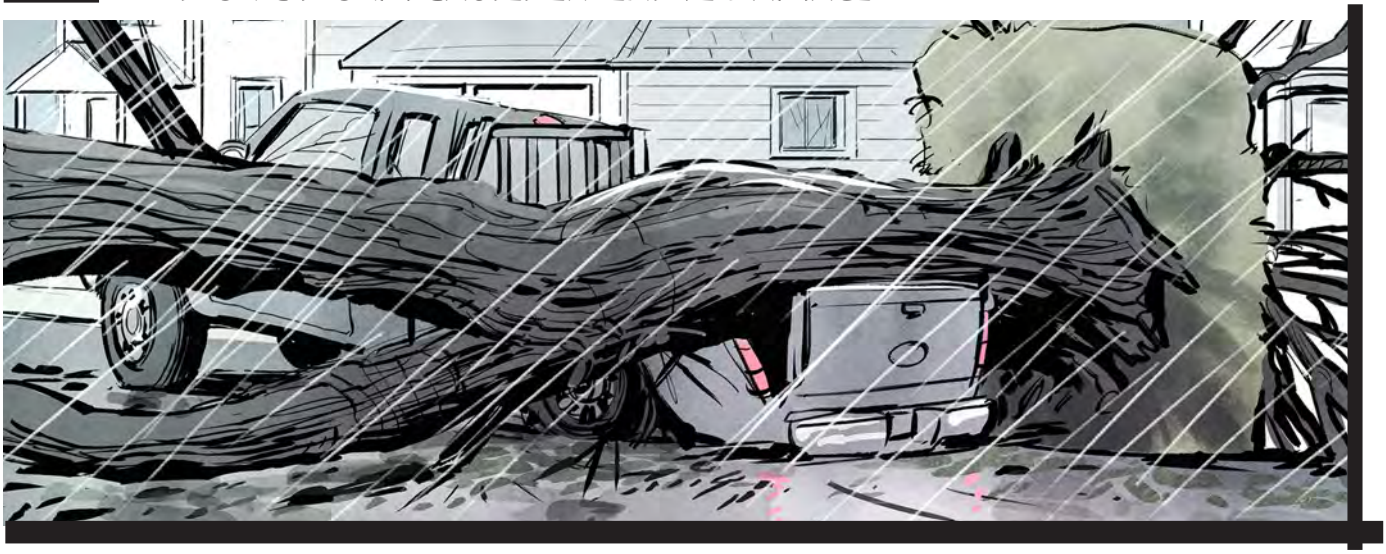
Science, Technology, and the Environment

Fiona Strikes Atlantic Canada

– Historic Storm Causes Extensive Damage



On September 18, Hurricane Fiona pummelled the Caribbean as a Category 3 storm. Then, the huge weather system travelled north. On September 24, Fiona made landfall in Atlantic Canada and eastern Quebec.

By then, the tempest was technically not a hurricane. It was a post-tropical storm. But it still brought terrifying winds. Meteorologist Dan Kottlowski said the storm was as powerful as a Category 2 hurricane. Its drenching rains and huge waves caused extensive damage to parts of five provinces.

Devastating Impact

Fiona washed away homes and toppled trees throughout much of the region. Some residents had to evacuate as wind gusts reached up to 170 kilometres per hour. The fierce storm damaged and destroyed buildings and knocked down power lines. Hundreds of thousands of people lost power.

Waves at least 13 metres high hit the eastern shores of Nova Scotia and southwestern Newfoundland. They covered playgrounds in water and ripped coastal houses from their foundations.

In Nova Scotia, Cape Breton experienced the full force of the storm. Downed power lines and debris littered the streets. Quebec's Gaspé and Îles-de-la-Madeleine experienced similar damage.

In Prince Edward Island, a famous rock formation called the Teacup was washed away. So were some sand dune beaches.

Port aux Basques

Port aux Basques, a town of 4000 in Newfoundland, was hit especially hard. Mayor Brian Button said the region was “like a complete war zone.”

Hurricanes and Climate Change

A warming planet can expect stronger hurricanes and a higher incidence of powerful storms.

Oceanographer Anya Waite of Dalhousie University in Halifax says that warmer ocean water shoots heat and moisture into storms like Fiona. It makes them last longer and have a wider path.

What's more, melting glaciers, storm surges, and lower barometric pressures have caused sea levels to rise. That increases the likelihood of coasts being swamped during hurricanes.

"In terms of adaptation… one of the main things is we will just have to move away from the coast," she said. "We love the coast so much that people are clinging to their last rock as it goes under. We can't do that."

FIONA STRIKES ATLANTIC CANADA

– Historic Storm Causes Extensive Damage

"This is hands down the most terrifying thing I've ever seen in my life," he declared.

A massive, towering **storm surge** more than a metre high **inundated** the town. Huge waves damaged or destroyed at least 76 homes. A woman died when her home washed away.

"This is as bad as anyone here has ever seen. We're not used to 30-, 40-, 50-foot waves coming up onto the roads, moving houses 60 feet or just completely vapourizing them," said one resident. "I'm seeing homes in the ocean… rubble floating all over the place. It's complete and utter destruction."

Help in many ways

Canadians did what they could to help. Neighbours pitched in to make repairs. Restaurants and food trucks handed out meals. Hydro crews from the U.S. and other parts of Canada arrived to help restore power. It was a huge job. About 80 percent of Nova Scotia and 95 percent of Prince Edward Island lost power during the storm. In New Brunswick, 44,329 homes were in the dark. So were 7500 in Quebec.

The Canadian Armed Forces assisted with clean up and recovery. Ottawa pledged $300 million to help with rebuilding. Provinces and aid groups offered financial help, too.

The storm was the most costly weather event in Atlantic Canada history. The total tally could be as high as $2-4 billion. Still, it could have been worse.

"We can replace houses. We can't replace lost lives," said John Hogan, Newfoundland and Labrador's public safety minister. ★

About Hurricanes

Hurricanes are very strong tropical storms that occur in the Atlantic Ocean and the Eastern Pacific Ocean. Hurricanes, typhoons and cyclones are all different names for the same thing. In the Western Pacific Ocean, hurricanes are typhoons; in the Indian Ocean, they're called cyclones. These storms consist of a large system of powerful winds that circulate around a centre of low barometric pressure. They rotate counterclockwise in the northern hemisphere and a clockwise in the southern hemisphere, due to the rotation of the Earth. They cause strong winds, heavy rains, and storm surges.

Hurricanes begin over tropical waters west of Africa, near the Cape Verde islands. When sea-surface temperatures in this region are above 26.5 degrees Celsius, water vapour rises, creating an inward movement of air. The air spirals toward the centre of the disturbance. It speeds up as the storm gets larger. As long as winds in the upper atmosphere do not produce a shear force to disrupt the system, the storm can increase in height and breadth. Eventually, it reaches hurricane status. It strengthens as it moves westward, picking up energy from warm Atlantic waters.

Hurricanes are categorized by the intensity of their wind speeds using the Saffir-Simpson scale. The scale rates their severity as a measure of the damage they can cause. The scale runs from Category 1 through Category 5 in order of increasing intensity. A Category 5 storm has wind speeds of 250 km per hour or more.

In the Atlantic, hurricane season officially runs from June 1 to November 30. The most intense storms mainly occur from mid-August to mid-October. Typhoons typically form from May to October.

Hurricanes in Canada are quite rare, in part because once the storms reach colder waters, they lose their main source of energy. But post-tropical storms can still have hurricane-strength winds.

Definitions

inundate: to cover an area of land with water

storm surge: an abnormal rise of water generated by a storm, over and above the predicted astronomical tides

FIONA STRIKES ATLANTIC CANADA

– Historic Storm Causes Extensive Damage

COMPREHENSION QUESTIONS

1. A large system of very powerful winds in the Atlantic Ocean and the Eastern Pacific Ocean is called a:

2. Where do these storms usually begin?

3. How do meteorologists measure and categorize hurricanes?

4. How powerful was Hurricane Fiona when it traveled through the Caribbean?

5. How strong was this storm when it made landfall in Atlantic Canada?

6. Describe the damage the storm caused.

7. Which Newfoundland town was especially hard hit? Describe the damage that occurred.

8. How did the federal government help people who were impacted by the storm?

9. What other help was made available to affected residents? List at least three examples.