

Climate Atlas Report

Municipality: Prince Rupert



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	2556	2196	2702	3196	2338	2840	3324	
Precipitation (mm)	spring	519	345	544	767	355	567	804	
Precipitation (mm)	summer	376	221	370	542	198	353	530	
Precipitation (mm)	fall	905	695	986	1274	772	1059	1354	
Precipitation (mm)	winter	757	545	802	1078	571	862	1155	
Mean Temperature (°C)	annual	7.2	7.7	9	10.3	8.8	10.6	12.2	
Mean Temperature (°C)	spring	6.1	6	7.9	9.7	7.1	9.4	11.5	
Mean Temperature (°C)	summer	12.9	13.3	14.7	16.1	14.6	16.4	18.3	
Mean Temperature (°C)	fall	8	8.1	9.5	10.9	9.6	11.2	12.8	
Mean Temperature (°C)	winter	1.9	1	3.6	5.9	2.6	5.3	7.7	
Tropical Nights	annual	0	0	0	0	0	0	0	
Very hot days (+30°C)	annual	0	0	0	1	0	1	2	
Very cold days (-30°C)	annual	0	0	0	0	0	0	0	
Date of Last Spring Frost	annual	April 9	Jan. 26	March 10	April 13	Jan. 7	Feb. 20	April 1	
Date of First Fall Frost	annual	Nov. 8	Oct. 28	Nov. 23	Dec. 22	Nov. 6	Dec. 5	Dec. 29	
Frost-Free Season (days)	annual	209	209	255	307	234	286	344	

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	2558	2211	2669	3171	2309	2782	3304	
Precipitation (mm)	spring	519	356	541	748	355	567	786	
Precipitation (mm)	summer	375	214	362	525	204	363	532	
Precipitation (mm)	fall	906	703	974	1259	730	1015	1317	
Precipitation (mm)	winter	757	542	791	1084	573	835	1103	
Mean Temperature (°C)	annual	7.3	7.4	8.7	10	8.3	9.6	11	
Mean Temperature (°C)	spring	6.1	5.7	7.6	9.5	6.6	8.6	10.3	
Mean Temperature (°C)	summer	12.9	13.2	14.4	15.9	13.8	15.3	17	
Mean Temperature (°C)	fall	8	7.8	9.3	10.6	8.7	10.2	11.5	
Mean Temperature (°C)	winter	1.9	0.8	3.3	5.5	2	4.4	6.5	
Tropical Nights	annual	0	0	0	0	0	0	0	
Very hot days (+30°C)	annual	0	0	0	1	0	0	1	
Very cold days (-30°C)	annual	0	0	0	0	0	0	0	
Date of Last Spring Frost	annual	April 8	Jan. 30	March 14	April 16	Jan. 14	March 2	April 7	
Date of First Fall Frost	annual	Nov. 8	Oct. 27	Nov. 22	Dec. 21	Oct. 31	Nov. 28	Dec. 27	
Frost-Free Season (days)	annual	210	203	249	301	220	268	324	

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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