

Summer Storms



*Don't be scared, **be prepared.***

There are two types of summer storms:

💧 **Large scale weather systems with short or long periods of rainfall** — These large weather systems can last several days. Environment Canada issues Rainfall Warnings for this type of event.

💧 **Short-lived thunderstorms with significant rainfall** — Within a short period of time, sometimes only minutes, localized downpours from thunderstorms can produce flash flooding. Environment Canada issues Severe Thunderstorm Warnings for these types of rainfall events.

Thunderstorms

Thunderstorms are localized storms accompanied by thunder, lightning, and a variety of other weather phenomena including hail and intense rainfall. Thunderstorms are created when heating of the earth's surface causes a parcel of moist air to rise to the upper levels of the atmosphere. In Toronto, we experience most of our thunderstorms during our hot humid summer. Rainfall from thunderstorms causes flash flooding, killing more people each year than hurricanes, tornadoes or lightning.



▶ Erosion caused by flood waters creates a dangerous trap for motorists on Highway 427 during the July 8, 2013 flood. (Jorge Costa / CTV News)

◀ A thunderstorm causes serious flooding in Toronto on July 8, 2013. (Kate Puncher/KANETIX Inc.)



Urban vs. Riverine Flooding

💧 **Riverine flooding** is the responsibility of Conservation Authorities and occurs when water levels of rivers rise and overflow their banks.

💧 **Urban flooding** is the responsibility of municipalities and consists of street flooding, basement flooding, and flooding of other low lying urban areas due to lack of major overland flow routes or the limited capacity of existing drainage systems.

Tornadoes

A tornado is a violently rotating column of air extending from a cumulonimbus cloud, such as a thunderstorm, to the ground. Tornadoes may appear nearly transparent until dust and debris are picked up or a cloud forms within the funnel.

The average tornado moves from southwest to northeast, but **tornadoes can move in any direction** and can suddenly change their direction of motion. The average forward speed of a tornado is 30 mph but may vary from nearly stationary to 70 mph. The strongest tornadoes have rotating winds of more than 200 mph.

Tornadoes in Ontario

Worldwide, Canada ranks second in terms of most tornadoes per year with the US ranking first. On average, there are around 80 confirmed and unconfirmed tornadoes that touch down in Canada each year, with most occurring in southern Ontario, the southern Prairies and southern Quebec. In 2009 nineteen tornadoes touched down in Southern Ontario on the same day. Again in 2011, an F3 tornado ravaged the small town of Goderich, Ontario just 220 kilometres west of Toronto. The tornado travelled approximately 20 km and caused over 130 million dollars in damages.



▲ Tornado-damaged town square in Goderich, Ontario on August 22, 2011. (Katy Shendryk / MyNews)

Warnings, Watches, Statements?

Environment Canada Weather Messages

Special Weather Statements are the least urgent type of alert and are issued to let people know that conditions are unusual and could cause concern.

Watches alert you about weather conditions that are favourable for a storm or severe weather, which could cause safety concerns.

As certainty increases about the path and strength of a storm system, a watch may be upgraded to a **Warning**, which is an urgent message that severe weather is either occurring or will occur.



Sign up for EC Alert Me to receive Environment Canada alerts straight to your email or mobile phone.

ecalertme.weather.gc.ca

TRCA Flood Messages

Watershed Conditions Statements are the least urgent type of alert. They consist of **Water Safety Statements** which are issued to let people know that high flows, unsafe banks, melting ice, or other factors could be dangerous for recreational users, and **Flood Outlook Statements** which provide early notice of the potential for flooding based on weather forecasts calling for heavy rain, snow melt, high wind, or other conditions that could lead to high runoff.

Flood Watches alert you that flooding is possible in specific watercourses and municipalities, those in flood prone areas should prepare.

As certainty increases about the path and strength of a storm system, a watch may be upgraded to a **Flood Warning**, which is an urgent message that flooding is either occurring or will occur. Some severe weather can occur rapidly, with less than a half hour's notice.

Normal

Flood



Watershed

Flood

Conditions

Statement



Driving in Flood Waters

- DON'T DRIVE THROUGH FLOOD WATER. Find another route.
- When approaching a flooded area, you can't be sure of the depth of the water or the condition of the road beneath it, which may be broken up or washed away. There may be no road left under the water.
- 15 cm (6 inches) of standing water – sometimes less – can be enough to cause engine stalling.
- In 30 cm (1 foot) of water, a typical car can begin to float and, as traction is lost, so is steering control. If the water is moving, your vehicle could literally float away.
- At 60 cm (two feet) of water, larger vehicles such as pickup trucks and SUVs are in danger of floating away.
- NEVER try driving through fast-moving water, such as an overflowing river—your vehicle could be swept away!



IS YOUR FAMILY PREPARED?

In the event of a disaster, you need to be able to provide for your family for **72 hours** (3 days). Emergency responders will be helping the most needy (those trapped by fallen buildings, in burning homes, crushed cars, etc.) first. In order to meet that goal they need to be able to count on all those who are not in imminent danger to fend for themselves. Your well-prepared family could help save the lives of others, not just yourselves. For more information on how to create your emergency plan and stock your emergency kit, visit www.getprepared.gc.ca



Know the risks



Make a plan



Get a kit

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