

---

# GDD in Canada

**Sara Ayubian<sup>1</sup>, Ghasem Alaei Khangha<sup>1</sup>, Faramarz Dorani<sup>1</sup>, Stanley Uche Godfrey<sup>1</sup>, Oluwatosin Adelegan<sup>1</sup>, Sharon QSY<sup>1</sup>, Lianboli<sup>1</sup>**

**Memorial University of Newfoundland**

**Instructor: Dr. James Munroe**

**Computer Based Research Tools and Application**

---

Spring 2016

**T**he Goal of this study is the calculation of GDD (Growing Degree Days in Canada) specifically in three cities such as St. John's, Toronto and Calgary for two years. Each step can be found in <http://github.com/sa7818/GDD> as a public repository. Results demonstrate that GDD is an useful method for many application

## 1 Introduction

Heat Unit, can be described by GDD (Growing Degree Days) and it used to express the timing of biological processes. There exists a basic equation in order to calculate the GDD for specific plant and animal which is as follow:

$$GDD = \frac{T_{max} + T_{min}}{2} - T_{base} \quad (1)$$

Where  $T_{max}$  and  $T_{min}$  are daily maximum and minimum air temperature respectively, and  $T_{base}$  is the base temperature.

## 2 Steps

- Automation for downloading temperature data
- Extracting required columns from data files
- Calculating GDD (via command line program)
- Storing calculations in DB or files

- Creating plot showing an annual cycle of min/max daily temperatures.
- Producing reports based on the generated plots.
- Presentation

## 3 Results

## 4 Conclusion

The present study works on three cities in Canada in order to calculate growing degree days for each city and plot them using Python programming. Data have been collected from government page which are available for any years, months, days and hours.

## References

- [1] Assortative pairing and life history strategy - a cross-cultural study. *Human Nature*, 20:317–330.