



## Quarterly Canadian Weather Outlook

Forecast by:

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A collaboration with:



**Canadian  
Cattle  
Association**

### Autumn outlook with a winter preview

The central theme continues to be La Niña conditions across the globe. During the past few months, ocean conditions fluctuated a bit, but we remain firmly in a La Niña phase both in the ocean orientation and the atmosphere.

The outlook for La Niña remains as we have discussed previously, with it to close out 2022, and a gradual shift to neutral conditions and a possible El Niño will commence in 2023. The speed at which this transition occurs remains a question mark. Any change in timing would impact the winter outlook shown here, and we can discuss revisions, if needed, in the next quarterly update.

Both history and model projections suggest that we hold a La Niña pattern through winter. The transition out of it will hold off until the spring and summer of 2023. It is worth mentioning that this is the third La Niña winter in a row. This is very rare; and only the third occurrence of three consecutive La Niña winters since 1950. A fourth consecutive winter has never been recorded.

How that impacts the next few months is that La Niña is a feature that typically creates a strong jet stream (storm flow) from Alaska to the Rocky Mountains, and then that flow dips southward into the United States. This means storm systems will flow through British Columbia and Alberta before moving along or south of the border with the U.S.

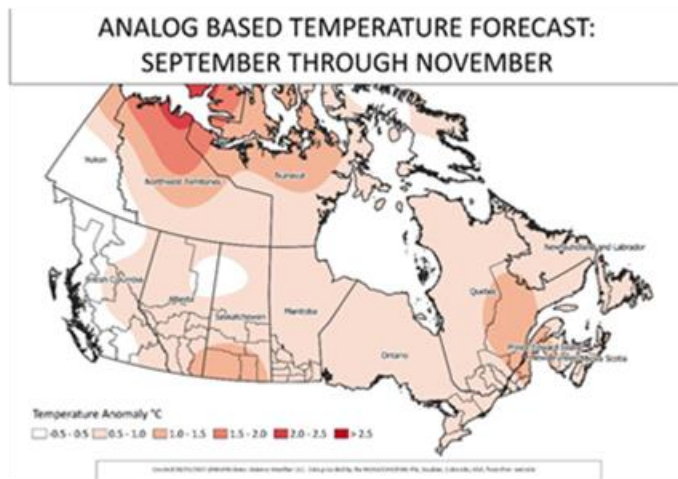
That configuration is what will develop through autumn and will be in place for winter. Here are a few things to keep in mind as this storm flow gets established: wind events will increase, warmth expected through the next couple of months will delay the process of developing ice and snow fields, and finally, once established, the winter will be quite cold for much of the country.

Let's look at the scenario for this autumn and winter based on ocean and atmosphere behaviour to date; we will investigate similar patterns of the past and how those compare to computer model projections.

The basis of an analog forecast is to look for similar years in which the ocean and atmosphere acted most similarly to recent weeks and months. During the past several months, best-fit years have been founded in La Niña regimes; I will carry that history forward through autumn. However, for the winter outlook, I will begin to increase considerations for weak La Niña and neutral patterns to account for our transition.

I should mention that the forecast is based on having a colder than normal Gulf of Alaska – as we recorded last year. Should the waters here be warmer than average, the outlook for moisture will increase for the western provinces versus what is shown here, and I believe that would give quite a boost to the snowpack for the mountains. A good indication of what will happen in the Gulf will reveal itself in October and November.

Out of a list of seven years that are statistically most like our current situation, I have shortened the list to the best fits: 2001, 2013, 2017, 2020, and 2021. They are best fits because their combined ocean and atmosphere conditions most closely match how I view the pattern/orientation through winter into the first half of next year.

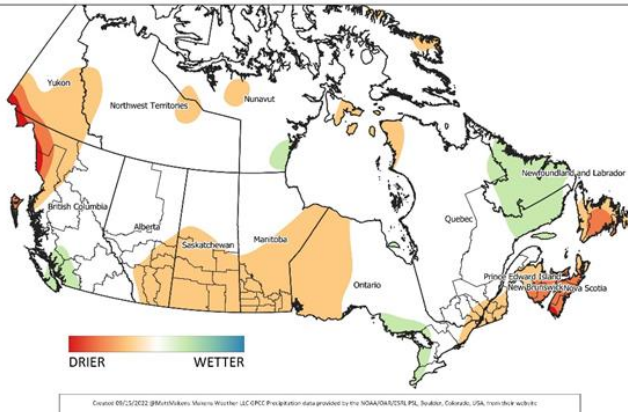


**AUTUMN**

**September - November**

In general, a warm autumn period with the temperatures nearest normal for the west in parts of BC. There will be areas of precipitation; however, those with a wet autumn will be scattered about. The driest regions are coastal sections of B.C. and the Maritimes.

**ANALOG BASED PRECIPITATION FORECAST:  
SEPTEMBER THROUGH NOVEMBER**



Comparing my selection of analog years to long-term models (American CFS and Canadian CanSIPS), the temperature outlook is quite consistent between all three, with the coolest/nearest normal temperatures to the west and warmer than average temperatures for all others. A difference, however, is modeling suggests there will be wetter conditions in BC eastward across the Prairies. This difference compared to my analog selection is likely due to the temperature of the Gulf of Alaska, which changes how much moisture is given to storm systems passing through here. I believe much of that moisture will get “stuck” by the mountains and will struggle to move east of the Rockies. And drier systems passing through will create wind events to strip the Prairies of any surplus moisture. Therefore, I prefer the drier than average forecast for the Prairies during autumn.

**Autumn 2022 Specifics**

**British Columbia:** Watching the ocean conditions in the Gulf of Alaska carefully as a warmer region here will impact BC's moisture in autumn and winter. Wet weather will be shifting southward along the coast throughout the season, with equal chances of precipitation inland for most of the province. Temperatures will be within a normal range in the west but trending warmer by 1 degree Celsius for those farther east.

**Alberta:** Hit-and-miss areas of moisture will continue. The mountains may take most of the moisture away from storm

systems before systems reach the Prairies. Wind events will increase, furthering the dry conditions. Temperatures will be warmer than average, nearing 1 degree Celsius above normal.

**Saskatchewan:** Hit-and-miss precipitation overall. The driest areas will be the southern ones; they will also be the warmest, with temperatures 1 to 2 degrees Celsius warmer than average. If storm systems can carry more water into the province than I expect, that will benefit the Prairies the most. I see the area having a fair share of wind events to further drying.

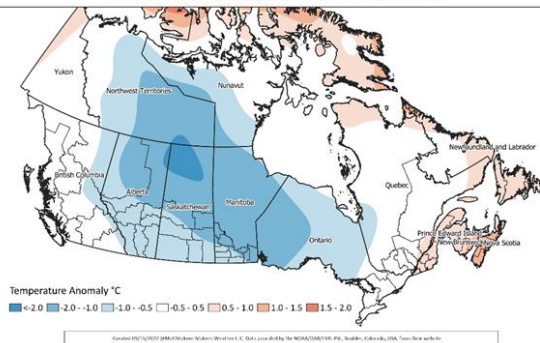
**Manitoba:** Wind events are possible here, too, although less likely than those west in SK and AB. Wetter weather shifts to the north and northeast, leaving Southern Manitoba at higher odds of a drier than average autumn. Temperatures will be above normal, 0.5 to 1.5 degrees Celsius warmer than average.

**Ontario:** The frequency of wet periods will increase later in October through November. The seasonal result will be the higher odds for moisture surplus come in areas near the Great Lakes and drier for the western parts of the province. Temperatures will be warm, averaging 0.5 to 1.5 degrees Celsius above normal.

**Quebec:** A warm autumn is expected, with average temperatures 1 to 2 degrees Celsius above normal. Precipitation will be scattered about, leaving the province with equal chances of ending up near normal, although dryness favors the south more than elsewhere. Wetter conditions will move across the province later in the season.

**Maritimes:** Chances for moisture will increase throughout autumn, with later October through November having a higher probability of moisture than the first half of the season. Temperatures will remain warmer than normal by 0.5 to 1.5 degrees Celsius.

**ANALOG BASED TEMPERATURE FORECAST:  
DECEMBER THROUGH FEBRUARY**



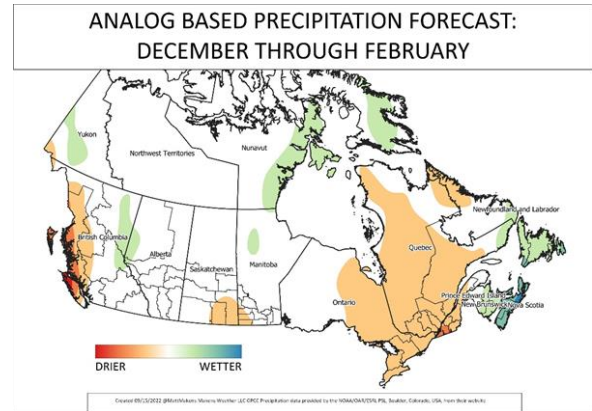
**WINTER**

**December – February**

As the main storm flow gets established, ice and snow cover will develop to the north leading to a greater supply of cold temperatures. Cold will continue to stay over much of Central Canada. Storm systems will move through, but the best chances for moisture will be hit and miss and favour the mountains more than the Prairies. A larger area of drought will be for Quebec and Ontario, on the edge of the coldest temperatures. Precipitation will begin to favour the Maritimes versus their autumn pattern.

Comparing my selection of analog years to long-term models (Both the American CFS and Canadian CanSIPS), the temperature outlook is quite consistent between all three, with cold focusing on much of the country. However, modeling suggests that there will be wetter conditions for BC and AB and deeper snows expected in the Rockies versus my

analog-based forecast. That, I believe, goes back to my earlier comment about the temperature of the Gulf of Alaska, which modeling is warmer than history suggests, thus boosting moisture availability for the West.



**CANADIAN DROUGHT MONITOR**

**As of August 31, 2022**

Source: [Agriculture Canada](https://www150.statcan.gc.ca/n1/pub/26-667-x/2022001/article/00001-eng.htm)

