



CLIMATE DETECTIVES 2021 – 2022



Mamawmatawa Holistic Education Centre
2 Musko Rd

RESEARCH QUESTION

Has global warming increased the threat of forest fires around our community?

SUMMARY OF PROJECT

Students claim it is too dry around Constance Lake First Nation (CLFN) and it is often too hot. So we need to see if the temperature is rising and the rainfall is going down each year. Forest fires happen all around CLFN. We have to see if rising temperatures and less rain is making them worst each year. Are there more of them now? Are they getting bigger? We also need to look at what is causing the forest fires. If it is lightning, then is lightning increasing each year, causing more forest fires?

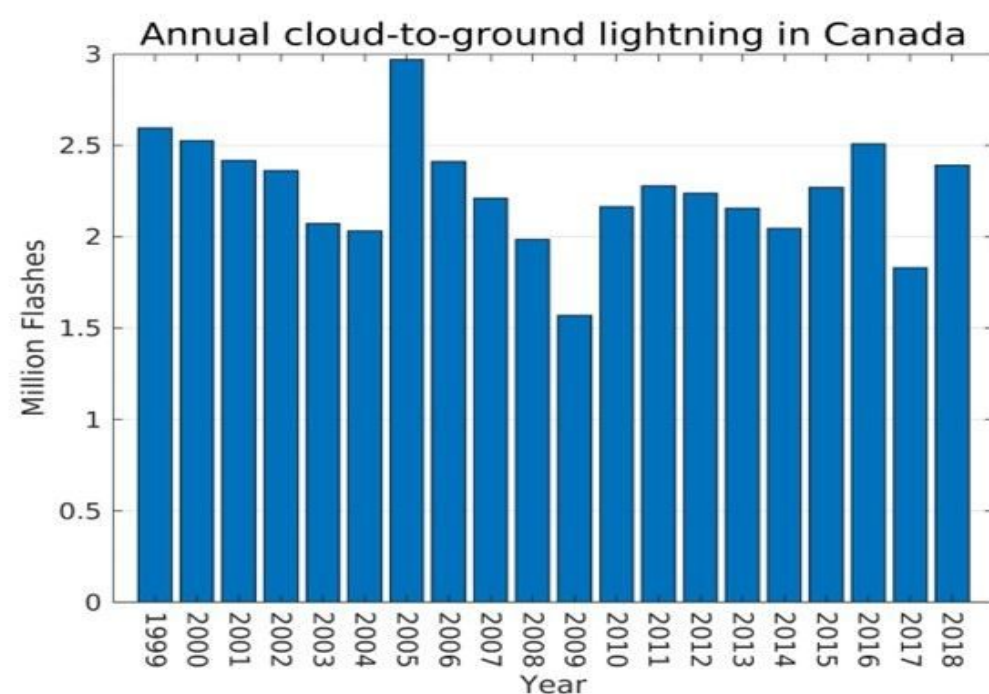


Figure 1: Annual Lightning <https://www.canada.ca/en/environment-climate->

MAIN RESULTS

We all expected to see a clear relationship between global warming and increasing forest fires in our area. We thought we'd see drier weather, more lightening and more forest fires over time. However, many of our results were surprising and suggested that many factors combine to affect forest fire numbers and size in our area (unlike the rest of Canada). We learnt to discuss the facts. As a result, we did not find a clear relationship between the two. But we did learn plenty about our land, by taking a holistic view of the problem.

Annual precipitation in our area over the last 30 years has stayed the same, according to experts. Precipitation from 2009-2022 has increased slightly.

During our meeting with Elder Florrie Sutherland, we learnt that in the past snow banks were huge, suggesting global warming is noticeable in the community. Interestingly, she also mentioned that children were specifically taught how to avoid forest fires. Perhaps a recent increase in forest fires in some locations may be due to inadequate education and/or behavior issues?

According to Lauren Quist (RPF, Project and Planning Forester with Hearst Forest Management Inc.) - and research - forest fires in this area have remained about the same over the last 30 years. However, strong winds have increased, which can be dangerous with forest fires, and expected rainfall is not guaranteed (Lauren said).

As Lauren explained, in our area the soil is too moist to allow many zombie fires. The main reason why is a layer of clay that holds water near the surface - thus explaining the swampy land. In British Columbia, however, the water can drain off the mountains leaving the trees and land more susceptible to fires.

Lightning strikes - across Canada - appear to be going down or staying the same, according to internet data.

A Zoom meeting with Lauren informed us that:

- a) Forest Fires in North Eastern Ontario have stayed consistent.
- b) Winds from the west have increased in strength and frequency over the past 30 years.
- c) Soil in this area is above clay which holds the moisture in the ground
- d) She confirmed that most of our Internet research was accurate.

Area Burned Over the Years (1990-2021)

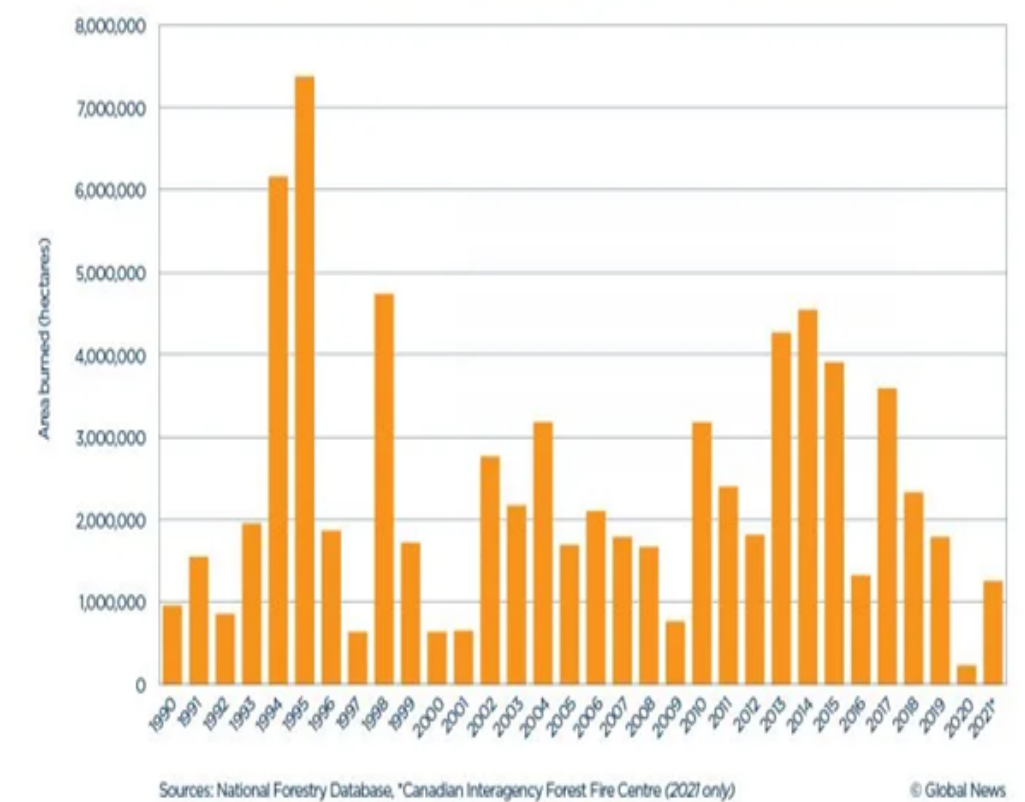


Figure 2: Area Burned Over the Years <https://globalnews.ca/news/8045796/canada-wildfires-yearly-trends/>

ACTIONS TO HELP LESSEN TO THE PROBLEM

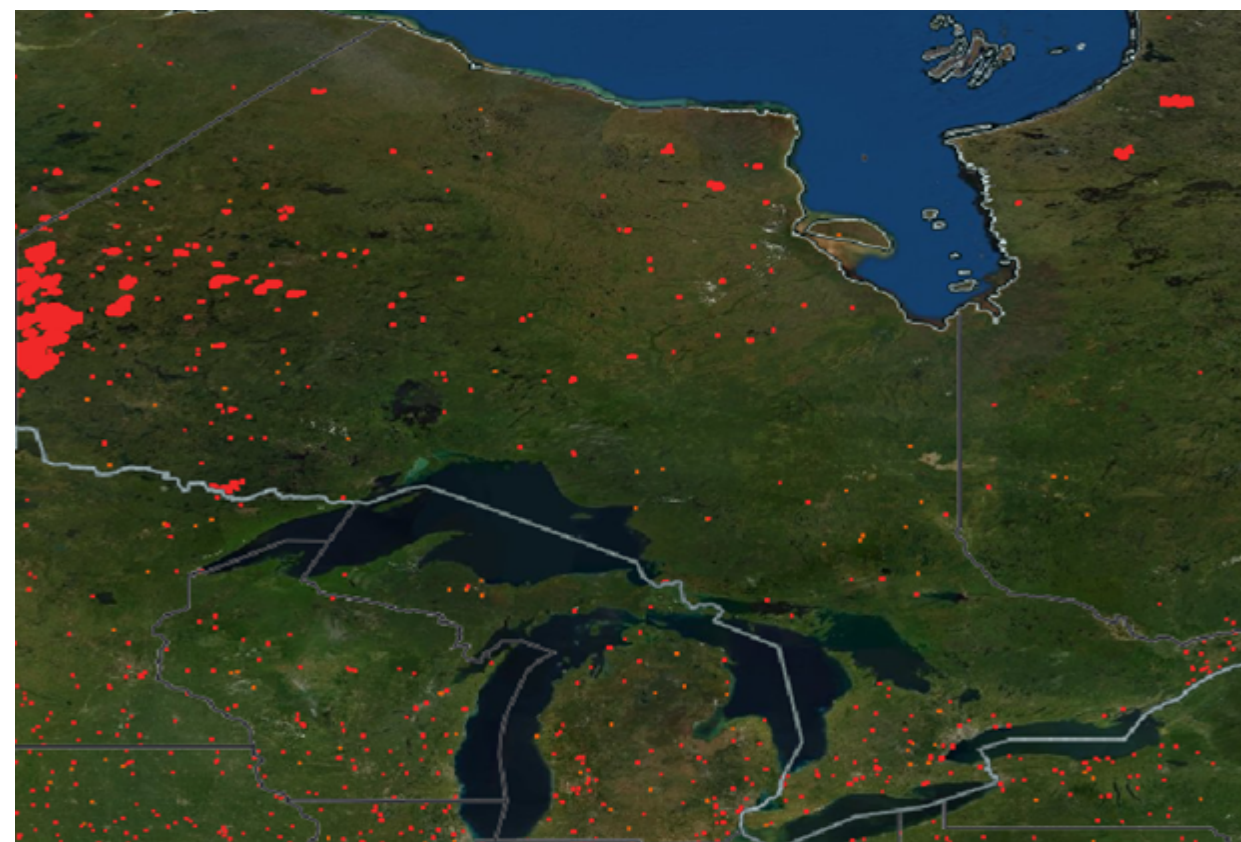


Figure 3: Forest Fires in Ontario Satellite Image
<https://firms.modaps.eosdis.nasa.gov/map/#d:24hrs:@-88.4,54.6,4z>

Unfortunately, we were unable to collect environmental samples to support our findings, due to a severe COVID outbreak closing our school for 3 months, coupled with a severe blastomycosis outbreak. We fear that global warming will make blastomycosis more of an issue in the future.

At the end of May, we will be working with Hearst Forest Management Inc. and the Aviation, Forest Fire and Emergency Services (AFFES) - Ministry of Northern Development, Mines, Natural Resources and Forestry - on a variety of land-based learning activities that will provide us with more data and information about the environment around us and how to manage it effectively against the threat of forest fires. We have been unable to do any outdoor sampling for this report, due to a severe blastomycosis outbreak in our community.

Some other questions we'd like to try answering in the future include:

- 1) How does education and behavior impact the number of forest fires in an area?
- 2) Is blastomycosis increasing with global warming?
- 3) How is increasing wind affecting our community?