

APPENDIX

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**CLIMATE ATLAS REPORT – REGION
OF KOUCHIBOUGUAC**

Climate Atlas Report

Region (1:50K): KOUCHIBOUGUAC

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	1065	958	1136	1321	1003	1189	1390
Precipitation (mm)	spring	265	201	284	374	212	304	400
Precipitation (mm)	summer	247	183	262	348	173	268	374
Precipitation (mm)	fall	278	196	287	391	198	294	398
Precipitation (mm)	winter	275	215	303	391	228	322	427
Mean Temperature (°C)	annual	5.2	6.1	7.3	8.6	8.1	9.5	11.1
Mean Temperature (°C)	spring	3.2	3.2	5.1	7.1	4.9	7.1	9.4
Mean Temperature (°C)	summer	17.8	18.2	19.8	21.3	20.1	22	23.9
Mean Temperature (°C)	fall	7.5	8	9.5	11.1	9.8	11.5	13.2
Mean Temperature (°C)	winter	-8	-7.9	-5.4	-3	-5.3	-2.9	-0.6
Tropical Nights	annual	1	1	5	11	5	17	33
Very Hot Days (+30°C)	annual	8	8	19	32	20	39	60
Very Cold Days (-30°C)	annual	1	0	0	0	0	0	0
Date of Last Spring Frost	annual	May 11	April 17	May 2	May 15	April 5	April 22	May 7
Date of First Fall Frost	annual	Oct. 3	Oct. 1	Oct. 17	Oct. 31	Oct. 14	Oct. 28	Nov. 14
Frost-Free Season (days)	annual	142	143	165	189	163	186	212

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	1065	943	1137	1341	972	1161	1372
Precipitation (mm)	spring	265	202	283	373	203	291	385
Precipitation (mm)	summer	247	177	260	359	184	265	363
Precipitation (mm)	fall	279	190	291	400	195	298	405
Precipitation (mm)	winter	275	211	302	401	219	306	397
Mean Temperature (°C)	annual	5.2	5.9	7.1	8.4	6.7	8.1	9.5
Mean Temperature (°C)	spring	3.2	3	5	6.9	3.8	5.9	8.1
Mean Temperature (°C)	summer	17.8	17.9	19.6	21.2	18.6	20.6	22.3
Mean Temperature (°C)	fall	7.5	7.8	9.2	10.7	8.5	10.1	11.8
Mean Temperature (°C)	winter	-8	-8.2	-5.6	-3.2	-6.9	-4.5	-2
Tropical Nights	annual	1	0	4	10	1	8	18
Very Hot Days (+30°C)	annual	8	7	18	31	11	26	42
Very Cold Days (-30°C)	annual	1	0	0	0	0	0	0
Date of Last Spring Frost	annual	May 11	April 17	May 4	May 17	April 11	April 29	May 14
Date of First Fall Frost	annual	Oct. 3	Sep. 28	Oct. 14	Oct. 28	Oct. 3	Oct. 19	Nov. 3
Frost-Free Season (days)	annual	141	138	161	185	146	170	197

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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