

# Climatology of the United States

## No. 20

### 1971-2000

**Station: VALE, OR**

**COOP ID: 358797**

**Climate Division: OR 9**

**NWS Call Sign:**

**Elevation: 2,240 Feet Lat: 43° 59N**

**Lon: 117° 15W**

### Temperature (°F)

Mean (1)				Extremes										Degree Days (1) Base Temp 65		Mean Number of Days (3)					
Month	Daily Max	Daily Min	Mean	Highest Daily(2)	Year	Day	Highest Month(1) Mean	Year	Lowest Daily(2)	Year	Day	Lowest Month(1) Mean	Year	Heating	Cooling	Max >= 100	Max >= 90	Max >= 50	Max <= 32	Min <= 32	Min <= 0
Jan	35.4	18.3	26.9	61	1953	9	35.0	1978	-28+	1962	23	13.8	1979	1182	0	.0	.0	1.5	10.7	28.2	2.8
Feb	44.5	24.0	34.3	67	1995	25	41.4	2000	-23+	1989	7	17.0	1989	861	0	.0	.0	9.2	3.5	23.2	.9
Mar	56.8	30.2	43.5	81+	1988	26	48.5	1978	7	1989	4	36.4	1985	667	0	.0	.0	25.9	.1	19.2	.0
Apr	65.8	35.3	50.6	92	1987	28	56.3	1987	14+	2001	9	45.4	1975	435	2	.0	.1	29.3	.0	10.1	.0
May	75.1	43.9	59.5	102	1986	30	64.7	1992	21	1999	11	50.9	1990	213	43	.1	2.6	31.0	.0	2.1	.0
Jun	84.4	50.5	67.5	106+	1974	19	74.5	1977	20	1949	16	60.3	1990	85	158	1.4	9.7	30.0	.0	.2	.0
Jul	93.2	55.7	74.5	110+	1960	19	78.9	1975	36+	1999	5	66.6	1993	9	303	6.8	22.7	31.0	.0	.0	.0
Aug	91.6	52.7	72.2	110	1961	4	77.7	1981	30	1992	24	66.0	1985	26	248	4.4	20.3	31.0	.0	.1	.0
Sep	80.4	42.5	61.5	101+	1950	3	67.4	1990	19	1934	26	51.4	1985	175	69	.0	5.7	30.0	.0	1.9	.0
Oct	66.1	32.6	49.4	91+	1997	1	55.4	1988	9	1935	23	41.5	1985	487	1	.0	.1	30.0	.0	12.5	.0
Nov	47.8	26.0	36.9	75	1950	1	42.6	1995	-14	1985	23	22.6	1985	842	0	.0	.0	12.8	1.8	21.9	.3
Dec	36.5	18.4	27.5	66	1987	6	37.2	1977	-27	1972	10	10.4	1985	1164	0	.0	.0	2.0	9.1	28.9	2.3
Ann	64.8	35.8	50.4	110+	Aug 1961	4	78.9	Jul 1975	-28+	Jan 1962	23	10.4	Dec 1985	6146	824	12.7	61.2	263.7	25.2	148.3	6.3

+ Also occurred on an earlier date(s)

@ Denotes mean number of days greater than 0 but less than .05

Complete documentation available from: [www.ncdc.noaa.gov/oa/climate/normal/usnormals.html](http://www.ncdc.noaa.gov/oa/climate/normal/usnormals.html)

Issue Date: February 2004

(1) From the 1971-2000 Monthly Normals

(2) Derived from station's available digital record: 1928-2001

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### Precipitation (inches)

		Precipitation Totals								Mean Number of Days (3)				Precipitation Probabilities (1)											
														Probability that the monthly/annual precipitation will be equal to or less than the indicated amount											
Means/Medians(1)		Extremes							Daily Precipitation				Monthly/Annual Precipitation vs Probability Levels												
													These values were determined from the incomplete gamma distribution												
Month	Mean	Median	Highest Daily(2)	Year	Day	Highest Monthly(1)	Year	Lowest Monthly(1)	Year	>= 0.01	>= 0.10	>= 0.50	>= 1.00	.05	.10	.20	.30	.40	.50	.60	.70	.80	.90	.95	
Jan	1.22	1.06	.77	1957	20	2.55	1998	.16	1985	8.1	4.1	.4	.0	.33	.44	.62	.77	.92	1.08	1.26	1.47	1.74	2.17	2.57	
Feb	.96	1.03	1.31	1953	8	2.12	2000	.00+	1997	6.3	3.1	.3	.0	.00	.12	.30	.45	.61	.78	.97	1.20	1.51	2.02	2.52	
Mar	1.00	.92	.82	1945	26	2.48	1983	.00	1994	6.9	3.8	.3	.0	.19	.33	.50	.63	.76	.90	1.05	1.22	1.45	1.80	2.13	
Apr	.85	.71	1.52	1978	26	4.07	1978	.07	1974	5.3	3.1	.2	@	.10	.17	.29	.41	.54	.68	.84	1.04	1.32	1.77	2.21	
May	1.05	.68	1.56	1964	28	5.57	1998	.04	1972	5.4	3.3	.5	@	.05	.10	.22	.36	.52	.71	.95	1.25	1.69	2.43	3.18	
Jun	.75	.76	1.39	1989	15	1.90	1993	.02	1994	4.5	2.5	.2	@	.06	.11	.21	.31	.43	.56	.72	.91	1.18	1.64	2.08	
Jul	.47	.25	1.10	1995	13	1.60	1995	.00+	2000	2.4	1.4	.3	@	.00	.00	.00	.10	.20	.31	.43	.59	.82	1.20	1.56	
Aug	.38	.27	1.92	1979	13	3.12	1979	.00+	1992	2.6	1.2	.1	@	.00	.00	.04	.10	.16	.24	.34	.46	.64	.95	1.25	
Sep	.52	.39	1.06	1940	4	1.89	1986	.00+	1999	3.1	1.7	.2	.0	.00	.00	.00	.12	.23	.35	.49	.66	.90	1.30	1.69	
Oct	.62	.46	1.34	1975	6	2.54	1975	.00+	1988	3.7	2.0	.1	.1	.00	.00	.12	.22	.33	.45	.60	.78	1.02	1.43	1.83	
Nov	1.11	.93	.95	1937	19	2.44	1981	.18	1976	7.9	3.9	.2	.0	.20	.30	.46	.61	.77	.93	1.12	1.35	1.65	2.14	2.61	
Dec	1.35	1.24	.93	1982	23	3.86	1983	.02	1989	8.0	4.7	.5	.0	.14	.24	.42	.61	.82	1.04	1.31	1.65	2.11	2.87	3.61	
Ann	10.28	9.60	1.92	Aug 1979	13	5.57	May 1998	.00+	Jul 2000	64.2	34.8	3.3	.1	5.86	6.64	7.69	8.51	9.25	9.99	10.76	11.63	12.71	14.31	15.72	

+ Also occurred on an earlier date(s)

# Denotes amounts of a trace

@ Denotes mean number of days greater than 0 but less than .05

\*\* Statistics not computed because less than six years out of thirty had measurable precipitation

(1) From the 1971-2000 Monthly Normals

(2) Derived from station's available digital record: 1928-2001

(3) Derived from 1971-2000 serially complete daily data

Complete documentation available from:

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NWS Call Sign:

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Lat: 43° 59N

Lon: 117° 15W

Snow (inches)																							
Snow Totals															Mean Number of Days (1)								
Means/Medians (1)					Extremes (2)										Snow Fall >= Thresholds					Snow Depth >= Thresholds			
Month	Snow Fall Mean	Snow Fall Median	Snow Depth Mean	Snow Depth Median	Highest Daily Snow Fall	Year	Day	Highest Monthly Snow Fall	Year	Highest Daily Snow Depth	Year	Day	Highest Monthly Mean Snow Depth	Year	0.1	1.0	3.0	5.0	10.0	1	3	5	10
Jan	4.3	3.0	2	#	8.0	1977	3	16.0	1975	16	1993	19	16	1993	2.3	1.9	.6	.1	.0	6.5	5.0	2.6	1.6
Feb	.6	.0	1	0	6.0	1993	24	7.0	1989	18	1989	18	12	1989	.5	.4	.1	@	.0	2.5	2.1	1.5	1.2
Mar	.2	.0	0	0	4.0	1993	3	4.0	1993	8	1989	7	2	1989	.1	.1	@	.0	.0	.5	.5	.4	.0
Apr	.0	.0	0	0	.0	0	0	.0	0	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
May	.0	.0	0	0	.0	0	0	.0	0	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Jun	.0	.0	0	0	.0	0	0	.0	0	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Jul	.0	.0	0	0	.0	0	0	.0	0	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Aug	.0	.0	0	0	.0	0	0	.0	0	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Sep	.0	.0	0	0	.0	0	0	.0	0	0	0	0	0	0	.0	.0	.0	.0	.0	.0	.0	.0	.0
Oct	.0	.0	#	0	.0	0	0	.0	0	1	1985	22	#	1985	.0	.0	.0	.0	.0	.0	.0	.0	.0
Nov	2.1	.0	#	0	7.5	1977	21	10.1	1994	8	1977	22	2	1985	.9	.6	.2	.1	.0	.4	.2	.1	.0
Dec	5.6	4.3	1	#	10.0	1972	6	14.0	1974	11	1983	30	7	1985	2.0	1.6	.6	.2	@	5.2	2.6	1.9	.1
Ann	12.8	7.3	N/A	N/A	10.0	Dec 1972	6	16.0	Jan 1975	18	Feb 1989	18	16	Jan 1993	5.8	4.6	1.5	.4	@	15.1	10.4	6.5	2.9

+ Also occurred on an earlier date(s) #Denotes trace amounts

@ Denotes mean number of days greater than 0 but less than .05

-9/-9.9 represents missing values

Annual statistics for Mean/Median snow depths are not appropriate

(1) Derived from Snow Climatology and 1971-2000 daily data

(2) Derived from 1971-2000 daily data

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<b>Freeze Data</b>									
<b>Spring Freeze Dates (Month/Day)</b>									
<b>Temp (F)</b>	<b>Probability of later date in spring (thru Jul 31) than indicated(*)</b>								
	<b>.10</b>	<b>.20</b>	<b>.30</b>	<b>.40</b>	<b>.50</b>	<b>.60</b>	<b>.70</b>	<b>.80</b>	<b>.90</b>
<b>36</b>	6/28	6/19	6/13	6/07	6/02	5/28	5/22	5/16	5/07
<b>32</b>	6/05	5/29	5/24	5/19	5/15	5/10	5/06	5/01	4/23
<b>28</b>	5/13	5/06	5/02	4/27	4/23	4/19	4/15	4/10	4/03
<b>24</b>	5/02	4/24	4/18	4/13	4/08	4/03	3/29	3/23	3/15
<b>20</b>	4/11	4/01	3/26	3/20	3/14	3/08	3/02	2/23	2/14
<b>16</b>	3/17	3/07	2/28	2/22	2/17	2/11	2/05	1/30	1/20
<b>Fall Freeze Dates (Month/Day)</b>									
<b>Temp (F)</b>	<b>Probability of earlier date in fall (beginning Aug 1) than indicated(*)</b>								
	<b>.10</b>	<b>.20</b>	<b>.30</b>	<b>.40</b>	<b>.50</b>	<b>.60</b>	<b>.70</b>	<b>.80</b>	<b>.90</b>
<b>36</b>	9/01	9/06	9/10	9/13	9/16	9/19	9/22	9/26	10/01
<b>32</b>	9/11	9/17	9/21	9/24	9/27	10/01	10/04	10/08	10/14
<b>28</b>	9/21	9/26	9/30	10/04	10/07	10/10	10/14	10/18	10/23
<b>24</b>	10/03	10/09	10/14	10/18	10/21	10/25	10/29	11/02	11/08
<b>20</b>	10/12	10/19	10/24	10/28	11/01	11/05	11/10	11/15	11/22
<b>16</b>	10/30	11/05	11/10	11/14	11/18	11/22	11/26	12/01	12/07
<b>Freeze Free Period</b>									
<b>Temp (F)</b>	<b>Probability of longer than indicated freeze free period (Days)</b>								
	<b>.10</b>	<b>.20</b>	<b>.30</b>	<b>.40</b>	<b>.50</b>	<b>.60</b>	<b>.70</b>	<b>.80</b>	<b>.90</b>
<b>36</b>	137	126	118	112	105	99	93	85	74
<b>32</b>	163	153	146	141	135	129	124	117	107
<b>28</b>	190	182	176	171	166	161	156	150	142
<b>24</b>	228	217	209	202	196	189	183	175	164
<b>20</b>	269	256	247	239	232	224	216	207	194
<b>16</b>	307	295	287	280	273	267	260	251	240

\* Probability of observing a temperature as cold, or colder, later in the spring or earlier in the fall than the indicated date.

0/00 Indicates that the probability of occurrence of threshold temperature is less than the indicated probability.

Derived from 1971-2000 serially complete daily data

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Degree Days to Selected Base Temperatures (°F)													
Base	Heating Degree Days (1)												
Below	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
65	1182	861	667	435	213	85	9	26	175	487	842	1164	6146
60	1027	721	512	294	117	36	1	7	93	339	692	1009	4848
57	935	644	420	218	73	19	0	3	58	258	605	916	4149
55	876	591	363	173	50	12	0	1	40	209	549	854	3718
50	732	462	226	84	16	3	0	0	13	108	412	709	2765
32	290	130	10	0	0	0	0	0	0	1	82	257	770

Base	Cooling Degree Days (1)												
Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
32	131	193	365	557	853	1063	1317	1245	884	538	230	116	7492
55	4	10	6	40	190	385	604	533	234	33	7	0	2046
57	1	7	1	25	151	332	542	472	192	20	3	0	1746
60	0	0	0	11	102	259	450	384	137	8	0	0	1351
65	0	0	0	2	43	158	303	248	69	1	0	0	824
70	0	0	0	0	14	83	173	139	28	0	0	0	437

Growing Degree Units (2)																								
Base	Growing Degree Units (Monthly)												Growing Degree Units (Accumulated Monthly)											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
40	1	38	157	340	624	843	1093	1032	679	332	63	7	1	39	196	536	1160	2003	3096	4128	4807	5139	5202	5209
45	0	6	65	206	470	693	938	877	530	199	19	0	0	6	71	277	747	1440	2378	3255	3785	3984	4003	4003
50	0	0	15	105	322	543	783	722	387	100	3	0	0	0	15	120	442	985	1768	2490	2877	2977	2980	2980
55	0	0	0	49	197	397	628	567	249	32	0	0	0	0	0	49	246	643	1271	1838	2087	2119	2119	2119
60	0	0	0	13	101	261	475	413	139	7	0	0	0	0	0	13	114	375	850	1263	1402	1409	1409	1409
Base	Growing Degree Units for Corn (Monthly)												Growing Degree Units for Corn (Accumulated Monthly)											
50/86	0	26	129	248	404	532	665	632	453	262	40	2	0	26	155	403	807	1339	2004	2636	3089	3351	3391	3393

(1) Derived from the 1971-2000 Monthly Normals

(2) Derived from 1971-2000 serially complete daily data

**Note:** For corn, temperatures below 50 are set to 50, and temperatures above 86 are set to 86

Complete documentation available from:

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## Notes

- a. The monthly means are simple arithmetic averages computed by summing the monthly values for the period 1971-2000 and dividing by thirty. Prior to averaging, the data are adjusted if necessary to compensate for data quality issues, station moves or changes in station reporting practices. Missing months are replaced by estimates based on neighboring stations.
- b. The median is defined as the middle value in an ordered set of values. The median is being provided for the snow and precipitation elements because the mean can be a misleading value for precipitation normals.
- c. Only observed validated values were used to select the extreme daily values.
- d. Extreme monthly temperature/precipitation means were selected from the monthly normals data.  
Monthly snow extremes were calculated from daily values quality controlled to be consistent with the Snow Climatology.
- e. Degree Days were derived using the same techniques as the 1971-2000 normals.  
Complete documentation for the 1971-2000 Normals is available on the internet from:  
[www.ncdc.noaa.gov/oa/climate/normal/usnormals.html](http://www.ncdc.noaa.gov/oa/climate/normal/usnormals.html)
- f. Mean "number of days statistics" for temperature and precipitation were calculated from a serially complete daily data set.  
Documentation of the serially complete data set is available from the link below:
- g. Snowfall and snow depth statistics were derived from the Snow Climatology.  
Documentation for the Snow Climatology project is available from the link under references.

## Data Sources for Tables

Several different data sources were used to create the Clim20 climate summaries. In some cases the daily extremes appear inconsistent with the monthly extremes and or the mean number of days statistics. For example, a high daily extreme value may not be reflected in the highest monthly value or the mean number of days threshold that is less than and equal to the extreme value. Some of these difference are caused by different periods of record. Daily extremes are derived from the station's entire period of record while the serial data and normals data were are for the 1971-2000 period. Therefore extremes observed before 1971 would not be included in the 1971-2000 normals or the 1971-2000 serial daily data set. Inconsistencies can also occur when monthly values are adjusted to reflect the current observing conditions or were replaced during the 1971-2000 Monthly Normals processing and are not reconciled with the Summary of the Day data.

- a. Temperature/ Precipitation Tables
  1. 1971-2000 Monthly Normals
  2. Cooperative Summary of the Day
  3. National Weather Service station records
  4. 1971-2000 serially complete daily data
- b. Degree Day Table
  1. Monthly and Annual Heating and Cooling Degree Days Normals to Selected Bases derived from 1971-2000 Monthly Normals
  2. Daily Normal Growing Degree Units to Selected Base Temperatures derived from 1971-2000 serially complete daily data
- c. Snow Tables
  1. Snow Climatology
  2. Cooperative Summary of the Day
- d. Freeze Data Table  
1971-2000 serially complete daily data

## References

- U.S. Climate Normals 1971-2000, [www.ncdc.noaa.gov/normal.html](http://www.ncdc.noaa.gov/normal.html)  
U.S. Climate Normals 1971-2000-Products Clim20, [www.ncdc.noaa.gov/oa/climate/normal/usnormalsprods.html](http://www.ncdc.noaa.gov/oa/climate/normal/usnormalsprods.html)  
Snow Climatology Project Description, [www.ncdc.noaa.gov/oa/climate/monitoring/snowclim/mainpage.html](http://www.ncdc.noaa.gov/oa/climate/monitoring/snowclim/mainpage.html)  
Eischeid, J. K., P. Pasteris, H. F. Diaz, M. Plantico, and N. Lott, 2000: Creating a serially complete, national daily time series of temperature and precipitation for the Western United States. J. Appl. Meteorol., 39, 1580-1591,  
[www1.ncdc.noaa.gov/pub/data/special/serialcomplete\\_jam\\_0900.pdf](http://www1.ncdc.noaa.gov/pub/data/special/serialcomplete_jam_0900.pdf)