University of Waterloo Weather Station Annual Summary - 2007

The biggest local weather story for 2007 was the persistent lack of precipitation throughout the year. In the end, the final precipitation total (671.9 mm) was only about three quarters of what we would expect in an average year (904.0 mm) and only a mere 15.4 mm away from being the lowest annual precipitation since 1970.

The lowest recorded annual precipitation at Environment Canada's Waterloo-Wellington airport station was 656.5 mm in 1998. There are some years with less precipitation before 1970 at the Kitchener station, but they all have missing data for some months making it difficult to define what was the lowest ever annual precipitation.

The lack of precipitation was seen in almost all months of the year, with six months recording significantly below average precipitation and the only the month of December being significantly higher than average. June was the driest month with only 26.6 mm coming down, about one-third of the average total for that month.

It was another hot year at the University of Weather Station with the temperature coming in at 0.6 degrees above average (remember that the averages are based on temperatures recorded from 1970-2000 at the Waterloo-Wellington airport). This doesn't make it a record year, but still significantly higher than average and in the top 10 warmest years we have seen since 1970 (as with precipitation comparisons to the Kitchener station before 1970 are difficult).

The year started off abnormally warm with winter not really taking hold until mid-January followed by a very cold February. March was pretty much average while a cold snap at the beginning of April made it one of the 3 significantly colder than average months.

The rest of the spring and summer were about a degree warmer than average and the summer didn't seem to stop with September almost 3 degrees warmer than average, and then came October. The month of October was a real temperature anomaly at a stunning 5 degrees above average which made it the warmest October in about 60 years. But then things turned around again with a colder than average November and an average December.

Notable weather days of 2007:

February 19: I found this day because it had both the highest 15 minute and 1 hour temperature rise of the year. It often happens that these two events coincide on the same day, but in this case although they happened on the same day they were 12 hours apart. I had to go back a few times to convince myself that it really happened.

Here is a quick summary of the day: it was a cold morning dipping down to -26.7 °C overnight, once the sun came up the temperature quickly rose to -10 °C in the span of a couple of hours, it then levelled off at around -5 °C for most of the day until 9 pm when once again the temperature rose quickly going up 4.7 °C between 9:15 pm and 9:30 pm ending the day at 2.9 °C. Thus the temperature range for the day was 29.6 degrees, the largest daily temperature range we have ever seen at the UW weather station.

May 15: The most precipitation in 15 minutes of 2007 came on this day when we saw 13 mm between 6:45 and 7:00 pm; this also coincided with a quick drop in temperature and a rise in the wind speed. I happen to have seen this storm live and it was really something when it hit, enough to cause a power outage in parts of Waterloo Town Square. That day also saw the 2007 record for 1 hour precipitation (20.4 mm) and daily precipitation (33.4 mm).

June 8: The day was going along nicely until a storm came through that dropped the temperature from 25.6 °C at 4:00 pm all the way down to 19.9 °C at 4:15 pm, the largest 15 minute temperature drop we have ever seen at the station.

September 25: With a high temperature of 30.1 °C, it was the highest fall temperature we had ever recorded in the 10 year history of the UW weather station and we have to go back about 60 years in the Environment Canada data to find a warmer day in the fall.

October 6-8: We were close to 30 degrees on two of the days of the Thanksgiving Day long weekend, making it the hottest long weekend of the year.

October 28: The first day that it went below zero since the spring, this was the latest first frost day we have seen at the UW weather station, also leading to the longest frost-free season (174 days) we have seen at the station.

December 16: The snow started after midnight and really intensified between 7 and 11 am, leaving 24.5 cm on the ground by the time the day was over cancelling many travel plans.

Summary for 2007 (averages from 1970-2000 data for the Waterloo Wellington Airport):
Average Daily High Temperature: 12.46 °C (average 11.93 °C)
Average Daily Low Temperature: 2.48 °C (average 1.73 °C)
Total Precipitation: 677.9 mm (average 904.0 mm)

Extremes for 2007 (all time UW weather station extreme in brackets):
Highest Temperature:
33.1°C Aug 1 5:15 pm (35.4°C Aug 8, 2001 4:30 pm)
Highest Humidex:
41.7 July 9 3:45 pm (46.8 Aug 2, 2006 3:45 pm)
Lowest Temperature:
-26.8 °C Feb 15 7:15 am (-32.3 °C Jan 27, 2005 7:45 am)
Lowest Windchill:
-27.4 Mar 6, 3:00 am (-37.2 Jan 14, 1999 4:15 am)
Greatest temperature drop in 15 minutes:
-5.7 °C June 8 4:00 pm (NEW EXTREME)
Greatest temperature drop in 60 minutes:
-9.6 °C June 8 3:15-4:15 pm (-9.8°C July 14, 2000 11:15 am-12:15 pm)
Greatest temperature rise in 15 minutes:
4.6 °C Feb 19 9:15 pm (8.6°C Jan 2, 2001 6:15 am)
Greatest temperature rise in 60 minutes:
9.2 °C Feb 19 8:30 - 9:30 am (12.2°C Jan 2, 2001 4:45-5:45 am)
Highest Precipitation in 15 minutes:
13.0 mm May 15 7:00 pm (16.2 mm Jun 27, 1999 4:45 pm)
Highest Precipitation in 60 minutes:
20.4 mm May 15 6:45 - 7:45 pm (36.7 mm Jun 16, 1998 1:15-2:15 pm)
Highest 15 minute average wind speed:
37.1 km/h Apr 23 1:45 pm (44.6 km/h March 9, 2002 6:30 pm)
First time the temperature went below 0 after the summer:
Oct 28 9:30 pm (NEW EXTREME previously ranged between Oct 2-20)
Last time the temperature went below 0 before the summer:
May 7 6:30 am (Has ranged between Apr 29- May 21)
Highest daily low temperature:
21.3 °C Aug 1 (25.3 °C Aug 1, 2006)
Lowest daily high temperature:
-15.1 °C Feb 4 (-16.1 °C Jan 9, 2004)
Largest daily temperature range:
29.6 °C Feb 19 (NEW EXTREME)
Smallest daily temperature range:
0.95 °C Aug 21 (0.45 °C Dec 7, 2005)

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