LANDSLIDE DISASTERS IN CANADA 1840-1998

Canada

Prepared for Emergency Preparedness Canada
by Stephen G. Evans, Geological Survey of Canada, 601 Booth St., Ottawa, K1A 0E8

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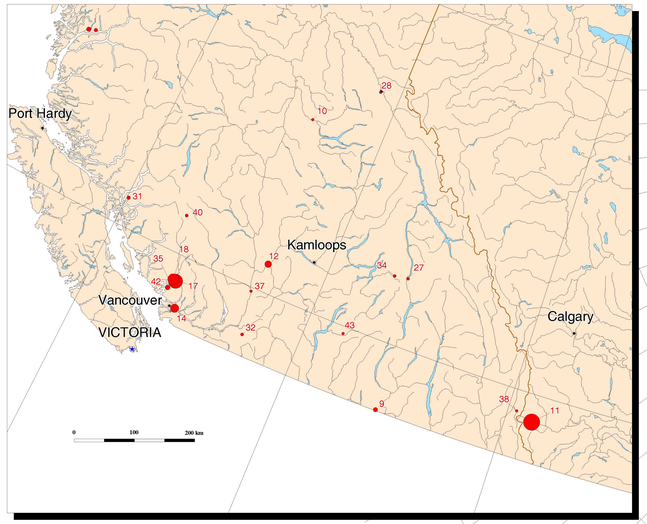
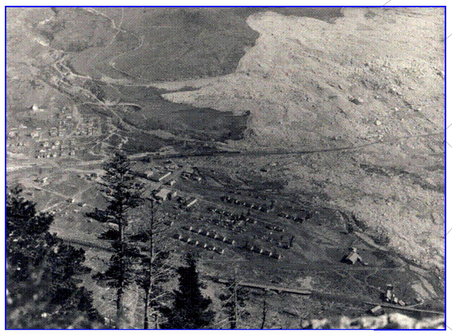
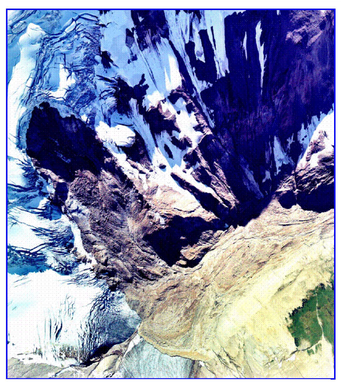


No	Date	Location	Prov	NTS	Lat (dms) N	Long (dms) W	Deaths	Comments
1	05/17/1841	Quebec City	Que.	21L/14	71° 12' 17.46"	46° 48' 23.98"	32	Rockslide destroyed houses on Champlain Street
2	07/14/1852	Quebec City	Que.	21L/14	71° 12' 17.46"	46° 48' 23.98"	7	Rockslide destroyed houses on Champlain Street at Cap Blanc
3	10/11/1864	Quebec City	Que.	21L/14	71° 12' 17.46"	46° 48' 23.98"	4	Rockslide destroyed houses on Champlain Street
4	05/01/1877	Ste-Genevieve-de-Batiscz	Que.	31I/9	74° 20' 20.54"	46° 32' 29.72"	5	Earthflow in Leda Clay overwhelmed mill and adjoining house
5	09/19/1889	Quebec City	Que.	21L/14	71° 12' 17.46"	46° 48' 23.98"	50	Rockslide destroyed houses on Champlain Street
6	07/06/1891	North Pacific Cannery	B.C.	103J/1	130° 13' 9.48"	54° 11' 38.65"	35	Workers homes overwhelmed by debris flow or flood caused by breach of landslide dam after heavy rains
7	04/27/1894	St-Alban	Que.	31I/16	72° 2' 16.37"	46° 46' 47.57"	4	Farmhouses carried away by massive landslide in Leda Clay
8	09/21/1895	St-Luc-de-Vincennes	Que.	31I/8	72° 23' 26.09"	46° 29' 35.2"	5	Home destroyed by earthflow in Leda Clay
9	04/20/1897	Sheep Creek, near Rossli	B.C.	82F/4	117° 49' 51.24"	49° 0' 53.39"	7	Debris flow struck railway maintenance camp
10	02/?/1898	Quesnel Forks	B.C.	93A/12	121° 47' 16.44"	52° 39' 19.91"	3	Victims were miners
11	19030423	Frank	Alta.	82G/9	114° 23' 40.2"	49° 35' 42.86"	75	Rock avalanche buried part of the coal mining town of Frank
12	19050813	Spences Bridge	B.C.	92I/6	121° 21' 34.2"	50° 24' 52.85"	15	Landslide into Thompson River caused displacement wave which swept victims away
13	19080426	Notre-Dame-de-la-Salette	Que.	31G/13	75° 35' 34.3"	45° 46' 3.47"	33	Landslide in Leda Clay into Lievre River caused wave containing blocks of ice which destroyed homes
14	19091128	Burnaby	B.C.	92G/2	122° 52' 1.2"	49° 14' 37.79"	22	Slump of railway embankment; work train derailed
15	19100415	St-Alphonse-de-Bagotville	Que	22D/7	70° 56' 33.32"	48° 19' 51.74"	4	Construction camp buried by landslide in Leda Clay caused by blasting during construction of railway
16	19100418	Coucoucache	Que	31F/11	73° 15' 51.12"	47° 42' 35.06"	6	Slump of railway embankment; work train derailed
17	19150322	Jane Camp	B.C.	92G/11	123° 8' 22.92"	49° 36' 42.41"	56	Rock avalanche from above portal of mine swept into mining camp
18	19211028	Britannia Beach	B.C.	92G/11	123° 12' 13.32"	49° 37' 28.38"	37	Outburst flood caused by failure of railway fill swept away more than 50 houses 4.5 km downstream
19	19220930	Elcho Harbour	B.C.	93O/5	127° 32' 3.84"	52° 23' 36.92"	5	Debris avalanche caused by heavy rains destroyed logging camp
20	19291118	Burin Peninsula	Nfl.	1L/1M	55° 44' 56.11"	46° 51' 29.34"	27	Tsunami generated by massive earthquake-generated submarine slump destroyed buildings along shore
21	19300626	Capreol	Ont.	41I/15	46° 45' 36"	80° 57' 04"	4	Slump of railway embankment; passenger train derailed into Vermillion River
22	19300627	Creese	Ont.	41I/10	46° 37' 44"	80° 40' 02"	8	Slump of railway embankment; freight train derailed.
23	19380901	St-Gregoire-de-Montmore	Que.	21L/14	71° 9' 10.76"	46° 52' 51.17"	4	Landslide caused by heavy rains destroyed apartment building below
24	19460719	Beattie Mine, Duparquet	Que.	32D/11	79° 15' 19.8"	48° 30' 20.95"	4	Landslide debris flowed into mine shaft killing miners underground
25	19551112	Nicolet	Que.	31I/2	72° 37' 12.14"	46° 12' 32.63"	3	Earthflow in Leda Clay ; $10 M damage including destruction of church complex
26	19571122	Prince Rupert	B.C.	82N/8	130° 18' 27"	54° 18' 13.82"	7	Debris avalanche triggered by heavy rains buried 3 houses
27	19590327	Revelstoke	B.C.	82M/1	118° 12' 0.36"	51° 0' 22.97"	4	Landslide triggered by highway construction struck house
28	19600907	McBride	B.C.	93H/7	120° 30' 47.16"	53° 26' 18.1"	3	Debris flow ; victims were highway construction workers
29	19620523	Riviere Toulnustouc	Que.	22F/9	68° 22' 27.44"	49° 49' 1.81"	9	Workers killed by landslide in marine clay caused by blasting
30	19631211	St-Joachim-de-Tourelle	Que.	22G/1	66° 24' 55.55"	49° 9' 16.74"	4	Earthflow in Leda Clay; victims drove into landslide crater
31	19640916	Ramsay Arm	B.C.	92K/7	124° 57' 25.2"	50° 25' 8.11"	5	Debris flow caused by heavy rains struck logging camp
32	19650109	Hope	B.C.	92H/6	121° 15' 37.08"	49° 18' 14.72"	4	Massive rock avalanche buried vehicles on B.C. Highway #3
33	19650114	Ocean Falls	B.C.	93D/5	127° 41' 42.72"	52° 21' 14"	7	Slush avalanche/debris flow caused by melting snow struck community
34	19680605	Camp Creek	B.C.	82L/15	118° 31' 1.2"	50° 58' 13.01"	4	Debris flow caused by heavy rains struck car on Trans-Canada Highway
35	19690209	Porteau	B.C.	92G/11	123° 13' 49.08"	49° 33' 36.22"	3	Rockfall struck car at Porteau Bluffs on Squamish Highway
36	19710504	St-Jean-Vianney	Que.	22D/6	71° 13' 3.79"	48° 28' 24.46"	31	Rapid retrogressive flowslide in Leda Clay swept away 40 homes
37	19710504	Boothroyd, Fraser Canyor	B.C.	92H/14	121° 28' 17.4"	49° 56' 44.09"	3	CNR train derailed by rockfall.
38	19720320	Michel	B.C.	82G/10	114° 47' 48.48"	49° 41' 11.44"	3	Debris flow from coal mine waste dump struck CPR maintenance crew 16 km west of Crowsnest
39	19730801	Harbour Breton	Nfl.	1M/05	55° 48' 42"	47° 28' 42"	4	Debris avalanche struck houses. 4 houses swept into harbour and destroyed.
40	19750722	Devastation Glacier	B.C.	92J/12	123° 33' 38.88"	50° 33' 54"	4	Massive rock avalanche buries geophysical survey crew
41	19800520	Belmoral Mine, Val D'Or	Que.	32C/4	48° 08' 09"	77° 39' 02"	8	Cave-in of mine roof triggered a flow of lacustrine sediments into mine workings
42	19811028	M-Creek Bridge, Highway	B.C.	92O/06	123° 15' 31.56"	49° 28' 46.78"	9	4 vehicles plunged into creek after debris flow had destroyed bridge on Squamish Highway during heavy rains
43	19900612	Joe Rich	B.C.	82E/14	119° 8' 35.16"	49° 53' 37.82"	3	Debris avalanche caused by heavy rains destroyed house

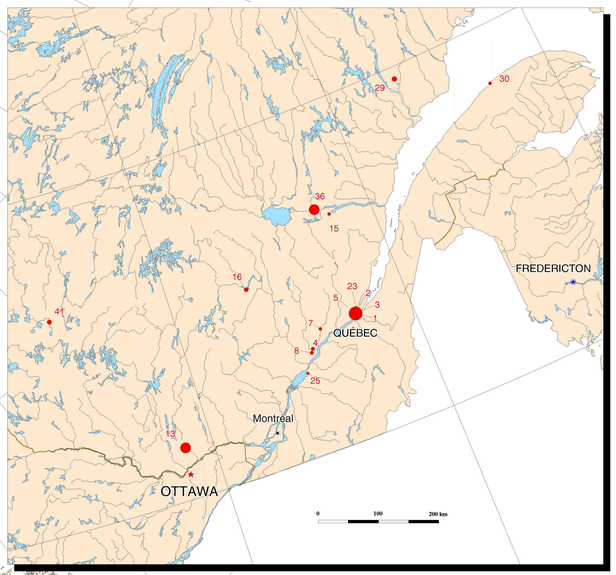


View over the town of Frank, Alberta after the 1903 Frank Slide (Disaster 11 in listing). Debris from the slide is visible spread over the valley floor on the right of the photograph. Approximately 75 people were killed in the Frank Slide, Canada's worst landslide disaster. Public Archives of Canada photograph.



Vertical aerial photograph of the source area of the 1975 Devastation Glacier landslide, Coast Mountains, British Columbia. The landslide flowed down Devastation Creek and buried 4 people working 7 km downstream (Disaster 40 in listing). National Air Photo Library photo A37245-113.

Houses destroyed by rockslide on Champlain Street, Quebec City, in September 1889. 50 people were killed in this landslide disaster (Disaster 5 in listing) which is eastern Canada's worst. The rockslide resulted from the failure of the slope behind the houses, just below the walls of the Citadel. Public Archives of Canada photograph.



View of buildings destroyed in the village of Notre-Dame-de-la-Salette, Quebec by a wave generated by the 1908 landslide. The landslide in Leda Clay occurred on the right bank of the Lièvre River generating a wave which swept over the village on the left bank of the river, destroying 12 wooden buildings. 33 people were killed in the disaster (Disaster 13 in listing). Photograph courtesy of the Archives National du Québec.

Legend
Numbers of Death

75
35
7

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Landslide disasters in Canada 1840-1998; notes on the verified listing and map preparation

As a contribution to the International Decade of Natural Disaster Reduction a verified listing of Canadian landslide disasters has been compiled. For the purposes of the study a landslide disaster is defined as a landslide event; or related geotechnical failure, that directly or indirectly results in at least 3 deaths. This criterion is to a large extent arbitrary but appears to approximate a Canadian disaster reporting threshold. For present purposes, the definition does not include a consideration of the costs of material damage. The listing contains 43 landslide, or related geotechnical failure, events that meet the disaster criteria in a period of record of 159 years.

The sources used to compile the list of events, and the details associated with them included retrospective newspaper indexes at the British Columbia Legislative Library, unpublished research files and documents, New York Times Index 1913 -1955, and a review of existing literature. Contemporary newspaper accounts on microfilm at the National Library of Canada were consulted to obtain details of each disaster.

The source material varies in quality with respect to describing the precise location of the landslide event and in reporting casualties and damage. Based on site descriptions or location maps (where available) the location of the disasters was located on 1:50,000 NTS maps and the location plotted as closely as possible. These locations were then digitised for plotting on this map. It is not possible to locate some disasters exactly because of vague or contradictory site descriptions. In these cases the latitude and longitude of the locality is given. As far as possible, the number of casualties were confirmed by published lists of victims' names. In certain disasters definitive casualty figures could not be determined from the sources available. Damage reports also varied for several events.

The number in the disaster listing corresponds to the number on the map.

S.G., Evans
1997 : Fatal landslides and lanslide risk in Canada. In Landslide Risk Assessment Edited by D.M. Cruden and R. Fell
A.A. Balkema, Rotterdam, pp. 185-196.

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Produced within the Canadian Framework for the International Decade for Natural Disaster Reduction

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Evans, S.G.
1999 : Landslide disaster in Canada 1840-1998. Geological Survey of Canada Open Files 3712 (Map with text).