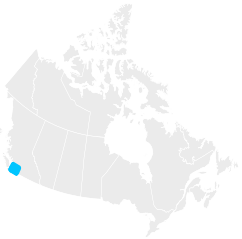
Climate Atlas Report

Region: VANCOUVER



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	1780	1456	1831	2229	1491	1920	2371
Precipitation (mm)	spring	372	242	384	549	251	396	558
Precipitation (mm)	summer	201	86	190	308	75	181	311
Precipitation (mm)	fall	541	342	556	804	363	595	849
Precipitation (mm)	winter	666	464	700	947	502	750	1029
Mean Temperature (°C)	annual	6.9	7.6	8.7	9.9	9.1	10.6	12
Mean Temperature (°C)	spring	5.8	5.8	7.6	9.6	7.2	9.3	11.4
Mean Temperature (°C)	summer	14.4	14.8	16.4	18.1	16.5	18.6	20.7
Mean Temperature (°C)	fall	7.3	7.5	9	10.4	9	10.8	12.6
Mean Temperature (°C)	winter	0	-0.6	1.7	3.6	1.2	3.5	5.6
Tropical Nights	annual	0	0	0	1	0	3	8
Very hot days (+30°C)	annual	3	1	8	16	5	17	33
Very cold days (-30°C)	annual	0	0	0	0	0	0	0
Date of Last Spring Frost	annual	April 25	March 9	March 30	April 18	Feb. 13	March 8	April 3
Date of First Fall Frost	annual	Oct. 21	Oct. 20	Nov. 4	Nov. 18	Oct. 31	Nov. 18	Dec. 4
Frost-Free Season (days)	annual	176	190	216	242	220	252	284

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	1780	1450	1837	2245	1481	1865	2273
Precipitation (mm)	spring	372	245	381	533	253	392	549
Precipitation (mm)	summer	201	86	186	306	76	178	304
Precipitation (mm)	fall	541	349	571	795	345	572	802
Precipitation (mm)	winter	667	450	700	953	476	721	982
Mean Temperature (°C)	annual	6.9	7.4	8.5	9.5	8.2	9.5	10.7
Mean Temperature (°C)	spring	5.8	5.5	7.4	9.2	6.5	8.4	10.3
Mean Temperature (°C)	summer	14.4	14.6	16.1	17.7	15.2	17.2	19.1
Mean Temperature (°C)	fall	7.4	7.3	8.7	10.2	8	9.6	11
Mean Temperature (°C)	winter	0	-0.7	1.4	3.4	0.5	2.5	4.3
Tropical Nights	annual	0	0	0	1	0	1	2
Very hot days (+30°C)	annual	3	1	7	15	2	11	22
Very cold days (-30°C)	annual	0	0	0	0	0	0	0
Date of Last Spring Frost	annual	April 25	March 14	April 2	April 21	Feb. 28	March 21	April 11
Date of First Fall Frost	annual	Oct. 21	Oct. 19	Nov. 2	Nov. 16	Oct. 24	Nov. 9	Nov. 24
Frost-Free Season (days)	annual	176	185	211	236	202	230	258

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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