

Overview of the Climate of Canaan Valley, West Virginia

Canaan Valley stands at about 3200 feet elevation, surrounded by mountains commonly 500 to 1000 feet higher. This high elevation makes Canaan Valley well known for its cool, comfortable summers and cold, snowy winters. In the summertime, afternoon high temperatures of 80 or above only occur about one day in three. A daily high temperature of 90 or above is extremely rare, has only occurred a handful of times in the past 75 years and is virtually unknown in the past 30 years. Summer nights are pleasant with low temperatures normally in the 50s or below on 20 or more days a month. Below zero temperatures occur on average six times a winter, a temperature of minus 10 or below occurs in about half of all winters and an extreme low reading of minus 20 or below has occurred in earlier years but not since 1991.

The valley is blessed with ample precipitation. The lofty spine of the Allegheny Highlands forces air to rise up and over the mountains, dropping enhanced amounts of precipitation. The normal total annual precipitation (rain and melted snow) that falls on Canaan Valley is approximately 56 inches. This is considerably higher than amounts that fall at lower elevations just a few tens of miles east and west of the valley. There have been rare occurrences in the past century of tropical storms passing nearby and producing extremely heavy rain that subsequently resulted in catastrophic flooding.

The valley's plentiful precipitation is also responsible for abundant winter snowfall. For the 30-year period of 1991-2020, total annual snowfall averaged 154 inches with a few years receiving much more than that. In 2010, 225 inches of snow fell with an incredible 100 inches in February alone. The first snowfall of the season normally occurs by mid-October and the last of the season often occurs in May. An amazing spring snowfall blanketed the area May 2-4, 2023 with a total of 13 inches reported at the Canaan Valley weather station and 20 inches at nearby Canaan Heights. On the average, for the entire winter there are about 40 snowfall events of 1 inch or more each but only about seven such occurrences of 6 inches or more.

With repeated snowfall events throughout the winter, the depth of snow on the ground can reach two or three feet. On average, there are 18 days each winter with a foot or more of snowcover and a number of times over the past 30 years it exceeded three feet. On average, snowcover usually reaches a maximum in February.

History of Canaan Valley Weather Stations and Sources of Data for Preparing Summary Tables

The era of modern weather observations in Canaan Valley began in 1944 when the U.S. Weather Bureau provided local farmer George Thompson a set of quality recording thermometers and an official precipitation gauge for taking daily readings at his home. Located on the outskirts of what has come to be the commercial center of the valley and today called "Canaan Village", that weather station was moved to a new location nearby in 1974, moved again in 1993 and finally moved to its current location in 2013. As an aside, prior to the start of the Thompson weather station in 1944, there were two weather stations in the valley reporting only daily precipitation and snowfall but no temperature data. Their record covered the period 1914 to 1938, none of which was used in preparing this climate summary.

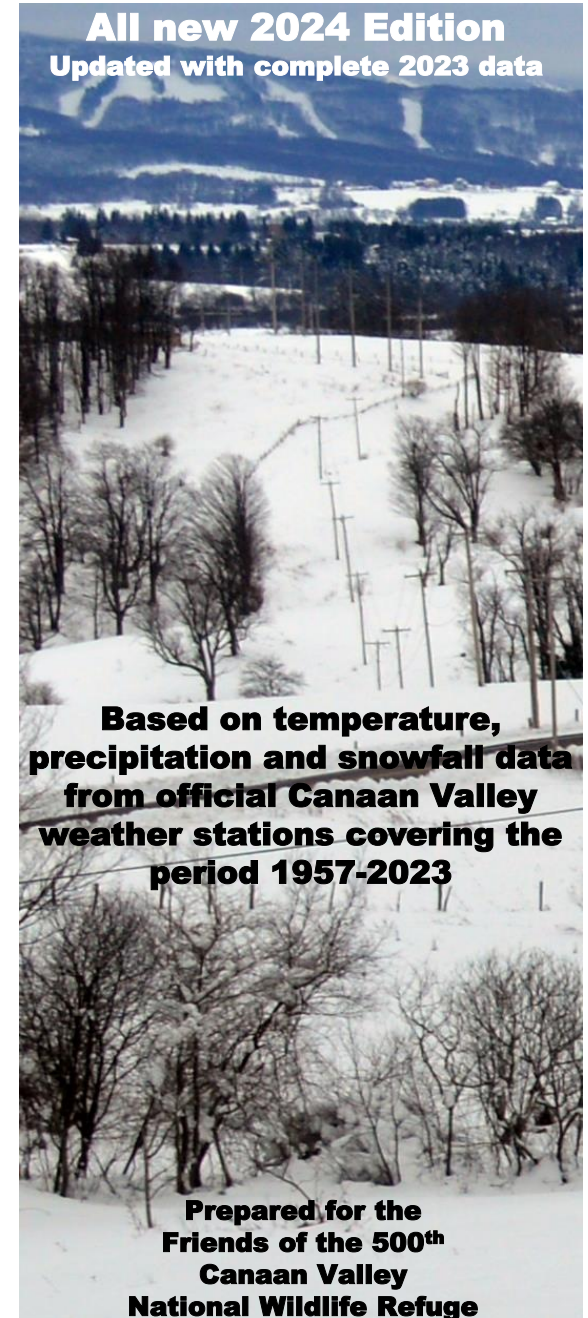
In 2003, the National Oceanic and Atmospheric Administration (NOAA) established a modern computer-controlled automated weather station located at Canaan Valley State Park. That site has provided high quality daily observations of both temperatures and precipitation, but not snowfall, in a near-perfect unbroken record from 2004 to now. This station is part of a NOAA program called Climate Reference Network (CRN) which includes 138 weather stations covering all 50 states.

For the TEMPERATURE and PRECIPITATION climate summaries on the reverse side of this page, 2004-2023 data from the CRN site at the state park was the single source used in preparing them. The long record of temperature and precipitation data from the Canaan Village sites were not used because of (1) changes in their locations over the years potentially would have a major effect on the consistency of temperature data and (2) the relatively large number of missing daily observations for the period 1993-2011.

For preparing the SNOWFALL and SNOW DEPTH summaries, average Canaan Village snowfall and snow depth data for the period 1991-2020 were used. The tables of extreme values of snowfall and snow depth cover the period 1957-2023. Unlike temperature data, snowfall data are much less sensitive to moving weather stations short distances as occurred over the years at Canaan Village. What's more, some instances of missing data occurred during the warm season, enabling the citing of daily and monthly snowfall records as far back as 1957.

THE CLIMATE OF CANAAN VALLEY WEST VIRGINIA

All new 2024 Edition
Updated with complete 2023 data



Based on temperature,
precipitation and snowfall data
from official Canaan Valley
weather stations covering the
period 1957-2023

Prepared for the
Friends of the 500th
Canaan Valley
National Wildlife Refuge

Canaan Valley Climate Summary

Narratives on reverse side and tables below prepared by Dave Leshner from all online sources of National Weather Service data

TEMPERATURE (F) (2004-2022)	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR
Average daily high temperature	34	37	46	57	65	71	74	73	69	59	47	39	56
Extreme highest temperature	64	70	76	82	82	87	86	83	84	82	74	65	87
Date	1/3/23	2/21/18	3/28/20	27/4/09	5/31/06	6/29/12	4/7/12	8/12/21	9/3/10	10/1/19	11/2/04	12/27/15	6/29/12
Average daily low temperature	19	20	28	37	46	53	57	56	49	40	30	24	38
Extreme lowest temperature	-16	-13	-7	9	21	31	38	40	29	20	1	-13	-16
Date	1/7/14	2/16/15	3/6/15	4/10/16	5/9/20	6/1/20	7/1/10	8/16/14	9/16/07	10/30/08	11/25/05	12/24/22	1/7/14
Average number days with high \geq 80	0	0	0	*	1	1	4	3	1	*	0	0	11
Average number days with high \leq 32	14	10	6	1	*	0	0	0	0	1	3	10	46
Average number days with low \leq 32	26	24	21	11	2	*	0	0	*	7	19	24	134
Average number days low \leq 0	3	1	*	0	0	0	0	0	0	0	0	1	6

* Less than 0.5

PRECIPITATION (In.) (2004-2022)	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR
Average monthly total	4.78	4.56	4.64	5.25	5.49	5.69	5.62	4.16	3.65	4.33	3.38	4.89	56.44
Average number days \geq 0.01 in.	21	18	18	16	16	16	16	14	10	13	14	18	190
Average number days \geq 0.50 in.	3	3	3	4	4	4	4	3	2	3	2	3	38
Average number days \geq 1.00 in.	1	1	1	1	1	1	1	1	1	1	0	1	11
Highest daily amount	1.96	2.32	1.39	1.95	2.50	3.73	3.13	3.04	2.73	2.47	2.74	2.29	3.73
Date	1/1/22	2/29/12	3/28/18	4/28/08	5/14/12	6/30/19	7/13/06	8/2/08	9/8/04	10/29/12	11/11/20	12/6/13	6/30/19
Highest monthly amount	7.02	8.07	7.19	9.81	9.08	10.56	9.09	9.04	7.56	6.50	5.42	7.90	10.56
Year	2017	2018	2015	2011	2008,18	2019	2017	2013	2011	2018	2011	2007	2019
Lowest monthly amount	2.75	2.30	2.54	2.21	1.25	1.39	3.25	1.90	0.86	2.20	0.76	2.25	0.76
Year	2014	2006	2016	2010	2015	2005	2018	2012	2005	2013	2012	2006	2012

SNOWFALL (In.)	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR
Average monthly total (1991-2020)	38.5	35.1	26.7	8.4	0.2	0.0	0.0	0.0	0.0	4.1	11.7	29.3	154.0
Average number days snowfall \geq 1.0 in.	10	9	7	2	0	0	0	0	0	1	3	8	40
Average number days snowfall \geq 6.0 in.	2	2	1	0	0	0	0	0	0	0	1	1	7
Highest daily amount (1957-2023)	24.0	24.0	20.0	14.0	4.8	0.0	0.0	0.0	Trace	22.9	16.0	17.0	24.0
Date	1/8/96	2/19/60	3/4/71	4/17/07	5/3/23				9/23/83	10/30/12	11/15/95	12/30/97	1/8/96
Highest monthly total (1957-2023)	82.5	100.0	73.0	35.4	13.0	0	0	0	Trace	30.6	53.0	68.2	100.0
Year	2003	2010	1960	2007	2023				1983	2012	1995	2010	2010

SNOW DEPTH ON GROUND (In.) (1991-2023)	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR
Highest daily depth	30	46	46	14	7	0	0	0	0	25	25	22	46
Date	1/8/96	2/17/03	3/14/93	4/17/07	5/3/23					10/31/12	11/1/12	12/31/97	2/17/03
Average number days depth \geq 1 in.	23	22	16	3	0	0	0	0	0	1	7	17	88
Average number days depth \geq 12 in.	5	6	4	0	0	0	0	0	0	0	1	2	18