Statistical Analysis of Climatological Data to Characterize Erosion Potential: 6. Joint Precipitation and Freezing Events in Eastern Oregon/Washington

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STATISTICAL ANALYSIS OF CLIMATOLOGICAL DATA TO CHARACTERIZE EROSION POTENTIAL

6. JOINT PRECIPITATION AND FREEZING EVENTS IN EASTERN OREGON/WASHINGTON

Jonathan D. Istok
Barbara G. Brown
Larry Boersma
Richard W. Katz
Allan H. Murphy

AUTHORS: Jonathan D. Istok and Larry Boersma are members of the Department of Soil Science. Barbara G. Brown, Richard W. Katz, and Allan H. Murphy are members of the Department of Atmospheric Sciences, Oregon State University, Corvallis.

ABSTRACT

When precipitation falls on frozen soil, serious soil loss can occur. In order to assign realistic probabilities to the occurrence of this condition for use in predicting erosion rates over long time periods, a technique for combining characteristics of precipitation and air temperature records is applied to hourly wet season data from Pendleton, Oregon and Walla Walla, Washington. Periods of overlapping precipitation and freezing air temperature events are combined into clusters and the values of thirteen characteristics that are associated with each cluster are examined.

The statistical analyses of the cluster characteristics include discussions of the marginal distributions and order statistics of the individual characteristics as well as joint distributions of several pairs of characteristics. The order statistics provide information about extreme values of individual characteristics (e.g., minimum temperature) whereas the probabilities of occurrence of certain combinations of characteristics (e.g., precipitation amount and freeze index) are estimated by the joint distributions. The results of these analyses provide information regarding the types of precipitation events that occur in combination with freezing air temperatures in eastern Oregon and Washington as well as estimates of specific probabilities that are important in the modeling and forecasting of soil erosion in this region.

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STATISTICAL ANALYSIS OF CLIMATOLOGICAL DATA TO CHARACTERIZE EROSION POTENTIAL: 6. JOINT PRECIPITATION AND FREEZING EVENTS IN EASTERN OREGON/WASHINGTON

Jonathan D. Istok, Barbara G. Brown, Larry Boersma,
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1. INTRODUCTION

Measurements conducted over a five-year period on small agricultural watersheds have identified several combinations of rainfall characteristics, soil temperature, and soil moisture status that control the timing and amount of soil loss in western Oregon (Istok and Kling, 1983; Harward et al., 1980). Rainfall which occurs when the soil is frozen is an example of such combinations of factors. In order to assign realistic probabilities to the occurrence of these conditions, it is necessary to first identify them in the available long-term climatic records. The interpretation of short-term erosion measurements and the capability to predict long-term erosion rates can be enhanced by such analyses.

A cooperative research project was initiated in 1980 between the Departments of Soil Science and Atmospheric Sciences at Oregon State University (OSU). The primary objective of this project is to determine the frequency of occurrence of certain combinations of weather conditions that are associated with severe soil loss from croplands in the Pacific Northwest. Certain characteristics of "precipitation events" (defined for hourly precipitation data) at five locations in Oregon and Washington are described in two earlier reports in this series (Brown et al., 1983a,b). Characteristics of "freezing events" (defined for hourly temperature data) at the same locations are described in two additional reports (Brown et al., 1983c; Brown et al., 1984). The purpose of this

report is to summarize the results of analyses of periods of overlapping precipitation and freezing events (in terms of "event clusters") for Pendleton in eastern Oregon and Walla Walla in eastern Washington. Results of a similar study for three stations in western Oregon were reported by Istok et al. (1984).

An event cluster is a summary in terms of several "characteristics" of air temperature and precipitation measurements during periods of precipitation with freezing air temperatures. Cluster characteristics provide a convenient way of summarizing a large set of precipitation and temperature data and are useful for predicting the frequency of occurrence of precipitation on frozen soil. These predictions are important in the modeling and forecasting of soil erosion. A more thorough explanation of the definition of an event cluster and of the characteristics associated with a cluster is presented in Section 2.

The data used in this study are described in Section 3. The results of evaluations of individual cluster characteristics are presented in Section 4. Joint distributions of pairs of cluster characteristics associated with precipitation and freezing events contained within clusters are discussed in Section 5. A summary of the results is provided in Section 6.

Three appendices are included with the report. Appendix A contains a description of the cluster data bases. Many of the results of the study are presented in tabular form in the remaining appendices.

2. ANALYSIS APPROACH

Because the occurrence of precipitation on frozen soil is not a commonly measured parameter, few long-term records of such occurrences are available. Hence, in order to consider this factor in predicting runoff or soil loss, it is necessary to develop models based on long-term climatological data. The approach that is used in this report is to summarize significant portions of the long-term record (i.e., those periods containing precipitation and freezing air temperatures) in terms of event "clusters." A cluster is defined as a period of overlapping precipitation and freezing events. The characteristics associated with a cluster describe the characteristics of the precipitation and freezing events contained within it. The next two sections briefly summarize the definitions and characteristics of precipitation and freezing events. A more thorough discussion is presented in the four earlier reports in this series (Brown et al., 1983 a,b,c; Brown et al., 1984)). Section 2.3 defines clusters of precipitation and freezing events and Section 2.4 defines the cluster characteristics.

2.1 Precipitation Event Definition and Characteristics

It is convenient to summarize a time series of hourly precipitation amounts in terms of a meteorological concept called a precipitation event. An investigation of precipitation events in western Oregon, which included an analysis of the long-term precipitation record and an evaluation of the hydrologic response to precipitation led to the selection of a particular soil erosion-specific precipitation event definition (Brown et al., 1983a).

Precipitation events formulated using the soil erosion-specific definition consist of series of hours within which the maximum number of consecutive dry hours is less than six. That is, two hours with at least 0.01 inches of precipitation that are separated by fewer than six hours with no precipitation are considered to be part of the same precipitation event. An example of the implementation of this definition is presented in Figure 1. The top line in Figure 1 illustrates the grouping of hourly precipitation amounts and hours with no precipitation into precipitation events. In this example, five series of hours satisfy the definition of a precipitation event, as indicated by the five stippled areas.

Several characteristics associated with each precipitation event were calculated from the hourly precipitation amounts. These characteristics (Table 1) include the event duration, magnitude, average intensity, maximum intensity, and hours between events. The definitions of the characteristics are as follows: Duration is the length of the event in hours, from the first hour with precipitation to the last hour with precipitation. Magnitude is the total amount of precipitation that occurred during the event, summed over all hours. Average intensity is the average rate of precipitation per hour. It should be noted that

$$\text{magnitude} = (\text{average intensity}) \times (\text{duration}). \quad (1)$$

Maximum intensity is the maximum rainfall during any one hour within the event. Finally, hours between events is the total number of dry hours separating the beginning of the event from the end of the previous event. Note that the value of this variable must be greater than or equal to six. Four characteristics that are measures of antecedent rainfall also were calculated for each precipitation event. These

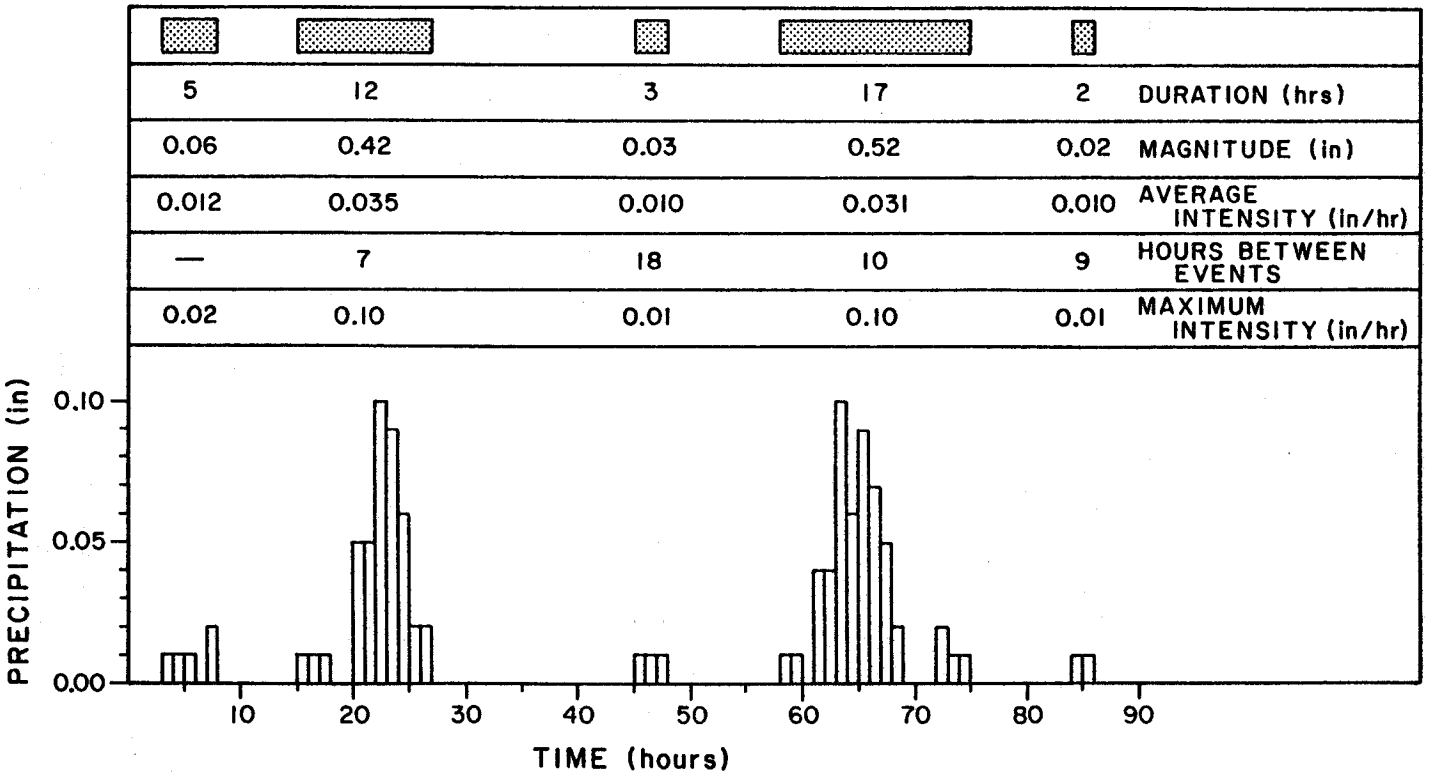

Figure 1. Illustration of the calculation of five precipitation event characteristics.

Table 1. Definitions of calculated characteristics of precipitation events

F_k = index of first hour of event k in a given year
L_k = index of last hour of event k in a given year
P_i = precipitation recorded during hour i in a given year

Variable Name	Definition	Units	Formula
Duration	Length of event from first hour to last.	hrs	$D_k = (L_k+1) - F_k$
Magnitude	Total amount of precipitation during the event.	in	$M_k = \sum_{i=F_k}^{L_k} p_i$
Average Intensity	Average precipitation intensity during the event.	in/hr	$I_k = \frac{M_k}{D_k}$
Hours Between Events	Number of hours separating the event from the previous event.	hrs	$HB_k = F_k - (L_{k-1}+1)$
Maximum Intensity	Maximum hourly precipitation intensity during the event	in/hr	$IMAX_k = \max_{F_k \leq i \leq L_k} \{p_i\}$
Magnitude for Previous 12 Hours	Total amount of precipitation during the 12 hours preceding the event.	in	$M12_k = \sum_{i=F_{k-12}}^{F_{k-1}} P_i$
Magnitude for Previous 48 Hours	Total amount of precipitation during the 48 hours preceding the event.	in	$M48_k = \sum_{i=F_{k-48}}^{F_{k-1}} P_i$
Magnitude for Previous 168 Hours	Total amount of precipitation during the 168 hours preceding the event.	in	$M168_k = \sum_{i=F_{k-168}}^{F_{k-1}} P_i$
Magnitude for Year Preceding the Event	Total amount of precipitation during the year (wet season) before this event.	in	$MYR_k = \sum_{i-1}^{k-1} M_i$

characteristics are the precipitation magnitudes for the 12, 48, and 168 hours prior to the beginning of the event, and the total amount of precipitation over all hours in the wet season prior to the beginning of the event. A summary of the precipitation event characteristics and antecedent rainfall measures and their definitions is given in Table 1. An example of the computation of the values of the precipitation event characteristics is presented in Figure 1. The results of several types of analyses of the precipitation event characteristics at Pendleton and Walla Walla are described in Brown et al. (1983b).

2.2 Freezing Event Definition and Characteristics

Because frost occurrence in soil is not a commonly measured parameter, few long-term records of such occurrences are available. Hence, in order to consider this factor in predicting runoff or soil loss it is necessary to develop models based on long-term climatological data. A discussion of the manner in which freezing events, defined with respect to hourly air temperatures, can be useful in predicting the occurrence of frozen soil is presented in Brown et al. (1983c). This section presents an explanation of the definition of a freezing event and a description of the freezing event characteristics.

Brown et al. (1983c) present the following definition of a freezing event: a freezing event begins when the surface air temperature first falls below 32°F and it continues through the ensuing cold period (temperatures below 32°F) and the next warm period (temperatures above 32°F). The event ends and another event begins when the temperature once again falls below 32°F. Hence, each freezing event consists of one

cold period and one warm period. A schematic example of the application of this definition to hourly temperature data is illustrated in Figure 2.

Several characteristics are associated with each freezing event. These include characteristics that describe the cold portion of the event and those that describe the warm portion. The characteristics and their definitions are listed in Table 2. Moreover, Figure 3 contains an example of the calculated values of the characteristics for a particular event.

The cold period characteristics (defined for hourly temperature data) are: (a) Db, the duration of the cold period (i.e., the number of hours during which the temperature is below 32°F); (b) ΣTb, the sum of degrees below 32°F during the cold period (i.e., the sum of the differences between 32°F and each hourly temperature during the cold period); (c) Tab, the average temperature during the cold period; and (d) Tmb, the minimum temperature during the cold period. The warm period characteristics are complementary to the cold period characteristics and are as follows: (a) Da, the duration of the warm period (i.e., the number of hours during which the temperature is above 32°F; (b) ΣTa, the sum of degrees above 32°F during the warm period (i.e., the sum of the differences between each hourly temperature and 32°F for each hour in the warm period); (c) Taa, the average temperature during the warm period; and (d) Tma, the maximum temperature during the warm period. A ninth characteristic, De, is the total duration of the freezing event.

2.3 Clusters of Precipitation and Freezing Events

The preceding subsections have described how definitions of precipitation and freezing events and event characteristics can be used to

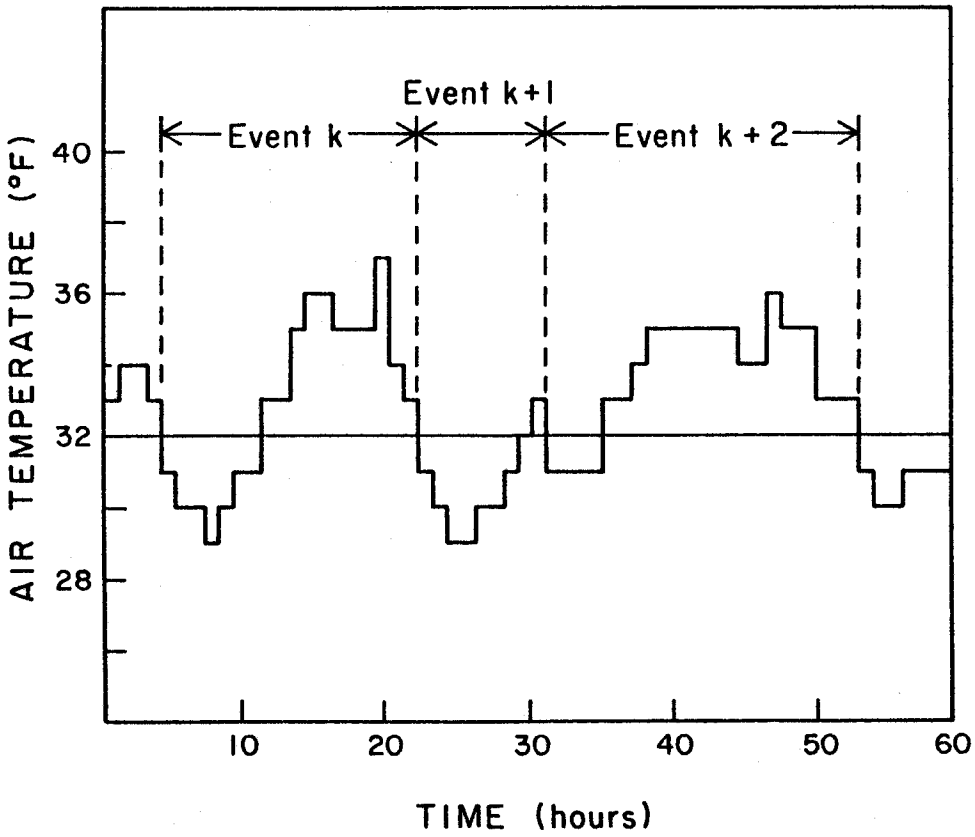

Figure 2. Schematic example of the application of freezing event definition.

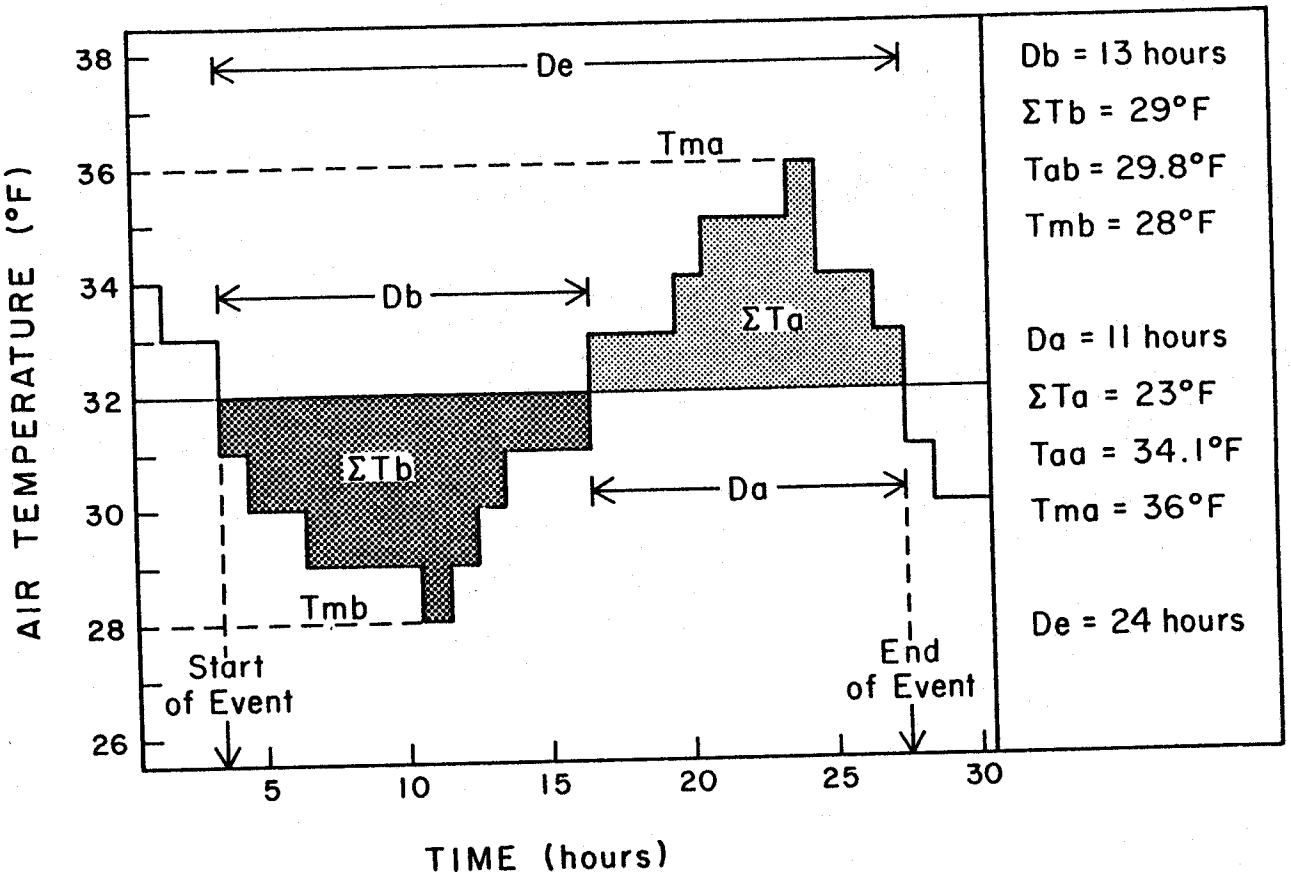

Figure 3. Illustration of the calculation of nine freezing event characteristics.

Table 2. Definitions of freezing event characteristics for hourly temperature data.

Name	Symbol	Definition†
Cold period characteristics:		
Hours Below 32°F	Db	$Db_k = W_k - Ck$
Sum Below 32°F (°F)	ΣTb	$\Sigma Tb_k = \sum_{i=C_k}^{W_k-1} (32-T_i)$
Average Temperature Below 32°F (°F)	Tab	$Tab_k = 32 - \Sigma Tb_k/Db_k$
Minimum Temperature (°F)	Tmb	$Tmb_k = \min \{T_i\}, C_k \leq i \leq W_k$
Warm period characteristics:		
Hours Above 32°F	Da	$Da_k = C_{k+1} - W_k$
Sum Above 32°F (°F)	ΣTa	$\Sigma Ta_k = \sum_{i=W_k}^{C_{k+1}-1} (T_i - 32)$
Average Temperature Above 32°F (°F)	Taa	$Taa_k = 32 + \Sigma Ta_k/Da_k$
Maximum Temperature (°F)	Tma	$Tma_k = \max \{T_i\}, W_k \leq i \leq C_{k+1}$
Duration	De	$De_k = C_{k+1} - C_k$

† T_i = temperature in hour i
W_k = index of first hour of warm period (TW_k > 32°F) in event k
C_k = index of first hour of event k
C_{k+1} = index of first hour of event k+1

summarize a time series of hourly precipitation amounts or hourly air temperature data. In order to assign realistic probabilities to the occurrence of precipitation on frozen soil it is necessary to describe periods of time when precipitation occurs while the air temperature is below 32°F. The approach used in this report is to combine precipitation and freezing events that overlap in time into "event clusters". This section describes the definition of event clusters and Section 2.4 describes the "cluster characteristics" that are used to summarize the characteristics of events (both precipitation and freezing events) contained within the cluster.

An event cluster is defined as a period of time that contains overlapping precipitation and freezing events. Because we wish to consider those periods of time during which the soil may have been frozen, only the cold period (temperatures below 32°F) of a freezing event was considered when determining if a precipitation and a freezing event overlapped. A schematic example of the application of this definition to hourly precipitation and air temperature data is illustrated in Figure 4. As seen in Figure 4, each cluster contains at least one precipitation event and at least one freezing event. The cluster begins at the start of the earliest event of either type in the cluster. The cluster ends at the end of the latest precipitation event or at the end of the cold cycle of the latest freezing event in the cluster, whichever occurs last. In this example, three series of events satisfy the definition of an event cluster, as indicated by the three stippled areas.

Data bases for event clusters were created using this definition for the two eastern Oregon and Washington stations. These data bases

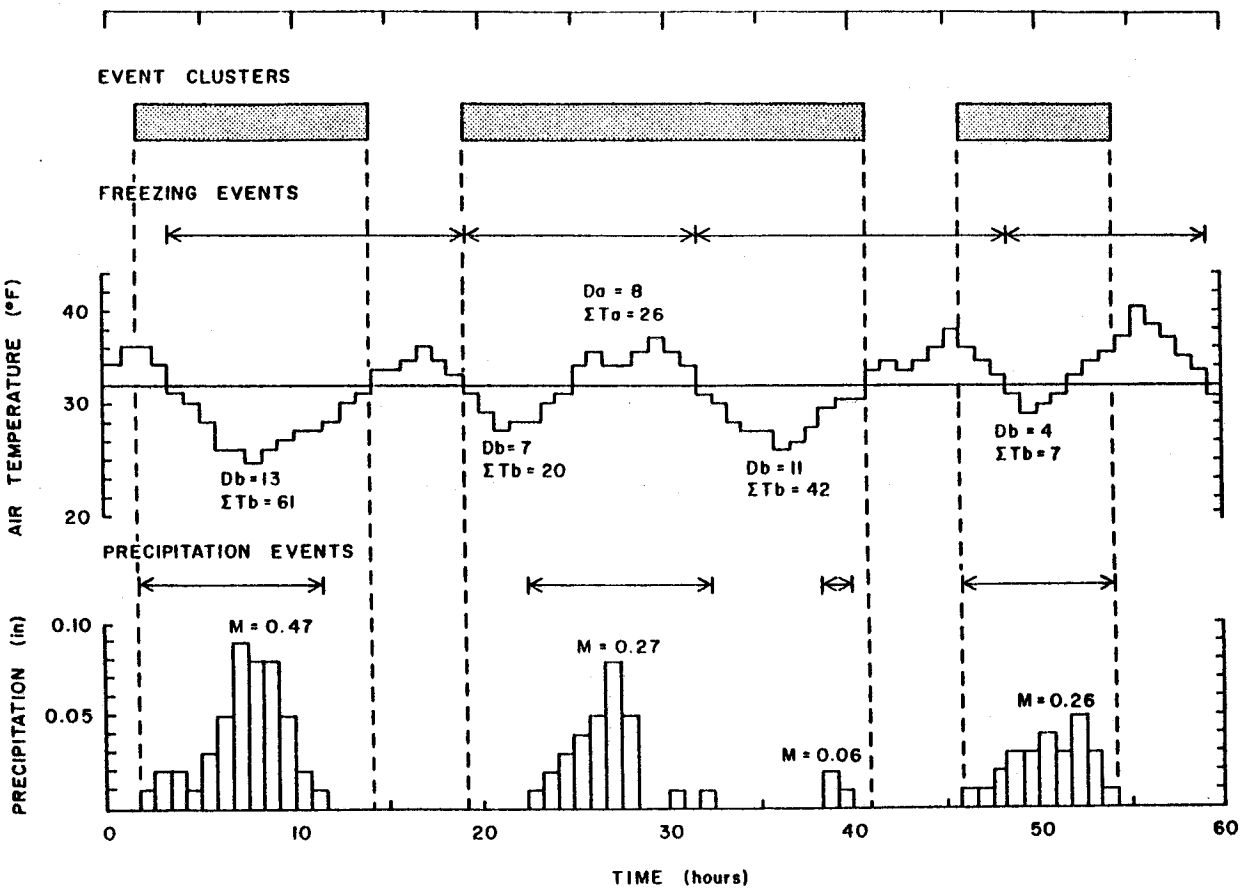

Figure 4. Schematic example of the application of definition of event cluster. See text for further explanation.

consisted of all event clusters satisfying the cluster event definition that occurred within the series of wet season (October through May) precipitation and freezing events described in Section 3. This procedure identified a total of 203 event clusters at Pendleton, Oregon and 152 event clusters at Walla Walla, Washington.

2.4 Cluster Characteristics

As indicated in the previous section, an event cluster may contain several precipitation and freezing events. Several characteristics are associated with each precipitation and freezing event and these were defined in Tables 1 and 2, respectively. In order to calculate the frequency of occurrence of event clusters which contained events having specified values of event characteristics, several cluster characteristics were defined using the values of event characteristics for those events within a cluster. For example, the characteristic duration of precipitation for a cluster was defined as the sum of all precipitation event durations within the cluster. Similarly, the cluster characteristic amount of precipitation is the sum of all precipitation event magnitudes within the cluster. Other cluster characteristics were defined using the values of freezing event characteristics for freezing events within the cluster. For example, the characteristic minimum temperature for a cluster was defined as the lowest temperature during freezing events within the cluster.

Table 3 defines each of the cluster characteristics using the precipitation and freezing event characteristics defined in Tables 1 and 2. Six cluster characteristics are used to describe the characteristics

Table 3. Definitions of calculated characteristics of event clusters.

FP_k = index of first precipitation event in cluster k of a given year.

LP_k = index of last precipitation event in cluster k of a given year.

FF_k = index of first freezing event in cluster k of a given year.

LF_k = index of last freezing event in cluster k of a given year.

Variable name	Definition	Units	Formula†
Duration	Sum of durations of precipitation events in cluster	hrs	$D_k^* = \sum_{i=FP_k}^{LP_k} D_i$
Amount	Sum of magnitudes of precipitation events in cluster	in	$A_k^* = \sum_{i=FP_k}^{LP_k} M_i$
Hours Between Events	Maximum number of hours between precipitation events in cluster	hrs	$HB_k^* = \max_{FP_k \leq i \leq LP_k} \{HB_i\}$
Maximum Intensity	Maximum precipitation intensity during cluster	in/hr	$IMAK_k^* = \max_{FP_k \leq i \leq LP_k} \{IMAK_i\}$
Average Intensity	Average precipitation intensity during cluster	in/hr	$IA_k^* = \frac{A_k^*}{D_k^*}$
Freeze Index	Sum of degrees below 32°F for freezing events in cluster	°F	$\Sigma Tb_k^* = \sum_{i=FF_k}^{LF_k} (\Sigma Tb_i)$
Number Below 32°F	Sum of hours below 32°F for freeze events in cluster	hrs	$Db_k^* = \sum_{i=FF_k}^{LF_k} Db_i$
Minimum Temperature	Minimum temperature during cluster	°F	$Tmb_k^* = \min_{FF_k \leq i \leq LF_k} \{Tmb_i\}$
Thaw Index	Sum of degrees above 32°F for freeze events in cluster	°F	$\Sigma Ta_k^* = \sum_{i=FF_k}^{LF_k} (\Sigma Ta_k)$

Table 3, continued.

Variable name	Definition	Units	Formula†
Number Above 32°F	Sum of hours above 32°F for freezing events in cluster	hrs	$Da_k^* = \sum_{i=FF_k}^{LF_k} Da_i$
Maximum Temperature	Maximum temperature during cluster	°F	$Tma_k^* = \max_{FF_k \leq i \leq LF_k} \{Tma_i\}$

†The definitions of precipitation and freezing event characteristics used for calculating the cluster characteristics are given in Tables 1 and 2, respectively.

of precipitation events within a cluster. These are: (a) number of precipitation events, Np*; (b) duration of precipitation, D*; (c) amount of precipitation, A*; (d) maximum number of hours between precipitation events, HB*; (e) maximum intensity, IMAX*; and (f) average intensity, Ia*. Seven cluster characteristics are used to describe the characteristics of freezing events within a cluster. These are: (a) number of freezing events, Nf*; (b) freeze index, ΣTb*; (c) number of hours below 32°F, Db*; (d) minimum temperature, Tmb*; (e) thaw index, ΣTa*; (f) number of hours above 32°F, Da*; and (g) the maximum temperature, Tma*. An example of the calculation of the cluster characteristics for the three clusters in Figure 4 is presented in Table 4.

Table 4. Values of thirteen cluster characteristics for the three clusters shown in Figure 4, calculated according to definitions in Table 3

Characteristic	Units	Cluster I	Cluster II	Cluster III
Number of Precipitation Events	-	1	2	1
Duration	hrs	12	14	10
Amount	in	0.47	0.33	0.26
Hours Between Events	hrs	0	7	0
Maximum Intensity	in/hr	0.09	0.08	0.05
Average Intensity	in/hr	0.039	0.024	0.026
Number of Freezing Events	-	1	2	1
Freeze Index	°F	61	62	7
Number Hrs Below 32°F	hrs	13	18	4
Minimum Temperature	°F	24	25	29
Thaw Index	°F	0	26	0
Number Above 32°F	hrs	0	8	0
Maximum Temperature	hrs	0	36	0

3. EVENT CLUSTER DATA BASES

The analyses of event clusters described in this report are based on precipitation and freezing event data bases for Pendleton, Oregon and Walla Walla, Washington. The precipitation event data bases consist of precipitation events and precipitation event characteristics calculated from over 31 years (i.e., from mid-1948 to December 31, 1979) of hourly values of precipitation amount for the two stations. A description of this data base is given in Brown et al. (1983b). The freezing event data bases consist of freezing events and freezing event characteristics calculated from hourly air temperature data for the two stations. The length of the temperature data record is 31 years at Pendleton (January 1, 1948 to December 31, 1978) and 18 years at Walla Walla (January 1, 1948 to December 31, 1965, and January 1, 1974 to December 31, 1978). A description of this data base is given in Brown et al. (1984).

An event cluster data base was created for both eastern Oregon and Washington stations using the definition of event clusters given in Section 2. The portions of record during which the precipitation and freezing event data bases did not overlap (e.g., January to mid-1948) were discarded. A more complete description of the event cluster data bases is presented in Appendix A.

4. MARGINAL DISTRIBUTIONS OF CLUSTER CHARACTERISTICS

The distributions of the individual cluster characteristics are described in terms of (a) marginal empirical frequency distributions and (b) order statistics, or extreme values. Useful information about event clusters for several applications may be obtained from the examination of each of these summaries. For example, the order statistics allow estimation of the values of characteristics of the extreme clusters.

The marginal distributions of many of the cluster characteristics are summarized using diagrams known as box plots (Tukey, 1977). These diagrams provide a simple and useful way of displaying and comparing distributional data. Each point on a box plot represents a particular quantile value of interest. An example showing box plots of distributions of amount of precipitation (A*) for clusters at Pendleton and Walla Walla is given in Figure 5. As illustrated in this figure, a box surrounds the region from the lower quartile (the 0.25th quantile) to the upper quartile (the 0.75th quantile), the region which contains the middle half of the observations. The length of this region (the interquartile range) provides an estimate of the variability of the characteristic. The line extending from the upper end of each box represents the upper tail of the distribution and, in this case, contains points marking the 0.90th and 0.95th quantile values. The values of some different quantiles may be presented for other characteristics. Typically, lines also would extend from the bottoms of the boxes, depicting the lower tails of the distributions. However, in this case the distributions are quite positively skewed so that the lower tails are very short and are barely distinguishable from the boxes.

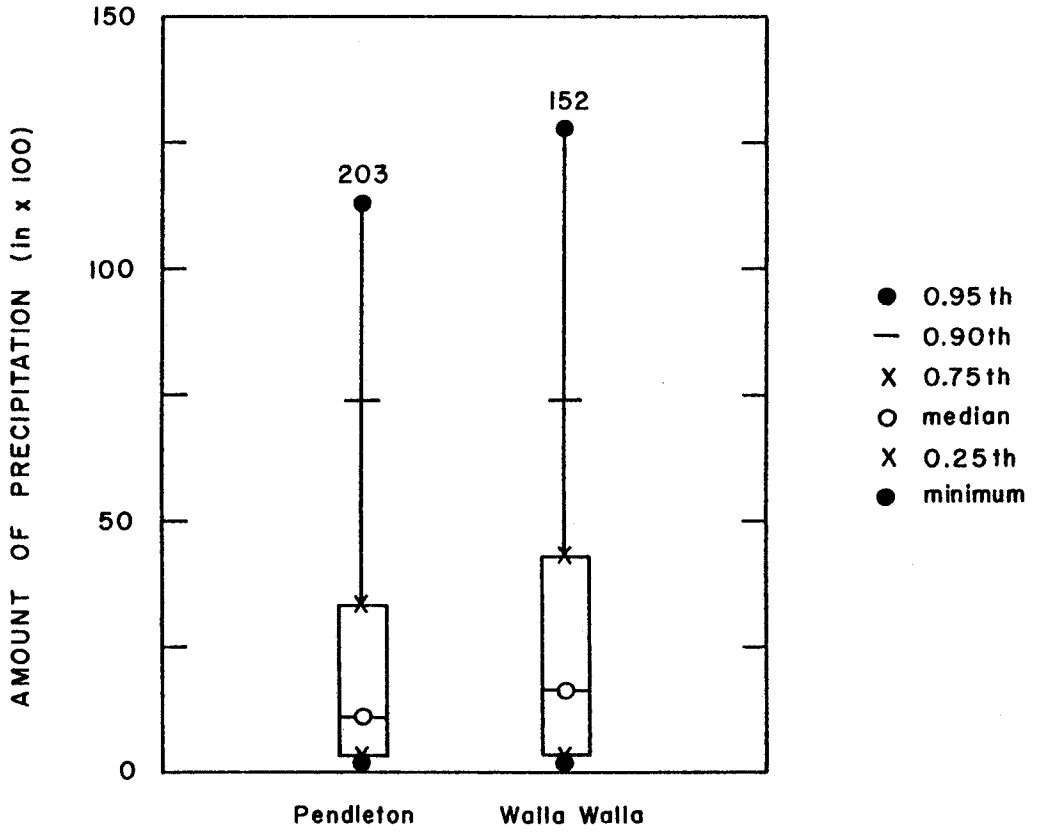

Figure 5. Box plots of amount of precipitation (A*) for Pendleton and Walla Walla. The number at the top of each box plot is the number of clusters.

Another way of describing the distribution of a cluster characteristic is through the order statistics; that is, the values of the characteristic resequenced from largest to smallest (smallest to largest in the cases of hours between events and minimum temperature). These statistics can be used to obtain estimates of the extreme values of cluster characteristics that could be expected to occur in a 31-year period at Pendleton and an 18-year period at Walla Walla. The values of the characteristics of the most intense, coldest, and highest magnitude clusters are often of the most interest for soil erosion applications.

The marginal distributions and order statistics of some of the thirteen cluster characteristics at Pendleton, Oregon and Walla Walla, Washington are described in the following subsections. Because of the large number of tables required for the presentation of the order statistics, these tables are located in Appendix B. The lists of order statistics in Appendix B include the values of all of the characteristics of the clusters ordered according to the values of a given characteristic, for both stations.

4.1 Number of Precipitation Events

Frequency distributions of the number of precipitation events contained within individual clusters (Np*) for the two stations are shown in Table 5. These data show that the majority of the clusters consisted of a single precipitation event, with clusters of this type accounting for 66 and 63 percent of all clusters at Pendleton and Walla Walla, respectively. A few clusters (15 at Pendleton and 13 at Walla Walla) consisted of five or more precipitation events. A maximum of 10 precipitation events were combined into a single cluster at Pendleton

Table 5. Frequency distributions of number of precipitation events within clusters (Np*) for Pendleton and Walla Walla

Number of precipitation events	Frequency and overall relative frequency†	
	Pendleton (n = 203)	Walla Walla (n = 152)
1	134 0.66	95 0.63
2	30 0.15	30 0.20
3	17 0.08	10 0.07
4	7 0.03	4 0.03
$\geq$ 5	15 0.07	13 0.09

†The upper number in each entry is the number of clusters which had the indicated number of precipitation events. The lower number is the relative frequency.

(see Appendix A). The number of precipitation events within clusters for Pendleton and Walla Walla were similar but Pendleton had a higher number of clusters containing three or more precipitation events than Walla Walla.

4.2 Amount of Precipitation

The box plots representing the distributions of amount of precipitation (A*) for clusters at Pendleton and Walla Walla are displayed in Figure 5. The shapes of the box plots indicate that the distributions are positively skewed. That is, a few clusters at each station had a large amount of precipitation, but the majority of the clusters had relatively less precipitation. Considering the data for Pendleton, the box encloses the region from 0.02 inches to 0.34 inches. Hence, 25% of the clusters had 0.02 inches of precipitation or less, while 50% had between 0.02 and 0.34 inches of precipitation. Only 25% of the clusters had an amount of precipitation greater than 0.34 inches. Although the two distributions are similar to one another, there are a few differences between the box plots for Walla Walla and Pendleton. First, the interquartile range (the length of the box) is larger for Walla Walla, indicating greater variability in the distribution for Walla Walla. This is because of the larger value of the 0.75th quartile for Walla Walla. In general, there appears to be a greater "spread" in the distribution of amount of precipitation within clusters at Walla Walla than in the distribution at Pendleton.

The order statistics of A* are shown graphically in Figure 6. Displayed in this figure are the 80 largest values of A* for the

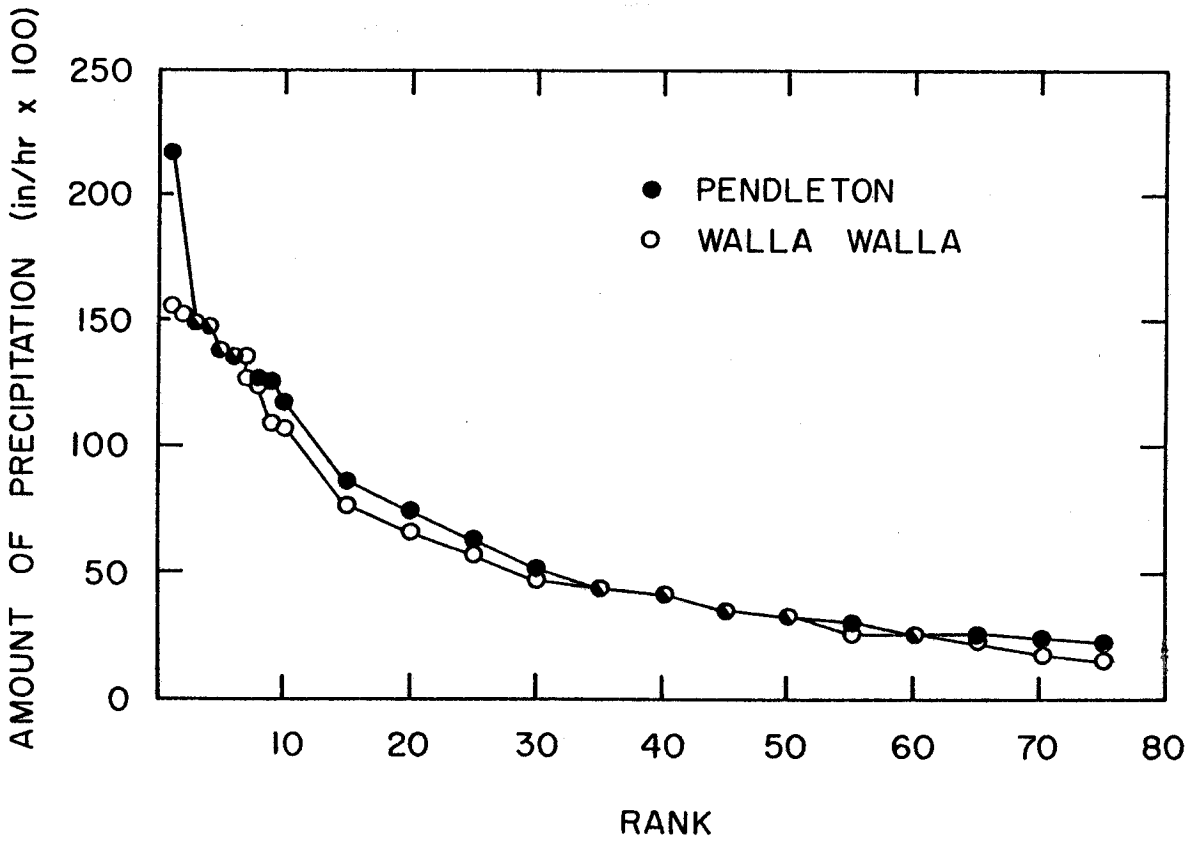

Figure 6. Amount of precipitation (A*) order statistics at Pendleton and Walla Walla.

clusters at each station, resequenced from largest to smallest. The curves for the two stations are quite similar to one another. The first order statistic at each station is quite large. However, the values of the following few order statistics rapidly decrease until about the 20th statistic. At that point, the rate of decrease becomes much smaller. A complete listing of the order statistics of A* for all of the clusters is presented in Appendix B.

4.3 Duration of Precipitation

The marginal distributions of duration of precipitation (D*) at Pendleton and Walla Walla are illustrated in Figure 7. This characteristic is defined as the sum of the durations of precipitation events within the individual clusters. As shown in Figure 7, the box plots of duration of precipitation are quite similar for the two locations. Most clusters have relatively small values of this characteristic. For example, the 0.75th quantile occurred at 18 and 22 hours of cumulative duration at Pendleton and Walla Walla, respectively. The major differences between the two stations are (a) Walla Walla has relatively fewer clusters with short durations, and (b) the interquartile range for Walla Walla is larger than that for Pendleton. Order statistics were not computed for this characteristic. However, they could be computed from the tables of order statistics of other cluster characteristics presented in Appendix B.

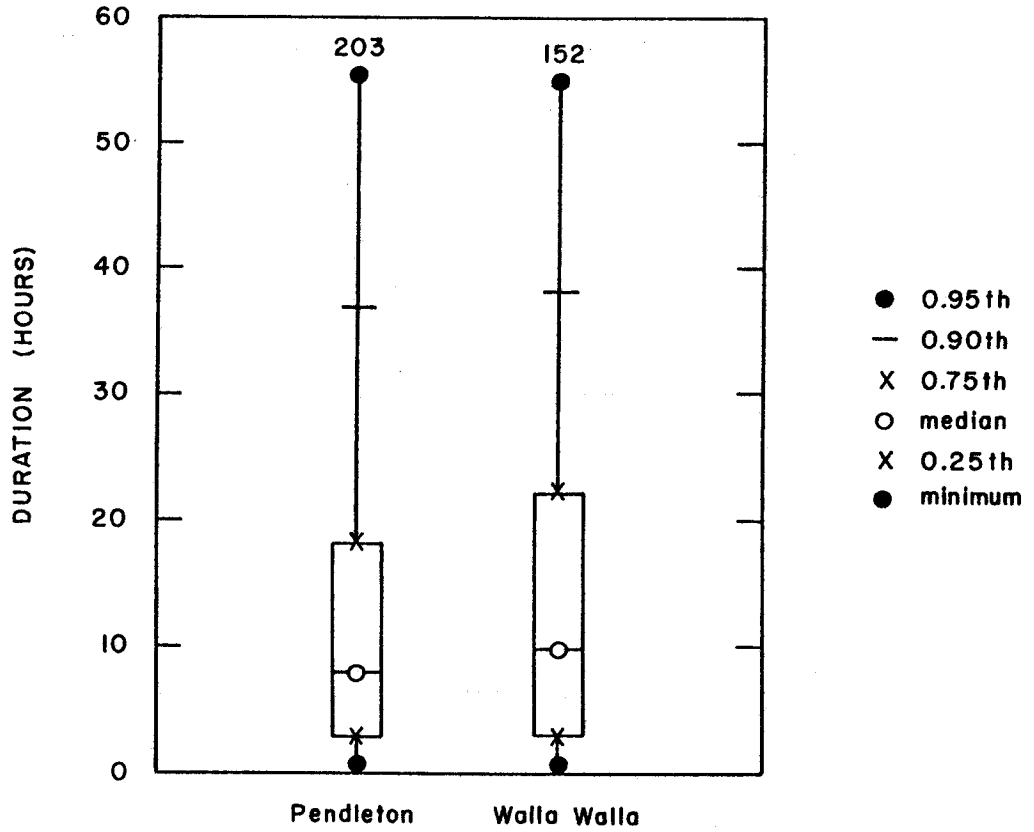

Figure 7. Box plots of duration of precipitation (D*) for Pendleton and Walla Walla. The number at the top of each box plot is the number of clusters.

4.4 Average and Maximum Intensity

The marginal distributions of average and maximum precipitation intensity (Ia* and IMAX*) are shown in Figures 8 and 9, respectively. The distributions for the two stations are quite similar to one another. In general, the interquartile range for Pendleton is smaller than for Walla Walla, indicating less variability in both intensity characteristics at Pendleton. The values of the 0.90th quantiles indicate that a few clusters at Pendleton contain precipitation events with maximum intensities that are larger than those for Walla Walla. However, the distributions of average intensity for the two stations are almost identical (Figure 8). The maximum values of Ia* are 0.06 and 0.05 in/hr for Pendleton and Walla Walla, respectively.

The order statistics of maximum intensity are presented in Figure 10. The overall shapes of the curves in Figure 10 are similar to those representing the order statistics of amount of precipitation discussed earlier. That is, the values of the first few order statistics are relatively large and these values show a sharp decrease for the next few statistics. The order statistics of IMAX* also are listed in Appendix B.

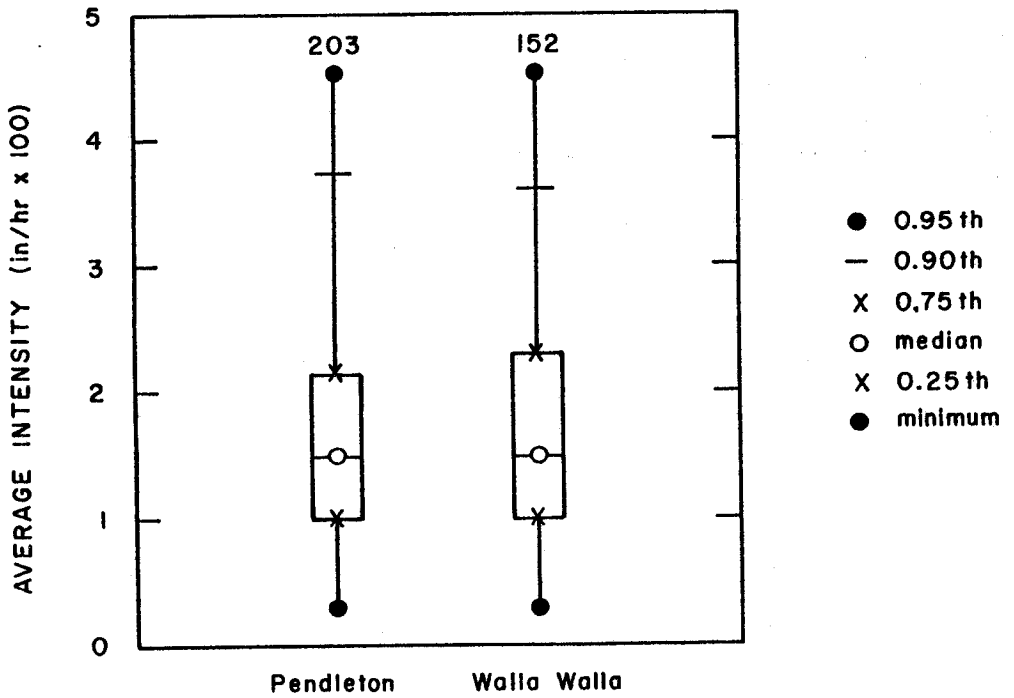

Figure 8. Box plots of average intensity (Ia*) for Pendleton and Walla Walla. The number at the top of each box plot is the number of clusters.

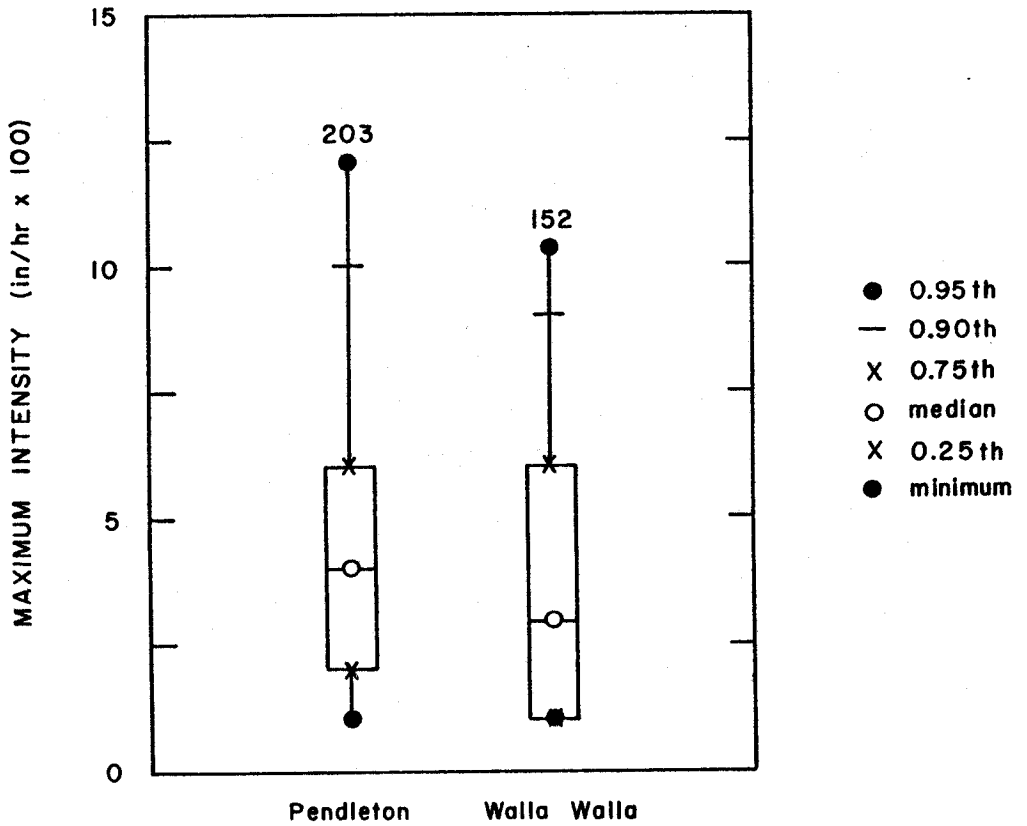

Figure 9. Box plots of maximum intensity (IMAX*) for Pendleton and Walla Walla. The number at the top of each box plot is the number of clusters.

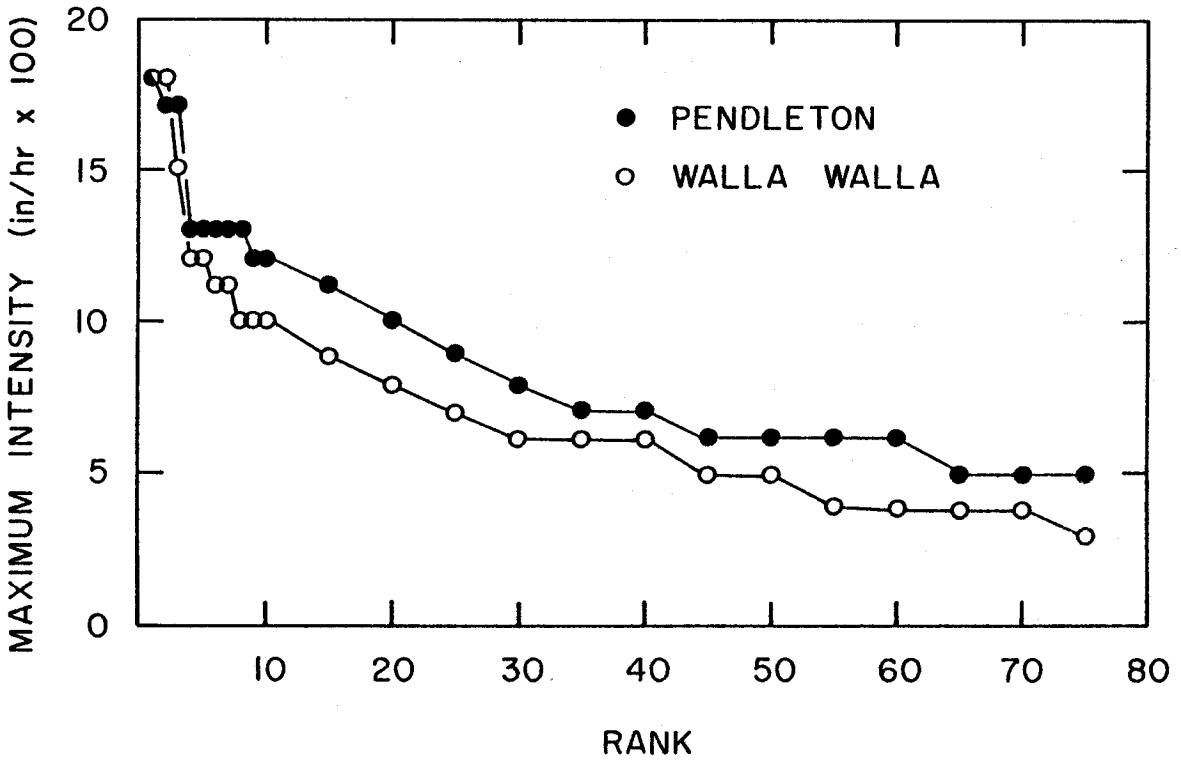

Figure 10. Maximum intensity (IMAX*) order statistics for Pendleton and Walla Walla.

4.5 Number of Freezing Events

Frequency distributions of the number of freezing events contained within individual clusters (Nf*) for both stations are presented in Table 6. The data in Table 6 show that clusters consisting of a single freezing event accounted for 98 and 93 percent of all clusters at Pendleton and Walla Walla, respectively. Only one cluster out of all clusters at both stations consisted of three or more freezing events. The distributions of number of freezing events within clusters at the two stations were similar.

4.6 Freeze Index

The characteristic freeze index (ΣTb^*) can be used to make predictions of frost penetration into soils and thus is of particular interest in this study. The box plots representing the distributions of ΣTb^* at Pendleton and Walla Walla are displayed in Figure 11. As was the case for all of the distributions discussed previously, these distributions are positively skewed, with few large values and many small values of ΣTb^*. The box plots for the two stations are almost identical. Over 75% of the precipitation and freezing event clusters had a value of ΣTb^* of less than 1000°F.

The order statistics of ΣTb^* are shown graphically in Figure 12. The curves in this figure show the same basic behavior as the curves for the other order statistics. After a few very large values for the first few statistics and a sharp decline at the beginning, the curves level off into trends with gradual downward slopes.

Table 6. Frequency distributions of number of freezing events within clusters (Nf*) for Pendleton and Walla Walla

Number of freezing events	Frequency and overall relative frequency†	
	Pendleton (n = 203)	Walla Walla (n = 152)
1	199 0.98	142 0.93
2	4 0.02	9 0.06
$\geq$ 3	0 0.00	1 0.01

†The upper number in each entry is the number of clusters which had the indicated number of precipitation events. The lower number is the relative frequency.

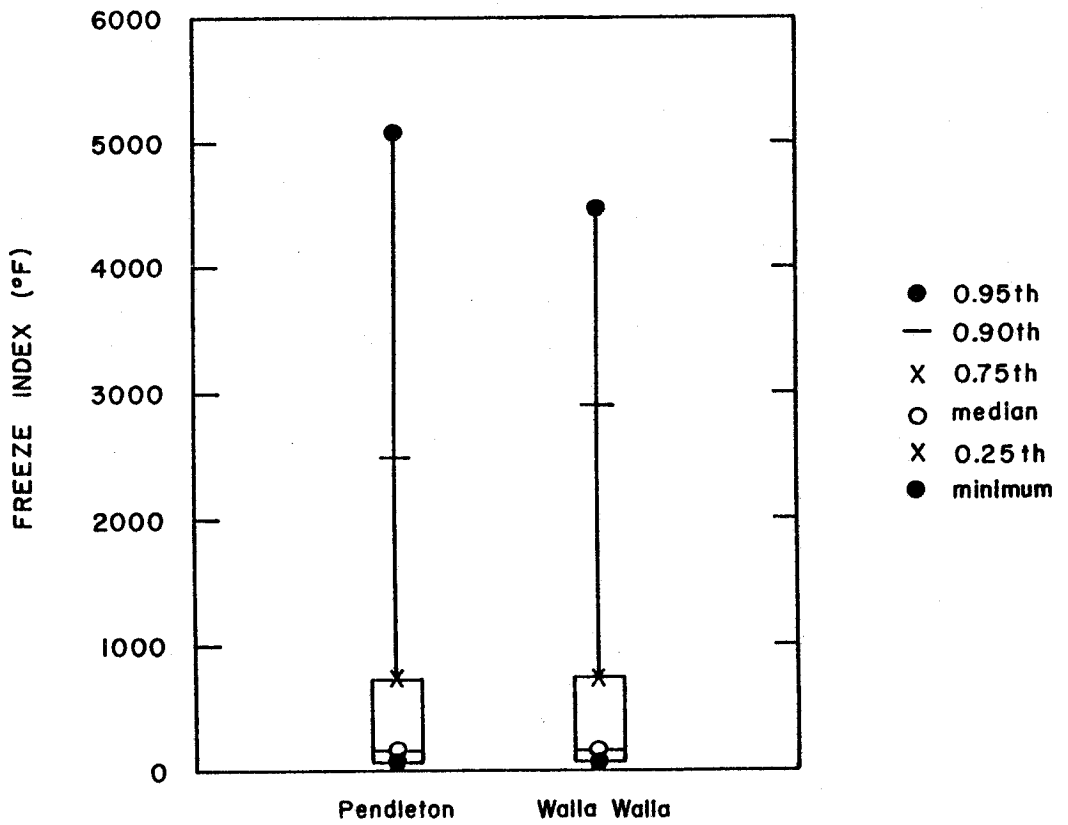

Figure 11. Box plots of freeze index (ΣTb^*) for Pendleton and Walla Walla. The number at the top of each box plot is the number of clusters.

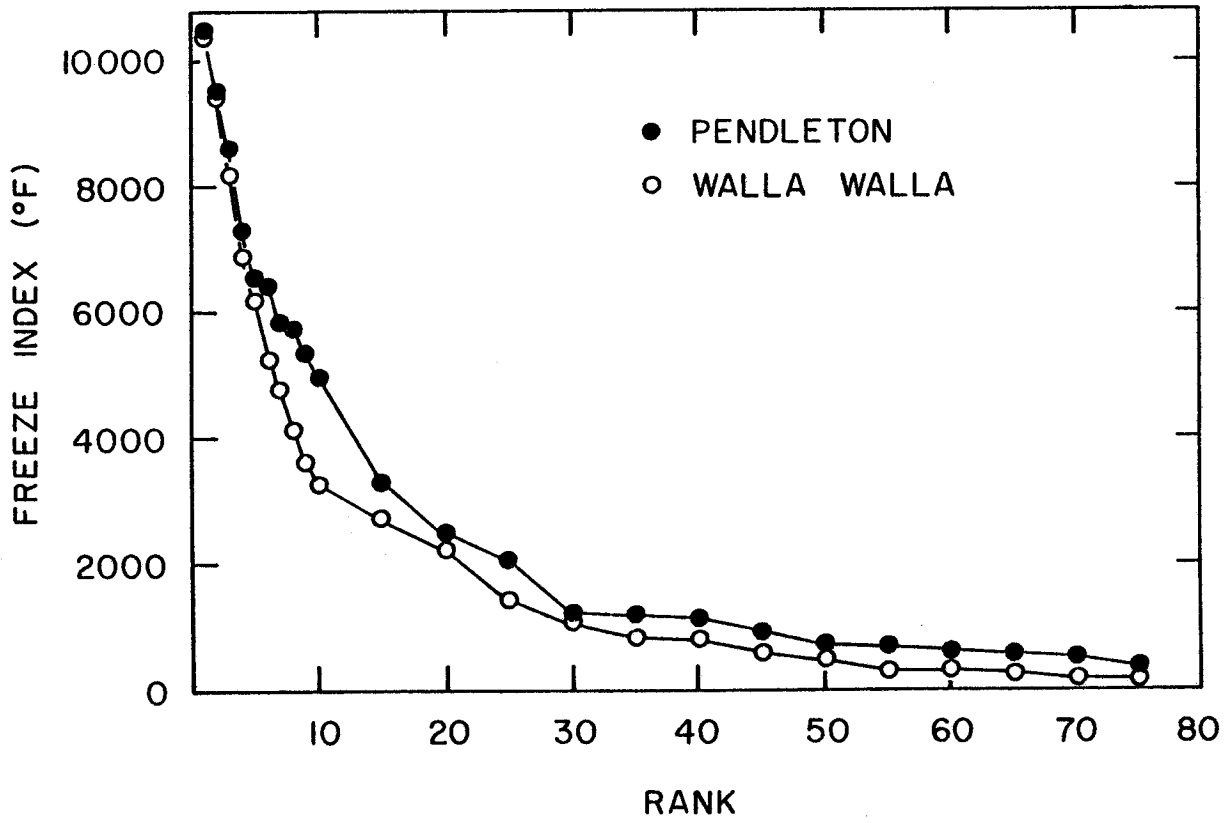

Figure 12. Freeze index (ΣTb*) order statistics at Pendleton and Walla Walla.

A complete list of the order statistics of ΣTb* which includes the values of all cluster characteristics for each cluster is given in Appendix B. Additional information regarding the values of ΣTb* for clusters ranked according to the value of other cluster characteristics may be obtained directly from the order statistics for those characteristics. These are also presented in Appendix B. The joint frequencies of occurrence of clusters with various combinations of values of freeze index and other cluster characteristics are presented and discussed in Section 5.

4.7 Number of Hours Below 32°F

The marginal distributions of the cluster characteristic number of hours below 32°F (Db*) for Pendleton and Walla Walla are shown in Figure 13. This characteristic is defined as the sum of the number of hours below 32°F during each freezing event for all freezing events in a cluster (Section 2). The characteristics of the two distributions are similar to those for the distributions of freeze index (Figure 11). A few cold periods at each station lasted many hours, whereas the majority of the cold periods were of fairly short duration. For example, 75% of the cold periods lasted less than 110 hours at both stations (Figure 13). The distributions for the two stations were similar.

The order statistics of number of hours below 32°F are shown in Figure 14. The first few order statistics in Figure 14 are quite large and are followed by a rapid decrease in value at first and then a more gradual decline. The curve for Pendleton is above the curve for Walla Walla for order statistics greater than about 5. A complete listing of

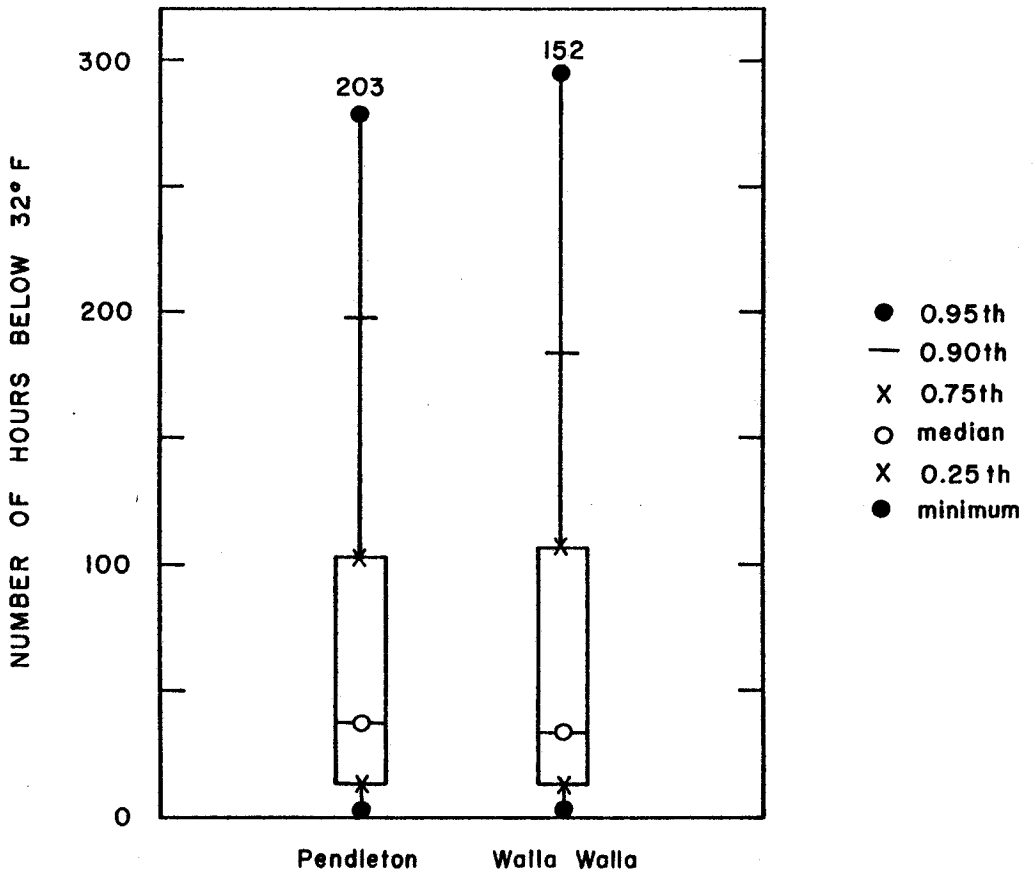

Figure 13. Box plots of number of hours below 32°F (Db*) for Pendleton and Walla Walla. The number at the top of each box plot is the number of clusters.

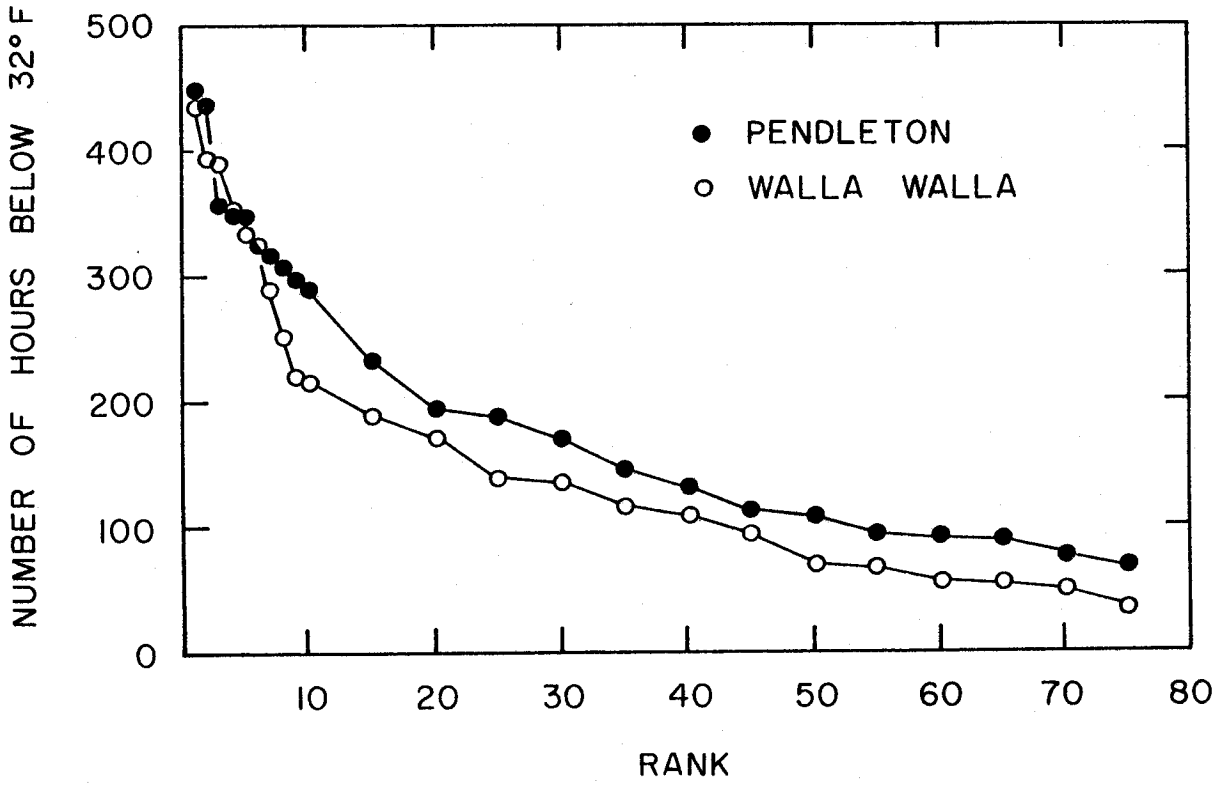

Figure 14. Number of hours below 32°F (Db*) order statistics at Pendleton and Walla Walla.

the order statistics of Db*, which includes the values of all cluster characteristics for each cluster, is given in Appendix B.

4.8 Minimum Temperature

Figure 15 contains the box plots of the marginal distributions of minimum temperature (Tmb*) for Pendleton and Walla Walla. These distributions are negatively skewed, in contrast to the distributions discussed previously. Most of the clusters had a fairly high minimum temperature, whereas relatively few had low minimum temperatures. The median value of minimum temperature at both stations is about 25°F.

Figure 16 presents the order statistics of minimum temperature. The two curves are very similar, starting with fairly low values and increasing rapidly through the first few statistics. The curves level off and approach 30°F for the later statistics. The shapes of these curves reflect the shapes of the box plots shown in Figure 15. A complete list of the order statistics of minimum temperature is presented in Appendix B.

4.9 Thaw Index, Maximum Temperature, and Number of Hours Above 32°F

Three cluster characteristics were defined using the freezing event characteristics associated with the warm periods between the freezing events in the clusters (ΣTa*, Tma*, and Da*). If a cluster contained a single freezing event, these characteristics were not defined and were arbitrarily assigned a value of 0. When a cluster contained two or more freezing events, the three cluster characteristics ΣTa*, Tma*, and Da* were calculated using the the method described in Section 2.4. Because

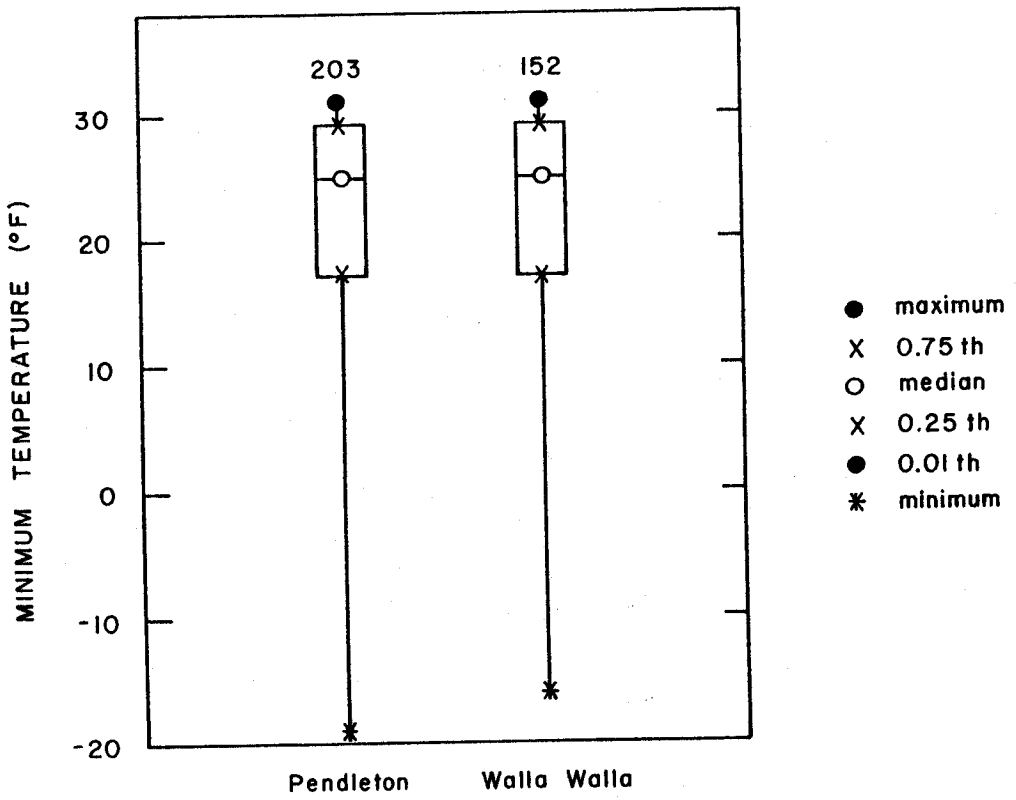

Figure 15. Box plots of minimum temperature (Tmb*) for Pendleton and Walla Walla. The number at the top of each box plot is the number of clusters.

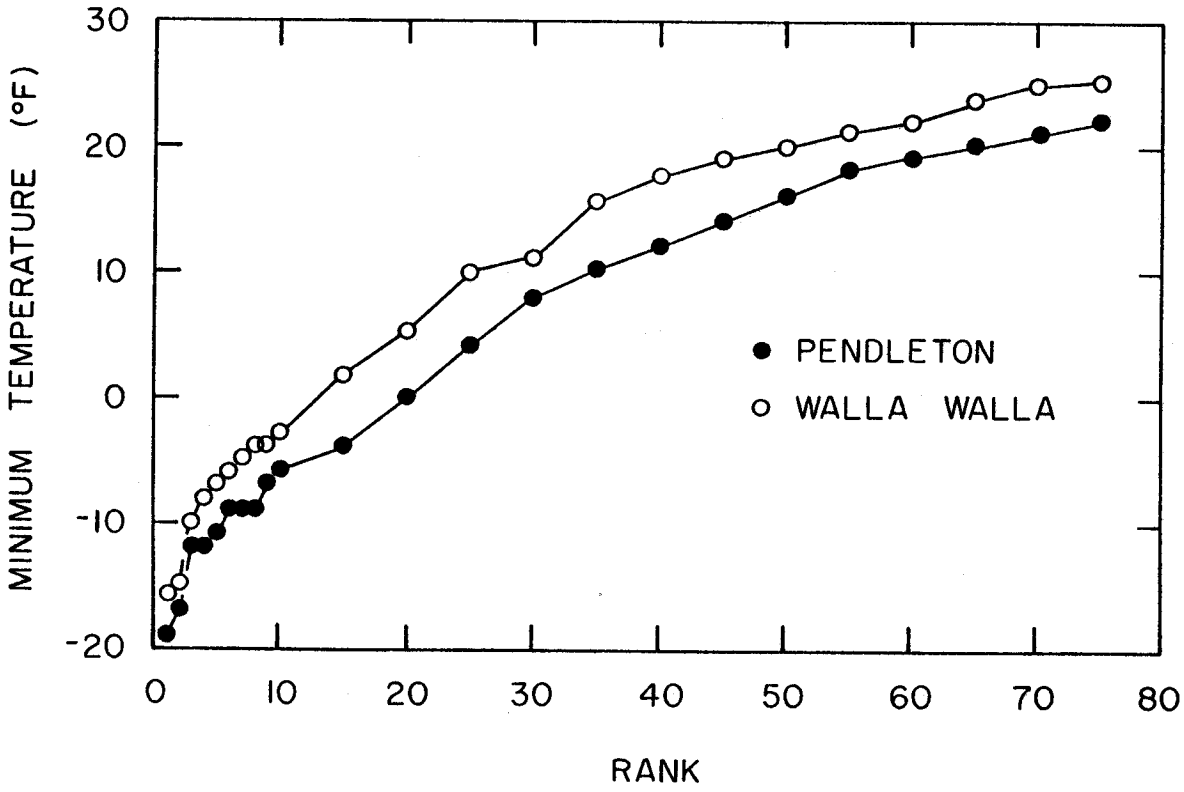

Figure 16. Minimum temperature (Tmb*) order statistics at Pendleton and Walla Walla.

only a few clusters contained more than one freezing event and because the total number of clusters at each site is relatively small, the marginal distributions of these characteristics were not calculated. A complete list of cluster characteristics, including these characteristics, is presented in Appendix B and can be used to calculate any required descriptive statistics. These "warm period" characteristics are most useful for interpreting the patterns of precipitation, freezing, and thawing during a cluster. For example, clusters which contain relatively long, warm periods between two cold periods may experience freezing and thawing.

5. JOINT DISTRIBUTIONS OF CLUSTER CHARACTERISTICS

The joint frequency distributions of pairs of cluster characteristics can be used to obtain estimates of the probabilities of occurrence of clusters that have particular combinations of values of the two characteristics. Because clusters are defined as periods of overlapping precipitation and freezing events, joint frequency distributions can be computed from characteristics associated with precipitation and air temperature conditions. For example, it may be of interest to know how frequently precipitation events with large maximum intensities occur when the soil is frozen. The probability of occurrence of this type of condition can be estimated from a table of the joint frequency distribution of maximum intensity (IMAX*) and freeze index (ΣTb*) for event clusters. This information has not been available previously and will be useful in forecasting soil erosion in this region.

Joint frequency distributions are formulated by first dividing the range of values of the characteristics of interest into several categories. For example, in this study the ranges of all of the cluster characteristics were divided into ten categories. Then a matrix can be formed whose columns represent the categories of one characteristic, e.g. Y, and whose rows represent the categories of the other characteristic, e.g. X. The entries in the matrix are the joint frequencies, f_{ij}, where f_{ij} is the number of times the value of X was in category i and the value of characteristic Y was in category j. The joint relative frequencies, p_{ij}, are calculated by dividing the joint frequencies by the total number of clusters. Total row and column frequencies (which represent the marginal distributions of the row and column variables)

are calculated by summing across the rows and columns, respectively, of the joint frequency table.

The joint frequency distributions of several pairs of cluster characteristics are discussed in the following subsections. Because of the large number of tables required to present all of the joint frequency distributions of interest at both sites (Pendleton and Walla Walla), only some of the tables for Pendleton are presented in this section. However, a complete set of tables of the joint distributions of interest at the two sites is presented in Appendix C.

5.1 Precipitation Amount and Freeze Index

The joint frequency distribution of precipitation amount (A*) and freeze index (ΣTb*) is presented in Table 7. Two numerical values are contained in each entry in this table. These are the joint frequency (f_{ij}) and the joint relative frequency (p_{ij}) of each pair of categories. For example, the entries in the second row and first column of Table 7 are 10 and 0.0493. This means that 10 of the 203 Pendleton event clusters had precipitation amounts that were between 0.25 and 0.50 inches and had a freeze index between 0 and 100°F. The joint relative frequency of this pair of categories is 0.0493 (=10/203). The entries in the "ROW TOTALS" column are the marginal row frequencies. They are the sums of the joint frequencies and joint relative frequencies across the table. For example, the second set of entries in the "ROW TOTALS" column, 37 and 0.1823, consists of the total number and overall relative frequency of occurrence of event clusters that had a precipitation amount that was between 0.25 and 0.50 inches. Similarly, the "COLUMN TOTALS" are the marginal column frequencies.

Table 7. Joint frequency distribution of precipitation amount (A*) and freeze index (ΣTb*) at Pendleton. The top number in each entry is the joint frequency and the lower number is the joint relative frequency (n=203)

LOWER BOUNDS FOR INTERVALS OF AMOUNT (INCHES X 100)	LOWER BOUNDS FOR INTERVALS OF FREEZE INDEX (DEGREES F)										
	0	100	200	300	400	500	600	700	800	900 AND ABOVE	ROW TOTALS
0	73 .3596	13 .0640	6 .0296	10 .0493	4 .0197	3 .0148	2 .0099	4 .0197	2 .0099	19 .0936	136 .6700
25	10 .0493	0 0.0000	6 .0296	2 .0099	0 0.0000	1 .0049	3 .0148	0 0.0000	1 .0049	14 .0690	37 .1823
50	5 .0246	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	5 .0246	10 .0493
75	2 .0099	0 0.0000	0 0.0000	0 0.0000	1 .0049	0 0.0000	0 0.0000	0 0.0000	0 0.0000	4 .0197	7 .0345
100	0 0.0000	1 .0049	1 .0049	1 .0049	0 0.0000	1 .0049	0 0.0000	0 0.0000	0 0.0000	2 .0099	6 .0296
125	0 0.0000	1 .0049	0 0.0000	0 0.0000	0 0.0000	1 .0049	0 0.0000	0 0.0000	0 0.0000	3 .0148	5 .0246
150	1 .0049	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	1 .0049
175	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000
200	1 .0049	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	1 .0049
225 AND ABOVE	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000
COLUMN TOTALS	92 .4532	15 .0739	13 .0640	13 .0640	5 .0246	6 .0296	5 .0246	4 .0197	3 .0148	47 .2315	

The highest frequencies in Table 7 are in the upper left corner, the region of the table representing low values of A* and low values of ΣTb*. However, for most applications, this is not the portion of Table 7 (or other joint frequency tables) that is of most interest. For forecasting runoff, the important parts of Table 7 would be the regions where the combined effects of amount and freeze index are large (e.g., where ΣTb* is large and A* is medium to large). By setting threshold values of both characteristics it is possible to estimate the probabilities of occurrence of particular types of event clusters. This is accomplished by summing the joint frequencies of the pairs of categories satisfying the threshold values and then dividing by the total number of events. For example, suppose it is of interest to estimate the probability of occurrence of clusters with a freeze index equal to or greater than 400 degrees with an amount of precipitation of 0.5 inches or more. The estimate of this probability, from Table 7 is 0.0837 [= (5+1+4+1+2+1+3)/203]. Note that the same answer could have been obtained (except for possible round-off error) by simply summing the appropriate relative frequencies [i.e., (0.0246 + 0.0049 + 0.0197 + 0.0049 + 0.0099 + 0.0049 + 0.0148) = 0.0837]. The probabilities of occurrence of other combinations of categories of precipitation amount and freeze index can be estimated in a similar manner.

In an earlier report in this series (Brown et al., 1983c), the results of a discriminant analysis for predicting the occurrence of soil frost using freezing event characteristics were discussed. In that study the characteristics "minimum temperature" and "sum of degrees below 32°F" were shown to be significant for predicting the occurrence of shallow soil frost. Although the coefficients in the discriminant

functions would be expected to vary with soil type and management practices, it should be possible to identify the values of "minimum temperature" and "freeze index" for event clusters which would be expected to accompany shallow soil frost. Then, using the tables in Appendix C of this report, the frequency of occurrence of soil frost and various levels of precipitation amount could be determined.

5.2 Precipitation Amount and Minimum Temperature

Table 8 contains the joint frequency distribution of precipitation amount (A*) and minimum temperature (Tmb*) for Pendleton. The larger joint frequencies in Table 8 are in the upper right corner. That is, most of the event clusters had small precipitation amounts and large (i.e., near 32°F) minimum temperatures. This feature of this joint distribution is a result of the skewed shapes of the marginal distributions of A* and Tmb*.

The probabilities of occurrence of particular combinations of amount of precipitation and minimum temperature can be estimated using the frequencies in Table 8 as they were for amount and freeze index using the frequencies in Table 7. For example, at Pendleton, the estimated probability of occurrence of an event cluster with a minimum temperature less than 10°F and a precipitation amount of at least 0.5 inches is 0.0542 [=(1+1+1+1+2+1+1+1+1+1)/203]. Similar probabilities can be estimated from the table of the amount - minimum temperature joint distribution for Walla Walla that is presented in Appendix C.

Table 8. Joint frequency distribution of precipitation amount (A*) and minimum temperature (Tmb*) at Pendleton. The top number in each entry is the joint frequency and the lower number is the joint relative frequency (n=203)

LOWER BOUNDS FOR INTERVALS OF AMOUNT (INCHES X 100)	LOWER BOUNDS FOR INTERVALS OF MINIMUM TEMPERATURE (DEGREES F)										
	-15	-10	-5	0	5	10	15	20	25	30 AND ABOVE	ROW TOTALS
0	0 0.0000	3 .0148	2 .0099	2 .0099	4 .0197	7 .0345	12 .0591	27 .1330	48 .2365	31 .1527	136 .6700
25	1 .0049	2 .0099	4 .0197	1 .0049	2 .0099	4 .0197	3 .0148	6 .0296	7 .0345	7 .0345	37 .1823
50	1 .0049	1 .0049	1 .0049	1 .0049	0 0.0000	1 .0049	0 0.0000	0 0.0000	4 .0197	1 .0049	10 .0493
75	2 .0099	0 0.0000	0 0.0000	0 0.0000	1 .0049	2 .0099	0 0.0000	0 0.0000	0 0.0000	2 .0099	7 .0345
100	0 0.0000	0 0.0000	0 0.0000	1 .0049	0 0.0000	0 0.0000	0 0.0000	4 .0197	1 .0049	0 0.0000	6 .0296
125	1 .0049	0 0.0000	1 .0049	1 .0049	0 0.0000	0 0.0000	0 0.0000	1 .0049	1 .0049	0 0.0000	5 .0246
150	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	1 .0049	1 .0049
175	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000
200	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	1 .0049	1 .0049
225 AND ABOVE	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000
COLUMN TOTALS	5 .0246	6 .0296	8 .0394	6 .0296	7 .0345	14 .0690	15 .0739	38 .1872	61 .3005	43 .2118	

5.3 Maximum Intensity and Freeze Index

Table 9 contains the joint frequency distribution of maximum intensity (IMAX*) and freeze index (ΣTb*) at Pendleton. Two regions of Table 9 are of interest for forecasting runoff. The first contains the lower rows which correspond to clusters which had large maximum intensities. When the rate of precipitation is high enough to exceed the infiltration rate of the soil, runoff will occur. Because large values of freeze index are associated with soil frost which may decrease the infiltration rate of the soil, the second region of importance for forecasting runoff contains the right-most columns. When the soil surface is frozen, as indicated by large freeze index values, even precipitation events with moderate-to-low values of maximum intensity may result in runoff. The probability of occurrence of each of these situations can be estimated from the joint frequency distributions of maximum intensity and freeze index for Pendleton and Walla Walla, presented in Appendix C.

5.4 Maximum Intensity and Minimum Temperature

Very few clusters contained precipitation events with large maximum intensities (IMAX*) and freezing events with low minimum temperatures (Tmb*) as seen in the joint frequency distribution for this pair of variables at Pendleton presented in Table 10. In fact, only two clusters had a minimum temperature less than 0°F and a maximum intensity of 0.09 in/hr or more. If we consider clusters with a minimum temperature less than 20°F and a maximum intensity of at least 0.09 in/hr, however, the relative frequency of occurrence rises to 0.0394 [=2+1+1+3+1)/203]. Over 20% of all clusters had minimum temperatures of 30°F or higher, and the soil surface was probably not frozen during

Table 9. Joint frequency distribution of maximum intensity (IMAX*) and freeze index (ΣTb*) at Pendleton. The top number in each entry is the joint frequency and the lower number is the joint relative frequency (n=203)

LOWER BOUNDS FOR INTERVALS OF MAXIMUM INTENSITY (INCHES PER HOUR X 100)	LOWER BOUNDS FOR INTERVALS OF FREEZE INDEX (DEGREES F) 0	100	200	300	400	500	600	700	800	900 AND ABOVE	ROW TOTALS
0	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000
1	23 .1133	5 .0246	3 .0148	3 .0148	1 .0049	1 .0049	1 .0049	1 .0049	1 .0049	4 .0197	43 .2118
2	18 .0887	5 .0246	0 0.0000	3 .0148	0 0.0000	1 .0049	0 0.0000	1 .0049	0 0.0000	7 .0345	35 .1724
3	7 .0345	1 .0049	0 0.0000	0 0.0000	2 .0099	0 0.0000	1 .0049	2 .0099	0 0.0000	6 .0296	19 .0936
4	11 .0542	0 0.0000	3 .0148	2 .0099	1 .0049	0 0.0000	0 0.0000	0 0.0000	2 .0099	9 .0443	28 .1379
5	3 .0148	1 .0049	3 .0148	1 .0049	0 0.0000	0 0.0000	1 .0049	0 0.0000	0 0.0000	5 .0246	14 .0690
6	9 .0443	1 .0049	1 .0049	1 .0049	0 0.0000	1 .0049	0 0.0000	0 0.0000	0 0.0000	7 .0345	20 .0985
7	5 .0246	0 0.0000	0 0.0000	2 .0099	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	2 .0099	9 .0443
8	6 .0296	0 0.0000	1 .0049	0 0.0000	0 0.0000	1 .0049	1 .0049	0 0.0000	0 0.0000	1 .0049	10 .0493
9 AND ABOVE	10 .0493	2 .0099	2 .0099	1 .0049	1 .0049	2 .0099	1 .0049	0 0.0000	0 0.0000	6 .0296	25 .1232
COLUMN TOTALS	92 .4532	15 .0739	13 .0640	13 .0640	5 .0246	6 .0296	5 .0246	4 .0197	3 .0148	47 .2315	

Table 10. Joint frequency distribution of maximum intensity (IMAX*) and minimum temperature (Tmb*) at Pendleton. The top number in each entry is the joint frequency and the lower number is the joint relative frequency (n=203)

LOWER BOUNDS FOR INTERVALS OF MAXIMUM INTENSITY (INCHES PER HOUR X 100)	LOWER BOUNDS FOR INTERVALS OF MINIMUM TEMPERATURE (DEGREES F)										
	-15	-10	-5	0	5	10	15	20	25	30 AND ABOVE	ROW TOTALS
0	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000
1	0 0.0000	0 0.0000	0 0.0000	1 .0049	2 .0099	0 0.0000	3 .0148	11 .0542	18 .0887	8 .0394	43 .2118
2	0 0.0000	1 .0049	1 .0049	1 .0049	3 .0148	2 .0099	2 .0099	6 .0296	14 .0690	5 .0246	35 .1724
3	0 0.0000	1 .0049	2 .0099	0 0.0000	0 0.0000	3 .0148	2 .0099	2 .0099	5 .0246	4 .0197	19 .0936
4	1 .0049	2 .0099	1 .0049	0 0.0000	1 .0049	4 .0197	3 .0148	4 .0197	6 .0296	6 .0296	28 .1379
5	1 .0049	1 .0049	1 .0049	1 .0049	0 0.0000	0 0.0000	2 .0099	4 .0197	3 .0148	1 .0049	14 .0690
6	3 .0148	0 0.0000	1 .0049	2 .0099	0 0.0000	1 .0049	0 0.0000	4 .0197	0 0.0000	9 .0443	20 .0985
7	0 0.0000	1 .0049	0 0.0000	0 0.0000	0 0.0000	1 .0049	2 .0099	0 0.0000	3 .0148	2 .0099	9 .0443
8	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	2 .0099	7 .0345	1 .0049	10 .0493
9 AND ABOVE	0 0.0000	0 0.0000	2 .0099	1 .0049	1 .0049	3 .0148	1 .0049	5 .0246	5 .0246	7 .0345	25 .1232
COLUMN TOTALS	5 .0246	6 .0296	8 .0394	6 .0296	7 .0345	14 .0690	15 .0739	38 .1872	61 .3005	43 .2118	

these events. The joint frequency distributions for this pair of characteristics for both stations are presented in Appendix C.

5.5 Average Intensity and Freeze Index

High values of average intensity (Ia*) occurred more frequently at Pendleton in clusters which had low values of freeze index ΣTb* than for clusters which had large values of this characteristic (Table 11). In fact, the frequency of occurrence of clusters with an average intensity of at least 0.03 in/hr was 0.1182 for clusters with a freeze index of less than 400 degrees and only 0.0246 for clusters with a freeze index of 400 degrees or more. The highest frequencies in Table 11 are in the region of low values of freeze index and moderate-to-low average intensity. Combinations of particular values of these two characteristics can give additional information about the processes of runoff resulting from precipitation on frozen soil.

5.6 Average Intensity and Minimum Temperature

Table 12 contains the joint frequency distribution of average intensity (Ia*) and minimum temperature (Tmb*) at Pendleton. This table is qualitatively similar to Table 10, which contains the joint frequency distributions of maximum intensity and minimum temperature at Pendleton. Most of the Pendleton event clusters had high minimum temperatures and moderate-to-low average intensities. Only four clusters contained precipitation events with an average intensity of 0.02 in/hr or more and a minimum temperature of less than 0°F. A table of the joint frequency distribution of these two characteristics at Walla Walla is presented in Appendix C.

Table 11. Joint frequency distribution of average intensity (Ia*) and freeze index (ΣTb*) at Pendleton. The top number in each entry is the joint frequency and the lower number is the joint relative frequency (n=203)

LOWER BOUNDS FOR INTERVALS OF AVERAGE INTENSITY (INCHES PER HOUR X 100)	LOWER BOUNDS FOR INTERVALS OF FREEZE INDEX (DEGREES F) 0	100	200	300	400	500	600	700	800	900 AND ABOVE	ROW TOTALS
0.0	3 .0148	1 .0049	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	1 .0049	5 .0246
0.5	7 .0345	3 .0148	0 0.0000	1 .0049	0 0.0000	1 .0049	1 .0049	0 0.0000	1 .0049	5 .0246	19 .0936
1.0	31 .1527	4 .0197	8 .0394	3 .0148	3 .0148	2 .0099	2 .0099	3 .0148	0 0.0000	17 .0837	73 .3596
1.5	12 .0591	2 .0099	1 .0049	2 .0099	1 .0049	0 0.0000	1 .0049	1 .0049	2 .0099	13 .0640	35 .1724
2.0	14 .0690	3 .0148	3 .0148	3 .0148	0 0.0000	2 .0099	0 0.0000	0 0.0000	0 0.0000	7 .0345	32 .1576
2.5	8 .0394	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	2 .0099	10 .0493
3.0	2 .0099	0 0.0000	0 0.0000	1 .0049	0 0.0000	1 .0049	0 0.0000	0 0.0000	0 0.0000	0 0.0000	4 .0197
3.5	6 .0296	0 0.0000	0 0.0000	2 .0099	0 0.0000	0 0.0000	1 .0049	0 0.0000	0 0.0000	0 0.0000	9 .0443
4.0	3 .0148	1 .0049	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	1 .0049	5 .0246
4.5 AND ABOVE	6 .0296	1 .0049	1 .0049	1 .0049	1 .0049	0 0.0000	0 0.0000	0 0.0000	0 0.0000	1 .0049	11 .0542
COLUMN TOTALS	92 .4532	15 .0739	13 .0640	13 .0640	5 .0246	6 .0296	5 .0246	4 .0197	3 .0148	47 .2315	

Table 12. Joint frequency distribution of average intensity (Ia*) and minimum temperature (Tmb*) at Pendleton. The top number in each entry is the joint frequency and the lower number is the joint relative frequency (n=203)

LOWER BOUNDS FOR INTERVALS OF AVERAGE INTENSITY (INCHES PER HOUR X 100)	LOWER BOUNDS FOR INTERVALS OF MINIMUM TEMPERATURE (DEGREES F) -15	-10	-5	0	5	10	15	20	25	30 AND ABOVE	ROW TOTALS
0.0	0 0.0000	1 .0049	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	1 .0049	2 .0099	1 .0049	5 .0246
0.5	0 0.0000	1 .0049	2 .0099	1 .0049	1 .0049	0 0.0000	1 .0049	4 .0197	7 .0345	2 .0099	19 .0936
1.0	2 .0099	0 0.0000	2 .0099	3 .0148	3 .0148	7 .0345	2 .0099	19 .0936	19 .0936	16 .0788	73 .3596
1.5	3 .0148	2 .0099	2 .0099	1 .0049	1 .0049	3 .0148	6 .0296	2 .0099	12 .0591	3 .0148	35 .1724
2.0	0 0.0000	1 .0049	1 .0049	1 .0049	1 .0049	2 .0099	3 .0148	8 .0394	6 .0296	9 .0443	32 .1576
2.5	0 0.0000	1 .0049	0 0.0000	0 0.0000	0 0.0000	1 .0049	0 0.0000	0 0.0000	4 .0197	4 .0197	10 .0493
3.0	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	1 .0049	0 0.0000	1 .0049	1 .0049	1 .0049	4 .0197
3.5	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	2 .0099	1 .0049	2 .0099	4 .0197	9 .0443
4.0	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	1 .0049	3 .0148	1 .0049	5 .0246
4.5 AND ABOVE	0 0.0000	0 0.0000	1 .0049	0 0.0000	1 .0049	0 0.0000	1 .0049	1 .0049	5 .0246	2 .0099	11 .0542
COLUMN TOTALS	5 .0246	6 .0296	8 .0394	6 .0296	7 .0345	14 .0690	15 .0739	38 .1872	61 .3005	43 .2118	

6. SUMMARY AND CONCLUSIONS

The results presented in the preceding sections provide a statistical description of periods of precipitation with concurrent freezing air temperatures in eastern Oregon and Washington. The concept of an event "cluster," consisting of precipitation and freezing events, makes it possible to obtain estimates of particular probabilities that are of importance in predicting soil erosion in this region. The tables in the appendices can be used by researchers and others concerned with problems of soil erosion resulting from precipitation on frozen soil. Some general conclusions regarding the characteristics of precipitation and freezing event clusters in eastern Oregon and Washington include the following:

(a) The numbers of precipitation and freezing event clusters identified in the 31-year historical record for Pendleton and the 18-year historical record for Walla Walla were relatively small (203 for Pendleton, Oregon, and 152 for Walla Walla, Washington). On the average, between six and eight clusters would be expected to occur in any particular year.

(b) Only one cluster out of all clusters at both stations consisted of 3 or more freezing events. However, over fifteen clusters at Pendleton consisted of 5 or more precipitation events.

(c) Very few clusters had large values of precipitation amount or intensity and low minimum temperature or large freeze index. This indicates that the occurrence of precipitation on soil which is deeply frozen occurs infrequently. At Pendleton, clusters which had 1 or more inches of precipitation and a freeze index of 100°F or more occurred, on the average, once every 2.9 years.

Although these conclusions are based on the analysis of precipitation and freezing event clusters defined specifically for applications in predicting soil erosion, they also characterize conditions of importance for decisions regarding agricultural practices, for example, choosing planting date or planning herbicide applications. The methodology outlined in this report is general and can be applied to other types of combinations of precipitation and freezing events (defined, perhaps, for other types of applications) at other locations of interest.

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APPENDICES

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APPENDIX A

Data Base Description

Precipitation and freezing event data bases were created from hourly air temperature and precipitation data for Pendleton, Oregon and Walla Walla, Washington according to the procedures described in Section 2. The hourly data were obtained from the National Climatic Center (NOAA, U.S. Department of Commerce) at Asheville, North Carolina. These data are stored at the Climatic Research Institute at Oregon State University (OSU). Procedures for accessing the precipitation and freezing event data bases were given in Brown et al. (1983a) and Brown et al. (1983c), respectively.

The precipitation and freezing event data were combined into event clusters using the procedures described in Section 2, and a cluster parameter file was created for each site. The files consist of individual data records for each cluster at a site during the period of record. All the cluster characteristics that were evaluated in this study are included in the record for each cluster. The data files are binary and are archived on magnetic tape at the OSU Computer Center under the file names PENCLS (Pendleton clusters), WALCLS (Walla Walla clusters). Copies of the files, on magnetic tape, also will be stored by the Department of Soil Science at OSU at the conclusion of this project.

The archived data files may be retrieved from tape and copied onto direct access files by submitting the computer routine ARCHYR which is stored under user number GAUI5C. Before submitting ARCHYR, it is necessary to edit that routine in order to retrieve the desired data files

under the appropriate user number. That is, the USER, CHARGE, TITLE, and RETRIEV statements in ARCHYR must be changed. The RETRIEV statement is of the form

RETRIEV, RF=pfn1/pfn2/pfn3/...,R.

For example, the statement

RETRIEV, RF=ENTCLS/WALCLS,R.

would cause the files ENTCLS and WALCLS to be retrieved and stored as direct access files.

Each record on the binary cluster files contains the following fifteen variables (in the order listed):

1) Hour the cluster started, counting from January 1, 1900 (integer)
2) Hour the cluster ended, counting from January 1, 1900 (integer)
3) Number of precipitation events (integer)
4) Precipitation duration, in hours (integer)
5) Precipitation amount, in hundredths of an inch (integer)
6) Maximum number of hours between precipitation events, in hours (integer)
7) Maximum intensity, in hundredths of an inch per hour (integer)
8) Average intensity, in hundredths of an inch per hour (floating point)
9) Number of freezing events (integer)
10) Freeze index, in °F (integer)
11) Number of hours below 32°F, in hours (integer)
12) Minimum temperature, in °F (integer)
13) Thaw index, in °F (integer)

14) Number of hours above 32°F, in hours (integer)

15) Maximum temperature, in °F (integer)

Note that average intensity is the only floating point variable.

APPENDIX B

Order Statistics

The following tables contain "order statistics" for each of the clusters at both sites (Pendleton, Oregon and Walla Walla, Washington). These statistics are the values of the event characteristics sorted according to the values of the characteristic of interest. For example, the duration order statistics are formulated by sorting the clusters in order of decreasing duration and listing the characteristics of the ordered clusters. The tables of order statistics are organized by characteristic, with separate tables for each site. An index listing the location of each table is given in the table of contents for the appendices (p. 58).

OVERALL ORDER STATISTICS AT PENDLETON
SORTED BY AMOUNT OF PRECIPITATION

	CHARACTERISTICS OF PRECIP EVENTS IN CLUSTER								CHARACTERISTICS OF FREEZE EVENTS IN CLUSTER						
	START DATE AND HOUR (YYMMDD:HH)	END DATE AND HOUR (YYMMDD:HH)	NO. PRECIP EVENTS	DUR (HRS)	AMOUNT (INX100)	MAX DRY (HRS)	INTENSITY MAXIMUM (IN/HRX100)	INTENSITY AVERAGE (IN/HRX100)	NO. FREEZE EVENTS	FREEZE INDEX (F)	NO. BELOW	MIN. TEMP (F)	THAW INDEX (F)	NO. ABOVE	MAX. TEMP (F)
1	750124:03	750126:10	1	56	218	0	11	3.9	1	2	2	31	0	0	0
2	560114:08	560115:19	1	35	150	0	13	4.3	1	5	5	31	0	0	0
3	581208:03	581211:16	2	32	146	15	10	4.6	1	162	55	26	0	0	0
4	570112:16	570130:21	9	88	136	149	6	1.5	1	10585	437	-19	0	0	0
5	630126:17	630202:19	5	91	134	24	11	1.5	1	2002	168	1	0	0	0
6	611123:01	611129:10	1	59	129	0	12	2.2	1	526	102	21	0	0	0
7	690118:00	690131:03	11	79	129	64	17	1.6	1	6455	316	-4	0	0	0
8	781118:17	781128:03	3	50	123	101	8	2.5	1	1379	222	20	0	0	0
9	700115:23	700120:03	6	54	119	12	8	2.2	1	529	100	21	0	0	0
10	501203:15	501207:01	2	56	117	28	17	2.1	1	257	71	24	0	0	0
11	551126:08	551129:01	1	23	103	0	11	4.5	1	118	50	28	0	0	0
12	600107:21	600126:08	9	80	102	95	6	1.3	1	5752	442	0	0	0	0
13	490217:19	490221:13	1	33	101	0	12	3.1	1	392	61	22	0	0	0
14	570131:21	570202:19	1	18	87	0	18	4.8	1	437	39	9	0	0	0
15	780107:21	780110:19	3	43	86	16	7	2.0	1	93	67	30	0	0	0
16	641221:00	641222:12	1	37	84	0	13	2.3	1	11	8	30	0	0	0
17	600301:17	600306:08	3	60	78	20	4	1.3	1	1125	109	14	0	0	0
18	721202:17	721217:00	7	55	76	111	6	1.4	1	8537	343	-12	0	0	0
19	500123:17	500206:06	9	50	76	157	5	1.5	1	9582	324	-17	0	0	0
20	771118:00	771124:07	4	27	75	62	10	2.8	1	1726	152	10	0	0	0
21	691231:17	700110:10	4	37	73	108	7	2.0	1	2117	232	12	0	0	0
22	641223:19	641224:21	1	27	69	0	12	2.6	1	8	4	29	0	0	0
23	681227:21	690104:17	7	44	68	37	4	1.5	1	4769	186	-11	0	0	0
24	520215:15	520216:09	1	20	65	0	11	3.3	1	6	6	31	0	0	0
25	720125:00	720206:14	9	57	61	117	5	1.1	1	5800	302	-5	0	0	0
26	551119:00	551119:14	1	13	59	0	8	4.5	1	10	2	25	0	0	0
27	500112:16	500120:22	10	59	58	24	4	1.0	1	5164	198	-6	0	0	0
28	560214:16	560218:08	4	23	53	38	6	2.3	1	1441	89	2	0	0	0
29	731105:07	731106:10	1	27	52	0	7	1.9	1	41	21	29	0	0	0
30	730210:00	730210:16	1	10	51	0	9	5.1	1	30	16	29	0	0	0
31	750109:17	750112:10	2	16	49	17	10	3.1	1	576	56	14	0	0	0
32	510206:07	510207:13	2	17	48	14	9	2.8	1	33	20	30	0	0	0
33	500101:16	500105:13	1	10	48	0	11	4.8	1	1764	93	-3	0	0	0
34	700228:05	700302:07	1	38	47	0	4	1.2	1	257	50	21	0	0	0
35	781129:10	781129:23	1	13	46	0	14	3.5	1	1	1	31	0	0	0
36	641215:12	641220:12	5	36	46	51	6	1.3	2	3115	118	-12	4	3	34
37	761229:19	770113:07	3	26	43	237	5	1.7	1	4900	346	2	0	0	0
38	691125:19	691204:01	3	10	43	676	11	4.3	1	984	198	22	0	0	0
39	551111:17	551118:21	6	42	40	70	3	1.0	1	3590	171	-5	0	0	0
40	481213:23	481214:22	1	14	40	0	6	2.9	1	36	23	30	0	0	0
41	551213:00	551220:17	3	31	39	36	6	1.3	1	2351	185	10	0	0	0
42	711225:19	711230:21	2	22	38	92	4	1.7	1	1238	122	15	0	0	0
43	560125:14	560206:08	5	23	37	155	3	1.6	1	5073	282	-9	0	0	0
44	780302:17	780305:10	2	20	37	15	8	1.9	1	271	65	26	0	0	0
45	650110:05	650120:16	5	20	37	139	5	1.9	1	959	251	18	0	0	0
46	701121:14	701124:08	2	22	37	17	4	1.7	1	813	61	8	0	0	0
47	510304:09	510305:16	1	9	36	0	8	4.0	1	83	23	25	0	0	0
48	731229:03	731229:21	1	19	36	0	4	1.9	1	17	12	30	0	0	0
49	501213:03	501214:23	3	12	33	9	8	2.8	1	75	43	29	0	0	0
50	711206:17	711208:14	1	6	32	0	7	5.3	1	312	43	18	0	0	0

OVERALL ORDER STATISTICS AT PENDLETON
SORTED BY AMOUNT OF PRECIPITATION

			CHARACTERISTICS OF PRECIP EVENTS IN CLUSTER						CHARACTERISTICS OF FREEZE EVENTS IN CLUSTER						
							INTENSITY								
	START DATE AND HOUR (YYMMDD:HH)	END DATE AND HOUR (YYMMDD:HH)	NO. PRECIP EVENTS	DUR (HRS)	AMOUNT (INX100)	MAX DRY (HRS)	MAXIMUM (IN/HRX100)	AVERAGE (IN/HRX100)	NO. FREEZE EVENTS	FREEZE INDEX (F)	NO. BELOW	MIN. TEMP (F)	THAW INDEX (F)	NO. ABOVE	MAX. TEMP (F)
51	491209:18	491212:10	2	13	32	51	6	2.5	1	286	61	20	0	0	0
52	701208:23	701209:07	1	7	32	0	6	4.6	1	5	5	31	0	0	0
53	750204:17	750210:05	4	32	31	23	5	1.0	1	638	131	22	0	0	0
54	620117:07	620124:05	1	20	30	0	5	1.5	1	3363	166	-9	0	0	0
55	540115:10	540117:23	2	22	30	21	3	1.4	1	669	53	14	0	0	0
56	650122:21	650124:00	1	11	29	0	4	2.6	1	70	27	29	0	0	0
57	511222:23	511228:21	3	13	28	22	13	2.2	1	1551	142	12	0	0	0
58	520111:18	520113:22	1	5	28	0	13	5.6	1	286	48	22	0	0	0
59	730102:21	730112:08	2	30	27	127	3	.9	1	4077	228	-5	0	0	0
60	570218:19	570223:19	3	29	27	32	2	.9	1	1197	120	7	0	0	0
61	591219:17	591224:21	2	16	27	29	4	1.7	1	331	116	25	0	0	0
62	690111:19	690114:03	2	26	26	11	4	1.0	1	242	56	21	0	0	0
63	521220:00	521220:11	1	12	26	0	4	2.2	1	8	7	30	0	0	0
64	590217:17	590220:23	3	21	26	15	5	1.2	1	223	74	26	0	0	0
65	590101:23	590107:03	2	17	26	64	4	1.5	1	2501	124	-1	0	0	0
66	631130:17	631206:03	3	13	25	63	8	1.9	1	602	125	26	0	0	0
67	590130:21	590131:10	1	14	25	0	6	1.8	1	1	1	31	0	0	0
68	700111:17	700112:21	1	14	24	0	5	1.7	1	56	14	25	0	0	0
69	520121:17	520126:08	2	15	24	12	4	1.6	1	897	110	11	0	0	0
70	631208:19	631216:10	4	18	24	117	3	1.3	1	1277	179	10	0	0	0
71	551120:14	551121:08	1	14	23	0	4	1.6	1	37	14	28	0	0	0
72	530228:21	530301:12	1	5	23	0	13	4.6	1	43	11	25	0	0	0
73	551228:16	560101:07	2	6	23	22	10	3.8	1	662	88	18	0	0	0
74	520115:16	520117:09	1	6	23	0	7	3.8	1	318	41	19	0	0	0
75	490314:21	490316:05	1	26	22	0	4	.8	1	21	14	30	0	0	0
76	510126:22	510202:05	3	16	22	113	6	1.4	1	3015	151	-1	0	0	0
77	721217:07	721217:14	1	9	21	0	6	2.3	1	1	1	31	0	0	0
78	610128:17	610130:01	1	18	21	0	5	1.2	1	52	27	28	0	0	0
79	601214:19	601218:16	2	15	21	20	4	1.4	1	400	92	25	0	0	0
80	691204:21	691209:07	2	17	20	45	4	1.2	1	370	106	23	0	0	0
81	501111:18	501112:09	1	10	20	0	4	2.0	1	25	15	30	0	0	0
82	661210:01	661210:10	1	10	20	0	9	2.0	1	2	2	31	0	0	0
83	590120:07	590122:19	3	18	20	22	5	1.1	1	266	59	24	0	0	0
84	671218:03	671221:14	2	16	19	33	2	1.2	1	957	83	12	0	0	0
85	550105:12	550111:03	2	16	19	95	3	1.2	1	789	135	23	0	0	0
86	630109:14	630114:07	1	8	19	0	7	2.4	1	2584	110	-9	0	0	0
87	781217:16	781220:01	1	8	18	0	5	2.3	1	343	58	16	0	0	0
88	550130:21	550131:19	1	20	18	0	4	.9	1	10	10	31	0	0	0
89	701231:19	710101:10	1	5	18	0	8	3.6	1	51	11	25	0	0	0
90	590210:23	590211:16	1	17	18	0	6	1.1	1	23	15	30	0	0	0
91	611208:17	611215:21	5	16	18	34	2	1.1	1	2100	171	3	0	0	0
92	601225:01	601226:08	1	9	16	0	6	1.8	1	103	30	24	0	0	0
93	631219:19	631220:07	1	4	15	0	8	3.8	1	13	9	29	0	0	0
94	510302:17	510303:21	1	10	15	0	4	1.5	2	54	20	26	1	1	33
95	710101:17	710107:08	1	8	15	0	3	1.9	1	1327	136	13	0	0	0
96	560112:17	560113:05	1	6	15	0	6	2.5	1	16	9	30	0	0	0
97	650325:21	650326:10	1	13	15	0	3	1.2	1	4	3	30	0	0	0
98	591227:16	600104:08	4	11	14	11	4	1.3	1	1528	185	13	0	0	0
99	780113:00	780114:05	1	4	14	0	8	3.5	1	30	30	31	0	0	0
100	710304:12	710304:14	1	4	14	0	7	3.5	1	1	1	31	0	0	0

OVERALL ORDER STATISTICS AT PENDLETON
SORTED BY AMOUNT OF PRECIPITATION

			CHARACTERISTICS OF PRECIP EVENTS IN CLUSTER						CHARACTERISTICS OF FREEZE EVENTS IN CLUSTER						
							INTENSITY								
	START DATE AND HOUR (YYMMDD:HH)	END DATE AND HOUR (YYMMDD:HH)	NO. PRECIP EVENTS	DUR (HRS)	AMOUNT (INX100)	MAX DRY (HRS)	MAXIMUM (IN/HRX100)	AVERAGE (IN/HRX100)	NO. FREEZE EVENTS	FREEZE INDEX (F)	NO. BELOW	MIN. TEMP (F)	THAW INDEX (F)	NO. ABOVE	MAX. TEMP (F)
101	641205:19	641208:01	2	6	14	41	6	2.3	1	68	51	30	0	0	0
102	550226:01	550228:00	3	6	13	18	4	2.2	1	288	44	19	0	0	0
103	710111:17	710113:07	1	13	13	0	2	1.0	1	112	35	25	0	0	0
104	551202:14	551203:10	1	6	13	0	3	2.2	1	47	19	29	0	0	0
105	681218:21	681223:08	2	10	13	70	6	1.3	2	518	102	20	8	3	36
106	641226:14	641226:17	1	4	13	0	4	3.3	1	7	3	29	0	0	0
107	490118:16	490202:11	4	25	12	133	2	.5	1	6357	355	-6	0	0	0
108	751127:17	751130:03	2	7	12	31	3	1.7	1	429	58	17	0	0	0
109	571231:14	580109:05	1	6	12	0	4	2.0	1	1207	207	19	0	0	0
110	691225:21	691226:10	1	9	12	0	3	1.3	1	7	7	31	0	0	0
111	540201:03	540212:00	3	9	12	53	3	1.3	1	724	257	25	0	0	0
112	761220:17	761223:07	1	3	11	0	6	3.7	1	324	61	24	0	0	0
113	511219:07	511220:13	2	12	11	9	5	.9	1	167	26	22	0	0	0
114	660123:19	660127:14	1	7	10	0	3	1.4	1	490	90	22	0	0	0
115	581206:00	581206:12	1	8	10	0	3	1.3	1	29	12	29	0	0	0
116	731231:17	740113:03	2	4	10	111	4	2.5	1	7261	297	-7	0	0	0
117	550313:19	550314:07	1	8	10	0	6	1.3	1	11	8	30	0	0	0
118	690116:23	690117:05	1	7	10	0	4	1.4	1	5	5	31	0	0	0
119	781205:14	781209:12	1	8	10	0	4	1.3	1	936	90	10	0	0	0
120	691210:01	691210:23	1	2	10	0	7	5.0	1	78	22	25	0	0	0
121	620109:17	620114:07	2	6	9	17	2	1.5	1	789	110	17	0	0	0
122	690205:03	690205:12	1	6	9	0	2	1.5	1	10	5	29	0	0	0
123	551203:21	551205:21	1	7	9	0	5	1.3	2	218	44	23	21	3	42
124	780130:16	780131:14	1	2	8	0	7	4.0	1	49	22	28	0	0	0
125	521122:16	521202:08	1	5	8	0	3	1.6	1	2311	232	15	0	0	0
126	650316:14	650317:14	1	8	8	0	4	1.0	1	93	17	20	0	0	0
127	591115:03	591119:05	1	4	8	0	2	2.0	1	1264	98	5	0	0	0
128	780131:19	780201:17	1	6	8	0	5	1.3	1	32	18	30	0	0	0
129	780217:19	780218:03	1	5	8	0	3	1.6	1	3	3	31	0	0	0
130	671127:17	671128:12	1	5	7	0	2	1.4	1	86	20	26	0	0	0
131	770127:17	770208:03	3	8	7	28	1	.9	1	814	274	25	0	0	0
132	491231:18	500101:11	1	4	6	0	2	1.5	1	45	17	28	0	0	0
133	720209:17	720211:10	1	3	6	0	3	2.0	1	118	39	28	0	0	0
134	550116:01	550116:03	1	1	6	0	6	6.0	1	2	2	31	0	0	0
135	481209:01	481209:23	1	7	6	0	2	.9	1	37	15	28	0	0	0
136	760201:01	760206:23	1	4	5	0	2	1.3	1	1154	142	7	0	0	0
137	511229:15	520105:15	3	9	5	81	1	.6	1	2838	168	4	0	0	0
138	680102:00	680103:10	1	4	5	0	2	1.3	1	172	33	23	0	0	0
139	490101:02	490101:11	1	4	5	0	2	1.3	1	11	7	30	0	0	0
140	690222:23	690223:14	1	2	5	0	3	2.5	1	28	15	29	0	0	0
141	520222:22	520223:11	1	5	5	0	2	1.0	1	51	14	26	0	0	0
142	670106:03	670106:07	1	5	5	0	2	1.0	1	1	1	31	0	0	0
143	670125:00	670125:05	1	2	5	0	3	2.5	1	5	5	31	0	0	0
144	601227:05	601231:12	1	8	4	0	2	.5	1	557	102	24	0	0	0
145	751118:00	751120:12	1	8	4	0	1	.5	1	182	60	26	0	0	0
146	500107:22	500108:21	1	3	4	0	2	1.3	1	96	23	26	0	0	0
147	701220:23	701223:08	2	6	4	16	1	.7	1	308	57	17	0	0	0
148	570110:07	570110:08	1	3	4	0	2	1.3	1	1	1	31	0	0	0
149	690224:21	690225:16	2	5	4	14	1	.8	1	26	17	29	0	0	0
150	510110:09	510110:23	1	8	4	0	1	.5	1	26	13	28	0	0	0

OVERALL ORDER STATISTICS AT PENDLETON
SORTED BY AMOUNT OF PRECIPITATION

			CHARACTERISTICS OF PRECIP EVENTS IN CLUSTER						CHARACTERISTICS OF FREEZE EVENTS IN CLUSTER						
							INTENSITY								
	START DATE AND HOUR (YYMMDD:HH)	END DATE AND HOUR (YYMMDD:HH)	NO. PRECIP EVENTS	DUR (HRS)	AMOUNT (INX100)	MAX DRY (HRS)	MAXIMUM (IN/HRX100)	AVERAGE (IN/HRX100)	NO. FREEZE EVENTS	FREEZE INDEX (F)	NO. BELOW	MIN. TEMP (F)	THAW INDEX (F)	NO. ABOVE	MAX. TEMP (F)
151	581115:03	581115:12	1	7	4	0	1	.6	1	22	9	28	0	0	0
152	771208:19	771210:10	1	2	3	0	2	1.5	1	110	39	26	0	0	0
153	511209:15	511209:21	1	2	3	0	2	1.5	1	16	6	27	0	0	0
154	660121:17	660123:01	1	6	3	0	1	.5	1	96	32	27	0	0	0
155	550319:00	550319:08	1	2	3	0	2	1.5	1	31	9	24	0	0	0
156	720102:10	720104:07	1	2	3	0	2	1.5	1	360	44	15	0	0	0
157	510301:19	510302:10	1	8	3	0	1	.4	1	54	15	25	0	0	0
158	650324:17	650325:12	1	4	3	0	1	.8	1	100	19	23	0	0	0
159	561205:03	561208:12	1	3	3	0	1	1.0	1	1416	81	8	0	0	0
160	550104:12	550105:12	1	2	3	0	2	1.5	1	87	23	25	0	0	0
161	690114:17	690115:10	1	1	2	0	2	2.0	1	102	17	20	0	0	0
162	490202:14	490204:00	1	1	2	0	2	2.0	1	308	35	11	0	0	0
163	630123:17	630125:12	2	2	2	6	1	1.0	1	261	44	22	0	0	0
164	620228:19	620301:01	1	1	2	0	2	2.0	1	30	7	26	0	0	0
165	711106:19	711107:10	1	1	2	0	2	2.0	1	56	15	26	0	0	0
166	540111:05	540113:03	1	2	2	0	1	1.0	1	140	47	26	0	0	0
167	680112:21	680112:23	1	2	2	0	1	1.0	1	2	2	31	0	0	0
168	561225:03	570101:19	2	2	2	136	1	1.0	1	907	184	24	0	0	0
169	710227:00	710227:07	1	1	2	0	2	2.0	1	31	8	26	0	0	0
170	511123:22	511125:08	1	6	2	0	1	.3	1	54	34	29	0	0	0
171	641227:07	641227:10	1	1	2	0	2	2.0	1	10	3	28	0	0	0
172	591207:19	591210:14	1	1	2	0	2	2.0	1	342	67	24	0	0	0
173	670105:05	670105:07	1	1	2	0	2	2.0	1	2	2	31	0	0	0
174	521222:22	521226:22	2	2	2	54	1	1.0	1	656	96	20	0	0	0
175	640113:16	640113:23	1	7	2	0	1	.3	1	2	2	31	0	0	0
176	550324:21	550325:10	1	2	2	0	1	1.0	1	51	13	24	0	0	0
177	641225:05	641226:12	1	5	2	0	1	.4	1	136	32	24	0	0	0
178	561123:19	561202:10	1	2	2	0	1	1.0	1	1058	207	24	0	0	0
179	641229:14	641229:16	1	2	2	0	1	1.0	1	2	2	31	0	0	0
180	540118:01	540121:23	1	1	2	0	2	2.0	1	2013	94	-4	0	0	0
181	550102:07	550103:10	1	1	2	0	2	2.0	1	104	27	24	0	0	0
182	540124:10	540124:12	1	1	2	0	2	2.0	1	2	1	30	0	0	0
183	730211:12	730215:05	1	1	1	0	1	1.0	1	334	88	20	0	0	0
184	500210:00	500210:09	1	1	1	0	1	1.0	1	24	10	28	0	0	0
185	700113:00	700113:05	1	1	1	0	1	1.0	1	5	5	31	0	0	0
186	601221:14	601224:16	1	1	1	0	1	1.0	1	290	74	26	0	0	0
187	750127:16	750131:03	1	1	1	0	1	1.0	1	496	83	21	0	0	0
188	520220:18	520221:09	1	1	1	0	1	1.0	1	40	15	28	0	0	0
189	661226:05	661226:23	1	1	1	0	1	1.0	1	49	18	25	0	0	0
190	560305:21	560306:07	1	1	1	0	1	1.0	1	28	10	27	0	0	0
191	751218:17	751222:12	1	1	1	0	1	1.0	1	211	90	29	0	0	0
192	511210:16	511215:08	1	1	1	0	1	1.0	1	704	112	20	0	0	0
193	690201:00	690201:10	1	1	1	0	1	1.0	1	15	10	30	0	0	0
194	570207:16	570208:03	1	1	1	0	1	1.0	1	33	12	27	0	0	0
195	660117:05	660121:03	1	1	1	0	1	1.0	1	368	93	19	0	0	0
196	530106:00	530106:05	1	1	1	0	1	1.0	1	5	5	31	0	0	0
197	550303:05	550303:07	1	1	1	0	1	1.0	1	4	2	30	0	0	0
198	500310:18	500312:08	1	1	1	0	1	1.0	1	196	37	17	0	0	0
199	591218:01	591218:10	1	1	1	0	1	1.0	1	20	8	27	0	0	0
200	511206:18	511207:09	1	1	1	0	1	1.0	1	94	15	22	0	0	0

OVERALL ORDER STATISTICS AT PENDLETON
SORTED BY AMOUNT OF PRECIPITATION

			CHARACTERISTICS OF PRECIP EVENTS IN CLUSTER						CHARACTERISTICS OF FREEZE EVENTS IN CLUSTER						
	START DATE AND HOUR (YYMMDD:HH)	END DATE AND HOUR (YYMMDD:HH)	NO. PRECIP EVENTS	DUR (HRS)	AMOUNT (INX100)	MAX DRY (HRS)	INTENSITY MAXIMUM (IN/HRX100)	INTENSITY AVERAGE (IN/HRX100)	NO. FREEZE EVENTS	FREEZE INDEX (F)	NO. BELOW	MIN. TEMP (F)	THAW INDEX (F)	NO. ABOVE	MAX. TEMP (F)
201	591112:12	591114:14	1	1	1	0	1	1.0	1	537	49	9	0	0	0
202	591130:23	591202:07	1	1	1	0	1	1.0	1	88	32	26	0	0	0
203	591202:19	591202:19	1	1	1	0	1	1.0	1	1	1	31	0	0	0

OVERALL ORDER STATISTICS AT WALLA WALLA
SORTED BY AMOUNT OF PRECIPITATION

			CHARACTERISTICS OF PRECIP EVENTS IN CLUSTER						CHARACTERISTICS OF FREEZE EVENTS IN CLUSTER						
							INTENSITY								
	START DATE AND HOUR (YYMMDD:HH)	END DATE AND HOUR (YYMMDD:HH)	NO. PRECIP EVENTS	DUR (HRS)	AMOUNT (INX100)	MAX DRY (HRS)	MAXIMUM (IN/HRX100)	AVERAGE (IN/HRX100)	NO. FREEZE EVENTS	FREEZE INDEX (F)	NO. BELOW	MIN. TEMP (F)	THAW INDEX (F)	NO. ABOVE	MAX. TEMP (F)
1	560114:10	560115:19	1	34	154	0	15	4.5	2	14	14	31	2	1	34
2	501203:14	501207:02	2	63	151	23	18	2.4	2	249	66	25	4	3	34
3	581207:23	581211:16	3	33	149	16	11	4.5	1	236	68	26	0	0	0
4	611123:03	611129:12	2	64	148	16	6	2.3	2	596	111	18	7	5	35
5	570112:16	570130:17	7	85	137	163	10	1.6	1	10325	434	-15	0	0	0
6	771222:21	780105:07	9	96	136	89	6	1.4	1	3314	322	2	0	0	0
7	551111:14	551119:14	6	71	136	68	7	1.9	1	3522	179	-4	0	0	0
8	500112:16	500121:00	10	82	123	23	5	1.5	1	5296	198	-7	0	0	0
9	590120:12	590124:05	2	48	110	11	18	2.3	1	284	51	22	0	0	0
10	551126:07	551129:03	1	22	109	0	10	5.0	1	131	52	28	0	0	0
11	500123:18	500206:05	8	61	105	156	6	1.7	1	9672	322	-16	0	0	0
12	540127:10	540129:03	1	42	95	0	7	2.3	1	10	8	30	0	0	0
13	630126:16	630201:05	4	38	83	29	4	2.2	1	1833	134	3	0	0	0
14	781118:19	781123:07	2	30	79	6	5	2.6	1	752	108	21	0	0	0
15	560214:19	560219:07	3	21	76	43	6	3.6	1	1728	108	1	0	0	0
16	560124:21	560210:07	6	32	72	165	7	2.3	1	6223	393	-8	0	0	0
17	490218:16	490221:09	1	20	71	0	8	3.6	1	329	59	22	0	0	0
18	540115:17	540122:19	5	39	69	56	6	1.8	1	3132	166	-6	0	0	0
19	570305:23	570307:12	1	31	68	0	12	2.2	1	10	10	31	0	0	0
20	641223:21	641224:10	1	12	67	0	11	5.6	1	17	5	27	0	0	0
21	771118:10	771124:01	2	51	66	6	4	1.3	1	1194	134	11	0	0	0
22	650122:21	650124:05	1	25	66	0	10	2.6	1	74	25	27	0	0	0
23	761229:12	770113:05	12	39	65	106	6	1.7	1	4849	353	-2	0	0	0
24	510206:01	510207:13	1	31	62	0	9	2.0	1	83	33	27	0	0	0
25	641221:01	641221:17	1	14	59	0	9	4.2	1	62	16	27	0	0	0
26	600301:17	600305:21	5	37	58	20	4	1.6	1	946	100	17	0	0	0
27	520215:15	520216:08	1	17	57	0	7	3.4	1	13	11	30	0	0	0
28	551212:23	551220:14	3	38	57	37	4	1.5	1	2245	184	10	0	0	0
29	570131:23	570202:23	1	11	55	0	8	5.0	1	373	43	13	0	0	0
30	590101:23	590107:12	2	22	48	65	5	2.2	1	2546	134	-1	0	0	0
31	781210:03	781211:07	1	12	47	0	6	3.9	1	53	18	28	0	0	0
32	601214:03	601218:17	3	22	47	16	4	2.1	1	409	109	24	0	0	0
33	521220:01	521220:19	1	19	46	0	6	2.4	1	7	6	30	0	0	0
34	491209:17	491212:08	2	11	45	52	10	4.1	1	203	54	23	0	0	0
35	520121:16	520124:14	3	39	45	10	3	1.2	1	525	69	18	0	0	0
36	781126:21	781128:03	1	12	43	0	8	3.6	1	35	24	29	0	0	0
37	570218:19	570224:00	4	29	43	36	3	1.5	1	1016	120	9	0	0	0
38	600109:17	600112:14	2	17	43	11	6	2.5	1	819	69	11	0	0	0
39	750204:08	750210:03	4	29	41	54	3	1.4	1	1041	135	17	0	0	0
40	511222:21	511228:10	3	26	41	11	10	1.6	1	1536	134	14	0	0	0
41	600112:16	600126:08	5	35	38	129	3	1.1	1	4211	329	7	0	0	0
42	641215:14	641220:12	3	15	35	69	8	2.3	1	2869	119	-5	0	0	0
43	551201:07	551201:17	1	11	34	0	12	3.1	1	4	2	30	0	0	0
44	650109:21	650111:10	1	24	33	0	4	1.4	1	114	37	26	0	0	0
45	590217:19	590219:10	2	24	33	15	4	1.4	1	100	35	28	0	0	0
46	611207:21	611216:01	4	34	33	56	3	1.0	1	2249	197	2	0	0	0
47	591227:05	600105:05	1	38	33	0	3	.9	1	1523	215	11	0	0	0
48	780130:19	780202:00	2	24	32	13	4	1.3	3	112	48	28	2	2	33
49	761220:16	761223:10	1	9	32	0	8	3.6	1	268	61	26	0	0	0
50	600107:19	600108:14	1	18	31	0	4	1.7	1	58	19	27	0	0	0

OVERALL ORDER STATISTICS AT WALLA WALLA
SORTED BY AMOUNT OF PRECIPITATION

			CHARACTERISTICS OF PRECIP EVENTS IN CLUSTER						CHARACTERISTICS OF FREEZE EVENTS IN CLUSTER						
							INTENSITY								
	START DATE AND HOUR (YYMMDD:HH)	END DATE AND HOUR (YYMMDD:HH)	NO. PRECIP EVENTS	DUR (HRS)	AMOUNT (INX100)	MAX DRY (HRS)	MAXIMUM (IN/HRX100)	AVERAGE (IN/HRX100)	NO. FREEZE EVENTS	FREEZE INDEX (F)	NO. BELOW	MIN. TEMP (F)	THAW INDEX (F)	NO. ABOVE	MAX. TEMP (F)
51	750109:17	750110:10	1	13	30	0	3	2.3	1	11	6	28	0	0	0
52	630201:08	630203:00	2	11	29	8	4	2.6	1	259	39	23	0	0	0
53	590130:14	590131:07	1	18	28	0	5	1.6	1	8	8	31	0	0	0
54	520111:16	520112:09	1	8	27	0	5	3.4	1	62	17	22	0	0	0
55	550226:00	550227:23	2	15	26	14	2	1.7	1	295	42	20	0	0	0
56	500101:16	500105:13	3	19	26	31	2	1.4	1	1778	92	1	0	0	0
57	571231:00	580105:12	2	16	26	132	6	1.6	1	720	133	23	0	0	0
58	740101:07	740113:05	5	22	25	80	3	1.1	1	8028	285	-10	0	0	0
59	511219:03	511221:08	2	30	25	6	1	.8	1	512	52	15	0	0	0
60	550103:17	550111:01	3	27	25	102	2	.9	1	1008	176	19	0	0	0
61	490315:00	490315:21	1	12	24	0	4	2.0	1	26	12	28	0	0	0
62	560222:21	560223:05	1	9	24	0	9	2.7	1	2	2	31	0	0	0
63	561224:19	570101:23	2	7	24	49	5	3.4	1	755	193	26	0	0	0
64	490118:18	490203:22	5	26	23	185	2	.9	1	6906	387	-4	0	0	0
65	521121:16	521202:06	3	15	21	96	4	1.4	1	2372	249	14	0	0	0
66	781209:05	781209:12	1	9	20	0	9	2.2	1	1	1	31	0	0	0
67	601225:03	601226:07	1	3	20	0	8	6.7	1	79	29	27	0	0	0
68	510302:18	510303:21	1	10	20	0	4	2.0	1	39	19	28	0	0	0
69	551122:17	551123:14	2	11	20	56	3	1.8	2	67	18	26	2	1	34
70	510109:16	510110:22	1	7	19	0	4	2.7	1	74	30	27	0	0	0
71	510126:22	510202:10	2	17	19	119	2	1.1	1	2943	157	2	0	0	0
72	620228:19	620301:07	1	5	18	0	5	3.6	1	44	12	25	0	0	0
73	490206:10	490206:14	1	4	18	0	6	4.5	1	1	1	31	0	0	0
74	751128:01	751130:14	2	12	17	36	4	1.4	2	337	56	21	24	5	40
75	540206:21	540212:12	2	14	17	59	3	1.2	1	488	136	-25	0	0	0
76	641226:23	641227:10	1	2	17	0	9	8.5	1	58	12	25	0	0	0
77	490221:10	490221:21	1	11	17	0	7	1.5	1	3	3	31	0	0	0
78	550102:07	550103:10	1	3	16	0	8	5.3	1	80	26	24	0	0	0
79	511229:22	520105:19	6	21	16	54	2	.8	1	2817	166	6	0	0	0
80	520115:06	520117:09	1	5	16	0	5	3.2	1	399	52	19	0	0	0
81	620206:03	620207:05	1	8	15	0	2	1.9	1	42	26	28	0	0	0
82	570108:21	570109:08	1	7	14	0	4	2.0	2	18	10	29	1	1	33
83	751211:19	751212:14	1	10	13	0	2	1.3	1	33	18	29	0	0	0
84	510224:23	510225:07	1	7	13	0	4	1.9	1	3	3	31	0	0	0
85	641225:01	641226:17	2	15	13	6	3	.9	1	306	39	20	0	0	0
86	581206:01	581206:12	1	6	13	0	5	2.2	1	26	11	29	0	0	0
87	550122:00	550122:12	1	8	13	0	3	1.6	1	28	12	28	0	0	0
88	500107:16	500108:22	1	3	12	0	5	4.0	1	140	29	25	0	0	0
89	500210:02	500210:18	1	10	12	0	2	1.2	1	24	14	29	0	0	0
90	751212:21	751213:05	1	9	11	0	2	1.2	1	4	3	30	0	0	0
91	591115:03	591119:03	2	11	11	78	2	1.0	1	1170	95	5	0	0	0
92	551228:16	560101:17	2	7	11	22	3	1.6	1	773	97	16	0	0	0
93	750112:19	750113:19	1	5	10	0	2	2.0	1	71	24	28	0	0	0
94	551203:21	551205:19	1	9	10	0	4	1.1	2	174	41	25	29	3	45
95	750115:10	750116:00	1	7	9	0	2	1.3	1	8	7	30	0	0	0
96	501111:19	501112:05	1	10	9	0	2	.9	1	8	8	31	0	0	0
97	581115:07	581117:12	1	5	9	0	5	1.8	1	434	52	16	0	0	0
98	510301:22	510302:11	1	10	8	0	1	.8	1	46	14	26	0	0	0
99	610127:17	610129:19	1	3	8	0	3	2.7	1	200	50	23	0	0	0
100	780302:17	780305:07	1	12	7	0	1	.6	1	162	62	26	0	0	0

OVERALL ORDER STATISTICS AT WALLA WALLA
SORTED BY AMOUNT OF PRECIPITATION

			CHARACTERISTICS OF PRECIP EVENTS IN CLUSTER						CHARACTERISTICS OF FREEZE EVENTS IN CLUSTER						
							INTENSITY								
	START DATE AND HOUR (YYMMDD:HH)	END DATE AND HOUR (YYMMDD:HH)	NO. PRECIP EVENTS	DUR (HRS)	AMOUNT (INX100)	MAX DRY (HRS)	MAXIMUM (IN/HRX100)	AVERAGE (IN/HRX100)	NO. FREEZE EVENTS	FREEZE INDEX (F)	NO. BELOW	MIN. TEMP (F)	THAW INDEX (F)	NO. ABOVE	MAX. TEMP (F)
101	521228:16	521228:19	1	2	7	0	6	3.5	1	8	3	29	0	0	0
102	620310:01	620310:10	1	6	7	0	3	1.2	1	7	7	31	0	0	0
103	590210:21	590211:14	1	11	7	0	1	.6	1	28	17	29	0	0	0
104	760131:05	760206:08	1	7	7	0	2	1.0	1	769	148	11	0	0	0
105	601227:00	601231:10	2	5	7	102	3	1.4	1	570	106	22	0	0	0
106	540124:07	540124:12	1	4	6	0	4	1.5	2	3	2	30	4	3	34
107	560103:12	560103:19	1	5	6	0	2	1.2	1	5	3	30	0	0	0
108	591206:17	591206:23	1	3	6	0	3	2.0	1	18	5	27	0	0	0
109	770127:16	770131:12	1	4	5	0	2	1.3	1	337	93	27	0	0	0
110	490204:03	490204:08	1	3	5	0	2	1.7	2	3	2	30	2	1	34
111	520124:16	520126:13	1	5	5	0	1	1.0	1	399	45	18	0	0	0
112	770113:07	770114:14	1	4	4	0	1	1.0	1	167	32	25	0	0	0
113	561205:01	561208:12	2	3	4	48	2	1.3	1	1508	84	6	0	0	0
114	771209:01	771210:10	1	3	4	0	2	1.3	1	119	32	25	0	0	0
115	491218:22	491220:10	1	10	4	0	1	.4	1	364	36	19	0	0	0
116	520331:19	520401:00	1	5	4	0	2	.8	1	3	3	31	0	0	0
117	641229:12	641229:23	1	2	3	0	2	1.5	1	51	10	25	0	0	0
118	620109:17	620114:05	2	3	3	10	1	1.0	1	770	107	19	0	0	0
119	501213:01	501214:00	2	4	3	10	1	.8	1	26	23	30	0	0	0
120	541212:14	541212:17	1	2	3	0	2	1.5	1	4	3	30	0	0	0
121	551202:00	551203:08	2	4	3	6	1	.8	1	79	33	29	0	0	0
122	551206:07	551206:14	1	2	3	0	2	1.5	1	30	8	27	0	0	0
123	770116:05	770116:19	1	2	2	0	1	1.0	1	39	13	27	0	0	0
124	490108:00	490117:02	2	2	2	12	1	1.0	1	3751	219	4	0	0	0
125	751216:21	751222:10	1	2	2	0	1	1.0	1	439	133	26	0	0	0
126	610101:14	610105:03	1	2	2	0	1	1.0	1	770	86	19	0	0	0
127	620227:17	620228:05	1	2	2	0	1	1.0	1	26	11	28	0	0	0
128	500310:23	500311:14	1	5	2	0	1	.4	1	89	15	20	0	0	0
129	570203:03	570203:14	1	7	2	0	1	.3	1	78	11	18	0	0	0
130	540201:05	540205:05	2	2	2	23	1	1.0	1	143	96	30	0	0	0
131	541217:14	541223:10	2	2	2	22	1	1.0	1	915	140	19	0	0	0
132	770131:16	770203:12	1	1	1	0	1	1.0	1	136	68	29	0	0	0
133	491220:21	491221:16	1	1	1	0	1	1.0	1	169	20	20	0	0	0
134	750126:16	750131:16	1	1	1	0	1	1.0	1	1100	120	11	0	0	0
135	581215:16	581215:21	1	1	1	0	1	1.0	1	6	6	31	0	0	0
136	630105:03	630106:07	1	1	1	0	1	1.0	1	47	27	29	0	0	0
137	520219:06	520219:08	1	1	1	0	1	1.0	1	3	2	30	0	0	0
138	751213:07	751214:10	1	1	1	0	1	1.0	1	125	26	21	0	0	0
139	560305:05	560305:07	1	1	1	0	1	1.0	1	4	3	30	0	0	0
140	620304:23	620305:05	1	1	1	0	1	1.0	1	7	7	31	0	0	0
141	491214:00	491215:08	1	1	1	0	1	1.0	1	105	31	27	0	0	0
142	750201:17	750201:21	1	1	1	0	1	1.0	1	5	3	29	0	0	0
143	620116:17	620124:00	1	1	1	0	1	1.0	1	3009	175	-3	0	0	0
144	630122:19	630125:12	1	1	1	0	1	1.0	1	491	66	16	0	0	0
145	511216:00	511216:16	1	1	1	0	1	1.0	1	57	17	27	0	0	0
146	550124:01	550124:10	1	1	1	0	1	1.0	1	18	9	29	0	0	0
14/	520220:23	520221:10	1	1	1	0	1	1.0	1	27	12	29	0	0	0
148	590207:21	590208:10	1	1	1	0	1	1.0	1	31	13	29	0	0	0
149	570207:03	570208:05	1	1	1	0	1	1.0	1	103	25	26	0	0	0
150	611117:17	611118:08	1	1	1	0	1	1.0	1	63	16	25	0	0	0

OVERALL ORDER STATISTICS AT WALLA WALLA
SORTED BY AMOUNT OF PRECIPITATION

			CHARACTERISTICS OF PRECIP EVENTS IN CLUSTER						CHARACTERISTICS OF FREEZE EVENTS IN CLUSTER						
							INTENSITY								
	START DATE AND HOUR (YYMMDD:HH)	END DATE AND HOUR (YYMMDD:HH)	NO. PRECIP EVENTS	DUR (HRS)	AMOUNT (INX100)	MAX DRY (HRS)	MAXIMUM (IN/HRX100)	AVERAGE (IN/HRX100)	NO. FREEZE EVENTS	FREEZE INDEX (F)	NO. BELOW	MIN. TEMP (F)	THAW INDEX (F)	NO. ABOVE	MAX. TEMP (F)
151	580109:07	580110:10	1	1	1	0	1	1.0	1	71	27	27	0	0	0
152	591207:17	591210:10	1	1	1	0	1	1.0	1	191	66	28	0	0	0

OVERALL ORDER STATISTICS AT PENDLETON
SORTED BY MAXIMUM PRECIPITATION INTENSITY

			CHARACTERISTICS OF PRECIP EVENTS IN CLUSTER						CHARACTERISTICS OF FREEZE EVENTS IN CLUSTER						
							INTENSITY								
	START DATE AND HOUR (YYMMDD:HH)	END DATE AND HOUR (YYMMDD:HH)	NO. PRECIP EVENTS	DUR (HRS)	AMOUNT (INX100)	MAX DRY (HRS)	MAXIMUM (IN/HRX100)	AVERAGE (IN/HRX100)	NO. FREEZE EVENTS	FREEZE INDEX (F)	NO. BELOW	MIN. TEMP (F)	THAW INDEX (F)	NO. ABOVE	MAX. TEMP (F)
1	570131:21	570202:19	1	18	87	0	18	4.8	1	437	39	9	0	0	0
2	690118:00	690131:03	11	79	129	64	17	1.6	1	6455	316	-4	0	0	0
3	501203:15	501207:01	2	56	117	28	17	2.1	1	257	71	24	0	0	0
4	781129:10	781129:23	1	13	46	0	14	3.5	1	1	1	31	0	0	0
5	560114:08	560115:19	1	35	150	0	13	4.3	1	5	5	31	0	0	0
6	641221:00	641222:12	1	37	84	0	13	2.3	1	11	8	30	0	0	0
7	511222:23	511228:21	3	13	28	22	13	2.2	1	1551	142	12	0	0	0
8	530228:21	530301:12	1	5	23	0	13	4.6	1	43	11	25	0	0	0
9	520111:18	520113:22	1	5	28	0	13	5.6	1	286	48	22	0	0	0
10	641223:19	641224:21	1	27	69	0	12	2.6	1	8	4	29	0	0	0
11	611123:01	611129:10	1	59	129	0	12	2.2	1	526	102	21	0	0	0
12	490217:19	490221:13	1	33	101	0	12	3.1	1	392	61	22	0	0	0
13	750124:03	750126:10	1	56	218	0	11	3.9	1	2	2	31	0	0	0
14	551126:08	551129:01	1	23	103	0	11	4.5	1	118	50	28	0	0	0
15	691125:19	691204:01	3	10	43	676	11	4.3	1	984	198	22	0	0	0
16	520215:15	520216:09	1	20	65	0	11	3.3	1	6	6	31	0	0	0
17	630126:17	630202:19	5	91	134	24	11	1.5	1	2002	168	1	0	0	0
18	500101:16	500105:13	1	10	48	0	11	4.8	1	1764	93	-3	0	0	0
19	771118:00	771124:07	4	27	75	62	10	2.8	1	1726	152	10	0	0	0
20	581208:03	581211:16	2	32	146	15	10	4.6	1	162	55	26	0	0	0
21	750109:17	750112:10	2	16	49	17	10	3.1	1	576	56	14	0	0	0
22	551228:16	560101:07	2	6	23	22	10	3.8	1	662	88	18	0	0	0
23	661210:01	661210:10	1	10	20	0	9	2.0	1	2	2	31	0	0	0
24	510206:07	510207:13	2	17	48	14	9	2.8	1	33	20	30	0	0	0
25	730210:00	730210:16	1	10	51	0	9	5.1	1	30	16	29	0	0	0
26	551119:00	551119:14	1	13	59	0	8	4.5	1	10	2	25	0	0	0
27	700115:23	700120:03	6	54	119	12	8	2.2	1	529	100	21	0	0	0
28	501213:03	501214:23	3	12	33	9	8	2.8	1	75	43	29	0	0	0
29	780302:17	780305:10	2	20	37	15	8	1.9	1	271	65	26	0	0	0
30	510304:09	510305:16	1	9	36	0	8	4.0	1	83	23	25	0	0	0
31	631219:19	631220:07	1	4	15	0	8	3.8	1	13	9	29	0	0	0
32	780113:00	780114:05	1	4	14	0	8	3.5	1	30	30	31	0	0	0
33	701231:19	710101:10	1	5	18	0	8	3.6	1	51	11	25	0	0	0
34	781118:17	781128:03	3	50	123	101	8	2.5	1	1379	222	20	0	0	0
35	631130:17	631206:03	3	13	25	63	8	1.9	1	602	125	26	0	0	0
36	630109:14	630114:07	1	8	19	0	7	2.4	1	2584	110	-9	0	0	0
37	731105:07	731106:10	1	27	52	0	7	1.9	1	41	21	29	0	0	0
38	520115:16	520117:09	1	6	23	0	7	3.8	1	318	41	19	0	0	0
39	691231:17	700110:10	4	37	73	108	7	2.0	1	2117	232	12	0	0	0
40	780107:21	780110:19	3	43	86	16	7	2.0	1	93	67	30	0	0	0
41	710304:12	710304:14	1	4	14	0	7	3.5	1	1	1	31	0	0	0
42	780130:16	780131:14	1	2	8	0	7	4.0	1	49	22	28	0	0	0
43	691210:01	691210:23	1	2	10	0	7	5.0	1	78	22	25	0	0	0
44	711206:17	711208:14	1	6	32	0	7	5.3	1	312	43	18	0	0	0
45	560214:16	560218:08	4	23	53	38	6	2.3	1	1441	89	2	0	0	0
46	721202:17	721217:00	7	55	76	111	6	1.4	1	8537	343	-12	0	0	0
47	481213:23	481214:22	1	14	40	0	6	2.9	1	36	23	30	0	0	0
48	681218:21	681223:08	2	10	13	70	6	1.3	2	518	102	20	8	3	36
49	590130:21	590131:10	1	14	25	0	6	1.8	1	1	1	31	0	0	0
50	761220:17	761223:07	1	3	11	0	6	3.7	1	324	61	24	0	0	0

OVERALL ORDER STATISTICS AT PENDLETON
SORTED BY MAXIMUM PRECIPITATION INTENSITY

			CHARACTERISTICS OF PRECIP EVENTS IN CLUSTER						CHARACTERISTICS OF FREEZE EVENTS IN CLUSTER						
	START DATE AND HOUR (YYMMDD:HH)	END DATE AND HOUR (YYMMDD:HH)	NO. PRECIP EVENTS	DUR (HRS)	AMOUNT (INX100)	MAX DRY (HRS)	INTENSITY MAXIMUM (IN/HRX100)	INTENSITY AVERAGE (IN/HRX100)	NO. FREEZE EVENTS	FREEZE INDEX (F)	NO. BELOW	MIN. TEMP (F)	THAW INDEX (F)	NO. ABOVE	MAX. TEMP (F)
51	510126:22	510202:05	3	16	22	113	6	1.4	1	3015	151	-1	0	0	0
52	701208:23	701209:07	1	7	32	0	6	4.6	1	5	5	31	0	0	0
53	550116:01	550116:03	1	1	6	0	6	6.0	1	2	2	31	0	0	0
54	721217:07	721217:14	1	9	21	0	6	2.3	1	1	1	31	0	0	0
55	491209:18	491212:10	2	13	32	51	6	2.5	1	286	61	20	0	0	0
56	641205:19	641208:01	2	6	14	41	6	2.3	1	68	51	30	0	0	0
57	600107:21	600126:08	9	80	102	95	6	1.3	1	5752	442	0	0	0	0
58	641215:12	641220:12	5	36	46	51	6	1.3	2	3115	118	-12	4	3	34
59	551213:00	551220:17	3	31	39	36	6	1.3	1	2351	185	10	0	0	0
60	590210:23	590211:16	1	17	18	0	6	1.1	1	23	15	30	0	0	0
61	550313:19	550314:07	1	8	10	0	6	1.3	1	11	8	30	0	0	0
62	601225:01	601226:08	1	9	16	0	6	1.8	1	103	30	24	0	0	0
63	570112:16	570130:21	9	88	136	149	6	1.5	1	10585	437	-19	0	0	0
64	560112:17	560113:05	1	6	15	0	6	2.5	1	16	9	30	0	0	0
65	781217:16	781220:01	1	8	18	0	5	2.3	1	343	58	16	0	0	0
66	511219:07	511220:13	2	12	11	9	5	.9	1	167	26	22	0	0	0
67	700111:17	700112:21	1	14	24	0	5	1.7	1	56	14	25	0	0	0
68	590120:07	590122:19	3	18	20	22	5	1.1	1	266	59	24	0	0	0
69	750204:17	750210:05	4	32	31	23	5	1.0	1	638	131	22	0	0	0
70	500123:17	500206:06	9	50	76	157	5	1.5	1	9582	324	-17	0	0	0
71	650110:05	650120:16	5	20	37	139	5	1.9	1	959	251	18	0	0	0
72	551203:21	551205:21	1	7	9	0	5	1.3	2	218	44	23	21	3	42
73	761229:19	770113:07	3	26	43	237	5	1.7	1	4900	346	2	0	0	0
74	610128:17	610130:01	1	18	21	0	5	1.2	1	52	27	28	0	0	0
75	720125:00	720206:14	9	57	61	117	5	1.1	1	5800	302	-5	0	0	0
76	590217:17	590220:23	3	21	26	15	5	1.2	1	223	74	26	0	0	0
77	780131:19	780201:17	1	6	8	0	5	1.3	1	32	18	30	0	0	0
78	620117:07	620124:05	1	20	30	0	5	1.5	1	3363	166	-9	0	0	0
79	650316:14	650317:14	1	8	8	0	4	1.0	1	93	17	20	0	0	0
80	500112:16	500120:22	10	59	58	24	4	1.0	1	5164	198	-6	0	0	0
81	731229:03	731229:21	1	19	36	0	4	1.9	1	17	12	30	0	0	0
82	550130:21	550131:19	1	20	18	0	4	.9	1	10	10	31	0	0	0
83	681227:21	690104:17	7	44	68	37	4	1.5	1	4769	186	-11	0	0	0
84	521220:00	521220:11	1	12	26	0	4	2.2	1	8	7	30	0	0	0
85	781205:14	781209:12	1	8	10	0	4	1.3	1	936	90	10	0	0	0
86	571231:14	580109:05	1	6	12	0	4	2.0	1	1207	207	19	0	0	0
87	641226:14	641226:17	1	4	13	0	4	3.3	1	7	3	29	0	0	0
88	490314:21	490316:05	1	26	22	0	4	.8	1	21	14	30	0	0	0
89	731231:17	740113:03	2	4	10	111	4	2.5	1	7261	297	-7	0	0	0
90	551120:14	551121:08	1	14	23	0	4	1.6	1	37	14	28	0	0	0
91	700228:05	700302:07	1	38	47	0	4	1.2	1	257	50	21	0	0	0
92	510302:17	510303:21	1	10	15	0	4	1.5	2	54	20	26	1	1	33
93	650122:21	650124:00	1	11	29	0	4	2.6	1	70	27	29	0	0	0
94	591219:17	591224:21	2	16	27	29	4	1.7	1	331	116	25	0	0	0
95	691204:21	691209:07	2	17	20	45	4	1.2	1	370	106	23	0	0	0
96	520121:17	520126:08	2	15	24	12	4	1.6	1	897	110	11	0	0	0
97	711225:19	711230:21	2	22	38	92	4	1.7	1	1238	122	15	0	0	0
98	550226:01	550228:00	3	6	13	18	4	2.2	1	288	44	19	0	0	0
99	690116:23	690117:05	1	7	10	0	4	1.4	1	5	5	31	0	0	0
100	501111:18	501112:09	1	10	20	0	4	2.0	1	25	15	30	0	0	0

OVERALL ORDER STATISTICS AT PENDLETON
SORTED BY MAXIMUM PRECIPITATION INTENSITY

			CHARACTERISTICS OF PRECIP EVENTS IN CLUSTER						CHARACTERISTICS OF FREEZE EVENTS IN CLUSTER						
							INTENSITY								
	START DATE AND HOUR (YYMMDD:HH)	END DATE AND HOUR (YYMMDD:HH)	NO. PRECIP EVENTS	DUR (HRS)	AMOUNT (INX100)	MAX DRY (HRS)	MAXIMUM (IN/HRX100)	AVERAGE (IN/HRX100)	NO. FREEZE EVENTS	FREEZE INDEX (F)	NO. BELOW	MIN. TEMP (F)	THAW INDEX (F)	NO. ABOVE	MAX. TEMP (F)
101	701121:14	701124:08	2	22	37	17	4	1.7	1	813	61	8	0	0	0
102	590101:23	590107:03	2	17	26	64	4	1.5	1	2501	124	-1	0	0	0
103	690111:19	690114:03	2	26	26	11	4	1.0	1	242	56	21	0	0	0
104	600301:17	600306:08	3	60	78	20	4	1.3	1	1125	109	14	0	0	0
105	591227:16	600104:08	4	11	14	11	4	1.3	1	1528	185	13	0	0	0
106	601214:19	601218:16	2	15	21	20	4	1.4	1	400	92	25	0	0	0
107	780217:19	780218:03	1	5	8	0	3	1.6	1	3	3	31	0	0	0
108	540115:10	540117:23	2	22	30	21	3	1.4	1	669	53	14	0	0	0
109	670125:00	670125:05	1	2	5	0	3	2.5	1	5	5	31	0	0	0
110	560125:14	560206:08	5	23	37	155	3	1.6	1	5073	282	-9	0	0	0
111	751127:17	751130:03	2	7	12	31	3	1.7	1	429	58	17	0	0	0
112	521122:16	521202:08	1	5	8	0	3	1.6	1	2311	232	15	0	0	0
113	720209:17	720211:10	1	3	6	0	3	2.0	1	118	39	28	0	0	0
114	581206:00	581206:12	1	8	10	0	3	1.3	1	29	12	29	0	0	0
115	730102:21	730112:08	2	30	27	127	3	.9	1	4077	228	-5	0	0	0
116	540201:03	540212:00	3	9	12	53	3	1.3	1	724	257	25	0	0	0
117	631208:19	631216:10	4	18	24	117	3	1.3	1	1277	179	10	0	0	0
118	551202:14	551203:10	1	6	13	0	3	2.2	1	47	19	29	0	0	0
119	691225:21	691226:10	1	9	12	0	3	1.3	1	7	7	31	0	0	0
120	551111:17	551118:21	6	42	40	70	3	1.0	1	3590	171	-5	0	0	0
121	660123:19	660127:14	1	7	10	0	3	1.4	1	490	90	22	0	0	0
122	550105:12	550111:03	2	16	19	95	3	1.2	1	789	135	23	0	0	0
123	710101:17	710107:08	1	8	15	0	3	1.9	1	1327	136	13	0	0	0
124	650325:21	650326:10	1	13	15	0	3	1.2	1	4	3	30	0	0	0
125	690222:23	690223:14	1	2	5	0	3	2.5	1	28	15	29	0	0	0
126	490101:02	490101:11	1	4	5	0	2	1.3	1	11	7	30	0	0	0
127	771208:19	771210:10	1	2	3	0	2	1.5	1	110	39	26	0	0	0
128	611208:17	611215:21	5	16	18	34	2	1.1	1	2100	171	3	0	0	0
129	641227:07	641227:10	1	1	2	0	2	2.0	1	10	3	28	0	0	0
130	511209:15	511209:21	1	2	3	0	2	1.5	1	16	6	27	0	0	0
131	760201:01	760206:23	1	4	5	0	2	1.3	1	1154	142	7	0	0	0
132	570110:07	570110:08	1	3	4	0	2	1.3	1	1	1	31	0	0	0
133	710227:00	710227:07	1	1	2	0	2	2.0	1	31	8	26	0	0	0
134	491231:18	500101:11	1	4	6	0	2	1.5	1	45	17	28	0	0	0
135	671218:03	671221:14	2	16	19	33	2	1.2	1	957	83	12	0	0	0
136	591115:03	591119:05	1	4	8	0	2	2.0	1	1264	98	5	0	0	0
137	690114:17	690115:10	1	1	2	0	2	2.0	1	102	17	20	0	0	0
138	520222:22	520223:11	1	5	5	0	2	1.0	1	51	14	26	0	0	0
139	670105:05	670105:07	1	1	2	0	2	2.0	1	2	2	31	0	0	0
140	550319:00	550319:08	1	2	3	0	2	1.5	1	31	9	24	0	0	0
141	710111:17	710113:07	1	13	13	0	2	1.0	1	112	35	25	0	0	0
142	481209:01	481209:23	1	7	6	0	2	.9	1	37	15	28	0	0	0
143	680102:00	680103:10	1	4	5	0	2	1.3	1	172	33	23	0	0	0
144	620228:19	620301:01	1	1	2	0	2	2.0	1	30	7	26	0	0	0
145	690205:03	690205:12	1	6	9	0	2	1.5	1	10	5	29	0	0	0
146	490202:14	490204:00	1	1	2	0	2	2.0	1	308	35	11	0	0	0
147	671127:17	671128:12	1	5	7	0	2	1.4	1	86	20	26	0	0	0
148	540118:01	540121:23	1	1	2	0	2	2.0	1	2013	94	-4	0	0	0
149	720102:10	720104:07	1	2	3	0	2	1.5	1	360	44	15	0	0	0
150	490118:16	490202:11	4	25	12	133	2	.5	1	6357	355	-6	0	0	0

OVERALL ORDER STATISTICS AT PENDLETON
SORTED BY MAXIMUM PRECIPITATION INTENSITY

			CHARACTERISTICS OF PRECIP EVENTS IN CLUSTER						CHARACTERISTICS OF FREEZE EVENTS IN CLUSTER						
	START DATE AND HOUR (YYMMDD:HH)	END DATE AND HOUR (YYMMDD:HH)	NO. PRECIP EVENTS	DUR (HRS)	AMOUNT (INX100)	MAX DRY (HRS)	INTENSITY MAXIMUM (IN/HRX100)	INTENSITY AVERAGE (IN/HRX100)	NO. FREEZE EVENTS	FREEZE INDEX (F)	NO. BELOW	MIN. TEMP (F)	THAW INDEX (F)	NO. ABOVE	MAX. TEMP (F)
151	670106:03	670106:07	1	5	5	0	2	1.0	1	1	1	31	0	0	0
152	570218:19	570223:19	3	29	27	32	2	.9	1	1197	120	7	0	0	0
153	711106:19	711107:10	1	1	2	0	2	2.0	1	56	15	26	0	0	0
154	500107:22	500108:21	1	3	4	0	2	1.3	1	96	23	26	0	0	0
155	550104:12	550105:12	1	2	3	0	2	1.5	1	87	23	25	0	0	0
156	601227:05	601231:12	1	8	4	0	2	.5	1	557	102	24	0	0	0
157	550102:07	550103:10	1	1	2	0	2	2.0	1	104	27	24	0	0	0
158	591207:19	591210:14	1	1	2	0	2	2.0	1	342	67	24	0	0	0
159	540124:10	540124:12	1	1	2	0	2	2.0	1	2	1	30	0	0	0
160	620109:17	620114:07	2	6	9	17	2	1.5	1	789	110	17	0	0	0
161	770127:17	770208:03	3	8	7	28	1	.9	1	814	274	25	0	0	0
162	510110:09	510110:23	1	8	4	0	1	.5	1	26	13	28	0	0	0
163	640113:16	640113:23	1	7	2	0	1	.3	1	2	2	31	0	0	0
164	561123:19	561202:10	1	2	2	0	1	1.0	1	1058	207	24	0	0	0
165	730211:12	730215:05	1	1	1	0	1	1.0	1	334	88	20	0	0	0
166	511229:15	520105:15	3	9	5	81	1	.6	1	2838	168	4	0	0	0
167	690224:21	690225:16	2	5	4	14	1	.8	1	26	17	29	0	0	0
168	581115:03	581115:12	1	7	4	0	1	.6	1	22	9	28	0	0	0
169	750127:16	750131:03	1	1	1	0	1	1.0	1	496	83	21	0	0	0
170	510301:19	510302:10	1	8	3	0	1	.4	1	54	15	25	0	0	0
171	661226:05	661226:23	1	1	1	0	1	1.0	1	49	18	25	0	0	0
172	550324:21	550325:10	1	2	2	0	1	1.0	1	51	13	24	0	0	0
173	751118:00	751120:12	1	8	4	0	1	.5	1	182	60	26	0	0	0
174	530106:00	530106:05	1	1	1	0	1	1.0	1	5	5	31	0	0	0
175	701220:23	701223:08	2	6	4	16	1	.7	1	308	57	17	0	0	0
176	591218:01	591218:10	1	1	1	0	1	1.0	1	20	8	27	0	0	0
177	751218:17	751222:12	1	1	1	0	1	1.0	1	211	90	29	0	0	0
178	500210:00	500210:09	1	1	1	0	1	1.0	1	24	10	28	0	0	0
179	641225:05	641226:12	1	5	2	0	1	.4	1	136	32	24	0	0	0
180	561225:03	570101:19	2	2	2	136	1	1.0	1	907	184	24	0	0	0
181	690201:00	690201:10	1	1	1	0	1	1.0	1	15	10	30	0	0	0
182	520220:18	520221:09	1	1	1	0	1	1.0	1	40	15	28	0	0	0
183	680112:21	680112:23	1	2	2	0	1	1.0	1	2	2	31	0	0	0
184	591112:12	591114:14	1	1	1	0	1	1.0	1	537	49	9	0	0	0
185	700113:00	700113:05	1	1	1	0	1	1.0	1	5	5	31	0	0	0
186	511123:22	511125:08	1	6	2	0	1	.3	1	54	34	29	0	0	0
187	630123:17	630125:12	2	2	2	6	1	1.0	1	261	44	22	0	0	0
188	550303:05	550303:07	1	1	1	0	1	1.0	1	4	2	30	0	0	0
189	650324:17	650325:12	1	4	3	0	1	.8	1	100	19	23	0	0	0
190	521222:22	521226:22	2	2	2	54	1	1.0	1	656	96	20	0	0	0
191	641229:14	641229:16	1	2	2	0	1	1.0	1	2	2	31	0	0	0
192	601221:14	601224:16	1	1	1	0	1	1.0	1	290	74	26	0	0	0
193	660121:17	660123:01	1	6	3	0	1	.5	1	96	32	27	0	0	0
194	500310:18	500312:08	1	1	1	0	1	1.0	1	196	37	17	0	0	0
195	660117:05	660121:03	1	1	1	0	1	1.0	1	368	93	19	0	0	0
196	560305:21	560306:07	1	1	1	0	1	1.0	1	28	10	27	0	0	0
197	540111:05	540113:03	1	2	2	0	1	1.0	1	140	47	26	0	0	0
198	570207:16	570208:03	1	1	1	0	1	1.0	1	33	12	27	0	0	0
199	511210:16	511215:08	1	1	1	0	1	1.0	1	704	112	20	0	0	0
200	561205:03	561208:12	1	3	3	0	1	1.0	1	1416	81	8	0	0	0

OVERALL ORDER STATISTICS AT PENDLETON
SORTED BY MAXIMUM PRECIPITATION INTENSITY

			CHARACTERISTICS OF PRECIP EVENTS IN CLUSTER						CHARACTERISTICS OF FREEZE EVENTS IN CLUSTER						
							INTENSITY								
	START DATE AND HOUR (YYMMDD:HH)	END DATE AND HOUR (YYMMDD:HH)	NO. PRECIP EVENTS	DUR (HRS)	AMOUNT (INX100)	MAX DRY (HRS)	MAXIMUM (IN/HRX100)	AVERAGE (IN/HRX100)	NO. FREEZE EVENTS	FREEZE INDEX (F)	NO. BELOW	MIN. TEMP (F)	THAW INDEX (F)	NO. ABOVE	MAX. TEMP (F)
201	511206:18	511207:09	1	1	1	0	1	1.0	1	94	15	22	0	0	0
202	591130:23	591202:07	1	1	1	0	1	1.0	1	88	32	26	0	0	0
203	591202:19	591202:19	1	1	1	0	1	1.0	1	1	1	31	0	0	0

OVERALL ORDER STATISTICS AT WALLA WALLA
SORTED BY MAXIMUM PRECIPITATION INTENSITY

			CHARACTERISTICS OF PRECIP EVENTS IN CLUSTER						CHARACTERISTICS OF FREEZE EVENTS IN CLUSTER						
							INTENSITY								
	START DATE AND HOUR (YYMMDD:HH)	END DATE AND HOUR (YYMMDD:HH)	NO. PRECIP EVENTS	DUR (HRS)	AMOUNT (INX100)	MAX DRY (HRS)	MAXIMUM (IN/HRX100)	AVERAGE (IN/HRX100)	NO. FREEZE EVENTS	FREEZE INDEX (F)	NO. BELOW	MIN. TEMP (F)	THAW INDEX (F)	NO. ABOVE	MAX. TEMP (F)
1	590120:12	590124:05	2	48	110	11	18	2.3	1	284	51	22	0	0	0
2	501203:14	501207:02	2	63	151	23	18	2.4	2	249	66	25	4	3	34
3	560114:10	560115:19	1	34	154	0	15	4.5	2	14	14	31	2	1	34
4	570305:23	570307:12	1	31	68	0	12	2.2	1	10	10	31	0	0	0
5	551201:07	551201:17	1	11	34	0	12	3.1	1	4	2	30	0	0	0
6	641223:21	641224:10	1	12	67	0	11	5.6	1	17	5	27	0	0	0
7	581207:23	581211:16	3	33	149	16	11	4.5	1	236	68	26	0	0	0
8	650122:21	650124:05	1	25	66	0	10	2.6	1	74	25	27	0	0	0
9	491209:17	491212:08	2	11	45	52	10	4.1	1	203	54	23	0	0	0
10	570112:16	570130:17	7	85	137	163	10	1.6	1	10325	434	-15	0	0	0
11	511222:21	511228:10	3	26	41	11	10	1.6	1	1536	134	14	0	0	0
12	551126:07	551129:03	1	22	109	0	10	5.0	1	131	52	28	0	0	0
13	781209:05	781209:12	1	9	20	0	9	2.2	1	1	1	31	0	0	0
14	510206:01	510207:13	1	31	62	0	9	2.0	1	83	33	27	0	0	0
15	641221:01	641221:17	1	14	59	0	9	4.2	1	62	16	27	0	0	0
16	560222:21	560223:05	1	9	24	0	9	2.7	1	2	2	31	0	0	0
17	641226:23	641227:10	1	2	17	0	9	8.5	1	58	12	25	0	0	0
18	490218:16	490221:09	1	20	71	0	8	3.6	1	329	59	22	0	0	0
19	781126:21	781128:03	1	12	43	0	8	3.6	1	35	24	29	0	0	0
20	601225:03	601226:07	1	3	20	0	8	6.7	1	79	29	27	0	0	0
21	761220:16	761223:10	1	9	32	0	8	3.6	1	268	61	26	0	0	0
22	550102:07	550103:10	1	3	16	0	8	5.3	1	80	26	24	0	0	0
23	641215:14	641220:12	3	15	35	69	8	2.3	1	2869	119	-5	0	0	0
24	570131:23	570202:23	1	11	55	0	8	5.0	1	373	43	13	0	0	0
25	540127:10	540129:03	1	42	95	0	7	2.3	1	10	8	30	0	0	0
26	551111:14	551119:14	6	71	136	68	7	1.9	1	3522	179	-4	0	0	0
27	490221:10	490221:21	1	11	17	0	7	1.5	1	3	3	31	0	0	0
28	560124:21	560210:07	6	32	72	165	7	2.3	1	6223	393	-8	0	0	0
29	520215:15	520216:08	1	17	57	0	7	3.4	1	13	11	30	0	0	0
30	771222:21	780105:07	9	96	136	89	6	1.4	1	3314	322	2	0	0	0
31	571231:00	580105:12	2	16	26	132	6	1.6	1	720	133	23	0	0	0
32	761229:12	770113:05	12	39	65	106	6	1.7	1	4849	353	-2	0	0	0
33	490206:10	490206:14	1	4	18	0	6	4.5	1	1	1	31	0	0	0
34	781210:03	781211:07	1	12	47	0	6	3.9	1	53	18	28	0	0	0
35	560214:19	560219:07	3	21	76	43	6	3.6	1	1728	108	1	0	0	0
36	500123:18	500206:05	8	61	105	156	6	1.7	1	9672	322	-16	0	0	0
37	611123:03	611129:12	2	64	148	16	6	2.3	2	596	111	18	7	5	35
38	521220:01	521220:19	1	19	46	0	6	2.4	1	7	6	30	0	0	0
39	600109:17	600112:14	2	17	43	11	6	2.5	1	819	69	11	0	0	0
40	521228:16	521228:19	1	2	7	0	6	3.5	1	8	3	29	0	0	0
41	540115:17	540122:19	5	39	69	56	6	1.8	1	3132	166	-6	0	0	0
42	620228:19	620301:07	1	5	18	0	5	3.6	1	44	12	25	0	0	0
43	561224:19	570101:23	2	7	24	49	5	3.4	1	755	193	26	0	0	0
44	781118:19	781123:07	2	30	79	6	5	2.6	1	752	108	21	0	0	0
45	500107:16	500108:22	1	3	12	0	5	4.0	1	140	29	25	0	0	0
46	590130:14	590131:07	1	18	28	0	5	1.6	1	8	8	31	0	0	0
47	520111:16	520112:09	1	8	27	0	5	3.4	1	62	17	22	0	0	0
48	590101:23	590107:12	2	22	48	65	5	2.2	1	2546	134	-1	0	0	0
49	500112:16	500121:00	10	82	123	23	5	1.5	1	5296	198	-7	0	0	0
50	581115:07	581117:12	1	5	9	0	5	1.8	1	434	52	16	0	0	0

OVERALL ORDER STATISTICS AT WALLA WALLA
SORTED BY MAXIMUM PRECIPITATION INTENSITY

			CHARACTERISTICS OF PRECIP EVENTS IN CLUSTER						CHARACTERISTICS OF FREEZE EVENTS IN CLUSTER						
							INTENSITY								
	START DATE AND HOUR (YYMMDD:HH)	END DATE AND HOUR (YYMMDD:HH)	NO. PRECIP EVENTS	DUR (HRS)	AMOUNT (INX100)	MAX DRY (HRS)	MAXIMUM (IN/HRX100)	AVERAGE (IN/HRX100)	NO. FREEZE EVENTS	FREEZE INDEX (F)	NO. BELOW	MIN. TEMP (F)	THAW INDEX (F)	NO. ABOVE	MAX. TEMP (F)
51	520115:06	520117:09	1	5	16	0	5	3.2	1	399	52	19	0	0	0
52	581206:01	581206:12	1	6	13	0	5	2.2	1	26	11	29	0	0	0
53	751128:01	751130:14	2	12	17	36	4	1.4	2	337	56	21	24	5	40
54	490315:00	490315:21	1	12	24	0	4	2.0	1	26	12	28	0	0	0
55	771118:10	771124:01	2	51	66	6	4	1.3	1	1194	134	11	0	0	0
56	551203:21	551205:19	1	9	10	0	4	1.1	2	174	41	25	29	3	45
57	650109:21	650111:10	1	24	33	0	4	1.4	1	114	37	26	0	0	0
58	510302:18	510303:21	1	10	20	0	4	2.0	1	39	19	28	0	0	0
59	780130:19	780202:00	2	24	32	13	4	1.3	3	112	48	28	2	2	33
60	600301:17	600305:21	5	37	58	20	4	1.6	1	946	100	17	0	0	0
61	630126:16	630201:05	4	38	83	29	4	2.2	1	1833	134	3	0	0	0
62	521121:16	521202:06	3	15	21	96	4	1.4	1	2372	249	14	0	0	0
63	630201:08	630203:00	2	11	29	8	4	2.6	1	259	39	23	0	0	0
64	551212:23	551220:14	3	38	57	37	4	1.5	1	2245	184	10	0	0	0
65	510109:16	510110:22	1	7	19	0	4	2.7	1	74	30	27	0	0	0
66	590217:19	590219:10	2	24	33	15	4	1.4	1	100	35	28	0	0	0
67	540124:07	540124:12	1	4	6	0	4	1.5	2	3	2	30	4	3	34
68	570108:21	570109:08	1	7	14	0	4	2.0	2	18	10	29	1	1	33
69	510224:23	510225:07	1	7	13	0	4	1.9	1	3	3	31	0	0	0
70	600107:19	600108:14	1	18	31	0	4	1.7	1	58	19	27	0	0	0
71	601214:03	601218:17	3	22	47	16	4	2.1	1	409	109	24	0	0	0
72	740101:07	740113:05	5	22	25	80	3	1.1	1	8028	285	-10	0	0	0
73	520121:16	520124:14	3	39	45	10	3	1.2	1	525	69	18	0	0	0
74	641225:01	641226:17	2	15	13	6	3	.9	1	306	39	20	0	0	0
75	540206:21	540212:12	2	14	17	59	3	1.2	1	488	136	25	0	0	0
76	750204:08	750210:03	4	29	41	54	3	1.4	1	1041	135	17	0	0	0
77	591206:17	591206:23	1	3	6	0	3	2.0	1	18	5	27	0	0	0
78	620310:01	620310:10	1	6	7	0	3	1.2	1	7	7	31	0	0	0
79	551228:16	560101:17	2	7	11	22	3	1.6	1	773	97	16	0	0	0
80	750109:17	750110:10	1	13	30	0	3	2.3	1	11	6	28	0	0	0
81	611207:21	611216:01	4	34	33	56	3	1.0	1	2249	197	2	0	0	0
82	551122:17	551123:14	2	11	20	56	3	1.8	2	67	18	26	2	1	34
83	600112:16	600126:08	5	35	38	129	3	1.1	1	4211	329	7	0	0	0
84	570218:19	570224:00	4	29	43	36	3	1.5	1	1016	120	9	0	0	0
85	610127:17	610129:19	1	3	8	0	3	2.7	1	200	50	23	0	0	0
86	550122:00	550122:12	1	8	13	0	3	1.6	1	28	12	28	0	0	0
87	601227:00	601231:10	2	5	7	102	3	1.4	1	570	106	22	0	0	0
88	591227:05	600105:05	1	38	33	0	3	.9	1	1523	215	11	0	0	0
89	770127:16	770131:12	1	4	5	0	2	1.3	1	337	93	27	0	0	0
90	490118:18	490203:22	5	26	23	185	2	.9	1	6906	387	-4	0	0	0
91	641229:12	641229:23	1	2	3	0	2	1.5	1	51	10	25	0	0	0
92	560103:12	560103:19	1	5	6	0	2	1.2	1	5	3	30	0	0	0
93	771209:01	771210:10	1	3	4	0	2	1.3	1	119	32	25	0	0	0
94	501111:19	501112:05	1	10	9	0	2	.9	1	8	8	31	0	0	0
95	751211:19	751212:14	1	10	13	0	2	1.3	1	33	18	29	0	0	0
96	591115:03	591119:03	2	11	11	78	2	1.0	1	1170	95	5	0	0	0
97	750112:19	750113:19	1	5	10	0	2	2.0	1	71	24	28	0	0	0
98	500101:16	500105:13	3	19	26	31	2	1.4	1	1778	92	1	0	0	0
99	760131:05	760206:08	1	7	7	0	2	1.0	1	769	148	11	0	0	0
100	551206:07	551206:14	1	2	3	0	2	1.5	1	30	8	27	0	0	0

OVERALL ORDER STATISTICS AT WALLA WALLA
SORTED BY MAXIMUM PRECIPITATION INTENSITY

			CHARACTERISTICS OF PRECIP EVENTS IN CLUSTER						CHARACTERISTICS OF FREEZE EVENTS IN CLUSTER						
	START DATE AND HOUR (YYMMDD:HH)	END DATE AND HOUR (YYMMDD:HH)	NO. PRECIP EVENTS	DUR (HRS)	AMOUNT (INX100)	MAX DRY (HRS)	INTENSITY MAXIMUM (IN/HRX100)	INTENSITY AVERAGE (IN/HRX100)	NO. FREEZE EVENTS	FREEZE INDEX (F)	NO. BELOW	MIN. TEMP (F)	THAW INDEX (F)	NO. ABOVE	MAX. TEMP (F)
101	750115:10	750116:00	1	7	9	0	2	1.3	1	8	7	30	0	0	0
102	520331:19	520401:00	1	5	4	0	2	.8	1	3	3	31	0	0	0
103	751212:21	751213:05	1	9	11	0	2	1.2	1	4	3	30	0	0	0
104	620206:03	620207:05	1	8	15	0	2	1.9	1	42	26	28	0	0	0
105	490204:03	490204:08	1	3	5	0	2	1.7	2	3	2	30	2	1	34
106	561205:01	561208:12	2	3	4	48	2	1.3	1	1508	84	6	0	0	0
107	510126:22	510202:10	2	17	19	119	2	1.1	1	2943	157	2	0	0	0
108	541212:14	541212:17	1	2	3	0	2	1.5	1	4	3	30	0	0	0
109	511229:22	520105:19	6	21	16	54	2	.8	1	2817	166	6	0	0	0
110	550226:00	550227:23	2	15	26	14	2	1.7	1	295	42	20	0	0	0
111	500210:02	500210:18	1	10	12	0	2	1.2	1	24	14	29	0	0	0
112	550103:17	550111:01	3	27	25	102	2	.9	1	1008	176	19	0	0	0
113	770131:16	770203:12	1	1	1	0	1	1.0	1	136	68	29	0	0	0
114	491214:00	491215:08	1	1	1	0	1	1.0	1	105	31	27	0	0	0
115	630105:03	630106:07	1	1	1	0	1	1.0	1	47	27	29	0	0	0
116	580109:07	580110:10	1	1	1	0	1	1.0	1	71	27	27	0	0	0
117	780302:17	780305:07	1	12	7	0	1	.6	1	162	62	26	0	0	0
118	520220:23	520221:10	1	1	1	0	1	1.0	1	27	12	29	0	0	0
119	750126:16	750131:16	1	1	1	0	1	1.0	1	1100	120	11	0	0	0
120	560305:05	560305:07	1	1	1	0	1	1.0	1	4	3	30	0	0	0
121	770116:05	770116:19	1	2	2	0	1	1.0	1	39	13	27	0	0	0
122	490108:00	490117:02	2	2	2	12	1	1.0	1	3751	219	4	0	0	0
123	620227:17	620228:05	1	2	2	0	1	1.0	1	26	11	28	0	0	0
124	611117:17	611118:08	1	1	1	0	1	1.0	1	63	16	25	0	0	0
125	770113:07	770114:14	1	4	4	0	1	1.0	1	167	32	25	0	0	0
126	511216:00	511216:16	1	1	1	0	1	1.0	1	57	17	27	0	0	0
127	630122:19	630125:12	1	1	1	0	1	1.0	1	491	66	16	0	0	0
128	551202:00	551203:08	2	4	3	6	1	.8	1	79	33	29	0	0	0
129	750201:17	750201:21	1	1	1	0	1	1.0	1	5	3	29	0	0	0
130	491220:21	491221:16	1	1	1	0	1	1.0	1	169	20	20	0	0	0
131	620304:23	620305:05	1	1	1	0	1	1.0	1	7	7	31	0	0	0
132	590207:21	590208:10	1	1	1	0	1	1.0	1	31	13	29	0	0	0
133	751213:07	751214:10	1	1	1	0	1	1.0	1	125	26	21	0	0	0
134	520219:06	520219:08	1	1	1	0	1	1.0	1	3	2	30	0	0	0
135	751216:21	751222:10	1	2	2	0	1	1.0	1	439	133	26	0	0	0
136	570203:03	570203:14	1	7	2	0	1	.3	1	78	11	18	0	0	0
137	491218:22	491220:10	1	10	4	0	1	.4	1	364	36	19	0	0	0
138	620109:17	620114:05	2	3	3	10	1	1.0	1	770	107	19	0	0	0
139	501213:01	501214:00	2	4	3	10	1	.8	1	26	23	30	0	0	0
140	540201:05	540205:05	2	2	2	23	1	1.0	1	143	96	30	0	0	0
141	520124:16	520126:13	1	5	5	0	1	1.0	1	399	45	18	0	0	0
142	581215:16	581215:21	1	1	1	0	1	1.0	1	6	6	31	0	0	0
143	510301:22	510302:11	1	10	8	0	1	.8	1	46	14	26	0	0	0
144	570207:03	570208:05	1	1	1	0	1	1.0	1	103	25	26	0	0	0
145	500310:23	500311:14	1	5	2	0	1	.4	1	89	15	20	0	0	0
146	610101:14	610105:03	1	2	2	0	1	1.0	1	770	86	19	0	0	0
147	511219:03	511221:08	2	30	25	6	1	.8	1	512	52	15	0	0	0
148	550124:01	550124:10	1	1	1	0	1	1.0	1	18	9	29	0	0	0
149	591207:17	591210:10	1	1	1	0	1	1.0	1	191	66	28	0	0	0
150	541217:14	541223:10	2	2	2	22	1	1.0	1	915	140	19	0	0	0

OVERALL ORDER STATISTICS AT WALLA WALLA
SORTED BY MAXIMUM PRECIPITATION INTENSITY

			CHARACTERISTICS OF PRECIP EVENTS IN CLUSTER						CHARACTERISTICS OF FREEZE EVENTS IN CLUSTER						
							INTENSITY								
	START DATE AND HOUR (YYMMDD:HH)	END DATE AND HOUR (YYMMDD:HH)	NO. PRECIP EVENTS	DUR (HRS)	AMOUNT (INX100)	MAX DRY (HRS)	MAXIMUM (IN/HRX100)	AVERAGE (IN/HRX100)	NO. FREEZE EVENTS	FREEZE INDEX (F)	NO. BELOW	MIN. TEMP (F)	THAW INDEX (F)	NO. ABOVE	MAX. TEMP (F)
151	620116:17	620124:00	1	1	1	0	1	1.0	1	3009	175	-3	0	0	0
152	590210:21	590211:14	1	11	7	0	1	.6	1	28	17	29	0	0	0

OVERALL ORDER STATISTICS AT PENDLETON
SORTED BY FREEZE INDEX

			CHARACTERISTICS OF PRECIP EVENTS IN CLUSTER						CHARACTERISTICS OF FREEZE EVENTS IN CLUSTER					
							INTENSITY							
	START DATE AND HOUR (YYMMDD:HH)	END DATE AND HOUR (YYMMDD:HH)	NO. PRECIP EVENTS	DUR (HRS)	AMOUNT (INX100)	MAX DRY (HRS)	MAXIMUM (IN/HRX100)	AVERAGE (IN/HRX100)	NO. FREEZE EVENTS	FREEZE INDEX (F)	NO. BELOW	MIN. TEMP (F)	THAW INDEX (F)	NO. ABOVE	MAX. TEMP (F)
1	570112:16	570130:21	9	88	136	149	6	1.5	1	10585	437	-19	0	0	0
2	500123:17	500206:06	9	50	76	157	5	1.5	1	9582	324	-17	0	0	0
3	721202:17	721217:00	7	55	76	111	6	1.4	1	8537	343	-12	0	0	0
4	731231:17	740113:03	2	4	10	111	4	2.5	1	7261	297	-7	0	0	0
5	690118:00	690131:03	11	79	129	64	17	1.6	1	6455	316	-4	0	0	0
6	490118:16	490202:11	4	25	12	133	2	.5	1	6357	355	-6	0	0	0
7	720125:00	720206:14	9	57	61	117	5	1.1	1	5800	302	-5	0	0	0
8	600107:21	600126:08	9	80	102	95	6	1.3	1	5752	442	0	0	0	0
9	500112:16	500120:22	10	59	58	24	4	1.0	1	5164	198	-6	0	0	0
10	560125:14	560206:08	5	23	37	155	3	1.6	1	5073	282	-9	0	0	0
11	761229:19	770113:07	3	26	43	237	5	1.7	1	4900	346	2	0	0	0
12	681227:21	690104:17	7	44	68	37	4	1.5	1	4769	186	-11	0	0	0
13	730102:21	730112:08	2	30	27	127	3	.9	1	4077	228	-5	0	0	0
14	551111:17	551118:21	6	42	40	70	3	1.0	1	3590	171	-5	0	0	0
15	620117:07	620124:05	1	20	30	0	5	1.5	1	3363	166	-9	0	0	0
16	641215:12	641220:12	5	36	46	51	6	1.3	2	3115	118	-12	4	3	34
17	510126:22	510202:05	3	16	22	113	6	1.4	1	3015	151	-1	0	0	0
18	511229:15	520105:15	3	9	5	81	1	.6	1	2838	168	4	0	0	0
19	630109:14	630114:07	1	8	19	0	7	2.4	1	2584	110	-9	0	0	0
20	590101:23	590107:03	2	17	26	64	4	1.5	1	2501	124	-1	0	0	0
21	551213:00	551220:17	3	31	39	36	6	1.3	1	2351	185	10	0	0	0
22	521122:16	521202:08	1	5	8	0	3	1.6	1	2311	232	15	0	0	0
23	691231:17	700110:10	4	37	73	108	7	2.0	1	2117	232	12	0	0	0
24	611208:17	611215:21	5	16	18	34	2	1.1	1	2100	171	3	0	0	0
25	540118:01	540121:23	1	1	2	0	2	2.0	1	2013	94	-4	0	0	0
26	630126:17	630202:19	5	91	134	24	11	1.5	1	2002	168	1	0	0	0
27	500101:16	500105:13	1	10	48	0	11	4.8	1	1764	93	-3	0	0	0
28	771118:00	771124:07	4	27	75	62	10	2.8	1	1726	152	10	0	0	0
29	511222:23	511228:21	3	13	28	22	13	2.2	1	1551	142	12	0	0	0
30	591227:16	600104:08	4	11	14	11	4	1.3	1	1528	185	13	0	0	0
31	560214:16	560218:08	4	23	53	38	6	2.3	1	1441	89	2	0	0	0
32	561205:03	561208:12	1	3	3	0	1	1.0	1	1416	81	8	0	0	0
33	781118:17	781128:03	3	50	123	101	8	2.5	1	1379	222	20	0	0	0
34	710101:17	710107:08	1	8	15	0	3	1.9	1	1327	136	13	0	0	0
35	631208:19	631216:10	4	18	24	117	3	1.3	1	1277	179	10	0	0	0
36	591115:03	591119:05	1	4	8	0	2	2.0	1	1264	98	5	0	0	0
37	711225:19	711230:21	2	22	38	92	4	1.7	1	1238	122	15	0	0	0
38	571231:14	580109:05	1	6	12	0	4	2.0	1	1207	207	19	0	0	0
39	570218:19	570223:19	3	29	27	32	2	.9	1	1197	120	7	0	0	0
40	760201:01	760206:23	1	4	5	0	2	1.3	1	1154	142	7	0	0	0
41	600301:17	600306:08	3	60	78	20	4	1.3	1	1125	109	14	0	0	0
42	561123:19	561202:10	1	2	2	0	1	1.0	1	1058	207	24	0	0	0
43	691125:19	691204:01	3	10	43	676	11	4.3	1	984	198	22	0	0	0
44	650110:05	650120:16	5	20	37	139	5	1.9	1	959	251	18	0	0	0
45	671218:03	671221:14	2	16	19	33	2	1.2	1	957	83	12	0	0	0
46	781205:14	781209:12	1	8	10	0	4	1.3	1	936	90	10	0	0	0
47	561225:03	570101:19	2	2	2	136	1	1.0	1	907	184	24	0	0	0
48	520121:17	520126:08	2	15	24	12	4	1.6	1	897	110	11	0	0	0
49	770127:17	770208:03	3	8	7	28	1	.9	1	814	274	25	0	0	0
50	701121:14	701124:08	2	22	37	17	4	1.7	1	813	61	8	0	0	0

OVERALL ORDER STATISTICS AT PENDLETON
SORTED BY FREEZE INDEX

			CHARACTERISTICS OF PRECIP EVENTS IN CLUSTER						CHARACTERISTICS OF FREEZE EVENTS IN CLUSTER						
							INTENSITY								
	START DATE AND HOUR (YYMMDD:HH)	END DATE AND HOUR (YYMMDD:HH)	NO. PRECIP EVENTS	DUR (HRS)	AMOUNT (INX100)	MAX DRY (HRS)	MAXIMUM (IN/HRX100)	AVERAGE (IN/HRX100)	NO. FREEZE EVENTS	FREEZE INDEX (F)	NO. BELOW	MIN. TEMP (F)	THAW INDEX (F)	NO. ABOVE	MAX. TEMP (F)
51	620109:17	620114:07	2	6	9	17	2	1.5	1	789	110	17	0	0	0
52	550105:12	550111:03	2	16	19	95	3	1.2	1	789	135	23	0	0	0
53	540201:03	540212:00	3	9	12	53	3	1.3	1	724	257	25	0	0	0
54	511210:16	511215:08	1	1	1	0	1	1.0	1	704	112	20	0	0	0
55	540115:10	540117:23	2	22	30	21	3	1.4	1	669	53	14	0	0	0
56	551228:16	560101:07	2	6	23	22	10	3.8	1	662	88	18	0	0	0
57	521222:22	521226:22	2	2	2	54	1	1.0	1	656	96	20	0	0	0
58	750204:17	750210:05	4	32	31	23	5	1.0	1	638	131	22	0	0	0
59	631130:17	631206:03	3	13	25	63	8	1.9	1	602	125	26	0	0	0
60	750109:17	750112:10	2	16	49	17	10	3.1	1	576	56	14	0	0	0
61	601227:05	601231:12	1	8	4	0	2	.5	1	557	102	24	0	0	0
62	591112:12	591114:14	1	1	1	0	1	1.0	1	537	49	9	0	0	0
63	700115:23	700120:03	6	54	119	12	8	2.2	1	529	100	21	0	0	0
64	611123:01	611129:10	1	59	129	0	12	2.2	1	526	102	21	0	0	0
65	681218:21	681223:08	2	10	13	70	6	1.3	2	518	102	20	8	3	36
66	750127:16	750131:03	1	1	1	0	1	1.0	1	496	83	21	0	0	0
67	660123:19	660127:14	1	7	10	0	3	1.4	1	490	90	22	0	0	0
68	570131:21	570202:19	1	18	87	0	18	4.8	1	437	39	9	0	0	0
69	751127:17	751130:03	2	7	12	31	3	1.7	1	429	58	17	0	0	0
70	601214:19	601218:16	2	15	21	20	4	1.4	1	400	92	25	0	0	0
71	490217:19	490221:13	1	33	101	0	12	3.1	1	392	61	22	0	0	0
72	691204:21	691209:07	2	17	20	45	4	1.2	1	370	106	23	0	0	0
73	660117:05	660121:03	1	1	1	0	1	1.0	1	368	93	19	0	0	0
74	720102:10	720104:07	1	2	3	0	2	1.5	1	360	44	15	0	0	0
75	781217:16	781220:01	1	8	18	0	5	2.3	1	343	58	16	0	0	0
76	591207:19	591210:14	1	1	2	0	2	2.0	1	342	67	24	0	0	0
77	730211:12	730215:05	1	1	1	0	1	1.0	1	334	88	20	0	0	0
78	591219:17	591224:21	2	16	27	29	4	1.7	1	331	116	25	0	0	0
79	761220:17	761223:07	1	3	11	0	6	3.7	1	324	61	24	0	0	0
80	520115:16	520117:09	1	6	23	0	7	3.8	1	318	41	19	0	0	0
81	711206:17	711208:14	1	6	32	0	7	5.3	1	312	43	18	0	0	0
82	490202:14	490204:00	1	1	2	0	2	2.0	1	308	35	11	0	0	0
83	701220:23	701223:08	2	6	4	16	1	.7	1	308	57	17	0	0	0
84	601221:14	601224:16	1	1	1	0	1	1.0	1	290	74	26	0	0	0
85	550226:01	550228:00	3	6	13	18	4	2.2	1	288	44	19	0	0	0
86	520111:18	520113:22	1	5	28	0	13	5.6	1	286	48	22	0	0	0
87	491209:18	491212:10	2	13	32	51	6	2.5	1	286	61	20	0	0	0
88	780302:17	780305:10	2	20	37	15	8	1.9	1	271	65	26	0	0	0
89	590120:07	590122:19	3	18	20	22	5	1.1	1	266	59	24	0	0	0
90	630123:17	630125:12	2	2	2	6	1	1.0	1	261	44	22	0	0	0
91	501203:15	501207:01	2	56	117	28	17	2.1	1	257	71	24	0	0	0
92	700228:05	700302:07	1	38	47	0	4	1.2	1	257	50	21	0	0	0
93	690111:19	690114:03	2	26	26	11	4	1.0	1	242	56	21	0	0	0
94	590217:17	590220:23	3	21	26	15	5	1.2	1	223	74	26	0	0	0
95	551203:21	551205:21	1	7	9	0	5	1.3	2	218	44	23	21	3	42
96	751218:17	751222:12	1	1	1	0	1	1.0	1	211	90	29	0	0	0
97	500310:18	500312:08	1	1	1	0	1	1.0	1	196	37	17	0	0	0
98	751118:00	751120:12	1	8	4	0	1	.5	1	182	60	26	0	0	0
99	680102:00	680103:10	1	4	5	0	2	1.3	1	172	33	23	0	0	0
100	511219:07	511220:13	2	12	11	9	5	.9	1	167	26	22	0	0	0

OVERALL ORDER STATISTICS AT PENDLETON
SORTED BY FREEZE INDEX

			CHARACTERISTICS OF PRECIP EVENTS IN CLUSTER						CHARACTERISTICS OF FREEZE EVENTS IN CLUSTER						
							INTENSITY								
	START DATE AND HOUR (YYMMDD:HH)	END DATE AND HOUR (YYMMDD:HH)	NO. PRECIP EVENTS	DUR (HRS)	AMOUNT (INX100)	MAX DRY (HRS)	MAXIMUM (IN/HRX100)	AVERAGE (IN/HRX100)	NO. FREEZE EVENTS	FREEZE INDEX (F)	NO. BELOW	MIN. TEMP (F)	THAW INDEX (F)	NO. ABOVE	MAX. TEMP (F)
101	581208:03	581211:16	2	32	146	15	10	4.6	1	162	55	26	0	0	0
102	540111:05	540113:03	1	2	2	0	1	1.0	1	140	47	26	0	0	0
103	641225:05	641226:12	1	5	2	0	1	.4	1	136	32	24	0	0	0
104	551126:08	551129:01	1	23	103	0	11	4.5	1	118	50	28	0	0	0
105	720209:17	720211:10	1	3	6	0	3	2.0	1	118	39	28	0	0	0
106	710111:17	710113:07	1	13	13	0	2	1.0	1	112	35	25	0	0	0
107	771208:19	771210:10	1	2	3	0	2	1.5	1	110	39	26	0	0	0
108	550102:07	550103:10	1	1	2	0	2	2.0	1	104	27	24	0	0	0
109	601225:01	601226:08	1	9	16	0	6	1.8	1	103	30	24	0	0	0
110	690114:17	690115:10	1	1	2	0	2	2.0	1	102	17	20	0	0	0
111	650324:17	650325:12	1	4	3	0	1	.8	1	100	19	23	0	0	0
112	500107:22	500108:21	1	3	4	0	2	1.3	1	96	23	26	0	0	0
113	660121:17	660123:01	1	6	3	0	1	.5	1	96	32	27	0	0	0
114	511206:18	511207:09	1	1	1	0	1	1.0	1	94	15	22	0	0	0
115	780107:21	780110:19	3	43	86	16	7	2.0	1	93	67	30	0	0	0
116	650316:14	650317:14	1	8	8	0	4	1.0	1	93	17	20	0	0	0
117	591130:23	591202:07	1	1	1	0	1	1.0	1	88	32	26	0	0	0
118	550104:12	550105:12	1	2	3	0	2	1.5	1	87	23	25	0	0	0
119	671127:17	671128:12	1	5	7	0	2	1.4	1	86	20	26	0	0	0
120	510304:09	510305:16	1	9	36	0	8	4.0	1	83	23	25	0	0	0
121	691210:01	691210:23	1	2	10	0	7	5.0	1	78	22	25	0	0	0
122	501213:03	501214:23	3	12	33	9	8	2.8	1	75	43	29	0	0	0
123	650122:21	650124:00	1	11	29	0	4	2.6	1	70	27	29	0	0	0
124	641205:19	641208:01	2	6	14	41	6	2.3	1	68	51	30	0	0	0
125	711106:19	711107:10	1	1	2	0	2	2.0	1	56	15	26	0	0	0
126	700111:17	700112:21	1	14	24	0	5	1.7	1	56	14	25	0	0	0
127	511123:22	511125:08	1	6	2	0	1	.3	1	54	34	29	0	0	0
128	510301:19	510302:10	1	8	3	0	1	.4	1	54	15	25	0	0	0
129	510302:17	510303:21	1	10	15	0	4	1.5	2	54	20	26	1	1	33
130	610128:17	610130:01	1	18	21	0	5	1.2	1	52	27	28	0	0	0
131	701231:19	710101:10	1	5	18	0	8	3.6	1	51	11	25	0	0	0
132	520222:22	520223:11	1	5	5	0	2	1.0	1	51	14	26	0	0	0
133	550324:21	550325:10	1	2	2	0	1	1.0	1	51	13	24	0	0	0
134	780130:16	780131:14	1	2	8	0	7	4.0	1	49	22	28	0	0	0
135	661226:05	661226:23	1	1	1	0	1	1.0	1	49	18	25	0	0	0
136	551202:14	551203:10	1	6	13	0	3	2.2	1	47	19	29	0	0	0
137	491231:18	500101:11	1	4	6	0	2	1.5	1	45	17	28	0	0	0
138	530228:21	530301:12	1	5	23	0	13	4.6	1	43	11	25	0	0	0
139	731105:07	731106:10	1	27	52	0	7	1.9	1	41	21	29	0	0	0
140	520220:18	520221:09	1	1	1	0	1	1.0	1	40	15	28	0	0	0
141	551120:14	551121:08	1	14	23	0	4	1.6	1	37	14	28	0	0	0
142	481209:01	481209:23	1	7	6	0	2	.9	1	37	15	28	0	0	0
143	481213:23	481214:22	1	14	40	0	6	2.9	1	36	23	30	0	0	0
144	570207:16	570208:03	1	1	1	0	1	1.0	1	33	12	27	0	0	0
145	510206:07	510207:13	2	17	48	14	9	2.8	1	33	20	30	0	0	0
146	780131:19	780201:17	1	6	8	0	5	1.3	1	32	18	30	0	0	0
147	550319:00	550319:08	1	2	3	0	2	1.5	1	31	9	24	0	0	0
148	710227:00	710227:07	1	1	2	0	2	2.0	1	31	8	26	0	0	0
149	620228:19	620301:01	1	1	2	0	2	2.0	1	30	7	26	0	0	0
150	730210:00	730210:16	1	10	51	0	9	5.1	1	30	16	29	0	0	0

OVERALL ORDER STATISTICS AT PENDLETON
SORTED BY FREEZE INDEX

			CHARACTERISTICS OF PRECIP EVENTS IN CLUSTER						CHARACTERISTICS OF FREEZE EVENTS IN CLUSTER						
							INTENSITY								
	START DATE AND HOUR (YYMMDD:HH)	END DATE AND HOUR (YYMMDD:HH)	NO. PRECIP EVENTS	DUR (HRS)	AMOUNT (INX100)	MAX DRY (HRS)	MAXIMUM (IN/HRX100)	AVERAGE (IN/HRX100)	NO. FREEZE EVENTS	FREEZE INDEX (F)	NO. BELOW	MIN. TEMP (F)	THAW INDEX (F)	NO. ABOVE	MAX. TEMP (F)
151	780113:00	780114:05	1	4	14	0	8	3.5	1	30	30	31	0	0	0
152	581206:00	581206:12	1	8	10	0	3	1.3	1	29	12	29	0	0	0
153	690222:23	690223:14	1	2	5	0	3	2.5	1	28	15	29	0	0	0
154	560305:21	560306:07	1	1	1	0	1	1.0	1	28	10	27	0	0	0
155	690224:21	690225:16	2	5	4	14	1	.8	1	26	17	29	0	0	0
156	510110:09	510110:23	1	8	4	0	1	.5	1	26	13	28	0	0	0
157	501111:18	501112:09	1	10	20	0	4	2.0	1	25	15	30	0	0	0
158	500210:00	500210:09	1	1	1	0	1	1.0	1	24	10	28	0	0	0
159	590210:23	590211:16	1	17	18	0	6	1.1	1	23	15	30	0	0	0
160	581115:03	581115:12	1	7	4	0	1	.6	1	22	9	28	0	0	0
161	490314:21	490316:05	1	26	22	0	4	.8	1	21	14	30	0	0	0
162	591218:01	591218:10	1	1	1	0	1	1.0	1	20	8	27	0	0	0
163	731229:03	731229:21	1	19	36	0	4	1.9	1	17	12	30	0	0	0
164	511209:15	511209:21	1	2	3	0	2	1.5	1	16	6	27	0	0	0
165	560112:17	560113:05	1	6	15	0	6	2.5	1	16	9	30	0	0	0
166	690201:00	690201:10	1	1	1	0	1	1.0	1	15	10	30	0	0	0
167	631219:19	631220:07	1	4	15	0	8	3.8	1	13	9	29	0	0	0
168	490101:02	490101:11	1	4	5	0	2	1.3	1	11	7	30	0	0	0
169	641221:00	641222:12	1	37	84	0	13	2.3	1	11	8	30	0	0	0
170	550313:19	550314:07	1	8	10	0	6	1.3	1	11	8	30	0	0	0
171	690205:03	690205:12	1	6	9	0	2	1.5	1	10	5	29	0	0	0
172	550130:21	550131:19	1	20	18	0	4	.9	1	10	10	31	0	0	0
173	641227:07	641227:10	1	1	2	0	2	2.0	1	10	3	28	0	0	0
174	551119:00	551119:14	1	13	59	0	8	4.5	1	10	2	25	0	0	0
175	641223:19	641224:21	1	27	69	0	12	2.6	1	8	4	29	0	0	0
176	521220:00	521220:11	1	12	26	0	4	2.2	1	8	7	30	0	0	0
177	691225:21	691226:10	1	9	12	0	3	1.3	1	7	7	31	0	0	0
178	641226:14	641226:17	1	4	13	0	4	3.3	1	7	3	29	0	0	0
179	520215:15	520216:09	1	20	65	0	11	3.3	1	6	6	31	0	0	0
180	701208:23	701209:07	1	7	32	0	6	4.6	1	5	5	31	0	0	0
181	560114:08	560115:19	1	35	150	0	13	4.3	1	5	5	31	0	0	0
182	670125:00	670125:05	1	2	5	0	3	2.5	1	5	5	31	0	0	0
183	530106:00	530106:05	1	1	1	0	1	1.0	1	5	5	31	0	0	0
184	690116:23	690117:05	1	7	10	0	4	1.4	1	5	5	31	0	0	0
185	700113:00	700113:05	1	1	1	0	1	1.0	1	5	5	31	0	0	0
186	550303:05	550303:07	1	1	1	0	1	1.0	1	4	2	30	0	0	0
187	650325:21	650326:10	1	13	15	0	3	1.2	1	4	3	30	0	0	0
188	780217:19	780218:03	1	5	8	0	3	1.6	1	3	3	31	0	0	0
189	540124:10	540124:12	1	1	2	0	2	2.0	1	2	1	30	0	0	0
190	640113:16	640113:23	1	7	2	0	1	.3	1	2	2	31	0	0	0
191	550116:01	550116:03	1	1	6	0	6	6.0	1	2	2	31	0	0	0
192	750124:03	750126:10	1	56	218	0	11	3.9	1	2	2	31	0	0	0
193	680112:21	680112:23	1	2	2	0	1	1.0	1	2	2	31	0	0	0
194	641229:14	641229:16	1	2	2	0	1	1.0	1	2	2	31	0	0	0
195	661210:01	661210:10	1	10	20	0	9	2.0	1	2	2	31	0	0	0
196	670105:05	670105:07	1	1	2	0	2	2.0	1	2	2	31	0	0	0
197	591202:19	591202:19	1	1	1	0	1	1.0	1	1	1	31	0	0	0
198	781129:10	781129:23	1	13	46	0	14	3.5	1	1	1	31	0	0	0
199	570110:07	570110:08	1	3	4	0	2	1.3	1	1	1	31	0	0	0
200	710304:12	710304:14	1	4	14	0	7	3.5	1	1	1	31	0	0	0

OVERALL ORDER STATISTICS AT PENDLETON
SORTED BY FREEZE INDEX

			CHARACTERISTICS OF PRECIP EVENTS IN CLUSTER						CHARACTERISTICS OF FREEZE EVENTS IN CLUSTER						
							INTENSITY								
	START DATE AND HOUR (YYMMDD:HH)	END DATE AND HOUR (YYMMDD:HH)	NO. PRECIP EVENTS	DUR (HRS)	AMOUNT (INX100)	MAX DRY (HRS)	MAXIMUM (IN/HRX100)	AVERAGE (IN/HRX100)	NO. FREEZE EVENTS	FREEZE INDEX (F)	NO. BELOW	MIN. TEMP (F)	THAW INDEX (F)	NO. ABOVE	MAX. TEMP (F)
201	590130:21	590131:10	1	14	25	0	6	1.8	1	1	1	31	0	0	0
202	721217:07	721217:14	1	9	21	0	6	2.3	1	1	1	31	0	0	0
203	670106:03	670106:07	1	5	5	0	2	1.0	1	1	1	31	0	0	0

OVERALL ORDER STATISTICS AT WALLA WALLA
SORTED BY FREEZE INDEX

			CHARACTERISTICS OF PRECIP EVENTS IN CLUSTER						CHARACTERISTICS OF FREEZE EVENTS IN CLUSTER					
							INTENSITY							
	START DATE AND HOUR (YYMMDD:HH)	END DATE AND HOUR (YYMMDD:HH)	NO. PRECIP EVENTS	DUR (HRS)	AMOUNT (INX100)	MAX DRY (HRS)	MAXIMUM (IN/HRX100)	AVERAGE (IN/HRX100)	NO. FREEZE EVENTS	FREEZE INDEX (F)	NO. BELOW	MIN. TEMP (F)	THAW INDEX (F)	NO. ABOVE	MAX. TEMP (F)
1	570112:16	570130:17	7	85	137	163	10	1.6	1	10325	434	-15	0	0	0
2	500123:18	500206:05	8	61	105	156	6	1.7	1	9672	322	-16	0	0	0
3	740101:07	740113:05	5	22	25	80	3	1.1	1	8028	285	-10	0	0	0
4	490118:18	490203:22	5	26	23	185	2	.9	1	6906	387	-4	0	0	0
5	560124:21	560210:07	6	32	72	165	7	2.3	1	6223	393	-8	0	0	0
6	500112:16	500121:00	10	82	123	23	5	1.5	1	5296	198	-7	0	0	0
7	761229:12	770113:05	12	39	65	106	6	1.7	1	4849	353	-2	0	0	0
8	600112:16	600126:08	5	35	38	129	3	1.1	1	4211	329	7	0	0	0
9	490108:00	490117:02	2	2	2	12	1	1.0	1	3751	219	4	0	0	0
10	551111:14	551119:14	6	71	136	68	7	1.9	1	3522	179	-4	0	0	0
11	771222:21	780105:07	9	96	136	89	6	1.4	1	3314	322	2	0	0	0
12	540115:17	540122:19	5	39	69	56	6	1.8	1	3132	166	-6	0	0	0
13	620116:17	620124:00	1	1	1	0	1	1.0	1	3009	175	-3	0	0	0
14	510126:22	510202:10	2	17	19	119	2	1.1	1	2943	157	2	0	0	0
15	641215:14	641220:12	3	15	35	69	8	2.3	1	2869	119	-5	0	0	0
16	511229:22	520105:19	6	21	16	54	2	.8	1	2817	166	6	0	0	0
17	590101:23	590107:12	2	22	48	65	5	2.2	1	2546	134	-1	0	0	0
18	521121:16	521202:06	3	15	21	96	4	1.4	1	2372	249	14	0	0	0
19	611207:21	611216:01	4	34	33	56	3	1.0	1	2249	197	2	0	0	0
20	551212:23	551220:14	3	38	57	37	4	1.5	1	2245	184	10	0	0	0
21	630126:16	630201:05	4	38	83	29	4	2.2	1	1833	134	3	0	0	0
22	500101:16	500105:13	3	19	26	31	2	1.4	1	1778	92	1	0	0	0
23	560214:19	560219:07	3	21	76	43	6	3.6	1	1728	108	1	0	0	0
24	511222:21	511228:10	3	26	41	11	10	1.6	1	1536	134	14	0	0	0
25	591227:05	600105:05	1	38	33	0	3	.9	1	1523	215	11	0	0	0
26	561205:01	561208:12	2	3	4	48	2	1.3	1	1508	84	6	0	0	0
27	771118:10	771124:01	2	51	66	6	4	1.3	1	1194	134	11	0	0	0
28	591115:03	591119:03	2	11	11	78	2	1.0	1	1170	95	5	0	0	0
29	750126:16	750131:16	1	1	1	0	1	1.0	1	1100	120	11	0	0	0
30	750204:08	750210:03	4	29	41	54	3	1.4	1	1041	135	17	0	0	0
31	570218:19	570224:00	4	29	43	36	3	1.5	1	1016	120	9	0	0	0
32	550103:17	550111:01	3	27	25	102	2	.9	1	1008	176	19	0	0	0
33	600301:17	600305:21	5	37	58	20	4	1.6	1	946	100	17	0	0	0
34	541217:14	541223:10	2	2	2	22	1	1.0	1	915	140	19	0	0	0
35	600109:17	600112:14	2	17	43	11	6	2.5	1	819	69	11	0	0	0
36	551228:16	560101:17	2	7	11	22	3	1.6	1	773	97	16	0	0	0
37	610101:14	610105:03	1	2	2	0	1	1.0	1	770	86	19	0	0	0
38	620109:17	620114:05	2	3	3	10	1	1.0	1	770	107	19	0	0	0
39	760131:05	760206:08	1	7	7	0	2	1.0	1	769	148	11	0	0	0
40	561224:19	570101:23	2	7	24	49	5	3.4	1	755	193	26	0	0	0
41	781118:19	781123:07	2	30	79	6	5	2.6	1	752	108	21	0	0	0
42	571231:00	580105:12	2	16	26	132	6	1.6	1	720	133	23	0	0	0
43	611123:03	611129:12	2	64	148	16	6	2.3	2	596	111	18	7	5	35
44	601227:00	601231:10	2	5	7	102	3	1.4	1	570	106	22	0	0	0
45	520121:16	520124:14	3	39	45	10	3	1.2	1	525	69	18	0	0	0
46	511219:03	511221:08	2	30	25	6	1	.8	1	512	52	15	0	0	0
47	630122:19	630125:12	1	1	1	0	1	1.0	1	491	66	16	0	0	0
48	540206:21	540212:12	2	14	17	59	3	1.2	1	488	136	25	0	0	0
49	751216:21	751222:10	1	2	2	0	1	1.0	1	439	133	26	0	0	0
50	581115:07	581117:12	1	5	9	0	5	1.8	1	434	52	16	0	0	0

OVERALL ORDER STATISTICS AT WALLA WALLA
SORTED BY FREEZE INDEX

			CHARACTERISTICS OF PRECIP EVENTS IN CLUSTER						CHARACTERISTICS OF FREEZE EVENTS IN CLUSTER						
							INTENSITY								
	START DATE AND HOUR (YYMMDD:HH)	END DATE AND HOUR (YYMMDD:HH)	NO. PRECIP EVENTS	DUR (HRS)	AMOUNT (INX100)	MAX DRY (HRS)	MAXIMUM (IN/HRX100)	AVERAGE (IN/HRX100)	NO. FREEZE EVENTS	FREEZE INDEX (F)	NO. BELOW	MIN. TEMP (F)	THAW INDEX (F)	NO. ABOVE	MAX. TEMP (F)
51	601214:03	601218:17	3	22	47	16	4	2.1	1	409	109	24	0	0	0
52	520115:06	520117:09	1	5	16	0	5	3.2	1	399	52	19	0	0	0
53	520124:16	520126:13	1	5	5	0	1	1.0	1	399	45	18	0	0	0
54	570131:23	570202:23	1	11	55	0	8	5.0	1	373	43	13	0	0	0
55	491218:22	491220:10	1	10	4	0	1	.4	1	364	36	19	0	0	0
56	770127:16	770131:12	1	4	5	0	2	1.3	1	337	93	27	0	0	0
57	751128:01	751130:14	2	12	17	36	4	1.4	2	337	56	21	24	5	40
58	490218:16	490221:09	1	20	71	0	8	3.6	1	329	59	22	0	0	0
59	641225:01	641226:17	2	15	13	6	3	.9	1	306	39	20	0	0	0
60	550226:00	550227:23	2	15	26	14	2	1.7	1	295	42	20	0	0	0
61	590120:12	590124:05	2	48	110	11	18	2.3	1	284	51	22	0	0	0
62	761220:16	761223:10	1	9	32	0	8	3.6	1	268	61	26	0	0	0
63	630201:08	630203:00	2	11	29	8	4	2.6	1	259	39	23	0	0	0
64	501203:14	501207:02	2	63	151	23	18	2.4	2	249	66	25	4	3	34
65	581207:23	581211:16	3	33	149	16	11	4.5	1	236	68	26	0	0	0
66	491209:17	491212:08	2	11	45	52	10	4.1	1	203	54	23	0	0	0
67	610127:17	610129:19	1	3	8	0	3	2.7	1	200	50	23	0	0	0
68	591207:17	591210:10	1	1	1	0	1	1.0	1	191	66	28	0	0	0
69	551203:21	551205:19	1	9	10	0	4	1.1	2	174	41	25	29	3	45
70	491220:21	491221:16	1	1	1	0	1	1.0	1	169	20	20	0	0	0
71	770113:07	770114:14	1	4	4	0	1	1.0	1	167	32	25	0	0	0
72	780302:17	780305:07	1	12	7	0	1	.6	1	162	62	26	0	0	0
73	540201:05	540205:05	2	2	2	23	1	1.0	1	143	96	30	0	0	0
74	500107:16	500108:22	1	3	12	0	5	4.0	1	140	29	25	0	0	0
75	770131:16	770203:12	1	1	1	0	1	1.0	1	136	68	29	0	0	0
76	551126:07	551129:03	1	22	109	0	10	5.0	1	131	52	28	0	0	0
77	751213:07	751214:10	1	1	1	0	1	1.0	1	125	26	21	0	0	0
78	771209:01	771210:10	1	3	4	0	2	1.3	1	119	32	25	0	0	0
79	650109:21	650111:10	1	24	33	0	4	1.4	1	114	37	26	0	0	0
80	780130:19	780202:00	2	24	32	13	4	1.3	3	112	48	28	2	2	33
81	491214:00	491215:08	1	1	1	0	1	1.0	1	105	31	27	0	0	0
82	570207:03	570208:05	1	1	1	0	1	1.0	1	103	25	26	0	0	0
83	590217:19	590219:10	2	24	33	15	4	1.4	1	100	35	28	0	0	0
84	500310:23	500311:14	1	5	2	0	1	.4	1	89	15	20	0	0	0
85	510206:01	510207:13	1	31	62	0	9	2.0	1	83	33	27	0	0	0
86	550102:07	550103:10	1	3	16	0	8	5.3	1	80	26	24	0	0	0
87	601225:03	601226:07	1	3	20	0	8	6.7	1	79	29	27	0	0	0
88	551202:00	551203:08	2	4	3	6	1	.8	1	79	33	29	0	0	0
89	570203:03	570203:14	1	7	2	0	1	.3	1	78	11	18	0	0	0
90	650122:21	650124:05	1	25	66	0	10	2.6	1	74	25	27	0	0	0
91	510109:16	510110:22	1	7	19	0	4	2.7	1	74	30	27	0	0	0
92	750112:19	750113:19	1	5	10	0	2	2.0	1	71	24	28	0	0	0
93	580109:07	580110:10	1	1	1	0	1	1.0	1	71	27	27	0	0	0
94	551122:17	551123:14	2	11	20	56	3	1.8	2	67	18	26	2	1	34
95	611117:17	611118:08	1	1	1	0	1	1.0	1	63	16	25	0	0	0
96	641221:01	641221:17	1	14	59	0	9	4.2	1	62	16	27	0	0	0
97	520111:16	520112:09	1	8	27	0	5	3.4	1	62	17	22	0	0	0
98	641226:23	641227:10	1	2	17	0	9	8.5	1	58	12	25	0	0	0
99	600107:19	600108:14	1	18	31	0	4	1.7	1	58	19	27	0	0	0
100	511216:00	511216:16	1	1	1	0	1	1.0	1	57	17	27	0	0	0

OVERALL ORDER STATISTICS AT WALLA WALLA
SORTED BY FREEZE INDEX

			CHARACTERISTICS OF PRECIP EVENTS IN CLUSTER						CHARACTERISTICS OF FREEZE EVENTS IN CLUSTER						
							INTENSITY								
	START DATE AND HOUR (YYMMDD:HH)	END DATE AND HOUR (YYMMDD:HH)	NO. PRECIP EVENTS	DUR (HRS)	AMOUNT (INX100)	MAX DRY (HRS)	MAXIMUM (IN/HRX100)	AVERAGE (IN/HRX100)	NO. FREEZE EVENTS	FREEZE INDEX (F)	NO. BELOW	MIN. TEMP (F)	THAW INDEX (F)	NO. ABOVE	MAX. TEMP (F)
101	781210:03	781211:07	1	12	47	0	6	3.9	1	53	18	28	0	0	0
102	641229:12	641229:23	1	2	3	0	2	1.5	1	51	10	25	0	0	0
103	630105:03	630106:07	1	1	1	0	1	1.0	1	47	27	29	0	0	0
104	510301:22	510302:11	1	10	8	0	1	.8	1	46	14	26	0	0	0
105	620228:19	620301:07	1	5	18	0	5	3.6	1	44	12	25	0	0	0
106	620206:03	620207:05	1	8	15	0	2	1.9	1	42	26	28	0	0	0
107	770116:05	770116:19	1	2	2	0	1	1.0	1	39	13	27	0	0	0
108	510302:18	510303:21	1	10	20	0	4	2.0	1	39	19	28	0	0	0
109	781126:21	781128:03	1	12	43	0	8	3.6	1	35	24	29	0	0	0
110	751211:19	751212:14	1	10	13	0	2	1.3	1	33	18	29	0	0	0
111	590207:21	590208:10	1	1	1	0	1	1.0	1	31	13	29	0	0	0
112	551206:07	551206:14	1	2	3	0	2	1.5	1	30	8	27	0	0	0
113	590210:21	590211:14	1	11	7	0	1	.6	1	28	17	29	0	0	0
114	550122:00	550122:12	1	8	13	0	3	1.6	1	28	12	28	0	0	0
115	520220:23	520221:10	1	1	1	0	1	1.0	1	27	12	29	0	0	0
116	620227:17	620228:05	1	2	2	0	1	1.0	1	26	11	28	0	0	0
117	581206:01	581206:12	1	6	13	0	5	2.2	1	26	11	29	0	0	0
118	490315:00	490315:21	1	12	24	0	4	2.0	1	26	12	28	0	0	0
119	501213:01	501214:00	2	4	3	10	1	.8	1	26	23	30	0	0	0
120	500210:02	500210:18	1	10	12	0	2	1.2	1	24	14	29	0	0	0
121	570108:21	570109:08	1	7	14	0	4	2.0	2	18	10	29	1	1	33
122	591206:17	591206:23	1	3	6	0	3	2.0	1	18	5	27	0	0	0
123	550124:01	550124:10	1	1	1	0	1	1.0	1	18	9	29	0	0	0
124	641223:21	641224:10	1	12	67	0	11	5.6	1	17	5	27	0	0	0
125	560114:10	560115:19	1	34	154	0	15	4.5	2	14	14	31	2	1	34
126	520215:15	520216:08	1	17	57	0	7	3.4	1	13	11	30	0	0	0
127	750109:17	750110:10	1	13	30	0	3	2.3	1	11	6	28	0	0	0
128	570305:23	570307:12	1	31	68	0	12	2.2	1	10	10	31	0	0	0
129	540127:10	540129:03	1	42	95	0	7	2.3	1	10	8	30	0	0	0
130	750115:10	750116:00	1	7	9	0	2	1.3	1	8	7	30	0	0	0
131	590130:14	590131:07	1	18	28	0	5	1.6	1	8	8	31	0	0	0
132	501111:19	501112:05	1	10	9	0	2	.9	1	8	8	31	0	0	0
133	521228:16	521228:19	1	2	7	0	6	3.5	1	8	3	29	0	0	0
134	620304:23	620305:05	1	1	1	0	1	1.0	1	7	7	31	0	0	0
135	521220:01	521220:19	1	19	46	0	6	2.4	1	7	6	30	0	0	0
136	620310:01	620310:10	1	6	7	0	3	1.2	1	7	7	31	0	0	0
137	581215:16	581215:21	1	1	1	0	1	1.0	1	6	6	31	0	0	0
138	750201:17	750201:21	1	1	1	0	1	1.0	1	5	3	29	0	0	0
139	560103:12	560103:19	1	5	6	0	2	1.2	1	5	3	30	0	0	0
140	751212:21	751213:05	1	9	11	0	2	1.2	1	4	3	30	0	0	0
141	551201:07	551201:17	1	11	34	0	12	3.1	1	4	2	30	0	0	0
142	560305:05	560305:07	1	1	1	0	1	1.0	1	4	3	30	0	0	0
143	541212:14	541212:17	1	2	3	0	2	1.5	1	4	3	30	0	0	0
144	490204:03	490204:08	1	3	5	0	2	1.7	2	3	2	30	2	1	34
145	510224:23	510225:07	1	7	13	0	4	1.9	1	3	3	31	0	0	0
146	490221:10	490221:21	1	11	17	0	7	1.5	1	3	3	31	0	0	0
147	520219:06	520219:08	1	1	1	0	1	1.0	1	3	2	30	0	0	0
148	540124:07	540124:12	1	4	6	0	4	1.5	2	3	2	30	4	3	34
149	520331:19	520401:00	1	5	4	0	2	.8	1	3	3	31	0	0	0
150	560222:21	560223:05	1	9	24	0	9	2.7	1	2	2	31	0	0	0

OVERALL ORDER STATISTICS AT WALLA WALLA
SORTED BY FREEZE INDEX

			CHARACTERISTICS OF PRECIP EVENTS IN CLUSTER						CHARACTERISTICS OF FREEZE EVENTS IN CLUSTER						
	START DATE AND HOUR (YYMMDD:HH)	END DATE AND HOUR (YYMMDD:HH)	NO. PRECIP EVENTS	DUR (HRS)	AMOUNT (INX100)	MAX DRY (HRS)	INTENSITY MAXIMUM (IN/HRX100)	INTENSITY AVERAGE (IN/HRX100)	NO. FREEZE EVENTS	FREEZE INDEX (F)	NO. BELOW	MIN. TEMP (F)	THAW INDEX (F)	NO. ABOVE	MAX. TEMP (F)
151	781209:05	781209:12	1	9	20	0	9	2.2	1	1	1	31	0	0	0
152	490206:10	490206:14	1	4	18	0	6	4.5	1	1	1	31	0	0	0

OVERALL ORDER STATISTICS AT PENDLETON
SORTED BY NUMBER OF HOURS BELOW 32F

			CHARACTERISTICS OF PRECIP EVENTS IN CLUSTER						CHARACTERISTICS OF FREEZE EVENTS IN CLUSTER						
							INTENSITY								
	START DATE AND HOUR (YYMMDD:HH)	END DATE AND HOUR (YYMMDD:HH)	NO. PRECIP EVENTS	DUR (HRS)	AMOUNT (INX100)	MAX DRY (HRS)	MAXIMUM (IN/HRX100)	AVERAGE (IN/HRX100)	NO. FREEZE EVENTS	FREEZE INDEX (F)	NO. BELOW	MIN. TEMP (F)	THAW INDEX (F)	NO. ABOVE	MAX. TEMP (F)
1	600107:21	600126:08	9	80	102	95	6	1.3	1	5752	442	0	0	0	0
2	570112:16	570130:21	9	88	136	149	6	1.5	1	10585	437	-19	0	0	0
3	490118:16	490202:11	4	25	12	133	2	.5	1	6357	355	-6	0	0	0
4	761229:19	770113:07	3	26	43	237	5	1.7	1	4900	346	2	0	0	0
5	721202:17	721217:00	7	55	76	111	6	1.4	1	8537	343	-12	0	0	0
6	500123:17	500206:06	9	50	76	157	5	1.5	1	9582	324	-17	0	0	0
7	690118:00	690131:03	11	79	129	64	17	1.6	1	6455	316	-4	0	0	0
8	720125:00	720206:14	9	57	61	117	5	1.1	1	5800	302	-5	0	0	0
9	731231:17	740113:03	2	4	10	111	4	2.5	1	7261	297	-7	0	0	0
10	560125:14	560206:08	5	23	37	155	3	1.6	1	5073	282	-9	0	0	0
11	770127:17	770208:03	3	8	7	28	1	.9	1	814	274	25	0	0	0
12	540201:03	540212:00	3	9	12	53	3	1.3	1	724	257	25	0	0	0
13	650110:05	650120:16	5	20	37	139	5	1.9	1	959	251	18	0	0	0
14	521122:16	521202:08	1	5	8	0	3	1.6	1	2311	232	15	0	0	0
15	691231:17	700110:10	4	37	73	108	7	2.0	1	2117	232	12	0	0	0
16	730102:21	730112:08	2	30	27	127	3	.9	1	4077	228	-5	0	0	0
17	781118:17	781128:03	3	50	123	101	8	2.5	1	1379	222	20	0	0	0
18	571231:14	580109:05	1	6	12	0	4	2.0	1	1207	207	19	0	0	0
19	561123:19	561202:10	1	2	2	0	1	1.0	1	1058	207	24	0	0	0
20	691125:19	691204:01	3	10	43	676	11	4.3	1	984	198	22	0	0	0
21	500112:16	500120:22	10	59	58	24	4	1.0	1	5164	198	-6	0	0	0
22	681227:21	690104:17	7	44	68	37	4	1.5	1	4769	186	-11	0	0	0
23	591227:16	600104:08	4	11	14	11	4	1.3	1	1528	185	13	0	0	0
24	551213:00	551220:17	3	31	39	36	6	1.3	1	2351	185	10	0	0	0
25	561225:03	570101:19	2	2	2	136	1	1.0	1	907	184	24	0	0	0
26	631208:19	631216:10	4	18	24	117	3	1.3	1	1277	179	10	0	0	0
27	611208:17	611215:21	5	16	18	34	2	1.1	1	2100	171	3	0	0	0
28	551111:17	551118:21	6	42	40	70	3	1.0	1	3590	171	-5	0	0	0
29	630126:17	630202:19	5	91	134	24	11	1.5	1	2002	168	1	0	0	0
30	511229:15	520105:15	3	9	5	81	1	.6	1	2838	168	4	0	0	0
31	620117:07	620124:05	1	20	30	0	5	1.5	1	3363	166	-9	0	0	0
32	771118:00	771124:07	4	27	75	62	10	2.8	1	1726	152	10	0	0	0
33	510126:22	510202:05	3	16	22	113	6	1.4	1	3015	151	-1	0	0	0
34	760201:01	760206:23	1	4	5	0	2	1.3	1	1154	142	7	0	0	0
35	511222:23	511228:21	3	13	28	22	13	2.2	1	1551	142	12	0	0	0
36	710101:17	710107:08	1	8	15	0	3	1.9	1	1327	136	13	0	0	0
37	550105:12	550111:03	2	16	19	95	3	1.2	1	789	135	23	0	0	0
38	750204:17	750210:05	4	32	31	23	5	1.0	1	638	131	22	0	0	0
39	631130:17	631206:03	3	13	25	63	8	1.9	1	602	125	26	0	0	0
40	590101:23	590107:03	2	17	26	64	4	1.5	1	2501	124	-1	0	0	0
41	711225:19	711230:21	2	22	38	92	4	1.7	1	1238	122	15	0	0	0
42	570218:19	570223:19	3	29	27	32	2	.9	1	1197	120	7	0	0	0
43	641215:12	641220:12	5	36	46	51	6	1.3	2	3115	118	-12	4	3	34
44	591219:17	591224:21	2	16	27	29	4	1.7	1	331	116	25	0	0	0
45	511210:16	511215:08	1	1	1	0	1	1.0	1	704	112	20	0	0	0
46	630109:14	630114:07	1	8	19	0	7	2.4	1	2584	110	-9	0	0	0
47	520121:17	520126:08	2	15	24	12	4	1.6	1	897	110	11	0	0	0
48	620109:17	620114:07	2	6	9	17	2	1.5	1	789	110	17	0	0	0
49	600301:17	600306:08	3	60	78	20	4	1.3	1	1125	109	14	0	0	0
50	691204:21	691209:07	2	17	20	45	4	1.2	1	370	106	23	0	0	0

OVERALL ORDER STATISTICS AT PENDLETON
SORTED BY NUMBER OF HOURS BELOW 32F

			CHARACTERISTICS OF PRECIP EVENTS IN CLUSTER						CHARACTERISTICS OF FREEZE EVENTS IN CLUSTER						
							INTENSITY								
	START DATE AND HOUR (YYMMDD:HH)	END DATE AND HOUR (YYMMDD:HH)	NO. PRECIP EVENTS	DUR (HRS)	AMOUNT (INX100)	MAX DRY (HRS)	MAXIMUM (IN/HRX100)	AVERAGE (IN/HRX100)	NO. FREEZE EVENTS	FREEZE INDEX (F)	NO. BELOW	MIN. TEMP (F)	THAW INDEX (F)	NO. ABOVE	MAX. TEMP (F)
51	601227:05	601231:12	1	8	4	0	2	.5	1	557	102	24	0	0	0
52	681218:21	681223:08	2	10	13	70	6	1.3	2	518	102	20	8	3	36
53	611123:01	611129:10	1	59	129	0	12	2.2	1	526	102	21	0	0	0
54	700115:23	700120:03	6	54	119	12	8	2.2	1	529	100	21	0	0	0
55	591115:03	591119:05	1	4	8	0	2	2.0	1	1264	98	5	0	0	0
56	521222:22	521226:22	2	2	2	54	1	1.0	1	656	96	20	0	0	0
57	540118:01	540121:23	1	1	2	0	2	2.0	1	2013	94	-4	0	0	0
58	660117:05	660121:03	1	1	1	0	1	1.0	1	368	93	19	0	0	0
59	500101:16	500105:13	1	10	48	0	11	4.8	1	1764	93	-3	0	0	0
60	601214:19	601218:16	2	15	21	20	4	1.4	1	400	92	25	0	0	0
61	781205:14	781209:12	1	8	10	0	4	1.3	1	936	90	10	0	0	0
62	660123:19	660127:14	1	7	10	0	3	1.4	1	490	90	22	0	0	0
63	751218:17	751222:12	1	1	1	0	1	1.0	1	211	90	29	0	0	0
64	560214:16	560218:08	4	23	53	38	6	2.3	1	1441	89	2	0	0	0
65	730211:12	730215:05	1	1	1	0	1	1.0	1	334	88	20	0	0	0
66	551228:16	560101:07	2	6	23	22	10	3.8	1	662	88	18	0	0	0
67	671218:03	671221:14	2	16	19	33	2	1.2	1	957	83	12	0	0	0
68	750127:16	750131:03	1	1	1	0	1	1.0	1	496	83	21	0	0	0
69	561205:03	561208:12	1	3	3	0	1	1.0	1	1416	81	8	0	0	0
70	590217:17	590220:23	3	21	26	15	5	1.2	1	223	74	26	0	0	0
71	601221:14	601224:16	1	1	1	0	1	1.0	1	290	74	26	0	0	0
72	501203:15	501207:01	2	56	117	28	17	2.1	1	257	71	24	0	0	0
73	780107:21	780110:19	3	43	86	16	7	2.0	1	93	67	30	0	0	0
74	591207:19	591210:14	1	1	2	0	2	2.0	1	342	67	24	0	0	0
75	780302:17	780305:10	2	20	37	15	8	1.9	1	271	65	26	0	0	0
76	490217:19	490221:13	1	33	101	0	12	3.1	1	392	61	22	0	0	0
77	701121:14	701124:08	2	22	37	17	4	1.7	1	813	61	8	0	0	0
78	491209:18	491212:10	2	13	32	51	6	2.5	1	286	61	20	0	0	0
79	761220:17	761223:07	1	3	11	0	6	3.7	1	324	61	24	0	0	0
80	751118:00	751120:12	1	8	4	0	1	.5	1	182	60	26	0	0	0
81	590120:07	590122:19	3	18	20	22	5	1.1	1	266	59	24	0	0	0
82	781217:16	781220:01	1	8	18	0	5	2.3	1	343	58	16	0	0	0
83	751127:17	751130:03	2	7	12	31	3	1.7	1	429	58	17	0	0	0
84	701220:23	701223:08	2	6	4	16	1	.7	1	308	57	17	0	0	0
85	750109:17	750112:10	2	16	49	17	10	3.1	1	576	56	14	0	0	0
86	690111:19	690114:03	2	26	26	11	4	1.0	1	242	56	21	0	0	0
87	581208:03	581211:16	2	32	146	15	10	4.6	1	162	55	26	0	0	0
88	540115:10	540117:23	2	22	30	21	3	1.4	1	669	53	14	0	0	0
89	641205:19	641208:01	2	6	14	41	6	2.3	1	68	51	30	0	0	0
90	551126:08	551129:01	1	23	103	0	11	4.5	1	118	50	28	0	0	0
91	700228:05	700302:07	1	38	47	0	4	1.2	1	257	50	21	0	0	0
92	591112:12	591114:14	1	1	1	0	1	1.0	1	537	49	9	0	0	0
93	520111:18	520113:22	1	5	28	0	13	5.6	1	286	48	22	0	0	0
94	540111:05	540113:03	1	2	2	0	1	1.0	1	140	47	26	0	0	0
95	630123:17	630125:12	2	2	2	6	1	1.0	1	261	44	22	0	0	0
96	550226:01	550228:00	3	6	13	18	4	2.2	1	288	44	19	0	0	0
97	720102:10	720104:07	1	2	3	0	2	1.5	1	360	44	15	0	0	0
98	551203:21	551205:21	1	7	9	0	5	1.3	2	218	44	23	21	3	42
99	711206:17	711208:14	1	6	32	0	7	5.3	1	312	43	18	0	0	0
100	501213:03	501214:23	3	12	33	9	8	2.8	1	75	43	29	0	0	0

OVERALL ORDER STATISTICS AT PENDLETON
SORTED BY NUMBER OF HOURS BELOW 32F

			CHARACTERISTICS OF PRECIP EVENTS IN CLUSTER						CHARACTERISTICS OF FREEZE EVENTS IN CLUSTER						
							INTENSITY								
	START DATE AND HOUR (YYMMDD:HH)	END DATE AND HOUR (YYMMDD:HH)	NO. PRECIP EVENTS	DUR (HRS)	AMOUNT (INX100)	MAX DRY (HRS)	MAXIMUM (IN/HRX100)	AVERAGE (IN/HRX100)	NO. FREEZE EVENTS	FREEZE INDEX (F)	NO. BELOW	MIN. TEMP (F)	THAW INDEX (F)	NO. ABOVE	MAX. TEMP (F)
101	520115:16	520117:09	1	6	23	0	7	3.8	1	318	41	19	0	0	0
102	771208:19	771210:10	1	2	3	0	2	1.5	1	110	39	26	0	0	0
103	570131:21	570202:19	1	18	87	0	18	4.8	1	437	39	9	0	0	0
104	720209:17	720211:10	1	3	6	0	3	2.0	1	118	39	28	0	0	0
105	500310:18	500312:08	1	1	1	0	1	1.0	1	196	37	17	0	0	0
106	710111:17	710113:07	1	13	13	0	2	1.0	1	112	35	25	0	0	0
107	490202:14	490204:00	1	1	2	0	2	2.0	1	308	35	11	0	0	0
108	511123:22	511125:08	1	6	2	0	1	.3	1	54	34	29	0	0	0
109	680102:00	680103:10	1	4	5	0	2	1.3	1	172	33	23	0	0	0
110	591130:23	591202:07	1	1	1	0	1	1.0	1	88	32	26	0	0	0
111	641225:05	641226:12	1	5	2	0	1	.4	1	136	32	24	0	0	0
112	660121:17	660123:01	1	6	3	0	1	.5	1	96	32	27	0	0	0
113	601225:01	601226:08	1	9	16	0	6	1.8	1	103	30	24	0	0	0
114	780113:00	780114:05	1	4	14	0	8	3.5	1	30	30	31	0	0	0
115	550102:07	550103:10	1	1	2	0	2	2.0	1	104	27	24	0	0	0
116	650122:21	650124:00	1	11	29	0	4	2.6	1	70	27	29	0	0	0
117	610128:17	610130:01	1	18	21	0	5	1.2	1	52	27	28	0	0	0
118	511219:07	511220:13	2	12	11	9	5	.9	1	167	26	22	0	0	0
119	550104:12	550105:12	1	2	3	0	2	1.5	1	87	23	25	0	0	0
120	481213:23	481214:22	1	14	40	0	6	2.9	1	36	23	30	0	0	0
121	510304:09	510305:16	1	9	36	0	8	4.0	1	83	23	25	0	0	0
122	500107:22	500108:21	1	3	4	0	2	1.3	1	96	23	26	0	0	0
123	780130:16	780131:14	1	2	8	0	7	4.0	1	49	22	28	0	0	0
124	691210:01	691210:23	1	2	10	0	7	5.0	1	78	22	25	0	0	0
125	731105:07	731106:10	1	27	52	0	7	1.9	1	41	21	29	0	0	0
126	510206:07	510207:13	2	17	48	14	9	2.8	1	33	20	30	0	0	0
127	671127:17	671128:12	1	5	7	0	2	1.4	1	86	20	26	0	0	0
128	510302:17	510303:21	1	10	15	0	4	1.5	2	54	20	26	1	1	33
129	650324:17	650325:12	1	4	3	0	1	.8	1	100	19	23	0	0	0
130	551202:14	551203:10	1	6	13	0	3	2.2	1	47	19	29	0	0	0
131	780131:19	780201:17	1	6	8	0	5	1.3	1	32	18	30	0	0	0
132	661226:05	661226:23	1	1	1	0	1	1.0	1	49	18	25	0	0	0
133	491231:18	500101:11	1	4	6	0	2	1.5	1	45	17	28	0	0	0
134	690114:17	690115:10	1	1	2	0	2	2.0	1	102	17	20	0	0	0
135	650316:14	650317:14	1	8	8	0	4	1.0	1	93	17	20	0	0	0
136	690224:21	690225:16	2	5	4	14	1	.8	1	26	17	29	0	0	0
137	730210:00	730210:16	1	10	51	0	9	5.1	1	30	16	29	0	0	0
138	590210:23	590211:16	1	17	18	0	6	1.1	1	23	15	30	0	0	0
139	711106:19	711107:10	1	1	2	0	2	2.0	1	56	15	26	0	0	0
140	520220:18	520221:09	1	1	1	0	1	1.0	1	40	15	28	0	0	0
141	690222:23	690223:14	1	2	5	0	3	2.5	1	28	15	29	0	0	0
142	481209:01	481209:23	1	7	6	0	2	.9	1	37	15	28	0	0	0
143	501111:18	501112:09	1	10	20	0	4	2.0	1	25	15	30	0	0	0
144	511206:18	511207:09	1	1	1	0	1	1.0	1	94	15	22	0	0	0
145	510301:19	510302:10	1	8	3	0	1	.4	1	54	15	25	0	0	0
146	700111:17	700112:21	1	14	24	0	5	1.7	1	56	14	25	0	0	0
147	551120:14	551121:08	1	14	23	0	4	1.6	1	37	14	28	0	0	0
148	490314:21	490316:05	1	26	22	0	4	.8	1	21	14	30	0	0	0
149	520222:22	520223:11	1	5	5	0	2	1.0	1	51	14	26	0	0	0
150	550324:21	550325:10	1	2	2	0	1	1.0	1	51	13	24	0	0	0

OVERALL ORDER STATISTICS AT PENDLETON
SORTED BY NUMBER OF HOURS BELOW 32F

			CHARACTERISTICS OF PRECIP EVENTS IN CLUSTER						CHARACTERISTICS OF FREEZE EVENTS IN CLUSTER						
	START DATE AND HOUR (YYMMDD:HH)	END DATE AND HOUR (YYMMDD:HH)	NO. PRECIP EVENTS	DUR (HRS)	AMOUNT (INX100)	MAX DRY (HRS)	INTENSITY MAXIMUM (IN/HRX100)	INTENSITY AVERAGE (IN/HRX100)	NO. FREEZE EVENTS	FREEZE INDEX (F)	NO. BELOW	MIN. TEMP (F)	THAW INDEX (F)	NO. ABOVE	MAX. TEMP (F)
151	510110:09	510110:23	1	8	4	0	1	.5	1	26	13	28	0	0	0
152	731229:03	731229:21	1	19	36	0	4	1.9	1	17	12	30	0	0	0
153	570207:16	570208:03	1	1	1	0	1	1.0	1	33	12	27	0	0	0
154	581206:00	581206:12	1	8	10	0	3	1.3	1	29	12	29	0	0	0
155	701231:19	710101:10	1	5	18	0	8	3.6	1	51	11	25	0	0	0
156	530228:21	530301:12	1	5	23	0	13	4.6	1	43	11	25	0	0	0
157	690201:00	690201:10	1	1	1	0	1	1.0	1	15	10	30	0	0	0
158	560305:21	560306:07	1	1	1	0	1	1.0	1	28	10	27	0	0	0
159	500210:00	500210:09	1	1	1	0	1	1.0	1	24	10	28	0	0	0
160	550130:21	550131:19	1	20	18	0	4	.9	1	10	10	31	0	0	0
161	631219:19	631220:07	1	4	15	0	8	3.8	1	13	9	29	0	0	0
162	581115:03	581115:12	1	7	4	0	1	.6	1	22	9	28	0	0	0
163	560112:17	560113:05	1	6	15	0	6	2.5	1	16	9	30	0	0	0
164	550319:00	550319:08	1	2	3	0	2	1.5	1	31	9	24	0	0	0
165	710227:00	710227:07	1	1	2	0	2	2.0	1	31	8	26	0	0	0
166	591218:01	591218:10	1	1	1	0	1	1.0	1	20	8	27	0	0	0
167	641221:00	641222:12	1	37	84	0	13	2.3	1	11	8	30	0	0	0
168	550313:19	550314:07	1	8	10	0	6	1.3	1	11	8	30	0	0	0
169	691225:21	691226:10	1	9	12	0	3	1.3	1	7	7	31	0	0	0
170	490101:02	490101:11	1	4	5	0	2	1.3	1	11	7	30	0	0	0
171	620228:19	620301:01	1	1	2	0	2	2.0	1	30	7	26	0	0	0
172	521220:00	521220:11	1	12	26	0	4	2.2	1	8	7	30	0	0	0
173	511209:15	511209:21	1	2	3	0	2	1.5	1	16	6	27	0	0	0
174	520215:15	520216:09	1	20	65	0	11	3.3	1	6	6	31	0	0	0
175	670125:00	670125:05	1	2	5	0	3	2.5	1	5	5	31	0	0	0
176	560114:08	560115:19	1	35	150	0	13	4.3	1	5	5	31	0	0	0
177	701208:23	701209:07	1	7	32	0	6	4.6	1	5	5	31	0	0	0
178	530106:00	530106:05	1	1	1	0	1	1.0	1	5	5	31	0	0	0
179	690116:23	690117:05	1	7	10	0	4	1.4	1	5	5	31	0	0	0
180	700113:00	700113:05	1	1	1	0	1	1.0	1	5	5	31	0	0	0
181	690205:03	690205:12	1	6	9	0	2	1.5	1	10	5	29	0	0	0
182	641223:19	641224:21	1	27	69	0	12	2.6	1	8	4	29	0	0	0
183	780217:19	780218:03	1	5	8	0	3	1.6	1	3	3	31	0	0	0
184	650325:21	650326:10	1	13	15	0	3	1.2	1	4	3	30	0	0	0
185	641227:07	641227:10	1	1	2	0	2	2.0	1	10	3	28	0	0	0
186	641226:14	641226:17	1	4	13	0	4	3.3	1	7	3	29	0	0	0
187	550116:01	550116:03	1	1	6	0	6	6.0	1	2	2	31	0	0	0
188	750124:03	750126:10	1	56	218	0	11	3.9	1	2	2	31	0	0	0
189	551119:00	551119:14	1	13	59	0	8	4.5	1	10	2	25	0	0	0
190	680112:21	680112:23	1	2	2	0	1	1.0	1	2	2	31	0	0	0
191	550303:05	550303:07	1	1	1	0	1	1.0	1	4	2	30	0	0	0
192	640113:16	640113:23	1	7	2	0	1	.3	1	2	2	31	0	0	0
193	661210:01	661210:10	1	10	20	0	9	2.0	1	2	2	31	0	0	0
194	641229:14	641229:16	1	2	2	0	1	1.0	1	2	2	31	0	0	0
195	670105:05	670105:07	1	1	2	0	2	2.0	1	2	2	31	0	0	0
196	591202:19	591202:19	1	1	1	0	1	1.0	1	1	1	31	0	0	0
197	781129:10	781129:23	1	13	46	0	14	3.5	1	1	1	31	0	0	0
198	570110:07	570110:08	1	3	4	0	2	1.3	1	1	1	31	0	0	0
199	710304:12	710304:14	1	4	14	0	7	3.5	1	1	1	31	0	0	0
200	590130:21	590131:10	1	14	25	0	6	1.8	1	1	1	31	0	0	0

OVERALL ORDER STATISTICS AT PENDLETON
SORTED BY NUMBER OF HOURS BELOW 32F

			CHARACTERISTICS OF PRECIP EVENTS IN CLUSTER						CHARACTERISTICS OF FREEZE EVENTS IN CLUSTER						
	START DATE AND HOUR (YYMMDD:HH)	END DATE AND HOUR (YYMMDD:HH)	NO. PRECIP EVENTS	DUR (HRS)	AMOUNT (INX100)	MAX DRY (HRS)	INTENSITY MAXIMUM (IN/HRX100)	INTENSITY AVERAGE (IN/HRX100)	NO. FREEZE EVENTS	FREEZE INDEX (F)	NO. BELOW	MIN. TEMP (F)	THAW INDEX (F)	NO. ABOVE	MAX. TEMP (F)
201	721217:07	721217:14	1	9	21	0	6	2.3	1	1	1	31	0	0	0
202	540124:10	540124:12	1	1	2	0	2	2.0	1	2	1	30	0	0	0
203	670106:03	670106:07	1	5	5	0	2	1.0	1	1	1	31	0	0	0

OVERALL ORDER STATISTICS AT WALLA WALLA
SORTED BY NUMBER OF HOURS BELOW 32F

			CHARACTERISTICS OF PRECIP EVENTS IN CLUSTER						CHARACTERISTICS OF FREEZE EVENTS IN CLUSTER					
							INTENSITY							
	START DATE AND HOUR (YYMMDD:HH)	END DATE AND HOUR (YYMMDD:HH)	NO. PRECIP EVENTS	DUR (HRS)	AMOUNT (INX100)	MAX DRY (HRS)	MAXIMUM (IN/HRX100)	AVERAGE (IN/HRX100)	NO. FREEZE EVENTS	FREEZE INDEX (F)	NO. BELOW	MIN. TEMP (F)	THAW INDEX (F)	NO. ABOVE	MAX. TEMP (F)
1	570112:16	570130:17	7	85	137	163	10	1.6	1	10325	434	-15	0	0	0
2	560124:21	560210:07	6	32	72	165	7	2.3	1	6223	393	-8	0	0	0
3	490118:18	490203:22	5	26	23	185	2	.9	1	6906	387	-4	0	0	0
4	761229:12	770113:05	12	39	65	106	6	1.7	1	4849	353	-2	0	0	0
5	600112:16	600126:08	5	35	38	129	3	1.1	1	4211	329	7	0	0	0
6	771222:21	780105:07	9	96	136	89	6	1.4	1	3314	322	2	0	0	0
7	500123:18	500206:05	8	61	105	156	6	1.7	1	9672	322	-16	0	0	0
8	740101:07	740113:05	5	22	25	80	3	1.1	1	8028	285	-10	0	0	0
9	521121:16	521202:06	3	15	21	96	4	1.4	1	2372	249	14	0	0	0
10	490108:00	490117:02	2	2	2	12	1	1.0	1	3751	219	4	0	0	0
11	591227:05	600105:05	1	38	33	0	3	.9	1	1523	215	11	0	0	0
12	500112:16	500121:00	10	82	123	23	5	1.5	1	5296	198	-7	0	0	0
13	611207:21	611216:01	4	34	33	56	3	1.0	1	2249	197	2	0	0	0
14	561224:19	570101:23	2	7	24	49	5	3.4	1	755	193	26	0	0	0
15	551212:23	551220:14	3	38	57	37	4	1.5	1	2245	184	10	0	0	0
16	551111:14	551119:14	6	71	136	68	7	1.9	1	3522	179	-4	0	0	0
17	550103:17	550111:01	3	27	25	102	2	.9	1	1008	176	19	0	0	0
18	620116:17	620124:00	1	1	1	0	1	1.0	1	3009	175	-3	0	0	0
19	511229:22	520105:19	6	21	16	54	2	.8	1	2817	166	6	0	0	0
20	540115:17	540122:19	5	39	69	56	6	1.8	1	3132	166	-6	0	0	0
21	510126:22	510202:10	2	17	19	119	2	1.1	1	2943	157	2	0	0	0
22	760131:05	760206:08	1	7	7	0	2	1.0	1	769	148	11	0	0	0
23	541217:14	541223:10	2	2	2	22	1	1.0	1	915	140	19	0	0	0
24	540206:21	540212:12	2	14	17	59	3	1.2	1	488	136	25	0	0	0
25	750204:08	750210:03	4	29	41	54	3	1.4	1	1041	135	17	0	0	0
26	511222:21	511228:10	3	26	41	11	10	1.6	1	1536	134	14	0	0	0
27	771118:10	771124:01	2	51	66	6	4	1.3	1	1194	134	11	0	0	0
28	590101:23	590107:12	2	22	48	65	5	2.2	1	2546	134	-1	0	0	0
29	630126:16	630201:05	4	38	83	29	4	2.2	1	1833	134	3	0	0	0
30	571231:00	580105:12	2	16	26	132	6	1.6	1	720	133	23	0	0	0
31	751216:21	751222:10	1	2	2	0	1	1.0	1	439	133	26	0	0	0
32	570218:19	570224:00	4	29	43	36	3	1.5	1	1016	120	9	0	0	0
33	750126:16	750131:16	1	1	1	0	1	1.0	1	1100	120	11	0	0	0
34	641215:14	641220:12	3	15	35	69	8	2.3	1	2869	119	-5	0	0	0
35	611123:03	611129:12	2	64	148	16	6	2.3	2	596	111	18	7	5	35
36	601214:03	601218:17	3	22	47	16	4	2.1	1	409	109	24	0	0	0
37	781118:19	781123:07	2	30	79	6	5	2.6	1	752	108	21	0	0	0
38	560214:19	560219:07	3	21	76	43	6	3.6	1	1728	108	1	0	0	0
39	620109:17	620114:05	2	3	3	10	1	1.0	1	770	107	19	0	0	0
40	601227:00	601231:10	2	5	7	102	3	1.4	1	570	106	22	0	0	0
41	600301:17	600305:21	5	37	58	20	4	1.6	1	946	100	17	0	0	0
42	551228:16	560101:17	2	7	11	22	3	1.6	1	773	97	16	0	0	0
43	540201:05	540205:05	2	2	2	23	1	1.0	1	143	96	30	0	0	0
44	591115:03	591119:03	2	11	11	78	2	1.0	1	1170	95	5	0	0	0
45	770127:16	770131:12	1	4	5	0	2	1.3	1	337	93	27	0	0	0
46	500101:16	500105:13	3	19	26	31	2	1.4	1	1778	92	1	0	0	0
47	610101:14	610105:03	1	2	2	0	1	1.0	1	770	86	19	0	0	0
48	561205:01	561208:12	2	3	4	48	2	1.3	1	1508	84	6	0	0	0
49	520121:16	520124:14	3	39	45	10	3	1.2	1	525	69	18	0	0	0
50	600109:17	600112:14	2	17	43	11	6	2.5	1	819	69	11	0	0	0

OVERALL ORDER STATISTICS AT WALLA WALLA
SORTED BY NUMBER OF HOURS BELOW 32F

			CHARACTERISTICS OF PRECIP EVENTS IN CLUSTER						CHARACTERISTICS OF FREEZE EVENTS IN CLUSTER						
							INTENSITY								
	START DATE AND HOUR (YYMMDD:HH)	END DATE AND HOUR (YYMMDD:HH)	NO. PRECIP EVENTS	DUR (HRS)	AMOUNT (INX100)	MAX DRY (HRS)	MAXIMUM (IN/HRX100)	AVERAGE (IN/HRX100)	NO. FREEZE EVENTS	FREEZE INDEX (F)	NO. BELOW	MIN. TEMP (F)	THAW INDEX (F)	NO. ABOVE	MAX. TEMP (F)
51	770131:16	770203:12	1	1	1	0	1	1.0	1	136	68	29	0	0	0
52	581207:23	581211:16	3	33	149	16	11	4.5	1	236	68	26	0	0	0
53	630122:19	630125:12	1	1	1	0	1	1.0	1	491	66	16	0	0	0
54	501203:14	501207:02	2	63	151	23	18	2.4	2	249	66	25	4	3	34
55	591207:17	591210:10	1	1	1	0	1	1.0	1	191	66	28	0	0	0
56	780302:17	780305:07	1	12	7	0	1	.6	1	162	62	26	0	0	0
57	761220:16	761223:10	1	9	32	0	8	3.6	1	268	61	26	0	0	0
58	490218:16	490221:09	1	20	71	0	8	3.6	1	329	59	22	0	0	0
59	751128:01	751130:14	2	12	17	36	4	1.4	2	337	56	21	24	5	40
60	491209:17	491212:08	2	11	45	52	10	4.1	1	203	54	23	0	0	0
61	551126:07	551129:03	1	22	109	0	10	5.0	1	131	52	28	0	0	0
62	520115:06	520117:09	1	5	16	0	5	3.2	1	399	52	19	0	0	0
63	581115:07	581117:12	1	5	9	0	5	1.8	1	434	52	16	0	0	0
64	511219:03	511221:08	2	30	25	6	1	.8	1	512	52	15	0	0	0
65	590120:12	590124:05	2	48	110	11	18	2.3	1	284	51	22	0	0	0
66	610127:17	610129:19	1	3	8	0	3	2.7	1	200	50	23	0	0	0
67	780130:19	780202:00	2	24	32	13	4	1.3	3	112	48	28	2	2	33
68	520124:16	520126:13	1	5	5	0	1	1.0	1	399	45	18	0	0	0
69	570131:23	570202:23	1	11	55	0	8	5.0	1	373	43	13	0	0	0
70	550226:00	550227:23	2	15	26	14	2	1.7	1	295	42	20	0	0	0
71	551203:21	551205:19	1	9	10	0	4	1.1	2	174	41	25	29	3	45
72	641225:01	641226:17	2	15	13	6	3	.9	1	306	39	20	0	0	0
73	630201:08	630203:00	2	11	29	8	4	2.6	1	259	39	23	0	0	0
74	650109:21	650111:10	1	24	33	0	4	1.4	1	114	37	26	0	0	0
75	491218:22	491220:10	1	10	4	0	1	.4	1	364	36	19	0	0	0
76	590217:19	590219:10	2	24	33	15	4	1.4	1	100	35	28	0	0	0
77	510206:01	510207:13	1	31	62	0	9	2.0	1	83	33	27	0	0	0
78	551202:00	551203:08	2	4	3	6	1	.8	1	79	33	29	0	0	0
79	771209:01	771210:10	1	3	4	0	2	1.3	1	119	32	25	0	0	0
80	770113:07	770114:14	1	4	4	0	1	1.0	1	167	32	25	0	0	0
81	491214:00	491215:08	1	1	1	0	1	1.0	1	105	31	27	0	0	0
82	510109:16	510110:22	1	7	19	0	4	2.7	1	74	30	27	0	0	0
83	601225:03	601226:07	1	3	20	0	8	6.7	1	79	29	27	0	0	0
84	500107:16	500108:22	1	3	12	0	5	4.0	1	140	29	25	0	0	0
85	630105:03	630106:07	1	1	1	0	1	1.0	1	47	27	29	0	0	0
86	580109:07	580110:10	1	1	1	0	1	1.0	1	71	27	27	0	0	0
87	751213:07	751214:10	1	1	1	0	1	1.0	1	125	26	21	0	0	0
88	550102:07	550103:10	1	3	16	0	8	5.3	1	80	26	24	0	0	0
89	620206:03	620207:05	1	8	15	0	2	1.9	1	42	26	28	0	0	0
90	650122:21	650124:05	1	25	66	0	10	2.6	1	74	25	27	0	0	0
91	570207:03	570208:05	1	1	1	0	1	1.0	1	103	25	26	0	0	0
92	781126:21	781128:03	1	12	43	0	8	3.6	1	35	24	29	0	0	0
93	750112:19	750113:19	1	5	10	0	2	2.0	1	71	24	28	0	0	0
94	501213:01	501214:00	2	4	3	10	1	.8	1	26	23	30	0	0	0
95	491220:21	491221:16	1	1	1	0	1	1.0	1	169	20	20	0	0	0
96	600107:19	600108:14	1	18	31	0	4	1.7	1	58	19	27	0	0	0
97	510302:18	510303:21	1	10	20	0	4	2.0	1	39	19	28	0	0	0
98	781210:03	781211:07	1	12	47	0	6	3.9	1	53	18	28	0	0	0
99	551122:17	551123:14	2	11	20	56	3	1.8	2	67	18	26	2	1	34
100	751211:19	751212:14	1	10	13	0	2	1.3	1	33	18	29	0	0	0

OVERALL ORDER STATISTICS AT WALLA WALLA
SORTED BY NUMBER OF HOURS BELOW 32F

			CHARACTERISTICS OF PRECIP EVENTS IN CLUSTER						CHARACTERISTICS OF FREEZE EVENTS IN CLUSTER						
							INTENSITY								
	START DATE AND HOUR (YYMMDD:HH)	END DATE AND HOUR (YYMMDD:HH)	NO. PRECIP EVENTS	DUR (HRS)	AMOUNT (INX100)	MAX DRY (HRS)	MAXIMUM (IN/HRX100)	AVERAGE (IN/HRX100)	NO. FREEZE EVENTS	FREEZE INDEX (F)	NO. BELOW	MIN. TEMP (F)	THAW INDEX (F)	NO. ABOVE	MAX. TEMP (F)
101	520111:16	520112:09	1	8	27	0	5	3.4	1	62	17	22	0	0	0
102	590210:21	590211:14	1	11	7	0	1	.6	1	28	17	29	0	0	0
103	511216:00	511216:16	1	1	1	0	1	1.0	1	57	17	27	0	0	0
104	641221:01	641221:17	1	14	59	0	9	4.2	1	62	16	27	0	0	0
105	611117:17	611118:08	1	1	1	0	1	1.0	1	63	16	25	0	0	0
106	500310:23	500311:14	1	5	2	0	1	.4	1	89	15	20	0	0	0
107	560114:10	560115:19	1	34	154	0	15	4.5	2	14	14	31	2	1	34
108	510301:22	510302:11	1	10	8	0	1	.8	1	46	14	26	0	0	0
109	500210:02	500210:18	1	10	12	0	2	1.2	1	24	14	29	0	0	0
110	770116:05	770116:19	1	2	2	0	1	1.0	1	39	13	27	0	0	0
111	590207:21	590208:10	1	1	1	0	1	1.0	1	31	13	29	0	0	0
112	620228:19	620301:07	1	5	18	0	5	3.6	1	44	12	25	0	0	0
113	490315:00	490315:21	1	12	24	0	4	2.0	1	26	12	28	0	0	0
114	641226:23	641227:10	1	2	17	0	9	8.5	1	58	12	25	0	0	0
115	550122:00	550122:12	1	8	13	0	3	1.6	1	28	12	28	0	0	0
116	520220:23	520221:10	1	1	1	0	1	1.0	1	27	12	29	0	0	0
117	620227:17	620228:05	1	2	2	0	1	1.0	1	26	11	28	0	0	0
118	581206:01	581206:12	1	6	13	0	5	2.2	1	26	11	29	0	0	0
119	520215:15	520216:08	1	17	57	0	7	3.4	1	13	11	30	0	0	0
120	570203:03	570203:14	1	7	2	0	1	.3	1	78	11	18	0	0	0
121	641229:12	641229:23	1	2	3	0	2	1.5	1	51	10	25	0	0	0
122	570305:23	570307:12	1	31	68	0	12	2.2	1	10	10	31	0	0	0
123	570108:21	570109:08	1	7	14	0	4	2.0	2	18	10	29	1	1	33
124	550124:01	550124:10	1	1	1	0	1	1.0	1	18	9	29	0	0	0
125	501111:19	501112:05	1	10	9	0	2	.9	1	8	8	31	0	0	0
126	590130:14	590131:07	1	18	28	0	5	1.6	1	8	8	31	0	0	0
127	540127:10	540129:03	1	42	95	0	7	2.3	1	10	8	30	0	0	0
128	551206:07	551206:14	1	2	3	0	2	1.5	1	30	8	27	0	0	0
129	750115:10	750116:00	1	7	9	0	2	1.3	1	8	7	30	0	0	0
130	620304:23	620305:05	1	1	1	0	1	1.0	1	7	7	31	0	0	0
131	620310:01	620310:10	1	6	7	0	3	1.2	1	7	7	31	0	0	0
132	521220:01	521220:19	1	19	46	0	6	2.4	1	7	6	30	0	0	0
133	750109:17	750110:10	1	13	30	0	3	2.3	1	11	6	28	0	0	0
134	581215:16	581215:21	1	1	1	0	1	1.0	1	6	6	31	0	0	0
135	641223:21	641224:10	1	12	67	0	11	5.6	1	17	5	27	0	0	0
136	591206:17	591206:23	1	3	6	0	3	2.0	1	18	5	27	0	0	0
137	751212:21	751213:05	1	9	11	0	2	1.2	1	4	3	30	0	0	0
138	490221:10	490221:21	1	11	17	0	7	1.5	1	3	3	31	0	0	0
139	750201:17	750201:21	1	1	1	0	1	1.0	1	5	3	29	0	0	0
140	560305:05	560305:07	1	1	1	0	1	1.0	1	4	3	30	0	0	0
141	510224:23	510225:07	1	7	13	0	4	1.9	1	3	3	31	0	0	0
142	541212:14	541212:17	1	2	3	0	2	1.5	1	4	3	30	0	0	0
143	521228:16	521228:19	1	2	7	0	6	3.5	1	8	3	29	0	0	0
144	560103:12	560103:19	1	5	6	0	2	1.2	1	5	3	30	0	0	0
145	520331:19	520401:00	1	5	4	0	2	.8	1	3	3	31	0	0	0
146	551201:07	551201:17	1	11	34	0	12	3.1	1	4	2	30	0	0	0
147	490204:03	490204:08	1	3	5	0	2	1.7	2	3	2	30	2	1	34
148	560222:21	560223:05	1	9	24	0	9	2.7	1	2	2	31	0	0	0
149	520219:06	520219:08	1	1	1	0	1	1.0	1	3	2	30	0	0	0
150	540124:07	540124:12	1	4	6	0	4	1.5	2	3	2	30	4	3	34

OVERALL ORDER STATISTICS AT WALLA WALLA
SORTED BY NUMBER OF HOURS BELOW 32F

			CHARACTERISTICS OF PRECIP EVENTS IN CLUSTER						CHARACTERISTICS OF FREEZE EVENTS IN CLUSTER						
							INTENSITY								
	START DATE AND HOUR (YYMMDD:HH)	END DATE AND HOUR (YYMMDD:HH)	NO. PRECIP EVENTS	DUR (HRS)	AMOUNT (INX100)	MAX DRY (HRS)	MAXIMUM (IN/HRX100)	AVERAGE (IN/HRX100)	NO. FREEZE EVENTS	FREEZE INDEX (F)	NO. BELOW	MIN. TEMP (F)	THAW INDEX (F)	NO. ABOVE	MAX. TEMP (F)
151	781209:05	781209:12	1	9	20	0	9	2.2	1	1	1	31	0	0	0
152	490206:10	490206:14	1	4	18	0	6	4.5	1	1	1	31	0	0	0

OVERALL ORDER STATISTICS AT PENDLETON
SORTED BY MINIMUM TEMPERATURE

			CHARACTERISTICS OF PRECIP EVENTS IN CLUSTER						CHARACTERISTICS OF FREEZE EVENTS IN CLUSTER					
							INTENSITY							
	START DATE AND HOUR (YYMMDD:HH)	END DATE AND HOUR (YYMMDD:HH)	NO. PRECIP EVENTS	DUR (HRS)	AMOUNT (INX100)	MAX DRY (HRS)	MAXIMUM (IN/HRX100)	AVERAGE (IN/HRX100)	NO. FREEZE EVENTS	FREEZE INDEX (F)	NO. BELOW	MIN. TEMP (F)	THAW INDEX (F)	NO. ABOVE	MAX. TEMP (F)
1	570112:16	570130:21	9	88	136	149	6	1.5	1	10585	437	-19	0	0	0
2	500123:17	500206:06	9	50	76	157	5	1.5	1	9582	324	-17	0	0	0
3	641215:12	641220:12	5	36	46	51	6	1.3	2	3115	118	-12	4	3	34
4	721202:17	721217:00	7	55	76	111	6	1.4	1	8537	343	-12	0	0	0
5	681227:21	690104:17	7	44	68	37	4	1.5	1	4769	186	-11	0	0	0
6	620117:07	620124:05	1	20	30	0	5	1.5	1	3363	166	-9	0	0	0
7	560125:14	560206:08	5	23	37	155	3	1.6	1	5073	282	-9	0	0	0
8	630109:14	630114:07	1	8	19	0	7	2.4	1	2584	110	-9	0	0	0
9	731231:17	740113:03	2	4	10	111	4	2.5	1	7261	297	-7	0	0	0
10	500112:16	500120:22	10	59	58	24	4	1.0	1	5164	198	-6	0	0	0
11	490118:16	490202:11	4	25	12	133	2	.5	1	6357	355	-6	0	0	0
12	720125:00	720206:14	9	57	61	117	5	1.1	1	5800	302	-5	0	0	0
13	551111:17	551118:21	6	42	40	70	3	1.0	1	3590	171	-5	0	0	0
14	730102:21	730112:08	2	30	27	127	3	.9	1	4077	228	-5	0	0	0
15	540118:01	540121:23	1	1	2	0	2	2.0	1	2013	94	-4	0	0	0
16	690118:00	690131:03	11	79	129	64	17	1.6	1	6455	316	-4	0	0	0
17	500101:16	500105:13	1	10	48	0	11	4.8	1	1764	93	-3	0	0	0
18	590101:23	590107:03	2	17	26	64	4	1.5	1	2501	124	-1	0	0	0
19	510126:22	510202:05	3	16	22	113	6	1.4	1	3015	151	-1	0	0	0
20	600107:21	600126:08	9	80	102	95	6	1.3	1	5752	442	0	0	0	0
21	630126:17	630202:19	5	91	134	24	11	1.5	1	2002	168	1	0	0	0
22	560214:16	560218:08	4	23	53	38	6	2.3	1	1441	89	2	0	0	0
23	761229:19	770113:07	3	26	43	237	5	1.7	1	4900	346	2	0	0	0
24	611208:17	611215:21	5	16	18	34	2	1.1	1	2100	171	3	0	0	0
25	511229:15	520105:15	3	9	5	81	1	.6	1	2838	168	4	0	0	0
26	591115:03	591119:05	1	4	8	0	2	2.0	1	1264	98	5	0	0	0
27	760201:01	760206:23	1	4	5	0	2	1.3	1	1154	142	7	0	0	0
28	570218:19	570223:19	3	29	27	32	2	.9	1	1197	120	7	0	0	0
29	701121:14	701124:08	2	22	37	17	4	1.7	1	813	61	8	0	0	0
30	561205:03	561208:12	1	3	3	0	1	1.0	1	1416	81	8	0	0	0
31	591112:12	591114:14	1	1	1	0	1	1.0	1	537	49	9	0	0	0
32	570131:21	570202:19	1	18	87	0	18	4.8	1	437	39	9	0	0	0
33	781205:14	781209:12	1	8	10	0	4	1.3	1	936	90	10	0	0	0
34	551213:00	551220:17	3	31	39	36	6	1.3	1	2351	185	10	0	0	0
35	631208:19	631216:10	4	18	24	117	3	1.3	1	1277	179	10	0	0	0
36	771118:00	771124:07	4	27	75	62	10	2.8	1	1726	152	10	0	0	0
37	490202:14	490204:00	1	1	2	0	2	2.0	1	308	35	11	0	0	0
38	520121:17	520126:08	2	15	24	12	4	1.6	1	897	110	11	0	0	0
39	691231:17	700110:10	4	37	73	108	7	2.0	1	2117	232	12	0	0	0
40	511222:23	511228:21	3	13	28	22	13	2.2	1	1551	142	12	0	0	0
41	671218:03	671221:14	2	16	19	33	2	1.2	1	957	83	12	0	0	0
42	591227:16	600104:08	4	11	14	11	4	1.3	1	1528	185	13	0	0	0
43	710101:17	710107:08	1	8	15	0	3	1.9	1	1327	136	13	0	0	0
44	540115:10	540117:23	2	22	30	21	3	1.4	1	669	53	14	0	0	0
45	750109:17	750112:10	2	16	49	17	10	3.1	1	576	56	14	0	0	0
46	600301:17	600306:08	3	60	78	20	4	1.3	1	1125	109	14	0	0	0
47	711225:19	711230:21	2	22	38	92	4	1.7	1	1238	122	15	0	0	0
48	521122:16	521202:08	1	5	8	0	3	1.6	1	2311	232	15	0	0	0
49	720102:10	720104:07	1	2	3	0	2	1.5	1	360	44	15	0	0	0
50	781217:16	781220:01	1	8	18	0	5	2.3	1	343	58	16	0	0	0

OVERALL ORDER STATISTICS AT PENDLETON
SORTED BY MINIMUM TEMPERATURE

			CHARACTERISTICS OF PRECIP EVENTS IN CLUSTER						CHARACTERISTICS OF FREEZE EVENTS IN CLUSTER						
							INTENSITY								
	START DATE AND HOUR (YYMMDD:HH)	END DATE AND HOUR (YYMMDD:HH)	NO. PRECIP EVENTS	DUR (HRS)	AMOUNT (INX100)	MAX DRY (HRS)	MAXIMUM (IN/HRX100)	AVERAGE (IN/HRX100)	NO. FREEZE EVENTS	FREEZE INDEX (F)	NO. BELOW	MIN. TEMP (F)	THAW INDEX (F)	NO. ABOVE	MAX. TEMP (F)
51	620109:17	620114:07	2	6	9	17	2	1.5	1	789	110	17	0	0	0
52	701220:23	701223:08	2	6	4	16	1	.7	1	308	57	17	0	0	0
53	500310:18	500312:08	1	1	1	0	1	1.0	1	196	37	17	0	0	0
54	751127:17	751130:03	2	7	12	31	3	1.7	1	429	58	17	0	0	0
55	551228:16	560101:07	2	6	23	22	10	3.8	1	662	88	18	0	0	0
56	650110:05	650120:16	5	20	37	139	5	1.9	1	959	251	18	0	0	0
57	711206:17	711208:14	1	6	32	0	7	5.3	1	312	43	18	0	0	0
58	520115:16	520117:09	1	6	23	0	7	3.8	1	318	41	19	0	0	0
59	660117:05	660121:03	1	1	1	0	1	1.0	1	368	93	19	0	0	0
60	571231:14	580109:05	1	6	12	0	4	2.0	1	1207	207	19	0	0	0
61	550226:01	550228:00	3	6	13	18	4	2.2	1	288	44	19	0	0	0
62	781118:17	781128:03	3	50	123	101	8	2.5	1	1379	222	20	0	0	0
63	491209:18	491212:10	2	13	32	51	6	2.5	1	286	61	20	0	0	0
64	690114:17	690115:10	1	1	2	0	2	2.0	1	102	17	20	0	0	0
65	511210:16	511215:08	1	1	1	0	1	1.0	1	704	112	20	0	0	0
66	730211:12	730215:05	1	1	1	0	1	1.0	1	334	88	20	0	0	0
67	521222:22	521226:22	2	2	2	54	1	1.0	1	656	96	20	0	0	0
68	681218:21	681223:08	2	10	13	70	6	1.3	2	518	102	20	8	3	36
69	650316:14	650317:14	1	8	8	0	4	1.0	1	93	17	20	0	0	0
70	611123:01	611129:10	1	59	129	0	12	2.2	1	526	102	21	0	0	0
71	750127:16	750131:03	1	1	1	0	1	1.0	1	496	83	21	0	0	0
72	700115:23	700120:03	6	54	119	12	8	2.2	1	529	100	21	0	0	0
73	690111:19	690114:03	2	26	26	11	4	1.0	1	242	56	21	0	0	0
74	700228:05	700302:07	1	38	47	0	4	1.2	1	257	50	21	0	0	0
75	490217:19	490221:13	1	33	101	0	12	3.1	1	392	61	22	0	0	0
76	750204:17	750210:05	4	32	31	23	5	1.0	1	638	131	22	0	0	0
77	511206:18	511207:09	1	1	1	0	1	1.0	1	94	15	22	0	0	0
78	630123:17	630125:12	2	2	2	6	1	1.0	1	261	44	22	0	0	0
79	520111:18	520113:22	1	5	28	0	13	5.6	1	286	48	22	0	0	0
80	691125:19	691204:01	3	10	43	676	11	4.3	1	984	198	22	0	0	0
81	511219:07	511220:13	2	12	11	9	5	.9	1	167	26	22	0	0	0
82	660123:19	660127:14	1	7	10	0	3	1.4	1	490	90	22	0	0	0
83	551203:21	551205:21	1	7	9	0	5	1.3	2	218	44	23	21	3	42
84	691204:21	691209:07	2	17	20	45	4	1.2	1	370	106	23	0	0	0
85	550105:12	550111:03	2	16	19	95	3	1.2	1	789	135	23	0	0	0
86	680102:00	680103:10	1	4	5	0	2	1.3	1	172	33	23	0	0	0
87	650324:17	650325:12	1	4	3	0	1	.8	1	100	19	23	0	0	0
88	501203:15	501207:01	2	56	117	28	17	2.1	1	257	71	24	0	0	0
89	761220:17	761223:07	1	3	11	0	6	3.7	1	324	61	24	0	0	0
90	591207:19	591210:14	1	1	2	0	2	2.0	1	342	67	24	0	0	0
91	641225:05	641226:12	1	5	2	0	1	.4	1	136	32	24	0	0	0
92	561123:19	561202:10	1	2	2	0	1	1.0	1	1058	207	24	0	0	0
93	601225:01	601226:08	1	9	16	0	6	1.8	1	103	30	24	0	0	0
94	550324:21	550325:10	1	2	2	0	1	1.0	1	51	13	24	0	0	0
95	590120:07	590122:19	3	18	20	22	5	1.1	1	266	59	24	0	0	0
96	561225:03	570101:19	2	2	2	136	1	1.0	1	907	184	24	0	0	0
97	601227:05	601231:12	1	8	4	0	2	.5	1	557	102	24	0	0	0
98	550102:07	550103:10	1	1	2	0	2	2.0	1	104	27	24	0	0	0
99	550319:00	550319:08	1	2	3	0	2	1.5	1	31	9	24	0	0	0
100	770127:17	770208:03	3	8	7	28	1	.9	1	814	274	25	0	0	0

OVERALL ORDER STATISTICS AT PENDLETON
SORTED BY MINIMUM TEMPERATURE

			CHARACTERISTICS OF PRECIP EVENTS IN CLUSTER						CHARACTERISTICS OF FREEZE EVENTS IN CLUSTER						
							INTENSITY								
	START DATE AND HOUR (YYMMDD:HH)	END DATE AND HOUR (YYMMDD:HH)	NO. PRECIP EVENTS	DUR (HRS)	AMOUNT (INX100)	MAX DRY (HRS)	MAXIMUM (IN/HRX100)	AVERAGE (IN/HRX100)	NO. FREEZE EVENTS	FREEZE INDEX (F)	NO. BELOW	MIN. TEMP (F)	THAW INDEX (F)	NO. ABOVE	MAX. TEMP (F)
101	530228:21	530301:12	1	5	23	0	13	4.6	1	43	11	25	0	0	0
102	710111:17	710113:07	1	13	13	0	2	1.0	1	112	35	25	0	0	0
103	591219:17	591224:21	2	16	27	29	4	1.7	1	331	116	25	0	0	0
104	661226:05	661226:23	1	1	1	0	1	1.0	1	49	18	25	0	0	0
105	510301:19	510302:10	1	8	3	0	1	.4	1	54	15	25	0	0	0
106	700111:17	700112:21	1	14	24	0	5	1.7	1	56	14	25	0	0	0
107	550104:12	550105:12	1	2	3	0	2	1.5	1	87	23	25	0	0	0
108	701231:19	710101:10	1	5	18	0	8	3.6	1	51	11	25	0	0	0
109	510304:09	510305:16	1	9	36	0	8	4.0	1	83	23	25	0	0	0
110	691210:01	691210:23	1	2	10	0	7	5.0	1	78	22	25	0	0	0
111	601214:19	601218:16	2	15	21	20	4	1.4	1	400	92	25	0	0	0
112	551119:00	551119:14	1	13	59	0	8	4.5	1	10	2	25	0	0	0
113	540201:03	540212:00	3	9	12	53	3	1.3	1	724	257	25	0	0	0
114	751118:00	751120:12	1	8	4	0	1	.5	1	182	60	26	0	0	0
115	500107:22	500108:21	1	3	4	0	2	1.3	1	96	23	26	0	0	0
116	631130:17	631206:03	3	13	25	63	8	1.9	1	602	125	26	0	0	0
117	590217:17	590220:23	3	21	26	15	5	1.2	1	223	74	26	0	0	0
118	780302:17	780305:10	2	20	37	15	8	1.9	1	271	65	26	0	0	0
119	520222:22	520223:11	1	5	5	0	2	1.0	1	51	14	26	0	0	0
120	710227:00	710227:07	1	1	2	0	2	2.0	1	31	8	26	0	0	0
121	620228:19	620301:01	1	1	2	0	2	2.0	1	30	7	26	0	0	0
122	771208:19	771210:10	1	2	3	0	2	1.5	1	110	39	26	0	0	0
123	510302:17	510303:21	1	10	15	0	4	1.5	2	54	20	26	1	1	33
124	671127:17	671128:12	1	5	7	0	2	1.4	1	86	20	26	0	0	0
125	581208:03	581211:16	2	32	146	15	10	4.6	1	162	55	26	0	0	0
126	711106:19	711107:10	1	1	2	0	2	2.0	1	56	15	26	0	0	0
127	540111:05	540113:03	1	2	2	0	1	1.0	1	140	47	26	0	0	0
128	601221:14	601224:16	1	1	1	0	1	1.0	1	290	74	26	0	0	0
129	591130:23	591202:07	1	1	1	0	1	1.0	1	88	32	26	0	0	0
130	660121:17	660123:01	1	6	3	0	1	.5	1	96	32	27	0	0	0
131	511209:15	511209:21	1	2	3	0	2	1.5	1	16	6	27	0	0	0
132	560305:21	560306:07	1	1	1	0	1	1.0	1	28	10	27	0	0	0
133	591218:01	591218:10	1	1	1	0	1	1.0	1	20	8	27	0	0	0
134	570207:16	570208:03	1	1	1	0	1	1.0	1	33	12	27	0	0	0
135	780130:16	780131:14	1	2	8	0	7	4.0	1	49	22	28	0	0	0
136	481209:01	481209:23	1	7	6	0	2	.9	1	37	15	28	0	0	0
137	720209:17	720211:10	1	3	6	0	3	2.0	1	118	39	28	0	0	0
138	551120:14	551121:08	1	14	23	0	4	1.6	1	37	14	28	0	0	0
139	641227:07	641227:10	1	1	2	0	2	2.0	1	10	3	28	0	0	0
140	520220:18	520221:09	1	1	1	0	1	1.0	1	40	15	28	0	0	0
141	610128:17	610130:01	1	18	21	0	5	1.2	1	52	27	28	0	0	0
142	491231:18	500101:11	1	4	6	0	2	1.5	1	45	17	28	0	0	0
143	551126:08	551129:01	1	23	103	0	11	4.5	1	118	50	28	0	0	0
144	500210:00	500210:09	1	1	1	0	1	1.0	1	24	10	28	0	0	0
145	581115:03	581115:12	1	7	4	0	1	.6	1	22	9	28	0	0	0
146	510110:09	510110:23	1	8	4	0	1	.5	1	26	13	28	0	0	0
147	730210:00	730210:16	1	10	51	0	9	5.1	1	30	16	29	0	0	0
148	551202:14	551203:10	1	6	13	0	3	2.2	1	47	19	29	0	0	0
149	690205:03	690205:12	1	6	9	0	2	1.5	1	10	5	29	0	0	0
150	511123:22	511125:08	1	6	2	0	1	.3	1	54	34	29	0	0	0

OVERALL ORDER STATISTICS AT PENDLETON
SORTED BY MINIMUM TEMPERATURE

			CHARACTERISTICS OF PRECIP EVENTS IN CLUSTER						CHARACTERISTICS OF FREEZE EVENTS IN CLUSTER						
							INTENSITY								
	START DATE AND HOUR (YYMMDD:HH)	END DATE AND HOUR (YYMMDD:HH)	NO. PRECIP EVENTS	DUR (HRS)	AMOUNT (INX100)	MAX DRY (HRS)	MAXIMUM (IN/HRX100)	AVERAGE (IN/HRX100)	NO. FREEZE EVENTS	FREEZE INDEX (F)	NO. BELOW	MIN. TEMP (F)	THAW INDEX (F)	NO. ABOVE	MAX. TEMP (F)
151	751218:17	751222:12	1	1	1	0	1	1.0	1	211	90	29	0	0	0
152	581206:00	581206:12	1	8	10	0	3	1.3	1	29	12	29	0	0	0
153	631219:19	631220:07	1	4	15	0	8	3.8	1	13	9	29	0	0	0
154	501213:03	501214:23	3	12	33	9	8	2.8	1	75	43	29	0	0	0
155	731105:07	731106:10	1	27	52	0	7	1.9	1	41	21	29	0	0	0
156	690224:21	690225:16	2	5	4	14	1	.8	1	26	17	29	0	0	0
157	641223:19	641224:21	1	27	69	0	12	2.6	1	8	4	29	0	0	0
158	690222:23	690223:14	1	2	5	0	3	2.5	1	28	15	29	0	0	0
159	650122:21	650124:00	1	11	29	0	4	2.6	1	70	27	29	0	0	0
160	641226:14	641226:17	1	4	13	0	4	3.3	1	7	3	29	0	0	0
161	540124:10	540124:12	1	1	2	0	2	2.0	1	2	1	30	0	0	0
162	780131:19	780201:17	1	6	8	0	5	1.3	1	32	18	30	0	0	0
163	490101:02	490101:11	1	4	5	0	2	1.3	1	11	7	30	0	0	0
164	690201:00	690201:10	1	1	1	0	1	1.0	1	15	10	30	0	0	0
165	590210:23	590211:16	1	17	18	0	6	1.1	1	23	15	30	0	0	0
166	731229:03	731229:21	1	19	36	0	4	1.9	1	17	12	30	0	0	0
167	521220:00	521220:11	1	12	26	0	4	2.2	1	8	7	30	0	0	0
168	650325:21	650326:10	1	13	15	0	3	1.2	1	4	3	30	0	0	0
169	560112:17	560113:05	1	6	15	0	6	2.5	1	16	9	30	0	0	0
170	780107:21	780110:19	3	43	86	16	7	2.0	1	93	67	30	0	0	0
171	490314:21	490316:05	1	26	22	0	4	.8	1	21	14	30	0	0	0
172	641205:19	641208:01	2	6	14	41	6	2.3	1	68	51	30	0	0	0
173	550303:05	550303:07	1	1	1	0	1	1.0	1	4	2	30	0	0	0
174	641221:00	641222:12	1	37	84	0	13	2.3	1	11	8	30	0	0	0
175	510206:07	510207:13	2	17	48	14	9	2.8	1	33	20	30	0	0	0
176	550313:19	550314:07	1	8	10	0	6	1.3	1	11	8	30	0	0	0
177	481213:23	481214:22	1	14	40	0	6	2.9	1	36	23	30	0	0	0
178	501111:18	501112:09	1	10	20	0	4	2.0	1	25	15	30	0	0	0
179	750124:03	750126:10	1	56	218	0	11	3.9	1	2	2	31	0	0	0
180	591202:19	591202:19	1	1	1	0	1	1.0	1	1	1	31	0	0	0
181	701208:23	701209:07	1	7	32	0	6	4.6	1	5	5	31	0	0	0
182	520215:15	520216:09	1	20	65	0	11	3.3	1	6	6	31	0	0	0
183	781129:10	781129:23	1	13	46	0	14	3.5	1	1	1	31	0	0	0
184	570110:07	570110:08	1	3	4	0	2	1.3	1	1	1	31	0	0	0
185	680112:21	680112:23	1	2	2	0	1	1.0	1	2	2	31	0	0	0
186	530106:00	530106:05	1	1	1	0	1	1.0	1	5	5	31	0	0	0
187	721217:07	721217:14	1	9	21	0	6	2.3	1	1	1	31	0	0	0
188	590130:21	590131:10	1	14	25	0	6	1.8	1	1	1	31	0	0	0
189	691225:21	691226:10	1	9	12	0	3	1.3	1	7	7	31	0	0	0
190	550116:01	550116:03	1	1	6	0	6	6.0	1	2	2	31	0	0	0
191	780113:00	780114:05	1	4	14	0	8	3.5	1	30	30	31	0	0	0
192	560114:08	560115:19	1	35	150	0	13	4.3	1	5	5	31	0	0	0
193	640113:16	640113:23	1	7	2	0	1	.3	1	2	2	31	0	0	0
194	550130:21	550131:19	1	20	18	0	4	.9	1	10	10	31	0	0	0
195	780217:19	780218:03	1	5	8	0	3	1.6	1	3	3	31	0	0	0
196	710304:12	710304:14	1	4	14	0	7	3.5	1	1	1	31	0	0	0
197	661210:01	661210:10	1	10	20	0	9	2.0	1	2	2	31	0	0	0
198	690116:23	690117:05	1	7	10	0	4	1.4	1	5	5	31	0	0	0
199	641229:14	641229:16	1	2	2	0	1	1.0	1	2	2	31	0	0	0
200	700113:00	700113:05	1	1	1	0	1	1.0	1	5	5	31	0	0	0

OVERALL ORDER STATISTICS AT PENDLETON
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			CHARACTERISTICS OF PRECIP EVENTS IN CLUSTER						CHARACTERISTICS OF FREEZE EVENTS IN CLUSTER						
							INTENSITY								
	START DATE AND HOUR (YYMMDD:HH)	END DATE AND HOUR (YYMMDD:HH)	NO. PRECIP EVENTS	DUR (HRS)	AMOUNT (INX100)	MAX DRY (HRS)	MAXIMUM (IN/HRX100)	AVERAGE (IN/HRX100)	NO. FREEZE EVENTS	FREEZE INDEX (F)	NO. BELOW	MIN. TEMP (F)	THAW INDEX (F)	NO. ABOVE	MAX. TEMP (F)
201	670105:05	670105:07	1	1	2	0	2	2.0	1	2	2	31	0	0	0
202	670125:00	670125:05	1	2	5	0	3	2.5	1	5	5	31	0	0	0
203	670106:03	670106:07	1	5	5	0	2	1.0	1	1	1	31	0	0	0

OVERALL ORDER STATISTICS AT WALLA WALLA
SORTED BY MINIMUM TEMPERATURE

			CHARACTERISTICS OF PRECIP EVENTS IN CLUSTER						CHARACTERISTICS OF FREEZE EVENTS IN CLUSTER						
							INTENSITY								
	START DATE AND HOUR (YYMMDD:HH)	END DATE AND HOUR (YYMMDD:HH)	NO. PRECIP EVENTS	DUR (HRS)	AMOUNT (INX100)	MAX DRY (HRS)	MAXIMUM (IN/HRX100)	AVERAGE (IN/HRX100)	NO. FREEZE EVENTS	FREEZE INDEX (F)	NO. BELOW	MIN. TEMP (F)	THAW INDEX (F)	NO. ABOVE	MAX. TEMP (F)
1	500123:18	500206:05	8	61	105	156	6	1.7	1	9672	322	-16	0	0	0
2	570112:16	570130:17	7	85	137	163	10	1.6	1	10325	434	-15	0	0	0
3	740101:07	740113:05	5	22	25	80	3	1.1	1	8028	285	-10	0	0	0
4	560124:21	560210:07	6	32	72	165	7	2.3	1	6223	393	-8	0	0	0
5	500112:16	500121:00	10	82	123	23	5	1.5	1	5296	198	-7	0	0	0
6	540115:17	540122:19	5	39	69	56	6	1.8	1	3132	166	-6	0	0	0
7	641215:14	641220:12	3	15	35	69	8	2.3	1	2869	119	-5	0	0	0
8	551111:14	551119:14	6	71	136	68	7	1.9	1	3522	179	-4	0	0	0
9	490118:18	490203:22	5	26	23	185	2	.9	1	6906	387	-4	0	0	0
10	620116:17	620124:00	1	1	1	0	1	1.0	1	3009	175	-3	0	0	0
11	761229:12	770113:05	12	39	65	106	6	1.7	1	4849	353	-2	0	0	0
12	590101:23	590107:12	2	22	48	65	5	2.2	1	2546	134	-1	0	0	0
13	500101:16	500105:13	3	19	26	31	2	1.4	1	1778	92	1	0	0	0
14	560214:19	560219:07	3	21	76	43	6	3.6	1	1728	108	1	0	0	0
15	771222:21	780105:07	9	96	136	89	6	1.4	1	3314	322	2	0	0	0
16	510126:22	510202:10	2	17	19	119	2	1.1	1	2943	157	2	0	0	0
17	611207:21	611216:01	4	34	33	56	3	1.0	1	2249	197	2	0	0	0
18	630126:16	630201:05	4	38	83	29	4	2.2	1	1833	134	3	0	0	0
19	490108:00	490117:02	2	2	2	12	1	1.0	1	3751	219	4	0	0	0
20	591115:03	591119:03	2	11	11	78	2	1.0	1	1170	95	5	0	0	0
21	511229:22	520105:19	6	21	16	54	2	.8	1	2817	166	6	0	0	0
22	561205:01	561208:12	2	3	4	48	2	1.3	1	1508	84	6	0	0	0
23	600112:16	600126:08	5	35	38	129	3	1.1	1	4211	329	7	0	0	0
24	570218:19	570224:00	4	29	43	36	3	1.5	1	1016	120	9	0	0	0
25	551212:23	551220:14	3	38	57	37	4	1.5	1	2245	184	10	0	0	0
26	771118:10	771124:01	2	51	66	6	4	1.3	1	1194	134	11	0	0	0
27	591227:05	600105:05	1	38	33	0	3	.9	1	1523	215	11	0	0	0
28	750126:16	750131:16	1	1	1	0	1	1.0	1	1100	120	11	0	0	0
29	600109:17	600112:14	2	17	43	11	6	2.5	1	819	69	11	0	0	0
30	760131:05	760206:08	1	7	7	0	2	1.0	1	769	148	11	0	0	0
31	570131:23	570202:23	1	11	55	0	8	5.0	1	373	43	13	0	0	0
32	521121:16	521202:06	3	15	21	96	4	1.4	1	2372	249	14	0	0	0
33	511222:21	511228:10	3	26	41	11	10	1.6	1	1536	134	14	0	0	0
34	511219:03	511221:08	2	30	25	6	1	.8	1	512	52	15	0	0	0
35	630122:19	630125:12	1	1	1	0	1	1.0	1	491	66	16	0	0	0
36	581115:07	581117:12	1	5	9	0	5	1.8	1	434	52	16	0	0	0
37	551228:16	560101:17	2	7	11	22	3	1.6	1	773	97	16	0	0	0
38	750204:08	750210:03	4	29	41	54	3	1.4	1	1041	135	17	0	0	0
39	600301:17	600305:21	5	37	58	20	4	1.6	1	946	100	17	0	0	0
40	520121:16	520124:14	3	39	45	10	3	1.2	1	525	69	18	0	0	0
41	570203:03	570203:14	1	7	2	0	1	.3	1	78	11	18	0	0	0
42	520124:16	520126:13	1	5	5	0	1	1.0	1	399	45	18	0	0	0
43	611123:03	611129:12	2	64	148	16	6	2.3	2	596	111	18	7	5	35
44	491218:22	491220:10	1	10	4	0	1	.4	1	364	36	19	0	0	0
45	541217:14	541223:10	2	2	2	22	1	1.0	1	915	140	19	0	0	0
46	520115:06	520117:09	1	5	16	0	5	3.2	1	399	52	19	0	0	0
47	620109:17	620114:05	2	3	3	10	1	1.0	1	770	107	19	0	0	0
48	550103:17	550111:01	3	27	25	102	2	.9	1	1008	176	19	0	0	0
49	610101:14	610105:03	1	2	2	0	1	1.0	1	770	86	19	0	0	0
50	641225:01	641226:17	2	15	13	6	3	.9	1	306	39	20	0	0	0

OVERALL ORDER STATISTICS AT WALLA WALLA
SORTED BY MINIMUM TEMPERATURE

			CHARACTERISTICS OF PRECIP EVENTS IN CLUSTER						CHARACTERISTICS OF FREEZE EVENTS IN CLUSTER						
							INTENSITY								
	START DATE AND HOUR (YYMMDD:HH)	END DATE AND HOUR (YYMMDD:HH)	NO. PRECIP EVENTS	DUR (HRS)	AMOUNT (INX100)	MAX DRY (HRS)	MAXIMUM (IN/HRX100)	AVERAGE (IN/HRX100)	NO. FREEZE EVENTS	FREEZE INDEX (F)	NO. BELOW	MIN. TEMP (F)	THAW INDEX (F)	NO. ABOVE	MAX. TEMP (F)
51	491220:21	491221:16	1	1	1	0	1	1.0	1	169	20	20	0	0	0
52	550226:00	550227:23	2	15	26	14	2	1.7	1	295	42	20	0	0	0
53	500310:23	500311:14	1	5	2	0	1	.4	1	89	15	20	0	0	0
54	781118:19	781123:07	2	30	79	6	5	2.6	1	752	108	21	0	0	0
55	751213:07	751214:10	1	1	1	0	1	1.0	1	125	26	21	0	0	0
56	751128:01	751130:14	2	12	17	36	4	1.4	2	337	56	21	24	5	40
57	590120:12	590124:05	2	48	110	11	18	2.3	1	284	51	22	0	0	0
58	490218:16	490221:09	1	20	71	0	8	3.6	1	329	59	22	0	0	0
59	601227:00	601231:10	2	5	7	102	3	1.4	1	570	106	22	0	0	0
60	520111:16	520112:09	1	8	27	0	5	3.4	1	62	17	22	0	0	0
61	630201:08	630203:00	2	11	29	8	4	2.6	1	259	39	23	0	0	0
62	571231:00	580105:12	2	16	26	132	6	1.6	1	720	133	23	0	0	0
63	491209:17	491212:08	2	11	45	52	10	4.1	1	203	54	23	0	0	0
64	610127:17	610129:19	1	3	8	0	3	2.7	1	200	50	23	0	0	0
65	550102:07	550103:10	1	3	16	0	8	5.3	1	80	26	24	0	0	0
66	601214:03	601218:17	3	22	47	16	4	2.1	1	409	109	24	0	0	0
67	771209:01	771210:10	1	3	4	0	2	1.3	1	119	32	25	0	0	0
68	500107:16	500108:22	1	3	12	0	5	4.0	1	140	29	25	0	0	0
69	770113:07	770114:14	1	4	4	0	1	1.0	1	167	32	25	0	0	0
70	551203:21	551205:19	1	9	10	0	4	1.1	2	174	41	25	29	3	45
71	641226:23	641227:10	1	2	17	0	9	8.5	1	58	12	25	0	0	0
72	501203:14	501207:02	2	63	151	23	18	2.4	2	249	66	25	4	3	34
73	620228:19	620301:07	1	5	18	0	5	3.6	1	44	12	25	0	0	0
74	611117:17	611118:08	1	1	1	0	1	1.0	1	63	16	25	0	0	0
75	641229:12	641229:23	1	2	3	0	2	1.5	1	51	10	25	0	0	0
76	540206:21	540212:12	2	14	17	59	3	1.2	1	488	136	25	0	0	0
77	780302:17	780305:07	1	12	7	0	1	.6	1	162	62	26	0	0	0
78	510301:22	510302:11	1	10	8	0	1	.8	1	46	14	26	0	0	0
79	751216:21	751222:10	1	2	2	0	1	1.0	1	439	133	26	0	0	0
80	581207:23	581211:16	3	33	149	16	11	4.5	1	236	68	26	0	0	0
81	650109:21	650111:10	1	24	33	0	4	1.4	1	114	37	26	0	0	0
82	561224:19	570101:23	2	7	24	49	5	3.4	1	755	193	26	0	0	0
83	761220:16	761223:10	1	9	32	0	8	3.6	1	268	61	26	0	0	0
84	551122:17	551123:14	2	11	20	56	3	1.8	2	67	18	26	2	1	34
85	570207:03	570208:05	1	1	1	0	1	1.0	1	103	25	26	0	0	0
86	770116:05	770116:19	1	2	2	0	1	1.0	1	39	13	27	0	0	0
87	491214:00	491215:08	1	1	1	0	1	1.0	1	105	31	27	0	0	0
88	641221:01	641221:17	1	14	59	0	9	4.2	1	62	16	27	0	0	0
89	600107:19	600108:14	1	18	31	0	4	1.7	1	58	19	27	0	0	0
90	770127:16	770131:12	1	4	5	0	2	1.3	1	337	93	27	0	0	0
91	510206:01	510207:13	1	31	62	0	9	2.0	1	83	33	27	0	0	0
92	650122:21	650124:05	1	25	66	0	10	2.6	1	74	25	27	0	0	0
93	551206:07	551206:14	1	2	3	0	2	1.5	1	30	8	27	0	0	0
94	641223:21	641224:10	1	12	67	0	11	5.6	1	17	5	27	0	0	0
95	511216:00	511216:16	1	1	1	0	1	1.0	1	57	17	27	0	0	0
96	591206:17	591206:23	1	3	6	0	3	2.0	1	18	5	27	0	0	0
97	510109:16	510110:22	1	7	19	0	4	2.7	1	74	30	27	0	0	0
98	601225:03	601226:07	1	3	20	0	8	6.7	1	79	29	27	0	0	0
99	580109:07	580110:10	1	1	1	0	1	1.0	1	71	27	27	0	0	0
100	781210:03	781211:07	1	12	47	0	6	3.9	1	53	18	28	0	0	0

OVERALL ORDER STATISTICS AT WALLA WALLA
SORTED BY MINIMUM TEMPERATURE

			CHARACTERISTICS OF PRECIP EVENTS IN CLUSTER						CHARACTERISTICS OF FREEZE EVENTS IN CLUSTER						
							INTENSITY								
	START DATE AND HOUR (YYMMDD:HH)	END DATE AND HOUR (YYMMDD:HH)	NO. PRECIP EVENTS	DUR (HRS)	AMOUNT (INX100)	MAX DRY (HRS)	MAXIMUM (IN/HRX100)	AVERAGE (IN/HRX100)	NO. FREEZE EVENTS	FREEZE INDEX (F)	NO. BELOW	MIN. TEMP (F)	THAW INDEX (F)	NO. ABOVE	MAX. TEMP (F)
101	490315:00	490315:21	1	12	24	0	4	2.0	1	26	12	28	0	0	0
102	750112:19	750113:19	1	5	10	0	2	2.0	1	71	24	28	0	0	0
103	550122:00	550122:12	1	8	13	0	3	1.6	1	28	12	28	0	0	0
104	780130:19	780202:00	2	24	32	13	4	1.3	3	112	48	28	2	2	33
105	510302:18	510303:21	1	10	20	0	4	2.0	1	39	19	28	0	0	0
106	620227:17	620228:05	1	2	2	0	1	1.0	1	26	11	28	0	0	0
107	620206:03	620207:05	1	8	15	0	2	1.9	1	42	26	28	0	0	0
108	750109:17	750110:10	1	13	30	0	3	2.3	1	11	6	28	0	0	0
109	551126:07	551129:03	1	22	109	0	10	5.0	1	131	52	28	0	0	0
110	590217:19	590219:10	2	24	33	15	4	1.4	1	100	35	28	0	0	0
111	591207:17	591210:10	1	1	1	0	1	1.0	1	191	66	28	0	0	0
112	781126:21	781128:03	1	12	43	0	8	3.6	1	35	24	29	0	0	0
113	521228:16	521228:19	1	2	7	0	6	3.5	1	8	3	29	0	0	0
114	630105:03	630106:07	1	1	1	0	1	1.0	1	47	27	29	0	0	0
115	570108:21	570109:08	1	7	14	0	4	2.0	2	18	10	29	1	1	33
116	770131:16	770203:12	1	1	1	0	1	1.0	1	136	68	29	0	0	0
117	500210:02	500210:18	1	10	12	0	2	1.2	1	24	14	29	0	0	0
118	751211:19	751212:14	1	10	13	0	2	1.3	1	33	18	29	0	0	0
119	581206:01	581206:12	1	6	13	0	5	2.2	1	26	11	29	0	0	0
120	750201:17	750201:21	1	1	1	0	1	1.0	1	5	3	29	0	0	0
121	520220:23	520221:10	1	1	1	0	1	1.0	1	27	12	29	0	0	0
122	550124:01	550124:10	1	1	1	0	1	1.0	1	18	9	29	0	0	0
123	590207:21	590208:10	1	1	1	0	1	1.0	1	31	13	29	0	0	0
124	551202:00	551203:08	2	4	3	6	1	.8	1	79	33	29	0	0	0
125	590210:21	590211:14	1	11	7	0	1	.6	1	28	17	29	0	0	0
126	751212:21	751213:05	1	9	11	0	2	1.2	1	4	3	30	0	0	0
127	490204:03	490204:08	1	3	5	0	2	1.7	2	3	2	30	2	1	34
128	750115:10	750116:00	1	7	9	0	2	1.3	1	8	7	30	0	0	0
129	560305:05	560305:07	1	1	1	0	1	1.0	1	4	3	30	0	0	0
130	501213:01	501214:00	2	4	3	10	1	.8	1	26	23	30	0	0	0
131	541212:14	541212:17	1	2	3	0	2	1.5	1	4	3	30	0	0	0
132	520215:15	520216:08	1	17	57	0	7	3.4	1	13	11	30	0	0	0
133	560103:12	560103:19	1	5	6	0	2	1.2	1	5	3	30	0	0	0
134	540124:07	540124:12	1	4	6	0	4	1.5	2	3	2	30	4	3	34
135	551201:07	551201:17	1	11	34	0	12	3.1	1	4	2	30	0	0	0
136	520219:06	520219:08	1	1	1	0	1	1.0	1	3	2	30	0	0	0
137	540201:05	540205:05	2	2	2	23	1	1.0	1	143	96	30	0	0	0
138	521220:01	521220:19	1	19	46	0	6	2.4	1	7	6	30	0	0	0
139	540127:10	540129:03	1	42	95	0	7	2.3	1	10	8	30	0	0	0
140	781209:05	781209:12	1	9	20	0	9	2.2	1	1	1	31	0	0	0
141	570305:23	570307:12	1	31	68	0	12	2.2	1	10	10	31	0	0	0
142	620304:23	620305:05	1	1	1	0	1	1.0	1	7	7	31	0	0	0
143	490221:10	490221:21	1	11	17	0	7	1.5	1	3	3	31	0	0	0
144	620310:01	620310:10	1	6	7	0	3	1.2	1	7	7	31	0	0	0
145	560222:21	560223:05	1	9	24	0	9	2.7	1	2	2	31	0	0	0
146	510224:23	510225:07	1	7	13	0	4	1.9	1	3	3	31	0	0	0
147	590130:14	590131:07	1	18	28	0	5	1.6	1	8	8	31	0	0	0
148	490206:10	490206:14	1	4	18	0	6	4.5	1	1	1	31	0	0	0
149	560114:10	560115:19	1	34	154	0	15	4.5	2	14	14	31	2	1	34
150	520331:19	520401:00	1	5	4	0	2	.8	1	3	3	31	0	0	0

OVERALL ORDER STATISTICS AT WALLA WALLA
SORTED BY MINIMUM TEMPERATURE

			CHARACTERISTICS OF PRECIP EVENTS IN CLUSTER						CHARACTERISTICS OF FREEZE EVENTS IN CLUSTER						
							INTENSITY								
	START DATE AND HOUR (YYMMDD:HH)	END DATE AND HOUR (YYMMDD:HH)	NO. PRECIP EVENTS	DUR (HRS)	AMOUNT (INX100)	MAX DRY (HRS)	MAXIMUM (IN/HRX100)	AVERAGE (IN/HRX100)	NO. FREEZE EVENTS	FREEZE INDEX (F)	NO. BELOW	MIN. TEMP (F)	THAW INDEX (F)	NO. ABOVE	MAX. TEMP (F)
151	581215:16	581215:21	1	1	1	0	1	1.0	1	6	6	31	0	0	0
152	501111:19	501112:05	1	10	9	0	2	.9	1	8	8	31	0	0	0

APPENDIX C

Joint Distributions

The tables in this appendix contain the joint distributions of several pairs of cluster characteristics at both sites (Pendleton, Oregon and Walla Walla, Washington). The tables are divided into ten categories for each of the two characteristics (ten rows and ten columns) resulting in 100 joint categories or "cells" in each table. Each cell contains two quantities, the number of clusters in the cell and the overall relative frequency of the clusters in the cell. The column and row totals also summarize the marginal distributions for the two characteristics in the form of the row/column absolute and relative frequencies. The tables of joint frequencies are organized by characteristic, with separate tables for each site. An index listing the location of each table is given in the table of contents for the appendices (p. 58).

JOINT FREQUENCIES AND OVERALL RELATIVE FREQUENCIES FOR PENDLETON

LOWER BOUNDS FOR INTERVALS OF AMOUNT (INCHES X 100)	LOWER BOUNDS FOR INTERVALS OF FREEZE INDEX (DEGREES F) 0	100	200	300	400	500	600	700	800	900 AND ABOVE	ROW TOTALS
0	73 .3596	13 .0640	6 .0296	10 .0493	4 .0197	3 .0148	2 .0099	4 .0197	2 .0099	19 .0936	136 .6700
25	10 .0493	0 0.0000	6 .0296	2 .0099	0 0.0000	1 .0049	3 .0148	0 0.0000	1 .0049	14 .0690	37 .1823
50	5 .0246	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	5 .0246	10 .0493
75	2 .0099	0 0.0000	0 0.0000	0 0.0000	1 .0049	0 0.0000	0 0.0000	0 0.0000	0 0.0000	4 .0197	7 .0345
100	0 0.0000	1 .0049	1 .0049	1 .0049	0 0.0000	1 .0049	0 0.0000	0 0.0000	0 0.0000	2 .0099	6 .0296
125	0 0.0000	1 .0049	0 0.0000	0 0.0000	0 0.0000	1 .0049	0 0.0000	0 0.0000	0 0.0000	3 .0148	5 .0246
150	1 .0049	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	1 .0049
175	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000
200	1 .0049	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	1 .0049
225 AND ABOVE	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000
COLUMN TOTALS	92 .4532	15 .0739	13 .0640	13 .0640	5 .0246	6 .0296	5 .0246	4 .0197	3 .0148	47 .2315	

JOINT FREQUENCIES AND OVERALL RELATIVE FREQUENCIES FOR WALLA WALLA

LOWER BOUNDS FOR INTERVALS OF AMOUNT (INCHES X 100)	LOWER BOUNDS FOR INTERVALS OF FREEZE INDEX (DEGREES F) 0	100	200	300	400	500	600	700	800	900 AND ABOVE	ROW TOTALS
0	53 .3487	12 .0789	1 .0066	6 .0395	4 .0263	1 .0066	0 0.0000	5 .0329	0 0.0000	10 .0658	92 .6053
25	8 .0526	3 .0197	4 .0263	0 0.0000	1 .0066	2 .0132	0 0.0000	1 .0066	1 .0066	11 .0724	31 .2039
50	6 .0395	0 0.0000	0 0.0000	2 .0132	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	6 .0395	14 .0921
75	1 .0066	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	1 .0066	0 0.0000	2 .0132	4 .0263
100	0 0.0000	1 .0066	1 .0066	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	2 .0132	4 .0263
125	0 0.0000	0 0.0000	1 .0066	0 0.0000	0 0.0000	1 .0066	0 0.0000	0 0.0000	0 0.0000	3 .0197	5 .0329
150	1 .0066	0 0.0000	1 .0066	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	2 .0132
175	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000
200	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000
225 AND ABOVE	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000
COLUMN TOTALS	69 .4539	16 .1053	8 .0526	8 .0526	5 .0329	4 .0263	0 0.0000	7 .0461	1 .0066	34 .2237	

JOINT FREQUENCIES AND OVERALL RELATIVE FREQUENCIES FOR PENDLETON

LOWER BOUNDS FOR INTERVALS OF AMOUNT (INCHES X 100)	LOWER BOUNDS FOR INTERVALS OF MINIMUM TEMPERATURE (DEGREES F)										
	-15	-10	-5	0	5	10	15	20	25	30 AND ABOVE	ROW TOTALS
0	0 0.0000	3 .0148	2 .0099	2 .0099	4 .0197	7 .0345	12 .0591	27 .1330	48 .2365	31 .1527	136 .6700
25	1 .0049	2 .0099	4 .0197	1 .0049	2 .0099	4 .0197	3 .0148	6 .0296	7 .0345	7 .0345	37 .1823
50	1 .0049	1 .0049	1 .0049	1 .0049	0 0.0000	1 .0049	0 0.0000	0 0.0000	4 .0197	1 .0049	10 .0493
75	2 .0099	0 0.0000	0 0.0000	0 0.0000	1 .0049	2 .0099	0 0.0000	0 0.0000	0 0.0000	2 .0099	7 .0345
100	0 0.0000	0 0.0000	0 0.0000	1 .0049	0 0.0000	0 0.0000	0 0.0000	4 .0197	1 .0049	0 0.0000	6 .0296
125	1 .0049	0 0.0000	1 .0049	1 .0049	0 0.0000	0 0.0000	0 0.0000	1 .0049	1 .0049	0 0.0000	5 .0246
150	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	1 .0049	1 .0049
175	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000
200	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	1 .0049	1 .0049
225 AND ABOVE	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000
COLUMN TOTALS	5 .0246	6 .0296	8 .0394	6 .0296	7 .0345	14 .0690	15 .0739	38 .1872	61 .3005	43 .2118	

JOINT FREQUENCIES AND OVERALL RELATIVE FREQUENCIES FOR WALLA WALLA

LOWER BOUNDS FOR INTERVALS OF AMOUNT (INCHES X 100)	LOWER BOUNDS FOR INTERVALS OF MINIMUM TEMPERATURE (DEGREES F)										
	-15	-10	-5	0	5	10	15	20	25	30 AND ABOVE	ROW TOTALS
0	0 0.0000	0 0.0000	2 .0132	2 .0132	3 .0197	3 .0197	10 .0658	8 .0526	44 .2895	20 .1316	92 .6053
25	0 0.0000	1 .0066	2 .0132	2 .0132	2 .0132	3 .0197	4 .0263	6 .0395	8 .0526	3 .0197	31 .2039
50	0 0.0000	2 .0132	1 .0066	0 0.0000	0 0.0000	3 .0197	1 .0066	1 .0066	4 .0263	2 .0132	14 .0921
75	0 0.0000	0 0.0000	0 0.0000	2 .0132	0 0.0000	0 0.0000	0 0.0000	1 .0066	0 0.0000	1 .0066	4 .0263
100	1 .0066	1 .0066	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	1 .0066	1 .0066	0 0.0000	4 .0263
125	1 .0066	0 0.0000	1 .0066	1 .0066	0 0.0000	0 0.0000	1 .0066	0 0.0000	1 .0066	0 0.0000	5 .0329
150	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	1 .0066	1 .0066	2 .0132
175	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000
200	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000
225 AND ABOVE	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000
COLUMN TOTALS	2 .0132	4 .0263	6 .0395	7 .0461	5 .0329	9 .0592	16 .1053	17 .1118	59 .3882	27 .1776	

JOINT FREQUENCIES AND OVERALL RELATIVE FREQUENCIES FOR PENDLETON

LOWER BOUNDS FOR INTERVALS OF AMOUNT (INCHES X 100)	LOWER BOUNDS FOR INTERVALS OF NUMBER OF HOURS BELOW 32 F (HOURS)										
	0	20	40	60	80	100	120	140	160	180 AND ABOVE	ROW TOTALS
0	63 .3103	21 .1034	12 .0591	4 .0197	13 .0640	7 .0345	2 .0099	2 .0099	3 .0148	9 .0443	136 .6700
25	5 .0246	4 .0197	7 .0345	4 .0197	1 .0049	2 .0099	5 .0246	1 .0049	2 .0099	6 .0296	37 .1823
50	4 .0197	1 .0049	0 0.0000	0 0.0000	1 .0049	0 0.0000	0 0.0000	0 0.0000	0 0.0000	4 .0197	10 .0493
75	1 .0049	1 .0049	0 0.0000	1 .0049	0 0.0000	1 .0049	0 0.0000	1 .0049	0 0.0000	2 .0099	7 .0345
100	0 0.0000	0 0.0000	1 .0049	2 .0099	0 0.0000	1 .0049	0 0.0000	0 0.0000	0 0.0000	2 .0099	6 .0296
125	0 0.0000	0 0.0000	1 .0049	0 0.0000	0 0.0000	1 .0049	0 0.0000	0 0.0000	1 .0049	2 .0099	5 .0246
150	1 .0049	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	1 .0049
175	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000
200	1 .0049	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	1 .0049
225 AND ABOVE	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000
COLUMN TOTALS	75 .3695	27 .1330	21 .1034	11 .0542	15 .0739	12 .0591	7 .0345	4 .0197	6 .0296	25 .1232	

JOINT FREQUENCIES AND OVERALL RELATIVE FREQUENCIES FOR WALLA WALLA

LOWER BOUNDS FOR INTERVALS OF AMOUNT (INCHES X 100)	LOWER BOUNDS FOR INTERVALS OF NUMBER OF HOURS BELOW 32 F (HOURS) 0	20	40	60	80	100	120	140	160	180 AND ABOVE	ROW TOTALS
0	44 .2895	18 .1184	6 .0395	4 .0263	6 .0395	2 .0132	3 .0197	3 .0197	2 .0132	4 .0263	92 .6053
25	7 .0461	4 .0263	4 .0263	3 .0197	1 .0066	2 .0132	5 .0329	0 0.0000	1 .0066	4 .0263	31 .2039
50	4 .0263	2 .0132	2 .0132	0 0.0000	0 0.0000	1 .0066	1 .0066	0 0.0000	1 .0066	3 .0197	14 .0921
75	1 .0066	0 0.0000	0 0.0000	0 0.0000	0 0.0000	2 .0132	1 .0066	0 0.0000	0 0.0000	0 0.0000	4 .0263
100	0 0.0000	0 0.0000	2 .0132	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	2 .0132	4 .0263
125	0 0.0000	0 0.0000	0 0.0000	1 .0066	0 0.0000	1 .0066	0 0.0000	0 0.0000	1 .0066	2 .0132	5 .0329
150	1 .0066	0 0.0000	0 0.0000	1 .0066	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	2 .0132
175	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000
200	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000
225 AND ABOVE	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000
COLUMN TOTALS	57 .3750	24 .1579	14 .0921	9 .0592	7 .0461	8 .0526	10 .0658	3 .0197	5 .0329	15 .0987	

JOINT FREQUENCIES AND OVERALL RELATIVE FREQUENCIES FOR PENDLETON

LOWER BOUNDS FOR INTERVALS OF MAXIMUM INTENSITY (INCHES PER HOUR X 100)	LOWER BOUNDS FOR INTERVALS OF FREEZE INDEX (DEGREES F) 0	100	200	300	400	500	600	700	800	900 AND ABOVE	ROW TOTALS
0	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000
1	23 .1133	5 .0246	3 .0148	3 .0148	1 .0049	1 .0049	1 .0049	1 .0049	1 .0049	4 .0197	43 .2118
2	18 .0887	5 .0246	0 0.0000	3 .0148	0 0.0000	1 .0049	0 0.0000	1 .0049	0 0.0000	7 .0345	35 .1724
3	7 .0345	1 .0049	0 0.0000	0 0.0000	2 .0099	0 0.0000	1 .0049	2 .0099	0 0.0000	6 .0296	19 .0936
4	11 .0542	0 0.0000	3 .0148	2 .0099	1 .0049	0 0.0000	0 0.0000	0 0.0000	2 .0099	9 .0443	28 .1379
5	3 .0148	1 .0049	3 .0148	1 .0049	0 0.0000	0 0.0000	1 .0049	0 0.0000	0 0.0000	5 .0246	14 .0690
6	9 .0443	1 .0049	1 .0049	1 .0049	0 0.0000	1 .0049	0 0.0000	0 0.0000	0 0.0000	7 .0345	20 .0985
7	5 .0246	0 0.0000	0 0.0000	2 .0099	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	2 .0099	9 .0443
8	6 .0296	0 0.0000	1 .0049	0 0.0000	0 0.0000	1 .0049	1 .0049	0 0.0000	0 0.0000	1 .0049	10 .0493
9 AND ABOVE	10 .0493	2 .0099	2 .0099	1 .0049	1 .0049	2 .0099	1 .0049	0 0.0000	0 0.0000	6 .0296	25 .1232
COLUMN TOTALS	92 .4532	15 .0739	13 .0640	13 .0640	5 .0246	6 .0296	5 .0246	4 .0197	3 .0148	47 .2315	

JOINT FREQUENCIES AND OVERALL RELATIVE FREQUENCIES FOR WALLA WALLA

LOWER BOUNDS FOR INTERVALS OF MAXIMUM INTENSITY (INCHES PER HOUR X 100)	LOWER BOUNDS FOR INTERVALS OF FREEZE INDEX (DEGREES F) 0	100	200	300	400	500	600	700	800	900 AND ABOVE	ROW TOTALS
0	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000
1	20 .1316	9 .0592	0 0.0000	2 .0132	2 .0132	1 .0066	0 0.0000	2 .0132	0 0.0000	4 .0263	40 .2632
2	13 .0855	1 .0066	1 .0066	1 .0066	0 0.0000	0 0.0000	0 0.0000	1 .0066	0 0.0000	7 .0461	24 .1579
3	5 .0329	0 0.0000	1 .0066	1 .0066	1 .0066	2 .0132	0 0.0000	1 .0066	0 0.0000	6 .0395	17 .1118
4	7 .0461	4 .0263	1 .0066	1 .0066	1 .0066	0 0.0000	0 0.0000	0 0.0000	0 0.0000	5 .0329	19 .1250
5	4 .0263	1 .0066	0 0.0000	1 .0066	1 .0066	0 0.0000	0 0.0000	2 .0132	0 0.0000	2 .0132	11 .0724
6	4 .0263	0 0.0000	0 0.0000	0 0.0000	0 0.0000	1 .0066	0 0.0000	1 .0066	1 .0066	5 .0329	12 .0789
7	3 .0197	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	2 .0132	5 .0329
8	3 .0197	0 0.0000	1 .0066	2 .0132	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	1 .0066	7 .0461
9 AND ABOVE	10 .0658	1 .0066	4 .0263	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	2 .0132	17 .1118
COLUMN TOTALS	69 .4539	16 .1053	8 .0526	8 .0526	5 .0329	4 .0263	0 0.0000	7 .0461	1 .0066	34 .2237	

JOINT FREQUENCIES AND OVERALL RELATIVE FREQUENCIES FOR PENDLETON

LOWER BOUNDS FOR INTERVALS OF MAXIMUM INTENSITY (INCHES PER HOUR X 100)	LOWER BOUNDS FOR INTERVALS OF MINIMUM TEMPERATURE (DEGREES F)										
	-15	-10	-5	0	5	10	15	20	25	30 AND ABOVE	ROW TOTALS
0	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000
1	0 0.0000	0 0.0000	0 0.0000	1 .0049	2 .0099	0 0.0000	3 .0148	11 .0542	18 .0887	8 .0394	43 .2118
2	0 0.0000	1 .0049	1 .0049	1 .0049	3 .0148	2 .0099	2 .0099	6 .0296	14 .0690	5 .0246	35 .1724
3	0 0.0000	1 .0049	2 .0099	0 0.0000	0 0.0000	3 .0148	2 .0099	2 .0099	5 .0246	4 .0197	19 .0936
4	1 .0049	2 .0099	1 .0049	0 0.0000	1 .0049	4 .0197	3 .0148	4 .0197	6 .0296	6 .0296	28 .1379
5	1 .0049	1 .0049	1 .0049	1 .0049	0 0.0000	0 0.0000	2 .0099	4 .0197	3 .0148	1 .0049	14 .0690
6	3 .0148	0 0.0000	1 .0049	2 .0099	0 0.0000	1 .0049	0 0.0000	4 .0197	0 0.0000	9 .0443	20 .0985
7	0 0.0000	1 .0049	0 0.0000	0 0.0000	0 0.0000	1 .0049	2 .0099	0 0.0000	3 .0148	2 .0099	9 .0443
8	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	2 .0099	7 .0345	1 .0049	10 .0493
9 AND ABOVE	0 0.0000	0 0.0000	2 .0099	1 .0049	1 .0049	3 .0148	1 .0049	5 .0246	5 .0246	7 .0345	25 .1232
COLUMN TOTALS	5 .0246	6 .0296	8 .0394	6 .0296	7 .0345	14 .0690	15 .0739	38 .1872	61 .3005	43 .2118	

JOINT FREQUENCIES AND OVERALL RELATIVE FREQUENCIES FOR WALLA WALLA

LOWER BOUNDS FOR INTERVALS OF MAXIMUM INTENSITY (INCHES PER HOUR X 100)	LOWER BOUNDS FOR INTERVALS OF MINIMUM TEMPERATURE (DEGREES F) -15	-10	-5	0	5	10	15	20	25	30 AND ABOVE	ROW TOTALS
0	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000
1	0 0.0000	0 0.0000	1 .0066	1 .0066	0 0.0000	1 .0066	8 .0526	3 .0197	20 .1316	6 .0395	40 .2632
2	0 0.0000	0 0.0000	1 .0066	2 .0132	3 .0197	1 .0066	1 .0066	1 .0066	8 .0526	7 .0461	24 .1579
3	0 0.0000	1 .0066	0 0.0000	1 .0066	2 .0132	1 .0066	3 .0197	3 .0197	5 .0329	1 .0066	17 .1118
4	0 0.0000	0 0.0000	0 0.0000	1 .0066	0 0.0000	3 .0197	1 .0066	3 .0197	9 .0592	2 .0132	19 .1250
5	0 0.0000	1 .0066	1 .0066	0 0.0000	0 0.0000	0 0.0000	2 .0132	2 .0132	4 .0263	1 .0066	11 .0724
6	1 .0066	1 .0066	1 .0066	2 .0132	0 0.0000	1 .0066	1 .0066	1 .0066	2 .0132	2 .0132	12 .0789
7	0 0.0000	1 .0066	1 .0066	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	3 .0197	5 .0329
8	0 0.0000	0 0.0000	1 .0066	0 0.0000	0 0.0000	1 .0066	0 0.0000	2 .0132	3 .0197	0 0.0000	7 .0461
9 AND ABOVE	1 .0066	0 0.0000	0 0.0000	0 0.0000	0 0.0000	1 .0066	0 0.0000	2 .0132	8 .0526	5 .0329	17 .1118
COLUMN TOTALS	2 .0132	4 .0263	6 .0395	7 .0461	5 .0329	9 .0592	16 .1053	17 .1118	59 .3882	27 .1776	

JOINT FREQUENCIES AND OVERALL RELATIVE FREQUENCIES FOR PENDLETON

LOWER BOUNDS FOR INTERVALS OF MAXIMUM INTENSITY (INCHES PER HOUR X 100)	LOWER BOUNDS FOR INTERVALS OF NUMBER OF HOURS BELOW 32 F (HOURS) 0	20	40	60	80	100	120	140	160	180 AND ABOVE	ROW TOTALS
0	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000
1	21 .1034	5 .0246	4 .0197	2 .0099	6 .0296	1 .0049	0 0.0000	0 0.0000	1 .0049	3 .0148	43 .2118
2	16 .0788	8 .0394	1 .0049	1 .0049	3 .0148	2 .0099	1 .0049	1 .0049	1 .0049	1 .0049	35 .1724
3	7 .0345	1 .0049	2 .0099	0 0.0000	1 .0049	0 0.0000	2 .0099	0 0.0000	2 .0099	4 .0197	19 .0936
4	9 .0443	2 .0099	3 .0148	1 .0049	2 .0099	4 .0197	2 .0099	0 0.0000	0 0.0000	5 .0246	28 .1379
5	2 .0099	2 .0099	3 .0148	1 .0049	0 0.0000	0 0.0000	1 .0049	0 0.0000	1 .0049	4 .0197	14 .0690
6	7 .0345	2 .0099	1 .0049	2 .0099	1 .0049	2 .0099	0 0.0000	1 .0049	0 0.0000	4 .0197	20 .0985
7	1 .0049	3 .0148	2 .0099	1 .0049	0 0.0000	1 .0049	0 0.0000	0 0.0000	0 0.0000	1 .0049	9 .0443
8	3 .0148	2 .0099	1 .0049	1 .0049	0 0.0000	1 .0049	1 .0049	0 0.0000	0 0.0000	1 .0049	10 .0493
9 AND ABOVE	9 .0443	2 .0099	4 .0197	2 .0099	2 .0099	1 .0049	0 0.0000	2 .0099	1 .0049	2 .0099	25 .1232
COLUMN TOTALS	75 .3695	27 .1330	21 .1034	11 .0542	15 .0739	12 .0591	7 .0345	4 .0197	6 .0296	25 .1232	

JOINT FREQUENCIES AND OVERALL RELATIVE FREQUENCIES FOR WALLA WALLA

LOWER BOUNDS FOR INTERVALS OF MAXIMUM INTENSITY (INCHES PER HOUR X 100)	LOWER BOUNDS FOR INTERVALS OF NUMBER OF HOURS BELOW 32 F (HOURS) 0	20	40	60	80	100	120	140	160	180 AND ABOVE	ROW TOTALS
0	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000
1	16 .1053	10 .0658	2 .0132	4 .0263	2 .0132	1 .0066	2 .0132	1 .0066	1 .0066	1 .0066	40 .2632
2	11 .0724	3 .0197	1 .0066	0 0.0000	4 .0263	0 0.0000	0 0.0000	2 .0132	2 .0132	1 .0066	24 .1579
3	5 .0329	1 .0066	1 .0066	1 .0066	1 .0066	1 .0066	3 .0197	0 0.0000	0 0.0000	4 .0263	17 .1118
4	6 .0395	4 .0263	3 .0197	0 0.0000	0 0.0000	2 .0132	2 .0132	0 0.0000	0 0.0000	2 .0132	19 .1250
5	4 .0263	1 .0066	2 .0132	0 0.0000	0 0.0000	1 .0066	1 .0066	0 0.0000	0 0.0000	2 .0132	11 .0724
6	4 .0263	0 0.0000	0 0.0000	1 .0066	0 0.0000	2 .0132	1 .0066	0 0.0000	1 .0066	3 .0197	12 .0789
7	3 .0197	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	1 .0066	1 .0066	5 .0329
8	0 0.0000	3 .0197	2 .0132	1 .0066	0 0.0000	1 .0066	0 0.0000	0 0.0000	0 0.0000	0 0.0000	7 .0461
9 AND ABOVE	8 .0526	2 .0132	3 .0197	2 .0132	0 0.0000	0 0.0000	1 .0066	0 0.0000	0 0.0000	1 .0066	17 .1118
COLUMN TOTALS	57 .3750	24 .1579	14 .0921	9 .0592	7 .0461	8 .0526	10 .0658	3 .0197	5 .0329	15 .0987	

JOINT FREQUENCIES AND OVERALL RELATIVE FREQUENCIES FOR PENDLETON

LOWER BOUNDS FOR INTERVALS OF AVERAGE INTENSITY (INCHES PER HOUR X 100)	LOWER BOUNDS FOR INTERVALS OF FREEZE INDEX (DEGREES F) 0	100	200	300	400	500	600	700	800	900 AND ABOVE	ROW TOTALS
0.0	3 .0148	1 .0049	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	1 .0049	5 .0246
0.5	7 .0345	3 .0148	0 0.0000	1 .0049	0 0.0000	1 .0049	1 .0049	0 0.0000	1 .0049	5 .0246	19 .0936
1.0	31 .1527	4 .0197	8 .0394	3 .0148	3 .0148	2 .0099	2 .0099	3 .0148	0 0.0000	17 .0837	73 .3596
1.5	12 .0591	2 .0099	1 .0049	2 .0099	1 .0049	0 0.0000	1 .0049	1 .0049	2 .0099	13 .0640	35 .1724
2.0	14 .0690	3 .0148	3 .0148	3 .0148	0 0.0000	2 .0099	0 0.0000	0 0.0000	0 0.0000	7 .0345	32 .1576
2.5	8 .0394	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	2 .0099	10 .0493
3.0	2 .0099	0 0.0000	0 0.0000	1 .0049	0 0.0000	1 .0049	0 0.0000	0 0.0000	0 0.0000	0 0.0000	4 .0197
3.5	6 .0296	0 0.0000	0 0.0000	2 .0099	0 0.0000	0 0.0000	1 .0049	0 0.0000	0 0.0000	0 0.0000	9 .0443
4.0	3 .0148	1 .0049	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	1 .0049	5 .0246
4.5 AND ABOVE	6 .0296	1 .0049	1 .0049	1 .0049	1 .0049	0 0.0000	0 0.0000	0 0.0000	0 0.0000	1 .0049	11 .0542
COLUMN TOTALS	92 .4532	15 .0739	13 .0640	13 .0640	5 .0246	6 .0296	5 .0246	4 .0197	3 .0148	47 .2315	

JOINT FREQUENCIES AND OVERALL RELATIVE FREQUENCIES FOR WALLA WALLA

LOWER BOUNDS FOR INTERVALS OF AVERAGE INTENSITY (INCHES PER HOUR X 100)	LOWER BOUNDS FOR INTERVALS OF FREEZE INDEX (DEGREES F) 0	100	200	300	400	500	600	700	800	900 AND ABOVE	ROW TOTALS
0.0	2 .0132	0 0.0000	0 0.0000	1 .0066	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	3 .0197
0.5	6 .0395	1 .0066	0 0.0000	1 .0066	0 0.0000	1 .0066	0 0.0000	0 0.0000	0 0.0000	5 .0329	14 .0921
1.0	20 .1316	13 .0855	0 0.0000	3 .0197	3 .0197	2 .0132	0 0.0000	3 .0197	0 0.0000	15 .0987	59 .3882
1.5	12 .0789	0 0.0000	1 .0066	0 0.0000	1 .0066	0 0.0000	0 0.0000	2 .0132	0 0.0000	9 .0592	25 .1645
2.0	12 .0789	0 0.0000	2 .0132	0 0.0000	1 .0066	1 .0066	0 0.0000	0 0.0000	0 0.0000	4 .0263	20 .1316
2.5	3 .0197	0 0.0000	2 .0132	0 0.0000	0 0.0000	0 0.0000	0 0.0000	1 .0066	1 .0066	0 0.0000	7 .0461
3.0	3 .0197	0 0.0000	0 0.0000	1 .0066	0 0.0000	0 0.0000	0 0.0000	1 .0066	0 0.0000	0 0.0000	5 .0329
3.5	4 .0263	0 0.0000	1 .0066	1 .0066	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	1 .0066	7 .0461
4.0	1 .0066	1 .0066	1 .0066	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	3 .0197
4.5 AND ABOVE	6 .0395	1 .0066	1 .0066	1 .0066	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	9 .0592
COLUMN TOTALS	69 .4539	16 .1053	8 .0526	8 .0526	5 .0329	4 .0263	0 0.0000	7 .0461	1 .0066	34 .2237	

JOINT FREQUENCIES AND OVERALL RELATIVE FREQUENCIES FOR PENDLETON

LOWER BOUNDS FOR INTERVALS OF AVERAGE INTENSITY (INCHES PER HOUR X 100)	LOWER BOUNDS FOR INTERVALS OF MINIMUM TEMPERATURE (DEGREES F)										
	-15	-10	-5	0	5	10	15	20	25	30 AND ABOVE	ROW TOTALS
0.0	0 0.0000	1 .0049	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	1 .0049	2 .0099	1 .0049	5 .0246
0.5	0 0.0000	1 .0049	2 .0099	1 .0049	1 .0049	0 0.0000	1 .0049	4 .0197	7 .0345	2 .0099	19 .0936
1.0	2 .0099	0 0.0000	2 .0099	3 .0148	3 .0148	7 .0345	2 .0099	19 .0936	19 .0936	16 .0788	73 .3596
1.5	3 .0148	2 .0099	2 .0099	1 .0049	1 .0049	3 .0148	6 .0296	2 .0099	12 .0591	3 .0148	35 .1724
2.0	0 0.0000	1 .0049	1 .0049	1 .0049	1 .0049	2 .0099	3 .0148	8 .0394	6 .0296	9 .0443	32 .1576
2.5	0 0.0000	1 .0049	0 0.0000	0 0.0000	0 0.0000	1 .0049	0 0.0000	0 0.0000	4 .0197	4 .0197	10 .0493
3.0	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	1 .0049	0 0.0000	1 .0049	1 .0049	1 .0049	4 .0197
3.5	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	2 .0099	1 .0049	2 .0099	4 .0197	9 .0443
4.0	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	1 .0049	3 .0148	1 .0049	5 .0246
4.5 AND ABOVE	0 0.0000	0 0.0000	1 .0049	0 0.0000	1 .0049	0 0.0000	1 .0049	1 .0049	5 .0246	2 .0099	11 .0542
COLUMN TOTALS	5 .0246	6 .0296	8 .0394	6 .0296	7 .0345	14 .0690	15 .0739	38 .1872	61 .3005	43 .2118	

JOINT FREQUENCIES AND OVERALL RELATIVE FREQUENCIES FOR WALLA WALLA

LOWER BOUNDS FOR INTERVALS OF AVERAGE INTENSITY (INCHES PER HOUR X 100)	LOWER BOUNDS FOR INTERVALS OF MINIMUM TEMPERATURE (DEGREES F) -15	-10	-5	0	5	10	15	20	25	30 AND ABOVE	ROW TOTALS
0.0	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	2 .0132	1 .0066	0 0.0000	0 0.0000	3 .0197
0.5	0 0.0000	0 0.0000	1 .0066	1 .0066	1 .0066	1 .0066	2 .0132	1 .0066	4 .0263	3 .0197	14 .0921
1.0	0 0.0000	1 .0066	1 .0066	4 .0263	4 .0263	4 .0263	7 .0461	4 .0263	25 .1645	9 .0592	59 .3882
1.5	2 .0132	2 .0132	2 .0132	0 0.0000	0 0.0000	2 .0132	3 .0197	2 .0132	6 .0395	6 .0395	25 .1645
2.0	0 0.0000	1 .0066	2 .0132	1 .0066	0 0.0000	0 0.0000	1 .0066	2 .0132	9 .0592	4 .0263	20 .1316
2.5	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	1 .0066	0 0.0000	3 .0197	2 .0132	1 .0066	7 .0461
3.0	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	1 .0066	1 .0066	1 .0066	2 .0132	5 .0329
3.5	0 0.0000	0 0.0000	0 0.0000	1 .0066	0 0.0000	0 0.0000	0 0.0000	1 .0066	5 .0329	0 0.0000	7 .0461
4.0	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	1 .0066	2 .0132	0 0.0000	3 .0197
4.5 AND ABOVE	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	1 .0066	0 0.0000	1 .0066	5 .0329	2 .0132	9 .0592
COLUMN TOTALS	2 .0132	4 .0263	6 .0395	7 .0461	5 .0329	9 .0592	16 .1053	17 .1118	59 .3882	27 .1776	

JOINT FREQUENCIES AND OVERALL RELATIVE FREQUENCIES FOR PENDLETON

LOWER BOUNDS FOR INTERVALS OF AVERAGE INTENSITY (INCHES PER HOUR X 100)	LOWER BOUNDS FOR INTERVALS OF NUMBER OF HOURS BELOW 32 F (HOURS) 0	20	40	60	80	100	120	140	160	180 AND ABOVE	ROW TOTALS
0.0	2 .0099	2 .0099	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	1 .0049	5 .0246
0.5	7 .0345	2 .0099	1 .0049	1 .0049	0 0.0000	1 .0049	2 .0099	0 0.0000	2 .0099	3 .0148	19 .0936
1.0	27 .1330	7 .0345	8 .0394	2 .0099	10 .0493	5 .0246	1 .0049	2 .0099	3 .0148	8 .0394	73 .3596
1.5	9 .0443	5 .0246	2 .0099	2 .0099	0 0.0000	3 .0148	4 .0197	0 0.0000	1 .0049	9 .0443	35 .1724
2.0	13 .0640	3 .0148	3 .0148	4 .0197	3 .0148	3 .0148	0 0.0000	1 .0049	0 0.0000	2 .0099	32 .1576
2.5	4 .0197	3 .0148	1 .0049	0 0.0000	0 0.0000	0 0.0000	0 0.0000	1 .0049	0 0.0000	1 .0049	10 .0493
3.0	2 .0099	0 0.0000	1 .0049	1 .0049	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	4 .0197
3.5	5 .0246	1 .0049	1 .0049	1 .0049	1 .0049	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	9 .0443
4.0	1 .0049	2 .0099	1 .0049	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	1 .0049	5 .0246
4.5 AND ABOVE	5 .0246	2 .0099	3 .0148	0 0.0000	1 .0049	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	11 .0542
COLUMN TOTALS	75 .3695	27 .1330	21 .1034	11 .0542	15 .0739	12 .0591	7 .0345	4 .0197	6 .0296	25 .1232	

JOINT FREQUENCIES AND OVERALL RELATIVE FREQUENCIES FOR WALLA WALLA

LOWER BOUNDS FOR INTERVALS OF AVERAGE INTENSITY (INCHES PER HOUR X 100)	LOWER BOUNDS FOR INTERVALS OF NUMBER OF HOURS BELOW 32 F (HOURS) 0	20	40	60	80	100	120	140	160	180 AND ABOVE	ROW TOTALS
0.0	2 .0132	1 .0066	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	3 .0197
0.5	4 .0263	3 .0197	1 .0066	1 .0066	0 0.0000	0 0.0000	0 0.0000	0 0.0000	2 .0132	3 .0197	14 .0921
1.0	18 .1184	10 .0658	4 .0263	4 .0263	6 .0395	2 .0132	6 .0395	3 .0197	1 .0066	5 .0329	59 .3882
1.5	11 .0724	1 .0066	2 .0132	0 0.0000	1 .0066	1 .0066	2 .0132	0 0.0000	2 .0132	5 .0329	25 .1645
2.0	10 .0658	2 .0132	1 .0066	1 .0066	0 0.0000	3 .0197	2 .0132	0 0.0000	0 0.0000	1 .0066	20 .1316
2.5	1 .0066	3 .0197	1 .0066	1 .0066	0 0.0000	1 .0066	0 0.0000	0 0.0000	0 0.0000	0 0.0000	7 .0461
3.0	3 .0197	0 0.0000	1 .0066	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	1 .0066	5 .0329
3.5	3 .0197	1 .0066	1 .0066	1 .0066	0 0.0000	1 .0066	0 0.0000	0 0.0000	0 0.0000	0 0.0000	7 .0461
4.0	1 .0066	1 .0066	1 .0066	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	3 .0197
4.5 AND ABOVE	4 .0263	2 .0132	2 .0132	1 .0066	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	0 0.0000	9 .0592
COLUMN TOTALS	57 .3750	24 .1579	14 .0921	9 .0592	7 .0461	8 .0526	10 .0658	3 .0197	5 .0329	15 .0987	