Indigenous-led climate research station rebuilds after October wildfire

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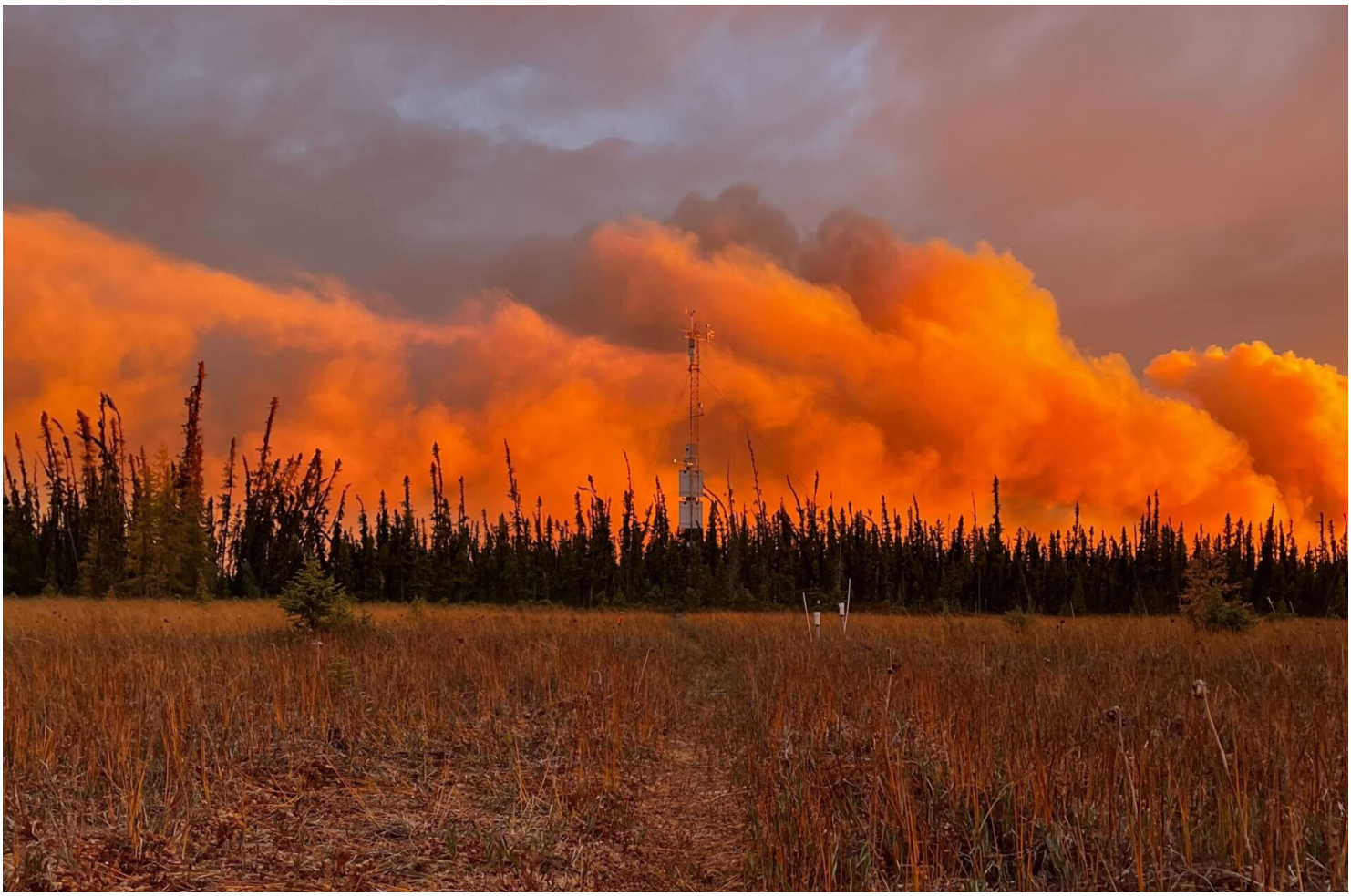
Monitoring & Modeling



Wildfire smoke looms over the Scotty Creek tower site. Photo by Joëlle Voglimacci-Stephanopoli / Université de Montréal

Contributed by

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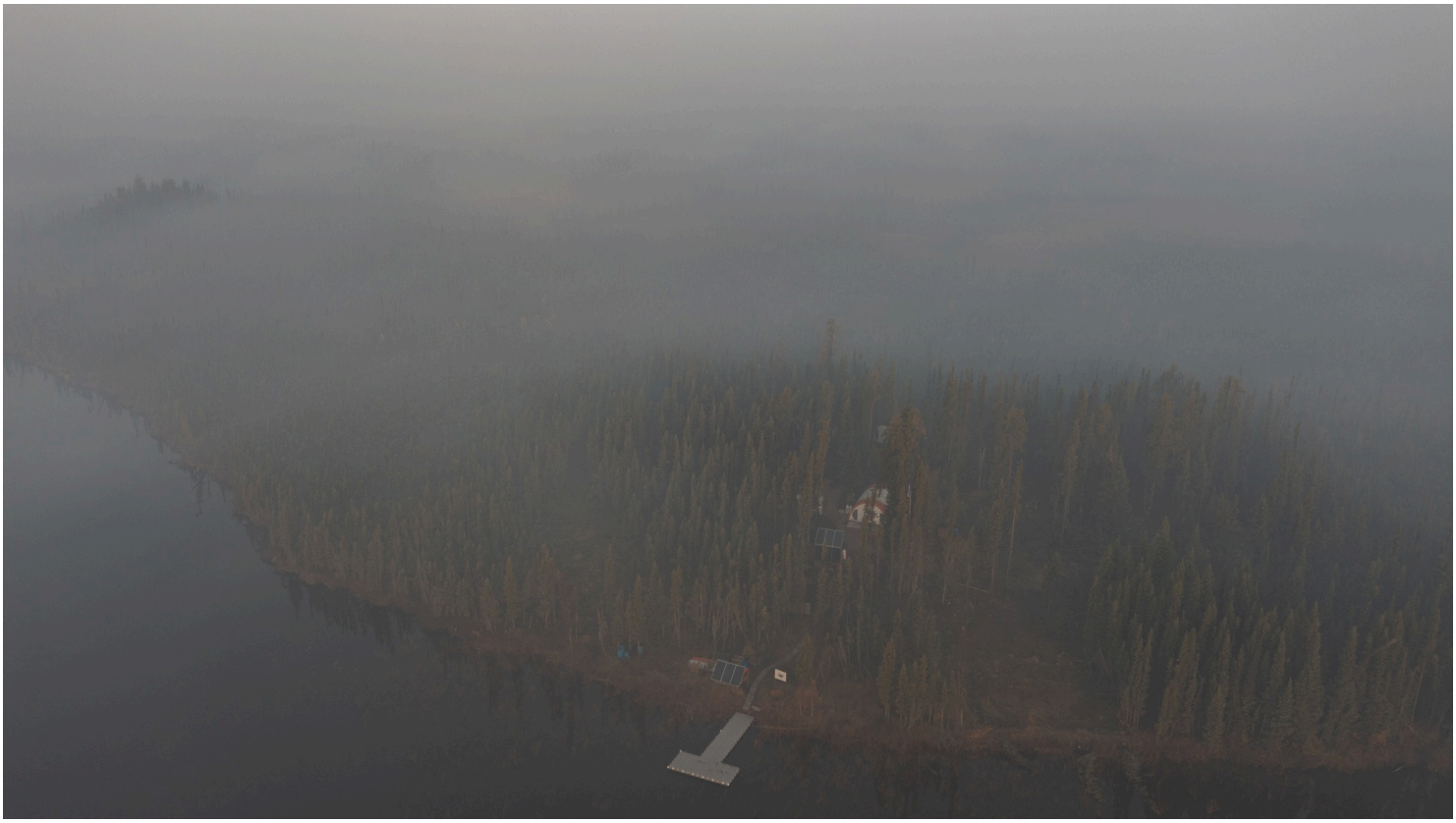
After Canada's Scotty Creek Research Station was devastated by a late-season

wildfire, Permafrost Pathways is helping to rebuild

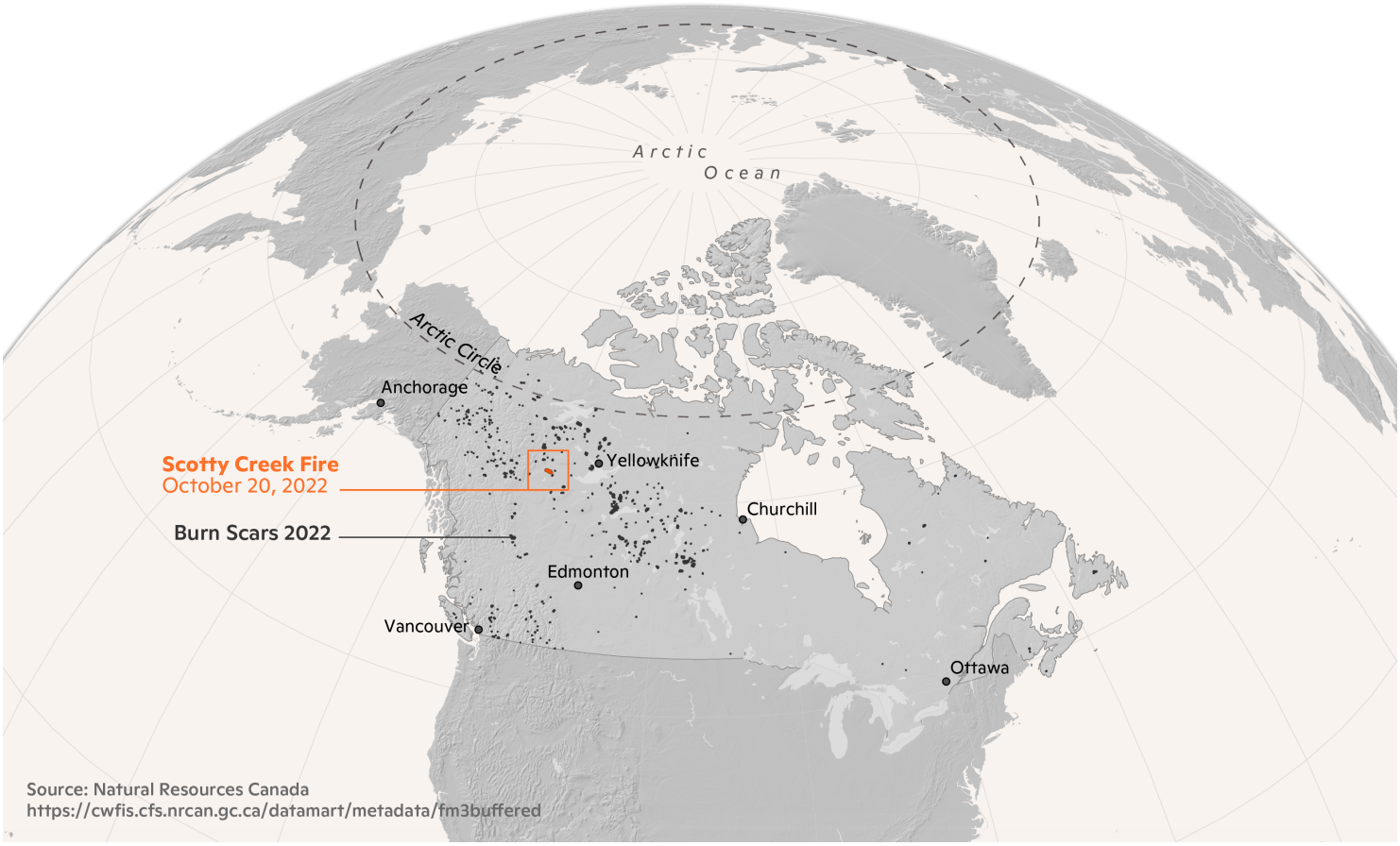
In October 2022, Scotty Creek Research Station—a prominent climate research facility in the Northwest Territories (NWT) of Canada—was almost entirely consumed by an unusually late-season wildfire. With five out of nine of the station's buildings destroyed and an estimated two million dollars of damage to onsite housing, research equipment, solar panels, and lab space, the fire was a "gut punch" to one of the only Indigenous-led climate research stations in the world. But, with support from Permafrost Pathways, the Łíídlıı Kúé First Nation (LKFN) who now lead the facility are focusing their attention on rebuilding.



A cruel irony: when the impacts of climate change thwart climate research

Above: Smoke from the nearby fire descends on Scotty Creek. Photo by Mason Dominico

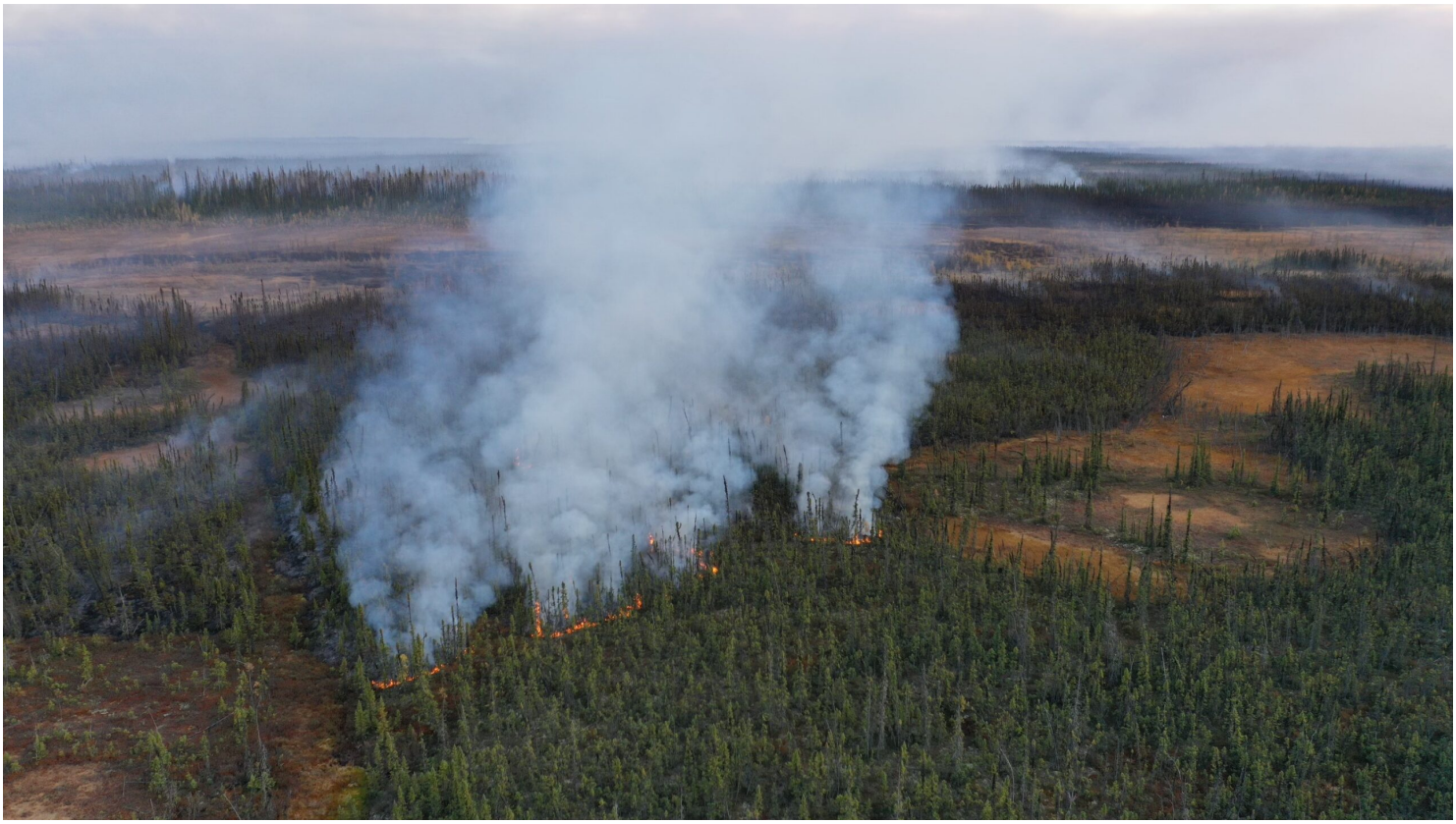
The fire that destroyed Scotty Creek Research Station had been active for almost 100 days before finally reaching the camp. Usually, the area sees rain or snow for almost half of the month in October, and historically, it has even snowed as much as 12 inches with temperatures sometimes dropping as low as negative two degrees Fahrenheit (-19 degrees Celsius). But drier conditions, abnormally warm weather, and heavy winds in late 2022 led to an extended and extraordinarily active fire season in the NWT—which exceeded its 10-year average of total fires burned, with over 1.3 million acres affected by fire.

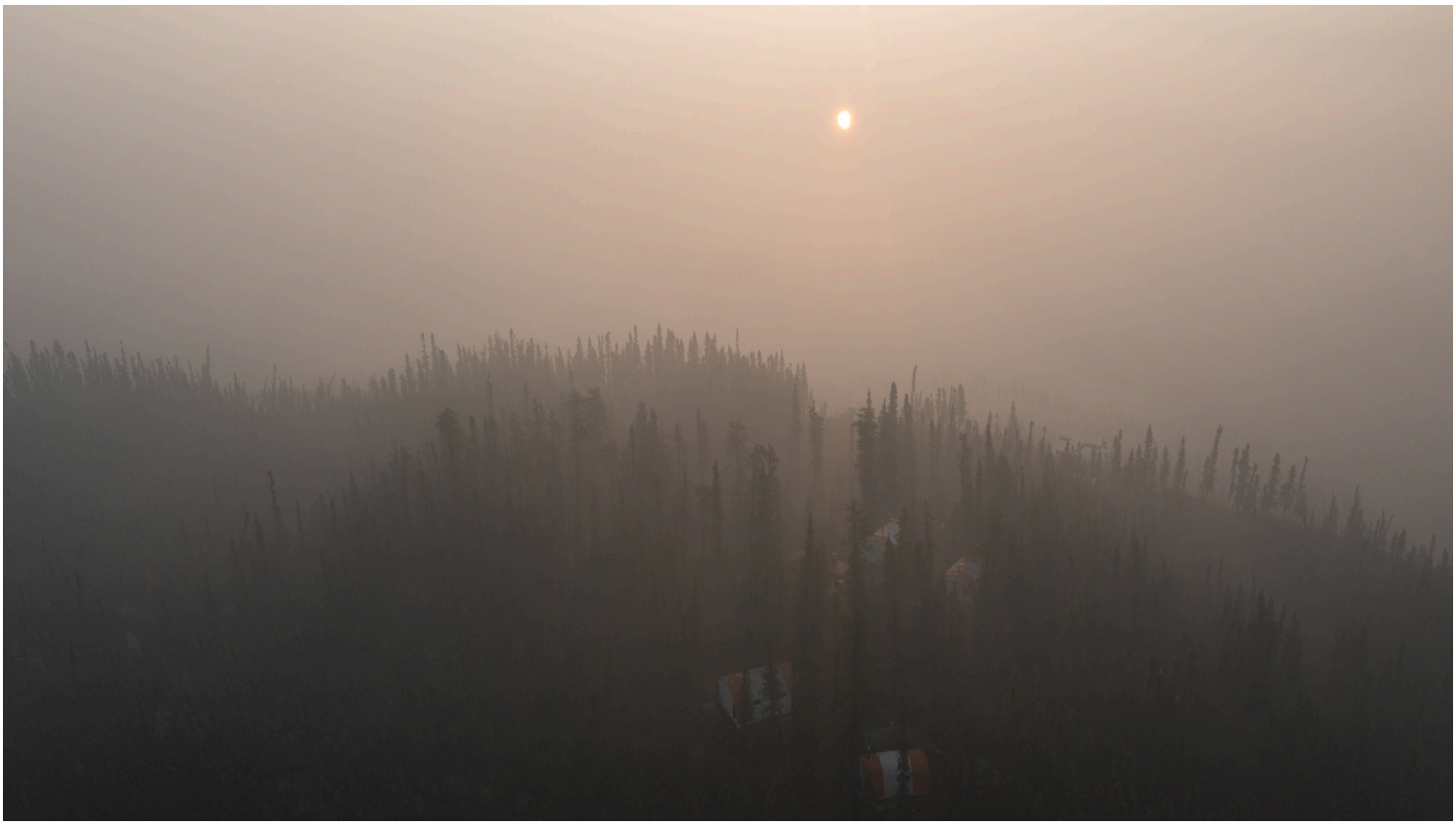

Arctic Ocean
Arctic Circle
Anchorage
Scotty Creek Fire
October 20, 2022
Burn Scars 2022
Yellowknife
Churchill
Edmonton
Vancouver
Ottawa
Source: Natural Resources Canada
https://cwfis.cfs.nrcan.gc.ca/datamart/metadata/fm3buffered

“It was just heartbreaking,” William Alger, LKFN’s lead Dehcho guardian at Scotty Creek told CKLB Radio after being the first to witness the extensive destruction left in the fire’s wake last fall. But now, “it’s just a matter of picking up the pieces and figuring out where we go from here,” Alger said.

Map by Greg Fiske / Woodwell Climate Research Center

Climate change is making it harder to conduct climate research, a harsh reality that the fire at Scotty Creek tragically represents. The obstruction of data collection and ecological stewardship caused by frequent environmental disasters is becoming a recurring setback, presenting a daunting challenge for carrying out this work in a perpetually warming world.



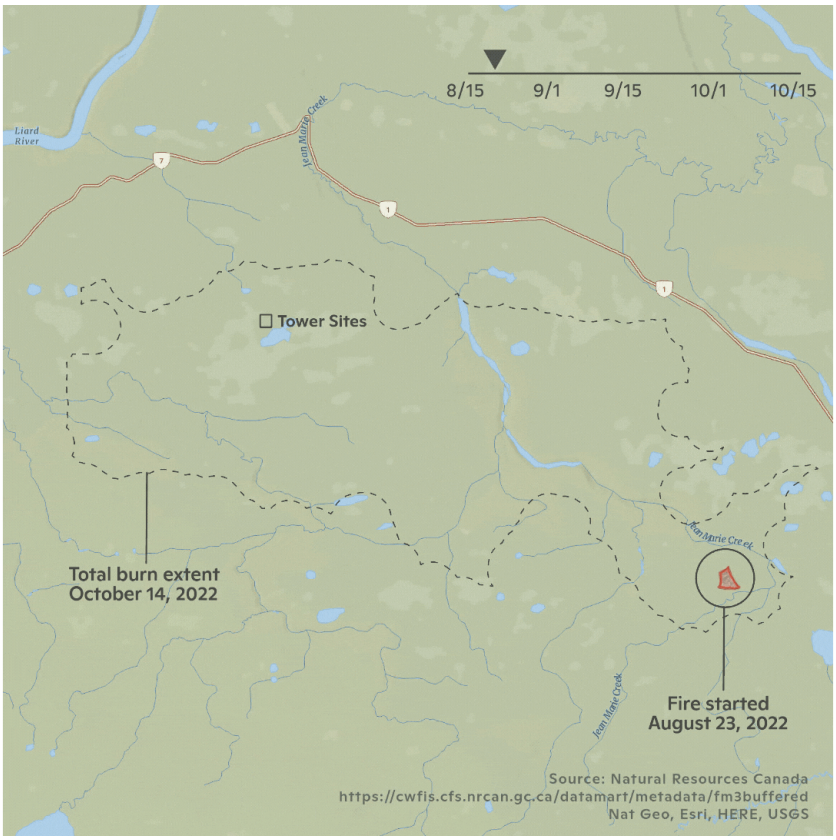


“I can’t help but notice the irony that a subarctic research station dedicated to understanding climate change burned down in mid-October due to a wildfire,” William Quinton, a professor at Wilfrid Laurier University and the original founder of Scotty Creek Research Station, said in an interview for CBC News.

The unusual time of year made it difficult to attack the fire, as temperatures suddenly plummeted and strong winds began to pick up. For several days leading up to the weekend of October 15th, the Scotty Creek team anxiously watched the fire burn closer and closer to the camp, mentally preparing for the worst but hoping for the best.

Top: Wildfire burning through the boreal and permafrost landscape getting closer to the research facility.

Bottom: Wildfire smoke hanging over Goose Lake and Scotty Creek Research Station. Photos by Mason Dominico


8/15
9/1
9/15
10/1
10/15
Liard River
Jean Marie Creek
Tower Sites
Total burn extent
October 14, 2022
Jean Marie Creek
Fire started
August 23, 2022
Jean Marie Creek
Source: Natural Resources Canada
https://cwfis.cfs.nrcan.gc.ca/datamart/metadata/fm3buffered
Nat Geo, Esri, HERE, USGS

Unfortunately, common techniques for combating wildfire, such as cutting fire breaks and setting up sprinklers, failed when the cold snap led to the territory's environment and natural resources department removing sprinkler systems they feared would freeze—drawing criticism from LKFN—and changes in wind direction forced the early evacuation of research teams and firefighting crews helping out on the ground. Additionally, helicopters trying to combat the flames from the air were unable to pull water from surrounding water bodies that had begun to freeze over.

Total burn extent animation by Greg Fiske / Woodwell Climate Research Center

"When we're fighting fires and protecting structures, it is highly unusual for there to be the threat of freezing temperatures," Mike Westwick, a wildfire information officer for the territory wrote in an email to CBC News.

Impacts from the burning of Scotty Creek extend far beyond the research station and will have a ripple effect on the economies of nearby communities that benefit from the droves of international researchers coming to this unique region every year to study environmental change caused by rapid warming. The visitors Scotty Creek draws to the Fort Simpson area provide steady income to local businesses including hotels, grocery stores, and airlines.

“The loss of Scotty Creek facilities is going to have a series of impacts that will have an ongoing effect on our already delicate local economy. Our hotels, bed and breakfasts, and charter airlines will take the biggest hit. Important climate change research, youth education, and the economic activities that are part of keeping it going will now be temporarily halted” LKFN Chief Kele Antoine said in a press release.

Top: The Scotty Creek tower site after the wildfire tore through the research camp. Photo by Mason Dominico

Bottom: Université de Montréal Researcher Gabriel Hould Gosselin working on the carbon flux tower at Scotty Creek as the wildfire approaches the camp. Photo by Joëlle Voglimacci-Stephanopoli

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