

# Database helps put Canadian tornadoes on the map

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Credit: CC0 Public Domain

No longer will important information about severe storms across the country—information that could save countless lives—be simply gone with the wind.

While approximately 60 tornadoes are confirmed in Canada each year, the actual number is closer to 230. Collecting data from these events will help researchers understand their frequency and severity, as well as their connection to global climate change.

Capturing that information is the inspiration behind the [Northern Tornadoes Project Open Data site](#), launched by Western Libraries this week.

Open to the public, the online database catalogs high-resolution aerial surveys, satellite imagery, drone surveys and on-the-ground observations of Canadian tornadoes in real time. Researchers in the field can use the data collection form and guide for ground surveys to share live updates.

"Not only will the ground survey app save the research team hours, it'll allow them to more easily classify the event onsite," said Elizabeth Sutherland, Geographic Information Systems (GIS) Specialist and site creator. "Instead of using paper and pen, they'll be using tablets and phones to enter data directly into a database which instantly feeds into maps, graphs and statistics."



Elizabeth Sutherland, Geographic Information Systems Specialist at Western Libraries, created the Northern Tornadoes Open Data site for researchers to record and access data on Canadian tornadoes. Credit: Paul Mayne // Western News

The first of its kind in Canada, the site is a pivotal milestone for the Northern Tornado Project, a partnership between Western, ImpactWx and Environment and Climate Change Canada (ECCC).

"It took a lot of emailing, calling, and meeting with different people. Open-data sites are common in municipalities, but I wasn't able to find any other universities with a site like this and using this type of GIS software," Sutherland said. "Instead, I had to generate a vision for what it would look like based on feedback from the project stakeholders."

The site includes damage and [aerial surveys](#) conducted in Ontario, Quebec, New Brunswick, Manitoba, and Saskatchewan. These surveys have helped ECCC refine their ratings systems for wind events.

"Having all the data open and available in one location means there's going to be all sorts of opportunities for collaboration. That's what is really going to set this project apart. It's not just one group of engineers working on it; it's researchers across North America," Sutherland said.

Some recent, major storms surveyed through the Northern Tornadoes Project are the 2017 Alonsa Manitoba EF-4 tornado, the largest tornado in North America that year, and the 2018 Ottawa area [tornadoes](#) which caused over \$200 million dollars in damage.

Western Libraries is a key partner in the Northern Tornadoes Project, said Engineering professor Greg Kopp.

"They are an important participant in our research because so much of it is going to be looking through archived data—and you can't do that without the libraries helping us manage all that," Kopp said. "It's kind of cool."

Sutherland hopes the site can serve as a model for how to bring data to life and that other researchers on campus will take advantage of Western Libraries' GIS services. Currently, she is in the beginning stages of the Loyalist Mapping Project. A partnership with Huron University College's Community History Centre and the United Empire Loyalist Association of Canada, the [project](#) aims to create an [open data site](#) to visualize the migrations of Loyalists who left the United States during and after the American Revolution.

**More information:** Northern Tornadoes Project Open Data site: [ntpopendata-westernu.opendata.arcgis.com/](http://ntpopendata-westernu.opendata.arcgis.com/)

Provided by University of Western Ontario

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