

Climate Atlas Report

Municipality: Minnedosa



RCP 8.5: High Carbon climate future

GHG emissions continue to increase at current rates

Variable	Period	1976-2005 Mean	2021-2050			2051-2080		
			Low	Mean	High	Low	Mean	High
Precipitation (mm)	annual	480	376	511	656	375	513	665
Precipitation (mm)	spring	107	60	119	187	67	126	199
Precipitation (mm)	summer	208	121	211	313	110	201	308
Precipitation (mm)	fall	100	52	109	178	55	108	173
Precipitation (mm)	winter	66	43	73	109	46	79	118
Mean Temperature (°C)	annual	1.4	2	3.7	5.5	4	6.2	8.3
Mean Temperature (°C)	spring	1.3	0.2	3.5	6.7	2.4	5.6	9
Mean Temperature (°C)	summer	16.7	17	18.9	20.8	18.7	21.2	23.5
Mean Temperature (°C)	fall	3	3	5.2	7.3	5.3	7.5	9.8
Mean Temperature (°C)	winter	-15.8	-16.9	-13	-9.3	-14	-10	-5.9
Tropical Nights	annual	0	0	1	5	0	8	20
Very hot days (+30°C)	annual	7	5	19	36	14	38	62
Very cold days (-30°C)	annual	18	1	8	19	0	3	8
Date of Last Spring Frost	annual	May 21	April 27	May 13	May 30	April 13	May 4	May 21
Date of First Fall Frost	annual	Sep. 18	Sep. 9	Sep. 28	Oct. 18	Sep. 20	Oct. 9	Oct. 28
Frost-Free Season (days)	annual	116	109	135	160	127	154	184

RCP 4.5: Low Carbon climate future

GHG emissions much reduced

Variable	Period	1976-2005 Mean	2021-2050			2051-2080		
			Low	Mean	High	Low	Mean	High
Precipitation (mm)	annual	481	378	508	651	369	506	653
Precipitation (mm)	spring	107	60	118	189	62	119	185
Precipitation (mm)	summer	208	124	209	308	116	204	308
Precipitation (mm)	fall	100	54	107	174	53	108	172
Precipitation (mm)	winter	66	44	74	111	44	76	113
Mean Temperature (°C)	annual	1.4	1.8	3.5	5.3	2.8	4.7	6.7
Mean Temperature (°C)	spring	1.3	0.3	3.4	6.6	1.5	4.5	7.7
Mean Temperature (°C)	summer	16.7	16.7	18.5	20.3	17.5	19.6	21.7
Mean Temperature (°C)	fall	3	2.8	5	7.1	3.6	6	8.2
Mean Temperature (°C)	winter	-15.8	-17.1	-13.2	-9.7	-15.5	-11.6	-7.8
Tropical Nights	annual	0	0	1	4	0	3	8
Very hot days (+30°C)	annual	7	5	17	33	8	25	45
Very cold days (-30°C)	annual	18	1	9	21	0	5	14
Date of Last Spring Frost	annual	May 21	April 30	May 15	June 2	April 23	May 11	May 28
Date of First Fall Frost	annual	Sep. 18	Sep. 8	Sep. 26	Oct. 14	Sep. 12	Sep. 30	Oct. 19
Frost-Free Season (days)	annual	116	105	131	155	111	139	168

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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