# SNC 2D- Climatograph assignment for the years 2040-2049 of Durham Region

Use the climate data for the years 2040-2049 provided to you on the back of this page for each of the communities that make up the Region of Durham.

Remember to label all the axis: the months are along the X-axis, precipitation in (mm) is along the Y1-axis, and temperature (°C) is along the Y2-axis. Be sure you create a legend somewhere on the page indicating the precipitation is a blue bar, and the temperature is a red line. Your scales should be the same for all 8 climate graphs (in order to properly analyze and compare the graphs).
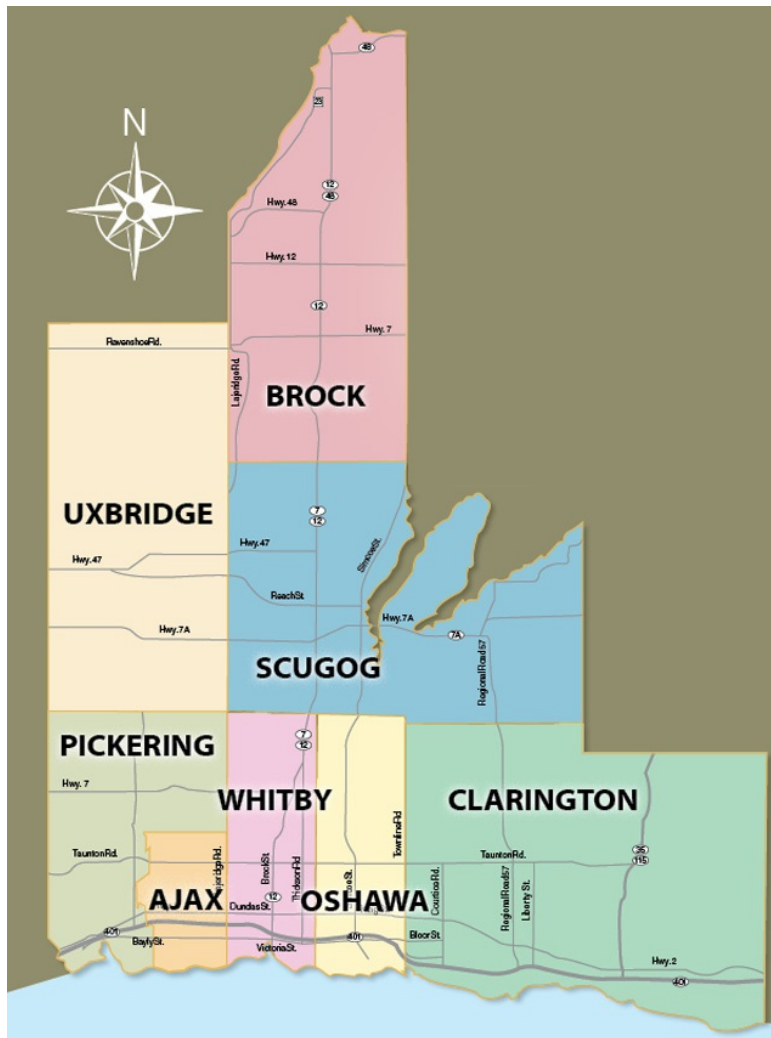
Introduction

A climate graph of an area is a tool that climate scientists (climatologists) can use to study both temperature and precipitation data over a period of time. Graphing this information makes it easier to look for patterns or trends and then to plan accordingly on how the climate will be.

Purpose

The purpose of this activity if for you to look at the predicted climate (both temperature and precipitation) for all the communities in the Durham Region for the years 2040-2049 and then to graph this information on the provided map. Some analysis will be done once you have completed the graphing portion.

How to make a climatograph

On each graph paper on the map a title for the community is given for you as well as labeling the months (by initial). Be sure you include an X-axis label. Your task is to graph the average precipitation up the Y1-axis (be sure to include an axis label and units), and graph the average temperature up the Y2-axis (be sure to an axis label include units). It is advisable that you take a look at the data first before you begin as you need to ensure you use the same scale and tick interval for all the Y1 axis, as well as the same scale and tick interval for the Y2 axis. This ensures consistency and that you are able to properly compare them. A typical climatograph uses blue for the precipitation and is graphed using bars, and uses red for the temperature and is a line. Somewhere on the page you should make a legend to show this.

Analysis questions

1. Which community (based on your climate graphs) will seem to receive the greatest amount of precipitation and the least amount of precipitation?

2. How does being a drier region or wetter region affect things like agricultural activities in that area?

3. How does being a drier region or wetter region affect local ecosystems (marshes and wetlands and stream discharge) that feed other major water tributaries? And consequently species from those aquatic ecosystems? Think about what you may already know from your ecology unit.

4. Which community will have the greatest temperature range (from its maximum to its minimum) and which has the least amount of change? (Hint: subtract your minimum temperature from the maximum temperature to determine the range in °C.) Will this more moderated climate be a considered a good thing or a bad thing (what is your opinion)? Support this answer with examples.

5. Are the communities that are more coastal to Lake Ontario similar to each other (with respect to temperature and precipitation patterns)? Are the communities that are more northern part of the region similar to each other? How might Lake Ontario have a moderating effect on climate?

6. Why does it make more sense to graph a period of years (e.g. 2040-2049) on your climatograph instead of just a single year at a time? Think about why graphing averages makes more sense than to graph a single year.

Reflection

1. Based on your completed assignment, what are you surprised about? What stands out to you the most? What do you think about for the future of your particular community?

Data for use in climate graph assignment for the years 2040-2049 of Durham Region

This data is from the Durham Region Future Climate Study (SENES Report):

https://www.durham.ca/community/climate_change/reports/SENESSUMMARY.pdf

Uxbridge

Precipitation (mm) and Temperature (°C) 2040-2049

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	total / avg
(mm)	72	73	73	76	74	117	154	150	88	56	106	76	1115
(°C)	-0.3	0.8	3.8	9.1	16	21.1	23.6	23.7	19.3	13.5	6.8	1.3	11.6

Brock

Precipitation (mm) and Temperature (°C) 2040-2049

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	total / avg
(mm)	62	63	56	66	84	109	108	117	84	61	80	65	955
(°C)	0	0.9	4	9.2	15.7	20.4	23.2	23.5	19.4	13.6	7.2	1.7	11.6

Scugog

Precipitation (mm) and Temperature (°C) 2040-2049

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	total / avg
(mm)	62	68	68	73	78	125	160	150	98	49	102	71	1104
(°C)	-0.2	1	4	9.2	16	21	23.6	23.6	19.3	13.5	6.9	1.4	11.6

Clarington

Precipitation (mm) and Temperature (°C) 2040-2049

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	total / avg
(mm)	58	65	57	66	68	139	150	103	91	39	81	59	977
(°C)	1.3	2.2	4.8	9.4	15.2	19.4	22.5	23.1	19.9	14.4	8.2	2.8	11.9

Pickering

Precipitation (mm) and Temperature (°C) 2040-2049

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	total / avg
(mm)	56	58	56	61	73	113	168	118	90	36	79	51	*960*
(°C)	1.3	2.4	5	9.5	15.3	19.5	22.6	23.4	20.2	14.6	8.3	2.8	*12.1*

Ajax

Precipitation (mm) and Temperature (°C) 2040-2049

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	total / avg
(mm)	54	58	55	62	76	119	167	105	94	37	77	51	*954*
(°C)	1.6	2.4	4.8	8.8	14.1	18	21.4	22.6	19.9	14.6	8.5	3.2	*11.7*

Whitby

Precipitation (mm) and Temperature (°C) 2040-2049

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	total / avg
(mm)	61	63	57	64	76	119	170	113	99	42	82	58	*1004*
(°C)	1.1	2.1	4.9	9.6	15.7	20.2	23.1	23.6	20.1	14.4	8	2.6	*12.1*

Oshawa

Precipitation (mm) and Temperature (°C) 2040-2049

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	total / avg
(mm)	64	65	59	69	77	121	172	109	100	43	86	61	*1023*
(°C)	1.1	2.1	4.8	9.4	15.5	19.7	22.7	23.3	20	14.4	8.1	2.7	*12*

UXBRIDGE

J F M A M J J A S O N D

WHITBY

J F M A M J J A S O N D

AJAX

J F M A M J J A S O N D

PICKERING

J F M A M J J A S O N D

7

BROCK

SCUGOG

J F M A M J J A S O N D   J F M A M J J A S O N D

8

OSHAWA

J F M A M J J A S O N D

CLARINGTON

J F M A M J J A S O N D

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