

Climate Atlas Report

Municipality: Saskatoon



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	351	265	377	500	270	392	525
Precipitation (mm)	spring	78	41	88	146	48	99	162
Precipitation (mm)	summer	158	87	162	257	80	160	254
Precipitation (mm)	fall	65	33	73	123	34	75	132
Precipitation (mm)	winter	50	32	54	79	34	58	86
Mean Temperature (°C)	annual	2.7	3.2	4.9	6.6	5.1	7.2	9.3
Mean Temperature (°C)	spring	3.1	2.1	5.2	8.4	3.9	7.2	10.6
Mean Temperature (°C)	summer	17.6	17.8	19.7	21.6	19.5	22	24.3
Mean Temperature (°C)	fall	3.9	3.5	5.9	8.1	5.9	8.2	10.5
Mean Temperature (°C)	winter	-14.3	-15.8	-11.7	-7.7	-13	-8.8	-4.7
Tropical Nights	annual	0	0	2	6	1	9	23
Very hot days (+30°C)	annual	14	10	28	47	21	47	72
Very cold days (-30°C)	annual	14	0	6	16	0	2	7
Date of Last Spring Frost	annual	May 12	April 17	May 4	May 19	April 6	April 28	May 14
Date of First Fall Frost	annual	Sep. 23	Sep. 17	Oct. 2	Oct. 18	Sep. 21	Oct. 10	Oct. 29
Frost-Free Season (days)	annual	130	125	147	171	134	162	192

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	352	269	378	512	265	378	505		
Precipitation (mm)	spring	78	45	91	151	44	91	152		
Precipitation (mm)	summer	158	82	159	250	81	157	251		
Precipitation (mm)	fall	65	34	73	130	33	74	128		
Precipitation (mm)	winter	50	33	54	79	32	56	82		
Mean Temperature (°C)	annual	2.7	2.9	4.6	6.4	3.9	5.8	7.7		
Mean Temperature (°C)	spring	3.1	1.9	5	8.2	2.9	6.1	9.3		
Mean Temperature (°C)	summer	17.7	17.5	19.4	21.2	18.4	20.5	22.6		
Mean Temperature (°C)	fall	3.8	3.2	5.7	7.9	4.2	6.7	9		
Mean Temperature (°C)	winter	-14.3	-15.9	-12	-8.2	-14.3	-10.4	-6.6		
Tropical Nights	annual	0	0	2	5	0	3	9		
Very hot days (+30°C)	annual	14	9	25	44	13	34	56		
Very cold days (-30°C)	annual	14	1	8	18	0	4	12		
Date of Last Spring Frost	annual	May 12	April 19	May 6	May 21	April 12	May 2	May 18		
Date of First Fall Frost	annual	Sep. 23	Sep. 14	Sep. 30	Oct. 17	Sep. 16	Oct. 4	Oct. 23		
Frost-Free Season (days)	annual	130	121	143	167	125	151	181		

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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