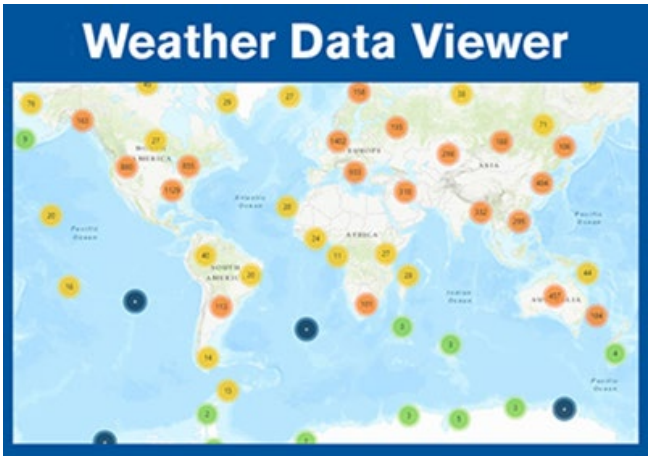
FAQ for
Weather Data Viewer



Q: **What is Weather Data Viewer?**

A: Weather Data Viewer is a single-user annual subscription that gives users cloud-based access to climatic design information for 12,424 weather stations worldwide. It provides outputs per user inputs for one station at a time.

More information is provided in the ASHRAE Bookstore and in the product's preview file available at that link.

Q: **How do I purchase or renew a Weather Data Viewer subscription?**

A: You can purchase or renew an annual subscription to Weather Data Viewer via the ASHRAE Bookstore.

Weather Data Viewer is also available as part of an ASHRAE Handbook Online annual subscription. Users access Weather Data Viewer in ASHRAE Handbook Online under *ASHRAE Handbook—Fundamentals* on the Additional Features tab of the Homepage or from the Contents or Additional Features tabs of Chapter 14.

Q: **Does Weather Data Viewer provide typical meteorological year (TMY) data or hourly time series for the weather stations?**

A: No, Weather Data Viewer does not include this information. Please consult Chapter 14, Section 7, in *ASHRAE Handbook—Fundamentals* for "Other Sources of Climatic Information."

Q: **How often are the climatic data in Weather Data Viewer updated?**

A: Weather Data Viewer climatic data are updated every four years. This coincides with the publication of the updated climatic data in every new edition of *ASHRAE Handbook—Fundamentals* and ANSI/ASHRAE Standard 169.

Q: **Can I obtain an example PDF of the design conditions for a weather station?**

A: Absolutely! An example single-page PDF representing those available for each station via Weather Data Viewer (in SI units) is available on the following page.

EXAMPLE CITY, GA, USA

WMO: **777777**

Lat: **33.640N** Lon: **84.430W** Elev: **313** StdP: **97.62** Time Zone: **-5.00 (NAE)** Period: **1990-2014** Grade: **A** WBAN: **99999**

Annual Heating, Humidification, and Ventilation Design Conditions

	Coldest Month	Heating DB		Humidification DP/MCDB and HR						Coldest Month WS/MCDB				MCWS/PCWD to 99.6% DB		WSF	
		99.6%	99%	99.6% DP	99.6% HR	99.6% MCDB	99% DP	99% HR	99% MCDB	0.4% WS	0.4% MCDB	1% WS	1% MCDB	MCWS	PCWD		
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	
(1)	1	-5.6	-3.0	-15.1	1.0	-1.5	-12.6	1.3	0.5	11.1	4.3	10.4	4.0	5.3	320	0.435	(1)

Annual Cooling, Dehumidification, and Enthalpy Design Conditions

	Hottest Month	Hottest Month DB Range	Cooling DB/MCWB						Evaporation WB/MCDB						MCWS/PCWD to 0.4% DB		
			0.4%		1%		2%		0.4%		1%		2%				
			DB	MCWB	DB	MCWB	DB	MCWB	WB	MCDB	WB	MCDB	WB	MCDB	MCWS	PCWD	
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	
(2)	7	9.3	34.4	23.4	33.1	23.2	32.0	22.9	25.2	31.3	24.6	30.3	24.1	29.3	3.9	300	(2)

	Dehumidification DP/MCDB and HR									Enthalpy/MCDB						Extreme Max WB	
	0.4%			1%			2%			0.4%		1%		2%			
	DP	HR	MCDB	DP	HR	MCDB	DP	HR	MCDB	Enth	MCDB	Enth	MCDB	Enth	MCDB		
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	
(3)	23.5	19.0	27.4	23.0	18.4	26.8	22.6	17.9	26.5	78.3	31.3	75.9	30.4	73.9	29.6	28.0	(3)

Extreme Annual Design Conditions

	Extreme Annual WS				Extreme Annual Temperature				n-Year Return Period Values of Extreme Temperature								
					Mean		Standard Deviation		n=5 years		n=10 years		n=20 years		n=50 years		
	1%	2.5%	5%		Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	
	(a)	(b)	(c)		(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	
(4)	9.5	8.5	7.6	DB	-9.5	35.9	2.6	2.0	-11.3	37.4	-12.8	38.6	-14.3	39.7	-16.1	41.2	(4)
(5)				WB	-10.8	26.1	2.4	0.8	-12.5	26.7	-13.9	27.2	-15.3	27.7	-17.1	28.3	(5)

Monthly Climatic Design Conditions

				Annual	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
				(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	
(6)	Temperatures and Degree-Days		DBAvg	17.2	7.0	8.9	12.7	17.0	21.4	25.2	26.7	26.4	23.3	17.5	11.9	8.0	(6)
(7)			DBStd	8.11	5.37	4.93	5.00	4.11	3.43	2.50	1.95	2.13	3.04	3.93	4.50	4.90	(7)
(8)			HDD10.0	363	124	73	31	3	0	0	0	0	0	2	31	98	(8)
(9)			HDD18.3	1467	353	265	183	71	14	1	0	0	4	62	196	320	(9)
(10)			CDD10.0	2995	30	42	114	214	353	455	518	508	398	236	89	37	(10)
(11)			CDD18.3	1056	0	1	8	31	108	206	260	249	152	37	4	1	(11)
(12)	Wind		WSAvg	3.7	4.1	4.2	4.3	3.9	3.5	3.3	3.1	3.0	3.4	3.5	3.7	4.0	(12)
(13)	Precipitation		PrecAvg	1290	121	122	147	108	109	90	127	93	87	78	98	110	(13)
(14)			PrecMax	1649	258	324	296	301	213	187	216	220	154	191	182	252	(14)
(15)			PrecMin	958	44	20	62	38	10	25	19	13	18	2	23	17	(15)
(16)			PrecStd	183	54	70	69	61	59	46	56	57	41	53	40	60	(16)
(17)	Monthly Design Dry Bulb and Mean Coincident Wet Bulb Temperatures	0.4%	DB	21.4	23.0	27.1	29.4	32.3	34.7	36.4	36.3	33.8	28.6	25.2	22.4	(17)	
(18)			MCWB	16.0	16.3	17.0	19.2	21.8	22.7	23.8	23.5	22.2	20.2	17.8	17.3	(18)	
(19)		2%	DB	19.0	20.6	25.0	27.8	30.6	33.3	34.5	34.3	31.7	27.1	23.0	20.4	(19)	
(20)			MCWB	14.8	14.9	15.9	18.3	21.0	22.7	23.7	23.7	21.9	19.3	16.5	16.4	(20)	
(21)		5%	DB	17.2	18.8	23.0	26.2	29.2	32.1	33.1	32.7	30.2	25.7	21.3	18.1	(21)	
(22)			MCWB	14.0	13.8	15.1	17.5	20.4	22.5	23.5	23.4	21.5	18.1	15.9	15.0	(22)	
(23)		10%	DB	15.3	17.0	21.0	24.5	27.8	30.8	31.7	31.3	28.8	24.1	19.5	16.1	(23)	
(24)			MCWB	12.1	12.5	14.3	16.6	19.9	22.2	23.5	23.0	21.2	17.8	14.6	12.9	(24)	
(25)	Monthly Design Wet Bulb and Mean Coincident Dry Bulb Temperatures	0.4%	WB	17.9	18.6	19.1	21.5	23.9	25.2	26.0	25.8	24.7	22.2	20.7	19.3	(25)	
(26)			MCDB	19.7	19.9	22.7	26.2	28.5	31.3	32.0	32.2	30.0	26.0	22.1	21.0	(26)	
(27)		2%	WB	16.5	16.9	17.8	20.1	22.6	24.4	25.3	25.1	23.7	21.2	19.0	17.5	(27)	
(28)			MCDB	18.1	19.2	21.9	24.6	28.0	30.3	31.3	31.3	28.4	24.4	21.1	19.1	(28)	
(29)		5%	WB	14.8	15.3	16.7	19.1	21.8	23.8	24.7	24.5	23.1	20.4	17.5	15.7	(29)	
(30)			MCDB	16.6	17.8	21.1	23.5	27.0	29.4	30.4	30.1	27.2	23.2	19.8	17.8	(30)	
(31)		10%	WB	12.9	13.5	15.5	18.0	21.1	23.2	24.1	24.0	22.5	19.4	15.8	13.5	(31)	
(32)			MCDB	14.6	15.9	19.4	22.4	25.9	28.4	29.4	29.0	26.4	22.4	18.5	15.4	(32)	
(33)	Mean Daily Temperature Range		MDBR	9.6	10.1	10.7	11.0	10.1	9.5	9.3	9.1	9.2	10.1	10.4	9.2	(33)	
(34)		5% DB	MCDBR	10.8	11.6	12.5	12.2	11.1	11.1	11.2	10.8	10.6	11.3	11.6	10.8	(34)	
(35)			MCWBR	7.5	7.4	6.1	5.3	4.2	3.7	3.4	3.4	3.8	5.0	6.5	7.4	(35)	
(36)		5% WB	MCDBR	8.9	9.7	9.9	10.1	9.6	9.6	9.7	9.4	8.5	8.3	9.3	9.3	(36)	
(37)			MCWBR	7.3	7.7	6.1	5.4	4.3	3.8	3.6	3.4	3.8	4.9	7.2	7.5	(37)	
(38)	Clear-Sky Solar Irradiance		taub	0.310	0.315	0.347	0.386	0.440	0.473	0.515	0.515	0.417	0.363	0.333	0.311	(38)	
(39)			taud	2.538	2.521	2.453	2.324	2.213	2.168	2.066	2.052	2.312	2.460	2.484	2.554	(39)	
(40)			Ebn at Noon	905	936	926	898	848	817	780	773	842	868	867	883	(40)	
(41)			Edh at Noon	82	92	106	127	143	150	165	165	121	97	86	76	(41)	
(42)	All-Sky Solar Radiation		RadAvg	2.69	3.32	4.43	5.52	6.00	6.16	5.86	5.44	4.72	4.02	3.04	2.33	(42)	
(43)			RadStd	0.16	0.39	0.34	0.40	0.52	0.51	0.42	0.32	0.47	0.51	0.26	0.23	(43)	

Historical Trends

			DBAvg	Heating		Cooling			Degree-Days				
				99% DB	99% DP	1% DB	1% WB	1% DP	HDD10.0	HDD18.3	CDD10.0	CDD18.3	
			(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	
(44)	Station	Trend	N/S	N/S	N/S	N/S	-0.20	-0.23	N/S	N/S	N/S	N/S	(44)
(45)		Variability	0.8	1.8	2.2	1.3	0.4	0.4	108	198	216	146	(45)
(46)	Regional Trend (1 neighbor)		N/S	N/S	N/S	N/S	-0.24	-0.26	N/S	N/S	N/S	N/S	(46)

Nomenclature: See separate page

Q: Can I still obtain Weather Data Viewer as an Excel-based product?

A: No, Weather Data Viewer is an online product now and going forward. It was becoming increasingly difficult to maintain a spreadsheet version of Weather Data Viewer that worked in the various editions and combinations of Microsoft® Windows® and Microsoft® Excel®.

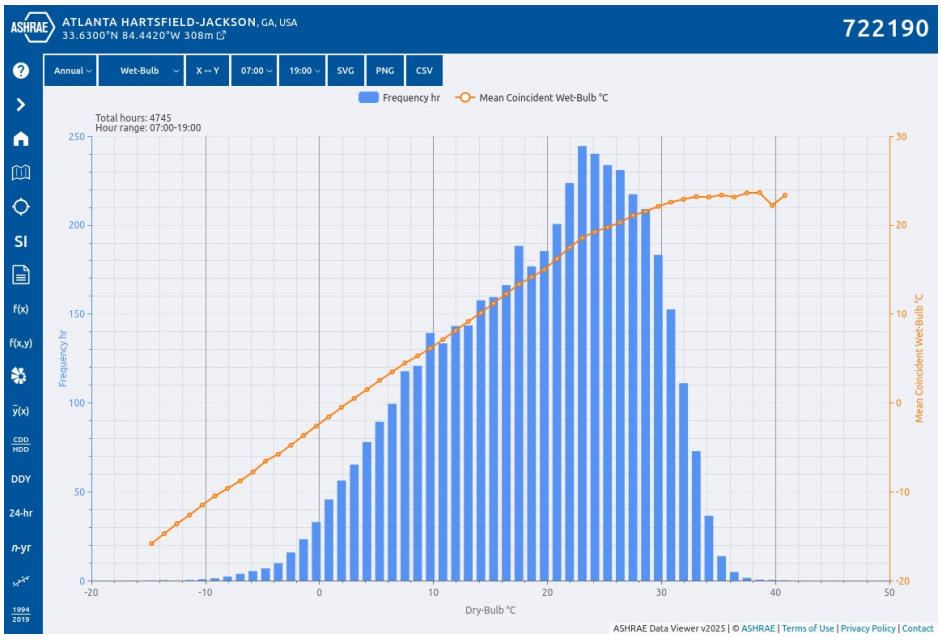
The climatic design condition data and functionality that were available via the Microsoft® Excel®-based product can still be found in the single-page PDFs downloadable via Weather Data Viewer.

Q: The previous versions of Weather Data Viewer on CD or DVD included a bin generator – does the online Weather Data Viewer provide this functionality?

A: Although the 2021 release did not include this, the 2025 release of Weather Data Viewer does include a bin generator.

This functionality had been removed from the 2021 release because the pre-2021, Excel-based bin generator was based on a faulty premise – i.e., it is a misleading product. To do it properly, you would need to form the joint binned data for hourly x dry bulb x dew point. That is, to calculate the hourly dry-bulb and mean coincident wet-bulb temperatures over a subset/span of hours, you would need a 3D joint binning of hour, dry bulb, and wet bulb. The Excel-based bin generator, however, was calculated based on two separate 2D bins of (dry-bulb, hour) and (dry-bulb, wet-bulb), which is wrong.

The 2025 release includes the ability to restrict bin data to specified hourly ranges (e.g., 7:00 a.m. – 7:00 p.m. or 7:00 p.m. – 7:00 a.m.) for either dry-bulb temperature solely (1D histogram) or for dry-bulb vs. wet-bulb temperatures (2D joint histogram). The 2D option is an accurate implementation of the intention of the original Excel-based bin generator. Below is an example of restricting the hours between 7:00 and 19:00 for Atlanta:



Q: What are the hourly bin data included in Weather Data Viewer?

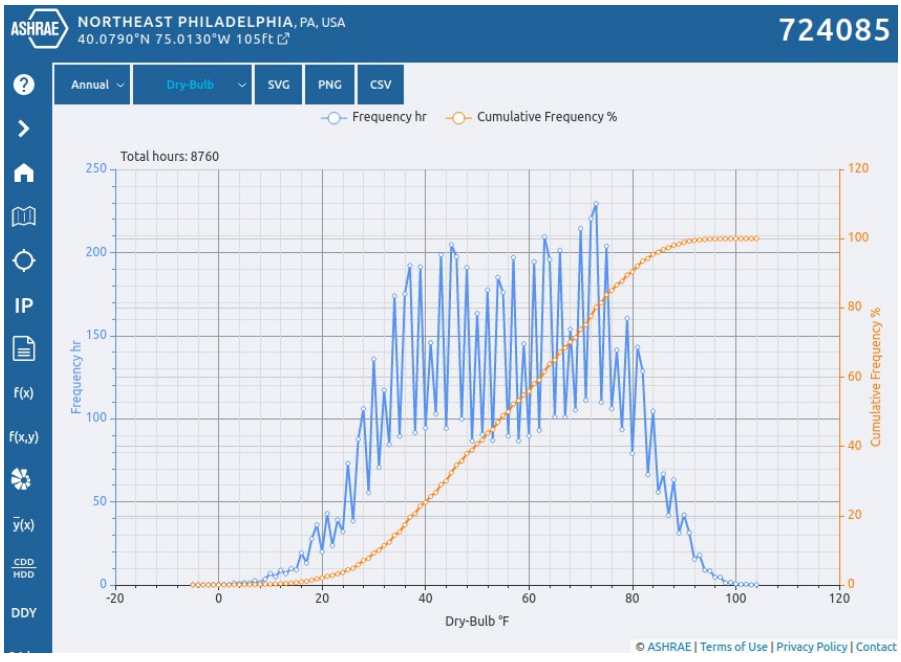
A: The binned data available to users via Weather Data Viewer consist of the following:

- Dry-bulb temperature vs. wet-bulb temperature
- Dry-bulb temperature vs. dew-point temperature
- Dry-bulb temperature vs. enthalpy
- Dry-bulb temperature vs. wind speed
- Dry-bulb temperature vs. wind direction
- Dry-bulb temperature vs. hour
- Dry-bulb temperature vs. wet-bulb temperature vs. hour
- Wind speed vs. wind direction

Q: How do I find the weather bin data for a location for the number of hours between, for example, 40°F and 50°F, then the hours below 40°F for an entire year?

A: Using Northeast Philadelphia as an example (see diagram below), you can take the following steps:

- Hover over the 50°F line and record the cumulative frequency = 40.80%. This represents the percentage of hours below 50°F.
- Hover over the 40°F line and record the cumulative frequency = 23.85%. Multiply this by 8760 (hours in a year) to get the number of hours below 40°F = 2089 hours. This answers the second part of the question.
- Subtract 40.80 – 23.85 = 16.95% and multiply this by 8760 to get the number of hours between 40°F and 50°F = 1485 hours. This answers the first part of the question.
- Users can also download the .csv file for this diagram and do the same thing in Excel.



Q: What are the available weather stations?

A: Weather Data Viewer includes access to a map of weather stations worldwide. Users can zoom in on specific areas to see all of the weather stations available or search using city, country, state, province, station name, or station WMO number.

To find out if a weather station is available in a specific area before purchasing Weather Data Viewer, users can search stations on a map by name or geographic location using StationFinder, a free online map of the weather stations as published in the 2001, 2005, 2009, 2013, 2017, 2021, or 2025 *ASHRAE Handbook—Fundamentals*.

Q: How do I find the nearest weather station for a given latitude and longitude?

A: The specific steps to achieve this depend on the programming language or software being used, but a general brute force procedure is:

1. Calculate the great circle distance using the Haversine distance between your address and all 12,424 stations.
2. Take the minimum distance station.

Information on using Microsoft® Excel® to complete the Haversine equation is available in this article.