

NATURAL Hazards

Emergency Preparedness Canada Protection civile Canada

CANADIAN Geographic



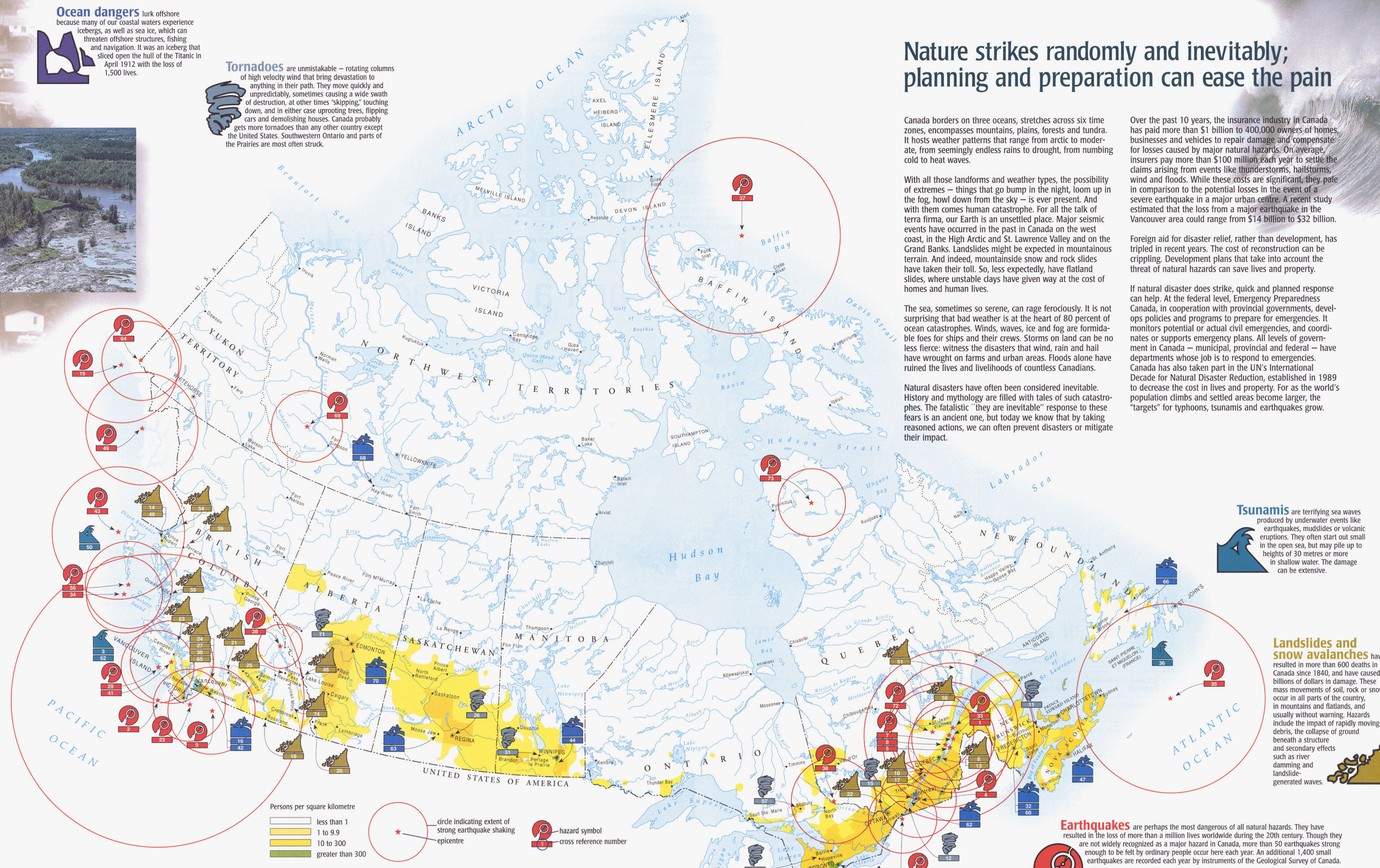
Ocean dangers lurk offshore because many of our coastal waters experience icebergs, as well as sea ice, which can threaten offshore structures, fishing and navigation. It was an iceberg that sliced open the hull of the Titanic in April 1912 with the loss of 1,500 lives.

Tornadoes are unmistakable – rotating columns of high velocity wind that bring devastation to anything in their path. They move quickly and unpredictably, sometimes causing a wide swath of destruction, at other times "skipping," touching down, and in either case uprooting trees, flipping cars and demolishing houses. Canada probably gets more tornadoes than any other country except the United States. Southwestern Ontario and parts of the Prairies are most often struck.

Volcanoes seem almost non-Canadian. There has been one documented volcanic eruption in Canada in historic times, but there are many dormant volcanoes in western Canada, particularly in northwestern British Columbia. The entire western Cordillera (B.C.-Yukon) remains geologically active, and geological time ignores human clocks. So the possibility of an eruption, even a large, explosive one, cannot be ruled out. Quiet as they are, our west coast volcanoes are part of the "Pacific ring of fire."

Hail forms in the cores of thunderstorms. Water vapour in warm, rapidly rising air masses (called convection currents) condenses to water at higher, cooler altitudes, producing heavy showers. Or if it is cold enough, the product is ice. Nuclei of ice form around minute particles such as dust whipped up from the ground, and increase in size as more water freezes to their surfaces. When the ice pellets are too heavy for the ascending air currents, they fall as hail. They may pick up more water on the way down, becoming larger, heavier and more threatening.

Floods are the number-one natural disaster in Canada in terms of property damage. They can occur in any region, in the countryside or in cities, at virtually any time of the year. They have affected hundreds of thousands of Canadians. Most flooding occurs when the flow of water in a river or stream exceeds its channel. Floods also occur along the shoreline of lakes and oceans when water rises after high runoff, storm surge or the hammering of waves.



Nature strikes randomly and inevitably; planning and preparation can ease the pain

Canada borders on three oceans, stretches across six time zones, encompasses mountains, plains, forests and tundra. It hosts weather patterns that range from arctic to moderate, from seemingly endless rains to drought, from numbing cold to heat waves.

With all those landforms and weather types, the possibility of extremes – things that go bump in the night, loom up in the fog, howl down from the sky – is ever present. And with them comes human catastrophe. For all the talk of terra firma, our Earth is an unsettled place. Major seismic events have occurred in the past in Canada on the west coast, in the High Arctic and St. Lawrence Valley and on the Grand Banks. Landslides might be expected in mountainous terrain. And indeed, mountainside snow and rock slides have taken their toll. So, less expectedly, have flatland slides, where unstable clays have given way at the cost of homes and human lives.

The sea, sometimes so serene, can rage ferociously. It is not surprising that bad weather is at the heart of 80 percent of ocean catastrophes. Winds, waves, ice and fog are formidable foes for ships and their crews. Storms on land can be no less fierce: witness the disasters that wind, rain and hail have wrought on farms and urban areas. Floods alone have ruined the lives and livelihoods of countless Canadians. Natural disasters have often been considered inevitable. History and mythology are filled with tales of such catastrophes. The fatalistic "they are inevitable" response to these fears is an ancient one, but today we know that by taking reasoned actions, we can often prevent disasters or mitigate their impact.

Tsunamis are terrifying sea waves produced by underwater events like earthquakes, mudslides or volcanic eruptions. They often start out small in the open sea, but may pile up to heights of 30 metres or more in shallow water. The damage can be extensive.

Landslides and snow avalanches have resulted in more than 600 deaths in Canada since 1840, and have caused billions of dollars in damage. These mass movements of soil, rock or snow occur in all parts of the country, in mountains and flatlands, and usually without warning. Hazards include the impact of rapidly moving debris, the collapse of ground beneath a structure and secondary effects such as river damming and landslide-generated waves.

Earthquakes are perhaps the most dangerous of all natural hazards. They have resulted in the loss of more than a million lives worldwide during the 20th century. Though they are not widely recognized as a major hazard in Canada, more than 50 earthquakes strong enough to be felt by ordinary people occur here each year. An additional 1,400 small earthquakes are recorded each year by instruments of the Geological Survey of Canada.

Canadian natural disasters are spread across the centuries and across the land

Disaster Type	Year	Location	Deaths	Injured	Damage
Earthquakes	1663	Quebec	70	5	700
	1700	Canada subduction zone	0	0	0
	1732	Quebec	58	0	0
	1791	Quebec	0	0	0
	1860	Quebec	0	0	0
	1870	Quebec	0	0	0
	1872	Quebec	0	0	0
	1899	Yukon-Alaska border	0	0	0
	1909	Yukon-Alaska border	0	0	0
	1918	Quebec	0	0	0
	1925	Quebec	0	0	0
	1929	Quebec	0	0	0
	1933	Quebec	0	0	0
	1935	Quebec	0	0	0
	1944	Quebec	0	0	0
1946	Quebec	0	0	0	
1949	Quebec	0	0	0	
1958	Quebec	0	0	0	
1970	Quebec	0	0	0	
1979	Quebec	0	0	0	
1985	Quebec	0	0	0	
1988	Quebec	0	0	0	
1989	Quebec	0	0	0	
Tsunamis	1700	British Columbia coast	0	0	0
	1929	Newfoundland, Burin Peninsula	0	0	0
	1960	British Columbia coast	0	0	0
	1964	British Columbia coast	0	0	0
	1964	British Columbia coast	0	0	0
	1955	Quebec	0	0	0
	1957	Quebec	0	0	0
	1962	Quebec	0	0	0
	1964	Quebec	0	0	0
	1965	Quebec	0	0	0
	1965	Quebec	0	0	0
	1971	Quebec	0	0	0
	1971	Quebec	0	0	0
	1981	Quebec	0	0	0
	1991	Quebec	0	0	0
Landslides and Snow Avalanches	1841	Quebec	32	0	0
	1877	Quebec	5	0	0
	1889	Quebec	45	0	0
	1891	Quebec	70	0	0
	1895	Quebec	5	0	0
	1897	Quebec	7	0	0
	1899	Quebec	7	0	0
	1905	Quebec	15	0	0
	1908	Quebec	33	0	0
	1909	Quebec	22	0	0
	1910	Quebec	56	0	0
	1915	Quebec	37	0	0
	1921	Quebec	37	0	0
	1955	Quebec	37	0	0
	1957	Quebec	37	0	0
1962	Quebec	37	0	0	
1964	Quebec	37	0	0	
1965	Quebec	37	0	0	
1971	Quebec	37	0	0	
1971	Quebec	37	0	0	
1981	Quebec	37	0	0	
1991	Quebec	37	0	0	
Tornadoes	1879	Quebec	5	7	0
	1882	Quebec	0	0	0
	1912	Quebec	0	0	0
	1912	Quebec	0	0	0
	1912	Quebec	0	0	0
	1912	Quebec	0	0	0
	1912	Quebec	0	0	0
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	1912	Quebec	0	0	0
	1912	Quebec	0	0	0
	1912	Quebec	0	0	0
1912	Quebec	0	0	0	
Floods	1894	Quebec	0	0	0
	1912	Quebec	0	0	0
	1912	Quebec	0	0	0
	1912	Quebec	0	0	0
	1912	Quebec	0	0	0
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