

Climate Atlas Report

Region: HILL ISLAND LAKE



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	346	303	378	459	325	401	486
Precipitation (mm)	spring	55	38	61	89	40	66	97
Precipitation (mm)	summer	130	86	138	193	86	140	199
Precipitation (mm)	fall	99	77	110	152	82	119	160
Precipitation (mm)	winter	62	49	69	89	54	77	101
Mean Temperature (°C)	annual	-4.4	-3.6	-2	-0.3	-1.6	0.5	2.5
Mean Temperature (°C)	spring	-5.7	-6.8	-3.5	-0.4	-4.9	-1.6	1.9
Mean Temperature (°C)	summer	13.5	13.6	15.4	17.4	15.1	17.5	20
Mean Temperature (°C)	fall	-2.2	-2	0.3	2.4	0.5	2.7	4.8
Mean Temperature (°C)	winter	-23.7	-24.4	-20.5	-16.8	-21	-17	-13.2
Tropical Nights	annual	0	0	0	1	0	2	8
Very hot days (+30°C)	annual	1	0	2	7	0	7	18
Very cold days (-30°C)	annual	50	17	33	49	4	16	33
Date of Last Spring Frost	annual	May 31	May 10	May 23	June 6	May 3	May 17	May 30
Date of First Fall Frost	annual	Sep. 16	Sep. 12	Sep. 25	Oct. 10	Sep. 20	Oct. 6	Oct. 23
Frost-Free Season (days)	annual	104	101	121	141	118	139	160

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	346	302	372	452	314	390	477	
Precipitation (mm)	spring	55	37	59	85	40	64	92	
Precipitation (mm)	summer	130	87	136	193	89	141	199	
Precipitation (mm)	fall	99	76	109	147	78	113	155	
Precipitation (mm)	winter	62	49	68	88	52	72	94	
Mean Temperature (°C)	annual	-4.4	-3.9	-2.3	-0.6	-2.9	-1.2	0.7	
Mean Temperature (°C)	spring	-5.7	-7	-3.8	-0.6	-5.9	-2.8	0.3	
Mean Temperature (°C)	summer	13.5	13.4	15.1	17	14	16	18.1	
Mean Temperature (°C)	fall	-2.2	-2.4	0	2.1	-1.3	1	3.1	
Mean Temperature (°C)	winter	-23.7	-24.6	-20.9	-17.4	-22.7	-19.1	-15.5	
Tropical Nights	annual	0	0	0	1	0	1	2	
Very hot days (+30°C)	annual	1	0	2	6	0	3	9	
Very cold days (-30°C)	annual	50	18	35	53	11	26	43	
Date of Last Spring Frost	annual	May 31	May 10	May 24	June 7	May 7	May 21	June 5	
Date of First Fall Frost	annual	Sep. 16	Sep. 11	Sep. 24	Oct. 8	Sep. 14	Sep. 28	Oct. 14	
Frost-Free Season (days)	annual	104	100	119	138	104	126	149	

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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