Climate Atlas Report
Region: LAC MINTO

RCP 8.5: High Carbon climate future
GHG emissions continue to increase at current rates

Variable	Period	1976-2005 Mean	2021-2050 Low	2021-2050 Mean	2021-2050 High	2051-2080 Low	2051-2080 Mean	2051-2080 High
Precipitation (mm)	annual	513	491	573	663	538	635	741
Precipitation (mm)	spring	76	60	83	110	64	93	126
Precipitation (mm)	summer	169	127	180	232	133	188	250
Precipitation (mm)	fall	182	159	204	252	170	223	277
Precipitation (mm)	winter	87	78	106	139	96	131	173
Mean Temperature (°C)	annual	-5.7	-4.6	-3	-1.1	-2.3	-0.2	2.2
Mean Temperature (°C)	spring	-9.7	-9.9	-7.3	-4.1	-8.1	-4.8	-0.5
Mean Temperature (°C)	summer	8.7	9	10.7	12.6	10.5	12.7	15.1
Mean Temperature (°C)	fall	-0.6	0.3	1.7	3.1	2.2	3.8	5.6
Mean Temperature (°C)	winter	-21.6	-20.6	-17.2	-13.6	-16.3	-12.6	-8.9
Tropical Nights	annual	0	0	0	0	0	0	0
Very hot days (+30°C)	annual	0	0	0	0	0	1	2
Very cold days (-30°C)	annual	37	2	13	28	0	3	9
Date of Last Spring Frost	annual	June 18	May 24	June 8	June 20	May 7	May 28	June 13
Date of First Fall Frost	annual	Sep. 21	Sep. 19	Oct. 3	Oct. 18	Sep. 29	Oct. 15	Oct. 31
Frost-Free Season (days)	annual	91	92	113	135	109	136	164

RCP 4.5: Low Carbon climate future
GHG emissions much reduced

Variable	Period	1976-2005 Mean	2021-2050 Low	2021-2050 Mean	2021-2050 High	2051-2080 Low	2051-2080 Mean	2051-2080 High
Precipitation (mm)	annual	513	480	564	655	508	593	690
Precipitation (mm)	spring	76	60	84	111	63	87	116
Precipitation (mm)	summer	168	127	177	231	125	180	237
Precipitation (mm)	fall	182	152	199	248	164	211	263
Precipitation (mm)	winter	87	75	104	137	85	115	154
Mean Temperature (°C)	annual	-5.7	-5.1	-3.5	-1.6	-3.9	-2	0.1
Mean Temperature (°C)	spring	-9.7	-10.5	-7.8	-4.8	-9.3	-6.4	-2.8
Mean Temperature (°C)	summer	8.7	8.6	10.3	12.3	9.2	11.3	13.4
Mean Temperature (°C)	fall	-0.6	-0.1	1.3	2.8	0.7	2.3	4
Mean Temperature (°C)	winter	-21.6	-21.3	-17.9	-14.3	-19	-15.5	-11.6
Tropical Nights	annual	0	0	0	0	0	0	0
Very hot days (+30°C)	annual	0	0	0	0	0	0	1
Very cold days (-30°C)	annual	37	3	17	32	0	8	20
Date of Last Spring Frost	annual	June 18	May 26	June 10	June 22	May 17	June 4	June 18
Date of First Fall Frost	annual	Sep. 21	Sep. 17	Sep. 29	Oct. 14	Sep. 21	Oct. 5	Oct. 22
Frost-Free Season (days)	annual	91	88	108	130	97	119	146

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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