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

LATITUDE 45° 49'
LONGITUDE 120° 50'
ELEV. (GROUND) 1635 ft.

CLIMATOLOGICAL SUMMARY

STATION GOLDENDALE, 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. 90° and above	32° and below	Min. 32° and below	0° and below	Month
(a)	30	30	30	30		30			30	30		30	30		30		30	30	30	30	30	
JAN	36.4	22.4	29.4	60	1931	-27	1950	1026	2.93	1.32	1948	10.7	60.4	1950	12.0	1954	9	0	9	26	2	JAN
FEB	43.0	26.3	34.6	69	1947	-28	1950	803	2.03	.97	1943	5.6	15.5	1939	6.0	1955+	7	0	3	22	1	FEB
MAR	52.0	30.3	41.1	77	1960+	-3	1955	682	1.70	1.25	1943	1.6	10.0	1960	4.0	1960+	5	0	*	20	*	MAR
APR	61.5	34.4	48.0	90	1934	19	1953+	438	.85	1.09	1951	T	3.0	1935	3.0	1935	3	*	0	12	0	APR
MAY	69.3	40.0	54.7	95	1947	20	1954	254	.79	.81	1932						3	1	0	4	0	MAY
JUN	74.9	45.4	60.2	99	1940	30	1960+	102	.91	1.24	1956						3	2	0	*	0	JUN
JUL	84.3	49.5	66.9	107	1941+	33	1955+	16	.15	.31	1954						*	10	0	0	0	JUL
AUG	82.6	47.7	65.1	103	1941	32	1960	3	.21	.51	1937						1	7	0	*	0	AUG
SEP	76.1	42.8	59.4	101	1955	25	1954	147	.62	1.19	1947						2	2	0	2	0	SEP
OCT	63.4	36.0	49.7	88	1958	14	1949	397	1.64	1.95	1938	T	1.0	1946	1.0	1946	5	0	0	10	0	OCT
NOV	47.4	29.5	38.5	70	1959	-0	1955	741	2.53	2.29	1960	1.9	19.2	1955	8.0	1946	7	0	1	19	0	NOV
DEC	39.6	26.9	33.2	60	1941+	-3	1932	924	3.05	1.75	1937	4.5	22.5	1942	12.0	1942	8	0	6	24	*	DEC
Year	60.9	35.9	48.4	107	JUL 1941+	-28	FEB 1950	5539	17.41	2.29	NOV 1960	24.3	60.4	JAN 1950	12.0	JAN 1954+	53	22	19	139	3	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

Goldendale, the county seat of Klickitat County, is located 10 miles north of the Columbia River and in a valley along the eastern slope of the Cascade Range. The Simcoe Mountains extend eastward from the main ridge of the Cascades and along the northern edge of the Klickitat Valley. Hills extend along the southern edge of the valley between the City and the Columbia River. This productive agricultural area is devoted to the growing of alfalfa and small grain. The lower elevations along the timber-covered slopes of the foothills and mountains provide grazing for livestock. The Horse Heaven Hills, a higher plateau northeast of the city, is a winter wheat and grazing area.

The climate is rather dry and comparatively mild for this latitude and has some of the characteristics of both continental and marine types. Some of the factors influencing the climate are terrain, the prevailing direction of the wind above the summit of the Cascades, and the distance and direction from the ocean. In a westerly direction, and within a distance of 40 miles, the Cascade Range rises to elevations of 4000 to 7000 feet with snow-capped peaks in excess of 10,000 feet, and forms a north-south climatic and topographic barrier across the State. The only low level passage through this range is the rather narrow Columbia River gorge located about 35 miles southwest of the City. The Rocky Mountains and other ranges in southern British Columbia protect this large inland basin between the Rockies and the Cascades from the more severe winter storms moving southward across Canada.

The summers are warm, dry and sunny. Average afternoon temperatures in the warmest summer months range from 80° to 85°. Maximum temperatures exceed 90° on 15 to 25 days and occasionally reach 100° or slightly higher for brief periods. In some of the cooler summers, maximum temperatures have only reached 90° on 5 to 10 days, while in one of the warmest, 90° or higher was observed on 44 days. The temperature drops rapidly after sunset and the nighttime readings following the hottest days are near 50°. Cooler marine air from over the ocean generally brings relief from unusually hot weather within a few days.

The average afternoon temperature in the winter ranges from 35° to 40° and the nighttime temperature from 15° to 25°. Maximum temperatures fail to rise above freezing on 15 to 20 days and minimum temperatures do not reach zero every winter. In one of the warmer winters in recent years, 1957-58, the lowest temperature recorded was 12° above zero and minimum temperatures only dropped below 20° above zero on 5 days, while in one of the colder winters, 1949-50, minimum temperatures dropped to zero on 15 days, -10° on 9 days and -25° or lower on 4 days. The coldest weather generally occurs when cold air moving southward across Canada spills over the Rockies and fills the inland basin. The sky is often clear under these conditions and additional heat is lost by radiation during the night. Warmer air from over the ocean usually brings relief from exceptionally low temperatures within a few days. Mixing of the warm moist marine air from over the ocean with the colder air east of the Cascades results in considerable cloudiness and some fog.

Precipitation is light in the summer, gradually increasing in the fall, reaching a maximum of about 3 inches each month in mid-winter, then decreasing in the spring, with a slight increase in June and a sharp drop in July. In the winter season, a counter-clockwise circulation of air around the low pressure center in the Gulf of Alaska, and a clockwise circulation around the high pressure area located west of California brings a flow of warm moist air from a southwesterly direction into the State. Cooling and condensation occur as the air rises along the western slope of the Cascades, resulting in heavy precipitation along the windward slope and lighter precipitation as the air descends along the lee slope. The average annual precipitation at Goldendale has ranged from 9.76 inches in 1930 to 25.53 inches in 1950.

Winter precipitation occurs as both snow and rain. Snow may be expected any time between the first of December and the last of February. In the lower elevations, a snow cover seldom remains on the ground longer than 2 to 4 weeks or accumulates to a depth in excess of 10 to 15 inches. The annual snowfall at Goldendale has ranged from 3 to 70 inches. Snowfall and the depth of snow on the ground increase with elevation along the slopes of the foothills and in the mountains.

The number of cloudy days can be expected to decrease from approximately 20 each month in mid-winter to less than 5 each month in mid-summer. The number of hours of possible sunshine on a clear day ranges from about 8 in the winter to 16 in the longest summer days.

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

Total Precipitation (Inches)

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Ann'l
1931	2.06	.40	3.84	.60	.20	.99	.00	T	.35	.83	1.62	4.65	15.54
1932	2.20	1.27	2.27	1.05	1.51	.02	.05	.28	.00	.89	3.31	2.14	14.99
1933	2.49	1.97	1.59	.08	1.19	.61	.03	.01	1.32	1.60	.83	7.78	19.50
1934	2.30	.66	1.77	.80	.18	.21	.00	.20	.50	2.16	3.12	2.62	14.52
1935	1.54	.81	.98	.65	.80	.93	.27	T	.17	.64	.95	2.19	9.93
1936	5.31	1.67	.67	.33	.80	2.01	.02	.33	.02	.01	.03	2.11	13.31
1937	2.46	1.66	1.71	1.75	.58	3.30	.15	.68	.81	.68	3.94	6.01	23.73
1938	1.83	1.82	3.96	.75	.12	1.12	.15	.05	.12	4.41	2.71	2.45	19.49
1939	2.25	3.08	1.60	.19	.75	.40	.26	.13	.22	.40	.07	5.17	14.52
1940	2.24	6.25	1.94	1.81	.25	.13	.57	.00	1.61	2.51	2.67	2.42	22.40
1941	3.61	1.19	.94	1.21	1.60	.30	.09	.46	1.06	1.24	2.66	3.80	18.16
1942	1.82	2.99	.53	.38	1.67	.48	.21	.22	.01	.65	6.43	5.76	21.15
1943	2.85	2.38	2.99	1.55	.78	.88	.01	.30	.01	3.38	1.27	.70	17.10
1944	1.24	1.66	.43	1.04	.23	1.23	T	T	.47	.49	2.69	1.18	10.66
1945	2.41	2.39	1.70	1.15	2.12	.01	T	.01	.97	.94	4.58	4.92	21.20
1946	2.52	2.19	1.77	.27	.49	1.24	.29	.08	.41	2.10	3.46	1.30	16.12
1947	1.90	1.23	1.66	1.01	.07	2.26	.41	T	2.00	4.85	2.07	1.23	18.69
1948	3.93	2.40	1.38	.67	1.50	1.59	.40	.94	1.46	.45	3.30	4.43	22.45
1949	.75	4.98	1.58	.07	.59	.04	-	.21	-	.47	2.68	.93	-
1950	5.22	1.94	2.36	.80	.22	1.66	.15	.02	.24	5.66	3.33	3.93	25.53
1951	5.63	1.96	1.76	1.09	1.18	.39	.31	.37	.58	3.74	2.77	3.16	22.94
1952	2.57	1.49	.34	.20	.73	1.82	T	.05	.17	.06	.64	3.05	11.12
1953	7.93	2.70	1.03	1.32	1.60	1.12	.00	.63	.15	.83	3.06	3.28	23.65
1954	4.50	.85	.77	.64	.77	.67	.31	.12	.34	.89	2.05	1.06	12.97
1955	.91	1.02	.75	1.25	.35	.34	.45	.00	1.16	1.99	4.20	4.96	17.38
1956	4.55	.90	.83	.03	.87	1.51	T	.62	.46	1.76	.56	1.45	13.54
1957	1.28	1.80	4.14	.83	.51	.51	T	.29	1.51	2.56	1.03	4.05	18.51
1958	4.35	3.23	.81	1.95	.36	.78	.05	T	.46	.44	4.30	2.38	19.11
1959	3.62	1.78	1.75	.23	.23	.45	.12	.02	1.25	1.47	.61	.79	12.32
1960	1.51	2.21	3.01	1.94	1.34	.17	.02	.17	.19	1.06	4.83	1.70	18.15

STATION HISTORY

The first climatological records in the vicinity of Goldendale were kept about 6 miles west of the City, at Centerville, from January 1892 to August 1901. The cooperative weather observers during that period were F.C. Baker, J.H. Wagner, George Crofton and W.B. Hayden.

A cooperative weather station was established in Goldendale on October 22, 1905. The station has been relocated several times since it was established, however, it has remained within 1/2 mile of the Post Office and the elevation has ranged from 1600 to 1635 feet. The weather records have been kept by the following cooperative weather observers:

N.W. Merrifield	October 22, 1905	- January 10, 1906
W.F. Byars	January 23, 1906	- May 31, 1907
C.W. Ramsey	February 1, 1908	- November 31, 1908
Klickitat Abstract Co.	July 6, 1909	- May 31, 1914
M.F. Byars	June 1, 1914	- September 30, 1936
Mrs. Azalea Byars Hall	Oct. 1, 1936	- December 31, 1937
Edward Abeling	February 10, 1938	- March 31, 1947
R.M. Hoffiditz	April 1, 1947	- February 15, 1952
Raymond W. Meyer	March 27, 1952	- February 28, 1957
W.G. Dorland	March 1, 1957	- to date

Average Temperature (°F)

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Ann'l
1931	34.1	35.8	41.8	48.4	57.2	59.6	67.6	66.4	57.8	48.6	34.8	26.5	48.2
1932	28.5	30.0	41.4	48.1	52.9	61.7	62.3	64.0	59.1	50.2	42.0	27.5	47.3
1933	31.8	31.5	40.6	47.0	50.0	59.2	66.3	66.3	54.6	51.7	40.5	38.7	48.2
1934	38.8	40.8	48.0	55.2	57.5	62.0	64.6	66.6	57.9	52.0	43.2	35.3	51.8
1935	31.2	37.2	38.2	45.6	53.8	60.8	66.0	64.0	61.4	47.6	35.2	31.6	47.7
1936	34.8	20.9	40.3	50.8	57.9	62.3	67.0	66.4	58.6	52.8	35.2	35.9	48.6
1937	14.4	29.8	43.0	45.8	55.2	62.2	69.4	63.8	60.0	52.8	42.2	36.1	47.9
1938	29.1	33.8	41.3	49.2	53.3	63.2	70.0	62.2	63.2	49.2	34.1	34.4	48.6
1939	37.0	34.2	44.5	50.7	57.0	59.0	68.6	68.4	61.4	52.0	42.0	38.8	51.1
1940	31.9	40.1	47.8	49.5	58.4	64.8	68.2	68.0	63.0	53.1	35.6	33.8	51.2
1941	32.6	38.4	46.3	51.0	55.2	60.1	71.8	67.8	56.2	49.3	41.0	36.0	50.5
1942	26.5	36.1	42.2	49.5	53.2	58.8	68.8	68.6	61.6	52.0	37.8	35.7	49.2
1943	23.5	34.7	40.0	50.0	51.9	58.0	67.4	63.8	62.8	51.0	39.6	32.0	47.9
1944	31.3	36.6	41.4	48.2	55.6	59.4	68.2	65.9	62.5	55.0	38.2	30.1	49.4
1945	35.2	38.0	40.1	46.6	55.2	60.0	68.2	68.1	57.6	52.8	39.0	32.4	49.4
1946	35.7	38.6	42.4	48.9	57.4	60.0	67.5	67.2	58.0	47.3	37.2	37.1	49.8
1947	30.8	41.0	46.2	51.0	58.8	60.4	65.2	63.1	59.4	48.5	40.6	35.8	50.1
1948	32.0	32.2	37.6	43.9	52.2	62.8	62.0	61.4	55.2	46.3	37.4	26.3	45.8
1949	14.8	29.9	40.0	-	55.8	58.2	63.5	63.4	-	42.8	41.7	32.9	-
1950	13.9	28.5	37.6	43.1	50.5	58.8	66.3	66.1	60.4	46.9	39.9	36.5	45.7
1951	30.0	34.6	35.9	47.7	53.1	60.4	66.1	63.1	58.5	46.2	37.2	28.1	46.8
1952	25.0	-	-	47.6	53.3	57.7	66.9	64.3	61.5	53.0	31.6	31.9	-
1953	39.5	37.4	40.5	44.0	50.4	55.2	65.0	65.4	60.8	50.6	42.1	37.1	49.0
1954	29.6	34.4	38.0	44.8	54.8	56.5	63.7	62.0	57.0	46.3	43.7	32.0	46.9
1955	30.5	34.2	35.3	41.9	50.6	59.7	63.5	65.3	59.4	48.7	31.9	29.9	45.9
1956	30.5	26.7	39.6	49.1	57.3	56.6	68.9	65.1	59.2	46.8	35.3	30.2	47.5
1957	16.7	34.1	40.5	49.2	58.8	62.2	63.8	62.1	61.9	47.4	38.9	36.8	47.7
1958	36.4	43.3	40.5	47.1	60.8	65.4	71.1	69.1	58.8	51.2	39.9	36.1	51.6
1959	33.3	35.7	42.6	48.7	51.5	60.7	68.6	63.2	57.8	49.9	36.8	32.4	48.4
1960	23.7	36.1	40.4	47.9	51.0	60.8	70.0	62.9	58.6	49.2	39.3	28.6	47.4

PROBABILITY OF 32°, 28°, 24°, 20° AND 16° 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°	May 9	May 23	Jun 6	Jun 18	Sep 4	Sep 15	Sep 27	Oct 9
28°	Apr 12	Apr 25	May 9	May 20	Sep 26	Oct 7	Oct 19	Oct 31
24°	Mar 12	Mar 25	Apr 7	Apr 19	Oct 7	Oct 18	Oct 30	Nov 11
20°	Feb 12	Feb 26	Mar 12	Mar 24	Oct 30	Nov 10	Nov 23	Dec 6
16°	Jan 13	Feb 5	Feb 20	Mar 5	Nov 16	Nov 28	Dec 17	-

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