U.S. DEPARTMENT OF COMMERCE, WEATHER BUREAU IN COOPERATION WITH
THE WASHINGTON STATE DEPARTMENT OF COMMERCE AND ECONOMIC DEVELOPMENT
CLIMATOGRAPHY OF THE UNITED STATES 20-45

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JUL 12 1965
WEATHER BUREAU

LATITUDE 47° 33'
LONGITUDE 121° 51"
ELEV. (GROUND) 440 ft.

CLIMATOLOGICAL SUMMARY

STATION SNOQUALMIE FALLS, WASH.

MEANS AND EXTREMES FOR PERIOD 1931-1960

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. 85° and above	Max. 32° and below	Min. 32° and below	Min. 0° and below	Month
(a)	30	30	30	30		30		30	30	30		30	30		30		30	30	30	30	30	
JAN	43.8	31.5	37.7	66	1931	-1	1957+	846	7.85	3.18	1932	7.8	61.0	1950	11.5	1950	15	0	3	15	*	JAN
FEB	47.7	32.7	40.2	67	1949+	-3	1950	694	6.35	4.21	1951	3.6	23.7	1949	8.0	1956	12	0	*	13	*	FEB
MAR	52.8	34.2	43.5	77	1947	8	1955	667	6.14	2.32	1950	1.4	17.5	1936	11.0	1936	14	0	*	12	0	MAR
APR	60.8	37.6	49.2	90	1934	24	1952+	474	4.00	1.92	1941+	.1	2.0	1945	2.0	1945	10	0	0	6	0	APR
MAY	67.1	41.8	54.5	90	1956+	26	1954	326	3.20	1.74	1951						8	*	0	1	0	MAY
JUN	71.1	46.1	58.6	99	1942	31	1947	192	3.21	1.73	1947						7	1	0	*	0	JUN
JUL	77.1	48.9	63.0	99	1951	36	1952	90	1.29	1.56	1948						3	1	0	0	0	JUL
AUG	76.3	48.5	62.4	102	1960	35	1945	96	1.43	1.55	1950						4	4	0	0	0	AUG
SEP	70.2	45.2	57.7	93	1944	30	1948+	222	3.18	2.72	1947						7	4	0	*	0	SEP
OCT	60.3	41.1	50.7	84	1936	23	1949	443	6.15	3.62	1942	T	2.2	1935	1.5	1935	11	1	0	3	0	OCT
NOV	50.5	36.1	43.3	75	1949	2	1955	651	8.38	4.15	1933	1.4	13.5	1946	9.5	1945	14	0	*	9	0	NOV
DEC	46.0	34.5	40.3	64	1957	6	1932	766	9.12	3.81	1959	2.6	12.0	1948	5.5	1936	16	0	*	11	0	DEC
Year	60.3	39.9	50.1	102	1960	-3	1950	5467	60.30	4.21	1951	16.9	61.0	1950	11.5	1950	121	11	3	70	*	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.

NARRATIVE CLIMATOLOGICAL SUMMARY

Snoqualmie Falls is located on the Snoqualmie River, one mile northwest of the city of Snoqualmie and 25 miles east of Seattle. Many years ago, Indians on their journey through the rugged Cascade Mountains used this area as a campsite. The Falls impressed the Indians with its supernatural awe and they named it "Sdoh-kwahl-bu" meaning "Moon People". The white man changed the name to Snoqualmie. The first authentic record of the Falls was made by Samuel Hancock in 1849.

Three forks of the river above the Falls drain 400 square miles along the western slope of the Cascade Mountains. The crest of the Falls is formed by a low concrete dam, 12 feet wide, 200 feet long and 5 feet high. Water flowing over the Dam drops 268 feet into a pool 65 feet in depth at the base of the Falls. During the spring runoff, the flow of the river reaches 10,000 to 15,000 cubic feet per second, and following heavy rainfall in late fall and winter, the flow may reach 20,000 to 30,000 cubic feet per second. Some of the water is diverted through tunnels to hydroelectric plants below the Falls. The volume of water going over the Falls with mist rising above the trees creates a scenic atmosphere.

The climate is predominantly a mid-latitude, west coast marine-type with a dry season and pleasant temperatures during the summer and rather mild but rainy winters. Terrain, prevailing westerly winds, distance and direction from the Ocean influence the climate.

The Falls are near the western edge of the Cascade foothills. In an easterly direction and within 30 miles, the Cascade Mountains reach elevations of 5,000 to 8,000 feet with peaks in excess of 10,000 feet. This range is effective in protecting the Puget Sound region from the higher summer and lower winter temperatures observed in eastern Washington.

During late spring and summer, a clockwise circulation of air around the large high pressure region over the north Pacific Ocean brings a prevailing westerly and northwesterly flow of air into this area. The cool air from over the Ocean becomes warmer and drier as it moves inland resulting in a dry season beginning in late spring and reaching a peak in midsummer. During July and August, it is not unusual for two to three weeks to pass with only a few showers. Total rainfall for July, the driest month, is less than .10 of an inch in 1 summer out of 10; also, it exceeds 2.90 inches in 1 summer out of 10.

Afternoon temperatures during the warmest summer months are in the upper 70's and minimum readings are near 50°. Maximum temperatures reach 85° or higher on 15 to 25 afternoons in the warmer summers and on 3 to 5 days in cooler summers. Highest temperatures and lowest relative humidity are observed when hot dry air from east of the Cascade Range reaches this part of the State.

In the fall and winter, the low pressure center in the Gulf of Alaska intensifies and the high pressure center over the north Pacific becomes smaller and moves southward. A circulation of air around these two regions over the Ocean brings a prevailing flow of air from a southwesterly and westerly direction into Washington. This air is very moist and near the temperature of the water. As the air moves inland over the cooler land and rises along the windward slopes of the foothills and mountains, cooling and condensation occur. This results in a rainy season beginning in late fall, reaching a peak in winter, then gradually decreasing in the spring. Total precipitation for December, the wettest month, is less than 5 inches in 1 winter out of 10; also, it exceeds 12 inches in 1 winter out of 10. Annual precipitation has ranged from 33.84 inches in 1952 to 79.68 inches in 1933.

Winter season snowfall has varied from a trace to 62 inches. Snow seldom remains on the ground more than a few days or reaches a depth in excess of 10 to 15 inches. Snowfall and the depth on the ground increase along the slopes of the foothills and mountains. In the higher elevations of the Cascades, winter season snowfall ranges from 300 to 500 inches and snow depths from 10 to 25 feet.

Afternoon temperatures in the coldest months are in the 40's and minimum temperatures are below freezing on approximately one-half of the nights from December through February. The coldest weather occurs when an outbreak of cold air from Canada or east of the Cascades reaches western Washington. Under these conditions, minimum temperatures may range from 5° to 10° and maximums from 20° to 30°. Unusually cold weather seldom continues more than a few days before warmer air from over the Ocean moves inland. Snow falls frequently as the cold air moves in and again as the warmer moist air returns.

Earl L. Phillips
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U.S. Weather Bureau
Seattle, Washington

Average Temperature (°F)

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Ann'l
1931	44.0	42.4	45.9	50.6	57.4	59.4	63.7	62.2	58.3	51.0	40.0	38.9	51.2
1932	36.2	37.2	45.5	49.9	53.2	60.0	60.3	62.4	57.6	51.0	46.6	36.8	49.7
1933	36.8	34.5	43.2	48.0	51.0	56.8	60.8	64.4	55.6	50.7	43.3	42.4	49.0
1934	42.6	45.8	49.2	54.4	56.6	58.6	61.0	62.6	54.8	51.2	47.2	40.0	52.0
1935	37.8	42.8	39.4	-	-	-	-	-	-	-	-	41.6	-
1936	41.0	31.2	41.0	51.3	56.8	60.2	62.5	64.3	56.0	51.9	40.9	40.0	49.8
1937	27.0	40.8	46.9	48.6	54.2	60.4	63.4	61.9	58.8	53.0	43.4	41.0	50.0
1938	39.2	42.4	43.4	50.5	54.4	59.9	64.5	60.7	60.8	52.6	41.8	40.8	50.9
1939	41.6	37.2	43.6	51.2	54.7	56.7	62.8	63.4	57.2	50.0	48.0	43.8	50.8
1940	41.5	43.4	47.2	51.3	57.6	59.8	62.8	63.0	60.3	54.2	40.9	42.2	52.0
1941	43.0	44.2	49.8	51.4	54.5	58.8	66.2	62.8	55.2	51.2	45.7	40.4	51.9
1942	40.2	40.8	45.0	51.5	54.6	58.2	66.8	66.6	58.5	52.4	42.6	41.0	51.5
1943	32.6	43.4	42.9	51.8	51.9	58.0	64.0	62.8	60.2	51.0	46.8	38.4	50.3
1944	40.6	39.3	42.2	50.0	53.6	59.0	64.4	62.9	59.9	54.0	43.5	40.1	50.8
1945	41.3	41.2	42.4	45.7	55.6	57.4	64.1	62.7	55.6	50.6	41.6	38.5	49.7
1946	39.4	41.0	43.2	47.6	57.0	57.2	64.0	62.8	58.3	46.2	40.6	37.4	49.6
1947	34.9	42.5	45.9	51.2	57.4	58.4	61.8	61.0	56.6	51.4	42.0	41.4	50.4
1948	37.2	37.8	42.1	45.6	52.8	61.2	61.4	61.3	55.6	49.6	40.3	35.1	48.3
1949	28.6	37.1	43.8	49.6	55.7	56.5	60.1	61.6	58.6	46.8	50.1	37.9	48.9
1950	24.3	39.7	42.2	46.2	50.3	59.1	62.0	63.2	56.9	49.0	42.5	44.6	48.3
1951	37.2	39.6	39.4	49.1	54.2	59.7	63.4	60.1	58.2	49.8	43.0	35.3	49.1
1952	35.0	40.1	41.8	49.6	53.9	55.8	62.9	62.9	59.0	52.0	40.2	39.9	49.4
1953	44.3	40.7	43.4	47.5	53.8	55.6	62.0	63.1	58.5	51.5	47.3	42.9	50.9
1954	35.0	42.1	40.3	45.7	53.4	55.7	59.1	60.2	56.8	50.0	48.7	41.3	49.0
1955	37.9	37.2	37.7	44.1	50.1	57.6	59.0	60.1	55.5	49.5	37.7	36.9	47.0
1956	38.6	34.4	41.2	49.3	56.9	56.9	64.1	62.9	57.2	48.1	41.9	40.0	49.3
1957	30.8	37.7	44.2	49.5	57.3	59.7	60.8	60.3	61.3	49.6	42.5	43.3	49.8
1958	44.1	48.5	43.8	49.3	59.6	64.4	70.0	66.4	58.7	53.7	42.7	45.4	53.9
1959	40.2	40.5	44.0	49.1	52.9	59.7	64.1	62.0	57.0	51.2	43.8	40.9	50.5
1960	38.5	41.7	43.9	50.0	52.5	59.1	65.6	62.5	57.7	52.6	43.8	40.4	50.7
1961	45.5	44.5	46.2	47.8	54.1	62.0	65.9	66.8	57.1	50.0	41.9	38.6	51.7
1962	38.4	43.6	42.5	51.2	51.1	58.2	62.4	62.6	59.6	52.0	46.5	42.3	50.9
1963	33.1	48.2	43.7	47.6	55.5	57.5	60.8	62.8	61.8	53.5	44.6	41.2	50.9

PROBABILITY OF 32°, 28° AND 24° OCCURRING AS LATE IN THE SPRING OR AS EARLY IN THE FALL AS THE DATES LISTED IN THE FOLLOWING TABLE

	PROBABILITY - SPRING				PROBABILITY - FALL			
	75%	50%	25%	10%	10%	25%	50%	75%
32°	Apr 23	May 6	May 20	Jun 1	Sep 16	Sep 27	Oct 9	Oct 21
28°	Mar 18	Apr 1	Apr 14	Apr 27	Oct 16	Oct 27	Nov 8	Nov 20
24°	Feb 8	Feb 24	Mar 10	Mar 23	Nov 8	Nov 19	Dec 2	Dec 19

In the above table, the 50% point is the same as the average for each freeze category.

From a statistical viewpoint based on past data, the probabilities could be considered as follows when converted into the number of occurrences to expect in a 40-year period:

75% - 30 years in 40
50% - 20 years in 40
25% - 10 years in 40
10% - 4 years in 40

Total Precipitation (Inches)

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Ann'l
1931	8.65	6.33	7.65	3.07	2.11	7.04	.06	.24	4.48	5.43	7.07	7.54	59.67
1932	9.18	9.20	9.74	4.37	2.08	.78	2.90	2.44	1.15	7.28	15.40	9.36	73.88
1933	10.38	4.64	7.24	1.55	4.52	1.98	.92	2.85	6.65	6.60	6.69	25.66	79.68
1934	12.99	1.69	5.56	2.54	3.26	.27	.96	.92	3.55	9.46	11.50	7.90	60.60
1935	11.57	2.87	6.22	2.20	1.74	3.46	1.39	.91	3.20	4.51	3.95	5.23	47.25
1936	10.21	7.25	6.44	1.60	5.14	4.21	1.90	1.12	3.34	1.51	1.38	10.86	54.96
1937	4.51	8.51	4.02	8.14	2.63	5.30	1.47	2.14	2.46	3.89	13.90	10.68	67.65
1938	5.38	3.54	6.91	4.68	2.35	1.00	.23	.76	1.07	4.45	7.30	7.44	45.11
1939	9.08	7.18	3.81	1.05	3.13	3.92	1.92	.61	1.48	5.00	5.58	11.79	54.55
1940	3.11	8.71	6.39	4.70	3.66	.41	1.67	.68	2.05	6.99	5.58	6.71	50.66
1941	3.95	1.81	2.41	4.03	5.34	2.72	.16	2.45	7.68	5.12	7.07	11.56	54.30
1942	2.66	4.13	4.90	2.92	3.97	6.77	1.53	1.47	.24	5.38	12.44	8.53	54.94
1943	3.75	3.76	8.14	4.68	4.99	2.04	.83	2.24	.58	8.40	3.08	3.83	46.32
1944	4.72	4.88	3.76	4.11	3.26	1.42	.62	.57	3.33	2.47	6.43	2.98	38.55
1945	7.44	7.98	10.43	7.02	4.54	2.02	.34	.74	7.18	4.94	11.96	7.17	71.76
1946	8.83	7.13	6.71	3.91	.69	5.48	1.02	.87	2.33	8.03	9.46	10.65	65.11
1947	8.12	6.14	4.69	5.09	.99	8.67	1.70	1.25	4.47	13.07	11.88	8.55	74.62
1948	7.18	8.90	6.31	4.75	6.61	4.26	3.48	3.04	4.33	4.27	11.43	8.80	73.36
1949	1.99	12.58	3.97	3.06	1.28	1.46	1.73	.70	2.23	6.30	9.31	11.65	56.26
1950	9.97	7.50	10.67	6.16	2.24	1.77	1.21	2.58	2.65	9.88	9.99	8.91	73.53
1951	9.26	11.53	5.52	1.01	3.61	1.38	.05	1.81	2.96	7.46	6.80	8.82	60.21
1952	4.72	4.43	4.90	2.37	2.08	4.24	1.30	.89	.53	1.57	1.33	5.48	33.84
1953	19.53	5.28	5.44	4.79	5.05	4.70	1.18	1.93	3.34	5.64	9.32	10.80	77.09
1954	12.13	9.40	3.46	4.96	2.14	5.03	2.62	1.83	3.70	2.45	7.84	6.86	62.42
1955	3.82	8.34	6.19	6.82	3.95	2.86	3.82	.48	3.08	9.59	13.38	13.01	75.34
1956	10.38	4.04	9.09	.80	1.13	3.55	.83	.63	2.70	10.07	4.89	8.66	56.77
1957	4.09	7.89	7.04	3.51	2.78	4.16	1.30	1.96	.98	5.47	4.38	9.83	53.39
1958	10.71	5.45	3.44	5.45	.90	1.09	.00	.60	3.82	5.37	14.22	9.93	60.98
1959	11.47	3.65	7.42	5.63	3.73	3.23	1.53	1.03	7.69	5.83	10.27	9.78	71.26
1960	5.59	5.67	5.60	5.13	6.23	1.18	.00	3.17	2.13	6.67	12.70	4.65	58.72
1961	10.32	12.26	7.43	6.28	5.17	1.21	1.48	1.39	3.21	6.99	6.04	9.71	71.49
1962	4.99	3.23	6.63	4.03	3.60	1.88	1.82	3.00	3.66	4.16	11.49	6.08	54.57
1963	2.82	6.35	4.89	4.36	2.02	4.49	2.48	.85	1.38	7.51	10.49	6.59	54.23

STATION HISTORY

The first hydroelectric equipment was installed at the Falls by Puget Sound Power & Light Co. in 1898. A cooperative weather station was established on October 1, 1898. Employees of Puget Sound Power & Light Co. have served as cooperative weather observers since the station was established. The weather equipment was located on the south bank of the River and near the crest of the Falls from October 1898 to August 1958. The elevation at this location was 430 feet above sea level. The weather equipment was moved to the present site on the north bank of the River on August 30, 1958. The location is 10 feet higher and 400 feet north of the previous installation.