Climate Atlas Report
Region: SCHEFFERVILLE

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	777	727	861	999	773	916	1061
Precipitation (mm)	spring	144	109	159	216	117	174	238
Precipitation (mm)	summer	261	208	279	355	213	285	369
Precipitation (mm)	fall	228	189	255	328	194	270	346
Precipitation (mm)	winter	144	116	166	225	131	186	252
Mean Temperature (°C)	annual	-4.1	-3.3	-1.8	-0.2	-1.2	0.6	2.5
Mean Temperature (°C)	spring	-6.4	-7	-4.4	-1.6	-5.4	-2.4	0.8
Mean Temperature (°C)	summer	11.3	11.5	13.2	15	13.2	15.2	17.3
Mean Temperature (°C)	fall	-1	-0.4	1.2	2.8	1.5	3.2	5.1
Mean Temperature (°C)	winter	-20.7	-20.6	-17.5	-14.2	-17.2	-14	-10.9
Tropical Nights	annual	0	0	0	0	0	1	2
Very hot days (+30°C)	annual	0	0	1	3	0	3	8
Very cold days (-30°C)	annual	35	6	17	30	0	5	14
Date of Last Spring Frost	annual	June 10	May 17	June 2	June 14	May 7	May 24	June 9
Date of First Fall Frost	annual	Sep. 15	Sep. 11	Sep. 23	Oct. 6	Sep. 19	Oct. 3	Oct. 18
Frost-Free Season (days)	annual	94	93	110	132	105	129	154

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	778	719	845	977	759	876	1007
Precipitation (mm)	spring	144	111	160	212	114	165	225
Precipitation (mm)	summer	261	207	277	352	211	280	353
Precipitation (mm)	fall	228	185	247	316	196	259	332
Precipitation (mm)	winter	144	111	162	219	119	171	231
Mean Temperature (°C)	annual	-4.1	-3.6	-2.2	-0.6	-2.6	-1	0.8
Mean Temperature (°C)	spring	-6.4	-7.3	-4.7	-2	-6.4	-3.6	-0.4
Mean Temperature (°C)	summer	11.3	11.4	13	14.8	12	13.8	15.6
Mean Temperature (°C)	fall	-0.9	-0.8	0.8	2.4	0.1	1.8	3.6
Mean Temperature (°C)	winter	-20.7	-21.2	-17.9	-14.7	-19.4	-16.2	-12.7
Tropical Nights	annual	0	0	0	0	0	0	1
Very hot days (+30°C)	annual	0	0	1	2	0	1	4
Very cold days (-30°C)	annual	35	7	20	35	2	12	24
Date of Last Spring Frost	annual	June 10	May 18	June 3	June 15	May 13	May 30	June 13
Date of First Fall Frost	annual	Sep. 15	Sep. 9	Sep. 21	Oct. 3	Sep. 14	Sep. 26	Oct. 10
Frost-Free Season (days)	annual	94	90	107	128	96	116	139

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

THE UNIVERSITY OF WINNIPEG

Climate Atlas of Canada

Prairie Climate Centre
From Risk to Resilience