (a 12 per cent difference at .05 inch per day; 14 per cent difference at .15 inch per day; and 17 per cent difference at .25 inch per day). This feature shows a tendency toward less homogeneity between the stations as the precipitation intensity increases, but

these differences are not great. In addition, as the intensity increases the variation above and below the average year lessens.

Second, at each higher intensity level the difference between the number of occurrences of one-day periods and three-day periods is greater than that between the several longer duration periods. Similarly, the difference between the number of occurrences of three-day periods and six-day periods is greater than between longer periods. Albany is consistently higher in the number of occurrences of short rainy periods than any of the other stations. Similarly, there is no comparable low-value station or station consistently high or low with regards to longer length periods.

Again Albany may be used to facilitate pointing out some important points. It is evident, when comparing the three intensity level graphs for Albany, that there is a lessening of the total number of rainy periods as the minimum amount of rainfall per day increases. It is also noticeable that as the minimum amount of rain per day is increased the number of longer rainy periods decreases.

A complete count of rainy days when a minimum daily rainfall of .05 inch (Figure 28) is used indicates a total number of rainy days for the four months studied, during the 20-year period in question, of 798. The average number

of rainy days in a single year was 40, while the highest value in any year was 53 and the lowest 25.

Comparing these values with specific years shows that 1939 had the smallest number of rainy days and 1953 the largest. These two years correlate with those representing similar conditions when rainy periods with a minimum of .01 inch per day were studied in the previous chapter. The year 1948 again has the second highest number of rainy days, but at the .05 inch level shares this position with 1945 and 1955, each with 49 days.

During the 20-year period considered none of the years had exactly the average number of 40 rainy days. Only one year (1943) was within one day of this figure. This year does not correlate with any of the three average years indicated in Chapter 3, which at this intensity level no longer have identical number of occurrences either. Of the remaining years, ten were below the average figure and eight were above it.

A study of Figure 33 showing .15 inch per day as the minimum daily precipitation figure reveals that the total number of rainy days was 455. The average year had 23 rainy days, while the highest value year had 32 and the lowest, 11.

As with the previous two minimum daily figures (.01 inch per day and .05 inch per day), 1939 shows up as the

year with the lowest number of rainy days. The year with the highest number was 1957. This year does not correlate with the previous high-value year of 1953, and was an average year when a minimum of .01 inch per day was used as the minimum daily intensity. Of the remaining years, nine were below the average years and seven above them.

Figure 38 (.25 inch minimum daily intensity) shows the following information. The total number of rainy days has dropped to 282, or 26 per cent of the total rainy days when .01 inch per day was considered the minimum intensity. The average year had 14 rainy days, while the highest value year had 25 days and the lowest, seven.

Again, 1939 appears as the year with the smallest number of rainy days, but this time it is joined by 1946. This is the first consideration in which 1946 has appeared as a minimum, average, or maximum value year. The year with the greatest number of rainy days was 1957, which was the same year that had the largest number when .15 inch per day was considered the minimum daily rainfall.

There was only one year, 1948, which had the average number of rainy days. This position is contrary to that held by 1948 in the previous intensity levels. With .01 inch per day, .05 inch per day and .15 inch per day as minimum daily precipitation figures, this year was consistently

among the years with the highest number of rainy days. Of the remaining years, eight were below the average year and eight were above it.

One major point shown by both this and the preceeding chapter is that there is no direct correlation between the average, maximum or minimum-value years at the various intensity levels. A given year may have the average number of rainy days under one intensity level and be a maximum-value year under another.

FIGURE 25

WET PERIODS WITH A MINIMUM INTENSITY OF .05" / DAY — HILLSBORO

46

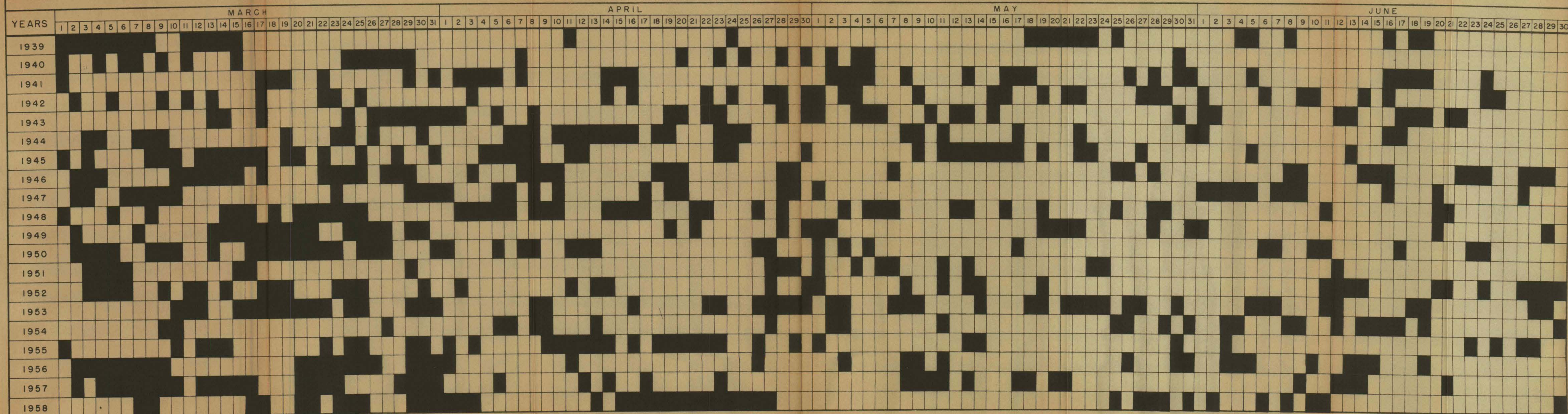


FIGURE 26

WET PERIODS WITH A MINIMUM INTENSITY OF .05"/DAY - McMINNVILLE

[illegible]

WET PERIODS WITH A MINIMUM INTENSITY OF .05" / DAY — SALEM

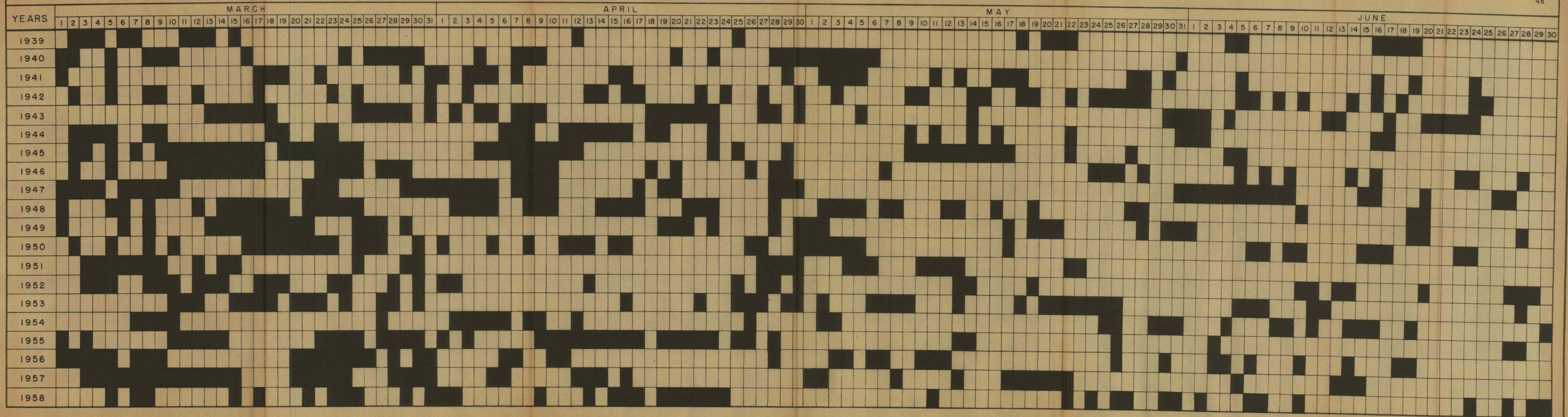
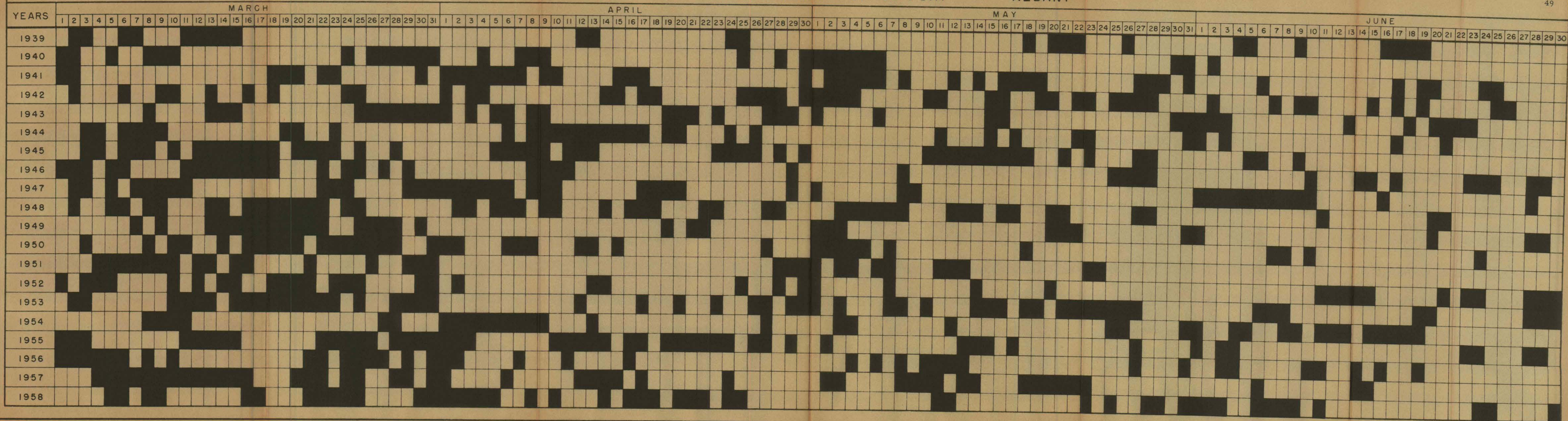


FIGURE 28

WET PERIODS WITH A MINIMUM INTENSITY OF .05" / DAY — ALBANY

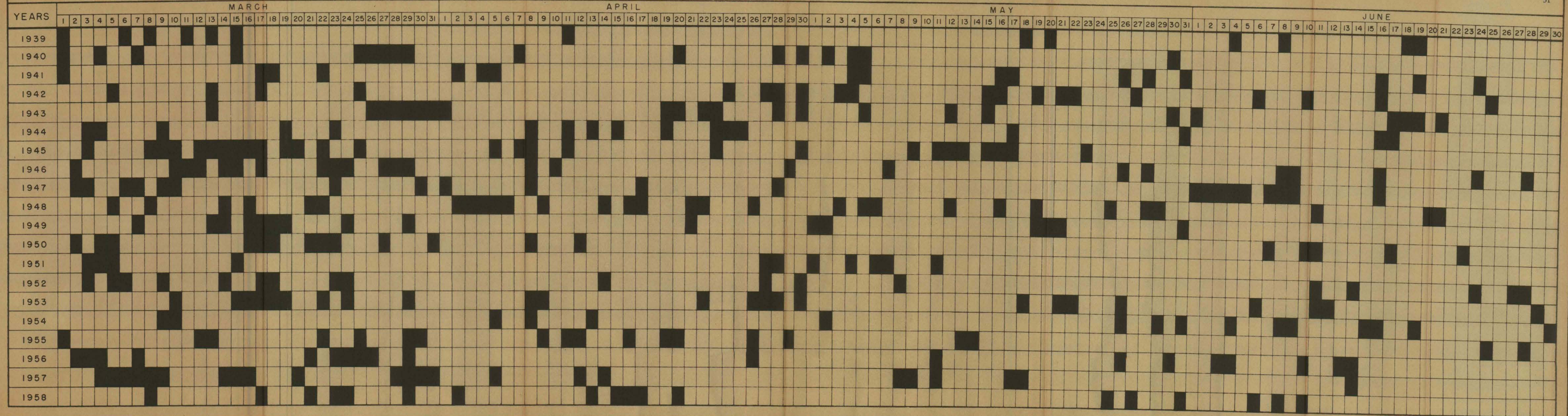
49





51

## 51



WET PERIODS WITH A MINIMUM INTENSITY OF .15" / DAY — McMINNVILLE

[illegible]

WET PERIODS WITH A MINIMUM INTENSITY OF .15" / DAY — SALEM

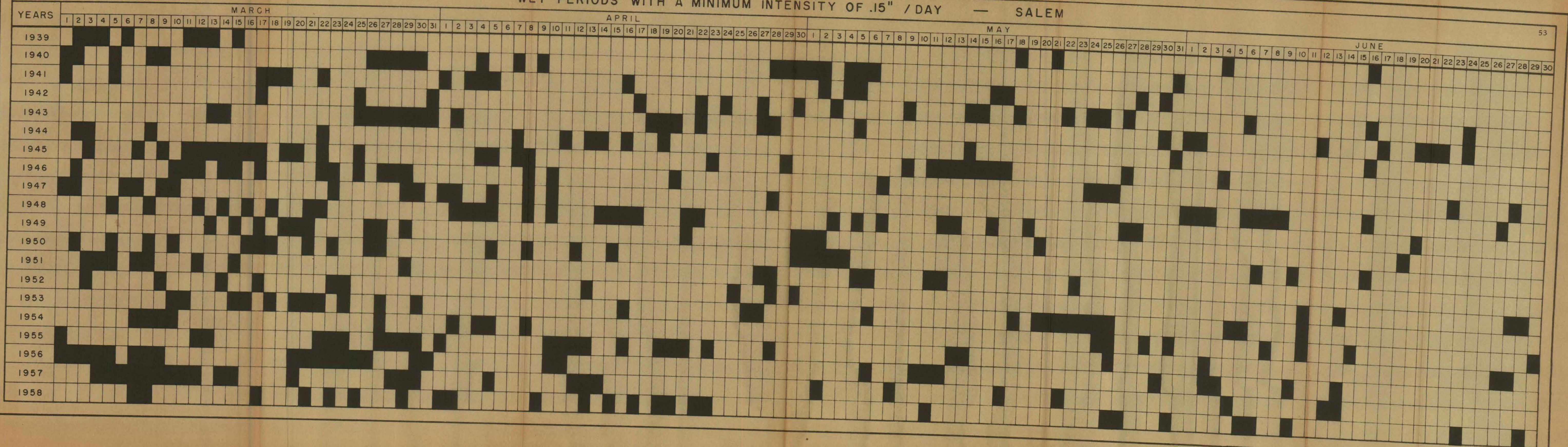


FIGURE 33

WET PERIODS WITH A MINIMUM INTENSITY OF .15" / DAY — ALBANY

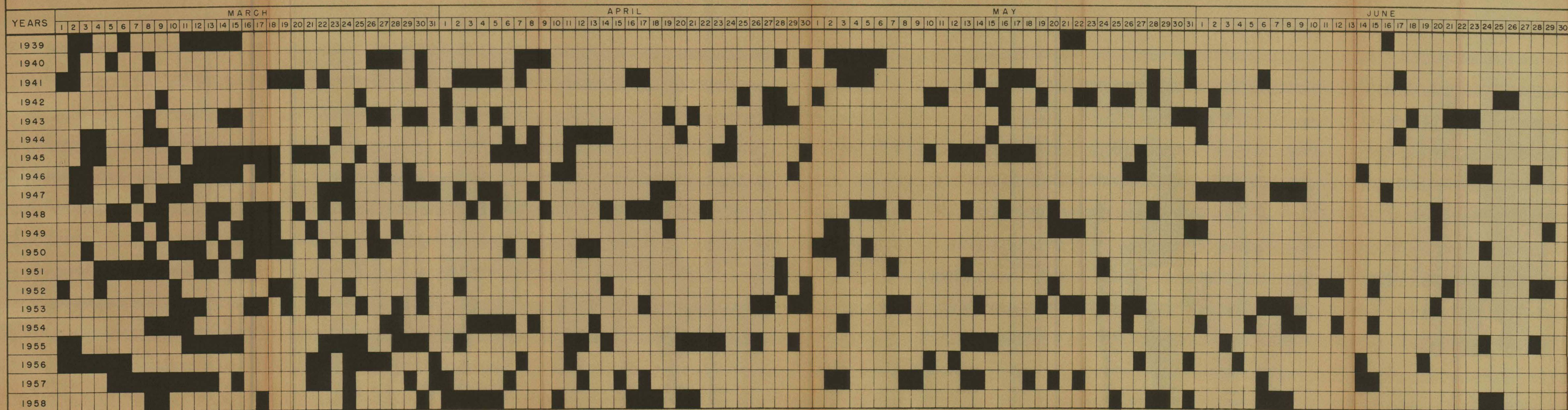


FIGURE 34

WET PERIODS WITH A MINIMUM INTENSITY OF .15" / DAY — EUGENE

55

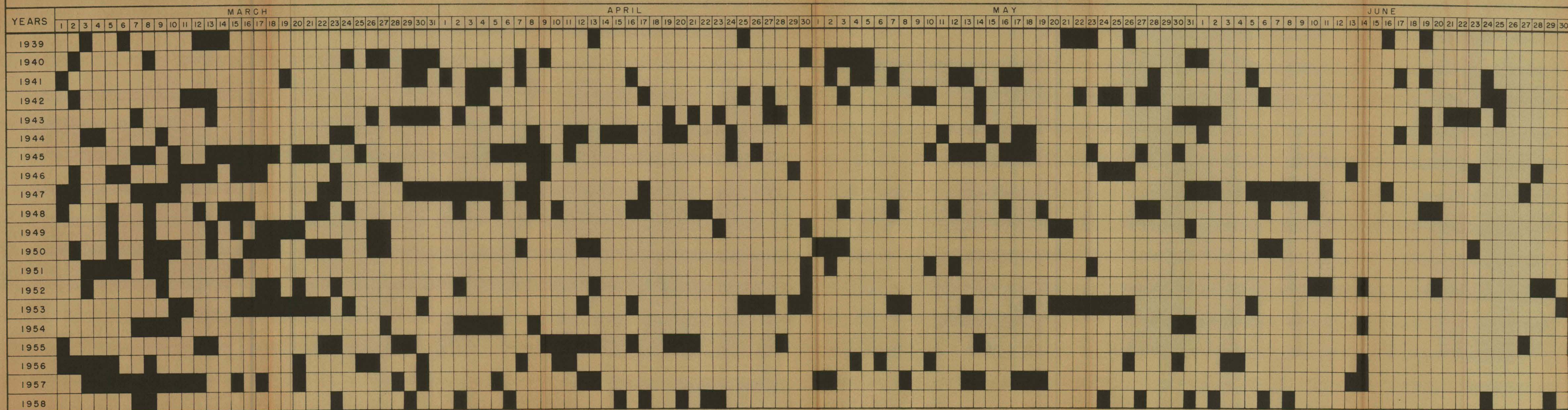


FIGURE 35

WET PERIODS WITH A MINIMUM INTENSITY OF .25" / DAY — HILLSBORO

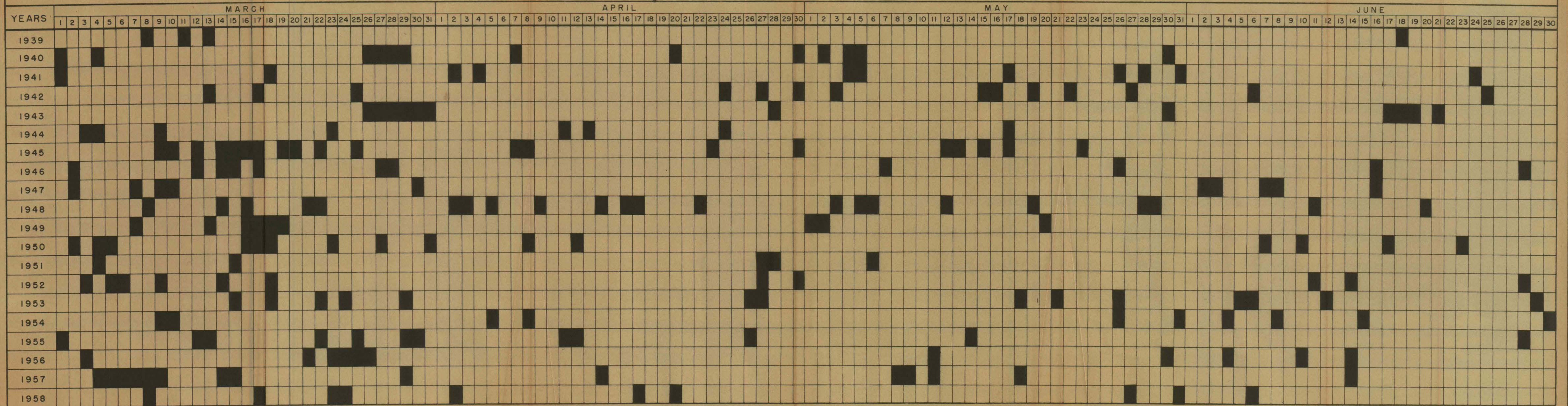


FIGURE 36

WET PERIODS WITH A MINIMUM INTENSITY OF .25" / DAY — McMINNVILLE

7

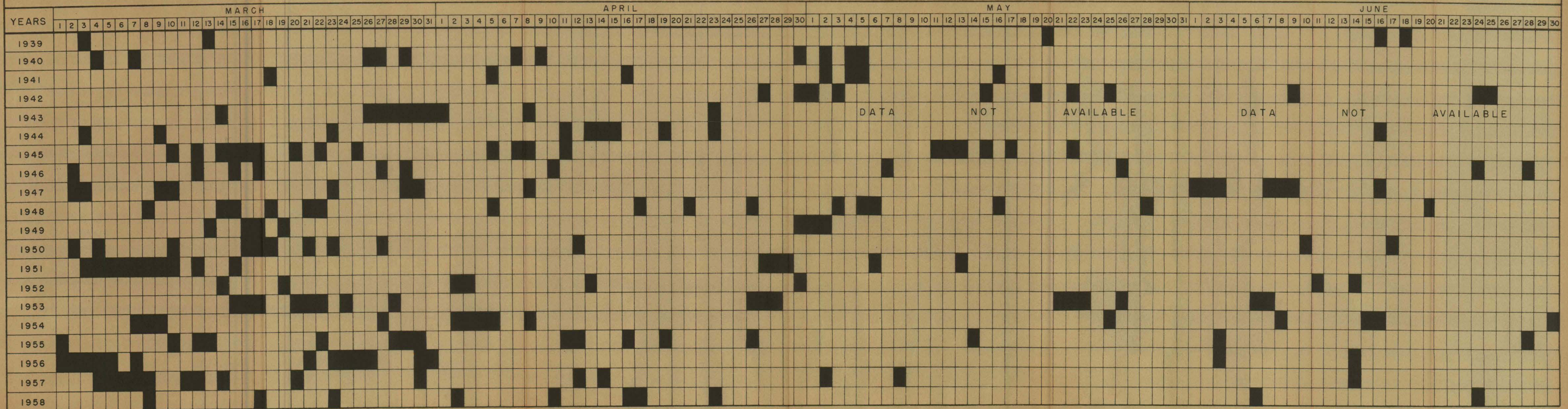


FIGURE 37

WET PERIODS WITH A MINIMUM INTENSITY OF .25" / DAY — SALEM

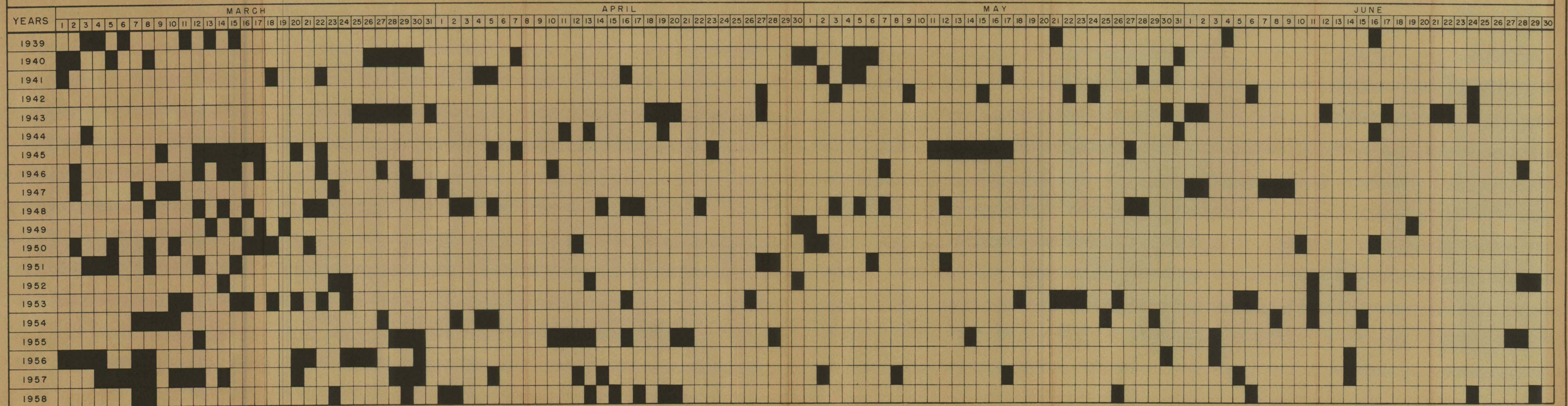


FIGURE 38

WET PERIODS WITH A MINIMUM INTENSITY OF .25" / DAY — ALBANY

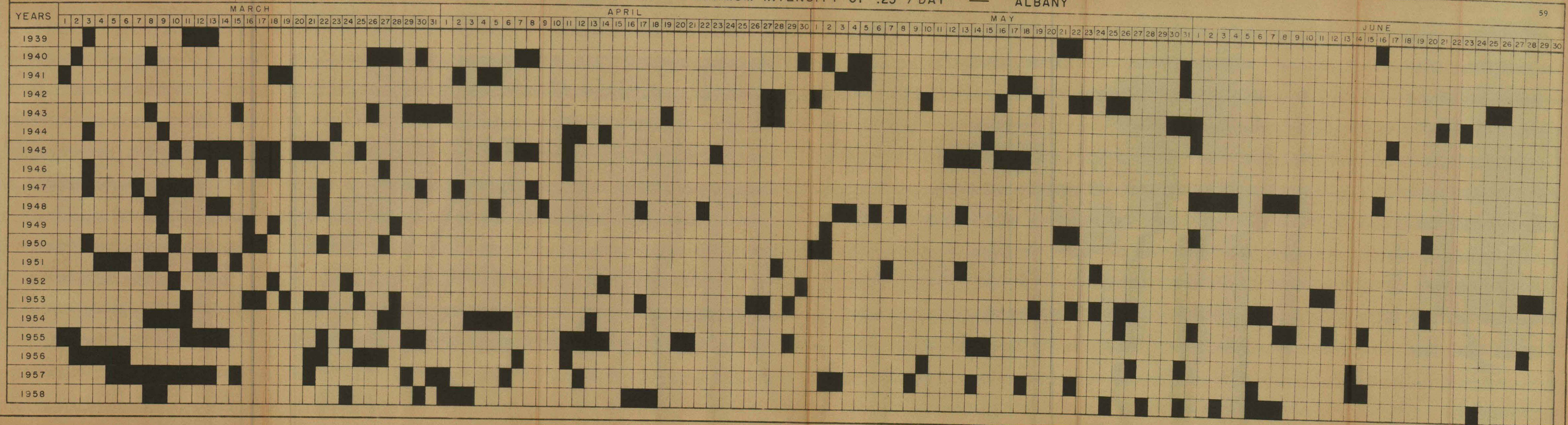
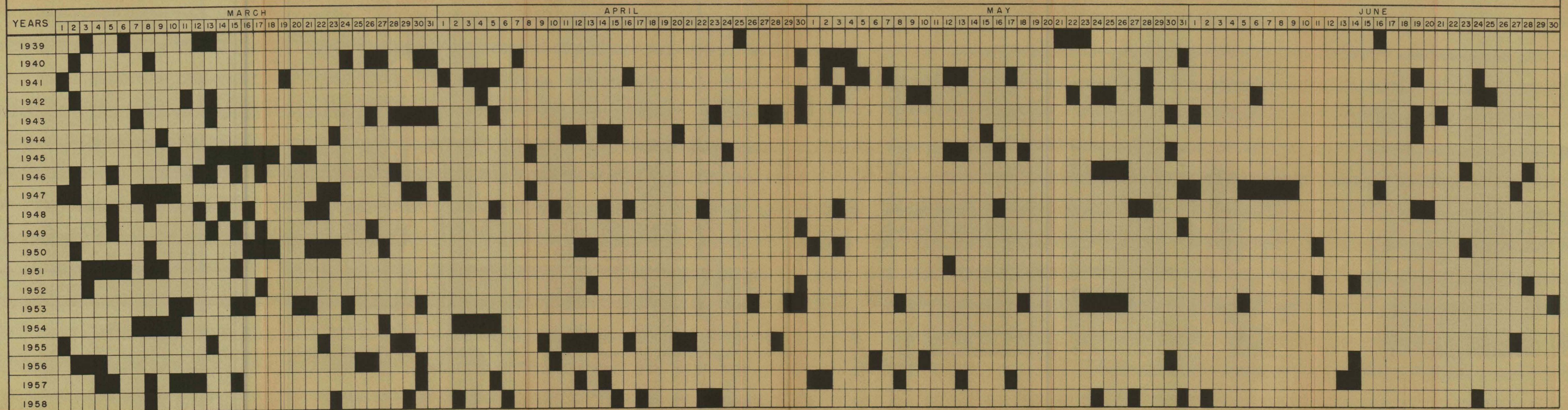


FIGURE 39

WET PERIODS WITH A MINIMUM INTENSITY OF .25" / DAY — EUGENE

60



## CHAPTER V

### DRY PERIODS

The study of dry periods is compatible with the previous characteristics examined, for a system of rainy periods automatically implies a system of dry periods. For visual evidence of this point, the reader should observe the daily occurrence graphs in Chapter 3, showing rainy days with a minimum of .01 inch per day precipitation. In many ways this chapter is a sequel, and partly to avoid repetition, a different form of chart has been constructed. In addition, the monthly periods have been subdivided into thirds and the start of varying lengths of dry periods shown. This format allows the start of dry periods to be shown in greater detail. The shortest period length shown is three days, for it was felt that this time period is of more practical value than one and two-day periods in the Willamette Valley.

A study of Figures 40 through 79 will show that all the stations have a similarity of dry period occurrence. This is not surprising, for these periods are the counterparts of those the similarity of which was discussed in Chapter 3.

A look at the total number of occurrences, on these tables, shows the following information: March and April

both have a tendency for the middle third of the month to be the driest part. On the other hand, May and June show the last third of the month to be the driest. These two characteristics are fairly consistently shown for all stations, and for most of the various dry period lengths. These tendencies, however, are more pronounced with short periods than with the long ones.

As in the previous chapters, Albany has been selected as the sample station. A study of Figures 64 through 71 reveals a definite increase in the number of dry periods as summer approaches. For three and four-day dry periods the greatest increase occurs between April and May. Dry periods of five, six, and seven-day lengths show the greatest increase between the months of March and April. Dry period lengths of eight and nine days show a similar pattern to that of the three and four-day periods, while ten-day periods show two major increases in the number of occurrences, one between April and May and the other between May and June.

Of further significance is the fact that there are three general periods during this season when the overall increase in number of dry periods lessens somewhat. Periods of all lengths show a tendency for a decrease in number between the middle third and the last third of March; the

middle and last thirds of April; and the last third of May and the first third of June.

The above-mentioned Figures also show a decrease in the number of occurrences of dry periods as the length of the dry period increases. The greatest difference appears in the total figures for dry periods of three and four days; however, as with the rainy periods, a close look at the individual years will show that the difference between them is never great, but usually one occurrence.

FIGURE 40  
START OF 3 DAY DRY PERIOD  
HILLSBORO

64

MONTH	MARCH			APRIL			MAY			JUNE		
DATE YEAR	I-10	II-20	2I-3I	I-10	II-20	2I-30	I-10	II-20	2I-3I	I-10	II-20	2I-30
1939		1	3	1	2	1	3	2	1	1	1	3
1940		2	1	1	2		1	3	3	3	3	3
1941	2	2	1	1	2	2			1	2	1	3
1942		1	1	1	1		1	1		1		2
1943	3		1		2			1	2	2		2
1944		2	1	1			2	1	2	2	2	3
1945					2	1	2		1	2	2	3
1946	1	1			2	2	3	3			2	
1947		3	1		2	2	3	3	2		1	2
1948			1		1		1		1	3	1	3
1949	1			3	2	1	2	2	1	3	2	2
1950					1	2	1	2	3	1	2	2
1951	1	2	1	3	3	2	1	2	2	3	2	3
1952			1	2	2	2	1	1	3	3	1	
1953	2			1	1						1	2
1954	2	2	2	1	2	3	2	2	1			2
1955	2	2		1			2	2	2	2	3	
1956		3			3	2		2	2	1		3
1957		1	1	1		2	2	1	3	2	1	3
1958	1	1	1	1		1	3	2	1		3	2
TOTAL	15	23	16	18	30	23	30	30	31	31	28	43

FIGURE 41  
START OF 4 DAY DRY PERIOD  
HILLSBORO

65

MONTH	MARCH			APRIL			MAY			JUNE		
DATE YEAR	I-10	II-20	21-31	I-10	II-20	21-30	I-10	II-20	21-31	I-10	II-20	21-30
1939		1	2	1	2		1	1			1	2
1940		1			1		1	2	2	2	2	2
1941	1	1	1			2			1	1	1	1
1942			1		1			1		1		1
1943	1				2			1	1	1		2
1944		1		1			1		2	1	1	2
1945					2		2		1	1	1	2
1946					1	1	1	2			1	
1947		2	1		1	1	2	2	1		1	1
1948			1						1	2	1	2
1949	1			2	2	1	1	2	1	2	2	1
1950					1	1	1	1	2	1	1	1
1951	1	2	1	2	2	1		1		2	2	2
1952				2	1	1	1	1	1	2	1	
1953	1				1						1	1
1954	2	2		1	1	1	1	2				1
1955	1	1		1			2	1	1	1	2	
1956		2			2	1		2	1	1		2
1957			1	1		1	1		2	2	1	2
1958	1	1					2	2	1		2	2
TOTAL	9	14	8	11	20	11	17	21	18	20	21	27

FIGURE 42  
START OF 5 DAY DRY PERIOD  
HILLSBORO

66

MONTH	MARCH			APRIL			MAY			JUNE		
DATE YEAR	I-10	II-20	2I-3I	I-10	II-20	2I-30	I-10	II-20	2I-3I	I-10	II-20	2I-30
1939		1	2	1	1		1	1				2
1940								2	1	2	2	2
1941	1	1	1			1			1		1	1
1942				1								
1943	1				1			1	1	1		1
1944		1		1			1		1	1	1	2
1945					1		1				1	2
1946					1	1	1	2				
1947		1			1	1	1	2	1		1	1
1948										2	1	1
1949				2	1		1	1	1	1	1	1
1950					1	1		1	2	1	1	1
1951				2	2	1		1		2	1	2
1952				1	1	1			1	2		
1953	1										1	1
1954	1	1			1	1	1	1				1
1955	1	1		1			1	1		1	2	
1956		1			1	1		1	1			2
1957						1	1		1	1	1	1
1958		1					2	1			1	1
TOTAL	5	8	4	8	12	9	11	15	11	14	15	22

FIGURE 43  
START OF 6 DAY DRY PERIOD  
HILLSBORO

67

MONTH	MARCH			APRIL			MAY			JUNE		
DATE YEAR	I-10	II-20	2I-3I	I-10	II-20	2I-30	I-10	II-20	2I-3I	I-10	II-20	2I-30
1939			1		1		1	1				1
1940								1	1	1	1	1
1941	1	1				1						1
1942												
1943	1				1				1	1		1
1944		1					1		1	1		1
1945					1		1				1	1
1946					1	1	1	1				
1947		1			1	1	1	1	1			
1948										1		1
1949				1	1		1	1		1	1	1
1950								1	1			1
1951				1	1	1		1		1	1	1
1952				1	1	1			1	1		
1953	1											1
1954	1				1	1	1	1				1
1955	1	1					1	1		1	1	
1956		1			1			1				1
1957						1	1		1	1		1
1958							1	1			1	1
TOTAL	5	5	1	3	10	7	10	11	7	9	6	15

FIGURE 44  
START OF 7 DAY DRY PERIOD  
HILLSBORO

68

MONTH	MARCH			APRIL			MAY			JUNE		
DATE YEAR	I-10	II-20	2I-3I	I-10	II-20	2I-30	I-10	II-20	2I-3I	I-10	II-20	2I-30
1939			1		1			1				1
1940								1	1	1	1	1
1941	1					1						
1942												
1943					1				1			1
1944							1		1	1		1
1945					1		1				1	1
1946						1		1				
1947		1				1	1	1				
1948										1		1
1949				1	1		1	1		1	1	1
1950									1			
1951				1	1			1		1	1	1
1952				1					1	1		
1953												
1954	1				1		1	1				
1955	1						1				1	
1956		1			1			1				1
1957						1			1	1		1
1958							1	1			1	1
TOTAL	3	2	1	3	7	4	7	9	6	7	6	11

FIGURE 45  
START OF 8 DAY DRY PERIOD  
HILLSBORO

69

MONTH	MARCH			APRIL			MAY			JUNE		
DATE YEAR	I-10	II-20	2I-3I	I-10	II-20	2I-30	I-10	II-20	2I-3I	I-10	II-20	2I-30
1939			1		1							1
1940								1	1	1	1	1
1941						1						
1942												
1943					1							1
1944									1			1
1945					1		1					1
1946								1				
1947		1					1	1				
1948										1		1
1949				1	1			1		1	1	
1950									1			
1951				1	1					1	1	1
1952				1						1		
1953												
1954	1							1				
1955							1				1	
1956		1			1			1				1
1957									1	1		1
1958							1	1			1	1
TOTAL	1	2	1	3	6	1	4	7	4	6	5	10

FIGURE 46  
START OF 9 DAY DRY PERIOD  
HILLSBORO

70

MONTH	MARCH			APRIL			MAY			JUNE		
DATE YEAR	I-10	II-20	2I-3I	I-10	II-20	2I-30	I-10	II-20	2I-3I	I-10	II-20	2I-30
1939			1									1
1940								1	1	1	1	1
1941												
1942												
1943												
1944												1
1945												1
1946								1				
1947		1					1	1				
1948										1		1
1949				1						1		
1950									1			
1951				1	1					1		1
1952										1		
1953												
1954												
1955											1	
1956		1			1							1
1957									1			1
1958							1				1	
TOTAL		2	1	2	2		2	3	3	5	3	8

FIGURE 47  
START OF 10 DAY DRY PERIOD  
HILLSBORO

71

MONTH	MARCH			APRIL			MAY			JUNE		
DATE YEAR	I-10	II-20	2I-3I	I-10	II-20	2I-30	I-10	II-20	2I-3I	I-10	II-20	2I-30
1939			1									1
1940								1		1	1	1
1941												
1942												
1943												
1944												1
1945												1
1946								1				
1947								1				
1948										1		
1949				1								
1950									1			
1951				1	1					1		1
1952										1		
1953												
1954												
1955											1	
1956												1
1957												
1958							1					
TOTAL			1	2	1		1	3	1	4	2	6

FIGURE 48  
START OF 3 DAY DRY PERIOD  
McMINNVILLE

72

MONTH	MARCH			APRIL			MAY			JUNE		
DATE YEAR	I-10	II-20	2I-3I	I-10	II-20	2I-30	I-10	II-20	2I-3I	I-10	II-20	2I-30
1939		1	2	2	2	2	3	1	1	1	1	3
1940		1	1		2		1	3	3	2	2	3
1941	2	2	2		2	2		1	2	2	1	2
1942			1	2	1		1	1			1	1
1943	2	1			2							
1944		2	1	1		1	2	1	2	2	1	3
1945					2		2		1	2	2	2
1946	1	1		1	2	1	3	3	1		2	1
1947		3	1		2	2	2	3	3		2	1
1948			1		1				2	3		3
1949				3	2	1	2	1	1	3	2	1
1950					1	1	1	2	3	1	2	1
1951		1	1	3	3	2	1	2	2	3	3	3
1952			1	2	2	1	2	1	3	3	2	1
1953	2		1	2					1	1	1	1
1954	2	1	2		2	2	1	2	1			2
1955	2	2		1			2	2	2	2	3	
1956		2		2	2	3		2	3			3
1957	1	1		1		2	1		3	1	1	2
1958	1		1			1	2	2		2	3	2
TOTAL	13	18	15	20	28	21	26	27	34	28	29	35

FIGURE 49  
START OF 4 DAY DRY PERIOD  
McMINNVILLE

73

MONTH	MARCH			APRIL			MAY			JUNE		
DATE YEAR	I-10	II-20	2I-3I	I-10	II-20	2I-30	I-10	II-20	2I-3I	I-10	II-20	2I-30
1939		1	2	1	1	1	2	1	1		1	2
1940		1			1		1	2	2	2	1	2
1941	1	1	1			2			1	1		1
1942			1	1	1		1				1	1
1943	1	1		1	1							
1944		1	1	1		1	1		1	2		2
1945					2		2		1	1	1	2
1946					1	1	1	2			1	
1947		2	1		1	1	1	2	2		1	1
1948			1						1	2		2
1949				2	2		2		1	2	2	1
1950					1	1	1	1	2	1	1	1
1951		1		2	2	1	1	1	1	2	2	2
1952				1	1	1	1	1	2	2	1	1
1953	1			1					1	1	1	
1954	1	1	1		1	1	1	2	1			1
1955	1	1		1			2	1	1	1	2	
1956		2		1	1	2		2	2			2
1957		1		1		1	1		2	1	1	1
1958	1					1	2	2			2	1
TOTAL	6	13	8	13	16	14	20	17	22	18	18	22

FIGURE 50  
START OF 5 DAY DRY PERIOD  
McMINNVILLE

74

MONTH	MARCH			APRIL			MAY			JUNE		
DATE YEAR	I-10	II-20	2I-3I	I-10	II-20	2I-30	I-10	II-20	2I-3I	I-10	II-20	2I-30
1939		1	1	1	1	1	2	1	1			2
1940		1			1		1	2	1	1	1	2
1941	1	1	1			1			1			1
1942			1	1								
1943	1				1							
1944		1	1	1		1	1		1	1		2
1945					1		1				1	1
1946					1	1	1	2				
1947		1			1	1	1	2	2		1	1
1948									1	2		2
1949				1	1		1		1	1	1	1
1950						1		1	2	1		1
1951				2	2	1		1		2	2	2
1952				1	1		1		2	2	1	
1953	1										1	
1954	1				1	1		1				1
1955	1	1		1			1	1		1	2	
1956		1		1	1	2		1	1			2
1957				1					1		1	1
1958						1	1	1			1	
TOTAL	5	7	4	10	12	11	11	13	14	11	12	19

FIGURE 51  
START OF 6 DAY DRY PERIOD  
McMINNVILLE

75

MONTH	MARCH			APRIL			MAY			JUNE		
DATE YEAR	I-10	II-20	2I-3I	I-10	II-20	2I-30	I-10	II-20	2I-3I	I-10	II-20	2I-30
1939				1	1		1					1
1940								1	1	1	1	1
1941	1	1	1			1			1			
1942				1								
1943	1				1							
1944		1					1		1	1		1
1945					1		1				1	1
1946					1		1	1				
1947		1			1	1	1	1	1			
1948									1	1		1
1949				1	1		1			1	1	
1950								1	1			
1951				1	1	1		1		1	1	1
1952				1	1		1		1	1	1	
1953	1											
1954	1				1			1				1
1955	1	1					1	1		1	1	
1956		1				1		1	1			1
1957									1			1
1958								1			1	
TOTAL	5	5	1	5	9	4	8	9	9	7	7	9

FIGURE 52  
START OF 7 DAY DRY PERIOD  
McMINNVILLE

76

MONTH	MARCH			APRIL			MAY			JUNE		
DATE YEAR	I-10	II-20	2I-3I	I-10	II-20	2I-30	I-10	II-20	2I-3I	I-10	II-20	2I-30
1939				1	1		1					1
1940								1	1	1	1	1
1941	1		1			1						
1942				1								
1943	1				1							
1944		1					1		1	1		1
1945					1		1				1	1
1946					1			1				
1947		1				1		1	1			
1948										1		1
1949				1	1		1			1	1	
1950									1			
1951				1	1			1		1	1	1
1952				1			1		1	1		
1953	1											
1954					1			1				
1955	1						1			1	1	
1956		1				1		1	1			1
1957									1			1
1958								1			1	
TOTAL	4	3	1	5	7	3	6	7	7	7	6	8

FIGURE 53  
START OF 8 DAY DRY PERIOD  
McMINNVILLE

77

MONTH	MARCH			APRIL			MAY			JUNE		
DATE YEAR	1-10	11-20	21-31	1-10	11-20	21-30	1-10	11-20	21-31	1-10	11-20	21-30
1939							1					1
1940								1	1	1		1
1941						1						
1942				1								
1943												
1944										1		1
1945					1		1					1
1946								1				
1947		1						1	1			
1948										1		1
1949				1	1		1			1	1	
1950									1			
1951				1	1					1	1	1
1952									1	1		
1953												
1954								1				
1955							1				1	
1956		1				1		1	1			1
1957									1			
1958								1			1	
TOTAL		2		3	3	2	4	6	6	6	4	7

FIGURE 54  
START OF 9 DAY DRY PERIOD  
McMINNVILLE

78

MONTH	MARCH			APRIL			MAY			JUNE		
DATE YEAR	I-10	II-20	2I-3I	I-10	II-20	2I-30	I-10	II-20	2I-3I	I-10	II-20	2I-30
1939							1					1
1940								1	1			1
1941												
1942												
1943												
1944												1
1945												
1946								1				
1947		1						1	1			
1948										1		1
1949				1						1		
1950									1			
1951				1	1					1	1	1
1952									1	1		
1953												
1954												
1955											1	
1956						1			1			1
1957									1			
1958											1	
TOTAL		1		2	1	1	1	3	6	4	3	6

FIGURE 55  
START OF 10 DAY DRY PERIOD  
McMINNVILLE

79

MONTH	MARCH			APRIL			MAY			JUNE		
DATE YEAR	I-10	II-20	21-31	I-10	II-20	21-30	I-10	II-20	21-31	I-10	II-20	21-30
1939							1					1
1940								1				1
1941												
1942												
1943												
1944												1
1945												
1946								1				
1947								1	1			
1948										1		1
1949												
1950									1			
1951				1	1					1	1	1
1952									1	1		
1953												
1954												
1955											1	
1956						1						1
1957												
1958												
TOTAL				1	1	1	1	3	3	3	3	6

FIGURE 56

80

# START OF 3 DAY DRY PERIOD SALEM

MONTH	MARCH			APRIL			MAY			JUNE		
DATE YEAR	I-10	II-20	2I-3I	I-10	II-20	2I-30	I-10	II-20	2I-3I	I-10	II-20	2I-30
1939		1	3	3	2	1	2	2	1	1	1	3
1940		2	1				1	3	3	2	3	3
1941	2	2	2		2	2	1		2	2		2
1942		2	1	2	1		1	1	1		1	2
1943	2				2		2	2	3	2		3
1944		2	2	1		2	2		2	2	3	3
1945				1	2		2		1	2	3	3
1946	1	1		1	2	1	3	3	1		1	
1947		3	1		2	2	2	3	2		2	1
1948	1		1		1				3	3	2	3
1949				3	2	1	2	1	2	3	2	1
1950					1	1	1	3	3	1	1	2
1951		1	2	3	3	2	1	2	2	3	2	3
1952				2	1	1	3	1	3	3	1	
1953	2			1	1		1		1	1	2	2
1954	2	2	2		2	1	2	3	1			1
1955	2	2		1			3	1	2	2	3	1
1956		2		1	2	2		2	2			3
1957		1	1	1	1	1	1	1	3	2	1	3
1958	1		1	1		2	3	2			3	1
TOTAL	13	21	17	21	27	19	33	30	38	29	31	40

FIGURE 57

81

# START OF 4 DAY DRY PERIOD SALEM

MONTH DATE YEAR	MARCH			APRIL			MAY			JUNE		
	I-10	II-20	2I-3I	I-10	II-20	2I-30	I-10	II-20	2I-3I	I-10	II-20	2I-30
1939		1	2	1	1		2	1	1		1	2
1940		1					1	2	2	1	2	2
1941	1	1	1		1	2			1	1		1
1942			1	1			1					1
1943	2				1		2	1	2	2		2
1944		1	2	1		1	1		2		2	2
1945					1		2		1		2	2
1946				1	1	1	1	2			1	
1947		2	1		1	1	1	2	2		1	1
1948			1						1	2	1	2
1949				2	1		2		1	2	2	1
1950					1		1	1	2	1		1
1951				2	2	1		1	2	2	2	2
1952				2		1	2	1	2	2	1	
1953	1			1					1	1	2	1
1954	1	2	2		1	1	1	2	1			1
1955	1	1		1			2		2	1	2	
1956		1		1	1	1		2	1			2
1957		1		1		1	1		2	1	1	2
1958	1					1	2	1			2	
TOTAL	7	11	10	14	12	11	22	16	26	16	22	25

FIGURE 58

82

# START OF 5 DAY DRY PERIOD SALEM

MONTH DATE YEAR	MARCH			APRIL			MAY			JUNE		
	I-10	11-20	21-31	I-10	11-20	21-30	I-10	11-20	21-31	I-10	11-20	21-30
1939			1	1	1		1	1	1		1	2
1940								2	2		2	2
1941	1	1	1			1			1			1
1942			1	1								1
1943	1				1			1	1	1		2
1944		1	1	1		1	1		1		2	2
1945					1		1				2	2
1946					1		1	2				
1947		2	1		1	1	1	2	1			1
1948									1	1	1	2
1949				2	1		1		1	1	1	
1950								1	2	1		1
1951				2	2	1		1	1	2	1	2
1952				1			2		2	1	1	
1953	1								1		1	1
1954	1	1	1		1	1	1	2				
1955	1	1		1			1	1		1	2	
1956		1			1	1		1	1			2
1957							1		1		1	2
1958						1	2	1			2	
TOTAL	5	7	6	9	10	7	13	15	17	8	17	23

FIGURE 59

83

# START OF 6 DAY DRY PERIOD SALEM

MONTH	MARCH			APRIL			MAY			JUNE		
DATE YEAR	I-10	II-20	2I-3I	I-10	II-20	2I-30	I-10	II-20	2I-3I	I-10	II-20	2I-30
1939			1	1	1			1				1
1940								1	1		1	1
1941		1	1			1			1			1
1942				1								
1943					1			1	1	1		1
1944		1	1			1	1		1		1	1
1945					1		1				1	1
1946					1		1	1				
1947		1			1	1	1	1	1			
1948									1	1	1	1
1949				1	1		1		1	1	1	
1950								1	1			1
1951				1	1	1		1	1	1	1	1
1952				1			1		1	1		
1953	1										1	1
1954	1				1		1	1				
1955	1	1					1			1	1	
1956		1			1	1		1				1
1957									1			1
1958						1	1	1			1	
TOTAL	3	5	3	5	9	6	9	10	11	6	9	12

FIGURE 60  
START OF 7 DAY DRY PERIOD  
SALEM

84

MONTH	MARCH			APRIL			MAY			JUNE		
DATE YEAR	I-10	II-20	2I-3I	I-10	II-20	2I-30	I-10	II-20	2I-3I	I-10	II-20	2I-30
1939					1			1				1
1940								1	1		1	1
1941						1						
1942				1								
1943					1				1	1		1
1944		1	1				1		1		1	1
1945					1		1				1	1
1946					1			1				
1947		1				1	1	1	1			
1948										1	1	1
1949				1	1		1			1	1	
1950									1			
1951				1	1			1	1	1	1	1
1952				1			1		1	1		
1953	1										1	1
1954					1			1				
1955							1			1	1	
1956						1		1				1
1957									1			1
1958							1				1	
TOTAL	1	2	1	4	7	3	7	7	8	6	9	10

FIGURE 61  
START OF 8 DAY DRY PERIOD  
SALEM

85

MONTH	MARCH			APRIL			MAY			JUNE		
DATE YEAR	I-10	II-20	2I-3I	I-10	II-20	2I-30	I-10	II-20	2I-3I	I-10	II-20	2I-30
1939												1
1940								1	1		1	1
1941						1						
1942												
1943									1	1		1
1944			1						1		1	1
1945							1				1	1
1946								1				
1947		1						1	1			
1948										1		1
1949				1			1			1	1	
1950									1			
1951				1	1				1	1	1	1
1952				1			1		1	1		
1953											1	
1954								1				
1955							1				1	
1956								1				1
1957									1			1
1958											1	
TOTAL		1	1	3	1	1	4	5	8	5	8	9

FIGURE 62

86

# START OF 9 DAY DRY PERIOD SALEM

MONTH	MARCH			APRIL			MAY			JUNE		
DATE YEAR	I-10	II-20	2I-3I	I-10	II-20	2I-30	I-10	II-20	2I-3I	I-10	II-20	2I-30
1939												1
1940								1	1		1	1
1941												
1942												
1943									1			1
1944											1	1
1945											1	1
1946								1				
1947		1						1				
1948										1		1
1949				1						1		
1950									1			
1951				1	1					1		1
1952							1		1	1		
1953												
1954								1				
1955							1				1	
1956												1
1957									1			1
1958							1				1	
TOTAL		1		2	1		3	4	5	4	5	9

FIGURE 63

87

# START OF 10 DAY DRY PERIOD SALEM

MONTH	MARCH			APRIL			MAY			JUNE		
DATE YEAR	I-10	II-20	21-31	I-10	II-20	21-30	I-10	II-20	21-31	I-10	II-20	21-30
1939												1
1940								1	1		1	1
1941												
1942												
1943												1
1944											1	1
1945											1	1
1946								1				
1947		1						1				
1948												1
1949				1								
1950									1			
1951				1	1					1		1
1952							1		1			
1953												
1954								1				
1955											1	
1956												1
1957												1
1958							1				1	
TOTAL		1		2	1		2	4	3	1	5	9

FIGURE 64

88

# START OF 3 DAY DRY PERIOD ALBANY

MONTH	MARCH			APRIL			MAY			JUNE		
DATE YEAR	I-10	II-20	2I-3I	I-10	II-20	2I-30	I-10	II-20	2I-3I	I-10	II-20	2I-30
1939		1	3	3	2	1	3	2		1	1	3
1940		2	1		2	1	1	3	3	1	3	3
1941	1	2	2		2	2			2	1	1	1
1942			2	1	1		1	1		1	1	2
1943	2	1			2		2	2	2	2		2
1944		1	1	1		1	3		2	2	2	2
1945					2		3		2	1	3	3
1946	1			2	2	1	2	3	1		2	
1947		2	1		2	2	2	3	3		1	1
1948									1	2	2	3
1949				2	2	1	1	1	2	3	3	1
1950					1		1	2	3	2	1	2
1951		1	1	3	3	2	1	2	2	3	3	3
1952	1		1	2	1	1	2	1	3	3	1	
1953	2			1			1	1		1	1	2
1954	2	1	1		2	3	1	2	2			1
1955	2	1		1			2	1	2	2	2	
1956		3		1	2	2	1	2	3	1		3
1957		1		2	1	2	1	1	2	2	1	3
1958	1				1	1	3	1			2	1
TOTAL	12	15	13	19	27	20	31	28	35	28	30	36

FIGURE 65

89

# START OF 4 DAY DRY PERIOD ALBANY

MONTH	MARCH			APRIL			MAY			JUNE		
DATE YEAR	I-10	II-20	2I-3I	I-10	II-20	2I-30	I-10	II-20	2I-3I	I-10	II-20	2I-30
1939		1	2	2	1	1	2	1			1	2
1940		2			1	1	1	1	2	1	2	2
1941	1	1	1		1	2			1	1	1	1
1942			1	1			1				1	2
1943	1				2		2	2	1	1		1
1944		1	1				2		1	1	1	1
1945					1		2			1	1	2
1946					1	1	1	2	1			
1947		2	1		1	1	1	2	2		1	1
1948									1	1	2	2
1949				2	2		1	1	2	2	2	1
1950					1			1	2	1		1
1951			1	2	2	1		1	1	2	2	2
1952				1	1	1	1		2	2	1	
1953	1			1						1	1	1
1954	1	1			1	1	1	2				1
1955	1	1		1			2		1	1	2	
1956		2			1	1		1	1			2
1957				1		1	1		2	2	1	2
1958	1					1	2	1			2	
TOTAL	6	11	7	11	16	12	20	15	20	17	21	24

FIGURE 66

90

# START OF 5 DAY DRY PERIOD ALBANY

MONTH	MARCH			APRIL			MAY			JUNE		
DATE YEAR	I-10	II-20	2I-3I	I-10	II-20	2I-30	I-10	II-20	2I-3I	I-10	II-20	2I-30
1939			2	2	1	1	2	1				2
1940		1			1			1	1	1	2	2
1941		1	1			1			1	1	1	1
1942			1	1								
1943	1				1				1	1		1
1944		1					1		1	1	1	1
1945					1		1				1	2
1946					1		1	2				
1947		1			1	1	1	2	1		1	1
1948									1	1	1	1
1949				1	1				1	1	1	1
1950					1			1	2	1		1
1951				2	2	1		1	1	2	2	2
1952				1			1		2	1	1	
1953	1			1							1	1
1954	1				1	1	1	1				1
1955	1	1					1			1	1	
1956		1				1		1	1			2
1957						1			1	1		2
1958						1	2	1			1	
TOTAL	4	6	4	8	11	8	11	11	14	12	14	21

FIGURE 67  
START OF 6 DAY DRY PERIOD  
ALBANY

91

MONTH	MARCH			APRIL			MAY			JUNE		
DATE YEAR	I-10	II-20	2I-3I	I-10	II-20	2I-30	I-10	II-20	2I-3I	I-10	II-20	2I-30
1939			1	1	1		1	1				1
1940					1			1	1		1	1
1941		1	1			1			1			
1942												
1943	1				1				1	1		1
1944							1		1	1	1	1
1945					1		1				1	1
1946					1		1	1				
1947		1			1	1	1	1	1			
1948										1	1	1
1949				1	1				1	1	1	
1950								1	1	1		1
1951				1	1	1		1	1	1	1	1
1952				1					1	1		
1953	1											1
1954	1				1	1		1				
1955	1						1			1		
1956		1				1		1	1			1
1957									1			1
1958							1				1	
TOTAL	4	3	2	4	9	5	7	8	11	8	7	11

FIGURE 68

92

# START OF 7 DAY DRY PERIOD ALBANY

MONTH	MARCH			APRIL			MAY			JUNE		
DATE YEAR	I-10	II-20	2I-3I	I-10	II-20	2I-30	I-10	II-20	2I-3I	I-10	II-20	2I-30
1939			1	1	1		1					1
1940									1		1	1
1941		1				1						
1942												
1943					1					1		
1944							1		1	1		1
1945					1		1					1
1946					1		1	1		1		
1947		1				1		1				
1948											1	1
1949				1	1				1	1	1	
1950								1	1			
1951				1	1	1		1		1	1	1
1952				1					1	1		
1953												1
1954	1				1			1				
1955							1					
1956		1				1		1				1
1957									1			1
1958							1				1	
TOTAL	1	3	1	4	7	4	6	6	6	6	5	9

FIGURE 69  
START OF 8 DAY DRY PERIOD  
ALBANY

93

MONTH	MARCH			APRIL			MAY			JUNE		
DATE YEAR	I-10	II-20	2I-3I	I-10	II-20	2I-30	I-10	II-20	2I-3I	I-10	II-20	2I-30
1939			1	1			1					1
1940									1		1	1
1941						1						
1942												
1943					1							
1944							1					
1945							1					1
1946								1				
1947		1						1				
1948											1	1
1949				1	1				1	1	1	
1950									1			
1951				1	1					1	1	1
1952									1	1		
1953												
1954								1				
1955							1					
1956		1										1
1957									1			1
1958							1				1	
TOTAL		2	1	3	3	1	5	3	5	3	5	7

FIGURE 70  
START OF 9 DAY DRY PERIOD  
ALBANY

94

MONTH	MARCH			APRIL			MAY			JUNE		
DATE YEAR	I-10	II-20	2I-3I	I-10	II-20	2I-30	I-10	II-20	2I-3I	I-10	II-20	2I-30
1939			1	1			1					1
1940									1		1	1
1941												
1942												
1943												
1944							1					
1945							1					1
1946								1				
1947								1				
1948												1
1949										1	1	
1950									1			
1951				1	1					1	1	1
1952									1	1		
1953												
1954												
1955												
1956		1										1
1957												1
1958							1					
TOTAL		1	1	2	1		4	2	3	3	3	7

FIGURE 71

95

# START OF 10 DAY DRY PERIOD ALBANY

MONTH	MARCH			APRIL			MAY			JUNE		
DATE YEAR	I-10	II-20	21-31	I-10	II-20	21-30	I-10	II-20	21-31	I-10	II-20	21-30
1939			1	1			1					1
1940											1	1
1941												
1942												
1943												
1944												
1945												1
1946								1				
1947								1				
1948												
1949												
1950									1			
1951				1	1					1	1	1
1952									1			
1953												
1954												
1955												
1956												1
1957												1
1958							1					
TOTAL			1	2	1		2	2	2	1	2	6

FIGURE 72

96

# START OF 3 DAY DRY PERIOD EUGENE

MONTH	MARCH			APRIL			MAY			JUNE		
DATE YEAR	I-10	II-20	2I-3I	I-10	II-20	2I-30	I-10	II-20	2I-3I	I-10	II-20	2I-30
1939		1	3	3	2	2	3	2		2	1	3
1940		2	1		1		1	3	3	2	2	3
1941	3	2	1		2	2	1		2	2	1	1
1942			1	1	1		1	1	1	1	1	2
1943	1	1			2		2	1	2	1	1	1
1944		1		1		1	2		2	2	2	3
1945					2		3			1	3	3
1946		1		1	2	1	3	3	1	1	1	1
1947		3	1		2	2	2	3	3		2	1
1948			1		1				1	1	1	3
1949				3	2	1	3	2	2	3	2	2
1950			1		1	1	1	3	3	1	2	2
1951		1	2	3	3	2	1	2	2	3	3	3
1952	1			2	1	2	1	1	3	3	1	1
1953	2			2			1		1	1	2	2
1954	2				2	2	2	3	1	1		3
1955	2	2		2			3	1	2	2	3	1
1956		3		1	2	3		2	2	1	1	3
1957				2	1	1	1		3	2	2	3
1958	1	1	1			2	3	2			3	
TOTAL	12	18	12	21	27	22	34	29	34	30	34	41

FIGURE 73

97

# START OF 4 DAY DRY PERIOD EUGENE

MONTH	MARCH			APRIL			MAY			JUNE		
DATE YEAR	I-10	II-20	21-31	I-10	II-20	21-30	I-10	II-20	21-31	I-10	II-20	21-30
1939		1	2	1	1	1	1	1			1	2
1940		2			1		1	1	2	2	1	2
1941	2	1	1		2	2			1	1	1	1
1942			1	1			1			1		1
1943	1	1			1		1	1	2	1		1
1944		1		1			2		1	1	1	2
1945					1		2			1	2	2
1946					1	1	1	2		1	1	
1947		2	1		1	1	1	2	1		1	1
1948									1	1	1	2
1949				2	2		2	2	2	2	2	1
1950					1	1	1	1	2	1	2	1
1951		1		2	2	1		1	1	2	2	2
1952	1			2	1	1	1	1	2	2	1	
1953	1			1			1		1	1	1	1
1954	1				1	1	1	2	1			2
1955	1	1		1			2	1	1	1	2	
1956		2		1	1	2		2	1	1		2
1957				2		1	1		2	2	1	2
1958	1					1	2	1			2	
TOTAL	8	12	5	14	16	13	21	18	21	21	22	25

FIGURE 74  
START OF 5 DAY DRY PERIOD  
EUGENE

98

MONTH	MARCH			APRIL			MAY			JUNE		
DATE YEAR	I-10	II-20	2I-3I	I-10	II-20	2I-30	I-10	II-20	2I-3I	I-10	II-20	2I-30
1939			1	1	1		1	1			1	2
1940		1						1	2	1	1	2
1941	1	1	1			1			1		1	1
1942				1			1					1
1943	1	1			1			1	1	1		1
1944		1					1		1	1	1	1
1945					1		1			1	2	1
1946					1		1	2			1	
1947		1	1		1	1	1	2	1			1
1948										1	1	2
1949				2	1		2	1	1	2	1	1
1950					1	1		1	2	1	1	1
1951		1		2	2	1		1	1	2	2	2
1952				1		1	1		2	1	1	
1953	1			1							1	1
1954	1				1	1	1	2				1
1955	1	1		1			2			1	2	
1956		1			1	2		1	1	1		2
1957						1			1	1	1	2
1958						1	2	1			2	
TOTAL	5	8	3	9	11	10	14	14	14	14	19	22

FIGURE 75  
START OF 6 DAY DRY PERIOD  
EUGENE

99

MONTH	MARCH			APRIL			MAY			JUNE		
DATE YEAR	I-10	II-20	2I-3I	I-10	II-20	2I-30	I-10	II-20	2I-3I	I-10	II-20	2I-30
1939			1	1	1		1	1				1
1940								1	1	1	1	1
1941	1	1				1			1			
1942												
1943					1				1			
1944							1		1	1	1	1
1945					1		1				1	1
1946					1		1	1				
1947		1			1	1	1	1	1			
1948												1
1949				1	1		1	1	1	1	1	1
1950								1	1		1	1
1951				1	1			1	1	1	1	1
1952				1		1			1	1		
1953	1										1	1
1954	1				1		1	1				1
1955	1	1		1			1			1	1	
1956		1				1		1				1
1957									1		1	1
1958						1	1	1			1	
TOTAL	4	4	1	5	8	5	9	10	10	6	10	12

FIGURE 76

100

# START OF 7 DAY DRY PERIOD EUGENE

MONTH	MARCH			APRIL			MAY			JUNE		
DATE YEAR	I-10	II-20	2I-3I	I-10	II-20	2I-30	I-10	II-20	2I-3I	I-10	II-20	2I-30
1939					1							1
1940									1	1	1	1
1941	1					1			1			
1942												
1943					1				1			
1944							1		1	1		1
1945					1		1				1	1
1946					1			1				
1947		1				1		1				
1948												1
1949				1	1		1	1	1	1	1	1
1950									1		1	
1951				1	1			1		1	1	1
1952				1					1	1		
1953	1											
1954					1		1	1				1
1955							1				1	
1956		1				1		1				1
1957									1			1
1958						1	1				1	
TOTAL	2	2		3	7	4	6	6	8	5	7	10

FIGURE 77

101

# START OF 8 DAY DRY PERIOD EUGENE

MONTH	MARCH			APRIL			MAY			JUNE		
DATE YEAR	1-10	11-20	21-31	1-10	11-20	21-30	1-10	11-20	21-31	1-10	11-20	21-30
1939												1
1940									1	1		1
1941	1					1						
1942												
1943						1						
1944							1					1
1945							1				1	1
1946								1				
1947		1						1				
1948												1
1949				1	1		1	1	1	1	1	
1950									1		1	
1951				1	1					1	1	1
1952				1					1	1		
1953												
1954					1							1
1955							1				1	
1956		1				1		1				1
1957						1						1
1958							1				1	
TOTAL	1	2		3	3	4	5	4	4	4	6	9

FIGURE 78  
START OF 9 DAY DRY PERIOD  
EUGENE

102

MONTH	MARCH			APRIL			MAY			JUNE		
DATE YEAR	I-10	II-20	2I-3I	I-10	II-20	2I-30	I-10	II-20	2I-3I	I-10	II-20	2I-30
1939												1
1940								1				1
1941	1											
1942												
1943												
1944												1
1945							1				1	1
1946								1				
1947		1						1				
1948												1
1949				1			1			1		
1950									1			
1951				1	1					1	1	1
1952									1			
1953												
1954								1				1
1955							1				1	
1956		1			1							1
1957									1			1
1958							1				1	
TOTAL	1	2		2	2		4	3	4	2	4	9

FIGURE 79  
START OF 10 DAY DRY PERIOD  
EUGENE

103

MONTH	MARCH			APRIL			MAY			JUNE		
DATE YEAR	I-10	II-20	2I-3I	I-10	II-20	2I-30	I-10	II-20	2I-3I	I-10	II-20	2I-30
1939												1
1940									1			1
1941	1											
1942												
1943												
1944												
1945											1	1
1946								1				
1947								1				
1948												1
1949				1			1			1		
1950									1			
1951				1	1					1	1	1
1952									1			
1953												
1954								1				
1955							1				1	
1956						1						1
1957												1
1958							1				1	
TOTAL	1			2	1	1	3	3	3	2	4	8

## CHAPTER VI

## SUMMARY

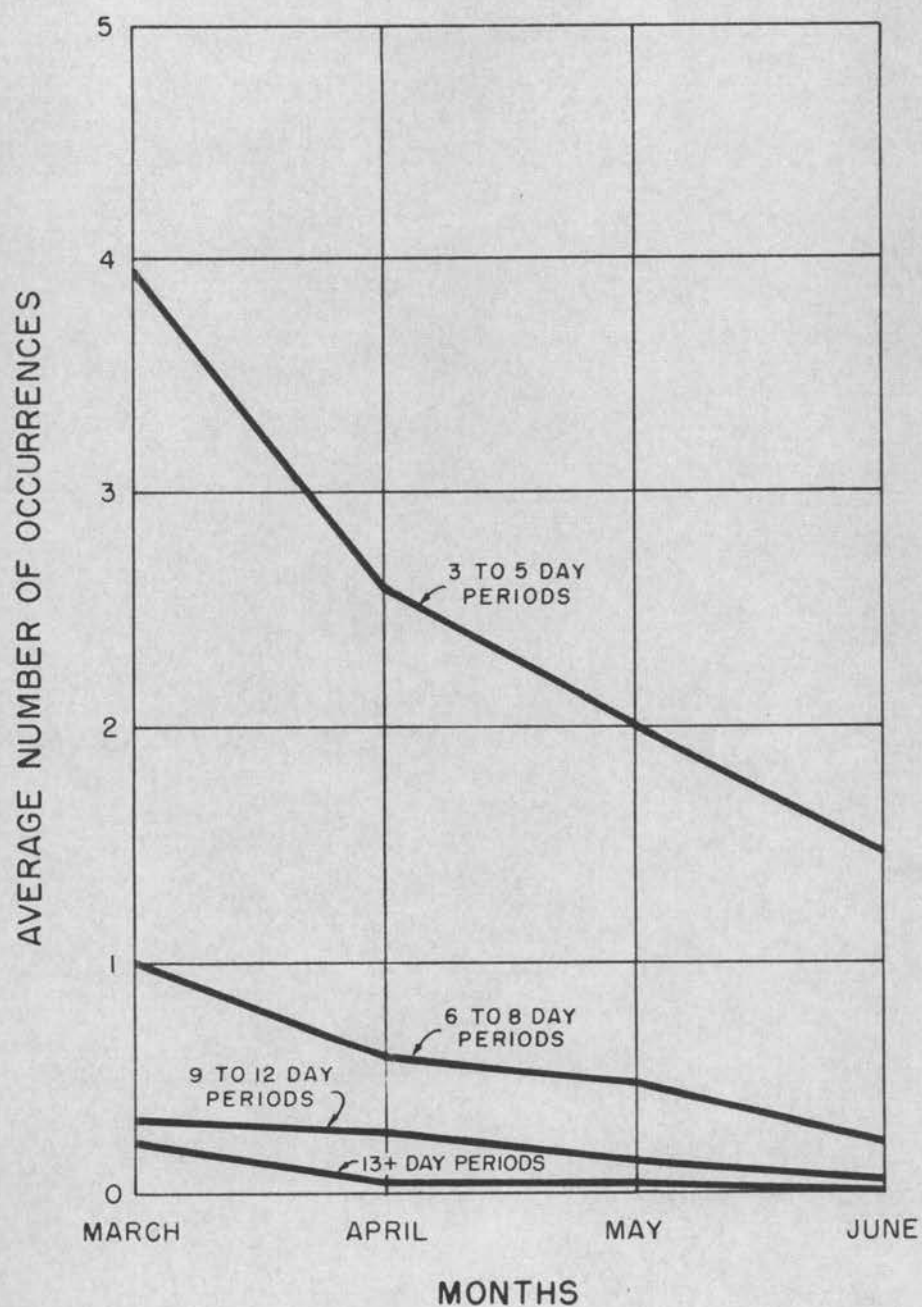
Although there are many conclusions that may be derived from studying the data in the previous chapters, no attempt will be made to consider all such possibilities. Instead, the conclusions discussed are those which are felt to be basic and which closely correlate with the major points discussed.

Study of the basic precipitation data for the five stations has revealed that they are very similar. Furthermore, since these stations offer a fairly broad coverage of the Willamette Valley, it seems likely they may be considered typical for the entire Valley.

Of equal importance is the fact that spring precipitation in the Willamette Valley is decidedly low in daily intensity. This is verified when it is remembered that approximately 45 per cent of the total number of days in this 20-year period had measurable rain, but only 26 per cent of this precipitation occurred in amounts of .25 inch per day or more.

Figure 80 shows the average number of occurrences of varying lengths of rainy periods in the Willamette Valley. The first significant fact shown is that there is a decided

FIGURE 80



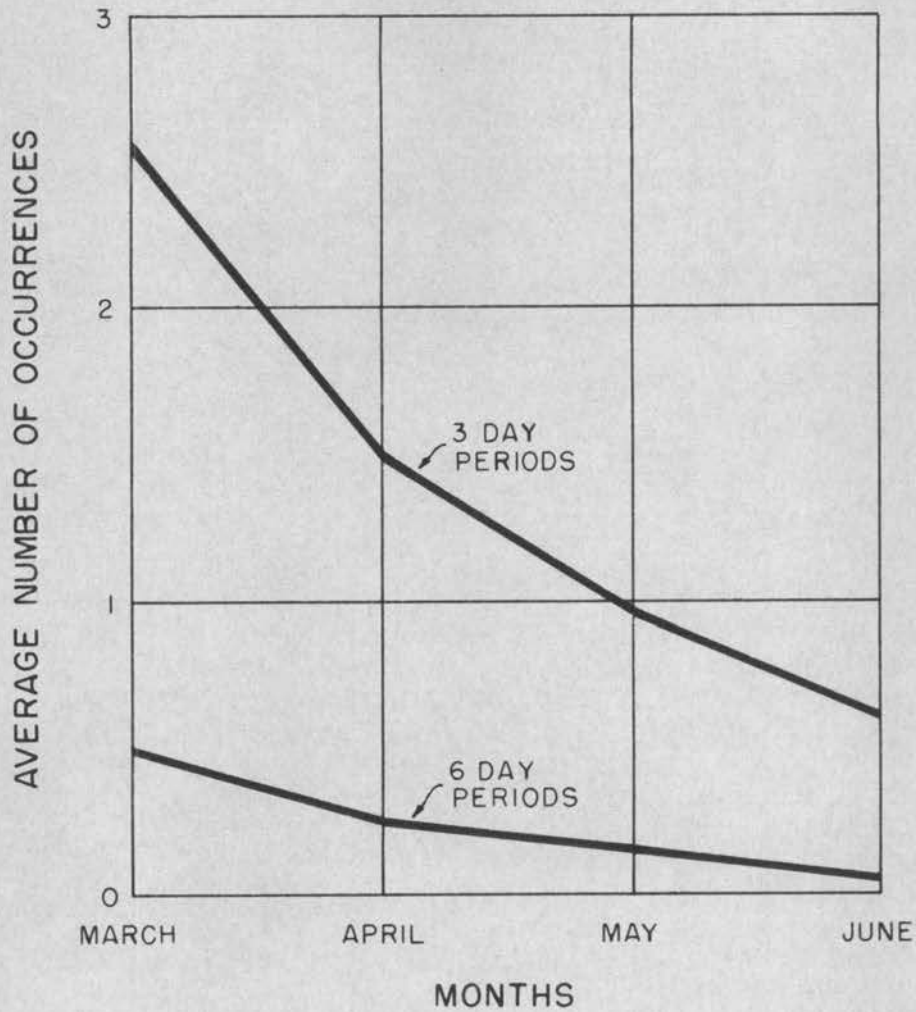
RAINY PERIODS OF  
.01" MINIMUM PRECIPITATION PER DAY  
AN AVERAGE OF 5 STATIONS

spread between the number of periods of 3-5 days length and those of greater length. This indicates a tendency for rainy periods to be short. The average number of occurrences for periods of six days and longer never exceeds one per month, while 3-5 day periods average four in March and steadily decline to one and one-half in June. Finally the difference in the number of occurrences from March to June is greater for short periods than for those of greater length.

Figure 81 shows a situation similar to that portrayed by the previous graph. The average number of occurrences has lessened for all rainy period lengths, however, with the increased minimum intensity. This is evident from the fact that periods longer than six days are not shown on the graph. Basically, all conclusions drawn from Figure 80 are substantiated by Figure 81.

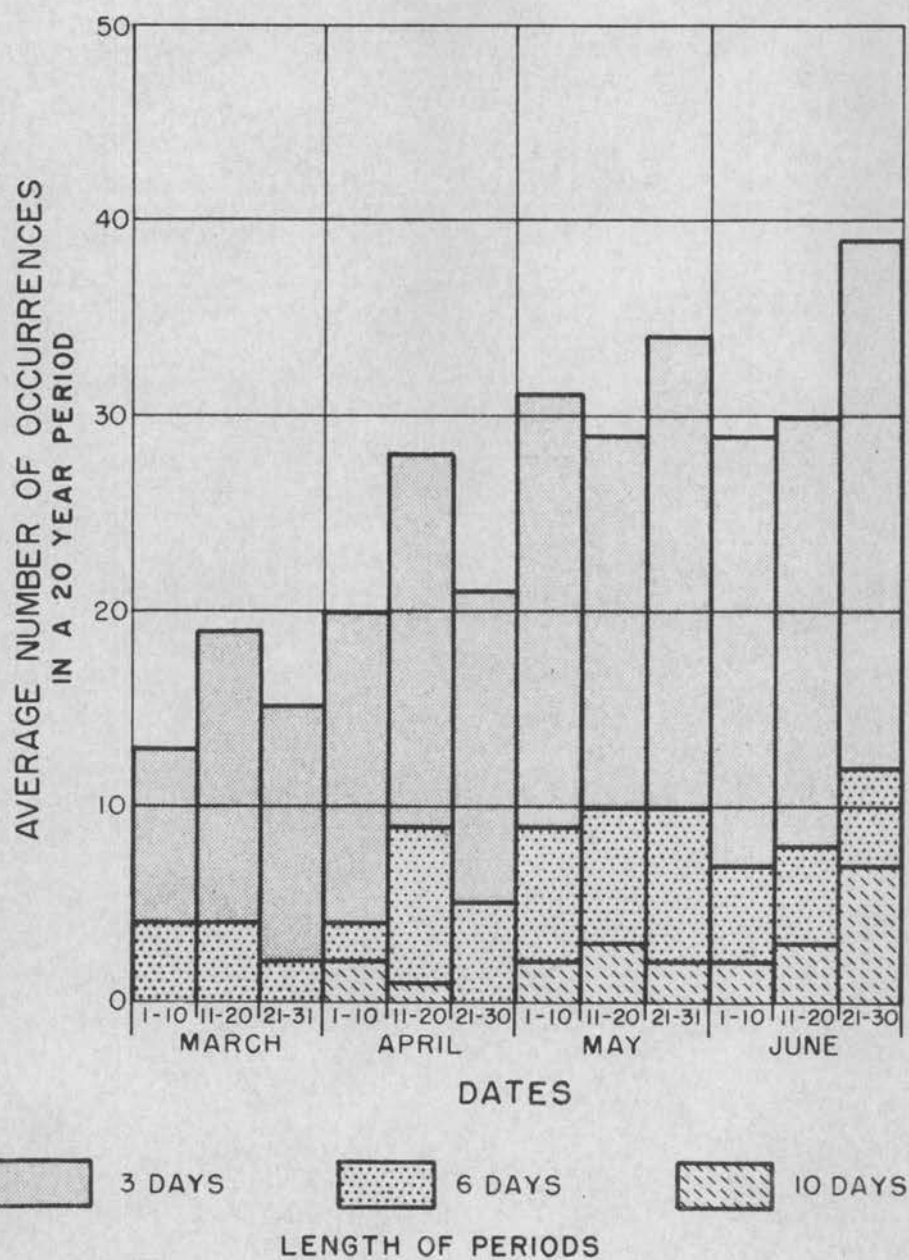
Figure 82, showing the start of dry periods, indicates that the previous statement regarding a tendency for short wet periods is also applicable to dry periods. Here again the spread between the number of three-day and six-day dry periods is greater than between six and ten-day periods. In general there is an increase in the number of dry periods of all lengths as the season approaches summer, but there are certain regressions within this trend. Of significance is the tendency for the middle third of March and April to

FIGURE 81



RAINY PERIODS OF  
.05" MINIMUM PRECIPITATION PER DAY  
AN AVERAGE OF 5 STATIONS

FIGURE 82



START OF DRY PERIODS  
AN AVERAGE OF 5 STATIONS

have more short dry periods than the other two-thirds of each month. This tendency does not occur in May and June, however, when the general trend is for the last third of each month to be the driest. It should be noted that dry periods of all lengths do not strictly adhere to these tendencies, but the most important ones, numerically speaking, definitely do. The month of April also shows the following feature. The first two-thirds of the month indicate occasional occurrence of 10-day dry periods which are isolated from the main group of these periods in May and June.

Briefly, the intensity and periodicity of spring precipitation in the Willamette Valley may be summarized thus: the spring season is characterized by low-intensity precipitation occurring most often in short rainy periods which tend to become less frequent through the end of June.

Knowledge of intensity and periodicity of precipitation during this season is important to many people and industries. For example, spring represents the start of the agricultural work period. The occurrence and length of dry spells is especially important in regulating work that is the basis for success in the coming year. The use of the enclosed tables and graphs will give a more accurate picture of precipitation patterns in the past than memory, and thus aid farmers in preparing for spring operations.

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## APPENDIX



## DAILY PRECIPITATION FIGURES - McMINNVILLE

[illegible]

FIGURE 85

## DAILY PRECIPITATION FIGURES — SALEM

[illegible]



## DAILY PRECIPITATION FIGURES — EUGENE

[illegible]