

University of Waterloo Weather Station Annual Summary - 2021

There were 2 big weather stories in 2021: how warm it was throughout the year and how wet it was in the second half of the year (punctuated by the highest 24 hour rainfall ever recorded at the station).

With only one month that was in the below average range and many that were well above average, it is not surprising that it was the third warmest since 1914, the year weather records began in the region. The average annual temperature of 8.89°C was behind only 2012 (9.32°C) and 1998 (8.98°C).

As for precipitation, the first half of the year was about 20% drier than average, however, the second half was really, really, wet. In fact, the period from June to October was the wettest on record for those 5 months, thanks in part to the incredible amount of rain that came down between September 21 and 22. Starting at 9 pm Sept 21, we saw 93.4 mm in 24 hours, the highest 24-hour total ever recorded at the station (The previous record was 91.4 mm starting Jan 11, 2020 at 3 am). This rain event contributed to September being the second wettest ever in the regional weather records. The total precipitation for the year was 1021.5 mm, compared to the average of 916.3 mm.

Looking at the monthly temperatures, the year started off with January coming in a little over 2 degrees above average, followed by the only month that was significantly colder than average. Overall, February was 2 degrees below average, mainly a result of a really cold 2-week period with multiple days when the temperature dipped down to nearly -20°C and barely reached -10°C during the day.

Then the heat returned. We saw the warmest March since 2012, including a few days that almost reached 20°C, and an April that was 1.3 degrees above average. The month of May featured a mix of hot and cold temperatures, resulting in an overall temperature that was just barely below average.

June started off with 4 days over 30°C early in the month and continued warm for the rest of the month. In the end, the month's temperature came in at 3 degrees above average, making it the 5th warmest June on record. 2021 was one of the rare years when July (that was pretty much average) ended up being cooler than August, which was the second warmest in the last 20 years at a little more than 3 degrees above average.

September continued the warm streak at 1.8 degrees above average. Then came a very warm October when it was almost 5 degrees above average. This was partly a result of 10 days with a temperature over 20°C; typically, October has only 3.5 days like that. This made it the warmest October since 2007. It also tied for the fourth warmest since records began in the region in 1914.

November was close to average, and the year ended with a December that was almost three and a half degrees above average, making it the warmest December since 2006 and the fourth warmest on record. Also, the high temperature of 15.9°C on the 11th was the fifth hottest December day on record. The last time it was that hot in December was Dec 5, 2001 when the high was 16.7°C.

Frank Seglenieks
weather@uwaterloo.ca
University of Waterloo Weather Station Coordinator

Summary for 2021 (averages from 1981-2010 data for the Waterloo-Wellington Airport):

Average Daily High Temperature: 13.95°C (average 12.05°C)

Average Daily Low Temperature: 3.82°C (average 1.94°C)

Total Precipitation: 1021.5 mm (average 916.3 mm)

Extremes for 2021 (all time UW weather station extreme in brackets):

Highest temperature:

31.7°C Aug 26 4:00 pm (35.7 °C July 21, 2011 3:00 pm)

Highest humidex:

44.0 Aug 26 4:00 pm (47.6 July 17, 2013 5:00 pm)

Lowest temperature:

-23.6°C Feb 21 7:00 am (-35.5 °C Feb 16, 2015 7:00 am)

Lowest windchill:

-35.6 Jan 29 3:00 am (-47.3 Feb 15, 2015 6:15 am)

Greatest temperature drop in 15 minutes:

-7.9°C Sep 7 5:45 pm (-9.5 °C July 19, 2013 5:00 pm)

Greatest temperature drop in 60 minutes:

-9.6°C Sep 7 5:30-6:30 pm (-11.8 °C July 19, 2013 4:45-5:45 pm)

Greatest temperature rise in 15 minutes:

4.2°C Mar 22 6:00 am (8.6 °C Jan 2, 2001 6:15 am)

Greatest temperature rise in 60 minutes:

7.4°C Mar 22 5:45 - 6:45 am (12.2 °C Jan 2, 2001 4:45-5:45 am)

Highest precipitation in 15 minutes:

19.2 mm Aug 29 7:45-8:00 pm (24.8 mm Jul 10, 2020 6:45-7:00 pm)

Highest precipitation in 60 minutes:

48.4 mm Aug 29 7:15-8:15 pm (57.4 mm Aug 2, 2014 2:30-3:30 pm)

Highest Precipitation in 1 day:

88.0 mm Sep 22 (New record)

Highest 15 minute average wind speed:

26.4 km/h Dec 16 11:15 am (44.6 km/h Mar 9, 2002 6:30 pm)

Highest wind gust (only available since 2015):

40.6 km/h Dec 16 11:15 pm (44.4 km/h Apr 13, 2015 2:30 pm)

Last time the temperature went below 0 before the summer:

May 9 6:00 am (Has ranged between Apr 26- May 23)

First time the temperature went below 0 after the summer:

Oct 24 8:00 am (Has ranged between Sep 19 - Oct 29)

Length of frost-free season

168 Days (Has ranged between 129-175 days)

Highest daily low temperature:

21.9°C Jun 27 (25.3 °C Aug 1, 2006)

Lowest daily high temperature:

-9.6°C Feb 7 (-20.6 °C Feb 15, 2015)

Largest daily temperature range:

23.3°C Mar 21 (29.6 °C Feb 19, 2007)

Smallest daily temperature range:

1.60°C Jan 12 (0.45 °C Dec 7, 2005)