Climate Atlas Report

Region: TANQUARY FIORD

RCP 8.5: High Carbon climate future

GHG emissions continue to increase at current rates

Variable	Period	1976-2005	2021-2050			2051-2080		
		Mean	Low	Mean	High	Low	Mean	High
Precipitation (mm)	annual	219	201	262	329	242	319	411
Precipitation (mm)	spring	40	28	48	71	33	56	85
Precipitation (mm)	summer	77	47	90	141	56	102	160
Precipitation (mm)	fall	62	48	77	108	63	98	140
Precipitation (mm)	winter	38	31	47	66	40	63	94
Mean Temperature (°C)	annual	-21.9	-20.4	-18.9	-17.1	-17.8	-15.6	-12.7
Mean Temperature (°C)	spring	-28	-27.4	-25.3	-23	-24.9	-22.5	-19.8
Mean Temperature (°C)	summer	-1.2	-1.2	0.2	1.6	-0.2	1.6	3.7
Mean Temperature (°C)	fall	-22	-20.3	-17.6	-14.4	-16.4	-12.9	-8.6
Mean Temperature (°C)	winter	-36.8	-35.8	-33.2	-30.1	-32.6	-28.7	-23.8
Tropical Nights	annual	0	0	0	0	0	0	0
Very hot days (+30°C)	annual	0	0	0	0	0	0	0
Very cold days (-30°C)	annual	171	121	144	163	62	104	136
Date of Last Spring Frost	annual	June 7	May 17	June 26	July 22	June 10	July 2	July 22
Date of First Fall Frost	annual	July 8	June 27	July 26	Aug. 16	July 21	Aug. 11	Aug. 31
Frost-Free Season (days)	annual	6	5	16	30	11	32	57

RCP 4.5: Low Carbon climate future

GHG emissions much reduced

Variable	Period	1976-2005	2021-2050			2051-2080		
		Mean	Low	Mean	High	Low	Mean	High
Precipitation (mm)	annual	219	193	253	324	208	283	367
Precipitation (mm)	spring	40	28	45	67	29	50	76
Precipitation (mm)	summer	77	47	89	140	49	95	152
Precipitation (mm)	fall	62	46	74	105	53	85	126
Precipitation (mm)	winter	38	30	45	63	33	53	76
Mean Temperature (°C)	annual	-21.9	-20.8	-19.3	-17.5	-19.6	-17.7	-15.5
Mean Temperature (°C)	spring	-28	-27.9	-25.7	-23.4	-26.7	-24.3	-21.8
Mean Temperature (°C)	summer	-1.2	-1.3	0.1	1.6	-0.8	0.6	2.3
Mean Temperature (°C)	fall	-22	-21	-18.1	-15	-19.2	-15.9	-12.4
Mean Temperature (°C)	winter	-36.8	-36.5	-33.7	-30.5	-34.8	-31.5	-27.5
Tropical Nights	annual	0	0	0	0	0	0	0
Very hot days (+30°C)	annual	0	0	0	0	0	0	0
Very cold days (-30°C)	annual	171	127	148	166	98	131	156
Date of Last Spring Frost	annual	June 7	May 16	June 26	July 20	June 1	July 1	July 22
Date of First Fall Frost	annual	July 8	June 28	July 25	Aug. 13	July 7	Aug. 1	Aug. 20
Frost-Free Season (days)	annual	6	4	14	28	6	21	40

Where did this data come from?

Global Climate Models (GCMs) are used to depict how the climate is likely to change in the future. Since no one climate model can be considered 'correct', it is important to use many GCMs to capture a range of possible conditions. The GCM data we used were obtained from the Pacific Climate Impacts Consortium (PCIC). PCIC collected temperature and precipitation data produced by 24 different models and used advanced statistical techniques to create high-resolution (daily, 10km) versions of the data for all of Canada (for more information visit pacificclimate.org).

What are the RCP 8.5 and RCP 4.5 future climate scenarios?

One of the most important inputs into GCM simulations of the future climate is the expected concentration of greenhouse gases (GHGs; especially carbon dioxide) in the atmosphere as a result of human activity. In the scientific literature these future GHG concentrations are used to calculate Representative Concentration Pathways (RCPs). The High Carbon scenario (RCP8.5) assumes that we continue to emit very large amounts of carbon dioxide from the burning of fossil fuels; the Low Carbon scenario (RCP4.5) assumes that drastic reductions of emissions in the coming decades will stabilize the concentration of GHGs in the atmosphere by the end of this century. We did not use RCP2.6, an even lower emissions scenario.

How are the minimum, mean, and maximum calculated?

We used an ensemble of 24 different GCMs to analyze the future climate. The mean values are the average values of this ensemble over the 1976-2005, 2021-2050 and 2051-2080 periods. The range of values in each time period is indicated by the High (90th percentile) and Low (10th percentile) values in the tables. This means about 10% of the predicted values are above the "High" value, and 10% are lower than the "Low" value.

The Climate Atlas of Canada

The Climate Atlas of Canada (climateatlas.ca) is an interactive tool for citizens, researchers, businesses, and community and political leaders to learn about climate change in Canada. It combines climate science, mapping and storytelling to bring the global issue of climate change closer to home, and is designed to inspire local, regional, and national action and solutions.

Source

Prairie Climate Centre (2019). Climate Atlas of Canada, version 2 (July 10, 2019). https://climateatlas.ca

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