

Climate Atlas Report

Region: OTTAWA



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	967	872	1031	1203	898	1068	1255	
Precipitation (mm)	spring	222	167	244	326	181	260	343	
Precipitation (mm)	summer	261	179	267	361	173	262	355	
Precipitation (mm)	fall	263	192	274	362	192	281	384	
Precipitation (mm)	winter	221	173	245	325	191	264	349	
Mean Temperature (°C)	annual	5.7	6.5	7.8	9.2	8.6	10.1	11.9	
Mean Temperature (°C)	spring	4.9	4.5	6.9	9.5	6.4	8.9	11.9	
Mean Temperature (°C)	summer	18.9	19.5	20.9	22.4	21.3	23.2	25.2	
Mean Temperature (°C)	fall	7.8	8.3	10	11.7	10.2	12	13.8	
Mean Temperature (°C)	winter	-9.2	-9.6	-6.7	-3.7	-6.9	-4	-1.2	
Tropical Nights	annual	3	4	11	20	14	27	45	
Very hot days (+30°C)	annual	10	11	25	41	27	50	74	
Very cold days (-30°C)	annual	3	0	1	3	0	0	1	
Date of Last Spring Frost	annual	May 6	April 8	April 26	May 11	March 26	April 16	May 4	
Date of First Fall Frost	annual	Oct. 2	Sep. 30	Oct. 15	Oct. 29	Oct. 10	Oct. 25	Nov. 13	
Frost-Free Season (days)	annual	146	146	169	196	163	189	220	

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	967	855	1019	1195	873	1050	1238	
Precipitation (mm)	spring	222	165	237	318	172	247	330	
Precipitation (mm)	summer	261	186	268	366	180	269	370	
Precipitation (mm)	fall	263	187	273	368	197	284	385	
Precipitation (mm)	winter	220	170	241	319	181	250	324	
Mean Temperature (°C)	annual	5.7	6.3	7.6	9	7.1	8.6	10.3	
Mean Temperature (°C)	spring	4.9	4.4	6.8	9.2	5.3	7.7	10.5	
Mean Temperature (°C)	summer	18.9	19.2	20.6	22	19.8	21.7	23.5	
Mean Temperature (°C)	fall	7.8	8	9.7	11.3	8.8	10.5	12.3	
Mean Temperature (°C)	winter	-9.2	-9.7	-6.9	-4	-8.6	-5.6	-2.6	
Tropical Nights	annual	3	3	9	17	5	15	29	
Very hot days (+30°C)	annual	10	9	23	38	14	33	53	
Very cold days (-30°C)	annual	3	0	1	3	0	0	2	
Date of Last Spring Frost	annual	May 7	April 10	April 27	May 12	April 2	April 23	May 11	
Date of First Fall Frost	annual	Oct. 2	Sep. 27	Oct. 12	Oct. 25	Oct. 1	Oct. 17	Nov. 2	
Frost-Free Season (days)	annual	146	142	165	189	147	173	205	

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>

Disclaimer

The information disseminated by the Prairie Climate Centre -- including but not restricted to maps, tables, statistics and interpretations -- is provided as a public service. It is provided without any warranty or representation, express or implied, as to its accuracy or completeness. Any reliance you place upon the information contained here is your sole responsibility and strictly at your own risk. In no event will the Prairie Climate Centre be liable for any loss or damage whatsoever, including without limitation, indirect or consequential loss or damage, arising from reliance upon the data or derived information.