

Climate Atlas Report

Municipality: Victoria



RCP 8.5: High Carbon climate future

GHG emissions continue to increase at current rates

Variable	Period	1976-2005 Mean	2021-2050			2051-2080		
			Low	Mean	High	Low	Mean	High
Precipitation (mm)	annual	932	727	962	1217	740	1013	1300
Precipitation (mm)	spring	159	91	164	251	95	166	253
Precipitation (mm)	summer	68	22	63	117	20	61	119
Precipitation (mm)	fall	284	160	293	444	170	312	469
Precipitation (mm)	winter	421	275	442	622	298	474	683
Mean Temperature (°C)	annual	10.2	10.9	11.9	12.8	12.3	13.6	15
Mean Temperature (°C)	spring	9.4	9.5	11	12.6	10.7	12.4	14.5
Mean Temperature (°C)	summer	15.9	16.6	17.8	19.1	18.1	19.7	21.4
Mean Temperature (°C)	fall	10.6	11	12.1	13.3	12.3	13.8	15.4
Mean Temperature (°C)	winter	5	4.7	6.6	8.1	6.3	8.2	10
Tropical Nights	annual	0	0	0	0	0	1	4
Very hot days (+30°C)	annual	1	0	3	8	1	9	21
Very cold days (-30°C)	annual	0	0	0	0	0	0	0
Date of Last Spring Frost	annual	March 5	N/A	Feb. 3	March 17	N/A	Jan. 15	Feb. 20
Date of First Fall Frost	annual	Nov. 29	Nov. 11	Dec. 12	Dec. 30	Nov. 22	Dec. 21	Dec. 30
Frost-Free Season (days)	annual	265	257	311	359	295	339	364

RCP 4.5: Low Carbon climate future

GHG emissions much reduced

Variable	Period	1976-2005 Mean	2021-2050			2051-2080		
			Low	Mean	High	Low	Mean	High
Precipitation (mm)	annual	933	720	963	1226	737	982	1244
Precipitation (mm)	spring	159	95	161	242	96	166	252
Precipitation (mm)	summer	68	22	62	112	19	59	116
Precipitation (mm)	fall	284	169	300	446	165	301	453
Precipitation (mm)	winter	422	266	442	624	281	455	653
Mean Temperature (°C)	annual	10.2	10.7	11.6	12.5	11.4	12.5	13.6
Mean Temperature (°C)	spring	9.4	9.3	10.7	12.2	10.1	11.6	13.3
Mean Temperature (°C)	summer	15.9	16.4	17.5	18.7	16.9	18.5	20
Mean Temperature (°C)	fall	10.6	10.7	11.8	13	11.4	12.7	13.9
Mean Temperature (°C)	winter	5	4.5	6.3	7.8	5.6	7.3	8.8
Tropical Nights	annual	0	0	0	0	0	0	0
Very hot days (+30°C)	annual	1	0	2	7	0	5	12
Very cold days (-30°C)	annual	0	0	0	0	0	0	0
Date of Last Spring Frost	annual	March 6	N/A	Feb. 6	March 21	N/A	Jan. 24	March 11
Date of First Fall Frost	annual	Nov. 29	Nov. 10	Dec. 10	Dec. 30	Nov. 17	Dec. 16	Dec. 30
Frost-Free Season (days)	annual	265	252	305	354	271	324	364

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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