

Climate Atlas Report

Municipality: Oshawa



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	830	718	884	1061	742	910	1094		
Precipitation (mm)	spring	210	154	231	317	166	244	331		
Precipitation (mm)	summer	210	132	213	302	125	209	308		
Precipitation (mm)	fall	226	153	236	325	151	237	333		
Precipitation (mm)	winter	185	137	204	280	148	219	297		
Mean Temperature (°C)	annual	7.4	8.2	9.5	10.9	10.2	11.7	13.4		
Mean Temperature (°C)	spring	6	5.6	7.9	10.2	7.6	9.8	12.4		
Mean Temperature (°C)	summer	19.3	20	21.4	22.9	21.8	23.6	25.5		
Mean Temperature (°C)	fall	9.3	9.9	11.5	13.1	11.7	13.5	15.1		
Mean Temperature (°C)	winter	-5.1	-5.4	-2.7	0.1	-3.1	-0.3	2.5		
Tropical Nights	annual	3	4	12	23	15	32	52		
Very hot days (+30°C)	annual	7	8	23	40	25	49	74		
Very cold days (-30°C)	annual	0	0	0	0	0	0	0		
Date of Last Spring Frost	annual	April 29	April 2	April 19	May 7	March 20	April 10	April 30		
Date of First Fall Frost	annual	Oct. 14	Oct. 8	Oct. 27	Nov. 16	Oct. 18	Nov. 7	Dec. 1		
Frost-Free Season (days)	annual	165	161	187	216	178	209	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	831	713	871	1031	713	897	1085	
Precipitation (mm)	spring	210	152	224	305	156	231	314	
Precipitation (mm)	summer	211	132	213	305	128	214	316	
Precipitation (mm)	fall	226	150	233	324	154	244	344	
Precipitation (mm)	winter	184	134	201	275	141	208	280	
Mean Temperature (°C)	annual	7.4	8.1	9.4	10.7	8.8	10.3	11.9	
Mean Temperature (°C)	spring	6	5.7	7.8	9.9	6.5	8.7	11.1	
Mean Temperature (°C)	summer	19.3	19.7	21.1	22.4	20.3	22.1	24	
Mean Temperature (°C)	fall	9.3	9.6	11.2	12.8	10.3	12	13.8	
Mean Temperature (°C)	winter	-5.1	-5.6	-2.9	-0.3	-4.5	-1.7	1.1	
Tropical Nights	annual	3	3	10	20	5	17	34	
Very hot days (+30°C)	annual	7	6	21	38	10	32	54	
Very cold days (-30°C)	annual	0	0	0	0	0	0	0	
Date of Last Spring Frost	annual	April 29	April 3	April 20	May 7	March 28	April 17	May 8	
Date of First Fall Frost	annual	Oct. 14	Oct. 6	Oct. 25	Nov. 15	Oct. 11	Oct. 29	Nov. 21	
Frost-Free Season (days)	annual	166	161	186	214	163	192	225	

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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