



# BCWS Fire Weather Program

Matt MacDonald

Lead Fire Weather Forecaster

BC Wildfire Service – Predictive Services Unit

UBC ATSC 413, November 18<sup>th</sup>, 2025



BC Wildfire  
Service



# Where we're going:

- BCWS Overview
- BCWS Predictive Services Unit
- Products we issue
- Seasonal Review of the 2025 Fire Season





# About Me:



- B.Sc. Meteorology from McGill
- Meteorologist w/ Environment Canada for 18 years
- Operational Forecaster
- Warning Preparedness Meteorologist
- Now Lead Forecaster w/ BC Wildfire Service since 2021





# About the BC Wildfire Service



**Forests and  
wildlands  
cover over  
55 million  
hectares in  
B.C.**

**On  
average**

**1,600**  
wildfires are  
responded to every  
year.

**720,633**  
hectares are burned  
by wildfire every  
year.



# Our Mandate

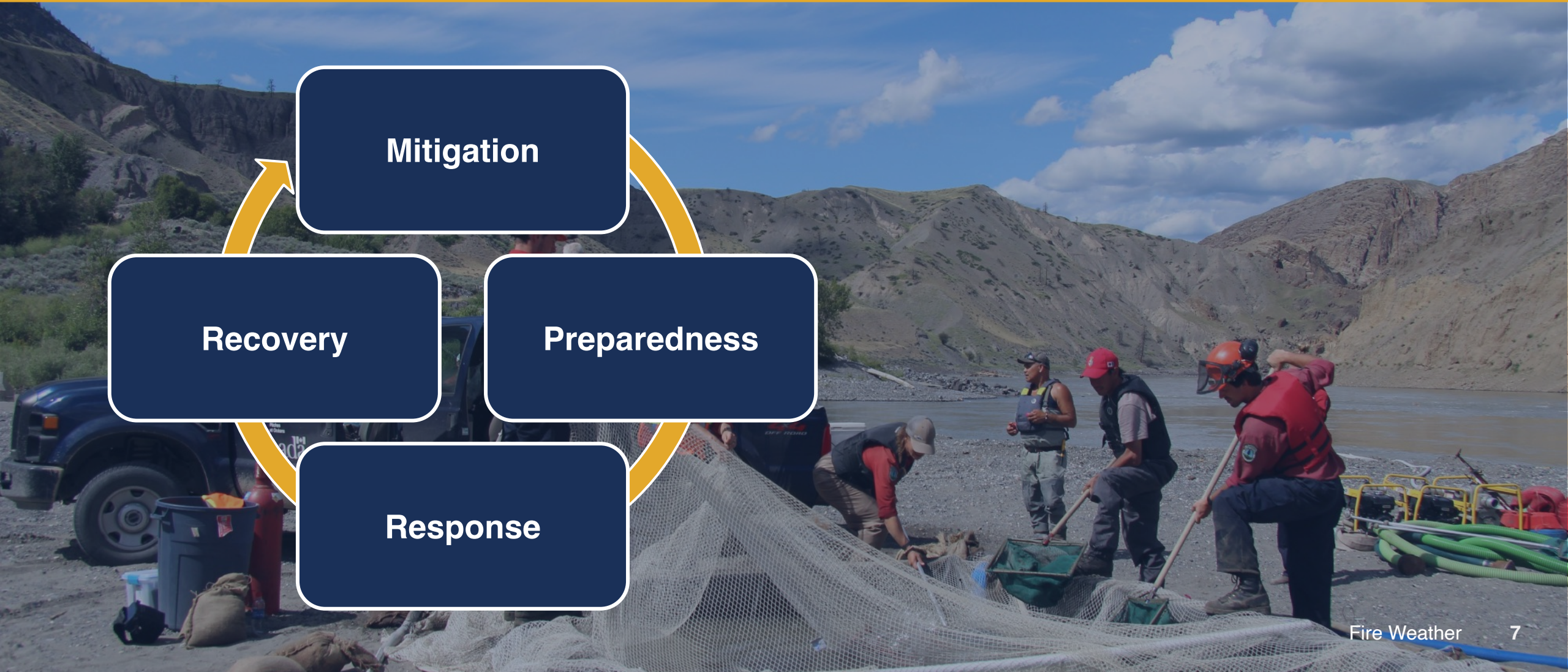
To deliver  
effective wildfire  
management  
and emergency  
response support

To protect lives  
and values at  
risk

To encourage  
sustainable,  
healthy and  
resilient  
ecosystems



# 365 All-Hazards Organization



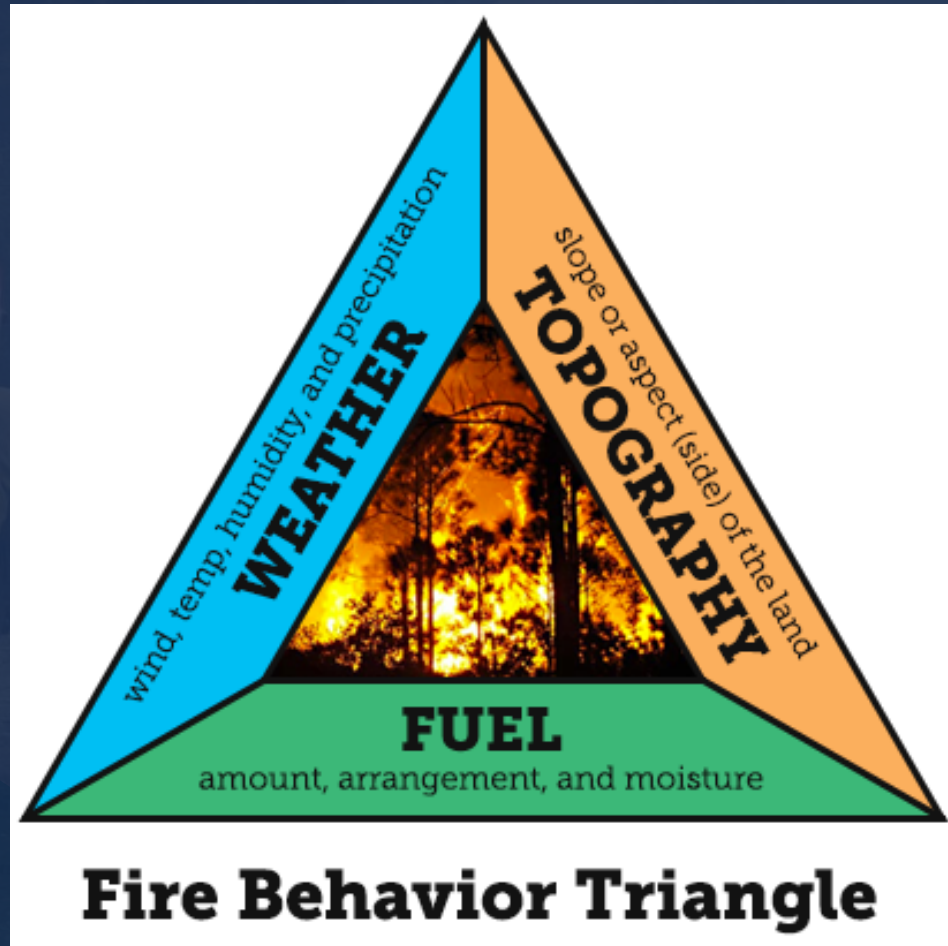


# Organizational Structure



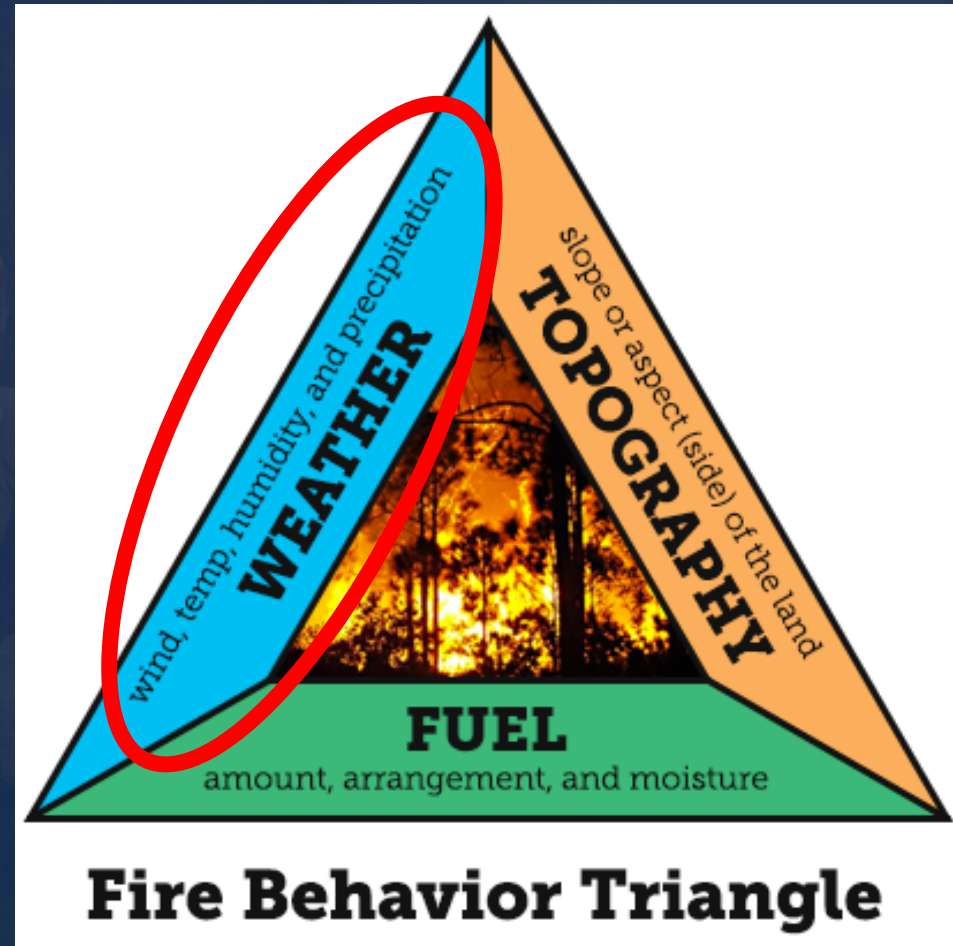


# Wildland Fire Behavior





# Wildland Fire Behavior





# History of Fire Weather



BC Wildfire  
Service

## 1970s

- FWI System established
- Start of large plot burning experiments
- First in-depth conceptual framework for crown fires
- Early satellite remote sensing of fire and effects
- Early fire regime (fire cycle) studies



## 1980s

- Parks Canada starts landscape-level prescribed fire program in Banff National Park
- Increased understanding of Canadian fire regimes



## 1990s

- FBP System published
- Wildfire-climate change research
- International Crown Fire Modelling Experiment (ICFME)



## 2000s

- Prometheus fire behaviour and growth model
- Modified response policies gain prominence
- Canadian Wildland Fire Strategy (CWFS)



## 2010s

- Blueprint for Wildland Fire Science in Canada
- Burn severity characterization combining field work and remote sensing data
- NSERC/Canada Wildfire Strategic Network
- WildFireSat program begins (launch in 2025)





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# Factors Influencing Fire Behaviour

The 3 main factors influencing fire behavior are:

1. **Fuel:** moisture level is the most critical.
2. **Weather** - wind is the most significant variable for fire spread rates, RH a close second.
3. **Topography** - fires move rapidly upslope.





# Fuel Types



**O1 - Grass**



**C2 – Boreal Spruce**



**C3 – Mature Jack or Lodgepole Pine**



**C7 - Ponderosa Pine–Douglas-Fir**



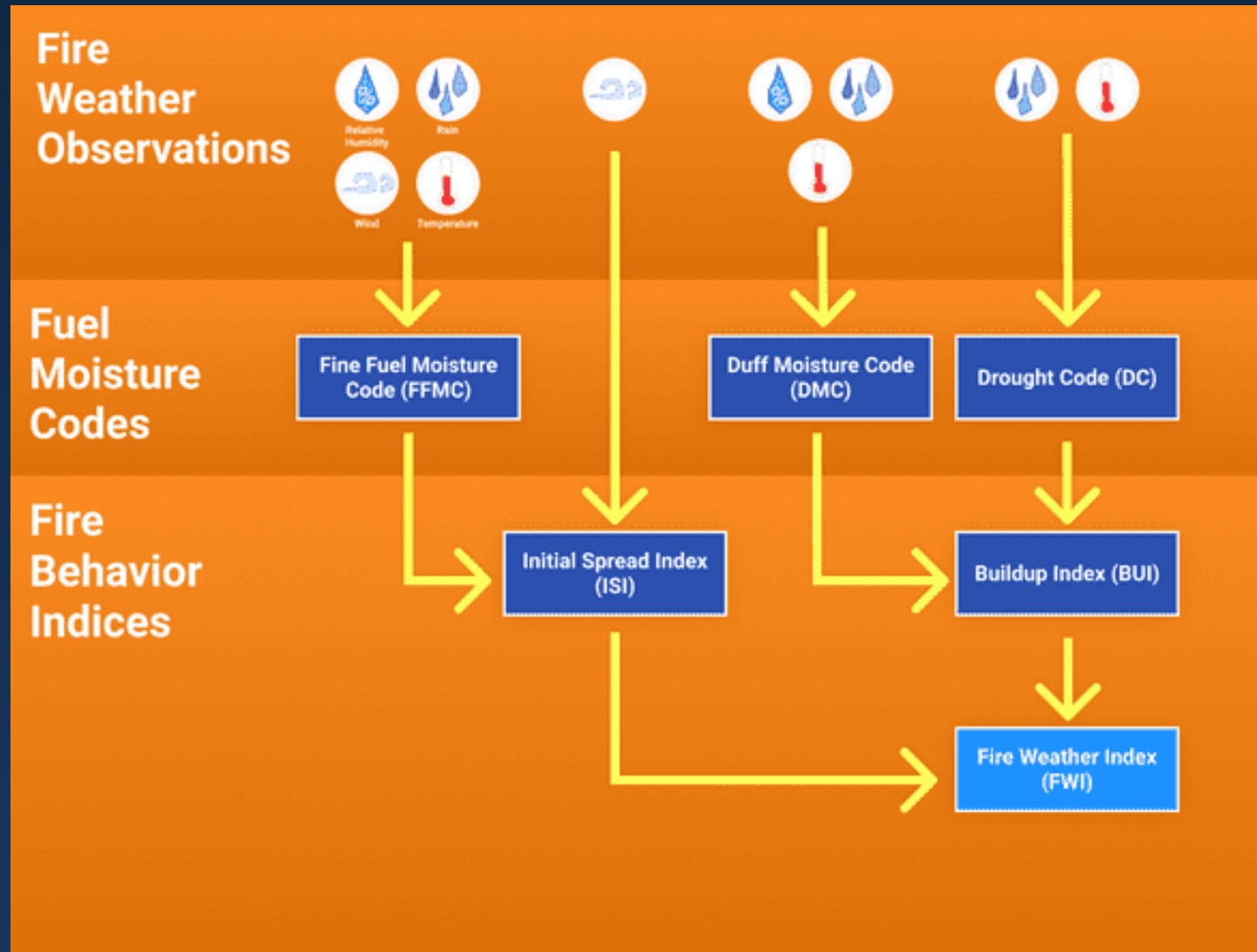
# Topography



Moderate  
Slope



# Fire Weather Index System





# Fire Danger Rating



Fire Danger Class (DGR)	Restriction	Duration
III (moderate)	After three consecutive days of DGR III or greater, maintain a fire watcher after work for a minimum of one hour.	Until after the fire danger class falls below DGR III.
IV (high)	Maintain a fire watcher after work for a minimum of 2 hours.	Until after the fire danger class falls to DGR III for 2 consecutive days of falls below DGR III.
	After three consecutive days of DGR IV, cease activity between 1 p.m. Pacific Daylight Saving Time and sunset each day.	
V (extreme)	Cease activity between between 1 p.m. Pacific Daylight Saving Time and sunet each day and maintain a fire watcher after work for a minimum of 2 hours.	Until after the fire danger class falls below DGR IV for 2 or more consecutive days.
	After 3 consecutive days of DGR V, cease activity all day.	Until after the fire danger class falls to DGR IV for 3 or more consecutive days or falls below DGR IV.



The background of the slide is a photograph of a firefighter walking away from the camera on a dirt path in a forest. The firefighter is wearing a red jacket, an orange helmet, and a backpack. A long white hose is draped over their shoulder and extends down the path. The forest is dense with green trees and foliage. The image is divided into vertical sections with varying levels of transparency, creating a layered effect.

# BC Wildfire Predictive Services Unit



## What we do:

- Gather information & analyses using best available science, technology and human expertise
- Assist risk-based decision making for wildfire prevention, preparedness, response and recovery

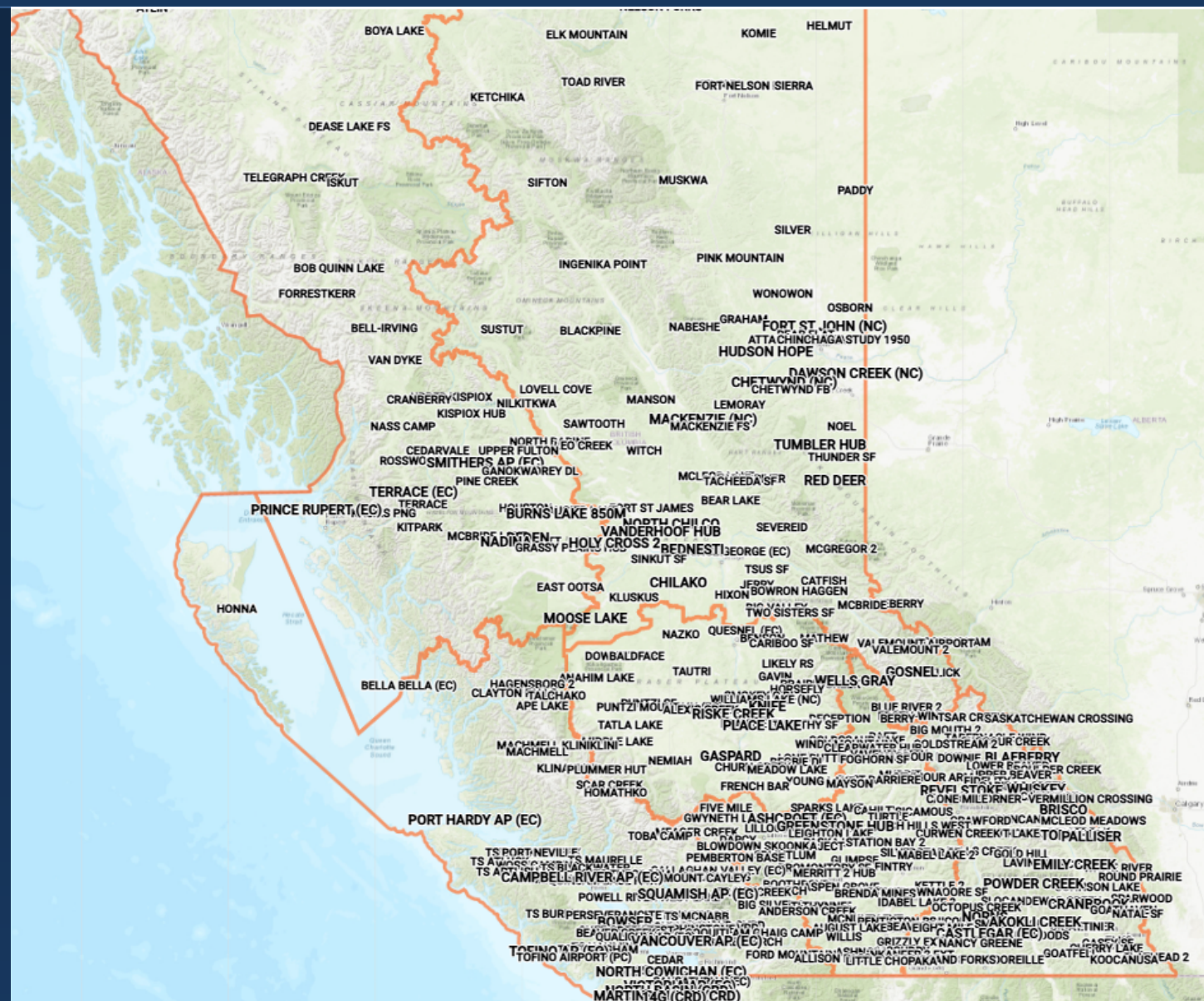
## Who we are: 3 prongs

1. Fire Weather Forecasters
2. Fire Behavior Specialists
3. Weather Network Technicians





# BCWS Weather Network

BC Wildfire  
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# Typical Forecasting Day

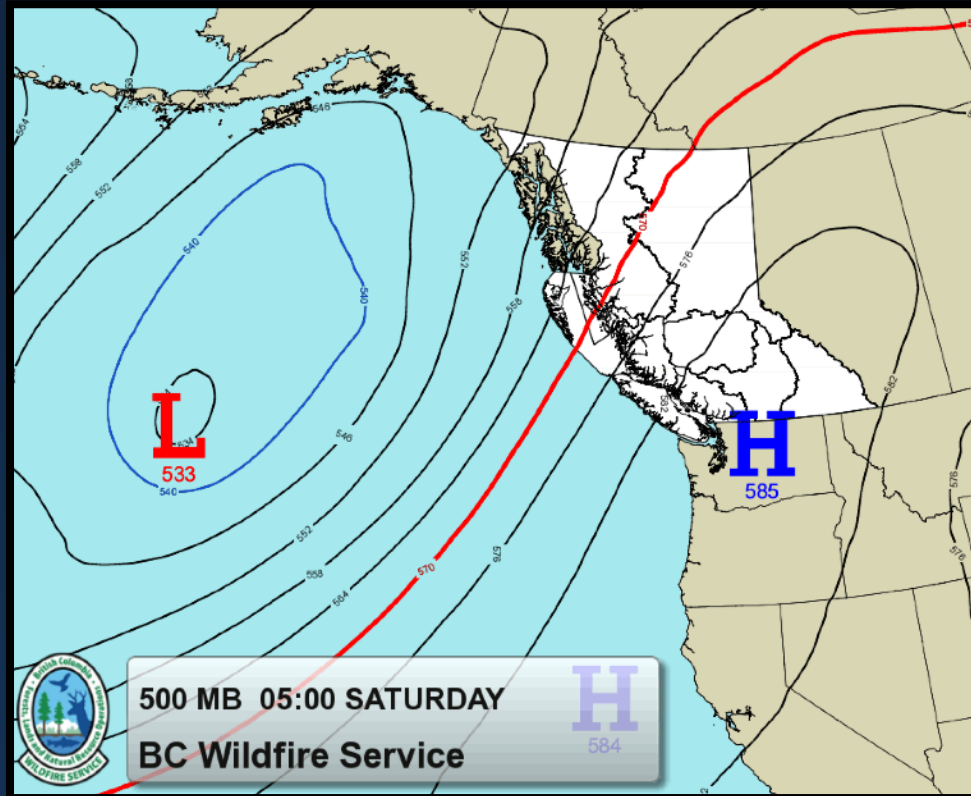
Shift Schedule	
0530h	Wake up & caffeinate
0600h	Verify yesterday's forecast & truth indices (adjust rainfall, etc.) Forecast workup (download charts, analyse, diagnose, forecast), build PowerPoint
0700h	Forecast workup/briefing prep Update HFI if needed (prep days only)
0730h	Forecaster coordination call lead by PWCC Forecaster
0800h	informal briefing to RWCO/FBAN's (if needed) field calls/continue prep
0900h	Deliver weather briefing, FTP WMV to server write text forecast
0930h	attend provincial briefing (optional)
1030h	attend prep call (prep days only)
1130h	upload text forecast to web (also mail and FTP)
prep/issue FBA & Alerts	

1400h	Afternoon heck-in & briefing to RWCO Produce FWI sheet (mail and FTP) Option to extend forecaster coverage later into the day Produce and issue spot forecasts Weather watch
	project indices/populate HFI (as requested)
	Mon: push to Thurs Tues: push to Fri Wed: push through weekend Thurs: push to Mon (Tues if long weekend) Fri: push to Tues  Sun PM + Wed PM: Push indices for Prep Days <i>prepare forms for tomorrow</i>



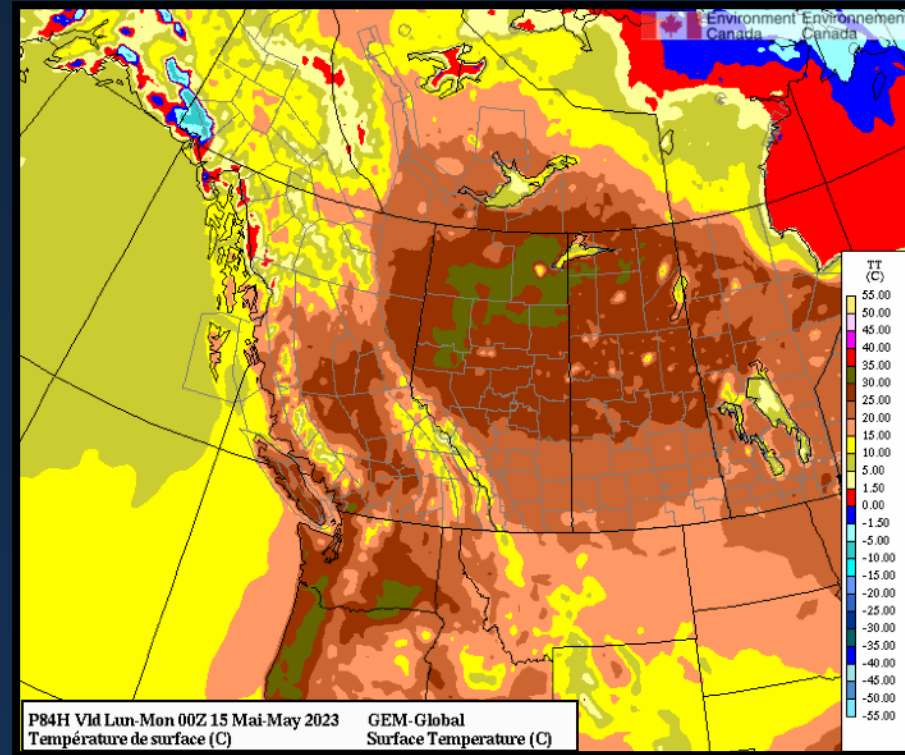
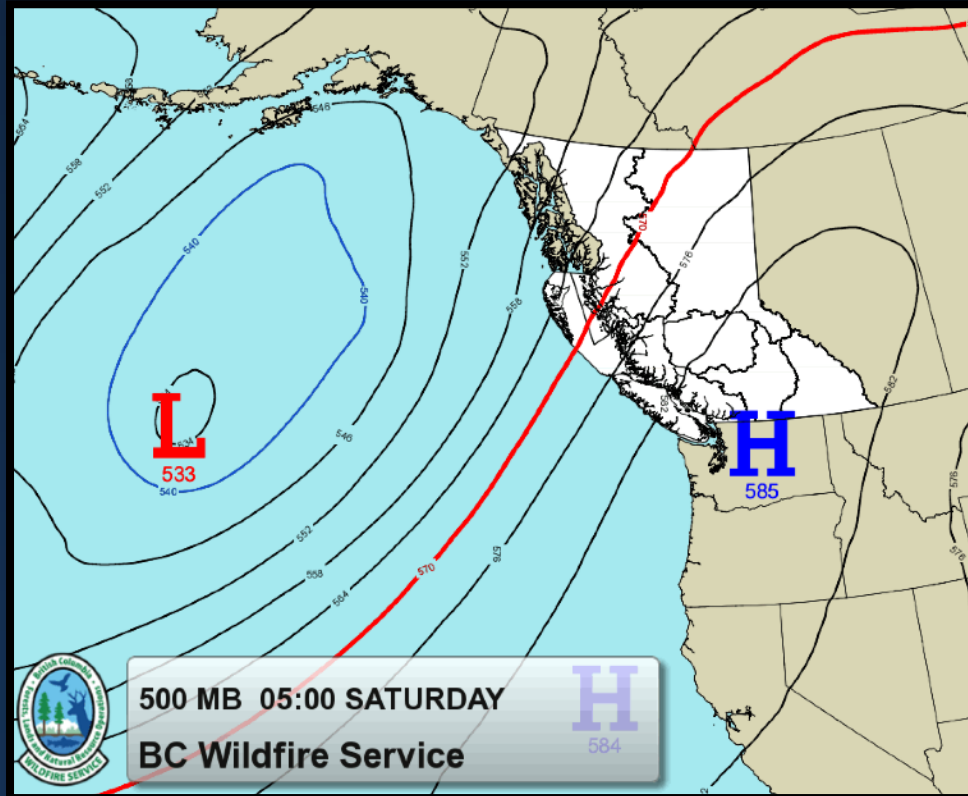
# Weather Charts

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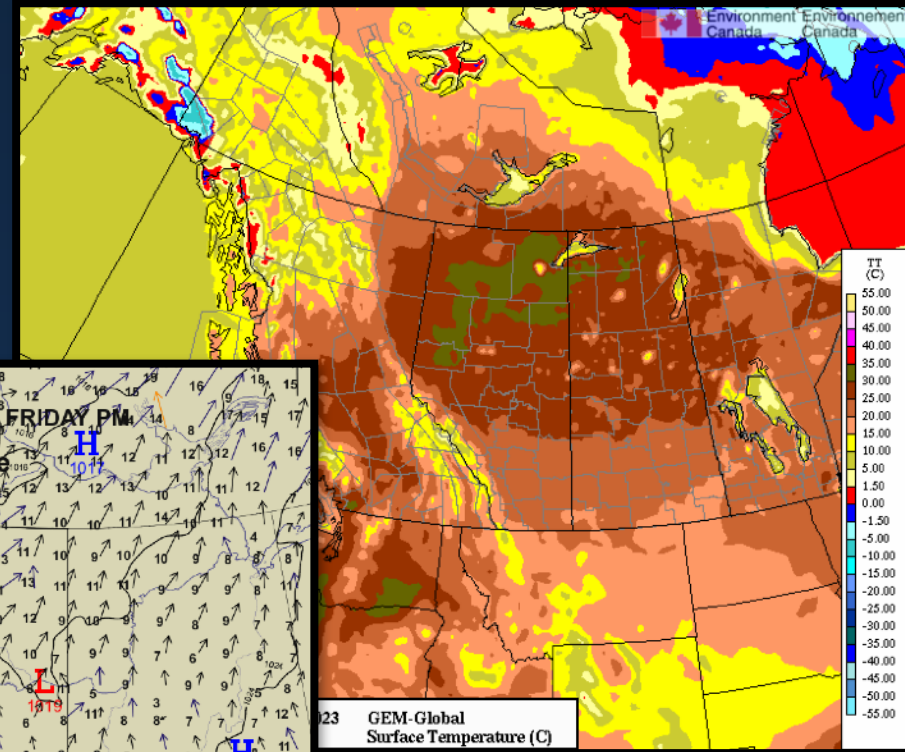
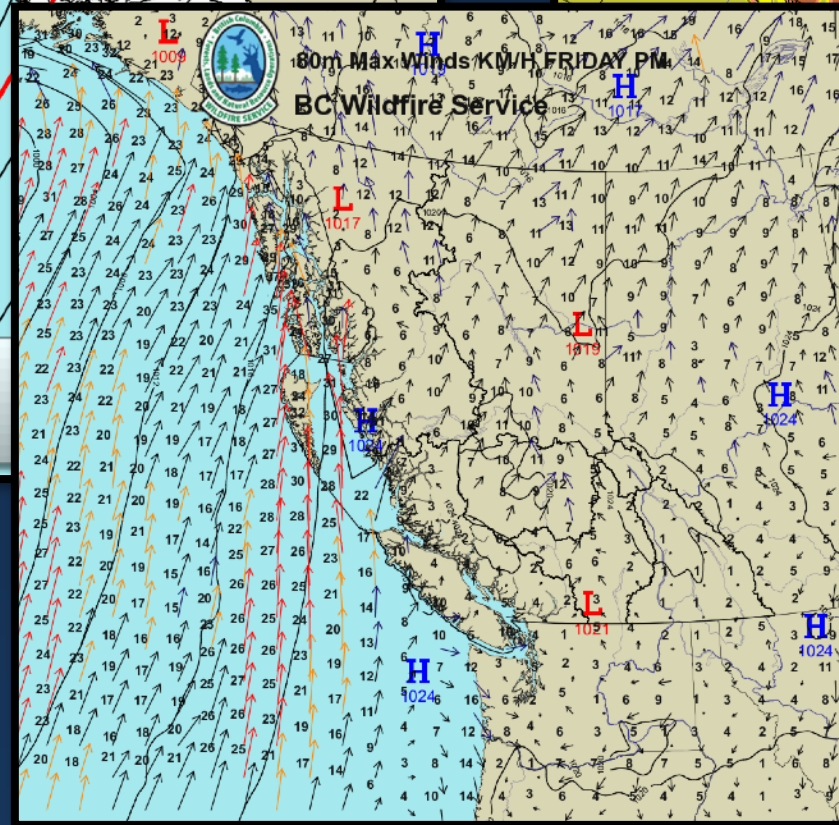
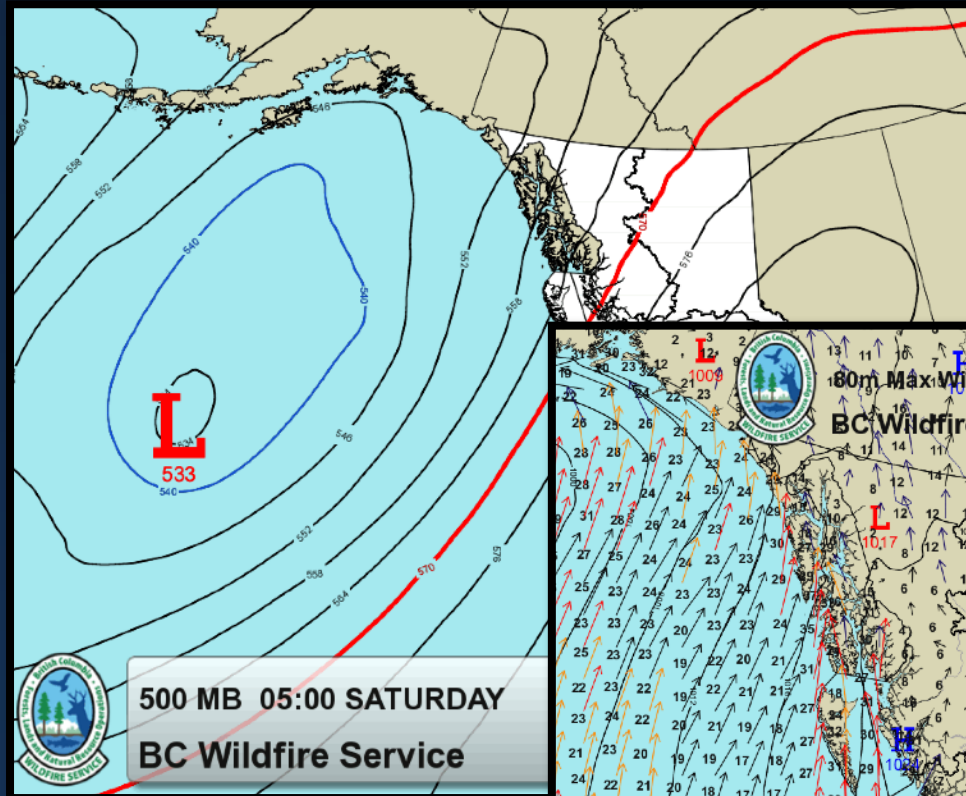




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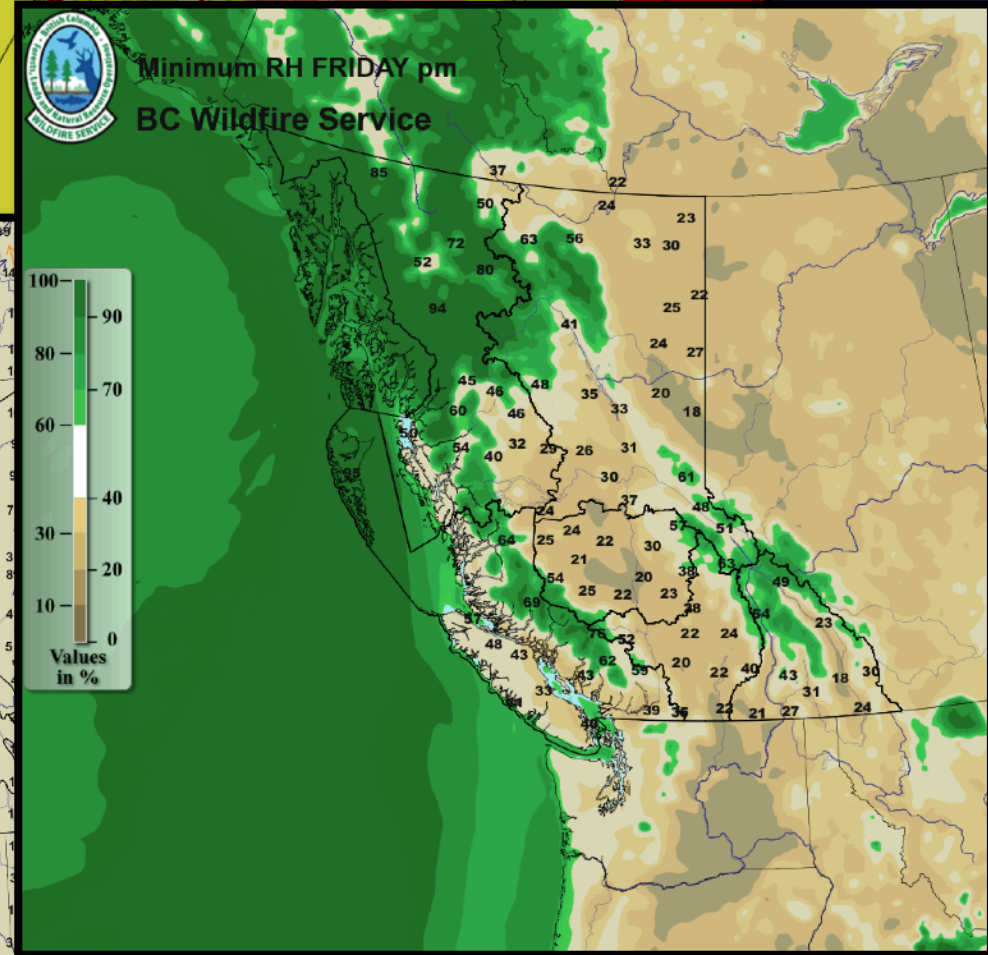
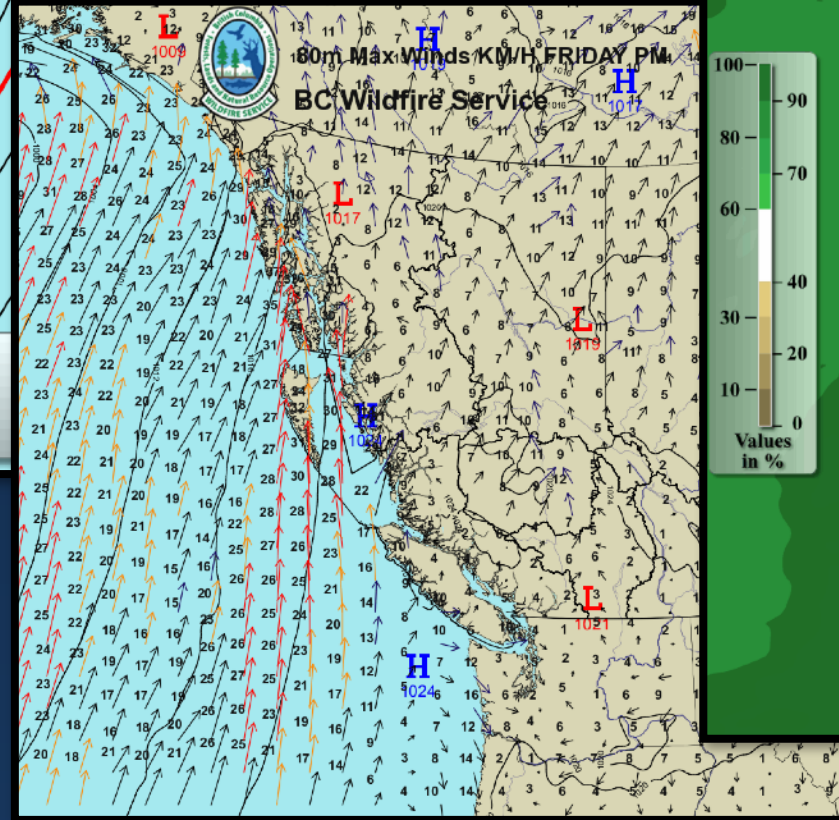
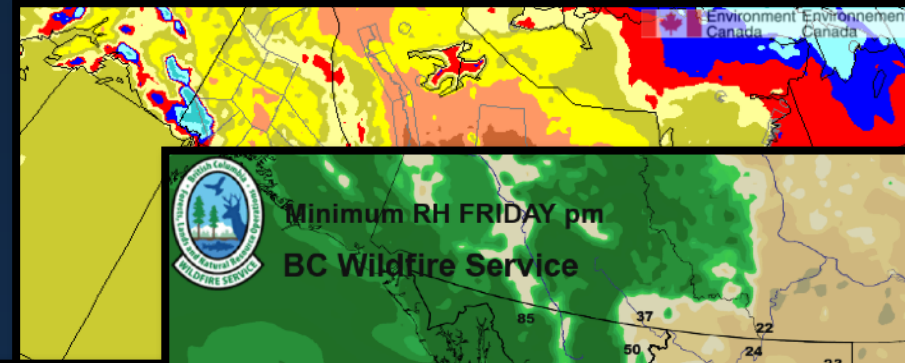
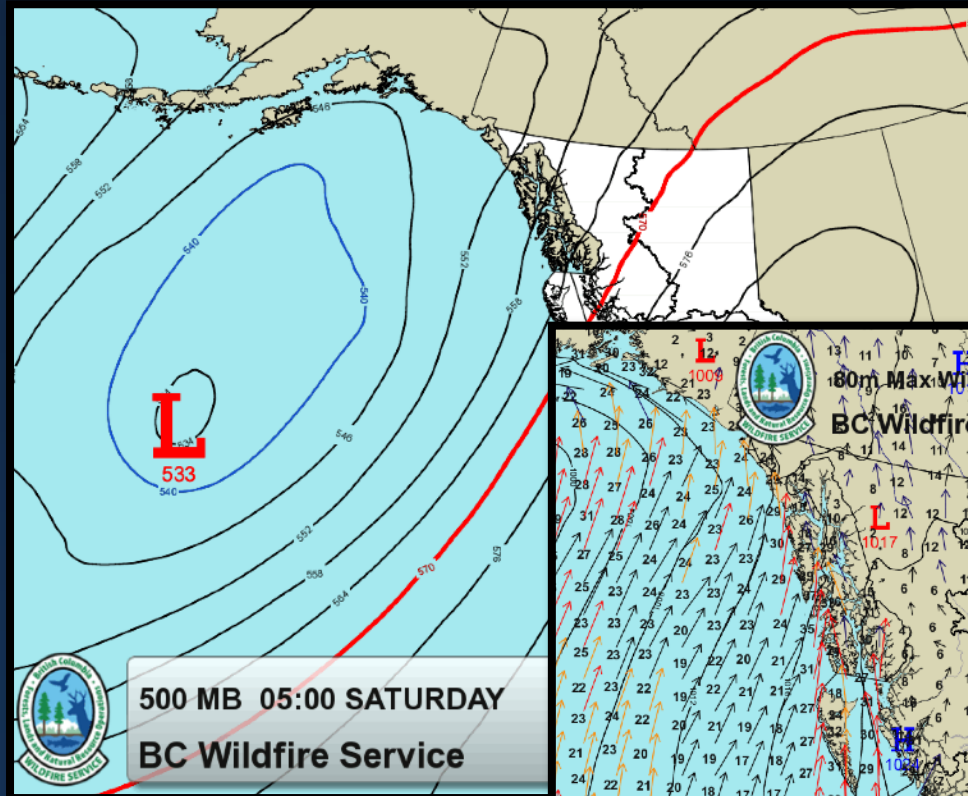


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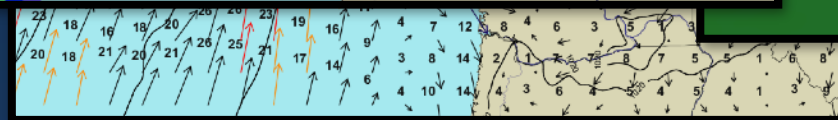
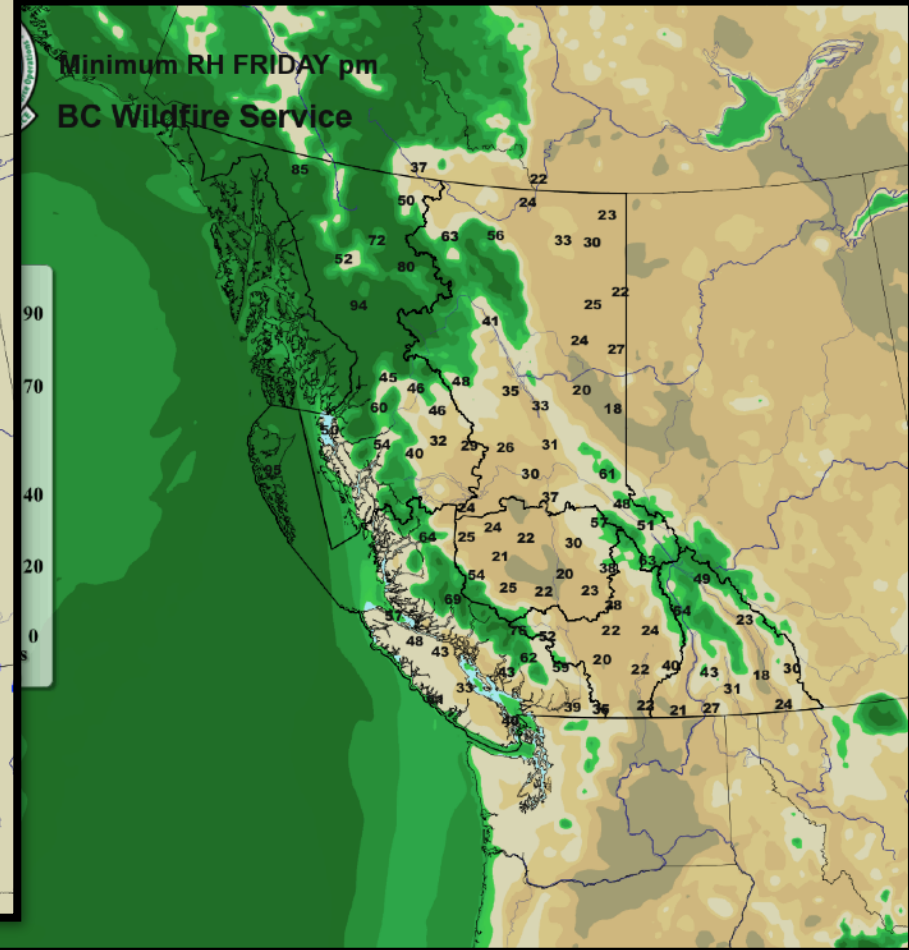
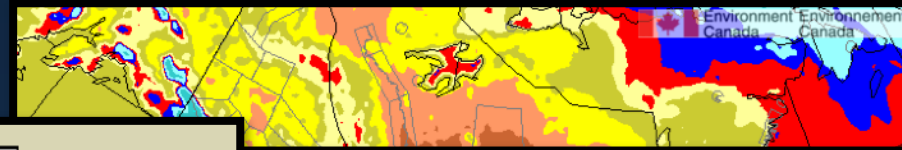
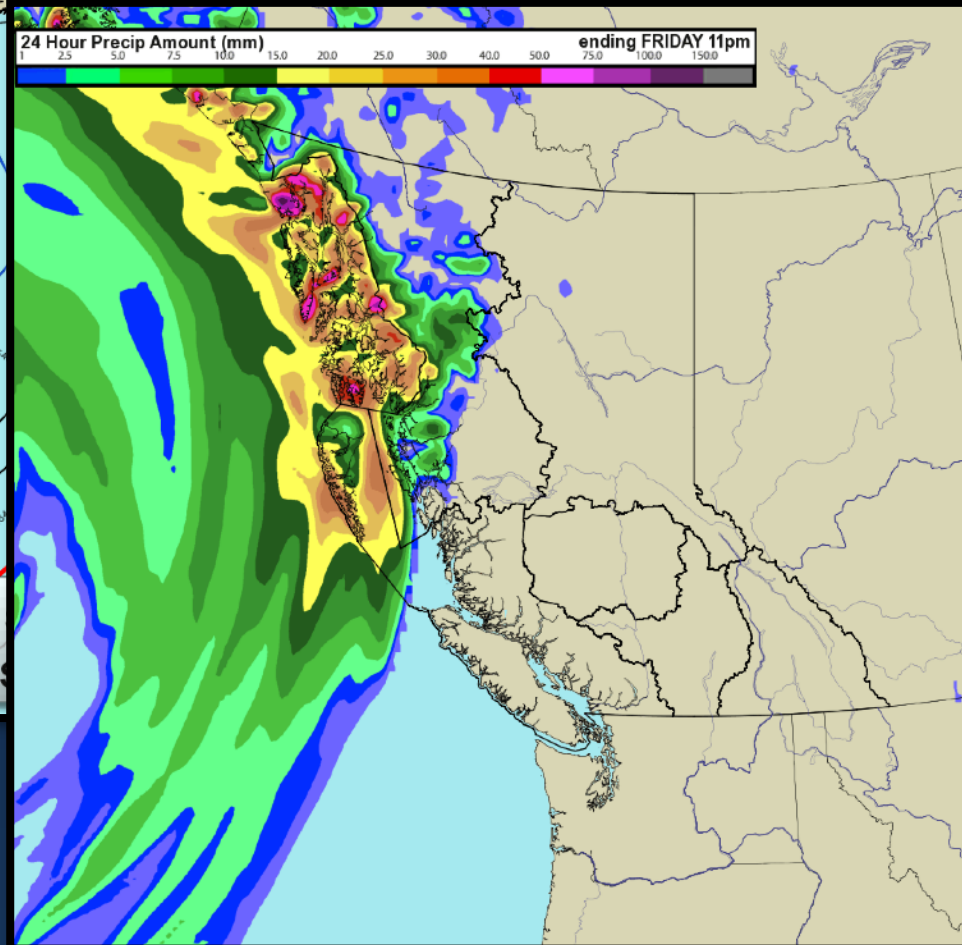
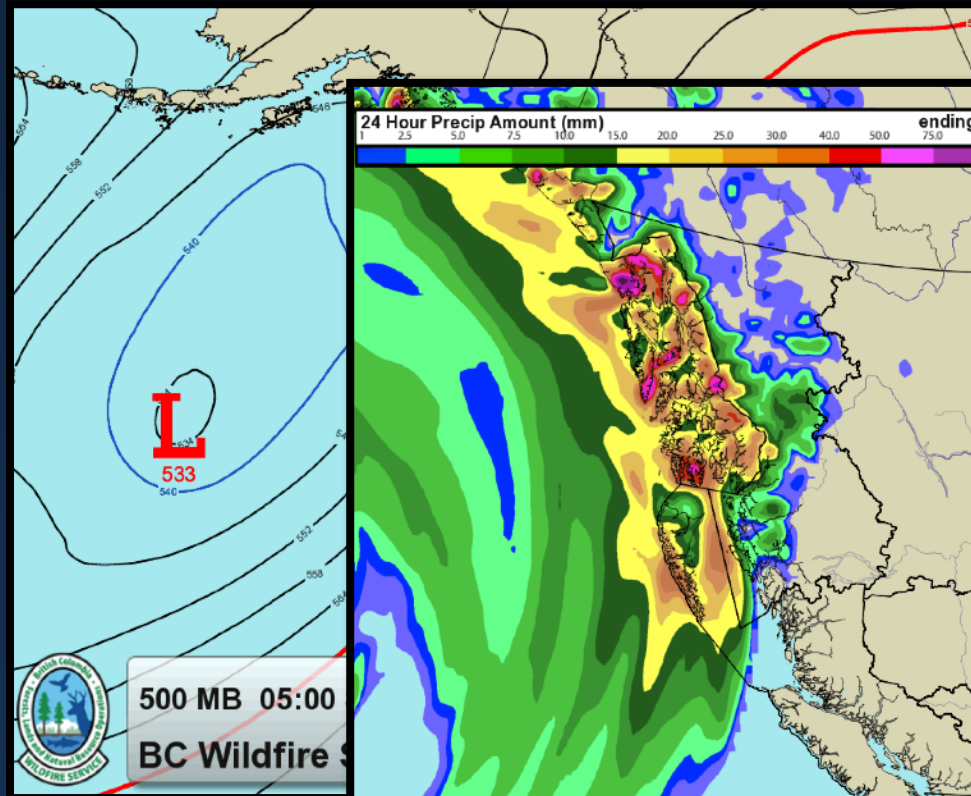




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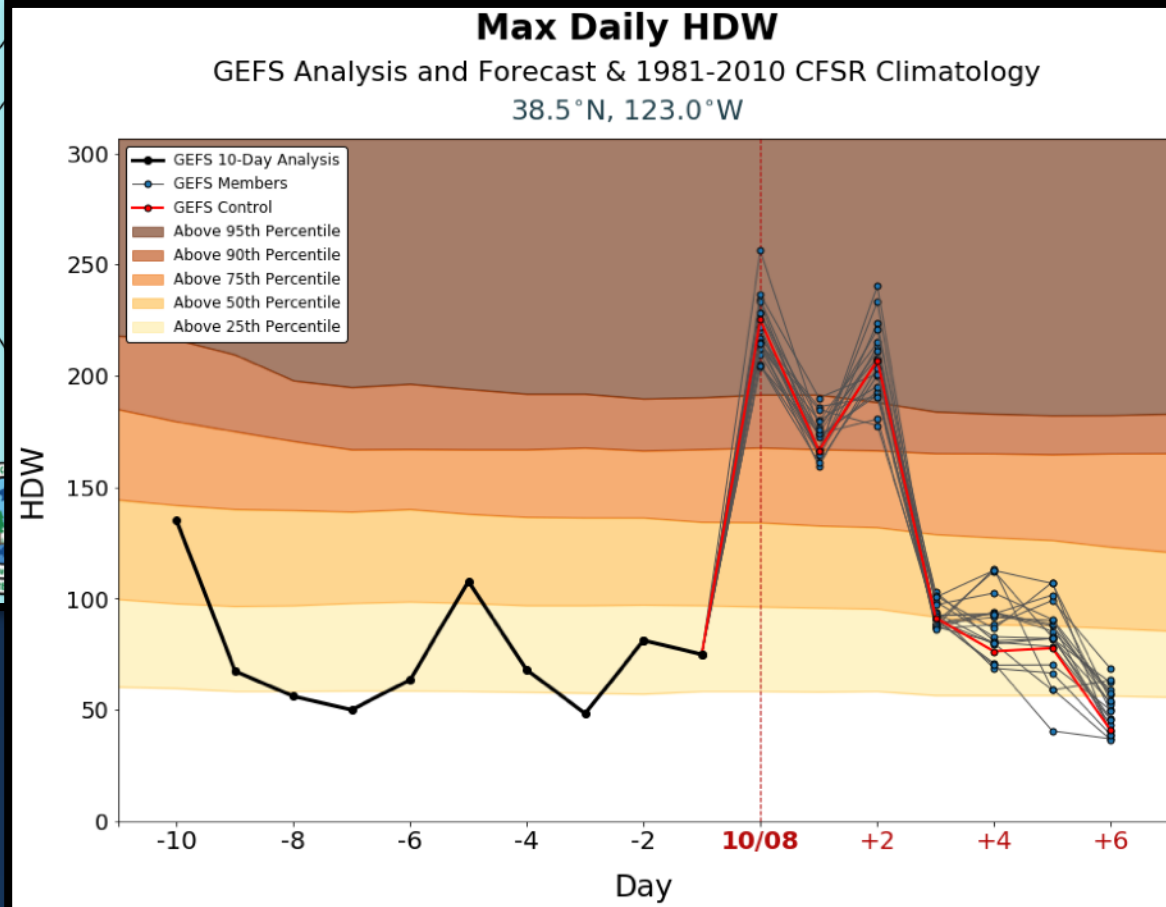
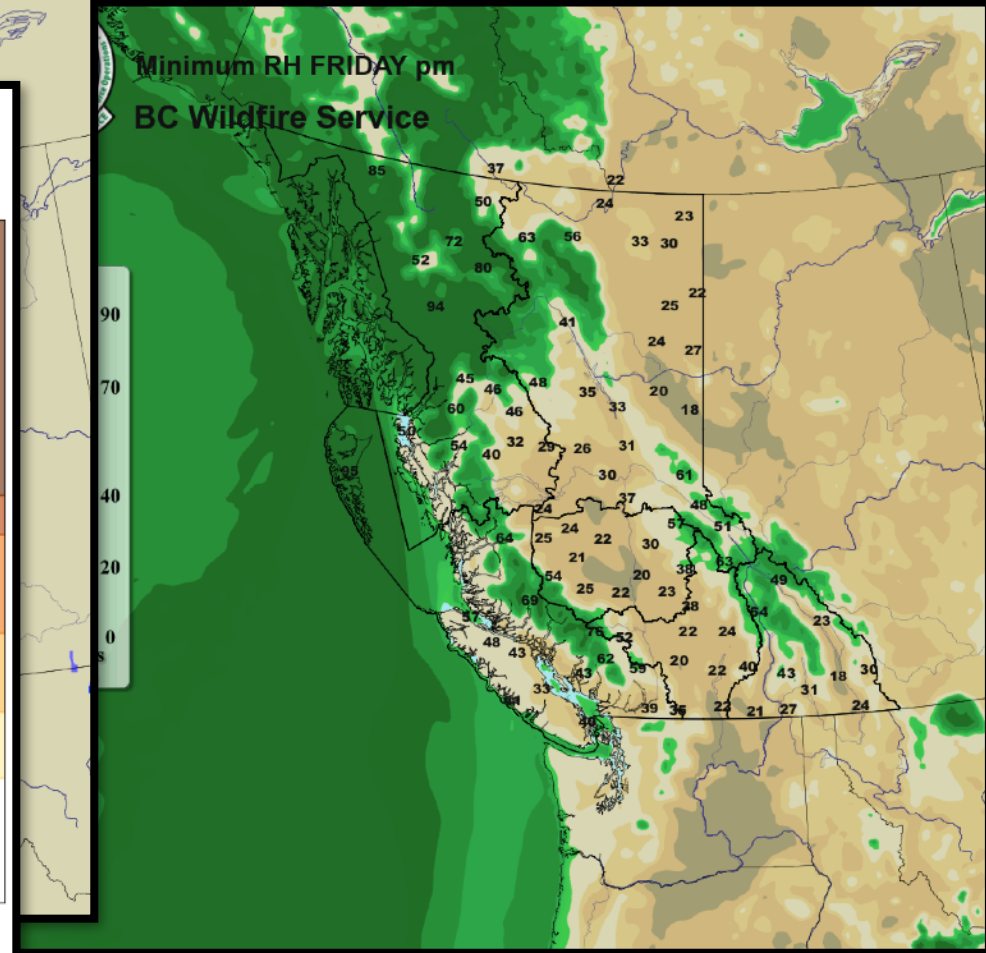
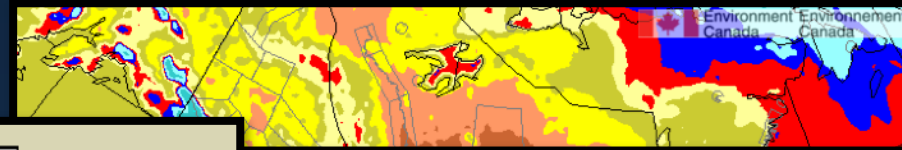


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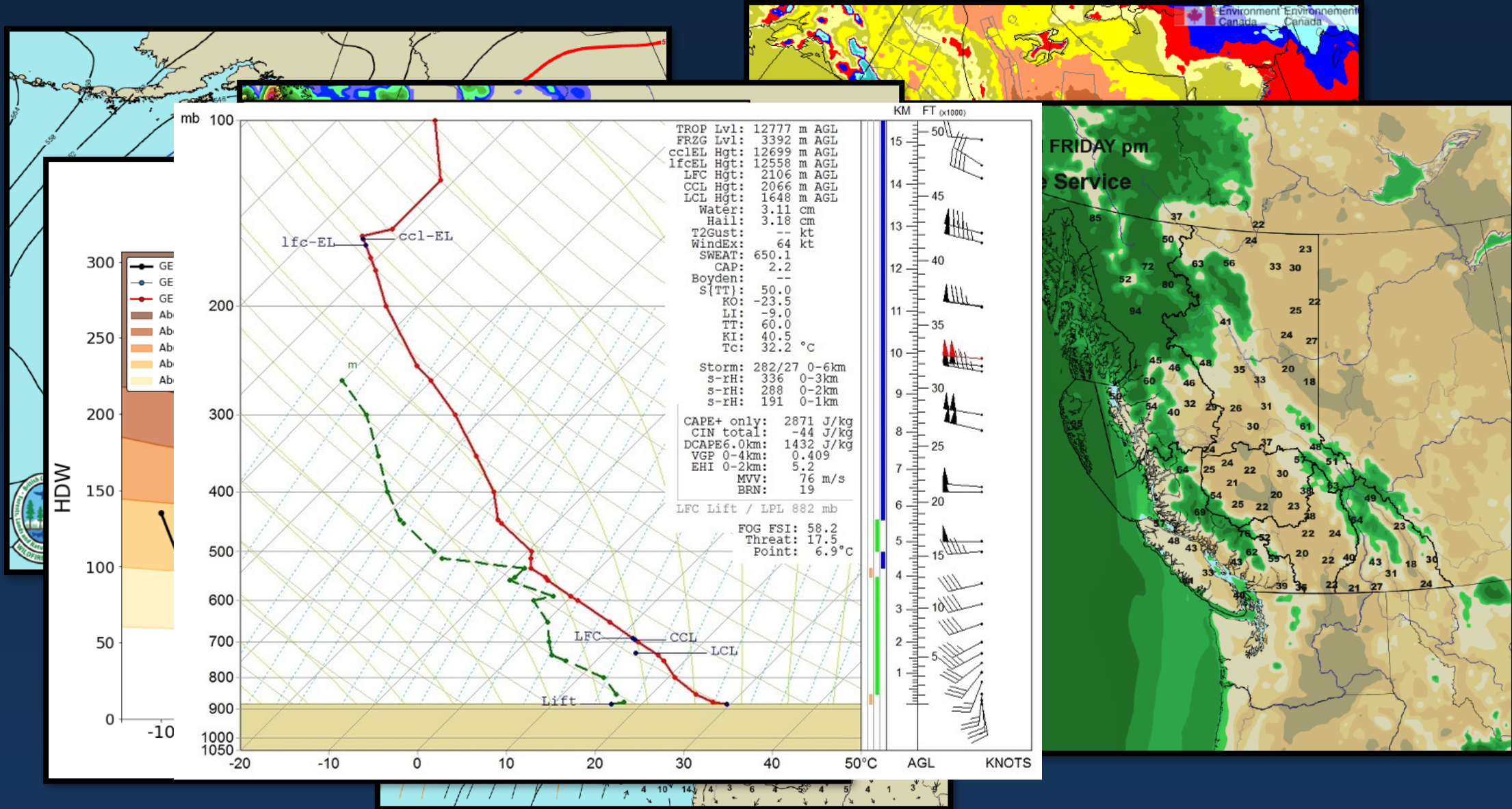




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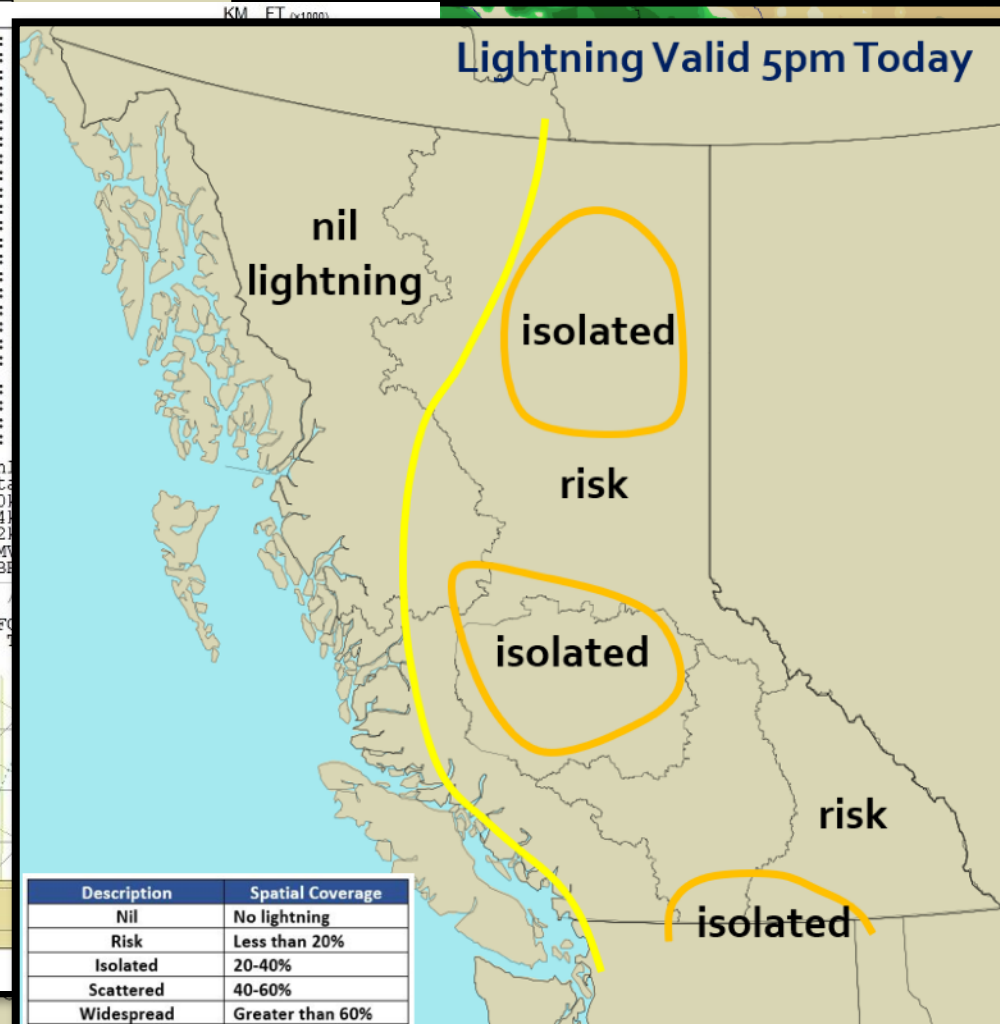
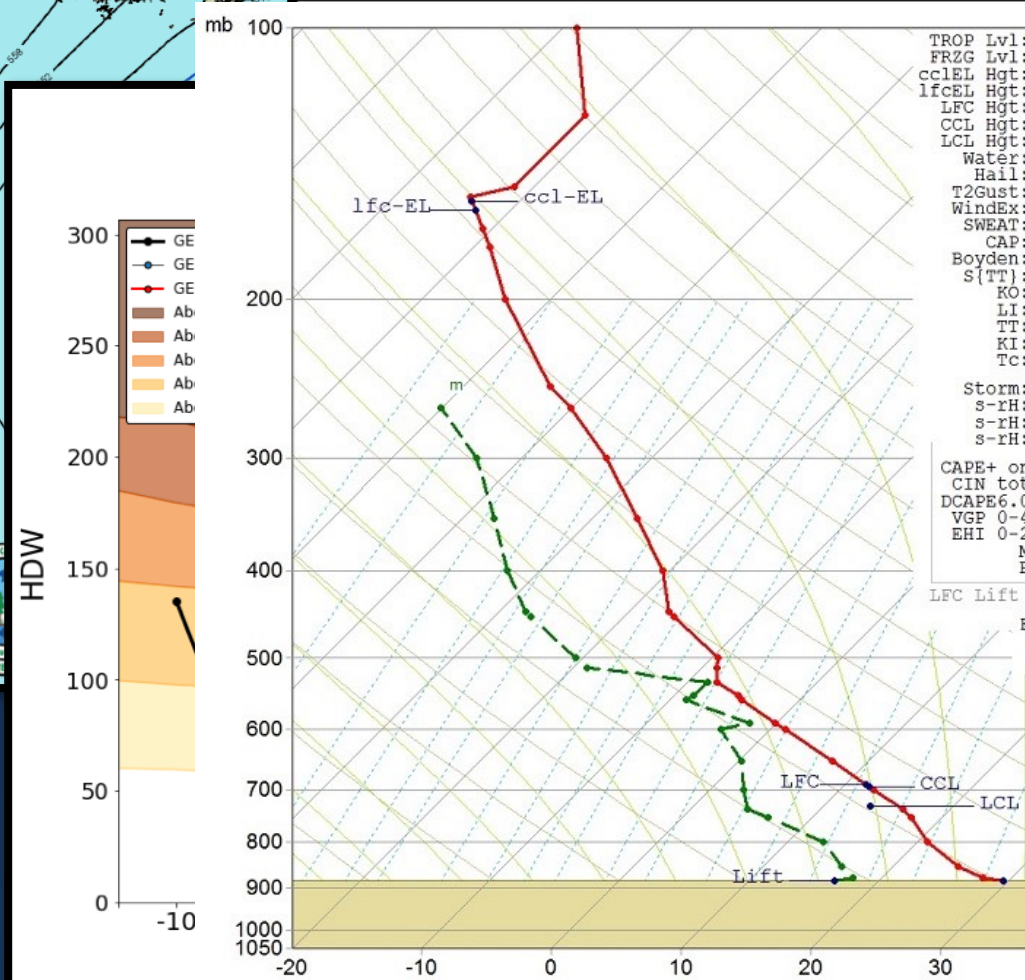
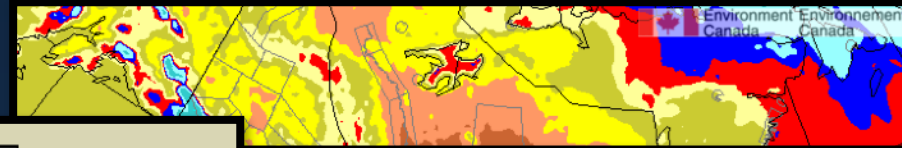


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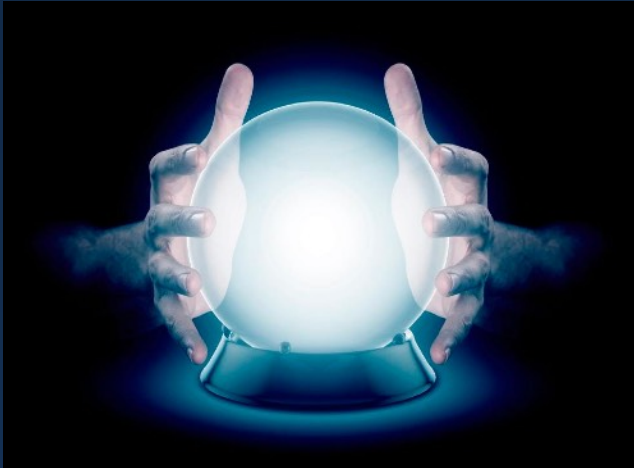




# Weather Charts



## Other tasks that creep up





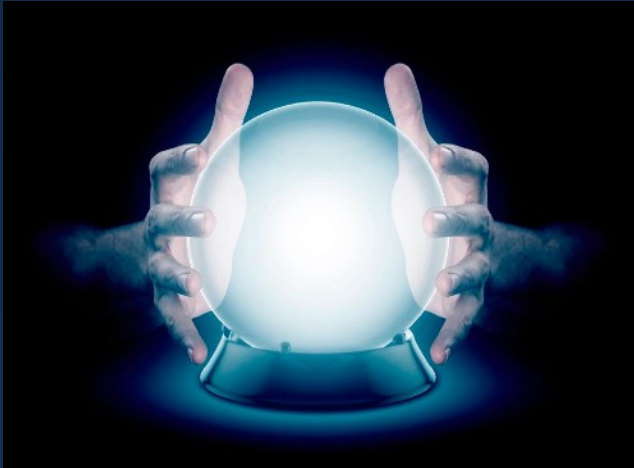
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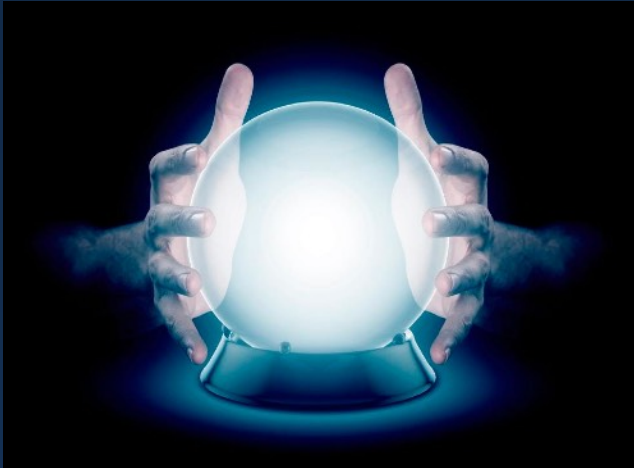
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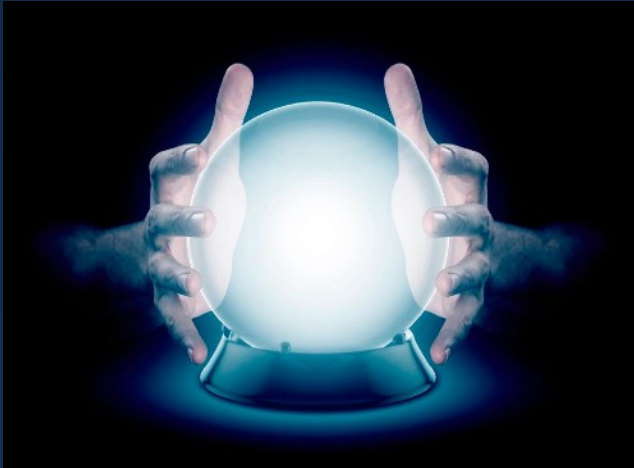
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- Ad hoc briefings for flights, executive, Minsters, travel, weekends...



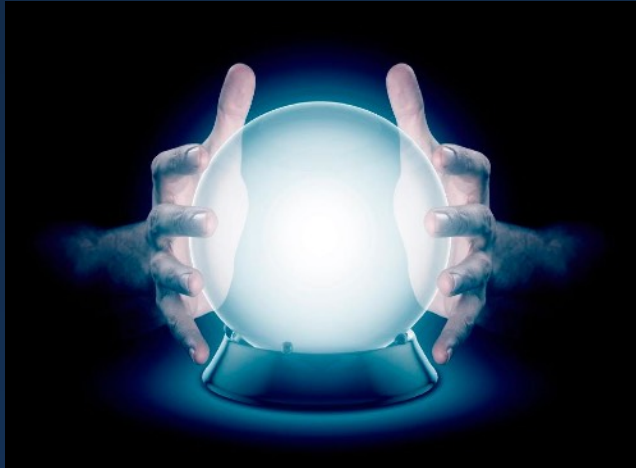


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- Historical weather data search

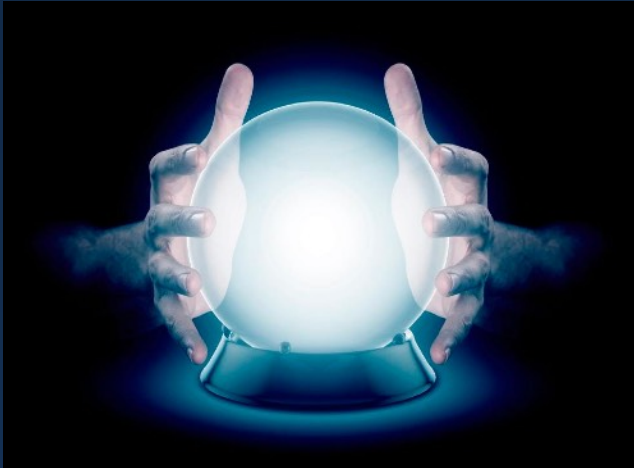


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- Media interviews
- Historical weather data search
- Case studies, providing training

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- Troubleshooting weather stations
- Ad hoc briefings for flights, executive, Minsters, travel, weekends...
- Media interviews
- Historical weather data search
- Case studies, providing training
- Developing tools, products, standards



# Some of our forecast products



BC Wildfire  
Service

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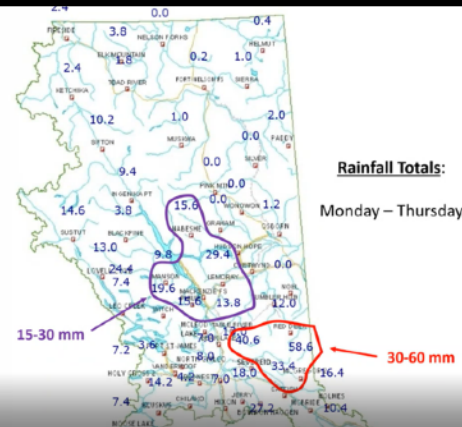


BC Wildfire  
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## PGFC Weather Briefing

Thursday, September 23,  
2021

Brett Soderholm  
PGFC Fire Weather Forecaster  
778-675-1250





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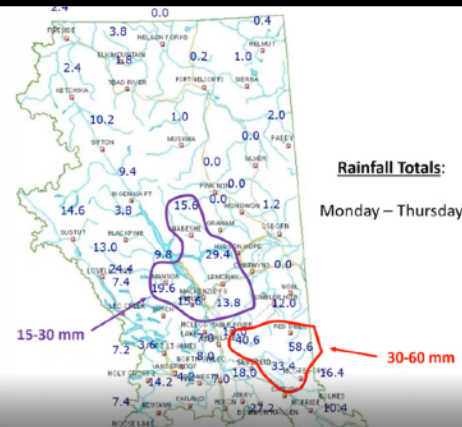


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### BC Wildfire Service - Coastal Region - Fire Weather Forecast

Issued: 1200 PDT Saturday August 14, 2021.

**SYNOPSIS:** (Today-tomorrow) Today will be the last day of the heat wave for most zones. Inland portions of the Fraser and Pemberton zones will remain hot on Sunday before cooling Monday. The ridge of high pressure that has dominated our weather pattern this week is slowly flattening and shifting inland which will allow for a cold front to slide down the Coast on Sunday. The front will spread cloud southwards and healthy amounts of precipitation (15-20 mm) to the Mid Coast on Sunday. Precipitation will fizzle as it pushes southwards with the North Island forecast to record 2-4 mm. Further south, chances of any measurable precipitation diminish significantly. Smoke continues to blanket the South Coast but will start to dissipate and move eastwards this afternoon as onshore flow deepens. The winds associated with Sunday's front should further help mix out the smoke. Wind will pick up from the south in the morning and shift to gusty northwesterlies with the front's passage late in the day.

**OUTLOOK:** (Monday-Wednesday) Conditions remain unsettled on Monday as an upper trough slowly passes overhead. Models have been deepening the trough which increases the chances of spotty light showers Monday night into Tuesday for the South Coast. Temperatures will be 10-13 degrees cooler from the recent heat wave and onshore flow will push relative humidities up to 30-50%. A ridge begins to rebuild offshore beginning Tuesday supporting a return to sunny, dry weather and seasonal temperatures.

**CONFIDENCE/DISCUSSION:** Good overall with the heat and light winds persisting one last day. Successive model runs have been trending weaker with Sunday's cold front so winds may be lighter than expected. Smoke will clear from the Island before the Mainland and could linger until Sunday evening for the most inland areas.

**8 TO 10 DAY:** (next week) Previous model iterations were favouring a longer more robust ridge but are forecasting an unsettled northwesterly flow beginning Thursday. This pattern would bring showers and cooler temperatures to the North and Mid Coast while increasing cloud cover and reducing temperatures for the South Coast.

#### ZONE FORECASTS

##### FRASER - PEMBERTON - SOUTH ISLAND - MID ISLAND - SUNSHINE COAST

**TODAY:** Mainly sunny with widespread smoke.

**MAX TEMP:** 26-34° **MIN RH:** 18-30% **WINDS:** Generally light inflow.

**TONIGHT:** Partly cloudy, hazy **MIN TEMP:** 14-17° **MAX RH:** 40-60%

**TOMORROW:** Mainly sunny, increasing cloud near midday.

**MAX TEMP:** 26-32° **MIN RH:** 20-35% **WINDS:** Becoming SE 10-15 km/h switching to NW 15 gusting 25 km/h late in the afternoon.

**CHANCE OF LIGHTNING / DRY LIGHTNING:** Today: 0/0. Tonight: 0/0. Tomorrow: 0/0.

##### NORTH ISLAND - MID COAST

**TODAY:** Mainly cloudy, more sun for North Island.

**MAX TEMP:** 25-30° **MIN RH:** 20-30% **WINDS:** Light inflow 5-8 km/h becoming NW 5-10 km/h this afternoon.

**TONIGHT:** Cloudy with showers beginning overnight.

**MIN TEMP:** 13-16° **MAX RH:** 60-90%

**TOMORROW:** Rain for Mid, chance of showers for North Island.

**MAX TEMP:** 16-22° **MIN RH:** 35-50% **WINDS:** Southerly 10-15 km/h switching to NW 15-20 km/h in the afternoon.

**CHANCE OF LIGHTNING / DRY LIGHTNING:** Today: 0/0. Tonight: 0/0. Tomorrow: 0/0.

##### HAIDA GWAII

**TODAY:** Cloudy with 60% chance of showers. **MAX TEMP:** 20° **MIN RH:** 65% **WINDS:** E 5-15 km/h.

**TONIGHT:** Rain. **MIN TEMP:** 14° **MAX RH:** 100%

**TOMORROW:** Mainly cloudy afternoon sunny breaks. **MAX TEMP:** 18° **MIN RH:** 60% **WINDS:** W 10-15 km/h.

**CHANCE OF LIGHTNING / DRY LIGHTNING:** Today: 0/0. Tonight: 0/0. Tomorrow: 0/0.

# Some of our forecast products

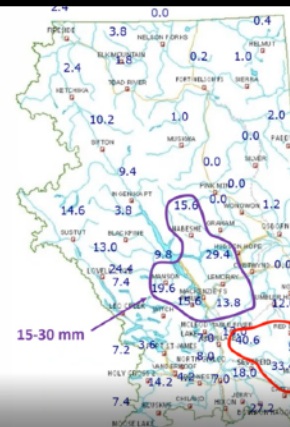


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### Rainfall Totals:

Monday – Thursday

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### PWCC FIRE WEATHER SUMMARY Prepared 0930 Thursday July 8, 2021

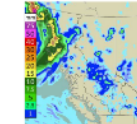
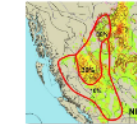
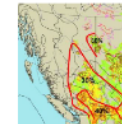
NOTE: this is just a high level summary, for detailed information please refer to each Fire Centre's specific weather forecast and briefing. Not for distribution outside of the BCWS without permission.

Today Lightning

Today Precip to 11pm

Tomorrow Lightning

Tomorrow Precip to 11pm



Today	Yesterday's low-pressure system that tracked along the international border supporting scattered thunderstorms with spotty rainfall has moved east into Alberta. In its wake, a second disturbance will follow a similar path with additional patchy cloud and scattered thunderstorms although likely less widespread. Central and northern BC will continue to experience above seasonal temperatures and RH in the 70-80% range resulting in crossover conditions and good burning conditions. Winds remain westerly and in-flow, gusty through the Canyon and switching to N-NW through KFC.
Tonight	Risk of thunderstorms persists over SE this evening as the low exits. Recoveries will be good across most zones with the exception of fair recoveries across PGFC and northern Cariboo.
Friday	A ridge of high pressure rebuilds across the south leading to clearing, warming, and drying with a return to above-seasonal temperatures. Meanwhile, a trough pushes across central BC supporting a risk of scattered thunderstorms with minimal precipitation. The trough will also support gusty westerly winds.
Outlook Days 3 to 5	<b>Saturday</b> – The ridge flattens and a westerly flow ensues. Dry, hot conditions persist in the south but models are now sending disturbances across the center of the province. Will have to watch Saturday night's low tracking across Cariboo as this could produce dry lightning and strong gusty westerly winds. <b>Sunday</b> – The disturbance exits through the Columbia generating winds and potential lightning for the Columbia and Robson zones. Heat and dryness drives rising hazard for other regions.
Outlook Days 6 to 10	<b>Monday</b> – Variable cloud and dry, still above seasonal and then below seasonal temperatures. Models finally coming into better agreement in the long range with a trend towards cooler temperatures. Models forecasting a deep low to swing SE from the Gulf of Alaska spreading cloud and measurable rainfall to northern and central parts of the province by the end of next week. Southern reaches continue to look dry although with cooler temperatures and increased RH. Will have to watch for potential cold front associated with the low that could swing through Thursday or Friday generating thunderstorms.
Confidence	Good overall with the pattern over the next few days. Fair with regards to the disturbance tracking across the center of the province late Saturday. Will need to monitor that feature as it could have significant fire weather implications. Improving confidence for the longer-range trend towards cool and unsettled, atypical of mid July.



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Rainfall Totals:

## SEVERE WIND WARNING

BC Wildfire Service – Kamloops Fire Centre

Issued: 11:00 May 17, 2021

PLEASE ENSURE ALL LINE STAFF RECEIVE THIS INFORMATION

Strong gusty winds are forecast for the fire centre region today as an upper cold front ahead of a cold upper low approaches the region. Winds are expected to reach 30 gusting 50 km/h from the southwest. Winds will diminish to near 20 km/h overnight as the front crosses the region before redeveloping tomorrow.

Strong winds will intensify fire behaviour and may cause hazardous conditions on the fireline including falling trees. Personnel are to exercise situational awareness and continually assess escape routes.

**"ALL STATIONS IN THE FIELD PLEASE CONFIRM YOU HAVE RECEIVED & UNDERSTOOD THIS MESSAGE. Kamloops Fire Centre, Standing By."**

FORECASTER: Paul Emmett paul.emmett@gov.bc.ca 250-554-7247

Dale  
Bojhra

Digitally signed by  
Dale Bojhra  
Date: 2021.05.17  
10:31:58 -0700

- 1) RWCO Signature \_\_\_\_\_
- 2) RWCO Specifies Zones for broadcast of message. Please circle choices:

K2 ☐ K4 ☐ K5 ☐ K6 ☐ K7 ☐

- 3) Dispatch: Broadcast a 1-minute warning & then transmit to all crews on fire and in the field, on channels selected above by the RWCO.

Time of broadcast: \_\_\_\_\_ Name of Dispatcher: \_\_\_\_\_

## BC Wildfire Service - Coastal Region - Fire Weather Forecast

Issued: 1200 PDT Saturday August 14, 2021.

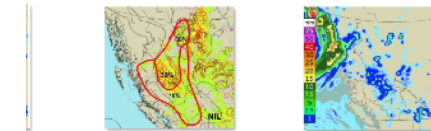
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**ARY Prepared 0930 Thursday July 8, 2021**

Center's specific weather forecast and briefing. Not for distribution outside of the BCWS without permission.

im Tomorrow Lightning Tomorrow Precip to 11pm



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the low exits. Recoveries will be good across most zones with the exception of fair

ding to clearing, warming, and drying with a return to above-seasonal temperatures. rting a risk of scattered thunderstorms with minimal precipitation. The trough will also

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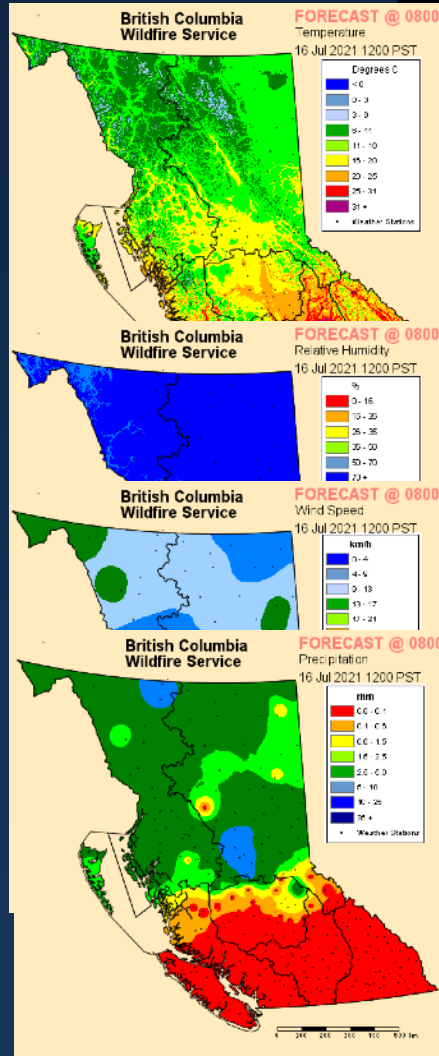
but beginning of the trend towards seasonal and then below seasonal temperatures. ng range with a trend towards cooler temperatures. Models forecasting a deep low to swing rable rainfall to northern and central parts of the province by the end of next week, cooler temperatures and increased RH. Will have to watch for potential cold front associated lday generating thunderstorms.

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# Some of our forecast products



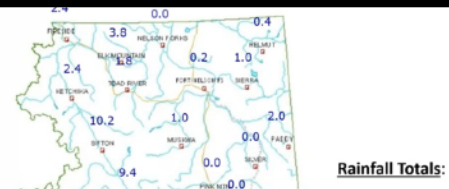
BC Wildfire Service



## PGFC Weather Briefing

Thursday, September 23,  
2021

Paul Soderholm  
PGFC Fire Weather Forecaster  
8-675-1250



Rainfall Totals:

## SEVERE WIND WARNING

BC Wildfire Service – Kamloops Fire Centre

Issued: 11:00 May 17, 2021

PLEASE ENSURE ALL LINE STAFF RECEIVE THIS INFORMATION

Strong gusty winds are forecast for the fire centre region today as an upper cold front ahead of a cold upper low approaches the region. Winds are expected to reach 30 gusting 50 km/h from the southwest. Winds will diminish to near 20 km/h overnight as the front crosses the region before redeveloping tomorrow.

Strong winds will intensify fire behaviour and may cause hazardous conditions on the fireline including falling trees. Personnel are to exercise situational awareness and continually assess escape routes.

**"ALL STATIONS IN THE FIELD PLEASE CONFIRM YOU HAVE RECEIVED & UNDERSTOOD THIS MESSAGE. Kamloops Fire Centre, Standing By."**

FORECASTER: Paul Emmett paul.emmett@gov.bc.ca 250-554-7247

Dale  
Bojhra

Digitally signed by  
Dale Bojhra  
Date: 2021.05.17  
10:31:58 -0700

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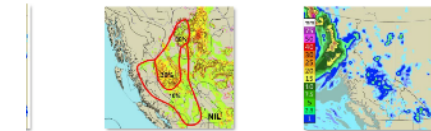
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Day 1) Conditions remain unsettled on Monday as an upper trough slowly passes deepening the trough which increases the chances of spotty light showers along the South Coast. Temperatures will be 10-13 degrees cooler from the recent high push relative humidities up to 30-50%. A ridge begins to rebuild offshore as a return to sunny, dry weather and seasonal temperatures.

**ARY Prepared 0930 Thursday July 8, 2021**

Fire Centre's specific weather forecast and briefing. Not for distribution outside of the BCWS without permission.

Tomorrow Lightning Tomorrow Precip to 11pm



The international border supporting scattered thunderstorms with spotty rainfall has moved inland to follow a similar path with additional patchy cloud and scattered thunderstorms although continue to experience above seasonal temperatures and RH in the 70-80% range resulting in insects remain westerly and in low, gusty through the Canyon and switching to N-NW through the low exits. Recoveries will be good across most zones with the exception of fair.

Due to clearing, warming, and drying with a return to above-seasonal temperatures, increasing a risk of scattered thunderstorms with minimal precipitation. The trough will also pass.

Yes, dry, hot conditions persist in the south but models are now sending disturbances across the night's low tracking across Cariboo as this could produce dry lightning and strong gusty winds.

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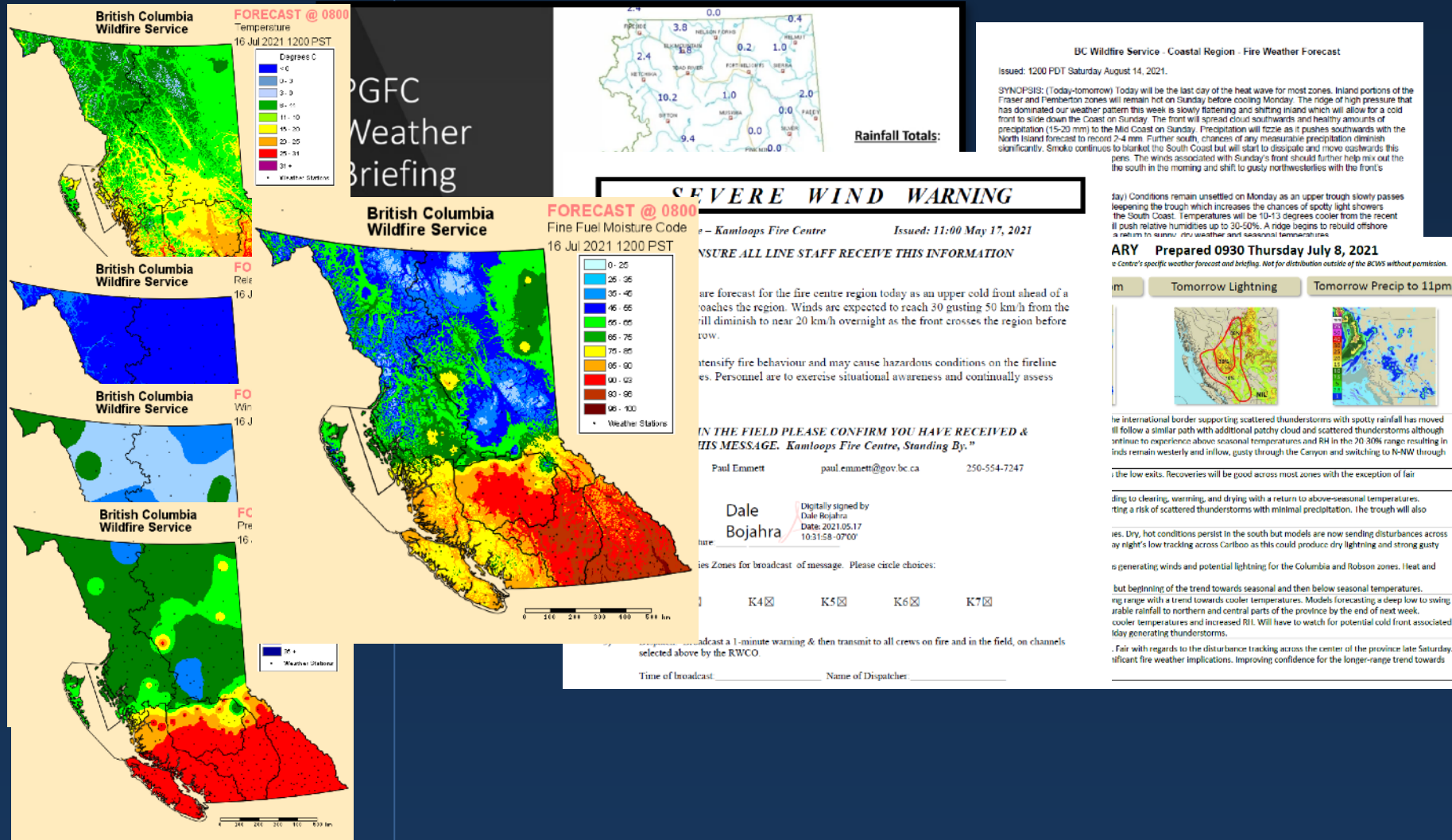
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# Some of our forecast products



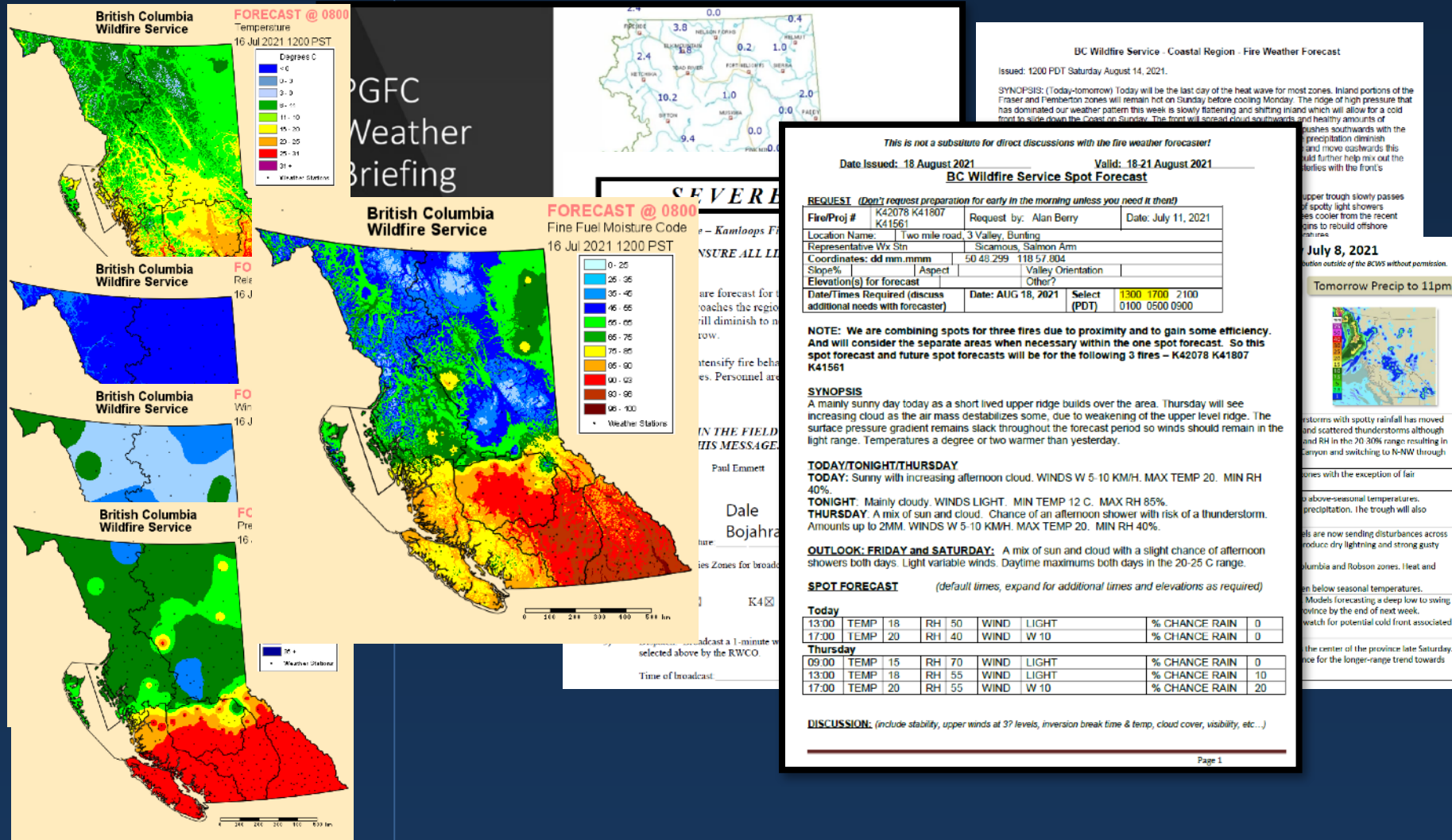
BC Wildfire  
Service



# Some of our forecast products



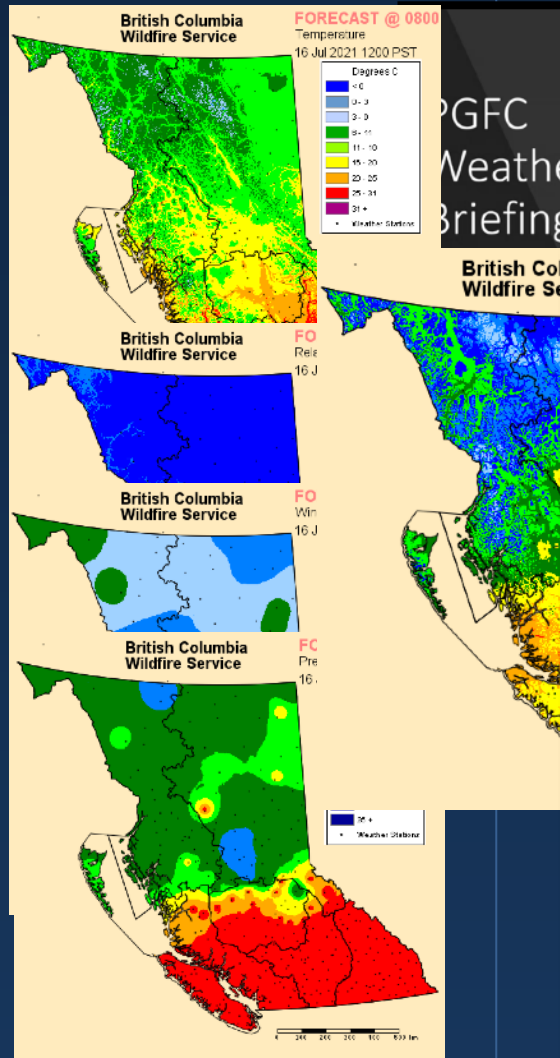
BC Wildfire Service



# Some of our forecast products



BC Wildfire Service



**Ministry of Forests, Lands and Natural Resource Operations**  
Custom Venting Forecast

Company: BCWS - Sunshine Coast Zone

Burn Registration Number(s): on file

Issued: October 7, 2021

FOR BURNING ON: October 8, 2021

**Synopsis:**

**Friday:** an approaching trough will generate instability and southerly winds on Friday that will support good venting by 10am onwards. Venting will remain good until sunset at 6:45pm.

**Saturday:** A frontal system will cross the Sunshine Coast on Saturday generating showers and a slightly more stable atmosphere. Increased southerly winds will support fair venting in the morning and good venting from noon onwards until the early evening.

**Sunday:** A cool and unstable northwesterly flow will support good venting Sunday afternoon.

**Comments:** Test piles should be considered Friday morning before igniting the larger piles. It may take an extra hour for the atmosphere to destabilize enough for smoke to rise.

	Lat & Long:	49.808, -124.509	Elev: 85m
	Optimal Time:	10 am - 6 pm	Mixing Height ASL (m): surface
Friday	Poor	10 am - 6 pm	1300
Saturday	Good	12 pm - 6 pm	800
Sunday	Poor	10 am - 4 pm	1500

Open Burning Restrictions in place: None at this time.

Forecaster: Matt MacDonald  
Meteorologist  
[Matthew.A.MacDonald@gov.bc.ca](mailto:Matthew.A.MacDonald@gov.bc.ca)  
778-686-7602

BC Wildfire Service - Coastal Region - Fire Weather Forecast

Issued: 1200 PDT Saturday August 14, 2021.

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**July 8, 2021**

**Tomorrow Precip to 11pm**

**to proximity and to gain some efficiency. vary within the one spot forecast. So this the following 3 fires – K42078 K41807**

**builds over the area. Thursday will see due to weakening of the upper level ridge. The forecast period so winds should remain in the in yesterday.**

**DS W 5-10 KM/H. MAX TEMP 20. MIN RH P 12 C. MAX RH 85%. afternoon shower with risk of a thunderstorm. MP 20. MIN RH 40%.**

**and cloud with a slight chance of afternoon cumulus both days in the 20-25 C range.**

**additional times and elevations as required)**

	% CHANCE RAIN	0
	% CHANCE RAIN	0
	% CHANCE RAIN	0
	% CHANCE RAIN	0
	% CHANCE RAIN	10
	% CHANCE RAIN	20

vision break time & temp, cloud cover, visibility, etc...)

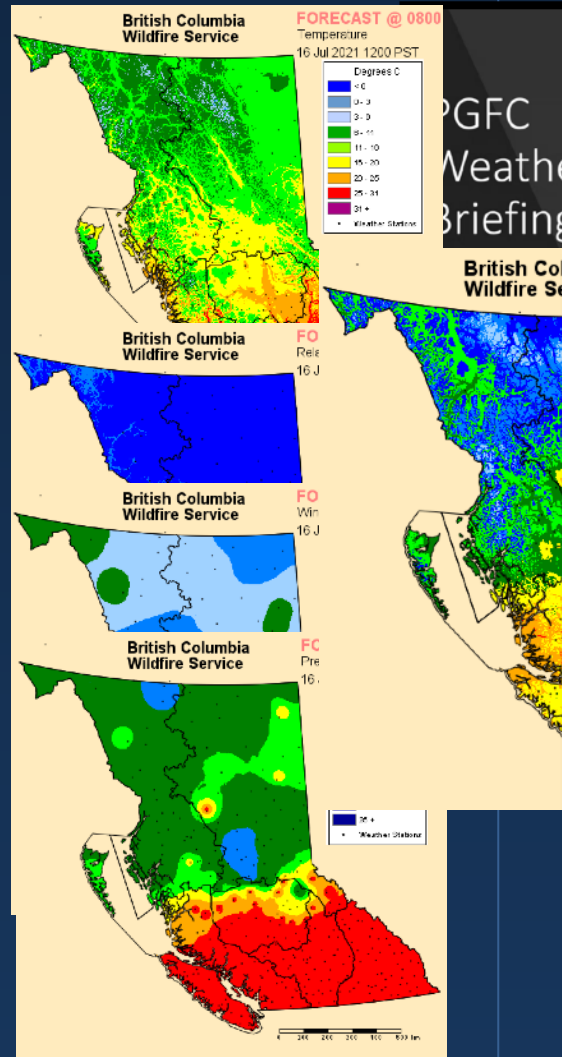
Page 1



# Some of our forecast products



BC Wildfire Service



**WILDFIRE Seasonal Outlook**  
MONTHLY UPDATE July 2, 2021

**RECENT CONDITIONS**  
The first half of June saw relatively normal precipitation for the Northern half of the province, but the Southern half saw less than normal for most places and areas in the Okanagan saw historic lows. The second half of June saw warm temperatures, capped off by a historic heat wave throughout the province that raised the fire danger to critical levels. This has resulted in several large fires in Northeastern BC and in the central interior. In many areas of the province burning conditions are similar to what would normally be seen in Mid-July or August, while other areas are experiencing record moisture deficits. Thunderstorms have brought rain to NE BC, but are expected to result in more fire starts in the coming weeks.

**SUMMER OUTLOOK**  
The latest monthly forecasts for July indicate a fairly strong likelihood of warmer and drier than normal conditions persisting across much of B.C. Grass and other surface fuels have been drying quickly, meaning that seasonal "green up" is over for most parts of the province. This means that fires will behave as we would expect for mid-July or August conditions. This, combined with the lack of precipitation received in June and the record-setting heat wave has created the conditions for very large fire growth. The absence of strong signals for precipitation in the long-term forecast suggests there will be a period of heightened activity well into July. The weather and fuel conditions have made initial attack challenging, meaning large fires will likely be occurring throughout the province.

**Open Burning Restrictions in place:** No

**Forecaster:** Matt MacDonald  
Meteorologist  
Matthew A MacDonald  
778-686-7602

**BC Wildfire Service - Coastal Region - Fire Weather Forecast**  
Issued: 1200 PDT Saturday August 14, 2021.

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**July 8, 2021**  
Attention outside of the BCWS without permission.

**Tomorrow Precip to 11pm**

**and to gain some efficiency, one spot forecast. So this i fires - K42078 K41807**

**area. Thursday will see g of the upper level ridge. The id so winds should remain in the**

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% CHANCE RAIN	0
% CHANCE RAIN	0

% CHANCE RAIN	0
% CHANCE RAIN	10
% CHANCE RAIN	20

**temp, cloud cover, visibility, etc...)**

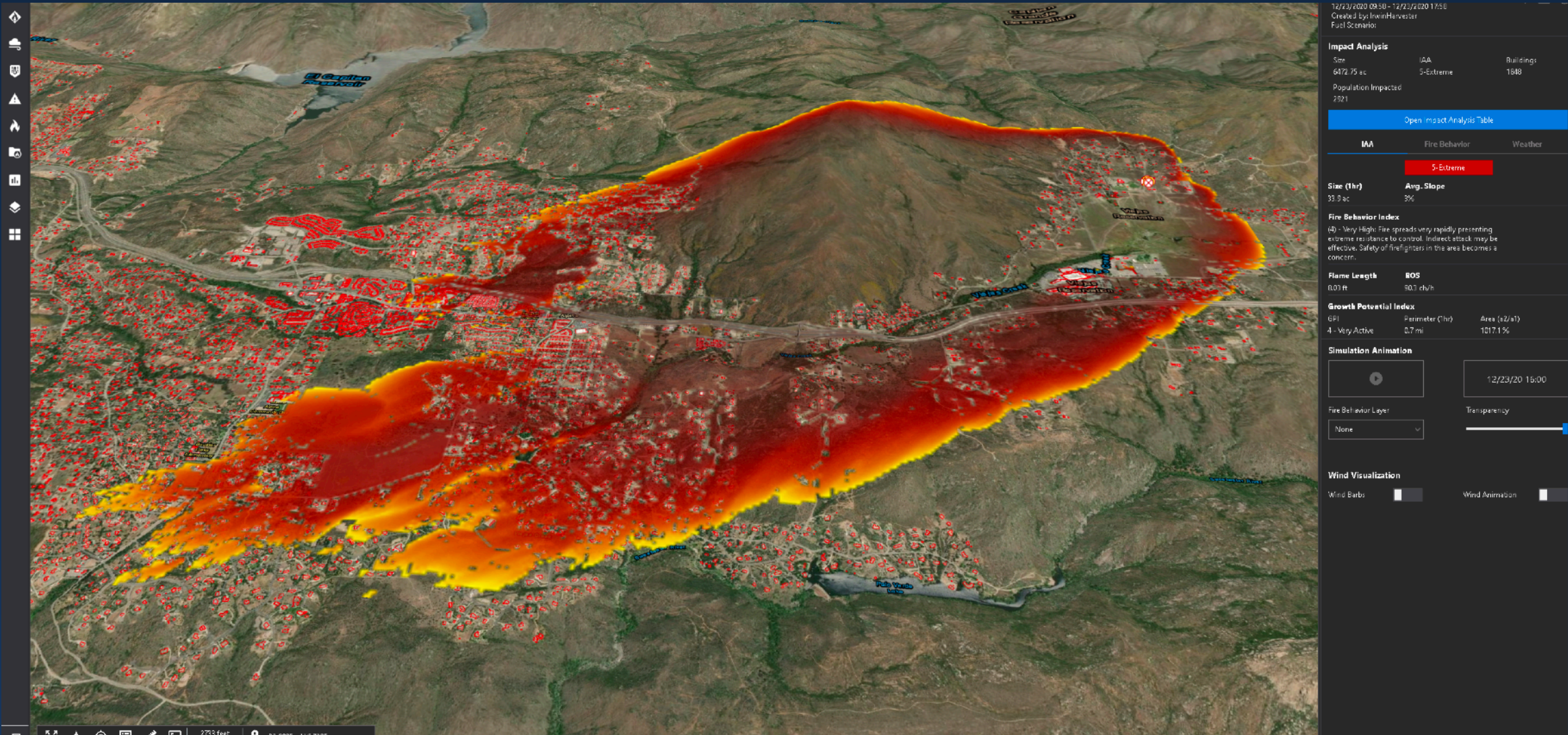
Page 1



# Wildfire Growth Modelling




BC Wildfire Service
















# Winter Work



BC Wildfire Service

Report of Fire	Incident Management
	
Business Intelligence	eDiaries
	
Vendor Portal	Supplier Manager
	
Fire Weather	Weather Dashboard
	
Wildfire News	Training and Support
	
Predictive Tools	Firecast
	
Tactical Analyst	



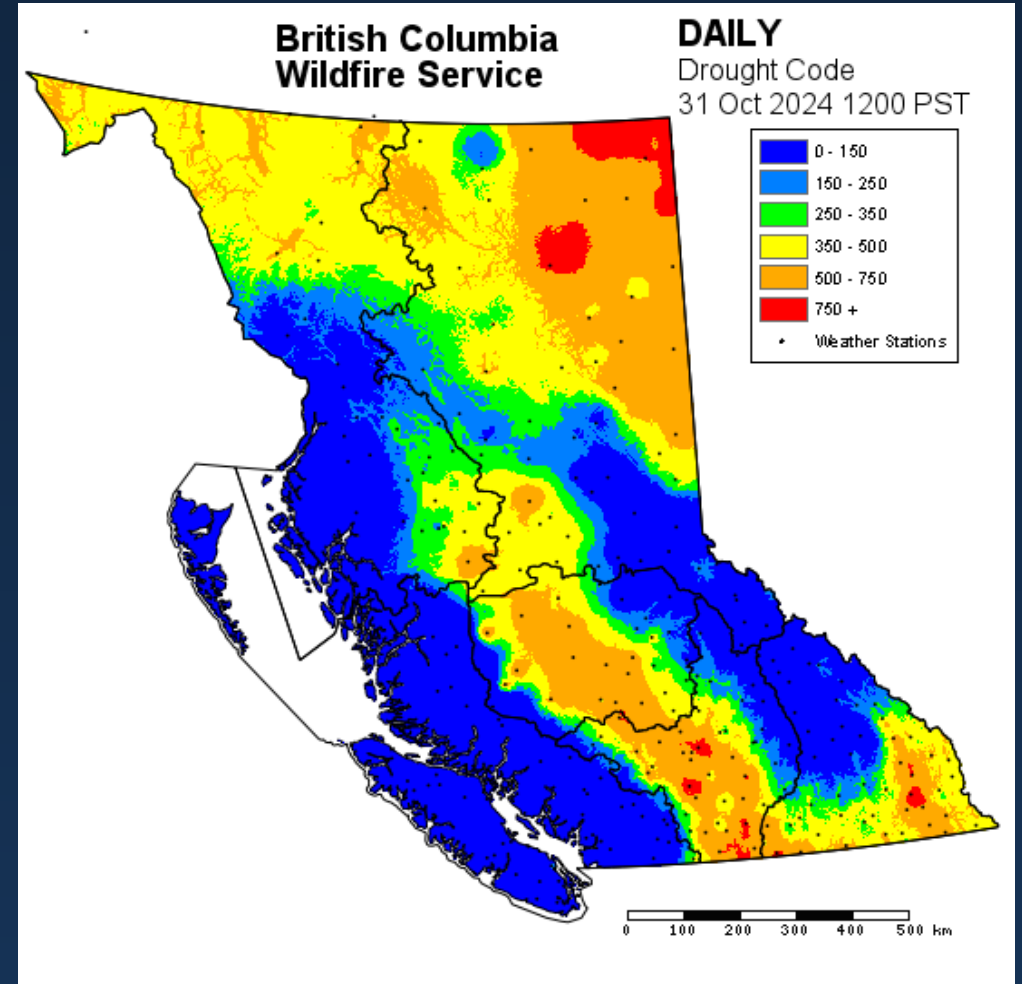


A firefighter in full gear, including a red helmet and a red jacket, is walking away from the camera on a dirt trail. They are carrying a long, white fire hose over their shoulder. The background shows a dense forest of tall trees. The image is divided into vertical panels of different colors: light yellow, olive green, and dark blue.

# **2025 Fire Season Review**

# Conditions at the end of 2024

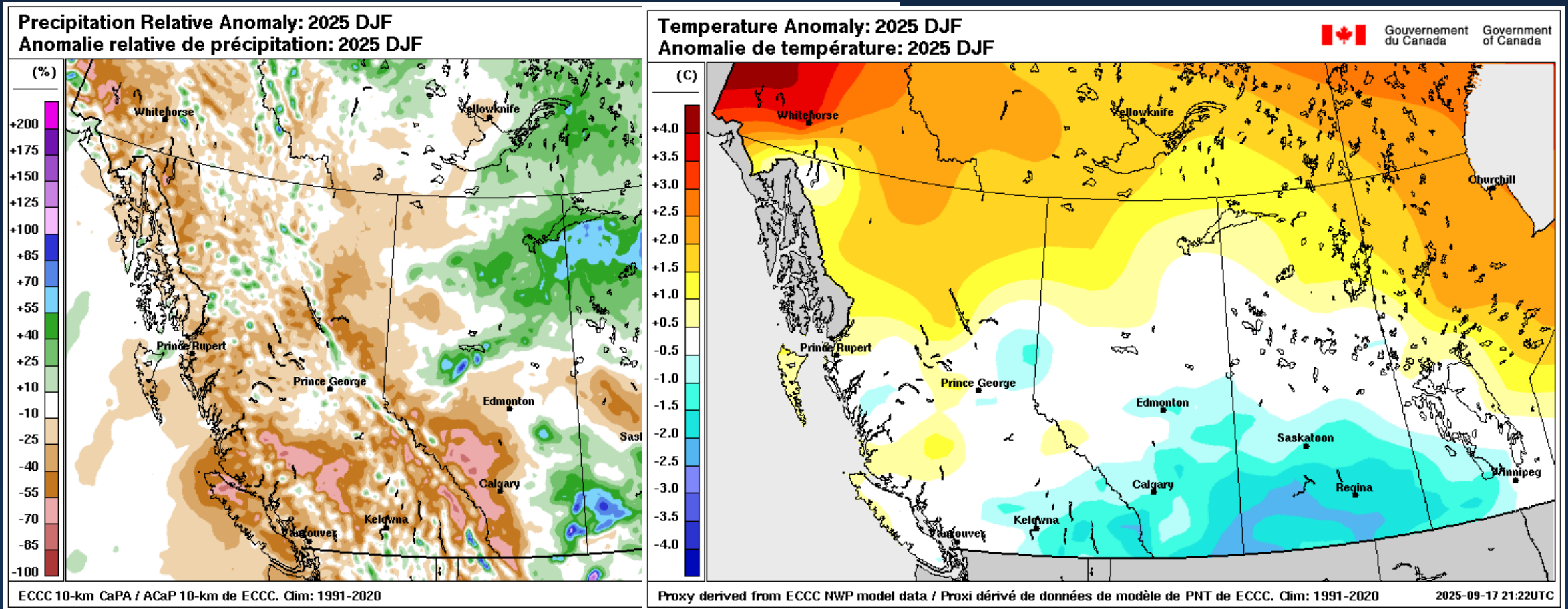
- Multi-year drought conditions persisted into the fall over the Northeast corner of the province
- Several months of below-normal precipitation in the southern Nechako and Chilcotin plateau regions led to elevated Drought Codes in those areas as well
- These deep drought conditions were evidenced by fires that burned well into the fall in the northeast and in the southern Nechako region



Drought Codes October 31, 2024

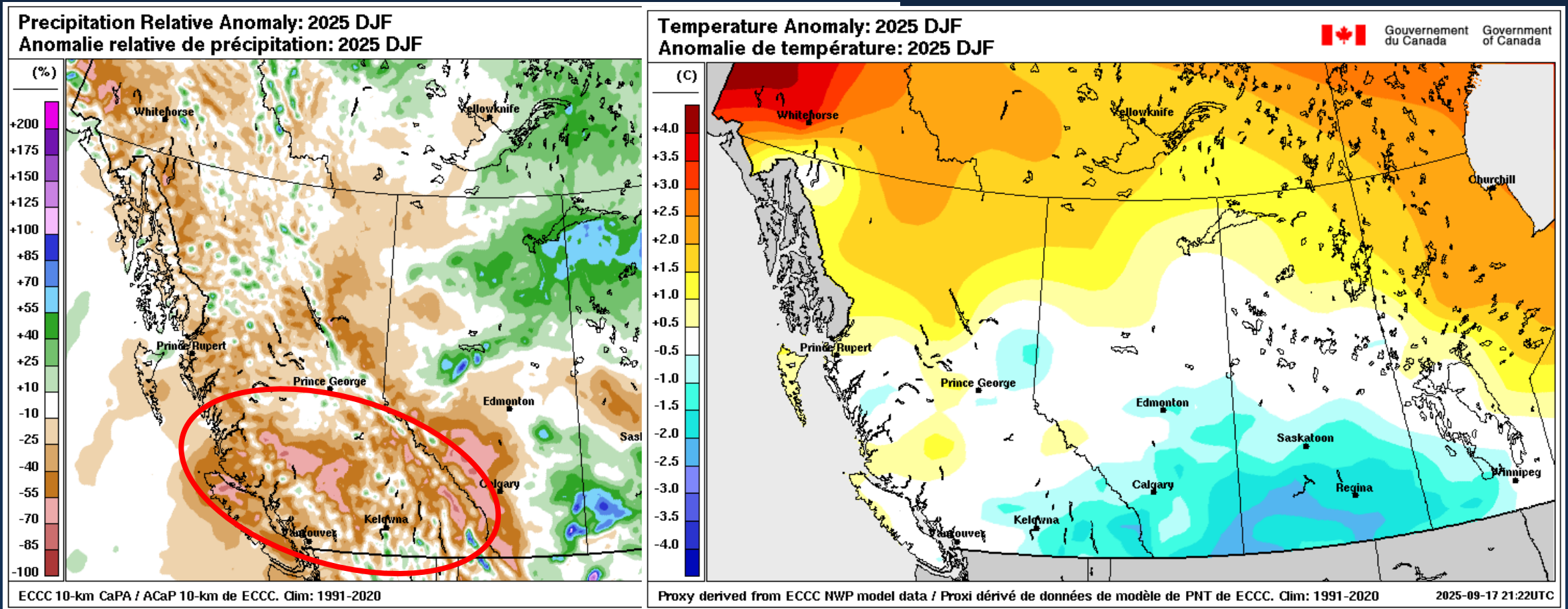


# Winter 2024-25 Recap



- The weak forecast La Nina did not materialize, ENSO neutral conditions brought below normal precipitation amounts.
- Vernon, Williams Lake, Dease Lake and Chetwynd all recorded one of their top 3 driest winters on record.
- Temperatures were closer to normal for most except northern BC where a milder winter was observed.

# Winter 2024-25 Recap

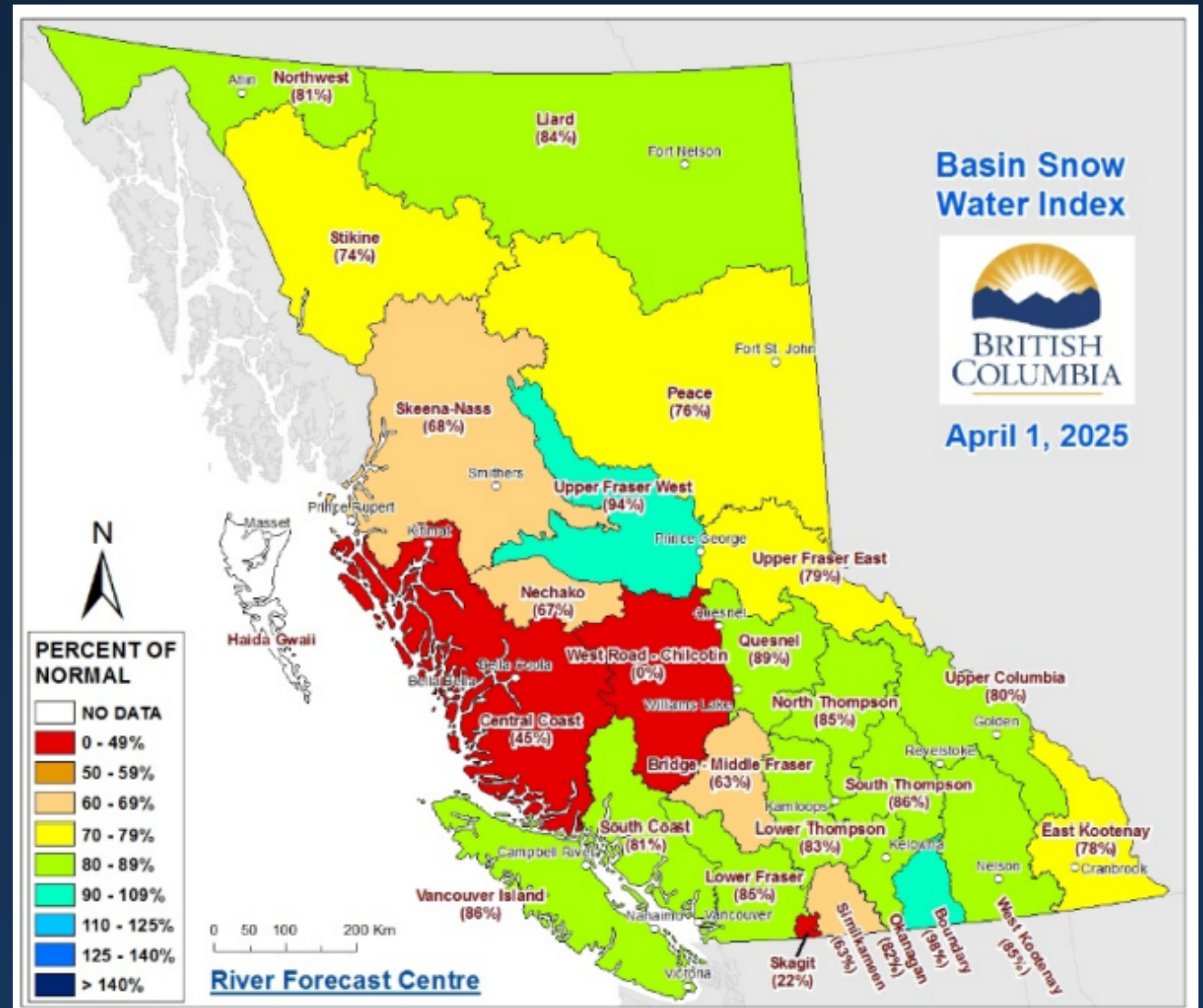


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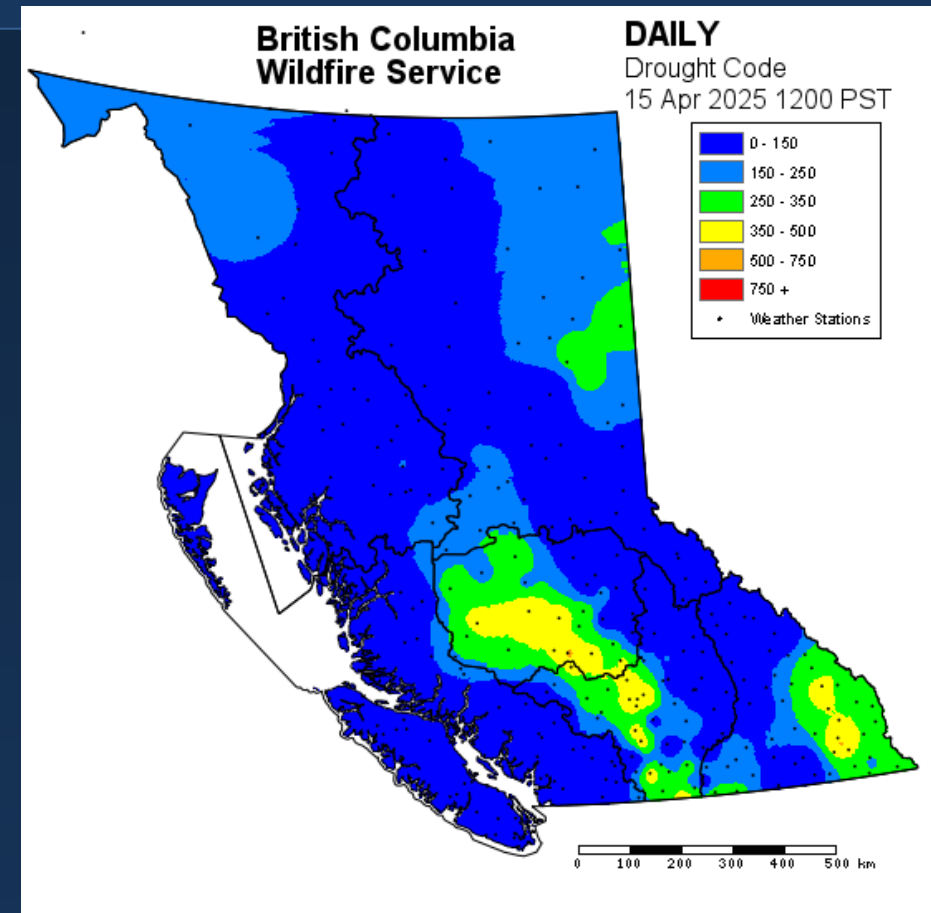
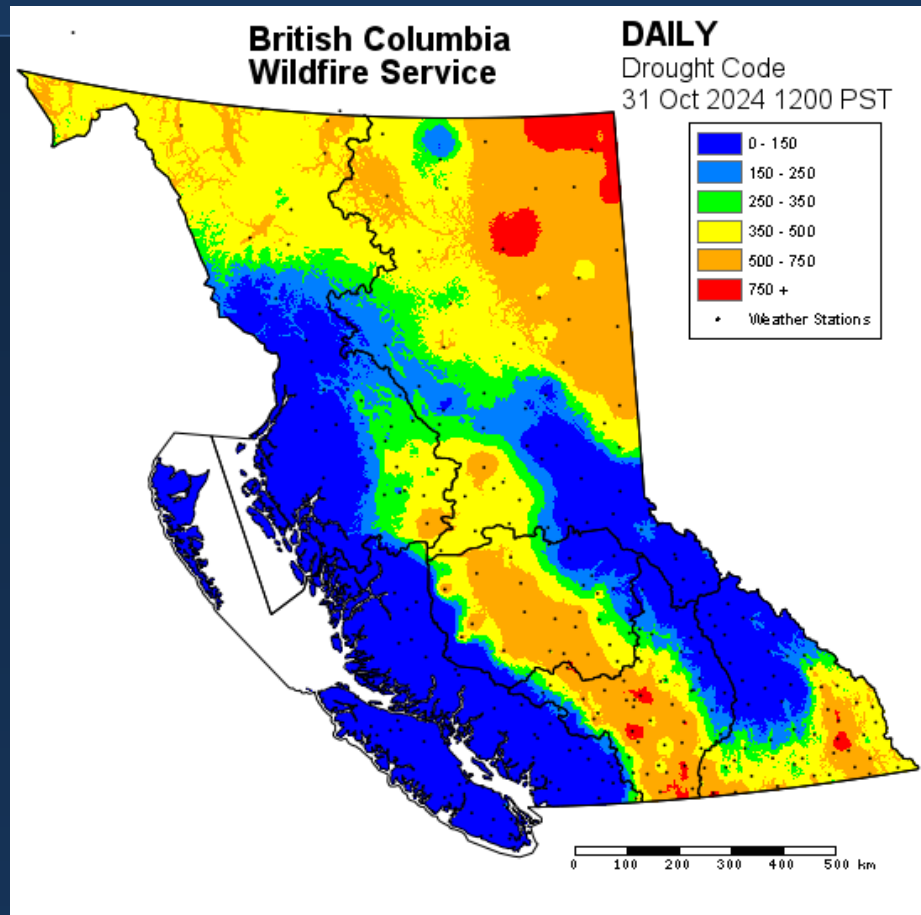


# Snow basin indices

- On April 1<sup>st</sup>, the BC River Forecast Centre reported a provincial snowpack is below normal, averaging 79% of normal (21% below normal).
- Low snowpack and seasonal runoff forecasts combined with warm seasonal weather forecasts and lingering impacts from on-going drought are pointing towards elevated drought hazards for this upcoming spring and summer.



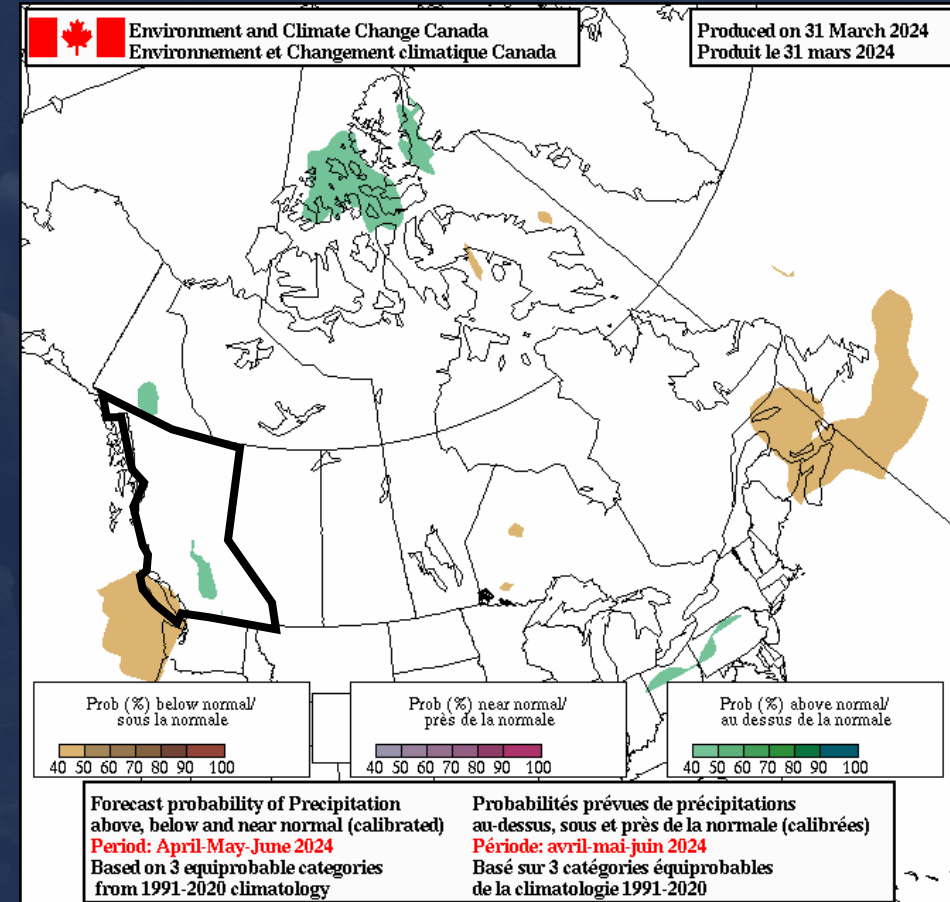
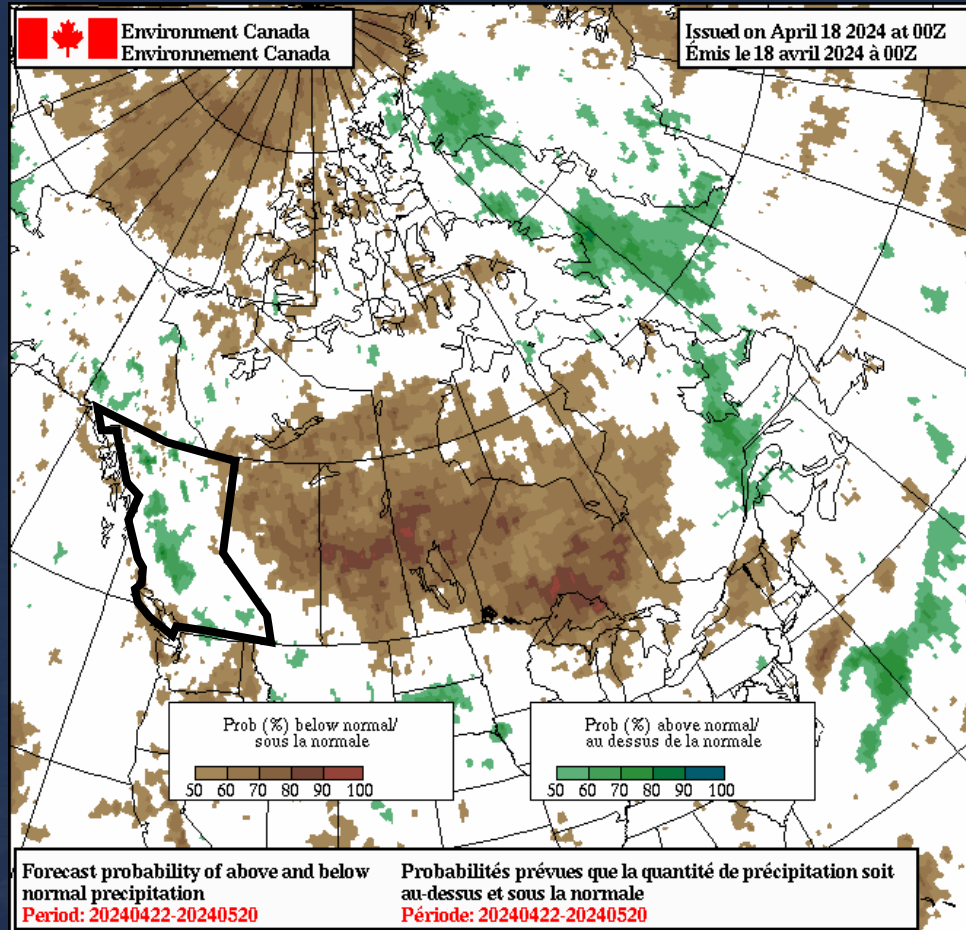
# Spring 2025 Drought Conditions



- Coastal British Columbia, the West Kootenays and Nechako region received healthy precipitation amount last winter, helping to reset their drought codes and alleviate drought conditions.
- Areas of ongoing concern included the Peace Country, far northeast, Vanderhoof through Fort St-James area, the Chilcotin, and South Thompson.



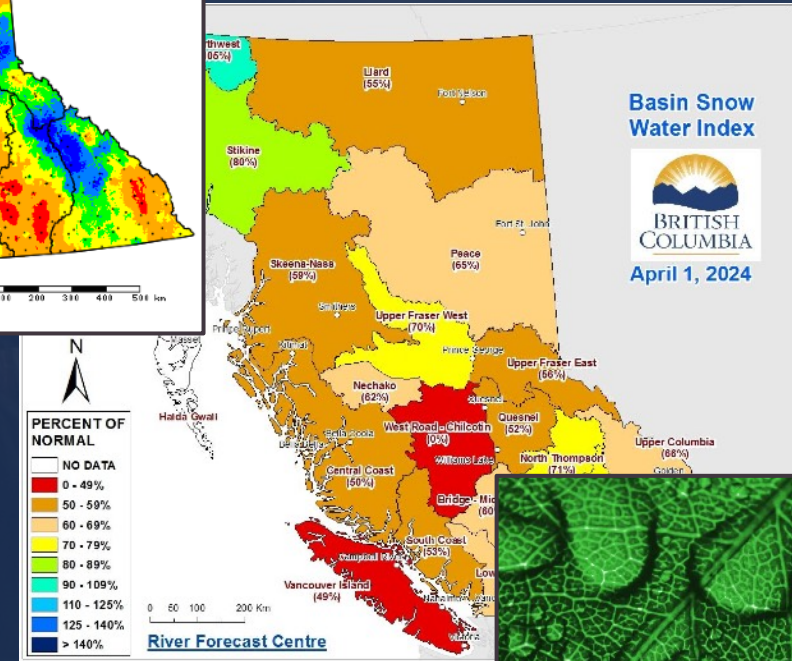
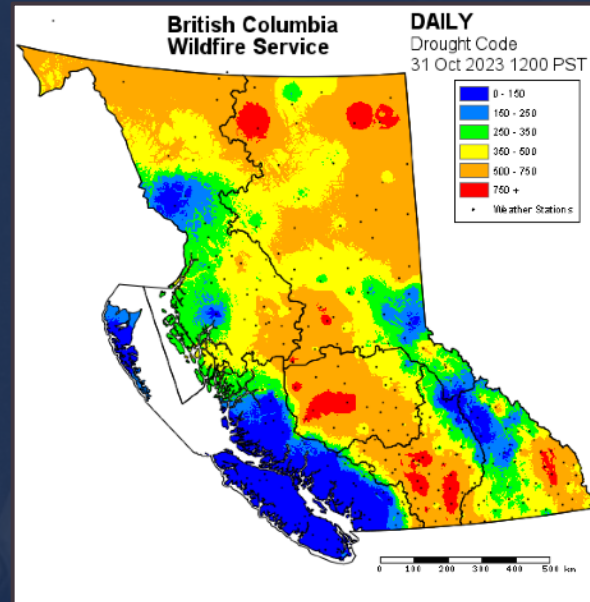
# Seasonal Precipitation Outlook





# Three factors for prolonged fire seasons

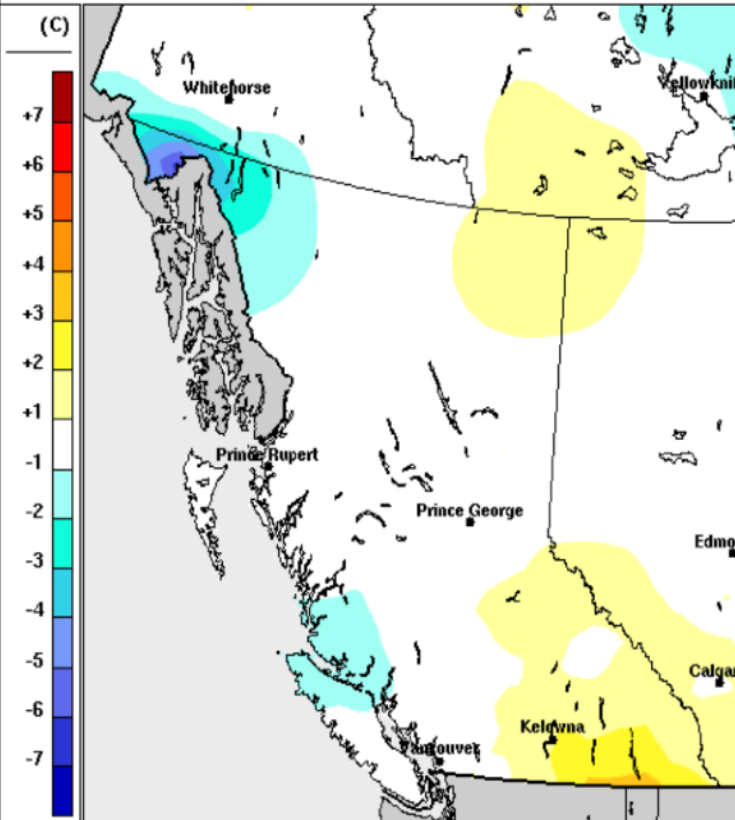
- ✓ Drought
- ✓ Low snowpack
- ? Strong ridging and absence of June rain



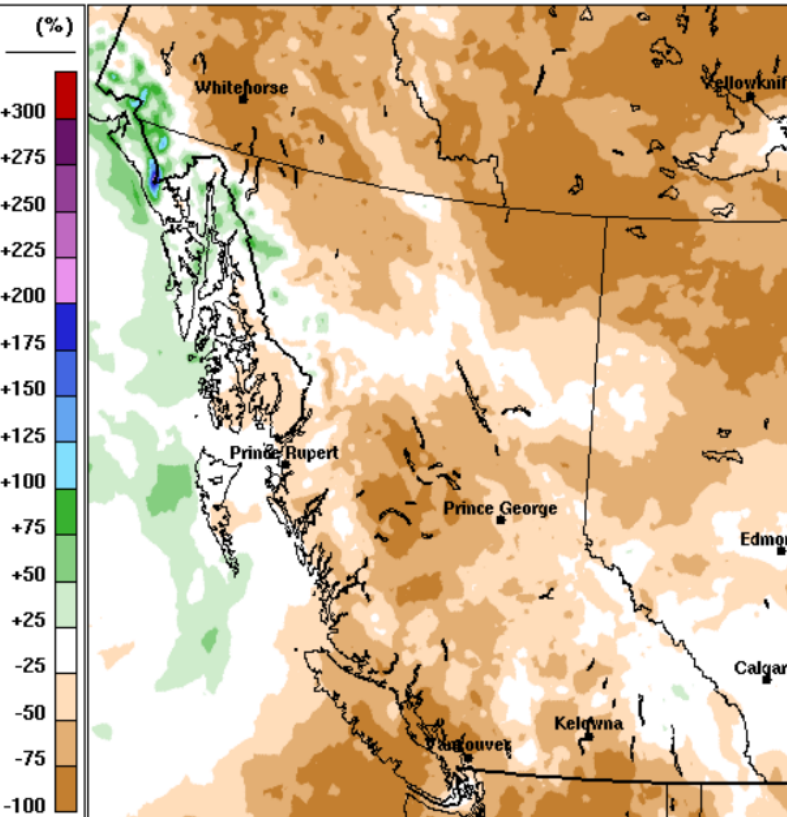


# June

Temperature Anomaly: 202506  
Anomalie de température: 202506



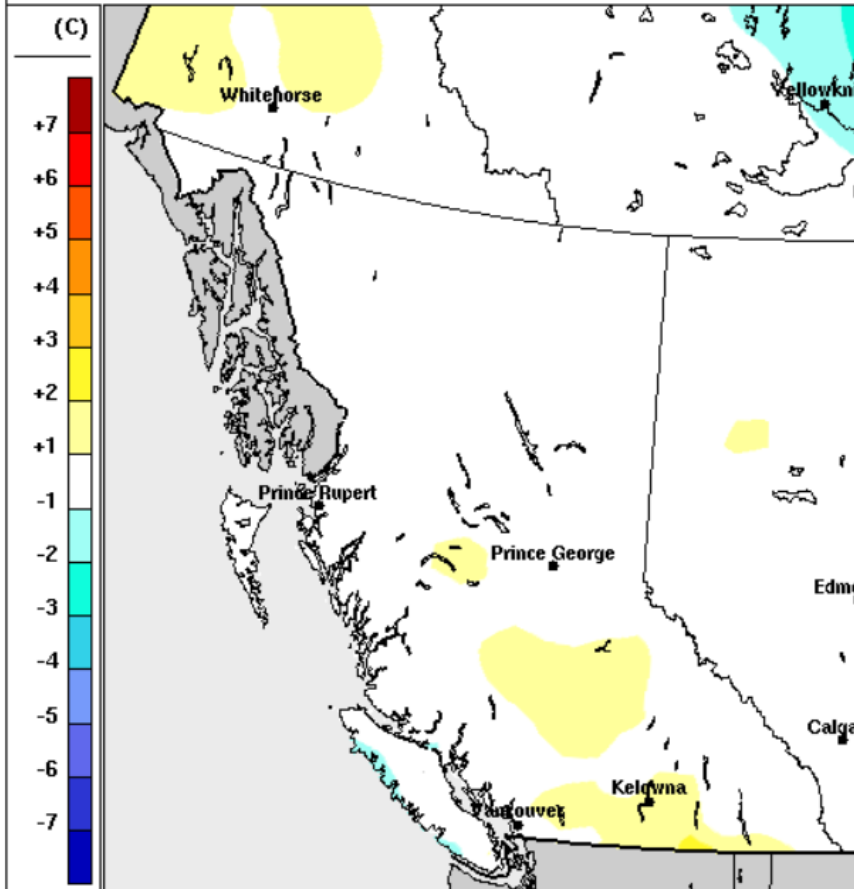
Precipitation Relative Anomaly: 202506  
Anomalie relative de précipitation: 202506



- Temperatures were near normal in June which help maintain a slow snow melt.
- The June rains on which we depend were however less than normal.
- Not the typical “January” pattern.

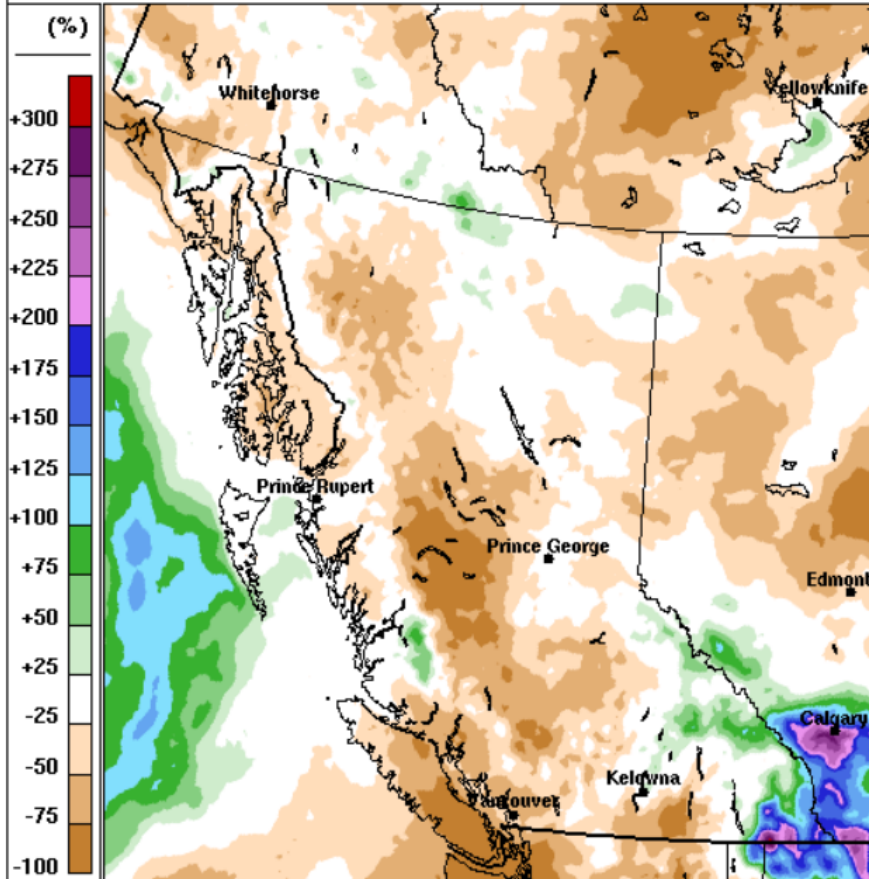
# July

Temperature Anomaly: 202507  
Anomalie de température: 202507



Proxy derived from ECCC NWP model data / Proxi dérivé de données de modèle

Precipitation Relative Anomaly: 202507  
Anomalie relative de précipitation: 202507



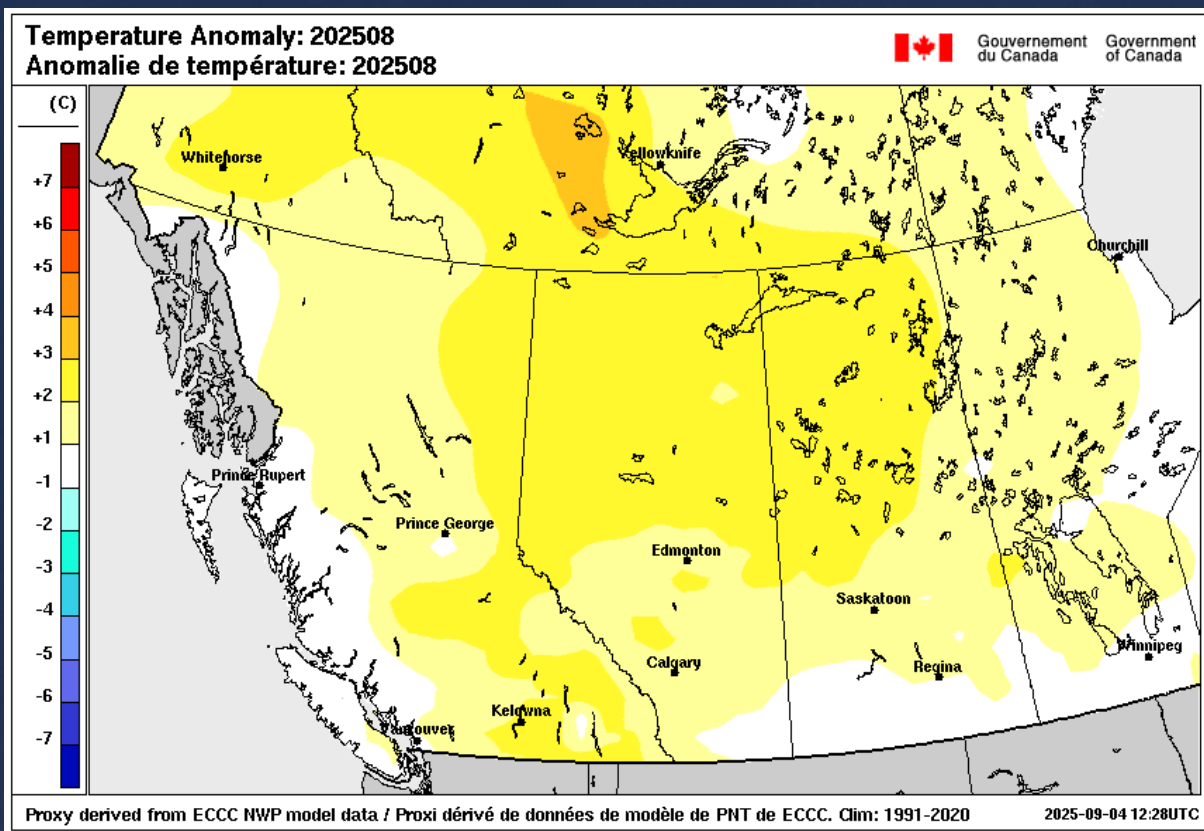
ECCC 10-km CaPA / ACaP 10-km de ECCC. Clim: 1991-2020

- Near normal temps in July
- Ongoing dry conditions with the exception of the Southeast

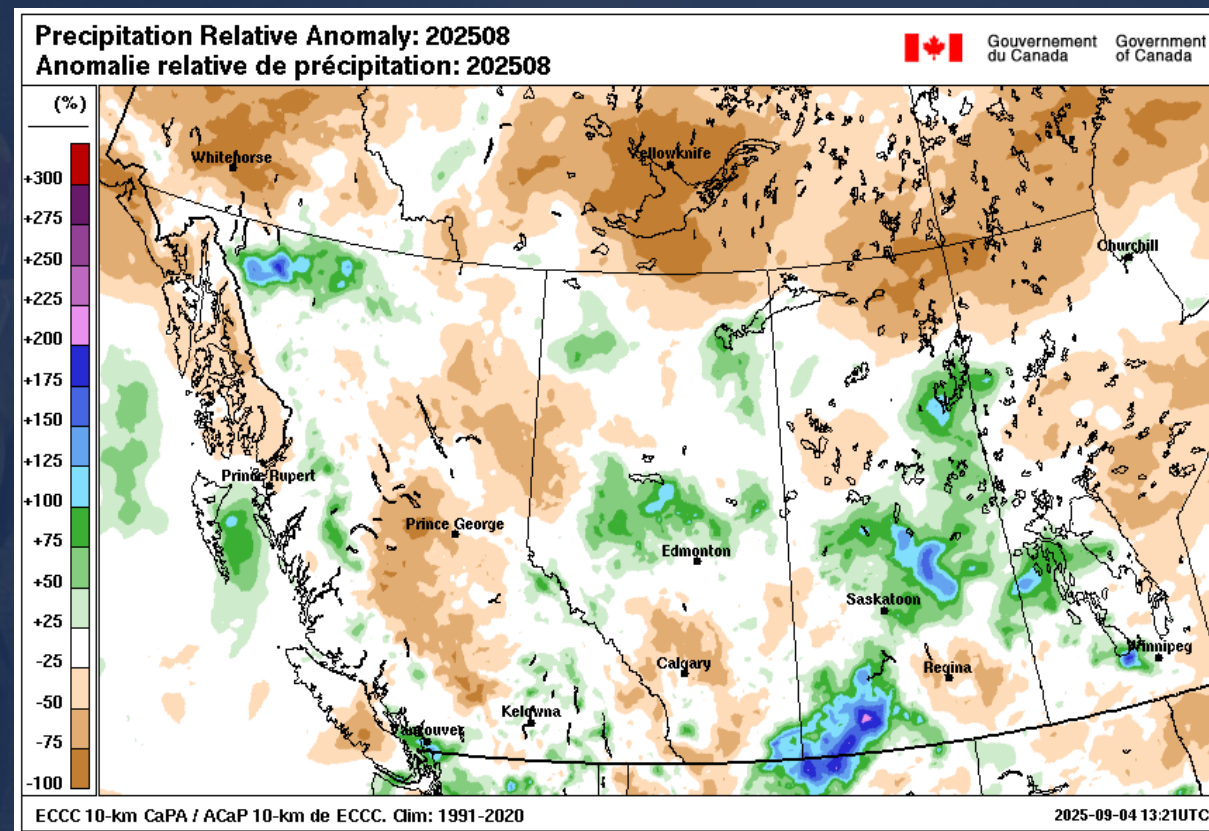


# August

During August, warmer and drier than usual conditions prevailed across the majority of the province.

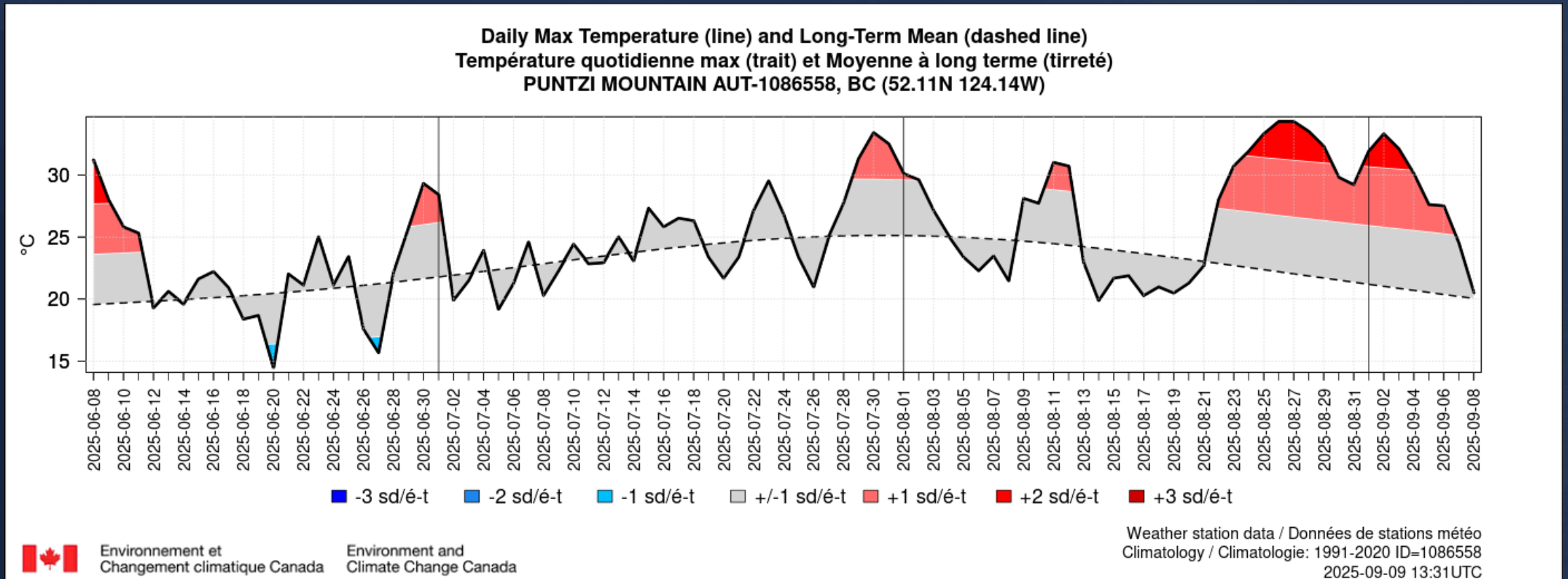


August 2025 mean temperature compared to historical normal



August 2025 percent of normal total precipitation

# Late Summer Heatwave



A prolonged, 14-day heatwave from August 20 to September 5 accelerated the drying B.C.'s forests and fuels.

A total of 5,925 lightning strikes between August 28 and 31 ignited 88 fires across central and southern B.C.



# Yet more temp records



BLUE RIVER AREA (Blue River CS)  
New record of 33.5  
Old record of 31.5 set in 1996  
Records in this area have been kept since 1946

BURNS LAKE AREA (Burns Lake Decker Lake)  
New record of 31.5  
Old record of 28.7 set in 2023  
Records in this area have been kept since 1949

CACHE CREEK AREA (Ashcroft)  
New record of 39.7  
Old record of 34.0 set in 1996  
Records in this area have been kept since 1944

CHETWYND AREA (Chetwynd A)  
New record of 32.0  
Old record of 28.9 set in 2023  
Records in this area have been kept since 1970

CLEARWATER AREA (Clearwater Auto)  
New record of 36.7  
Old record of 35.0 set in 1934  
Records in this area have been kept since 1913

CLINTON AREA (Clinton RCS)  
New record of 33.2  
Old record of 29.5 set in 2022  
Records in this area have been kept since 1974

DAWSON CREEK AREA (Dawson Creek A)  
New record of 31.1  
Old record of 29.4 set in 2022  
Records in this area have been kept since 1926

FORT NELSON AREA (Fort Nelson)  
New record of 31.0  
Old record of 30.0 set in 1950  
Records in this area have been kept since 1937

FORT ST. JOHN AREA (Fort St John Airport)  
New record of 29.8  
Old record of 29.4 set in 1933  
Records in this area have been kept since 1910

GIBSONS AREA (Sechelt Aut)  
New record of 29.6  
Old record of 28.8 set in 2016  
Records in this area have been kept since 1949

KAMLOOPS AREA (Kamloops Aut)  
New record of 37.3  
Old record of 37.2 set in 1934  
Records in this area have been kept since 1890

KELOWNA AREA (Kelowna UBCO)  
New record of 36.9  
Old record of 33.6 set in 1996  
Records in this area have been kept since 1899

LILLOOET AREA (Lillooet)  
New record of 40.4  
Old record of 36.7 set in 1933  
Records in this area have been kept since 1917

LYTTON AREA (Lytton RCS)  
New record of 41.3  
Old record of 36.6 set in 1986  
Records in this area have been kept since 1921

MACKENZIE AREA (Mackenzie Airport Auto)  
New record of 28.9  
Old record of 27.3 set in 1988  
Records in this area have been kept since 1971

MERRITT AREA (Merritt)  
New record of 36.5  
Old record of 35.0 set in 1996  
Records in this area have been kept since 1918

NANAIMO AREA (Nanaimo A)  
New record of 31.2  
Old record of 31.0 set in 2016  
Records in this area have been kept since 1892

NELSON AREA (Nelson CS)  
New record of 35.2  
Old record of 33.7 set in 2011  
Records in this area have been kept since 1904

PEMBERTON AREA (Pemberton Airport CS)  
New record of 35.6  
Old record of 34.5 set in 1996  
Records in this area have been kept since 1908

PRINCETON AREA (Princeton CS)  
New record of 37.1  
Old record of 35.8 set in 1996  
Records in this area have been kept since 1893

PUNTZI MOUNTAIN AREA (Puntzi Mountain (AUT))  
New record of 34.3  
Old record of 29.6 set in 1996  
Records in this area have been kept since 1959

QUALICUM BEACH AREA (Qualicum Beach Airport)  
New record of 28.8  
Old record of 28.6 set in 2016  
Records in this area have been kept since 1962

QUESNEL AREA (Quesnel Airport Auto)  
New record of 34.0  
Old record of 33.3 set in 1934  
Records in this area have been kept since 1893

SECHELT AREA (Sechelt Aut)  
New record of 29.6  
Old record of 28.8 set in 2016  
Records in this area have been kept since 1956

SPARWOOD AREA (Sparwood CS)  
New record of 33.1  
Old record of 30.7 set in 1981  
Records in this area have been kept since 1969

SUMMERLAND AREA (Summerland CS)  
New record of 36.0  
Old record of 33.0 set in 1981  
Records in this area have been kept since 1907

TATLAYOKO LAKE AREA (Tatlayoko Lake RCS)  
New record of 35.3  
Old record of 32.8 set in 1933  
Records in this area have been kept since 1930

VERNON AREA (Vernon Auto)  
New record of 37.2  
Old record of 32.8 set in 1916  
Records in this area have been kept since 1900

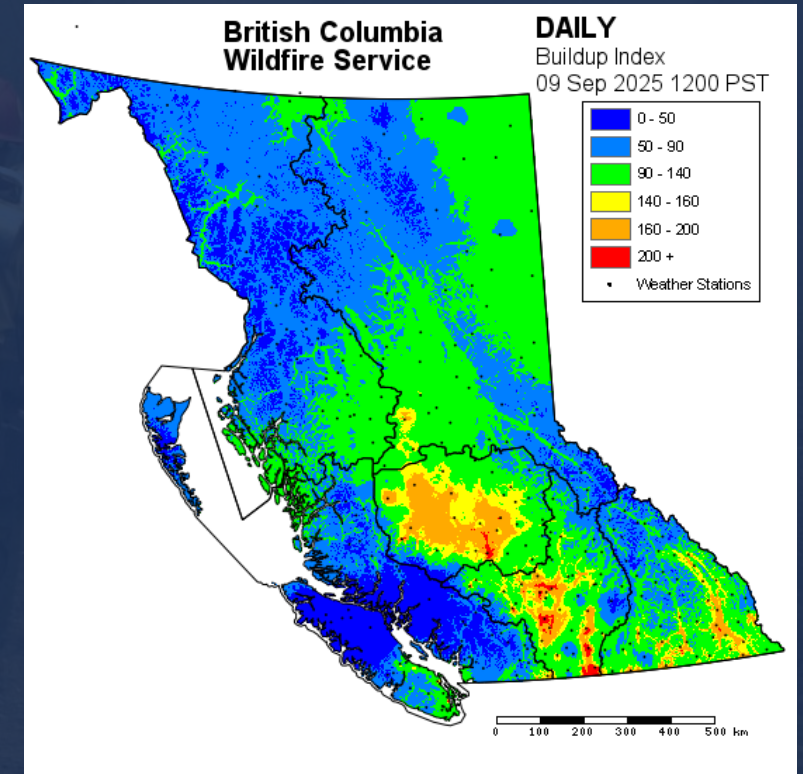
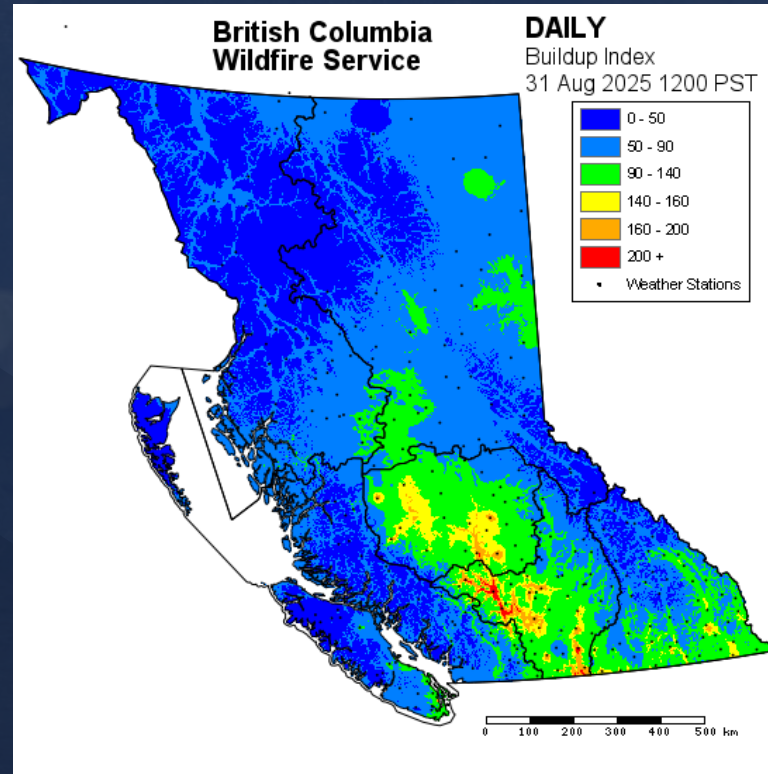
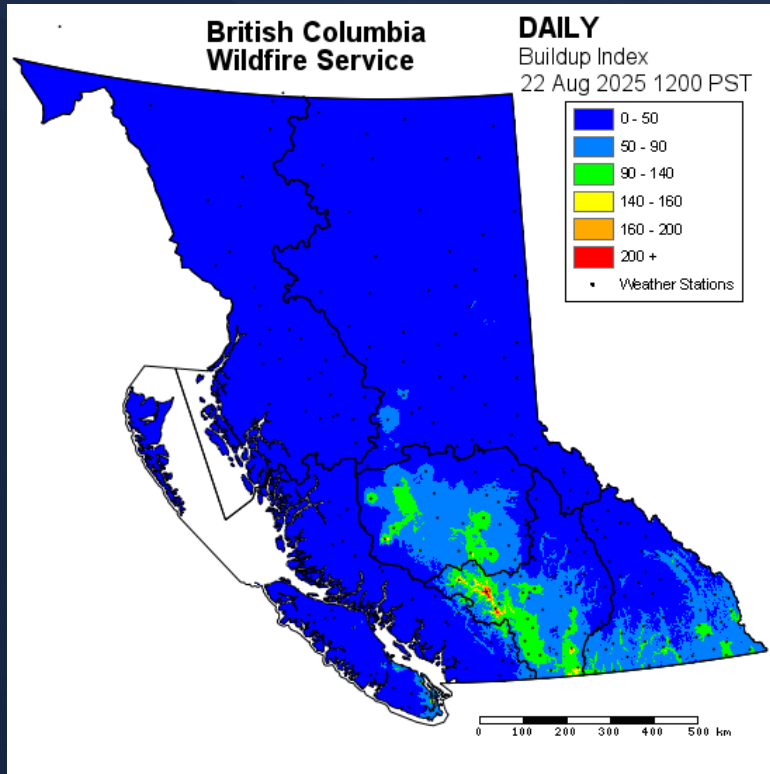
WILLIAMS LAKE AREA (Williams Lake A)  
New record of 32.6  
Old record of 28.9 set in 1967  
Records in this area have been kept since 1960

6

Over 115 daily temperature records were recorded in BC b/t Aug 23 and Sept 9

# Late summer change in moisture

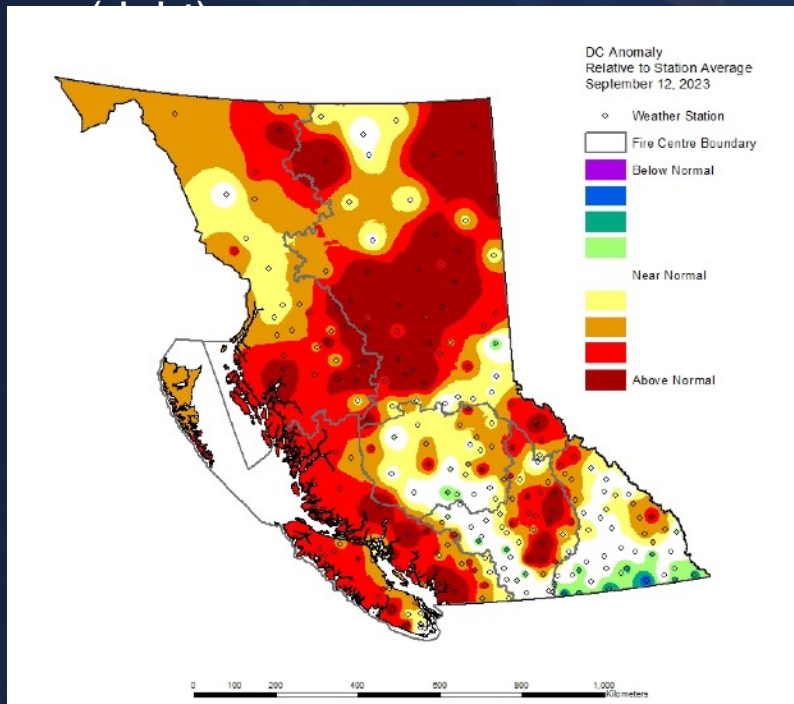
The Build-up Index (BUI) represents the total amount of fuel readily available to burn.



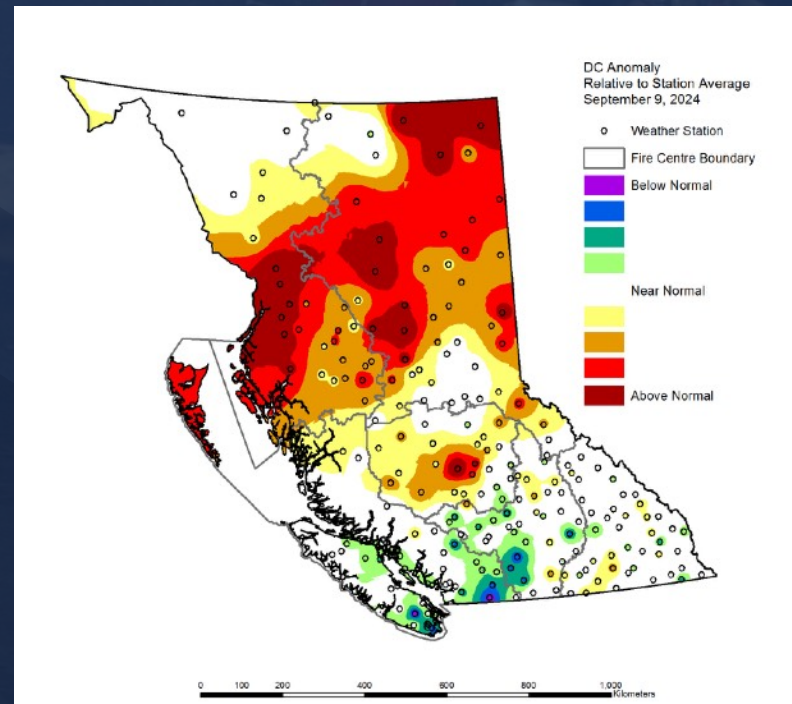


# Drought code anomaly

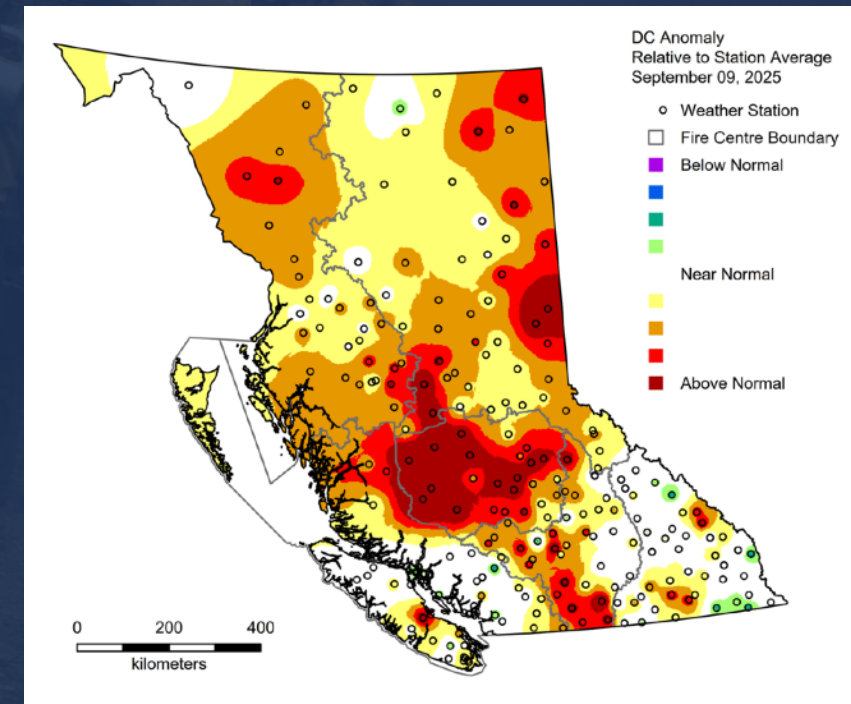
- The Drought Code (DC) is a measure of moisture levels in deep organic layers of the forest floor and large dead woody debris. Larger DC values correspond with lower fuel moisture.
- Fall DC values throughout Northern B.C. have improved in 2025 (right) as compared to the past two years (left and centre). DC values are above average for this time of year throughout the central interior of B.C.



Sept 12, 2023



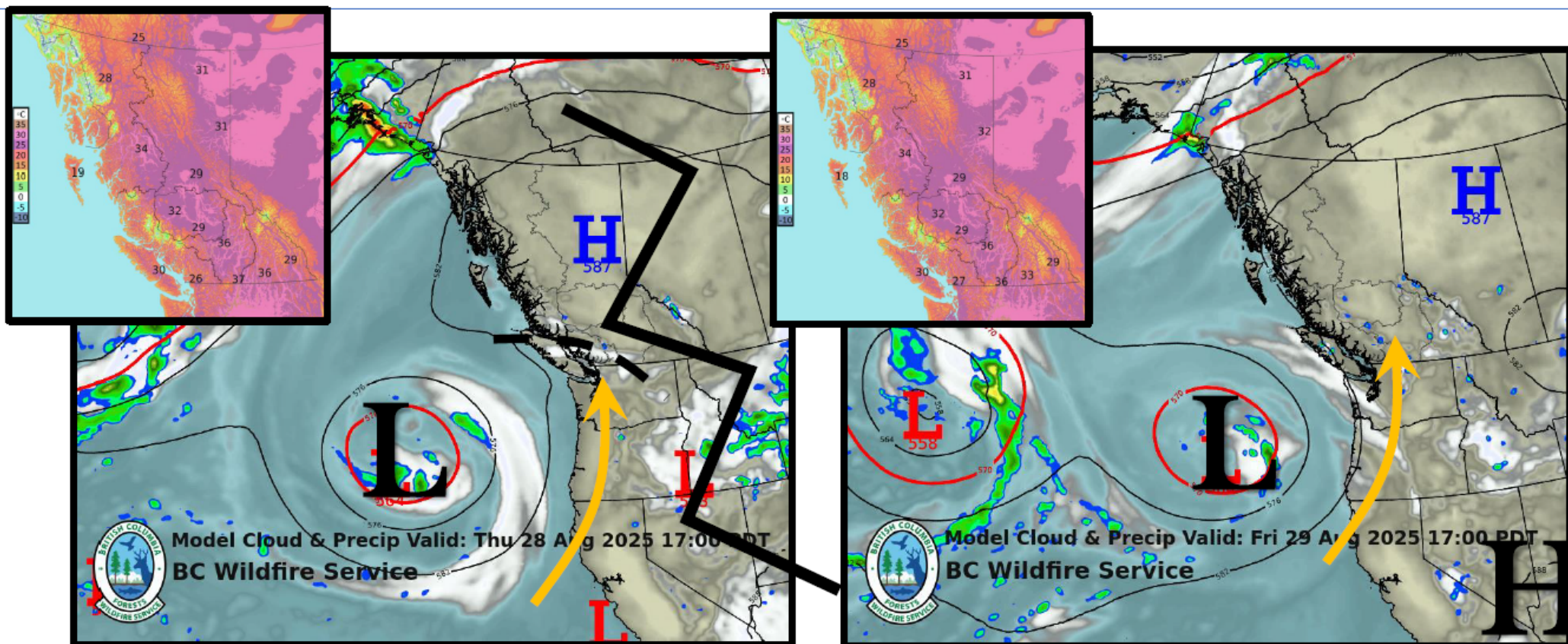
Sept 9, 2024



Sept 9, 2025



# Upper Pattern through Friday



## Thursday:

- Offshore low helps steer trough onto South Coast increasing risk of thunderstorms
- Increased cloud provides some cooling for Coast but still excessively hot across Interior

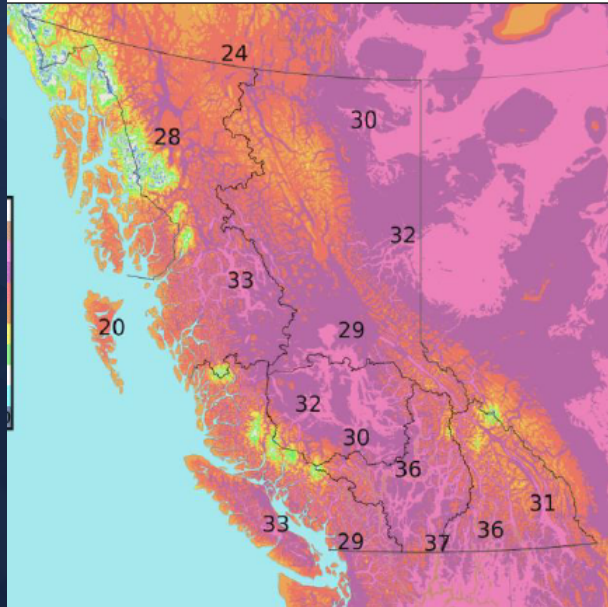
## Friday:

- Ridge is weakening and opening the door to southerly feed of monsoonal moisture
- -> Possibility of isolated thunderstorms across the Central and Southern Interior

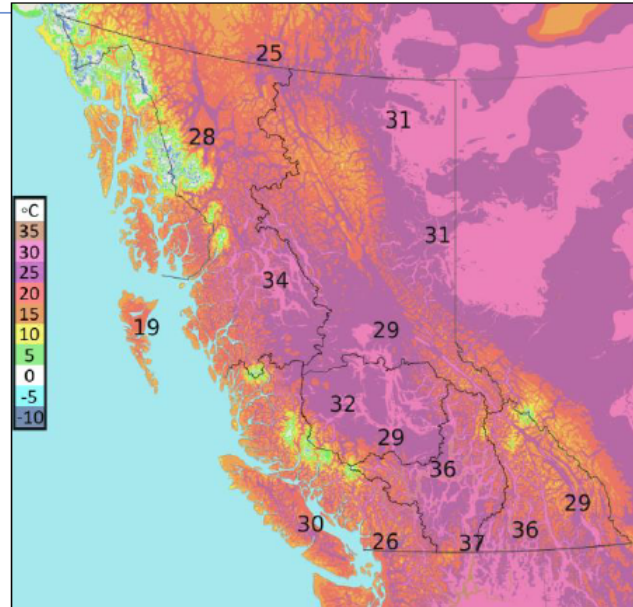


# Temps & RH through next week

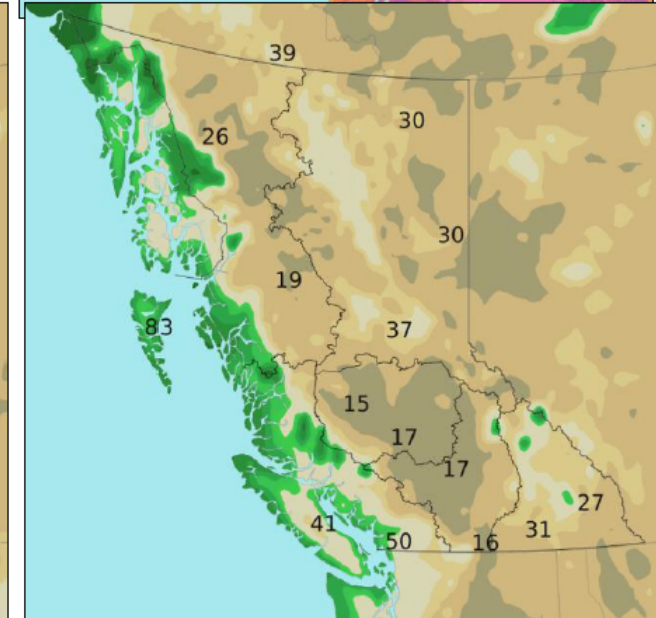
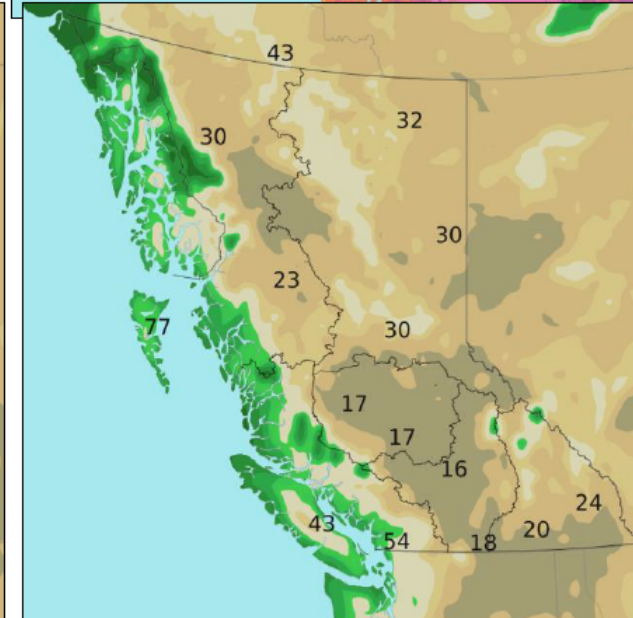
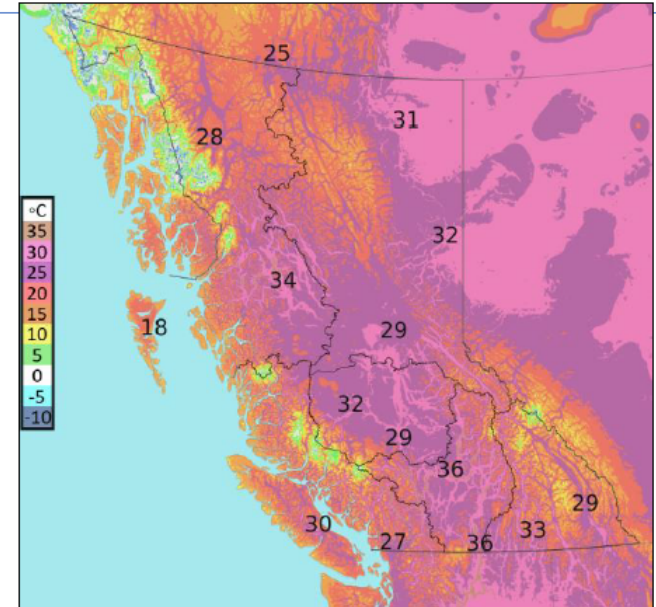
Wednesday



Thursday



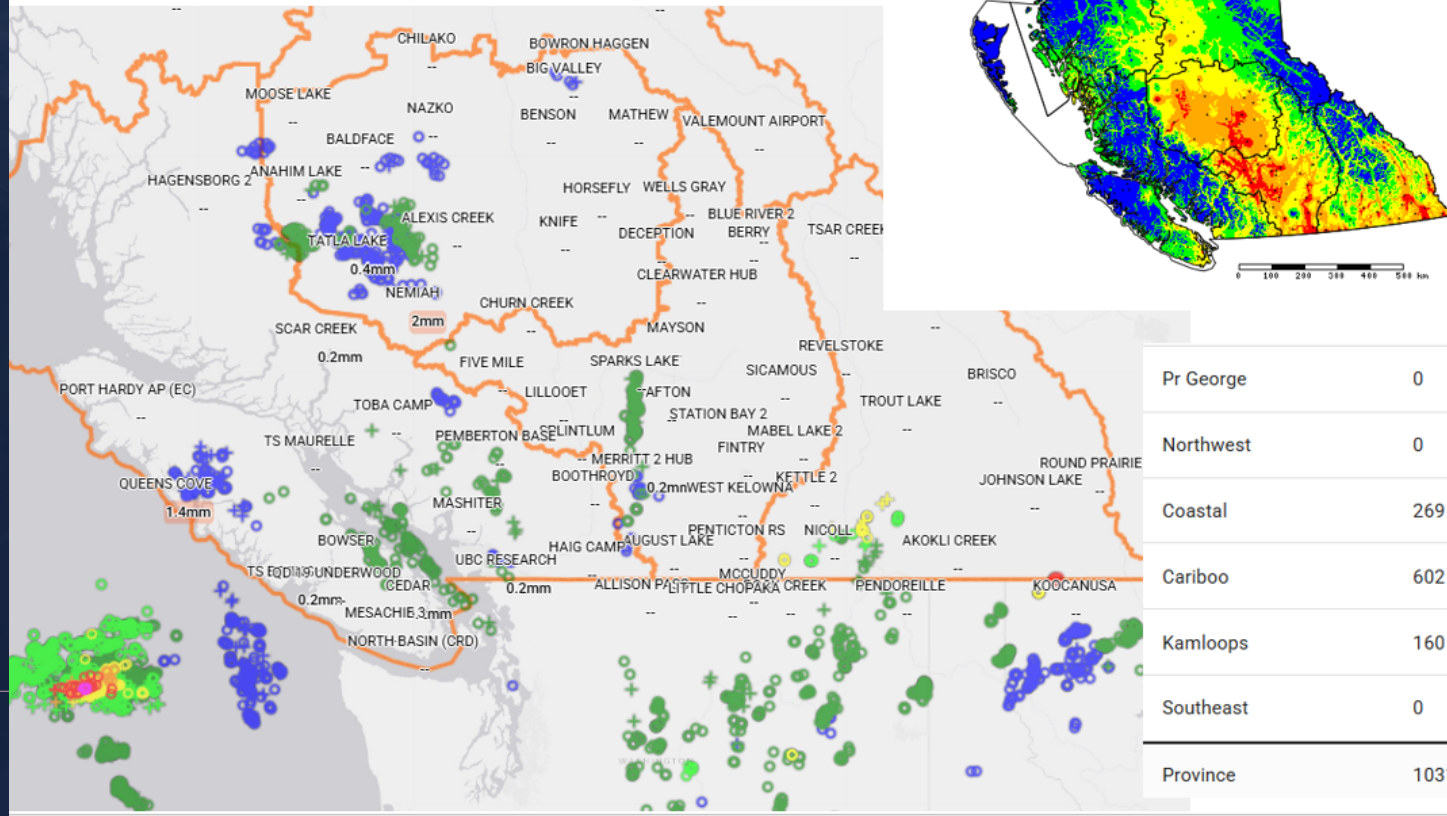
Friday





# Prolonged heat + dry lightning = not good

## Lightning & Precip Summary Sunday Aug 31<sup>st</sup>







**C51843 – Near Tatla Lake**  
**P: Conlan Sprickerhoff**



**C51672 – Beef Trail Creek**  
**P: Nathan Stewart**



**C31699 – Archie Creek**  
**P: Kara Froese**



## **PWCC Weather Briefing** by Matt MacDonald Tuesday, Sept 2<sup>nd</sup> , 2025

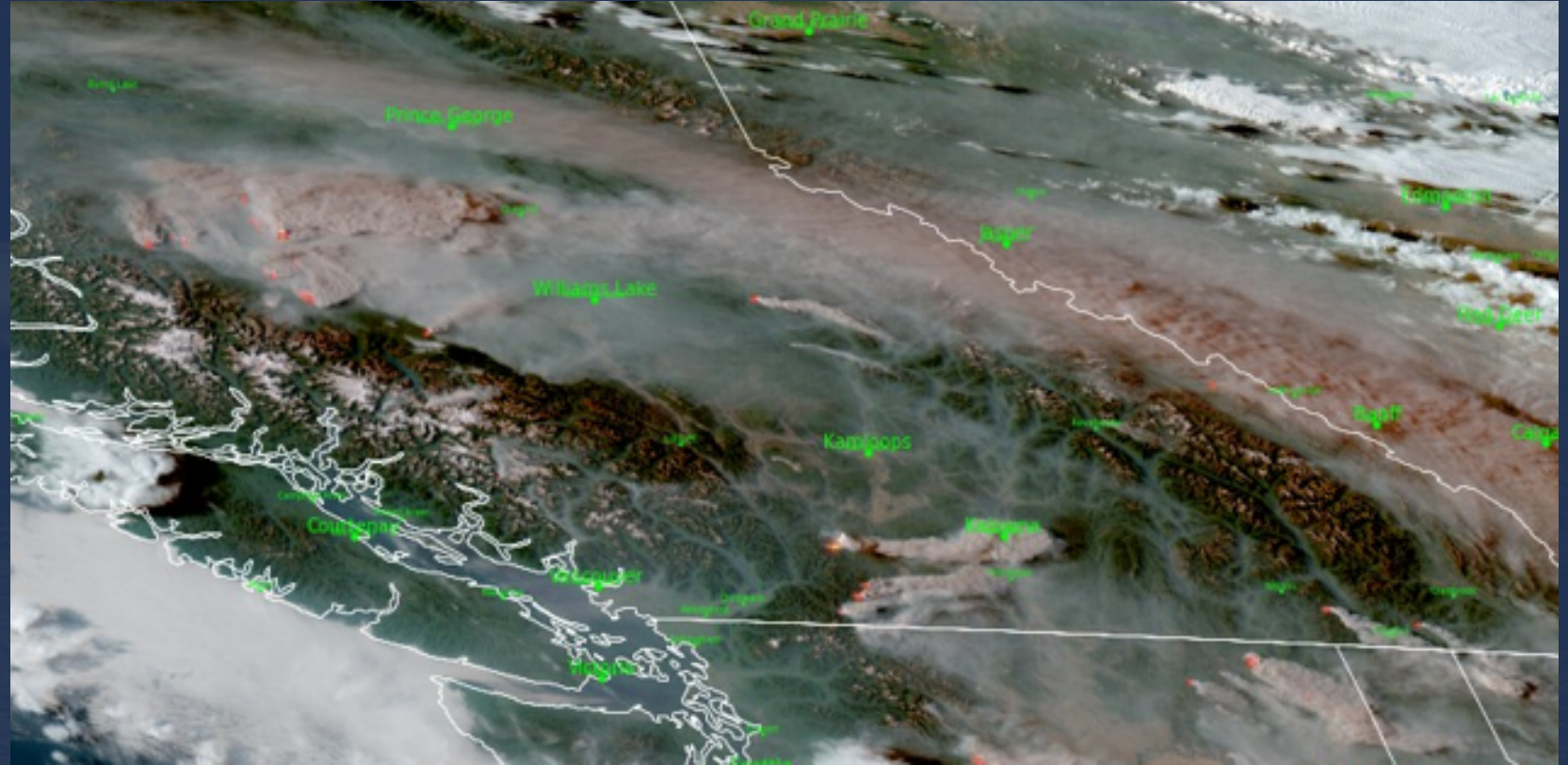


# September fire behaviour

Recent record-breaking heat and unseasonably dry conditions have supported extreme fire behaviour in the Chilcotin and western Cariboo region.



C11654 – Aug. 27, 2025



CIRA Satellite Image – Sept. 5, 2025



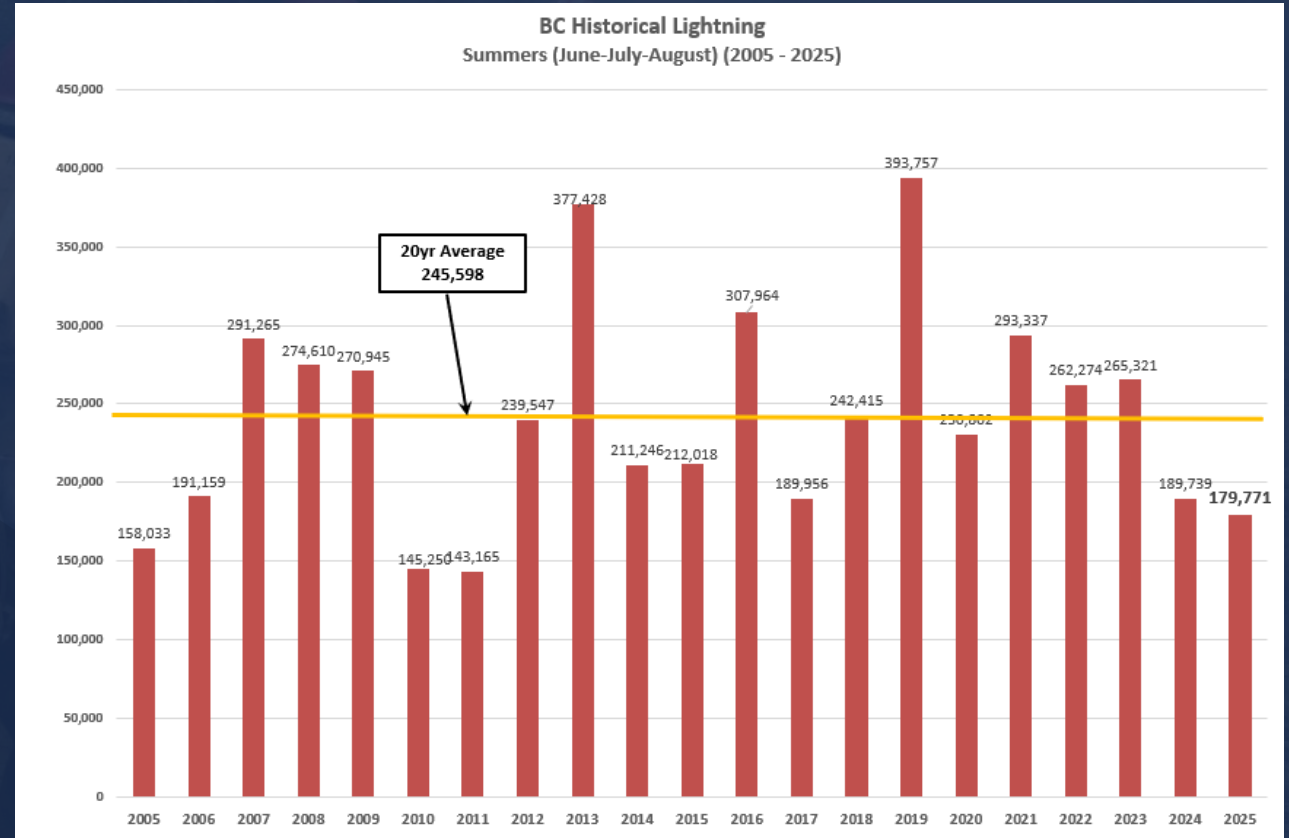
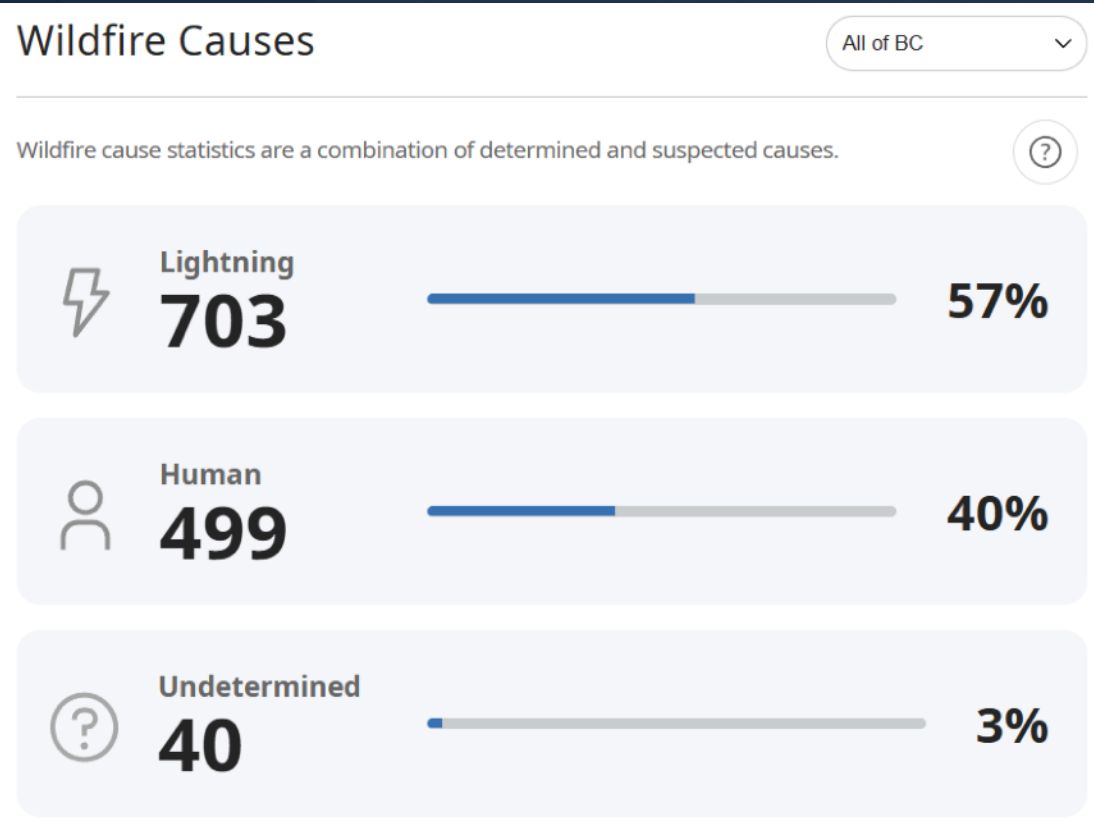




# Summer lightning statistics

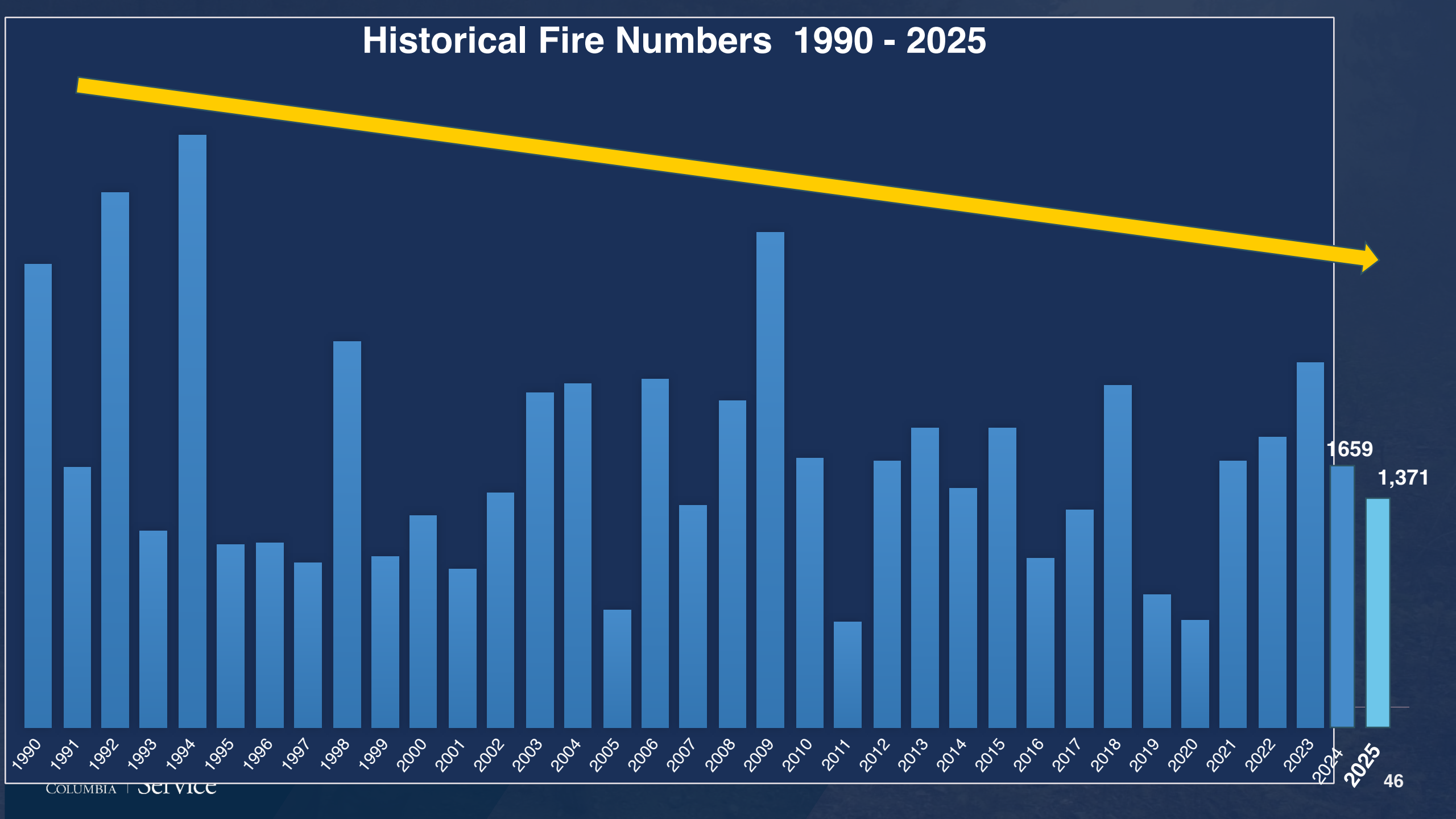
Lightning has caused 57% of the 1,242 wildfire starts in 2025.

From June to August, the number of lightning strikes were lower than usual at 73% of the 20-year average.

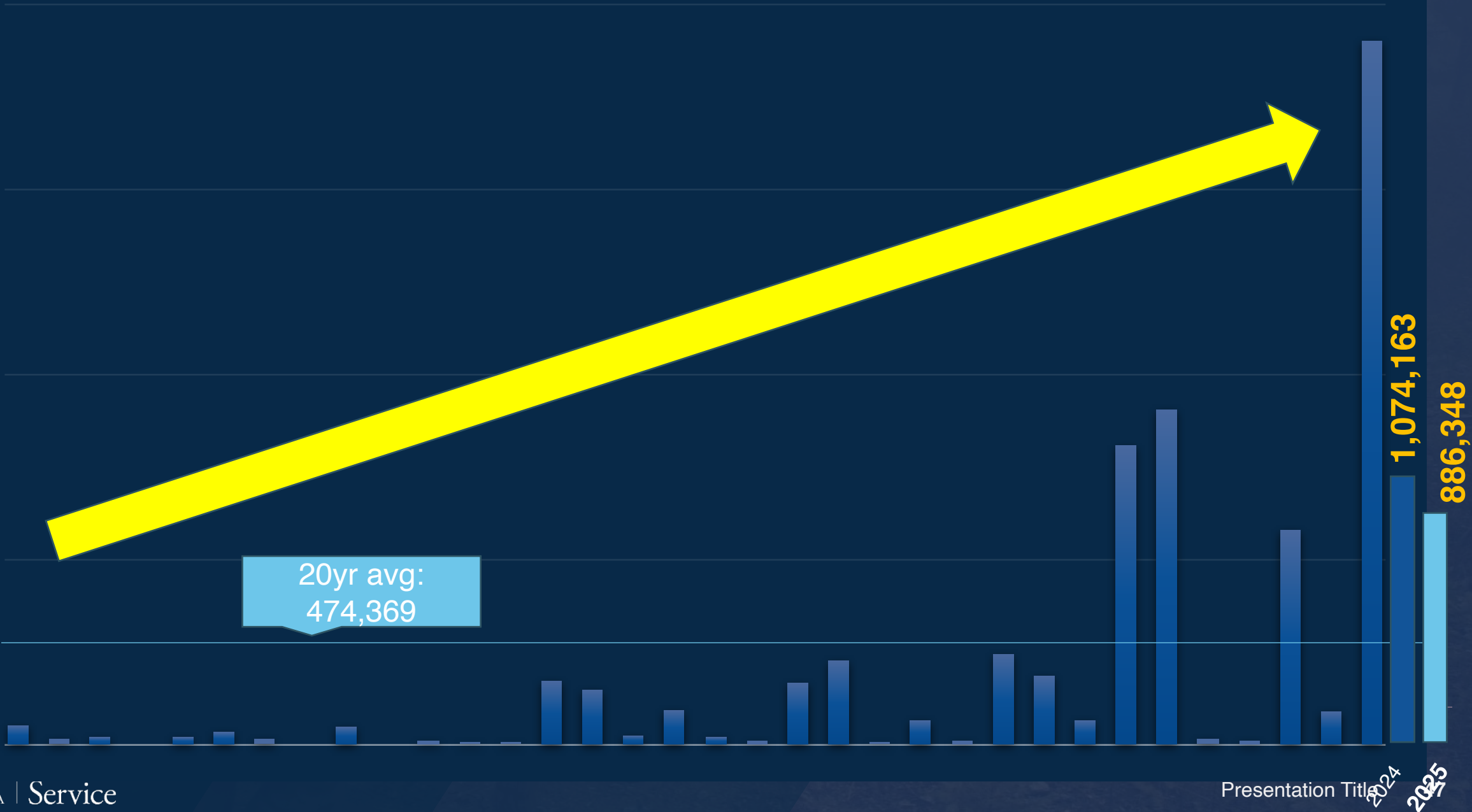




# Historical Fire Numbers 1990 - 2025



# Hectares Burned 1990 - 2025





# Questions, comments?

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