

The climate atlas shows predicted climate change based on two climate scenarios. These can be seen as “more” or “less” climate change in a sliding bar at the the bottom map. “More” Climate change means that it is showing a **High Carbon** scenario, or a “business as usual” scenario. The “Less” climate change option will change the map to show what Canada will look like under reduced carbon emissions.

To start the activity, go to <https://climateatlas.ca/map/canada/> and find **Toronto, ON**. Use the icon (top left of the map) to change settings from displaying “change from recent past” to “average value.” If using a smartphone device, press the up arrow at the bottom of the screen to see the icons/slide bars).

- Find the climate variables needed to fill out the table along the icons at the bottom on the map. Once the variable is found, record values under a “more climate change” scenario for:
 - Recent Past (1976-2005)**
 - Immediate Future (2021-2050)**
 - Near Future (2051-2080)**
 - Change between the recent past and near future** (under the high carbon scenario). This value is given to you on the map but can also be calculated by subtracting the Recent Past value from the Near Future value for each climate variable.

Climate Type	Climate Variable	HIGH Carbon Scenario			Change from recent past to near future?
		Recent past	Immediate future	Near Future	
Hot weather	Very hot days (30°C +)	11.9 days	30.1 days	55.3 days	43.4 days
Cold weather	Winter days	11.5 days	4.2 days	1 day	-10.5 days
Temperature	Mean annual temperature	8.5°C	10.6°C	12.8°C	4.3°C
Precipitation	Annual Precipitation	793 mm	845 mm	870 mm	77 mm (or 10%)
Agriculture	Frost-free season	188.2 days	209.3 days	232.3 days	44.2 days

- What areas in Canada are the most impacted by these climate variables? Set the timeline to the Near Future (2051-2080), Use the icon (top left of the map) to change settings from displaying “average value” to “change from recent past.” What regions of Canada are experiencing:
 - More “Very Hot” days: prairies and southern Ontario
 - Less Winter days: arctic, northern Quebec
 - Higher Mean Annual Temperature: all of Canada, more severe in arctic
 - Higher Annual Precipitation: arctic/northern Canada
 - Longer Frost-free season: BC, arctic, southern Ontario, southern Quebec

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To start the activity, go to <https://climateatlas.ca/map/canada/> and find **Edmonton, AB**. Use the icon (top left of the map) to change settings from displaying “change from recent past” to “average value.” If using a smartphone device, press the up arrow at the bottom of the screen to see the icons/slide bars).

1. Find the climate variables needed to fill out the table along the icons at the bottom on the map. Once the variable is found, record values under a “more climate change” scenario for:
 - a) **Recent Past (1976-2005)**
 - b) **Immediate Future (2021-2050)**
 - c) **Near Future (2051-2080)**
 - d) **Change between the recent past and near future** (under the high carbon scenario). This value is given to you on the map but can also be calculated by subtracting the Recent Past value from the Near Future value for each climate variable.

Climate Type	Climate Variable	HIGH Carbon Scenario			Change from recent past to near future?
		Recent past	Immediate future	Near Future	
Hot weather	Very hot days (30°C +)	3.8 days	11.4 days	26.3 days	22.5 days
Cold weather	Winter days	56.4 days	41.5 days	28.2 days	-28.2 days
Temperature	Mean annual temperature	3.3°C	5.4°C	7.5°C	4.2°C
Precipitation	Annual Precipitation	451 mm	477 mm	502 mm	51 mm (or 11%)
Agriculture	Frost-free season	131 days	151.2 days	169.8 days	38.8 days

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 - More “Very Hot” days: prairies and southern Ontario
 - Less Winter days: arctic, northern Quebec
 - Higher Mean Annual Temperature: all of Canada, more severe in arctic
 - Higher Annual Precipitation: arctic/northern Canada Longer
 - Frost-free season: BC, arctic, southern Ontario, southern Quebec

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To start the activity, go to <https://climateatlas.ca/map/canada/> and find **Yellowknife, NWT**. Use the icon (top left of the map) to change settings from displaying “change from recent past” to “average value.” If using a smartphone device, press the up arrow at the bottom of the screen to see the icons/slide bars).

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Climate Type	Climate Variable	HIGH Carbon Scenario			Change from recent past to near future?
		Recent past	Immediate future	Near Future	
Hot weather	Very hot days (30°C +)	0.3 days	1.8 days	7 days	6.7 days
Cold weather	Winter days	138.1 days	118.6 days	97.7 days	-40.4 days
Temperature	Mean annual temperature	-4.7°C	-2.2°C	0.4°C	5.1°C
Precipitation	Annual Precipitation	291 mm	325 mm	344 mm	53 mm (or 18%)
Agriculture	Frost-free season	111.2 days	127.1 days	144.2 days	33 days

- What areas in Canada are the most impacted by these climate variables?
Set the timeline to the Near Future (2051-2080), Use the icon (top left of the map) to change settings from displaying “average value” to “change from recent past.” What regions of Canada are experiencing:

More “Very Hot” days: prairies and southern Ontario

Less Winter days: arctic, northern Quebec

Higher Mean Annual Temperature: all of Canada, more severe in arctic

Higher Annual Precipitation: arctic/northern Canada

Longer Frost-free season: BC, arctic, southern Ontario, southern Quebec

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To start the activity, go to <https://climateatlas.ca/map/canada/> and find **your assigned location**. Use the icon (top left of the map) to change settings from displaying “change from recent past” to “average value.” If using a smartphone device, press the up arrow at the bottom of the screen to see the icons/slide bars).

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Hot weather	Very hot days (30°C +)				
Cold weather	Winter days				
Temperature	Mean annual temperature				
Precipitation	Annual Precipitation				
Agriculture	Frost-free season				

These answers to the table will be up to the educator to find on the map (see demo video)

1. What areas in Canada are the most impacted by these climate variables?

Set the timeline to the Near Future (2051-2080), Use the icon (top left of the map) to change settings from displaying “average value” to “change from recent past.” What regions of Canada are experiencing:

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