

BALTIMORE, MARYLAND																													
WIND SPEED AVERAGES AND EXTREMES																													
(Speed in Miles per Hour)																													
Data Period of Record: 1891-Present																													
YEAR	JANUARY		FEBRUARY		MARCH		APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER		OCTOBER		NOVEMBER		DECEMBER		ANNUAL			YEAR	
	Average	Max Gust	Average	Max Gust	Average	Max Gust	Average	Max Gust	Average	Max Gust	Average	Max Gust	Average	Max Gust	Average	Max Gust	Average	Max Gust	Average	Max Gust	Average	Max Gust	Average	Max Gust	Overall Monthly Average	Average Monthly Max Gust	Annual Max Gust		
1891																												1891	
1892																												1892	
1893	8.8	5.8	9.9	4.5	9.3	8.2	8.9	8.0	7.8	4.2	6.0	6.1	6.8	7.4	9.1	4.8	7.5	7.8	8.0	7.3	4.5	5.3	5.2	5.2	4.2	4.2	4.2	1893	
1894	7.3	4.8	7.0	6.9	7.9	8.2	8.2	7.9	7.9	4.3	6.8	6.7	7.0	7.0	7.2	7.2	7.5	7.8	7.8	8.0	6.8	6.8	6.8	6.8	6.8	6.8	6.8	1894	
1895	8.1	10.6	8.6	9.5	8.6	8.6	8.6	8.6	8.6	8.6	8.6	8.6	8.6	8.6	8.6	8.6	8.6	8.6	8.6	8.6	8.6	8.6	8.6	8.6	8.6	8.6	8.6	1895	
1896	8.5	10.9	10.8	5.0	8.4	7.6	6.9	6.7	4.2	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	1896	
1897	6.5	5.7	5.8	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	1897	
1898	5.5	5.3	5.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	1898	
1899	5.2	5.9	6.8	6.8	5.7	4.9	5.2	4.6	5.5	5.3	4.7	4.0	4.4	4.5	4.7	4.0	4.4	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	1899	
1900	5.3	6.8	5.8	5.0	5.5	5.8	5.0	5.5	5.8	5.0	5.2	4.6	4.3	4.4	4.8	5.2	4.6	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1	1900	
1901	5.1	6.0	5.1	7.5	5.1	7.5	5.1	7.5	5.1	7.5	5.1	7.5	5.1	21	4.6	5.1	6.0	5.1	6.0	5.1	6.0	5.1	6.0	5.1	6.0	5.1	6.0	1901	
1902	5.2	6.9	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2	1902	
1903	5.6	4.2	9.0	4.5	6.5	3.2	9.0	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	1903	
1904	7.6	3.4	8.9	3.8	8.2	8.7	3.6	7.1	3.5	6.6	4.2	6.2	4.0	6.0	5.9	4.0	6.9	7.2	3.6	7.4	7.4	4.0	7.2	3.7	3.7	4.2	1904		
1905	8.5	3.0	8.0	3.4	6.6	7.9	3.6	7.6	3.0	6.8	2.8	6.6	3.8	6.9	3.1	6.3	2.4	6.7	3.0	7.6	3.4	7.9	4.2	7.3	3.2	4.2	1905		
1906	8.7	4.6	8.0	2.7	9.2	4.2	8.3	3.3	7.9	2.9	6.9	3.2	6.4	5.8	6.4	9.2	7.6	8.0	6.0	7.7	3.4	8.0	7.7	3.4	8.0	4.6	1906		
1907	6.8	4.5	7.5	3.0	7.7	3.6	10.1	3.1	7.7	3.8	7.6	3.6	6.2	3.9	6.7	6.6	3.0	7.4	3.5	7.3	4.6	7.2	3.5	4.6	7.2	3.5	4.6	1907	
1908	7.7	4.0	8.5	3.2	7.6	3.0	8.3	3.2	7.5	2.8	7.2	6.7	4.0	6.6	2.7	5.8	2.8	6.1	3.2	6.7	2.8	7.1	3.0	5.4	6.0	3.0	5.4	1908	
1909	6.8	3.0	8.1	3.6	8.3	3.0	8.9	3.3	7.8	3.1	6.0	2.5															1909		
1910																												1910	
1911																												1911	
1912																												1912	
1913																												1913	
1914	8.0	3.6	8.3	2.9	8.0	3.5	7.9	2.8	6.6	3.4	6.6	3.4	6.5	2.4	5.9	2.1	6.5	2.7	6.4	3.0	7.5	3.7	7.7	7.2	3.0	3.7	1914		
1915	6.7	4.3	9.8	3.6	8.5	3.1	7.9	3.5	6.6	3.0	7.1	2.6	6.4	2.8	6.8	3.7	6.1	2.8	6.0	2.8	6.5	3.6	7.2	2.6	7.1	3.1	4.3	1915	
1916	9.2	3.6	8.3	2.7	8.7	2.6	8.1	4.8	7.6	4.0	7.3	2.5	7.1	2.8	5.6	2.6	9.0	4.4	8.4	2.7	6.7	2.9	6.8	3.6	7.4	3.2	4.6	1916	
1917	8.7	2.0	7.6	3.0	7.8	2.9	7.9	2.7	7.8	2.0	8.4	2.5	8.0	2.6	2.4	6.6	2.4	7.0	2.8	6.1	2.4	7.8	3.2	6.9	2.6	3.2	1917		
1918	7.6	4.6	6.9	3.1	6.9	3.4	8.2	3.9	6.3	2.2	7.4	3.0	6.0	3.3	6.1	2.5	6.0	2.0	5.6	2.4	5.7	2.1	6.0	2.4	6.6	2.9	4.6	1918	
1919	5.4	2.0	7.0	2.4	9.2	3.2	7.4	3.0	6.6	2.2	6.2	3.0	6.1	2.6	6.0	2.9	5.7	2.5	5.6	2.4	5.9	2.6	6.9	2.9	6.5	2.6	3.2	1919	
1920	7.3	2.4	8.5	3.2	7.2	3.5	8.0	2.7	7.0	4.0	6.0	4.0	6.6	2.1	6.1	2.6	5.2	1.7	5.1	1.9	6.2	3.2	6.7	3.0	6.7	2.6	4.0	1920	
1921	6.7	2.6	6.5	2.5	7.1	6.5	6.5	2.6	6.9	2.6	5.9	2.4	5.6	2.7	6.4	3.4	5.2	2.4	5.2	2.2	5.6	1.9	5.3	2.4	5.0	2.4	2.7	1921	
1922	6.5	4.1	6.0	2.9	6.7	2.6	6.4	3.1	6.1	3.0	5.8	2.3	5.6	3.0	5.4	2.0	5.0	1.6	5.3	2.2	5.1	2.0	5.3	2.4	5.8	2.6	4.1	1922	
1923	6.4	2.1	6.4	3.4	7.2	2.5	7.1	3.1	6.6	2.7	5.6	2.4	5.6	2.6	5.3	2.2	4.9	1.7	5.6	2.6	5.4	2.3	5.2	2.6	5.9	2.5	3.4	1923	
1924	6.2	3.2	6.6	2.4	7.2	3.2	6.5	2.8	7.0	3.8	5.3	2.6	5.1	1.7	5.3	2.0	6.4	2.7	4.4	2.0	5.2	1.9	5.4	2.6	5.9	2.5	3.8	1924	
1925	6.0	2.8	7.3	3.6	6.9	2.0	7.0	2.6	5.9	1.5	6.3	1.9	6.9	6.1	8.7	4.3	8.8	3.7	8.8	4.6	11.4	5.4	11.4	4.5	7.8	3.1	6.1	1925	
1926	5.9	2.7	10.7	3.1	7.1	3.2	11.7	3.8	9.8	3.1	10.1	3.5	9.6	3.8	6.6	3.7	6.7	3.5	9.1	2.9	11.3	3.0	11.7	3.5	10.7	3.4	6.0	1926	
1927	10.3	4.2	10.6	4.3	10.2	4.4	10.7	4.2	9.5	4.3	9.9	3.6	8.7	3.3	8.0	4.6	7.9	2.7	9.8	4.8	10.1	4.8	11.8	4.4	9.8	4.1	4.8	1927	
1928	10.8	4.7	9.6	3.7	10.9	4.4	12.0	4.6	7.9	3.0	9.1	2.8	7.6	3.4	7.0	3.5	8.6	4.7	7.6	2.8	9.2	3.8	7.5	3.6	9.0	3.7	4.7	1928	
1929	10.2	4.0	8.8	3.3	10.6	5.4	11.0	4.2	9.4	4.2	8.6	4.2	8.4	3.1	8.0	4.0	7.7	3.0	9.9	4.8	8.8	3.6	7.7	2.9	9.1	3.8	5.4	1929	
1930	9.1	3.6	8.5	2.5	7.1	6.5	10.3	3.7	10.2	4.0	9.1	3.3	8.6	3.1	8.2	2.8	7.6	3.0	8.3	3.3	8.7	3.5	9.5	4.1	9.0	3.4	4.9	1930	
1931	8.8	3.6	9.1	3.0	11.6	3.5	11.1	4.2	9.4	3.6	8.9	3.0	7.1	5.0	7.7	3.0	8.5	4.2	9.5	3.2	7.4	3.2	9.0	4.3	8.8	3.6	5.0	1931	
1932	11.0	4.1	10.6	4.0	14.2	4.7	11.9	4.0	10.7	3.2	9.2	2.8	10.3	4.0	9.3	3.6	9.9	3.1	11.0	3.1	11.0	4.4	9.1	3.4	10.7	3.7	4.0	1932	
1933	11.0	4.3	11.8	4.4	12.6	4.0	11.9	3.2	9.8	3.7	9.8	4.1	9.5	3.9	10.0	5.0	9.5	4.3	9.3	3.4	11.0	3.8	9.6	3.7	10.5	3.9	5.0	1933	
1934	10.7	3.9	11.1	3.4	10.4	3.8	10.4	3.2	10.6	3.5	10.2	3.6	9.0	2.9	8.9	3.3	9.2	3.2	10.2	3.8	10.7	3.4	10.5	3.8	10.2	3.4	3.9	1934	
1935	10.4	4.0	10.7	3.5	11.1	3.2	11.7	3.8	9.8	3.1	10.1	3.5	9.6	3.8	6.6	4.2	6.7	3.5	9.1	2.9	11.3	3.0	11.7	3.5	10.7	3.4	3.0	1935	
1936	10.9	4.2	10.1	3.1	10.7	3.4	12.2	4.0	10.2	3.2	10.3	3.2	9.2	3.8	9.7	3.2	10.1	3.8	9.9	3.8	11.2	3.5	10.1	3.5	10.4	3.6	4.2	1936	
1937	10.4	3.0	11.8	3.8	11.6	3.6	13.8	4.3	9.9	4.0	9.9	4.3	9.3	3.7	8.7	4.6	8.7	2.6	10.9	3.8	10.6	3.5	9.9	3.5	10.4	3.7	4.6	1937	
1938	10.0	4.1	11.0	4.1	10.8	3.6	10.7	4.3	10.5	3.1	9.6	3.7	9.0	3.9	8.0	3.2	9.5	3.5	9.4	3.5	9.5	3.5	9.9	3.2	9.9	3.6	4.3	1938	
1939	11.0	3.5	11.0	3.5	11.0	3.5	11.0	3.5	11.0	3.5	11.0	3.5	11.0	3.5	11.0	3.5	11.0	3.5	11.0	3.5	11.0	3.5	11.0	3.5	11.0	3.5	11.0	3.5	1939
1940	11.7	3.8	11.1	4.1	12.0	3.8	11.6	3.7	11.1	3.7	10.1	3.8	8.7	3.2	10.0	2.9	8.8	3.6	9.2	3.2	11.1	3.3	9.6	3.1	10.4	3.5	4.1	1940	
1941	10.6	3.5	12.6	4.1	12.5	4.0	10.3	3.1	10.8	3.9	9.0	3.8	9.4	3.6	9.1	3.2	9.9	3.2	9.6	3.2	9.3	2.9	10.3	4.1	10.3	3.5	4.1	1941	
1942	11.6	4.2	13.4	4.6	12.6	4.5	10.3	3.3	10.7	3.4	9.3	3.3	8.6	3.5	8.6	3.4	8.6	3.3	10.0	3.1	10.4	4.0	10.9	4.4	10.4	3.7	4.6	1942	
1943	9.8	4.2	11.																										

DATA SOURCE: 1) National Centers for Environmental Information (NCEI) - Local Climatological Data, Baltimore, MD:

<https://www.ncdc.noaa.gov/IP8/cld/cld.html>
<https://www.ncdc.noaa.gov/ips/cld/cld.html>

- 2) National Centers for Environmental Information (NCEI) - Climatological Data, Maryland & Delaware:
3) National Weather Service - Baltimore/Washington, Sterling, VA:
<https://www.weather.gov/wh/ClimateTwofives>

NOTES: 1) Bold red values indicate extreme maximums for that monthly or annual category.

2) Cells with this gray background = future, incomplete, or non-applicable data.

3) Cells with this orange background and italic type = incomplete or in-process data.

4) Due to lack of data prior to 1891 (November), that is the earliest year shown in the table, above. However, a few Maximum Velocities prior to then have been discovered: April 1879 with 60 mph; August 1888 with 45 mph; October 1878 with 45 mph.

5) General note: throughout this Table's data period, varying wind equipment, location/s(s) and exposure, and classifications have affected the readings: Wind Speed classifications are thus:

- a) From 1965-Present, the "Average" Speed is the "Mean" or "Average" Speed (no time period specified); prior to 1965 "Average" is classified as "Average Hourly" Speed.
b) From 1/1/1984-9/19/2006, the "Max Gust" is the highest "5-Second Wind Speed." For 9/20/2006-Present, the "Max Gust" is the highest "3-Second Wind Speed," with the switch to a sonic anemometer from a cup anemometer.
Prior to 1984, the "Max Gust" is simply the "Fastest Mile" (sometimes described as "the speed it takes for one mile of wind to pass a given point in one minute" (which is lower than "Peak Gust").

c) Beginning with the January 1965 Baltimore Local Climatological Data publication, the "Fastest Mile" category classification is thus: "... the associated speed ... is the fastest observed one-minute wind speed."

6) The U.S. Weather Bureau Airport Station was moved from the Baltimore Municipal Airport to then-named Friendship International Airport on July 23, 1950 at 0000 E.S.T. (per the Local Climatological Data publication of July 1950).

7) Data for "Average Speed" from July 1950-December 1950 is taken from the 1950 Monthly Local Climatological Data publications, the "Fastest Mile" data is taken from the Local Climatological Data Annual Summary publication as this data is not available in the monthly publications. Prior to July 1950, all data is taken from the Annual Summary for the period prior to the station relocation from the Baltimore Municipal Airport to Friendship International Airport.

8) There are no Local Climatological Data (LCD) Annual Summary publications for Baltimore in 1921 and 1914. In order to obtain the monthly averages and highest velocities, the Maryland/Delaware Climatological Data (CD) monthly publications were reviewed and data is taken from the "Wind" paragraphs which show the total wind movement in miles for the entire month. This value is then divided by 24 (hours in the day) and this subsequent value is then divided by the number of days in the month to arrive at the monthly average. All of these monthly CDs for 1914 and 1921 contain the "maximum velocity" for the month except for August 1921. There is a gap in available online wind data for Baltimore from 1910 to 1913 when the CDs were grouped by the "12 large climatological districts, defined by the great watersheds" and no wind data is provided.

9) The Automated Surface Observing System (ASOS) was deployed at BWI on 4/1/1996, using an anemometer with cups, and appears to record a noticeable decrease in the average wind speeds compared to the previous equipment. The equipment was then changed to a sonic anemometer on 9/20/2006.

STATION LOCATION	WIND PERIOD OF RECORD
W Monument St & Linden Ave (NW Corner) - Johns Hopkins University Physics Lab	11/1/1891 - 06/1/895
N Calvert & E Fayette Streets (SW Corner) - Equitable Building	9/7/1895 - 7/31/1896
532 N Howard Street - Johns Hopkins University Treasurer's Bldg	8/1/1896 - 12/31/1907
8 Gay & Waverly Streets - Custom House	11/1/1899 - 1/31/1900
Baltimore Municipal Airport - Baltimore City/Baltimore County line - Baltimore City/Dunok, MD	7/1/1939 - 7/22/1950
Baltimore-Washington International Thurgood Marshall Airport (Formerly Friendship Intl Airport)	7/23/1950 - Present

STATION DATA SOURCE: NOAA NCEI, "Local Climatological Data, Baltimore, MD Friendship Int'l AP," 1950.
NOAA NCEI, "Local Climatological Data, Baltimore, MD Custom House," 1894 & 1904.
NOAA NCEI, "2012 Local Climatological Data, Annual Summary, Baltimore, MD, KBW1."

STATION NOTE: There is overlap in the wind data between the Custom House and the Baltimore Municipal Airport, at times taken from either location due to equipment issues.