

## University of Waterloo Weather Station Annual Summary - 2016

Considering that April was the only colder than average month during the year, it is not that surprising that 2016 came in as one of the warmest we have seen in the 100 years of weather records in the region. Overall the average temperature was 8.69°C putting it behind only 2012 and 1998.

The year started off in the middle of the very warm winter of 2015-16 resulting in the first 3 months being all warmer than average, this included a high temperature of 14.2°C on the third of February which was the highest February temperature we have seen in the region.

Things turned around in April with the only colder than average month of the year that was also the fourth coldest April in the region's weather records.

The warm end of the Spring in May transitioned into the hottest summer we have had since 1955 and the third highest overall. The 19 days above 30°C during the summer contributed to the 27 we had in total for year, this is much more than the average of 8, but much less than the 49 we saw in 1955.

This then continued into the fall with September to November all coming in at over 2.5 degrees higher than average including: September being the warmest since 1959 and the fifth hottest overall and November the sixth warmest and the most days over 10°C at 20. But as we have seen a lot of warm Fall seasons lately, this Fall wasn't that significant even these really warm temperatures.

As often happens there were wet and dry months during the year, for 2016 the year started with a few average months for precipitation. Then March came in over twice as wet than average, but this quickly changed as for the most part it was a very dry summer. It would have been historically dry if not for a 10 day period in August when almost 150 mm fell, this resulted in August being the 7<sup>th</sup> wettest all time.

For the rest of the year we saw pretty much average precipitation which helped in putting the final total within the average range. The final total came in within the average range at 891.0 mm, which is a little below the average of 916.3 mm.

As for snowfall, we saw 100.5 cm of snow since the beginning of January, which is about average for that time of year. But the 75.5 cm in the second half of the year (mostly from December which saw almost twice the average for the month) put the total for 2016 of 176.0 cm which is above the annual average of 159.7 cm.

So the final story of 2016 is the overall heat during the year and how dry it was during most of the summer. But there wasn't a whole lot in terms of extreme events, in fact in the list of extremes that are listed on the next page there was not one that was exceeding during this past year (of course this will get harder as more data is added to the record, but usually we have seen at least one or two extremes every year).

**Summary for 2016 (averages are calculated from 1981-2010 data for the Waterloo-Wellington Airport):**

Average Daily High Temperature: 14.10°C (average 12.05°C)

Average Daily Low Temperature: 3.28°C (average 1.94°C)

Total Precipitation: 891.0 mm (average 916.3 mm)

**Extremes for 2016 (all time UW weather station extreme in brackets):**

Highest temperature:

33.6 °C Aug 10 3:45 pm (35.7 °C July 21,2011 3:00 pm)

Highest humidex:

43.5 Sept 7 3:00 pm (47.6 July 17, 2013 5:00 pm)

Lowest temperature:

-25.4 °C Feb 14 6:15 am (-35.5 °C Feb 16 7:00 am)

Lowest windchill:

-40.6 Feb 13 6:15 am (-47.3 Feb 15 6:15 am)

Greatest temperature drop in 15 minutes:

-6.7 °C Jun 6 5:30 pm (-9.5 °C July 19,2013 5:00 pm)

Greatest temperature drop in 60 minutes:

-10.3 °C Aug 2 5:15-6:15 pm (-11.8 °C July 19,2013 4:45-5:45 pm)

Greatest temperature rise in 15 minutes:

2.8 °C May 24 6:45 am (8.6 °C Jan 2, 2001 6:15 am)

Greatest temperature rise in 60 minutes:

7.7 °C Jun 18 6:30 - 7:30 am (12.2 °C Jan 2, 2001 4:45-5:45 am)

Highest precipitation in 15 minutes:

14.6 mm Aug 1 2:30-2:45 pm (12.8 mm Sep 29 1:45-2:00 pm)

Highest precipitation in 60 minutes:

20.8 mm Aug 20 12:30-12:45 am (17.8 mm Aug 10 3:30-4:30 pm)

Highest Precipitation in 1 day:

37.6 mm Mar 31 (78.0 mm July 11, 2008)

Highest 15 minute average wind speed:

29.0 km/h Aug 10 3:30 pm (44.6 km/h March 9, 2002 6:30 pm)

Last time the temperature went below 0 before the summer:

Apr 30 6:30 am (Has ranged between Apr 26- May 23)

First time the temperature went below 0 after the summer:

Oct 16 4:15 am (Has ranged between Oct 2-29)

Length of frost-free season

163 Days (Has ranged between 146-175 days)

Highest daily low temperature:

23.4 °C Aug 12 (25.3 °C Aug 1, 2006)

Lowest daily high temperature:

-15.5 °C Feb 13 (-20.6 °C Feb 15)

Largest daily temperature range:

23.4 °C Apr17 (29.6 °C Feb 19, 2007)

Smallest daily temperature range:

1.7 °C Mar 24 (0.45 °C Dec 7, 2005)

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