

EXTREME WEATHER AND EVENT PLANNING RISKS IN CANADA



An Overview of Impacts and Organiser Perspectives



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Summary

Canada is projected to face increased annual and seasonal mean temperatures into the future due to climate change. A warmer climate will intensify some weather extremes, including the severity of heatwaves, and contribute to increased drought, wildfire and heavy rainfall. These risks are becoming real for event organisers in Canada, where 72 events were reported as disrupted by weather in 2023.

Interviews with organisers of affected events provide some insight into impacts on and response to what is generally perceived as an increasing risk from uncertain weather. Financial losses to event organisers, many of whom lack cancellation insurance, raise questions about the sustainability of events following multiple years of disruption due to COVID-19. Organisers express concern that without increased financial support from sponsors, participants and government, beneficial social and economic legacies from organised events are at risk.

Media monitoring and organiser interviews uncovered the following:

- **72 unique events were reported as disrupted by heat, wildfire, flooding, cold and storms in Canada in 2023. Were events within series or tours to be counted as individual events, total event disruptions would increase to 99.**
- **Outdoor special events (32%), sports (29%) and festivals (25%) were most impacted.**
- **Wildfire and smoke caused 74% of all disruptions, followed by storms (12%) and heat (8%).**
- **Most disrupted events were cancelled (58%). 29% were able to be rescheduled and did occur.**
- **Nearly half of reported disruptions were in British Columbia (48%), followed by Nova Scotia (11%), Ontario (10%), Quebec (10%), the Northwest Territories (8%) and Alberta (5%).**

Interviews with organisers of affected events provide insight into the nature of weather disruption on events and organiser response.

Nature of Risk

1. Most organisers who were interviewed feel risks from weather are increasing in frequency and causing greater losses. Organisers agree that the operating environment for events is more uncertain overall due, at least in part, to weather incidents.
2. Organisers feel weather to be a manageable risk in isolation, but that more frequent and diverse weather events, combined with public health and economic pressures, present a financially unsustainable situation for organisers and attendees alike.

Preparation

3. All organisers who were interviewed have emergency procedures that enable them to respond to weather incidents. A few felt responses could be improved and were working to develop protocols. Procedures developed in response to COVID-19 were transferable to weather incidents.

Decision-Making

4. Organisers can struggle to make high-stakes cancellation decisions in situations where they are in proximity to but not directly subject to a mandatory weather order or travel ban.
5. Organisers diverge in their decisions to reschedule or relocate their events on a permanent basis. Some are not able to reschedule or relocate due to attendee considerations and the place-based nature of their event. Some who are able to shift are adopting a 'wait and see' approach to 2024. Others are changing destination selection procedures and policies to consider the impact of climate change. A few have decided to shift the timing of their events to avoid weather risks.

Communication Aspects

6. Organisers seek clearer guidance in decision making and contingency planning for air quality-related disruptions.
7. Organisers see advantages to working with other event planners to create shared guidance and strategies for responding to weather events. This could assist with crisis communications.
8. Organisers cite good communication and strong relationships with suppliers and sponsors as keys to recovery.
9. Participant communication strategies must be proactively considered and robust, with careful attention to the purpose of messaging at each stage of planning.

Financial Aspects

10. Weather events are causing significant financial strain on event budgets.
11. Cancellation insurance is not typically optioned due to high premiums or lack of eligibility.
12. Cancellation policies that rollover registrations create liabilities and reduce future revenue potential.
13. Organisers are concerned consumer confidence in events is being affected by weather-related cancellations and will lead to more last-minute decisions to attend. This presents cash flow issues for organisers who rely on presales.
14. Organisers are leaning on sponsors, grants and loyal participants who are willing to donate refunds to remain financially viable in the face of multiple disruptions.

Personal and Community Wellbeing

15. Organisers express increased anxiety and burnout as a result of weather-related disruption.
16. Disrupted events have an emotional cost to participants and other stakeholders. They result in unrealised potential and lost legacies for communities that invest heavily in them.

Background

Unusual and severe weather in Canada presented significant challenges for event organisers in 2023.

For the first time in 52 years, the National Capital Commission was unable to open the Rideau Canal Skateway—the world’s largest outdoor skating rink—due to unseasonably warm conditions in Ottawa. Lack of ice curtailed skating during Winterlude and forced the cancellation of the Beavertails Dragon Boat Ice Festival, which attracts 15,000 participants and \$4 million¹ in spending. Faced with warming conditions, the NCC has partnered with Carleton University on a four-year project to understand and address the impacts of climate change on the Skateway².

Warm, rainy conditions in mid-February also affected the Canada Winter Games on Prince Edward Island, where competitions faced delays due to rainy conditions. Citing data from Environment Canada, CBC reported “the last time the Island held the winter games in 1991, the average temperature was -11 C and 88 centimetres of snow had fallen during January. This year, the average temperature in January was -2 C — the warmest since 1953 — and 58cm of snow fell during the month.”³ Acknowledging that many sports stand to be affected by warming temperatures and other extreme weather, the Canada Games Council has joined the Sports for Climate Action Framework in order to work “collaboratively to reduce the environmental footprint of our events and drive global climate action for a safer planet”⁴.

May saw the onset of what became a historic forest fire season across the country. Nearly 18.5 million hectares burned, a staggering record compared to a typical year when 2.5 million hectares are lost to fire⁵. While smoke caused wide-spread air quality alerts and event disruptions across the country, events hosted in British Columbia and the Northwest Territories faced travel bans and evacuation orders that curtailed festivals, tournaments and meetings alike, ranging from Kelowna ComicCon to the Canadian Table Tennis Championships, a Sarah McLachlan Concert and the 30th Dehcho Annual Assembly.

Disruption continued into the fall as post-Tropical Storm Lee upended charity events, music festivals, markets, races and sports matches in Nova Scotia and New Brunswick. The Harvest Music Festival in Fredericton faced six figure losses from a partial cancellation due to the storm, with downtown businesses missing out on \$8-10 million in economic spin offs provided by the 20,000-25,000 people participating in the event⁶.

2023 is not the first year that rare and severe weather has affected events in Canada. In 2022, Hurricane Fiona crashed into the Maritimes, becoming one of the costliest weather events in Canada, with damages estimated at over \$800 million, according to the Insurance Bureau of Canada⁷. Nineteen events were reported as disrupted during the storm period, including three popular food festivals in Charlottetown, PEI and Halifax, Nova Scotia.

In November 2021 an atmospheric river brought unprecedented rainfall during a short period of time to the southwest corner of BC. The resulting flood severely damaged core infrastructure, causing \$675 million in insured damage⁸. Plans for 13 events were swept away, with a notable number of community retail markets and fundraising events disrupted during a busy holiday season.

While the total area burned was far less than in 2023, event organisers in British Columbia and Alberta also faced issues with fire and smoke in 2018 and 2017. Outdoor festivals and sporting events were particularly impacted, including the popular Shambhala event in Salmo, the Enbridge Ride to Conquer Cancer in Calgary and the Edmonton Dragon Boat Festival.

In 2013, organisers of the Calgary Stampede—worth \$540 million to the economy⁹—invested a reported \$65 million to rehabilitate the event site from devastating floods that submerged the event grounds¹⁰. In commenting on repair and adaptation measures following the flood, Calgary Stampede chief executive Vern Kimball said: “If there is one thing that has changed forever, we’re way more prepared to deal with the flood this year than we were last year. Our flood response plan last year was half a page. I reviewed one (recently) and I think it was more like 20 pages.... We have pumps on standby. We have suppliers on standby. We have sandbags ready to go. We’ve got water dams.”

1 Samson, 2023
2 Tourangeau, n.d.
3 Tutton, 2023
4 Wilcock, 2020
5 Canadian Interagency Forest Fire Centre Inc, 2023
6 Samson, 2023
7 Insurance Bureau of Canada, 2023
8 Insurance Bureau of Canada, 2023
9 Calgary Stampede, n.d.
10 Toneguzzi, 2014.

Flood preparations are yet to be tested 10 years later; however, the same event was bookended by heat¹¹ and smoke¹² alerts in 2023. Organisers did not alter event plans, but the example provides a clear reminder of the ever-present and diverse weather risks organisers must grapple with year-to-year.

And while weather has always been a consideration for events, Canada's Changing Climate Report published by the Government of Canada suggests climate change will intensify weather extremes that can affect events:

"Annual and seasonal mean temperature is projected to increase everywhere, with much larger changes in northern Canada in winter.... In the future, a warmer climate will intensify some weather extremes. Extreme hot temperatures will become more frequent and more intense. This will increase the severity of heatwaves, and contribute to increased drought and wildfire risks. While inland flooding results from multiple factors, more intense rainfalls will increase urban flood risks. It is uncertain how warmer temperatures and smaller snowpacks will combine to affect the frequency and magnitude of snowmelt-related flooding."¹³

Poised between evidence of past disruption and the potential of increased risk, a window of opportunity exists to learn forward by asking: how are events being affected by unusual and severe weather in Canada and how are event organisers responding?



City of Vancouver Climate Projections

The Pacific Climate Impacts Consortium at the University of Victoria provides a snapshot of changing climate extremes expected in Vancouver under a low, median and high emissions scenario compared to median measurements experienced in the 1990's. Their median 2041-2070 scenario projects the:

- Hottest summer day climbing from 29.7°C to 32.9°C.
- Number of heat wave days increasing from one day to 16.
- Longest annual heatwave days increasing from three to six.
- Total annual snowfall dropping by 60%.
- Number of days with heavy rainfall climbing from nine to 11.

Event organisers could benefit from asking how these changing conditions will affect:

- Participant health risks from heat?
- Scheduling of event activities to when temperatures are more desirable?
- Venue and hotel operating costs as heating, ventilation and air conditioning needs change?

Stanley Park, Vancouver. Photo: Mado El Khouly, Unsplash.

11 Herring, 2023
12 Kaufmann, 2023
13 Zhang et. al, 2019

Research Methodology

This study is based on media monitoring conducted during the period of January 1 to December 31, 2023. Local, national and international media were used to identify events in Canada that were disrupted by extreme weather incidents.

Media sources included domestic Canadian and international outlets. Domestic media outlets included national networks such as CBC, CTV and Global News, along with a significant number of local sources, such as Cabin Radio and local community media outlets.

Social media channels such as Facebook, X and Instagram were also monitored, with online chatter verified by cross-referencing information with organiser statements.

Monitoring was guided by meteorological warnings and emergency services reporting of actual and potential extreme weather incidents. Sources of this information included storm warnings, weather statements, evacuation alerts, orders, and air quality notices from Environment Canada, provincial fire services and local public health agencies.

Weekly monitoring occurred from May 1 to December 31, 2023, with daily checks during high weather activity. The period from January 1 to April 31, 2023 was researched retroactively.

Because the purpose of the research was to understand the scale and nature of events impacted, monitoring was inclusive rather than exclusive. For this reason, highly restrictive definitions were not imposed at the outset for either event or weather types, or the nature of the disruption.

At the outset, an event was understood to be a professionally organised occasion held for a particular purpose. An extreme weather event was understood to be an unusual, rare or severe weather occurrence, such as a heatwave, wildfire, flood or severe storm.

Reported events were categorised by type at the end of the research period, leading to the following categories:

- **Business:** Conferences, congresses, assemblies, conventions, seminars, clinics, workshops, meetings, incentives, etc.
- **Sport:** Tournaments, competitions, league sports, matches, games, championships, etc.
- **Arts & Culture:** Concerts, festivals, arts exhibits, theatre, plays, readings, multicultural events, comedy acts, etc.
- **Fundraising:** Any event where raising money for charity is the primary purpose (may include aspects of sports, arts, culture).
- **Special:** Social events like parades, public gatherings, milestones, holidays, public observances, commemorations, memorials, etc.
- **Political/Government:** Political conventions and assemblies, planned campaign stops and rallies, etc.

Dates and location (city, province) of the disrupted events were recorded. The number of participants and economic impact were also documented, if verified by organiser sources.

The type of extreme weather event causing the disruption was also noted, along with how the event was impacted.

Extreme weather types were emergent from the sample during the dates monitored, and included:

- **Heat:** This includes heatwave and heat dome events associated with summer seasons as well as unseasonably high temperatures that could impact winter events (i.e. 'warming').
- **Storm:** Referring to any storm system, such as a typhoon, tropical storm, post-tropical storm or hurricane. Weather in this category may include wind, lightning, tornado and tidal surge.
- **Flooding:** This category includes heavy precipitation and/or river flooding that is not otherwise attributed to a named storm. This weather may include atmospheric river events.
- **Wildfire:** This category includes disruptions due to fire or smoke and are natural or human-caused.
- **Cold:** Referring to extremely low temperatures that are not associated with a named storm. Variations in this category may include severely cold temperatures and freezing rain.

In addition, the resulting disruption to each event was categorised, including if it was:

- **Cancelled:** Event did not occur as scheduled and does not appear to have been rescheduled. Cancellations should be assumed to apply to a single instance of an event (i.e. one year of a festival or competition), and are not necessarily permanent.
- **Partial Cancellation:** Event did occur, but part of the event did not proceed. For example, it may have ended early.
- **Relocation:** Event did occur at the scheduled time but was relocated to another venue.
- **Postponed:** Event did not occur as scheduled and was rescheduled to another time.
- **Disrupted:** Event occurred at the planned location as scheduled, but was changed or impacted in a notable way that doesn't fit with other categories. For example: the program was changed, access was disrupted or there were casualties/fatalities due to the weather incident.

In addition to formulating a basic database of information about disrupted events, organisers were contacted to confirm details about their event that were collected during the monitoring stage. They were also invited to respond to additional questions about their event disruption to acquire more detailed information that was not apparent through media monitoring.

Interviews did lead to more events being added to the database that were not initially identified during media monitoring.

Note that it was only possible to contact those organisers for whom contact information was available who were actively monitoring event communication channels during the January 1 - February 15, 2024 period when interviews were conducted.

Interviews occurred by email or phone. Questions were semi-structured and open-ended, and touched on the following areas:

- Perceived level of risk to the event that is posed by weather.
- Financial impact of the event disruption, including sponsorship, insurance, grants, sunk costs, and profitability dimensions.
- Risk and emergency management, including internal policies and practices and interactions with external emergency services.
- Stakeholder dimensions, including communication, retention, refunds, etc.
- Future event scheduling and location considerations.

All interviews were conducted on an anonymous basis. Some organisers requested or agreed to share select information about their events following interviews.

Although the research sample focuses on events impacted during 2023, monitoring and interviews uncovered additional information about events that were impacted prior to 2023. Basic information about these events has been recorded and is noted in the findings. These events were not included in the interview sample, unless the event was also disrupted in 2023.

Findings

Database Analysis

A total of 72 unique events were reported as disrupted by extreme weather in Canada during the 2023 monitoring period.

Note that events held in a series, or containing multiple functions, were counted as a single event even though they may have had multiple functions or tour stops disrupted. For example, summer event series in Kelowna, Penticton, Vernon and Victoria, BC and Niagara, Ontario were disrupted on multiple days. This means events like Parks Alive! in Kelowna are counted once, even though ten individual nightly concerts were cancelled. Were events within series or tours to be counted as individual events, total event disruptions would increase to 99.

As indicated in Table 1, the largest number of events fell into the Special Event category (32%). This included a notable number of free community events, such as Canada Day festivities which were cancelled due to wildfire smoke in three provinces: BC, Ontario and Quebec.

Table 1: Number of unique events disrupted by type

Business	1
Sport	21
Arts & Culture	18
Fundraising	6
Special Event	23
Political/Government	3

Sports and arts and culture events were notably disrupted, at 29% and 25% respectively. The Arts and Culture category included numerous festivals and performances that were wide-ranging in size and duration (single and multi-day events, series events, free and ticketed). While large events, including the Salmon Arm Roots and Blues Festival (30,000 participants), were affected, most events in this category were small to midsize with up to 2,500 guests.

Poor air quality impacting athlete health was a key factor in the disruption of many summer sporting events, including the Groupe Copley World Triathlon, IRONMAN 70.3, Football Canada Cup and Canadian Football League matches. Travel bans, implemented to protect evacuation and emergency service access in regions adjacent to wildfires, were a consideration in the cancellation of the Penticton IRONMAN and Canadian Table Tennis Championship. In the east, poor ice due to warm and rainy conditions affected the Canada Winter Games in Prince Edward Island and severe rainfall and wind due to post-Tropical Storm Lee forced the cancellation of major and minor league hockey and football events in Nova Scotia in September.

Disruptions to special events and sports occurred in seven provinces and territories. The number of disruptions for these types of events was equally distributed in the impacted provinces. In contrast, arts and culture events were disrupted in five provinces and territories but the majority of incidents were in BC.

While business, fundraising and political events were reported in the sample, they represent a small share of disruptions. It is notable that the Northwest Territories Territorial Election and the 30th Dehcho Annual Assembly were both postponed due to wildfire evacuations.

The impact of extreme weather on volunteer fundraising events, and the non-profit organisations they support, such as the Terry Fox Runs that were disrupted by post-Tropical Storm Lee, may merit added research.

Weddings

Wedding events are not included in the sample due to lack of reporting and present an opportunity for future research. Impacts from wildfire and smoke on this unique event segment are expected to be notable given the location of fires in or adjacent to destinations that are popular wedding locales (i.e. the Okanagan, Tofino and Ucluelet, BC). The media did report general impacts on the wedding event industry due to wildfires in Ontario in June and British Columbia in August, along with specific stories of couples' experiences. Reports suggest the nature of disruptions ranged from cancellation, to relocation indoors and disrupted access that may impact guests' ability to attend.

Wedding couple, Wainwright Alberta. Photo: Redd F, Unsplash.



Wildfire and smoke due to wildfire were the primary reasons for disruption in 2023, accounting for 74% of cancellations (see Table 2).

Table 2: Number of events disrupted by type of weather

Heat	6
Flooding	1
Wildfire	56
Storm	9
Cold	4

Note: Total adds up to 76 as four events were impacted by two different weather types.

Note that series events may have been affected by compounding issues. For example, multi-day community events held in Vernon and Kelowna experienced cancellation for both heat and smoke on separate days. In addition, Ottawa’s Winterlude was impacted by extreme cold as well as warmer-than-seasonal conditions impacting ice conditions. These examples are unique in the data set, but the impact of compounding weather events merits future investigation.

One event disruption attributed to flooding includes the cancellation of the Rockin River music festival in Merritt, BC which was announced in 2023. Organisers cited the 2021 floods in the community as a factor in their decision¹⁴.



Ottawa Dragon Boat Festival

The Ottawa Dragon Boat Festivals are events of note in the sample. Both the Beavertails Ottawa Ice Dragon Boat Festival and Tim Hortons Ottawa Dragon Boat Festival were impacted by weather-related events in different seasons in 2023.

Following cancellations due to COVID-19 in 2021 and 2022, the sold-out Ice Festival was forced to cancel races on February 3-4, 2023 due to unseasonably warm weather resulting in poor ice conditions on the Rideau Canal Skateway. These conditions prevented all skating on the Canal during Winterlude for the first time in 52 years.

In June 2023 the event team was dealt another blow when their larger summer event, the Tim Horton’s Ottawa Dragon Boat Festival, was partially cancelled due to smoke. 5,500 paddlers participate in the event, attracting 80,000 spectators.

Sadly, in 2024, the Ice Dragon Boat Festival was further impacted by poor ice due to warm conditions, and forced to cancel again.

Rideau Canal Skateway. Photo: Yomex Owo, Unsplash.

Table 3 provides a picture of how extreme weather impacted each event in the sample. At the close of the research period, a majority of the reported events had been cancelled (58%). Although many event organisers initially announced intentions to reschedule, some did not follow through to confirm plans within the research period. These events were therefore recorded as cancelled. Cancellations were typically temporary (i.e. until the following year), not permanent.

Table 3: Number of events by type of disruption

Cancelled	42
Partial Cancellation	9
Relocation	1
Postponed	21
Disrupted	0

Note: Total adds up to 73 as one event had functions that were fully cancelled and postponed.

It is notable that among the nine events partially cancelled, seven were over 5,000 participants, including some of the largest events in the sample. It may be worth investigating if this is coincidental, or something else may be in play.

Unsolicited observations from event organisers interviewed in the second part of this research hint at two potential lines of inquiry: Are there conditions that make larger events more willing to delay decisions and absorb risk? Such as the presence of cancellation insurance, or contingency funds? Or do they face pressure from vested interests that make a decision to cancel more difficult to make until the last minute, in situations where they are not ordered to cancel?

Only one event within the sample opted to relocate to an alternate venue prior to the event date: Music on the Mountain, located in Fort St. James, BC. While this event encountered wildfire risks in 2018 as well, it is uncertain if previous experience helped organisers to anticipate and plan for alternative venues¹⁵.

The disrupted category may be zero, but it merits more discussion here. The research method adopted made events in this category difficult to find. In short: an event that isn't cancelled rarely makes a headline. Media tends to focus on high-profile events that are cancelled or partially cancelled. So, otherwise disrupted events are likely under-reported.

Even though they are under-reported, events falling into the disrupted category are important to consider based on the unsolicited insights of organisers who were interviewed. A few organisers indicated they were aware of events outside of the sample that experienced planning and financial strain as a result of needing to prepare for contingencies, even if events proceeded as originally planned. It's important to consider this group of events as it is possible they may represent a large number of events experiencing strain that are, in effect, invisible.

Table 4 shows the majority of events that were reported during the sample period were outdoor events (79%). While business and political events did not figure prominently in the research sample, they were notably present in the indoor sample.

Table 4: Number of events disrupted by indoor/outdoor format

Indoor	11
Outdoor	57
Both	4

The relative lack of business and indoor event data in the sample should not support the assumption that business and/or indoor events are less impacted by extreme weather. Rather, the location, time of year and type of extreme weather experienced may have contributed to an absence of these events in the data set.

As evidence, event disruption data from prior to 2023 that was documented as part of this project suggests hurricanes and severe storms during the fall and winter period can have a noticeable impact on both business and indoor events. For example, Hurricane Fiona (2022) resulted in a higher number of business and indoor event cancellations in Canada than was seen in 2023. The connection between types and location of extreme weather and types of events impacted merits further exploration.

A total of 38 events among the 72 documented were able to provide participant estimates. The distribution of participant counts within the sample of 38 are listed in Table 5. Note some events with registered athletes only disclose competitor counts. If spectator counts were confirmed events would shift from the 100-500 participant category to higher attendance brackets.

Table 5: Number of events disrupted based on attendance

100-500 participants	5
501-1,000 participants	8
1,001-2,500 participants	5
2,501-5,000 participants	3
5,001-10,000 participants	9
Over 10,000 participants	8

British Columbia reported the most event disruptions during the period, followed by Nova Scotia, Quebec, Ontario and the Northwest Territories (see Table 6). Of note, data collected during the course of this project suggests an additional 59 events in the United States were disrupted by smoke attributed to wildfires in Canada. Almost all of these related to fires burning in Quebec and Ontario in June 2023. So, while event disruption counts may appear lower in these provinces, there is a notable cross-border impact to consider.

Table 6: Number of events disrupted by jurisdiction

Alberta	5
British Columbia	35
New Brunswick	1
Northwest Territories	6
Nova Scotia	8
Nunavut	1
Ontario	7
Prince Edward Island	1
Quebec	7
Saskatchewan	1
Yukon	1

Note: Total adds up to 73 as one series event was held in two separate jurisdictions.

Attempts were made to acquire other data, such as financial impacts, however this was rarely disclosed in media reports outside of a few select events. Some interviewees declined to provide specific data or have disclosed losses shared publicly. Financial impacts reported in the media or directly verified with organisers include:

- \$15,000,000 in economic impact lost: IRONMAN Penticton¹⁶
- \$12,000,000-15,000,000 in economic impact lost: IRONMAN Mont-Tremblant
- \$1,300,000 in organiser losses: Salmon Arm ROOTSandBLUES Festival
- \$4,000,000 in economic impact lost: Beavertails Ottawa Ice Dragon Boat Festival¹⁷
- \$500,000-600,000 in organiser losses: Harvest Music Festival¹⁸
- \$8,000,000-10,000,000 in economic impact lost: Harvest Music Festival¹⁹
- \$35,000: Nimble Fingers (catering food losses reported by venue)²⁰

For added context, the following information about event disruptions in Canada caused by extreme weather was documented for previous years. Caution should be used in drawing comparisons as research for the period prior to 2023 was done retroactively, and live monitoring, as was undertaken in 2023, was not possible. Increasing data points may reflect increasing interest from the media, rather than an increase in incidents.

Table 7: Number of reported event disruptions in Canada by year

2013	1
2015	4
2017	5
2018	7
2021	17
2022	21
2023	72

Events reported in 2022 were almost exclusively associated with Hurricane Fiona and located in Nova Scotia, New Brunswick and Prince Edward Island. Event disruptions in 2021 were in British Columbia, with the majority caused by extreme rainfall experienced in November (76%), followed by wildfire (24%). Wildfires caused disruptions reported in BC and Alberta in 2015-2018, with Calgary's floods being the cause of all reported event disruptions in 2013.

16 Larsen, 2023
 17 Perez, 2023
 18 Samson, 2023
 19 Samson, 2023
 20 Larsen, 2023

Risk Assessment

Level of Risk

‡ Most organisers who were interviewed feel risks from weather are increasing in frequency and causing greater losses. Organisers agree the operating environment for events is more uncertain overall due, at least in part, to weather incidents.

All interviewees were asked if they felt weather risks to their event(s) were changing. And how the risks were changing, if they were.

All acknowledged weather as a risk. "Weather has always had an impact on our events, both positively and negatively," was one comment. Another noted: "Inclement weather has always been a risk. We've seen lightning and wind, as well as smoke. This was the first time we've had to cancel. The proximity of fire on the ground changed the situation."

Almost all expressed a feeling that risk was increasing, as is illustrated by the following comments:

- "There is no question outdoor summer events in the Okanagan currently run a substantial risk of having severe air quality impact them. This is materially different than even 10 years ago."
- "This is a major issue for us now. We were not far away from a fire at any point last year. We are hyper-aware of it as a major issue for all of our sport."
- "You read and hear the risk is greater. The scientists are telling us that."
- "It's not a new thing, but there is a sense it is escalating."
- "The frequency of incidents is changing. We used to write it off. But in recent years it has included fire, smoke, and air quality."
- "We need to accept things have changed and will continue to change. We need to roll with it."
- "Everyone is in agreement there is a climate crisis. Four of the last six years we have had smoke in August. We can't be inflexible to change."

A few felt it was changing but not necessarily increasing. These individuals went on to explain they felt the level of risk was the same and significant, and that the type of weather was new, requiring a different management strategy.

Organisers felt comfortable dealing with some weather risks, like thunderstorms, wind and, to a degree, hot or cold temperatures. Comments suggested that thunderstorms and wind manifest as more discreet occurrences that can be anticipated to some extent and actioned through short-term delays and closures. Experiences with hot and cold weather were felt to be manageable within ranges, provided they were not extreme, as was the case with the June 2021 heat dome in British Columbia, or persistent over annual cycles, in ways that may impact the timing and location of winter or summer sports.

Access to alternative venues tempered some organisers' feelings about risk. Sports tournaments with access to indoor venues expressed a greater tolerance of weather risk than organisers who lack alternatives. That said, it is important to note that organisers of events with alternative indoor venues available were not immune to disruption where travel bans affected access to event locations, as was the case in British Columbia and the Northwest Territories in 2023.

Overall, those interviewed expressed uncertainty about being able to successfully execute events in light of a variety of risks, including weather. "What's the new normal?" asked one interviewee. Another added: "It's really uncertain. We will find out this year if we get hit again."

A common sentiment expressed was that any decision could be the wrong one, so it is hard to know what to do: "It's hard to plan for. It could be here, it could be there. It could be this year or next. It could be smoke or fire. Maybe floods. There is increased uncertainty overall."

Compounding Risk

Organisers feel weather to be a manageable risk in isolation, but that more frequent and diverse weather events, combined with public health and economic pressures, present a financially unsustainable situation for organisers and attendees alike.

All events impacted in 2023 have faced compounding risks over multiple event cycles due to weather and the COVID-19 pandemic. In the words of one organiser: “COVID is done, but the fallout continues.”

One organiser stated: “Extreme weather is an issue upon other issues that are making it hard for arts and culture activities broadly. People have less money to spend. Inflation is having an impact. Other times and venues can be considered but physical infrastructure to host events can be limited and may not be well-maintained. Everything is more expensive. Investment on multiple fronts is needed to cope with overall financial strain.”

This perspective is shared among sporting event organisers. One added: “Canadian national sport organisations are underfunded as it is. If you add in cancellation insurance and travel and event costs due to a weather disruption it becomes very difficult to manage. It becomes hard to ask families to participate. It is a massive concern coast to coast.”

Canadian Football League

While the organiser’s sense of risk matters, it is perhaps most important to consider how event stakeholder groups, like fans and athletes, perceive risk. This issue was brought into the spotlight in Canada in 2023 as the Canadian Football League Players’ Association initiated an investigation into how air quality concerns were being handled by the CFL. Concerns emerged following the CFL’s decision to play an Edmonton Elks-Calgary Stampeders game on September 4, 2023 in spite of smoke due to wildfire blanketing Calgary. Air quality readings in the city ranged from 8-10 during the day. A joint statement from both organisations was made after Occupational Health and Safety in Alberta launched an investigation: “After a productive meeting, we will maintain our existing Air Quality Policy. We have agreed to engage an independent third-party organisation to test air quality and provide measurements in real time. The decision on whether to play – or to continue playing if a game is in progress – will be based solely on these air quality measurements. Any measurement above an Air Quality Health Index (AQHI) reading of 7 will halt play.”

Source: Sportsnet

“Extreme weather is an issue upon other issues that are making it hard for arts and culture activities broadly. People have less money to spend. Inflation is having an impact. Other times and venues can be considered but physical infrastructure to host events can be limited and may not be well-maintained. Everything is more expensive. Investment on multiple fronts is needed to cope with overall financial strain.”

Nimble Fingers

The organisers of Nimble Fingers, a two-week long annual music workshop and festival held in Sorrento BC, share an announcement that is indicative of the pause some organisers are taking as they consider the future of their events:

"It is with great sadness that we announce our beloved event will not be happening in 2024. The past few years have brought unprecedented challenges, including the impacts of the pandemic and wildfires, which have profoundly affected our ability to produce a safe and enjoyable event. With three of the last four years cancelled due to circumstances outside of our control, we need a year to recover and regroup. This decision was not made lightly. Our commitment to delivering a top-notch experience remains unwavering. We want to assure you that NimbleFingers will continue to be a highlight in the bluegrass and old-time music community for many years to come. We are just taking a year to recover, and also consider new and exciting ways to connect with the community! Read our latest newsletter for additional details. Keep an eye out for updates and announcements for other events and happenings! We hope to see you out there in 2024 and look forward to reuniting for an incredible NimbleFingers event in 2025."

Photo: Nimble Fingers.



Action Planning

Preparation

Organisers have emergency procedures that enabled them to respond to weather incidents. A few felt responses could be improved and were working to develop protocols. Procedures developed in response to COVID-19 were transferable to weather incidents.

While three event organisers who were interviewed were experiencing their first event disruption due to extreme weather, others had encountered risks before and felt more prepared.

An organiser of an outdoor sporting event could recall being impacted as far back as 2003. “Our event was affected by wildfire and the incident resulted in last minute changes at that time. Since then, extreme weather has always been on our radar for all of our events. We operate under the understanding this could happen at any time.”

All organisers who were interviewed had emergency response procedures they were prepared to activate, even if teams had not actively planned for the exact weather scenario experienced.

- “We were actively hosting risk management meetings and planning for contingencies right up until the decision to cancel.”
- “We have established an air quality policy, making hourly decisions throughout the event based upon the public health air quality measurement. We also had an evacuation plan.”
- “We have a robust emergency plan that was activated. Wind and lightning are common.”



Groupe Copely World Triathlon Montreal

When smoke from wildfires in Quebec settled in on the final day of the Groupe Copely World Triathlon Montreal in June 2023, the race team were able to establish a crisis command centre, open their contingency plan and turn to the section on air quality to inform a response.

“We were able to quickly set up a crisis room,” indicated Directeur de course Jean Piolé. “The World Triathlon operations manager and the medical delegate assigned by the international federation were in communication with their medical committee for the event. Our medical provider was in touch with Sante Canada. We attempted to start earlier the races, before the pollution peak, but based on their guidance we cancelled the last day of the event.”

The event has a procedure to review and assess risk for any adverse weather seven days prior, and plan accordingly. The plan prompts organisers to consider issues such as hot to cold weather using a Wet Bulb Globe Thermometer Heat Index, high and low water temperature, high winds, heavy rain, thunder storm, hurricane, tornado and air quality. Air quality procedures provide links to local monitoring stations and assigns responsibility for decision-making to specific members of the event team.

Piolé’s team has brought forward lessons learned from their experience in Montreal to local event committees for other World Triathlon Series competitions globally, including guidance on how air quality is being managed for triathlon events for the Paris 2024 Olympic Games.

Photo: Ryunosuke Kikuno, Unsplash

Some organisers with procedures did feel the need to improve and be more prepared in future.

- “We had safety and risk management protocols related to heat. Wildfire was not actively considered beyond basic emergency planning.”
- “There is a procedure for health and safety. There was not a specific ‘wildfire smoke’ procedure.”
- “We have plans for wind, rain, terrorism and other things. We are very prepared for heat and humidity. We use equipment to monitor it and have policies about what to do across the temperature scale. We did not have a plan for smoke.”
- “We were fully prepared with emergency plans but they were not clear enough. Some policies may not be easy to follow. Even though you have an incident command, how people act is very different. Each stage is different. Splitting the hierarchy was a problem, so we will ensure we’re going ahead in an adequate and prescribed way.”
- “We were able to announce the situation to everyone in a calm and orderly fashion on time and get everyone out safely. We will be more prepared and now we are way more experienced for such a thing to handle an emergency.”

Several organisers who were interviewed indicated the COVID-19 pandemic had helped them to better prepare to deal with weather risks. A major sporting event impacted by event cancellations in Quebec and BC stated “... as an organisation we are more versed in how to manage through these weather situations than we have in the past. This learning has helped us to be more educated on the types of information we need in order to make appropriate decisions...With this, our communication with participants has increased substantially as we seek to be as transparent as possible in our decision-making process. This is one key learning that came out of the pandemic.”



Slow Food Cycle Sunday

Slow Food Cycle Sunday is described as a “A Celebration of Food, Farmers, and the Joys of Biking”. But on the afternoon of Friday, August 18, 2023 there was little joy for organisers. Less than 48 hours before the event was to begin, a wildfire evacuation order was expanded to include areas adjacent to Pemberton, British Columbia, the host community for the event.

While the 40 kilometre stretch of Pemberton Meadows Road that is the route for the event was not subject to the evacuation order, there was concern a planned road closure to ensure the safety of the 3,500 cyclists participating in the event may complicate access for evacuees.

Christine Raymond, Executive Director of Tourism Pemberton, describes the difficult position organisers were in. “The event was permitted to proceed and there was concern for businesses and farms that would face losses from a cancellation if halting the event wasn’t warranted. There was a plan in place to escort any evacuees or emergency services on the road if necessary to ensure safety. But we were also highly concerned for our neighbours directly affected by the fires. We contemplated postponing the event, but we were unsure if the situation would improve. And it could get worse. Ultimately, we prioritised safety for all and decided to cancel.”

If there is a positive story from Slow Food Cycle Sunday 2023, it is that residents were kept safe, and community members came together to help businesses and farms impacted by the loss of the event.

The day following the cancellation decision, Tourism Pemberton was approached by community members keen to create alternative ways to support local farmers. Cold Creek Farms became a venue for a spontaneous market event and the nearby community of Whistler provided overflow vendor space at their market. “The community effort was critical. It supported farmers and chefs to sell products that would have gone to waste, helping them recover costs.”

Photo: Province of British Columbia.

Decision-making

- Organisers can struggle to make high-stakes cancellation decisions in situations where they are in proximity to but not directly subject to a mandatory weather order or travel ban.
 - Organisers diverge in their decisions to reschedule or relocate their events on a permanent basis. Some are not able to reschedule or relocate due to attendee considerations and the place-based nature of their event. Some who are able to shift are adopting a 'wait and see' approach to 2024. Others are changing destination selection procedures and policies to consider the impact of climate change. Three have decided to shift the timing of their events to avoid weather risks.
-

Organisers who were interviewed fell into two clusters when it came to decision-making about extreme weather: Those for whom the decision to cancel was made due to some type of emergency order and those who had to make the decision themselves in the context of a cautionary alert.

Those organisers subject to orders expressed less anxiety about their decision. One among this group stated: "The decision not to proceed was relatively easy, as a state of emergency was in effect and we simply could not put a large gathering of people in a small place when emergency services needed to be able to access the infrastructure of the city to fight the fire."

For events experiencing warnings and alerts, where a closure or ban is not in effect, the choice can be more stressful and complicated. Following are comments from different organisers:

- "Decisions are left to the organiser and the situation is highly changeable. It's 'best guess' planning. And a lot is riding on the decision to cancel given the financial stakes."
- "It's hard to know what to do in a given situation. Planners are put in a position to make a call with little knowledge."
- "I won't make the same decision next time. We didn't have enough information and monitoring systems don't necessarily reflect the situation at the event site. We had access to meteorologists but they couldn't give accurate readings. What they thought would happen didn't happen."

One event faced a dilemma when a large group of participants was required to leave because air quality readings had passed the threshold of what their employer considered safe. At the same time, onsite medical professionals were saying the event was okay to proceed.

"Decisions are left to the organiser and the situation is highly changeable. It's 'best guess' planning. And a lot is riding on the decision to cancel given the financial stakes."

Relocation

Some events were able to avoid cancellation and minimise losses by finding alternative locations. The Music on The Mountain festival in Fort St. James, BC did this in 2023.

However, relocation can defeat the purpose of some events, making it an ineffective strategy on either a temporary or permanent basis. For example, special events that drive traffic to business districts would find little or no benefit in moving to other neighbourhoods, even if those locations were out of harm's way.

Two sport tournament hosts indicate weather has become a permanent factor in destination selection at the outset of planning: One indicated: "If an event is held in the forest fire season, then we avoid areas that are susceptible to forest fires. We will also choose a date that will not be affected by extreme weather such as snowstorms, etc."

Another commented that destination selection will permanently consider the ability to access indoor venues or alternative outdoor facilities in other cities nearby. In addition, host cities will be required to have an emergency response plan in place no later than 90 days prior to the event, including procedures for extreme weather.

One arts festival organiser working in BC noted that even if an event could shift location, it is increasingly difficult to find affordable venues that have available dates. If venues can be found they may be ill suited or poorly maintained, increasing lift and cost for organisers and participants.

Rescheduling

A few events were able to be postponed on a temporary basis, helping to minimise losses. One organiser commented on a successful effort to reschedule: "Shifting was hard. There were more communications expenses. We had to change some vendors. While it was difficult, I consider it a success story. We will go ahead with the event at the same time of year next time knowing that it can be shifted if we need to. And we may consider a permanent shift after that."

An organiser of a large public event describes how they were able to postpone a large community celebration: "You have a plan E, F, and G. There are many backup contingencies and as a free event with supportive sponsors we were able to pivot. But they all have costs and adaptation is not easy."

Three interviewees whose events were subject to a wildfire evacuation order in August confirmed their events will be happening earlier in the summer in 2024 in an attempt to minimise risk. Media coverage has pointed to other outdoor events in British Columbia shifting their timing from August to June and July²¹.

Another questioned that a permanent scheduling shift would help address the overall uncertainty given longer wildfire seasons. "What if everyone pulls out of August and September and shifts to July and June? Those months could just as easily be impacted next year."

Other organisers commented that participant considerations limit available options to reschedule. This applies to certain winter sports and special events where the presence of snow or ice is necessary. However, sports in other seasons may experience similar limitations. For example, one tournament organiser indicated they have a narrow one-month window in the summer when athletes are available to compete, limiting options to reschedule.

"You have a plan E, F, and G. There are many backup contingencies and as a free event with supportive sponsors we were able to pivot. But they all have costs and adaptation is not easy."



Fintry Highland Fair

Place-based community festivals may have little option to move or reschedule. The Fintry Highland Fair is tied to the use of the Fintry Estate, located in a provincial park on the west shores of Okanagan Lake, halfway between Kelowna and Vernon. In 2023 the site was subject to a wildfire evacuation order. Friends of Fintry Provincial Park President Kathy Drew comments on the impact cancelling one of the society's three annual fundraising events has had: "Losing one of our Fairs was devastating as we use the money generated by these events to keep the Manor House going during our short season which only runs from May to October." The organisation is planning to shift their event from August to July to reduce the risk it may be evacuated again.

Photos: Sue Cseh, Friends of Fintry.



Communication

- ‡ Organisers seek clearer guidance in decision making and contingency planning for air quality-related disruptions.
 - ‡ Organisers see advantages to working with other event planners to create shared guidance and strategies for responding to weather events. This could assist with crisis communications.
 - ‡ Organisers cite good communication and strong relationships with suppliers and sponsors as keys to recovery.
 - ‡ Participant communication strategies must be proactively considered and robust, with careful attention to the purpose of messaging at each stage of planning.
-

Emergency Services

Two communication themes emerged from the interviews regarding emergency services.

Most organisers indicated they were able to access information from emergency services, health officials, meteorologists or other agencies responsible for updating conditions related to weather. While more frequent updates would be appreciated, organisers also accept that emergency services are doing the best they can under difficult circumstances.

- “We rely on and have experienced good communication with the BC Wildfire Service. Information is accessible. It can be hard to get concrete answers but the Service is available and helpful in talking through contingencies. People are helpful in working with the community, keeping people informed, and discussing plans.”
- “Information is released on a 12-hour rotation with good reason. But it’s not up-to-the-moment and isn’t ideal for event management. You have to do your own research. We rely heavily on the local fire department and work directly with the city and RCMP.”
- “Our medical team was in direct communication with Health Canada about the local air quality situation. Direct communication with them about how to respond to the alert was decisive for our crisis management team.”
- “I think all the info was on time and as great as it could have been, all emergency crews were great.”

One organiser was in a position to monitor air quality using equipment provided by their venue. Another who was already using equipment to monitor heat and humidity indicated they would be using Tomorrow.io to reduce weather risks going forward. Tomorrow.io is a weather forecasting technology that projects how weather may impact business.

While most felt information was accessible, organisers impacted by smoke did express uncertainty about how to make decisions based on the health messages associated with air quality ratings. Comments by four interviewees indicated they found guidance vague. Three found terms like “consider reducing” and “strenuous” difficult to operationalise when participants may have different ideas about what these terms mean. There was also concern about liabilities related to “At Risk” populations that may not follow guidance. One person commented that the Moderate to High Risk part of the Index appeared too open to interpretation, with some event stakeholders curtailing activity at AQHI 4, while others would pause and consider curtailing activity at 7.

Sport event organisers did appear uniquely motivated to clarify air quality messaging into more specific procedures. This is understandable given physically strenuous activities increase respiratory risk. One organiser commented: “The incident in June has caused increased attention to air quality in the event contingency and risk plan. The medical board has now discussed and is setting some levels that will inform all air quality decisions. A policy is being created. Monitoring with Health Canada will continue and is advised for other competitions.”

Table 8: Summary of air quality messaging²²

Health Risk	Air Quality Health Index	Health Messages	
		At Risk Population*	General Population
Low Risk	1-3	Enjoy your usual outdoor activities.	Ideal air quality for outdoor activities.
Moderate Risk	4-6	Consider reducing or rescheduling strenuous activities outdoors if you are experiencing symptoms.	No need to modify your usual outdoor activities unless you experience symptoms such as coughing and throat irritation.
High Risk	7-10	Reduce or reschedule strenuous activities outdoors. Children and the elderly should also take it easy.	Consider reducing or rescheduling strenuous activities outdoors if you experience symptoms such as coughing and throat irritation.
Very High Risk	Above 10	Avoid strenuous activities outdoors. Children and the elderly should also avoid outdoor physical exertion.	Reduce or reschedule strenuous activities outdoors, especially if you experience symptoms such as coughing and throat irritation.

Other Organisers

Two themes emerged when it came to communication between organisers.

Three respondents hoped for more coordination among organisers to establish shared policies, procedures and messages for smoke incidents. One suggested this could be achieved by working through an organiser association or network of like events.

One organiser of a sports event added: “We are a member of a network of local host committees that shares information to improve the series. Since the incident we’ve shared information with others about air quality issues and responses. This has happened in the past related to heat as well, and water quality. It helps everyone to have best practices, and prepare.”

Another elaborated that this may make crisis communications easier as an organiser network using a shared guideline could enable supportive decision-making about disruptions. This should not suggest the same decision would necessarily be made by all organisers. Rather, it could provide more specific guidelines to communicate why organisers may make similar or different decisions, so that this can be transparently explained to stakeholder groups.

Interviews also revealed a potential ‘influencer’ phenomenon in operation among organisers when it came to smoke events. As an example of this, multiple organisers referred to the cancellation decision by the IRONMAN 70.3 Race in Mont Tremblant Quebec as being consequential to their own decision to cancel. This suggests there may be a leader-follower dynamic in play.

“We are a member of a network of local host committees that shares information to improve the series. Since the incident we’ve shared information with others about air quality issues and responses. This has happened in the past related to heat as well, and water quality. It helps everyone to have best practices, and prepare.”

Internal Stakeholders

Several organisers commented that their communication with internal stakeholders such as staff, suppliers, sponsors and vendors were handled well, and has been instrumental in recovery.

An organiser of multiple events that were impacted describes the importance of ongoing communication with internal stakeholders that was common among interviewees: “As an event you go until you can’t. If you’re not being ordered to stop, you have conversations with suppliers, sponsors, performers and staff. You gauge their concern and assess the situation together, then decide.”

This approach implies a negotiation of outcomes, including payment considerations, on a case-by-case basis based on best available information. It is uncertain at what point relationships may become strained as compounding disruptions occur, but organisers are conscious there is a breaking point. “If our event becomes too risky a prospect, why would anyone continue to invest?” asks one interviewee.

One organiser commented that open communication channels with vendors revealed that 30% of the staff had reported they would not be able to work the event due to poor air quality. This information proved critical in the decision to postpone.

Open internal communication channels should not imply that vendors were always happy about cancellations. Two organisers indicated there was significant push back from concession providers about the decision to cancel. It remains to be seen how this will impact their participation in the event in future.

Artist contracts were discussed by three interviewees. One had terms and conditions that provided for the weather situation, two did not. One of these was able to renegotiate to stage the event on a different day using the same venue and suppliers. The other hosted the event at a different location over reduced dates.

Organisers who had experienced wildfire issues previously described the importance of communicating air quality health risks to staff. “We communicate with workers about air quality risks and advised them to take precautions, including staying home,” indicated one organiser. Another stated: “We get in touch with students who work our event to inform them of the risks and implications so they can decide to stay home if needed. If they decide to work, we advise them to use respirators.”

A few acknowledged the need to expand training for staff to ensure that new weather-related policies are understood and team members feel prepared to act. For example, one organisation indicated they were planning to purchase air quality monitoring equipment and would need to educate staff on when and how to use it. Another indicated the need to improve training in emergency incident response.

“As an event you go until you can’t. If you’re not being ordered to stop, you have conversations with suppliers, sponsors, performers and staff. You gauge their concern and assess the situation together, then decide.”



Festivals Kelowna

Renata Mills, Executive Director of Festivals Kelowna, has become all too familiar with managing weather at her events, where heat, fire, smoke and flooding have been issues. In 2023, Parks Alive!, a summer concert series, saw ten performances cancelled due to extreme temperatures, followed by smoke and finally, a government-imposed emergency travel ban.

Celebrate Canada Day Kelowna's fireworks were also cancelled when the fireworks permit for the event was rescinded due to a nearby wildfire. Emergency services were concerned about having resources to manage both the wildfire and an issue that could arise at the event. The celebration attracts more than 55,000 people over the course of the 12-hour event, and the fireworks alone attract more than 30,000 people downtown in the evening.

The Canada Day event was previously cancelled in 2017 due to flooding on Lake Okanagan, creating unsafe conditions for spectators. "We postponed the event until later in the summer and were disrupted again due to wildfire. The fireworks display eventually occurred on New Year's Eve."

Production agencies supporting Festivals Kelowna's events have long had safety guidelines for weather. And the organisation is evolving operational procedures for weather cancellations. "Five years ago it was a question of 'is it raining or not'? That's no longer sufficient. We are now broadening our terms and conditions for artists to not just mention rain or lightning, but temperature and smoke," says Mills.

Mills describes how communication is critical to weather crisis decision-making: "We rely on strong, long-standing relationships with suppliers, sponsors and the City of Kelowna. By working to maintain relationships we've been able to pivot and adapt."

Photos: Festivals Kelowna.



Participants

Almost all organisers interviewed touched on the topic of participant communication.

Considerations and methods were different for paid versus free public events. For example, events with ticketing or some type of RSVP process were able to directly communicate with participants in most cases. Events without customer databases relied on social and traditional media or general contact lists, if available.

Control of customer contact databases was a consideration for hosted and sponsored events. For example, national and international sports associations have an obligation to perform crisis communication. However, these associations may not have access to ticketing databases that are administered by local hosts, agencies or third parties. Similarly, title sponsors may not have access to participant contact information, but may have a perceived responsibility to communicate. This highlights the need for responsible parties to establish clear crisis communication roles and processes in advance.

It is possible to cluster some participant communication themes based on the purpose of communication. Responses from interviews are grouped by their position in the planning timeline in Table 9.

Table 9: Participant communication themes

Pre-event	During event	Post-event
<ul style="list-style-type: none"> • Policies: Cancellation, refunds, rollover registration options • Onsite safety: Provisions for cooling locations, onsite hydration stations, masking • Access: Parking and road access, including alternate routes • Monitoring: Links to public health, emergency services • Contingencies: Decision making timelines, alternate locations, postponement options • Methods: Website, ticketing or registration terms and conditions, social media, email/customer databases 	<ul style="list-style-type: none"> • Onsite procedures: Safety and evacuation protocols, first aid and medical response, crisis command protocols • Monitoring: Onsite equipment, links to public health, emergency services • Methods: Signage, announcements, info desks, onsite staff, social media, mobile event apps, email/customer databases. 	<ul style="list-style-type: none"> • Refunds: Timelines, options to rollover or donate • Rescheduling: Dates, location • Confidence: Future plans, complaints management, customer service • Methods: Ticketing or registration databases, website, social media, email/customer databases

“It was a very difficult decision and we want to be very transparent about how and why it was made.”

One organiser elaborates on the need to improve crisis communication: “We had access to information and the ability to get it out. We felt internal communication was good. It was external communication that was challenging. Our crisis communication plan will improve. Key will be providing adequate and understandable information to stakeholders. When it comes to ‘How do we communicate this to people?’ we could do better and more.”

A few interviewees expressed challenges related to mixed messaging. One organiser impacted by smoke stated: “The fact that events were making different decisions didn’t help reduce the complaints we received. We took a hit to our brand.”

Another indicated that “it was difficult to explain why we were cancelling when no one else was. There was a lot of inconsistent messaging.”

A third commented on the importance of explaining their choice to cancel to their stakeholders. “It was a very difficult decision and we want to be very transparent about how and why it was made.”



Great Outdoors Comedy Festival

The Great Outdoors Comedy Festival has showcased some of the biggest names in comedy in cities across North America. But it was no laughing matter when opening night of the cabaret style outdoor comedy show in Edmonton was cancelled one hour prior to kick-off due to poor air quality caused by wildfire smoke on July 14.

“We’ve experienced weather issues, but in 25-plus years this was unprecedented,” states Mike Anderson, President of Trixstar Entertainment. “Air quality readings were poor but there was no stay-at-home order. The decision is put on the organisers and there’s uncertainty about what to do. It felt like we didn’t have enough information.”

Fortunately, the event was able to quickly and successfully pivot, adjusting performances to the following day when air quality had improved. “Your top priority is to take care of people. Performers were flexible and we rolled over tickets and offered refunds. And we were able to source N95 masks to provide onsite. Suppliers, sponsors and the entire event team all pitched in to make it happen. They pulled together and got it done,” states Anderson.

The Great Outdoors Comedy Festival. Photos: Sydney Butters Photography.



Financial Aspects

- ⌋ Weather events are causing significant financial strain on event budgets.
 - ⌋ Cancellation insurance is not typically optioned due to high premiums or lack of eligibility.
 - ⌋ Cancellation policies that rollover registrations create liabilities and reduce future revenue potential.
 - ⌋ Organisers are concerned consumer confidence in events is being affected by weather-related cancellations and will lead to more last-minute decisions to attend. This presents cash flow issues for organisers who rely on presales.
 - ⌋ Organisers are leaning on sponsors, grants and loyal participants who are willing to donate refunds to remain financially viable in the face of multiple disruptions.
-

All event organisers faced losses. While not everyone provided detailed information, four estimated that 10-50% of their budget was lost. This was six-figures or more in at least three cases.

A few organisers were able to rollover supplier deposits and keep materials for future events. However, several faced significant cancellation penalties, food losses and wasted event supplies that could not be repurposed.

While all organisers experienced financial strain, four indicated they were in a position to absorb staff overhead given other events that they produced were successfully executed. That said, two organisers who had experienced consecutive cancellations expressed concern they could bear another disruption, and would likely need to reduce staffing or permanently cancel.

Insurance

Only one organiser who was interviewed had cancellation insurance in place at the time of their event. In discussing their claim, they indicated that deductibles were very high and that proving efforts to salvage their event were critical in processing a claim.

Another organiser commented that they had purchased insurance, but the policy was cancelled by the insurer within two months of their event. This prevented a claim when their event was ultimately cancelled.

Most organisers cited lack of eligibility, high policy cost or steep deductibles as reasons for not optioning cancellation insurance.

Four organisers indicated an intention to purchase cancellation insurance in 2024 and had attended educational sessions on the topic and/or were in discussions with their broker. One expressed frustration at not being unable to access coverage options due to the location and timing of their event: "It's a new area. No one is taking the lead on it. Insurers need to step up and make coverage available and clear," they stated.

"People are less likely to plan and register in advance. There is a more wait-and-see approach. Without support from consumers, or funding from other sources it's tough to justify the risk."

Cancellation Policies and Refunds

Most organisers of paid events offered refunds on a full or limited basis, including one event that had a standing no refunds policy. Most adopted and communicated a deadline for processing of refunds, and some did limit eligibility.

A few not-for-profit events provided an option to donate their ticket fee to cover losses. While these were gratefully received, some organisers faced challenges in manually processing refunds and donations through their ticketing platform, which added to staff overhead. A key learning for one organisation was ensuring this process could be automated in future.

Other organisers faced more complicated refund structures where attendees purchased ticket packages for full events and events were partially cancelled.

Tickets for cancelled events were honoured if the event was able to be postponed or registrations could be rolled over to a future event. These rollovers have become a liability for these events and mean less revenue is able to be earned in future years. One sports event summed up their situation by saying: "We still gave athletes the opportunity to complete another race, either later in 2023 or 2024. So, for each athlete we are essentially paying for two events worth of expenses with each registration fee. This is a major financial burden, but one we are willing to take on in order to keep a loyal customer base."

Pre-sales

Organisers reliant on pre-sales expressed trepidation that extreme weather concern may cause event participants to delay ticket purchases in future. Or perhaps wait to purchase them onsite. This trend could complicate planning and lead to cash flow issues for organisers.

Five organisers expressed concern about cost to consumers, and consumer confidence:

- "Consumer confidence is a big concern. It's unclear if people may stay away long term due to risks. At present most appear to be willing to return for future races."
- "It's hard to know if people will be more cautious about coming."
- "People are less likely to plan and register in advance. There is a more wait-and-see approach. Without support from consumers, or funding from other sources it's tough to justify the risk."
- "A cancelled match presents a significant cost to families in terms of travel and hotels. It's a lot to ask of them."
- "People may come less, or at different times. They might be more selective in what they do."
- "We need to reassure patrons. Asking people to purchase tickets in advance requires a response."

Sponsors

Several organisers commented that sponsors remain supportive, and have been willing to rollover support for prize money and non-consumable in-kind items. Three organisers commented that efforts to reschedule or shift sponsorship recognition to other events were helpful in maintaining good sponsor relationships.

This was not the case for all events, however, with some losing sponsors. "Sponsorship is generally harder to come by as businesses shift their funding priorities and feel economic pressure," commented one organiser. "Big players have gotten out of funding live music."

One commented on the difficulty of asking sponsors to rollover support given they were small, local businesses. "It's not like a big corporate sponsorship situation, where a business can just write off a bad year and continue their financial support next time."

Another empathised with business supporters of their event: "Businesses invest money to prepare and participate at a time when the economy is in the toilet. You can't fault them for asking: 'is it worth it?'"

Salmon Arm ROOTSandBLUES Festival

What do world-class music, awe-inspiring landscapes, and a relaxed, welcoming experience have in common? They're all integral parts of the Salmon Arm ROOTSandBLUES Festival. For more than 30 years, the Salmon Arm Folk Music Society has brought generations of music lovers together against a backdrop of forest-clad mountains and the pristine waters of the Shuswap.

However, in 2023, a rapidly approaching wildfire cut the festival short, forcing it to cancel after opening night for the first time in its history.

In spite of an estimated \$1.3 million in losses, organisers made full or partial refunds available. In addition, all tickets eligible for refunds could be donated to the Festival in return for a tax receipt.

"We needed to be flexible about our no refunds policy in 2023," states David Gonella, Executive Director, Salmon Arm Folk Music Society. "At the same time, we're facing major reductions in grant funding. Sponsors are changing their funding priorities and cutting back support due to the prevailing economic situation. And cancellation insurance is not an option in our situation."

The Festival has adjusted dates to occur one month earlier in 2024, moving to July, and is being very clear about its no refunds policy. "Asking people to purchase tickets in advance requires a response and moving the date is part of that," explains Gonella.

Beyond this Festival, which hosts approximately 30,000, the Salmon Arm Folk Music Society also stages events throughout the year, including a newly launched Digital Currents series. This recorded and live music showcase, supported by the BC Arts Council and the Province of British Columbia, provides opportunities for emerging and independent musicians and bands from across BC. SAFMS also hosts the Pellsqpts Spring Winds Festival, a musical celebration of Indigenous culture. The annual festival features many musicians, dancers and artisans from the local Secwépemc and Syilx nations.

Photos: Dave Eagles, Flickr



Grants

By cross-referencing the media monitoring database with the British Columbia Fairs, Festivals and Events Fund²³, it was learned that ten events impacted by weather in 2023 received grants through this fund. Grants ranged from \$5,000 to \$250,000. Continued availability of this grant for the 2024 summer season was announced during the interview process. Many organisers in BC were intending to apply again, if they were eligible for funding.

Experience Ontario was noted as another source of funding and did provide support to at least three events impacted by weather, even if the purpose of the grant received may not be for weather adaptation or resilience.

Several interviewees whose events had received funding commented about the impact of grants:

- "Two BCFEE grants were received and both were critical".
- "The grant was critical in dealing with cancellations for COVID and weather."
- "Grant money has been critical. It would help immensely if there was grant security for those impacted. And if the timing of the grants enabled more certainty for planning."

Underlining the last comment, two organisers expressed appreciation for grant funding, but concern that late application deadlines and decision-making can result in organisers bearing more risk. This makes it difficult to plan, and can be costly if grants are not awarded, or awarded at reduced levels.

Canadian Table Tennis Championships

National level sporting competitions are rarely hosted in Canada's North. So, Table Tennis Canada's decision to bring the 2023 national championships to Hay River, NWT—a small town of 3,800 residents—was met with much excitement and anticipation.

"This event is not just about hosting a series of table tennis matches, but also about fostering unity, promoting sportsmanship, and providing a platform for young people to showcase their skills on and off the table," Table Tennis North stated in a press release prior to the event. "The festival will feature a variety of sports, including northern and Dene games, offering a unique blend of modern and Indigenous culture."

Sadly, excitement changed to disappointment when wildfires forced a month-long evacuation of Hay River, forcing the cancellation of the event. Financial losses were incurred by both the national sports association and provincial host, which is now operating at a deficit.

However, the lost opportunity for the local community is possibly more acutely felt than the economic cost. Thorsten Gohl, Executive Director of Table Tennis North, comments "This was the chance for the North to host the Canadian Championships for the first, and most likely the last time. The financial deficit is not as big as the loss of community growth and eagerness in hosting such a big event. The legacies left behind and so much more."

Playing table tennis on the Arctic Ocean in Tuktoyaktuk, NT. Photo: Thorsten Gohl / Table Tennis North.



Limitations

There are several limitations to this research project.

Firstly, events that were not reported in the media are not included in the sample, unless they were referred directly. The results are therefore expected to under-represent the total number of events impacted and may skew toward larger or high-profile events that are more likely to be reported.

Also, as discussed earlier, the research is unable to account for some events that had to prepare for disruption that were not ultimately postponed or cancelled. Live monitoring of communities during weather events did help improve tracking, but this was not possible for the period before May 2023.

While interviews provided perspectives from different provinces, event types and size, most focused on encounters with wildfire and smoke and to a lesser degree, heat. This means that perspectives on storms and cold were largely absent. As were insights from business event organisers.

It is also important to note that those events that were permanently cancelled or in the off-season were unable to be contacted, limiting opportunities to learn from their experience.

As mentioned earlier, although data from prior to 2022 has been mentioned, caution should be used in drawing conclusions about impact over time as it is possible that event disruptions may have been under-reported by the media in the past due to less concern about the implications of climate change and its connection to extreme weather events.

Further Research

As an initial exploration of how weather is impacting events in Canada, the research reveals more questions than answers. The following questions may merit further research:

- What is the financial impact of event losses due to weather in Canada? And how is this changing? Explorations could consider impact on event organiser budgets, loss of economic benefit to host communities, and/or effects on charitable events.
- What preparatory strategies improve event resilience to weather risks? Explorations could consider similarities and differences across event types along with planner and supplier perspectives. The role of insurance could be explored, as could decisions to permanently relocate or reschedule.
- Is there value in and is it possible to create a risk atlas for events that factors in weather-related issues? This may be useful for planning and insurance purposes.
- What crisis communication methods are most effective for events to deploy when responding to weather events? A framework for integrating communications into the event planning critical path could be presented, along with opportunities for organiser collaboration.
- How can destination marketing organisations or local host communities help event organisers prepare for weather risks? The role of DMOs in understanding their local risk landscape, enabling monitoring and adaptation could be explored.
- What impact do cancelled or otherwise disrupted events have on Canadian society in a broader sense? For example, what does the loss of winter festivals and ice sport mean to Canada's cultural identity? How are Indigenous and smaller communities affected when opportunities to gather are curtailed, or change? What are the impacts on tourism and visitation?
- What role can technology play in helping events to adapt? For example, how might online activities help to sustain communities that have traditionally relied on in-person formats for events?

Conclusion

While singular and benign weather events are a common occurrence that event organisers are used to managing, this research reveals that events in Canada have been subject to prolonged and increasing stressors, including pandemic closures, weather disruption and rising costs. This is placing strain on organisers, financially and emotionally. While cancellation insurance, emergency preparedness, crisis communication plans and grants can blunt losses, there are serious questions about the ability of event organisers to continue to bear the brunt of recurring disruptions caused by compounding risks. Canadians who value the social and economic outcomes events deliver may need to step up their sponsorship and support of the events they cherish in order to ensure they will be able to withstand weather risks into the future.

Appendix 1: Events Disrupted by Weather in Canada, 2023

DATE	EVENT NAME	STATUS	TYPE	LOCATION	PROV	DISRUPTION
Aug. 15-16	2900 Plaza Community events	Cancelled	Special Event	Vernon	BC	Heat/Wildfire
Aug. 18-20	AA Western Canadian Baseball Championships	Partial Cancellation	Sport Event	Kelowna	BC	Wildfire
Sept. 15	Atlantic Sires Stakes	Cancelled	Sport Event	North Sydney	NS	Storm (Post-Tropical Storm Lee)
Aug. 23	Axe the Tax Rally Tour	Cancelled	Political	Various	BC, YT	Wildfire
Aug. 18	BC Football Conference Game - Okanagan Sun and Langley Rams	Postponed	Sport Event	Kelowna	BC	Wildfire
Feb. 3-4	BeaverTails Ottawa Ice Dragon Boat Festival	Cancelled	Sport Event	Ottawa	ON	Heats
Aug. 19, 26 & Sept. 2	Butchart Gardens Fireworks (3 performances)	Cancelled	Special Event	Victoria	BC	Wildfire
May 22	Calgary Stampeders FanFest	Postponed	Special Event	Calgary	AB	Wildfire
Jul. 1	Canada Day Fireworks	Cancelled	Special Event	Kelowna	BC	Wildfire
Jul. 1	Canada Day Fireworks	Cancelled	Special Event	Prince George	BC	Wildfire
Jul. 1	Canada Day Fireworks	Cancelled	Special Event	Montreal	QC	Wildfire
Feb. 18-Mar. 5	Canada Winter Games (at least 2 functions)	Postponed	Sport Event	Various	PEI	Heat
Aug. 28	Canadian Coast Guard Exercises and Community Event	Cancelled	Special Event	Iqaluit	NU	Wildfire
Sept. 22	Canadian Table Tennis Championships	Cancelled	Sport Event	Hay River	NT	Wildfire
May 22	CFL Pre-Season Game - Stampeders/Elks	Postponed	Sport Event	Calgary	AB	Wildfire
Aug. 29	Chilliwack Outdoor Movie Night	Cancelled	Special Event	Chilliwack	BC	Wildfire
Aug. 29	Connections Event - Okanagan College	Cancelled	Special Event	Kelowna	BC	Wildfire
Aug. 17-20	Dark Sky Festival	Cancelled	Special Event	Fort Smith	NT	Wildfire
Sept. 1	Deep Roots	Postponed	Arts & Culture	Kamloops	BC	Wildfire
Aug. 29-31	Dehcho Annual Assembly	Cancelled	Political	Nahanni Butte	NT	Wildfire
Sept. 1-2	Denim on the Diamond concert	Postponed	Arts & Culture	Kelowna	BC	Wildfire
May 5-7	Drayton Valley Pro Rodeo	Cancelled	Sport Event	Olds	AB	Wildfire
Jun. 24	Fête nationale festivities	Cancelled	Special Event	Pointe-Claire	QC	Wildfire
Aug. 20	Fintry Highland Fair	Cancelled	Arts & Culture	Fintry	BC	Wildfire
Jul. 1	Fireworks competition - La Ronde	Cancelled	Special Event	Montreal	QC	Wildfire
Jul. 15	Football Canada Cup (4 matches)	Cancelled	Sport Event	Edmonton	AB	Wildfire
Aug. 18	FORE! The Chamber	Cancelled	Fundraising	Yellowknife	NT	Wildfire

Sept. 17	Glace Bay Terry Fox Run	Postponed	Fundraising	Glace Bay	NS	Storm (Post-Tropical Storm Lee)
Jul. 14	Great Outdoors Comedy Festival - Kickoff Show	Partial Cancellation	Special Event	Edmonton	AB	Wildfire
Jun. 24-25	Groupe Copley World Triathlon	Partial Cancellation	Sport Event	Montreal	QC	Wildfire
Sept. 16	Halifax Wanderers match vs Atlético Ottawa	Postponed	Sport Event	Halifax	NS	Storm (Post-Tropical Storm Lee)
Sept. 15	Harvest Music Festival (3 performances)	Partial Cancellation	Arts & Culture	Fredericton	NB	Storm (Post-Tropical Storm Lee)
Aug. 25	HomeTeam: Play for Purpose Charity Game	Cancelled	Fundraising	Kelowna	BC	Wildfire
Aug. 24	Interior Savings Kamloops Moonlight Movie Night	Cancelled	Fundraising	Kamloops	BC	Wildfire
Jun. 25	IRONMAN 70.3 Race	Cancelled	Sport Event	Mont-Tremblant	QC	Wildfire
Aug. 24-28	IRONMAN Penticton	Cancelled	Sport Event	Penticton	BC	Wildfire
Aug. 23	Kal Tire Kalamalka Bowl	Cancelled	Sport Event	Vernon	BC	Wildfire
Aug. 21 & 22	Kamloops Music in the Park (2 performances)	Cancelled	Arts & Culture	Kamloops	BC	Wildfire
Sept. 15	Kathleen Lewis Memorial Golf Tournament	Postponed	Fundraising	Point Edward	NS	Storm (Post-Tropical Storm Lee)
Aug. 19	Kelowna ComiCon	Postponed	Business Event	Kelowna	BC	Wildfire
Aug. 26	Kelowna Made Festival	Cancelled	Special Event	Kelowna	BC	Wildfire
Aug. 22	Kelowna Roller Night	Cancelled	Special Event	Kelowna	BC	Wildfire
Jun. 23-24	Kimchi Festival Canada	Cancelled	Arts & Culture	Saskatoon	SK	Wildfire
Jun. 8	Live Racing - Woodbine Racetrack and Woodbine Mohawk Park	Cancelled	Sport Event	Toronto	ON	Wildfire
Sept. 17	Margaree Forks Terry Fox Run	Cancelled	Fundraising	Margaree Forks	NS	Storm (Post-Tropical Storm Lee)
Aug. 18-19	Music on the Mountain	Relocated	Arts & Culture	Fort St. James	BC	Wildfire
Aug. 18-20	Nechako Fall Fair	Partial Cancellation	Special Event	Vanderhoof	BC	Wildfire
Jun. 29 & 30	Niagara Falls fireworks (2 performances)	Cancelled	Special Event	Niagara Falls	ON	Wildfire
Aug. 20-Sep.1	Nimble Fingers	Cancelled	Arts & Culture	Sorrento	BC	Wildfire
Oct. 3	Northwest Territories Territorial Election	Postponed	Political	Various	NT	Wildfire
Sept. 15	NS Senior Baseball League	Postponed	Sport Event	Kentville	NS	Storm (Post-Tropical Storm Lee)
May 31-June 1	NWT Track and Field Championships	Cancelled	Sport Event	Hay River	NT	Wildfire
Feb. 9	Ontario Winter Games Opening Ceremony	Cancelled	Sport Event	Renfrew County	ON	Cold
Aug. 18-19	Opera Kelowna - Mainstage production (2 shows)	Cancelled	Arts & Culture	Kelowna	BC	Wildfire
Jun. 22-25	Ottawa Dragon Boat Festival	Partial Cancellation	Sport Event	Ottawa	ON	Wildfire

Aug. 22-26	Parks Alive! (10 performances)	Cancelled	Arts & Culture	Kelowna	BC	Wildfire
Jun. 25	Piknic Électronik Montreal	Postponed	Arts & Culture	Montreal	QC	Wildfire
Sept. 17	Port Hawkesbury Market	Postponed	Special Event	Port Hawkesbury	NS	Storm (Post-Tropical Storm Lee)
Sept. 15	QB Major Junior Hockey League (Cape Breton Eagles v Halifax Mooseheads)	Cancelled	Sport Event	Membertou	NS	Storm (Post-Tropical Storm Lee)
Feb. 3	Quebec Winter Carnival - Official opening functions	Postponed	Special Event	Quebec City	QC	Cold
Jul.	Rockin River	Cancelled	Arts & Culture	Merritt	BC	Flood
Aug. 17-20	Salmon Arm ROOTSandBLUES Festival	Partial Cancellation	Arts & Culture	Salmon Arm	BC	Wildfire
Aug. 21	Sarah McLachlan concert - Mission Hill	Postponed	Arts & Culture	Kelowna	BC	Wildfire
Aug. 19	Show N Shine on Bernard	Postponed	Special Event	Kelowna	BC	Wildfire
Aug. 20	Slow Food Cycle Sunday	Cancelled	Special Event	Pemberton	BC	Wildfire
Jun. 21-25	Summer Solstice Indigenous Festival	Partial Cancellation	Arts & Culture	Ottawa	ON	Wildfire
Aug. 25-28	ThumpTown X Altitude Music Festival	Postponed	Arts & Culture	Boston Bar	BC	Wildfire
Aug. 28-31	TransRockies Gravel Royale	Cancelled	Sport Event	Nipika	BC	Wildfire
Aug. 3-7	Under the Stars	Partial Cancellation	Arts & Culture	Coalmont	BC	Wildfire
Aug. 18	Vernon Winter Carnival Game Night	Postponed	Special Event	Vernon	BC	Wildfire
Feb. 3	Winterlude - All outdoor activities on this day (at least 2 functions impacted)	Cancelled	Special Event	Ottawa	ON	Cold
Feb. 4	Winterlude - Delayed start of activities on this day (at least 2 activities impacted)	Postponed	Special Event	Ottawa	ON	Cold
Feb.	Winterlude - Rideau Skateway closure	Cancelled	Sport Event	Ottawa	ON	Heat

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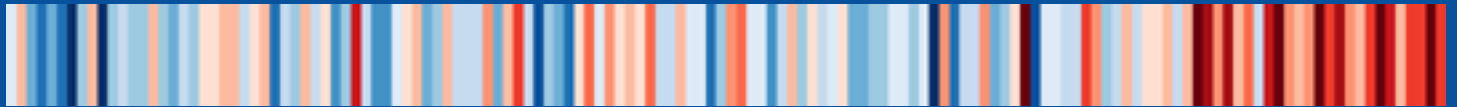
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About the Warming Stripes

The 'warming stripes' graphic was created by Professor Ed Hawkins to start conversations about our warming world and the risks of climate change.

The graphics are visual representations of the change in temperature as measured in each country, region or city over the past 100+ years. Each stripe or bar represents the temperature in that country, region or city averaged over a year.

The graphic used in this document is for all of Canada, 1881-2022 and uses data from Berkeley Earth.

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