STATE OF CALIFORNIA
AIR RESOURCES BOARD
AEROMETRIC DATA DIVISION

CALIFORNIA SURFACE WIND CLIMATOLOGY

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The wind goeth toward the south and turneth about unto the north; it whirleth about continually, and the wind returneth again according to the circuits. All the rivers run into the sea; yet the sea is not full; unto the place from whence the rivers come, thither they return again.

Ecclesiastes (1:6,7)

CALIFORNIA SURFACE WIND CLIMATOLOGY

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SUMMARY

This report was prepared to provide air pollution control executives, engineers, modelers, planners, researchers and meteorologists with some of the surface airflow climatological data and displays necessary for effective decision making.

The report is presented in three sections and four appendices. The sections contain charts showing seasonal predominant wind patterns over California and its coastal waters, airflow types for four air basins by season and time of day, and resultant wind diagrams for 47 stations by month and time of day.

The appendices contain a brief general discussion of surface airflow in California, definitions and conversion tables, an annotated bibliography, and surface wind summaries by season for 170 stations in California and six stations in adjacent states but near the California border.

INTRODUCTION

The Air Resources Board (ARB) is responsible for achieving and maintaining satisfactory air quality in California in cooperation with local air pollution control districts and the U.S. Environmental Protection Agency. The Board's control programs rely heavily on the assessment of air quality data in terms of trends and of the occurrences of pollutant concentrations in excess of those specified in the ambient air quality standards. These kinds of assessments require a knowledge of pollutant transport as well as the usualness or unusualness of the meteorological conditions under which the air quality measurements were taken. For example, it is important (from a regulatory standpoint) to realize that the frequent exceedances of the ozone standard at Palm Springs (in the Southeast Desert Air Basin) during the summer are due in part to transport of the pollutants from the South Coast Air Basin via the San Gorgonio Pass.

The planning, research, stationary source, and motor vehicle emission control elements of the Board's control program also need a variety of climatological services. Most of these services involve an assessment of climatological statistics of various kinds. Thus it is important to the success of these program elements that basic climatological data be readily available and appropriately summarized and analyzed.

To assist in meeting the above needs, the meteorological staff of the Aerometric Data Division presents three climatological summaries of California surface wind data in this report. The first summary (Section 1 -- Predominant Surface Wind Flow Patterns) consists of seasonal predominant wind flow patterns for the non-mountainous areas of the state. The second summary (Section 2 -- Air Basin Surface Airflow Types) consists of typical surface airflow typed patterns for the South Coast, San Francisco Bay Area, San Joaquin Valley, and Sacramento Valley Air Basins and statistics on their seasonal and diurnal frequency of occurrence. The third summary (Section 3 -- Three-Hourly Resultant Surface Wind Summaries) consists of diurnal and seasonal surface resultant wind flow data for 47 locations throughout and nearby California.

The formats and displays used for the above sections and for the appendices are explained in the first part of each presentation. Figures in the sections and appendices are labelled to indicate the appropriate section or appendix, e.g. 1a and 1b are in Section 1; A-1, A-2 are in Appendix A, etc.

A concise description of the climatic influences on the general surface airflow patterns in California is given in Appendix A.

The technical terms used in this report and physical processes associated with winds, which may be unfamiliar to some people, are defined in Appendix B. Conversion tables are also given in Appendix B to facilitate converting miles per hour (mph) to knots (kts) and to meters per second (mps).

An annotated bibliography is given in Appendix C. In general, the 23 references cited provide additional California surface wind climatological information and are available in technical libraries or from the originating agencies.

Tabulations of pertinent predominant and resultant surface wind data for the 176 locations in and near California used in this study are contained in Appendix D. An index is given on pages D3-D6.

The data displayed in this report were prepared with the user's needs in mind and are based on an extensive amount of meteorological record. The authors would welcome receiving any comments the user might have regarding the usefulness of the report's contents, the nature of its displays, etc.

This report complements the upper air climatology provided in the ARB report titled "Summary of California Upper Air Meteorological Data", December 1979 and the regional descriptive climatologies contained in the ARB Air Basin Climatology Series, 1974/5. When these climatologies are used in conjunction with each other they provide a comprehensive general picture of the weather and climate of California as they pertain to air pollution control activities. Specific local projects will benefit from on-site data measurements and interpretation by an air pollution meteorologist.

This report has been assembled in a format that can be converted into a loose leaf notebook so that, in the future, additional similar climatological displays can be incorporated into the basic document. It is envisioned that, periodically, as additional displays become available, such as those contained in Section 3 and Appendix D, they may be sent to recipients of this report. In this way additional useful climatological data may be made available to users with the minimum of delay. In an effort to plan for this eventuality, it is requested that recipients of this report who would like to receive these supplements, as they are published, please notify the Air Resources Board, Meteorology Section, P. O. Box 2815, Sacramento, CA 95812 (916-322-7457) so that they may be placed on the mailing list.

Section 1

PREDOMINANT SURFACE WIND FLOW

Predominant surface wind flow patterns have been prepared for the four seasons of the year using data from most stations in California and several nearby stations in other states where at least one full season of record is available. Predominant wind is defined as the direction of the mid-point of the 3-point sector (group of three contiguous points of the compass in a 16-point display) which holds the largest number of the total wind observations. For example, in the following portion of a wind rose:

Direction	Percentage of Time
N	1
NNE	3
NE	6
ENE	5
E	4

The predominant wind direction is ENE because the sector including the contiguous NE, ENE, and E directions contains the largest composite percentage of occurrence.

Charts for the four seasons are presented in Figure 1a (Winter), Figure 1b (Spring), Figure 1c (Summer), and Figure 1d (Fall). The location of the sites with wind data used in this analysis are shown in Figure D-1, Appendix D, and the data are contained in the tables in Appendix D. Additional pertinent climatological statistics are also contained in the tables (percentage frequency of occurrence of predominant wind, resultant wind, mean speeds, and persistence ratios). The predominant wind on a 16-point display can be considered as a sector prevailing wind, i.e. the sector with the greatest occurrence; a sector in this case being 67-1/2° or 3/16's of the compass rose. On an 8-point display the prevailing wind is considered as the predominant wind for purposes of this analysis.

The patterns presented (Figures 1a-1d) consist of wind streamlines for mostly the non-mountainous areas of California where the vast majority of measurements were taken. In several instances, streamlines are shown in mountainous zones where data substantiate continuous streamlines from non-mountainous zones. These are generally regions where interbasin transport of air is evident and important to air pollution control. Streamlines based on data are continuous; those portions that are not connected are based mostly on theoretical considerations. The final analyses are adjusted as necessary for compatibility with those as shown in the referenced documents (Appendix C). Streamlines are developed for the "California Coastal Waters" from buoy, ship, island and coastal station weather reports. The "California Coastal Waters" are noted on Figures 1a-1d and are defined in Appendix B.

Figure 1a

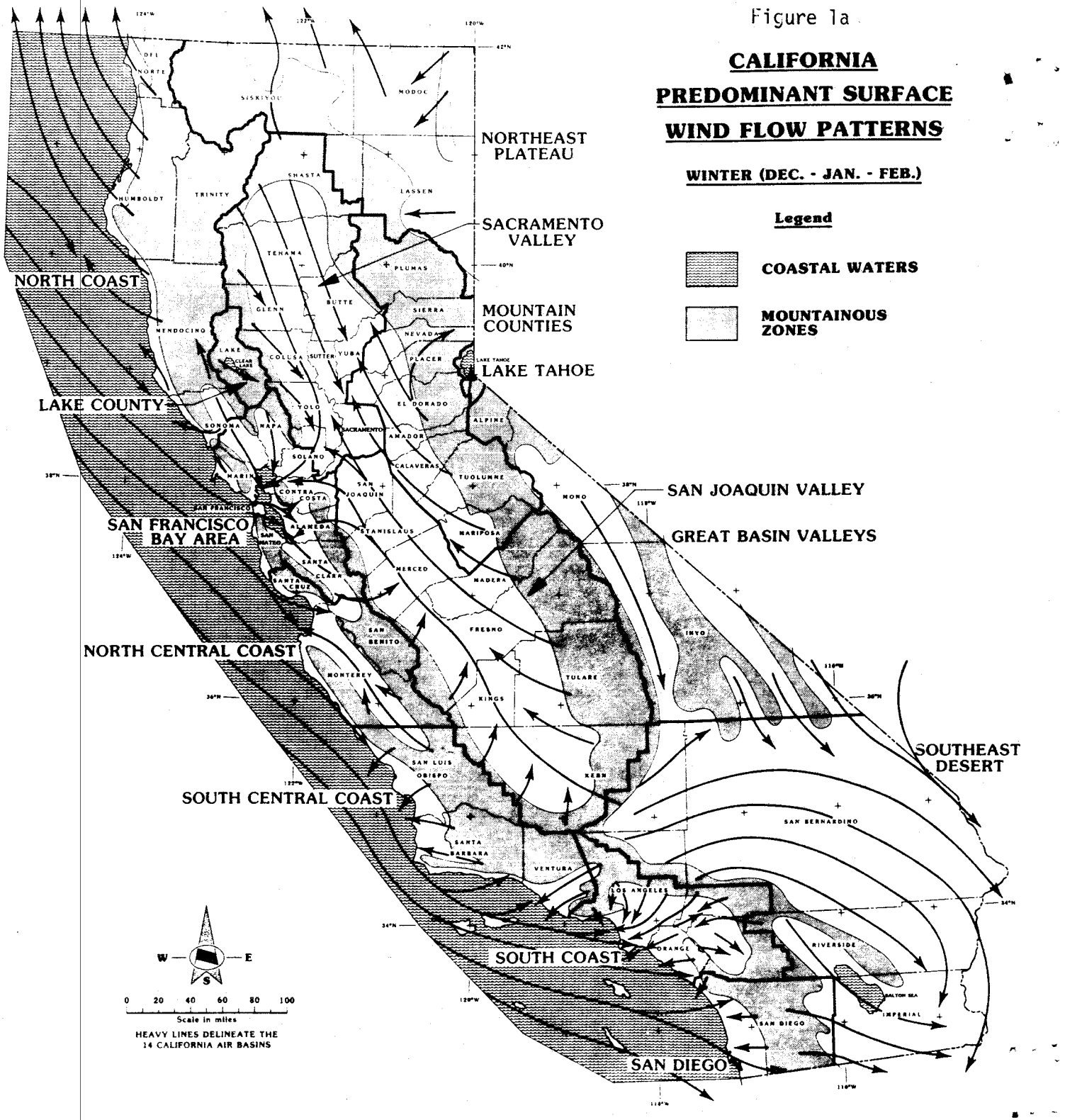
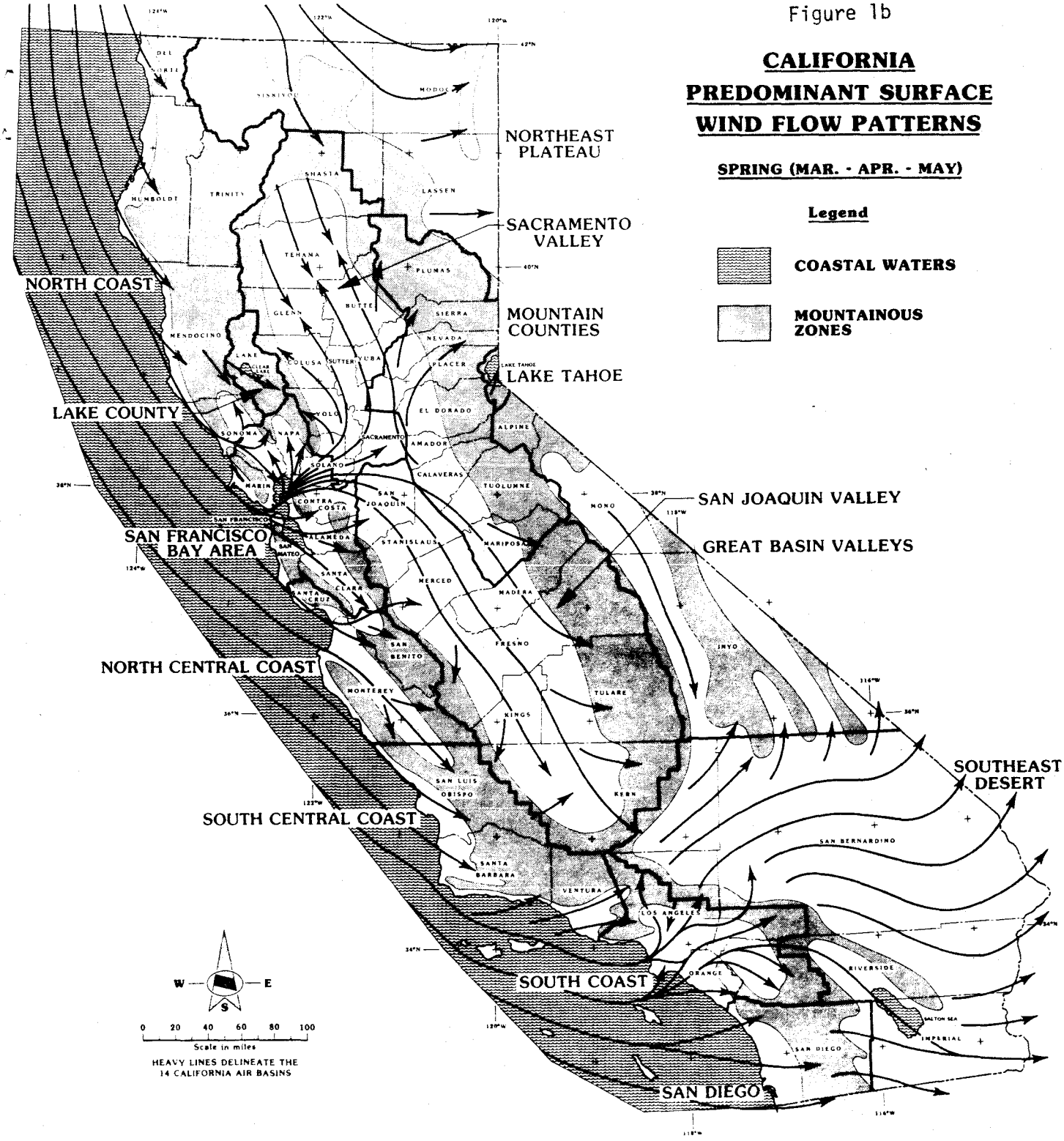

CALIFORNIA
PREDOMINANT SURFACE
WIND FLOW PATTERNS
WINTER (DEC. - JAN. - FEB.)
Legend
COASTAL WATERS
MOUNTAINOUS ZONES
NORTHEAST PLATEAU
SACRAMENTO VALLEY
MOUNTAIN COUNTIES
LAKE TAHOE
SAN JOAQUIN VALLEY
GREAT BASIN VALLEYS
SOUTHEAST DESERT
NORTH COAST
LAKE COUNTY
SAN FRANCISCO BAY AREA
NORTH CENTRAL COAST
SOUTH CENTRAL COAST
SOUTH COAST
SAN DIEGO
W
E
S
0 20 40 60 80 100
Scale in miles
HEAVY LINES DELINEATE THE 14 CALIFORNIA AIR BASINS
CALIFORNIA AIR RESOURCES BOARD
AEROMETRIC DATA DIVISION 4/84

Figure 1b



CALIFORNIA AIR RESOURCES BOARD
AEROMETRIC DATA DIVISION 4/84

Figure 1c

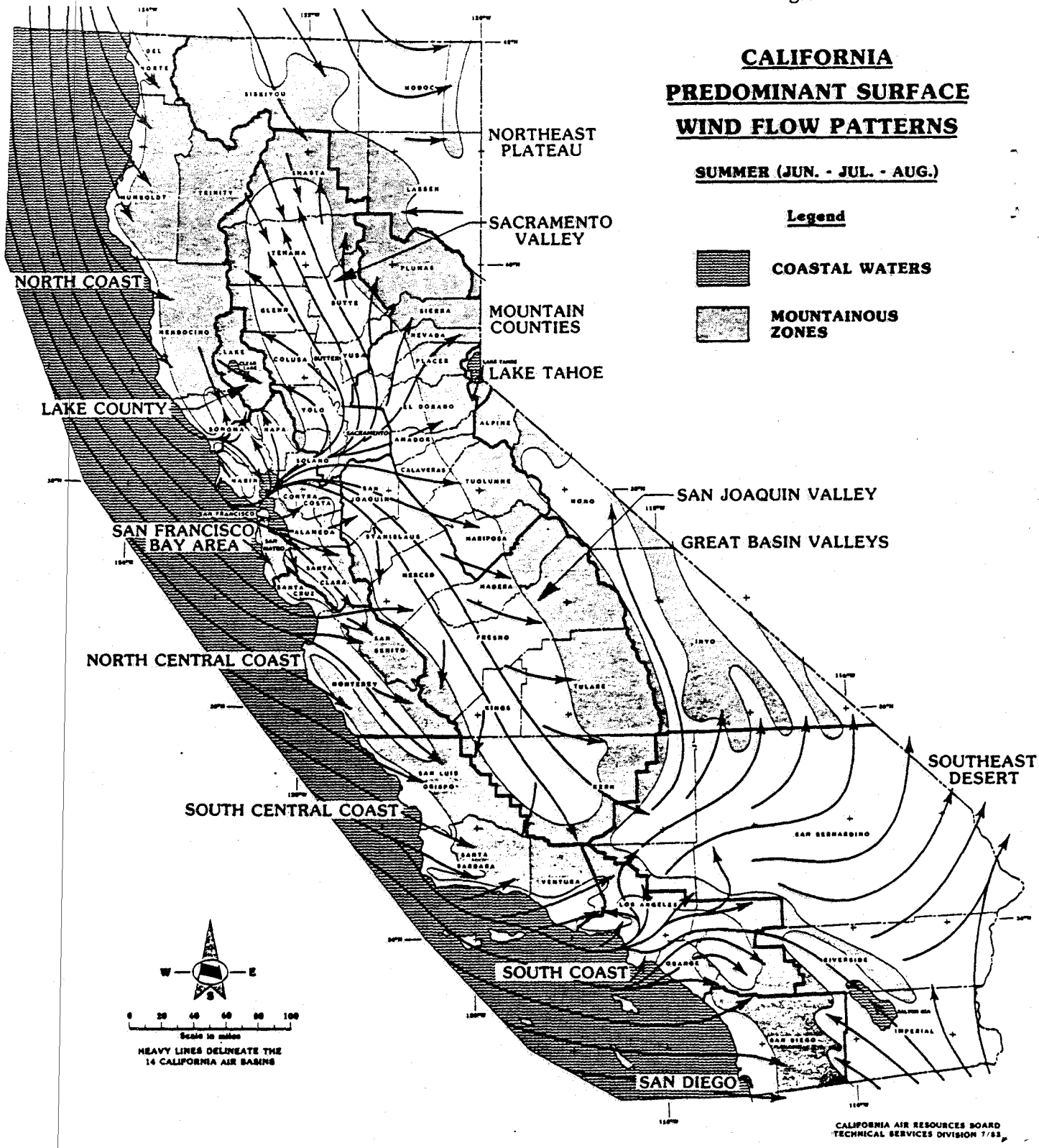
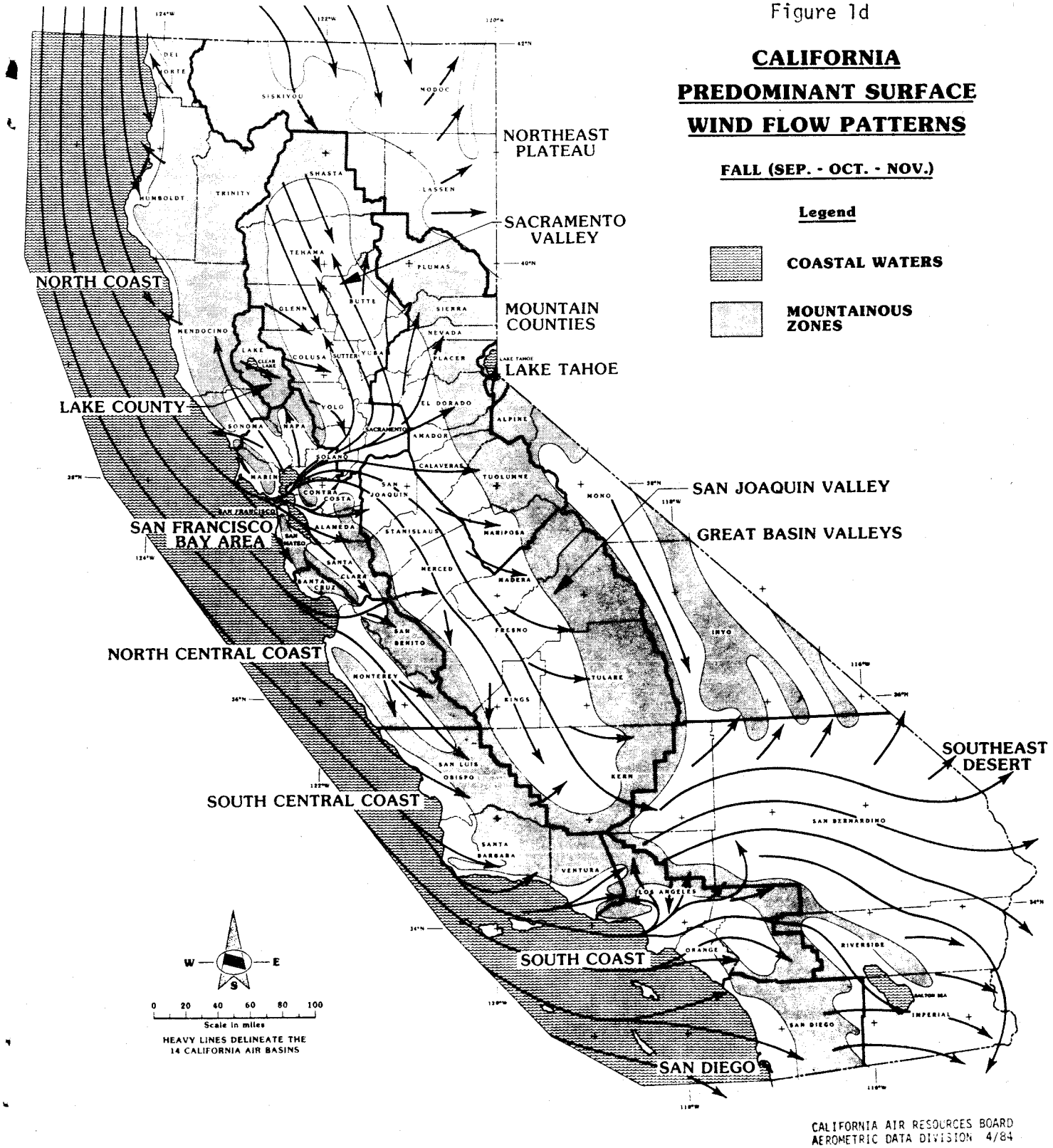

CALIFORNIA
PREDOMINANT SURFACE
WIND FLOW PATTERNS
SUMMER (JUN. - JUL. - AUG.)
Legend
COASTAL WATERS
MOUNTAINOUS ZONES
NORTHEAST PLATEAU
SACRAMENTO VALLEY
MOUNTAIN COUNTIES
LAKE TAHOE
SAN JOAQUIN VALLEY
GREAT BASIN VALLEYS
SOUTHEAST DESERT
NORTH COAST
LAKE COUNTY
SAN FRANCISCO BAY AREA
NORTH CENTRAL COAST
SOUTH CENTRAL COAST
SOUTH COAST
SAN DIEGO
W
E
S
Scale in miles
HEAVY LINES DELINEATE THE 14 CALIFORNIA AIR BASINS
CALIFORNIA AIR RESOURCES BOARD
TECHNICAL SERVICES DIVISION 7/83

Figure 1d


CALIFORNIA
PREDOMINANT SURFACE
WIND FLOW PATTERNS
FALL (SEP. - OCT. - NOV.)
Legend
COASTAL WATERS
MOUNTAINOUS ZONES
NORTHEAST PLATEAU
SACRAMENTO VALLEY
MOUNTAIN COUNTIES
LAKE TAHOE
SAN JOAQUIN VALLEY
GREAT BASIN VALLEYS
SOUTHEAST DESERT
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SAN FRANCISCO BAY AREA
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SOUTH CENTRAL COAST
SOUTH COAST
SAN DIEGO
W
E
S
0 20 40 60 80 100
Scale in miles
HEAVY LINES DELINEATE THE 14 CALIFORNIA AIR BASINS
CALIFORNIA AIR RESOURCES BOARD
AEROMETRIC DATA DIVISION 4/84

It is worthy of mention that caution has been exercised when interpreting wind data for a station with only one season of data available for analysis, as is the case at times herein. In a case where a season experienced anomolous weather the predominant wind data may not reflect the true climatological wind flow pattern shown in the charts above. For example, due to an extremely stormy winter in 1981/82, the winter seasonal data for Colusa (p. D-24) indicate upvalley (southerly) flow as the predominant flow and downvalley (northerly) flow as the secondary predominant flow. An analysis of long term Sacramento Valley winter wind data indicates that the secondary predominant wind more than likely represents the true climatological wind situation. These types of considerations were part of the overall data base analysis strategy used when preparing the seasonal predominant wind flows.

The contours of the mountainous zones of California are also noted on Figures 1a-1d and are, in general, delineated by the average height of the base of the summertime subsidence inversion. The inversion base normally slopes upward from the coastline to the interior. As a result, the elevations that bound the mountainous zones tend to slope upward from west to east. The mountainous zone boundary is well described by the 1,000-foot terrain contour along the coast. On the eastern side of the coastal ranges the boundary lies at about 2,000 feet above sea level and between 2,000 and 4,000 feet in the Sierras. In general, the mountainous zone contour is situated between 1,000 and 2,000 feet above the surrounding plain or valley floor. Physically, the non-mountainous zones depicted in Figures 1a-1d represent the areas influenced by the earth's atmospheric boundary layer associated with the valleys, plains, and deserts wherein air pollution can accumulate and pose a potential air quality problem.

Section 2

AIR BASIN SURFACE AIRFLOW TYPES

Airflow types and their percentage frequency of occurrence are contained in this section for the most heavily populated air basins by season for four times daily. This information was derived from meteorological maps showing the surface airflow patterns that have been prepared daily for 4 a.m., 10 a.m., 4 p.m., and 10 p.m. (PST) by the ARB meteorological staff since 1974. These maps are useful in determining when high air pollution concentration may occur and for making agricultural burning control decisions. When typed by recurring patterns and summarized by season and time of day they also provide air pollution climatological information that is helpful in studying pollutant transport and dispersion and in making planning decisions.

Airflow types and percentage occurrences from 1974 to 1977 were previously published in the ARB's "California Air Quality Data", July-September, Volume IX, No. 3, 1977 issue. Updated summaries with data from December 1977 through November 1981 are presented in this report.

With these updated summaries, the miscellaneous types are eliminated by sorting and placing them in the nearest appropriate airflow type; airflow types for the Sacramento Valley Air Basin are added, and a more rigorous interpretation of airflow patterns is made which results in the elimination/addition and modification of several airflow types. In addition, seasons are made to agree with the more meaningful California climatological interpretation: Winter (December, January, February), Spring (March, April, May), Summer (June, July, August), and Fall (September, October, November).

The new typing system used for this report is slightly different from the previously published work for the period 1974-1977 ("California Air Quality Data", Vol. IX, No. 3) so that the statistics for the two periods cannot be merged as is. In case it is desired to increase the data base of this report, the old type statistics may be merged with some success by using the type comparison scheme tabulated below where the old type is the 1974-77 data base and new type is the December 1977-November 1981 data base. The difference between the months making up the season of the two data bases is not considered significant for this purpose.

Comparable Airflow Types

South Coast		San Francisco Bay Area		San Joaquin Valley	
Old Type	New Type	Old Type	New Type	Old Type	New Type
I	I	I	Ia or b	I	I
II	II	II	II	II	II
III	III	III	III	III	III
IV	IV	IV	Ia or b	IV	IV
V	III	V	IV	V	V
VI	VIa or b	VI	VII	VI*	--
VII	VII	VII*	--		
VIII*	--				

* miscellaneous

South Coast Air Basin

The airflow patterns in the South Coast Air Basin can generally be characterized by one of the seven directional types illustrated in Figure 2a. The percentage occurrence of these airflow types as they vary by 6-hourly intervals and by season of the year are contained in Table 2a. For instance, as shown in Table 2a, for percentage occurrence of Calm (Type VII), Offshore (Type III), and Downslope/Transitional (Type V) patterns are dominant in summer and fall during the early morning hours. These types allow pollutants to build up in the industrial and business areas and then move inland with the Sea Breeze (Type II) in the afternoon. This typical arrangement and sequence of winds leads to the maximum occurrence of ozone in the interior plains and valleys of the South Coast.

Due to the significant influence of emissions in the South Coast Air Basin on the neighboring air basins and coastal waters through wind transport this aspect was considered in the airflow typing. Note that in Figure 2a airflow in parts of the South Central Coast, San Diego, Southeast Desert Air Basins and coastal waters are depicted. These depictions may be helpful in assessing the airflow in these peripheral areas.

San Francisco Bay Area Air Basin

The airflow patterns in the San Francisco Bay Area Air Basin can generally be characterized by one of the seven types illustrated in Figure 2b. The percentage occurrence of these airflow types as they vary by 6-hourly intervals and by season of the year are contained in Table 2b. For instance, as shown in Table 2b, the percentage occurrence of Northwesterly (Types Ia and Ib) airflow is especially dominant in the early afternoons in spring, summer, and fall. This leads to the likelihood of some pollutant transport from the Bay Area into the Sacramento Valley and San Joaquin Valley Air Basins. Patterns that can lead to pollution episodes in the Bay Area Air Basin are Inflow (Type V), Outflow (Type VI), and Calm (Type VII), all characterized by weak airflow conditions.

San Joaquin Valley Air Basin

The airflow patterns in the San Joaquin Valley Air Basin can generally be characterized by one of the four directional types illustrated in Figure 2c. The percentage occurrence of these airflow types as they vary by 6-hourly intervals and by season of the year are contained in Table 2c. Examination of the data in Table 2c can uncover seasonal variations of consequence in airflow types. For example, the Northwesterly Upvalley (Type I) flow is predominant in summer while Calm (Type V) conditions predominate in winter. This reflects the prevailing stagnant conditions of winter which leads to a high incidence of valley fog and sulfates during that season.

Sacramento Valley Air Basin

The airflow patterns in the Sacramento Valley Air Basin can generally be characterized by one of the eight directional types illustrated in Figure 2d. The percentage occurrence of these airflow types as they vary by 6-hourly intervals and by season of the year are contained in Table 2d. Examination of the data in Table 2d can uncover seasonal and diurnal variations of consequence in airflow types. For example, the Sea Breeze (Type I) pattern dominates the wind flow in spring and summer especially in the afternoon, while in winter Calm (Type IX) conditions dominate the late evening and early morning atmosphere which reflect poor ventilation and increased air pollution.

Please note that due to rounding of percentages in Tables 2a-2d, the sum of hourly percentages for types will not always equal 100%.

The shaded areas in Figures 2a-2d indicate the mountainous zones as described in Section 1 of this report.

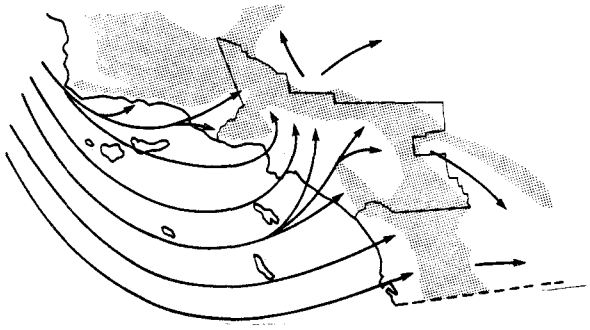
Table 2a

SOUTH COAST AIR BASIN SURFACE AIRFLOW TYPES
SEASONAL AND DIURNAL PERCENTAGE OF OCCURRENCE
(1977-1981 Data)

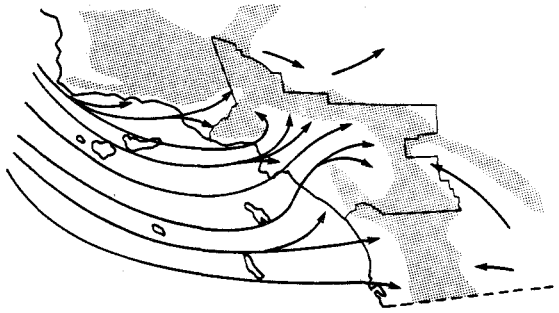
Types / Time - PST	I On-shore South	II Sea Breeze	III Off-shore	IV South-erly	V Downslope/ Transitional	VIa Weak Santa Ana	VIb Full Santa Ana (>20 Kts)	VII Calm
Winter								
4 a.m.	3	3	25	3	17	10	7	29
10 a.m.	10	9	16	15	16	12	7	13
4 p.m.	24	51	4	11	4	4	2	0
10 p.m.	6	7	19	7	20	11	7	23
All Times	11	18	16	9	14	9	6	16
Spring								
4 a.m.	10	8	19	6	26	4	3	24
10 a.m.	43	29	3	12	5	2	1	2
4 p.m.	31	61	2	4	1	1	1	*
10 p.m.	23	26	9	4	23	3	1	10
All Times	27	31	8	6	14	3	2	9
Summer								
4 a.m.	10	5	4	4	34	1	1	37
10 a.m.	51	41	1	6	1	*	*	0
4 p.m.	26	73	0	1	0	0	0	0
10 p.m.	34	39	2	2	18	1	*	5
All Times	30	40	2	3	13	1	*	11
Fall								
4 a.m.	7	10	16	2	26	7	4	25
10 a.m.	33	29	5	6	10	6	4	7
4 p.m.	20	67	4	2	2	1	1	4
10 p.m.	16	19	13	2	27	5	3	15
All Times	19	31	10	3	16	5	3	13
Yearly								
4 a.m.	8	7	16	4	26	6	4	29
10 a.m.	34	27	6	10	8	5	3	6
4 p.m.	25	63	3	5	2	2	1	1
10 p.m.	20	23	11	4	22	5	3	14
All Times	22	30	9	6	14	4	3	12

* < 0.5 percent

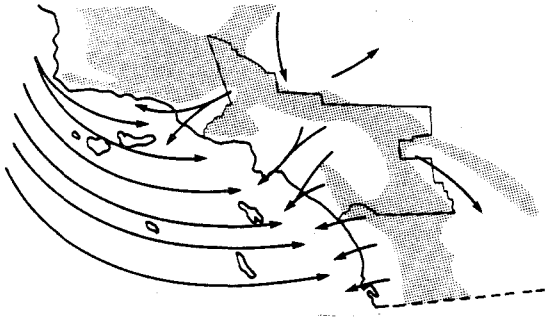
Figure 2a - SOUTH COAST AIR FLOW PATTERN TYPES



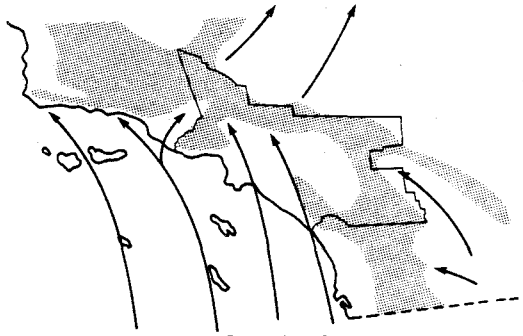
I Onshore South



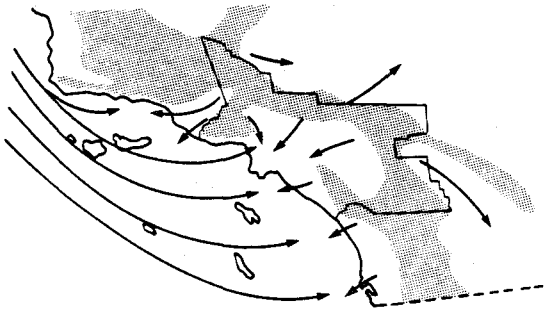
II Sea Breeze



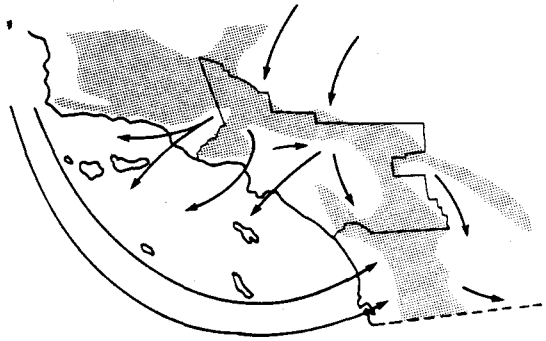
III Offshore



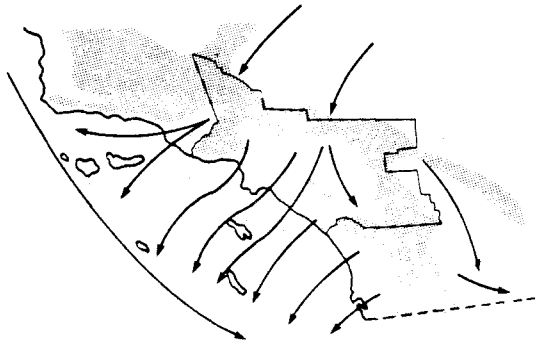
IV Southerly



V Downslope / Transitional



VIa Weak Santa Ana



VIb Full Santa Ana
(winds > 20 kts)

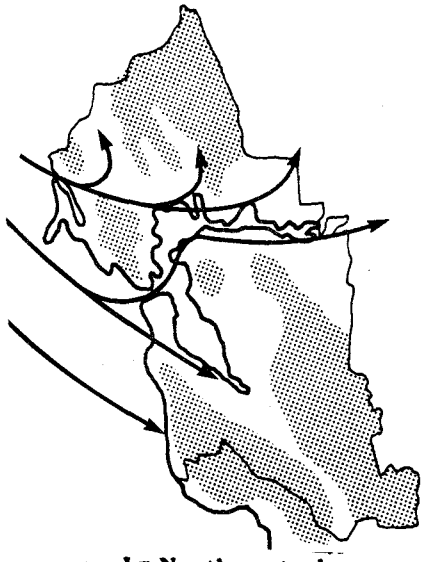
Table 2b

SAN FRANCISCO BAY AREA AIR BASIN SURFACE AIRFLOW TYPES
SEASONAL AND DIURNAL PERCENTAGE OF OCCURRENCE
(1977-1981 Data)

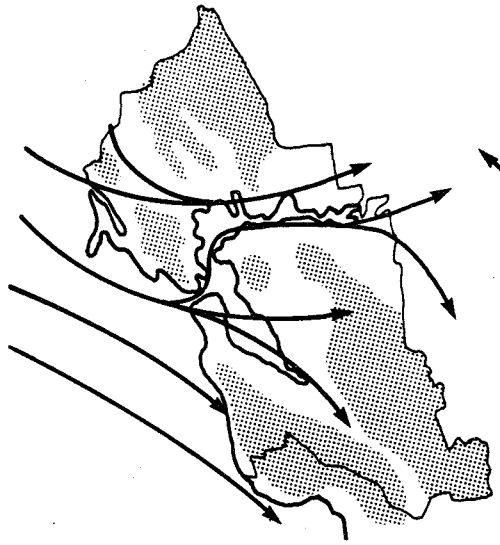
Types / Time - PST	Ia Northwesterly (Weak)	Ib Northwesterly (Moderate to Strong)	II Southerly	III Southeasterly	IV Northeasterly	V Bay Inflow	VI Bay Outflow	VII Calm
Winter								
4 a.m.	3	4	19	14	8	21	5	24
10 a.m.	4	5	19	20	10	11	19	9
4 p.m.	16	16	16	12	13	3	22	1
10 p.m.	6	9	14	14	10	20	3	21
All Times	7	9	17	15	10	14	12	14
Spring								
4 a.m.	27	25	11	2	4	15	5	12
10 a.m.	29	25	14	6	5	3	17	1
4 p.m.	22	60	7	4	4	2	2	*
10 p.m.	40	34	8	2	4	5	3	5
All Times	29	36	10	3	4	6	7	5
Summer								
4 a.m.	40	37	4	*	0	6	2	10
10 a.m.	37	44	4	*	1	1	13	0
4 p.m.	20	77	2	0	1	0	*	0
10 p.m.	39	55	2	0	*	1	1	1
All Times	34	53	3	0	1	2	4	3
Fall								
4 a.m.	25	13	7	6	3	22	3	19
10 a.m.	28	15	6	11	6	7	23	4
4 p.m.	31	46	5	2	6	2	7	*
10 p.m.	37	24	6	4	3	13	1	12
All Times	30	24	6	6	4	11	9	9
Yearly								
4 a.m.	24	20	10	6	4	16	4	16
10 a.m.	25	22	11	9	6	6	18	4
4 p.m.	22	50	8	5	6	2	7	*
10 p.m.	31	30	8	5	4	10	2	10
All Times	26	30	9	6	5	8	8	8

* < 0.5 percent

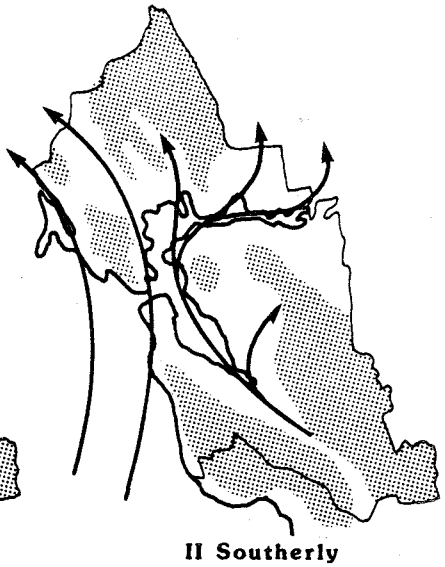
Figure 2b - BAY AREA AIR FLOW PATTERN TYPES



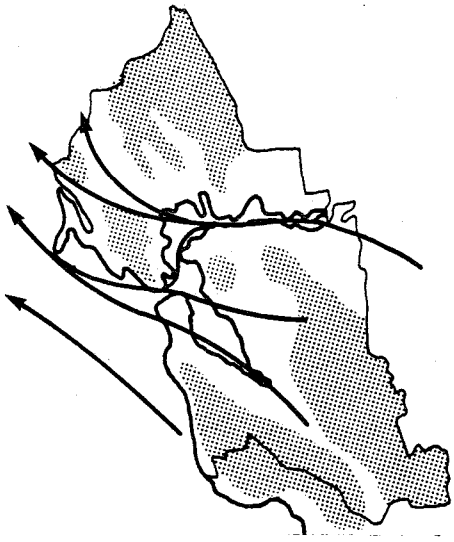
Iα Northwesterly
(weak)



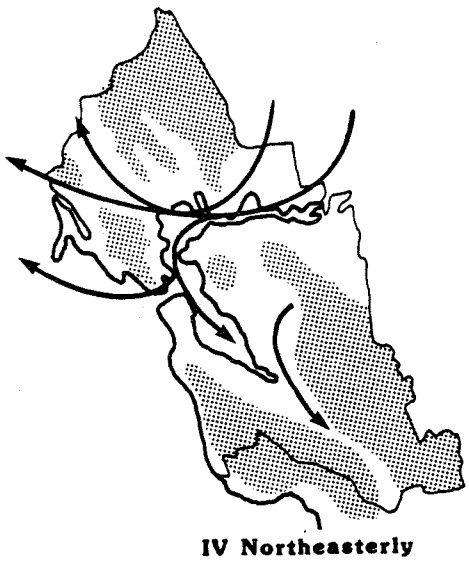
Iь Northwesterly
(moderate to strong)



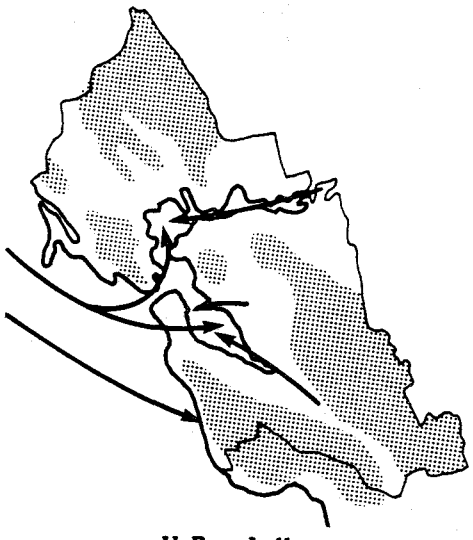
II Southerly



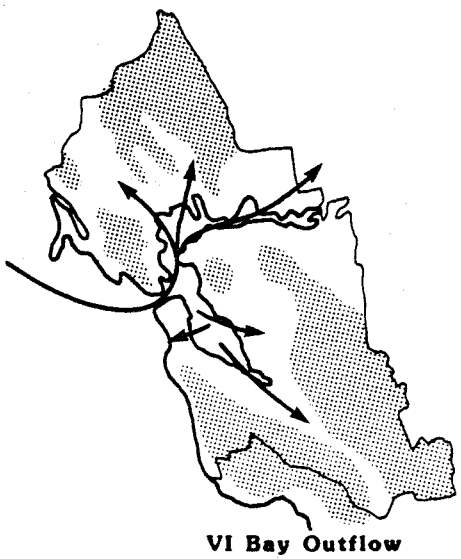
III Southeasterly



IV Northeasterly



V Bay Inflow



VI Bay Outflow

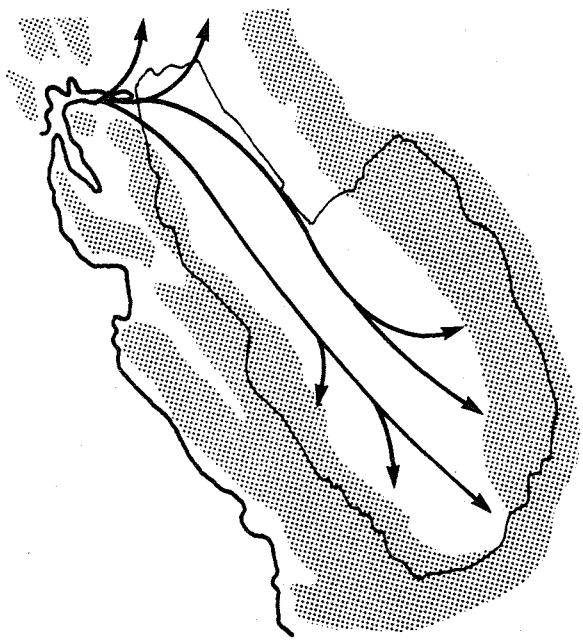
Table 2c

SAN JOAQUIN VALLEY AIR BASIN SURFACE AIRFLOW TYPES
SEASONAL AND DIURNAL PERCENTAGE OF OCCURRENCE
(1977-1981 Data)

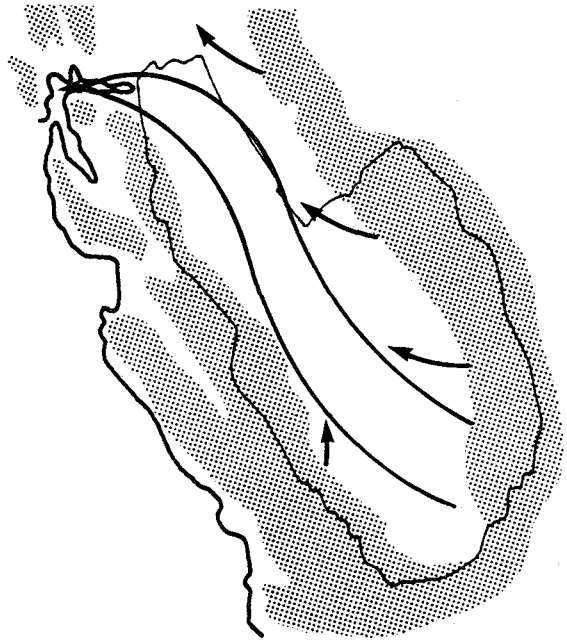
Types / Time - PST	I Upvalley	II Downvalley Drainage	III Southerly	IV Northerly (No Marine Air)	V Calm
Winter					
4 a.m.	8	22	22	8	38
10 a.m.	9	18	29	16	29
4 p.m.	22	11	23	22	22
10 p.m.	11	22	22	9	36
All Times	13	18	24	14	31
Spring					
4 a.m.	33	21	6	20	20
10 a.m.	36	10	16	29	10
4 p.m.	50	5	9	32	4
10 p.m.	44	15	7	23	11
All Times	41	13	9	26	11
Summer					
4 a.m.	60	10	2	18	10
10 a.m.	68	4	3	22	3
4 p.m.	75	2	*	23	0
10 p.m.	74	3	*	22	1
All Times	69	5	2	21	3
Fall					
4 a.m.	24	21	7	12	36
10 a.m.	35	10	16	19	20
4 p.m.	54	8	6	25	6
10 p.m.	40	14	9	12	26
All Times	38	13	10	17	22
Yearly					
4 a.m.	31	19	9	15	26
10 a.m.	37	11	16	22	16
4 p.m.	50	7	10	25	8
10 p.m.	42	14	10	12	19
All Times	40	13	11	19	17

* < 0.5 percent

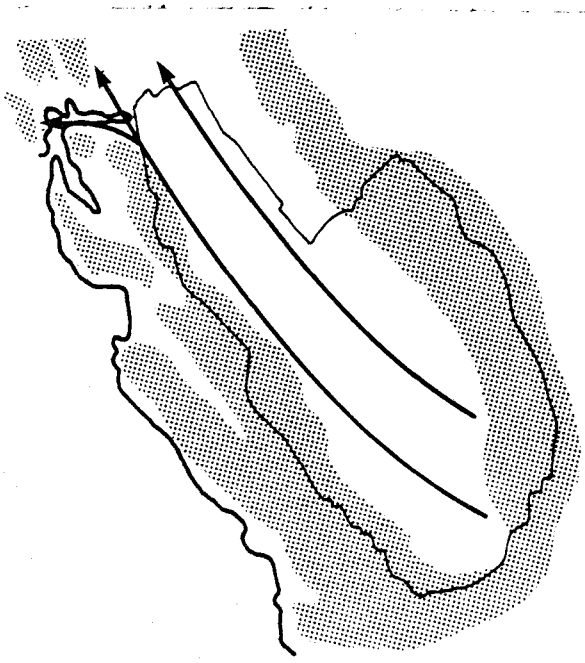
Figure 2c - SAN JOAQUIN VALLEY AIR FLOW PATTERN TYPES



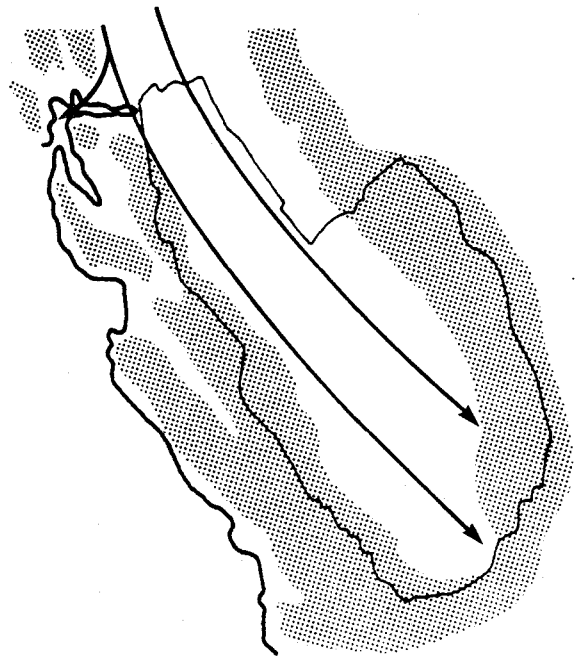
I Upvalley



II Downvalley / Drainage



III Southerly



IV Northerly (No Marine Air)

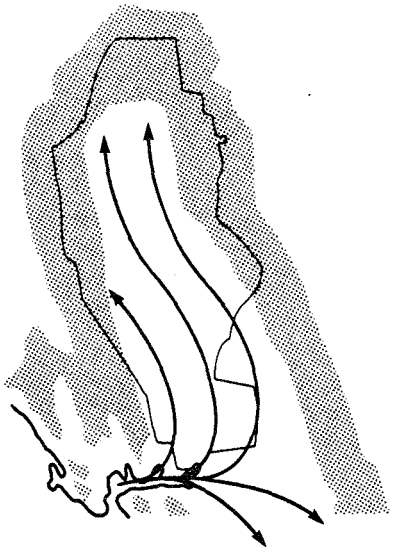
Table 2d

SACRAMENTO VALLEY AIR BASIN SURFACE AIRFLOW TYPES
SEASONAL AND DIURNAL PERCENTAGE OF OCCURRENCE
(1977-1981 Data)

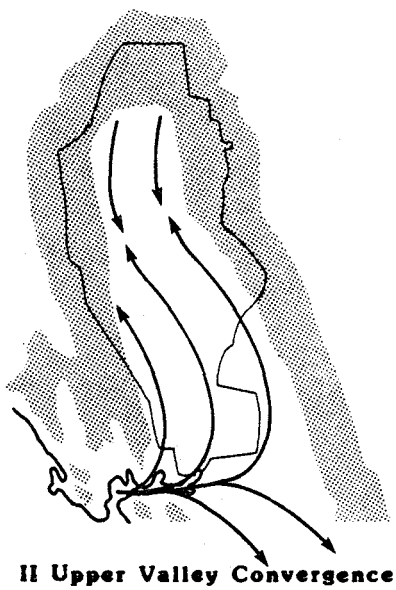
Types / Time - PST	I Full Sea Breeze	II Upper Valley Convergence	III Lower Valley Convergence	IV Mid Valley Divergence	V Northerly (>5 Kts)	VI Southerly (No Marine Air)	VII Downslope (≤5 Kts)	VIII Upslope (≤5 Kts)	IX Calm
Winter									
4 a.m.	6	4	4	1	22	23	8	4	27
10 a.m.	7	6	5	3	31	22	9	2	15
4 p.m.	13	6	3	10	26	22	7	3	8
10 p.m.	8	5	8	2	19	22	8	4	23
All Times	9	5	5	4	25	22	8	3	18
Spring									
4 a.m.	19	17	14	0	21	8	9	4	10
10 a.m.	27	11	10	2	35	5	3	3	2
4 p.m.	43	8	4	7	28	6	1	1	2
10 p.m.	26	22	14	1	14	5	8	2	7
All Times	29	14	10	3	25	6	5	3	5
Summer									
4 a.m.	40	25	20	1	6	0	1	2	7
10 a.m.	48	14	16	3	17	0	1	1	*
4 p.m.	75	7	4	4	11	0	*	0	*
10 p.m.	57	20	14	0	4	0	1	1	3
All Times	55	16	13	2	9	0	1	1	3
Fall									
4 a.m.	13	13	16	1	17	6	13	2	21
10 a.m.	21	8	12	3	35	7	7	2	5
4 p.m.	33	8	4	11	26	7	5	3	3
10 p.m.	20	18	9	1	14	6	12	3	18
All Times	22	12	10	4	23	6	9	2	12
Yearly									
4 a.m.	20	15	14	1	17	9	8	3	16
10 a.m.	26	10	11	3	30	9	5	2	6
4 p.m.	41	7	4	8	23	9	3	2	3
10 p.m.	30	16	11	1	10	8	7	3	13
All Times	29	12	10	3	20	9	6	2	9

* < 0.5 percent

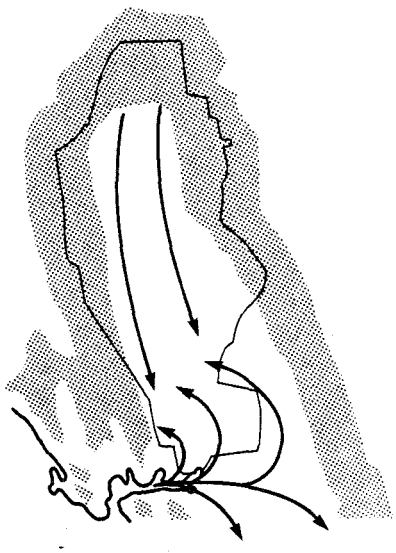
Figure 2d - SACRAMENTO VALLEY AIR FLOW PATTERN TYPES



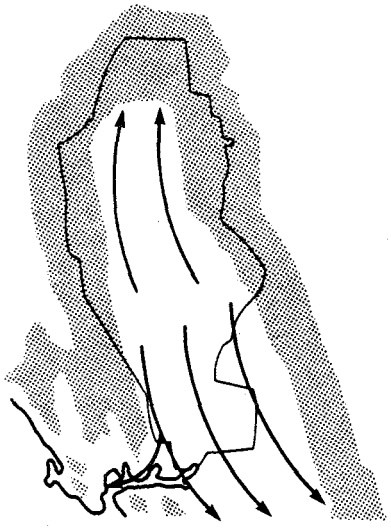
I Full Sea Breeze



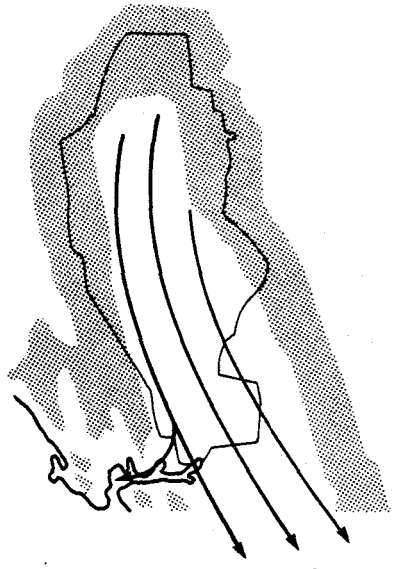
II Upper Valley Convergence



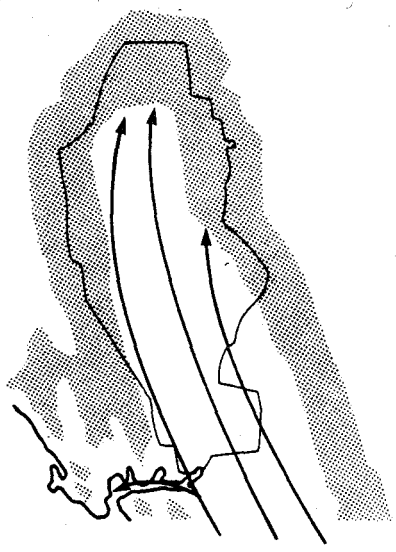
III Lower Valley Convergence



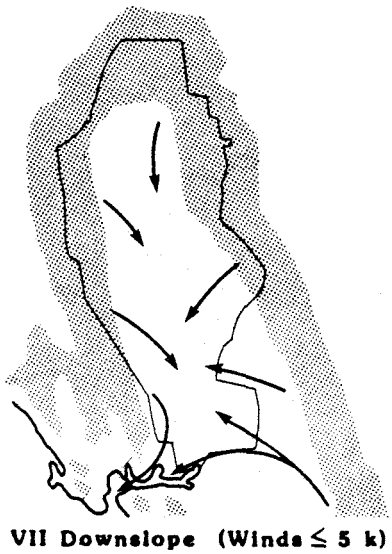
IV - Mid Valley Divergence



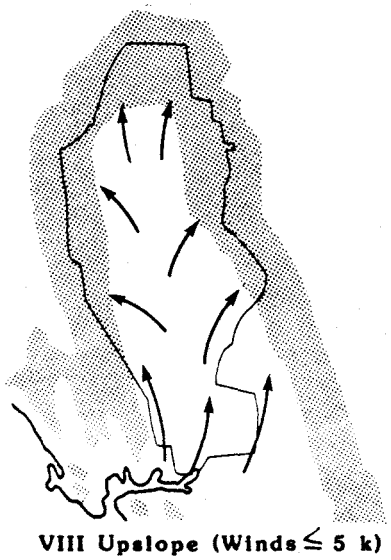
V - Northerly (Winds > 5 k)



VI Southerly (No Marine Air)



VII Downslope (Winds ≤ 5 k)



VIII Upslope (Winds ≤ 5 k)

Section 3

THREE-HOURLY RESULTANT SURFACE WIND SUMMARIES

Diagrams showing the monthly three-hourly resultant surface winds for 43 California stations and four nearby stations in other states are contained in this section. The stations selected had at least four years of appropriate surface wind data available for this type of analysis. The locations of these stations can be seen on the map contained in Figure 3a. An index of stations for which resultant wind diagrams and summaries is given in Table 3a.

The resultant wind is the vectorial average of all wind directions and speeds for a stated period of record. Three-hourly resultant winds as used in this section are hourly winds that have been summarized every three hours rather than being averaged over a 3-hour period. For example, for Arcata on page 26, the three-hourly resultant wind at 1 p.m. for January is the resultant of all winds observed at that hour and during that month over the period of record (1949-1977).

The three-hourly resultant winds were plotted on a hour/month diagram for each station and analyzed for speed (mph). A completed analysis for Bakersfield can be seen in the diagram on page 27. The climatological resultant wind for any hour of the year can be seen or interpolated from the information in the diagram. For example, for June 0300 PST, Bakersfield's resultant wind is interpolated as 360°/03 mph.

A summary of seasonal and annual three-hourly resultant winds for each station is tabulated below the resultant wind diagram for easy reference.

These diagrams and tables were originally prepared from the "resultant wind summary by hours" data contained in the Local Climatological Data (LCD) monthly summaries published by NOAA, National Climatic Center using the latest five years of data. These data were only available for the first order observation stations which are annotated in Table 3a (19 stations). The resultant wind data for the remaining 28 stations were calculated from wind roses and magnetic tape summaries on file at the ARB which are made up of a variable number of years of record.

It should be pointed out that in the case of Camp Pendleton (page 34), there were only two years of data available for the nighttime hours so that monthly resultant winds were not computed; however, seasonal resultant winds were computed for those hours to provide some diurnal continuity.

Figure 3a

LOCATIONS WITH SUMMARIZED THREE-HOURLY RESULTANT SURFACE WIND DATA

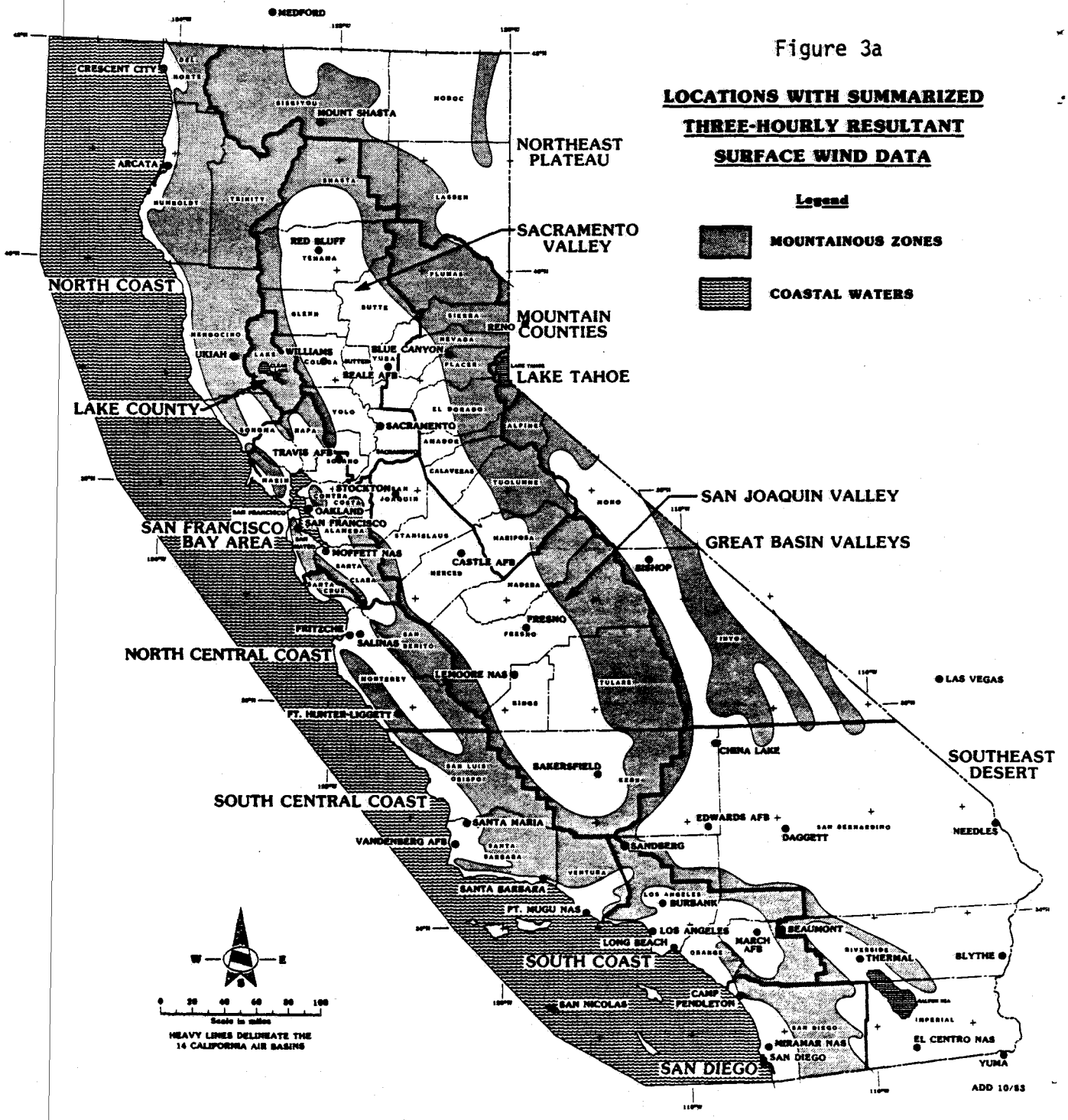


Table 3a

INDEX TO STATION RESULTANT WIND DATA

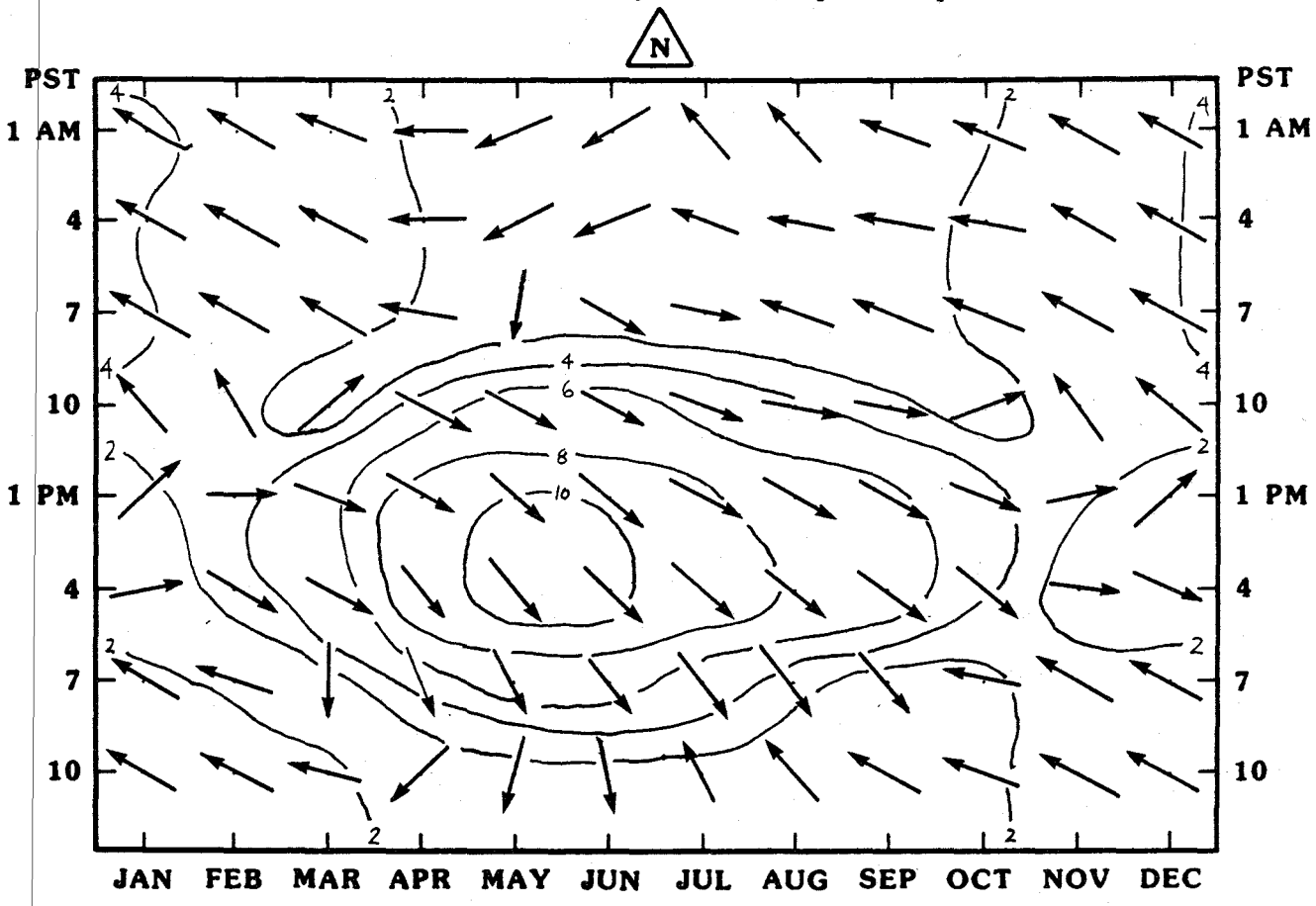
* First order stations

ARCATA AIRPORT

LATITUDE: 40° 59' N **LONGITUDE:** 124° 06' W

PERIOD: December 1949 - November 1977 **LEVEL:** Surface

MONTHLY THREE HOURLY RESULTANT WIND DIAGRAM
Direction (shown by arrows), Speed (mph)



SEASONAL THREE HOURLY, DAILY AND YEARLY RESULTANT WIND SUMMARY

	WINTER (Dec, Jan, Feb)		SPRING (Mar, Apr, May)		SUMMER (Jun, Jul, Aug)		FALL (Sep, Oct, Nov)		ANNUAL	
Time (PST)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)
1 AM	122	3.6	096	1.8	130	0.9	113	2.2	115	2.1
4 AM	120	3.7	097	1.9	094	0.7	110	2.3	110	2.1
7 AM	117	3.9	101	1.6	295	0.2	113	2.4	113	1.9
10 AM	137	3.1	294	4.0	292	5.3	242	1.2	276	1.9
1 PM	250	2.1	302	8.1	301	8.3	291	4.4	295	5.6
4 PM	290	1.3	312	8.2	310	9.1	306	3.7	309	5.6
7 PM	120	2.4	332	3.9	318	5.1	106	1.0	339	1.6
10 PM	122	3.3	070	1.2	083	0.2	116	2.0	110	1.6
DAILY	129	2.2	320	2.4	306	3.3	121	0.1	315	0.8

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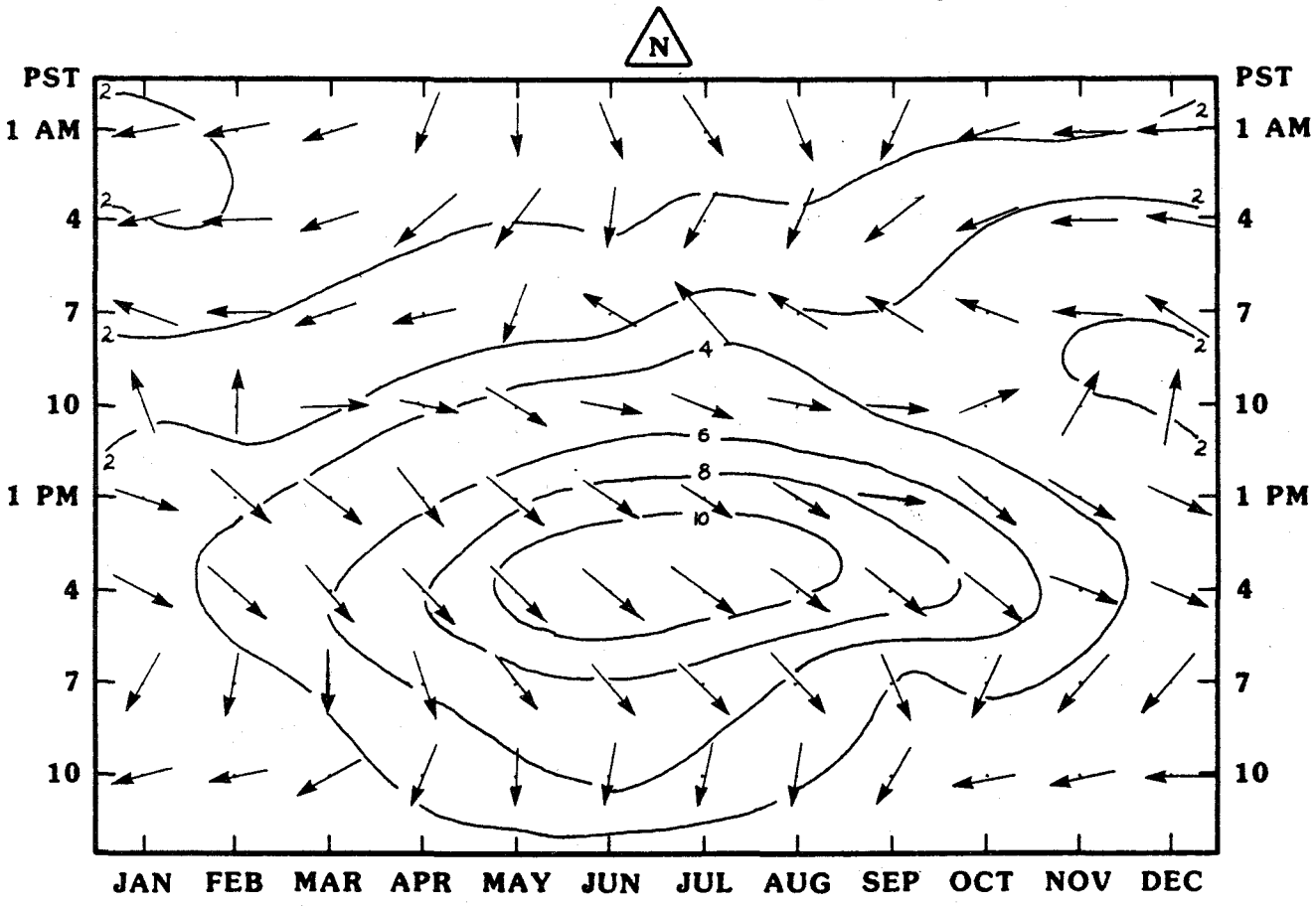
BAKERSFIELD (Kern County Air Terminal)

LATITUDE: 35° 25' N **LONGITUDE:** 119° 03' W

PERIOD: December 1974 - November 1979 **LEVEL:** Surface

MONTHLY THREE HOURLY RESULTANT WIND DIAGRAM
Direction (shown by arrows), Speed (mph)



SEASONAL THREE HOURLY, DAILY AND YEARLY RESULTANT WIND SUMMARY

	WINTER (Dec, Jan, Feb)		SPRING (Mar, Apr, May)		SUMMER (Jun, Jul, Aug)		FALL (Sep, Oct, Nov)		ANNUAL	
Time (PST)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)
1 AM	085	2.2	023	2.6	336	3.2	058	2.0	028	1.7
4 AM	087	2.2	050	2.3	023	2.0	076	1.7	059	1.9
7 AM	108	2.5	065	1.2	127	1.8	106	2.1	106	1.8
10 AM	178	1.8	288	3.0	288	4.6	245	2.2	268	2.3
1 PM	298	2.8	313	6.0	304	8.9	306	5.3	306	5.7
4 PM	300	3.8	321	8.0	310	10.6	306	6.8	311	7.2
7 PM	026	2.7	339	5.7	324	6.8	012	3.6	346	4.3
10 PM	083	2.8	020	4.2	004	5.6	059	2.2	031	3.2
DAILY	052	0.8	341	3.3	321	4.5	346	1.5	337	2.3

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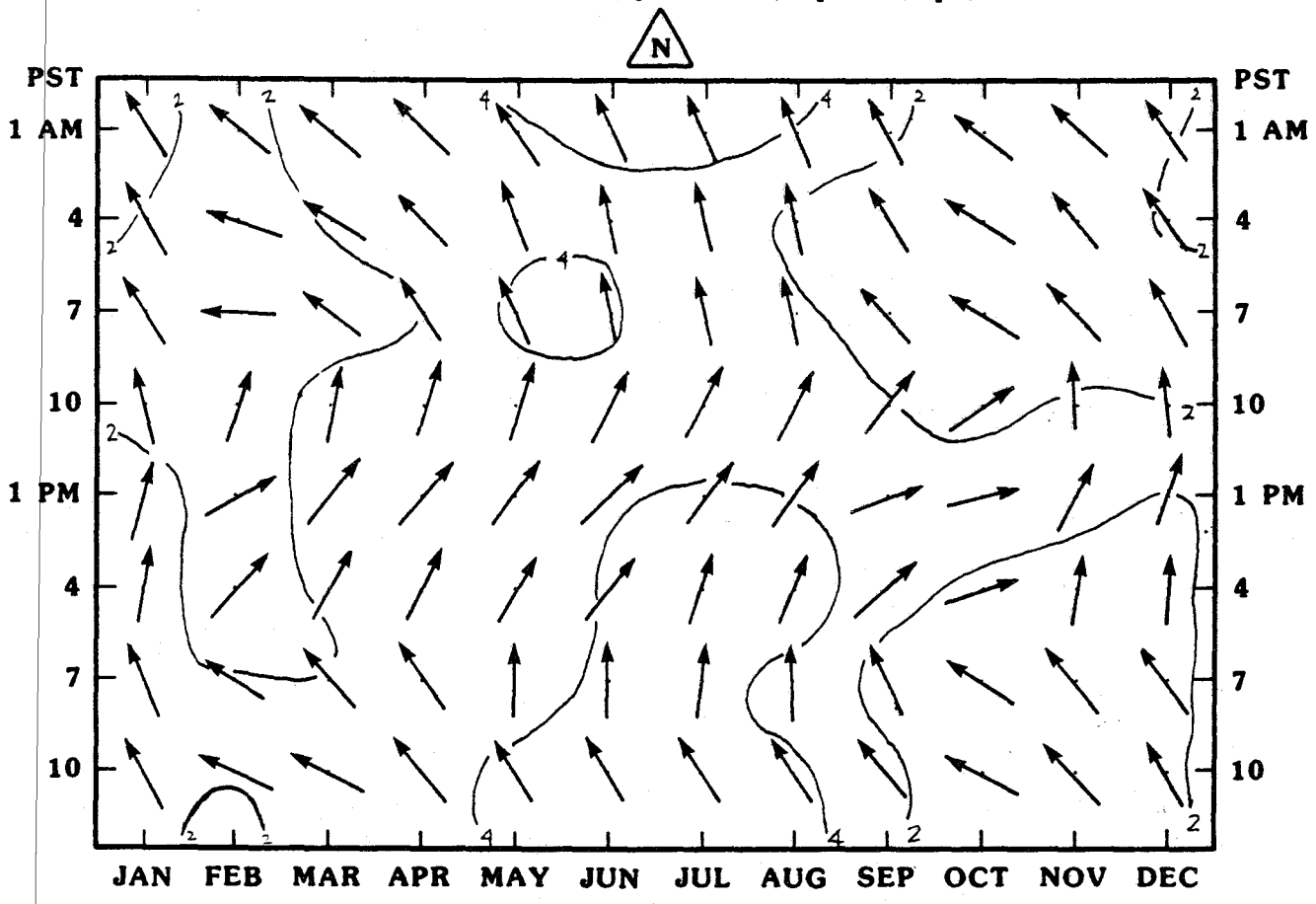
BEALE AFB

LATITUDE: 39° 07' N **LONGITUDE:** 121° 26' W

PERIOD: December 1960 - November 1970 **LEVEL:** Surface

MONTHLY THREE HOURLY RESULTANT WIND DIAGRAM
Direction (shown by arrows), Speed (mph)



SEASONAL THREE HOURLY, DAILY AND YEARLY RESULTANT WIND SUMMARY

	WINTER (Dec, Jan, Feb)		SPRING (Mar, Apr, May)		SUMMER (Jun, Jul, Aug)		FALL (Sep, Oct, Nov)		ANNUAL	
Time (PST)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)
1 AM	141	1.9	141	3.1	162	3.9	142	1.6	149	2.6
4 AM	142	1.7	144	2.4	167	2.4	141	1.1	150	1.9
7 AM	144	1.3	150	2.6	167	3.5	132	1.1	154	2.1
10 AM	177	1.6	197	2.7	206	3.5	205	1.6	198	2.3
1 PM	213	1.9	219	3.1	222	4.0	239	2.3	223	2.8
4 PM	196	1.5	211	2.9	209	4.6	227	2.0	211	2.7
7 PM	138	1.9	160	2.5	185	3.9	139	1.5	162	2.3
10 PM	140	2.0	137	3.8	150	5.2	133	2.2	142	3.3
DAILY	160	1.5	169	2.5	183	3.5	174	1.2	174	2.2

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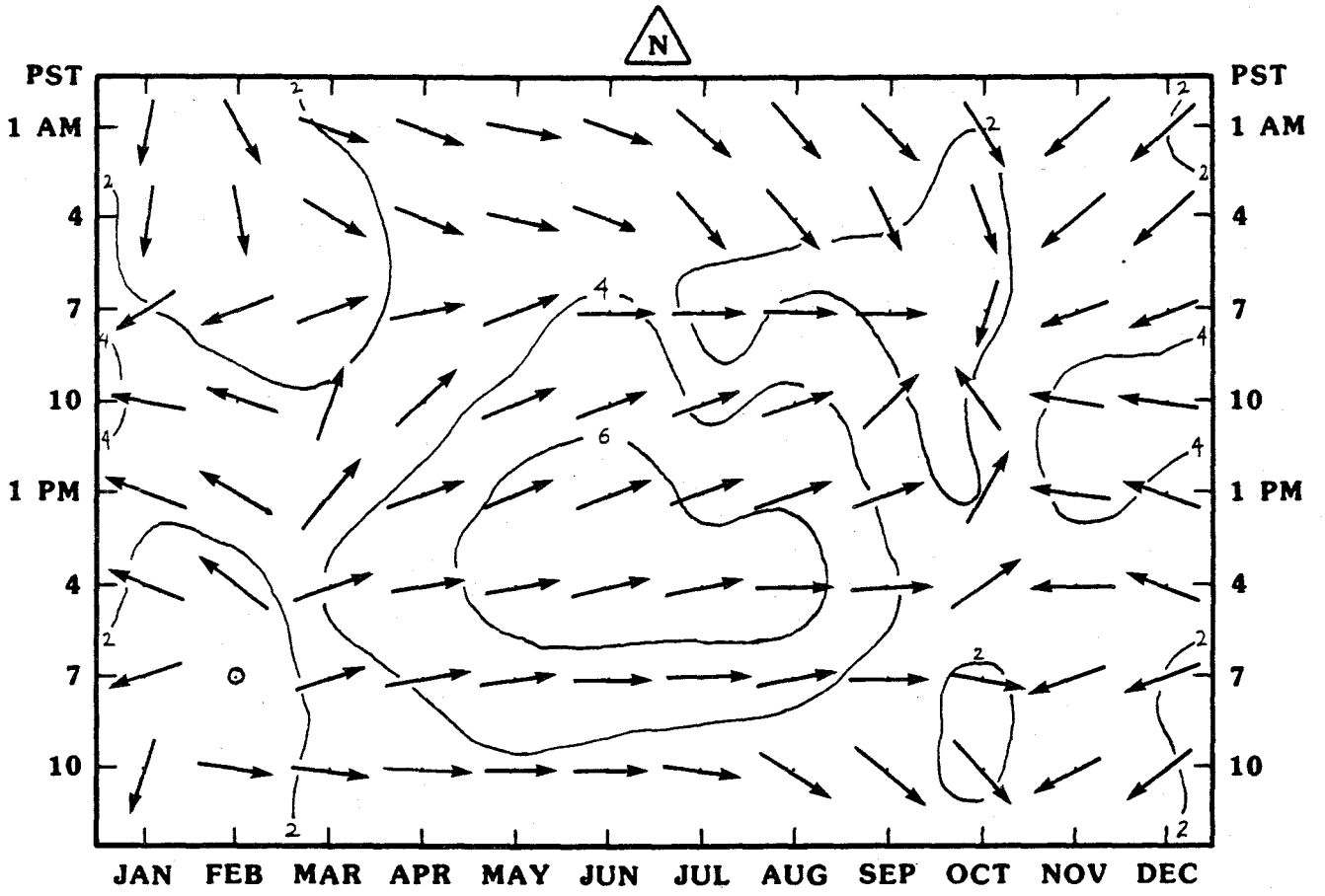
AEROMETRIC DATA DIVISION 4/84

BEAUMONT

LATITUDE: 33° 56' N **LONGITUDE:** 116° 58' W

PERIOD: March 1948 - February 1953 **LEVEL:** Surface

MONTHLY THREE HOURLY RESULTANT WIND DIAGRAM
Direction (shown by arrows), Speed (mph)



SEASONAL THREE HOURLY, DAILY AND YEARLY RESULTANT WIND SUMMARY

	WINTER (Dec, Jan, Feb)		SPRING (Mar, Apr, May)		SUMMER (Jun, Jul, Aug)		FALL (Sep, Oct, Nov)		ANNUAL	
Time (PST)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)
1 AM	024	1.3	284	3.2	307	3.3	358	2.1	317	2.1
4 AM	029	1.6	286	2.8	310	3.2	003	2.3	325	2.0
7 AM	065	2.2	257	2.5	267	2.7	051	1.0	288	0.7
10 AM	104	3.8	234	3.3	251	4.5	130	2.0	198	1.5
1 PM	112	2.7	246	4.5	251	6.2	169	1.4	229	2.4
4 PM	117	1.9	254	5.5	260	6.8	245	1.0	250	3.0
7 PM	069	1.1	259	4.3	265	5.0	293	1.1	267	2.3
10 PM	032	1.2	275	3.4	284	3.1	351	1.7	300	1.9
DAILY	086	1.8	259	3.6	267	4.2	010	0.4	266	1.5

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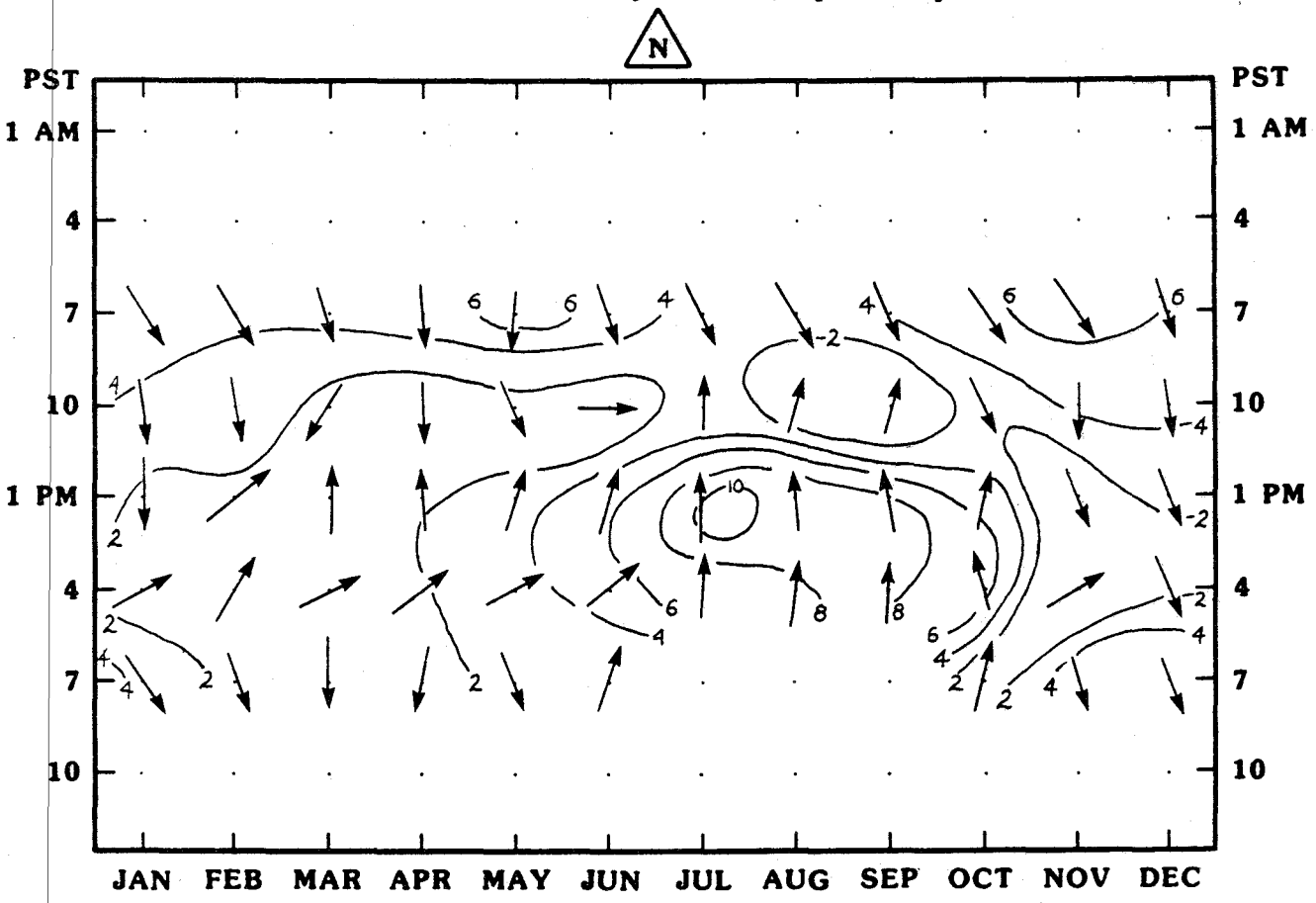
BISHOP (Bishop Airport)

LATITUDE: 37° 22' N LONGITUDE: 118° 22' W

PERIOD: December 1974 - November 1979 LEVEL: Surface

MONTHLY THREE HOURLY RESULTANT WIND DIAGRAM
Direction (shown by arrows), Speed (mph)



SEASONAL THREE HOURLY, DAILY AND YEARLY RESULTANT WIND SUMMARY

	WINTER (Dec, Jan, Feb)		SPRING (Mar, Apr, May)		SUMMER (Jun, Jul, Aug)		FALL (Sep, Oct, Nov)		ANNUAL	
Time (PST)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)
1 AM										
4 AM										
7 AM	331	5.2	351	5.1	337	4.1	333	5.5	338	4.9
10 AM	349	3.7	003	1.3	200	1.6	339	1.8	340	1.4
1 PM	321	1.2	188	1.8	179	7.9	179	4.1	184	3.2
4 PM	272	0.6	236	2.1	196	6.1	180	5.2	198	3.2
7 PM	335	3.6	349	1.7						
10 PM										
DAILY										

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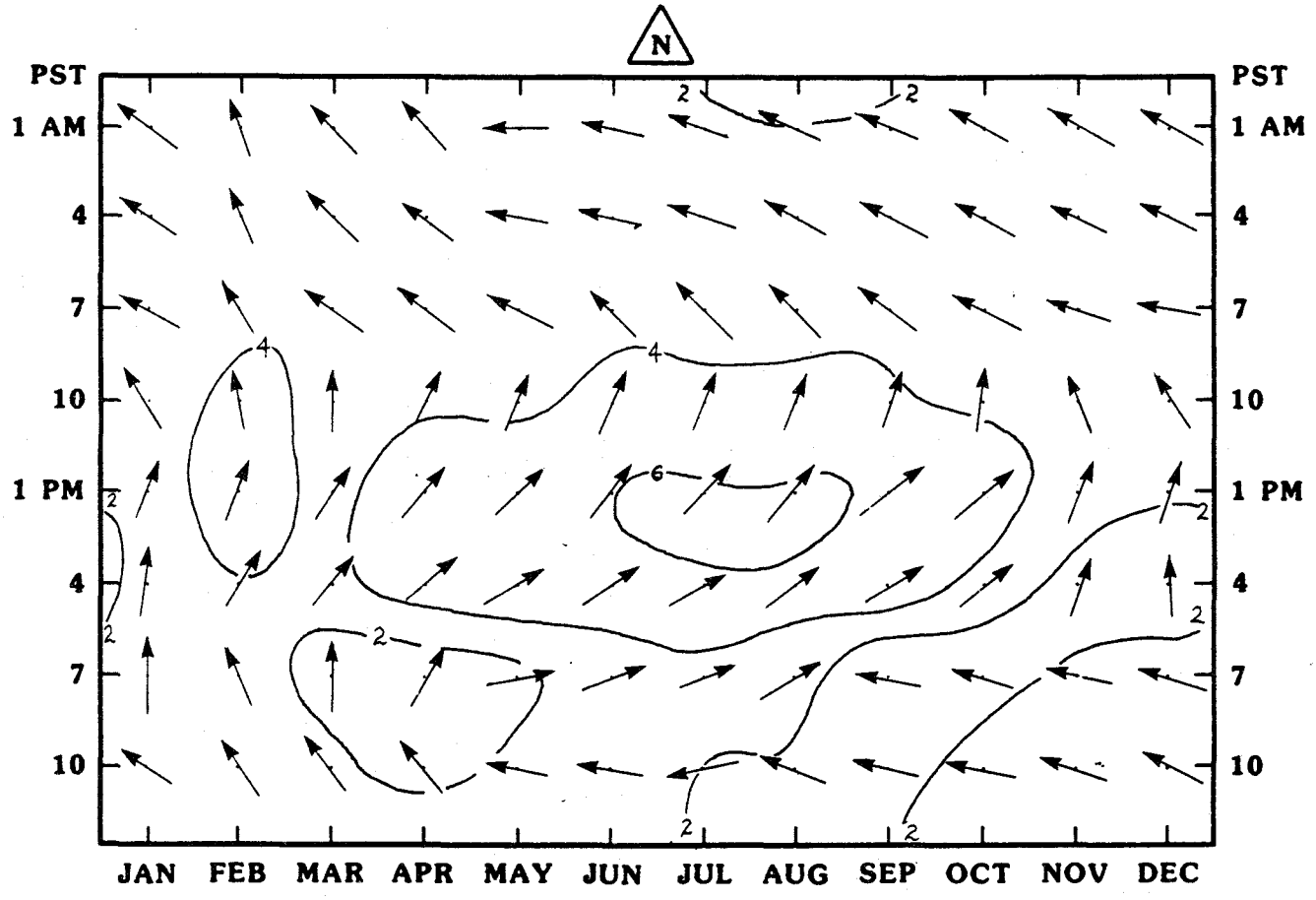
AEROMETRIC DATA DIVISION 4/84 R

BLUE CANYON (Blue Canyon Airport)

LATITUDE: 39° 17' N **LONGITUDE:** 120° 42' W

PERIOD: December 1974 - November 1979 **LEVEL:** Surface

MONTHLY THREE HOURLY RESULTANT WIND DIAGRAM
Direction (shown by arrows), Speed (mph)



SEASONAL THREE HOURLY, DAILY AND YEARLY RESULTANT WIND SUMMARY

	WINTER (Dec, Jan, Feb)		SPRING (Mar, Apr, May)		SUMMER (Jun, Jul, Aug)		FALL (Sep, Oct, Nov)		ANNUAL	
Time (PST)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)
1 AM	140	2.6	125	2.4	105	2.2	118	2.3	123	2.3
4 AM	135	2.6	121	2.7	107	2.3	118	2.2	121	2.4
7 AM	126	2.7	130	3.0	138	2.9	118	2.5	128	2.8
10 AM	159	3.3	191	3.6	200	5.1	183	3.6	185	3.8
1 PM	202	3.4	222	4.4	222	6.1	220	4.3	218	4.5
4 PM	198	2.3	229	4.3	236	5.4	228	3.2	227	3.7
7 PM	126	2.4	216	1.4	246	2.5	105	1.2	180	1.0
10 PM	130	2.7	128	2.1	098	2.0	110	2.3	117	2.2
DAILY	149	2.4	180	2.3	196	2.3	161	1.8	172	2.1

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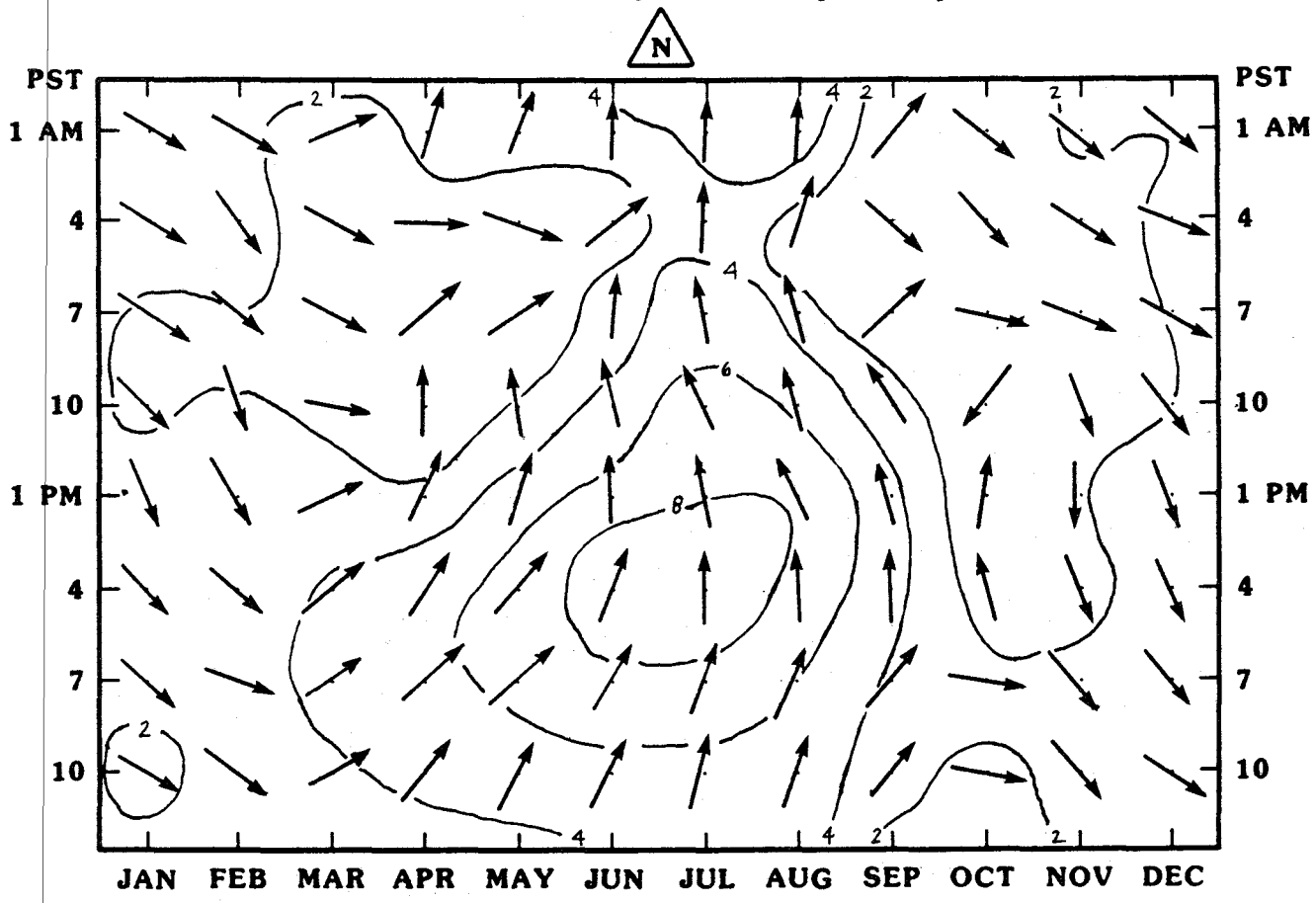
AEROMETRIC DATA DIVISION 4/84

BLYTHE AIRPORT

LATITUDE: 33° 37' N **LONGITUDE:** 114° 43' W

PERIOD: December 1948 - November 1954 **LEVEL:** Surface

MONTHLY THREE HOURLY RESULTANT WIND DIAGRAM
Direction (shown by arrows), Speed (mph)



SEASONAL THREE HOURLY, DAILY AND YEARLY RESULTANT WIND SUMMARY

	WINTER (Dec, Jan, Feb)		SPRING (Mar, Apr, May)		SUMMER (Jun, Jul, Aug)		FALL (Sep, Oct, Nov)		ANNUAL	
Time (PST)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)
1 AM	303	2.2	212	2.0	180	3.8	295	1.3	226	1.4
4 AM	300	2.3	288	1.4	192	1.3	310	1.5	284	1.2
7 AM	308	2.0	266	1.0	172	3.6	271	1.1	232	1.0
10 AM	328	1.9	205	1.0	164	5.7	103	0.3	174	1.2
1 PM	336	3.0	212	3.5	172	7.7	178	1.1	192	2.3
4 PM	320	2.4	218	5.1	187	8.0	178	1.6	205	3.3
7 PM	306	3.3	231	5.5	204	6.8	270	2.2	236	3.6
10 PM	301	2.3	220	3.7	200	5.5	266	1.6	228	2.6
DAILY	313	2.4	225	2.8	184	5.1	258	0.9	220	1.9

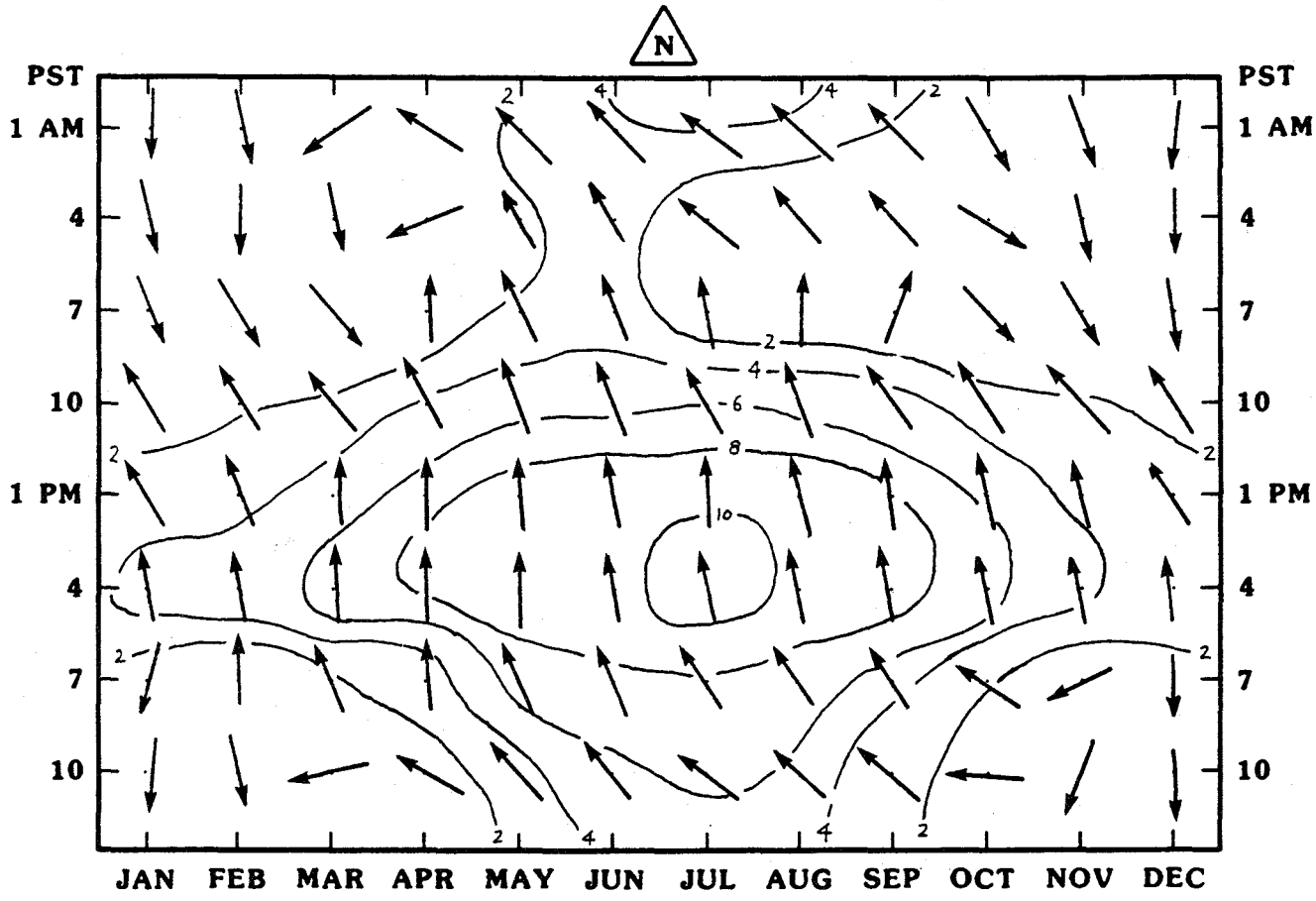
CALIFORNIA AIR RESOURCES BOARD
AEROMETRIC DATA DIVISION 4/84R

BURBANK-GLENDALE-PASADENA AIRPORT

LATITUDE: 34° 12' N **LONGITUDE:** 118° 22' W

PERIOD: December 1960 - November 1968 **LEVEL:** Surface

MONTHLY THREE HOURLY RESULTANT WIND DIAGRAM
Direction (shown by arrows), Speed (mph)



SEASONAL THREE HOURLY, DAILY AND YEARLY RESULTANT WIND SUMMARY

	WINTER (Dec, Jan, Feb)		SPRING (Mar, Apr, May)		SUMMER (Jun, Jul, Aug)		FALL (Sep, Oct, Nov)		ANNUAL	
Time (PST)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)
1 AM	001	1.5	120	1.2	131	3.7	026	0.4	107	1.1
4 AM	355	1.5	123	0.4	141	1.7	341	0.4	074	0.3
7 AM	343	1.6	178	1.0	167	2.0	307	0.6	204	0.3
10 AM	149	1.4	153	3.8	153	5.8	149	3.3	152	3.6
1 PM	155	3.0	176	6.9	173	9.0	167	5.8	170	6.1
4 PM	172	4.2	178	7.8	171	9.7	168	6.7	173	7.1
7 PM	009	0.8	166	3.4	150	7.3	131	2.4	148	3.1
10 PM	004	1.6	129	1.9	130	5.6	106	1.5	116	2.1
DAILY	116	0.3	166	3.1	156	5.4	156	2.2	158	2.7

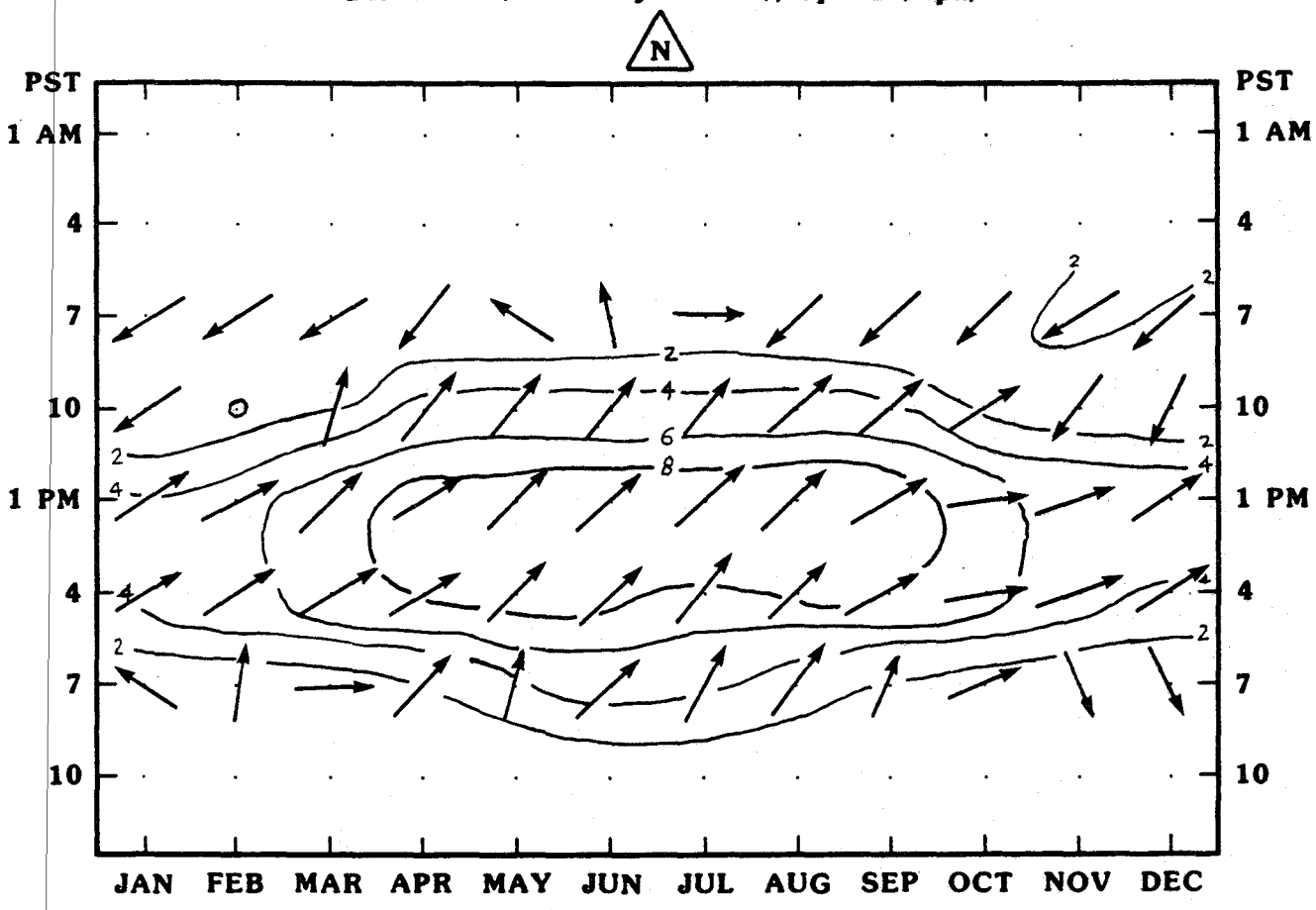
CALIFORNIA AIR RESOURCES BOARD
AEROMETRIC DATA DIVISION 4/84 R

CAMP PENDLETON MCAF

LATITUDE: 33° 18' N **LONGITUDE:** 117° 21' W

PERIOD: September 1966 - August 1975 **LEVEL:** Surface

MONTHLY THREE HOURLY RESULTANT WIND DIAGRAM
Direction (shown by arrows), Speed (mph)



SEASONAL THREE HOURLY, DAILY AND YEARLY RESULTANT WIND SUMMARY

	WINTER (Dec, Jan, Feb)		SPRING (Mar, Apr, May)		SUMMER (Jun, Jul, Aug)		FALL (Sep, Oct, Nov)		ANNUAL	
Time (PST)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)
1 AM *	084	0.3	048	0.4	098	0.2	080	0.9	076	0.5
4 AM *	069	0.7	032	0.4	003	0.2	071	1.1	062	0.6
7 AM	057	1.8	061	0.8	Calm	-	053	1.5	057	1.0
10 AM	039	0.7	217	3.8	223	5.3	231	1.8	223	2.6
1 PM	241	4.6	232	8.0	230	8.9	247	7.4	236	7.2
4 PM	241	4.3	237	7.8	227	8.2	246	6.1	236	6.5
7 PM	159	0.3	219	2.1	220	4.3	224	0.8	218	1.8
10 PM *	107	0.3	035	0.8	241	0.5	091	0.9	085	0.5
DAILY	242	1.4	230	4.2	227	5.1	244	2.5	233	3.2

CALIFORNIA AIR RESOURCES BOARD
AEROMETRIC DATA DIVISION 4/84R

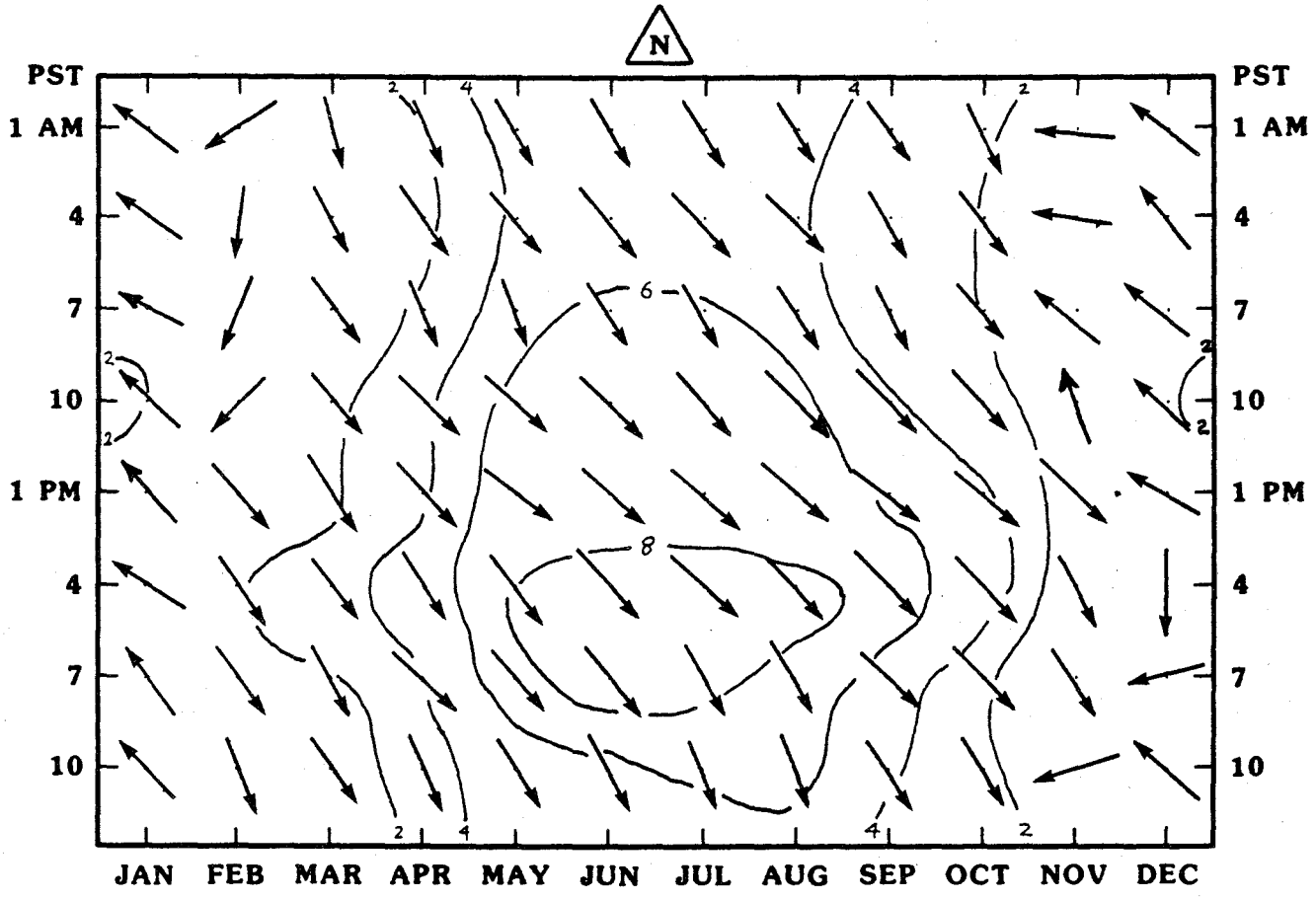
* Only two years of data available.

CASTLE AFB

LATITUDE: 37° 22' N **LONGITUDE:** 120° 34' W

PERIOD: December 1959 - November 1968 **LEVEL:** Surface

MONTHLY THREE HOURLY RESULTANT WIND DIAGRAM
Direction (shown by arrows), Speed (mph)



SEASONAL THREE HOURLY, DAILY AND YEARLY RESULTANT WIND SUMMARY

	WINTER (Dec, Jan, Feb)		SPRING (Mar, Apr, May)		SUMMER (Jun, Jul, Aug)		FALL (Sep, Oct, Nov)		ANNUAL	
Time (PST)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)
1 AM	124	0.8	333	2.7	329	4.9	332	2.0	333	2.3
4 AM	123	0.5	326	2.3	319	4.3	332	1.7	325	2.0
7 AM	122	0.5	333	2.9	331	5.8	332	1.8	333	2.5
10 AM	129	1.1	318	3.8	315	6.7	323	2.8	319	3.1
1 PM	134	0.4	317	3.8	309	7.3	314	3.7	313	3.6
4 PM	339	0.6	324	5.7	316	9.2	320	4.9	320	5.1
7 PM	054	0.1	323	4.3	325	8.4	323	3.2	325	4.0
10 PM	126	0.6	333	3.3	337	6.2	333	2.4	336	2.8
DAILY	119	0.4	325	3.6	322	6.5	324	2.8	324	3.1

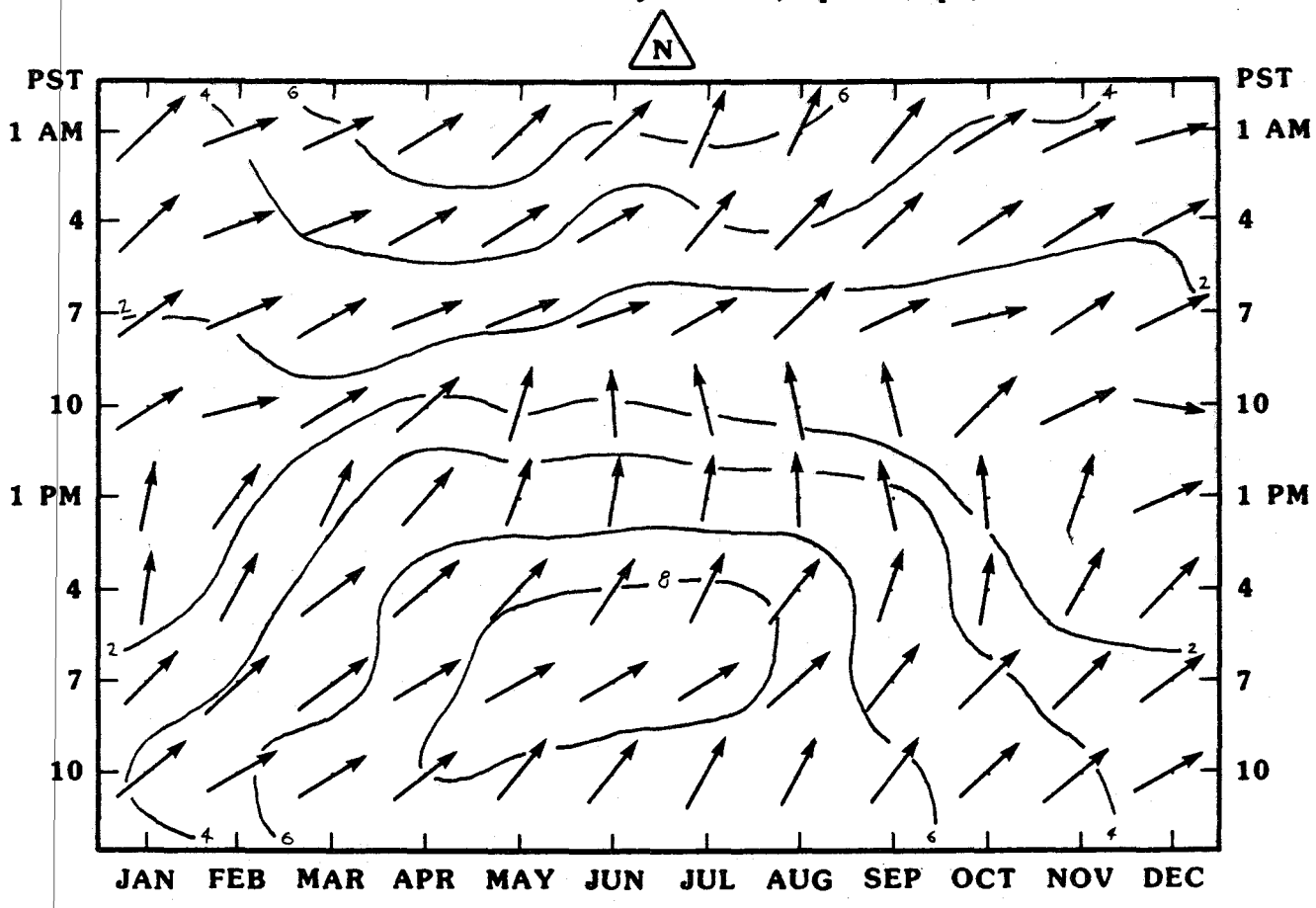
CALIFORNIA AIR RESOURCES BOARD
AEROMETRIC DATA DIVISION 4/84R

CHINA LAKE NWC AIRPORT

LATITUDE: 35° 41' N **LONGITUDE:** 117° 41' W

PERIOD: December 1959 - November 1979 **LEVEL:** Surface

MONTHLY THREE HOURLY RESULTANT WIND DIAGRAM
Direction (shown by arrows), Speed (mph)



SEASONAL THREE HOURLY, DAILY AND YEARLY RESULTANT WIND SUMMARY

	WINTER (Dec, Jan, Feb)		SPRING (Mar, Apr, May)		SUMMER (Jun, Jul, Aug)		FALL (Sep, Oct, Nov)		ANNUAL	
Time (PST)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)
1 AM	248	3.2	238	6.1	229	5.8	235	4.0	234	4.7
4 AM	244	2.7	239	5.0	226	3.6	240	3.0	237	3.6
7 AM	246	1.9	247	2.6	237	1.2	248	1.3	245	1.7
10 AM	258	1.0	222	2.0	174	1.9	212	0.8	211	1.2
1 PM	222	1.0	212	4.1	186	5.2	178	2.4	196	3.1
4 PM	212	1.3	226	6.8	214	7.9	197	3.2	215	4.7
7 PM	234	3.4	237	6.7	236	8.5	228	4.6	235	5.6
10 PM	237	4.6	228	7.4	211	7.3	226	5.5	224	6.2
DAILY	237	1.9	229	4.5	211	4.4	214	2.4	222	3.2

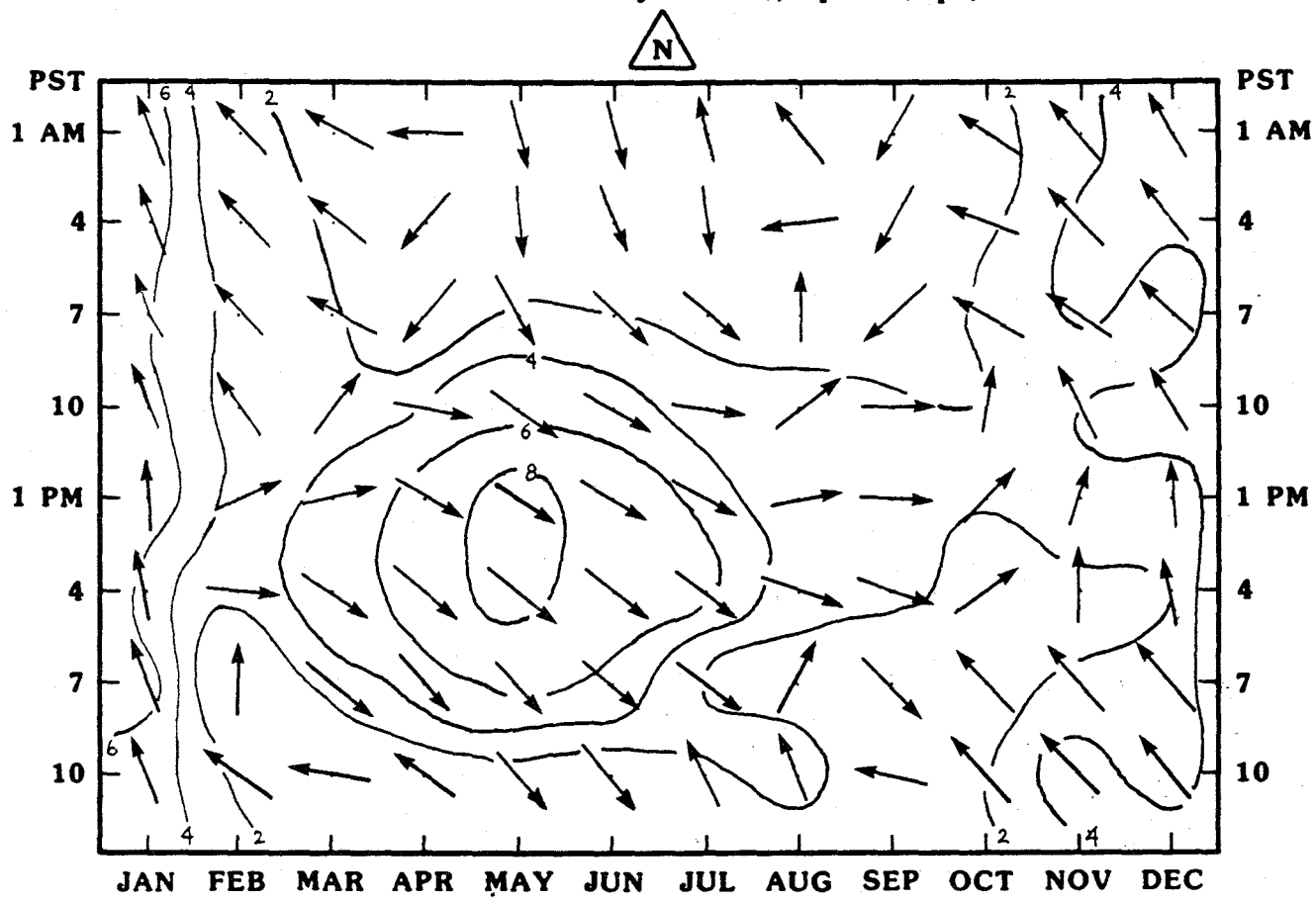
CALIFORNIA AIR RESOURCES BOARD
AEROMETRIC DATA DIVISION 4/84R

CRESCENT CITY, JACK McNAMARA FIELD

LATITUDE: 41° 47' N **LONGITUDE:** 124° 14' W

PERIOD: December 1949 - November 1954 **LEVEL:** Surface

MONTHLY THREE HOURLY RESULTANT WIND DIAGRAM
Direction (shown by arrows), Speed (mph)



SEASONAL THREE HOURLY, DAILY AND YEARLY RESULTANT WIND SUMMARY

	WINTER (Dec, Jan, Feb)		SPRING (Mar, Apr, May)		SUMMER (Jun, Jul, Aug)		FALL (Sep, Oct, Nov)		ANNUAL	
Time (PST)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)
1 AM	152	4.7	079	0.5	073	0.2	125	1.7	139	1.6
4 AM	148	4.5	070	0.7	357	0.8	125	1.8	130	1.5
7 AM	145	4.3	049	0.7	300	1.0	124	2.1	134	1.3
10 AM	156	4.7	278	3.4	273	3.2	191	2.0	222	1.9
1 PM	188	4.2	292	6.1	289	5.1	233	2.5	263	3.3
4 PM	182	2.4	306	6.8	306	5.6	247	1.3	292	3.1
7 PM	154	3.3	316	4.5	304	2.4	143	1.5	280	0.7
10 PM	147	3.8	330	0.4	167	1.1	139	2.1	148	1.6
DAILY	158	3.9	305	2.5	295	2.0	161	1.3	219	0.8

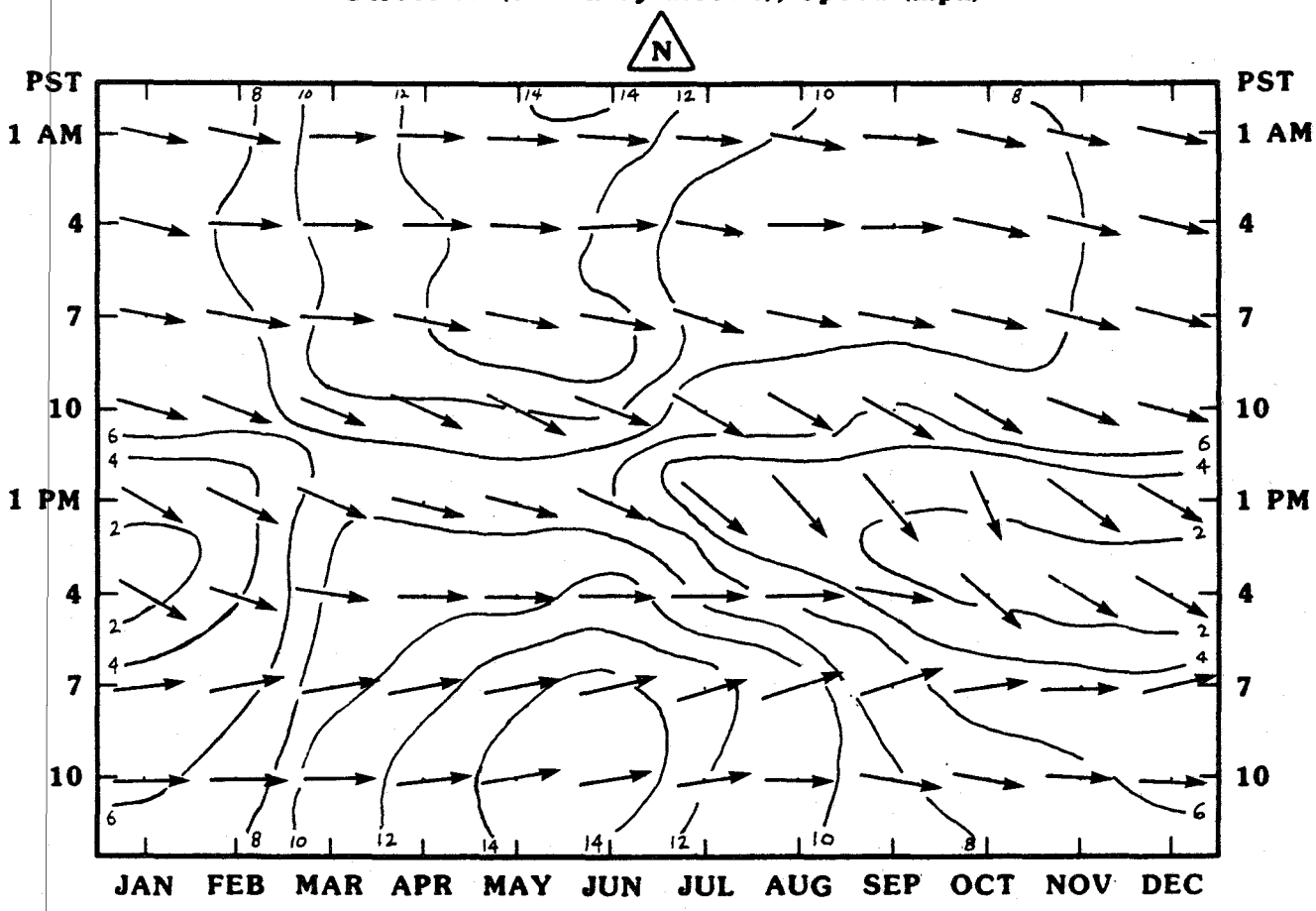
CALIFORNIA AIR RESOURCES BOARD
AEROMETRIC DATA DIVISION 4/84R

DAGGETT, BARSTOW-DAGGETT AIRPORT

LATITUDE: 34° 52' N **LONGITUDE:** 116° 47' W

PERIOD: December 1948 - November 1977 **LEVEL:** Surface

MONTHLY THREE HOURLY RESULTANT WIND DIAGRAM
Direction (shown by arrows), Speed (mph)



SEASONAL THREE HOURLY, DAILY AND YEARLY RESULTANT WIND SUMMARY

	WINTER (Dec, Jan, Feb)		SPRING (Mar, Apr, May)		SUMMER (Jun, Jul, Aug)		FALL (Sep, Oct, Nov)		ANNUAL	
Time (PST)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)
1 AM	275	7.4	267	12.2	272	11.0	275	8.7	272	9.8
4 AM	276	7.6	269	11.5	273	10.1	274	8.8	273	9.5
7 AM	276	7.3	278	11.6	285	10.5	277	8.7	279	9.5
10 AM	286	6.6	288	9.5	299	7.9	294	6.4	291	7.6
1 PM	300	3.2	285	6.9	303	4.1	321	2.4	298	4.0
4 PM	293	2.3	274	9.3	269	7.8	292	2.2	276	5.4
7 PM	260	4.7	259	11.6	255	13.4	256	5.7	257	8.9
10 PM	272	6.1	264	12.6	264	12.6	274	7.6	267	9.7
DAILY	278	5.6	272	10.5	273	9.4	278	6.1	274	7.9

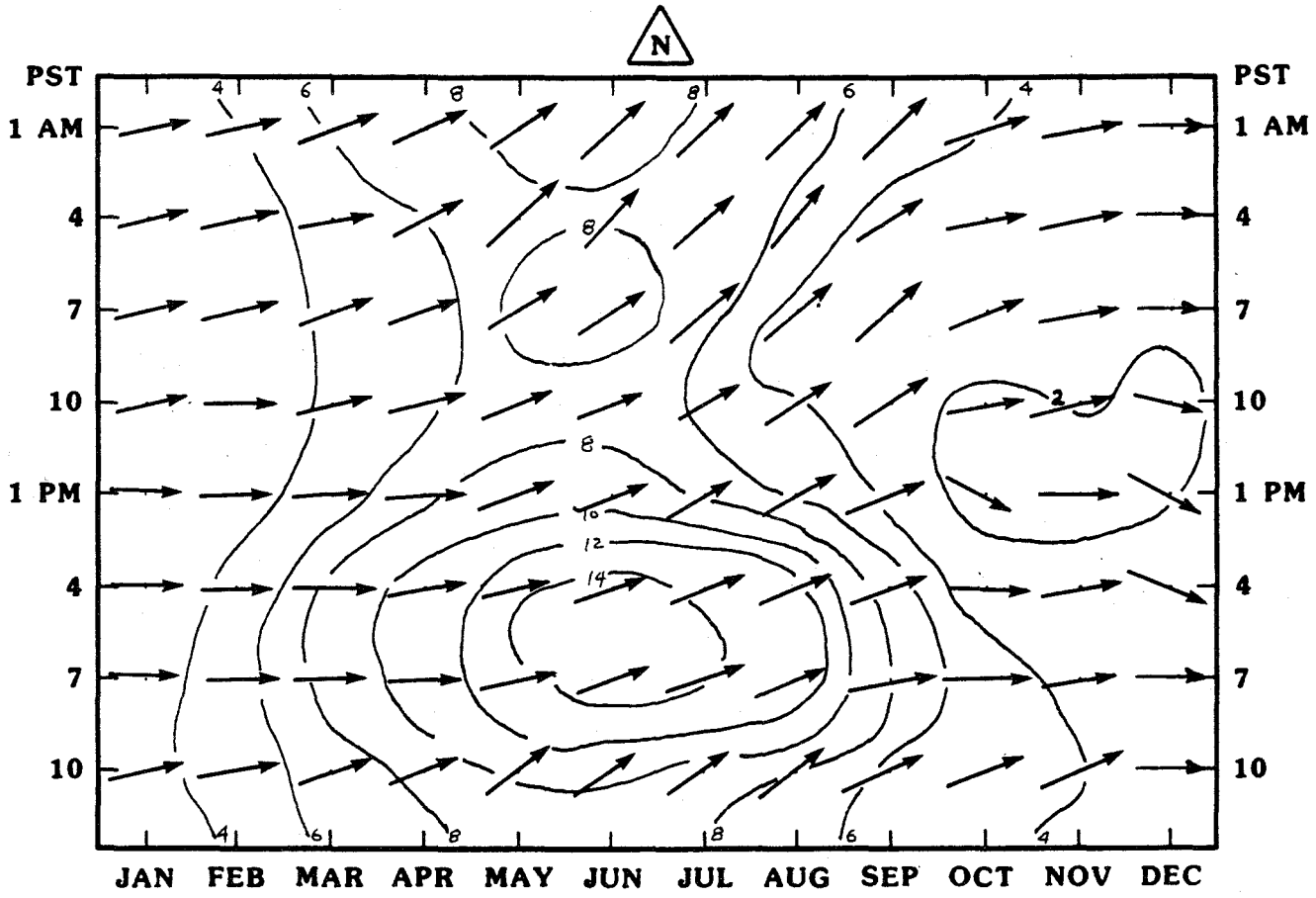
CALIFORNIA AIR RESOURCES BOARD
AEROMETRIC DATA DIVISION 4/84R

EDWARDS AFB

LATITUDE: 34° 55' N **LONGITUDE:** 117° 54' W

PERIOD: December 1957 - November 1970 **LEVEL:** Surface

MONTHLY THREE HOURLY RESULTANT WIND DIAGRAM
Direction (shown by arrows), Speed (mph)



SEASONAL THREE HOURLY, DAILY AND YEARLY RESULTANT WIND SUMMARY

	WINTER (Dec, Jan, Feb)		SPRING (Mar, Apr, May)		SUMMER (Jun, Jul, Aug)		FALL (Sep, Oct, Nov)		ANNUAL	
Time (PST)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)
1 AM	261	3.4	243	7.4	229	8.0	245	4.1	241	5.6
4 AM	263	2.9	241	6.0	227	6.5	252	3.3	241	4.6
7 AM	265	2.6	244	6.2	231	6.8	247	2.6	242	4.5
10 AM	267	2.2	257	5.9	242	5.2	252	2.3	253	3.9
1 PM	280	2.4	260	7.2	242	7.2	264	2.0	256	4.6
4 PM	272	3.1	262	11.1	248	13.5	258	4.5	256	8.0
7 PM	268	3.8	262	11.2	253	13.6	261	5.7	259	8.6
10 PM	262	3.9	246	8.5	238	9.2	246	4.9	246	6.6
DAILY	267	3.0	253	7.9	241	8.7	253	3.6	250	5.7

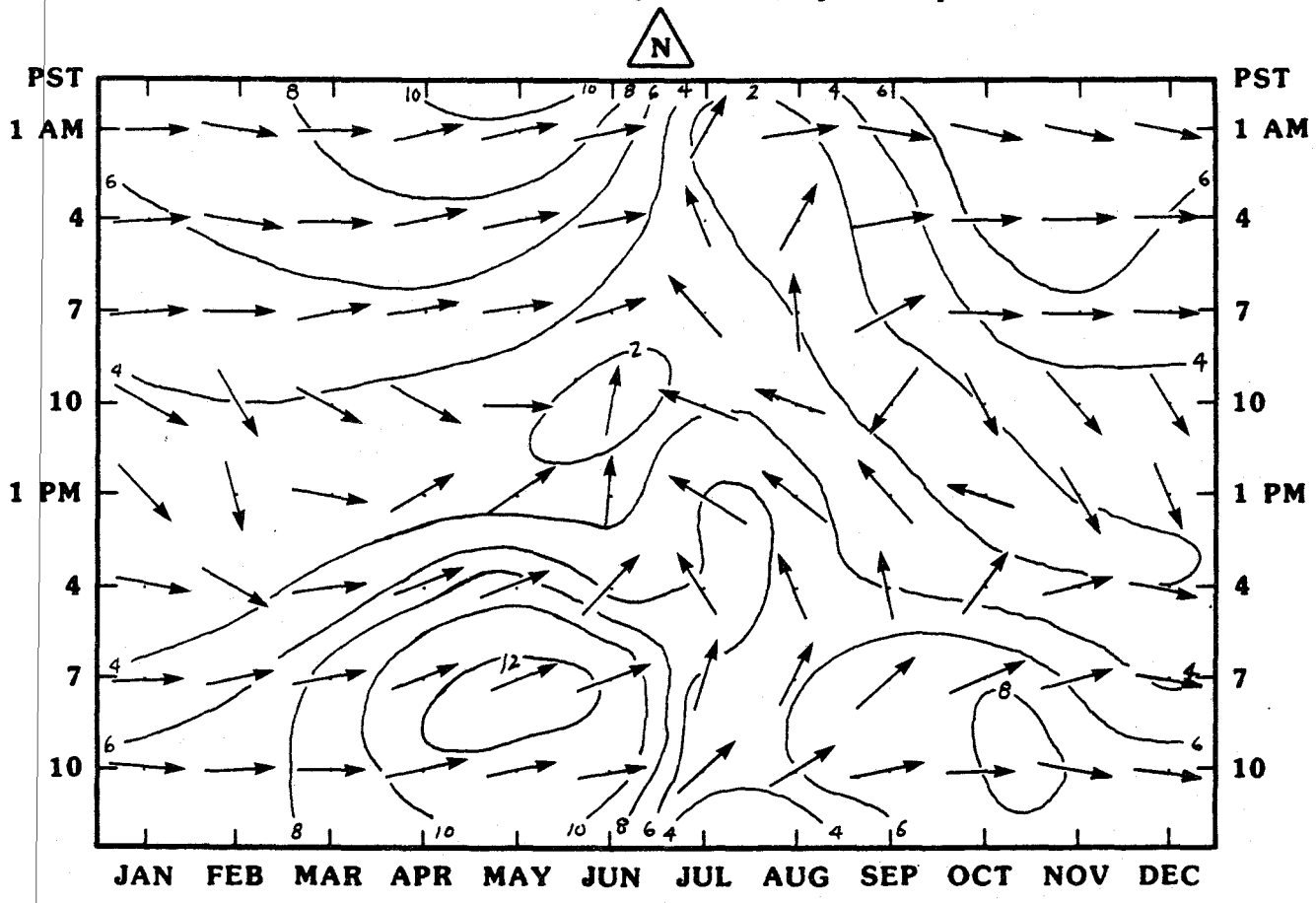
CALIFORNIA AIR RESOURCES BOARD
AEROMETRIC DATA DIVISION 4/84R

EL CENTRO NAAS

LATITUDE: 32° 49' N LONGITUDE: 115° 40' W

PERIOD: March 1949 - February 1958 LEVEL: Surface

MONTHLY THREE HOURLY RESULTANT WIND DIAGRAM
Direction (shown by arrows), Speed (mph)



SEASONAL THREE HOURLY, DAILY AND YEARLY RESULTANT WIND SUMMARY

	WINTER (Dec, Jan, Feb)		SPRING (Mar, Apr, May)		SUMMER (Jun, Jul, Aug)		FALL (Sep, Oct, Nov)		ANNUAL	
Time (PST)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)
1 AM	275	6.5	266	9.1	254	3.4	278	6.5	270	6.3
4 AM	274	6.0	262	6.9	227	2.4	268	5.9	263	5.2
7 AM	269	5.4	262	5.3	184	1.6	262	4.4	258	3.8
10 AM	317	3.3	296	2.7	116	2.3	328	1.9	319	1.4
1 PM	335	2.9	249	2.8	139	4.4	108	0.9	181	0.5
4 PM	285	2.1	251	6.4	176	4.7	211	2.5	227	3.1
7 PM	267	4.2	251	10.6	226	7.2	247	5.9	246	6.8
10 PM	273	6.6	262	11.0	247	7.3	270	7.5	263	8.0
DAILY	281	4.3	260	6.8	209	3.0	264	3.9	258	4.1

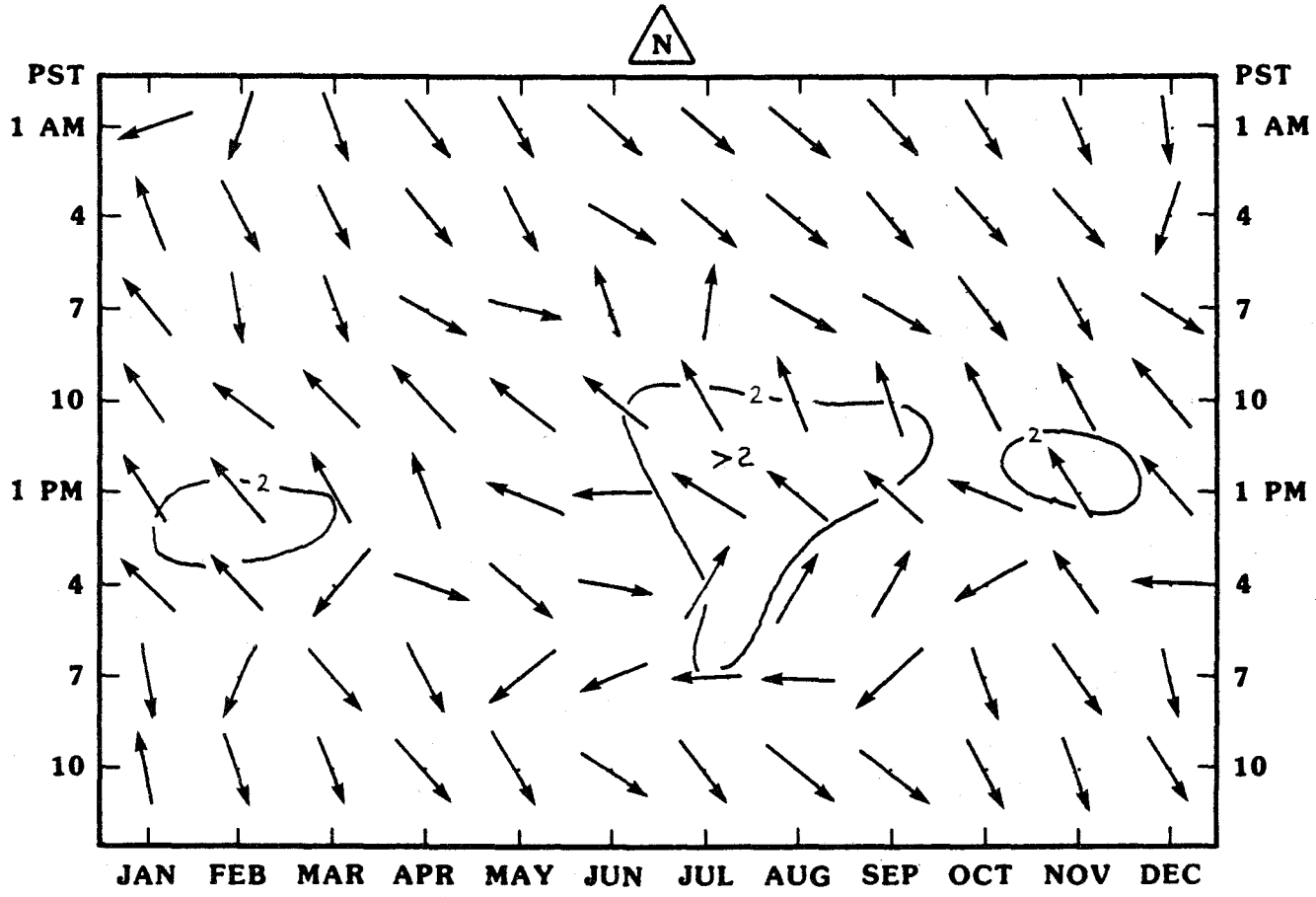
CALIFORNIA AIR RESOURCES BOARD
AEROMETRIC DATA DIVISION 4/84R

FORT HUNTER-LIGGETT (JOLON) AHP

LATITUDE: 36° 00' N **LONGITUDE:** 121° 14' W

PERIOD: December 1964 - November 1970 **LEVEL:** Surface

MONTHLY THREE HOURLY RESULTANT WIND DIAGRAM
Direction (shown by arrows), Speed (mph)



SEASONAL THREE HOURLY, DAILY AND YEARLY RESULTANT WIND SUMMARY

	WINTER (Dec, Jan, Feb)		SPRING (Mar, Apr, May)		SUMMER (Jun, Jul, Aug)		FALL (Sep, Oct, Nov)		ANNUAL	
Time (PST)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)
1 AM	017	0.4	330	0.8	309	1.0	327	1.1	327	0.8
4 AM	023	0.1	325	0.8	308	0.9	318	0.9	319	0.7
7 AM	326	0.1	295	0.4	230	0.3	310	0.7	294	0.3
10 AM	146	1.0	137	1.4	147	2.0	153	1.5	146	1.5
1 PM	141	1.8	135	1.1	114	1.9	134	1.8	130	1.6
4 PM	126	0.9	297	0.6	214	1.2	151	0.5	186	0.4
7 PM	357	0.5	353	0.5	086	1.6	344	0.7	040	0.6
10 PM	333	0.5	333	0.7	312	0.8	324	1.0	324	0.8
DAILY	126	0.4	348	0.1	139	0.4	Calm	-	128	0.2

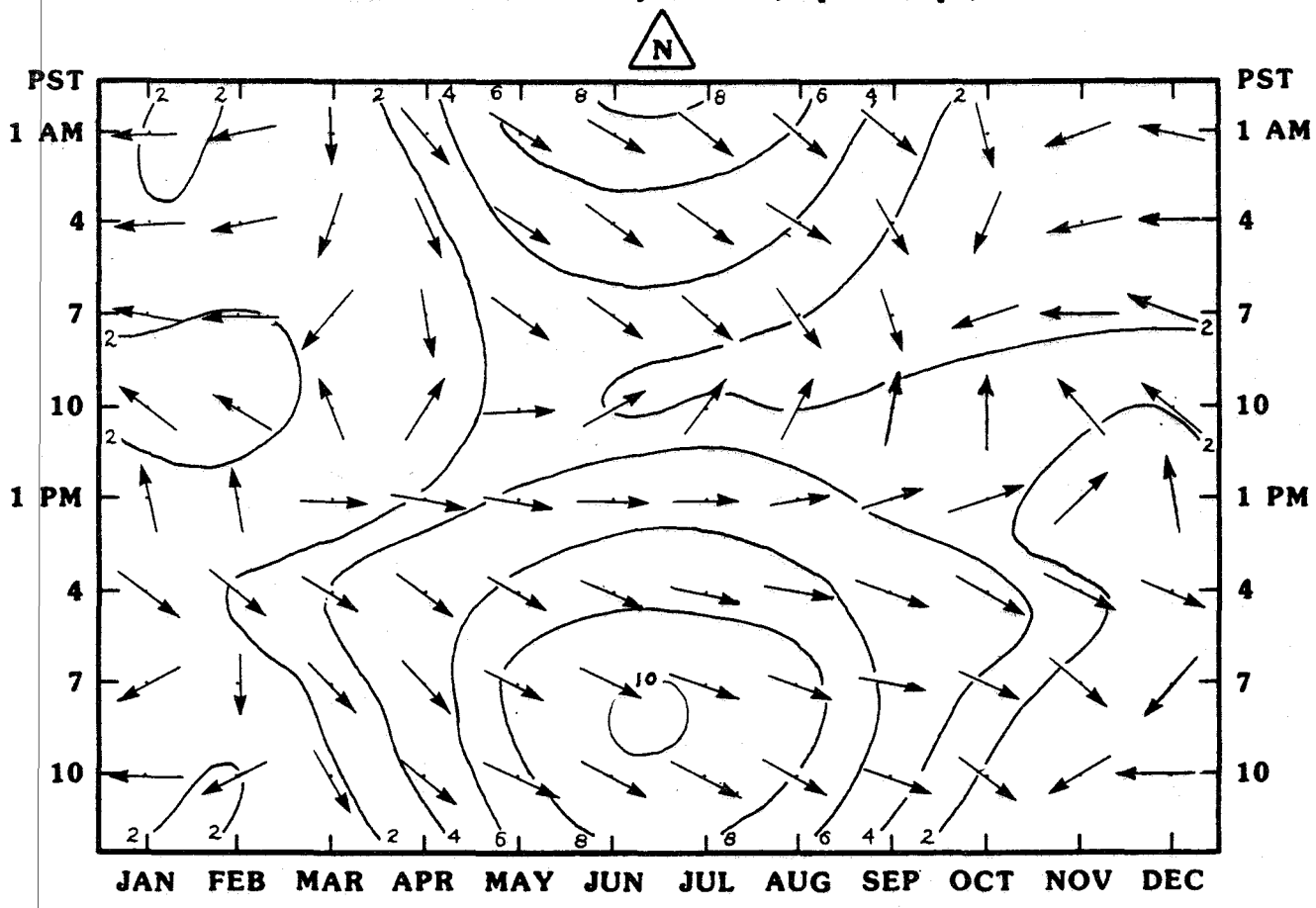
CALIFORNIA AIR RESOURCES BOARD
AEROMETRIC DATA DIVISION 4/84

FRESNO (Fresno Air Terminal)

LATITUDE: 36° 46' N **LONGITUDE:** 119° 43' W

PERIOD: December 1974 - November 1979 **LEVEL:** Surface

MONTHLY THREE HOURLY RESULTANT WIND DIAGRAM
Direction (shown by arrows), Speed (mph)



SEASONAL THREE HOURLY, DAILY AND YEARLY RESULTANT WIND SUMMARY

	WINTER (Dec, Jan, Feb)		SPRING (Mar, Apr, May)		SUMMER (Jun, Jul, Aug)		FALL (Sep, Oct, Nov)		ANNUAL	
Time (PST)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)
1 AM	090	1.7	315	3.6	306	7.0	334	1.3	318	2.6
4 AM	082	1.7	331	2.3	311	4.6	012	0.9	336	1.7
7 AM	092	1.9	339	1.6	315	2.5	056	1.0	006	0.9
10 AM	127	2.5	224	1.1	223	2.0	154	2.6	171	1.5
1 PM	182	1.1	281	2.6	268	4.9	248	2.2	260	2.4
4 PM	305	1.4	306	5.2	285	7.0	298	3.8	296	4.3
7 PM	357	0.7	309	5.7	290	9.1	288	3.2	298	4.5
10 PM	073	1.6	310	4.6	299	8.7	310	1.9	309	3.5
DAILY	093	0.9	308	3.1	294	5.4	293	1.1	301	2.2

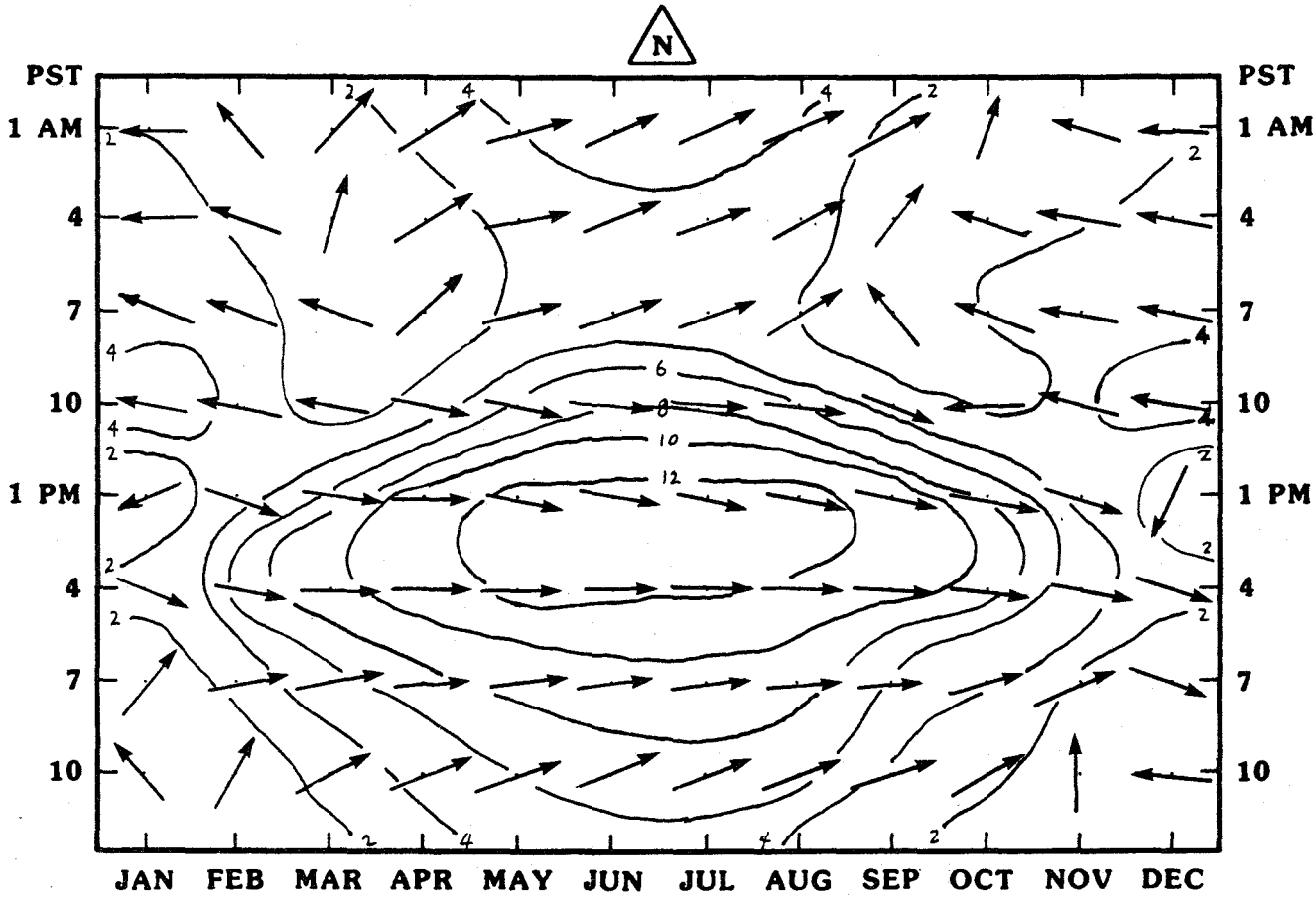
CALIFORNIA AIR RESOURCES BOARD
AEROMETRIC DATA DIVISION 4/84 R

FRITZSCHE AAF (FORT ORD)

LATITUDE: 36° 41' N **LONGITUDE:** 121° 46' W

PERIOD: December 1960 - November 1970 **LEVEL:** Surface

MONTHLY THREE HOURLY RESULTANT WIND DIAGRAM
Direction (shown by arrows), Speed (mph)



SEASONAL THREE HOURLY, DAILY AND YEARLY RESULTANT WIND SUMMARY

	WINTER (Dec, Jan, Feb)		SPRING (Mar, Apr, May)		SUMMER (Jun, Jul, Aug)		FALL (Sep, Oct, Nov)		ANNUAL	
Time (PST)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)
1 AM	102	1.4	246	2.7	247	4.5	204	0.7	237	1.8
4 AM	097	2.5	249	1.4	246	3.0	122	0.9	208	0.7
7 AM	102	3.2	231	0.6	248	2.4	110	1.9	140	0.8
10 AM	102	4.7	278	3.0	275	6.6	096	0.9	269	1.0
1 PM	327	0.8	275	10.1	275	12.2	280	7.3	278	7.6
4 PM	286	4.0	270	10.9	270	12.0	273	8.1	273	8.8
7 PM	255	1.1	261	6.9	259	9.1	252	3.8	258	5.2
10 PM	154	0.6	248	4.3	250	6.7	235	2.1	244	3.3
DAILY	101	0.7	266	5.1	264	7.2	264	2.5	264	3.6

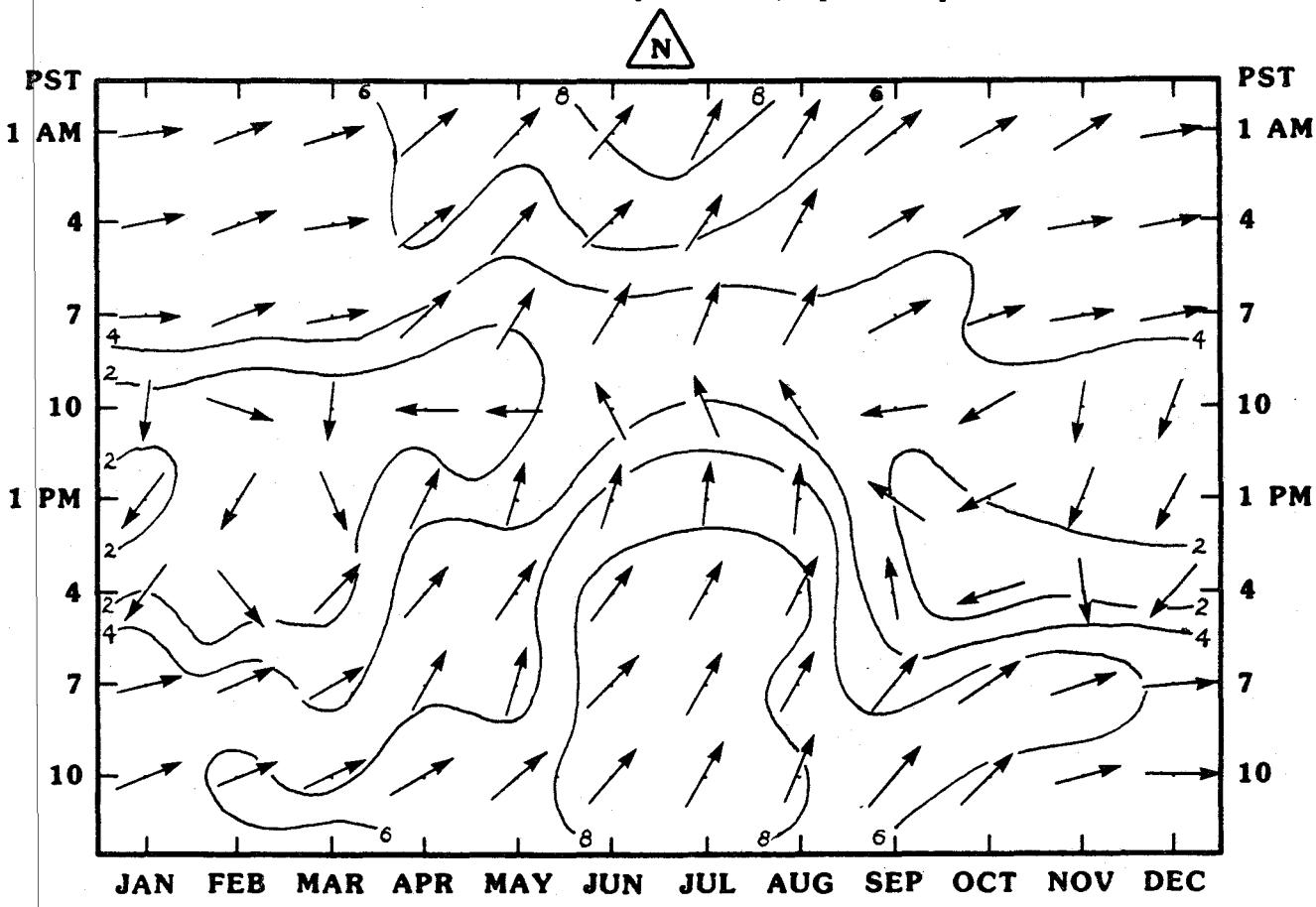
CALIFORNIA AIR RESOURCES BOARD
AEROMETRIC DATA DIVISION 4/84 R

LAS VEGAS (McCarran International Airport), Nevada

LATITUDE: 36° 05' N **LONGITUDE:** 115° 10' W

PERIOD: December 1974 - November 1979 **LEVEL:** Surface

MONTHLY THREE HOURLY RESULTANT WIND DIAGRAM
Direction (shown by arrows), Speed (mph)



SEASONAL THREE HOURLY, DAILY AND YEARLY RESULTANT WIND SUMMARY

	WINTER (Dec, Jan, Feb)		SPRING (Mar, Apr, May)		SUMMER (Jun, Jul, Aug)		FALL (Sep, Oct, Nov)		ANNUAL	
Time (PST)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)
1 AM	257	4.6	229	5.7	213	8.0	238	5.1	231	5.6
4 AM	258	4.8	234	5.0	213	6.2	245	5.0	236	5.0
7 AM	260	4.7	238	3.4	209	3.2	247	4.1	241	3.7
10 AM	002	0.8	070	0.8	151	3.6	041	2.2	096	1.0
1 PM	037	1.9	215	1.9	192	6.5	044	1.8	181	1.3
4 PM	028	1.1	218	3.8	217	8.8	144	0.5	216	2.9
7 PM	255	5.4	216	4.7	219	8.5	236	5.7	230	5.9
10 PM	255	5.1	237	6.7	214	8.4	229	5.7	231	6.3
DAILY	263	2.8	228	3.8	209	6.4	241	2.6	228	3.7

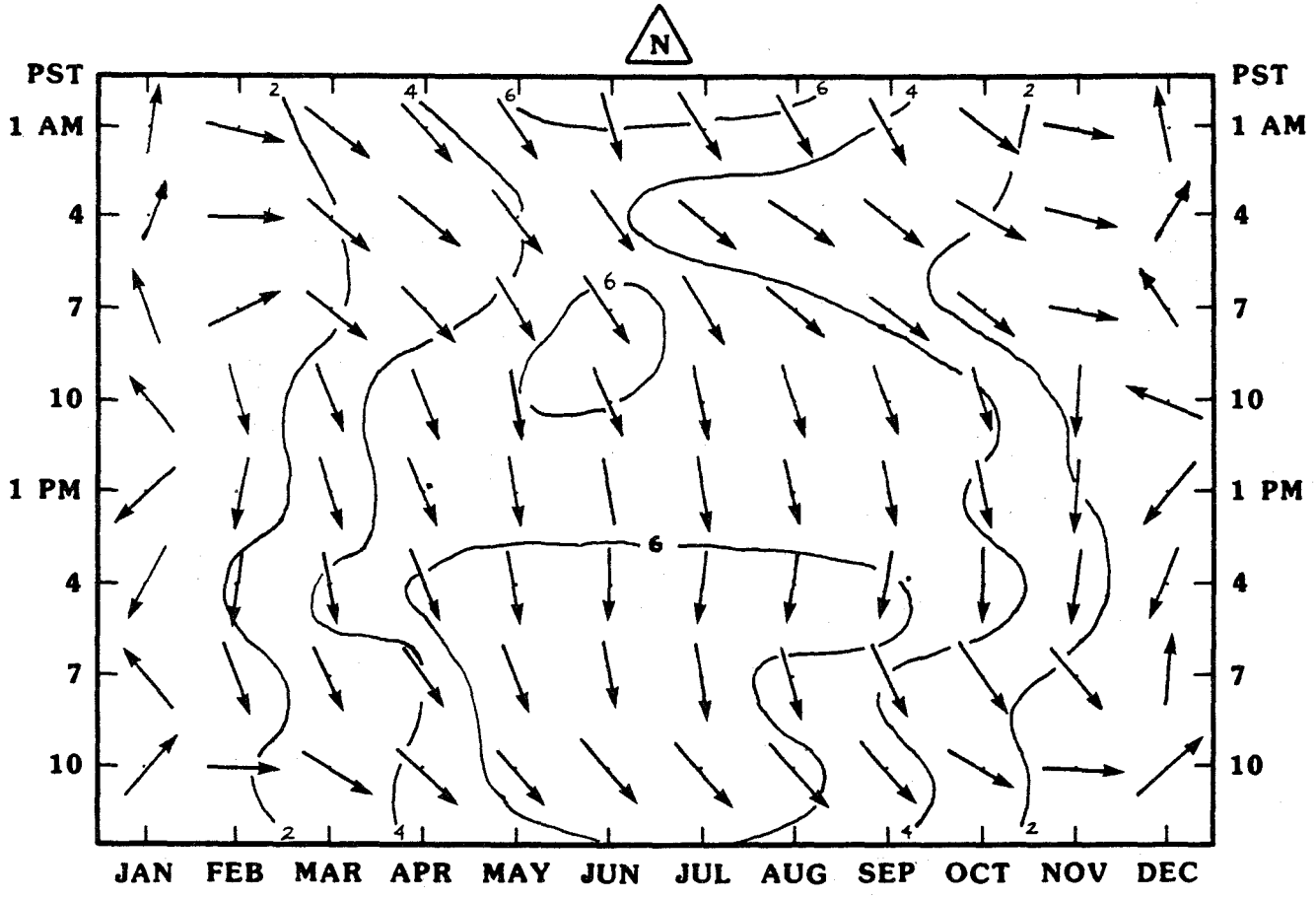
CALIFORNIA AIR RESOURCES BOARD
AEROMETRIC DATA DIVISION 4/84

LEMOORE NAS, REEVES FIELD AIRPORT

LATITUDE: 39° 20' N **LONGITUDE:** 119° 57' W

PERIOD: December 1961 - November 1979 **LEVEL:** Surface

MONTHLY THREE HOURLY RESULTANT WIND DIAGRAM
Direction (shown by arrows), Speed (mph)



SEASONAL THREE HOURLY, DAILY AND YEARLY RESULTANT WIND SUMMARY

	WINTER (Dec, Jan, Feb)		SPRING (Mar, Apr, May)		SUMMER (Jun, Jul, Aug)		FALL (Sep, Oct, Nov)		ANNUAL	
Time (PST)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)
1 AM	218	0.4	322	3.6	334	5.6	315	2.2	325	2.8
4 AM	243	0.3	315	2.8	315	3.7	300	1.9	310	2.1
7 AM	178	0.3	324	3.5	327	5.5	308	1.8	322	2.6
10 AM	026	0.2	343	5.1	343	5.5	343	3.5	344	3.6
1 PM	030	1.0	345	4.2	348	4.7	351	3.2	351	3.2
4 PM	018	1.5	349	6.1	005	7.4	004	4.4	001	4.8
7 PM	Calm	-	337	4.4	350	6.7	333	2.4	343	3.4
10 PM	247	1.0	311	4.7	323	7.3	304	3.2	312	3.9
DAILY	344	0.2	333	4.2	340	5.6	332	2.6	336	3.1

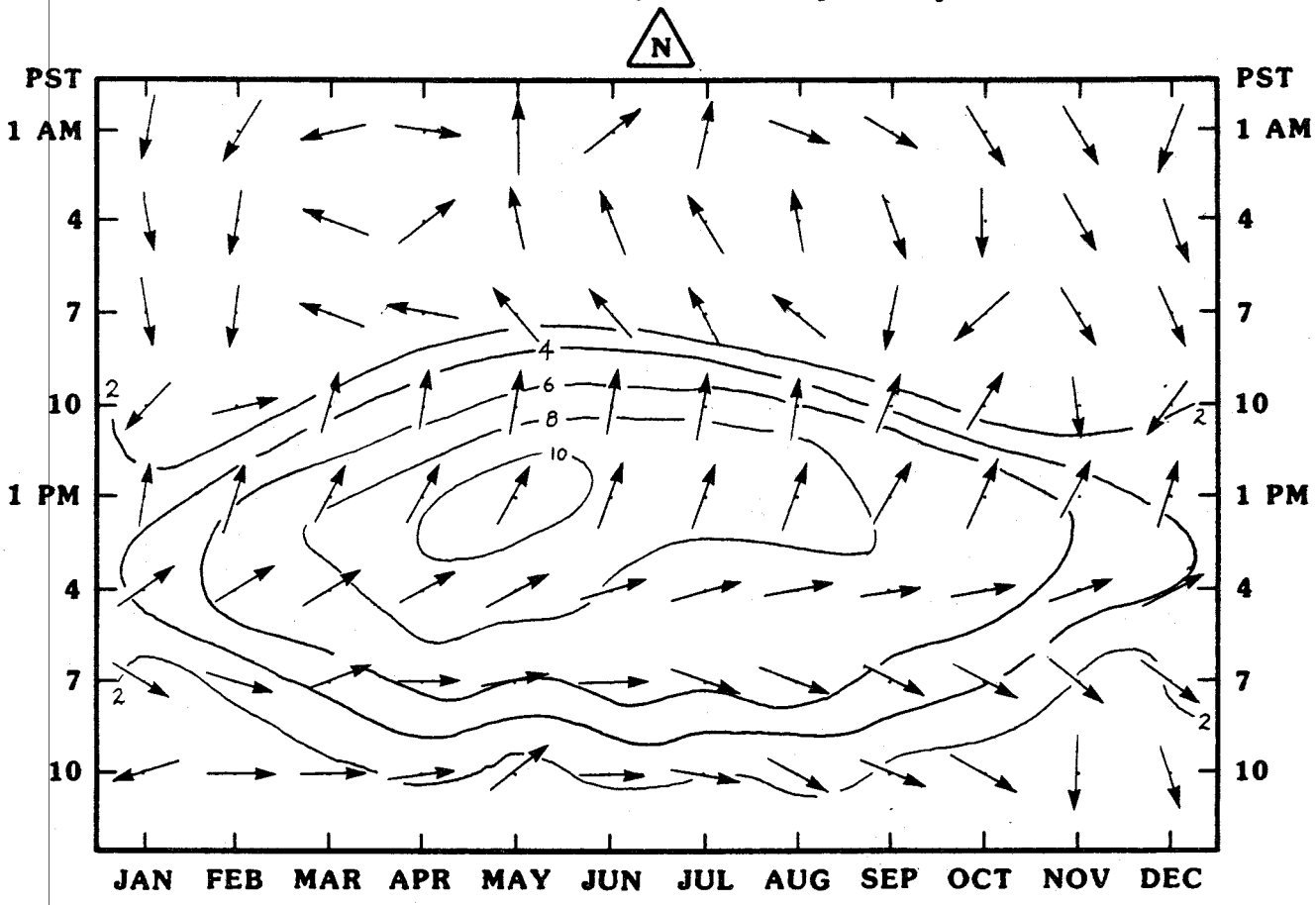
CALIFORNIA AIR RESOURCES BOARD
AEROMETRIC DATA DIVISION 4/84R

LONG BEACH (Long Beach Airport)

LATITUDE: 33° 49' N **LONGITUDE:** 118° 09' W

PERIOD: December 1974 - November 1979 **LEVEL:** Surface

MONTHLY THREE HOURLY RESULTANT WIND DIAGRAM
Direction (shown by arrows), Speed (mph)



SEASONAL THREE HOURLY, DAILY AND YEARLY RESULTANT WIND SUMMARY

	WINTER (Dec, Jan, Feb)		SPRING (Mar, Apr, May)		SUMMER (Jun, Jul, Aug)		FALL (Sep, Oct, Nov)		ANNUAL	
Time (PST)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)
1 AM	017	0.8	189	0.4	234	0.5	317	0.7	310	0.2
4 AM	347	1.0	142	0.5	159	0.7	331	0.7	359	0.1
7 AM	350	1.2	120	1.1	143	1.2	358	0.7	075	0.4
10 AM	037	1.1	193	4.4	191	6.3	205	1.2	191	2.7
1 PM	196	4.0	206	9.3	199	9.2	209	6.9	203	7.3
4 PM	238	5.1	241	8.6	254	7.2	259	6.8	248	6.8
7 PM	295	2.3	263	6.1	283	6.6	295	4.1	281	4.7
10 PM	354	0.3	250	1.6	281	2.4	310	1.1	281	1.2
DAILY	257	0.9	225	3.3	230	3.2	257	2.1	237	2.3

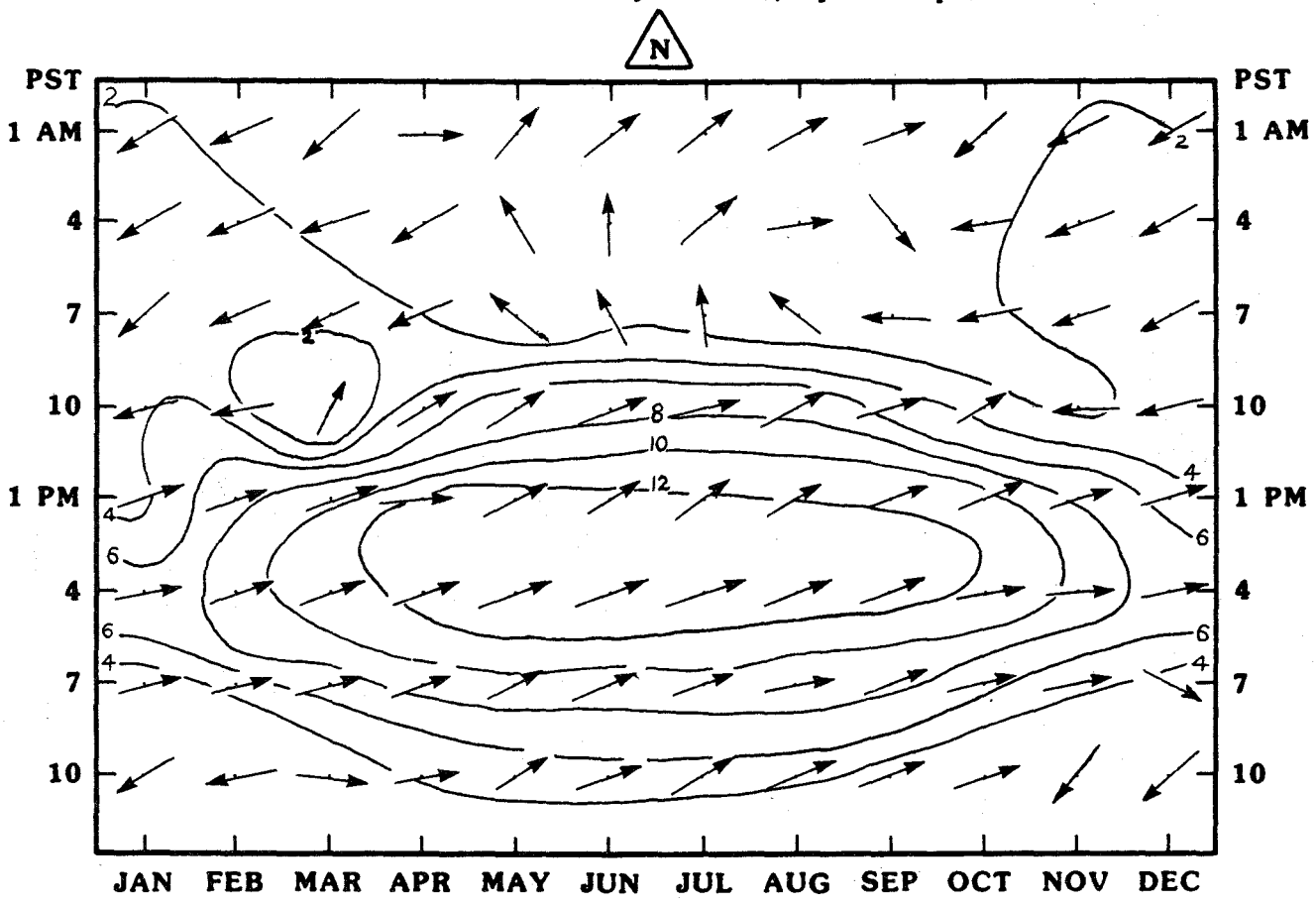
CALIFORNIA AIR RESOURCES BOARD
AEROMETRIC DATA DIVISION 4/84

LOS ANGELES (International Airport)

LATITUDE: 33° 56' N **LONGITUDE:** 118° 24' W

PERIOD: December 1974 - November 1979 **LEVEL:** Surface

MONTHLY THREE HOURLY RESULTANT WIND DIAGRAM
Direction (shown by arrows), Speed (mph)



SEASONAL THREE HOURLY, DAILY AND YEARLY RESULTANT WIND SUMMARY

	WINTER (Dec, Jan, Feb)		SPRING (Mar, Apr, May)		SUMMER (Jun, Jul, Aug)		FALL (Sep, Oct, Nov)		ANNUAL	
Time (PST)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)
1 AM	064	2.1	307	0.1	235	2.1	038	0.5	067	0.1
4 AM	062	2.5	078	1.0	231	0.9	064	1.3	072	0.5
7 AM	062	3.0	082	1.7	151	1.0	073	1.6	079	1.6
10 AM	076	3.0	238	4.1	247	7.1	237	2.3	239	2.6
1 PM	248	5.4	249	11.6	254	12.1	251	9.9	251	9.7
4 PM	256	7.6	253	12.2	253	12.7	256	11.2	254	10.9
7 PM	267	3.8	254	8.5	254	9.7	256	6.7	256	7.2
10 PM	057	1.2	256	3.5	246	5.2	255	1.5	253	2.3
DAILY	280	0.7	250	4.6	249	6.2	256	3.5	252	3.7

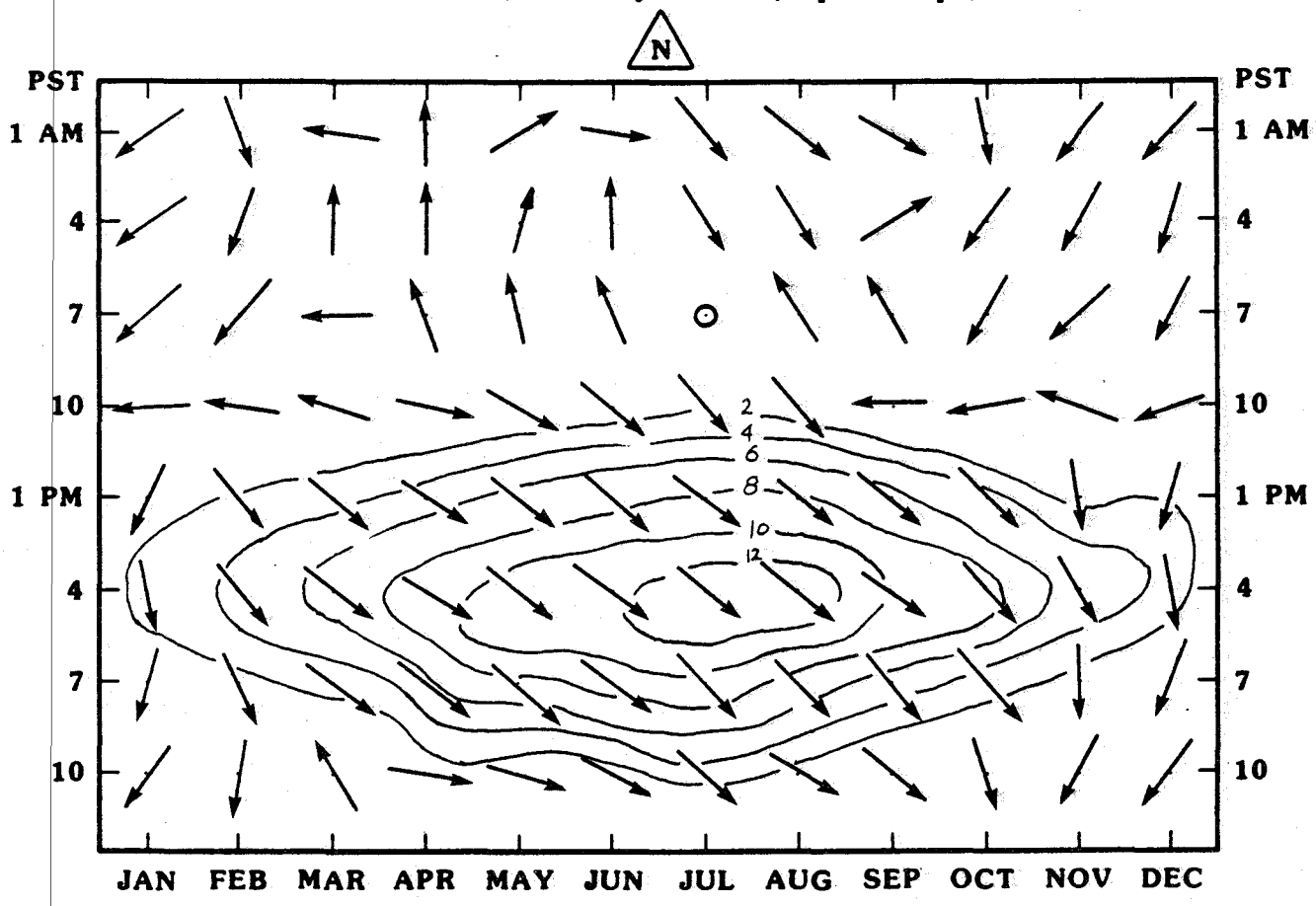
CALIFORNIA AIR RESOURCES BOARD
AEROMETRIC DATA DIVISION 4/84R

MARCH AFB

LATITUDE: 33° 53' N **LONGITUDE:** 117° 15' W

PERIOD: December 1956 - November 1970 **LEVEL:** Surface

MONTHLY THREE HOURLY RESULTANT WIND DIAGRAM
Direction (shown by arrows), Speed (mph)



SEASONAL THREE HOURLY, DAILY AND YEARLY RESULTANT WIND SUMMARY

	WINTER (Dec, Jan, Feb)		SPRING (Mar, Apr, May)		SUMMER (Jun, Jul, Aug)		FALL (Sep, Oct, Nov)		ANNUAL	
Time (PST)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)
1 AM	042	0.7	197	0.2	304	0.4	352	0.2	358	0.2
4 AM	033	0.6	185	0.2	Calm	-	028	0.1	038	0.1
7 AM	040	0.6	161	0.5	164	0.2	062	0.3	098	0.2
10 AM	083	1.2	313	0.2	316	1.6	101	1.0	037	0.4
1 PM	004	1.7	307	4.8	309	8.3	320	4.1	315	4.6
4 PM	337	3.7	307	8.9	310	12.4	316	7.4	313	8.0
7 PM	004	1.6	312	5.1	315	8.2	325	2.7	319	4.3
10 PM	040	0.8	284	0.5	304	1.7	347	0.5	326	0.7
DAILY	010	1.1	306	2.4	311	4.1	324	1.8	318	2.2

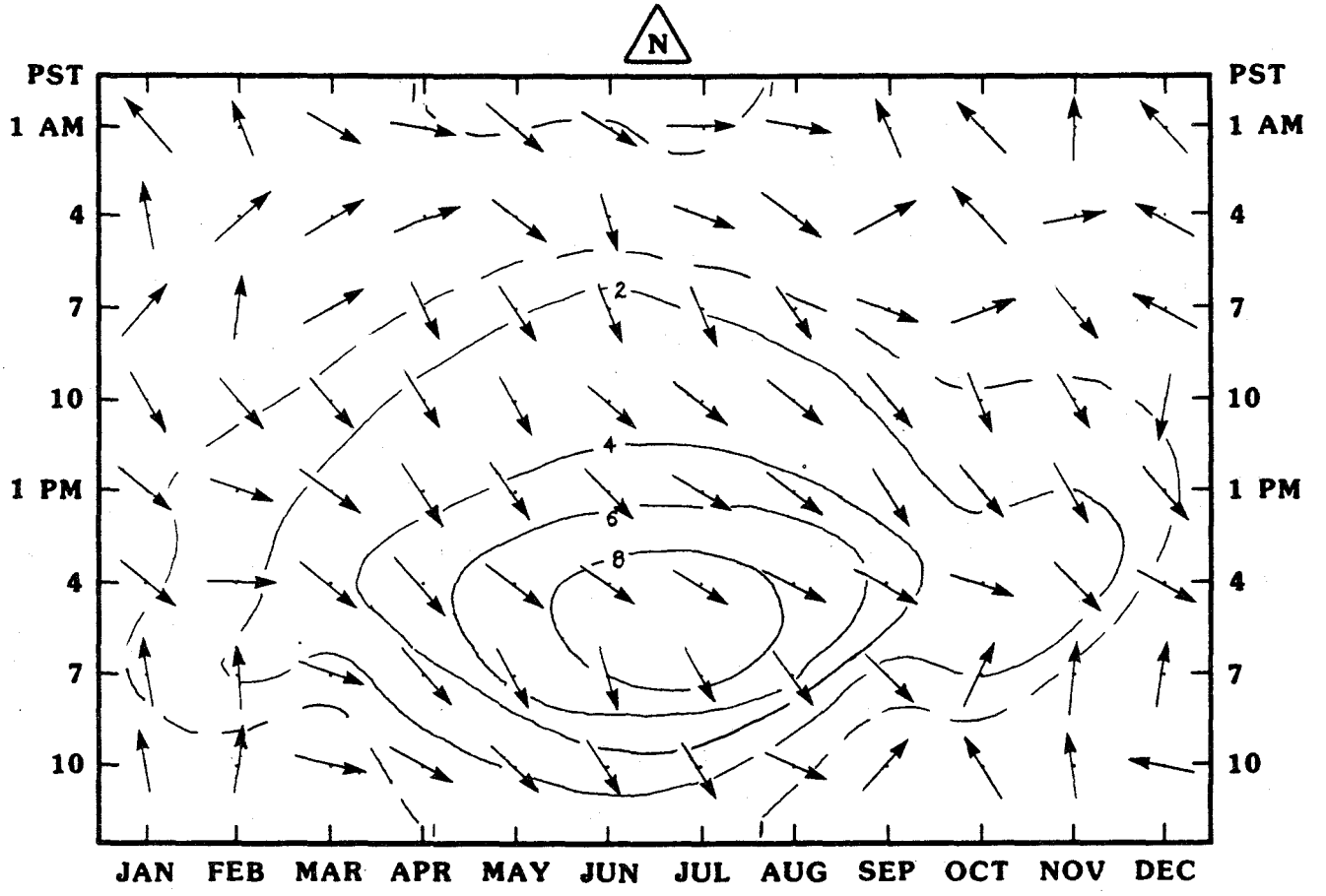
CALIFORNIA AIR RESOURCES BOARD
AEROMETRIC DATA DIVISION 4/84 R

MEDFORD (Medford-Jackson County Airport), Oregon

LATITUDE: 42° 22' N **LONGITUDE:** 122° 52' W

PERIOD: December 1974 - November 1979 **LEVEL:** Surface

MONTHLY THREE HOURLY RESULTANT WIND DIAGRAM
Direction (shown by arrows), Speed (mph)



SEASONAL THREE HOURLY, DAILY AND YEARLY RESULTANT WIND SUMMARY

	WINTER (Dec, Jan, Feb)		SPRING (Mar, Apr, May)		SUMMER (Jun, Jul, Aug)		FALL (Sep, Oct, Nov)		ANNUAL	
Time (PST)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)
1 AM	152	0.8	298	0.8	279	1.0	141	0.3	250	0.3
4 AM	167	0.4	263	0.3	310	0.3	182	0.2	226	0.2
7 AM	189	0.3	320	1.0	335	1.8	280	0.4	320	0.7
10 AM	339	0.7	329	2.3	310	2.7	325	1.4	322	1.7
1 PM	304	1.2	324	3.1	308	4.9	321	2.1	314	2.8
4 PM	286	1.0	314	5.3	306	7.6	300	2.8	306	4.1
7 PM	176	1.2	320	3.9	333	8.0	241	0.8	322	2.7
10 PM	162	0.4	292	1.3	320	2.1	177	0.4	290	0.5
DAILY	224	0.3	315	2.2	316	3.5	295	0.8	310	1.6

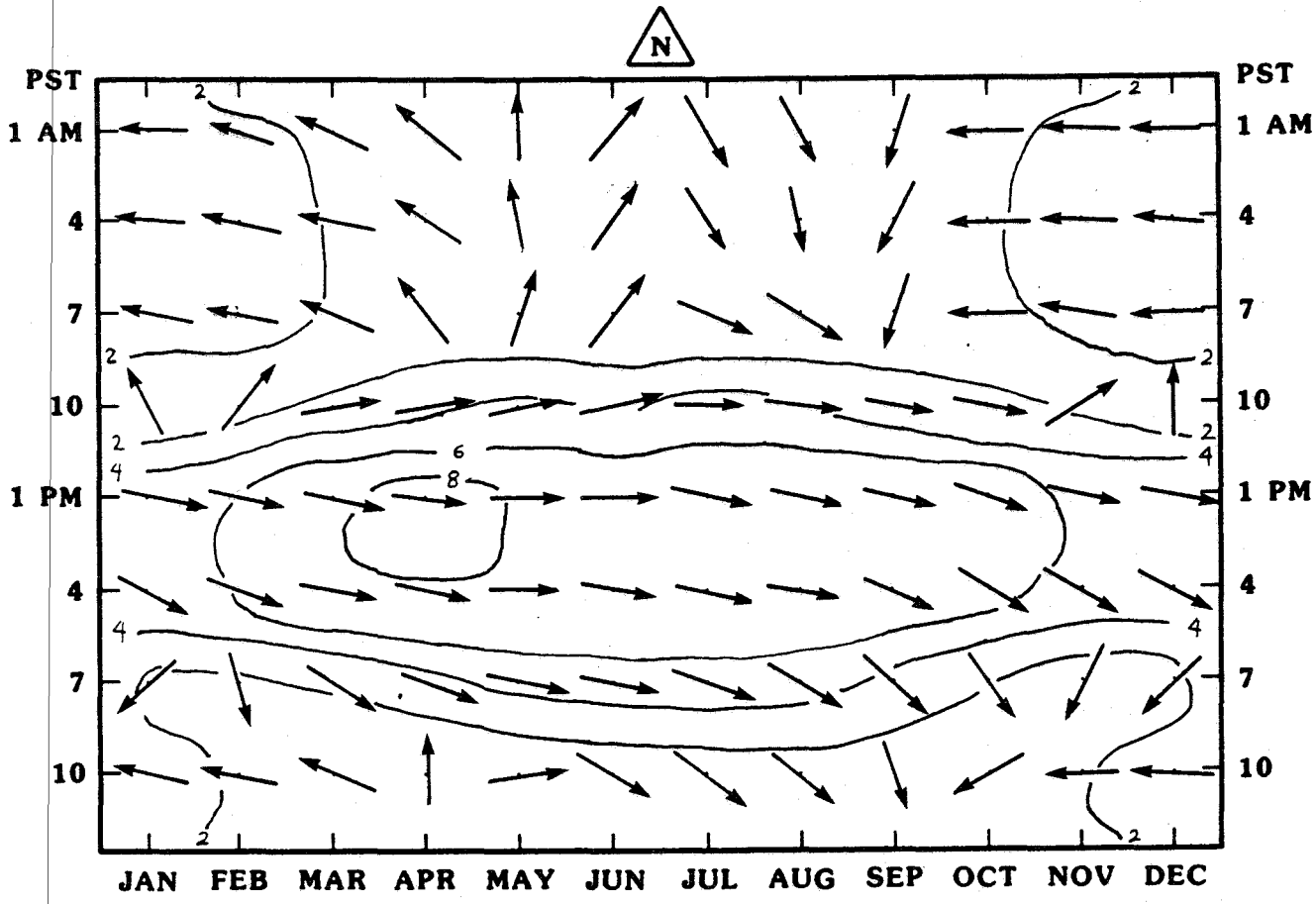
CALIFORNIA AIR RESOURCES BOARD
AEROMETRIC DATA DIVISION 4/84

MIRAMAR NAS, MITSCHER FIELD

LATITUDE: 33° 40' N **LONGITUDE:** 117° 44' W

PERIOD: December 1954 - November 1977 **LEVEL:** Surface

MONTHLY THREE HOURLY RESULTANT WIND DIAGRAM
Direction (shown by arrows), Speed (mph)



SEASONAL THREE HOURLY, DAILY AND YEARLY RESULTANT WIND SUMMARY

	WINTER (Dec, Jan, Feb)		SPRING (Mar, Apr, May)		SUMMER (Jun, Jul, Aug)		FALL (Sep, Oct, Nov)		ANNUAL	
Time (PST)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)
1 AM	094	2.8	133	1.0	317	0.4	083	1.4	095	1.2
4 AM	094	3.2	119	1.2	326	0.4	086	1.7	094	1.4
7 AM	096	3.3	140	1.1	268	0.4	090	1.6	103	1.3
10 AM	190	0.7	259	3.5	270	4.1	274	2.1	263	2.5
1 PM	279	5.0	273	7.9	275	7.4	284	6.9	277	6.8
4 PM	293	5.2	281	7.6	279	6.8	294	6.3	286	6.4
7 PM	030	1.1	286	3.2	290	4.3	325	1.8	302	2.2
10 PM	096	2.3	197	0.3	308	1.2	058	0.8	070	0.5
DAILY	048	0.4	269	2.4	281	3.1	303	1.5	284	1.7

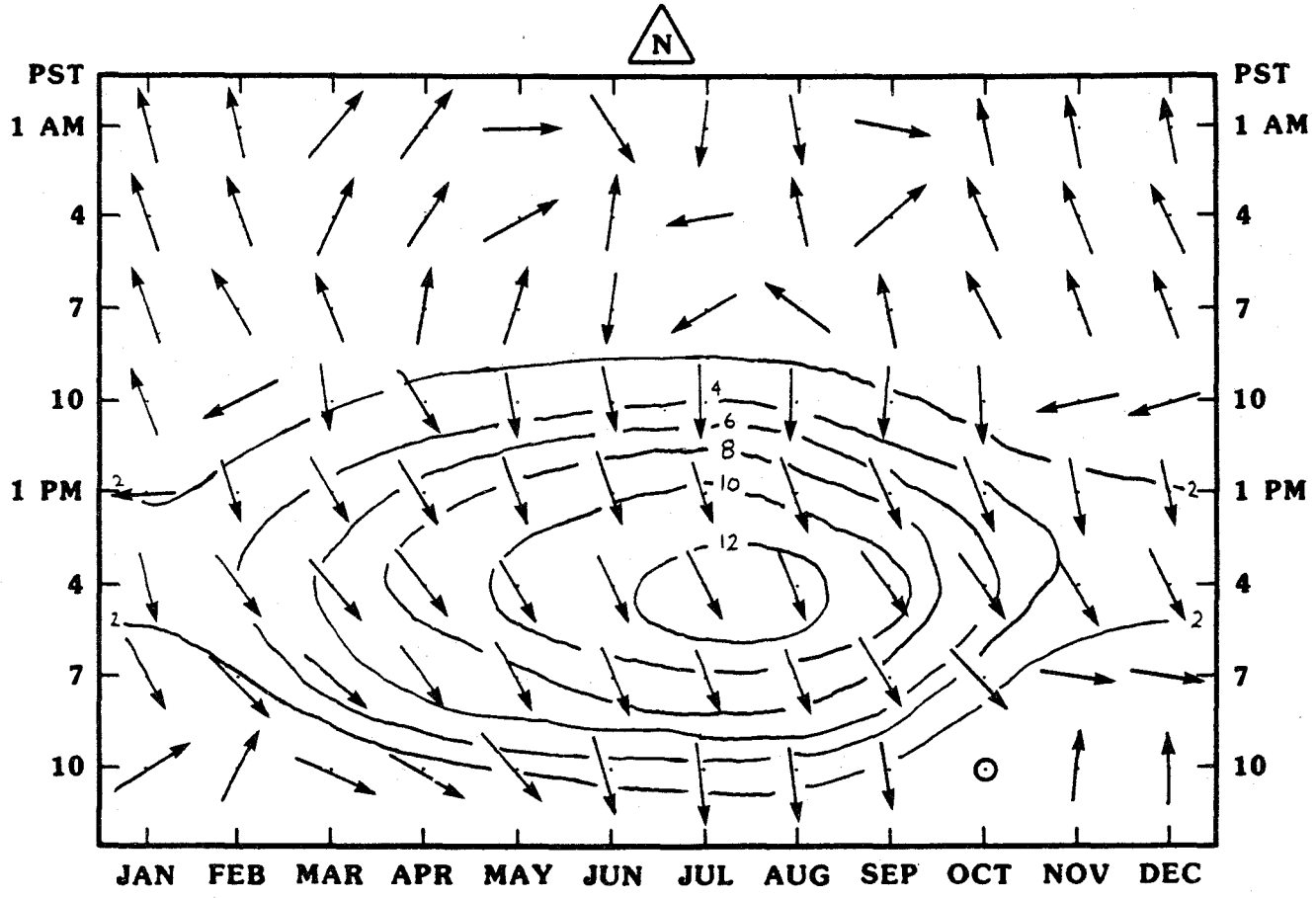
CALIFORNIA AIR RESOURCES BOARD
AEROMETRIC DATA DIVISION 4/84

MOFFETT FIELD NAS

LATITUDE: 37° 25' N **LONGITUDE:** 122° 03' W

PERIOD: December 1961 - November 1977 **LEVEL:** Surface

MONTHLY THREE HOURLY RESULTANT WIND DIAGRAM
Direction (shown by arrows), Speed (mph)



SEASONAL THREE HOURLY, DAILY AND YEARLY RESULTANT WIND SUMMARY

	WINTER (Dec, Jan, Feb)		SPRING (Mar, Apr, May)		SUMMER (Jun, Jul, Aug)		FALL (Sep, Oct, Nov)		ANNUAL	
Time (PST)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)
1 AM	170	0.8	229	0.6	354	0.7	177	0.4	203	0.2
4 AM	159	0.9	221	0.6	170	0.1	167	0.5	177	0.5
7 AM	157	0.9	180	0.6	079	0.2	161	0.7	159	0.6
10 AM	077	0.4	346	2.7	356	3.8	005	1.4	357	2.0
1 PM	349	2.2	334	6.9	341	10.0	342	5.1	340	6.0
4 PM	330	3.0	326	8.9	338	12.4	332	7.1	332	7.8
7 PM	290	0.7	319	6.0	336	8.9	327	3.3	327	4.6
10 PM	190	0.6	307	1.5	346	3.3	317	0.3	328	1.1
DAILY	324	0.3	324	3.1	341	4.8	335	1.9	334	2.5

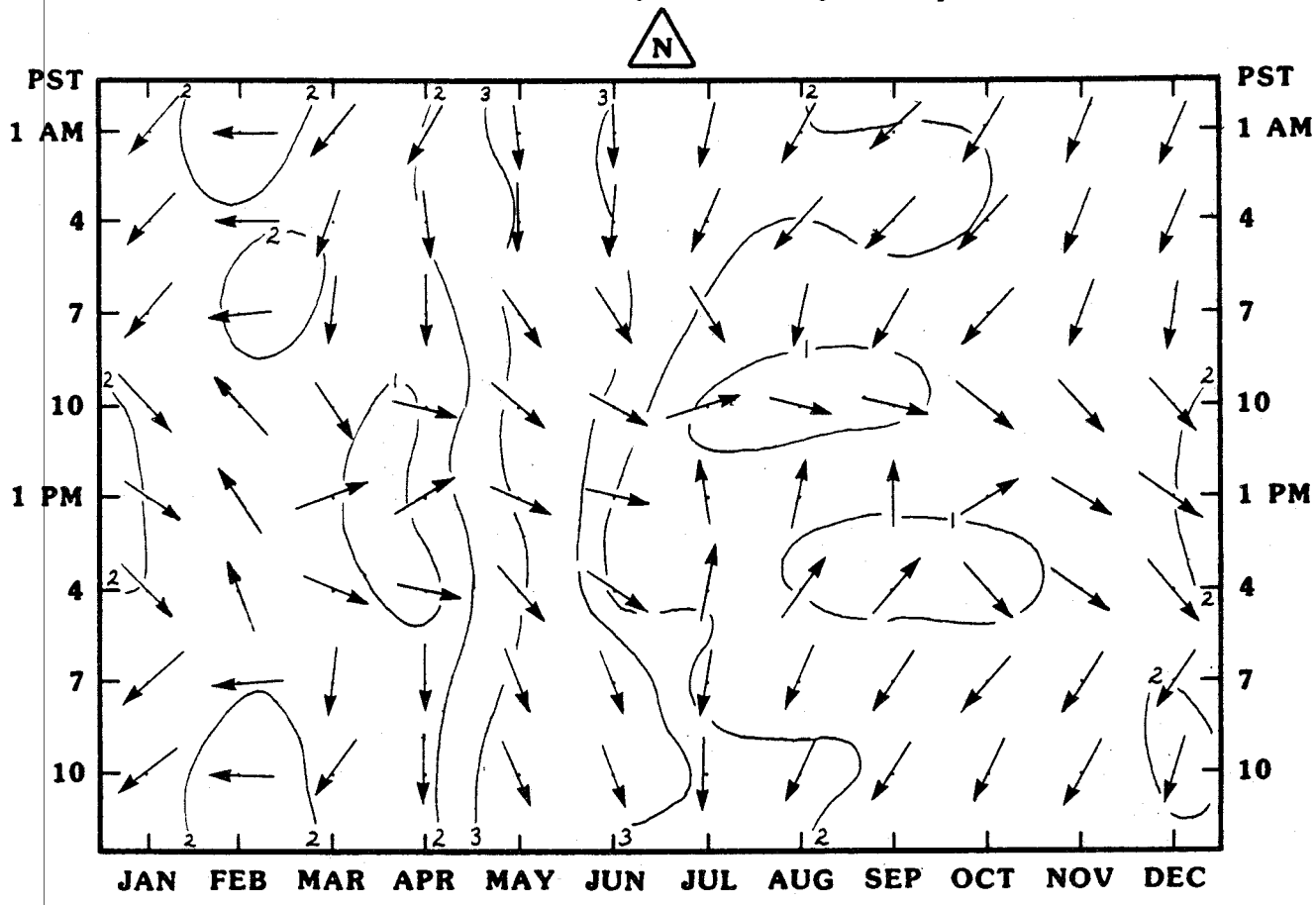
CALIFORNIA AIR RESOURCES BOARD
AEROMETRIC DATA DIVISION 4/84R

MOUNT SHASTA (Forest Service Building)

LATITUDE: 41° 19' N **LONGITUDE:** 122° 19' W

PERIOD: December 1974 - November 1979 **LEVEL:** Surface

MONTHLY THREE HOURLY RESULTANT WIND DIAGRAM
Direction (shown by arrows), Speed (mph)



SEASONAL THREE HOURLY, DAILY AND YEARLY RESULTANT WIND SUMMARY

	WINTER (Dec, Jan, Feb)		SPRING (Mar, Apr, May)		SUMMER (Jun, Jul, Aug)		FALL (Sep, Oct, Nov)		ANNUAL	
Time (PST)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)
1 AM	053	1.6	012	2.2	010	2.3	037	1.8	025	1.9
4 AM	050	1.5	001	2.2	013	2.3	034	1.9	022	1.9
7 AM	054	1.5	348	2.0	339	2.0	031	1.7	009	1.6
10 AM	317	0.6	313	1.9	293	1.2	305	1.2	307	1.2
1 PM	290	0.8	279	1.5	214	1.1	254	0.9	260	0.9
4 PM	300	0.8	304	1.7	234	0.9	289	0.7	287	0.9
7 PM	056	1.5	350	1.9	355	1.9	034	1.6	015	1.5
10 PM	057	1.8	353	2.2	356	2.8	030	1.7	014	1.9
DAILY	019	1.1	340	1.7	346	1.3	016	1.0	357	1.2

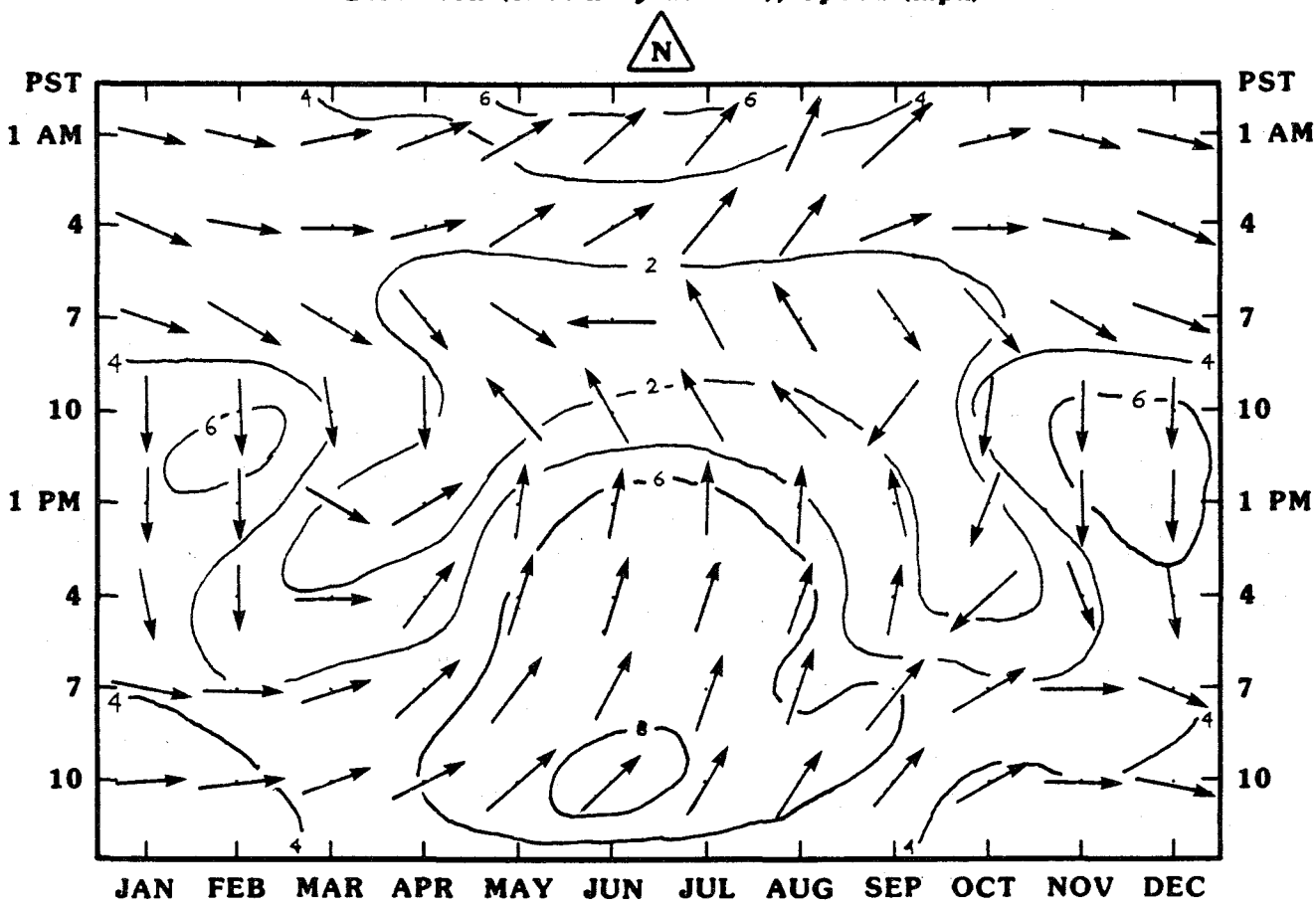
CALIFORNIA AIR RESOURCES BOARD
AEROMETRIC DATA DIVISION 4/84 R

NEEDLES AIRPORT

LATITUDE: 34° 46' N **LONGITUDE:** 114° 37' W

PERIOD: December 1948 - November 1964 **LEVEL:** Surface

MONTHLY THREE HOURLY RESULTANT WIND DIAGRAM
Direction (shown by arrows), Speed (mph)



SEASONAL THREE HOURLY, DAILY AND YEARLY RESULTANT WIND SUMMARY

	WINTER (Dec, Jan, Feb)		SPRING (Mar, Apr, May)		SUMMER (Jun, Jul, Aug)		FALL (Sep, Oct, Nov)		ANNUAL	
Time (PST)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)
1 AM	282	3.5	248	3.8	221	4.3	257	3.3	250	3.5
4 AM	284	3.4	257	3.2	227	3.4	266	2.9	258	3.0
7 AM	294	3.2	308	1.7	148	1.0	312	1.8	298	1.4
10 AM	356	5.9	359	1.7	145	2.8	006	4.2	010	2.4
1 PM	360	5.9	214	1.9	183	6.1	009	1.7	259	0.3
4 PM	352	4.5	218	3.4	198	6.9	294	0.6	230	1.8
7 PM	280	4.2	231	5.4	203	6.5	242	5.0	234	4.7
10 PM	273	3.7	238	6.1	218	7.5	242	4.2	237	5.1
DAILY	317	3.4	244	2.9	201	4.5	277	1.9	252	2.2

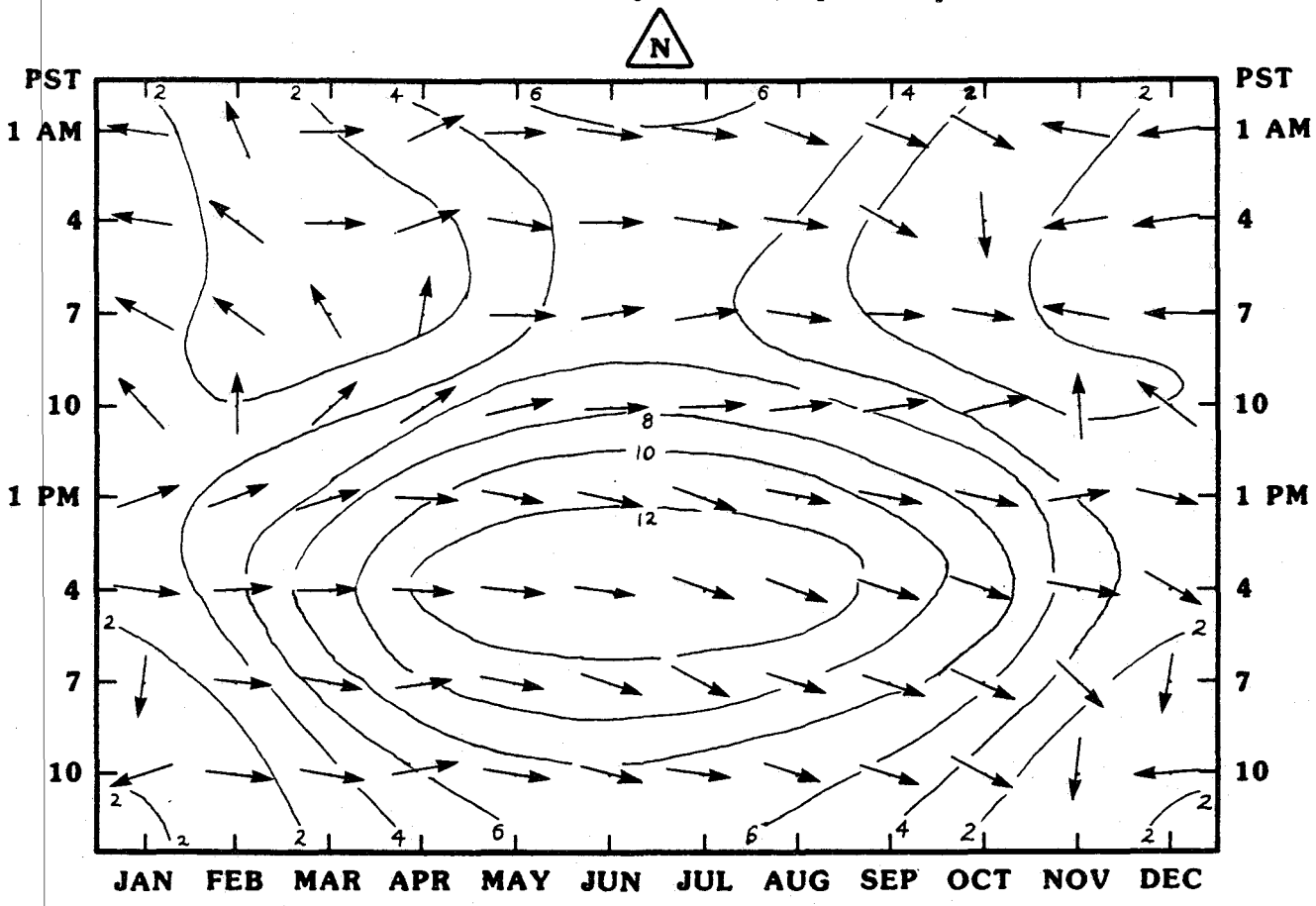
CALIFORNIA AIR RESOURCES BOARD
AEROMETRIC DATA DIVISION 4/84

OAKLAND (International Airport)

LATITUDE: 37° 44' N **LONGITUDE:** 122° 12' W

PERIOD: December 1974 - November 1979 **LEVEL:** Surface

MONTHLY THREE HOURLY RESULTANT WIND DIAGRAM
Direction (shown by arrows), Speed (mph)



SEASONAL THREE HOURLY, DAILY AND YEARLY RESULTANT WIND SUMMARY

	WINTER (Dec, Jan, Feb)		SPRING (Mar, Apr, May)		SUMMER (Jun, Jul, Aug)		FALL (Sep, Oct, Nov)		ANNUAL	
Time (PST)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)
1 AM	100	1.7	265	3.6	283	5.6	304	1.0	278	2.1
4 AM	098	2.2	272	1.7	277	4.7	018	0.6	283	1.0
7 AM	114	2.5	230	1.4	265	4.0	121	0.4	225	0.9
10 AM	150	2.2	248	4.8	266	7.0	240	2.9	246	3.5
1 PM	259	3.6	272	8.9	285	11.3	276	6.6	276	7.5
4 PM	282	3.9	275	11.5	286	13.2	285	8.4	282	9.2
7 PM	318	1.4	277	9.4	291	11.2	296	5.8	289	6.8
10 PM	077	0.7	279	5.7	284	7.3	299	2.7	286	3.7
DAILY	194	0.3	270	5.8	282	8.0	284	3.7	277	4.4

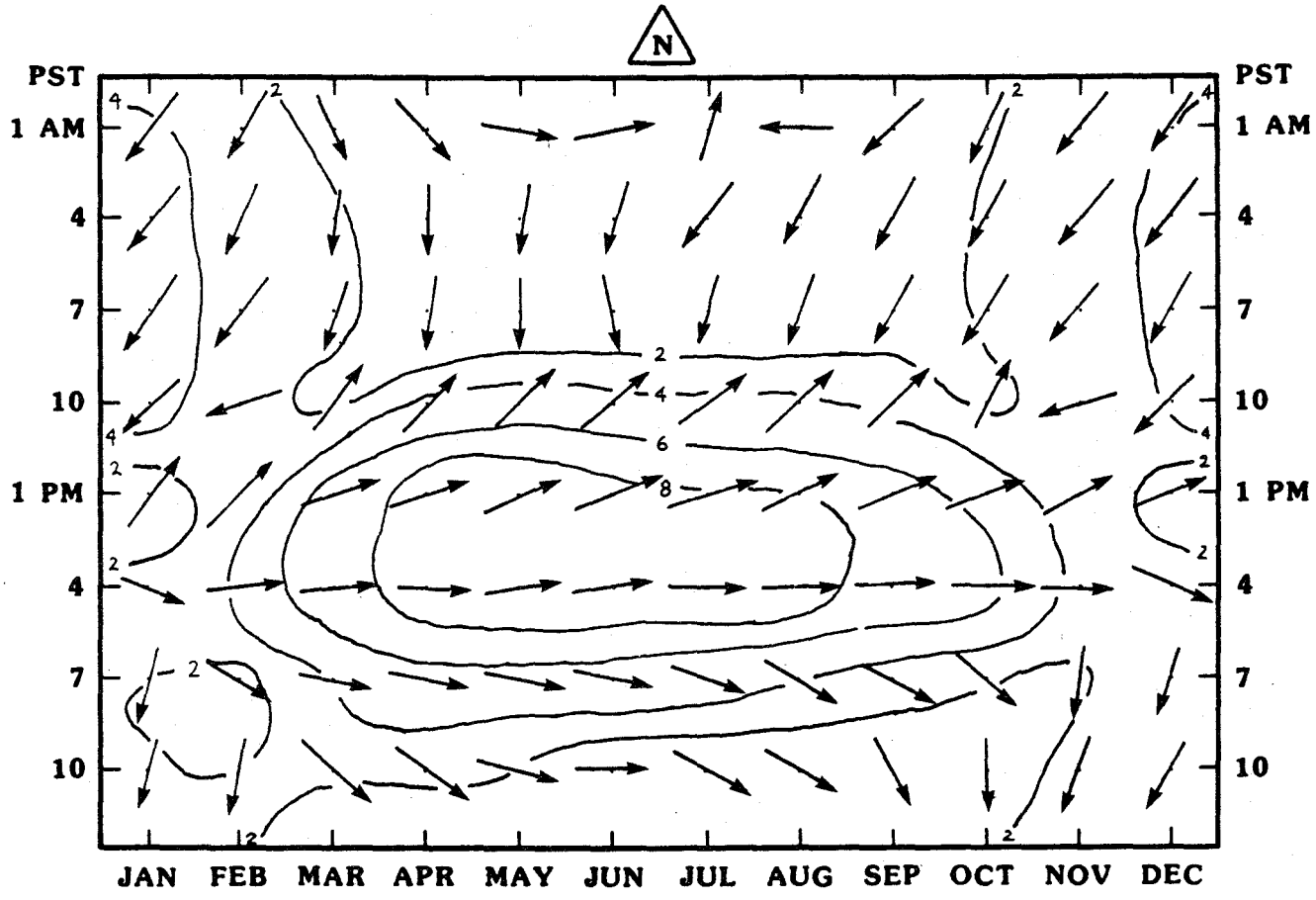
CALIFORNIA AIR RESOURCES BOARD
AEROMETRIC DATA DIVISION 4/84

POINT MUGU NAS

LATITUDE: 34° 07' N **LONGITUDE:** 119° 07' W

PERIOD: December 1961 - November 1977 **LEVEL:** Surface

MONTHLY THREE HOURLY RESULTANT WIND DIAGRAM
Direction (shown by arrows), Speed (mph)



SEASONAL THREE HOURLY, DAILY AND YEARLY RESULTANT WIND SUMMARY

	WINTER (Dec, Jan, Feb)		SPRING (Mar, Apr, May)		SUMMER (Jun, Jul, Aug)		FALL (Sep, Oct, Nov)		ANNUAL	
Time (PST)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)
1 AM	033	3.5	323	1.0	210	0.1	036	1.5	024	1.3
4 AM	037	3.9	007	1.4	029	0.8	032	2.2	030	2.0
7 AM	037	4.2	013	1.6	013	1.1	032	2.5	029	2.3
10 AM	052	3.9	230	3.9	235	5.4	210	1.0	230	1.6
1 PM	230	1.6	250	7.8	252	8.0	248	5.3	249	5.7
4 PM	277	3.3	264	8.8	267	8.4	269	5.8	268	6.6
7 PM	001	1.7	279	4.9	287	4.5	320	2.0	297	2.9
10 PM	022	3.0	297	2.2	291	1.4	002	1.6	340	1.6
DAILY	022	2.1	269	3.2	264	3.2	301	1.3	288	1.8

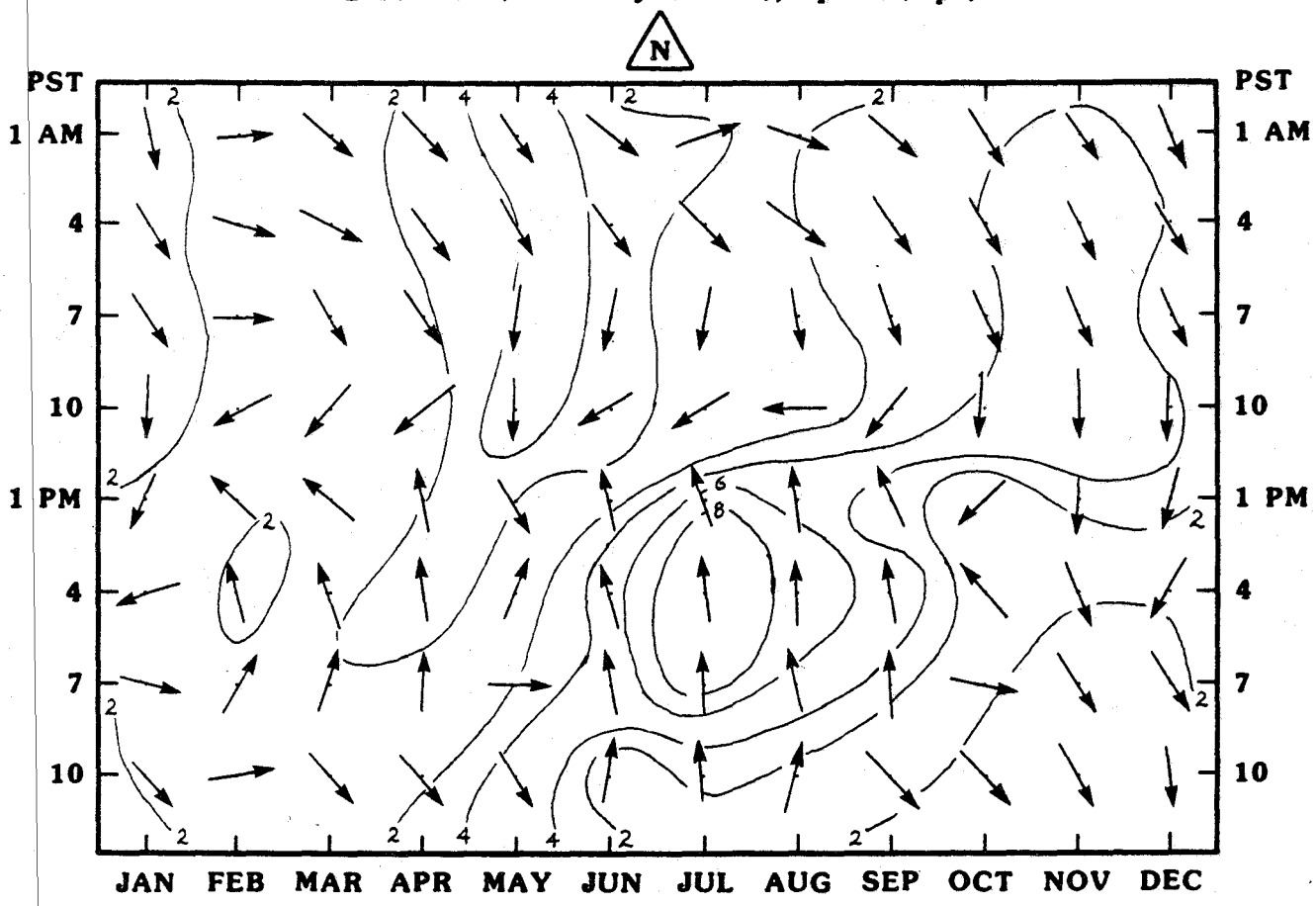
CALIFORNIA AIR RESOURCES BOARD
AEROMETRIC DATA DIVISION 4/84

RED BLUFF (Municipal Airport)

LATITUDE: 40° 10' N **LONGITUDE:** 122° 12' W

PERIOD: December 1974 - November 1979 **LEVEL:** Surface

MONTHLY THREE HOURLY RESULTANT WIND DIAGRAM
Direction (shown by arrows), Speed (mph)



SEASONAL THREE HOURLY, DAILY AND YEARLY RESULTANT WIND SUMMARY

	WINTER (Dec, Jan, Feb)		SPRING (Mar, Apr, May)		SUMMER (Jun, Jul, Aug)		FALL (Sep, Oct, Nov)		ANNUAL	
Time (PST)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)
1 AM	326	2.3	321	2.6	286	2.1	323	3.7	316	2.6
4 AM	327	2.5	326	2.3	326	1.7	332	4.1	329	2.6
7 AM	330	2.4	346	2.4	005	1.3	342	3.9	343	2.5
10 AM	358	2.6	017	2.4	036	1.3	009	3.6	012	2.4
1 PM	029	1.4	153	0.1	169	4.5	055	0.5	146	0.9
4 PM	108	0.7	165	1.6	168	7.1	167	1.4	164	2.6
7 PM	293	1.0	218	1.1	172	6.3	260	1.2	195	1.8
10 PM	323	1.9	324	2.3	201	1.0	326	2.6	317	1.6
DAILY	339	1.6	334	1.1	177	1.8	337	2.0	325	0.8

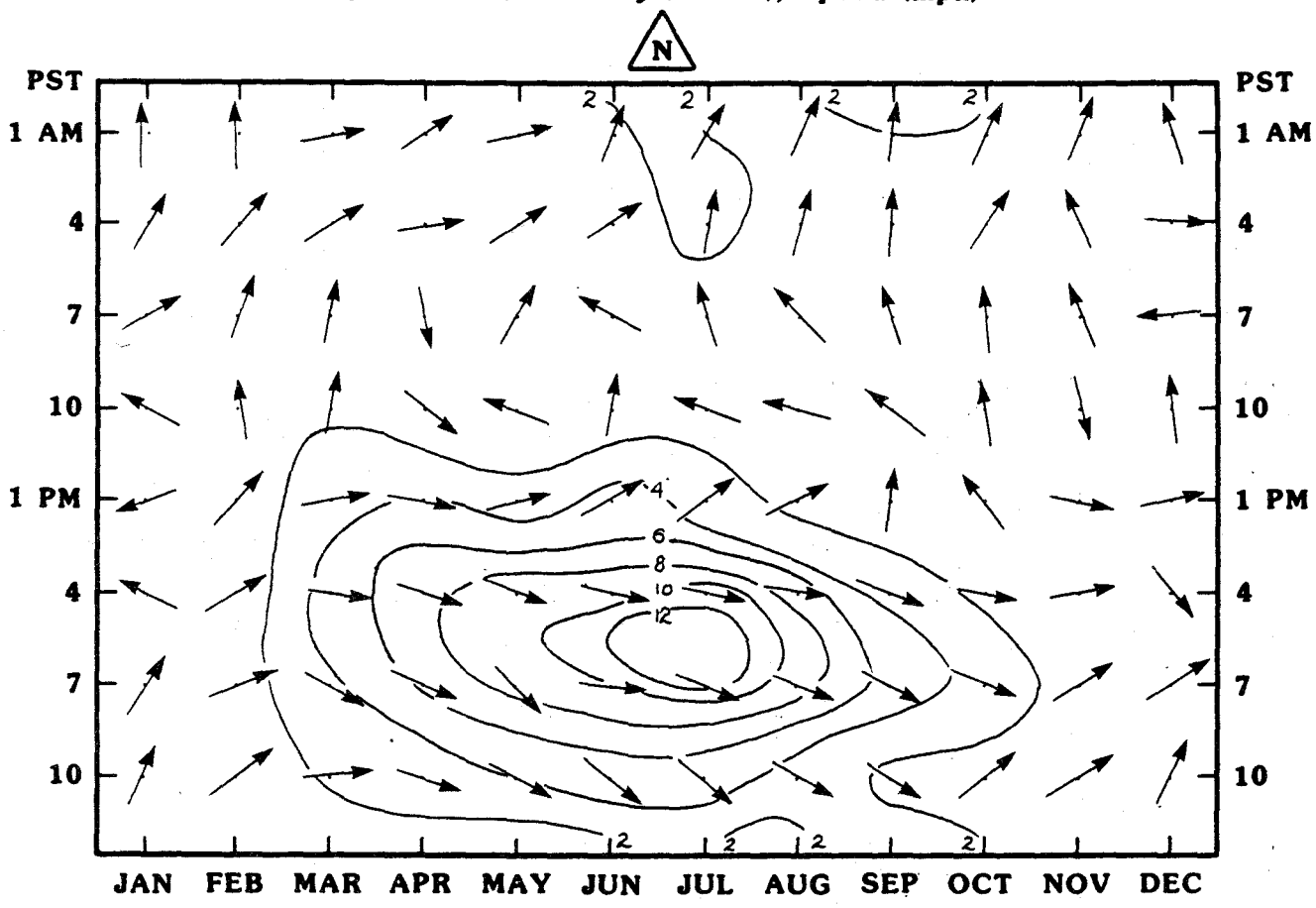
CALIFORNIA AIR RESOURCES BOARD
AEROMETRIC DATA DIVISION 4/84

RENO (Cannon International Airport), Nevada

LATITUDE: 39° 30' N **LONGITUDE:** 119° 47' W

PERIOD: December 1974 - November 1979 **LEVEL:** Surface

MONTHLY THREE HOURLY RESULTANT WIND DIAGRAM
Direction (shown by arrows), Speed (mph)



SEASONAL THREE HOURLY, DAILY AND YEARLY RESULTANT WIND SUMMARY

	WINTER (Dec, Jan, Feb)		SPRING (Mar, Apr, May)		SUMMER (Jun, Jul, Aug)		FALL (Sep, Oct, Nov)		ANNUAL	
Time (PST)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)
1 AM	180	0.9	251	0.9	219	1.7	201	1.4	212	1.1
4 AM	227	0.8	243	1.0	197	1.8	196	0.8	212	1.0
7 AM	211	0.7	202	0.3	153	1.0	161	0.7	175	0.6
10 AM	162	0.9	215	0.3	126	0.9	115	0.2	149	0.5
1 PM	224	1.0	262	3.4	238	2.9	230	0.7	246	1.9
4 PM	243	0.9	285	6.6	279	8.6	281	1.8	280	4.4
7 PM	240	1.5	305	6.1	292	10.9	288	3.2	292	5.2
10 PM	210	1.1	286	3.0	306	4.3	254	1.3	284	2.1
DAILY	212	0.9	282	2.5	274	3.1	252	0.9	267	1.7

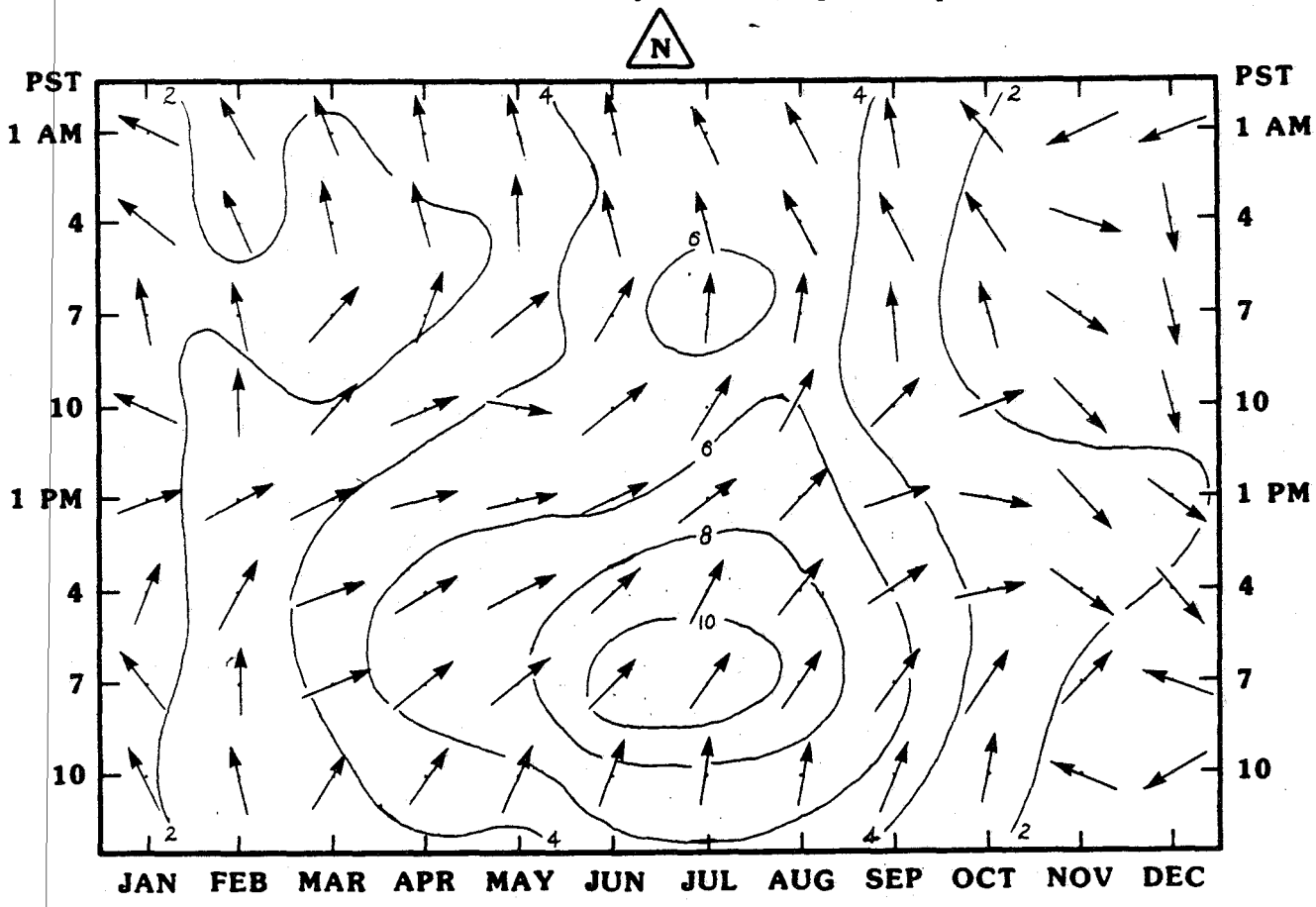
CALIFORNIA AIR RESOURCES BOARD
AEROMETRIC DATA DIVISION 4/84

SACRAMENTO (Executive Airport)

LATITUDE: 38° 31' N **LONGITUDE:** 121° 30' W

PERIOD: December 1974 - November 1979 **LEVEL:** Surface

MONTHLY THREE HOURLY RESULTANT WIND DIAGRAM
Direction (shown by arrows), Speed (mph)



SEASONAL THREE HOURLY, DAILY AND YEARLY RESULTANT WIND SUMMARY

	WINTER (Dec, Jan, Feb)		SPRING (Mar, Apr, May)		SUMMER (Jun, Jul, Aug)		FALL (Sep, Oct, Nov)		ANNUAL	
Time (PST)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)
1 AM	140	1.2	174	2.3	161	5.4	158	1.8	161	2.6
4 AM	146	0.9	174	1.8	166	5.0	163	1.6	165	2.3
7 AM	169	0.6	216	1.7	195	5.7	191	1.1	197	2.2
10 AM	165	0.7	261	3.0	217	5.5	253	1.8	232	2.5
1 PM	268	1.7	260	5.0	230	6.3	281	3.0	253	3.8
4 PM	239	1.0	242	6.1	218	8.9	260	3.2	234	4.6
7 PM	173	1.3	223	6.1	210	10.1	210	3.4	212	5.1
10 PM	151	1.4	212	4.6	195	7.0	197	2.4	197	3.7
DAILY	181	0.8	229	3.4	202	6.3	223	1.7	211	3.0

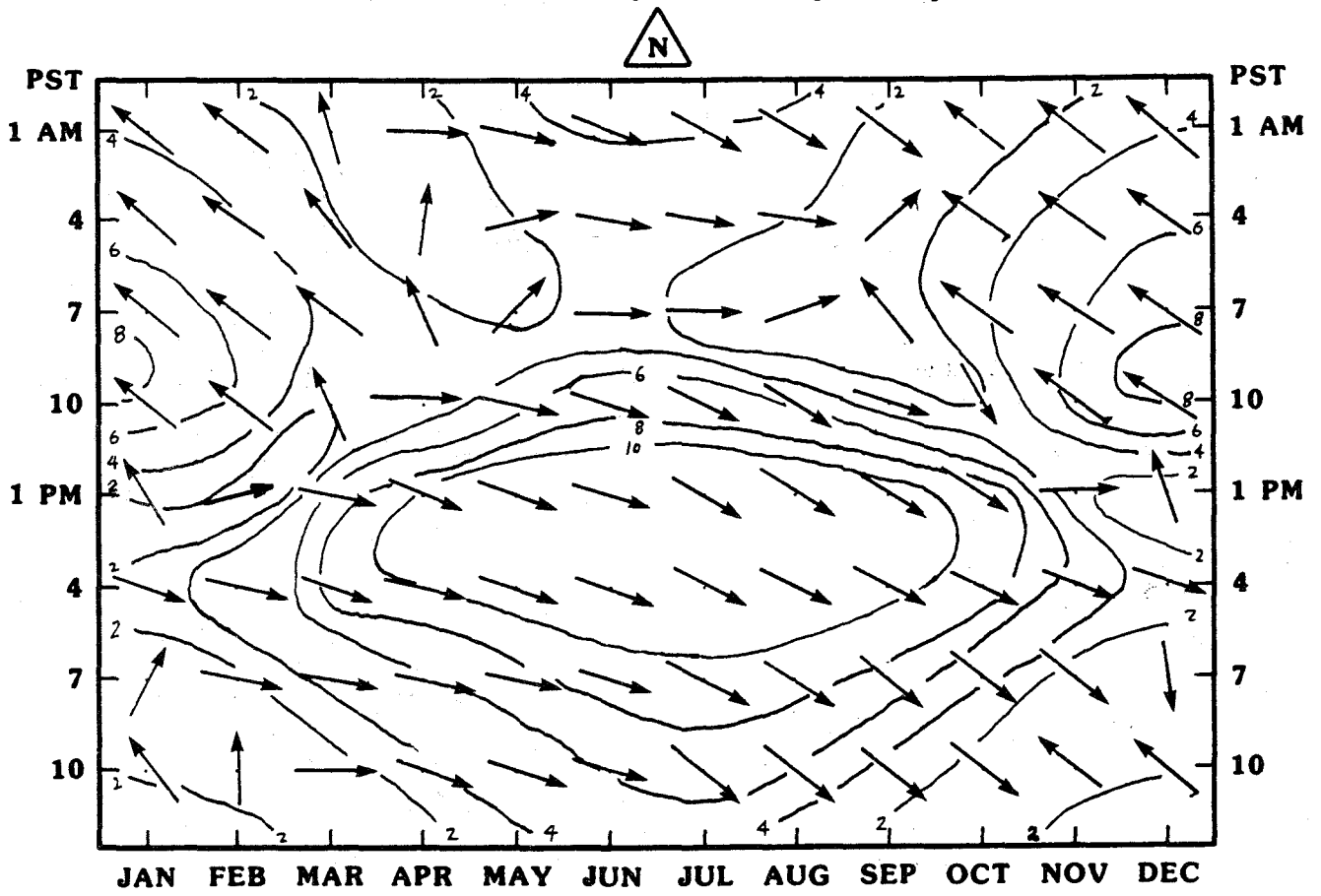
CALIFORNIA AIR RESOURCES BOARD
AEROMETRIC DATA DIVISION 4/84

SALINAS MUNICIPAL AIRPORT

LATITUDE: 36° 40' N **LONGITUDE:** 121° 36' W

PERIOD: December 1948 - November 1964 **LEVEL:** Surface

MONTHLY THREE HOURLY RESULTANT WIND DIAGRAM
Direction (shown by arrows), Speed (mph)



SEASONAL THREE HOURLY, DAILY AND YEARLY RESULTANT WIND SUMMARY

	WINTER (Dec, Jan, Feb)		SPRING (Mar, Apr, May)		SUMMER (Jun, Jul, Aug)		FALL (Sep, Oct, Nov)		ANNUAL	
Time (PST)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)
1 AM	129	3.5	262	1.5	296	3.8	136	0.8	232	0.5
4 AM	128	5.1	195	1.0	282	2.5	132	2.3	150	1.5
7 AM	128	6.2	158	2.1	265	1.6	132	3.8	141	2.7
10 AM	132	7.3	260	2.3	296	6.2	145	2.1	198	1.1
1 PM	181	1.3	285	8.9	295	11.6	294	7.1	289	6.8
4 PM	284	3.8	286	9.9	295	11.4	296	8.6	291	8.4
7 PM	286	0.6	282	6.0	298	9.0	306	4.2	295	4.9
10 PM	140	1.5	284	3.3	302	6.3	309	1.5	295	2.4
DAILY	138	2.6	276	3.8	295	6.5	287	1.6	281	2.4

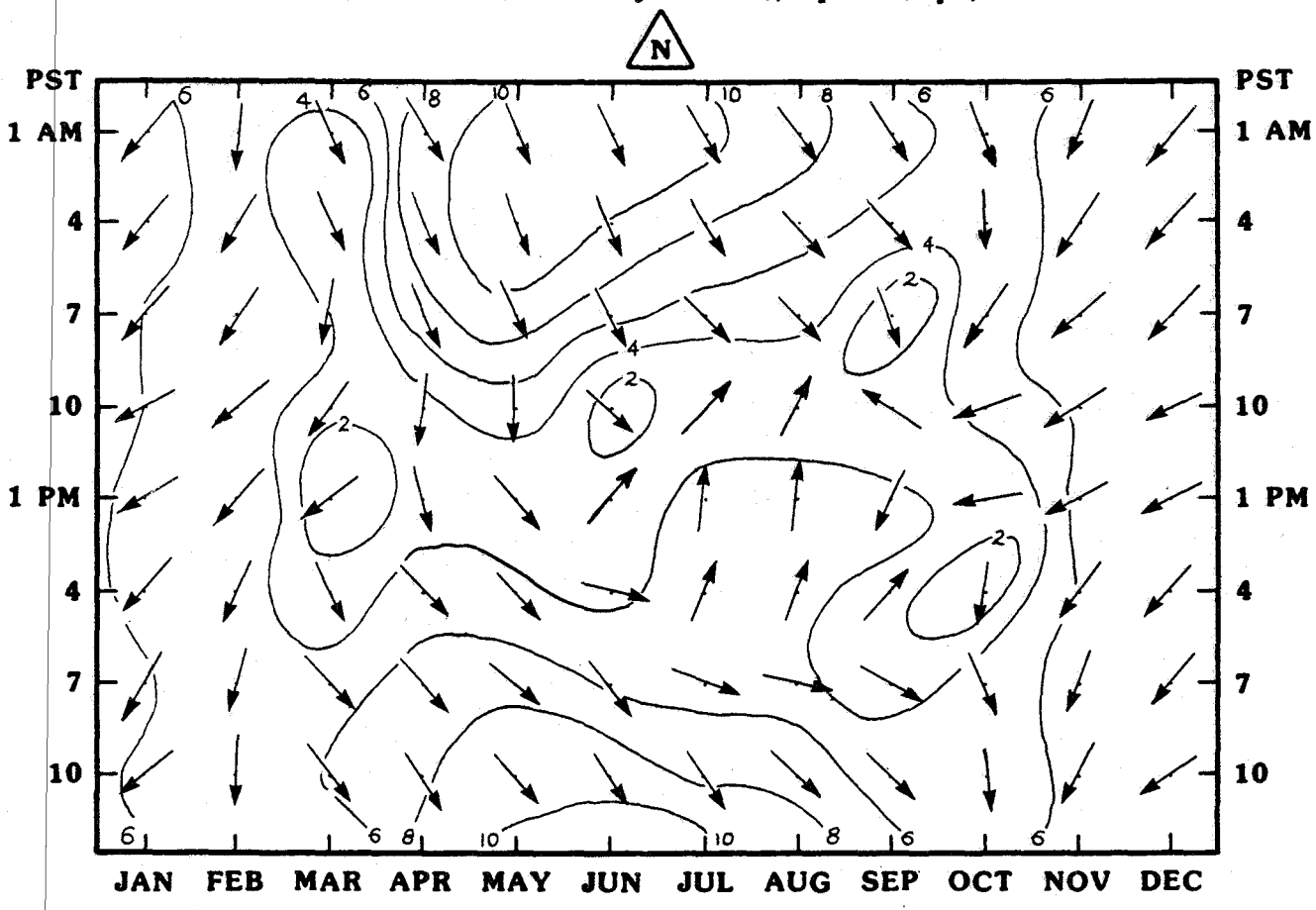
CALIFORNIA AIR RESOURCES BOARD
AEROMETRIC DATA DIVISION 4/84

SANDBERG (Top of Bald Mountain)

LATITUDE: 34° 45' N **LONGITUDE:** 118° 44' W

PERIOD: December 1974 - November 1979 **LEVEL:** Surface

MONTHLY THREE HOURLY RESULTANT WIND DIAGRAM
Direction (shown by arrows), Speed (mph)



SEASONAL THREE HOURLY, DAILY AND YEARLY RESULTANT WIND SUMMARY

	WINTER (Dec, Jan, Feb)		SPRING (Mar, Apr, May)		SUMMER (Jun, Jul, Aug)		FALL (Sep, Oct, Nov)		ANNUAL	
Time (PST)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)
1 AM	030	5.7	334	7.9	330	9.9	351	5.4	346	6.7
4 AM	033	6.3	337	7.8	328	8.5	002	5.0	351	6.2
7 AM	038	6.4	346	6.6	329	5.6	032	4.1	005	4.9
10 AM	055	6.0	008	3.6	232	1.8	069	3.8	046	2.6
1 PM	052	5.6	345	1.8	194	4.2	090	3.4	080	1.6
4 PM	032	5.5	323	4.2	221	3.3	018	1.8	350	1.8
7 PM	021	6.1	317	5.9	298	4.6	349	4.1	338	4.4
10 PM	028	5.5	325	7.6	323	8.4	351	5.0	341	6.0
DAILY	029	5.4	332	5.6	306	4.2	007	3.6	349	4.0

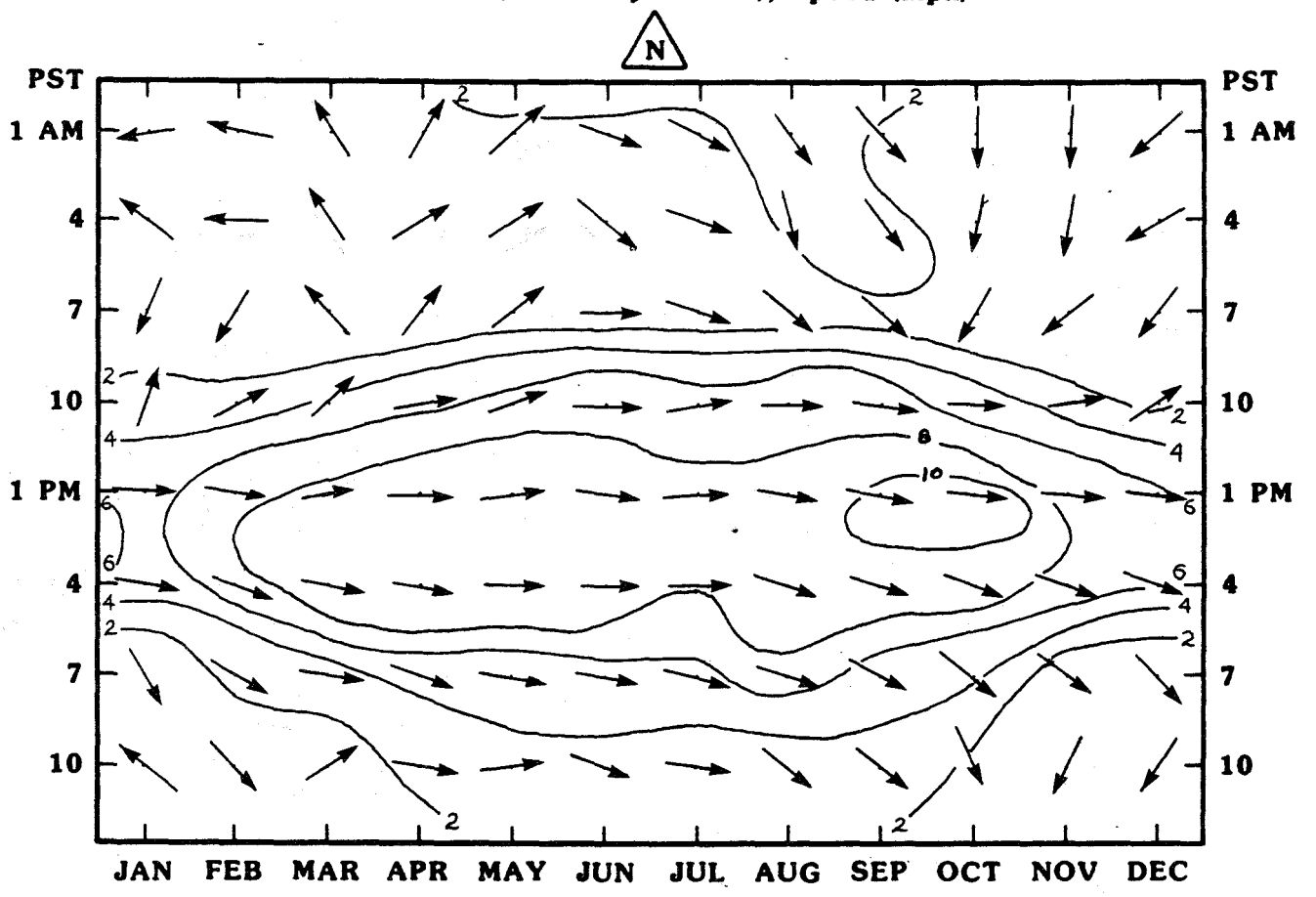
CALIFORNIA AIR RESOURCES BOARD
AEROMETRIC DATA DIVISION 4/84R

SAN DIEGO (Lindbergh Field)

LATITUDE: 32° 44' N **LONGITUDE:** 117° 10' W

PERIOD: December 1974 - November 1979 **LEVEL:** Surface

MONTHLY THREE HOURLY RESULTANT WIND DIAGRAM
Direction (shown by arrows), Speed (mph)



SEASONAL THREE HOURLY, DAILY AND YEARLY RESULTANT WIND SUMMARY

	WINTER (Dec, Jan, Feb)		SPRING (Mar, Apr, May)		SUMMER (Jun, Jul, Aug)		FALL (Sep, Oct, Nov)		ANNUAL	
Time (PST)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)
1 AM	076	0.5	204	0.9	310	2.0	337	1.3	313	0.7
4 AM	096	0.5	204	0.5	315	1.6	352	1.5	334	0.6
7 AM	033	0.7	199	0.9	288	1.7	005	1.1	313	0.5
10 AM	221	2.1	251	5.3	268	6.6	272	4.7	259	4.5
1 PM	273	6.2	265	8.7	275	9.1	283	9.4	274	8.3
4 PM	287	6.3	274	8.6	278	8.6	291	8.4	282	7.9
7 PM	314	1.4	282	5.0	287	6.2	304	3.9	292	4.1
10 PM	047	0.2	266	1.7	291	3.4	329	1.5	295	1.5
DAILY	280	1.6	263	3.7	279	4.8	295	3.6	279	3.4

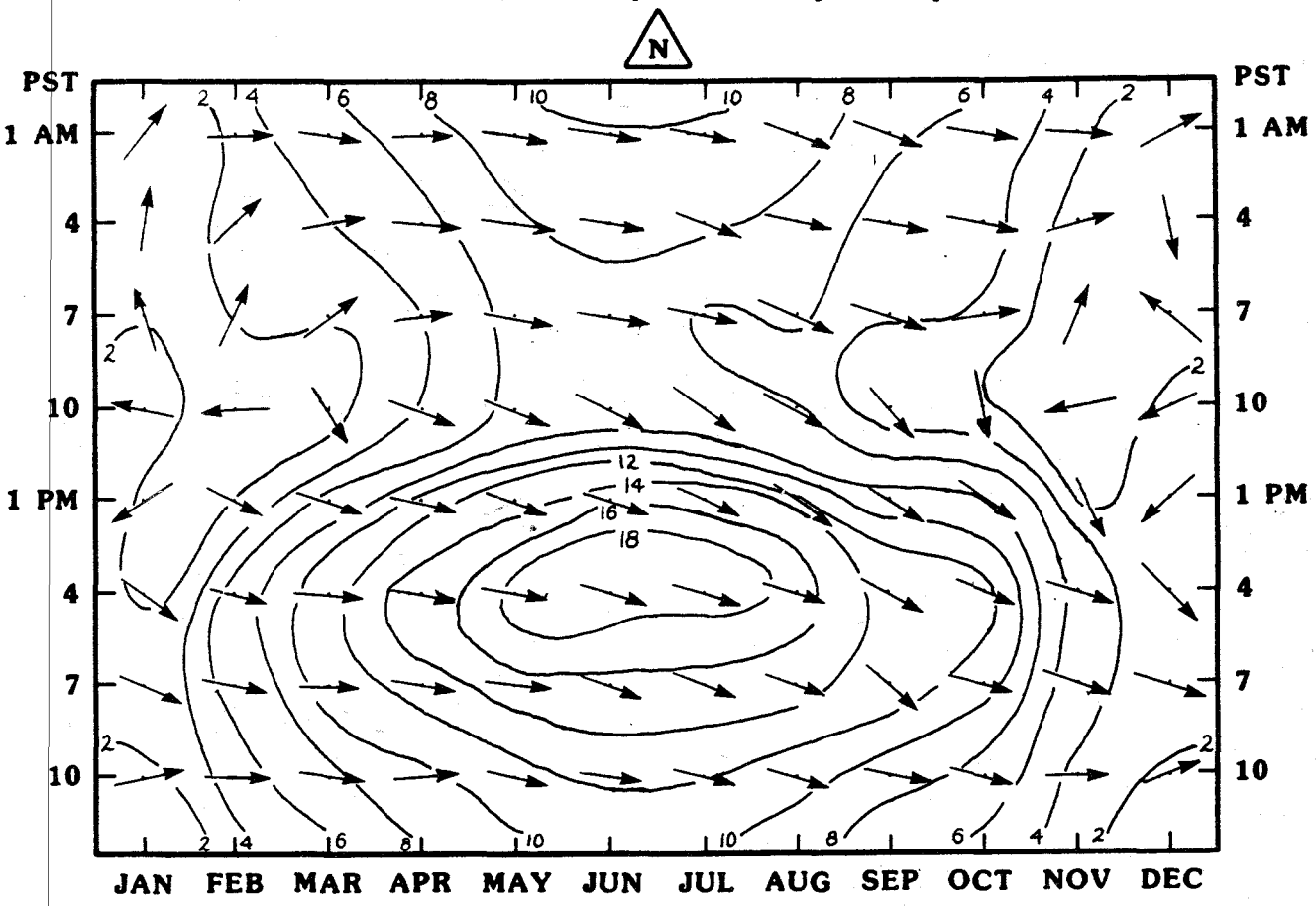
CALIFORNIA AIR RESOURCES BOARD
AEROMETRIC DATA DIVISION 4/84

SAN FRANCISCO (International Airport)

LATITUDE: 37° 37' N **LONGITUDE:** 122° 23' W

PERIOD: December 1974 - November 1979 **LEVEL:** Surface

MONTHLY THREE HOURLY RESULTANT WIND DIAGRAM
Direction (shown by arrows), Speed (mph)



SEASONAL THREE HOURLY, DAILY AND YEARLY RESULTANT WIND SUMMARY

	WINTER (Dec, Jan, Feb)		SPRING (Mar, Apr, May)		SUMMER (Jun, Jul, Aug)		FALL (Sep, Oct, Nov)		ANNUAL	
Time (PST)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)
1 AM	252	1.7	277	7.2	287	9.4	281	4.7	280	5.7
4 AM	224	1.1	272	5.7	284	8.0	278	3.7	276	4.5
7 AM	180	1.4	274	4.1	282	6.2	270	2.6	271	3.2
10 AM	084	2.1	305	4.1	306	7.2	350	2.0	320	2.9
1 PM	015	1.7	288	10.7	297	15.3	307	6.2	299	8.1
4 PM	299	3.9	281	15.0	289	17.9	293	10.4	288	11.7
7 PM	282	4.0	281	13.2	289	15.3	289	9.9	286	10.6
10 PM	266	2.6	280	9.4	289	11.5	287	6.2	284	7.4
DAILY	276	1.3	281	8.6	291	11.3	291	5.8	287	6.7

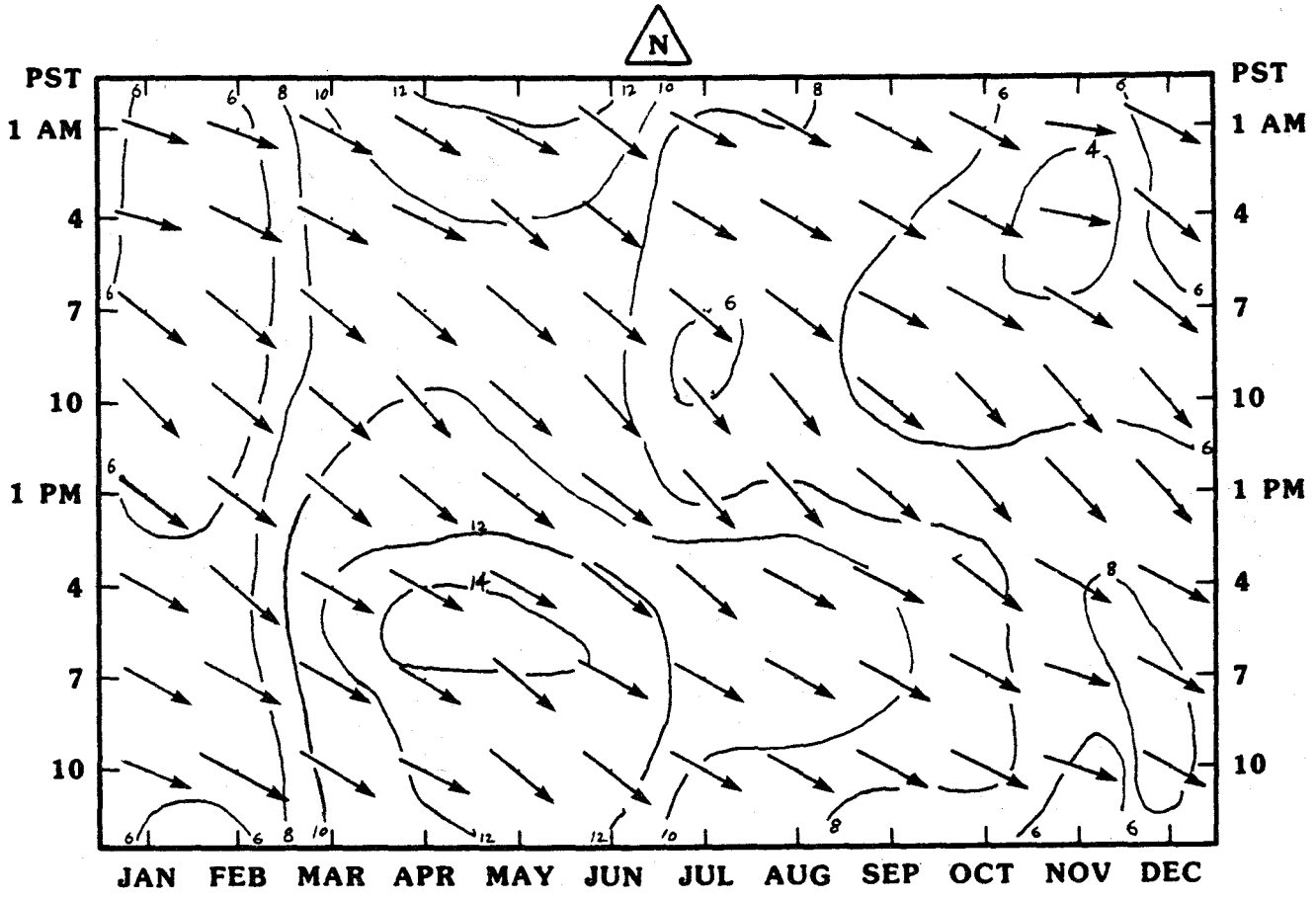
CALIFORNIA AIR RESOURCES BOARD
AEROMETRIC DATA DIVISION 4/84R

SAN NICOLAS ISLAND OLF

LATITUDE: 33° 15' N **LONGITUDE:** 119° 27' W

PERIOD: December 1966 - November 1977 **LEVEL:** Surface

MONTHLY THREE HOURLY RESULTANT WIND DIAGRAM
Direction (shown by arrows), Speed (mph)



SEASONAL THREE HOURLY, DAILY AND YEARLY RESULTANT WIND SUMMARY

	WINTER (Dec, Jan, Feb)		SPRING (Mar, Apr, May)		SUMMER (Jun, Jul, Aug)		FALL (Sep, Oct, Nov)		ANNUAL	
Time (PST)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)
1 AM	295	6.1	301	11.0	301	8.5	295	5.8	299	7.9
4 AM	302	5.3	304	9.8	304	7.9	296	5.3	302	7.2
7 AM	308	5.0	309	9.1	307	7.2	301	5.0	307	6.6
10 AM	317	5.1	314	9.5	318	7.2	318	5.7	316	6.9
1 PM	315	6.1	311	10.8	314	8.6	315	6.8	313	8.1
4 PM	304	7.1	304	13.1	305	11.4	303	8.9	304	10.1
7 PM	295	7.1	303	12.8	302	12.1	299	8.5	300	10.1
10 PM	298	7.3	303	11.9	301	10.8	298	7.3	301	9.2
DAILY	306	6.0	307	10.8	308	8.8	306	6.6	307	8.0

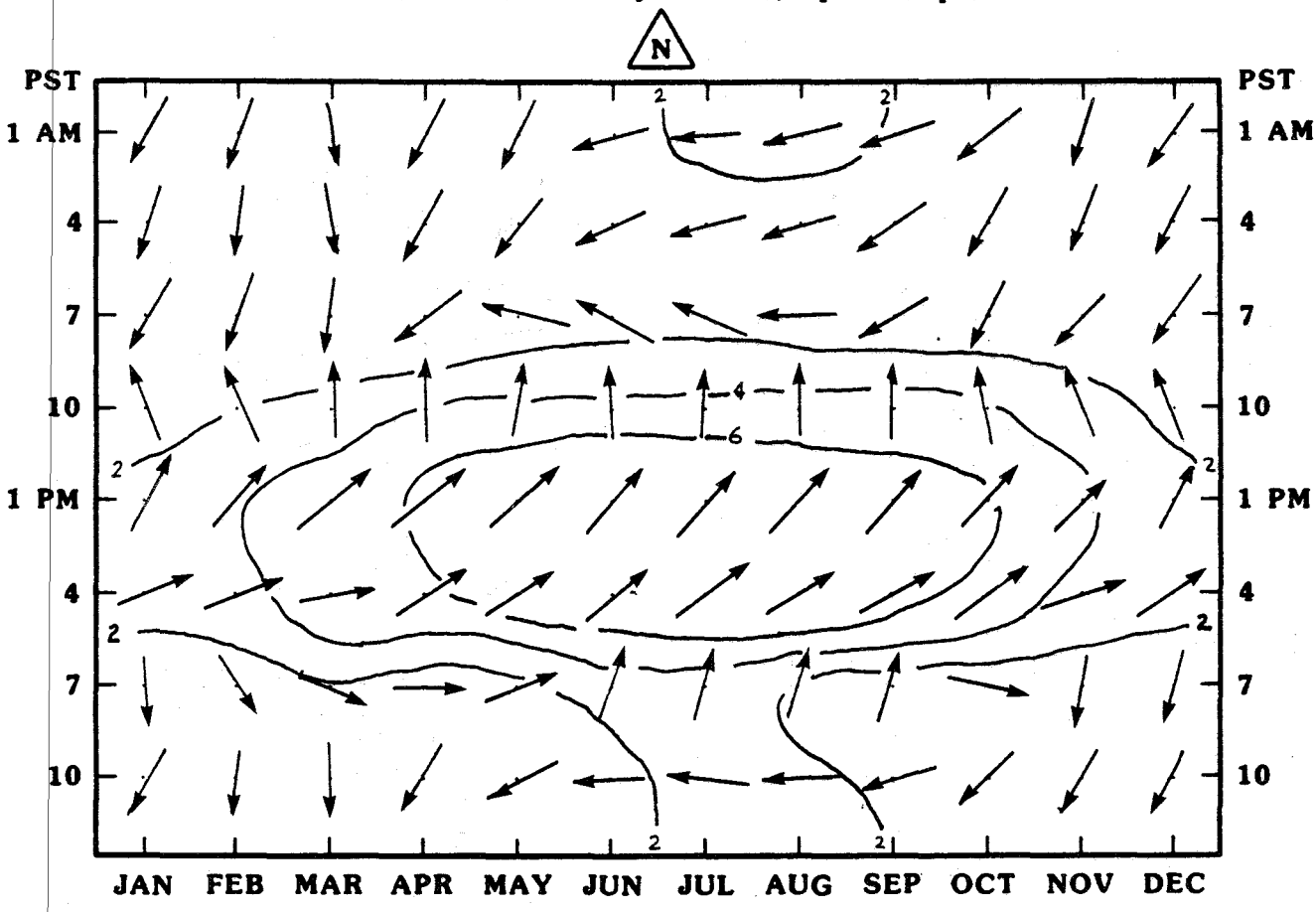
CALIFORNIA AIR RESOURCES BOARD
AEROMETRIC DATA DIVISION 4/84

SANTA BARBARA MUNICIPAL AIRPORT

LATITUDE: 34° 26' N **LONGITUDE:** 119° 50' W

PERIOD: December 1948 - November 1964 **LEVEL:** Surface

MONTHLY THREE HOURLY RESULTANT WIND DIAGRAM
Direction (shown by arrows), Speed (mph)



SEASONAL THREE HOURLY, DAILY AND YEARLY RESULTANT WIND SUMMARY

	WINTER (Dec, Jan, Feb)		SPRING (Mar, Apr, May)		SUMMER (Jun, Jul, Aug)		FALL (Sep, Oct, Nov)		ANNUAL	
Time (PST)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)
1 AM	028	1.0	017	1.0	080	2.0	053	1.3	051	1.2
4 AM	020	1.0	016	1.0	073	1.6	039	1.1	041	1.1
7 AM	032	1.0	070	0.6	109	1.5	043	0.9	069	0.8
10 AM	156	1.4	184	4.1	177	5.5	174	3.8	176	3.7
1 PM	215	3.5	229	6.2	221	7.0	220	5.9	222	5.7
4 PM	247	2.7	246	5.7	233	7.0	237	4.7	240	5.0
7 PM	354	0.7	273	1.4	202	2.2	281	0.2	244	0.7
10 PM	024	1.1	030	1.1	090	2.3	052	1.3	058	1.3
DAILY	247	0.3	234	1.5	192	2.1	209	1.1	212	1.2

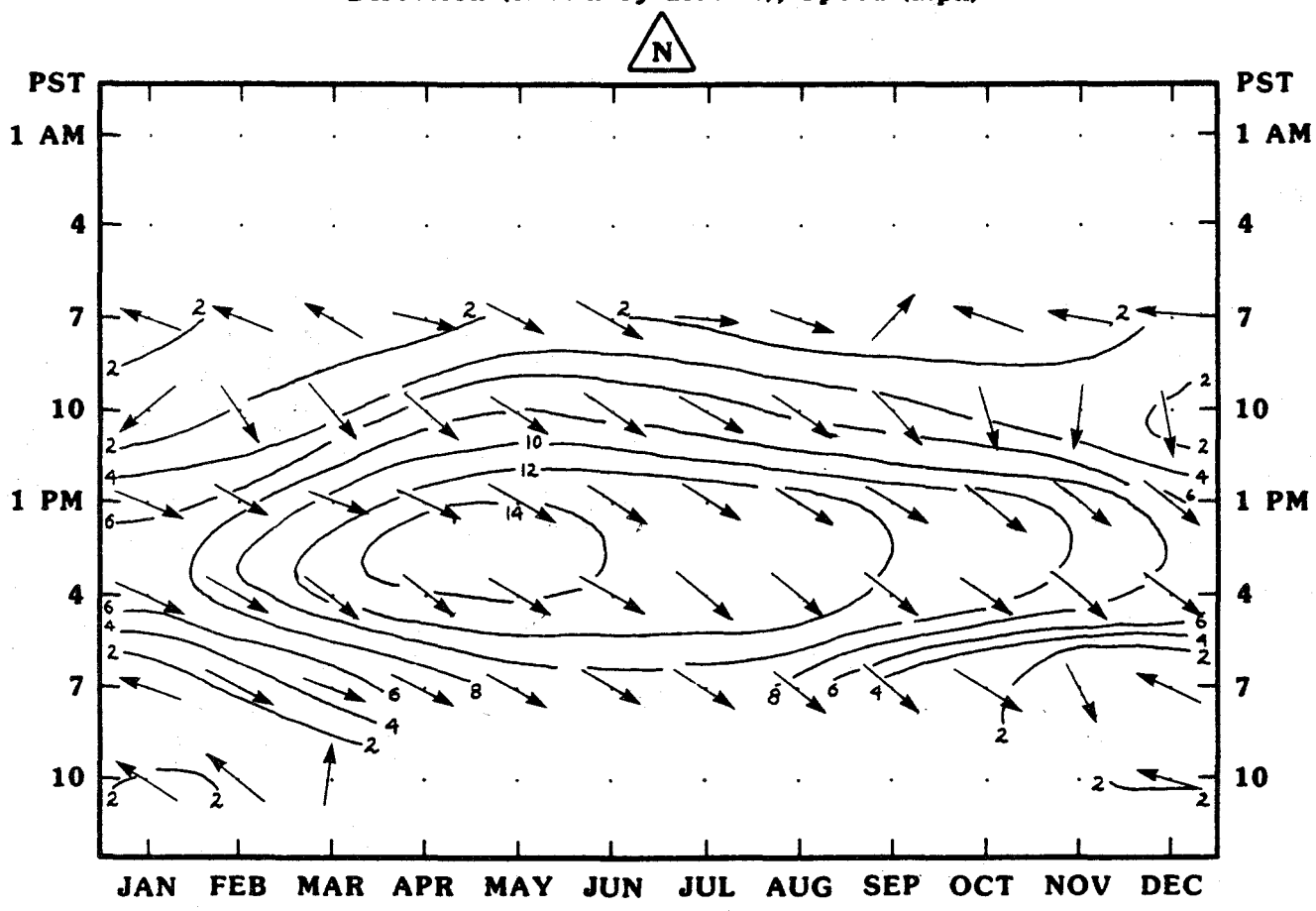
CALIFORNIA AIR RESOURCES BOARD
AEROMETRIC DATA DIVISION 4/84R

SANTA MARIA (Santa Maria Public Airport)

LATITUDE: 34° 54' N **LONGITUDE:** 120° 27' W

PERIOD: December 1974 - November 1979 **LEVEL:** Surface

MONTHLY THREE HOURLY RESULTANT WIND DIAGRAM
Direction (shown by arrows), Speed (mph)



SEASONAL THREE HOURLY, DAILY AND YEARLY RESULTANT WIND SUMMARY

	WINTER (Dec, Jan, Feb)		SPRING (Mar, Apr, May)		SUMMER (Jun, Jul, Aug)		FALL (Sep, Oct, Nov)		ANNUAL	
Time (PST)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)
1 AM										
4 AM										
7 AM	110	2.4	293	0.6	284	1.6	115	0.8	122	0.3
10 AM	351	1.4	309	5.9	301	6.7	331	3.8	314	4.3
1 PM	300	6.3	297	12.6	307	13.0	308	10.4	303	10.5
4 PM	302	7.7	299	13.4	305	13.2	306	10.5	303	11.2
7 PM	011	0.2	297	7.2	306	8.5	311	2.4	304	4.5
10 PM	114	1.7								
DAILY										

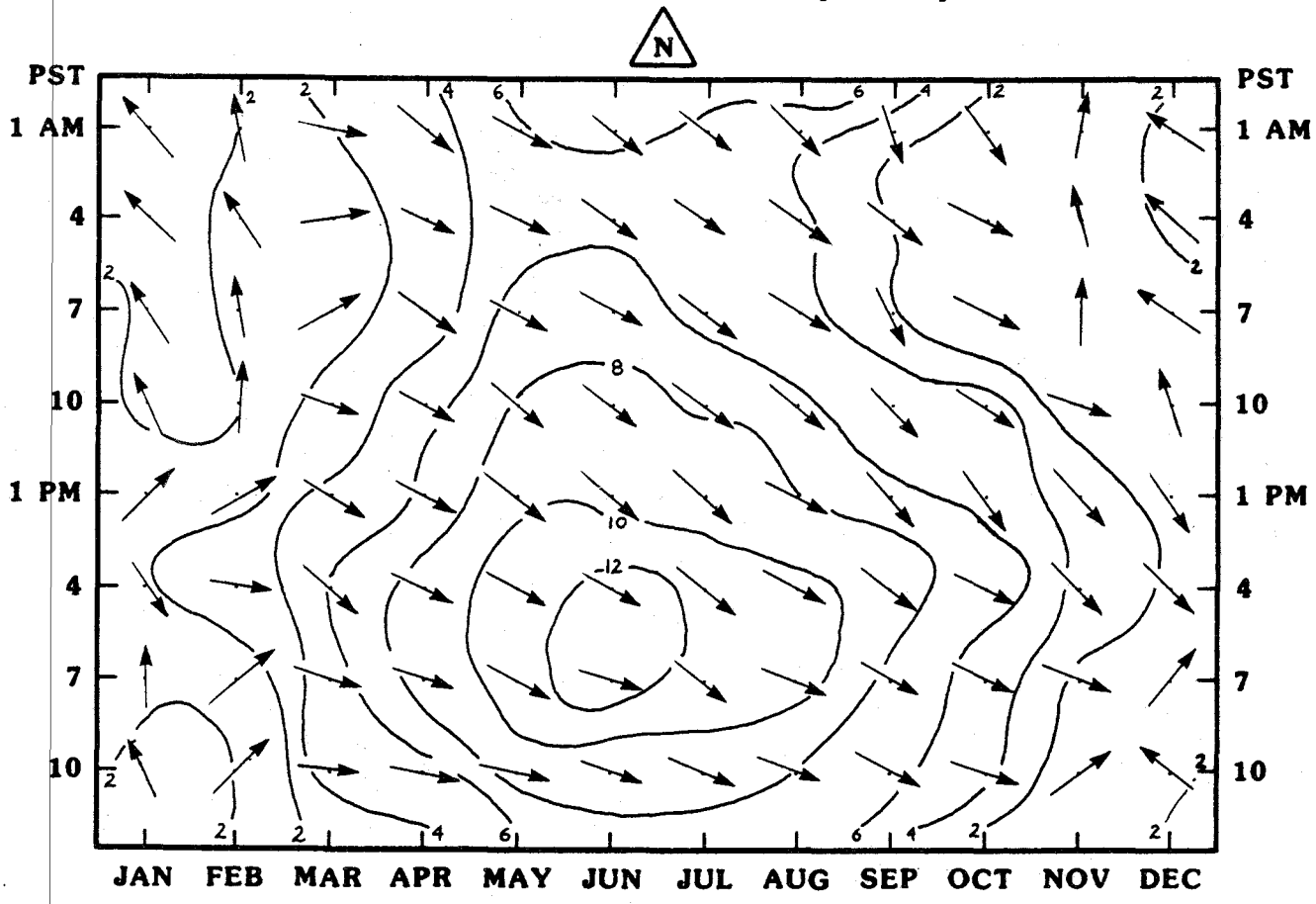
CALIFORNIA AIR RESOURCES BOARD
AEROMETRIC DATA DIVISION 4/84

STOCKTON (Metropolitan Airport)

LATITUDE: 37° 54' N **LONGITUDE:** 121° 14' W

PERIOD: December 1974 - November 1979 **LEVEL:** Surface

MONTHLY THREE HOURLY RESULTANT WIND DIAGRAM
Direction (shown by arrows), Speed (mph)



SEASONAL THREE HOURLY, DAILY AND YEARLY RESULTANT WIND SUMMARY

	WINTER (Dec, Jan, Feb)		SPRING (Mar, Apr, May)		SUMMER (Jun, Jul, Aug)		FALL (Sep, Oct, Nov)		ANNUAL	
Time (PST)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)
1 AM	145	2.4	299	3.7	312	5.5	332	1.0	304	1.9
4 AM	144	2.2	291	3.2	307	4.8	307	0.9	294	1.7
7 AM	153	1.9	291	3.4	305	5.8	306	0.9	293	2.1
10 AM	171	1.9	305	5.6	308	7.7	309	3.6	302	3.9
1 PM	265	1.0	306	6.7	304	8.8	317	4.9	306	5.3
4 PM	309	2.0	301	8.7	302	11.4	317	6.3	305	7.1
7 PM	210	1.2	291	8.3	294	11.8	299	5.1	291	6.3
10 PM	174	1.6	283	6.4	289	9.0	288	3.8	282	4.7
DAILY	176	1.2	294	5.8	300	8.0	306	3.4	296	4.1

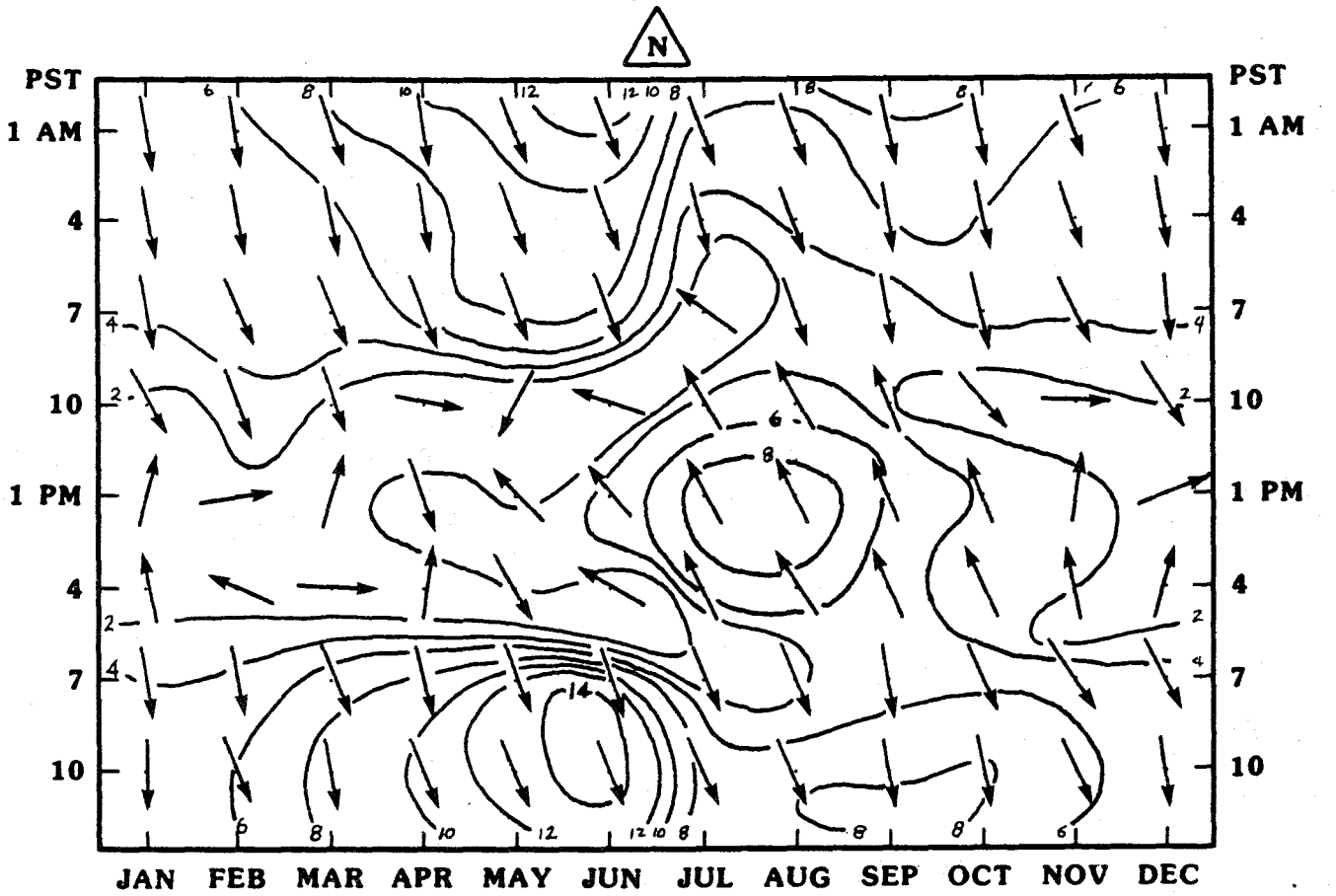
CALIFORNIA AIR RESOURCES BOARD
AEROMETRIC DATA DIVISION 4/84

THERMAL AIRPORT

LATITUDE: 33° 38' N **LONGITUDE:** 116° 10' W

PERIOD: December 1950 - November 1953 **LEVEL:** Surface

MONTHLY THREE HOURLY RESULTANT WIND DIAGRAM
Direction (shown by arrows), Speed (mph)



SEASONAL THREE HOURLY, DAILY AND YEARLY RESULTANT WIND SUMMARY

	WINTER (Dec, Jan, Feb)		SPRING (Mar, Apr, May)		SUMMER (Jun, Jul, Aug)		FALL (Sep, Oct, Nov)		ANNUAL	
Time (PST)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)
1 AM	349	5.4	344	9.2	340	7.6	345	6.6	344	7.2
4 AM	347	5.0	344	7.4	344	5.4	345	5.7	345	5.9
7 AM	345	4.4	340	6.6	344	3.1	345	4.4	343	4.6
10 AM	338	2.1	013	0.7	142	3.5	247	0.5	109	0.3
1 PM	244	0.8	163	1.6	147	7.6	165	3.9	158	3.3
4 PM	162	0.8	287	0.8	150	4.7	163	3.1	160	2.0
7 PM	345	4.4	343	8.8	341	6.3	339	5.0	342	6.1
10 PM	347	5.3	343	11.0	338	9.4	346	7.4	343	8.3
DAILY	345	3.2	342	5.3	354	2.1	343	2.8	345	3.3

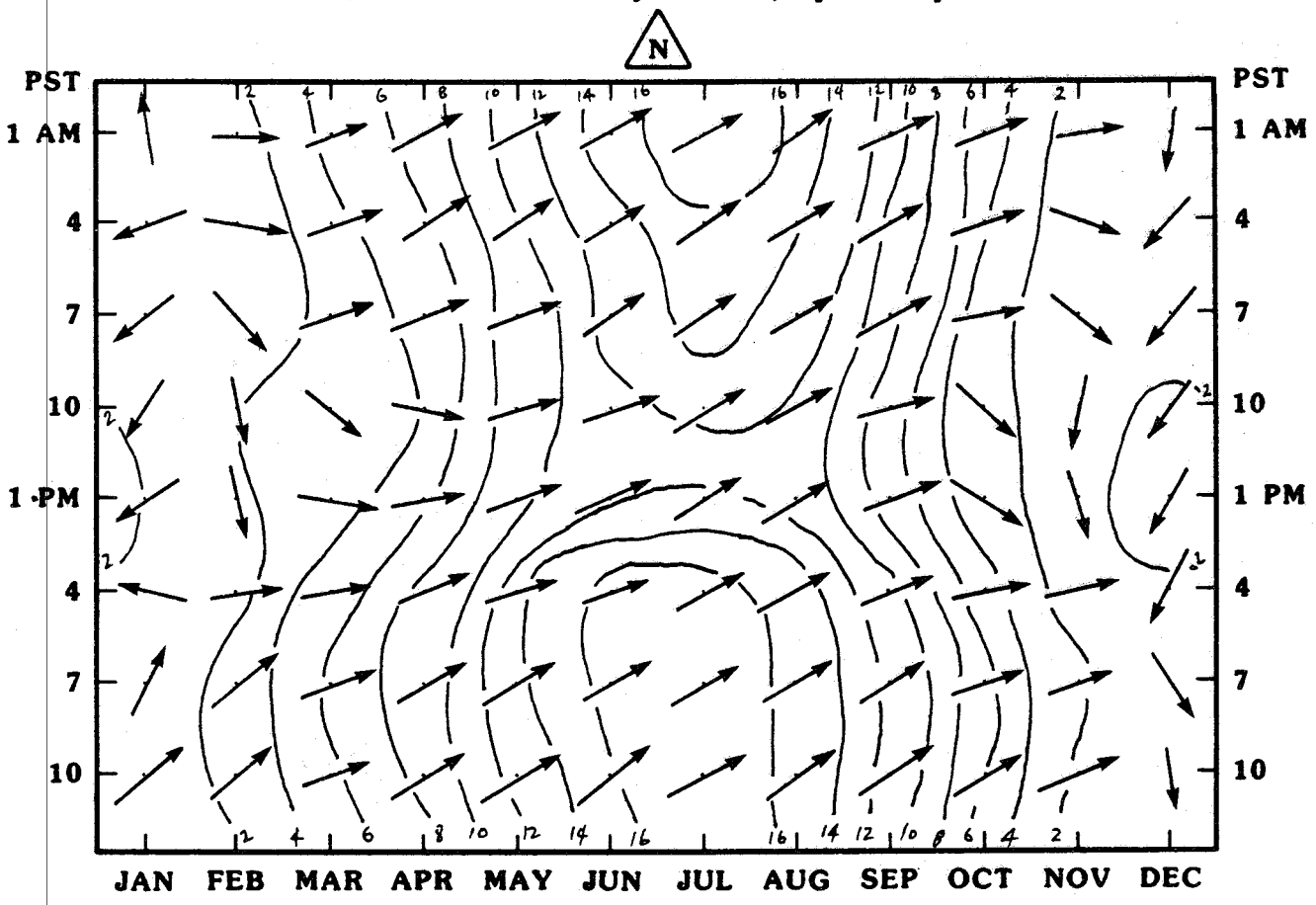
CALIFORNIA AIR RESOURCES BOARD
AEROMETRIC DATA DIVISION 4/84

TRAVIS AFB

LATITUDE: 38° 16' N **LONGITUDE:** 121° 56' W

PERIOD: December 1957 - August 1920 **LEVEL:** Surface

MONTHLY THREE HOURLY RESULTANT WIND DIAGRAM
Direction (shown by arrows), Speed (mph)



SEASONAL THREE HOURLY, DAILY AND YEARLY RESULTANT WIND SUMMARY

	WINTER (Dec, Jan, Feb)		SPRING (Mar, Apr, May)		SUMMER (Jun, Jul, Aug)		FALL (Sep, Oct, Nov)		ANNUAL	
Time (PST)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)
1 AM	296	0.4	239	7.8	236	16.0	242	6.1	238	7.5
4 AM	019	0.5	243	6.2	238	14.5	247	4.7	242	6.3
7 AM	034	0.9	247	5.7	241	13.6	249	3.7	245	5.6
10 AM	022	1.7	270	4.8	245	11.3	288	3.0	262	4.4
1 PM	028	1.8	257	6.0	242	11.8	280	3.1	255	4.8
4 PM	336	0.2	252	9.6	243	16.0	251	5.4	247	7.8
7 PM	238	1.0	244	10.0	238	16.2	243	6.7	241	8.5
10 PM	249	0.9	237	8.5	234	15.8	239	6.4	236	7.9
DAILY	360	0.5	247	7.2	239	14.4	251	4.7	244	6.5

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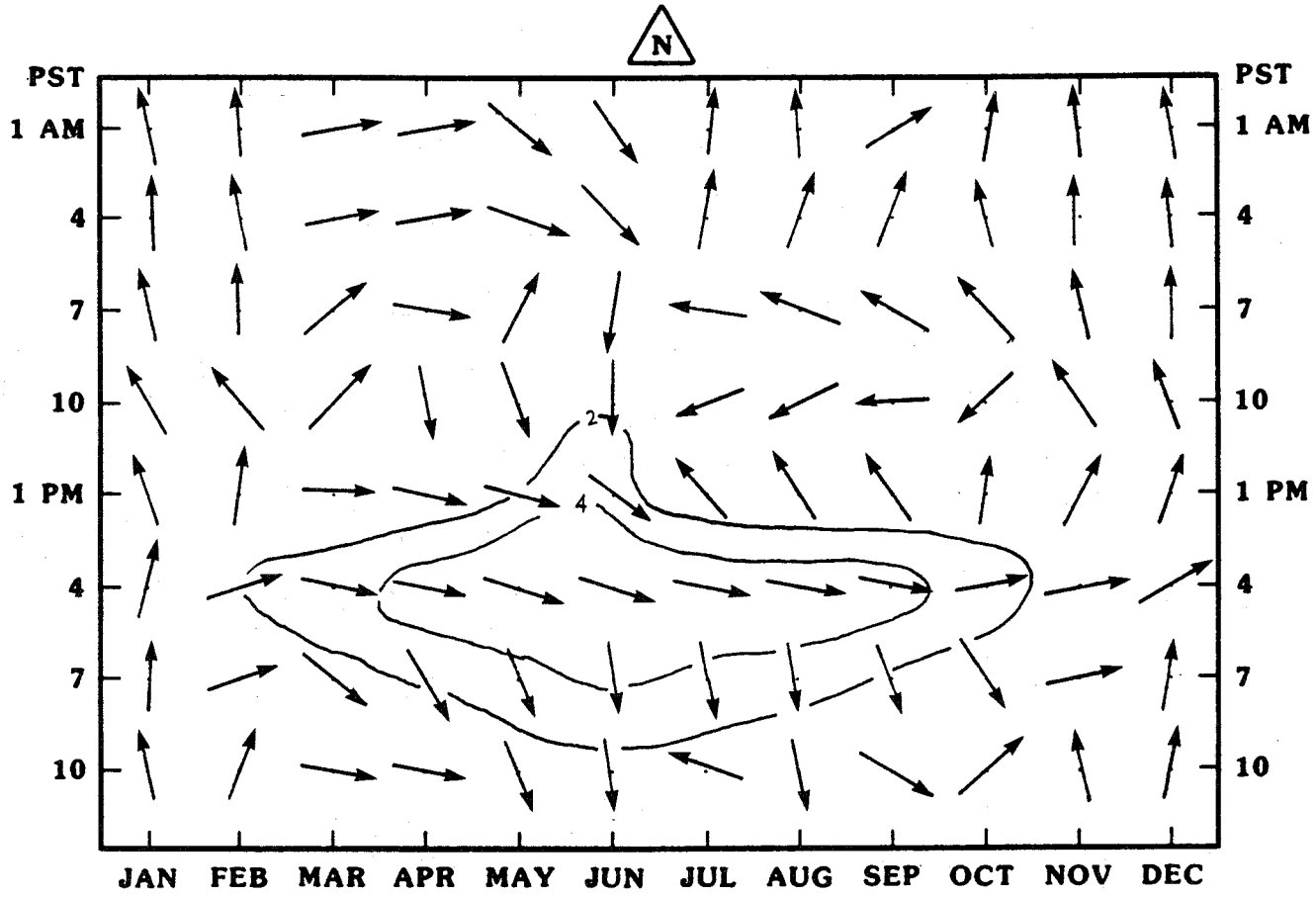
UKIAH MUNICIPAL AIRPORT

LATITUDE: 39° 08' N **LONGITUDE:** 123° 12' W

PERIOD: December 1949 - November 1964 **LEVEL:** Surface

MONTHLY THREE HOURLY RESULTANT WIND DIAGRAM
Direction (shown by arrows), Speed (mph)



SEASONAL THREE HOURLY, DAILY AND YEARLY RESULTANT WIND SUMMARY

	WINTER (Dec, Jan, Feb)		SPRING (Mar, Apr, May)		SUMMER (Jun, Jul, Aug)		FALL (Sep, Oct, Nov)		ANNUAL	
Time (PST)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)
1 AM	178	0.8	275	0.4	212	0.1	191	0.3	201	0.3
4 AM	177	0.7	265	0.3	231	0.2	181	0.3	198	0.3
7 AM	174	0.7	050	0.2	070	0.5	148	0.3	126	0.3
10 AM	148	0.9	356	0.4	037	1.1	102	0.5	075	0.4
1 PM	174	0.8	284	1.3	302	0.6	171	0.6	248	0.5
4 PM	232	1.4	284	4.4	283	5.2	272	2.8	277	3.3
7 PM	199	0.7	328	2.0	347	3.8	335	0.8	336	1.5
10 PM	182	0.8	311	0.7	353	0.4	223	0.2	264	0.2
DAILY	186	0.8	298	1.1	320	1.1	252	0.3	283	0.5

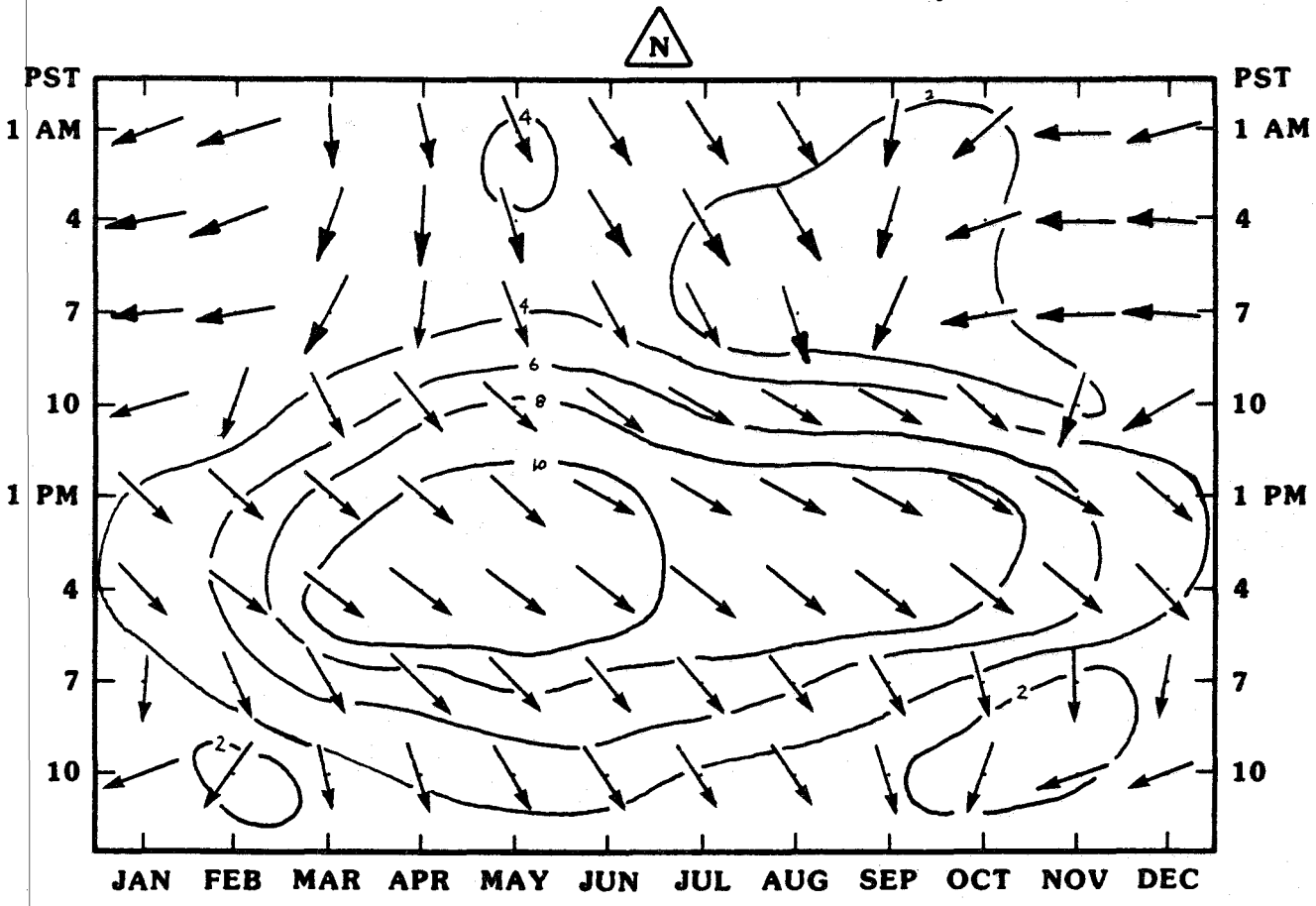
CALIFORNIA AIR RESOURCES BOARD
AEROMETRIC DATA DIVISION 4/84

VANDENBERG AFB

LATITUDE: 34° 43' N **LONGITUDE:** 120° 34' W

PERIOD: December 1958 - November 1977 **LEVEL:** Surface

MONTHLY THREE HOURLY RESULTANT WIND DIAGRAM
Direction (shown by arrows), Speed (mph)



SEASONAL THREE HOURLY, DAILY AND YEARLY RESULTANT WIND SUMMARY

	WINTER (Dec, Jan, Feb)		SPRING (Mar, Apr, May)		SUMMER (Jun, Jul, Aug)		FALL (Sep, Oct, Nov)		ANNUAL	
Time (PST)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)
1 AM	075	2.5	345	3.5	333	2.8	063	1.4	011	1.8
4 AM	081	2.8	354	2.9	334	2.0	073	1.6	028	1.6
7 AM	084	3.2	358	2.7	330	1.9	080	1.7	035	1.6
10 AM	052	2.2	318	6.6	304	6.1	318	2.8	321	3.8
1 PM	309	5.3	307	10.4	302	9.4	299	7.6	304	8.2
4 PM	318	5.9	314	10.9	310	9.4	312	7.7	313	8.5
7 PM	358	2.5	325	7.2	322	6.9	337	3.2	330	4.8
10 PM	061	2.1	335	4.6	332	3.8	019	1.5	352	2.5
DAILY	010	1.9	323	6.0	314	5.3	325	2.7	325	3.8

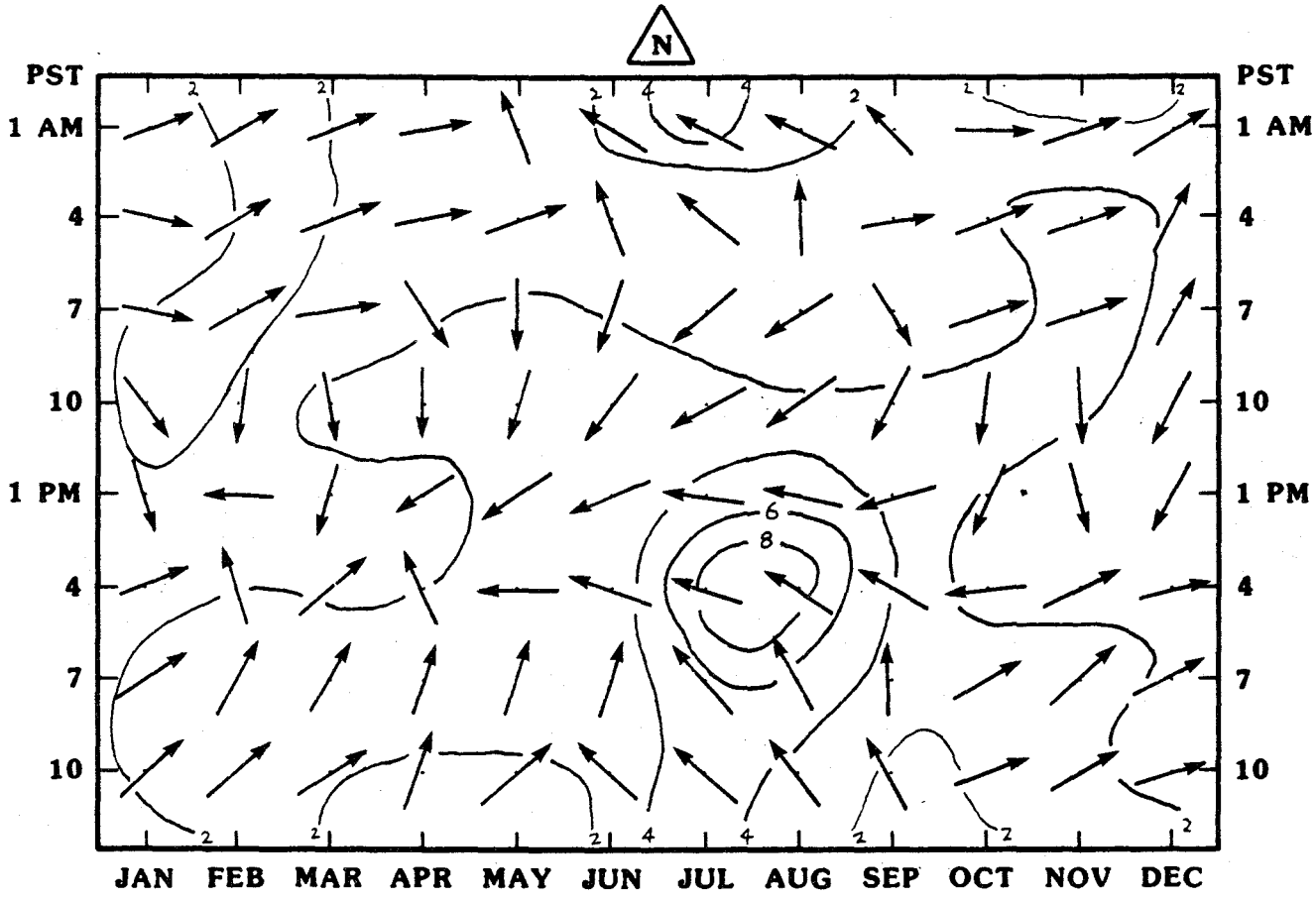
CALIFORNIA AIR RESOURCES BOARD
AEROMETRIC DATA DIVISION 4/84R

WILLIAMS AIRPORT

LATITUDE: 38° 06' N **LONGITUDE:** 122° 09' W

PERIOD: December 1948 - November 1952 **LEVEL:** Surface

MONTHLY THREE HOURLY RESULTANT WIND DIAGRAM
Direction (shown by arrows), Speed (mph)



SEASONAL THREE HOURLY, DAILY AND YEARLY RESULTANT WIND SUMMARY

	WINTER (Dec, Jan, Feb)		SPRING (Mar, Apr, May)		SUMMER (Jun, Jul, Aug)		FALL (Sep, Oct, Nov)		ANNUAL	
Time (PST)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)
1 AM	244	1.9	236	0.9	120	3.4	249	1.1	188	0.9
4 AM	244	1.8	256	1.6	158	0.6	258	1.8	246	1.3
7 AM	245	1.7	325	1.4	037	1.2	267	1.3	294	0.8
10 AM	350	1.3	004	3.2	051	2.6	009	2.5	016	2.3
1 PM	029	0.8	048	1.6	091	4.2	036	1.6	066	1.8
4 PM	184	0.7	130	1.2	115	6.9	108	1.7	119	2.5
7 PM	227	2.5	201	3.0	155	4.6	221	2.9	195	2.8
10 PM	235	2.3	221	1.8	134	3.4	231	1.6	197	1.6
DAILY	245	1.2	264	0.4	114	2.8	260	0.5	160	0.5

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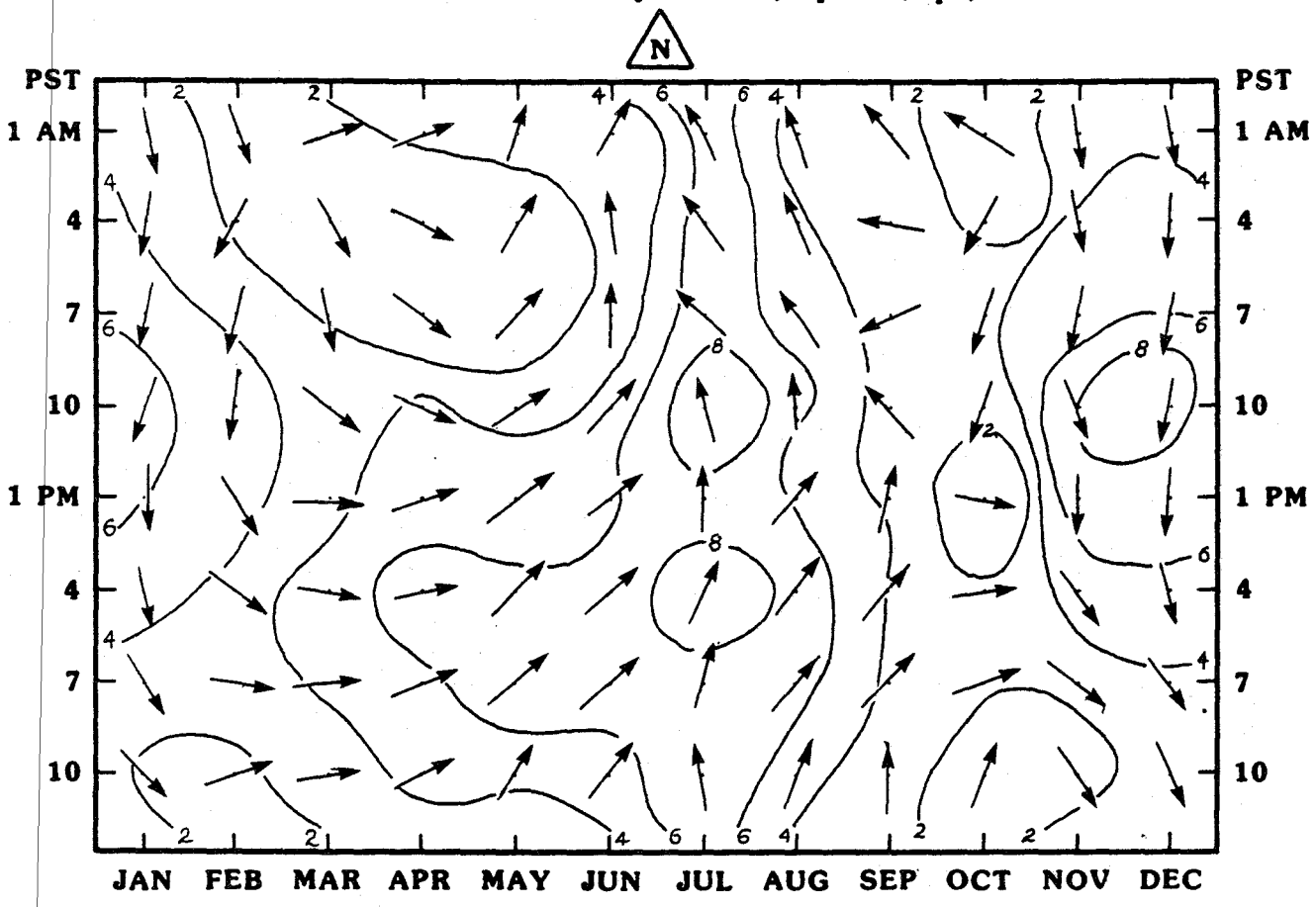
AEROMETRIC DATA DIVISION 4/84R

YUMA (International Airport), Arizona

LATITUDE: 32° 40' N **LONGITUDE:** 114° 36' W

PERIOD: December 1974 - November 1979 **LEVEL:** Surface

MONTHLY THREE HOURLY RESULTANT WIND DIAGRAM
Direction (shown by arrows), Speed (mph)



SEASONAL THREE HOURLY, DAILY AND YEARLY RESULTANT WIND SUMMARY

	WINTER (Dec, Jan, Feb)		SPRING (Mar, Apr, May)		SUMMER (Jun, Jul, Aug)		FALL (Sep, Oct, Nov)		ANNUAL	
Time (PST)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)	Direction (deg)	Speed (mph)
1 AM	349	2.4	232	1.9	168	3.9	063	0.6	195	0.6
4 AM	011	3.3	292	0.8	156	4.2	037	2.2	063	0.8
7 AM	013	4.5	317	1.1	153	4.7	025	3.8	042	1.5
10 AM	012	6.5	280	2.9	187	6.2	025	3.0	344	0.9
1 PM	355	5.7	247	4.1	208	6.1	312	1.1	266	0.2
4 PM	337	4.3	252	5.4	220	7.6	275	2.3	257	3.6
7 PM	312	3.2	245	5.3	216	6.8	256	2.4	245	3.7
10 PM	316	1.6	238	3.9	194	5.3	201	1.2	220	2.4
DAILY	355	3.7	253	3.0	192	5.1	351	0.9	254	1.1

CALIFORNIA AIR RESOURCES BOARD
AEROMETRIC DATA DIVISION 4/84

ACKNOWLEDGEMENTS

The authors wish to gratefully acknowledge the contributions to this report made by the Air Resources Board meteorological staff; particularly to Warren Blier, Mark Borges, Dennis King and Karen Windsor for their valuable assistance in the extraction and keypunching of the basic wind summary data. Appreciation is expressed for the contributions of Jackie Garcia and Sharon Lantz who typed the manuscript; Greg Spencer and Eric Decetis provided graphic arts services; and John DaMassa provided electronic data processing assistance.

Thanks are also extended to Jim Goodridge (Department of Water Resources) who assisted in locating additional wind data and to Mike Basso and Avi Okin (Bay Area Air Quality Management District), Bob Swanson (Pacific Gas & Electric Company), and James Helt (Los Angeles Department of Water and Power) for providing wind data from their stations for inclusion in this report.

APPENDIX A

WIND FLOW IN CALIFORNIA

Macro-scale wind is air movement generated by large scale atmospheric pressure differences which are caused by the earth's rotation and differential heating of the earth's surface by the sun. The earth's rotation is constant while differential heating varies both with the latitude of an area and with the nature of the surfaces being heated such as land or water surfaces.

In terms of hemispheric atmospheric circulation, California lies in the latitudinal range of prevailing westerly winds. The North Pacific high pressure cell is the dominant influence on the low level wind flow of the Eastern North Pacific Ocean and neighboring land areas in middle latitudes, particularly during the summer. It is a semi-permanent feature of the Northern Hemispheric large scale atmospheric circulation pattern, and it produces a predominantly northwesterly flow of maritime air over the California coastal waters. During winter the Pacific high weakens and moves south so its influence is lessened somewhat resulting in weaker and less persistent northwesterly winds along the California coast than in the warm half of the year. The mean sea level barometric pressure patterns for winter and for summer over the Eastern North Pacific Ocean are shown in Figures A-1 and A-2, respectively.

This large scale circulation pattern is further modified to more westerly flow by continental influences as the air approaches the coast of California. The differential heating of the land area of California and the adjacent Pacific Ocean lying to the west enhances or weakens the predominant flow; enhancing it during the warm half of the year and weakening it during the cold portion.

Finally, on a local or regional basis the air flow in California is channeled by its mountain ranges with the predominant wind direction in a valley coinciding with the valley's longitudinal axis in one direction and the second most prevalent wind in line with the opposite direction, again parallel to the valley's axis.

The tendency for upvalley flow during hot months and downvalley flow during cold months is evident in the data contained herein. Also evident but less pronounced is the tendency for offshore flow during the coldest month, January. During the warm months, air flow is predominantly onshore because the land surfaces are generally warmer than the Pacific Ocean.

The coastal mountain ranges limit the accessible routes for maritime air into the interior of California. While these mountains are not especially high in comparison to the Sierra Nevada, they generally are higher than the subsidence inversion which stifles marine flow over the mountains, limiting entrance of the flow to the interior through breaks or low points in the coastal range. The principal break occurs in the San Francisco Bay area (Carquinez Straits) and the greatest part of the maritime air reaching the Central Valley of California traverses this area.

Figure A-1

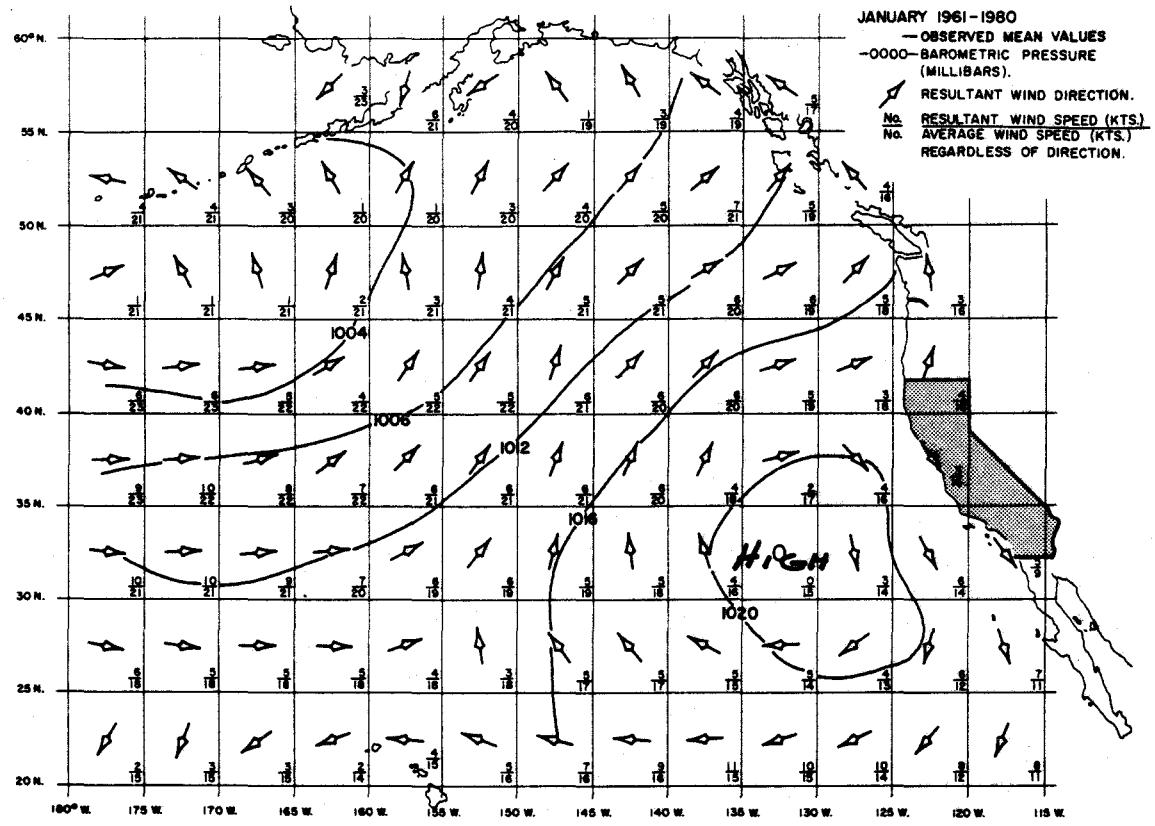
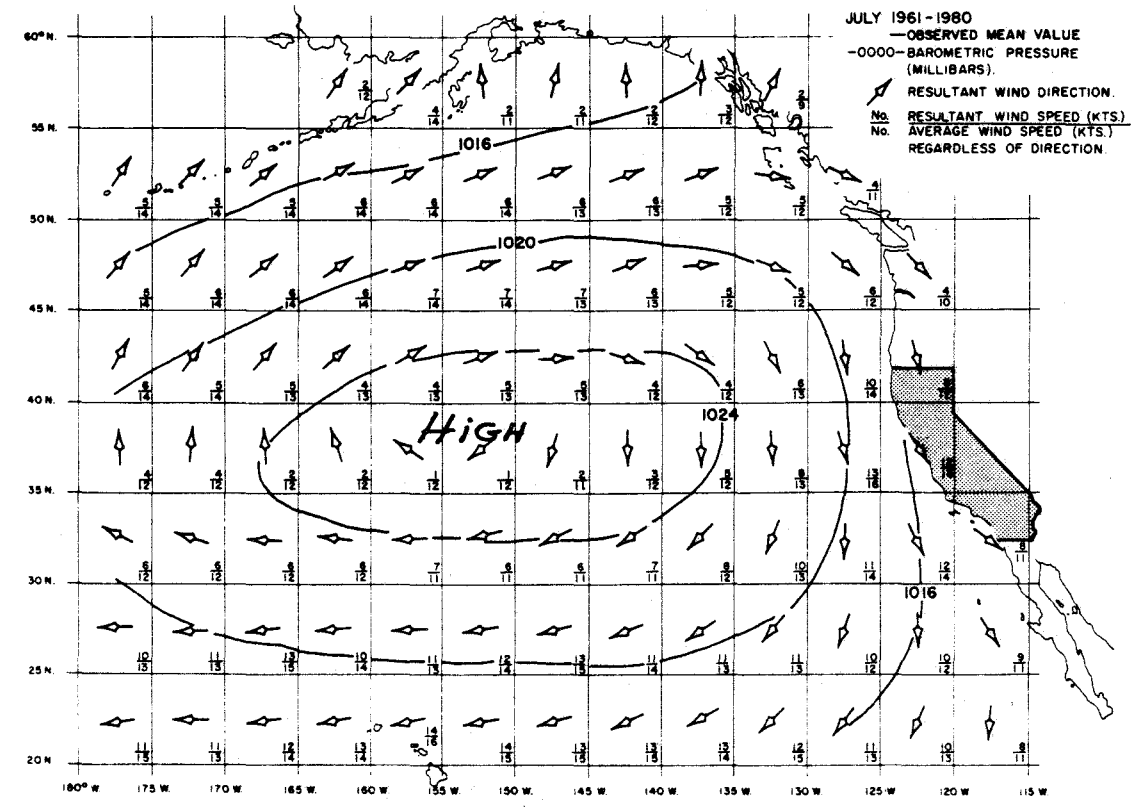


Figure A-2



Source: National Marine Fisheries Service (see Appendix C)

On a diurnal basis, the indicated prevailing seasonal air flows are most intense during the hottest part of the day during the hot months and during the coldest part of the day during the cold months. Thus, the upslope and upvalley flows shown in the Central Valley in July are most intense during the afternoon. The downvalley flow in January is more pronounced at night at the time of the strongest downslope cold air drainage.

It should be emphasized that the observed wind is the resultant air motion, at that time and place, from all influences on air flow, both local as well as the large scale effects mentioned above. The local effects include land-sea breezes, mountain-valley winds and terrain influences. The article by Defant (see Appendix C) provides an excellent description of these local influences on the wind along with a comprehensive list of references on the subject.

APPENDIX B
DEFINITIONS AND CONVERSION TABLES

Many of the definitions contained below were taken from the Glossary of Meteorology, edited by R. E. Huschke, American Meteorological Society, Boston, MA, 1959.

Adiabatic Processes:

A thermodynamic change of state of an air parcel in which there is no transfer of heat or mass across its boundaries. In an adiabatic process, compression always results in warming, expansion in cooling. The dry adiabatic lapse rate is about 1°C per 100 meters or about 5.4°F per 1,000 feet. When rising air cools to its dewpoint temperature, condensation begins, and latent heat is released, retarding the rate of cooling. The slower rate of cooling caused by the addition of latent heat to the rising air is called the wet, or saturation, adiabatic rate of cooling. The wet adiabatic lapse rate depends upon the quantity of moisture present in the air but in general may be considered to be about half the dry adiabatic lapse rate.

Bias Index:

Due to variable weather observational practices in the past some stations only recorded wind to the nearest 8-point compass while others tended to favor 8-points of a 16-point compass. Therefore the bias index described was developed for use in this report to indicate the tendency for wind directional observational bias in a wind data record. It is a number ranging from -1 to +1 and indicates the relative measure of bias towards an 8-point compass versus a 16-point compass. If all recorded wind directions, for the data record of a given station, are for the 8 cardinal directions (N, NE, E, SE, S, SW, W, NW), the bias index is +1. If all recorded wind directions are for the 8 non-cardinal directions (NNE, ENE, ESE, SSE, SSW, WSW, WNW, NNW), the bias index is -1. For records in between, the bias index is the appropriate number between -1 and +1. The bias index is calculated as follows:

Let N_1 = number of observations with non-cardinal directions
and N_2 = number of observations with cardinal directions
Then $R = N_1/N_2$ and
if R is greater than +1 then: Bias Index = $-(1 - 1/R)$
if R is less than or equal to +1 then: Bias Index = $1 - R$

EXAMPLE: The data for Costa Mesa (p. D-26) indicate there were 16,632 observations taken during the period of record. Referring to the annual "% of time" column it can be seen that 12,807 observations (77%) were from cardinal directions and that 3,825 observations (23%) were from non-cardinal directions. The ratio of non-cardinal to cardinal observations is:

$$R = 3,825/12,807 = 0.30$$

Since this ratio is less than 1.00 the bias index is:

$$\text{Bias Index} = 1 - R = 1 - 0.30 = 0.70$$

This indicates that the observations are biased towards the cardinal directions (N, NE, E, SE, S, SW, W, NW) and these directions are referred to as biased directions. In the case of a bias index less than -0.5 the bias would be towards the non-cardinal direction and the biased directions would be NNE, ENE, ESE, SSE, SSW, WSW, WNW, and NNW.

California Coastal Waters:
Defined as those Pacific Ocean areas between the California coastline and a line starting at the California-Oregon border at the Pacific Ocean thence to 42.0°N 125.5°W; thence to 41.0°N 125.5°W; thence to 40.0°N 125.5°W; thence to 39.0°N 125.0°W; thence to 38.0°N 124.5°W; thence to 37.0°N 123.5°W; thence to 36.0°N 122.5°W; thence to 35.0°N 121.5°W; thence to 34.0°W 120.5°N; thence to 33.0°N 119.5°W; thence to 32.5°N 118.5°W and ending at the California-Mexican border at the Pacific Ocean.

Convergence:
As used in this report, any line or zone along which the horizontal air flow is converging.

Diurnal:
Daily, especially pertaining to actions which are completed within 24 hours and which recur every 24 hours; thus, most reference is made to diurnal cycles, variations, ranges, maximums, etc.

Divergence:
As used in this report, any line or zone along which the horizontal air flow is diverging.

Inversion:
A layer of air in which the temperature increases continuously with altitude (a departure from the usual decrease of the ambient air temperature with altitude). The lowest altitude at which the increase is found is called the base of the inversion and the highest the top of the inversion. The difference between the temperature at the top of the inversion and at the base is a measure of the strength of the inversion. When this difference is equal to zero, it is considered to be isothermal. There are many types of inversions which generally are named for the cause for their formation such as radiation, subsidence, marine, and frontal.

Orographic Lifting:
The lifting of an air current by its passage up and over mountains.

Persistence Ratio:
The ratio of the resultant wind speed to the mean wind speed; ranging from 0 to 1. A high ratio indicates that the resultant wind is representative of the family of winds used to determine it. It is sometimes referred to as steadiness or consistency.

Predominant Wind:

The direction of the mid-point of the 3-point sector (group of three contiguous points of the compass in a 16-point display) which held the largest number of the total wind observations. The speed is the mean of the speeds of all winds in the predominant sector. The percentage frequency is the measure of the number of occurrences of winds in the predominant sector. The predominant sector represents 3/16ths of the compass or 67-1/2°.

Predominant Wind (alternate definition):

The same as predominant wind except that the midpoint is centered on the appropriate biased direction, i.e. on a cardinal direction for positive bias and on a non-cardinal direction for negative bias. If only alternate 8 points of the 16-point compass contain wind observations (i.e., bias index 1 or -1) it is considered that the intermediate points have a zero percentage frequency. In all cases above though the predominant sector represents 3/16ths of the compass or 67-1/2°.

If a station has a large positive or negative bias index the normal definition of predominant wind will usually select a direction for the predominant wind that is infrequently or never observed in the data. Therefore, if the absolute value of the bias index (see above) exceeds 0.50 the alternate definition is used.

Predominant Wind (secondary):

The secondary predominant wind is the predominant (or alternate definition) wind of the remaining portion of the compass display outside of the predominate wind sector. Therefore there is no overlap between the sectors associated with the predominant and secondary predominant winds.

Prevailing Wind Direction (or prevailing wind):

The wind direction most frequently observed (usually in a 16-point compass display) during a given period. The periods most frequently used are the observational day, month, season, and year. The mean speed of the wind in the prevailing direction can be used to provide the description of the prevailing wind.

Resultant Wind:

The vectorial average of all wind directions and speeds for a stated period of record.

Santa Ana:

A hot, dry, desert wind, generally from the northeast or east, especially in the pass and river valleys near Santa Ana, California, where it is further modified as a mountain-gap wind (a local wind blowing through a gap between mountains). It blows, sometimes with great force, from the desert regions east of the Sierra Nevada to Southern California and may carry a large amount of dust. In extreme cases this type of wind can affect the entire Southern California coastal plain from Point Conception to San Diego and is referred to as a Santa Ana condition in all areas. It is most frequent in winter; but can occur at any time of the year to some degree.

Sea Breeze:

A coastal local wind that blows from sea to land, caused by the temperature difference when the sea surface is colder than the adjacent land. Therefore, it usually blows on relatively calm, sunny, summer days; and alternates with the oppositely directed, usually weaker, nighttime land breeze. During periods of large scale onshore flow the sea breeze will enhance it producing persistent onshore winds.

Seasons:

Winter (December, January, February)
Spring (March, April, May)
Summer (June, July, August)
Fall (September, October, November)

Slope Winds:

A slope wind is a local diurnal wind that follows the slopes of all land forms. If the movement is up the slope the wind is referred to as an upslope wind and if the movement is down the slope as a downslope wind. Slope winds result from a horizontal temperature difference between the slope and the free air caused by warming (insolation) by day and cooling (radiation) at night. Accordingly, the movement of air is upslope during the day and downslope at night. The latter wind is sometimes referred to as a drainage wind. Slope winds are part of the mountain and valley wind system (see Valley and Mountain Winds).

Streamline:

A line whose tangent at any point in the atmosphere is parallel to the instantaneous velocity of the wind at that point.

Subsidence:

A descending motion of air in the atmosphere, usually with the implication that the condition extends over a rather broad area. Since the air is moving into higher pressures it is warmed by compression at the adiabatic rate and consequently dried. Large scale vertical motions are caused by an imbalance between the downward directed gravity force and the upward directed pressure gradient force. Since gravity is relatively constant at any given level subsidence is therefore generated by weak vertical pressure gradients normally found in the North Pacific high pressure cell. Subsidence is usually strongest during the summer when the Pacific high is at its maximum size.

Valley and Mountain Winds:

A system of diurnal winds along the axis of a valley, blowing uphill and upvalley by day, and downhill and downvalley by night; they prevail mostly in calm, clear weather. The upvalley component or "valley wind" usually sets in about an hour after sunrise and continues until about sunset, reaching its greatest strength at the time of maximum insolation on the slope in question. On southerly slopes it may reach 15 mph; on northerly slopes it is barely noticeable. The "valley wind" has a depth of some 500 feet, increasing uphill and is caused by the temperature difference between the air heated over the slopes and that at the same height in the free air. The air flows radially away from the summit and returns to the lowlands. The downvalley component or "mountain wind" at night is due to nocturnal cooling and is somewhat weaker, up to 9 mph, but is usually stronger a few hundred feet above the ground than at the surface.

Wind:

Air in motion relative to the surface of the earth. Since vertical components of atmospheric motion are relatively small especially near the surface of the earth, meteorologists use the term "wind" to denote almost exclusively the horizontal component. Vertical winds are always identified as such.

Wind Direction:

The direction from which the wind is blowing.

Wind Rose:

Any one of a class of diagrams designed to show the distribution of wind direction experienced at a given location over a considerable period; it thus shows the prevailing and predominant wind direction. The most common form consists of a circle from which eight or sixteen lines emanate, one for each compass point. The length of the line is proportional to the frequency of wind from that direction; the frequency of calm conditions is entered in the center. Many variations exist.

CONVERSION TABLES

Speed: Miles per hour to knots

mph	0	1	2	3	4	5	6	7	8	9
0	0	0.9	1.7	2.6	3.5	4.3	5.2	6.1	6.9	7.8
10	8.7	9.5	10.4	11.3	12.2	13.0	13.9	14.8	15.6	16.5
20	17.4	18.2	19.1	20.0	20.8	21.7	22.6	23.4	24.3	25.2
30	26.0	26.9	27.8	28.6	29.5	30.4	31.2	32.1	33.0	33.9
40	34.7	35.6	36.5	37.3	38.2	39.1	39.9	40.8	41.7	42.5
50	43.4	1 mph = 0.868 knots								

Speed: Miles per hour to meters per second

mph	0	1	2	3	4	5	6	7	8	9
0	0	0.4	0.9	1.3	1.8	2.2	2.7	3.1	3.6	4.0
10	4.5	4.9	5.4	5.8	6.3	6.7	7.2	7.6	8.1	8.5
20	8.9	9.4	9.8	10.3	10.7	11.2	11.6	12.1	12.5	13.0
30	13.4	13.9	14.3	14.8	15.2	15.6	16.1	16.5	17.0	17.4
40	17.9	18.3	18.8	19.2	20.0	20.1	20.6	21.0	21.5	21.9
50	22.4	1 mph = 0.447 mps								

APPENDIX C

ADDITIONAL SOURCES OF SURFACE WIND DATA AND ANNOTATED BIBLIOGRAPHY

Surface wind data are gathered by many different groups in California; the most prominent of these being the National Weather Service (NWS), the Federal Aviation Agency (FAA), military weather services, air pollution control agencies, governmental forestry and agricultural agencies, universities, public utilities and fire/water districts. Most of the data gathered are available in raw and summary form from the National Climatic Center, Asheville, NC, or from the originating agency.

The following annotated bibliography contains references to documents that contain climatological summaries and discussions of surface winds in California which may be useful to environmental planners. The region of concern is the last item of each reference.

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APPENDIX D

SURFACE WIND SUMMARIES

Pertinent surface wind statistics for 176 locations in or near California with adequate data are tabulated alphabetically in this Appendix. The station locations (by number) are shown in Figure D-1 (page D-2) and location specifics are tabulated on pages D-3 through D-6.

These data were used to prepare the predominant surface wind flow patterns contained in Section 1.

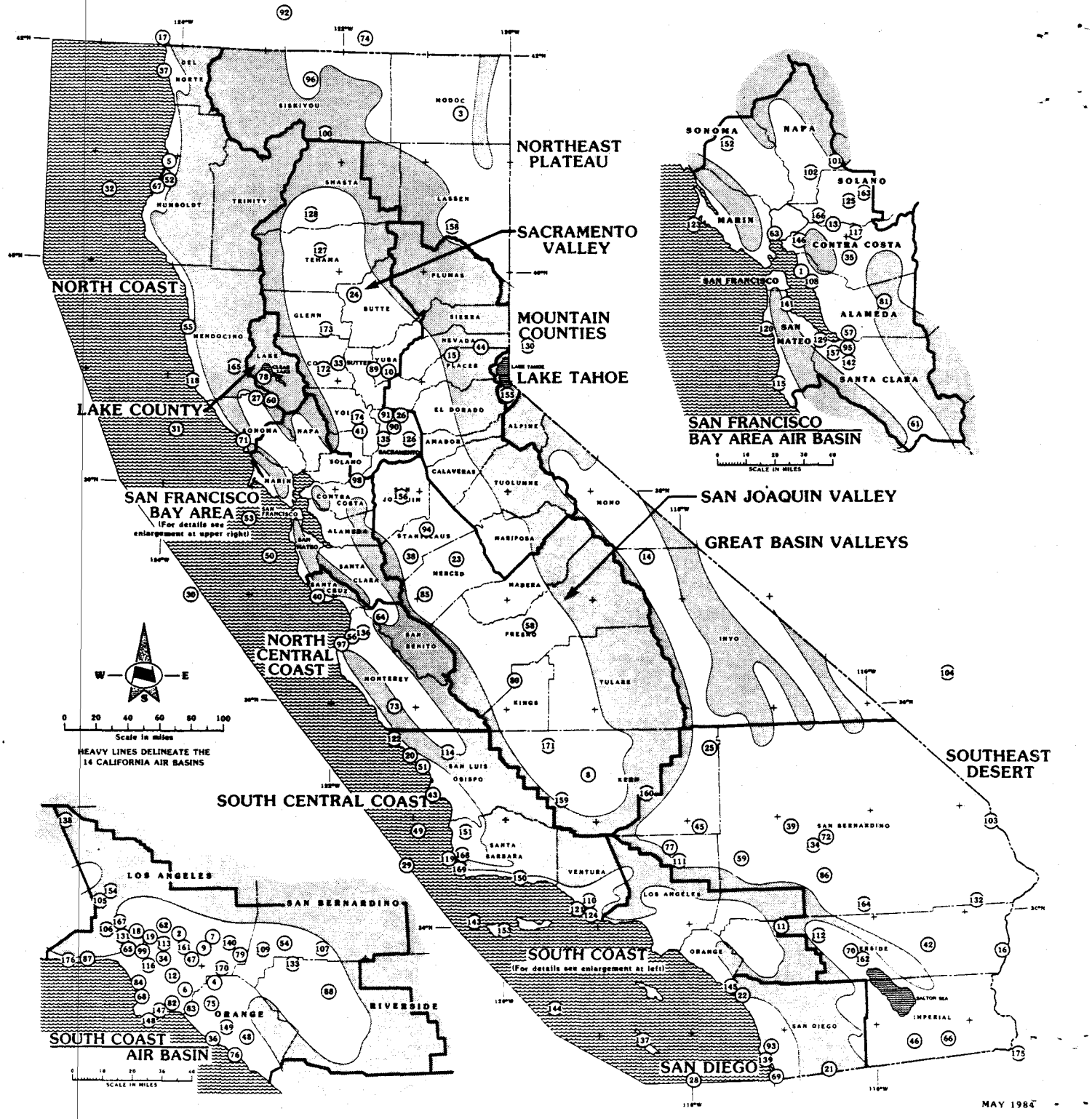
The surface wind statistics are tabulated for each station beginning on page D-8. These individual tables contain station specifics and data source information in the top section as follows: (using Alturas, on page D-10, as an example)

a.	Station Name:	Alturas
b.	Elevation:	4,375 feet msl (above mean sea level) -- If the elevation above ground of the anemometer is known it is entered here in parenthesis (in feet).
c.	North Latitude:	41° 29'
d.	West Longitude:	120° 34'
e.	Period of Record:	December 1980 - November 1981
f.	Number of Observations:	2,551
g.	Observations per Day (if known):	7, between hours 0400 - 2200 PST
h.	Bias Index:	0.21 (see Appendix B, Definitions, for explanation)*
i.	Speed Units:	mph (miles per hour)
j.	Source Codes:	data and summary format (see page D-7 for explanation)

* The "alternate definition" of predominant wind (see Definitions, Appendix B) is used in the wind summary tables if the bias index is greater than 0.50 or less than -0.50.

FIGURE D-1

LOCATIONS WITH SUMMARIZED SURFACE WIND DATA



SURFACE WIND SUMMARIES
INDEX OF STATIONS

NO.	STATION	COUNTY/(STATE)	LAT NORTH	LONG WEST	ELEVATION (FT MSL)
1	Alameda NAS	Alameda	37 47	122 19	15
2	Altadena	Los Angeles	34 11	118 08	1340
3	Alturas	Modoc	41 29	120 34	4375
4	Anaheim	Orange	33 49	117 55	30
5	Arcata	Humboldt	40 59	124 06	228
6	Artesia	Los Angeles	33 52	118 05	49
7	Azusa	Los Angeles	34 08	117 55	600
8	Bakersfield	Kern	35 25	119 03	492
9	Baldwin Park	Los Angeles	34 05	117 58	377
10	Beale AFB	Yuba	39 08	121 26	126
11	Beaumont	Riverside	33 56	116 56	2592
12	Bell	Los Angeles	33 59	118 11	151
13	Benicia	Solano	38 03	122 09	131
14	Bishop	Inyo	37 22	118 22	4112
15	Blue Canyon	Placer	39 17	120 42	5283
16	Blythe	Riverside	33 37	114 43	395
17	Brookings	(OREGON)	42 03	124 17	144
18	Burbank Airport	Los Angeles	34 12	118 22	725
19	Burbank(SCAQMD)	Los Angeles	34 11	118 19	567
20	Cambria	San Luis Obispo	35 34	121 07	98
21	Campo	San Diego	32 37	116 28	2630
22	Camp Pendleton	San Diego	33 18	117 21	63
23	Castle AFB	Merced	37 22	120 34	197
24	Chico	Butte	39 48	121 51	251
25	China Lake	Kern	35 41	117 41	2238
26	Citrus Heights	Sacramento	38 40	121 15	171
27	Cloverdale Peak	Sonoma	38 54	123 00	2923
28	Coastal Area 32	Coastal Waters	32 36	118 00	0
29	Coastal Area 34	Coastal Waters	34 36	121 02	0
30	Coastal Area 35	Coastal Waters	37 00	123 39	0
31	Coastal Area 36	Coastal Waters	38 30	123 51	0
32	Coastal Area 37	Coastal waters	40 39	124 51	0
33	Colusa	Colusa	39 12	122 01	82
34	Compton	Los Angeles	34 04	118 15	98
35	Concord	Contra Costa	37 56	122 01	82
36	Costa Mesa	Orange	33 40	117 55	66
37	Crescent City	Del Norte	41 47	124 14	56
38	Crows Landing	Stanislaus	37 25	121 06	156
39	Daggett	San Bernardino	34 52	116 47	1929
40	Davenport	Santa Cruz	37 00	122 11	98
41	Davis	Yolo	38 35	121 47	52
42	Desert Center	Riverside	33 45	115 20	542
43	Diablo Canyon	San Luis Obispo	35 13	120 49	79
44	Donner Summit	Nevada	39 19	120 20	7195

R

SURFACE WIND INDEX (continued)

NO	STATION	COUNTY/(STATE)	LAT NORTH	LONG WEST	ELEVATION (FT MSL)
45	Edwards AFB	Kern	34 55	117 54	2316
46	El Centro NAAS	Imperial	32 49	115 40	-43
47	El Monte	Los Angeles	34 05	118 02	279
48	El Toro	Orange	33 40	117 44	383
49	Environmental Buoy 11	Coastal Waters	34 54	120 54	0
50	Environmental Buoy 12	Coastal Waters	37 24	122 42	0
51	Estero	San Luis Obispo	35 26	120 52	30
52	Eureka	Humboldt	40 48	124 10	43
53	Farallon Island	San Francisco	37 42	123 00	41
54	Fontana	San Bernardino	34 05	117 30	1089
55	Fort Bragg	Mendocino	39 27	123 48	755
56	Fort Ord	Monterey	36 41	121 46	144
57	Fremont	Alameda	37 32	121 58	39
58	Fresno	Fresno	36 46	119 43	330
59	George AFB	San Bernardino	34 35	117 23	2890
60	Geysers 7 & 8	Sonoma	38 49	122 48	3196
61	Gilroy	Santa Clara	37 01	121 34	197
62	Glendale	Los Angeles	34 09	118 18	463
63	Hamilton AFB	Marin	38 04	122 31	14
64	Hollister	San Benito	36 53	121 24	200
65	Hollywood	Los Angeles	34 06	118 20	249
66	Holtville	Imperial	32 50	115 16	58
67	Humboldt Bay	Humboldt	40 44	124 12	13
68	Hyperion	Los Angeles	33 53	118 27	10
69	Imperial Beach	San Diego	32 34	117 07	23
70	Indio	Riverside	33 41	116 10	-63
71	Jenner	Sonoma	38 27	123 08	236
72	Johnson Valley	San Bernardino	34 45	116 36	3451
73	Jolon	Monterey	36 00	121 14	1040
74	Klamath Falls	(OREGON)	42 09	121 44	4102
75	La Habra	Orange	33 56	115 57	259
76	Laguna Beach	Orange	33 32	117 46	200
77	Lancaster	Los Angeles	34 43	118 08	2346
78	Lakeport	Lake	39 02	122 55	1329
79	Laverne	Los Angeles	34 06	117 47	1001
80	Lemoore NAS	Kings	36 20	119 57	238
81	Livermore	Alameda	37 42	121 46	492
82	Long Beach	Los Angeles	33 49	118 09	43
83	Los Alamitos	Orange	33 48	118 03	26
84	Los Angeles Intl Apt	Los Angeles	33 56	118 24	110
85	Los Banos	Merced	37 03	120 55	299
86	Lucerne Valley	San Bernardino	34 26	116 31	2900

SURFACE WIND INDEX (continued)

NO	STATION	COUNTY/(STATE)	LAT NORTH	LONG WEST	ELEVATION (FT MSL)
87	Malibu	Los Angeles	34 02	118 42	10
88	March AFB	Riverside	33 53	117 15	1542
89	Marysville	Yuba	39 06	121 34	67
90	Mather AFB	Sacramento	38 34	121 18	96
91	McClellan AFB	Sacramento	38 40	121 40	86
92	Medford	(OREGON)	42 22	122 52	1312
93	Miramar NAS	San Diego	32 52	117 08	459
94	Modesto	Stanislaus	37 38	120 58	96
95	Moffett NAS	Santa Clara	37 25	122 03	39
96	Montague	Siskiyou	41 46	122 28	2635
97	Monterey	Monterey	36 36	121 52	162
98	Montezuma	Solano	38 05	121 49	20
99	Mount Lee	Los Angeles	34 08	118 19	1680
100	Mount Shasta	Siskiyou	41 19	122 19	3550
101	Mount Vaca	Napa,Solano	38 24	122 06	2818
102	Napa	Napa	38 19	122 18	43
103	Needles	San Bernardino	34 46	114 37	917
104	Nellis AFB	(NEVADA)	36 15	115 02	1878
105	Newhall	Los Angeles	34 22	118 33	1256
106	North Hollywood	Los Angeles	34 10	118 25	899
107	Norton AFB	San Bernardino	34 06	117 14	1113
108	Oakland Intl Apt	Alameda	37 44	122 12	7
109	Ontario	San Bernardino	34 04	117 37	952
110	Oxnard AFB	Ventura	34 13	119 05	96
111	Palmdale	Los Angeles	34 38	118 05	2538
112	Palm Springs	Riverside	33 54	116 33	420
113	Pasadena	Los Angeles	34 09	118 07	820
114	Paso Robles	San Luis Obispo	35 36	120 39	817
115	Pescadero	San Mateo	37 12	122 22	463
116	Pico Sub-Station	Los Angeles	34 03	118 22	98
117	Pittsburg	Contra Costa	38 04	121 54	20
118	Point Arena	Mendocino	38 55	123 43	260
119	Point Arguello	Santa Barbara	34 40	120 35	367
120	Point Montara	San Mateo	37 32	122 31	64
121	Point Mugu NAS	Ventura	34 07	119 07	11
122	Point Piedras Blancas	San Luis Obispo	35 40	121 17	69
123	Point Reyes	Marin	38 00	123 00	260
124	Port Hueneme	Ventura	34 09	119 12	16
125	Potrero Hill	Solano	38 12	121 58	414
126	Rancho Seco	Sacramento	38 20	121 07	171
127	Red Bluff	Tehama	40 09	122 15	344
128	Redding	Shasta	40 35	122 24	722
129	Redwood City	San Mateo	37 29	122 12	13
130	Reno	(NEVADA)	39 30	119 47	4402
131	Reseda	Los Angeles	34 12	118 32	741
132	Rice AAF	San Bernardino	34 04	114 50	881
133	Riverside	Riverside	33 57	117 24	817
134	Rodman Mountain	San Bernardino	34 40	116 37	5879

SURFACE WIND INDEX (continued)

NO	STATION	COUNTY/(STATE)	LAT NORTH	LONG WEST	ELEVATION (FT MSL)
135	Sacramento	Sacramento	38 31	121 30	43
136	Salinas	Monterey	36 40	121 36	88
137	San Clemente Island	Los Angeles	33 01	118 35	170
138	Sandberg	Los Angeles	34 45	118 44	4523
139	San Diego	San Diego	32 44	117 10	33
140	San Dimas	Los Angeles	34 12	117 48	951
141	San Francisco	San Mateo	37 37	122 23	90
142	San Jose	Santa Clara	37 22	121 56	52
143	San Miguel Island	Santa Barbara	34 03	120 21	550
144	San Nicolas Island	Ventura	33 15	119 27	568
145	San Onofre	San Diego	33 22	117 33	20
146	San Pablo	Contra Costa	37 59	122 21	258
147	San Pedro	Los Angeles	33 45	118 15	42
148	San Pedro (Outer Harbor)	Los Angeles	33 43	118 16	3
149	Santa Ana	Orange	33 42	117 50	60
150	Santa Barbara	Santa Barbara	34 26	119 50	13
151	Santa Maria	Santa Barbara	34 54	120 27	240
152	Santa Rosa	Sonoma	38 30	122 49	119
153	Santa Rosa Island	Santa Barbara	33 55	120 07	1493
154	Saugus	Los Angeles	34 24	118 32	1165
155	South Lake Tahoe	El Dorado	38 54	120 00	6329
156	Stockton	San Joaquin	37 54	121 15	37
157	Sunnyvale	Santa Clara	37 23	122 02	102
158	Susanville	Lassen	40 23	120 34	4152
159	Taft	Kern	35 06	119 19	436
160	Tehachapi	Kern	35 08	118 27	3969
161	Temple City	Los Angeles	34 07	118 03	400
162	Thermal	Riverside	33 38	116 10	-116
163	Travis AFB	Solano	38 16	121 56	59
164	Twenty Nine Palms	San Bernardino	34 08	116 02	1778
165	Ukiah	Mendocino	39 08	123 12	631
166	Vallejo	Solano	38 06	122 14	20
167	Van Nuys	Los Angeles	34 13	118 30	794
168	Vandenberg AFB	Santa Barbara	34 43	120 34	380
169	Vandenberg AFB (Boathouse)	Santa Barbara	34 33	120 37	78
170	Walnut	Los Angeles	34 00	117 51	535
171	Wasco	Kern	35 44	119 32	230
172	Williams	Colusa	39 06	122 09	129
173	Willows	Glenn	39 31	122 13	135
174	Woodland	Yolo	38 40	121 47	107
175	Yuma	(ARIZONA)	32 40	114 36	203
176	Zuma Beach	Los Angeles	34 01	118 50	7

SOURCE CODES

Data Sources

1. National Climatic Center (NCC)
2. California State Air Resources Board (CARB)
3. South Coast Air Quality Management District (SCAQMD)
4. Bay Area Air Quality Management District (BAAQMD)
5. Pacific Gas & Electric Company (PG&E)
6. California Department of Forestry (CDF)
7. Southern California Edison (SCE)
8. Mariner's Weather Log (NOAA)
9. Sacramento Municipal Utility District (SMUD)
10. University of California, Davis (UCD-LAWR)
11. Los Angeles Department of Water and Power (LADWP)

Source Summary Formats

A. "A", "B", and "C" Summaries (AB), (ABC)
B. Revised "A" through "F" (A-F)
C. Summary of Hourly Observations (SHO)
D. Summary of Meteorological Observations, Survace (SMOS)
E. Summary of Monthly Aerological Records (SOMAR)
F. Summary of Synoptic Meteorological Observations (SSMO)
G. Pasquill Stability Classification Rose (STAR)
H. Air Weather Service Wind Tabulation (WND TAB)
I. Combined Period Summary Surface Wind by Velocity Groups (1139 C)
J. Monthly Wind Summary (1139 D)
K. Surface Winds (1139 E)
L. ARB Tabular Wind Rose (Summary from Hourly Data)
M. SCAQMD Monthly Wind Summary
N. PG&E Tabular Wind Rose (Summary from Hourly Data)
O. SCE Tabular Wind Rose (Seasonal)
P. Mariner's Weather Log Summary
Q. LADWP Wind Rose

SURFACE WIND SUMMARY

Station Name: ALAMEDA NAS
Elevation: 15 Feet (70)

	Degrees	Minutes
North Latitude:	37	47
West Longitude:	122	19

Period of Record: 1945 - 1968
Observations: 208,839
24 OBS/DAY

Bias Index: 0.39
Speed Units: MPH
Source Code
Data: 1
Summary: B

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	9.3	7.4	3.0	8.0	1.0	5.4	5.4	7.4	4.6	7.4
NNE	1.9	6.8	0.7	6.4	0.2	4.6	1.2	6.6	1.0	6.5
NE	2.3	6.5	0.6	5.3	0.2	4.0	1.3	5.6	1.1	5.9
ENE	1.3	6.3	0.4	5.0	0.1	4.1	0.6	5.8	0.6	5.9
E	3.8	5.9	2.0	5.6	0.5	5.1	2.5	5.1	2.2	5.6
ESE	6.0	8.2	2.6	8.0	0.5	5.3	3.6	7.1	3.1	7.7
SE	10.7	10.7	4.2	11.0	0.9	6.1	5.1	9.3	5.2	10.2
SSE	4.9	10.8	2.9	10.4	0.9	6.0	2.4	9.4	2.8	10.0
S	5.9	9.1	5.3	9.7	2.7	6.4	3.9	8.2	4.4	8.7
SSW	2.3	9.0	4.1	9.8	3.5	8.1	2.5	8.3	3.1	8.9
SW	3.0	8.3	8.3	9.6	14.6	9.8	5.8	7.9	8.0	9.3
WSW	2.3	9.2	10.5	11.1	16.9	11.1	6.9	9.1	9.2	10.6
W	5.9	9.5	25.9	12.8	35.6	12.3	20.5	10.2	22.2	11.8
WNW	4.9	9.5	11.6	12.0	11.5	10.6	9.0	8.9	9.3	10.5
NW	11.3	8.0	7.4	9.6	4.6	7.1	8.8	7.1	8.0	8.0
NNW	9.1	7.9	3.7	9.2	1.5	6.2	5.3	7.4	4.8	7.9
CALM	15.0		6.7		4.7		15.1		10.3	
ALL		7.3		10.1		10.0		7.2		8.7

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	263	262	261	269	262
SPEED:	0.4	6.3	8.6	3.5	4.8
PER. RATIO:	0.06	0.63	0.86	0.49	0.55
PREDOMINANT WINDS					
DIRECTION:	NNW	W	WSW	WNW	W
SPEED:	7.8	12.2	11.5	9.2	11.2
PERCENTAGE:	29.7	48.0	67.1	38.3	40.7
SECONDARY PREDOMINANT WINDS					
DIRECTION:	SE	SSW	NW	SW	NNW
SPEED:	10.0	9.7	9.3	8.5	7.8
PERCENTAGE:	21.6	17.7	17.6	15.2	17.4

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY

Station Name: ALTADENA
Elevation: 1340 Feet (30)

	Degrees	Minutes
North Latitude:	34	11
West Longitude:	118	8

Period of Record: NOV 1955 - DEC 1962
Observations: 53,198
24 OBS/DAY

Bias Index: 0.13
Speed Units: MPH
Source Code
Data: 3
Summary: M

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	8.9	3.4	6.7	3.1	5.9	2.4	10.6	3.2	8.0	3.1
NNE	30.2	3.5	16.9	3.2	10.5	2.5	22.3	3.2	19.8	3.2
NE	10.0	3.4	7.6	3.0	8.3	2.4	10.1	3.3	9.0	3.0
ENE	3.5	3.8	4.0	3.5	3.9	2.8	3.5	3.4	3.7	3.4
E	5.7	4.1	6.5	3.5	6.3	2.9	5.5	3.4	6.0	3.4
ESE	6.0	4.6	6.8	4.0	7.7	3.4	5.8	3.7	6.6	3.9
SE	5.8	4.3	8.3	3.9	11.6	3.5	7.3	3.6	8.3	3.7
SSE	3.3	3.8	4.3	4.0	6.4	3.7	4.4	3.5	4.6	3.7
S	8.0	4.1	12.5	4.4	16.7	4.1	10.4	3.8	12.0	4.1
SSW	4.9	4.2	7.2	4.8	7.6	4.1	5.6	3.9	6.3	4.3
SW	4.3	4.1	7.2	4.2	6.7	3.6	5.0	3.6	5.8	3.9
WSW	2.1	4.2	3.8	4.8	3.0	4.0	2.4	3.9	2.8	4.3
W	2.7	4.1	3.7	4.4	2.6	3.3	3.2	3.9	3.0	4.0
WNW	1.3	3.9	1.4	4.5	0.7	3.5	1.0	4.1	1.1	4.1
NW	1.6	4.2	1.7	3.5	1.0	2.3	1.3	3.6	1.4	3.5
NNW	1.8	3.6	1.5	3.3	1.1	2.6	1.7	3.3	1.5	3.3
CALM	0.0		0.0		0.0		0.0		0.0	
ALL		3.8		3.8		3.3		3.5		3.6

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	58	143	152	74	110
SPEED:	1.2	0.8	1.3	0.8	0.7
PER. RATIO:	0.30	0.20	0.40	0.22	0.20
PREDOMINANT WINDS					
DIRECTION:	NNE	NNE	SSE	NNE	NNE
SPEED:	3.5	3.1	3.8	3.2	3.1
PERCENTAGE:	49.1	31.2	34.7	43.0	36.8
SECONDARY PREDOMINANT WINDS					
DIRECTION:	ESE	SSW	NNE	SSE	SSE
SPEED:	4.3	4.5	2.4	3.7	3.9
PERCENTAGE:	17.5	26.9	24.7	22.1	24.9

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY

Station Name: ALTURAS
Elevation: 4375 Feet

	Degrees	Minutes
North Latitude:	41	29
West Longitude:	120	34

Period of Record: DEC 1980 - NOV 1981
Observations: 2,135
7 OBS/DAY 04-22 PST

Bias Index: 0.21
Speed Units: MPH
Source Code
Data: 1
Summary: L

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	3.5	6.1	7.5	8.2	4.9	7.5	4.9	7.8	5.2	7.6
NNE	10.1	6.4	7.7	6.5	6.4	6.4	9.4	6.1	8.3	6.3
NE	14.8	6.9	7.9	5.7	9.2	6.0	10.2	6.4	10.5	6.4
ENE	7.7	5.5	2.9	6.3	3.9	5.4	5.5	5.3	5.0	5.5
E	2.0	5.1	1.7	5.8	2.1	4.1	1.9	4.2	1.9	4.8
ESE	0.4	3.5	1.4	5.0	2.1	5.8	3.4	4.3	1.7	4.9
SE	1.6	5.6	1.5	6.4	1.3	8.2	2.8	6.0	1.8	6.4
SSE	1.8	11.3	2.7	8.6	1.7	6.1	3.0	5.9	2.3	7.9
S	11.5	14.1	6.3	7.9	6.0	7.2	13.2	10.5	9.1	10.6
SSW	4.9	7.4	4.8	6.3	6.0	6.7	6.0	10.1	5.4	7.6
SW	6.4	8.5	7.4	9.4	6.4	6.6	6.0	8.5	6.6	8.3
WSW	5.3	7.6	7.2	11.5	12.0	10.4	9.4	8.7	8.4	9.8
W	5.3	6.9	10.8	9.5	11.6	11.5	7.7	8.1	8.9	9.5
WNW	2.2	5.6	5.0	8.7	5.2	9.0	1.9	5.8	3.7	8.0
NW	0.9	4.4	7.2	9.0	4.5	8.4	2.8	7.3	3.9	8.3
NNW	0.9	9.0	5.8	9.3	2.6	11.4	3.0	7.3	3.1	9.3
CALM	20.6		12.1		14.0		8.9		14.1	
ALL		6.3		7.2		6.9		6.9		6.8

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	169	286	273	221	261
SPEED:	0.9	2.6	2.7	1.4	1.5
PER. RATIO:	0.15	0.35	0.39	0.21	0.22
PREDOMINANT WINDS					
DIRECTION:	NE	WSW	WSW	SSW	NNE
SPEED:	6.4	10.0	10.0	9.9	6.6
PERCENTAGE:	32.6	25.4	30.0	25.2	24.0
SECONDARY PREDOMINANT WINDS					
DIRECTION:	SSW	NNE	NNE	NE	WSW
SPEED:	11.1	6.8	6.5	6.0	9.3
PERCENTAGE:	22.8	23.1	20.5	25.1	23.9

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY

Station Name: ANAHEIM
Elevation: 30 Feet (25-45)

	Degrees	Minutes
North Latitude:	33	49
West Longitude:	117	55

Period of Record: 1958 - 1973
Observations: 128,816
24 OBS/DAY

Bias Index: 0.63
Speed Units: MPH
Source Code
Data: 3
Summary: M

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	4.0	1.9	2.2	1.4	2.0	1.2	4.4	1.4	3.2	1.5
NNE	3.9	2.9	1.5	2.1	0.6	1.4	2.9	2.2	2.3	2.5
NE	25.0	3.1	11.3	2.4	3.0	1.4	16.6	2.5	14.2	2.7
ENE	10.5	5.5	4.5	3.3	1.2	1.4	5.8	4.0	5.6	4.5
E	9.6	3.1	7.2	2.1	3.6	1.4	7.4	2.2	7.0	2.4
ESE	2.4	2.7	3.0	2.4	2.1	1.7	2.3	2.3	2.4	2.3
SE	6.6	2.7	8.5	2.5	8.7	1.9	7.0	2.2	7.7	2.3
SSE	2.0	3.9	3.4	3.2	4.7	2.3	2.5	2.8	3.1	2.9
S	6.5	3.4	11.8	3.8	15.6	3.2	8.6	2.9	10.5	3.3
SSW	4.1	3.9	7.6	5.2	10.9	5.0	5.3	4.1	6.9	4.7
SW	11.1	4.1	21.3	6.0	25.2	5.3	16.4	4.5	18.3	5.1
WSW	3.7	4.6	4.7	5.3	4.5	3.7	4.0	4.0	4.2	4.4
W	5.8	3.7	9.1	4.5	11.7	3.0	10.3	3.1	9.2	3.5
WNW	1.6	4.7	1.7	5.0	2.7	3.2	2.4	3.7	2.1	4.0
NW	2.6	2.9	2.1	2.9	3.0	1.6	3.4	2.1	2.8	2.3
NNW	0.6	2.6	0.3	2.4	0.5	1.5	0.7	1.9	0.5	2.1
CALM	0.0		0.0		0.0		0.0		0.0	
ALL		3.6		4.0		3.5		3.1		3.5

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	85	212	215	208	205
SPEED:	0.8	2.0	2.6	0.7	1.2
PER. RATIO:	0.21	0.51	0.74	0.23	0.33
PREDOMINANT WINDS (Alternate Definition)					
DIRECTION:	NE	SW	SW	SW	SW
SPEED:	3.7	5.7	5.0	4.3	4.9
PERCENTAGE:	39.4	33.6	40.6	25.7	29.4
SECONDARY PREDOMINANT WINDS (Alternate Definition)					
DIRECTION:	SW	NE	SE	NE	NE
SPEED:	4.2	2.6	2.0	2.8	3.1
PERCENTAGE:	18.9	17.3	15.5	25.3	22.1

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY

Station Name: ARCATA
Elevation: 228 Feet

	Degrees	Minutes
North Latitude:	40	59
West Longitude:	124	6

Period of Record: 1950 - 1977
Observations: 169,384
Bias Index: 0.40
Speed Units: MPH
Source Code
Data: 1
Summary: L

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	3.7	9.3	5.5	10.3	3.1	8.0	3.1	8.2	3.9	9.2
NNE	1.5	7.2	1.5	7.0	0.5	5.3	1.1	6.5	1.2	6.8
NE	4.1	6.3	2.7	5.6	1.1	4.5	2.7	5.5	2.6	5.7
ENE	5.0	6.0	3.0	5.6	1.0	4.8	3.3	5.5	3.1	5.7
E	11.1	5.9	6.0	5.5	2.6	4.7	8.4	5.3	7.0	5.5
ESE	6.4	7.5	3.1	6.6	1.3	5.4	4.3	6.7	3.7	6.9
SE	15.6	9.7	8.1	8.7	4.6	5.4	9.1	8.3	9.3	8.6
SSE	7.5	10.3	4.4	9.0	3.1	6.3	4.9	8.6	5.0	8.9
S	5.8	9.5	4.1	8.9	4.0	5.9	4.3	7.9	4.6	8.2
SSW	2.2	10.4	2.2	9.3	1.6	6.8	1.9	8.3	2.0	8.9
SW	2.4	8.9	3.7	8.5	4.1	6.5	3.0	7.2	3.3	7.6
WSW	1.5	8.9	2.3	8.2	2.8	6.6	1.9	6.5	2.1	7.4
W	1.8	7.4	4.2	7.3	7.2	6.5	3.5	6.1	4.2	6.7
WNW	1.9	8.5	4.7	9.3	7.5	8.4	3.6	7.2	4.5	8.4
NW	4.9	10.5	14.7	13.1	19.0	10.9	8.5	9.6	11.8	11.3
NNW	3.7	12.0	9.2	13.5	8.0	11.0	4.8	11.2	6.4	12.0
CALM	20.8		20.5		28.4		31.5		25.2	
ALL		6.8		7.6		5.9		5.2		6.4

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	127	318	304	107	313
SPEED:	2.2	2.3	3.3	0.2	0.8
PER. RATIO:	0.33	0.31	0.56	0.03	0.13
PREDOMINANT WINDS					
DIRECTION:	ESE	NNW	NW	ESE	NW
SPEED:	8.0	12.7	10.4	6.8	10.9
PERCENTAGE:	33.1	29.4	34.5	21.8	22.7
SECONDARY PREDOMINANT WINDS					
DIRECTION:	S	ESE	WSW	NW	ESE
SPEED:	10.0	7.2	6.5	9.5	7.2
PERCENTAGE:	15.5	17.2	14.1	16.9	20.0

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY

Station Name: ARTESIA
Elevation: 49 Feet

	Degrees	Minutes
North Latitude:	33	52
West Longitude:	118	5

Period of Record: 1957 - 1960
Observations: 28,237
24 OBS/DAY
Bias Index:-0.05
Speed Units: MPH
Source Code
Data: 3
Summary: M

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	9.1	2.5	2.9	2.3	2.3	1.9	7.8	2.4	5.5	2.4
NNE	6.5	2.3	2.6	2.1	1.3	1.7	5.3	2.2	4.0	2.2
NE	7.4	2.3	4.0	2.0	2.0	1.7	5.3	1.8	4.8	2.0
ENE	7.9	2.4	5.2	2.1	2.8	1.7	6.3	2.3	5.7	2.2
E	10.0	2.8	9.8	2.4	5.3	1.9	8.8	2.3	8.7	2.4
ESE	5.3	3.1	5.6	2.6	3.7	2.8	4.4	2.8	4.8	2.7
SE	4.0	3.2	5.3	2.5	4.2	2.2	4.0	2.0	4.4	2.5
SSE	3.3	4.2	5.0	2.9	6.4	2.7	3.7	2.5	4.6	3.1
S	4.1	4.1	7.3	4.4	9.5	3.7	5.3	3.1	6.5	3.9
SSW	6.8	4.7	12.9	5.9	17.5	5.7	9.2	4.4	11.4	5.4
SW	5.3	4.4	7.6	5.3	7.4	4.7	6.5	3.8	6.7	4.6
WSW	2.7	3.5	3.2	4.6	2.7	3.3	3.0	3.7	2.9	3.8
W	5.1	4.7	9.1	6.5	4.8	4.5	5.8	4.4	6.3	5.3
WNW	8.6	5.0	12.8	5.7	19.5	5.7	12.9	4.9	13.1	5.4
NW	6.4	3.2	4.0	4.0	7.2	3.0	6.6	2.8	5.9	3.2
NNW	7.4	3.0	2.5	2.8	3.6	2.1	5.1	2.6	4.7	2.7
CALM	0.0		0.0		0.0		0.0		0.0	
ALL		3.4		4.2		4.0		3.2		3.7

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	290	236	239	268	245
SPEED:	0.3	1.7	2.0	0.8	1.2
PER. RATIO:	0.10	0.42	0.51	0.26	0.32
PREDOMINANT WINDS					
DIRECTION:	ENE	SSW	SSW	WNW	WNW
SPEED:	2.5	5.3	4.9	4.2	4.9
PERCENTAGE:	25.3	27.8	34.4	25.3	25.3
SECONDARY PREDOMINANT WINDS					
DIRECTION:	N	WNW	WNW	SSW	SSW
SPEED:	2.6	5.7	4.9	3.9	4.8
PERCENTAGE:	23.0	25.9	31.5	21.0	24.6

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY

Station Name: AZUSA
Elevation: 600 Feet (30)
Degrees Minutes
North Latitude: 34 8
West Longitude: 117 55

Period of Record: MAR 1960 - DEC 1974
Observations: 135,594
24 OBS/DAY

Bias Index: 0.19
Speed Units: MPH
Source Code
Data: 3
Summary: M

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	15.7	5.0	9.0	3.7	3.3	1.8	9.1	3.2	9.2	3.9
NNE	11.6	4.5	6.1	3.3	1.9	1.7	7.7	3.6	6.8	3.8
NE	12.4	4.1	6.1	2.8	1.7	1.6	7.9	2.7	7.8	3.2
ENE	7.7	4.1	3.1	2.9	1.0	1.6	4.9	2.9	4.1	3.4
E	6.5	3.2	3.9	2.8	1.5	1.7	4.9	2.5	4.2	2.7
ESE	3.7	3.4	2.4	2.7	1.1	1.9	2.8	2.6	2.5	2.8
SE	3.8	2.9	2.8	2.8	1.4	2.0	3.5	2.5	2.9	2.7
SSE	2.4	3.2	2.3	3.2	1.4	2.3	2.4	2.8	2.1	2.9
S	4.2	3.2	5.5	3.6	4.1	2.9	5.0	2.8	4.7	3.1
SSW	7.5	4.3	15.5	5.5	20.1	5.1	11.9	4.4	13.8	5.0
SW	8.5	4.1	18.3	5.3	28.4	4.5	16.7	4.3	18.1	4.6
WSW	4.9	4.2	11.4	5.8	15.2	5.0	8.5	4.9	10.1	5.1
W	4.0	3.6	6.6	4.2	10.4	5.1	7.0	4.8	7.0	4.6
WNW	1.8	3.2	2.5	3.3	3.6	3.8	2.4	3.5	2.6	3.5
NW	1.8	3.0	2.3	2.6	2.5	2.6	2.4	2.5	2.2	2.6
NNW	3.5	3.9	2.3	2.8	2.3	2.2	2.8	2.7	2.7	3.0
CALM	0.0		0.0		0.0		0.0		0.0	
ALL		4.1		4.3		4.2		3.6		4.0

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	24	230	231	239	237
SPEED:	1.1	2.0	3.3	1.0	1.4
PER. RATIO:	0.27	0.46	0.79	0.29	0.34
PREDOMINANT WINDS					
DIRECTION:	NNE	SW	SW	SW	SW
SPEED:	4.6	5.5	4.8	4.5	4.9
PERCENTAGE:	39.7	45.2	63.7	37.1	42.0
SECONDARY PREDOMINANT WINDS					
DIRECTION:	SW	NNE	WNW	NNE	NNE
SPEED:	4.2	3.3	4.4	3.2	3.7
PERCENTAGE:	20.9	21.2	16.5	24.7	23.0

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY

Station Name: BAKERSFIELD
Elevation: 492 Feet (20-65)
Degrees Minutes
North Latitude: 35 25
West Longitude: 119 3

Period of Record: 1961 - 1978
Observations: 75,973

Bias Index: 0.14
Speed Units: MPH
Source Code
Data: 1
Summary: L

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	6.3	7.3	11.7	8.5	10.7	7.8	7.0	7.7	9.0	7.9
NNE	3.4	7.5	4.5	8.7	3.6	7.8	3.7	7.9	3.8	8.0
NE	3.5	6.8	3.0	7.2	2.4	6.5	3.1	7.0	3.0	6.9
ENE	4.1	6.1	2.7	6.4	1.6	5.9	3.5	6.1	3.0	6.1
E	10.8	6.4	7.2	6.4	3.5	5.7	9.4	6.1	7.7	6.2
ESE	8.4	6.5	5.3	6.1	3.5	5.7	7.3	5.8	6.1	6.1
SE	6.7	7.1	4.8	6.3	4.9	5.6	6.5	6.1	5.7	6.4
SSE	4.8	7.2	3.2	7.2	3.1	5.4	4.1	6.1	3.8	6.5
S	3.9	6.1	2.2	6.3	1.5	5.2	2.9	5.7	2.6	5.9
SSW	1.9	5.4	1.2	5.8	0.9	5.2	1.7	5.4	1.4	5.4
SW	2.5	5.4	1.6	6.1	1.4	5.7	2.3	5.6	1.9	5.6
WSW	3.4	5.6	2.7	6.2	2.7	6.8	3.5	6.0	3.1	6.1
W	5.0	6.0	4.3	7.5	6.0	7.7	5.3	6.8	5.1	7.0
WNW	5.8	6.9	7.9	8.9	11.0	9.3	6.8	7.8	7.9	8.4
NW	7.6	7.5	14.1	9.9	18.8	9.8	10.2	8.6	12.7	9.2
NNW	7.2	8.3	15.8	10.0	15.2	9.4	9.1	8.7	11.9	9.3
CALM	14.6		7.7		9.1		13.5		11.2	
ALL		5.8		7.6		7.4		6.1		6.7

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	39	339	325	349	339
SPEED:	0.9	3.6	4.4	1.5	2.5
PER. RATIO:	0.16	0.48	0.60	0.25	0.37
PREDOMINANT WINDS					
DIRECTION:	ESE	NNW	NW	NNW	NNW
SPEED:	6.6	9.5	9.5	8.4	8.9
PERCENTAGE:	25.9	41.6	45.0	26.3	33.6
SECONDARY PREDOMINANT WINDS					
DIRECTION:	NNW	ESE	NNE	ESE	ESE
SPEED:	7.7	6.3	7.6	6.0	6.2
PERCENTAGE:	21.1	17.3	16.7	23.2	19.5

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY

Station Name: BALDWIN PARK
Elevation: 377 Feet (50)

	Degrees	Minutes
North Latitude:	34	5
West Longitude:	117	58

Period of Record: OCT 1955 - APR 1962
Observations: 51,662
24 OBS/DAY

Bias Index: 0.12
Speed Units: MPH
Source Code
Data: 3
Summary: M

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	4.1	3.0	2.4	2.6	1.1	1.7	3.8	3.5	2.9	3.0
NNE	10.0	3.3	3.3	2.2	1.3	1.7	6.2	3.0	5.3	3.0
NE	18.7	3.0	8.9	2.3	1.8	1.5	11.0	2.4	10.3	2.6
ENE	14.1	2.8	8.2	2.2	2.2	1.6	9.9	2.3	8.8	2.4
E	6.9	2.3	5.5	2.0	2.7	1.4	5.5	2.0	5.2	2.0
ESE	4.5	2.2	5.4	2.0	3.4	1.6	4.6	1.9	4.5	1.9
SE	3.7	2.3	6.5	2.6	3.7	1.8	3.5	1.8	4.3	2.2
SSE	3.2	2.6	7.3	3.6	4.5	2.2	3.1	2.0	4.5	2.8
S	8.1	3.1	13.5	4.7	3.5	4.0	9.2	3.6	8.6	4.0
SSW	6.8	3.7	11.4	4.9	19.4	5.2	11.0	4.5	12.0	4.8
SW	7.6	3.6	14.4	5.3	29.8	5.2	14.6	4.6	16.3	4.9
WSW	5.2	3.3	6.2	3.7	14.4	3.5	8.6	3.0	8.5	3.4
W	2.8	2.2	3.4	2.5	7.3	2.0	4.2	2.0	4.4	2.1
WNW	2.0	2.1	1.8	2.6	3.2	1.7	2.4	1.7	2.3	1.9
NW	1.3	2.3	1.0	1.9	0.9	1.5	1.4	1.7	1.2	1.9
NNW	1.1	2.0	0.9	2.1	0.6	1.6	1.2	1.8	1.0	1.9
CALM	0.0		0.0		0.0		0.0		0.0	
ALL		2.9		3.5		3.8		3.1		3.3

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	80	191	219	201	201
SPEED:	0.7	1.8	3.1	0.9	1.3
PER. RATIO:	0.22	0.52	0.81	0.30	0.39
PREDOMINANT WINDS					
DIRECTION:	NE	SSW	SW	SSW	SSW
SPEED:	3.0	5.0	4.8	4.3	4.7
PERCENTAGE:	42.8	39.3	63.6	34.8	36.9
SECONDARY PREDOMINANT WINDS					
DIRECTION:	SSW	ENE	SSE	NE	NE
SPEED:	3.5	2.2	2.6	2.5	2.6
PERCENTAGE:	22.5	22.6	11.7	27.1	24.4

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY

Station Name: BEALE AFB
Elevation: 126 Feet

	Degrees	Minutes
North Latitude:	39	8
West Longitude:	121	26

Period of Record: 1961 - 1970
Observations: 87,643
24 OBS/DAY

Bias Index: 0.20
Speed Units: MPH
Source Code
Data: 1
Summary: L

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	7.5	6.2	4.5	6.8	2.1	4.8	6.4	6.2	5.1	6.2
NNE	1.8	5.7	1.4	6.4	0.5	4.3	1.6	6.1	1.3	5.9
NE	1.1	4.7	1.2	5.5	0.5	4.7	1.2	4.5	1.0	4.9
ENE	1.1	4.1	1.2	5.0	0.5	4.4	1.1	3.9	1.0	4.4
E	3.0	4.6	2.8	5.2	1.3	4.4	2.5	4.2	2.4	4.6
ESE	4.4	5.5	4.5	6.0	2.5	4.8	3.8	5.1	3.8	5.4
SE	6.1	7.8	8.1	8.1	4.9	6.5	5.9	7.3	6.2	7.5
SSE	10.2	12.0	13.6	10.7	11.4	9.4	9.3	10.0	11.1	10.5
S	12.0	11.4	16.5	9.2	26.2	7.9	12.5	8.7	16.8	9.0
SSW	2.4	6.7	4.6	6.7	9.9	6.5	3.8	6.2	5.2	6.5
SW	1.3	5.0	2.4	5.9	3.8	5.3	2.0	5.1	2.4	5.4
WSW	0.7	4.6	1.3	5.5	1.7	4.6	1.0	5.0	1.2	4.9
W	1.2	4.2	2.0	4.8	3.2	4.7	2.0	4.1	2.1	4.5
WNW	1.5	4.4	2.5	5.8	4.1	5.4	2.8	4.8	2.7	5.2
NW	4.7	7.3	4.8	8.7	4.5	6.5	5.3	7.0	4.8	7.3
NNW	8.2	8.8	7.1	10.1	2.9	6.9	7.4	8.2	6.4	8.8
CALM	32.8		21.4		19.9		31.3		26.4	
ALL		5.5		6.5		5.6		4.9		5.6

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	162	169	184	173	174
SPEED:	1.7	2.4	3.5	1.2	2.2
PER. RATIO:	0.30	0.38	0.63	0.25	0.39
PREDOMINANT WINDS					
DIRECTION:	SSE	SSE	S	SSE	SSE
SPEED:	10.8	9.5	8.0	8.8	9.2
PERCENTAGE:	28.3	38.2	47.5	27.7	34.1
SECONDARY PREDOMINANT WINDS					
DIRECTION:	NNW	NNW	WNW	NNW	NNW
SPEED:	7.5	8.8	5.6	7.2	7.5
PERCENTAGE:	20.4	16.4	11.8	19.1	16.3

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY

Station Name: BEAUMONT
Elevation: 2592 Feet

	Degrees	Minutes
North Latitude:	33	56
West Longitude:	116	56

Period of Record: 1948 - 1952
Observations: 40,819
24 OBS/DAY

Bias Index: -0.01
Speed Units: MPH

Source Code
Data: 1
Summary: L

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	4.2	3.9	2.6	3.8	0.9	3.7	5.2	3.9	3.2	3.9
NNE	2.1	4.4	0.4	4.2	0.2	3.5	1.7	4.2	1.1	4.3
NE	2.6	6.0	0.4	4.9	0.2	5.3	1.8	5.2	1.2	5.6
ENE	12.4	10.9	2.4	10.6	0.7	8.7	7.5	10.6	5.7	10.7
E	20.2	11.8	5.2	12.9	2.7	12.1	14.4	12.2	10.5	12.1
ESE	3.9	8.1	1.4	10.2	0.9	9.3	3.4	10.1	2.4	9.2
SE	0.7	5.3	0.2	3.8	0.2	6.0	0.4	4.0	0.4	4.8
SSE	0.5	4.8	0.2	5.3	0.2	7.4	0.3	4.3	0.3	5.2
S	0.8	5.5	0.7	6.8	0.5	8.2	0.8	6.4	0.7	6.6
SSW	4.3	8.4	6.6	9.8	4.2	10.2	3.6	9.1	4.7	9.4
SW	6.3	7.5	10.9	8.0	8.4	8.0	6.3	7.5	8.0	7.8
WSW	11.0	6.6	19.4	7.1	18.3	6.9	11.2	6.6	15.0	6.9
W	8.8	5.6	17.3	6.1	21.1	5.9	11.0	5.5	14.6	5.8
WNW	7.6	5.4	16.3	5.9	20.5	5.6	11.6	5.3	14.1	5.6
NW	6.2	4.3	9.0	4.6	14.5	4.5	10.6	4.3	10.1	4.4
NNW	5.4	4.7	5.3	4.6	4.9	4.8	7.9	4.6	5.9	4.7
CALM	2.9		1.6		1.5		2.2		2.0	
ALL		7.5		6.8		6.2		6.9		6.9

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	81	257	266	19	267
SPEED:	1.8	3.5	4.2	0.4	1.4
PER. RATIO:	0.24	0.51	0.67	0.06	0.21
PREDOMINANT WINDS					
DIRECTION:	E	W	W	W	W
SPEED:	11.1	6.4	6.1	5.8	6.1
PERCENTAGE:	36.5	53.0	59.9	33.8	43.7
SECONDARY PREDOMINANT WINDS					
DIRECTION:	W	SSW	NNW	E	NNW
SPEED:	5.9	8.6	4.5	11.4	4.4
PERCENTAGE:	27.4	18.2	20.3	25.3	19.2

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY

Station Name: BELL
Elevation: 151 Feet

	Degrees	Minutes
North Latitude:	33	59
West Longitude:	118	11

Period of Record: NOV 1955 - DEC 1956
Observations: 6,754
24 OBS/DAY

Bias Index: 0.91
Speed Units: MPH

Source Code
Data: 3
Summary: M

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	9.4	3.0	3.2	3.4	1.4	4.1	10.8	4.5	6.2	3.8
NNE	1.0	4.4	0.8	3.1	****	****	1.2	3.7	0.8	3.8
NE	13.4	3.8	6.8	3.4	1.0	3.7	8.6	4.7	7.4	4.0
ENE	0.8	3.1	0.3	4.4	0.1	6.0	0.2	3.8	0.3	3.7
E	9.2	4.2	6.5	3.9	2.8	4.7	7.7	6.3	6.6	4.8
ESE	1.2	5.3	1.4	3.5	0.6	4.8	0.9	5.9	1.0	4.7
SE	16.1	4.6	19.4	4.1	18.8	5.4	15.2	6.2	17.4	5.0
SSE	1.2	5.8	1.4	3.9	0.9	5.1	1.2	5.2	1.2	4.9
S	6.6	4.8	9.1	4.8	8.3	6.2	7.8	7.0	8.0	5.7
SSW	0.5	4.7	1.3	5.2	0.9	7.2	1.4	7.0	1.1	6.2
SW	15.8	4.9	19.5	5.7	29.6	6.8	14.2	8.7	19.6	6.5
WSW	2.2	7.7	3.2	6.6	1.9	7.8	1.5	12.8	2.2	8.2
W	10.1	7.1	17.6	6.3	23.8	8.1	17.2	9.7	17.2	7.9
WNW	1.4	7.1	0.8	6.9	0.8	6.9	1.0	13.2	1.0	8.6
NW	10.2	4.7	8.5	5.3	9.1	6.8	10.3	7.2	9.5	6.0
NNW	1.1	4.2	0.4	4.7	****	****	0.8	4.3	0.6	4.3
CALM	0.0		0.0		0.0		0.0		0.0	
ALL		4.8		5.0		6.7		7.1		5.9

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	226	227	233	244	234
SPEED:	0.7	2.0	3.8	2.1	2.1
PER. RATIO:	0.14	0.39	0.57	0.29	0.36
PREDOMINANT WINDS (Alternate Definition)					
DIRECTION:	SE	SW	SW	W	SW
SPEED:	4.7	5.8	6.9	10.1	6.6
PERCENTAGE:	18.5	24.0	32.4	19.7	22.9
SECONDARY PREDOMINANT WINDS (Alternate Definition)					
DIRECTION:	SW	SE	SE	SE	SE
SPEED:	5.2	4.0	5.4	6.1	5.0
PERCENTAGE:	18.5	22.2	20.3	17.3	19.6

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY

Station Name: BENICIA
Elevation: 131 Feet

	Degrees	Minutes
North Latitude:	38	3
West Longitude:	122	9

Period of Record:
MAY 1976 - DEC 1976
APR 1979 - MAR 1980

Observations: 21,379
24 OBS/DAY

Bias Index: 1.00
Speed Units: MPH
Source Code
Data: 4
Summary: L

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	26.7	2.9	7.2	3.0	1.4	5.5	16.8	2.8	12.3	2.9
NNE	****	****	****	****	****	****	****	****	****	****
NE	25.1	3.2	3.3	3.9	0.1	2.8	7.6	3.0	8.1	3.2
ENE	****	****	****	****	****	****	****	****	****	****
E	6.8	2.5	3.3	6.1	0.1	3.0	2.8	2.8	3.0	3.4
ESE	****	****	****	****	****	****	****	****	****	****
SE	10.3	3.6	14.3	6.3	1.5	6.9	2.6	3.4	6.5	5.1
SSE	****	****	****	****	****	****	****	****	****	****
S	3.3	4.3	14.1	5.9	7.5	6.7	4.5	5.0	7.2	5.8
SSW	****	****	****	****	****	****	****	****	****	****
SW	13.5	6.5	29.4	6.8	34.4	6.4	24.6	5.5	26.2	6.1
WSW	****	****	****	****	****	****	****	****	****	****
W	5.7	3.6	17.3	5.4	34.6	6.4	23.0	4.9	21.5	5.6
WNW	****	****	****	****	****	****	****	****	****	****
NW	8.6	3.3	11.2	5.0	20.5	6.3	18.0	4.3	15.3	5.1
NNW	****	****	****	****	****	****	****	****	****	****
CALM	0.0		0.0		0.0		0.0		0.0	
ALL		3.6		5.5		6.4		4.3		5.0

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	357	220	256	268	254
SPEED:	0.5	2.6	4.8	2.3	2.5
PER. RATIO:	0.14	0.47	0.74	0.54	0.49
PREDOMINANT WINDS (Alternate Definition)					
DIRECTION:	N	SW	W	SW	SW
SPEED:	2.9	6.0	6.4	5.5	6.1
PERCENTAGE:	26.7	29.4	34.6	24.6	26.2
SECONDARY PREDOMINANT WINDS (Alternate Definition)					
DIRECTION:	SW	SE	S	NW	NW
SPEED:	6.5	6.3	6.7	4.3	5.1
PERCENTAGE:	13.5	14.3	7.5	18.0	15.3

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY

Station Name: BISHOP
Elevation: 4112 Feet (39)

	Degrees	Minutes
North Latitude:	37	22
West Longitude:	118	22

Period of Record:
1949 - 1977

Observations: 117,917

Bias Index: 0.34
Speed Units: MPH
Source Code
Data: 1
Summary: L

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	14.7	11.1	15.7	12.6	7.2	8.9	11.7	10.4	12.3	11.1
NNE	5.1	10.9	5.7	11.7	2.9	8.6	4.0	10.1	4.4	10.6
NE	2.5	5.9	3.0	7.8	2.2	6.4	2.1	5.8	2.5	6.6
ENE	0.8	4.8	0.8	5.7	0.8	5.6	0.8	4.9	0.8	5.2
E	1.2	4.3	1.2	5.6	1.4	5.9	1.1	4.8	1.2	5.2
ESE	0.8	4.9	0.9	6.5	0.9	6.7	1.0	5.8	0.9	6.0
SE	2.1	6.2	2.7	8.3	3.9	9.4	3.1	8.0	2.9	8.2
SSE	4.9	9.6	7.0	12.2	9.7	12.1	8.4	11.5	7.5	11.6
S	8.7	8.5	10.9	11.7	14.8	11.6	13.5	10.4	12.0	10.7
SSW	2.7	7.3	4.2	9.6	5.9	9.5	4.4	8.1	4.3	8.8
SW	2.5	5.6	4.0	7.7	6.0	7.5	3.7	6.4	4.1	7.0
WSW	1.3	6.2	2.8	9.7	3.7	8.1	2.1	6.8	2.5	8.0
W	3.1	6.4	4.8	10.1	5.7	8.1	3.1	6.8	4.2	8.1
WNW	4.8	6.8	3.8	9.1	4.3	7.2	3.8	6.5	4.2	7.4
NW	12.2	7.0	8.5	8.0	8.5	6.4	10.2	6.3	9.8	6.9
NNW	9.7	7.9	7.8	9.7	5.6	6.9	8.2	7.3	7.8	8.0
CALM	22.8		16.1		16.4		18.7		18.5	
ALL		6.4		8.7		7.5		7.0		7.4

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	336	315	205	248	282
SPEED:	2.3	1.6	2.4	0.7	1.0
PER. RATIO:	0.36	0.19	0.32	0.10	0.13
PREDOMINANT WINDS					
DIRECTION:	NNW	NNW	S	NNW	NNW
SPEED:	8.9	10.7	11.4	8.2	8.9
PERCENTAGE:	36.6	32.0	30.4	30.1	29.9
SECONDARY PREDOMINANT WINDS					
DIRECTION:	S	S	NNW	S	S
SPEED:	8.6	11.5	7.4	10.4	10.6
PERCENTAGE:	16.3	22.1	21.3	26.3	23.8

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY

Station Name: BLUE CANYON
Elevation: 5283 Feet (30)
Degrees Minutes
North Latitude: 39 17
West Longitude: 120 42

Period of Record: 1958 - 1977
Observations: 45,835

Bias Index: 0.21
Speed Units: MPH
Source Code
Data: 1
Summary: L

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	3.0	4.9	2.8	5.2	1.5	3.9	2.4	4.7	2.4	4.8
NNE	3.5	5.9	2.8	6.1	1.6	4.0	2.7	5.6	2.6	5.6
NE	9.3	7.2	6.0	6.7	4.1	4.7	6.2	6.1	6.4	6.4
ENE	11.1	7.7	7.9	6.9	6.3	4.6	9.7	6.2	8.7	6.5
E	7.9	6.7	6.0	6.0	6.1	4.0	8.1	5.4	7.0	5.6
ESE	5.6	6.3	4.4	5.8	5.4	4.2	6.0	5.2	5.4	5.3
SE	6.9	7.7	5.7	7.1	6.8	5.4	6.9	6.3	6.6	6.6
SSE	8.6	8.8	6.9	8.3	7.2	6.9	7.6	7.9	7.6	8.0
S	18.2	10.4	19.3	9.9	18.8	8.7	18.4	9.4	18.7	9.6
SSW	6.9	10.3	10.2	10.0	11.3	8.7	8.7	9.4	9.3	9.5
SW	5.1	9.0	9.0	8.4	9.5	7.9	6.1	7.9	7.4	8.2
WSW	4.1	7.4	6.9	7.1	8.3	7.1	5.9	6.7	6.3	7.1
W	3.7	5.4	5.2	6.3	7.0	6.2	5.5	5.9	5.4	6.0
WNW	2.7	4.2	3.4	5.3	3.3	5.7	3.0	5.1	3.1	5.1
NW	1.5	3.3	1.7	4.7	1.3	5.2	1.4	4.2	1.5	4.3
NNW	1.3	3.6	1.2	4.7	0.7	4.8	0.9	4.1	1.0	4.2
CALM	0.5		0.5		0.7		0.4		0.5	
ALL		7.8		7.7		6.6		7.0		7.3

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	151	180	192	169	174
SPEED:	3.4	3.5	3.7	3.1	3.3
PER. RATIO:	0.43	0.46	0.56	0.45	0.45
PREDOMINANT WINDS					
DIRECTION:	S	SSW	SSW	S	S
SPEED:	10.0	9.6	8.5	9.1	9.2
PERCENTAGE:	33.7	38.5	39.6	34.7	35.6
SECONDARY PREDOMINANT WINDS					
DIRECTION:	ENE	ENE	SE	ENE	ENE
SPEED:	7.3	6.6	5.6	5.9	6.2
PERCENTAGE:	28.3	19.9	19.4	24.0	22.1

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY

Station Name: BLYTHE
Elevation: 395 Feet
Degrees Minutes
North Latitude: 33 37
West Longitude: 114 43

Period of Record: 1949 - 1954
Observations: 52,582
24 OBS/DAY

Bias Index: 0.00
Speed Units: MPH
Source Code
Data: 1
Summary: L

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	11.6	8.8	6.3	7.7	2.7	5.3	9.0	6.7	7.4	7.6
NNE	5.1	7.2	3.8	7.1	1.7	5.6	4.1	6.3	3.7	6.7
NE	3.7	4.6	2.5	4.8	1.8	5.4	4.0	5.0	3.0	4.9
ENE	1.2	4.8	1.0	4.9	1.2	6.2	1.5	5.2	1.2	5.3
E	1.6	3.7	1.6	4.2	1.8	5.4	2.4	4.5	1.8	4.5
ESE	2.2	4.1	1.9	5.2	2.7	6.2	2.7	4.9	2.4	5.2
SE	3.2	4.8	4.8	6.0	7.8	7.3	5.7	5.2	5.4	6.1
SSE	4.4	6.5	9.9	8.0	21.8	9.4	7.2	6.6	10.9	8.3
S	4.7	6.3	9.9	7.9	16.8	8.8	7.8	6.3	9.8	7.8
SSW	4.6	7.9	8.8	10.2	11.6	10.0	5.2	7.7	7.6	9.4
SW	6.2	6.6	9.9	9.9	8.1	9.0	7.8	6.4	8.0	8.2
WSW	8.2	6.7	10.2	10.0	6.5	9.5	7.4	6.9	8.1	8.4
W	5.0	5.5	3.8	7.0	2.5	6.6	4.5	5.2	3.9	6.0
WNW	3.6	6.5	2.5	6.8	1.0	5.8	2.6	5.4	2.4	6.2
NW	6.5	7.1	3.8	7.0	1.9	4.9	5.1	5.6	4.3	6.4
NNW	12.9	11.1	7.1	10.6	1.8	7.0	8.0	9.0	7.4	10.2
CALM	15.2		12.1		8.2		14.9		12.6	
ALL		6.2		7.3		7.7		5.4		6.7

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	316	227	183	259	221
SPEED:	2.4	2.7	5.2	0.9	1.8
PER. RATIO:	0.38	0.37	0.67	0.17	0.27
PREDOMINANT WINDS					
DIRECTION:	NNW	SW	S	NNW	S
SPEED:	9.4	10.0	9.3	7.3	8.4
PERCENTAGE:	31.0	28.9	50.2	22.1	28.3
SECONDARY PREDOMINANT WINDS					
DIRECTION:	WSW	SSE	WSW	SSW	WSW
SPEED:	6.4	7.6	8.8	6.7	7.9
PERCENTAGE:	19.4	24.6	17.1	20.8	20.0

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY | Period of Record: | Bias Index: 0.89
Station Name: BROOKINGS | | Speed Units: MPH
Elevation: 144 Feet | JAN 1937 - DEC 1942 |
Degrees Minutes | | Source Code
North Latitude: 42 3 | Observations: 15,344 | Data: 1
West Longitude: 124 17 | | Summary: K

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	13.0	7.1	12.8	6.2	7.9	3.7	15.1	6.0	12.2	6.0
NNE	4.2	9.0	4.4	7.3	1.2	6.8	4.3	7.5	3.5	7.8
NE	29.0	6.3	13.6	5.2	6.0	3.9	16.9	5.2	16.3	5.5
ENE	1.3	6.1	1.2	5.0	0.4	3.9	1.0	4.5	1.0	5.1
E	4.2	4.6	3.8	4.2	3.4	3.0	7.4	3.9	4.8	4.0
ESE	1.5	6.9	1.0	6.3	0.8	5.1	0.7	5.3	1.0	6.1
SE	16.9	11.1	13.2	8.6	11.6	4.2	12.7	6.1	13.6	7.8
SSE	1.9	12.6	2.1	10.0	1.8	5.1	1.4	6.7	1.8	8.7
S	8.3	10.8	10.3	7.9	19.6	4.3	11.6	5.9	12.4	6.5
SSW	0.6	9.7	0.5	9.6	0.9	3.9	0.3	5.3	0.6	6.7
SW	6.7	9.0	6.0	6.2	7.9	4.4	5.1	5.1	6.4	6.1
WSW	0.1	7.3	0.3	6.6	0.3	7.4	0.2	5.8	0.2	6.7
W	3.3	6.2	8.7	7.4	7.2	6.7	6.0	5.1	6.3	6.5
WNW	0.4	5.9	1.0	8.0	0.9	6.6	0.5	8.3	0.7	7.3
NW	6.2	5.9	14.9	9.4	14.2	9.2	10.3	7.0	11.4	8.3
NNW	0.2	7.0	0.7	6.0	0.4	6.2	0.6	6.2	0.5	6.2
CALM	2.1		5.4		15.4		5.8		7.2	
ALL		7.8		6.9		4.5		5.4		6.1

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	92	335	267	36	52
SPEED:	2.3	0.6	1.0	1.1	0.5
PER. RATIO:	0.29	0.08	0.23	0.20	0.09
PREDOMINANT WINDS (Alternate Definition)					
DIRECTION:	NE	NE	S	NE	NE
SPEED:	6.6	5.7	4.3	5.6	5.9
PERCENTAGE:	34.5	19.2	22.3	22.2	20.8
SECONDARY PREDOMINANT WINDS (Alternate Definition)					
DIRECTION:	SE	NW	NW	SE	SE
SPEED:	10.9	9.2	9.0	6.1	7.8
PERCENTAGE:	20.3	16.6	15.5	14.8	16.4

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY | Period of Record: | Bias Index: 0.07
Station Name: BURBANK AIRPORT | | Speed Units: MPH
Elevation: 725 Feet (85) | 1961 - 1968 |
Degrees Minutes | | Source Code
North Latitude: 34 12 | Observations: 46,733 | Data: 1
West Longitude: 118 22 | 24 OBS/DAY | Summary: L

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	9.0	5.9	4.1	6.3	1.2	4.0	5.4	5.6	4.9	5.8
NNE	3.5	7.2	1.6	6.3	0.8	3.7	2.0	6.6	2.0	6.5
NE	2.7	7.5	1.0	6.0	0.5	3.6	1.6	7.5	1.4	6.9
ENE	2.9	5.7	1.6	4.7	1.1	4.1	2.1	5.5	1.9	5.2
E	4.6	5.3	4.5	5.5	4.6	5.5	4.6	5.6	4.6	5.5
ESE	7.7	7.1	9.6	7.4	16.5	7.4	10.8	6.9	11.2	7.2
SE	7.0	7.8	9.4	7.7	13.6	7.5	8.8	7.3	9.7	7.5
SSE	8.8	7.4	14.8	8.1	15.1	7.9	11.4	7.4	12.5	7.8
S	9.6	6.7	19.5	8.4	27.1	8.5	16.2	7.6	18.1	8.0
SSW	4.8	5.7	7.9	7.6	7.7	7.6	6.3	6.3	6.7	7.0
SW	3.7	4.9	3.1	5.9	2.4	5.7	3.2	4.7	3.1	5.3
WSW	2.9	4.8	2.1	6.1	1.0	4.2	2.4	4.4	2.1	5.0
W	4.4	5.4	3.7	6.2	1.3	4.7	3.5	4.8	3.2	5.4
WNW	6.6	6.1	4.5	7.2	1.7	4.9	4.4	5.6	4.3	6.1
NW	7.4	6.1	4.4	8.9	1.4	4.9	5.5	5.8	4.7	6.6
NNW	9.1	6.7	5.1	8.8	1.3	4.4	6.5	6.6	5.5	7.0
CALM	5.2		3.0		2.6		5.2		4.0	
ALL		6.1		7.3		7.2		6.2		6.7

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	135	169	158	158	160
SPEED:	0.4	3.1	5.4	2.1	2.7
PER. RATIO:	0.06	0.42	0.76	0.35	0.41
PREDOMINANT WINDS					
DIRECTION:	NNW	SSE	SSE	SSE	SSE
SPEED:	6.2	8.1	8.1	7.5	7.8
PERCENTAGE:	25.5	43.7	55.8	36.4	40.3
SECONDARY PREDOMINANT WINDS					
DIRECTION:	SSE	E	E	E	E
SPEED:	7.2	6.6	6.8	6.4	6.5
PERCENTAGE:	25.4	15.7	22.2	17.5	17.7

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY

Station Name: BURBANK (SCAQMD)
Elevation: 567 Feet (30)
Degrees Minutes
North Latitude: 34 11
West Longitude: 118 19

Period of Record: MAR 1962 - DEC 1974
Observations: 118,353
24 OBS/DAY

Bias Index: 0.32
Speed Units: MPH
Source Code
Data: 3
Summary: M

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	3.5	4.0	1.4	4.6	0.8	2.3	2.0	3.3	1.9	3.7
NNE	1.1	7.0	0.4	5.4	0.2	2.4	0.5	4.6	0.5	5.8
NE	1.4	8.1	0.6	4.3	0.4	2.6	0.5	7.2	0.7	6.3
ENE	0.8	7.1	1.0	3.4	3.0	4.6	1.1	4.4	1.5	4.7
E	4.8	3.9	8.8	4.0	18.4	4.6	7.9	4.0	10.1	4.3
ESE	7.9	4.3	12.3	4.2	22.7	4.5	10.1	3.8	13.4	4.3
SE	10.1	3.8	16.0	4.0	17.5	3.9	12.4	3.8	14.1	3.9
SSE	5.5	3.5	10.1	4.2	9.6	3.8	8.4	3.8	8.4	3.9
S	8.3	3.0	13.3	4.1	9.8	3.9	10.4	3.3	10.5	3.6
SSW	4.8	2.9	6.7	4.0	4.2	3.4	6.0	3.2	5.4	3.4
SW	8.1	2.2	7.6	2.8	4.8	2.4	7.7	2.6	7.0	2.5
WSW	5.9	1.8	4.7	2.2	3.3	2.1	6.3	2.0	5.0	2.0
W	17.1	1.9	9.8	2.6	3.6	1.8	13.4	1.7	10.8	2.0
WNW	8.4	2.0	3.4	3.2	0.8	2.4	6.3	1.8	4.7	2.2
NW	8.8	2.4	3.1	5.0	0.5	2.6	4.9	2.3	4.2	2.9
NNW	3.4	2.7	0.8	5.5	0.4	3.1	2.1	2.5	1.6	3.0
CALM	0.0		0.0		0.0		0.0		0.0	
ALL		3.0		3.8		3.9		3.0		3.4

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	172	159	128	160	146
SPEED:	0.5	1.8	2.8	1.3	1.6
PER. RATIO:	0.17	0.49	0.73	0.41	0.46
PREDOMINANT WINDS					
DIRECTION:	WNW	SSE	ESE	SSE	ESE
SPEED:	2.1	4.1	4.4	3.6	4.2
PERCENTAGE:	34.3	39.4	58.6	31.2	37.6
SECONDARY PREDOMINANT WINDS					
DIRECTION:	SSE	E	S	WSW	S
SPEED:	3.5	4.1	3.8	2.0	3.7
PERCENTAGE:	23.9	22.1	23.6	27.4	24.3

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY

Station Name: CAMBRIA
Elevation: 98 Feet
Degrees Minutes
North Latitude: 35 34
West Longitude: 121 7

Period of Record: JUN 1943 - OCT 1944
Observations: 12,159

Bias Index: 0.55
Speed Units: MPH
Source Code
Data: 1
Summary: A

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	25.1	5.7	3.6	5.4	4.2	5.0	3.1	5.7	7.5	5.5
NNE	10.1	5.3	2.9	4.2	1.0	3.8	4.5	3.9	4.0	4.6
NE	14.9	5.8	21.5	5.1	7.2	4.2	15.3	3.8	13.5	4.7
ENE	2.0	3.9	6.1	4.3	1.2	3.5	9.5	4.6	4.6	4.4
E	3.3	4.9	1.2	2.8	2.4	3.6	3.8	3.3	2.8	3.7
ESE	3.6	9.1	0.3	3.3	0.4	4.0	1.6	3.3	1.3	6.2
SE	3.1	7.3	2.1	4.5	2.7	4.4	3.8	4.3	3.0	4.9
SSE	3.4	12.8	2.8	7.3	2.1	5.9	6.6	5.9	3.8	7.2
S	4.7	6.2	6.1	4.9	6.0	4.7	4.2	4.9	5.2	5.0
SSW	3.5	8.2	1.7	9.1	1.4	4.5	2.8	4.6	2.2	6.2
SW	3.4	6.1	2.6	5.1	6.1	4.6	3.6	4.1	4.3	4.7
WSW	4.5	8.2	0.9	5.4	1.7	4.5	2.3	4.5	2.2	5.9
W	5.5	9.7	4.5	5.0	18.6	5.8	4.6	5.2	9.6	6.0
WNW	6.1	12.9	8.0	8.9	6.9	8.4	6.9	7.3	6.9	8.9
NW	3.8	9.8	30.7	10.9	31.9	8.8	16.3	8.0	22.1	9.2
NNW	2.6	5.2	4.3	6.9	4.7	7.1	8.6	6.6	5.4	6.7
CALM	0.3		0.6		1.4		2.4		1.5	
ALL		7.1		7.2		6.4		5.3		6.4

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	344	325	302	334	318
SPEED:	1.8	4.0	4.1	1.8	2.9
PER. RATIO:	0.25	0.55	0.64	0.33	0.46
PREDOMINANT WINDS (Alternate Definition)					
DIRECTION:	N	NW	NW	NW	NW
SPEED:	5.6	10.1	8.6	7.5	8.7
PERCENTAGE:	37.8	43.0	43.5	31.8	34.4
SECONDARY PREDOMINANT WINDS (Alternate Definition)					
DIRECTION:	W	NE	S	NE	NE
SPEED:	10.5	4.9	4.9	4.1	4.6
PERCENTAGE:	16.1	30.5	9.5	29.3	22.1

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY

Station Name: CAMPO
Elevation: 2630 Feet

	Degrees	Minutes
North Latitude:	32	37
West Longitude:	116	28

Period of Record: JAN 1979 - DEC 1979
Observations: 2,073
6 OBS/DAY 07-17 PST

Bias Index: 0.34
Speed Units: MPH
Source Code
Data: 1
Summary: L

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	5.7	5.4	2.7	6.3	4.8	5.6	6.5	6.0	4.9	5.8
NNE	6.1	8.1	3.3	9.3	3.5	6.4	5.0	7.9	4.4	7.9
NE	10.4	12.3	7.8	11.6	6.2	12.4	7.9	10.9	8.0	11.8
ENE	13.6	14.1	6.2	13.1	2.6	10.9	11.3	13.9	8.3	13.5
E	6.9	12.9	3.7	12.9	2.4	11.4	4.0	13.4	4.2	12.8
ESE	0.4	13.8	0.4	6.9	0.4	8.1	0.8	10.6	0.5	10.0
SE	0.8	15.8	0.6	15.3	1.1	4.6	1.0	10.8	0.9	10.6
SSE	1.4	8.5	0.6	8.4	0.5	4.6	0.6	4.2	0.8	7.0
S	3.5	10.6	4.1	7.4	5.5	8.9	3.4	9.0	4.1	8.9
SSW	5.3	9.1	8.8	12.1	15.5	11.6	5.2	12.1	8.8	11.4
SW	19.3	10.8	27.3	11.9	21.2	12.3	16.5	11.3	21.1	11.7
WSW	5.9	11.9	8.0	10.7	6.6	11.8	8.6	10.8	7.3	11.2
W	6.7	11.5	12.7	10.7	7.9	10.9	5.0	10.3	8.1	10.8
WNW	2.0	8.2	4.7	9.6	4.0	9.6	5.7	9.7	4.1	9.5
NW	2.9	6.7	0.4	4.6	4.6	9.4	3.8	9.3	2.9	8.6
NNW	1.6	5.5	0.8	6.9	1.5	7.5	2.5	6.6	1.6	6.6
CALM	7.4		7.8		11.6		12.1		9.9	
ALL		10.1		10.2		9.4		9.3		9.7

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	100	233	233	262	233
SPEED:	0.5	4.0	4.5	0.9	2.3
PER. RATIO:	0.05	0.39	0.48	0.09	0.23
PREDOMINANT WINDS					
DIRECTION:	WSW	WSW	SW	SW	SW
SPEED:	11.2	11.4	12.0	11.3	11.5
PERCENTAGE:	31.9	48.0	43.3	30.3	37.2
SECONDARY PREDOMINANT WINDS					
DIRECTION:	ENE	ENE	WNW	NE	NE
SPEED:	13.2	12.4	10.2	11.7	11.7
PERCENTAGE:	30.9	17.7	16.5	24.2	20.7

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY

Station Name: CAMP PENDLETON
Elevation: 63 Feet (22-57)

	Degrees	Minutes
North Latitude:	33	18
West Longitude:	117	21

Period of Record: 1967 - 1975
Observations: 26,219

Bias Index: 0.14
Speed Units: MPH
Source Code
Data: 1
Summary: L

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	2.7	5.4	1.4	4.1	0.7	2.7	1.5	5.4	1.6	4.9
NNE	4.7	5.5	2.3	5.3	0.9	3.8	2.3	5.2	2.6	5.3
NE	6.3	5.6	2.9	5.4	0.8	4.4	3.6	4.7	3.5	5.2
ENE	4.4	5.8	2.3	5.6	0.9	3.8	4.1	4.9	3.0	5.3
E	3.0	4.7	1.5	4.1	0.9	3.7	4.4	4.9	2.5	4.6
ESE	1.1	4.1	1.1	4.6	0.6	4.2	1.8	4.5	1.2	4.4
SE	1.2	6.2	1.3	6.2	0.7	5.3	0.9	4.7	1.0	5.7
SSE	2.4	7.3	3.6	7.9	1.9	5.2	2.0	5.0	2.5	6.6
S	6.7	7.8	8.1	6.6	8.8	6.3	5.6	5.4	7.2	6.5
SSW	6.0	6.4	11.7	8.1	13.7	7.5	6.4	6.4	9.3	7.2
SW	6.4	6.8	11.3	8.9	17.1	8.9	8.5	7.2	10.6	8.2
WSW	8.4	7.5	13.8	9.5	18.7	9.1	11.9	8.0	13.1	8.7
W	9.9	7.6	15.0	9.8	15.0	8.7	14.0	8.1	13.4	8.6
WNW	3.9	9.2	3.1	10.9	1.2	6.3	3.4	8.3	2.9	9.0
NW	0.8	7.1	0.6	6.1	0.5	3.7	1.1	7.7	0.8	6.6
NNW	0.9	5.4	0.4	5.3	0.4	3.1	0.7	6.0	0.6	5.2
CALM	31.1		19.5		17.1		27.7		24.1	
ALL		4.7		6.6		6.5		4.8		5.6

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	242	235	233	245	237
SPEED:	1.5	4.3	5.3	2.5	3.3
PER. RATIO:	0.32	0.65	0.82	0.51	0.59
PREDOMINANT WINDS					
DIRECTION:	WSW	WSW	WSW	WSW	WSW
SPEED:	7.4	9.4	8.9	7.8	8.5
PERCENTAGE:	24.7	40.1	50.8	34.4	37.1
SECONDARY PREDOMINANT WINDS					
DIRECTION:	NE	S	S	S	S
SPEED:	5.6	7.6	6.9	5.8	6.9
PERCENTAGE:	15.4	23.4	24.4	14.0	19.0

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY

Station Name: CASTLE AFB
Elevation: 197 Feet

	Degrees	Minutes
North Latitude:	37	22
West Longitude:	120	34

Period of Record: 1960 - 1968
Observations: 78,168
24 OBS/DAY

Bias Index: 0.14
Speed Units: MPH
Source Code
Data: 1
Summary: L

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	4.2	6.0	12.3	6.5	10.1	6.9	8.5	6.6	8.8	6.6
NNE	1.1	4.8	1.8	4.5	0.5	5.1	1.0	4.4	1.1	4.6
NE	0.6	3.7	0.9	4.3	0.1	5.5	0.4	3.9	0.5	4.1
ENE	0.5	3.7	0.4	3.7	0.1	3.8	0.3	3.7	0.3	3.7
E	2.2	4.6	1.1	4.4	0.2	4.8	1.2	4.0	1.2	4.4
ESE	6.0	7.6	2.1	5.9	0.2	5.8	2.3	6.7	2.6	7.0
SE	9.5	8.8	3.9	8.6	0.2	6.1	3.6	8.8	4.3	8.7
SSE	5.5	7.6	2.4	8.6	0.3	7.2	2.2	8.5	2.6	8.0
S	4.6	5.5	2.3	6.7	0.4	5.8	2.1	6.1	2.3	5.9
SSW	1.6	4.7	1.3	6.1	0.4	5.4	1.3	4.4	1.1	5.1
SW	1.0	5.6	1.5	6.5	0.6	6.2	1.2	4.8	1.1	5.8
WSW	0.6	4.7	1.7	7.1	0.9	6.6	0.8	5.0	1.0	6.2
W	1.3	4.5	3.6	6.5	3.6	5.9	3.1	4.9	2.9	5.7
WNW	2.2	6.1	5.7	7.0	13.3	7.1	6.6	6.3	7.0	6.8
NW	6.7	8.1	16.5	8.8	33.5	8.4	17.5	7.8	18.7	8.3
NNW	7.0	8.3	22.0	8.4	27.5	8.5	16.6	8.1	18.4	8.4
CALM	45.3		20.5		8.0		31.2		26.0	
ALL		3.9		6.0		7.2		4.9		5.5

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	117	326	322	325	325
SPEED:	0.5	3.6	6.5	2.8	3.2
PER. RATIO:	0.13	0.60	0.90	0.57	0.57
PREDOMINANT WINDS					
DIRECTION:	SE	NNW	NW	NNW	NNW
SPEED:	8.1	8.1	8.2	7.7	8.0
PERCENTAGE:	21.0	50.8	74.3	42.6	45.9
SECONDARY PREDOMINANT WINDS					
DIRECTION:	NNW	W	NNE	W	W
SPEED:	7.7	6.9	6.8	5.8	6.5
PERCENTAGE:	17.9	11.0	10.7	10.5	10.9

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY

Station Name: CHICO
Elevation: 251 Feet

	Degrees	Minutes
North Latitude:	39	48
West Longitude:	121	51

Period of Record: MAY 1942 - DEC 1945
Observations: 31,535

Bias Index: 0.44
Speed Units: MPH
Source Code
Data: 1
Summary: A

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	8.1	6.5	4.2	8.8	3.5	7.4	6.8	6.3	5.4	7.0
NNE	4.0	5.5	2.6	7.1	1.9	5.8	3.2	5.8	2.9	6.0
NE	7.7	5.7	5.9	6.7	5.0	5.5	8.2	5.3	6.7	5.7
ENE	2.4	4.9	2.6	5.2	1.9	5.3	2.7	4.8	2.4	5.0
E	4.3	5.4	3.5	6.3	3.0	4.7	4.5	5.1	3.8	5.3
ESE	4.7	8.8	4.0	8.2	4.2	6.4	4.7	7.1	4.4	7.6
SE	18.2	13.5	17.9	12.9	11.9	8.3	16.1	11.5	15.8	11.7
SSE	8.0	13.2	14.3	12.7	17.8	10.0	9.6	9.8	12.6	11.1
S	6.5	7.0	8.6	8.9	19.5	8.8	10.2	6.8	11.6	8.1
SSW	1.0	4.7	2.4	6.5	5.4	7.2	2.3	5.3	2.9	6.5
SW	1.6	5.0	3.0	6.0	4.8	5.9	3.2	4.5	3.2	5.4
WSW	0.9	4.7	1.5	5.6	1.8	5.5	1.2	4.4	1.4	5.1
W	3.8	4.7	3.2	6.1	3.9	5.6	3.6	4.5	3.6	5.2
WNW	2.4	5.7	2.7	8.1	2.6	8.0	3.9	6.6	2.9	7.1
NW	16.4	9.6	15.6	13.2	7.9	11.1	12.9	9.9	12.9	10.9
NNW	8.4	9.1	7.3	11.7	3.6	11.1	5.8	8.1	6.1	9.8
CALM	1.5		0.6		1.2		1.8		1.3	
ALL		8.7		10.3		8.1		7.7		8.6

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	109	146	171	131	148
SPEED:	1.5	1.6	3.2	1.4	1.8
PER. RATIO:	0.17	0.15	0.39	0.18	0.21
PREDOMINANT WINDS					
DIRECTION:	NNW	SSE	SSE	SSE	SSE
SPEED:	8.7	12.0	9.1	9.7	10.5
PERCENTAGE:	32.9	40.8	49.2	35.9	40.0
SECONDARY PREDOMINANT WINDS					
DIRECTION:	SSE	NNW	NNW	NNW	NNW
SPEED:	12.1	12.1	10.2	8.6	9.8
PERCENTAGE:	32.7	27.1	15.0	24.7	24.4

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY

Station Name: CHINA LAKE
Elevation: 2238 Feet (16)
Degrees Minutes
North Latitude: 35 41
West Longitude: 117 41

Period of Record: 1969 - 1979
Observations: 91,084
24 OBS/DAY

Bias Index: 0.22
Speed Units: MPH
Source Code
Data: 1
Summary: L

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	3.9	9.8	2.4	9.7	1.2	5.5	2.7	10.7	2.5	9.5
NNE	2.1	8.0	1.4	8.8	0.7	5.0	1.2	8.5	1.4	7.9
NE	1.4	4.3	1.1	6.6	0.7	4.9	1.3	4.9	1.1	5.1
ENE	1.5	4.3	1.2	5.1	0.9	4.6	1.3	4.6	1.2	4.6
E	3.4	4.6	3.6	5.5	3.3	5.5	4.0	5.0	3.6	5.2
ESE	2.4	5.3	3.7	6.2	3.6	6.0	4.1	6.0	3.5	6.0
SE	3.1	5.2	4.0	5.9	4.2	5.9	4.1	5.5	3.8	5.7
SSE	2.5	5.3	3.7	6.1	5.2	7.0	3.9	5.9	3.8	6.2
S	5.9	8.1	8.9	9.1	12.2	8.5	7.8	7.7	8.8	8.4
SSW	5.9	9.1	10.1	10.9	13.3	10.0	8.2	9.5	9.4	10.0
SW	9.0	8.1	12.4	11.6	12.0	10.4	10.4	9.2	11.0	10.0
WSW	6.6	9.2	9.8	12.7	8.4	10.5	6.8	9.4	7.9	10.7
W	6.5	8.1	11.0	12.5	7.8	9.4	5.6	7.7	7.7	9.9
WNW	2.3	7.5	3.2	10.3	2.2	7.4	2.0	6.4	2.4	8.2
NW	2.5	7.2	2.1	7.9	1.6	6.4	2.2	7.0	2.1	7.2
NNW	2.5	8.3	2.0	9.2	1.1	7.0	2.1	8.7	1.9	8.5
CALM	38.4		19.3		21.5		32.2		27.8	
ALL		4.7		8.0		6.8		5.3		6.2

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	237	231	213	217	223
SPEED:	1.9	4.7	4.4	2.5	3.3
PER. RATIO:	0.40	0.58	0.66	0.46	0.54
PREDOMINANT WINDS					
DIRECTION:	WSW	WSW	SSW	SSW	SSW
SPEED:	8.4	12.2	9.6	8.9	9.5
PERCENTAGE:	22.1	33.2	37.5	26.4	29.2
SECONDARY PREDOMINANT WINDS					
DIRECTION:	S	S	W	W	W
SPEED:	8.0	9.4	9.7	8.3	10.0
PERCENTAGE:	14.3	22.7	18.4	14.4	18.0

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY

Station Name: CITRUS HEIGHTS
Elevation: 171 Feet (26)
Degrees Minutes
North Latitude: 38 40
West Longitude: 121 15

Period of Record: JUL 1981 - JUN 1982
Observations: 6,594
24 OBS/DAY

Bias Index: 0.03
Speed Units: MPH
Source Code
Data: 2
Summary: L

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	5.7	5.5	3.5	4.6	1.6	3.6	2.9	3.1	3.1	4.3
NNE	3.3	2.3	1.2	2.3	0.7	1.9	2.8	2.0	1.9	2.1
NE	3.9	2.0	2.2	1.6	0.7	1.4	4.5	1.6	2.7	1.7
ENE	3.6	1.7	2.9	1.6	0.9	1.3	4.7	1.6	2.9	1.6
E	4.2	1.9	3.3	1.8	1.6	1.6	4.7	1.2	3.3	1.6
ESE	4.1	3.6	4.2	2.3	2.6	2.1	5.7	2.1	4.1	2.4
SE	13.1	4.1	15.0	4.6	15.7	4.3	14.8	3.9	14.8	4.2
SSE	18.6	4.7	19.3	4.7	21.8	4.5	15.4	4.5	18.9	4.6
S	9.3	3.5	9.5	4.0	6.9	3.6	6.5	3.0	7.8	3.5
SSW	7.0	4.2	6.2	3.9	7.4	4.4	5.6	3.5	6.5	4.0
SW	4.4	4.8	7.9	5.1	14.5	5.0	8.4	4.3	9.6	4.8
WSW	1.9	2.8	2.9	3.4	6.4	3.6	4.2	3.0	4.2	3.3
W	2.6	2.0	2.5	3.2	4.0	3.3	2.8	2.2	3.1	2.8
WNW	2.9	2.4	3.3	3.3	3.3	3.8	3.2	2.5	3.2	3.1
NW	6.4	3.7	7.8	4.6	5.4	5.1	7.0	3.9	6.5	4.3
NNW	9.1	5.5	8.5	5.5	6.5	7.4	6.8	4.7	7.5	5.8
CALM	0.0		0.0		0.0		0.0		0.0	
ALL		3.9		4.2		4.3		3.3		3.9

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	162	181	197	175	184
SPEED:	0.9	1.3	1.8	1.0	1.3
PER. RATIO:	0.24	0.32	0.43	0.31	0.33
PREDOMINANT WINDS					
DIRECTION:	SSE	SSE	SSE	SSE	SSE
SPEED:	4.2	4.5	4.3	4.0	4.3
PERCENTAGE:	41.0	43.8	44.4	36.7	41.5
SECONDARY PREDOMINANT WINDS					
DIRECTION:	NNW	NNW	SW	SW	SW
SPEED:	5.0	5.0	4.5	3.8	4.2
PERCENTAGE:	21.2	19.8	28.3	18.2	20.3

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY
Station Name: CLOVERDALE PEAK
Elevation: 2923 Feet (33)
Degrees Minutes
North Latitude: 38 54
West Longitude: 123 0
Period of Record: NOV 1972 - OCT 1974
Observations: 12,674
24 OBS/DAY
Bias Index: 0.47
Speed Units: MPH
Source Code
Data: 5
Summary: N

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	17.0	8.3	42.1	8.5	28.1	7.6	15.8	7.5	24.7	8.0
NNE	4.8	5.6	5.6	5.6	5.8	4.8	4.3	4.4	5.1	5.1
NE	5.1	6.2	3.5	5.5	3.3	4.5	4.8	5.4	4.2	5.5
ENE	4.7	6.9	2.7	6.5	3.6	5.2	4.6	6.3	4.0	6.2
E	8.4	7.6	2.6	6.9	2.1	5.2	8.5	6.7	5.5	6.9
ESE	1.6	8.0	0.5	5.2	0.8	4.0	2.2	6.1	1.3	6.3
SE	3.3	8.2	0.8	4.0	1.2	3.5	2.7	5.0	2.1	6.0
SSE	8.7	9.5	1.2	5.2	2.0	4.1	4.0	5.9	4.1	7.6
S	19.2	15.1	5.3	8.9	3.9	7.6	13.2	9.9	10.7	12.0
SSW	6.4	15.2	4.2	10.1	5.3	8.2	7.4	9.6	5.9	10.9
SW	6.1	11.1	8.4	8.6	10.6	6.7	6.9	7.8	8.0	8.2
WSW	4.1	7.3	6.5	6.6	8.2	5.1	4.3	5.6	5.8	6.0
W	2.6	6.1	4.3	5.3	6.0	3.8	6.7	5.1	4.9	4.9
WNW	1.9	4.4	2.5	4.0	2.9	3.5	2.8	4.0	2.5	3.9
NW	2.5	5.4	4.7	6.2	6.6	4.4	6.4	4.6	5.1	4.9
NNW	3.4	7.0	5.1	8.6	9.5	6.3	5.5	5.5	5.9	6.6
CALM	0.0		0.0		0.0		0.0		0.0	
ALL		9.6		7.7		6.1		6.8		7.5

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	174	341	327	202	288
SPEED:	3.1	3.3	2.3	0.7	0.6
PER. RATIO:	0.32	0.43	0.37	0.10	0.07
PREDOMINANT WINDS					
DIRECTION:	S	N	NNW	NNW	N
SPEED:	13.7	8.2	6.8	6.4	7.4
PERCENTAGE:	34.3	52.8	44.2	27.7	35.7
SECONDARY PREDOMINANT WINDS					
DIRECTION:	NNE	WSW	WSW	SSW	SSW
SPEED:	7.4	7.2	5.5	9.3	10.5
PERCENTAGE:	26.9	19.2	24.8	27.5	24.6

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY
Station Name: COASTAL AREA 32
Elevation: 0 Feet
Degrees Minutes
North Latitude: 32 36
West Longitude: 118 0
Period of Record: 1944 - 1974
Observations: 166,886
Bias Index: 1.00
Speed Units: MPH
Source Code
Data: 1
Summary: F

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	15.0	10.4	7.8	10.7	6.3	9.7	11.6	9.9	10.1	10.2
NNE	****	****	****	****	****	****	****	****	****	****
NE	7.0	9.0	2.4	7.2	1.4	6.2	4.1	7.8	3.6	8.0
ENE	****	****	****	****	****	****	****	****	****	****
E	5.9	8.4	2.5	6.8	1.4	6.3	3.4	7.6	3.2	7.6
ESE	****	****	****	****	****	****	****	****	****	****
SE	5.8	9.3	3.7	8.0	2.8	7.1	3.7	7.8	3.9	8.2
SSE	****	****	****	****	****	****	****	****	****	****
S	6.2	10.5	6.0	8.7	6.4	7.6	5.0	8.0	5.9	8.7
SSW	****	****	****	****	****	****	****	****	****	****
SW	6.6	9.6	9.1	8.7	10.2	7.8	6.8	7.9	8.2	8.4
WSW	****	****	****	****	****	****	****	****	****	****
W	17.0	11.4	27.8	12.3	30.0	10.7	22.5	10.6	24.5	11.2
WNW	****	****	****	****	****	****	****	****	****	****
NW	31.2	12.7	37.7	14.4	38.1	12.7	38.5	12.4	36.5	13.1
NNW	****	****	****	****	****	****	****	****	****	****
CALM	5.2		2.9		3.3		4.3		4.0	
ALL		10.4		11.6		10.3		10.1		10.6

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	311	296	293	305	300
SPEED:	5.1	8.1	7.5	6.7	6.8
PER. RATIO:	0.49	0.70	0.73	0.66	0.64
PREDOMINANT WINDS (Alternate Definition)					
DIRECTION:	NW	NW	NW	NW	NW
SPEED:	12.7	14.4	12.7	12.4	13.1
PERCENTAGE:	31.2	37.7	38.1	38.5	36.5
SECONDARY PREDOMINANT WINDS (Alternate Definition)					
DIRECTION:	NE	SW	SW	SW	SW
SPEED:	9.0	8.7	7.8	7.9	8.4
PERCENTAGE:	7.0	9.1	10.2	6.8	8.2

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY
Station Name: COASTAL AREA 34
Elevation: 0 Feet
Degrees Minutes
North Latitude: 34 36
West Longitude: 121 2
Period of Record: 1936 - 1974
Observations: 55,930
Bias Index: 1.00
Speed Units: MPH
Source Code
Data: 1
Summary: F

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	19.3	14.0	14.8	17.0	16.6	18.3	20.0	14.8	17.5	16.0
NNE	****	****	****	****	****	****	****	****	****	****
NE	9.0	8.7	3.3	7.3	1.6	8.2	4.8	8.5	4.5	8.3
ENE	****	****	****	****	****	****	****	****	****	****
E	6.6	9.6	2.8	7.6	1.2	5.2	3.5	7.5	3.4	8.2
ESE	****	****	****	****	****	****	****	****	****	****
SE	6.7	11.9	3.9	9.3	2.1	6.8	3.6	10.2	3.9	10.1
SSE	****	****	****	****	****	****	****	****	****	****
S	7.2	13.0	4.9	9.1	2.6	5.9	3.9	9.7	4.5	10.1
SSW	****	****	****	****	****	****	****	****	****	****
SW	6.0	10.7	5.4	8.7	4.0	7.3	4.2	8.5	4.9	8.9
WSW	****	****	****	****	****	****	****	****	****	****
W	12.4	11.4	20.3	11.8	19.0	10.2	14.8	9.9	16.9	10.8
WNW	****	****	****	****	****	****	****	****	****	****
NW	26.9	14.9	39.5	17.5	46.1	17.0	38.1	14.7	38.2	16.2
NNW	****	****	****	****	****	****	****	****	****	****
CALM	5.8		5.0		6.7		7.0		6.1	
ALL		11.9		13.6		13.6		11.8		12.8

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	325	313	318	322	318
SPEED:	5.1	9.6	11.1	8.0	8.6
PER. RATIO:	0.43	0.71	0.81	0.68	0.67
PREDOMINANT WINDS (Alternate Definition)					
DIRECTION:	NW	NW	NW	NW	NW
SPEED:	14.9	17.5	17.0	14.7	16.2
PERCENTAGE:	26.9	39.5	46.1	38.1	38.2
SECONDARY PREDOMINANT WINDS (Alternate Definition)					
DIRECTION:	NE	SW	SW	NE	SW
SPEED:	8.7	8.7	7.3	8.5	8.9
PERCENTAGE:	9.0	5.4	4.0	4.8	4.9

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY
Station Name: COASTAL AREA 35
Elevation: 0 Feet
Degrees Minutes
North Latitude: 37 0
West Longitude: 123 39
Period of Record: 1937 - 1973
Observations: 58,544
Bias Index: 1.00
Speed Units: MPH
Source Code
Data: 1
Summary: F

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	21.4	17.0	21.1	20.8	23.2	20.3	25.4	17.6	22.8	18.9
NNE	****	****	****	****	****	****	****	****	****	****
NE	6.7	12.8	1.7	13.2	1.1	12.7	3.4	11.2	3.1	12.4
ENE	****	****	****	****	****	****	****	****	****	****
E	4.8	11.3	1.0	10.2	0.7	7.2	2.5	9.5	2.2	10.3
ESE	****	****	****	****	****	****	****	****	****	****
SE	7.9	15.9	3.6	14.4	1.8	9.2	4.6	13.0	4.4	14.1
SSE	****	****	****	****	****	****	****	****	****	****
S	12.9	16.9	6.8	14.3	3.8	9.4	7.2	13.3	7.5	14.4
SSW	****	****	****	****	****	****	****	****	****	****
SW	8.5	14.0	6.7	11.8	4.4	9.4	6.3	10.6	6.4	11.7
WSW	****	****	****	****	****	****	****	****	****	****
W	10.1	13.4	13.1	14.0	11.6	12.1	10.8	10.8	11.4	12.6
WNW	****	****	****	****	****	****	****	****	****	****
NW	23.6	16.3	43.3	19.5	51.0	18.8	35.6	16.1	38.9	18.0
NNW	****	****	****	****	****	****	****	****	****	****
CALM	4.0		2.6		2.3		4.1		3.2	
ALL		14.9		17.3		16.9		14.2		15.8

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	317	318	323	326	321
SPEED:	4.2	11.6	13.6	8.4	9.6
PER. RATIO:	0.28	0.67	0.81	0.59	0.61
PREDOMINANT WINDS (Alternate Definition)					
DIRECTION:	NW	NW	NW	NW	NW
SPEED:	16.3	19.5	18.8	16.1	18.0
PERCENTAGE:	23.6	43.3	51.0	35.6	38.9
SECONDARY PREDOMINANT WINDS (Alternate Definition)					
DIRECTION:	S	S	SW	S	S
SPEED:	16.9	14.3	9.4	13.3	14.4
PERCENTAGE:	12.9	6.8	4.4	7.2	7.5

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY
Station Name: COASTAL AREA 36
Elevation: 0 Feet

	Degrees	Minutes
North Latitude:	38	30
West Longitude:	123	51

Period of Record: 1934 - 1974
Observations: 39,024
Bias Index: 1.00
Speed Units: MPH
Source Code
Data: 1
Summary: F

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	18.1	16.6	18.6	20.6	23.8	21.8	22.7	17.5	21.0	19.5
NNE	****	****	****	****	****	****	****	****	****	****
NE	5.7	10.7	2.4	10.1	1.9	11.2	3.7	11.6	3.2	10.9
ENE	****	****	****	****	****	****	****	****	****	****
E	7.2	9.7	2.0	8.2	1.0	7.9	2.8	8.7	3.0	9.1
ESE	****	****	****	****	****	****	****	****	****	****
SE	11.7	14.6	5.5	11.7	2.3	8.1	7.3	12.5	6.2	12.7
SSE	****	****	****	****	****	****	****	****	****	****
S	13.3	15.3	8.0	12.0	4.4	8.2	9.2	12.5	8.3	12.6
SSW	****	****	****	****	****	****	****	****	****	****
SW	9.3	11.8	10.1	9.9	12.4	10.3	8.8	9.9	10.3	10.4
WSW	****	****	****	****	****	****	****	****	****	****
W	8.9	12.0	15.7	11.6	15.6	12.1	12.1	9.7	13.4	11.4
WNW	****	****	****	****	****	****	****	****	****	****
NW	20.1	15.3	34.3	18.7	36.2	19.8	27.5	15.2	30.3	17.9
NNW	****	****	****	****	****	****	****	****	****	****
CALM	5.6		3.3		2.3		5.8		4.2	
ALL		13.3		15.0		16.4		12.9		14.6

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	314	316	320	324	319
SPEED:	2.3	8.9	11.7	6.0	7.7
PER. RATIO:	0.17	0.60	0.72	0.46	0.53
PREDOMINANT WINDS (Alternate Definition)					
DIRECTION:	NW	NW	NW	NW	NW
SPEED:	15.3	18.7	19.8	15.2	17.9
PERCENTAGE:	20.1	34.3	36.2	27.5	30.3
SECONDARY PREDOMINANT WINDS (Alternate Definition)					
DIRECTION:	S	SW	SW	S	SW
SPEED:	15.3	9.9	10.3	12.5	10.4
PERCENTAGE:	13.3	10.1	12.4	9.2	10.3

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY
Station Name: COASTAL AREA 37
Elevation: 0 Feet

	Degrees	Minutes
North Latitude:	40	39
West Longitude:	124	51

Period of Record: 1942 - 1974
Observations: 18,900
Bias Index: 1.00
Speed Units: MPH
Source Code
Data: 1
Summary: F

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	22.9	19.7	40.2	21.9	53.4	21.3	35.6	19.2	38.3	20.7
NNE	****	****	****	****	****	****	****	****	****	****
NE	6.6	13.8	3.9	18.0	3.5	17.0	5.4	13.0	4.8	15.1
ENE	****	****	****	****	****	****	****	****	****	****
E	2.9	11.8	1.0	10.7	0.9	8.7	2.6	7.9	1.8	9.9
ESE	****	****	****	****	****	****	****	****	****	****
SE	11.7	19.2	5.0	18.3	2.5	10.0	8.6	14.7	6.8	16.8
SSE	****	****	****	****	****	****	****	****	****	****
S	23.8	22.6	14.0	18.5	4.9	11.4	15.0	17.7	14.2	19.3
SSW	****	****	****	****	****	****	****	****	****	****
SW	8.3	17.0	5.8	14.2	2.7	8.8	5.8	12.2	5.6	14.0
WSW	****	****	****	****	****	****	****	****	****	****
W	6.8	16.4	5.3	13.2	3.6	9.1	5.1	10.3	5.2	12.8
WNW	****	****	****	****	****	****	****	****	****	****
NW	12.1	16.1	18.3	17.4	23.4	17.6	15.7	15.6	17.5	16.9
NNW	****	****	****	****	****	****	****	****	****	****
CALM	4.8		6.4		5.0		6.1		5.7	
ALL		17.9		17.8		17.5		15.3		17.1

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	212	343	349	347	344
SPEED:	1.7	8.0	14.0	5.1	6.7
PER. RATIO:	0.10	0.45	0.80	0.34	0.39
PREDOMINANT WINDS (Alternate Definition)					
DIRECTION:	S	N	N	N	N
SPEED:	22.6	21.9	21.3	19.2	20.7
PERCENTAGE:	23.8	40.2	53.4	35.6	38.3
SECONDARY PREDOMINANT WINDS (Alternate Definition)					
DIRECTION:	N	S	S	S	S
SPEED:	19.7	18.5	11.4	17.7	19.3
PERCENTAGE:	22.9	14.0	4.9	15.0	14.2

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY
Station Name: COLUSA
Elevation: 82 Feet
Degrees Minutes
North Latitude: 39 12
West Longitude: 122 1
Period of Record: JUL 1981 - JUN 1982
Observations: 6,629
24 OBS/DAY
Bias Index: 0.05
Speed Units: MPH
Source Code
Data: 2
Summary: L

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	7.9	6.1	3.4	4.1	6.9	6.1	8.6	4.4	6.8	5.3
NNE	2.3	2.3	1.8	2.3	4.4	4.0	4.1	2.8	3.4	3.2
NE	1.7	1.7	1.5	2.2	2.5	2.8	3.2	1.6	2.3	2.1
ENE	2.3	2.1	2.1	2.7	1.8	2.3	3.9	1.8	2.5	2.1
E	2.9	2.4	7.9	4.7	3.2	3.6	3.9	1.9	4.4	3.5
ESE	5.5	4.4	19.5	5.6	12.9	5.9	9.2	4.3	11.9	5.3
SE	15.3	6.2	11.3	5.2	24.2	5.7	15.1	5.3	17.3	5.6
SSE	17.3	6.8	5.8	5.0	12.3	4.4	10.2	6.4	11.2	5.7
S	7.2	4.7	3.0	4.9	5.9	3.6	6.5	4.5	5.7	4.3
SSW	2.0	6.4	2.0	5.8	3.1	3.5	3.3	3.4	2.7	4.2
SW	2.1	5.3	2.1	8.7	2.7	5.1	2.6	3.0	2.4	5.2
WSW	1.7	3.6	1.4	4.3	1.6	4.6	1.1	4.0	1.4	4.2
W	3.4	1.4	2.0	3.1	1.7	3.6	2.0	2.1	2.2	2.5
WNW	2.4	2.4	4.1	3.3	2.6	2.5	4.2	1.7	3.3	2.4
NW	10.8	5.1	17.7	7.0	6.1	5.1	8.6	2.3	10.1	5.1
NNW	15.2	7.1	14.3	7.0	8.1	6.3	13.3	5.4	12.2	6.4
CALM	0.0		0.0		0.0		0.0		0.0	
ALL		5.4		5.6		5.0		4.1		4.9

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	137	29	121	119	113
SPEED:	0.6	0.7	1.7	0.8	0.9
PER. RATIO:	0.11	0.12	0.33	0.20	0.18
PREDOMINANT WINDS					
DIRECTION:	SSE	ESE	SE	SE	SE
SPEED:	6.2	5.3	5.4	5.4	5.5
PERCENTAGE:	39.8	38.7	49.4	34.5	40.4
SECONDARY PREDOMINANT WINDS					
DIRECTION:	NNW	NW	NNW	NNW	NNW
SPEED:	6.2	6.6	5.9	4.2	5.7
PERCENTAGE:	33.9	36.1	21.1	30.5	29.1

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY
Station Name: COMPTON
Elevation: 98 Feet (30)
Degrees Minutes
North Latitude: 34 4
West Longitude: 118 15
Period of Record: 1967 - 1974
Observations: 86,174
24 OBS/DAY
Bias Index: 0.15
Speed Units: MPH
Source Code
Data: 3
Summary: M

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	7.2	3.9	3.1	4.3	2.5	2.5	5.2	3.4	4.5	3.6
NNE	4.0	4.0	1.9	3.6	0.8	2.5	2.7	2.8	2.3	3.4
NE	8.7	3.7	3.7	3.3	1.4	2.6	4.9	2.9	4.6	3.3
ENE	3.9	3.6	1.8	2.9	0.9	2.4	2.3	2.7	2.2	3.1
E	7.3	3.6	5.3	3.3	3.7	3.1	6.6	3.1	5.7	3.3
ESE	8.2	3.6	6.2	3.8	5.6	3.4	7.1	3.0	6.7	3.4
SE	5.8	3.9	6.1	4.5	4.4	4.1	4.9	3.9	5.3	4.1
SSE	3.5	4.8	5.3	5.2	5.4	4.8	3.6	4.6	4.5	4.9
S	4.3	5.2	5.9	5.8	5.4	4.9	4.1	4.0	4.9	5.0
SSW	3.0	5.6	3.6	5.9	3.5	4.7	5.2	5.0	3.9	5.2
SW	5.2	5.2	5.8	6.5	8.0	6.2	10.7	6.9	7.5	6.3
WSW	6.6	6.8	11.2	8.2	17.1	7.7	8.2	6.8	10.8	7.5
W	14.3	5.6	19.8	8.0	18.5	7.1	16.7	6.9	17.3	7.0
WNW	8.3	7.5	15.3	9.1	16.8	8.0	10.1	7.3	12.6	8.1
NW	5.8	5.1	3.6	5.9	3.9	5.0	4.6	4.1	4.5	5.0
NNW	4.1	5.1	1.9	5.7	2.2	3.3	3.2	3.8	2.9	4.5
CALM	0.0		0.0		0.0		0.0		0.0	
ALL		4.9		6.5		6.0		5.2		5.6

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	279	260	257	256	260
SPEED:	1.2	3.5	3.9	2.4	2.7
PER. RATIO:	0.24	0.54	0.64	0.47	0.49
PREDOMINANT WINDS					
DIRECTION:	W	W	W	WSW	W
SPEED:	6.4	8.4	7.6	6.9	7.5
PERCENTAGE:	29.2	46.3	52.4	35.6	40.7
SECONDARY PREDOMINANT WINDS					
DIRECTION:	ESE	ESE	SSW	ESE	ESE
SPEED:	3.7	3.9	5.5	3.3	3.6
PERCENTAGE:	21.3	17.6	16.9	18.6	17.7

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY

Station Name: CONCORD
Elevation: 82 Feet

	Degrees	Minutes
North Latitude:	37	56
West Longitude:	122	1

Period of Record: MAY 1976 - DEC 1976
APR 1979 - MAR 1980
Observations: 23,059
24 OBS/DAY

Bias Index: 1.00
Speed Units: MPH
Source Code
Data: 4
Summary: L

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	8.7	5.8	5.6	6.7	2.9	7.5	4.4	7.0	5.2	6.6
NNE	****	****	****	****	****	****	****	****	****	****
NE	14.0	5.6	8.3	5.9	1.5	5.3	11.3	3.7	8.5	4.9
ENE	****	****	****	****	****	****	****	****	****	****
E	2.5	4.0	4.8	6.4	0.9	5.1	10.0	5.6	4.7	5.6
ESE	****	****	****	****	****	****	****	****	****	****
SE	17.7	1.9	10.2	4.2	2.6	3.6	15.6	3.8	11.2	3.2
SSE	****	****	****	****	****	****	****	****	****	****
S	7.6	4.5	10.0	6.7	24.9	9.8	11.6	5.4	14.1	7.7
SSW	****	****	****	****	****	****	****	****	****	****
SW	23.8	6.2	41.0	8.2	50.5	9.6	26.7	5.9	35.8	8.0
WSW	****	****	****	****	****	****	****	****	****	****
W	6.4	3.6	10.3	8.6	6.7	8.9	8.2	5.1	7.8	6.7
WNW	****	****	****	****	****	****	****	****	****	****
NW	19.4	3.6	9.8	6.5	9.9	6.7	12.3	4.5	12.6	5.0
NNW	****	****	****	****	****	****	****	****	****	****
CALM	0.0		0.0		0.0		0.0		0.0	
ALL		4.5		7.1		9.0		5.0		6.5

RESULTANT WINDS

	WINTER	SPRING	SUMMER	FALL	ANNUAL
DIRECTION:	266	232	220	209	224
SPEED:	0.9	3.5	6.8	1.3	3.2
PER. RATIO:	0.20	0.49	0.75	0.26	0.49

PREDOMINANT WINDS (Alternate Definition)

	WINTER	SPRING	SUMMER	FALL	ANNUAL
DIRECTION:	SW	SW	SW	SW	SW
SPEED:	6.2	8.2	9.6	5.9	8.0
PERCENTAGE:	23.8	41.0	50.5	26.7	35.8

SECONDARY PREDOMINANT WINDS (Alternate Definition)

	WINTER	SPRING	SUMMER	FALL	ANNUAL
DIRECTION:	NW	SE	NW	SE	NW
SPEED:	3.6	4.2	6.7	3.8	5.0
PERCENTAGE:	19.4	10.2	9.9	15.6	12.6

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY

Station Name: COSTA MESA
Elevation: 66 Feet

	Degrees	Minutes
North Latitude:	33	40
West Longitude:	117	55

Period of Record: FEB 1972 - DEC 1973
Observations: 16,632
24 OBS/DAY

Bias Index: 0.70
Speed Units: MPH
Source Code
Data: 3
Summary: M

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	4.0	1.5	2.4	1.5	2.6	1.1	5.2	1.3	3.5	1.3
NNE	1.0	2.2	0.5	2.2	0.3	1.4	0.6	2.3	0.6	2.1
NE	10.9	3.3	3.4	2.5	1.0	1.2	5.8	1.9	5.0	2.6
ENE	5.2	2.7	1.7	1.5	0.3	1.5	3.8	2.4	2.6	2.4
E	23.1	1.5	11.4	1.4	4.1	1.4	15.6	1.5	13.0	1.5
ESE	2.0	2.1	1.7	1.6	1.2	1.8	2.3	1.8	1.8	1.8
SE	5.3	1.8	4.9	1.8	4.0	2.0	4.4	2.1	4.6	1.9
SSE	2.3	4.5	2.8	3.0	4.0	3.0	1.9	3.2	2.8	3.3
S	9.9	3.9	15.5	3.5	19.3	3.5	10.4	3.9	14.0	3.6
SSW	2.5	3.3	4.3	3.7	6.4	4.1	2.5	3.7	4.0	3.8
SW	8.7	3.0	16.2	3.8	18.1	4.1	9.2	3.8	13.3	3.8
WSW	5.7	2.9	10.6	3.7	11.3	3.9	8.1	4.1	9.1	3.8
W	12.8	2.9	20.2	3.4	22.3	2.9	23.1	3.4	20.0	3.2
WNW	1.3	3.0	1.1	3.0	1.2	1.6	2.3	2.9	1.5	2.6
NW	3.9	2.0	2.8	2.7	3.4	1.5	4.2	1.7	3.5	1.9
NNW	1.3	2.9	0.7	1.7	0.6	1.6	0.6	1.7	0.8	2.1
CALM	0.0		0.0		0.0		0.0		0.0	
ALL		2.6		3.0		3.2		2.8		2.9

RESULTANT WINDS

	WINTER	SPRING	SUMMER	FALL	ANNUAL
DIRECTION:	176	226	222	233	223
SPEED:	0.4	1.8	2.3	1.2	1.4
PER. RATIO:	0.15	0.58	0.72	0.43	0.49

PREDOMINANT WINDS (Alternate Definition)

	WINTER	SPRING	SUMMER	FALL	ANNUAL
DIRECTION:	E	W	SW	W	W
SPEED:	1.7	3.5	4.0	3.5	3.3
PERCENTAGE:	30.3	31.9	35.8	33.5	30.6

SECONDARY PREDOMINANT WINDS (Alternate Definition)

	WINTER	SPRING	SUMMER	FALL	ANNUAL
DIRECTION:	W	S	SE	E	S
SPEED:	2.9	3.5	2.4	1.7	3.6
PERCENTAGE:	19.8	22.6	9.2	21.7	20.8

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY

Station Name: CRESCENT CITY
Elevation: 56 Feet

	Degrees	Minutes
North Latitude:	41	47
West Longitude:	124	14

Period of Record: 1950 - 1954
Observations: 43,821
24 OBS/DAY

Bias Index: -0.36
Speed Units: MPH
Source Code
Data: 1
Summary: L

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	3.4	9.1	4.0	10.3	2.0	6.8	3.2	6.6	3.2	8.5
NNE	3.5	6.2	3.1	6.0	1.3	5.3	2.9	5.4	2.7	5.8
NE	6.1	5.0	2.6	4.4	1.5	3.3	4.4	4.3	3.6	4.5
ENE	8.5	4.7	5.9	4.0	1.7	3.4	4.9	4.3	5.3	4.3
E	4.8	4.8	3.2	4.0	1.2	3.3	2.7	4.1	2.8	4.2
ESE	4.3	6.1	3.1	4.7	1.2	3.9	2.9	4.9	2.9	5.2
SE	10.4	11.5	4.7	8.0	4.8	6.0	8.3	7.9	7.0	8.9
SSE	24.6	13.2	15.6	10.5	17.9	7.7	19.6	10.1	19.4	10.6
S	6.8	13.1	5.9	8.7	7.7	6.3	6.2	8.4	6.7	9.1
SSW	4.5	13.9	5.3	8.5	5.1	5.3	3.9	8.4	4.7	8.9
SW	1.5	11.6	1.7	7.2	1.8	4.7	1.0	6.5	1.5	7.4
WSW	2.4	10.7	2.8	6.8	2.7	4.6	1.3	6.0	2.3	7.1
W	1.2	8.8	2.0	6.5	2.6	4.8	1.1	5.0	1.7	6.0
WNW	2.7	10.7	8.4	10.8	9.8	7.6	4.7	7.1	6.4	8.9
NW	3.6	12.7	12.6	15.7	10.9	12.3	6.4	10.4	8.4	13.3
NNW	5.5	11.3	13.8	13.9	13.3	13.9	9.6	9.3	10.6	12.5
CALM	6.9		5.2		14.4		16.8		10.7	
ALL		9.5		9.5		7.1		6.6		8.2

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	156	304	295	161	214
SPEED:	4.1	2.4	2.0	1.3	0.8
PER. RATIO:	0.43	0.26	0.28	0.20	0.10
PREDOMINANT WINDS					
DIRECTION:	SSE	NW	NW	SSE	SSE
SPEED:	12.8	13.8	11.6	9.3	9.9
PERCENTAGE:	41.8	34.8	34.0	34.1	33.1
SECONDARY PREDOMINANT WINDS					
DIRECTION:	ENE	S	S	NW	NW
SPEED:	4.8	9.7	7.0	9.1	11.9
PERCENTAGE:	18.6	26.8	30.7	20.7	25.4

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY

Station Name: CROWS LANDING
Elevation: 156 Feet

	Degrees	Minutes
North Latitude:	37	25
West Longitude:	121	6

Period of Record: JAN 1944 - FEB 1945
Observations: 1,227
3 OBS/DAY

Bias Index: 1.00
Speed Units: MPH
Source Code
Data: 1
Summary: E

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	23.9	9.4	35.5	12.6	66.7	9.8	45.8	9.8	41.0	10.3
NNE	****	****	****	****	****	****	****	****	****	****
NE	5.8	3.9	6.9	5.6	8.7	6.3	6.6	4.5	6.6	5.2
ENE	****	****	****	****	****	****	****	****	****	****
E	8.2	3.7	10.1	5.2	9.8	4.4	5.5	3.9	8.4	4.3
ESE	****	****	****	****	****	****	****	****	****	****
SE	19.7	8.5	8.3	8.6	4.3	4.6	8.8	8.3	11.2	8.1
SSE	****	****	****	****	****	****	****	****	****	****
S	18.2	7.2	9.4	5.8	1.8	5.1	9.5	6.1	10.6	6.6
SSW	****	****	****	****	****	****	****	****	****	****
SW	2.0	6.5	5.1	7.8	2.2	8.2	4.8	4.7	3.3	6.6
WSW	****	****	****	****	****	****	****	****	****	****
W	4.7	6.9	5.4	7.5	1.4	2.0	4.4	4.1	4.1	6.0
WNW	****	****	****	****	****	****	****	****	****	****
NW	15.7	19.2	17.0	19.4	4.0	16.1	12.1	12.5	12.6	17.6
NNW	****	****	****	****	****	****	****	****	****	****
CALM	2.5		2.2		1.0		2.4		2.1	
ALL		9.2		10.7		8.6		8.2		9.2

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	335	343	3	354	351
SPEED:	2.1	6.0	7.0	4.5	4.6
PER. RATIO:	0.23	0.56	0.81	0.55	0.50
PREDOMINANT WINDS (Alternate Definition)					
DIRECTION:	N	N	N	N	N
SPEED:	9.4	12.6	9.8	9.8	10.3
PERCENTAGE:	23.9	35.5	66.7	45.8	41.0
SECONDARY PREDOMINANT WINDS (Alternate Definition)					
DIRECTION:	SE	E	E	S	SE
SPEED:	8.5	5.2	4.4	6.1	8.1
PERCENTAGE:	19.7	10.1	9.8	9.5	11.2

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY | Period of Record: | Bias Index: 0.00
Station Name: DAGGETT | | Speed Units: MPH
Elevation: 1929 Feet | 1949 - 1977 |
Degrees Minutes | | Source Code
North Latitude: 34 52 | Observations: 178,318 | Data: 1
West Longitude: 116 47 | | Summary: L

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	1.5	8.7	1.6	8.8	2.0	7.5	1.4	7.7	1.6	8.1
NNE	1.5	10.7	1.7	9.8	1.4	7.4	1.4	8.6	1.5	9.2
NE	2.1	8.1	2.1	8.3	1.9	7.4	2.5	7.7	2.2	7.9
ENE	2.7	7.7	2.1	8.8	1.9	8.6	2.8	8.3	2.4	8.3
E	5.3	7.6	3.2	9.1	2.9	9.7	5.0	8.3	4.1	8.5
ESE	2.7	7.6	1.5	9.6	1.6	11.2	2.3	8.2	2.0	8.9
SE	2.2	6.0	1.1	7.7	0.9	9.1	1.8	6.5	1.5	6.9
SSE	1.1	5.5	0.6	7.7	0.4	10.0	0.7	6.5	0.7	6.9
S	1.0	5.6	0.5	8.0	0.5	11.0	0.9	6.2	0.7	7.2
SSW	0.8	7.9	0.6	13.0	0.8	11.9	1.1	9.0	0.8	10.1
SW	2.8	12.0	3.9	18.3	3.9	15.9	2.8	13.0	3.4	15.2
WSW	8.1	15.4	16.2	19.7	15.7	17.2	8.6	14.7	12.2	17.3
W	22.0	11.9	25.9	16.2	24.3	13.7	23.5	11.7	23.9	13.5
WNW	21.2	10.7	24.1	13.9	24.9	12.6	24.4	11.0	23.6	12.1
NW	6.7	8.6	7.9	11.2	10.2	10.8	7.9	9.3	8.2	10.1
NNW	1.5	8.0	2.1	9.5	3.0	9.3	1.8	8.1	2.1	8.9
CALM	16.7		4.8		3.6		11.0		9.0	
ALL		8.8		13.9		12.5		9.5		11.2

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	278	273	275	280	276
SPEED:	5.6	10.7	9.3	6.3	8.0
PER. RATIO:	0.64	0.77	0.75	0.66	0.71
PREDOMINANT WINDS					
DIRECTION:	W	W	W	W	W
SPEED:	12.0	16.2	14.1	11.9	13.7
PERCENTAGE:	51.3	66.2	64.9	56.5	59.7
SECONDARY PREDOMINANT WINDS					
DIRECTION:	E	NNW	NNW	NNW	NNW
SPEED:	7.6	10.6	10.1	8.9	9.6
PERCENTAGE:	10.7	11.6	15.2	11.1	11.9

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY | Period of Record: | Bias Index: 0.36
Station Name: DAVENPORT | | Speed Units: MPH
Elevation: 98 Feet | DEC 1970 - DEC 1971 |
Degrees Minutes | | Source Code
North Latitude: 37 0 | Observations: 8,000 | Data: 5
West Longitude: 122 11 | 24 OBS/DAY | Summary: N

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	9.2	4.9	8.8	5.0	4.1	3.1	7.3	5.2	7.5	4.8
NNE	7.2	4.7	5.2	5.0	1.8	3.8	5.1	5.0	5.1	4.8
NE	10.8	4.5	4.5	4.1	2.6	3.4	5.7	3.1	6.3	4.0
ENE	4.3	4.6	1.0	4.1	1.1	3.0	2.3	3.2	2.5	4.1
E	6.6	7.2	2.3	3.8	2.7	2.4	5.1	3.9	4.6	5.3
ESE	6.2	7.7	3.7	6.0	2.2	2.6	4.6	5.3	4.4	6.2
SE	6.5	8.8	6.0	7.8	2.5	3.0	4.1	4.8	4.9	7.0
SSE	4.9	9.1	3.4	7.6	2.7	3.6	3.5	5.6	3.8	7.1
S	3.7	5.7	2.7	4.7	2.0	3.3	3.4	3.8	3.1	4.6
SSW	2.1	6.1	0.8	3.4	0.9	3.2	1.1	3.4	1.4	4.8
SW	1.9	5.5	1.3	4.1	1.5	3.3	1.6	3.2	1.6	4.3
WSW	1.8	5.6	0.8	2.8	1.2	3.3	1.1	3.9	1.3	4.5
W	3.4	7.1	3.0	5.1	2.6	4.4	3.1	4.8	3.1	5.6
WNW	4.2	7.0	5.3	7.9	19.2	11.8	6.2	9.6	8.2	10.1
NW	16.4	13.8	36.4	16.5	43.3	14.0	30.6	12.3	29.6	14.0
NNW	11.6	7.7	14.7	8.4	9.2	4.1	14.1	5.6	12.3	6.6
CALM	0.0		0.0		0.3		1.0		0.0	
ALL		7.6		10.0		9.6		7.3		8.4

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	346	322	311	323	322
SPEED:	2.3	7.0	8.4	4.7	5.0
PER. RATIO:	0.30	0.70	0.87	0.65	0.60
PREDOMINANT WINDS					
DIRECTION:	NNW	NNW	NW	NNW	NW
SPEED:	9.7	12.8	12.1	9.5	11.5
PERCENTAGE:	37.2	59.9	71.7	52.0	50.1
SECONDARY PREDOMINANT WINDS					
DIRECTION:	NE	SE	NNE	ESE	NNE
SPEED:	4.6	7.2	3.3	4.6	4.5
PERCENTAGE:	21.5	13.1	8.5	13.8	18.9

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY

Station Name: DAVIS
Elevation: 52 Feet (33)

	Degrees	Minutes
North Latitude:	38	35
West Longitude:	121	47

Period of Record: JAN 1979 - AUG 1982
Observations: 25,340
24 OBS/DAY

Bias Index:-0.06
Speed Units: MPH
Source Code
Data: 10
Summary: L

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	14.8	5.1	16.7	4.5	9.7	4.4	14.8	3.1	14.6	4.8
NNE	12.1	3.8	10.9	3.6	9.1	3.5	17.0	3.1	12.2	3.7
NE	2.7	1.7	1.9	1.5	3.6	2.1	4.1	2.0	2.8	1.8
ENE	1.3	1.5	1.3	1.6	2.7	1.8	2.0	1.8	1.5	1.6
E	1.3	1.6	0.9	1.3	2.3	2.1	1.8	1.8	1.4	1.6
ESE	2.0	1.9	1.3	1.6	2.2	2.2	2.9	1.9	2.0	1.9
SE	4.6	2.9	3.2	2.0	3.0	2.5	4.4	2.3	4.4	2.8
SSE	10.0	4.0	5.3	3.2	5.5	2.3	5.5	3.0	8.8	3.9
S	13.0	3.4	7.6	2.9	2.6	2.3	2.6	2.1	10.8	3.4
SSW	14.9	3.9	16.3	3.7	19.4	4.0	9.7	2.9	15.0	3.9
SW	6.2	3.4	11.6	3.7	16.7	3.8	9.4	3.3	7.8	3.5
WSW	3.0	2.5	4.7	3.2	6.2	2.6	5.1	2.5	3.6	2.6
W	2.5	2.2	4.6	2.8	4.1	2.6	4.5	2.1	3.0	2.3
WNW	2.7	2.1	3.3	2.3	4.5	2.1	3.9	1.9	3.0	2.1
NW	3.3	2.0	4.1	2.3	4.1	2.2	5.4	1.9	3.6	2.1
NNW	5.4	2.6	6.3	2.7	4.3	2.3	6.8	2.0	5.5	2.5
CALM	0.0		0.0		0.0		0.0		0.0	
ALL		3.5		3.3		3.2		2.6		3.4

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	208	274	238	333	234
SPEED:	0.3	0.7	0.9	0.5	0.3
PER. RATIO:	0.07	0.20	0.29	0.18	0.08
PREDOMINANT WINDS					
DIRECTION:	S	SSW	SW	N	S
SPEED:	3.8	3.5	3.7	2.9	3.7
PERCENTAGE:	37.9	35.5	42.3	38.6	34.6
SECONDARY PREDOMINANT WINDS					
DIRECTION:	N	N	N	SW	N
SPEED:	4.2	3.9	3.7	3.0	4.0
PERCENTAGE:	32.3	33.9	23.1	24.2	32.3

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY

Station Name: DESERT CENTER
Elevation: 542 Feet

	Degrees	Minutes
North Latitude:	33	45
West Longitude:	115	20

Period of Record: JUN 1943 - MAR 1944
Observations: 6,669
24 OBS/DAY

Bias Index:-0.02
Speed Units: MPH
Source Code
Data: 1
Summary: A

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	2.2	6.9	****	****	1.8	5.5	2.1	6.4	2.0	6.4
NNE	2.2	6.7	2.1	2.0	1.9	6.5	2.2	7.2	2.1	6.7
NE	2.4	6.6	2.1	6.0	2.0	5.6	4.0	7.5	2.8	6.8
ENE	3.3	6.1	****	****	4.8	6.3	4.9	7.0	4.3	6.5
E	4.6	5.3	7.3	6.3	5.3	7.2	7.1	7.1	5.7	6.7
ESE	5.9	7.7	15.6	5.9	6.3	8.8	5.6	8.2	6.1	8.2
SE	3.0	6.4	8.3	7.3	3.6	7.2	3.2	6.8	3.4	6.8
SSE	2.7	6.5	4.2	8.5	3.9	8.0	1.3	6.3	2.7	7.2
S	3.4	5.8	4.2	4.5	2.2	6.2	2.2	6.4	2.6	6.0
SSW	2.9	5.6	1.0	8.0	5.5	9.8	1.6	6.4	3.3	8.1
SW	1.8	5.7	4.2	10.3	3.6	9.9	2.7	6.3	2.7	7.8
WSW	7.7	7.0	11.5	5.2	19.5	10.1	8.1	8.4	11.8	9.0
W	24.0	6.3	19.8	5.2	14.6	7.3	26.2	7.0	21.5	6.8
WNW	15.4	6.8	9.4	4.6	12.7	6.9	14.8	7.2	14.2	6.9
NW	11.5	10.5	6.3	3.2	4.4	9.1	8.1	9.1	8.0	9.7
NNW	5.4	11.3	2.1	5.5	6.4	8.5	4.4	9.0	5.4	9.6
CALM	1.5		1.8		1.4		1.4		1.3	
ALL		7.1		5.6		8.1		7.3		7.5

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	292	200	255	289	278
SPEED:	3.2	1.5	3.1	2.7	2.9
PER. RATIO:	0.45	0.26	0.39	0.37	0.38
PREDOMINANT WINDS					
DIRECTION:	WNW	W	W	W	W
SPEED:	7.4	5.1	8.4	7.3	7.4
PERCENTAGE:	50.9	40.7	46.8	49.1	47.5
SECONDARY PREDOMINANT WINDS					
DIRECTION:	E	ESE	E	E	E
SPEED:	6.5	6.4	7.6	7.4	7.2
PERCENTAGE:	13.8	31.2	16.4	17.6	16.1

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY
Station Name: DIABLO CANYON
Elevation: 79 Feet
Degrees Minutes
North Latitude: 35 13
West Longitude: 120 49
Period of Record: MAY 1973 - DEC 1981
Observations: 72,649
24 OBS/DAY
Bias Index: 0.36
Speed Units: MPH
Source Code
Data: 5
Summary: N

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	7.2	6.8	4.4	6.5	2.6	5.5	5.3	6.2	4.8	6.4
NNE	7.7	5.5	3.4	5.2	1.6	4.9	4.5	5.0	4.2	5.3
NE	8.0	5.2	2.9	4.7	1.5	4.0	4.1	4.8	4.1	4.9
ENE	5.8	5.5	1.9	5.4	0.7	3.9	3.3	5.0	2.9	5.2
E	6.1	5.3	2.1	4.8	1.1	4.7	3.5	4.3	3.2	4.9
ESE	10.7	8.1	5.0	8.1	2.6	5.3	6.8	6.1	6.2	7.2
SE	10.6	9.1	7.4	7.6	5.5	5.9	9.1	6.1	8.1	7.3
SSE	4.8	7.8	3.6	6.3	3.6	4.6	3.8	4.8	3.9	6.0
S	2.1	5.4	1.8	6.0	2.0	3.7	1.8	3.6	1.9	4.6
SSW	1.2	5.1	1.0	4.4	1.3	3.6	1.2	4.0	1.2	4.2
SW	1.0	4.7	0.8	3.7	1.1	3.4	1.2	5.4	1.0	4.4
WSW	1.0	4.4	0.8	4.1	1.2	3.5	1.0	4.5	1.0	4.1
W	1.4	5.4	1.6	5.2	2.4	4.8	2.2	5.3	1.9	5.1
WNW	5.3	9.0	9.9	11.0	14.2	10.0	10.4	10.0	10.0	10.1
NW	17.7	13.2	41.3	17.2	51.6	16.6	30.8	14.1	35.5	15.8
NNW	9.2	10.4	11.9	11.9	6.9	8.7	9.6	9.4	9.4	10.3
CALM	0.0		0.0		0.0		1.3		0.6	
ALL		8.3		11.9		11.9		8.9		10.2

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	2	319	313	322	321
SPEED:	2.4	8.4	10.0	5.3	6.4
PER. RATIO:	0.29	0.71	0.84	0.59	0.62
PREDOMINANT WINDS					
DIRECTION:	NNW	NW	NW	NW	NW
SPEED:	11.1	15.2	14.6	12.4	13.8
PERCENTAGE:	34.1	63.1	72.7	50.8	54.9
SECONDARY PREDOMINANT WINDS					
DIRECTION:	ESE	SE	SE	SE	SE
SPEED:	7.9	7.5	5.4	5.8	7.0
PERCENTAGE:	27.4	16.0	11.7	19.7	18.2

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY
Station Name: DONNER SUMMIT
Elevation: 7195 Feet (30)
Degrees Minutes
North Latitude: 39 19
West Longitude: 120 20
Period of Record: 1949 - 1952
Observations: 27,613
Bias Index: -0.21
Speed Units: MPH
Source Code
Data: 1
Summary: B

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	0.3	4.2	0.5	3.6	0.3	3.1	0.2	3.5	0.3	3.6
NNE	0.3	8.0	0.9	6.0	0.4	3.3	0.6	9.4	0.6	6.8
NE	13.8	12.4	14.1	9.8	10.1	7.9	11.3	8.9	12.3	9.9
ENE	9.8	16.1	9.7	14.4	5.2	8.7	14.4	13.2	9.9	13.6
E	3.2	11.5	4.3	10.8	4.3	7.6	4.2	9.3	4.0	9.7
ESE	0.5	8.6	1.7	7.6	1.0	6.8	1.0	9.1	1.0	7.9
SE	0.1	9.5	0.4	5.9	0.3	5.2	0.3	5.8	0.3	6.0
SSE	0.1	11.2	0.3	4.2	0.3	6.0	0.1	5.2	0.2	6.0
S	0.1	3.3	0.3	8.2	0.5	8.0	0.4	6.2	0.3	7.1
SSW	0.6	14.3	1.4	12.2	3.0	11.2	1.1	12.8	1.5	12.0
SW	22.0	19.4	18.2	15.8	31.3	12.1	17.0	14.1	22.2	15.2
WSW	44.5	20.7	41.8	16.6	34.9	13.4	41.6	17.3	40.8	17.3
W	2.0	10.4	3.2	10.2	4.1	9.3	5.1	10.4	3.6	10.0
WNW	0.1	12.6	0.6	6.5	0.6	6.0	0.3	5.7	0.4	6.7
NW	0.2	5.3	0.2	5.8	0.3	3.7	0.2	4.0	0.2	4.7
NNW	0.2	6.2	0.3	3.6	0.1	2.7	0.1	3.2	0.2	4.0
CALM	1.3		2.0		3.2		2.0		2.1	
ALL		17.7		13.9		11.0		13.8		14.2

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	241	241	236	242	240
SPEED:	10.1	6.9	7.4	6.8	7.8
PER. RATIO:	0.57	0.50	0.67	0.49	0.55
PREDOMINANT WINDS					
DIRECTION:	WSW	WSW	WSW	WSW	WSW
SPEED:	20.0	16.0	12.6	15.9	16.2
PERCENTAGE:	69.3	63.2	70.3	63.7	66.6
SECONDARY PREDOMINANT WINDS					
DIRECTION:	ENE	ENE	ENE	ENE	ENE
SPEED:	13.6	11.5	8.0	11.0	11.3
PERCENTAGE:	26.8	28.1	19.6	29.9	26.2

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY

Station Name: EDWARDS AFB
Elevation: 2316 Feet (13)

	Degrees	Minutes
North Latitude:	34	55
West Longitude:	117	54

Period of Record: 1958 - 1970
Observations: 113,949
24 OBS/DAY

Bias Index: 0.14
Speed Units: MPH
Source Code
Data: 1
Summary: L

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	3.4	4.9	1.5	5.9	0.6	5.5	2.1	5.4	1.9	5.3
NNE	4.8	5.7	2.2	6.5	0.9	5.7	3.3	6.0	2.8	5.9
NE	4.4	7.1	2.2	7.2	0.9	5.5	3.8	6.6	2.8	6.8
ENE	2.6	7.8	1.8	8.0	0.6	5.3	3.0	7.9	2.0	7.7
E	2.6	7.4	1.9	7.0	0.9	5.5	3.0	8.0	2.1	7.3
ESE	0.9	4.7	0.9	5.3	0.8	5.4	1.4	5.5	1.0	5.2
SE	0.8	4.5	0.7	4.7	0.8	6.1	1.1	5.2	0.9	5.2
SSE	0.8	4.5	0.6	5.3	0.7	6.0	0.8	4.9	0.7	5.1
S	2.1	5.2	2.3	5.9	2.6	6.5	2.3	5.3	2.3	5.8
SSW	3.5	6.8	6.7	8.5	9.9	8.1	5.4	6.5	6.4	7.7
SW	9.7	9.8	21.1	12.3	31.4	11.3	14.3	9.5	19.2	11.1
WSW	9.9	11.1	19.3	13.5	22.9	13.4	13.6	11.1	16.5	12.6
W	10.8	10.0	13.8	13.7	11.0	12.7	10.4	10.1	11.5	11.8
WNW	8.5	8.9	9.5	15.4	4.3	14.2	7.1	9.2	7.3	11.9
NW	4.7	6.3	3.4	12.9	1.7	12.0	3.5	6.9	3.3	8.9
NNW	1.6	4.5	0.8	7.6	0.5	6.7	1.2	5.0	1.0	5.5
CALM	28.8		11.2		9.4		23.6		18.2	
ALL		5.9		10.6		10.2		6.6		8.3

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	266	253	241	253	250
SPEED:	3.0	7.9	8.6	3.7	5.7
PER. RATIO:	0.52	0.74	0.85	0.56	0.69
PREDOMINANT WINDS					
DIRECTION:	WSW	WSW	WSW	WSW	WSW
SPEED:	10.3	13.1	12.3	10.2	11.8
PERCENTAGE:	30.4	54.2	65.3	38.3	47.2
SECONDARY PREDOMINANT WINDS					
DIRECTION:	NW	NW	S	NW	NW
SPEED:	7.6	14.3	7.7	8.1	10.5
PERCENTAGE:	14.8	13.7	13.2	11.8	11.6

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY

Station Name: EL CENTRO NAAS
Elevation: -43 Feet

	Degrees	Minutes
North Latitude:	32	49
West Longitude:	115	40

Period of Record: 1945 - 1960
Observations: 121,517

Bias Index: 0.32
Speed Units: MPH
Source Code
Data: 1
Summary: L

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	7.0	10.2	3.7	8.7	2.4	6.6	4.9	8.5	4.5	9.0
NNE	3.0	7.9	2.2	8.3	1.5	6.2	2.3	7.4	2.3	7.6
NE	3.1	5.8	3.0	6.4	2.7	5.9	3.0	6.0	2.9	6.0
ENE	1.4	5.2	1.9	6.2	2.4	6.3	1.4	5.6	1.8	6.0
E	2.7	4.9	3.8	6.0	6.6	6.9	3.1	5.7	4.1	6.1
ESE	1.7	5.5	2.9	6.9	7.4	8.3	2.8	6.8	3.7	7.4
SE	3.5	5.6	6.0	7.0	16.6	8.5	6.4	6.9	8.1	7.6
SSE	2.0	6.1	3.5	7.1	8.2	8.2	4.1	7.2	4.4	7.5
S	3.2	5.5	4.3	6.0	6.7	6.9	5.0	6.2	4.8	6.3
SSW	2.0	5.5	2.4	6.2	2.6	6.3	2.9	6.0	2.5	6.0
SW	6.5	7.1	6.2	9.7	4.9	8.3	5.9	6.9	5.9	8.0
WSW	9.9	11.9	16.9	17.1	10.5	15.3	10.0	11.4	11.9	14.5
W	21.1	9.2	23.0	14.0	12.8	13.4	21.4	10.2	19.6	11.6
WNW	10.5	8.2	8.7	10.3	5.0	9.9	10.3	8.9	8.6	9.2
NW	8.4	7.3	5.1	7.5	3.9	7.2	7.1	7.0	6.1	7.2
NNW	4.7	9.8	2.6	9.4	1.7	6.5	3.7	8.4	3.2	8.9
CALM	9.2		3.7		4.0		5.6		5.5	
ALL		7.6		10.6		8.9		7.9		8.8

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	283	261	214	268	261
SPEED:	4.2	6.5	3.0	3.8	4.1
PER. RATIO:	0.56	0.62	0.33	0.49	0.47
PREDOMINANT WINDS					
DIRECTION:	W	W	SE	W	W
SPEED:	9.6	14.4	8.4	10.2	11.9
PERCENTAGE:	41.5	48.6	32.2	41.7	40.1
SECONDARY PREDOMINANT WINDS					
DIRECTION:	NNW	SSE	W	NNW	SSE
SPEED:	8.9	6.7	13.5	7.8	7.2
PERCENTAGE:	20.1	13.8	28.3	15.7	17.3

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY

Station Name: EL MONTE
Elevation: 279 Feet (35)

	Degrees	Minutes
North Latitude:	34	5
West Longitude:	118	2

Period of Record: AUG 1955 - OCT 1965
Observations: 67,026
24 OBS/DAY

Bias Index: 0.10
Speed Units: MPH
Source Code
Data: 3
Summary: M

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	12.1	4.1	3.9	3.6	2.9	3.2	9.9	3.7	7.0	3.8
NNE	10.4	4.5	5.4	4.1	2.0	2.4	7.2	3.6	6.1	4.0
NE	10.3	4.7	6.0	4.0	2.5	2.4	6.7	3.5	6.2	4.0
ENE	6.7	4.4	5.7	3.8	2.2	2.1	3.7	3.3	4.5	3.7
E	5.6	4.6	4.9	4.2	4.1	2.5	4.3	3.5	4.7	3.7
ESE	3.2	3.8	3.0	3.2	3.3	2.8	2.4	2.6	3.0	3.1
SE	2.7	3.3	3.3	3.1	3.9	3.1	3.2	2.6	3.3	3.0
SSE	2.6	3.4	4.0	3.6	4.3	2.7	3.0	2.9	3.5	3.1
S	5.8	4.7	7.4	5.2	10.1	4.9	8.9	4.5	8.2	4.8
SSW	9.5	5.2	17.6	6.5	27.5	6.1	17.3	5.7	18.4	6.0
SW	9.3	5.4	16.7	7.2	21.0	6.6	14.1	6.3	15.5	6.5
WSW	4.3	4.9	8.3	6.9	7.4	5.4	5.9	5.9	6.5	5.9
W	5.9	4.1	6.3	5.2	3.9	3.8	4.1	4.1	5.0	4.4
WNW	2.4	4.1	2.7	5.2	1.9	3.6	2.1	4.1	2.3	4.3
NW	4.1	3.9	2.1	4.0	1.7	3.0	3.4	3.5	2.8	3.6
NNW	5.0	3.9	2.4	3.3	1.6	3.4	4.0	3.5	3.2	3.6
CALM	0.0		0.0		0.0		0.0		0.0	
ALL		4.5		5.3		5.0		4.5		4.8

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	1	217	211	221	216
SPEED:	0.4	2.5	3.6	1.6	1.9
PER. RATIO:	0.08	0.46	0.73	0.35	0.40
PREDOMINANT WINDS					
DIRECTION:	NNE	SW	SSW	SSW	SSW
SPEED:	4.4	6.9	6.1	5.6	6.0
PERCENTAGE:	32.8	42.6	58.6	40.3	42.1
SECONDARY PREDOMINANT WINDS					
DIRECTION:	SSW	NE	W	NNE	NNE
SPEED:	5.2	4.0	4.7	3.6	3.9
PERCENTAGE:	24.6	17.1	13.2	23.8	19.3

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY

Station Name: EL TORO
Elevation: 383 Feet

	Degrees	Minutes
North Latitude:	33	40
West Longitude:	117	44

Period of Record: 1973 - 1977
Observations: 14,607
24 OBS/DAY

Bias Index: 0.26
Speed Units: MPH
Source Code
Data: 1
Summary: D

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	2.9	6.3	1.9	5.9	1.2	3.3	2.1	4.4	2.0	5.3
NNE	4.5	8.8	1.7	4.7	0.4	3.3	2.3	5.4	2.2	6.9
NE	7.0	7.0	2.8	5.3	0.9	3.2	3.6	6.5	3.6	6.3
ENE	9.0	5.2	4.6	4.3	1.6	3.1	6.9	4.1	5.5	4.5
E	17.0	4.6	12.1	4.4	8.0	3.6	11.8	4.1	12.2	4.2
ESE	7.1	5.1	6.5	4.6	4.0	3.9	4.8	4.1	5.6	4.5
SE	4.7	5.5	5.3	5.3	3.7	4.7	3.4	4.1	4.3	5.0
SSE	4.9	6.0	6.6	6.1	4.7	5.5	3.4	5.1	4.9	5.8
S	4.3	5.5	7.8	6.0	7.5	5.4	4.3	5.4	6.0	5.6
SSW	2.1	4.8	4.0	6.6	3.1	5.4	1.8	5.4	2.7	5.7
SW	1.8	5.6	4.3	6.7	2.2	4.9	1.3	6.0	2.4	6.0
WSW	3.8	6.6	7.3	7.4	6.1	6.9	4.9	7.4	5.6	7.1
W	8.6	5.9	13.1	7.4	22.4	7.1	15.3	6.5	14.9	6.8
WNW	4.7	5.3	5.1	5.5	11.4	6.4	8.7	5.5	7.5	5.8
NW	2.1	4.8	1.8	5.1	4.9	5.3	3.5	4.4	3.1	4.9
NNW	1.6	4.7	1.0	4.8	2.6	4.2	2.0	3.9	1.8	4.3
CALM	13.8		14.0		15.2		19.8		15.6	
ALL		4.9		5.0		4.8		4.2		4.7

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	79	208	256	270	238
SPEED:	1.2	1.4	2.4	0.7	0.7
PER. RATIO:	0.24	0.28	0.49	0.17	0.16
PREDOMINANT WINDS					
DIRECTION:	E	W	W	W	W
SPEED:	4.9	7.0	6.9	6.4	6.6
PERCENTAGE:	33.1	25.5	39.9	28.9	28.0
SECONDARY PREDOMINANT WINDS					
DIRECTION:	W	ESE	SSE	E	E
SPEED:	5.9	4.7	5.3	4.1	4.3
PERCENTAGE:	17.1	23.9	15.9	23.5	23.3

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY

Station Name: ENVIRONMENTAL BUOY 11
Elevation: 0 Feet (33)

	Degrees	Minutes
North Latitude:	34	54
West Longitude:	120	54

Period of Record: OCT 1980 - SEP 1981
Observations: 2,589
24 OBS/DAY

Bias Index: 1.00
Speed Units: MPH
Source Code
Data: 9
Summary: P

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	21.8	11.7	19.1	11.5	10.1	8.5	20.4	10.6	17.7	10.8
NNE	****	****	****	****	****	****	****	****	****	****
NE	9.4	8.7	2.3	8.4	0.3	4.0	4.7	6.9	4.3	8.1
ENE	****	****	****	****	****	****	****	****	****	****
E	8.3	5.1	0.6	9.2	0.9	1.9	3.0	3.6	3.4	4.7
ESE	****	****	****	****	****	****	****	****	****	****
SE	12.9	9.5	4.0	16.1	1.2	3.0	2.4	3.3	5.3	9.3
SSE	****	****	****	****	****	****	****	****	****	****
S	7.2	12.8	5.0	12.0	1.2	5.0	1.4	4.1	3.6	11.0
SSW	****	****	****	****	****	****	****	****	****	****
SW	2.7	10.2	2.1	7.7	1.8	3.2	1.8	2.5	2.1	6.3
WSW	****	****	****	****	****	****	****	****	****	****
W	7.9	8.5	4.8	11.7	7.9	5.3	5.1	6.8	6.6	7.5
WNW	****	****	****	****	****	****	****	****	****	****
NW	26.9	12.8	59.0	17.4	73.6	14.4	59.5	14.6	54.5	14.8
NNW	****	****	****	****	****	****	****	****	****	****
CALM	2.8		3.0		2.9		1.6		2.4	
ALL		10.3		14.7		12.1		11.8		12.0

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	338	319	316	324	322
SPEED:	3.9	11.1	11.4	10.4	9.0
PER. RATIO:	0.37	0.76	0.95	0.88	0.75
PREDOMINANT WINDS (Alternate Definition)					
DIRECTION:	NW	NW	NW	NW	NW
SPEED:	12.8	17.4	14.4	14.6	14.8
PERCENTAGE:	26.9	59.0	73.6	59.5	54.5
SECONDARY PREDOMINANT WINDS (Alternate Definition)					
DIRECTION:	SE	S	SW	NE	SE
SPEED:	9.5	12.0	3.2	6.9	9.3
PERCENTAGE:	12.9	5.0	1.8	4.7	5.3

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY

Station Name: ENVIRONMENTAL BUOY 12
Elevation: 0 Feet (16)

	Degrees	Minutes
North Latitude:	37	24
West Longitude:	122	42

Period of Record: DEC 1980 - DEC 1981
Observations: 4,087
24 OBS/DAY

Bias Index: 1.00
Speed Units: MPH
Source Code
Data: 9
Summary: P

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	17.6	10.7	9.4	11.1	7.1	9.5	12.9	7.8	12.8	9.4
NNE	****	****	****	****	****	****	****	****	****	****
NE	7.5	9.8	1.4	15.4	****	****	3.5	8.7	3.8	9.6
ENE	****	****	****	****	****	****	****	****	****	****
E	4.9	5.7	0.8	5.2	****	****	3.1	4.0	2.8	4.9
ESE	****	****	****	****	****	****	****	****	****	****
SE	16.6	13.7	4.6	13.5	0.7	7.3	14.6	11.3	11.5	12.4
SSE	****	****	****	****	****	****	****	****	****	****
S	16.2	14.7	7.3	11.5	10.1	6.6	18.1	11.4	14.9	11.9
SSW	****	****	****	****	****	****	****	****	****	****
SW	5.2	11.2	4.0	7.8	3.6	4.2	4.8	7.3	4.6	8.2
WSW	****	****	****	****	****	****	****	****	****	****
W	5.5	10.6	8.6	8.9	7.7	5.2	6.8	7.0	6.8	7.8
WNW	****	****	****	****	****	****	****	****	****	****
NW	26.0	14.7	62.9	16.0	68.6	12.0	35.6	10.5	41.9	12.7
NNW	****	****	****	****	****	****	****	****	****	****
CALM	0.4		0.9		2.1		0.5		0.8	
ALL		12.5		13.9		10.2		9.7		11.1

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	298	312	312	282	305
SPEED:	1.5	10.1	8.5	1.9	3.8
PER. RATIO:	0.12	0.73	0.83	0.20	0.34
PREDOMINANT WINDS (Alternate Definition)					
DIRECTION:	NW	NW	NW	NW	NW
SPEED:	14.7	16.0	12.0	10.5	12.7
PERCENTAGE:	26.0	62.9	68.6	35.6	41.9
SECONDARY PREDOMINANT WINDS (Alternate Definition)					
DIRECTION:	SE	S	S	S	S
SPEED:	13.7	11.5	6.6	11.4	11.9
PERCENTAGE:	16.6	7.3	10.1	18.1	14.9

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY

Station Name: ESTERO
Elevation: 30 Feet

	Degrees	Minutes
North Latitude:	35	26
West Longitude:	120	52

Period of Record: JAN 1931 - DEC 1936
Observations: 12,722
6 OBS/DAY

Bias Index: 0.99
Speed Units: MPH
Source Code
Data: 1
Summary: K

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	2.8	6.8	2.6	5.7	0.6	3.6	2.6	6.4	2.1	6.1
NNE	8.1	11.0	****	****	0.1	1.0	0.0	1.0	0.0	5.0
NE	44.4	6.7	20.5	5.2	5.9	3.5	21.9	6.7	23.0	6.1
ENE	****	****	****	****	0.0	9.0	****	****	0.0	9.0
E	6.9	4.9	6.2	4.2	6.6	3.1	7.6	4.6	6.8	4.2
ESE	0.1	5.5	****	****	****	****	****	****	0.0	5.5
SE	9.2	7.8	5.7	4.8	5.8	3.8	4.7	4.0	6.3	5.5
SSE	0.0	26.0	1.4	8.2	0.1	2.5	0.0	1.0	0.4	8.2
S	3.5	7.4	2.1	5.3	5.0	4.8	3.7	5.2	3.6	5.6
SSW	****	****	****	****	****	****	****	****	****	****
SW	5.7	6.0	7.2	5.1	10.6	3.8	7.1	4.1	7.7	4.6
WSW	****	****	****	****	****	****	****	****	****	****
W	6.5	5.6	16.6	5.7	26.8	3.7	17.5	4.1	16.9	4.5
WNW	****	****	****	****	0.0	8.0	****	****	0.0	8.0
NW	9.1	7.6	18.5	9.2	13.5	7.3	9.8	7.0	12.8	8.0
NNW	****	****	****	****	0.0	10.0	****	****	0.0	10.0
CALM	11.6		19.1		24.9		25.0		20.3	
ALL		5.9		5.0		3.3		4.1		4.6

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	47	321	277	5	350
SPEED:	2.6	1.8	1.5	1.2	1.1
PER. RATIO:	0.43	0.37	0.45	0.28	0.25
PREDOMINANT WINDS (Alternate Definition)					
DIRECTION:	NE	NE	W	NE	NE
SPEED:	6.7	5.2	3.7	6.7	6.1
PERCENTAGE:	44.5	20.5	26.8	21.9	23.0
SECONDARY PREDOMINANT WINDS (Alternate Definition)					
DIRECTION:	SE	NW	E	W	W
SPEED:	7.8	9.2	3.1	4.1	4.5
PERCENTAGE:	9.3	18.5	6.6	17.5	16.9

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY

Station Name: EUREKA
Elevation: 43 Feet

	Degrees	Minutes
North Latitude:	40	48
West Longitude:	124	10

Period of Record: JUL 1939 - DEC 1942
Observations: 9,002
7 OBS/DAY

Bias Index: 0.34
Speed Units: MPH
Source Code
Data: 1
Summary: K

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	5.9	9.6	16.6	11.3	19.1	8.1	11.1	9.3	13.4	9.5
NNE	1.9	6.2	3.4	7.8	2.7	6.0	4.2	6.5	3.0	6.7
NE	4.1	5.0	4.2	5.1	2.4	4.4	4.5	4.6	3.7	4.8
ENE	2.0	4.8	1.9	5.5	0.7	3.5	2.8	4.3	1.8	4.6
E	4.5	4.1	2.3	4.4	1.3	2.9	5.0	3.8	3.2	3.9
ESE	6.8	5.4	3.8	4.7	1.2	4.3	4.8	4.5	4.1	4.9
SE	18.9	7.3	8.7	5.4	2.4	3.7	10.5	4.6	9.9	6.0
SSE	17.4	10.8	7.3	9.3	1.4	5.2	5.1	8.0	7.6	9.7
S	9.8	9.2	5.9	8.0	3.9	5.7	6.0	7.0	6.3	7.8
SSW	6.2	10.1	4.5	9.3	5.5	6.7	3.7	6.1	5.0	8.2
SW	6.3	8.0	8.7	8.8	9.7	7.2	7.2	6.2	8.0	7.6
WSW	2.7	5.9	2.8	6.6	3.8	5.4	2.7	5.2	3.0	5.7
W	1.7	6.2	2.9	6.5	5.8	5.6	4.9	5.6	3.9	5.8
WNW	1.5	5.9	3.8	6.9	7.1	6.3	4.2	5.6	4.2	6.2
NW	3.1	7.0	8.3	7.5	15.8	7.5	7.9	6.2	9.0	7.2
NNW	3.0	8.2	11.7	10.9	14.5	8.8	7.2	8.6	9.3	9.4
CALM	4.1		3.1		2.7		8.1		4.5	
ALL		7.7		8.1		6.8		5.8		7.1

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	159	327	316	333	302
SPEED:	3.7	1.9	3.7	0.8	0.8
PER. RATIO:	0.49	0.23	0.54	0.13	0.12
PREDOMINANT WINDS					
DIRECTION:	SSE	NNW	NNW	NNW	NNW
SPEED:	9.0	10.3	8.1	8.2	8.8
PERCENTAGE:	46.1	36.6	49.4	26.2	31.7
SECONDARY PREDOMINANT WINDS					
DIRECTION:	SW	SSE	WSW	SSE	SSE
SPEED:	8.5	7.4	6.4	6.1	7.7
PERCENTAGE:	15.2	21.9	19.3	21.6	23.8

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY

Station Name: FARALLON ISLAND
Elevation: 41 Feet

	Degrees	Minutes
North Latitude:	37	42
West Longitude:	123	0

Period of Record: JUN 1935 - DEC 1942
Observations: 16,646
6 OBS/DAY

Bias Index: 0.96
Speed Units: MPH
Source Code
Data: 1
Summary: K

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	2.8	6.0	1.0	7.2	3.1	9.4	1.6	6.3	2.1	7.5
NNE	0.2	3.4	****	****	****	****	0.2	7.5	0.1	5.7
NE	6.8	6.9	1.1	7.0	0.2	2.6	3.3	7.1	2.8	6.9
ENE	1.8	12.2	0.4	13.9	****	****	0.5	10.3	0.6	12.0
E	14.0	11.7	2.0	11.1	0.3	4.4	3.7	10.5	4.9	11.3
ESE	0.8	13.8	0.2	18.0	0.0	4.0	0.1	10.5	0.3	13.7
SE	9.5	18.5	5.3	15.3	2.6	8.0	7.0	12.2	6.1	14.7
SSE	1.6	32.6	0.4	29.5	0.2	10.2	0.5	21.8	0.6	28.3
S	8.7	21.0	7.0	14.4	5.7	8.1	6.3	11.5	6.9	14.4
SSW	0.6	21.2	0.5	17.4	0.5	6.9	0.1	14.3	0.4	15.5
SW	8.6	16.1	8.6	8.8	6.1	6.4	4.9	7.7	7.0	10.2
WSW	0.5	19.2	0.2	14.9	0.4	6.8	0.1	9.4	0.3	13.1
W	5.9	11.4	8.7	9.0	9.3	6.4	6.9	6.9	7.7	8.2
WNW	1.1	16.2	0.9	12.2	1.1	11.7	0.6	9.8	0.9	12.8
NW	31.8	9.0	60.1	11.0	66.2	10.6	58.9	8.9	54.5	10.0
NNW	0.6	8.8	0.6	11.6	0.8	11.5	0.3	11.3	0.6	10.8
CALM	4.6		2.9		3.4		4.9		4.1	
ALL		12.1		10.8		9.3		8.7		10.2

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	188	296	307	306	297
SPEED:	2.0	5.8	7.4	4.8	4.1
PER. RATIO:	0.17	0.54	0.79	0.46	0.40
PREDOMINANT WINDS (Alternate Definition)					
DIRECTION:	NW	NW	NW	NW	NW
SPEED:	9.2	11.0	10.6	8.9	10.1
PERCENTAGE:	33.5	61.6	68.1	59.8	56.0
SECONDARY PREDOMINANT WINDS (Alternate Definition)					
DIRECTION:	E	SW	SW	SE	S
SPEED:	11.9	9.4	6.5	12.8	15.5
PERCENTAGE:	16.6	9.3	7.0	7.6	7.9

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY

Station Name: FONTANA
Elevation: 1089 Feet

	Degrees	Minutes
North Latitude:	34	5
West Longitude:	117	30

Period of Record: 1956 - 1972
Observations: 135,481
24 OBS/DAY

Bias Index:-0.06
Speed Units: MPH
Source Code
Data: 3
Summary: M

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	5.3	20.2	3.0	14.7	2.1	5.9	4.3	19.2	3.6	16.7
NNE	11.9	18.6	6.2	12.9	4.7	6.1	9.4	15.8	8.0	14.8
NE	18.1	17.7	9.6	12.4	6.7	6.6	12.6	11.5	11.7	13.3
ENE	10.8	11.5	7.2	10.2	5.6	6.9	9.2	9.2	8.0	9.7
E	2.6	12.7	1.6	12.5	1.2	8.1	2.6	11.2	2.0	11.5
ESE	1.2	11.6	0.6	12.3	0.4	8.6	1.0	11.5	0.8	11.3
SE	0.2	10.8	0.2	11.4	0.1	8.3	0.4	11.9	0.2	11.0
SSE	0.4	12.5	0.3	11.8	0.1	6.9	0.4	9.5	0.3	10.7
S	1.0	12.9	1.0	13.5	0.5	7.9	1.0	10.3	0.9	11.6
SSW	2.3	12.4	4.5	14.7	4.8	12.5	3.5	10.9	3.8	12.7
SW	5.3	14.7	9.0	15.9	8.2	15.5	6.5	13.6	7.2	15.0
WSW	10.7	11.8	21.9	15.7	23.9	14.7	15.8	13.1	18.1	14.2
W	10.7	12.8	18.1	15.7	21.9	15.5	18.9	14.0	17.5	14.8
WNW	9.4	9.3	8.4	10.7	8.6	8.5	8.4	8.6	8.7	9.2
NW	6.4	9.8	5.8	9.9	4.8	7.0	5.0	8.0	5.3	8.5
NNW	4.6	9.0	3.4	8.6	3.5	6.0	4.2	7.3	3.9	7.8
CALM	0.0		0.0		2.8		0.0		0.0	
ALL		13.9		13.7		11.5		12.6		12.9

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	1	271	261	304	290
SPEED:	5.4	6.5	7.9	4.3	4.8
PER. RATIO:	0.39	0.47	0.69	0.34	0.37
PREDOMINANT WINDS					
DIRECTION:	NE	WSW	W	W	W
SPEED:	16.4	15.7	14.0	12.6	13.5
PERCENTAGE:	40.0	49.0	54.4	43.1	44.3
SECONDARY PREDOMINANT WINDS					
DIRECTION:	W	NE	NE	NE	NE
SPEED:	11.4	11.8	6.6	12.1	12.7
PERCENTAGE:	30.8	23.0	17.0	31.2	27.7

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY
Station Name: FORT BRAGG
Elevation: 755 Feet

	Degrees	Minutes
North Latitude:	39	27
West Longitude:	123	48

Period of Record: JAN 1943 - MAY 1945
Observations: 17,220
Bias Index: 0.21
Speed Units: MPH
Source Code
Data: 1
Summary: A

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	6.1	9.1	4.3	7.4	6.8	8.7	5.9	6.4	5.8	8.0
NNE	3.3	6.4	2.3	4.4	2.4	5.7	4.1	5.0	3.0	5.4
NE	4.2	5.9	2.0	4.7	1.2	3.2	3.8	3.9	2.8	4.7
ENE	6.6	8.0	2.7	7.2	0.6	4.8	3.2	7.2	3.3	7.5
E	11.9	8.7	5.3	7.4	1.5	4.0	5.8	6.8	6.2	7.7
ESE	13.9	9.1	7.1	6.5	5.5	4.9	9.7	6.9	9.1	7.4
SE	10.5	8.5	3.2	5.5	6.1	4.7	13.7	6.6	8.4	6.7
SSE	2.7	8.4	2.1	6.4	3.3	4.8	4.2	6.3	3.1	6.4
S	2.5	8.2	3.7	7.3	5.1	5.3	5.2	5.7	4.1	6.3
SSW	2.3	10.0	3.0	8.8	3.4	5.7	2.8	5.5	2.9	7.3
SW	2.4	6.5	5.5	7.3	9.6	5.9	5.1	5.4	5.6	6.2
WSW	1.7	6.2	3.1	6.9	5.4	5.7	3.4	5.1	3.4	5.9
W	3.5	6.8	6.9	6.7	8.1	5.6	6.8	5.0	6.1	5.8
WNW	3.6	8.4	8.2	9.0	8.8	6.6	4.6	5.6	6.1	7.5
NW	11.2	10.6	22.3	11.3	19.8	9.2	9.8	8.2	15.5	10.1
NNW	11.8	10.6	16.6	11.7	12.8	9.7	10.5	8.7	12.5	10.3
CALM	2.5		1.6		1.1		3.8		2.8	
ALL		8.5		8.7		6.9		6.3		7.6

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	51	316	305	41	331
SPEED:	2.8	4.3	3.3	0.5	1.9
PER. RATIO:	0.24	0.49	0.49	0.08	0.25
PREDOMINANT WINDS					
DIRECTION:	ESE	NW	NW	ESE	NW
SPEED:	8.8	11.0	8.8	6.7	9.7
PERCENTAGE:	36.3	47.1	39.8	29.2	34.1
SECONDARY PREDOMINANT WINDS					
DIRECTION:	NNW	ESE	WSW	NNW	ESE
SPEED:	10.3	6.6	5.7	8.0	7.2
PERCENTAGE:	28.3	15.6	23.1	25.4	23.7

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY
Station Name: FORT ORD
Elevation: 144 Feet (12-15)

	Degrees	Minutes
North Latitude:	36	41
West Longitude:	121	46

Period of Record: 1961 - 1970
Observations: 80,444
24 OBS/DAY
Bias Index: 0.19
Speed Units: MPH
Source Code
Data: 1
Summary: L

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	1.3	5.7	0.6	5.0	0.4	4.7	1.0	5.7	0.8	5.4
NNE	1.8	5.4	0.5	5.1	0.3	3.5	0.9	5.3	0.8	5.2
NE	4.1	6.2	0.9	4.7	0.3	3.5	1.4	4.6	1.6	5.5
ENE	5.4	5.8	1.2	4.9	0.3	3.3	2.4	5.2	2.3	5.4
E	13.3	6.3	3.4	5.3	0.7	4.0	7.4	6.1	6.1	6.0
ESE	12.3	6.9	3.9	6.9	0.7	3.7	6.8	6.4	5.9	6.6
SE	4.8	8.7	1.4	7.2	0.3	3.7	2.7	7.4	2.3	7.9
SSE	1.0	5.4	0.7	4.6	0.2	3.4	0.7	5.2	0.6	5.0
S	1.4	5.6	1.5	5.2	0.4	3.7	0.9	5.0	1.0	5.1
SSW	2.3	5.7	3.4	5.8	1.6	5.6	2.6	5.6	2.5	5.7
SW	3.7	6.6	8.6	8.1	8.5	8.3	5.5	6.7	6.6	7.7
WSW	3.6	7.2	11.3	8.8	20.0	9.4	9.0	8.0	11.1	8.8
W	7.5	7.3	26.3	9.7	35.9	9.9	18.9	8.7	22.3	9.4
WNW	6.7	7.9	14.2	10.8	14.3	9.4	10.6	8.7	11.5	9.5
NW	3.5	7.7	2.9	8.8	2.1	6.8	3.0	7.4	2.9	7.7
NNW	1.3	6.7	0.8	6.5	0.5	5.3	1.0	5.9	0.9	6.2
CALM	25.9		18.3		13.4		25.1		20.7	
ALL		5.0		7.1		7.9		5.5		6.4

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	106	265	265	263	264
SPEED:	0.7	5.1	7.1	2.5	3.6
PER. RATIO:	0.15	0.71	0.90	0.45	0.56
PREDOMINANT WINDS					
DIRECTION:	E	W	W	W	W
SPEED:	6.5	9.8	9.7	8.5	9.3
PERCENTAGE:	31.0	51.8	70.2	38.5	44.9
SECONDARY PREDOMINANT WINDS					
DIRECTION:	W	SSW	SSW	ESE	E
SPEED:	7.5	7.2	7.7	6.4	6.2
PERCENTAGE:	17.8	13.5	10.5	16.9	14.3

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY

Station Name: FREMONT
Elevation: 39 Feet

	Degrees	Minutes
North Latitude:	37	32
West Longitude:	121	58

Period of Record:
JUN 1971 - DEC 1972
MAY 1976 - DEC 1976
APR 1979 - MAR 1980
Observations: 35,355
24 OBS/DAY

Bias Index: 1.00
Speed Units: MPH
Source Code
Data: 4
Summary: L

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	11.2	3.0	9.4	3.1	13.0	2.9	13.1	2.2	11.8	2.8
NNE	****	****	****	****	****	****	****	****	****	****
NE	32.5	3.4	13.5	1.7	6.1	0.5	19.9	1.8	17.4	2.4
ENE	****	****	****	****	****	****	****	****	****	****
E	6.7	2.4	2.6	1.4	2.1	0.7	5.8	1.8	4.2	1.8
ESE	****	****	****	****	****	****	****	****	****	****
SE	16.0	4.3	8.3	3.5	2.5	1.7	9.5	2.5	8.7	3.4
SSE	****	****	****	****	****	****	****	****	****	****
S	7.9	5.1	7.3	5.0	3.8	3.0	6.3	3.4	6.2	4.2
SSW	****	****	****	****	****	****	****	****	****	****
SW	7.5	3.7	12.9	4.2	9.0	3.6	10.8	3.1	10.0	3.7
WSW	****	****	****	****	****	****	****	****	****	****
W	5.5	4.4	19.7	6.0	30.6	4.9	14.7	4.4	18.3	5.0
WNW	****	****	****	****	****	****	****	****	****	****
NW	12.7	3.0	26.3	4.5	32.9	4.0	19.8	3.2	23.4	3.8
NNW	****	****	****	****	****	****	****	****	****	****
CALM	0.0		0.0		0.0		0.0		0.0	
ALL		3.6		4.1		3.7		2.8		3.6

RESULTANT WINDS

	WINTER	SPRING	SUMMER	FALL	ANNUAL
DIRECTION:	67	280	290	295	293
SPEED:	0.8	2.0	2.7	0.9	1.3
PER. RATIO:	0.22	0.49	0.74	0.31	0.38

PREDOMINANT WINDS (Alternate Definition)

	WINTER	SPRING	SUMMER	FALL	ANNUAL
DIRECTION:	NE	NW	NW	NE	NW
SPEED:	3.4	4.5	4.0	1.8	3.8
PERCENTAGE:	32.5	26.3	32.9	19.9	23.4

SECONDARY PREDOMINANT WINDS (Alternate Definition)

	WINTER	SPRING	SUMMER	FALL	ANNUAL
DIRECTION:	SE	NE	SW	NW	NE
SPEED:	4.3	1.7	3.6	3.2	2.4
PERCENTAGE:	16.0	13.5	9.0	19.8	17.4

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY

Station Name: FRESNO
Elevation: 330 Feet (20)

	Degrees	Minutes
North Latitude:	36	46
West Longitude:	119	43

Period of Record:
1962 - 1978
Observations: 78,862
24 OBS/DAY

Bias Index: 0.11
Speed Units: MPH
Source Code
Data: 1
Summary: L

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	3.5	4.8	4.7	5.6	2.8	5.1	2.8	4.8	3.4	5.2
NNE	1.9	4.8	1.8	5.5	0.8	4.6	1.2	4.5	1.4	4.9
NE	3.1	4.7	2.2	5.3	0.7	4.4	1.8	4.4	2.0	4.7
ENE	6.6	5.2	3.8	5.3	0.7	5.1	4.5	4.9	3.9	5.2
E	12.0	5.8	5.8	5.8	1.9	5.2	9.4	5.1	7.3	5.5
ESE	9.7	6.8	4.6	7.0	2.1	6.2	6.1	5.7	5.6	6.5
SE	8.7	7.2	4.8	7.7	2.8	6.6	5.2	6.4	5.4	7.0
SSE	5.7	6.4	3.5	7.3	2.6	6.4	3.9	6.4	3.9	6.6
S	4.9	5.5	3.5	6.5	3.2	6.1	4.8	5.7	4.1	5.9
SSW	2.6	5.0	1.8	6.3	1.7	5.9	2.4	5.3	2.1	5.5
SW	2.2	4.7	1.7	6.0	2.3	5.9	2.6	5.1	2.2	5.4
WSW	2.4	4.7	2.3	6.0	3.6	6.4	3.4	5.2	2.9	5.6
W	4.3	5.4	5.9	7.7	12.2	8.0	7.4	6.1	7.5	7.1
WNW	6.6	7.0	10.3	9.2	30.2	9.0	15.0	7.2	17.6	8.5
NW	8.5	7.7	21.7	10.1	22.8	8.9	12.7	7.8	16.5	8.9
NNW	4.2	5.9	7.8	7.4	5.5	6.9	4.5	6.1	5.5	6.7
CALM	13.0		5.7		4.0		12.2		8.6	
ALL		5.3		7.4		7.6		5.4		6.5

RESULTANT WINDS

	WINTER	SPRING	SUMMER	FALL	ANNUAL
DIRECTION:	102	308	294	295	301
SPEED:	0.9	3.5	5.4	1.3	2.3
PER. RATIO:	0.18	0.47	0.71	0.24	0.36

PREDOMINANT WINDS

	WINTER	SPRING	SUMMER	FALL	ANNUAL
DIRECTION:	ESE	NW	WNW	WNW	WNW
SPEED:	6.5	9.3	8.8	7.2	8.4
PERCENTAGE:	30.4	47.8	65.2	35.1	41.6

SECONDARY PREDOMINANT WINDS

	WINTER	SPRING	SUMMER	FALL	ANNUAL
DIRECTION:	WNW	ESE	N	ESE	ESE
SPEED:	7.0	6.8	6.1	5.6	6.2
PERCENTAGE:	19.4	15.2	9.1	20.7	18.3

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY
Station Name: GEORGE AFB
Elevation: 2890 Feet (13)
Degrees Minutes
North Latitude: 34 35
West Longitude: 117 23

Period of Record:
JAN 1942 - FEB 1946
MAY 1948 - SEP 1948
SEP 1950 - OCT 1965
Observations: 172,363

Bias Index: 0.31
Speed Units: MPH
Source Code
Data: 1
Summary: B

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	5.9	7.4	2.9	8.5	1.3	6.4	4.6	7.3	3.7	7.5
NNE	4.0	8.8	2.2	9.1	0.8	6.6	3.8	8.3	2.7	8.5
NE	2.8	8.8	1.7	8.1	1.1	6.3	3.1	8.5	2.2	8.2
ENE	0.9	8.0	0.9	7.6	0.8	6.0	1.2	7.9	0.9	7.4
E	1.3	7.0	1.4	6.7	2.1	6.6	2.3	7.5	1.8	7.0
ESE	3.3	7.6	3.0	7.3	3.4	7.0	3.1	7.7	3.2	7.4
SE	11.9	7.0	7.4	7.4	11.7	7.7	13.2	7.5	11.1	7.4
SSE	9.4	8.2	9.3	10.7	10.8	9.8	10.4	7.9	10.0	9.1
S	10.2	10.1	14.4	12.3	20.0	11.7	13.3	9.6	14.5	11.1
SSW	6.5	8.8	9.1	10.7	11.0	10.3	8.2	9.4	8.7	9.9
SW	6.6	8.1	8.1	9.8	9.2	9.0	7.6	8.1	7.9	8.8
WSW	5.2	11.7	8.8	13.4	6.0	10.8	4.9	10.0	6.2	11.7
W	9.8	13.7	14.9	15.3	7.9	12.2	7.6	11.6	10.0	13.6
WNW	3.4	11.3	4.7	14.0	2.9	11.0	3.0	10.3	3.5	11.9
NW	2.8	7.3	2.4	8.8	1.6	7.2	2.1	6.8	2.2	7.6
NNW	2.6	6.9	1.8	8.5	0.7	6.8	2.0	7.0	1.8	7.3
CALM	13.3		6.9		8.6		9.5		9.5	
ALL		7.9		10.5		9.0		7.9		8.8

	WINTER	SPRING	SUMMER	FALL	ANNUAL
			RESULTANT WINDS		
DIRECTION:	215	224	195	193	207
SPEED:	2.6	5.5	5.7	3.0	4.1
PER. RATIO:	0.33	0.52	0.63	0.39	0.47
			PREDOMINANT WINDS		
DIRECTION:	SSE	S	SSE	SSE	SSE
SPEED:	8.4	11.4	10.1	8.4	9.4
PERCENTAGE:	31.5	32.8	42.5	36.9	35.6
			SECONDARY PREDOMINANT WINDS		
DIRECTION:	WSW	WSW	SW	SW	WSW
SPEED:	11.5	13.4	10.0	9.1	11.5
PERCENTAGE:	21.6	31.8	26.2	20.7	24.1

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY
Station Name: GEYSERS 7 & 8
Elevation: 3196 Feet (30)
Degrees Minutes
North Latitude: 38 49
West Longitude: 122 48

Period of Record:
NOV 1972 - MAR 1975
Observations: 16,905
24 OBS/DAY

Bias Index: 0.08
Speed Units: MPH
Source Code
Data: 5
Summary: N

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	9.1	13.0	13.0	13.0	10.8	11.0	6.0	11.8	9.7	12.4
NNE	18.3	16.6	23.4	13.5	23.4	11.1	18.9	14.0	20.7	13.9
NE	8.1	15.1	4.8	12.0	8.2	9.6	10.8	14.7	7.9	13.4
ENE	1.5	10.2	0.9	10.1	1.3	9.2	2.7	11.7	1.6	10.6
E	0.7	8.7	0.3	5.3	0.4	6.7	0.7	7.0	0.5	7.4
ESE	0.7	8.7	0.2	4.3	0.3	3.6	0.4	7.2	0.4	7.1
SE	2.7	11.6	0.5	6.4	0.3	6.3	1.7	7.6	1.4	9.8
SSE	4.8	18.1	1.0	11.3	0.7	4.9	2.4	11.1	2.5	15.1
S	11.1	16.3	4.1	11.2	2.2	5.4	7.5	9.8	6.7	13.1
SSW	13.0	18.8	10.7	15.3	5.6	6.8	15.4	12.2	11.5	14.4
SW	10.7	10.6	20.7	9.6	29.1	8.0	17.2	10.5	18.4	9.5
WSW	2.4	6.9	3.6	6.2	3.4	5.8	2.6	5.3	2.9	6.1
W	3.6	10.4	3.2	5.8	3.0	5.2	2.5	5.4	3.1	7.3
WNW	2.3	9.2	1.9	7.3	2.3	5.2	1.8	5.8	2.1	7.2
NW	4.2	10.3	4.0	8.0	3.8	6.4	4.6	8.2	4.2	8.5
NNW	6.9	15.3	7.6	11.5	5.2	9.5	4.7	11.5	6.2	12.5
CALM	0.0		0.0		0.0		0.0		0.0	
ALL		14.4		11.5		8.8		11.5		11.9

	WINTER	SPRING	SUMMER	FALL	ANNUAL
			RESULTANT WINDS		
DIRECTION:	325	333	341	353	338
SPEED:	0.5	2.9	2.8	1.1	1.7
PER. RATIO:	0.04	0.25	0.31	0.09	0.14
			PREDOMINANT WINDS		
DIRECTION:	NNE	N	NNE	SSW	NNE
SPEED:	15.3	13.8	10.8	11.0	13.4
PERCENTAGE:	35.5	44.0	42.4	40.1	38.3
			SECONDARY PREDOMINANT WINDS		
DIRECTION:	SSW	SSW	SW	NNE	SSW
SPEED:	15.2	11.5	7.6	13.8	11.7
PERCENTAGE:	34.8	35.5	30.1	35.7	36.6

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY

Station Name: GILROY
Elevation: 197 Feet

	Degrees	Minutes
North Latitude:	37	1
West Longitude:	121	34

Period of Record: MAY 1976 - DEC 1976
Observations: 5,894
24 OBS/DAY

Bias Index: 1.00
Speed Units: MPH
Source Code
Data: 4
Summary: L

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	3.8	1.7	1.6	3.7	1.8	2.9	3.1	1.7	2.5	2.2
NNE	****	****	****	****	****	****	****	****	****	****
NE	3.8	1.8	16.0	3.0	14.3	3.3	7.9	2.2	10.8	2.9
ENE	****	****	****	****	****	****	****	****	****	****
E	2.5	3.7	6.3	3.9	10.2	4.7	5.5	3.9	7.0	4.3
ESE	****	****	****	****	****	****	****	****	****	****
SE	10.4	2.0	20.4	3.8	13.5	3.5	15.0	2.6	14.5	3.1
SSE	****	****	****	****	****	****	****	****	****	****
S	2.0	1.1	1.1	3.6	1.2	2.0	2.7	2.0	1.8	2.0
SSW	****	****	****	****	****	****	****	****	****	****
SW	17.3	1.1	17.2	2.2	15.9	2.6	20.2	1.3	17.9	1.8
WSW	****	****	****	****	****	****	****	****	****	****
W	23.4	1.2	7.5	3.0	10.1	2.9	12.5	1.5	12.4	2.0
WNW	****	****	****	****	****	****	****	****	****	****
NW	36.8	2.6	29.8	5.7	33.0	5.5	33.1	3.2	33.1	4.3
NNW	****	****	****	****	****	****	****	****	****	****
CALM	0.0		0.0		0.0		0.0		0.0	
ALL		1.9		3.9		4.0		2.4		3.1

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	301	324	325	309	317
SPEED:	0.9	0.9	1.2	0.7	0.9
PER. RATIO:	0.50	0.24	0.31	0.28	0.30
PREDOMINANT WINDS (Alternate Definition)					
DIRECTION:	NW	NW	NW	NW	NW
SPEED:	2.6	5.7	5.5	3.2	4.3
PERCENTAGE:	36.8	29.8	33.0	33.1	33.1
SECONDARY PREDOMINANT WINDS (Alternate Definition)					
DIRECTION:	SW	SE	SW	SW	SW
SPEED:	1.1	3.8	2.6	1.3	1.8
PERCENTAGE:	17.3	20.4	15.9	20.2	17.9

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY

Station Name: GLENDALE
Elevation: 463 Feet

	Degrees	Minutes
North Latitude:	34	9
West Longitude:	118	18

Period of Record: JUN 1943 - DEC 1945
Observations: 22,379
24 OBS/DAY

Bias Index: 0.36
Speed Units: MPH
Source Code
Data: 1
Summary: A

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	2.5	6.1	1.3	5.3	0.3	2.9	1.4	4.6	1.3	5.2
NNE	1.0	9.4	0.7	5.6	0.2	2.9	0.5	7.9	0.5	7.3
NE	1.7	7.8	1.4	8.2	1.1	3.5	1.3	6.0	1.3	6.4
ENE	1.1	7.3	1.3	8.5	1.8	5.0	1.0	4.9	1.3	6.1
E	3.6	6.5	5.1	5.9	6.6	6.6	4.5	5.9	5.0	6.2
ESE	5.6	7.6	6.8	6.9	14.9	7.9	9.7	6.9	9.8	7.4
SE	9.1	6.4	16.6	6.0	29.6	6.8	14.5	6.3	18.2	6.5
SSE	7.0	5.9	8.7	6.1	10.5	6.4	7.7	5.6	8.6	6.0
S	5.2	5.2	8.5	5.1	6.2	5.0	4.1	4.9	5.8	5.0
SSW	2.4	5.3	2.9	5.9	2.0	5.3	2.3	5.2	2.4	5.4
SW	3.6	5.0	7.1	5.6	2.6	4.2	3.0	4.8	3.8	5.0
WSW	3.3	6.2	2.4	6.2	1.1	3.9	1.9	4.6	2.1	5.4
W	9.5	5.7	6.4	5.6	3.7	3.7	6.9	4.9	6.4	5.1
WNW	9.0	6.5	4.4	6.6	2.9	4.2	8.0	5.2	6.0	5.7
NW	20.9	5.5	8.3	6.3	3.1	4.4	8.5	5.0	9.5	5.4
NNW	3.9	5.6	1.9	5.8	0.7	4.1	2.7	5.1	2.2	5.3
CALM	10.5		16.1		12.6		21.9		15.7	
ALL		5.4		5.1		5.4		4.4		5.0

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	273	168	135	153	149
SPEED:	0.9	1.5	3.9	1.1	1.6
PER. RATIO:	0.17	0.30	0.72	0.26	0.32
PREDOMINANT WINDS					
DIRECTION:	WNW	SSE	SE	SE	SE
SPEED:	5.8	5.8	7.0	6.3	6.6
PERCENTAGE:	39.4	33.8	55.0	31.9	36.6
SECONDARY PREDOMINANT WINDS					
DIRECTION:	SE	WNW	SSW	WNW	WNW
SPEED:	6.5	6.1	4.9	5.0	5.4
PERCENTAGE:	21.7	19.1	10.8	23.4	21.9

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY
Station Name: HAMILTON AFB
Elevation: 14 Feet (13-82)
Degrees Minutes
North Latitude: 38 4
West Longitude: 122 31
Period of Record: MAR 1939 - DEC 1970
Observations: 278,159
24 OBS/DAY
Bias Index: 0.41
Speed Units: MPH
Source Code
Data: 1
Summary: B

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	3.6	6.2	4.2	6.8	5.4	5.5	4.1	6.2	4.3	6.1
NNE	1.2	8.1	1.2	7.4	1.4	5.9	1.0	7.5	1.2	7.2
NE	1.6	6.8	1.2	6.0	1.5	5.4	1.2	6.3	1.4	6.1
ENE	1.9	7.4	0.6	6.2	0.7	5.5	0.9	6.5	1.0	6.7
E	9.5	8.5	2.7	5.7	3.0	5.7	4.0	6.3	4.8	7.2
ESE	4.4	8.2	2.8	6.7	4.4	8.0	4.2	6.8	4.0	7.5
SE	6.4	7.4	6.5	8.1	13.1	9.9	9.0	7.4	8.8	8.5
SSE	3.3	9.5	2.7	9.6	5.0	10.4	3.1	8.9	3.5	9.7
S	5.6	9.4	4.0	8.0	3.1	6.7	3.7	7.9	4.1	8.2
SSW	3.9	11.1	3.8	8.7	3.0	6.8	2.5	8.5	3.3	8.9
SW	4.2	8.4	5.8	7.7	4.2	6.9	3.6	7.1	4.4	7.6
WSW	1.5	8.9	2.8	8.5	2.0	7.4	1.5	7.6	2.0	8.1
W	3.7	7.0	7.1	8.5	4.0	7.4	4.8	6.4	4.9	7.5
WNW	3.3	9.0	7.5	10.9	4.4	10.1	4.4	9.2	4.9	10.0
NW	7.1	7.8	13.4	9.4	11.3	8.9	9.6	7.6	10.4	8.6
NNW	4.0	7.6	6.8	8.7	6.7	8.0	4.8	6.7	5.6	7.9
CALM	34.7		26.8		26.7		37.5		31.3	
ALL		5.4		6.2		6.0		4.6		5.5

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	161	282	221	248	253
SPEED:	0.8	2.3	0.5	0.5	0.7
PER. RATIO:	0.15	0.36	0.08	0.11	0.13
PREDOMINANT WINDS					
DIRECTION:	ESE	WNW	NNW	WNW	NW
SPEED:	8.1	9.6	7.9	7.7	8.7
PERCENTAGE:	20.3	28.0	23.4	18.8	20.9
SECONDARY PREDOMINANT WINDS					
DIRECTION:	NNW	SSW	SE	ESE	ESE
SPEED:	7.4	8.1	9.6	7.0	7.9
PERCENTAGE:	14.7	13.6	22.5	17.2	17.6

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY
Station Name: HOLLISTER
Elevation: 200 Feet
Degrees Minutes
North Latitude: 36 53
West Longitude: 121 24
Period of Record: JUL 1943 - FEB 1945
Observations: 1,828
3 OBS/DAY 08-16 PST
Bias Index: 0.89
Speed Units: MPH
Source Code
Data: 1
Summary: E

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	13.4	5.4	3.6	3.7	2.8	2.8	6.4	5.0	7.2	4.9
NNE	****	****	0.7	6.3	****	****	0.2	2.3	0.2	5.0
NE	3.9	3.2	3.3	4.9	****	****	0.9	1.8	1.9	3.5
ENE	****	****	0.4	11.5	****	****	0.2	3.5	0.1	7.5
E	17.5	4.3	9.1	3.1	6.3	2.7	13.2	2.8	12.1	3.4
ESE	0.7	11.8	0.7	9.2	0.4	6.3	0.9	6.2	0.7	8.4
SE	6.1	6.6	5.1	5.4	1.9	2.8	4.0	2.9	4.3	4.9
SSE	****	****	0.4	3.5	0.4	3.5	0.2	4.6	0.2	3.7
S	6.3	4.6	4.0	9.4	5.2	3.4	6.6	3.3	5.7	4.4
SSW	0.2	9.2	****	****	0.6	4.2	0.9	4.8	0.5	5.1
SW	3.5	10.2	30.4	13.8	24.4	15.1	15.6	13.1	16.5	13.9
WSW	0.4	5.2	3.3	13.6	10.8	13.8	5.9	11.6	5.1	12.8
W	32.8	5.6	26.4	10.1	38.2	11.4	31.7	6.8	32.9	8.2
WNW	1.3	7.9	1.8	11.3	3.2	7.1	4.6	5.5	2.8	6.8
NW	8.7	6.3	9.1	5.3	3.7	3.9	4.9	4.9	6.3	5.4
NNW	0.2	10.4	****	****	****	****	0.4	2.3	0.2	5.0
CALM	5.0		1.6		2.0		3.3		3.2	
ALL		5.3		9.4		10.5		6.5		7.6

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	285	243	249	251	251
SPEED:	1.5	6.6	9.0	4.4	4.9
PER. RATIO:	0.28	0.70	0.86	0.67	0.65
PREDOMINANT WINDS (Alternate Definition)					
DIRECTION:	W	SW	W	W	W
SPEED:	5.7	13.8	11.6	7.3	8.7
PERCENTAGE:	34.5	33.7	52.2	42.2	40.8
SECONDARY PREDOMINANT WINDS (Alternate Definition)					
DIRECTION:	E	NW	E	E	E
SPEED:	4.6	6.3	2.9	3.0	3.7
PERCENTAGE:	18.2	10.9	6.7	14.3	12.9

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY

Station Name: HOLLYWOOD
Elevation: 249 Feet

	Degrees	Minutes
North Latitude:	34	6
West Longitude:	118	20

Period of Record: NOV 1955 - MAR 1974
Observations: 161,017
24 OBS/DAY

Bias Index: 0.93
Speed Units: MPH
Source Code
Data: 3
Summary: M

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	14.3	3.8	6.2	3.4	2.2	1.9	9.3	3.1	8.1	3.4
NNE	1.9	4.3	0.9	4.1	0.5	3.5	1.3	4.3	1.2	4.2
NE	18.6	4.0	11.2	3.9	3.9	3.1	13.7	3.8	12.0	3.9
ENE	1.0	5.9	0.7	5.3	0.6	4.3	0.8	4.5	0.8	5.1
E	11.7	3.5	9.1	3.5	5.0	2.7	8.9	3.2	8.7	3.3
ESE	0.6	5.1	0.7	4.5	0.8	3.4	0.8	4.0	0.7	4.2
SE	8.8	3.4	11.3	3.6	11.1	3.1	9.7	3.4	10.2	3.4
SSE	0.4	4.1	0.6	4.9	1.1	4.1	0.5	3.8	0.6	4.2
S	10.7	2.7	16.1	3.5	22.3	3.1	14.9	3.0	15.9	3.1
SSW	0.6	4.7	1.4	5.9	2.5	5.1	1.4	4.7	1.5	5.2
SW	17.4	4.2	31.9	5.7	44.5	4.5	28.8	4.7	30.4	4.8
WSW	0.4	4.5	0.7	5.9	1.2	4.8	0.7	5.1	0.8	5.1
W	2.7	3.2	2.8	4.3	2.9	2.7	2.6	3.4	2.7	3.4
WNW	0.2	6.3	0.1	4.8	0.1	3.0	0.1	3.7	0.1	4.6
NW	10.0	6.5	5.8	7.3	1.2	2.4	6.0	5.6	5.8	6.2
NNW	0.8	5.5	0.3	6.4	0.1	3.3	0.5	5.0	0.4	5.5
CALM	0.0		0.0		0.0		0.0		0.0	
ALL		4.0		4.6		3.8		3.9		4.1

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	16	289	285	286	288
SPEED:	0.6	1.6	2.6	0.8	1.1
PER. RATIO:	0.15	0.34	0.70	0.21	0.26
PREDOMINANT WINDS (Alternate Definition)					
DIRECTION:	NE	SW	SW	SW	SW
SPEED:	4.1	5.7	4.5	4.7	4.8
PERCENTAGE:	21.5	34.0	48.2	30.9	32.7
SECONDARY PREDOMINANT WINDS (Alternate Definition)					
DIRECTION:	SW	NE	SE	NE	NE
SPEED:	4.2	4.0	3.2	3.9	4.0
PERCENTAGE:	18.4	12.8	13.0	15.8	14.0

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY

Station Name: HOLTVILLE
Elevation: 58 Feet

	Degrees	Minutes
North Latitude:	32	50
West Longitude:	115	16

Period of Record: AUG 1943 - FEB 1945
Observations: 1,703
6 OBS/DAY

Bias Index: 0.82
Speed Units: MPH
Source Code
Data: 1
Summary: E

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	6.0	6.7	4.0	14.9	3.5	2.7	6.5	7.3	5.3	7.3
NNE	0.9	3.7	2.2	9.4	0.5	1.7	0.2	2.3	0.8	5.8
NE	2.8	3.5	2.9	7.3	0.5	1.7	2.9	5.7	2.3	5.0
ENE	1.3	2.3	1.1	1.5	0.3	5.8	0.8	4.0	0.9	2.8
E	4.9	4.2	1.4	1.7	3.0	2.3	5.4	4.8	4.1	4.0
ESE	3.0	5.6	1.1	5.4	0.5	4.6	2.1	7.1	1.9	6.0
SE	14.6	5.0	13.8	4.2	31.7	9.5	19.1	5.3	19.6	6.6
SSE	1.5	6.3	2.5	5.4	1.9	10.5	3.8	7.5	2.5	7.4
S	6.2	3.9	10.1	3.7	14.4	4.9	9.6	4.4	9.6	4.3
SSW	2.1	3.8	1.4	4.0	0.8	8.1	0.8	6.6	1.3	4.9
SW	2.8	4.3	6.5	5.1	8.7	4.6	5.2	3.7	5.4	4.4
WSW	2.2	3.7	2.9	5.2	0.5	11.5	0.2	2.3	1.4	4.9
W	13.3	6.6	24.6	9.1	12.5	5.8	13.8	5.1	15.1	6.7
WNW	5.0	4.6	5.8	6.9	2.7	10.1	2.5	4.7	3.9	6.0
NW	27.7	6.1	15.2	5.6	14.6	5.1	18.9	5.4	20.1	5.7
NNW	3.9	11.3	2.9	8.3	1.1	3.2	1.5	7.6	2.4	9.2
CALM	1.7		1.6		2.7		6.6		3.3	
ALL		5.5		6.5		6.4		5.0		5.7

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	304	282	170	246	261
SPEED:	2.0	3.0	2.7	0.4	1.0
PER. RATIO:	0.36	0.46	0.41	0.08	0.18
PREDOMINANT WINDS (Alternate Definition)					
DIRECTION:	NW	W	SE	SE	NW
SPEED:	6.4	8.4	9.5	5.8	6.1
PERCENTAGE:	36.6	33.3	34.1	25.0	26.4
SECONDARY PREDOMINANT WINDS (Alternate Definition)					
DIRECTION:	SE	SE	NW	NW	SE
SPEED:	5.2	4.4	5.7	5.5	6.6
PERCENTAGE:	19.1	17.4	18.4	22.9	24.0

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY

Station Name: HUMBOLDT BAY
Elevation: 13 Feet

	Degrees	Minutes
North Latitude:	40	44
West Longitude:	124	12

Period of Record: APR 1962 - MAR 1968
Observations: 21,015
24 OBS/DAY

Bias Index: 0.24
Speed Units: MPH
Source Code
Data: 5
Summary: N

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	13.3	15.2	28.4	14.0	26.8	11.2	14.1	10.3	22.3	12.8
NNE	8.3	9.7	9.2	10.1	10.7	9.3	6.2	7.7	9.0	9.5
NE	5.6	5.9	4.4	6.6	3.5	6.6	4.3	5.8	4.4	6.2
ENE	4.6	4.4	2.9	4.8	1.8	4.1	4.0	5.3	3.1	4.7
E	5.9	4.4	3.0	4.0	1.8	4.9	4.9	6.2	3.6	4.8
ESE	5.3	5.9	2.5	5.2	1.1	5.2	3.8	6.8	3.0	5.8
SE	7.0	12.1	3.2	8.0	0.9	4.6	6.0	17.4	3.8	11.7
SSE	8.4	13.5	3.6	12.5	1.1	6.3	9.8	17.9	4.9	14.1
S	8.6	10.1	6.4	11.7	2.5	6.9	7.5	11.9	5.9	10.6
SSW	6.6	9.7	4.1	9.4	4.7	7.6	4.9	9.4	5.0	9.0
SW	5.9	8.6	4.6	10.1	5.9	8.6	6.3	8.2	5.5	8.9
WSW	4.3	7.7	3.5	7.3	4.7	7.2	5.5	6.5	4.4	7.2
W	4.8	8.5	4.0	5.9	6.1	6.0	5.8	6.4	5.1	6.6
WNW	2.5	10.3	2.9	6.5	4.5	5.9	4.0	6.2	3.4	6.8
NW	4.0	11.5	5.6	8.3	8.0	7.5	5.0	7.5	5.9	8.4
NNW	4.0	10.8	11.4	12.0	15.8	9.9	7.4	8.9	10.4	10.6
CALM	0.8		0.0		0.0		0.4		0.0	
ALL		9.8		10.4		8.7		9.6		9.7

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	56	351	342	156	349
SPEED:	0.3	4.6	5.2	1.3	2.9
PER. RATIO:	0.03	0.45	0.60	0.13	0.30
PREDOMINANT WINDS					
DIRECTION:	NNE	N	N	N	N
SPEED:	11.6	12.8	10.4	9.3	11.5
PERCENTAGE:	27.2	49.0	53.3	27.7	41.7
SECONDARY PREDOMINANT WINDS					
DIRECTION:	SSE	SSW	WNW	SSE	SSW
SPEED:	11.9	10.6	6.6	15.8	9.5
PERCENTAGE:	24.0	15.1	18.6	23.3	16.4

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY

Station Name: HYPERION
Elevation: 10 Feet (39)

	Degrees	Minutes
North Latitude:	33	53
West Longitude:	118	27

Period of Record: JAN 1957 - JUL 1960
Observations: 29,185
24 OBS/DAY

Bias Index:-0.02
Speed Units: MPH
Source Code
Data: 3
Summary: M

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	2.4	7.3	1.2	8.2	0.9	2.4	1.5	6.3	1.5	6.6
NNE	3.1	7.3	1.7	7.2	1.1	2.9	1.5	5.6	1.9	6.4
NE	3.8	5.2	1.7	4.5	0.9	2.3	2.3	5.0	2.2	4.7
ENE	22.3	7.0	9.4	5.8	3.6	4.2	13.0	6.4	12.2	6.4
E	19.3	7.8	10.8	6.8	5.8	5.2	15.7	6.6	12.9	7.0
ESE	3.2	6.9	3.6	5.5	3.4	5.0	2.6	4.4	3.2	5.5
SE	1.7	8.3	1.0	5.3	0.8	3.5	0.8	3.5	1.1	5.9
SSE	0.9	7.7	0.7	5.6	0.6	4.2	1.0	3.7	0.8	5.5
S	1.6	6.5	1.7	5.1	1.2	4.2	1.7	4.8	1.6	5.3
SSW	4.5	6.8	5.7	7.4	3.4	5.6	4.4	6.1	4.6	6.7
SW	5.5	6.6	9.4	7.7	8.5	6.8	8.0	6.9	7.9	7.1
WSW	10.2	7.0	25.5	9.2	32.2	9.0	20.8	8.3	22.1	8.7
W	14.1	9.8	21.1	12.1	29.2	9.5	19.5	9.3	20.8	10.3
WNW	4.3	8.6	4.4	8.0	5.7	5.2	4.9	6.8	4.8	7.1
NW	1.7	5.0	1.3	5.5	1.9	3.5	1.3	4.0	1.5	4.5
NNW	1.5	7.0	0.9	7.9	0.9	2.7	1.1	4.3	1.1	5.7
CALM	0.0		0.0		0.0		0.0		0.0	
ALL		7.5		8.5		7.6		7.2		7.8

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	69	253	255	252	254
SPEED:	0.7	4.4	5.8	2.3	3.0
PER. RATIO:	0.09	0.52	0.76	0.32	0.38
PREDOMINANT WINDS					
DIRECTION:	ENE	WSW	WSW	WSW	WSW
SPEED:	7.2	10.0	8.9	8.5	9.1
PERCENTAGE:	45.4	56.0	69.9	48.3	50.8
SECONDARY PREDOMINANT WINDS					
DIRECTION:	WSW	E	E	E	E
SPEED:	8.3	6.2	4.9	6.3	6.6
PERCENTAGE:	29.8	23.8	12.8	31.3	28.3

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY

Station Name: IMPERIAL BEACH
Elevation: 23 Feet (9)

	Degrees	Minutes
North Latitude:	32	34
West Longitude:	117	7

Period of Record: 1973 - 1977
Observations: 8,754

Bias Index: 0.19
Speed Units: MPH
Source Code
Data: 1
Summary: D

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	2.9	4.7	0.9	5.2	0.6	4.4	1.7	3.8	1.5	4.5
NNE	3.0	4.5	0.5	4.5	0.7	4.7	1.6	4.1	1.5	4.4
NE	2.8	4.6	0.9	4.9	0.7	3.3	1.9	4.2	1.6	4.4
ENE	5.1	5.9	1.3	5.4	0.4	4.2	2.6	5.5	2.3	5.7
E	16.5	7.7	5.9	6.7	0.6	3.9	8.0	6.8	7.7	7.2
ESE	4.4	9.6	1.8	5.5	0.4	3.7	2.5	7.5	2.3	7.9
SE	1.2	6.5	0.6	5.5	0.3	4.8	0.6	4.4	0.7	5.6
SSE	1.1	6.4	1.2	7.4	0.4	4.8	0.6	4.4	0.8	6.2
S	5.1	7.8	5.2	7.9	5.0	6.5	3.5	4.8	4.7	6.9
SSW	5.0	6.9	7.8	7.8	9.4	7.4	5.5	6.3	7.0	7.2
SW	4.1	6.4	9.3	7.7	9.1	6.8	5.9	6.2	7.1	6.9
WSW	5.6	6.0	12.2	7.6	12.9	6.5	7.2	5.6	9.5	6.6
W	12.0	6.7	22.7	7.9	25.9	7.1	17.7	6.5	19.6	7.1
WNW	11.0	7.0	16.0	8.4	19.1	7.9	16.9	7.2	15.8	7.7
NW	7.4	6.5	7.9	8.2	7.1	6.0	10.6	6.7	8.2	6.9
NNW	2.8	5.6	1.8	6.2	1.7	6.2	3.4	5.4	2.4	5.7
CALM	9.9		3.9		5.6		9.7		7.2	
ALL		6.1		7.4		6.5		5.7		6.4

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	261	260	262	278	265
SPEED:	0.4	4.5	5.0	2.7	3.1
PER. RATIO:	0.06	0.62	0.77	0.47	0.49
PREDOMINANT WINDS					
DIRECTION:	WNW	W	W	WNW	W
SPEED:	6.8	8.0	7.2	6.8	7.2
PERCENTAGE:	30.4	50.9	57.9	45.2	44.9
SECONDARY PREDOMINANT WINDS					
DIRECTION:	E	SSW	SSW	SW	SSW
SPEED:	7.7	7.8	7.0	6.0	7.0
PERCENTAGE:	26.0	22.3	23.5	18.6	18.8

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY

Station Name: INDIO
Elevation: -63 Feet

	Degrees	Minutes
North Latitude:	33	41
West Longitude:	116	10

Period of Record: 1937 - 1940
Observations: 27,948
NO WIND SPEEDS

Bias Index: 0.63
Speed Units: MPH
Source Code
Data: 1
Summary: J

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	9.4	****	4.7	****	3.5	****	11.7	****	6.9	****
NNE	1.1	****	0.6	****	0.3	****	0.5	****	0.6	****
NE	1.9	****	0.9	****	1.1	****	0.6	****	1.1	****
ENE	0.1	****	0.2	****	0.2	****	0.2	****	0.2	****
E	0.9	****	0.6	****	1.2	****	1.2	****	1.0	****
ESE	0.4	****	0.8	****	1.8	****	1.6	****	1.1	****
SE	4.4	****	5.0	****	8.5	****	4.8	****	5.8	****
SSE	1.8	****	2.6	****	5.8	****	2.8	****	3.3	****
S	2.6	****	3.0	****	6.0	****	3.1	****	3.7	****
SSW	0.6	****	1.2	****	2.6	****	1.1	****	1.4	****
SW	1.4	****	2.0	****	5.2	****	1.5	****	2.6	****
WSW	0.7	****	1.0	****	1.0	****	0.8	****	0.9	****
W	3.5	****	4.2	****	3.7	****	7.4	****	4.6	****
WNW	3.2	****	5.1	****	5.1	****	7.0	****	5.1	****
NW	29.9	****	43.3	****	29.4	****	22.0	****	31.9	****
NNW	6.5	****	9.2	****	8.0	****	10.3	****	8.5	****
CALM	31.5		15.5		16.5		23.3		21.2	
ALL		****		****		****		****		****

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	***	***	***	***	***
SPEED:	****	****	****	****	****
PER. RATIO:	****	****	****	****	****
PREDOMINANT WINDS (Alternate Definition)					
DIRECTION:	NW	NW	NW	NW	NW
SPEED:	****	****	****	****	****
PERCENTAGE:	39.6	57.6	42.5	39.3	45.5
SECONDARY PREDOMINANT WINDS (Alternate Definition)					
DIRECTION:	SE	SE	SE	SE	SE
SPEED:	****	****	****	****	****
PERCENTAGE:	6.6	8.4	16.1	9.2	10.2

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY

Station Name: JENNER
Elevation: 236 Feet

	Degrees	Minutes
North Latitude:	38	27
West Longitude:	123	8

Period of Record:
JUN 1943 - APR 1944
OCT 1944 - MAY 1945

Observations: 13,567

Bias Index:-0.37
Speed Units: MPH
Source Code
Data: 1
Summary: A

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	1.0	13.8	1.1	5.6	1.5	2.4	0.6	3.9	1.0	7.2
NNE	5.3	14.9	0.9	7.7	2.3	3.4	2.2	5.9	2.8	11.1
NE	7.3	10.2	1.3	6.0	3.0	4.0	3.0	6.0	3.9	8.3
ENE	21.4	12.1	6.7	8.6	5.6	4.3	10.9	9.3	12.4	10.4
E	12.8	12.2	5.8	8.1	2.7	4.4	10.4	9.9	8.8	10.4
ESE	13.7	12.7	6.9	9.2	3.5	4.0	17.1	9.7	11.3	10.5
SE	2.3	9.1	3.4	8.3	5.1	4.1	4.2	7.5	3.5	7.3
SSE	4.0	15.2	3.7	10.7	11.5	4.3	7.0	9.4	5.9	9.4
S	2.6	9.8	3.8	9.8	8.7	4.6	4.5	7.1	4.3	7.4
SSW	3.1	7.8	5.0	9.3	12.1	5.0	8.1	8.1	6.3	7.4
SW	2.5	8.9	4.4	8.4	13.8	7.6	6.2	6.8	5.7	7.7
WSW	7.7	11.0	11.4	15.0	20.2	9.0	10.9	7.4	11.4	10.6
W	5.7	13.3	9.3	15.6	7.5	7.2	5.5	6.8	6.9	11.7
WNW	6.3	14.3	19.0	18.0	0.5	4.8	5.3	11.0	8.5	15.8
NW	1.5	11.0	12.6	20.9	0.7	2.2	1.3	10.9	4.2	18.5
NNW	2.0	9.9	3.6	11.4	0.4	2.8	1.6	8.4	2.1	10.0
CALM	0.7		1.0		0.8		1.1		0.9	
ALL		12.0		13.4		5.9		8.5		10.5

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	80	282	220	136	225
SPEED:	4.0	6.8	3.6	2.6	0.5
PER. RATIO:	0.34	0.51	0.61	0.31	0.04
PREDOMINANT WINDS					
DIRECTION:	E	WNW	SW	E	E
SPEED:	12.3	18.3	7.5	9.6	10.4
PERCENTAGE:	47.9	40.9	46.1	38.4	32.5
SECONDARY PREDOMINANT WINDS					
DIRECTION:	W	SW	SSE	SW	W
SPEED:	12.7	12.2	4.4	7.5	12.5
PERCENTAGE:	19.7	20.8	25.3	25.2	26.8

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY

Station Name: JOHNSON VALLEY
Elevation: 3451 Feet (33)

	Degrees	Minutes
North Latitude:	34	45
West Longitude:	116	36

Period of Record:
JAN 1980 - DEC 1980

Observations: 8,120
24 OBS/DAY

Bias Index:-0.10
Speed Units: MPH
Source Code
Data: 7
Summary: O

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	8.5	6.0	4.8	7.6	2.0	5.4	8.1	6.9	5.7	6.6
NNE	6.7	7.2	4.4	7.2	3.1	6.0	6.3	8.3	5.0	7.3
NE	6.5	7.2	3.8	8.9	1.1	5.1	4.8	7.2	3.9	7.5
ENE	6.1	7.6	2.2	7.6	2.9	5.8	3.1	6.9	3.4	7.1
E	6.1	7.8	3.7	8.3	2.1	6.5	5.3	6.7	4.2	7.4
ESE	4.3	7.8	4.3	7.4	6.0	6.5	6.7	6.9	5.3	7.0
SE	2.3	4.7	3.9	9.2	3.0	7.8	3.0	6.7	3.1	7.5
SSE	2.4	4.7	2.0	9.4	4.9	6.0	2.8	5.4	3.1	6.3
S	2.7	4.0	4.6	7.6	1.9	5.4	3.3	4.7	3.1	5.8
SSW	1.5	5.8	1.6	5.4	3.1	6.5	1.4	5.6	1.9	6.0
SW	2.4	11.0	2.0	5.6	2.4	7.8	1.3	4.7	2.0	7.6
WSW	9.2	14.5	2.8	16.1	10.7	11.9	2.4	6.9	6.3	12.8
W	12.9	13.0	20.4	17.2	16.7	14.8	11.1	12.8	15.5	15.0
WNW	10.5	8.9	19.7	16.1	33.1	14.8	20.6	11.0	21.6	13.6
NW	10.3	7.4	15.7	13.4	3.3	7.4	10.4	7.4	9.9	10.0
NNW	7.7	8.1	3.9	9.6	3.6	6.5	9.5	7.4	6.0	7.8
CALM	0.0		0.0		0.0		0.0		0.0	
ALL		8.7		12.5		11.2		8.4		10.3

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	301	291	279	312	291
SPEED:	3.4	7.7	7.7	3.9	5.7
PER. RATIO:	0.39	0.61	0.69	0.47	0.55
PREDOMINANT WINDS					
DIRECTION:	WNW	WNW	W	WNW	WNW
SPEED:	10.0	15.7	14.3	10.6	13.3
PERCENTAGE:	33.7	55.8	60.5	42.1	47.0
SECONDARY PREDOMINANT WINDS					
DIRECTION:	N	N	SE	N	N
SPEED:	7.1	8.1	6.6	7.5	7.2
PERCENTAGE:	22.9	13.1	13.9	23.9	16.7

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY

Station Name: JOLON
Elevation: 1040 Feet

	Degrees	Minutes
North Latitude:	36	0
West Longitude:	121	14

Period of Record: 1965 - 1970

Observations: 44,992

Bias Index: 0.44
Speed Units: MPH
Source Code
Data: 1
Summary: L

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	10.3	3.2	10.2	3.8	4.7	3.2	8.6	2.7	8.4	3.2
NNE	3.5	3.1	4.0	4.0	2.4	4.1	3.3	3.0	3.3	3.5
NE	4.8	2.5	4.9	3.8	5.7	4.6	4.3	3.3	4.9	3.6
ENE	2.9	2.7	3.1	3.8	4.1	4.7	2.4	3.6	3.1	3.8
E	8.6	2.2	7.7	3.2	8.4	3.7	5.6	3.2	7.6	3.1
ESE	5.6	2.7	3.9	2.9	3.1	3.6	3.2	3.4	3.9	3.1
SE	11.4	3.3	7.6	3.2	7.8	3.7	7.5	3.4	8.5	3.4
SSE	7.3	3.7	5.6	3.7	4.7	3.6	5.2	3.9	5.6	3.7
S	8.4	3.9	7.5	4.1	8.0	3.8	7.6	3.5	7.9	3.8
SSW	2.3	4.3	3.1	4.2	3.5	4.4	2.8	3.7	2.9	4.2
SW	2.4	4.4	3.9	5.0	5.4	5.3	3.2	3.9	3.8	4.8
WSW	1.4	5.1	2.5	5.8	2.5	4.3	1.9	3.1	2.1	4.6
W	5.3	2.9	7.2	3.7	10.2	2.3	8.8	2.3	8.0	2.7
WNW	2.4	2.4	3.4	2.4	5.1	1.8	5.1	1.9	4.1	2.0
NW	6.6	2.6	8.5	2.4	10.0	1.9	11.6	2.1	9.3	2.2
NNW	7.0	2.9	8.4	3.2	5.7	2.6	9.6	2.5	7.7	2.8
CALM	9.7		8.4		8.6		9.2		8.8	
ALL		2.8		3.3		3.1		2.6		2.9

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	126	357	144	56	126
SPEED:	0.4	0.1	0.3	0.0	0.2
PER. RATIO:	0.13	0.04	0.11	0.01	0.05
PREDOMINANT WINDS					
DIRECTION:	SSE	NNW	WNW	NNW	NNW
SPEED:	3.6	3.2	2.0	2.4	2.7
PERCENTAGE:	27.1	27.1	25.3	29.8	25.4
SECONDARY PREDOMINANT WINDS					
DIRECTION:	NNW	SSE	SSE	SSE	SSE
SPEED:	2.9	3.7	3.7	3.6	3.6
PERCENTAGE:	23.9	20.7	20.5	20.3	22.0

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY

Station Name: KLAMATH FALLS
Elevation: 4102 Feet (13-74)

	Degrees	Minutes
North Latitude:	42	9
West Longitude:	121	44

Period of Record:
JAN 1948 - DEC 1954
SEP 1959 - MAR 1969
MAY 1969 - MAY 1970

Observations: 154,817

Bias Index: 0.09
Speed Units: MPH
Source Code
Data: 1
Summary: B

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	5.1	6.2	6.0	7.4	7.3	7.0	7.1	6.0	6.4	6.6
NNE	1.7	6.8	2.1	6.9	1.8	5.7	2.1	6.8	1.9	6.6
NE	1.0	5.5	1.3	6.6	1.1	5.1	1.4	6.2	1.2	5.9
ENE	1.0	5.1	1.2	6.2	0.9	4.8	1.1	5.6	1.1	5.5
E	1.9	4.8	1.9	5.9	1.6	4.3	1.9	5.1	1.8	5.0
ESE	2.6	5.0	1.9	5.7	1.4	4.2	1.5	4.9	1.9	5.0
SE	4.4	7.9	3.0	8.0	1.7	5.2	2.9	7.9	3.0	7.6
SSE	10.3	11.7	6.9	11.5	2.7	6.9	6.0	10.7	6.5	10.9
S	6.9	12.5	6.3	12.3	3.2	7.9	5.3	11.4	5.4	11.5
SSW	2.7	10.8	2.4	9.7	1.9	6.1	2.0	8.9	2.3	9.1
SW	2.7	9.6	3.0	8.8	2.2	6.1	2.2	7.5	2.5	8.2
WSW	4.3	10.4	4.9	9.7	3.2	7.5	3.2	9.3	3.9	9.4
W	6.8	9.3	12.4	9.6	10.2	7.8	6.6	8.5	9.0	8.8
WNW	2.6	8.0	6.2	9.1	6.5	7.9	3.5	7.8	4.7	8.3
NW	2.9	6.8	5.8	8.9	7.2	7.7	4.6	7.1	5.1	7.8
NNW	5.6	7.3	8.8	9.8	13.1	9.3	8.7	7.9	9.0	8.8
CALM	37.4		25.8		34.0		39.9		34.3	
ALL		5.6		6.9		4.9		4.8		5.6

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	203	264	307	261	263
SPEED:	2.0	2.3	2.6	1.0	1.5
PER. RATIO:	0.35	0.33	0.53	0.22	0.28
PREDOMINANT WINDS					
DIRECTION:	SSE	WNW	NNW	NNW	NNW
SPEED:	11.2	9.3	8.3	7.1	7.9
PERCENTAGE:	21.6	24.4	27.6	20.4	20.5
SECONDARY PREDOMINANT WINDS					
DIRECTION:	WSW	N	W	SSE	W
SPEED:	9.7	8.6	7.8	10.4	8.8
PERCENTAGE:	13.8	16.9	19.9	14.2	17.6

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY

Station Name: LA HABRA
Elevation: 259 Feet (25)

	Degrees	Minutes
North Latitude:	33	56
West Longitude:	115	57

Period of Record: AUG 1960 - DEC 1974
Observations: 127,626
24 OBS/DAY

Bias Index: 0.66
Speed Units: MPH
Source Code
Data: 3
Summary: M

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	4.1	2.1	3.0	1.3	2.8	1.2	4.4	1.4	3.6	1.5
NNE	2.6	3.1	1.1	2.6	0.6	1.3	1.6	2.3	1.5	2.6
NE	14.9	2.2	7.0	1.8	3.6	1.3	11.3	1.8	9.3	1.9
ENE	8.0	2.4	4.1	2.1	1.3	1.4	5.0	2.4	4.7	2.3
E	25.4	2.1	15.5	1.7	7.1	1.3	17.3	1.6	16.5	1.8
ESE	3.9	2.5	3.1	2.0	1.7	1.6	2.5	2.0	2.8	2.1
SE	5.1	2.4	5.8	2.3	6.4	1.9	5.5	2.0	5.7	2.1
SSE	1.3	4.2	2.4	3.3	2.8	2.5	1.4	2.8	2.0	3.1
S	6.1	3.4	11.5	4.0	13.1	3.5	7.0	3.1	9.4	3.5
SSW	3.7	4.1	7.7	5.6	7.4	5.3	4.2	4.8	5.7	5.1
SW	10.5	3.9	18.9	5.7	23.5	5.3	15.3	4.5	16.9	5.0
WSW	4.2	4.5	7.9	6.2	10.6	5.5	7.4	5.2	7.5	5.5
W	8.0	3.6	10.0	4.9	15.3	3.8	13.5	3.9	11.7	4.0
WNW	0.7	4.6	0.6	3.5	1.1	2.3	1.2	4.0	0.9	3.6
NW	1.5	2.1	1.2	1.6	2.3	1.3	2.1	1.6	1.8	1.6
NNW	0.3	3.2	0.2	2.0	0.4	1.3	0.3	1.8	0.3	2.0
CALM	0.0		0.0		0.0		0.0		0.0	
ALL		2.8		3.8		3.7		3.0		3.3

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	141	216	224	225	217
SPEED:	0.5	2.2	2.7	1.2	1.5
PER. RATIO:	0.17	0.58	0.74	0.39	0.46
PREDOMINANT WINDS (Alternate Definition)					
DIRECTION:	E	SW	SW	SW	SW
SPEED:	2.2	5.8	5.4	4.7	5.1
PERCENTAGE:	37.3	34.5	41.5	26.9	30.1
SECONDARY PREDOMINANT WINDS (Alternate Definition)					
DIRECTION:	SW	E	SE	E	E
SPEED:	4.1	1.8	2.0	1.8	1.9
PERCENTAGE:	18.4	22.7	10.9	24.8	24.0

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY

Station Name: LAGUNA BEACH
Elevation: 200 Feet

	Degrees	Minutes
North Latitude:	33	32
West Longitude:	117	46

Period of Record: 1934 - 1938
Observations: 43,741
NO WIND SPEEDS

Bias Index: 0.65
Speed Units: MPH
Source Code
Data: 1
Summary: J

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	3.4	****	1.6	****	0.7	****	2.4	****	2.0	****
NNE	2.3	****	0.7	****	0.2	****	0.9	****	1.0	****
NE	9.4	****	3.7	****	1.4	****	4.3	****	4.7	****
ENE	1.8	****	1.3	****	0.3	****	0.8	****	1.1	****
E	3.7	****	2.7	****	1.2	****	2.1	****	2.4	****
ESE	2.6	****	2.2	****	1.6	****	1.4	****	2.0	****
SE	6.6	****	7.2	****	7.9	****	5.3	****	6.8	****
SSE	2.9	****	3.3	****	3.9	****	1.5	****	2.9	****
S	2.8	****	4.5	****	5.2	****	2.4	****	3.7	****
SSW	0.7	****	1.1	****	1.7	****	0.8	****	1.1	****
SW	3.0	****	6.6	****	7.5	****	3.7	****	5.2	****
WSW	0.8	****	1.7	****	1.9	****	1.2	****	1.4	****
W	4.3	****	8.0	****	8.2	****	5.7	****	6.5	****
WNW	2.9	****	4.5	****	4.6	****	4.2	****	4.1	****
NW	11.2	****	14.6	****	12.6	****	13.2	****	12.9	****
NNW	2.6	****	1.9	****	1.4	****	2.6	****	2.1	****
CALM	38.9		34.3		39.7		47.5		40.1	
ALL		****		****		****		****		****

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	***	***	***	***	***
SPEED:	****	****	****	****	****
PER. RATIO:	****	****	****	****	****
PREDOMINANT WINDS (Alternate Definition)					
DIRECTION:	NW	NW	NW	NW	NW
SPEED:	****	****	****	****	****
PERCENTAGE:	16.7	21.0	18.6	20.0	19.1
SECONDARY PREDOMINANT WINDS (Alternate Definition)					
DIRECTION:	NE	SE	SE	SE	SE
SPEED:	****	****	****	****	****
PERCENTAGE:	13.5	12.7	13.4	8.2	11.7

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY
Station Name: LANCASTER
Elevation: 2346 Feet (26)
Degrees Minutes
North Latitude: 34 43
West Longitude: 118 8
Period of Record: JUL 1970 - DEC 1974
Observations: 48,515
24 OBS/DAY
Bias Index: 0.23
Speed Units: MPH
Source Code
Data: 3
Summary: M

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	4.2	2.3	2.6	1.7	1.8	2.4	2.9	2.0	2.9	2.1
NNE	2.2	2.5	0.7	3.1	0.5	2.2	1.9	2.4	1.4	2.5
NE	3.8	3.5	1.4	3.6	0.9	2.7	2.8	3.3	2.3	3.4
ENE	7.4	5.8	3.0	6.9	1.2	3.8	5.3	5.1	4.3	5.6
E	9.2	5.0	4.6	5.4	3.6	3.0	8.2	5.2	6.4	4.8
ESE	5.4	2.5	2.9	2.2	3.8	2.1	5.5	2.3	4.4	2.3
SE	3.1	2.1	2.3	2.1	3.2	2.1	4.0	1.9	3.2	2.0
SSE	2.5	2.0	1.7	2.4	2.5	2.2	3.9	2.4	2.7	2.3
S	4.1	2.0	3.0	2.6	3.4	2.1	5.2	2.3	3.9	2.2
SSW	3.5	3.2	2.3	3.0	3.5	2.9	3.1	2.4	3.1	2.9
SW	6.8	5.0	14.0	7.0	20.0	6.2	8.8	5.1	12.3	6.0
WSW	10.6	4.1	19.7	5.9	27.0	5.4	16.3	4.5	18.4	5.1
W	20.5	5.3	28.2	6.7	20.8	5.2	20.6	4.7	22.3	5.5
WNW	8.9	5.6	9.1	7.6	5.3	4.8	6.1	3.9	7.3	5.6
NW	4.1	2.9	5.6	3.6	1.5	3.2	2.8	2.8	3.4	3.1
NNW	3.9	2.3	2.0	3.1	0.9	2.5	2.6	2.3	2.4	2.5
CALM	0.0		0.0		0.0		0.0		0.0	
ALL		4.2		5.9		4.7		3.9		4.6

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	272	259	246	249	254
SPEED:	1.2	4.0	3.6	1.4	2.5
PER. RATIO:	0.29	0.68	0.77	0.36	0.53
PREDOMINANT WINDS					
DIRECTION:	W	WSW	WSW	WSW	WSW
SPEED:	5.0	6.5	5.6	4.7	5.5
PERCENTAGE:	40.0	61.9	67.8	45.7	53.0
SECONDARY PREDOMINANT WINDS					
DIRECTION:	E	NW	ESE	E	E
SPEED:	4.7	5.7	2.4	4.3	4.3
PERCENTAGE:	22.0	16.7	10.6	19.0	15.1

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY
Station Name: LAKEPORT
Elevation: 1329 Feet (30)
Degrees Minutes
North Latitude: 39 2
West Longitude: 122 55
Period of Record: JUL 1981 - JUN 1982
Observations: 6,664
24 OBS/DAY
Bias Index: 0.22
Speed Units: MPH
Source Code
Data: 2
Summary: L

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	1.3	2.1	1.5	2.4	0.5	2.1	11.1	4.4	3.8	4.0
NNE	0.7	2.4	0.9	2.0	0.6	1.4	0.5	2.1	0.6	1.9
NE	0.8	1.9	1.2	2.4	0.8	2.6	0.7	2.1	0.9	2.3
ENE	1.9	3.6	5.6	4.5	5.6	4.4	2.9	3.9	4.2	4.3
E	6.1	3.4	7.8	3.7	12.1	4.0	7.6	3.6	8.9	3.7
ESE	6.9	3.6	2.6	3.1	2.6	3.4	4.3	3.1	3.8	3.3
SE	6.1	3.6	2.9	3.1	1.1	2.4	4.1	3.9	3.2	3.5
SSE	4.5	3.2	1.3	2.9	0.8	1.5	3.3	2.8	2.3	2.8
S	6.7	3.3	2.5	3.8	1.0	2.1	3.5	2.7	3.0	3.1
SSW	6.7	3.4	1.7	3.7	1.1	4.1	5.1	3.3	3.3	3.4
SW	7.7	4.4	4.2	5.1	8.2	7.5	7.9	5.0	7.1	5.8
WSW	6.6	4.0	6.0	5.5	8.5	6.8	7.8	3.6	7.4	5.2
W	10.4	2.9	12.1	5.6	9.6	4.8	12.4	3.4	11.1	4.2
WNW	19.2	3.3	27.2	6.5	20.2	5.7	16.6	4.2	20.5	5.2
NW	13.1	4.5	20.2	4.8	25.5	4.4	11.4	3.5	18.2	4.3
NNW	1.3	3.3	2.5	5.1	1.8	4.5	0.7	4.4	1.6	4.5
CALM	0.0		0.0		0.0		0.0		0.0	
ALL		3.6		5.0		5.0		3.8		4.4

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	253	291	285	281	283
SPEED:	1.2	3.0	2.6	1.3	2.0
PER. RATIO:	0.35	0.60	0.52	0.35	0.46
PREDOMINANT WINDS					
DIRECTION:	WNW	WNW	WNW	WNW	WNW
SPEED:	3.6	5.7	4.9	3.8	4.6
PERCENTAGE:	42.7	59.5	55.3	40.4	49.8
SECONDARY PREDOMINANT WINDS					
DIRECTION:	SSW	E	E	SW	SW
SPEED:	3.7	3.9	4.0	4.1	5.1
PERCENTAGE:	21.1	16.0	20.3	20.8	17.8

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY

Station Name: LAVERNE
Elevation: 1001 Feet (35)

	Degrees	Minutes
North Latitude:	34	6
West Longitude:	117	47

Period of Record: OCT 1958 - MAY 1975
Observations: 148,726
24 OBS/DAY

Bias Index: 0.51
Speed Units: MPH
Source Code
Data: 3
Summary: M

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	3.0	5.1	2.2	5.0	2.3	2.3	2.9	3.8	2.6	4.1
NNE	1.5	4.6	1.3	3.4	0.4	3.1	0.9	4.1	1.0	3.9
NE	6.5	4.2	3.5	3.3	2.3	2.8	4.2	3.6	4.1	3.6
ENE	3.5	4.5	1.9	4.0	0.7	3.0	2.1	4.8	2.1	4.3
E	21.6	4.5	8.7	4.0	2.9	3.5	14.5	4.5	11.8	4.4
ESE	10.5	4.8	5.6	4.4	1.9	3.8	7.0	4.9	6.3	4.6
SE	8.1	4.7	4.8	4.3	1.8	3.8	5.5	4.1	5.0	4.4
SSE	2.6	5.0	2.1	4.3	0.8	3.5	1.8	4.7	1.8	4.6
S	5.5	5.4	6.5	7.1	2.3	5.0	3.5	5.2	4.5	6.0
SSW	4.0	5.7	8.8	6.5	4.0	5.8	3.4	5.8	5.2	6.1
SW	9.1	5.6	15.8	7.3	12.7	6.2	9.6	5.9	11.9	6.4
WSW	7.1	5.6	12.9	7.4	19.8	7.8	12.0	7.0	12.9	7.2
W	12.1	6.2	19.7	7.6	40.8	8.1	26.8	7.0	24.6	7.5
WNW	1.5	4.8	2.7	5.4	3.5	6.5	2.3	5.4	2.5	5.7
NW	2.2	4.7	2.5	4.8	2.6	4.3	2.5	4.3	2.5	4.5
NNW	1.1	5.5	1.1	3.9	0.9	4.2	1.0	5.2	1.0	4.7
CALM	0.0		0.0		0.0		0.0		0.0	
ALL		5.1		6.2		6.8		5.7		5.9

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	157	233	257	243	241
SPEED:	1.1	3.4	5.5	2.2	2.8
PER. RATIO:	0.21	0.55	0.81	0.39	0.47
PREDOMINANT WINDS (Alternate Definition)					
DIRECTION:	E	SW	W	W	W
SPEED:	4.6	7.1	7.9	6.9	7.3
PERCENTAGE:	35.6	37.5	64.1	41.1	40.0
SECONDARY PREDOMINANT WINDS (Alternate Definition)					
DIRECTION:	W	E	S	E	E
SPEED:	5.9	4.1	5.3	4.6	4.5
PERCENTAGE:	20.7	16.2	7.1	23.6	20.2

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY

Station Name: LEMOORE NAS
Elevation: 238 Feet (10)

	Degrees	Minutes
North Latitude:	36	20
West Longitude:	119	57

Period of Record: 1962 - 1979
Observations: 111,926

Bias Index: 0.12
Speed Units: MPH
Source Code
Data: 1
Summary: L

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	8.4	6.6	18.0	8.3	22.7	8.0	15.1	7.0	16.0	7.7
NNE	2.4	4.7	3.8	5.9	7.2	7.5	4.7	5.3	4.5	6.2
NE	1.4	3.9	1.5	5.1	2.6	6.3	1.9	4.5	1.9	5.1
ENE	1.3	4.0	1.3	4.3	1.5	5.7	1.6	3.9	1.4	4.5
E	3.8	4.0	2.1	4.7	1.3	4.8	2.6	4.0	2.5	4.3
ESE	5.1	4.8	1.7	5.0	0.5	4.5	2.2	4.3	2.4	4.7
SE	7.1	5.7	2.0	5.8	0.4	4.8	2.5	4.9	3.0	5.5
SSE	7.8	6.1	2.3	6.4	0.4	5.5	3.0	5.6	3.4	6.0
S	7.5	6.0	3.1	6.6	0.6	4.3	3.3	5.5	3.6	5.9
SSW	2.5	4.9	1.8	6.1	0.5	4.1	1.7	5.0	1.6	5.2
SW	1.9	4.3	2.0	5.8	0.8	4.6	1.7	4.6	1.6	4.9
WSW	2.5	4.0	3.4	5.8	1.7	4.8	3.0	4.3	2.6	4.8
W	4.8	3.8	6.2	4.5	4.7	4.1	6.9	3.9	5.6	4.0
WNW	3.4	4.5	6.4	4.9	7.0	5.0	6.0	4.4	5.7	4.8
NW	5.7	6.4	12.8	7.1	15.4	6.7	10.7	6.2	11.1	6.6
NNW	8.4	7.9	22.0	8.9	27.7	8.1	15.3	7.5	18.3	8.2
CALM	25.9		9.5		4.9		17.7		14.7	
ALL		4.2		6.4		6.7		4.7		5.5

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	345	334	342	336	338
SPEED:	0.2	4.0	5.5	2.6	3.1
PER. RATIO:	0.04	0.63	0.82	0.54	0.56
PREDOMINANT WINDS					
DIRECTION:	NNW	NNW	NNW	NNW	NNW
SPEED:	7.0	8.3	7.7	7.0	7.6
PERCENTAGE:	22.5	52.8	65.8	41.1	45.4
SECONDARY PREDOMINANT WINDS					
DIRECTION:	SSE	W	W	W	W
SPEED:	5.9	4.9	4.7	4.2	4.5
PERCENTAGE:	22.4	16.0	13.4	15.9	13.9

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY

Station Name: LIVERMORE
Elevation: 492 Feet

	Degrees	Minutes
North Latitude:	37	42
West Longitude:	121	46

Period of Record:
FEB 1970 - MAR 1974
MAY 1976 - DEC 1976
APR 1979 - MAR 1980
Observations: 57,811
24 OBS/DAY

Bias Index: 1.00
Speed Units: MPH
Source Code
Data: 4
Summary: L

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	9.4	3.4	6.8	4.7	6.3	6.2	10.5	3.8	8.2	4.4
NNE	****	****	****	****	****	****	****	****	****	****
NE	23.5	3.1	9.4	3.3	2.7	2.3	15.7	2.6	12.5	2.9
ENE	****	****	****	****	****	****	****	****	****	****
E	14.3	2.5	7.1	2.1	1.5	1.6	10.0	1.7	8.0	2.1
ESE	****	****	****	****	****	****	****	****	****	****
SE	9.7	2.4	4.2	2.1	1.1	1.6	5.4	2.0	5.0	2.2
SSE	****	****	****	****	****	****	****	****	****	****
S	11.1	4.5	12.0	5.8	9.8	5.8	10.6	3.6	10.8	4.9
SSW	****	****	****	****	****	****	****	****	****	****
SW	15.3	4.0	27.4	5.8	31.1	5.4	21.2	4.4	24.0	5.1
WSW	****	****	****	****	****	****	****	****	****	****
W	8.2	3.3	24.2	6.1	41.2	6.3	18.8	4.6	23.6	5.7
WNW	****	****	****	****	****	****	****	****	****	****
NW	8.4	3.3	8.8	5.4	6.4	4.8	7.8	2.7	7.8	4.0
NNW	****	****	****	****	****	****	****	****	****	****
CALM	0.0		0.0		0.0		0.0		0.0	
ALL		3.3		5.1		5.6		3.5		4.4

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	119	248	254	256	252
SPEED:	0.2	2.7	4.1	1.2	2.0
PER. RATIO:	0.05	0.53	0.72	0.34	0.46
PREDOMINANT WINDS (Alternate Definition)					
DIRECTION:	NE	SW	W	SW	SW
SPEED:	3.1	5.8	6.3	4.4	5.1
PERCENTAGE:	23.5	27.4	41.2	21.2	24.0
SECONDARY PREDOMINANT WINDS (Alternate Definition)					
DIRECTION:	SW	NE	S	NE	NE
SPEED:	4.0	3.3	5.8	2.6	2.9
PERCENTAGE:	15.3	9.4	9.8	15.7	12.5

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY

Station Name: LONG BEACH
Elevation: 43 Feet (20)

	Degrees	Minutes
North Latitude:	33	49
West Longitude:	118	9

Period of Record:
1950 - 1979
Observations: 175,308

Bias Index: 0.34
Speed Units: MPH
Source Code
Data: 1
Summary: L

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	5.0	5.5	2.6	4.8	2.2	4.5	3.8	4.9	3.4	5.0
NNE	2.3	5.5	1.1	4.8	0.6	4.3	1.6	5.1	1.4	5.1
NE	3.5	5.8	2.1	4.8	1.5	4.0	2.5	5.0	2.4	5.1
ENE	3.5	7.0	2.4	5.3	1.2	4.7	2.8	6.2	2.5	6.1
E	5.4	6.3	4.9	5.1	3.4	4.5	4.4	5.5	4.5	5.4
ESE	3.2	5.8	3.4	5.7	2.7	5.3	3.0	5.5	3.1	5.6
SE	3.7	5.8	4.6	5.6	5.1	5.3	3.3	5.2	4.2	5.5
SSE	2.4	7.2	3.9	7.5	4.5	6.8	2.7	6.8	3.4	7.1
S	5.9	7.4	10.8	8.3	14.2	8.1	7.2	7.6	9.6	7.9
SSW	3.1	8.2	6.3	9.2	6.1	8.7	4.4	8.4	5.0	8.7
SW	3.0	7.0	4.7	8.0	3.8	7.3	2.8	7.1	3.6	7.4
WSW	2.2	8.1	3.2	9.8	1.5	7.6	2.0	7.6	2.2	8.5
W	7.9	8.4	12.3	10.4	9.0	9.3	8.8	8.8	9.5	9.4
WNW	7.1	7.0	8.6	8.9	12.1	8.3	10.2	7.7	9.5	8.0
NW	9.4	5.9	6.8	7.4	10.5	7.4	11.0	6.7	9.4	6.8
NNW	4.6	6.3	2.6	6.1	2.9	6.0	3.9	5.8	3.5	6.1
CALM	27.7		19.6		18.6		25.5		22.7	
ALL		4.8		6.3		6.0		5.1		5.6

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	283	241	243	270	253
SPEED:	0.9	2.6	2.5	1.7	1.8
PER. RATIO:	0.19	0.41	0.41	0.33	0.33
PREDOMINANT WINDS					
DIRECTION:	WNW	WNW	WNW	WNW	WNW
SPEED:	7.0	9.2	8.3	7.7	8.1
PERCENTAGE:	24.4	27.7	31.6	30.0	28.4
SECONDARY PREDOMINANT WINDS					
DIRECTION:	ENE	SSW	S	SSW	SSW
SPEED:	6.4	8.5	8.0	7.7	8.0
PERCENTAGE:	12.4	21.8	24.8	14.4	18.2

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY

Station Name: LOS ALAMITOS
Elevation: 26 Feet

	Degrees	Minutes
North Latitude:	33	48
West Longitude:	118	3

Period of Record: 1950 - 1969
Observations: 171,926
24 OBS/DAY

Bias Index: 0.44
Speed Units: MPH
Source Code
Data: 1
Summary: D

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	7.7	5.3	2.7	4.1	2.2	3.3	5.6	4.3	4.5	4.6
NNE	4.8	5.3	1.5	4.4	0.7	3.1	2.5	4.6	2.4	4.8
NE	10.3	5.8	4.7	4.6	2.1	3.4	6.8	4.6	5.9	5.0
ENE	6.1	7.7	3.1	5.6	1.1	3.9	3.5	7.1	3.4	6.8
E	8.1	6.2	6.5	4.7	3.8	3.6	6.1	4.7	6.1	5.0
ESE	2.8	5.8	3.2	5.0	2.2	4.0	2.4	4.7	2.6	4.9
SE	3.7	6.5	5.1	5.3	5.3	4.3	4.0	4.5	4.5	5.1
SSE	2.0	7.9	2.9	6.2	3.3	4.9	1.7	5.3	2.5	5.9
S	4.7	6.9	7.1	6.7	8.7	5.7	4.8	5.7	6.3	6.2
SSW	4.4	7.2	8.0	8.6	11.0	8.2	5.2	7.3	7.2	8.0
SW	8.4	7.8	16.6	9.8	20.0	9.2	13.1	8.4	14.6	9.0
WSW	3.8	7.8	6.7	9.8	4.9	8.5	5.0	8.1	5.1	8.7
W	5.0	7.7	6.7	8.8	4.1	6.1	4.7	6.5	5.1	7.5
WNW	2.9	7.6	4.2	8.3	4.7	7.0	4.3	7.2	4.0	7.5
NW	5.9	5.9	4.6	5.9	7.2	5.2	7.3	5.4	6.2	5.6
NNW	4.1	5.9	1.6	5.1	1.9	3.8	2.9	4.6	2.6	5.0
CALM	15.2		14.7		16.7		20.0		16.9	
ALL		5.6		6.2		5.5		4.9		5.6

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	17	225	223	242	228
SPEED:	0.2	3.0	3.4	1.3	1.9
PER. RATIO:	0.04	0.48	0.62	0.27	0.34
PREDOMINANT WINDS					
DIRECTION:	ENE	SSW	SSW	SW	SSW
SPEED:	6.4	8.8	8.2	8.1	8.1
PERCENTAGE:	24.5	31.7	39.7	23.3	28.1
SECONDARY PREDOMINANT WINDS					
DIRECTION:	NNW	W	WNW	ENE	ENE
SPEED:	5.6	9.1	6.0	5.2	5.4
PERCENTAGE:	17.7	17.6	16.0	16.4	15.4

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY

Station Name: LOS ANGELES INTL AIRPORT
Elevation: 110 Feet (20)

	Degrees	Minutes
North Latitude:	33	56
West Longitude:	118	24

Period of Record: 1960 - 1978
Observations: 166,551
24 OBS/DAY

Bias Index: 0.20
Speed Units: MPH
Source Code
Data: 1
Summary: L

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	5.6	8.1	2.5	7.6	1.3	4.5	3.4	6.5	3.2	7.2
NNE	4.5	6.3	1.4	5.7	0.7	4.4	2.4	5.5	2.2	5.9
NE	6.6	6.1	2.4	6.1	0.8	4.7	3.7	5.7	3.4	5.9
ENE	8.2	5.9	4.2	5.9	1.6	5.0	4.9	5.7	4.7	5.8
E	14.6	6.3	9.8	6.2	4.7	5.6	10.6	5.9	9.9	6.1
ESE	7.6	6.2	4.8	6.4	3.2	5.9	5.8	5.9	5.3	6.1
SE	3.4	6.3	3.1	6.6	2.9	5.9	3.5	5.9	3.2	6.2
SSE	2.3	5.7	2.5	5.9	2.2	5.1	2.5	5.3	2.4	5.5
S	2.6	6.6	3.3	6.1	3.6	5.2	2.9	5.4	3.1	5.8
SSW	1.8	7.1	2.1	7.5	2.1	5.5	2.0	6.1	2.0	6.5
SW	3.6	7.5	6.5	9.0	7.0	7.9	4.9	7.5	5.5	8.1
WSW	11.6	8.9	24.1	10.6	30.7	9.8	18.9	9.4	21.4	9.8
W	15.0	9.7	24.6	11.5	38.6	10.0	24.0	10.0	23.6	10.4
WNW	2.7	7.6	2.8	8.7	2.9	6.5	2.9	7.2	2.9	7.5
NW	2.6	7.9	1.7	7.4	1.7	5.1	2.0	6.3	2.0	6.8
NNW	2.9	8.7	1.7	8.8	1.2	4.8	1.9	7.0	1.9	7.7
CALM	4.3		2.4		2.7		3.6		3.2	
ALL		7.1		8.8		8.2		7.4		7.9

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	295	254	253	257	256
SPEED:	0.7	4.8	6.1	3.2	3.7
PER. RATIO:	0.11	0.54	0.74	0.43	0.47
PREDOMINANT WINDS					
DIRECTION:	E	WSW	WSW	WSW	WSW
SPEED:	6.2	10.8	9.7	9.5	9.9
PERCENTAGE:	30.4	55.2	68.3	47.8	50.5
SECONDARY PREDOMINANT WINDS					
DIRECTION:	WSW	E	ESE	E	E
SPEED:	9.1	6.2	5.8	5.9	6.0
PERCENTAGE:	30.2	18.8	10.8	21.3	19.9

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY

Station Name: LOS BANOS
Elevation: 299 Feet (36)

	Degrees	Minutes
North Latitude:	37	3
West Longitude:	120	55

Period of Record: FEB 1974 - MAR 1975
Observations: 9,890
24 OBS/DAY

Bias Index: 0.16
Speed Units: MPH
Source Code
Data: 5
Summary: N

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	7.8	9.6	7.0	7.5	7.0	6.5	7.1	5.6	7.2	7.5
NNE	4.1	5.6	4.3	10.1	6.7	7.4	6.9	6.4	5.3	7.3
NE	5.7	4.2	3.1	7.2	3.6	5.3	6.3	5.5	4.6	5.3
ENE	2.7	3.7	0.9	5.4	1.4	4.6	3.6	4.9	2.1	4.5
E	3.5	4.3	0.6	3.9	0.1	3.5	1.5	4.3	1.5	4.2
ESE	6.4	4.7	1.1	5.3	0.0	4.0	1.1	4.8	2.4	4.8
SE	8.7	6.6	3.4	8.0	0.1	5.7	2.5	4.4	4.0	6.6
SSE	5.9	7.2	2.8	8.1	****	****	1.9	4.1	2.9	7.0
S	8.1	4.9	2.6	8.1	****	****	5.4	4.9	4.2	5.5
SSW	6.9	4.7	2.7	7.8	0.1	6.7	6.1	4.8	4.0	5.3
SW	7.6	4.2	3.3	6.2	0.3	5.0	6.9	4.7	4.6	4.8
WSW	4.5	6.5	4.2	10.7	0.6	10.6	4.2	5.2	3.5	7.7
W	11.6	10.1	29.1	17.0	28.0	17.3	21.2	12.9	22.2	15.2
WNW	6.3	8.9	25.5	16.2	42.0	17.4	17.3	14.9	22.0	15.9
NW	5.6	7.0	5.2	10.6	7.2	12.8	5.3	8.3	5.8	9.8
NNW	3.9	10.3	3.9	11.9	2.9	8.5	2.8	6.1	3.4	9.7
CALM	0.6		0.3		0.0		0.0		0.0	
ALL		6.6		13.0		14.6		8.7		10.6

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	273	284	291	287	287
SPEED:	1.4	9.5	12.9	5.5	7.1
PER. RATIO:	0.21	0.73	0.88	0.63	0.67
PREDOMINANT WINDS					
DIRECTION:	WSW	WNW	WNW	WNW	WNW
SPEED:	7.5	16.1	16.9	13.1	14.9
PERCENTAGE:	23.7	59.8	77.2	43.8	50.0
SECONDARY PREDOMINANT WINDS					
DIRECTION:	SSE	N	NNE	NNE	NNE
SPEED:	6.1	9.4	6.6	5.8	6.8
PERCENTAGE:	22.7	15.2	17.3	20.3	17.1

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY

Station Name: LUCERNE VALLEY
Elevation: 2900 Feet (33)

	Degrees	Minutes
North Latitude:	34	26
West Longitude:	116	31

Period of Record: JAN 1980 - DEC 1980
Observations: 8,630
24 OBS/DAY

Bias Index: 0.16
Speed Units: MPH
Source Code
Data: 7
Summary: 0

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	2.8	6.5	2.3	7.6	2.1	5.8	1.9	7.6	2.3	6.8
NNE	2.8	6.3	1.7	8.3	1.7	5.4	2.8	6.3	2.2	6.5
NE	3.9	5.8	2.1	5.8	1.9	5.6	4.7	6.0	3.1	5.9
ENE	5.2	6.0	3.5	6.7	2.4	6.0	5.4	6.0	4.1	6.2
E	7.0	6.5	6.2	8.9	3.8	7.2	6.5	7.6	5.9	7.6
ESE	6.3	7.4	2.9	10.3	2.2	8.5	3.4	6.9	3.7	8.0
SE	3.6	7.2	2.3	9.2	1.1	8.5	2.0	4.7	2.3	7.3
SSE	1.7	4.3	1.1	10.7	0.8	6.7	1.0	4.7	1.1	6.3
S	1.4	3.8	0.8	4.3	1.2	5.8	1.2	3.4	1.1	4.3
SSW	1.5	4.7	1.0	5.6	1.0	6.0	1.0	3.4	1.1	4.9
SW	2.6	5.4	1.8	7.6	2.7	8.5	2.5	6.3	2.4	6.9
WSW	5.6	6.9	4.9	7.2	6.2	7.8	5.9	5.6	5.6	6.9
W	17.8	6.9	27.8	10.7	35.5	9.4	31.0	8.3	28.1	9.0
WNW	22.0	7.8	32.9	13.0	25.2	10.5	21.6	8.7	25.4	10.4
NW	12.5	8.1	6.8	10.7	10.3	10.1	7.0	7.2	9.2	9.0
NNW	3.4	5.1	1.9	6.7	2.0	7.4	2.1	5.4	2.4	6.0
CALM	0.0		0.0		0.0		0.0		0.0	
ALL		6.9		10.5		9.1		7.4		8.5

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	299	287	284	289	288
SPEED:	2.8	6.9	6.6	4.0	5.1
PER. RATIO:	0.41	0.65	0.73	0.54	0.60
PREDOMINANT WINDS					
DIRECTION:	WNW	WNW	WNW	WNW	WNW
SPEED:	7.6	11.8	9.9	8.3	9.6
PERCENTAGE:	52.3	67.5	71.0	59.6	62.7
SECONDARY PREDOMINANT WINDS					
DIRECTION:	E	E	SW	ENE	E
SPEED:	6.7	8.6	7.8	6.6	7.3
PERCENTAGE:	18.5	12.6	9.9	16.6	13.7

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY

Station Name: MALIBU
Elevation: 10 Feet (25)

	Degrees	Minutes
North Latitude:	34	2
West Longitude:	118	42

Period of Record: NOV 1973 - DEC 1974
Observations: 101,959
24 OBS/DAY

Bias Index: 0.09
Speed Units: MPH

Source Code
Data: 3
Summary: M

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	12.0	8.7	4.8	4.6	2.8	2.1	8.5	5.7	7.0	6.4
NNE	4.6	3.2	3.6	2.6	4.3	1.8	4.4	2.1	4.2	2.4
NE	7.8	2.8	6.1	2.4	5.6	2.0	6.3	2.2	6.4	2.4
ENE	4.0	3.8	3.5	3.0	4.1	2.6	4.3	3.1	4.0	3.1
E	5.3	4.5	5.8	3.0	7.0	2.7	6.6	3.1	6.2	3.3
ESE	3.7	5.8	3.6	3.2	3.9	3.1	3.9	3.1	3.8	3.8
SE	3.6	5.4	4.3	3.8	4.9	4.2	4.3	4.0	4.3	4.3
SSE	2.8	3.5	3.5	3.1	4.0	2.6	3.0	2.6	3.3	2.9
S	2.2	5.1	3.1	3.1	3.3	2.8	2.8	2.9	2.9	3.3
SSW	4.7	3.9	7.9	4.8	8.0	4.2	6.6	3.9	6.8	4.3
SW	9.7	5.5	19.0	7.5	25.2	7.1	16.2	6.2	17.6	6.8
WSW	6.5	6.0	12.3	7.0	12.4	6.6	10.0	5.8	10.3	6.4
W	2.9	3.4	3.7	3.4	3.5	2.5	3.5	2.9	3.4	3.0
WNW	2.1	4.2	2.2	3.3	1.7	1.9	2.0	2.3	2.0	3.0
NW	7.1	7.8	4.9	5.2	2.6	1.7	4.0	4.5	4.6	5.5
NNW	21.0	7.5	11.6	4.4	6.5	2.0	13.7	5.5	13.1	5.6
CALM	0.0		0.0		0.0		0.0		0.0	
ALL		5.8		4.9		4.3		4.4		4.8

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	335	244	222	273	264
SPEED:	2.4	2.0	2.5	1.2	1.4
PER. RATIO:	0.41	0.42	0.58	0.27	0.30
PREDOMINANT WINDS					
DIRECTION:	NNW	SW	SW	SW	SW
SPEED:	7.9	6.8	6.5	5.6	6.2
PERCENTAGE:	40.1	39.2	45.6	32.8	34.7
SECONDARY PREDOMINANT WINDS					
DIRECTION:	SW	NNW	ENE	N	NNW
SPEED:	5.3	4.6	2.4	5.0	5.8
PERCENTAGE:	20.9	21.3	16.7	26.6	24.7

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY

Station Name: MARCH AFB
Elevation: 1542 Feet

	Degrees	Minutes
North Latitude:	33	53
West Longitude:	117	15

Period of Record: 1957 - 1970
Observations: 122,706

Bias Index: 0.28
Speed Units: MPH

Source Code
Data: 1
Summary: L

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	4.8	8.9	3.1	7.1	2.8	5.8	3.4	7.4	3.5	7.5
NNE	3.0	6.9	1.2	5.8	0.5	4.3	1.6	6.1	1.6	6.3
NE	3.8	8.3	1.1	5.8	0.4	3.8	1.7	7.0	1.7	7.3
ENE	3.6	9.6	0.9	6.6	0.3	4.4	1.7	9.0	1.6	8.7
E	3.6	8.8	1.4	6.3	0.6	4.4	2.4	9.4	2.0	8.2
ESE	1.7	5.8	1.3	5.4	0.5	3.8	1.6	6.5	1.3	5.7
SE	3.8	6.1	3.5	5.5	1.4	4.9	2.7	5.5	2.9	5.6
SSE	3.3	6.0	4.3	5.8	2.1	5.7	2.7	5.6	3.1	5.8
S	3.2	6.1	4.3	6.3	1.8	5.4	2.6	5.6	3.0	5.9
SSW	1.0	4.6	1.3	6.2	0.5	4.6	0.7	4.5	0.9	5.2
SW	0.8	4.7	0.9	5.5	0.3	4.5	0.5	4.1	0.6	4.8
WSW	0.8	5.2	1.0	7.2	0.3	4.7	0.5	5.2	0.6	5.9
W	3.2	6.3	4.4	7.6	2.6	6.7	2.4	6.2	3.1	6.8
WNW	4.9	6.3	9.7	8.5	13.2	8.8	8.6	8.1	9.1	8.2
NW	7.3	6.9	17.1	8.6	25.9	9.5	14.0	8.1	16.1	8.7
NNW	4.2	7.5	5.8	7.8	7.5	8.0	5.2	7.4	5.7	7.7
CALM	46.9		38.6		39.3		47.7		43.1	
ALL		3.8		4.6		5.0		3.8		4.3

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	12	305	311	324	318
SPEED:	1.1	2.3	4.0	1.8	2.2
PER. RATIO:	0.29	0.51	0.81	0.46	0.51
PREDOMINANT WINDS					
DIRECTION:	NW	NW	NW	NW	NW
SPEED:	6.9	8.4	9.1	8.0	8.4
PERCENTAGE:	16.4	32.6	46.6	27.8	30.9
SECONDARY PREDOMINANT WINDS					
DIRECTION:	NNE	SSE	SSE	SSE	SSE
SPEED:	8.2	5.9	5.4	5.6	5.8
PERCENTAGE:	11.6	12.1	5.3	8.0	9.0

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY

Station Name: MARYSVILLE
Elevation: 67 Feet

	Degrees	Minutes
North Latitude:	39	6
West Longitude:	121	34

Period of Record: AUG 1943 - OCT 1944
Observations: 10,521

Bias Index: 0.65
Speed Units: MPH
Source Code
Data: 1
Summary: A

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	12.6	7.0	8.1	7.2	3.4	5.8	7.3	5.0	7.6	6.3
NNE	3.7	6.0	1.9	8.2	0.5	5.7	2.3	4.0	2.0	5.7
NE	4.8	5.7	2.6	5.0	1.0	3.6	3.9	4.1	3.1	4.7
ENE	1.8	4.2	1.1	3.8	0.5	3.4	1.3	4.0	1.2	3.9
E	4.5	4.3	5.1	4.8	1.6	4.4	4.6	3.9	3.9	4.3
ESE	4.0	6.3	3.7	5.8	1.8	5.0	3.1	5.0	3.1	5.5
SE	13.7	8.9	27.9	9.3	31.2	9.4	19.8	7.8	23.2	8.9
SSE	4.7	12.6	7.3	11.1	7.7	10.3	4.0	7.8	5.8	10.3
S	7.4	8.8	10.0	7.3	17.0	7.4	8.3	5.8	10.7	7.2
SSW	1.1	8.0	2.3	10.2	2.2	8.7	1.8	5.5	1.8	8.0
SW	1.3	4.8	2.5	6.2	12.8	6.0	4.4	4.8	5.5	5.7
WSW	0.9	3.3	1.1	4.2	1.5	6.0	1.6	3.4	1.3	4.3
W	4.2	4.9	3.9	5.5	4.7	5.2	6.4	4.1	5.0	4.7
WNW	3.7	5.9	3.6	8.7	2.7	7.5	3.9	5.5	3.5	6.7
NW	17.5	10.7	10.9	12.2	4.1	9.2	9.8	8.3	10.2	10.2
NNW	7.9	9.8	5.7	11.1	2.4	12.0	5.3	7.8	5.2	9.7
CALM	6.1		2.2		4.8		12.1		6.8	
ALL		7.6		8.4		7.6		5.4		7.1

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	347	146	165	151	158
SPEED:	1.2	1.5	4.1	0.7	1.3
PER. RATIO:	0.15	0.18	0.55	0.12	0.19
PREDOMINANT WINDS (Alternate Definition)					
DIRECTION:	NW	SE	SE	SE	SE
SPEED:	9.8	9.3	9.4	7.5	8.8
PERCENTAGE:	29.1	38.9	40.7	26.9	32.1
SECONDARY PREDOMINANT WINDS (Alternate Definition)					
DIRECTION:	SE	NW	SW	NW	NW
SPEED:	9.2	11.3	6.4	7.6	9.4
PERCENTAGE:	22.4	20.2	16.5	19.0	18.9

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY

Station Name: MATHER AFB
Elevation: 96 Feet (13-97)

	Degrees	Minutes
North Latitude:	38	34
West Longitude:	121	18

Period of Record: 1941 - 1976
Observations: 297,279

Bias Index: 0.15
Speed Units: MPH
Source Code
Data: 1
Summary: B

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	6.8	8.6	5.3	9.8	1.3	7.7	5.1	8.3	4.7	8.8
NNE	2.3	6.2	1.4	7.3	0.4	5.9	1.5	6.9	1.4	6.6
NE	2.3	4.6	1.0	5.6	0.2	4.9	1.4	5.0	1.2	4.9
ENE	1.2	4.5	0.6	4.3	0.1	4.2	0.8	4.2	0.7	4.4
E	2.9	4.8	1.4	4.6	0.4	4.4	2.2	4.5	1.8	4.6
ESE	4.7	5.8	3.8	5.3	2.2	4.7	4.6	5.0	3.8	5.3
SE	10.2	8.8	9.7	7.3	7.4	6.4	8.9	6.6	9.0	7.4
SSE	11.8	12.6	10.8	9.0	12.2	7.4	8.8	8.7	10.9	9.5
S	9.8	10.7	12.6	8.8	17.8	8.2	9.8	8.0	12.5	8.8
SSW	3.7	8.9	10.4	9.1	16.6	9.3	7.0	8.0	9.4	9.0
SW	2.5	8.1	9.1	9.5	15.0	9.9	6.3	8.0	8.2	9.3
WSW	1.2	6.5	3.8	9.2	6.0	8.5	2.7	7.1	3.4	8.2
W	1.4	4.9	2.8	7.0	4.2	6.7	2.8	5.2	2.8	6.2
WNW	1.3	5.2	2.2	6.7	2.8	6.4	2.5	5.2	2.2	6.0
NW	3.3	6.4	3.7	7.8	2.9	7.4	4.3	6.4	3.6	7.0
NNW	6.8	9.4	6.4	10.7	2.4	9.0	6.2	9.3	5.4	9.7
CALM	27.8		14.9		8.0		25.0		18.9	
ALL		6.3		7.2		7.5		5.5		6.6

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	156	198	203	190	191
SPEED:	2.3	2.8	5.2	1.6	2.8
PER. RATIO:	0.36	0.39	0.69	0.29	0.42
PREDOMINANT WINDS					
DIRECTION:	SSE	S	SSW	SSE	S
SPEED:	10.8	9.0	9.1	7.8	9.1
PERCENTAGE:	31.8	33.8	49.4	27.5	32.8
SECONDARY PREDOMINANT WINDS					
DIRECTION:	NNW	WSW	SE	SW	ESE
SPEED:	8.5	9.0	6.8	7.8	6.5
PERCENTAGE:	16.9	15.7	21.8	16.0	14.6

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY

Station Name: MCCLELLAN AFB
Elevation: 86 Feet (13)
Degrees Minutes
North Latitude: 38 40
West Longitude: 121 40

Period of Record: 1941 - 1967
Observations: 239,713

Bias Index: 0.36
Speed Units: MPH
Source Code
Data: 1
Summary: B

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	9.4	8.9	5.3	9.4	1.8	8.3	6.9	8.9	5.8	9.0
NNE	2.0	6.2	1.2	7.0	0.4	7.3	1.5	7.1	1.3	6.8
NE	2.2	5.1	1.2	5.9	0.3	5.7	1.6	5.3	1.3	5.4
ENE	0.9	5.1	0.6	5.6	0.1	5.5	0.7	5.2	0.6	5.3
E	3.3	4.9	2.1	5.0	0.8	4.9	2.8	4.8	2.2	4.9
ESE	3.1	5.8	3.5	6.1	2.0	6.3	3.4	5.6	3.0	5.9
SE	12.6	8.6	14.6	8.3	15.5	8.4	13.7	7.6	14.1	8.2
SSE	13.4	11.9	15.0	9.5	20.7	9.5	12.5	9.1	15.4	9.9
S	11.4	9.9	18.0	9.8	26.9	10.1	13.3	8.6	17.5	9.7
SSW	2.2	8.7	6.3	9.5	9.2	9.2	4.2	8.1	5.5	9.0
SW	1.8	6.6	4.8	8.2	5.7	7.7	3.4	6.5	3.9	7.5
WSW	0.5	6.1	1.1	6.6	1.1	6.1	0.9	5.7	0.9	6.1
W	1.3	4.8	1.9	5.6	2.1	5.7	1.7	4.6	1.7	5.2
WNW	1.3	5.3	1.7	6.7	1.7	6.4	1.7	6.0	1.6	6.2
NW	6.2	8.1	6.3	10.4	3.5	8.9	6.2	8.8	5.5	9.1
NNW	7.0	10.8	6.0	12.0	2.2	10.9	5.8	10.8	5.2	11.2
CALM	21.3		10.3		5.9		19.7		14.5	
ALL		7.0		8.1		8.5		6.4		7.5

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	150	175	174	164	169
SPEED:	1.8	3.1	6.0	1.7	3.1
PER. RATIO:	0.26	0.38	0.70	0.27	0.42
PREDOMINANT WINDS					
DIRECTION:	SSE	SSE	SSE	SSE	SSE
SPEED:	10.2	9.2	9.5	8.4	9.3
PERCENTAGE:	37.4	47.6	63.1	39.5	47.8
SECONDARY PREDOMINANT WINDS					
DIRECTION:	NNW	NNW	SW	NNW	NNW
SPEED:	9.3	10.6	8.5	9.5	9.7
PERCENTAGE:	22.6	17.6	16.0	18.9	16.5

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY

Station Name: MEDFORD
Elevation: 1312 Feet (20-62)
Degrees Minutes
North Latitude: 42 22
West Longitude: 122 52

Period of Record: 1951 - 1960
Observations: 87,672
24 OBS/DAY

Bias Index: 0.05
Speed Units: MPH
Source Code
Data: 1
Summary: C

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	5.2	5.7	6.5	7.0	6.2	7.9	4.4	6.0	5.6	6.8
NNE	4.1	5.9	5.0	6.7	3.6	6.6	3.2	6.0	4.0	6.3
NE	3.4	5.5	3.9	6.2	2.6	5.9	2.6	5.7	3.1	5.8
ENE	1.4	5.7	1.7	6.3	0.9	5.6	1.2	5.5	1.3	5.9
E	1.0	5.1	1.2	5.4	0.4	4.7	0.7	4.8	0.8	5.1
ESE	1.1	6.1	0.9	5.6	0.5	5.5	0.9	5.0	0.9	5.6
SE	3.7	10.0	2.2	8.6	1.2	5.4	3.3	7.2	2.6	8.3
SSE	6.2	12.7	3.5	10.1	1.6	6.1	4.6	8.7	4.0	10.3
S	5.6	7.2	4.8	6.2	3.7	5.4	6.7	5.7	5.2	6.2
SSW	3.3	7.4	3.0	7.0	2.3	5.1	2.9	5.7	2.9	6.4
SW	3.2	7.0	3.0	7.4	2.5	5.0	2.4	5.8	2.8	6.4
WSW	2.0	7.7	2.7	7.9	3.3	6.1	2.3	6.0	2.6	6.9
W	1.9	5.6	3.8	7.5	5.9	7.5	2.9	5.8	3.6	6.9
WNW	2.7	6.4	9.0	10.0	12.5	9.6	4.7	8.1	7.2	9.2
NW	4.1	6.1	9.4	9.5	11.1	9.0	5.4	7.4	7.5	8.5
NNW	4.2	6.0	8.1	9.0	10.0	9.5	4.5	7.1	6.7	8.4
CALM	46.9		31.3		31.6		47.3		39.2	
ALL		3.9		5.5		5.4		3.5		4.6

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	176	310	311	275	302
SPEED:	0.7	2.2	3.4	0.6	1.4
PER. RATIO:	0.18	0.39	0.63	0.17	0.31
PREDOMINANT WINDS					
DIRECTION:	SSE	NW	NW	SSE	NW
SPEED:	10.1	9.5	9.4	7.0	8.7
PERCENTAGE:	15.5	26.5	33.6	14.6	21.4
SECONDARY PREDOMINANT WINDS					
DIRECTION:	N	NNE	NNE	NW	NNE
SPEED:	5.9	6.7	7.1	7.5	6.4
PERCENTAGE:	13.5	15.4	12.4	14.6	12.7

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY
Station Name: MIRAMAR NAS
Elevation: 459 Feet (23)
Degrees Minutes
North Latitude: 32 52
West Longitude: 117 8
Period of Record: 1955 - 1977
Observations: 167,472
Bias Index: 0.28
Speed Units: MPH
Source Code
Data: 1
Summary: L

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	4.2	4.8	3.4	4.5	5.6	4.2	6.1	4.5	4.8	4.5
NNE	2.2	4.9	1.4	4.5	1.1	3.9	2.1	4.4	1.7	4.5
NE	3.2	5.1	1.3	4.1	0.6	3.6	2.4	4.7	1.9	4.7
ENE	6.1	5.4	2.1	4.3	0.3	3.7	3.3	4.9	3.0	5.0
E	19.4	5.1	8.0	4.4	0.9	3.3	10.1	4.9	9.6	4.9
ESE	5.6	5.3	3.4	4.6	0.6	3.5	3.0	5.1	3.2	4.9
SE	3.5	4.9	2.9	4.6	1.1	4.1	2.5	4.8	2.5	4.7
SSE	3.1	6.2	3.3	5.4	1.8	4.9	2.3	5.3	2.6	5.5
S	4.4	7.3	5.7	6.3	5.3	5.1	3.8	5.7	4.8	6.1
SSW	2.5	6.8	5.1	6.9	5.5	6.0	3.1	6.2	4.0	6.4
SW	2.6	6.5	5.4	7.0	6.1	6.2	3.5	6.2	4.4	6.5
WSW	2.2	6.5	5.5	7.1	5.5	6.3	3.2	6.4	4.1	6.6
W	6.7	7.2	12.7	8.1	13.7	6.8	8.6	6.9	10.4	7.3
WNW	6.8	7.6	11.5	8.3	13.0	6.9	10.0	7.7	10.3	7.6
NW	6.6	6.9	7.9	7.6	11.1	6.3	9.5	6.8	8.8	6.9
NNW	3.6	6.0	4.0	5.8	6.6	5.1	5.7	5.8	5.0	5.6
CALM	17.2		16.3		21.1		20.7		18.8	
ALL		4.9		5.5		4.7		4.7		4.9

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	49	267	277	298	280
SPEED:	0.3	2.4	3.0	1.4	1.6
PER. RATIO:	0.07	0.44	0.63	0.31	0.33
PREDOMINANT WINDS					
DIRECTION:	E	WNW	WNW	WNW	WNW
SPEED:	5.2	8.0	6.7	7.2	7.3
PERCENTAGE:	31.1	32.1	37.8	28.1	29.5
SECONDARY PREDOMINANT WINDS					
DIRECTION:	WNW	SSW	SW	E	E
SPEED:	7.2	6.7	6.2	4.9	4.9
PERCENTAGE:	20.1	16.2	17.1	16.4	15.8

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY
Station Name: MODESTO
Elevation: 96 Feet
Degrees Minutes
North Latitude: 37 38
West Longitude: 120 58
Period of Record: 1948 - 1941
Observations: 15,321
NO WIND SPEEDS
Bias Index:-0.48
Speed Units: MPH
Source Code
Data: 1
Summary: J

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	2.3	****	10.5	****	18.0	****	9.6	****	10.6	****
NNE	2.5	****	7.1	****	7.4	****	6.9	****	6.1	****
NE	0.6	****	1.4	****	1.5	****	0.7	****	1.1	****
ENE	1.6	****	1.7	****	0.4	****	1.7	****	1.3	****
E	2.4	****	1.1	****	0.2	****	1.0	****	1.1	****
ESE	11.4	****	4.7	****	0.3	****	4.6	****	5.0	****
SE	14.2	****	3.0	****	0.1	****	1.8	****	4.6	****
SSE	22.5	****	5.5	****	0.3	****	3.2	****	7.6	****
S	2.6	****	1.8	****	0.1	****	0.6	****	1.2	****
SSW	2.4	****	1.8	****	0.3	****	1.0	****	1.4	****
SW	0.8	****	0.8	****	0.3	****	0.5	****	0.6	****
WSW	1.7	****	1.0	****	0.7	****	0.9	****	1.0	****
W	1.9	****	1.0	****	1.0	****	1.9	****	1.4	****
WNW	6.6	****	9.6	****	9.5	****	10.6	****	9.0	****
NW	5.4	****	10.6	****	12.8	****	10.3	****	9.9	****
NNW	8.2	****	27.5	****	43.2	****	28.2	****	27.7	****
CALM	12.8		10.0		3.8		16.4		10.3	
ALL		****		****		****		****		****

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	***	***	***	***	***
SPEED:	****	****	****	****	****
PER. RATIO:	****	****	****	****	****
PREDOMINANT WINDS					
DIRECTION:	SE	NNW	NNW	NW	NNW
SPEED:	****	****	****	****	****
PERCENTAGE:	48.1	48.6	74.0	49.1	48.2
SECONDARY PREDOMINANT WINDS					
DIRECTION:	NW	SE	W	NNE	SE
SPEED:	****	****	****	****	****
PERCENTAGE:	20.2	13.2	11.2	17.2	17.2

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY

Station Name: MOFFETT NAS
Elevation: 39 Feet (13)

	Degrees	Minutes
North Latitude:	37	25
West Longitude:	122	3

Period of Record: 1962 - 1977

Observations: 103,835

Bias Index: 0.10
Speed Units: MPH

Source Code
Data: 1
Summary: L

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	9.1	6.5	13.0	8.1	21.1	8.4	12.6	7.0	14.0	7.7
NNE	2.8	6.8	3.5	6.4	5.7	5.6	2.5	5.1	3.6	5.9
NE	1.4	5.6	1.3	4.6	2.2	4.2	0.9	4.0	1.5	4.6
ENE	0.6	4.1	0.7	3.5	1.2	3.5	0.6	3.4	0.8	3.6
E	1.4	4.0	1.2	4.0	1.5	3.5	1.2	3.8	1.3	3.8
ESE	2.4	6.7	1.8	5.5	1.3	4.3	1.9	5.9	1.9	5.8
SE	7.3	8.8	4.6	6.3	2.5	4.4	4.4	6.9	4.7	7.2
SSE	7.3	8.2	5.0	5.7	2.6	4.2	4.6	6.7	4.8	6.7
S	5.2	6.9	4.5	4.9	2.1	3.2	4.0	5.1	3.9	5.4
SSW	1.3	5.1	1.3	5.1	0.4	3.2	0.9	4.2	1.0	4.7
SW	1.5	4.3	1.2	5.1	0.4	3.8	0.8	3.8	1.0	4.4
WSW	1.6	5.4	1.8	6.4	0.7	5.7	0.9	4.2	1.2	5.5
W	6.9	4.5	8.8	6.5	4.0	5.4	4.6	4.3	6.1	5.3
WNW	5.8	5.5	8.2	7.2	4.5	5.4	5.3	5.1	5.9	5.9
NW	5.5	5.9	7.6	7.9	6.7	7.4	6.4	6.6	6.5	7.0
NNW	8.6	6.5	15.1	9.3	23.8	9.8	14.9	8.0	15.7	8.8
CALM	31.2		20.3		19.3		33.4		26.1	
ALL		4.4		5.7		6.0		4.2		5.1

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	311	325	344	338	337
SPEED:	0.2	2.9	4.6	1.9	2.4
PER. RATIO:	0.05	0.51	0.77	0.44	0.47
PREDOMINANT WINDS					
DIRECTION:	NNW	NNW	NNW	NNW	NNW
SPEED:	6.4	8.6	8.9	7.4	8.1
PERCENTAGE:	23.2	35.7	51.6	33.9	36.2
SECONDARY PREDOMINANT WINDS					
DIRECTION:	SSE	W	W	SSE	SSE
SPEED:	8.1	6.8	5.4	6.3	6.5
PERCENTAGE:	19.8	18.8	9.2	13.0	13.4

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY

Station Name: MONTAGUE
Elevation: 2635 Feet (28-27)

	Degrees	Minutes
North Latitude:	41	46
West Longitude:	122	28

Period of Record: JAN 1948 - AUG 1965

Observations: 152,521

Bias Index: 0.33
Speed Units: MPH

Source Code
Data: 1
Summary: B

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	8.1	7.3	13.8	9.4	20.6	8.9	11.3	8.3	13.4	8.7
NNE	5.6	7.3	7.9	9.1	9.9	9.1	6.3	7.7	7.4	8.5
NE	4.8	5.5	5.6	6.1	6.8	5.8	5.5	5.6	5.7	5.8
ENE	2.2	5.2	2.2	6.1	2.8	5.7	2.2	5.5	2.3	5.6
E	1.7	4.4	1.7	5.1	1.5	4.8	1.5	4.6	1.6	4.7
ESE	1.1	4.5	0.9	5.6	0.7	5.6	0.8	4.8	0.9	5.1
SE	2.4	9.1	2.6	10.6	1.4	7.5	2.5	9.7	2.2	9.4
SSE	4.4	17.2	3.8	16.3	1.5	10.3	3.0	14.3	3.2	15.5
S	8.2	14.2	6.8	13.2	2.8	9.9	6.1	12.7	6.0	13.1
SSW	5.0	11.2	4.0	12.0	1.6	8.5	3.3	10.2	3.5	10.9
SW	5.3	6.8	4.4	8.4	2.6	6.7	4.0	6.4	4.1	7.1
WSW	2.7	7.2	2.5	9.1	1.5	7.3	2.0	6.5	2.2	7.6
W	2.0	7.1	2.8	9.2	1.7	8.1	1.7	7.4	2.0	8.1
WNW	1.4	7.5	2.5	9.7	1.9	9.4	1.5	8.0	1.8	8.8
NW	3.0	7.7	6.2	9.1	10.1	9.6	4.7	8.2	6.0	8.9
NNW	2.8	8.0	6.8	9.9	10.9	10.2	4.5	8.5	6.2	9.6
CALM	39.3		25.4		21.6		39.1		31.5	
ALL		5.5		7.3		6.8		5.1		6.2

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	185	326	350	343	339
SPEED:	1.3	1.1	4.1	0.4	1.1
PER. RATIO:	0.23	0.15	0.60	0.09	0.17
PREDOMINANT WINDS					
DIRECTION:	NNE	N	NNW	NNE	N
SPEED:	6.8	9.4	9.4	7.5	8.9
PERCENTAGE:	18.5	28.5	41.6	23.1	27.0
SECONDARY PREDOMINANT WINDS					
DIRECTION:	SSW	SSW	NE	SSW	SSW
SPEED:	11.3	11.5	7.5	10.2	10.7
PERCENTAGE:	18.5	15.2	19.5	13.4	13.6

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY | Period of Record: 1945 | 1948 - 1969 | Bias Index: 0.32 | Speed Units: MPH

Station Name: MONTEREY
Elevation: 162 Feet
Degrees Minutes
North Latitude: 36 36
West Longitude: 121 52
Observations: 154,998
Source Code: Data: 1 Summary: D

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	4.7	5.1	3.9	5.9	5.4	6.1	6.2	5.0	5.1	5.5
NNE	1.8	5.2	0.8	4.5	1.1	4.7	1.5	4.3	1.3	4.7
NE	1.8	5.2	0.9	4.3	0.9	3.8	1.3	4.1	1.2	4.5
ENE	1.5	5.3	0.4	4.7	0.5	4.0	0.8	4.0	0.8	4.7
E	7.8	5.3	2.7	4.8	1.5	3.6	4.7	4.4	4.1	4.8
ESE	7.8	5.1	2.6	5.0	0.8	3.9	4.2	4.4	3.8	4.8
SE	8.4	4.9	3.4	4.8	1.1	3.9	5.1	4.4	4.5	4.7
SSE	4.8	5.9	2.5	5.6	0.4	3.7	2.5	4.6	2.5	5.4
S	5.6	6.8	4.2	6.4	1.4	4.3	3.6	5.1	3.7	6.1
SSW	3.6	8.0	4.3	6.8	2.0	4.9	3.0	6.2	3.2	6.7
SW	5.0	6.9	8.8	7.3	9.1	6.9	6.2	5.8	7.3	6.8
WSW	3.3	6.3	7.7	7.0	10.4	7.2	5.5	6.3	6.8	6.9
W	5.2	5.6	13.6	7.8	19.0	7.5	9.2	6.1	11.8	7.1
WNW	5.0	6.5	11.0	9.1	11.6	7.9	6.9	6.8	8.7	7.9
NW	8.6	7.0	15.6	9.2	16.2	8.4	12.6	6.7	13.3	8.0
NNW	5.8	6.4	7.6	8.0	8.7	7.6	7.7	5.9	7.4	7.0
CALM	19.2		9.9		9.8		18.9		14.4	
ALL		4.8		6.7		6.5		4.6		5.7

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	223	281	287	287	283
SPEED:	0.5	3.9	4.7	1.8	2.7
PER. RATIO:	0.10	0.58	0.72	0.40	0.47
PREDOMINANT WINDS					
DIRECTION:	ESE	WNW	WNW	WNW	WNW
SPEED:	5.1	8.7	7.9	6.5	7.7
PERCENTAGE:	24.0	40.2	46.8	28.7	33.8
SECONDARY PREDOMINANT WINDS					
DIRECTION:	NW	SW	SW	N	SW
SPEED:	6.7	7.1	6.9	5.4	6.8
PERCENTAGE:	19.4	20.8	21.5	15.4	17.3

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY | Period of Record: JUN 1969 - OCT 1970 | Bias Index:-0.10 | Speed Units: MPH

Station Name: MONTEZUMA
Elevation: 20 Feet (33)
Degrees Minutes
North Latitude: 38 5
West Longitude: 121 49
Observations: 10,938
24 OBS/DAY
Source Code: Data: 5 Summary: N

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	2.5	8.3	8.3	17.6	0.2	15.3	2.8	13.1	3.0	14.8
NNE	3.7	3.8	3.2	10.9	0.1	4.5	1.5	4.8	1.8	6.5
NE	5.0	3.0	1.0	3.9	****	****	1.6	3.8	1.6	3.4
ENE	5.2	2.6	0.5	3.8	****	****	2.6	2.1	1.8	2.4
E	5.3	4.2	0.6	4.3	****	****	2.7	4.0	1.9	4.1
ESE	23.8	6.4	1.4	6.4	0.2	5.5	4.1	4.6	5.7	6.0
SE	4.2	6.6	0.9	4.1	0.1	5.2	2.2	3.3	1.7	4.9
SSE	2.2	4.1	1.0	3.0	0.1	2.5	1.8	2.2	1.2	2.9
S	0.9	4.0	0.9	3.0	0.2	3.7	1.3	2.4	0.8	2.9
SSW	1.5	4.4	1.2	2.7	0.5	3.4	2.2	3.7	1.4	3.6
SW	3.1	7.0	2.0	5.8	0.6	5.7	1.9	5.6	1.7	6.1
WSW	5.0	9.3	12.1	13.0	5.9	12.4	11.0	11.4	8.6	11.8
W	7.6	8.9	31.7	15.2	39.2	15.1	28.2	11.7	28.8	13.7
WNW	7.3	4.3	16.9	10.5	49.0	14.9	18.4	7.9	25.7	12.2
NW	4.1	3.2	11.1	7.3	3.4	10.3	4.1	6.4	5.2	7.1
NNW	6.7	13.7	5.7	13.4	0.3	14.0	3.7	14.5	3.5	13.9
CALM	11.8		1.4		0.0		9.8		5.5	
ALL		5.6		11.9		14.5		8.0		10.3

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	26	289	282	279	283
SPEED:	0.3	9.0	13.9	5.9	7.9
PER. RATIO:	0.05	0.76	0.96	0.74	0.77
PREDOMINANT WINDS					
DIRECTION:	E	W	W	W	W
SPEED:	5.5	13.5	14.8	10.4	12.8
PERCENTAGE:	34.3	60.7	94.1	57.6	63.1
SECONDARY PREDOMINANT WINDS					
DIRECTION:	W	NNW	NNW	NNW	NNW
SPEED:	7.3	12.1	10.8	11.0	11.1
PERCENTAGE:	19.9	25.1	3.9	10.6	11.7

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY

Station Name: MOUNT LEE
Elevation: 1680 Feet

	Degrees	Minutes
North Latitude:	34	8
West Longitude:	118	19

Period of Record:
JUL 1981 - NOV 1981
APR 1982 - JUN 1982
WINTER MISSING
Observations: 3,627
24 OBS/DAY

Bias Index:-0.00
Speed Units: MPH
Source Code
Data: 2
Summary: L

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	****	****	1.0	3.1	2.2	1.8	3.5	8.9	2.5	6.0
NNE	****	****	0.6	5.3	2.3	3.6	4.8	6.5	3.0	5.6
NE	****	****	1.3	1.7	3.7	3.5	4.7	5.9	3.7	4.7
ENE	****	****	2.6	2.1	6.1	4.3	6.5	6.1	5.6	5.0
E	****	****	7.4	2.4	18.8	5.2	18.8	5.6	16.7	5.2
ESE	****	****	14.2	4.1	29.0	8.8	27.8	7.5	25.7	7.8
SE	****	****	35.2	5.5	15.6	7.2	6.5	6.1	15.6	6.3
SSE	****	****	27.7	8.0	8.1	8.0	5.5	6.4	10.8	7.7
S	****	****	3.6	5.4	1.6	4.0	3.5	5.4	2.8	5.1
SSW	****	****	0.7	4.1	0.5	2.0	2.5	3.3	1.4	3.2
SW	****	****	0.6	3.2	0.7	3.1	1.7	5.7	1.1	4.8
WSW	****	****	0.3	2.1	2.5	7.1	2.8	6.4	2.2	6.6
W	****	****	0.4	2.8	2.8	6.3	4.9	6.6	3.2	6.4
WNW	****	****	2.3	7.0	1.9	3.2	2.1	6.0	2.0	5.2
NW	****	****	1.4	4.6	2.6	6.3	2.5	5.1	2.4	5.6
NNW	****	****	0.6	4.0	1.5	2.7	1.9	6.3	1.5	4.7
CALM	****		0.0		0.0		0.0		0.0	
ALL		****		5.6		6.5		6.4		6.3

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	***	143	116	101	116
SPEED:	****	4.6	4.7	3.3	4.0
PER. RATIO:	****	0.82	0.71	0.51	0.63
PREDOMINANT WINDS					
DIRECTION:	***	SE	ESE	E	ESE
SPEED:	****	6.1	7.3	6.7	6.6
PERCENTAGE:	****	77.1	63.4	53.1	58.0
SECONDARY PREDOMINANT WINDS					
DIRECTION:	***	ENE	NE	SSE	S
SPEED:	****	2.3	3.9	6.0	6.8
PERCENTAGE:	****	11.3	12.1	15.5	15.0

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY

Station Name: MOUNT SHASTA
Elevation: 3550 Feet

	Degrees	Minutes
North Latitude:	41	19
West Longitude:	122	19

Period of Record:
1955 - 1977
Observations: 70,858

Bias Index: 0.35
Speed Units: MPH
Source Code
Data: 1
Summary: L

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	4.5	7.1	5.7	8.6	4.6	6.2	4.9	6.4	4.9	7.2
NNE	2.4	4.3	2.0	4.8	2.6	3.9	3.1	3.9	2.5	4.2
NE	5.3	4.3	3.7	4.3	5.8	3.5	7.8	3.9	5.7	4.0
ENE	2.2	4.0	1.3	3.7	2.4	3.3	3.4	3.5	2.3	3.6
E	1.6	6.0	1.2	5.4	1.4	4.6	1.8	4.9	1.5	5.2
ESE	4.1	9.0	2.8	7.5	2.4	5.5	2.8	6.9	3.0	7.4
SE	17.8	10.4	12.6	9.2	10.7	7.6	11.9	8.6	13.2	9.1
SSE	13.9	9.2	14.3	9.6	13.4	8.3	12.3	8.7	13.5	9.0
S	6.2	6.5	8.1	7.8	7.5	7.2	6.6	6.7	7.1	7.1
SSW	0.6	3.8	0.9	5.7	0.7	5.3	0.6	4.1	0.7	4.9
SW	0.6	3.9	1.3	5.2	0.9	4.3	0.7	4.1	0.9	4.5
WSW	0.4	3.1	0.6	4.8	0.5	4.3	0.4	3.6	0.5	4.0
W	1.5	5.0	2.2	6.3	2.8	5.3	1.9	5.2	2.1	5.5
WNW	3.8	7.4	6.1	8.2	5.4	6.6	4.7	7.0	5.0	7.3
NW	19.5	9.8	21.0	10.4	22.4	8.8	20.7	9.3	20.9	9.6
NNW	8.1	11.1	10.8	11.5	8.6	9.4	8.2	10.1	8.9	10.6
CALM	7.4		5.3		7.8		8.1		7.2	
ALL		8.0		8.4		6.7		6.9		7.5

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	111	307	306	332	317
SPEED:	0.5	1.1	1.0	0.8	0.6
PER. RATIO:	0.06	0.13	0.15	0.11	0.08
PREDOMINANT WINDS					
DIRECTION:	SSE	NW	NW	NNW	NW
SPEED:	9.3	10.4	8.6	9.1	9.5
PERCENTAGE:	37.9	37.9	36.4	33.8	34.8
SECONDARY PREDOMINANT WINDS					
DIRECTION:	NNW	SSE	SSE	SSE	SSE
SPEED:	9.7	9.0	7.8	8.2	8.6
PERCENTAGE:	32.1	35.0	31.6	30.8	33.8

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY
Station Name: MOUNT VACA
Elevation: 2818 Feet

	Degrees	Minutes
North Latitude:	38	24
West Longitude:	122	6

Period of Record: DEC 1972 - FEB 1974
Observations: 9,230
24 OBS/DAY

Bias Index: 0.13
Speed Units: MPH
Source Code
Data: 5
Summary: N

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	7.3	18.5	7.3	18.1	5.2	13.9	2.1	18.4	5.9	17.4
NNE	16.0	20.9	15.4	19.8	11.8	12.0	14.8	20.5	14.7	18.9
NE	9.7	15.1	11.4	12.8	8.6	7.4	9.4	12.3	9.8	12.4
ENE	3.3	13.2	2.0	6.5	1.4	3.6	1.1	6.4	2.1	9.8
E	2.6	11.5	0.7	4.6	0.5	4.1	1.0	5.8	1.4	9.3
ESE	1.9	13.4	0.3	5.9	0.3	4.0	0.8	6.6	1.0	11.1
SE	4.1	15.8	0.6	7.4	0.7	3.7	1.5	8.2	2.0	13.2
SSE	4.7	13.7	1.2	8.9	0.6	3.9	1.4	31.0	2.3	14.5
S	11.6	17.2	3.7	12.5	1.2	5.1	6.3	17.6	6.4	16.1
SSW	17.6	17.4	7.3	12.7	5.3	10.7	18.8	18.9	12.6	16.5
SW	9.0	13.7	24.8	15.6	25.9	13.4	19.7	16.1	18.5	14.7
WSW	2.7	9.4	9.0	14.9	13.5	15.2	7.4	15.4	7.6	14.4
W	2.6	10.5	5.9	12.3	12.8	14.6	6.3	12.6	6.4	13.2
WNW	1.5	9.9	3.9	12.2	4.8	12.7	4.5	11.8	3.3	11.9
NW	2.4	13.2	3.5	15.5	4.2	10.8	2.5	14.0	3.1	13.1
NNW	2.5	14.9	2.9	14.8	3.3	10.5	2.3	14.1	2.8	13.5
CALM	0.4		0.0		0.0		0.0		0.0	
ALL		16.1		15.0		12.3		16.3		15.0

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	126	292	265	234	259
SPEED:	1.1	3.9	6.4	4.8	2.8
PER. RATIO:	0.07	0.26	0.52	0.30	0.18
PREDOMINANT WINDS					
DIRECTION:	SSW	SW	WSW	SW	SW
SPEED:	16.5	14.9	14.2	17.1	15.2
PERCENTAGE:	38.2	41.1	52.2	45.9	38.7
SECONDARY PREDOMINANT WINDS					
DIRECTION:	NNE	NNE	NNE	NNE	NNE
SPEED:	18.7	17.1	10.8	17.4	16.5
PERCENTAGE:	33.0	34.1	25.6	26.3	30.4

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY
Station Name: NAPA
Elevation: 43 Feet

	Degrees	Minutes
North Latitude:	38	19
West Longitude:	122	18

Period of Record: JAN 1972 - MAR 1974
MAY 1976 - DEC 1976
APR 1979 - MAR 1980
Observations: 37,407
24 OBS/DAY

Bias Index: 1.00
Speed Units: MPH
Source Code
Data: 4
Summary: L

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	26.5	2.9	15.7	3.5	6.6	2.3	18.6	2.1	16.5	2.8
NNE	****	****	****	****	****	****	****	****	****	****
NE	11.4	1.2	6.3	1.5	4.6	1.1	9.5	1.2	7.8	1.2
ENE	****	****	****	****	****	****	****	****	****	****
E	6.6	2.1	3.6	1.4	2.8	1.2	6.6	1.6	4.8	1.6
ESE	****	****	****	****	****	****	****	****	****	****
SE	9.3	2.9	8.8	3.8	24.8	5.1	16.0	3.6	15.0	4.2
SSE	****	****	****	****	****	****	****	****	****	****
S	21.6	4.2	29.4	5.0	35.3	4.6	24.7	4.3	28.1	4.6
SSW	****	****	****	****	****	****	****	****	****	****
SW	8.5	3.2	17.4	4.9	15.8	4.7	10.2	3.4	13.1	4.3
WSW	****	****	****	****	****	****	****	****	****	****
W	5.3	2.3	9.9	4.3	5.3	3.3	6.0	2.1	6.6	3.2
WNW	****	****	****	****	****	****	****	****	****	****
NW	10.7	2.6	9.0	3.0	4.8	2.3	8.5	2.0	8.1	2.5
NNW	****	****	****	****	****	****	****	****	****	****
CALM	0.0		0.0		0.0		0.0		0.0	
ALL		2.9		4.0		4.1		2.9		3.5

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	199	210	176	174	187
SPEED:	0.3	1.7	2.8	1.1	1.5
PER. RATIO:	0.09	0.43	0.67	0.39	0.42
PREDOMINANT WINDS (Alternate Definition)					
DIRECTION:	N	S	S	S	S
SPEED:	2.9	5.0	4.6	4.3	4.6
PERCENTAGE:	26.5	29.4	35.3	24.7	28.1
SECONDARY PREDOMINANT WINDS (Alternate Definition)					
DIRECTION:	S	N	N	N	N
SPEED:	4.2	3.5	2.3	2.1	2.8
PERCENTAGE:	21.6	15.7	6.6	18.6	16.5

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY

Station Name: NEEDLES
Elevation: 917 Feet

	Degrees	Minutes
North Latitude:	34	46
West Longitude:	114	37

Period of Record: 1949 - 1964
Observations: 140,210

Bias Index: 0.41
Speed Units: MPH
Source Code
Data: 1
Summary: L

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	14.7	13.0	8.2	12.1	2.9	7.7	9.7	12.0	8.8	12.1
NNE	3.3	12.0	3.1	9.9	1.9	5.9	3.1	9.9	2.8	9.8
NE	2.3	6.4	3.1	5.7	3.7	5.7	3.7	5.7	3.2	5.8
ENE	0.8	4.6	1.7	5.9	2.3	6.7	1.9	5.7	1.7	6.0
E	1.6	4.2	2.8	5.2	4.4	6.4	2.8	5.3	2.9	5.6
ESE	0.6	5.7	1.6	6.3	2.4	7.2	1.1	6.0	1.4	6.5
SE	1.3	5.3	2.4	6.4	4.0	7.3	1.9	6.4	2.4	6.6
SSE	1.1	7.9	2.5	10.3	4.6	9.9	1.8	9.0	2.5	9.6
S	3.9	8.8	8.4	10.9	14.1	10.8	6.1	9.4	8.1	10.3
SSW	3.6	8.2	9.0	10.8	13.0	10.3	6.3	9.1	8.0	10.0
SW	14.5	6.0	18.9	8.4	21.9	8.7	18.5	7.0	18.5	7.7
WSW	7.2	6.5	7.2	9.7	5.7	8.6	6.8	6.7	6.7	7.9
W	7.2	6.2	6.2	8.9	3.4	7.3	5.7	6.2	5.6	7.1
WNW	4.4	6.8	3.0	8.2	1.3	6.6	3.2	6.6	3.0	7.1
NW	7.6	7.5	4.0	7.6	1.8	6.1	4.9	7.2	4.6	7.3
NNW	10.7	11.6	5.3	11.4	1.5	8.7	6.6	11.4	6.0	11.3
CALM	15.1		12.5		11.0		15.8		13.8	
ALL		7.3		8.1		7.7		6.9		7.5

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	317	244	201	276	251
SPEED:	3.4	2.9	4.5	1.9	2.2
PER. RATIO:	0.46	0.36	0.58	0.28	0.30
PREDOMINANT WINDS					
DIRECTION:	NNW	SSW	SSW	SW	SSW
SPEED:	11.3	9.6	9.7	7.4	8.8
PERCENTAGE:	33.0	36.3	49.0	31.6	34.6
SECONDARY PREDOMINANT WINDS					
DIRECTION:	WSW	NNW	SE	NNW	NNW
SPEED:	6.2	10.9	8.4	10.7	10.7
PERCENTAGE:	28.9	17.5	11.0	21.2	19.4

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY

Station Name: NELLIS AFB
Elevation: 1878 Feet

	Degrees	Minutes
North Latitude:	36	15
West Longitude:	115	2

Period of Record: MAR 1942 - SEP 1944; JAN 1949 - DEC 1972
Observations: 230,638

Bias Index: 0.40
Speed Units: MPH
Source Code
Data: 1
Summary: B

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	4.7	8.5	4.0	8.8	2.5	6.3	4.0	7.9	3.8	8.1
NNE	6.0	10.7	5.0	11.4	2.6	7.6	5.2	9.8	4.7	10.2
NE	11.5	8.9	9.0	9.4	5.7	8.0	9.4	8.8	8.8	8.9
ENE	5.4	7.9	4.2	8.4	3.1	7.6	4.4	7.5	4.3	7.9
E	5.0	6.5	5.4	7.3	5.4	7.8	5.3	6.6	5.3	7.1
ESE	1.7	6.4	2.7	7.3	3.6	9.1	2.4	7.1	2.6	7.7
SE	2.3	8.2	3.8	8.3	5.9	9.8	2.9	7.2	3.7	8.7
SSE	1.8	12.2	3.2	12.0	4.6	11.7	2.1	10.2	2.9	11.6
S	5.9	11.8	12.8	12.3	15.8	10.6	7.9	10.3	10.7	11.3
SSW	3.3	9.6	8.7	13.8	9.4	11.0	5.2	10.4	6.7	11.7
SW	3.0	7.8	7.1	11.9	8.9	10.4	4.4	8.3	5.9	10.1
WSW	1.1	6.7	2.0	10.0	2.4	8.4	1.5	6.3	1.8	8.2
W	2.4	7.1	3.2	9.9	2.6	6.7	2.5	6.7	2.7	7.8
WNW	2.3	10.0	2.7	13.1	1.5	7.6	1.9	8.8	2.1	10.3
NW	3.2	8.5	3.2	10.6	1.8	6.7	2.3	7.3	2.6	8.6
NNW	1.6	7.5	1.3	8.1	0.8	5.8	1.1	5.9	1.2	7.0
CALM	38.7		21.6		23.3		37.4		30.1	
ALL		5.4		8.4		7.2		5.3		6.6

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	55	182	174	109	158
SPEED:	1.3	1.9	3.5	0.8	1.4
PER. RATIO:	0.23	0.23	0.48	0.16	0.21
PREDOMINANT WINDS					
DIRECTION:	NE	SSW	SSW	ENE	SSW
SPEED:	9.1	12.7	10.7	7.9	11.1
PERCENTAGE:	22.9	28.6	34.1	19.1	23.3
SECONDARY PREDOMINANT WINDS					
DIRECTION:	SSW	ENE	ESE	SSW	ENE
SPEED:	10.2	8.6	8.9	9.8	8.1
PERCENTAGE:	12.2	18.6	14.9	17.5	18.4

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY

Station Name: NEWHALL
Elevation: 1256 Feet (30)
Degrees Minutes
North Latitude: 34 22
West Longitude: 118 33

Period of Record: SEP 1969 - DEC 1975
Observations: 71,691
24 OBS/DAY

Bias Index: 0.02
Speed Units: MPH
Source Code
Data: 3
Summary: M

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	11.6	5.3	9.0	4.4	6.6	1.8	6.8	3.3	8.5	4.0
NNE	8.7	9.0	5.1	6.1	2.8	2.0	6.3	7.8	5.8	7.2
NE	2.8	6.8	2.4	5.1	1.6	2.2	3.0	7.9	2.4	6.1
ENE	1.2	3.2	1.5	2.6	1.6	1.8	1.6	4.2	1.5	2.9
E	2.4	1.8	3.9	1.8	3.0	1.8	2.6	1.9	2.9	1.8
ESE	4.6	1.8	4.4	2.0	3.5	1.7	3.5	1.8	4.0	1.8
SE	9.8	2.1	8.7	3.3	9.8	4.3	8.4	2.8	9.1	3.1
SSE	15.1	3.8	21.8	5.0	31.6	6.1	20.2	4.0	22.1	4.8
S	12.1	3.1	13.2	4.0	11.8	3.8	15.0	2.8	13.1	3.4
SSW	3.0	2.5	3.3	3.3	2.5	2.5	3.9	2.2	3.2	2.6
SW	2.1	2.5	2.9	3.3	2.3	2.5	2.8	2.4	2.5	2.7
WSW	1.8	2.3	2.5	3.6	2.2	2.9	2.8	2.5	2.3	2.9
W	5.1	2.1	5.3	3.1	4.7	2.2	6.4	2.2	5.4	2.4
WNW	4.5	2.7	3.9	3.4	4.4	2.2	5.1	2.5	4.5	2.7
NW	7.6	3.3	6.4	3.9	6.0	2.0	6.2	2.8	6.6	3.0
NNW	7.5	3.7	5.9	3.8	5.8	1.9	5.2	2.8	6.1	3.1
CALM	0.0		0.0		0.0		0.0		0.0	
ALL		3.7		4.0		3.8		3.4		3.7

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	19	160	161	128	144
SPEED:	0.9	0.8	2.4	0.5	0.7
PER. RATIO:	0.25	0.20	0.63	0.16	0.20
PREDOMINANT WINDS					
DIRECTION:	SSE	SSE	SSE	SSE	SSE
SPEED:	2.8	4.4	5.3	3.4	4.0
PERCENTAGE:	37.0	43.7	53.2	43.6	44.3
SECONDARY PREDOMINANT WINDS					
DIRECTION:	N	NNW	NNW	N	NNW
SPEED:	6.0	4.1	1.9	4.7	3.4
PERCENTAGE:	27.8	21.3	18.4	18.3	21.2

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY

Station Name: NORTH HOLLYWOOD
Elevation: 899 Feet
Degrees Minutes
North Latitude: 34 10
West Longitude: 118 25

Period of Record: JUN 1955 - APR 1965
Observations: 80,888
24 OBS/DAY

Bias Index: 0.25
Speed Units: MPH
Source Code
Data: 3
Summary: M

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	3.3	5.0	2.3	6.1	0.7	1.9	2.5	4.4	2.2	4.9
NNE	1.6	6.9	1.0	6.0	0.4	2.2	1.2	7.0	1.0	6.3
NE	1.8	4.9	1.3	2.7	1.5	1.5	1.5	3.4	1.5	3.3
ENE	1.6	3.3	1.6	2.4	2.7	2.0	2.3	2.3	2.0	2.4
E	3.7	3.5	4.0	3.0	7.8	2.6	4.9	2.6	5.1	2.9
ESE	4.8	4.3	6.1	4.0	12.2	3.5	7.2	3.5	7.6	3.7
SE	6.3	4.1	9.0	4.1	16.8	4.4	8.8	3.8	10.3	4.2
SSE	6.8	4.8	13.5	5.3	18.6	5.6	11.2	4.6	12.6	5.2
S	8.1	4.1	18.4	5.6	18.8	5.3	12.0	4.7	14.3	5.1
SSW	3.6	3.4	5.6	4.7	3.3	2.7	3.8	3.4	4.1	3.7
SW	5.1	2.6	5.3	3.0	4.2	1.5	4.5	1.9	4.8	2.3
WSW	9.8	2.9	6.3	3.3	3.4	1.7	8.5	2.2	7.0	2.6
W	21.4	2.9	12.1	3.2	5.8	1.9	18.7	2.3	14.5	2.7
WNW	9.2	3.9	5.6	4.1	2.1	2.1	6.0	3.1	5.7	3.6
NW	8.2	5.5	4.9	5.8	1.2	2.1	4.6	4.0	4.7	5.0
NNW	4.6	7.5	3.0	8.5	0.5	1.8	2.4	5.4	2.6	7.0
CALM	0.0		0.0		0.0		0.0		0.0	
ALL		4.0		4.6		3.9		3.4		4.0

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	265	191	155	188	182
SPEED:	1.0	1.8	3.0	1.1	1.4
PER. RATIO:	0.26	0.39	0.76	0.31	0.35
PREDOMINANT WINDS					
DIRECTION:	W	SSE	SSE	W	SSE
SPEED:	3.1	5.2	5.1	2.4	4.9
PERCENTAGE:	40.4	40.9	54.2	33.2	37.2
SECONDARY PREDOMINANT WINDS					
DIRECTION:	SSE	W	E	SSE	W
SPEED:	4.3	3.4	3.0	4.4	2.9
PERCENTAGE:	21.2	24.0	22.7	32.0	27.2

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY

Station Name: NORTON AFB
Elevation: 1113 Feet

	Degrees	Minutes
North Latitude:	34	6
West Longitude:	117	14

Period of Record: JAN 1943 - DEC 1966

Observations: 209,690

Bias Index: 0.35
Speed Units: MPH

Source Code
Data: 1
Summary: B

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	4.1	13.6	2.0	11.0	0.5	5.9	1.9	11.2	2.1	12.0
NNE	2.1	11.2	0.9	9.4	0.2	5.5	1.1	9.7	1.1	10.1
NE	4.0	6.2	1.6	6.1	0.6	4.1	2.3	5.5	2.1	5.8
ENE	4.0	5.1	1.6	4.7	0.7	3.7	2.4	4.6	2.1	4.8
E	10.8	5.4	4.7	5.0	2.1	4.1	6.8	4.9	6.1	5.1
ESE	6.0	5.6	2.7	5.5	0.9	4.1	3.7	5.0	3.3	5.3
SE	6.2	5.9	3.1	5.5	1.2	4.1	3.8	5.2	3.6	5.5
SSE	1.5	6.3	1.0	6.0	0.4	4.4	1.2	5.4	1.0	5.8
S	1.8	5.6	1.9	5.2	1.0	4.2	1.3	5.1	1.5	5.1
SSW	1.3	5.6	2.3	6.2	2.1	5.8	1.5	5.5	1.8	5.8
SW	5.1	6.3	11.6	7.0	13.0	7.3	7.2	6.5	9.2	6.9
WSW	3.6	6.4	11.7	8.1	18.0	8.2	9.0	7.4	10.6	7.8
W	3.6	6.3	11.3	7.7	13.8	7.7	7.7	6.9	9.2	7.4
WNW	1.4	6.8	2.5	6.8	2.6	6.3	2.2	6.0	2.2	6.4
NW	2.6	9.1	2.4	6.8	1.8	5.3	2.2	6.9	2.2	7.2
NNW	2.0	12.6	1.2	10.1	0.4	4.7	1.3	9.9	1.2	10.6
CALM	39.8		37.5		40.6		44.4		40.7	
ALL		4.2		4.4		4.2		3.6		4.1

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	50	251	249	253	253
SPEED:	0.8	2.1	3.4	0.9	1.4
PER. RATIO:	0.19	0.48	0.81	0.26	0.35
PREDOMINANT WINDS					
DIRECTION:	ESE	WSW	WSW	WSW	WSW
SPEED:	5.6	7.6	7.8	7.0	7.4
PERCENTAGE:	23.0	34.6	44.8	23.9	29.0
SECONDARY PREDOMINANT WINDS					
DIRECTION:	WSW	ESE	NW	ESE	ESE
SPEED:	6.3	5.3	5.8	5.0	5.3
PERCENTAGE:	12.3	10.5	4.8	14.3	13.0

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY

Station Name: OAKLAND INTL APT
Elevation: 7 Feet (20)

	Degrees	Minutes
North Latitude:	37	44
West Longitude:	122	12

Period of Record: 1965 - 1978

Observations: 40,782

Bias Index: 0.27
Speed Units: MPH

Source Code
Data: 1
Summary: L

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	4.5	8.4	3.2	8.4	3.7	6.4	4.5	6.9	4.0	7.5
NNE	2.6	8.1	1.2	9.0	0.9	5.2	1.8	6.7	1.6	7.5
NE	4.7	7.8	1.6	6.9	0.7	4.5	2.9	6.4	2.4	7.0
ENE	5.9	7.2	1.7	5.6	0.4	4.6	2.6	5.9	2.6	6.5
E	7.7	6.6	2.8	5.6	0.8	5.2	3.9	5.5	3.8	6.0
ESE	5.4	6.8	2.4	6.8	0.5	5.9	3.3	6.6	2.9	6.7
SE	7.2	9.0	2.4	9.0	0.4	6.4	3.6	8.3	3.4	8.7
SSE	8.7	11.7	3.1	12.5	0.7	7.8	4.2	10.7	4.1	11.4
S	6.5	9.2	3.5	10.5	1.1	6.7	4.0	8.4	3.8	9.1
SSW	2.7	8.4	3.0	8.6	1.8	7.7	2.2	7.4	2.4	8.1
SW	2.9	7.5	5.1	9.2	4.2	8.6	3.5	7.2	3.9	8.3
WSW	3.6	7.5	7.9	9.9	8.4	9.7	5.4	7.6	6.3	9.1
W	9.6	8.0	30.9	11.7	33.4	11.1	19.4	9.1	23.4	10.5
WNW	6.7	8.7	14.5	11.0	21.8	10.7	13.9	9.4	14.2	10.2
NW	5.7	8.8	7.4	10.6	12.2	10.7	8.6	9.1	8.5	10.0
NNW	4.4	8.6	4.1	8.9	5.3	8.6	4.7	7.6	4.6	8.4
CALM	11.1		5.1		3.6		11.4		8.0	
ALL		7.4		9.7		9.7		7.3		8.6

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	169	272	282	278	276
SPEED:	0.7	6.1	8.0	3.2	4.3
PER. RATIO:	0.09	0.63	0.83	0.44	0.50
PREDOMINANT WINDS					
DIRECTION:	SSE	W	WNW	WNW	WNW
SPEED:	10.1	11.2	10.9	9.2	10.3
PERCENTAGE:	22.4	53.3	67.4	41.9	46.1
SECONDARY PREDOMINANT WINDS					
DIRECTION:	WNW	NNW	SW	SSE	SW
SPEED:	8.4	9.6	9.1	9.2	8.7
PERCENTAGE:	22.0	14.7	14.4	11.8	12.6

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY

Station Name: ONTARIO
Elevation: 952 Feet

	Degrees	Minutes
North Latitude:	34	4
West Longitude:	117	37

Period of Record:
OCT 1949 - DEC 1953
JUN 1955 - SEP 1955

Observations: 23,378

Bias Index: 0.03
Speed Units: MPH

Source Code
Data: 1
Summary: B

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	5.7	5.2	1.4	5.5	0.7	4.5	2.6	5.0	2.5	5.2
NNE	3.4	10.7	1.1	14.7	0.2	4.4	1.9	7.7	1.6	10.4
NE	7.5	9.7	3.3	10.0	1.0	4.3	3.7	8.4	3.8	9.1
ENE	4.2	14.8	1.6	11.4	0.4	5.0	2.2	11.5	2.1	12.8
E	5.5	6.1	2.9	6.1	1.3	3.9	3.0	6.2	3.1	5.9
ESE	1.8	7.3	0.9	6.8	0.4	4.3	1.3	7.2	1.1	6.9
SE	4.0	4.7	2.3	4.7	1.7	3.7	2.8	4.4	2.7	4.5
SSE	1.4	5.6	1.0	5.9	0.6	4.0	1.2	5.0	1.0	5.3
S	5.4	5.0	3.2	5.1	2.9	4.9	4.0	4.8	3.9	5.0
SSW	4.4	7.4	5.3	9.3	3.5	7.1	3.7	6.6	4.2	7.8
SW	13.7	7.6	22.0	10.8	10.9	10.5	14.7	8.1	17.4	9.6
WSW	16.7	9.0	35.6	12.8	47.7	13.5	30.7	10.7	33.0	12.2
W	11.1	7.8	11.2	10.5	10.5	12.2	15.0	9.0	11.9	9.8
WNW	3.7	7.9	1.9	8.6	1.0	9.8	4.4	6.4	2.7	7.7
NW	5.0	5.7	1.4	6.3	0.7	4.9	2.5	5.6	2.4	5.7
NNW	1.3	6.3	0.3	6.7	0.1	3.8	0.6	5.3	0.6	5.9
CALM	5.1		4.5		8.3		5.6		5.9	
ALL		7.4		10.2		10.5		8.0		9.1

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	259	242	244	249	246
SPEED:	1.8	7.6	9.6	5.1	6.1
PER. RATIO:	0.24	0.74	0.92	0.64	0.67
PREDOMINANT WINDS					
DIRECTION:	WSW	WSW	WSW	WSW	WSW
SPEED:	8.2	11.8	12.6	9.6	11.0
PERCENTAGE:	41.5	68.8	77.1	60.4	62.3
SECONDARY PREDOMINANT WINDS					
DIRECTION:	ENE	S	S	ENE	S
SPEED:	9.8	7.5	5.9	8.4	6.3
PERCENTAGE:	17.2	9.5	7.0	8.9	9.1

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY

Station Name: OXNARD AFB
Elevation: 96 Feet (13-26)

	Degrees	Minutes
North Latitude:	34	13
West Longitude:	119	5

Period of Record:
APR 1944 - JUL 1945
DEC 1952 - DEC 1967

Observations: 143,282
24 OBS/DAY

Bias Index: 0.29
Speed Units: MPH

Source Code
Data: 1
Summary: B

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	2.0	4.6	1.4	4.5	1.2	3.6	1.8	4.4	1.6	4.3
NNE	2.1	6.0	1.5	5.6	0.8	3.8	1.5	5.0	1.5	5.3
NE	11.6	8.9	4.3	6.2	1.4	3.8	6.1	7.2	5.7	7.6
ENE	13.3	10.8	5.6	6.6	2.3	3.9	6.6	8.6	6.9	8.8
E	7.3	10.3	4.4	5.2	1.7	3.9	4.6	7.3	4.4	7.6
ESE	1.6	8.3	1.3	4.5	0.8	3.8	1.1	5.5	1.2	5.8
SE	0.9	5.7	1.4	4.6	0.7	3.2	0.9	4.1	1.0	4.5
SSE	0.7	5.9	1.1	4.8	0.6	3.4	0.8	4.6	0.8	4.7
S	1.7	6.7	2.9	6.4	2.2	5.6	1.9	5.9	2.2	6.2
SSW	2.3	6.7	4.1	7.3	3.6	7.0	2.9	6.8	3.2	7.0
SW	5.8	6.6	10.9	8.0	12.9	7.6	9.0	7.3	9.7	7.5
WSW	5.4	7.4	11.1	8.6	15.6	8.0	9.4	7.5	10.5	8.0
W	7.4	7.8	15.7	9.9	16.7	7.4	10.3	7.5	12.6	8.3
WNW	3.6	6.5	3.0	7.6	3.2	5.1	3.4	5.9	3.3	6.2
NW	5.5	5.0	3.0	4.5	2.6	3.7	3.9	4.3	3.7	4.5
NNW	2.6	4.7	1.4	4.1	1.2	3.5	2.0	4.2	1.8	4.3
CALM	26.1		26.8		32.4		33.8		29.9	
ALL		5.9		5.5		4.5		4.6		5.1

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	50	252	248	261	257
SPEED:	1.7	2.7	3.4	1.0	1.4
PER. RATIO:	0.28	0.50	0.76	0.23	0.28
PREDOMINANT WINDS					
DIRECTION:	ENE	WSW	WSW	WSW	WSW
SPEED:	10.0	9.0	7.7	7.4	8.0
PERCENTAGE:	32.2	37.7	45.2	28.7	32.8
SECONDARY PREDOMINANT WINDS					
DIRECTION:	WSW	ENE	NW	ENE	ENE
SPEED:	7.3	6.0	4.3	7.8	8.1
PERCENTAGE:	18.6	14.3	7.0	17.3	17.0

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY

Station Name: PALMDALE
Elevation: 2538 Feet (28-29)
Degrees Minutes
North Latitude: 34 38
West Longitude: 118 5

Period of Record:
NOV 1948 - DEC 1954
JUN 1961 - DEC 1964
JAN 1971 - AUG 1973
Observations: 109,166

Bias Index: 0.22
Speed Units: MPH
Source Code
Data: 1
Summary: B

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	4.9	6.4	2.9	7.2	2.2	6.8	5.3	6.3	3.8	6.6
NNE	2.9	8.2	2.1	8.6	1.6	6.5	3.1	7.4	2.4	7.8
NE	2.8	9.0	2.1	8.8	1.9	6.2	3.4	7.9	2.5	8.1
ENE	2.8	11.7	1.5	9.6	1.1	6.3	2.3	10.0	1.9	10.0
E	2.9	10.8	1.2	8.2	1.2	5.6	2.4	8.5	1.9	8.9
ESE	1.6	9.2	1.0	7.1	0.8	6.0	1.4	8.0	1.2	7.9
SE	2.0	6.6	1.2	5.8	1.5	5.9	2.1	6.1	1.7	6.1
SSE	2.1	6.5	1.8	6.6	1.9	6.5	2.6	6.3	2.1	6.5
S	9.7	7.1	8.9	7.9	10.9	7.8	11.9	6.6	10.3	7.3
SSW	9.4	9.0	11.8	12.5	13.6	11.9	10.3	9.4	11.3	10.9
SW	13.9	11.5	20.5	14.9	26.8	14.3	16.6	11.4	19.5	13.4
WSW	6.8	12.1	12.7	14.7	14.7	15.5	7.9	13.0	10.6	14.3
W	6.5	12.4	8.9	15.1	6.3	13.2	5.0	11.7	6.7	13.4
WNW	8.2	14.4	10.9	17.9	4.7	14.2	5.8	14.6	7.4	15.8
NW	6.0	9.7	4.3	12.6	2.7	11.4	4.2	9.6	4.3	10.7
NNW	3.4	6.9	2.0	8.3	1.4	7.4	2.7	6.6	2.4	7.2
CALM	14.0		6.1		6.6		12.9		9.9	
ALL		8.6		12.2		11.3		8.4		10.1

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	250	246	232	238	241
SPEED:	3.7	8.1	8.5	4.0	6.1
PER. RATIO:	0.43	0.67	0.76	0.48	0.60
PREDOMINANT WINDS					
DIRECTION:	SSW	SW	SW	SSW	SW
SPEED:	9.5	14.2	14.0	9.4	12.9
PERCENTAGE:	33.0	45.0	55.1	38.8	41.4
SECONDARY PREDOMINANT WINDS					
DIRECTION:	W	WNW	SSE	W	WNW
SPEED:	13.1	15.9	7.4	13.1	13.7
PERCENTAGE:	21.5	24.1	14.3	18.7	18.4

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY

Station Name: PALM SPRINGS
Elevation: 420 Feet
Degrees Minutes
North Latitude: 33 54
West Longitude: 116 33

Period of Record:
MAY 1943 - FEB 1946
Observations: 24,286

Bias Index: 0.61
Speed Units: MPH
Source Code
Data: 1
Summary: A

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	5.2	9.3	4.5	11.4	3.9	7.9	5.2	7.7	4.7	8.9
NNE	1.6	11.3	1.7	10.5	0.6	6.5	1.2	9.9	1.2	10.0
NE	1.6	7.4	2.2	7.9	2.5	5.3	2.4	5.7	2.2	6.4
ENE	0.8	6.2	1.3	7.7	1.1	7.4	0.9	5.6	1.0	6.8
E	7.2	6.7	5.8	7.1	8.6	7.0	7.9	6.7	7.5	6.9
ESE	5.6	7.0	4.1	8.5	4.1	8.3	4.0	7.1	4.5	7.6
SE	5.4	6.1	6.4	6.8	9.3	6.0	8.5	6.0	7.5	6.2
SSE	1.5	5.9	2.4	6.3	1.8	5.9	1.5	5.4	1.8	5.9
S	3.3	5.6	3.0	5.9	2.7	4.3	3.2	4.9	3.0	5.1
SSW	2.1	6.8	2.1	7.0	0.9	5.0	1.3	5.4	1.6	6.2
SW	7.7	6.1	3.2	6.4	2.0	4.9	4.4	5.2	4.4	5.8
WSW	4.8	6.4	2.2	6.5	0.9	5.4	2.5	5.9	2.6	6.2
W	7.8	6.0	4.3	6.4	3.8	5.4	7.3	5.5	5.9	5.8
WNW	4.7	7.0	4.1	9.5	2.4	8.8	4.0	7.7	3.7	8.1
NW	17.2	8.2	30.7	15.1	33.7	14.3	26.6	10.0	27.0	12.3
NNW	10.2	9.0	10.1	12.7	4.8	12.5	6.4	8.4	7.7	10.5
CALM	13.2		11.8		16.8		12.6		13.6	
ALL		6.4		9.6		8.3		6.6		7.6

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	315	322	324	321	322
SPEED:	2.1	5.5	4.5	2.7	3.6
PER. RATIO:	0.33	0.57	0.54	0.41	0.47
PREDOMINANT WINDS (Alternate Definition)					
DIRECTION:	NW	NW	NW	NW	NW
SPEED:	8.3	14.0	13.8	9.5	11.5
PERCENTAGE:	32.1	44.9	40.9	37.0	38.4
SECONDARY PREDOMINANT WINDS (Alternate Definition)					
DIRECTION:	SW	SE	SE	SE	SE
SPEED:	6.3	7.2	6.6	6.3	6.6
PERCENTAGE:	14.6	12.9	15.2	14.0	13.8

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY

Station Name: PASADENA
Elevation: 820 Feet (40)
Degrees Minutes
North Latitude: 34 9
West Longitude: 118 7

Period of Record: JUN 1959 - MAR 1970
Observations: 91,412
24 OBS/DAY

Bias Index: 0.16
Speed Units: MPH
Source Code
Data: 3
Summary: M

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	16.4	2.8	8.6	2.7	5.0	1.6	13.8	2.5	10.9	2.5
NNE	7.1	2.7	4.2	2.3	2.4	1.5	5.8	2.3	4.9	2.4
NE	4.6	2.8	3.6	2.5	2.4	1.4	3.7	2.4	3.6	2.4
ENE	2.8	2.9	3.1	2.2	2.5	1.5	2.6	2.0	2.7	2.1
E	4.7	3.2	4.9	2.7	4.2	1.5	3.8	2.4	4.4	2.5
ESE	5.6	3.5	5.9	3.2	5.0	1.7	4.4	2.9	5.2	2.8
SE	7.0	3.7	8.0	3.5	6.6	2.1	5.3	3.1	6.7	3.1
SSE	5.2	3.3	6.4	3.4	7.2	2.6	6.0	3.1	6.2	3.1
S	5.6	3.1	9.8	3.6	13.5	3.1	7.9	3.1	9.2	3.2
SSW	4.4	3.4	7.0	4.3	12.7	3.8	7.1	3.5	7.8	3.8
SW	4.5	3.6	9.9	4.6	14.7	4.1	7.5	3.7	9.2	4.1
WSW	4.3	3.7	8.0	4.8	9.0	4.0	7.2	3.8	7.1	4.1
W	4.9	3.5	6.9	4.3	5.8	3.1	5.9	3.4	5.9	3.6
WNW	3.6	2.9	3.1	3.3	2.2	1.7	3.6	2.4	3.2	2.6
NW	6.3	2.8	4.2	2.8	2.7	1.6	5.2	2.5	4.6	2.5
NNW	12.9	2.9	6.2	2.7	4.0	1.7	10.4	2.4	8.4	2.6
CALM	0.0		0.0		0.0		0.0		0.0	
ALL		3.1		3.5		2.9		2.9		3.1

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	354	214	209	247	221
SPEED:	0.4	1.1	1.7	0.5	0.7
PER. RATIO:	0.12	0.31	0.59	0.18	0.24
PREDOMINANT WINDS					
DIRECTION:	N	SSW	SSW	N	SSW
SPEED:	2.8	4.2	3.7	2.4	3.7
PERCENTAGE:	36.4	26.7	40.9	30.0	26.2
SECONDARY PREDOMINANT WINDS					
DIRECTION:	SE	SE	SE	SSW	N
SPEED:	3.5	3.4	2.2	3.4	2.5
PERCENTAGE:	17.8	20.3	18.8	22.5	24.2

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY

Station Name: PASO ROBLES
Elevation: 817 Feet
Degrees Minutes
North Latitude: 35 36
West Longitude: 120 39

Period of Record: NOV 1948 - DEC 1964
Observations: 141,450

Bias Index: 0.17
Speed Units: MPH
Source Code
Data: 1
Summary: B

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	2.6	6.8	2.7	7.9	1.7	7.1	2.6	6.7	2.4	7.1
NNE	2.5	5.8	2.1	6.4	1.2	5.9	2.1	6.1	2.0	6.1
NE	2.8	6.2	1.9	5.9	0.7	5.5	2.3	6.5	1.9	6.1
ENE	3.5	8.0	1.7	7.0	0.4	5.2	2.3	8.2	2.0	7.7
E	6.2	8.2	2.3	7.1	0.5	5.7	4.0	8.2	3.2	7.9
ESE	5.0	7.8	1.6	6.4	0.3	5.4	2.3	7.3	2.3	7.3
SE	5.1	6.3	1.9	6.0	0.6	5.8	2.7	5.8	2.6	6.1
SSE	2.5	7.6	1.7	7.5	0.7	8.2	1.2	6.9	1.5	7.5
S	3.9	8.4	5.1	9.7	5.0	12.0	3.9	9.2	4.5	10.0
SSW	3.4	9.5	6.7	11.2	8.7	13.7	4.8	11.1	5.9	11.9
SW	3.6	8.7	7.2	10.8	7.8	11.7	4.8	9.7	5.9	10.5
WSW	2.6	9.4	5.5	12.1	6.8	13.8	3.5	10.5	4.6	12.0
W	2.8	7.5	4.7	9.8	7.7	10.0	3.7	7.6	4.5	9.8
WNW	2.4	6.9	7.6	9.3	10.8	9.8	5.1	8.0	6.5	9.0
NW	6.2	8.3	15.4	10.6	16.1	10.7	10.7	9.1	12.1	10.0
NNW	4.4	9.0	8.1	11.3	6.7	10.0	4.7	9.4	6.0	10.1
CALM	41.3		23.7		24.2		39.3		32.0	
ALL		4.6		7.4		8.3		5.2		6.4

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	131	278	266	276	271
SPEED:	0.3	3.4	5.0	1.4	2.4
PER. RATIO:	0.06	0.46	0.61	0.28	0.38
PREDOMINANT WINDS					
DIRECTION:	ESE	NW	WNW	NW	NW
SPEED:	7.5	10.5	10.3	8.9	9.8
PERCENTAGE:	16.3	31.1	34.6	20.5	24.6
SECONDARY PREDOMINANT WINDS					
DIRECTION:	NNW	SW	SW	SSW	SW
SPEED:	8.2	11.3	13.1	10.1	11.4
PERCENTAGE:	13.2	19.4	23.3	13.5	16.4

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY

Station Name: PESCADERO
Elevation: 463 Feet

	Degrees	Minutes
North Latitude:	37	12
West Longitude:	122	22

Period of Record: JUN 1943 - SEP 1944

Observations: 11,513

Bias Index: -0.30
Speed Units: MPH

Source Code
Data: 1
Summary: A

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	8.2	10.9	14.2	9.9	8.5	11.8	12.7	10.1	10.6	10.6
NNE	11.8	11.9	0.9	9.0	3.3	9.7	12.9	9.7	6.8	10.4
NE	12.4	9.8	2.3	6.5	0.9	7.1	6.3	7.9	4.7	8.7
ENE	4.9	7.5	1.8	6.0	0.8	5.8	2.2	6.7	2.1	6.8
E	3.2	7.4	0.9	5.5	0.7	4.3	1.2	4.2	1.3	5.8
ESE	3.8	8.1	1.2	6.3	1.2	6.0	1.5	5.5	1.8	6.8
SE	4.7	9.0	2.9	13.4	3.4	8.8	2.5	7.4	3.3	9.3
SSE	16.0	15.4	7.0	12.7	6.2	11.0	11.8	11.0	9.6	12.6
S	5.4	11.6	4.1	10.4	5.4	10.1	5.8	10.0	5.2	10.4
SSW	3.5	9.1	3.4	8.8	3.5	7.9	3.2	7.5	3.4	8.2
SW	1.7	8.7	1.4	6.8	1.7	6.5	1.9	5.5	1.7	6.7
WSW	1.1	11.6	1.0	8.0	1.3	5.3	1.2	5.2	1.2	6.8
W	1.2	9.4	1.8	8.8	1.9	6.7	1.3	4.8	1.6	7.1
WNW	2.7	10.7	8.4	11.1	7.6	9.8	5.2	7.7	6.2	9.8
NW	6.0	18.2	22.0	13.7	16.2	11.5	5.6	10.2	12.7	12.6
NNW	13.5	15.1	26.5	14.1	37.0	13.5	23.7	12.4	27.2	13.5
CALM	0.0		0.0		0.3		0.9		0.5	
ALL		12.1		11.9		11.2		9.8		11.1

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	29	326	329	353	337
SPEED:	2.5	6.8	6.8	3.9	5.0
PER. RATIO:	0.21	0.58	0.60	0.40	0.45
PREDOMINANT WINDS					
DIRECTION:	N	NNW	NNW	N	NNW
SPEED:	12.9	13.0	12.7	11.1	12.7
PERCENTAGE:	33.5	62.7	61.7	49.3	50.5
SECONDARY PREDOMINANT WINDS					
DIRECTION:	SSE	S	S	S	S
SPEED:	13.5	11.1	10.0	10.2	11.1
PERCENTAGE:	26.1	14.5	15.1	20.8	18.2

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY

Station Name: PICO SUB-STATION
Elevation: 98 Feet (40)

	Degrees	Minutes
North Latitude:	34	3
West Longitude:	118	22

Period of Record: AUG 1955 - DEC 1971

Observations: 141,960
24 OBS/DAY

Bias Index: 0.71
Speed Units: MPH

Source Code
Data: 3
Summary: M

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	12.5	3.1	5.8	3.1	1.6	2.1	7.6	2.6	6.8	2.9
NNE	4.5	2.9	2.8	2.9	0.6	2.6	3.0	2.8	2.7	2.9
NE	9.7	2.4	5.6	2.4	1.6	2.5	6.2	2.1	5.7	2.3
ENE	2.4	2.7	1.4	3.0	0.6	3.2	1.7	2.6	1.5	2.8
E	11.1	3.2	8.8	3.6	5.3	3.8	8.7	3.0	8.5	3.4
ESE	2.3	3.9	2.6	4.2	2.3	4.0	2.3	3.7	2.4	3.9
SE	8.7	3.2	8.8	3.5	7.9	3.2	8.6	2.8	8.5	3.2
SSE	1.8	4.1	2.3	5.0	2.9	4.5	2.2	4.0	2.3	4.4
S	9.1	4.4	15.3	5.8	20.6	5.0	12.5	4.4	14.4	5.0
SSW	4.1	5.9	6.6	7.9	8.7	7.4	5.7	6.7	6.3	7.1
SW	11.5	5.5	20.3	7.6	26.8	5.9	17.6	5.4	19.1	6.2
WSW	2.6	5.2	4.0	7.7	5.4	7.0	3.9	6.0	4.0	6.6
W	7.0	4.2	8.6	5.9	11.1	4.7	10.5	4.0	9.3	4.7
WNW	1.4	4.2	1.0	4.2	0.9	3.2	1.3	3.3	1.2	3.7
NW	7.9	4.8	4.8	5.3	3.1	2.3	6.2	3.9	5.5	4.3
NNW	3.3	4.7	1.5	6.1	0.6	2.8	2.0	3.9	1.8	4.6
CALM	0.0		0.0		0.0		0.0		0.0	
ALL		3.9		5.4		5.0		4.0		4.6

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	234	213	210	217	214
SPEED:	0.5	2.7	3.5	1.6	2.1
PER. RATIO:	0.13	0.50	0.70	0.41	0.46
PREDOMINANT WINDS (Alternate Definition)					
DIRECTION:	N	SW	SW	SW	SW
SPEED:	3.3	7.7	6.4	5.8	6.4
PERCENTAGE:	20.3	30.9	40.9	27.2	29.4
SECONDARY PREDOMINANT WINDS (Alternate Definition)					
DIRECTION:	SW	SE	SE	SE	SE
SPEED:	5.5	3.9	3.6	3.2	3.5
PERCENTAGE:	18.2	13.7	13.1	13.1	13.2

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY
Station Name: PITTSBURG
Elevation: 20 Feet (33)
Degrees Minutes
North Latitude: 38 4
West Longitude: 121 54
Period of Record: DEC 1970 - JUL 1979
Observations: 62,709
24 OBS/DAY
Bias Index: 0.22
Speed Units: MPH
Source Code
Data: 5
Summary: N

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	4.0	9.7	2.6	11.5	0.5	9.7	2.7	9.1	2.4	10.0
NNE	3.9	8.7	1.6	8.8	0.1	7.5	2.2	7.8	1.9	8.4
NE	3.4	5.4	1.2	6.7	0.1	7.2	1.6	4.9	1.6	5.5
ENE	4.7	5.4	1.2	6.5	0.1	6.7	2.1	5.0	2.0	5.5
E	14.1	5.4	1.6	6.3	0.2	5.8	5.4	5.8	5.2	5.6
ESE	12.7	6.2	1.5	7.0	0.1	5.8	4.9	5.6	4.7	6.1
SE	9.2	5.8	1.5	6.2	0.1	5.9	3.8	4.3	3.5	5.4
SSE	3.3	4.2	0.9	5.1	0.1	3.0	2.3	4.0	1.6	4.2
S	5.1	4.8	2.0	7.0	0.2	6.5	3.5	4.3	2.6	5.1
SSW	4.0	6.2	2.4	8.9	0.4	12.4	2.7	6.3	2.3	7.2
SW	6.9	6.8	11.2	11.6	9.2	15.2	9.3	9.1	9.2	11.0
WSW	7.8	8.1	23.5	12.2	24.6	14.6	16.1	10.3	18.2	12.2
W	9.4	8.0	27.9	12.3	38.5	14.5	24.0	11.0	25.3	12.5
WNW	4.0	6.8	10.8	11.5	17.4	14.1	10.2	11.3	10.8	12.1
NW	3.5	5.7	7.5	9.9	7.9	12.9	5.7	8.9	6.2	10.1
NNW	3.4	8.2	2.4	9.9	0.6	6.5	3.0	9.1	2.3	8.8
CALM	0.5		0.0		0.0		0.4		0.0	
ALL		6.5		11.1		14.3		8.8		10.3

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	161	265	267	267	265
SPEED:	0.5	8.4	12.9	5.4	6.8
PER. RATIO:	0.07	0.76	0.91	0.61	0.66
PREDOMINANT WINDS					
DIRECTION:	ESE	WSW	W	W	W
SPEED:	5.8	12.1	14.4	10.8	12.3
PERCENTAGE:	36.0	62.6	80.5	50.3	54.3
SECONDARY PREDOMINANT WINDS					
DIRECTION:	WSW	NW	SSW	SSW	SSW
SPEED:	7.7	10.7	14.9	7.5	9.3
PERCENTAGE:	24.1	20.7	9.8	15.5	14.1

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY
Station Name: POINT ARENA
Elevation: 260 Feet
Degrees Minutes
North Latitude: 38 55
West Longitude: 123 43
Period of Record: JAN 1937 - JUL 1941
SEP 1941 - OCT 1942
Observations: 8,251
Bias Index: 0.96
Speed Units: MPH
Source Code
Data: 1
Summary: K

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	19.7	13.5	26.2	15.8	34.5	17.6	33.0	14.8	28.4	15.7
NNE	0.3	10.0	0.8	14.0	1.2	19.1	0.9	13.8	0.8	15.5
NE	11.9	12.3	9.1	9.7	7.1	12.5	14.2	11.8	10.5	11.6
ENE	0.5	8.5	0.3	5.6	****	****	0.1	8.0	0.2	7.4
E	6.5	6.9	2.9	10.4	0.6	5.1	4.4	6.9	3.5	7.6
ESE	0.3	16.2	0.1	9.3	****	****	****	****	0.1	13.9
SE	30.8	17.3	15.9	14.0	10.6	9.9	18.8	12.8	18.8	14.4
SSE	1.4	13.4	0.4	7.0	0.3	11.4	0.5	9.9	0.7	11.4
S	8.4	10.2	6.7	8.2	9.2	6.6	8.2	6.4	8.1	7.8
SSW	0.4	13.9	0.1	15.0	0.0	4.0	0.0	5.0	0.2	12.7
SW	3.9	13.0	3.5	9.0	1.4	4.2	1.9	6.5	2.7	9.3
WSW	0.1	2.0	0.2	12.0	0.0	5.0	****	****	0.1	9.2
W	2.0	8.6	1.7	8.8	2.1	5.1	2.0	5.7	1.9	7.0
WNW	0.1	13.0	0.2	6.0	0.1	2.0	0.1	7.0	0.1	6.1
NW	12.5	17.0	28.4	19.3	28.0	19.0	13.5	15.5	20.8	18.2
NNW	0.7	16.2	2.6	18.7	3.2	20.8	1.3	19.1	2.0	19.4
CALM	0.4		0.8		1.6		1.0		1.0	
ALL		14.1		14.7		15.1		12.6		14.1

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	88	344	345	15	360
SPEED:	3.3	7.1	10.2	5.7	5.7
PER. RATIO:	0.24	0.48	0.68	0.46	0.40
PREDOMINANT WINDS (Alternate Definition)					
DIRECTION:	SE	NW	N	N	N
SPEED:	17.1	19.2	17.9	14.9	15.9
PERCENTAGE:	32.5	31.2	38.9	35.2	31.2
SECONDARY PREDOMINANT WINDS (Alternate Definition)					
DIRECTION:	N	SE	SE	SE	SE
SPEED:	13.5	13.8	9.9	12.7	14.3
PERCENTAGE:	20.7	16.4	10.9	19.3	19.6

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY

Station Name: POINT ARGUELLO
Elevation: 367 Feet

	Degrees	Minutes
North Latitude:	34	40
West Longitude:	120	35

Period of Record: JUL 1959 - JUN 1964

Observations: 43,832

Bias Index: 0.23
Speed Units: MPH

Source Code
Data: 1
Summary: A

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	3.4	7.6	2.5	5.9	3.0	4.3	4.2	6.5	3.3	6.2
NNE	1.7	7.8	0.7	5.5	0.8	3.5	1.4	6.6	1.1	6.3
NE	1.5	4.7	0.5	4.1	0.6	3.2	1.4	3.9	1.0	4.1
ENE	1.4	4.6	0.6	3.9	0.5	3.0	0.8	3.8	0.8	4.0
E	12.4	6.2	4.1	5.4	1.3	4.2	8.1	5.6	6.4	5.8
ESE	20.5	6.9	4.6	5.8	1.0	3.9	9.4	6.1	8.8	6.5
SE	4.8	8.1	1.8	8.2	0.5	3.5	3.7	6.6	2.7	7.4
SSE	1.6	12.6	0.6	12.6	0.1	5.1	1.1	10.9	0.9	11.8
S	1.1	10.9	0.7	10.9	0.2	8.0	1.0	9.4	0.8	10.2
SSW	1.1	10.5	0.6	10.5	0.1	4.8	0.4	8.6	0.6	9.8
SW	1.3	8.4	1.1	9.2	0.4	5.1	1.2	7.1	1.0	7.9
WSW	1.8	7.0	1.4	8.4	1.9	7.6	1.7	8.0	1.7	7.7
W	5.9	7.4	7.1	8.4	10.9	8.7	8.1	8.3	8.0	8.3
WNW	7.7	8.9	17.3	10.2	22.7	9.2	12.3	8.8	15.0	9.4
NW	15.9	11.4	37.3	13.1	32.0	8.8	21.4	10.0	26.7	11.0
NNW	7.9	10.8	10.9	10.8	10.7	6.8	9.0	8.8	9.7	9.2
CALM	9.9		8.1		13.2		14.7		11.4	
ALL		7.6		9.7		7.1		6.9		7.8

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	347	311	304	314	312
SPEED:	1.5	7.5	6.2	3.3	4.6
PER. RATIO:	0.20	0.77	0.88	0.48	0.59
PREDOMINANT WINDS					
DIRECTION:	ESE	NW	WNW	NW	NW
SPEED:	6.8	12.0	8.9	9.4	10.2
PERCENTAGE:	37.7	65.5	65.6	42.7	51.4
SECONDARY PREDOMINANT WINDS					
DIRECTION:	NW	ESE	N	ESE	ESE
SPEED:	10.6	6.1	6.1	6.0	6.4
PERCENTAGE:	31.5	10.5	14.5	21.2	17.9

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY

Station Name: POINT MONTARA
Elevation: 64 Feet

	Degrees	Minutes
North Latitude:	37	32
West Longitude:	122	31

Period of Record: FEB 1938 - NOV 1941

Observations: 10,829

Bias Index: 0.79
Speed Units: MPH

Source Code
Data: 1
Summary: K

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	2.0	10.8	1.3	10.3	0.5	8.7	2.7	9.5	1.6	9.9
NNE	0.4	5.4	0.3	15.4	0.0	5.0	0.2	10.7	0.2	10.6
NE	2.6	10.1	0.8	9.8	0.2	3.8	1.4	7.5	1.2	8.9
ENE	1.6	11.2	0.1	10.8	0.0	3.0	0.1	5.8	0.4	10.4
E	9.8	8.5	1.3	6.9	0.3	5.6	2.1	6.2	2.9	7.8
ESE	1.7	7.2	0.5	8.9	0.2	9.6	1.5	6.2	0.9	7.2
SE	11.6	12.4	5.8	10.5	4.3	9.2	8.6	8.1	7.3	10.1
SSE	4.5	17.7	2.8	9.6	3.0	10.2	2.8	10.5	3.2	12.2
S	7.5	14.9	8.9	11.1	13.8	9.5	6.1	7.6	9.2	10.4
SSW	1.3	16.4	1.5	9.4	2.4	8.3	1.5	7.7	1.7	9.7
SW	3.5	13.3	3.4	8.6	7.8	6.1	2.5	5.9	4.4	7.7
WSW	0.7	13.8	0.8	10.7	1.2	6.1	0.7	6.3	0.9	8.6
W	4.7	11.6	7.2	9.8	8.0	8.0	3.7	9.3	6.0	9.4
WNW	1.8	14.5	4.4	11.7	3.1	9.5	3.8	10.6	3.4	11.2
NW	25.4	11.6	39.5	12.1	30.7	9.6	32.0	9.8	32.3	10.8
NNW	1.2	9.8	3.8	12.3	1.8	9.3	3.6	11.0	2.7	11.1
CALM	19.6		17.5		22.6		26.6		21.6	
ALL		9.6		9.3		6.9		6.7		8.0

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	229	297	270	304	288
SPEED:	1.1	4.9	3.1	2.9	2.9
PER. RATIO:	0.11	0.52	0.45	0.43	0.36
PREDOMINANT WINDS (Alternate Definition)					
DIRECTION:	NW	NW	NW	NW	NW
SPEED:	11.7	12.1	9.6	10.0	10.9
PERCENTAGE:	28.4	47.7	35.6	39.4	38.4
SECONDARY PREDOMINANT WINDS (Alternate Definition)					
DIRECTION:	SE	S	S	SE	S
SPEED:	13.2	10.6	9.5	8.4	10.7
PERCENTAGE:	17.8	13.2	19.2	12.9	14.1

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY

Station Name: POINT MUGU NAS
Elevation: 11 Feet

	Degrees	Minutes
North Latitude:	34	7
West Longitude:	119	7

Period of Record: 1962 - 1967
Observations: 106,142
Bias Index: 0.31
Speed Units: MPH
Source Code: Data: 1, Summary: L

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	12.5	4.9	6.7	4.3	3.9	3.4	9.6	4.1	8.2	4.4
NNE	10.5	6.0	5.3	4.4	2.8	3.5	7.3	4.5	6.5	5.0
NE	12.4	9.7	4.4	5.6	3.2	3.5	7.9	6.5	7.0	7.5
ENE	8.7	11.4	2.7	7.3	1.5	3.6	5.1	9.1	4.5	9.5
E	2.1	8.3	1.3	5.7	0.8	3.9	1.5	6.3	1.4	6.6
ESE	1.0	8.6	0.7	7.8	0.7	6.0	1.0	7.9	0.9	7.7
SE	2.4	10.9	2.1	9.2	1.6	7.3	1.9	8.4	2.0	9.2
SSE	2.8	8.5	3.0	8.5	2.5	7.3	2.7	8.2	2.7	8.1
S	4.2	7.6	5.3	7.9	4.3	7.3	4.2	7.0	4.5	7.5
SSW	2.1	6.5	3.3	7.2	3.3	6.9	2.5	6.5	2.8	6.8
SW	1.9	6.7	3.3	7.2	3.7	6.9	2.7	6.0	2.9	6.7
WSW	2.7	6.6	5.7	8.0	6.8	7.3	4.1	6.6	4.8	7.2
W	10.2	8.8	24.9	10.4	26.2	8.3	16.2	8.1	19.3	9.0
WNW	5.0	8.8	8.9	8.9	10.3	6.4	6.5	7.4	7.7	7.8
NW	2.9	5.9	3.7	5.2	5.0	4.2	4.1	4.4	3.9	4.8
NNW	3.9	4.9	3.3	4.3	3.6	3.7	4.6	4.1	3.8	4.2
CALM	14.7		15.3		19.7		18.0		17.1	
ALL		6.7		6.6		5.2		5.3		6.0

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	22	269	265	303	288
SPEED:	2.0	3.4	3.3	1.3	1.8
PER. RATIO:	0.30	0.51	0.64	0.25	0.31
PREDOMINANT WINDS					
DIRECTION:	NNE	W	W	W	W
SPEED:	6.9	9.7	7.7	7.7	8.4
PERCENTAGE:	35.4	39.5	43.3	26.8	31.8
SECONDARY PREDOMINANT WINDS					
DIRECTION:	WNW	NNE	NNW	NNE	NNE
SPEED:	8.3	4.7	3.8	5.0	5.6
PERCENTAGE:	18.1	16.4	12.5	24.8	21.7

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY

Station Name: POINT PIEDRAS BLANCAS
Elevation: 69 Feet

	Degrees	Minutes
North Latitude:	35	40
West Longitude:	121	17

Period of Record: JUN 1938 - NOV 1942
Observations: 6,525
Bias Index: 0.82
Speed Units: MPH
Source Code: Data: 1, Summary: K

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	7.1	6.4	6.1	5.9	5.6	6.1	8.6	4.4	6.9	5.5
NNE	0.6	7.6	0.7	7.7	****	****	0.3	7.7	0.4	7.6
NE	5.3	6.5	2.3	6.2	1.0	3.2	2.8	5.8	2.7	5.9
ENE	1.5	6.3	1.2	5.1	0.1	3.5	0.9	5.9	0.9	5.7
E	7.6	7.0	4.0	5.7	3.2	4.9	3.0	3.2	4.3	5.6
ESE	4.0	11.1	2.1	11.5	0.7	5.8	1.6	6.1	2.0	9.6
SE	17.8	12.2	9.7	9.3	9.4	6.1	10.6	6.5	11.7	8.8
SSE	2.4	15.2	1.2	12.5	1.1	7.9	1.0	7.4	1.4	11.6
S	4.8	9.0	3.5	7.2	3.4	6.2	4.9	5.6	4.1	6.9
SSW	0.8	8.0	0.7	6.2	0.3	5.5	0.4	6.3	0.5	6.7
SW	1.6	7.7	1.3	4.1	1.1	5.4	1.2	4.8	1.3	5.6
WSW	0.6	8.0	0.7	6.1	0.2	6.0	0.3	5.2	0.4	6.5
W	6.2	8.1	4.4	7.3	5.3	6.9	4.8	5.2	5.2	6.9
WNW	2.2	13.1	2.7	14.3	4.4	12.9	2.0	10.9	2.9	12.8
NW	29.1	13.8	47.9	15.1	56.6	14.2	47.1	13.2	45.9	14.0
NNW	3.7	11.4	9.7	15.8	5.3	13.9	7.1	11.0	6.4	13.4
CALM	4.6		1.7		2.2		3.3		2.9	
ALL		10.1		12.0		11.2		9.4		10.7

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	328	319	315	318	318
SPEED:	1.5	7.9	8.8	6.5	6.3
PER. RATIO:	0.15	0.66	0.78	0.69	0.59
PREDOMINANT WINDS (Alternate Definition)					
DIRECTION:	NW	NW	NW	NW	NW
SPEED:	12.8	15.2	14.1	12.8	13.9
PERCENTAGE:	35.0	60.3	66.3	56.2	55.2
SECONDARY PREDOMINANT WINDS (Alternate Definition)					
DIRECTION:	SE	SE	SE	SE	SE
SPEED:	12.3	10.0	6.3	6.5	9.2
PERCENTAGE:	24.2	13.0	11.2	13.2	15.1

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY
Station Name: POINT REYES
Elevation: 260 Feet

	Degrees	Minutes
North Latitude:	38	0
West Longitude:	123	0

Period of Record: FEB 1938 - DEC 1942
Observations: 12,466
Bias Index: 0.74
Speed Units: MPH
Source Code — Data: 1 — Summary: K

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	4.8	7.7	4.7	8.9	4.3	9.3	5.9	7.2	4.9	8.2
NNE	0.6	5.1	0.4	9.0	0.2	5.0	0.4	6.2	0.4	6.4
NE	2.1	7.6	0.7	7.5	0.1	5.3	1.2	5.4	1.0	6.8
ENE	0.5	8.9	0.3	9.9	****	****	0.1	9.5	0.2	9.0
E	11.7	8.5	1.5	8.0	0.3	6.2	2.8	8.8	3.7	8.5
ESE	1.8	7.5	0.9	10.1	0.3	8.9	1.3	7.8	1.0	8.3
SE	13.8	12.7	7.0	10.8	5.5	8.1	7.9	8.4	8.3	10.4
SSE	3.3	15.7	2.3	11.9	2.7	8.8	2.2	9.7	2.6	11.6
S	5.1	13.0	3.7	9.4	4.0	6.5	2.0	7.3	3.7	9.3
SSW	1.0	16.1	1.1	10.4	1.0	5.5	0.6	7.8	0.9	10.0
SW	5.1	9.1	4.4	7.8	4.9	5.3	2.8	6.9	4.3	7.2
WSW	0.2	8.4	1.0	9.4	1.2	5.1	0.5	5.3	0.7	6.8
W	3.3	10.3	6.4	7.3	7.1	5.9	4.6	6.3	5.4	7.0
WNW	1.2	10.5	4.2	9.0	4.1	8.4	3.7	9.1	3.4	9.0
NW	22.1	10.8	39.5	11.7	42.3	9.7	29.1	9.4	33.8	10.4
NNW	3.8	10.9	8.6	13.2	9.0	10.9	8.6	9.5	7.7	11.2
CALM	19.5		13.2		12.9		26.2		10.0	
ALL		8.6		9.3		7.6		6.3		7.9

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	176	311	311	318	312
SPEED:	0.3	5.2	5.1	3.1	3.4
PER. RATIO:	0.04	0.56	0.66	0.48	0.43
PREDOMINANT WINDS (Alternate Definition)					
DIRECTION:	NW	NW	NW	NW	NW
SPEED:	10.8	11.7	9.8	9.4	10.4
PERCENTAGE:	27.1	52.3	55.4	41.4	44.9
SECONDARY PREDOMINANT WINDS (Alternate Definition)					
DIRECTION:	SE	SE	SE	SE	SE
SPEED:	12.7	11.0	8.4	8.6	10.5
PERCENTAGE:	18.9	10.2	8.5	11.4	11.9

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY
Station Name: PORT HUENEME
Elevation: 16 Feet

	Degrees	Minutes
North Latitude:	34	9
West Longitude:	119	12

Period of Record: AUG 1938 - DEC 1941
Observations: 7,120
Bias Index: 0.48
Speed Units: MPH
Source Code — Data: 1 — Summary: K

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	10.5	5.1	4.1	3.5	2.9	3.3	9.3	4.7	6.9	4.5
NNE	6.1	3.3	2.5	2.8	0.6	2.4	2.7	3.3	2.9	3.1
NE	18.7	5.7	9.3	4.2	3.3	3.1	11.3	5.9	10.7	5.3
ENE	7.7	8.8	4.3	6.3	1.1	2.7	3.6	10.2	4.1	8.2
E	5.3	7.5	2.2	6.1	1.7	3.1	2.3	10.2	2.8	7.3
ESE	2.3	10.4	1.3	8.5	0.5	3.4	0.5	8.5	1.1	8.9
SE	4.1	10.1	3.4	8.6	2.3	5.5	2.2	9.6	2.9	8.8
SSE	1.7	9.6	1.3	8.2	1.0	4.8	1.1	5.8	1.3	7.4
S	3.3	8.6	4.3	7.8	3.5	5.4	3.4	6.9	3.6	7.2
SSW	2.4	6.1	3.6	6.8	2.5	6.5	2.2	7.2	2.7	6.7
SW	3.3	6.9	8.3	8.1	6.1	6.3	4.6	7.2	5.5	7.2
WSW	3.0	8.8	6.1	9.3	6.4	8.4	4.5	9.1	5.0	8.9
W	10.1	11.9	20.4	12.1	25.7	10.2	18.7	11.3	18.8	11.2
WNW	6.8	12.9	12.6	9.7	10.7	9.4	10.6	11.1	12.1	10.4
NW	6.1	8.2	9.4	6.8	12.4	6.3	8.8	8.2	9.2	7.3
NNW	3.0	5.7	1.3	5.7	2.1	4.4	2.6	5.0	2.3	5.2
CALM	5.5		5.5		9.1		11.5		8.0	
ALL		7.4		7.7		7.0		7.4		7.4

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	341	270	276	291	284
SPEED:	1.4	4.1	5.4	3.4	3.4
PER. RATIO:	0.20	0.53	0.77	0.45	0.46
PREDOMINANT WINDS					
DIRECTION:	NNE	WNW	WNW	WNW	WNW
SPEED:	5.1	10.2	9.1	10.5	10.1
PERCENTAGE:	35.3	42.4	56.8	38.1	40.1
SECONDARY PREDOMINANT WINDS					
DIRECTION:	WNW	SW	SW	NNE	NNE
SPEED:	11.2	8.2	7.2	5.1	4.7
PERCENTAGE:	23.8	18.0	15.0	23.3	20.5

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY

Station Name: POTRERO HILL
Elevation: 414 Feet (39)
Degrees Minutes
North Latitude: 38 12
West Longitude: 121 58

Period of Record: 1935 - 1938
Observations: 34,938 *NO WIND SPEEDS*

Bias Index: 0.58
Speed Units: MPH
Source Code
Data: 1
Summary: J

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	13.3	****	7.3	****	0.2	****	8.9	****	7.4	****
NNE	6.7	****	2.2	****	0.1	****	4.2	****	3.3	****
NE	14.8	****	2.3	****	0.0	****	7.5	****	6.1	****
ENE	2.0	****	0.3	****	0.0	****	0.7	****	0.8	****
E	3.9	****	0.5	****	0.0	****	1.5	****	1.5	****
ESE	1.1	****	0.2	****	****	****	0.3	****	0.4	****
SE	6.9	****	1.6	****	0.0	****	1.7	****	2.5	****
SSE	3.1	****	1.2	****	0.2	****	0.8	****	1.3	****
S	7.2	****	2.5	****	0.4	****	3.1	****	3.3	****
SSW	4.3	****	3.2	****	2.7	****	2.8	****	3.2	****
SW	12.3	****	26.2	****	41.2	****	24.3	****	26.1	****
WSW	3.3	****	16.6	****	29.0	****	12.7	****	15.5	****
W	4.2	****	20.1	****	23.3	****	19.1	****	16.7	****
WNW	1.7	****	3.7	****	0.9	****	2.3	****	2.2	****
NW	4.1	****	5.3	****	0.6	****	3.4	****	3.3	****
NNW	1.1	****	2.4	****	0.4	****	1.2	****	1.3	****
CALM	9.9		4.3		0.9		5.4		5.0	
ALL		****		****		****		****		****

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	***	***	***	***	***
SPEED:	****	****	****	****	****
PER. RATIO:	****	****	****	****	****
PREDOMINANT WINDS (Alternate Definition)					
DIRECTION:	NE	SW	SW	SW	SW
SPEED:	****	****	****	****	****
PERCENTAGE:	23.5	46.0	72.9	39.8	44.8
SECONDARY PREDOMINANT WINDS (Alternate Definition)					
DIRECTION:	SW	N	NW	N	N
SPEED:	****	****	****	****	****
PERCENTAGE:	19.9	11.9	1.9	14.3	12.0

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY

Station Name: RANCHO SECO
Elevation: 171 Feet (33)
Degrees Minutes
North Latitude: 38 20
West Longitude: 121 7

Period of Record: 1975 - 1979
Observations: 42,808
24 OBS/DAY

Bias Index: 0.05
Speed Units: MPH
Source Code
Data: 9
Summary: L

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	5.3	6.3	2.9	6.5	1.9	4.3	3.5	4.9	3.4	5.7
NNE	3.5	4.0	2.2	4.5	1.7	3.9	3.5	3.9	2.7	4.0
NE	4.5	3.9	2.7	4.3	1.4	4.0	4.0	4.0	3.1	4.0
ENE	6.3	4.4	2.7	4.9	1.2	3.9	5.1	4.7	3.8	4.5
E	7.8	6.7	3.8	6.1	1.6	4.6	6.1	5.5	4.8	6.0
ESE	10.6	8.4	6.4	8.1	3.1	5.2	7.2	6.5	6.8	7.5
SE	11.1	8.6	8.8	7.5	3.8	5.3	7.3	6.7	7.8	7.4
SSE	12.6	11.5	9.3	9.2	6.1	5.5	6.8	6.7	8.7	8.9
S	7.5	6.4	8.6	7.1	7.4	5.9	6.1	5.4	7.4	6.3
SSW	4.8	4.9	8.7	6.9	10.3	6.5	6.3	5.2	7.6	6.1
SW	3.4	5.1	8.6	7.4	16.3	7.5	8.0	5.5	9.1	6.8
WSW	3.4	5.6	8.2	8.7	14.5	8.1	7.7	5.9	8.5	7.5
W	3.1	5.0	8.6	8.4	19.5	8.9	10.2	6.8	10.4	8.0
WNW	4.0	6.5	5.3	8.3	4.8	7.4	7.4	7.1	5.4	7.4
NW	5.6	6.6	6.0	9.4	3.6	7.7	5.5	6.2	5.2	7.5
NNW	6.0	8.3	6.5	12.2	2.8	7.2	5.2	7.6	5.1	9.2
CALM	0.4		0.6		0.0		0.0		0.0	
ALL		7.1		7.9		7.1		6.0		7.0

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	134	221	241	225	215
SPEED:	2.5	2.2	4.5	1.1	1.9
PER. RATIO:	0.35	0.27	0.63	0.18	0.27
PREDOMINANT WINDS					
DIRECTION:	SE	SSE	WSW	WSW	WSW
SPEED:	9.6	8.0	8.2	6.1	7.5
PERCENTAGE:	34.3	26.7	50.3	25.9	28.0
SECONDARY PREDOMINANT WINDS					
DIRECTION:	ENE	SW	S	SE	SSE
SPEED:	5.2	7.6	6.1	6.6	7.6
PERCENTAGE:	18.6	25.5	23.8	21.3	23.9

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY

Station Name: RED BLUFF
Elevation: 344 Feet (20)
Degrees Minutes
North Latitude: 40 9
West Longitude: 122 15

Period of Record: 1965 - 1978
Observations: 40,904

Bias Index: 0.26
Speed Units: MPH
Source Code
Data: 1
Summary: L

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	21.6	9.6	19.6	11.3	13.3	9.5	19.8	9.9	18.6	10.1
NNE	3.4	7.5	3.8	8.6	3.1	7.2	3.4	7.8	3.4	7.8
NE	1.4	5.1	1.5	6.4	1.8	5.9	1.7	5.3	1.6	5.7
ENE	0.9	4.8	1.1	6.1	1.5	5.5	1.7	5.0	1.3	5.4
E	1.2	4.9	1.1	5.6	1.8	5.4	1.2	4.7	1.3	5.2
ESE	1.4	5.1	1.3	5.9	2.8	6.1	1.8	5.3	1.8	5.7
SE	2.6	7.2	3.2	8.3	6.0	7.3	3.4	7.5	3.8	7.6
SSE	10.4	14.9	11.8	12.3	15.5	9.6	9.1	11.8	11.7	11.9
S	13.6	12.4	16.4	11.5	22.3	10.0	13.1	10.4	16.4	10.9
SSW	2.7	8.2	3.3	8.1	3.4	8.1	2.6	7.3	3.0	8.0
SW	1.8	6.7	2.1	7.0	1.9	6.8	1.4	6.2	1.8	6.7
WSW	1.3	5.6	1.3	6.0	1.2	5.4	1.2	5.6	1.3	5.7
W	1.9	5.9	1.7	6.3	1.5	5.9	1.7	5.5	1.7	5.9
WNW	4.1	6.5	4.3	7.3	3.2	6.1	4.6	6.0	4.0	6.5
NW	9.7	6.7	9.7	8.6	6.6	7.5	10.9	6.8	9.2	7.4
NNW	16.0	8.1	14.5	9.8	9.1	8.6	16.0	8.2	13.9	8.7
CALM	6.0		3.2		4.9		6.3		5.1	
ALL		8.8		9.6		8.1		8.0		8.6

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	317	320	173	336	304
SPEED:	0.8	1.1	1.6	1.4	0.5
PER. RATIO:	0.09	0.11	0.20	0.18	0.05
PREDOMINANT WINDS					
DIRECTION:	NNW	NNW	SSE	NNW	NNW
SPEED:	8.5	10.2	9.5	8.6	9.0
PERCENTAGE:	47.3	43.8	43.8	46.7	41.7
SECONDARY PREDOMINANT WINDS					
DIRECTION:	S	S	NNW	SSE	SSE
SPEED:	12.9	11.4	8.8	10.5	10.9
PERCENTAGE:	26.7	31.5	29.0	25.6	31.9

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY

Station Name: REDDING
Elevation: 722 Feet
Degrees Minutes
North Latitude: 40 35
West Longitude: 122 24

Period of Record: 1929 - 1938
Observations: 79,033
NO WIND SPEEDS

Bias Index: 0.00
Speed Units: MPH
Source Code
Data: 1
Summary: I

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	12.7	****	11.9	****	9.6	****	15.3	****	12.4	****
NNE	1.5	****	2.2	****	1.6	****	1.8	****	1.8	****
NE	2.1	****	3.6	****	2.7	****	2.9	****	2.8	****
ENE	0.2	****	0.4	****	0.5	****	0.3	****	0.4	****
E	1.4	****	1.9	****	2.5	****	1.6	****	1.8	****
ESE	0.4	****	0.7	****	1.4	****	0.7	****	0.8	****
SE	5.0	****	8.6	****	15.2	****	7.0	****	9.0	****
SSE	1.8	****	3.1	****	3.0	****	1.5	****	2.4	****
S	7.2	****	10.5	****	9.0	****	6.4	****	8.3	****
SSW	1.7	****	1.9	****	1.3	****	0.9	****	1.4	****
SW	4.5	****	5.7	****	4.0	****	3.6	****	4.4	****
WSW	0.2	****	0.7	****	0.4	****	0.3	****	0.4	****
W	2.1	****	3.0	****	2.8	****	2.0	****	2.5	****
WNW	1.3	****	3.0	****	2.8	****	1.6	****	2.2	****
NW	34.7	****	26.9	****	29.0	****	35.8	****	31.6	****
NNW	5.8	****	5.1	****	5.2	****	6.3	****	5.6	****
CALM	17.3		10.7		9.0		11.9		12.1	
ALL		****		****		****		****		****

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	***	***	***	***	***
SPEED:	****	****	****	****	****
PER. RATIO:	****	****	****	****	****
PREDOMINANT WINDS (Alternate Definition)					
DIRECTION:	NW	NW	NW	NW	NW
SPEED:	****	****	****	****	****
PERCENTAGE:	41.8	35.0	37.0	43.7	39.4
SECONDARY PREDOMINANT WINDS (Alternate Definition)					
DIRECTION:	S	S	SE	SE	SE
SPEED:	****	****	****	****	****
PERCENTAGE:	10.7	15.5	19.6	9.2	12.2

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY
Station Name: REDWOOD CITY
Elevation: 13 Feet

	Degrees	Minutes
North Latitude:	37	29
West Longitude:	122	12

Period of Record:
FEB 1970 - MAR 1974
MAY 1976 - DEC 1976
APR 1979 - MAR 1980
Observations: 58,494
24 OBS/DAY

Bias Index: 1.00
Speed Units: MPH
Source Code
Data: 4
Summary: L

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	10.0	2.9	9.4	5.6	18.4	6.4	11.1	4.7	12.3	5.2
NNE	****	****	****	****	****	****	****	****	****	****
NE	4.6	2.9	2.9	4.1	4.2	4.0	4.4	3.4	4.0	3.6
ENE	****	****	****	****	****	****	****	****	****	****
E	7.2	3.6	3.0	3.5	3.2	2.7	4.8	2.9	4.5	3.3
ESE	****	****	****	****	****	****	****	****	****	****
SE	17.6	3.7	10.2	3.2	7.4	2.6	16.5	3.1	12.8	3.2
SSE	****	****	****	****	****	****	****	****	****	****
S	23.2	3.1	16.2	3.5	10.1	3.0	19.8	2.7	17.1	3.1
SSW	****	****	****	****	****	****	****	****	****	****
SW	13.5	2.8	13.9	4.7	13.1	4.3	13.9	2.7	13.6	3.6
WSW	****	****	****	****	****	****	****	****	****	****
W	10.7	5.6	26.5	8.2	18.4	7.3	13.8	5.6	17.5	7.1
WNW	****	****	****	****	****	****	****	****	****	****
NW	13.3	4.2	17.9	6.3	25.3	6.3	15.7	5.1	18.2	5.7
NNW	****	****	****	****	****	****	****	****	****	****
CALM	0.0		0.0		0.0		0.0		0.0	
ALL		3.6		5.6		5.4		3.8		4.6

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	213	273	302	272	280
SPEED:	0.8	3.0	3.0	1.0	1.8
PER. RATIO:	0.22	0.54	0.55	0.27	0.39
PREDOMINANT WINDS (Alternate Definition)					
DIRECTION:	S	W	NW	S	NW
SPEED:	3.1	8.2	6.3	2.7	5.7
PERCENTAGE:	23.2	26.5	25.3	19.8	18.2
SECONDARY PREDOMINANT WINDS (Alternate Definition)					
DIRECTION:	NW	S	SW	NW	S
SPEED:	4.2	3.5	4.3	5.1	3.1
PERCENTAGE:	13.3	16.2	13.1	15.7	17.1

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY
Station Name: RENO
Elevation: 4402 Feet (20)

	Degrees	Minutes
North Latitude:	39	30
West Longitude:	119	47

Period of Record:
1960 - 1978
Observations: 84,753

Bias Index: 0.17
Speed Units: MPH
Source Code
Data: 1
Summary: L

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	5.6	7.0	7.4	8.7	4.9	6.6	5.5	6.6	5.9	7.4
NNE	3.7	6.1	4.6	7.3	4.2	5.7	4.1	6.1	4.1	6.3
NE	4.5	5.5	4.6	6.6	4.9	5.5	5.3	5.7	4.8	5.8
ENE	4.1	5.1	3.7	6.0	3.9	5.2	4.1	5.5	3.9	5.4
E	4.4	5.5	3.9	6.0	4.1	5.1	5.0	6.0	4.3	5.6
ESE	4.1	4.8	3.4	5.4	3.4	4.9	3.9	5.1	3.7	5.0
SE	4.6	5.4	3.2	5.0	3.5	4.6	4.2	4.9	3.9	5.2
SSE	4.2	7.1	4.0	7.8	3.6	4.8	3.9	6.9	3.9	6.7
S	9.7	8.4	9.4	9.0	8.5	5.8	9.4	7.4	9.2	7.7
SSW	5.9	7.3	5.7	8.9	5.7	6.3	5.6	7.2	5.7	7.4
SW	6.2	5.9	5.5	7.7	6.1	6.4	6.4	5.8	6.1	6.4
WSW	4.0	6.6	4.7	8.7	4.5	7.9	4.1	6.0	4.3	7.3
W	4.8	8.6	8.0	11.5	8.5	11.5	5.5	8.8	6.7	10.4
WNW	5.0	9.0	10.5	12.0	11.8	12.6	6.1	9.8	8.4	11.4
NW	3.5	7.0	5.6	9.7	4.6	9.6	3.5	7.5	4.3	8.7
NNW	3.2	7.3	4.4	9.0	2.8	7.8	2.8	6.8	3.3	7.9
CALM	22.4		11.3		14.9		20.5		17.4	
ALL		5.3		7.7		6.5		5.4		6.2

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	221	276	277	240	265
SPEED:	0.9	2.3	2.5	0.8	1.5
PER. RATIO:	0.17	0.30	0.38	0.15	0.25
PREDOMINANT WINDS					
DIRECTION:	SSW	WNW	WNW	SSW	SSW
SPEED:	7.4	11.3	11.7	6.9	7.2
PERCENTAGE:	21.8	24.1	24.9	21.4	21.8
SECONDARY PREDOMINANT WINDS					
DIRECTION:	NNE	SSW	SSW	W	W
SPEED:	6.3	8.6	6.1	8.5	10.1
PERCENTAGE:	13.8	20.6	20.3	15.7	19.4

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY

Station Name: RESEDA
Elevation: 741 Feet (35)

	Degrees	Minutes
North Latitude:	34	12
West Longitude:	118	32

Period of Record: MAY 1965 - DEC 1974
Observations: 95,492
24 OBS/DAY

Bias Index: 0.25
Speed Units: MPH
Source Code
Data: 3
Summary: M

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	19.6	8.4	9.1	6.4	2.2	2.0	10.5	6.0	10.3	7.0
NNE	5.0	7.1	2.5	4.8	1.4	1.6	2.7	3.3	2.9	5.0
NE	2.5	3.2	2.3	3.2	3.8	2.5	3.4	2.4	3.0	2.7
ENE	3.9	2.4	5.7	2.6	12.0	2.7	7.0	2.4	7.2	2.5
E	5.6	2.2	12.0	2.6	25.2	2.6	13.2	2.1	14.1	2.4
ESE	4.3	2.3	6.4	2.3	11.3	2.0	5.3	1.9	6.8	2.1
SE	3.1	2.3	4.7	2.4	7.0	1.9	4.0	1.8	4.7	2.1
SSE	2.9	2.4	4.4	2.3	4.9	1.6	3.2	1.7	3.9	2.0
S	5.6	2.6	8.5	2.9	7.7	2.0	7.4	2.0	7.3	2.4
SSW	5.7	2.3	5.8	3.2	3.8	2.3	5.7	2.2	5.3	2.5
SW	5.3	2.3	5.6	3.2	3.3	2.3	5.7	2.0	5.0	2.4
WSW	7.6	2.4	8.9	3.6	4.7	2.6	7.9	2.4	7.3	2.8
W	11.7	1.8	10.7	2.8	5.4	2.5	9.7	1.9	9.4	2.2
WNW	6.3	2.0	6.0	3.8	3.7	3.8	6.4	2.5	5.6	2.9
NW	4.6	2.0	3.5	3.1	2.2	3.8	4.1	2.0	3.6	2.6
NNW	6.2	4.7	3.9	5.3	1.4	2.7	3.8	3.1	3.8	4.2
CALM	0.0		0.0		0.0		0.0		0.0	
ALL		3.9		3.4		2.4		2.6		3.0

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	352	306	103	355	5
SPEED:	1.9	0.4	0.8	0.5	0.6
PER. RATIO:	0.49	0.13	0.35	0.19	0.20
PREDOMINANT WINDS					
DIRECTION:	N	W	E	E	E
SPEED:	7.4	3.3	2.5	2.1	2.4
PERCENTAGE:	30.8	25.6	48.5	25.5	28.1
SECONDARY PREDOMINANT WINDS					
DIRECTION:	W	E	SSE	W	W
SPEED:	2.0	2.5	1.9	2.2	2.6
PERCENTAGE:	25.6	24.1	19.6	24.0	22.3

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY

Station Name: RICE AAF
Elevation: 881 Feet

	Degrees	Minutes
North Latitude:	34	4
West Longitude:	114	50

Period of Record: JUN 1943 - MAR 1944
Observations: 5,270

Bias Index: 0.65
Speed Units: MPH
Source Code
Data: 1
Summary: A

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	3.0	9.7	5.3	8.0	0.8	6.1	4.2	8.4	2.7	8.7
NNE	1.6	11.2	****	****	0.4	6.1	1.2	8.7	1.1	9.6
NE	8.8	7.4	5.3	4.0	3.9	8.1	9.5	9.0	7.3	8.2
ENE	2.0	6.0	5.3	5.0	2.0	7.3	2.1	9.1	2.0	7.5
E	5.9	5.9	****	****	3.1	6.4	10.3	5.9	6.4	6.0
ESE	2.6	6.4	5.3	6.0	1.7	9.0	2.3	9.4	2.2	8.1
SE	6.4	7.4	42.1	5.4	10.6	8.7	8.0	6.6	8.5	7.7
SSE	2.2	11.1	15.8	8.0	9.0	12.4	2.7	9.2	4.7	11.6
S	6.4	8.1	****	****	12.8	10.5	7.2	7.6	8.8	9.1
SSW	1.7	9.1	****	****	9.1	11.1	2.8	7.9	4.6	10.2
SW	5.5	7.4	****	****	17.2	10.5	7.5	7.2	10.1	9.1
WSW	2.2	6.8	5.3	4.0	3.8	10.3	2.3	8.1	2.8	8.8
W	13.8	7.5	5.3	3.0	5.2	7.1	12.1	7.4	10.3	7.4
WNW	10.4	9.0	****	****	5.5	11.7	5.8	9.3	7.2	9.8
NW	25.0	10.1	10.5	7.5	13.2	13.1	20.7	10.0	19.5	10.8
NNW	2.4	13.0	****	****	0.9	9.1	1.2	9.4	1.5	11.2
CALM	0.0		0.0		0.8		0.0		0.0	
ALL		8.5		5.9		10.3		8.2		9.0

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	303	133	215	305	262
SPEED:	3.3	2.5	4.3	1.8	2.2
PER. RATIO:	0.38	0.43	0.42	0.22	0.25
PREDOMINANT WINDS (Alternate Definition)					
DIRECTION:	NW	SE	S	NW	NW
SPEED:	10.0	6.1	11.2	9.8	10.6
PERCENTAGE:	37.8	63.2	30.9	27.7	28.2
SECONDARY PREDOMINANT WINDS (Alternate Definition)					
DIRECTION:	NE	NE	NW	E	S
SPEED:	7.7	4.5	12.5	6.9	10.0
PERCENTAGE:	12.4	10.6	19.6	14.7	18.1

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY

Station Name: RIVERSIDE
Elevation: 817 Feet

	Degrees	Minutes
North Latitude:	33	57
West Longitude:	117	24

Period of Record: JUL 1981 - JUN 1982
Observations: 6,641
24 OBS/DAY

Bias Index: 0.29
Speed Units: MPH

Source Code
Data: 2
Summary: L

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	8.9	5.6	2.9	3.8	1.7	5.9	4.5	5.1	4.1	5.2
NNE	7.6	3.9	3.1	2.1	1.5	3.2	3.6	4.1	3.5	3.5
NE	11.0	2.2	2.7	1.8	1.2	2.5	5.2	2.1	4.4	2.1
ENE	7.9	1.7	2.9	1.8	1.0	1.4	4.2	1.7	3.5	1.7
E	8.7	1.3	2.9	2.1	2.1	1.2	4.9	1.6	4.2	1.5
ESE	7.1	1.6	4.0	2.0	2.0	1.6	4.8	1.8	4.1	1.8
SE	7.1	1.5	4.8	2.0	4.2	1.7	5.7	1.8	5.3	1.8
SSE	4.6	1.5	4.7	2.0	6.0	2.0	5.7	2.0	5.4	1.9
S	3.7	2.3	4.2	2.1	5.8	2.1	5.8	1.8	5.1	2.0
SSW	3.5	2.7	2.6	3.0	3.0	2.1	3.5	2.1	3.1	2.4
SW	3.6	3.4	5.4	4.3	4.2	2.8	5.3	3.0	4.7	3.3
WSW	7.0	3.2	12.9	5.3	12.7	4.5	13.0	4.6	11.8	4.6
W	11.1	3.8	29.5	5.9	39.2	6.4	22.3	5.4	27.5	5.9
WNW	3.6	2.6	9.6	3.9	10.9	4.5	6.0	3.4	8.0	4.0
NW	2.8	2.0	4.2	2.8	2.8	2.7	3.2	2.0	3.2	2.4
NNW	2.0	3.4	3.4	2.5	1.6	4.5	2.3	3.3	2.2	3.3
CALM	0.0		0.0		0.0		0.0		0.0	
ALL		2.7		4.0		4.5		3.4		3.8

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	344	265	267	268	269
SPEED:	0.6	2.7	3.5	1.7	2.2
PER. RATIO:	0.23	0.67	0.78	0.49	0.59
PREDOMINANT WINDS					
DIRECTION:	ENE	W	W	W	W
SPEED:	1.8	5.4	5.7	4.9	5.3
PERCENTAGE:	27.6	52.0	62.8	41.3	47.3
SECONDARY PREDOMINANT WINDS					
DIRECTION:	WSW	SSE	SSE	SSE	SSE
SPEED:	3.5	2.0	2.0	1.9	1.9
PERCENTAGE:	21.7	13.7	16.0	17.2	15.8

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY

Station Name: RODMAN MOUNTAIN
Elevation: 5879 Feet (33)

	Degrees	Minutes
North Latitude:	34	40
West Longitude:	116	37

Period of Record: JAN 1980 - DEC 1980
Observations: 6,636
24 OBS/DAY

Bias Index:-0.25
Speed Units: MPH

Source Code
Data: 7
Summary: O

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	10.0	20.1	7.4	20.4	2.0	8.9	16.3	17.4	8.8	18.0
NNE	7.7	14.8	2.9	13.0	1.7	9.2	8.3	14.1	4.8	13.5
NE	6.6	10.5	1.5	9.8	0.6	5.4	5.6	10.7	3.1	10.2
ENE	4.3	9.4	2.9	10.3	1.5	7.4	3.3	8.7	2.8	9.1
E	2.8	6.9	2.2	7.4	1.9	7.2	2.4	6.9	2.2	7.1
ESE	2.0	5.6	2.3	9.2	3.7	7.4	3.5	8.5	3.0	8.0
SE	5.4	9.4	2.6	10.5	4.3	8.9	6.8	11.2	4.7	10.2
SSE	13.4	21.5	11.3	15.0	12.8	11.9	9.9	11.4	11.6	14.2
S	3.3	12.1	4.1	14.1	3.4	8.5	4.9	8.1	4.0	10.4
SSW	2.4	10.5	2.6	8.7	5.3	8.3	2.1	8.1	3.2	8.6
SW	9.9	27.7	4.2	19.5	6.1	12.3	4.4	13.0	5.6	17.8
WSW	9.5	23.3	16.9	23.0	26.4	16.1	7.7	16.6	16.0	18.8
W	8.0	16.1	11.5	22.1	12.9	16.6	8.2	15.4	10.5	18.0
WNW	6.8	16.6	14.9	19.2	14.0	15.2	6.3	15.9	11.0	17.0
NW	3.4	13.2	5.6	18.8	1.9	10.5	4.3	10.5	3.9	14.2
NNW	4.5	19.0	6.9	18.1	1.5	9.8	6.1	14.8	4.8	16.3
CALM	0.0		0.0		0.0		0.0		0.0	
ALL		17.3		17.9		13.1		13.3		15.1

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	253	272	247	326	268
SPEED:	4.2	9.0	8.1	3.5	5.8
PER. RATIO:	0.24	0.50	0.62	0.26	0.39
PREDOMINANT WINDS					
DIRECTION:	WSW	W	W	N	W
SPEED:	22.8	21.5	16.0	16.0	18.0
PERCENTAGE:	27.4	43.3	53.3	30.7	37.5
SECONDARY PREDOMINANT WINDS					
DIRECTION:	NNE	NNW	S	W	SSE
SPEED:	15.8	19.2	10.5	16.0	12.5
PERCENTAGE:	24.3	19.9	21.5	22.2	20.3

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY

Station Name: SACRAMENTO
Elevation: 43 Feet (20)
Degrees Minutes
North Latitude: 38 31
West Longitude: 121 30

Period of Record: 1961 - 1978
Observations: 75,956

Bias Index: 0.16
Speed Units: MPH
Source Code
Data: 1
Summary: L

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	6.0	7.6	3.2	9.5	1.6	7.4	5.6	8.2	4.1	8.2
NNE	1.7	5.0	0.7	5.5	0.3	4.6	1.1	5.4	1.0	5.2
NE	1.5	4.3	0.7	4.7	0.3	4.4	1.0	4.6	0.9	4.5
ENE	1.7	4.2	0.7	4.6	0.2	4.0	1.0	4.1	0.9	4.2
E	3.8	4.6	2.1	4.7	0.6	4.6	2.2	4.4	2.2	4.6
ESE	5.2	5.4	3.6	5.4	2.0	4.9	4.0	4.9	3.7	5.2
SE	10.5	7.5	7.4	6.3	5.9	5.2	7.7	6.1	7.9	6.4
SSE	9.8	9.6	6.4	7.5	7.4	6.0	6.7	7.3	7.6	7.8
S	9.0	7.8	12.4	8.2	20.6	8.4	10.5	7.1	13.1	8.0
SSW	4.1	8.5	13.8	10.7	23.0	10.8	9.8	9.4	12.7	10.3
SW	3.5	8.0	15.6	10.8	18.1	10.8	9.0	9.4	11.6	10.3
WSW	1.9	5.8	4.5	8.6	3.8	7.6	3.3	6.4	3.4	7.4
W	2.0	5.2	2.7	7.1	2.3	6.7	2.3	5.7	2.3	6.2
WNW	2.8	6.1	3.5	8.2	2.4	7.0	2.5	6.0	2.8	6.9
NW	6.5	8.0	6.2	10.7	3.4	8.2	5.9	7.6	5.5	8.7
NNW	10.7	10.3	8.2	12.2	3.1	8.9	9.4	9.8	7.8	10.5
CALM	19.2		8.2		4.9		17.9		12.4	
ALL		6.2		8.4		8.4		6.2		7.3

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	178	224	206	222	212
SPEED:	0.7	3.7	6.1	1.8	3.0
PER. RATIO:	0.12	0.45	0.73	0.29	0.42
PREDOMINANT WINDS					
DIRECTION:	SSE	SSW	SSW	SSW	SSW
SPEED:	8.3	10.0	10.0	8.6	9.5
PERCENTAGE:	29.3	41.8	61.7	29.3	37.4
SECONDARY PREDOMINANT WINDS					
DIRECTION:	NNW	NW	SE	NNW	SE
SPEED:	9.0	10.9	5.5	8.8	6.7
PERCENTAGE:	23.2	17.9	15.3	20.9	19.2

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY

Station Name: SALINAS
Elevation: 88 Feet
Degrees Minutes
North Latitude: 36 40
West Longitude: 121 36

Period of Record: 1949 - 1964
Observations: 140,255

Bias Index: 0.19
Speed Units: MPH
Source Code
Data: 1
Summary: L

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	3.0	5.5	3.6	5.7	2.9	5.9	4.1	5.5	3.4	5.6
NNE	1.0	5.6	0.8	4.7	0.3	4.3	0.8	5.2	0.7	5.1
NE	1.4	4.7	0.7	4.5	0.3	3.8	1.0	4.3	0.9	4.5
ENE	1.2	5.7	0.4	4.9	0.1	4.3	0.6	6.0	0.6	5.6
E	4.4	8.3	1.4	7.1	0.4	4.5	2.6	7.4	2.2	7.7
ESE	12.2	11.2	4.1	10.6	0.7	5.9	6.2	10.2	5.8	10.7
SE	17.5	10.0	5.8	8.5	1.7	5.4	11.2	8.8	9.0	9.2
SSE	8.2	9.7	3.5	9.0	0.8	5.5	4.1	8.4	4.1	9.0
S	1.9	5.6	1.1	5.6	0.7	4.1	1.5	5.1	1.3	5.2
SSW	0.6	5.8	0.7	7.2	0.3	5.3	0.4	5.2	0.5	6.1
SW	1.7	6.6	3.9	8.9	1.9	7.6	1.7	7.1	2.3	7.9
WSW	2.7	7.9	8.5	10.2	5.1	9.5	3.3	8.8	4.9	9.5
W	5.7	7.8	14.9	10.2	14.7	9.6	8.1	9.1	10.9	9.5
WNW	6.7	7.6	15.4	9.3	25.7	9.8	13.9	9.2	15.5	9.3
NW	7.3	6.3	14.3	7.8	25.3	8.6	15.2	7.6	15.6	7.9
NNW	2.6	6.6	4.8	7.4	6.7	7.8	5.2	6.9	4.8	7.3
CALM	21.8		16.0		12.3		20.0		17.4	
ALL		6.7		7.4		7.7		6.6		7.1

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	137	277	295	285	281
SPEED:	2.5	3.8	6.5	1.6	2.5
PER. RATIO:	0.37	0.52	0.84	0.25	0.35
PREDOMINANT WINDS					
DIRECTION:	SE	WNW	WNW	WNW	WNW
SPEED:	10.3	9.1	9.3	8.5	8.8
PERCENTAGE:	37.9	44.6	65.7	37.2	42.0
SECONDARY PREDOMINANT WINDS					
DIRECTION:	WNW	SE	N	SE	SE
SPEED:	7.2	9.3	7.1	9.1	9.6
PERCENTAGE:	19.7	13.4	9.9	21.5	18.9

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY

Station Name: SAN CLEMENTE ISLAND
Elevation: 170 Feet (16)
Degrees Minutes
North Latitude: 33 1
West Longitude: 118 35

Period of Record: 1973 - 1977
Observations: 14,607

Bias Index: 0.22
Speed Units: MPH
Source Code
Data: 1
Summary: D

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	4.4	6.3	2.3	6.9	1.1	4.4	3.1	4.8	2.7	5.8
NNE	2.0	6.3	0.8	6.7	0.4	4.3	1.5	5.4	1.2	5.9
NE	2.1	8.7	0.8	8.5	0.2	3.4	0.8	5.5	1.0	7.7
ENE	2.6	6.6	0.8	6.3	0.3	4.7	0.9	5.4	1.2	6.2
E	5.3	7.6	1.6	5.8	1.3	5.2	2.2	7.2	2.6	6.9
ESE	4.2	7.2	0.7	6.7	0.6	5.2	1.7	6.6	1.8	6.9
SE	2.3	6.1	0.6	5.9	0.2	4.6	1.1	4.3	1.0	5.5
SSE	2.8	6.3	1.1	5.0	0.7	4.3	1.5	4.2	1.5	5.3
S	8.1	7.1	5.3	6.8	6.8	5.3	6.1	5.1	6.6	6.1
SSW	5.6	6.0	5.7	6.4	8.4	6.0	5.6	5.9	6.3	6.1
SW	4.7	6.4	6.4	6.3	10.2	6.3	6.3	5.8	6.9	6.2
WSW	4.4	5.6	8.6	6.4	13.6	6.6	8.7	6.2	8.8	6.3
W	11.5	7.4	25.6	9.1	33.5	8.0	22.3	7.5	23.3	8.1
WNW	11.8	10.2	20.5	11.6	11.6	8.7	14.8	8.1	14.7	9.9
NW	8.1	9.6	7.9	11.3	2.5	6.9	6.7	8.0	6.3	9.5
NNW	4.9	7.0	3.6	7.3	1.1	4.5	5.3	6.9	3.7	6.9
CALM	15.1		7.6		7.4		11.3		10.3	
ALL		6.4		8.1		6.5		6.0		6.8

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	280	277	258	274	271
SPEED:	2.1	6.0	5.2	3.8	4.2
PER. RATIO:	0.32	0.73	0.79	0.62	0.62
PREDOMINANT WINDS					
DIRECTION:	WNW	W	W	W	W
SPEED:	9.0	9.6	7.8	7.4	8.3
PERCENTAGE:	31.4	54.7	58.7	45.8	46.8
SECONDARY PREDOMINANT WINDS					
DIRECTION:	SSW	SSW	SSW	SSW	SSW
SPEED:	6.6	6.5	5.9	5.6	6.1
PERCENTAGE:	18.4	17.4	25.4	18.0	19.8

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY

Station Name: SANDBERG
Elevation: 4523 Feet (30)
Degrees Minutes
North Latitude: 34 45
West Longitude: 118 44

Period of Record: 1949 - 1977
Observations: 125,543

Bias Index: 0.20
Speed Units: MPH
Source Code
Data: 1
Summary: L

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	11.4	15.3	16.2	16.3	10.5	13.3	10.7	13.0	12.2	14.7
NNE	6.1	11.8	2.8	11.9	1.3	10.4	4.0	10.3	3.5	11.3
NE	15.1	15.5	4.8	14.1	0.8	9.8	8.5	13.6	7.1	14.6
ENE	15.3	19.1	4.5	16.5	0.8	11.9	11.9	17.4	8.1	17.9
E	5.3	17.3	2.6	14.8	0.9	11.3	5.2	14.6	3.5	15.3
ESE	0.5	14.4	0.6	11.7	0.4	9.5	0.8	11.5	0.6	11.9
SE	0.5	10.9	0.8	11.6	1.6	12.0	1.4	11.0	1.1	11.5
SSE	2.1	14.6	3.7	15.6	7.3	14.2	4.3	13.1	4.3	14.3
S	12.1	16.2	14.0	15.1	18.5	13.1	13.8	13.1	14.6	14.2
SSW	6.1	13.6	7.1	12.8	10.7	10.5	6.9	11.3	7.7	11.8
SW	2.4	9.7	3.4	9.7	6.0	8.7	3.7	9.0	3.8	9.1
WSW	0.8	8.5	1.3	8.1	2.4	7.1	1.4	7.8	1.5	7.7
W	1.1	8.2	1.8	8.4	2.8	7.2	1.8	7.5	1.9	7.7
WNW	1.4	12.9	2.1	12.1	3.1	9.2	2.0	9.7	2.1	10.6
NW	7.4	19.5	13.0	18.7	13.9	14.2	8.9	15.4	10.8	16.8
NNW	11.8	19.7	21.4	18.9	18.0	15.5	13.7	15.9	16.3	17.5
CALM	0.5		0.6		0.9		0.9		0.8	
ALL		16.2		15.7		12.6		13.5		14.5

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	31	336	283	24	356
SPEED:	6.0	5.8	3.1	3.3	3.6
PER. RATIO:	0.37	0.37	0.25	0.24	0.25
PREDOMINANT WINDS					
DIRECTION:	NE	NNW	NNW	NNW	NNW
SPEED:	16.4	18.0	14.5	14.8	16.4
PERCENTAGE:	36.5	50.6	42.4	33.3	39.3
SECONDARY PREDOMINANT WINDS					
DIRECTION:	NNW	S	S	ENE	S
SPEED:	18.0	14.5	12.6	15.6	13.5
PERCENTAGE:	30.6	24.8	36.5	25.6	26.6

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY

Station Name: SAN DIEGO
Elevation: 33 Feet (20)
Degrees Minutes
North Latitude: 32 44
West Longitude: 117 10

Period of Record: 1962 - 1978
Observations: 73,047

Bias Index: -0.00
Speed Units: MPH
Source Code
Data: 1
Summary: L

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	6.5	5.3	4.5	5.7	5.8	5.8	7.5	5.5	6.1	5.6
NNE	3.9	5.3	3.0	5.5	3.6	5.6	5.2	5.3	3.9	5.4
NE	4.7	5.1	2.9	4.9	1.8	5.1	4.0	5.0	3.3	5.0
ENE	6.1	4.7	3.2	4.7	0.9	4.4	3.8	4.5	3.5	4.6
E	5.0	4.9	2.5	4.9	0.6	4.4	3.1	5.0	2.8	4.9
ESE	3.5	5.9	2.3	6.1	0.5	4.8	1.9	5.8	2.0	5.8
SE	2.6	6.3	1.4	6.6	0.4	5.3	1.5	5.7	1.5	6.2
SSE	3.5	7.8	2.3	7.7	1.5	6.7	2.5	7.3	2.4	7.5
S	6.5	8.3	8.4	8.6	9.4	7.7	6.3	7.5	7.6	8.0
SSW	4.5	6.9	7.4	8.2	9.5	7.6	4.9	7.1	6.6	7.6
SW	3.6	6.7	7.1	8.3	8.0	7.5	4.3	7.2	5.8	7.6
WSW	3.9	7.2	7.5	8.8	8.3	7.6	4.1	7.4	6.0	7.9
W	5.2	7.7	10.0	9.4	9.9	8.1	6.7	8.1	7.9	8.4
WNW	11.5	8.5	18.2	9.9	20.5	9.1	16.9	8.9	16.8	9.2
NW	10.7	8.2	10.2	9.6	12.2	8.7	13.6	8.5	11.7	8.7
NNW	6.0	6.3	4.4	7.2	5.5	6.8	7.1	6.6	5.8	6.7
CALM	12.2		4.6		1.5		6.5		6.2	
ALL		6.0		7.9		7.6		6.7		7.0

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	293	270	273	295	280
SPEED:	1.6	4.0	4.4	3.1	3.2
PER. RATIO:	0.26	0.51	0.58	0.46	0.46
PREDOMINANT WINDS					
DIRECTION:	NW	WNW	WNW	NW	WNW
SPEED:	7.9	9.7	8.8	8.3	8.9
PERCENTAGE:	28.2	38.4	42.6	37.6	36.4
SECONDARY PREDOMINANT WINDS					
DIRECTION:	ENE	SSW	SSW	NNE	SSW
SPEED:	4.9	8.4	7.6	5.3	7.8
PERCENTAGE:	15.8	22.9	26.9	16.7	20.0

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY

Station Name: SAN DIMAS
Elevation: 951 Feet (30)
Degrees Minutes
North Latitude: 34 12
West Longitude: 117 48

Period of Record: JUN 1956 - APR 1959
Observations: 18,566
24 OBS/DAY

Bias Index: 0.10
Speed Units: MPH
Source Code
Data: 3
Summary: M

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	3.5	2.4	2.8	1.6	2.8	1.7	5.1	2.6	3.5	2.2
NNE	6.6	1.9	5.1	2.0	4.7	1.2	7.0	2.3	5.9	1.9
NE	11.0	1.7	8.6	1.6	4.7	1.1	11.2	1.7	9.1	1.6
ENE	13.6	2.1	6.3	2.0	1.8	1.4	9.3	2.0	8.3	2.0
E	14.8	2.4	9.6	2.1	3.1	1.1	9.7	2.3	9.9	2.2
ESE	6.1	2.9	3.2	2.8	1.8	1.8	3.8	3.0	3.9	2.8
SE	2.3	2.6	1.8	2.4	0.4	1.9	1.9	2.7	1.7	2.5
SSE	4.0	2.6	3.0	2.8	1.9	2.1	2.9	3.1	3.1	2.7
S	4.2	2.8	5.0	2.8	3.8	2.3	4.4	2.8	4.4	2.7
SSW	4.0	2.1	6.5	2.4	9.9	2.4	5.5	2.6	6.2	2.4
SW	3.2	2.1	7.0	2.2	6.3	2.1	4.2	2.6	5.2	2.2
WSW	4.3	1.7	10.0	2.4	9.4	2.3	5.6	2.3	7.3	2.2
W	10.6	1.7	15.3	2.3	22.1	2.2	13.0	2.5	14.7	2.2
WNW	6.7	1.9	8.9	2.5	16.4	2.4	9.0	2.6	9.7	2.4
NW	3.0	2.4	4.2	2.5	5.8	2.5	4.2	2.9	4.1	2.6
NNW	2.1	2.4	2.8	2.5	5.1	2.3	3.3	2.5	3.1	2.4
CALM	0.0		0.0		0.0		0.0		0.0	
ALL		2.2		2.3		2.1		2.4		2.2

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	78	255	269	323	278
SPEED:	0.5	0.5	1.2	0.2	0.2
PER. RATIO:	0.25	0.20	0.57	0.10	0.11
PREDOMINANT WINDS					
DIRECTION:	ENE	W	W	ENE	W
SPEED:	2.1	2.4	2.3	2.0	2.3
PERCENTAGE:	39.4	34.2	47.9	30.2	31.7
SECONDARY PREDOMINANT WINDS					
DIRECTION:	W	ENE	SSW	W	ENE
SPEED:	1.8	1.9	2.3	2.5	1.9
PERCENTAGE:	21.6	24.5	20.0	27.6	27.3

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY

Station Name: SAN FRANCISCO
Elevation: 90 Feet (20)

	Degrees	Minutes
North Latitude:	37	37
West Longitude:	122	23

Period of Record: 1960 - 1978
Observations: 116,864
Bias Index: 0.00
Speed Units: MPH
Source Code
Data: 1
Summary: L

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	5.2	9.2	1.6	9.5	0.8	7.2	2.6	9.5	2.5	9.1
NNE	4.6	7.0	1.3	7.1	1.2	7.7	2.4	7.0	2.4	7.1
NE	5.2	6.5	1.8	6.2	1.9	7.3	3.1	6.5	3.0	6.6
ENE	5.9	6.8	2.2	6.1	1.6	6.3	3.4	6.5	3.2	6.6
E	6.2	6.5	1.6	6.3	0.6	5.6	2.8	6.2	2.8	6.4
ESE	6.3	6.8	1.2	7.9	0.2	5.2	2.4	6.8	2.5	6.9
SE	7.2	8.5	2.2	9.4	0.3	6.3	3.2	8.2	3.2	8.5
SSE	6.2	7.6	2.4	9.4	0.4	7.1	3.5	7.5	3.1	7.9
S	8.4	9.3	4.7	10.1	1.4	8.0	5.9	8.0	5.1	9.0
SSW	4.6	8.5	4.0	9.7	1.5	9.5	3.8	7.7	3.5	8.7
SW	3.5	8.6	4.7	9.2	2.0	8.9	3.8	7.3	3.5	8.5
WSW	3.8	8.7	7.1	10.6	5.9	11.0	4.8	8.3	5.4	9.9
W	7.5	10.9	25.2	14.8	25.3	15.0	14.0	11.9	18.1	13.9
WNW	12.4	10.9	29.1	14.4	34.4	13.9	27.3	12.0	25.9	13.2
NW	3.4	8.3	6.8	12.1	18.7	14.6	9.5	11.7	9.6	12.9
NNW	1.5	7.2	1.2	8.3	2.2	10.5	1.9	8.7	1.7	8.9
CALM	8.0		2.8		1.5		5.5		4.4	
ALL		7.8		12.0		13.1		9.4		10.6

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	237	275	289	283	281
SPEED:	1.0	8.8	11.3	5.4	6.5
PER. RATIO:	0.12	0.73	0.86	0.57	0.62
PREDOMINANT WINDS					
DIRECTION:	W	W	WNW	WNW	WNW
SPEED:	10.5	14.1	14.4	11.9	13.4
PERCENTAGE:	23.7	61.4	78.4	50.8	53.6
SECONDARY PREDOMINANT WINDS					
DIRECTION:	SSE	SSW	SW	SSW	SW
SPEED:	8.6	9.7	10.3	7.7	9.2
PERCENTAGE:	21.8	13.4	9.4	13.5	12.4

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY

Station Name: SAN JOSE
Elevation: 52 Feet

	Degrees	Minutes
North Latitude:	37	22
West Longitude:	121	56

Period of Record: JAN 1965 - DEC 1967
Observations: 26,276
Bias Index: 0.00
Speed Units: MPH
Source Code
Data: 1
Summary: H

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	3.5	6.6	4.7	7.3	8.4	6.4	6.4	6.2	5.8	6.6
NNE	0.9	6.1	0.5	5.3	0.8	4.8	0.7	4.4	0.7	5.2
NE	1.0	4.4	0.7	5.4	0.6	4.3	0.7	4.5	0.8	4.6
ENE	1.5	5.3	0.9	5.0	0.5	5.0	0.9	4.1	0.9	4.9
E	4.6	6.2	3.7	8.6	1.1	6.3	2.7	5.3	3.0	6.8
ESE	14.1	8.7	10.6	8.9	3.8	7.8	8.5	7.1	9.2	8.3
SE	8.5	9.0	6.3	9.5	3.7	8.8	7.7	7.8	6.5	8.7
SSE	4.1	7.6	4.1	9.3	2.3	7.8	4.3	7.0	3.7	7.9
S	5.3	7.0	5.0	9.4	2.3	7.9	5.7	7.9	4.6	8.1
SSW	1.7	6.9	1.6	8.1	0.5	6.1	1.8	7.0	1.4	7.2
SW	1.7	5.6	1.6	7.7	0.5	5.2	1.1	5.4	1.2	6.2
WSW	3.8	7.0	3.5	8.5	1.5	6.9	1.8	5.2	2.6	7.2
W	8.6	8.6	7.6	9.2	5.9	8.2	5.4	7.1	6.9	8.4
WNW	10.0	8.9	13.5	10.3	18.3	9.4	10.5	8.7	13.1	9.4
NW	7.9	9.2	14.5	11.5	22.3	10.9	13.6	10.2	14.6	10.7
NNW	4.3	7.7	6.5	9.7	13.2	9.4	8.6	8.6	8.2	9.0
CALM	18.4		14.6		14.2		19.5		16.7	
ALL		6.5		8.1		7.7		6.3		7.2

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	220	292	312	304	302
SPEED:	0.6	2.1	5.0	1.6	2.2
PER. RATIO:	0.09	0.26	0.65	0.26	0.31
PREDOMINANT WINDS					
DIRECTION:	ESE	WNW	NW	NW	NW
SPEED:	8.4	10.6	10.0	9.3	9.8
PERCENTAGE:	27.2	35.6	53.8	32.7	35.9
SECONDARY PREDOMINANT WINDS					
DIRECTION:	WNW	SE	NNE	SE	SE
SPEED:	8.9	9.2	6.1	7.3	8.4
PERCENTAGE:	26.5	21.0	9.8	20.5	19.4

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY
Station Name: SAN MIGUEL ISLAND
Elevation: 550 Feet
Degrees Minutes
North Latitude: 34 3
West Longitude: 120 21
Period of Record: FEB 1940 - JAN 1942
Observations: 3,373
Bias Index:-0.44
Speed Units: MPH
Source Code
Data: 1
Summary: K

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	2.1	5.8	0.8	4.7	1.5	6.1	2.2	3.9	1.6	5.1
NNE	1.2	5.2	1.0	4.8	1.1	5.8	1.1	4.8	1.1	5.1
NE	1.6	3.2	1.1	5.9	0.6	5.2	1.0	5.1	1.1	4.8
ENE	1.2	9.7	0.7	5.1	0.5	3.3	0.8	12.2	0.8	8.0
E	2.8	8.5	0.5	14.8	0.2	3.5	2.2	5.4	1.3	7.9
ESE	1.9	12.1	1.3	11.3	0.4	4.0	0.4	8.7	1.0	10.7
SE	7.1	10.9	1.8	7.4	0.5	4.8	1.2	5.3	2.5	9.2
SSE	11.0	20.0	4.7	17.8	0.8	8.3	1.1	10.8	4.4	18.2
S	8.8	8.8	1.0	9.5	0.5	9.0	4.4	7.0	3.4	8.4
SSW	5.1	11.6	3.1	13.7	1.0	7.9	2.1	7.7	2.8	11.4
SW	7.4	7.7	2.3	9.6	0.8	11.0	7.2	5.5	4.1	7.4
WSW	2.9	8.0	4.2	11.1	1.6	11.5	4.7	9.0	3.4	9.9
W	5.4	7.3	2.9	11.2	1.7	10.0	5.1	7.8	3.6	8.8
WNW	13.0	14.8	28.1	19.7	39.6	19.3	32.9	17.2	28.6	18.5
NW	14.2	9.4	17.6	22.5	21.8	20.1	19.0	12.6	18.2	17.3
NNW	14.1	20.2	29.0	23.7	27.2	20.2	14.6	19.4	22.1	21.6
CALM	0.0		0.0		0.0		0.0		0.0	
ALL		12.5		19.2		18.4		13.2		16.2

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	272	312	311	303	307
SPEED:	3.1	14.5	16.7	10.4	11.5
PER. RATIO:	0.24	0.76	0.91	0.79	0.71
PREDOMINANT WINDS					
DIRECTION:	NW	NW	NW	NW	NW
SPEED:	14.8	21.9	19.8	16.4	19.2
PERCENTAGE:	41.3	74.7	88.6	66.5	68.9
SECONDARY PREDOMINANT WINDS					
DIRECTION:	SSE	SW	WSW	WSW	WSW
SPEED:	13.9	11.6	10.8	7.2	8.6
PERCENTAGE:	26.9	9.6	4.1	17.8	11.1

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY
Station Name: SAN NICOLAS ISLAND
Elevation: 568 Feet
Degrees Minutes
North Latitude: 33 15
West Longitude: 119 27
Period of Record: 1967 - 1977
Observations: 37,646
Bias Index: 0.15
Speed Units: MPH
Source Code
Data: 1
Summary: L

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	5.8	8.1	2.7	6.7	4.8	6.3	4.9	6.0	4.4	6.9
NNE	2.6	7.7	1.4	5.7	2.0	5.1	2.1	5.3	2.1	6.1
NE	1.9	7.5	1.3	6.3	1.3	5.4	2.1	5.8	1.6	6.3
ENE	2.3	6.9	1.2	6.3	1.5	5.2	2.4	5.7	1.8	6.1
E	2.8	6.4	1.4	5.7	2.2	5.3	2.7	5.9	2.3	5.9
ESE	1.4	6.8	0.9	7.0	1.2	5.8	1.2	6.6	1.2	6.5
SE	1.7	7.3	0.7	7.4	0.9	6.0	1.1	6.6	1.1	6.9
SSE	2.4	8.4	1.2	7.5	1.4	6.2	1.6	7.6	1.6	7.6
S	4.7	9.1	2.8	7.8	2.4	6.7	2.9	7.1	3.2	7.9
SSW	3.5	9.2	2.2	7.9	1.8	6.4	2.1	6.9	2.4	7.9
SW	2.1	7.7	1.4	8.5	1.4	6.7	2.0	7.1	1.7	7.5
WSW	3.1	7.3	2.3	8.4	1.5	6.6	2.4	6.7	2.3	7.3
W	9.8	7.5	6.5	8.7	4.5	7.7	9.4	7.0	7.6	7.6
WNW	15.9	11.6	23.3	14.8	23.4	13.4	20.6	11.7	20.8	13.0
NW	20.6	13.3	36.8	16.3	32.6	14.1	22.9	12.7	28.3	14.4
NNW	10.7	11.8	10.1	11.8	11.5	9.7	10.3	9.3	10.6	10.7
CALM	8.6		3.7		6.3		9.2		6.9	
ALL		9.3		12.6		10.5		8.7		10.3

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	307	307	309	306	307
SPEED:	5.7	10.5	8.6	6.2	7.8
PER. RATIO:	0.61	0.84	0.82	0.72	0.76
PREDOMINANT WINDS					
DIRECTION:	NW	NW	NW	NW	NW
SPEED:	12.4	15.2	13.1	11.7	13.3
PERCENTAGE:	47.2	70.2	67.5	53.8	59.7
SECONDARY PREDOMINANT WINDS					
DIRECTION:	WSW	WSW	WSW	WSW	WSW
SPEED:	7.5	8.6	7.3	7.0	7.5
PERCENTAGE:	15.0	10.2	7.4	13.8	11.6

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY
Station Name: SAN ONOFRE
Elevation: 20 Feet
Degrees Minutes
North Latitude: 33 22
West Longitude: 117 33
Period of Record: 1976 - 1981
Observations: 52,057
24 OBS/DAY
Bias Index:-0.24
Speed Units: MPH
Source Code
Data: 7
Summary: L

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	6.1	6.5	3.3	6.0	3.4	4.6	5.9	6.0	4.7	5.9
NNE	33.6	8.3	22.0	7.5	11.2	5.8	26.0	7.5	23.1	7.6
NE	5.6	6.9	3.4	5.7	2.1	4.3	4.9	5.8	4.0	6.0
ENE	2.7	7.2	1.4	4.8	1.1	4.0	1.6	4.4	1.7	5.5
E	2.3	7.3	1.6	5.6	1.0	4.3	1.8	4.7	1.7	5.7
ESE	3.0	7.7	2.8	6.9	2.2	4.9	2.6	5.8	2.7	6.4
SE	6.8	9.0	6.0	7.6	7.8	6.1	6.5	6.8	6.8	7.3
SSE	5.5	10.0	7.6	9.4	8.7	7.0	4.9	7.1	6.7	8.3
S	3.9	8.5	7.9	8.2	8.5	6.6	4.5	6.7	6.2	7.4
SSW	2.7	7.5	6.4	7.5	7.5	6.3	4.2	6.3	5.2	6.8
SW	2.9	6.8	6.9	6.9	7.5	5.8	4.5	5.8	5.5	6.3
WSW	3.8	6.6	7.9	7.4	10.8	6.2	6.1	6.4	7.2	6.6
W	8.4	7.2	10.3	8.0	12.9	6.9	10.5	7.0	10.5	7.3
WNW	6.7	8.0	7.2	9.0	8.7	7.0	8.7	7.8	7.8	7.9
NW	3.6	6.7	3.4	8.1	4.3	6.2	4.5	7.2	3.9	7.0
NNW	2.4	5.8	1.8	6.3	2.1	4.4	2.9	5.4	2.3	5.4
CALM	0.0		0.0		0.0		0.0		0.0	
ALL		7.8		7.6		6.2		6.8		7.1

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	21	255	236	337	307
SPEED:	2.2	1.1	2.1	1.6	0.8
PER. RATIO:	0.28	0.14	0.34	0.23	0.12
PREDOMINANT WINDS					
DIRECTION:	NNE	NNE	W	NNE	NNE
SPEED:	7.9	7.1	6.7	7.0	7.1
PERCENTAGE:	45.3	28.7	32.4	36.8	31.8
SECONDARY PREDOMINANT WINDS					
DIRECTION:	W	W	SSE	W	W
SPEED:	7.4	8.1	6.6	7.1	7.3
PERCENTAGE:	18.9	25.4	25.0	25.3	25.5

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY
Station Name: SAN PABLO
Elevation: 258 Feet
Degrees Minutes
North Latitude: 37 59
West Longitude: 122 21
Period of Record: JUL 1929 - MAR 1930, JAN 1931 - FEB 1939
Observations: 18,487
Bias Index: 0.76
Speed Units: MPH
Source Code
Data: 1
Summary: K

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	3.0	6.8	1.1	9.5	0.1	14.0	2.0	8.4	1.6	7.9
NNE	1.6	6.9	0.4	5.8	0.1	3.0	0.5	10.3	0.7	7.1
NE	17.1	8.6	4.1	6.8	0.2	7.5	7.3	6.5	7.4	7.8
ENE	0.6	10.1	0.0	4.5	****	****	0.1	18.0	0.2	11.1
E	4.1	6.5	0.9	3.9	0.0	2.5	1.5	3.4	1.7	5.4
ESE	0.1	11.7	0.0	4.5	****	****	****	****	0.0	8.8
SE	3.1	7.5	1.5	6.7	0.3	8.9	0.9	4.7	1.5	7.0
SSE	0.8	7.8	0.9	8.2	0.1	10.0	0.0	13.0	0.5	8.2
S	9.1	8.4	11.8	8.4	15.6	13.4	11.3	7.1	11.9	9.7
SSW	2.1	8.0	9.9	10.4	25.7	14.6	11.9	8.3	12.1	11.9
SW	8.8	8.4	26.9	10.4	49.8	13.4	28.6	8.8	28.0	11.1
WSW	0.1	7.1	0.3	8.7	0.1	8.4	0.1	4.4	0.2	7.7
W	2.7	7.9	8.7	9.8	3.2	8.1	2.7	7.0	4.2	8.7
WNW	0.1	7.9	0.6	10.5	0.0	3.0	0.1	8.2	0.2	9.4
NW	2.4	13.0	3.1	12.2	0.1	10.5	1.9	8.3	1.9	11.4
NNW	0.0	25.0	0.0	1.0	****	****	0.0	7.0	0.0	10.0
CALM	44.2		29.7		4.6		31.0		27.9	
ALL		4.6		6.8		12.9		5.5		7.3

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	98	223	212	215	213
SPEED:	0.6	4.7	12.1	3.5	4.8
PER. RATIO:	0.12	0.70	0.94	0.64	0.66
PREDOMINANT WINDS (Alternate Definition)					
DIRECTION:	NE	SW	SW	SW	SW
SPEED:	8.5	10.4	13.8	8.6	11.3
PERCENTAGE:	19.3	37.1	75.6	40.6	40.3
SECONDARY PREDOMINANT WINDS (Alternate Definition)					
DIRECTION:	S	NE	SE	NE	NE
SPEED:	8.3	6.7	9.2	6.9	7.8
PERCENTAGE:	12.0	4.5	0.4	7.9	8.3

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY

Station Name: SAN PEDRO
Elevation: 42 Feet

	Degrees	Minutes
North Latitude:	33	45
West Longitude:	118	15

Period of Record: SEP 1935 - FEB 1945
Observations: 14,692
Bias Index: 0.16
Speed Units: MPH
Source Code
Data: 1
Summary: E

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	13.2	4.8	6.6	4.4	6.3	5.2	9.9	4.5	9.2	4.7
NNE	5.0	5.1	3.6	3.8	2.6	4.0	4.8	4.0	4.0	4.3
NE	4.4	5.9	3.4	3.8	2.5	3.5	5.1	3.9	3.9	4.4
ENE	3.4	7.8	2.2	4.7	2.2	3.6	2.6	6.2	2.6	5.9
E	4.7	6.9	3.9	5.3	4.4	4.0	4.1	6.0	4.3	5.6
ESE	3.9	7.4	2.7	6.1	5.0	4.9	2.9	5.9	3.6	6.0
SE	5.6	8.0	4.8	6.6	7.7	5.4	5.2	5.8	5.8	6.4
SSE	5.0	8.0	6.1	8.0	7.5	6.4	4.6	6.5	5.7	7.2
S	5.2	7.4	11.9	8.3	15.1	8.3	9.6	7.7	10.3	8.0
SSW	4.6	7.3	10.1	8.2	17.0	9.0	8.7	7.8	9.9	8.3
SW	4.4	7.4	8.6	8.4	8.7	8.1	7.4	8.2	7.2	8.1
WSW	3.7	9.6	7.9	10.8	3.5	9.9	3.5	8.6	4.6	9.9
W	5.9	10.0	7.3	11.7	2.4	7.4	3.8	7.9	4.8	9.8
WNW	5.6	8.9	6.0	11.4	4.1	8.4	5.1	9.2	5.2	9.6
NW	8.9	7.1	5.2	7.9	3.2	5.5	9.3	6.6	6.8	6.9
NNW	12.7	6.1	5.9	5.8	4.1	5.3	8.7	5.5	8.0	5.8
CALM	3.7		3.7		3.6		4.6		4.0	
ALL		6.8		7.5		6.7		6.2		6.8

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	306	233	198	245	230
SPEED:	1.1	3.2	3.3	1.4	1.8
PER. RATIO:	0.16	0.42	0.58	0.22	0.27
PREDOMINANT WINDS					
DIRECTION:	NNW	SSW	SSW	NNW	SSW
SPEED:	5.9	8.3	8.5	5.5	8.1
PERCENTAGE:	34.8	30.6	40.8	27.9	27.4
SECONDARY PREDOMINANT WINDS					
DIRECTION:	SSE	W	SE	SSW	NNW
SPEED:	7.8	11.3	5.6	7.9	5.7
PERCENTAGE:	15.8	21.2	20.2	25.7	24.0

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY

Station Name: SAN PEDRO (OUTER HARBOR)
Elevation: 3 Feet

	Degrees	Minutes
North Latitude:	33	43
West Longitude:	118	16

Period of Record: JAN 1956 - DEC 1957
Observations: 2,750
24 OBS/DAY
Bias Index: 0.99
Speed Units: MPH
Source Code
Data: 3
Summary: M

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	16.4	6.4	4.9	6.7	2.3	4.1	14.9	5.4	9.5	5.9
NNE	0.2	1.0	****	****	****	****	****	****	0.0	1.0
NE	17.5	6.1	6.8	5.9	5.5	3.9	6.7	8.4	8.9	6.2
ENE	****	****	****	****	****	****	****	****	****	****
E	1.4	6.4	4.2	6.6	4.6	6.4	5.6	7.3	4.0	6.8
ESE	****	****	****	****	****	****	****	****	****	****
SE	5.1	8.2	10.5	7.2	14.4	6.1	7.5	5.8	9.5	6.6
SSE	****	****	0.1	12.0	****	****	****	****	0.0	12.0
S	10.4	8.4	9.8	7.2	21.6	7.9	14.5	8.2	14.1	7.9
SSW	****	****	****	****	0.3	9.5	****	****	0.1	9.5
SW	30.2	8.8	51.6	11.3	46.1	11.8	37.7	10.1	41.7	10.7
WSW	0.2	7.0	0.3	16.5	0.6	11.0	0.1	6.0	0.3	11.3
W	4.0	8.8	4.4	9.1	2.9	5.7	8.6	6.7	5.0	7.5
WNW	****	****	0.3	13.0	0.1	5.0	****	****	0.1	10.3
NW	14.7	7.7	7.0	10.1	1.7	6.3	4.0	8.2	6.7	8.3
NNW	****	****	****	****	****	****	0.3	13.0	0.1	13.0
CALM	0.0		0.0		0.0		0.0		0.0	
ALL		7.6		9.5		9.0		8.1		8.6

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	257	223	208	222	220
SPEED:	2.0	5.8	6.7	3.6	4.4
PER. RATIO:	0.26	0.61	0.74	0.44	0.52
PREDOMINANT WINDS (Alternate Definition)					
DIRECTION:	SW	SW	SW	SW	SW
SPEED:	8.8	11.3	11.8	10.1	10.7
PERCENTAGE:	30.4	51.9	47.0	37.8	42.1
SECONDARY PREDOMINANT WINDS (Alternate Definition)					
DIRECTION:	NE	SE	SE	N	N
SPEED:	6.0	7.2	6.1	5.6	6.0
PERCENTAGE:	17.7	10.6	14.4	15.2	9.6

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY

Station Name: SANTA ANA
Elevation: 60 Feet

	Degrees	Minutes
North Latitude:	33	42
West Longitude:	117	50

Period of Record:
MAR 1945 - JUL 1947
OCT 1951 - AUG 1952
MAR 1953 - DEC 1972
Observations: 130,408

Bias Index: 0.33
Speed Units: MPH

Source Code
Data: 1
Summary: D

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	1.3	5.3	0.9	4.8	0.7	3.6	1.1	4.6	1.0	4.7
NNE	1.8	8.3	0.7	6.7	0.3	4.3	1.0	7.8	0.9	7.6
NE	5.2	10.1	2.0	6.8	1.1	3.9	3.1	8.5	2.8	8.5
ENE	3.9	9.8	1.6	7.4	0.4	3.8	2.1	8.6	2.0	8.7
E	5.1	5.6	4.4	4.7	2.3	3.8	4.4	5.2	4.1	5.0
ESE	3.5	6.6	3.2	5.8	1.7	4.5	1.9	6.0	2.6	5.9
SE	3.4	6.7	4.3	6.1	2.4	4.4	2.5	6.8	3.2	5.9
SSE	1.9	7.5	3.0	6.5	1.6	4.9	1.6	6.0	2.0	6.3
S	3.3	7.2	5.3	6.4	3.7	5.2	3.3	5.9	3.9	6.2
SSW	3.1	6.8	6.0	7.8	5.2	7.1	3.5	7.2	4.5	7.3
SW	9.0	7.1	17.8	8.8	20.8	8.6	12.8	7.8	15.2	8.3
WSW	8.0	7.5	14.6	9.4	19.0	8.7	12.8	8.2	13.7	8.6
W	9.3	6.9	9.7	8.7	13.0	7.7	12.1	7.4	11.0	7.7
WNW	1.9	7.2	1.8	7.8	2.0	6.0	2.3	6.1	2.0	6.8
NW	1.3	6.2	1.3	5.7	1.4	4.4	1.6	4.8	1.4	5.2
NNW	0.7	6.6	0.7	6.1	0.6	4.2	0.5	4.8	0.6	5.5
CALM	37.3		22.6		23.7		33.3		29.1	
ALL		4.6		6.0		5.6		4.8		5.3

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	215	228	237	238	233
SPEED:	0.8	3.7	4.5	2.4	2.8
PER. RATIO:	0.16	0.61	0.79	0.49	0.54
PREDOMINANT WINDS					
DIRECTION:	WSW	WSW	WSW	WSW	WSW
SPEED:	7.2	9.0	8.4	7.8	8.2
PERCENTAGE:	26.3	42.1	52.8	37.7	39.9
SECONDARY PREDOMINANT WINDS					
DIRECTION:	ENE	S	S	ENE	S
SPEED:	8.4	7.0	6.1	7.0	6.7
PERCENTAGE:	14.2	14.3	10.5	9.6	10.4

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY

Station Name: SANTA BARBARA
Elevation: 13 Feet

	Degrees	Minutes
North Latitude:	34	26
West Longitude:	119	50

Period of Record:
1949 - 1964
Observations: 122,710

Bias Index: 0.30
Speed Units: MPH

Source Code
Data: 1
Summary: L

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	3.5	5.7	2.4	6.6	1.0	4.7	2.5	5.2	2.4	5.7
NNE	2.4	5.3	1.9	6.4	1.4	4.8	2.7	5.6	2.1	5.6
NE	6.1	4.2	4.7	4.5	4.9	4.2	6.1	4.3	5.5	4.3
ENE	2.4	5.3	2.5	5.7	3.7	5.8	2.9	6.0	2.9	5.7
E	4.2	7.1	4.7	6.5	7.3	5.7	4.2	6.2	5.1	6.3
ESE	2.8	10.5	2.9	7.7	3.9	6.6	2.0	7.7	2.9	8.0
SE	4.9	6.9	7.6	6.9	9.0	6.5	5.9	6.4	6.9	6.7
SSE	2.6	6.1	5.8	6.8	6.5	7.1	4.3	6.5	4.8	6.8
S	2.4	5.3	4.4	5.9	6.3	5.9	4.4	5.7	4.4	5.8
SSW	1.5	6.0	2.6	6.3	4.3	6.7	2.6	6.7	2.8	6.5
SW	4.7	5.8	6.7	6.9	9.9	7.3	7.6	6.8	7.2	6.8
WSW	5.9	7.5	9.7	9.6	11.7	8.9	8.2	8.5	8.9	8.8
W	5.6	8.0	7.8	9.8	4.9	8.7	5.2	8.0	5.9	8.8
WNW	2.5	9.2	3.2	10.8	0.5	7.3	1.3	8.4	1.9	9.6
NW	3.3	7.9	3.3	9.0	0.6	6.3	1.6	7.0	2.2	8.0
NNW	1.9	8.2	2.1	9.8	0.4	6.1	1.0	7.5	1.3	8.5
CALM	43.2		27.6		23.6		37.4		32.7	
ALL		3.8		5.5		5.2		4.2		4.7

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	252	234	192	210	213
SPEED:	0.3	1.6	2.1	1.0	1.2
PER. RATIO:	0.09	0.28	0.41	0.25	0.26
PREDOMINANT WINDS					
DIRECTION:	WSW	WSW	WSW	WSW	WSW
SPEED:	7.2	8.9	8.3	7.8	8.1
PERCENTAGE:	16.2	24.2	26.5	21.0	22.0
SECONDARY PREDOMINANT WINDS					
DIRECTION:	ENE	SSE	SSE	SSE	SSE
SPEED:	5.4	6.6	6.5	6.2	6.5
PERCENTAGE:	12.7	17.8	21.8	14.6	16.1

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY
Station Name: SANTA MARIA
Elevation: 240 Feet (23)
Degrees Minutes
North Latitude: 34 54
West Longitude: 120 27
Period of Record: JAN 1965 - DEC 1974
Observations: 19,939
5 OBS/DAY
Bias Index:-0.02
Speed Units: MPH
Source Code
Data: 1
Summary: G

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	5.4	11.1	3.1	8.8	2.0	6.0	4.0	8.4	3.7	9.3
NNE	4.0	12.9	1.5	11.5	0.7	6.4	2.5	10.1	2.2	11.4
NE	2.8	10.7	1.2	8.9	0.6	4.4	1.8	8.2	1.6	9.2
ENE	2.3	6.3	1.2	5.7	0.5	4.4	2.0	5.7	1.5	5.8
E	6.7	6.0	2.1	5.2	0.5	4.9	4.6	5.5	3.6	5.7
ESE	8.6	6.4	2.9	5.5	0.5	4.6	4.9	5.9	4.4	6.0
SE	7.8	8.1	2.4	7.1	0.5	5.2	4.2	6.7	3.8	7.5
SSE	6.0	9.6	2.6	8.3	0.8	5.6	3.6	7.8	3.3	8.6
S	4.9	8.7	3.1	8.4	1.5	5.8	4.0	8.0	3.4	8.1
SSW	1.7	7.3	1.3	7.0	0.9	5.8	1.2	7.0	1.3	6.9
SW	2.3	7.7	2.2	8.1	1.4	6.1	1.8	7.2	2.0	7.5
WSW	3.1	7.6	3.5	8.2	2.8	7.5	2.8	8.1	3.0	7.9
W	5.8	7.9	10.5	10.8	8.8	9.4	6.7	8.0	7.9	9.3
WNW	14.8	11.1	33.8	14.0	34.1	12.4	22.3	11.9	26.0	12.6
NW	10.9	10.5	17.7	11.8	32.2	11.4	20.5	11.3	19.9	11.3
NNW	4.2	9.0	4.0	8.8	7.0	8.7	4.9	8.4	5.0	8.7
CALM	8.6		6.8		5.1		8.1		7.3	
ALL		8.3		10.4		10.1		8.6		9.3

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	315	295	301	303	300
SPEED:	1.7	7.6	9.0	4.8	5.6
PER. RATIO:	0.20	0.73	0.89	0.55	0.60
PREDOMINANT WINDS					
DIRECTION:	WNW	WNW	WNW	WNW	WNW
SPEED:	10.3	12.8	11.6	11.1	11.6
PERCENTAGE:	31.5	62.0	75.1	49.5	53.8
SECONDARY PREDOMINANT WINDS					
DIRECTION:	ESE	N	N	ESE	ESE
SPEED:	6.9	9.3	8.0	6.0	6.4
PERCENTAGE:	23.1	8.6	9.7	13.7	11.8

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY
Station Name: SANTA ROSA
Elevation: 119 Feet
Degrees Minutes
North Latitude: 38 30
West Longitude: 122 49
Period of Record: APR 1943 - DEC 1945
Observations: 23,718
Bias Index: 0.61
Speed Units: MPH
Source Code
Data: 1
Summary: A

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	10.9	7.6	7.9	8.7	2.5	9.1	4.2	5.9	6.0	7.8
NNE	2.1	7.9	2.2	12.0	0.7	7.7	1.5	7.2	1.6	9.1
NE	3.8	6.0	3.1	7.5	1.0	4.8	1.7	6.9	2.3	6.5
ENE	0.5	4.3	0.2	4.6	0.2	4.2	0.5	4.7	0.4	4.5
E	2.5	5.3	1.7	3.9	1.3	3.3	1.2	4.3	1.6	4.3
ESE	1.5	5.9	1.0	5.4	1.9	4.8	2.1	4.9	1.6	5.1
SE	9.8	6.2	13.9	6.4	17.4	6.2	11.2	5.8	13.3	6.2
SSE	2.7	7.2	6.1	7.4	14.3	8.5	8.6	7.1	8.4	7.8
S	7.8	6.1	13.8	7.3	21.6	8.0	12.2	6.8	14.3	7.4
SSW	2.1	8.2	3.6	9.3	5.9	8.0	4.3	7.6	4.2	8.2
SW	4.8	5.2	10.0	7.7	9.2	6.9	7.2	6.0	7.9	6.7
WSW	1.7	7.0	2.5	11.6	1.8	9.4	2.3	7.9	2.1	9.2
W	5.2	5.2	5.9	8.5	2.9	7.6	4.1	5.4	4.4	6.8
WNW	1.6	6.3	1.0	8.8	0.6	7.2	1.9	4.7	1.2	6.2
NW	12.3	7.6	10.5	10.0	3.5	11.5	6.2	6.0	7.7	8.5
NNW	4.1	8.7	3.1	11.1	1.4	12.1	2.8	6.7	2.7	9.3
CALM	26.5		13.4		13.7		27.9		20.2	
ALL		4.9		7.1		6.6		4.6		5.8

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	321	235	180	188	196
SPEED:	0.9	1.5	3.8	1.7	1.7
PER. RATIO:	0.18	0.21	0.58	0.37	0.29
PREDOMINANT WINDS (Alternate Definition)					
DIRECTION:	NW	S	S	S	S
SPEED:	7.7	7.6	8.2	7.0	7.6
PERCENTAGE:	18.0	23.5	41.8	25.1	26.9
SECONDARY PREDOMINANT WINDS (Alternate Definition)					
DIRECTION:	SE	NW	NW	NW	NW
SPEED:	6.4	10.2	11.2	6.0	8.4
PERCENTAGE:	14.0	14.6	5.5	10.9	11.6

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY
Station Name: SANTA ROSA ISLAND
Elevation: 1493 Feet
Degrees Minutes
North Latitude: 33 55
West Longitude: 120 7
Period of Record: JUN 1943 - FEB 1944
Observations: 6,261 *SPRING MISSING*
Bias Index:-0.38
Speed Units: MPH
Source Code
Data: 1
Summary: A

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	5.8	12.7	****	****	8.3	14.4	6.9	9.6	6.9	12.2
NNE	1.2	10.3	****	****	1.6	5.5	2.2	8.1	1.7	7.9
NE	3.3	16.2	****	****	1.7	5.2	3.2	8.2	2.8	10.9
ENE	5.2	20.1	****	****	1.9	6.9	4.4	14.3	3.9	15.9
E	10.6	15.3	****	****	4.9	7.3	7.1	10.1	7.6	12.0
ESE	6.0	15.3	****	****	3.2	6.7	5.3	8.0	4.9	10.9
SE	4.8	11.3	****	****	4.6	7.1	4.0	6.5	4.5	8.5
SSE	3.4	13.1	****	****	2.9	6.3	2.7	6.4	3.0	9.0
S	4.1	12.2	****	****	3.0	5.8	2.1	7.1	3.1	9.1
SSW	4.3	18.7	****	****	1.3	5.0	1.4	6.6	2.4	14.0
SW	1.3	9.1	****	****	1.0	7.1	1.1	5.3	1.1	7.4
WSW	2.2	12.0	****	****	0.8	8.4	1.4	7.6	1.5	10.0
W	1.3	8.6	****	****	1.0	6.5	1.3	5.6	1.2	6.9
WNW	1.5	9.6	****	****	2.0	6.5	1.0	6.8	1.5	7.6
NW	16.2	22.3	****	****	9.1	18.7	7.9	14.1	11.1	19.4
NNW	28.3	24.3	****	****	52.4	23.0	48.1	21.0	42.5	22.5
CALM	0.4		****		0.0		0.0		0.0	
ALL		18.4		****		16.9		15.1		16.8

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	348	***	339	345	344
SPEED:	8.2	****	13.9	11.0	10.9
PER. RATIO:	0.45	****	0.82	0.73	0.65
PREDOMINANT WINDS					
DIRECTION:	NNW	***	NNW	NNW	NNW
SPEED:	22.3	****	21.4	18.9	20.8
PERCENTAGE:	50.3	****	69.8	62.9	60.5
SECONDARY PREDOMINANT WINDS					
DIRECTION:	E	***	ESE	E	ESE
SPEED:	16.4	****	7.1	10.5	10.8
PERCENTAGE:	21.8	****	12.7	16.8	17.0

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY
Station Name: SAUGUS
Elevation: 1165 Feet (45)
Degrees Minutes
North Latitude: 34
West Longitude: 118 32
Period of Record: MAR 1958 - AUG 1971
Observations: 112,223
24 OBS/DAY
Bias Index: 0.46
Speed Units: MPH
Source Code
Data: 3
Summary: M

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	9.3	7.5	5.6	7.9	3.1	2.5	5.2	6.1	5.6	6.5
NNE	5.6	6.0	2.4	4.1	1.8	1.8	3.6	5.2	3.2	4.8
NE	4.1	5.3	2.8	5.5	2.7	1.8	4.5	5.3	3.5	4.6
ENE	8.1	4.5	5.1	3.6	5.4	2.3	8.1	4.2	6.6	3.7
E	18.5	3.0	14.3	3.5	15.7	2.7	20.1	3.2	17.0	3.1
ESE	6.6	4.1	7.4	5.0	6.7	5.9	7.9	4.5	7.2	4.9
SE	10.0	3.5	10.0	4.2	9.4	4.7	10.1	3.4	9.9	4.0
SSE	2.7	5.4	3.2	7.1	2.7	7.2	2.8	6.0	2.9	6.5
S	6.9	3.9	5.4	5.6	3.8	4.9	6.0	3.7	5.5	4.5
SSW	1.4	4.9	2.2	7.2	1.3	5.6	1.1	5.1	1.5	6.0
SW	2.8	5.2	4.9	7.0	3.5	6.6	2.7	5.3	3.5	6.3
WSW	2.8	6.1	5.9	8.5	4.9	7.9	3.1	7.3	4.3	7.7
W	7.7	5.0	16.7	7.4	22.9	7.6	12.4	6.6	15.3	7.1
WNW	3.7	4.9	4.9	6.6	7.5	5.0	4.7	5.4	5.3	5.5
NW	3.8	6.3	4.9	6.6	6.0	3.5	4.2	5.6	4.8	5.3
NNW	5.9	8.6	4.4	9.0	2.6	3.8	3.4	7.0	4.0	7.8
CALM	0.0		0.0		0.0		0.0		0.0	
ALL		4.9		6.0		5.0		4.8		5.2

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	27	266	246	31	280
SPEED:	1.1	1.2	1.6	0.3	0.6
PER. RATIO:	0.23	0.20	0.32	0.07	0.11
PREDOMINANT WINDS					
DIRECTION:	ESE	ESE	WNW	ESE	ESE
SPEED:	3.3	4.1	6.4	3.5	3.7
PERCENTAGE:	35.1	31.7	36.4	38.1	34.1
SECONDARY PREDOMINANT WINDS					
DIRECTION:	N	W	ESE	WNW	WNW
SPEED:	7.4	7.5	4.0	6.1	6.4
PERCENTAGE:	20.8	27.5	31.0	21.3	25.4

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY

Station Name: SOUTH LAKE TAHOE
Elevation: 6329 Feet

	Degrees	Minutes
North Latitude:	38	54
West Longitude:	120	0

Period of Record: JAN 1980 - DEC 1980
Observations: 5,853
16 OBS/DAY

Bias Index:-0.06
Speed Units: MPH
Source Code
Data: 1
Summary: L

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	6.0	8.2	11.3	9.3	7.3	9.1	7.4	8.2	8.0	8.8
NNE	7.4	7.9	10.1	9.4	8.7	9.0	8.1	8.0	8.6	8.7
NE	2.2	8.7	2.5	8.4	1.0	9.9	2.3	7.7	2.0	8.4
ENE	0.6	11.1	1.0	9.2	0.2	8.4	0.9	8.1	0.6	9.1
E	0.7	8.9	0.5	8.5	****	****	0.7	9.1	0.5	8.9
ESE	0.6	7.0	0.3	7.2	0.4	8.8	0.6	6.8	0.5	7.4
SE	2.3	8.5	1.3	6.7	1.3	6.2	2.7	6.1	1.9	6.9
SSE	7.8	8.1	3.7	9.3	3.7	8.3	6.3	7.6	5.4	8.2
S	19.3	11.8	13.3	10.6	12.4	11.1	11.0	9.4	14.0	10.9
SSW	14.6	14.1	11.6	12.8	19.4	12.0	11.8	12.4	14.4	12.8
SW	3.0	11.6	7.1	13.7	11.8	12.6	5.3	12.7	6.8	12.8
WSW	1.2	13.4	5.4	11.8	8.1	12.1	4.1	12.9	4.7	12.3
W	0.3	5.8	1.6	9.1	1.8	11.1	0.8	10.3	1.2	9.8
WNW	0.7	7.4	0.6	9.7	0.7	9.4	1.3	9.0	0.8	8.9
NW	0.8	8.1	1.8	9.5	0.5	10.6	1.9	8.8	1.3	9.2
NNW	1.7	10.3	4.3	9.7	1.2	8.9	4.5	8.3	2.9	9.1
CALM	30.8		23.5		21.4		30.3		26.3	
ALL		7.4		8.1		8.6		6.7		7.7

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	187	225	215	213	208
SPEED:	3.8	2.1	4.5	2.1	3.0
PER. RATIO:	0.52	0.26	0.53	0.31	0.39
PREDOMINANT WINDS					
DIRECTION:	S	SSW	SSW	S	SSW
SPEED:	11.9	12.1	11.9	10.2	12.0
PERCENTAGE:	41.7	32.0	43.6	29.1	35.2
SECONDARY PREDOMINANT WINDS					
DIRECTION:	NNE	N	N	N	N
SPEED:	8.1	9.4	9.0	8.1	8.8
PERCENTAGE:	15.6	25.7	17.2	20.0	19.5

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY

Station Name: STOCKTON
Elevation: 37 Feet

	Degrees	Minutes
North Latitude:	37	54
West Longitude:	121	15

Period of Record: 1964 - 1980
Observations: 64,299

Bias Index: 0.19
Speed Units: MPH
Source Code
Data: 1
Summary: L

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	3.7	8.8	5.8	9.4	8.1	7.2	6.8	7.7	6.1	8.1
NNE	1.2	5.5	1.6	5.4	2.3	5.5	2.2	5.2	1.8	5.4
NE	1.3	5.4	1.5	5.6	1.6	5.4	2.4	5.3	1.7	5.4
ENE	2.3	5.3	1.5	5.5	1.1	5.4	2.3	5.2	1.8	5.4
E	5.5	5.5	2.4	5.8	0.8	5.3	3.7	5.3	3.1	5.5
ESE	9.0	6.6	2.4	6.7	0.5	6.2	4.9	6.4	4.3	6.5
SE	12.9	9.0	3.6	8.3	0.3	7.1	5.5	8.2	5.7	8.7
SSE	11.5	10.9	3.4	10.0	0.2	7.1	4.4	8.9	5.0	10.2
S	7.2	7.4	2.6	7.5	0.4	5.8	3.5	6.6	3.5	7.2
SSW	1.8	5.6	1.3	6.3	0.2	5.1	1.5	5.3	1.2	5.7
SW	2.2	5.5	1.4	6.7	0.4	6.4	1.6	5.3	1.4	5.8
WSW	4.1	6.4	5.2	9.2	3.2	10.1	4.3	6.7	4.2	8.0
W	9.1	7.1	22.7	10.7	26.8	11.4	14.2	8.1	18.0	10.0
WNW	7.6	8.0	17.8	9.8	23.1	10.1	14.0	8.6	15.5	9.4
NW	6.5	9.5	13.0	10.7	16.3	10.3	11.8	9.6	11.8	10.1
NNW	4.9	11.2	8.3	12.2	10.9	9.1	8.2	10.0	8.0	10.5
CALM	9.1		5.4		3.7		8.6		6.9	
ALL		7.3		9.2		9.4		7.2		8.2

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	175	293	298	300	292
SPEED:	1.4	5.6	7.7	2.9	3.8
PER. RATIO:	0.19	0.61	0.82	0.41	0.46
PREDOMINANT WINDS					
DIRECTION:	SE	WNW	WNW	WNW	WNW
SPEED:	9.0	10.4	10.7	8.7	9.8
PERCENTAGE:	33.4	53.5	66.2	40.0	45.3
SECONDARY PREDOMINANT WINDS					
DIRECTION:	WNW	N	N	N	N
SPEED:	8.1	10.5	8.0	8.5	9.0
PERCENTAGE:	23.2	15.7	21.3	17.2	15.9

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY

Station Name: SUNNYVALE
Elevation: 102 Feet

	Degrees	Minutes
North Latitude:	37	23
West Longitude:	122	2

Period of Record: JAN 1973 - MAR 1974
MAY 1976 - DEC 1976

Observations: 18,336
24 OBS/DAY

Bias Index: 1.00
Speed Units: MPH

Source Code
Data: 4
Summary: L

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	3.4	4.0	12.9	6.5	11.5	4.8	5.7	3.5	7.8	5.0
NNE	****	****	****	****	****	****	****	****	****	****
NE	1.3	2.5	2.9	3.0	5.1	2.6	2.7	2.8	2.9	2.7
ENE	****	****	****	****	****	****	****	****	****	****
E	3.0	2.2	4.0	2.9	4.7	2.4	3.3	2.3	3.7	2.5
ESE	****	****	****	****	****	****	****	****	****	****
SE	28.4	4.8	21.9	4.5	13.5	3.0	23.7	3.7	22.2	4.1
SSE	****	****	****	****	****	****	****	****	****	****
S	15.2	2.0	9.3	2.6	5.3	1.8	13.6	1.8	11.2	2.0
SSW	****	****	****	****	****	****	****	****	****	****
SW	9.7	2.4	6.9	3.6	4.1	3.5	9.1	2.1	7.6	2.6
WSW	****	****	****	****	****	****	****	****	****	****
W	19.6	4.9	17.5	6.9	13.7	5.2	15.1	3.9	16.4	5.1
WNW	****	****	****	****	****	****	****	****	****	****
NW	19.4	5.2	24.6	7.1	42.2	6.9	26.8	4.9	28.1	6.0
NNW	****	****	****	****	****	****	****	****	****	****
CALM	0.0		0.0		0.0		0.0		0.0	
ALL		4.1		5.5		5.0		3.6		4.4

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	234	300	313	282	294
SPEED:	1.0	2.0	3.2	0.9	1.5
PER. RATIO:	0.24	0.37	0.64	0.26	0.34
PREDOMINANT WINDS (Alternate Definition)					
DIRECTION:	SE	NW	NW	NW	NW
SPEED:	4.8	7.1	6.9	4.9	6.0
PERCENTAGE:	28.4	24.6	42.2	26.8	28.1
SECONDARY PREDOMINANT WINDS (Alternate Definition)					
DIRECTION:	W	SE	SE	SE	SE
SPEED:	4.9	4.5	3.0	3.7	4.1
PERCENTAGE:	19.6	21.9	13.5	23.7	22.2

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY

Station Name: SUSANVILLE
Elevation: 4152 Feet

	Degrees	Minutes
North Latitude:	40	23
West Longitude:	120	34

Period of Record: DEC 1976 - NOV 1977

Observations: 1,813
5 OBS/DAY 08-16 PST

Bias Index: 0.04
Speed Units: MPH

Source Code
Data: 1
Summary: L

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	1.1	6.0	4.8	10.3	2.4	5.5	2.2	8.2	2.6	8.3
NNE	1.6	4.4	3.3	8.4	3.1	5.6	0.9	5.2	2.2	6.4
NE	3.6	5.7	5.7	10.1	5.9	7.1	4.0	6.6	4.8	7.6
ENE	6.3	6.5	6.8	8.1	7.9	7.2	7.0	6.7	7.0	7.1
E	12.1	6.4	7.9	8.2	12.5	7.8	9.5	7.3	10.5	7.4
ESE	11.4	6.4	5.3	7.9	9.2	7.3	7.3	7.1	8.3	7.1
SE	5.8	6.1	2.4	8.7	1.8	8.1	2.2	6.8	3.0	7.0
SSE	4.7	8.4	2.9	8.6	2.2	7.6	2.6	6.8	3.1	8.0
S	5.6	6.9	4.2	8.7	3.5	8.0	4.2	7.3	4.4	7.7
SSW	1.3	7.3	3.3	13.8	2.0	13.2	2.2	8.2	2.2	11.3
SW	1.6	9.7	5.7	14.3	6.3	13.2	4.8	10.7	4.6	12.6
WSW	6.7	8.9	12.1	14.4	8.5	12.9	11.2	12.5	9.7	12.6
W	8.3	8.5	11.0	13.0	8.1	12.0	13.8	11.5	10.3	11.4
WNW	5.8	6.8	6.6	10.5	6.6	8.5	10.3	9.8	7.3	9.1
NW	1.8	6.6	6.6	12.3	5.3	7.4	4.2	9.9	4.5	9.7
NNW	2.2	6.6	5.1	11.3	2.8	6.7	2.0	8.7	3.0	8.9
CALM	20.0		6.2		11.8		11.5		12.4	
ALL		5.6		10.3		7.8		8.1		8.0

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	151	274	238	261	254
SPEED:	1.0	2.9	1.1	2.7	1.6
PER. RATIO:	0.18	0.28	0.14	0.33	0.20
PREDOMINANT WINDS					
DIRECTION:	E	W	E	W	W
SPEED:	6.4	13.0	7.5	11.3	11.2
PERCENTAGE:	29.8	29.7	29.6	35.3	27.3
SECONDARY PREDOMINANT WINDS					
DIRECTION:	W	ENE	W	E	E
SPEED:	8.2	8.7	11.3	7.1	7.2
PERCENTAGE:	20.8	20.4	23.2	23.8	25.8

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY

Station Name: TAFT
Elevation: 436 Feet

	Degrees	Minutes
North Latitude:	35	6
West Longitude:	119	19

Period of Record: DEC 1941 - FEB 1945
Observations: 28,245
Bias Index: 0.07
Speed Units: MPH
Source Code
Data: 1
Summary: A

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	9.2	4.6	17.8	7.2	15.6	7.5	10.0	5.8	12.9	6.5
NNE	6.2	4.2	7.5	6.9	14.2	7.2	13.4	5.5	10.0	6.1
NE	3.8	4.1	6.6	6.1	12.8	6.6	6.1	5.0	7.1	5.8
ENE	2.6	4.2	2.0	6.1	3.6	6.0	3.0	4.3	2.8	5.1
E	3.7	4.1	4.0	5.1	3.4	5.3	2.4	4.5	3.4	4.7
ESE	3.5	6.3	2.8	6.3	1.3	4.0	1.8	6.1	2.4	6.0
SE	3.1	4.1	2.0	3.8	0.9	3.8	1.4	3.8	1.9	4.0
SSE	3.1	3.6	1.0	3.6	1.0	3.2	1.3	4.1	1.7	3.6
S	4.2	3.5	1.7	3.7	1.7	3.5	1.4	3.3	2.4	3.5
SSW	9.7	3.8	6.4	4.2	4.5	3.9	7.7	3.6	7.2	3.9
SW	17.5	4.1	15.9	5.9	13.5	5.9	21.4	5.0	17.1	5.1
WSW	11.9	4.9	15.0	6.8	18.0	8.2	17.2	5.6	15.3	6.4
W	3.4	3.9	2.7	4.9	1.6	4.8	2.0	3.8	2.5	4.3
WNW	2.3	4.3	2.5	5.4	1.6	4.8	1.9	3.9	2.1	4.6
NW	1.9	4.6	2.5	5.9	1.8	5.8	1.3	3.4	1.9	5.1
NNW	4.5	4.4	5.5	5.9	2.7	6.1	4.5	4.6	4.3	5.2
CALM	9.3		4.0		1.7		3.1		5.0	
ALL		3.9		5.8		6.5		4.8		5.2

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	241	311	333	281	300
SPEED:	0.9	1.6	1.8	1.1	1.1
PER. RATIO:	0.22	0.27	0.28	0.24	0.21
PREDOMINANT WINDS					
DIRECTION:	SW	SW	NNE	SW	SW
SPEED:	4.3	6.0	7.1	5.0	5.4
PERCENTAGE:	39.1	37.3	42.6	46.3	39.6
SECONDARY PREDOMINANT WINDS					
DIRECTION:	N	NNE	SW	NNE	NNE
SPEED:	4.4	6.9	6.8	5.5	6.2
PERCENTAGE:	19.9	31.9	36.0	29.5	30.0

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY

Station Name: TEHACHAPI
Elevation: 3969 Feet

	Degrees	Minutes
North Latitude:	35	8
West Longitude:	118	27

Period of Record: NOV 1942 - DEC 1944
Observations: 18,785
Bias Index: 0.57
Speed Units: MPH
Source Code
Data: 1
Summary: A

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	0.6	4.1	0.8	2.8	1.2	3.3	1.3	3.0	0.9	3.2
NNE	0.0	10.0	0.1	3.8	0.1	2.7	0.0	4.5	0.1	4.3
NE	1.2	4.7	0.9	5.9	0.7	2.8	2.3	5.2	1.3	4.9
ENE	2.2	12.8	0.5	9.8	0.3	5.7	2.8	9.2	1.5	10.5
E	13.1	9.1	4.1	7.3	2.4	4.6	10.0	6.2	7.6	7.5
ESE	13.0	10.0	4.6	7.8	1.8	6.9	12.5	8.6	8.3	9.0
SE	23.8	9.6	6.6	7.0	3.9	4.6	15.4	7.8	12.9	8.1
SSE	1.0	7.2	0.5	9.0	0.4	6.8	1.3	7.5	0.8	7.6
S	1.5	5.7	0.6	4.1	0.4	3.9	1.0	3.7	0.9	4.7
SSW	0.2	7.6	0.1	8.0	0.2	4.1	0.3	7.8	0.2	7.0
SW	2.6	6.3	2.8	6.0	1.8	5.2	2.2	4.4	2.4	5.6
WSW	1.0	8.1	4.1	9.4	5.8	6.8	3.1	7.3	3.4	7.8
W	11.2	7.5	17.3	8.6	18.0	6.6	9.5	6.5	13.8	7.4
WNW	9.0	10.1	18.4	10.9	18.1	8.4	10.2	8.8	13.7	9.6
NW	16.0	10.0	34.9	10.9	39.4	10.1	22.2	9.3	27.6	10.1
NNW	0.3	8.0	1.0	8.3	2.7	9.1	1.1	6.8	1.2	8.3
CALM	3.2		2.6		2.7		4.7		3.3	
ALL		8.9		9.3		7.9		7.3		8.4

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	119	297	300	321	300
SPEED:	1.5	6.2	6.4	0.8	2.7
PER. RATIO:	0.17	0.67	0.81	0.11	0.33
PREDOMINANT WINDS (Alternate Definition)					
DIRECTION:	SE	NW	NW	NW	NW
SPEED:	9.7	10.9	9.5	9.1	9.9
PERCENTAGE:	37.8	54.3	60.2	33.5	42.5
SECONDARY PREDOMINANT WINDS (Alternate Definition)					
DIRECTION:	NW	SE	SW	SE	SE
SPEED:	10.0	7.4	6.4	7.7	8.4
PERCENTAGE:	25.3	11.7	7.8	29.2	22.0

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY

Station Name: TEMPLE CITY
Elevation: 400 Feet
Degrees Minutes
North Latitude: 34 7
West Longitude: 118 3

Period of Record: NOV 1955 - JUN 1960
Observations: 26,730
24 OBS/DAY

Bias Index:-0.22
Speed Units: MPH
Source Code
Data: 3
Summary: M

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	15.0	4.4	5.4	3.8	1.6	4.0	12.0	4.2	8.6	4.2
NNE	13.9	4.5	6.6	4.6	0.9	4.1	8.2	4.2	7.5	4.4
NE	1.7	4.9	1.1	3.8	0.4	4.1	1.7	3.8	1.3	4.2
ENE	7.7	5.1	3.6	4.7	0.9	3.7	3.1	4.2	3.9	4.7
E	4.9	4.9	4.3	4.3	2.3	4.1	3.2	4.2	3.7	4.5
ESE	4.9	4.8	6.0	5.1	3.3	4.9	4.4	4.1	4.7	4.8
SE	0.7	6.5	0.9	5.4	2.1	5.1	0.9	5.2	1.2	5.4
SSE	5.9	5.2	8.7	5.5	8.3	5.5	6.7	4.8	7.4	5.3
S	9.4	5.4	13.8	6.2	22.4	5.9	11.5	5.6	14.1	5.8
SSW	10.0	5.0	17.4	6.5	23.2	6.6	13.0	5.8	15.8	6.2
SW	1.3	5.6	2.6	7.7	6.9	7.2	3.4	5.8	3.4	6.8
WSW	6.3	5.7	11.4	6.7	15.0	6.3	10.0	6.2	10.6	6.3
W	8.6	5.4	12.0	6.1	10.9	6.1	11.8	5.5	10.8	5.8
WNW	2.4	4.6	2.3	5.2	0.9	4.9	3.4	4.4	2.3	4.7
NW	0.5	3.9	0.7	5.5	0.3	3.9	1.0	3.8	0.6	4.4
NNW	6.7	4.4	3.0	4.8	0.6	3.7	5.6	4.6	4.0	4.5
CALM	0.0		0.0		0.0		0.0		0.0	
ALL		4.9		5.7		6.0		5.0		5.4

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	360	210	207	233	213
SPEED:	0.2	2.5	4.3	1.5	1.9
PER. RATIO:	0.04	0.43	0.72	0.29	0.36
PREDOMINANT WINDS					
DIRECTION:	N	S	S	S	S
SPEED:	4.4	6.2	6.1	5.5	5.9
PERCENTAGE:	35.6	39.9	53.9	31.2	37.3
SECONDARY PREDOMINANT WINDS					
DIRECTION:	S	WSW	WSW	N	WSW
SPEED:	5.2	6.5	6.4	4.3	6.2
PERCENTAGE:	25.3	26.0	32.8	25.8	24.8

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY

Station Name: THERMAL
Elevation: -116 Feet
Degrees Minutes
North Latitude: 33 38
West Longitude: 116 10

Period of Record: 1951 - 1953
Observations: 26,292

Bias Index:-0.12
Speed Units: MPH
Source Code
Data: 1
Summary: L

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	12.7	6.5	9.2	10.0	6.3	8.8	16.7	6.9	11.2	7.7
NNE	11.5	5.9	11.7	7.7	7.6	6.5	9.6	6.5	10.1	6.7
NE	5.9	5.4	3.8	5.6	3.0	4.8	2.6	4.6	3.8	5.2
ENE	1.0	4.3	0.7	5.2	0.9	4.3	0.6	4.4	0.8	4.5
E	0.6	4.1	0.5	4.3	1.0	4.4	0.9	4.0	0.8	4.2
ESE	0.5	4.8	0.7	5.4	2.0	7.6	1.0	6.2	1.0	6.6
SE	6.1	5.8	7.7	8.3	15.7	9.4	7.0	7.5	9.1	8.2
SSE	5.4	6.5	7.0	9.8	10.4	10.1	9.0	7.7	8.0	8.8
S	5.1	5.7	4.7	7.6	6.8	8.1	5.5	6.6	5.5	7.1
SSW	2.6	4.9	1.4	5.7	1.4	5.8	2.4	5.3	2.0	5.4
SW	2.7	4.5	2.3	5.7	1.9	4.9	1.8	4.3	2.2	4.9
WSW	2.1	5.3	1.2	6.9	1.0	4.4	2.3	5.1	1.7	5.4
W	1.8	5.3	1.8	8.2	1.4	5.8	2.2	5.6	1.8	6.2
WNW	3.6	6.7	2.5	9.9	1.8	6.7	3.0	7.3	2.7	7.6
NW	13.8	8.1	10.4	9.4	9.0	8.6	13.0	7.6	11.5	8.4
NNW	21.2	8.0	33.6	12.8	27.8	12.1	20.1	8.5	25.7	10.8
CALM	3.3		0.7		2.0		2.2		2.0	
ALL		6.4		9.8		9.1		7.0		8.1

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	341	342	354	343	344
SPEED:	3.2	5.3	2.1	2.7	3.3
PER. RATIO:	0.50	0.54	0.23	0.39	0.41
PREDOMINANT WINDS					
DIRECTION:	NNW	N	NNW	NNW	NNW
SPEED:	7.6	11.2	10.9	7.7	9.5
PERCENTAGE:	47.7	54.5	43.1	49.8	48.4
SECONDARY PREDOMINANT WINDS					
DIRECTION:	NE	SSE	SSE	SSE	SSE
SPEED:	5.7	8.7	9.4	7.4	8.1
PERCENTAGE:	18.4	19.4	32.9	21.5	22.6

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY
Station Name: TRAVIS AFB
Elevation: 59 Feet (13)
Degrees Minutes
North Latitude: 38 16
West Longitude: 121 56
Period of Record: 1958 - 1970
Observations: 113,952
Bias Index: 0.05
Speed Units: MPH
Source Code
Data: 1
Summary: L

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	13.2	11.4	8.1	13.2	1.7	10.7	10.3	12.2	8.3	12.1
NNE	9.0	7.2	2.7	8.1	0.7	8.8	5.7	7.6	4.5	7.5
NE	5.6	5.9	1.0	6.2	0.3	6.5	3.0	6.1	2.4	6.0
ENE	3.7	5.5	0.4	5.1	0.1	5.8	1.3	5.3	1.4	5.4
E	4.9	5.0	0.6	5.1	0.0	5.2	1.4	4.7	1.7	5.0
ESE	2.5	5.1	0.5	6.0	0.1	5.5	0.7	4.6	1.0	5.1
SE	3.7	9.7	1.0	9.4	0.1	6.6	1.6	9.7	1.6	9.6
SSE	4.3	11.3	1.2	10.2	0.1	7.0	1.2	9.2	1.7	10.6
S	5.7	8.5	3.0	7.3	0.5	6.3	2.6	6.8	2.9	7.7
SSW	4.8	7.8	5.3	7.4	2.0	9.3	4.6	7.2	4.2	7.7
SW	7.1	8.3	23.6	11.1	36.7	15.5	20.4	11.3	22.0	12.8
WSW	6.2	8.9	31.6	13.2	50.9	16.5	23.4	12.9	28.1	14.4
W	4.0	7.6	9.2	10.6	4.3	11.7	4.7	8.5	5.6	9.8
WNW	1.1	5.4	1.2	5.7	0.3	5.4	0.9	4.5	0.9	5.3
NW	1.1	4.8	1.0	5.4	0.3	5.1	1.0	4.5	0.8	4.9
NNW	2.1	7.4	1.8	8.7	0.4	7.1	1.7	7.3	1.5	7.7
CALM	20.9		7.7		1.4		15.4		11.3	
ALL		6.5		10.3		15.2		8.8		10.2

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	353	248	240	251	245
SPEED:	0.4	7.2	14.3	4.7	6.5
PER. RATIO:	0.06	0.70	0.94	0.54	0.64
PREDOMINANT WINDS					
DIRECTION:	NNE	WSW	WSW	WSW	WSW
SPEED:	8.9	12.1	15.9	11.8	13.3
PERCENTAGE:	27.8	64.4	91.9	48.5	55.7
SECONDARY PREDOMINANT WINDS					
DIRECTION:	SW	N	N	NNE	NNE
SPEED:	8.4	11.5	9.7	9.9	9.8
PERCENTAGE:	18.1	12.6	2.8	19.0	15.2

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY
Station Name: TWENTY NINE PALMS
Elevation: 1778 Feet
Degrees Minutes
North Latitude: 34 8
West Longitude: 116 2
Period of Record: JUL 1942 - MAR 1943
Observations: 6,567
Bias Index: 0.66
Speed Units: MPH
Source Code
Data: 1
Summary: A

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	3.7	4.6	3.8	6.4	11.4	6.1	5.7	5.1	6.1	5.5
NNE	0.7	6.1	0.3	2.0	0.5	6.4	0.3	3.4	0.5	5.3
NE	1.2	4.6	1.9	5.4	2.1	5.6	1.0	4.9	1.4	5.1
ENE	0.7	6.7	0.4	10.7	0.1	10.0	0.7	6.2	0.5	7.0
E	4.8	7.2	5.9	8.2	4.2	9.6	4.5	6.2	4.7	7.5
ESE	3.6	5.9	1.1	4.2	0.3	6.5	1.9	5.1	2.0	5.6
SE	3.3	6.1	2.2	4.2	8.5	7.0	3.4	5.4	4.4	6.2
SSE	0.6	7.2	0.5	2.8	0.5	6.0	0.6	4.6	0.5	5.6
S	1.4	5.0	1.5	3.7	5.4	7.1	1.6	6.2	2.4	6.2
SSW	1.2	8.2	2.0	7.5	0.7	12.1	0.8	9.4	1.1	8.9
SW	2.8	9.7	7.3	9.6	8.5	8.9	2.8	9.4	4.6	9.3
WSW	3.4	8.6	4.7	9.3	2.0	11.9	2.4	9.3	2.9	9.4
W	8.6	6.8	11.7	7.7	15.5	8.7	9.6	6.9	10.8	7.5
WNW	10.3	9.1	12.0	12.3	3.2	7.2	9.9	7.7	8.7	8.9
NW	34.5	7.2	28.9	7.4	20.6	6.4	39.3	6.6	32.3	6.9
NNW	8.6	6.1	5.9	6.4	1.3	8.1	7.1	6.0	6.2	6.2
CALM	10.5		9.8		15.1		8.3		10.8	
ALL		6.4		7.3		6.4		6.1		6.4

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	304	293	280	305	299
SPEED:	3.7	4.5	2.4	3.9	3.5
PER. RATIO:	0.59	0.63	0.38	0.64	0.56
PREDOMINANT WINDS (Alternate Definition)					
DIRECTION:	NW	NW	NW	NW	NW
SPEED:	7.4	8.5	6.6	6.7	7.2
PERCENTAGE:	53.4	46.8	25.1	56.3	47.2
SECONDARY PREDOMINANT WINDS (Alternate Definition)					
DIRECTION:	E	SW	SW	E	SW
SPEED:	6.6	9.2	9.6	5.9	9.3
PERCENTAGE:	9.1	14.0	11.2	7.1	8.6

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY | Period of Record: | Bias Index:-0.18
Station Name: UKIAH | | Speed Units: MPH
Elevation: 631 Feet | 1950 - 1964 |
Degrees Minutes | | Source Code
North Latitude: 39 8 | Observations: 131,395 | Data: 1
West Longitude: 123 12 | | Summary: L

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	2.3	4.8	5.5	7.1	7.0	8.4	3.9	6.4	4.7	7.2
NNE	1.4	4.6	3.2	6.3	4.2	7.6	2.1	6.1	2.7	6.5
NE	1.0	3.8	1.8	5.1	2.2	5.6	1.7	4.8	1.7	5.0
ENE	0.6	3.5	1.0	4.2	1.5	4.6	0.9	4.1	1.0	4.2
E	0.8	3.6	0.9	4.1	1.7	4.4	1.0	3.9	1.1	4.1
ESE	1.4	5.0	1.4	5.2	2.6	5.4	1.6	4.9	1.7	5.2
SE	3.2	7.3	3.3	7.6	4.2	7.4	3.4	7.3	3.5	7.4
SSE	11.1	8.7	8.4	8.6	7.5	7.6	7.2	8.4	8.5	8.4
S	3.7	7.1	3.1	6.5	3.0	6.1	3.3	6.8	3.3	6.6
SSW	1.6	5.1	1.8	5.5	1.5	5.6	1.2	5.3	1.5	5.4
SW	0.7	4.8	1.0	5.8	1.1	6.7	0.7	5.5	0.9	5.8
WSW	1.3	4.2	2.1	6.3	2.5	7.5	1.4	5.7	1.8	6.2
W	2.3	4.8	3.4	6.8	3.6	7.3	2.5	5.9	2.9	6.4
WNW	5.1	5.7	8.8	8.1	6.5	7.7	5.0	6.7	6.4	7.3
NW	3.9	6.0	7.7	8.1	5.9	7.9	4.7	6.6	5.6	7.3
NNW	3.2	5.4	6.2	7.4	6.4	8.2	3.8	6.6	4.9	7.2
CALM	56.4		40.3		38.5		55.6		47.7	
ALL		2.8		4.3		4.5		2.9		3.6

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	182	299	324	251	285
SPEED:	0.8	1.1	1.0	0.3	0.5
PER. RATIO:	0.30	0.26	0.23	0.09	0.13
PREDOMINANT WINDS					
DIRECTION:	SSE	NW	NNW	SSE	NW
SPEED:	8.1	7.9	8.2	7.8	7.3
PERCENTAGE:	18.0	22.7	19.3	13.9	16.9
SECONDARY PREDOMINANT WINDS					
DIRECTION:	NW	SSE	SSE	NW	SSE
SPEED:	5.7	7.9	7.2	6.6	7.8
PERCENTAGE:	12.2	14.8	14.7	13.5	15.3

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY | Period of Record: | Bias Index: 1.00
Station Name: VALLEJO | JAN 1975 - MAR 1975 | Speed Units: MPH
Elevation: 20 Feet | MAY 1976 - DEC 1976 |
Degrees Minutes | APR 1979 - MAR 1980 | Source Code
North Latitude: 38 6 | Observations: 14,428 | Data: 4
West Longitude: 122 14 | 24 OBS/DAY | Summary: L

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	9.6	1.0	3.4	2.7	1.2	3.5	7.8	1.0	5.3	1.4
NNE	****	****	****	****	****	****	****	****	****	****
NE	30.7	3.4	7.7	2.4	1.7	1.8	10.4	1.7	11.3	2.7
ENE	****	****	****	****	****	****	****	****	****	****
E	31.1	5.8	2.8	4.4	0.4	2.8	14.9	5.2	11.3	5.5
ESE	****	****	****	****	****	****	****	****	****	****
SE	3.1	4.6	1.3	3.2	0.2	2.3	1.9	4.3	1.5	4.2
SSE	****	****	****	****	****	****	****	****	****	****
S	4.8	5.9	1.6	5.0	0.4	4.5	1.9	3.8	1.8	5.0
SSW	****	****	****	****	****	****	****	****	****	****
SW	10.3	5.2	54.5	7.0	73.5	7.4	36.3	5.4	46.1	6.7
WSW	****	****	****	****	****	****	****	****	****	****
W	4.4	2.4	21.0	5.6	18.2	5.0	18.4	3.5	16.1	4.5
WNW	****	****	****	****	****	****	****	****	****	****
NW	6.7	3.4	7.6	4.5	4.5	3.0	8.4	2.4	6.7	3.2
NNW	****	****	****	****	****	****	****	****	****	****
CALM	0.0		0.0		0.0		0.0		0.0	
ALL		4.2		5.8		6.6		4.0		5.2

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	82	239	232	226	229
SPEED:	2.0	4.5	6.0	1.7	2.9
PER. RATIO:	0.48	0.77	0.92	0.42	0.56
PREDOMINANT WINDS (Alternate Definition)					
DIRECTION:	E	SW	SW	SW	SW
SPEED:	5.8	7.0	7.4	5.4	6.7
PERCENTAGE:	31.1	54.5	73.5	36.3	46.1
SECONDARY PREDOMINANT WINDS (Alternate Definition)					
DIRECTION:	SW	NE	NW	E	NE
SPEED:	5.2	2.4	3.0	5.2	2.7
PERCENTAGE:	10.3	7.7	4.5	14.9	11.3

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY
Station Name: VAN NUYS
Elevation: 794 Feet

	Degrees	Minutes
North Latitude:	34	13
West Longitude:	118	30

Period of Record:
1943 - 1946
1948 - 1950
1962
Observations: 53,258

Bias Index: 0.54
Speed Units: MPH
Source Code
Data: 1
Summary: A

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	14.1	13.1	6.0	13.4	1.6	4.0	8.7	12.0	7.4	12.3
NNE	7.3	13.2	2.2	10.9	0.8	4.1	2.6	10.9	3.2	11.7
NE	4.4	10.0	3.3	7.3	3.2	4.3	3.1	6.4	3.5	7.2
ENE	1.2	6.9	1.1	5.0	2.0	4.1	1.2	5.2	1.4	5.1
E	2.5	5.6	5.0	6.0	10.6	6.3	5.2	4.9	5.9	5.9
ESE	2.2	6.4	3.7	6.4	7.2	7.0	3.5	5.9	4.2	6.6
SE	6.5	6.7	14.7	6.8	22.3	7.5	11.8	6.3	14.0	7.0
SSE	3.5	7.3	6.4	6.9	6.2	7.1	4.8	6.8	5.3	7.0
S	4.3	5.7	5.8	6.4	5.0	6.2	4.5	5.2	4.9	5.9
SSW	1.8	6.5	2.0	6.7	1.1	6.2	1.1	5.7	1.5	6.4
SW	3.0	5.1	3.9	5.9	2.1	4.7	2.5	4.6	2.9	5.2
WSW	2.3	5.9	2.4	7.1	0.8	4.9	1.7	4.9	1.8	6.0
W	4.8	5.3	6.9	6.7	2.9	5.7	7.1	5.4	5.4	5.8
WNW	3.1	5.2	3.0	6.6	1.2	5.7	2.1	5.2	2.3	5.7
NW	4.9	5.9	3.6	7.7	2.1	4.5	3.5	5.4	3.5	6.0
NNW	3.9	11.4	2.0	13.1	0.7	3.9	2.4	10.0	2.2	10.8
CALM	30.1		27.9		30.1		34.1		30.5	
ALL		6.1		5.4		4.5		4.5		5.1

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	8	117	130	43	77
SPEED:	2.7	0.4	2.9	0.7	0.9
PER. RATIO:	0.44	0.08	0.65	0.16	0.18
PREDOMINANT WINDS (Alternate Definition)					
DIRECTION:	N	SE	SE	SE	SE
SPEED:	12.9	6.8	7.3	6.3	6.9
PERCENTAGE:	25.3	24.8	35.7	20.1	23.5
SECONDARY PREDOMINANT WINDS (Alternate Definition)					
DIRECTION:	SE	W	NE	N	N
SPEED:	6.8	6.8	4.2	11.4	11.9
PERCENTAGE:	12.2	12.3	6.0	13.7	12.8

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY
Station Name: VANDENBERG AFB
Elevation: 380 Feet (13)

	Degrees	Minutes
North Latitude:	34	43
West Longitude:	120	34

Period of Record:
1959 - 1977
Observations: 145,478

Bias Index: 0.17
Speed Units: MPH
Source Code
Data: 1
Summary: L

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	10.8	8.5	8.1	7.9	5.9	5.2	6.8	6.7	7.9	7.4
NNE	4.9	7.7	2.4	5.9	1.3	3.4	2.7	6.1	2.8	6.4
NE	2.6	6.1	1.2	4.5	0.5	3.1	1.4	4.7	1.4	5.1
ENE	1.8	4.6	0.8	3.9	0.3	2.7	1.0	3.8	1.0	4.2
E	7.7	5.4	2.8	5.0	0.7	3.5	5.5	4.9	4.2	5.1
ESE	13.7	6.3	4.0	5.7	0.9	3.9	8.5	5.5	6.7	5.9
SE	9.0	9.0	2.8	6.9	0.8	3.7	4.9	6.9	4.4	7.8
SSE	2.4	9.7	1.2	8.9	0.4	3.8	1.4	7.2	1.3	8.5
S	1.8	9.3	1.3	7.9	0.4	3.8	1.3	7.8	1.2	8.1
SSW	0.9	8.6	0.8	7.9	0.4	3.9	0.7	6.7	0.7	7.2
SW	1.3	7.5	1.2	7.5	0.7	5.5	1.2	6.9	1.1	7.0
WSW	1.6	6.9	1.8	7.3	1.8	6.5	2.0	7.3	1.8	7.0
W	3.8	6.3	5.4	7.2	8.3	6.9	6.1	6.7	5.9	6.8
WNW	3.8	7.2	8.8	8.9	11.9	7.8	7.1	7.4	7.9	8.0
NW	10.0	9.6	25.1	11.5	27.8	8.8	16.8	8.9	20.0	9.8
NNW	11.5	10.3	20.8	11.6	18.5	8.0	12.6	8.8	15.9	9.8
CALM	12.3		11.4		19.3		19.9		15.7	
ALL		7.0		8.4		6.1		5.8		6.8

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	12	323	314	326	326
SPEED:	1.9	6.0	5.2	2.6	3.8
PER. RATIO:	0.27	0.72	0.86	0.45	0.56
PREDOMINANT WINDS					
DIRECTION:	NNW	NW	NW	NW	NW
SPEED:	9.5	11.1	8.3	8.6	9.5
PERCENTAGE:	32.3	54.7	58.2	36.5	43.8
SECONDARY PREDOMINANT WINDS					
DIRECTION:	ESE	NNE	WSW	ESE	ESE
SPEED:	6.9	7.1	6.7	5.7	6.2
PERCENTAGE:	38.4	11.7	10.8	18.9	15.3

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY
Station Name: VANDENBERG AFB (BOATHOUSE)
Elevation: 78 Feet (52)
Degrees Minutes
North Latitude: 34 33
West Longitude: 120 37
Period of Record: AUG 1966 - AUG 1967
Observations: 9,313
Bias Index: 0.33
Speed Units: MPH
Source Code
Data: 1
Summary: B

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	9.2	5.9	9.6	8.2	8.3	8.7	5.0	11.5	8.0	8.2
NNE	3.2	4.1	1.5	3.8	4.0	9.9	0.8	5.7	2.5	6.9
NE	3.7	3.4	2.1	4.2	3.6	4.2	3.4	4.2	3.2	4.0
ENE	2.1	2.9	1.3	4.7	3.2	3.7	2.7	4.3	2.4	3.9
E	4.0	5.6	4.7	7.5	5.9	3.8	5.9	4.1	5.2	5.0
ESE	2.5	10.5	4.5	8.1	2.6	4.3	2.8	7.7	3.1	7.5
SE	4.2	7.0	5.2	9.7	3.0	4.2	4.7	9.5	4.2	7.9
SSE	2.0	8.8	1.0	4.9	1.3	3.6	1.5	9.3	1.4	6.9
S	2.6	4.9	1.3	3.5	1.5	3.4	3.0	6.2	2.1	4.8
SSW	1.3	4.4	0.5	3.9	1.1	4.4	1.1	4.2	1.0	4.3
SW	2.6	4.1	1.8	4.9	3.2	5.1	3.8	5.1	2.9	4.9
WSW	1.8	5.0	1.8	6.6	3.1	5.9	2.6	6.0	2.4	5.9
W	3.9	7.3	4.2	8.1	6.5	8.1	7.4	10.5	5.5	8.7
WNW	7.5	11.2	10.6	11.3	8.9	12.0	12.1	10.0	9.7	13.4
NW	19.8	11.5	23.4	12.5	21.3	15.0	24.3	18.6	22.2	14.6
NNW	12.6	10.4	21.5	12.7	10.4	12.4	9.1	15.5	13.2	12.6
CALM	16.9		4.9		12.0		9.7		11.0	
ALL		6.9		9.7		8.4		11.4		9.1

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	323	326	321	312	320
SPEED:	4.0	6.3	6.0	7.7	6.0
PER. RATIO:	0.58	0.65	0.71	0.68	0.66
PREDOMINANT WINDS					
DIRECTION:	NNW	NW	NW	NW	NW
SPEED:	9.9	12.3	13.7	17.8	13.8
PERCENTAGE:	41.6	55.5	40.6	45.5	45.1
SECONDARY PREDOMINANT WINDS					
DIRECTION:	W	ESE	NNE	WSW	NNE
SPEED:	9.2	8.5	8.0	8.2	7.0
PERCENTAGE:	13.2	14.4	15.9	13.8	13.7

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY
Station Name: WALNUT
Elevation: 535 Feet (30)
Degrees Minutes
North Latitude: 34 0
West Longitude: 117 51
Period of Record: JAN 1965 - DEC 1973
Observations: 80,738
24 OBS/DAY
Bias Index:-0.19
Speed Units: MPH
Source Code
Data: 3
Summary: M

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	1.2	5.5	0.7	3.6	1.1	2.3	1.3	2.8	1.1	3.6
NNE	6.2	4.0	5.6	3.2	6.5	2.4	7.1	2.8	6.4	3.0
NE	11.6	4.4	6.4	3.5	5.1	2.5	10.4	3.3	8.4	3.6
ENE	16.6	4.9	7.8	3.8	2.3	2.9	10.0	4.1	9.2	4.3
E	13.0	5.3	5.5	4.6	2.1	2.9	8.9	4.3	7.4	4.7
ESE	5.3	3.7	4.3	3.3	4.5	2.7	5.6	2.8	4.9	3.1
SE	8.5	3.6	6.3	3.6	7.2	3.2	8.0	3.3	7.5	3.4
SSE	9.0	4.4	12.3	4.7	12.3	4.5	8.8	4.2	10.6	4.5
S	6.1	5.5	8.8	6.3	9.2	6.7	6.6	5.6	7.7	6.1
SSW	6.6	5.9	15.9	7.5	19.2	7.9	10.8	6.7	13.1	7.3
SW	3.0	5.6	6.6	7.5	8.8	7.5	5.3	6.5	5.9	7.0
WSW	4.6	5.2	8.3	6.5	9.4	5.7	7.5	5.4	7.4	5.7
W	4.9	4.4	7.0	4.7	7.5	4.3	4.8	4.7	6.0	4.5
WNW	1.9	5.0	2.3	5.1	2.3	3.7	2.5	4.1	2.2	4.5
NW	0.5	4.8	0.7	4.3	0.9	3.1	0.9	4.3	0.7	4.0
NNW	1.2	4.4	1.6	3.3	1.7	2.6	1.6	3.2	1.5	3.3
CALM	0.0		0.0		0.0		0.0		0.0	
ALL		4.7		5.2		5.1		4.4		4.9

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	107	192	202	167	178
SPEED:	1.7	2.4	3.3	1.3	1.8
PER. RATIO:	0.36	0.46	0.63	0.30	0.37
PREDOMINANT WINDS					
DIRECTION:	ENE	S	S	ENE	S
SPEED:	4.9	6.3	6.6	3.9	6.1
PERCENTAGE:	41.2	37.0	40.7	29.3	31.4
SECONDARY PREDOMINANT WINDS					
DIRECTION:	SSE	WSW	WSW	S	ENE
SPEED:	4.4	6.2	5.9	5.6	4.2
PERCENTAGE:	23.6	21.9	25.7	26.2	25.0

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY

Station Name: WASCO
Elevation: 230 Feet (33)

	Degrees	Minutes
North Latitude:	35	44
West Longitude:	119	32

Period of Record: MAR 1974 - FEB 1975
Observations: 8,640 *ESTIMATED SPEEDS*

Bias Index: 0.05
Speed Units: MPH
Source Code
Data: 11
Summary: Q

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	7.3	5.5	11.5	7.8	5.1	7.5	7.4	5.4	7.8	6.6
NNE	5.5	4.4	4.9	6.8	1.9	4.8	2.9	3.8	3.8	5.1
NE	4.5	4.2	2.4	4.5	1.3	6.0	2.4	3.8	2.7	4.4
ENE	4.0	3.9	1.1	7.2	1.2	4.8	2.9	4.0	2.3	4.4
E	4.0	3.9	1.5	5.1	1.7	5.9	3.1	3.7	2.6	4.3
ESE	6.5	4.8	2.0	4.7	1.7	5.4	4.3	4.4	3.6	4.7
SE	9.2	5.3	3.8	5.6	2.5	5.4	5.8	4.0	5.3	5.0
SSE	8.6	5.4	4.0	5.1	2.3	4.9	5.5	3.8	5.1	4.9
S	7.2	4.4	3.6	4.6	3.0	4.8	4.8	3.6	4.7	4.3
SSW	5.8	4.0	2.8	4.9	3.2	6.0	4.8	3.6	4.2	4.4
SW	3.9	4.1	4.0	5.3	4.7	5.4	5.6	4.0	4.5	4.7
WSW	4.5	4.4	4.8	5.6	7.6	5.8	7.0	5.9	6.0	5.5
W	4.6	5.2	10.6	7.4	19.3	8.4	11.4	7.3	11.5	7.6
WNW	4.8	5.6	13.4	8.0	14.9	7.0	7.7	6.2	10.2	7.0
NW	7.9	6.1	14.2	7.9	14.0	7.3	12.0	6.4	12.0	7.1
NNW	11.3	6.3	15.2	8.3	15.1	8.8	12.1	6.5	13.4	7.6
CALM	0.3		0.0		0.4		0.0		0.0	
ALL		5.0		7.0		7.1		5.3		6.1

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	334	314	296	296	304
SPEED:	0.3	4.0	4.5	2.2	2.7
PER. RATIO:	0.07	0.56	0.63	0.42	0.44
PREDOMINANT WINDS					
DIRECTION:	NNW	NW	WNW	NW	NW
SPEED:	6.0	8.1	7.6	6.4	7.3
PERCENTAGE:	26.5	42.8	48.2	31.8	35.6
SECONDARY PREDOMINANT WINDS					
DIRECTION:	SSE	WSW	N	WSW	WSW
SPEED:	5.1	6.5	8.2	6.1	6.4
PERCENTAGE:	25.0	19.4	22.1	24.0	22.0

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY

Station Name: WILLIAMS
Elevation: 129 Feet

	Degrees	Minutes
North Latitude:	39	6
West Longitude:	122	9

Period of Record: 1949 - 1952
Observations: 35,021

Bias Index:-0.37
Speed Units: MPH
Source Code
Data: 1
Summary: L

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	5.0	9.0	6.2	8.9	3.4	6.5	6.7	7.4	5.3	8.1
NNE	2.9	4.8	3.6	6.8	4.3	5.5	3.5	5.4	3.6	5.7
NE	1.3	4.2	2.0	4.8	3.7	4.5	2.4	4.1	2.4	4.4
ENE	1.4	3.7	2.0	4.7	4.6	4.9	2.2	4.2	2.6	4.6
E	1.5	4.0	5.2	4.9	11.5	6.5	3.8	4.5	5.5	5.6
ESE	6.0	6.2	9.9	7.5	22.8	8.4	9.7	6.5	12.2	7.5
SE	6.4	7.6	8.6	7.6	11.1	7.4	6.7	6.7	8.2	7.4
SSE	13.8	12.3	9.1	9.4	5.6	6.0	7.7	10.0	9.0	10.1
S	2.7	6.7	3.0	6.5	3.7	6.1	2.2	6.5	2.9	6.4
SSW	4.5	7.9	4.9	7.4	3.7	6.7	4.2	6.8	4.3	7.2
SW	3.2	6.5	4.0	6.2	2.8	6.2	3.4	5.5	3.3	6.1
WSW	11.4	6.7	9.3	7.6	4.6	7.2	12.3	5.7	9.4	6.6
W	4.9	5.5	4.7	5.7	2.3	4.8	6.9	4.5	4.7	5.1
WNW	8.6	5.2	6.6	5.9	3.0	4.7	7.2	4.6	6.3	5.2
NW	5.9	6.0	5.3	5.5	2.7	4.2	4.5	4.8	4.6	5.3
NNW	14.8	9.0	12.9	10.8	5.4	7.6	10.9	9.4	11.0	9.5
CALM	5.6		2.6		4.7		5.6		4.6	
ALL		7.2		7.3		6.4		6.1		6.8

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	231	272	114	261	153
SPEED:	1.1	0.4	2.9	0.5	0.5
PER. RATIO:	0.16	0.05	0.45	0.08	0.08
PREDOMINANT WINDS					
DIRECTION:	NW	SE	ESE	W	SE
SPEED:	7.3	8.2	7.7	5.1	8.3
PERCENTAGE:	29.3	27.6	45.4	26.4	29.4
SECONDARY PREDOMINANT WINDS					
DIRECTION:	SE	NW	N	SE	NW
SPEED:	9.8	8.4	6.6	7.7	7.4
PERCENTAGE:	26.2	24.8	13.1	24.1	21.9

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY

Station Name: WILLOWS
Elevation: 135 Feet (20)
Degrees Minutes
North Latitude: 39 31
West Longitude: 122 13

Period of Record: JUL 1981 - JUN 1982
Observations: 6,299
24 OBS/DAY

Bias Index: 0.11
Speed Units: MPH
Source Code
Data: 2
Summary: L

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	19.2	6.0	21.6	8.1	15.7	7.2	20.2	5.2	18.8	6.6
NNE	3.1	3.3	5.5	4.3	5.3	4.5	5.4	3.0	5.0	3.9
NE	2.1	1.9	2.3	2.5	2.2	2.3	2.9	2.3	2.4	2.3
ENE	1.8	2.1	1.8	2.7	1.9	2.5	2.4	2.1	2.0	2.3
E	1.3	1.7	2.6	3.7	2.8	3.3	2.4	2.7	2.4	3.1
ESE	1.0	2.8	4.6	3.9	4.4	3.8	4.0	3.0	3.8	3.5
SE	10.6	7.3	14.2	6.2	16.8	5.6	12.2	5.9	14.0	6.0
SSE	18.0	8.7	10.6	6.8	19.0	5.0	14.0	7.2	15.7	6.5
S	7.7	4.7	5.8	5.7	11.3	4.4	5.0	4.4	7.8	4.7
SSW	2.8	3.3	1.3	4.7	4.5	3.6	2.1	2.4	2.9	3.4
SW	1.9	3.7	2.0	2.8	1.4	3.8	1.4	2.1	1.6	3.1
WSW	1.7	2.3	1.3	2.7	1.2	2.8	1.3	1.8	1.3	2.4
W	1.4	1.9	1.7	2.2	1.0	2.0	1.6	1.7	1.4	1.9
WNW	3.1	2.6	2.6	5.3	1.9	3.5	2.0	2.4	2.3	3.5
NW	6.7	3.9	5.0	4.7	2.4	4.0	5.2	2.7	4.4	3.8
NNW	17.6	6.5	17.0	7.3	8.2	5.9	17.8	4.5	14.3	6.0
CALM	0.0		0.0		0.0		0.0		0.0	
ALL		5.8		6.1		5.0		4.6		5.3

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	83	15	110	62	65
SPEED:	0.5	1.7	1.0	0.8	0.8
PER. RATIO:	0.08	0.27	0.21	0.17	0.14
PREDOMINANT WINDS					
DIRECTION:	NNW	N	SSE	N	N
SPEED:	5.9	7.3	5.1	4.6	6.0
PERCENTAGE:	43.5	44.1	47.1	43.4	38.1
SECONDARY PREDOMINANT WINDS					
DIRECTION:	SSE	SSE	N	SSE	SSE
SPEED:	7.4	6.3	6.3	6.2	5.9
PERCENTAGE:	36.3	30.6	29.2	31.2	37.5

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY

Station Name: WOODLAND
Elevation: 107 Feet (36)
Degrees Minutes
North Latitude: 38 40
West Longitude: 121 47

Period of Record: JUL 1981 - JUN 1982
Observations: 6,615
24 OBS/DAY

Bias Index: 0.05
Speed Units: MPH
Source Code
Data: 2
Summary: L

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	14.4	7.0	13.3	7.9	11.2	7.0	15.0	5.1	13.3	6.6
NNE	3.1	3.4	3.8	4.3	6.3	3.6	9.0	3.4	5.9	3.6
NE	1.8	2.6	1.6	2.7	3.3	3.0	3.2	2.8	2.6	2.8
ENE	1.2	2.4	0.8	2.2	2.2	3.0	2.4	2.0	1.8	2.5
E	2.3	2.8	1.3	2.8	2.4	2.2	2.0	1.9	2.0	2.3
ESE	1.5	2.3	3.1	3.1	7.4	3.8	4.5	2.9	4.6	3.4
SE	3.6	4.1	8.7	3.9	15.8	4.4	8.4	4.1	10.0	4.2
SSE	14.0	5.4	8.2	4.8	9.2	3.8	8.0	4.6	9.5	4.6
S	20.7	6.2	11.3	5.1	10.7	4.6	11.8	5.4	12.9	5.4
SSW	6.3	6.2	10.1	5.1	8.3	5.1	6.9	5.6	7.9	5.4
SW	4.7	5.2	4.8	4.9	3.4	4.7	3.0	3.4	3.9	4.6
WSW	2.0	3.9	4.0	5.4	2.2	5.5	2.0	4.4	2.5	5.0
W	3.0	2.5	5.1	4.9	2.2	4.7	3.3	3.7	3.3	4.1
WNW	2.9	3.0	3.1	5.2	3.0	5.4	3.1	3.5	3.0	4.4
NW	3.4	3.1	3.5	4.5	2.8	3.3	3.7	2.6	3.3	3.3
NNW	15.0	10.3	17.2	9.6	9.6	8.6	13.7	7.2	13.3	8.8
CALM	0.0		0.0		0.0		0.0		0.0	
ALL		6.0		5.9		4.9		4.6		5.3

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	271	312	86	334	313
SPEED:	0.6	1.5	0.1	0.5	0.5
PER. RATIO:	0.11	0.25	0.03	0.10	0.09
PREDOMINANT WINDS					
DIRECTION:	S	N	SSE	N	N
SPEED:	5.9	8.4	4.3	5.5	7.0
PERCENTAGE:	41.0	34.3	35.7	37.7	32.5
SECONDARY PREDOMINANT WINDS					
DIRECTION:	NNW	S	N	SSE	SSE
SPEED:	8.1	5.0	6.0	4.8	4.8
PERCENTAGE:	32.8	29.6	27.1	28.2	32.4

Prepared by: California Air Resources Board

SURFACE WIND SUMMARY

Station Name: YUMA
Elevation: 203 Feet (28)
Degrees Minutes
North Latitude: 32 40
West Longitude: 114 36

Period of Record: 1965 - 1978
Observations: 40,884

Bias Index: 0.30
Speed Units: MPH
Source Code
Data: 1
Summary: L

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	25.1	9.7	7.7	9.3	2.3	6.6	14.9	8.9	12.4	9.3
NNE	11.1	8.0	4.1	8.0	1.2	6.5	7.9	7.8	6.1	7.9
NE	7.4	7.5	2.8	7.1	1.5	6.8	5.8	7.4	4.4	7.4
ENE	3.9	6.2	1.9	6.2	1.3	6.9	4.1	7.0	2.8	6.6
E	2.6	5.7	2.2	6.0	2.0	7.7	3.5	7.0	2.5	6.6
ESE	1.1	5.6	1.0	6.2	2.1	6.9	1.6	6.1	1.5	6.3
SE	2.2	9.0	3.3	9.6	7.1	11.2	3.7	9.9	4.1	10.3
SSE	3.1	9.7	6.7	9.9	15.7	11.7	5.7	10.1	7.8	10.8
S	5.4	7.2	11.3	8.3	22.7	10.0	9.0	8.3	12.2	9.0
SSW	1.7	6.8	5.1	7.7	7.4	8.8	3.0	6.8	4.3	8.0
SW	2.1	6.0	6.7	7.3	7.8	7.6	3.8	6.4	5.1	7.1
WSW	2.3	6.0	8.1	7.8	8.5	7.8	5.0	6.6	6.0	7.4
W	5.0	8.1	14.0	9.9	9.7	8.2	7.2	7.6	9.0	8.7
WNW	3.9	9.0	8.4	11.2	3.8	9.3	4.5	8.9	5.1	9.9
NW	4.3	8.3	4.6	8.9	1.6	7.8	3.7	7.9	3.6	8.3
NNW	7.1	9.3	3.1	8.9	0.9	6.5	4.1	8.8	3.8	8.9
CALM	11.6		8.9		4.3		12.4		9.2	
ALL		7.4		8.0		8.8		7.1		7.8

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	359	256	188	348	250
SPEED:	3.7	2.8	5.3	1.0	1.0
PER. RATIO:	0.50	0.35	0.60	0.14	0.13
PREDOMINANT WINDS					
DIRECTION:	NNE	W	S	NNE	S
SPEED:	8.9	9.7	10.4	8.3	9.4
PERCENTAGE:	43.6	30.5	45.8	28.6	24.3
SECONDARY PREDOMINANT WINDS					
DIRECTION:	NW	S	WSW	SSE	NNE
SPEED:	8.9	8.6	7.9	9.2	8.6
PERCENTAGE:	15.3	23.1	26.0	18.4	22.9

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SURFACE WIND SUMMARY

Station Name: ZUMA BEACH
Elevation: 7 Feet
Degrees Minutes
North Latitude: 34 1
West Longitude: 118 50

Period of Record: NOV 1955 - DEC 1973
Observations: 75,117
24 OBS/DAY

Bias Index: 0.40
Speed Units: MPH
Source Code
Data: 3
Summary: M

DIRECTION	WINTER % OF TIME	WINTER MEAN SPEED	SPRING % OF TIME	SPRING MEAN SPEED	SUMMER % OF TIME	SUMMER MEAN SPEED	FALL % OF TIME	FALL MEAN SPEED	ANNUAL % OF TIME	ANNUAL MEAN SPEED
N	17.4	3.8	14.0	0.9	11.1	0.8	14.2	1.6	13.8	1.6
NNE	1.5	18.2	0.2	13.3	0.2	3.4	0.4	16.8	0.5	15.5
NE	6.7	14.6	1.1	12.0	0.4	3.9	2.9	14.2	2.4	13.7
ENE	0.9	7.8	0.5	6.2	0.6	2.9	0.4	6.0	0.6	5.6
E	3.3	6.4	1.2	5.8	1.4	3.9	1.9	5.8	1.8	5.5
ESE	2.3	7.6	1.2	7.2	1.4	4.6	1.7	6.6	1.6	6.4
SE	10.8	6.9	6.1	6.8	5.3	5.3	7.8	6.4	7.2	6.4
SSE	2.2	6.8	1.7	6.6	1.9	5.2	1.4	6.0	1.8	6.1
S	4.5	5.8	4.5	5.9	4.5	4.6	4.7	5.2	4.5	5.3
SSW	1.5	5.6	1.4	5.4	1.6	4.0	1.7	4.8	1.6	4.8
SW	4.5	6.1	4.7	5.4	4.8	4.9	5.1	5.4	4.8	5.4
WSW	2.8	5.8	3.2	5.9	2.8	4.7	2.9	4.9	2.9	5.3
W	22.5	8.8	28.6	10.9	29.4	8.7	25.3	8.5	26.8	9.3
WNW	14.6	11.7	28.2	14.4	29.0	10.8	24.0	11.0	24.7	11.9
NW	4.0	11.0	3.3	11.4	4.8	10.2	5.4	9.4	4.4	10.3
NNW	0.4	11.7	0.2	11.1	0.7	10.3	0.2	7.3	0.4	10.3
CALM	0.0		0.0		0.0		0.0		0.0	
ALL		8.1		9.4		7.5		7.6		8.1

	WINTER	SPRING	SUMMER	FALL	ANNUAL
RESULTANT WINDS					
DIRECTION:	296	279	279	282	281
SPEED:	2.7	7.0	5.8	4.5	5.1
PER. RATIO:	0.34	0.75	0.78	0.59	0.64
PREDOMINANT WINDS					
DIRECTION:	WNW	WNW	WNW	WNW	WNW
SPEED:	10.0	12.6	9.8	9.7	10.5
PERCENTAGE:	41.1	60.1	63.2	54.7	55.9
SECONDARY PREDOMINANT WINDS					
DIRECTION:	NNE	NNE	N	NNE	NNE
SPEED:	6.9	1.9	1.4	4.0	3.8
PERCENTAGE:	25.6	15.3	12.0	17.5	16.7

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