

Climate Atlas Report

Municipality: Halifax



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	1440	1280	1519	1781	1324	1571	1849
Precipitation (mm)	spring	353	266	379	507	268	394	526
Precipitation (mm)	summer	291	195	306	443	186	310	469
Precipitation (mm)	fall	379	262	390	520	270	399	545
Precipitation (mm)	winter	416	326	445	570	340	468	614
Mean Temperature (°C)	annual	6.8	7.5	8.6	9.9	9.2	10.6	12.1
Mean Temperature (°C)	spring	4.2	4.3	5.9	7.7	5.8	7.7	9.8
Mean Temperature (°C)	summer	16.8	17.2	18.7	20.2	18.9	20.6	22.5
Mean Temperature (°C)	fall	9.4	9.8	11.3	12.8	11.6	13.2	14.8
Mean Temperature (°C)	winter	-3.5	-3.5	-1.5	0.6	-1.6	0.6	2.6
Tropical Nights	annual	0	0	1	5	1	10	27
Very hot days (+30°C)	annual	1	0	3	9	2	12	28
Very cold days (-30°C)	annual	0	0	0	0	0	0	0
Date of Last Spring Frost	annual	May 2	April 6	April 21	May 7	March 24	April 9	April 27
Date of First Fall Frost	annual	Oct. 22	Oct. 18	Nov. 4	Nov. 24	Oct. 27	Nov. 16	Dec. 5
Frost-Free Season (days)	annual	170	170	194	220	191	217	243

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	1441	1259	1513	1768	1291	1545	1831
Precipitation (mm)	spring	354	267	372	489	266	382	505
Precipitation (mm)	summer	292	187	306	441	191	308	444
Precipitation (mm)	fall	380	265	392	532	278	406	551
Precipitation (mm)	winter	416	325	442	574	334	449	574
Mean Temperature (°C)	annual	6.8	7.4	8.5	9.7	8.1	9.4	10.9
Mean Temperature (°C)	spring	4.3	4.2	5.8	7.6	4.8	6.6	8.7
Mean Temperature (°C)	summer	16.8	17	18.5	20	17.6	19.4	21.2
Mean Temperature (°C)	fall	9.4	9.7	11.1	12.5	10.3	11.9	13.6
Mean Temperature (°C)	winter	-3.5	-3.7	-1.6	0.5	-2.7	-0.7	1.5
Tropical Nights	annual	0	0	1	4	0	3	10
Very hot days (+30°C)	annual	1	0	3	9	0	6	14
Very cold days (-30°C)	annual	0	0	0	0	0	0	0
Date of Last Spring Frost	annual	May 2	April 5	April 22	May 8	March 30	April 17	May 4
Date of First Fall Frost	annual	Oct. 22	Oct. 16	Nov. 2	Nov. 20	Oct. 20	Nov. 8	Nov. 27
Frost-Free Season (days)	annual	170	166	191	218	175	202	231

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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