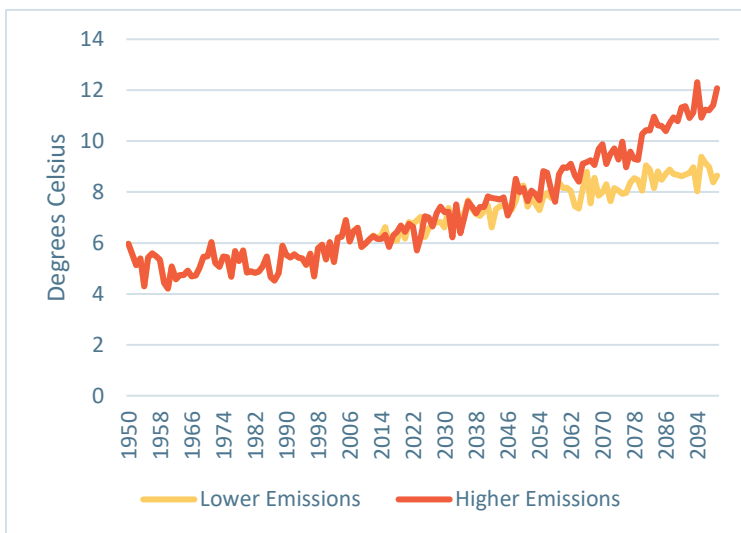


Overview of Climate Change in the Columbia Basin

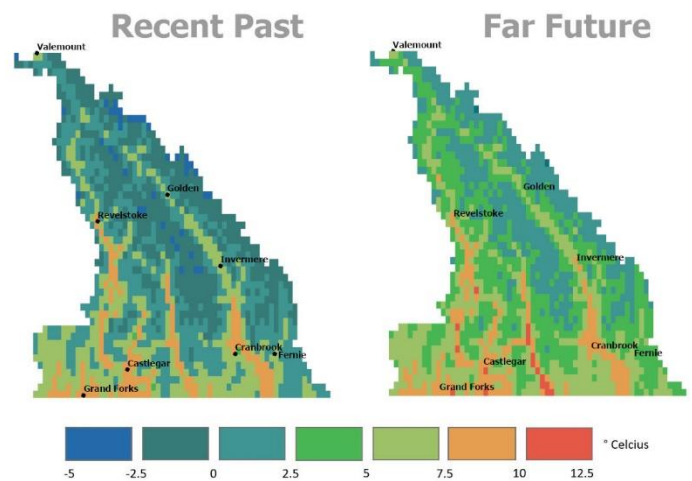
The Canadian Columbia Basin is already experiencing hotter, drier summers, warmer, wetter winters, and more extreme weather, and climate scientists are projecting these trends to continue into the future.^[1] Average annual temperatures in the Basin have increased by 1.6°C over the last century, and the rate of warming has increased to 3.1°C per century over the last 5 decades. Annual average precipitation has increased by about 20% since the early 1900s, though the rates vary by location and season. Looking ahead to the 2050s, current climate models are projecting average annual temperatures to be 2.5°C to 3.5°C warmer in Columbia Basin and Boundary communities compared to the recent past (1960s). Winter and summer precipitation are expected to change by as much as +14% and -22% respectively.

Local Data ^[2]

Variable	Period	Recent Past (1951-1980)	Near Future (2021-2050)		Far Future (2051-2080)		
			Lower Emissions ⁱⁱ	Higher Emissions ⁱⁱⁱ	Lower Emissions	Higher Emissions	
Mean daily temperature (°C)	Annual	5.1	6.9	7.2	8.1	9.0	
	Spring	5.2	7.5	7.7	8.4	9.2	
	Summer	15.9	18.0	18.1	19.0	20.4	
	Fall	5.1	6.9	6.9	7.6	8.7	
	Winter	-6.1	-4.1	-3.8	-3.2	-2.5	
Total precipitation (mm)	Annual	458.7	472.2	484.7	498.7	498.4	
	Spring	98.0	109.8	115.3	117.9	123.5	
	Summer	116.9	114.5	121.9	118.5	105.6	
	Fall	104.1	107.0	109.8	113.7	116.0	
Days with max temp >25C (days)	Annual	48.3	67.5	66.1	74.4	90.4	
	Max 1-day precipitation (mm)	Annual	42.5	52.9	45.5	53.3	46.0
	Growing season length (days)	Annual	191.6	216.4	217.6	224.9	234.8



Modeled mean annual temperature for Cranbrook from 1950 to 2099



Modeled mean annual temperature for Basin-Boundary region; recent past (1951-1980) vs. far future (2051-2080); high carbon future scenario.

Key Climate Impacts and Opportunities for Action

Housing, Buildings and Infrastructure

Wildfires, flooding, extreme storms, and water shortages all represent threats to the safety and well-being of our communities. These threats will become more pronounced with climate change, which will directly endanger our homes and buildings, and challenge our infrastructure's ability to serve community needs.

- Protect your property from wildfire: <https://bit.ly/3R1s8jY>
- Make your home or building more efficient: <https://bit.ly/3R24XG7>
- Be prepared for emergencies: <https://bit.ly/3xG7gYD>

Economies

Changing weather patterns present risks *and* opportunities for Basin-Boundary businesses and the economy. Most vulnerable are enterprises that cannot adapt successfully to new climate and environmental conditions or transition to a low carbon economy. However, businesses and sectors that can capitalize on the new climate or support a transition away from fossil fuels are poised to succeed.

- Make your business more climate-resilient: <https://bit.ly/3S5oMgX>
- Join small businesses in a pledge to reduce emissions: <https://bit.ly/3DGxXAf>
- Adapt to climate change on your farm: <https://bit.ly/3UoHthr>

Nature

As temperature and precipitation patterns shift, ecosystems in the Basin-Boundary region will change too. This includes more natural disturbances such as wildfire and pests, changes to the water cycle and water availability, and the emergence of new plant and animal communities.

- Prevent the spread of invasive species: <https://bit.ly/3Urq4of>
- Learn about nature-based solutions to climate change: <https://bit.ly/3BE5kkF>
- Become a citizen scientist and help monitor ecosystem change: <https://bit.ly/2FnCIAv>

Quality of Life

Climate change presents a risk to our health and lifestyles. Our physical and mental health will be increasingly challenged by rising temperatures, related impacts (e.g., wildfire smoke), and extreme weather events. Vulnerable individuals are at greater risk. Some cultural, recreation, and lifestyle practices may have to be adapted to new environmental conditions.

- Learn more about climate-related health risks: <https://bit.ly/3eY3tzc>
- Examine your food habits and reduce related emissions: <https://bit.ly/2IVIXDY>
- Choose active transportation options whenever possible: <https://bit.ly/3EuXE6B>

And remember, individual climate action is important, but we can't do it alone. One powerful way to support climate action is to advocate for local, provincial, and federal governments to adopt climate-friendly policies and programs.

References

- [1] Columbia Basin Trust, "Climate Action in the Columbia Basin," Castlegar, 2017.
- [2] Selkirk College (Selkirk Innovates), "Community Climate Datasets (Custom)," 2022.

ⁱ Figures are median values from an ensemble of 7 global climate models. Community data is based on calculations for a 10x10km grid around location: 49.512, -115.765.

ⁱⁱ The SSP2-4.5 (lower emissions) scenario assumes global greenhouse gas emissions stabilize at current levels and then begin to drop around mid century

ⁱⁱⁱ The SSP5-8.5 (higher emissions) scenario assumes greenhouse gas emissions roughly double by 2050

Disclaimer: This information has been assembled by qualified researchers, but is provided without warranty as to its accuracy or completeness. Selkirk College, Columbia Basin Trust, or any other organization or individual responsible for generation of this profile will not be liable for any loss or damage arising from reliance on this information. Last Update: Dec 2022

Local Action Stories

Cranbrook Watershed Modeling

Through a partnership with Selkirk College, the City of Cranbrook conducted modeling of the Gold and Joseph Creek watersheds to investigate the potential impact of climate change and wildfire on water availability and flooding.

Moyie Hall Community Readiness

With funding from Columbia Basin Trust, the Moyie Hall purchased equipment and underwent upgrades that would allow it to act as a community hub in the case of a natural disaster or other emergency.

Youth Climate Corps

This Wildsight program exists to connect, inspire and empower Kimberley-Cranbrook young adults to tackle climate change through hands-on projects focused on themes like wildfire risk reduction, energy efficiency, and ecosystem restoration.