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Newfoundland and Labrador

Quarterly Climate Summary: Summer 2020

Summary & significant weather events (June—August):

Most of the island portion of the province went through a warm, dry summer season. The Avalon Peninsula also had an overall warm summer, but wetter than the rest of the island. Warm conditions extended to much of Labrador as well, and a couple of post-tropical storms managed to find their way into western Labrador through the season.

The Avalon Peninsula experienced a very wet June, while the rest of the province had a roughly average to slightly above average month for rainfall. It was also a warmer than normal month across the island, with several days breaking high temperature records.

Temperatures were about normal for the month of July across the island, with the Avalon having a colder and wetter than normal month. Though overall temperatures did end up near normal, much of the island still experienced a heat wave later in the month. A warm, dry July was on tap for much of Labrador, allowing [forest fires](#) to spawn in areas of the region.

August went on to be a warm, dry month across the island, continuing to lead to [ideal wildfire conditions](#). The month was not to be outdone by the previous two, as August had its own extended hot spell in the first half.

Here is a description of the most significant events:

June 1-3: A trough of low pressure stalled across western Newfoundland, and wet conditions ensued across much of the province.

- **Rainfall:** St. Alban's reported about 100 mm while Mount Pearl received just over 60 mm. 20-53 mm were reported at stations across the island and southeastern Labrador, while Goose Bay picked up 54 mm.

June 6-8: More wet conditions across the Avalon Peninsula under the influence of a low pressure system passing across the east coast.

- **Rainfall:** Mount Carmel and St. Joseph's got 63 mm and 61 mm respectively. Stations across the northeast Avalon reported amounts in the 40-60 mm range.

June 13-16: Another slow moving trough of low pressure contributed to the Avalon Peninsula's well above normal month for precipitation.

- **Rainfall:** St. Joseph's and Mount Carmel were the winners again, with the former picking up nearly 81 mm of rain and the latter receiving 74 mm. Rainfall elsewhere on the peninsula fell in the 30-45 mm range.

June 23-26: A trough of low pressure set up for a few days across Labrador. This resulted in wet conditions for Labrador and the [first heat event of the season](#) for the island.

- **Rainfall:** Goose Bay received 68 mm and Cartwright 55 mm. Stations in Lab West reported 23-36 mm for the event
- **Highest temperatures and humidex:** Daytime highs through western, central, and northeastern Newfoundland hit 27-32 °C, with humidex values in the 30's, reaching 39 through the Humber Valley.

July 11-13: A combination of thunderstorm activity and the remnants of Post-Tropical Storm Fay meant a wet stretch of days for Labrador.

- **Rainfall:** Makkovik, Postville, and Wabush Airport reported rainfall totals of 59 mm, 58 mm, and 56 mm respectively. Other stations in western Labrador, as well as L'Anse au Loup, reported amounts ranging from 37 to 48 mm.

July 15-17: A low pressure system passed south of the island and, after a reprieve, brought wet weather back to the Avalon Peninsula.

- **Rainfall:** St. John's Airport ended up with 102.5 mm, followed closely behind by Paradise at 99 mm. Stations elsewhere across the eastern Avalon recorded amounts in the 60-96 mm range for the roughly 3-day event.

July 20-22: The second heat wave for the province.

- **Highest temperatures and humidex:** Daytime highs were 28-30 °C and peak humidex values of 30-33 occurred. Gander Airport had the highest humidex for the event, hitting 35 on the 21st.

August 5-6: Post-Tropical Storm Isaias marked the second storm of tropical origin to make its way into Labrador, though it had little impact.

- **Rainfall:** Labrador City for 23 mm while Wabush Airport got 16 mm.

August 8-13: August followed suit from each of the previous two months, having its own extended period of heat. At the end, a cold front swept across Newfoundland, bringing with it a period of heavy rain for parts of the south and east coasts of the island.

- **Highest temperatures and humidex:** High temperatures hit 28-32 °C while humidex values were generally 30-34. Max humidex values of 35-38 occurred in Goose Bay, as well as western and central Newfoundland, on the 11th, and again in western Newfoundland on the 12th.
- **Rainfall:** Port aux Basques got 65 mm on the 13th (with 38 mm occurring in one hour). Whitbourne picked up 53 mm.

August 18-19: More wet weather, especially for southern Newfoundland, due to an elongated low pressure system tracking across the province.

- **Rainfall:** St. Lawrence reported 47 mm and Burgeo got 36 mm. Stations scattered elsewhere in southern, eastern, and central Newfoundland reported amounts in the 15-29 mm range.

August 20: A line of thunderstorms developed and tracked through central Newfoundland. These produced brief periods of heavy rainfall and up to marble-sized hail in central.

August 25-27: Yet more [wet conditions](#) from a slow-moving low pressure system affecting the province.

- **Rainfall:** Burgeo ended up with 103 mm while Red Bay reported 92 mm. Widespread amounts across [Newfoundland](#) and [Labrador](#) were reported in the range of 30-65 mm with this storm.

August 30-31: Post-Tropical Storm Laura teamed up with another low pressure system tracking towards the island to bring [another dose of rain to the island](#).

- **Rainfall:** St. Lawrence got 61 mm and Winterland-Branch Hill received 43 mm. Stations elsewhere in southern and eastern Newfoundland recorded amounts of 26-41 mm.

Provincial Climate Overview (June—August):

Temperature (Departure from Normal):

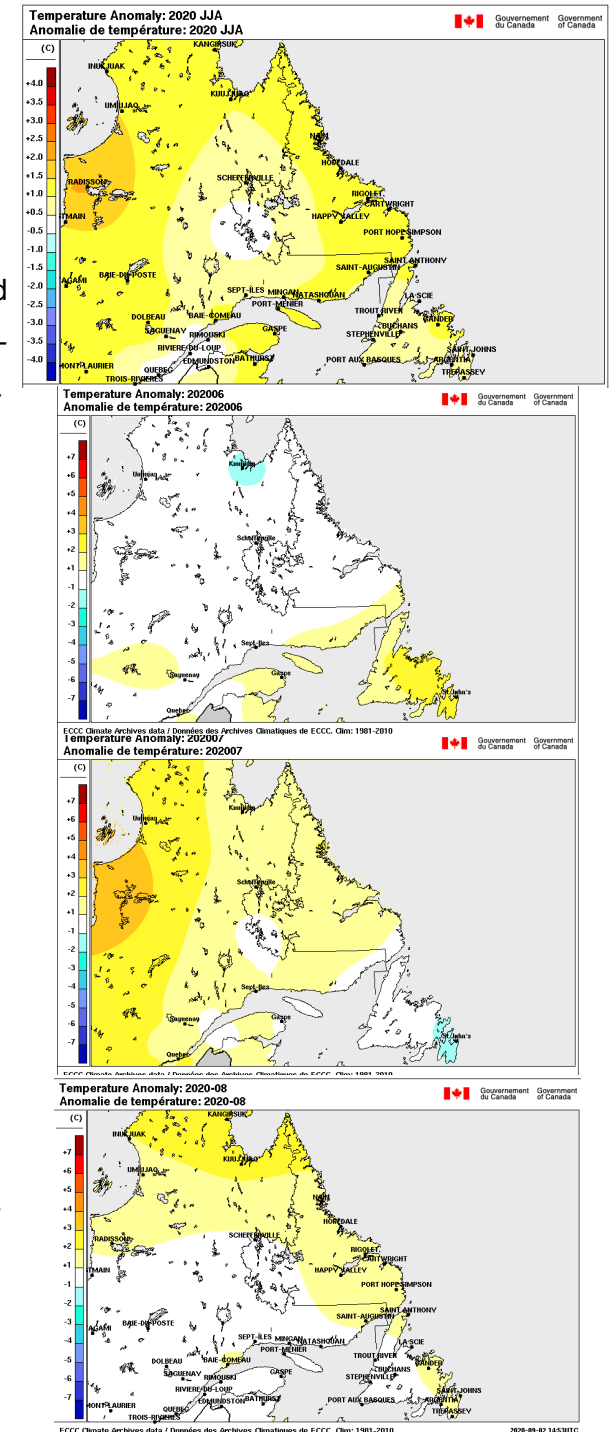
The **Summer** temperatures averaged out to generally a degree above normal for what was a balmy summer for many areas. Cartwright set a new record for number of 30+ °C days with 6, while Mary's Harbour tied for 1st place on record for such days, with 4. A few other locations finished top 5 all-time for number of 30+ °C days, including Deer Lake, Corner Brook, and Makkovik. For several areas across the province, the 2020 June-August period ranked among the ten warmest on record. Bonavista ranked the highest in this regard, having its 3rd warmest summer on record (records began in 1957). Western Labrador was the exception in 2020, as temperatures there averaged out to near normal.

June average temperatures were about 1-3 degrees above normal across Newfoundland. Labrador saw temperatures that were about typical for the month, except in the southeast where temperatures were roughly a degree above normal.

July was a different story for Newfoundland, as temperatures were near normal for the month. Much of the east coast of the island actually ended up about a degree below normal. In Labrador, temperatures were about 1-2 degrees above normal, except near normal in the extreme west and southeast. Nain, Churchill Falls, and Hopedale ranked 1st, 2nd, and 3rd on record, respectively, for warmest Julys in 2020.

August temperatures were 1-2 degrees above normal across northern and eastern Newfoundland, but about normal elsewhere on the island. Labrador temperatures were similarly 1-2 degrees above normal, where the west again was about normal for August.

Right: Temperature anomalies for Newfoundland and Labrador for (from top) June-August combined, June, July, August.



Precipitation (Percent of Normal):

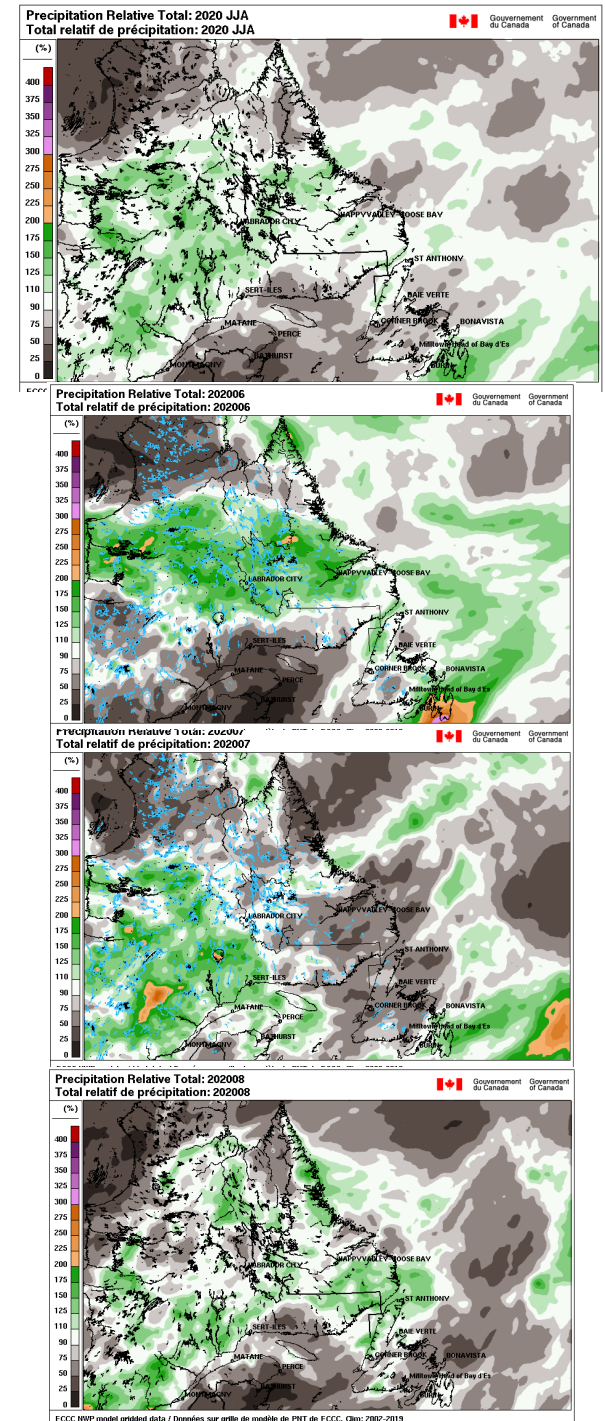
Summer precipitation was quite a bit above normal for the Avalon Peninsula, where 25-75% above normal rainfall was observed. The St. John's area actually had its 2nd wettest summer on record, only placing behind 1944 in this regard. Much of the rest of the island, as well as portions of southeastern and northern Labrador, were drier than normal, with 10-50% less rain than a typical summer. Elsewhere in Labrador, and across the Northern Peninsula, summer precipitation was near normal to about 25% above.

June was a very wet month for the Avalon Peninsula, as the region received about 2-3 times its normal rainfall. Wetter than normal conditions were noted elsewhere in the province, at about 25-75% above normal totals. The Happy Valley-Goose Bay area had its 2nd wettest June on record in 2020. Exceptions to this trend were central and southwestern Newfoundland, which ended up about 10-50% drier than normal, while parts of southeastern and northern Labrador had roughly normal rainfall for the month.

July saw wet conditions persist in eastern Newfoundland, to the tune of about 25-50% above normal precipitation. As far as records go, St. John's ended up with its 4th wettest July. One section each of western and northern Labrador ended the month with near to slightly above normal rainfall. Elsewhere in the province, conditions were roughly 25-75% drier than normal.

August ended the season with a mish-mash of conditions across the province. In Newfoundland, generally lower than normal precipitation was noted, anywhere from 10-50% lower. The dry trend was bucked by the Northern Peninsula, as well as a stretch of southwestern Newfoundland, as these areas saw 10-50% wetter than normal conditions. Burgeo, in fact, had its 4th wettest August on record. In Labrador, 10-75% wetter than normal conditions occurred, as L'Anse au Loup and Nain each had their 2nd wettest Augusts on record. Exceptions to these wet conditions occurred along parts of the mid coast and central, which were 10-50% drier than normal.

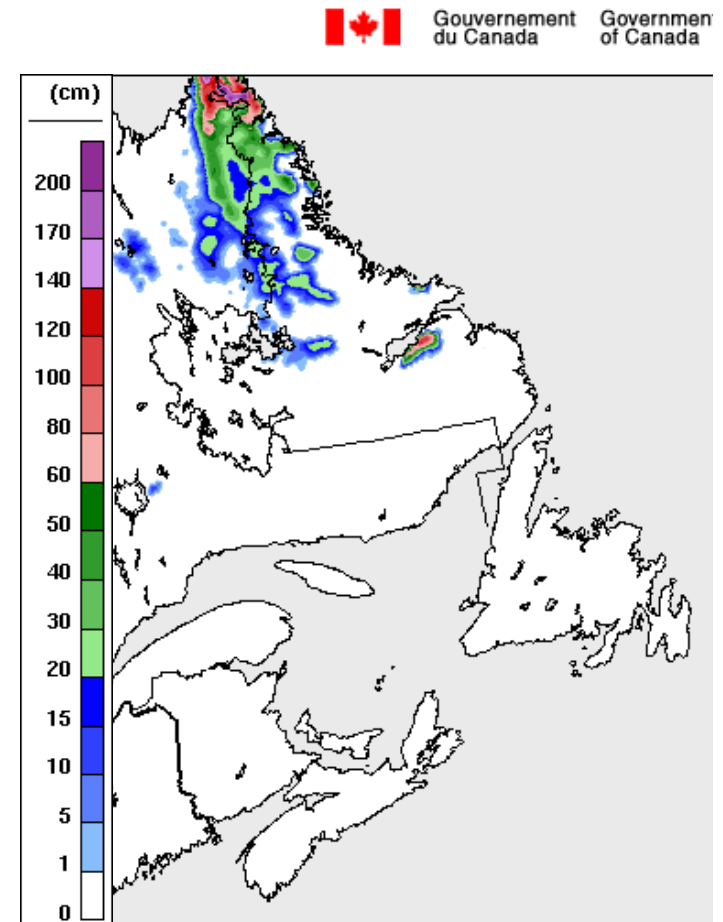
Right: Precipitation anomalies for Newfoundland and Labrador for (from top) June-August combined, June, July, August.



Snow depth

(Note: there was still some snow remaining along tops of the Long Range Mountains, but this is not pictured due to coarse resolution of the image).

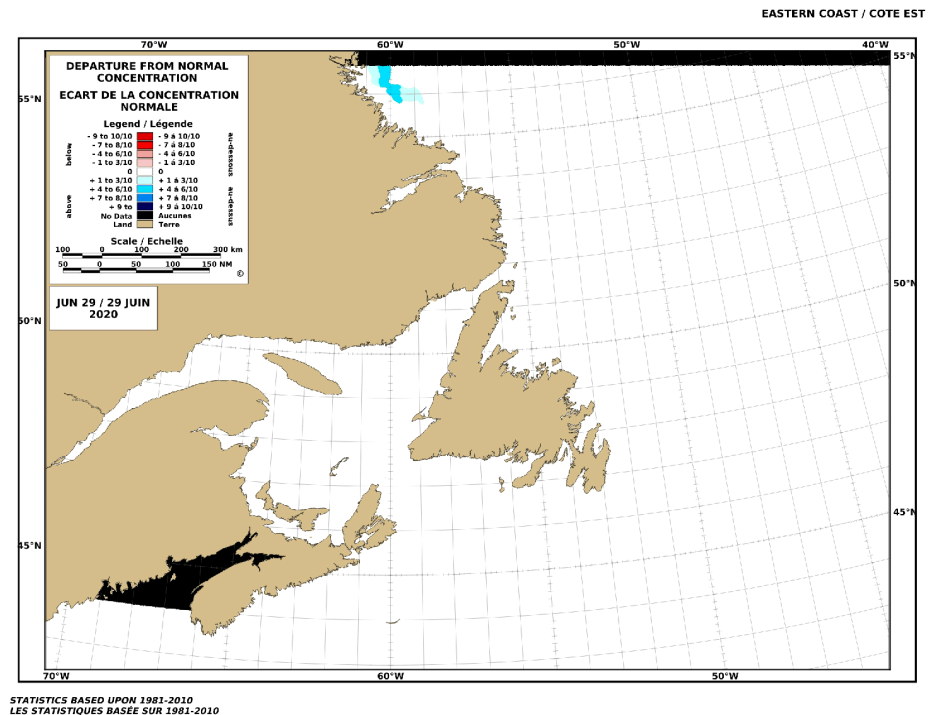
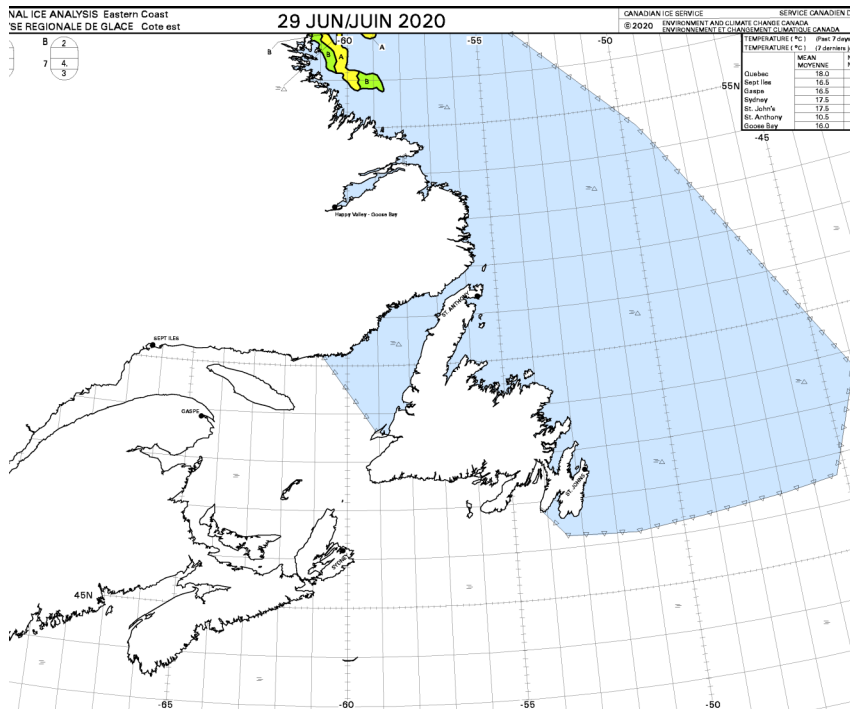
In Labrador, some snow remained atop the Mealy Mountains at the end of June, with up to 60 cm or more estimated. Along the Torngat Mountains and in parts of interior Labrador, some areas were estimated to have 10-30 cm of snow remaining. Finally, in the unpopulated area of extreme northern Labrador, an estimated 60-100+ cm was still present at June's end.



*Snow depth (estimated) for Newfoundland and Labrador
as of 9:30 am NDT June 30, 2020*

Sea Ice Coverage (Analysis / Concentration departure from normal):

Sea ice charts for the East Coast at the end of June show ice cover lingering off the mid Labrador coast, with above normal concentration. The iceberg limit at this time extended just a shade south of the Avalon Peninsula and across the northern Grand Banks, and into the northeast Gulf of St. Lawrence. This is in stark contrast to last year, when the iceberg limit extended well south of the Grand Banks. The [International Ice Patrol](#) reported 168 icebergs sighted or drifted below latitude 48° N in the trans-Atlantic shipping lanes into early July, well below average. The 2020 season was classified as light, falling within the bottom one-third of all ice seasons since 1900.

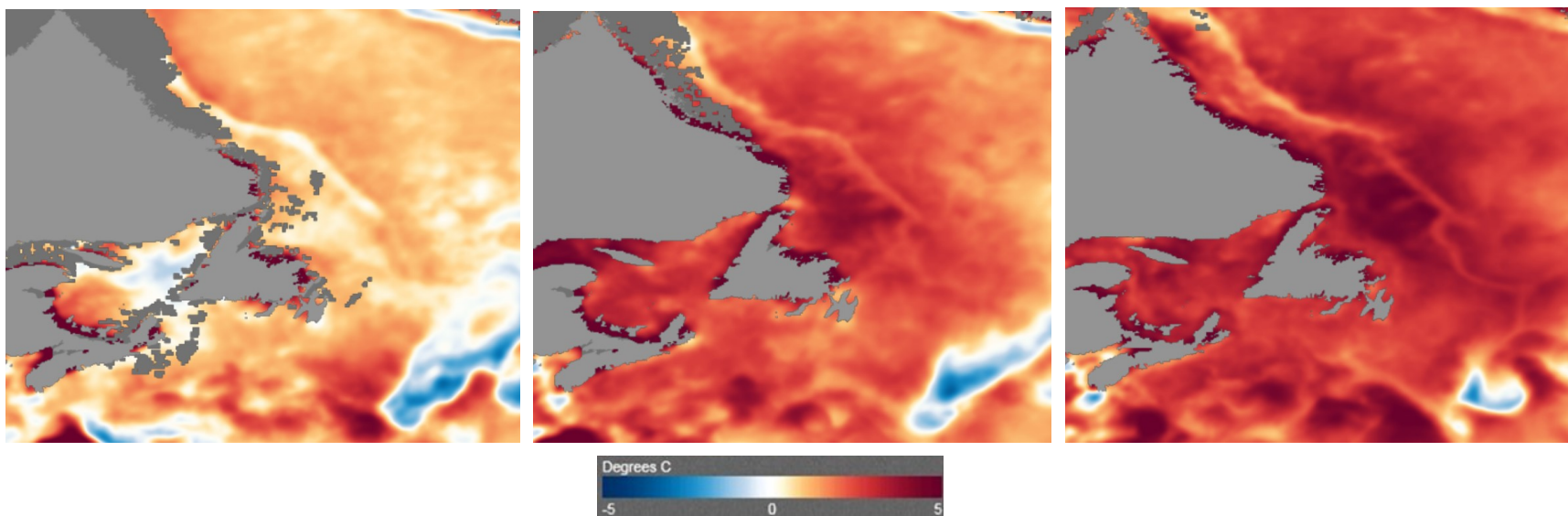


Left: Sea ice analysis chart for June 29, 2020 (Note: the blue area indicates the area containing icebergs). Right: Sea ice concentration departure from normal: June 29, 2020

Sea Surface Temperature (Departure from Normal):

Note: We are excluding the area over the southern Grand Banks where the Labrador Current and the Gulf Stream meet. This area is extremely variable even in normal conditions. Grey areas along much of the coast may represent either gaps in data or presence of sea ice.

Sea surface temperature anomalies gradually increased throughout the summer season. For **June**, sea surface temperatures were about 1-3 degrees above normal in general. The main exception to this was noted over a portion of the Gulf of St. Lawrence, as well as isolated areas along the south coast of the island, where temperatures were about a degree or so below normal. This below-normal anomaly was reversed in **July**, as sea surface temperatures across all Newfoundland and Labrador waters were roughly 2-4 degrees above normal. Things continued on this trend into **August**, as temperatures on the sea surface ended up about 4-5 degrees above normal to round out the summer season.



NOAA monthly mean SST anomaly map (based on 1981-2010 Normals) for Jun 2020 (left), Jul 2020 (middle), and Aug 2020 (right)

<https://www.nnvl.noaa.gov/view/globaldata.html#SSTA>

Provincial Impacts (March—May):

A heat wave for every month:

As indicated earlier, this summer was overall warmer than normal across the province. Heat waves in each of June, July, and August contributed to what was a pretty good summer for a staycation. The first heat wave occurred in [late June](#), which would have coincided with the first few days of the school summer holidays in a typical year. July's heat event also occurred late in the month, with yet another extended period of daytime highs near 30°C across much of the island. The middle part of [August](#) had its own heat event, all contributing to a warm and (mostly) [pleasant summer season](#). The hot, dry conditions did lead to [prime forest fire conditions](#), though. More on that on the next page.

Extremely active hurricane season mostly spares Newfoundland and Labrador for now:

The initial predictions from the National Oceanographic and Atmospheric Administration (NOAA) called for a 60% chance of an above normal tropical cyclone season. On August 6, NOAA doubled down on that prediction. While there were many tropical cyclones that formed by the end of August, for the most part Newfoundland and Labrador was spared the worst. Remnants of both Fay and Isaias did make their way into western Labrador. But aside from some pockets of heavier rainfall, these systems had little impact on the Big Land. Remains of Laura approached the island portion of the province near the end of August. But unlike the devastation that Laura caused in Louisiana, although the storm produced some heavy rainfall over a few locations, [minimal impacts](#) occurred as the storm weakened considerably before arriving at the island.

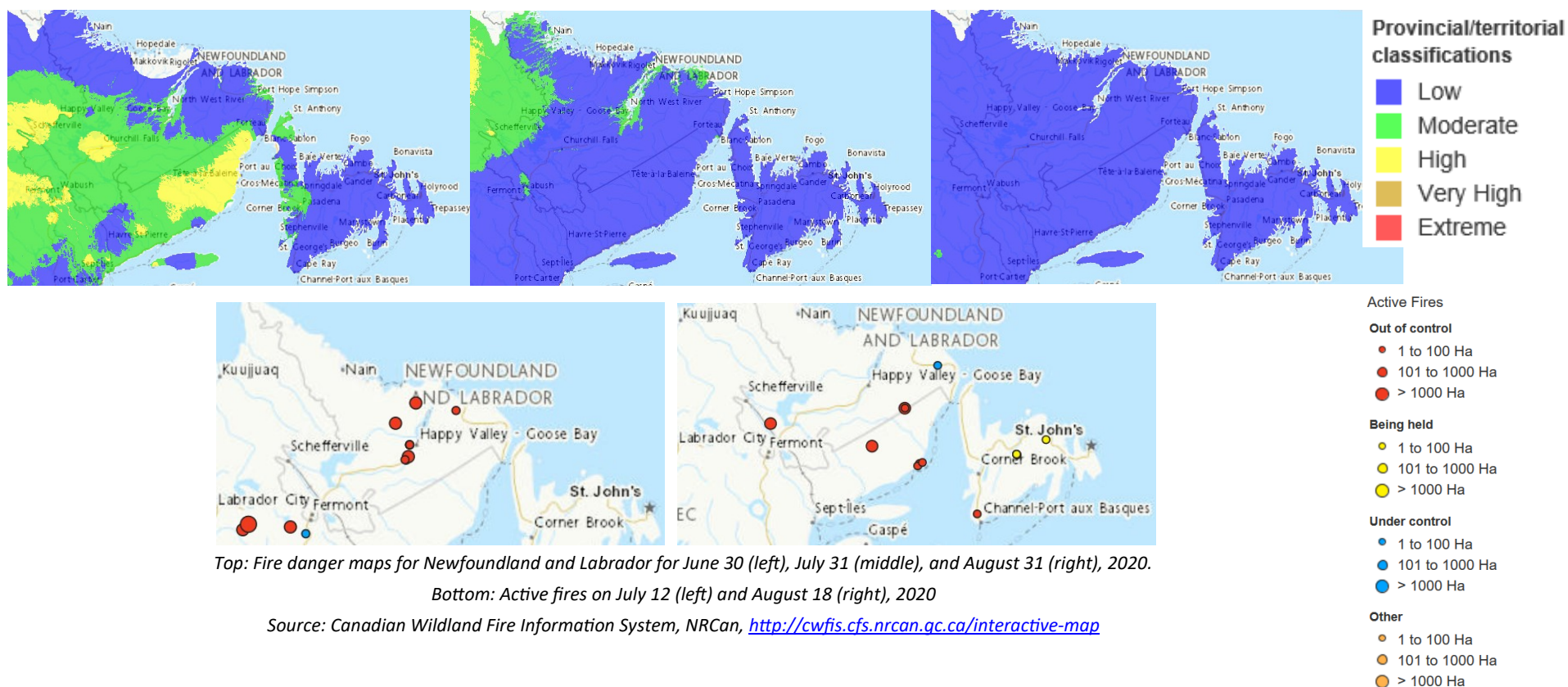
Thunderstorm activity:

While Newfoundland and Labrador isn't the hotbed of summer severe weather that the mainland tends to be, the province did get its share of thunderstorm activity over the past couple of months. August especially had a fair amount of activity, with one thunderstorm in central producing [considerable hail](#). One thunderstorm off the coast of Labrador even made for a [harrowing boating adventure](#). A few days later, though a day without much severe weather, a [waterspout](#) was sighted off of Bay. St. George. All told, the province saw slightly above average cloud-to-ground lightning strokes this summer season.

Provincial Impacts (June—August):

Forest fire season:

The Fire Weather Index remained mostly low to moderate through the summer. Hotter, drier periods throughout the summer lead to the index being increased to high to extreme at times throughout the season. Through July and August, several wildfires were burning across parts of [Labrador](#) and [Newfoundland](#), respectively. But a wet end to August greatly reduced the risk of additional fires popping up. According to the provincial Department of Fisheries and Land Resources, 86 fires were reported in the province up to the end of August, covering nearly 4300 hectares. This is below the norm, as the province tends to see more than 160 wildfires in an average year. The forest fire season for Newfoundland and Labrador runs until September 30.

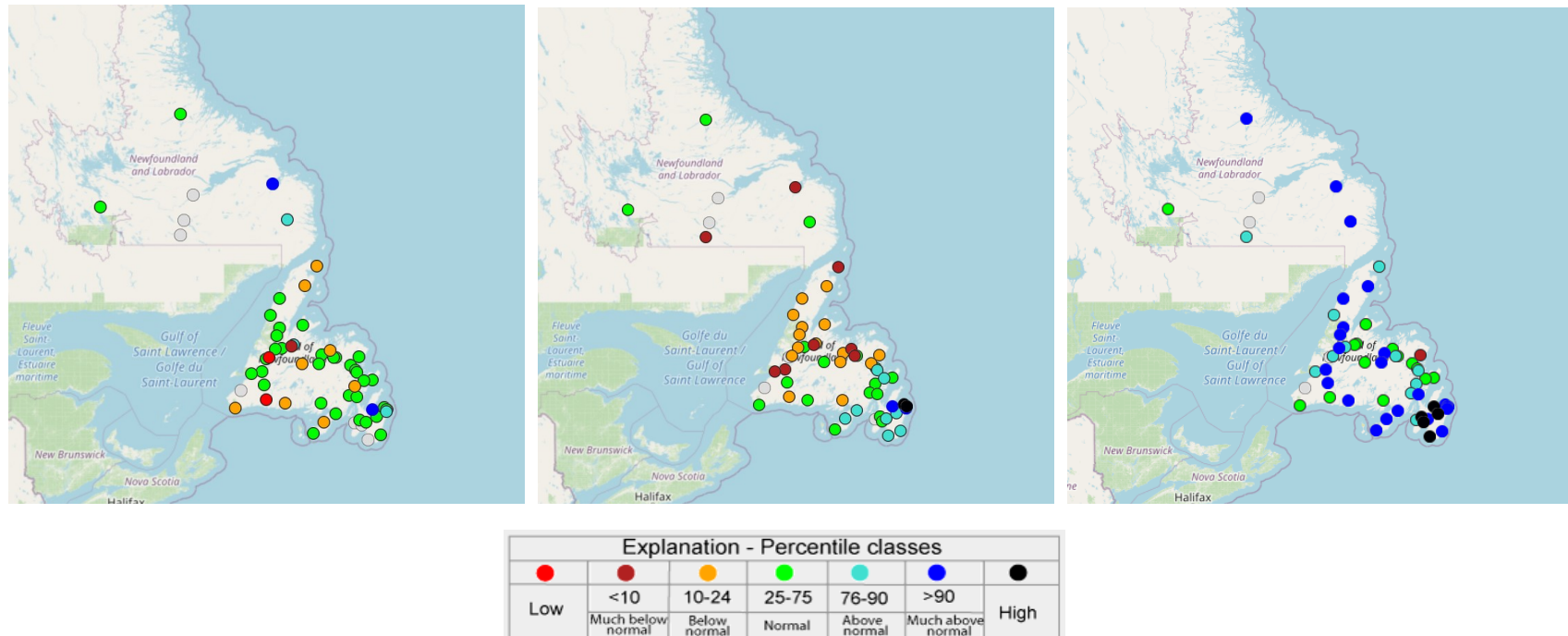


River Flows:

By the end of **June**, most rivers across the province were near normal for flow rates, with a few exceptions of above (northern Avalon and southeastern Labrador) and below (parts of the island) normal flows sprinkled in. Eagle, Gander, and Rocky Rivers reported excessive flow for June, while Isle aux Morts and Upper Humber Rivers had overall deficient flow. For the Upper Humber in particular, it was quite a dramatic shift from the early part of June, when [rising water levels caused some localized flooding](#).

Abnormally dry conditions in **July** lead to generally below normal flow rates for rivers across the province, though several ran near normal. The Upper Humber once again ran at deficient flow in July. The Avalon Peninsula, however, was wetter than normal in July, and above normal river flow rates reflected these conditions.

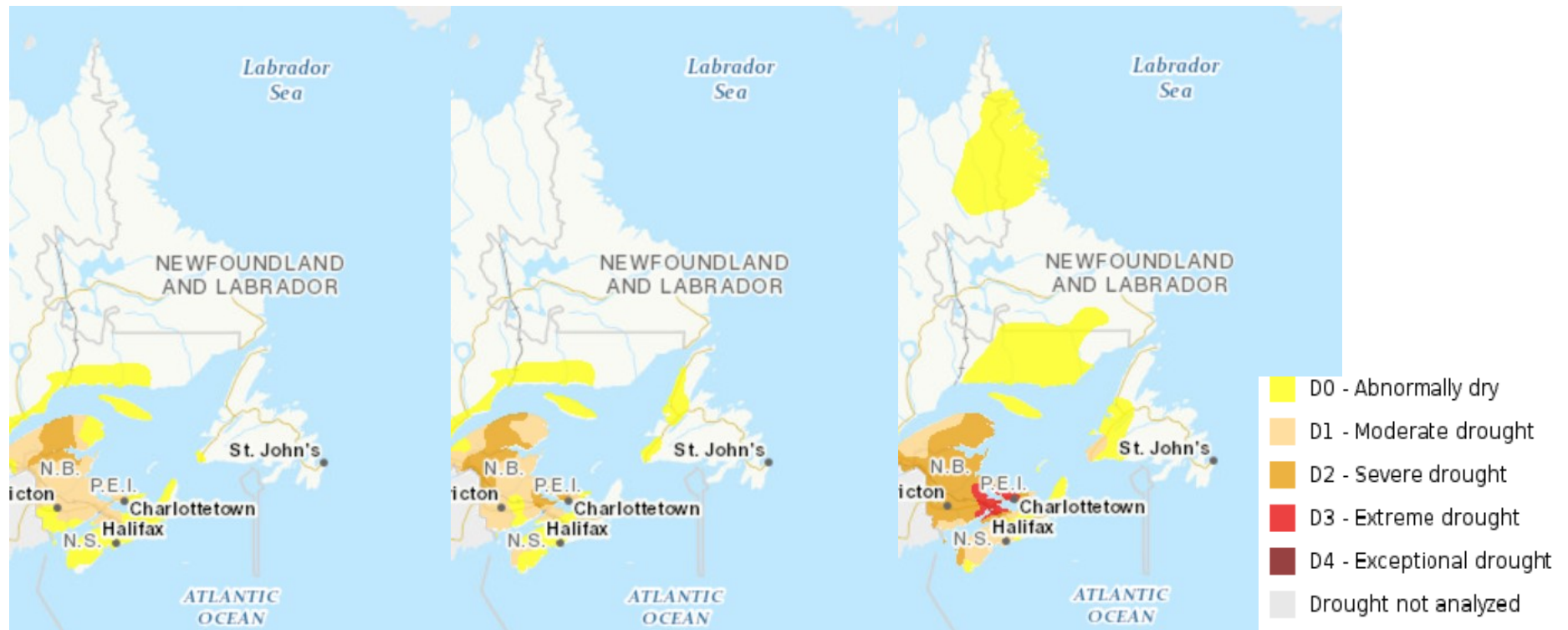
Although **August** wasn't an overly wet month for some areas, several rainfall events at the end of the month produced near to well above normal river flow rates across most rivers in the province.



North America WaterWatch map of real-time streamflow compared to historical streamflow for the day of year: as of June 30 (left), July 31 (middle) & September 1 (right), 2020 - <https://watermonitor.gov/naww/index.php>

Drought Conditions:

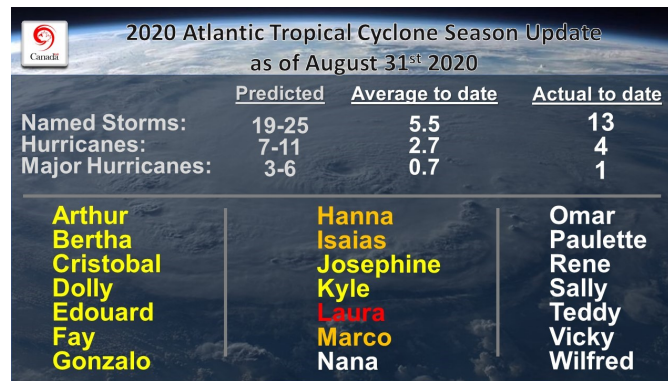
A small portion of southwestern Newfoundland was classified as unusually dry by the end of June. These dry conditions extended further across western Newfoundland by the end of July, and continued to the end of August as the area generally had below normal rainfall throughout the summer. A stretch of southwestern Newfoundland was classified as having moderate drought conditions by the end of the season. Elsewhere, abnormally dry conditions were not analyzed throughout the summer, except for a stretch of northern Labrador at the end of August (despite wet conditions for that month).



Canadian Drought Monitor Map for June 30, 2020 (left), July 31, 2020 (middle), and August 31, 2020 (right) . Drought maps courtesy of Agriculture and Agri-Food Canada- <http://www.agr.gc.ca/eng/programs-and-services/list-of-programs-and-services/drought-watchcanadian-drought-monitor/?id=1463575104513>

2020 Hurricane Season Update:

The 2020 season marks the 6th straight year with a named storm forming prior to June 1, as tropical storm Arthur formed on May 16 and the short-lived tropical storm Bertha formed on May 27. On the August 6 update, NOAA [updated its prediction](#) to an 85% chance of an above normal tropical cyclone season, with the likelihood that it will be an [extremely active season](#). By the end of August, there had been 13 named storms in the Atlantic basin. Adding four more (Nana, Omar, Paulette, and Rene) within the first two weeks of September brings the total to 17, putting 2020 already above a normal season (12). Five of these seventeen storms strengthened to hurricanes (including Nana), with Laura becoming a dangerous Category 4 hurricane as it made landfall in Louisiana.



	Predicted	Average to date	Actual to date
Named Storms:	19-25	5.5	13
Hurricanes:	7-11	2.7	4
Major Hurricanes:	3-6	0.7	1

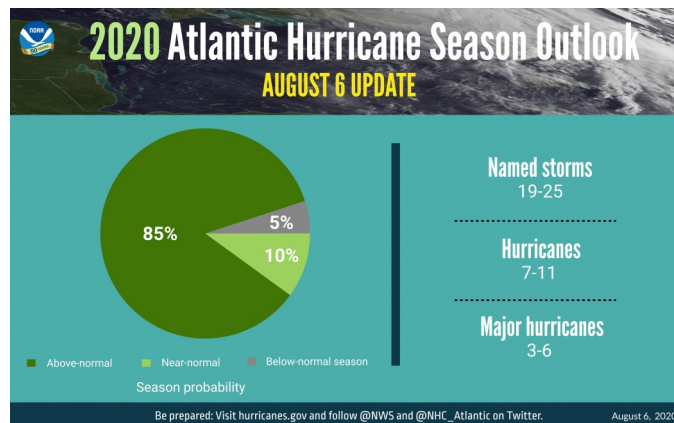
Arthur	Hanna	Omar
Bertha	Isaias	Paulette
Cristobal	Josephine	Rene
Dolly	Kyle	Sally
Edouard	Laura	Teddy
Fay	Marco	Vicky
Gonzalo	Nana	Wilfred

Named storm

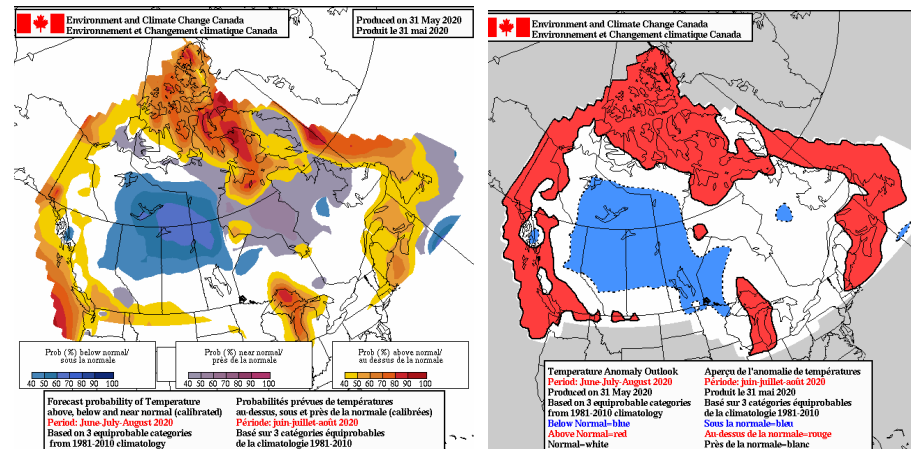
Hurricane

Major hurricane

Two remnant tropical systems made their way into the province, as both Fay and Isaias tracked into western Labrador. Also, remnants of Laura combined with another storm to produce some heavy rainfall for parts of the island. Otherwise, impacts have been minimal so far in the 2020 hurricane season. The climatological peak for the season occurs on September 10.

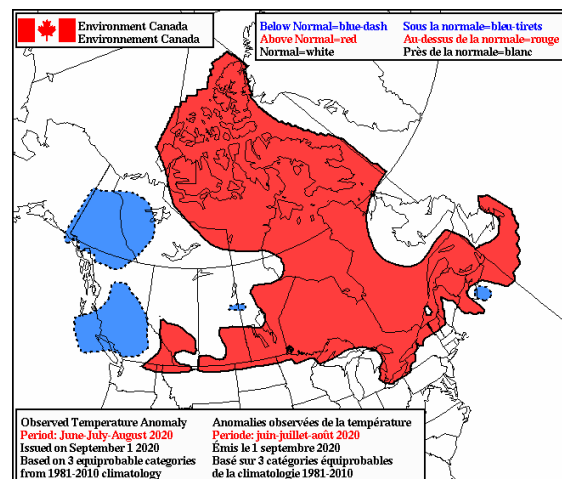


Summer Season (Period: June-July-August) Temperature Outlook Performance: Summer in Newfoundland and southeastern Labrador was forecast to be warmer than normal, while the rest of Labrador was expected to be roughly normal in terms of temperature.



Left: Probability of above, below and near normal: Produced May 31, 2020 – Right: Forecast Temperature Anomaly: Produced May 31, 2020

The forecast worked out decently for Labrador, as the region had a roughly normal to slightly above normal season for temperature. While the forecast worked out fine for the east coast of Newfoundland, the rest of the island ended up having a roughly normal summer season in terms of temperature.

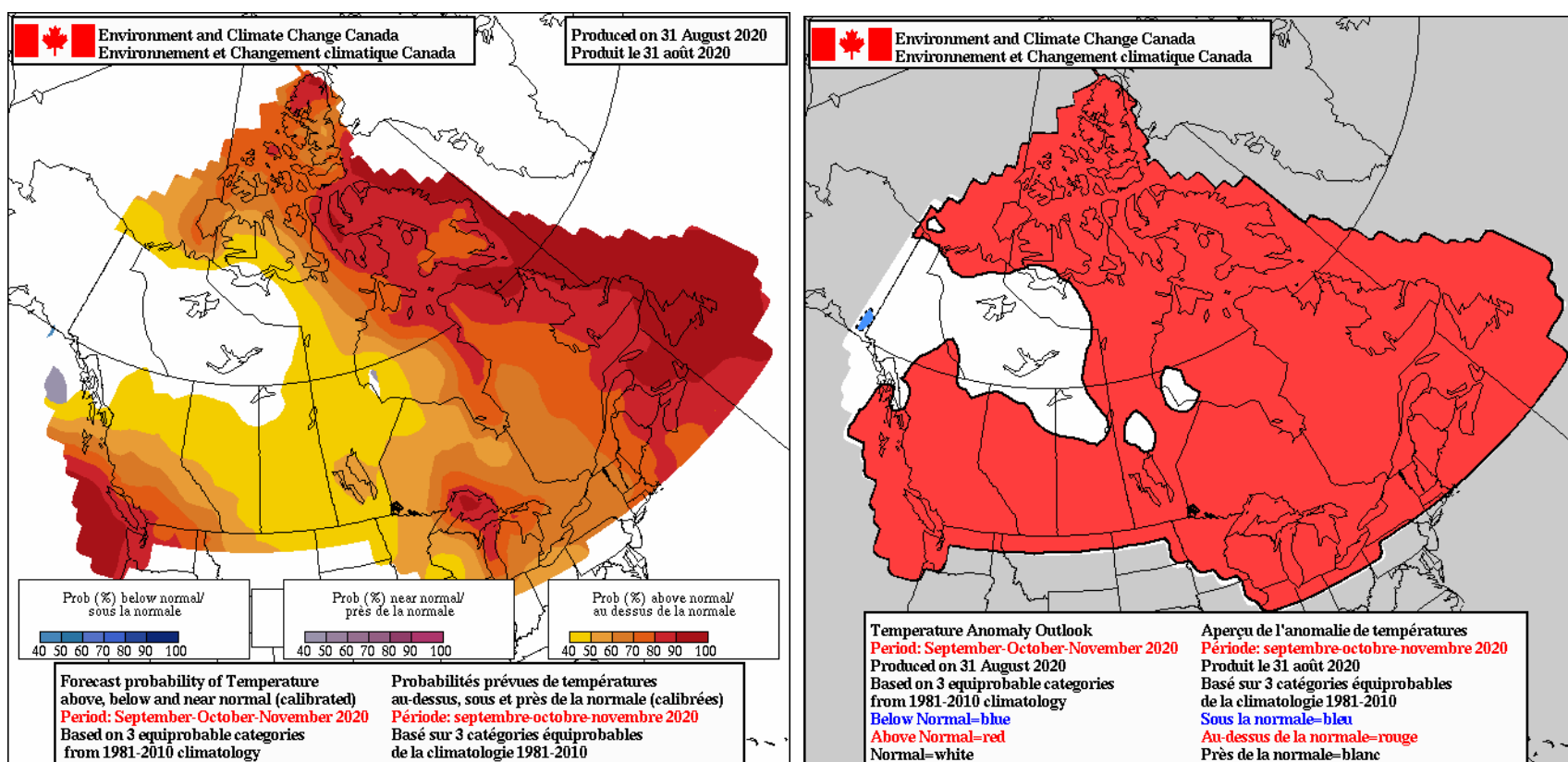


Above: Observed Temperature Anomaly – Issued on September 1, 2020

Fall Season (Period: September-October-November) Temperature / Precipitation Outlook:

The summer temperature outlook for Newfoundland and Labrador emphatically predicts a warmer than normal fall season, with a moderate to high probability.

The precipitation forecast (not shown) has a moderate probability of above normal precipitation across Labrador, as well as the Northern Peninsula. Below normal precipitation is forecast for the eastern Avalon Peninsula, also with moderate probability. The rest of the island shows no signal for precipitation. The seasonal precipitation forecast typically does not perform as well as the seasonal temperature forecast, so the graphics are not included.



Left: Probability of above, below and near normal temperature: Produced August 31, 2020 – Right: Temperature Anomaly Outlook: Produced August 31, 2020

https://weather.gc.ca/saisons/index_e.html

Temperature Outlook: Next 4 Weeks

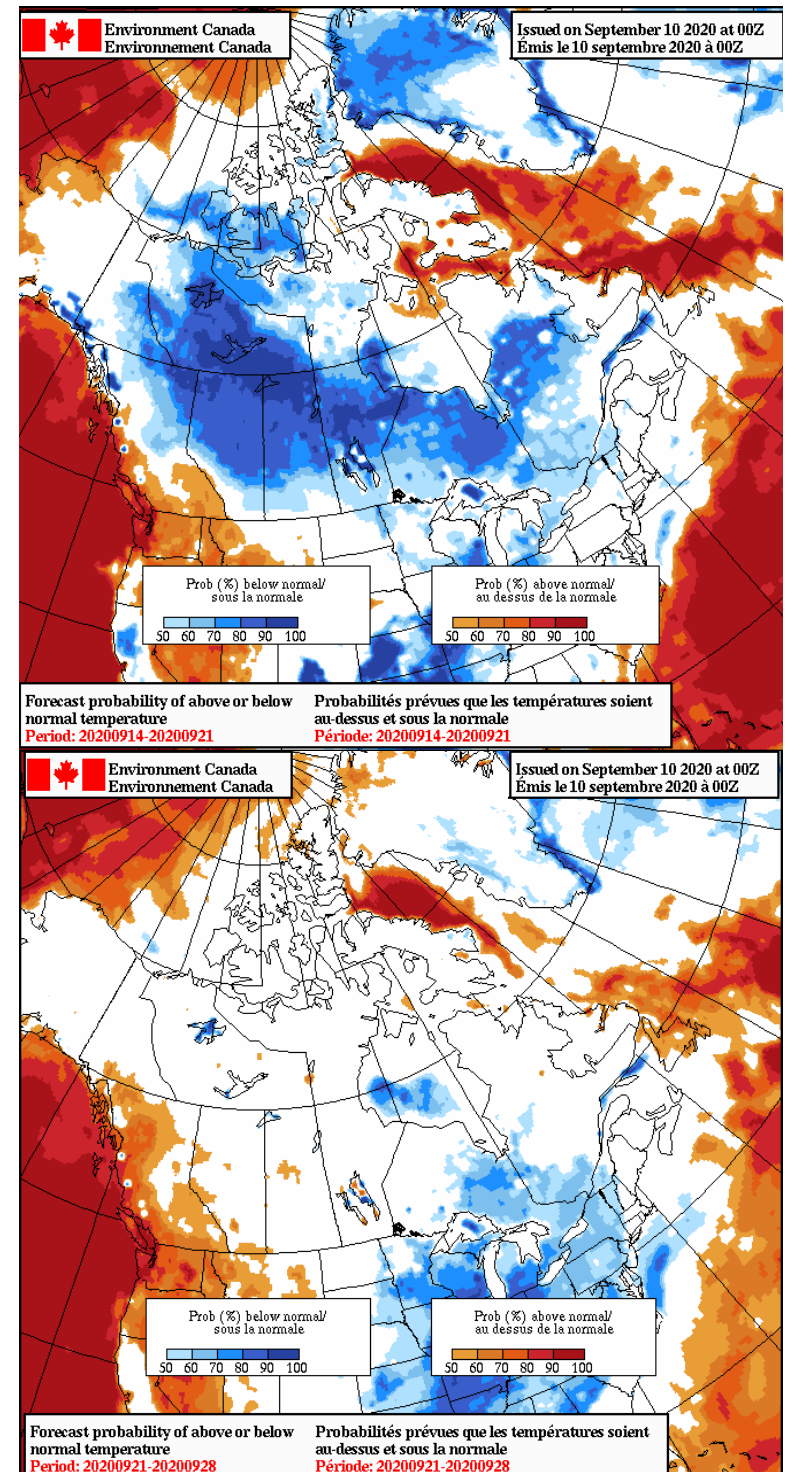
Temperatures across Newfoundland and Labrador were generally above normal for the first two weeks of September. Our Global Ensemble Prediction System did a decent job capturing this result leading up to this period. Below is an outlook for the next 4 weeks of the summer season.

Week 1 (September 14 to 21):

Temperatures for week 1 have a moderate probability of being above normal across the northeast coast of Newfoundland and the Labrador coast. Elsewhere in the province, temperatures are forecast to be near normal, except a moderate probability of below normal in extreme western Labrador.

Week 2 (September 21 to 28):

For the week containing the Autumnal Equinox, a prediction for above normal temperatures continues for most of the island, as well as portions of the Labrador coast. A moderate chance for this outcome exists. For most of Labrador and southwestern Newfoundland, near normal temperatures are predicted.



Right: Forecast probability of above or below normal temperature from the Canadian Global Ensemble Prediction System for week 1 (top) & week 2 (bottom): Produced September 10, 2020

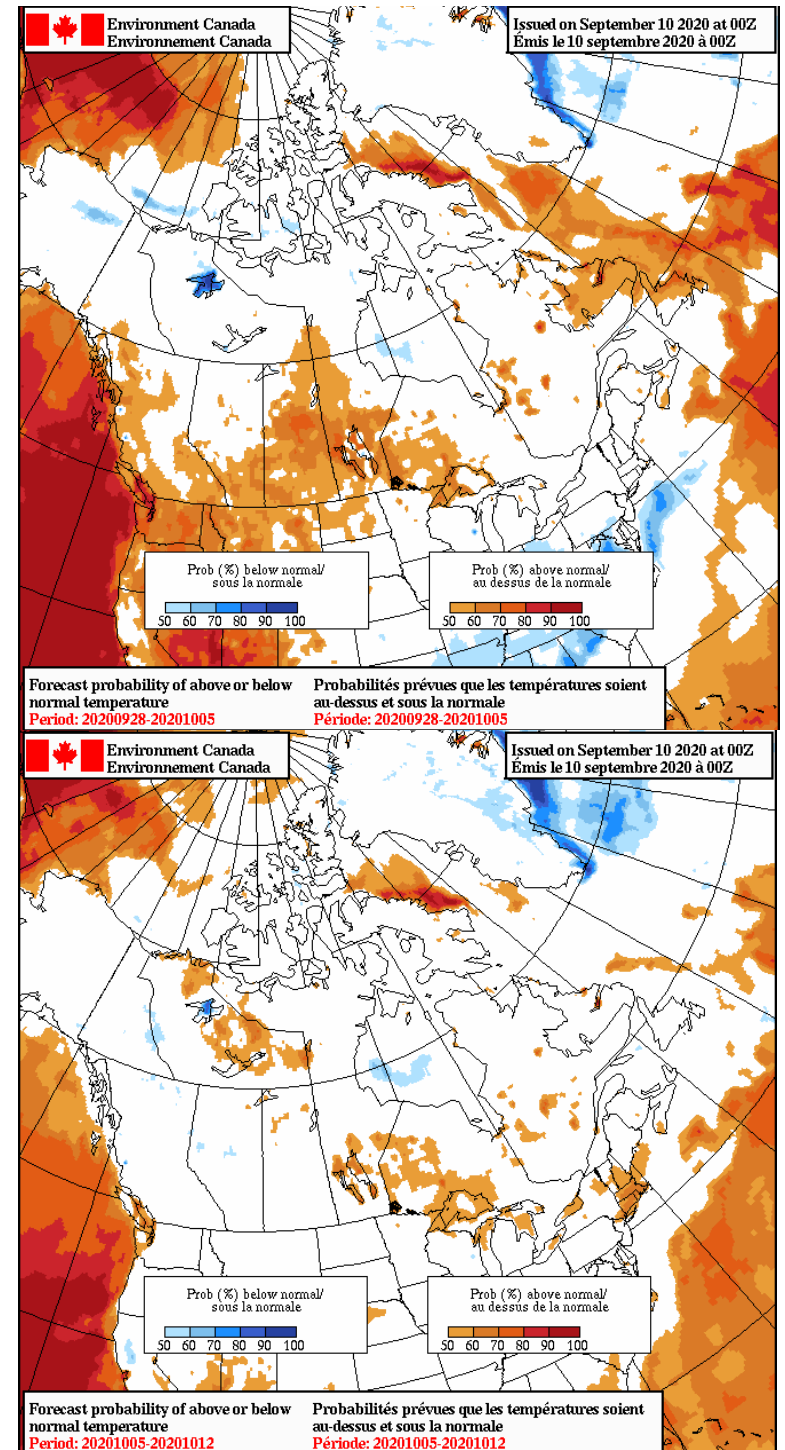
Week 3 (September 28 to October 5):

Labrador is forecast to join the warm spell later in the fall, as temperatures are forecast to be above normal for most of the area, with a moderate probability. Much of Newfoundland also has predictions of above normal temperatures as we move into October. Exceptions to these outlooks are extreme western Labrador and southwestern Newfoundland, where again, near normal temperatures are predicted.

Week 4 (October 5 to 12):

More typical fall temperatures are forecast for the province in week 4 of our outlook. A couple of small pockets showing moderate probability of above normal temperatures are found in the Lake Melville area and along the Labrador mid-coast. Otherwise, the forecast is for near normal temperatures into mid-October.

Right: Forecast probability of above or below normal temperature from the Canadian Global Ensemble Prediction System for week 3 (top) & week 4 (bottom): Produced September 10, 2020



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