Quarterly Canadian Weather Outlook

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A collaboration with:

CANADIAN CATTLEMEN'S ASSOCIATION

2022 Summer Outlook with a Fall Preview

La Niña conditions continued through the spring and will remain an influence on our weather pattern this summer. By the numbers, it has been remarkable to watch La Niña stay so strong into April and May. Depending on the measurement method, many indices for the past couple of months indicate one of the strongest La Niña episodes on record.

We know the impact this La Niña phase has had on our area.

The southwestern Prairies are dry and drought numbers remain concerning from Calgary and Saskatoon southward toward the U.S. Although, we have had periods of wet weather increase in May to help ease the drought a bit, particularly between Calgary and Edmonton.

Meanwhile, Southern Manitoba has shown the greatest improvement, knocking down the drought in the past several weeks. Through early June, the drought dividing line is near Regina with drought to the West and a surplus to the East. (For this discussion I am referencing the Palmer hydrologic drought index, which includes groundwater and surface water). I expect the surplus here to back off quite a bit through the next few months.

Back to the big picture.

The impact of this La Niña will continue through summer and into fall. Projections for the remainder of 2022 show we may see La Niña fade into more of a neutral pattern by winter. Beyond winter, forecasts made by the American CFS model and the Canadian CanSIPS offer hints of a developing El Niño for later in 2023. That makes sense based on my observations of the behaviour of the oceans and atmosphere over the tropical Pacific Ocean.

It is too early, however, to be definitive for next year's La Niña versus El Niño outlook. I will track this and will keep you updated as we go through the next several months. As it stands now, neutral to La Niña conditions for 2022 into early 2023 are far more likely than that of El Niño. Yet, the odds of El Niño do begin to increase later in 2023.

For now, let us look at the most likely scenario for this summer and fall based on ocean and atmosphere behaviour to date; we'll investigate similar patterns of the past and how those compare to computer model projections.

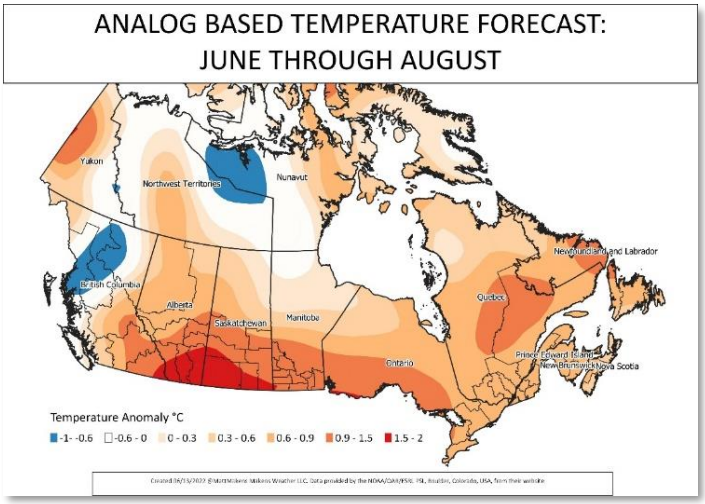
The basis of an analog forecast is to look for similar years in which the ocean and atmosphere acted most similarly to recent weeks and months. During the past several months, best-fit years have shifted between several contenders, but many recent years have remained unchanged as a foundation for the forecast.

Out of a list of eight years which statistically are most similar to our current situation, the list has been shortened to the best fits: 2001, 2007, 2020 and 2021. You will recall 2020 and 2021 were in the forecast years used in the March outlook.

SUMMER

June - August

In summary, the west coast is likely to be the most unsettled area with the potential for wetter than normal conditions as well as cooler pockets, too. In the Prairies, where we have the existing drought, we continue to see warmer and drier than average conditions through summer. The temperature outlook remains warm from the Prairies to the East, including the Maritimes. This warmth comes with pockets of wetter conditions in northwestern and northern areas, as well as near the Great Lakes. In the last update, I had optimism that wetter weather would be near enough to the Maritimes, but that signal has shifted farther toward Greenland rather than coming closer to the southeastern Provinces.



Comparing my selection of analog years to long-term models (Both the American CFS and Canadian CanSIPS), the precipitation outlook is quite consistent between all three. However, modeling suggests that there may be some cooler conditions for the Prairies of Saskatchewan and Manitoba versus what my analog-based forecast shows. Although I see why the modeling is projecting that (drought diminished for the time and a saturated ground), I do believe the existing drought to the west creates an easier mechanism for hotter than normal temperatures to move in here despite the modeling's desire to keep the area cooler.

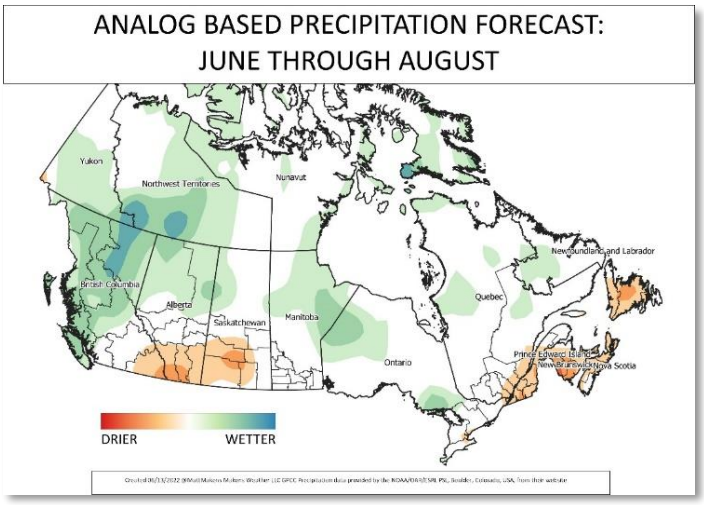
Summer 2022 Specifics

British Columbia: Likely the most unsettled weather of Summer across Canada will be here, especially in Central to Northern BC. For those areas, precipitation will be at least 120% of average with temperatures from normal to 1 degree Celsius cooler than normal. For Southern BC, temperatures near 1 to 2 degrees Celsius warmer than average and precipitation from normal to less than 90% of normal.

Alberta: Wetter areas this summer will be to the north and the driest areas to the south. Of the wettest, look for 110% of the average precipitation and less than 80% of the average for the South. Temperatures will be warmer than average, and certainly so with more than 2 degrees Celsius above normal for the South.

Saskatchewan: Hit and miss precipitation overall, the driest areas will be the southern ones. The South – mostly southwest - will also be the warmest with temperatures at least 2 degrees Celsius warmer than average and precipitation likely less than 80% of the average. Under these conditions, drought will continue. Conditions moderate as you go east through the Prairies into Manitoba.

Manitoba: Wetter weather shifts to the north and northeast leaving southern Manitoba in a relative normal zone for precipitation. Temperatures above normal throughout summer, 0.5 to 1.5 degrees Celsius warmer than average.



Ontario: Near normal precipitation for the area, with some surplus to come in areas near the Great Lakes and to the northwest. Temperatures are going to be warm throughout summer, averaging 0.5 to 1.5 degrees Celsius above normal.

Quebec: A warm summer, with average temperatures 0.5 to 1.5 degrees Celsius above normal. Precipitation stays near normal to above normal in some spotty locations to the north. The dry areas of far Southern Quebec need to be monitored to see if they begin to move farther north than expected. This area of dryness will have less than 90% of the normal precipitation.

Maritimes: Analog years and modeling show a warm and mostly dry outlook here for the summer. The nearest wet areas will be well to the North and East, but any remnants of a powerful hurricane (likely an active hurricane season for the Atlantic) which can move this far northward would be the best chance for moisture. Expect temperatures around 1 degree Celsius above normal with less than 80% of the normal precipitation.

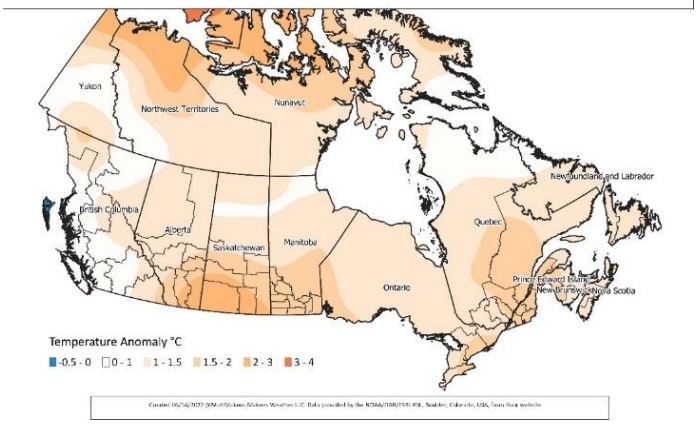
FALL

September - November

Following the summer's trend, the Prairies remain warmer than average as do the Maritimes; most of the cooler

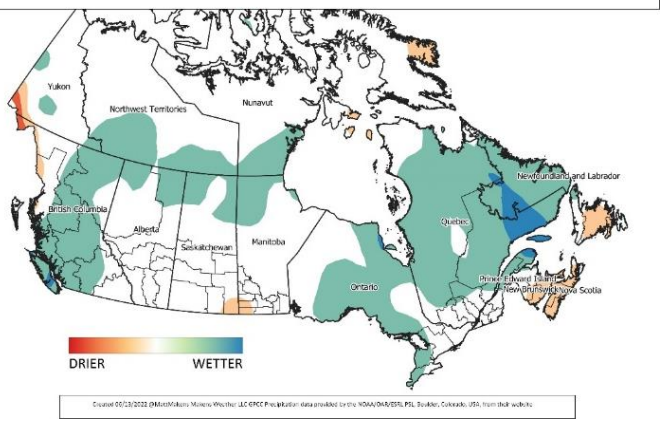
temperatures remain near the West Coast. Fall precipitation for the West is in roughly the same orientation as in the summer but the southwestern Prairies may do a bit better this time and stay closer to average. It looks likely that we will spread more moisture across the East in the fall, but parts of the Maritimes may still struggle for moisture with the focus to the north (barring remnant hurricane activity).

ANALOG BASED TEMPERATURE FORECAST:
SEPTEMBER THROUGH NOVEMBER



To compare my selection of fall analog years with long-term models, there is quite a strong agreement to my best-fit years. The difference is in the CanSIPS model, which indicates less moisture for Ontario than in the analog years or in the CFS model, however, not a major amount less.

ANALOG BASED PRECIPITATION FORECAST:
SEPTEMBER THROUGH NOVEMBER



CANADIAN DROUGHT MONITOR

As of May 31, 2022

Source: [Agriculture Canada]