

# Rain!

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**Image:** *Rainbow over “Tir Ceòlmhor” – the Singing Land.*

It seems to me that I can’t remember a day in the past month when it hasn’t rained. What is this – global warming, or global wetting?

Back when Ken and I were considering buying property, I spent some time looking a climate models to see what sorts of changes might be coming in the future. Using a program called [ClimateBC](#), I looked at predicted changes in the climate by the year 2025, based on 8 climate

models (for those who really want to know – CanESM2\_RCP26, CanESM2\_RCP45, CanESM2\_RCP85, CNRM-CM5\_RCP26, CNRM-CM5\_RCP45, CNRM-CM5\_RCP85, HadGEM2-ES\_RCP45, HadGEM2-ES\_RCP85), for each of the sites that we were considering. I averaged the values generated by the 8 models and then compared them with the “normal” climate values (averaged data from 1981 to 2010). This generated some interesting results.

For our Port Neville site, the following changes were predicted by 2025:

- mean annual temperature will rise by 1.4°C
- continentality (e.g., extremes in temperature between hot and cold seasons) will **increase** by 1.4°C
- mean annual precipitation will **increase** by 102.1 mm (5% increase; by comparison, Prince Rupert will have an 8% increase in annual precipitation)
- frost-free period will increase by 31.4 days!
- precipitation as snow between August in the previous year and July in the current year will **decrease** by 22.9 mm (31% decrease)

However, the annual averages don't really tell the whole story – you need to see how the heat and rain are distributed over the year to get the full picture of the change.

|           | T <sub>max</sub> (°Celsius) | Precipitation (% change) | Hargreaves climatic moisture deficit (mm) |
|-----------|-----------------------------|--------------------------|---|
| January   | 0.5                         | 4                        | 0   |
| February  | 1.1                         | 12                       | 0   |
| March     | 1.3                         | 1                        | 0   |
| April     | 1.6                         | -12                      | 0   |
| May       | 1.2                         | -3                       | 0.5                                       |
| June      | 2.0                         | -5                       | 5.4                                       |
| July      | 1.8                         | 4                        | 3.8                                       |
| August    | 2.0                         | -14                      | 12.3                                      |
| September | 1.4                         | 16                       | 0   |
| October   | 1.2                         | 19                       | 0   |
| November  | 1.1                         | -1                       | 0   |
| December  | 1.1                         | 15                       | 0   |

What we see here is that while all months will get a bit warmer, the greatest temperature increases occur in June, July, and August. Rainfall, however, has a much more variable pattern. April, May, June, and August will get less rain, whereas September, October, December, and February will get much more rain. The Hargreaves climatic moisture deficit is a measure of how much greater evaporation will be over rainfall. A positive value for the Hargreaves climatic moisture deficit indicates that the soil is drying out – not a good thing if you are trying to grow a garden without

irrigation! June, July, and especially August will be dry – this could result in more forest fires during that time.

How does this relate to what we have been experiencing so far?

- June and early July, 2015 – unprecedented dry spell, with 180 fires across the province
- April 18, 2016 – warm weather records were shattered in Vancouver and 48 other areas of British Columbia due to a high pressure system hovering over the province
- August 16, 2016 – 17 weather stations across the province had record-breaking temperatures for that date, including many coastal stations
- October 31, 2016 – Vancouver and Victoria broke records for the most days of rain in October
- November 8, 2016 – a Pineapple Express brought record-breaking warm weather to Vancouver and high temperatures for November to much of British Columbia

Are we indeed seeing hotter, drier summers and warmer, wetter winters? It certainly seems so.