Climate Atlas Report

Municipality: London

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	938	810	995	1200	827	1022	1224
Precipitation (mm)	spring	232	177	256	348	185	270	366
Precipitation (mm)	summer	227	133	227	331	131	227	344
Precipitation (mm)	fall	254	169	263	371	164	262	376
Precipitation (mm)	winter	226	175	248	330	180	264	351
Mean Temperature (°C)	annual	8	8.8	10.1	11.4	10.7	12.2	13.7
Mean Temperature (°C)	spring	6.7	6.1	8.5	10.8	8.1	10.4	12.7
Mean Temperature (°C)	summer	19.8	20.5	21.9	23.4	22.2	24.1	25.9
Mean Temperature (°C)	fall	9.9	10.3	12.1	13.7	12.1	14	15.8
Mean Temperature (°C)	winter	-4.5	-4.8	-2.1	0.6	-2.6	0.2	2.9
Tropical Nights	annual	5	7	17	31	20	37	58
Very hot days (+30°C)	annual	12	15	33	52	34	61	86
Very cold days (-30°C)	annual	0	0	0	0	0	0	0
Date of Last Spring Frost	annual	May 2	April 1	April 20	May 9	March 19	April 10	April 30
Date of First Fall Frost	annual	Oct. 17	Oct. 12	Nov. 1	Nov. 22	Oct. 21	Nov. 13	Dec. 7
Frost-Free Season (days)	annual	165	162	191	222	181	214	245

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	939	798	982	1169	813	1008	1227
Precipitation (mm)	spring	233	167	249	345	174	257	351
Precipitation (mm)	summer	227	141	230	333	130	229	337
Precipitation (mm)	fall	254	164	258	364	174	269	377
Precipitation (mm)	winter	226	169	245	327	175	252	335
Mean Temperature (°C)	annual	8	8.6	9.9	11.3	9.4	10.9	12.5
Mean Temperature (°C)	spring	6.7	6.1	8.4	10.6	7	9.3	11.7
Mean Temperature (°C)	summer	19.8	20	21.6	23.1	20.8	22.6	24.5
Mean Temperature (°C)	fall	9.9	10.1	11.9	13.6	10.9	12.6	14.5
Mean Temperature (°C)	winter	-4.5	-5	-2.3	0.3	-3.9	-1.1	1.6
Tropical Nights	annual	5	5	15	27	8	23	41
Very hot days (+30°C)	annual	12	12	30	51	18	43	68
Very cold days (-30°C)	annual	0	0	0	0	0	0	0
Date of Last Spring Frost	annual	May 2	April 2	April 21	May 11	March 29	April 18	May 9
Date of First Fall Frost	annual	Oct. 17	Oct. 7	Oct. 28	Nov. 19	Oct. 12	Nov. 2	Nov. 24
Frost-Free Season (days)	annual	165	157	187	216	164	196	227

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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