U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
IN COOPERATION WITH FOREST GROVE CHAMBER OF COMMERCE
CLIMATOGRAPHY OF THE UNITED STATES NO. 20 - 35

CLIMATOLOGICAL SUMMARY

LATITUDE 45° 32' N
LONGITUDE 123° 6' W
ELEV. (GROUND) 175 Feet

STATION FOREST GROVE

MEANS AND EXTREMES FOR PERIOD — Means: 1941-1970 Extremes: 1890-1970

Month	Temperature (°F) Means: Daily maximum	Daily minimum	Monthly	Extremes: Record highest	Year	Record lowest	Year	** Mean degree days	Precipitation Totals (Inches): Mean	Greatest daily	Year	Snow, Sleet: Mean	Maximum monthly	Year	Greatest daily	Year	Mean number of days: Precip. .10 inch or more	Temperatures: Max. 90° and above	Max. 32° and below	Min. 32° and below	Min. 0° and below	Month
(a)	30	30	30	81		81		30	30	82		30	82		82		30	30	30	30	30	
Jan	44.2	31.6	37.9	62	1931	-18	1950	840	7.92	3.52	1907	8.6	58.8	1950	17.2	1895	14	0	2	16	*	Jan
Feb	50.9	34.5	42.7	77	1905	-15	1950	624	5.32	2.80	1954	1.0	32.0	1893	9.0	1937+	10	0	*	12	*	Feb
Mar	55.0	35.7	45.4	82	1930	16	1956	608	4.79	2.30	1938	1.5	21.0	1951	6.5	1906	11	0	*	10	0	Mar
Apr	62.1	38.9	50.5	93	1897	21	1891	435	2.30	2.04	1962	T	1.6	1936	1.6	1936	7	0	0	4	0	Apr
May	69.6	43.6	56.6	98	1897	28	1954	260	1.89	1.38	1949	T	T	1959+	T	1959+	6	1	0	1	0	May
June	74.9	48.7	61.8	101	1925	34	1935	96	1.26	1.24	1958						4	2	0	0	0	June
July	82.3	51.2	66.8	109	1956	34	1955	37	0.42	1.30	1944						1	6	0	0	0	July
Aug	81.7	51.0	66.4	103	1933	35	1905	40	0.74	1.18	1968						2	6	0	0	0	Aug
Sep	77.1	47.5	62.3	104	1953	27	1908	81	1.42	2.02	1945						3	3	0	*	0	Sep
Oct	64.1	42.2	53.2	91	1952	22	1919	366	4.10	2.55	1943	T	T	1954+	T	1954+	9	*	0	3	0	Oct
Nov	52.6	37.4	45.0	77	1907	7	1955	600	6.98	3.98	1896	0.4	10.0	1955	5.0	1955	13	0	*	8	0	Nov
Dec	46.5	32.3	39.4	64	1898	-15	1919	794	8.07	3.58	1937	2.4	25.1	1919	13.6	1919	14	0	*	12	0	Dec
Year	63.4	41.2	52.3	109	July 1956	-18	Jan 1950	4781	45.21	3.98	Nov 1896	13.9	58.8	Jan 1950	17.2	Jan 1895	94	18	2	66	*	Year

(a) Average length of record, years.

T Trace, an amount too small to measure.

** Base 65°F

+ Also on earlier dates, months, or years.

* Less than one half.

CLIMATE OF FOREST GROVE, OREGON

The city of Forest Grove is located in the extreme northwestern section of Oregon and lies near the west edge of the Tualatin Valley which in itself forms the northwestern corner of the much larger Willamette Valley. The Coast Range, which extends the full north-south length of Oregon, begins its rise three miles to the west of the city; one of its projecting ridges making up the canyon wall of the Columbia River is some ten miles to the north and northeast. Fertile agricultural lands of the Tualatin Valley are gently rolling and vary from 100 to 400 feet above mean sea level with some bench land acreages ranging up to 800 feet. Forested foothills surrounding much of the valley rise to elevations of 1,300 to 2,00 feet with Coast Range peaks varying from 2,900 to more than 3,500 feet. The Cascade Mountains 50 miles to the east crest at 5,000 to 7,000 feet elevation with peaks in excess of 10,000 feet. Many of the major peaks in the Cascades remain snowcapped throughout the year.

Forest Grove is only about 37 airline miles inland from the Pacific Ocean and has a modified marine climate. Prevailing airflow across this area from the ocean greatly moderates the colder temperatures of winter and heat of summer. The Coast Range provides shielding from the more intense winter storms moving onshore. The occasionally more extreme temperatures are associated with outbreaks of dry continental air pushing westward through the Columbia Gorge and across the Cascade Mountains.

Seasonal characteristics are well defined in the Forest Grove area with gradual changes usually noted between seasons. Winters are mild and wet with 82% of the annual precipitation occurring from October through March. Wettest conditions are observed in December when sunshine still appears on 1 day out of 4. Spring brings a sharp decrease in number of rainy days while sunny conditions on one-half of the days in March increase to 5 out of 6 days by late summer. Rainy days are at a minimum then and showery type precipitation averages 1.30 inches or less each summer month. The warmer days are eased by low afternoon humidity, light winds, and cool nights. Summer temperatures show accelerated cooling at the end of September and a sharp increase in precipitation is noted by mid-October. Heavy fog has a higher frequency from October through January when it occurs on about 1 day out of 5.

Some 82 years of temperature records show Forest Grove as having a mild climate. The daily range of temperature averages only 13 degrees in January and varies up to 31 degrees in July and August providing cool nights. Annual temperature extremes (graphed on the reverse side) show that only 3 years out of 10 will be warmer than 102° or cooler than 7°. The colder winters with 0° or below occur in 1 year out of 10. Coldest month was January 1930 when daily minimum averaged 17.1° and maximum averaged 32.0°. The mildest winter was 1933-34 when temperatures fell below freezing on only 32 days. Mild summer days in the 80's are complimented by nights which persist in the 50's. Average daily maximum and minimum temperatures in the nearby Coast Range compare well with Forest Grove during the winter, but summer values average 3-5° cooler in the foothills. The 179-day growing season for Forest Grove is based on the average date of last 32° or lower in spring and that of the first occurrence in fall. Latest spring freezes have varied from March 10 in 1940 to May 27 in 1955, while earliest fall freezes have varied from September 17 in 1965 to December 13 in 1926.

STATISTICAL LIKELIHOOD (IN PERCENT) THAT VARIOUS TEMPERATURES WILL OCCUR IN SPRING AFTER DATES INDICATED

Temp.	90%	80%	70%	60%	50%	40%	30%	20%	10%
32°	4/5	4/12	4/17	4/21	4/25	4/29	5/3	5/8	5/15
28°	2/23	3/6	3/13	3/20	3/26	4/1	4/7	4/15	4/25
24°	1/16	1/26	2/3	2/9	2/14	2/20	2/26	3/6	3/16

STATISTICAL LIKELIHOOD (IN PERCENT) THAT VARIOUS TEMPERATURES WILL OCCUR IN FALL BEFORE DATES INDICATED

Temp.	10%	20%	30%	40%	50%	60%	70%	80%	90%
32°	10/1	10/8	10/13	10/17	10/21	10/25	10/29	11/3	11/10
28°	10/22	10/29	11/3	11/7	11/11	11/15	11/19	11/24	12/1
24°	11/3	11/11	11/17	11/22	11/27	12/2	12/6	12/12	12/20

The very definite winter rainfall climate of western Oregon provides Washington County with average annual precipitation ranging from 110 inches along the western border of the county down to 38 inches in the southeast valley floor section. Forest Grove receives 28% of its 45-inch annual total in fall, 47% in winter, 19% in spring and only 6% in summer. Individual years have ranged from 26.11 inches in 1929 to 65.88 inches in 1904. Wet months with over 13 inches of moisture do occur in 1 year out of 6, with greatest of 18.73 inches in December 1933. Snowfall will total less than 5 inches in 1 season out of 3 while totals over 30 inches are recorded in only 1 season out of 6. Days with snow cover of 1 inch or more occur on an average of 8 days per season and have an average depth of 3 inches. Maximum snow depth exceeds 10 inches in 1 season out of 5 with greatest depth of 22 inches on December 10, 1919. Snowcover seldom remains more than a few days but has stayed more than two weeks.

Climatological interpolations for the Forest Grove area show 73 clear days a year and 72 days partly cloudy. Of the remaining cloudy days, only 7 to 15 such days are recorded for summer months. Thunderstorms average about 6-8 per year. Nighttime relative humidity averages 80-90% year around while afternoon values range 40-45% in July and 75-80% in winter. Hourly wind speed averages from 6.2 mph in September to 9.2 mph in January. Annual lake evaporation averages 23 inches with 75% of this loss occurring from May through October. The mild climate and fertile lands of the area favor various economic activities. These include dairying, berries, fruits, nuts, grains, seed crops and nursery stock along with processing plants. Other industries involve lumber and hardboard products and light manufacturing. Nearby forested mountains, ocean beaches and State parks provide varied seasonal recreational opportunities.

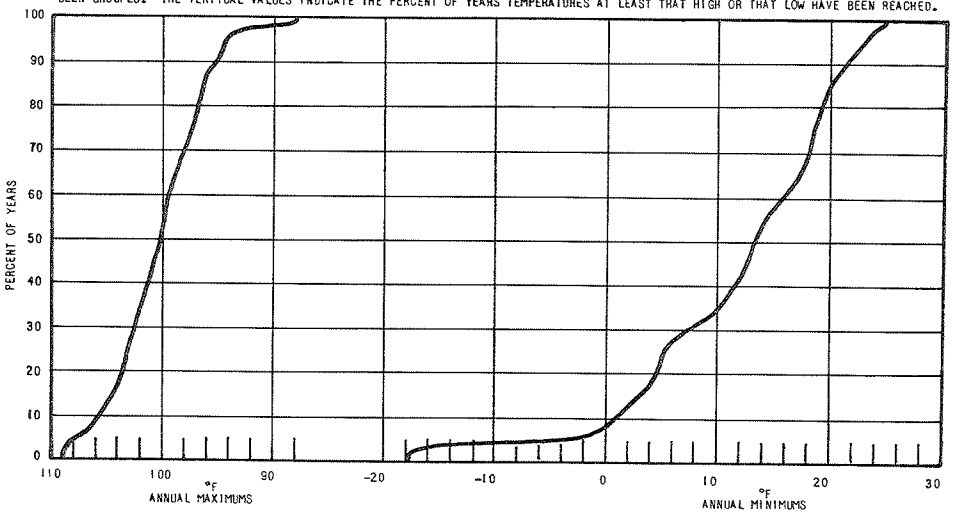
Stanley G. Holbrook, Climatologist for Oregon
M-10 Multnomah Building, Portland, Oregon 97204 July 1971

Average Temperature (°F)

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Ann'l
1941	41.3	45.2	51.2	52.8	56.4	60.8	70.5	67.0	58.6	52.2	46.2	41.2	53.6
1942	34.0	41.8	45.1	51.6	55.4	59.8	68.0	68.3	62.9	53.6	43.2	41.8	51.7
1943	33.2	42.7	44.2	53.2	54.8	60.0	66.9	64.0	64.9	53.4	44.6	38.4	51.7
1944	37.8	41.6	45.1	50.2	56.8	61.0	66.8	66.0	63.8	55.6	43.6	37.2	52.1
1945	41.2	43.4	43.8	48.8	58.2	60.8	68.0	67.8	59.4	52.2	44.0	39.4	52.2
1946	38.8	41.4	45.5	50.2	58.9	59.7	66.4	67.1	60.2	49.2	42.1	41.0	51.7
1947	35.2	44.9	49.3	54.0	61.0	59.8	64.8	64.2	62.8	52.8	44.8	40.8	52.9
1948	38.2	39.1	43.4	47.2	55.6	66.2	64.8	64.0	60.5	51.1	43.1	36.0	50.8
1949	26.8	38.9	45.6	52.5	58.9	62.0	65.1	66.1	63.5	48.1	48.8	40.0	51.3
1950	27.5	39.1	44.7	48.6	54.9	62.0	66.9	68.5	62.8	51.5	45.8	46.2	51.6
1951	38.3	42.0	41.3	53.9	57.3	64.3	67.7	65.9	64.0	53.0	45.0	37.4	52.5
1952	35.9	40.6	44.4	52.2	57.1	60.3	68.1	65.9	63.5	58.6	39.2	39.9	52.1
1953	45.7	42.9	44.5	48.3	53.5	56.2	64.0	64.5	61.7	53.5	48.4	42.2	52.1
1954	37.5	42.4	43.1	49.3	57.1	58.4	62.4	62.5	59.6	51.3	48.4	40.3	51.0
1955	37.9	40.1	41.1	45.3	52.9	60.6	61.9	63.7	60.5	52.9	41.2	39.1	49.8
1956	39.6	34.9	43.8	52.6	59.8	58.7	68.2	66.3	61.1	50.8	41.7	39.5	51.4
1957	30.8	41.8	47.0	51.9	59.2	61.1	63.0	62.1	64.9	52.4	42.5	43.0	51.6
1958	43.1	48.4	45.2	50.8	61.1	65.0	70.2	69.1	61.8	54.7	46.0	45.5	55.1
1959	41.5	42.2	45.7	51.5	54.9	61.8	68.7	65.3	60.0	54.8	45.0	40.8	52.7
1960	35.8	42.2	45.7	50.7	54.3	63.1	68.9	65.5	63.1	55.4	46.1	40.1	52.6
1961	44.4	46.8	47.4	51.2	56.4	66.4	69.4	71.4	60.2	53.8	42.7	41.6	54.3
1962	37.5	43.5	44.5	52.3	52.9	61.0	66.3	65.7	64.3	54.7	48.4	43.3	52.9
1963	35.1	48.8	45.8	49.6	57.0	60.8	62.9	66.5	65.1	54.3	46.2	40.2	52.7
1964	41.9	41.8	44.7	48.3	53.5	60.1	66.1	64.5	61.3	54.7	42.8	38.8	51.5
1965	41.1	44.2	47.6	53.0	53.9	61.5	69.1	68.5	61.2	57.2	48.3	38.3	53.7
1966	40.6	42.4	46.1	52.5	58.0	61.8	66.2	67.5	64.6	54.0	47.8	44.4	53.8
1967	43.7	44.4	44.3	46.7	56.4	66.1	68.8	73.2	66.5	54.6	47.1	40.9	54.4
1968	39.9	47.5	48.6	49.2	56.7	62.2	68.5	65.8	62.7	52.0	46.0	38.0	53.1
1969	33.0	40.0	46.7	49.7	59.7	67.3	66.5	65.4	64.0	51.8	45.3	41.6	52.6
1970	40.6	45.6	46.6	47.8	56.4	66.0	68.6	68.9	60.0	52.2	46.0	39.6	53.2

BELOW IS SHOWN GRAPHICALLY THE PERCENT OF YEARS MAXIMUM AND MINIMUM TEMPERATURES HAVE BEEN REACHED DURING THE PERIOD 1890-1970.

FIGURES ACROSS THE BOTTOM OF THE GRAPH INDICATE THE RANGE OF VALUES INTO WHICH THE HIGHEST AND LOWEST ANNUAL TEMPERATURES HAVE BEEN GROUPED. THE VERTICAL VALUES INDICATE THE PERCENT OF YEARS TEMPERATURES AT LEAST THAT HIGH OR THAT LOW HAVE BEEN REACHED.



Total Precipitation (Inches)

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Ann'l
1941	8.21	2.08	2.17	2.27	3.82	1.19	0.05	1.79	2.63	2.42	5.75	11.82	44.20
1942	5.08	4.81	2.26	1.97	2.59	1.51	0.97	0.33	0.01	2.68	14.18	11.17	47.56
1943	5.90	4.82	7.28	2.85	1.43	2.19	0.32	1.36	0.06	6.28	3.10	4.37	39.96
1944	4.30	3.68	3.21	3.74	0.85	0.67	1.54	0.18	2.56	1.50	5.31	2.60	30.14
1945	4.68	7.20	7.50	2.48	3.69	0.15	0.17	0.14	3.41	1.69	13.27	8.27	52.65
1946	7.99	7.35	5.68	1.41	1.55	1.78	0.95	0.11	0.96	4.60	9.48	7.27	49.13
1947	5.55	3.82	5.31	1.59	0.11	2.77	0.80	0.95	0.98	10.91	4.09	4.36	41.24
1948	7.54	7.48	4.51	4.28	4.86	0.80	0.41	0.78	2.61	2.30	8.39	10.38	54.34
1949	1.54	10.78	3.34	0.40	3.17	0.25	0.64	0.07	0.63	2.22	7.61	6.44	37.09
1950	10.19	6.83	6.28	1.81	0.42	1.52	0.49	0.83	1.01	9.37	9.48	8.46	56.69
1951	10.83	5.29	4.58	0.96	1.58	0.04	0.20	0.43	2.47	5.50	8.50	8.37	48.75
1952	6.64	5.53	4.62	1.39	0.57	2.26	0.00	0.18	0.36	0.70	2.09	10.08	34.42
1953	15.68	4.63	5.05	2.48	2.90	1.23	0.06	1.43	0.92	3.58	6.33	7.15	51.44
1954	14.78	7.65	2.83	3.28	1.02	2.00	0.26	0.94	1.69	3.36	6.62	6.90	51.33
1955	4.10	4.00	4.67	4.07	0.78	1.09	1.11	0.00	2.50	6.95	10.38	12.34	51.99
1956	13.20	4.17	7.29	0.63	0.96	1.70	0.03	1.29	1.63	5.10	1.90	4.81	42.71
1957	2.97	6.14	6.97	1.93	2.24	1.25	0.08	0.42	0.65	3.17	3.19	10.51	39.52
1958	9.04	8.13	2.49	3.82	1.20	2.48	0.00	0.00	0.84	2.47	7.72	6.34	44.53
1959	11.51	4.41	3.94	1.06	2.57	2.18	1.01	0.04	2.48	2.37	3.96	4.59	40.12
1960	5.47	6.26	5.96	4.00	3.80	0.40	0.00	0.91	0.38	3.88	10.63	3.45	45.14
1961	6.57	11.16	8.61	2.96	2.00	0.16	0.40	0.41	0.61	5.38	5.21	7.34	50.81
1962	1.38	4.14	5.31	4.20	2.27	0.46	0.04	1.75	1.91	6.00	11.28	3.08	41.82
1963	2.07	4.33	6.50	3.62	2.37	1.73	0.96	1.99	1.12	3.34	6.54	4.95	39.52
1964	14.75	0.77	4.32	1.07	0.89	1.34	0.55	0.36	1.33	1.29	9.44	13.01	49.12
1965	7.89	2.01	0.58	1.99	1.20	0.69	0.32	0.89	T	1.88	7.84	9.19	34.48
1966	8.32	2.47	7.93	0.45	1.19	1.32	0.97	0.54	1.69	3.85	6.99	11.21	46.93
1967	10.02	1.93	5.66	2.83	0.79	0.91	0.00	0.02	0.88	5.67	3.16	6.78	38.65
1968	8.31	8.57	5.07	1.26	3.17	1.92	0.19	4.02	2.94	5.63	7.29	12.69	61.06
1969	8.93	3.92	1.01	2.07	1.58	1.59	0.01	T	2.22	5.25	3.37	10.63	40.58
1970	14.04	5.12	2.83	2.70	1.02	0.36	0.05	0.04	1.12	3.80	6.37	13.59	51.04

STATION HISTORY

WEATHER RECORDS WERE FIRST TAKEN AT FOREST GROVE ON DECEMBER 16, 1889. BEGINNING THEN AND FOR THE NEXT TWENTY-FIVE YEARS THEY WERE CARRIED ON UNDER THE DIRECTION OF VARIOUS FACULTY MEMBERS OF PACIFIC UNIVERSITY WITH SOME STUDENT GENERALLY DOING THE ACTUAL OBSERVING FOR ALL OR A PART OF HIS TUITION. FROM THE RATHER MEAGER INFORMATION AVAILABLE IT APPEARS THROUGHOUT THAT TIME THE STATION WAS LOCATED ON OR IMMEDIATELY ADJACENT TO THE UNIVERSITY'S CAMPUS. SINCE THE OBSERVING WAS GENERALLY ASSIGNED TO SOME STUDENT, RECORDS FOR THE VACATION MONTHS OF JULY AND AUGUST ARE MISSING FOR PRACTICALLY ALL YEARS DURING THAT PERIOD. FROM TIME TO TIME OTHER MONTHS AND EVEN THE ENTIRE YEAR 1915 ARE ALSO MISSING. RECORDS OBTAINED APPEAR RELATIVELY FREE FROM ERROR AND REASONASLY COMPLETE.

THE FIRST OBSERVER WAS G. W. SHAW, WHO CARRIED ON THE OBSERVING PROGRAM UNTIL THE END OF MAY, 1891. SUCCEEDING OBSERVERS, AS SHOWN BY THE RECORDS PREPARED THERE, ARE LISTED BELOW TOGETHER WITH THEIR PERIOD OF SERVICE:

W. P. MARSH -- JUNE, 1891-JULY, 1892; D. H. THOMAS -- AUG., 1892-JUNE, 1893; W. S. SHIACH -- SEPT., 1893-MAY, 1895;
JOHN MILLER -- SEPT., 1895-MAY, 1898; EMERSON BAKER -- OCT., 1902-MAY 1904; C. E. BRADLY -- JUNE, 1904-AUG., 1904;
CHARLES DIXON -- SEPT., 1904-DEC., 1904; D. J. TAYLOR -- JAN., 1905-APRIL, 1912; A. M. BEAN -- JAN., 1913-MARCH, 1914.

BEGINNING IN MAY, 1911 THE STATION WAS INOPERATIVE MUCH OF THE TIME AND WAS OFFICIALLY DISCONTINUED AFTER MARCH, 1914. IT WAS REOPENED ON JUNE 1, 1916 WHEN C. W. CREEL, ENTOMOLOGIST IN CHARGE OF THE U.S. ENTOMOLOGICAL FIELD STATION, FOREST GROVE, TOOK OVER THE OBSERVING PROGRAM. EQUIPMENT WAS INSTALLED AT THE CORNER OF C STREET AND 3RD AVENUE (NOW KNOWN AS 23RD AVENUE), APPROXIMATELY FIVE BLOCKS WEST AND TWO BLOCKS NORTH OF THE FORMER LOCATION. THE STATION REMAINED AT THIS SAME LOCATION UNTIL NOVEMBER 3, 1948.

UNDER MR. CREEL'S DIRECTION, AND LATER THAT OF HIS SUCCESSORS IN THE POSITION OF ENTOMOLOGIST, A MOST COMMENDABLE RECORD WAS OBTAINED. MR. CREEL LEFT FOREST GROVE IN JUNE 1919 TO ACCEPT A POSITION ELSEWHERE. MR. L. P. ROCKWOOD, WHO SUCCEEDED HIM, CONTINUED TO RECORD WITHOUT INTERRUPTION AND AT THE SAME LOCATION UNTIL OCTOBER 31, 1948, THUS SETTING A RECORD OF ALMOST THIRTY YEARS OF CONTINUOUS VOLUNTARY WEATHER OBSERVING. THEREAFTER, THE BUREAU OF ENTOMOLOGY CONTINUED TO KEEP THE RECORDS, BUT ON NOVEMBER 4, 1948 THE EQUIPMENT WAS MOVED ABOUT A MILE EAST TO THE BUREAU'S OFFICE ON ELM NEAR 22ND STREET. THE BUREAU ITSELF WAS DESIGNATED THE OBSERVER AND WHATEVER EMPLOYEE THAT WAS ON DUTY AT THE TIME TOOK THE OBSERVATIONS.

ON NOVEMBER 30, 1953 THE BUREAU OF ENTOMOLOGY FOUND IT NECESSARY TO GIVE UP THE OBSERVATIONAL PROGRAM AND IT WAS AGAIN MOVED, THIS TIME 0.4 MILE NORTHWEST TO RADIO STATION KRWC WHERE EMPLOYEES OF THE STATION TOOK OBSERVATIONS UNTIL NOVEMBER 11, 1958. IT WAS THEN MOVED 0.5 MILE SOUTHEAST TO THE PUBLIC WORKS DEPARTMENT, WHERE CITY EMPLOYEES HAVE CONTINUED THE OBSERVATIONS EVER SINCE. WEEKEND READINGS ARE TAKEN BY THE POLICE OFFICERS ON DUTY.

THE LATITUDE AND LONGITUDE OF THE STATION HAVE CHANGED LESS THAN A MINUTE EACH WITH THESE VARIOUS MOVES. ELEVATIONS WERE GIVEN AS 211 FEET MSL FOR THE PERIOD 1889-1914 WHILE AT PACIFIC UNIVERSITY CAMPUS, 220 FEET FROM 1916 TO 1948 WHILE LOCATED AT C AND 23RD AVENUE, 180 FEET FROM 1948 TO 1953 AT BUREAU OF ENTOMOLOGY OFFICE AND SHOP AND 175 FEET AT RADIO STATION KRWC. THE CURRENT ELEVATION SINCE 1958 HAS BEEN 180 FEET AND LOCATED ACROSS THE STREET FROM THE PREVIOUS BUREAU OF ENTOMOLOGY OFFICE. THUS ITS RECORDS, WHICH HAVE ALWAYS BEEN TAKEN WITHIN A RADIUS OF A MILE AND HAVE VARIED LESS THAN FIFTY FEET IN ELEVATION, SHOULD AS A RESULT BE CLIMATOLOGICALLY VERY HOMOGENOUS. AFTER JUNE 1, 1916 THEY ARE VERY COMPLETE, WELL PREPARED, AND FOR ALMOST THIRTY YEARS KEPT BY THE SAME OBSERVER, ALL OF WHICH GIVES THEM AN EXCEPTIONALLY HIGH DEGREE OF DEPENDABILITY.