

# Climate Atlas Report

## Municipality: Canso



### 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 | 1383      | 1244    | 1451     | 1679      | 1275     | 1504      | 1743     |  |
| Precipitation (mm)        | spring | 330       | 253     | 355      | 469       | 252      | 369       | 490      |  |
| Precipitation (mm)        | summer | 291       | 205     | 302      | 420       | 192      | 308       | 447      |  |
| Precipitation (mm)        | fall   | 383       | 271     | 389      | 523       | 277      | 401       | 538      |  |
| Precipitation (mm)        | winter | 380       | 305     | 405      | 512       | 320      | 426       | 546      |  |
| Mean Temperature (°C)     | annual | 6.3       | 7       | 8.1      | 9.4       | 8.5      | 10        | 11.7     |  |
| Mean Temperature (°C)     | spring | 2.8       | 3       | 4.5      | 6.2       | 4.5      | 6.3       | 8.5      |  |
| Mean Temperature (°C)     | summer | 15.1      | 15.6    | 16.9     | 18.4      | 17.1     | 18.9      | 20.9     |  |
| Mean Temperature (°C)     | fall   | 9.8       | 10.2    | 11.6     | 13.1      | 11.9     | 13.5      | 15.2     |  |
| Mean Temperature (°C)     | winter | -2.8      | -2.8    | -0.9     | 1.2       | -1       | 1.2       | 3.4      |  |
| Tropical Nights           | annual | 0         | 0       | 1        | 5         | 1        | 11        | 30       |  |
| Very hot days (+30°C)     | annual | 0         | 0       | 0        | 0         | 0        | 1         | 3        |  |
| Very cold days (-30°C)    | annual | 0         | 0       | 0        | 0         | 0        | 0         | 0        |  |
| Date of Last Spring Frost | annual | May 2     | April 3 | April 20 | May 6     | March 17 | April 6   | April 24 |  |
| Date of First Fall Frost  | annual | Nov. 7    | Oct. 29 | Nov. 18  | Dec. 6    | Nov. 8   | Nov. 28   | Dec. 17  |  |
| Frost-Free Season (days)  | annual | 186       | 183     | 209      | 234       | 206      | 233       | 261      |  |

### 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 | 1384      | 1206    | 1443      | 1676   | 1246      | 1475     | 1732    |
| Precipitation (mm)        | spring | 330       | 253     | 348       | 454    | 253       | 356      | 465     |
| Precipitation (mm)        | summer | 291       | 199     | 302       | 423    | 196       | 306      | 435     |
| Precipitation (mm)        | fall   | 383       | 264     | 391       | 528    | 277       | 404      | 537     |
| Precipitation (mm)        | winter | 379       | 306     | 401       | 506    | 307       | 409      | 512     |
| Mean Temperature (°C)     | annual | 6.3       | 6.8     | 7.9       | 9.2    | 7.5       | 8.8      | 10.4    |
| Mean Temperature (°C)     | spring | 2.8       | 2.8     | 4.4       | 6      | 3.5       | 5.2      | 7.4     |
| Mean Temperature (°C)     | summer | 15.1      | 15.3    | 16.8      | 18.4   | 15.9      | 17.6     | 19.6    |
| Mean Temperature (°C)     | fall   | 9.8       | 10.1    | 11.4      | 12.8   | 10.7      | 12.3     | 13.9    |
| Mean Temperature (°C)     | winter | -2.8      | -2.9    | -0.9      | 1.1    | -2        | 0        | 2.1     |
| Tropical Nights           | annual | 0         | 0       | 1         | 4      | 0         | 3        | 13      |
| Very hot days (+30°C)     | annual | 0         | 0       | 0         | 0      | 0         | 0        | 1       |
| 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 7  | March 25  | April 14 | May 3   |
| Date of First Fall Frost  | annual | Nov. 7    | Oct. 28 | Nov. 17   | Dec. 4 | Nov. 4    | Nov. 23  | Dec. 11 |
| Frost-Free Season (days)  | annual | 185       | 182     | 208       | 234    | 192       | 220      | 248     |

## 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](http://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](http://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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