



# Quarterly Canadian Weather Outlook

A collaboration with:



Forecast by:

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## 2022 Spring Outlook and Summer Preview

La Niña conditions combined with cold water from the Gulf of Alaska southward along the west coast of North America continue to be climate drivers across Canada this spring. There will be some changes to these ocean conditions, but the overall climate pattern will remain for quite some time. The influence of the Polar Vortex has also played into where we have seen the colder conditions from winter into early spring. Per expected annual trends, these combined influencers will lose their grip on us headed into summer. By the fall, the strength of these influences will return.

It is too early, right now, to be definitive for next year's La Niña versus El Niño outlook, and accuracy with next year's forecast will improve after April once we see how much the current La Niña fades. With that said, however, there is a reasonable chance that Neutral to La Niña conditions return for a third year in a row based on model projections and how the atmosphere is behaving thus far. I will keep tabs on this and will have a strong feeling one way or the other in your early summer outlook. As it stands now, Neutral to La Niña conditions for 2022 into 2023 is more likely than that of El Niño.

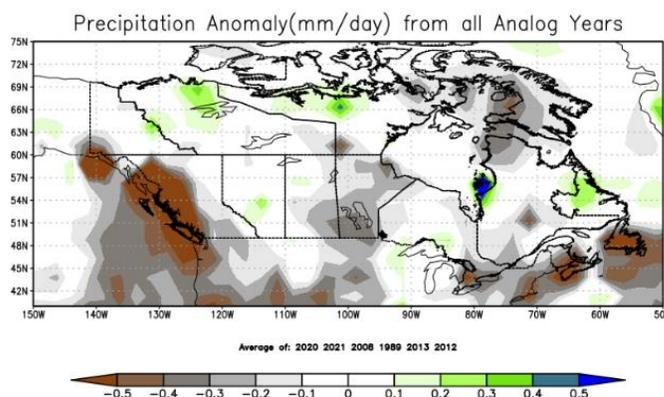
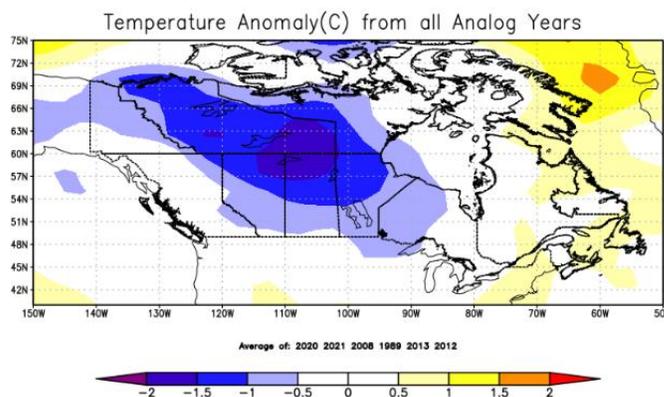
For now, let's look at the most likely scenario for this spring and summer based on ocean and atmosphere behavior to date; we'll investigate similar patterns of the past and how those compare to computer model projections. The basis of an analog forecast is to look for similar years in which the ocean and atmosphere acted most similarly to recent weeks. During the past several months, best-fit years have shifted between several, but the outcome is nearly the same in all cases.

### SPRING

#### March – May

Out of a dozen years which statistically are most similar to our current situation, the best fits for the spring are: 1989, 2008, 2012, 2013, 2020, and 2021. Here's how history has played out as an outlook for this spring.

In summary, the west coast is likely to remain drier than average. Meanwhile, some moisture pockets are possible in the Prairie Provinces – mostly northern sections, where temperatures are likely to be cooler than average. Ontario to the Maritimes see hit and miss precipitation, and generally, temperatures increase farther east.



Comparing with the selection of analog years to long-term models, there is a strong agreement – considering each model's biases – in the outlook for a dry British Columbia, cooler temperatures with pockets of moisture in the Prairie Provinces, to warmer and mostly drier conditions toward the Maritimes. To watch out for will be the American CFS model, which has a wet outlook for Ontario, Quebec, and

Maritimes. Considering that model’s wet bias, it’s hard to rule out what the best-fit years show as an outlook.

**Spring 2022 Specifics**

**British Columbia:** The influence of the colder than average sea surface temperatures in the nearby Pacific will decrease as we head toward summer when that area of ocean tries to gradually warm a bit. The western half is likely to remain driest based on our analog years - the frequency of years that have wet springs is less than 30% here - with nearer normal conditions east. Temperatures will be near to and cooler than average, with some of the colder pockets in the northeast being more than 2°C below normal.

**Alberta:** There will be some areas with normal and wetter than normal conditions. From near Calgary northward toward Lake Athabasca, history has shown some wetness here. Between Calgary and Edmonton, history shows a greater than 70% chance for normal and above moisture. The temperatures along the south will be closest to normal but for the northern areas, colder than normal temperatures by several degrees are possible. It does appear as though the combination of temperatures and some areas of moisture may help decrease the drought conditions for some areas.

**Saskatchewan:** Western areas will have near normal precipitation, but those nearest Lake Athabasca may see a surplus. Temperatures will also be coldest in the north, more than 2°C colder than average, but the temperatures to the south will be nearest normal. With the temperature outlook, and some precipitation, we can see drought improve a bit in some cases. The farther east though, the drier we will be here.

**Manitoba:** History has shown this to be the driest of the prairies in these patterns, with wet springs happening less than 20% of the time. Temperatures will be coldest in the northwest, between 1 and 2°C below normal, with temperatures elsewhere within a 0 to -1°C deviation. With the recent conditions, we may catch enough moisture along with cool temperatures to see drought decrease in the southwest early in the spring, plus the moisture outlook during the summer improves.

**Ontario:** Near normal precipitation, with the most favored areas for precipitation being near the Great Lakes. Probabilities from our analog years show a greater than 60%

likelihood of a wet spring for those just east of Lake Superior. Temperatures will be coolest, by 2°C, for the north and near normal for the south.

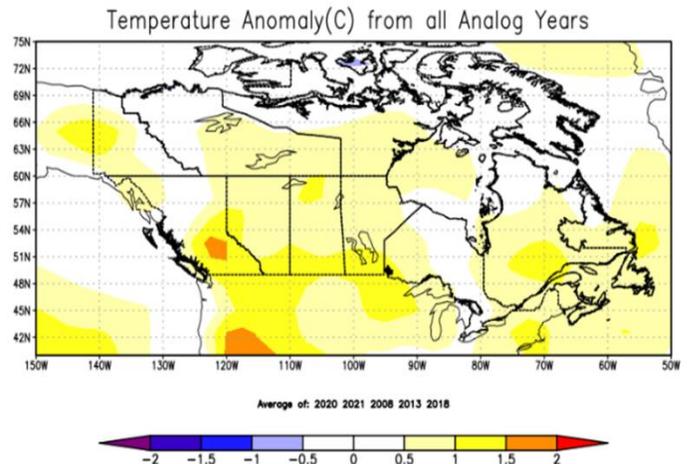
**Quebec:** This spring likely sees Quebec book-ended by the wetter areas; likely wetter for areas near Hudson Bay, dry in the interior, and more moisture near Newfoundland and Labrador. Of the two wetter zones, those near Hudson Bay historically see the higher precipitation totals above their normal. Temperatures will be coolest, 1 to 2°C, for the west and along Hudson Bay.

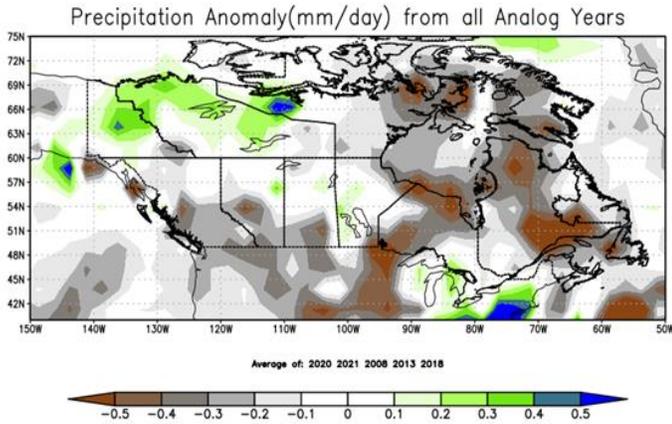
**Maritimes:** Spring is likely a drier than normal period here, with some optimism this summer. Spring is more frequently dry here, though, in these setups which have a wet frequency of less than 33%. With that said, however, history also has a bullseye of very wet weather just southeast of here...something to watch anyway. Temperatures will be near to warmer than average.

**SUMMER**

**June – August**

This summer will see 2008, 2019, 2018, 2020, and 2021 emerge as the best-fit years out of a dozen or so statistically most similar options. With that, the average conditions during those years as applied to this summer’s outlook turn out like this:



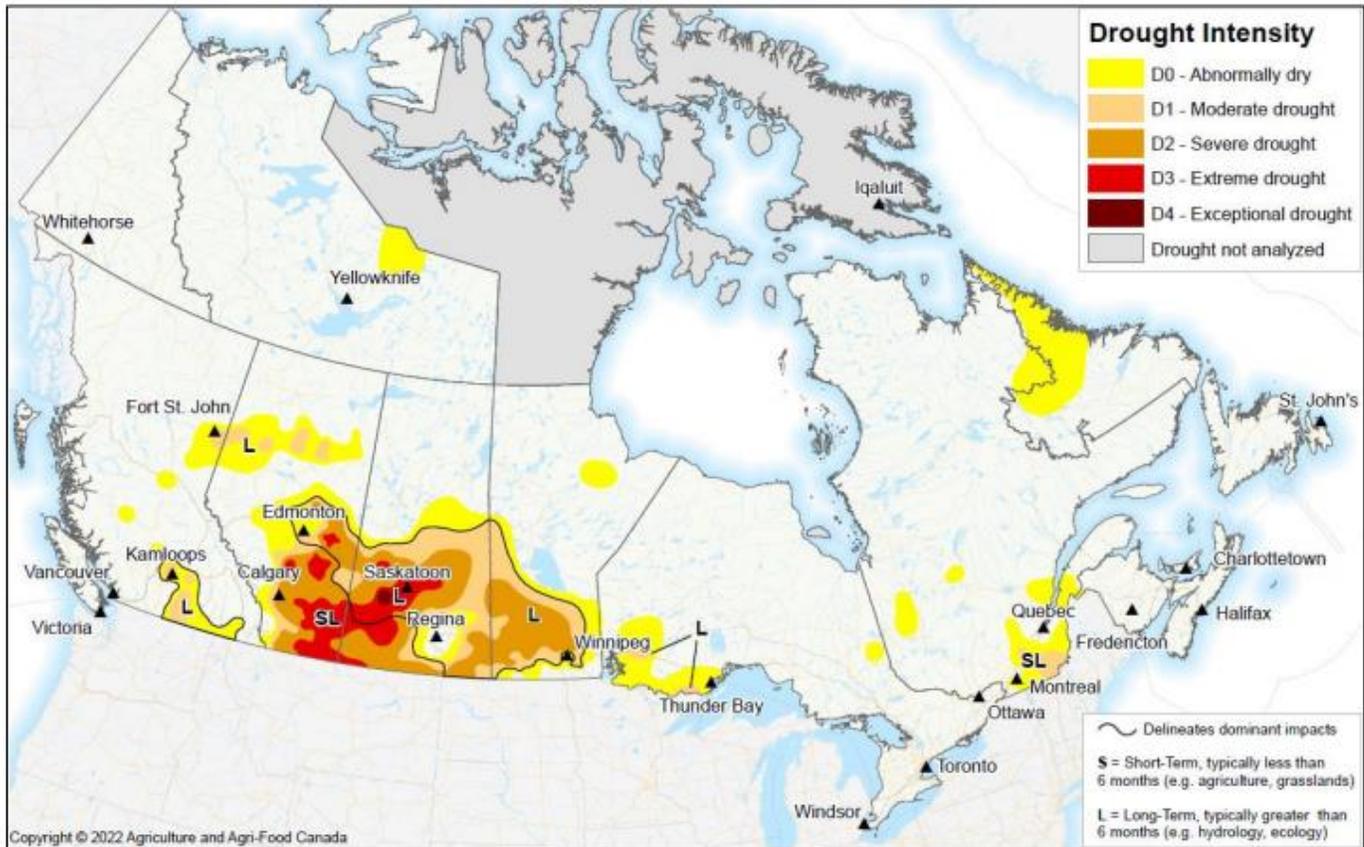


We likely face a warm summer, especially across the south. In particular, the drought in the southern prairies will likely create a feedback mechanism for reinforcing and increasing the warmest conditions in this region; how much the drought here can improve this spring remains to be seen. Pockets of moisture hit parts of the Prairie Provinces, as we saw in the spring outlook, but overall, this isn't an overly wet setup based on history.

### CANADIAN DROUGHT MONITOR

As of February 28, 2022

Source: [Agriculture Canada](https://www150.statcan.gc.ca/n1/pub/26-687-x/2022001/article/00001-eng.htm)



To compare my selection of summer analog years with long-term models, there is a reasonable (less than that of spring) agreement to my best-fit years. There are some differences in that the CANSIPS model (Canadian) indicates a much cooler summer than in the analog years, the CFS model (American), or the ECMWF model (European).

For now, I'll consider that cooler solution an unlikely outlier, but something to watch and is part of that model's bias which is also a consideration.

There are few options to show too much moisture in either the spring or summer. Although there is a very low probability, if we can see ocean conditions change unexpectedly nearby in the Pacific as well as a shift in the Atlantic Ocean, we can increase the chances of getting a wetter outlook. Again, though, that is a low probability as indicated in analog years as well as within computer modeling.