

Communicating about Wildfire Smoke at the BCCDC: Current Capacity and Future Aspirations

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Environmental Health Services

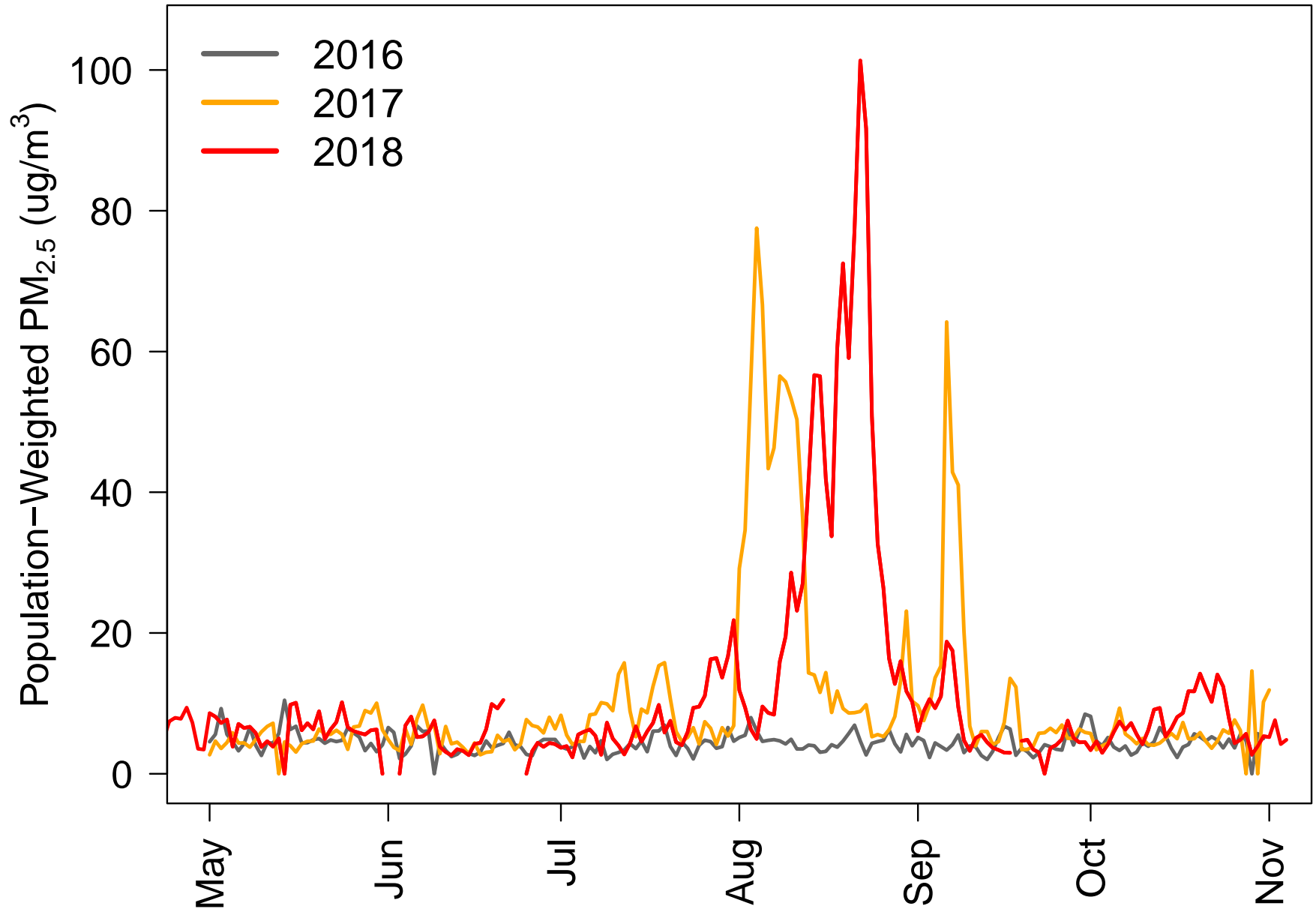


BC Centre for Disease Control

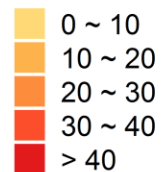
Commission for Environmental Cooperation

September 26, 2019

2016-2018 Wildfire Seasons

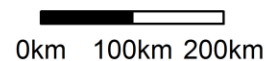
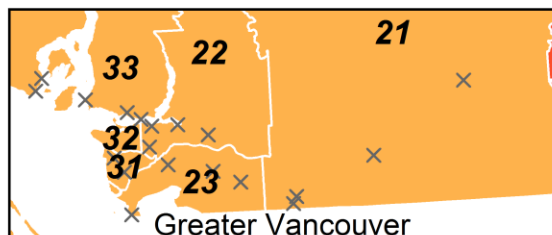


× Air Quality Monitoring Station
Population-weighted Average PM_{2.5}



Health Service Delivery Area

- 11 East Kootenay
- 12 Kootenay Boundary
- 13 Okanagan
- 14 Thompson Cariboo
- 21 Fraser East
- 22 Fraser North
- 23 Fraser South
- 31 Richmond
- 32 Vancouver
- 33 North Shore/Coast Garibaldi
- 41 South Vancouver Island
- 42 Central Vancouver Island
- 43 North Vancouver Island
- 51 Northwest
- 52 Northern Interior
- 53 Northeast

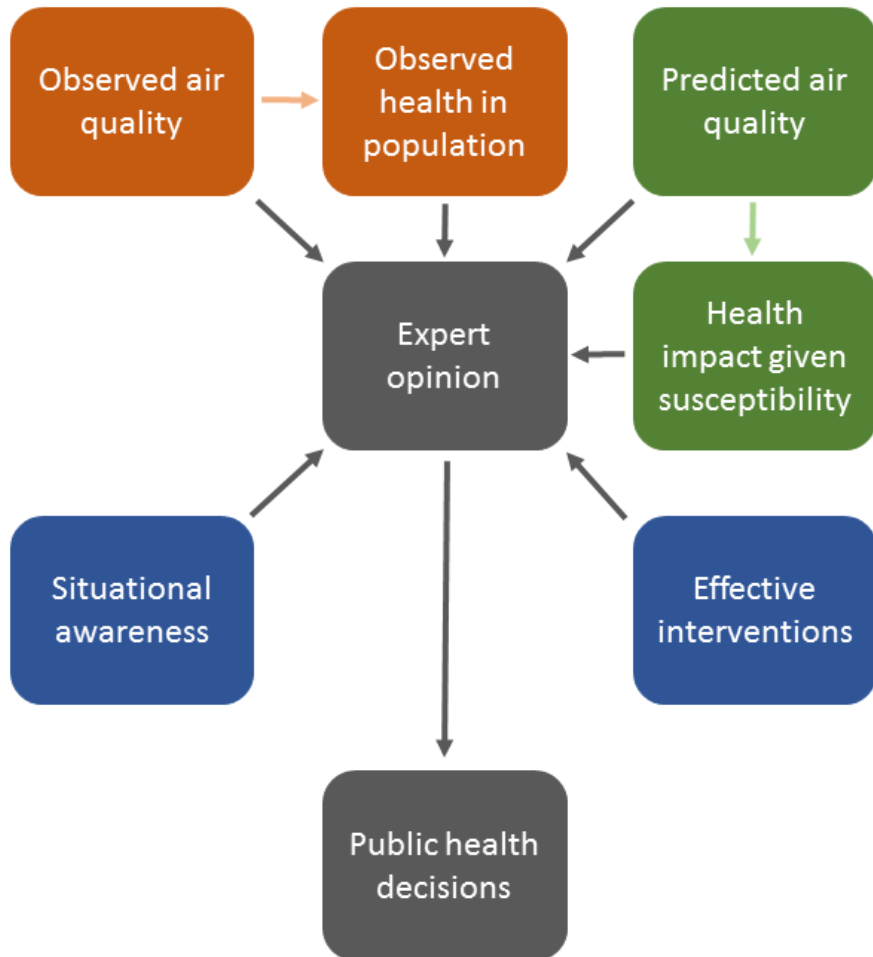


Current Approach

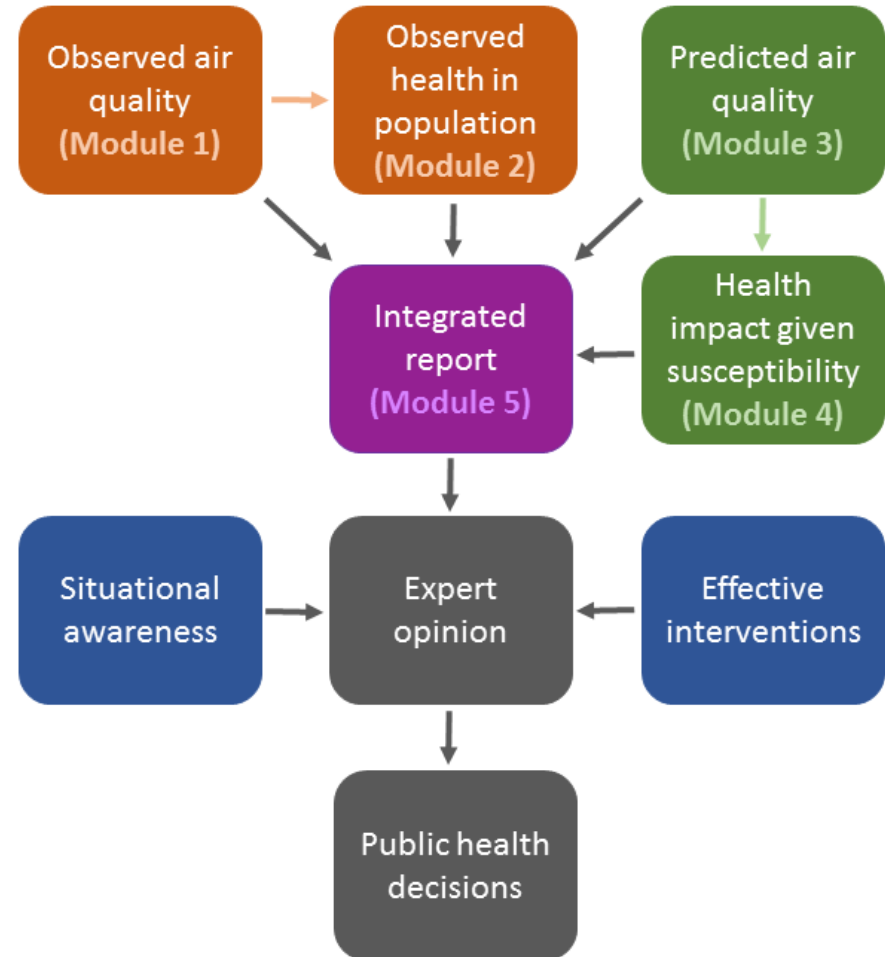
1. Research
2. Ongoing surveillance
3. Knowledge translation

The burden of data integration should not fall to health experts...

Before BCAPS



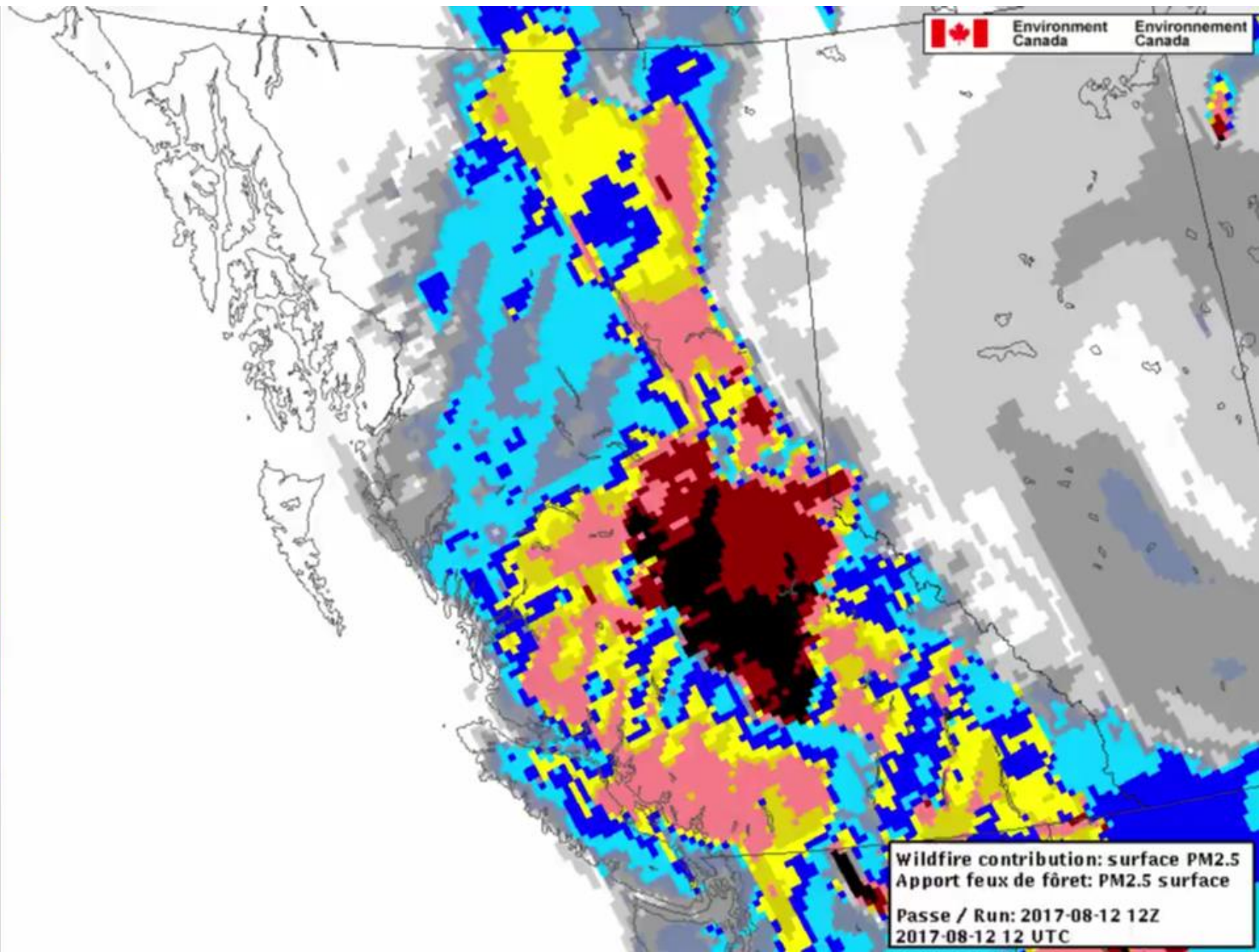
With BCAPS

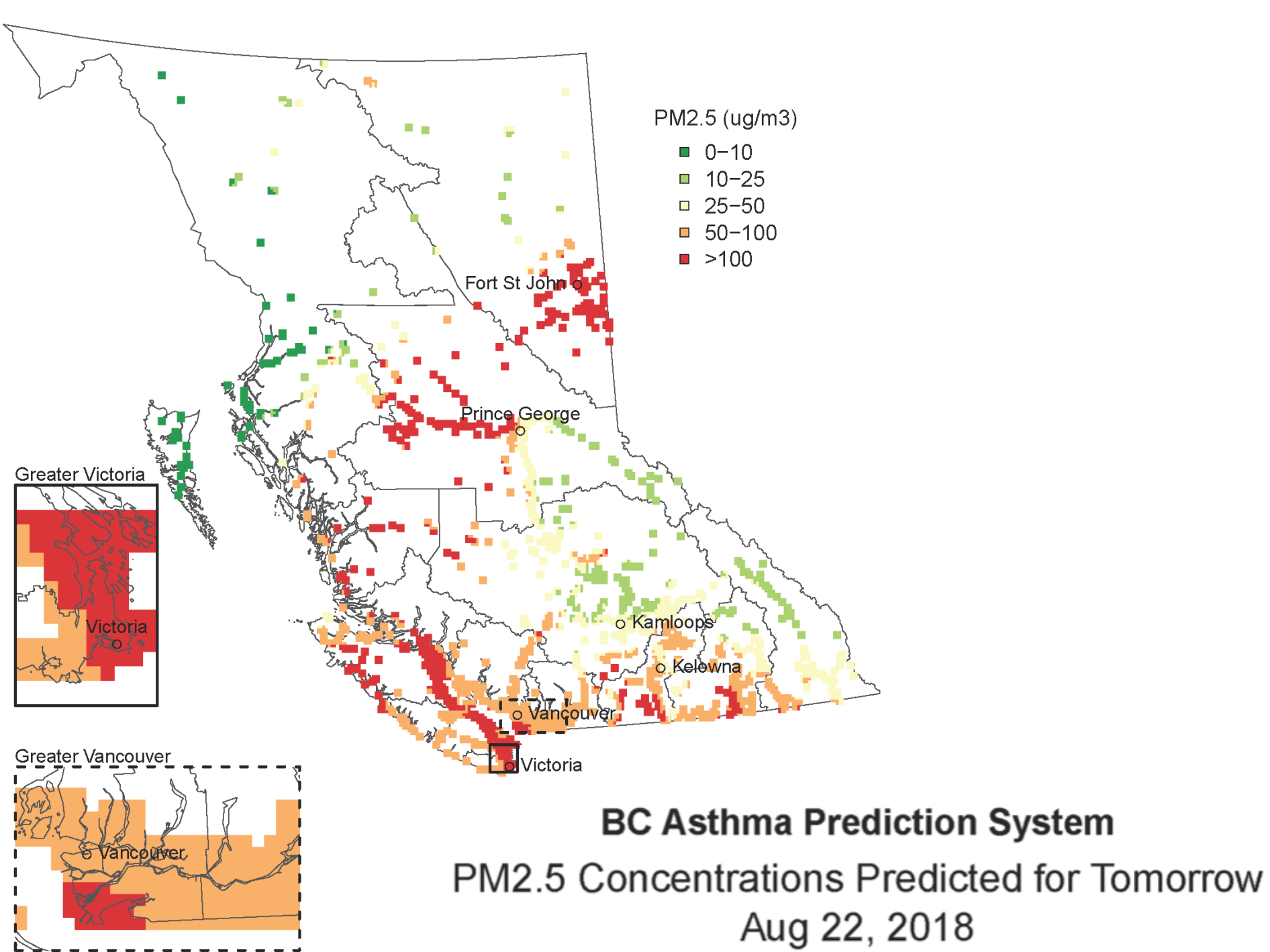


FireWork Forecasts

PM2.5
($\mu\text{g}/\text{m}^3$)

500
200
100
80
60
40
20
10
5
2





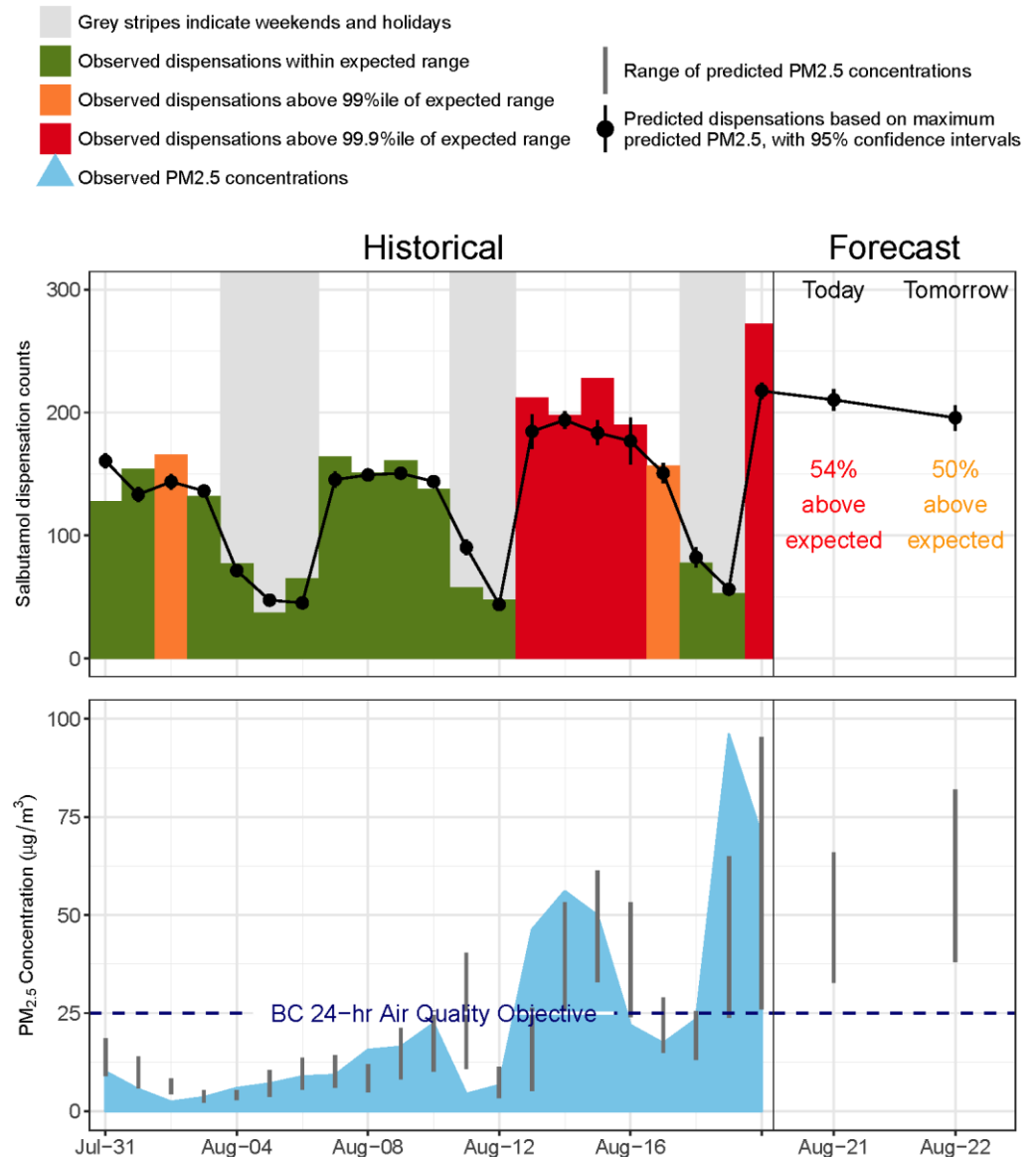
BCAPS report

BC Asthma Prediction System
Fraser East
Update for Aug 21, 2018

HSDA #21

The bottom panel:

- Range of $PM_{2.5}$ predictions within the HSDA
- Observed $PM_{2.5}$



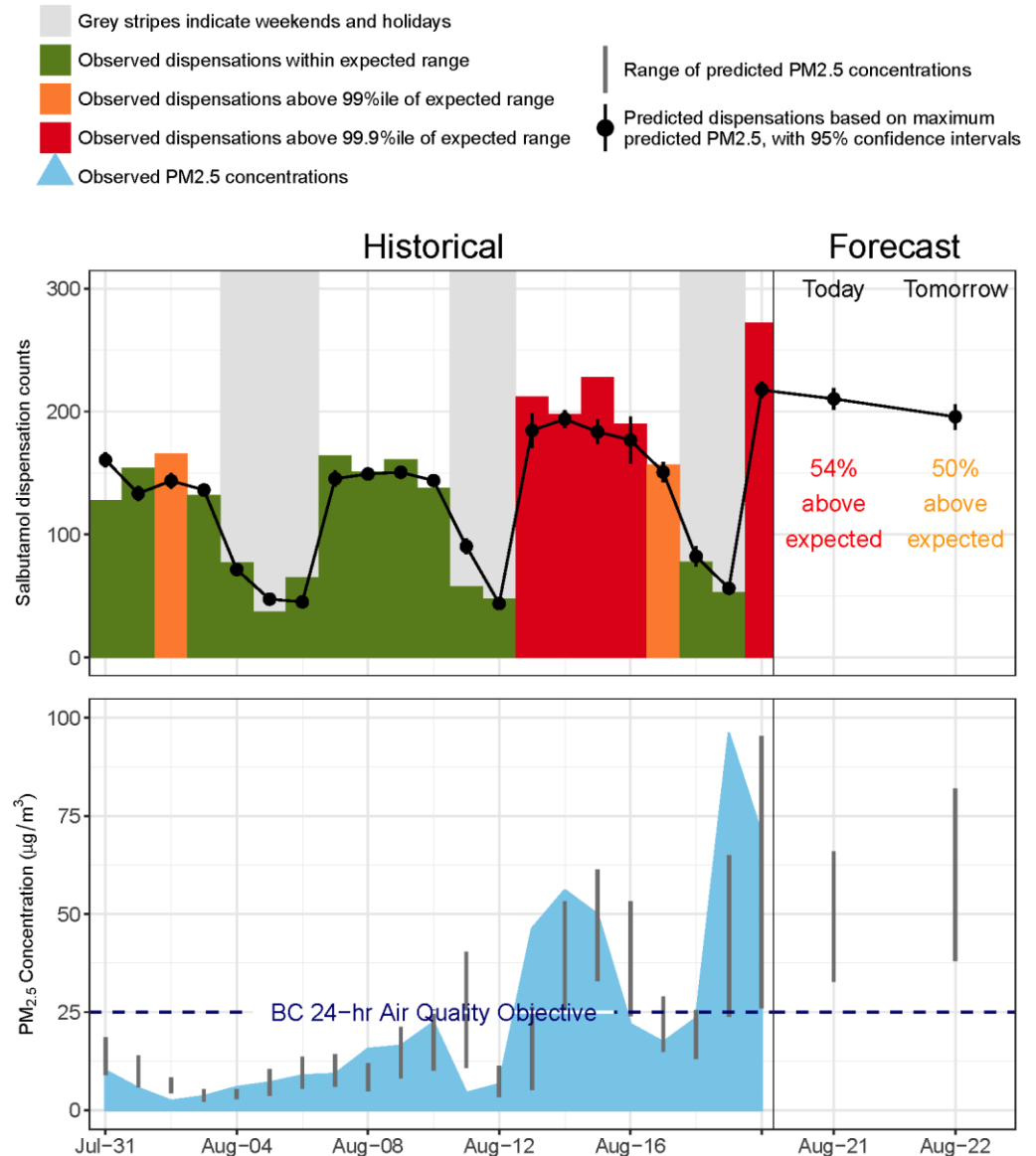
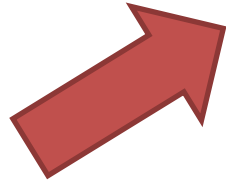
BCAPS report

BC Asthma Prediction System
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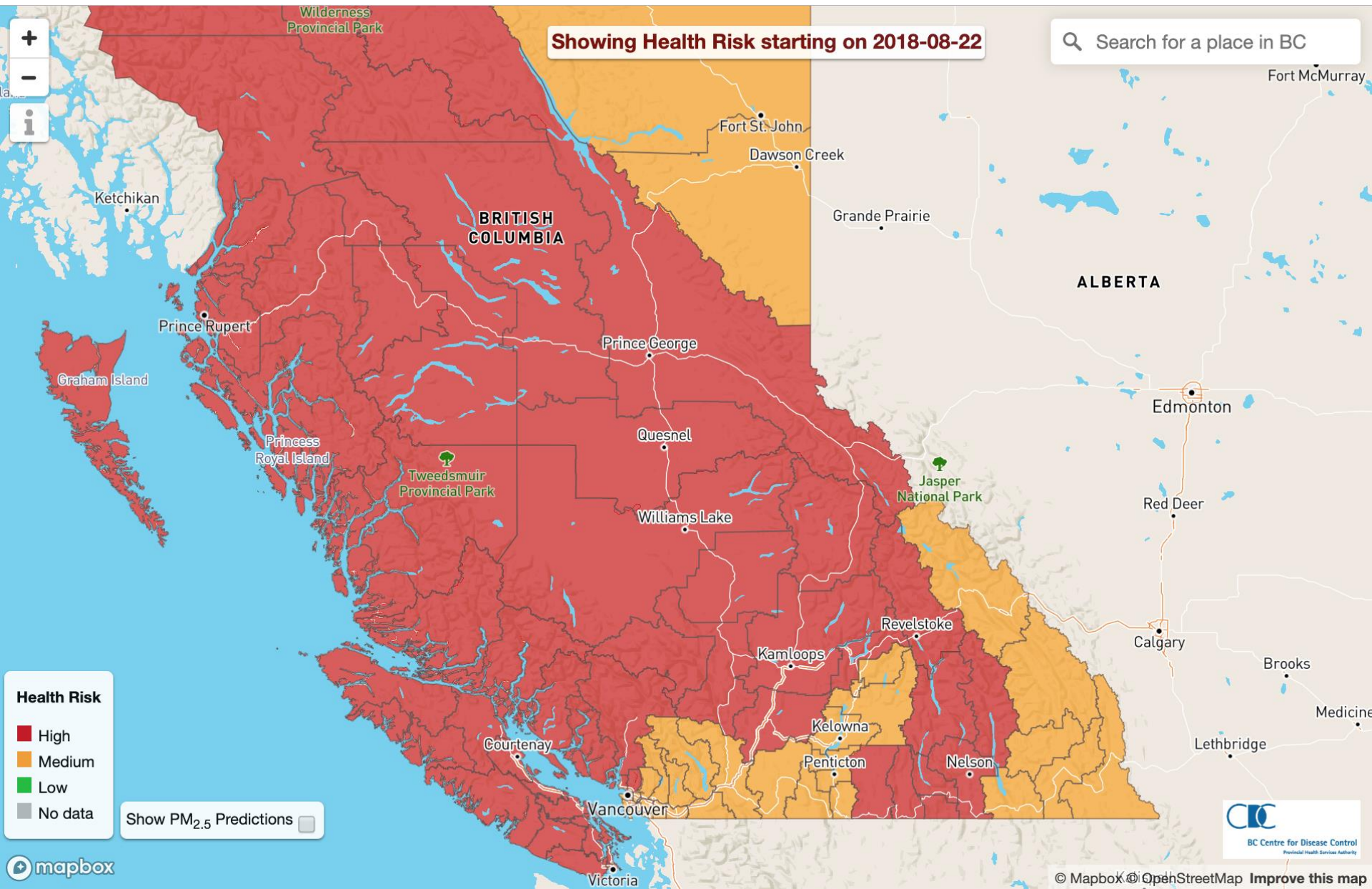
HSDA #21

The top panel:

- Counts predicted using **maximum** of the $PM_{2.5}$ range
- Observed counts with anomaly indicators



BCAPS will go online in 2020





Health Effects of Wildfire Smoke

Wildfire smoke is a complex mixture of fine particulate matter (PM_{2.5}) and gases, such as carbon monoxide, nitrogen oxides, and volatile organic compounds. The mixture can change depending on the fuels, the weather, and distance from the fire. Wildfire smoke causes episodes of the worst air quality that most people will ever experience in British Columbia.



Although wildfire smoke is different from air pollution caused by traffic or industry, it is also harmful to human health.

- Smoky air makes it harder for your lungs to get oxygen into your blood.
- Wildfire smoke can irritate your respiratory system and cause an immune response, which may lead to inflammation that affects other parts of your body.

Reducing exposure to wildfire smoke is the best way to protect your health.

- Portable air cleaners that use HEPA filtration can effectively remove smoke particles from the indoor air. Do your research to find something suitable for your needs.
- If you have forced air heating, you can use different filters and settings to minimize the amount of wildfire smoke that comes into your home. Talk to your service provider about what will work best for your system.



Portable Air Cleaners for Wildfire Smoke

Wildfire smoke is a complex mixture of air pollutants, including small particles that can cause irritation and inflammation when inhaled. Smoke can come into buildings through windows, doors, vents, air intakes, and other openings.



Most people spend up to 90% of their time indoors, where portable air cleaners can be used to reduce the impacts of wildfire smoke.

Most portable air cleaners use high efficiency HEPA filters to trap the very small particles in wildfire smoke.



- Portable air cleaners plug into regular wall sockets and can be moved between rooms.
- Studies have tested indoor portable air cleaners on pollution from many different sources, including wildfire smoke. In most of these studies, portable air cleaners have reduced small particle concentrations.
- Some units use electrostatic precipitators to remove particles from the air. This process creates ozone gas, which can be a lung irritant. **People with respiratory conditions should only consider purchasing HEPA filtration units.**
- Both HEPA filters and electrostatic precipitators

Wildfire Smoke and Outdoor Exercise

Exercising outdoors is a healthy summertime activity for most people, but it should be done with caution under smoky conditions.



Exercise is good for physical and mental health.

However, some people are at higher risk of experiencing health effects while exercising when it is smoky outside:

- People with conditions such as asthma, chronic obstructive pulmonary disease (COPD), or respiratory infections
- People with other chronic health conditions such as



People breathe more quickly and more deeply when they are exercising.



10x



Face Masks for Wildfire Smoke

The best way to protect your health from wildfire smoke is to seek cleaner air. Use a portable air cleaner at home, find an indoor environment with filtered air, or relocate to an area with less smoke. If you cannot access cleaner air, some face masks can provide protection from wildfire smoke. However, it is important to be aware of the limitations and potential risks.



Well-fitted N95 respirators (N95s) offer effective protection from the fine particulate matter (PM_{2.5}) in wildfire smoke.

- A good seal around the mouth and nose is the most important thing for filtration of PM_{2.5} (see instructions on reverse). A well-fitted N95 can reduce PM_{2.5} concentrations by at least 95%.
- It can be difficult to get a good seal if the N95 is the wrong size or shape for your face, especially if



If you chose to wear an N95 respirator, you should be aware of the limitations and potentials risks.

- It is **NOT SAFE** to wear an N95 while sleeping.
- N95s cannot protect against the gases in wildfire smoke, which may also cause irritation.
- Wearing an N95 may make breathing more difficult. Pregnant women and people with respiratory and cardiovascular conditions should talk to their health

Wildfire Smoke and Air Quality

There are many different sources of information on air quality, including local radio and television broadcasts, community centres and band offices, smartphone apps, and websites. Knowing where to find reliable information about the air quality is a first step to understanding wildfire smoke and protecting your health.



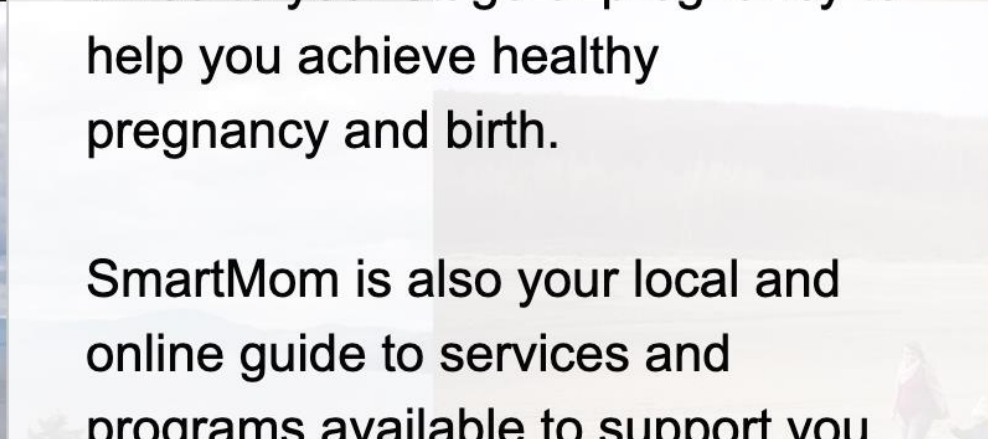
The Ministry of Environment and Climate Change Strategy provides information on current air quality across the province using a range of different tools.

1-HOUR PM _{2.5} ($\mu\text{g}/\text{m}^3$)	PROVINCIAL AQHI	AQHI RISK CATEGORY	HEALTH MESSAGE FOR PEOPLE AT HIGHER RISK	HEALTH MESSAGE FOR GENERAL POPULATION
0 – 10	1	LOW	Enjoy your usual outdoor activities.	Ideal air quality for outdoor activities.
11 – 20	2			
21 – 30	3			
31 – 40	4		Consider reducing or rescheduling strenuous activities outdoors if you	No need to modify your usual outdoor activities unless you

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SmartMom is a free text messaging program that sends you information timed to your stage of pregnancy to help you achieve healthy pregnancy and birth.



SmartMom is also your local and online guide to services and programs available to support you





Environment and Climate Change Strategy



Get notified about air quality in B.C. communities

Share



News Release

Vancouver

Wednesday, September 25, 2019

1:00 PM

Media Contacts

Ministry of Environment and
Climate Change Strategy

Media Relations

British Columbians are now able to sign up for public health notifications advising people of potential or existing poor air quality in their communities.

People can enter their email on the Government of British Columbia's air quality website to automatically receive air quality advisories and smoky skies bulletins. Both serve to alert the public about existing or potential poor air quality, while providing appropriate health advice and protective actions that can be taken.

▼ EXPAND STORY

Future Aspirations

A one-stop smartphone application that includes:

1. Current air quality and AQHI data
2. FireWork smoke forecasts
3. Local risk estimates from BCAPS
4. Push notifications
5. Information on health protection
6. Symptom reporting

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