

Climate Atlas Report

Municipality: Port Alberni



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	1946	1558	2019	2503	1616	2127	2665
Precipitation (mm)	spring	383	224	395	599	226	400	602
Precipitation (mm)	summer	126	46	117	207	40	112	214
Precipitation (mm)	fall	593	371	614	884	389	659	944
Precipitation (mm)	winter	844	564	891	1228	625	957	1333
Mean Temperature (°C)	annual	9.6	10.1	11.2	12.3	11.4	12.8	14.3
Mean Temperature (°C)	spring	8.6	8.4	10.2	12	9.6	11.6	13.7
Mean Temperature (°C)	summer	16.8	17.1	18.6	20.3	18.7	20.5	22.5
Mean Temperature (°C)	fall	9.9	10	11.4	12.9	11.4	13.1	14.9
Mean Temperature (°C)	winter	2.8	2.4	4.4	6.1	4	6	7.9
Tropical Nights	annual	0	0	0	0	0	1	4
Very hot days (+30°C)	annual	10	6	18	34	12	31	51
Very cold days (-30°C)	annual	0	0	0	0	0	0	0
Date of Last Spring Frost	annual	April 14	Jan. 26	March 15	April 19	Jan. 2	Feb. 14	April 3
Date of First Fall Frost	annual	Nov. 2	Oct. 20	Nov. 21	Dec. 25	Nov. 1	Dec. 7	Dec. 30
Frost-Free Season (days)	annual	199	197	248	304	231	294	355

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	1947	1546	2021	2509	1589	2068	2591
Precipitation (mm)	spring	383	224	390	592	235	400	599
Precipitation (mm)	summer	126	48	115	202	39	111	201
Precipitation (mm)	fall	592	372	627	890	373	636	912
Precipitation (mm)	winter	846	564	891	1234	589	919	1264
Mean Temperature (°C)	annual	9.6	9.9	10.9	12.1	10.6	11.9	13.1
Mean Temperature (°C)	spring	8.6	8.1	10	11.7	9	10.8	12.7
Mean Temperature (°C)	summer	16.8	16.9	18.4	19.9	17.5	19.4	21.2
Mean Temperature (°C)	fall	9.9	9.8	11.2	12.6	10.5	12	13.4
Mean Temperature (°C)	winter	2.8	2.3	4.1	5.8	3.4	5.1	6.7
Tropical Nights	annual	0	0	0	0	0	0	0
Very hot days (+30°C)	annual	10	5	17	31	8	23	40
Very cold days (-30°C)	annual	0	0	0	0	0	0	0
Date of Last Spring Frost	annual	April 13	Feb. 5	March 20	April 23	Jan. 5	March 1	April 11
Date of First Fall Frost	annual	Nov. 2	Oct. 18	Nov. 18	Dec. 21	Oct. 24	Nov. 27	Dec. 29
Frost-Free Season (days)	annual	199	192	240	292	211	268	332

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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